City of Vancouver

2022 Amendment to the 2016 Water System Plan

4-Year Extension Update

Amended March 2022

City of Vancouver Certification

Revisions to Chapters 1, 4, 5, 8, and 9 of the original Water System Plan approved in 2016 were prepared under the direction of the following registered professional engineer.

Tyler W. Clary, P.E.

3/30/2022

Water System Plan Amendment Summary

Water System Plans (WSP) are required under WAC 246-290-100. The purpose of the plan is to develop a planning strategy for the City's retail water service area. The plan is required to demonstrate a purveyor's capacity to provide potable water; identify its approach to handling demand and system expansion; assure consistency with applicable laws and plans; and establish eligibility for State funding.

The City of Vancouver is resubmitting the approved 2016 WSP, along with minor amendments through the plan amendment process in an effort to seek amendment approval of the plan to extend the approval period an additional 4 years. WAC 246-290-100 currently outlines that plan approval is effective for a period of ten years. When Vancouver's WSP was approved in 2016, it was approved for a period of six years per the WAC that was in place at that time. Soon after the plan was approved, WAC 246-290-100 was modified to require plans to be updated every ten years. During development of the 2016 approved plan, ten-year forecasts were included in the plan in order to meet the requirements of the ten-year planning horizon. Given that these forecasts are included in the plan, the City is seeking approval of an amendment to the plan to extend the approval period an additional four years.

This planning modification did not result in revisions to WSP chapters 2, 3, 6, 7, or 10, nor to most of the appendices. Chapters 1, 4, 5, 8, and 9 in this amended WSP had minor revisions, and these are documented in this publication as direct replacements and additions to specific section of the plan. The only appendices containing modifications are Appendix 5 and Appendix 6. Appendix 5C and 6C have been replaced in their entirety and a new Appendix 5D and 6F have been added.

The 2019 amendment consists of the following replacement Tables, Figures, Sections and Appendices.

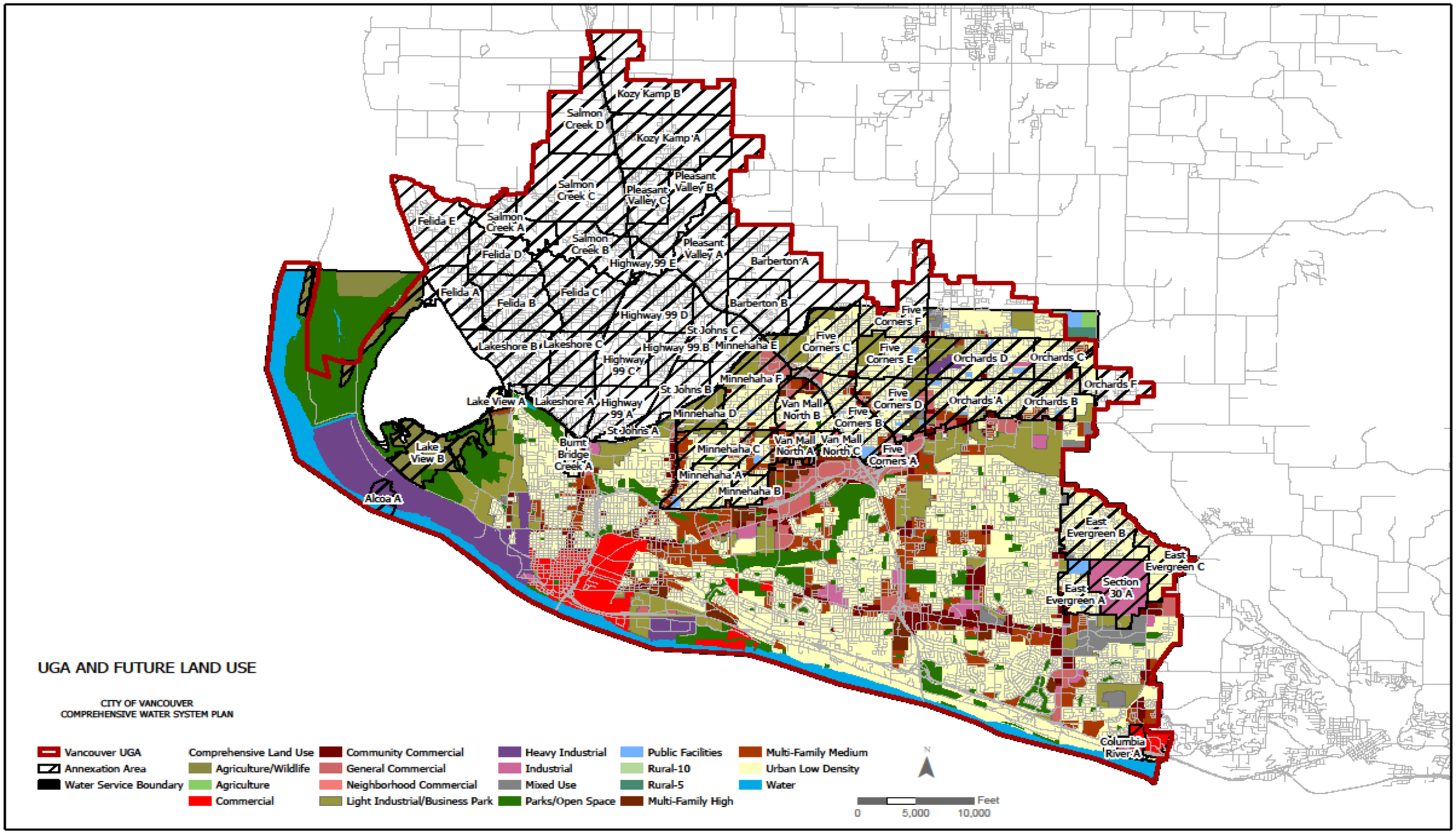
Kozy Kamp B
Salmon Creek D
Kozy Kamp A
Pleasant Valley B
Salmon Creek C
Pleasant Valley C
Felida E
Salmon Creek A
Salmon Creek B
Pleasant Valley A
Felida D
Highway 99 E
Barberton A
Felida A
Felida B
Felida C
Barberton B
Highway 99 D
Five Corners F
St Johns C
Lakeshore B
Lakeshore C
Highway 99 B
Minnehaha E
Five Corners C
Five Corners E
Orchards D
Orchards C
Highway 99 C
Minnehaha F
Orchards F
St Johns B
Five Corners D
Lake View A
Lakeshore A
Highway 99 A
Van Mall North B
Orchards A
Orchards B
Minnehaha D
Five Corners B
St Johns A
Burnt Bridge Creek A
Van Mall North A
Van Mall North C
Minnehaha C
Five Corners A
Lake View B
Minnehaha A
Minnehaha B
Alcoa A
East Evergreen B
East Evergreen C
Section 30 A
East Evergreen A
Columbia River A
UGA AND FUTURE LAND USE
CITY OF VANCOUVER
COMPREHENSIVE WATER SYSTEM PLAN
Vancouver UGA
Annexation Area
Water Service Boundary
Comprehensive Land Use
Agriculture/Wildlife
Agriculture
Commercial
Community Commercial
General Commercial
Neighborhood Commercial
Light Industrial/Business Park
Heavy Industrial
Industrial
Mixed Use
Parks/Open Space
Public Facilities
Rural-10
Rural-5
Multi-Family High
Multi-Family Medium
Urban Low Density
Water
N
Feet
0
5,000
10,000

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Table 1.3 revision

The City of Vancouver no longer references specific cross connection requirements in the VMC. As outlined in VMC 14.04.155, specific cross connection requirements are detailed in the City's Cross-Connection Control Procedures Manual. This manual replaces Appendix 6C.

Table Error! No text of specified style in document.**.1**		**Water Service Policies & Planning Considerations**	
Connecting with an Existing Water Source	Planning Consideration	Properties with an on-site well may obtain service from the City, but must comply with "Washington state law (WAC 173-160 and WAC 246-290), and Vancouver Municipal Code (14.04.140 and 14.04.155). City approved reduced-pressure backflow assembly (RPBA) must be installed, inspected, and tested per Section 14.04.155 (COV Website - http://www.cityofvancouver.us/publicworks/page/backflow-and-cross-connection-prevention).	COV Website
	Policies	Premise isolation for all service connections by an approved air gap or reduced pressure backflow assembly is required for all customers with access to unapproved auxiliary water supplies, as defined by WAC 246-290-010, connected to a piping system whether or not an interconnection exists between the unapproved auxiliary water supply and the city water system.	**COV Cross-Connection Control Procedures Manual**

4.2.3 Summary of Water Rights Status (Replaced Entirely)

Based on the existing and future water rights analysis, no new water rights are required during the 20-year planning period. The pumping capacities of several of the City's wells are below the well's water right and could be increased to make full use of the right. The following summarizes the results of the existing and future water rights status:

Existing Water Rights Status:

- Qi exceeds current Instantaneous Pumping Capacity by 13,912 gpm (20.03 mgd).
- Qi exceeds 2012 Maximum Day Production by 37,225 gpm (53.60 mgd).
- Qa exceeds 2012 Annual Production by 21,726.5 AFY (19.39 mgd).

Forecasted Water Rights Status:

- Qi exceeds 20-Year (2034) High MDD by 22,322 gpm (32.14 mgd).
- Qa exceeds 20-Year (2034) High ADD by 8,214.5 AFY (7.34mgd).

The City is committed to making full use of all its water rights. Additionally, an upcoming capital project will install three wells in 2023 to replace wells 3, 4 and 5 at Water Station 1. At the conclusion of that project, the City plans to apply for a single right to pump up to 13 wells at a flow rate equivalent to the current certificated Qi of 23,400 gpm. Individual water station limitations beyond well pumping capacity are evaluated in more detail in Section 4.3.

Table Error! No text of specified style in document..**2** **Existing Water Rights Status**

Permit Certificate or Claim #	Priority Date	Source Number	Well Number	Existing Water Rights			Existing Production Capacity		Current Water Rights Status Excess/(Deficiency)	
				Maximum Instantaneous Flow Rate (Qi) (gpm)	Primary Annual Volume (Qa) (AFY)	Additive Annual Volume (AFY)	Maximum Instantaneous Well Pumping Capacity[(1)] (Qi) (gpm)	2012 Annual Production (Qa) (AFY)	Maximum Instantaneous Flow Rate (Qi) (gpm)	2012 Annual Volume (Qa) (AFY)
Water Station 1										
64D74	3/1/1938	S14	1	2,000	2,030.0		2,000		0	
65D75	1/1/1939	S15	2	2,000	2,100.0		2,000		0	
66D76	9/1/1943	S16	3	2,000	2,442.0		2,000		0	
67D77	6/1/1944	S17	4	1,200	923.0		0		1,200	
4920A	2/16/1962	S18, S19	5, 6	2,200		3,520.0	1,360		840	
G2-23395C	11/27/1974	S20	7	2,000	1,600.0		2,980		(980)	
G2-26309C	3/2/1983	S21, S22, S23, S24, S25, S26	8, 9, 10, 11, 12, 13	12,000	258.5	9,419.5	13,120		(1,120)	
Water Station 3										
14-A-C	1/26/1946	S27	1	2,000	2,580.0		2,000		0	
1745-A-C	1/11/1951	S28	2	2,000	2,580.0		2,000		0	
G2-25363C	9/10/1979	S29	3	2,000	1,613.0		2,000		0	
Water Station 4										
1649A	1/23/1952	S30	1	1,000	1,600.0		950		50	
386-D	7/1/1942	S31	2B	2,500	2,472.0		2,000		500	
388D	8/1/1942	S32	3B	2,400	2,312.0		2,000		400	
G2-25365C	9/10/1979	S35	9	800	645.0		600		200	
Water Station 6										
G2-00171C	5/7/1969		1	2,000	2,400.0		0		2,000	
G2-25364C	9/10/1979		3	400	323.0		0		400	
Water Station 7										
G2-001070C	5/7/1969	S05	1	1,250	1,500.0		800		450	
G2-27670C	8/13/1986	S10	2B	500		807.0	500		0	
Water Station 8										
3437-A	9/23/1957	S36	1, 2	750	360.0		500		250	
G2-20646C	12/4/1972	S37	3	2,000	1,600.0		750		1,250	

Table Error! No text of specified style in document..**2** **Existing Water Rights Status**

Permit Certificate or Claim #	Priority Date	Source Number	Well Number	Existing Water Rights			Existing Production Capacity		Current Water Rights Status Excess/(Deficiency)	
				Maximum Instantaneous Flow Rate (Qi) (gpm)	Primary Annual Volume (Qa) (AFY)	Additive Annual Volume (AFY)	Maximum Instantaneous Well Pumping Capacity[(1)] (Qi) (gpm)	2012 Annual Production (Qa) (AFY)	Maximum Instantaneous Flow Rate (Qi) (gpm)	2012 Annual Volume (Qa) (AFY)
Water Station 9										
G2-000854C	4/14/1969		1	72	30.0		0		72	
G2-22659C	6/14/1974	S38, S39	3, 4	2,800	3,600.0		2,400		400	
G2-25711C	8/11/1980	S40	5	3,000	2,419.5		2,600		400	
G2-25712C	8/11/1980	S41	6	2,500	2,016.0		2,400		100	
G2-27460C	8/13/1986	S42	7	2,500		2,016.0	2,400		100	
Water Station 14										
G2-25360C	9/10/1979	S43	1	1,000	807.0		1,000		0	
G2-25710C	8/11/1980	S44	2	1,000	806.5		1,000		0	
G2-27459C	8/13/1986	S45	3	1,200		968.0	1,200		0	
Water Station 15										
G2-25961C	7/21/1981	S46, S47, S48, S49	1, 2, 3, 4	5,000	4,839.0		1,000		4,000	
Ellsworth										
G2-27671P	8/13/1986	S50	1	3,000	0.0	2,420.0	2,000		1,000	
G2-28027C	8/13/1986	S51	2	3,000	0.0	2,420.0	2,300		700	
G2-28076C	8/13/1986	S12	3	3,000	0.0	2,420.0	2,500		500	
Claims Water Station 4										
G2-136136CL	8/1/1942	S33	4B	1,400	2,240.0		1,400		0	
G2-136137CL	8/1/1942	S34	5B	1,400	2,240.0		1,400		0	
136138CL	8/1/1943		6	1,200	1,920.0		0		1,200	
Total				**75,072**	**50,256.5**	**23,990.5**	**61,160**	**28,530**	**13,912**	**21,726.5**
Total (mgd)				**108.10**	**44.86**	**21.42**	**88.07**	**25.47**	**20.03**	**19.39**

Notes:
(1) Well pumping capacity as provided by City staff.

Table 4.2 Forecasted Water Rights Status

Permit Certificate or Claim #	Priority Date	Source Name	Well Number	Existing Water Rights			Forecasted Water Use From Sources (20 Year High Demand)		Forecasted Water Rights Status Excess/(Deficiency) (20 Year Demand in Water Right)	
				Maximum Instantaneous Flow Rate (Qi) (gpm)	Primary Annual Volume (Qa) (AFY)	Additive Annual Volume (Qa) (AFY)	2034 Maximum Day Demand (Qi) (gpm)	2034 Average Day Demand (Qa) (AFY)	Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (AFY)
Water Station 1										
64D74	3/1/1938	S14	1	2,000	2,030		1,500	1,200	500	830
65D75	1/1/1939	S15	2	2,000	2,100		1,500	1,200	500	900
66D76	9/1/1943	S16	3	2,000	2,442		1,500	1,200	500	1,242
67D77	6/1/1944	S17	4	1,200	923		750	600	450	323
4920A	2/16/1962	S18, S19	5, 6	2,200		3,520.0	1,500	1,200	700	(1,200)
G2-23395C	11/27/1974	S20	7	2,000	1,600		750	600	1,250	1,000
G2-26309C	3/2/1983	S21, S22, S23, S24, S25, S26	8, 9, 10, 11, 12, 13	12,000	258.5	9,419.5	9,000	6,000	3,000	(5,741.5)
Water Station 3										
14-A-C	1/26/1946	S27	1	2,000	2,580		1,500	1,200	500	1,380
1745-A-C	1/11/1951	S28	2	2,000	2,580		1,500	1,200	500	1,380
G2-25363C	9/10/1979	S29	3	2,000	1,613		1,500	1,200	500	413
Water Station 4										
1649A	1/23/1952	S30	1	1,000	1,600		500	500	500	1,100
386-D	7/1/1942	S31	2B	2,500	2,472		1,100	800	1,400	1,672
388D	8/1/1942	S32	3B	2,400	2,312		1,100	800	1,300	1,512
G2-25365C	9/10/1979	S35	9	800	645		500	600	300	45
Water Station 6										
G2-00171C	5/7/1969		1	2,000	2,400		850	500	1,150	1,900
G2-25364C	9/10/1979		3	400	323		400	323	0	0
Water Station 7										
G2-001070C	5/7/1969	S05	1	1,250	1,500		1,250	1,300	0	200
G2-27670C	8/13/1986	S10	2B	500		807.0	500	196	0	(196)
Water Station 8										
3437-A	9/23/1957	S36	1, 2	750	360		750	360	0	0
G2-20646C	12/4/1972	S37	3	2,000	1,600		1,500	1,600	500	0

Table 4.2 Forecasted Water Rights Status

Permit Certificate or Claim #	Priority Date	Source Name	Well Number	Existing Water Rights			Forecasted Water Use From Sources (20 Year High Demand)		Forecasted Water Rights Status Excess/(Deficiency) (20 Year Demand in Water Right)	
				Maximum Instantaneous Flow Rate (Qi) (gpm)	Primary Annual Volume (Qa) (AFY)	Additive Annual Volume (Qa) (AFY)	2034 Maximum Day Demand (Qi) (gpm)	2034 Average Day Demand (Qa) (AFY)	Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (AFY)
Water Station 9										
G2-000854C	4/14/1969		1	72	30		0	30	72	0
G2-22659C	6/14/1974	S38, S39	3, 4	2,800	3,600		2,800	3,600	0	0
G2-25711C	8/11/1980	S40	5	3,000	2,419.5		3,000	2,419.5	0	0
G2-25712C	8/11/1980	S41	6	2,500	2,016		2,500	2,016	0	0
G2-27460C	8/13/1986	S42	7	2,500		2,016.0	2,500	2,016	0	(2,016)
Water Station 14										
G2-25360C	9/10/1979	S43	1	1,000	807		1,000	807	0	0
G2-25710C	8/11/1980	S44	2	1,000	806.5		1,000	806.5	0	0
G2-27459C	8/13/1986	S45	3	1,200		968	1,000	968	200	(968)
Water Station 15										
G2-25961C	7/21/1981	S46, S47, S48, S49	1, 2, 3, 4	5,000	4,839		1,500	1,000	3,500	3,839
Ellsworth										
G2-27671C	8/13/1986	S50	1	3,000	0	2,420	1,500	1,500	1,500	(1,500)
G2-28027C	8/13/1986	S51	2	3,000	0	2,420	1,800	1,500	1,200	(1,500)
G2-28076C	8/13/1986	S12	3	3,000	0	2,420	2,000	1,500	1,000	(1,500)
Claims Water Station 4										
G2-136136CL	8/1/1942	S33	4B	1,400	2,240		1,100	500	300	1,740
G2-136137CL	8/1/1942	S34	5B	1,400	2,240		1,100	500	300	1,740
136138CL	8/1/1943		6	1,200	1,920		500	300	700	1,620
Total				**75,072**	**50,256.5**	**23,990.5**	**52,750**	**42,042**	**22,322**	**8,214.5**
Total (mgd)				**108.100**	**44.86**	**21.42**	**75.96**	**37.52**	**32.14**	**7.34**

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5.6.2 City Water Stations (Replaced Entirely)

The following sections provide details regarding the presence of Class I and II facilities in proximity to the individual city water stations. Along with locations and descriptions of the aquifers tapped, well capacities are also provided. The sections also contain a discussion of nearby facilities and sites that could present a risk to that area's groundwater. Maps of the water stations and their corresponding facilities/sites of concern are shown in **Appendix 5C.**

5.6.2.1 Water Station 1

Water Station 1, located on East Fourth Plain Boulevard in Waterworks Park, is the largest water station in the City's water system. There are twelve wells at Water Station 1, all of which tap the Lower Orchards aquifer. A large air stripping treatment facility is located at Water Station 1 to remove VOCs, (more specifically perchloroethylene (PCE), from water produced at the wells. The wells at Water Station 1 have an annual reliable well capacity of 18.6 mgd.

