Middle Scriber Creek and Scriber Lake Catchment Stormwater Management Action Plan

City of Lynnwood

Prepared for
City of Lynnwood

Prepared by
Herrera Environmental Consultants, Inc.

Note:
Some pages in this document have been purposely skipped or blank pages inserted so that this document will print correctly when duplexed.

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City of Lynnwood

Prepared for
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Lynnwood, Washington 98036

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March 28, 2023

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Purpose

The City of Lynnwood (City) Middle Scriber Creek and Scriber Lake Catchment Stormwater Management Action Plan (SMAP) has been prepared to meet the requirements of S5.C.1.d.iii of the 2019–2024 Western Washington Phase II National Pollutant Discharge Elimination System Stormwater Permit (NPDES Phase II Permit) issued by the Washington State Department of Ecology (Ecology), which requires identification of the following:

- A description of the stormwater facility retrofits needed for the area, including the best management practice (BMP) types and preferred locations.
- Land management/development strategies and/or actions identified for water quality management.
- Targeted, enhanced, or customized implementation of stormwater management actions related to NPDES Phase II Permit sections within S5, including:
  - Illicit discharge detection and elimination (IDDE) field screening
  - Prioritization of Source Control inspections
  - Operations and Maintenance (O&M) inspections or enhanced maintenance
  - Public Education and Outreach behavior change programs
- If applicable, identification of changes needed to local long-range plans, to address SMAP priorities.
- A proposed implementation schedule and budget sources for:
  - Short-term actions (i.e., actions to be accomplished within 6 years)
  - Long-term actions (i.e., actions to be accomplished within 7 to 20 years)
- A process and schedule to provide future assessment and feedback to improve the planning process and implementation of procedures or projects

This SMAP addresses the NPDES Phase II Permit requirements for the Middle Scriber Creek and Scriber Lake Catchment located in the Scriber Creek watershed.

Background

The City completed the *City of Lynnwood Watershed Inventory and Assessment* technical memorandum on March 21, 2022 (Herrera 2022a) and the *City of Lynnwood – Watershed Prioritization* technical memorandum on June 22, 2022 (Herrera 2022b). This SMAP is developed based on the findings of the watershed inventory, assessment, and prioritization process and will be incorporated within the City's stormwater planning process through the development of programmatic and capital improvement programs. Additionally, much of the watershed data and analysis conducted to prepare this SMAP will serve to better understand stormwater pressures upon water resources in all City watersheds.

Watershed Prioritization Summary

As documented in the *City of Lynnwood – Watershed Prioritization* technical memorandum (Herrera 2022b), a five-step prioritization process was used to select one watershed and catchment for development of the SMAP. Below is a summary of results from each step.

Step 1: Develop a list of candidate watersheds

The City includes portions of the following 10 watersheds (Figure 1): Hall Creek-Lake Ballinger, Golde Creek, Lund's Gulch Creek, Meadowdale Pond, Perrinville Creek, Poplar Creek, Stilthouse-Terrace Creeks, Swamp Creek, Scriber Creek, and Tunnel Creek.

Step 2: Evaluate candidate watersheds

This step involved excluding watersheds that have very little or no City stormwater influence and watersheds that are significantly smaller than the 400 acres. Four watersheds were excluded from the evaluation: Meadowdale Pond, Poplar Creek, Puget Sound Basin, and Swamp Creek. The remaining six candidate watersheds were evaluated in accordance with the prioritization scoring process.

Step 3: Evaluate restoration watersheds

Two watersheds—Hall Creek-Lake Ballinger and Scriber Creek—were identified to be good candidates for stormwater restoration actions.

Step 4: Select highest priority watershed

The Scriber Creek watershed was selected as the highest priority based on the following characteristics:

- High Water Use Importance rating
- Moderate Level of Development and Future Growth rating
- Poor water and habitat conditions
- High jurisdiction control
- Supports other plans and projects
- Support from the Public
- Supports City overburdened communities

Step 5: Select catchment for SMAP implementation plan development

The Scriber Creek watershed was delineated into four catchments (Figure 2). The Middle Scriber Creek and Scriber Lake Catchment (Catchment) was selected for the SMAP. The Catchment is 454 acres and was selected based on the following characteristics:

- Future capital projects in planning and design that are water quality or flow control focused
- Significant commercial lands and roadways that can be the focus of non-structural stormwater actions
- Potential to consider floodplain reconnection projects
- Significant park lands and Scriber Lake, which are valuable to the community

The Middle Scriber Creek and Scriber Lake Catchment is depicted in Figure 2.

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Figure 1.
City of Lynnwood Watersheds.

