Stormwater Master Plan

Hillsboro Public Works

2021

Executive Summary

Otak

E.1 Executive Summary

Jackson Bottom Wetlands

E1.1 Introduction

The City of Hillsboro has a strong commitment to protecting public health, natural resources, and the environment. Through partnerships within the Tualatin River watershed with Clean Water Services and the communities of Washington County, the City has worked to strengthen its stormwater programs. A Stormwater Master Plan (SMP) allows the City to take that commitment a step further by providing a road map for improvements.

This Executive Summary briefly summarizes the results of the SMP prepared by Otak, Inc. (Otak) for the City of Hillsboro, Oregon. The recommendations outlined hereafter have been developed in cooperation with the City of Hillsboro Public Works Department and City Council. The focus of this SMP has been to identify projects and programs necessary to improve, operate, and maintain the City of Hillsboro's stormwater drainage and stormwater quality infrastructure over the next ten years. This SMP includes:

- An evaluation of current deficiencies in the municipal stormwater drainage system
- Identification of future deficiencies where new growth is expected
- Recommendations and cost estimates for capital improvements and programs to address system deficiencies
- An evaluation of funding sources needed to meet recommendations

For a more detailed discussion of the information presented in this Executive Summary, please refer to the individual chapters of this SMP.

E1.2 Service Area

The City of Hillsboro is located in the Portland, Oregon metropolitan area along Highway 26 and Highway 8 (Tualatin Valley Highway) in Washington County. The City resides in the Tualatin River Valley. Nearby cities include Beaverton, Cornelius, and Forest Grove. Washington County is one of three counties located within the boundaries of the Metro regional government, which manages growth and provides other regional services within the tri-county area. The City of Hillsboro is within the Clean Water Services (CWS) district, and CWS holds the regulating permit from the Oregon Department of Environmental Quality (DEQ) for stormwater discharge into natural waterways. The City has agreed to abide by the terms of that permit.

E1.3 Planning Process Overview

An initial storm system analysis was conducted by reviewing reports, plans, and stormwater asset databases and by interviewing City of Hillsboro Public Works staff. Targeted modeling was used to supplement the initial system analysis in the downtown area. Hydrologic models for McKay Creek, Butternut Creek, and Gordon Creek were also compiled. Together, these provide a city-wide resource of models for future project development and provide a basis for flow and flow duration results. Results have been provided in a geographic information system (GIS) data format for easy reference by City staff.

E1.4 Identifying Stormwater System Needs

Through the initial system analysis and modeling, a total of 475 issues were identified for evaluation and were considered for inclusion in the SMP. Common issues were related to stormwater quality, quantity, erosion, and maintenance accessibility. Roughly 55 percent were identified by City of Hillsboro Public Works staff. Another 45 percent were identified by Otak through hydraulic modeling, GIS analysis, or field visits.

In addition, the City currently has a growing backlog of stormwater projects where the system has aged beyond its intended design life. Allowing this repair and rehabilitation backlog to grow and delaying addressing these issues is a risk to the City. Risks include, but are not limited to:

- Restrictions on redevelopment and infill where the public storm system has insufficient capacity to handle additional flows
- Flooding damage to property or infrastructure
- Possible violation of federal and state water quality regulations
- Degradation of natural systems

These risks may be mitigated by implementing the recommendations outlined in this SMP.

E1.5 Recommendations

The recommendations of the SMP include the following:

- A Stormwater Capital Improvement Program
- Repair and Upgrade Programs
- A new Stormwater Detention Policy

Each of these recommendations is presented below.

E1.6 Stormwater Capital Improvement Program

The Stormwater Capital Improvement Program (CIP) is a list of projects that were highest scoring and most beneficial to the City. In order to determine which projects should be included in the 10-year plan, Otak and City staff developed a set of rating criteria to score and rank potential projects. Scoring criteria are shown in Table E-1 below. For detailed scoring analysis and project ranking, see Tables 3, 4, 5, and 6 in the SMP.

