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## **EXECUTIVE SUMMARY**

### **Overview**

This Sediment Management Plan (SMP) update amends the 1999 SMP (King County 1999). The 1999 SMP evaluated remediation alternatives for seven sediment cleanup sites located near King County combined sewer overflows (CSOs). The current SMP Update identifies appropriate sediment management strategies adjacent to each remaining King County CSO outfall location. Sediment quality at other facilities is evaluated on a case-by-case basis in separate reports. This SMP update describes King County CSO discharge locations, summarizes ongoing and previously performed sediment cleanup work, and summarizes the results of CSO solids deposition modeling and existing sediment quality in the CSO discharge areas. This SMP update also evaluates alternative sediment cleanup options for the University Regulator Station (RS) Overflow area to understand potential cost implications of any cleanup required at the site in order to incorporate into long-range planning.

### **King County CSO Control, Sediment Management Program, and Regulatory Setting**

This SMP update has been developed by King County's Sediment Management Program in coordination with the CSO Control Program. CSO discharges have been reduced substantially in the last 20 years with significant CSO control capital projects and reduced loadings to the CSO system via upland land use changes and chemical management practices. However, persistent contaminants in sediments in some locations continue to pose a potential risk to aquatic life, wildlife, and human health. Figure ES-1 shows the King County CSO discharge locations.

King County's Wastewater Treatment Division is responsible for carrying out the CSO Control Program. The CSO Control Program and policies guide King County in controlling CSO discharges and in complying with control regulations as required by Washington State Department of Ecology (Ecology) and the U.S. Environmental Protection Agency (EPA). King County manages a total of 39 permitted CSO outfalls; collectively, these CSOs are regulated under the National Pollutant Discharge Elimination System (NPDES) permit for the West Point Treatment Plant (Permit No. WA-002918-1; renewal effective February 1, 2015) and the 2013 Consent Decree (Civil Action No. 2:13-cv-677) between the U.S. Department of Justice, EPA, Ecology, and King County. There are also four CSO treatment plants that have outfalls that are also regulated under the NPDES permit and consent decree.



Figure ES-1  
King County CSO Discharge Locations

The current NPDES permit requires King County to complete and report on characterization of sediment at all CSO locations by December 31, 2018, using an appropriate combination of sediment sampling and discharge modeling. Consistent with NPDES permit conditions, this SMP update describes the status of sediment characterization of all 39 King County CSOs and the four CSO treatment plant outfalls. These characterization results are compared to Sediment Management Standards (SMS; Washington Administrative Code 173-204). For CSOs that discharge into designated Superfund sites, sediment is being evaluated consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; 40 Code of Federal Regulations Part 307) and administered by EPA.

### CSOs that are Being Addressed in Ongoing Cleanups

Sediment quality associated with fourteen CSOs and two CSO Treatment Plant (TP) outfalls have been previously characterized, and 1) have been previously remediated; 2) are currently being addressed as part of area-wide sediment cleanup efforts; or 3) are being addressed under the original 1999 SMP (Table ES-1). Eleven of these CSOs are located within the Lower Duwamish Waterway (LDW) Superfund Site Boundary, and two CSOs are located within the Harbor Superfund Site Boundary (East Waterway Operable Unit). These CSOs are not evaluated in this SMP update because they are being addressed as part of their respective Superfund cleanups. Any sediment cleanup actions as needed near these CSOs will be undertaken as a part of area-wide cleanup efforts.

#### *CSO and CSO TP Outfall Sediments Addressed by the LDW Superfund Site*

- Hanford #1 Overflow
- Duwamish PS Overflow
- W Duwamish Overflow
- Brandon St. RS Overflow
- Terminal 115 Overflow
- S Michigan St. RS Overflow
- W Michigan St. RS Overflow
- E Marginal Way PS Overflow
- 8th Ave. S Overflow
- Norfolk St. Overflow
- Henderson/MLK Outfall

#### *CSO Sediments Addressed by the Harbor Island Superfund Site East Waterway Operable Unit*

- Hanford #2 RS Overflow
- Lander St. RS Overflow

#### *CSO and CSO TP Outfall Sediments Addressed by King County under 1999 SMP*

- King St. RS Overflow
- Denny Way RS Overflow
- Elliott West Outfall

Source control and sediment cleanup actions were previously performed by King County at the Denny Way RS Overflow/Elliott West Outfall, and were also identified for further monitoring in the 1999 SMP. Informed by recent sediment monitoring results, King County is currently performing additional cleanup evaluations in the Denny Way area, consistent with the requirements of an Agreed Order with Ecology. Similarly, sediment cleanup actions adjacent to the King St. RS Overflow were also identified for cleanup evaluations in the 1999 SMP to be performed as part of future redevelopment of this area, which continues to be the case. Therefore, these two sites are also not re-evaluated in this SMP update.