There are four Class I/II facilities located near Water Station 1. All of them have been inspected by the WRPO program and are in compliance:

- Three gas stations (24 Food Mart 76 Station).
- One dry cleaner (4th Plain One Hour Cleaner).
- Two other facilities, which store some chemicals of concern (Clark College and VA Medical Center).

5.6.2.2 Water Station 3

Water Station 3, located along Northwest Washington Street at Northwest 43rd Street, has three wells that tap the Lower Orchards aquifer. The annual reliable well capacity of Water Station 3 is 8.9 mgd.

There are four Class I/II facilities located near Water Station 3:

- Two gas stations (Arco and BBC Petroleum).
- One Store (Safeway Store #400).
- Washington's Dept. of Transportation facility.

All of these facilities have been inspected by the WRPO program and are in compliance. In addition, the Bonneville Power (BPA) facility is located northeast of the well field. The City's Water Resources Protection Program performed site inspections in 2006 and 2011 and it is being monitored as a Tier II facility within the Community Right-to-Know program.

5.6.2.3 Water Station 4

Water Station 4, located along Blanford Drive at East 5th Street, includes six wells that tap

the Lower Orchards aquifer. An air stripping treatment facility is also located at this water station to remove PCE from the well source water. The annual reliable well capacity of Water Station 4 is 10.1 mgd. There are many potential contaminant sources within the zones of contribution because the wellhead protection areas encompass major transportation corridors. East Fourth Plain Boulevard is of concern as well as industrial areas along Columbia Way.

There are six Class I/II facilities located near Water Station 4:

- One manufacturing operations (Christensen Shipyards).
- One facility that stores and blends chemicals (Diacon Technologies).
- One gas station (VOCI Cardlot at Columbia Way).
- The City's Marine Park Water Reclamation Facility.
- One Paper and Forest Product Manufacture (Columbia River Logistics).
- One Petroleum Processor (Wilcox & Flegel).

All of these facilities have been inspected by the WRPO program and are in compliance.

5.6.2.4 Water Station 7

Water Station 7, located near Northeast 112th Avenue off Northeast 16th Street, has two wells. Well 1 taps the Upper Troutdale aquifer, while Well 2 taps the Sand and Gravel aquifer. Well 2 has demonstrated elevated iron and manganese levels and has been equipped with a greensand filtration treatment facility. The annual reliable well capacity of Water Station 7 is 1.7 mgd.

No Class I/II facilities are located near Water Station 7.

5.6.2.5 Water Station 8

There are two wells located at Water Station 8, located near the intersection of Northeast Fourth Plain Road and Northeast 112th Avenue that tap the Upper Orchards aquifer at a shallow depth. The annual reliable well capacity at Water Station 8 is rated at 1.8 mgd.

Although Water Station 8 is located outside City limits, it is very close to the City limit boundary and there are classified facilities near the site. Five Class I/II facilities are located near Water Station 8:

- Pro-Caliber Motorsports.
- Precise Manufacturing.
- Sun Cleaners.
- PetCo.
- Midas.

There is also a site currently listed on Ecology's Confirmed and Suspected Contamination site list (Commercial Radiator) which is located close to Station 8. Any updates to the status of this site will be recorded in the WRPO database.

5.6.2.6 Water Station 9

Water Station 9, located along Northeast 39th Street at northeast 145th Avenue has five wells tapping the Upper Orchards aquifer. The annual reliable well capacity of Water Station 9 is 14.1 mgd.

No Class I/II facilities are located near Water Station 9.

5.6.2.7 Water Station 14

Water Station 14, located along Northeast 78th Street at Northeast Andresen Road, has three wells tapping the Upper Orchards aquifer. The annual reliable well capacity of these wells is 3.2 mgd.

Water Station 14 lies outside City limits, there are no Class I/II facilities located near the site. One closed operation, Leichner Landfill, is being monitored by the Dept. of Ecology as a known contamination site. Leichner was required to comply with a number of Ecology stipulated measures as part of their final landfill closure plan. These included capping the landfill and installing gas extraction wells with flares to burn landfill gas. Test sampling and remedial action are still in progress at the site and will continue for the next 25 years.

5.6.2.8 Water Station 15

Water Station 15, located near the intersection of Northeast 27th Street and Northeast 83rd Avenue, includes four wells tapping the Upper Orchards aquifer. The annual reliable well capacity is considered to be 1.4 mgd.

No Class I/II operations are located near Water Station 15.

There are several facilities within a half mile of the water station that will continue to be monitored by the City. Other potential sources of concern include two known contamination sites, A&B Radiator and a ConocoPhillips fueling operation.

5.6.2.9 Ellsworth Water Station

The Ellsworth Water Station, located near Southeast 97th Avenue along Southeast French Road, includes three wells all tapping the Sand and Gravel Aquifer. The water station is equipped with a greensand filtration facility to remove iron and manganese. The annual reliable well capacity of the Ellsworth Water Station will be 10.8 mgd.

Although potential sources of contamination are nearby, including septic tanks, dry wells, and catch basins, the aquifer tapped by the Ellsworth wells is protected from surface

contamination by a thick sedimentary clay layer. The three wells are drilled and cased through and past the clay layer with water intake screens placed in the confined aquifer.

5.6.2.10 Clark Public Utilities (CPU) Southlake Wellfield

The new CPU Southlake Wellfield water station located on Fruit Valley Road and NW 59th St. became active in 2010. From this site, CPU produces approximately 3.7 mgd from the Sand and Gravel Aquifer at a screened depth of approximately 420 feet below ground surface.

Five Class I industrial facilities are located near the Southlake Wellfield:

- Pac Paper, Inc.
- Pacific Die Casting.
- NuStar Energy.
- Nalco Chemical.
- Frito-Lay.

There is one nearby classified non-industrial site, the Vancouver School District Grounds shop.

Figure 5.5 - Operations Spill Procedures & Reporting

Spill is hazardous, unknown &/or presents an immediate threat to the public health:

- **Evacuate and secure the area**
- **Call 911 and Ecology's 24 hr Emergency Spill Response at 360-407-6300 ERTS# XXXX**
- Contact **Dispatch** at **487-8177** - After hours Call **Drainage Pager** at **418-5133**
- For sanitary sewer spills refer to Sanitary Sewer Chemical Release SOP or Sanitary Sewer Overflow SOP **On Call Emergency Wastewater Operator 360-608-0723 & Westside Plant 360-695-0092**
- Notify **Nikki Guillot at 487-7187**

Spill is 5 gallons or more & non-hazardous OR may enter storm drains or waterbodies:

- Safely stop the flow & determine where it's going (waterbody, storm drain, soil, etc.)
- Immediately call **Ecology**'s 24 hr Emergency Spill Response: **360-407-6300 ERTS#**
- If flowing to **Columbia River**, call the **Coast Guard** National Response Center: **1-800-424-8802**
- Contact **Dispatch** at **487-8177** - After hours Call **Stormwater Pager** at **418-5133**
- Notify **Nikki Guillot at 487-7187**

Spill is less than 5 gallons & will not enter storm drains or waterbodies:

- Safely stop the flow & clean up the spill
- If less than 1 gallon, securely bag spill clean up materials and place in trash
- If 1 to 5 gallons, place materials in labeled container, take to Ops storage area, notify **Brandon Lo'Re 487-8264**

Responsible Party

Who is responsible for spill? Phone#

Vehicle license# Address

Other identification

The party responsible for the spill should contact a cleanup contractor:

- Clean Harbors - 1-800-645-8265
- NRC Environmental - 1-800-337-7455

Incident Details (If in County, call 360-397-2446) **SR# XXXXX WO# XXXX**

Notified of Event Date Time

Responded to Event Date Time

Spill Location:

Cause of spill:

What spilled?

How much? Gallons quarts pints

Where did it flow to?

How much recovered?

List all persons responding:

Actions taken:

Report prepared by: Date:

EMAIL THIS COMPLETED FORM TO BRIAN POTTER, BRANDON LO'RE, & NIKKI GUILLOT

8.3.6 PFAS Treatment Systems

In 2020 and 2021 the city completed proactive testing that found PFAS at very low levels in some of the city's groundwater wells. The low levels of PFAS found in Vancouver's water are below the EPA's lifetime health advisory level for PFAS of 70 parts per trillion (ppt), but are at or above the Department of Health's newly established State Action Levels at six of the utility's nine water production stations: WS3, WS4, WS8, WS9, WS14, and WS15.

At this time, the city has not identified any point sources or underground plumes containing PFAS that are affecting the city's water supply. The city has hired expert water quality engineers and scientists to conduct a study to better understand possible sources and concentration of the PFAS in the city's groundwater supply.

Although an SAL exceedance does not require treatment, the city has hired a consultant to complete a high-level cost estimate to install treatment systems at the six water stations that have tested PFAS at or above the SAL. It is unclear at this time if the city will install treatment. Treatment installation is dependent on rulemaking by the EPA, additional state rulemaking, and/or city council direction. Regardless, the city is preparing financially to ensure funding is available to install treatment.

This financial preparation includes a placeholder in our capital improvement plan of $100,000,000 spread out between 2025 and 2030. The city will be seeking grants, bonds and/or loans in order to fund treatment systems if it is deemed that treatment systems are necessary.

8.4.1 General Improvements

Replace G-7 with the following

- **G-7 Operations Center Redevelopment.** The City determined that the existing operations center is not adequate to house the city's operational needs. Property has been purchased to construct a new operations center. The water utility will fund approximately 60% of this construction with the city's general fund paying for the remainder. All occupants that are not in either the water utility or a general fund department will pay rent back to the water utility for their use of the facility. The city anticipates a water utility cost of approximately $65,000,000-$95,000,000 to construct the facility, depending on the level of LEED certification the city council pursues. The city will utilize municipal bonds to finance the construction of the operations center in order to spread the cost over 20 years.
- **G-12 System MCC Electrical Upgrades.** The city has determined that a significant number of the electrical components at its water production stations are old and in need of replacement. The MCCs at sites that have not had recent upgrades will be evaluated and replaced. A project cost of approximately $8,000,000 is anticipated.
- **G-13 Ellsworth Roof Replacement.** The roof on the Ellsworth treatment facility is leaking and maintenance efforts have failed to repair the leaks. An entire roof replacement is anticipated at an approximate cost of $700,000.

8.4.2 Supply

Replace S-17 with the following

- **S-17 PFAS Studies.** S-17 was a placeholder of $1,000,000 in the 2016 Water System Plan. The city is using this budget to hire expert water quality engineers and scientists to conduct a study to better understand possible sources and concentration of the PFAS in the city's groundwater supply. The city is also identifying treatment technologies that can be used to remove PFAS and working to estimate the cost to design, build and operate them. Some funds have already been utilized for this work with the remaining funds of $948,520 planned for utilization in 2022 and 2023.

Newly added supply projects

- **S-19 PFAS Treatment.** Based on levels of PFAS tested at WS3, WS4, WS8, WS9, WS14, and WS15, the city has set a placeholder in the capital improvement plan of $100,000,000 spread out between 2025 and 2030. The city will be seeking grants, bonds and/or loans in order to fund treatment systems if it is deemed that treatment systems are necessary. It is currently unclear if treatment will be required 100and if so, at which water stations. The highest priority sites for treatment will be those with the highest concentration, which includes WS4, WS 14. Information determined through project S-17 PFAS Studies will help to determine which sites will be prioritized for treatment.

8.4.3 Storage

Newly added storage projects

- **ST-10 Water Station 5 Tower Internal Coating.** It was determined that internal coating of the Water Station 5 elevated tank is in needs of replacement. Removal of the existing coating along with a new coating is anticipated at approximately $630,000.

Table 8.4 Capital Improvement Plan					
Project		CIP Cost Estimate	CIP Phasing		
			Short-Term 2015-2020	Mid-Term 2021-2024	Long-Term 2025-2034
General		$97,040,000	$16,670,000	$1,150,000	$79,220,000
G-1	SCADA System Program Improvement	$7,200,000	$7,200,000	$0	$0
G-2	Rezone Study for Vancouver Low and Vancouver High Zones	$50,000	$50,000	$0	$0
G-3	Comprehensive Water Master Plan Updates	$900,000	$0	$450,000	$450,000
G-4	O&M Program Electronic Manual	$300,000	$300,000	$0	$0
G-5	Water Shortage Response Plan	$40,000	$40,000	$0	$0
G-6	Ongoing SCADA Upgrades	$1,000,000	$0	$0	$1,000,000
G-7	Operations Center Redevelopment	$69,730,000	$0	$0	$69,730,000
G-8	Pump House Roofing	$200,000	$200,000	$0	$0
G-9	SCIP Coordination Project	$8,750,000	$8,750,000	$0	$0
G-10	Study for Heights High Hydraulic Grade Line Balance	$40,000	$0	$0	$40,000
G-11	WS 3 Master Plan	$130,000	$130,000	$0	$0
G-12	System MCC Electrical Upgrade	$8,000,000	$0	$0	$8,000,000
G-13	Ellsworth Roof Replacement	$700,000	$0	$700,000	$0
Supply		$134,420,000	$17,520,000	$5,350,000	$111,550,000
S-1	WS 1 General Site Improvements	$14,160,000	$14,160,000	$0	$0
S-2	WS 1 Chlorination Facility Improvement	$890,000	$890,000	$0	$0
S-3	Supply Capacity Improvements Study for WS 4, 6, 8, and 15	$200,000	$200,000	$0	$0
S-4	WS 4 Improvements	$1,000,000	$0	$0	$1,000,000
S-5	WS 6 Well/Treatment Installation	$3,000,000	$0	$0	$3,000,000
S-6	WS 8 Replace Wells 2 & 3	$2,000,000	$0	$0	$2,000,000
S-7	WS 15 Replace Wells 1 through 4	$4,000,000	$0	$0	$4,000,000

Table 8.4	Capital Improvement Plan				
S-8	WS 1 Replace Wells 3, 4, & 5	$3,000,000	$0	$3,000,000	$0
S-9	WS 4 Well 4 Building Replacement	$310,000	$310,000	$0	$0
S-10	Sodium Hypochlorite Generation System	$2,150,000	$1,050,000	$1,100,000	$0
S-11	Ellsworth Well Rehabilitation	$870,000	$270,000	$300,000	$300,000
S-12	Ellsworth Greensand Replacement	$500,000	$500,000	$0	$0
S-13	Well Level Probes	$40,000	$40,000	$0	$0
S-14	WS 9 Lead and Copper Pilot Study	$100,000	$100,000	$0	$0
S-15	WS 3 Replacement of Wells 1 & 2 with One Well	$1,000,000	$0	$0	$1,000,000
S-16	WS 7 Greensand Replacement	$200,000	$0	$0	$200,000
S-17	PFAS Studies	$950,000	$0	$950,000	$0
S-18	Exploration for New Water Source	$50,000	$0	$0	$50,000
S-19	PFAS Treatment	$100,000,000	$0	$0	$100,000,000
Storage		$41,080,000	$13,900,000	$25,560,000	$1,620,000
ST-1	WS 1 Reservoir Improvements	$9,900,000	$9,900,000	$0	$0
ST-2	WS 1 0.25-MG Tank Replacement	$2,500,000	$2,500,000	$0	$0
ST-3	WS 3 1.25-MG Reservoir Replacement	$4,870,000	$0	$4,870,000	$0
ST-4	WS 3 0.25-MG Tank Replacement	$970,000	$0	$0	$970,000
ST-5	WS 5 Tank - Altitude Valve Addition	$120,000	$0	$120,000	$0
ST-6	WS 6 Internal Coating	$400,000	$400,000	$0	$0
ST-7	WS 5, 6, & 7 Tanks Seismic Improvements	$1,100,000	$1,100,000	$0	$0
ST-8	WS 5 Reservoir Replacement	$20,570,000	$0	$20,570,000	$0
ST-9	Study for Additional Heights High Tanks	$20,000	$0	$0	$20,000
ST-10	Water Station 5 Tower Internal Coating	$630,000	$0	$0	$630,000
Pumping		$10,250,000	$2,930,000	$7,310,000	$10,000
BP-1	WS 1 Tower BPS Replacement	$2,930,000	$2,930,000	$0	$0
BP-2	WS 3 BPS - Replace with Reservoir	$5,420,000	$0	$5,420,000	$0
BP-3	WS 5 BPS - Adding Back-up Power	$440,000	$0	$440,000	$0

Table 8.4	Capital Improvement Plan				
BP-4	45th Street BPS - Replace for Pump Redundancy and Fire	$1,450,000	$0	$1,450,000	$0
Piping		$57,920,000	$21,990,000	$12,540,000	$23,390,000
P-1	Pipe Improvement Program	$36,020,000	$16,240,000	$8,490,000	$11,290,000
P-2	Pipe Repair Program	$21,900,000	$5,750,000	$4,050,000	$12,100,000
CIP Total		**$340,710,000**	**$73,010,000**	**$51,910,000**	**$215,790,000**

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8.6.2 (Replace Entirely)

NW Packing disconnected from the city water supply and transferred to the Port of Vancouver water system when the WSP was going through the approval process in late 2015. Although this reduced overall annual demands, their peak demands occur from late-September to mid-November, which is an off-peak time for demand on the Vancouver water system. Given that NW Packing's highest demands were during off-peak water demand periods, their demands were not driving capital project needs. The demand reductions have not changed any planned CIP projects.

9.3.3.3 Rates Model (New Section)

The city engaged with FCSG from 2019 to 2021 to complete a rate model update and analysis. The consultant performed a cost of service analysis including operational, maintenance, and capital costs for the next 20 years. The consultant then reviewed projected revenues by customer class to determine the revenue needs for the next 20 years. When it made financial sense, bonds were assumed to supplement rates for very expensive capital projects in future years (for example the Operations Center Redevelopment project and PFAS Treatment projects). The City is also pursuing increasing the System Development Charges in order to ensure the development community is paying their fair share of the capital costs. The updated rate model shows that with yearly incremental rate increases and smart use of debt, the City's water utility will have adequate funding to cover operational, maintenance, and capital costs for the next 20 years while providing generational equity between current and future rate payers. Necessary fee, bonding, and rate increases are presented to city council for consideration and council action. The city council has been supportive of the water utility as evidenced by 10 consecutive years of annual rate increases (the majority of rate increases have been 5% per year).

