ATTACHMENT 1

Executive Summary

In 2021, the City of Wilsonville (City) initiated development of a Stormwater Master Plan (SMP or Plan) to guide capital project and program needs over the next 20-year planning period. Drivers for this SMP include completion and reprioritization of capital projects (CPs) identified in Wilsonville's previous SMP (dated March 2012), changing regulatory drivers and programs, new and redevelopment activities, and observed system deficiencies warranting additional study and proposed solutions.

This 2023 SMP identifies projects and programs to increase system capacity, address infrastructure and maintenance needs, add or enhance water quality treatment, address natural system deficiencies, and proactively plan for future growth.

The SMP development process included:

- Incorporation of project need and system improvements information as identified by City staff.
- Identification and validation of storm drainage problems and flooding using hydrologic and hydraulic (H/H) models, which help to assess flooding frequency and severity.
- Assessment of stormwater retrofit opportunities for water quality treatment and/or flow control.
- Assessment of the natural (stream) system to identify risk to infrastructure and stream stability.
- Identification of programmatic opportunities to address recurring maintenance needs and water quality at a citywide scale.
- Development of a comprehensive, prioritized CP list and associated costs.
- Analysis of staffing levels to meet deferred and future maintenance and regulatory requirements.

Master Plan Technical Analyses

The following technical analyses were conducted to evaluate stormwater system deficiencies and define project and program needs in support of SMP development.

Project Needs Identification. This effort included distributing surveys to City staff and the public, conducting a literature-based and Geographic Information System (GIS) data review, and site visits. Information collected helped to create a robust inventory of the stormwater collection system features and problem areas related to capacity, maintenance, system condition, and infrastructure needs. Locations warranting additional analyses via hydraulic modeling and/or stream assessment were defined based on results of the project needs identification effort.

Stormwater Retrofit Analysis. A stormwater retrofit analysis was completed to inform potential locations for water quality improvement, erosion prevention/natural resource enhancement, and/or flow mitigation in the city. Based on the site characteristics, continued applicability of non-constructed water quality projects per the 2012 SMP, and the ability to integrate water quality into other project needs, 10 CP locations and two ongoing programs were identified to expand and enhance stormwater treatment throughout the city.

Stream Assessment. A stream assessment was conducted on select reaches of Boeckman, Meridian, Arrowhead, Newland, and Kruse Creeks to inform locations where stream morphology may be or is currently impacted from changes to upstream land use and in response to changes in flow,

infrastructure, and sediment supply. The assessment included a desktop GIS analysis and stream walk (field observations) to inform capital project and ongoing monitoring needs.

Stormwater System Capacity Evaluation. The stormwater hydrologic and hydraulic (H/H) modeling developed for the 2012 SMP was updated to reflect changes in land use and impervious coverage and additional City-owned (public) storm pipe, culverts, and detention facilities. CPs installed since 2012 were incorporated in the H/H model, and the model was used to simulate rainfall and runoff characteristics and identify capacity limitations under both current and future development conditions.

Maintenance and Staffing Evaluation. Operational activities were assessed to identify staffing levels and constraints. Information on current maintenance activities, regulatory needs, and anticipated engineering activities associated with implementation of this SMP, as well as compensation rates, were incorporated into additional staffing recommendations for both Public Works and Community Development/Engineering.

Project Prioritization. Project needs were prioritized based on various criteria including system operations (capacity, recurring maintenance, safety); system condition; regulatory compliance (water quality, natural system condition, instream erosion); and other needs including project concurrence/scheduling, development drivers, and contributing area. Project scoring and ranking helped designate high, medium, and lower priority projects for use in project scheduling and future stormwater utility rate evaluations.