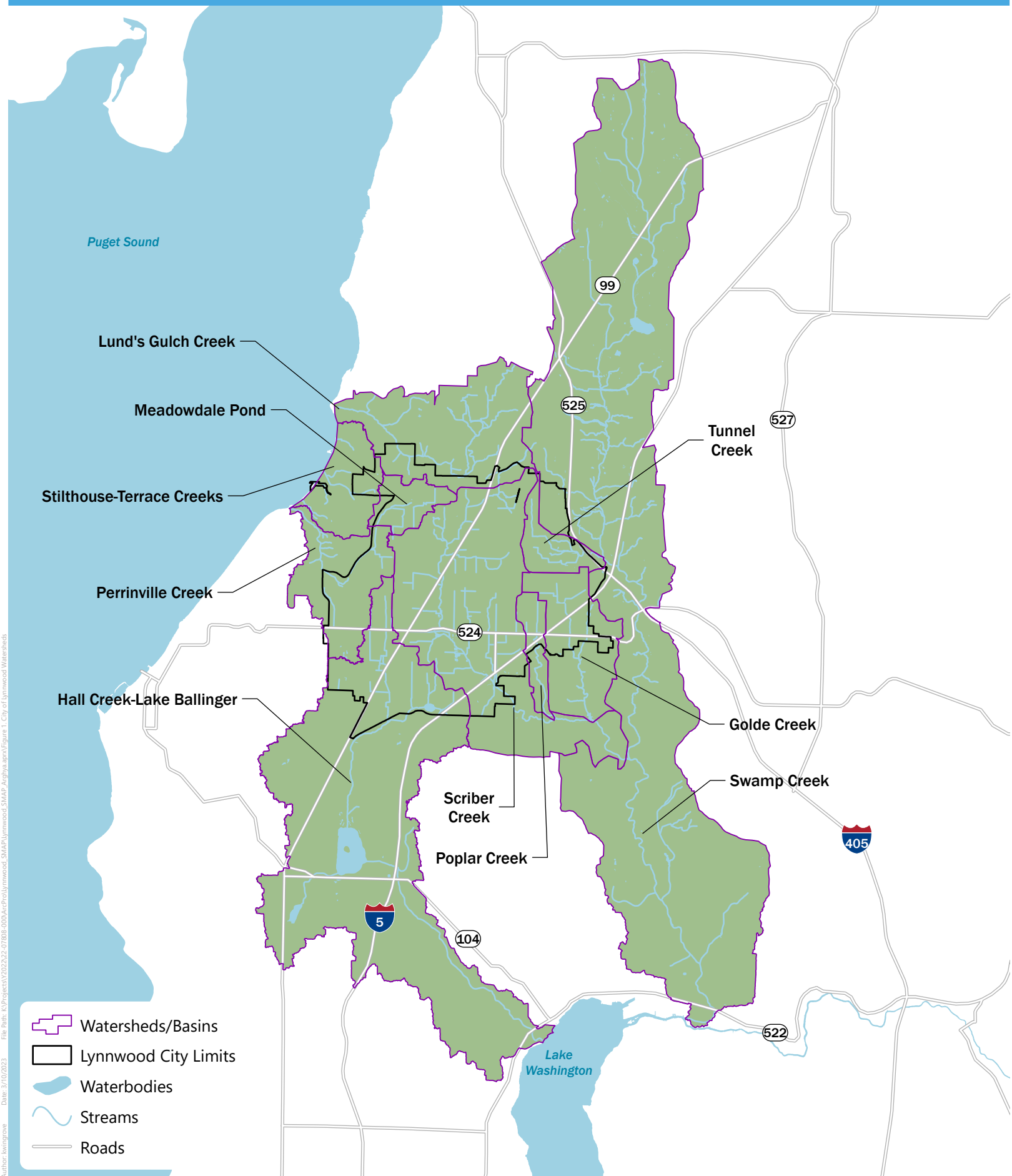

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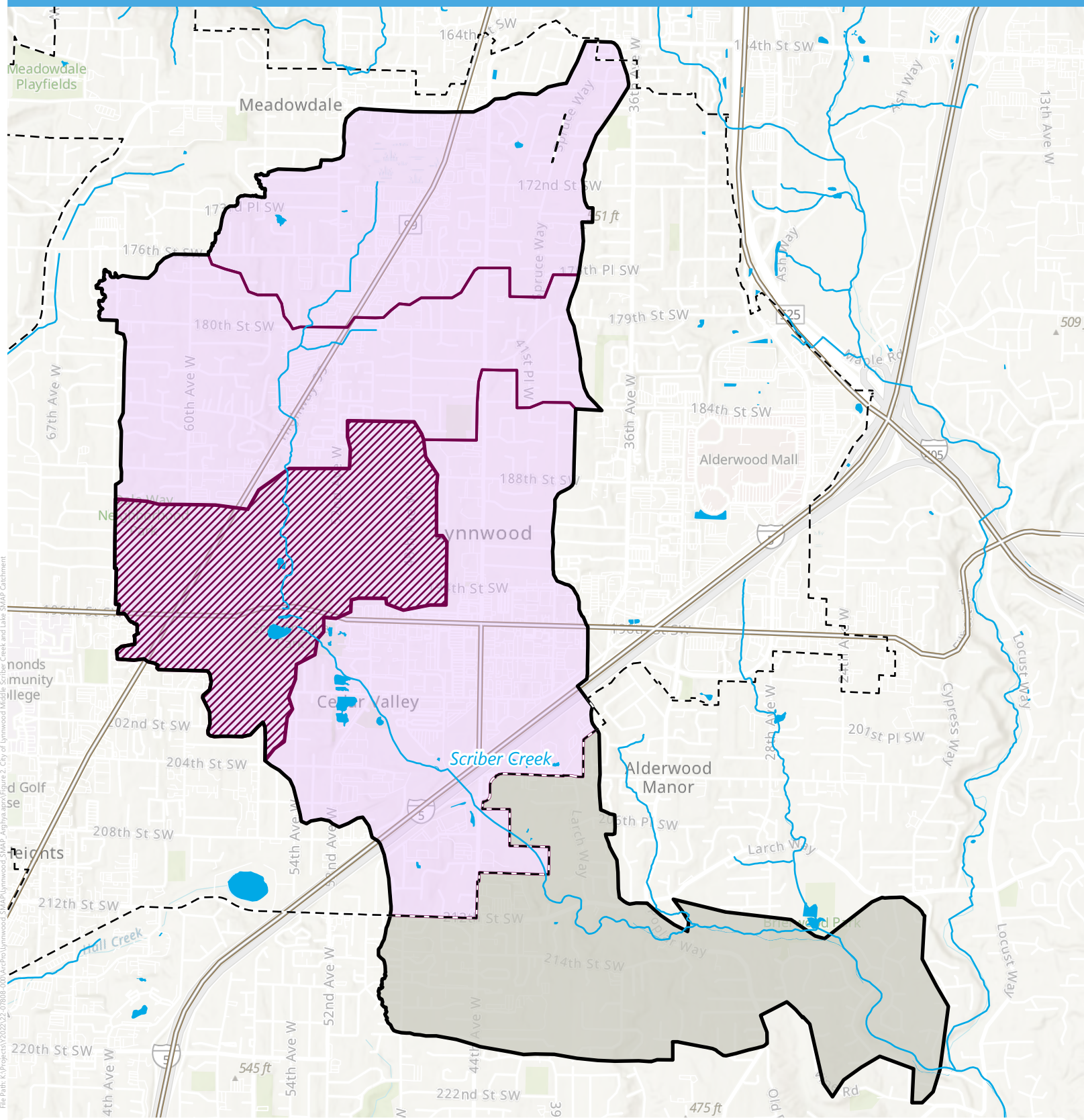
Figure 2. City of Lynnwood Middle Scriber Creek and Scriber Lake SMAP Catchment.



- Lynnwood City Limits
- Scriber Creek Watershed
- Scriber Creek Watershed (outside city limits)
- Scriber Creek Watershed Catchments
- Middle Scriber Creek and Scriber Lake Catchment
- Waterbodies
- Streams
- Major Roads

Produced by Herrera Environmental Consultants (herreraine.com) | Sources: City of Lynnwood

0 1,000 2,000 4,000 Feet

File Path: K:\Projects\2022\22-07808-000\ArcPro\Lynnwood_SMAP\Lynnwood_SMAP_Arg1ya.aprx\Figure 2. City of Lynnwood Middle Scriber Creek and Lake SMAP Catchment
Date: 3/21/2023
Author: akannadagull

Stormwater Management Actions

Process to Identify Stormwater Management Actions

The project team considered stormwater management actions that included projects, policies, or programs to enhance infiltration, improve control of erosive flows, reduce excess flooding, reduce excess sediment transport, and reduce bacterial pollution. The City's project team was actively involved in action identification, prioritization, implementation schedule, and identification of funding sources through meetings and field assessments. The City updated its online stormwater planning StoryMap, published a public survey, and held a public workshop in March 2023. The City solicited public input for prioritization of land management actions and program enhancements, identification of additional actions, and identification of areas with uncontrolled stormwater that should be evaluated in the future.

The project team identified three categories of stormwater management action:

- Strategic stormwater retrofit projects (RP): Projects designed and constructed to address existing stormwater (usually a new facility or expansion/upgrade of an existing facility). Project objectives are to improve infiltration, flow control, and/or water quality treatment.
- Land management strategies (LM): Programs, policies, or studies targeting methods to improve or protect lands that are of high value or lands that can be converted to improve water quality or encourage infiltration or flow control.
- Stormwater management program enhancements (SE): Actions integrated with existing NPDES Phase II Permit programs that supplement Permit required actions to reduce pollutants, encourage infiltration, and reduce erosive flows.

Strategic Stormwater Retrofit Projects

The project team examined the potential benefits of stormwater retrofit opportunities based on factors including location, degree of existing water quality or flow control, property ownership (more challenging on private property versus City-owned property), and likelihood of success.

Four stormwater retrofit projects (RP) were identified in the Middle Scriber Creek and Scriber Lake Catchment:

- RP-1: 188th Street Southwest Flood Wall
- RP-2: Increase Floodplain Storage Upstream of 188th Street SW
- RP-3: Scriber Creek Floodplain
- RP-4: Stormwater Treatment Retrofit of 196th Street SW Outfall to Scriber Lake

Figure 3 depicts the identified project locations and Table 1 summarizes the projects and best management practices considered. Projects RP-3 and RP-4 are presented in multiple phases where project feasibility and cost-benefit will be evaluated before the project proceeds.

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Figure 3. City of Lynnwood Middle Scriber Creek and Scriber Lake Stormwater Program Retrofits.

