

Stormwater Management Action Plan (SMAP) for Johns Creek – Renton, Washington

Prepared for



March 2023

Prepared by
Parametrix

Stormwater Management Action Plan (SMAP) for Johns Creek – Renton, Washington

Prepared for

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ACRONYMS AND ABBREVIATIONS

BMP	Best Management Practice
City	City of Renton
Ecology	Washington State Department of Ecology
IDDE	Illicit Discharge Detection and Elimination
LID	Low Impact Development
NPDES	National Pollutant Discharge Elimination System
Permit	NPDES Western Washington Phase II Municipal Stormwater Permit
SMA	Stormwater Management Action
SMAP	Stormwater Management Action Plan

1. INTRODUCTION

1.1 Purpose

The City of Renton (City) is required to develop a Stormwater Management Action Plan (SMAP) for a high-priority catchment area based on requirements of the Washington State Department of Ecology (Ecology) National Pollutant Discharge Elimination System (NPDES) Western Washington Phase II Municipal Stormwater Permit (Permit) Section S5.C.1 – Stormwater Planning (Ecology 2019a).

While the City has ongoing efforts to address habitat, conveyance capacity, flooding, and other surface water management issues, the main focus of Ecology’s stormwater planning requirements is to address impacts from existing or planned development on water quality in the selected priority receiving water.

Therefore, the goal of this SMAP is to identify actions to help protect and improve receiving water quality. For more information on the City’s overall stormwater management program beyond the SMAP water quality focus, please see the following documents:

- Surface Water Utility System Plan (Renton 2021)
- Stormwater Management Program Plan (Renton 2022a)
- Stormwater Facility Retrofit Study (Renton 2022b)

1.2 Process

Ecology’s stormwater planning requirements include the following steps:

- Receiving Water Assessment in accordance with NPDES Phase II Permit Section S5.C.1.d.i.
- Receiving Water Prioritization in accordance with NPDES Phase II Permit Section S5.C.1.d.ii.
- Prepare a Stormwater Management Action Plan (SMAP) in accordance with NPDES Phase II Permit Section S5.C.1.d.iii.

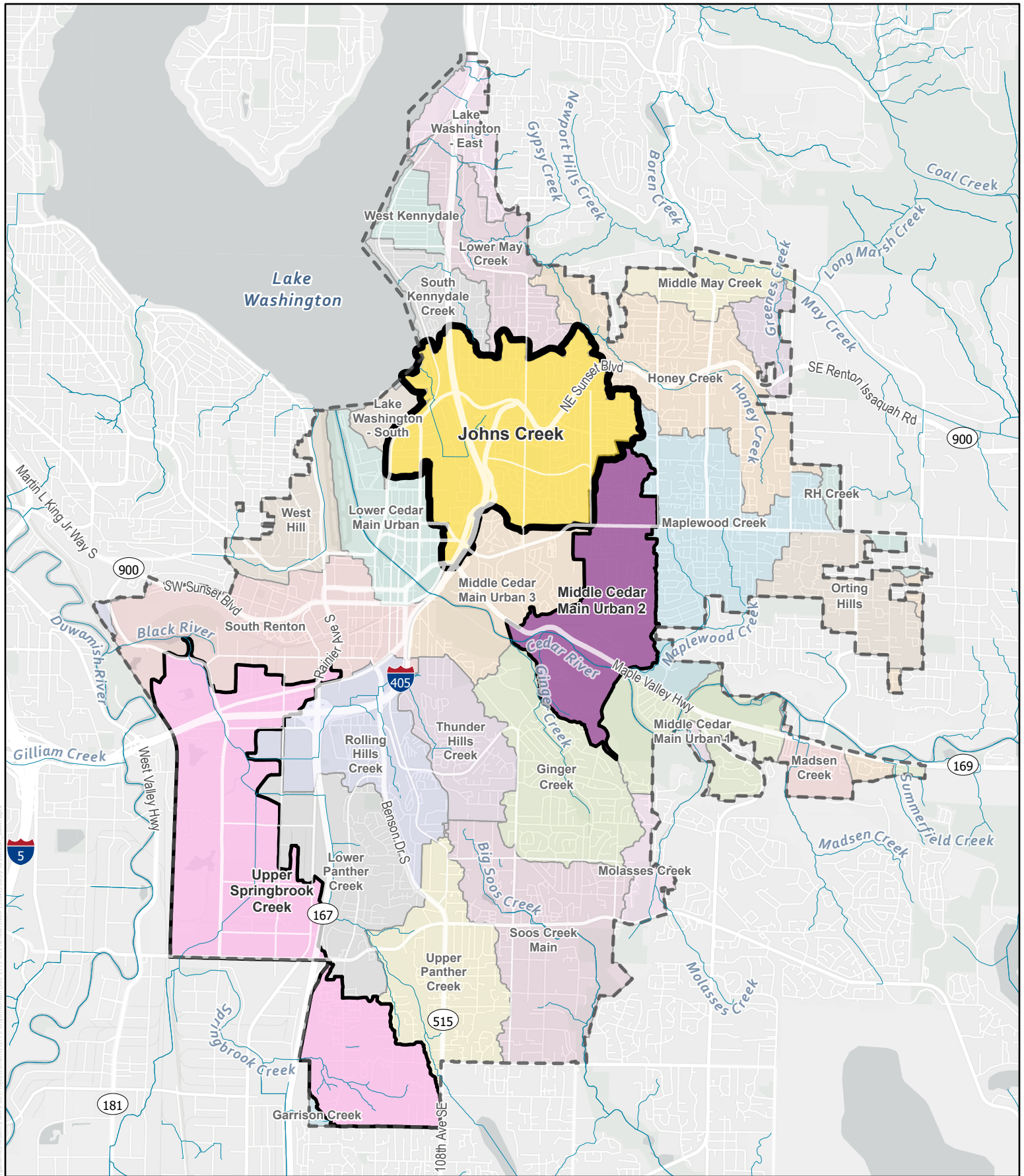
The Receiving Water Assessment has been completed and the detailed information on characteristics of each basin within the city have been documented in the Receiving Water Assessment (Parametrix 2021). The Receiving Water Prioritization has been completed and the full prioritization process is described with the results documented in the Receiving Water Prioritization Technical Memorandum (Parametrix 2022). The Receiving Water Prioritization Memorandum identified three high-priority catchment areas for the Stormwater Management Action Plan (SMAP): Springbrook Creek, Johns Creek, and Middle Cedar Main Urban 2. The candidate priority catchment areas were advertised for public comment and evaluated by the City’s SMAP Interdisciplinary Team. Information regarding the City’s SMAP process – including a link to mapping data – is also presented on the public outreach SMAP website, available online here:

GIS.Parametrix.com/RentonSMAP.html

1.3 Priority Catchment Area

Through review of all input, the City has selected Johns Creek as the final SMAP high-priority catchment area (Figure 1). Key considerations regarding selection of the Johns Creek catchment area are as follows:

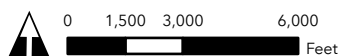
- The City’s Stormwater Facility Retrofit Study (Renton 2022b) identifies more feasible project opportunities in the Johns Creek catchment area than the other two catchment areas.



Date: 2/9/2023
 Sources: City of Renton, King County, WA Ecology, WA DNR, USGS, ESRI
 Disclaimer: The data on this map reflects planning-level accuracy and may not represent exact conditions in all locations. The City assumes no liability to third parties for the data or lack thereof, or any decisions made or action not taken in reliance upon any of the data.

