STORMWATER MANAGEMENT PROGRAM PLAN

Permit # WAR 04-5519

City of Kenmore, WA

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INTRODUCTION

This document is the City of Kenmore's (City) Stormwater Management Program (SWMP) Plan. Preparation and maintenance of this SWMP Plan is required by the Washington State Department of Ecology (Ecology) as a condition of Section S5.A.2 of the Western Washington Phase II Municipal Stormwater Permit (Permit). The Permit covers discharges from regulated municipal separate stormwater sewer systems (MS4). Based on criteria outlined in the Permit, Ecology considers the City to be an operator of a MS4 and therefore required to obtain permit coverage.

The Permit authorizes the City to discharge stormwater to surface and ground waters of the state pursuant to conditions set forth in the Permit. A component of these conditions requires the City to produce and implement a SWMP as described in section S5 of the Permit. The SWMP Plan requires annual updates throughout the Permit. The SWMP Plan is included with each Annual Report due March 31st following each Permit year and is also available on the City's website. The reported year covers January 1st through December 31st.

REGULATORY BACKGROUND

The National Pollutant Discharge Elimination System (NPDES) permit program was created by the federal Clean Water Act of 1972 (as amended in 1977 & 1987). It is intended to protect and restore waters for "beneficial uses" such as fishing and swimming. The federal Environmental Protection Agency (EPA) has delegated permit authority to state environmental agencies and these agencies can set permit conditions in accordance with and in addition to the minimum federal requirements. In Washington State, EPA has authorized NPDES permitting, administration and enforcement to Ecology.

NPDES permits have been written for discharges from construction sites, concentrated animal feeding operations, industrial activities, publicly-owned wastewater treatment plants and municipal stormwater systems. The municipal stormwater permit is intended to reduce the impacts from both point source (i.e. construction site run-off) and non-point source pollution carried by stormwater.

Ecology defined two types of municipal permits based upon census populations. Phase I permits were issued to municipalities with populations greater than 100,000 and Phase II permits were issued to municipalities with populations less than 100,000. Ecology has issued the City multiple Phase II Permits beginning in 2007, including:

- First Permit: February 16, 2007 through February 15, 2012 (extended through August 31, 2012)
- Second Permit: September 1, 2012 through July 31, 2013
- Third Permit: August 1, 2013 through July 31, 2018 (extended through July 31, 2019)
- Current Permit: August 1, 2019 through July 31, 2024
- Next Permit: August 1, 2024 through July 31, 2029

DOCUMENT ORGANIZATION

This report comprises written documentation of the City's SWMP that is required to be submitted with the Annual Report. In accordance with the Permit terms, the SWMP has been designed to reduce the discharge of pollutants to the maximum extent practicable (MEP), meet state AKART requirements and protect water quality. The following sections describe the actions that the City has taken or will take to comply with the requirements of the Permit during the current reporting year of the SWMP.

To aid in tracking Permit requirements, this document has been organized into sections that correspond with the Special Conditions and are outlined in the Permit as follows:

- Section 1 – Stormwater Planning (S5.C.1)
- Section 2 – Public Education and Outreach (S5.C.2)
- Section 3 – Public Involvement and Participation (S5.C.3)
- Section 4 – MS4 Mapping and Documentation (S5.C.4)
- Section 5 – Illicit Discharge Detection and Elimination (S5.C5)
- Section 6 – Controlling Runoff from New Development, Redevelopment and Construction Sites (as required by S5.C.6)
- Section 7 – Operations and Maintenance (S5.C.7)
- Section 8 – Source Control Program for Existing Development (S5.C.8)
- Section 9 – Swamp Creek TMDL (S7)
- Section 10 – Monitoring and Assessment (S8)

For ease of reading, each section is organized into four subsections:

Subsection 1 "Permit Requirements" begins with an overview of Permit requirements and includes a table that outlines specific section requirements and their associated date of compliance.

Subsection 2 "Current Activities" describes activities that the City has accomplished in meeting compliance deadlines in the Permit year being reported.

Subsection 3 "Previous Activities" describes activities that the City accomplished in meeting compliance deadlines in previous Permit years.

Subsection 4 "Planned Activities" describes activities that the City plans to accomplish in order to meet upcoming compliance deadlines. Discussion of the activities in this section do not obligate the City to conduct them and are subject to change, as needed. This section provides the public with information on upcoming Permit activities to promote public involvement and participation and receive comments and questions.

Special Conditions S1 through S4 and General Conditions G1 through G20 apply to permit holders, though they do not result in specific program activities, nor is the SWMP required to document compliance with these activities. These conditions cover topics such as Permit coverage, what discharges are authorized under the Permit and legal guidelines for transferring, revoking and appealing the Permit. Penalties for non-compliance are also included in these conditions.

SECTION 1 – STORMWATER PLANNING

1.1 PERMIT REQUIREMENTS

The SWMP shall include a Stormwater Planning program to inform and assist in the development of policies and strategies as water quality management tools to protect receiving waters.

Table 1-1			
Minimum Performance Measure	Permit Section	Compliance Date	Compliance
Convene an inter-disciplinary team to develop program	S5.C.1.a	8/1/2020	YES
Respond to Annual Report questions regarding updates to long range plans	S5.C.1.b.i.a	3/31/2021	YES
Submit a report describing how water quality is being addressed in long range plans and other state-mandated plans related to growth or transportation	S5.C.1.b.i.b	1/1/2023	YES
Continue requiring LID principles and LID BMPs when updating, revising, and developing codes, rules, standards and annually report any barriers and measures to address them	S5.C.1.c.i.a	Annually	YES
Receiving Water Assessment and Watershed Inventory	S5.C.1.d.i	3/31/2022	YES
Document prioritized and ranked list of receiving waters	S5.C.1.d.ii	6/30/2022	YES
Develop a Stormwater Management Action Plan (SMAP) for at least one high priority catchment area	S5.C.1.d.iii	3/31/2023	YES

**N/A – Requirement is not required as of current reporting period*

1.2 CURRENT ACTIVITES

Stormwater Management Action Planning (SMAP)

The City developed a Stormwater Management Action Plan (SMAP), which has been divided into three deliverables throughout the course of this permit cycle, including a receiving water assessment and watershed inventory (completed March 31, 2022), receiving water prioritization (completed June 30, 2022), and a SMAP for at least one high priority catchment area(s) (completed March 31, 2023). The City prioritized and developed a SMAP for the Tributary 0057 basin. The SMAP was provided in the City's 2022 annual report to Ecology on March 31, 2023 and is available on the City's website.

Low Impact Development (LID)

The City continues to require LID Principles and LID BMPs when updating, revising, and developing new local development-related codes, rules, standards, or other enforceable documents. Annually, the City assesses and documents any newly identified administrative or regulatory barriers to implementation of LID Principles or LID BMPs and the measures to address the barriers, if applicable.

No additional barriers in the City's codes or standards relevant for LID implementation in 2023 were identified in the annual review. In particular, the following codes and standards identified in the City's 2016 LID Gap Analysis are monitored annually:

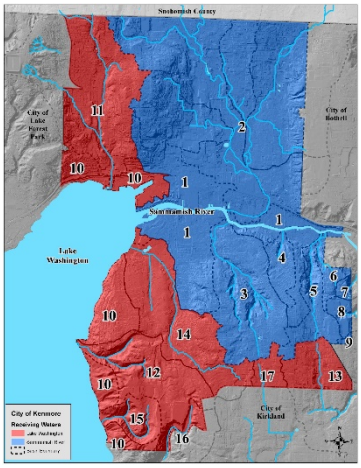
- Kenmore Municipal Code (KMC)
  - Title 12 (Street Standards)
  - Title 13 (Surface Water Management Program, Surface Water Runoff Policy, and Water Quality)
  - Title 15 (Buildings and Construction)
  - Title 17 (Land Division)
  - Title 18 (Zoning and Development Standards)
- King County Surface Water Design Manual (2021 is current version)
- Kenmore Road Standards

1.3 PREVIOUS ACTIVITIES

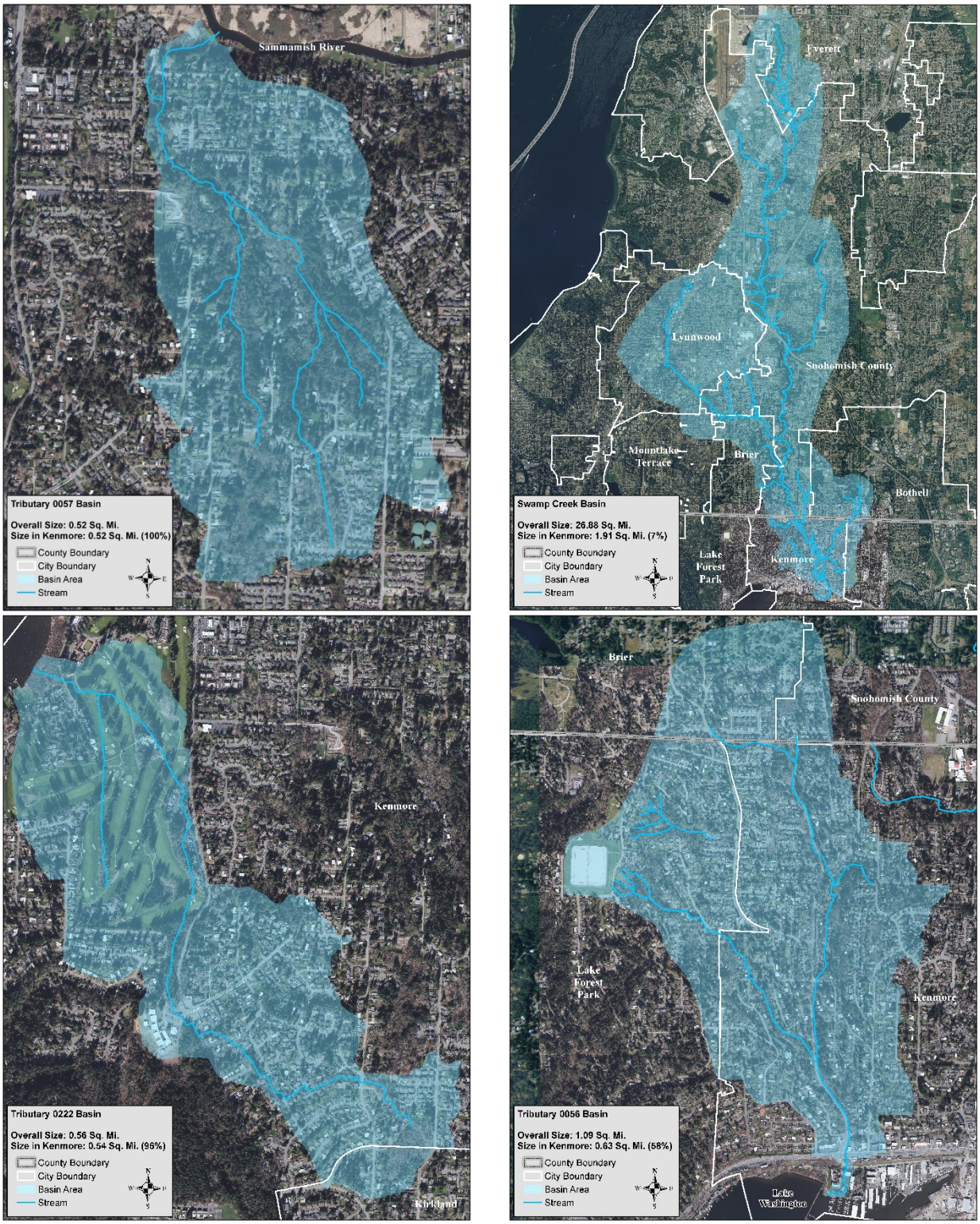
SMAP Development

Following guidance provided by Ecology, the City completed a watershed inventory and receiving water assessment, which included four steps; delineating basins and identifying receiving waters, assessing receiving water conditions, assessing stormwater management influence, and lastly, assessing relative conditions and contributions. The City evaluated 17 basins and four basins were identified for potential SMAP consideration, including Tributary 0056, Tributary 0057, Tributary 0222, and Swamp Creek (or smaller catchments within Swamp Creek). The table and figure below show the City's receiving waters and delineated basins.

