DAVID EVANS
AND ASSOCIATES INC.

PROJECT MEMORANDUM

DATE:	May 1, 2013
FROM:	Steven Harrison, PE – David Evans and Associates, Inc.
TO:	South Cooper Mountain Technical Advisory Committee
CC:	South Cooper Mountain Project Management Team
SUBJECT:	**Water System Existing Conditions**
PROJECT:	**South Cooper Mountain Concept and Community Plans**
	City of Beaverton #2752-13B
DEA PROJECT NO:	APGI0000-0002

Executive Summary

Information on the water system was gathered from the City of Beaverton, the City of Hillsboro and Tualatin Valley Water District. Their mapped files were used to establish an inventory of existing publicly owned water distribution and storage facilities and to identify potential connection points for service to the study area.

The South Cooper Mountain Existing Water System map shows the locations of existing facilities, pressure zones and potential connection points within and adjacent to the study area.

The City of Beaverton and Tualatin Valley Water District have water infrastructure systems within and adjacent to the study area (see South Cooper Mountain Existing Water System map attached). The service lines in this area are currently not well defined. The City of Beaverton has an existing 5.5-million-gallon tank located at the north end of the study area, just south of SW Kemmer Road, with an overflow elevation of 794 msl (NAVD 1929). Along with their network of waterlines ranging from 12 to 20 inches in diameter, the City of Beaverton can provide a minimum static water pressure of 60 psi to properties at or below approximately 655 feet in elevation.

Tualatin Valley Water District has a network waterlines delivering water from storage tanks and pump stations serving properties above 655 feet in elevation as well as lower elevations. Tualatin Valley Water District owns and operates an existing two-million-gallon tank and pump station located off of SW Kemmer Road. They also have a one-million-gallon water tank at the end of SW Gloss Lane off of SW 175th Avenue. The Tualatin Valley Water District system is capable of providing a maximum static water pressure of 65 psi to properties at elevation 770 feet. Cooper Mountain's summit is elevation 795 feet.

The North Cooper Mountain area is developed with existing single family residential homes. Tualatin Valley Water District has a network of waterlines within this sub-area ranging from 4 to 12 inches in diameter that serve these residential lots.

The Urban Reserve Area is undeveloped with the exception of "Cooper Mountain Nature Park," single family rural residential homes near SW 175th Avenue, Winkelman Park, and Tualatin Valley Fire and Rescue Station 69 along 175th Avenue and Weir Road. The City of Beaverton and Tualatin Valley Water District have networks of waterlines within this area.

The South Cooper Mountain Annexation Area is undeveloped except for farm homes. The City of Beaverton and Tualatin Valley Water District have waterlines adjacent to this area.

There are two existing Aquifer Storage and Recovery (ASR) wells located within or near the Urban Growth Boundary area; these are also shown on the map. One is owned by the City of Beaverton and the other is owned by the Joint Water Commission. Neither of the Aquifer Storage and Recovery wells are currently in operation.

Project Overview

The South Cooper Mountain Concept Plan will establish a vision that serves as a long-term guide for future growth and development of the South Cooper Mountain area. The Concept Planning process provides an opportunity to identify long term needs of the area and proactively address future challenges. This process will recognize the unique needs of the three distinct subareas (North Cooper Mountain, the Urban Reserve Area, and the South Cooper Mountain Annexation Area) while developing a holistic understanding of how the three areas could integrate and grow sustainably. The concept plan area totals 2,290 acres.

Community plans identifying appropriate comprehensive plan and zoning designations that implement the overall vision in the concept plan will be developed for the areas that are currently within the Urban Growth Boundary. The South Cooper Mountain Annexation Area Community Plan will designate specific areas for a range of housing types and densities, commercial and civic uses, and parks; preserve natural resources; provide for green infrastructure; and plan for new utilities, streets, trails and paths. The North Cooper Mountain Community Plan will reflect the needs of current residents in this already developed area, and result in an appropriate plan for the area's future. Planning for the Urban Reserve Area will guide how best to protect natural areas and Cooper Mountain Nature Park, where future urban development may occur, and where connecting streets, water lines, and other utilities should be located. A Finance Plan will identify realistic strategies for paying for infrastructure to serve the area.

