Q102 – Status of Implementation Actions Taken Pursuant to S4.F.3.d

1. Introduction

On July 1, 2024, Ecology re-issued the Phase I Municipal Stormwater Permit (Permit), including Appendix 13 – Adaptive Management Requirements. Appendix 13 of the Permit requires adaptive management response plans for discharges from the City of Seattle's (City) municipal separate stormwater system (MS4) to the Lower Duwamish Waterway (LDW). In accordance with Permit condition S4.F.3, the City must comply with each requirement outlined in Appendix 13 and annually submit a report describing the status of implementation and the results of any monitoring, assessment, or evaluation efforts conducted. The following sections describe the actions that the City has taken to implement Appendix 13 requirements during 2024, and defines the priorities for 2025.

2. Background

An S4.F notification was submitted in 2007 to notify Ecology of potential water quality problems that may be related to discharges from the City's MS4 for the LDW. Ecology determined that a report under S4.F.2.a was not necessary, with that determination conditioned on certain City actions. Ecology required the City, beginning with its Phase I Municipal Stormwater Permit Annual Report for 2008, to include a summary of its stormwater management efforts in basins that discharge to the LDW. The City was required to notify Ecology if Seattle's involvement in the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and associated Source Control Strategy processes changed, or if new information became available regarding phthalate recontamination in the LDW.

An S4.F notification was submitted on December 5, 2013, to notify Ecology of potential sediment quality problems that may be related to discharges from the City's MS4 to the LDW. Ecology accepted the notification (June 4, 2014) as a general notification for all MS4 discharges to the LDW for all LDW sediment chemicals of concern (COCs). The City's draft SCIP (November 2013) fulfilled the City's requirement for submittal under S4.F.3.a of an expanded adaptive management response. The City revised the SCIP, and a final draft of the SCIP was submitted to Ecology on March 31, 2015. In December of 2020, SPU provided Ecology with the second Source Control Implementation Plan (SCIP) for the period 2021 to 2026. SPU began implementing the actions contained in the second SCIP (2021 SCIP or "SCIP2") in January 2021. This SCIP included priorities to be addressed through 2025. SPU has begun drafting SCIP3 to outline source control activities and priorities for SPU from January 1st, 2026 to December 31st, 2031. This SCIP will be provided in draft to Ecology in March of 2025.

3. Appendix 13 - Adaptive Management Reporting Requirements

3.1 Source Control Implementation Plan Update

SPU prepared and submitted an updated SCIP to Ecology on March 31, 2020, known as SCIP2. The updated SCIP expanded upon the 2015-2020 SCIP (2015 SCIP, or "SCIP1") with an updated assessment of source tracing and program effectiveness data along with updated operation and maintenance and capital projects. In addition, the SCIP was reformatted to be more user friendly to Ecology for their Source Control Sufficiency Evaluation for the Lower Duwamish Waterway Superfund Cleanup.

The 2021-2026 SCIP, Appendices and Map Atlas can be viewed at the following web site: https://www.seattle.gov/utilities/neighborhood-projects/lower-duwamish-waterway.

Once completed, SPU's SCIP3 will be uploaded to the above location to outline future priorities and activities related to source control. This is expected to occur in early 2026.

3.2 Source Tracing and Sampling Activities

SPU collects samples of storm drain solids from within the City's MS4 to characterize the quality of material discharged to, and from, the City's drainage system. Samples include 1) grabs from private onsite catch basins and catch basins located in the public right-of-way, 2) grabs from inline maintenance holes in the conveyance system, and 3) inline sediment trap samples. Data generated from these samples are used to identify potential contaminant sources and to prioritize source tracing/control activities. The overall goal is to find and eliminate priority contaminant sources to the MS4 and LDW. In 2024, SPU collected 67 samples of storm drain solids from the City's MS4 within the LDW. No new sediment traps were installed in 2024.

3.3 Effectiveness Monitoring Program

The purpose of the Effectiveness Monitoring Program is to track and evaluate contaminant concentration trends in MS4 discharges and to inform priorities for the implementation of Best Management Practices (BMPs) across the different MS4 drainage basins relevant to the City's LDW Adaptive Management Response. One objective of the Program, as stated in Appendix 13, is to help determine which monitoring locations should be routinely utilized as indicators of contaminant concentrations in storm solids at the outfalls (or near-end-of-pipe locations). The City is required to collect at least one sample per calendar year from each outfall /near-end-of-pipe location, as noted in Tables 1 and 2 of Appendix 13, and in accordance with the 2018 Ecology-approved QAPP.

There can sometimes be instances where a sediment trap or catch basin is checked but not enough solids have accumulated since the previous collection to meet the minimum volume requirements for laboratory sample analysis. This could be a result of recent line cleaning actions, low sediment inputs, steep pipes, or other factors. When there are insufficient solids, SPU leaves the sediment trap in place (or does not remove solids in the case of a grab sample),

then returns the next year; this aligns with the QAPP and complies with the Appendix 13 Effectiveness Monitoring requirements.

The City attempted to sample all Effectiveness Monitoring Locations listed in Appendix 13 Tables 1 and 2 in 2024. Source tracing data collected from January through December 2024 are provided in Attachment A of this report and will be loaded into EIM by May 31, 2025, in accordance with Appendix 13 requirements. These data are discussed in Section 3.6 of this report and help inform the 2025 priorities described in Section 5. Figure 2 illustrates the location of 2024 samples collected within the LDW Source Control Area.

3.4 Operations & Maintenance

3.4.1 Line Cleaning

Stormwater line cleaning is conducted to remove solids that have accumulated in the MS4 to prevent them from discharging into the LDW and to facilitate source tracing efforts. As stated in Appendix 13, SPU is obligated to clean, on average, 4,000 linear feet each calendar year.

Line cleaning of the drainage basins identified as priorities in the *2021 SCIP (SCIP2)* was completed in 2021 and 2022. These areas included:

- Diagonal Ave S SD - Denver Sub-basin
- Diagonal Ave S SD - Dakota Sub-basin
- Diagonal Ave S SD - Snoqualmie Sub-basin
- Diagonal Ave S SD - Bush Pl Sub-basin
- Georgetown SD
- 7th Ave S SD
- 16th Ave S SD (east)
- S Norfolk St CSO/EOF/SD
- 1st Ave S SD (west)

Additional basins were selected for line cleaning based on sampling data that indicated that contaminants were present, the time period that had lapsed since prior cleaning, or to support the Department of Ecology's Upper Reach Source Control Sufficiency Evaluation process. In 2024, SPU cleaned approximately 21,228 linear feet of pipe within portions of the following 8 drainage basins:

- Diagonal Ave S SD
- S Myrtle St SD
- 7th Ave S SD
- S Norfolk St CSO/EOF/SD
- S Nevada St SD
- 17th Ave S SD

To support the sufficiency evaluation, SPU continued to clean non-City assets that were identified as potential risks to the LDW cleanup. The City cleaned a large number of drainage pipes within the lower Norfolk drainage basin (west of I-5) in collaboration with The Boeing Company and Ecology. These pipes were cleaned to remove any potential residual PCBs within the system prior to the formal Upper Reach cleanup, which began in the Fall of 2024. The upper portion of this system was cleaned in 2023, with downstream sections along East Marginal Way S and S Norfolk St cleaned in the summer and fall of 2024. The Boeing Company finished cleaning to the outfall in the fall of 2024, completing the lower basin cleaning.

Water generated during line cleaning operations was treated and discharged to the sanitary sewer under a discharge authorization with King County. Solids were dewatered and transported to Waste Management's reload facility in Seattle for eventual disposal.

3.4.2 S. Myrtle Street Basin Actions

a. Weekly Sweeping

Appendix 13 requires weekly sweeping of S. Myrtle Street from 8th Ave S west to the street end, with compliance based on sweeping 95% of the required weeks. S. Myrtle St. was swept by SDOT 66 times covering 53 weeks (100%) in 2024 as part the Street Sweeping for Water Quality Program (SS4WQ). In 2022, the City created a written street sweeping protocol designed to be implemented weekly, where a contractor is hired to sweep S Myrtle St in the event that SDOT staff are unavailable to do so, including formal correspondence to verify sweeping completion. The City followed that protocol in 2024 and continues to implement its street sweeping program to maintain compliance with Appendix 13.

b. and c. Catch Basin and Maintenance Hole Quarterly Inspections

SPU conducted quarterly inspections of catch basins and mainline maintenance holes from 2011 – 2024. The data for catch basin and mainline maintenance hole measurements from 2011 to 2024 are provided in Table 1. Measurement locations are shown in Figure 1. Data from 2011 to 2017 were reviewed as part of the evaluation of existing operation and maintenance work for catch basin and flow control/water quality facilities in the MS4 basins that discharge to the LDW, to determine if programmatic strategies could be implemented to assist with Source Control. The evaluation determined that the catch basins on S. Myrtle Street accumulate solids or require maintenance at a rate similar to those in the rest of the LDW MS4 basins. However, per Ecology's direction, SPU will continue quarterly inspections of catch basins and mainline maintenance holes in accordance with 2019 MS4 Permit requirements. During the drainage system monitoring conducted in 2024, no structures were found to exceed the maintenance threshold that would initiate cleaning. The drainage mainlines within the S Myrtle St SD were cleaned twice during 2024, resulting in no observed accumulations of sediment in any of the inspections.

Table 1: S. Myrtle Street Catch Basin and Maintenance Hole Measurements (2011-2024)