9.3.3.4 Finance Issue Papers (New Section)

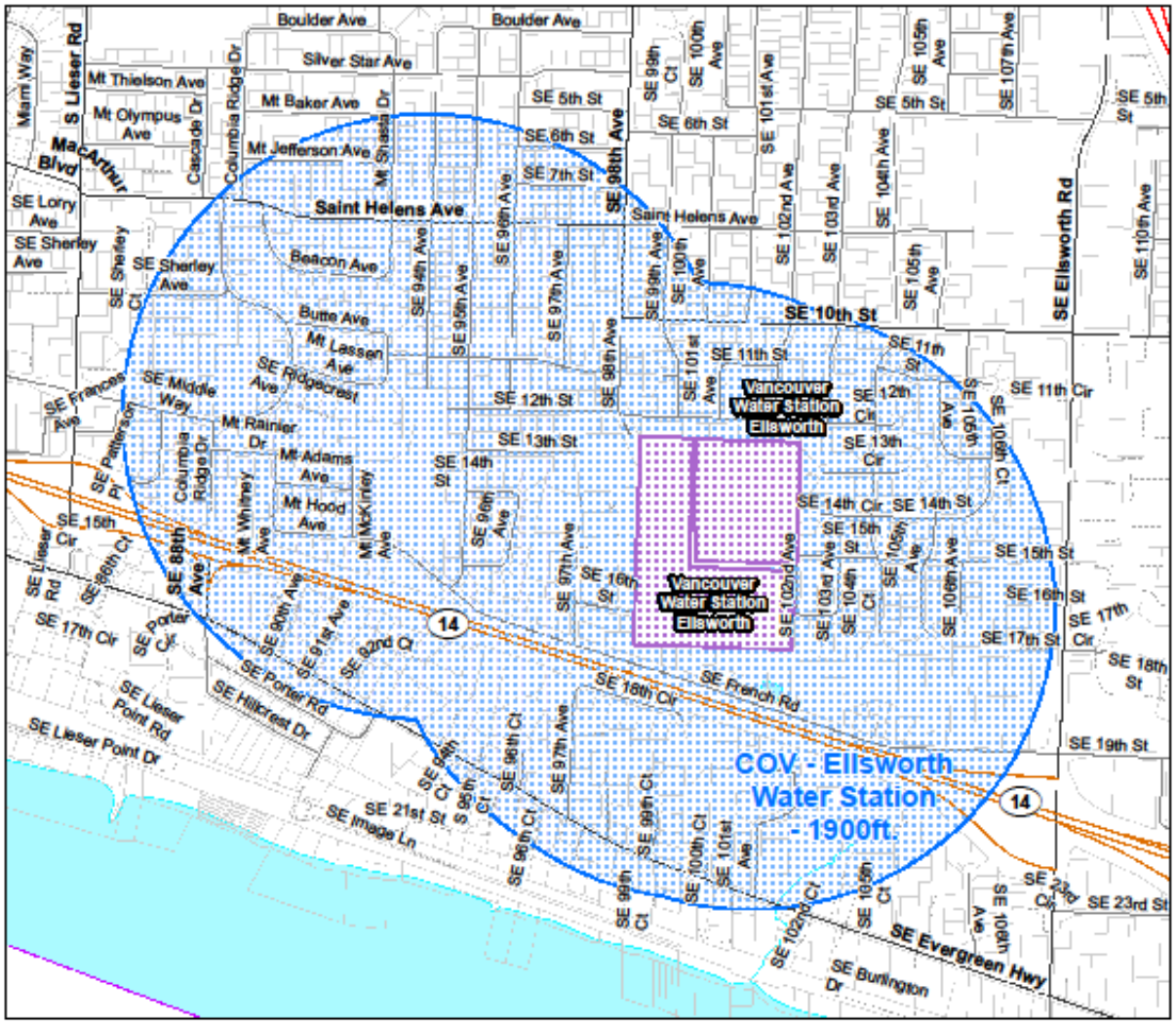
In addition to the rate model, FCSG also worked with the city and developed issue papers specific to the following topics:

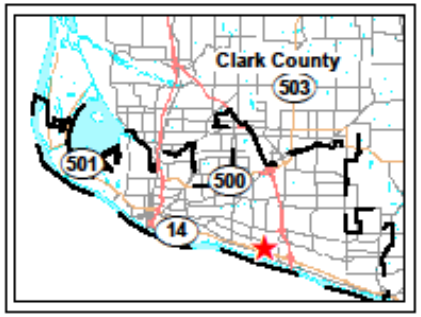
- Outside City Rate Multiplier
- System Development Charges
- COVID-19 impacts/mitigations
- Credit card recovery fees
- Rate affordability/equity
- Utility Taxes
- Funding Long-Term Capital Needs
- Utility Rate Structure

These Issue Papers are being used by the city to guide city council's decision making in order to ensure the water utility is funded adequately to support its operation and capital needs.

Appendix 5C – Water Station Facility Risk Map

Ellsworth Water Station





Legend

Inspected WRPO Sites
- Not Classified
- Class I
- Class II

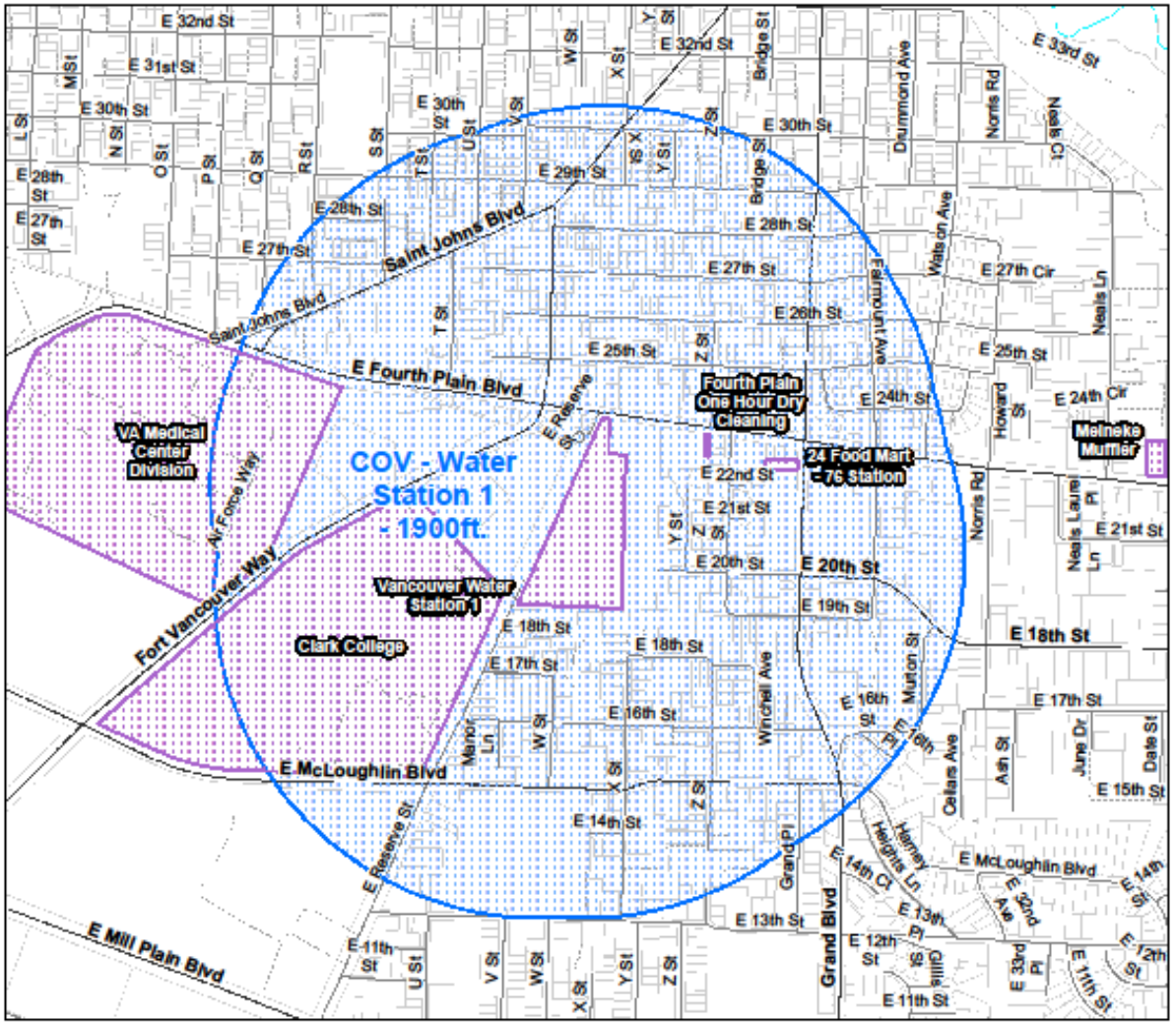
Roads
- Interstate
- State Route
- Arterial
- Forest Arterial
- Minor Collector
- Forest Collector
- Private or Other

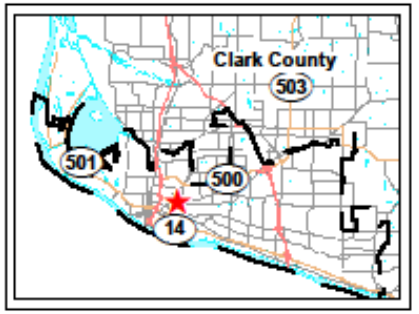
- Special Protection Areas
- City of Vancouver City Limits
- Parcels
- Streams
- Water Bodies

Scale:1:11,210

0 1,250 2,500 Feet

Water Station 1





Legend

Inspected WRPO Sites
- Not Classified
- Class I
- Class II

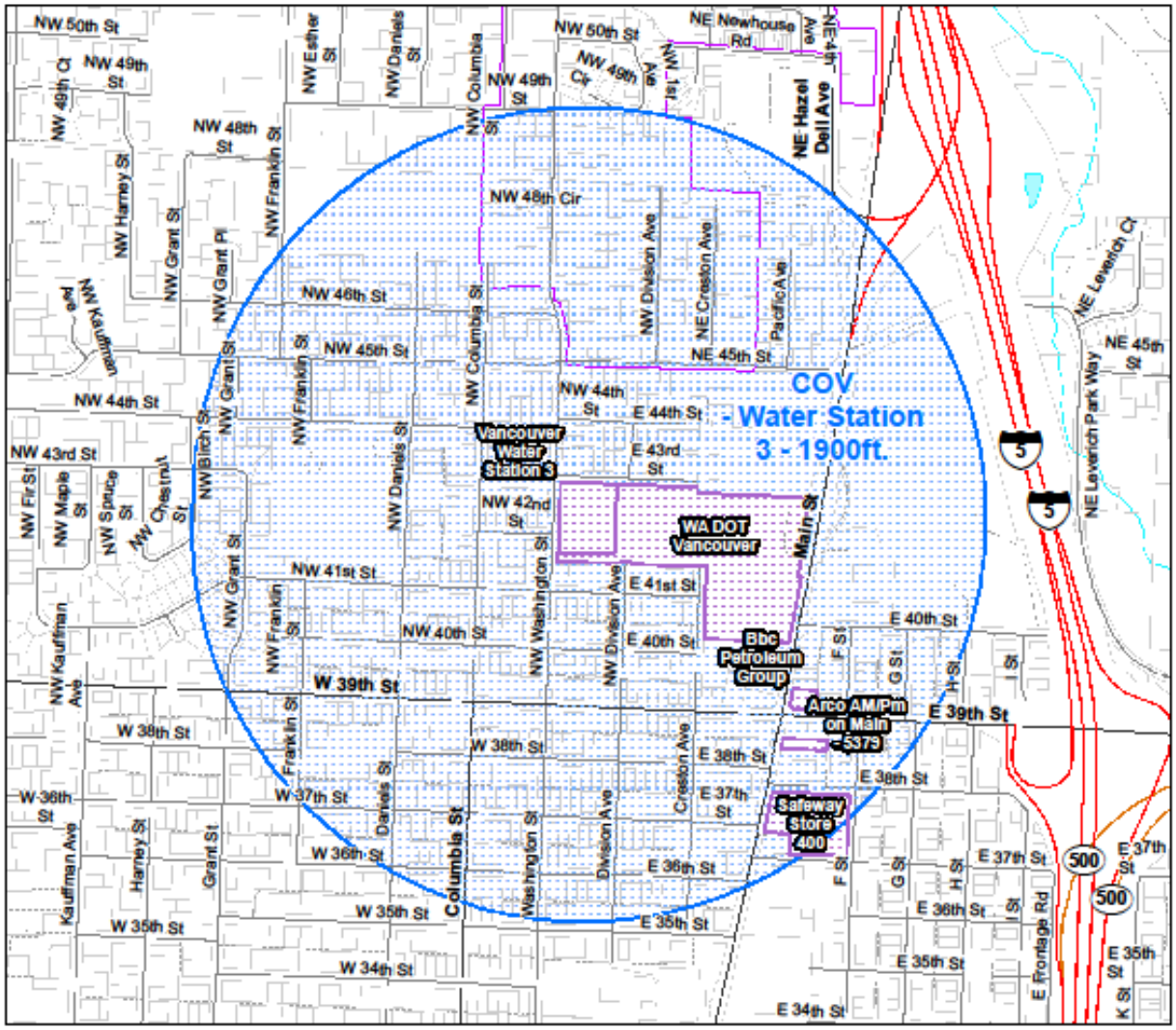
Roads
- Interstate
- State Route
- Arterial
- Forest Arterial
- Minor Collector
- Forest Collector
- Private or Other

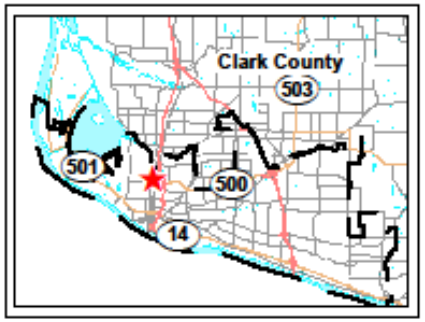
- Special Protection Areas
- City of Vancouver City Limits
- Parcels
- Streams
- Water Bodies

Scale:1:10,500

0 1,150 2,300 Feet

Water Station 3





Legend

Inspected WRPO Sites
- Not Classified
- Class I
- Class II

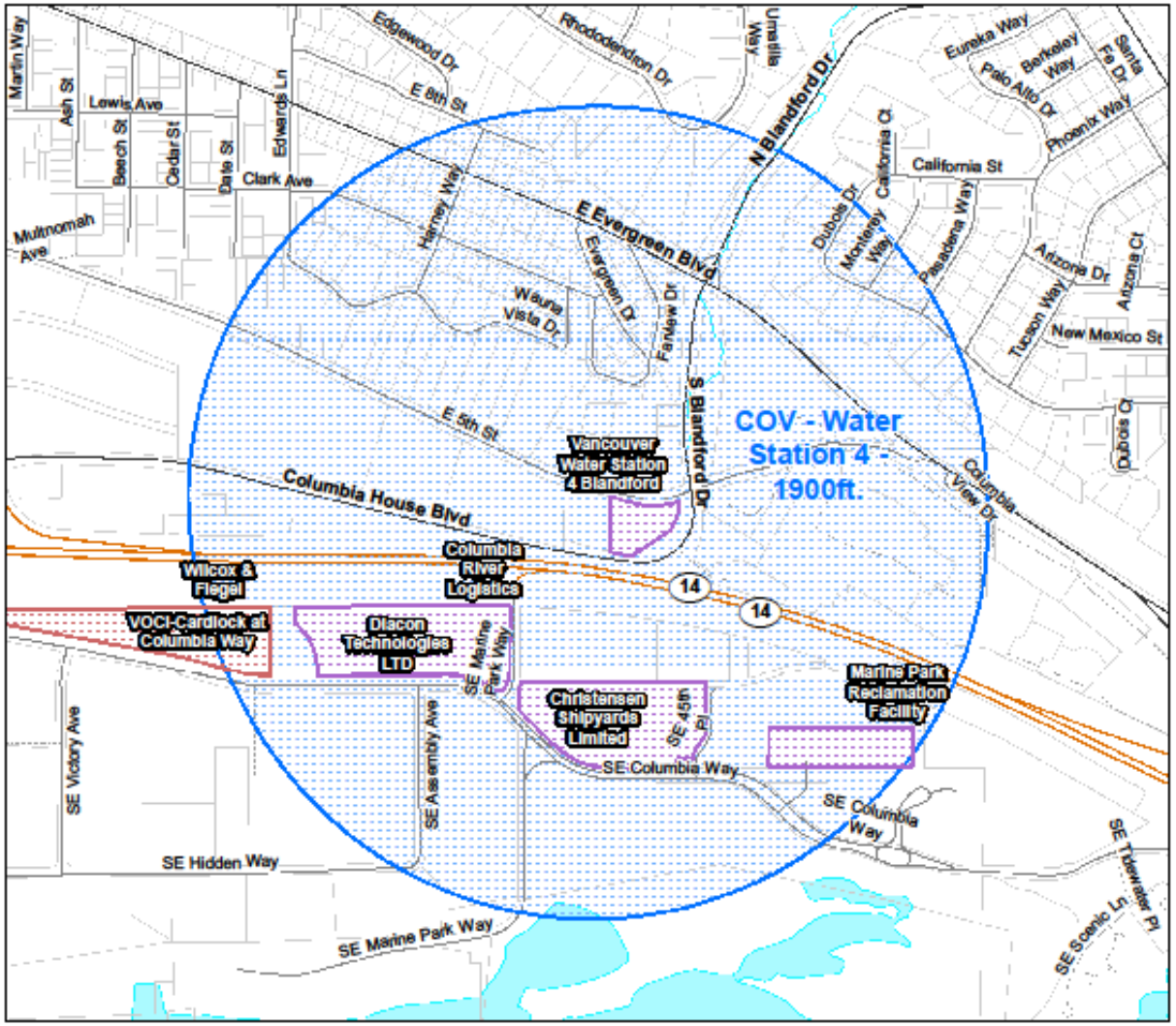
Roads
- Interstate
- State Route
- Arterial
- Forest Arterial
- Minor Collector
- Forest Collector
- Private or Other

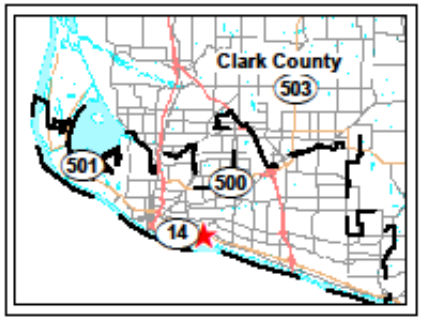
- Special Protection Areas
- City of Vancouver City Limits
- Parcels
- Streams
- Water Bodies