General Recommendations

Project, program, and policy recommendations in this SMP are proposed to improve and enhance the performance of the storm drainage infrastructure throughout the city, as summarized by the following recommended actions:

- Implement CPs required to address system capacity, system maintenance, repair and replacement, water quality, instream erosion and sediment control, and new infrastructure needed to accommodate pending development. These CPs are intended to manage areas of reported deficiencies and accommodate development and growth.
- Implement stormwater-related programs to address recurring, maintenance-related system improvements in an expedited manner and proactively and opportunistically address water quality.
- Use ongoing inspection results to evaluate and proactively address system condition needs, supporting asset management principles.
- Update policies and procedures to support public and private partnerships with new and redevelopment activities, specifically related to stormwater infrastructure replacement and stormwater fee-in-lieu in conjunction with the Town Center redevelopment.
- Continue implementation of City's Public Works Design Standards to ensure the City's stormwater standards address regulatory drivers, support private development activities, and protect stream health.
- Add staff necessary to ensure compliance with the City's National Pollutant Discharge Elimination System (NPDES) municipal separate storm sewer (MS4) permit needs as well as implementation of recommendations outlined in this SMP.

Capital Project Summary

A total of 16 CPs, representing 21 separately costed (by phase) projects, two (2) citywide planning projects, and five (5) programs have been developed to address the following objectives:

- Increase **system capacity** to address existing and potential future deficiencies (i.e., flood control).
- Install **water quality** treatment and address instream **erosion and sediment control (E&S)** to meet regulatory drivers including the City's NPDES MS4 permit and total maximum daily load (TMDL) obligations.
- Address recurring **maintenance** and **infrastructure needs** (i.e., lack of maintenance access, add infrastructure to address localized drainage issues).
- Address system condition through **repair & replacement (R&R) needs**.

Table ES-1 summarizes the identified capital projects, costs, and respective priority (to be finalized with draft SMP). Figure ES 1-1 shows CP locations by primary objective.

Table ES-1. Capital Project Costs and Schedule

Project Number	Project Name	Objectives	Estimated Cost	Implementation Schedule			
				Near Term (2024-28)	Mid Term (2029-33)	Long Term (2034-43)	Annual
BC-1	Library Pond Retrofit	**Capacity** Water Quality Infrastructure Need	$778,000				
BC-2	Ash Meadows Flow Mitigation	**Capacity** Water Quality	$1,403,000				
BC-3 – Phase 1	Wiedemann Ditch and Canyon Creek Park Retrofit, Phase 1	**Capacity** Water Quality	$3,618,000				
BC-3 – Phase 2	Wiedemann Ditch and Canyon Creek Park Retrofit, Phase 2	**Capacity** Water Quality	$5,148,000				
BC-4	Boeckman Creek Stabilization at Colvin Lane	**Erosion/ Sediment Control** Repair/Replacement Maintenance	$235,000				
BC-5	Memorial Park Swale Retrofit	**Water Quality** Erosion/ Sediment Control Maintenance	$540,000				
BC-6	Gesellschaft Water Well Channel Restoration	**Erosion/ Sediment Control** Maintenance	$309,000				
BC-7	Town Center Conveyance Pipe Installation	**Infrastructure Need**	$10,805,000				
CLC-1 – Phase 1	Day Road Stormwater Improvements, Phase 1	**Repair/ Replacement** Capacity	$4,645,000				