Table E-1: Scoring Criteria

Category	Criterion	Scoring Principle
		Higher score given when:
Flooding	Flooding impact	Flooding impact is greatest
	Flooding extent	Flooding impact is more extensive
	Flooding frequency	Flooding is more frequent
Growth	Type of growth served	Type of growth served is primarily industrial
	Amount of growth served	More acres of growth area served
	Timing of expected growth	Growth is imminent
Stream Protection	Need for hydromodification protection	Stream reach requires greater protection from hydromodification
	Benefit of stream protection	More impervious surface is mitigated
	Slope or bank erosion	Slope or bank erosion threatens a utility, infrastructure, or structure
Water Quality	Need for water quality treatment	Runoff source is mostly industrial land
	New treatment provided	Treatment is provided for runoff from more area
Operations	Operability	The project solves an operability problem
Implementation	Longevity	The project solution is expected to be permanent and is proactive
	Feasibility	Design and permitting are expected to require less than one year
	Partnering	Project can be constructed opportunely with another City capital project
	Community goals	The project serves other community goals
	Innovative stormwater management	The project uses innovative methods of stormwater control or is new to the City of Hillsboro

Only the 13 highest scoring potential projects were then further developed for inclusion in the Stormwater CIP and are summarized in Table E-2.

Funding sources for these projects include a combination of system development charges (SDC), transportation funds, and stormwater local service fees (LSF). Revenue from SDCs may be used to fund projects that add capacity to serve growth or future development. Storm projects that are completed in conjunction with roadway improvement projects may be funded in part by transportation funds. Stormwater LSF revenues are typically used to cover the cost for replacement of existing storm infrastructure. In total, the 13 projects shown in Table E-2 are estimated to cost $19. 6 million.

Table E-2: Stormwater CIP Projects, Rank, Costs, and Funding Sources

Rank	ID	Project Name	Total Cost (2019 $)	SWM Fund (Local Service Fee)	SDC Fund (Eligible Cost)	Transportation Fund
1	8131	NE 15th Avenue Regional Water Quality Facility	$2,000,000	$900,000	$1,060,000	$40,000
2	8109	Emma Jones Pond Rehabilitation	$1,600,000	$1,600,000	$0	$0
3	8124	Minter Bridge Road Conveyance Improvement	$960,000	$297,600	$662,400	$0
4	8006	Glencoe Swale Culvert (NW Connell/BNSF)	3,200,000	$1,065,600	$1,065,600	$1,068,800
5	8001	East Downtown Outfall	$2,300,000	$821,100	$1,478,900	$0
6	8113	Grant Street Regional Water Quality Facility	$2,200,000	$0	$2,200,000	$0
7	8101	NW Lincoln Water Quality Facility	$780,000	$27,300	$752,700	$0
8	8002	Currin Drive - Currin Lane Storm System	$890,000	$80,100	$809,900	$0
9	8103	NE 47th Ave Bridge	$1,900,000	$304,000	$76,000	$1,520,000
10	8007	Johnson Street Storm System	$1,400,000	$420,000	$840,000	$140,000
11	8102	Old Orenco Storm System	$850,000	$289,000	$280,500	$280,500
12	8119	SE 6th & Camellia Storm System	$320,000	$80,000	$240,000	$0
13	8127	Imlay Storm Sewer Diversion	$1,200,000	$1,200,000	$0	$0
	Total		**$19,600,000**	**$7,084,700**	**$9,466,000**	**$3,049,300**

Implementation of the $19.6 million Stormwater CIP is contingent on availability of funding. Funding scenarios are outlined in the SMP and identify different options for implementing the Stormwater CIP.

Stormwater Capital Improvement

E1.7 Repair and Upgrade Programs

Repairs and upgrades help keep the City's stormwater system functioning as expected and improve its performance. The backlog of projects to address maintenance and upgrades to the City's aging systems has been divided into the three programs summarized below. Additional information may be found in program fact sheets and in the SMP.

1. Water Quality Facility Rehabilitation Program

As of Fall 2018, the City owned or operated 242 water quality facilities which are intended to reduce pollutants in stormwater runoff prior to discharge to natural waterways. These require routine and non-routine maintenance, as well as eventual reconstruction. Routine maintenance typically involves trimming vegetation and removing trash and weeds. Non-routine maintenance is more extensive and may include minor regrading of the facility as well as the removal of accumulated sediments.