Scale:1:8,700

0 950 1,900 Feet

Water Station 4





Legend

Inspected WRPO Sites
- Not Classified
- Class I
- Class II

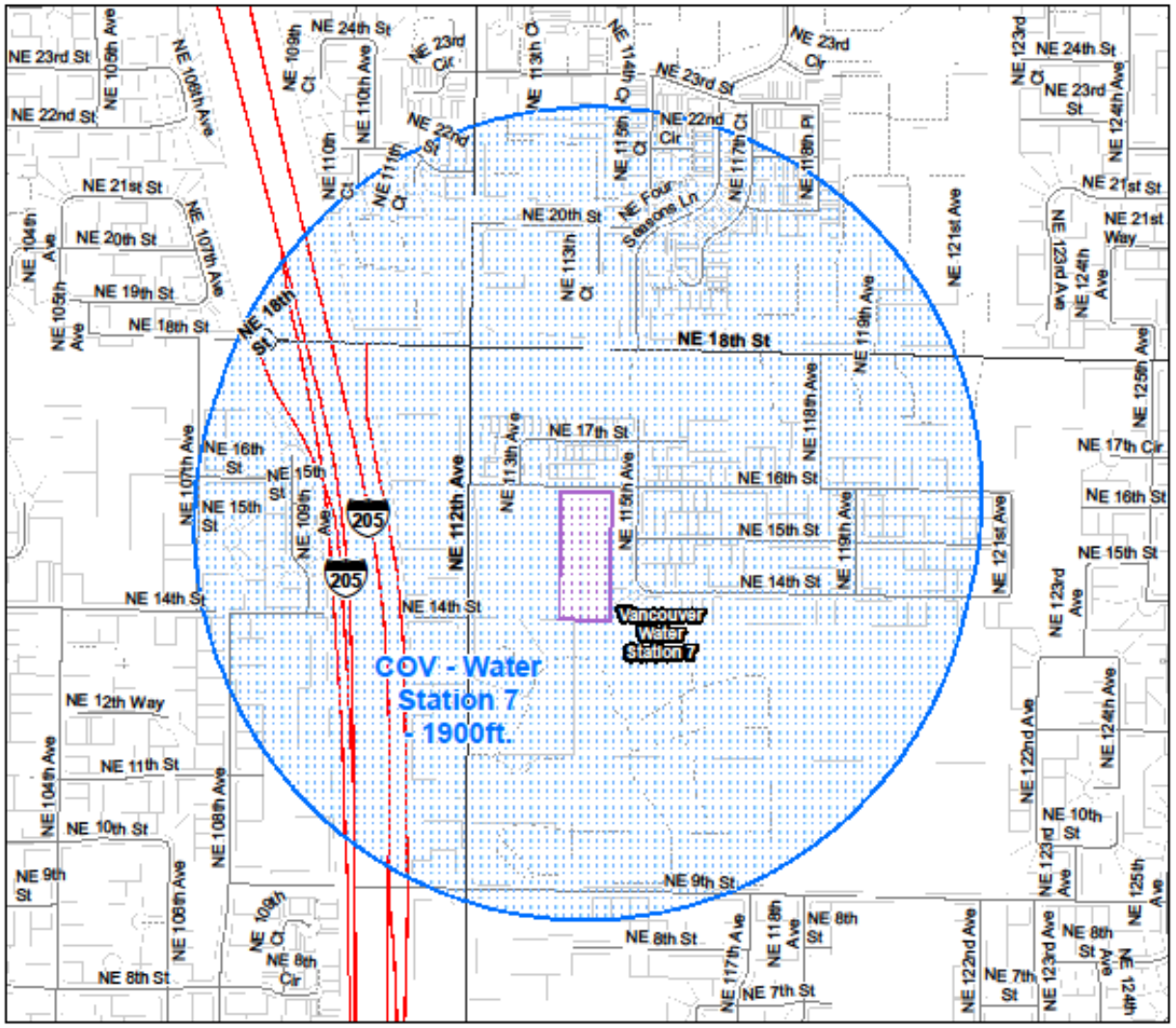
Roads
- Interstate
- State Route
- Arterial
- Forest Arterial
- Minor Collector
- Forest Collector
- Private or Other

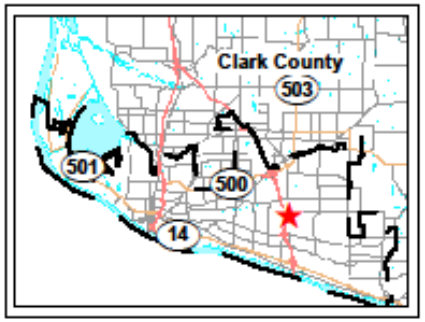
- Special Protection Areas
- City of Vancouver City Limits
- Parcels
- Streams
- Water Bodies

Scale:1:8,730

0 950 1,900 Feet

Water Station 7





Legend

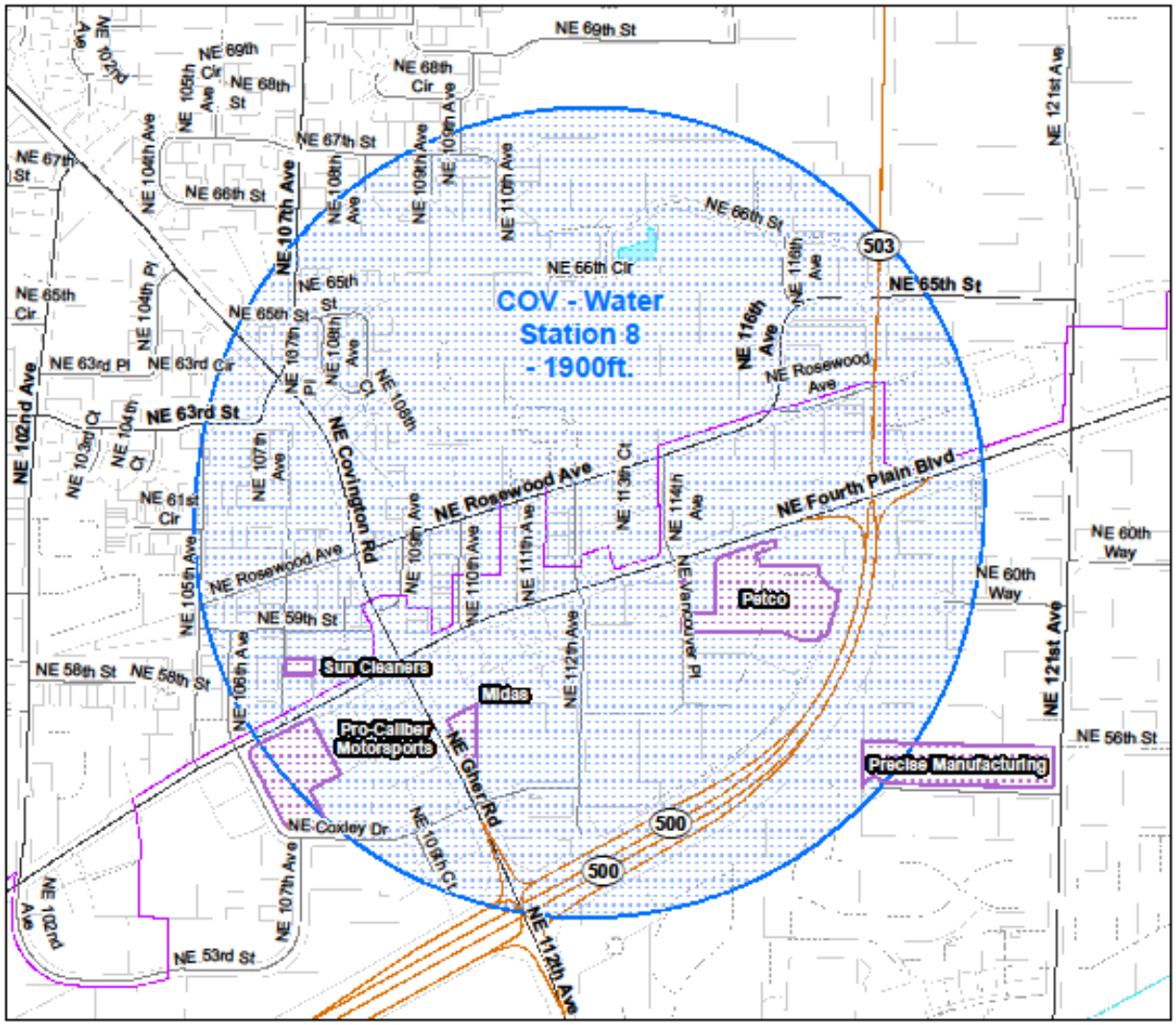
Inspected WRPO Sites
- Not Classified
- Class I
- Class II

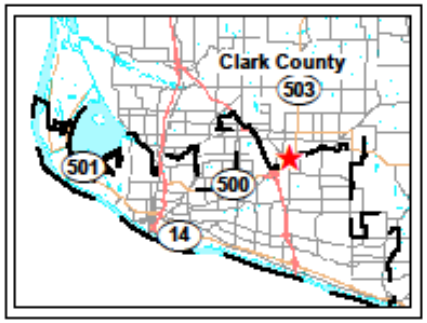
Roads
- Interstate
- State Route
- Arterial
- Forest Arterial
- Minor Collector
- Forest Collector
- Private or Other

- Special Protection Areas
- City of Vancouver City Limits
- Parcels
- Streams
- Water Bodies

Scale:1:8,750

Water Station 8





Legend

Inspected WRPO Sites
- Not Classified
- Class I
- Class II

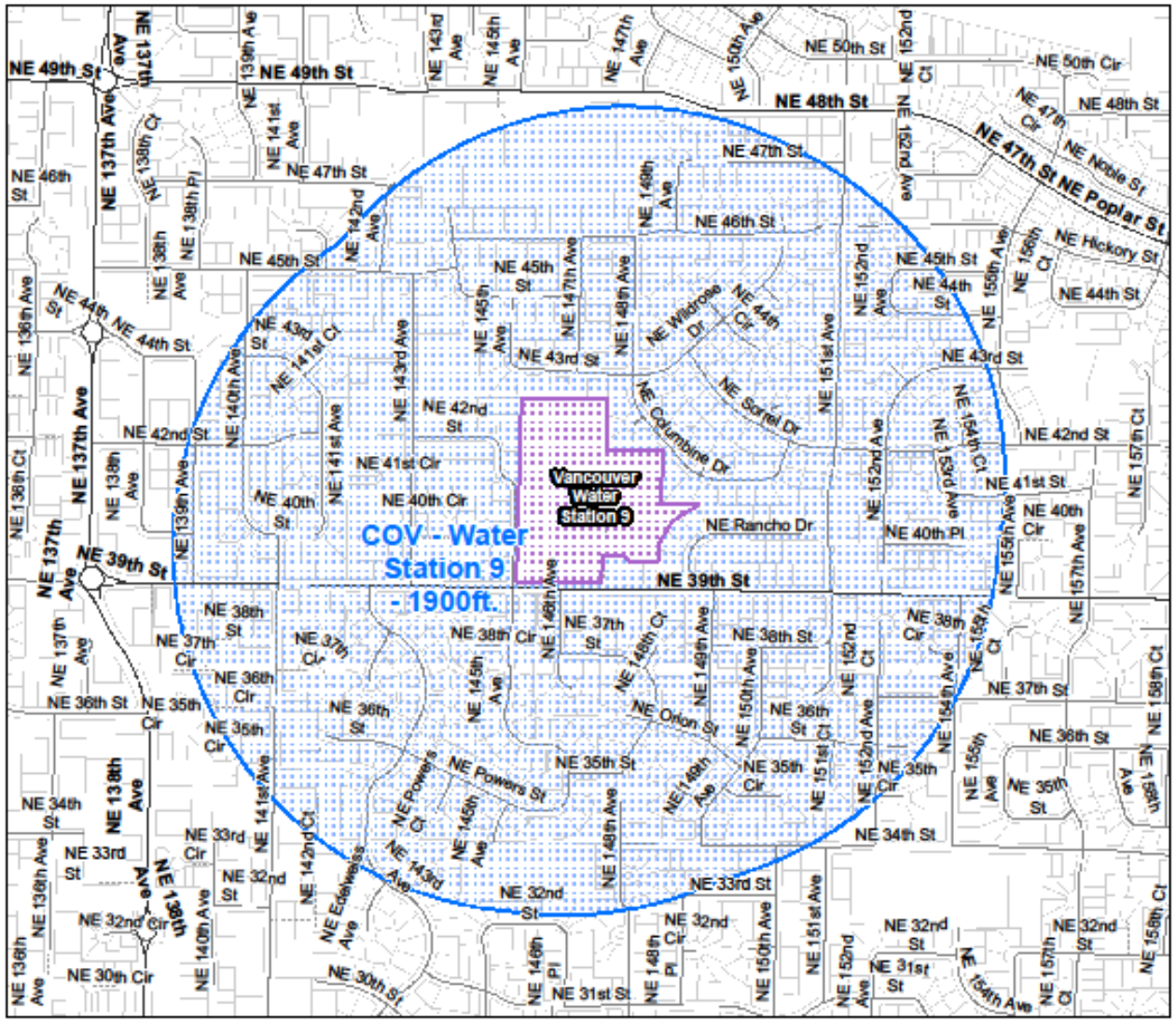
Roads
- Interstate
- State Route
- Arterial
- Forest Arterial
- Minor Collector
- Forest Collector
- Private or Other

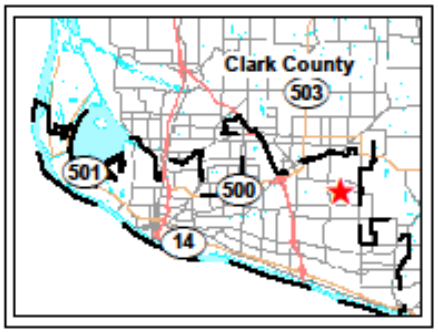
- Special Protection Areas
- City of Vancouver City Limits
- Parcels
- Streams
- Water Bodies

Scale:1:8,660

0 950 1,900 Feet

Water Station 9





Legend

Inspected WRPO Sites
- Not Classified
- Class I
- Class II

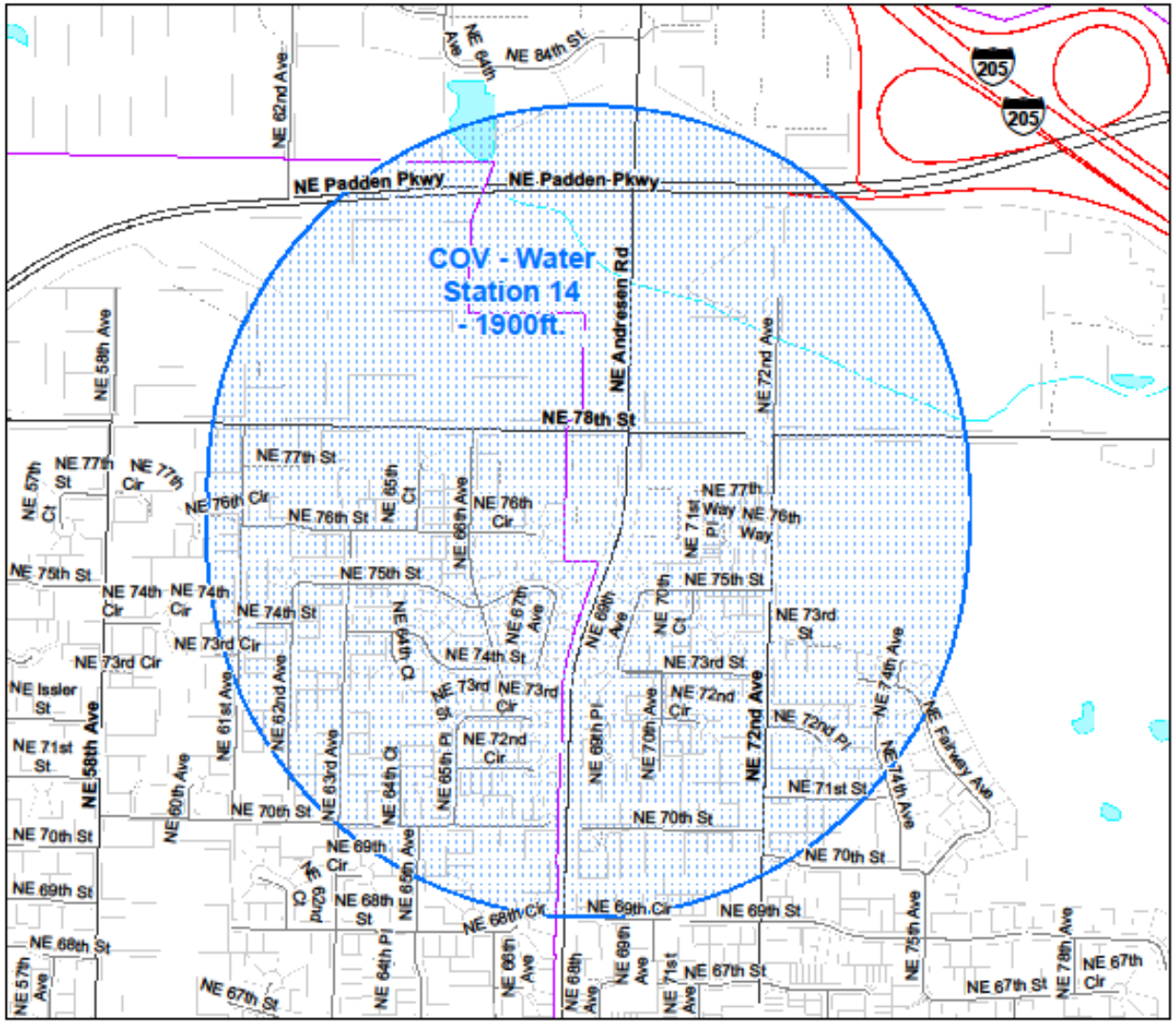
Roads
- Interstate
- State Route
- Arterial
- Forest Arterial
- Minor Collector
- Forest Collector
- Private or Other

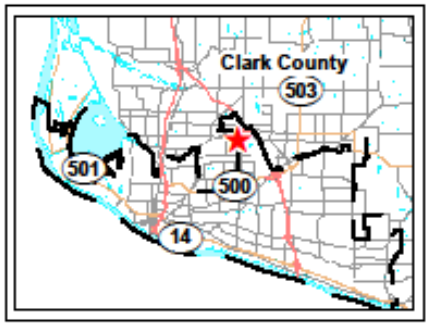
- Special Protection Areas
- City of Vancouver City Limits
- Parcels
- Streams
- Water Bodies

Scale:1:9,300

0 1,050 2,100 Feet

Water Station 14





Legend

Inspected WRPO Sites
- Not Classified
- Class I
- Class II

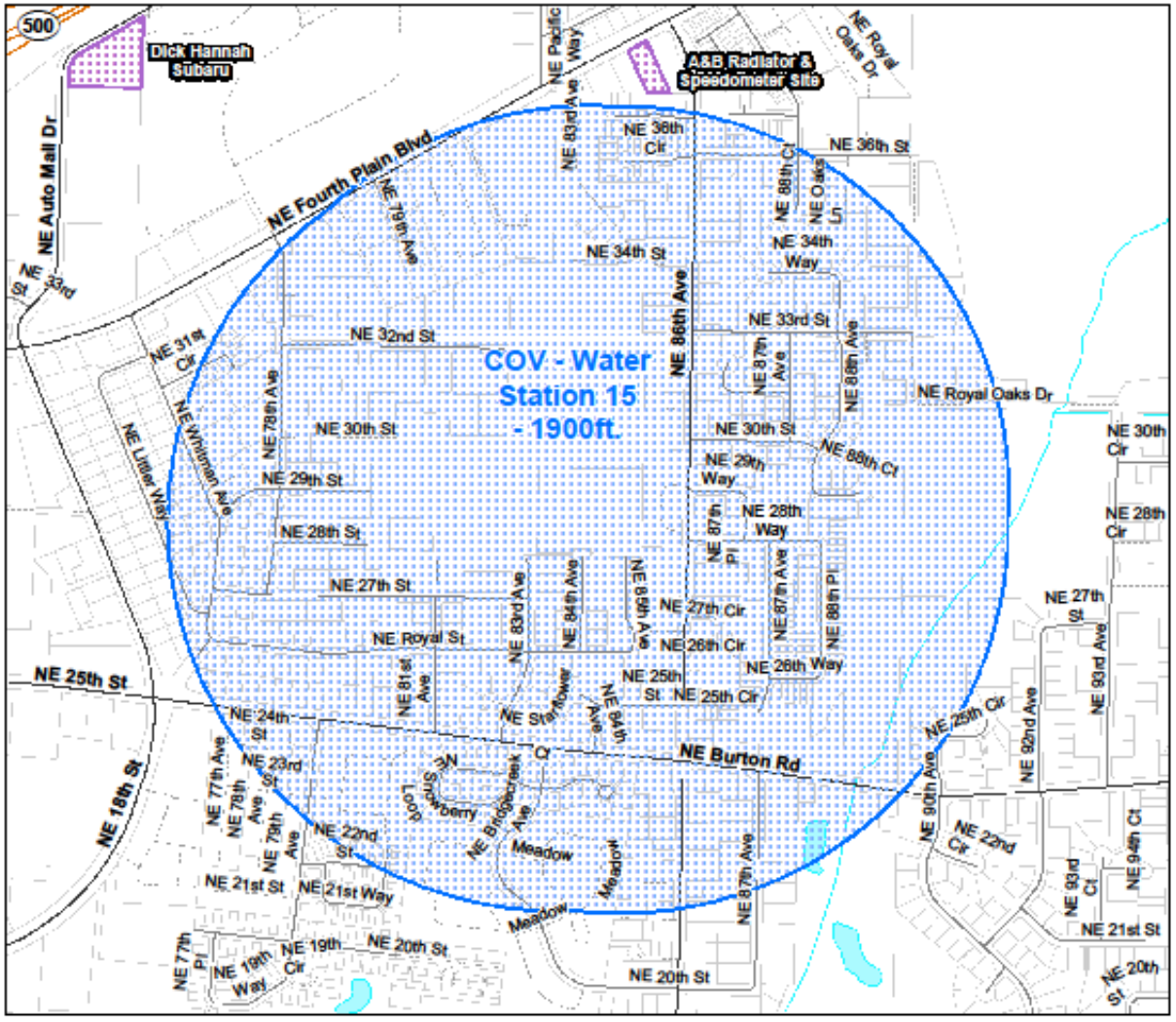
Roads
- Interstate
- State Route
- Arterial
- Forest Arterial
- Minor Collector
- Forest Collector
- Private or Other

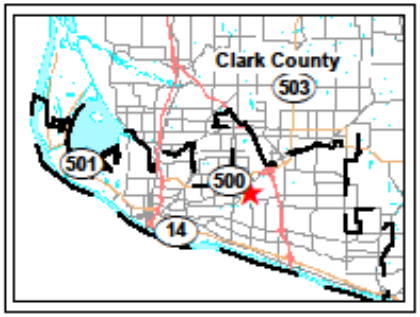
- Special Protection Areas
- City of Vancouver City Limits
- Parcels
- Streams
- Water Bodies

Scale:1:8,940

0 1,000 2,000 Feet

Water Station 15





Legend

Inspected WRPO Sites
- Not Classified
- Class I
- Class II

Roads
- Interstate
- State Route
- Arterial
- Forest Arterial
- Minor Collector
- Forest Collector
- Private or Other

- Special Protection Areas
- City of Vancouver City Limits
- Parcels
- Streams
- Water Bodies

Scale:1:8,760

Appendix 5D – Letters to Potential Groundwater Contamination Sources and List of Sites Mailed Receiving Letters

RE: Owner-Operator NOTIFICATION - Municipal Wellhead Protection Areas

Dear Owner-Operator:

The City of Vancouver (City) has developed a wellhead protection program as required by state law. The City has managed this effort since 2003 to protect water resources throughout the region and, in particular, in close proximity to municipal drinking water sources. The Special Protection Areas (SPA) around municipal water wells within City limits are shown on the attached map.