### **CSOs that are Being Addressed in the SMP**

The remaining 25 CSOs and two CSO TP Outfalls are evaluated in this SMP update. Thirteen are located in marine environments of Puget Sound and Elliott Bay and another 14 are located in freshwater environments of Lake Washington, the Lake Washington Ship Canal, Lake Union, and Portage Bay.

Note that Harbor Ave. RS Overflow and Chelan Ave. RS Overflow are located in the Harbor Island Superfund Site Boundary (West Waterway Operable Unit), but they are evaluated in this update because although no cleanup was required, the cleanup decision could be revisited if cleanup goals are not met.

#### ***Marine CSO and CSO TP Outfall Sediments Evaluated in the SMP***

- Carkeek Outfall
- North Beach PS WW Overflow
- North Beach PS Inlet Overflow
- S Magnolia Overflow
- 53rd Ave. SW PS Overflow
- Alki Outfall
- 63rd Ave. SW PS Overflow
- SW Alaska St. Overflow
- Murray St. PS Overflow
- Barton St. PS Overflow
- Kingdome RS Overflow
- Chelan Ave. RS Overflow
- Harbor Ave. RS Overflow

#### ***Freshwater CSO and CSO TP Outfall Sediments Evaluated in the SMP***

- Ballard Siphon Overflow
- 11th Ave. NW Overflow
- 3rd Ave. W Overflow
- Canal St. Overflow
- Dexter Ave. RS Overflow
- University RS Overflow
- Montlake RS Overflow
- Matthews Park PS Overflow
- Belvoir PS Overflow
- 30th Ave. NE Overflow
- E Pine St. PS Overflow
- Rainier Ave. PS Overflow
- MLK Jr. Way Overflow
- Henderson St. PS Overflow

**Table ES-1**  
**Lines of Evidence and Sediment Management Strategies for CSOs**

CSO Number	CSO Name	Within the Boundary of an Existing Sediment Cleanup Site?	CSO Control Status	Does the Model Predict Possible CSL Exceedances (Considering Diffuse Urban Inputs)?	Cluster of Potential Concern?	Nearby Pathway or Potential Sources	Other Inputs Needed to Account for Observable Sediment Concentrations?	Sediment Management Strategy
<b>Central Basin of Puget Sound</b>								
046	Carkeek Outfall	No	Treated	n/a	No; no CSL exceedances	None	No	No Further Action
048a	North Beach PS WW Overflow	No	Controlled	No	No; no CSL exceedances	None	No	No Further Action
048b	North Beach PS Inlet Overflow	No	Controlled	n/a	No data within 600 feet	None	n/a	Additional Evaluation
006	S Magnolia Overflow	No	Uncontrolled	No	No; no CSL exceedances	Other CSO, stormwater outfalls, marina activities	No	No Further Action
052	53rd Ave. SW PS Overflow	No	Controlled	No	No; no CSL exceedances	Not evaluated - no exceedances	No	No Further Action
051	Alki Outfall	No	Treated	n/a	No; no CSL exceedances	63rd Ave Pump Station CSO, stormwater outfalls	No	No Further Action
054	63rd Ave. SW Overflow	No	Controlled	No	No; no CSL exceedances	Alki CSO Treatment Plant, stormwater outfalls	No	No Further Action
055	SW Alaska St. Overflow	No	Controlled	No	No; no CSL exceedances	None	No	No Further Action
056	Murray St. PS Overflow	No	Uncontrolled	No	No; 2 CSL exceedance locations are isolated and bounded by other sample locations; there is no combination of three stations where the average exceeds the CSL for either chemical	Adjacent CSO, stormdrain	Isolated exceedance could be attributable to SD or CSOs	No Further Action
057	Barton St. PS Overflow	No	Uncontrolled	No	No; 2 CSL exceedances from 2016 are different chemicals and there is no combination of three stations where the average exceeds the CSL for either chemical 2016 sampling indicates sediments have recovered	Adjacent CSO, stormdrain, creosote pilings (ferry terminal)	Yes	Additional Evaluation
<b>Elliott Bay</b>								
027a/027b	Denny Way RS Overflow	Yes	Uncontrolled	n/a	n/a	n/a	n/a	Part of Existing Cleanup
027b	Elliott West Outfall	Yes	Treated	n/a	n/a	n/a	n/a	Part of Existing Cleanup
028	King St. RS Overflow	Yes	Uncontrolled	n/a	n/a	n/a	n/a	Part of Existing Cleanup