- Stream
- Renton City Limits
- Selected Priority Catchment**
- Johns Creek
- Other Identified Priority Catchments**
- Middle Cedar Main Urban 2
- Upper Springbrook Creek

Figure 1
 Selected High-Priority Catchment Area
 Stormwater Management Action
 Plan (SMAP) for Johns Creek



- There is momentum in the catchment area with several high-visibility green connection projects completed in the past 10 years in the Sunset Area, with additional project opportunities identified in the Sunset Area Surface Water Master Plan (Renton 2011).
- The Parks, Recreation, and Natural Areas Plan (Renton 2020) contains more parks project opportunities that are compatible with potential retrofit projects in the Johns Creek catchment than the other catchments.
- The 2023-2028 Transportation Improvement Program (Renton 2023) contains more transportation project opportunities that are compatible with potential retrofit projects in the Johns Creek catchment area than the two other catchments.
- Permit action enhancements are slightly boosted for Johns Creek and Middle Cedar Main Urban 2 catchment areas by more current public outreach and behavior change program options compared to Springbrook Creek catchment area.
- It is only catchment area completely within the City’s jurisdiction, so the ability to influence actions are in the City’s full control.

In conclusion, Johns Creek is selected as the highest priority catchment area for which to develop a stormwater management action plan due to the momentum in the catchment area with stormwater facility retrofits, relatively less significant feasibility challenges, strong stormwater facility retrofit project opportunities, and the City’s ability to influence the receiving water.

2. STORMWATER MANAGEMENT ACTIONS OVERVIEW

The City’s planned stormwater management actions (SMAs) for Johns Creek are summarized below in Table 1 and described in detail in the following sections. All descriptions and details of the SMAs in this report are planning-level and may be updated as the SMA development progresses.

Table 1. Proposed Stormwater Management Actions

Proposed SMA ¹		Budget	Schedule	Future Assessment Frequency
Stormwater Facility Retrofits				
Short-Term	R-145836: Highbury Park residential area retrofit	\$1.29M	2025-2029	Annual
Long-Term	R-117894: Swan Meadows I residential area retrofit	\$324,000	2030-2033	Annual
	SAMP-02: Harrington Ave NE roadway retrofit	\$1.34M	2034-2038	Annual
	JC-05: Sunset Blvd at 405 residential area retrofit	\$913,000	2034-2038	Annual
	JC-01: 705 Monroe Ave NE residential area retrofit	\$2.01M	2039-2043	Annual
Land Management/Development Strategies				
Short-Term	Create an environmental lands program to identify high-opportunity sites that may be eligible for grant funding: <ul style="list-style-type: none"> Land acquisition for tree preservation/planting, potential stream buffer Stream segments and stream elements (floodplains, buffer, riparian wetlands, basin wetlands) for restoration capital projects. 	0.1 FTE	2023-2029	Annual
Long-Term	Conduct a feasibility study to provide infrastructure/ regional stormwater management facilities to encourage or direct development to preferred areas. Study would include examination of expanding park fees to commercial properties for use in stormwater parks where stormwater management is compatible with park uses.	\$325,000	2030-2043	Annual
Tailored Stormwater Management Program				
Short-Term	Source Control: Prioritize inspection of all source control inventory sites in the catchment or specific industry sector(s) in the catchment.	0.7 FTE	2023-2029	Annual
	Public Education: Low Impact Development (LID) principles and LID Best Management Practices (BMPs)	0.1 FTE	2024-2029	Annual
Long-Term	Source Control: Prioritize inspection of all source control inventory sites in the catchment or specific industry sector(s) in the catchment.	0.7 FTE	2028-2044	Every 5 years
	O&M: Street sweep prior to first-season storms, especially in industrial and commercial areas. Track pollutant removal from sweeping.	0.1 FTE	2030 start	Annual

1. “R” projects originated from the Stormwater Facility Retrofit Study (Renton 2022b). “SAMP” projects originated from the Sunset Area Surface Water Master Plan (Renton 2011). “JC” projects are additional project concepts identified as part of the SMAP for Johns Creek.

3. STORMWATER FACILITY RETROFITS

3.1 Requirement

Permit Section S5.C.1.d.iii.(a) requires the SMAP to include:

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

3.2 Screening Methodology

The City has selected stormwater facility retrofit projects for the Johns Creek SMAP based on the following process:

Step 1. Stormwater Management Coverage Assessment

The City's existing stormwater management coverage was mapped against land cover, and gaps in the stormwater management were identified. Opportunities for retrofits were identified by prioritizing areas based on the following criteria:

- Developed tributary areas with no stormwater management or those with vintage stormwater management (mainly arterial roadways and historically developed neighborhoods with no existing stormwater management)
- Locations for potential retrofit facilities on land already owned by the City
- Tributary areas not identified as buildable land (and thus lacking the potential for stormwater management to be required as part of new development or redevelopment)

Pervious land cover mapping was also analyzed to identify canopy gaps in riparian buffers.

Step 2. Candidate Project Screening and Selection

A high-level feasibility screening was conducted by members of the City's Interdisciplinary Team to rule out potential project locations that have known obstacles to project implementation at this time. Through this screening, preferred sites were selected for potential stormwater management retrofits.

For each selected candidate retrofit, project sheets were developed to include background information, treatment area, concept BMP type, and planning level cost. Tributary areas were delineated for each retrofit location and land cover areas were calculated from GIS mapping for input into MGSFlood. These MGSFlood models were used to calculate 15-minute off-line water quality treatment flow rates and size concept facilities. Concept designs were developed based on Ecology-approved stormwater treatment BMPs and are presented in Appendix A. A link to a map of the selected candidate retrofit projects is included in the public outreach SMAP website, available online here:

GIS.Parametrix.com/RentonSMAP.html

Step 3. Future Assessment

The pacing of implementation will be based on available staff resources, funding levels, grants, and total cost of the program over the short term 6-year and long term 20-year planning horizon. In general, the City will review the list of stormwater facility retrofits at least once each year and make revisions based on available funding and staff resources.

3.3 Selected Projects

3.3.1 Short-Term

Stormwater facility retrofits planned for the short-term horizon from 2023 to 2029 (0 to 6 years) are summarized below in Table 2, shown in the map in Figure 2, and detailed in Appendix A.

Table 2. Short-Term Stormwater Facility Retrofits

Project Name ¹	Description	Potential BMP Type	Tributary Area ² (acres)	Cost	Approximate Schedule	Future Assessment Considerations
<i>Future Assessment note: All listed stormwater facility retrofits are contingent on site feasibility confirmation, permitting constraints, and staff and funding resources.</i>						
R-145836: Highbury Park	Residential area water quality retrofit with facility located in City ROW	SW Media Filtration Vault	21	\$1.29M	<ul style="list-style-type: none"> • 2025-2026 Design and Permitting • 2027-2029 Construction 	<ul style="list-style-type: none"> • Treatment vault required since site is in seismic zone

1. "R" projects originated from the Stormwater Facility Retrofit Study (Renton 2022b).
2. The goal of the facility retrofits is to treat as much of the tributary area as possible; however, the final treatment area will be determined through advanced project design based on available facility footprint.