Map Reference	Receiving Water	Basin Name	Overall Size (sq. mi)	Size within City of Kenmore (sq. mi)	% within Kenmore's jurisdiction	Stormwater Management Influence	Include in prioritization process (S5.C.1.d.i.a)
1	Sammamish River	Shoreline	0.83	0.83	100%	Moderate	No
2	Sammamish River	Swamp Creek	26.88	1.91	7%	Moderate	Yes
3	Sammamish River	Tributary 0057	0.52	0.52	100%	Moderate	Yes
4	Sammamish River	Unnamed Tributary 01	0.1	0.1	100%	Low	No
5	Sammamish River	Unnamed Tributary 02	0.17	0.17	100%	Moderate	No
6	Sammamish River	Unnamed Tributary 03	0.06	0.06	100%	Low	No
7	Sammamish River	Unnamed Tributary 04	0.045	0.021	46%	Low	No
8	Sammamish River	Valhalla Creek	0.11	0.05	41%	Low	No
9	Sammamish River	Waynita Creek	0.79	0.01	1%	Low	No
10	Lake Washington	Shoreline	0.47	0.47	100%	Moderate	No
11	Lake Washington	Tributary 0056	1.09	0.63	58%	Moderate	Yes
12	Lake Washington	Arrowhead Creek	0.4	0.4	100%	Low	No
13	Lake Washington	Juanita Creek	6.82	0.18	3%	Low	No
14	Lake Washington	Tributary 0222	0.56	0.54	96%	Moderate	Yes
15	Lake Washington	Tributary 0226	0.13	0.13	100%	Low	No
16	Lake Washington	Tributary 0227	0.25	0.07	28%	Low	No
17	Lake Washington	Denny Creek	1.33	0.07	5%	Low	No



The Four basins identified for consideration of a SMAP are shown in the figures below. Prioritization and selection of at least one basin for SMAP development was required by June 30, 2022 and the City selected Tributary 0057.



A SMAP for Tributary 0057 was developed and submitted to Ecology with the City's 2022 annual report on March 31, 2023 and is available on the City's website.

Long Range and State Mandated Plan Review

Staff reviewed several elements of the City's Comprehensive Plan, the Shoreline Master Program, and the Surface Water Master Plan to identify water quality and watershed protection policies, strategies, codes, and other measures intended to protect and improve local receiving water health. Plans are typically implemented through municipal code and adopted standards. Information gathered from these sources was used to respond to stormwater planning questions in the City's 2020 and 2022 annual reports. Additionally, the city has developed a Climate Action Plan and Comprehensive Plan Climate Action Element. A summary of the documents selected for review is provided in the table below.

Planning Document	State Requirement	Primary Implementation
Comprehensive Plan Land Use Element	Required Growth Management Act	Title 13 KMC (Surface Water Management) Title 15 KMC (Buildings and Construction) Title 18 KMC (Zoning and Critical Areas) Surface Water Design Manual Road Standards
Comprehensive Plan: Community Design Sub-Element	Optional	Title 18 KMC (Zoning and Critical Areas)
Comprehensive Plan: Natural Environment Sub-Element	Optional	Title 15 KMC (Buildings and Construction) Title 18 KMC (Zoning and Critical Areas)
Comprehensive Plan: Shoreline Sub-Element[A]	Required[B] Shoreline Management Act	Title 16 KMC (Shoreline Regulations) RCW 90.58
Comprehensive Plan: Transportation Element	Required Growth Management Act	Title 13 KMC (Surface Water Management) Surface Water Design Manual Road Standards
Comprehensive Plan: Climate Action Element	Required by 2029	Climate Action Plan
Comprehensive Plan: Surface Water Element	Optional	Title 13 KMC (Surface Water Management) Surface Water Design Manual Road Standards
Comprehensive Plan: Capital Facilities Element	Required Growth Management Act	City Biennium Budget Capital Improvement Program
Comprehensive Plan: Appendix C (Shoreline Restoration Plan)[A]	Required[B] Shoreline Management Act	Title 16 KMC (Shoreline Regulations) RCW 90.58
Surface Water Master Plan	Optional	Title 13 KMC (Surface Water Management) Surface Water Design Manual Road Standards
Climate Action Plan	Optional	Title 13 KMC (Surface Water Management) Title 15 KMC (Buildings and Construction) Title 16 KMC (Shoreline Regulations) Title 18 KMC (Zoning and Critical Areas)

[A] *The Shoreline Sub-Element, Appendix C (Shoreline Restoration Plan) and Title 16 KMC (Shoreline Regulations) comprise the City's Shoreline Master Program.*

[B] *The Shoreline Sub-Element and Appendix C (Shoreline Restoration Plan) are not required to be included in a Comprehensive Plan per the Growth Management Act; however, the city chooses to include it in this document to meet Shoreline Management Act requirements.*

1.4 PLANNED ACTIVITIES

Long-range Planning

The City plans to update the Surface Water Element of the Comprehensive Plan and the Surface Water Master Plan during 2024-2025.

Low Impact Development (LID)

The City will continue annual assessments to report newly identified administrative or regulatory barriers to implementation of LID Principles or LID BMPs and the measures to address the barriers, if applicable.

Stormwater Management Action Planning (SMAP)

Adaptive management of the Tributary 0057 SMAP will continue through future assessment and feedback, as outlined in the SMAP, to continually improve the planning process and ensure successful implementation of the actions identified in the plan.

The City will consider utilizing the SMAP process to continue developing SMAPs for the other three prioritized basins identified during the assessment and prioritization process, including Swamp Creek, Tributary 0056 and Tributary 0222. The SMAP process and format will also be considered during the Surface Water Element and Surface Water Master Plan updates being conducted during 2023-2024 to improve consistency of the existing basin planning sections in those documents.

SECTION 2 - PUBLIC EDUCATION AND OUTREACH

2.1 PERMIT REQUIREMENTS

The SWMP shall include an education program aimed at residents, businesses, industries, elected officials, policy makers, planning staff and other employees of the city. The goal of the education program is to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts. An education program may be developed locally or regionally. Table 2-1 outlines specific Permit requirements.

Table 2-1

Minimum Performance Measure	Permit Section	Compliance Date	Compliance
Education and Outreach Program, General Awareness	S5.C.2.a.i	Ongoing	YES
Conduct new evaluation of ongoing behavior change program	S5.C.2.1.ii.b	7/1/2020	YES
Develop Behavior Change Program	S5.C.2.a.ii.c	2/1/2021	YES
Implement Behavior Change Program	S5.C.2.a.ii.d	4/1/2021	YES
Evaluate Behavior Change Program	S5.C.2.a.ii.e	3/31/2024	YES
Stewardships & Partnerships	S5.C.2.a.iii	Ongoing	YES

**N/A – Requirement is not required as of current reporting period*

2.2 CURRENT ACTIVITIES

2024 Dumpster Outreach Campaign Evaluation

In 2021, the City of Kenmore implemented the Dumpster Outreach Campaign in accordance with the community based social marketing behavior change requirements as specified in S5.C.2.a.ii(c). The goal of the program is to educate businesses and encourage them to close the lids on their dumpsters every time they take out trash or recycling. As a part of a regional effort, Kenmore collaborated with 30 other jurisdictions in developing and implementing the program and leveraged collective resources to create a successful region-wide campaign.

Development of the program began in 2019 when the City began considering how and where to implement a dumpster outreach program. In Kenmore, most businesses are located on NE Bothell Way (SR522) and NE 175th St (see Figure 1). These parallel corridors drain directly into the Sammamish River or lake Washington and most businesses are within one-quarter mile of their respective outfalls. When spills or other pollution generating activities occur at these businesses, it is very likely that the illicit materials make it to the receiving waterbody. This proximity to receiving waterbodies makes preventative outreach crucial for preventing dumpster related illicit discharges and increasing awareness of stormwater issues in general.

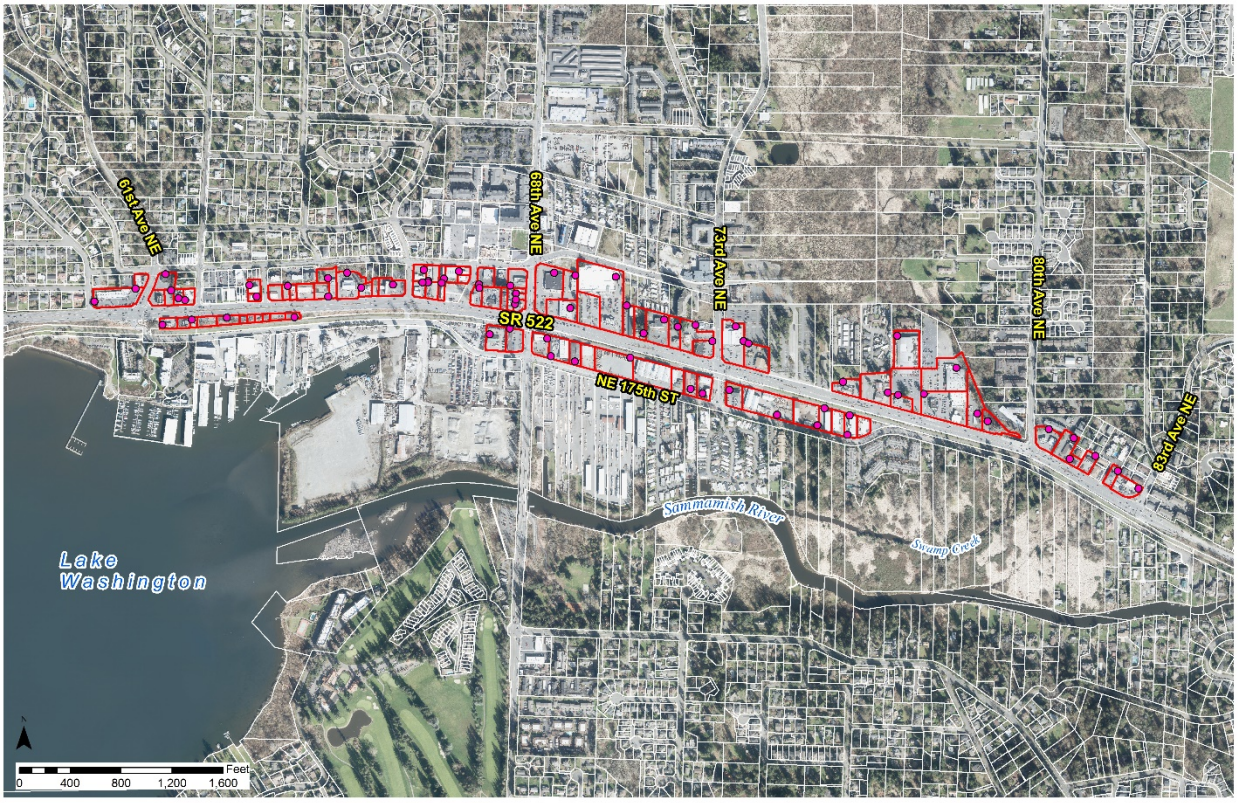


Figure 1. Map of Kenmore businesses along the SR522 corridor.