CSO Number	CSO Name	Within the Boundary of an Existing Sediment Cleanup Site?	CSO Control Status	Does the Model Predict Possible CSL Exceedances (Considering Diffuse Urban Inputs)?	Cluster of Potential Concern?	Nearby Pathway or Potential Sources	Other Inputs Needed to Account for Observable Sediment Concentrations?	Sediment Management Strategy
029	Kingdome RS Overflow	No	Uncontrolled	Yes for BEHP	No; area was dredged in 2005 and existing post-dredging sample does not exceed CSL for any chemical	Adjacent stormwater outfalls and creosote piling	Yes	Additional Evaluation
<b>East and West Waterway</b>								
030	Lander St. RS Overflow	Yes	Uncontrolled	n/a	n/a	n/a	n/a	Part of Separate Cleanup
032	Hanford #2 RS Overflow	Yes	Uncontrolled	n/a	n/a	n/a	n/a	Part of Separate Cleanup
036	Chelan Ave. RS Overflow	Yes; at site boundary	Uncontrolled	No	Yes; cluster of potential concern for BEPH	Nearby stormwater outfall and piling	Yes	Additional Evaluation
037	Harbor Ave. RS Overflow	Yes; at site boundary	Uncontrolled	Yes for BEHP	Yes; historical cluster of potential concern for BEPH	Nearby CSO and Longfellow Creek discharge out the same outfall.	Yes	No Further Action (under existing cleanup)
<b>Lake Washington Ship Canal/Lake Union/Portage Bay</b>								
003	Ballard Siphon Overflow	No	Controlled	No	Yes; cluster of potential concern for mercury	Adjacent stormwater outfalls and industrial activity in the ship canal	Yes	Evaluate as Part of Area-Wide Investigation
004	11th Ave. NW Overflow	No	Uncontrolled	Yes for silver	Yes; historical cluster of potential concern for cadmium and nickel	Adjacent stormwater outfalls and industrial activity in the ship canal	Yes	Evaluate as Part of Area-wide Investigation
008	3rd Ave. W Overflow	No	Uncontrolled	Yes for silver	Yes; cluster of potential concern for total PAHs	3rd Ave., Canal Street and another CSO are proximal to each other. Adjacent stormwater outfalls and ship activity in the ship canal.	Yes	Evaluate as Part of Area-wide Investigation
007	Canal St. Overflow	No	Controlled	No	Likely; proximity to 3rd Avenue CSO indicates similar levels of contamination	3rd Ave., Canal Street and another CSO are proximal to each other. Adjacent stormwater outfalls and ship activity in the ship canal.	Yes	Evaluate as Part of Area-wide Investigation