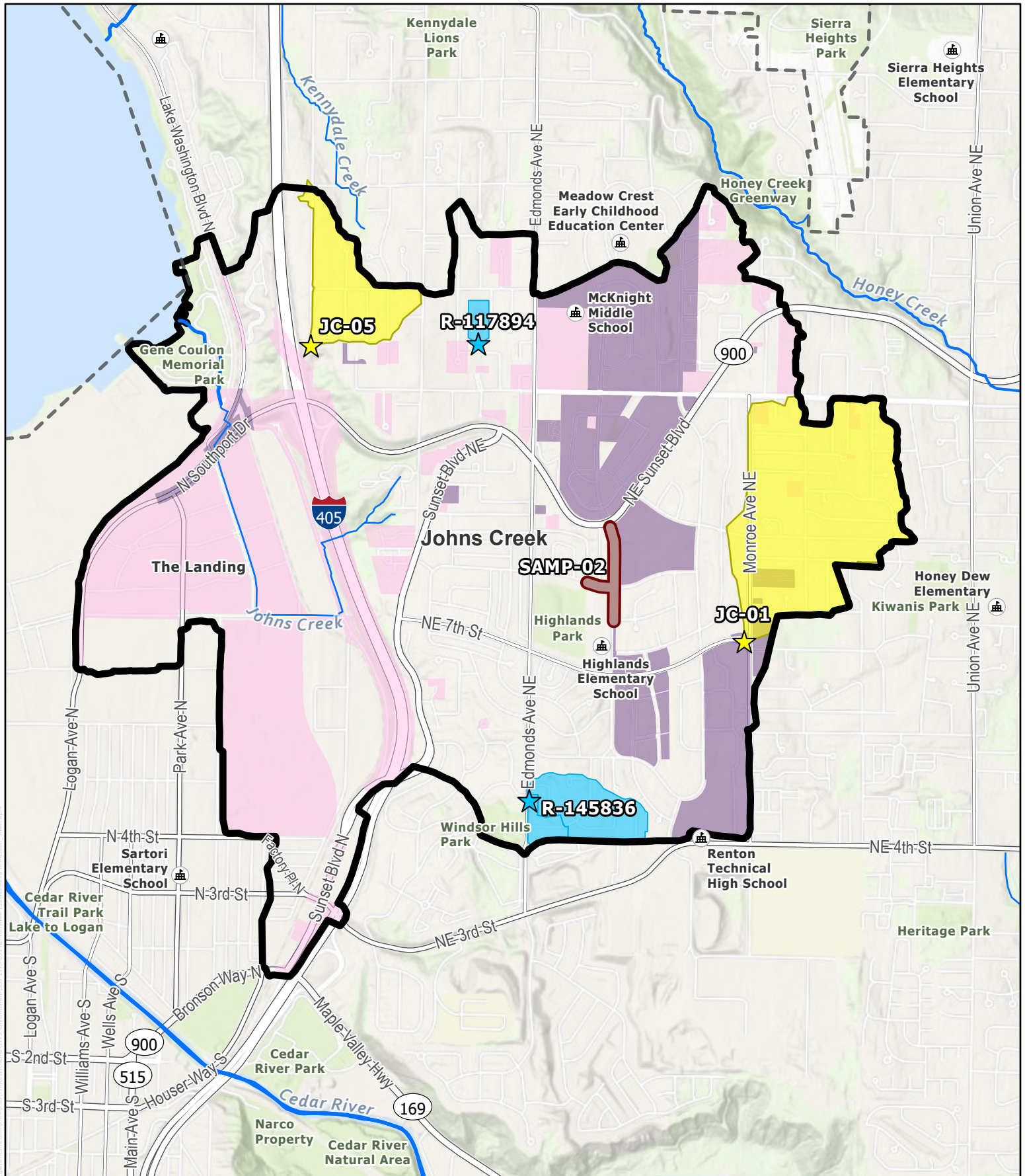
3.3.2 Long-Term

Stormwater facility retrofits planned for the long-term horizon from 2030 to 2043 (7-20 years) are summarized below in Table 3, shown in the map in Figure 2, and detailed in Appendix A.

Table 3. Long-Term Stormwater Facility Retrofits

Project Name ¹	Description	Potential BMP Type	Tributary Area ² (acres)	Cost	Approximate Schedule	Future Assessment Considerations
<i>Future Assessment note: All listed stormwater facility retrofits are contingent on site feasibility confirmation, permitting constraints, and staff and funding resources.</i>						
R-117894: Swan Meadows I	Residential area water quality retrofit with facility located in City ROW	SW Media Filtration Vault	2.7	\$324,000	<ul style="list-style-type: none"> 2030 Design and Permitting 2031-2033 Construction 	<ul style="list-style-type: none"> Within 200 feet of landslide area; possible geotechnical approval Groundwater protection area
SAMP-02: Harrington Ave NE	Road runoff retrofit with facility located in City ROW, part of Sunset Area green access projects	Bioretention	1.4	\$1.34M	<ul style="list-style-type: none"> 2034 Design and Permitting 2035-2038 Construction 	<ul style="list-style-type: none"> Pending further implementation of Sunset Area Surface Water Master Plan Continuous construction and redevelopment in the area
JC-05: Sunset Blvd at 405	Residential area water quality retrofit with facility located in City ROW	SW Media Filtration Vault	28	\$913,000	<ul style="list-style-type: none"> 2034 Design and Permitting 2035-2038 Construction 	<ul style="list-style-type: none"> High erosion hazard and landslide area, slope 15-90% Zone 2 wellhead protection area Possible utility conflicts; easement needed.
JC-01: 705 Monroe Ave NE	Residential area water quality retrofit with facility located in City ROW	SW Media Filtration Vault	96	\$2.01M	<ul style="list-style-type: none"> 2039 Design and Permitting 2040-2043 Construction 	<ul style="list-style-type: none"> Possible utility conflicts ROW through private parking lot

1. "R" projects originated from the Stormwater Facility Retrofit Study (Renton 2022b). "SAMP" projects originated from the Sunset Area Surface Water Master Plan (Renton 2011). "JC" projects are additional project concepts identified as part of the SMAP for Johns Creek.
2. The goal of the facility retrofits is to treat as much of the tributary area as possible; however, the final treatment area will be determined through advanced project design based on available facility footprint.



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- Stream
- Renton City Limits
- Johns Creek
- ★ SMAP Project
- ★ Retrofit Study Project
- New Retrofit Tributary Areas
- SMAP
- Retrofit Study
- Sunset Area Master Plan
- Existing Treatment Cover
- No Stormwater Management (no color)
- Vintage Standards
- Current Standards

Figure 2. Proposed Stormwater Retrofit Locations Stormwater Management Action Plan (SMAP) for Johns Creek

4. LAND MANAGEMENT AND DEVELOPMENT STRATEGIES

4.1 Requirement

Permit Section S5.C.1.d.iii.(b) requires the SMAP to include:

Land management/development strategies and/or actions identified for water quality management.

4.2 Screening Methodology

Members of the City’s Interdisciplinary Team reviewed potential land management and development strategies and selected actions that could most readily and reasonably be implemented to benefit the Johns Creek catchment area. Elements reviewed by the City included:

1. **Growth management:** Coordinating with other City departments to update comprehensive plans across the City in ways that include long-range stormwater management and pollution-reducing strategies.
2. **Developer incentives:** Instituting incentives for developers to encourage designs that minimize impacts to natural waters.
3. **Code updates:** Reviewing the existing City ordinances and codes for potential updates to development requirements or fee collections that help prevent pollution-generation and help fund the cleanup of historically untreated areas.
4. **City policies:** Update city policies, for example, the way the City tracks and credits tree planting, especially considering the types and height of the trees and how many are planted in groups.
5. **City programs:** Create new programs, such as one to review and track lands within the city that might need additional protection or could be candidates for restoration grants.

4.3 Selected Actions

4.3.1 Short-Term

Land and development management actions planned for the short-term horizon from 2023 to 2029 (0 to 6 years) are summarized below in Table 4.

Table 4. Short-Term Land Management Actions

Action	Cost	Schedule	Future Assessment Considerations
Create an environmental lands program to identify high-opportunity sites that may be eligible for grant funding: <ul style="list-style-type: none"> • Land acquisition for tree preservation/planting, potential stream buffer • Stream segments and stream elements (floodplains, buffer, riparian wetlands, basin wetlands) for restoration capital projects. 	0.1 FTE	2023-2029	<ul style="list-style-type: none"> • Dependent on available staff recruitment • May be shifted into long-term schedule

4.3.2 Long-Term

Land and development management actions planned for the long-term horizon from 2030 to 2043 (7-20 years) are summarized below in Table 5.

