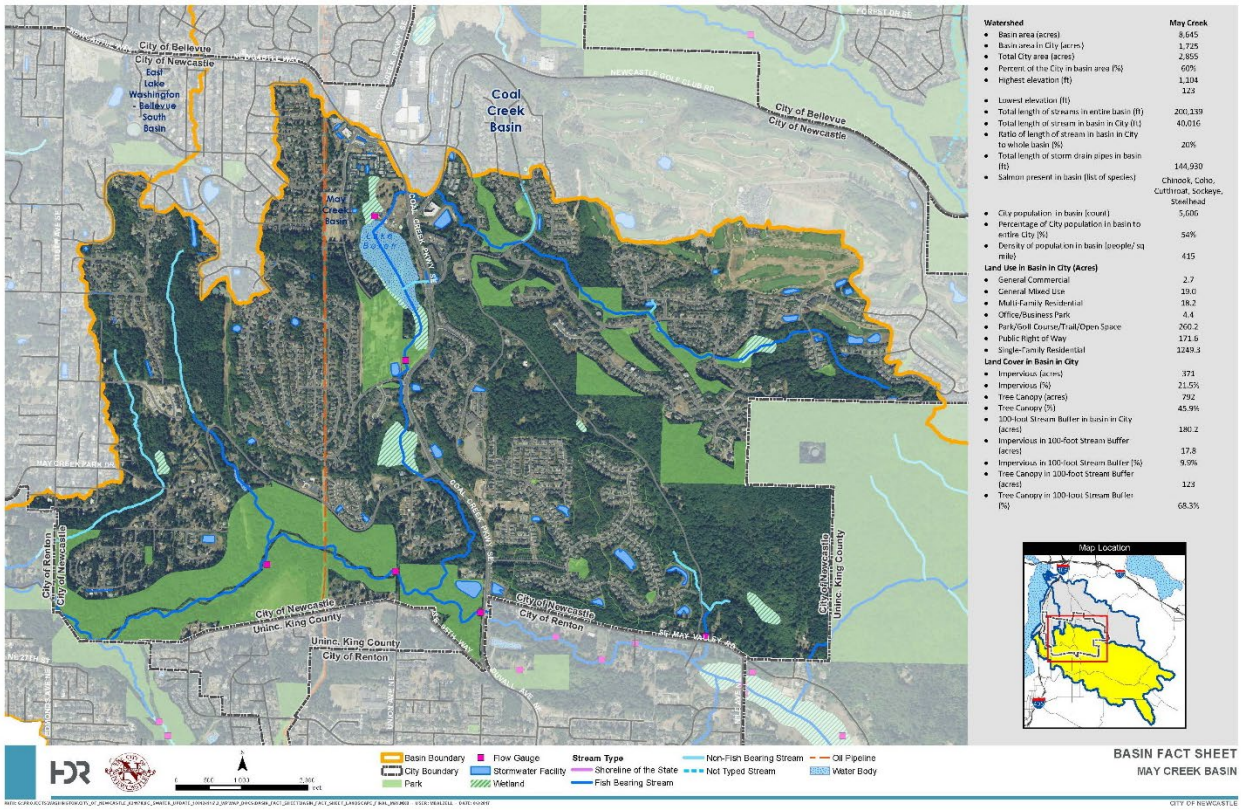
1. Introduction

1.1 Purpose

The City of Newcastle (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 (2019).

While the City has ongoing efforts to address water quality, asset condition management, flooding, and other surface water management issues, the primary focus of Ecology's stormwater planning requirements is to address impacts from existing or planned development on water quality in the selected priority receiving waterbody. The goal of this SMAP is to identify actions to help protect and improve receiving water quality and view the catchment area from a holistic perspective.