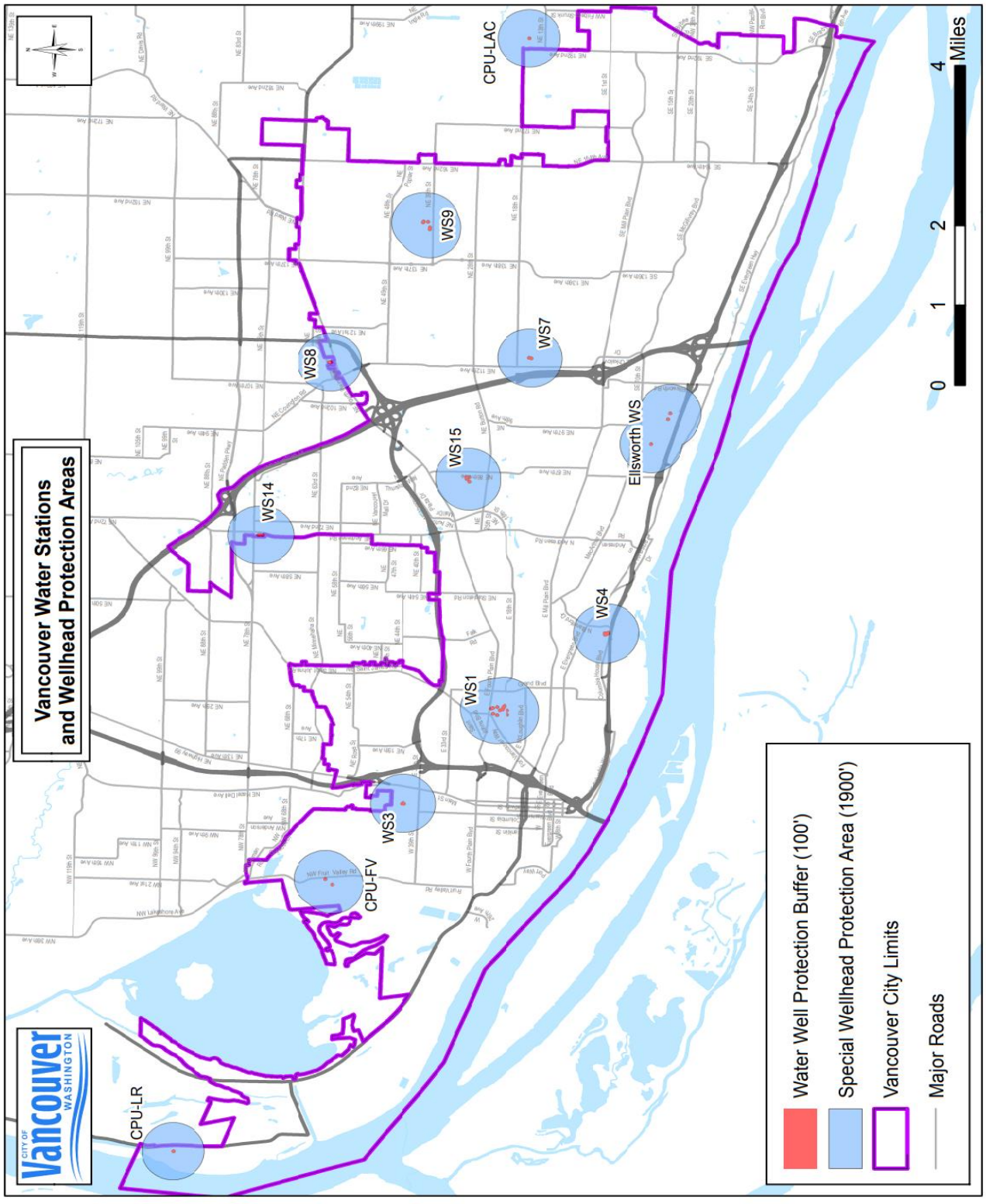
The nature of your business and its location within the SPA could potentially lead to groundwater contamination if not managed properly. Technical assistance regarding best management practices to help prevent water resources contamination can be accessed by either email, citywaterprotection@cityofvancouver.us, or calling 360-487-7130.

We realize that you are careful to protect the environment with your daily activities. We hope that this drinking water well protection notification results in more precautions to ensure drinking water quality. If you have any questions or comments on this matter, do not hesitate to contact me at patrick.craney@cityofvancouver.us.

Sincerely,

Patrick Craney, PE
Water Resources Engineer

Cc: Rebecca Kennedy, City of Vancouver, Development Review


Vancouver Water Stations and Wellhead Protection Areas
CITY OF Vancouver WASHINGTON
CPU-LAC
CPU-FV
CPU-LR
WS1
WS3
WS4
WS7
WS8
WS9
WS14
WS15
Ellsworth WS
0
1
2
4
Miles
Water Well Protection Buffer (100')
Special Wellhead Protection Area (1900')
Vancouver City Limits
Major Roads

RE: AGENCY NOTIFICATION - Municipal Wellhead Protection Areas

Dear Brian Schlottman, CCPH; Rian Sallee, Ecology; Rebecca Kennedy, Jason Nortz, Annette Griffy, COV:

We are writing to share that businesses or facilities your organization regulates are within municipal wellhead protection areas. The City of Vancouver and Clark PUD municipal wells are both covered under Vancouver Municipal Code (VMC) 14.26 Water Resources Protection. Please take all reasonable steps within your authority to ensure that land use activities within these areas do no contaminate drinking water sources.

The enclosed maps illustrate both the groundwater time-of-travel boundaries and the Special Protection Areas. The time-of-travel graphically shows the estimated time it would take a contaminate to reach the drinking water sources. Any groundwater contamination that occurs within these time-of-travel boundaries has potential to reach those drinking water sources.

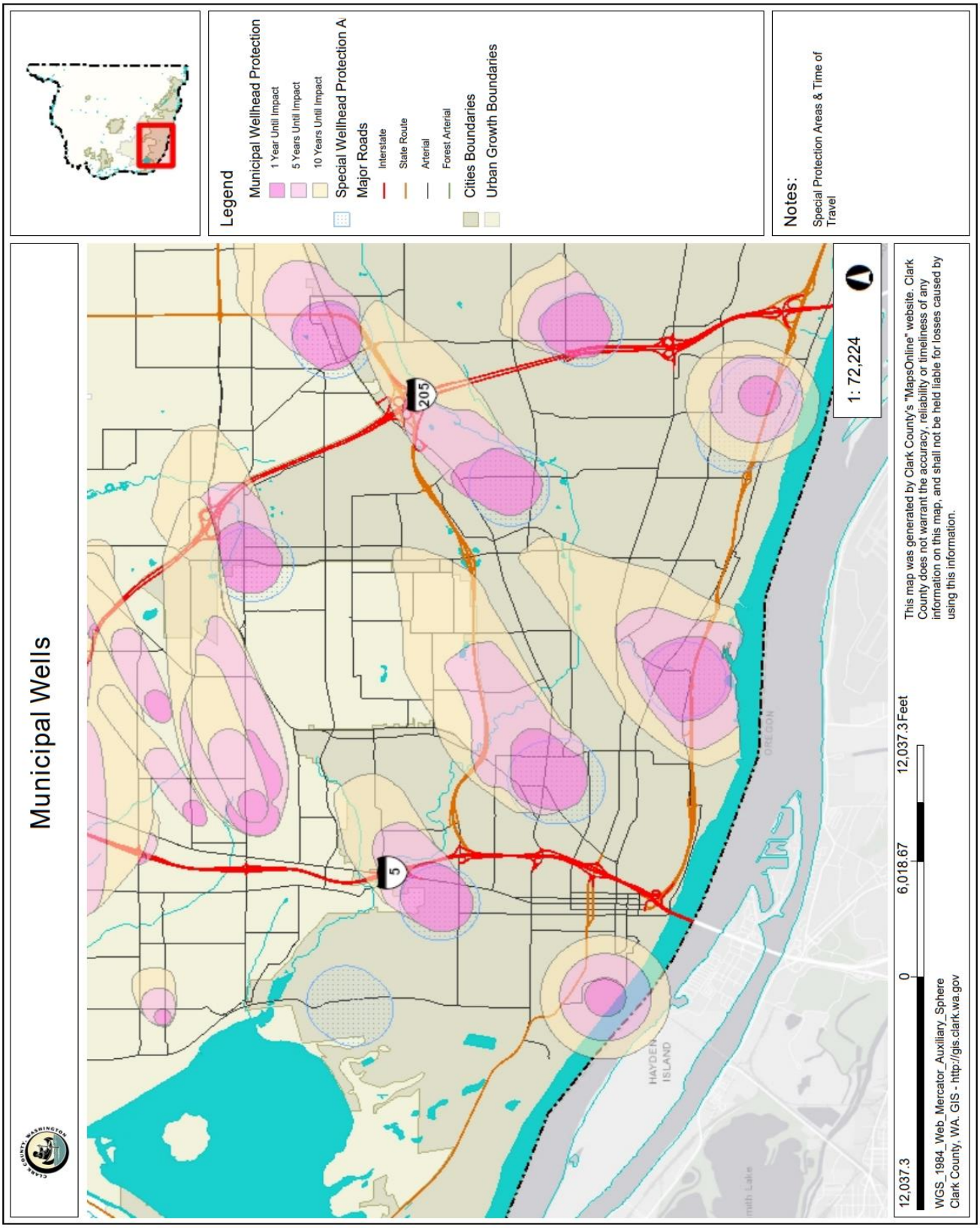
The second map shows smaller Special Protection Areas (SPA) around those same sources. VMC 14.26.135 lists SPA restrictions for: Bulk Fuel Operations, Class II Facilities, Septic Systems, Heating Oil Tanks, Direct Infiltration Facilities and Underground Tanks for Hazardous Material Storage.

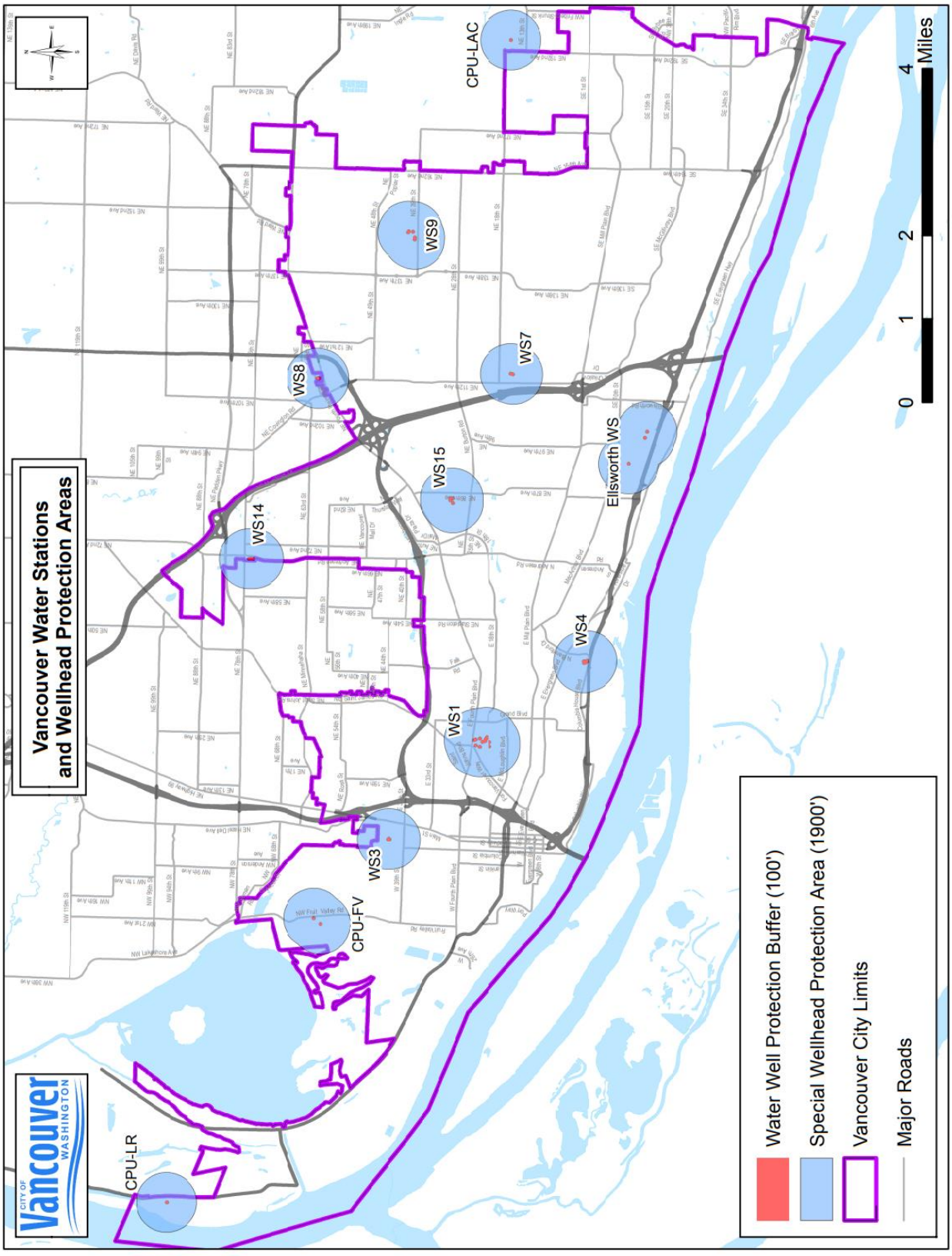
We appreciate your group advocating for drinking water protection. If you have any questions or comments on this matter, do not hesitate to contact me at patrick.craney@cityofvancouver.us.

Sincerely,

Patrick Craney, PE
Water Resources Engineer

Cc: Clark PUD, Water Manager


Municipal Wells
Legend
Municipal Wellhead Protection
1 Year Until Impact
5 Years Until Impact
10 Years Until Impact
Special Wellhead Protection A
Major Roads
Interstate
State Route
Arterial
Forest Arterial
Cities Boundaries
Urban Growth Boundaries
Notes:
Special Protection Areas & Time of Travel
205
5
HAYDEN ISLAND
OREGON
1: 72,224
12,037.3
0
6,018.67
12,037.3 Feet
This map was generated by Clark County's "MapsOnline" website. Clark County does not warrant the accuracy, reliability or timeliness of any information on this map, and shall not be held liable for losses caused by using this information.
WGS_1984_Web_Mercator_Auxiliary_Sphere
Clark County, WA. GIS - http://gis.clark.wa.gov


Vancouver Water Stations and Wellhead Protection Areas
CPU-LAC
WS9
WS7
WS8
WS15
WS14
Ellsworth WS
WS4
WS1
WS3
CPU-FV
CPU-LR
0
1
2
4
Miles
Water Well Protection Buffer (100')
Special Wellhead Protection Area (1900')
Vancouver City Limits
Major Roads

Potential Groundwater Contamination Sources Within Wellhead Protection Zones Receiving Letters:

Name	Type	Address	Zip	Water Station
NuStar Energy - Fruit Valley Rd	Petroleum bulk stations	5420 NW Fruit Valley Road	98660	CPU Southlake
Frito-Lay	Dry cleaners	4808 NW Fruit Valley Rd.		CPU Southlake
Nalco Chemical Company	Steam Electric Power Generating	5210 NW Fruit Valley Rd		CPU Southlake
Pacific Die Casting Corp	General Automotive Repair	5712 NW Fruit Valley Rd		CPU Southlake
Pac Paper Inc.	General Automotive Repair	6416 NW Whitney Rd		CPU Southlake
Clark College	Machinery repair & maintenance	1933 Fort Vancouver Way		WS1
Fourth Plain One Hour Dry Cleaning	rofessional, Scientific & Technical Service	2523 E Fourth Plain Blvd		WS1
24 Food Mart - 76 Station	General Automotive Repair	2721 E 4th Plain Blvd		WS1
VA Medical Center Division	Water supply or treatment	1601 E 4th Plain Blvd		WS1
Arco AM/Pm on Main - 5379	Manufacturing - Exposed to Stormwater	3817 Main St		WS3
Bbc Petroleum Group	Warehouse	3901 Main		WS3
WA DOT Vancouver	Manufacturing - Exposed to Stormwater	4200 Main St		WS3
Safeway Store 400	Retail Miscellaneous	3707 N Main St	98661	WS3
VOCI-Cardlock at Columbia Way	General Automotive Repair	3200 SE Columbia Way		WS4
Diacon Technologies LTD	General Automotive Repair	3800 SE Columbia Way, Suite 100		WS4
Columbia River Logistics	Fueling Station	3900 SE Columbia Way		WS4
Christensen Shipyards Limited	Manufacturing - Exposed to Stormwater	4400 SE. Columbia Way		WS4
Marine Park Reclamation Facility	Water supply or treatment	4650 SE Columbia Way		WS4
Wilcox & Flegel	Dry cleaners	3400 SE Columbia Way		WS4
Pro-Caliber Motorsports	Manufacturing - Exposed to Stormwater	10703 NE 4th Plain Blvd	98661	WS8
Precise Manufacturing	Steam Electric Power Generating	5600 NE 121st Ave		WS8
Midas	Fueling Station	5707 NE Gher Road		WS8
Sun Cleaners	Machinery repair & maintenance	10702 NE Fourth Plain Blvd		WS8
Petco	Retail Miscellaneous	11505 NE Fourth Plain Rd	98662	WS8

Appendix 6C – Cross Connection Control Program

14.04.155 Cross Connection Control Program.

A. Adoption of State Regulations. Rules and regulations of the Washington State Department of Health regarding public water supplies, entitled “Cross-Connection Control,” WAC 246-290-490, as they presently exist and as they may, from time to time, be amended, are hereby adopted and incorporated herein by this reference as if set forth in full.