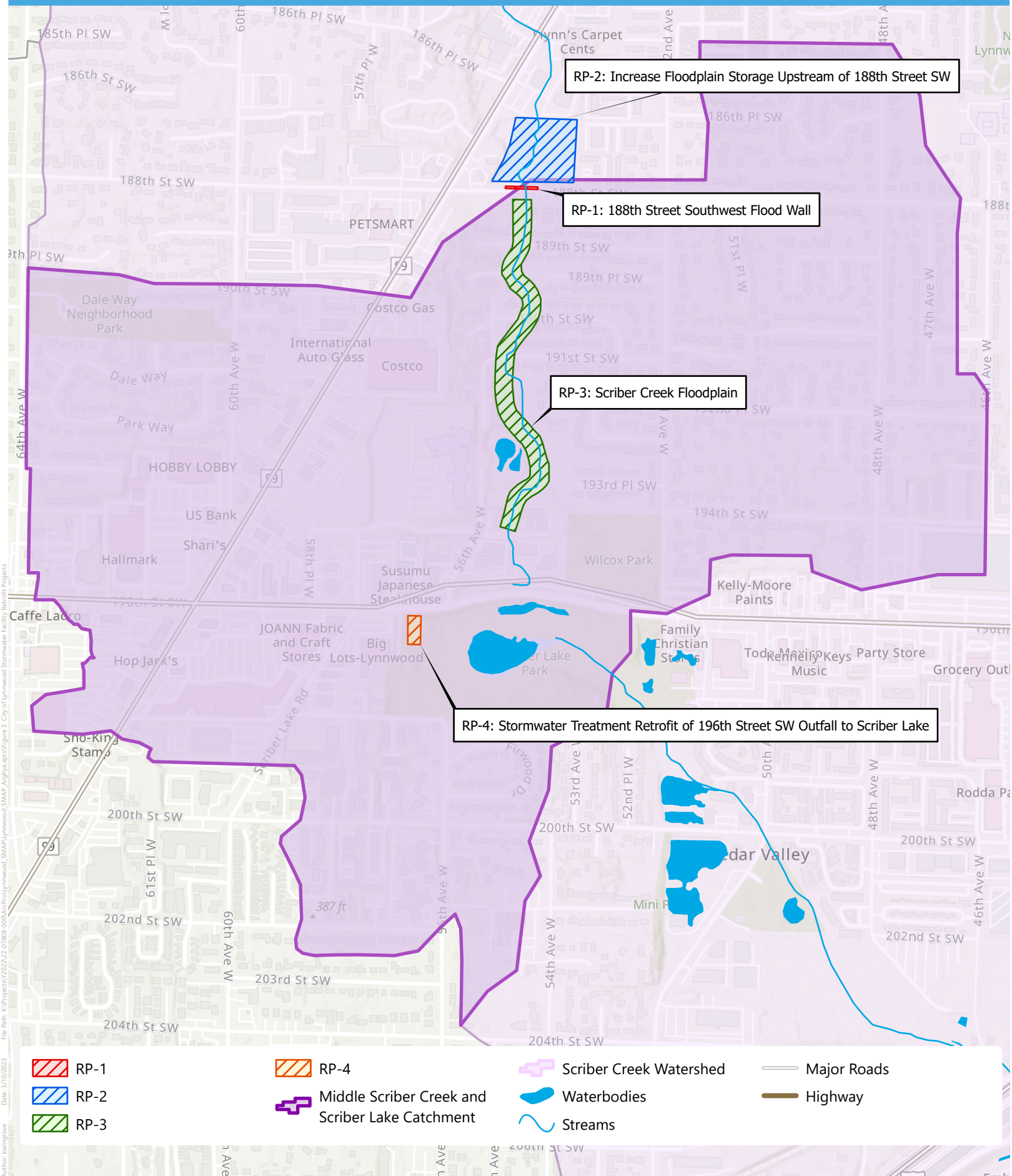

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Table 1. City of Lynnwood Stormwater Retrofit Projects for Middle Scriber Creek and Scriber Lake Catchment.			
Action ID	**Action Title**	**Description**	**BMPs Considered**
RP-1	188th Street Southwest Flood Wall – Construction	Construct a short concrete wall to reduce frequency of roadway overtopping and provide additional flood storage upstream of 188th Street SW.	Detention
RP-2	Increase Floodplain Storage Upstream of 188th Street SW – Construction	Construct off-channel storage on the property north of 188th Street SW by excavation portions to create new wetlands.	Detention and floodplain reconnection
RP-3	Scriber Creek Floodplain – Feasibility Study	Identify frequently flooded locations adjacent to the creek. Identify potential project locations. Conduct outreach to property owners, City management and elected officials, if necessary.	Stream floodplain reconnection
	Scriber Creek Floodplain – Design	Conduct Design of one high priority floodplain project identified in RP-3, if feasible. Property acquisition would be considered if property owners were willing to allow acquisition on a voluntary basis.	Stream floodplain reconnection
	Scriber Creek Floodplain – Construction	Pending outcomes of RP-3 and RP-4, construct the high priority project.	Stream floodplain reconnection
RP-4	Stormwater Treatment Retrofit of 196th Street SW Outfall to Scriber Lake – Feasibility Study	Work with City Parks, Recreation, and Cultural Arts and adjacent property owners to identify a potential location for a stormwater treatment facility/ stormwater park near the outfall to Scriber Lake.	Stormwater treatment/ stormwater park
	Stormwater Treatment Retrofit of 196th Street SW Outfall to Scriber Lake – Design	Design retrofit to treat stormwater from the 196th Street corridor prior to discharge to Scriber Lake.	Stormwater treatment/stormwater park
	Stormwater Treatment Retrofit of 196th Street SW Outfall to Scriber Lake – Construction	Pending design feasibility of RP-1, construct the Stormwater Treatment Retrofit of 196th Street SW Outfall to Scriber Lake.	Stormwater treatment/stormwater park

ID = Identification

RP = Retrofit Project

BMP = best management practice

Land Management Strategies

The project team identified and prioritized land management strategies based upon anticipated implementation feasibility and benefit to receiving waters.

The project team identified five land management strategies (LM) for Middle Scriber Creek and Scriber Lake Catchment:

- LM-1: Focus the rain garden program on Scriber Creek
- LM-2: Conduct outreach to streamside property owners about the City riparian planting grants
- LM-3: Apply for programmatic hydraulic project approval
- LM-4: Depave pilot program
- LM-5: Water quality treatment retrofits with frontage improvements

Table 2 summarizes action titles and descriptions.

Table 2. City of Lynnwood Land Management Strategies for Middle Scriber Creek and Scriber Lake Catchment.

Action ID	Action Title	Description
LM-1	Focus the rain garden program on Scriber Creek	Conduct rain garden outreach and provide technical assistance to residential, small business, and multi-family parcels. Identify opportunities to locate rain gardens on multiple adjoining properties and in places with high potential for outreach. Continue partnering with Snohomish Conservation Department.
LM-2	Conduct outreach to streamside property owners about the City riparian planting grants	Conduct outreach to streamside property owners about the City riparian planting grant available through the Tree Voucher Program. Consider partnership with Snohomish Conservation District for property owner assistance for selection of shrubs or trees, proper planting, and invasive species removal.
LM-3	Apply for programmatic hydraulic project approval	Coordinate with appropriate natural resource agencies and apply for citywide or Scriber-basin-only programmatic hydraulic project approval permit for rapid response to stormwater facility issues while protecting watercourses. Reapply every 2 years upon approaching expiration of current permit.
LM-4	Depave pilot program	Evaluate parking needs and identify underutilized/excess impervious surfaces on private and public lands. Identify locations for a pilot "depave" project. Conduct outreach to potential project owners. Partner with Snohomish County Conservation District.
LM-5	Water quality treatment retrofits with frontage improvements	Conduct analysis of water quality benefit that would result from requiring water quality treatment facility installation as part of frontage improvements on high-use roadways. Explore code changes, maintenance responsibilities, and impacts on maintenance staffing needs. Incorporate results into the level of service evaluation during the next Surface Water Management Comprehensive Plan update.

ID = Identification LM = Land Management Strategy

Stormwater Program Enhancements

The City conducts a number of activities for compliance with the NPDES Phase II Permit. These include activities associated with Illicit Discharge Detection and Elimination, Source Control, Operations and Maintenance, and Public Education and Outreach.

The project team reviewed the City's existing procedures for implementing these activities to consider what enhancements would be beneficial for accelerating water quality and habitat improvements in the Middle Scriber Creek and Scriber Lake Catchment. This section describes identified actions for Middle Scriber Creek and Scriber Lake Catchment that exceed the NPDES Phase II Permit required actions. Table 3 summarizes the NPDES Phase II Permit section reference, identified stormwater program enhancement actions, and the action description.

Table 3. City of Lynnwood Stormwater Program Enhancements for Middle Scriber Creek and Scriber Lake Catchment.