Table 5. Long-Term Land Management Actions

Action	Cost	Schedule	Future Assessment Considerations
Conduct a feasibility study to provide infrastructure/regional stormwater management facilities to encourage or direct development to preferred areas. Study would include examination of expanding park fees to commercial properties for use in stormwater parks where stormwater management is compatible with park uses.	\$325,000	2030-2043	<ul style="list-style-type: none"> • Feasibility study could potentially result in no sites identified • Expansion of park fees are contingent on legal considerations, costs and staffing resources

5. TAILORED STORMWATER MANAGEMENT PROGRAM

5.1 Requirement

Permit Section S5.C.1.d.iii.(c) requires the SMAP to include:

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

- *IDDE field screening,*
- *Prioritization of Source Control inspections,*
- *O&M inspections or enhanced maintenance, or*
- *Public Education and Outreach behavior change programs.*

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

5.2 Screening Methodology

Members of the NPDES Permit Implementation Team reviewed the existing stormwater management program components and selected elements that could most readily and reasonably be tailored or enhanced to benefit the Johns Creek catchment area. Elements reviewed by the City included those listed Permit Section S5.C.1.d.iii.(c). The details of the City’s full NPDES program are presented in the Stormwater Management Plan (Renton 2022a).

5.3 Selection Actions

5.3.1 Short-Term

Tailored stormwater management program actions planned for the short-term horizon from 2023 to 2029 (0 to 6 years) are summarized below in Table 6.

Table 6. Short-Term Tailored Stormwater Management Program Actions

Permit Category	Action	Cost	Schedule	Future Assessment Considerations
Source Control Inspections	Prioritize inspection of all source control inventory sites in the catchment or specific industry sector(s) in the catchment. Complete inspections within the first 2 years of the source control program 5-year cycle.	0.7 FTE	2023-2024	<ul style="list-style-type: none"> • Spot check at least 10% of businesses if all required inspections are completed before the end of the 5 year cycle. • Dependent on staff resources and budget
Public Education and Outreach Behavior Change Programs	Low Impact Development (LID) principles and LID Best Management Practices (BMPs)	0.1 FTE	2024-2029	<ul style="list-style-type: none"> • Contingent on new or ongoing permit public education requirement

5.3.2 Long-Term

Tailored stormwater management program actions planned for the long-term horizon from 2030 to 2043 (7-20 years) are summarized below in Table 7.

Table 7. Long-Term Tailored Stormwater Management Program Actions

Category	Action	Cost	Schedule	Future Assessment Considerations
Source Control Inspections	Prioritize inspection of all source control inventory sites or specific industry sector(s) in the catchment. Complete inspections within the first 2 years of the source control program 5-year cycle.	0.7 FTE	2028-2029 2033-2034 2038-2039 2043-2044	<ul style="list-style-type: none"> Spot check at least 10% of businesses if all required inspections are completed before the end of the 5 year cycle Dependent on staff resources and budget
O&M Inspections or Enhanced Maintenance	Street sweep prior to first-season storms, especially in industrial and commercial areas. Estimate pollutant removal from sweeping.	0.1 FTE	2030 start	<ul style="list-style-type: none"> Street sweepers are currently operating in the basin. City tracks tons swept in the city, but additional dedicated time/staff will be needed for focused Johns Creek data management New program would potentially add costs for additional staff, equipment, and time Contingent upon best available science and regional information on existing effectiveness and future technology Evaluate expansion of action to target increased pollutant removal

6. LONG-RANGE PLANS

6.1 Requirement

Permit Section S5.C.1.d.iii.(e) requires the SMAP to include:

Identification of changes needed to local long-range plans, to address SMAP priorities.

6.2 Identified Long-Range Plan Coordination

The City has identified the following long-range plans and those needed for coordination throughout the implementation of the Johns Creek SMAP:

- City of Renton Comprehensive Plan – Incorporate the SMAP into the next update of the Comprehensive Plan by reference.
- Parks, Recreation, and Natural Areas Plan – Incorporate storm water management actions related to parks, recreation, and natural areas into the next update of the Parks, Recreation, and Natural Areas Plan.
- Surface Water Utility System Plan – Incorporate storm water management actions into the next update of the Surface Water Utility System Plan.
- Urban Forest Management Plan – Incorporate storm water management actions related to urban forestry into the next update of the Urban Forest Management Plan.

7. SCHEDULE AND BUDGET

7.1 Requirement

Permit Section S5.C.1.d.iii.(e) requires the SMAP to include:

A proposed implementation schedule and budget sources for:

- Short-term actions (i.e., actions to be accomplished within six years, or from 2023 to 2029), and
- Long-term actions (i.e., actions to be accomplished within seven to 20 years, or from 2030 to 2043).

7.2 Estimated Schedules and Budgets

Estimated schedules and budgets are listed above for each proposed SMA in Sections 3 through 5 of this report.

7.3 Potential Grant Funding

The City is tracking the grant opportunities outlined below in Table 8 and may apply for funding for projects identified in this SMAP.

Table 8. Potential Grant Opportunities Applicable to SMAs

Program Name	Description
Washington State Department of Ecology	
Coastal Protection Fund- Terry Husseman Account	Support locally-sponsored projects that restore or enhance the environment and provide primary benefits to public land or water resources and affiliated infrastructure.
Floodplains by Design	Support multi-benefit projects that reduce flood hazards to communities and restore the natural functions of rivers and their floodplains, including improved water quality.
Streamflow Restoration Competitive Grants	Help state and local agencies, Tribal governments, and non-profit organizations implement local watershed plans and projects to improve streamflow and aquatic resources.
Water Quality Combined Funding Program	Integrated funding program for projects that improve and protect water quality. The program combines grants and loans from state and federal funding sources, and provides technical assistance in navigating the process.
Integrated Planning Grants	These grants provide funding to local governments to conduct assessments of brownfield properties and develop integrated project plans for their cleanup and adaptive reuse.
Stormwater Capacity Grants Program	Awarded to NPDES municipal stormwater permittees to implement their municipal stormwater programs as outlined in the municipal stormwater permits.
Washington State Recreation and Conservation Office	
Aquatic Lands Enhancement Account	Used for the acquisition, improvement, or protection of aquatic lands for public purposes. They also may be used to provide or improve public access to the waterfront.
Habitat Conservation Projects- Washington Wildlife and Recreation Program	Funding for a broad range of land conservation efforts.
Land and Water Conservation Fund	The Land and Water Conservation Fund provides funding to preserve and develop outdoor recreation resources, including parks, trails, and wildlife lands.
Recreation Projects - Washington Wildlife and Recreation Program	Provides funding for a broad range of land protection and outdoor recreation, including park acquisition and development, habitat conservation, farmland preservation, and construction of outdoor recreation facilities.
Salmon Recovery and Puget Sound Acquisition and Restoration	Used to restore degraded salmon habitat and protect existing, high-quality habitat to increase the amount and overall health of the places salmon live.
King County Parks	
2020-2025 Parks, Recreation, Trails and Open Space Levy Biennial Grant	Programs opportunities include: <ul style="list-style-type: none"> • Aquatic Facilities • Parks Capital and Open Space • Open Space – River Corridors • Healthy Communities and Parks Fund

8. FUTURE ASSESSMENT

Permit Section S5.C.1.d.iii.(f) requires the SMAP to include:

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

8.1 SMAP Evaluation Schedule

Each SMA identified in this plan will be reviewed based on the schedule outlined in Table 1.

8.2 SMAP Evaluation Process

During each review, the Future Assessment considerations listed in Tables 2 through 7 for each SMA will be evaluated. In addition, the status of the following progress metrics will be reviewed and documented:

1. Is the action still feasible and effective based on ongoing research/action exploration? If not, should the action be removed from the SMAP process?
2. Are there any adjustments that should be made to the review frequency in Table 1?
3. Are there any adjustments that should be made to the Future Assessment considerations where the SMA is listed in Tables 2 through 7?
4. What portion of the action has taken place?
5. How much of the catchment area has been addressed?
6. What portion of the budget has been spent?
7. What changes in funding needs or opportunities have been identified?
8. Are there elements of the previous SMAP development process that should be updated in the future based on this SMA's progress?
9. Is there an opportunity for monitoring associated with this SMA?

9. CONCLUSION

The City has identified the SMAs in this Johns Creek SMAP to address impacts from existing or planned development on priority receiving waters. All descriptions and details of the SMAs in this report are planning-level and may change as development of the SMAs progress. Therefore, implementation of these proposed actions will be tracked, evaluated, and updated through the future assessment process described above in the previous section to support continued progress toward restoration of the Johns Creek catchment area.

