



City of Vancouver Comprehensive Water System Plan

Final • December 2015





CITY OF VANCOUVER

COMPREHENSIVE WATER SYSTEM PLAN

APPENDICES

Project No. 9290A.00

December 2015

FINAL



720 SW WASHINGTON STREET, SUITE 550 • PORTLAND, OREGON 97205

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APPENDIX 1A – WATER FACILITIES INVENTORY FORM

WATER FACILITIES INVENTORY (WFI) FORM

ONE FORM PER SYSTEM

Quarter: 1
Updated: 01/16/2013
Printed: 02/11/2013
WFI Printed For: On-demand
Submission Reason: Contact Update

RETURN TO: Southwest Regional Office, PO Box 47823, Olympia, WA, 98504

1. SYSTEM ID NO. 91200 L	2. SYSTEM NAME VANCOUVER, CITY OF	3. COUNTY CLARK	4. GROUP A	5. TYPE Comm
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6. PRIMARY CONTACT NAME & MAILING ADDRESS TIM J. BRACE [OPS SUPT] PO BOX 1995 VANCOUVER, WA 98668-1995	7. OWNER NAME & MAILING ADDRESS VANCOUVER, CITY OF TIM J. BRACE PO BOX 1995 VANCOUVER, WA 98668-1995	8. Owner Number 006276 TITLE: OPS SUPT
--	---	--

STREET ADDRESS IF DIFFERENT FROM ABOVE ATTN ADDRESS 4711 E. 4TH PLAIN BOULEVARD CITY VANCOUVER STATE WA ZIP 98668-1995	STREET ADDRESS IF DIFFERENT FROM ABOVE ATTN ADDRESS 4711 E. 4TH PLAIN BOULEVARD CITY VANCOUVER STATE WA ZIP 98668-1995
--	--

9. 24 HOUR PRIMARY CONTACT INFORMATION	10. OWNER CONTACT INFORMATION
Primary Contact Daytime Phone: (360) 487-8275	Owner Daytime Phone: (360) 482-8275
Primary Contact Mobile/Cell Phone: (360) 607-1426	Owner Mobile/Cell Phone: (360) 606-0442
Primary Contact Evening Phone: (360) 574-1137	Owner Evening Phone: (360) 606-0442
Fax: E-mail: tim.brace@ci.vancouver.wa.us	Fax: (360) 487-8280 E-mail: tim.brace@ci.vancouver.wa.us

WAC 246-290-420(9) requires that water systems provide 24-hour contact information for emergencies.

11. SATELLITE MANAGEMENT AGENCY - SMA (check only one)

Not applicable (Skip to #12)

Owned and Managed SMA NAME: _____ SMA Number: _____

Managed Only

Owned Only

12. WATER SYSTEM CHARACTERISTICS (mark ALL that apply)

<input checked="" type="checkbox"/> Agricultural	<input checked="" type="checkbox"/> Hospital/Clinic	<input checked="" type="checkbox"/> Residential
<input checked="" type="checkbox"/> Commercial / Business	<input checked="" type="checkbox"/> Industrial	<input checked="" type="checkbox"/> School
<input checked="" type="checkbox"/> Day Care	<input checked="" type="checkbox"/> Licensed Residential Facility	<input checked="" type="checkbox"/> Temporary Farm Worker
<input checked="" type="checkbox"/> Food Service/Food Permit	<input checked="" type="checkbox"/> Lodging	<input checked="" type="checkbox"/> Other (church, fire station, etc.): _____
<input checked="" type="checkbox"/> 1,000 or more person event for 2 or more days per year	<input checked="" type="checkbox"/> Recreational / RV Park	

13. WATER SYSTEM OWNERSHIP (mark only one)	14. STORAGE CAPACITY (gallons)
<input type="checkbox"/> Association <input checked="" type="checkbox"/> City / Town <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Investor <input type="checkbox"/> Private <input type="checkbox"/> Special District <input type="checkbox"/> State	24,578,000

--- SEE NEXT PAGE FOR A COMPLETE LIST OF SOURCES ---

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO. 91200 L	2. SYSTEM NAME VANCOUVER, CITY OF	3. COUNTY CLARK	4. GROUP A	5. TYPE Comm
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15 Source Number	16 SOURCE NAME LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER. Example: WELL #1 XYZ456 IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	17 INTERTIE INTERTIE SYSTEM ID NUMBER	18 SOURCE CATEGORY											19 USE					20 TREATMENT					22 DEPTH DEPTH TO FIRST OPEN INTERVAL IN FEET	23 CAPACITY (GALLONS PER MINUTE)	24 SOURCE LOCATION		
			WELL	WELL FIELD	WELL IN A WELL FIELD	SPRING	SPRING FIELD	SPRING IN SPRINGFIELD	SEA WATER	SURFACE WATER	RANNEY / INF. GALLERY	OTHER	PERMANENT	SEASONAL	EMERGENCY	SOURCE METERED	NONE	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER	1/4, 1/4 SECTION			SECTION NUMBER	TOWNSHIP	RANGE
S01	WS #1 WF			X											X		Y	X	X	X		193	22770	SE SE	23	02N	01E	
S02	WS #3 WF			X											X		Y	X	X			232	5800	SW SE	15	02N	01E	
S03	WS #4 WF			X											X		Y	X	X	X		80	6970	NE NE	36	02N	01E	
S04	InAct 11/30/1993 WS #6 Well #4 AFP657			X												X		X	X			200	400	SW NE	18	02N	02E	
S05	WS #7 Well #1 ABR665			X											X		Y	X	X			267	650	NW NW	27	02N	02E	
S06	WS #8 WF			X											X		Y	X	X			72	1275	SW SW	10	02N	02E	
S07	WS #9 WF			X											X		Y	X	X			94	9060	SE SE	14	02N	02E	
S08	WS #14 WF			X											X		Y	X	X	X		147	2905	NE NE	07	02N	02E	
S09	WS #15 WF			X											X		Y	X	X	X		96	2120	SW NE	20	02N	02E	
S10	WS #7 Well #2 AFP658			X											X		Y	X	X	X		853	500	NW NW	27	02N	02E	
S11	ELLSWORTH WTP			X											X		Y	X	X	X		413	6900	SE SW	33	02N	02E	
S12	Ellsworth WTP Well #3 WW AFP659					X									X		Y		X			455	2800	NW SW	33	02N	02E	
S13	InAct 08/31/2001 Duplicate. See comments			X											X			X				0	0	SW NE	18	02N	02E	
S14	WS #1 Well #1 WW					X									X		N	X				247	2000	SE SE	23	02N	01E	
S15	WS #1 Well #2 WW					X									X		N	X				235	1650	SW SE	23	02N	01E	
S16	WS #1 Well #3 WW					X									X		N	X				203	2000	SE SE	23	02N	01E	
S17	WS #1 Well #4 WW					X									X		N	X				202	890	SE SE	23	02N	01E	
S18	WS #1 Well #5 WW					X									X		N	X				200	1080	SE SE	23	02N	01E	
S19	InAct 01/01/1970 WS #1 Well #6 WW					X									X		N	X				0	0			00N	00E	
S20	WS #1 Well #7 WW					X									X		N	X				205	3250	SW SE	23	02N	01E	
S21	WS #1 Well #8 WW					X									X		N	X				208	2100	SE SE	23	02N	01E	
S22	WS #1 Well #9 WW ABS192					X									X		N	X				193	1400	SW SE	23	02N	01E	
S23	WS #1 Well #10 WW					X									X		N	X				207	1800	SW SE	23	02N	01E	
S24	WS #1 Well #11 WW					X									X		N	X				196	2600	SE SE	23	02N	01E	
S25	WS #1 Well #12 WW					X									X		N	X				200	2300	SW SE	23	02N	01E	
S26	WS #1 Well #13 WW					X									X		N	X				245	1700	SE SE	23	02N	01E	
S27	WS #3 Well #1 WW					X									X		N	X				232	2000	SW SE	15	02N	01E	
S28	WS #3 Well #2 WW					X									X		N	X				236	1800	SW SE	15	02N	01E	
S29	WS #3 Well #3 WW					X									X		N	X				235	2000	SW SE	15	02N	01E	
S30	WS #4 Well #1 WW					X									X		N	X				80	950	NE NE	36	02N	01E	
S31	WS #4 Well #2B WW					X									X		N	X				85	2200	NW NE	36	02N	01E	
S32	WS #4 Well #3B WW					X									X		N	X				87	2000	NE NE	36	02N	01E	
S33	WS #4 Well #4B WW					X									X		N	X				87	1500	NE NE	36	02N	01E	
S34	WS #4 Well #5B WW					X									X		N	X				98	1700	NE NE	36	02N	01E	
S35	WS #4 Well #9 WW					X									X		N	X				93	600	NE NE	36	02N	01E	
S36	WS #8 Well #2 WW					X									X		N	X				88	525	SW SW	10	02N	02E	
S37	WS #8 Well #3 WW					X									X		N	X				72	750	SW SW	10	02N	02E	
S38	WS #9 Well #3 WW					X									X		N	X				129	1675	SE SE	14	02N	02E	
S39	WS #9 Well #4 WW					X									X		N	X				172	750	SE SE	14	02N	02E	
S40	WS #9 Well #5 WW					X									X		N	X				140	2425	SE SE	14	02N	02E	
S41	WS #9 Well #6 WW					X									X		N	X				94	1850	SW SE	14	02N	02E	
S42	WS #9 Well #7 WW					X									X		N	X				183	2360	SW SE	14	02N	02E	
S43	WS #14 Well #1 WW					X									X		N	X				157	980	NE NE	07	02N	02E	

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO. 91200 L	2. SYSTEM NAME VANCOUVER, CITY OF	3. COUNTY CLARK	4. GROUP A	5. TYPE Comm
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15 Source Number	16 SOURCE NAME LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER. Example: WELL #1 XYZ456 IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	17 INTERTIE INTERTIE SYSTEM ID NUMBER	18 SOURCE CATEGORY											19 USE					20					21 TREATMENT					22 DEPTH	23	24 SOURCE LOCATION					
			WELL	WELL FIELD	WELL IN A WELL FIELD	SPRING	SPRING FIELD	SPRING IN SPRINGFIELD	SEA WATER	SURFACE WATER	RANNEY /INF. GALLERY	OTHER	PERMANENT	SEASONAL	EMERGENCY	SOURCE METERED	NONE	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER	DEPTH TO FIRST OPEN INTERVAL IN FEET	CAPACITY (GALLONS PER MINUTE)	1/4, 1/4 SECTION	SECTION NUMBER	TOWNSHIP	RANGE								
S44	WS #14 Well #2 WW				X										X								N	X							154	1075	NE NE	07	02N	02E
S45	WS #14 Well #3 WW				X										X									N	X						147	850	NE NE	07	02N	02E
S46	WS #15 Well #1 WW ABS191				X										X									N	X						100	480	NW SE	20	02N	02E
S47	WS #15 Well #2 WW				X										X									N	X						101	500	SW NE	20	02N	02E
S48	WS #15 Well #3 WW				X										X									N	X						96	640	SW NE	20	02N	02E
S49	WS #15 Well #4 WW				X										X									N	X						101	500	SW NE	20	02N	02E
S50	Ellsworth WTP Well #1 WW				X										X									N	X						414	1800	SE SW	33	02N	02E
S51	Ellsworth WTP Well #2 WW				X										X									N	X						413	2300	SE SW	33	02N	02E

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO. 91200 L	2. SYSTEM NAME VANCOUVER, CITY OF	3. COUNTY CLARK	4. GROUP A	5. TYPE Comm	
			ACTIVE SERVICE CONNECTIONS	DOH USE ONLY! CALCULATED ACTIVE CONNECTIONS	DOH USE ONLY! APPROVED
25. SINGLE FAMILY RESIDENCES (How many of the following do you have?)			0	91026	Unspecified
A. Full Time Single Family Residences (Occupied 180 days or more per year)			57151		
B. Part Time Single Family Residences (Occupied less than 180 days per year)			0		
26. MULTI-FAMILY RESIDENTIAL BUILDINGS (How many of the following do you have?)					
A. Apartment Buildings, condos, duplexes, barracks, dorms			7467		
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year			33875		
C. Part Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied less than 180 days/year			0		
27. NON-RESIDENTIAL CONNECTIONS (How many of the following do you have?)					
A. Recreational Services and/or Transient Accommodations (Campsites, RV sites, hotel/motel/overnight units)			0	0	
B. Institutional, Commercial/Business, School, Day Care, Industrial Services, etc.			3104	3104	
28. TOTAL SERVICE CONNECTIONS				94130	

29. FULL-TIME RESIDENTIAL POPULATION	
A. How many residents are served by this system 180 or more days per year?	231000

30. PART-TIME RESIDENTIAL POPULATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many part-time residents are present each month?												
B. How many days per month are they present?												

31. TEMPORARY & TRANSIENT USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many total visitors, attendees, travelers, campers, patients or customers have access to the water system each month?												
B. How many days per month is water accessible to the public?												

32. REGULAR NON-RESIDENTIAL USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. If you have schools, daycares, or businesses connected to your water system, how many students daycare children and/or employees are present each month?												
B. How many days per month are they present?												

33. ROUTINE COLIFORM SCHEDULE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	150	150	150	150	150	150	150	150	150	150	150	150

35. Reason for Submitting WFI:

Update - Change
 Update - No Change
 Inactivate
 Re-Activate
 Name Change
 New System
 Other _____

36. I certify that the information stated on this WFI form is correct to the best of my knowledge.

SIGNATURE: _____ **DATE:** _____
PRINT NAME: _____ **TITLE:** _____

APPENDIX 1B – SERVICE AREA AGREEMENT

Addendum B

INTERLOCAL AGREEMENT FOR ADJUSTING OR CONFIRMING FUTURE WATER SERVICE AREA BOUNDARIES

BETWEEN

THE CITIES OF BATTLE GROUND, CAMAS, RIDGEFIELD, VANCOUVER AND WASHOUGAL, AND CLARK PUBLIC UTILITIES

THIS AGREEMENT, entered into by and between the CITIES OF BATTLE GROUND, CAMAS, RIDGEFIELD, VANCOUVER, WASHOUGAL and CLARK PUBLIC UTILITIES, (hereinafter referred to as the Water Purveyors), WITNESS THAT:

WHEREAS, Clark County and the city Water Purveyors conduct capital facilities and land use planning under the Growth Management Act as adopted by the State of Washington and subsequently amended; and

WHEREAS, RCW 70.116 *Public Water System Coordination Act*, and WAC 246-293-250 require the development of a Coordinated Water System Plan, including the establishment of Future Water Service Area boundaries; and

WHEREAS, the designation of Future Water Service Area boundaries will help facilitate efficient planning and delivering of water services within Clark County, avoid unnecessary duplication of water services and foster water operation predictability for the Water Purveyors, Clark County and the residents served by public water systems; and

WHEREAS, the designation of Future Water Service Area boundaries will help assure that available water supply sources for the Water Purveyors will be utilized in an efficient manner.

NOW THEREFORE, in consideration of covenants, conditions, performances and promises hereinafter contained, the undersigned Water Purveyors hereto agree to the following:

I. PURPOSE

The purpose of this agreement is to adjust or confirm Future Water Service Area boundaries of the Water Purveyors that are parties to this agreement.

II. EFFECTIVE DATE

This Agreement shall become effective upon the occurrence of the approval of this Agreement by the individual Water Purveyors' governing bodies, execution of this document by their authorized representatives, and the approval of this Agreement by the Clark County Board of Commissioners.

III. DURATION

This Agreement shall remain effective with regard to the individual Water Purveyors until terminated. Such termination shall occur with the next update of the Coordinated Water System Plan.

IV. PROPERTY

Nothing in this Agreement shall create or transfer any interest in real or personal property among the Water Purveyors. In the event any adjustment of a Future Water Service Area boundary requires transfer of water facility assets from one Water Purveyor to another Water Purveyor, a separate written agreement shall address the transfer of such assets.

V. ADMINISTRATION

No new or separate legal or administrative entity is created to administer the provisions of this Agreement. This Agreement shall be individually administered by the respective Water Purveyors, which shall each be individually responsible for financing its own actions pursuant to this Agreement.

VI. SCOPE

1. *Services Area Boundaries.* The maps identifying the Future Water Service Area boundaries dated July 2011 and attached to this Agreement as Exhibit A accurately identify the water systems' Future Water Service Areas, and there are no service conflicts with adjacent Water Purveyors.
2. *Boundary Streets.* Where streets or portions of streets serve as a Future Water Service Area boundary, both Water Purveyors may extend service within the street. The Water Purveyor that is located to the north and/or east of the portion of the street serving as a boundary shall also be entitled to extend service across the water service area boundary to properties abutting the street. Any other service extensions into adjacent Future Water Service Areas shall require written agreement of the involved Water Purveyors.

3. *Boundary Adjustments.* If at some time in the future it is in the best interests of the undersigned Water Purveyors to make Future Water Service Area boundary adjustments, such modifications shall have the written concurrence of the involved Water Purveyors and Clark County, and shall be filed with Clark County GIS and Community Planning, and the Washington State Department of Health.

VII. INTERPRETATION

This Agreement has been and shall be construed as having been made and delivered in the State of Washington and it is mutually agreed and understood by the Water Purveyors that this Agreement shall be governed by the laws of the State of Washington. Venue for any lawsuit arising from or related to this Agreement shall be the Superior Court of Clark County, Washington.

VIII. AMENDMENTS/MODIFICATION

The provisions of this Agreement may be amended only upon the mutual consent of the Water Purveyors. No amendments to the terms of this Agreement shall be valid unless made in writing and formally approved and executed by the duly authorized agents of the Water Purveyors and Clark County, and recorded with the Clark County Auditor.

IX. SEVERABILITY

If any section or part of this Agreement is held by a court to be invalid, such action shall not affect the validity of any other part of this Agreement.

X. ENTIRE AGREEMENT

This Agreement contains all of the agreements of the Water Purveyors with respect to the subject matter covered or mentioned therein, and no prior Agreement shall be effective to the contrary.

XI. DOCUMENT FILING

The Water Purveyors agree that there shall be one (1) original of this Agreement procured and distributed for signature by the necessary officials of the Water Purveyors. Upon execution, this Agreement shall be retained by Clark Public Community Planning and one copy shall be retained by each of the other Water Purveyors. Clark County Community Planning shall cause a copy of this Agreement to be recorded with the Clark County Auditor. Upon execution of the original and filing of a copy with the Clark

County Auditor, each copy shall constitute an agreement binding upon all Water Purveyors.

This agreement shall become effective once it is approved by the Clark County Board of Commissioners, as specified in WAC 246-293-250 *Future Water Service Area Agreements*.


This Interlocal Agreement for Adjusting or Confirming Future Water Service Area Boundaries is hereby approved:

John M. Williams, City Manager
City of Battle Ground
Date _____

Mayor Scott Higgins
City of Camas
Date _____

Wayne Nelson, General Manager
Clark Public Utilities
Date _____

Justin Clary, City Manager
City of Ridgefield
Date _____



Eric Holmes, City Manager
City of Vancouver
Date 12-21-11

Mayor Sean Guard
City of Washougal
Date _____

APPROVED BY THE CLARK COUNTY BOARD OF COMMISSIONERS

Commissioner Tom Mielke, Chair
Clark County Board of Commissioners
Attest: _____
Rebecca Tilton
Clerk to the Board

Resolution No. _____

Approved as to form:

Date: _____

Christine Cook
Deputy Prosecuting Attorney

APPENDIX 1C – INTERTIE AGREEMENT MOU

**EMERGENCY INTERTIE AGREEMENT
BETWEEN
WATER SYSTEMS OPERATIONS OF
CLARK PUBLIC UTILITIES
AND
THE CITY OF VANCOUVER**

THIS AGREEMENT is made and entered into this 28th day of May, 2015, by and between staff of the water systems operations administered by Clark Public Utilities, a municipal corporation of the State of Washington, hereinafter referred to as "Clark," and the City of Vancouver, a municipal corporation of the State of Washington, hereinafter referred to as the "City."

IN CONSIDERATION of the mutual promises, agreements, and covenants contained herein, it is hereby agreed, by and between the Parties, as follows:

RECITALS

WHEREAS, the Parties have developed a Coordinated Water System Plan ("CWSP") pursuant to the Public Water System Coordination Act of 1977, RCW Chapter 70.116; and

WHEREAS, the CWSP designates individual water service areas to avoid unnecessary duplication; and

WHEREAS, the CWSP anticipates the development of physical interconnection of those water systems at points known as interties; and

WHEREAS, water system interties provide mutual benefits to water system operators by creating water supply redundancies; and

WHEREAS, the Parties are entering into this Agreement to provide water service to each other during emergency conditions.

NOW THEREFORE, City of Vancouver and Clark Public Utilities having entered into this Agreement by their signature, agree with the following:

Section 1. OBJECTIVE

The purpose of this Agreement is to provide emergency water service to the requesting Party at a mutually acceptable intertie location. The current intertie locations are identified on Exhibit "A."

Section 2. CONDITIONS OF SERVICE

A. Metering

A water meter, or meters will be installed prior to use at each intertie location. The meter or meters will be set, owned, and maintained by the respective Party that is supplying the water. However, if one meter can serve water flowing in both directions at an intertie, the Parties may stipulate to alternate arrangements. Such alternate arrangement will be documented and signed by both Parties.

B. Other Infrastructure

Each side of the interties will be maintained by the respective purveyors up to the meter, including all fittings, valves, pressure reducing valves, booster pumps, vaults, piping, electrical connections, pressure gauges, drain pipes, and the piping.

C. Cost of Service

The cost of the water supplied through an intertie shall be based on the supplying Party's then current service rates, as follows:

1. When Clark Public Utilities supplies water to the City of Vancouver, the usage charge will be based on a public authority service.
2. When the City of Vancouver supplies water to Clark Public Utilities, the usage charge will be based on the inside city limits commercial rate.

Charges will be limited to water usage. There will be no monthly or system development charges.

D. Service Limitations

The interties are to be used only for emergency water service. Emergency service is defined as service during any event that requires either party's water supply to be augmented on a temporary emergency basis and is not intended to supply base or peak supply. Because this agreement covers only emergency water service, there is no specific time period in which water will be provided; emergency water service may be requested at any time.

Either Party can refuse to provide emergency water service if such use could result in a degradation of water quality. The City of Vancouver and Clark Public Utilities will monitor water quality at the intertie and each water purveyor will continue to be responsible for water quality monitoring within their system.

Either Party can refuse to provide emergency water service if the water is needed for their own system.

Each Party shall use reasonable efforts to provide an uninterrupted supply of water. However, neither Party guarantees the availability of water through the intertie at all times because of each party's respective needs and water demands. Further, either Party may close the intertie until sufficient water supply exists to make such available for use by either party.

The volume of water made available by the supplying utility will be dependent on the size of the intertie meter and the capacity available from the supplying water system.

Neither Party will be responsible for any losses attributed to their failure to provide water through the interties.

Either party can choose to abandon an intertie if the cost to alter, maintain or replace the connection exceeds the benefit to either party. The City and Clark will work together to maintain or establish new interties where financially feasible.

The City and Clark will work together to design and construct future interties.

Each Party shall designate a representative that is authorized to request emergency water service. Operation of the intertie shall be under the mutual consent of the City of Vancouver Water Operations Superintendent and Clark Public Utilities Water Operations Manager. Each Party shall notify the other Party in writing at least twelve (12) hours in advance of the time either party desires to receive water through the intertie. In case an emergency requires immediate use of the intertie, verbal notification and approval will be permitted, with follow-up written notification to occur as soon as practicable under the circumstances. Follow-up written notification of such emergency request shall be made by each Party to the other party within not more than three (3) days after the initiation of such emergency water usage. Upon notification of such request, the responding Party will provide available water service within a reasonable amount of time.

Section 4. GENERAL TERMS

A. Force Majeure

Notwithstanding anything contained in this Agreement to the contrary, neither Party will be deemed liable or to be in default for any delay or failure in performance under this Agreement deemed to result from acts of God, acts of civil and military authority, acts of public enemy, war, or any like cause beyond the Parties reasonable control.

B. Parties' Interests

Neither Party shall by virtue of this Agreement acquire any proprietary or governmental interest in the water system of the other Party. Each Party shall be solely responsible for the operation and maintenance of its own system of water distribution.

C. Water Use Efficiency Programs

Water use efficiency programs, data collection, water demand forecasting and other operational matters will be coordinated between the City of Vancouver and Clark Public Utilities through the CWSP. Additional coordination activities are not necessary for emergency interties.

D. Severability

Should any provision of this Agreement be held by a tribunal of competent jurisdiction to be invalid or unenforceable, the remainder of the Agreement will remain in full force and effect.

E. Assignment

Neither Party shall assign this Agreement, or any rights under it, or delegate any obligations under it, without first obtaining the written consent of the other Party.

F. Third Parties.


The terms of this Agreement are not intended to establish or create any rights in any persons or entities other than the Parties to this Agreement.

G. Entire Agreement

This Agreement comprises the entire understanding between the City and Clark with respect to the subject matter hereof, and there are no representations, inducements, promises, or agreements, oral or otherwise, not embodied herein. Any and all prior negotiations, discussions, commitments, and understandings relating hereto are merged herein.

IN WITNESS WHEREOF, the parties have executed this agreement at Vancouver, Washington this 28th day of May, 2015.

For Clark Public Utilities Water Systems Operations

By: 
Title: Director of Water Services
Date: 5/20/15

For City of Vancouver Water Systems Operations

By: 
Title: Public Works Director Date: 5/28/15

EXHIBIT "A" Intertie Locations



**APPENDIX 2A – DEMOGRAPHIC PROJECTIONS
SUPPORTING TABLES**

Table 2A -1 Demographic Forecasts by TAZ - Low
Comprehensive Water System Plan
City of Vancouver

Pressure Zone	Development Zone	TAZ	Households				Employees				Population			
			2013	2034	Build-Out	Ave Growth Rate (HH/yr)	2009	2034	Build-Out	Ave Growth Rate (Emp/yr)	2009	2034	Build-Out	Ave Growth Rate (People/yr)
Summary														
Evergreen High			64	1,813	1,813	83	104	180	180	3	145	4,673	4,673	181
Heights High			74,461	86,239	86,239	561	66,213	88,101	88,101	876	190,841	221,346	221,346	1,220
Heights Low			3,642	4,454	4,454	39	5,923	7,025	7,025	44	7,343	9,446	9,446	84
Lincoln High			460	489	489	1	25	25	25	0	1,046	1,122	1,122	3
Terrace High			295	295	295	0	336	336	336	0	772	772	772	0
Vancouver High			11,088	11,578	11,578	23	10,727	11,029	11,029	12	25,733	27,005	27,005	51
Vancouver Low			3,681	5,178	5,178	71	14,881	20,649	20,649	231	7,238	11,115	11,115	155
Total			93,691	110,046	110,046	779	98,209	127,345	127,345	1,165	233,119	275,479	275,479	1,694
Complete Data														
Evergreen High	EH	247	0	1042	1042	50	0	65	65	3	0	2698	2698	128
Evergreen High	EH	392	64	269	269	10	99	110	110	0	145	675	675	25
Evergreen High	EH	395	0	502	502	24	5	5	5	0	0	1300	1300	62
Heights High	HH-5	104	4	4	4	0	0	0	0	0	10	10	10	0
Heights High	HH-5	105	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-5	109	254	267	267	1	58	58	58	0	618	653	653	2
Heights High	HH-5	110	190	206	206	1	5	5	5	0	427	467	467	2
Heights High	HH-5	111	238	264	264	1	54	65	65	0	561	629	629	3
Heights High	HH-5	112	324	340	340	1	26	26	26	0	754	795	795	2
Heights High	HH-5	113	339	380	380	2	12	12	12	0	825	932	932	5
Heights High	HH-5	114	1258	1292	1292	2	44	44	44	0	2279	2368	2368	4
Heights High	HH-5	118	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-5	119	112	126	126	1	16	16	16	0	243	280	280	2
Heights High	HH-5	120	219	274	274	3	16	16	16	0	510	653	653	7
Heights High	HH-5	121	155	155	155	0	620	663	663	2	502	502	502	0
Heights High	HH-5	122	442	445	445	0	173	182	182	0	1028	1037	1037	0
Heights High	HH-5	123	373	373	373	0	29	31	31	0	888	889	889	0
Heights High	HH-5	124	744	754	754	0	194	223	223	1	1654	1680	1680	1
Heights High	HH-5	125	374	379	379	0	72	90	90	1	949	963	963	1
Heights High	HH-6	126	415	423	423	0	104	347	347	10	903	924	924	1
Heights High	HH-5	131	150	155	155	0	5	9	9	0	310	323	323	1
Heights High	HH-5	132	257	269	269	1	37	37	37	0	506	538	538	2
Heights High	HH-5	133	321	324	324	0	30	30	30	0	680	688	688	0
Heights High	HH-5	134	206	208	208	0	10	10	10	0	482	487	487	0
Heights High	HH-5	135	75	75	75	0	45	45	45	0	162	162	162	0
Heights High	HH-5	136	251	256	256	0	31	31	31	0	558	572	572	1
Heights High	HH-4	137	2	2	2	0	180	227	227	2	5	5	5	0
Heights High	HH-5	138	200	207	207	0	24	24	24	0	476	493	493	1
Heights High	HH-5	139	318	325	325	0	1199	1243	1243	2	704	722	722	1
Heights High	HH-5	140	370	382	382	1	19	19	19	0	860	891	891	1
Heights High	HH-4	141	849	966	966	6	76	125	125	2	1983	2287	2287	14
Heights High	HH-5	142	0	0	0	0	3910	3910	3910	0	0	0	0	0
Heights High	HH-5	143	336	342	342	0	13	32	32	1	724	740	740	1
Heights High	HH-5	144	198	226	226	1	8	8	8	0	467	540	540	3
Heights High	HH-5	145	286	287	287	0	734	734	734	0	748	750	750	0
Heights High	HH-6	146	460	477	477	1	771	846	846	3	1077	1120	1120	2
Heights High	HH-5	147	143	156	156	1	808	808	808	0	359	392	392	2
Heights High	HH-6	148	24	24	24	0	845	845	845	0	57	57	57	0
Heights High	HH-5	149	387	412	412	1	882	885	885	0	1021	1085	1085	3
Heights High	HH-5	150	198	199	199	0	919	919	919	0	554	557	557	0
Heights High	HH-5	151	229	230	230	0	956	956	956	0	655	659	659	0
Heights High	HH-5	152	371	377	377	0	993	993	993	0	1057	1074	1074	1
Heights High	HH-5	155	131	133	133	0	1030	1030	1030	0	257	262	262	0
Heights High	HH-1	162	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-5	164	26	38	38	1	0	0	0	0	38	69	69	1
Heights High	HH-1	165	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-1	167	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-1	168	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-5	169	31	32	32	0	11	11	11	0	79	82	82	0
Heights High	HH-4	170	5	5	5	0	0	0	0	0	8	8	8	0
Heights High	HH-4	171	505	555	555	2	44	44	44	0	1407	1537	1537	6
Heights High	HH-5	172	0	0	0	0	980	983	983	0	0	0	0	0
Heights High	HH-5	173	0	0	0	0	597	606	606	0	0	0	0	0
Heights High	HH-4	174	4	4	4	0	946	1032	1032	3	15	15	15	0
Heights High	HH-4	175	958	1014	1014	3	208	298	298	4	2257	2402	2402	7
Heights High	HH-4	176	421	423	423	0	533	589	589	2	1061	1066	1066	0
Heights High	HH-4	177	6	6	6	0	537	730	730	8	21	21	21	0
Heights High	HH-4	178	709	721	721	1	137	234	234	4	1872	1903	1903	1
Heights High	HH-4	179	13	13	13	0	1421	1469	1469	2	40	40	40	0
Heights High	HH-5	180	482	514	514	2	150	150	150	0	1157	1239	1239	4
Heights High	HH-5	181	312	313	313	0	82	82	82	0	778	779	779	0

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Comprehensive Water System Plan
City of Vancouver**

Pressure Zone	Development Zone	TAZ	Households				Employees				Population			
			2013	2034	Build- Out	Ave Growth Rate (HH/yr)	2009	2034	Build- Out	Ave Growth Rate (Emp/yr)	2009	2034	Build- Out	Ave Growth Rate (People/yr)
Heights High	HH-5	182	252	275	275	1	45	45	45	0	714	773	773	3
Heights High	HH-5	183	489	492	492	0	22	22	22	0	1202	1209	1209	0
Heights High	HH-1	185	381	443	443	3	153	203	203	2	956	1116	1116	8
Heights High	HH-1	186	349	481	481	6	58	58	58	0	935	1277	1277	16
Heights High	HH-1	187	302	366	366	3	6	6	6	0	850	1017	1017	8
Heights High	HH-1	188	381	424	424	2	17	17	17	0	1022	1134	1134	5
Heights High	HH-4	189	622	644	644	1	358	422	422	3	1511	1570	1570	3
Heights High	HH-4	190	991	999	999	0	1400	1409	1409	0	2147	2166	2166	1
Heights High	HH-4	191	147	147	147	0	1594	1627	1627	1	228	228	228	0
Heights High	HH-4	192	596	596	596	0	2551	2721	2721	7	1072	1072	1072	0
Heights High	HH-1	193	30	40	40	0	5	5	5	0	70	95	95	1
Heights High	HH-1	194	414	500	500	4	132	142	142	0	985	1207	1207	11
Heights High	HH-1	195	209	226	226	1	90	110	110	1	543	588	588	2
Heights High	HH-1	196	605	630	630	1	181	193	193	0	1391	1456	1456	3
Heights High	HH-1	197	402	517	517	5	322	370	370	2	952	1251	1251	14
Heights High	HH-1	198	444	466	466	1	29	29	29	0	1155	1211	1211	3
Heights High	HH-1	199	470	512	512	2	7	20	20	1	1313	1422	1422	5
Heights High	HH-1	200	747	1169	1169	20	67	67	67	0	1888	2980	2980	52
Heights High	HH-1	201	211	403	403	9	211	270	270	2	564	1061	1061	24
Heights High	HH-4	202	833	1024	1024	9	572	633	633	2	1656	2151	2151	24
Heights High	HH-1	203	342	429	429	4	7	11	11	0	852	1076	1076	11
Heights High	HH-4	204	580	698	698	6	31	77	77	2	1350	1655	1655	15
Heights High	HH-1	205	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-1	206	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-1	210	45	47	47	0	906	1267	1267	14	118	122	122	0
Heights High	HH-1	211	568	617	617	2	433	917	917	19	1582	1709	1709	6
Heights High	HH-1	212	478	571	571	4	137	137	137	0	1291	1531	1531	11
Heights High	HH-1	213	246	295	295	2	14	14	14	0	545	671	671	6
Heights High	HH-1	214	593	687	687	4	209	209	209	0	1563	1807	1807	12
Heights High	HH-1	220	6	26	26	1	77	86	86	0	11	64	64	3
Heights High	HH-2	221	4	4	4	0	540	1023	1023	19	9	9	9	0
Heights High	HH-2	222	1	173	173	8	319	375	375	2	1	447	447	21
Heights High	HH-2	227	16	16	16	0	389	988	988	24	36	36	36	0
Heights High	HH-5	237	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-5	239	334	335	335	0	51	51	51	0	949	953	953	0
Heights High	HH-5	240	1121	1158	1158	2	171	171	171	0	2475	2572	2572	5
Heights High	HH-5	241	310	345	345	2	21	21	21	0	783	873	873	4
Heights High	HH-5	242	250	250	250	0	14	14	14	0	576	576	576	0
Heights High	HH-5	243	1278	1279	1279	0	543	566	566	1	2202	2204	2204	0
Heights High	HH-5	244	565	624	624	3	19	19	19	0	1351	1505	1505	7
Heights High	HH-5	245	544	544	544	0	50	50	50	0	1076	1076	1076	0
Heights High	HH-7	246	601	601	601	0	1146	1178	1178	1	1198	1198	1198	0
Heights High	HH-7	247	740	774	774	2	133	136	136	0	2041	2130	2130	4
Heights High	HH-7	248	0	0	0	0	1460	1510	1510	2	0	0	0	0
Heights High	HH-7	249	1138	1138	1138	0	52	130	130	3	3181	3181	3181	0
Heights High	HH-5	250	497	499	499	0	60	60	60	0	1290	1296	1296	0
Heights High	HH-6	251	0	0	0	0	289	289	289	0	0	0	0	0
Heights High	HH-5	252	515	523	523	0	44	44	44	0	1196	1215	1215	1
Heights High	HH-6	253	417	421	421	0	179	311	311	5	856	867	867	0
Heights High	HH-6	254	324	324	324	0	833	898	898	3	625	625	625	0
Heights High	HH-6	255	664	668	668	0	253	283	283	1	1589	1598	1598	0
Heights High	HH-5	256	731	731	731	0	252	252	252	0	1779	1779	1779	0
Heights High	HH-5	257	324	324	324	0	67	67	67	0	793	793	793	0
Heights High	HH-5	258	505	505	505	0	220	224	224	0	1113	1113	1113	0
Heights High	HH-5	259	307	307	307	0	220	220	220	0	733	733	733	0
Heights High	HH-5	260	448	448	448	0	750	750	750	0	875	875	875	0
Heights High	HH-7	261	362	364	364	0	332	484	484	6	871	875	875	0
Heights High	HH-7	262	0	0	0	0	1414	1451	1451	1	0	0	0	0
Heights High	HH-7	263	126	126	126	0	905	1250	1250	14	305	305	305	0
Heights High	HH-7	264	241	288	288	2	809	982	982	7	662	783	783	6
Heights High	HH-5	265	429	531	531	5	131	141	141	0	1201	1464	1464	13
Heights High	HH-6	266	370	370	370	0	1108	1151	1151	2	778	778	778	0
Heights High	HH-5	267	313	313	313	0	8	8	8	0	718	718	718	0
Heights High	HH-6	268	0	0	0	0	22	860	860	34	0	0	0	0
Heights High	HH-6	269	216	217	217	0	378	420	420	2	560	561	561	0
Heights High	HH-5	270	197	258	258	3	86	86	86	0	550	708	708	8
Heights High	HH-5	271	725	726	726	0	38	38	38	0	2053	2055	2055	0
Heights High	HH-5	272	422	422	422	0	493	496	496	0	974	974	974	0
Heights High	HH-7	273	567	575	575	0	286	359	359	3	1620	1642	1642	1
Heights High	HH-7	274	574	574	574	0	140	276	276	5	1354	1354	1354	0
Heights High	HH-7	275	810	836	836	1	108	333	333	9	2106	2173	2173	3

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Heights High	HH-7	276	53	53	53	0	347	553	553	8	137	137	137	0
Heights High	HH-7	277	0	0	0	0	305	578	578	11	0	0	0	0
Heights High	HH-7	278	210	589	589	18	148	1698	1698	62	555	1537	1537	47
Heights High	HH-7	279	3	377	377	18	5	1334	1334	53	10	978	978	46
Heights High	HH-5	280	170	292	292	6	179	186	186	0	476	792	792	15
Heights High	HH-5	281	334	349	349	1	17	17	17	0	904	943	943	2
Heights High	HH-6	282	0	0	0	0	746	1100	1100	14	0	0	0	0
Heights High	HH-6	283	0	0	0	0	218	428	428	8	0	0	0	0
Heights High	HH-5	284	805	876	876	3	103	103	103	0	2098	2280	2280	9
Heights High	HH-5	285	360	366	366	0	27	27	27	0	1023	1038	1038	1
Heights High	HH-5	286	142	195	195	3	41	81	81	2	387	523	523	6
Heights High	HH-5	287	694	722	722	1	535	554	554	1	1062	1135	1135	3
Heights High	HH-5	288	186	324	324	7	150	283	283	5	285	642	642	17
Heights High	HH-5	289	0	0	0	0	211	222	222	0	0	0	0	0
Heights High	HH-5	290	50	221	221	8	5	5	5	0	108	550	550	21
Heights High	HH-5	291	225	234	234	0	40	40	40	0	620	642	642	1
Heights High	HH-5	292	500	622	622	6	11	11	11	0	1106	1422	1422	15
Heights High	HH-5	293	406	420	420	1	36	36	36	0	1129	1165	1165	2
Heights High	HH-5	294	232	242	242	0	3849	3849	3849	0	598	623	623	1
Heights High	HH-5	295	268	279	279	1	26	54	54	1	751	779	779	1
Heights High	HH-5	296	318	351	351	2	119	145	145	1	929	1014	1014	4
Heights High	HH-5	297	623	660	660	2	39	39	39	0	1922	2018	2018	5
Heights High	HH-5	298	516	529	529	1	217	217	217	0	1465	1498	1498	2
Heights High	HH-5	299	621	657	657	2	41	41	41	0	1722	1816	1816	4
Heights High	HH-7	300	998	1172	1172	8	217	259	259	2	3165	3614	3614	21
Heights High	HH-7	301	829	984	984	7	44	44	44	0	2628	3028	3028	19
Heights High	HH-7	302	201	502	502	14	15	15	15	0	633	1414	1414	37
Heights High	HH-4	303	390	402	402	1	683	880	880	8	973	1003	1003	1
Heights High	HH-5	304	517	544	544	1	840	840	840	0	1321	1390	1390	3
Heights High	HH-4	305	382	407	407	1	33	62	62	1	870	934	934	3
Heights High	HH-5	306	520	537	537	1	57	57	57	0	1490	1533	1533	2
Heights High	HH-5	307	264	322	322	3	9	29	29	1	734	883	883	7
Heights High	HH-5	308	415	447	447	2	20	20	20	0	1156	1240	1240	4
Heights High	HH-5	309	231	285	285	3	15	15	15	0	666	807	807	7
Heights High	HH-5	310	293	301	301	0	10	21	21	0	856	876	876	1
Heights High	HH-5	311	311	334	334	1	12	12	12	0	909	968	968	3
Heights High	HH-5	312	291	295	295	0	4	4	4	0	783	792	792	0
Heights High	HH-5	313	519	523	523	0	25	25	25	0	1636	1645	1645	0
Heights High	HH-4	314	328	328	328	0	15	845	845	33	976	976	976	0
Heights High	HH-5	315	394	410	410	1	34	36	36	0	1362	1402	1402	2
Heights High	HH-4	316	3	3	3	0	829	903	903	3	6	6	6	0
Heights High	HH-4	317	0	0	0	0	354	390	390	1	0	0	0	0
Heights High	HH-4	318	659	698	698	2	329	442	442	5	1309	1410	1410	5
Heights High	HH-4	319	62	125	125	3	662	1047	1047	15	175	337	337	8
Heights High	HH-4	320	245	337	337	4	86	285	285	8	681	919	919	11
Heights High	HH-4	321	184	189	189	0	42	1613	1613	63	569	582	582	1
Heights High	HH-4	322	12	12	12	0	263	1429	1429	47	36	36	36	0
Heights High	HH-3	323	163	735	735	27	19	364	364	14	516	1999	1999	71
Heights High	HH-4	324	1	1	1	0	22	77	77	2	2	2	2	0
Heights High	HH-1	325	216	244	244	1	4	4	4	0	609	682	682	4
Heights High	HH-1	326	322	335	335	1	18	18	18	0	959	991	991	2
Heights High	HH-2	327	440	468	468	1	58	94	94	1	1266	1339	1339	3
Heights High	HH-4	328	147	147	147	0	26	131	131	4	377	377	377	0
Heights High	HH-1	329	195	260	260	3	119	144	144	1	534	704	704	8
Heights High	HH-4	330	12	12	12	0	39	89	89	2	30	30	30	0
Heights High	HH-4	331	30	34	34	0	217	292	292	3	88	98	98	0
Heights High	HH-2	332	386	462	462	4	41	74	74	1	1144	1340	1340	9
Heights High	HH-4	333	344	410	410	3	217	312	312	4	958	1130	1130	8
Heights High	HH-4	334	335	335	335	0	44	235	235	8	859	859	859	0
Heights High	HH-4	335	132	138	138	0	15	296	296	11	378	394	394	1
Heights High	HH-4	336	195	330	330	6	683	1000	1000	13	440	790	790	17
Heights High	HH-2	337	202	202	202	0	840	840	840	0	601	601	601	0
Heights High	HH-4	338	50	87	87	2	33	61	61	1	153	248	248	5
Heights High	HH-2	339	163	201	201	2	57	57	57	0	430	528	528	5
Heights High	HH-2	340	315	327	327	1	9	9	9	0	959	989	989	1
Heights High	HH-3	341	614	977	977	17	20	281	281	10	1939	2880	2880	45
Heights High	HH-3	342	250	253	253	0	15	311	311	12	948	954	954	0
Heights High	HH-1	343	276	312	312	2	10	10	10	0	776	869	869	4
Heights High	HH-2	344	310	378	378	3	12	468	468	18	807	984	984	8
Heights High	HH-2	345	564	635	635	3	4	119	119	5	1889	2072	2072	9
Heights High	HH-2	346	269	318	318	2	25	66	66	2	734	860	860	6

**Table 2A -1 Demographic Forecasts by TAZ - Low
Comprehensive Water System Plan
City of Vancouver**

Pressure Zone	Development Zone	TAZ	Households				Employees				Population			
			2013	2034	Build- Out	Ave Growth Rate (HH/yr)	2009	2034	Build- Out	Ave Growth Rate (Emp/yr)	2009	2034	Build- Out	Ave Growth Rate (People/yr)
Heights High	HH-2	347	457	473	473	1	15	496	496	19	1332	1374	1374	2
Heights High	HH-2	348	97	109	109	1	34	323	323	12	313	345	345	1
Heights High	HH-2	349	586	599	599	1	829	929	929	4	1793	1826	1826	2
Heights High	HH-2	350	346	357	357	1	354	374	374	1	991	1020	1020	1
Heights High	HH-2	351	732	739	739	0	329	1010	1010	27	1980	1998	1998	1
Heights High	HH-2	352	328	340	340	1	662	662	662	0	1033	1063	1063	1
Heights High	HH-3	353	978	1075	1075	5	86	86	86	0	2968	3220	3220	12
Heights High	HH-2	354	358	362	362	0	42	42	42	0	1007	1017	1017	0
Heights High	HH-3	355	530	699	699	8	263	379	379	5	1587	2024	2024	21
Heights High	HH-3	356	239	277	277	2	19	19	19	0	695	794	794	5
Heights High	HH-3	357	818	924	924	5	22	22	22	0	2542	2817	2817	13
Heights High	HH-3	358	218	471	471	12	4	127	127	5	600	1256	1256	31
Heights High	HH-3	359	110	530	530	20	18	18	18	0	368	1455	1455	52
Heights High	HH-2	363	6	6	6	0	58	251	251	8	9	9	9	0
Heights High	HH-2	365	171	189	189	1	55	192	192	5	457	505	505	2
Heights High	HH-3	367	298	363	363	3	14	14	14	0	838	1008	1008	8
Heights High	HH-3	368	273	542	542	13	29	50	50	1	830	1527	1527	33
Heights High	HH-3	369	463	622	622	8	37	58	58	1	1458	1870	1870	20
Heights High	HH-3	370	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-3	371	278	1000	1000	34	73	403	403	13	756	2626	2626	89
Heights High	HH-3	373	243	999	999	36	3	754	754	30	729	2687	2687	93
Heights High	HH-3	374	216	401	401	9	11	11	11	0	633	1112	1112	23
Heights High	HH-5	392	0	2	2	0	0	0	0	0	0	5	5	0
Heights High	HH-7	395	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-7	410	200	321	321	6	5	74	74	3	471	785	785	15
Heights High	HH-7	411	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-7	418	458	545	545	4	66	66	66	0	1381	1606	1606	11
Heights High	HH-7	420	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-7	425	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-7	426	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-7	480	25	69	69	2	5	5	5	0	77	190	190	5
Heights High	HH-7	481	109	190	190	4	4	4	4	0	319	530	530	10
Heights High	HH-7	489	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-3	495	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-3	497	21	86	86	3	5	5	5	0	56	225	225	8
Heights High	HH-6	616	20	20	20	0	398	398	398	0	52	52	52	0
Heights High	HH-6	617	66	66	66	0	967	967	967	0	142	142	142	0
Heights High	HH-5	618	78	82	82	0	5	5	5	0	204	215	215	1
Heights High	HH-6	619	5	5	5	0	525	572	572	2	10	10	10	0
Heights High	HH-5	620	170	170	170	0	959	968	968	0	438	438	438	0
Heights High	HH-6	621	0	0	0	0	5	186	186	7	0	0	0	0
Heights High	HH-6	622	0	0	0	0	498	498	498	0	0	0	0	0
Heights High	HH-6	623	0	0	0	0	613	954	954	14	0	0	0	0
Heights High	HH-5	624	434	766	766	16	23	23	23	0	1003	1863	1863	41
Heights High	HH-5	625	292	292	292	0	17	73	73	2	759	759	759	0
Heights High	HH-5	626	402	404	404	0	22	22	22	0	956	962	962	0
Heights High	HH-5	627	115	116	116	0	3	3	3	0	291	292	292	0
Heights High	HH-5	628	232	246	246	1	14	14	14	0	619	655	655	2
Heights High	HH-7	651	0	0	0	0	0	2	2	0	0	0	0	0
Heights High	HH-7	652	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-2	102	354	354	354	0	1095	1268	1268	7	592	592	592	0
Heights Low	HL-2	103	134	134	134	0	1580	2203	2203	25	251	251	251	0
Heights Low	HL-3	104	340	367	367	1	123	123	123	0	741	812	812	3
Heights Low	HL-3	105	301	533	533	11	51	51	51	0	738	1339	1339	29
Heights Low	HL-2	106	8	8	8	0	1213	1309	1309	4	20	20	20	0
Heights Low	HL-2	107	0	0	0	0	936	1118	1118	7	0	0	0	0
Heights Low	HL-3	108	453	583	583	6	17	17	17	0	646	981	981	16
Heights Low	HL-3	109	33	45	45	1	5	5	5	0	61	91	91	1
Heights Low	HL-3	110	2	3	3	0	5	5	5	0	5	6	6	0
Heights Low	HL-3	111	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-3	113	63	83	83	1	11	11	11	0	157	208	208	2
Heights Low	HL-3	114	1	38	38	2	0	0	0	0	2	98	98	5
Heights Low	HL-2	115	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-1	116	702	750	750	2	480	505	505	1	1333	1457	1457	6
Heights Low	HL-1	117	290	323	323	2	166	166	166	0	640	725	725	4
Heights Low	HL-1	118	217	220	220	0	114	116	116	0	495	503	503	0
Heights Low	HL-1	119	4	4	4	0	0	0	0	0	9	9	9	0
Heights Low	HL-3	120	1	77	77	4	0	0	0	0	2	199	199	9
Heights Low	HL-1	128	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-1	130	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-1	131	212	221	221	0	71	71	71	0	455	478	478	1

**Table 2A -1 Demographic Forecasts by TAZ - Low
Comprehensive Water System Plan
City of Vancouver**

Pressure Zone	Development Zone	TAZ	Households				Employees				Population			
			2013	2034	Build-Out	Ave Growth Rate (HH/yr)	2009	2034	Build-Out	Ave Growth Rate (Emp/yr)	2009	2034	Build-Out	Ave Growth Rate (People/yr)
Heights Low	HL-1	132	35	40	40	0	5	5	5	0	67	79	79	1
Heights Low	HL-3	237	53	148	148	5	12	12	12	0	121	367	367	12
Heights Low	HL-3	238	435	521	521	4	39	39	39	0	1000	1222	1222	11
Heights Low	HL-3	239	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-3	240	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-3	241	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-3	392	4	4	4	0	0	0	0	0	8	9	9	0
Lincoln High	LH	55	194	216	216	1	7	7	7	0	447	505	505	3
Lincoln High	LH	56	56	56	56	0	5	5	5	0	118	118	118	0
Lincoln High	LH	59	158	164	164	0	13	13	13	0	357	372	372	1
Lincoln High	LH	60	52	53	53	0	0	0	0	0	124	127	127	0
Terrace High	TH	247	0	0	0	0	257	257	257	0	0	0	0	0
Terrace High	TH	248	0	0	0	0	0	0	0	0	0	0	0	0
Terrace High	TH	395	120	120	120	0	70	70	70	0	300	300	300	0
Terrace High	TH	410	175	175	175	0	9	9	9	0	472	472	472	0
Vancouver High	VH-2	35	48	48	48	0	89	89	89	0	76	76	76	0
Vancouver High	VH-2	36	96	96	96	0	29	29	29	0	174	176	176	0
Vancouver High	VH-2	37	126	126	126	0	86	86	86	0	289	289	289	0
Vancouver High	VH-2	42	468	490	490	1	66	105	105	2	1255	1311	1311	3
Vancouver High	VH-2	43	242	242	242	0	7	9	9	0	549	549	549	0
Vancouver High	VH-2	44	189	189	189	0	28	28	28	0	399	400	400	0
Vancouver High	VH-2	45	286	289	289	0	26	26	26	0	680	689	689	0
Vancouver High	VH-2	46	172	174	174	0	134	134	134	0	361	367	367	0
Vancouver High	VH-2	47	164	164	164	0	501	503	503	0	377	378	378	0
Vancouver High	VH-2	48	118	126	126	0	52	52	52	0	212	234	234	1
Vancouver High	VH-2	49	85	85	85	0	5	5	5	0	191	193	193	0
Vancouver High	VH-2	50	26	26	26	0	7	7	7	0	51	51	51	0
Vancouver High	VH-2	51	117	117	117	0	7	7	7	0	244	244	244	0
Vancouver High	VH-2	52	24	24	24	0	418	418	418	0	36	36	36	0
Vancouver High	VH-2	53	187	188	188	0	10	10	10	0	394	396	396	0
Vancouver High	VH-1	55	218	234	234	1	5	16	16	0	554	595	595	2
Vancouver High	VH-2	56	299	299	299	0	23	23	23	0	675	675	675	0
Vancouver High	VH-2	57	245	247	247	0	14	28	28	1	521	525	525	0
Vancouver High	VH-1	58	115	117	117	0	81	81	81	0	248	253	253	0
Vancouver High	VH-1	59	125	129	129	0	13	13	13	0	318	328	328	0
Vancouver High	VH-1	60	180	203	203	1	10	10	10	0	435	493	493	3
Vancouver High	VH-1	61	459	527	527	3	129	154	154	1	1051	1227	1227	8
Vancouver High	VH-1	63	300	313	313	1	13	13	13	0	725	758	758	2
Vancouver High	VH-1	64	82	120	120	2	5	5	5	0	208	306	306	5
Vancouver High	VH-1	65	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver High	VH-1	66	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver High	VH-1	131	34	34	34	0	135	135	135	0	65	65	65	0
Vancouver High	VH-3	133	438	453	453	1	63	63	63	0	879	918	918	2
Vancouver High	VH-3	134	195	199	199	0	25	25	25	0	474	485	485	1
Vancouver High	VH-3	135	240	240	240	0	30	30	30	0	516	516	516	0
Vancouver High	VH-1	153	0	0	0	0	969	971	971	0	0	0	0	0
Vancouver High	VH-1	154	0	0	0	0	1186	1186	1186	0	0	0	0	0
Vancouver High	VH-1	155	293	295	295	0	199	204	204	0	577	582	582	0
Vancouver High	VH-1	156	125	125	125	0	22	22	22	0	281	282	282	0
Vancouver High	VH-1	157	195	195	195	0	27	33	33	0	467	467	467	0
Vancouver High	VH-1	158	288	288	288	0	18	20	20	0	727	728	728	0
Vancouver High	VH-1	159	169	170	170	0	42	46	46	0	415	417	417	0
Vancouver High	VH-1	160	312	313	313	0	36	39	39	0	783	785	785	0
Vancouver High	VH-1	161	383	389	389	0	23	23	23	0	961	976	976	1
Vancouver High	VH-1	162	211	212	212	0	74	77	77	0	480	483	483	0
Vancouver High	VH-3	163	766	769	769	0	399	418	418	1	1808	1816	1816	0
Vancouver High	VH-3	164	603	615	615	1	218	319	319	4	1390	1420	1420	1
Vancouver High	VH-3	165	511	511	511	0	67	74	74	0	1171	1171	1171	0
Vancouver High	VH-3	166	387	395	395	0	30	30	30	0	823	844	844	1
Vancouver High	VH-3	167	416	428	428	1	38	45	45	0	1156	1188	1188	2
Vancouver High	VH-3	168	275	416	416	7	46	46	46	0	736	1102	1102	17
Vancouver High	VH-3	169	375	375	375	0	89	91	91	0	817	817	817	0
Vancouver High	VH-3	170	218	229	229	1	547	595	595	2	444	473	473	1
Vancouver High	VH-3	171	62	62	62	0	3305	3305	3305	0	176	176	176	0
Vancouver High	VH-1	184	151	193	193	2	11	11	11	0	392	502	502	5
Vancouver High	VH-1	185	48	65	65	1	3	3	3	0	118	162	162	2
Vancouver High	VH-3	186	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver High	VH-1	193	22	33	33	1	1367	1367	1367	0	55	83	83	1
Vancouver High	VH-1	205	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver Low	VL-2	1	1	1	1	0	552	566	566	1	1	1	1	0
Vancouver Low	VL-2	2	191	191	191	0	168	175	175	0	215	215	215	0

Table 2A -1 Demographic Forecasts by TAZ - Low Comprehensive Water System Plan City of Vancouver														
Pressure Zone	Development Zone	TAZ	Households				Employees				Population			
			2013	2034	Build- Out	Ave Growth Rate (HH/yr)	2009	2034	Build- Out	Ave Growth Rate (Emp/yr)	2009	2034	Build- Out	Ave Growth Rate (People/yr)
Vancouver Low	VL-2	3	146	146	146	0	184	187	187	0	211	211	211	0
Vancouver Low	VL-2	4	46	46	46	0	244	249	249	0	51	51	51	0
Vancouver Low	VL-2	5	169	169	169	0	128	136	136	0	224	224	224	0
Vancouver Low	VL-2	6	0	0	0	0	289	289	289	0	0	0	0	0
Vancouver Low	VL-2	7	0	0	0	0	411	411	411	0	0	0	0	0
Vancouver Low	VL-2	8	13	13	13	0	325	325	325	0	18	18	18	0
Vancouver Low	VL-2	9	0	0	0	0	693	701	701	0	0	0	0	0
Vancouver Low	VL-2	10	29	29	29	0	818	822	822	0	37	37	37	0
Vancouver Low	VL-2	11	172	172	172	0	437	465	465	1	294	294	294	0
Vancouver Low	VL-2	12	0	0	0	0	153	156	156	0	0	0	0	0
Vancouver Low	VL-2	13	0	0	0	0	1677	1682	1682	0	0	0	0	0
Vancouver Low	VL-2	14	99	99	99	0	61	66	66	0	195	195	195	0
Vancouver Low	VL-2	15	4	4	4	0	163	168	168	0	9	9	9	0
Vancouver Low	VL-2	16	1	1	1	0	201	201	201	0	3	3	3	0
Vancouver Low	VL-2	17	33	33	33	0	31	33	33	0	37	37	37	0
Vancouver Low	VL-2	18	86	86	86	0	239	244	244	0	108	108	108	0
Vancouver Low	VL-2	19	55	55	55	0	145	168	168	1	112	112	112	0
Vancouver Low	VL-3	20	0	1406	1406	67	225	617	617	16	0	3641	3641	173
Vancouver Low	VL-1	21	126	126	126	0	301	328	328	1	188	188	188	0
Vancouver Low	VL-2	22	0	0	0	0	479	500	500	1	0	0	0	0
Vancouver Low	VL-2	23	12	12	12	0	560	562	562	0	17	17	17	0
Vancouver Low	VL-2	24	0	0	0	0	800	800	800	0	0	0	0	0
Vancouver Low	VL-2	25	129	129	129	0	3	3	3	0	311	311	311	0
Vancouver Low	VL-1	26	0	0	0	0	742	1253	1253	20	0	0	0	0
Vancouver Low	VL-1	27	91	92	92	0	159	189	189	1	215	218	218	0
Vancouver Low	VL-1	28	276	281	281	0	240	318	318	3	705	718	718	1
Vancouver Low	VL-2	29	268	270	270	0	26	26	26	0	593	599	599	0
Vancouver Low	VL-2	30	71	71	71	0	5	5	5	0	121	122	122	0
Vancouver Low	VL-2	31	113	113	113	0	2	2	2	0	256	257	257	0
Vancouver Low	VL-2	32	27	27	27	0	80	82	82	0	73	73	73	0
Vancouver Low	VL-2	33	290	290	290	0	233	233	233	0	381	381	381	0
Vancouver Low	VL-2	34	17	17	17	0	188	196	196	0	35	35	35	0
Vancouver Low	VL-2	35	1	1	1	0	59	59	59	0	2	2	2	0
Vancouver Low	VL-2	36	115	115	115	0	108	108	108	0	226	226	226	0
Vancouver Low	VL-2	37	9	9	9	0	0	0	0	0	19	19	19	0
Vancouver Low	VL-1	38	21	22	22	0	391	3504	3504	125	53	56	56	0
Vancouver Low	VL-1	39	1	1	1	0	0	661	661	26	2	2	2	0
Vancouver Low	VL-1	40	318	319	319	0	116	140	140	1	735	739	739	0
Vancouver Low	VL-1	41	368	372	372	0	532	581	581	2	946	955	955	0
Vancouver Low	VL-1	42	1	2	2	0	115	118	118	0	3	4	4	0
Vancouver Low	VL-2	43	19	19	19	0	0	0	0	0	37	37	37	0
Vancouver Low	VL-2	44	11	11	11	0	27	27	27	0	22	22	22	0
Vancouver Low	VL-2	46	16	16	16	0	5	5	5	0	26	26	26	0
Vancouver Low	VL-1	54	110	110	110	0	1084	1566	1566	19	266	266	266	0
Vancouver Low	VL-1	55	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver Low	VL-1	62	143	213	213	3	207	447	447	10	331	513	513	9
Vancouver Low	VL-1	63	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver Low	VL-3	102	0	0	0	0	169	169	169	0	0	0	0	0
Vancouver Low	VL-3	106	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver Low	VL-2	115	0	0	0	0	366	366	366	0	0	0	0	0
Vancouver Low	VL-2	127	0	0	0	0	395	395	395	0	0	0	0	0
Vancouver Low	VL-2	128	6	6	6	0	329	329	329	0	9	9	9	0
Vancouver Low	VL-2	129	0	0	0	0	5	5	5	0	0	0	0	0
Vancouver Low	VL-2	130	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver Low	VL-2	131	46	51	51	0	11	11	11	0	90	103	103	1
Vancouver Low	VL-2	153	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver Low	VL-2	154	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver Low	VL-2	155	31	31	31	0	0	0	0	0	61	61	61	0