NPDES Phase II Permit Section	Action ID	Action Title	Description
Source Control Program for Existing Development (S5.C.8)	SE-1	Increase frequency of source control inspections for high-risk properties	Identify properties with higher pollution generating risk. Increase visit frequency for inspections.
Operations and Maintenance (S5.C.7)	SE-2	Complete an enhanced storm system maintenance plan	Complete a storm system maintenance plan documenting methods, frequency, and protocols for system maintenance. The plan will identify current receiving water conditions, existing storm system maintenance practices and frequencies, and whether enhanced maintenance would benefit Scriber Creek and Scriber Lake.
	SE-3	Conduct enhanced storm system maintenance	Conduct staff training and establish tracking for enhanced storm system maintenance.
Public Education and Outreach (S5.C.2)	SE-4	Conduct outreach on avian fecal sources	Develop and implement an outreach campaign discouraging feeding of birds and large populations of ducks and geese. Research other campaigns (i.e., Keep Wildlife Wild). Consider partnering with Parks Department.

Table 3 (continued). City of Lynnwood Stormwater Program Enhancements for Middle Scriber Creek and Scriber Lake Catchment.			
NPDES Phase II Permit Section	**Action ID**	**Action Title**	**Description**
Public Education and Outreach (S5.C.2) (continued)	SE-5	Conduct a pet waste station sponsor program feasibility survey	Identify neighborhood groups, homeowner associations, parks, and multi-family and commercial properties. Conduct outreach to property owners. Survey Catchment to determine demand for pet waste stations. Track responses and complete a feasibility report of the demand and interest in property owners sponsoring a station.
	SE-6	Implement a pet waste station sponsor program	If demand is substantial from the survey completed in SE-5, implement a pet waste station sponsor program.
	SE-7	Conduct backyard pet waste pick up campaign	Use social media tools to conduct a campaign targeting pet waste pick up in backyards.
	SE-8	Develop and post environmental educational signage	Develop and post educational signage around stormwater facilities and water bodies in the Scriber Creek catchment.

ID = Identification

SE = Stormwater Management Program Enhancement

Illicit Discharge Detection and Elimination

The NPDES Phase II Permit requires the City to implement an ongoing program designed to prevent, detect, characterize, trace, and eliminate illicit connections and illicit discharges into the municipal separate storm sewer system (MS4). No program enhancement actions associated with Illicit Discharge Detection and Elimination were identified.

Source Control Program for Existing Development

The NPDES Phase II Permit requires the City to implement a source control program, which includes the application of operational source control BMPs; a site inspection program; an inventory of pollutant-generating institutional, commercial, and industrial sites; and an enforcement policy. Twenty percent of the businesses/sites in the City's source control inventory are required to be inspected annually with provisions for responding to complaints and re-inspecting sites.

The City identified the following additional action in the Middle Scriber Creek and Scriber Lake Catchment:

- SE-1: Increase frequency of source control inspections for high-risk properties

Operations and Maintenance

The NPDES Phase II Permit requires the City to implement and document a program to regulate and conduct maintenance activities to prevent or reduce stormwater impacts. The City is required to implement maintenance standards that are as protective, or more protective, of facility function than those specified in the *Stormwater Management Manual for Western Washington* or a Phase I program approved by Ecology (2019a). When a facility's inspection identifies exceedance of the maintenance standard, maintenance shall be performed within 1 year for typical facilities, 6 months for catch basins, and 2 years for facilities that require capital construction of less than $25,000.

The City identified the following additional actions in the Middle Scriber Creek and Scriber Lake Catchment:

- SE-2: Complete an enhanced storm system maintenance plan
- SE-3: Conduct enhanced storm system maintenance

Public Education and Outreach

The NPDES Phase II Permit requires the City to implement public education and outreach programs in order to build awareness, foster behavior change, and provide stewardship opportunities related to water resource protection.

The City identified the following additional actions In the Middle Scriber Creek and Scriber Lake Catchment:

- SE-4: Conduct outreach on avian fecal sources
- SE-5: Conduct a pet waste station sponsor program feasibility survey
- SE-6: Implement a pet waste station sponsor program
- SE-7: Conduct backyard pet waste pick up campaign
- SE-8: Develop and post environmental educational signage

Summary of Public Input

The City conducted outreach to inform and solicit input using webpage and workshop formats. The workshop materials and a recording of the presentation is on the City's Stormwater Management Action Planning webpage. The complete list of public responses is found in Appendix A.

The City's Stormwater Management Action Planning webpage and StoryMap (which can be accessed through the City's webpage) were updated on March 6, 2023. The webpage and StoryMap summarize the NPDES Phase II Permit requirements, provide links to the *City of Lynnwood Watershed Inventory and Assessment* (Herrera 2022a) and *City of Lynnwood – Watershed Prioritization* (Herrera 2022b) reports, and illustrate the identified stormwater management actions. One virtual public workshop was advertised through the City's listserv; website; and direct emails to tribes and other stakeholders, interested citizens, and local media outlets. One 1-hour virtual workshop was held on March 14, 2023, at noon. Seven attendees were present at the workshop. Twenty-one responses were received from the StoryMap webpage public input survey, which may include multiple responses from one individual (surveys are anonymous, and no restriction was placed on multiple entries).

Workshop attendees were asked to select their top three actions from a combined list of land-management strategies and program-enhancement actions (a total of 10 stormwater management actions). The results showed a high level of support (60 percent) for one of the land management strategies included in Table 2 and one of the stormwater program enhancements included in Table 3:

- LM 5: Water quality treatment retrofits with frontage improvements
- SE 8: Develop and post environmental educational signage

The results also showed a moderate level of support (40 percent) for the following land management strategies included in Table 2 and one stormwater program enhancement included in Table 3:

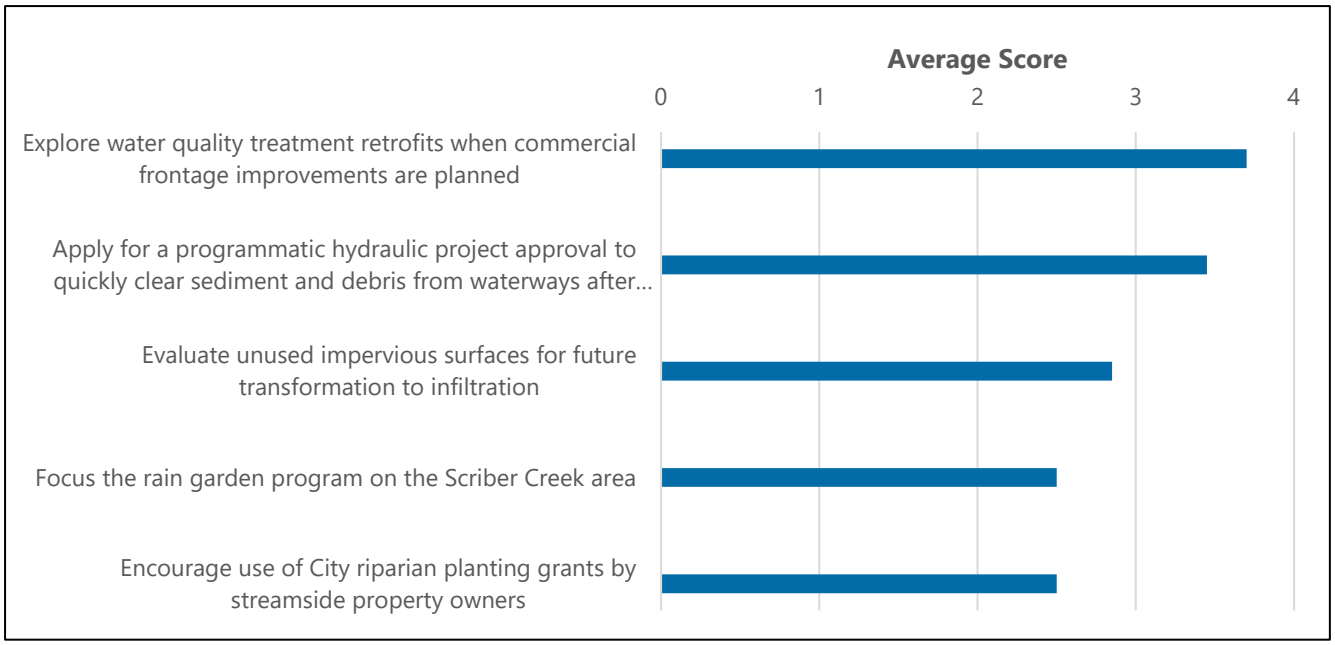
- LM 1: Focus the rain garden program on Scriber Creek
- LM 2: Conduct outreach to streamside property owners about the City riparian planting
- SE 2: Complete an enhanced storm system maintenance plan

The StoryMap public survey asked respondents to rank the list of land-management strategies and program-enhancement actions separately. StoryMap survey respondents were also asked two additional questions:

1. List other strategies or actions the City could consider to improve conditions in Middle Scriber Creek and Scriber Lake.
2. Add other areas in the Scriber Creek watershed where you have seen uncontrolled and damaging stormwater runoff, for consideration of potential stormwater facility retrofit projects, by pinning the location on the map provided.