10. REFERENCES

- Ecology (Washington State Department of Ecology). 2019a. Western Washington Phase II Municipal Stormwater Permit – National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for discharges from Small Municipal Separate Storm Sewers in Western Washington. State of Washington Department of Ecology. Olympia, Washington. Issuance Date: July 1, 2019; Effective Date: August 1, 2019; Expiration Date: July 31, 2024.
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- Renton, City of. 2022a. Stormwater Management Program Plan. City of Renton Municipal Stormwater Program. March 22, 2022.
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Task 2, Existing Conditions Summary – February 12, 2021
Task 3, Treatment Gap Analysis – April 2, 2021
Task 4, Identify Stormwater Retrofit Locations – June 29, 2021 (updated September 14, 2021)
Task 5, Prioritize and Score Retrofit Opportunities – September 9, 2021
Task 6, Retrofit Project Selection and Concept Design – February 17, 2022
- Renton, City of. 2023. Six-Year Transportation Improvement Program for 2023 – 2028. Adopted Draft. City of Renton Department of Public Works Transportation Systems Division.

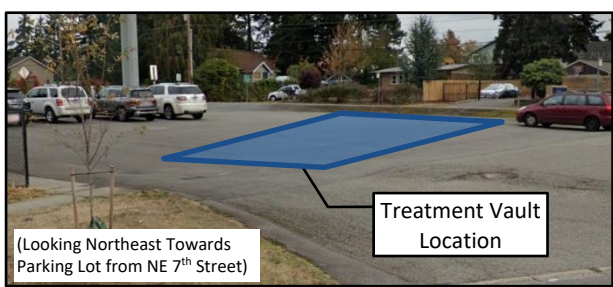
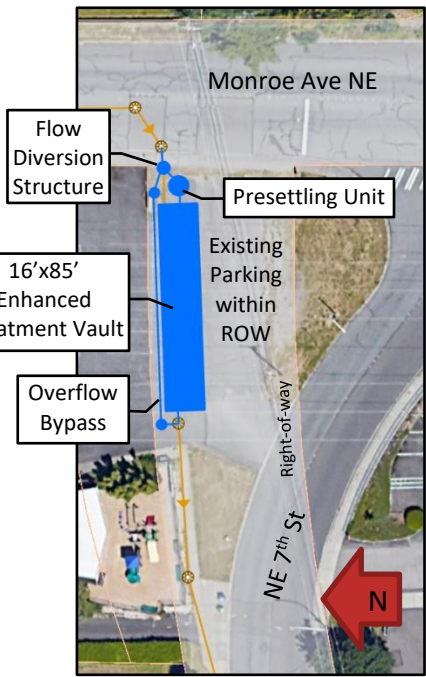
Appendix A

Stormwater Retrofit Project Details



Parametrix

Retrofit Site JC-01 Water Quality Retrofit



Project Description

JC-01 proposes adding a water quality retrofit to the existing stormwater conveyance system near the intersection of NE 7th Street and Monroe Ave NE. The JC-01 retrofit proposes to provide enhanced stormwater treatment using a large custom designed media filtration vault. A presetting unit will provide coarse sediment removal upstream of the vault to extend maintenance interval of the treatment media. A flow diversion structure would divert the water quality flow rate to the treatment system and bypass peak events. Final placement and configuration of these structures may be adjusted as the design progresses.

RETROFIT TYPE	SW Media Filtration Vault
LOCATION	NE 7 th Street and Monroe Ave NE
CREEK BASIN AND WATERSHED	Johns Creek
EXISTING USE	Parking Lot
PROPOSED USE	Media Filter System
SITING NOTES	Treatment system is within City ROW in an existing parking lot
TRIBUTARY DRAINAGE AREA	95.64 Acres Total 47.15 Acres Pervious 48.49 Acres Impervious 17.50 Acres PGIS
POLLUTANTS REMOVED	Copper, Zinc, TSS, Phosphorous
PRELIMINARY FOOTPRINT SIZE	2,500 Square Feet
COST OPINION (2023 DOLLARS)	\$2.01M (Design and Construction)

Site Benefits

- Site uses city ROW to provide water quality treatment, no need for property acquisition.
- Treats a large amount of currently untreated pollution generating impervious area.
- Relatively low traffic impact since proposed location is an existing parking.
- Sidewalk and lot improvements could be incorporated in the project.

Site Constraints/Difficulties

- Existing ROW does not currently align with NE 7th Street. It may be necessary to vacate the ROW and obtain utility easements to eliminate risk of vault inspections being required for the transportation division.
- Impacts and coordination required with privately used parking area.
- Coordination and potential relocations needed with adjacent existing utilities (sewer, water, gas, and telephone).
- Overhead transmission power lines in vicinity.
- The proposed retrofit includes a hydrodynamic separator to provide presetting since there is inadequate ROW for a detention vault or pond. This requires a variance from the Renton Surface Water Design Manual.

JC-01 Opinion (Estimate) of Probable Cost

	Project No. 553-1779-051	Date January 20, 2023
Project Name JC-01 Water Quality Retrofit - Renton SMAP		
Location NE 7th St and Monroe Ave NE		
Owner City of Renton		
Estimated By: A. Miller	Checked By: T. Prince	Approved By: T. Prince
Date: 1/19/2022	Date: 1/20/2023	Date: 1/20/2023

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL COST
SITE PREP AND CONSTRUCTION					
1	MOBILIZATION (10%)	10%	% of lines 5-14		\$67,916
2	CONTRACTOR PROVIDED SURVEY (3%)	3%	% of lines 5-14		\$20,375
3	TESC (5%)	5%	% of lines 5-14		\$33,958
4	DEWATERING (2%)	2%	% of lines 5-14		\$13,583
5	UTILITY RELOCATION (SMALL)	1	LS	\$15,000	\$15,000
6	PAVEMENT REMOVAL/RESTORATION	277.8	SY	\$220	\$61,116
7	STRUCTURE EXCAVATION CLASS B INCL. HAUL	834	CY	\$60	\$50,040
8	ENHANCED TREATMENT VAULT	1200.0	SF	\$340	\$408,000
9	SCHEDULE A STORM SEWER PIPE 12 IN. DIAM.	25.0	LF	\$150	\$3,750
10	SCHEDULE A STORM SEWER PIPE 24 IN. DIAM.	110.0	LF	\$230	\$25,300
11	CATCH BASIN TYPE 2 48 IN. DIAM.	2	EA	\$7,830	\$15,660
12	FLOW DIVERSION STRUCTURE	1	EA	\$15,000	\$15,000
13	PRESETTLING UNIT	1	EA	\$79,290	\$79,290
14	CONNECTION TO DRAINAGE STRUCTURE	3	EA	\$2,000	\$6,000

Lines 5 - 14 Subtotal \$679,156

CONSTRUCTION		
Construction Cost Subtotal		\$814,987
Construction Management	20%	\$162,997
Project Contingency	50%	\$407,494
Construction Total		\$1,385,478

DESIGN		
Design Cost	30%	\$415,643
Permitting	5%	\$69,274
City Project Management	10%	\$138,548
Design Total		\$623,465

TOTAL PROJECT COST	\$2,009,000
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Parametrix

Retrofit Site JC-05 Water Quality Retrofit



RETROFIT TYPE	SW Media Filtration Vault
LOCATION	NE 14 th St and Jones Ave NE
CREEK BASIN AND WATERSHED	Johns Creek
EXISTING USE	Street end used as parking by local residents
PROPOSED USE	Media Filter System
SITING NOTES	Systems are proposed within ROW
TRIBUTARY DRAINAGE AREA	27.79 Acres Total 13.31 Acres Pervious 14.48 Acres Impervious 4.21 Acres PGIS
POLLUTANTS REMOVED	Copper, Zinc, TSS, Phosphorous
PRELIMINARY FOOTPRINT SIZE	2,000 Square Feet
COST OPINION (2023 DOLLARS)	\$913,000 (Design and Const.)

