

## Section 1: Executive Summary

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### 1.1 Purpose

This Stormwater Master Plan (SWMP) update was prepared to evaluate the City of Canby's (City) storm drainage system. The master plan is a key component in the decision process for both continued maintenance and improvements to the storm drainage system. This master plan is an update to the previous 1994 master plan. The scope of this document includes an evaluation of the existing stormwater system which is comprised of six collection systems with direct surface discharges, approximately 400 drywells, also known as underground injection controls (UICs), and one existing detention pond. Conceptual sizing of a proposed treatment wetland is also included as part of this document. The analysis of the existing storm drainage system, including runoff and conveyance modeling, as well as condition assessment, was used to compile a list of Capital Improvement Projects (CIP) for the City to use for budgeting purposes.

### 1.2 Study Area and Population

The storm drainage system serves nearly all of the homes and businesses within the City limits as well as minor developed areas outside the City's limits but within the urban growth boundary (UGB). The study area generally corresponds to the area within the City limits that is currently developed, plus consideration of additional drainage basins that flow into the City limits along North (N) Maple Drive (Dr), and into Willow Creek. Population estimates were developed using the annual population estimates prepared by Metro. The City of Canby's population is expected to approximately double over the 20-year time frame of this stormwater management plan. Based on this population projection, the majority of the area designated as residential in the comprehensive plan is expected to be developed, and future development was modeled as such.

### 1.3 Planning Projections

Storm flow simulations were primarily based on current land use. The comprehensive plan zoning map from the 2007 City Comprehensive Plan was used to determine future land use projections for system modeling and evaluation. Because City design guidelines require that private development not increase offsite discharge rates and volumes over pre-development levels, the City's storm drainage systems are generally only managing runoff from the right of way. This design requirement was adhered to when determining basin area for stormwater runoff modeling purposes. In general, it is assumed that future development in the northwestern part of the City and south of Highway (Hwy) 99E will not contribute additional surface discharges, but some areas where new street development is anticipated in the vicinity of Northeast (NE) Territorial Road (Rd) were added to the future surface drainage system model.

### 1.4 Conveyance System Analysis

Current conveyance system conditions were attained and documented through anecdotal information provided through meetings with the City of Canby Public Works employees and

other City staff and through the City's existing Geographic Information System (GIS) data. In general, this existing system appears to be in good condition. However, City staff noted specific locations where flooding occurs or where the pipes are in poor conditions. This is detailed on Table 3.6.

Current and future system requirements have also been evaluated through hydrologic and hydraulic simulation. Generally, the modeling demonstrated that most of the existing surface drainage systems have adequate capacity, with the exception of the Canby Downtown system. The Canby Downtown system drains along NW 2<sup>nd</sup> Ave and the model showed surcharging and flooding in the system due to shallow pipe slopes, reverse pipe slopes, and undersized pipes. The conveyance system analysis identified required pipe sizes to address this issue and for anticipated future systems, and these are included in the CIPs.

## 1.5 UIC Evaluation

The City of Canby's stormwater system includes 384 UICs. A retrofit analysis of these UICs, including groundwater mapping, modeling and risk assessment, was completed to determine which UICs can be brought into compliance through protectiveness modeling, and identifying retrofits for the UICs that are out of compliance. The evaluation of the UIC's can be found in Appendix C. The majority of the City's UIC's (357) appear to be functioning well and through modeling have been demonstrated to be protective of groundwater quality.

A total of eight UICs were identified as out of compliance and requiring decommissioning and retrofit, either through groundwater modeling, proximity to potential pollutant sources, or because they are not in use. The City has identified six UICs that exhibit failure characteristics such as draining slowly or flooding, and seven UICs that have wet feet (permanent water at the bottom) and these are also addressed through CIPs. An additional 20 UICs were identified as having potential high groundwater. These UICs were demonstrated through modeling to be protective of groundwater quality and do not need to be decommissioned, although they have some higher potential risk than UICs that are not connected to groundwater.

## 1.6 Capital Improvement Program

Current and future conveyance capacity has been evaluated using Autodesk Storm and Sanitary Analysis 2012 (SSA). Flow projections for existing land use and buildout conditions indicate capacity issues for both the short term (e.g. 0-5 years) and long term (e.g. 5 -20 years) of the system. A total of 24 CIPs have been developed based on the current and future needs of the City. These CIPs are ranked as high, medium, or low priority based on the assessed urgency of need. High priority CIPs are to be completed in a 0 to 5 year timeframe, medium priority in 6 to 10 years and low priority in 11 to 20 years. Recommendations for storm system improvements are compiled into the CIP as shown in Table 1.1. For a full description of the CIP projects, see Section 6.

Table 1.1 Capital Improvement Project Summary Sheet

<b>CIP #</b>	<b>Project</b>	<b>Estimated Cost</b>	<b>Priority</b>
1	N Baker Dr.	\$180,000	High
2	NW 10th Ave. from N Locust St. to N Pine St.	\$1,330,000*	High
3	SE Hazeldell Way	\$90,000	High
4	SW 13th Ave near Canby High School	\$30,000	High
5	UIC E-8 and E-11 Decommission	\$50,000	High
6	NW 2nd Ave and N Ivy St. UIC Decommission	\$40,000	High
7	Cinema Parking Lot UIC Decommission	\$40,000	High
8	S Ivy St	\$730,000*	Medium
9	N Maple St. at Maple St. Park	\$30,000	Medium
10	N Maple St. and NW 34th Pl.	\$30,000	Medium
11	NW 13th Ave from N Ash St. to N Birch St.	\$30,000	Medium
12	NW 9th Ave from N Ash St. to N Birch St.	\$420,000	Medium
13	N Knights Bridge Rd	\$130,000	Medium
14	NW 2nd Ave from N Cedar St. to NW Baker Dr	\$690,000	Medium
15	NW 3rd Ave from N Cedar St. to N Grant St.	\$670,000	Medium
16	N Holly St.	\$310,000	Medium
17	N Juniper St. and NE 5th Ave	\$30,000	Low
18	N Baker St. and N Alder St.	\$30,000	Low
19	N Cedar St.	\$10,000	Low
20	S Pine St. and SE 2nd Ave	\$30,000	Low
21	Police Station/NW 3rd Ave Pond	\$30,000	Low
22	Fish Eddy Wetland Flow Monitoring	\$30,000	Low
23	Fish Eddy Wetland	\$670,00	Low
24	Knight's Bridge Runoff Treatment	\$50,000	Low
<b>1-24</b>	<b>All Capital Improvement Projects</b>	<b>\$5,680,000</b>	<b>TOTAL</b>
1-7	High Priority Projects	\$1,760,000	High
8-16	Medium Priority Projects	\$3,040,000	Medium
17-24	Low Priority Projects	\$880,000	Low
<b>Other Costs for Budgeting Purposes</b>			
24	Comprehensive Survey of Existing System	\$10,000/yr	Other
25	Operation and Maintenance (O&M) Manual	\$30,000	Other
26	System Flow Monitoring	\$10,000/yr	Other

\* This CIP or a portion of this CIP is within Clackamas County's jurisdiction and is not the responsibility of the City of Canby until the City assumes responsibility for the road and stormwater system.