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Project Number	Project Name	Objectives	Estimated Cost	Implementation Schedule			
				Near Term (2024-28)	Mid Term (2029-33)	Long Term (2034-43)	Annual
CLC-1 – Phase 2	Day Road Stormwater Improvements, Phase 2	**Capacity**	$2,964,000				
CLC-2	Arrowhead Creek Culvert Replacement at Arrowhead Creek Trail	**Repair/ Replacement** Maintenance	$227,000				
CLC-3	Garden Acres Pond Retrofit	**Capacity** Water Quality	$1,058,000				
NC-1	Frog Pond East and South Conveyance Pipe Installation	**Infrastructure Need**	$19,731,000				
WR-1 – Phase 1	SW Willamette Way/ Morey's Landing Stormwater Improvements, Phase 1	**Capacity** Water Quality	$1,476,000				
WR-1 – Phase 2	SW Willamette Way/ Morey's Landing Stormwater Improvements, Phase 2	**Capacity**	$811,000				
WR-2 – Phase 1	Miley Road Stormwater Improvements, Phase 1	**Repair/ Replacement** Erosion/Sediment Control Maintenance	$661,000				
WR-2 – Phase 2	Miley Road Stormwater Improvements, Phase 2	**Repair/Replacement** Maintenance	$7,425,000				
WR-3	Rose Lane Culvert Replacement	**Capacity** Maintenance	$94,000				
WR-4 – Phase 1	Charbonneau East Stormwater Improvements, Phase 1	**Capacity** Repair/ Replacement	$231,000				
WR-4 – Phase 2	Charbonneau East Stormwater Improvements, Phase 2	**Repair/Replacement** Maintenance	$2,551,000				
WR-5	Charbonneau West Stormwater Improvements	**Repair/Replacement** Maintenance	$8,049,000				
City-1	Flow Monitoring and Rain Gauge Installation	**Capacity**	$100,000				
City-2	Hydromodification Assessment and Stream Survey	**Erosion/Sediment Control**	TBD				
P-1	Local Drainage Improvements Program	**Infrastructure Need** Capacity	$100,000/yr				X
P-2	Porous Pavement/Green Street Retrofit Program	**Water Quality**	$50,000/yr				X
P-3	Repair/Replacement Program	**Repair/Replacement** Maintenance	TBD				X
P-4	Inlet Replacement Program	**Infrastructure Need**	$50,000/yr				X

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Project Number	Project Name	Objectives	Estimated Cost	Implementation Schedule			
				Near Term (2024-28)	Mid Term (2029-33)	Long Term (2034-43)	Annual
P-5	Vegetative Facility Maintenance Program	**Water Quality**	$10,000/yr				X
			TOTAL $	$	$	$	$

*Note: Primary objectives are identified in **BOLD**.*

Programmatic Summary

In addition to the identified CPs, the following stormwater program needs were identified to address regulatory drivers and support proactive system maintenance:

Local Drainage Improvements Program (P-1). Allocate funds to install small-scale, localized drainage improvements (i.e., new pipe, catch basins and laterals, grading to support curb-and-gutter flow).

Porous Pavement/Green Street Pilot Program (P-2). Establishes an annual funding mechanism to integrate porous pavement overlays, low impact development (LID) or green infrastructure (GI) in conjunction with street improvement and other utility projects.

Repair/Replacement Program (P-3). Allocates funds to conduct prescriptive replacement of public pipe and outfalls in conjunction with inspection and asset management efforts.

Inlet Replacement Program (P-4). Allocates funds to relocate/install curb inlets instead of catch basins in high traffic roads to address local drainage issues.

Vegetation Maintenance Program (P-5). Allocates funds to 1) conduct riparian and/or in channel vegetation maintenance including removal of invasive species and/or 2) conduct restorative maintenance on select private stormwater facilities in the City where maintenance agreements are not in place or have not been executed.

Implementation

Capital projects, program needs, and policy recommendations collectively inform the City's updated Stormwater Capital Improvement Program (CIP).

To ensure effective implementation of the Wilsonville 2023 CIP over the 20-year planning period, City staffing levels were analyzed against project and programs developed as part of this SMP to inform recommendations for additional Public Works Operations and Engineering staff. Additional staff in Public Works Operations and Community Development/ Engineering are recommended to accommodate new projects and programs defined in this SMP as well as deferred maintenance activities and new regulatory requirements.

CPs are prioritized to inform the schedule and respective funding needs of capital investments. A financial plan is required to ensure funding of the scheduled capital costs, program costs, and staffing needs. Future financial planning, including level of service goals, a stormwater utility rate evaluation, and a system development charge (SDC) update, will reflect rates necessary to implement the Stormwater CIP while meeting other financial obligations.