In 2019, city staff conducted a field survey of approximately 70 businesses along the SR522 corridor to determine where dumpsters were located and get a snapshot of how they were being managed. This was a data gathering exercise and no outreach was provided at the time of the field survey. Data collected included business type, number and type of dumpsters, dumpster lid status, and overall site conditions. At the time of this initial field survey, 69% of the 117 dumpsters observed had their lids closed. Regional dumpster audit results, using data combined from participating municipalities, were very similar to Kenmore's, with 66% of all surveyed dumpsters having an open lid.

After completion of the initial audit, in early 2021, five businesses were selected along the 522 corridor and a more in-depth, two-week field survey was conducted to get a better idea of how dumpster areas were being managed at these sites. Of those five sites, two businesses were ultimately selected to conduct a pilot program, which would include an outreach component. During the pilot program, the city met with each business and provided background information, materials, and toolkit items pertinent to that site. Toolkit items included stickers on each dumpster, posters for inside the business and the dumpster area, fact sheets, and reminder cards. The city did periodic windshield surveys of the dumpster areas to evaluate the success during implementation, intermittent checks, and as a final evaluation. For the two businesses included in the pilot program, there was an observed increase in dumpster lid closing from 37.5% prior to implementation of the pilot program, to 68.3% post-implementation. Other regional partners conducted similar pilot programs, and when concluded, results were combined to evaluate and improve the program.

Photo 1. Dumpsters at one of the pilot businesses pre-implementation

Photo 2. Dumpsters at one of the pilot businesses post-implementation.

In 2022, the City of Kenmore began its full implementation of the Dumpster Outreach Program using the lessons learned from the pilot program. For selected businesses, the first step consisted of a pre-implementation survey where City staff visited each site twice in a seven-day period, cataloguing general site conditions, the total number of dumpsters, and how many of those dumpsters had open lids. After completion of the pre-implementation survey, City staff then reached out to property managers and property owners for selected businesses, informing them of the program, its basis, and its goals. Staff then met on site with each businesses property owner or manager to distribute and install materials including stickers and signs as well as address and questions. Upon implementation of the program at each selected site, the final step is periodic, random site visits to keep track of the status of each business's dumpster lids.

In 2022, business selection for implementing the Dumpster Outreach Program was done on a geographic basis. An initial list of twelve businesses were selected starting at the Western end of the SR522 corridor through Kenmore. After the two windshield surveys for these 12 businesses were completed, there was a baseline dumpster closure rate of 100%. At one-week, three-month, 6-month, and 12-months post implementation, the closure rate for all twelve businesses continued to be 100 percent. In 2023, this implementation continued, and an additional eight businesses were selected to the East of the original 12. After the two windshield surveys for these 8 businesses were completed, there was a baseline dumpster closure rate of 100%. At the one-week, and three-month intervals post implementation, the lid closure rate continued to be 100 percent.

Based on the data from the 20 businesses included in the Dumpster Outreach Program up to this point, it is difficult to assess the changes in understanding and adoption of targeted behaviors resulting from the implementation of the strategy. For the 20 businesses selected during the permit period, the dumpster lid closure rate was observed to go from 100 percent prior to implementation to 100 percent post-implementation. This indicates no observable change in behavior due to the implementation of the program. The primary conclusion drawn from the implementation of the behavior change program at these 20 businesses is that it was effective in reinforcing and encouraging the continuation of existing positive behaviors, but no conclusions were able to be drawn regarding the program's effectiveness in changing the understanding and adoption of new behavior.

Data collected by Kenmore and other participating jurisdictions during the pilot program showed the behavior change strategy to be very effective for businesses observed to not be consistently closing dumpster lids. Therefore, to increase the program's effectiveness in the future, if the program continues, Kenmore plans to modify its implementation strategy to specifically target

businesses observed to not be consistently closing their dumpster lids. This can be done through several steps. First, conduct a new business audit similar to the one performed in 2019. This will help identify new businesses, identify new trends, and set a new baseline for the campaign. Second, implement a new pilot program to assess the continuing effectiveness of the current behavior change toolkit and implementation strategy. Finally, transition from a geographic based implementation schedule to a system based on identifying and targeting businesses not participating in the targeted behavior of closing dumpster lids. This should be done by incorporating the program into the city's existing private drainage facility and/or source control inspection programs. By keeping track of dumpster status at businesses during inspections, we will be able to identify businesses of interest for the behavior change program, perform subsequent windshield surveys to determine a baseline pattern for lid closure, and then implement the behavior change program.

2023 SOG Bus Ad Campaign

As part of the Eastside Stormwater Outreach Group (SOG), Kenmore participated in a Bus Ad campaign beginning in Puget Sound Starts Here Month (September). This general awareness campaign targeting the general public with messaging centered on the impacts of pet waste on stormwater and surface waters. The ads were seen around Kenmore and other jurisdictions for months after the campaign ended. According to Intersection, the consultant who managed the project, the campaign made 1,423,725 impressions across the region.

2023 Puget Sound Starts Here Outreach and STORM

Kenmore continues to participate in regional efforts through STORM (**ST**ormwater **O**utreach for **R**egional **M**unicipalities). This year, Puget Sound Starts Here Month was a digital media campaign that focused on tire care. The campaign was designed to raise awareness regarding tire maintenance and its link to 6PPD-q pollution in the greater Puget Sound region. Regionally the program made over 8.5 million total impressions and delivered over 64,000 clicks to the Puget Sound Starts Here website while in Kenmore, the campaign generated 19,000 total impressions and 40 new users on the PSSH website.

2023 Social and Print Media Outreach

The city's Environmental Services Division continues to output information to Kenmore residents via social media and the city's printed and electronic newsletters. The social media posts included information and messaging on general awareness topics such as pet waste, reporting spills, vehicle maintenance, water quality, BMP's, clearing drains, and more. Articles printed in the City's E-newsletter and quarterly print newsletter typically feature seasonal topical information such as natural lawn care, car washing, updates on stormwater facility maintenance, drain clearing, or preparing for effects from storms.

2023 Summer Events

For 2023, the Environmental Services team hosted a booth at six City sponsored events including summer concerts, Earth Day, farmers markets, and more. The booth has educational games and materials to encourage the public to engage with important stormwater and water pollution related topics. The "poop toss" and watershed model are geared toward school-age children, but there were also informational posters for parents and older children that highlighted how to reduce their water pollution and impacts on local waterbodies.

2023 TESC and Construction Outreach

The city created outreach materials targeted at builders, developers, and homeowners to inform them on how to reduce their environmental impacts during construction. The Development Services Department distributes the materials to permit applicants based on the level of complexity of their project. There are materials for large sites and small site projects that include technical standards, inspection and maintenance triggers for BMP's, and common issues found on sites.

2023 Stewardship

In 2023 the city partnered with the Hamline Center for Global Environmental Education to implement the Adopt-a-Drain program in Kenmore, joining 16 other cities in the Puget Sound region that have an active program already. The program allows residents, businesses, or organizations to "adopt a drain", keeping it clear of leaves or debris and reporting through the online portal on the frequency and cleaning of their general maintenance. In addition to helping keep storm drains free and clear of debris throughout the year, the program also helps increase general awareness of stormwater systems and pollution prevention for individuals that participate. In the first year of the program, Kenmore has seen 74 drains adopted, with 352 pounds of debris reported cleaned.

The city continues to partner with organizations to offer stewardship opportunities to Kenmore residents. People for Environmentally Responsible Kenmore (PERK) is a resident group active in storm drain marking and public outreach activities. The Sno-King Watershed is a resident organization the city collaborates with on efforts including the Swamp Creek Restoration Project and Streamfest 2022. The organization is active in Kenmore performing activities such as water quality testing, riparian noxious weed removal and native plantings, trash pickups, and educational events.

Photo: Swamp Creek Restoration Project

2.3 PREVIOUS ACTIVITIES

2022 Content Calendar

In collaboration with the Eastside SOG, Kenmore participated in creation of a collaborative content calendar and image collection. There are over 20 BMP categories and 130 individual messages for everyone to share on their own city's social media. The content calendar and photo host site (flikr) was shared with Kenmore's social media team.

2021 Pond Sign Update

The city updated and installed new signage at 35 surface water facilities containing ponds or swales. Some of the signs were over 40 years old and had outdated King County information. The new signs draw attention, look updated, and emphasize the importance of local stream and watershed health.

Photo: Before and After Pond Signage

Regional Participation

Kenmore has been actively involved with regional outreach groups, such as STORM and its sub-group 'SOGgies', which allow the city to participate in larger regional campaigns, such as Puget Sound Starts Here, and reach Kenmore residents not only where they live, but also where they work and travel throughout Western Washington. Regional collaborations have been and continue to be an important component of the city's education and outreach program. Examples of past events that the city participated in, which were only possible as a regional effort, have included the 2018 "Certain Things Don't Mix" Comcast Commercial campaign and Puget Sound Starts Here night with the Seattle Mariners.

Business Source Control and Pollution Prevention Outreach

The city has contracted with Environmental Coalition of South Seattle (ECOSS) to conduct business source control outreach since 2013. The program provides local businesses with free spill kits and IDDE training. The city also receives data on outreach retention and spill kit usage.

2019 Stormwater Awareness Regional Survey

In order to continue to measure and understand the public's knowledge of stormwater pollution and impacts on local water quality the city conducted the fourth iteration of the Stormwater Awareness survey. Because this survey has been conducted multiple times, trends can be extrapolated over the ten-year span (2009, 2012, 2015, and 2019). The 2012 survey and the 2019 survey were conducted with nearly identical conditions and questions and are therefore the most comparable. Several of the behavior change programs implemented during the 2013-2018 permit were analyzed in this survey. Below is the general trend of each BMP behavior for the respective survey year with the desired behavior listed first.

	2019	2012	Results
How often is dog poop picked up on walks?			
Every time	84%	76%	Desired behavior frequency increased
Most times	4%	17%	
Left on Ground	>1%	1%	
Where is dog poop disposed of?			
Trash	84%	79%	Desired behavior frequency increased
Yard waste	9%	11%	
Other	7%	10%	
How often are cars washed at home?			
Never	73%	46%	Desired behavior frequency increased
Less than every 2 months	8%	28%	
More frequently	11%	25%	
Where does car wash water go if washed at home?			
Pervious surface	43%	12%	Desired behavior frequency increased
Impervious surface	52%	74%	
Other	5%	14%	
Continued on next page			
What would you do if you notice a vehicle leak?			
Get it checked	89%	91%	Desired behavior remained high with negligible change
Wait and watch	9%	7%	
Other	1%	2%	
	2019	**2012**	**Results**
How often are weed killers used?			
Never	49%	29%	Desired behavior frequency increased
Occasionally	43%	51%	
Regularly	3%	16%	
How often are pesticides used?			
Never	65%	62%	Undesired behavior remained low. Negligible change in desired behavior.
Occasionally	29%	32%	
Regularly	3%	3%	

Based on these trends, it appeared that the public shifted toward the desired behaviors overall. Specific campaigns like the "Poop Toss" game and "Don't Drip and Drive" were generally successful in changing behaviors. Some of the previous campaigns like Natural Yard Care and car washing outreach were also moderately successful. Many of these programs were aimed to have a far-reaching message to as many target audiences as would benefit from the message. While these behaviors may have improved, the audience tended to be more variable and less concentrated, therefore not following the principles of social marketing. To build upon Kenmore's citizens' knowledge of the BMP behaviors analyzed, the programs that were ongoing are beneficial to continue. However, to take a deeper dive into the principles of social marketing, extensive priority audience research was needed to develop a successful and audience-specific campaign.