EQNUM	576148	576126	576140	576158	576162	576145	576165	943593	599350	599353	599354
Location	S Myrtle St cul-de-sac, west	S Myrtle St cul-de-sac, north	north side S Myrtle St, west of SIM	south side S Myrtle St, west of SIM	south side S Myrtle St, east of SIM	S Myrtle St and Fox Ave S	south side S Myrtle St at 7th Ave S	north side S Myrtle St, east of SIM	S Myrtle St cul-de-sac	S Myrtle St at SIM	S Myrtle St at 7th Ave S
Type	CBL	CBL	CBL	CBL	CBL	CBL	CBL	CBL	MH	MH	MH
Outlet pipe size	8"	8"	8"	8"	8"	8"	8"	8"			
Casting Width	1'-4"	1'-4"	NA	1'-4"	1'-4"	1'-4"	1'-4"	1'-8"	NA	NA	NA
Casting Length	2'-7"	2'-7"	NA	2'-7"	2'-7"	2'-7"	2'-7"	2'-0"	NA	NA	NA
Structure Depth (ft)	6.45	7.9	NA	7.22	6.4	6.61	5.76	6.2	7.45	7.35	5.76
Sump Depth (ft)	3	2.4	2.6	2.4	2.9	2.9	2.5	2.3	NA	NA	NA
2011 percent full											
04/21/11	0%	0%	4%	0%	13%	3%	46%	11%	0%	0%	0%
07/14/11	0%	0%	3%	8%	29%	13%	1%	21%	0%	0%	0%
2012 percent full											
01/05/12	0%	1%	10%	11%	50%	13%	19%	27%	0%	0%	0%
06/22/12	1%	19%	11%	16%	57%	11%	41%	20%	0%	0%	0%
10/11/12	1%	9%	16%	27%	62%	14%	45%	27%	0%	0%	0%
2013 percent full											
02/11/13	9%	22%	22%	38%	69%	14%	53%	28%	0%	0%	0%
05/01/13	12%	24%	23%	48%	3%	23%	52%	33%	0%	0%	0%
10/28/13	2%	2%	29%	50%	8%	28%	49%	34%	0%	0%	0%
12/23/13	4%	5%	31%	58%	9%	17%	51%	29%	0%	0%	0%
2014 percent full											
03/14/14	4%	13%	30%	68%	19%	38%	49%	26%	0%	0%	0%
06/23/14	5%	15%	38%	73%	21%	27%	55%	37%	0%	0%	0%
09/29/14	6%	13%	42%	72%	22%	29%	55%	36%	0%	0%	0%
12/29/14	6%	15%	43%	81%	30%	28%	50%	36%	0%	0%	0%
2015 percent full											
03/27/15	7%	16%	43%	80%	33%	32%	53%	44%	0%	0%	0%
06/29/15	8%	17%	40%	2%	36%	32%	55%	41%	0%	0%	0%
09/22/15	10%	28%	50%	2%	37%	31%	0%	45%	0%	0%	0%
12/29/15	9%	15%	43%	12%	40%	39%	8%	37%	0%	0%	0%
2017 percent full											
02/22/17	14%	30%	56%	49%	63%	48%	34%	55%	0%	0%	0%
05/25/17	16%	30%	0%	5%	5%	45%	41%	0%	0%	0%	0%
08/17/17	20%	36%	0%	5%	0%	43%	38%	0%	0%	0%	0%
11/22/17	24%	38%	0%	14%	8%	48%	42%	0%	0%	0%	0%
2018 percent full											
03/12/18	20%	36%	1%	15%	4%	48%	38%	0%	0%	0%	0%
05/23/18	23%	37%	3%	21%	5%	28%	41%	-6%	0%	0%	0%
08/29/18	22%	40%	1%	24%	-1%	46%	33%	-5%	0%	0%	0%
12/07/18	23%	0%	13%	21%	8%	2%	20%	1%	0%	0%	0%
2019 percent full											
03/01/19	21%	0%	3%	22%	13%	-3%	39%	-7%	0%	0%	0%
5/22/2019	22%	0%	5%	29%	6%	-1%	33%	-6%	0%	0%	0%
8/29/2019	1%	-6%	5%	29%	11%	-1%	38%	-8%	0%	0%	0%
12/4/2019	23%	2%	0%	29%	3%	7%	42%	-7%	0%	0%	0%
2020 percent full											
2/26/2020	0%	-11%	3%	33%	14%	4%	-4%	-18%	0%	0%	0%
5/27/2020	0%	-3%	8%	36%	18%	7%	-5%	-1%	0%	0%	0%
8/26/2020	0%	-5%	6%	38%	14%	14%	-3%	-8%	0%	0%	0%
11/25/2020	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2021 percent full											
2/26/2021	1%	6%	2%	9%	5%	6%	3%	-4%	0%	0%	0%
5/26/2021	2%	-18%	-3%	4%	4%	5%	2%	-7%	0%	0%	0%
8/25/2021	0%	0%	-8%	1%	6%	5%	1%	-7%	0%	0%	0%
12/2/2021	0%	8%	-9%	0%	8%	5%	2%	-4%	0%	0%	0%
2022 percent full											
2/23/2022	1%	-20%	-7%	5%	16%	9%	3%	-5%	0%	0%	0%
6/21/2022	4%	0%	-4%	7%	17%	7%	10%	-2%	0%	0%	0%
8/24/2022	4%	4%	4%	7%	19%	7%	15%	4%	0%	0%	0%
11/28/2022	5%	7%	5%	7%	8%	4%	4%	5%	0%	0%	0%
2023 percent full											
2/22/2023	7%	8%	5%	13%	23%	5%	8%	7%	0%	0%	0%
5/24/2023	11%	10%	5%	15%	24%	6%	10%	9%	0%	0%	0%
7/19/2023	12%	11%	5%	15%	26%	7%	14%	11%	0%	0%	0%
11/1/2023	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2024 Percent Full											
2/26/2024	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6/17/2024	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8/28/2024	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
11/20/2024	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Times Exceeded Maintenance Threshold (60% full)	0 in 13 years	0 in 13 years	0 in 13 years	5 in 13 years	3 in 13 years	0 in 13 years	0 in 13 years	0 in 13 years	0 in 13 years	0 in 13 years	0 in 13 years

Percentage full is a measure of the sediment volume within the catch basin. Catch basins exceeding 30% full, or with visible contaminants, will be cleaned. Negative values occur where measurements of the bottom are more than the average depth of the structure. Structure bottoms are not flat.

Type: CBL = Catch Basin, MH=Maintenance Hole

SMyrtle_CB_sed_depth_Summary 2024 summ 2/13/2025

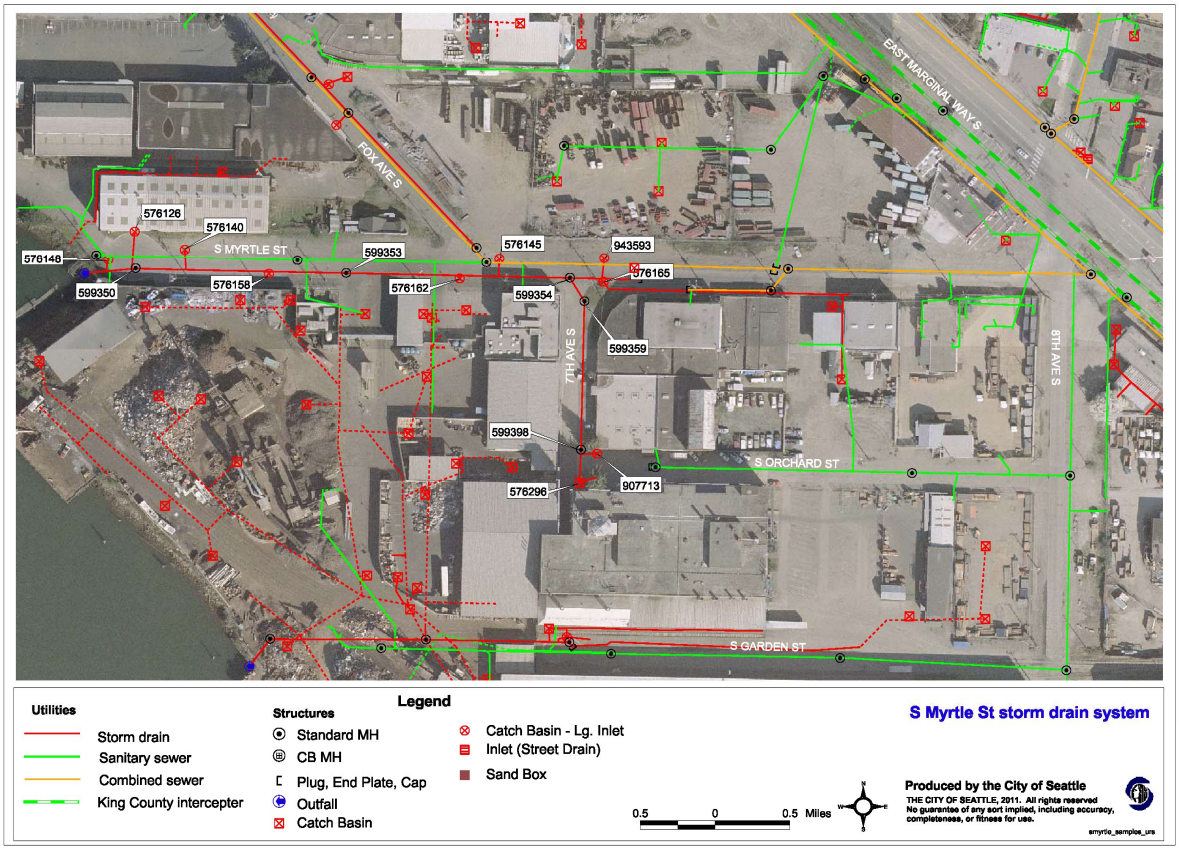

Figure 1: Catch Basin and Maintenance Hole Measuring Locations on S. Myrtle Street

3.5 Structural Controls

A. South Park Water Quality Stormwater Treatment Facility

The South Park Water Quality Facility is one of the projects included in SPU's Integrated Plan approved by Ecology and EPA in 2015 as part of the City's Long-Term CSO Control Plan. It will treat runoff from the 230-acre 7th Ave S drainage system , a highly industrial basin in the City's South Park neighborhood, and discharge treated water to the Lower Duwamish Waterway.

SPU originally intended to build the water quality facility in conjunction with the South Park Pump Station on the 636/640 S Riverside Dr site shown on Map 89. Unfortunately, SPU was unable to acquire the needed adjacent street end vacation to allow both the pump station and the water quality facility to be constructed at this location. Pump station construction was completed in 2023. In 2018, SPU conducted a preliminary feasibility analysis of passive (not requiring on-site operators to run the facility) treatment systems to inform how much space would be required to construct the facility. SPU searched the area adjacent to the pump station for a property that could house the South Park Water Quality Facility. 816 S Kenyon St was identified as appropriate in size and in proximity to the pump station facility.

SPU acquired the 816 S Kenyon St property for the water quality facility in 2024. SPU has three consultant teams to support the site cleanup, water quality facility design, and community investment aspects of the project. In 2023, Ecology approved the project's remedial investigation/feasibility study work plan for remedial investigations on the identified property. Soil and groundwater remedial investigations were completed on-site in the fall of 2024. Review of data and preparation of the remedial investigations report is planned to be completed in 2025. The project team will develop a comprehensive site plan for the WQF with input from community engagement during 2025.

B. Street Sweeping Expansion – Arterials

This program has expanded the City's arterial street sweeping program, per commitments in the City's 2015 Integrated Plan. The team began implementing the Plan in 2016.

During 2024, the team continued to implement the Plan and adapted as needed to meet the regulatory targets, which resulted in sweeping 23 routes over 81 lane-miles[1] an average of 38 times. This meant the Program covered 1,500 road miles[2] in MS4 basins discharging to the Lower Duwamish Waterway.

[1] Lane-mile is the length of a route, which typically covers two sides of the street.

[2] Road-miles is the term included in the Integrated Plan and means the total miles swept divided by two for each side of the street.

In 2025, the program will focus on the following key tasks:

- Continue sweeping arterial routes.
- Use overtime as available to alleviate the current difficulty maintaining a night crew of six.
- As part of a Stormwater Action Monitoring (SAM) Effectiveness Study, implement a City-wide monitoring program focused on 6PPD-q street sweeping source reductions.

3.6 Annual Prioritization

Appendix 13 of the 2024 Phase I MS4 Permit (and the previous 2019 Permit) requires that each annual report provide an assessment of priorities (planned actions and target locations) for the following calendar year. The purpose of the annual prioritization update is to affirm previous priorities and/or identify and justify changed priorities. Data from Effectiveness Monitoring (to satisfy Appendix 13 requirements) together with other LDW source tracing sampling (near-end-of-pipe and in-basin samples that support implementation of the current LDW SCIP) inform the annual prioritization. Specifically, these data guide source control efforts such as business inspections, source tracing sampling and targeted source control investigations, and line cleaning activities.