**Table 2A -2 Demographic Forecasts by TAZ - High
Comprehensive Water System Plan
City of Vancouver**

Pressure Zone	Households				Employees				Population					
	2013	2034	Build- Out	Ave Growth Rate (HH/yr)	2009	2034	Build- Out	Ave Growth Rate (Emp/yr)	2009	2034	Build- Out	Ave Growth Rate (People/yr)		
Summary														
Evergreen High	64	2,292	2,292	106	104	180	180	3	145	5,916	5,916	231		
Heights High	74,461	87,821	87,821	636	66,213	88,101	88,101	876	190,841	225,443	225,443	1,384		
Heights Low	3,642	4,454	4,454	39	5,923	7,025	7,025	44	7,343	9,446	9,446	84		
Lincoln High	460	489	489	1	25	25	25	0	1,046	1,122	1,122	3		
Terrace High	295	295	295	0	336	336	336	0	772	772	772	0		
Vancouver High	11,088	12,091	12,091	48	10,727	11,029	11,029	12	25,733	28,331	28,331	104		
Vancouver Low	3,681	6,583	6,583	138	14,881	20,649	20,649	231	7,238	14,755	14,755	301		
Total	93,691	114,025	114,025	968	98,209	127,345	127,345	1,165	233,119	285,786	285,786	2,107		
Complete Data														
Evergreen High	EH	247	0	1282	1282	61	0	65	65	3	0	3319	3319	158
Evergreen High	EH	392	64	269	269	10	99	110	110	0	145	675	675	25
Evergreen High	EH	395	0	742	742	35	5	5	5	0	0	1921	1921	91
Heights High	HH-5	104	4	4	4	0	0	0	0	0	10	10	10	0
Heights High	HH-5	105	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-5	109	254	267	267	1	58	58	58	0	618	653	653	2
Heights High	HH-5	110	190	206	206	1	5	5	5	0	427	467	467	2
Heights High	HH-5	111	238	264	264	1	54	65	65	0	561	629	629	3
Heights High	HH-5	112	324	340	340	1	26	26	26	0	754	795	795	2
Heights High	HH-5	113	339	380	380	2	12	12	12	0	825	932	932	5
Heights High	HH-5	114	1258	1292	1292	2	44	44	44	0	2279	2368	2368	4
Heights High	HH-5	118	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-5	119	112	126	126	1	16	16	16	0	243	280	280	2
Heights High	HH-5	120	219	274	274	3	16	16	16	0	510	653	653	7
Heights High	HH-5	121	155	155	155	0	620	663	663	2	502	502	502	0
Heights High	HH-5	122	442	445	445	0	173	182	182	0	1028	1037	1037	0
Heights High	HH-5	123	373	373	373	0	29	31	31	0	888	889	889	0
Heights High	HH-5	124	744	754	754	0	194	223	223	1	1654	1680	1680	1
Heights High	HH-5	125	374	379	379	0	72	90	90	1	949	963	963	1
Heights High	HH-6	126	415	423	423	0	104	347	347	10	903	924	924	1
Heights High	HH-5	131	150	155	155	0	5	9	9	0	310	323	323	1
Heights High	HH-5	132	257	269	269	1	37	37	37	0	506	538	538	2
Heights High	HH-5	133	321	324	324	0	30	30	30	0	680	688	688	0
Heights High	HH-5	134	206	208	208	0	10	10	10	0	482	487	487	0
Heights High	HH-5	135	75	75	75	0	45	45	45	0	162	162	162	0
Heights High	HH-5	136	251	256	256	0	31	31	31	0	558	572	572	1
Heights High	HH-4	137	2	2	2	0	180	227	227	2	5	5	5	0
Heights High	HH-5	138	200	207	207	0	24	24	24	0	476	493	493	1
Heights High	HH-5	139	318	325	325	0	1199	1243	1243	2	704	722	722	1
Heights High	HH-5	140	370	382	382	1	19	19	19	0	860	891	891	1
Heights High	HH-4	141	849	966	966	6	76	125	125	2	1983	2287	2287	14
Heights High	HH-5	142	0	0	0	0	3910	3910	3910	0	0	0	0	0
Heights High	HH-5	143	336	342	342	0	13	32	32	1	724	740	740	1
Heights High	HH-5	144	198	226	226	1	8	8	8	0	467	540	540	3
Heights High	HH-5	145	286	287	287	0	734	734	734	0	748	750	750	0
Heights High	HH-6	146	460	477	477	1	771	846	846	3	1077	1120	1120	2
Heights High	HH-5	147	143	156	156	1	808	808	808	0	359	392	392	2
Heights High	HH-6	148	24	24	24	0	845	845	845	0	57	57	57	0
Heights High	HH-5	149	387	412	412	1	882	885	885	0	1021	1085	1085	3
Heights High	HH-5	150	198	199	199	0	919	919	919	0	554	557	557	0
Heights High	HH-5	151	229	230	230	0	956	956	956	0	655	659	659	0
Heights High	HH-5	152	371	377	377	0	993	993	993	0	1057	1074	1074	1
Heights High	HH-5	155	131	133	133	0	1030	1030	1030	0	257	262	262	0
Heights High	HH-1	162	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-5	164	26	38	38	1	0	0	0	0	38	69	69	1
Heights High	HH-1	165	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-1	167	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-1	168	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-5	169	31	32	32	0	11	11	11	0	79	82	82	0
Heights High	HH-4	170	5	5	5	0	0	0	0	0	8	8	8	0
Heights High	HH-4	171	505	986	986	23	44	44	44	0	1407	2652	2652	59
Heights High	HH-5	172	0	0	0	0	980	983	983	0	0	0	0	0
Heights High	HH-5	173	0	0	0	0	597	606	606	0	0	0	0	0
Heights High	HH-4	174	4	4	4	0	946	1032	1032	3	15	15	15	0
Heights High	HH-4	175	958	1310	1310	17	208	298	298	4	2257	3169	3169	43
Heights High	HH-4	176	421	531	531	5	533	589	589	2	1061	1345	1345	14
Heights High	HH-4	177	6	6	6	0	537	730	730	8	21	21	21	0
Heights High	HH-4	178	709	721	721	1	137	234	234	4	1872	1903	1903	1
Heights High	HH-4	179	13	13	13	0	1421	1469	1469	2	40	40	40	0
Heights High	HH-5	180	482	514	514	2	150	150	150	0	1157	1239	1239	4
Heights High	HH-5	181	312	313	313	0	82	82	82	0	778	779	779	0

**Table 2A -2 Demographic Forecasts by TAZ - High
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Pressure Zone	Households				Employees				Population					
	2013	2034	Build- Out	Ave Growth Rate (HH/yr)	2009	2034	Build- Out	Ave Growth Rate (Emp/yr)	2009	2034	Build- Out	Ave Growth Rate (People/yr)		
Heights High	HH-5	182	252	275	275	1	45	45	45	0	714	773	773	3
Heights High	HH-5	183	489	492	492	0	22	22	22	0	1202	1209	1209	0
Heights High	HH-1	185	381	443	443	3	153	203	203	2	956	1116	1116	8
Heights High	HH-1	186	349	481	481	6	58	58	58	0	935	1277	1277	16
Heights High	HH-1	187	302	366	366	3	6	6	6	0	850	1017	1017	8
Heights High	HH-1	188	381	424	424	2	17	17	17	0	1022	1134	1134	5
Heights High	HH-4	189	622	644	644	1	358	422	422	3	1511	1570	1570	3
Heights High	HH-4	190	991	999	999	0	1400	1409	1409	0	2147	2166	2166	1
Heights High	HH-4	191	147	147	147	0	1594	1627	1627	1	228	228	228	0
Heights High	HH-4	192	596	596	596	0	2551	2721	2721	7	1072	1072	1072	0
Heights High	HH-1	193	30	40	40	0	5	5	5	0	70	95	95	1
Heights High	HH-1	194	414	500	500	4	132	142	142	0	985	1207	1207	11
Heights High	HH-1	195	209	226	226	1	90	110	110	1	543	588	588	2
Heights High	HH-1	196	605	630	630	1	181	193	193	0	1391	1456	1456	3
Heights High	HH-1	197	402	517	517	5	322	370	370	2	952	1251	1251	14
Heights High	HH-1	198	444	466	466	1	29	29	29	0	1155	1211	1211	3
Heights High	HH-1	199	470	512	512	2	7	20	20	1	1313	1422	1422	5
Heights High	HH-1	200	747	1169	1169	20	67	67	67	0	1888	2980	2980	52
Heights High	HH-1	201	211	403	403	9	211	270	270	2	564	1061	1061	24
Heights High	HH-4	202	833	1024	1024	9	572	633	633	2	1656	2151	2151	24
Heights High	HH-1	203	342	429	429	4	7	11	11	0	852	1076	1076	11
Heights High	HH-4	204	580	698	698	6	31	77	77	2	1350	1655	1655	15
Heights High	HH-1	205	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-1	206	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-1	210	45	47	47	0	906	1267	1267	14	118	122	122	0
Heights High	HH-1	211	568	617	617	2	433	917	917	19	1582	1709	1709	6
Heights High	HH-1	212	478	571	571	4	137	137	137	0	1291	1531	1531	11
Heights High	HH-1	213	246	295	295	2	14	14	14	0	545	671	671	6
Heights High	HH-1	214	593	687	687	4	209	209	209	0	1563	1807	1807	12
Heights High	HH-1	220	6	26	26	1	77	86	86	0	11	64	64	3
Heights High	HH-2	221	4	4	4	0	540	1023	1023	19	9	9	9	0
Heights High	HH-2	222	1	173	173	8	319	375	375	2	1	447	447	21
Heights High	HH-2	227	16	16	16	0	389	988	988	24	36	36	36	0
Heights High	HH-5	237	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-5	239	334	335	335	0	51	51	51	0	949	953	953	0
Heights High	HH-5	240	1121	1158	1158	2	171	171	171	0	2475	2572	2572	5
Heights High	HH-5	241	310	345	345	2	21	21	21	0	783	873	873	4
Heights High	HH-5	242	250	250	250	0	14	14	14	0	576	576	576	0
Heights High	HH-5	243	1278	1279	1279	0	543	566	566	1	2202	2204	2204	0
Heights High	HH-5	244	565	624	624	3	19	19	19	0	1351	1505	1505	7
Heights High	HH-5	245	544	544	544	0	50	50	50	0	1076	1076	1076	0
Heights High	HH-7	246	601	601	601	0	1146	1178	1178	1	1198	1198	1198	0
Heights High	HH-7	247	740	774	774	2	133	136	136	0	2041	2130	2130	4
Heights High	HH-7	248	0	0	0	0	1460	1510	1510	2	0	0	0	0
Heights High	HH-7	249	1138	1138	1138	0	52	130	130	3	3181	3181	3181	0
Heights High	HH-5	250	497	499	499	0	60	60	60	0	1290	1296	1296	0
Heights High	HH-6	251	0	0	0	0	289	289	289	0	0	0	0	0
Heights High	HH-5	252	515	523	523	0	44	44	44	0	1196	1215	1215	1
Heights High	HH-6	253	417	421	421	0	179	311	311	5	856	867	867	0
Heights High	HH-6	254	324	324	324	0	833	898	898	3	625	625	625	0
Heights High	HH-6	255	664	668	668	0	253	283	283	1	1589	1598	1598	0
Heights High	HH-5	256	731	731	731	0	252	252	252	0	1779	1779	1779	0
Heights High	HH-5	257	324	324	324	0	67	67	67	0	793	793	793	0
Heights High	HH-5	258	505	505	505	0	220	224	224	0	1113	1113	1113	0
Heights High	HH-5	259	307	307	307	0	220	220	220	0	733	733	733	0
Heights High	HH-5	260	448	448	448	0	750	750	750	0	875	875	875	0
Heights High	HH-7	261	362	364	364	0	332	484	484	6	871	875	875	0
Heights High	HH-7	262	0	0	0	0	1414	1451	1451	1	0	0	0	0
Heights High	HH-7	263	126	126	126	0	905	1250	1250	14	305	305	305	0
Heights High	HH-7	264	241	288	288	2	809	982	982	7	662	783	783	6
Heights High	HH-5	265	429	531	531	5	131	141	141	0	1201	1464	1464	13
Heights High	HH-6	266	370	370	370	0	1108	1151	1151	2	778	778	778	0
Heights High	HH-5	267	313	313	313	0	8	8	8	0	718	718	718	0
Heights High	HH-6	268	0	0	0	0	22	860	860	34	0	0	0	0
Heights High	HH-6	269	216	217	217	0	378	420	420	2	560	561	561	0
Heights High	HH-5	270	197	258	258	3	86	86	86	0	550	708	708	8
Heights High	HH-5	271	725	726	726	0	38	38	38	0	2053	2055	2055	0
Heights High	HH-5	272	422	422	422	0	493	496	496	0	974	974	974	0
Heights High	HH-7	273	567	575	575	0	286	359	359	3	1620	1642	1642	1
Heights High	HH-7	274	574	574	574	0	140	276	276	5	1354	1354	1354	0
Heights High	HH-7	275	810	836	836	1	108	333	333	9	2106	2173	2173	3

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Pressure Zone	Households				Employees				Population					
	2013	2034	Build- Out	Ave Growth Rate (HH/yr)	2009	2034	Build- Out	Ave Growth Rate (Emp/yr)	2009	2034	Build- Out	Ave Growth Rate (People/yr)		
Heights High	HH-7	276	53	53	53	0	347	553	553	8	137	137	137	0
Heights High	HH-7	277	0	0	0	0	305	578	578	11	0	0	0	0
Heights High	HH-7	278	210	963	963	36	148	1698	1698	62	555	2506	2506	93
Heights High	HH-7	279	3	750	750	36	5	1334	1334	53	10	1946	1946	92
Heights High	HH-5	280	170	292	292	6	179	186	186	0	476	792	792	15
Heights High	HH-5	281	334	349	349	1	17	17	17	0	904	943	943	2
Heights High	HH-6	282	0	0	0	0	746	1100	1100	14	0	0	0	0
Heights High	HH-6	283	0	0	0	0	218	428	428	8	0	0	0	0
Heights High	HH-5	284	805	876	876	3	103	103	103	0	2098	2280	2280	9
Heights High	HH-5	285	360	366	366	0	27	27	27	0	1023	1038	1038	1
Heights High	HH-5	286	142	195	195	3	41	81	81	2	387	523	523	6
Heights High	HH-5	287	694	722	722	1	535	554	554	1	1062	1135	1135	3
Heights High	HH-5	288	186	324	324	7	150	283	283	5	285	642	642	17
Heights High	HH-5	289	0	0	0	0	211	222	222	0	0	0	0	0
Heights High	HH-5	290	50	221	221	8	5	5	5	0	108	550	550	21
Heights High	HH-5	291	225	234	234	0	40	40	40	0	620	642	642	1
Heights High	HH-5	292	500	622	622	6	11	11	11	0	1106	1422	1422	15
Heights High	HH-5	293	406	420	420	1	36	36	36	0	1129	1165	1165	2
Heights High	HH-5	294	232	242	242	0	3849	3849	3849	0	598	623	623	1
Heights High	HH-5	295	268	279	279	1	26	54	54	1	751	779	779	1
Heights High	HH-5	296	318	351	351	2	119	145	145	1	929	1014	1014	4
Heights High	HH-5	297	623	660	660	2	39	39	39	0	1922	2018	2018	5
Heights High	HH-5	298	516	529	529	1	217	217	217	0	1465	1498	1498	2
Heights High	HH-5	299	621	657	657	2	41	41	41	0	1722	1816	1816	4
Heights High	HH-7	300	998	1172	1172	8	217	259	259	2	3165	3614	3614	21
Heights High	HH-7	301	829	984	984	7	44	44	44	0	2628	3028	3028	19
Heights High	HH-7	302	201	502	502	14	15	15	15	0	633	1414	1414	37
Heights High	HH-4	303	390	402	402	1	683	880	880	8	973	1003	1003	1
Heights High	HH-5	304	517	544	544	1	840	840	840	0	1321	1390	1390	3
Heights High	HH-4	305	382	407	407	1	33	62	62	1	870	934	934	3
Heights High	HH-5	306	520	537	537	1	57	57	57	0	1490	1533	1533	2
Heights High	HH-5	307	264	322	322	3	9	29	29	1	734	883	883	7
Heights High	HH-5	308	415	447	447	2	20	20	20	0	1156	1240	1240	4
Heights High	HH-5	309	231	285	285	3	15	15	15	0	666	807	807	7
Heights High	HH-5	310	293	301	301	0	10	21	21	0	856	876	876	1
Heights High	HH-5	311	311	334	334	1	12	12	12	0	909	968	968	3
Heights High	HH-5	312	291	295	295	0	4	4	4	0	783	792	792	0
Heights High	HH-5	313	519	523	523	0	25	25	25	0	1636	1645	1645	0
Heights High	HH-4	314	328	328	328	0	15	845	845	33	976	976	976	0
Heights High	HH-5	315	394	410	410	1	34	36	36	0	1362	1402	1402	2
Heights High	HH-4	316	3	3	3	0	829	903	903	3	6	6	6	0
Heights High	HH-4	317	0	0	0	0	354	390	390	1	0	0	0	0
Heights High	HH-4	318	659	698	698	2	329	442	442	5	1309	1410	1410	5
Heights High	HH-4	319	62	125	125	3	662	1047	1047	15	175	337	337	8
Heights High	HH-4	320	245	337	337	4	86	285	285	8	681	919	919	11
Heights High	HH-4	321	184	189	189	0	42	1613	1613	63	569	582	582	1
Heights High	HH-4	322	12	12	12	0	263	1429	1429	47	36	36	36	0
Heights High	HH-3	323	163	735	735	27	19	364	364	14	516	1999	1999	71
Heights High	HH-4	324	1	1	1	0	22	77	77	2	2	2	2	0
Heights High	HH-1	325	216	244	244	1	4	4	4	0	609	682	682	4
Heights High	HH-1	326	322	335	335	1	18	18	18	0	959	991	991	2
Heights High	HH-2	327	440	468	468	1	58	94	94	1	1266	1339	1339	3
Heights High	HH-4	328	147	147	147	0	26	131	131	4	377	377	377	0
Heights High	HH-1	329	195	260	260	3	119	144	144	1	534	704	704	8
Heights High	HH-4	330	12	12	12	0	39	89	89	2	30	30	30	0
Heights High	HH-4	331	30	34	34	0	217	292	292	3	88	98	98	0
Heights High	HH-2	332	386	462	462	4	41	74	74	1	1144	1340	1340	9
Heights High	HH-4	333	344	410	410	3	217	312	312	4	958	1130	1130	8
Heights High	HH-4	334	335	335	335	0	44	235	235	8	859	859	859	0
Heights High	HH-4	335	132	138	138	0	15	296	296	11	378	394	394	1
Heights High	HH-4	336	195	330	330	6	683	1000	1000	13	440	790	790	17
Heights High	HH-2	337	202	202	202	0	840	840	840	0	601	601	601	0
Heights High	HH-4	338	50	87	87	2	33	61	61	1	153	248	248	5
Heights High	HH-2	339	163	201	201	2	57	57	57	0	430	528	528	5
Heights High	HH-2	340	315	327	327	1	9	9	9	0	959	989	989	1
Heights High	HH-3	341	614	977	977	17	20	281	281	10	1939	2880	2880	45
Heights High	HH-3	342	250	253	253	0	15	311	311	12	948	954	954	0
Heights High	HH-1	343	276	312	312	2	10	10	10	0	776	869	869	4
Heights High	HH-2	344	310	378	378	3	12	468	468	18	807	984	984	8
Heights High	HH-2	345	564	635	635	3	4	119	119	5	1889	2072	2072	9
Heights High	HH-2	346	269	318	318	2	25	66	66	2	734	860	860	6

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Pressure Zone		Households				Employees				Population				
		2013	2034	Build- Out	Ave Growth Rate (HH/yr)	2009	2034	Build- Out	Ave Growth Rate (Emp/yr)	2009	2034	Build- Out	Ave Growth Rate (People/yr)	
Heights High	HH-2	347	457	473	473	1	15	496	496	19	1332	1374	1374	2
Heights High	HH-2	348	97	109	109	1	34	323	323	12	313	345	345	1
Heights High	HH-2	349	586	599	599	1	829	929	929	4	1793	1826	1826	2
Heights High	HH-2	350	346	357	357	1	354	374	374	1	991	1020	1020	1
Heights High	HH-2	351	732	739	739	0	329	1010	1010	27	1980	1998	1998	1
Heights High	HH-2	352	328	340	340	1	662	662	662	0	1033	1063	1063	1
Heights High	HH-3	353	978	1075	1075	5	86	86	86	0	2968	3220	3220	12
Heights High	HH-2	354	358	362	362	0	42	42	42	0	1007	1017	1017	0
Heights High	HH-3	355	530	699	699	8	263	379	379	5	1587	2024	2024	21
Heights High	HH-3	356	239	277	277	2	19	19	19	0	695	794	794	5
Heights High	HH-3	357	818	924	924	5	22	22	22	0	2542	2817	2817	13
Heights High	HH-3	358	218	471	471	12	4	127	127	5	600	1256	1256	31
Heights High	HH-3	359	110	530	530	20	18	18	18	0	368	1455	1455	52
Heights High	HH-2	363	6	6	6	0	58	251	251	8	9	9	9	0
Heights High	HH-2	365	171	189	189	1	55	192	192	5	457	505	505	2
Heights High	HH-3	367	298	363	363	3	14	14	14	0	838	1008	1008	8
Heights High	HH-3	368	273	542	542	13	29	50	50	1	830	1527	1527	33
Heights High	HH-3	369	463	622	622	8	37	58	58	1	1458	1870	1870	20
Heights High	HH-3	370	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-3	371	278	1000	1000	34	73	403	403	13	756	2626	2626	89
Heights High	HH-3	373	243	999	999	36	3	754	754	30	729	2687	2687	93
Heights High	HH-3	374	216	401	401	9	11	11	11	0	633	1112	1112	23
Heights High	HH-5	392	0	2	2	0	0	0	0	0	0	5	5	0
Heights High	HH-7	395	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-7	410	200	321	321	6	5	74	74	3	471	785	785	15
Heights High	HH-7	411	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-7	418	458	545	545	4	66	66	66	0	1381	1606	1606	11
Heights High	HH-7	420	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-7	425	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-7	426	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-7	480	25	69	69	2	5	5	5	0	77	190	190	5
Heights High	HH-7	481	109	190	190	4	4	4	4	0	319	530	530	10
Heights High	HH-7	489	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-3	495	0	0	0	0	0	0	0	0	0	0	0	0
Heights High	HH-3	497	21	86	86	3	5	5	5	0	56	225	225	8
Heights High	HH-6	616	20	20	20	0	398	398	398	0	52	52	52	0
Heights High	HH-6	617	66	66	66	0	967	967	967	0	142	142	142	0
Heights High	HH-5	618	78	82	82	0	5	5	5	0	204	215	215	1
Heights High	HH-6	619	5	5	5	0	525	572	572	2	10	10	10	0
Heights High	HH-5	620	170	170	170	0	959	968	968	0	438	438	438	0
Heights High	HH-6	621	0	0	0	0	5	186	186	7	0	0	0	0
Heights High	HH-6	622	0	0	0	0	498	498	498	0	0	0	0	0
Heights High	HH-6	623	0	0	0	0	613	954	954	14	0	0	0	0
Heights High	HH-5	624	434	766	766	16	23	23	23	0	1003	1863	1863	41
Heights High	HH-5	625	292	292	292	0	17	73	73	2	759	759	759	0
Heights High	HH-5	626	402	404	404	0	22	22	22	0	956	962	962	0
Heights High	HH-5	627	115	116	116	0	3	3	3	0	291	292	292	0
Heights High	HH-5	628	232	246	246	1	14	14	14	0	619	655	655	2
Heights High	HH-7	651	0	0	0	0	0	2	2	0	0	0	0	0
Heights High	HH-7	652	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-2	102	354	354	354	0	1095	1268	1268	7	592	592	592	0
Heights Low	HL-2	103	134	134	134	0	1580	2203	2203	25	251	251	251	0
Heights Low	HL-3	104	340	367	367	1	123	123	123	0	741	812	812	3
Heights Low	HL-3	105	301	533	533	11	51	51	51	0	738	1339	1339	29
Heights Low	HL-2	106	8	8	8	0	1213	1309	1309	4	20	20	20	0
Heights Low	HL-2	107	0	0	0	0	936	1118	1118	7	0	0	0	0
Heights Low	HL-3	108	453	583	583	6	17	17	17	0	646	981	981	16
Heights Low	HL-3	109	33	45	45	1	5	5	5	0	61	91	91	1
Heights Low	HL-3	110	2	3	3	0	5	5	5	0	5	6	6	0
Heights Low	HL-3	111	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-3	113	63	83	83	1	11	11	11	0	157	208	208	2
Heights Low	HL-3	114	1	38	38	2	0	0	0	0	2	98	98	5
Heights Low	HL-2	115	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-1	116	702	750	750	2	480	505	505	1	1333	1457	1457	6
Heights Low	HL-1	117	290	323	323	2	166	166	166	0	640	725	725	4
Heights Low	HL-1	118	217	220	220	0	114	116	116	0	495	503	503	0
Heights Low	HL-1	119	4	4	4	0	0	0	0	0	9	9	9	0
Heights Low	HL-3	120	1	77	77	4	0	0	0	0	2	199	199	9
Heights Low	HL-1	128	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-1	130	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-1	131	212	221	221	0	71	71	71	0	455	478	478	1

**Table 2A -2 Demographic Forecasts by TAZ - High
Comprehensive Water System Plan
City of Vancouver**

Pressure Zone		Households				Employees				Population				
		2013	2034	Build- Out	Ave Growth Rate (HH/yr)	2009	2034	Build- Out	Ave Growth Rate (Emp/yr)	2009	2034	Build- Out	Ave Growth Rate (People/yr)	
Heights Low	HL-1	132	35	40	40	0	5	5	5	0	67	79	79	1
Heights Low	HL-3	237	53	148	148	5	12	12	12	0	121	367	367	12
Heights Low	HL-3	238	435	521	521	4	39	39	39	0	1000	1222	1222	11
Heights Low	HL-3	239	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-3	240	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-3	241	0	0	0	0	0	0	0	0	0	0	0	0
Heights Low	HL-3	392	4	4	4	0	0	0	0	0	8	9	9	0
Lincoln High	LH	55	194	216	216	1	7	7	7	0	447	505	505	3
Lincoln High	LH	56	56	56	56	0	5	5	5	0	118	118	118	0
Lincoln High	LH	59	158	164	164	0	13	13	13	0	357	372	372	1
Lincoln High	LH	60	52	53	53	0	0	0	0	0	124	127	127	0
Terrace High	TH	247	0	0	0	0	257	257	257	0	0	0	0	0
Terrace High	TH	248	0	0	0	0	0	0	0	0	0	0	0	0
Terrace High	TH	395	120	120	120	0	70	70	70	0	300	300	300	0
Terrace High	TH	410	175	175	175	0	9	9	9	0	472	472	472	0
Vancouver High	VH-2	35	48	48	48	0	89	89	89	0	76	76	76	0
Vancouver High	VH-2	36	96	96	96	0	29	29	29	0	174	176	176	0
Vancouver High	VH-2	37	126	126	126	0	86	86	86	0	289	289	289	0
Vancouver High	VH-2	42	468	490	490	1	66	105	105	2	1255	1311	1311	3
Vancouver High	VH-2	43	242	242	242	0	7	9	9	0	549	549	549	0
Vancouver High	VH-2	44	189	189	189	0	28	28	28	0	399	400	400	0
Vancouver High	VH-2	45	286	289	289	0	26	26	26	0	680	689	689	0
Vancouver High	VH-2	46	172	174	174	0	134	134	134	0	361	367	367	0
Vancouver High	VH-2	47	164	164	164	0	501	503	503	0	377	378	378	0
Vancouver High	VH-2	48	118	126	126	0	52	52	52	0	212	234	234	1
Vancouver High	VH-2	49	85	85	85	0	5	5	5	0	191	193	193	0
Vancouver High	VH-2	50	26	26	26	0	7	7	7	0	51	51	51	0
Vancouver High	VH-2	51	117	117	117	0	7	7	7	0	244	244	244	0
Vancouver High	VH-2	52	24	24	24	0	418	418	418	0	36	36	36	0
Vancouver High	VH-2	53	187	188	188	0	10	10	10	0	394	396	396	0
Vancouver High	VH-1	55	218	234	234	1	5	16	16	0	554	595	595	2
Vancouver High	VH-2	56	299	299	299	0	23	23	23	0	675	675	675	0
Vancouver High	VH-2	57	245	247	247	0	14	28	28	1	521	525	525	0
Vancouver High	VH-1	58	115	117	117	0	81	81	81	0	248	253	253	0
Vancouver High	VH-1	59	125	129	129	0	13	13	13	0	318	328	328	0
Vancouver High	VH-1	60	180	203	203	1	10	10	10	0	435	493	493	3
Vancouver High	VH-1	61	459	527	527	3	129	154	154	1	1051	1227	1227	8
Vancouver High	VH-1	63	300	313	313	1	13	13	13	0	725	758	758	2
Vancouver High	VH-1	64	82	120	120	2	5	5	5	0	208	306	306	5
Vancouver High	VH-1	65	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver High	VH-1	66	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver High	VH-1	131	34	34	34	0	135	135	135	0	65	65	65	0
Vancouver High	VH-3	133	438	453	453	1	63	63	63	0	879	918	918	2
Vancouver High	VH-3	134	195	199	199	0	25	25	25	0	474	485	485	1
Vancouver High	VH-3	135	240	240	240	0	30	30	30	0	516	516	516	0
Vancouver High	VH-1	153	0	0	0	0	969	971	971	0	0	0	0	0
Vancouver High	VH-1	154	0	0	0	0	1186	1186	1186	0	0	0	0	0
Vancouver High	VH-1	155	293	295	295	0	199	204	204	0	577	582	582	0
Vancouver High	VH-1	156	125	125	125	0	22	22	22	0	281	282	282	0
Vancouver High	VH-1	157	195	195	195	0	27	33	33	0	467	467	467	0
Vancouver High	VH-1	158	288	288	288	0	18	20	20	0	727	728	728	0
Vancouver High	VH-1	159	169	170	170	0	42	46	46	0	415	417	417	0
Vancouver High	VH-1	160	312	313	313	0	36	39	39	0	783	785	785	0
Vancouver High	VH-1	161	383	389	389	0	23	23	23	0	961	976	976	1
Vancouver High	VH-1	162	211	212	212	0	74	77	77	0	480	483	483	0
Vancouver High	VH-3	163	766	836	836	3	399	418	418	1	1808	1990	1990	9
Vancouver High	VH-3	164	603	736	736	6	218	319	319	4	1390	1734	1734	16
Vancouver High	VH-3	165	511	592	592	4	67	74	74	0	1171	1381	1381	10
Vancouver High	VH-3	166	387	395	395	0	30	30	30	0	823	844	844	1
Vancouver High	VH-3	167	416	455	455	2	38	45	45	0	1156	1258	1258	5
Vancouver High	VH-3	168	275	443	443	8	46	46	46	0	736	1172	1172	21
Vancouver High	VH-3	169	375	416	416	2	89	91	91	0	817	923	923	5
Vancouver High	VH-3	170	218	377	377	8	547	595	595	2	444	856	856	20
Vancouver High	VH-3	171	62	62	62	0	3305	3305	3305	0	176	176	176	0
Vancouver High	VH-1	184	151	193	193	2	11	11	11	0	392	502	502	5
Vancouver High	VH-1	185	48	65	65	1	3	3	3	0	118	162	162	2
Vancouver High	VH-3	186	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver High	VH-1	193	22	33	33	1	1367	1367	1367	0	55	83	83	1
Vancouver High	VH-1	205	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver Low	VL-2	1	1	1	1	0	552	566	566	1	1	1	1	0
Vancouver Low	VL-2	2	191	191	191	0	168	175	175	0	215	215	215	0

Table 2A -2 Demographic Forecasts by TAZ - High Comprehensive Water System Plan City of Vancouver														
Pressure Zone		Households				Employees				Population				
		2013	2034	Build- Out	Ave Growth Rate (HH/yr)	2009	2034	Build- Out	Ave Growth Rate (Emp/yr)	2009	2034	Build- Out	Ave Growth Rate (People/yr)	
Vancouver Low	VL-2	3	146	146	146	0	184	187	187	0	211	211	211	0
Vancouver Low	VL-2	4	46	46	46	0	244	249	249	0	51	51	51	0
Vancouver Low	VL-2	5	169	169	169	0	128	136	136	0	224	224	224	0
Vancouver Low	VL-2	6	0	0	0	0	289	289	289	0	0	0	0	0
Vancouver Low	VL-2	7	0	0	0	0	411	411	411	0	0	0	0	0
Vancouver Low	VL-2	8	13	13	13	0	325	325	325	0	18	18	18	0
Vancouver Low	VL-2	9	0	0	0	0	693	701	701	0	0	0	0	0
Vancouver Low	VL-2	10	29	29	29	0	818	822	822	0	37	37	37	0
Vancouver Low	VL-2	11	172	172	172	0	437	465	465	1	294	294	294	0
Vancouver Low	VL-2	12	0	0	0	0	153	156	156	0	0	0	0	0
Vancouver Low	VL-2	13	0	0	0	0	1677	1682	1682	0	0	0	0	0
Vancouver Low	VL-2	14	99	99	99	0	61	66	66	0	195	195	195	0
Vancouver Low	VL-2	15	4	4	4	0	163	168	168	0	9	9	9	0
Vancouver Low	VL-2	16	1	1	1	0	201	201	201	0	3	3	3	0
Vancouver Low	VL-2	17	33	33	33	0	31	33	33	0	37	37	37	0
Vancouver Low	VL-2	18	86	86	86	0	239	244	244	0	108	108	108	0
Vancouver Low	VL-2	19	55	55	55	0	145	168	168	1	112	112	112	0
Vancouver Low	VL-3	20	0	2811	2811	134	225	617	617	16	0	7281	7281	347
Vancouver Low	VL-1	21	126	126	126	0	301	328	328	1	188	188	188	0
Vancouver Low	VL-2	22	0	0	0	0	479	500	500	1	0	0	0	0
Vancouver Low	VL-2	23	12	12	12	0	560	562	562	0	17	17	17	0
Vancouver Low	VL-2	24	0	0	0	0	800	800	800	0	0	0	0	0
Vancouver Low	VL-2	25	129	129	129	0	3	3	3	0	311	311	311	0
Vancouver Low	VL-1	26	0	0	0	0	742	1253	1253	20	0	0	0	0
Vancouver Low	VL-1	27	91	92	92	0	159	189	189	1	215	218	218	0
Vancouver Low	VL-1	28	276	281	281	0	240	318	318	3	705	718	718	1
Vancouver Low	VL-2	29	268	270	270	0	26	26	26	0	593	599	599	0
Vancouver Low	VL-2	30	71	71	71	0	5	5	5	0	121	122	122	0
Vancouver Low	VL-2	31	113	113	113	0	2	2	2	0	256	257	257	0
Vancouver Low	VL-2	32	27	27	27	0	80	82	82	0	73	73	73	0
Vancouver Low	VL-2	33	290	290	290	0	233	233	233	0	381	381	381	0
Vancouver Low	VL-2	34	17	17	17	0	188	196	196	0	35	35	35	0
Vancouver Low	VL-2	35	1	1	1	0	59	59	59	0	2	2	2	0
Vancouver Low	VL-2	36	115	115	115	0	108	108	108	0	226	226	226	0
Vancouver Low	VL-2	37	9	9	9	0	0	0	0	0	19	19	19	0
Vancouver Low	VL-1	38	21	22	22	0	391	3504	3504	125	53	56	56	0
Vancouver Low	VL-1	39	1	1	1	0	0	661	661	26	2	2	2	0
Vancouver Low	VL-1	40	318	319	319	0	116	140	140	1	735	739	739	0
Vancouver Low	VL-1	41	368	372	372	0	532	581	581	2	946	955	955	0
Vancouver Low	VL-1	42	1	2	2	0	115	118	118	0	3	4	4	0
Vancouver Low	VL-2	43	19	19	19	0	0	0	0	0	37	37	37	0
Vancouver Low	VL-2	44	11	11	11	0	27	27	27	0	22	22	22	0
Vancouver Low	VL-2	46	16	16	16	0	5	5	5	0	26	26	26	0
Vancouver Low	VL-1	54	110	110	110	0	1084	1566	1566	19	266	266	266	0
Vancouver Low	VL-1	55	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver Low	VL-1	62	143	213	213	3	207	447	447	10	331	513	513	9
Vancouver Low	VL-1	63	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver Low	VL-3	102	0	0	0	0	169	169	169	0	0	0	0	0
Vancouver Low	VL-3	106	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver Low	VL-2	115	0	0	0	0	366	366	366	0	0	0	0	0
Vancouver Low	VL-2	127	0	0	0	0	395	395	395	0	0	0	0	0
Vancouver Low	VL-2	128	6	6	6	0	329	329	329	0	9	9	9	0
Vancouver Low	VL-2	129	0	0	0	0	5	5	5	0	0	0	0	0
Vancouver Low	VL-2	130	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver Low	VL-2	131	46	51	51	0	11	11	11	0	90	103	103	1
Vancouver Low	VL-2	153	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver Low	VL-2	154	0	0	0	0	0	0	0	0	0	0	0	0
Vancouver Low	VL-2	155	31	31	31	0	0	0	0	0	61	61	61	0

Table 2A-3 Household Growth Rates - Low Comprehensive Water System Plan City of Vancouver																							
Dev Zone	Growth Rate	Percent Increase from 2013																					
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
EH	83.3	0%	130%	260%	390%	520%	651%	781%	911%	1041%	1171%	1301%	1431%	1561%	1691%	1822%	1952%	2082%	2212%	2342%	2472%	2602%	2732%
HH-1	84.2	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	21%
HH-2	28.9	0%	1%	1%	2%	2%	3%	3%	4%	4%	5%	5%	6%	6%	7%	7%	8%	8%	9%	9%	10%	10%	11%
HH-3	202.1	0%	4%	7%	11%	14%	18%	21%	25%	28%	32%	35%	39%	42%	46%	50%	53%	57%	60%	64%	67%	71%	74%
HH-4	50.4	0%	0%	1%	1%	2%	2%	3%	3%	4%	4%	5%	5%	6%	6%	7%	7%	8%	8%	8%	9%	9%	10%
HH-5	106.4	0%	0%	1%	1%	1%	2%	2%	2%	3%	3%	3%	4%	4%	4%	5%	5%	5%	6%	6%	6%	6%	7%
HH-6	1.6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
HH-7	87.3	0%	1%	2%	3%	4%	5%	6%	7%	8%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	21%	22%
HL-1	4.6	0%	0%	1%	1%	1%	2%	2%	2%	3%	3%	3%	3%	4%	4%	4%	5%	5%	5%	6%	6%	6%	7%
HL-2	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
HL-3	34.0	0%	2%	4%	6%	8%	10%	12%	14%	16%	18%	20%	22%	24%	26%	28%	30%	32%	34%	36%	38%	40%	42%
LH	1.4	0%	0%	1%	1%	1%	2%	2%	2%	2%	3%	3%	3%	4%	4%	4%	5%	5%	5%	5%	6%	6%	6%
TH	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
VH-1	11.6	0%	0%	1%	1%	1%	2%	2%	2%	3%	3%	3%	3%	4%	4%	4%	5%	5%	5%	6%	6%	6%	7%
VH-2	1.9	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
VH-3	9.8	0%	0%	0%	1%	1%	1%	1%	2%	2%	2%	2%	2%	3%	3%	3%	3%	4%	4%	4%	4%	4%	5%
VL-1	3.9	0%	0%	1%	1%	1%	1%	2%	2%	2%	2%	3%	3%	3%	4%	4%	4%	5%	5%	5%	5%	6%	6%
VL-2	0.4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
VL-3	66.9	0%	6690%	13381%	20071%	26762%	33452%	40143%	46833%	53524%	60214%	66905%	73595%	80286%	86976%	93667%	100357%	107048%	113738%	120429%	127119%	133810%	140500%
Average			1%	2%	2%	3%	4%	5%	6%	7%	7%	8%	9%	10%	11%	12%	12%	13%	14%	15%	16%	17%	17%

Table 2A-4 Employee Growth Rates - Low Comprehensive Water System Plan City of Vancouver																							
Dev Zone	Growth Rate	Percent Increase from 2013																					
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
EH	3.0	0%	3%	5%	8%	10%	13%	16%	18%	21%	24%	26%	29%	31%	34%	37%	39%	42%	45%	47%	50%	52%	55%
HH-1	43.8	0%	1%	3%	4%	5%	6%	8%	9%	10%	12%	13%	14%	16%	17%	18%	19%	21%	22%	23%	25%	26%	27%
HH-2	148.7	0%	3%	6%	8%	11%	14%	17%	20%	23%	25%	28%	31%	34%	37%	40%	42%	45%	48%	51%	54%	56%	59%
HH-3	90.6	0%	9%	18%	27%	36%	45%	54%	63%	72%	81%	91%	100%	109%	118%	127%	136%	145%	154%	163%	172%	181%	190%
HH-4	273.9	0%	2%	3%	5%	7%	8%	10%	12%	13%	15%	17%	19%	20%	22%	24%	25%	27%	29%	30%	32%	34%	35%
HH-5	23.7	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%
HH-6	103.9	0%	1%	2%	3%	5%	6%	7%	8%	9%	10%	11%	12%	14%	15%	16%	17%	18%	19%	20%	22%	23%	24%
HH-7	190.9	0%	2%	4%	7%	9%	11%	13%	15%	18%	20%	22%	24%	26%	28%	31%	33%	35%	37%	39%	42%	44%	46%
HL-1	1.1	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
HL-2	43.0	0%	1%	2%	3%	3%	4%	5%	6%	7%	8%	9%	9%	10%	11%	12%	13%	14%	15%	15%	16%	17%	18%
HL-3	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
LH	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
TH	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
VH-1	2.4	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
VH-2	2.3	0%	0%	0%	0%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%
VH-3	7.4	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
VL-1	208.7	0%	4%	9%	13%	18%	22%	27%	31%	35%	40%	44%	49%	53%	57%	62%	66%	71%	75%	80%	84%	88%	93%
VL-2	6.3	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
VL-3	15.7	0%	3%	7%	10%	14%	17%	21%	24%	27%	31%	34%	38%	41%	45%	48%	51%	55%	58%	62%	65%	69%	72%
Average			1%	2%	3%	5%	6%	7%	8%	9%	10%	11%	12%	14%	15%	16%	17%	18%	19%	20%	22%	23%	24%

Table 2A-5 Household Growth Rates - Average Comprehensive Water System Plan City of Vancouver																							
Dev Zone	Growth Rate	Percent Increase from 2013																					
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
EH	94.7	0%	148%	296%	444%	592%	740%	888%	1036%	1184%	1331%	1479%	1627%	1775%	1923%	2071%	2219%	2367%	2515%	2663%	2811%	2959%	3107%
HH-1	84.2	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	21%
HH-2	28.9	0%	1%	1%	2%	2%	3%	3%	4%	4%	5%	5%	6%	6%	7%	7%	8%	8%	9%	9%	10%	10%	11%
HH-3	202.1	0%	4%	7%	11%	14%	18%	21%	25%	28%	32%	35%	39%	42%	46%	50%	53%	57%	60%	64%	67%	71%	74%
HH-4	70.3	0%	1%	1%	2%	3%	3%	4%	5%	5%	6%	7%	7%	8%	9%	9%	10%	10%	11%	12%	12%	13%	14%
HH-5	106.4	0%	0%	1%	1%	1%	2%	2%	3%	3%	3%	4%	4%	4%	5%	5%	5%	6%	6%	6%	6%	7%	
HH-6	1.6	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
HH-7	105.1	0%	1%	3%	4%	5%	6%	8%	9%	10%	11%	13%	14%	15%	17%	18%	19%	20%	22%	23%	24%	25%	27%
HL-1	4.6	0%	0%	1%	1%	1%	2%	2%	2%	3%	3%	3%	3%	4%	4%	4%	5%	5%	5%	6%	6%	6%	7%
HL-2	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
HL-3	34.0	0%	2%	4%	6%	8%	10%	12%	14%	16%	18%	20%	22%	24%	26%	28%	30%	32%	34%	36%	38%	40%	42%
LH	1.4	0%	0%	1%	1%	1%	2%	2%	2%	2%	3%	3%	3%	4%	4%	4%	5%	5%	5%	6%	6%	6%	6%
TH	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
VH-1	11.6	0%	0%	1%	1%	1%	2%	2%	2%	3%	3%	3%	3%	4%	4%	4%	5%	5%	6%	6%	6%	7%	7%
VH-2	1.9	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
VH-3	22.0	0%	0%	1%	1%	2%	2%	3%	3%	4%	4%	5%	5%	6%	6%	7%	7%	8%	8%	9%	9%	10%	10%
VL-1	3.9	0%	0%	1%	1%	1%	1%	2%	2%	2%	2%	3%	3%	3%	4%	4%	4%	5%	5%	5%	5%	6%	6%
VL-2	0.4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
VL-3	100.4	0%	10036%	20072%	30109%	40145%	50181%	60217%	70253%	80289%	90326%	100362%	110398%	120434%	130470%	140507%	150543%	160579%	170615%	180651%	190687%	200724%	210760%
Average			1%	2%	3%	4%	5%	6%	7%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%

Table 2A-6 Employee Growth Rates - Average Comprehensive Water System Plan City of Vancouver																							
Dev Zone	Growth Rate	Percent Increase from 2013																					
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
EH	3.0	0%	3%	5%	8%	10%	13%	16%	18%	21%	24%	26%	29%	31%	34%	37%	39%	42%	45%	47%	50%	52%	55%
HH-1	43.8	0%	1%	3%	4%	5%	6%	8%	9%	10%	12%	13%	14%	16%	17%	18%	19%	21%	22%	23%	25%	26%	27%
HH-2	148.7	0%	3%	6%	8%	11%	14%	17%	20%	23%	25%	28%	31%	34%	37%	40%	42%	45%	48%	51%	54%	56%	59%
HH-3	90.6	0%	9%	18%	27%	36%	45%	54%	63%	72%	81%	91%	100%	109%	118%	127%	136%	145%	154%	163%	172%	181%	190%
HH-4	273.9	0%	2%	3%	5%	7%	8%	10%	12%	13%	15%	17%	19%	20%	22%	24%	25%	27%	29%	30%	32%	34%	35%
HH-5	23.7	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%
HH-6	103.9	0%	1%	2%	3%	5%	6%	7%	8%	9%	10%	11%	12%	14%	15%	16%	17%	18%	19%	20%	22%	23%	24%
HH-7	190.9	0%	2%	4%	7%	9%	11%	13%	15%	18%	20%	22%	24%	26%	28%	31%	33%	35%	37%	39%	42%	44%	46%
HL-1	1.1	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
HL-2	43.0	0%	1%	2%	3%	3%	4%	5%	6%	7%	8%	9%	9%	10%	11%	12%	13%	14%	15%	15%	16%	17%	18%
HL-3	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
LH	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
TH	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
VH-1	2.4	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
VH-2	2.3	0%	0%	0%	0%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%
VH-3	7.4	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
VL-1	208.7	0%	4%	9%	13%	18%	22%	27%	31%	35%	40%	44%	49%	53%	57%	62%	66%	71%	75%	80%	84%	88%	93%
VL-2	6.3	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
VL-3	15.7	0%	3%	7%	10%	14%	17%	21%	24%	27%	31%	34%	38%	41%	45%	48%	51%	55%	58%	62%	65%	69%	72%
Average			1%	2%	3%	5%	6%	7%	8%	9%	10%	11%	12%	14%	15%	16%	17%	18%	19%	20%	22%	23%	24%

Table 2A-7 Household Growth Rates - High Comprehensive Water System Plan City of Vancouver																							
Dev Zone	Growth Rate	Percent Increase from 2013																					
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
EH	106.1	0%	166%	332%	497%	663%	829%	995%	1160%	1326%	1492%	1658%	1824%	1989%	2155%	2321%	2487%	2652%	2818%	2984%	3150%	3316%	3481%
HH-1	84.2	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	21%
HH-2	28.9	0%	1%	1%	2%	2%	3%	3%	4%	4%	5%	5%	6%	6%	7%	7%	8%	8%	9%	9%	10%	10%	11%
HH-3	202.1	0%	4%	7%	11%	14%	18%	21%	25%	28%	32%	35%	39%	42%	46%	50%	53%	57%	60%	64%	67%	71%	74%
HH-4	90.2	0%	1%	2%	3%	3%	4%	5%	6%	7%	8%	8%	9%	10%	11%	12%	13%	13%	14%	15%	16%	17%	18%
HH-5	106.4	0%	0%	1%	1%	1%	2%	2%	2%	3%	3%	3%	4%	4%	5%	5%	5%	6%	6%	6%	6%	6%	7%
HH-6	1.6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
HH-7	122.9	0%	1%	3%	4%	6%	7%	9%	10%	12%	13%	15%	16%	18%	19%	21%	22%	24%	25%	27%	28%	30%	31%
HL-1	4.6	0%	0%	1%	1%	1%	2%	2%	2%	3%	3%	3%	3%	4%	4%	4%	5%	5%	6%	6%	6%	7%	7%
HL-2	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
HL-3	34.0	0%	2%	4%	6%	8%	10%	12%	14%	16%	18%	20%	22%	24%	26%	28%	30%	32%	34%	36%	38%	40%	42%
LH	1.4	0%	0%	1%	1%	1%	2%	2%	2%	2%	3%	3%	3%	4%	4%	4%	5%	5%	5%	6%	6%	6%	6%
TH	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
VH-1	11.6	0%	0%	1%	1%	1%	2%	2%	2%	3%	3%	3%	3%	4%	4%	4%	5%	5%	5%	6%	6%	6%	7%
VH-2	1.9	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
VH-3	34.2	0%	1%	2%	2%	3%	4%	5%	5%	6%	7%	8%	8%	9%	10%	11%	11%	12%	13%	14%	15%	15%	16%
VL-1	3.9	0%	0%	1%	1%	1%	1%	2%	2%	2%	3%	3%	3%	4%	4%	4%	4%	5%	5%	5%	5%	5%	6%
VL-2	0.4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
VL-3	133.8	0%	13382%	26764%	40146%	53528%	66909%	80291%	93673%	107055%	120437%	133819%	147201%	160583%	173965%	187346%	200728%	214110%	227492%	240874%	254256%	267638%	281020%
Average			1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	16%	17%	18%	19%	20%	21%	22%

Table 2A-8 Employee Growth Rates - High Comprehensive Water System Plan City of Vancouver																							
Dev Zone	Growth Rate	Percent Increase from 2013																					
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
EH	3.0	0%	3%	5%	8%	10%	13%	16%	18%	21%	24%	26%	29%	31%	34%	37%	39%	42%	45%	47%	50%	52%	55%
HH-1	43.8	0%	1%	3%	4%	5%	6%	8%	9%	10%	12%	13%	14%	16%	17%	18%	19%	21%	22%	23%	25%	26%	27%
HH-2	148.7	0%	3%	6%	8%	11%	14%	17%	20%	23%	25%	28%	31%	34%	37%	40%	42%	45%	48%	51%	54%	56%	59%
HH-3	90.6	0%	9%	18%	27%	36%	45%	54%	63%	72%	81%	91%	100%	109%	118%	127%	136%	145%	154%	163%	172%	181%	190%
HH-4	273.9	0%	2%	3%	5%	7%	8%	10%	12%	13%	15%	17%	19%	20%	22%	24%	25%	27%	29%	30%	32%	34%	35%
HH-5	23.7	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
HH-6	103.9	0%	1%	2%	3%	5%	6%	7%	8%	9%	10%	11%	12%	14%	15%	16%	17%	18%	19%	20%	22%	23%	24%
HH-7	190.9	0%	2%	4%	7%	9%	11%	13%	15%	18%	20%	22%	24%	26%	28%	31%	33%	35%	37%	39%	42%	44%	46%
HL-1	1.1	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%
HL-2	43.0	0%	1%	2%	3%	3%	4%	5%	6%	7%	8%	9%	9%	10%	11%	12%	13%	14%	15%	15%	16%	17%	18%
HL-3	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
LH	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
TH	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
VH-1	2.4	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
VH-2	2.3	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%
VH-3	7.4	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
VL-1	208.7	0%	4%	9%	13%	18%	22%	27%	31%	35%	40%	44%	49%	53%	57%	62%	66%	71%	75%	80%	84%	88%	93%
VL-2	6.3	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
VL-3	15.7	0%	3%	7%	10%	14%	17%	21%	24%	27%	31%	34%	38%	41%	45%	48%	51%	55%	58%	62%	65%	69%	72%
Average			1%	2%	3%	5%	6%	7%	8%	9%	10%	11%	12%	14%	15%	16%	17%	18%	19%	20%	22%	23%	24%

Table 2A-11 Account Projections Summary - High Water System Comprehensive City of Vancouver																							
Name	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Build-Out
Evergreen High	9	24	39	54	69	84	99	120	135	150	166	181	196	210	225	240	255	271	286	301	316	331	331
HH-1	7,051	7,127	7,200	7,272	7,345	7,418	7,491	7,564	7,637	7,709	7,783	7,855	7,928	8,000	8,075	8,147	8,220	8,292	8,364	8,437	8,510	8,583	8,583
HH-2	4,885	4,917	4,946	4,973	5,003	5,030	5,059	5,087	5,116	5,143	5,172	5,200	5,229	5,256	5,286	5,313	5,342	5,369	5,399	5,427	5,455	5,484	5,484
HH-3	5,169	5,358	5,544	5,731	5,917	6,104	6,291	6,477	6,664	6,850	7,037	7,223	7,411	7,596	7,783	7,970	8,156	8,344	8,530	8,716	8,902	9,089	9,089
HH-4	5,450	5,507	5,558	5,610	5,662	5,714	5,766	5,818	5,870	5,921	5,973	6,024	6,078	6,129	6,181	6,233	6,284	6,336	6,388	6,442	6,493	6,545	6,545
HH-5	24,151	24,232	24,308	24,386	24,462	24,540	24,616	24,693	24,770	24,847	24,924	25,001	25,078	25,154	25,231	25,308	25,385	25,462	25,539	25,616	25,693	25,769	25,769
HH-6	1,491	1,498	1,502	1,504	1,508	1,510	1,514	1,518	1,520	1,524	1,527	1,532	1,535	1,538	1,542	1,544	1,548	1,551	1,554	1,558	1,561	1,565	1,565
HH-7	7,005	7,115	7,220	7,324	7,429	7,533	7,640	7,745	7,850	7,954	8,059	8,165	8,270	8,376	8,480	8,585	8,690	8,796	8,900	9,006	9,111	9,217	9,217
Heights High	55,202	55,754	56,278	56,800	57,326	57,849	58,377	58,902	59,427	59,948	60,475	61,000	61,529	62,049	62,578	63,100	63,625	64,150	64,674	65,202	65,725	66,252	66,252
HL-1	996	1,002	1,004	1,008	1,010	1,013	1,016	1,019	1,021	1,025	1,028	1,031	1,034	1,037	1,039	1,043	1,045	1,048	1,051	1,054	1,057	1,061	1,061
HL-2	283	286	288	290	292	293	295	297	299	300	302	304	306	309	310	312	314	316	317	319	321	323	323
HL-3	1,093	1,115	1,137	1,159	1,180	1,202	1,224	1,245	1,267	1,289	1,310	1,332	1,354	1,375	1,397	1,419	1,440	1,462	1,484	1,506	1,527	1,549	1,549
Heights Low	2,372	2,403	2,429	2,457	2,482	2,508	2,535	2,561	2,587	2,614	2,640	2,667	2,694	2,721	2,746	2,774	2,799	2,826	2,852	2,879	2,905	2,933	2,933
Lincoln High	454	457	458	460	461	462	464	465	466	468	469	470	472	473	475	476	477	479	480	481	483	484	484
Terrace High	303	303	303	303	303	303	303	303	303	303	303	303	303	303	303	303	303	303	303	303	303	303	303
VH-1	1,310	1,318	1,322	1,326	1,330	1,334	1,338	1,343	1,346	1,350	1,354	1,358	1,362	1,366	1,371	1,374	1,378	1,382	1,386	1,390	1,394	1,399	1,399
VH-2	3,953	3,959	3,961	3,963	3,966	3,969	3,972	3,974	3,977	3,979	3,982	3,985	3,988	3,990	3,993	3,995	3,998	4,001	4,003	4,007	4,009	4,011	4,011
VH-3	1,843	1,860	1,873	1,887	1,899	1,912	1,926	1,940	1,953	1,966	1,979	1,993	2,005	2,019	2,033	2,045	2,059	2,072	2,085	2,099	2,112	2,126	2,126
Vancouver High	7,106	7,137	7,156	7,176	7,195	7,215	7,236	7,257	7,276	7,295	7,315	7,336	7,355	7,375	7,397	7,414	7,435	7,455	7,474	7,496	7,515	7,536	7,536
VL-1	986	1,003	1,017	1,031	1,046	1,060	1,074	1,089	1,103	1,116	1,132	1,146	1,160	1,174	1,189	1,203	1,217	1,231	1,245	1,259	1,275	1,289	1,289
VL-2	1,485	1,490	1,490	1,490	1,491	1,491	1,491	1,492	1,493	1,493	1,494	1,494	1,494	1,495	1,495	1,495	1,497	1,497	1,497	1,499	1,499	1,499	1,499
VL-3	25	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	47
Vancouver Low	2,496	2,520	2,535	2,550	2,567	2,582	2,597	2,614	2,630	2,644	2,662	2,677	2,692	2,708	2,724	2,739	2,756	2,771	2,786	2,803	2,820	2,835	2,835
	67,942	68,598	69,198	69,800	70,403	71,003	71,611	72,222	72,824	73,422	74,030	74,634	75,241	75,839	76,448	77,046	77,650	78,255	78,855	79,465	80,067	80,674	80,674

**APPENDIX 2B – DEMAND PROJECTIONS
SUPPORTING TABLES**

**APPENDIX 3A –
TM 4: WATER QUALITY ANALYSIS**



CITY OF VANCOUVER
COMPREHENSIVE WATER SYSTEM PLAN
TECHNICAL MEMORANDUM NO. 4
WATER QUALITY ANALYSIS

DRAFT
January 2015

This document is released for the purpose of information exchange review and planning only under the authority of Lara R. Kammereck, October 13, 2014, Washington 34428.

CITY OF VANCOUVER
COMPREHENSIVE WATER SYSTEM PLAN UPDATE
TECHNICAL MEMORANDUM
NO. 4
WATER QUALITY ANALYSIS

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1.0 INTRODUCTION

The City of Vancouver (City) is defined as a Group A – Community Water System and must comply with the drinking water standards of the federal Safe Drinking Water Act (SDWA) and its amendments, as regulated by the United States Environmental Protection Agency (USEPA). The Washington State Department of Health (DOH) adopted the updated federal standards under Washington Administrative Code (WAC) 246-290, of which the most recent version became effective April 30, 2012.

The quality of the City's drinking water sources is of primary concern to the City. The City's water is supplied by groundwater aquifers and is tested regularly for the presence of contaminants at frequencies prescribed by DOH regulations. The City is in compliance with all DOH reporting requirements, including publication and distribution of an annual Water Quality Report that keeps consumers informed as to the quality of the City's water supply and water delivery systems.

This chapter includes the following components:

- Description of current drinking water quality regulations.
- Summary of anticipated future regulations.
- Summary of current monitoring programs.
- Summary of the City's compliance with USEPA and DOH regulations.
- Recommendations.

This chapter utilizes information from the DOH's website for Drinking Water Regulation and Compliance¹, the USEPA's website for regulations under the SDWA², the City's annual *Water Quality Reports* (included in Appendix 6C), and the City's 2007 through 2013 water quality data.

2.0 REGULATORY REQUIREMENTS OVERVIEW

The SDWA of 1974, amended in 1986 and 1996, established specific roles for the federal government, state government, and water system purveyors, with respect to water quality monitoring. The USEPA is authorized to develop national drinking water regulations and

¹ <http://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/RegulationandCompliance>

² <http://water.epa.gov/lawsregs/rulesregs/sdwa/currentregulations.cfm>

oversee the implementation of the SDWA. State governments are expected to adopt the federal regulations and accept primary responsibility or “primacy” for administration and enforcement of the Act. States can also regulate contaminants and set advisory levels. Public water system purveyors are assigned the day-to-day responsibility of meeting regulations by incorporating monitoring, record-keeping, and sampling procedures into their operation and maintenance programs.

Applicable SDWA regulations are summarized in Table 4.1 and are divided into those that address source water quality, distribution system water quality, and system-wide requirements, respectively. Monitoring requirements under each rule are noted herein.