Summer Concert Series Outreach Events

City staff have conducted surface water outreach activities at the city's annual summer concert series for many years. The following photos show various activities that the public can engage in during the concert events to raise stormwater and environmental awareness. Activities shown below are "Fish Hats", "Poop Toss", and "Watershed Model".

Photo: Summer Concert Series

Public Participation

The city funds a Volunteer Coordinator staff position in order to accommodate Kenmore residents' desire to volunteer their time and effort for city events. Events have included riparian/wetland restorations and plantings and youth projects to construct information stations at Lake Washington and Sammamish River, which have been used for surface water outreach.

The city continued talks with Kenmore citizens interested in forming a stewardship group for a local watershed, Swamp Creek. Initial discussions have explored ideas on what roles the group and city would have, the scope of activities that the group could accomplish and how the relationship can most benefit Swamp Creek.

The city has received grant requests from the Sno-King Watershed Council and awarded funds to this non-profit watershed group that works to improve the health of streams and watersheds in north King and south Snohomish Counties. This group is very active in the Swamp Creek Watershed and their activities provide a beneficial service to the citizens of Kenmore.

Catch Basin Marking

The city continues to provide highly visible plastic markers for placement next to catch basins within the city. The markers display "Only Rain Down The Drain" and present the logo for Puget Sound Starts Here. Markers were provided for both public and private use.

Seattle Times – Newspapers in Education 2015, 2016 & 2017

Kenmore partnered with its local Stormwater Outreach Group (SOGgies) to put together an outreach campaign with the Seattle Time's Newspapers in Education program. The multipage inserts were published in the Seattle Times on October 1, 2015, October 30, 2016 and May 7, 2017.

Each publication was unique and focused on a range of topics, including general stormwater information, low impact development, and specific behaviors such as car washing, pet waste, vehicle leaks and yard care. Each publication was provided in the print edition of the Seattle Times, on their webpage and thousands of copies were provided around the region to hundreds of participating schools all over Puget Sound, including Kenmore. Unfortunately, 2017 was the last year that the Seattle Times offered the program. A sample is shown in the photo below.

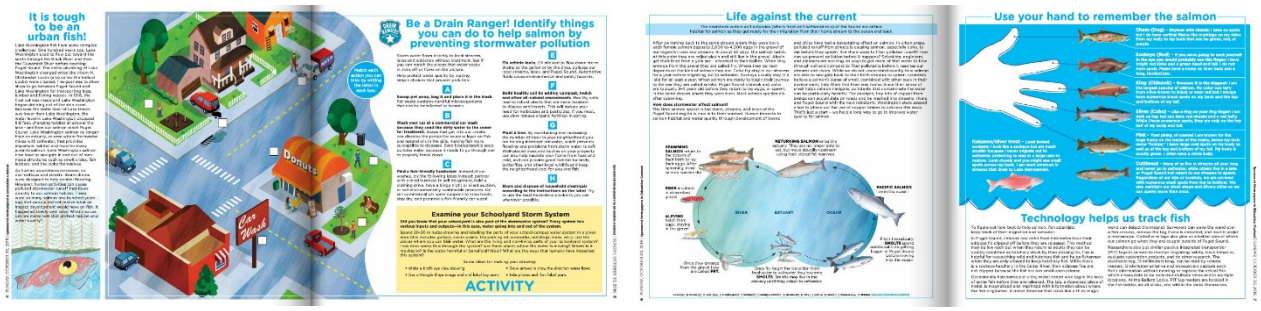


Photo: Seattle Times NIE

Newspaper, Online, Washington State Ferry and Metro Bus Ad Campaigns

The city, in partnership with local jurisdictions, has run numerous newspaper, online, ferry and bus stormwater education ads in recent years. The advertisements have typically been done in partnership with several other municipalities in the north Lake Washington area. The following photos show examples of the advertisements used.

Photo: Ad Campaigns

2.4 PLANNED ACTIVITIES

For 2024 the City will continue implementing and expanding many of the activities described above. The City may choose to continue implementing the Dumpster Outreach Program, which will be expanded to include additional businesses and will continue to be monitored and adapted for program success or develop a campaign as allowed in the next municipal stormwater permit. Kenmore will continue participating regionally with the multi-jurisdictional outreach group "STORM" and the local Stormwater Outreach Group, "SOGgies". The SOG will be coordinating throughout the year in order to produce a cost-sharing regional awareness campaign or generate new materials/media. The City will continue to have a booth with activities, games and outreach materials at events such as Earth Day, farmers markets, summer concerts, and more. General awareness campaigns will continue with an increased effort focused on city print and social media.

SECTION 3 - PUBLIC INVOLVEMENT AND PARTICIPATION

3.1 PERMIT REQUIREMENTS

Permittees shall provide ongoing opportunities for public involvement and participation through advisory councils, public hearings, watershed committees, participation in developing rate-structures or other similar activities. Each Permittee shall comply with applicable state and local public notice requirements when developing elements of the SWMP and SMAP.

Table 3-1			
Minimum Performance Measure	Permit Section	Compliance Date	Compliance
SWMP Public Input	S5.C.3.a	Annually	YES
SWMP Availability	S5.C.3.b	Annually	YES

3.2 CURRENT ACTIVITES

The annual report and Surface Water Management Program (SWMP) Plan is available online and comments are encouraged and accepted throughout the year. Contact information is provided for providing comment.

3.3 PREVIOUS ACTIVITIES

Low Impact Development Code Integration and Surface Water Manual Adoption

Ordinance 16-0428, effective on December 31, 2016, updated several chapters of Kenmore Municipal Code and adopted the 2016 King County Surface Water Design Manual. This process was required to integrate low impact development principles and standards into the City's existing development processes. Several Council and public meetings were held through the process.

Surface Water Master Plan and Comprehensive Plan Updates

In 2015 and 2016, the City updated the Surface Water Element of the city's Comprehensive Plan and the City's Surface Water Master Plan, which included public, planning commission, and council meetings. The plan updates included changes to address low impact development requirements in the Permit. These plans are available on the city's website.

The City developed a Climate Action Element of the Comprehensive Plan in 2023, which included sections pertaining to surface water and stormwater management. Several public meetings with the Planning Commission and City Council were held.

3.4 PLANNED ACTIVITIES

Each year, the City will update the SWMP and Annual Report and post it online. Citizens are encouraged to provide comment at any time throughout the year. The City plans to update the Surface Water Element of the Comprehensive Plan and the Surface Water Master Plan beginning 2024.

SECTION 4 – MS4 MAPPING AND DOCUMENTATION

4.1 PERMIT REQUIREMENTS

The SWMP shall include an ongoing program for mapping and documenting the MS4

Table 4-1			
Minimum Performance Measure	Permit Section	Compliance Date	Compliance
Ongoing Mapping, including: • Known MS4 outfalls and discharge points • Receiving waters, other than groundwater • Stormwater FC/WQ facilities • MS4 areas that do not discharge to receiving waters • Tributary conveyances greater than 24-inches • Connections between MS4s • All connections to MS4 after February 16, 2007	S5.C.4.a	8/1/2019	YES
Begin collecting size and material data for all known MS4 outfalls during normal course of business and update records	S5.C.4.b.i	1/1/2020	YES
Complete mapping of all known connections from the MS4 to a privately owned stormwater system.	S5.C.4.b.ii	8/1/2023	YES
The required format for mapping is electronic	S5.C.4.c	8/1/2021	YES

4.2 CURRENT ACTIVITIES

The City maintains an inventory of the MS4 in an ESRI ArcGIS database (see screenshot on next page), which is available to both city staff and the public (via the City's website). The City's MS4 GIS database is continuously updated, as needed, to reflect changes observed by inspectors or changes due to development, redevelopment, and construction. In 2022, the City's MS4 GIS database was updated to include stormwater infrastructure and Low Impact Development Best Management Practices included in Ecology's and King County's design manuals.

Mapping of size and material for all known MS4 outfalls (required starting 2020) has been implemented by the City since 2010. This data has been collected through extensive mapping efforts as well as through normal course of business. There are currently 310 known MS4 and private outfalls mapped in the ArcGIS database.

The Permit requires mapping of all know connections from the MS4 to privately owned stormwater systems, beginning 2023. This data has also been routinely collected through extensive mapping efforts as well as through the normal course of business and will continue being updated.

Additionally, the City hired a GIS Analyst to manage Permit mapping requirements and implement tools for more effective public access.

An example of the City's MS4 GIS map:

4.3 PREVIOUS ACTIVITIES

The City developed an inventory of the MS4 per requirements set forth in previous Permit cycles and has maintained this information in an ESRI ArcGIS database format.

4.4 PLANNED ACTIVITIES

The City will continue updating the MS4 GIS database, as needed, and will comply with minimum performance measures outlined in the Permit.

SECTION 5 - ILLICIT DISCHARGE DETECTION AND ELIMINATION

5.1 PERMIT REQUIREMENTS

The SWMP shall include an ongoing program designed to prevent, detect, characterize, trace, and eliminate illicit connections and illicit discharges into the MS4.

Table 5-1			
Minimum Performance Measure	Permit Section	Compliance Date	Compliance
The program includes procedural components for reporting, correcting, and removing illicit discharges, connections, and spills	S5.C.5.a	Ongoing	YES
Inform public employees, businesses and the general public of hazards associated with IDDE	S5.C.5.b	Ongoing	YES
Implement an ordinance effectively prohibiting non-stormwater discharges into the MS4	S5.C.5.c	Ongoing	YES
Implement field screening program	S5.C.5.d.i	Ongoing	YES
Field screening – 12% annually	S5.C.3.d.i.a	12/31/2022	YES
Publicly listed IDDE hotline	S5.C.5.d.ii	Ongoing	YES
Field staff training	S5.C.5.d.iii	Ongoing	YES
IDDE response program	S5.C.5.e	Ongoing	YES
IDDE staff training	S5.C.5.f	Ongoing	YES
Recordkeeping	S5.C.5.g	Ongoing	YES

5.2 CURRENT ACTIVITIES

Public Informational Outreach

The City conducts outreach throughout the year geared toward reducing illicit discharges, spills, and proper disposal of hazardous waste. City staff provides general pollution prevention outreach during events for the general public. The City also used social media to share messages about proper spill containment and reporting procedures. Public employees were informed about pollution prevention and hazards of improper procedures with informational flyers around city hall, as well as battery and lightbulb recycling on site.

Field Screening

City staff conduct annual IDDE field screening activities during catch basin inspections. Inspection staff were trained to conduct visual inspections to identify potential illicit discharges or illicit connections per the city's IDDE Program Manual and the Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments.

Illicit Discharge and Spill Hotline

During business hours, illicit discharges and spills are reported to the city's main phone line (425-398-8900). The City contracts with Americall to receive phone calls after business hours (253-274-6330). These phone numbers are listed on the Surface Water Home Page on the City's website, advertised in city newsletters, and posted on social media. There is also an option to report spills online via the City's website.

Training

Environmental Services staff are responsible for identification, investigation, termination, cleanup, and reporting of illicit discharges and are trained to conduct these activities. All city field staff are CESCL trained and most maintain current certifications, as construction sites are one of the most common sources of IDDE reports in Kenmore. Public Works Operations field staff are also trained in initial cleanup response and surface-level source tracing needed for adequate response procedures. All Environmental Services permanent and seasonal staff are trained to conduct source tracing, source identifying, field indicator identification, field screening, proper BMP's, and identifying general water quality concerns.

Tracking and Recordkeeping

The City maintains records of illicit discharges and connections, response actions taken and enforcement actions. All reports are tracked as a Service Request via Cityworks and coded as a *Surface Water - Water Quality* concern. All reports are investigated as soon as possible, and any cleanup effort is initiated as an emergency priority. Once the illicit discharge report is considered resolved, the Service Request is closed, and the applicable information is entered into the WQWebIDDE website.