Environmental samples collected in accordance with Appendix 13 and the current SCIP are analyzed for numerous pollutants, including metals (arsenic, copper, lead, mercury, zinc), total polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs) including phthalate esters and polycyclic aromatic hydrocarbons (PAHs), and total petroleum hydrocarbons (see parameter list on page 1 of Appendix 13). However, three parameters (arsenic, PCBs, and carcinogenic PAHs [cPAH]) are the primary focus of SPU's LDW Source Control efforts, due to their environmental persistence, traceability, and their classification as COC risk drivers in the LDW Superfund cleanup.

3.6.1 Data Review

This Section describes and summarizes the storm solids samples collected to satisfy the requirements of Appendix 13 as well as other source control samples that support SCIP implementation.

Seattle's SCIP2 included box plots comparing the concentration of various parameters in storm solids samples collected in the LDW stormwater drainage areas during the pre-SCIP period (2003 through June 30, 2014) to the SCIP1 reporting period (July 1, 2014 through Fall of 2020). The box plots provide a useful way to compare chemical concentrations *spatially* between basins, helping to identify basins that might require further source control efforts. Box plots for the SCIP2 period will be included in the SCIP3 document, which will be provided in draft to Ecology in March2025, and posted on the SPU website by January 2026. Section 3.6.3 of this report briefly summarizes the spatial comparisons; more detailed analysis will be provided in the SCIP3 documentation.

Analyzing basin-specific storm solids sample data over time allows for an analysis of trends within the data to help determine source tracing effectiveness and to prioritize geographic efforts. Basin-wide data from effectiveness monitoring samples and other storm solids samples collected in 2024 (see Attachment A) can be compared to data collected during the SCIP 2 phase to update the trend analysis and to set priorities for upcoming years. Results of the comparison to the SCIP2 and SCIP1 phases are used to guide business inspection activity, determine line cleaning priorities, and to identify data gaps that need to be filled.

Table 2, below, outlines the Effectiveness Monitoring Locations (EMLs) and other LDW source tracing sample locations in storm drain basins that were sampled in 2024. This table indicates that samples were obtained from all designated EMLs in 2024. In the 1st Ave S SD (West) basin, sediment traps long used as the EMLs location were found to be inaccessible due to beavers who have dammed a Washington State Department of Transportation (WSDOT) retention pond. Upstream samples were used to provide data for the EMLs while SPU waits for WSDOT to relocate the beavers.

Figure 2 illustrates where samples were collected during 2024. Table 3 lists the arsenic, cPAH, and PCB concentrations in 2024 storm solids samples. Tables 4, 5, and 6 summarize and compare SCIP 1 to SCIP 2 arsenic, cPAH, and PCB storm solids sample data by basin, respectively.

Table 2 – Summary of Effectiveness Monitoring Locations and Other LDW Source Tracing Sample Locations

Storm Drain (SD) Outfall Name	Effectiveness Monitoring Location (EML) Information				Other LDW Sample Locations	Comments
	EML in 2024 Permit, Appendix 13?	Designated EML Sample ID	SPU Asset #	EML Sample Collected in 2024?	Non-EML Sample Collected in 2024?	
SPU-Owned Outfalls						
S Nevada St*	No	-	-	-	Yes	SPU collected stormwater samples from four right-of-way catch basins located along the roadway in front of a warehouse that was recently constructed by the Port of Seattle. PCBs and PAHs had previously been found in this location.
Diagonal Ave S	Yes	ST1	D056-126	Yes	Yes	Many additional source tracing samples were collected throughout the basin.
S River St	Yes	MH211	D071-005	Yes	No	Sediment trap installed in 2022 and sampled in 2023 was found to be impeding flow in piped system. Sediment trap removed in 2023, with grab sampling providing EMLs data in 2024.
S Brighton St	Yes	MH101	D071-018	Yes	No	EML is one of three maintenance holes, depending on which has sampleable sediment. Sediment trap not feasible due to small pipe diameter.
S Myrtle St	Yes	MYR-ST1	D071-144	Yes	No	EML called "MH100" prior to sediment trap installation.
Georgetown	Yes	MH23	D071-048	Yes	Yes	Sediment trap not feasible due to HDPE pipe material.
SW Dakota St	Yes	RCB200A	D056-047	Yes	No	Near end-of-pipe location impounds water at a depth that makes safe trap deployment impossible. Grab sample is collected at EML.
SW Idaho St	Yes	ID-ST2	D056-054	Yes	Yes	Sediment trap at ID-ST2 was reinstalled in 2023 and sampled in 2024. Additional upstream sediment traps sampled to support source tracing efforts.
SW Kenny St	Yes	KN-ST1	D063-017	Yes	No	Sample from sediment trap which was replaced in 2022 due to corrosion. Access to EML location dependent on terminal facility shipping container placement.
Highland Park Way SW	Yes	HP-ST6	D070-074	Yes	Yes	Sediment trap HP-ST4 sampled in addition to HP-ST6 to support source tracing efforts within the basin. Ecology highlighted this basin as a priority for the Middle Reach Sufficiency.
S Webster St	No	-	-	-	No	S Webster St SD basin was included in Appendix 13 Table 1 as a basin to "sample to fill data gap". Data gap sample was collected in 2023. Basin will be incorporated into 7th Ave S SD during South Park Drainage Improvements Phase 2.
7th Ave S	Yes	7TH-ST1	D071-117	Yes	Yes	Other samples collected from sediment traps 7th-ST2 and 7th-ST3.
17th Ave S	Yes	17TH-ST1	D079-110	Yes	Yes	SPU continues to collect catch basin samples to support source tracing of PCBs within this basin.
South Ops SD	No	-	-	-	Yes	South Operations SD was included in Appendix 13 Table 1 as a basin to "sample to fill data gap". SPU sampled inflow chamber of Oil/Water Separator (MH90) in 2024.

Storm Drain (SD) Outfall Name	Effectiveness Monitoring Location (EML) Information				Other LDW Sample Locations	Comments
	EML in 2024 Permit, Appendix 13?	Designated EML Sample ID	SPU Asset #	EML Sample Collected in 2024?	Non-EML Sample Collected in 2024?	
Non-SPU-Owned Outfalls						
Head of Slip 2	No (2019 Permit – Yes)[1]	MH38	D063-027	Yes	No	EML location is a grab sample from a private drainage asset.
S Garden St	No (2019 Permit – Yes)[1]	GDN-ST1	966485	Yes	No	Sediment trap installed in 2023. Trap sampled in 2024. No other feasible sample locations.
I-5 SD at Slip 4	Yes	SL4-T6	D071-034	Yes	No	In-line sediment trap and grab sample collected from same location in WSDOT line.
16th Ave S (east)	No	-	-	-	Yes	Sediment trap 16TH-ST1
KCIA #1	No	-	-	-	No	Basin was included in the "sample to fill data gaps" list of Appendix 13. Data gap sample was collected in 2023.
S Norfolk St	Yes	NST5	D304-040	Yes	Yes	NST-1 and NST-3 are located within the City's MS4 to the east of I-5. Under typical flows this discharges to the WSDOT-owned "I-5 at Ryan St SD" outfall; however, during high flows this area is diverted to the S Norfolk St SD system. NST-4 supports source control in the lower, private portion of the basin. Additional grabs collected for source tracing.
1st Ave S (east)	Yes	MH86	D071-191	Yes	No	EML grab sample collected at Front/Michigan.
1st Ave S (west)	Yes	1ST-ST3, 1ST-ST2	D0713-183, 905983	Yes, 1st-ST3	Yes	EML in 2024 collected at 1ST-ST3. Non-EML samples collected from numerous locations in the upper basin, adjacent to Myers Way S.
S 96th St	No	-	999806	-	Yes	Sample collected at sediment trap 96th ST1 (metals and PCBs only), which was installed in 2022. Less than 10% of the drainage area is served by City-owned storm drains; the remaining area is within unincorporated King County and the outfall is King County-owned.

Notes:

- [1] The Head of Slip 2 SD and S Garden St SD were Effectiveness Monitoring Locations in Appendix 13 under the 2019 Phase I MS4 Permit, which expired on July 31, 2024; however, because the City of Seattle only contributes a very small portion of the drainage to the privately-owned outfalls, these were removed as Monitoring Locations in Appendix 13 under the 2024 Phase I MS4 Permit, which became effective on August 1, 2024. These basins remain in this table for the 2024 Annual Report because both the 2019 and 2024 issued Permits were effective for portions of the calendar year,
- Rows shaded green indicate Effectiveness Monitoring Locations (EMLs) (as defined in Appendix 13 of the 2019 Phase I MS4 Permit) in drainage basins that discharge to the LDW via SPU-owned outfalls. Rows shaded orange indicate EMLs in drainage basins that discharge to the LDW via outfalls that are not SPU-owned.
- "North Boeing Field" SD basin is excluded from this table because, as stated in footnote "c" of Appendix 13 Table 1, there are no longer active City connections to this system. SPU plans to video inspect this basin in 2024 to verify that conditions have not changed.
- While Duwamish substation SD #1, SD #2 and SD #3 are listed in Appendix 13 Table 1, they are not EML nor "sample to fill data gap" locations and are thus excluded from this table.
- While the I-5 SD at S Ryan St basin is listed in Appendix 13 Table 2, it is not an EML nor "sample to fill data gap" location and is thus excluded from this table.

- The W Marginal Pl SW basin is listed in Appendix 13 Table 2, however, it is not an EML nor "sample to fill data gap" location, the outfall is Tukwila-owned, and the drainage basin is within the City of Tukwila; thus it is excluded from this table.
- The 2ND Ave S SD basin is listed in Appendix 13 Table 2, however, it is not an EML nor "sample to fill data gap" location, the outfall is privately-owned, and the drainage basin has very little City MS4 contribution; thus it is excluded from this table. A grab sample was collected in the basin in 2020 and 2022; these data are reflected in Tables 3, 4, and 5 of this report.