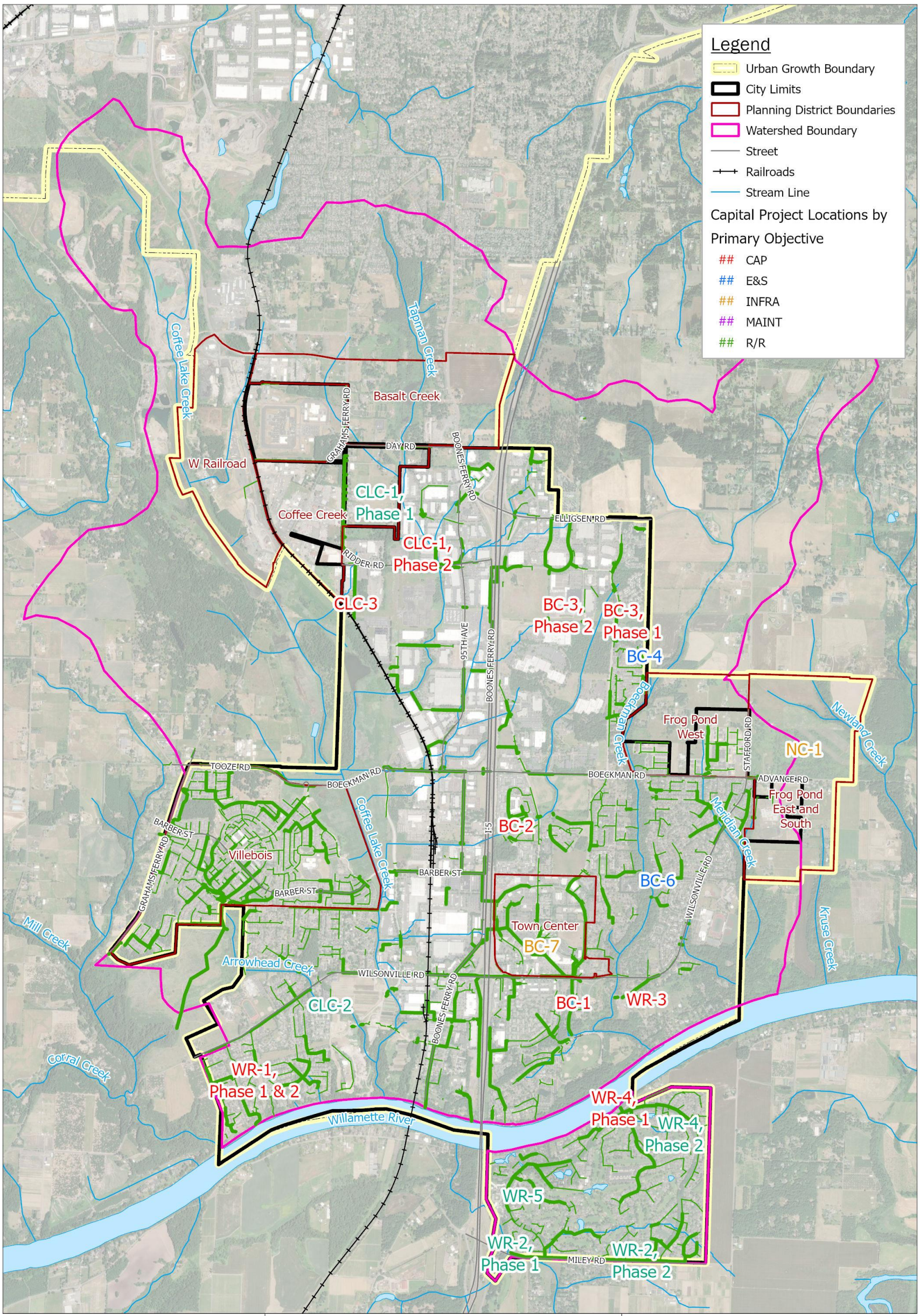

Figure ES-1. Capital Projects by Primary Objective