Spills and Response Summary

In 2023, there were 37 suspected illicit discharges, spills or illicit connections reported to the City.

- No illicit discharge found/identified: 8
- Cleaned up before reaching MS4: 4
- Illicit discharge reached MS4: 25
    - Illicit discharge was removed from MS4 before reaching receiving waterbody: 22
    - Illicit discharge reached receiving waterbody: 3

5.3 PREVIOUS ACTIVITIES

Water Quality Ordinance

On June 21, 2022, Kenmore City Council passed ordinance 22-0551 amending Kenmore Municipal Code, Chapter 13.45 "*Water Quality."* KMC 13.45 is the City's IDDE prevention and enforcement mechanism. This amendment to the code adopted the 2021 King County Stormwater Pollution Prevention Manual (with addendum) to provide BMPs for commercial, multi-family and residential

properties covering a broad spectrum of activities that have the potential to create prohibited discharges.

Kenmore IDDE Program Manual

The City developed a manual that outlines all IDDE program elements required by the Permit. The manual is comparable to the Center for Watershed Protection's 2004 *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*. The Kenmore IDDE manual adds details for programs like field screening and diagrams for source tracing.

Receiving Water Visual Inspections – Outfall Reconnaissance Inventory (ORI)

Outfall Reconnaissance Inventories (ORI) were conducted on Swamp Creek, Muck Creek, Little Swamp Creek, Sammamish River, Lake Washington and Tributary 0057 during previous Permit cycles. The ORI consisted of dry weather outfall screening in an effort to identify potential illicit discharges from the MS4.

5.4 PLANNED ACTIVITIES

The City will continue to implement the Kenmore IDDE Manual and update as needed.

The City will continue to conduct annual field screening of the MS4. Field screening is conducted in conjunction with annual catch basin inspections.

SECTION 6 – CONTROLLING RUNOFF FROM NEW DEVELOPMENT, REDEVELOPMENT AND CONSTRUCTION SITES

6.1 PERMIT REQUIREMENTS

The City shall implement and enforce a program to reduce pollutants in stormwater runoff to the MS4 from new development, redevelopment, and construction site activities. The program shall apply to private and public development, including transportation projects.

Table 6-1

Minimum Performance Measure	Permit Section	Compliance Date	Compliance
Update Ordinance	S5.C.6.a	6/30/2022	YES
Ordinance shall include equivalent language to Appendix 1 of the Permit	S5.C.6.b.i	6/30/2022	YES
Ordinance shall include a site planning process and BMP selection/design criteria	S5.C.6.b.ii	6/30/2022	YES
Ordinance shall provide legal authority to inspect	S5.C.6.b.iii	6/30/2022	YES
Review all applicable site plans	S5.C.6.c.i	Ongoing	YES
Pre-inspect high sediment transport sites	S5.C.6.c.ii	Ongoing	YES
Inspect and enforce ESC	S5.C.6.c.iii	Ongoing	YES
Inspect stormwater facilities and catch basins in new residential developments every six months until 90% of lots are completed	S5.C.6.c.iv	Ongoing	YES
Inspect permanent stormwater facilities upon completion of construction and verify maintenance responsibility	S5.C.6.c.v	Ongoing	YES
Achieve at least 80% inspections	S5.C.4.b.vi	Ongoing	YES
Maintain records of inspections and enforcement actions	S5.C.6.c.vii	Ongoing	YES
Implement enforcement strategy to respond to issues of non-compliance	S5.C.6.c.viii	Ongoing	YES
NOIs for construction and industrial activity are available	S5.C.6.d	Ongoing	YES
Applicable staff are trained	S5.C.6.e	Ongoing	YES

6.2 CURRENT ACTIVITIES

The City adopted (via Ordinance 22-0551) and implements Chapter 13.35 Kenmore Municipal Code (Surface Water Runoff Policy), which establishes enforceable mechanisms addressing runoff from new development, redevelopment, and construction projects. This chapter also adopts the 2021 King County Surface Water Design Manual (SWDM), which is deemed equivalent to the minimum

requirements, thresholds, and definitions in Appendix 1 of the Permit and Ecology's Stormwater Management Manual for Western Washington.

The City implements a permitting process for all development, redevelopment and construction activities within the City that includes plan review, inspection and enforcement of all applicable development standards. For projects meeting the minimum requirements, thresholds, and definitions in Appendix 1 of the Permit and Ecology's Stormwater Management Manual for Western Washington, the City utilizes a mix of in-house staff and professional consultants during the development process, including:

- Stormwater site plans are reviewed by a licensed professional engineer. Depending on the project, the reviewer may include the City's Development Review Engineer, the City Engineer, the City Senior Engineer, or a consulting licensed professional engineer hired by the City.
- All development sites are inspected beginning at pre-construction and continue through construction until completion. City inspectors, engineers and the Code Enforcement Officer are trained on erosion and sediment control through the Certified Erosion and Sediment Control Lead (CESCL) program.
- The City has developed a process for inspection and acceptance of stormwater facilities, including treatment and flow control BMPs/facilities and catch basins at each stage of development. These stages include preconstruction, construction, final construction acceptance (prior to final approval), and a maintenance defect period to ensure proper function. Upon final acceptance of a stormwater facility after the maintenance defect period, ongoing maintenance is clearly defined and continues to either the City's private facility maintenance program or the City's public facility maintenance program.

Table 6-2 summarizes all reportable projects active in 2023. Reportable projects include any project subject to Permit requirements (beginning with the 2007 Permit), including:

- Meets the minimum thresholds equivalent to Appendix 1 of the Permit and Ecology's Stormwater Management Manual for Western Washington. The City has adopted the King County Surface Water Design Manual (currently the 2021 edition), which has been deemed equivalent to Ecology's required standards.
- Projects over 1-acre initiated (approved permit) on or after February 16, 2010 through December 31, 2016 that trigger the minimum thresholds equivalent to Appendix 1 of the Permit and Ecology's Stormwater Management Manual for Western Washington.
- Projects initiated (date permit applied for) on or after January 1, 2017, including projects under 1-acre, that trigger the minimum thresholds equivalent to Appendix 1 of the Permit and Ecology's Stormwater Management Manual for Western Washington.
- Projects initiated (date permit applied for) before January 1, 2017 that haven't started construction by January 1, 2022 that trigger the minimum thresholds equivalent to Appendix 1 of the Permit and Ecology's Stormwater Management Manual for Western Washington.

Project Type	Active Projects	2023 Status (Jan 1 – Dec 31)
Residential	46	33 Construction Started 13 Under Review
Townhomes	9	8 Construction Started 1 Under Review
Apartments	2	0 Construction Started 2 Under Review
Commercial	1	0 Construction Started 1 Under Review
Land Division	31	21 Construction Started 10 Under Review
Park Project	3	2 Construction Started 1 Under Review
Road Project	3	3 Construction Started 0 Under Review
Drainage Project	3	1 Construction Started 2 Under Review
Total	**98**	**68 Under Construction** **30 Under Review**

Table 6-2 Project Summary

6.3 PREVIOUS ACTIVITIES

LID Integration and Surface Water Design Manual Adoption

Beginning in 2014, the City reviewed and updated long range plans relevant to integrating LID into the City's development programs, including the Comprehensive Plan and the Surface Water Master Plan. In late 2015, the City hired a consultant (AHBL, Inc.) to assist the City with the review and update of codes and standards. AHBL was the consultant used by the Puget Sound Partnership to prepare the region's primary LID integration guidebook referenced in the Permit (Integrating LID into Local Codes: A Guidebook for Local Governments) and they are a trusted expert in this field. In late 2016, the City Council passed Ordinance 16-0428, which made changes to several sections of Kenmore's Municipal Code and adopted the 2016 King County Surface Water Design Manual, which is deemed equivalent to Ecology's Surface Water Design Manual, as required by the Permit. A copy of Ordinance 16-0428 can be found on the city's website and both Ecology and King County design manuals are available on their respective websites.

Prior Surface Water Design Manual Adoption

On December 12, 2016, City Council passed Ordinance 16-0428 amending Kenmore Municipal Code 13.35 *Surface Water Runoff Policy* and adopted the King County 2016 Surface Water Design Manual.

On January 11, 2010, City Council passed Ordinance 10-0305 amending Kenmore Municipal Code 13.35 *Surface Water Runoff Policy* and adopted the King County 2009 Surface Water Design Manual.

Prior to 2010, the City utilized the 1998 King County Surface Water Design Manual.

6.4 PLANNED ACTIVITIES

The City will continue implementing the 2021 King County Surface Water Design Manual and all other relevant standards required by the 2019 Western Washington Phase II Municipal Stormwater Permit.

SECTION 7 - POLLUTION PREVENTION AND OPERATIONS AND MAINTENANCE FOR MUNICIPAL OPERATIONS

7.1 PERMIT REQUIREMENTS

The City shall implement and document a program to regulate private maintenance activities and to conduct City maintenance activities to prevent or reduce stormwater impacts.

Table 7-1			
Minimum Performance Measure	Permit Section	Compliance Date	Compliance
Adoption of maintenance standards as protective of SMMWW	S5.C.7.a	6/30/2022	YES
Annual inspection of facilities regulated by the city	S5.C.7.b	12/31/2022	YES
Annual inspection of facilities owned and operated by the city	S5.C.7.c.i	12/31/2022	YES
Spot check facilities after major storms	S5.C.7.c.ii	Ongoing	YES
Inspect and clean all applicable catch basins	S5.C.7.c.iii	Ongoing	YES
Achieve 95% inspection rate	S5.C.7.c.iv	Ongoing	YES
Implement practices and policies to reduce stormwater impacts	S5.C.5.f S5.C.7.d	12/31/2022	YES
Implement an ongoing training program	S5.C.7.e	Ongoing	YES
Develop a SWPPP for applicable sites	S5.C.5.h S5.C.7.f	12/31/2022	YES
Maintain records of inspections and maintenance	S5.C.5.i	Ongoing	YES

7.2 CURRENT ACTIVITIES

The City continues to implement the Operations & Maintenance Practices and Policies Manual, which describes the city's operations & maintenance program in detail. To briefly summarize, the City conducts the following program activities:

- Annually inspect all private stormwater facilities. Private facilities include all treatment and flow control BMPs/facilities operated and maintained by the private property owner but are inspected by the City to enforce maintenance. In the current reporting period, this included 155 facilities.

Facilities Regulated by the City	
Private Facilities Total	155
Private Facilities Inspected	155
Private Facilities Passed Inspection	67
Private Facilities Need Maintenance	88
Maintenance Completed 2023	25*

**Maintenance schedules continue into 2024*

- Annually inspect and maintain all public stormwater facilities. Public facilities include all treatment and flow control BMPs/facilities owned or operated by the City. Acceptance of public facilities constructed by private developers typically includes acceptance of substantial completion and/or final construction and then at least a two-year maintenance/defect period, in which the developer is responsible for maintaining the new facility. The list below includes all public facilities that have passed the acceptance of substantial completion and/or final construction but may still be in maintenance/defect (city staff begin annual inspections during this period). In the current reporting period, this included 242 active facilities. The table below shows the breakdown of public facility inspections and maintenance. Due to inspections being performed throughout the calendar year, some maintenance from 2022 inspections was performed in 2023.

Facilities Owned/Operated by the City	
Public Facilities Owned and/or Operated by the City	242
Public Facilities Inspected	242
Public Facilities Requiring Maintenance	135
Maintenance Completed 2023	101*

**Maintenance schedules continue into 2024*

- Spot check facilities and other critical drainage areas before and after significant storm events.
- Annually inspect all catch basins owned and operated by the City and clean them, if needed. The current reporting year was the City's fourteenth consecutive year of annual catch basin inspections.