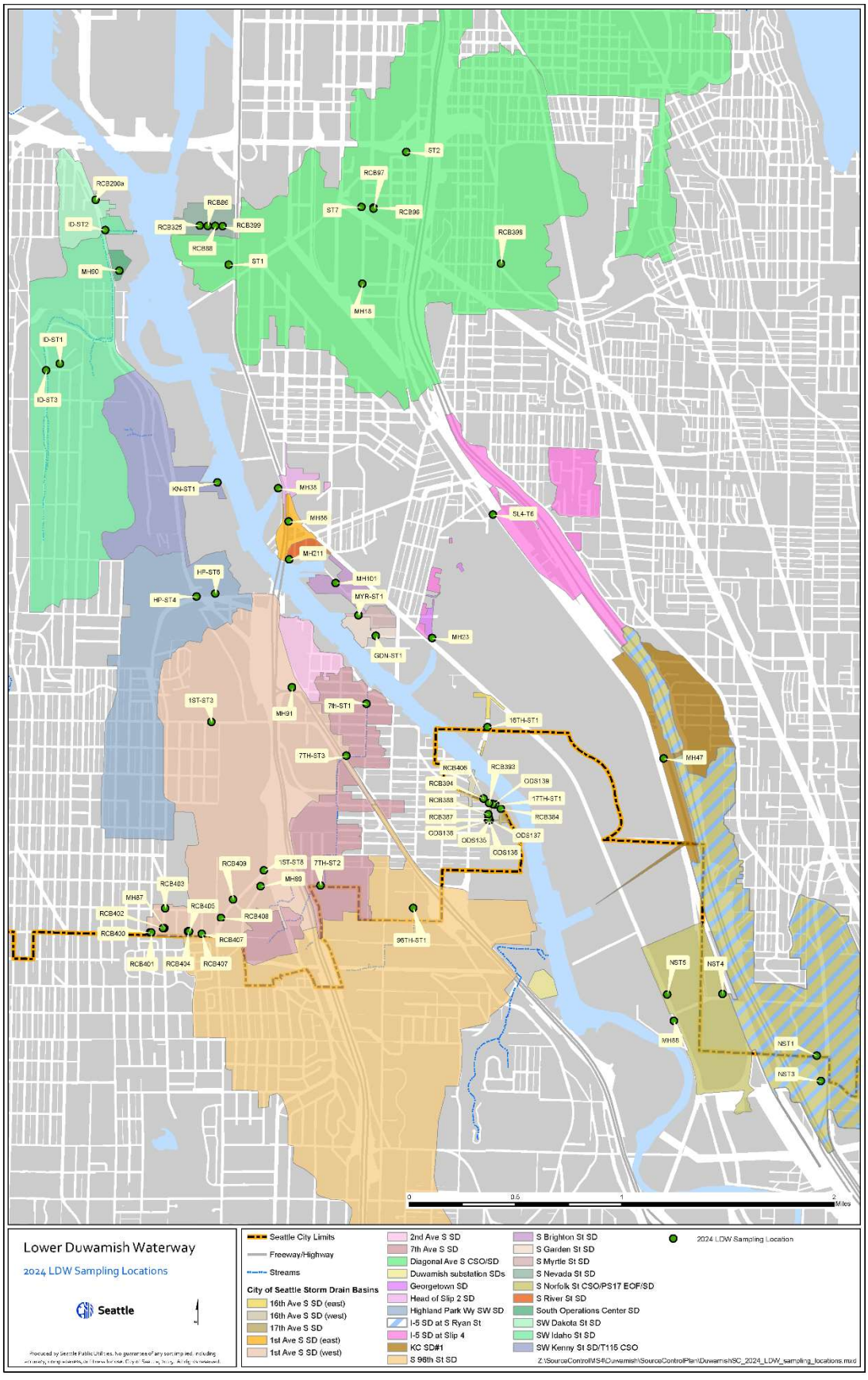

Figure 2: Location of Effectiveness Monitoring Location and Other Source Tracing Samples Collected in 2024

Table 3 – Arsenic, cPAH and PCB Concentrations in Storm Solids Samples Collected in 2024

Storm Drain (SD) Outfall Basin	Sample ID	EML?	Arsenic (mg/kg)	cPAH (ug/kg)	Total PCBs (sum of aroclors, ug/kg)
16th Ave S SD (east)	16TH-ST1		9.27 J Y	449.14 Y	431 Y
1st Ave S SD (west)	**1ST-ST3**	**X**	**2.88 J Y**	**108.67 Y**	**99.5 U N**
1st Ave S SD (west)	1ST-ST8		12.8 J Y	705.34 J Y	493 Y
1st Ave S SD (west)	RCB400		NA	NA	98.7 U N
1st Ave S SD (west)	MH89		NA	NA	95.4 U N
1st Ave S SD (west)	RCB401		NA	NA	98.9 U N
1st Ave S SD (west)	RCB402		NA	NA	276 U N
1st Ave S SD (west)	RCB403		NA	NA	99.7 U N
1st Ave S SD (west)	RCB404		NA	NA	99 U N
1st Ave S SD (west)	RCB405		NA	NA	98.7 U N
1st Ave S SD (west)	RCB406		NA	NA	152 J Y
1st Ave S SD (west)	RCB407		NA	NA	123.5 Y
1st Ave S SD (west)	RCB408		NA	NA	117.7 Y
1st Ave S SD (west)	RCB409		NA	NA	121.5 J Y
7th Ave S SD	**7TH-ST1**	**X**	**16.5 Y**	**621.59 Y**	**151.8 Y**
7th Ave S SD	7TH-ST2		4.1 J Y	17.743 U N	19.9 U N
7th Ave S SD	7TH-ST3		NA	NA	75.6 U N
S Garden St SD	**GDN-ST1**	**X**	**13.8 Y**	**174.72 J Y**	**388 J Y**
Highland Park Wy SW SD	**HP-ST6**	**X**	**34.9 Y**	**402.81 J Y**	**179.1 Y**
Highland Park Wy SW SD	HP-ST4		2.19 J Y	430.009 J Y	19.9 U N
SW Idaho St SD	ID-ST1		12.7 J Y	3879.9 Y	89.1 J Y
SW Idaho St SD	**ID-ST2**	**X**	**7.54 J Y**	**278.41 J Y**	**213.9 J Y**
SW Idaho St SD	ID-ST3		249 Y	753.23 J Y	342 U N
SW Kenny St SD	**KN-ST1**	**X**	**45.2 Y**	**596.23 J Y**	**257 Y**
S Brighton St SD	**MH101**	**X**	**18.7 Y**	**72.276 U N**	**19.9 U N**
Georgetown SD	**MH23**	**X**	**7.99 J Y**	**68382 Y**	**439 Y**
1st Ave S SD (east)	**MH86**	**X**	**10.3 J Y**	**452.9 Y**	**122.4 J Y**
S Myrtle St SD	**MYR-ST1**	**X**	**16.7 Y**	**459.43 Y**	**1611 J Y**
S Norfolk St CSO/PS17 EOF/SD	NST1**		8.95 J Y	1552.2 J Y	168.1 J Y
S Norfolk St CSO/PS17 EOF/SD	MH88		24.7 Y	552.55 Y	378 Y
S Norfolk St CSO/PS17 EOF/SD	NST3**		4.01 J Y	365.34 J Y	20 U N
S Norfolk St CSO/PS17 EOF/SD	NST4		20.7 J Y	279.77 Y	60.7 J Y
S Norfolk St CSO/PS17 EOF/SD	**NST5**	**X**	**5.96 J Y**	**63.61 Y**	**26.6 Y**
SW Dakota St SD	**RCB200A**	**X**	**13.3 J Y**	**625.78 J Y**	**609 Y**
S River St SD	**MH211**	**X**	**12 Y**	**1581.6 Y**	**99.6 U N**
I-5 SD at Slip 4	**SL4-T6**	**X**	**5.18 J Y**	**883.19 Y**	**19.9 U N**
Diagonal Ave S CSO/SD	MH18		17 Y	563.14 J Y	408 J Y
Diagonal Ave S CSO/SD	**ST1**	**X**	**13.7 Y**	**612.83 Y**	**238.2 J Y**
Diagonal Ave S CSO/SD	ST2		8.15 J Y	160.75 J Y	59 Y

Storm Drain (SD) Outfall Basin	Sample ID	EML?	Arsenic (mg/kg)	cPAH (ug/kg)	Total PCBs (sum of aroclors, ug/kg)
Diagonal Ave S CSO/SD	ST7		7.93 Y	462.38 J Y	777 J Y
Diagonal Ave S CSO/SD	RCB398		6.22 J Y	1889.06 J Y	97.3 U N
Diagonal Ave S CSO/SD	RCB96		5.59 J Y	470.8 J Y	339 J Y
Diagonal Ave S CSO/SD	RCB97		1.62 J Y	212.57 J Y	620 Y
S 96th St SD	96TH-ST1		39.6 Y	219.49 J Y	57.8 J Y
Head of Slip 2 SD	**MH38**	**X**	4.99 J Y	109.05 J Y	36 U N
17th Ave S SD	**17TH-ST1**	**X**	**5.15 J Y**	**196.155 Y**	**1,204 Y**
17th Ave S SD	ODS135^^		NA	NA	560 Y
17th Ave S SD	ODS136^^		NA	NA	893 Y
17th Ave S SD	ODS137^^		NA	NA	1080 Y
17th Ave S SD	ODS138^^		NA	NA	19.9 U N
17th Ave S SD	RCB384		NA	NA	36.3 J Y
17th Ave S SD	RCB387		NA	NA	248 J Y
17th Ave S SD	RCB388		NA	NA	33.7 J Y
17th Ave S SD	RCB393		NA	NA	41.1 J Y
17th Ave S SD	RCB394		NA	NA	39.5 U N
KCIA SD#1	MH47		4.89 J Y	3622.1 J Y	100 U N
South Operations Center SD	MH90		8.78 J Y	1019.95 Y	99.7 U N
S Nevada St SD	RCB325		11.8 J Y	524.51 J Y	273.8 J Y
S Nevada St SD	RCB399		12.6 J Y	525.66 Y	111.1 J Y
S Nevada St SD	RCB86		12.5 J Y	22387 J Y	568.9 J Y
S Nevada St SD	RCB88		13 J Y	1380.9 Y	118 Y

Notes:

EML = Effectiveness Monitoring Location

* EML location was ID-ST2 however the trap was lost in 2023. Sample location ID-ST1 is located upstream of where ID-ST2 was positioned, but downstream of ID-ST3.

** NST-1 and NST-3 are located within the City's MS4 to the east of I-5. Under typical flows this discharges to the WSDOT-owned I-5 at Ryan St SD outfall; however, during high flows this area is diverted to the S Norfolk St SD system.

NA indicates that the sample was not analyzed for the constituent (typically due to small sample volume and prioritizing PCB analysis).

^^ Samples collected of soil or solids present at the ground surface. These samples are generally excluded from analysis of stormwater settled solids, as they are not present within the drainage system. Samples are collected for source tracing adjacent to drainage systems.

Lab analytical codes: Y = Detected; N = Not detected; U = not detected at the level noted ; J = estimated concentration.

3.6.1.1 Arsenic

Table 4 illustrates that, for most drainage basins sampled, *median* arsenic concentrations collected during the SCIP2 period thus far (July 1, 2020, through December 31, 2024) are **similar** to those from samples collected during the SCIP1 period.

