Water Master Plan

- WMP is part of City’s Comprehensive Plan, when amending / updating parts of Comprehensive Plan, must have “Public Meeting”.
WMP Format
Executive Summary, 9 Chapters & 4 Appendices
Chapter 1 – Introduction

- **Purpose of WMP**
  - To identify existing system deficiencies and required improvements, analyze demands – existing and future, develop Capital Improvement Program (CIP) to meet these needs.

- **Objectives**
  - Develop criteria to analyze and evaluate the water distribution system, project future demands, and look at pumping and storage requirements.
Chapter 2 – Existing Water Distribution System (description of City’s current system)
Chapter 2 – Existing Water Distribution System (cont’d)

- City’s water distribution system serves more than 4,000 acres of developed property within the city limits
- More than 150 miles of pipe – 1 ½” to 24” in size
- 5 Booster Pump Stations
  - Hunter, Boynton, Fairway Downs, Mountain View, Livesay
  - Barlow Crest – CRW
  - Division Street - SFWB
- 5 Reservoirs
  - Barlow Crest, Henrici, Boynton, Mountain View #1 & #2
- 19 Pressure Reducing Valves
- 10 interties with other water systems
Source of water is from the Clackamas River. South Fork Water Treatment Plant (SFWTP) is located on Hunter Avenue in the Park Place neighborhood and is co-owned by Oregon City and West Linn. SFWTP was built in 1958 and has undergone numerous improvements/expansions to meet the growing demands, it currently can produce 20 MGD. In 2009 they added a 2 MG storage tank. SFWTP has water rights for 75 MGD but are only allowed to take a maximum of 52 MGD based on summer time flows.
Chapter 3 – Water Demand Analysis

- Use water delivered to the City plus water billing data to determine approximate water usage. This information as well as Land Use Zoning is then used to project future demands. The existing system is then evaluated to determine the adequacy of the existing system to meet these projected demands.

- City wide average water usage is 136 gal/capita/day
  - Residential, industrial, institutional, commercial, unaccounted

- A typical family of 4 uses ~7 units of water per month
  1 Unit of water = 748 gallons = ~5,236 gal/month
Chapter 4 – Water Distribution System

Service Standards

Looks at distribution service standards to evaluate the existing system.

- **Water Quality**
  - Oregon Department of Human Services (DHS) Drinking Water Program sets disinfection requirements which all water treatment & distribution systems must follow.

- **Fire Flows**
  - Must be able to meet water demands (amount and duration) as defined by CCFD #1

- **Water supply/storage during high demand periods**

- **Pumping capacity**

- **Total Storage Capacity**
  - Operational, equalization, fire flow, emergency

- **Pipes**
  - Age, type, size
Chapter 5 – Hydraulic Model Update

- Used to study distribution system during various scenarios
  - Most recently used for 5th & Linn waterline replacement to see if there were impacts to the Mill during switch over to new pipe.
  - Also, Hwy 213 / Washington Street project to analyze the impacts to Tri-City Waste Water Treatment Plant.
Chapter 6 – Existing Distribution System Evaluation

- Evaluation of existing distribution system to meet the recommended performance and planning criteria. Evaluate storage, pumping capacity for the ability to meet maximum day plus fire flow and peak hour demand.

- Use current water production data and hydraulic model to identify deficiencies and to help develop CIP. The deficiencies that are identified are fire flow related.
Chapter 7 – Future Distribution System Evaluation

- Identifies improvements to existing system required to expand service to new areas and support projected build out water demands. Evaluate the storage and pumping capacity to see if the distribution system can meet the recommended operational and design criteria under build out maximum day plus fire flow and peak hour demands. This process looks at where new pipes, storage tanks, and pumps would be needed to meet the required fire flows.
Chapter 8 – Capital Improvement Program (CIP)

- This chapter is where waterline replacement projects are developed.
  - Look at existing system pipes and which ones need to be “upsized”.
  - Future system pipe size is determined from previous evaluations.
  - Also, the operations crew identify “problem areas” that may not need to be replaced for fire flow reasons, these pipes are replaced because of frequent leaks and or breaks in the old pipe. Most of these pipes are 40 years old or older.
- The CIP is also used when new development is proposed to let developers know what size pipe would be required.
Chapter 9 – Financing Plan

- This chapter is used to budget for “Annual Waterline Replacement Projects” and for other facility needs.
  - storage, pumps, equipment.
Appendices

- A – Tech memo, Diurnal Curve – used to calibrate the hydraulic model
- B – Seismic Vulnerability Assessment – done in 2002
- C – Cost Estimating Assumptions
- D – CIP sheets