



## MEMORANDUM

**DATE:** August 8, 2018  
**TO:** John Lewis, PE, City of Oregon City  
**FROM:** Wes Wegner, PE  
**RE:** Water and Sanitary Sewer System Implications of Proposed Code Amendments for Equitable Housing  
WE # 1442A

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### PROJECT PURPOSE AND INTRODUCTION

This memorandum provides an assessment of the water and sanitary sewer system implications of the code amendments proposed in support of the Equitable Housing project. The purpose of this memorandum is to determine the impact of increased density on the water supply and distribution system, and the sanitary sewer collection system. Wastewater treatment is provided by the Tri-City Sewer District, who has provided separate comments. Water supply is provided by South Fork Water Board, who has provided separate comments. The City's transportation consultant, Replinger and Associates, provided a separate, detailed overview of the potential for 160 additional dwelling units above and beyond the numbers projected in the City's Transportation System Plan and this report is based on that estimate.

### CONCLUSIONS

The 160 additional dwelling units anticipated beyond current planning projections as part of proposed code amendments will not have an adverse impact on the future (2035) peak sanitary flows projected as part of the *2014 Sanitary Sewer Master Plan (SSMP)* and future (2030) water demand projected as part of the *2012 Water Distribution Master Plan (WMP)*. The code amendments encourage increased housing densities, and if overall future growth is at a faster rate than anticipated by the SSMP and WMP, then the capital projects identified in each respective plan may need to be completed sooner than anticipated and the prioritization of the projects may need to change. The recommended capital improvement programs in each respective plan will adequately accommodate future growth projections including 160 additional dwelling units. Completion of capital projects will be in a planned and orderly manner through prioritization of the projects and allocations of the City's annual project funding that is recovered through utility fees and system development charges for the respective utilities.

## **PLANNING ASSUMPTIONS**

The Replinger and Associates memorandum titled *TPR Implications of Code Amendments for Equitable Housing* estimated that the proposed code amendments would result in an additional 160 additional residential units in 2035 beyond the current planning projections under a “reasonable worst-case development scenario”. This is an increase in residential units of approximately 0.75% throughout the City over the planning period. This assessment assumes that these additional residential units are distributed evenly throughout the City, based upon the roughly even distribution of residential zoning throughout the City.

## **SANITARY SEWER COLLECTION SYSTEM**

The SSMP analyzed the sanitary sewer collection system capacity under existing and future (buildout) conditions over the growth period ending in 2035. Peak flow typically occurs during wet weather due to infiltration and inflow (I&I) of stormwater into the sanitary sewer collection system. The sewer collection system was modeled under wet weather peak flow conditions, based on a 10-year, 24-hour storm. A number of sanitary sewer pipe segments were found to have insufficient capacity to convey existing and future peak hour flows, and several manholes were predicted to overflow. In addition, two of the modeled pump stations were found to lack firm capacity to convey existing and future peak hour flows. The City’s capital improvement program has been implemented and several upsizing projects have been completed to date resulting in fixing some of the capacity deficiencies in various parts of the City.

An increase in density of residential units in specific areas will exacerbate the remaining capacity issues currently identified in the SSMP. Future flow projections in the SSMP were estimated assuming residential lots are developed or redeveloped to the density identified in the Comprehensive Plan. The proposed code amendments will change the allowable density to an increased level, however these changes will not adversely affect the future flow projections or the future capacity analysis. With the code amendments encouraging higher residential densities and if future growth develops at a faster rate than anticipated by the SSMP, then the capacity issues identified under the future flow model will occur sooner than anticipated and prioritization for construction of specific capital improvement projects will be required.

One primary concern of the system’s capacity, as discussed in the SSMP, is a result of stormwater infiltration and inflow (I&I) flows. The City has adopted a capital improvement program that allocates approximately \$2.4 million annually towards facility rehabilitation and replacement projects that includes a focus on reducing I&I in the existing system. This program will result in freeing up existing sewer capacity and mitigating for some of the future growth encouraged as part of this equitable housing code amendment without requiring upsizing of the existing system. The sanitary sewer rehabilitation and replacement projects will be prioritized to help with the reduction of I&I to the greatest extent possible with the allocated funding available. When possible, these projects will include addressing existing private sanitary sewer laterals that are in poor condition and found to be contributing to a high level of I&I. The City is committed to making this program successful with the focus of annual funding allocations for projects that result in reduction of I&I.

## **WATER DISTRIBUTION SYSTEM**

The Water Master Plan analysed the existing water supply, storage and distribution systems under existing and future conditions. Several deficiencies in the existing system are noted for the

available storage in existing reservoirs and available capacity with the pump stations. The plan also identifies that some of the existing distribution lines within the City are undersized and are incapable of providing fire flow to the recommended minimum standard.

The Water Master Plan (WMP) identified future growth rates between 1.5% and 3.0% over the projected growth period ending in 2030. If actual growth exceeds these assumed rates, capacity and storage deficiencies identified under the future model will occur sooner than anticipated.

Capacity of the water system to accommodate future growth within the City is primarily controlled by its ability to provide adequate fire flow to all developable areas. The additional residential dwelling units anticipated as part of this code amendment proposal will have an insignificant impact on the system's fire flow demand and minimal impacts to the storage needs identified in the WMP. Current storage and distribution deficiencies identified for the current population and future growth period will continue to be deficient until such time that capital improvements are completed. The WMP recommends a capital improvement program that addresses the capacity deficiencies and the City currently implements the program on an annual basis through the prioritization and allocation of City funds collected through water utility fees and system development charges. The City is committed to fixing capacity deficiencies with continued programming of capital projects annually.

The City's water supply is provided by the South Fork Water Board (SFWB). The South Fork Water Board 2016 Water Master Plan (SFWB WMP) has identified water treatment capacity limitations to meet future (2036) water demand projections and recommended a capital improvement program to increase capacity and address the deficiencies. SFWB has allowable Clackamas River supply water rights of 52 million gallons per day (mgd) and the current 2016 SFWB WMP recommends upsizing the treatment plant capacity to 40 mgd by 2031. The proposed increase of residential density through this code amendment will not have an adverse impact on the future (2036) water demand projections and the planned SFWB capital improvement capacity projects.

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