Project Description

This project includes a water quality retrofit to an existing 12-inch storm pipe conveyance system near the intersection of Jones Ave NE and NE 14th St. A flow diversion structure will divert water quality flow rates to a media filtration vault and maintain peak flows to the existing storm pipe during storm events. The treatment system will provide enhanced level of stormwater treatment. A prettling unit will provide coarse sediment removal upstream of the vault to extend maintenance interval of the treatment media. Final placement and configuration of these structures may be adjusted as the design progresses.

Site Benefits

- Site uses city ROW to provide water quality treatment, no need for property acquisition.
- Treats a large amount of currently untreated pollution generating impervious area.
- Pipes outlet to an existing ditch, reducing the need for additional downstream structures.

Site Constraints/Difficulties

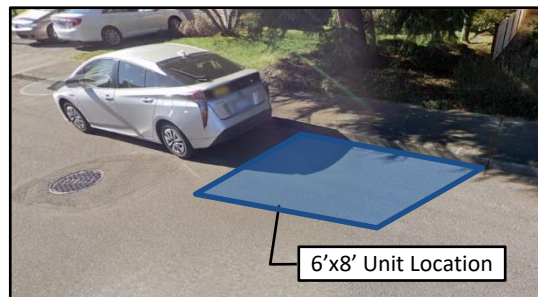
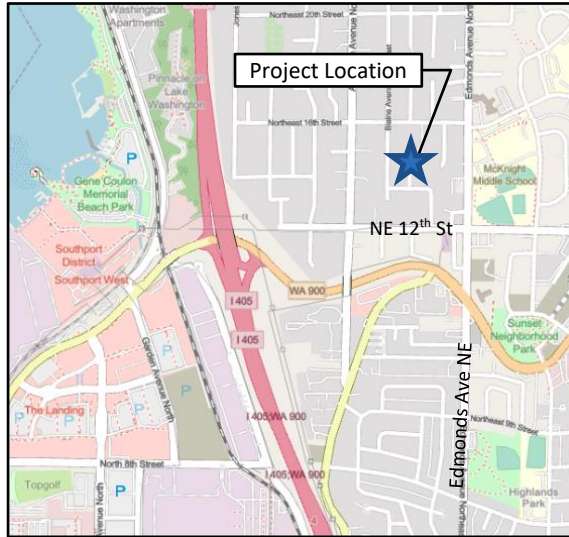
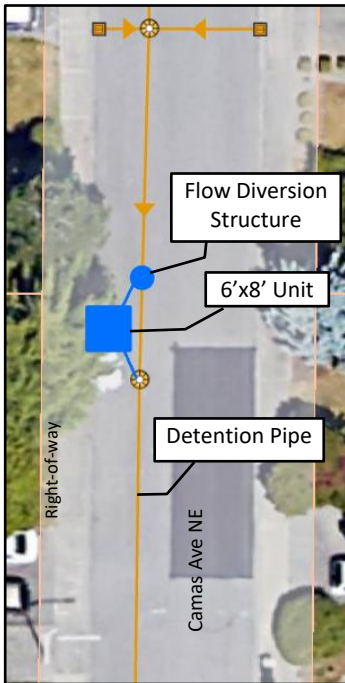
- Private property driveway access and adjacent parking in ROW will be impacted during construction.
- Exploration and coordination required with adjacent existing utilities (sewer and water).
- Relocation of some sewer or waterlines may be required to avoid conflicts with proposed stormwater treatment facilities and pipes.
- The proposed retrofit includes a hydrodynamic separator to provide prettling since there is inadequate ROW for a detention vault or pond. This requires a variance from the Renton Surface Water Design Manual.

JC-05 Opinion (Estimate) of Probable Cost

		Project No. 553-1779-051	Date January 20, 2023		
Project Name JC-05 Water Quality Retrofit - Renton SMAP					
Location Jones Ave NE and NE 14th St					
Owner City of Renton					
Estimated By: A. Miller		Checked By: T. Prince	Approved By: T. Prince		
Date: 1/19/2022		Date: 1/20/2023	Date: 1/20/2023		
ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL COST
SITE PREP AND CONSTRUCTION					
1	MOBILIZATION (10%)	10%	% of lines 5-13		\$30,863
2	CONTRACTOR PROVIDED SURVEY (3%)	3%	% of lines 5-13		\$9,259
3	TESC (5%)	5%	% of lines 5-13		\$15,431
4	DEWATERING (2%)	2%	% of lines 5-13		\$6,173
5	UTILITY RELOCATION (SMALL)	1	LS	\$15,000	\$15,000
6	PAVEMENT REMOVAL/RESTORATION	122.2	SY	\$220	\$26,889
7	STRUCTURE EXCAVATION CLASS B INCL. HAUL	367	CY	\$60	\$22,020
8	SCHEDULE A STORM SEWER PIPE 12 IN. DIAM.	35.0	LF	\$150	\$5,250
9	CONNECTION TO DRAINAGE STRUCTURE	7	EA	\$2,000	\$14,000
10	FLOW DIVERSION STRUCTURE	1	EA	\$15,000	\$15,000
11	ENHANCED TREATMENT VAULT	352.0	SF	\$340	\$119,680
12	PRESETTLING UNIT	1	EA	\$79,290	\$79,290
13	MODULAR BLOCK WALL	250	SF	\$46	\$11,500
Lines 5 - 13 Subtotal					\$308,629
CONSTRUCTION					
Construction Cost Subtotal					\$370,355
Construction Management				20%	\$74,071
Project Contingency				50%	\$185,177
Construction Total					\$629,603
DESIGN					
Design Cost				30%	\$188,881
Permitting				5%	\$31,480
City Project Management				10%	\$62,960
Design Total					\$283,321
TOTAL PROJECT COST					\$913,000

Parametrix

Retrofit Site R-117894 Water Quality Retrofit



RETROFIT TYPE	SW Media Filtration Vault
LOCATION	Camas Ave NE near NE 13 th PI
CREEK BASIN AND WATERSHED	Johns Creek
EXISTING USE	Roadway
PROPOSED USE	Media Filter System
SITING NOTES	Systems are proposed within ROW
TRIBUTARY DRAINAGE AREA	2.65 Acres Total 1.18 Acres Pervious 1.47 Acres Impervious 0.49 Acres PGIS
POLLUTANTS REMOVED	Copper, Zinc, TSS, Phosphorous
PRELIMINARY FOOTPRINT SIZE	300 square feet
COST OPINION (2023 DOLLARS)	\$324,000 (Design and Construction)

Project Description

R-117894 proposes adding a water quality retrofit to an existing flow control detention pipe located along Camas Ave NE. A 6-ft by 8-ft media filtration system unit is proposed so that the system provides water quality and maintains the existing flow control benefits. Final placement and configuration of the treatment unit may be adjusted as the design progresses.

Site Benefits

- Utilizes existing ROW to provide enhanced runoff treatment.
- Site is located on relatively low traffic roads; traffic management should be straightforward.