Table 4.1 Drinking Water Regulations Water Quality Analysis City of Vancouver				
Rule	CFR	WAC 246-290	Affected Contaminants	Publication Date of Final Rule
<i>Source Water Quality</i>				
National Primary and Secondary Drinking Water Standards	See below	Part 4, 300, 310, and 320	Bacteriological, IOC, VOC, SOC, Asbestos, Radionuclides, Trihalomethanes, Lead/Copper, Phase II/V	Phases I through V promulgated 1987 through 1992.
Radionuclide Rule	40 CFR 141.15 141.25 141.26	Part 4, 300(9) 310(6), and 320	Radionuclides	Promulgated April 4, 1997
Arsenic Rule	40 CFR 141.23 141.24 141.16	Part 4, 300(3) and 310(3)	Arsenic	Promulgated February 2002 Compliance by January 23, 2006
Unregulated Contaminants Monitoring Rule	N/A		Various contaminants considered for future regulations	UCMR 1 promulgated 1999
				UCMR 2 promulgated 2007
				UCMR3 promulgated May 2, 2012
Groundwater Rule		Part 4, 300(3) and 320(2)	Fecal indicators in groundwater	Promulgated January 8, 2007

Table 4.1 Drinking Water Regulations Water Quality Analysis City of Vancouver				
Rule	CFR	WAC 246-290	Affected Contaminants	Publication Date of Final Rule
<i>Distribution System Water Quality</i>				
Revised Total Coliform Rule		Part 4, 300, 310(2), 320	Total coliform bacteria	Promulgated February 13, 2013 Compliance by April 2016
Lead and Copper Rule	40 CFR 141.86 141.87 141.88	Part 4, 300(4) and 310(3)	Lead and Copper	Promulgated January 12, 2000 Revised December 4, 2013
Stage 1 Disinfectants/ Disinfection Byproducts Rule	40 CFR, Parts 9, 141, 142 63 FR 69390	Part 4, 300, 310, and 320	Trihalomethanes, haloacetic acids, chlorite, bromate, and disinfectant residuals	Promulgated February 16, 1999
Stage 2 Disinfectants/ Disinfection Byproducts Rule	40 CFR, Parts 9, 141, 142 71 FR 388	Part 4, 300, 310, and 320	Trihalomethanes and haloacetic acids	Promulgated January 4, 2006 Effective March 6, 2006
<i>System-Wide Requirements</i>				
Consumer Confidence Report Rule	40 CFR 141 Part O	Part 7, Subpart B	Reporting only	Published August 19, 1998
Public Notification Rule	40 CFR 141 Part Q	Part 4, 320	Reporting only	Promulgated 2000
Operator Certification Rule		WAC 246-292	N/A	Effective January 4, 2014

3.0 WATER QUALITY MONITORING PROGRAM

The City's Water Quality Monitoring Program is a vital component of the Water Utility's operations. The program is administered to comply with both state and federal drinking water regulations. This section summarizes the City's existing water quality monitoring program and demonstrates its compliance with DOH requirements. Management, collection, record-keeping, and reporting are discussed for source monitoring, treatment monitoring, and distribution system monitoring.

3.1 Source Monitoring

The DOH assigns each public water system a unique system identification number. In addition, each of the system's supply sources are subsequently assigned a unique source

identification number. The City's water system identification number is 91200L. Listed below are the source identification numbers for each of the system's well fields:

- Water Station 1: S01
- Water Station 3: S02
- Water Station 4: S03
- Water Station 6: S04 (wells abandoned)
- Water Station 7, Well 1: S05
- Water Station 8: S06
- Water Station 9: S07
- Water Station 14: S08
- Water Station 15: S09
- Water Station 7, Well 2: S10
- Ellsworth Water Station, Wells 1 and 2: S11
- Ellsworth Water Station, Well 3: S12

The DOH requires that water quality monitoring samples and test results be labeled with the appropriate system and source identification numbers. As new sources are developed, the DOH assigns the next available source identification number.

In addition to the required testing, the City also monitors for a number of unregulated contaminants, such as perchlorate. While some unregulated contaminant monitoring is based on the anticipated or proposed requirements of forthcoming water quality regulations, the City also tests for some unregulated contaminants in an effort to be proactive.

3.1.1 Management

Source monitoring is managed by the Water Quality Superintendent of the Public Works Department. Actual sample collection is performed by water treatment plant operators. The Water Quality Superintendent is also responsible for selecting a DOH-certified laboratory to conduct the required analyses. The laboratory sends sample bottles and reporting forms to the water quality operators for collection.

3.1.2 Collection

Source water quality parameters are monitored using treated water composite samples from the City's various well fields. A treated water composite sample represents a blend of

individual wells within a water station. The exception is Water Station 7, where individual treated water samples from wells 1 and 2 are collected. Typically, sample lines are flushed for several minutes prior to actual sample collection. The operators deliver or mail samples to DOH-certified laboratories.

3.1.3 Record-Keeping and Reporting

The certified laboratories that analyze the City's water quality samples provide monitoring test results to both the City's Water Quality Superintendent and the DOH Southwest Regional Drinking Water Operations office. The Water Quality Superintendent keeps a copy of the results for the City's files. The Water Quality Superintendent records the results in a computer spreadsheet, which tracks minimum, maximum, and average concentrations of each water quality parameter for each wellfield. This information is available to both the DOH and City staff for review on an as-needed basis. The test data is also incorporated into the City's Annual Water Quality Report. Copies of the laboratory test results are kept on file at the City's Operations Center. DOH requires that such records be maintained for as long as the system is in operation.

3.2 Treatment Monitoring

3.2.1 Management

Daily monitoring of chlorine residual and fluoride levels at the City's water sources is managed by the Operations Superintendent. Additional monitoring includes treatment performance for the iron and manganese greensand filtration, air stripping treatment, and pH adjustment facility operations.

3.2.2 Collection

Treated water composite samples are collected daily at each water station and analyzed for chlorine residual and fluoride level by water treatment plant operators. The chlorine residual is analyzed in the field using a portable chlorine analyzer. In addition, there is continuous monitoring of chlorine residual through SCADA connected analyzers at all source sites. Fluoride levels are analyzed at the Operations Center using a fluoride analyzer.

The DOH requires that fluoride concentrations be maintained between 0.8 and 1.3 milligrams per liter (mg/L) for systems practicing fluoridation. However, the City has documentation from DOH allowing the minimum to be 0.7 mg/L. In order to verify compliance with this regulation and ensure the City's fluoride analyzer is properly calibrated to provide accurate results, monthly check samples are collected. A portion of the sample is analyzed by the City with results reported on a fluoride sample reporting form. The reporting form and the remainder of the sample are sent to a certified laboratory for analysis. The laboratory records the results of their analyses on the reporting form and compares the results. Samples are determined to be in compliance if the laboratory result falls within the required 0.7 to 1.3 mg/L range. The sample is determined to be in control if the difference

between the laboratory result and the City's result is below 0.3 mg/L. An out-of-control sample may indicate the City's fluoride analyzer is inaccurate.

At Water Station 7, Well 2, daily samples are collected from hose bibs located at the inlet and outlet of the iron and manganese pressure filters. These samples are then analyzed for iron and manganese by operators in the field using test kits. Similar testing is performed at the Ellsworth Water Treatment Plant.

3.2.3 Record-Keeping and Reporting

The DOH maintains various forms for record-keeping and reporting activities. The water treatment plant operators record the results of the chlorine residual analyses on DOH Chlorination Plant Turbidity Report forms. The fluoride level results are recorded on the DOH Fluoride Plant Report form. At Water Station 7 and Ellsworth iron and manganese treatment facilities, iron and manganese concentrations for both raw and finished water are recorded daily on an Iron Removal and/or Zeolite Softening form. Each completed form is reviewed by the Operations Superintendent and sent monthly to the DOH Southwest Washington Drinking Water Operations office.

3.3 Additional PCE Monitoring

In addition to the DOH source monitoring requirements for volatile organic chemicals (VOCs), the perchloroethylene (PCE) Monitoring Program is conducted. Prior to PCE regulations being in place, the City conducted sampling of its sources for multiple unregulated pollutants. The sampling program resulted in PCE contamination detection at Water Stations 4 and 1 in 1988 and 1989, respectively. The city implemented air stripping treatment and the monitoring program in the early 1990's to bring PCE levels in treated water to non-detect levels. The latest EPA five-year review report, September 2013, acknowledged that contamination levels have declined under the maximum contaminant level. EPA manpower issues prevent site delisting. The City will continue the monitoring program and pressuring EPA to take delisting actions.

3.3.1 Management

The City's additional PCE monitoring program is managed by the Operations Superintendent. Samples are collected by the City's water treatment plant operators.

3.3.2 Collection

The sample locations and sampling frequency for PCE are summarized in Table 4.2. Sampling frequency exceeds EPA required annual testing. The City's conservative approach protects public health. A DOH-certified laboratory provides the operators with sample collection bottles and reporting forms. The forms are completed during sample collection and delivered, along with the samples, to the laboratory for analysis.

3.3.3 Record-Keeping and Reporting

The laboratory provides test results to the Operations Superintendent who is responsible for keeping the results on file and entering the data into a computer spreadsheet. The spreadsheet data is used to evaluate the removal performance of the air stripping treatment facilities at Water Stations 1 and 4. The air stripping facilities at these two water stations have proven highly effective at PCE removal from the source water. The data is also used to monitor PCE levels in the distribution system and Water Stations 3, 8, 14, and 15. This data is available for review by City staff and the DOH on an as-needed basis.

Table 4.2 Additional PCE Monitoring Program Water Quality Analysis City of Vancouver	
Sampling Location	Frequency
Water Station 1	
Wells 1 – 10	Monthly
4-MG Reservoir Outlet	Bi-Weekly
Water Station 4	
Wells 1, 2B – 5B, 9	Bi-Weekly
South Air Stripping Tower In/Out	Bi-Weekly
North Air Stripping Tower Outlet	Bi-Weekly
Water Stations 3, 8, 14, and 15	
One Well at Each Station	Monthly

3.4 Distribution System Monitoring

The City is required to monitor its distribution system for bacteriological contamination, disinfection byproducts (DBPs), and lead and copper. The monitoring program for each is described below.

3.4.1 Bacteriological

3.4.1.1 *Management*

The City’s bacteriological monitoring program is managed by the Water Quality Superintendent per the City’s Coliform Monitoring Plan (CMP). The CMP identifies the distribution system monitoring locations, sample sites, and sampling frequency. The bacteriological monitoring program measures the chlorine residual, pH, and temperature at each sample site.

3.4.1.2 Collection

The CMP identifies 40 distribution system sampling sites that are sampled weekly by the City's water quality staff. The sampling locations are distributed proportionally throughout the system in order to ensure representative monitoring. The sample sites include dedicated sample stations, water station sample sinks, or hose bibs, which are not susceptible to contaminations that could interfere with the test results. The chlorine residual, pH, and temperature are recorded in the field as the samples are collected. The samples are then sent to the laboratory for analysis.

3.4.1.3 Record-Keeping and Reporting

The laboratory sends the bacteriological test results to the DOH Southwest Washington Drinking Water Operations office and the City's Water Quality Superintendent. Per DOH record-keeping requirements, the Water Quality Superintendent maintains copies of the results for at least five years. The Water Quality Superintendent also enters the results, along with pH and temperature, into a computer spreadsheet to track the average pH, temperature, and the number of bacteriological test failures on an annual basis.

3.4.2 Disinfection Byproducts

3.4.2.1 Management

The City's DBP monitoring program is managed by the Water Quality Superintendent.

3.4.2.2 Collection

The City collects samples for chlorine residual and chloramines quarterly, as part of the CMP. DBPs, specifically total trihalomethane (THM) and haloacetic acid (HAA), are monitored at the six sample locations listed in Table 4.3.

3.4.2.3 Record-Keeping and Reporting

During each DBP test, the City records duration of flushing, the chlorine residual, total THM and HAA results, and the locational running annual average (LRAA) for total THM and HAA, as required by the Stage 2 Disinfection Byproducts Rule.

Sampling Location	Associated Water Station	Address
1	WS 8	11901 NE 56 Circle
2	WS 1	5197 Lower River Road
3	WS 3	6815 Dogwood Drive
4	WS 14	10611 NE 112 Place

Table 4.3 Disinfection Byproducts Water Quality Analysis City of Vancouver		
Sampling Location	Associated Water Station	Address
5	WS 9	19210 SE 31 Street
6	WS 15	1101 NE 89 Avenue

3.4.3 Lead and Copper

The City's lead and copper monitoring program has been conducted in compliance with the federal Lead and Copper Rule (LCR) as adopted under WAC 246-290. The City conducted three rounds of lead and copper monitoring per the requirements of the LCR. The first round of monitoring was completed in August 1992; the second round was completed in December 1992; and a third round of monitoring was conducted in February 1994. Under the LCR, the City also conducted a corrosion-control optimization study. The study was completed in June 1994 and approved by the DOH in February 1995. At the request of the DOH, the City is currently in the process of updating this study.

3.4.3.1 *Management*

The three rounds of lead and copper monitoring in the distribution system were managed by the Water Quality Superintendent. A total of 111 sampling sites were selected. This exceeds the 100 monitoring sampling sites required for systems serving a population greater than 100,000. The Water Quality Superintendent also selected a DOH-certified laboratory to conduct the lead and copper analysis.

3.4.3.2 *Collection*

The lead and copper samples were collected by the property owners. The samples were collected from household water taps at each of the 111 sampling sites designated for monitoring. The same sampling locations were used for all three rounds of monitoring.

3.4.3.3 *Record-Keeping and Reporting*

The laboratory provided test results to both the Water Quality Superintendent and the DOH. The monitoring results will be kept on file for as long as the system is in operation, as required by the DOH.

The analytical results and the study generally showed compliance with the LCR, which includes meeting action levels (ALs) of 0.015 mg/L for lead and 1.3 mg/L for copper, compared to the 90th percentile concentrations in the group of homes sampled. Of those individual samples that exceeded the ALs (mostly for copper, not lead), most were in areas served by Water Stations 14 and 15. The City installed treatment systems specifically to reduce lead and copper corrosivity at these well fields. An air stripper was installed at Water

Station 14 to remove dissolved carbon dioxide, thus raising the pH. At Water Station 15, pH is raised by adding sodium hydroxide.

After treatment, private tap water samples from areas predicted to be served by these water stations showed great reduction in lead and copper, typically to nondetectable levels.

The City continues to collect samples and measure pH at well fields, and pH, alkalinity, lead, and copper in the distribution system.

In addition to Water Stations 14 and 15, other City facilities use treatment methods that increase pH and are expected to reduce lead and copper corrosion. At Water Stations 1 and 4, air strippers were in place to remove PCE before or during the lead and copper study, increasing pH values at both stations from the 6.5 to 7 range, to approximately 7.7 after treatment. Air stripping also effectively removes carbon dioxide, as confirmed by a pilot study.

At Ellsworth, sodium hydroxide was added as part of the iron and manganese treatment facility. This raised the pH to about 7.8.

At Water Stations 7 and 8, existing gas chlorine systems were converted to sodium hypochlorite disinfection, raising the pH slightly. Water Station 7, Well 1, finished water had a pH of approximately 7.0; Well 2, 7.5; and Water Station 8, 6.9.

Considering all the treatment methods, most of the City's water sources have some type of pH adjustment. The 2001 and 2002 lead and copper test results prove the City-wide success of the treatment in lowering lead and copper corrosion. The 90th percentile results for both lead and copper are also low enough to qualify for reduced frequency of testing.

3.5 Additional Monitoring

The City has an ongoing policy of conducting comprehensive water quality monitoring for all water quality parameters that are anticipated to be the subject of future regulation. This advance monitoring provides the City with background water quality data on contaminants of interest, allows the City to prepare for future regulations, and ensures only the highest quality water is delivered to customers. The City will make necessary adjustments to their existing monitoring plan to meet any future drinking water quality regulations.

4.0 SOURCE WATER QUALITY REGULATIONS AND COMPLIANCE

This section reviews regulations that address source water quality for groundwater systems and summarizes the City's compliance with the regulations.

4.1 National Primary and Secondary Drinking Water Standards

National Primary Drinking Water Standards are currently set for 92 contaminants. Maximum contaminant levels (MCLs) and maximum contaminant level goals (MCLGs) have been established for 83 contaminants, while the remaining 9 have treatment technique requirements. A constituent's MCL is generally based on its public health goal (PHG), which is the level of a contaminant in drinking water below which there is no known expected health risk. Regulated constituents include microbial contaminants, inorganic chemicals (IOCs), VOCs, synthetic organic chemicals (SOCs), radionuclides, and DBPs. Regulations affecting DBPs are discussed below in the distribution system water quality section.

The USEPA regulates most of the chemical contaminants through the rules known as Phases I, II, IIb, and V. The USEPA issued the four rules regulating 69 contaminants over a five-year period as it gathered, updated, and analyzed information on each contaminant's presence in drinking water supplies and its health effects. The Phase I Rule was promulgated July 8, 1987 and included eight VOCs. The Phase II and IIb Rules (published January 30 and July 1, 1991) updated or created new limits for 38 contaminants. The Phase V Rule (published July 17, 1992), set standards for 23 additional contaminants. These rules form the basis of the DOH regulations, WAC 246-290. Since the Phase V Rule, MCLs for additional contaminants have been established through new regulations and must be adopted by the DOH.

The USEPA has also established secondary standards for 15 contaminants to address the aesthetic quality of drinking water; these secondary standards have also been adopted within the WAC. Because the federal standards primarily address taste and odor, rather than health issues, they are often used only as a guideline. For new community water systems, the DOH requires treatment for secondary MCL exceedances under WAC 246-290-320 (3)(d). For other public water systems, the WAC stipulates that the required follow-up action be determined by the DOH based on the degree of consumer acceptance of the water quality and their willingness to bear the cost of meeting the secondary standard.

Current primary and secondary MCLs for inorganic and organic constituents, respectively, are documented in the following subsections.

4.1.1 Inorganic Chemicals

Regulated IOCs include elemental metals such as mercury, arsenic, and iron. Some non-metallic constituents such as chloride, fluoride, and sulfate are also included in this category. Physical properties of IOCs that affect water quality in this category include turbidity, specific conductivity, total dissolved solids, and color. WAC 246-290-310 specifies primary and secondary MCLs for IOCs, which are summarized in Table 4.4 and Table 4.5, respectively.

Table 4.4 Primary MCLs for Inorganic Chemicals Water Quality Analysis City of Vancouver	
Chemical	Primary MCL (mg/L)⁽¹⁾
Antimony (Sb)	0.006
Arsenic (As)	0.01
Asbestos	7 million fibers/liter (length > 10 microns)
Barium (Ba)	2.0
Beryllium (Be)	0.004
Cadmium (Cd)	0.005
Chromium (Cr)	0.1
Copper (Cu)	1.3 ⁽²⁾
Cyanide (HCN)	0.2
Fluoride (F)	4.0
Lead (Pb)	0.015 ⁽²⁾
Mercury (Hg)	0.002
Nickel (Ni)	0.1
Nitrate (as N)	10.0
Nitrite (as N)	1.0
Selenium (Se)	0.05
Sodium (Na)	20 ⁽³⁾
Thallium (Tl)	0.002

Notes:
(1) Source: State DOH Drinking Water Regulations (246-290-310), effective March 2012.
(2) Lead and copper have established ALs, rather than MCLs. These are discussed further in the LCR, under the *Distribution System Water Quality* section.
(3) USEPA has established a recommended level of 20 mg/L for individuals that have restrictions on daily sodium intake. This is not an enforceable standard.

Table 4.5 Secondary MCLs for Inorganic Chemicals Water Quality Analysis City of Vancouver	
Chemical	Primary MCL (mg/L)⁽¹⁾
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 (color units)
Copper	1.0 mg/L
Corrosivity	Non-corrosive
Fluoride	2.0 mg/L
Foaming Agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L

Table 4.5 Secondary MCLs for Inorganic Chemicals Water Quality Analysis City of Vancouver	
Odor	3 threshold odor number
pH	6.5-8.5
Silver	0.10 mg/L
Sulfate	250 mg/L
Total Dissolved Solids	500 mg/L
Zinc	5 mg/L
Notes:	
(1) Source: State DOH Drinking Water Regulations (246-290-310), effective March 2012.	

4.1.1.1 Monitoring Requirements

The City has a waiver for IOC testing that reduces the frequency to once every nine years for Water Stations 1, 3, 4, and Water Station 7, Well 1. The next IOC sample is required in September 2019. Nitrate samples are required annually at Water Station 1, 3, 4, and 7, Well 1. Since nitrates are included in IOC sampling, additional samples are not required in years when an IOC is taken from the source.

4.1.1.2 Compliance

The City complies with the requirements for monitoring IOCs, and has not exceeded any water quality requirements.

4.1.2 Volatile Organic and Synthetic Organic Compounds

VOCs are manufactured, carbon-based chemicals that vaporize quickly at normal temperatures and pressures. VOCs include many hydrocarbons associated with fuels, paint thinners, and solvents. This group does not include organic pesticides, which are regulated separately as SOCs. VOCs are divided into the two following groups:

- Regulated VOCs that have been determined to pose a significant risk to human health.
- Unregulated VOCs for which the level of risk to human health has not been established.

There are currently 21 regulated VOCs and 33 regulated SOCs. A list of these compounds and their MCLs is included in Table 4.6.

4.1.2.1 Monitoring Requirements

Per DOH requirements, VOCs and SOCs must be sampled once every three years, unless a waiver is in place. State waivers requiring no monitoring have been issued for dioxin, endothal, diquat, glyphosate, and insecticides. Additionally, the state grants a waiver if a

chemical is not in use or previous monitoring indicates contamination would not occur. The City must apply for waivers through DOH. There are two types of waivers, risk-based or area-wide. The risk-based waiver requires a susceptibility analysis and DOH charges a fee for these waivers (purchased waivers). Area-wide waivers are issued if a chemical is not used within a region, thus DOH does not charge for these waivers. While the state issues both types of waivers, an area-wide waiver is referred to as a "State waiver." A waiver is in place for two years, during which time there are no requirements for monitoring. However, once a waiver expires, monitoring frequency for VOCs and SOCs is one sample every three years.

Other than the statewide state issued waivers, the City has no VOC waivers. The City has waivers that reduce required sampling frequencies to once every three years for herbicides, pesticides, and soil fumigants for Water Stations 1, 3, 4, and Water Station 7, Well 1.

Table 4.6 Regulated Volatile and Synthetic Organic Chemicals Water Quality Analysis City of Vancouver					
Organic Chemical	Federal Regulation	Primary MCL (mg/L)⁽¹⁾	Organic Chemical	Federal Regulation	Primary MCL (mg/L)⁽¹⁾
Volatile Organic Chemicals (VOCs)					
Vinyl chloride	Phase I	0.002	Monochlorobenzene	Phase II	0.1
Benzene	Phase I	0.005	Ortho-Dichlorobenzene	Phase II	0.6
Carbon Tetrachloride	Phase I	0.005	Styrene	Phase II	0.1
1,2-Dichloroethane	Phase I	0.005	Tetrachloroethylene	Phase II	0.005
Trichloroethylene	Phase I	0.005	Toluene	Phase II	1
Para-Dichlorobenzene	Phase I	0.075	Trans-1,2-Dichloroethylene	Phase II	0.1
1,1-dichloroethylene	Phase I	0.007	Xylenes (total)	Phase II	10
1,1,1-Trichloroethane	Phase I	0.2	Dichloromethane	Phase V	0.005
Cis-1,2-Dichloroethylene	Phase II	0.07	1,2,4-Trichlorobenzene	Phase V	0.07
1,2-Dichloropropane	Phase II	0.005	1,1,2-Trichloroethane	Phase V	0.005
Ethylbenzene	Phase II	0.7	Chlorobenzene		0.07
Synthetic Organic Chemicals (SOCs)					
Arochlor	Phase II	0.002	Benzo(a)pyrene	Phase V	0.0002
Atrazine	Phase II	0.003	Dalapon	Phase V	0.2
Carbofuran	Phase II	0.04	Di(2-ethylhexyl) adipate	Phase V	0.4
Chlordane	Phase II	0.002	Di(2-ethylhexyl) phthalate	Phase V	0.006
Dibromochloro-propane	Phase II	0.0002	Dinoseb	Phase V	0.007
2,4-D	Phase II	0.07	Diquat	Phase V	0.02

Table 4.6 Regulated Volatile and Synthetic Organic Chemicals Water Quality Analysis City of Vancouver					
Organic Chemical	Federal Regulation	Primary MCL (mg/L)⁽¹⁾	Organic Chemical	Federal Regulation	Primary MCL (mg/L)⁽¹⁾
Ethylene dibromide	Phase II	0.00005	Endothall	Phase V	0.1
Heptachlor	Phase II	0.0004	Endrin	Phase V	0.002
Heptachlor epoxide	Phase II	0.0002	Glyphosate	Phase V	0.7
Lindane	Phase II	0.0002	Hexachlorobenzene	Phase V	0.001
Methoxychlor	Phase II	0.04	Hexachloro Cyclopentadiene	Phase V	0.05
Polychlorinated biphenyls (PCBs)	Phase II	0.0005	Oxamyl (vydate)	Phase V	0.2
Pentachlorophenol	Phase II	0.001	Picloram	Phase V	0.5
Toxaphene	Phase II	0.003	Simazine	Phase V	0.004
2,4,5-TP	Phase II	0.05	2,3,7,8-TCDD (dioxin)	Phase V	3x10 ⁻⁸
Notes:					
(1) 40 CFR 141.61(a) and (c); adopted by State DOH, effective April 1999.					

4.1.2.2 Compliance

A review of the City's 2007 to 2013 water quality data shows that all of the City's source wells test below the VOC or SOC MCLs, or are not detected at all.

4.1.3 Radionuclides

In December 2000, the USEPA announced updated standards for radionuclides. This rule became effective December 2003. All community water systems are required to meet the MCLs listed in Table 4.7, and requirements for monitoring and reporting. All systems were required to complete initial monitoring and phase in the monitoring requirements between December 8, 2003 and December 30, 2007. Initially, utilities were required to undergo four consecutive quarters of monitoring for gross alpha, combined radium-226/-228, and uranium. Only systems that were considered "vulnerable" were required to monitor for gross beta (quarterly samples), tritium, and strontium-90 (annual samples). The initial monitoring was used to determine if the system would have to perform reduced or increased monitoring.

Table 4.7 Regulated Radionuclides Water Quality Analysis City of Vancouver	
Radionuclide	MCL⁽¹⁾
Radium – 226	3 pCi/L
Combined Radium – 226 and 228	5 pCi/L
Uranium	30 µg/L
Gross Alpha (excluding Uranium)	15 pCi/L
Beta Particle and Photon Radioactivity	4 millirem/year ⁽²⁾
Tritium	20,000 pCi/L ⁽²⁾
Strontium-90	8 pCi/L ⁽²⁾
<u>Notes:</u>	
(1) Environmental Protection Agency, 40 CFR 141.66.	
(2) According to USEPA 40 CFR 141.66, “average annual concentration of beta particle and photon radioactivity from man-made radionuclides in drinking water must not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.” The MCLs for tritium and strontium-90 are assumed to produce body organ doses equivalent to 4 millirem/year.	

4.1.3.1 Monitoring Requirements

The WAC states “The purveyor may omit analysis for radium-226 and radium-228 if the gross alpha particle is less than five pCi/L.” The City is required to sample for radium-228 once every six years at Water Stations 1, 3, 4, and Water Station 7, Well 1. Gross alpha monitoring is only required at Water Station 7, Well 1, at a frequency of once every six years. The USEPA has adopted a new schedule of sampling once every three years that has not yet been adopted by DOH. In Washington State, natural occurrence levels of the regulated radionuclides have generally been quite low.

4.1.3.2 Compliance

The City is in full compliance with the monitoring requirements and has no exceedances to date.

4.1.4 Arsenic Rule

In January 2001, the USEPA promulgated a new standard that requires public water systems to reduce arsenic levels in drinking water. The final rule became effective in 2002 and required compliance by 2006. The rule applies to all community water systems and non-transient, non-community water systems, regardless of size. The rule not only establishes an MCL for arsenic (0.010 mg/L), based on a running annual average (RAA) of quarterly results and an MCGL for arsenic (zero), but also lists feasible and affordable

technologies for small systems that can be used to comply with the MCL. However, systems are not required to use the listed technologies in order to meet the MCL.

Initial monitoring of arsenic required groundwater systems to take one sample between 2005 and 2007. Monitoring requirements decreased to one sample every three years (for groundwater systems) if the initial result is less than the MCL. Monitoring requirements increased to quarterly samples if the initial results were greater than the MCL. Each entry point to the distribution system should have been tested, unless otherwise specified by the State.

The arsenic rule has been adopted by the Washington DOH as a revision to the arsenic MCL under WAC 249-290-310.

4.1.4.1 Monitoring Requirements

Monitoring requirements are once every three years, per requirements for IOCs. Arsenic must be monitored at each entry point to the distribution system as part of the IOC monitoring framework. If any sampling point is in violation of an MCL, the system is in violation.

4.1.4.2 Compliance

The City exceeds the monitoring requirements and samples for arsenic every year. Per the City's water quality data, all sources are well below the MCL for arsenic.

4.1.5 Groundwater Rule

The USEPA enacted the final Groundwater Rule (GWR) January 8, 2007, for the purpose of providing increased protection against microbial pathogens in public water systems that use untreated groundwater. The GWR will apply to public water systems that serve groundwater as well as to any system that mixes surface and groundwater, if the groundwater is added directly to the distribution system and is provided to customers without providing disinfection contact time.

To implement the GWR, the USEPA is taking a risk-based approach to protect drinking water from groundwater sources that have been identified as being at the greatest risk of fecal contamination. This strategy includes four primary components:

1. **Sanitary Surveys**. Sanitary surveys must be conducted every three years and meet the provisions of the 1998 Interim Enhanced Surface Water Treatment Rule as it relates to populations served. In addition, the sanitary survey shall implement the eight elements of the USEPA/State Joint Guidance on Sanitary Surveys. These elements relate to source protection; identification of the physical components and their condition; and description and implementation of programs for treatment, distribution, storage, pumping, monitoring, operation and maintenance; and operator certification.

2. **Source Water Monitoring.** Source water monitoring is triggered when a system does not sufficiently disinfect drinking water to achieve 4-log (99.99 percent) virus removal and identifies a positive routine sample during its Total Coliform Rule (TCR) monitoring and hydrogeologic sensitivity assessment monitoring (at the State's discretion) targeted at high-risk systems. Once a total coliform-positive sample is found within a distribution system, the system is required to collect one source water sample per source and monitor for a fecal indicator. Washington State may choose to issue a waiver if the groundwater source has a hydrogeologic barrier.
3. **Corrective Action.** Corrective action is required for any system with a significant deficiency or evidence of source water fecal contamination. Corrective actions must be taken by "groundwater systems that have a significant deficiency or have detected a fecal indicator in their source water." USEPA guidelines recommend that corrective actions take place within 90 days, or longer if approved by the State. The problem should be solved by eliminating the contaminate source, correcting the significant deficiencies, or providing an alternate source of water supply.
4. **Compliance Monitoring.** Compliance monitoring ensures that treatment technology installed to treat drinking water reliably achieves 4-log virus inactivation. Compliance monitoring applies to all groundwater systems that disinfect as a corrective action. Systems serving greater than 3,300 individuals must continuously monitor their disinfection treatment process. If disinfection concentrations are below the required level, the system must restore disinfection concentration within 4 hours.

The compliance date for triggered source water monitoring and the associated corrective actions, as well as compliance monitoring, was December 1, 2009. Initial sanitary surveys should have been completed by December 31, 2012. However, for community water systems that have been identified by the State as outstanding performers (generally those that have treatment that provides 4 log virus inactivation or removal at all sources), the initial sanitary survey must be completed by December 31, 2014.

Many of the requirements of the GWR are determined by the individual state agencies. The requirements of the GWR were adopted by the Washington DOH into WAC 246-290 in November 2010. In addition, the DOH has provided a Fact Sheet for Group A utilities with recommended actions to prepare for the GWR. These actions include the following:

- Correct deficiencies from the last sanitary survey.
- Install a sample tap at each wellhead.
- Know specifically where each well's water goes. Triggered source water monitoring will require monitoring of all sources, unless it can be shown that the area of concern in the distribution system is only served by a limited number of sources.

- Update the emergency response plan, to be ready to provide alternate water, if needed.
- If currently treating groundwater from a well, contact the regional office engineer to confirm whether you currently achieve 4-log virus inactivation. Systems that treat to this level will not be required to conduct triggered source water monitoring, but will instead be required to meet treatment technique monitoring requirements.

4.1.5.1 Monitoring Requirements

The DOH is not requiring all systems to perform assessment monitoring. In addition, DOH has indicated that the sanitary surveys completed under the GWR will not differ significantly from those currently required.

Triggered source water monitoring is required at all sources if a distribution system sample tests positive for total coliform (as collected under the total coliform regulations). The federal GWR includes a provision that positive coliform samples attributed to a distribution system source will not trigger source water monitoring. The DOH has not yet decided on the criteria for determining whether a sample can be attributed to the distribution system but may not require triggered source monitoring if they document in writing that the coliform positive sample was attributed to a distribution system deficiency. Source water monitoring will be required at fewer sources if systems can demonstrate the sources impacting each TCR sample site. However, such a plan would need to be pre-approved by the DOH.

The federal GWR also allowed for reduced source water monitoring after 12 non-detect samples. The DOH has not yet established a reduced monitoring standard.

4.1.5.2 Compliance

The City completed its sanitary survey in 2010. No reduction in monitoring resulted from the survey. The City has since had one positive detection of total coliform and has followed the protocol to test all sources active at the time of the positive test. No additional tests resulted in a detection. Due to the low frequency of detecting coliforms, the City does not plan to prepare a triggered source monitoring plan at this time.

4.1.6 Unregulated Contaminant Monitoring Rule

The 1986 amendments to the SDWA require public water systems to monitor for unregulated contaminants every five years and submit these data to the states. The intent of this program is to gather scientific information on unregulated contaminants to determine if regulations are required to protect human health. Both the 1993 and 1996 amendments to the act added new lists of contaminants, which led the USEPA to develop a revised program for monitoring. The new program became known as the Unregulated Contaminant Monitoring Regulations (UCMR 1999). The new UCMR program began in 2001, and produces a new list of unregulated contaminants for monitoring every five years.

Under the UCMR program, USEPA asks large systems to take two sets of samples for unregulated contaminants at six-month intervals. There are two tiers of contaminants in UCMR1; List 1 - Assessment Monitoring, and List 2 - Survey Screening. List 1 contaminants are sampled by all water systems serving over 10,000 people. There are 10 List 1 contaminants, consisting of flame-retardants and other priority contaminants (USEPA Method 527), and some explosives (USEPA Method 529). List 2 contaminants are analyzed using less common analytical techniques, and only a portion of the purveyors required to test for List 1 contaminants are required to test for List 2. List 2 contaminants include Acetanilide pesticides and degraded products (USEPA Methods 525.2 and 535), and Nitrosoamines/NDMA (USEPA Method 521).

The second cycle (UCMR 2) of monitoring was published in the Federal Register on January 4, 2007. The UCMR 2 required monitoring for 25 contaminants using five analytical methods during 2008- 2010. The third cycle (UCMR 3) of monitoring was published on May 2, 2012. UCMR 3 requires monitoring for 30 contaminants: 28 chemicals, and 2 viruses. Monitoring is to occur during 2012 to 2016, and the third cycle UCMR 3 requires laboratories have USEPA approval to analyze public water supply samples.

4.1.6.1 Monitoring Requirements

The City has conducted monitoring of the unregulated contaminants for UCMR 1, 2, and 3. UCMR 3 testing was completed with results published in the 2013 Water Quality Report.

4.1.6.2 Compliance

The City is in compliance with the UCMR testing requirements.

5.0 DISTRIBUTION SYSTEM WATER QUALITY AND COMPLIANCE

Regulations that address distribution system water quality are described herein.

5.1.1 Total Coliform Rule

Coliform bacteria describe a broad category of organisms routinely monitored in potable water supplies. Though not all coliform bacteria are pathogenic in nature, they are relatively easy to identify in laboratory analysis. If coliform bacteria are detected, then pathogenic organisms may also be present. Bacterial contamination in a water supply can cause a number of waterborne diseases; therefore, these tests are strictly monitored and regulated by DOH.

The TCR specifies two types of MCL violations, “monthly” and “acute.” A purveyor is required to notify both DOH and system consumers if either a monthly or acute MCL violation occurs. A violation of bacteriological MCLs occurs during routine sampling when:

- Coliform is detected in 5 percent or more routine or repeat samples in a single month, but no follow-up violations occur (Monthly MCL).
- Coliform is present in any of the repeat samples collected as a follow-up to a sample with fecal coliform or *E. coli* (Acute MCL).
- Fecal coliform or *E. coli* is present in any of the repeat samples collected as a follow-up to a sample with coliform presence (Acute MCL).

The TCR also requires secondary disinfection in accordance with the following:

- A sample with heterotrophic plate counts (HPCs) less than 500 colony forming units per 100 mL is assumed to carry the required minimum residual.

The original 1989 TCR rule was revised on February 13, 2013. Water systems must comply with the requirements of the Revised Total Coliform Rule (RTCR) by April 1, 2016. The revision requires public water systems that are vulnerable to microbial contamination to identify and fix problems; and establishes criteria for systems to qualify for and stay on reduced monitoring, which could reduce water system burden and provide incentives for better system operation. Prior to April 2016, Public Water Systems (PWSs) must do the following:

- Develop a written sample siting plan that identifies the system's sample collection schedule and all sample sites, including sites for routine and repeat monitoring.
- PWSs monitoring quarterly or annually must identify additional routine monitoring sites in their sample siting plans.
- Sample siting plans are subject to state review and revision.

The primary focus of the revision is to eliminate the total coliform MCL. Positive coliform samples are intended to trigger further assessment for fecal indicators, which then lead to corrective actions. Prior to the revision, positive coliform samples alone trigger corrective action or notification. The revisions are anticipated to be positive for the City, as it would reduce the probability of requiring public notification for total coliform samples that do not indicate a public health risk.

The DOH began rule-making of the RTCR. A pre-proposal statement was filed on February 25, 2014 to consider the disinfection requirements and the RTCR. The rule is anticipated to be promulgated in July 2016.

5.1.1.1 Monitoring Requirements

Monitoring requirements are described in the City's CMP, as presented in Appendix 6B. The City currently collects 160 samples per month from 40 locations based on a residential population of 231,000 as provided by the DOH Water Quality Monitoring Schedule as of September 2014.

5.1.1.2 Compliance

The City had two total coliform exceedances in 2006, one total coliform exceedance in 2007, four total coliform exceedances in 2009, and one total coliform exceedance in 2013. All follow-up tests were negative, and no public notification was required. The City is currently in full compliance with the TCR.

5.1.2 Stage 1 Disinfectants and Disinfection Byproducts Rule

The Stage 1 Disinfectants and Disinfection Byproducts Rule (DBPR) was promulgated in December 1998 and regulates the concentration of disinfectants such as chlorine, chlorine dioxide, and chloramines, which are oxidants used to control waterborne disease. The DBPR also regulates DBPs such as THMs and HAAs, bromate, and chlorite. DBPs are formed when disinfectants used to control microorganisms react with natural organic matter in water.

The MCLs for THMs and HAAs are 0.080 and 0.060 mg/L, respectively. The four regulated trihalomethanes are chloroform, bromodichloromethane, dibromochloromethane, and bromoform. The five regulated HAAs are monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid. Compliance with the THM and HAA MCLs is based on a system-wide RAA of quarterly samples taken in the distribution system. The Stage 1 DBPR also introduced a maximum residual disinfectant level (MRDL) of 4 mg/L for free chlorine, based on an RAA of samples collected concurrent with TCR monitoring.

5.1.2.1 Monitoring Requirements

Monitoring locations under the Stage 1 DBPR were initially identified in a Initial Distribution System Evaluation (IDSE) prepared by the City in 2004. The City's IDSE explains that the chlorine and chloramines are monitored as part of the CMP, which currently tests at 40 sites system wide. The City monitors quarterly for disinfectant residuals at each of these locations. Additionally, the IDSE identifies nine locations representing the longest detention time corresponding to each water treatment plant. The IDSE notes that because the City does not use ozone or chlorine dioxide, monitoring for bromated or chlorite is not necessary. Monitoring for DBPs included a THM and HAA sample from each site quarterly.

5.1.2.2 Compliance

The City's monitoring protocol meets the requirements of the Stage 1 DBPR, and results indicate compliance with the Rule.

5.1.3 Stage 2 Disinfectants and Disinfection Byproducts Rule (2006)

The Stage 2 DBPR was promulgated by the USEPA on January 4, 2006. The key provisions of the Stage 2 DBPR consist of:

- An IDSE to identify distribution system locations with high DBP concentrations. Further information is provided below.
- Site-specific LRAAs instead of system-wide RAAs to calculate compliance data. LRAAs will strengthen public health protection by eliminating the potential for groups of customers to receive elevated levels of DBPs on a consistent basis.

The MCLs for THM4 and HAA5 remain unchanged from the Stage 1 DBPR at 0.080 and 0.060 mg/L, respectively, although they will now be calculated as LRAAs.

The IDSE is the first step in Stage 2 DBPR compliance. Its intent is to identify sampling locations for Stage 2 DBPR compliance monitoring that represents distribution system sites with high THM and HAA levels. For systems serving more than 500 people, three options were available for the IDSE:

- 40/30 Waiver, which allows systems with no samples exceeding THM and HAA concentrations of 40 and 30 µg/L, respectively, during eight consecutive quarters to apply to waive the IDSE requirements.
- Standard Monitoring Program (SMP), which involves a one-year distribution system monitoring effort to determine locations that routinely show high THM4 and HAA5 concentrations.
- System-Specific Study (SSS), based on historical data and a system model.

The Washington DOH adopted the Stage 2 DBPR on January 4, 2010.

5.1.3.1 Monitoring Requirements

Due to the low test samples of THM and HAA, the City obtained a 40/30 Waiver. The City then prepared a Stage 2 DBPR monitoring plan that includes the six monitoring locations shown in Table 4.3. The City implemented LRAA monitoring for these six sites as required by the new regulation.

5.1.3.2 Compliance

The City is in compliance with monitoring requirements for the Stage 2 DBPR. Since April 2012, there have been no samples exceeding the MCL for THM or HAA5.

5.1.4 Lead and Copper

In 1991, the USEPA promulgated the Federal LCR. Washington State adopted this rule in 1995 with minimal changes. The LCR is intended to reduce the tap water concentrations that can occur when corrosive source water causes lead and copper to leach from water meters and other plumbing fixtures. Possible treatment techniques to reduce lead and copper leaching include addition of soda ash or sodium hydroxide to the source water prior to distribution.

The LCR establishes an AL of 0.015 mg/L for lead and 1.3 mg/L for copper, based on the 90th percentile level of tap water samples. The most recent revisions (2007) added the following requirements (required as of December 10, 2009):

1. Monitoring. The rule adds a new reduced monitoring requirement, which prevents water systems above the lead AL to remain on a reduced monitoring schedule.
2. Treatment. Water systems must provide advanced notification and gain the approval of the primacy agency for intended changes in treatment or source water that could increase corrosion of lead.
3. Consumer notification. All utilities must now provide a notification of tap water monitoring results for lead to owners and/or occupants of homes and buildings who consume water from the taps that are part of the utility's sampling program.
4. Lead service line replacement. Utilities must reconsider previously "tested-out" lines when resuming lead service line replacement programs. This provision only applies to systems that have:
 - a. Initiated a lead service line replacement program.
 - b. Complied with the lead AL for two consecutive monitoring periods and discontinued the lead service line replacement program.
 - c. Subsequently been re-triggered into lead service line replacement.
 - d. All previously "tested-out" lines would then have to be tested again or added back into the sampling pool and considered for replacement.

An AL exceedance is not a violation but can trigger other requirements that include water quality parameter monitoring, corrosion control treatment, source water monitoring/treatment, public education, and lead service line replacement.

Samples must be collected at cold water taps in homes/buildings that are at high risk of lead/copper contamination as identified in 40 CFR 141.86(a). The number of sample sites is based on system size.

5.1.4.1 Monitoring Requirements

The City must collect 50 samples every three years, based on the standard monitoring schedule. The most recent set of customer tap samples were collected during July 2014.

5.1.4.2 Compliance

The City's monitoring results indicate that the City is in compliance with the requirements of the LCR.

6.0 SYSTEM-WIDE REQUIREMENTS AND COMPLIANCE

Federal regulations related to system-wide requirements are discussed herein.

6.1.1 Consumer Confidence Report

The Consumer Confidence Report (CCR) Rule was finalized on September 19, 1998. Each July, community water systems must provide an annual report to customers providing information as to the quality of their drinking water supply. These reports are referred to as “Consumer Confidence Reports” or CCRs. These reports let customers know whether their water meets state and federal drinking water standards. The CCR includes information on the water source, the regulated and unregulated contaminants that have been detected during the year, and their concentrations. The report also provides information on DBPs or microbial contaminants and the potential health effects of the contaminants at concentrations greater than the MCL. The likely source of the contaminants is identified, and a summary of any violations in monitoring, reporting, or record-keeping is included. The reports can assist customers with special health needs to make informed decisions regarding their drinking water. CCRs provide references and telephone numbers as to health effects data and available information about the water system in general.

6.1.1.1 *Compliance*

The City issues an annual *Water Quality Report*, which includes a basic description of drinking water contaminants, source description, and annual water quality results. The 2007 through 2013, *Water Quality Reports* are included in Appendix 6C.

6.1.2 Public Notification Rule

The Public Notification Rule (PNR) requires that public water systems notify their customers when they violate USEPA or State regulations (including monitoring requirements) or otherwise provide drinking water that may pose a risk to consumers’ health. The original public notification requirements were established in the SDWA; the revised PNR was promulgated in 2000 as required by the 1996 SDWA amendments.

The PNR establishes three notification levels:

- Immediate Notice (Tier 1): In a situation where there is the potential for human health to be immediately impacted, notification is required within 24 hours.
- Notice as Soon as Possible (Tier 2). In a situation where an MCL is exceeded or water has not been treated properly, but there is no threat to human health, notification is required as soon as possible and within 30 days.
- Annual Notice (Tier 3). In a situation where a standard is violated that does not directly impact human health, notice must be provided within one year, likely within the system’s CCR.

Notification requirements are described in the City’s Emergency Response Plan (ERP), as presented in Appendix 6D. The ERP includes protocol for notifying the DOH and the public when a positive detection of VOCs/SOCs, IOCs, physical characteristics, or bacteriological

presence is determined. The ERP maintains current phone numbers and contact information to all relevant utilities, contractors, government agencies, and local cable and radio stations.

6.1.2.1 Compliance

Because the City has never had a Tier 1, 2, or 3 violation, no notifications under the PNR have been required.

6.1.3 Operator Certification

The 1996 SDWA amendments require that states develop and implement an operator certification program. Final guidelines were published in February 1999. The regulations set out minimum guidelines for such a certification program including operator classification and qualifications. These sections of the regulation require that:

- Each treatment facility and/or distribution system be placed under the direct supervision of a certified operator.
- Operator certification must be equal to or greater than the system classification being operated.
- At least one certified operator be available on every shift.
- Operators must sit for, and pass, a validated exam demonstrating skills, knowledge, ability, and judgment necessary for the system classification.
- Each operator must have a high school diploma, GED, or state-approved experience and training.

While the responsibility for developing the program lies with DOH, individual systems must bring all operators up to the level of certification as required. The “grandparenting” clause of the regulation will address existing operators; however, new operators will be required to meet the guidelines of the legislation. Washington State issued revised operator certification guidelines in December 2000 (WAC 246-292). A grandparenting clause is also present in this regulation. However, because this clause expired in 2002, full compliance was required by that date.

On December 4, 2013, the DOH adopted the proposed rule changes for the Waterworks Operator Certification rule. The changes of the rule include strengthening the state’s authority to enforce regulations, clarify authority to certify Backflow Assembly Testers (BATs) and Cross Connection Control Specialists (CCSs), and other updates to reflect current program practices, move requirements from guidelines into rules, and improve language and readability. Adopted changes pertinent to PWSs include the following:

- Requires purveyors to designate an operator in responsible charge for each operating shift and each major segment of the system, if applicable.
- Requires purveyors to designate and report all mandatory positions to the department within 30 days of starting operations or when a position is vacated.
- Purveyors shall not require operators to perform work that is beyond their skills, abilities, or level of certification.
- Additional requirements for operators, CCSs, and BATs are included.

6.1.3.1 Compliance

Operation, maintenance, cross-connection control, and water quality monitoring functions for the City are accomplished under the direction of the Operations Superintendent. As a Group A water system, the City presently meets minimum staff certification requirements. To ensure compliance in the future, all certified staff are provided the necessary expenses and leave time to attend classes and seminars in order to meet requirements for certification renewal. Further details on operator certifications are described in Chapter 6.

7.0 FUTURE REGULATORY REQUIREMENTS

Anticipated future regulatory requirements are summarized in Table 4.8. This table includes ongoing programs to introduce new regulatory requirements, under the UCMR and the Contaminant Candidate List (CCL), as well as specific rules and regulations currently under consideration. A brief description of anticipated requirements under each rule is provided herein.

Table 4.8 Future Regulatory Requirements Water Quality Analysis City of Vancouver		
Proposed Rule	Affected Contaminants	Proposed Publication Date⁽¹⁾
Unregulated Contaminant Monitoring Regulations	Unregulated Contaminants	UCMR4 - unknown
Contaminant Candidate List	Unregulated Contaminants	CCL4 - unknown
Radon Rule	Radon	Unknown
Perchlorate	Perchlorate	Unknown
Lead and Copper Rule Revisions	Lead Copper	Unknown
Carcinogenic VOC Rule	cVOCs	Unknown

Table 4.8 Future Regulatory Requirements Water Quality Analysis City of Vancouver		
Proposed Rule	Affected Contaminants	Proposed Publication Date⁽¹⁾
<u>Notes:</u> (1) Effective and compliance dates were obtained from the Federal Register and USEPA's Drinking Water Hotline and represent the best information available as of the date of this report.		

7.1.1 Unregulated Contaminant Monitoring Rule

The USEPA UCMR is used to collect occurrence data for contaminants suspected to be present in drinking water, but do not yet have health-based standards. The current UCMR was discussed in Section 4.1.6. The UCMR is updated every five years; however, no issue date for UCMR4 has been published by the USEPA at this time.

7.1.2 Contaminant Candidate List

The CCL aids in priority setting for the drinking water program. The USEPA conducts research on the following for CCL contaminants: health effects; analytical methods; treatment technologies, effectiveness, and costs; and occurrence. The third CCL (CCL3) was published in October 2009 and includes 104 chemicals or chemical groups and 12 microbiological contaminants that are known or anticipated to occur in public water systems. The list includes chemicals used in industry, pesticides, waterborne pathogens, DBPs, and biological toxins. The USEPA is currently requesting nominations for chemical and microbial contaminants for possible inclusion in the fourth CCL.

7.1.3 Radon Rule

Radon is a naturally occurring radioactive gas that may cause cancer and may be found in drinking water and indoor air. The first proposed radon MCL of 300 pCi/L was proposed in August 2000. An alternative MCL of 4,000 pCi/L with implementation of a Multimedia Mitigation Program targeted at reducing indoor-air risks has also been proposed. Final determination on a regulatory requirement for radon is still underway.

The City has tested for radon in its water system. Some test results indicate radon levels that exceed the initial potential MCL, and thus would be of concern should radon be regulated.

7.1.4 Perchlorate

The USEPA made a preliminary determination in late 2008 to not set an MCL for perchlorate. In the USEPA's *Interim Drinking Water Health Advisory for Perchlorate* released in December 2008, it is stated that a perchlorate concentration below 15 ppb would be sufficient to protect subpopulations. The contaminant was slated to be part of UCMR2, however, public comments asserting that no new information would be gained

from additional monitoring were heeded, and the contaminant was removed from consideration. In early 2011, USEPA reversed course and decided to initiate the process for developing a national primary drinking water regulation for perchlorate. The USEPA is still in the process of publishing a proposed regulation; no confirmed date is available from the USEPA at this time.

The City tests for perchlorate on a regular basis. Results indicate perchlorate levels below the previously considered MCL.

7.1.5 Revisions to the Lead and Copper Rule

Stakeholder meetings were held twice in 2014 to discuss the long-term revisions that will replace the short-term revisions promulgated in 1999. Items subject to revision will be tiering criteria, service line replacement, corrosion controls, and water quality parameters. It is unknown when these revisions will be finalized.

7.1.6 Carcinogenic Volatile Organic Compounds (cVOC) Rule

The EPA announced in February 2011 that it plans to develop one national primary drinking water regulation covering up to 16 carcinogenic volatile organic compounds. The following eight compounds are already regulated: benzene, carbon tetrachloride, trichloroethylene (TCE), vinyl chloride, 1,2-dichloroethane, tetrachloroethylene (PCE), 1,2-dichloropropane, and dichloromethane. The following eight potential contaminants are on the third contaminant candidate list (CCL3): 1,1-dichloroethane, 1,2-butadiene, aniline, benzyl chloride, nitrobenzene, oxirane methyl, 1,2,3-trichloropropane, and urethane. The EPA may add, drop or substitute other contaminants into the rule as additional information becomes available. The EPA website provides little information on this rule, but does project publication of the rule in February 2018.

8.0 SUMMARY AND RECOMMENDATIONS

The City's *2013 Water Quality Report* states that "Vancouver's water not only met all regulations, but in many cases was far better quality than local, state, and federal requirements." In addition, the City complies with all DOH monitoring and reporting requirements. No recommendations were identified in evaluating the City's water quality program.

**APPENDIX 3B –
TM 1: WATER STATION FACILITIES CONDITION SUMMARY**



CITY OF VANCOUVER

COMPREHENSIVE WATER SYSTEM PLAN

TECHNICAL MEMORANDUM NO. 1

WATER STATION FACILITIES CONDITION SUMMARY

DRAFT

January 2015

CITY OF VANCOUVER
COMPREHENSIVE WATER SYSTEM PLAN
TECHNICAL MEMORANDUM
NO. 1
WATER STATION FACILITIES CONDITION SUMMARY

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WATER STATION FACILITIES CONDITION SUMMARY

1.0 INTRODUCTION

Carollo Engineers, Inc. (Carollo) performed a high-level condition assessment for the City of Vancouver's (City's) water system facilities on August 21 and 22, 2013. The purpose of this condition assessment is to supplement the capacity evaluation of the City's facilities with information on the condition of facilities to help prioritize capital improvements projects. For example, if two water stations are shown to have capacity deficiencies, the City is more likely to prioritize improvements at the water station in the worst condition. This review includes visual inspections of each facility (with the exception of Water Station 6) and interviews with operations staff. Other than visual inspection of above-ground facilities, the condition of wells was not assessed. No testing was performed and as-builts were not reviewed. A more detailed condition analysis could be obtained through an asset management program for above- and below-ground facilities and components in facilities.

Carollo staff visited each of the City's active Water Stations (WS) and most of the pump stations for the assessment. This Technical Memorandum summarizes the results and presents recommended improvements to address the identified condition-related deficiencies. Deficiencies and recommended improvements related to facility capacity are discussed in Chapter 3 of the Comprehensive Water System Plan (Plan). Detailed descriptions and fact sheets for each of the system facilities can be found in Chapter 1, Section 1.8 of the Plan.

2.0 ASSESSMENT CRITERIA

The condition assessment included the review criteria that are listed below. Results for each facility are included in Attachment A. As noted above, the following were assessed from visual inspections of above-ground facilities and interviews with operations staff.

- Civil/Sitework:
 - Space for Expansion, location in floodplains, drainage, proximity to wastewater systems, equipment and site security.
- Structural:
 - Freeze protection, adequate space, exterior conditions, excessive corrosion.
- Reservoirs:
 - Overflow pipe, screened vents, access hatches, roof slope over two percent, last date of inside coating, last date of outside painting.

- Mechanical:
 - Booster Pump Stations (BPSs) and Wells: Back-up power, excessive vibrations, excessive noise, excessive corrosion, paint condition, excessive leaks, motor thermal load protection, access for maintenance.
- Piping:
 - BPSs and Wells: Sampling ports, pressure gauges, check valves on discharge side.
 - Reservoirs: Bypass piping, sampling port, isolation valves, separate inlet/outlet; automatic seismic valves.
- Instrumentation:
 - Flow metering, critical indicators are functional according to operational staff.

3.0 GENERAL FINDINGS

The City's water system facilities were found to be clean, well maintained, and in good operation. The water stations are located on accessible, spacious properties that appear adequate for wellhead protection buffers and room for expansion as needed. No facilities are located in floodplains, have drainage issues, or are identified to be within 50 feet of sewer facilities. All facilities are fenced and accessed through a locked gate. Each above-ground pump station or well is enclosed in a locked building with security alarms for protection. The majority of buildings are in adequate condition and provide ample access for maintenance or equipment replacement; deficiencies are noted in the details below. The majority of the City's wells and pumps are in good operating condition. It was clear during the site visits that the City performs regular cleaning and maintenance on all mechanical components. Back-up power is unavailable for the majority of facilities, but some are equipped with onsite generators and fuel tanks. Chapter 3 addresses back-up power availability for the City's water system.

In general, the City does not have flow meters at each well; rather, flow is metered through a common meter for the entire water station. The majority of wells and pumps have downstream pressure gages, though some are just nozzles for a gage to be attached. All wells and pumps have a downstream check valve. Several pump stations are missing flow meters. All reservoirs are equipped with low and high level alarms, but none include altitude valves or automatic seismic valves. Instrumentation was not tested, but the equipment for each facility appears to be in good working order and no deficiencies were noted by City staff.

Table 1.1 summarizes the general findings for each facility in each of the categories assessed. The tank at Water Station 6 is not included in Table 1.1. Operations staff believes the tank is in adequate condition and it did not warrant a visual inspection as part of this analysis. Additional details for each facility are included in Attachment A.

Table 1.1 Site Assessment Results

	Civil	Structural	Mechanical	Piping	Instrumentation
Water Station 1					
Wells	●	○	◐	●	●
Treatment	◐	●	◐	ND	ND
Reservoirs	●	○	◐	●	●
Tank	□	□	□	□	□
Pump Stations	●	○	○	●	◐
Water Station 3					
Wells	●	●	◐	●	●
Reservoirs	●	○	ND	◐	●
Tank	●	◐	ND	●	●
Pump Station	ND	●	○	◐	◐
Water Station 4					
Wells	●	○	◐	●	ND
Treatment	●	●	◐	ND	●
Water Station 5					
Reservoir	●	◐	ND	●	●
Tank	●	●	ND	●	●
Pump Station	●	●	◐	◐	◐
Water Station 7					
Wells	●	○	◐	●	●

● Good
◐ Adequate
○ Improvements Recommended
ND - No Available Data

Treatment	●	●	○	○	●
Tank	●	●	ND	○	●
Water Station 8					
Wells	●	●	○	●	●
Water Station 9					
Wells	●	●	○	●	●
Reservoir	●	●	ND	●	●
Pump Station	●	●	○	●	○
Water Station 14					
Treatment	○	●	○	●	●
Pump Station	●	●	○	●	ND
Water Station 15					
Wells	●	●	○	ND	ND
Treatment	●	●	○	●	●
Ellsworth					
Wells	●	●	○	●	●
Treatment	●	●	○	●	●
Pump Station	●	●	○	●	○
Bagley Downs PS	●	●	○	●	●
45th ST PS	○	○	○	○	●
49th ST PS	●	●	○	●	●
Terrace High PS	○	●	○	●	●

NOTES	
WS1 Wells	Wells 3&4: buildings should be improved/ adress access challenges
WS1 Storage Facilities	0.25 MG tank: structural issues
	1 MG Res: Structural Issues - No rebar in floor
	4 MG Res: Needs new roof and minor structural upgrades to concrete structure.
WS1 Pump Stations	Repair leaking roofs
	Repair leaking pumps
	Underground pipes have lead joints
WS3 Storage	1.25 MG Reservoir: Needs replacement due to major leaking
	0.25 MG Tower: similar structural issues to WS 1 Tank, consider replacing
WS3 Pump Station	Replace concurent with Reservoir improvements
WS4 Wells	Well 4 Bldg: major structural damage to walls
	Well 3 Bldg: bubbling at the base of pumps
WS7 Wells	Well 1 Bldg: Major corrosion damage on building walls should be repaired
	Well 1 Bldg: sump drains should all go to sewer
WS14	Plan for conversion to sodium hypochlorite for disinfection
WS15	Resolve screening issues on wells 2 and 4
Ellsworth	Repair leaking roof in treatment building

4.0 WATER STATION 1

Initially constructed in the 1930's, some major facilities in WS 1 are in need of replacement. The City is in the planning stages to replace the 4-MG and 1-MG BPSs, replace the 0.25-MG Tank and the 1-MG Reservoir, provide seismic upgrades to the 4-MG Reservoir, replace some wells, and other electrical improvements. However, the condition of several individual facilities still appears in either good or adequate condition. An overview of the following facility systems are provided below: wells, treatment systems, reservoirs and tanks, booster pump stations, and chemical systems.

4.1 Wells

The raw water source for WS 1 comprises 12 active groundwater wells and 1 inactive well. The condition of the civil and sitework aspects of these wells appears adequate. The structural criteria appear adequate for the majority of the well buildings; however, the buildings for Wells 3 and 4 were constructed such that three walls and the roof of the building slide away along rails on timbers in order to access the equipment for replacement. City staff believe that the rails on which the building slides have worn out and access in the future will be very challenging. Additionally, drainage is an issue in the Well 3 building. Well 1, one of the original wells on the site, has a fairly old building, with some broken windows; however, the building is within a secured area and no security improvements are deemed necessary.

The mechanical components of the wells were found to be generally adequate. Well 5 is equipped with a right angle drive gas motor that was originally run on gas. The City has equipped the motor to run on auxiliary power instead. The gas motor is assumed to be operational in the case of a power outage; however, the water would still require treatment. The Well 7 motor was running at high temperatures during the site visit. The condition of above-ground piping that serves these facilities appears in good condition. Lastly, the instrumentation within these facilities appears in good condition.

The following improvements are recommended to address condition-related deficiencies for the WS 1 wells:

- Wells 3 & 4: Improve or replace existing buildings; ensure proper drainage with new structures.

4.2 Treatment Systems

WS 1 relies on five air-stripping towers in parallel to remove volatile contaminants prior to gas chlorination disinfection and flouridation. The condition of the civil and sitework aspects of the treatment facility appears adequate. The current condition of the structural and mechanical components of the treatment facility appear adequate. The conditions of the

pipng and instrumentation systems of this facility were not evaluated. No significant improvements are recommended at this time.