1.2 Priority Catchment Area



Through review of the 2017 Comprehensive Stormwater Plan, in addition to current and proposed land use projects, the City has selected May Creek Drainage sub-basin (May Creek) as the final SMAP high-priority catchment area (Figure 1). Key considerations regarding selection of the May Creek catchment area are as follows:

- The largest basin in the city,
- Contains Lake Boren, the city's largest water body,
- May Creek is a tributary to Lake Washington and provides habitat for anadromous fish,
- Multiple capital stormwater projects are proposed within its boundaries,
- Downstream property owners have high concern for flow rates within their area

2. Stormwater Management Actions Overview

	Project Name	Budget	Schedule	Future Assessment Frequency
Stormwater Facility Retrofits				
Short-Term	135th Pl SE Culvert Restoration	**$5K**	**2023-2029**	**Every 2 years**
	144th Place SE Culvert Replacement & Ditch Rehabilitation	**TBD**	**2024-2029**	**Every 2 years**
Long-Term	S038 - Storm Conveyance Rehab Program	**$113K**	**2023-2029**	**Annually**
	S-017 - Railroad Embankment	**$3.5M**	**2024-2029**	**Every 2 years**
	S-037 – SWM Pond Restoration Program	**$25K**	**2023-2043**	**Every 2 years**
Tailored Stormwater Management Program				
Short-Term	Public Education – Focus Adopt-a-Drain efforts on Newcastle Elementary	**$5K**	**2023-2028**	**Annually**
	O&M – Annual inspection private facilities	**$40K**	**2023-2028**	**Annually**
Long-Term	Public Education – Work with Parks to install educational materials and signage around the city	**$40K**	**2023-2043**	**Every 2 years**
	O&M – Storm Conveyance Rehab Program	**$80K**	**2023-2043**	**Annually**

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 first screening criterion was parcel ownership. Stormwater retrofit opportunities are most easily implemented on public land. Parcel ownership data is publicly available from the City of Newcastle. While private parcels were considered in cases where they contain publicly maintained facilities, it was determined that maintenance access agreements would likely not permit construction and would require negotiation of new access agreements. Therefore, parcel ownership information was reviewed

within the basin to identify City-owned parcels as well as parcels owned by public-facing entities such as utilities, school districts, religious institutions, or similar. Parcels owned by such entities may require coordination outside of City agencies but are potentially easier to access than private parcels such as privately-owned single-family residential parcels. Non-residential parcels owned by homeowner associations (HOAs) designated as recreational use, open space, and native growth project areas (NGPAs) were also considered.

3.3 Selected Projects

Project Name	Description of BMP	Cost & Potential Funding	Schedule
Future Assessment note: All listed stormwater facility retrofits are contingent on site feasibility confirmation, permitting constraints, and staff and funding resources.			
S-037 – SWM Pond Restoration Program	**Sediment accumulation maintenance/removal; vegetation maintenance**	**$25K**	**2023-2043**
S-038 - Storm Conveyance Rehab Program	**Inspection, maintenance, pipe replacement/lining as appropriate**	**$113K**	**2023-2029**
S-017 - Railroad Embankment	**Inspection/monitoring, geotechnical exploration/analyses**	**$3.5M**	**2024-2028**
135th Pl SE Culvert Restoration	**Install riser over inlet; maintenance**	**$5K**	**2023-2026**
144th Place SE Culvert Replacement & Ditch Rehabilitation	**Upsize existing pipe and re-channel existing ditch**	**TBD**	**2024-2029**

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 identified for water quality management.*

This section describes strategies to protect water quality through the conservation or enhancement of undeveloped areas upstream of receiving waters. Management strategies may include conservation or enhancement of healthy native vegetation and canopy cover. Development strategies may include land purchase, zoning, or land use requirements.

4.2 Existing Programs

Trees provide valuable stormwater benefits for a catchment area by intercepting rainfall, reducing runoff, and tree roots reduce erosion. Additionally, the biological processes have inherent benefits to stream ecology because they reduce the peak flows that otherwise flow to streams. The May Creek basin consists of substantial forested area, but there are opportunities for preserving and enhancing the canopy coverage.