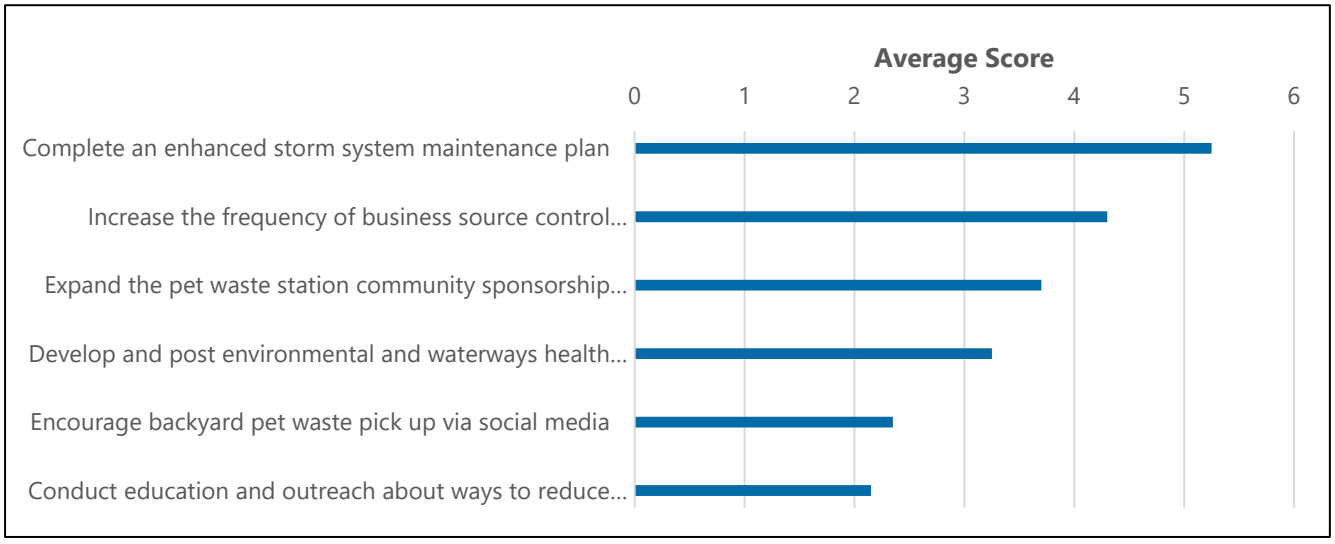
When survey participants were asked to *(Q1) Rank the proposed land management strategies in order of importance*, the strategy that received the highest average score was "Explore water quality treatment retrofits when commercial frontage improvements are planned." Average scores from 20 participants for each proposed strategy are summarized in Figure 4.

Figure 4. Results from the Public Survey Question on Ranking Proposed Land Management Strategies.



Survey participants were also asked to *(Q2) Rank the proposed Stormwater Program Enhancement actions in order of importance*. Average scores from 20 participants for each proposed action are summarized in Figure 5. The action "Complete an enhanced storm system maintenance plan" received the highest average score.

Figure 5. Results from the Public Survey Question on Ranking Proposed Stormwater Program Enhancement Actions.



Five additional comments were received from survey participants regarding other strategies or actions the City could consider to improve conditions in Middle Scriber Creek and Scriber Lake. Several comments relate to infrastructure, including road safety, walkways, and trails. All survey comments are listed below.

- Along 200th Street Southwest they need a sturdier barrier to protect vehicles—motorcycles, bikes, and skateboarders—from landing in the water. They also need a park for skateboarders. In Shoreline on 155th Avenue Northeast and Eighth Avenue Northeast, they have a section that has been there for years. Make Lynnwood friendly.
- Keep walkways well drained for safe walking conditions. Install streetlights on 200th Street to make walking safe after sundown.
- Any contract building agreements within the area that affect the lake and creek should be required to include a plan for contributing to protection of these water areas. They should not be allowed to create a negative impact.
- Keep the trail usable and unflooded at all times.
- Educational materials that explain what to use/not use mailed to residences with run off to the creek. Garden options offered, recommended plants, what should replace the alders. Old storm water holding tanks replaced/removed.

Survey participants were also invited to drop points on a map indicating other areas in the Scriber Creek watershed where uncontrolled and damaging stormwater runoff has been observed. A map of pinned survey response points is included in Appendix A. Survey response points that may not have been properly set within the map are indicated by a default point cluster marker (see Figure A-1).

The City will continue to inform the public during implementation of the SMAP. Public input will be considered during SMAP implementation in addition to the future Permit requirements.

Changes to Long-Range Plans

Identified actions will be considered for incorporation into future Surface Water Management Comprehensive Plan updates and the City's 2024 Comprehensive Plan Periodic Update based upon public input, the future anticipated 2024–2029 NPDES Permit requirements, and available funding.

Proposed Implementation Schedule and Budget Sources

The City identified whether each action would be implemented in the short-term (accomplished within 6 years) or long-term (accomplished within 7 to 20 years). Short-term actions are assumed to be implemented between 2024 and 2030. Long-term actions are assumed to be implemented between 2031 and 2044. The implementation sequence and schedule may be influenced by the requirements of the NPDES Stormwater Permit re-issuance (anticipated August 1, 2024). Table 4 identifies the proposed implementation schedule and potential budget sources for each action.

The budget source for most actions is from the existing stormwater utility fund, with the exception of the long-term stormwater retrofit projects (RP-3: Scriber Creek Floodplain and RP-4: Stormwater Treatment Retrofit of 196th Street SW Outfall to Scriber Lake), the pet waste sponsor program, and the enhanced maintenance plan implementation. Long-term stormwater retrofit projects may be included in the future Surface Water Management Comprehensive Plan update and incorporated into capital project planning. Future Permit requirements for structural stormwater control retrofits (i.e., stormwater facility retrofits) will be reviewed and applied to capital project planning. Grants are a potential funding source but are not assumed to be a source of funding in Table 4 because grant funds may not be awarded.

Additional details for all actions, including estimated costs and assumptions, are provided in Appendix B. These costs are in 2023 dollars and are intended to inform the Surface Water Utility Fund Planning related to future NPDES Stormwater Permit requirements.

Table 4. City of Lynnwood Middle Scriber Creek and Scriber Lake Catchment Stormwater Management Actions Schedule and Budget Sources.			
	Schedule		
Action	Short-Term Implementation 2024–2030	Long-Term Implementation 2031–2044	Budget Source
RP-1. 188th Street Southwest Flood Wall	✓		Surface Water Utility Fund
RP-2. Increase Floodplain Storage Upstream of 188th Street SW	✓		Surface Water Utility Fund
RP-3. Scriber Creek Floodplain		✓	Not determined[a]
RP-4. Stormwater Treatment Retrofit of 196th Street SW Outfall to Scriber Lake		✓	Not determined
LM-1. Focus the rain garden program on Scriber Creek	✓		Surface Water Utility Fund
LM-2. Conduct outreach to streamside property owners about the City riparian planting grants	✓		Surface Water Utility Fund
LM-3. Apply for programmatic hydraulic project approval	✓		Surface Water Utility Fund
LM-4. Depave pilot program		✓	Surface Water Utility Fund
LM-5. Water quality treatment retrofits with frontage improvements		✓	Surface Water Utility Fund
SE-1. Increase frequency of source control inspections for high-risk properties	✓		Surface Water Utility Fund
SE-2. Complete an enhanced storm system maintenance plan	✓		Surface Water Utility Fund
SE-3. Conduct enhanced storm system maintenance		✓	Not determined
SE-4. Conduct outreach on avian fecal sources	✓		Surface Water Utility Fund
SE-5. Conduct a pet waste station sponsor program feasibility survey	✓		Surface Water Utility Fund
SE-6. Implement a pet waste station sponsor program		✓	Not determined
SE-7. Conduct backyard pet waste pick up campaign	✓		Surface Water Utility Fund
SE-8. Develop and post educational signage	✓		Surface Water Utility Fund

[a] Actions listed as "Not determined" are those where the cost and feasibility is unknown until either public surveys, feasibility studies, or detailed plans are completed.