4.3 Reservoirs and Tanks

WS 1 has two ground level storage reservoirs of 1 MG and 4 MG capacity, and an elevated storage tank with 0.25 MG capacity. The condition of the general civil and sitework aspects of these reservoirs appears adequate. The reservoirs and tank were part of a seismic evaluation performed in 2012, *City of Vancouver Seismic Evaluation of Two Reservoirs* (Degenkolb Engineers, 2012). The study found that the two reservoirs require additional reinforcing and roof replacement, and the tank requires retrofits or replacement to meet serviceability criteria. Due to the critical function of these reservoirs in the water system, the City is in the planning process of these upgrades to ensure serviceability in the event of a design-level earthquake. The mechanical components of the reservoirs appear adequate. The condition of above-ground piping that serves these facilities appears in good condition. Lastly, the instrumentation within these facilities is assumed to be in good condition according to City staff (though not directly observed).

The following improvements are recommended to address condition-related deficiencies for the WS 1 reservoirs:

- 0.25-MG Tank: Replace or retrofit the tank as recommended by the 2012 seismic study to address seismic deficiencies;
- 1-MG Reservoir: Replace or retrofit the reservoir as recommended by the 2012 seismic study to address seismic deficiencies (including roof replacement);
- 4.0-MG Reservoir: Replace or retrofit the reservoir as recommended by the 2012 seismic study to address seismic deficiencies (including roof replacement).

4.4 Booster Pump Stations

WS 1 has four pump stations: the 4-MG Reservoir BPS, the 1-MG Reservoir BPS, the “1-to-5” BPS, and the St. John’s BPS. The condition of the civil and sitework aspects of these pump stations appears adequate. The structural aspects of these facilities appear generally adequate, but some improvements are recommended. The 4-MG Reservoir BPS was constructed in the 1930’s adjoining the reservoir. Access to the pumps is down a short flight of stairs making access for pump replacement difficult. City staff noted that the roof leaks on occasion. The 1-MG Reservoir BPS was constructed in 1976 and adjoins the 1-MG Reservoir. Replacement of the reservoir will likely warrant replacement of the pump station due to the proximity. No significant issues were noted for the 1-to-5 and St. John’s BPSs. However, the St. John’s BPS flow meter requires the installation of electrical components to operate.

Some of the mechanical components of the pump stations are currently inadequate and improvements are recommended. The piping that serves these facilities appears in good

condition where inspection is possible. Lastly, the instrumentation within these facilities is in adequate condition.

As noted earlier, the City is planning to potentially replace both the 4-MG and 1-MG Reservoir BPSs as part of the WS 1 Facility Improvements. The City mentioned the possibility of combining the pump stations.

The following improvements are recommended to address condition-related deficiencies for the WS 1 BPSs:

- 4-MG Reservoir BPS:
 - Repair roof of the building to address excess leakage;
 - Repair or replace Pump 2; or
 - Full BPS Replacement concurrent with 4-MG Reservoir improvements
- 1-MG Reservoir BPS: Possible full replacement due to proximity to 1-MG Reservoir;
- St. Johns BPS: install electrical components to utilize existing flow meter.
- Further investigate condition of buried piping that serves the 1 MG and 4 MG booster stations.

4.5 Chemical Storage and Feed

Visual inspection of the chemical storage and feed systems indicate adequate condition for this facility. City staff noted that the facilities are working well and are regularly maintained. The City is currently planning to replace the existing disinfection system (gas chlorination) with a sodium hypochlorite system. No further improvements are recommended at this time.

5.0 WATER STATION 3

The majority of WS 3 facilities are of either good or adequate condition, but some improvements are recommended. An overview of the following facility systems are provided below: wells, reservoirs and tanks, booster pump stations, and chemical feed systems.

5.1 Wells

The raw water source for WS 3 comprises three active groundwater wells. The condition of the civil, sitework, structural, mechanical, and instrumentation elements of these wells appear adequate.

5.2 Reservoirs and Tanks

WS 3 has one ground level storage reservoir of 0.9 MG functional capacity (1.25 MG original capacity) and one 0.25-MG elevated storage tank. The condition of the civil and sitework elements of these facilities appear adequate. However, the reservoir is structurally

deficient and requires replacement. Extensive cracking in the reservoir walls has led to leaks, which limit the operation capacity of this reservoir to 60% of design capacity. No structural deficiencies were noted by City staff for the 0.25-MG tank; however, this tank is identical to the WS 1 0.25-MG tank, which was found to have structural issues per the 2012 seismic evaluation, which may warrant further study at the WS 3 tank. Figure 1.1 shows images of the structural issues. The condition of piping that serves these facilities appears adequate. Lastly, the condition of instrumentation within these facilities appears adequate. The recommended reservoir and tank improvements are listed below.

- Replace the existing 1.25 MG reservoir as soon as possible.
- Perform a structural assessment of the 0.25-MG tank to assess for replacement.

5.3 Booster Pump Stations

WS 3 has one pump station attached to the reservoir building, which serves the Vancouver High pressure zone and the 0.25-MG elevated storage tank. The structural aspects of this facility are in good condition. Some mechanical components of the pump station are currently inadequate and improvements are recommended. Pump No. 1 was excessively loud during the site visit and the remaining pumps are nearing the end of their useful life. City staff report limited access when repairing Pump No. 2 given its proximity to the reservoir wall. The condition of the piping and instrumentation in this pump station appears adequate. The recommended pump station improvements are listed below.

- Replace Pump No. 1;
- Consider replacement of entire facility when the WS 3 reservoir is replaced.
- Add flow meters at each pump.

5.4 Chemical Storage and Feed

Flow from the three wells is disinfected via a gas chlorination system and dosed with fluoride before reaching the ground level reservoir. This system is currently functioning as intended and in good condition. No improvements to the chemical feed and storage systems are recommended at this time.



WATER STATION 3 STRUCTURAL ISSUES

FIGURE 1.1

CITY OF VANCOUVER
COMPREHENSIVE WATER SYSTEM PLAN

6.0 WATER STATION 4

The majority of WS 4 facilities are of either good or adequate condition, but some structural improvements are recommended. An overview of the wells, treatment system, and chemical systems are presented below.

6.1 Wells

The raw water source for WS 4 comprises six active groundwater wells. The condition of the civil and sitework aspects of these wells appears adequate. Evaluation of the structural criteria determined that some elements of the facilities were inadequate and improvements are recommended. The building that houses Well 4 had major cracking and structural damage that limited access to the interior. Details of this structural damage are shown below in Figure 1.2. It appears that the building has experienced settling on one side. The mechanical components of the wells are currently adequate though there was some leaking around the base of Well 3. The condition of the piping and instrumentation in this facility appears adequate. The recommended facility improvements are listed below.

- Replace Well 4 building.
- Address leak at the base of Well 3.

6.2 Treatment Systems

WS 4 relies on two air-stripping towers in parallel to remove volatile contaminants. Water exiting the air stripping facility is disinfected with a gas chlorination system and dosed with fluoride before entering the distribution system. The chemical storage and feed systems are currently functioning as intended and are in good condition. The condition of the civil, sitework, structural, mechanical, piping, and instrumentation aspects of this facility appears adequate. No improvements are recommended at this time.



WATER STATION 4 STRUCTURAL ISSUES

FIGURE 1.2

CITY OF VANCOUVER
COMPREHENSIVE WATER SYSTEM PLAN

7.0 WATER STATION 5

The condition of the majority of facilities in WS 5 appears adequate. An overview of the following facility systems are provided below: reservoirs, tanks, and booster pump stations.

7.1 Reservoirs and Tanks

WS 5 has one 8-MG ground level reservoir that is split into two cells. There is an additional elevated storage tank with 0.75 MG capacity. The condition of the civil, sitework, structural, mechanical, and instrumentation elements of these storage facilities appears adequate. No significant improvements are recommended at this time.

7.2 Booster Pump Stations

WS 5 has one pump station, supplied by the 8 MG reservoir, which serves the Heights High and Heights Low pressure zones. The condition of the civil, sitework, structural, piping, and instrumentation elements of this pump station appears adequate. The mechanical components of this pump station are adequate despite minor leakage from Pump No. 1. However, the flow meters are not functioning. The recommended pump station improvement is listed below:

- Install electrical components to allow pump station flow meters to function.

8.0 WATER STATION 6

WS 6 comprises a single above-ground tank. According to operations staff, the tank is in adequate condition and no visual inspection of the tank was necessary. No improvements are recommended at this time.

9.0 WATER STATION 7

The majority of WS 7 facilities are of either good or adequate condition, but some structural improvements are recommended. An overview of the wells, treatment system, reservoir, and chemical system is presented below.

9.1 Wells

The raw water source for WS 7 comprises two active groundwater wells. The condition of the civil, sitework, mechanical, piping, and instrumentation elements of these wells appears adequate. Evaluation of the structural criteria determined that some elements of the facilities were inadequate and improvements are recommended. Specifically, fluoride leakage has led to significant corrosion of the Well 1 building wall as shown in Figure 1.3. In addition, access to the building is limited because the corrosion prevents the main door from opening. The recommended well improvements are listed below.

- Repair structural damage caused by fluoride corrosion.

9.2 Treatment System

WS 7 relies on greensand filtration to remove iron and manganese from the product water of Well 2B. Additionally, production from both wells is disinfected via an on-site hypochlorite generation system prior to fluoridation en route to the distribution system. The condition of the civil, sitework, structural, mechanical, and instrumentation elements of these facilities appears adequate.

9.3 Reservoir

WS 7 has one 1.0 MG elevated storage tank that supplies the Heights High pressure zone. The condition of the civil, sitework, structural, mechanical, and instrumentation elements of this facility appears adequate. No significant improvements are recommended at this time.



WATER STATION 7 FLUORIDE LEAKAGE

FIGURE 1.3

CITY OF VANCOUVER
COMPREHENSIVE WATER SYSTEM PLAN

10.0 WATER STATION 8

The majority of WS 8 facilities are of either good or adequate condition, but some improvements to the chemical feed and storage systems are recommended. An overview of the wells and chemical system is presented below.

10.1 Wells

The raw water source for WS 8 comprises two active groundwater wells. The condition of the civil, sitework, structural, mechanical, piping, and instrumentation elements of these wells appears adequate. No improvements are recommended at this time.

10.2 Chemical Storage and Feed

Water from the station is disinfected via an on-site hypochlorite generation system and dosed with fluoride. There is some corrosion on the concrete pad under the hypochlorite tank, which is shown in Figure 1.4. In addition, the floor drain in the chemical room has been capped resulting in drainage issues, which should be resolved. The following improvement is recommended for the chemical storage and feed system:

- Use a wet-vacuum or sump pump to keep floor of chemical room dry.



WATER STATION 8 HYPOCHLORITE TANK CORROSION

FIGURE 1.4

CITY OF VANCOUVER
COMPREHENSIVE WATER SYSTEM PLAN

11.0 WATER STATION 9

The majority of WS 9 facilities are in good condition. An overview of the wells, reservoir, and pump station is provided below. WS 9 uses gas chlorination for disinfection, but the chemical feed and storage systems were not evaluated as part of this facilities condition assessment.

11.1 Wells

The raw water source for WS 9 comprises five operational groundwater wells. The condition of the civil, sitework, structural, mechanical, piping, and instrumentation elements of these wells appears adequate. No improvements are recommended at this time.

11.2 Reservoir

WS 9 has one 7.0 MG ground level that supplies the Heights High pressure zone. The condition of the civil, sitework, structural, mechanical, piping, and instrumentation elements of the reservoir appears adequate. No improvements are recommended at this time.

11.3 Booster Pump Station

WS 9 has one pump station, supplied by the 7 MG reservoir, which serves the Heights High pressure zones. The condition of the civil, sitework, structural, piping, and instrumentation elements of this pump station appears adequate. The mechanical components of this pump station are in adequate condition despite some coating failure on pump casings as shown in Figure 1.5. However, the flow meters are not functioning, and according to City staff require replacement. The recommended pump station improvement is listed below:

- Replace BPS pump flow meters.



WATER STATION 9 COATING ISSUES

FIGURE 1.5

CITY OF VANCOUVER
COMPREHENSIVE WATER SYSTEM PLAN

12.0 WATER STATION 14

The majority of WS 14 facilities are in good or adequate condition. An overview of the treatment system, pump station, and chemical system is provided below. The wells at this water station were not evaluated during the facilities condition assessment site visit.

12.1 Wells

The raw water source for WS 14 comprises three operational groundwater wells. The condition of the civil, sitework, structural, mechanical, piping, and instrumentation elements of these wells appears adequate. No improvements are recommended at this time.

12.2 Treatment System

WS 14 relies on a single tower aeration system for pH adjustment prior to disinfection. The condition of the civil, sitework, structural, mechanical, piping, and instrumentation elements of the treatment facility appears adequate. There are several ongoing maintenance issues, which should be resolved: scrubber is not working properly, some valves are not working properly, and there is some groundwater intrusion. No significant improvements are recommended at this time.

12.3 Booster Pump Station

WS 14 has one pump station, supplied by the three active wells, which serves the Heights High pressure zones. The condition of the civil, sitework, structural, mechanical, piping, and instrumentation elements of the pump station appears adequate. No significant improvements are recommended at this time.

12.4 Chemical Storage and Feed

Water from this station is disinfected with a gas chlorination system and dosed with fluoride prior to distribution. The City is currently planning to replace the existing disinfection system with a sodium hypochlorite system by 2016. No further improvements are recommended at this time.

13.0 WATER STATION 15

The majority of WS 15 facilities are in good condition, but some structural improvements are recommended. An overview of the wells and chemical system is provided below.

13.1 Wells

The raw water source for WS 15 comprises three operational groundwater wells. City staff typically only operate two wells at a time due to aquifer limitations. However, the City is currently evaluating the wells at this station. Well 4 is currently not operated due to

production of excess sand. The condition of the civil, sitework, structural, mechanical, piping, and instrumentation elements of these wells appears adequate. The following improvement is recommended for the wells at this station:

- Resolve screening issues on Well 4 to increase production from this station.

13.2 Chemical Storage and Feed

Water from this station is disinfected via an on-site hypochlorite generation system and dosed with fluoride. In addition, the water is dosed with a sodium hydroxide solution to raise the pH and ensure compliance with the Lead and Copper Rule. The condition of the civil, sitework, structural, mechanical, piping, and instrumentation elements of these wells appears adequate. No significant improvements are recommended at this time.

14.0 ELLSWORTH WATER STATION

The majority of Ellsworth Water Station (EWS) facilities are in good condition, but some structural improvements are recommended. An overview of the wells, treatment system, booster pump stations, and chemical system is provided below.

14.1 Wells

The raw water source for EWS comprises three operational groundwater wells. The condition of the civil, sitework, structural, mechanical, piping, and instrumentation elements of these wells appears adequate. No significant improvements are recommended at this time.

14.2 Treatment System

EWS relies on greensand filtration to remove iron and manganese from the product water before disinfection. Water exiting the filtration system is disinfected with a gas chlorination system and dosed with fluoride within the filtration building. The condition of the civil, sitework, structural, mechanical, piping, and instrumentation elements of the treatment facility are predominately adequate. However, the roof of this building has extensive leaking during the wet season, which should be addressed. The following improvement is recommended at this time:

- Repair roof of treatment building to prevent further water damage to equipment.

14.3 Booster Pump Stations

EWS has two booster pump stations, which serve the Heights High and Heights Low pressure zones. The civil, sitework, structural, mechanical, piping, and instrumentation elements of these pump stations appear adequate. The flow meter for BPS 1 are not functioning, and according to City staff require replacement. The recommended pump station improvement is listed below.

- Replace BPS 1 flow meter.

15.0 BAGLEY DOWNS BOOSTER PUMP STATION

The Bagley Downs Booster Pump Station has not been used in recent years, but the facility is in generally good condition. The condition of the civil, sitework, structural, mechanical, piping, and instrumentation elements of this pump station appears adequate. No significant improvements are recommended at this time.

16.0 45TH ST. BOOSTER PUMP STATION

The 45th St. Booster Pump Station is in generally good condition. This pump station currently operates with only one active pump, the second was removed due to operational issues. The condition of the civil, sitework, structural, mechanical, piping, and instrumentation elements of this pump station appears adequate. No significant improvements are recommended at this time.

17.0 49TH ST. BOOSTER PUMP STATION

The 49th St. Booster Pump Station is in generally good condition. This pump station currently operates with only one active pump, the second was removed due to operational issues. The condition of the civil, sitework, structural, mechanical, piping, and instrumentation elements of this pump station appears adequate. No significant improvements are recommended at this time.

18.0 TERRACE HIGH BOOSTER PUMP STATION

The Terrace High Booster Pump Station is in generally good condition. The condition of the civil, sitework, structural, mechanical, piping, and instrumentation elements of this pump station appears adequate. No significant improvements are recommended at this time.

19.0 REMAINING USEFUL LIFE ASSESSMENT

The length of time that a pipe is anticipated to remain functional is called the useful life. Useful life depends largely on the pipe material, but can also depend on soil conditions, water constituents, and installation. When a pipe is in service beyond its useful life the increasing costs of maintenance associated with a failing pipe will likely warrant replacement.

Table 1.2 presents the estimated useful life of various types of pipe materials. A 2012 study of water mains in Portland, Oregon concluded that the observed useful life of steel and iron pipes was well above the average of similarly sized systems, in part, due to soils which are less corrosive than in most other places. The absence of tubercle forming minerals in the Bull Run supply also plays a role in extending useful life. Soils within the City of Vancouver

share similar properties to those in the Portland area, but tubercle formation has been observed within pipelines. In this analysis, the useful life observed in Portland was used as a starting point and assumptions were revised to account for tuberculation.

Table 1.2 Useful Life of Pipes	
Pipe Material	Useful Life Assumption (yrs)
Black Iron	150
Cast Iron	150
Ductile Iron	150
Raw Water (DI)	150
Inner Diameter Steel	100
Matheson Steel	100
Outer Diameter Steel	100
Riveted Steel	100
Standard Steel	100
Steel	100
Asbestos Cement	70
Carbon Steel	70
Galvanized Iron	70
Well Casing (Steel)	70
PVC C900	60
PVC	60

Remaining useful life (RUL) is defined as the length of time before a pipe will reach the end of its useful life. GIS data provided by the City was used to determine the pipe material, installation year, and segment length for all pipes 4 inches or greater in diameter. Table 1.3 presents the total length of pipe according to the year installed and material type. The cells of the table are color-coded to show the RUL of pipes in that category. For example, the lengths of pipe in the red cells have all reached the end of their useful life and thus have a remaining useful life of zero. Less than one percent, or nearly 28,000 feet, of the City's water distribution system has a RUL of less than ten years. An additional 133,000 ft of pipe have an unknown installation year and their remaining useful life could not be accurately determined. The vast majority of the pipes have greater than 20 years of remaining useful life, which is a product of the City's proactive asset management program. It may be necessary to replace pipes before the end of their calculated useful life if leakage rates become unacceptable.

An estimated schedule of pipe replacement was prepared from the RUL results as shown in Figure 1.6. In 2015, approximately 37,000 feet of pipe is recommended for replacement.






The majority of this pipe is Matheson Steel installed between 1904-1913 and Asbestos Cement pipe installed between 1934-1943. However, between 2015 and 2050 only 2,500 ft of pipe per year is recommended for replacement; this value represents the average annual length of pipe reaching the end of its useful life in this period. Beyond 2050, the recommended annual replacement is increased to 45,000 LF as older steel and iron pipes begin to reach the end of their useful life.

Two separate methodologies were used to assess remaining useful life when the installation year was not listed for a pipe segment. For pipe materials with at least one known installation, these pipes were incorporated into the replacement schedule by allotting a weighted portion of the unknown length to decades with known installations. When there were no known installation dates, as with Raw Water or Well Casing, the unknown length was assumed to have half of its useful life remaining.

It is unlikely that the City will only replace 2,500 LF of pipe up to the year 2050, and then begin replacement up to 45,000 LF per year. It is recommended that the City evaluate an appropriate annual replacement schedule as part of its asset management program. The City currently averages approximately 5,000 LF per year. For this reason, it is recommended that the City continue to replace approximately 5,000 LF per year until an asset management program provides further direction.

Table 1.3 Total Length of Pipe

Decade Installed	Feet of Pipeline												Grand Total
	Unknown	1904-1913	1914-1923	1924-1933	1934-1943	1944-1953	1954-1963	1964-1973	1974-1983	1984-1993	1994-2003	2004-2013	
Black Iron	710	0	0	0	0	734	0	0	0	0	0	0	1,444
Cast Iron	12,790	473	353	26,790	56,304	81,471	86,358	24,322	798	346	770	451	291,227
Ductile Iron	68,220	762	72	300	323	6,805	12,766	600,418	844,512	918,166	1,194,685	610,205	4,257,234
Raw Water (DI)	858	0	0	0	0	0	0	0	0	0	0	0	858
Inner Diameter Steel	1,226	0	0	0	0	876	0	12	0	0	0	0	2,114
Matheson Steel	3,684	12,897	2,135	1,129	0	0	362	66	77	0	24	21	20,397
Outer Diameter Steel	15,234	11	280	1,908	702	61,796	338,854	114,735	2,732	2,202	1,235	428	540,118
Rivetted Steel	424	0	0	248	0	0	0	0	0	0	0	0	672
Standard Steel	41	0	0	779	0	0	0	15	0	0	0	0	835
Steel	17,334	50	0	0	19	3,359	5,074	6,299	225	66	27	0	32,453
Asbestos Cement	10,510	0	0	0	10,281	868	1,535	46	808	25	46	0	24,119
Carbon Steel	700	0	0	0	0	0	9	0	0	224	0	0	933
Galvanized Iron	21	30	0	0	137	938	44	91	44	15	12	27	1,359
Well Casing (Steel)	974	0	0	0	0	0	0	0	0	0	0	0	974
PVC C900	0	0	0	0	0	0	0	0	0	0	0	424	424
PVC	8	0	0	0	0	0	0	0	0	0	9	2,295	2,312
Grand Total	132,733	14,224	2,840	31,154	67,766	156,848	445,003	746,003	849,196	921,043	1,196,808	613,852	5,177,470

LEGEND	
	Over 20 years of RUL
	Between 10 and 20 years of RUL
	Less than 10 years of RUL
	Beyond Useful Life
	Unknown

RESULTS (Feet of Pipeline)		
Over 20 years of RUL	5,011,457	96.8%
Between 10 and 20 years of RUL	5,652	0.1%
Less than 10 years of RUL	4,222	0.1%
Beyond Useful Life	23,407	0.5%
Unknown	132,733	2.6%

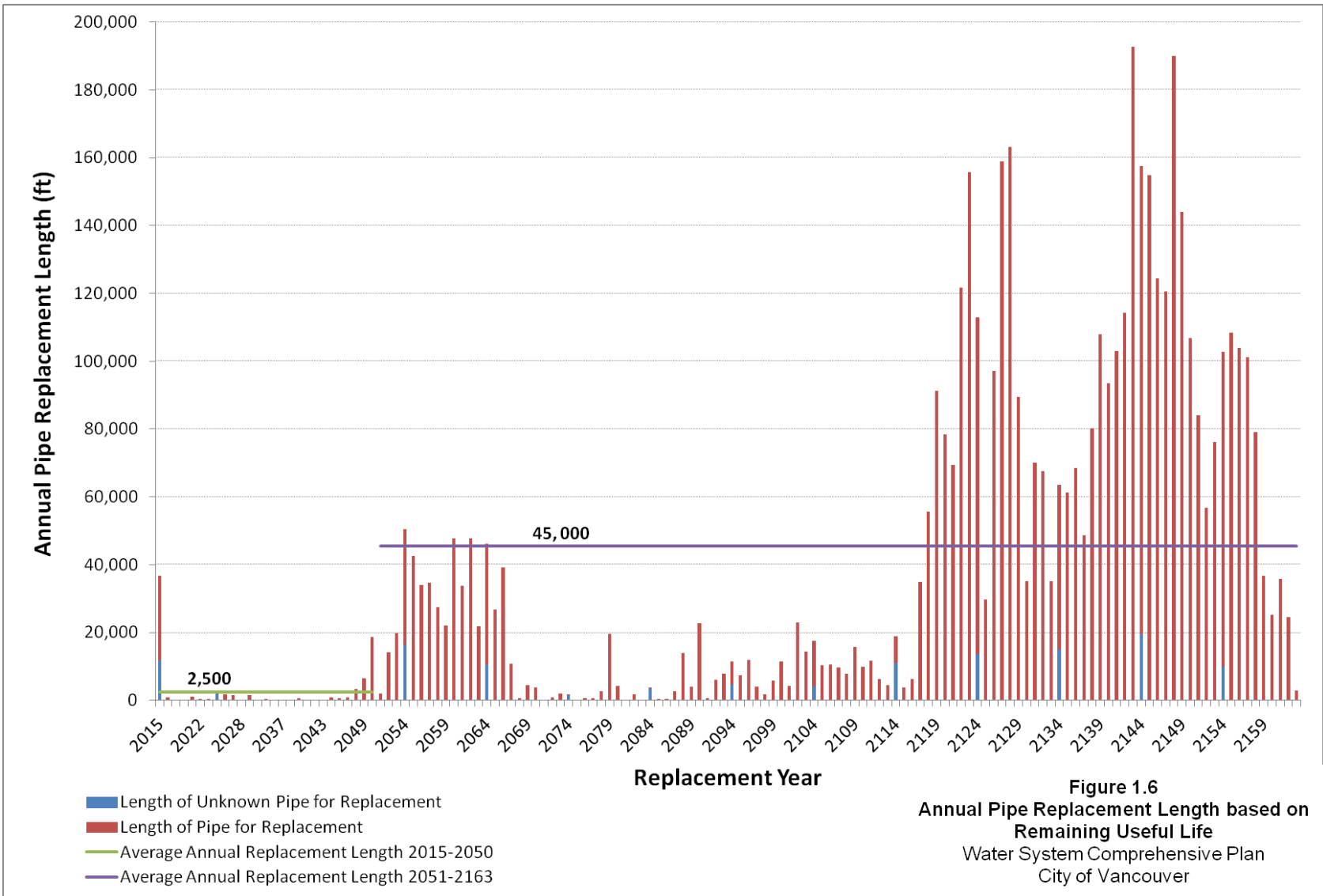


Figure 1.6
Annual Pipe Replacement Length based on
Remaining Useful Life
 Water System Comprehensive Plan
 City of Vancouver



20.0 SUMMARY

The recommended improvements for each water station or pumping station are summarized below.

20.1 Water Station 1

- Wells 3 & 4: Improve or replace existing buildings; ensure proper drainage with new structures.
- 0.25-MG Tank: Replace or retrofit the tank as recommended by the 2012 seismic study to address seismic deficiencies.
- 1-MG Reservoir: Replace or retrofit the reservoir as recommended by the 2012 seismic study to address seismic deficiencies (including roof replacement).
- 4.0-MG Reservoir: Replace or retrofit the reservoir as recommended by the 2012 seismic study to address seismic deficiencies (including roof replacement).
- 4-MG Reservoir BPS:
 - Repair roof of the building to address excess leakage;
 - Repair or replace Pump 2; or
 - Full BPS Replacement concurrent with 4-MG Reservoir improvements
- 1-MG Reservoir BPS: Possible full replacement due to proximity to 1-MG Reservoir.
- Further investigate condition of buried piping that serves the 1 MG and 4 MG booster stations.
- St. Johns BPS: install electrical components to utilize existing flow meter.

20.2 Water Station 3

- Replace the existing 1.25 MG reservoir as soon as possible.
- Perform a structural assessment of the 0.25-MG tank to assess for replacement.
- Replace Pump No. 1;
- Consider replacement of entire facility when the WS 3 reservoir is replaced.
- Add flow meters at each BPS pump.

20.3 Water Station 4

- Replace Well 4 building.
- Address leak at the base of Well 3.

20.4 Water Station 5

- Install electrical components to allow BPS pump flow meters to function.

20.5 Water Station 7

- Repair structural damage caused by fluoride corrosion.

20.6 Water Station 8

- Repair corrosion damage in the chemical room on and around the hypochlorite tank;
- Use a wet-vacuum or sump pump to keep floor of chemical room dry.

20.7 Water Station 9

- Replace BPS pump flow meters.

20.8 Water Station 15

- Resolve screening issues on Well 4 to increase production from this station.

20.9 Ellsworth Water Station

- Repair roof of treatment building to prevent further water damage to equipment.
- Replace BPS 1 flow meter.

20.10 Pipe Replacement Schedule

- Continue to replace approximately 5,000 LF of pipe per year until an asset management program provides further direction.

ATTACHMENT A – FACILITY ASSESSMENT FIELD SHEETS

WS 1 SOURCE EVALUATION

Evaluation Criteria	Wells 1 - 2 ⁽²⁾	Wells 3 - 4 ⁽³⁾	Well 5 ⁽⁴⁾	Wells 7-10 ⁽⁵⁾	Wells 11-13 ⁽⁶⁾
Water Source and Treatment					
Reliable water quantity	+	+	+	+	+
Treatment	+	+	+	+	+
Type of treatment	Air Stripper, Gas Chlorination, & Fluoride				
Reliable treated water quality	+	+	+	+	+
Civil - Sitework					
Space for expansion	+	+	+	+	+
Outside the 100 year flood plain	+	+	+	+	+
Positive drainage	+	+	+	+	+
Located 50 ft from sanitary sewers	+	+	+	+	+
Equipment secured	+	+	+	+	+
Site secured	+	+	+	+	+
Structural					
Freeze Protection	+	+	+	+	+
Enclosed	+	+	+	+	+
Adequate space	0	+	+	+	+
Exterior Condition	-	-	0	+	+
Corrosion	0	0	0	0	0
Mechanical					
Alternate Power Source	-	-	0	-	0
Vibrations	0	0	0	0	0
Noise	0	0	0	0	0
Corrosion	0	0	0	0	0
Paint Condition	0	0	0	0	0
Leaks	0	0	0	0	0
Electrical motor thermal load protection	0	0	0	0	+
Access for maintenance	0	-	+	+	+
Piping					
Sampling port	+	+	+	+	+
Pressure gauge on discharge line	0	0	0	0	0
Check valve on discharge side	+	+	+	+	+
Instrumentation					
Flow Metering ⁽¹⁾	0	0	0	0	0
Critical indications functioning	+	+	+	+	+

Notes:

1. No flow metering on individual wells at the site.
2. Well 2 Building Windows are broken.
3. Access to Wells 3 & 4 requires moving the building walls on a broken sliding mechanism.
4. Well 5 has a gas motor that could operate during a power outage.
5. Well 7 motor runs hot.
6. Only Well 12 has a back-up power.

WS 1 RESERVOIR EVALUATION

Evaluation Criteria	1-MG Res ⁽¹⁾⁽²⁾	4-MG Res ⁽³⁾	025-MG Tank
Civil - Sitework			
Space for expansion	0	0	+
Outside the 100 year flood plain	+	+	+
Positive drainage	+	+	+
Located 50 ft from sanitary sewers	+	+	+
Site secured	+	+	+
Secure access ways and ladders	+	+	+
Locks on all hatches, access entries	+	+	+
Structural			
Overflow pipe	+	+	+
Tank atmospheric vents screened	+	+	+
Water tight access hatches	+	+	+
Enclosed	+	+	+
Slope of reservoir roof at a minimum of 2%	+	+	+
Inside Coating	0	0	0
Exterior Paint	+	+	+
Exterior Condition	-	0	+
Corrosion	0	0	0
Piping			
Bypass provided		+	
Sampling port		+	
Reservoir isolation valve		+	
Separate inlet and outlet	+	+	
Automatic seismic valve	-	-	-
Instrumentation			
Critical indications functioning	+	+	+
High and low level alarms	+	+	+
Local level indicator	+	+	+

Notes:

1. Plan to replace exist 1 MG w/3-4 MG Res near ampitheater
2. Recent seismic study found the reservoir is lacking rebar in the concrete
3. 4-MG Reservoir has a new aluminum roof.

WS 1 PUMP STATION EVALUATION⁽¹⁾

Evaluation Criteria	1-MG Res BPS ⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾	4-MG Res BPS ⁽⁵⁾
Civil - Sitework		
Space for expansion	-	-
Outside the 100 year flood plain	+	+
Equipment secured	+	+
Site secured	+	+
Structural		
Freeze Protection	+	+
Enclosed	+	+
Adequate space	-	+
Exterior Condition	0	0
Corrosion	0	0
Mechanical		
Alternate Power Source	-	+
Vibrations	0	0
Noise	0	0
Corrosion	0	0
Paint Condition	0	0
Leaks	-	0
Electrical motor thermal load protection	0	0
Access for maintenance	-	+
Piping		
Bypass provided	+	+
Sampling port	+	+
Pressure guage on discharge line	+	+
Check valve on discharge side	+	+
Instrumentation		
Flow Metering	+	+
Critical indications functioning	+	+

Notes:

1. The City plans to merge these pump stations into one station.
2. 1-MG BPS Roof is known to leak.
3. Pump 2 leaks.
4. Access to Pumps 1, 2, & 3 is limited.
5. Generator fuel tank needs replacement.

WS 1 PUMP STATION EVALUATION

Evaluation Criteria	1-to-5 BPS	St. Johns BPS
Civil - Sitework		
Space for expansion	+	+
Outside the 100 year flood plain	+	+
Equipment secured	+	+
Site secured	+	+
Structural		
Freeze Protection	+	+
Enclosed	+	+
Adequate space	+	+
Exterior Condition	0	0
Corrosion	0	0
Mechanical		
Alternate Power Source	-	-
Vibrations	0	0
Noise	0	0
Corrosion	0	0
Paint Condition	0	0
Leaks	0	0
Electrical motor thermal load protection	0	0
Access for maintenance	+	+
Piping		
Bypass provided	0	0
Sampling port	+	+
Pressure guage on discharge line	0	+
Check valve on discharge side	+	-
Instrumentation		
Flow Metering	+	-
Critical indications functioning	+	+

WS 1 TREATMENT FACILITY EVALUATION

Evaluation Criteria	Chlorination ⁽¹⁾	Flouride	Air Stripping Facility
Treatment			
Type of treatment	Gas Chlorination	Flouride	TOC Removal
Reliable treatment, treated water quality	+	+	+
Civil - Sitework			
Space for expansion	+	+	+
Outside the 100 year flood plain	+	+	+
Located 50 ft from sanitary sewers	+	+	+
Equipment secured	+	+	+
Site secured	+	+	+
Structural			
Freeze Protection	+	+	+
Enclosed	+	+	+
Adequate space	+	+	+
Paint Condition	+	+	+
Corrosion	0	0	0
Mechanical			
Alternate Power Source	+	+	+
Vibrations	0	0	0
Noise	0	0	0
Corrosion	0	0	0
Paint Condition	+	+	+
Leaks	0	0	0
Electrical motor thermal load protection	N/A	N/A	N/A
Access for maintenance	+	+	+
Piping			
Bypass provided	N/A	N/A	N/A
Sampling port	N/A	N/A	N/A
Pressure guage on discharge line	N/A	N/A	N/A
Check valve on discharge side	N/A	N/A	N/A
Instrumentation			
Critical indications functioning	+	+	+

Notes:

1. The City plans to replace the gas chlorination system with sodium hypochlorite.

WS 3 SOURCE EVALUATION

Evaluation Criteria	Well 1 ⁽²⁾⁽³⁾	Well 2 ⁽⁴⁾	Well 3 ⁽⁵⁾
Water Source and Treatment			
Reliable water quantity	+	+	+
Treatment	+	+	+
Type of treatment	Chlorine & Flouride		
Reliable treated water quality	+	+	+
Civil - Sitework			
Space for expansion	+	+	+
Outside the 100 year flood plain	+	+	+
Positive drainage	+	+	+
Located 50 ft from sanitary sewers	+	+	+
Equipment secured	+	+	+
Site secured	+	+	+
Structural			
Freeze Protection	+	+	+
Enclosed	+	+	+
Adequate space	+	+	+
Exterior Condition	0	0	0
Corrosion	0	0	0
Mechanical			
Alternate Power Source	-	-	-
Vibrations	0	0	+
Noise	-	0	+
Corrosion	0	0	0
Paint Condition	0	0	0
Leaks	0	-	0
Electrical motor thermal load protection	+	+	+
Access for maintenance	+	+	+
Piping			
Sampling port	+	0	+
Pressure gauge on discharge line	0	+	0
Check valve on discharge side	+	+	+
Instrumentation			
Flow Metering ⁽¹⁾	0	0	0
Critical indications functioning	+	+	+

Notes:

1. No flow metering on individual wells at the site.
2. Well 1 building interior paint needs attention.
3. Well 1 motor runs very hot (140 to 180 degrees); also somewhat noisy.
4. Well 2 pump and valving has some leaking.
5. Well 3 motor was recently replaced.

WS 3 RESERVOIR EVALUATION

Evaluation Criteria	1.25-MG Res ⁽¹⁾⁽²⁾⁽³⁾
Civil - Sitework	
Space for expansion	0
Outside the 100 year flood plain	+
Positive drainage	+
Located 50 ft from sanitary sewers	+
Site secured	+
Secure access ways and ladders	+
Locks on all hatches, access entries	+
Structural	
Overflow pipe	+
Tank atmospheric vents screened	+
Water tight access hatches	+
Enclosed	+
Slope of reservoir roof at a minimum of 2%	+
Inside Coating	+
Exterior Paint	0
Exterior Condition	-
Corrosion	0
Piping	
Bypass provided	0
Sampling port	+
Reservoir isolation valve	+
Separate inlet and outlet	+
Automatic seismic valve	-
Instrumentation	
Critical indications functioning	+
High and low level alarms	+
Local level indicator	+

Notes:

- Existing overflow pipe may be undersized according to City staff.
- The inside of the reservoir was cleaned in the last five years.
- Reservoir has exceptionally bad leaking and is only run at 60% of capacity. Recommended for replacement.

WS 3 RESERVOIR EVALUATION

Evaluation Criteria	0.25-MG Tank⁽¹⁾
Civil - Sitework	
Space for expansion	+
Outside the 100 year flood plain	+
Positive drainage	+
Located 50 ft from sanitary sewers	+
Site secured	+
Secure access ways and ladders	+
Locks on all hatches, access entries	+
Structural	
Overflow pipe	+
Tank atmospheric vents screened	+
Water tight access hatches	+
Enclosed	+
Slope of reservoir roof at a minimum of 2%	+
Inside Coating	0
Exterior Paint	+
Exterior Condition	+
Corrosion	0
Piping	
Bypass provided	
Sampling port	0
Reservoir isolation valve	+
Separate inlet and outlet	-
Automatic seismic valve	-
Instrumentation	
Critical indications functioning	+
High and low level alarms	+
Local level indicator	+

Notes:

1. Sampling port not secured.

WS 3 PUMP STATION EVALUATION

Evaluation Criteria	WS 3 BPS ⁽¹⁾⁽²⁾⁽³⁾
Civil - Sitework	
Space for expansion	+
Outside the 100 year flood plain	+
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Exterior Condition	+
Corrosion	0
Mechanical	
Alternate Power Source	-
Vibrations	0
Noise	0
Corrosion	0
Paint Condition	0
Leaks	-
Electrical motor thermal load protection	+
Access for maintenance	+
Piping	
Bypass provided	-
Sampling port	-
Pressure guage on discharge line	-
Check valve on discharge side	+
Instrumentation	
Flow Metering	-
Critical indications functioning	+

Notes:

1. Pump 1 is excessively noisy and has some harmonics.
2. Pump No. 2 has caused issues on the suction side due to the proximity to the wall of the reservoir. Some leakage still occurs.
3. Recommended to replace pump station when Reservoir is replaced.

WS 4 SOURCE EVALUATION

Evaluation Criteria	Well 1 ⁽³⁾	Well 2B	Well 3B	Well 4B ⁽⁴⁾	Well 5B	Well 9
Water Source and Treatment						
Reliable water quantity	+	+	+	+	+	+
Treatment	+	+	+	+	+	+
Type of treatment	Chlorine & Flouride					
Reliable treated water quality	+	+	+	+	+	+
Civil - Sitework						
Space for expansion	+	+	+	+	+	+
Outside the 100 year flood plain ⁽¹⁾	0	0	0	0	0	0
Positive drainage	+	+	+	+	+	+
Located 50 ft from sanitary sewers	+	+	+	+	+	+
Equipment secured	+	+	+	+	+	+
Site secured	+	+	+	+	+	+
Structural						
Freeze Protection	+	+	+	+	+	+
Enclosed	+	+	+	+	+	+
Adequate space	+	+	+	+	+	+
Exterior Condition	+	+	-	-	+	+
Corrosion	0	0	0	0	+	0
Mechanical						
Alternate Power Source	0	0	0	0	0	0
Vibrations	0	0	0	0	0	0
Noise	0	0	0	0	0	0
Corrosion	0	0	0	0	0	0
Paint Condition	0	+	+	+	+	+
Leaks	0	0	0	0	0	0
Electrical motor thermal load protection	0	0	0	0	0	0
Access for maintenance	0	+	+	+	+	+
Piping						
Sampling port	+	+	+	+	+	+
Pressure gauge on discharge line	0	+	+	+	+	+
Check valve on discharge side	+	+	+	+	+	+
Instrumentation						
Flow Metering ⁽²⁾	0	0	0	0	0	0
Critical indications functioning	+	+	+	+	+	+

Notes:

1. During the flood of 1996, water came to base of hill at this site and may have influenced well field. Did not reach buildings.
2. No flow metering on individual wells at the site.
3. To access Well 1 equipment for maintenance, the building roof has to be removed.
4. The building for Well 4B has horizontal cracking along all exterior wells. It appears that the foundation has settled. City staff indicate they previously checked the foundation, and did not find any issues. Some building moisture around wells. Cannot open exterior door to building.

WS 4 PUMP STATION EVALUATION

Evaluation Criteria	WS 4 BPS ⁽¹⁾⁽²⁾
Civil - Sitework	
Space for expansion	0
Outside the 100 year flood plain	0
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Exterior Condition	+
Corrosion	0
Mechanical	
Alternate Power Source	0
Vibrations	0
Noise	0
Corrosion	0
Paint Condition	+
Leaks	0
Electrical motor thermal load protection	+
Access for maintenance	+
Piping	
Bypass provided	+
Sampling port	+
Pressure guage on discharge line	0
Check valve on discharge side	
Instrumentation	
Flow Metering	+
Critical indications functioning	+

Notes:

1. During the flood of 1996, water came to base of hill at this site and may have influenced well field. Did not reach buildings.
2. Pumps run slightly noisy, however, City staff are not concerned about poor operation.

WS4 TREATMENT FACILITY EVALUATION

Evaluation Criteria	Air Stripping Facility
Treatment	
Type of treatment	Air Stripping Facility
Reliable treatment, treated water quality	+
Civil - Sitework	
Space for expansion	0
Outside the 100 year flood plain	+
Located 50 ft from sanitary sewers	+
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Paint Condition	+
Corrosion	+
Mechanical	
Alternate Power Source	-
Vibrations	0
Noise	0
Corrosion	0
Paint Condition	0
Leaks	0
Electrical motor thermal load protection	0
Access for maintenance	+
Piping	
Bypass provided	0
Sampling port	0
Pressure guage on discharge line	0
Check valve on discharge side	0
Instrumentation	
Critical indications functioning	+

WS5 PUMP STATION EVALUATION

Evaluation Criteria	WS-5
Civil - Sitework	
Space for expansion	-
Outside the 100 year flood plain	+
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Exterior Condition	+
Corrosion	0
Mechanical	
Alternate Power Source	-
Vibrations	0
Noise	0
Corrosion	0
Paint Condition	+
Leaks ⁽¹⁾	0
Electrical motor thermal load protection	0
Access for maintenance	+
Piping	
Bypass provided	+
Sampling port ⁽²⁾	0
Pressure guage on discharge line	-
Check valve on discharge side	+
Instrumentation	
Flow Metering	-
Critical indications functioning	+

Notes:

1. Pump No. 1 shows some leaking.
2. Sampling Ports only on Pumps No. 1 & 5.

WS 5 RESERVOIR EVALUATION

Evaluation Criteria	WS 5 8.0-MG Res
Civil - Sitework	
Space for expansion	-
Outside the 100 year flood plain	+
Positive drainage	+
Located 50 ft from sanitary sewers	+
Site secured	+
Secure access ways and ladders	+
Locks on all hatches, access entries	+
Structural	
Overflow pipe	+
Tank atmospheric vents screened	+
Water tight access hatches	+
Enclosed	+
Slope of reservoir roof at a minimum of 2%	+
Inside Coating	0
Exterior Paint	0
Exterior Condition	0
Corrosion	0
Piping	
Bypass provided	+
Sampling port	+
Reservoir isolation valve	+
Separate inlet and outlet	+
Automatic seismic valve	0
Instrumentation	
Critical indications functioning	+
High and low level alarms	+
Local level indicator	+

WS 5 RESERVOIR EVALUATION

Evaluation Criteria	WS 5 1.0-MG Tank
Civil - Sitework	
Space for expansion	+
Outside the 100 year flood plain	+
Positive drainage	+
Located 50 ft from sanitary sewers	+
Site secured	+
Secure access ways and ladders	+
Locks on all hatches, access entries	+
Structural	
Overflow pipe	0
Tank atmospheric vents screened	+
Water tight access hatches	+
Enclosed	+
Slope of reservoir roof at a minimum of 2%	+
Inside Coating	0
Exterior Paint	+
Exterior Condition	+
Corrosion	0
Piping	
Bypass provided	0
Sampling port	+
Reservoir isolation valve	+
Separate inlet and outlet	0
Automatic seismic valve	0
Instrumentation	
Critical indications functioning	+
High and low level alarms	+
Local level indicator	+

WS 7 SOURCE EVALUATION

Evaluation Criteria	Well 1	Well 2B ⁽⁴⁾
Water Source and Treatment		
Reliable water quantity	+	+
Treatment ⁽¹⁾	-	0
Type of treatment	Hypochlorite & Flouride	
Reliable treated water quality	+	+
Civil - Sitework		
Space for expansion	-	+
Outside the 100 year flood plain	+	+
Positive drainage	+	+
Located 50 ft from sanitary sewers	+	+
Equipment secured	+	+
Site secured	+	+
Structural		
Freeze Protection	+	N/A
Enclosed	+	N/A
Adequate space	+	N/A
Exterior Condition	+	N/A
Corrosion ⁽²⁾	+	N/A
Mechanical		
Alternate Power Source	-	-
Vibrations	0	0
Noise	0	0
Corrosion	0	0
Paint Condition	+	N/A
Leaks	0	N/A
Electrical motor thermal load protection	+	+
Access for maintenance	+	-
Piping		
Sampling port	+	N/A
Pressure gauge on discharge line	+	N/A
Check valve on discharge side	+	N/A
Instrumentation		
Flow Metering ⁽³⁾	0	-
Critical indications functioning	+	+

Notes:

1. Hypochlorite currently offline and being replaced. Drainage in treatment room is capped - a sump pump would be beneficial.
2. Corrosion through corner of wall in the building to treatment room.
3. Well 1 has an aging flow meter. Well 2 has no flow metering.
4. Mechanical Equipment for Well 2B is underground. Scoring reflects staff assumptions.

WS 7 RESERVOIR EVALUATION

Evaluation Criteria	WS 7 1.0-MG Tank
Civil - Sitework	
Space for expansion	0
Outside the 100 year flood plain	+
Positive drainage	+
Located 50 ft from sanitary sewers	+
Site secured	+
Secure access ways and ladders	+
Locks on all hatches, access entries	+
Structural	
Overflow pipe	+
Tank atmospheric vents screened	+
Water tight access hatches	+
Enclosed	+
Slope of reservoir roof at a minimum of 2%	+
Inside Coating	0
Exterior Paint	+
Exterior Condition	+
Corrosion	+
Piping	
Bypass provided	N/A
Sampling port	+
Reservoir isolation valve	+
Separate inlet and outlet	-
Automatic seismic valve	-
Instrumentation	
Critical indications functioning	+
High and low level alarms	+
Local level indicator	+

WS 7 TREATMENT FACILITY EVALUATION

Evaluation Criteria	Greensand Filters
Treatment	
Type of treatment	Greensand Filtration, Sodium Hypochlorite & Flouride
Reliable treatment, treated water quality ⁽¹⁾	+
Civil - Sitework	
Space for expansion	+
Outside the 100 year flood plain	+
Located 50 ft from sanitary sewers	+
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Paint Condition	+
Corrosion	0
Mechanical	
Alternate Power Source	-
Vibrations	0
Noise	0
Corrosion	0
Paint Condition	+
Leaks	0
Electrical motor thermal load protection	0
Access for maintenance	0
Piping	
Bypass provided	0
Sampling port	0
Pressure guage on discharge line	0
Check valve on discharge side	0
Instrumentation	
Critical indications functioning	+

Notes:

1. City staff note a combined production capacity of 500 gpm.

WS 8 SOURCE EVALUATION

Evaluation Criteria	Well 2	Well 3
Water Source and Treatment		
Reliable water quantity	+	+
Treatment ⁽¹⁾	0	0
Type of treatment	Hypochlorite	
Reliable treated water quality	+	+
Civil - Sitework		
Space for expansion	+	+
Outside the 100 year flood plain	+	+
Positive drainage	+	+
Located 50 ft from sanitary sewers	+	+
Equipment secured	+	+
Site secured	+	+
Structural		
Freeze Protection	+	+
Enclosed	+	+
Adequate space	+	+
Exterior Condition	+	+
Corrosion	0	0
Mechanical		
Alternate Power Source	-	-
Vibrations	0	0
Noise	0	0
Corrosion	0	0
Paint Condition	+	+
Leaks	0	0
Electrical motor thermal load protection	+	+
Access for maintenance	+	+
Piping		
Sampling port	+	+
Pressure gauge on discharge line	+	+
Check valve on discharge side	+	+
Instrumentation		
Flow Metering ⁽²⁾	-	-
Critical indications functioning	+	+

Notes:

1. Some corrosion on floor of hypochlorite tank.
2. No flow metering on individual wells at the site.

WS 9 SOURCE EVALUATION

Evaluation Criteria	Well 4	Well 5	Well 6	Well 7
Water Source and Treatment				
Reliable water quantity	+			
Treatment	+	+	+	+
Type of treatment	Gas Chlorination & Flouride			
Reliable treated water quality	+	+	+	+
Civil - Sitework				
Space for expansion	+	+	+	+
Outside the 100 year flood plain	+	+	+	+
Positive drainage	+	+	+	+
Located 50 ft from sanitary sewers	+	+	+	+
Equipment secured	+	+	+	+
Site secured	+	+	+	+
Structural				
Freeze Protection	+	+	+	+
Enclosed	+	+	+	+
Adequate space	+	+	+	+
Exterior Condition	+	+	+	+
Corrosion	0	0	0	0
Mechanical				
Alternate Power Source	+	+	+	+
Vibrations	0	0	0	0
Noise	0	0	0	0
Corrosion	0	0	0	0
Paint Condition	+	+	+	+
Leaks	0	0	0	0
Electrical motor thermal load protection	+	+	+	+
Access for maintenance	+	+	+	+
Piping				
Sampling port	+	+	+	+
Pressure gauge on discharge line	0	0	0	0
Check valve on discharge side	+	+	+	+
Instrumentation				
Flow Metering ⁽¹⁾	-	-	-	-
Critical indications functioning	+	+	+	+

Notes:

1. No flow metering on individual wells at the site.

WS 9 PUMP STATION EVALUATION

Evaluation Criteria	WS 9 BPS
Civil - Sitework	
Space for expansion	+
Outside the 100 year flood plain	+
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Exterior Condition	+
Corrosion	0
Mechanical	
Alternate Power Source	+
Vibrations	+
Noise	+
Corrosion	0
Paint Condition	0
Leaks	0
Electrical motor thermal load protection	+
Access for maintenance	+
Piping	
Bypass provided	+
Sampling port	+
Pressure guage on discharge line	+
Check valve on discharge side	+
Instrumentation	
Flow Metering	-
Critical indications functioning	+

WS 9 RESERVOIR EVALUATION

Evaluation Criteria	WS 9 7.0-MG Res
Civil - Sitework	
Space for expansion	+
Outside the 100 year flood plain	+
Positive drainage	+
Located 50 ft from sanitary sewers	+
Site secured	+
Secure access ways and ladders	+
Locks on all hatches, access entries	+
Structural	
Overflow pipe	+
Tank atmospheric vents screened	+
Water tight access hatches	+
Enclosed	+
Slope of reservoir roof at a minimum of 2%	+
Inside Coating	+
Exterior Paint	+
Exterior Condition	0
Corrosion	0
Piping	
Bypass provided	+
Sampling port	+
Reservoir isolation valve	+
Separate inlet and outlet	0
Automatic seismic valve	-
Instrumentation	
Critical indications functioning	+
High and low level alarms	+
Local level indicator	+

WS 14 SOURCE EVALUATION

Evaluation Criteria	Wells 1-3
Water Source and Treatment	
Reliable water quantity	+
Treatment	+
Type of treatment	Gas Chlorination & Flouride
Reliable treated water quality	+
Civil - Sitework	
Space for expansion	+
Outside the 100 year flood plain	+
Positive drainage	+
Located 50 ft from sanitary sewers	+
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Exterior Condition	+
Corrosion	+
Mechanical	
Alternate Power Source	-
Vibrations	0
Noise	0
Corrosion	0
Paint Condition	+
Leaks	0
Electrical motor thermal load protection	+
Access for maintenance	+
Piping	
Sampling port	+
Pressure gauge on discharge line	+
Check valve on discharge side	+
Instrumentation	
Flow Metering ⁽¹⁾	-
Critical indications functioning	+

Notes:

1. No flow metering on individual wells at the site.

WS 14 PUMP STATION EVALUATION

Evaluation Criteria	WS 14 BPS
Civil - Sitework	
Space for expansion	-
Outside the 100 year flood plain	+
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Exterior Condition	+
Corrosion	0
Mechanical	
Alternate Power Source	+
Vibrations	0
Noise	0
Corrosion	0
Paint Condition	+
Leaks	0
Electrical motor thermal load protection	0
Access for maintenance	+
Piping	
Bypass provided	+
Sampling port	+
Pressure guage on discharge line	+
Check valve on discharge side	+
Instrumentation	
Flow Metering	+
Critical indications functioning	+

WS 14 TREATMENT FACILITY EVALUATION

Evaluation Criteria	Aeration System
Treatment	
Type of treatment	Packed Media tower.
Reliable treatment, treated water quality ⁽¹⁾	0
Civil - Sitework	
Space for expansion	0
Outside the 100 year flood plain	+
Located 50 ft from sanitary sewers	+
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Paint Condition	+
Corrosion	+
Mechanical	
Alternate Power Source	+
Vibrations	0
Noise	0
Corrosion	0
Paint Condition	+
Leaks	0
Electrical motor thermal load protection	+
Access for maintenance	+
Piping	
Bypass provided	+
Sampling port	+
Pressure guage on discharge line	+
Check valve on discharge side	+
Instrumentation	
Critical indications functioning	+

Notes:

1. City staff plan on installing a sodium hypochlorite generation system by 2016.
2. Scrubber and valve was not working - currently under maintenance. Some groundwater intrusion.

WS 15 SOURCE EVALUATION

Evaluation Criteria	Wells 1-4
Water Source and Treatment	
Reliable water quantity ⁽¹⁾	0
Treatment	+
Type of treatment	Sodium Hypochlorite & Flouride
Reliable treated water quality	+
Civil - Sitework	
Space for expansion	+
Outside the 100 year flood plain	+
Positive drainage	+
Located 50 ft from sanitary sewers	+
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Exterior Condition	+
Corrosion	+
Mechanical	
Alternate Power Source	-
Vibrations	0
Noise	0
Corrosion	0
Paint Condition	+
Leaks	0
Electrical motor thermal load protection	+
Access for maintenance	+
Piping	
Sampling port	+
Pressure gauge on discharge line	+
Check valve on discharge side	+
Instrumentation	
Flow Metering ⁽¹⁾	-
Critical indications functioning	+

Notes:

1. City staff do not run Wells 2 or 4 due to well limitations
2. No flow metering on individual wells at the site.

WS 15 TREATMENT FACILITY EVALUATION

Evaluation Criteria	pH Treatment
Treatment	
Type of treatment	Sodium Hypochlorite
Reliable treatment, treated water quality ⁽¹⁾	0
Civil - Sitework	
Space for expansion	+
Outside the 100 year flood plain	+
Located 50 ft from sanitary sewers	+
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Paint Condition	+
Corrosion	0
Mechanical	
Alternate Power Source	-
Vibrations	0
Noise	0
Corrosion	0
Paint Condition	+
Leaks	0
Electrical motor thermal load protection	+
Access for maintenance	+
Piping	
Bypass provided	
Sampling port	+
Pressure guage on discharge line	+
Check valve on discharge side	
Instrumentation	
Critical indications functioning	+

Notes:

1. City staff note frequent leaking.

ELLSWORTH TREATMENT FACILITY EVALUATION

Evaluation Criteria	Greensand Filter
Treatment	
Type of treatment	Iron & Manganese Greensand Filtration, Gas Chlorination, Fluoride
Reliable treatment, treated water quality	+
Civil - Sitework	
Space for expansion	+
Outside the 100 year flood plain	+
Located 50 ft from sanitary sewers	+
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed ⁽¹⁾	0
Adequate space	+
Paint Condition	+
Corrosion	0
Mechanical	
Alternate Power Source	+
Vibrations	0
Noise	0
Corrosion	0
Paint Condition	+
Leaks	0
Electrical motor thermal load protection	+
Access for maintenance	+
Piping	
Bypass provided	N/A
Sampling port	+
Pressure guage on discharge line	N/A
Check valve on discharge side	N/A
Instrumentation	
Critical indications functioning	+

Notes:

1. City staff note frequent roof leaks.

ELLSWORTH SOURCE EVALUATION

Evaluation Criteria	Well 1	Well 2	Well 3
Water Source and Treatment			
Reliable water quantity	+	+	+
Treatment	+	+	+
Type of treatment	Iron & Manganese Greensand Filtration, Gas Chlorination, Fluoride		
Reliable treated water quality	+	+	+
Civil - Sitework			
Space for expansion	+	+	+
Outside the 100 year flood plain	+	+	+
Positive drainage	+	+	+
Located 50 ft from sanitary sewers	+	+	+
Equipment secured	+	+	+
Site secured	+	+	+
Structural			
Freeze Protection	+	+	+
Enclosed	+	+	+
Adequate space	+	+	+
Exterior Condition	+	+	+
Corrosion	+	+	+
Mechanical			
Alternate Power Source	+	+	+
Vibrations	0	0	0
Noise	0	0	0
Corrosion	0	0	0
Paint Condition	+	+	+
Leaks	0	0	0
Electrical motor thermal load protection	+	+	+
Access for maintenance	+	+	+
Piping			
Sampling port	+	+	+
Pressure gauge on discharge line	+	+	+
Check valve on discharge side	+	+	+
Instrumentation			
Flow Metering ⁽¹⁾	-	-	-
Critical indications functioning	+	+	+

Notes:

1. No flow metering on individual wells at the site.

ELLSWORTH PUMP STATION EVALUATION

Evaluation Criteria	Ellsworth BPS #1
Civil - Sitework	
Space for expansion	0
Outside the 100 year flood plain	+
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Exterior Condition	+
Corrosion	+
Mechanical	
Alternate Power Source	+
Vibrations	0
Noise	0
Corrosion	0
Paint Condition	+
Leaks	0
Electrical motor thermal load protection	+
Access for maintenance	+
Piping	
Bypass provided	+
Sampling port	+
Pressure guage on discharge line	+
Check valve on discharge side	+
Instrumentation	
Flow Metering	-
Critical indications functioning	+

ELLSWORTH PUMP STATION EVALUATION

Evaluation Criteria	Ellsworth BPS #2
Civil - Sitework	
Space for expansion	+
Outside the 100 year flood plain	+
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Exterior Condition	+
Corrosion	+
Mechanical	
Alternate Power Source	+
Vibrations	0
Noise	0
Corrosion	0
Paint Condition	+
Leaks	0
Electrical motor thermal load protection	+
Access for maintenance	+
Piping	
Bypass provided	+
Sampling port	+
Pressure guage on discharge line	+
Check valve on discharge side	+
Instrumentation	
Flow Metering	+
Critical indications functioning	+

TERRACE HIGH PUMP STATION EVALUATION

Evaluation Criteria	Terrace High BPS
Civil - Sitework	
Space for expansion	-
Outside the 100 year flood plain	+
Equipment secured	+
Site secured ⁽¹⁾	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Exterior Condition	N/A
Corrosion	0
Mechanical	
Alternate Power Source	+
Vibrations	0
Noise	0
Corrosion	0
Paint Condition	+
Leaks	0
Electrical motor thermal load protection	+
Access for maintenance	+
Piping	
Bypass provided	N/A
Sampling port	+
Pressure guage on discharge line	+
Check valve on discharge side	+
Instrumentation	
Flow Metering	+
Critical indications functioning	+

Notes:

1. BPS is a packaged below-ground system. All access hatches are locked.

49TH ST PUMP STATION EVALUATION

Evaluation Criteria	49th Street BPS
Civil - Sitework	
Space for expansion	-
Outside the 100 year flood plain	+
Equipment secured	+
Site secured	-
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Exterior Condition	+
Corrosion	+
Mechanical	
Alternate Power Source	-
Vibrations	0
Noise	0
Corrosion	0
Paint Condition	0
Leaks	0
Electrical motor thermal load protection	+
Access for maintenance	+
Piping	
Bypass provided	N/A
Sampling port	+
Pressure guage on discharge line	+
Check valve on discharge side	+
Instrumentation	
Flow Metering	N/A
Critical indications functioning	+

45TH ST PUMP STATION EVALUATION

Evaluation Criteria	45th Street BPS
Civil - Sitework	
Space for expansion	-
Outside the 100 year flood plain	+
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Exterior Condition	N/A
Corrosion	+
Mechanical	
Alternate Power Source	-
Vibrations	+
Noise	+
Corrosion	0
Paint Condition	0
Leaks	0
Electrical motor thermal load protection	+
Access for maintenance	0
Piping	
Bypass provided	+
Sampling port	+
Pressure guage on discharge line	0
Check valve on discharge side	-
Instrumentation	
Flow Metering	+
Critical indications functioning	+

LINCOLN HIGH PUMP STATION EVALUATION

Evaluation Criteria	Lincoln High BPS⁽¹⁾
Civil - Sitework	
Space for expansion	N/A
Outside the 100 year flood plain	N/A
Equipment secured	N/A
Site secured	N/A
Structural	
Freeze Protection	N/A
Enclosed	N/A
Adequate space	N/A
Exterior Condition	N/A
Corrosion	N/A
Mechanical	
Alternate Power Source	N/A
Vibrations	N/A
Noise	N/A
Corrosion	N/A
Paint Condition	N/A
Leaks	N/A
Electrical motor thermal load protection	N/A
Access for maintenance	N/A
Piping	
Bypass provided	N/A
Sampling port	N/A
Pressure guage on discharge line	N/A
Check valve on discharge side	N/A
Instrumentation	
Flow Metering	N/A
Critical indications functioning	N/A

Notes:

1. Not visited. City staff note that the condition of this buried pump station is fine.

BAGLEY DOWNS PUMP STATION EVALUATION

Evaluation Criteria	Bagley Downs BPS ⁽¹⁾
Civil - Sitework	
Space for expansion ⁽²⁾	+
Outside the 100 year flood plain	+
Equipment secured	+
Site secured	+
Structural	
Freeze Protection	+
Enclosed	+
Adequate space	+
Exterior Condition	+
Corrosion	0
Mechanical	
Alternate Power Source	-
Vibrations	N/A
Noise	N/A
Corrosion	0
Paint Condition	+
Leaks	N/A
Electrical motor thermal load protection	+
Access for maintenance	+
Piping	
Bypass provided	+
Sampling port	+
Pressure guage on discharge line	0
Check valve on discharge side	+
Instrumentation	
Flow Metering	+
Critical indications functioning	N/A

Notes:

1. City staff have not operated this pump station in years. Currently under testing for capacity. Pump station building is currently used for maintenance.
2. Pump station building has room for two additional pumps.