While the basin is largely developed, there are areas which will remain undeveloped indefinitely. The May Creek basin consists of several private parcels which have designations such as open space, restricted development, native growth protection area (NGPA), or other designations preserving land. These designations are documented in the King County Districts and Development Conditions Report and plat maps for the parcels, accessible through the King County iMap tool (King County, 2018). Of the privately owned parcels investigated, the following corridors contain parcels which were identified to have such provisions:

1. Lake Boren Creek Corridor
2. Tributary 4.15 Corridor
3. Gypsy Creek Corridor
4. Newport Hills Creek Corridor

4.3 Proposed Programs

The drainage area to May Creek is largely built out, therefore, there are limited opportunities to expand land conservation and re-zoning within the basin.

May Creek basin has an intact tree canopy coverage of 46% while tree canopy within 100 feet of streams is 68%[1]. This latter metric is important because a tree canopy directly adjacent to a stream offers shade, habitat for insects, and filtration of runoff en route to the stream. The maximum potential urban tree cover has not been determined, but there is assumed to be room for improvement. Based on aerial imagery, publicly owned parcels and rights-of-way within the basin generally have good tree cover and established vegetation. However, potential planting opportunities identified are in residential areas where the canopy is patchy. These areas located on private property and other areas encumbered by utility easements result in limited opportunities to expand tree cover.

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.

This section describes management actions to enhance water quality benefits within the focused sub-basin. This may include an expansion or more targeted implementation of such actions. Subsections

[1] Final Comprehensive Surface Water Management Plan Update (2017)

describe the existing programs currently implemented, as well as proposed opportunities for new or enhanced programs.

5.2 Existing Programs

The programs listed below are currently implemented in the May Creek basin. These programs are in place to protect stormwater from sources of contamination. These programs are starting points from which additional stormwater management actions may be pursued.

- **Spill Hotline:** The City of Newcastle Public Works department (Public Works) operates a program to receive spill reports. Reports can be submitted through the City website using an interactive map to identify the spill location by calling the spill hotline, or through the City website. The hotline offers two phone numbers, one for assistance during office hours and the other for after-hours reports.
- **Street Sweeping:** Public works contracts scheduled street sweeping on main arterial and neighborhood streets. The frequency of sweepings depends on the type of road and the season, with more frequent sweeping on main arterial roads due to higher traffic, and more sweepings during fall and winter due to increased precipitation and runoff.
- **Maintenance and Inspection Programs:** Public Works offers resources to help businesses, property owners, and associations keep their stormwater infrastructure functioning properly. Public Works supports owners of these private stormwater facilities/systems to ensure the systems are inspected and maintained annually. The programs include the City's new Source Control Program which provides targeted support for businesses.
- **Targeted Conveyance System Cleaning:** The City maintains a regular inspection schedule for conveyance systems in the basin. The City implemented a pipe condition assessment program in 2018. Pipes are selected for evaluation based on their age and the material they are made from. Robotic cameras are used to inspect pipes and pipes are reviewed for structural condition. Pipes in poor structural condition are repaired or replaced as appropriate. The City plans targets evaluating 2.5 miles of pipe per year and prioritize repairs as damaged pipes are found.
- **Storm Drain Marking:** Public Works promotes a storm drain marking program to educate residents about stewardship of stormwater runoff and coordinate volunteers to mark storm drains with the message "Only Rain Down the Drain" and "Puget Sound Starts Here."
- **Illicit Discharge Detection and Elimination (IDDE) Field Screening:** The City's ongoing IDDE field screening program is designed to characterize, trace the source of, and eliminate illicit discharges, including spills and illicit connections, into the municipal stormwater system.
- **Pet Waste Outreach:** The City partners with Regional Animal Services of King County (RASKC) to provide outreach materials, including pet waste bags to each dog owner who pledges to pick up pet waste. Outreach will be conducted when pets are registered with the City. Additionally, pet waste bag dispensers are installed throughout the City to provide a degradable alternative to plastic pet waste bags.
- **Adopt-a-Drain:** Public Works partners with the general public and local groups, such as the Cub Scouts, to recruit volunteers to help City crews keep individual storm drains clear and prevent runoff pollution.