RP = Retrofit Project

LM = Land Management Strategy

SP = Stormwater Management Program Enhancement

Future Assessment and Feedback

This Middle Scriber Creek and Scriber Lake Catchment SMAP identifies and describes retrofit projects, land management strategies, and enhanced stormwater programmatic activities that are intended to protect or enhance Scriber Creek and Scriber Lake. The City will assess implementation of this SMAP by tracking project implementation and program effectiveness. The City will use the results of this assessment to adjust SMAP implementation over time and according to the anticipated 2024–2029 Permit requirements.

Retrofit projects will be reviewed and tracked as part of capital project planning and budgeting. More detailed stormwater program assessment, capital project planning, and financial analysis will occur on a 6-year cycle as part of comprehensive planning and provide an additional opportunity for tracking.

Progress on land-management strategies will be assessed annually; allocation of staff will be shifted as needed to meet Permit requirements and strategy implementation.

Stormwater program activities will be reviewed annually during NPDES Phase II Permit reporting; staff and budget allocation will be adjusted annually, as needed, to meet Permit requirements and implement the stormwater program activities.

References

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Appendix A

Public Input Responses

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Public Survey Summary

Q1. Rank the proposed land management strategies in order of importance.

Table A-1. Proposed Land Management Strategy Scores.

Choice Number	Choice	Percent of Total Reponses/ Response Count	Participant Selected Rank					Average Score
			1	2	3	4	5	
1	Explore water quality treatment retrofits when commercial frontage improvements are planned	Percent of Total Responses	30%	35%	10%	25%	0%	3.7
		Response Count	6	7	2	5	0	
2	Apply for a programmatic hydraulic project approval to quickly clear sediment and debris from waterways after storm events	Percent of Total Responses	35%	20%	15%	15%	15%	3.45
		Response Count	7	4	3	3	3	
3	Evaluate unused impervious surfaces for future transformation to infiltration	Percent of Total Responses	20%	20%	10%	25%	25%	2.85
		Response Count	4	4	2	5	5	
4	Focus the rain garden program on the Scriber Creek area	Percent of Total Responses	10%	5%	40%	15%	30%	2.5
		Response Count	2	1	8	3	6	
5	Encourage use of City riparian planting grants by streamside property owners	Percent of Total Responses	5%	20%	25%	20%	30%	2.5
		Response Count	1	4	5	4	6	

Includes 20 responses out of 21 total responses. One submittal skipped this question.

Average score is calculated by assigning a weighted value to the participant-selected rank. For this question, the following weights were used:

Participant Selected Rank	Assigned Score
1	5
2	4
3	3
4	2
5	1

Using Question 1, Choice 1 as an example, out of 20 total responses, six respondents selected a rank of 1, seven respondents selected a rank of 2, and so forth. Assigning a weighted score to each selected rank, the Question 1, Choice 1 average score is calculated as:

$$\frac{(6 \times 5) + (7 \times 4) + (2 \times 3) + (5 \times 2) + (0 \times 1)}{20} = 3.7$$

Q2. Rank the proposed stormwater program enhancement actions in order of importance.

Table A-2. Proposed Stormwater Program Enhancement Action Scores.

Choice Number	Choice	Percent of Total Reponses/ Response Count	Participant Selected Rank						Average Score
			1	2	3	4	5	6	
1	Complete an enhanced storm system maintenance plan	Percent of Total Responses	60%	20%	15%	0%	0%	5%	5.25
		Response Count	12	4	3	0	0	1	
2	Increase the frequency of business source control inspections at properties with greater potential to contribute pollution	Percent of Total Responses	25%	35%	10%	15%	5%	10%	4.3
		Response Count	5	7	2	3	1	2	
3	Expand the pet waste station community sponsorship program	Percent of Total Responses	10%	20%	25%	25%	15%	5%	3.7
		Response Count	2	4	5	5	3	1	
4	Develop and post environmental and waterways health educational signage	Percent of Total Responses	0%	25%	25%	15%	20%	15%	3.25
		Response Count	0	5	5	3	4	3	
5	Encourage backyard pet waste pick up via social media	Percent of Total Responses	0%	0%	20%	20%	35%	25%	2.35
		Response Count	0	0	4	4	7	5	
6	Conduct education and outreach about ways to reduce bird fecal sources	Percent of Total Responses	5%	0%	5%	25%	25%	40%	2.15
		Response Count	1	0	1	5	5	8	

Includes 20 responses out of 21 total responses. One submittal skipped this question.

Average score is calculated by assigning a weighted value to the participant-selected rank. For this question, the following weights were used.

Participant Selected Rank	Assigned Score
1	6
2	5
3	4
4	3
5	2
6	1

Using Question 2, Choice 1 as an example, out of 20 total responses, 12 respondents selected a rank of 1; 4 respondents selected a rank of 2, and so forth. Assigning a weighted score to each selected rank, the Question 2, Choice 1 average score is calculated as:

$$\frac{(12 \times 6) + (4 \times 5) + (3 \times 4) + (0 \times 3) + (0 \times 2) + (1 \times 1)}{20} = 5.25$$

Q3. List other strategies or actions the City could consider to improve conditions in Middle Scriber Creek and Scriber Lake.

Table A-3. Other Strategies or Actions Identified for Improving Conditions in Middle Scriber Creek and Scriber Lake.

Along 200th St SW: They need a sturdier barrier to protect vehicles—Motorcycles – Bikes & Skate boarders [sic] from landing in the water. They also need a park for skate boarders [sic]. In Shoreline on 155th Ave NE & 8th Ave NE: They have a section that has been there for years. Make Lynnwood Friendly.
Keep walkways well drained for safe walking conditions. Install street lights [sic] on 200th Street to make walking safe after sundown.
Any contract building agreements within the area that affects [sic] the lake and creek should be required to include a plan for contributing to protection of these water areas. They should not be allowed to create a negative impact.
Keep the trail usable and unflooded at all times.
Education [sic] materials that explain what to use/not use mailed to residences with run off to the creek. Garden options offered, recommended plants, what should replace the alders. Old storm water holding tanks replaced/removed. (5410–5420 189 Pl SW)

Q4. Add other areas in the Scriber Creek watershed where you've seen uncontrolled and damaging stormwater runoff, for consideration of potential stormwater facility retrofit projects.

Note: Three unique points were added to the map. There is a cluster of points (17) that indicates participants may not have selected a new point location when completing the survey; this point is not considered a feedback location and is marked as "Default point cluster."