Table 4: Summary of Basin-Specific Arsenic Concentrations in Effectiveness Monitoring Location (EML) and Other LDW Source Tracing Samples Collected in the SCIP1 and SCIP2 Sampling Periods

Outfall	Results from 2012-2020 samples[1]				Results from 2020 - 2024 samples[2]			
	Median concentration (mg/kg dw)	n	Min concentration (mg/kg dw)	Max concentration (mg/kg dw)	Median concentration (mg/kg dw)	n	Min concentration (mg/kg dw)	Max concentration (mg/kg dw)
7th Ave S SD	**11.6**	**28**	**5.97**	**30.1**	**11.4**	**18**	**4.1**	**28.4**
S River St SD	**12.35**	**10**	**7**	**22**	**7.97**	**4**	**3.67**	**17.3**
SW Idaho St SD	**10.5**	**14**	**6**	**23.9**	**11.7**	**10**	**7.54**	**249**
S Brighton St SD	**37.8**	**2**	**29.6**	**46**	**23**	**5**	**5.36**	**37.2**
S Myrtle St SD	**17.9**	**3**	**13.1**	**20**	**14.6**	**8**	**7.29**	**20.7**
Diagonal Ave S CSO/SD	**10.1**	**80**	**3.78**	**452**	**7.51**	**30**	**1.62**	**37.1**
17th Ave S SD	**16.8**	**6**	**9.74**	**29.8**	**7.86**	**3**	**5.15**	**11.4**
S Garden St SD[3]	**20**	**1**	**20**	**20**	**13.8**	**3**	**12.1**	**17.2**
Georgetown SD	**8.15**	**2**	**7.94**	**8.36**	**7.89**	**6**	**2.94**	**9.08**
SW Dakota St SD	**12.41**	**2**	**8.31**	**16.5**	**13.3**	**5**	**8.95**	**19.5**
SW Kenny St SD	**17.5**	**8**	**9.24**	**58**	**22.1**	**7**	**6.16**	**45.2**
Highland Park Way SW	**14.5**	**23**	**3.7**	**55**	**18.2**	**7**	**5.19**	**36.9**
Head of Slip 2 SD[3]	**14.8**	**1**	**14.8**	**14.8**	**4.74**	**2**	**4.48**	**4.99**
I-5 SD at Slip 4	**11.5**	**10**	**6.86**	**17**	**6.97**	**6**	**2.43**	**11.7**
S Norfolk St SD	**10**	**67**	**6**	**95.4**	**9.16**	**24**	**3.31**	**27.4**
1st Ave S (west)	**10**	**37**	**5.52**	**20**	**9.7**	**14**	**2.66**	**18.5**
1st Ave S (east)	**7**	**3**	**7**	**22.6**	**6.66**	**5**	**5.49**	**11.3**
S Nevada St SD	11.8	10	8.8	29.6	12.55	4	11.85	13
16th Ave S SD (east)	13.8	1	13.8	13.8	7.96	3	7.26	9.27
2nd Ave S SD	8	3	5.3	10	14.57	2	8.64	20.5
KCIA #1	8.27	1	8.27	8.27	29.65	2	4.89	54.4
S 96th St SD	17	17	4.9	40	66.1	2	36.6	92.6
S Webster St SD	8	1	8	8	3.7	1	3.7	3.7
South Ops SD	-	0	-	-	8.78	1	8.78	8.78

n=Number of Samples (excludes ODS samples)

SCO = sediment cleanup objective; CSL = cleanup screening level; LAET = lowest apparent effects threshold; 2LAET = second lowest apparent effects threshold

Bold rows indicate that the basin contains an Effectiveness Monitoring Location (EML).

Orange-shaded concentrations indicate a value greater than the LDW CSL/2LAET (93 mg/kg).

Green-shaded concentrations indicate a value greater than the LDW SCO/LAET (57 mg/kg).

[1] July 1, 2012-June 30, 2020
[2] July 1, 2020 – Dec 31, 2024
[3] S Garden St SD and Head of Slip 2 SD were Effectiveness Monitoring Locations during the 2019 Permit term, but not during the 2024 Permit term.

Basins with substantial (>50%) **reductions** in the *maximum* arsenic concentration between SCIP2 and SCIP1 periods include Diagonal Ave S, S Norfolk St, 17th Ave S, Head of Slip 2 SD, 1st Ave S (East) SD, S Nevada St SD, and S Webster St SD. Additional basins, such as the SW Kenny St SD and Highland Parkway S SD saw significant reductions (between 10 - 20 mg/kg) in *maximum* arsenic concentrations between SCIP2 and SCIP1 periods. The *maximum* concentration of arsenic in storm solids collected from a few drainage basins has **increased slightly** (by about 11 mg/kg or less) in between the SCIP2 and SCIP1 sample periods (S Myrtle, Georgetown, SW Dakota and 2nd Ave S SD basins); however, the *median* arsenic concentration for the SCIP2 period did not change substantially compared to the SCIP1 period for those basins (-3.3 mg/kg – 6.57 mg/kg). One additional sample, collected from the SW Kenny St SD was elevated and approached the SCO, at 45.2 mg/kg, an increase of 21.7 mg/kg over the sample collected in 2023. SPU plans to clean the catch basins adjacent to this sample location to support source tracing in 2025. During 2024, none of the effectiveness monitoring location samples exceeded the sediment cleanup objective (SCO) for arsenic (57 mg/kg).

A single sample collected in 2024 exceeded both the SCO and the cleanup screening level (CSL) for arsenic (93 mg/kg), at 249 mg/kg. This sample was collected from a creek within the upper portion of the SW Idaho St SD, in a residential neighborhood. Follow up source tracing has not yet identified the source of this arsenic. SPU plans to continue to screen the upper basin to try to identify the source of this contaminant.

3.6.1.2 PCBs

General observations:

Table 5 (below) illustrates that, based on *median* and *maximum* PCB concentrations in storm solids samples, many of the drainage basins exceeding the PCB CSL of 1000 ug/kg (light orange shading) during the SCIP1 period also exceed the PCB CSL (1000 ug/kg) during the SCIP2 period thus far. At the same time, fewer basins in the SCIP2 sample period had *maximum* PCB concentrations that exceeded 300 ug/kg (green shading) than in the SCIP1 period. In other words, the few basins with very high PCBs in the past continue to have elevated PCB concentrations (above the 1000 ug/kg source tracing threshold), but, in general, PCB concentrations in storm solids are decreasing across the LDW Source Control area.

Table 5: Summary of Basin-Specific PCB Concentrations in Effectiveness Monitoring Location and Other LDW Source Tracing Samples Collected in the SCIP1 and SCIP2 Sampling Periods

Outfall	Results from 2012-2020 samples[1]				Results from 2020 - 2024 samples[2]			
	Median concentration (ug/kg dw)	n	Min concentration (ug/kg dw)	Max concentration (ug/kg dw)	Median concentration (ug/kg dw)	n	Min concentration (ug/kg dw)	Max concentration (ug/kg dw)
7th Ave S SD	**96.35**	**34**	**9.3**	**866**	**75.6**	**19**	**19.7**	**251.6**
S River St SD	**116.8**	**10**	**53**	**200**	**59.8**	**4**	**19.9**	**124.5**
SW Idaho St SD	**39.5**	**16**	**17**	**384**	**89.35**	**10**	**27.3**	**342**
S Brighton St SD	**343.6**	**3**	**197.6**	**562**	**192.4**	**5**	**19.9**	**321**
S Myrtle St SD	**2,326**	**5**	**1,144**	**2,895**	**1471.5**	**8**	**506.4**	**4,450**
Diagonal Ave S CSO/SD	**194**	**73**	**11**	**46,060**	**219.9**	**39**	**19.8**	**9,300**
17th Ave S SD	**143.1**	**7**	**63.3**	**685**	**129.05**	**28**	**19.7**	**1,204**
S Garden St SD[3]	**4,058**	**2**	**1386**	**6730**	**1,112**	**3**	**388**	**2,024**
Georgetown SD	**240.8**	**2**	**229**	**256.6**	**281.6**	**7**	**126.1**	**439**
SW Dakota St SD	**228.9**	**2**	**198.1**	**259.7**	**190.5**	**5**	**178.8**	**609**
SW Kenny St SD	**140.7**	**8**	**83**	**710**	**132.8**	**7**	**24.6**	**370.9**
Highland Park Way S	**175**	**23**	**13**	**700**	**147.3**	**7**	**20**	**205**
Head of Slip 2 SD[3]	**27.3**	**1**	**27.3**	**27.3**	**27.95**	**2**	**19.9**	**36**
I-5 SD at Slip 4	**125.3**	**9**	**19**	**760**	**34.55**	**6**	**19.7**	**114**
S Norfolk St SD	**100**	**44**	**17**	**866**	**77.9**	**29**	**19.7**	**2860**
1st Ave S (West)	**93.5**	**37**	**16**	**1950**	**99.5**	**27**	**19.4**	**1020**
1st Ave S (East)	**109**	**3**	**54**	**328.5**	**99.6**	**5**	**99.4**	**231.5**
S Nevada St SD	470	9	19.5	1602	195.9	4	111.1	568.9
16th Ave S SD (East)	462.8	1	462.8	462.8	267.4	3	220.8	431
2nd Ave S SD	115	3	96	288	328.05	2	309.3	346.8
KCIA #1	33	1	33	33	128.8	2	100	157.6
S 96th St SD	30	17	17	130	69.05	2	57.8	80.3
S Webster St SD	75	1	75	75	99.9	1	99.9	99.9
South Ops SD	-	0	-	-	99.7	1	99.7	99.7

n=Number of Samples (excludes ODS samples);

Bold rows indicate that the basin contains an Effectiveness Monitoring Location (EML).

Orange-shaded concentrations indicate a value greater than the LDW CSL/2LAET (1000 ug/kg).

Green-shaded concentrations indicate a value greater than 300 ug/kg and less than 1000 ug/kg. While 300 ug/kg is not a regulatory threshold for PCBs, SPU's experience working on source tracing in the LDW area suggests that it's common/typical to see up to about 300 ug/kg in storm solids in a highly urbanized and industrial area without an identifiable PCB source (i.e., associated with diffuse sources like air deposition). As such, it is used as an informal threshold in this table to indicate areas with present, but low levels of, PCBs.

[1] July 1, 2012-June 30, 2020

[2] July 1, 2020 – Dec 31, 2024

[3] S Garden St SD and Head of Slip 2 SD were Effectiveness Monitoring Locations during the 2019 Permit term, but not during the 2024 Permit term.

Median PCB concentrations in EML basins have fallen in the majority of the basins. 12 basins saw reductions ranging from 9% (1st Ave S [East]) to 72.6% (S Garden St SD). Five EML basins saw increases between the SCIP1 and SCIP2 period, with the largest increase observed in the SW Idaho St SD (126%, from 39.5 ug/kg dw to 89.35 ug/kg dw) and an average increase amongst the other basins of 9.8%. None of the basins that saw an increase in *median* PCB concentrations have *median* values that exceed the SCO.

All four EML drainage basins with a *maximum* PCB concentration above the CSL during the SCIP1 period (S Myrtle St, Diagonal Ave S, S Garden St, and 1st Ave S (west)) also had *maximum* concentrations which **exceeded** the CSL of 1000 ug/kg during the SCIP2 period. *Maximum* concentrations in the Diagonal Ave S, S Garden St, and 1st Ave S (West) basins saw reductions between the SCIP1 and SCIP2 phases, while S Myrtle St SD saw an increase in *maximum* concentration. S Norfolk St SD and the 17th Ave S SD saw *maximum* concentrations exceed the CSL for the first time during the SCIP2 phase, but their *median* concentrations fell.

Sample results for the SCIP 2 period provide useful but skewed data due to targeted source trace sampling that worked to identify PCB sources in many of the basins, compared to a limited number of targeted samples collected in other LDW basins. Many of the samples taken in the LDW, and city-wide, between 2020 and 2024, were taken to support PCB tracing. This included numerous samples taken in 2021 to support the University of Washington Conservation Canines olfactory tracing testing associated with SPU's PCB Detection Dog grant from Ecology. Many samples collected in 2022, 2023, and 2024 continued acting on these suspected PCB sources or were part of other focused PCB investigations, described in more detail below. These targeted samples result in increased general PCB values and their associated statistics, as they are included in the sample data set, but are collected immediately adjacent to known or suspected PCB contaminated properties. Samples collected during the SCIP1 phase were largely information collection associated with data gaps, so far more samples were collected in areas without known or suspected PCB sources.

Basin-specific observations:

Although the median PCB concentration of storm solids collected in the **17th Ave S** and **S Norfolk St SD** basins since 2020 is low (137.1 and 81.65 ug/kg, respectively), the *maximum* PCB concentrations in storm solids samples collected in these basins during the SCIP2 period exceed the CSL.