Site Constraints/Difficulties

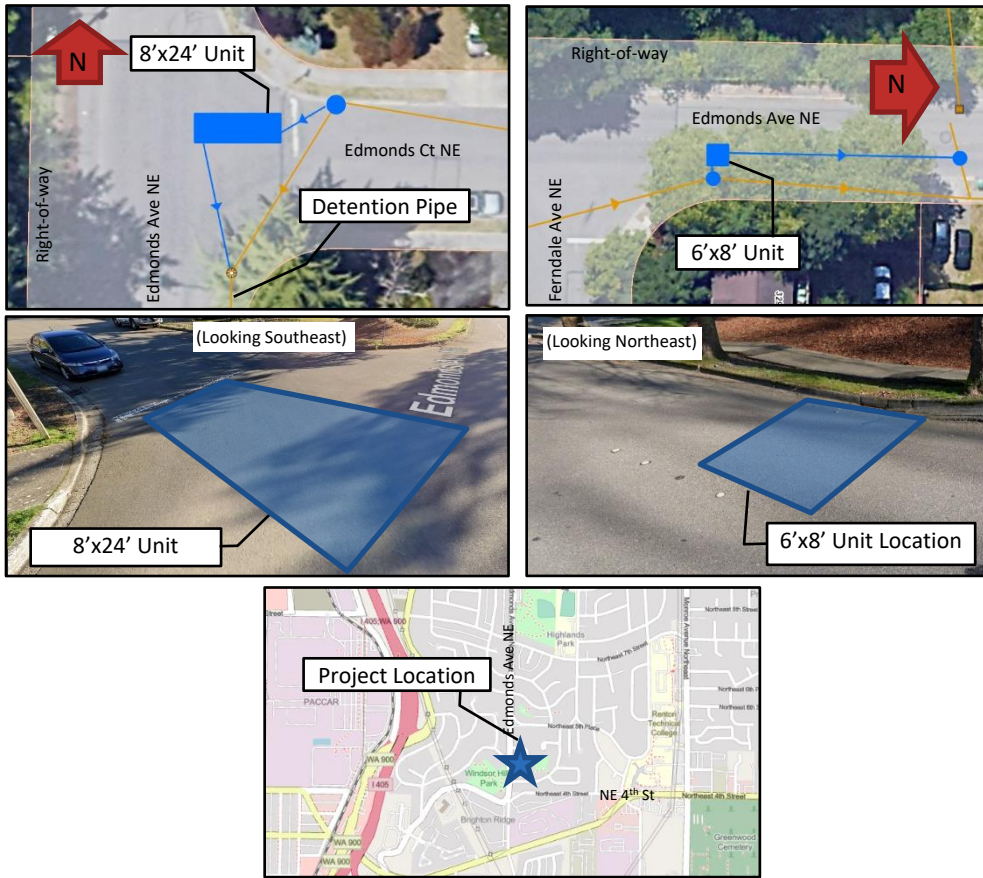
- Existing sewer and water utilities in the roadway constrain placement locations of the treatment systems.
- The existing system does not have significant hydraulic drop available for the treatment system. For proper treatment unit function, backwater weirs within the conveyance system may be required, potentially reducing conveyance capacity.
- A flow splitter is present just downstream of the existing pipe, which makes locating the treatment unit downstream of the detention pipe potentially infeasible. Further design phases will explore alternative retrofit locations in the vicinity
- The proposed retrofit assumes pretreatment is provided within the 6'x8' unit. The Modular Wetland system is a proprietary treatment technology that is approved in the Renton Surface Water Design Manual (RSWDM) which implements pretreatment cartridges.
- Geotechnical approval may be required.

R-117894 Opinion (Estimate) of Probable Cost

		Project No. 553-1779-051		Date January 20, 2023	
Project Name R-117894 Water Quality Retrofit - Renton SMAP					
Location Camas Ave NE					
Owner City of Renton					
Estimated By: A. Miller		Checked By: T. Prince		Approved By: T. Prince	
Date: 1/19/2022		Date: 1/20/2023		Date: 1/20/2023	
ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL COST
SITE PREP AND CONSTRUCTION					
1	MOBILIZATION (10%)	10%	% of lines 5-9		\$10,929
2	CONTRACTOR PROVIDED SURVEY (3%)	3%	% of lines 5-9		\$3,279
3	TESC (5%)	5%	% of lines 5-9		\$5,464
4	DEWATERING (2%)	2%	% of lines 5-9		\$2,186
5	PAVEMENT REMOVAL/RESTORATION	44.4	SY	\$220	\$9,778
6	SCHEDULE A STORM SEWER PIPE 12 IN. DIAM.	15.0	LF	\$150	\$2,250
7	FLOW DIVERSION STRUCTURE	1	EA	\$15,000	\$15,000
8	CONNECTION TO DRAINAGE STRUCTURE	3	EA	\$2,000	\$6,000
9	ENHANCED MEDIA FILTER SYSTEM 6X8	1	EA	\$76,260	\$76,260
Lines 5 - 9 Subtotal					\$109,288
CONSTRUCTION					
Construction Cost Subtotal					\$131,145
Construction Management				20%	\$26,229
Project Contingency				50%	\$65,573
Construction Total					\$222,947
DESIGN					
Design Cost				30%	\$66,884
Permitting				5%	\$11,147
City Project Management				10%	\$22,295
Design Total					\$100,326
TOTAL PROJECT COST					\$324,000

Parametrix

Retrofit Site R-145836 Water Quality Retrofit



RETROFIT TYPE	SW Media Filtration Vault
LOCATION	Edmonds Ave NE at Edmonds Ct NE and Ferndale Ave NE
CREEK BASIN AND WATERSHED	Johns Creek
EXISTING USE	Roadway
PROPOSED USE	Media Filter System
SITING NOTES	Systems are proposed within ROW
TRIBUTARY DRAINAGE AREA	20.96 Acres Total 10.88 Acres Pervious 10.08 Acres Impervious 3.42 Acres PGIS
POLLUTANTS REMOVED	Copper, Zinc, TSS, Phosphorous
PRELIMINARY FOOTPRINT SIZE	2,000 Square Feet
COST OPINION (2023 DOLLARS)	\$1,289,000 (Design and Const.)

Project Description

R-145836 proposes adding water quality retrofits near an existing detention pipe located along Edmonds Ave NE. Two separate media filtration vaults are proposed as part of this retrofit: one 8-ft by 24-ft unit and one 6-ft by 8-ft unit. The larger 8-ft by 24-ft unit is at the intersection of Edmonds Ct NE and Edmonds Ave NE and treats the flows entering the detention pipe. The 6-ft by 8-ft unit is located south of the detention pipe and flows treated by this unit bypass the detention pipe, as they do in the current system. Both units would be constructed as off-line systems with flow diversion structures which allow high flows during storm events to bypass the treatment systems. Final size, placement, and configuration of the treatment units may be adjusted as the design progresses.

Site Benefits

- Utilizes existing ROW to provide enhanced runoff treatment.
- Site is located on relatively low traffic roads; traffic management should be straightforward.
- Roadway and sidewalk improvements could be incorporated into the project.

Site Constraints/Difficulties

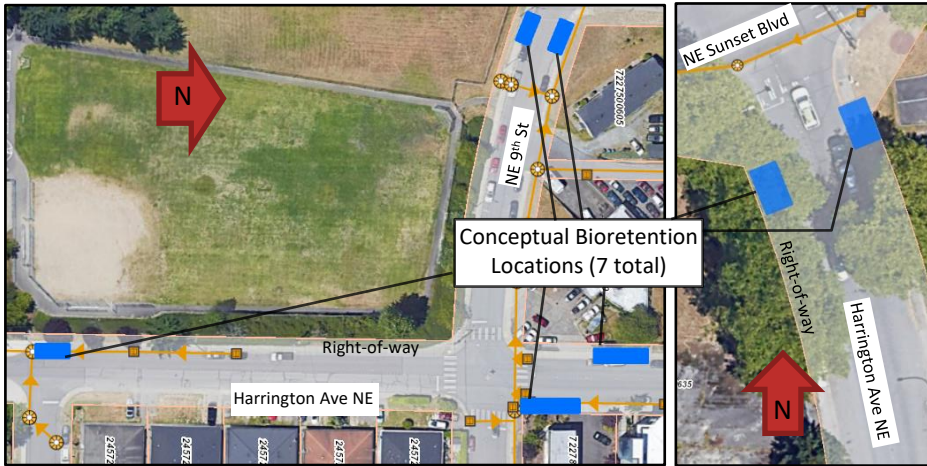
- Existing utilities in the roadway constrain placement locations of the treatment systems, relocations may be required.
- Large trees along Edmonds Ave NE may make excavation difficult and could potentially require tree removal.
- The proposed retrofit assumes pretreatment is provided within each unit. The Modular Wetland system is a proprietary treatment technology that is approved in the Renton Surface Water Design Manual (RSWDM) which implements pretreatment cartridges.
- It may be more feasible to relocate the treatment unit downstream of the existing flow control pipe such that the flow control pipe is providing pretreatment. One potential option is placement of the facility within Windsor Hills Park. Further design phases will explore alternative retrofit locations in the vicinity