B. Adoption of City Cross Connection Control Procedures Manual. Rules and regulations for cross connection control shall be outlined in a written manual, approved by the director. This manual is hereby adopted and incorporated into the city code by reference, as it presently exists and as it may be periodically amended by the director at the director’s discretion.

C. Backflow Prevention Assemblies to be Installed. The city reserves the right, as a condition of water service, to require any party seeking water service to install a backflow prevention assembly when the city, or the city’s designee, determines a need to protect the city’s water system and/or facilities. All backflow prevention assemblies shall be installed and maintained by, and at the expense of, the customer.

D. Pursuant to VMC 14.04.020, the director may promulgate administrative rules and procedures and set fees to have the customer’s backflow prevention assembly device tested by a properly certified independent contractor. The fees for such service may be added to the customer’s water utility bill. Such service shall be at the customer’s option and shall not preclude the customer from making their own arrangements for testing in accordance with the manual adopted pursuant to subsection B of this section. (Ord. M-4359 § 1, 2021; Ord. M-4257 § 3, 2018; Ord. M-4022 § 8, 2012; Ord. M-3755 § 9, 2006)

Appendix 6F – Cross-Connection Control Procedures Manual

CITY OF VANCOUVER

Cross-Connection Control Procedures Manual

Program Administration, Requirements, and Implementation

October 2021

This document contains the 10 minimum elements required under WAC 246-290-490 and provides the details

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Chapter 1 – Introduction

PURPOSE AND SCOPE

This Cross-Connection Control Procedures Manual (Manual), used in conjunction with Vancouver Municipal Code (VMC) 14.04.155 and state regulations WAC 246-290-490, outlines the framework for implementing cross-connection control requirements at the City of Vancouver. To be acceptable to the Washington State Department of Health (DOH), a cross-connection control program must include 10 minimum program elements listed in WAC 246-290-490(3). How the City of Vancouver meets those elements are described in this Manual.

This Manual reflects years of implementation practices in protecting the City of Vancouver's drinking water supply from cross-connections and backflow incidents using industry standards and good engineering practices. The Manual provides direction to staff on program implementation activities, describes policies and procedures, and summarizes current City, state, and federal requirements regarding cross-connection control. The Manual is structured such that it may be supplemented with updated documents and materials developed by Public Works Water Quality Division for its specific use. The authority to enforce these practices and policies is established in VMC 14.04.155, 14.04.140 and 14.04.110.

Cross-connection control is an integral part of the multiple-barrier approach to ensure safe drinking water. This multiple barrier concept includes providing protection to the City's water supply through source protection programs like wellhead protection areas, providing treatment (disinfection), covered storage tanks, using good engineering design and practices, implementation of a cross-connection control program, compliance and surveillance water quality monitoring programs, having certified operators, and emergency planning. The mission of the City's Water Department is t*o provide clean, safe, reliable drinking water to every home, business, and industry in the Vancouver Water Service Boundary*. Implementation of the Manual results in protecting the City of Vancouver's water system from contamination from the customer's plumbing supply/system through proper installation of the appropriate/correct backflow prevention assembly and annual testing of these assemblies by a Washington State Department of Health (DOH) certified Backflow Assembly Tester (BAT).

DEFINITIONS

"Approved air gap (AG)" means a physical separation between the free-flowing end of a potable water supply pipeline and the overflow rim of an open or non-pressurized receiving vessel. This separation must be at least:

- Twice the diameter of the supply piping measured vertically from the overflow rim of the receiving vessel, and in no case be less than one inch, when unaffected by vertical surfaces (sidewalls); and:
- Three times the diameter of the supply piping if the horizontal distance between the supply pipe and a vertical surface (sidewall) is less than or equal to three times the diameter of the supply pipe, or if the horizontal distance between the supply pipe and intersecting vertical surfaces (sidewalls) is less than or equal to four times the diameter of the supply pipe and in no case less than one and one-half inches.

“Approved atmospheric vacuum breaker (AVB)” means an AVB or make, model, and size that is approved by the DOH. AVBs that appear on the current approved backflow prevention assemblies list developed by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research or that are listed or approved by other nationally recognized testing agencies (such as IAPMO, ANSI, or UL) acceptable to the authority having jurisdiction are considered approved by the DOH.

"Approved backflow preventer" means an approved air gap, an approved backflow prevention assembly, or an approved AVB. The terms "approved backflow preventer," "approved air gap," or "approved backflow prevention assembly" refer only to those approved backflow preventers relied upon by the purveyor for the protection of the public water system. The requirements of WAC **246-290-490** do not apply to backflow preventers installed for other purposes.

“Approved backflow prevention assembly” means a reduced pressure principle backflow assembly (RPBA), a reduced pressure principle detector assembly (RPDA), a double check valve assembly (DCVA), a double check detector assembly (DCDA), a pressure vacuum breaker assembly (PVBA), or a spill resistant vacuum breaker assembly (SVBA) of make, model, and size that is approved by DOH. Assemblies that appear on the current approved backflow prevention assemblies list developed by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research or other entity acceptable to the DOH are considered approved by the DOH.

“Authority having jurisdiction” (formerly known as local administrative authority) means the local official, board, department, or agency authorized to administer and enforce the provisions of the Uniform Plumbing Code as adopted under chapter 19.27 RCW.

“AWWA" means the American Water Works Association.

“Backflow” means the undesirable reversal of flow of water or other substances through a cross-connection into the public water system or consumer’s potable water system. There are two types of backflow, backpressure and backsiphage.

“Backflow Assembly Tester (BAT)” means a person holding a valid BAT certificate issued under chapter 246-292 WAC.

"Backpressure" means a pressure (caused by a pump, elevated tank or piping, boiler, or other means) on the consumer's side of the service connection that is greater than the pressure provided by the public water system and which may cause backflow.

"Backsiphonage" means backflow due to a reduction in system pressure in the purveyor's distribution system and/or consumer's water system.

"Closed system" means any water system or portion of a water system in which water is transferred to a higher-pressure zone closed to the atmosphere, such as when no gravity storage is present.

"Combination fire protection system" means a fire sprinkler system that:

- Is supplied only by the purveyor's water,
- Does not have a fire department pumper connection, and
- Is constructed of approved potable water piping and materials that serve both the fire sprinkler system and the consumer's potable water system.

"Consumer" means any person receiving water from a public water system from either the meter, or the point where the service line connects with the distribution system if no meter is present. For purposes of cross-connection control, "consumer" means the owner or operator of a water system connected to a public water system through a service connection.

"Consumer's water system," as used in WAC **246-290-490**, means any potable or industrial water system that begins at the point of delivery from the public water system and is located on the consumer's premises. The consumer's water system includes all auxiliary sources of supply, storage, treatment, and distribution facilities, piping, plumbing, and fixtures under the control of the consumer.

"Contaminant" means a substance present in drinking water that may adversely affect the health of the consumer or the aesthetic qualities of the water.

"Cross-Connection" means any actual or potential physical connection between a public water system or the consumer's water system and any source of non-potable liquid, solid, or gas that could contaminant the potable water supply by backflow.

"Cross-Connection Control Program" means the administrative and technical procedures the purveyor implements to protect the public water system from contamination via cross-connections as required in WAC 246-290-490.

"Cross-Connection Control Specialist" means a person holding a valid Cross-connection Control Specialist (CCS) certificate issued under chapter 246-292 WAC.

"Cross-Connection Control Summary Report" means the annual report (Annual Summary Report - ASR) that describes the status of the purveyor's cross-connection control program. This includes several forms that the City of Vancouver must complete and use to report CCC implementation activities, severe health hazard facilities protection, written CCC Program Plans (procedures and policies), and exceptions to mandatory premises isolation. The City of Vancouver must submit completed forms to Washington State DOH annually as well as upon request.

"Category of contaminant" means a communicable disease, chemical, or physical hazard. Communicable diseases and chemical hazards can cause illness and in some cases death and are high health hazards. Physical hazards such as gasoline, propane, hot water, and steam are examples of both low and high health hazards.

“Degree of hazard” means either a low cross-connection hazard or a high health cross-connection hazard.

"Flow-through fire protection system" means a fire sprinkler system that:

- Is supplied only by the purveyor's water,
- Does not have a fire department pumper connection,
- Is constructed of approved potable water piping and materials to which sprinkler heads are attached, and
- Terminates at a connection to a toilet or other plumbing fixture to prevent stagnant water.

“High health cross-connection hazard” means a cross-connection involving any substance that could impair the quality of potable water and create and actual public health hazard through injury, poisoning, or spread of disease. WAC 246-290-490 refers to these types of hazards as Table 9 hazards.

“In-premises protection” means a method of protecting the health of consumers served by the consumer’s potable water system, located within the property lines of the consumer’s premises by the installation of an approved air gap or backflow prevention assembly at the point of hazard, which is generally a plumbing fixture.

“Low cross-connection hazard” means a cross-connection that could impair the quality of potable water to a degrees that does not create a hazard to the public health, but does adversely and unreasonably affect the aesthetic qualities of potable waters for domestic use.

“Premises isolation” means a method of protecting a public water system by installation of approved air gaps or approved backflow prevention assemblies at or near the service connection or alternative location acceptable to the purveyor in order to isolate the consumer’s water system from the purveyor’s distribution system.

“Purveyor” means an agency, subdivisions of the state, municipal corporation, firm, company, mutual or cooperative association, institution, partnership, or person or other entity owning or operating a public water system. Purveyor also means the authorized agents or these entities.

"Service connection" means a connection to a public water system designed to provide potable water to a single-family residence, or other residential or nonresidential population.

"Severe health cross-connection hazard" means a cross-connection which could impair the quality of potable water and create an immediate, severe public health hazard through poisoning or spread of disease by contaminants from radioactive material processing plants, nuclear reactors, or wastewater treatment plants.

“Stagnant water” refers to water that is not flowing (or running) and becomes stale or foul in terms of acceptable drinking water quality, becoming non-potable for human consumption.

“Unapproved auxiliary water supply" means a water supply (other than the purveyor's water supply) on or available to the consumer's premises that is either not approved for human consumption by the health agency

having jurisdiction or is not otherwise acceptable to the purveyor. Examples include wells, Ranney collector, and storage tank/vessel.

"Uniform Plumbing Code (UPC)" means the code adopted under RCW **19.27.031**(4) and implemented under chapter **51-56** WAC. This code establishes statewide minimum plumbing standards applicable within the property lines of the consumer's premises.

See Appendix **A** for a copy of DOH's publication which contains an extract of chapter 246-290 WAC, which covers minimum cross-connection control requirements as well as additional definitions.

CITY OF VANCOUVER, STATE, AND FEDERAL PROGRAM HISTORY

The requirement for the City of Vancouver to have a Cross-Connection Control Program (a.k.a. Program) is not something new. Washington State regulations administered by DOH, dating back to 1970; require the City of Vancouver's water system be protected from backflow and cross-connection contamination. Though the federal Safe Drinking Water Act (SDWA) passed by Congress in 1974 does not specifically address the topic of cross-connection control, it does state water purveyors are responsible for the water quality delivered to the customer's meter. The Environmental Protection Agency, which administers the SDWA, developed a series of nine "white papers" (2001) on distribution system issues of potentially significant public health concern. One of the papers is titled *Potential Contamination Due to Cross-Connections and Backflow and the Associated Health Risks*. Water industry experts expect future federal rule making will require water purveyors to develop and implement a cross-connection control program. The City of Vancouver is well positioned to meet any future federal requirements pertaining to having a Program given the years DOH has had state regulations requiring one. The City of Vancouver's Program was developed in the mid-1990s. The City of Vancouver has made great progress over the last few years in our efforts to develop and implement an effective Program. These efforts include updating the VMC, replacing Program software, having dedicated administrative support, and protecting against the most severe and high health risk premises (commonly referred to as Table 9 facilities).

Chapter 2 – Legal Authority to Establish a Program (Element 1)

The control or elimination of cross-connections is done according to the most current revisions of state and local rules and regulations. State regulations include:

- Chapters 51-56 and 51-57 WAC, Uniform Plumbing Code and Uniform Plumbing Code RCW 18.106, Washington State Plumbers Code
- RCW 19.27, Washington State Building Code
- RCW 43.20.050, Washington State Powers and Duties of the State Board of Health
- RCW 70.119A.060, Washington State Public Water Systems Mandate
- WAC 246-290-490, Cross-Connection Control for Public Water Systems (**Appendix B**)

Local rules and regulations include VMC chapter 14.04, which is the authority for the City of Vancouver to enforce the City of Vancouver's Program (**Appendix E**). Section 14.04.110 (**Appendix C**), 14.04.140 (**Appendix D**), and 14.04.155, states cross-connections are prohibited and gives the City of Vancouver authority to discontinue water service until correction is made. Where cross-connections cannot be eliminated, they are controlled by installation of an approved backflow assembly preventer(s) which are appropriate to the degree of hazard it is protecting against. Where approved backflow assembly preventer(s) are required to be installed, the following schedule shall be used:

Type of Service	Schedule
New connections with cross-connection hazards	Before service is initiated
Existing connections with Table 9-type hazards and other high cross-connection hazards	Within 90 days after notification
Existing connections with other than Table 9 of WAC 246-290-490 or high-cross-connection hazards	Within 180 days after notification
Existing fire protection systems using chemicals or supplied by unapproved auxiliary water source	Within 90 days after notification
Existing fire protection systems not using chemicals and supplied by purveyor's water	Within 1 year after notification

Non-compliance penalties are outlined in VMC 14.04.155. A customer has become non-compliant when 1) the backflow assembly test is not completed by the response due date of the 3rd notice, 2) the customer has not addressed the failed backflow test (submitted a passing backflow test by the end of the response due date of the 3rd notice), or 3) the customer has failed to install or upgrade their backflow prevention assembly via written notification from the Water Quality Division by the response due date.

A final 15-day notice will be mailed notifying the customer of non-compliance. If the passing backflow test report is not received by the response due date on the final notice, the City of Vancouver will use their contracted testing company to perform the backflow assembly test, at the expense of the customer, applied

onto the customer's water bill. For backflow assemblies that are not accessible, the City of Vancouver will terminate water service at the expense of the customer.

The City of Vancouver's Water Design and Construction Requirements Document (VWD) contains the requirements for civil engineering infrastructure as adopted by the Water Department. The VWD is comprised of both written text and standard details that specify how infrastructure is constructed. In addition to the VWD, there are also design and construction requirements for streets, driveways, sidewalks, curbs, street lighting, street trees, sewer, storm drainage, and solid waste. Section 2-1.13 of the VWD contains the requirements for cross-connection control associated with all new construction and remodels and can be found online at https://www.cityofvancouver.us/publicworks/page/water-design-construction-requirements.

Chapter 3 – Program Administration

ROLES AND RESPONSIBILITIES

The Water Operations and Engineering Group within the City of Vancouver's Public Works (Water) Department carries out the planning, design, and operational functions of the City of Vancouver's public water supply. The City of Vancouver Water Department is designated as the purveyor. The CCS in responsible charge position currently resides in the Water Quality Division and is designated as the Water Quality Coordinator. The water purveyor has developed and implements the City's cross-connection control program, which meets the requirements of WAC 246-290-490. The City administers a premises isolation program. The practice of premises isolation is used to protect against cross-connections on the customer's premises where actual or potential hazards exist. Under this philosophy, the customers premises is separated from the City of Vancouver's water system by means of a backflow prevention assembly installed at or near the service connection, immediately downstream of the water meter.

All facilities are required to install backflow protection as close to the water meter or premises as possible, commensurate to the highest degree of hazard within the facility. Table 9, or high-hazard facilities, are required to install a RPBA for backflow protection for each metered connection. The type of backflow assembly installation will depend on the degree of hazard as defined in the Hazard Assessment Standard Operating Procedure. More information is described in Chapter 4.

The City of Vancouver's Building Department has the authority and jurisdiction for any issues within the consumer's water system, per VMC Chapter 17.08. This type of protection is often referred to as "in-premises" isolation. In-premises isolation protects the health of the consumers served by their water/plumbing system by the installation of an approved air gap or approved backflow prevention assembly at the point of hazard. The water customer is responsible for identifying and eliminating cross-connections or controlling them through the installation, regular testing, and maintenance of approved backflow prevention assemblies. The water customer

is responsible for providing the necessary information, scheduling, and providing access for inspection of cross-connection potential and the necessary control methods. The water customer is responsible for notifying the City of Vancouver's Cross-Connection Control Specialist (CCS) of any assembly the customer believes is no longer required. Finally, the water customer is responsible for all costs associated with the inspection, testing, repair, and replacement of backflow prevention assemblies. More information can be found in VMC 14.04.155.

The functions of the Program are primarily carried out by the City of Vancouver's Water Quality Division and include surveys, inspections, notifications, enforcement, and record keeping. The minimum City of Vancouver certification requirement for performing these functions is a Washington State DOH Cross-Connection Control Specialist (CCS) certification.

The City of Vancouver's Water Quality Technician (CCS certified) performs cross-connection control hazard assessment and surveys to prevent and eliminate cross-connections.

The Water Quality Division coordinates with Vancouver Fire Department, Clark County Health Department, Fire Marshall, and Clark County Building Department for cross-connection control issues. The Water Quality Division works closely with Building Inspectors, Construction Services, and Permit Departments regarding new properties; Building Inspectors, Construction Services, Permit Departments and Water Engineering on remodeled properties, capital improvement properties and projects; Washington State DOH, Office of Drinking Water on severe and high health hazard premises and backflow incidents; Clark County Public Health on backflow incidents; and contractors and BATs regarding backflow assemblies and testing.

A City certified BAT performs the inspection, repair, and annual testing of City owned backflow prevention assemblies. These services may be contracted out at the discretion of the City.

Duties of the Washington State certified BAT are outlined in WAC 246-292-034 (**Appendix K**). Duties of the Washington State certified CCS are outlined in WAC 246-292-033 (**Appendix J**).

Chapter 4 – Program Implementation

PROCEDURES AND SCHEDULE FOR HAZARD EVALUATIONS, ELIMINATING OR CONTROLLING CROSS-CONNECTIONS (ELEMENTS 2 AND 3)

Several guidance, policies, and procedures exist for determining the appropriate level of protection. The evaluation for the appropriate level of protection shall be in accordance with the most current editions of the following:

- *Cross-Connection Control Manual, Accepted Procedure and Practice* published by the Cross-Connection Control Committee of the Pacific Northwest Section of the American Water Works Association (AWWA)
- *Manual of Cross-Connection Control* published by the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California
- *Recommended Practice for Backflow Prevention and Cross-Connection Control, AWWA M14,* 4th edition
- *Group A Design Standards,* Washington State Department of Health
- *Water Standard Details for the City of Vancouver (W-1 - W-26)*
- *Vancouver Municipal Code* Chapter 14.04 – Water and Sewer Use – Regulations and Charges

The City of Vancouver also enacted various policies to ensure the safety and quality of drinking water for all its customers. Many of these policies are referenced in the approved 2015 Comprehensive Water System Plan.