**APPENDIX 3C – PUMPING & STORAGE
ANALYSES CALCULATION TABLES**

Table 1 Well Capacities - Scenario 1								
Comprehensive Water System Plan								
City of Vancouver								
Water Station	Well	Operating Area	Pump Capacity (gpm)			Max Q _i (gpm)	Backup Power	Comments
			2020	2024	2034			
WS 1	1	VL	2,340	2,340	2,340	2,000	No	Limited by Water Rights
WS 1	2	VL	2,260	2,260	2,260	2,000	No	Limited by Water Rights
WS 1	3	VL	2,100	2,100	2,100	2,000	No	Limited by Water Rights
WS 1	4	VL	1,270	1,270	1,270	1,200	No	Limited by Water Rights
WS 1	5	VL	1,360	1,360	1,360	2,200	No	Limited by Water Rights
WS 1	7	VL	3,140	3,140	3,140	2,000	No	Limited by Water Rights
WS 1	8	VL	2,260	2,260	2,260		No	Limited by Water Rights
WS 1	9	VL	1,660	1,660	1,660		No	Limited by Water Rights
WS 1	10	VL	1,860	1,860	1,860	12,000	No	Limited by Water Rights
WS 1	11	VL	3,400	3,400	3,400		No	Limited by Water Rights
WS 1	12	VL	2,560	2,560	2,560		Yes	Limited by Water Rights
WS 1	13	VL	2,060	2,060	2,060		Yes	Limited by Water Rights
WS 3	1	VH	2,175	2,175	2,175	2,000	No	Limited by BPS Capacity
WS 3	2	VH	2,000	2,000	2,000	2,000	No	Limited by BPS Capacity
WS 3	3	VH	2,000	2,000	2,000	2,000	No	Limited by BPS Capacity
WS 4	1	HL	950	950	950	1,000	No	
WS 4	2B	HL	2,000	2,000	2,000	2,500	No	
WS 4	3B	HL	2,000	2,000	2,000	2,400	No	
WS 4	4B	HL	1,500	1,500	1,500	1,400	No	
WS 4	5B	HL	1,500	1,500	1,500	1,400	No	
WS 4	6	HL	-	-	-	1,200	No	
WS 4	9	HL	600	600	600	800	No	
WS 7	1	HH	800	800	800	1,250	No	
WS 7	2B	HH	500	500	500	500	No	
WS 8	2	HH	500	500	500	750	No	
WS 8	3	HH	750	750	750	2,000	No	
WS 9	3	HH	1,600	1,600	1,600	2,800	Yes	
WS 9	4	HH	800	800	800		Yes	
WS 9	5	HH	2,600	2,600	2,600	3,000	Yes	
WS 9	6	HH	2,400	2,400	2,400	2,500	Yes	
WS 9	7	HH	2,400	2,400	2,400	2,500	Yes	
WS 14	1	HH	1,000	1,000	1,000	1,000	Yes	
WS 14	2	HH	1,000	1,000	1,000	1,000	Yes	
WS 14	3	HH	1,200	1,200	1,200	1,200	Yes	
WS 15	1	HH	500	500	500	5,000	No	
WS 15	2	HH	500	500	500		No	
WS 15	3	HH	-	-	-		No	
WS 15	4	HH	-	-	-		No	
Ellsworth	1	HH	2,000	2,000	2,000	3,000	Yes	
Ellsworth	2	HH	2,300	2,300	2,300	3,000	Yes	
Ellsworth	3	HH	2,500	2,500	2,500	3,000	No	

Table 2 BPS Capacities - Scenario 1 Comprehensive Water System Plan City of Vancouver								
BPS	Pump	Operating Area		Pump Capacity (gpm)	2024	2034	Backup Power	Comments
		From	To					
45th Street	1	VH	VH	1,000	1,000	1,000	No	
49th Street	1	VH	HH	1,100	1,100	1,100	No	
Bagley Downs	1	VH	HH	2,200	2,200	2,200	No	
Bagley Downs	2	VH	HH	1,800	1,800	1,800	No	
Terrace High	1	HH	TH	100	100	100	Yes	
Terrace High	2	HH	TH	100	100	100	Yes	
Terrace High	3	HH	TH	300	300	300	Yes	
Terrace High	4	HH	TH	1,900	1,900	1,900	Yes	
WS 1 - 4MG Res	1	VL	VH	1,127	1,127	1,127	No	
WS 1 - 4MG Res	2	VL	VH	1,127	1,127	1,127	No	
WS 1 - 4MG Res	3	VL	VH	1,127	1,127	1,127	No	
WS 1 - 1MG Res	1	VL	VH	1,700	1,700	1,700	Yes	
WS 1 - 1MG Res	2	VL	VH	1,700	1,700	1,700	Yes	
WS 1 - 1 to 5	1	VL	HL	2,460	2,460	2,460	No	
WS 1 - 1 to 5	2	VL	HL	3,000	3,000	3,000	No	
WS 1 - 1 to 5	3	VL	HL	3,000	3,000	3,000	No	
WS 1 - 1 to 5	4	VL	HL	3,000	3,000	3,000	No	
WS 1 - 1 to 5	5	VL	HL	3,000	3,000	3,000	No	
WS 1 - St Johns	1	VL	HH	1,493	1,493	1,493	No	
WS 1 - St Johns	2	VL	HH	1,493	1,493	1,493	No	
WS 1 - St Johns	3	VL	HH	1,493	1,493	1,493	No	
WS 3	1	VH	VH	2,000	2,000	2,000	No	
WS 3	2	VH	VH	2,000	2,000	2,000	No	
WS 3	3	VH	VH	2,000	2,000	2,000	No	
WS 4	1	HL	HL	4,000	4,000	4,000	No	
WS 4	2	HL	HL	4,000	4,000	4,000	No	
WS 4	3	HL	HL	4,000	4,000	4,000	No	
WS 5	1	HL	HH	1,400	1,400	1,400	No	
WS 5	2	HL	HH	1,400	1,400	1,400	No	
WS 5	3	HL	HH	2,450	2,450	2,450	No	
WS 5	4	HL	HH	3,000	3,000	3,000	No	
WS 5	5	HL	HH	-	-	-	No	
WS 9	1	HH	HH	2,000	2,000	2,000	No	
WS 9	2	HH	HH	2,000	2,000	2,000	No	
WS 9	3	HH	HH	2,000	2,000	2,000	No	
WS 9	4	HH	HH	2,000	2,000	2,000	No	
WS 9	5	HH	HH	2,000	2,000	2,000	No	
WS 9	6	HH	HH	2,000	2,000	2,000	No	
WS 9	7	HH	HH	2,000	2,000	2,000	No	
WS 9	8	HH	HH	2,000	2,000	2,000	No	
WS 9	9	HH	HH	2,000	2,000	2,000	No	
WS 9	10	HH	HH	2,000	2,000	2,000	No	
WS 14	1	HH	HH	1,600	1,600	1,600	Yes	
WS 14	2	HH	HH	1,600	1,600	1,600	Yes	

Table 2 BPS Capacities - Scenario 1 Comprehensive Water System Plan City of Vancouver								
BPS	Pump	Operating Area		Pump Capacity (gpm)	Pump Capacity		Backup Power	Comments
		From	To		2024	2034		
Ellsworth 1	1	HH	HH	1,800	1,800	1,800	No	
Ellsworth 1	2	HH	HH	1,800	1,800	1,800	No	
Ellsworth 1	3	HH	HH	1,800	1,800	1,800	No	
Ellsworth 1	4	HH	HH	1,800	1,800	1,800	No	
Ellsworth 1	5	HH	HH	1,800	1,800	1,800	No	
Ellsworth 2	1	HH	HH	3,600	3,600	3,600	No	
Ellsworth 2	2	HH	HH	3,600	3,600	3,600	Yes	
Ellsworth 2	3	HH	HH	3,600	3,600	3,600	Yes	

Table 3 Backup Power - Scenario 1 Comprehensive Water System Plan City of Vancouver		
Water Station	Well Pump Capacity w/ Auxiliary Power (gpm)	Booster Station Capacity w/ Auxiliary Power (gpm)
1	4,620	3,400
3	0	0
4	0	0
5	0	0
6	0	N/A
7	0	N/A
8	0	N/A
9	9,800	10,000
14	3,200	3,200
15	0	N/A
Ellsworth	4,300	7,200
49th St. BPS	N/A	0
Bagley Downs	N/A	0
45th St. BPS	N/A	0
Terrace	N/A	1,900
Total	21,920	25,700

Table 4 Well Capacities - Scenario 2 Comprehensive Water System Plan City of Vancouver								
Water Station	Well	Operating Area	Pump Capacity (gpm)			Max Q _i (gpm)	Backup Power	Comments
			2020	2024	2034			
WS 1	1	VL	2,340	2,340	2,340	2,000	No	Limited by Water Rights
WS 1	2	VL	2,260	2,260	2,260	2,000	Yes	Limited by Water Rights
WS 1	3	VL	2,100	2,100	2,100	2,000	Yes	Limited by Water Rights
WS 1	4	VL	1,270	1,270	1,270	1,200	No	Limited by Water Rights
WS 1	5	VL	1,360	1,360	1,360	2,200	No	Limited by Water Rights
WS 1	7	VL	3,140	3,140	3,140	2,000	Yes	Limited by Water Rights
WS 1	8	VL	2,260	2,260	2,260		Yes	Limited by Water Rights
WS 1	9	VL	1,660	1,660	1,660		No	Limited by Water Rights
WS 1	10	VL	1,860	1,860	1,860	12,000	No	Limited by Water Rights
WS 1	11	VL	3,400	3,400	3,400		Yes	Limited by Water Rights
WS 1	12	VL	2,560	2,560	2,560		Yes	Limited by Water Rights
WS 1	13	VL	2,060	2,060	2,060		Yes	Limited by Water Rights
WS 3	1	VH	2,175	2,175	2,175	2,000	No	Limited by BPS Capacity
WS 3	2	VH	2,000	2,000	2,000	2,000	No	Limited by BPS Capacity
WS 3	3	VH	2,000	2,000	2,000	2,000	No	Limited by BPS Capacity
WS 4	1	HL	950	950	950	1,000	No	
WS 4	2B	HL	2,000	2,000	2,000	2,500	No	
WS 4	3B	HL	2,000	2,000	2,000	2,400	No	
WS 4	4B	HL	1,500	1,500	1,500	1,400	No	
WS 4	5B	HL	1,500	1,500	1,500	1,400	No	
WS 4	6	HL	-	-	-	1,200	No	
WS 4	9	HL	600	600	600	800	No	
WS 7	1	HH	800	800	800	1,250	No	
WS 7	2B	HH	500	500	500	500	No	
WS 8	2	HH	500	500	500	750	No	
WS 8	3	HH	750	750	750	2,000	No	
WS 9	3	HH	1,600	1,600	1,600	2,800	Yes	
WS 9	4	HH	800	800	800		Yes	
WS 9	5	HH	2,600	2,600	2,600	3,000	Yes	
WS 9	6	HH	2,400	2,400	2,400	2,500	Yes	
WS 9	7	HH	2,400	2,400	2,400	2,500	Yes	
WS 14	1	HH	1,000	1,000	1,000	1,000	Yes	
WS 14	2	HH	1,000	1,000	1,000	1,000	Yes	
WS 14	3	HH	1,200	1,200	1,200	1,200	Yes	
WS 15	1	HH	500	500	500	5,000	No	
WS 15	2	HH	500	500	500		No	
WS 15	3	HH	-	-	-		No	
WS 15	4	HH	-	-	-		No	
Ellsworth	1	HH	2,000	2,000	2,000	3,000	Yes	
Ellsworth	2	HH	2,300	2,300	2,300	3,000	Yes	
Ellsworth	3	HH	2,500	2,500	2,500	3,000	No	

Table 5 BPS Capacities - Scenario 2 Comprehensive Water System Plan City of Vancouver								
BPS	Pump	Operating Area		Pump Capacity (gpm)			Backup Power	Comments
		From	To	2020	2024	2034		
45th Street	1	VH	VH	1,000	1,000	1,000	No	
49th Street	1	VH	HH	1,100	1,100	1,100	No	
Bagley Downs	1	VH	HH	2,200	2,200	2,200	No	
Bagley Downs	2	VH	HH	1,800	1,800	1,800	No	
Terrace High	1	HH	TH	100	100	100	Yes	
Terrace High	2	HH	TH	100	100	100	Yes	
Terrace High	3	HH	TH	300	300	300	Yes	
Terrace High	4	HH	TH	1,900	1,900	1,900	Yes	
WS 1 - 4MG Res	1	VL	VH	1,127	1,127	1,127	Yes	Backup capacity of 3,000 gpm shared between 4MG & 1MG Res. BPS
WS 1 - 4MG Res	2	VL	VH	1,127	1,127	1,127	Yes	
WS 1 - 4MG Res	3	VL	VH	1,127	1,127	1,127	Yes	
WS 1 - 1MG Res	1	VL	VH	1,700	1,700	1,700	Yes	
WS 1 - 1MG Res	2	VL	VH	1,700	1,700	1,700	Yes	
WS 1 - 1 to 5	1	VL	HL	2,460	2,460	2,460	No	
WS 1 - 1 to 5	2	VL	HL	3,000	3,000	3,000	Yes	
WS 1 - 1 to 5	3	VL	HL	3,000	3,000	3,000	Yes	
WS 1 - 1 to 5	4	VL	HL	3,000	3,000	3,000	No	
WS 1 - 1 to 5	5	VL	HL	3,000	3,000	3,000	No	
WS 1 - St Johns	1	VL	HH	1,493	1,493	1,493	Yes	
WS 1 - St Johns	2	VL	HH	1,493	1,493	1,493	Yes	
WS 1 - St Johns	3	VL	HH	1,493	1,493	1,493	No	
WS 3	1	VH	VH	2,000	2,000	2,000	No	
WS 3	2	VH	VH	2,000	2,000	2,000	No	
WS 3	3	VH	VH	2,000	2,000	2,000	No	
WS 4	1	HL	HL	4,000	4,000	4,000	No	
WS 4	2	HL	HL	4,000	4,000	4,000	No	
WS 4	3	HL	HL	4,000	4,000	4,000	No	
WS 5	1	HL	HH	1,400	1,400	1,400	No	
WS 5	2	HL	HH	1,400	1,400	1,400	No	
WS 5	3	HL	HH	2,450	2,450	2,450	No	
WS 5	4	HL	HH	3,000	3,000	3,000	No	
WS 5	5	HL	HH	-	-	-	No	
WS 9	1	HH	HH	2,000	2,000	2,000	No	
WS 9	2	HH	HH	2,000	2,000	2,000	No	
WS 9	3	HH	HH	2,000	2,000	2,000	No	
WS 9	4	HH	HH	2,000	2,000	2,000	No	
WS 9	5	HH	HH	2,000	2,000	2,000	No	
WS 9	6	HH	HH	2,000	2,000	2,000	No	
WS 9	7	HH	HH	2,000	2,000	2,000	No	
WS 9	8	HH	HH	2,000	2,000	2,000	No	
WS 9	9	HH	HH	2,000	2,000	2,000	No	
WS 9	10	HH	HH	2,000	2,000	2,000	No	

Table 5 BPS Capacities - Scenario 2 Comprehensive Water System Plan City of Vancouver								
BPS	Pump	Operating Area		Pump Capacity (gpm)			Backup Power	Comments
		From	To	2020	2024	2034		
WS 14	1	HH	HH	1,600	1,600	1,600	Yes	
WS 14	2	HH	HH	1,600	1,600	1,600	Yes	
Ellsworth 1	1	HH	HH	1,800	1,800	1,800	No	
Ellsworth 1	2	HH	HH	1,800	1,800	1,800	No	
Ellsworth 1	3	HH	HH	1,800	1,800	1,800	No	
Ellsworth 1	4	HH	HH	1,800	1,800	1,800	No	
Ellsworth 1	5	HH	HH	1,800	1,800	1,800	No	
Ellsworth 2	1	HH	HH	3,600	3,600	3,600	No	
Ellsworth 2	2	HH	HH	3,600	3,600	3,600	Yes	
Ellsworth 2	3	HH	HH	3,600	3,600	3,600	Yes	

Table 6 Backup Power -Scenario 2 Comprehensive Water System Plan City of Vancouver		
Water Station	Well Pump Capacity w/ Auxiliary Power (gpm)	Booster Station Capacity w/ Auxiliary Power (gpm)
1	16,280	12,200
3	0	0
4	0	0
5	0	0
6	0	N/A
7	0	N/A
8	0	N/A
9	9,800	10,000
14	3,200	3,200
15	0	N/A
Ellsworth	4,300	7,200
49th St. BPS	N/A	0
Bagley Downs	N/A	0
45th St. BPS	N/A	0
Terrace	N/A	1,900
Total	33,580	34,500

Table S-1 Available Storage - Scenario 1 Comprehensive Water System Plan City of Vancouver													
Operating Area	Vancouver Low			HL	Vancouver High				Heights High				
HGL	237			299	322				413				
Facility	WS 1 - 4 MG Res	WS 1 - 1 MG Res	Total	WS 5 Res	WS 3 Res	WS 3 Tank	WS 1 Tank	Total	WS 5 Tank	WS 6 Tank	WS 7 Tank	WS 9 Res	Total
Storage Capacity (gal)	4,000,000	1,000,000	5,000,000	8,000,000	900,000	250,000	250,000	1,400,000	750,000	1,000,000	1,000,000	7,000,000	9,750,000
Elevation of Overflow (ft)	236.5	236.8		298.5	216.2	321.0	322.0		413.0	413.0	413.0	278.9	
Base of Tank (ft)	217.3	224.5		288.3	204.2	291.0	292.0		388.0	388.0	388.0	243.9	
Nominal Diameter (ft)	188.3	117.6		365.4	113.0	37.7	37.7		71.5	82.5	82.5	184.5	
High Ser. Elevation (ft)	184	184		200	229	229	229		350	350	350	350	
Headloss to Highest Customer (ft)	2.0	2.0		0.0	2.0	2.0	2.0		1.0	1.0	1.0	1.0	
HGL Required by Highest Customer (30 psi) (ft)	255	255		269	300	300	300		420	420	420	420	
HGL Required by Highest Customer (20 psi) (ft)	232	232		246	277	277	277		397	397	397	397	
Existing Storage Above 30 psi HGL (gal)	0	0	0	8,000,000	900,000	172,500	180,833	1,253,333	0	0	0	7,000,000	7,000,000
Existing Storage Above 20 psi HGL (gal)	895,833	373,984	1,269,817	8,000,000	900,000	250,000	250,000	1,400,000	474,000	632,000	632,000	7,000,000	8,738,000
Percent of Storage Above 30 psi HGL	0%	0%	0%	100%	100%	69%	72%	90%	0%	0%	0%	100%	72%
Percent of Storage Above 20 psi HGL	22%	37%	25%	100%	100%	100%	100%	100%	63%	63%	63%	100%	90%

Table S-2 Available Storage - Scenario 2 Comprehensive Water System Plan City of Vancouver													
Operating Area	Vancouver Low			HL	Vancouver High				Heights High				
HGL	237			299	322				413				
Facility	WS 1 - 4 MG Res	WS 1 - 3 MG Res	Total	WS 5 Res	WS 3 Res	WS 3 Tank	WS 1 Tank	Total	WS 5 Tank	WS 6 Tank	WS 7 Tank	WS 9 Res	Total
Storage Capacity (gal)	4,000,000	3,000,000	7,000,000	8,000,000	900,000	250,000	1,000,000	2,150,000	750,000	1,000,000	1,000,000	7,000,000	9,750,000
Elevation of Overflow (ft)	236.5	236.0		298.5	216.2	321.0	322.0		413.0	413.0	413.0	278.9	
Base of Tank (ft)	217.3	230.0		288.3	204.2	291.0	230.0		388.0	388.0	388.0	243.9	
Nominal Diameter (ft)	188.3	291.7		365.4	113.0	37.7	43.0		71.5	82.5	82.5	184.5	
High Ser. Elevation (ft)	184	184		200	229	229	229		350	350	350	350	
Headloss to Highest Customer (ft)	2.0	2.0		0.0	2.0	2.0	2.0		1.0	1.0	1.0	1.0	
HGL Required by Highest Customer (30 psi) (ft)	255	255		269	300	300	300		420	420	420	420	
HGL Required by Highest Customer (20 psi) (ft)	232	232		246	277	277	277		397	397	397	397	
Existing Storage Above 30 psi HGL (gal)	0	0	0	8,000,000	900,000	172,500	235,870	1,308,370	0	0	0	7,000,000	7,000,000
Existing Storage Above 20 psi HGL (gal)	895,833	1,900,000	2,795,833	8,000,000	900,000	250,000	486,957	1,636,957	474,000	632,000	632,000	7,000,000	8,738,000
Percent of Storage Above 30 psi HGL	0%	0%	0%	100%	100%	69%	24%	61%	0%	0%	0%	100%	72%
Percent of Storage Above 20 psi HGL	22%	63%	40%	100%	100%	100%	49%	76%	63%	63%	63%	100%	90%

Table S-3 Operational Storage												
Comprehensive Water System Plan												
City of Vancouver												
Operating Area	Vancouver Low			Heights Low			Vancouver High			Heights High		
Sub-Zones							Lincoln High			Evergreen High, Terrace High		
Planning Year	2020	2024	2034	2020	2024	2034	2020	2024	2034	2020	2024	2034
Total Storage (mg)	5.00	5.00	5.00	8.00	8.00	8.00	1.40	1.40	1.40	9.75	9.75	9.75
Operational Storage (mg)	0.25	0.25	0.25	0.40	0.40	0.40	0.07	0.07	0.07	0.49	0.49	0.49

TABLE S-4 Equalizing Storage Calculations												
Comprehensive Water System Plan												
City of Vancouver												
Operating Area	Vancouver Low			Heights Low			Vancouver High			Heights High		
Sub-Zones							Lincoln High			Evergreen High, Terrace High		
Planning Year	2020	2024	2034	2020	2024	2034	2020	2024	2034	2020	2024	2034
MDD (gpm)	5,139	5,514	5,924	1,806	1,861	1,993	4,743	4,773	4,868	30,106	31,943	36,039
Equalizing Storage (gal)	1,110,000	1,191,000	1,279,500	390,000	402,000	430,500	1,024,522	1,030,906	1,051,404	6,502,911	6,899,629	7,784,327

Table S-5 MDD Pumping with Reliable, Firm Capacity in Each Operating Area - Scenario 1 Comprehensive Water System Plan City of Vancouver												
Operating Area	Vancouver Low			Heights Low			Vancouver High			Heights High		
Sub-Zones							Lincoln High			Evergreen High, Terrace High		
Planning Year	2020	2024	2034	2020	2024	2034	2020	2024	2034	2020	2024	2034
Reliable Capacity (gpm)	4,620	4,620	4,620	0	0	0	0	0	0	17,300	17,300	17,300
Largest Pump/Well	WS 1, W 12			-	-	-	WS 1, 1-MG Res BP 1			WS 9, Well 5		
Capacity of Largest Pump/Well (gpm)	2,560	2,560	2,560	0	0	0	1,700	1,700	1,700	2,600	2,600	2,600
Reliable, Firm Source Capacity (gpm)	2,060	2,060	2,060	0	0	0	0	0	0	14,700	14,700	14,700
MDD (gpm)	5,139	5,514	5,924	1,806	1,861	1,993	4,743	4,773	4,868	30,106	31,943	36,039
Surplus/(Deficit) within Zone above MDD (gpm)	(3,079)	(3,454)	(3,864)	(1,806)	(1,861)	(1,993)	(4,743)	(4,773)	(4,868)	#####	#####	#####
Adjusted Operating Area Reliable, Firm Supply, $Q_{R,F}$ (gpm)	2,060	2,060	2,060	0	0	0	0	0	0	14,700	14,700	14,700

Table S-6 Standby Storage Calculations - Scenario 1 Comprehensive Water System Plan City of Vancouver												
Operating Area	Vancouver Low			Heights Low			Vancouver High			Heights High		
Sub-Zones							Lincoln High			Evergreen High, Terrace High		
Planning Year	2020	2024	2034	2020	2024	2034	2020	2024	2034	2020	2024	2034
ADD (gpm)	2,757	3,028	3,222	854	889	951	2,263	2,271	2,315	14,412	15,542	18,147
Adjusted Operating Area Reliable, Firm Supply, $Q_{R,F}$ (gpm)	2,060	2,060	2,060	0	0	0	0	0	0	14,700	14,700	14,700
Standby Storage $2d*(ADD-Q_{R,F})$ (gal)	2,007,200	2,787,200	3,347,200	2,460,000	2,560,000	2,740,000	6,518,236	6,540,672	6,667,008	(829,582)	2,423,548	9,927,344
Required Standby Storage (gal)	2,007,200	2,787,200	3,347,200	2,460,000	2,560,000	2,740,000	6,518,236	6,540,672	6,667,008	0	2,423,548	9,927,344

Table S-7 MDD Pumping with Reliable, Firm Capacity in Each Operating Area - Scenario 2												
Comprehensive Water System Plan												
City of Vancouver												
Operating Area	Vancouver Low			Heights Low			Vancouver High			Heights High		
Sub-Zones							Lincoln High			Evergreen High, Terrace High		
Planning Year	2020	2024	2034	2020	2024	2034	2020	2024	2034	2020	2024	2034
Reliable Capacity (gpm)	16,280	16,280	16,280	0	0	0	0	0	0	17,300	17,300	17,300
Largest Pump/Well	WS 1, W 7			WS 1, 1 to 5 BP 2			WS 1, 1-MG Res BP 1			WS 9, Well 5		
Capacity of Largest Pump/Well (gpm)	3,140	3,140	3,140	3,000	3,000	3,000	1,700	1,700	1,700	2,600	2,600	2,600
Reliable, Firm Source Capacity (gpm)	13,140	13,140	13,140	0	0	0	0	0	0	14,700	14,700	14,700
MDD (gpm)	5,139	5,514	5,924	1,806	1,861	1,993	4,743	4,773	4,868	30,106	31,943	36,039
Surplus/(Deficit) within Zone above MDD (gpm)	8,001	7,626	7,216	(1,806)	(1,861)	(1,993)	(4,743)	(4,773)	(4,868)	(15,406)	#####	#####
Booster Pumping Into Area (gpm)				1,806	1,861	1,993	3,000	3,000	3,000	3,196	2,765	2,223
Booster Pumping Out of Area (gpm)	8,001	7,626	7,216									
Surplus/(Deficit) (gpm)	0	0	0				(1,743)	(1,773)	(1,868)	(12,211)	#####	#####
Adjusted Operating Area Reliable, Firm Supply, $Q_{R,F}$ (gpm)	5,139	5,514	5,924	1,806	1,861	1,993	3,000	3,000	3,000	17,896	17,465	16,923

Table S-8 Standby Storage Calculations - Scenario 2												
Comprehensive Water System Plan												
City of Vancouver												
Operating Area	Vancouver Low			Heights Low			Vancouver High			Heights High		
Sub-Zones							Lincoln High			Evergreen High, Terrace High		
Planning Year	2020	2024	2034	2020	2024	2034	2020	2024	2034	2020	2024	2034
ADD (gpm)	2,757	3,028	3,222	854	889	951	2,263	2,271	2,315	14,412	15,542	18,147
Adjusted Operating Area Reliable, Firm Supply, $Q_{R,F}$ (gpm)	5,139	5,514	5,924	1,806	1,861	1,993	3,000	3,000	3,000	17,896	17,465	16,923
Standby Storage $2d*(ADD-Q_{R,F})$ (gal)	(6,860,000)	(7,160,000)	(7,780,000)	(2,740,000)	(2,800,000)	(3,000,000)	(2,121,764)	(2,099,328)	(1,972,992)	(10,032,782)	(5,539,652)	3,524,144
Required Standby Storage (gal)	0	0	0	0	0	0	0	0	0	0	0	3,524,144

Table S-9 Storage Analysis Summary Table - Scenario 1
Comprehensive Water System Plan
City of Vancouver

Operating Area	Vancouver Low			Heights Low			Vancouver High			Heights High		
Sub-Zones							Lincoln High			Evergreen High, Terrace High		
Year	2020	2024	2034	2020	2024	2034	2020	2024	2034	2020	2024	2034
Consolidation	Nested	Nested	Nested	Nested	Nested	Nested	Nested	Nested	Nested	Nested	Nested	Nested
Projected Demand												
ERUs	16,310	17,880	19,050	5,080	5,230	5,610	13,330	13,430	13,700	85,170	91,860	107,260
ADD (gpm)	2,760	3,030	3,220	850	890	950	2,260	2,270	2,310	14,410	15,540	18,150
MDD (gpm)	5,140	5,510	5,920	1,810	1,860	1,990	4,740	4,770	4,870	30,110	31,940	36,040
Available Storage (mg)												
Total Storage	5.00	5.00	5.00	8.00	8.00	8.00	1.40	1.40	1.40	9.75	9.75	9.75
Meeting 30 psi Requirement	0.00	0.00	0.00	8.00	8.00	8.00	1.25	1.25	1.25	7.00	7.00	7.00
Meeting 20 psi Requirement	1.27	1.27	1.27	8.00	8.00	8.00	1.40	1.40	1.40	8.74	8.74	8.74
Required Storage Components (mg)												
Operational Storage	0.25	0.25	0.25	0.40	0.40	0.40	0.07	0.07	0.07	0.49	0.49	0.49
Equalizing Storage	1.11	1.19	1.28	0.39	0.40	0.43	1.02	1.03	1.05	6.50	6.90	7.78
Fire Suppression Storage	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Standby Storage (2days*(ADD-Q _{R,F}))	2.01	2.79	3.35	2.46	2.56	2.74	6.52	6.54	6.67	0.00	2.42	9.93
Required Storage (mg)												
To meet 30 psi Requirement	1.36	1.44	1.53	0.79	0.80	0.83	1.09	1.10	1.12	6.99	7.39	8.27
To meet 20 psi Requirement	3.37	4.23	4.88	3.25	3.36	3.57	7.61	7.64	7.79	7.95	9.81	18.20
Storage Surplus/(Deficit) (mg)												
Meeting 30 psi Requirement	(1.36)	(1.44)	(1.53)	7.21	7.20	7.17	0.16	0.15	0.13	0.01	(0.39)	(1.27)
Meeting 20 psi Requirement	(2.10)	(2.96)	(3.61)	4.75	4.64	4.43	(6.21)	(6.24)	(6.39)	0.79	(1.07)	(9.46)
Surplus/(Deficit) (mg)	(2.1)	(3.0)	(3.6)	4.8	4.6	4.4	(6.2)	(6.2)	(6.4)	-	(1.1)	(9.5)

Table S-10 Storage Analysis Summary Table - Scenario 2
Comprehensive Water System Plan
City of Vancouver

Operating Area	Vancouver Low			Heights Low			Vancouver High			Heights High		
Sub-Zones							Lincoln High			Evergreen High, Terrace High		
Year	2020	2024	2034	2020	2024	2034	2020	2024	2034	2020	2024	2034
Consolidation	Nested	Nested	Nested	Nested	Nested	Nested	Nested	Nested	Nested	Nested	Nested	Nested
Projected Demand												
ERUs	16,310	17,880	19,050	5,080	5,230	5,610	13,330	13,430	13,700	85,170	91,860	107,260
ADD (gpm)	2,760	3,030	3,220	850	890	950	2,260	2,270	2,310	14,410	15,540	18,150
MDD (gpm)	5,140	5,510	5,920	1,810	1,860	1,990	4,740	4,770	4,870	30,110	31,940	36,040
Available Storage (mg)												
Total Storage	7.00	7.00	7.00	8.00	8.00	8.00	2.15	2.15	2.15	9.75	9.75	9.75
Meeting 30 psi Requirement	0.00	0.00	0.00	8.00	8.00	8.00	1.31	1.31	1.31	7.00	7.00	7.00
Meeting 20 psi Requirement	2.80	2.80	2.80	8.00	8.00	8.00	1.64	1.64	1.64	8.74	8.74	8.74
Required Storage Components (mg)												
Operational Storage	0.25	0.25	0.25	0.40	0.40	0.40	0.07	0.07	0.07	0.49	0.49	0.49
Equalizing Storage	1.11	1.19	1.28	0.39	0.40	0.43	1.02	1.03	1.05	6.50	6.90	7.78
Fire Suppression Storage	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Standby Storage (2days*(ADD-Q _{R,F}))	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.52
Required Storage (mg)												
To meet 30 psi Requirement	1.36	1.44	1.53	0.79	0.80	0.83	1.09	1.10	1.12	6.99	7.39	8.27
To meet 20 psi Requirement	2.32	2.40	2.49	1.75	1.76	1.79	2.05	2.06	2.08	7.95	8.35	11.80
Storage Surplus/(Deficit) (mg)												
Meeting 30 psi Requirement	(1.36)	(1.44)	(1.53)	7.21	7.20	7.17	0.21	0.21	0.19	0.01	(0.39)	(1.27)
Meeting 20 psi Requirement	0.48	0.39	0.31	6.25	6.24	6.21	(0.42)	(0.42)	(0.44)	0.79	0.39	(3.06)
Surplus/(Deficit) (mg)	(1.4)	(1.4)	(1.5)	6.3	6.2	6.2	(0.4)	(0.4)	(0.4)	-	(0.4)	(3.1)

Table P-1 Pumping Analysis Criterion 1 Calculations - Scenario 1									
Comprehensive Water System Plan									
City of Vancouver									
Operating Area	Vancouver Low			Heights Low			Vancouver High		
	2020	2024	2034	2020	2024	2034	2020	2024	2034
Total Source Capacity (gpm)	23,400	23,400	23,400	8,550	8,550	8,550	6,000	6,000	6,000
Reliable Source Capacity (gpm)	4,620	4,620	4,620	-	-	-	-	-	-
Requirement, ADD (gpm)	2,757	3,028	3,222	854	889	951	2,181	2,188	2,229
Total Surplus/(Deficit) no BPS (gpm)	1,863	1,592	1,398	(854)	(889)	(951)	(2,181)	(2,188)	(2,229)
Booster Pumping Into Area (gpm)							1,863	1,592	1,398
Booster Pumping Out of Area (gpm)	1,863	1,592	1,398						
PRV Transfer Into Area (gpm)	0	0	0	854	889	-			
PRV Transfer Out of Area (gpm)				0	0	0			
Total Surplus/ (Deficit) with BPS Transfer (gpm)	0	0	0	0	0	(950)	(320)	(600)	(830)

Table P-1 Pumping Analysis Criterion 1 Calculations - Scenario 1									
Comprehensive Water System Plan									
City of Vancouver									
Operating Area	Lincoln High			Heights High			Terrace High		
	2020	2024	2034	2020	2024	2034	2020	2024	2034
Total Source Capacity (gpm)	-	-	-	23,350	23,350	23,350	-	-	-
Reliable Source Capacity (gpm)	-	-	-	17,300	17,300	17,300	-	-	-
Requirement, ADD (gpm)	83	84	86	14,350	15,480	18,085	62	62	62
Total Surplus/(Deficit) no BPS (gpm)	(83)	(84)	(86)	2,950	1,820	(785)	(62)	(62)	(62)
Booster Pumping Into Area (gpm)	0	0	0				62	62	0
Booster Pumping Out of Area (gpm)				62	62	0			
PRV Transfer Into Area (gpm)									
PRV Transfer Out of Area (gpm)				854	889	0			
Total Surplus/ (Deficit) with BPS Transfer (gpm)	(80)	(80)	(90)	2,030	870	(790)	0	0	(60)

Table P-2 Pumping Analysis Criterion 1 Calculations - Scenario 2									
Comprehensive Water System Plan									
City of Vancouver									
Operating Area	Vancouver Low			Heights Low			Vancouver High		
	2020	2024	2034	2020	2024	2034	2020	2024	2034
Total Source Capacity (gpm)	23,400	23,400	23,400	8,550	8,550	8,550	6,000	6,000	6,000
Reliable Source Capacity (gpm)	16,280	16,280	16,280	-	-	-	-	-	-
Requirement, ADD (gpm)	2,757	3,028	3,222	854	889	951	2,181	2,188	2,229
Total Surplus/(Deficit) no BPS (gpm)	13,523	13,252	13,058	(854)	(889)	(951)	(2,181)	(2,188)	(2,229)
Booster Pumping Into Area (gpm)						951	2,181	2,188	2,229
Booster Pumping Out of Area (gpm)	2,181	2,188	4,028						
PRV Transfer Into Area (gpm)	0	0	0	854	889	-			
PRV Transfer Out of Area (gpm)				0	0	0			
Total Surplus/ (Deficit) with BPS Transfer (gpm)	11,340	11,060	9,030	0	0	0	0	0	0

Table P-2 Pumping Analysis Criterion 1 Calculations - Scenario 2									
Comprehensive Water System Plan									
City of Vancouver									
Operating Area	Lincoln High			Heights High			Terrace High		
	2020	2024	2034	2020	2024	2034	2020	2024	2034
Total Source Capacity (gpm)	-	-	-	23,350	23,350	23,350	-	-	-
Reliable Source Capacity (gpm)	-	-	-	17,300	17,300	17,300	-	-	-
Requirement, ADD (gpm)	83	84	86	14,350	15,480	18,085	62	62	62
Total Surplus/(Deficit) no BPS (gpm)	(83)	(84)	(86)	2,950	1,820	(785)	(62)	(62)	(62)
Booster Pumping Into Area (gpm)	0	0	0			847	62	62	62
Booster Pumping Out of Area (gpm)				62	62	62			
PRV Transfer Into Area (gpm)									
PRV Transfer Out of Area (gpm)				854	889	0			
Total Surplus/ (Deficit) with BPS Transfer (gpm)	(80)	(80)	(90)	2,040	870	0	0	0	0

Table P-3 Pumping Analysis Criterion 2 MDD Flow Transfer																		
Comprehensive Water System Plan																		
City of Vancouver																		
Operating Area	Vancouver Low			Heights Low			Vancouver High			Lincoln High			Heights High			Terrace High		
	2020	2024	2034	2020	2024	2034	2020	2024	2034	2020	2024	2034	2020	2024	2034	2020	2024	2034
Source Capacity (gpm)	23,400	23,400	23,400	8,550	8,550	8,550	6,000	6,000	6,000	-	-	-	23,350	23,350	23,350	-	-	-
MDD (gpm)	5,139	5,514	5,924	1,806	1,861	1,993	4,569	4,597	4,688	174	175	180	29,977	31,813	35,909	129	129	129
Surplus/(Deficit) within Zone above MDD	18,261	17,886	17,476	6,744	6,689	6,557	1,431	1,403	1,313	(174)	(175)	(180)	(6,627)	(8,463)	(12,559)	(129)	(129)	(129)
Booster Pumping into Area (gpm)	0	0	0	0	0	519	0	0	0	174	175	180	6,756	8,593	12,689	129	129	129
Booster Pumping Out of Area (gpm)	0	677	4,999	5,499	6,689	7,076	1,431	1,403	1,313	0	0	0	129	129	129	0	0	0
Surplus/(Deficit)	18,261	17,210	12,477	1,245	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table P-4 Pumping Analysis Criterion 2 Calculations																		
Comprehensive Water System Plan																		
City of Vancouver																		
Operating Area	Vancouver Low			Heights Low			Vancouver High			Lincoln High			Heights High			Terrace High		
	2020	2024	2034	2020	2024	2034	2020	2024	2034	2020	2024	2034	2020	2024	2034	2020	2024	2034
Largest Pump/Well	WS 1, Well 11			WS 4, Well 2B			WS 3, Well 1			LH BPS, BP 1			WS 5 BPS, BP 4			TH BPS, BP 4		
Capacity of Largest Pump/Well (gpm)	3,400	3,400	3,400	2,000	2,000	2,000	2,175	2,175	2,175	1,000	1,000	1,000	3,000	3,000	3,000	1,900	1,900	1,900
Firm Source Capacity (gpm)	20,000	20,000	20,000	6,550	6,550	6,550	4,000	4,000	4,000	-	-	-	23,350	23,350	23,350	-	-	-
MDD (gpm)	5,139	5,514	5,924	1,806	1,861	1,993	4,569	4,597	4,688	174	175	180	29,977	31,813	35,909	129	129	129
Fire Storage Volume (gal)	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	960,000	0	0	0	960,000	960,000	960,000	0	0	0
Fire Storage Replenishment Flow (gpm)	222	222	222	222	222	222	222	222	222	0	0	0	222	222	222	0	0	0
Boosted Flow to Upper Zones for MDD (gpm)	0	677	4,999	5,499	6,689	7,076	1,431	1,403	1,313	0	0	0	129	129	129	0	0	0
Total Requirement (gpm)	5,361	6,413	11,145	7,527	8,772	9,291	6,222	6,222	6,222	174	175	180	30,328	32,165	36,261	129	129	129
Total Surplus/(Deficit) no BPS (gpm)	14,639	13,587	8,855	(977)	(2,222)	(2,741)	(2,222)	(2,222)	(2,222)	(174)	(175)	(180)	(6,978)	(8,815)	(12,911)	(129)	(129)	(129)
Available Flow to Boost into Area (gpm)				14,460	14,460	12,477	6,780	6,780	6,780	0	0	0	14,830	14,830	14,830	500	500	500
Boosted Flow into Area (gpm)				977	2,222	2,741	2,222	2,222	2,222				6,978	8,815	12,911	129	129	129
Total Surplus/ (Deficit) with BPS Transfer (gpm)	14,640	13,590	8,860	0	0	0	0	0	0	(170)	(180)	(180)	0	0	0	0	0	0

Table P-5 Pumping Analysis Criterion 3 Calculations						
Comprehensive Water System Plan						
City of Vancouver						
Operating Area	Lincoln High			Terrace High		
	2020	2024	2034	2020	2024	2034
Boster Pump Capacity (gpm)	1,000	1,000	1,000	2,400	2,400	2,400
PHD (gpm)	278	281	288	207	207	207
Fire Flow (gpm)	2,000	2,000	2,000	2,000	2,000	2,000
Surplus/(Deficit) (gpm)	(1,280)	(1,280)	(1,290)	190	190	190

APPENDIX 3D – TM 2 HYDRAULIC MODEL UPDATE



CITY OF VANCOUVER
COMPREHENSIVE WATER SYSTEM PLAN
TECHNICAL MEMORANDUM NO. 2
HYDRAULIC MODEL UPDATE

DRAFT
January 2015

CITY OF VANCOUVER
COMPREHENSIVE WATER MASTER PLAN
TECHNICAL MEMORANDUM
NO. 2
HYDRAULIC MODEL UPDATE

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ATTACHMENTS

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Attachment B – Calibration Results

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1.0 INTRODUCTION

The City of Vancouver (City) has maintained a robust hydraulic model of its water system for many years. Hydraulic models are important tools for evaluating a water system's ability to provide adequate pressure and water supply to all customers under current and future demands. Models are also used for evaluating system expansion, facility changes, and evaluating system operations (such as energy analyses). This Technical Memorandum summarizes the calibration of the City's hydraulic model for use in the Water System Comprehensive Plan Update. The City recently converted its water model from a stand-alone model in H2OMap to a GIS-based model in Infowater. Upon completing GIS updates to the model, the City provided the Infowater model to Carollo in December of 2013. This model was subsequently updated and calibrated as discussed in the sections below.

2.0 MODEL UPDATES

Prior to calibration of the hydraulic model, it is important to check the facility hydraulic data, controls, and update system demands. The following summarizes all facility updates performed on the original model provided by the City. Attachment A provides detailed information on all pipe and facility changes.

2.1 Facility Update

2.1.1 Node Elevations

The model provided by the City was missing elevation data at several nodes. The City's 2-foot contour data was used to assign elevations to all nodes with missing elevation data.

2.1.2 Pipe Connectivity & Open/Close Status

The initial model was run to determine accurate pipe connectivity and open/close status, particularly at pressure zone boundaries. The initial model runs resulted in several disconnection errors that were corrected by creating a facility set that activates the correct model nodes and pipes. Model facilities were assigned a value of 1 (in the "Phase" attribute) to identify that the facility actually exists and should be included in the base model. This provided the ability to deactivate duplicate pipes (where found) and remove unnecessary features (such as a fictitious tank in the Terrace High Pressure Zone). Such features were assigned a value of "0" in the "Phase" attribute.

After these corrections, the model was able to run for a 12-hour extended period simulation (EPS). Tank levels and pump flow output was reviewed, which showed several tanks draining and very high pump flows. This led to a pressure zone boundary check to ensure that pipes between pressure zones were closed. Several pipes were found to be inaccurately connected to

nodes (i.e. bypassing a node, and/or duplicating another pipe), and a few pipes were erroneously open. Attachment A provides a log of pipe changes to address these issues. Some of the listed pipe closures prevented circular pumping from Water Station 1, and unnecessary flow from the Vancouver High and Lincoln High Pressure Zones to lower zones.

2.2 Controls

The typical control settings for pumps (i.e. on and off setpoints based on tank levels) were provided by the City for all water stations and pump stations. Pump and well capacity data and valve settings were updated in the model per Tables 2.1 through 2.3, respectively. These controls were updated in the model for the base average day demand (ADD) scenarios. Controls were modified for the maximum day demand (MDD) conditions during the model macrocalibration, discussed in Section 3. The model includes rule-based controls to simulate the flow from the variable frequency drive (VFD) pumps at Water Stations 4 and 14. The macrocalibration shows that the modeled pump stations mimic the actual pump data, thus, no changes to the existing controls were made. The rules are enabled for all model runs. The 45th Street pump was set as a VFD in the model that maintains a pressure of 62 psi at its discharge location.

2.3 Demands

System demands were updated in the model to represent the actual 2013 ADD and MDD, and medium 2020, 2024, and 2034 ADD and MDD projections, as summarized in Chapter 2. Using geocoding in GIS, the customer type and associated water use of nearby water meters were assigned to each demand node. Since each demand node represents several different customers, each node includes three categories of water use: residential, non-residential, and large water users. Allocating demands in this way allows the model to more accurately represent the water use of nearby properties, and allows for adjusting demands or assigning a unique diurnal pattern for each customer type in future model updates. Water loss was evenly allocated among all demand nodes for each pressure zone such that the total demand per zone matches the demand presented in Chapter 2. For the 2020, 2024, and 2034 demand conditions, demands were increased using a unique multiplier for each pressure zone.

2.3.1 Diurnal Curves

Additionally, each node was assigned a diurnal demand pattern, which allows the model to more accurately represent the relative levels of demand in a twenty-four hour period. Diurnal curves were developed from weeklong supply, pumping, and reservoir water level data sets provided by the City that represent ADD and MDD conditions. Due to some data gaps, diurnals for each pressure zone were unable to be determined. Given total system supplies and tank levels, system-wide diurnal patterns were developed for both ADD and MDD conditions. Table 2.4 summarizes the diurnal curve coefficients (demand multiplier) for the entire system. Adequate data were available to develop diurnal curves for the Lincoln High and Terrace High pressure zones; these diurnals are also presented in Table 2.4. For all other zones, the system-wide diurnal curves were applied.

Table 2.1 Production Wells <i>City of Vancouver – Hydraulic Model Update</i>						
Water Station	Well Number	Pump Capacity (gpm)	Status (Active/Inactive)	Control Reservoir	On Setpoint (ft)	Off Setpoint (ft)
1	1	2,340	Active	WS 1 – 4.0 MG Reservoir	17.0	18.9
	2	2,260	Active	WS 1 – 4.0 MG Reservoir	17.0	18.9
	3	2,100	Active	WS 1 – 4.0 MG Reservoir	17.0	18.9
	4	1,270	Active	WS 1 – 4.0 MG Reservoir	16.0	18.5
	5	1,360	Active	WS 1 – 4.0 MG Reservoir	16.0	18.5
	7	3,140	Active	WS 1 – 4.0 MG Reservoir	16.0	18.5
	8	2,260	Active	WS 1 – 4.0 MG Reservoir	14.6	17.6
	9	1,660	Active	WS 1 – 4.0 MG Reservoir	14.6	17.6
	10	1,860	Active	WS 1 – 4.0 MG Reservoir	14.6	17.6
	11	3,400	Active	WS 1 – 4.0 MG Reservoir	13.7	16.6
	12	2,560	Active	WS 1 – 4.0 MG Reservoir	13.7	16.6
	13	2,060	Active	WS 1 – 4.0 MG Reservoir	13.7	16.6
	3	1	2,175	Active	WS 3 – 0.9 MG Reservoir	8.4	9.0
2		2,000	Active	WS 3 – 0.9 MG Reservoir	7.2	8.4
3		2,000	Active	WS 3 – 0.9 MG Reservoir	6.6	8.0
4	1	950	Active	WS 5 – 8.0 MG Reservoir	7.9	8.7
	2B	2,000	Active	WS 5 – 8.0 MG Reservoir	8.7	9.7
	3B	2,000	Active	WS 5 – 8.0 MG Reservoir	8.5	9.2
	4B	1,500	Active	WS 5 – 8.0 MG Reservoir	8.5	9.2
	5B	1,500	Active	WS 5 – 8.0 MG Reservoir	7.9	8.7
	9	600	Active	WS 5 – 8.0 MG Reservoir	8.7	9.7

Table 2.1 Production Wells <i>City of Vancouver – Hydraulic Model Update</i>						
Water Station	Well Number	Pump Capacity (gpm)	Status (Active/Inactive)	Control Reservoir	On Setpoint (ft)	Off Setpoint (ft)
7	1	800	Active	WS 7 – 1.0 MG Tank	21.9	24.3
	2B	500	Active	WS 7 – 1.0 MG Tank	23.3	24.5
8	2	500	Active	WS 6 – 1.0 MG Tank	23.3	24.5
	3	750	Active	WS 6 – 1.0 MG Tank	23.3	24.5
9	3	1,600	Active	WS 9 – 7.0 MG Reservoir	28.0	31.5
	4	800	Active	WS 9 – 7.0 MG Reservoir	26.3	29.8
	5	2,600	Active	WS 9 – 7.0 MG Reservoir	29.8	33.3
	6	2,400	Active	WS 9 – 7.0 MG Reservoir	29.8	33.3
	7	2,400	Active	WS 9 – 7.0 MG Reservoir	29.8	33.3
14	1	1,000	Active	WS 6 – 1.0 MG Tank	21.5	23.3
	2	1,000	Active	WS 6 – 1.0 MG Tank	20.0	21.3
	3	1,200	Active	WS 6 – 1.0 MG Tank	21.5	24.8
15	1	500	Active	WS 6 – 1.0 MG Tank	22.5	23.8
	2	500	Active	WS 6 – 1.0 MG Tank	21.5	23.3
	3	500	Inactive	WS 6 – 1.0 MG Tank	23.3	24.5
	4	0	Inactive	WS 6 – 1.0 MG Tank	23.3	24.5
Ellsworth	1	2,000	Active	WS 5 – 8.0 MG Reservoir	7.1	8.7
	2	2,300	Active	WS 5 – 8.0 MG Reservoir	6.6	7.6
	3	2,500	Active	WS 5 – 8.0 MG Reservoir	7.1	8.7

Name	Pump Number	Pump Capacity (gpm)	Elevation (ft)	Design Head (ft)	Variable Speed?	Pump Control	On Setpoint (ft)	Off Setpoint (ft)
Bagley Downs ⁽¹⁾	1	2,200	173	125	No	WS 6 – 1.0 MG Tank	23.3	24.5
	2	1,800	173	125	No	WS 6 – 1.0 MG Tank	23.3	24.5
45th St	1	1,000	223	90	Yes	Downstream Node	Maintain 62 psi	
49th St	1	1,100	166	117	No	WS 6 – 1.0 MG Tank	23.3	24.5
Terrace High	1	100	269	60	No	N/A – Open	None	None
	2	100	269	60	No	Zone Pressure	70	110
	3	300	269	60	No	Zone Pressure	69.9	230
	4	1,900	269	75	No	Zone Pressure	69.8	500
WS 1 – Tower Boosters	1	1,500	220	95	No	WS 1 – 0.25 MG Tank	29.6	30.5
	2	1,500	220	95	No	WS 1 – 0.25 MG Tank	27.5	29.9
	3	1,400	220	95	No	WS 1 – 0.25 MG Tank	27.2	28.7
	4	2,000	230	106	No	WS 1 – 0.25 MG Tank	27.2	28.7
	5	2,000	230	106	No	WS 1 – 0.25 MG Tank	27.5	29.9

Name	Pump Number	Pump Capacity (gpm)	Elevation (ft)	Design Head (ft)	Variable Speed?	Pump Control	On Setpoint (ft)	Off Setpoint (ft)
WS 1 - 1 to 5 BPS	1	2,460	198	100	No	WS 5 – 8.0 MG Reservoir	8.7	9.7
	2	3,000	202	162	No	WS 5 – 8.0 MG Reservoir	7.8	8.7
	3	3,000	204	162	No	WS 5 – 8.0 MG Reservoir	6.1	7.1
	4	3,000	207	162	No	WS 5 – 8.0 MG Reservoir	6.6	7.6
	5	3,000	211	162	No	WS 5 – 8.0 MG Reservoir	5.6	7.6
WS 1 - St. Johns BPS	1	1,600	180	195	No	WS 6 – 1.0 MG Tank	22.5	23.8
	2	1,600	180	195	No	WS 6 – 1.0 MG Tank	23.3	24.5
	3	1,600	180	195	No	WS 6 – 1.0 MG Tank	21.5	23.3
WS 3 BPS	1	2,000	220	115	No	WS 3 – 0.25 MG Tank	25.5	27.9
	2	2,000	220	115	No	WS 3 – 0.25 MG Tank	27.6	29.1
	3	2,000	220	115	No	WS 3 – 0.25 MG Tank	26.7	28.5
WS 4 BPS	1	4,000	55	330	Yes	Rule-Based Controls ⁽²⁾		
	2	4,000	55	330	Yes	Rule-Based Controls ⁽²⁾		
	3	4,000	55	330	Yes	Rule-Based Controls ⁽²⁾		
WS 5 BPS	1	1,400	290	114	No	WS 5 – 0.75 MG Tank	22.5	23.8
	2	1,400	290	114	No	WS 5 – 0.75 MG Tank	21.5	23.3
	3	2,450	290	114	No	WS 5 – 0.75 MG Tank	23.3	24.5
	4	3,000	290	114	No	WS 5 – 0.75 MG Tank	23.3	24.5
	5	2,000	290	114	No	Closed	None	None

Name	Pump Number	Pump Capacity (gpm)	Elevation (ft)	Design Head (ft)	Variable Speed?	Pump Control	On Setpoint (ft)	Off Setpoint (ft)
WS 9 BPS	1	2,000	240	173	No	WS 6 or WS 7 - 1.0 MG Tank	17	19.5
	2	2,000	240	173	No	WS 6 or WS 7 - 1.0 MG Tank	12.5	15
	3	2,000	240	173	No	WS 6 or WS 7 - 1.0 MG Tank	21.5	23.3
	4	2,000	240	173	No	WS 6 or WS 7 - 1.0 MG Tank	21.5	23.3
	5	2,000	240	173	No	WS 6 or WS 7 - 1.0 MG Tank	13.8	16.3
	6	2,000	240	173	No	WS 7 – 1.0 MG Tank	10	13.8
	7	2,000	240	173	No	WS 7 – 1.0 MG Tank	10	13.8
	8	2,000	240	173	No	WS 7 – 1.0 MG Tank	23.3	24.5
	9	2,000	240	173	No	WS 7 – 1.0 MG Tank	22.5	23.8
	10	2,000	240	173	No	WS 7 – 1.0 MG Tank	20	21.3
WS 14 BPS	1	1,600	260	216	Yes	Rule-Based Controls ⁽²⁾		
	2	1,600	260	216	Yes	Rule-Based Controls ⁽²⁾		
Ellsworth #1 BPS	1	1,800	188	200	No	WS 7 – 1.0 MG Tank	23.3	24.5
	2	1,800	189	200	No	WS 7 – 1.0 MG Tank	22.5	23.8
	3	1,800	189	200	No	WS 7 – 1.0 MG Tank	21.5	23.3
	4	1,800	190	200	No	WS 7 – 1.0 MG Tank	22.5	23.8
	5	1,800	190	200	No	WS 7 – 1.0 MG Tank	21.5	23.3

Table 2.2 Booster Pump Stations <i>City of Vancouver – Hydraulic Model Update</i>								
Name	Pump Number	Pump Capacity (gpm)	Elevation (ft)	Design Head (ft)	Variable Speed?	Pump Control	On Setpoint (ft)	Off Setpoint (ft)
Ellsworth #2 BPS	1	3,600	188	170	No	WS 7 – 1.0 MG Tank	23.3	24.5
	2	3,600	188	170	No	WS 7 – 1.0 MG Tank	22.5	23.8
	3	3,600	188	170	No	WS 7 – 1.0 MG Tank	21.5	23.3
Notes: (1) Currently not operated. For future model simulations, controls were added to the Bagley Downs BPS to match the controls of the 49th Street BPS. (2) In the model, Water Stations 4 & 14 are controlled by Rule-Based Controls to mimic flows through the VFDs.								

Name	Location	Receiving Pressure Zone	Supplying Pressure Zone	Valve Sizes (in)	Valve Elevation (ft)	Pressure Setting (psi)
SE 164th Ave PRV	SE 164th Ave. and SE Evergreen Hwy	Heights Low	Heights High	8	87	75
Ellsworth PRV	SE French Rd. near Ellsworth Water Station	Heights Low	Heights High	12	183	50
Andresen PRV	S. Andresen Rd north of E. Evergreen Blvd. (SR 14)	Heights Low	Heights High	8	202	45
Bernie Drive PRV	NW Bernie Dr. and NW Fruit Valley Rd.	Vancouver Low	Vancouver High	10	54	78
39th St. PRV 1	W 39th St. and NV Cherry St.	Vancouver Low	Vancouver High	8	102	48
39th St. PRV 2	W 39th St. and NV Cherry St.	Vancouver Low	Vancouver High	3	102	53
Columbia Way PRV	SE Columbia Way, SE of I-5	Vancouver Low	Heights Low	8	17	85
Bella Vista PRV	SR-14, SW of SE Cascade Park Dr. and SE 138th Ave.	Heights Low	Heights High	10	148	55
Evergreen PRV 1	SE Evergreen Hwy, SE of SE 164th Ave.	Evergreen High	Heights High	8	82	119
Evergreen PRV 2	SE Evergreen Hwy, SE of SE 164th Ave.	Evergreen High	Heights High	3	82	124

Table 2.4 Diurnal Curve Coefficients <i>City of Vancouver – Hydraulic Model Update</i>						
Hour	System-Wide		Lincoln High		Terrace High	
	ADD	MDD	ADD	MDD	ADD	MDD
1	0.53	0.79	0.03	0.63	0.04	0.33
2	0.54	0.87	-	0.52	0.03	0.43
3	0.15	0.81	0.04	0.54	0.07	0.98
4	0.22	0.79	0.10	0.72	0.05	1.48
5	0.50	0.98	0.10	0.88	0.07	1.90
6	0.99	1.26	0.26	1.17	0.53	1.75
7	1.43	1.59	0.89	1.52	1.51	1.90
8	1.55	1.53	1.54	1.76	2.01	2.41
9	1.41	1.21	1.76	1.77	1.30	1.66
10	1.38	1.05	1.71	1.46	1.45	0.89
11	1.66	0.89	1.79	1.14	1.40	0.81
12	1.29	0.78	1.53	0.92	1.47	0.68
13	0.75	0.72	1.33	0.84	1.09	0.72
14	0.95	0.66	1.31	0.76	1.15	0.61
15	0.94	0.63	1.06	0.64	0.87	0.38
16	1.44	0.69	1.24	0.60	1.40	0.36
17	1.06	0.68	0.96	0.64	1.58	0.33
18	1.07	0.80	1.22	0.74	1.69	0.41
19	1.15	1.03	1.53	0.88	1.95	0.66
20	1.35	1.12	1.57	1.12	2.26	0.90
21	1.67	1.34	1.41	1.38	1.79	1.15
22	1.03	1.54	1.50	1.48	0.45	1.45
23	0.57	1.26	0.95	1.19	0.07	1.16
24	0.50	0.95	0.34	0.75	0.00	0.61

2.3.2 Fire Flows

The model provided by the City included assigned fire flows for all existing demand nodes. These fire flows were left unchanged. For future model scenarios, fire flows were assigned based on future customer categories to ensure that model fire flow evaluations are based on future customer needs, which are typically more conservative than existing fire flow requirements due to the trend towards higher density development. Chapter 1 summarizes the fire flows required for each customer type.