5.3 Proposed Programs

New programs and improvements to existing stormwater management programs may be implemented to benefit water quality in areas where development predates current stormwater management standards. Proposed actions are listed as follows:

- **New Signage**: The City proposed to install H-signs adjacent to Newcastle Elementary School to inform City residents and children about stormwater and the Adopt-A-Drain program.
- **Wetland or Waterway Educational Programs**: Public Works will develop new educational materials and outreach opportunities to engage the community in stewardship related to stormwater**.**
- **Tree Planting and Maintenance Workshop:** The Public Works Department will coordinate with residents on tree canopy benefits and importance within the City and provide participating residents with a free tree to increase basin tree canopy.
- **Control and Removal of Noxious Weeds:** The City partners with King County Conservation District and Newcastle Weed Warriors Nature Stewards Program to control and remove noxious weeds within riparian corridors City-wide.

6. Long-Range Plans

6.1 Requirement

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

If applicable, identification of changes needed to local long-range plans, to address SMAP priorities.

No identifiable changes were needed to address SMAP priorities.

7. Schedule and Budget

7.1 Requirement

A proposed implementation schedule and budget sources for:

- *Short-term actions (I.e., actions to be accomplished within six years),*
- *Long-term actions (I.e., actions to be accomplished within seven to 20 years)*

7.2 Estimated Schedules and Budgets

The stormwater facility retrofits, programmatic BMPs, and stormwater management actions identified in this SMAP have been categorized as either short-term or long-term actions. Projects and activities classified as short-term actions are a mix of opportunistic and high-priority efforts which are expected to be completed within a six-year time frame. Long-term actions are strategic efforts that require interim steps, and which may be accomplished within a seven-to-20-year time frame. The intended implementation schedules are listed in Table 2 above in Sections 3 through 5 of this report.

7.3 City Funding Opportunities

This section describes the mechanisms the City typically uses to fund stormwater improvement projects and programs. The City operates a stormwater utility that is funded through annual rates and development fees. This revenue pays for both stormwater capital projects and operating expenses including maintenance. Current revenue levels were established through a recently completed rate study, with new rates that went into effect with the 2023 fee schedule adopted on 7/5/2022. The City plans to evaluate rates every three to five years and, if warranted, adjust rates to changing needs.

Capital project funding is planned through a six-year Stormwater Capital Improvement Plan. The current 2023-2028 CIP list responds to the broader goals determined by the 2017 Final Comprehensive Surface Water Management Plan Update (SWCP). The SWCP contains a multi-year list of CIPs to address the City's storm and surface water priorities.

Both short- and long-term SMAP capital projects should be added to the CIP list before being funded. In addition to larger specific projects, the CIP also includes a Storm Facility Retrofit Program and a Storm Facility Restoration Program.

Funding for specific programmatic efforts, maintenance work, and other programs are not identified by the CIP. These items are identified during the budgeting process with funding finalized by Council adoption of the City's biennium budget.

7.4 Outside Funding Opportunities

This section describes the current outside funding opportunities for stormwater actions. Funding is available for a variety of stormwater retrofit projects, including green infrastructure, stormwater management, and water quality improvement. Awards typically range from $50,00 to $500,000, and funding cycles vary from year to year.

Currently grants to the City have been awarded by King County Flood Control District, King County WaterWorks (WTD), and FEMA via Department of Ecology for capital improvement projects.

8. Future Assessment

8.1 Requirement

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.

8.2 SMAP Evaluation Schedule

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

8.2 SMAP Evaluation Process

During each review, the status of the following progress metrics will be reviewed and documented:

1. Are there any adjustments that should be made to the review frequency in Table 1?

2. What portion of the action has taken place?
3. How much of the catchment area has been addressed?
4. What portion of the budget has been spent?
5. What changes in funding needs or opportunities have been identified?

9. Conclusion

The City has identified the stormwater monitoring actions in this May Creek Drainage SMAP to address impacts from existing or planned development on priority receiving waters. All descriptions and details of the actions in this report are planning level and may change as development of each action progresses. Therefore, implementation of the proposed actions will be tracked, evaluated, and updated through future assessment processes described above in the previous section to support continued progress toward protection of the May Creek catchment area.