Catch Basins Owned/Operated by the City	
MS4 Catch Basins Total	4689
MS4 Catch Basins Inspected	4167
MS4 Catch Basins Cleaning Needed	352
MS4 Catch Basins Cleaned in 2023	368
MS4 Catch Basins Maintenance Needed	96
MS4 Catch Basins Maintained in 2023	92*

**Maintenance continues into 2024*

- Implement practices, policies, and procedures to reduce stormwater impacts associated with runoff from all lands owned or maintained by the City and road maintenance activities under the control of the City. These are documented in the City's Operations & Maintenance Practices and Policies Manual.
- City staff responsible for operations, maintenance or construction activities are trained on applicable procedures and standards, which include erosion sediment control and IDDE.
- Implement a Stormwater Pollution Prevention Plan (SWPPP) for the City's storage yards, which currently includes two sites.
- Maintain records of operations and maintenance activities, which is primarily accomplished through the City's asset/inspection/work order management system (Cityworks).
- The City Council passed Ordinance 22-0551 on June 21, 2022, amending Kenmore Municipal Code 13.35 *Surface Water Runoff Policy*. The ordinance also adopted the 2021 King County Surface Water Design Manual, which contains the City's maintenance standards (Appendix A). The manual can be found on King County's website and the City's addendum can be found on the City's website.
- A major update to Operations & Maintenance Practices and Policies Manual (OMPPM) was completed on 12/31/2022. A copy of the OMPPM can be found on the City's website.

In 2023, the City hired a third Environmental Services Technician to meet the growing demand for facility inspections and work order management for operations & maintenance and support implementation of other programs within the SWMP Plan. The City also hired two additional operations and maintenance staff to continue meeting the requirements of the Permit.

7.3 PREVIOUS ACTIVITIES

In 2019, the City hired five additional operations and maintenance staff to continue meeting the requirements of the Permit. These staff received applicable training, including spill response, IDDE and CESCL. A temporary Public Works yard was established, and the City plans to develop a permanent Public Works shop as soon as possible.

In 2018, the City hired a second Surface Water Technician (later changed to Environmental Services Technician) to meet growing demand for facility inspections and work order management for operations & maintenance and support implementation of other programs within the SWMP Plan.

In order to comply with many of the O&M requirements set forth in the Permit, the City developed the Operations & Maintenance Practices and Policies Manual (OMPPM). The OMPPM contains inspection program details, O&M practices, O&M policies, SWPPPs, maintenance standards,

nutrient management plan, integrated pest management plan and information regarding current O&M contracts. The OMPPM can be found on the City's website. The OMPPM is updated as needed to stay current with Permit requirements and the SWMP Plan.

7.4 PLANNED ACTIVITIES

The City will continue implementing applicable operations and maintenance policies and procedures from the updated OMPPM and will continue to comply with the requirements set forth in the Permit and plans to update accordingly, as needed.

SECTION 8 – SOURCE CONTROL PROGRAM FOR EXISTING DEVELOPMENT

8.1 PERMIT REQUIREMENTS

The City shall implement a program to prevent and reduce pollutants in runoff from areas that discharge to the MS4.

Table 8-1			
Minimum Performance Measure	Permit Section	Compliance Date	Compliance
Implement an ordinance, or other enforceable mechanism, requiring source control for pollution generating sources associated with identified land uses.	S5.C.8.b.i	8/1/2022	YES
Establish an inventory of institutional, commercial, and industrial sites.	S5.C.8.b.ii	8/1/2022	YES
Implement an inspection program.	S5.C.8.b.iii	1/1/2023	YES
Annually complete a number of inspections equal to 20% of the number of sites listed in the inventory.	S5.C.8.b.iii.b	12/31/2023	YES
Inspect 100% of sites identified through credible complaints.	S5.C.8.b.iii.c	1/1/2023	YES
Implement a progressive enforcement policy	S5.C.8.b.iv	1/1/2023	YES
Train staff responsible for implementing the source control program	S5.C.8.b.v	1/1/2023	YES

8.2 CURRENT ACTIVITIES

The City hired an additional Environmental Service Technician in 2023 to provide additional resources to implement the source control program.

The City began conducting source control inspections at Kenmore business in 2023. Property/business owners were mailed letters prior to site inspections introducing them to the source control program and providing them information about activities that may generate pollutants and applicable BMPs which may be required. When site inspections identified the need for source control BMPs, attempts were typically made to discuss on-site with the property manager to provide education and technical assistance. The property owner/manager was subsequently mailed and/or emailed a correction letter identifying the required source control BMPs to bring the property into compliance with city code.

A total of 50 businesses were inspected during 2023 with some sites receiving follow-up inspections to ensure that required source control BMPs were correctly implemented.

The City established an inventory of publicly and privately owned institutional, commercial, and industrial sites which have the potential to generate pollutants to the MS4. The inventory was created based on a couple factors, including:

- Sites identified based on their Standard Industrial Code (SIC), SIC Industry Group Number, and/or North American Industrial Classification System (NAICS) code. Activity codes determined by Ecology to have potential for pollutant generating sources were provided in Appendix 8 of the Permit.
- Sites with known pollution generating sources, such as existing private stormwater facility owners or sites with historical complaints.

The inventory, as of December 31, 2023, includes 278 sites. It should be noted that the inventory includes sites that do not discharge to the MS4, which exceeds the minimum requirements set forth in the Permit. The City determined that applying source control measures to all applicable sites in the City, whether they discharge to the MS4 or directly to receiving waters, was critical to protect and enhance the quality and health of the City's natural resources and was more fair to the business community as a whole.

Applicable City staff have received training for source control inspections and ongoing training is expected.

8.3 PREVIOUS ACTIVITIES

The City Council passed Ordinance 22-0551 on June 21, 2022, which adopted the 2021 King County Stormwater Pollution Prevention Manual (SPPM) and amended chapters 13.32, 13.35 and 13.45 Kenmore Municipal Code. These code sections provide the enforceable mechanism to require source control for pollutant generating sources associated with existing land uses and activities.

City staff reviewed existing municipal code to identify any changes needed to implement the source control program.

City staff began work to create an inventory of sites to include in the source control program.

8.4 PLANNED ACTIVITIES

The City will continue to conduct source control inspections at Kenmore business and work with property/owners and managers. To continue to implement the City's progressive enforcement policy, reinspections of sites with unresolved source control issues will be prioritized in 2024 and applicable enforcement strategies will be utilized to gain compliance.

SECTION 9 – SWAMP CREEK TMDL

9.1 PERMIT REQUIREMENTS

The city has an applicable TMDL as described under Special Condition S7 (TMDL) of the Permit. The *Swamp Creek Fecal Coliform Bacteria TMDL Water Quality Improvement Report and Implementation Plan*, dated May 2006, identified Swamp Creek as a TMDL for fecal coliform. The Permit requires that TMDL implementation activities be annually reported by the city. Implementation activities are described in Appendix 2 of the Permit.

Table 9-1

Minimum Performance Measure	Permit Section	Compliance Date	Compliance
Business Inspections	Appendix 2	Ongoing	YES
Public Education and Outreach	Appendix 2	Ongoing	YES
Operations and Maintenance	Appendix 2	Ongoing	YES
IDDE	Appendix 2	12/31/2021	YES
Targeted Source Identification & Elimination	Appendix 2	1/1/2021	YES
Surface Water Monitoring	Appendix 2	Ongoing	YES

9.2 CURRENT ACTIVITIES

2023 Business Inspections

Within Kenmore's portion of Swamp Creek, there are no businesses that require source control inspections for bacterial pollution. There is one horse owning residential property located in the Lower Swamp Creek subbasin, but it does not meet the criteria to be considered a "commercial animal handling area" as defined by SIC 075. There is also a hobby farm with llamas and alpacas located in the Swamp Creek basin, but this site does not meet the requirements for source control inspections.

2023 Public Education and Outreach

The City provides stormwater and bacterial pollution education and outreach materials on City social media, online and printed newsletter articles, and city sponsored events. In 2023, the Environmental Services Division had a booth at a total of six City sponsored events. These booths contained educational materials, games, and interactive models targeted towards pet waste management and bacterial pollution, The city's mobile watershed model has been used to demonstrate how pet waste is introduced into the watershed and to educate citizens on pet waste BMPs while staff provided a "poop toss" game to educate children and parents on proper pet waste management. The following photo shows children and parents enjoying the game at a 2019 public event.

2023 Operations and Maintenance

The City of Kenmore currently has multiple animal waste collection stations at all eight municipal parks. In addition, certain other city owned or maintained property and facilities that are reasonably expected to have substantial domestic animal (dog and horse) use have waste collection stations or pet waste signage. The stations/signage are posted as needed, based on facility specific considerations and factors such as requests from the public or observations by city staff. Waste collection stations are maintained regularly by city public works staff.

2023 IDDE Field Screening

The City screened for bacteria sources in all MS4 sub-basins which discharge to surface waters in the Swamp Creek TMDL area. This additional testing requires that each of the Swamp Creek sub-basins, or smaller contributing stream channels, are sampled for fecal coliform bacteria outside routine TMDL testing On July 19th, 2023, a total of four samples were collected from catch basins in the main Swamp Creek basin, the Muck Creek sub-basin, the Little Swamp Creek sub-basin, and the Little Swamp Creek Tributary 01 sub-basin. In each Swamp Creek sub-basin, MS4 sample results showed bacteria levels in conformance with Swamp Creek TMDL water quality standards (less than 50 CFU/100 mL). Additionally, these MS4 sample results were lower than surface water monitoring bacterial samples collected on the same day. Figure 9-1 shows a map of the TMDL area with the relevant sub-basins, IDDE sample locations, and sample results.