Introduction

This memo provides a summary of existing water system infrastructure within and adjacent to the Urban Growth Boundary (UGB) area. Information was gathered from the City of Beaverton (City) and Tualatin Valley Water District (TVWD) to establish an available inventory of water system infrastructure and to identify potential connection points for service to the study area.

The City and TVWD have water infrastructure systems within and adjacent to the study area, see map "South Cooper Mountain Existing Water System." The service lines in this area are currently not well defined. The City of Beaverton has an existing 5.5-million-gallon tank located at the north end of the study area, just south of SW Kemmer Road near SW 182nd Avenue, with an overflow elevation of 794 msl (NAVD 1929). Along with their network of waterlines ranging from 12 to 20 inches in diameter, the City can provide a minimum static water pressure of 60 pounds per square inch (psi) to properties at or below 655 feet in elevation.

TVWD has a network waterlines delivering water from storage tanks and pump stations serving properties above 655 feet in elevation as well as lower elevations. TVWD owns and operates an existing two-million-gallon tank and pump station located off of SW Kemmer Road approximately 300 feet east of SW 190th Avenue. They also have a one-million-gallon water tank at the end of SW Gloss Lane, off of SW 175th Avenue. The TVWD system is capable of providing a maximum static water pressure of 65 psi to properties at elevation 770 feet. Cooper Mountain's summit is elevation 795 feet.

There are three sub-areas defined in this study. They are "North Cooper Mountain (NCM)," "Urban Reserve Area (URA)," and "South Cooper Mountain Annexation Area (SCMAA)" as shown on the attached map, Existing Water System.

North Cooper Mountain

The majority of North Cooper Mountain sub-area is developed with existing single family residential homes. TVWD has a network of waterlines within this sub-area. The waterlines are listed below:

LOCATION	OWNER	PIPE SIZE inches
SW Gassner Road (185th to 190th)	TVWD	16
SW Gassner Road (190th to Grabhorn)	TVWD	8
SW Gassner Road (190th to Miller Hill)	TVWD	12
SW Wolds Drive	TVWD	8
SW Appy Court	TVWD	8
SW Nancy Lane	TVWD	6
SW Grabhorn Road	TVWD	8
SW Inglis Drive (Grabhorn to Suncrest Ln)	TVWD	8
SW Inverness Way	TVWD	8
SW Leonardo Lane	TVWD	8
SW Stone Creek Drive	TVWD	8
SW Corrine Street	TVWD	8
SW Whispering Fir Drive	TVWD	8
SW Augustine Court	TVWD	8
SW Suncrest Lane (Inglis to 190th)	TVWD	6
SW Pomona Drive (Suncrest to 190th)	TVWD	6
SW 192nd Place	TVWD	4
SW 190th Avenue (Pomona to Kemmer)	TVWD	6
SW 190th Avenue (Kemmer to Gassner)	TVWD	8 and 12
SW Heightsview Drive	TVWD	8
SW Heightsview Court	TVWD	6
SW 194th Place	TVWD	4 and 6
SW Eaglecrest Terrace	TVWD	4 and 6
SW Miller Hill Road	TVWD	8
SW Kemmer Road	TVWD	8 and 12

Urban Reserve Area

The City and TVWD have networks of waterlines within this sub-area. The waterlines are listed below:

LOCATION	OWNER	PIPE SIZE inches
SW Kemmer Road	TVWD	8
SW Kemmer Road	City	20
SW 175TH Avenue (Kemmer to Gloss Ln)	TVWD	8
SW 175TH Avenue (Gloss Ln to Gloss Rd)	TVWD	8 and 12
SW 175TH Avenue (Gloss Rd to High Hill Ln)	TVWD	8
SW 175TH Avenue (High Hill Ln to sub-area boundary)	TVWD	6
SW Alvord Lane	TVWD	6
SW Cooper Mountain Lane	TVWD	6
SW Horse Tail Lane	TVWD	6
SW Horse Tail Drive	TVWD	6
SW Rider Lane	TVWD	6
SW Champlin Lane	TVWD	6
SW High Hill Lane	TVWD	6
SW Siler Ridge Lane	TVWD	6
SW Outlook Lane	TVWD	4 and 6
SW Skyline Woods Lane	TVWD	8
SW Weir Road	TVWD	12
SW Weir Road	City	12/14
SW Mt Adams Drive	TVWD	8
SW Mt Hood Drive	TVWD	6
SW Forest Ridge Place	TVWD	6
East Study Area Boundary Line (extending 360’ south from Weir Rd)	City	8
East Study Area Boundary Line (from High Hill to Meadowlark Ln)	City	8
SW Snowy Owl Lane (along east boundary line)	City	8/12

South Cooper Mountain Annexation Area

The City and TVWD have waterlines adjacent to this sub-area. The waterlines are listed below:

LOCATION	OWNER	PIPE SIZE inches
SW 175TH Avenue (High Hill Ln to sub-area corner)	TVWD	6
SW Horse Tail Lane	TVWD	6
SW Champlin Lane (extends to north boundary line)	TVWD	6
SW Loon Drive and Churchill Forest S/D (extends to east boundary line)	City	12
SW Loon Drive and Churchill Forest S/D (extends to east boundary line)	City	12
Southeast Study Area Boundary (Scholls Ferry Road Loon to Roy Rogers, summer 2013)	City	24

Aquifer Storage and Recovery (ASR) Wells

ASR wells are a way of storing drinking water underground. During the winter and spring the natural underground basalt formations (aquifers) are filled, and when demand increases during the summer months, the stored water in the aquifer is pumped out. The water can be used for domestic water use or irrigation. There are two existing ASRs located within or near the UGB area; these are also shown on the map. One to the south is owned by the City and the other to the north is owned by the Joint Water Commission (JWC). There are currently no wellhead protection regulations established for these ASRs, however, the City has discussed developing such regulations. These would likely apply to businesses using, storing or producing hazardous materials that pose a threat to groundwater. The wellhead protection zone boundaries would need to be established through a site-specific groundwater study.

The JWC is the primary drinking water supplier in Washington County and is responsible for treating, transmitting and storing potable water to more than 400,000 customers. There are four agencies who share ownership in the JWC. They are TVWD and the cities of Hillsboro, Forest Grove, and Beaverton. The following table presents information about these two wells.

Identification	Location	Owner	Storage Capacity	Flow Capacity
ASR #3	Northeast of SW Loon Dr/SW Barrows Rd	City of Beaverton	100 M gal	1 mgd
ASR-Site 44	South of SW Kemmer Rd/SW 182nd Ave	JWC	>250 M gal	2.5 mgd

Neither of the ASR wells listed above is currently in operation. The City ASR #3 well will be initially utilized as a non-potable water source for irrigation, process water, etc., with eventual potable water production upon conditioning of native groundwater over a number of annual storage & recovery cycles. A specific user has not been identified at this time for initial use. TVWD indicated the timeframe necessary to get ASR-Site 44 well in operational would include at least one year for planning and one year for construction.

Attachments:

South Cooper Mountain Existing Water System Map

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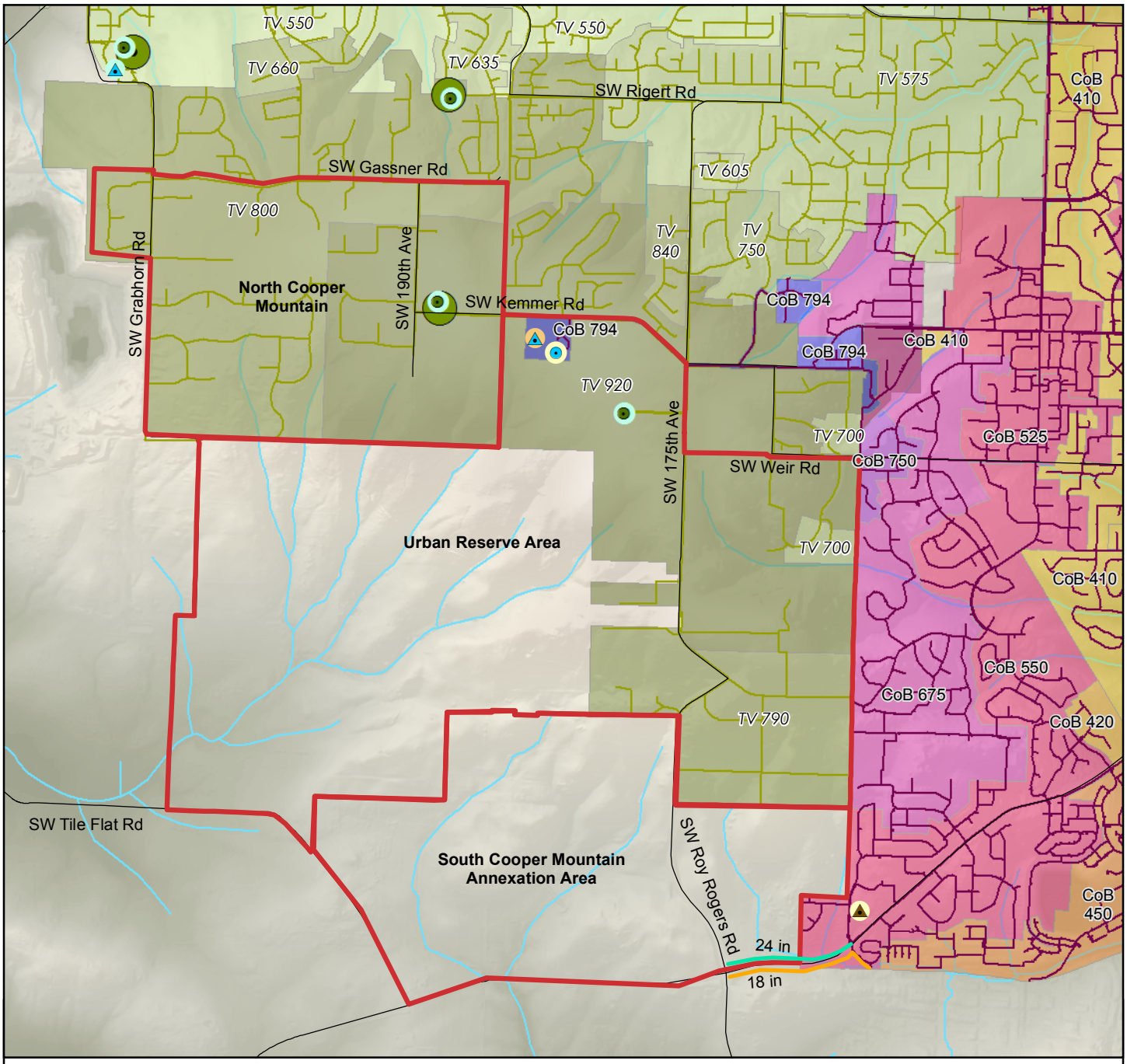

South Cooper Mountain Existing Water System

Legend

Reservoirs
- Beaverton, In service
- TVWD, In service

ASR Wells
- Beaverton, Drilled not producing
- JWC, In service
- TVWD, In service

Existing Waterlines
- CoB Water Main
- TVWD Waterline

Waterlines Under Construction
- Beaverton
- Tigard

CoB Pressure Zones

TVWD Pressure Zones

- TVWD Pump Station
- South Cooper Mountain Study Area
- Arterials

Date: 5/6/2013

Prepared By: David Evans and Associates, Inc.

Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl

DISCLAIMER
This map is intended for informational purposes only. It is not intended for legal, engineering, or surveying purposes. While this map represents the best data available at the time of publication, the City of Beaverton makes no claims, representations, or warranties as to its accuracy or completeness. Metadata available upon request.

NORTH

0 1,000 2,000 4,000 Feet