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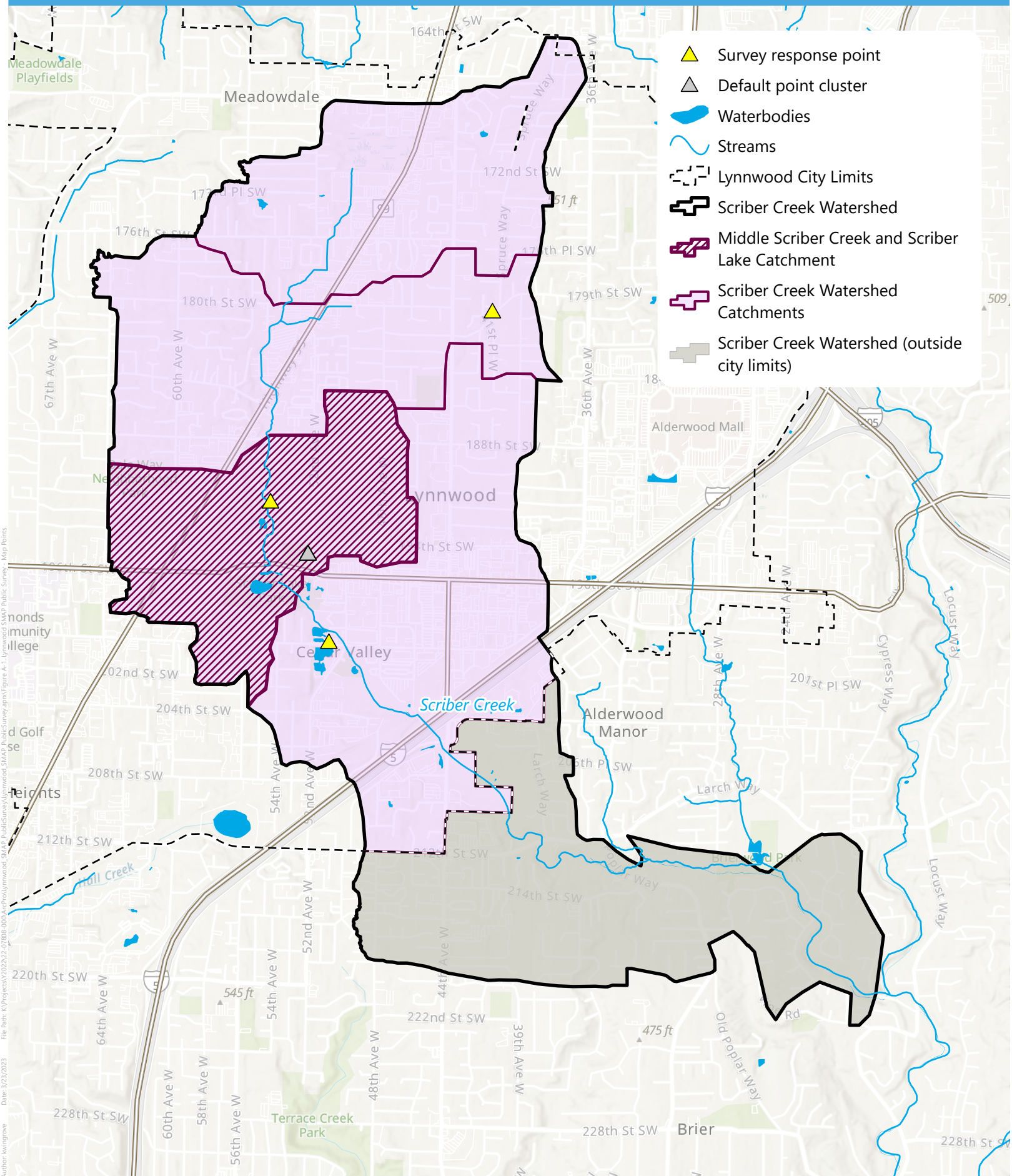
Figure A-1. City of Lynnwood SMAP Public Survey – Map Points in Scriber Creek Watershed.



Produced by Herrera Environmental Consultants (herrerainc.com) | Sources: City of Lynnwood

File Path: K:\Projects\Y2022\22-07808-000\ArcPro\Lynnwood_SMAP_PublicSurvey\Lynnwood_SMAP_PublicSurvey.aprx\Figure A-1 Lynnwood SMAP Public Survey - Map Points
Date: 3/23/2023
Author: kwingrove

Lynnwood Stormwater Planning
Public Workshop Notes

Workshop Goals

- Provide a brief description of the project and schedule; include why the City is conducting the planning.
- Review the watershed inventory and prioritization steps/results.
- Present proposed stormwater management actions for the Middle Scriber Creek and Lake watershed.
- Provide an opportunity to address clarifying questions.
- Identify next steps and opportunities for feedback.

Workshop Planning

Date and Time	Workshop: March 14, 2023, 12:00 p.m. to 1:00 p.m.	
Location	Zoom	
Workshop Attendees	Mike G. Kathy J. Jay J. Arden A. Jeanne A. Lin F. David P.	Derek Fada, City of Lynnwood Matt Fontaine, Herrera Mindy Fohn, Herrera Gretchen Muller, Cascadia Brent Edgar, Cascadia

Workshop Agenda

Workshop Start Time	Length (minutes)	Topic	Lead
12:00 p.m.	10 minutes	Welcome and Introductions	Gretchen/Derek
12:10 p.m.	5 minutes	Project Background and Schedule	Matt
12:15 p.m.	15 minutes	Identified Actions	Mindy
12:30 p.m.	10 minutes	Q & A	Gretchen
12:40 p.m.	15 minutes	Discussion	Gretchen
12:55 p.m.	5 minutes	Wrap Up and Adjourn	Gretchen

Workshop Materials

Available on the City's " Stormwater Planning" web page: Stormwater Management Action Planning – City of Lynnwood (lynnwoodwa.gov).

- PowerPoint slides of team presentation in PDF format, includes summary of the City's list of identified actions.
- StoryMap and public survey link. (Note: scheduled to close on March 21, 2023.)

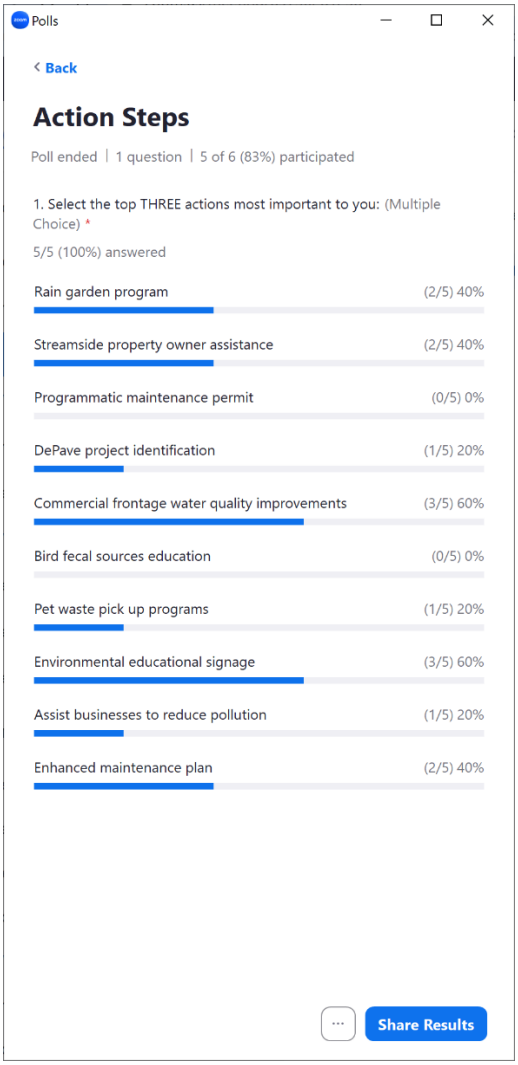
Workshop #1 Notes

Participants were asked a poll question:

Select the top THREE actions that you think will help Middle Scriber Creek and Lake: (multiple choice)

1. Rain garden program
2. Streamside property owner assistance
3. Programmatic maintenance permit
4. DePave project identification
5. Commercial frontage water quality improvements
6. Bird fecal sources education
7. Pet waste pick up programs
8. Environmental educational signage
9. Assist businesses to reduce pollution
10. Enhanced maintenance plan

Results from poll question:



Summary of Next Steps

- Public survey closes on March 21, 2023.
- A catchment implementation plan (Stormwater Management Action Plan) must be completed by March 31, 2023.
- For questions, contact the City Project Manager: Derek Fada, DFada@lynnwoodwa.gov, 425.670.5242.

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Appendix B

Stormwater Management Action Plan
Cost Estimates and Assumptions

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Table B-1. Stormwater Management Action Plan – Cost Estimates and Assumptions.