3.0 MACROCALIBRATION

Macrocalibration is the first step of hydraulic model calibration and its goal is to adjust system controls so that tank cycling and pump flow in the model approximate what was monitored on the SCADA system. For this calibration, the City provided SCADA data for all tanks, pumps, and sources of supply (as available) for 8/12/2013 through 8/19/2013, representing MDD conditions. The City also provided pump flow rates and discharge pressure for each pump and pumps in series at the Water Station 1 pump stations. Pump curves were provided as needed to verify pump design and operation.

In the model, system demands were modified to match what was observed in the field and the model was run for a seven-day simulation using the typical operation controls provided by the City. Model outputs of tank level and pump flows were then compared to the SCADA data on weeklong graphs. Two key aspects of these comparisons are the pattern of cycling at tanks and reservoirs and the area under each graph of pump station flow. The cycling patterns typically indicate control setpoints (i.e. when a pump is called on or off), while the area under the pump flow graph indicates the demand exerted on a particular facility. Additionally, pump flow graphs provide information on pump performance given the hydraulic constraints simulated in the model for use in comparison to actual pump capacity.

Some discrepancies on controls and pumping operation were noted due to the different operational strategy applied during the summer compared to typical operations. These discrepancies were reviewed with the City to discuss operational differences. Adjustments to the model are as follows:

- Water Station 1, Tower Boosters:
 - Turned off Pumps 1 and 2 to prevent overfilling of the 0.25-MG tank;
 - Turned off Pump 4 to correspond with SCADA;
 - Reduced the design head of Pumps 4 & 5 from 106-ft to 80-ft;
 - Set Water Station 1 pipe C factors to 130 to improve pump performance to match pump test data;
- Water Station 1, 1 to 5 BPS:
 - Adjusted controls for Pumps 1, 2, and 3 to correspond with SCADA (the City noted that Pump 1 turns off when Pump 2 turns on);
 - Adjusted the discharge pipe roughness coefficients (C Factors) to 70 in order for pump output to match SCADA;
- Water Station 15: The controls of Wells 1 and 2 were changed to follow the control strategy of Wells 3 and 4, which are currently offline.

With the updated controls, the model macrocalibration results match very closely with the City's SCADA data for all supplies, tanks, and pump stations with available data. An example graph of

tank cycling is included in Attachment A. The updated controls were used in the calibration (discussed below) unless otherwise noted by the City (i.e. a particular supply was off).

For analyzing the system under future demand conditions, any currently closed pumps or supplies (due to the current operational strategy) will be allowed to operate as needed (i.e. to meet higher demands). This excludes pumps or wells that are offline due to condition or actual physical limitations. Additionally, operational controls may be adjusted to maximize supplies as needed. These changes will be noted in the results.

4.0 CALIBRATION

The second step in model calibration is to compare model results to field pressures measured during a series of fire flow tests. This process is used to develop a calibrated hydraulic model by closely matching model-simulated pressures to field pressures when the system is stressed, such as during a fire flow event. The model parameters that are adjusted during this process are primarily the pipeline roughness coefficients although other parameters can also be adjusted as calibration results are generated.

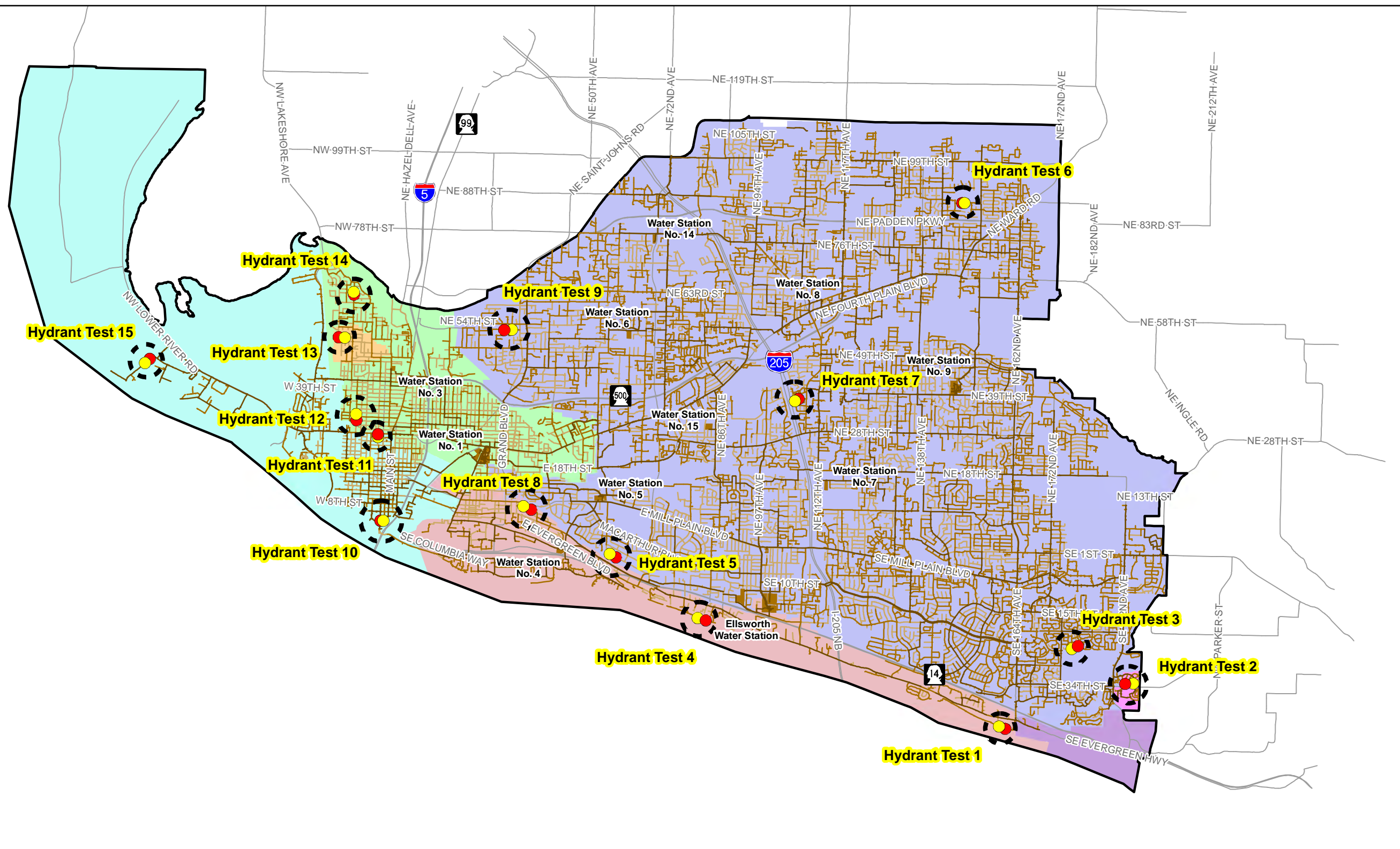
Hazen-Williams roughness coefficients, or C factors, have industry accepted value ranges based on pipeline material, diameter, and age. Characteristics specific to the City's water distribution system such as water quality, temperature, construction methodologies, material suppliers, and other factors may result in roughness coefficients that differ from the average of the industry-accepted ranges. Fire flow calibration refines the value of roughness coefficients that best indicate the conditions of the City's distribution system.

During average day flows, roughness coefficients have a relatively small effect on the operation of the distribution system. However, as the flows increase in the system such as during fire flows, velocity within pipelines increase and roughness coefficients contribute more to overall system head loss. Fire flow tests create high demand events to generate more head loss, allowing a better estimation of the pipeline roughness coefficients.

Fire flow tests stress the distribution system by creating a differential between the hydraulic grade line (HGL) at the point of hydrant flow and the system HGL at neighboring hydrants. This HGL differential increases the effect of the roughness coefficients on system losses and allows adjustments to the model to match model pressures to field pressures within an acceptable tolerance. As the model is adjusted to match system pressures, roughness coefficients should be adjusted only within a tolerance of industry accepted roughness coefficient ranges. If a model is unable to match the calibration results without leaving the acceptable range of roughness coefficient values for a given pipeline material and age, there may be cause for further investigation of a previously unknown field condition. Examples of such conditions, which typically arise during hydraulic model calibration, include closed valves, partially closed or malfunctioning valves, and extreme corrosion within pipelines.

City staff conducted fifteen hydrant flow tests in late July and early August of 2013. The sites were selected so that each fire flow test was conducted in a different pressure zone and so that the locations were not near pump stations, valves, or storage facilities, if possible. Locations for each fire flow test are shown on Figure 2.1. Each fire test was conducted by first measuring static pressures at a “pressure” hydrant. Next, a nearby “flowing” hydrant was opened to release a large amount of flow and to cause a significant head loss and pressure drop. With the flowing hydrant open, measurements were recorded to quantify the flow rate from the hydrant, and to determine the residual pressure of the pressure hydrant. The City also provided the daily demand and SCADA data to establish “boundary conditions” for relevant facilities in the vicinity of the fire flow test, including applicable supply sources, tanks, and booster pump stations.

Two model simulations, or scenarios, were created in the hydraulic model for each fire flow test. The first scenario was called the "static" run, which simulated the water system just prior to when the test hydrant was opened. The second scenario, referred to as the "residual" run, simulated the system during the test while the hydrants were flowing. Fifteen tests were performed on the system and therefore 30 computer simulations were created to calibrate the model. Simulations were conducted under steady state analysis. The system demands in the model were scaled globally to match the system demands for the day and time of day for each test performed. Tank levels, and the operational status (i.e., open or closed) of wells and booster pumps were also adjusted in each fire test scenario to match the actual conditions as recorded during the tests. The residual model scenarios are identical to the appropriate static model scenarios, except that fire flow demands were added to the appropriate nodes.



Legend

Hydrant Tests	Pipelines by Diameter	Water Station	Pressure Zones	Heights Low	Vancouver High
Flow	6" and Smaller	Major Streets	Evergreen High	Lincoln High	Vancouver Low
Pressure	7" - 10"	Retail Water Service Area Boundary	Heights High	Terrace High	
Hydrant Test Area	12" and Larger				

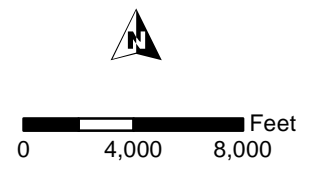


Figure 2.1
Hydrant Test Map
 Water System Comprehensive Plan
 City of Vancouver



4.1 Model Calibration Results

A detailed summary of the initial calibration results is shown in Table 2.5. The table lists the results of each field test conducted and the corresponding hydraulic model results. The results are considered acceptable if the model-simulated pressures have less than a 10 percent difference to the field data. Model pressures within 5 psi or 5 percent of the field measurements are considered very good. As shown in Table 2.5, all of the modeled static pressures were within the acceptable range and the majority of tests were very good. This indicates that the model has accurate elevation information.

For the residual tests, only five of the fifteen tests had acceptable residual pressures in the initial calibration runs. Nine of the residual tests show more than 25% higher pressures in the model than those observed in the field. For example, for Test 1, the model predicted a residual pressure of 82 psi, while observed pressures were 56 psi. Such large discrepancies will not typically be improved by adjusting the C factors of pipes, and usually indicate either incorrect boundary conditions or closed pipes. Lowering the C factors of nearby pipes to slightly lower values was initially explored for the tests, but this yielded little improvement to the model results. Several steps were taken to resolve the residual pressure discrepancies, as described below.

4.1.1 Check for Duplicate Pipes

Initial versions of the City's hydraulic model showed several locations of duplicate pipes where only one pipe should exist. Duplicate pipes provide additional hydraulic distribution capacity and could result in less head loss during the fire flow tests. The model was closely reviewed for duplicate pipes in the general vicinity of each hydrant test to ensure these had been removed in the latest versions of the model. No duplicate pipes were found for the hydrant tests.

4.1.2 Adjusting Boundary Conditions

Next, the model was used to adjust the supplies in and out of the zone in which the test occurred. For several tests, the supply or pump flow rate that establishes the boundary conditions was unknown due to metering issues. For example, the flow meters at the Ellsworth Booster Pump Station 1 and Water Station 9 were out of service. Additionally, flow through PRVs is generally not metered in the City and may affect the results. For tests with residual pressure discrepancies, pump stations, supplies, and PRVs were adjusted to observe the effects on the hydrant flow test. Adjusting the boundary conditions had little impact on the final results for all tests.

Table 2.5 Model Calibration – Hydrant Tests
City of Vancouver – Hydraulic Model Update

Test Number	Zone	Flow Hydrant Flow (gpm)	Static Pressure – C = 110 for all Pipes				Residual Pressure – C = 110 for all Pipes				Field Pressure Drop	Selected C Factors for Zone	Residual Pressure – Assigned C Factors for Zone (Final Model Calibration)			
			Field (psi)	Model (psi)	Difference ⁽¹⁾		Field (psi)	Model (psi)	Difference ^{(1) (2)}				Field (psi)	Model (psi)	Difference ⁽¹⁾	
					(psi)	%			(psi)	%					(psi)	%
1	HL	1,928	110	114	4	4	56	82	26	46	54	70	56	58	2	4
2	TH	2,005	74	74	0	0	62	67	5	8	12	80	62	62	0	0
3	HH	1,793	62	61	2	2	55	54	-1	-2	7	110	55	54	-1	-2
4	HL	1,520	110	117	7	6	52	90	38	73	58	60	52	53	1	2
5	HH	839	44	41	-3	-7	23	31	8	3	21	90	23	24	1	4
6	HH	1,736	60	59	-1	-2	42	49	7	17	18	90	42	43	1	2
7	HH	1,453	92	92	0	0	76	83	7	9	16	90	76	78	2	3
8	HL	1,453	64	63	-1	-2	42	56	14	33	22	60	42	42	0	0
9	HH	1,876	72	74	2	3	45	61	16	36	27	70	45	48	3	7
10	VL	1,793	84	84	0	0	63	80	17	27	21	45	63	64	1	2
11	VL	1,418	48	50	2	3	22	45	23	105	26	40	22	21	-1	-5
12	VH	1,928	92	96	4	4	86	88	2	2	6	110	86	88	2	2
13	LH	839	61	61	0	0	28	41	13	46	33	85	28	29	1	4
14	VH	1,228	69	67	-2	-3	30	41	11	37	39	95	30	32	2	7
15	VL	2,005	82	87	5	6	30	67	37	123	52	60	30	29	-1	-3

Notes:

(1) Target of less than 10 psi and less than 10% difference.

(2) Highlighted cells show data that fell outside of the acceptable range.

4.1.3 Adjusting Demands

Secondly, system demands were adjusted to determine the influence of demands on the tests. No improvements to the test results were found. This is expected as system demands are low compared to the actual fire flow test, and therefore have little influence on head loss through pipes.

4.1.4 Checking for Closed Pipes

The next step was to simulate closed pipes in the model. For all tests with residual pressure discrepancies, the model was used to simulate closed pipes in the vicinity of the test. The model produced results that matched very well with the field data when certain pipes were closed. The location of these pipes were provided to the City for field verification. Field crews were dispatched to the location of each hydrant test to locate any closed valves. The staff consulted maps of valves to ensure no valves were omitted. For almost all of the tests, the City found that the pipes assumed to be closed were actually open. A few valves were unable to be located. The City has a valve exercising program that checks the operability of every valve in the system every three years. The City feels confident that valves are very seldom left closed accidentally.

4.1.5 Checking Flow Test Equipment

The City performed six additional tests using a different size flow diffuser. The initial tests were performed using a 4-inch diffuser. The tests were repeated using a 2-inch diffuser and resulted in similar flow recordings. Thus, errors in the testing equipment were ruled out.

4.1.6 Additional Fire Flow Tests

The City performed six additional fire flow tests in the Heights Low and Vancouver Low pressure zones, as summarized in Table 2.6. As seen in the table, these tests resulted in better correlation between the model and the field. However, this result could be ascribed to lower flows resulting in less hydraulic head loss. For example, the initial Test 8 fire flow was 1,453 gallons per minute (gpm), which resulted in a pressure drop of 22 psi. The second Test 8 fire flow was 967 gpm, resulting in pressure drop of 5 psi. For typical model calibration, fire flow tests should drop the pressure by at least 10 psi. Two of the additional tests (Test 4B and 8B) still did not meet the calibration criteria. The additional tests are considered supplemental to the original tests; the original tests are still considered valid and should be used to calibrate the model.

Table 2.6 Model Calibration – Additional Hydrant Tests
City of Vancouver – Hydraulic Model Update

Test Number	Zone	Flow Hydrant Flow (gpm)	Static Pressure – C = 110 for all Pipes				Residual Pressure – C = 110 for all Pipes				Field Pressure Drop	Selected C Factors for Zone	Residual Pressure – Assigned C Factors for Zone (Final Model Calibration)			
			Field (psi)	Model (psi)	Difference ⁽¹⁾		Field (psi)	Model (psi)	Difference ^{(1) (2)}				Field (psi)	Model (psi)	Difference ⁽¹⁾	
					(psi)	%			(psi)	%					(psi)	%
1B	HL	1,136	108	114	6	6	88	91	3	3	20	110	88	91	3	3
4B	HL	1,136	109	113	4	4	82	97	15	18	27	90	82	86	4	5
8B	HL	967	56	62	6	11	51	59	8	16	5	90	51	54	3	6
16	VL	1,203	78	81	3	4	74	79	5	7	4	70	74	76	2	3
17	VL	967	54	57	3	6	50	55	5	10	4	70	50	52	2	4
18	VL	1,212	82	84	2	2	77	80	3	4	5	90	77	79	2	3

Notes:

(1) Target of less than 10 psi and less than 10% difference.

(2) Highlighted cells show data that fell outside of the acceptable range.

4.1.7 Adjusting C Factors

None of the efforts described above (other than the additional tests) resulted in better calibration between the City's hydraulic model and observed field results. The last two alternatives for improving calibration are adjusting pipe size and/or C factors. The City feels confident in the pipe diameters as recorded in the City's GIS data, which was initially used to build the model. Thus adjusting C factors was the final method used.

The C factors in the initial model provided by the City were set to 125 for all pipes. As noted above, these values were reduced to 110 for the hydraulic model calibration. Previous updates to the City's model identified unique C factors based on pipe material and diameter. These were unable to be verified against industry standards and were thus not used.

For each hydrant test, the C factors for all pipes in the hydrant test pressure zone were reduced to simulate the higher head losses in the system that were needed in the field tests. When the model results matched the field results (as close as possible, within 10% or less), the C value was documented, as summarized in Tables 2.5 and 2.6. Given the results of each test, an average C value was selected for each pressure zone, as presented in Table 2.7.

Pressure Zone	Selected C Factor⁽¹⁾
Vancouver Low	60
Vancouver High	100
Heights Low	80
Heights High	90
Lincoln High	85
Terrace High	80

Notes:
(1) Selected C factor is the average of C factors determined for each hydrant test within the zone.

In general, these C values are significantly lower than would be expected. For some tests, the C factors were reduced to values much lower than industry standards (such as the tests in Vancouver Low). However, through the process of elimination discussed previously in this TM, lowering the C factors is the only remaining correction to be applied. This was discussed with City staff to establish the understanding that C factors this low are not actually expected in the water system. Rather, the model requires lower C factors to account for the high head losses observed during the hydrant tests that could be due to a combination of factors, such as pipe roughness, diameter discrepancies or restrictions, and/or closed or blocked pipes.

5.0 SUMMARY

The City's hydraulic model was updated to reflect the latest facility data, operational control strategy, and demands. Future model scenarios were created to evaluate the water system under future conditions. The model was calibrated through both a macrocalibration, using an EPS run to check tank cycling and pump output, and through a series of 15 hydrant tests to check system head loss. For the macrocalibration, the model controls were adjusted so that tank cycling and pump output match those actually experienced during 2013 MDD conditions. For the majority of hydrant tests, the model predicted much higher system residual pressures (and therefore lower head loss) than those observed in the field. After several attempts to correct these issues, pipes in the model were assigned low C factors to reflect the high head loss observed in the field. Using these roughness coefficients results in a calibrated model (within 10 percent accuracy) that can be used to simulate the City's water system.

For all model evaluations, the effect of the unusually low C factors should be considered. System analyses as part of the Water System Comprehensive Plan Update will include additional evaluations that consider higher C factors ($C = 110$) as a check. It is recommended that future model updates include a detailed review of pipe roughness coefficients, closed valves, pipe diameters, and other factors that could influence the system head loss.

Tech Memo No. 2 - Attachment A
MODEL UPDATES

City of Vancouver
Water Model Update Log
Carollo Engineers

Model Received from City on 12-02-2013

"Vancouver model revisions 12-02-2013.zip"

Initial Model Name: "Vancouver water energy model_053112-GIS Update.mxd"

Date	Update
12/31/2013	Added Bookmarks for Water Stations & Calibration Tests
12/31/2013	Imported Selection Sets from previous model
12/31/2013	Changed Facility Sets for 2011 ADD and 2011 MDD to "Entire System" rather than "Intelli-Select"
12/31/2013	Pipe Changes (see "Pipe Corrections Tab")
12/31/2013	Model Renamed: "Vancouver_01-01-2014.mxd"
1/7/2014	Corrected Pump Power and Head Settings
1/7/2014	Corrected PRV elevation, diameter, pressure settings
1/7/2014	Added 39th St. PRV #2
1/7/2014	Added Evergreen Zone by changing Zone attribute for pipes and junctions
2/12/2014	Geocoded demands
2/12/2014	Created 2013 ADD and 2013 MDD Scenarios
2/27/2014	Added diurnal curves: General curve for all zones except Lincoln High and Terrace High, which have unique diurnal curves.
2/27/2014	Activated Node 452149 and Pipe 452150
3/7/2014	Changed initial settings for all PRVs to "Setting"
3/7/2014	Deactivated fictitious "New Tank" in Terrace High
3/7/2014	Changed pump curve for Pump 113P: shut off head from 338 feet to 448 feet (model indicated an invalid pump curve).
3/7/2014	Adjusted pump and well controls to match 2013 peak week SCADA data. "2013_Base" is the control set used for all scenarios (and basis for calibration points)
4/5/2014	Changed all facilities "Phase" = 1. Deactivated selected elements by changing "Phase" to 0.
4/5/2014	Added new demand scenario "2013MDD_SS" for all steady state runs - removes diurnal curves so default diurnal coefficient is 1.
4/7/2014	Revised WS1 Tower Boosters Pumps 4 & 5 to have a reduced pump curve: Shutoff Head = 148, Design Head = 80, High Head = 60 ft
4/9/2014	Set system-wide C factors to 110; Except 1to5 BPS discharge pipe (C=70) as part of macrocalibration
6/18/2014	Corrected zone attributes for pipes at WS 1 using City AutoCAD map (provided by Michelle Henry)
6/23/2014	Added future facilities for planned WS 1 improvements

City of Vancouver

Hydraulic Model - Pipe Corrections

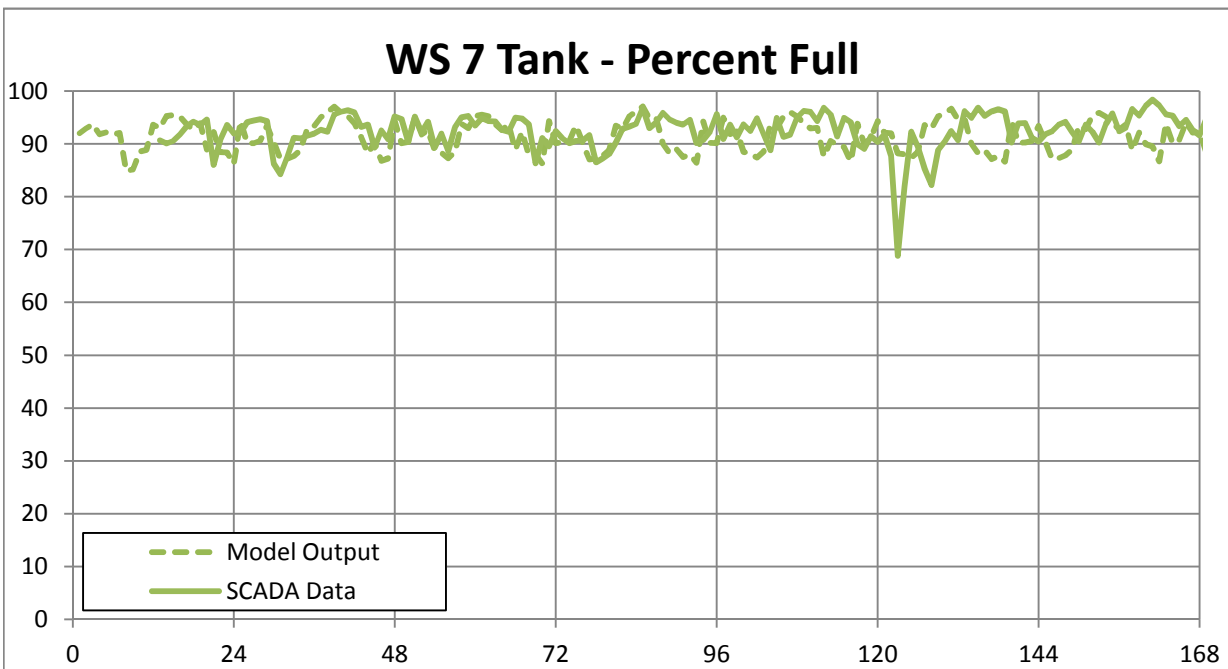
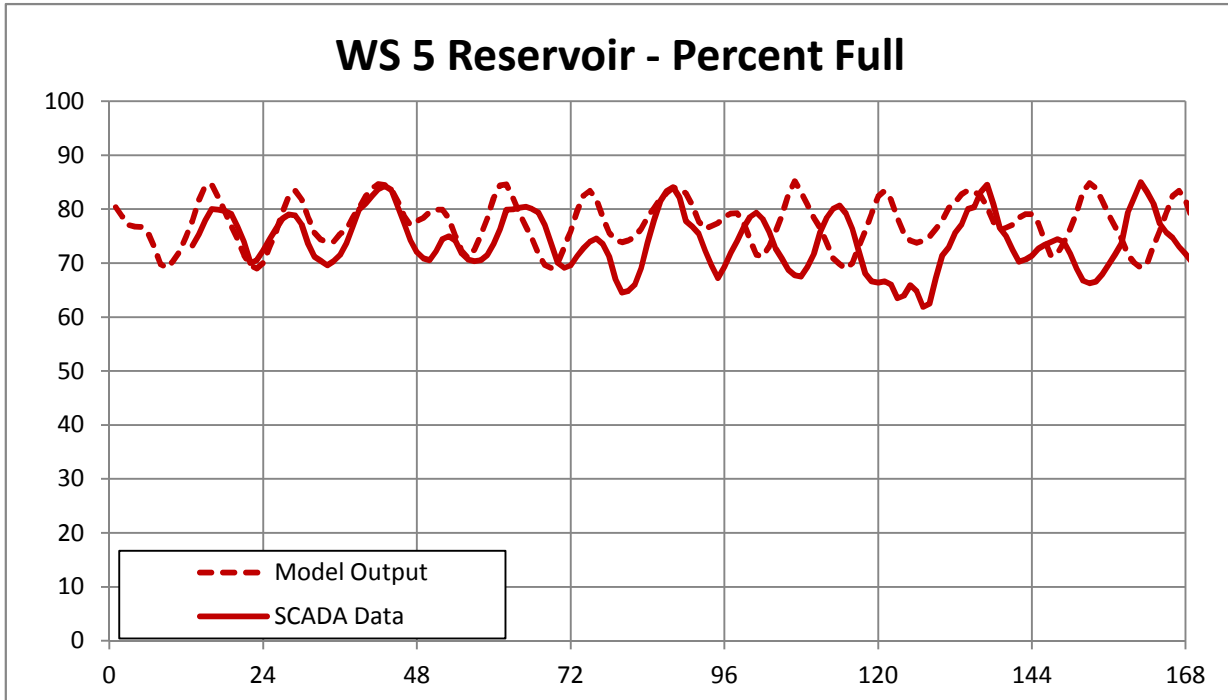
Pipes Closed		Pipes Redrawn				Pipes Deactivated ("Phase" = 0)		New Pipe	Pipe Diameter Correction		
Pipe ID	Notes	Pipe ID	Notes	New Nodes		Pipe ID		Pipe ID	Pipe ID	Existing Diameter	Corrected Diameter
353612	Circular Pumping at WS 1	296315	Pipe Overlap	296282	163197	209272	Duplicate Pipe	P1100	178109	8	24
296287	Drains LH to VL	216318	Pipe Overlap	163409	296257	259714	Duplicate Pipe				
361583	Drains VH to VL	217619	Pipe Overlap	167691	288507	213242	Duplicate Pipe				
296397	Drains HH to VH	212122	Pipe Overlap	150709	315015	P1044					
		211485	Pipe Overlap	357581	150743	P433					
		217541	Pipe Overlap	138217	152728	P435					
		216840	GIS correction	167891	362172	P425					
		216933	GIS correction	362172	147346	P427					
		215643	GIS correction	362123	362168	207927	Duplicate Pipe				
		215721	GIS correction	362168	147344	255650	Duplicate Pipe				
		215719		362161	147353	205237	Duplicate Pipe				
		215646		167885	362161						
		218082		152572	318851						
		351640		153019	351635						
		218646		143431	351627						
		207951									

City of Vancouver
Hydraulic Model - Facility Corrections

Deactivated Facilities		
22517	Reservoir	WS15 Well 3
22518	Reservoir	WS15 Well 4
1503P	Pump	WS15 Well 3 Pump
1504P	Pump	WS15 Well 4 Pump

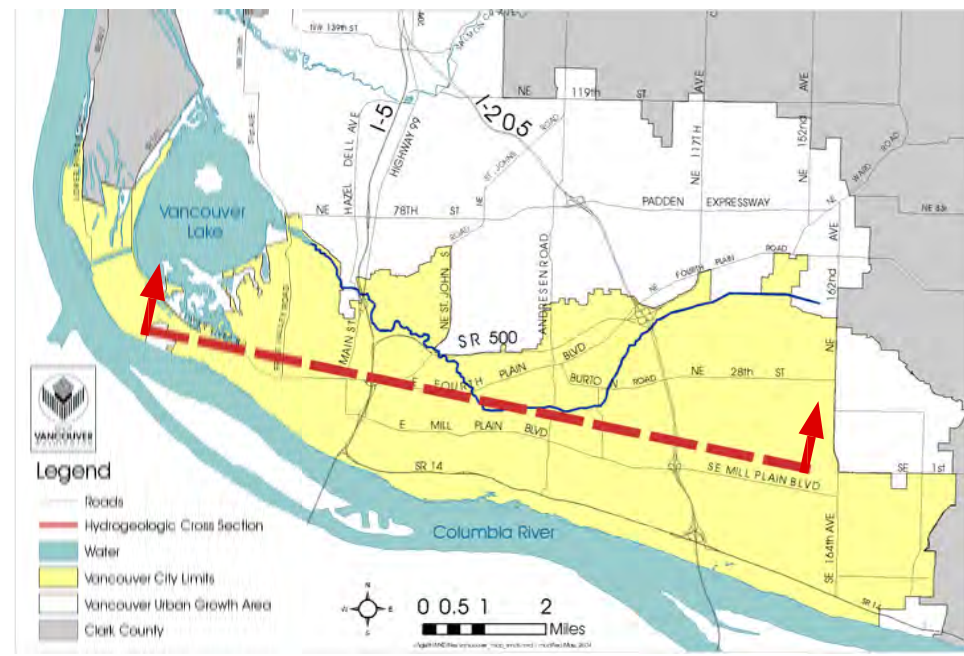
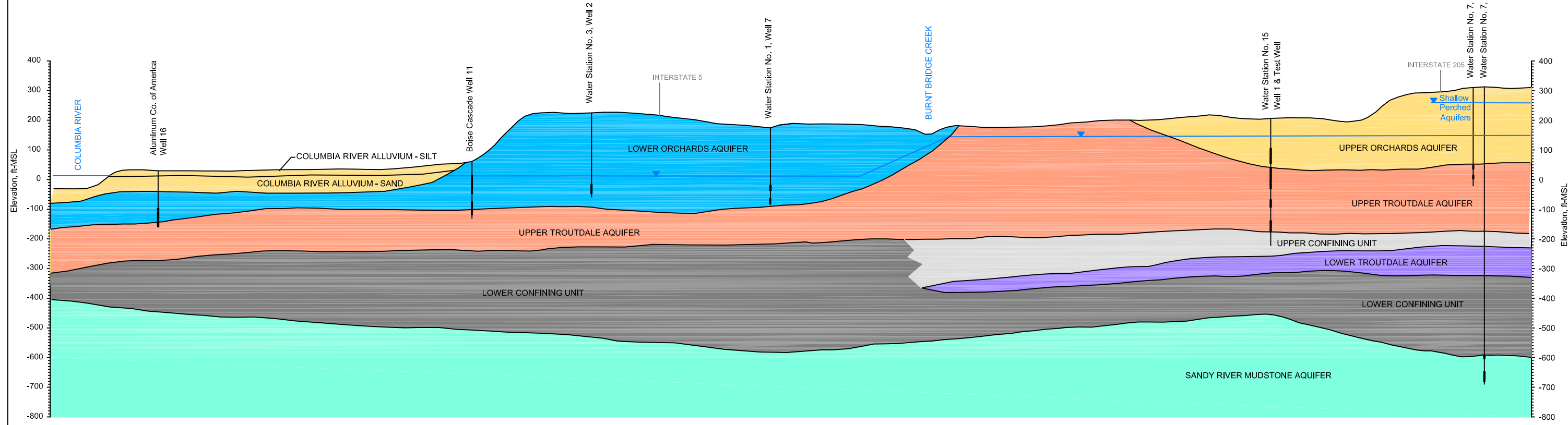
Tech Memo No. 2 - Attachment B
CALIBRATION RESULTS

Macro-Calibration Tank Cycling Example



APPENDIX 3E – HYDROGEOLOGIC CROSS SECTIONS

SOUTH CLARK COUNTY AND VANCOUVER AQUIFERS



HYDROGEOLOGIC UNIT CORRELATION TABLE

VANCOUVER UNIT NAMES	PORTLAND AREA UNIT NAMES
COLUMBIA RIVER ALLUVIUM	TGA TROUTDALE GRAVEL AQUIFER
UPPER/LOWER ORCHARDS AQUIFER	CU1 CONFINING UNIT 1
UPPER TROUTDALE AQUIFER	TSA TROUTDALE SANDSTONE AQUIFER
UPPER CONFINING UNIT	CU2 CONFINING UNIT 2
LOWER TROUTDALE AQUIFER	SGA SAND AND GRAVEL AQUIFER
LOWER CONFINING UNIT	
SANDY RIVER MUDSTONE AQUIFER	

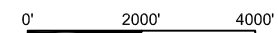
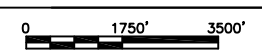


Figure 3-2

Hydrogeologic Cross Section
South Clark County and Vancouver Aquifers
City of Vancouver Comprehensive Water System Plan



FILENAME		SHEET
SCALE		

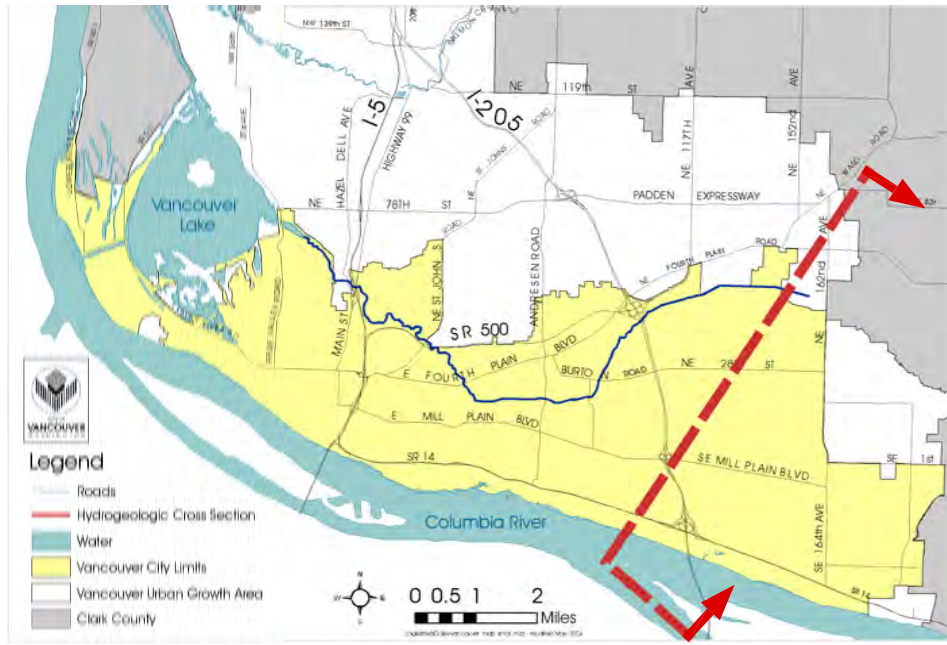
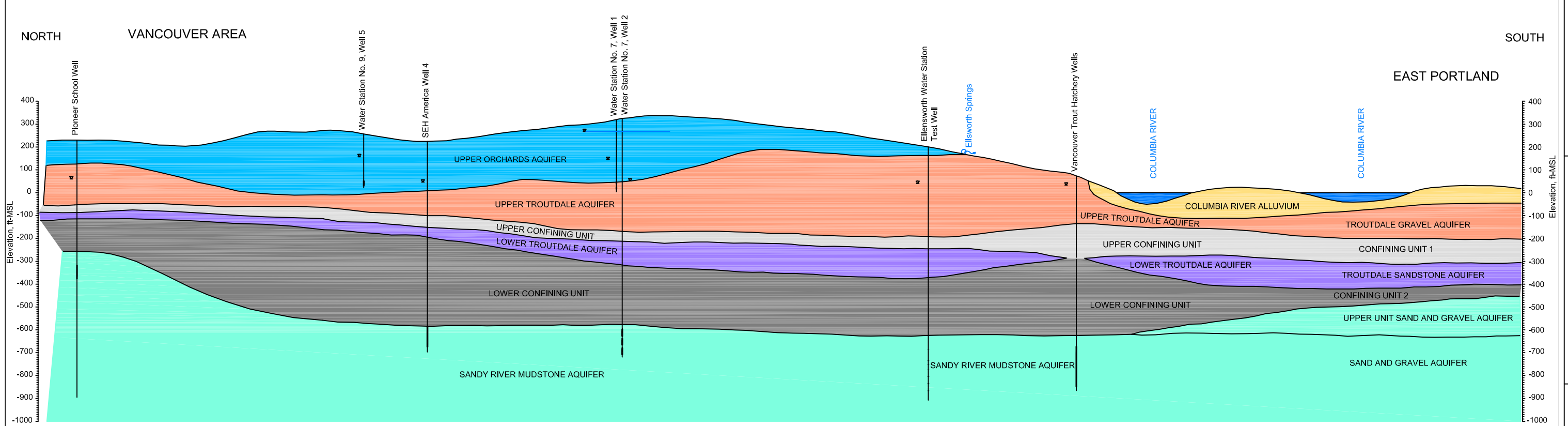


ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	
PROJECT NUMBER	



EASTSIDE VANCOUVER AND PORTLAND AQUIFERS



HYDROGEOLOGIC UNIT CORRELATION TABLE

VANCOUVER UNIT NAMES	PORTLAND AREA UNIT NAMES
COLUMBIA RIVER ALLUVIUM	
UPPER/LOWER ORCHARDS AQUIFER	
UPPER TROUTDALE AQUIFER	TGA TROUTDALE GRAVEL AQUIFER
UPPER CONFINING UNIT	CU1 CONFINING UNIT 1
LOWER TROUTDALE AQUIFER	TSA TROUTDALE SANDSTONE AQUIFER
LOWER CONFINING UNIT	CU2 CONFINING UNIT 2
SANDY RIVER MUDSTONE AQUIFER	SGA SAND AND GRAVEL AQUIFER

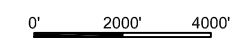
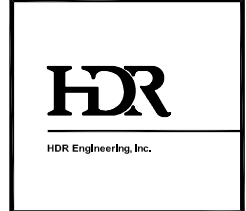


Figure 3-3

Hydrogeologic Cross Section
Eastside Vancouver and Portland Aquifers
 City of Vancouver Comprehensive Water System Plan



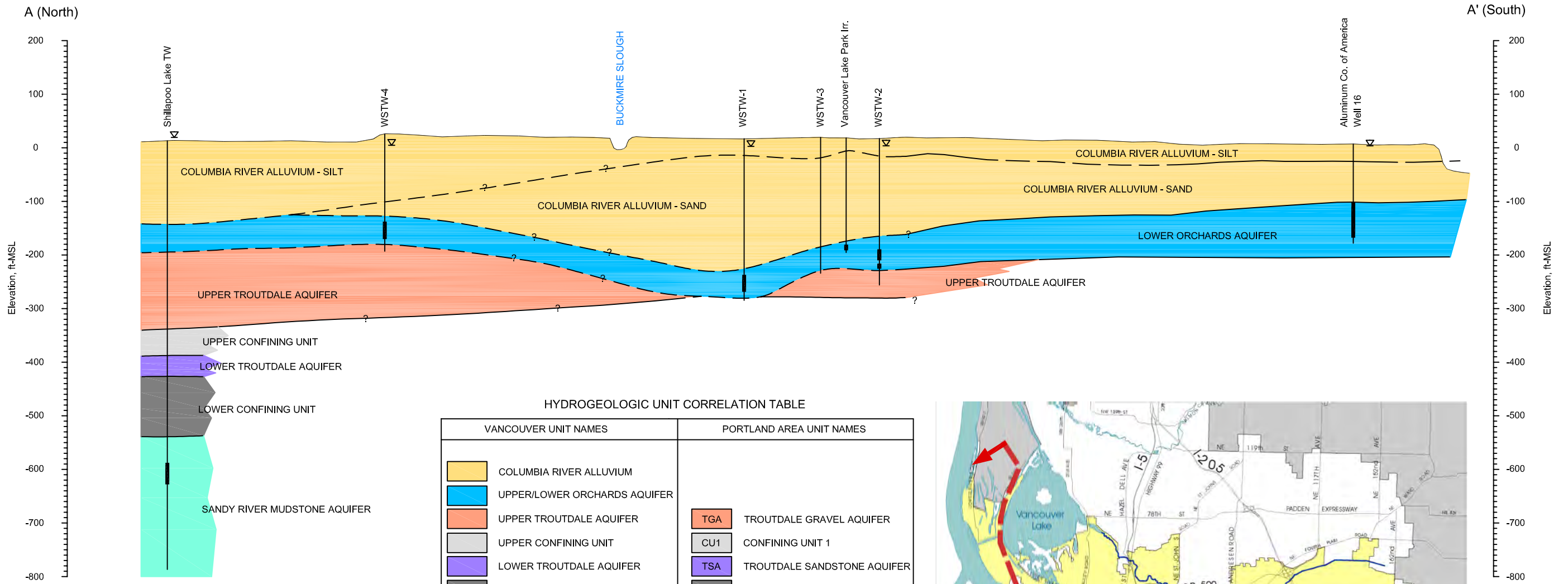
ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	
PROJECT NUMBER	















0 2250' 4500'	FILENAME	SHEET
	SCALE	

VANCOUVER WESTSIDE AQUIFERS



HYDROGEOLOGIC UNIT CORRELATION TABLE

VANCOUVER UNIT NAMES		PORTLAND AREA UNIT NAMES	
	COLUMBIA RIVER ALLUVIUM		TGA TROUTDALE GRAVEL AQUIFER
	UPPER/LOWER ORCHARDS AQUIFER		CU1 CONFINING UNIT 1
	UPPER TROUTDALE AQUIFER		TSA TROUTDALE SANDSTONE AQUIFER
	UPPER CONFINING UNIT		CU2 CONFINING UNIT 2
	LOWER TROUTDALE AQUIFER		SGA SAND AND GRAVEL AQUIFER
	LOWER CONFINING UNIT		
	SANDY RIVER MUDSTONE AQUIFER		

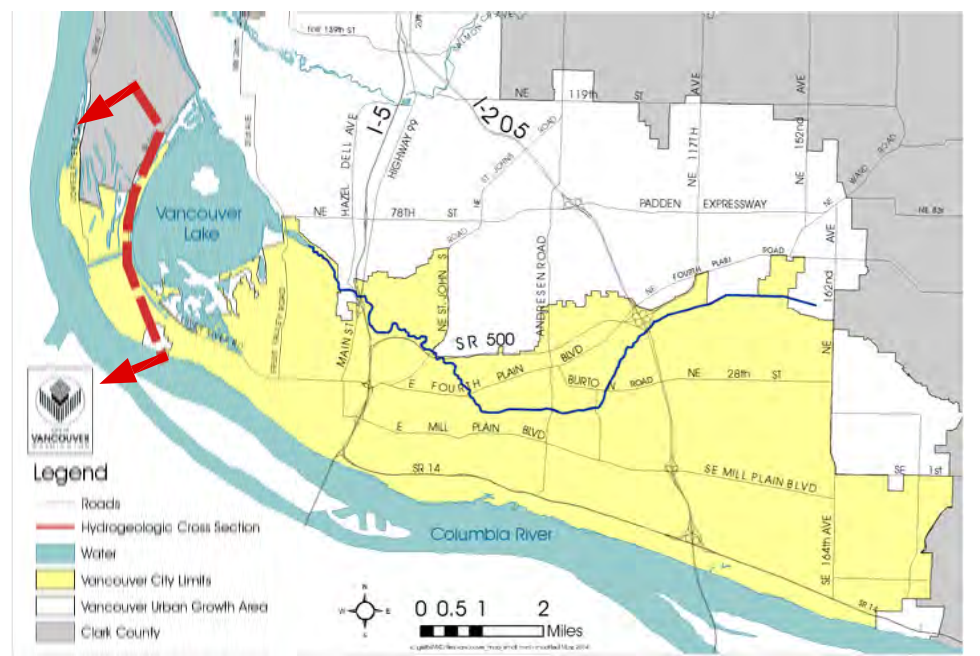
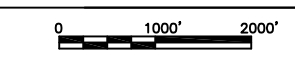


Figure 3-4
Hydrogeologic Cross Section
Vancouver Westside Aquifers
City of Vancouver Comprehensive Water System Plan



ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	
PROJECT NUMBER	



FILENAME		SHEET
SCALE		

APPENDIX 3F – ERU CAPACITY CALCULATION

APPENDIX 3F - ERU CAPACITY CALCULATION

WORKSHEET 6-1: ERU Determinations

Average Day Demand (ADD, gpd/ERU):	223
Maximum Day Demand (MDD, gpd/ERU):	468

Physical Capacity as ERUs	
Water System Component (Facility)	Calculated Capacity in ERUs for each component
Sources: Treatment/Well Pumping/Qa of Sources	201,166
Sources: Treatment/Well Pumping/Qi of Sources	188,490
Equalizing Storage ¹	231,333
Standby Storage	151,726
Distribution & Transmission	123,852
Water System Physical Capacity (ERUs) = (based on the limiting water system component shown above)	123,852

APPENDIX 4A – COPIES OF WATER RIGHTS CERTIFICATES

9501300165

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

9-

Original at Central Records **CERTIFICATE OF WATER RIGHT**

Surface Water (issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

Ground Water (issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE August 13, 1986	APPLICATION NUMBER G2-27460	PERMIT NUMBER G2-27460	CERTIFICATE NUMBER G2-27460
----------------------------------	--------------------------------	---------------------------	--------------------------------

NAME
City of Vancouver

ADDRESS (STREET) (CITY) (STATE) (ZIP CODE)
Post Office Box 1995 Vancouver Washington 98668-1995

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown, but is limited to an amount actually beneficially used.

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Well 7, Water Station 9

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 2,500	MAXIMUM ACRE-FEET PER YEAR 2,016 (supplemental)
-------------------------------	-------------------------------------	--

QUANTITY, TYPE OF USE, PERIOD OF USE
2,016 acre-feet per year (supplemental to existing rights at Station 9) Municipal supply Year-round, as needed

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL
190 feet north and 1660 feet west of the southeast corner of Section 14.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	SECTION 14	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 2E	W.R.L.A. 28	COUNTY Clark
---	---------------	------------------	------------------------------	----------------	-----------------

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
-----	-------	------------------------------------

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by City of Vancouver.

389

City of Vancouver
P.O. Box 1995
Vancouver, WA 98668-1995

PROVISIONS

"The subject well shall generally be operated in rotation with other wells at Water Station 9 (WS 9). Total pumping from all WS 9 wells shall not exceed the 8,372 gpm authorized under earlier WS 9 rights, except during peak water system demand conditions."

"The annual quantity from the subject well shall be supplemental to quantities granted on WS 9 Certificates No. G2-00854C, G2-22659C, G2-25711C, and G2-25712C. The annual quantity withdrawn from all WS 9 wells combined shall not exceed 8,065.5 acre-feet per year (2.628143 billion gallons per year)."

"This permit authorizes operation of Well #7 only under the following conditions:

- 1) senior water rights are not impaired;
- 2) static water levels in Monitoring Well #1 remain at or above 140 feet elevation relative to mean sea level (msl);
- 3) the overall pumping regime at WS 9 allows for an annual cycle of water level recovery; and
- 4) there is no progressive decline of water levels from year to year."

"The Department of Ecology may revise the minimum water level specified above, if necessary to remedy or prevent undesirable impacts. The City will be consulted and advised prior to such revision."

(provisions continued on page 3)

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Olympia, Washington,

this 29th day of December, 19 94.

Mary Riveland, Director

Department of Ecology

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ENGINEERING DATA
OK VI

by Jill Blomstrom

FOR COUNTY USE ONLY

Provisions Continued

"The following data shall be submitted as described below during the permit period, which shall extend at least through April 1, 1995:

Pumping water levels in Well 7, for months when used.

Static water levels in Monitoring Well 1.

Production quantities from Well 7.

Combined production quantities from all WS 9 wells.

Water levels shall be measured and recorded using a consistent methodology, in accordance with accepted industry standards. For Well 7, the length of the pumping period prior to each measurement shall be constant, and shall be included in the record.

INTERVALS FOR DATA RECORDING AND REPORTING:

- a) During peak WS 9 production months (months during which the City pumps 200 million gallons or more), the water-level and production data listed above shall be recorded weekly.
- b) During non-peak WS 9 production months, the water-level and production data shall be recorded monthly.
- c) Data under a) and b) above shall be reported to this office annually during the month of February, or more frequently if requested by Ecology.
- d) If and whenever static water levels in Monitoring Well 1 fall to 140 feet msl or less, water level data shall be recorded daily for at least fourteen days, and reported to this office each month. Continuous data from a water level recorder installed in Monitoring Well 1 may be substituted for separate daily measurements. Another daily monitoring method may be used, subject to Ecology approval.
- e) The City shall immediately notify the Department of Ecology (Southwest Regional Office, Water Resources Section) if static water levels in Monitoring Well 1 fall below 140 feet msl."

"An approved metering device shall be maintained in Well 7 in accordance with RCW 90.03.360, WAC 508-64-020 through -040."

"Maintenance of an access port as described in WAC 173-160-355 is required. An air line and gauge may be installed in addition to the access port."

"Well 7 and Monitoring Well 1 may be physically tagged by the Department of Ecology with unique identification numbers, in connection with the Department's Well Identification Program."

"This permit is subject to implementation of the minimum requirements established in the Interim Guidelines for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology and Conservation Programs, July 1994, and as revised. Accordingly, this permit is subject to 1) fulfillment of any conditions specified by the State Department of Health for approval of Vancouver's water conservation plan, and 2) implementation of said plan."

The quantity authorized by this document for appropriation is considered to be a portion of the amount reserved by the adoption of Chapter 173-592, Reservation of Future Public Water Supply For Clark County. The priority date of this permit is August 13, 1986.

"In accordance with RCW 90.03.330 and 90.44.080, issuance of a final water right certificate will be subject to a showing satisfactory to the Department, that the water has been put to use in compliance with the terms of this permit. The certificate will carry provisions similar to those on the permit, for operating conditions and data reporting. The certificated withdrawal rate and annual quantity will reflect a sustainable yield and protection of senior rights, within the amounts specified on the permit."

STATE OF WASHINGTON
JAN 30 2 55 PM '95

391

AUDITOR
ELIZABETH A. LUCE

STATE OF WASHINGTON, COUNTY OF Clark

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and the rules and regulations of the State Supervisor of Hydraulics thereunder.

THIS IS TO CERTIFY That City of Vancouver, Water Department Vancouver, Washington, has made proof to the satisfaction of the State Supervisor of Hydraulics of Washington, of a right to the use of the ground waters of a Well located within Lot 6, Block 5 of Blair & Darts Addition, Vancouver, Washington

for the purpose of Municipal supply under Ground Water Permit No. 87 issued by the State Supervisor of Hydraulics, and that said right to the use of said ground waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Hydraulics of Washington and entered of record in Volume 1 at page 14-A; that the quantity of ground water to which such right is entitled and hereby confirmed for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 2000 gallons per minute; 2580 acre-feet per year; That the right hereby confirmed dates from January 26, 1946.

~~for the purpose of xxxxxxxxxxxxxxxxxxxxxxx~~

A description of the lands under such right to which the ground water hereby confirmed is appurtenant, and the place where such water is put to beneficial use, is as follows:

City of Vancouver, Clark County, Washington.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Hydraulics affixed this 29th day of July, 19 46

RODNEY RYKER State Supervisor of Hydraulics.

By: [Signature] STA 3, Well, [Signature]

STATE PRINTING PLANT, OLYMPIA, WASHINGTON

STATE OF WASHINGTON, COUNTY OF Clark

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and the rules and regulations of State Supervisor of Hydraulics thereunder.

THIS IS TO CERTIFY That CITY OF VANCOUVER

Vancouver, Washington has filed

the office of the State Supervisor of Hydraulics of Washington Declaration of Claim No. 73

to withdraw ground waters of the State from a Well

located within the SW 1/4 of SE 1/4 of Sec. 23, Twp. 2 N., Rge. 1 E.W.M.

(Tax Lot 2 in Southwest portion of Robert Rockett D.L.C.)

for the purpose of Municipal Supply

The right to the use of said ground waters has been sustained and approved by the Supervisor of Hydraulics in accordance with Chapter 263, Laws of Washington for 1945, and is hereby entered of record in Volume 1 of Ground Water Certificates at page 63; the right approved has a priority of the year 1910; the amount of water which the Declarant is entitled to withdraw for the aforesaid purpose is limited to the amount actually beneficially used and shall not exceed 800 gallons per minute; 172 acre-feet per year; and is appurtenant to the following described lands or place of use:

The City of Vancouver, Clark County, Washington.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Hydraulics affixed this 15th day

April, 1946

RODNEY RYKER

State Supervisor of Hydraulics

By: [Signature]

CERTIFICATE RECORD No. 1 PAGE No. 64 UNDER DECLARATION OF CLAIM No. 74

STATE OF WASHINGTON, COUNTY OF Clark

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and the rules and regulations of the State Supervisor of Hydraulics thereunder.

THIS IS TO CERTIFY That CITY OF VANCOUVER
of Vancouver, Washington has filed
in the office of the State Supervisor of Hydraulics of Washington Declaration of Claim No. 74
to withdraw ground waters of the State from a Pump Well,
located within Tax Lot 2 in Southwest portion of Robert Rockett D.L.C.

for the purpose of Municipal Supply.

The right to the use of said ground waters has been sustained and approved by the Supervisor of Hydraulics in accordance with Chapter 263, Laws of Washington for 1945, and is hereby entered of record in Volume 1 of Ground Water Certificates at page 64; the right approved has a priority of March 1938; the amount of water which the Declarant is entitled to withdraw for the aforesaid purpose is limited to the amount actually beneficially used and shall not exceed 2000 gallons per minute; 2030 acre-feet per year; and is appurtenant to the following described lands or place of use:

City of Vancouver, Clark County, Washington.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Hydraulics affixed this 15th day of April, 1946.

By: RODNEY RYKER
State Supervisor of Hydraulics.
CHAS. J. BARTHOLET, Deputy

STATE OF WASHINGTON, COUNTY OF Clark

Certificate of Ground Water Right

issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and the rules and regulations of State Supervisor of Hydraulics thereunder.

THIS IS TO CERTIFY That CITY OF VANCOUVER

Vancouver, Washington has filed the office of the State Supervisor of Hydraulics of Washington Declaration of Claim No. 75

withdraw ground waters of the State from a Pump Well

located within Tax Lot 2 in Southwest portion of Robert Rockett D.L.C.

(SW $\frac{1}{2}$ of SE $\frac{1}{4}$ of Sec. 23, Twp. 2 N., Rge. 1 E.W.M.)

for the purpose of Municipal Supply

The right to the use of said ground waters has been sustained and approved by the Supervisor of Hydraulics in accordance with Chapter 263, Laws of Washington for 1945, and is hereby entered of record in Volume 1 of Ground Water Certificates at page 65;

the right approved has a priority of January, 1939;

the amount of water which the Declarant is entitled to withdraw for the aforesaid purpose is limited to the amount actually beneficially used and shall not exceed 2000

gallons per minute; 2100 acre-feet per year; and is appurtenant to the

following described lands or place of use:

City of Vancouver, Clark County, Washington.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Hydraulics affixed this 15th day

April, 1946.

RODNEY HYKER
State Supervisor of Hydraulics.

By:

?

CERTIFICATE RECORD No. 1 PAGE No. 66 UNDER DECLARATION OF CLAIM No. 76

STATE OF WASHINGTON, COUNTY OF Clark

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and the rules and regulations of State Supervisor of Hydraulics thereunder.

THIS IS TO CERTIFY That CITY OF VANCOUVER

Vancouver, Washington has filed the office of the State Supervisor of Hydraulics of Washington Declaration of Claim No. 76 withdraw ground waters of the State from a Well located within Tax Lot 2 in Southwest portion of Robert Rockett D.L.C. (S¹/₂ of SE¹/₄ of Sec. 23, Twp. 2 N., Rge. 1 E.W.M.)

for the purpose of Municipal Supply

The right to the use of said ground waters has been sustained and approved by the Supervisor of Hydraulics in accordance with Chapter 263, Laws of Washington for 1945, and is hereby entered of record in Volume 1 of Ground Water Certificates at page 66; the right approved has a priority of September, 1943; the amount of water which the Declarant is entitled to withdraw for the aforesaid purpose is limited to the amount actually beneficially used and shall not exceed 2000 gallons per minute; 2442 acre-feet per year; and is appurtenant to the following described lands or place of use:

City of Vancouver, Clark County, Washington.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Hydraulics affixed this 15th day

April, 1946.

RODNEY RYKER
State Supervisor of Hydraulics.

By: CHAS. J. BARTHOLET, Deputy.

STATE OF WASHINGTON, COUNTY OF Clark

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and the rules and regulations of State Supervisor of Hydraulics thereunder.

THIS IS TO CERTIFY That CITY OF VANCOUVER

Vancouver, Washington has filed the office of the State Supervisor of Hydraulics of Washington Declaration of Claim No. 77

withdraw ground waters of the State from a Pump Well

located within Tax Lot 2 in Southwest portion of Robert Rockett D.L.C.

(SE $\frac{1}{4}$ of SE $\frac{1}{4}$ of Sec. 23, Twp. 2 N., Rge. 1 E.W.M.)

for the purpose of Municipal Supply

The right to the use of said ground waters has been sustained and approved by the Supervisor of Hydraulics in accordance with Chapter 263, Laws of Washington for 1945, and is hereby entered of record in Volume 1 of Ground Water Certificates at page 67; the right approved has a priority of June, 1944; the amount of water which the Declarant is entitled to withdraw for the aforesaid purpose is limited to the amount actually beneficially used and shall not exceed 1200 gallons per minute; 923 acre-feet per year; and is appurtenant to the following described lands or place of use:

City of Vancouver, Clark County, Washington.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Hydraulics affixed this 15th day of April, 1946.

By: RODNEY RYKER
State Supervisor of Hydraulics,

STA 4 well 26

300

81 05150077

CERTIFICATE OF CHANGE OF POINT OF WITHDRAWAL OF GROUND WATER

In accordance with the provisions of Chapter 263, Laws of Washington, for 1945, and the regulations of the State Director of Ecology

THIS IS TO CERTIFY That the City of Vancouver, Washington, has complied with all of the requirements of the revised Code of Washington 90.44.100 and is hereby granted the right to change the point of withdrawal of 2500 gallons per minute, 2472 acre-feet per year, of water as granted under Water Right Claim No. 136134 and Ground Water Certificate No. 386-D.

That 1000 gallons per minute of the 2500 gallons per minute granted under Ground Water Certificate 386-D had been used for the purpose of domestic supply and irrigation of lawns and gardens continuously and had been withdrawn at a point situated within the SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 36, T. 2 N., R. 1 E.W.M. That 1500 gallons per minute of the 2500 gallons per minute granted under Water Right Claim No. 136134 had been used for municipal supply continuously and was withdrawn at a point described as being within the SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 36, T. 2 N., R. 1 E.W.M., Clark County, Washington.

125

That they have changed the two points of withdrawal of said 2500 gallons per minute, 2472 acre-feet per year, to one point of withdrawal, i.e., Well 2B at Station 4, located approximately 705 feet south and 1535 feet west from the northeast corner of Section 36 within the NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 36, T. 2 N., R. 1 E.W.M., Clark County, Washington. That the use of said 2500 gallons per minute is for municipal supply continuously for the area served by the City of Vancouver.