- 17th Ave S: A sample collected from the 17th Ave S sediment trap (17ST-ST1) in October 2022 had a surprisingly elevated total PCB concentration of 1,192 ug/kg. The City conducted substantial drainage and street remediation actions (improvements and replacements) in this drainage area as part of the upland component of the T-117 Early Action Area cleanup, overseen by EPA. After learning of the 1,192 ug/kg PCB concentration at 17TH-ST1, the City initiated targeted sampling and other source control actions to identify potential sources of PCBs. The City collected samples from a number of right-of-way catch basins during 2023 and utilized the PCB Detection Dog. PCB concentrations in those January 2023 grab samples ranged from about 400 to 600 ug/kg. The 17th-ST1 trap sample in 2023 returned with a PCB concentration of 491.8 ug/kg, a substantial reduction from the prior sample but still exceeding the SCO. The City also arranged to begin sweeping some of the roadways every other week. In

2024, SPU screened the basin again, during which the samples collected from right-of-way catch basins were found to contain PCB values ranging from 200 ug/kg to 600 ug/kg. The 17th-ST1 sample in 2024 returned with a PCB concentration of 1,204 ug/kg. SPU will continue sweeping the right-of-way moving forward, along with increased infrastructure cleaning and ongoing source tracing moving forward.

- S Norfolk St: In 2022, SPU assisted Ecology with an area-defined storm solids sampling effort to identify potential PCBs sources downstream of Seattle's MS4 in the S Norfolk St CSO/EOF/SD basin. The investigation indicated the need to clean some sections of pipe (outside of Seattle's MS4, west of I-5) to remove accumulated contaminants that may be a source of PCBs to the river at the Norfolk outfall. While the samples found to contain elevated PCBs in this basin were located outside of the City limits, they are included in the data set above, as they have the potential to impact the LDW. Cleaning began in 2022 and was completed in 2024. As part of this work in 2023, SPU cleaned the pipe segment underneath S. Norfolk St where the storm solids grab sample was found to contain an elevated PCB concentration (2860 ug/kg). This work supported Ecology's Source Control sufficiency evaluation for the LDW Upper Reach. SPU plans to collect follow up samples from within the Seattle owned portion of the basin as well as within the non-Seattle portion of the basin to determine if the cleaning was effective in addressing the PCB concentrations.

During the SCIP1 period, **S Myrtle St** and **S Garden St** were the only basins where the *minimum* storm solids PCB concentration exceeded to CSL. The minimum values in these basins have fallen below the CSL value, but continues to exceed the SCO. Large reductions in *median* concentration have been observed in both the S Myrtle St SD and S Garden St SD, which had the highest *median* concentrations during the SCIP1 period. The S Myrtle St SD saw a nearly 37% reduction in the *median* concentration during the SCIP2 phase, while the S Garden St SD saw a 72.6% reduction. The *median* concentrations in the S Myrtle St SD and S Garden St SD decreased from 2326 ug/kg (SCIP1) to 1471.5 ug/kg (SCIP2) and from 4058 ug/kg (SCIP1) to 1112 ug/kg (SCIP2), respectively. SPU believes that these reductions are largely due to increased BMP implementation. The *median* concentrations in these basins continue to exceed the CSL value. While the PCB concentrations in these basins has declined, PCB concentrations in storm solids samples are still elevated despite these rigorous source control actions.

- S Myrtle St: The S Myrtle St SD has a sediment trap located in the most downstream maintenance hole before the outfall, providing a regular data point for this basin. This basin was fully cleaned in 2020 to address PCB concentrations in the pipe to help prevent impacts to the river while source control efforts continue to eliminate the PCB contribution to the S Myrtle St SD. The sample with the maximum PCB concentration in this basin during the SCIP2 phase was collected in a sediment trap pulled in the fall of 2022 (4450 ug/kg), despite weekly sweeping and quarterly catch basin cleanings. Catch basin grab samples collected in 2022 indicated lower (1,837 ug/kg) but still elevated PCB concentrations. In response, SPU cleaned the S Myrtle St SD again in August 2023, including a thorough cleaning of ledges within the maintenance holes in the basin that appear to accumulate fine sediments. The 2023 sediment trap sample collected in May, but prior to line cleaning, had a PCB concentration of 1724 ug/kg.

The 2024 sediment trap sample, collected in June, returned with 1611 ug/kg PCBs, continuing a slow reduction in value but still exceeding the CSL value. The City will continue to attempt to collect sediment trap samples from MYR-ST1 annually and meet all other adaptive management response requirements detailed in Appendix 13. SPU is in the process of investigating additional source control measures within this basin to reduce the PCB concentrations.

- S Garden St: As noted in Table 2, the S Garden SD basin outfall is owned by a private entity (Seattle Iron and Metals) and the City has experienced challenges accessing S Garden Street due to the storage of large trucks in the right-of-way. A railroad right-of-way at the entrance to S Garden St was repaired by SDOT in 2023, which allowed for more frequent drainage system maintenance and sweeping of the roadway. This repair was a temporary measure, which requires ongoing maintenance to support this increased drainage system maintenance and sweeping. The sediment trap sample collected from the S Garden St SD in 2023, prior to these repairs, contained PCB concentrations of 1112 ug/kg. The trap sample collected in 2024 saw a large reduction in concentration (388 ug/kg), which is believed to be directly connected to the increased sweeping and maintenance. SPU is continuing to work with SDOT to determine how the City could more effectively access 8th Ave S and S Garden St to remove street solids.

Historically, source tracing data have indicated the presence of elevated PCB concentrations in a number of the **Diagonal Ave S SD sub-basins**. The City has deployed multiple sediment traps and collected grab samples over the last two decades to trace sources of PCBs, often following up on where the detection dog detected PCBs or where SPU inspectors suspected potential PCB sources. As a result of this focused approach, the dataset contains some very high concentrations in a subset of samples. Despite this, the PCB concentrations in storm solids collected from the Diagonal Ave S EML (sediment trap ST1) between 2021 and 2023 ranged from non-detect to 238.2 ug/kg.

SPU continued to target portions of the Diagonal Ave S SD in 2024 and removed potentially contaminated sediments before they reached the river.

- S Snoqualmie sub-basin: SPU installed three additional traps in the S Snoqualmie sub-basin in 2018 to assist in tracing elevated levels of PCBs found in the maintenance hole located on S Snoqualmie St at 6th Ave S. At this point, these traps have not indicated the source of the PCBs in the area. SPU regularly collects source tracing/monitoring samples within Maintenance Hole 18, a structure previously observed to have elevated PCBs, to determine if PCB values are increasing within the basin. Samples have been collected from this structure roughly every two years to track sub-basin concentrations. This sampling will continue into the future.

- Denver Ave sub-basins: SPU continues to conduct post cleanup sampling of the S Denver St PCB spill drainage sub-basin to determine if PCBs in this known problem area remain low.

- S Dakota sub-basin: In May 2022, the PCB concentration in solids collected in sediment trap ST7, located in the downstream end of the S Dakota sub-basin (at 6th Ave S), was 522 ug/kg. In May 2023, the PCB concentration at the same location was found to be 1740 ug/kg. After

receiving that 2023 sample result, SPU initiated a focused source tracing investigation. Storm solids samples were collected in the City's MS4 east of I-5, which were found to be non-detect for PCBs. Other samples were collected along S Dakota St between 6th Ave S and I-5. Source tracing sampling conducted in 2024 found elevated PCBs (620 ug/kg) in a right of way catch basin immediately upstream of the ST7 location. This right-of-way catch basin is adjacent to a building suspected of containing PCBs which underwent renovation in 2022. These right of way catch basins were cleaned in 2024. SPU will continue to monitor ST7 to determine if there is an ongoing discharge of PCBs within this sub-basin. SPU plans to issue notification of suspected PCB contamination to properties, such as the suspected building within this sub-basin, in 2025.

Table 5 indicates a slight increase in *median* concentrations of PCBs in the **SW Idaho St SD,** rising from 39.5 ug/kg in the SCIP1 phase to 89.35 ug/kg in the SCIP2 dataset thus far. SPU believes this increase is tied to the characteristics of the samples collected in the SCIP2 phase, as animals damaged several sediment trap bottles in the upper basin, skewing the data to rely more heavily on the industrial samples near the outfall. The impacted traps were reinstalled in 2023. Source control and source tracing efforts targeting the sources of PCBs in this basin continue to address these industrial sources.

The **1st Ave S (west) SD** basin is large and discharges to the Duwamish River through a WSDOT-owned outfall. The EML samples have been collected from sediment traps (1ST-ST2 and 1ST-ST3) located in the lower half of the basin. In 2020 and 2021, PCB concentrations at 1ST-ST2 were around 100 ug/kg, while PCBs were not detected in the 2022 or 2023 samples collected from 1ST-ST3. SPU installed a sediment trap (1ST-ST8) in the upper basin in 2021. PCB concentrations in samples collected in 2022 and 2023 were found to be 1020 ug/kg and 916 ug/kg, respectively. These data initiated a PCB source tracing investigation in the latter part of 2023 which continued into 2024. Right of way catch basin sampling did not identify any active sources within the upper portion of this basin. SPU will continue to collect samples from within this upper sub-basin to verify that no active sources exist. If no sources are identified, the basin will be cleaned via the line cleaning for source control program to remove residual PCBs within the system.

In summary, 2024 storm solids sample data and the SCIP2 dataset indicate that (1) PCB concentrations remain elevated in the S Myrtle St, S Garden St, 17th Ave S SD, and Diagonal Ave S SD basins, (2) work will continue to monitor suspected potential PCB sources in the S Dakota sub-basin, (3) will sample where able the 1st Ave S (west – upper portion) SD basin to determine if active sources exist and will address PCBs found within the MS4 with the Line Cleaning for Source Control program, and (4) PCB concentrations in most of the LDW SD basins are fairly low and relatively stable.

3.6.1.3 cPAHs

General observations:

Table 6 indicates that, as with storm solids samples collected during the SCIP1 phase, *median* cPAH concentrations in most LDW basins sampled during the SCIP2 period exceed the CSL of 100 ug/kg in all basins except the Head of Slip 2 SD. Data shows that there are several basins where the *maximum* cPAH concentrations among SCIP2 samples are substantially lower than the maximum concentration in samples collected during SCIP1, such as 7th Ave S, S Norfolk St CSO/EOF/SD, S Nevada St SD, 17th Ave S SD, S Webster St SD, S 96th St SD, and 1st Ave S (west) SD basins. Several basins have seen substantial increases in *maximum* concentrations of cPAHs as well, including SW Idaho St SD, S Myrtle St SD, Diagonal Ave S CSO/SD, Georgetown SD, and the KCIA #1.