Action	Type	Description	Estimated Cost	Duration	Short-Term Implementation 2024–2030	Long-Term Implementation 2031–2044	Cost Assumptions
RP-1 188th Street Southwest Flood Wall – Construction	Retrofit	Construct a short concrete wall to reduce frequency of roadway overtopping and provide additional flood storage upstream.	$650,000	One-time	✓		Construction only. Based on the most recent construction cost estimate (2022), including additional elements currently in design (i.e. additional storm drain piping and raising and extending the wall). Adjusted up for inflation.
RP-2. Increase Floodplain Storage Upstream of 188th Street SW	Retrofit	Construct off-channel storage and floodplain reconnection on the property north of 188th Street SW	$1,000,000	One-time	✓		This estimate includes costs for design, permitting, construction, and construction management. See project summary sheet and itemized cost estimate.
RP-3. Scriber Creek Floodplain – Feasibility Study, Design and Construction	Retrofit	Identify frequently flooded locations adjacent to the creek. Identify potential project locations. Conduct outreach to property owners, City management and elected officials, if necessary.	$30,000	One-time	✓		Cost for limited outreach and appraisal related to willing property owners ($20,000) plus an allowance to update concept drawings and costs if needed for different sites ($10,000).
		Acquire one high priority floodplain project identified in the feasibility study, if determined to be cost-effective and feasible. More than one property may be acquired. Property acquisition would be considered if property owners were willing to allow acquisition on a voluntary basis.	$1,900,000	One-time		✓	This estimate includes costs for property appriasal, acquisition, and removal of existing structures. Cost may vary based on available properties / willing sellers.
		Design and construct the project.	$1,200,000	One-time		✓	This estimate includes costs for design, permitting, construction, and construction management. See project summary sheet and itemized cost estimate.
RP-4. Stormwater Treatment Retrofit of 196th Street SW Outfall to Scriber Lake – Feasibility Study, Design, and Construction	Retrofit	Engage with Parks, Recreation, and Cultural Arts; adjacent property owners; and public stakeholders to explore opportunities for siting the facility. Work may include additional conceptual design and sizing for various facility types that are compatible with available space (alternatives development).	$100,000	One-time	✓		Includes an allowances of $40,000 for engagement and $60,000 for alternatives development.
		Design and permitting for a retrofit to treat water from the 196th St. corridor prior to discharge to Scriber Lake.	$1,000,000	One-time		✓	Assumption based on review of costs for a similar project in Bellingham, WA. The reference project is half as large and includes less community engagement and fewer critical areas considerations, so design and permitting cost estimates were scaled accordingly.
		Construct the stormwater treatment facility.	$4,000,000	One-time		✓	Analagous cost estimate based on a similar stormwater project in Bellingham, WA. Construction cost was scaled up based on relative basin size.
Retrofit Project Subtotal					**Short-Term**	**Long-Term**	
					$1,780,000	**$8,100,000**	

Action	Type	Description	Estimated Cost	Duration	Short-Term Implementation 2024–2030	Long-Term Implementation 2031–2044	Cost Assumptions
LM-1. Focus the rain garden program on Scriber Creek	Land Management Strategy	Conduct rain garden outreach and provide technical assistance within the Scriber Creek catchment on residential, small business, and multi-family parcels. Identify opportunities to locate rain gardens on multiple adjoining properties and in places with high potential for outreach. Continue partnering with Snohomish Conservation Department.	$60,000	3 years	✓		Analagous program interlocal agreement between conservation district and Phase II City. Includes outreach, workshops, materials, resources and cost-share funds.
LM-2. Conduct outreach to streamside property owners about the City riparian planting grants	Land Management Strategy	Conduct outreach to streamside property owners about the City riparian planting grant available in the Tree Voucher Program. Consider partnership with Snohomish Conservation District for property owner assistance for selection of shrubs or trees, proper planting, and invasive species removal.	$22,500	3 years	✓		Assumes 80 hours of stormwater technical staff time to research materials, conduct a mailing to streamside property owners, conduct one workshop annually, print materials and conduct five site visits each year for a total of 3 years. Allows $8,100 for material costs and advertising.
LM-3. Apply for programmatic hydraulic project approval	Land Management Strategy	Coordinate with appropriate natural resource agencies and apply for City wide or Scriber basin only programmatic hydraulic project approval permit for rapid response to stormwater facility issues while protecting watercourses. Reapply every two years upon approaching expiration of current permit.	$78,200	Initial application followed by re-application in 2026 and 2028.	✓		Assumes consultant cost for initial application and agency meetings at $55,000. Assumes cost of $10,000 for re-application process in 2026 and 2028. Assumes 40 hours of City management time.
LM-4. Depave pilot program	Land Management Strategy	Evaluate parking needs and identify underutilized / excess impervious surfaces on private and public lands. Identify locations for a pilot depave project. Conduct outreach to potential project owners. Partner with Snohomish County Conservation District.	$17,200	One-time		✓	Assumes 80 hours consultant time for mapping and analysis to identify candidate properties. Conduct outreach to candidate property owners. Assumes 40 hours planner or stormwater engineer time to manage project and coordinate.
LM-5. Water quality treatment retrofits with frontage improvements	Land Management Strategy	Conduct analysis of water quality benefit that would result from requiring water quality treatment facility installation as part of frontage improvements on high-use roadways. Explore code changes, maintenance responsibilities, and impact on maintenance staffing needs. Incorporate results into the level of service evaluation during the next Surface Water Management Comprehensive Plan update.	$21,900	One-time		✓	Assumes 100 hours consultant time to assess water quality benefit, outline code changes, maintenance responsibilities and impact to staff needs. 40 hours stormwater engineer or planner to manage and coordinate. 20 hours of O&M staff to advise.
SE-1. Increase frequency of source control inspections for high-risk properties	Stormwater Program Enhancement	Identify properties with higher pollution generating risk. Increase visit frequency for inspections.	$21,600	Every two years	✓		Assumes 10 hours per site annually. Assumes 12 sites. Conduct additional visits every two years.
SE-2. Complete an enhanced storm system maintenance plan	Stormwater Program Enhancement	Complete storm system maintenance plan documenting methods, frequency, and protocols for system maintenance. The plan will identify current receiving water conditions, existing maintenance practices and frequencies, determine if enhanced maintenance would benefit Scriber Creek and Lake. If benefit is apparent, options for enhanced maintenance methods would be identified, use a "levels of service" approach with costs for staffing and equipment.	$24,200	one-time	✓		Assumes 120 hours consultant time and 40 hours stormwater engineer to coordinate.
SE-3. Conduct enhanced storm system maintenance	Stormwater Program Enhancement	Conduct staff training and establish tracking for enhanced storm system maintenance.	Unknown	Unknown		✓	Cost is dependent on determination of actions identified when the storm system enhancement plan is developed (SE-2).
SE-4. Conduct outreach on avian fecal sources	Stormwater Program Enhancement	Develop and implement an outreach campaign discouraging feeding of birds and large populations of ducks and geese. Research other campaigns (i.e., Keep Wildlife Wild). Consider partnering with Parks Department.	$13,200	Annual	✓		Assumes 100 hours Education staff to research existing messaging and develop an approach. 20 hours annually for Education staff to implement messaging.
SE-5. Conduct a pet waste station sponsor program feasibility survey	Stormwater Program Enhancement	Identify neighborhood groups, homeowner associations, parks, and multi-family and commercial properties. Conduct outreach to property owners. Survey catchment to determine demand for pet waste stations. Track responses and complete a feasibility report of the demand and interest in property owners sponsoring a station.	$7,200	One-time	✓		Assumes 120 hours Education staff to conduct survey, outreach, track and complete feasibility report.
SE-6. Implement a pet waste station sponsor program	Stormwater Program Enhancement	If demand is substantial from the survey completed in SE-5, implement a pet waste station sponsor program.	$45,700	Annual		✓	Assumes equipment and bag supply purchase for 10 stations ($250 per station) established in 2031. 200 hours of Education staff time to coordinate new station installation icluding agreement for adoptee to maintain. Assumes 40 hours annually to track and coordinate installed stations 2031-2044. Assumes replacing or adding stations between 2031-2044.
SE-7. Conduct backyard pet waste pick up campaign	Stormwater Program Enhancement	Use social media tools to conduct a campaign targeting pet waste pick up in backyards	$7,200	Annual for 3 years	✓		Assumes initial cost for 60 hours of staff time to develop 5 messages and post to social media. Assumes 20 hours of staff time to refresh messages and post each year for a total of 3 years.
SE-8. Develop and post educational signage	Stormwater Program Enhancement	Develop and post educational signage around stormwater facilities and water bodies in the Scriber Creek catchment.	$20,000	One-time	✓		Assumes 80 hours of Education staff time to develop signs, coordinate with graphic designer, and sign costs.
Programmatic Action Subtotal					**Short-Term**	**Long-Term**	
					$254,100	**$84,800**	