Given under my hand and seal of this office at Olympia, Washington, this 5th day of May, 1981.



E. W. Asselstine
E. W. ASSELSTINE
Regional Supervisor
Southwest Regional Office.

FILED FOR RECORD
CLARK CO. WASH
State of WA,
MAY 15 1 57 PM '81

Depty Ecology
Lu-11
Olympia, WA 98504

RECORDED:
Volume I-2, pp 120
Certificates of Change
AND BY
DON DOTZAUER

RECEIVED

MAY 26 1981

309

81 05150076

CERTIFICATE OF CHANGE OF POINT OF WITHDRAWAL OF GROUND WATER

In accordance with the provisions of Chapter 263, Laws of Washington, for 1945, and the regulations of the State Director of Ecology

THIS IS TO CERTIFY That the City of Vancouver, Washington, has complied with all of the requirements of the revised Code of Washington 90.44.100 and is hereby granted the right to change the point of withdrawal of 2400 gallons per minute, 2312 acre-feet per year, of water as granted under Water Right Claim No. 136135 and Ground Water Certificate No. 388-D.

That 1000 gallons per minute of the 2400 gallons per minute granted under Ground Water Certificate 388 D had been used for the purpose of domestic supply and irrigation of lawns and gardens continuously and had been withdrawn at a point situated within the NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 36, Township 2 North, Range 1 E.W.M. That 1400 gallons per minute of the 2500 gallons per minute granted under Water Right Claim No. 136135 had been used for municipal supply continuously and was withdrawn from a point situated within the NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 36, T. 2 N., R. 1 E.W.M., Clark County, Washington.

124

That they have changed the two points of withdrawal of said 2400 gallons per minute, 2312 acre-feet per year to one point of withdrawal, i.e. Well 3B at Station 4, located approximately 620 feet south and 1585 feet west from the northeast corner of Section 36 being within the NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 36, T. 2 N., R. 1 E.W.M., Clark County, Washington. That the use of said 2400 gallons per minute is for municipal supply continuously for the area served by the City of Vancouver,

and is hereby given under my hand and seal of this office at Olympia, Washington, this 5th day of May, 1981.



E.W. Asselstine
E. W. ASSELSTINE
Regional Supervisor
Southwest Regional Office.

FILED FOR RECORD
CLARK CO. WASH

STATE WA
MAY 15 1 57 PM '81
Deputy Ecology

RECORDED:
Volume I-2, pp 120
Certificates of Change

RON DOTZAUER

44-11
Olympia WA 98504

RECEIVED

MAY 26 1981

- 121 -

DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICE

1001-6

STA 4

CERTIFICATE RECORD No. 4 PAGE No. 1649-A

STATE OF WASHINGTON, COUNTY OF Clark

Certificate of Ground Water Right

in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the regulations of the State Supervisor of Water Resources thereunder.

THIS IS TO CERTIFY That CITY OF VANCOUVER, WATER DEPARTMENT

Vancouver, Washington, has made proof

satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of

and waters of a well

within the NE $\frac{1}{4}$ of NW $\frac{1}{4}$ of NE $\frac{1}{4}$ of Sec. 36, Twp. 2 N., Rge. 1 E.W.M.

for purpose of municipal supply

and subject to provisions contained in Ground Water Permit No. 2130 issued by the State

Supervisor of Water Resources and that said right to the use of said ground waters has been perfected

in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Water

Resources of Washington and entered of record in Volume 4 at page 1649-A;

the right hereby confirmed dates from January 23, 1952; that the quantity of ground

water under the right hereby confirmed for the purposes aforesaid, is limited to an amount actually

being used for said purposes, and shall not exceed 1000 gallons per minute; 1600 acre-feet

per year. ~~for irrigation of xxxxxxxxxxxxxxxxxxxxxxx~~

A description of the lands to which such ground water right is appurtenant, and the place where

water is put to beneficial use, is as follows:

City of Vancouver, Clark County, Washington.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Water Resources affixed this 30th

October, 1953.

M. J. ...
State Supervisor of Water Resources

LONG DATA
11/2/53

STA 4, well 9

CERTIFICATE RECORD No. 4 PAGE No. 1745-A

STATE OF WASHINGTON, COUNTY OF Clark

Certificate of Ground Water Right

in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the regulations of the State Supervisor of Water Resources thereunder.

DOES IS TO CERTIFY That CITY OF VANCOUVER, WATER DEPARTMENT

Vancouver, Washington, has made proof of satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of ground waters of a well

located within Lot 6, Block 5 of Blair & Dart's Addition, Vancouver, Washington, Sec. 2 N., Rge. 1 E.W.M.

for the purpose of municipal supply

and subject to provisions contained in Ground Water Permit No. 1603 issued by the State Supervisor of Water Resources and that said right to the use of said ground waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Water Resources of Washington and entered of record in Volume 4 at page 1745-A

and the right hereby confirmed dates from January 11, 1951; that the quantity of ground water under the right hereby confirmed for the purposes aforesaid, is limited to an amount actually used for said purposes, and shall not exceed 2,000 gallons per minute; 2,580 acre-feet per year.

A description of the lands to which such ground water right is appurtenant, and the place where water is put to beneficial use, is as follows:

City of Vancouver, Clark County, Washington.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or uses herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

IN WITNESS the seal and signature of the State Supervisor of Water Resources affixed this

14 day of February, 1954

Assistant State Supervisor of Water Resources (Signature)

LOS 8, well 12

CERTIFICATE RECORD No. 7 PAGE No. 3437-A

STATE OF WASHINGTON, COUNTY OF Clark

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder.

THIS IS TO CERTIFY That ORCHARDS WATER WORKS, INC.
of Orchards, Washington, has made proof
to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of
the ground waters of two (2) wells
located within the J. G. Gehr D.I.C.
Sec. 10, Twp. 2 N., R. 2 E., W. M.,
for the purpose of community domestic supply and fire protection
under and subject to provisions contained in Ground Water Permit No. 4418 issued by the State
Supervisor of Water Resources and that said right to the use of said ground waters has been perfected
in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Water
Resources of Washington and entered of record in Volume 7 at page 3437-A;
that the right hereby confirmed dates from September 23, 1957; that the quantity of ground
water under the right hereby confirmed for the purposes aforesaid, is limited to an amount actually
beneficially used for said purposes, and shall not exceed 750 gallons per minute; 360 acre-
feet per year for community domestic supply and fire protection.

A description of the lands to which such ground water right is appurtenant, and the place where such water is put to beneficial use, is as follows:

Community of Orchards, Clark County, Washington.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Water Resources affixed this 18th day of September, 1959.

M. J. Walker
State Supervisor of Water Resources.

INDEXING DATA
[Signature]

STA 8, wells 12

CERTIFICATE RECORD No. 10 PAGE No. 4920-A

STATE OF WASHINGTON, COUNTY OF Clark

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder.

THIS IS TO CERTIFY That CITY OF VANCOUVER of Vancouver, Washington, has made proof to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of the ground waters of two (2) wells located within Robert Rocket D.L.C. Sec. 23, Twp. 2 N., R. 1 E.W.M., for the purpose of Municipal supply and manufacturing under and subject to provisions contained in Ground Water Permit No. 5886 issued by the State Supervisor of Water Resources and that said right to the use of said ground waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Water Resources of Washington and entered of record in Volume 10 at page 4920-A; that the right hereby confirmed dates from February 16, 1962; that the quantity of ground water under the right hereby confirmed for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 2,200 gallons per minute; 3,520 acre-feet per year for municipal supply and manufacturing.

Special provisions required by the Supervisor of Water Resources: Issued as a supplemental right to existing Certificates.

A description of the lands to which such ground water right is appurtenant:

City of Vancouver, Clark County, Washington

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929. the seal and signature of the State Supervisor of Water Resources affixed this 18th day of September, 1964.



M. Walker State Supervisor of Water Resources.



STATE OF WASHINGTON
OFFICE OF SUPERVISOR OF WATER RESOURCES
OLYMPIA

NOTICE OF GROUND WATER RIGHT APPLICATION NO. 6180

TAKE NOTICE:

That CITY OF VANCOUVER, WASHINGTON

of ~~XX~~ on February 16, 1962,
filed application for permit to withdraw public ground waters through two (2 wells) Nos. 5 & 6
situated within Robert Rockett D.L.C.

of Section 23, Township 2 N., Range 1 E. W. M., in Clark County,
Area Sub-area Zone
in the amount of 2200 gallons per minute, ~~to the extent of XXXXXXXXXXXXXXX feet~~, subject to
existing rights continuously, each year for the purpose of supply
manufacturing. municipal/and

Any objections must be accompanied by a two dollar (\$2.00) recording fee and filed with the State
Supervisor of Water Resources within thirty (30) days from

(Last date of publication)

Witness my hand and official seal this 28th day of February, 1962.

M. G. WALKER

State Supervisor of Water Resources.



d, well 30

DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION

WATER RIGHT CLAIM

RECEIVED
DEPARTMENT OF ECOLOGY
Well #3
Serial # **2774143754**
CASH OTHER NONE

1. NAME City of Vancouver
ADDRESS 210 East 13th Street
Vancouver, Washington ZIP CODE 98660 PHONE NO. 696-8101

2. SOURCE FROM WHICH THE RIGHT TO TAKE AND MAKE USE OF WATER IS CLAIMED: Ground Water
(SURFACE OR GROUND WATER)
W.R.F.A. 28
(LEAVE BLANK)

A. IF GROUND WATER, THE SOURCE IS well
B. IF SURFACE WATER, THE SOURCE IS _____

3. THE QUANTITIES OF WATER AND TIMES OF USE CLAIMED:
A. QUANTITY OF WATER CLAIMED 1400 PRESENTLY USED 1400 1100
(OR GALLONS PER MINUTE)
B. ANNUAL QUANTITY CLAIMED 2240 PRESENTLY USED 560
(ACRE FEET PER YEAR)
C. IF FOR IRRIGATION, ACRES CLAIMED _____ PRESENTLY IRRIGATED _____
D. TIME(S) DURING EACH YEAR WHEN WATER IS USED Year Around

4. DATE OF FIRST PUTTING WATER TO USE: MONTH August YEAR 1942

5. LOCATION OF THE POINT(S) OF DIVERSION/WITHDRAWAL: 225 FEET West AND 590
FEET South FROM THE NE CORNER OF SECTION NW 1/4 OF SEC 26
BEING WITHIN NW 1/4 OF SECTION 36 T. 2 N. R. 15 (E. 1/4) W.M.
IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, LOT _____ BLOCK _____ OF _____
(GIVE NAME OF PLAT OR ADDITION)

6. LEGAL DESCRIPTION OF LANDS ON WHICH THE WATER IS USED:
Municipal Service Area - Vancouver, Washington & Clark County

COUNTY Clark

7. PURPOSE(S) FOR WHICH WATER IS USED: Municipal Supply

8. THE LEGAL DOCTRINE(S) UPON WHICH THE RIGHT OF CLAIM IS BASED: _____

DO NOT USE THIS SPACE
THE FILING OF A STATEMENT OF CLAIM DOES NOT CONSTITUTE AN APPLICATION
FOR A WATER RIGHT TO USE OF WATER, AS BETWEEN THE WATER USER
CLAIMING AND THE STATE OR AS BETWEEN ONE OR MORE WATER USER CLAIMANTS
AND ANOTHER OR OTHERS. IT IS AN ACKNOWLEDGMENT OF WATER RIGHT FOR
THE PURPOSES OF THE WATER RIGHT CLAIMS REGISTRY ACT.
DATE RETURNED: _____ THE HAS BEEN ASSIGNED
WATER RIGHT CLAIMS REGISTRY LTD.
WA 073186135

I HEREBY SWEAR THAT THE ABOVE INFORMATION IS TRUE AND
ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.
X Eric S. Dier
DATE 6/20/74
IF CLAIM FILED BY DESIGNATED REPRESENTATIVE, PRINT OR TYPE
FULL NAME AND MAILING ADDRESS OF AGENT BELOW.
 ADDITIONAL INFORMATION RELATING TO WATER QUALITY
AND/OR WELL CONSTRUCTION IS AVAILABLE.

A FEE OF \$2.00 MUST ACCOMPANY THIS WATER RIGHT CLAIM
RETURN ALL THREE COPIES WITH CARBONS INTACT, ALONG WITH YOUR FEE TO:
DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION
OLYMPIA, WASHINGTON 98504

STA 4, well 4B



STATE OF WASHINGTON
DEPARTMENT OF WATER RESOURCES
DIVISION OF WATER MANAGEMENT

WATER RIGHT CLAIM

RECEIVED
DEPARTMENT OF GEOLOGY
JUN 27 7 41 43 755
Well # 01156 / NONE
Sta # 4

1. NAME City of Vancouver
ADDRESS 210 East 13th Street
Vancouver, Washington ZIP CODE 98660

2. SOURCE FROM WHICH THE RIGHT TO TAKE AND MAKE USE OF WATER IS CLAIMED: Ground water
(SURFACE OR GROUND WATER)
W.R.I.A. 28
(LEAVE BLANK)

A. IF GROUND WATER, THE SOURCE IS wells
B. IF SURFACE WATER, THE SOURCE IS _____

3. THE QUANTITIES OF WATER AND TIMES OF USE CLAIMED:
A. QUANTITY OF WATER CLAIMED 1400 PRESENTLY USED 1100
(CUBIC FEET PER SECOND OR GALLONS PER MINUTE)
B. ANNUAL QUANTITY CLAIMED 2240 PRESENTLY USED 550
(ACRE FEET PER YEAR)
C. IF FOR IRRIGATION, ACRES CLAIMED _____ PRESENTLY IRRIGATED _____
D. TIME(S) DURING EACH YEAR WHEN WATER IS USED: year around

4. DATE OF FIRST PUTTING WATER TO USE: _____ MONTH August YEAR 1942

5. LOCATION OF THE POINT(S) OF DIVERSION/WITHDRAWAL: 205 FEET west AND
495 FEET South FROM THE NE CORNER OF SECTION NW 1/4 OF Sec 36
BEING WITHIN NW 1/4 OF SECTION 36 T. 2 N. R. 1 E (E. OR W.) W.M.

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY LOT _____ BLOCK _____ OF
(GIVE NAME OF PLAT OR ADDITION)

6. LEGAL DESCRIPTION OF LANDS ON WHICH THE WATER IS USED:
Municipal Service area, Vancouver Washington and Clark County

COUNTY Clark

7. PURPOSE(S) FOR WHICH WATER IS USED: Municipal supply

8. THE LEGAL DOCTRINE(S) UPON WHICH THE RIGHT OF CLAIM IS BASED: _____

THE FILING OF A STATEMENT OF CLAIM DOES NOT CONSTITUTE AN ADJUDICATION OF ANY CLAIM TO THE RIGHT TO USE OF WATERS AS BETWEEN THE WATER USE CLAIMANT AND THE STATE OR AS BETWEEN ONE OR MORE WATER USE CLAIMANTS AND ANOTHER OR OTHERS. THIS ACKNOWLEDGEMENT CONSTITUTES RECEIPT FOR THE FILING FEE.
DATE RETURNED _____ REGISTRY NUMBER _____
THIS HAS BEEN ASSIGNED WATER RIGHT CLAIM REGISTRY NO. 075130138
ASSISTANT DIRECTOR DIVISION OF WATER MANAGEMENT DEPARTMENT OF WATER RESOURCES

HEREBY SWEAR THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF
Eric S. Doe
DATE 6/20/74
IF CLAIM FILED BY DESIGNATED REPRESENTATIVE, PRINT OR TYPE FULL NAME AND MAILING ADDRESS OF AGENT BELOW
 ADDITIONAL INFORMATION RELATING TO WATER QUALITY AND/OR WELL CONSTRUCTION IS AVAILABLE.

Sta 4
well 5B

DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION

WATER RIGHT CLAIM

RECEIVED
DEPARTMENT OF ECOLOGY

JUN 27 1974 143756

CASH OTHER NONE
Well #5
Sta #4

1. NAME City of Vancouver

ADDRESS 210 East 13th Street

Vancouver, Washington ZIP CODE 98660

PHONE NO. 696-8101

2. SOURCE FROM WHICH THE RIGHT TO TAKE AND MAKE USE OF WATER IS CLAIMED: Ground Water
(SURFACE OR GROUND WATER)

W.R. #A. 28
(LEAVE BLANK)

A. IF GROUND WATER, THE SOURCE IS Well

B. IF SURFACE WATER, THE SOURCE IS _____

3. THE QUANTITIES OF WATER AND TIMES OF USE CLAIMED

A. QUANTITY OF WATER CLAIMED 1400 PRESENTLY USED 1100
(CUBIC FEET PER SECOND OR GALLONS PER MINUTE)

B. ANNUAL QUANTITY CLAIMED 2240 PRESENTLY USED 560
(ACRE FEET PER YEAR)

C. IF FOR IRRIGATION, ACRES CLAIMED _____ PRESENTLY IRRIGATED _____

D. TIME(S) DURING EACH YEAR WHEN WATER IS USED Year Around

4. DATE OF FIRST PUTTING WATER TO USE: MONTH August YEAR 1942

5. LOCATION OF THE POINT(S) OF DIVERSION/WITHDRAWAL 225 FEET West AND 590
FEET South FROM THE NE CORNER OF SECTION NW 1/4 of Sec 36
BEING WITHIN NW 1/4 OF SECTION 36 T. 2 N. R. 5E (E. ~~1/4~~) W.M.

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, LOT _____ BLOCK _____ OF _____

(GIVE NAME OF PLAT OR ADDITION)

6. LEGAL DESCRIPTION OF LANDS ON WHICH THE WATER IS USED:
Municipal Service Area of Vancouver, Washington and Clark County

COUNTY Clark

7. PURPOSE(S) FOR WHICH WATER IS USED Municipal Supply

8. THE LEGAL DOCTRINE(S) UPON WHICH THE RIGHT OF CLAIM IS BASED _____

DO NOT USE THIS SPACE
THE FILING OF A STATEMENT OF CLAIM DOES NOT CONSTITUTE AN ADJUDICATION OF ANY CLAIM TO THE RIGHT TO USE OF WATERS AS BETWEEN THE WATER USE CLAIMANT AND THE STATE OR AS BETWEEN ONE OR MORE WATER USE CLAIMANTS AND ANOTHER OR OTHERS. THIS ACKNOWLEDGEMENT CONSTITUTES RECEIPT FOR THE FILING FEE.

DATE RETURNED _____ THIS HAS BEEN ASSIGNED
WATER RIGHT CLAIM REGISTRY NO. _____

MAR 07 1975 136137

DIRECTOR DEPARTMENT OF ECOLOGY

HEREBY SWEAR THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF

Eric S. Chan

DATE 6/20/74

IF CLAIM FILED BY DESIGNATED REPRESENTATIVE, PRINT OR TYPE FULL NAME AND MAILING ADDRESS OF AGENT BELOW

ADDITIONAL INFORMATION RELATING TO WATER QUALITY AND/OR WELL CONSTRUCTION IS AVAILABLE

A FEE OF \$2.00 MUST ACCOMPANY THIS WATER RIGHT CLAIM

RETURN ALL THREE COPIES WITH CARBONS INTACT, ALONG WITH YOUR FEE TO:
DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION
OLYMPIA, WASHINGTON 98504

WS 4 well 6



DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION

WATER RIGHT CLAIM

Well #6
Sta #4 RECEIVED
DEPARTMENT OF ECOLOGY

JUN 27 11 43 757

CASH OTHER NONE

1. NAME City of Vancouver

ADDRESS 210 East 13th Street

Vancouver, Washington ZIP CODE 98660

PHONE NO. 696-8101

2. SOURCE FROM WHICH THE RIGHT TO TAKE AND MAKE USE OF WATER IS CLAIMED: Ground Water
(SURFACE OR GROUND WATER)

W.R. # 228
(LEAVE BLANK)

A. IF GROUND WATER, THE SOURCE IS well

B. IF SURFACE WATER, THE SOURCE IS _____

3. THE QUANTITIES OF WATER AND TIMES OF USE CLAIMED:

A. QUANTITY OF WATER CLAIMED 1200 PRESENTLY USED 800
(CUBIC FEET PER SECOND OR GALLONS PER MINUTE)

B. ANNUAL QUANTITY CLAIMED 1920 PRESENTLY USED 275
(ACRE FEET PER YEAR)

C. IF FOR IRRIGATION, ACRES CLAIMED _____ PRESENTLY IRRIGATED _____

D. TIME(S) DURING EACH YEAR WHEN WATER IS USED: Year Around

4. DATE OF FIRST PUTTING WATER TO USE: MONTH August YEAR 1943

5. LOCATION OF THE POINT(S) OF DIVERSION/WITHDRAWAL: 45 FEET East AND 655

FEET South FROM THE NW CORNER OF SECTION NE 1/4 OF SEC 36

BEING WITHIN NE 1/4 OF SECTION 36 T. 1 N. R. 1 E (E. or W.) W.M.

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, LOT _____ BLOCK _____ OF _____

(GIVE NAME OF PLAT OR ADDITION)

6. LEGAL DESCRIPTION OF LANDS ON WHICH THE WATER IS USED:

Municipal Service Area - Vancouver, Washington & Clark County

COUNTY Clark

7. PURPOSE(S) FOR WHICH WATER IS USED: Municipal Supply

8. THE LEGAL DOCTRINE(S) UPON WHICH THE RIGHT OF CLAIM IS BASED: _____

DO NOT USE THIS SPACE

THE FILING OF A STATEMENT OF CLAIM DOES NOT CONSTITUTE AN ADJUDICATION OF ANY CLAIM TO THE RIGHT TO USE OF WATERS AS BETWEEN THE WATER USE CLAIMANT AND THE STATE OR AS BETWEEN ONE OR MORE WATER USE CLAIMANTS AND ANOTHER OR OTHERS. THIS ACKNOWLEDGEMENT CONSTITUTES RECEIPT FOR THE FILING FEE.

DATE RETURNED _____ THIS HAS BEEN ASSIGNED WATER RIGHT CLAIM REGISTRY NO _____

MAR 6 75 138138

DIRECTOR, DEPARTMENT OF ECOLOGY

I HEREBY SWEAR THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF

Eric S. Davis

DATE 6/20/74
IF CLAIM FILED BY DESIGNATED REPRESENTATIVE, PRINT OR TYPE FULL NAME AND MAILING ADDRESS OF AGENT BELOW

ADDITIONAL INFORMATION RELATING TO WATER QUALITY AND/OR WELL CONSTRUCTION IS AVAILABLE

A FEE OF \$2.00 MUST ACCOMPANY THIS WATER RIGHT CLAIM

RETURN ALL THREE COPIES WITH CARBONS INTACT, ALONG WITH YOUR FEE TO:
DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION
OLYMPIA, WASHINGTON 98504

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION

WATER RIGHT CLAIM

RECEIVED
DEPARTMENT OF ECOLOGY

JUN 27 11 43 73

Well #2
SPECIAL OTHER NONE

1. NAME City of Vancouver

ADDRESS 210 East 13th Street

Vancouver, Washington ZIP CODE 98660

2. SOURCE FROM WHICH THE RIGHT TO TAKE AND MAKE USE OF WATER IS CLAIMED Ground Water
(SURFACE OR GROUND WATER)

W.R.I.A. 28
(LEAVE BLANK)

A. IF GROUND WATER, THE SOURCE IS well

B. IF SURFACE WATER, THE SOURCE IS _____

3. THE QUANTITIES OF WATER AND TIMES OF USE CLAIMED:

A. QUANTITY OF WATER CLAIMED 1500 PRESENTLY USED 1500
(CUBIC FEET PER SECOND OR GALLONS PER MINUTE)

B. ANNUAL QUANTITY CLAIMED 2400 PRESENTLY USED 450
(ACRE FEET PER YEAR)

C. IF FOR IRRIGATION, ACRES CLAIMED _____ PRESENTLY IRRIGATED _____

D. TIME(S) DURING EACH YEAR WHEN WATER IS USED: Year Around

4. DATE OF FIRST PUTTING WATER TO USE MONTH July YEAR 1942

5. LOCATION OF THE POINT(S) OF DIVERSION/WITHDRAWAL 170 FEET West AND 675
FEET South FROM THE NE CORNER OF SECTION NW 1/4 of Sec 36

BEING WITHIN NW 1/4 OF SECTION 36 T. 2 N. R. 1 E (E. OR W.) W.M.

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, LOT _____ BLOCK _____ OF _____

(GIVE NAME OF PLAT OR ADDITION)

6. LEGAL DESCRIPTION OF LANDS ON WHICH THE WATER IS USED _____

Municipal Service Area

Vancouver, Washington

Clark County

COUNTY Clark

7. PURPOSE(S) FOR WHICH WATER IS USED Municipal Supply

8. THE LEGAL DOCTRINE(S) UPON WHICH THE RIGHT OF CLAIM IS BASED: _____

THE FILING OF A STATEMENT OF CLAIM DOES NOT CONSTITUTE AN ADJUDICATION OF ANY CLAIM TO THE RIGHT TO USE OF WATER AS BETWEEN THE WATER USE CLAIMANT AND THE STATE OR AS BETWEEN ONE OR MORE WATER USE CLAIMANTS AND ANOTHER OR OTHERS. THIS ACKNOWLEDGEMENT CONSTITUTES RECEIPT FOR THE FILING FEE.

DATE RETURNED: THIS HAS BEEN ASSIGNED TO WATER RIGHT CLAIM REGISTRY NO. _____

I HEREBY SWEAR THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Eric S. Olson

DATE 6/20/74

IF CLAIM FILED BY DESIGNATED REPRESENTATIVE, PRINT OR TYPE FULL NAME AND MAILING ADDRESS OF AGENT BELOW.

APR 30 1974 10 01 34

DIRECTOR, DEPARTMENT OF ECOLOGY

ADDITIONAL INFORMATION RELATING TO WATER QUALITY AND/OR WELL CONSTRUCTION IS AVAILABLE.

STATE OF WASHINGTON
OFFICE OF THE DIRECTOR OF THE DEPARTMENT OF ECOLOGY
Olympia
CERTIFICATE OF CHANGE OF POINT OF WITHDRAWAL

In accordance with the provisions of the Ground Water Code, Chapter 90.44 and the rules adopted pursuant to this chapter by the State Department of Ecology.

THIS IS TO CERTIFY that the City of Vancouver, Washington has complied with all of the requirements of the revised code of Washington 90.44.100 and is hereby granted the right to change the point of withdrawal of 1400 gallons per minute, 2240 acre-feet per year, of the water of a well recorded in Water Right Claim No. 136137.

The use of said water is for continuous municipal supply of the area served by the City of Vancouver, Washington. Said water was withdrawn from a point described as being 590 feet south and 225 feet west from the northeast corner of the NE 1/4 of Section 36 within the NW 1/4 of Section 36, T. 2 N., R. 1 E.W.M., Clark County, Washington.

That they have changed the point of withdrawal of said 1400 gallons per minute of water, 2240 acre-feet per year to a point described as being approximately 730 feet south and 1430 feet west of the northeast corner of Section 36, being within the NW 1/4 of Section 36, T. 2 N., R. 1 E.W.M. Clark County, Washington.

This certificate of change is approved with the understanding that nothing in said approval should be construed as a validation of the claim to the vested right.

Given under my hand and official seal this April 9, 1985



Clark Haberman
Clark Haberman, Regional Manager
Department of Ecology
SW Regional Office

RECORDED:
Volume I-2, pp 1-2-146
Certificate of Change

FILED FOR RECORD
FILED IN CO. RECORD
CLARK CO. WASH
Dept. of Ecology
APR 11 1 37 PM '85
AUDITOR
DAVID MICHENER
DAVID MICHENER

001216

7272 Clearwater Lane
LU-11
Olympia, Wa. 98504

85 04110113

STATE OF WASHINGTON
OFFICE OF THE DIRECTOR OF THE DEPARTMENT OF ECOLOGY
Olympia
CERTIFICATE OF CHANGE OF POINT OF WITHDRAWAL

In accordance with the provisions of the Ground Water Code, Chapter 90.44 RCW, and the rules adopted pursuant to this chapter by the State Department of Ecology.

THIS IS TO CERTIFY that the City of Vancouver, Washington has complied with all of the requirements of the revised code of Washington 90.44.100 and is hereby granted the right to change the point of withdrawal of 1400 gallons per minute, 2240 acre-feet per year, of the water of the well recorded in Water Right Claim No. 136136.

The use of said water is for continuous municipal supply of the area served by the City of Vancouver, Washington. Said water was withdrawn from a point described as being 495 feet south and 205 feet west from the northeast corner of the NW 1/4 of Section 36 within the NW 1/4 of Section 36, T. 2 N., R. 1 E.W.M., Clark County, Washington.

That they have changed the point of withdrawal of said 1400 gallons per minute of water, 2240 acre-feet per year, to a point described as being approximately 550 feet south and 1580 feet west of the northeast corner of Section 36 being within the NW 1/4 NE 1/4 of Section 36, T. 2 N., R. 1 E.W.M., Clark County, Washington.

This certificate of change is approved with the understanding that nothing in said approval should be construed as a validation of the claim to the vested right.

Given under my hand and official seal this April 9, 1985



Clark Haberman
Clark Haberman, Regional Manager
Department of Ecology
SW Regional Office

RECORDED:
Volume 1-2, pp 145
Certificate of Change

FILED FOR RECORD
CLARK CO. WASH
Dept of Ecology
APR 11 4 37 PM '85

AUDITOR
DAVID MICHENER

215

7272 Cleanwater Lane
Olympia, Wa 98504
LU-11

G 611287 STATE OF WASHINGTON, COUNTY OF Clark 836159

CERTIFICATE OF GROUND WATER RIGHT

(Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology thereunder.)

THIS IS TO CERTIFY That CITY OF VANCOUVER
of Vancouver, Washington, has made proof
to the satisfaction of the Department of Ecology of a right to the use of the public ground waters of
the State of Washington from a well
located within SW 1/4 NE 1/4
Sec. 18, Twp. 2 N., R. 2 E. W.M.,
for the purpose(s) of municipal supply
under and specifically subject to provisions contained in Ground Water Permit No. 9657
issued by the Department of Ecology and that said right to the use of said ground waters has been per-
fected in accordance with the laws of Washington, and is hereby confirmed by the Department of Ecology
and entered of record in Volume _____ at page G 2-00171 C; that the priority of the right hereby confirmed
dates from May 7, 1969; that the quantity of ground water under the right hereby con-
firmed for the aforesaid purposes, is limited to an amount actually beneficially used for said purposes,
and shall not exceed 2,000 gallons per minute; 2,400 acre-feet per year, during
entire year for municipal supply.

A description of the lands to which such ground water right is appurtenant is as follows:
Area served by the City of Vancouver.



The right to use of water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390 and 90.44.020.

This certificate of ground water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and seal of this office at Olympia, Washington, this 17th day
of August, 19 72



mt City of Vance.
210 E 4th St
98660

JOHN A. BIGGS, Director
Department of Ecology

Engineering Data

OK TM

FILED FOR RECORD
CLARK CO. WASH.

State of Wash
AUG 21 12 24 PM '72

AUDITOR DON BONKER, by

R. Jerry Ballen

That CITY of VANCOUVER
of Vancouver, Washington on May 7, 1969
filed application for permit to withdraw public ground waters through a well
situated within Lot 5, of the plat of Northwestern Home Lots
of Section 27, Township 2 N., Range 2 E. W. M., in Clark County,
Area Sub-area Zone
in the amount of 2000 gallons per minute, ~~to the extent of xxxxxxxxxxxxxxxxxx gpm per year~~, subject to
existing rights continuously, each year for the purpose of municipal supply

Any objections must be accompanied by a two dollar (\$2.00) recording fee and filed with the
Department of Water Resources within thirty (30) days from _____
(Last date of publication)

Witness my hand and official seal this 19th day of May, 1969

GLEN H. FIEDLER
Assistant Director
Division of Water Management
Department of Water Resources

G 668456

STATE OF WASHINGTON, COUNTY OF Clark

923878

CERTIFICATE OF GROUND WATER RIGHT

(Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology thereunder.)

THIS IS TO CERTIFY That CITY OF VANCOUVER

of Vancouver, Washington, has made proof to the satisfaction of the Department of Ecology of a right to the use of the public ground waters of the State of Washington from a well located within SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 14, Twp. 2 N., R. 2 E. W.M., for the purpose(s) of community domestic supply under and specifically subject to provisions contained in Ground Water Permit No. 9569 issued by the Department of Ecology and that said right to the use of said ground waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the Department of Ecology and entered of record in Volume G 2-00854 C at page /; that the priority of the right hereby confirmed dates from April 14, 1969; that the quantity of ground water under the right hereby confirmed for the aforesaid purposes, is limited to an amount actually beneficially used for said purposes, and shall not exceed 72 gallons per minute; 30 acre-feet per year for community domestic supply continuously during entire year.

A description of the lands to which such ground water right is appurtenant is as follows:

The E $\frac{1}{2}$ SE $\frac{1}{4}$, the S $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ and N $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ of Sec. 14, T. 2 N., R. 2 E.W.M.; LESS roads.

The right to use of water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390 and 90.44.020.

This certificate of ground water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.



Engineering Data

OK Am

AUDITOR DON BONKER

FILED FOR RECORD
CLERK CO. WASH.

State of Wash
JUL 19 4 16 PM '74 200

JOHN A. BIGGS, Director
Department of Ecology

by R. Jerry Bollen
R. JERRY BOLLEN, Assistant Director

City of Vanc.
210 East 13th
98660

Ground Water Permit No. 9569

Certificate of Ground Water Right

Recorded in the Department of Ecology,

Olympia, Washington, in Book No.

..... of Ground Water Right

Certificates, on page G 2-00854 C, on the

..... 5th day of July

19 74

STATE OF WASHINGTON, }
County of } ss.

I certify that the within was received

and duly recorded by me in Volume

of Book of Water Right Certificates, at

page..... on the day of

....., 19.....

STA 7
well

G 611286

STATE OF WASHINGTON, COUNTY OF Clark

836158

CERTIFICATE OF GROUND WATER RIGHT

(Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology thereunder.)

THIS IS TO CERTIFY That CITY OF VANCOUVER
of Vancouver, Washington, has made proof
to the satisfaction of the Department of Ecology of a right to the use of the public ground waters of
the State of Washington from a well
located within Lot 5, of the Plat of Northwestern Home Lots
Sec. 27, Twp. 2 N., R. 2 E. W.M.,
for the purpose(s) of municipal supply
under and specifically subject to provisions contained in Ground Water Permit No. 9656
issued by the Department of Ecology and that said right to the use of said ground waters has been per-
fected in accordance with the laws of Washington, and is hereby confirmed by the Department of Ecology
and entered of record in Volume - at page 1; that the priority of the right hereby confirmed
dates from May 7, 1969; that the quantity of ground water under the right hereby con-
firmed for the aforesaid purposes, is limited to an amount actually beneficially used for said purposes,
and shall not exceed 1,250 gallons per minute; 1,500 acre-feet per year, during
entire year for municipal supply.

A description of the lands to which such ground water right is appurtenant is as follows:

Area served by the City of Vancouver

SEP 6 1972
CITY

The right to use of water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390 and 90.44.020.

This certificate of ground water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.



Given under my hand and seal of this office at Olympia, Washington, this 17th day of August, 19 72.

John A. Biggs
City of Vancouver
210 E 13th St
98660

JOHN A. BIGGS, Director
Department of Ecology

FILED FOR RECORD
CLARK CO. WASH.

AUG 21 12 24 PM '72

Engineering Data

OK *M*

AUDITOR DON BONKER

by *R. Jerry Bolles*

STA 7, WELL 1

04/20/99 15:12 4070284

005

WS 8 #3

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

- Surface Water** (Classified in accordance with the provisions of Chapter 117, Laws of Washington for 1947, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water** (Classified in accordance with the provisions of Chapter 203, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

CERTIFICATE NUMBER	PERMIT NUMBER	APPLICATION NUMBER	PRIORITY DATE
G2-20646C	G2-20646F	G2-20646	December 4, 1972

NAME CITY OF VANCOUVER			
ADDRESS (STREET)	CITY	STATE	ZIP CODE
210 East 15th St	Vancouver	Washington	98660

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE well
TRIBUTARY OF THE SURFACE WATER(S)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	2,000	1600
QUANTITY, TYPE OF USE, PERIOD OF USE		
1600 acre-foot per year	municipal supply	continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION/WITHDRAWAL
830 feet north and 20 feet east from the southwest corner of Sec. 10

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, 1E. OR R.1E. N.	W. 4E.1E.	COUNTY
J. G. Ober D.L.C. No. 69 within	10	2	2 E	28	Clark

W3W4 RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY WATER TO BE USED ON

Area served by the City of Vancouver; designated as the Town of Orchards.

04/20/99

15:13

4070284

006

PROVISIONS

The access port, as required on your permit, shall be maintained at all times.

Owing to the proximity of neighboring wells, the certificate holder is reminded of his responsibility toward same and advised that he may be required to regulate his withdrawal and pumping rate if existing rights are injuriously affected.

A suitable measuring device shall be installed and maintained in accordance with WAC 308-64-020 through WAC 308-64-040.

The right to the use of the water aforesaid hereby confirmed is restricted to the uses or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Olympia, Washington, this 29th day of May, 1975.

JOHN A. BIGGS, Director
Department of Ecology

ENGINEERING DATA

OK

by R. Jerry Bollen, Assistant Director

FOR COUNTY USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

WS 119

G 739730

CERTIFICATE OF WATER RIGHT

1036489

- Surface Water* (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water* (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

CERTIFICATE NUMBER G2-22659C	PERMIT NUMBER G2-22659P	APPLICATION NUMBER G2-22659	PRIORITY DATE June 14, 1974
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NAME
CITY OF VANCOUVER

ADDRESS (STREET) (CITY) (STATE) (ZIP CODE)
210 East 13th St Vancouver Washington 98660

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
2 wells No. 3 and No. 4

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 2,800	MAXIMUM ACRE-FEET PER YEAR 3,600
QUANTITY, TYPE OF USE, PERIOD OF USE 3,600 acre-feet per year	municipal supply	continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION/WITHDRAWAL
Well No. 3: 1125 feet west and 415 feet north;

Well No. 4: 1175 feet west and 330 feet north;

BOTH from the southeast corner of Sec. 14

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SE$\frac{1}{4}$SE$\frac{1}{4}$	SECTION 14	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 2 E	W.R.I.A. 28	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
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LEGAL DESCRIPTION OF PROPERTY WATER TO BE USED ON

Area served by City of Vancouver Water System.

PROVISIONS

1036490

The access port as required on your permit, shall be maintained at all times.

Owing to the proximity of neighboring wells, the certificate holder is reminded of his responsibility toward same and advised that he may be required to regulate his withdrawal and pumping rate if existing rights are injuriously affected.

The measuring device as required on your Permit shall be maintained at all times.

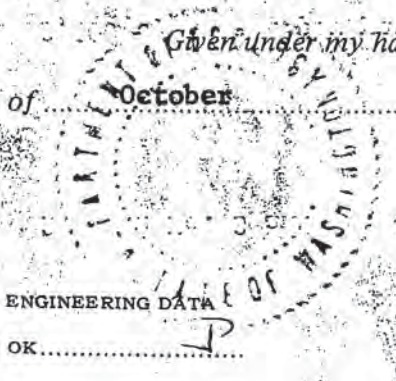
The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Olympia, Washington, this 1st day of October, 19 76

JOHN A. BIGGS, Director
Department of Ecology

by *E. W. Asselstine*
E. W. Asselstine, Regional Manager



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

- Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water (Issued in accordance with the provisions of Chapter 255, Laws of Washington for 1965, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE November 27, 1974	APPLICATION NUMBER G 2-23395	PERMIT NUMBER G 2-23395 P	CERTIFICATE NUMBER G 2-23395 C
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NAME CITY OF VANCOUVER			
ADDRESS (STREET) PO Box 1995	(CITY) Vancouver	(STATE) Washington	(ZIP CODE) 98665

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE Well (water station No. 1, Well No. 7)
TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 2,000	MAXIMUM ACRE-FEET PER YEAR 1,600
QUANTITY, TYPE OF USE, PERIOD OF USE 1,600 acre-feet per year	municipal supply	continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL 1030 feet north and 1250 feet west of the southeast corner of Sec. 23

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SE $\frac{1}{4}$ SE $\frac{1}{4}$	SECTION 23	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 1 E	W.R.L.A. 28	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
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LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Vancouver.

The access port as required on your permit shall be maintained at all times.

Owing to the proximity of neighboring wells, the certificate holder is reminded of his responsibility towards same and advised that he may be required to regulate his withdrawal pumping rate if existing rights are injuriously affected.

A suitable measuring device shall be installed and maintained in accordance with WAC 508-64-020 through WAC 508-64-030.

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Olympia Washington, this...14th... day
ofApril..... 19...78.....

WILBUR G. HALLAUER, DIRECTOR
Department of Ecology

ENGINEERING DATA

OR...*RAB*.....

by *E.W. Asselstine*
E.W. ASSELSTINE, Regional Manager

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

400

CERTIFICATE OF WATER RIGHT 8012010119

- Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE September 10, 1979	APPLICATION NUMBER G 2-25360	PERMIT NUMBER G 2-25360 P	CERTIFICATE NUMBER G 2-25360 C
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NAME CITY OF VANCOUVER			
ADDRESS (STREET) 210 E. 13 St.	(CITY) P.O. Box 1995 Vancouver,	(STATE) Washington	(ZIP CODE) 98663

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE Well 1 Station 14
TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 1000	MAXIMUM ACRE-FEET PER YEAR 807
-------------------------------	------------------------------------	-----------------------------------

QUANTITY, TYPE OF USE, PERIOD OF USE 807 acre-feet per year	municipal supply	continuously
--	------------------	--------------

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL
550 feet south and 930 feet west of the Northeast corner of Section 7.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) NE 1/4 NE 1/4	SECTION 7	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 2E	W.R.I.A. 28	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
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LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Vancouver.

228

Prior to the issuing of this certificate for the 4 new water rights G 2-25360, G 2-25363, G 2-25364, G 2-25365 and the City of Vancouver shall relinquish the water rights for the wells abandoned or not in use for cause that are not programmed for rehabilitation in the city water distribution system to include the old FHA wells taken over by this city and abandoned.

Installation and maintenance of an access port as described in Ground Water Bulletin No. 1 is required. An air line and gauge may be installed in addition to the access port.

At such time that the Department of Ecology determines the regulation and management of the subject waters is necessary and in the public interest, an approved measuring device shall be installed and maintained in accordance with RCW 90.03.360 and WAC 508-64-020 through WAC 508-64-040.

229

City of Vancouver
210 E. 13 St.
Po Box 1995
Vancouver WA 98663

FILED FOR RECORD
CLERK CL WASH
State Wash
DEC 13 20 PM '80
AUDITOR
RON DOTZAUER

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Olympia
November....., 1980.....

Washington, this 17th.... day



JOHN F. SPENCER, Acting Director
Department of Ecology

by *E.W. Asselstine*
E.W. Asselstine, Regional Manager

FOR COUNTY USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

422

CERTIFICATE OF WATER RIGHT 80 12010120

- Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE September 10, 1979	APPLICATION NUMBER G 2-25363	PERMIT NUMBER G 2-25363 P	CERTIFICATE NUMBER G 2-25363 C
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NAME CITY OF VANCOUVER			
ADDRESS (STREET) 210 East 13st, PO Box 1995	(CITY) Vancouver	(STATE) Washington	(ZIP CODE) 98668

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE well No. 3, Station No. 3		
TRIBUTARY OF (IF SURFACE WATERS)		
MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 2000	MAXIMUM ACRE-FeET PER YEAR 1613
QUANTITY, TYPE OF USE, PERIOD OF USE 1613 acre-feet per year	municipal supply	continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL
2375 feet west and 930 feet north of Southeast corner of Section 15.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SW $\frac{1}{4}$ SE $\frac{1}{4}$	SECTION 15	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 1 E	W.R.I.A. 28	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
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LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Vancouver.

230

The access port shall be maintained at all times on the well (s).

At such time that the Department of Ecology determines the regulation and management of the subject waters is necessary and in the public interest, an approved measuring device shall be installed and maintained in accordance with RCW 90.03.360 and WAC 508-64-020 through WAC 508-64-040.

231

me

City of Vancouver
210 East 13st
P. O. Box 1995
Vancouver, WA 98668

FILED FOR RECORD
CLERK CO. WASH.
State Wash
DEC 1 3 20 PM '80
AUDITOR
RON DOTZAUER

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.



Given under my hand and the seal of this office at Olympia Washington, this 24..... day

November....., 19.....80.....

JOHN F. SPENCER, Acting Director
Department of Ecology

by *E. W. Asselstine*
E. W. Asselstine, Regional Manager

ENGINEERING DATA

OF 11-18-80
RES 11-19-80

FOR COUNTY USE ONLY

4^{UL}

CERTIFICATE OF WATER RIGHT

- Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE September 10, 1979	APPLICATION NUMBER G 2-25364	PERMIT NUMBER G 2-25364 P	CERTIFICATE NUMBER G 2-25364 C
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NAME CITY OF VANCOUVER			
ADDRESS (STREET) 210 East 13th Street, PO Box 1995	(CITY) Vancouver	(STATE) Washington	(ZIP CODE) 98663

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE well No. 3 Station No. 6
TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 400	MAXIMUM ACRE-FEET PER YEAR 323
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QUANTITY, TYPE OF USE, PERIOD OF USE 323 acre-feet per year	municipal supply	continuously
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LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL 1440 feet south and 2440 feet west of the Northeast corner of Section 18.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SW $\frac{1}{4}$ NE $\frac{1}{4}$	SECTION 18	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 2 E	W.R.I.A. 28	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
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LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Vancouver.

220

Installation and maintenance of an access port as described in Ground Water Bulletin No. 1 is required. An air line and gauge may be installed in addition to the access port.

At such time that the Department of Ecology determines the regulation and management of the subject waters is necessary and in the public interest, an approved measuring device shall be installed and maintained in accordance with RCW 90.03.360 and WAC 508-64-020 through WAC 508-64-040.

me

City of Vancouver, WA
210 East 13th Street,
Po Box 1995
Vancouver, WA 98663

FILED FOR RECORD
CLERK OF WASH.
State of Wash
DEC 1 3 28 PM '80
AUDITOR
RON DOTZAUER

227-A

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Olympia Washington, this 17th day of November, 19 80



JOHN F. SPENCER, Acting Director
Department of Ecology

by *E.W. Asselstine*
E.W. Asselstine, Regional Manager

FOR COUNTY USE ONLY

400
F

CERTIFICATE OF WATER RIGHT

- Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE September 10, 1979	APPLICATION NUMBER G 2-25365	PERMIT NUMBER G 2-25365 P	CERTIFICATE NUMBER G 2-25365 C
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NAME CITY OF VANCOUVER			
ADDRESS (STREET) 210 East 13th St., PO Box 1995	(CITY) Vancouver	(STATE) Washington	(ZIP CODE) 98663

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE Well No. 9 Station 4		
TRIBUTARY OF (IF SURFACE WATERS)		
MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 800	MAXIMUM ACRE-FEET PER YEAR 645
QUANTITY, TYPE OF USE, PERIOD OF USE 645 acre-feet per year	municipal supply	continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL
600 feet south and 1460 feet west of the Northeast corner of Section 36.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) NW $\frac{1}{4}$ NE $\frac{1}{4}$	SECTION 36	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 1 E	W.R.I.A. 28	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
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LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Vancouver.

225

CERTIFICATE OF WATER RIGHT

- Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE August 11, 1980	APPLICATION NUMBER G2-25710	PERMIT NUMBER G 2-25710 P	CERTIFICATE NUMBER G 2-25710 C
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NAME CITY OF VANCOUVER				
ADDRESS (STREET) 210 East 13th Street	(CITY) PO Box 1995 Vancouver	(STATE) Washington	(ZIP CODE) 98668	

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE well (Station #14 Well #2)
TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 1000	MAXIMUM ACRE-FEET PER YEAR 806.5
QUANTITY, TYPE OF USE, PERIOD OF USE 806.5 acre-feet per year	municipal supply	continuously

083

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL 410 feet south and 920 feet west of the Northeast corner of Section 7.
--

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) NE $\frac{1}{4}$ NE $\frac{1}{4}$	SECTION 7	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 2 E	W.R.I.A. 28	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
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LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Vancouver.

The access port shall be maintained at all times on the well (s).

At such time that the Department of Ecology determines the regulation and management of the subject waters is necessary and in the public interest, an approved measuring device shall be installed and maintained in accordance with RCW 90.03.360 and WAC 508-64-020 through WAC 508-64-040.

MD

City of Vancouver
PO Box 1995
Vancouver, WA 98668

FILED FOR RECORD
CLARK WASH
STATE OF
Dept. of Ecology
SEP 3 1 53 PM '81

AUDITOR
RON DOTZAUER

084

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Witness my hand and the seal of this office at Olympia Washington, this 31st day of August, 19 81



DONALD W. MOOS, Director
Department of Ecology

by *E.W. Asselstine*
E.W. Asselstine, Regional Manager

FOR COUNTY USE ONLY

W 0808

CERTIFICATE OF WATER RIGHT

- Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE August 11, 1980	APPLICATION NUMBER G 2-25711	PERMIT NUMBER G 2-25711 P	CERTIFICATE NUMBER G 2-25711 C
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NAME
CITY OF VANCOUVER

ADDRESS (STREET) (CITY) (STATE) (ZIP CODE)
210 East 13th Street Vancouver Washington 98668

P. O. BOX 1995
This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
well (Well #5 at Station #9)

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 3000	MAXIMUM ACRE-FEET PER YEAR 2419.5
QUANTITY, TYPE OF USE, PERIOD OF USE 2419.5 acre-feet per year	municipal supply	continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL
600 feet North and 1150 feet West of Southeast Corner of Section 14.

221

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SE $\frac{1}{4}$ SE $\frac{1}{4}$	SECTION 14	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 2 E	W.R.I.A. 28	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT BLOCK OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Vancouver.

PROVISIONS

"A list of the wells serving the City of Vancouver water distribution system at this time are listed in the findings of Ground Water Application No. G 2-25710."

The access port shall be maintained at all times on the well (s).

At such time that the Department of Ecology determines the regulation and management of the subject waters is necessary and in the public interest, an approved measuring device shall be installed and maintained in accordance with RCW 90.03.360 and WAC 508-64-020 through WAC 508-64-040.

me

222

City of Vancouver
210 East 13th Street
P.O. Box 1995
Vancouver, Washington 98668

FILED FOR RECORD
CLARK CO, WASH
State of Wash
AUG 24 8 19 PM '81

AUDITOR
RON DOTZAUER

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.



Given under my hand and the seal of this office at Olympia Washington, this 24 day of August, 19 81

DONALD W. MOOS, Director
Department of Ecology

by *E.W. Asselstine*
E.W. Asselstine, Regional Manager

ENGINEERING DATA
OK 8-11-81
AES 8-14-81

FOR COUNTY USE ONLY

40
F

CERTIFICATE OF WATER RIGHT

- Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE August 11, 1980	APPLICATION NUMBER G 2-25712	PERMIT NUMBER G 2-25712 P	CERTIFICATE NUMBER G 2-25712 C
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NAME CITY OF VANCOUVER			
ADDRESS (STREET) PO Box 1995	(CITY) Vancouver	(STATE) Washington	(ZIP CODE) 98668

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE well (well #6, Station # 9)		
TRIBUTARY OF (IF SURFACE WATERS)		
MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 2500	MAXIMUM ACRE-FEET PER YEAR 2016
QUANTITY, TYPE OF USE, PERIOD OF USE 2016 acre-feet per year	municipal supply	continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL
200 feet north and 1540 feet west of the Southeast corner of Section 14.

098

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SW $\frac{1}{4}$ SE $\frac{1}{4}$	SECTION 14	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 2 E	W.R.I.A. 2B	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
-----	-------	------------------------------------

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Vancouver.

PROVISIONS

"A list of wells serving the City of Vancouver water distribution system at this time are listed in the findings of Ground Water Application No. G 2-25710."

The access port shall be maintained at all times on the well (s).

099

MY

City of Vancouver
PO Box 1995
Vancouver, WA 98668

FILED FOR RECORD
CLARK CO WASH

State of Wash

SEP 30 12 20 PM '82

AUDITOR
DAVID MICHENER

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.



Given under my hand and the seal of this office at Olympia Washington, this 22nd day of September, 1982

DONALD W. MOOS, Director
Department of Ecology

ENGINEERING DATA

OF

by *Norman L. Glenn*
Norman L. Glenn, Regional Manager

FOR COUNTY USE ONLY

10-3-82

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

- Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE August 11, 1980	APPLICATION NUMBER G 2-25712	PERMIT NUMBER G 2-25712 P	CERTIFICATE NUMBER
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NAME CITY OF VANCOUVER			
ADDRESS (STREET) 210 East 13th Street PO Box 1995	(CITY) Vancouver	(STATE) Washington	(ZIP CODE) 98668

The applicant is, pursuant to the Report of Examination which has been accepted by the applicant, hereby granted a permit to appropriate the following described public waters of the State of Washington, subject to existing rights and to the limitations and provisions set out herein.

PUBLIC WATER TO BE APPROPRIATED

SOURCE well (well #6, Station # 9)		
TRIBUTARY OF (IF SURFACE WATERS)		
MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 2500	MAXIMUM ACRE-FEET PER YEAR 2016
QUANTITY, TYPE OF USE, PERIOD OF USE 2016 acre-feet per year	municipal supply	continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL 200 feet north and 1540 feet west of the Southeast corner of Section 14.
--

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SW $\frac{1}{4}$ SE $\frac{1}{4}$	SECTION 14	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 2 E	W.R.I.A. 28	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
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LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Vancouver.

DESCRIPTION OF PROPOSED WORKS

Well 20" x 219 feet deep with a 2500 gallons per minute deep well turbine which will pump water to the existing distribution system and existing reservoir at water Station No. 7.

Well is drilled, tested and capped.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE: Started	COMPLETE PROJECT BY THIS DATE: August 1, 1984	WATER PUT TO FULL USE BY THIS DATE: August 1, 1985
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PROVISIONS

"A list of the wells serving the City of Vancouver water distribution system at this time are listed in the findings of Ground Water Application No. G 2-25710."

Installation and maintenance of an access port as described in Ground Water Bulletin No. 1 is required. An air line and gauge may be installed in addition to the access port.

An approved measuring device shall be installed and maintained in accordance with RCW 90.03.360, WAC 508.64.020 through WAC 508-64-040 (Installation, operation and maintenance requirements attached hereto).

A well log of the completed well shall be submitted by the driller to the Department of Ecology within thirty (30) days of completion of this well. This well log shall be complete and all information concerning the static water level in the completed well, in addition to any pump test data, shall be submitted as it is obtained.

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or fail to give notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand and the seal of this office at Olympia Washington, this 15th day of May, 1981

DONALD W. MOOS, Director
Department of Ecology

ENGINEERING DATA
OK 5-11-81
RES 5-12-81

by E.W. Asselstine
E.W. Asselstine, Regional Manager

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

- Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE July 21, 1981	APPLICATION NUMBER G 2-25961	PERMIT NUMBER G 2-25961 P	CERTIFICATE NUMBER G 2-25961 C
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NAME
City of Vancouver

ADDRESS (STREET) 210 East 13th Street (P.O. Box 1995)	(CITY) Vancouver	(STATE) Washington	(ZIP CODE) 98668
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This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown, but is limited to an amount actually beneficially used.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
4 wells (Water Station 15)

TRIBUTARY OF (IF SURFACE WATER)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	5000	4839

QUANTITY, TYPE OF USE, PERIOD OF USE 4839 acre-feet per year	municipal supply	continuously
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LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL
Well field: 140 feet North and 410 feet East of Center of Section 20.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SW 1/4	SECTION 20	TOWNSHIP N. 2	RANGE, (E. OR W.), (R.M.) 2 E	W.A.S.A. 28	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
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LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Vancouver.

PROVISIONS

The access port shall be maintained at all times on the well (s).

An approved measuring device shall be maintained in accordance with RCW 90.03.360, WAC 508.64.020 through WAC 508-64-040 (Installation, operation and maintenance requirements attached hereto).

"A list of wells servicing the City of Vancouver water distribution system at this time are listed in the findings of G 2-25710 with G 2-25712 and this application to be added."

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Olympia, Washington, this...12th... day of October 1987.

Andrea Beatty Riniker, Director
Department of Ecology

Clark Haberman
Clark Haberman, Regional Manager

ENGINEERING DATA

OF *Sam*

FOR COUNTY USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

- Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE July 21, 1981	APPLICATION NUMBER G 2-25961	PERMIT NUMBER G 2-25961 P	CERTIFICATE NUMBER
--------------------------------	---------------------------------	------------------------------	--------------------

NAME CITY OF VANCOUVER			
ADDRESS (STREET) 210 East 13th Street (P.O. Box 1995)	(CITY) Vancouver	(STATE) Washington	(ZIP CODE) 98668

The applicant is, pursuant to the Report of Examination which has been accepted by the applicant, hereby granted a permit to appropriate the following described public waters of the State of Washington, subject to existing rights and to the limitations and provisions set out herein.

PUBLIC WATER TO BE APPROPRIATED

SOURCE 5 wells (Water Station 15)		
TRIBUTARY OF (IF SURFACE WATERS)		
MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 5000	MAXIMUM ACRE-FEET PER YEAR 4839
QUANTITY, TYPE OF USE, PERIOD OF USE 4839 acre-feet per year	municipal supply	continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL Well field: 140 feet North and 410 feet East of Center of Section 20.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SW $\frac{1}{4}$ NE $\frac{1}{4}$	SECTION 20	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 2 E	W.R.L.A. 28	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
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LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Vancouver.

DESCRIPTION OF PROPOSED WORKS

Well field at Pump Station 15; 5 wells connected to distribution system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE: Started	COMPLETE PROJECT BY THIS DATE: August 1, 1986	WATER PUT TO FULL USE BY THIS DATE: August 1, 1987
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PROVISIONS

Installation and maintenance of an access port as described in Ground Water Bulletin No. 1 is required. An air line and gauge may be installed in addition to the access port.

An approved measuring device shall be installed and maintained in accordance with RCW 90.03.360, WAC 508.64.020 through WAC 508-64-040 (Installation, operation and maintenance requirements attached hereto).

A well log of the completed well shall be submitted by the driller to the Department of Ecology within thirty (30) days of completion of this well. This well log shall be complete and all information concerning the static water level in the completed well, in addition to any pump test data, shall be submitted as it is obtained.


"A list of wells servicing the City of Vancouver water distribution system at this time are listed in the findings of G 2-25710 with G 2-25712 and this application to be added."

Permittee is advised that notice of proof of appropriation of water (under which final certificates of water right issues) should not be filed until the permanent diversion facilities have been installed together with a mainline system capable of delivering the recommended quantity of water to an existing or proposed distribution system within the area to be served.

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or fail to give notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand and the seal of this office at Olympia Washington, this....1st..... day of February....., 19 82.....

DONALD W. MOOS, Director
Department of Ecology

by 
E.W. Asselstine, Regional Manager

ENGINEERING DATA

1-25-82
1-26-82 UES



STA 1

City of Vancouver (Water Station #1)
 PO Box 1995
 Vancouver, Washington 98668



STATE OF WASHINGTON
 CERTIFICATE OF WATER RIGHT

Document Title: Certificate of Water Right

Agency: Department of Ecology
 Southwest Regional Office
 P.O. Box 47775
 Olympia, WA 98504-7775

Applicant: City of Vancouver
 (Water Station #1)
 PO Box 1995
 Vancouver, Washington 98668

Reference Number:

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
March 2, 1983	G2-26309	G2-26309	G2-26309

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown, but is limited to an amount actually beneficially used.

PUBLIC WATERS TO BE APPROPRIATED

SOURCE	TRIBUTARY OF (IF SURFACE WATERS)		
6 Wells (8, 9, 10, 11, 12 & 13)			
MAX. CUBIC FEET PER SECOND	MAX. GALLONS PER MINUTE	MAX. ACRE-FEET PER YEAR	
	12000	9678 = 6,000 gpm	

QUANTITY/TYPE OF USE/PERIOD OF USE

258.5 Acre-feet per year (Primary) Municipal supply Year-round, as needed
 9419.5 Acre-feet per year (Supplemental) Municipal supply Year-round, as needed

LEGAL DESCRIPTION OF LOCATION OF DIVERSION/WITHDRAWAL

1/4 1/4	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	W.R.I.A.	COUNTY
S 1/2 SE 1/4	23	2	1E	28	Clark
PARCEL #	N/A				

ADDITIONAL LEGAL IS ON PAGE 2

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

1/4 1/4	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	W.R.I.A.	COUNTY
N/A	N/A	N/A	N/A	38	Clark
PARCEL #	N/A				

ADDITIONAL LEGAL IS ON PAGE 2



CONTINUED LEGAL DESCRIPTION FOR LOCATION OF DIVERSION/WITHDRAWAL

200 feet North and 3500 feet East of the Southwest corner of Section 23.

CONTINUED LEGAL DESCRIPTION FOR PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Vancouver.

PROVISIONS

All conditions and requirements contained in reports of examination or permits previously issued apply to this certificate unless specifically noted below.

An approved metering device shall be installed and maintained in accordance with RCW 90.03.360, 90.44.450 and WAC 508-64-020 through -040, and WAC 508-12-030. Meter readings shall be recorded at least monthly.

Issuance of this water right is subject to the implementation of the minimum requirements established in the Conservation Planning Requirements, Guideline and Requirements for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs, July 1994, and as revised.

Under RCW 90.03.005 and 90.54.020(6), conservation and improved water use efficiency must be emphasized in the management of the State's water resources, and must be considered as a potential new source of water. Accordingly, as part of the terms of this water right, the applicant shall prepare and implement a water conservation plan approved by Department of Health. The standards for such a plan may be obtained from either the Department of Health or the Department of Ecology.

The right to use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.100.

This certificate of water right is specifically subject to relinquishment for non-use of water as provided in Chapter 90.14 RCW.

Given under my hand and the seal of this office at Olympia, Washington,
this 2nd day of November, 2001.