Table 6: Summary of Basin-Specific cPAH Concentrations in Effectiveness Monitoring Location (EML) and Other LDW Source Tracing Samples Collected in the SCIP1 and SCIP2 Sampling Periods

Outfall	Results from 2012-2020 samples[1]				Results from 2020-2024 samples[2]			
	Median cPAH (ug/ TEQ/kg)	n	Min cPAH (ug/TEQ/kg)	Max cPAH (ug/TEQ/kg)	Median cPAH (ug/ TEQ/kg)	n	Min cPAH (ug/TEQ/kg)	Max cPAH (ug/TEQ/kg)
7th Ave S SD	**222.74**	**26**	**17.2**	**1828**	**155.15**	**18**	**17.74**	**621.59**
S River St SD	**625.83**	**10**	**201.2**	**1602**	**405.20**	**4**	**17.89**	**1581.6**
SW Idaho St SD	**112.34**	**22**	**17.2**	**1406**	**182.77**	**10**	**30.68**	**3879.9**
S Brighton St SD	**337.69**	**5**	**16.16**	**756.5**	**636.49**	**5**	**75.28**	**1068**
S Myrtle St SD	**778**	**3**	**578.77**	**1068.9**	**756.32**	**8**	**459.43**	**2855.1**
Diagonal Ave S CSO/SD	**335.56**	**68**	**15.02**	**3622.8**	**302.56**	**32**	**23.325**	**12,194.4**
17th Ave S SD	**335.02**	**6**	**312.12**	**867**	**196.155**	**3**	**145.73**	**431.82**
S Garden St SD[3]	**437.64**	**2**	**326.36**	**548.92**	**394.31**	**3**	**174.72**	**492.95**
Georgetown SD	**3390.25**	**2**	**2965.3**	**3815.2**	**6633.5**	**7**	**289.5**	**68,382**
SW Dakota St SD	**586.9**	**2**	**457.45**	**716.34**	**419.89**	**5**	**393.82**	**625.78**
SW Kenny St SD	**408.88**	**8**	**191.3**	**849.2**	**250.86**	**7**	**122.1**	**596.23**
Highland Park Way S	**263.86**	**23**	**28.12**	**717.53**	**141.49**	**7**	**86.31**	**402.81**
Head of Slip 2 SD[3]	**85.29**	**1**	**85.29**	**85.29**	**71.15**	**2**	**33.25**	**109.05**
I-5 SD at Slip 4	**570.62**	**9**	**25.62**	**970**	**268.74**	**6**	**85.62**	**883.19**
Norfolk CSO/EOF/SD	**466.4**	**63**	**15.49**	**49,324**	**360.08**	**24**	**63.61**	**13,355**
1st Ave S (West)	**349.63**	**36**	**52.36**	**2790**	**250.04**	**14**	**108.67**	**766.66**
1st Ave S (East)	**388.5**	**3**	**263.5**	**601.44**	**248.8**	**5**	**43.14**	**510.8**
S Nevada St SD	1771.9	9	82.33	42,327	953.28	4	524.51	22,387
16th Ave S SD (East)	840.2	1	840.2	840.2	449.14	3	390.55	465.975
2nd Ave S SD	216.3	3	184	381.5	333.535	2	313.29	353.78
KCIA #1	540.42	1	540.42	540.82	2271.56	2	921.01	3622.1
S 96th St SD	172	17	16.5	1089.7	219.49	1	219.49	219.49
S Webster St SD	7983	1	7983	7983	2957.9	1	2957.9	2957.9
South Ops SD	-	0	-	-	1019.95	1	1019.95	1019.95

n = number of samples (excludes ODS samples)
Bold rows indicate that the basin contains an Effectiveness Monitoring Location (EML).

Orange-shaded concentrations indicate a value greater than 1000 ug/kg. While 1000 ug/kg is not a regulatory threshold for cPAHs (the CSO/2LAET is 100 ug/kg), it is being used in this table to differentiate those SD basins with highly elevated cPAHs.

[1] July 1, 2012-June 30, 2020

[2] July 1, 2020 – Dec 31, 2024

[3] S Garden St SD and Head of Slip 2 SD were Effectiveness Monitoring Locations during the 2019 Permit term, but not during the 2024 Permit term.

Median cPAH concentrations have declined in the **7th Ave S SD, S Norfolk CSO/EOF/SD, SW Kenny St SD, S River St SD, Diagonal Ave S CSO/SD**, **I-5 at Slip 4 SD, 1st Ave S SD (West), 1st Ave S SD (East), S Nevada St SD,** and **Highland Park Way S SD** with sufficient sample quantities to identify a downward trend. Additional declines in the **17th Ave S SD, 16th Ave S SD (East),** and **S Garden St SD** basins contain three or fewer SCIP2 data points and should therefore not be relied upon to identify trends yet. *Median* cPAH concentrations are essentially unchanged (less than 3%) in the **S Myrtle St SD** which saw a slight decrease. *Median* and *maximum* cPAH concentrations have increased in the SCIP2 sample period compared with the SCIP1 period in the **SW Idaho St SD, S Brighton St SD, KCIA #1, and Georgetown SD basins**. Source tracing and/or line cleaning activities are utilized to address the potential increasing values.

Basin-specific observations:

For the SCIP 1 dataset, SPU conducted a focused investigation in the **S Norfolk St SD basin** to identify source(s) of PAHs, which involved intensive inspections and sampling. Based on those efforts, a number of PAH sources have been identified and controlled in this system; however, data suggested that additional potential sources of cPAH in source control samples may have still existed. Targeted sampling conducted in the fall of 2021 bracketed elevated cPAH contamination to a section of pipe located along S Norfolk St at the border with the City of Tukwila. This pipe conveys SPU's S Norfolk St CSO/EOF/SD flows, but samples collected upstream at the terminus of the City of Seattle MS4 indicate the cPAH contaminants were not coming from the SPU system. SPU continued to assist Ecology and the City of Tukwila to trace the cPAH source and began cleaning this section of drainage mainline to remove accumulated contaminants in 2022. Cleaning was completed in 2024 and follow up sampling will be conducted in 2025 and 2026 to determine if there is an ongoing source.

Five of the ten sediment trap samples collected in the **SW Idaho St SD** basin between 2020 and 2024 were found to be less than 100 ug/kg. Two of the remaining samples were collected from ID-ST1 in 2022 and 2023 and reported a cPAH concentration of 1001 and 2688 ug/kg, respectively. All three samples collected in 2024 exceeded the CSL, with ID-ST1 having a concentration of 3,879.9 ug/kg, ID-ST2 containing 278.41 ug/kg, and ID-ST3 containing 753.23 ug/kg. This increase in cPAH basin-wide does not align with any known or suspected sources, such as creosote coated timbers. ID-ST1, the sediment trap with the highest levels of cPAHs, is located in a residential area with no obvious sources upstream. SPU will continue to use business inspections, source tracing, and review 2024 data to determine if there are potential sources of cPAHs in this basin that may be identified and controlled.

The **S Myrtle St SD** has a sediment trap that provides reliable and consistent data for cPAH analysis. Line cleaning occurred in the **S Myrtle St SD** and **S Brighton St SD**, in 2023 *after* the sediment traps were pulled. *cPAH* concentrations within the **S Myrtle St SD** sediment trap collected in 2024 were 459.73 ug/kg, which still exceeds the CSL, but represent a further reduction from the 597.74 ug/kg within the 2023 sample, and the 2,855.1 ug/kg in 2022. Additional basin-wide samples will be collected to help determine if this trend continues. The **S Brighton St SD** sediment trap collected in 2024 contained 75.28 ug/kg cPAH, a substantial reduction compared to the 2023 sediment trap, which had 1,068 ug/kg cPAHs.

Median cPAH concentrations values in the **Diagonal Ave S CSO/SD** have decreased slightly between SCIP periods. The *maximum* cPAH value in the SCIP2 period (12,194 ug/kg in February 2022) is an outlier for the dataset; the second highest cPAH sample from this basin in the SCIP2 period had a result of 1,889.06 ug/kg. The outlier sample was collected from a maintenance hole adjacent to a railroad property where a tide gate impounds fine particulates coming from the railroad and trucking facility. Railroad ties have been shown to be sources of cPAHs. This location was cleaned through line cleaning in 2022, after the outlier sample was collected, and was cleaned again during the 2023 season. SPU will conduct follow up sampling to determine if cPAHs remain an issue in this location. Cleaning will continue until the source can be controlled through other means.

SPU cleaned the **S Nevada St SD** basin conveyance system in 2020 after elevated cPAH concentrations were found in the SCIP1 period storm solids samples. Since then, unfavorable tide conditions, pipe size, and challenges in obtaining new low-profile sediments traps has limited SPU's ability to install a sediment trap in this basin. In 2023, a Port of Seattle owned warehouse with a suspected coal tar roof was demolished. In early 2024, SPU collected four samples from right of way catch basins, which indicated elevated cPAHs remain an issue within the basin. cPAHs in the four samples ranged from 524.51 ug/kg to 22,387 ug/kg. A new warehouse was completed in the location of the old warehouse in the fall of 2024. SPU plans to clean the drainage assets within this basin in 2025, and to install a sediment trap to establish a regular monitoring location.

The storm solids sample with the highest cPAH concentration in the **Georgetown SD** basin was collected from a maintenance hole in May 2024 (68,382 ug/kg). The City had previously identified roofing material on a building in this basin that contained PAHs. The City completed a project in 2023 to re-coat the roof to prevent leaching of PAHs to the surrounding impervious surface and MS4 drainage system. Samples collected in 2023 contained high levels of cPAHs, which SPU attempted to address through the Line Cleaning for Source Control program. However, after the drainage system was cleaned in 2023, samples collected in 2024 contained higher levels of cPAHs. SPU believes that the cPAH concentrations increased due to a lack of other material within the drainage system, and remnant PAH particulates remaining within the basin. SPU plans to clean the drainage system in the **Georgetown SD** again in 2025 to remove the suspected residual particulates.

4. Citywide Programs that Support Source Control Efforts in the LDW

In addition to the specific LDW adaptive management elements, SPU conducts other citywide programs that support these efforts. While not required by Appendix 13, the following is a summary of the 2024 LDW accomplishments in these citywide programs:

- **Stormwater Facility Inspections**: While inspecting a business for source control BMPs, the flow control and/or treatment facility is also inspected. Within the LDW Source Control Area, 38 facilities were inspected for Code compliance with regard to flow control and treatment system code requirements during 2024.
- **Water Quality Complaints**: Inspectors respond to complaints as they are received through the water quality hotline, webpage, or agency referrals. In 2024, 73 water quality complaints were reported in the LDW Source Control Area that resulted in 4 business inspections. When a complaint is reported at a business, a full business inspection is completed.
- **Spill Response**: Spills are dispatched through the SPU Operations Response Center to on-call Spill Responders as they are received. In 2024, SPU responded to 59 spills within the LDW Source Control Area. SPU continues to collect an annual sample (when sufficient solids exist) downstream of the location of a completed cleanup from a major PCB spill on Denver Ave S in 2019, as described below.

    ### *Denver Ave S PCB Spill*

    In June 2019, an SPU inspector discovered a PCB spill from an unknown source in the right-of-way along Denver Ave S between 1st Ave S and 2nd Ave S. Sampling confirmed that surface soil along the north/west shoulder of Denver Ave S contained up to 40,300 mg/kg dw PCBs and solids in storm drain inlet on Denver Ave S contained 6,970 mg/kg dw PCBs. The affected soil was determined to encompass an area of about 38 feet by 530 feet with PCB concentrations ranging from 0.1 to 14 mg/kg in the top 0 to 6 inches of soil. PCBs in the storm drain downstream of the inlet where soil initially entered the drainage system ranged from about 4 to 69.4 mg/kg dw PCBs. Both Ecology and EPA were notified.