The City of Vancouver prioritizes its backflow prevention efforts based on acceptable risk (probability of occurrence), category of contaminant, degree of hazard, and the reliability of the backflow preventer. Guidelines have been established to assess the degree of hazard (**Appendix P**). The City of Vancouver developed an action plan identifying unprotected Table 9 hazards and notified these water customers of backflow prevention requirements. This work is ongoing.

For customers requesting ***new*** service connections, an initial evaluation of the premises' planned or future water service is done by the City of Vancouver's designated CCS during the plan review process. Initial hazard assessments or surveys are also performed at the discovery of a hazard or facility that the City was not aware of. Proper selection and installation of a backflow prevention assembly, as determined by the City of Vancouver's CCS, shall be a condition of allowing a new water service connection. The City of Vancouver's CCS inspects the initial installation. The applicant/contractor/customer is required to have the backflow assembly tested at the time of installation. Test reports must be received by the City of Vancouver Water Quality Division. If the initial test fails, it is the responsibility of the applicant/contractor/customer to immediately have the backflow assembly repaired and retested. The backflow assembly test report must be submitted to the City of Vancouver Water Quality Division within 10 days. All assemblies must be tested at least annually thereafter by a certified BAT, as described in subsequent pages.

Approved backflow prevention assemblies are those which appear on DOH's *Approved Assemblies List*, developed by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research. This institute is currently the only one which the DOH recognizes as having the authority to approve backflow prevention assemblies. The backflow prevention assemblies include:

1. Reduced Pressure Principle Backflow Assembly (RPBA)
2. Double Check Valve Assembly (DCVA)
3. Pressure Vacuum Breaker Assembly (PVBA)
4. Spill-Resistant Vacuum Breakers (SVBA)

All backflow assemblies shall operate as designed and approved by the approval agency having jurisdiction. Assemblies not meeting design standards shall be considered unapproved and will require repair or replacement.

The City of Vancouver's CCS typically becomes aware of possible cross-connections requiring a hazard evaluation on ***existing*** service connections through the course of doing City of Vancouver business. Periodic hazard reevaluations are done by the City of Vancouver's CCS in response to 1) remodels, 2) notification by City of Vancouver inspectors, fire department personnel, or other staff regarding water quality complaints or concerns, 3) a failed annual test or inspection on services with a RPBA installed for premises isolation, or 4) every 2 years on commercial services with DCVA installed for premises isolation, 5) change in use or ownership, or 6) at the discretion of the City. An emphasis is placed on severe and high health premises (Table 9) followed by low hazard premises. The City of Vancouver notifies the customer of the outcome of the hazard evaluation by letter and in some cases by email. Timelines for corrections are based on the degree of hazard and are generally completed within 30 days. Larger and more complex premises can require additional time (six months or longer) due to securing adequate funding to complete the installation(s). The assemblies must also be on DOH's *Approved Assemblies List,* be installed in the correct orientation and tested by a Washington State certified BAT.

Unless otherwise approved by the City of Vancouver's CCS, installation of the appropriate type of backflow prevention assembly or air gap system for premises isolation is required at the meter (e.g., premises isolation). Any deviation from this must be pre-approved by the City of Vancouver's CCS. Below is a summary of requirements based on the evaluation of acceptable risk, degree of hazard, and the reliability of the backflow preventer:

Commercial
Any building or facility used for any purpose other than dwelling. The degree of hazard for these types of services will vary depending on the hazards present. A high health cross-connection hazard requires an approved premises isolation backflow prevention assembly of a RPBA, RPDA or approved AG (see Table 9 in WAC 246-290-490). A low health cross-connection hazard requires an approved premises isolation backflow prevention assembly of a DCVA. All commercial facilities are required to have an approved backflow prevention assembly located as close to the water meter as possible. All new commercial developments that do not

specifically identify as a low health cross-connection hazard during the plan review process will be treated as a high health hazard.

Industrial

Any customer that has a discharge flow of 10,000 gallons of processed wastewater or more per average workday; or has a concentration of biochemical oxygen demand (BOD) and suspended solids (SS) in excess of 200 milligrams per liter per average workday; or is found by the city, State Department of Ecology or U.S. Environmental Protection Agency to have potential for a significant impact on the wastewater treatment system. The degree of hazard for these types of services will vary depending on the hazards present. A high health cross-connection hazard requires an approved premises isolation backflow prevention assembly of a RPBA, RPDA or approved AG (see Table 9 in WAC 246-290-490). A low health cross-connection hazard requires an approved premises isolation backflow prevention assembly of a DCVA. All industrial facilities are required to have an approved backflow prevention assembly located as close to the water meter as possible.

Institutional

Colleges, schools, religious institutions, and emergency services facilities that are located within Low-Density Residential Districts. The degree of hazard for these types of services will vary depending on the hazards present. A high health cross-connection hazard requires an approved premises isolation backflow prevention assembly of a RPBA, RPDA or approved AG (see Table 9 in WAC 246-290-490). A low health cross-connection hazard requires an approved premises isolation backflow prevention assembly of a DCVA. All institutional facilities are required to have an approved backflow prevention assembly located as close to the water meter as possible.

Multi-Family Dwelling

A building or portion thereof designed or used as a residence by two or more families and containing two or more dwelling units. The degree of hazard for these types of services will vary depending on the hazards present. The degree of hazard for this type of service is a low health cross-connection hazard requiring an approved premises isolation backflow prevention assembly of a DCVA. However, premises isolation with a RPBA is required if high health hazards exists.

Commercial Fire Service

Protection against fire hazards in non-residential facilities. The degree of hazard for this type of service may be high or low, depending on the type of system installed. Fire suppression systems require a DCDA where low health hazards are present. Fire suppression system using chemicals requires an RPDA where high health hazards are present. If there is unapproved auxiliary water on the premises, a RPDA will be required for premises protection for fire suppression systems. For DCVAs and DCDAs, the approved backflow prevention assembly shall be located in a vault on private property as close to the public right of way line as possible.

Residential Fire Service

Protection against fire hazards in residential occupancies. The degree of hazard for this type of service may be high or low, depending on the type of system installed. Backflow protection is not required for residential flow

through systems; However, if the flow-through system contains stagnant water, the fire sprinkler system will need to have the appropriate level of backflow protection installed (DCVA, RPBA or AG). Flow-through systems must terminate at a toilet located at the furthest distance from the point of connection to the building, on each story of the residence.

Backflow protection is required on combination fire protection systems. However, dry fire suppression systems require a DCDA while a fire suppression system using chemicals requires a RPDA. If there is any unapproved auxiliary water on the premises, a RPDA will be required for premises protection.

Single-Family Dwelling
A building designed or used for residential purposes by not more than one family and containing one dwelling unit only, including mobile homes when not located in a mobile home park and including condominium units subject to fee simple ownership, and excluding multiple-family dwellings, apartments, and motels. The degree of hazard for this type of service is generally low and typically only requires backflow when an irrigation system is present. However, premises isolation with a RPBA is required if high health hazards exists.

Irrigation Only Service
A water meter used exclusively for irrigation of landscaped areas. The degree of hazard for this type of service is generally low. An approved DCVA is the minimum level of backflow protection required as long as no chemicals are involved or unapproved auxiliary water is present on the premises, otherwise an RPBA is required.

Reclaimed or Used Water
Municipal wastewater that has been treated to meet specific water quality criteria with the intent of being used for a range of purposes. The City of Vancouver prohibits, by ordinance VMC 14.04.155, the intentional return of used water (e.g. for heating or cooling) into the water distribution system.

Unapproved Auxiliary Water
The degree of hazard for this type of service is generally a high health cross-connection hazard. The City of Vancouver requires RPBA premises protection for new and existing connections, regardless if an interconnection exists. Unapproved auxiliary water includes fire sprinkler systems with a connected tank, a well, and natural springs. Note: If customers choose to abandon their well, the customer must use a licensed well driller, per WAC 173-160. Capping the well or pulling the pump is not proper abandonment and will require approved RPBA protection at the water meter.

Temporary Water Connections, Hydrant Meters and Tanker Trucks
Use of water from a fire hydrant where an established service point or permanent water meter is not available. Hydrant meter applications apply to temporary water use from fire hydrants when permitted. Tanker trucks are inspected for air gaps per the City's Hydrant Meter Policy (Appendix M). The degree of hazard for temporary water service can vary depending on the assessed degree of hazard. Generally, the health hazard is considered a high health cross-connection hazard. The minimum level of backflow protection will vary depending on the hazard assessment. An Air Gap, RPBA, or DCVA may be required. As of January 1, 2021, Water Quality reviews

the hydrant meter set requests for hazards before setting the hydrant meter. Approved backflow prevention methods/assemblies are required. The approved backflow assembly must be tested at the time of hydrant meter set by the customer's contracted BAT. The City of Vancouver does not allow hydrant meters to be used for irrigation use. The City does not provide the approved backflow preventer for temporary water connections. Said preventers are required to be tested as outlined in Element 5.

Emergency Interties

Finished water can be delivered to another neighboring public water system during emergencies through a direct connection. Emergency interties include normally closed valves that require manual opening in order to flow water from one utility's system into another utility's system. Emergency interties are meant to flow in either direction. There is no requirement for backflow prevention at these interties. The City currently has inter-ties with Clark Public Utilities and the City of Camas. The valves are normally closed at these locations.

Wastewater Treatment Facilities

All structures, equipment, or processes required to collect, carry away, treat, reclaim, or dispose of domestic wastewater (water carrying human wastes, including kitchen, bath, and laundry wastes from residences, buildings, industrial establishments or other places, together with the groundwater infiltration or surface waters that may be present) together with the industrial waste that may be present. The degree of hazard for this type of service is a severe health cross-connection hazard. RPBA protection at all connections and in-premises AG to the facility are required. There are no exceptions granted for this type of facility.

Exceptions

As a rule, the City of Vancouver does not grant exceptions to mandatory premises isolation requirements. For multi-family dwelling connections, if a customer chooses to challenge the premises isolation requirements, the customer can request an exception in writing to the Water Quality Division. The City will perform a cross-connection control hazard assessment. Requests are not a guarantee of approval.

DESIGNATE AT LEAST ONE PERSON CERTIFIED AS A CCS (ELEMENT 4)

The City shall designate a Washington State Certified CCS to be in "responsible charge" for the City's Cross-Connection Control Program, as defined in WAC 246-292-050. This person currently resides in the Water Quality Division in the Public Works Department. This individual has the authority and responsibility to develop and implement the Program. Also, there are additional City of Vancouver water personnel who hold CCS certifications and at least one with a BAT certification.

PROCEDURES AND SCHEDULE FOR BACKFLOW PREVENTER INSTALLATION, INSPECTION, TESTING AND REPAIRS (ELEMENT 5)

There are over 18,000 backflow assemblies installed in the City of Vancouver's service area which require annual testing to comply with WAC 246-290-490. The due date for testing for residential customers is based on the zip code of the facility, as seen here:

Service Address Zip Code	Residential Customer Annual Test Due Date
98682	April 1st
98684, 98607	May 1st
98683	June 1st
98664, 98662	July 1st
98665, 98663, 98660, 98661	August 1st

The due date for testing for commercial customers is based on the installation date of the assembly, not when the assembly was last tested. Test due dates will only be modified for commercial customers upon request. Notification of annual testing is sent out approximately 30 days prior to the due date. The Water Quality Division invested in new backflow management software in 2021 to maintain an inventory of all these assemblies and test history data. This database also generates custom reports (e.g., DOH ASR), annual testing notification letters, and repair letters to customers.

The testing frequency of backflow assemblies and approved air gaps (used in place of assemblies) are due:

- At Initial installation
- After the assembly is repaired or moved
- Immediately after a backflow incident occurs
- Annually as designated by the City of Vancouver
- As required by the CCS, if testing indicates repeated failures

Acceptable test procedures used are specified in the most recent edition of the *Manual of Cross-Connection Control*, published by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research, which is currently the 10th edition, and approved by DOH. There are no alternate test procedures allowed. Customers shall hire only Washington State certified BATs to perform their backflow assembly tests.

The testing notification to customers is done automatically through the City's backflow software based on the test due date of the backflow assembly. Customers are sent up to three notification letters (first notice – 30 days; second notice – 30 days, final notice – 30 days) informing them annual testing is due. Prior to the City initiating non-compliance procedures, a fourth notice will be sent giving the customer three options to respond to, as outlined in Element 1. Courtesy phone call will be made and where necessary, a site visit is made. This same notification process is used for dealing with installations and repairs. See Chapter 4 for additional information.

Notice Type	Due Date	Date Mailed	*Response Due Date	Status
1st	1st of the Month	30 days before Due Date	30 days after print date of 1st notice	a) Test Report Received, no action required or b) No Test Report Received, 2nd Notice generated
2nd	- 30 days	Immediately after Response Due Date of 1st Notice	30 days after print date of 2nd notice	a) Test Report Received, no action required or b) No Test Report Received, 3rd Notice generated
3rd	- 30 days	Immediately after Response Due Date of 2nd Notice	30 days after print date of 3rd notice	a) Test Report Received, no action required or b) No Test Report Received, non-compliance letter is generated
**Non-Compliance	- 15 days	Immediately after Response Due Date of 3rd Notice	15 days after print date of non-compliance notice	a) Customer can hire a tester, b) City's contracted tester will perform the test, or c) Water will be terminated

*Response Due Date refers to the date in which the backflow assembly test report is received by City.

**A final 15-day notice will be mailed notifying the customer of non-compliance. 1) If the passing backflow test report is not received by the response due date on the final notice, the City of Vancouver will use their contracted testing company to perform the backflow assembly test, at the expense of the customer, applied onto the customer's water bill. For backflow assemblies that are not accessible, the City of Vancouver will terminate water service at the expense of the customer. The majority of certified BAT's completed backflow assembly test reports are delivered to the City of Vancouver within 10 days from the date the test was performed. Test reports can be submitted electronically through the City of Vancouver e-mail (backflowtestreports@cityofvancouver.us), mail (PO Box 1995, Vancouver, WA 98668) or dropped off at Operations Center (4711 E Fourth Plain Blvd, Vancouver, WA 98661) or Utility Building (2323 General Anderson, Vancouver, WA 98661). The City of Vancouver will only accept test reports from Washington State certified BATs.

The City of Vancouver's notification letters provides a list of certified BATs available to perform testing. This list is generated by those testers that have requested to be on the list. There are a few criteria that the tester can be removed from the list, such as 1) fraudulent testing, 2) not submitting test reports in a timely manner (greater than 60 days after the test), 3) too many complaints received by customers, 3) if a tester wants to be removed

from the list, or 4) if there are other circumstances warrantying removal of the tester from the list. Note: The City of Vancouver makes no representation regarding the abilities, performance, or quality of service of the testers listed below. Further, the City of Vancouver does not assume or accept any responsibilities for the actions or performance of such testers. This list is provided merely for the convenience of the water service customers. Customers are required to use their own judgment with respect to contracting with these or any other testers.

Updating of VMC 14.04.155 has strengthened the requirement of annual testing and the City of Vancouver's enforcement capabilities. No appeals process is necessary prior to turning off water service because customers are given adequate notification of testing requirements and staff is flexible in working out schedules with them.

BATs can use their own backflow assembly test report form, provided it includes the minimum test reporting elements in WAC 246-292-036 (**Appendix L**). Additional mandatory content on the test report form include detector meter readings. Water system pressure and associated water meter numbers and are encouraged to be included on the test report form. If the minimum test reporting elements are not provided, then the test report will be denied, and the City of Vancouver's CCS may require the re-testing of the assembly in his/her presence. Test results are to be emailed, mailed, or dropped off to the CCS within 10 business days and contain the signature and printed name of the BAT. The results are then hand entered into the City's backflow software database. When the field test report shows an assembly has failed its test, the City of Vancouver requires the customer to repair the assembly and return it to proper working condition in an amount of time to be determined on a case-by-case basis, depending on the hazard. Backflow Assembly Testing, Repairs and Duties of a BAT are outlined in WAC 246-292-034. To become more efficient, the City will mandate at a time as seen fit to require Washington State certified BATs to submit backflow test and inspection reports online. For testers that would like to use the City approved Field Inspection and Test Report Form, a copy will be available on the City's website.

Multiple backflow assembly test failures of an assembly will result in the property owner having the assembly repaired or replaced by a certified BAT (or other certified contractor, depending on the scope of work to be performed) with an assembly appropriate for the degree of hazard.

The City of Vancouver will notify and provide documentation to the Washington State DOH Office of Drinking Water when it suspects a test report is falsified for the Washington State DOH to follow-up on.

Retesting may be required, at the City of Vancouver's discretion, on backflow assemblies which have questionable test results or on assemblies which have test report information which has changed (e.g., the serial number, model number, location, or other information does not match information provided at the time of installation) and no prior notice was given.

Installation Standards:

Backflow assemblies must be installed in a location acceptable to the City of Vancouver. They must meet City of Vancouver Water Engineering standards (**Appendix F**). Backflow assemblies must be accessible, in good operating condition and testable. Exceptions to installation standards need to be submitted in writing to the Water Quality Division prior to approval.

DCVAs are for low health hazard uses only. DCVAs shall not be installed where 1) water spilled from the assembly during normal operation, testing and repair will be objectionable, 2) temperature in the downstream water system is greater than the assembly's maximum working water temperature, and 3) pressure in the downstream water system is greater than the assembly's maximum working water pressure. RPBAs shall extend the same conditions as well as may not be subject to toxic fumes or freezing conditions. RPBAs are for high health hazard uses only or other uses as specified by the Water Quality Division.

Note: As of January 17, 2019, Atmospheric Vacuum Breakers (AVB) are no longer considered an acceptable form of backflow protection. If subdivision plans were approved prior to this date, then AVBs can be installed. Detailed information is provided subsequently. For existing AVBs, if the AVB cracks, breaks, leaks or requires repairs, the AVB will need to be upgraded to an approved backflow assembly at that time. Customers that have eliminated the cross-connection control hazard may remove the backflow prevention protection upon notification to the City of Vancouver Water Quality Division. A City CCS will perform an inspection. Periodic re-inspections to assessed hazards posed by customers premises and subsequent corrective actions may be required, as outlined in Chapter 4. The guideline for properly decommissioning residential sprinkler irrigation systems is outlined in Appendix P.

QUALITY ASSURANCE PROGRAM (ELEMENT 6)

The City of Vancouver uses backflow management software to track both BAT certification and test kit accuracy verification and calibration information. Test results can't be entered into the system if either one of these has lapsed. Also, BATs are required to submit a copy of their current certification card and current test kit calibration information annually. The BAT certification information is checked against information provided from Washington Certification Services.

BATs are notified immediately if the test report contents are incomplete or incorrect. Correction generally occurs within a week.

The City of Vancouver requires BATs to submit current copies of their DOH certification (or renewal) and test kit verification of accuracy every January. Testers have until March 1st annually to report this information to the City of Vancouver before the City of Vancouver rejects the test report(s). The City of Vancouver requires the test report content to meet minimum Washington State requirements (**Appendix L**).

RESPONDING TO BACKFLOW INCIDENTS (ELEMENT 7)

In the event of a cross-connection incident, which contaminates the City of Vancouver's water supply, or occurs within the premises of a consumer served by the City of Vancouver, the City of Vancouver will notify DOH, Clark County Public Health Department, and the City's Water Superintendent as soon as possible after the incident, but no later than the end of the next business day. The City of Vancouver's response includes an onsite inspection by a City of Vancouver CCS to determine the extent of the backflow event. Depending on the nature of the event, samples may be taken, the water line flushed, or the water turned off to contain the contamination. If the incident occurs after hours, staff will contact DOH using their emergency after-hours phone number (1-877-481-4901). The City of Vancouver will document the details of the backflow incident using Washington State DOH's Backflow Incident Report Form (**Appendix H**). Additional supporting information such as photographs and sampling results (if taken) will be attached to the report. Generally, there is a follow-up meeting with DOH staff to discuss the incident and actions taken. Also, the City of Vancouver will include all backflow incident report(s) as a part of the ASR.