It is recommended that non-routine maintenance visits be performed every 15 years for each facility. Alternatively, the City could implement a program based on inspection results. Performing non-routine maintenance at each facility on a regular basis would reduce the frequency of future, more expensive, facility reconstruction.

If non-routine maintenance does not occur at an adequate rate, the number and frequency of facilities that need to be reconstructed will increase. Reconstruction is required when a facility no longer functions as designed and typically requires excavation of soils, regrading of the facility, and repairs/modifications to the inlet and outlet structures. Currently the City has a backlog of 81 water quality facilities in need of reconstruction.

An estimated $19.4 million would be required to perform one non-routine maintenance visit for each existing facility and to rehabilitate each of the 81 water quality facilities that are currently backlogged. See SMP Section 6.1 for a detailed description of the cost estimation process. This work would be completed using LSF funding, and an increase in the fee would be required to meet this need.

2. Conveyance System Repair and Replacement Program

The City stormwater collection and conveyance system consists of manholes, ditch inlets, culverts, pipes, catch basins, and outfalls that experience degradation as they age. At the time of this report, approximately 100,000 linear feet (19 miles) of pipe and nine outfalls are known to be degraded, and more than 1,000 catch basins do not meet current standards. Repair needs increase each year as conveyance assets degrade.

Under current funding, degradation of the existing system occurs faster than repairs can be made. An increase in the local service fee is recommended in order to address both the current backlog and the ongoing degradation of the City's conveyance system. An estimated $31.2 million is needed to address the current backlog of conveyance repair and replacement projects. See SMP Section 6.3 for additional cost breakdown and for a description of the cost estimating procedure.

3. Outfall Water Quality Retrofits Program

An outfall is any point where a storm sewer system discharges to a natural waterway. Outfalls include discharges from pipes, ditches, swales, and other points of concentrated flow. Although newer development regulations require water quality treatment near the source of runoff, much of Hillsboro was developed prior to these regulations. The City's storm system inventory includes nearly 500 outfalls, and approximately half discharge stormwater that has not been treated.

A program for prioritizing retrofits to add water quality treatment to outfalls is recommended. The cost of adding water quality treatment to remaining outfalls is estimated at a planning level to be $72 million. Funding for these projects could come from multiple sources where appropriate. Transportation funds could be used for portions of projects providing stormwater quality for runoff from public streets. SDC funds could be used for portions of project that represent increased stormwater quality. LSF funds could be used to replace existing infrastructure. An increase in the LSF would increase the rate at which outfalls could be retrofitted. See SMP Section 6. 2 for a description of the cost estimating procedure and the detailed cost estimate.

E1.8 New Stormwater Detention Policy for Expansion Areas

Increased stormwater runoff is generated by developments due to the rise in impervious area on project sites. Growth into expansion areas of the City is converting large vegetated areas to impervious surfaces. Consequently, waterways are receiving runoff rates and volumes larger than the pre-development amounts. Where this has happened in the past, the aggregate increase in runoff from individual developments has led to problems downstream in natural waterways, including increased risk of erosion

and flooding. These problems are often located much further downstream in the storm system than developers are required to analyze.

Existing requirements to manage runoff from smaller storms (called a hydromodification requirement) and to ensure conveyance capacity immediately downstream of a project site may not be sufficient to prevent downstream flooding from larger, less-frequent storms. Therefore, a policy requiring detention of runoff from the 25-year storm is recommended for any development site that triggers the medium or large project hydromodification mitigation requirement within the City's expansion areas. Expansion areas are shown in Figure E-1.