CSO Number	CSO Name	Within the Boundary of an Existing Sediment Cleanup Site?	CSO Control Status	Does the Model Predict Possible CSL Exceedances (Considering Diffuse Urban Inputs)?	Cluster of Potential Concern?	Nearby Pathway or Potential Sources	Other Inputs Needed to Account for Observable Sediment Concentrations?	Sediment Management Strategy
009	Dexter Ave. RS Overflow	No	Controlled	Yes for silver	Yes; historical samples are a cluster of potential concern for multiple metals and organics	A stormwater basin shares the discharge pipe. Adjacent stormwater outfalls and industrial activity in Lake Union.	Yes	Evaluate as Part of Area-wide Investigation
015	University RS Overflow	No	Uncontrolled	Yes for silver, di-n-octyl phthalate, and mercury	Yes; cluster of potential concern for Mercury and PCBs	A stormwater basin shares the outfall. Nearby stormwater outfalls and University vessel activities.	Yes	Cleanup Evaluated in SMP Update
014	Montlake RS Overflow	No	Uncontrolled	Yes for silver	No; no CSL exceedances	Adjacent stormwater outfalls and industrial activity in the ship canal	Yes	No Further Action
<b>Lake Washington</b>								
018	Matthews Park PS Overflow	No	Controlled	n/a	No; no CSO-related exceedances expected because Mathews Park Pump Station is controlled	Ambient North Lake Washington conditions	No data	No Further Action
012/049	Belvoir PS Overflow and 30th Ave. NE Overflow	No	Uncontrolled	No	No; no CSL exceedances	Other CSO	Yes	No Further Action
011	E Pine St. PS Overflow	No	Controlled	n/a	No data within 600 feet since 2005 2000 data: No; 0 out of 2 sample locations	Two CSOs	Yes; no recorded King County CSO events	No Further Action
033	Rainier Ave. PS Overflow	No	Controlled	n/a	No data within 600 feet since 2005 2000 data: No; 0 out of 2 sample locations	CSO, stormwater outfalls and shoreline activities	Yes; no recorded King County CSO events	No Further Action
013/045	MLK Jr. Way Overflow and Henderson St. PS Overflow	No	Controlled	n/a	No data within 600 feet since 2005 Historical data (2000, 1995): Yes; 2 out of 3 sample locations; Mercury, total PAHs, Sulfide	A stormwater basin shares the outfall. Nearby CSO, stormwater outfalls, and shoreline activities	Yes; no recorded King County CSO events	Additional Evaluation
<b>Duwamish River</b>								
031	Hanford #1 Overflow	Yes	Uncontrolled	n/a	n/a	n/a	n/a	Part of Existing Cleanup
034	E Duwamish PS Overflow	Yes	Controlled	n/a	n/a	n/a	n/a	Part of Existing Cleanup
035	W Duwamish Overflow	Yes	Controlled	n/a	n/a	n/a	n/a	Part of Existing Cleanup
043	E Marginal Way PS Overflow	Yes	Controlled	n/a	n/a	n/a	n/a	Part of Existing Cleanup
039	S Michigan St. RS Overflow	Yes	Uncontrolled	n/a	n/a	n/a	n/a	Part of Existing Cleanup

CSO Number	CSO Name	Within the Boundary of an Existing Sediment Cleanup Site?	CSO Control Status	Does the Model Predict Possible CSL Exceedances (Considering Diffuse Urban Inputs)?	Cluster of Potential Concern?	Nearby Pathway or Potential Sources	Other Inputs Needed to Account for Observable Sediment Concentrations?	Sediment Management Strategy
041	Brandon St. RS Overflow	Yes	Uncontrolled	n/a	n/a	n/a	n/a	Part of Existing Cleanup
044	Norfolk St. Overflow	Yes	Controlled	n/a	n/a	n/a	n/a	Part of Existing Cleanup
037	Harbor Ave. RS Overflow	Yes	Uncontrolled	n/a	n/a	n/a	n/a	Part of Existing Cleanup
038	Terminal 115 Overflow	Yes	Uncontrolled	n/a	n/a	n/a	n/a	Part of Existing Cleanup
042	W Michigan St. RS Overflow	Yes	Uncontrolled	n/a	n/a	n/a	n/a	Part of Existing Cleanup
040	8th Ave. S Overflow	Yes	Controlled	n/a	n/a	n/a	n/a	Part of Existing Cleanup

## Notes:

BEPH = bis(2-ethylhexyl)phthalate

cm/year = centimeters per year

CSL = cleanup screening level

CSO = combined sewer overflow

n/a = not applicable; not evaluated for the CSO

PAH = polycyclic aromatic hydrocarbon

PCB = polychlorinated biphenyl

SD = stormdrain

SMP = Sediment Management Plan

UW = University of Washington

WW = wet well



## Summary of CSO Sediment Modeling

King County developed two types of sediment transport models to characterize the magnitude and extent of sediment deposition of CSO-related solids around the CSOs evaluated in this SMP update. Modeling of sediment deposition and estimating SMS exceedances is one line of evidence used to determine sediment management strategy.

A complex Environmental Fluid Dynamics Code (EFDC) model was applied to representative CSOs where detailed input information was available and results were compared to sediment sampling at those locations. Based on the outcome of the initial EFDC modeling and verification with sampling data, a simpler model was subsequently developed that could provide similar order-of-magnitude results as the EFDC model, but could be run more simply and applied to sites where not all the detailed input information for EFDC was available. For multiple CSOs, both models were run to compare the results of each. All model runs were performed using the current discharge volumes and frequencies to predict current sediment deposition patterns. Based on the modeling, deposition rates of CSO solids were found to vary widely between the CSOs. Solids deposition were highest immediately adjacent to the outfalls, and dissipated rapidly at locations further from the overflow.