R-145836 Opinion (Estimate) of Probable Cost

		Project No. 553-1779-051	Date January 20, 2023		
Project Name R-145836 Water Quality Retrofit - Renton SMAP					
Location Edmonds Ave NE					
Owner City of Renton					
Estimated By: A. Miller		Checked By: T. Prince		Approved By: T. Prince	
Date: 1/19/2022		Date: 1/20/2023		Date: 1/20/2023	
ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL COST
SITE PREP AND CONSTRUCTION					
1	MOBILIZATION (10%)	10%	% of lines 5-12		\$43,550
2	CONTRACTOR PROVIDED SURVEY (3%)	3%	% of lines 5-12		\$13,065
3	TESC (5%)	5%	% of lines 5-12		\$21,775
4	DEWATERING (2%)	2%	% of lines 5-12		\$8,710
5	UTILITY RELOCATION (SMALL)	1	LS	\$15,000	\$15,000
6	PAVEMENT REMOVAL/RESTORATION	222.2	SY	\$220	\$48,889
7	SCHEDULE A STORM SEWER PIPE 12 IN. DIAM.	150.0	LF	\$150	\$22,500
8	FLOW DIVERSION STRUCTURE	2	EA	\$15,000	\$30,000
9	CATCH BASIN TYPE 2 48 IN. DIAM.	1	EA	\$7,830	\$7,830
10	CONNECTION TO DRAINAGE STRUCTURE	8	EA	\$2,000	\$16,000
11	ENHANCED MEDIA FILTER SYSTEM 8X24 (HC)	1	EA	\$219,020	\$219,020
12	ENHANCED MEDIA FILTER SYSTEM 6x8	1	EA	\$76,260	\$76,260
Lines 5 - 12 Subtotal					\$435,499
CONSTRUCTION					
Construction Cost Subtotal					\$522,599
Construction Management				20%	\$104,520
Project Contingency				50%	\$261,299
Construction Total					\$888,418
DESIGN					
Design Cost				30%	\$266,525
Permitting				5%	\$44,421
City Project Management				10%	\$88,842
Design Total					\$399,788
TOTAL PROJECT COST					\$1,289,000

Parametrix

Retrofit Site SAMP-02 Water Quality Retrofit



RETROFIT TYPE	Bioretention Water Quality Retrofit
LOCATION	Harrington Ave NE, NE 9th Street
CREEK BASIN AND WATERSHED	Johns Creek
EXISTING USE	Road ROW
PROPOSED USE	Bioretention planter
SITING NOTES	Bioretention within sidewalks
TRIBUTARY DRAINAGE AREA	1.40 Acres Impervious
POLLUTANTS REMOVED	Copper, Zinc, TSS, Phosphorous
PRELIMINARY FOOTPRINT SIZE	3,000 Square Feet
COST OPINION (2023 DOLLARS)	\$1,344,000 (Design and Const.)

Project Description

The water quality retrofits proposed here as SAMP-02 are based on the Green Connections proposed as part of the 2011 Sunset Area Surface Water Master Plan. These green connections narrow through-traffic lanes to calm traffic, create planter areas, widen sidewalks, improve stormwater conveyance and treatment via bioretention planters. Green Connection improvements, including three bioretention planters, were completed in 2017 along Harrington Ave from NE 8th Pl to NE 7th St. SAMP-02 proposes similar retrofits along Harrington Avenue NE from Sunset Blvd to NE 8th Pl, and along NE 9th St at the Greenwood Ave NE intersection.

This project identified an additional seven areas within SAMP-02 where additional bioretention planters could be located. The conceptual bioretention footprints shown are based on the approximate tributary areas and associated bioretention lengths from the bioretention planters constructed in 2017. Final placement and configuration of bioretention planters will be coordinated with street improvements, stormwater conveyance modifications, and utility relocations. Placement and configuration may be adjusted as the design progresses. The preliminary footprint size and total cost are solely for the bioretention planters shown, and do not include roadway, sidewalk, irrigation, or conveyance improvements.

Site Benefits

- Utilizes existing ROW to provide enhanced runoff treatment.
- Bioretention planters improve street appearance.
- Bioretention planters can be combined with street and pedestrian improvements.

Site Constraints/Difficulties

- Private property driveway access and adjacent parking in ROW will be impacted during construction.
- Traffic management, especially at intersections along Harrington Ave NE.
- Relocation of some sewer or waterlines may be required to avoid conflicts with proposed stormwater treatment facilities and pipes.

SAMP-02 Opinion (Estimate) of Probable Cost

		Project No. 553-1779-051	Date January 20, 2023		
Project Name SAMP-02 Water Quality Retrofit - Renton SMAP					
Location Harrington Ave NE and NE 9th St (Seven bioretention planters at various locations)					
Owner City of Renton					
Estimated By: A. Miller		Checked By: T. Prince	Approved By: T. Prince		
Date: 1/19/2022		Date: 1/20/2023	Date: 1/20/2023		
ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL COST
SITE PREP AND CONSTRUCTION					
1	MOBILIZATION (10%)	10%	% of lines 6-22		\$40,377
2	CONTRACTOR PROVIDED SURVEY (3%)	3%	% of lines 6-22		\$12,113
3	TESC (5%)	5%	% of lines 6-22		\$20,189
4	DEWATERING (2%)	2%	% of lines 6-22		\$8,075
5	PROJECT TEMPORARY TRAFFIC CONTROL (15%)	15%	% of lines 6-22		\$60,566
6	UTILITY RELOCATION (MEDIUM)	1	LS	\$50,000	\$50,000
7	STRUCTURE EXCAVATION CLASS B INCL. HAUL	333	CY	\$60	\$20,000
8	SCHEDULE A STORM SEWER PIPE 12 IN. DIAM.	180	LF	\$150	\$27,000
9	CATCH BASIN TYPE 1	7	EA	\$5,220	\$36,540
10	ADS DRAINAGE BASIN	7	EA	\$650	\$4,550
11	CATCH BASIN TYPE 2 48 IN. DIAM. W/BEEHIVE GRATE	7	EA	\$8,830	\$61,810
12	CONNECTION TO DRAINAGE STRUCTURE	14	EA	\$2,000	\$28,000
13	CEMENT CONCRETE CURB AND GUTTER	250	LF	\$80	\$20,000
14	PAVEMENT REMOVAL	333	SY	\$129	\$43,000
15	UNDERDRAIN PIPE 8 IN. DIAM.	273	LF	\$30	\$8,175
16	GRAVEL BACKFILL FOR DRAIN	73	CY	\$70	\$5,087
17	CONSTRUCTION GEOTEXTILE FOR UNDERGROUND DRAINAGE	97	SY	\$10	\$969
18	CLEANOUT	7	EA	\$2,000	\$14,000
19	BIORETENTION SOIL MIX	145	CY	\$45	\$6,540
20	BARK OR WOOD CHIP MULCH	300	SY	\$6	\$1,800
21	STREAMBED COBBLES 4 IN.	10	TON	\$75	\$730
22	PLANTING AND IRRIGATION	291	SY	\$260	\$75,573
Lines 6 - 22 Subtotal					\$403,773
CONSTRUCTION					
Construction Cost Subtotal					\$545,094
Construction Management				20%	\$109,019
Project Contingency				50%	\$272,547
Construction Total					\$926,660
DESIGN					
Design Cost				30%	\$277,998
Permitting				5%	\$46,333
City Project Management				10%	\$92,666
Design Total					\$416,997
TOTAL PROJECT COST					\$1,344,000