    In July and August 2019, SPU and SDOT conducted a cleanup under the Toxics Substance Control Act that was approved by EPA Region 10. Approximately 981 tons of non-regulated PCB-contaminated soil and 40 tons of regulated PCB-contaminated soil/storm drain solids were removed from the site and approximately 1,500 feet of pipe and associated structures (e.g., inlets, catch basins, maintenance holes, and vaults) on Denver Ave S were jetted and cleaned. Non-regulated waste was disposed at the Columbia Ridge Landfill and regulated waste was disposed at the Chemical Waste Management Landfill, both located in Arlington, Oregon. SDOT backfilled and paved the road shoulder after contaminated soil was removed. Soil samples collected at the bottom of the excavation prior to backfill contained <0.05 to 0.086 mg/kg dw PCBs. SPU received approval from the EPA TSCA program that the upland cleanup and line cleaning of the Denver Ave S SD were complete.

During 2020, SPU conducted in-water sampling of sediments in the vicinity of the Diagonal CSO/SD outfall to determine if PCBs from the Denver Ave S spill impacted the sediments in the LDW. Sampling results from this effort indicated that there was no measurable impact to the sediments in the LDW off-shore of the Diagonal CSO/SD outfall. EPA TSCA reviewed the report on the in-water sampling then approved and considered this task complete. Post cleanup reports were submitted to the EPA in Q1 of 2021, and EPA signed off on cleanup completion in Q3 2021.

Ongoing post completion sampling is occurring, when possible, to verify that all PCBs associated with this incident have been removed from the drainage infrastructure. Regular MS4 cleaning will continue to be conducted in the drainage system along Denver Ave S until post-cleanup sampling indicates that no residual PCBs exist in the system in this location. The most recent storm solids sample was collected in the Denver Ave sub-basin in 2022. The stormwater infrastructure in the sub-basin was cleaned in 2022 and the vault at Denver Ave S/Colorado Ave S was cleaned in 2023.

- **Education and Outreach**: SPU funds the Green Business Program, a conservation service for Seattle businesses, which provides free spill kits, assistance in developing a spill plan, and site-specific technical assistance. Thirteen businesses in the LDW MS4 basins received spill kits, either stemming from a business inspection or through targeted outreach. Surveys of spill kit recipients statistically indicate that businesses which participate in this program show an improved understanding of stormwater pollution prevention.

5. Priorities for 2025

Based on the information described above and annual prioritization process, the City affirms its previous priorities and intends to take further actions in 2025 as stated below.

5.1 Source Tracing/Sampling

Source tracing priorities for 2025 will largely remain the same as described in the 2021-2026 SCIP. In addition, the City has identified the following 2025 priority actions based on recent sampling and business inspections:

- **Facilitate sample data collection in basins where data gaps remain.**
  - SPU will attempt to install a sediment trap within the S Nevada St SD to allow for near end of pipe data collection.
  - SPU will collect grab samples from basins where sediment trap installation is not feasible, including within the S River St SD, Georgetown SD, SW Dakota St SD, and within the WSDOT owned stormwater retention pond within the 1st Ave S SD (west).
  - SPU will work with Seattle City Light to try to collect samples from the Duwamish Substation SDs (#1, #2, #3) and the W Marginal PL SW SD within the City of Tukwila.
  - Samples will be collected from the North Boeing Field SD if line cleaning and CCTV work identify any active flows within the basin, which is currently believed to be decommissioned.
- **Conduct targeted sampling and/or investigations in locations with (i) persistent priority pollutants or (ii) increasing concentrations.**
  - Samples will be collected (if possible) in the Denver Ave S sub-basin and the Georgetown SD to verify that line cleaning has removed elevated concentrations of pollutants of concern.
  - Upstream source tracing samples will be collected (if possible) within the Highland Park Way S SD to follow up on a request from Ecology to source trace PCBs identified in 2017 within the basin.
  - SPU will continue to coordinate with EPA in the 17th Ave SD basin (T-117 upland area), conduct targeted sampling in the basin to identify remaining controllable sources of PCBs, and continue street sweeping every other week.
  - Samples will be collected from maintenance hole 18 within the S Snoqualmie Sub-basin of the Diagonal Ave S CSO/SD.
  - Source Trace sampling and upper basin screening will occur within the SW Idaho St SD to determine if controllable sources of cPAHs and arsenic exist upstream of ID-ST1.

Figure 3 illustrates the location of the LDW drainage basins (or sub-basins) proposed for source control/tracing sampling in 2025.

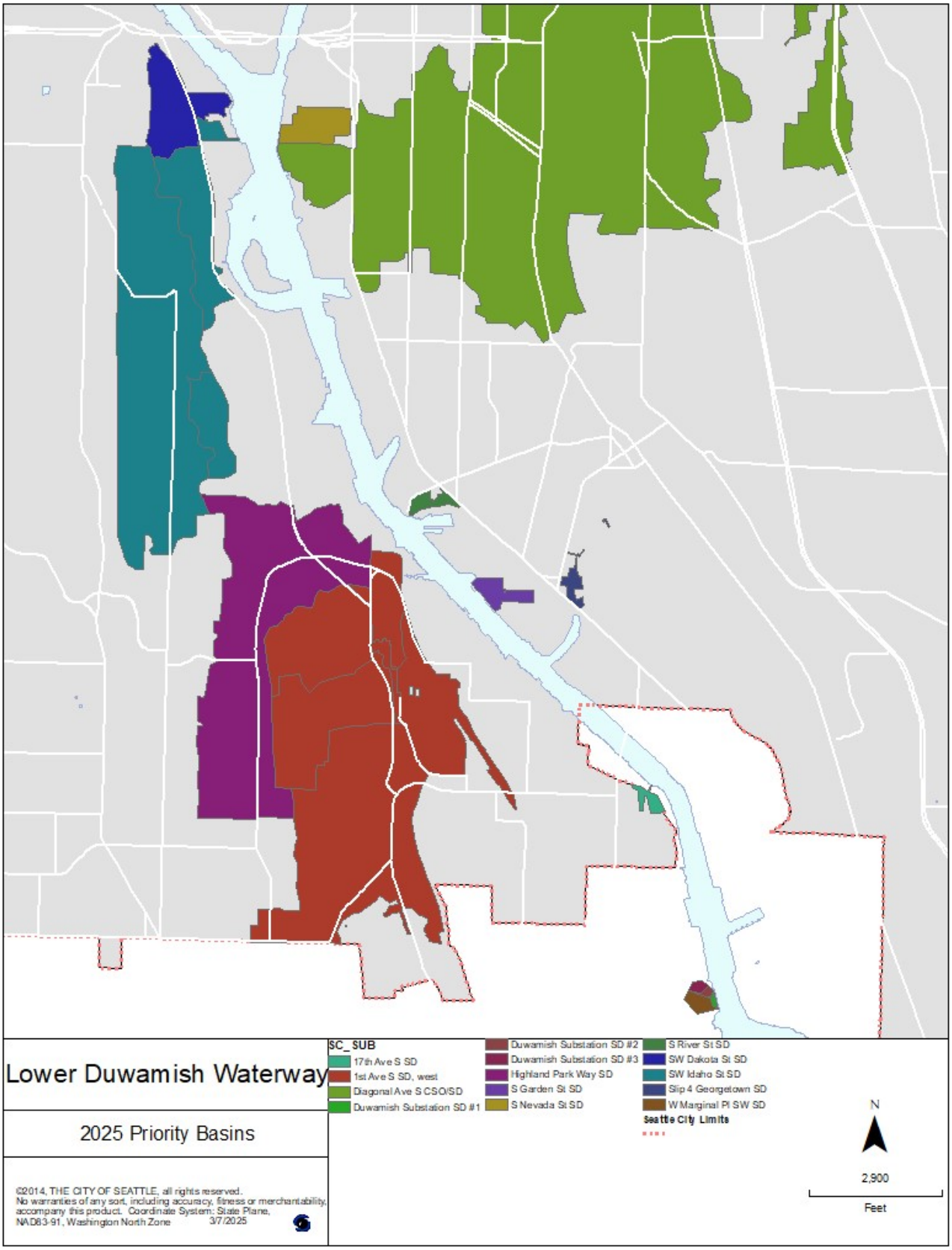

Figure 3: Drainage Basins with Planned Source Tracing Efforts in 2025

5.2 Line Cleaning

For several years, SPU utilized the 636/640 S Riverside Dr site for the temporary decant facility for line cleaning. This site is no longer available due to construction of the South Park Pump Station. SPU has established a temporary decant facility at 4700 Myers Way S. This temporary site will continue to be used until a permanent decant facility can be established for this work.

MTCA grant funding for line cleaning ran out in 2017. SPU has continued to fund line cleaning efforts using funds provided through standard budgetary allocation. As a result, line cleaning scope will vary as dictated by available funds.

All drainage areas targeted for line cleaning in the 2021-2026 SCIP have been cleaned. Line cleaning in 2025 will focus on locations where sampling indicates persistent concentrations of contaminants of concern, or where special circumstances prevented cleaning in 2024, including:

- **1st Ave S (west) SD** – While most of this drainage system was cleaned in 2023 and 2024, a portion of pipe in front of the South Transfer Station required extensive water handling to clean. Due to weather and pipe cleaning complexity, the line will be cleaned again in 2025 to verify that solids have been removed, and the system will be video inspected to verify that it is functioning correctly.
- S Garden St SD – To remove solids with consistently elevated PCB concentrations and to allow for video inspection of the system.
- Georgetown SD – This system, cleaned in 2023, to coincide with a roof replacement project at an adjacent property to address a potential source of cPAHs. It had high cPAHs in the EML sample collected in 2024. The system will be cleaned in 2025 to remove any residual cPAHs to support source tracing in future years.
- North Boeing Field SD **–** This system was verified as decommissioned in 2012, with CCTV video inspection determining that there were no active connections. SPU plans to conduct a CCTV video inspection of this system to verify that no new connections have been made. If connections are found, the system will be cleaned and SPU will work with the owner of the connection to disconnect the new drainage.
- MH18 and MH52 – These structures have accumulated elevated concentrations of PCBs and Mercury (MH18) and PCBs and cPAHs (MH52). Sources impacting these structures have either not been identified or are not controllable at this time, so cleaning is used to remove contaminants prior to their transport downstream.
- Others TBD for Maintenance Purposes – Cleaning will occur as resources allow, dependent on accumulation levels/rates, where removing solids will help maintain proper drainage flows and remove lower concentrations of contaminants.

*Note: Drainage basins or pipe segments **bolded** above are particularly complicated to clean due to pipe diameter, tide conditions, etc. and will therefore be much more expensive and time intensive to clean.*

SPU intends to clean at least 4,000 linear feet of storm drain lines in 2025 to comply with Appendix 13 requirements.

5.3 SCIP3 Preparations

Seattle's third SCIP (SCIP3) will cover the 2026-2031 time period (January 1, 2026, to December 31, 2031) and build upon the 2021-2026 SCIP (SCIP2). SCIP3 will provide an updated assessment of source tracing and program effectiveness data, identify planned operations, maintenance, and capital projects to address Duwamish source control needs. SPU will provide the draft SCIP3 to Ecology by 3/31/2025, in accordance with Appendix 13, which should provide sufficient time for Ecology's review prior to 2026.

Attachment A: Effectiveness Monitoring and Other LDW Source Tracing Data Collected From January 2024 Through December 2024