The CSO solids deposition rate estimates were then used to identify potential SMS chemical criteria exceedances in sediment that triggers further assessment for potential cleanup (i.e., clusters of potential concern). Additional information used in this estimate included chemical concentrations in CSO solids, ambient (non-CSO) sedimentation rates, and chemical concentrations in ambient solids. Both low and high estimates were developed so that the sensitivity to a range of potential effects and uncertainties could be understood. Of 19 CSOs with modeling information, none were identified as a possible SMS cluster of potential concern when using the low estimate, and 6 were identified as a possible SMS cluster of potential of concern when using the high

### *Contaminants with Possible Clusters of Potential Exceedances, Based on Model Results*

#### *Marine*

- BEHP for one CSO ( Kingdome RS Overflow)

#### *Freshwater*

- Silver for five CSOs: (11th Ave. NW Overflow, 3rd Ave. W Overflow, Dexter Ave. RS Overflow, University RS Overflow, Montlake RS Overflow)
- Di-n-octyl phthalate and mercury for University RS Overflow only

estimate. Based on the modeling, CSO-related chemicals that are most likely to result in a SMS cluster of potential concern near discharge locations included bis(2-ethylhexyl)phthalate (BEPH), di-n-octyl phthalate, silver, and mercury.

### **Summary of Existing Sediment Quality Data**

Existing sediment quality data were evaluated for the 25 CSOs and 2 CSO TP outfalls evaluated in this SMP update. Nine of 25 CSOs were identified as having a SMS cluster of potential concern at the site. Chemicals that triggered a SMS cluster of potential concern at one or more CSO sites included BEPH, polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), mercury, nickel, cadmium, and sulfide. The sediment quality sampling data were generally consistent with and corroborated the modeling projections. Differences between the sampling data and modeling projections were attributable to unique characteristics of each CSO, other sources of contaminated sediment, or the persistent signal of potential historical releases from the CSO or other sources.

The potential effect of nearby pathways and sources was evaluated qualitatively by reviewing potential releases in the vicinity of each King County CSO (e.g., CSOs, stormwater outfalls, and industrial activities) and comparing the spatial distribution of sediment chemical concentrations in the area to that predicted by modeling. Where measured sediment concentrations were higher and more widely distributed than the upper range predicted by modeled CSO releases, other releases potentially contributed. Based on this review, SMS clusters of potential concern within Lake Washington Ship Canal and Lake Union were identified as being part of larger areas of elevated concentrations with multiple pathways and potential sources. In other cases, one particular pathway or potential source was identified as a potential contributor.

### **CSO Sediment Management Strategies**

The CSO evaluations were synthesized as lines of evidence for identifying a sediment management strategy for each CSO. The lines of evidence included:

- Existing sediment cleanup actions occurring near the CSO discharge location
- CSO control status
- Model predicted CSO solids deposition near the CSO discharge location

- Sediment concentrations near the CSO discharge location
- Nearby pathways and potential sources

Proposed strategies identified for CSOs fall into five groups, as follows (Table ES-1):

**1. Sediments are evaluated as part of an existing cleanup process**

As discussed in Section 3 of this Executive Summary, 14 CSOs and two CSO TP outfalls discharge into areas designated as cleanup sites under CERCLA or Model Toxics Control Act (MTCA), and are being addressed as part of an existing cleanup process. CSOs being cleaned up under the original SMP are also included in this list.

**2. No further action**

No further action is appropriate for CSOs and CSO TP outfalls that do not have a SMS cluster of potential concern. These CSOs will not require additional sampling because sediments already comply with SMS; however, these CSOs will continue to be subject to monitoring under the NPDES permit and, if applicable, the Post-Construction Monitoring Plan at completion of CSO control actions, to demonstrate compliance with the SMS. If for any reason CSOs do not meet control criteria, then sediments will require reevaluation once control has been re-established.

Two CSO treatment plant outfalls required site characterization under past NPDES permits and repeatedly demonstrated compliance with SMS.

Thirteen CSOs were identified for no further action because either: 1) they have already been controlled, and sediments comply with the SMS; or 2) they are not yet controlled, and sediments comply with the SMS and will not require monitoring post construction because discharges are further reduced.

