CHAPTER 1

BACKGROUND

INTRODUCTION

The McMinnville Sanitary Sewer Master Plan Update is an update to efforts that began with the infiltration and inflow (I/I) reduction analysis performed in 1991. The plan has taken various forms over time and continues to be refined as analyses and system improvements are performed. The current plan includes updates to collection system configuration, recent flow monitoring data, and incorporates a structural condition element and a review of system management practices relative to EPA's Capacity Management Operations and Maintenance (CMOM) guidelines.

REGULATORY SETTING

As a part of the State of Oregon's Triennial Review of Oregon's Water Quality Standards, new bacterial standards were developed for waters of the State. This bacterial standard is now in effect. It states that raw sewage discharges to waters of the State are prohibited from November 1 through May 21, except during a storm event greater than the one-in-five year, 24-hour duration storm. The bacterial water quality standard states that an acceptable plan must be implemented to eliminate overflows from separate sewers by no later than January 1, 2010.

MCMINNVILLE SEWER MASTER PLAN UPDATE

The proposed sanitary collection system master plan update presents a cost-effective strategy that is designed to eliminate overflows up to the regulatory 5-year, 24-hour rainfall event. The submittal and approval of this plan is a requirement of DEQ and the NPDES permit. Additional projects identified through fiscal year 2020-21 meet projected flow requirements for buildout conditions. Different combinations of treatment, storage and I/I reduction were analyzed to find the most cost-effective and practical solution to manage system flows.

The recommended alternative, proposed implementation schedule, and estimated costs are presented in this master plan update. The plan also includes a 5-year capital improvement plan and long-term I/I control strategies. The recommended wet weather overflow management alternative and the related implementation schedule are all integrally linked and designed to deliver a comprehensive solution to manage wet weather overflow in McMinnville and respond to DEQ regulations.

MCMINNVILLE WET WEATHER OVERFLOW MANAGEMENT PLAN (WWOMP)

Prior to the current update, the 1998 Wet Weather Overflow Management Plan (WWOMP) considered I/I reduction as an option, along with storage, conveyance, and treatment of peak flows to reduce overflows to acceptable levels within an achievable time frame that considered affordability. The current report repeats this analysis with more current data and refined analysis tools. The 1991 I/I reduction analysis was summarized in the *McMinnville Collection System*

Facilities Plan. The results of the I/I reduction analysis were then refined based on additional data and incorporated in an I/I control plan 4 years later. That plan is detailed in a report titled *City of McMinnville Infiltration and Inflow Correction Plan*, April 1995.

The wet weather overflow management plan developed in 1998 presented a cost-effective I/I reduction plan that would eliminate overflows up to the 5-year event by 2010. Additional projects implemented through 2015 met projected flow requirements for 2015 land use conditions. Treatment and storage alternatives were considered in addition to the rehabilitation measures presented in the 1995 plan. Different combinations of treatment, storage, and I/I reduction were analyzed to find the most cost-effective and practical solution to manage system overflows. A recommended alternative, proposed implementation schedule, and resulting rate impacts were presented. The plan also included a 5-year capital improvement plan, long-term I/I control strategies, and a prioritized project list.

MCMINNVILLE INFILTRATION AND INFLOW CORRECTION PLAN

The 1995 I/I correction plan further characterized I/I entering the McMinnville collection system during storm events and proposed a long-term solution to the City's I/I problems.

Additional field investigation data and a more sophisticated method for extrapolating flow contributed to an increase in the estimated 5-year peak wet weather flow rate to 48.0 mgd. The peak flow rate was broken down into an estimated 7.5 mgd of base flow and 40.5 mgd of rainfall-dependent infiltration and inflow (RDI/I). The I/I correction plan listed the High School, Yamhill, and Downtown drainage basins as especially problematic. An 80-percent reduction in I/I would be required in these basins to prevent system overflow during the 5-year, 24-hour storm event. Further, the plan noted that to achieve an 80-percent reduction in I/I would require total rehabilitation of the collection systems within these drainage basins. The estimated cost of I/I reduction was increased to $25-$30 million.

The 1995 I/I correction plan outlined a 20-year schedule for capital improvements designed to reduce I/I. The improvements included the Cozine Trunk rehabilitation, replacement of the Irvine Pump Station, and reconstruction of sewers in the Alpine and Morgan Lane areas. Other improvements included general rehabilitation of old and deteriorated pipe throughout the City. The plan recommended that the rehabilitation projects be supported by ongoing field investigations aimed at collecting data to guide project progress.

MCMINNVILLE COLLECTION SYSTEM FACILITIES PLAN

The 1991 facilities plan included an I/I analysis that presented a discussion of the probable sources of I/I in the McMinnville collection system and an assessment of the amount of I/I that could be cost-effectively removed from each drainage basin. The key elements of an I/I reduction and control plan and estimated program costs were also presented.

In 1991, the peak wet weather flow rate from a 5-year storm was estimated at 35.7 million gallons per day (mgd). The peak flow rate was broken down into an estimated 3.9 mgd of base flow, 8.0 mgd of infiltration, and 23.8 mgd of inflow. The implementation of ten I/I reduction projects was recommended as a cost-effective way to reduce I/I by 14.7 mgd. The total implementation cost was estimated at about $2.3 million.