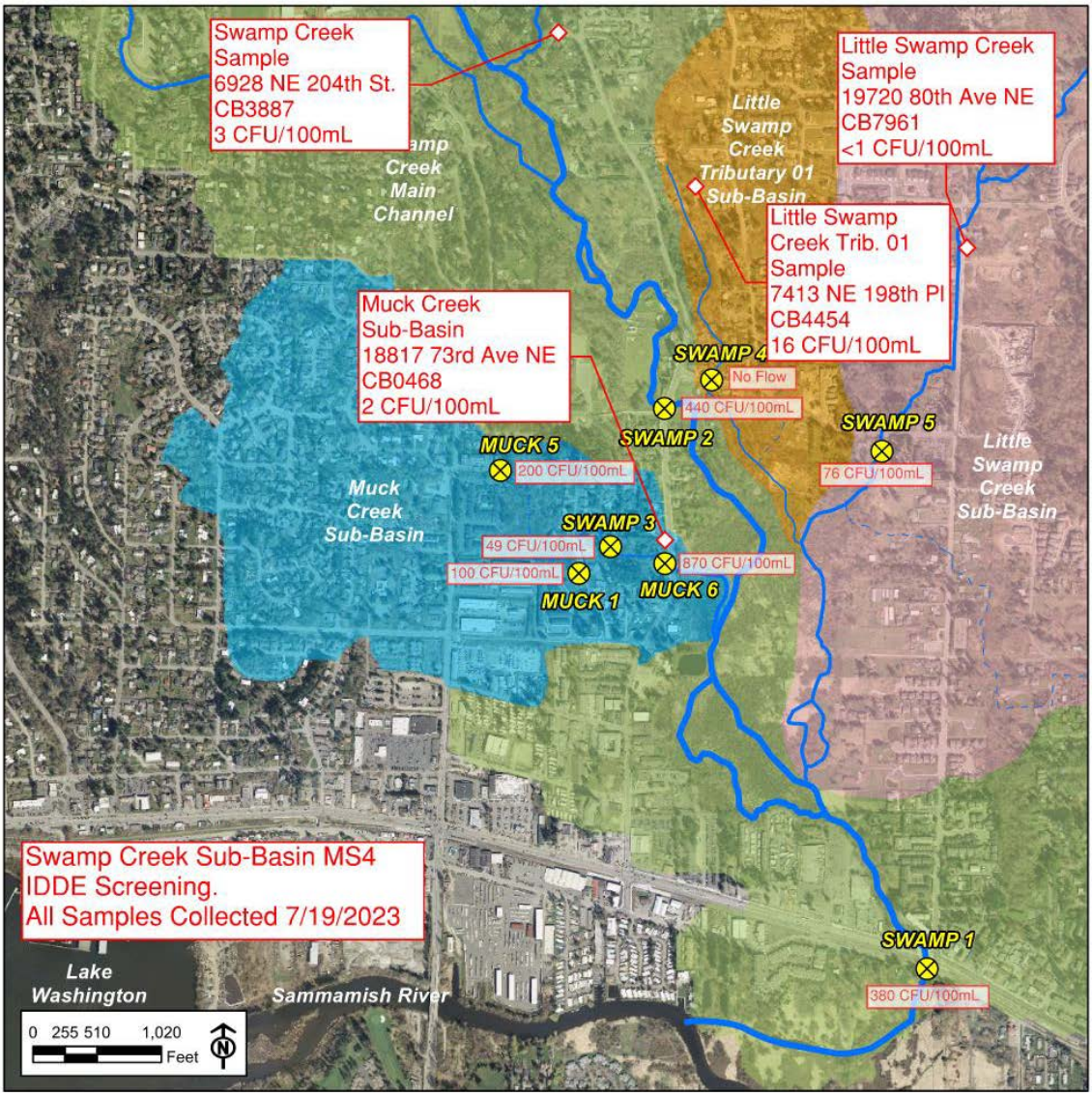


Figure 9-1. 2023 MS4 IDDE Screening locations and results.

2023 Targeted Source Identification and Elimination

By January 1st, 2021, the City of Kenmore reviewed fecal coliform and other relevant bacterial data to identify a new high priority area to be the focus of source identification and elimination efforts from 2021 to 2023. After reviewing bacteriological data collected from 2016-2020, it was determined that the previous high priority area, Swamp Creek sub-basin Muck Creek, would remain the highest priority area in terms of bacterial load. Beginning in 2021, sample locations in the Muck Creek sub-basin were redistributed downstream to focus targeted detection efforts.

Currently there are four locations within the high priority area: Muck 5, Muck 1, Swamp 3, and Muck 6 (upstream to downstream). Upstream of Muck 5, Muck Creek flows entirely through residential neighborhoods and is predominantly confined to the MS4. Muck 5 is located behind an apartment complex with an outdoor fenced dog park near the stream and a walking path that goes to the sampling location, just downstream of the outfall where Muck Creek daylights back to its

natural channel. Between Muck 5 and Muck 1, Muck Creek flows predominantly through forested and heavily vegetated critical areas with a history of beaver activity. The segment of Muck Creek between Muck 1 and Swamp 3 is primarily residential with a portion confined to the MS4 and a portion channelized through private property. Muck Creek between Swamp 3 and Muck 6 flows through heavily vegetated private property. Muck 6 is located just upstream of the Swamp Creek main channel and provides data regarding direct fecal bacteria output of the Muck Creek sub-basin contributing to the Swamp Creek basin. Figure 9-2 shows a map of current Swamp Creek TMDL sampling locations including the Muck Creek sub-basin.

Results from samples collected monthly at these four sampling locations show a trend of increasing fecal coliform numbers in the segments of Muck Creek from Muck 5 to Muck 1 and from Swamp 3 to Muck 6. This trend is consistent with samples collected through both the 2021, 2022, and 2023 calendar years. For the 2023 reporting period, fecal coliform levels at Muck 1, Swamp 3, and Muck 6 exceeded the geometric mean criterion of 50 colonies/100 mL, and 43 percent of all samples collected in the sub-basin exceeded 100 colonies/100mL, exceeding the 90th percentile criterion. Table 9-2 shows results and statistics for the Muck Creek sub-basin for the 2023 reporting year.

Table 9-2. 2023 Muck Creek TMDL Results

	Muck 5	**Muck 1**	**Swamp 3**	**Muck 6**
Sample Date	CFU/100mL	CFU/100mL	CFU/100mL	CFU/100mL
1/12/2023	420	180	340	75
2/23/2023	30	65	390	54
3/28/2023	6	8	11	53
4/26/2023	3	97	86	52
5/19/2023	17	71	140	1100
6/26/2023	70	180	300	1000
7/19/2023	200	100	49	870
8/16/2023	32	NF	520	3100
9/25/2023	1200	3800	990	5900
10/24/2023	7	33	110	130
11/20/2023	3	56	30	70
12/19/2023	36	14	49	9
2023 Geometric Mean	***33***	***82***	***129***	***224***
2023 90th Percentile	***398***	***180***	***507***	***2900***
2022 Geometric Mean	*22*	*77*	*39*	*139*
2022 90th Percentile	*146*	*395*	*198*	*493*
2021 Geometric Mean	*25*	*177*	*160*	*356*
2021 90th Percentile	*59*	*7900*	*4128*	*5540*

On 9/25/2023, additional water samples were collected at Muck 5 and Muck 6 and transported to the King County Environmental Lab for microbial source tracking analysis. These samples underwent testing for E. coli bacteria and human DNA biomarker analysis (Hu-2 Bacteroidales). E. coli results for the sample collected at Muck 5 were 1200 CFU/100ml, with a Hu-2 Bacteroidales presence less than the minimum detectable limit of 0.55 copies/ml. E. coli results for the sample collected at Muck 6 were 4900 CFU/100ml, with a Hu-2 Bacteroidales presence of 2.5 copies/ml.

This indicates a low abundance of human DNA detected by the test, as a single Bacteroides organism can have between 2 and 15 copies of the target gene detected by PCR.

2023 Surface Water Monitoring Results

The City started collecting water samples from five locations in August 2015 per the city's Swamp Creek Fecal Coliform Bacteria TMDL Quality Assurance Project Plan (QAPP), which was approved by Ecology on March 26, 2015. This section provides a summary of sampling data for the reporting year at those locations.

Water quality criteria for bacteria in Washington State for waters that have "extraordinary primary contact" (including Swamp Creek) state that the geometric mean value of samples should be less than 50 colony forming units (cfu) per 100mL, and no more than 10 percent of all samples should exceed 100 cfu per 100mL.

For the 2023 reporting period, fecal coliform levels at each sampling location exceeded the geometric mean criterion of 50 cfu/100mL and 47 percent of all samples collected exceeded 100 cfu/100mL, exceeding the 90th percentile criterion. Compared to the 2022 reporting year, there was an overall increase in fecal coliform levels at all locations. Geometric mean values at Swamp 1, Swamp 2, Swamp 3, Swamp 4, and Swamp 5 increased by 100, 74, 231, 25 and 31 percent respectively. Table 9-3 shows results and statistics for the Swamp Creek basin for the 2023 reporting year.

Table 9-3: 2023 Swamp Creek TMDL Results

	Swamp 1	**Swamp 2**	**Swamp 3**	**Swamp 4**	**Swamp 5**
	Main channel at NE 175th St. bridge	Main channel at 73rd Ave NE bridge	Swamp Creek at 18810 71st Ave NE	Little Swamp Creek Trib. 01 at NE 192nd St.	Little Swamp Creek at NE 192nd St.
Sample Date	CFU/100mL	CFU/100mL	CFU/100mL	CFU/100mL	CFU/100mL
1/12/2023	59	82	340	110	83
2/23/2023	28	32	390	37	110
3/28/2023	37	15	11	27	52
4/26/2023	61	39	86	130	10
5/19/2023	130	96	140	630	49
6/26/2023	290	210	300	1300	260
7/19/2023	380	440	49	NF	76
8/16/2023	870	210	520	NF	45
9/25/2023	1500	1600	990	4600	1200
10/24/2023	160	42	110	140	64
11/20/2023	44	91	30	110	20
12/19/2023	55	48	49	25	50
2023 Geometric Mean	***132***	***99***	***129***	***170***	***71***
2023 90th Percentile	***821***	***417***	***507***	***1630***	***180***
2022 Geometric Mean	*66*	*57*	*39*	*136*	*54*
2022 90th Percentile	*264*	*255*	*198*	*1020*	*270*
2021 Geometric Mean	*102*	*121*	*160*	*112*	*177*
2021 90th Percentile	*375*	*416*	*4128*	*1068*	*7900*

Figure 9-2 illustrates sample site locations from 2023. Table 9-4 summarizes bacterial concentrations for both Swamp Creek and Muck Creek for the indicated date ranges. The full dataset can be provided upon request.

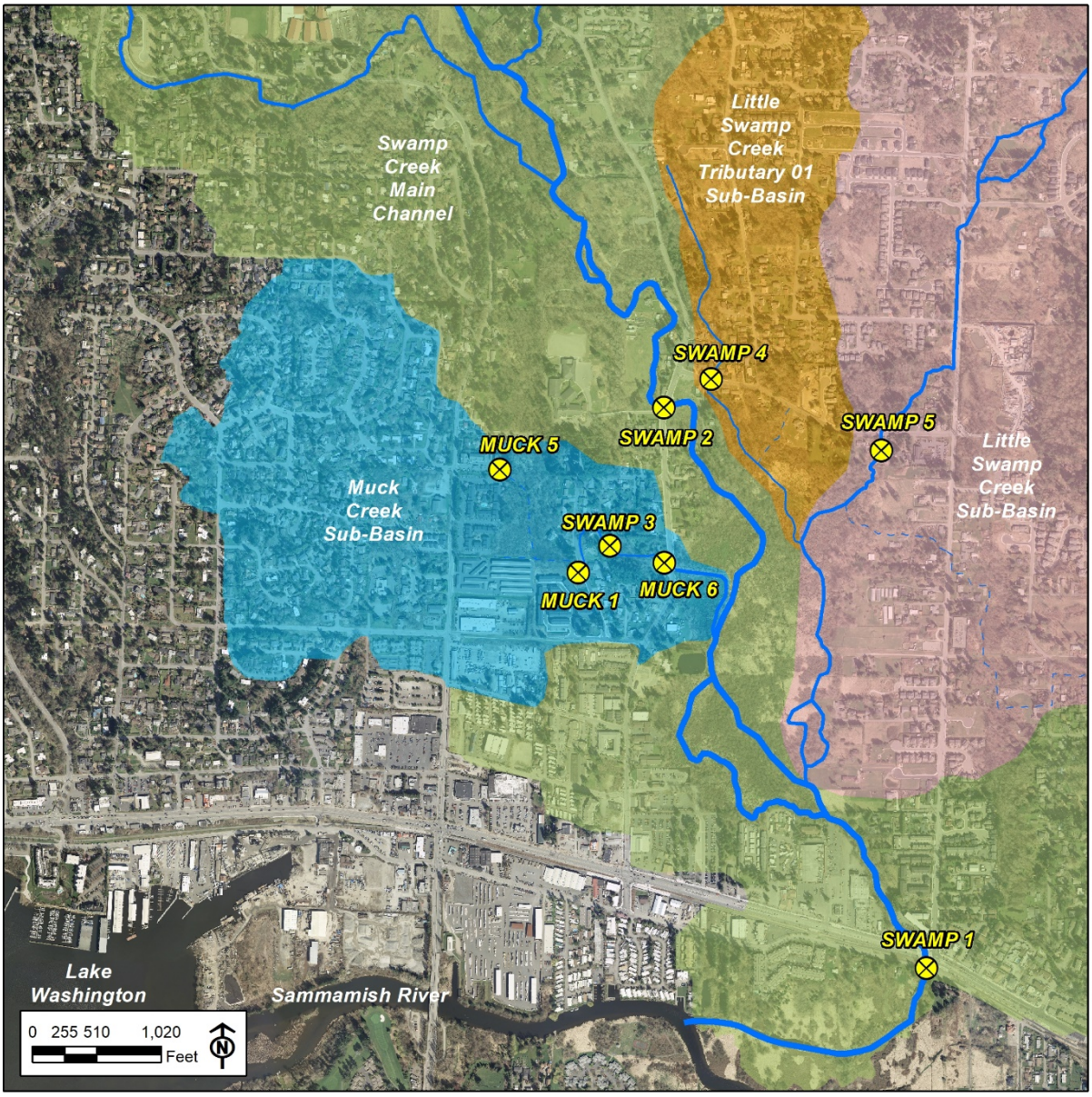


Figure 9-2. Sampling locations.