There are two cases where post-construction monitoring following control could be required. Murray St. PS Overflow is not a cluster of potential concern, but had PAHs elevated above the CSL in one location, while modeling did not predict any CSL exceedances. Belvoir PS Overflow and co-located 30th Ave. NE Overflow now exceeds the State CSO control standard (based on modeling) and could possibly be

required to demonstrate compliance once brought back under control. Sampling did not indicate a cluster of potential concern, but has only been characterized by one sample, while modeling did not predict CSL exceedances.

### 3. **Additional monitoring**

Additional sediment quality monitoring is appropriate for those CSOs, which: a) lack recent sediment quality data; b) have historical data that identified an SMS cluster of potential concern, but recent natural recovery is likely; and c) where modeling projected a potential for SMS criteria exceedances, but has not been confirmed with sampling data. Six CSOs are identified as needing additional evaluations.

- **North Beach PS Inlet Overflow** has already been controlled in 2015, but this intertidal second overflow location at North Beach PS was not sampled and modeling was determined to not be appropriate for these site conditions. Post-construction monitoring will occur, with results submitted to Ecology.
- **Barton St. PS Overflow** had exceedances in 2011 but not in the post-construction monitoring performed in 2016. Additional sampling should reoccupy these locations in 5 to 10 years after the last sampling event, to verify likely natural recovery.
- **Kingdome RS Overflow** had previous exceedances in the 1990s, but the area has been dredged for slip maintenance. Modeling projected a potential for exceedances, although this was not verified with the most recent sampling. Post-construction monitoring will occur once this CSO is controlled.
- **Chelan Ave. RS Overflow** has been identified as a SMS cluster of potential concern for BEPH, based on 2011 and 2013 sediment sampling, which may be attributable to other sources. Modeling does not predict exceedances attributable to CSO releases alone. EPA issued a No Action decision for this portion of the West Waterway Operable Unit in 2003. The last 5-year review (September 2015) concluded that no additional evaluations are required at this time. However, post-construction monitoring will occur once the CSO is controlled.
- **MLK Jr. Way Overflow and Henderson St. PS Overflow** shared location has not been sampled since 2000, but was an SMS cluster of potential concern for

PAHs at that time. There are no CSO events on record. Sediments in the area and adjacent pathways and potential sources warrant further evaluation to determine if a cluster of potential concern still exists.

**4. Further evaluate in the context of area-wide investigation (not evaluated at this time)**

Further evaluation is appropriate for those CSOs that have SMS clusters of potential concern, but concentrations of those or other chemicals are elevated throughout the area and other nearby sources exist. Five CSOs are located in highly developed areas in Lake Washington Ship Canal/Lake Union with sediments affected from multiple pathways and potential sources. Two CSOs have recent sediment quality, and thus do not require additional local sampling. The other three CSOs will require additional sediment evaluations when an area-wide investigation is conducted.

**5. Further evaluate in this SMP update**

Further evaluation of cleanup options was performed in this SMP update for the University RS Overflow, identified as an SMS cluster of potential concern based on recent sampling, consistent with modeling projections. This CSO is currently undergoing control work. Green stormwater infrastructure (GSI) is currently being designed to reduce flows to the University RS Overflow. In addition, the design for a storage tank to complete control will commence in 2022, and be constructed by approximately 2029. Prior to construction of the storage tank, sources will be characterized and traced and recontamination potential will be reassessed. It is anticipated that this information will be used to inform the development of a Cleanup Action Plan and a preferred cleanup alternative. Based on modeling, cleanup activities should not commence until after the storage tank is constructed, to minimize recontamination potential. This assumption can be revisited following GSI completion and further source characterization.

## **Next Steps**

This SMP update presents a number of lines of evidence to identify the appropriate sediment management strategy for each CSO. Additional actions will proceed in coordination with CSO control activities by King County's Wastewater Treatment Division. Any further

actions needed at fourteen CSOs and two CSO TP Outfalls will proceed under processes that have already been initiated. Fourteen CSOs and two CSO TP Outfalls will not need further action beyond routine CSO monitoring requirements because there are no impacts either observed or projected. Five CSOs will be monitored further under existing requirements so that sediment quality can be further evaluated. Five CSOs were identified as requiring further assessment, but they are located within area-wide elevated concentrations that will require broader analysis to be initiated under an area-wide investigation process. Finally, University RS Overflow was likely to be identified as a cleanup site and underwent a preliminary evaluation of cleanup alternatives in this SMP to develop planning-level cost estimates for long-range planning. Sediment cleanup is assumed at this time to commence following CSO control due to modeled recontamination potential.