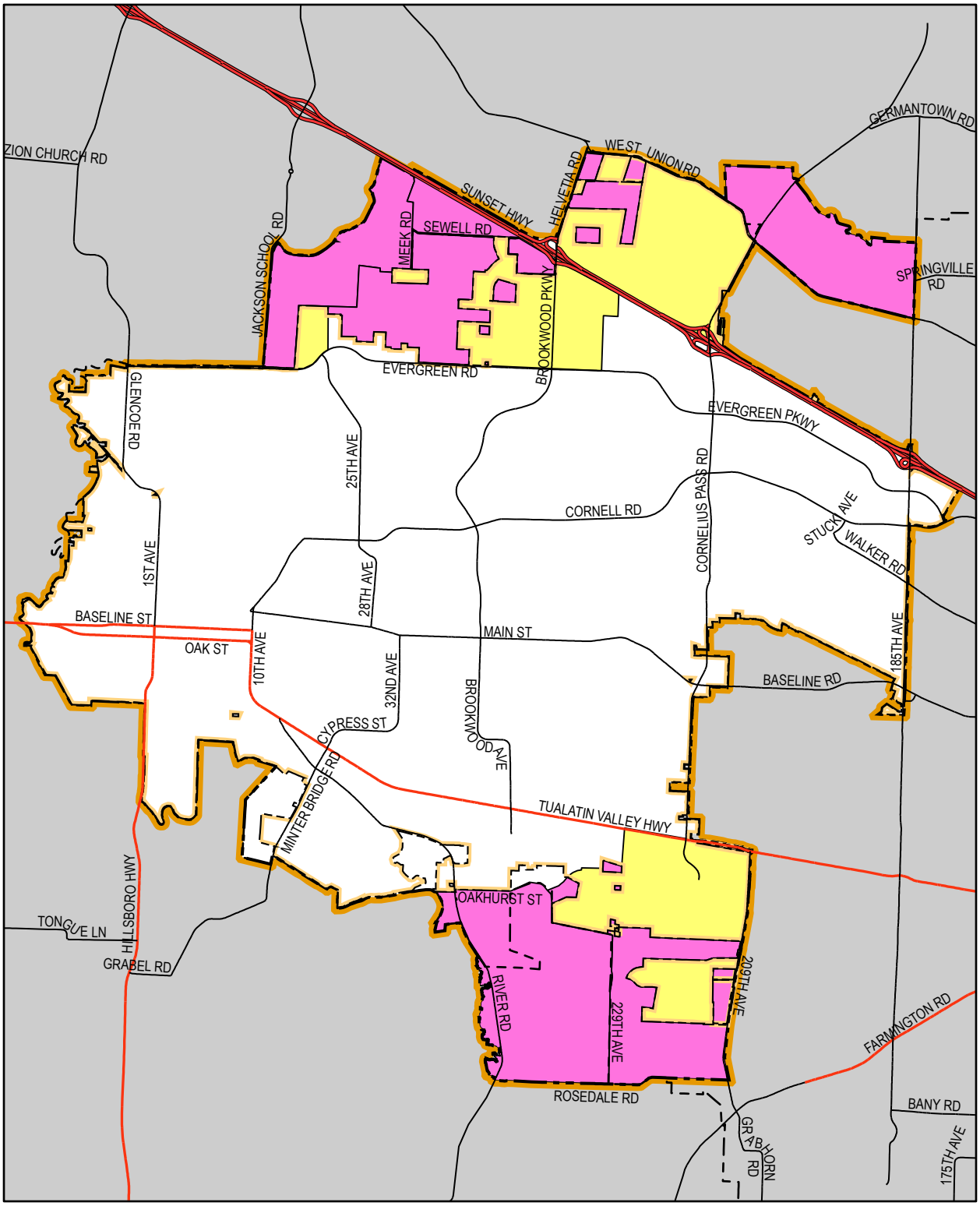

FIGURE E-1
ON-SITE DETENTION AREAS
HILLSBORO STORMWATER MASTER PLAN

CITY OF HILLSBORO | HILLSBORO, OR

Legend

- On-site Detention Required
- On-site Detention Required (Future)
- Planning Limits
- City Limits
- Urban Growth Boundary

Data Updated January 2020

Miles

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DISCLAIMER: THE INFORMATION SHOWN IN THIS MAP IS ASSEMBLED GIS DATA CREATED AND ACQUIRED BY OTAK INC.THIS DATA IS NOT TO SURVEY ACCURACY AND IS MEANT FOR PLANNING PURPOSES ONLY.

NOTE: BASEMAP DATA IS PROVIDED BY OREGON METRO AND THE CITY OF HILLSBORO.

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