Tables 9-4 shows Swamp Creek sample values (geomean) from 2015 through 2023.

Table 9-4 (Swamp Creek Samples – Geomean)					
	SWAMP 1	**SWAMP 2**	**SWAMP 3**	**SWAMP 4**	**SWAMP 5**
	Fecal Coliform cfu/100ml	*Fecal Coliform* cfu/100ml	*Fecal Coliform* cfu/100ml	*Fecal Coliform* cfu/100ml	*Fecal Coliform* cfu/100ml
2015*	125	107	127	66	232
2016	134	143	136	155	210
2017	215	209	632	258	191
2018	78	63	141	49	156
2019	97	82	108	217	151
2020	92	96	65	158	66
2021	102	121	160	112	107
2022	66	57	39	136	54
2023	132	99	129	170	71
ALL SAMPLES	107	100	124	143	117

* Partial Year

Tables 9-5 shows Muck Creek sample values (geomean) from 2017 through 2023.

Table 9-5 (Muck Creek Samples – Geomean)						
	MUCK 1	**MUCK 2**	**MUCK 3**	**MUCK 4**	**MUCK 5**	**MUCK 6**
	Fecal Coliform cfu/100ml	*Fecal Coliform* cfu/100ml	*Fecal Coliform* cfu/100ml	*Fecal Coliform* cfu/100ml	*Fecal Coliform* cfu/100ml	*Fecal Coliform* cfu/100ml
2017	503	33	60	111	-	-
2018	109	12	31	31	-	-
2019	364	22	29	24	-	-
2020	105	13	25	33	-	-
2021	177	-	-	-	25	356
2022	77	-	-	-	22	139
2023	82	-	-	-	33	224
ALL SAMPLES	149	18	33	36	27	229

9.3 PREVIOUS ACTIVITIES

2021 High Priority Area Analysis

By January 1, 2021, the city reviewed fecal coliform data and other relevant bacterial data to identify a new high priority area to be the focus of source identification and elimination efforts from 2021 to 2023.

According to the city's bacteriological data from 2016-2020, the current high priority area, Swamp Creek sub-basin Muck Creek, will remain the highest priority area in terms of bacterial load. However, the city will adjust the testing sites further downstream to target, trace, and work toward eliminating the source or sources in the sub-basin.

In order to review the bacteriological data obtained from 2016-2020, the city ran statistical tests to compare the means and geomeans of the different sampling sites. MUCK 2, MUCK 3, and MUCK 4 are all on the upstream side of the basin that drains mostly residential areas and is adjacent to Northshore Utility District, the city's sewer service provider. These three sites consistently trended lower fecal recordings than MUCK 1, which is located further downstream, closer to the Swamp Creek Main Channel. MUCK 1 largely drains a natural area as well as the flows from MUCK 2, MUCK 3, and MUCK 4. Statistical tests confirmed that site MUCK 1 recorded values that are consistently and statistically different from the other three sites on the upstream end of the sub-basin ($p = 0.01$). Below are the summary statistics from December 2016 to December 2020.

	MUCK 1	MUCK 2	MUCK 3	MUCK 4
Geomean	196	17	28	33
Arithmetic Mean	730	149	326	124
90th Percentile	1930	180	494	466

Redistributing the testing sites further downstream by removing MUCK 2, MUCK 3, and MUCK 4 will help to narrow down the fecal bacteria source location. MUCK 5 is located behind an apartment complex with a history of dumping near the stream channel. It flows directly into the upstream end of the natural area that encompasses most of the Muck Creek sub-basin. MUCK 1 will remain at the downstream end of this natural area setting up a more concise comparison for future analysis. MUCK 6 is located just upstream of the Swamp Creek main channel and may provide data regarding direct fecal bacteria output of the Muck Creek sub-basin contributing to Swamp Creek Basin.

To obtain even more quantitative data, the city did bacteria source testing at MUCK 1 to determine if the high bacteria levels were a result form natural or unnatural sources. In November 2020, the city tested four genetic markers: Human, Canine, Avian, and Ruminant. The fecal coliform data indicated very low bacterial concentration in the water at the time of the sample and the source testing results showed that all species markers were below detection limits. The city plans to repeat this test during summer months when bacteria loads are typically higher to compare against the 2020 samples.

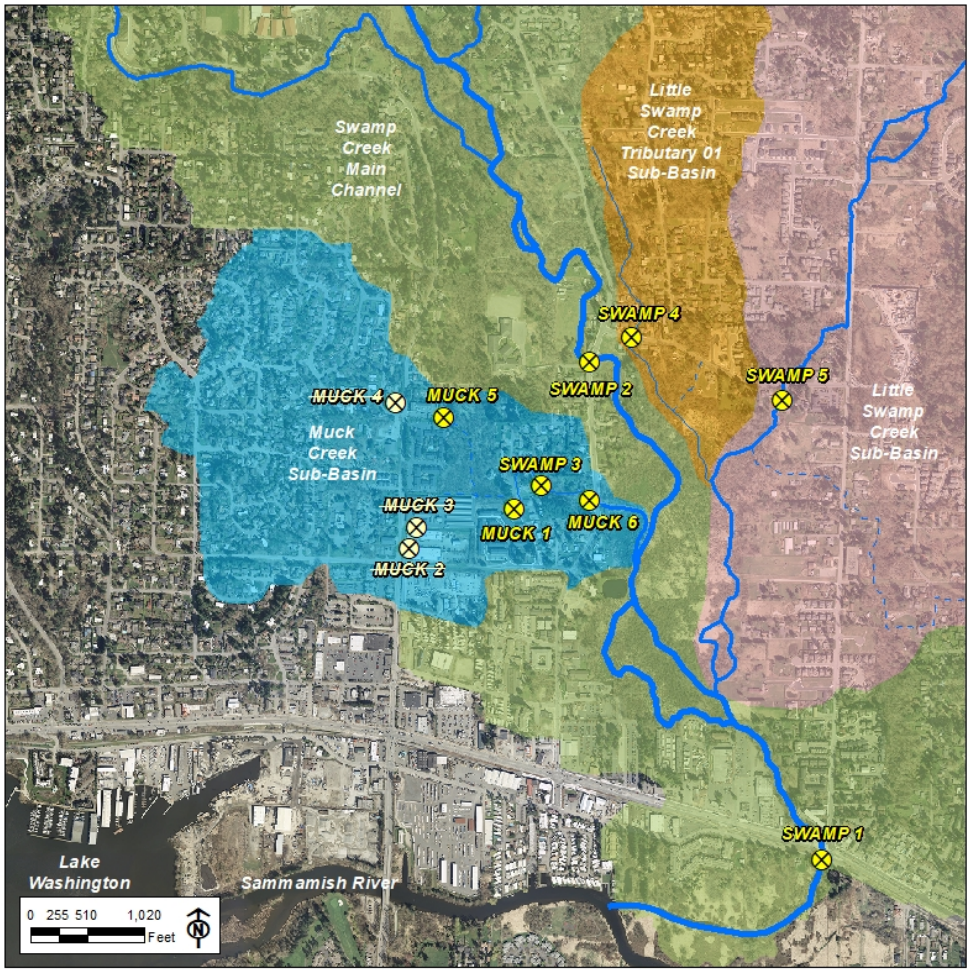


Figure 9-3 Map showing redistribution of Muck Creek sub-basin high-priority sampling sites

Water Quality Ordinance

Ordinance 16-0428, amending KMC Chapter 13.45 "*Water Quality*", continues prohibiting non-stormwater, illegal discharges from commercial animal handling areas and commercial composting facilities. The ordinance also updated the 2009 Stormwater Pollution Prevention Manual by adopting the 2016 version which contains BMPs addressing commercial composting and animal handling areas.

The city conducted monitoring for bacterial pollution in Swamp Creek during previous Permit cycles. This information was used to update the city's QAPP in 2015, which is effective through the remainder of this Permit.

In 2010, Ordinance 09-0299 amended KMC Chapter 13.45 "*Water Quality*" to prohibit non-stormwater, illegal discharges from commercial animal handling areas and commercial composting facilities. The ordinance also adopted the 2009 Kenmore Stormwater Pollution Prevention Manual which contained BMPs addressing commercial composting and animal handling areas.

9.4 PLANNED ACTIVITIES

The City of Kenmore will continue with education and outreach efforts regarding bacterial pollution, particularly regarding proper pet waste management and illicit sewer discharge/connection prevention. The City will also continue to assess the need for additional animal waste collection stations or signage on City owned or maintained properties in addition to maintaining those currently in place. IDDE screening for bacterial sources bacteria in all MS4 sub-basins which discharge to surface waters in the Swamp Creek TMDL area will continue in 2024. These samples will be collected during the dry season when stormwater flows are low.

The city will continue monitoring Swamp Creek bacterial concentrations, including sites in the designated high priority area Muck Creek. The need for redistributing or adding sites will be assessed based on data collected through 2023.

Swamp Creek flowing through Wallace Swamp Creek Park

SECTION 10 – MONITORING AND ASSESSMENT (S8)

10.1 PERMIT REQUIREMENTS

Permittees are required to either 1) annually pay into a collective fund or 2) conduct in-house monitoring and assessment for the following:

- Regional status and trends monitoring
- Effectiveness studies and source control identification studies
- Stormwater discharge monitoring (if in-house option selected)

The City has opted to pay into a collective fund.

Table 10-1			
Minimum Performance Measure	Permit Section	Compliance Date	Compliance
Pay into collective fund for Regional Status and Trends Monitoring	S8.A.1	Ongoing	YES
Notify Ecology in writing of City's option to pay into collective fund through 2024	S8.A.2	Ongoing	YES
Pay into collective fund for SWMP Effectiveness and Source Identification Studies	S8.B.1	Ongoing	YES
Notify Ecology in writing of City's option to pay into collective fund through 2024	S8.B.2	Ongoing	YES
Provide information for effectiveness and source identification studies, as requested by Ecology	S8.B.3	Ongoing	YES

10.2 CURRENT ACTIVITIES

The City provided payment for Regional Status and Trends Monitoring and SWMP Effectiveness and Source Identification Studies to Ecology.

10.3 PREVIOUS ACTIVITIES

The City provided payment for Regional Status and Trends Monitoring and SWMP Effectiveness and Source Identification Studies to Ecology.

10.4 PLANNED ACTIVITIES

The City will continue providing payment for Regional Status and Trends Monitoring and SWMP Effectiveness and Source Identification Studies to Ecology.