PUBLIC EDUCATION (Element 8)

The City of Vancouver's primary educational effort involves using the City of Vancouver's website to convey the importance of preventing cross-connections and maintaining backflow prevention assemblies through annual testing. The annual Consumer Confidence Report has also been used to share this information. The City of Vancouver utilizes pamphlets and fliers from AWWA, PNWS of AWWA, and Washington State DOH for customers at events and venues throughout the year, which is another avenue used to inform the public about the importance of preventing cross-connections and promoting water conservation and backflow prevention.

RECORD KEEPING AND REPORTING (Element 9)

Original records, such as project submittals, correspondence, plans, etc., are kept on file, either directly with the City of Vancouver's CCS, or if in conjunction with a larger project, on file with the City's Building and Permit Departments. Eventually these files are archived according to retention schedules set forth in chapter 40.14 RCW and chapter 246-290 WAC. Records are kept both in paper and electronic format. As mentioned previously, annual test results are emailed, or mailed, and results entered into the backflow management database. Notification and violation letters along with emails are records which are also kept. These records will form the basis of any enforcement action or legal defense by the City of Vancouver. The master list, inventory information, list of approved backflow prevention assemblies, and ASR records are available to DOH upon request.

DOH Annual Summary Report Reporting (ASR)
2001 was the first reporting year of ASR data to DOH. DOH efforts are focused on larger utilities reporting this information (greater than 1,000 connections) and compliance with Table 9, high-hazard, facilities.

Master List
The City's backflow management software database maintains a master list of service connections of severe, high, and low hazards for as long as the hazard exists. It is from this database the annual notification letters are generated and sent.

Inventory of Backflow Prevention Assemblies
The backflow management software database maintains the inventory of active and inactive assemblies including the exact assembly location, assembly description (type, manufacturer, model, size and serial number), and the assessed degree of hazard, the installation date, test and letter notification history, surveys and inspections of facilities (including assemblies), , repairs, test results, and the person performing the test/inspection. Approved air gaps installed in lieu of approved assemblies will include the same information as that of mechanical backflow prevention assemblies. As of January 17, 2019, the City of Vancouver does not allow atmospheric vacuum breakers (AVBs) for irrigation protection, therefore, there is no record keeping associated with AVBs.

Annual Test Report Results Retention
Washington State regulations require retention of all backflow assembly test results for five years. Hard copies are retained for only five years. Electronic copies of backflow test reports are being kept indefinitely because the City of Vancouver currently has the capacity to store theses records.

SPECIAL REQUIREMENTS FOR RECLAIMED WATER (ELEMENT 10)

The degree of hazard for this type of service is a high health hazard. A RPBA will be required on the water service to properties which both potable and reclaimed water are present. Where potable water is being used for makeup water for reclaimed water uses, the potable water supply must be protected with an air gap system. The City of Vancouver does not allow any reclaimed water connections, per VMC 14.04.140.

ADDITIONAL INFORMATION

Standard operating procedures (SOPs) associated with cross-connection control are included in **Appendix I**. This includes conducting plan reviews, hydrant meter sets, and hazard assessment surveys, as well as outlining the procedures for using the backflow management software and responding to backflow incidents.

This document is periodically reviewed by the City of Vancouver Water Quality staff. This document is subject to change, as adopted by the City of Vancouver.

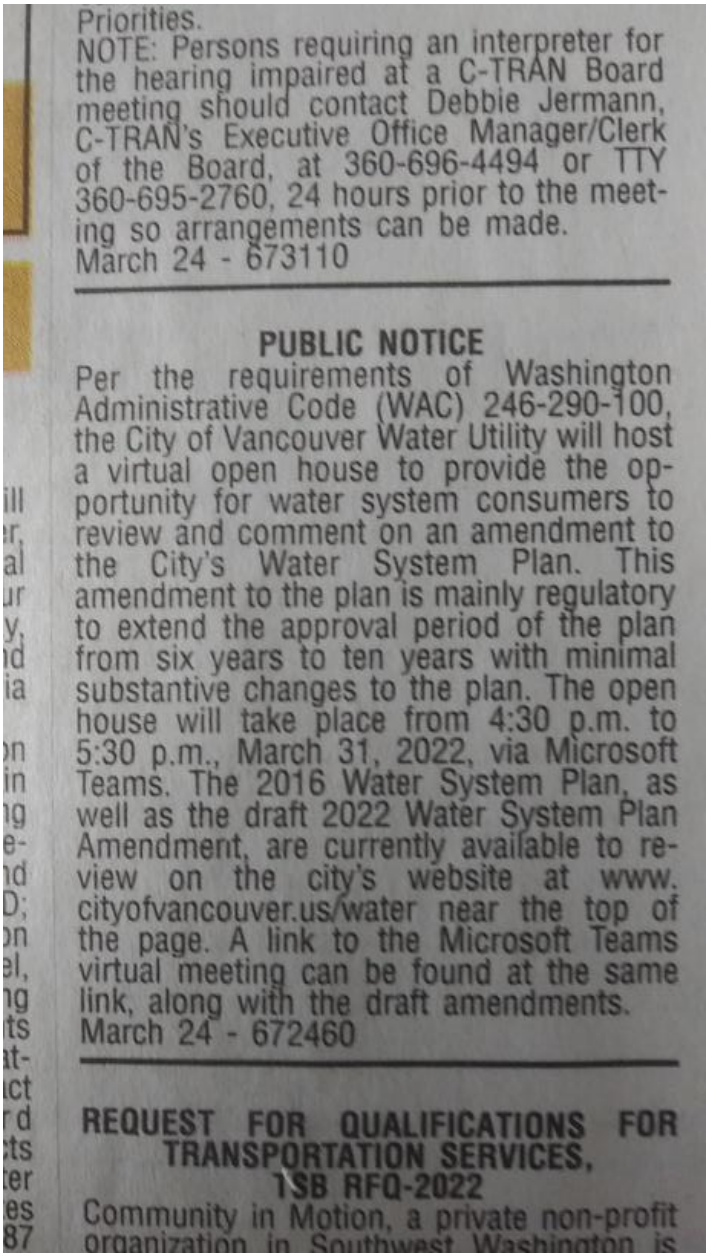
Approved by:

Jennifer Belknap Williamson Date: 11/30/2021

Jennifer Belknap Williamson
Director of Public Works

Appendix 10D – Notice of Public Hearing and Meeting Minutes

2022 Amendment to the 2016 Water System Plan



Priorities.
NOTE: Persons requiring an interpreter for the hearing impaired at a C-TRAN Board meeting should contact Debbie Jermann, C-TRAN's Executive Office Manager/Clerk of the Board, at 360-696-4494 or TTY 360-695-2760, 24 hours prior to the meeting so arrangements can be made.
March 24 - 673110

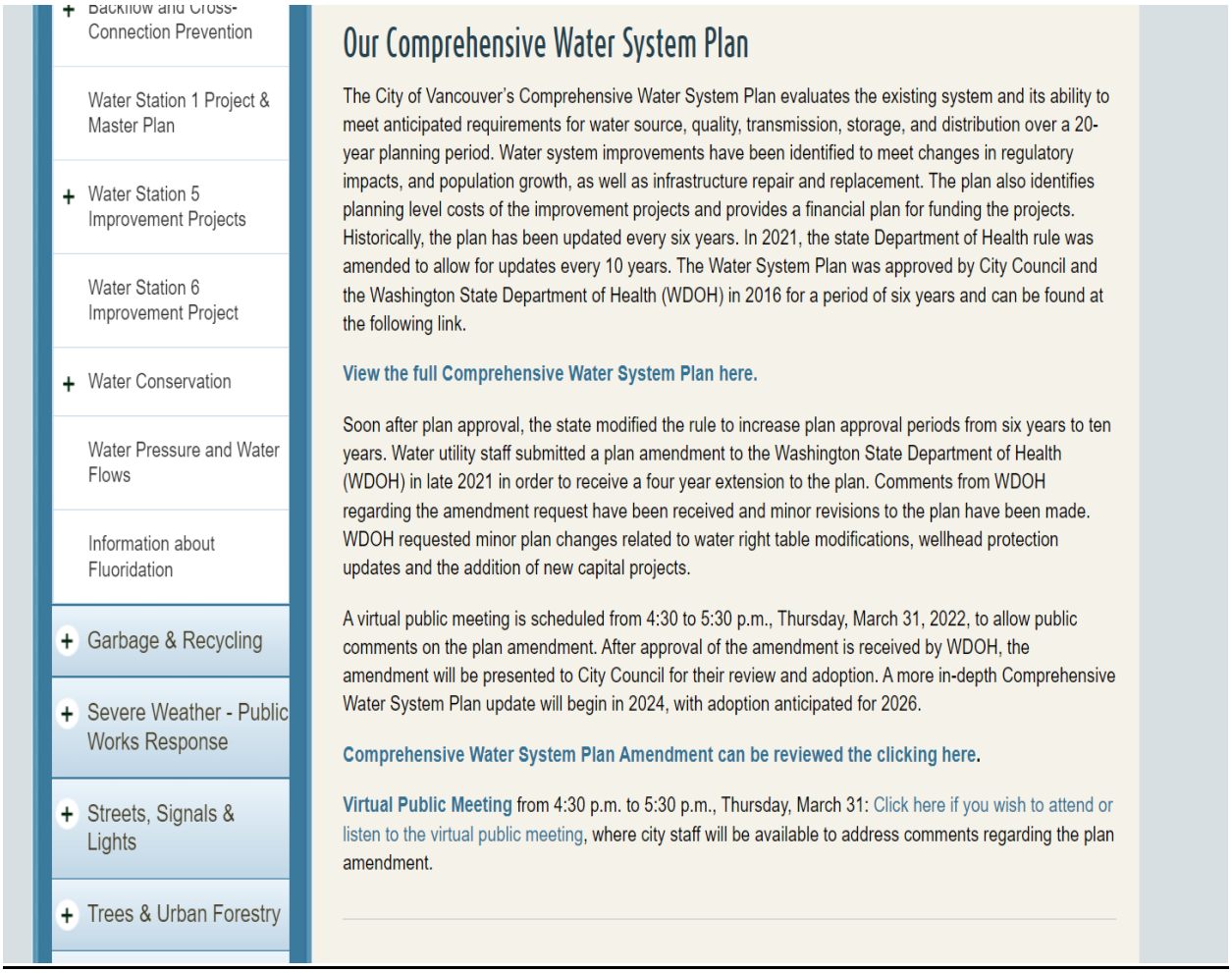
PUBLIC NOTICE

Per the requirements of Washington Administrative Code (WAC) 246-290-100, the City of Vancouver Water Utility will host a virtual open house to provide the opportunity for water system consumers to review and comment on an amendment to the City's Water System Plan. This amendment to the plan is mainly regulatory to extend the approval period of the plan from six years to ten years with minimal substantive changes to the plan. The open house will take place from 4:30 p.m. to 5:30 p.m., March 31, 2022, via Microsoft Teams. The 2016 Water System Plan, as well as the draft 2022 Water System Plan Amendment, are currently available to review on the city's website at www.cityofvancouver.us/water near the top of the page. A link to the Microsoft Teams virtual meeting can be found at the same link, along with the draft amendments.
March 24 - 672460

REQUEST FOR QUALIFICATIONS FOR TRANSPORTATION SERVICES, 1SB RFQ-2022

Community in Motion, a private non-profit organization in Southwest Washington is

2022 Amendment to the 2016 Water System Plan



2022 Water System Plan Amendment Virtual Public Meeting 3/31/22

Sign in Sheet

Name	email Address	Comment
There were no attendees to the meeting		

Appendix 10E – Government Constancy Review Checklists and Statements

October 14, 2021

Bryan Snodgrass
City of Vancouver
PO Box 1995
Vancouver, WA 98668

Subject: City of Vancouver Comprehensive Water System Plan

Mr. Snodgrass,

Below is a link to a copy of the City of Vancouver Comprehensive Water System Plan for your review of an amendment to extend the plan for an additional four years. Please scroll down to the bottom of the page to see two links to the plan.

http://www.cityofvancouver.us/publicworks/page/engineering-requirements-system-plans

Additionally, I have attached a Local Government Consistency Determination Form that is required by the State Department of Health. Following your review of the plan, please complete, sign and return the statement to me for inclusion in the Appendix as required for final plan amendment approval by the State Department of Health.

Please contact me if you have any questions.

Sincerely,

Tyler Clary
Water Engineering Program Manager
City of Vancouver

October 14, 2021

Michael Sallis
Clark County
PO Box 9810
Vancouver, WA 98666

Subject: City of Vancouver Comprehensive Water System Plan

Mr. Sallis,

Below is a link to a copy of the City of Vancouver Comprehensive Water System Plan for your review of an amendment to extend the plan for an additional four years. Please scroll down to the bottom of the page to see two links to the plan.

http://www.cityofvancouver.us/publicworks/page/engineering-requirements-system-plans

Additionally, I have attached a Local Government Consistency Determination Form that is required by the State Department of Health. Following your review of the plan, please complete, sign and return the statement to me for inclusion in the Appendix as required for final plan amendment approval by the State Department of Health.

Please contact me if you have any questions.

Sincerely,

Tyler Clary
Water Engineering Program Manager
City of Vancouver

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Local Government Consistency Determination Form

Water System Name: City of Vancouver PWS ID: 91200L Plannir

Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, he or she should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on reverse.

	For use by water system	For use by local government
Local Government Consistency Statement	**Identify the page(s) in submittal**	**Yes or Not Applicable**
a) The water system service area is consistent with the adopted land use and zoning within the service area.	Sec. 1.5-1.7	Yes
b) The growth projection used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology.	Sec. 2.1 & 2.4	Yes
c) For cities and towns that provide water service: All water service area policies of the city or town described in the plan conform to all relevant utility service extension ordinances.	Table 1.3	Yes
d) Service area policies for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area.	Table 1.3	Yes
e) Other relevant elements related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans.	Ch. 1,2,3,4,5,8	Yes

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.

Bryan Snodgrass _____ 11/2/2021

Signature Date

Bryan Snodgrass, Principal Planner, Community Development Department

Printed Name,
Title, & Jurisdiction

Consistency Review Guidance

For Use by Local Governments and Municipal Water Suppliers

This checklist may be used to meet the requirements of WAC 246-290-108. When using an alternative format, it must describe all of the elements; 1a), b), c), d), and e), when they apply.

For **water system plans (WSP)**, a consistency review is required for the service area and any additional areas where a municipal water supplier wants to expand its water right's place of use.

For **small water system management programs**, a consistency review is only required for areas where a municipal water supplier wants to expand its water right's place-of-use. If no water right place-of-use expansion is requested, a consistency review is not required.

For **engineering documents,** a consistency review is required for areas where a municipal water supplier wants to expand its water right's place-of-use (water system plan amendment is required). For noncommunity water systems, a consistency review is required when requesting a place-of-use expansion. All engineering documents must be submitted with a service area map (WAC 246-290- 110(4)(b)(ii)).

A) Documenting Consistency: The planning or engineering document must include the following when applicable.

a) A copy of the adopted **land use/zoning** map corresponding to the service area. The uses provided in the WSP should be consistent with the adopted land use/zoning map. Include any other portions of comprehensive plans or development regulations that relate to water supply planning.

b) A copy of the **growth projections** that correspond to the service area. If the local population growth projections are not used, explain in detail why the chosen projections more accurately describe the expected growth rate. Explain how it is consistent with the adopted land use.

c) Include water service area policies and show that they are consistent with the **utility service extension ordinances** within the city or town boundaries. *This applies to cities and towns only.*

d) All **service area policies** for how new water service will be provided to new customers.

e) **Other relevant elements** the Department of Health determines are related to

water supply planning. See Local Government Consistency – Other Relevant Elements, Policy B.07, September 2009.

B) Documenting an Inconsistency: Please document the inconsistency, include the citation from the comprehensive plan or development regulation, and explain how to resolve the inconsistency.

C) Documenting a Lack of Local Review for Consistency: Where the local government with jurisdiction did not provide a consistency review, document efforts made and the amount of time provided to the local government for review. Please include: name of contact, date, and efforts made (letters, phone calls, and emails). To self-certify, please contact the DOH Planner.

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Local Government Consistency Determination Form

Water System Name: City of Vancouver PWS ID: 91200L

Planning/Engineering Document Title: Comp. Water System Plan Plan Date: Dec. 2015 Local Government with Jurisdiction Conducting Review: City of Vancouver

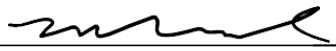
Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, he or she should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on reverse.

	For use by water system	For use by local government
Local Government Consistency Statement	**Identify the page(s) in submittal**	**Yes or Not Applicable**
a) The water system service area is consistent with the adopted land use and zoning within the service area.	Sec. 1.5-1.7	Yes
b) The growth projection used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology.	Sec. 2.1 & 2.4	Yes
c) For cities and towns that provide water service: All water service area policies of the city or town described in the plan conform to all relevant utility service extension ordinances.	Table 1.3	Yes
d) Service area policies for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area.	Table 1.3	Yes

e) Other relevant elements related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans.	Ch. 1,2,3,4,5,8	Yes

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.



10/25/2021

Signature Date

Michael Sallis, Planner III, Clark County Community Planning Printed Name, Title, & Jurisdiction

Consistency Review Guidance

For Use by Local Governments and Municipal Water Suppliers

This checklist may be used to meet the requirements of WAC 246-290-108. When using an alternative format, it must describe all of the elements; 1a), b), c), d), and e), when they apply.

For **water system plans (WSP)**, a consistency review is required for the service area and any additional areas where a municipal water supplier wants to expand its water right's place of use.

For **small water system management programs**, a consistency review is only required for areas where a municipal water supplier wants to expand its water right's place-of-use. If no water right place-of-use expansion is requested, a consistency review is not required.

For **engineering documents,** a consistency review is required for areas where a municipal water supplier wants to expand its water right's place-of-use (water system plan amendment is required). For noncommunity water systems, a consistency review is required when requesting a place-of-use expansion. All engineering documents must be submitted with a service area map (WAC 246-290-110(4)(b)(ii)).

A) Documenting Consistency: The planning or engineering document must include the following when applicable.

a) A copy of the adopted **land use/zoning** map corresponding to the service area. The uses provided in the WSP should be consistent with the adopted land use/zoning map. Include any other portions of comprehensive plans or development regulations that relate to water supply planning.

b) A copy of the **growth projections** that correspond to the service area. If the local population growth projections are not used, explain in detail why the chosen projections more accurately describe the expected growth rate. Explain how it is consistent with the adopted land use.

c) Include water service area policies and show that they are consistent with the **utility service extension ordinances** within the city or town boundaries. *This applies to cities and towns only.*

d) All **service area policies** for how new water service will be provided to new customers.

e) **Other relevant elements** the Department of Health determines are related to water supply planning. See Local Government Consistency – Other Relevant

Elements, Policy B.07, September 2009.

B) Documenting an Inconsistency: Please document the inconsistency, include the citation from the comprehensive plan or development regulation, and explain how to resolve the inconsistency.

C) Documenting a Lack of Local Review for Consistency: Where the local government with jurisdiction did not provide a consistency review, document efforts made and the amount of time provided to the local government for review. Please include: name of contact, date, and efforts made (letters, phone calls, and emails). To self-certify, please contact the DOH Planner.