Tom Fitzsimmons, Director
Department of Ecology

By J. Mike Harris
J. Mike Harris, Section Supervisor

ENGINEERING DATA
OK
ECY 040-1-2 (Rev. 8-97)

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT

STAI
well
8,9,10,11,12,13

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

- Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

ISSUANCE DATE March 2, 1983	APPLICATION NUMBER G 2-26309	PERMIT NUMBER G 2-26309 P	CERTIFICATE NUMBER
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NAME
City of Vancouver (Water Station #1)

ADDRESS (STREET)
210 East 13th Street P.O. Box 1995

(CITY) Vancouver (STATE) Washington (ZIP CODE) 98668

The applicant is, pursuant to the Report of Examination which has been accepted by the applicant, hereby granted a permit to appropriate the following described public waters of the State of Washington, subject to existing rights and to the limitations and provisions set out herein.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
5 wells, Nos. 8,9,10,11,12,813

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 12,000	MAXIMUM ACRE-FEET PER YEAR 9,678
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QUANTITY, TYPE OF USE, PERIOD OF USE
258.5 acre-feet per year primary municipal supply continuously
9419.5 acre-feet per year supplemental

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL
200 feet North and 3500 feet East of the Southwest corner of Section 23.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) S4SE4	SECTION 23	TOWNSHIP N. 2	RANGE, 1E. OR W.1 W.M. 1 E.	W.R.I.A. 28	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT BLOCK OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Vancouver.

DESCRIPTION OF PROPOSED WORKS

Additional wells at Water Station No. 1. The 3 recently drilled wells are 20" x 240' 255' & 266' the 3 future wells will also be 20" wells.

STAI
well
8, 9, 10, 11, 12, 13

DEVELOPMENT SCHEDULE

BEFORE PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
	January 1, 1991	January 1, 1992

PROVISIONS

The total annual quantity of water granted to the City of Vancouver under all water rights shall not exceed 44,806 acre-feet per year.

Installation and maintenance of an access port as described in Ground Water Bulletin No. 1 is required. An air line and gauge may be installed in addition to the access port.

Well logs for the completed wells shall be submitted to the Department of Ecology within 30 days. These well logs shall be complete and all information concerning the static water level in the completed wells, in addition to any pump test data, shall be submitted as it is obtained.

All water wells constructed within the state shall meet the minimum standards for construction and maintenance as provided under RCW 18.104 (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Water Wells.)

An approved measuring device shall be installed and maintained in accordance with RCW 90.03.360, WAC 508.64.020 through WAC 508-64-040 (Installation, operation and maintenance requirements attached hereto).

Permittee is advised that notice of proof of appropriation of water (under which final certificates of water right issue) should not be filed until the permanent diversion facilities have been installed together with a mainline system capable of delivering the recommended quantity of water to an existing or proposed distribution system within the area to be served.

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or fail to give notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand and the seal of this office at Olympia, Washington, this 5th day

January 19 1986

Andrea Beatty Riniker, Director
Department of Ecology

by *Clark Haberman*
Clark Haberman, Regional Manager

ENGINEERING DATA

16

CERTIFICATE OF WATER RIGHT

- Surface Water (issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water (issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE August 13, 1986	APPLICATION NUMBER G2-27459	PERMIT NUMBER G2-27459	CERTIFICATE NUMBER G2-27459
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NAME
City of Vancouver

ADDRESS (STREET) (CITY) (STATE) (ZIP CODE)
P.O. Box 1995 Vancouver Washington 98668-1995

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown, but is limited to an amount actually beneficially used.

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Well #3, Station 14

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 1,200	MAXIMUM ACRE-FEET PER YEAR 968 (supplemental)
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QUANTITY, TYPE OF USE, PERIOD OF USE
968 acre-feet per year Municipal Supply Year-round, as needed
(supplemental to existing rights at Station 14)

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL
275 feet south and 914 feet west of the NE corner of Section 7

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) NE $\frac{1}{4}$ NE $\frac{1}{4}$	SECTION 7	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 2E	W.R.I.A. 28	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
-----	-------	------------------------------------

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Vancouver

PROVISIONS

"The annual quantity from the subject well shall be supplemental to quantities granted on existing Certificates No. G2-25360, G2-25710, and any other rights that may be appurtenant to ground water withdrawals at Water Station 14 (WS 14). The total annual quantity withdrawn from wells 1,2, and 3 at WS 14 wells shall not exceed 1,613.5 acre-feet per year (approximately .526 billion gallons per year)."

"Withdrawals from the subject well shall be managed by the City so that there is no ongoing, progressive decline of water levels from year to year."

An approved metering device shall be installed and maintained in accordance with RCW 90.03.360, WAC 508-64-020 through -040 (installation, operation, and maintenance requirements are attached). Meter readings shall be recorded at least monthly.

"Installation and maintenance of an access port as described in WAC 173-160-355 is required in Well 3. An air line and gauge may be installed in addition to the access port."

"Water levels at WS 14 shall be measured and recorded using a consistent methodology, in accordance with accepted industry standards. Such measurements shall be made at least monthly. The length of the pumping period or recovery period prior to each measurement shall be constant, and shall be included in the record."

"A summary of the previous year's monthly water level data and monthly totals of water pumped from WS 14 wells shall be submitted to Ecology's Southwest Regional Office annually during the month of February, or more frequently if request by Ecology."

"This permit is subject to implementation of the minimum requirements established in the Interim Guidelines for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology and Conservation Programs, July 1990, and as revised. Accordingly, this permit is subject to: 1) fulfillment of any conditions specified by the State Department of Health for approval of the City's conservation plans, and 2) implementation of said plan."

The quantity authorized by this document for appropriation is considered to be a portion of the amount reserved by the adoption of Chapter 173-592, Reservation of Future Public Water Supply For Clark County. The priority date of this permit is August 13, 1986.

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Olympia, Washington,

this 13th day of February, 19 95.

Mary Riveland, Director
Department of Ecology

STATE OF WASHINGTON
STATE OF WASHINGTON
FEB 16 12 48 PM '96

ENGINEERING DATA
OK JWH



Linton Aldrich

AUDIT BY
ELIZABETH A. LUCE

FOR COUNTY USE ONLY

O.O. Box 1995
Dan. WA 98668
441

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE August 13, 1986	APPLICATION NUMBER G2-27460	PERMIT NUMBER G2-27460	CERTIFICATE NUMBER
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NAME
City of Vancouver

ADDRESS (STREET) (CITY) (STATE) (ZIP CODE)
Post Office Box 1995 Vancouver Washington 98668-1995

The applicant is, pursuant to the Report of Examination which has been accepted by the applicant, hereby granted a permit to appropriate the following described public waters of the State of Washington, subject to existing rights and to the limitations and provisions set out herein.

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Well 7, Water Station 9

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 2,500	MAXIMUM ACRE-FEET PER YEAR 2,016 (supplemental)
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QUANTITY, TYPE OF USE, PERIOD OF USE
2,016 acre-feet per year Municipal supply Year-round, as needed
(supplemental to existing rights at Station 9)

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL
190 feet north and 1660 feet west of the southeast corner of Section 14.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	SECTION 14	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 2E	W.R.I.A. 28	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT BLOCK OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by City of Vancouver.

DESCRIPTION OF PROPOSED WORKS

Well 7: 24"/20" 18" x 216', with 125-horsepower vertical shaft turbine pump.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE: Started	COMPLETE PROJECT BY THIS DATE: Complete	WATER PUT TO FULL USE BY THIS DATE: July 1, 1996
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PROVISIONS

"The subject well shall generally be operated in rotation with other wells at Water Station 9 (WS 9). Total pumping from all WS 9 wells shall not exceed the 8,372 gpm authorized under earlier WS 9 rights, except during peak water system demand conditions."

"The annual quantity from the subject well shall be supplemental to quantities granted on WS 9 Certificates No. G2-00854C, G2-22659C, G2-25711C, G2-25712C. The annual quantity withdrawn from all WS 9 wells combined shall not exceed 8,065.5 acre-feet per year (2.628143 billion gallons per year)."

"This permit authorizes operation of Well 7 only under the following conditions:

- 1) senior water rights are not impaired;
- 2) static water levels in Monitoring Well 1 remain at or above 140 feet elevation relative to mean sea level (msl);
- 3) the overall pumping regime at WS 9 allows for an annual cycle of water level recovery; and
- 4) there is no progressive decline of water levels from year to year."

"The Department of Ecology may revise the minimum water level specified above, if necessary to remedy or prevent undesirable impacts. The City will be consulted and advised prior to such revision."

(Provisions continued on page 3)

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or fail to give notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand and the seal of this office at Olympia, Washington,

this 19th day of August 19 94

Mary Riveland, Director
Department of Ecology

by Jake Blossation

ENGINEERING DATA

OK JWH

PERMIT 9

Provisions Continued

"The following data shall be submitted as described below during the permit period, which shall extend at least through April 1, 1995:

Pumping water levels in Well 7, for months when used.

Static water levels in Monitoring Well 1.

Production quantities from Well 7.

Combined production quantities from all WS 9 wells.

Water levels shall be measured and recorded using a consistent methodology, in accordance with accepted industry standards. For Well 7, the length of the pumping period prior to each measurement shall be constant, and shall be included in the record.

INTERVALS FOR DATA RECORDING AND REPORTING:

- a) During peak WS 9 production months (months during which the City pumps 200 million gallons or more), the water-level and production data listed above shall be recorded weekly.
- b) During non-peak WS 9 production months, the water-level and production data shall be recorded monthly.
- c) Data under a) and b) above shall be reported to this office annually during the month of February, or more frequently if requested by Ecology.
- d) If and whenever static water levels in Monitoring Well 1 fall to 140 feet msl or less, water level data shall be recorded daily for at least fourteen days, and reported to this office each month. Continuous data from a water level recorder installed in Monitoring Well 1 may be substituted for separate daily measurements. Another daily monitoring method may be used, subject to Ecology approval.
- e) The City shall immediately notify the Department of Ecology (Southwest Regional Office, Water Resources Section) if static water levels in Monitoring Well 1 fall below 140 feet msl."

"An approved metering device shall be maintained in Well 7 in accordance with RCW 90.03.360, WAC 508-64-020 through -040."

"Maintenance of an access port as described in WAC 173-160-355 is required. An air line and gauge may be installed in addition to the access port."

"Well 7 and Monitoring Well 1 may be physically tagged by the Department of Ecology with unique identification numbers, in connection with the Department's Well Identification Program."

"This permit is subject to implementation of the minimum requirements established in the Interim Guidelines for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology and Conservation Programs, July 1994, and as revised. Accordingly, this permit is subject to 1) fulfillment of any conditions specified by the State Department of Health for approval of Vancouver's water conservation plan, and 2) implementation of said plan."

The quantity authorized by this document for appropriation is considered to be a portion of the amount reserved by the adoption of Chapter 173-592, Reservation of Future Public Water Supply For Clark County. The priority date of this permit is August 13, 1986.

"In accordance with RCW 90.03.330 and 90.44.080, issuance of a final water right certificate will be subject to a showing satisfactory to the Department, that the water has been put to use in compliance with the terms of this permit. The certificate will carry provisions similar to those on the permit, for operating conditions and data reporting. The certificated withdrawal rate and annual quantity will reflect a sustainable yield and protection of senior rights, within the amounts specified on the permit."



APPLICATION FOR PERMIT
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

SURFACE WATER GROUND WATER

\$10.00 MINIMUM STATUTORY EXAMINATION FEE REQUIRED WITH APPLICATION

(GRAY BOXES FOR OFFICE USE ONLY)

APPLICATION NO.	W.R.I.A.	COUNTY	PRIORITY DATE	TIME	ACCEPTED
APPLICANT'S NAME - PLEASE PRINT					
City of Vancouver, Washington P.O. Box 1995 Vancouver, WA 98668				Bus. Tel. (206) 696-8223	
ATTN: John Rundquist, P.E.				Home Tel. _____	
ADDRESS (STREET) _____ (CITY) _____ (STATE) _____ (ZIP CODE) _____				Other Tel. _____	

DATE & PLACE OF INCORPORATION IF APPLICANT IS A CORPORATION

1. SOURCE OF SUPPLY

IF SURFACE WATER	IF GROUND WATER
SOURCE (NAME OF STREAM, LAKE, SPRING, ETC.) (IF UNNAMED, SO STATE)	SOURCE (WELL, TUNNEL, INFILTRATION TRENCH, ETC.)
	Well (Sta. 7, Well 2)
TRIBUTARY	SIZE AND DEPTH
	8 1/2-inch diameter, 1,200 feet in depth

2. USE

USE TO WHICH WATER IS TO BE APPLIED (DOMESTIC SUPPLY, IRRIGATION, MINING, MANUFACTURING, ETC.)

Municipal

ENTER QUANTITY OF WATER REQUESTED USING UNITS OF:	CUBIC FEET PER SECOND (CFS)	OR	GALLONS PER MINUTE (GPM)	ACRE FEET PER YEAR
			1,500	

TIMES DURING YEAR WATER WILL BE REQUIRED

All year

IF IRRIGATION, NUMBER OF ACRES	IF DOMESTIC USE, NUMBER OF UNITS BY TYPE, E.G. 1-HOME, 1-MOBILE HOME, 2-CAMPSITES, ETC.	IF MUNICIPAL USE, ESTIMATED POPULATION 20 YEARS FROM TODAY
DATE PROJECT WAS OR WILL BE STARTED	DATE PROJECT WAS OR WILL BE COMPLETED	
November 27, 1989	April, 1990	

3. LOCATION OF POINT OF DIVERSION/WITHDRAWAL

3A. IF IN PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)	SECTION	TOWN	RANGE	ALSO, PLEASE ENCLOSE A COPY OF THE PLAT AND MARK THE POINT(S) OF WITHDRAWAL OR DIVERSION

3B. IF NOT IN PLATTED PROPERTY

ON ACCOMPANYING SECTION MAPS, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION. SHOW NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER OR PROPERTY CORNER.

ALSO, ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL

210 feet South and 125 feet West of NE property corner

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY
SW 1/4, NW 1/4, NW 1/4	27	2N	2E, W.M.	Clark

4. DO YOU OWN THE LAND ON WHICH THIS SOURCE IS LOCATED. IF NOT, INSERT NAME & ADDRESS OF OWNER

5. LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

ATTACH A COPY OF THE LEGAL DESCRIPTION OF THE PROPERTY (ON WHICH THE WATER WILL BE USED) TAKEN FROM A REAL ESTATE CONTRACT, PROPERTY DEED OR TITLE INSURANCE POLICY, OR, COPY CAREFULLY IN THE SPACE BELOW.

The East 250 feet of Lot 5 of Northwestern Home Lots as recorded in Book "C" of Plats at Page 41, Records of Clark County, Washington.

ARE THERE ANY EXISTING WATER RIGHTS RELATED TO THE LAND ON WHICH THE WATER IS TO BE USED (INCLUDING WATER PROVIDED BY IRRIGATION DISTRICTS OR DITCH COMPANIES.)

YES NO

IF YES, FROM WHAT SOURCE (i.e. SURFACE OR GROUND WATER) AND UNDER WHAT AUTHORITY

Existing City well on site.

6. DESCRIPTION OF SYSTEM PROPOSED OR INSTALLED

(FOR EXAMPLE: SIZE OF PUMP, CAPACITY OF PUMP, PUMP MOTOR HORSE POWER, PIPE DIAMETER, NUMBER OF SPRINKLERS, ETC.)

Vertical Turbine pump or submersible - Elevation and horsepower to be determined following test pumping.

REMARKS

7.

IF 10 ACRE-FEET OR MORE OF WATER IS TO BE STORED AND/OR IF THE WATER DEPTH WILL BE 10 FEET OR MORE AT THE DEEPEST POINT, A STORAGE PERMIT MUST BE FILED IN ADDITION TO THIS PERMIT. THESE FORMS CAN BE SECURED, TOGETHER WITH INSTRUCTIONS, FROM THE DEPARTMENT OF ECOLOGY.

SIGNATURES

[Handwritten Signature]

APPLICANT'S SIGNATURE

City of Vancouver, Washington

LEGAL LANDOWNER'S NAME
(PLEASE PRINT)

LEGAL LANDOWNER'S SIGNATURE (OWNER OF PROPERTY DESCRIBED IN ITEM NUMBER 5)

P.O. Box 1995 Vancouver, WA

LEGAL LANDOWNER'S ADDRESS

FOR OFFICE USE ONLY

STATE OF WASHINGTON }
DEPARTMENT OF ECOLOGY } SS.

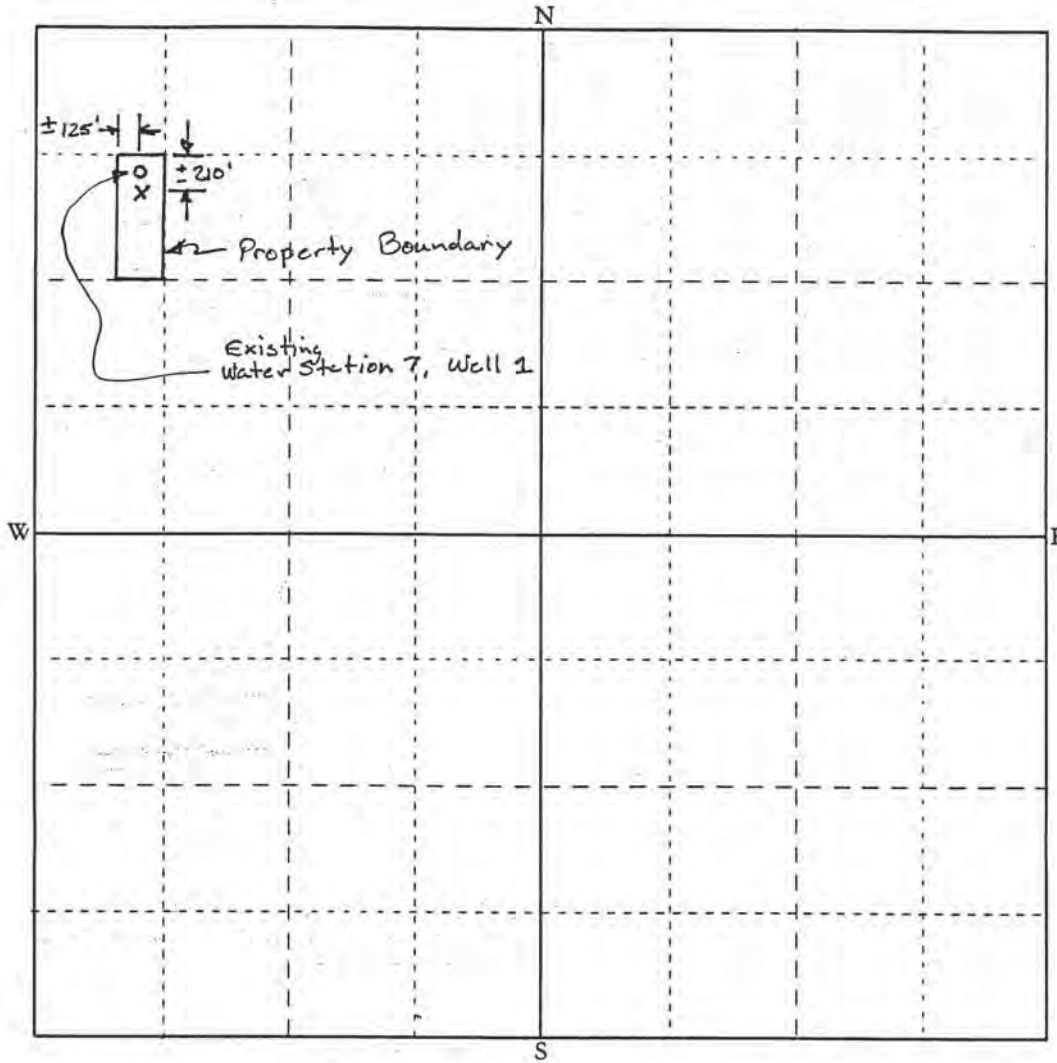
This is to certify that I have examined this application together with the accompanying maps and data, and am returning it for correction or completion as follows:

In order to retain its priority date, this application must be returned to the Department of Ecology, with corrections, on or before....., 19.....

Witness my hand this.....day of....., 19.....

SECTION MAP

Sec. 27 Twp. 2N N. R. 2E W.M.



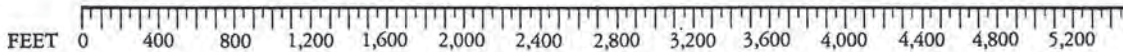
Scale: 1 inch = 800 feet (each small square = 10 acres)

Show by a cross (X) the location of point of diversion (surface water source) or point of withdrawal (ground water source); For ground water applications, show by a circle (O) the locations of other wells or works within a quarter of a mile. Indicate traveling directions from nearest town in space below.

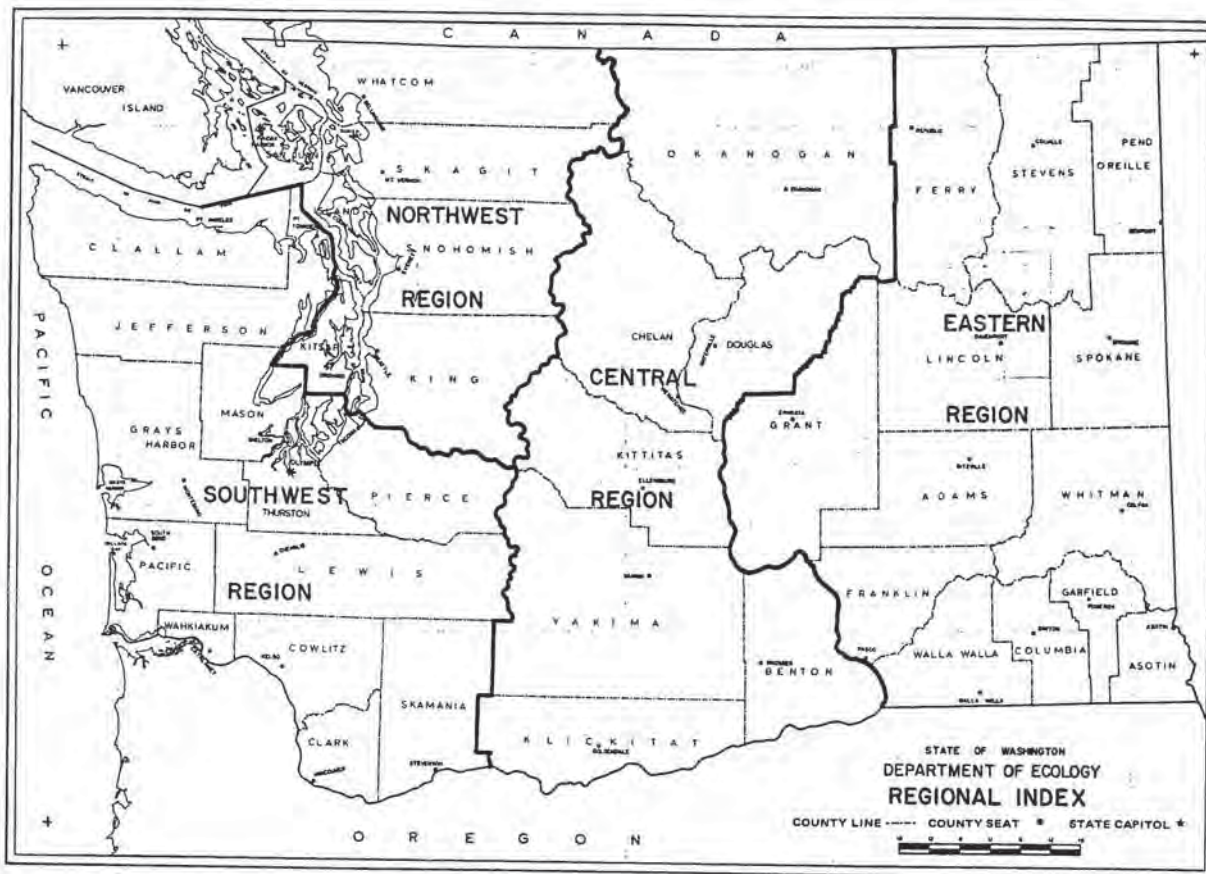
1/8 Mile East of 112th Ave. on the South side of N.E. 16th Street, City of
 Vancouver, Water Station 7.

Detach here

Fold along scale



Detach this scale at the perforation, fold excess paper under or cut off excess by cutting along the scale line. This scale corresponds to the SECTION MAP above. You can read feet directly from this scale to outline property and locate points of diversion or withdrawal on the SECTION MAP. Enclose this map along with the application and \$10.00 examination fee.



Your water right application will be processed by the Regional Office of the Department of Ecology having jurisdiction in the area in which your water works are located. Please submit your completed application form, maps, sketches and \$10.00 examination fee to the appropriate Regional Office.

Northwest Regional Office
 4350 150th Avenue N.E.
 Redmond, Washington 98502 - 5301
 Tel. (206) 885-1900

Central Regional Office
 3601 West Washington
 Yakima, Washington 98903 - 1164
 Tel. (509) 575-2491

Southwest Regional Office
 7272 Cleanwater Lane
 Olympia, Washington 98504 - 6811
 Tel. (206) 753-2353

Eastern Regional Office
 N. 4601 Monroe, Suite 100
 Spokane, Washington 99205 - 1295
 Tel. (509) 456-2926

The appropriate Regional Office will be happy to answer any further questions you may have.

9506230191

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY**CERTIFICATE OF WATER RIGHT** Surface Water (issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.) Ground Water (issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE August 13, 1986	APPLICATION NUMBER G2-27670	PERMIT NUMBER G2-27670 P	CERTIFICATE NUMBER G2-27670
----------------------------------	--------------------------------	-----------------------------	--------------------------------

NAME City of Vancouver			
ADDRESS (STREET) Post Office Box 1995	(CITY) Vancouver	(STATE) Washington	(ZIP CODE) 98668-1995

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown, but is limited to an amount actually beneficially used.

PUBLIC WATERS TO BE APPROPRIATED

SOURCE Well 2 at Water Station 7.
TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 500	MAXIMUM ACRE-FEET PER YEAR 807 (supplemental)
-------------------------------	-----------------------------------	--

QUANTITY, TYPE OF USE, PERIOD OF USE 807 acre-feet per year (supplemental to existing rights)	Municipal supply	Year-round, as needed
---	------------------	-----------------------

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL 900 feet south and 550 feet east of the northwest corner of Section 27.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	SECTION 27	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 2E	W.R.I.A. 28	COUNTY Clark
---	---------------	------------------	------------------------------	----------------	-----------------

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
-----	-------	------------------------------------

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by City of Vancouver.

PROVISIONS

"Withdrawals from the subject well shall be managed by the City so that there is no ongoing, progressive decline of water levels from year to year. The pump shall be placed no deeper than the top of the Sandy River Mudstone Aquifer (SRMA). SRMA head shall be maintained at levels sufficient to preclude excessive head loss in the overlying confining unit."

"An approved metering device shall be installed and maintained in accordance with RCW 90.03.360, WAC 508-64-020 through -040 (installation, operation, and maintenance requirements are enclosed). Meter readings shall be recorded at least monthly."

"Installation and maintenance of an access port as described in WAC 173-160-355 is required. An air line and gauge may be installed in addition to the access port. Pumping and non-pumping water levels shall be measured and recorded using a consistent methodology, in accordance with accepted industry standards. Such measurements shall be made at least monthly. The length of the pumping period or recovery period prior to each measurement shall be constant, and shall be included in the record."

"A summary of the previous year's monthly water level data and monthly totals of water pumped for this well shall be submitted to Ecology's Southwest Regional Office annually during the month of February, or more frequently if requested by Ecology."

The quantity authorized by this document for appropriation is considered to be a portion of the amount reserved by the adoption of Chapter 173-592, Reservation of Future Public Water Supply For Clark County. The priority date of this permit is August 13, 1986.

The Water Resources Act of 1971 specifies certain criteria regarding utilization and management of the waters of the state in the best public interest. Use of water may be subject to regulation at certain times, based on the necessity to maintain water quantities sufficient for preservation of the natural environment.

This Certificate is subject to the implementation of the minimum requirements established in the Conservation Planning Requirements, Guideline and Requirements for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs, July 1994, and as revised.

Under RCW 90.03.005 and 90.54.020(6), conservation and improved water use efficiency must be emphasized in the management of the states water resources, and must be considered as a potential new source of water. Accordingly, as part of the terms of this permit, the applicant shall prepare and implement a water conservation plan approved by Department of Health. The standards for such a plan may be obtained from either the Department of Health or the Department of Ecology.

"Nothing in this approval shall be construed as lessening or enlarging any water rights represented by Claims No. 136134 through 136138. The water usage authorized under this filing shall be considered supplemental to any water rights confirmed for said claims through a general adjudication, should adjudication be undertaken."

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

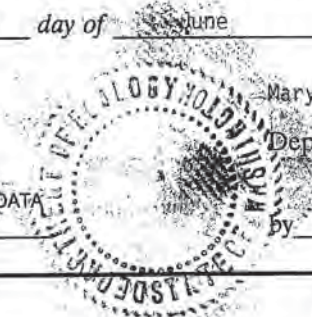
This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

560

Given under my hand and the seal of this office at Olympia, Washington,

this 21st day of June, 19 95.

Mary Riveland, Director
Department of Ecology



ENGINEERING DATA
OK g3

by Gale Blomington

STATE OF WASHINGTON
JUN 23 2 17 PM '95

ELIZABETH A. LUCE

FOR COUNTY USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE August 13, 1986	APPLICATION NUMBER G2-27670	PERMIT NUMBER G2-27670 P	CERTIFICATE NUMBER
----------------------------------	--------------------------------	-----------------------------	--------------------

NAME
City of Vancouver

ADDRESS (STREET) (CITY) (STATE) (ZIP CODE)
Post Office Box 1995 Vancouver Washington 98668-1995

The applicant is, pursuant to the Report of Examination which has been accepted by the applicant, hereby granted a permit to appropriate the following described public waters of the State of Washington, subject to existing rights and to the limitations and provisions set out herein.

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Well 2 at Water Station 7.

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 500	MAXIMUM ACRE-FEET PER YEAR 807 (supplemental)
-------------------------------	-----------------------------------	--

QUANTITY, TYPE OF USE, PERIOD OF USE
807 acre-feet per year (supplemental to existing rights) Municipal supply Year-round, as needed

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL
900 feet south and 550 feet west of the northwest corner of Section 27.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	SECTION 27	TOWNSHIP N. 2	RANGE, (E. OR W.) W.M. 2E	W.R.I.A. 28	COUNTY Clark
---	---------------	------------------	------------------------------	----------------	-----------------

RECORDED PLATTED PROPERTY

LOT BLOCK OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by City of Vancouver.

DESCRIPTION OF PROPOSED WORKS

A well completed at 1,037 feet; casing diameter 12"/10"/8"/5". Submersible 100 horsepower pump vertical turbine pump with 500 gpm capacity.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE: Started	COMPLETE PROJECT BY THIS DATE: Complete	WATER PUT TO FULL USE BY THIS DATE: July 1, 1994
--	--	---

PROVISIONS

"Withdrawals from the subject well shall be managed by the City so that there is no ongoing, progressive decline of water levels from year to year. The pump shall be placed no deeper than the top of the Sandy River Mudstone Aquifer (SRMA). SRMA head shall be maintained at levels sufficient to preclude excessive head loss in the overlying confining unit."

"An approved metering device shall be installed and maintained in accordance with RCW 90.03.360, WAC 508-64-020 through -040 (installation, operation, and maintenance requirements are enclosed). Meter readings shall be recorded at least monthly."

"Installation and maintenance of an access port as described in WAC 173-160-355 is required. An air line and gauge may be installed in addition to the access port. Pumping and non-pumping water levels shall be measured and recorded using a consistent methodology, in accordance with accepted industry standards. Such measurements shall be made at least monthly. The length of the pumping period or recovery period prior to each measurement shall be constant, and shall be included in the record."

"A summary of the previous year's monthly water level data and monthly totals of water pumped for this well shall be submitted to Ecology's Southwest Regional Office annually during the month of February, or more frequently if requested by Ecology."

The quantity authorized by this document for appropriation is considered to be a portion of the amount reserved by the adoption of Chapter 173-592, Reservation of Future Public Water Supply For Clark County. The priority date of this permit is August 13, 1986.

The Water Resources Act of 1971 specifies certain criteria regarding utilization and management of the waters of the state in the best public interest. Use of water may be subject to regulation at certain times, based on the necessity to maintain water quantities sufficient for preservation of the natural environment.

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or fail to give notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand and the seal of this office at Olympia, Washington,

this 3rd *day of* August, 1992.

Chuck Clarke, Director
Department of Ecology

ENGINEERING DATA
OK GB

by Gale Blomstrom

Provisions Continued

This permit is subject to implementation of the minimum requirements established in the Interim Guidelines for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology and Conservation Programs, July 1990, and as revised. Accordingly, this permit is subject to 1) fulfillment of any conditions specified by the State Department of Health for approval of the City's conservation plan, and 2) implementation of said plan.

"Nothing in this approval shall be construed as lessening or enlarging any water rights represented by Claims No. 136134 through 136138. The water usage authorized under this filing shall be considered supplemental to any water rights confirmed for said claims through a general adjudication, should adjudication be undertaken."

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

DANIEL J. EVANS
GOVERNOR

JOHN A. BIGGS
DIRECTOR

335 GENERAL ADMINISTRATION BUILDING · OLYMPIA 98501

May 17, 1971

City of Vancouver
210 East 13th Street
Vancouver
Washington 98660

Gentlemen:

Re: Ground Water Permit No. 9656

In checking over your permit, we find that you have not submitted notice of beginning of construction.

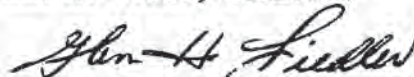
If the work has been started on this project, kindly fill out the enclosed form. If it has not, you should request an extension of one year, for which there is a statutory fee of \$ 10.00. Please make this remittance payable to the Department of Ecology.

By statute projects under permit must be pursued with diligence, and good cause for the granting of an extension must be shown. A report of progress made during the last year must be included with your statement of necessity for extension.

If we do not hear from you within sixty (60) days from date, we shall be forced to assume that you are no longer interested in retaining the permit and action will be taken resulting in cancellation.

Very truly yours,

DEPARTMENT OF ECOLOGY
JOHN A. BIGGS, DIRECTOR



BY GLEN H. FIEDLER

GHF: vw

Enclosure

CERTIFIED MAIL

SF 8508

*Sta - 117
Well 1*

APPENDIX 4B – 6-YEAR WATER RIGHTS SELF ASSESSMENT

Table 1
WATER SYSTEM PLAN
WATER RIGHTS SELF ASSESSMENT – EXISTING STATUS

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		EXISTING CONSUMPTION		CURRENT WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/ Certificate										
Water Station 1			S01							
1. 65D74	City of Vancouver	3/1/1938	S14		2,000	2,030	2,340		-340	
2. 65D75	City of Vancouver	1/1/1939	S15		2,000	2,100	2,260		-260	
3. 66D76	City of Vancouver	9/1/1943	S16		2,000	2,442	2,100		-100	
4. 67D77	City of Vancouver	6/1/1944	S17		1,200	923	1,270		-70	
5. 4920A	City of Vancouver, Washington	2/16/1962	S18, S19	Yes	2,200	(Additive (Add.) 3,520)	1,360		840	
6. G2-23395C	City of Vancouver	11/27/1974	S20		2,000	1,600	3,140		-1,140	
7. G2-26309C	City of Vancouver (Water Station #1)	3/2/1983	S21, S22, S23, S24, S25, S26	Yes	12,000	258.5 (Add. 9,419.5)	13,800		-1,800	
Water Station 3			S02							
8. 14-A-C	City of Vancouver, Water Department	1/26/1946	S27		2,000	2,580	2,175		-175	
9. 1745-A-C	City of Vancouver	1/11/1951	S28		2,000	2,580	2,000		0	
10. G2-25363C	City of Vancouver	9/10/1979	S29		2,000	1,613	2,000		0	
Water Station 4			S03							
11. 1649A	City of Vancouver, Water Department	1/23/1952	S30		1,000	1,600	950		50	
12. 386-D	City of Vancouver	7/1/1942	S31		2,500	2,472	2,000		500	

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		EXISTING CONSUMPTION		CURRENT WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
13. 388D	City of Vancouver	8/1/1942	S32		2,400	2,312	2,000		400	
14. G2-25365C	City of Vancouver	9/10/1979	S35		800	645	600		200	
Water Station 6										
15. G2-00171C	City of Vancouver	5/7/1969			2,000	2,400	0		2,000	
16. G2-25364C	City of Vancouver	9/10/1979			400	323	0		400	
Water Station 7										
17. G2-001070C	City of Vancouver, Washington	5/7/1969	S05		1,250	1,500	800		450	
18. G2-27670C	City of Vancouver	8/13/1986	S10	Yes	500	(Add. 807)	500		0	
Water Station 8			S06							
19. 3437-A	Ochards Water Works, Inc.	9/23/1957	S36		750	360	500		250	
20. G2-20646C	City of Vancouver	12/4/1972	S37		2,000	1,600	750		1,250	
Water Station 9			S07							
21. G2-000854C	City of Vancouver	4/14/1969			72	30	0		72	
22. G2-22659C	City of Vancouver	6/14/1974	S38, S39		2,800	3,600	2,400		400	
23. G2-25711C	City of Vancouver	8/11/1980	S40		3,000	2,419.5	2,600		400	
24. G2-25712C	City of Vancouver	8/11/1980	S41		2,500	2,016	2,400		100	
25. G2-27460C	City of Vancouver	8/13/1986	S42	Yes	2,500	(Add. 2,016)	2,400		100	
Water Station 14			S08							
26. G2-25360C	City of Vancouver	9/10/1979	S43		1,000	807	1,000		0	
27. G2-25710C	City of Vancouver	8/11/1980	S44		1,000	806.5	1,000		0	
28. G2-27459C	City of Vancouver	8/13/1986	S45	Yes	1,200	(Add. 968)	1,200		0	
Water Station 15	City of Vancouver		S09							

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		EXISTING CONSUMPTION		CURRENT WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
29. G2-25961C	City of Vancouver	7/21/1981	S46, S47, S48, S49		5,000	4,839	1,000		4,000	
Ellsworth			S11							
30. G2-27671P	City of Vancouver	8/13/1986	S50	Yes	3,000	(Add. 2,420)	2,000		1,000	
31. G2-28027C	City of Vancouver	8/13/1986	S51	Yes	3,000	(Add. 2,420)	2,300		700	
32. G2-28076C	City of Vancouver	8/13/1986	S12	Yes	3,000	(Add. 2,420)	2,500		500	
Claims										
Water Station 4										
1. 136136C	City of Vancouver	8/1/1942	S33		1,400	2,240	1,500		-100	
2. 136137C	City of Vancouver	8/1/1942	S34		1,400	2,240	1,500		-100	
3. 136138C	City of Vancouver	8/1/1943			1,200	1,920	0		1,200	
TOTAL	*****	*****	*****	*****	75,072	50,256.5 (Add. 23,990.5)	64,345	28,530	10,727	21,726.5
INTERTIE NAME/ IDENTIFIER	NAME OF PURVEYOR PROVIDING WATER	EXISTING LIMITS ON INTERTIE USE		EXISTING CONSUMPTION THROUGH INTERTIE		CURRENT INTERTIE SUPPLY STATUS (Excess/Deficiency)				
		Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)			
1.	None									
2.										
3.										
4.										
TOTAL	*****									
PENDING WATER RIGHT APPLICATION (New/Change)	NAME ON APPLICATION	DATE SUBMITTED	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	PENDING WATER RIGHTS						
				Maximum Instantaneous Flow Rate (Qi) Requested	Maximum Annual Volume (Qa) Requested					
1.	None									
2.										
3.										
4.										

If you need this publication in an alternate format, call (800) 525-0127. For TTY/TDD call (800) 833-6388.

Please return completed form to the Office of Drinking Water regional office checked below.

Northwest Drinking Water
Department of Health
20425 72nd Ave S, Suite 310
Kent, WA 98032-2358
Phone: (253) 395-6750
Fax: (253) 395-6760

Southwest Drinking Water
Department of Health
PO Box 47823
Olympia, WA 98504-7823
Phone: (360) 236-3030
Fax: (360) 664-8058

Eastern Drinking Water
Department of Health
16201 E Indiana Ave, Suite 1500
Spokane Valley, WA 99216
Phone: (509) 329-2100
Fax: (509) 329-2104

Table 2
WATER SYSTEM PLAN
WATER RIGHTS SELF ASSESSMENT – 6 YEAR FORECAST

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		FORECASTED WATER USE FROM SOURCES (6-year Demand)		FORECASTED WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/ Certificates										
Water Station 1			S01							
1. 65D74	City of Vancouver	3/1/1938	S14		2,000	2,030				
2. 65D75	City of Vancouver	1/1/1939	S15		2,000	2,100				
3. 66D76	City of Vancouver	9/1/1943	S16		2,000	2,442				
4. 67D77	City of Vancouver	6/1/1944	S17		1,200	923				
5. 4920A	City of Vancouver, Washington	2/16/1962	S18, S19	Yes	2,200	(Additive (Add.) 3,520)				
6. G2-23395C	City of Vancouver	11/27/1974	S20		2,000	1,600				
7. G2-26309C	City of Vancouver (Water Station #1)	3/2/1983	S21, S22, S23, S24, S25, S26	Yes	12,000	258.5 (Add. 9,419.5)				
Water Station 3			S02							
8. 14-A-C	City of Vancouver, Water Department	1/26/1946	S27		2,000	2,580				
9. 1745-A-C	City of Vancouver	1/11/1951	S28		2,000	2,580				
10. G2-25363C	City of Vancouver	9/10/1979	S29		2,000	1,613				
Water Station 4			S03							
11. 1649A	City of Vancouver, Water Department	1/23/1952	S30		1,000	1,600				

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		FORECASTED WATER USE FROM SOURCES (6-year Demand)		FORECASTED WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
12. 386-D	City of Vancouver	7/1/1942	S31		2,500	2,472				
13. 388D	City of Vancouver	8/1/1942	S32		2,400	2,312				
14. G2-25365C	City of Vancouver	9/10/1979	S35		800	645				
Water Station 6										
15. G2-00171C	City of Vancouver	5/7/1969			2,000	2,400				
16. G2-25364C	City of Vancouver	9/10/1979			400	323				
Water Station 7										
17. G2-001070C	City of Vancouver, Washington	5/7/1969	S05		1,250	1,500				
18. G2-27670C	City of Vancouver	8/13/1986	S10	Yes	500	(Add. 807)				
Water Station 8			S06							
19. 3437-A	Ochards Water Works, Inc.	9/23/1957	S36		750	360				
20. G2-20646C	City of Vancouver	12/4/1972	S37		2,000	1,600				
Water Station 9			S07							
21. G2-000854C	City of Vancouver	4/14/1969			72	30				
22. G2-22659C	City of Vancouver	6/14/1974	S38, S39		2,800	3,600				
23. G2-25711C	City of Vancouver	8/11/1980	S40		3,000	2,419.5				
24. G2-25712C	City of Vancouver	8/11/1980	S41		2,500	2,016				
25. G2-27460C	City of Vancouver	8/13/1986	S42	Yes	2,500	(Add. 2,016)				
Water Station 14			S08							
26. G2-25360C	City of Vancouver	9/10/1979	S43		1,000	807				
27. G2-25710C	City of Vancouver	8/11/1980	S44		1,000	806.5				
28. G2-27459C	City of Vancouver	8/13/1986	S45	Yes	1,200	(Add. 968)				

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		FORECASTED WATER USE FROM SOURCES (6-year Demand)		FORECASTED WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Water Station 15	City of Vancouver		S09							
29. G2-25961C	City of Vancouver	7/21/1981	S46, S47, S48, S49		5,000	4,839				
Ellsworth			S11							
30. G2-27671P	City of Vancouver	8/13/1986	S50	Yes	3,000	(Add. 2,420)				
31. G2-28027C	City of Vancouver	8/13/1986	S51	Yes	3,000	(Add. 2,420)				
32. G2-28076C	City of Vancouver	8/13/1986	S12	Yes	3,000	(Add. 2,420)				
Claims										
Water Station 4										
1. 136136C	City of Vancouver	8/1/1942	S33		1,400	2,240				
2. 136137C	City of Vancouver	8/1/1942	S34		1,400	2,240				
3. 136138C	City of Vancouver	8/1/1943			1,200	1,920				
TOTAL	*****	*****	*****	*****	75,072	50,256.5 (Add. 23,990.5)	44,236	33,943	30,836	16,313.5
INTERTIE NAME/ IDENTIFIER	NAME OF PURVEYOR PROVIDING WATER	EXISTING LIMITS ON INTERTIE USE		FORECASTED CONSUMPTION THROUGH INTERTIE		FORECASTED INTERTIE SUPPLY STATUS (Excess/Deficiency)				
		Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)			
1.	None									
2.										
3.										
4.										
TOTAL	*****									
PENDING WATER RIGHT APPLICATION (New/Change)	NAME ON APPLICATION	DATE SUBMITTED	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	PENDING WATER RIGHTS						
				Maximum Instantaneous Flow Rate (Qi) Requested	Maximum Annual Volume (Qa) Requested					
1.	None									
2.										
4.										

If you need this publication in an alternate format, call (800) 525-0127. For TTY/TDD call (800) 833-6388.

DOH Form 331-372 (Updated 08/10)

Please return completed form to the Office of Drinking Water regional office checked below.

Northwest Drinking Water
Department of Health
20425 72nd Ave S, Suite 310
Kent, WA 98032-2358
Phone: (253) 395-6750
Fax: (253) 395-6760

Southwest Drinking Water
Department of Health
PO Box 47823
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Table 3
WATER SYSTEM PLAN
WATER RIGHTS SELF ASSESSMENT – 20 YEAR FORECAST

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		FORECASTED WATER USE FROM SOURCES (20-year Demand)		FORECASTED WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/ Certificates										
Water Station 1			S01							
1. 65D74	City of Vancouver	3/1/1938	S14		2,000	2,030				
2. 65D75	City of Vancouver	1/1/1939	S15		2,000	2,100				
3. 66D76	City of Vancouver	9/1/1943	S16		2,000	2,442				
4. 67D77	City of Vancouver	6/1/1944	S17		1,200	923				
5. 4920A	City of Vancouver, Washington	2/16/1962	S18, S19	Yes	2,200	(Additive (Add.) 3,520)				
6. G2-23395C	City of Vancouver	11/27/1974	S20		2,000	1,600				
7. G2-26309C	City of Vancouver (Water Station #1)	3/2/1983	S21, S22, S23, S24, S25, S26	Yes	12,000	258.5 (Add. 9,419.5)				
Water Station 3			S02							
8. 14-A-C	City of Vancouver, Water Department	1/26/1946	S27		2,000	2,580				
9. 1745-A-C	City of Vancouver	1/11/1951	S28		2,000	2,580				
10. G2-25363C	City of Vancouver	9/10/1979	S29		2,000	1,613				
Water Station 4			S03							
11. 1649A	City of Vancouver, Water Department	1/23/1952	S30		1,000	1,600				

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		FORECASTED WATER USE FROM SOURCES (20-year Demand)		FORECASTED WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
12. 386-D	City of Vancouver	7/1/1942	S31		2,500	2,472				
13. 388D	City of Vancouver	8/1/1942	S32		2,400	2,312				
14. G2-25365C	City of Vancouver	9/10/1979	S35		800	645				
Water Station 6										
15. G2-00171C	City of Vancouver	5/7/1969			2,000	2,400				
16. G2-25364C	City of Vancouver	9/10/1979			400	323				
Water Station 7										
17. G2-001070C	City of Vancouver, Washington	5/7/1969	S05		1,250	1,500				
18. G2-27670C	City of Vancouver	8/13/1986	S10	Yes	500	(Add. 807)				
Water Station 8			S06							
19. 3437-A	Ochards Water Works, Inc.	9/23/1957	S36		750	360				
20. G2-20646C	City of Vancouver	12/4/1972	S37		2,000	1,600				
Water Station 9			S07							
21. G2-000854C	City of Vancouver	4/14/1969			72	30				
22. G2-22659C	City of Vancouver	6/14/1974	S38, S39		2,800	3,600				
23. G2-25711C	City of Vancouver	8/11/1980	S40		3,000	2,419.5				
24. G2-25712C	City of Vancouver	8/11/1980	S41		2,500	2,016				
25. G2-27460C	City of Vancouver	8/13/1986	S42	Yes	2,500	(Add. 2,016)				
Water Station 14			S08							
26. G2-25360C	City of Vancouver	9/10/1979	S43		1,000	807				
27. G2-25710C	City of Vancouver	8/11/1980	S44		1,000	806.5				
28. G2-27459C	City of Vancouver	8/13/1986	S45	Yes	1,200	(Add. 968)				

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		FORECASTED WATER USE FROM SOURCES (20-year Demand)		FORECASTED WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Water Station 15	City of Vancouver		S09							
29. G2-25961C	City of Vancouver	7/21/1981	S46, S47, S48, S49		5,000	4,839				
Ellsworth			S11							
30. G2-27671P	City of Vancouver	8/13/1986	S50	Yes	3,000	(Add. 2,420)				
31. G2-28027C	City of Vancouver	8/13/1986	S51	Yes	3,000	(Add. 2,420)				
32. G2-28076C	City of Vancouver	8/13/1986	S12	Yes	3,000	(Add. 2,420)				
Claims										
Water Station 4										
1. 136136C	City of Vancouver	8/1/1942	S33		1,400	2,240				
2. 136137C	City of Vancouver	8/1/1942	S34		1,400	2,240				
3. 136138C	City of Vancouver	8/1/1943			1,200	1,920				
TOTAL	*****	*****	*****	*****	75,072	50,256.5 (Add. 23,990.5)	52,750	42,042	22,322	8,214.5
INTERTIE NAME/ IDENTIFIER	NAME OF PURVEYOR PROVIDING WATER	EXISTING LIMITS ON INTERTIE USE		FORECASTED CONSUMPTION THROUGH INTERTIE		FORECASTED INTERTIE SUPPLY STATUS (Excess/Deficiency)				
		Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)			
1.	None									
2.										
3.										
4.										
TOTAL	*****									
PENDING WATER RIGHT APPLICATION (New/Change)	NAME ON APPLICATION	DATE SUBMITTED	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	PENDING WATER RIGHTS						
				Maximum Instantaneous Flow Rate (Qi) Requested	Maximum Annual Volume (Qa) Requested					
1.	None									
2.										

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DOH Form 331-373 (Updated 08/10)

Please return completed form to the Office of Drinking Water regional office checked below.

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**APPENDIX 5A – VANCOUVERS KNOWN & SUSPECTED
CONTAMINATED SITES**

Vancouver's Known and Suspected Contaminated Sites - from the Water Protection Program Database

Site Name	Address	Parcel #	Ecology Site Name	Ecology ID	Site Notes	Status
2001 Roosevelt Site	2001 Roosevelt Ave	58715000	2001 Roosevelt Ave Property	1044	Ecology conducted a site investigation in 1990. They found 55 drums plus sludge in sumps. EPA issued a consent order to remove hazardous materials and 52 drums were removed along with 24 tons of soil. Recent soil and groundwater sampling by Coles Environmental, under the direction of Ecology, confirmed that TCE and PCE levels in the soil and groundwater were very low. Removed from the Hazardous Sites Listing.	Cleaned Up
400 E Mill Plain Drywell Site	400 E Mill Plain	40000000	400 E Mill Plain Drywells	8223776	Initial investigation ended in March 2009. Confirmed lead and other metals in soil, suspected in groundwater. Site hazard assessment completed in July 2010. Current status: awaiting cleanup.	Known
4th Plain Chevron Site (previously Bagley)	4100 E Fourth Plain Blvd	30239068	4th Plain Chevron (previously Bagley Properties)	34692169	In Voluntary Cleanup Program and submitting quarterly groundwater monitoring reports to the Dept. of Ecology.	Known
A&B Radiator & Speedometer Service	8411 NE Fourth Plain	160030000			Septic tanks on site found to contain dangerous waste in June 2009.	Suspected
Albina Fuel - Asphalt	1300 W 8th St.	58747000	PRI Industries	24972725		Known
Albina Fuel - PRI Northwest Site	1300 W. 8th St	59356012	PRI Northwest Inc. Vancouver	24972725	In 1991 four groundwater monitoring wells were installed at the subject site. Soil and groundwater results indicated minor TPH and VOC concentrations in the soil and non-detect concentrations in groundwater. In 1998 eight soil borings detected TPH mainly in shallow soils. Three additional groundwater monitoring wells were installed in 2002. Soil samples at that time showed diesel range petroleum detected at 794 ppm (below MTCA cleanup levels). Since then all groundwater samples at the site have shown non-detect for TPH, VOC and BTEX, with the exception of 1 ppb toluene/xylene detected from the groundwater at one well location. In 2003 Albina requested that Ecology close the project file and issue a No Further Action designation on this site.	Known
Alcoa Vancouver Site	5701 NW Lower River Rd	152903000	Alcoa Vancouver, NPL, PCB, Rod Mill and TCE	21,25,22,24,23	<p>There are currently five cleanup sites located at the smelter complex. In June 1987, Alcoa completed studies conducted under an Administrative Order issued by the Washington Department of Ecology. In September 1989, Alcoa completed detailed sampling to characterize the potlining piles. In 2003 Ecology amended the consent decrees to consolidate the groundwater monitoring at the Potliner and Rod Mill sites. The Potliner and Rod Mill sites have been cleaned up and are undergoing post-cleanup groundwater monitoring.</p> <p>The other three cleanup sites at the complex, the East Landfill, the North Landfill and the North 2 Landfill are being cleaned up under a separate Consent Decree. In 2007 Ecology issued an Enforcement Order requiring the owners to cleanup soil and water contaminants at the Evergreen Aluminum smelter – site #21. The smelter stands on a larger facility site amid support buildings and other land owned by Alcoa, Inc. Evergreen's smelter operations (since 2002) added to existing soil and water contamination on the larger site. Both owners of the combined properties, known previously as "Alcoa Vancouver", and as "VANALCO", want to sell the property to the Port of Vancouver.</p> <p>A Consent Decree issued to the site in 2008 requires Alcoa to: 1) Remove Polychlorinated Biphenyl (PCB)-impacted sediment from the Columbia River and stabilize the shoreline, 2) Excavate and treat petroleum-impacted soils from an area of the site called the Crowley parcel, 3) Remove four underground storage tanks located on the river dike and associated residual petroleum product and impacted soils, 4) Remediate PCB-impacted soils located within an area of the site called the Soluble Oil Area, and 5) Perform long-term monitoring. In December 2008 and January 2009, samples were taken in the sediment at the interface between the shoreline and the Columbia river and at different river sediment depths and analyzed for trichloroethylene (TCE) and vinyl chloride. It appears from sampling that the groundwater entering the river meets MTCA surface water cleanup levels. In 2010 Ecology and Alcoa reached a preliminary agreement about Alcoa's liability for TCE contamination at the closed east landfill.</p>	Known

Vancouver's Known and Suspected Contaminated Sites - from the Water Protection Program Database

Site Name	Address	Parcel #	Ecology Site Name	Ecology ID	Site Notes	Status
Andy's Auto Care Site	4702 E. 4th Plain	30242020	Andy's Auto Care	4830499	Site submitted Remedial Investigation Report to Ecology in April 2008. Ecology completed Opinion Letter. Independent remedial action in process.	Known
Arco NE 78th St Site	399 NE 78th St.	145232000	Arco 4311	62368167	Confirmed petroleum products in groundwater. Petroleum in soil has been remediated. In Voluntary Cleanup program since December 2002.	Known
ASI Carwash Site	2210 NW Mill Plain Blvd	59115068	Automotive Services Inc Carwash	5210	Through the Department of Ecology's Voluntary Cleanup Program, the Port successfully cleaned up the site using bioremediation. Soil cleanup was completed in spring 2001. While groundwater cleanup was not necessary, the Port monitors the site's groundwater as required by the Department of Ecology. The site has been returned to productive use and is now the location of a new use: Glacier Sand & Gravel. In 2012 a revised restrictive covenant and monitoring plan were submitted to Ecology.	Cleaned Up
Atwood Plastics Site	7001 NE 40th Ave,	149162000	N/A		Over 70 drums of acetone were improperly stored at this site, but there is no indication that the groundwater was impacted. Criminal charges were brought against the owner and he was found guilty and sentenced to 30 days in prison and fines (March 1995).	Suspected
Bill Copps Site	901 C Street	38823000	Bill Copps Inc.	62651667	Soil and groundwater contaminated with petroleum products. Remedial action in progress. Ecology received Remedial Investigation Report in 2009. Placed on the No Further Action listing in 2011.	No Further Action
Boise Cascade Rufener	3000 NW Lower River Rd	151957002			none yet	Evaluating
Boise Cascade Rufener	3000 NW Lower River Rd	151969000			none yet	Evaluating
Boise White Paper Site	907 W. 7th St.	49355000	Portside Lagoon and Landfill	8752343	A Phase I - Environmental Assessment completed in July 2004 tagged seven areas for potential study at the site. The Phase II - Site Investigation completed in May 2005, identified fifteen areas of interest (AOI) for more detailed investigation. After soil and water sampling, eleven of the fifteen AOI were deemed safe by MTC cleanup standards. Four AOI's needed further investigation. At a Public Meeting on April 4, 2006 Ecology issued an Agreed Order listing tasks Boise must perform to define the extent of oil contamination on its site. The company is to track a plume of oil-tainted groundwater on the northwestern edge of the property for at least the next five years under the proposed agreed order. Following the deadline for public comment on April 17, the company will have two months to drill the monitoring well and exploratory soil borings to delineate the extent of the plume. It also requires Boise to determine whether on-site activities or off-site sources caused the contamination. After Boise fulfills its duty under the Agreed Order, and pays the costs of cleanup, Boise will be excused from an obligation to deal with suspected oil contamination discovered at the site later.	Known
Boomsnub - Airco EPA Site	7608 NE 47th Ave	99631000	Boomsnub Airco Superfund Site	198	EPA began a removal operation in June 1994 that included the off-site disposal of over 400 drums of waste, demolition and removal of buildings and plating tanks, and removal and off-site disposal of over 6,000 tons of contaminated soil. The removal action also included connecting two additional monitoring wells as extraction wells to the treatment system, increasing the pumping rate and upgrading the ion exchange system to handle the increased extraction rate.	Known
Boomsnub II Site	3611 NE 68th	149334000	Boomsnub Corp II	7900276	Ecology inventoried the site and found trace levels of hexavalent chrome in monitoring well No. 2. Ecology had the wastes removed and gave the site a No Further Action designation in April 2004.	No Further Action

Vancouver's Known and Suspected Contaminated Sites - from the Water Protection Program Database

Site Name	Address	Parcel #	Ecology Site Name	Ecology ID	Site Notes	Status
BPA Ross Complex Contam. Site	5411 NE Hwy 99	12455001	US BPA Ross OUA, OUB, Complex	199, 200,201	To comply with the State of Washington's Model Toxics Control Act, early actions were undertaken by BPA at seven areas around the site. Contaminated soil was excavated and disposed of off-site. In 1990, the site was divided into two separate cleanup areas: Areas A and B. In 1993, remedies were selected for cleanup of these areas that included excavation and off-site disposal of PCB-contaminated soils from the Capacitor Test Lab and the Ross Substation and Capacitor Yard; enhanced bioremediation of the contaminated soils at the Wood Pole Storage Area East with a gravel cap; capping the Fog Chamber Dump Trench Area 1; and monitoring of both the shallow and deep on-site ground water. Cleanup activities were completed by BPA in early 1995, and all established cleanup goals were met. The site was deleted from the National Priorities List (NPL) on September 23, 1996. A Five-Year Review was completed on September 9, 1999. To address concerns about institutional controls identified in this review, an Explanation of Significant Differences (ESD) was completed on January 18, 2001. The ESD establishes both facility-wide and area-specific requirements to ensure that institutional controls are created, implemented and maintained. The second Five Year Review was completed in September, 2004. The remedies remain protective. Sites removed from the Hazardous Sites List January 1996	No Further Action
BPA Ross Complex Contam. Site	5411 NE Hwy 99	12456028	US BPA Ross OUA, OUB, Complex	199, 200,201	To comply with the State of Washington's Model Toxics Control Act, early actions were undertaken by BPA at seven areas around the site. Contaminated soil was excavated and disposed of off-site. In 1990, the site was divided into two separate cleanup areas: Areas A and B. In 1993, remedies were selected for cleanup of these areas that included excavation and off-site disposal of PCB-contaminated soils from the Capacitor Test Lab and the Ross Substation and Capacitor Yard; enhanced bioremediation of the contaminated soils at the Wood Pole Storage Area East with a gravel cap; capping the Fog Chamber Dump Trench Area 1; and monitoring of both the shallow and deep on-site ground water. Cleanup activities were completed by BPA in early 1995, and all established cleanup goals were met. The site was deleted from the National Priorities List (NPL) on September 23, 1996. A Five-Year Review was completed on September 9, 1999. To address concerns about institutional controls identified in this review, an Explanation of Significant Differences (ESD) was completed on January 18, 2001. The ESD establishes both facility-wide and area-specific requirements to ensure that institutional controls are created, implemented and maintained. The second Five Year Review was completed in September, 2004. The remedies remain protective. Sites removed from the Hazardous Sites List January 1996	No Further Action
Brazier Forest Industries Site	1401 Industrial Way (Port)	58921000	Brazier Forest Industries	33837982	Contamination at the site is being addressed through the Department of Ecology Voluntary Cleanup Program. A majority of the petroleum-impacted soils above MTCA levels have been removed. The Port is seeking a "No-Further Action" status from the Department of Ecology. Groundwater monitoring is on-going.	Known
Burlington Northern Switchyard Site	1515 W. 39th St	86000	Burlington Northern Santa Fe Ry Maint	1048	During a screening site inspection in April 1990 by the EPA 9 onsite soil samples were submitted for analysis. Metals and polycyclic aromatic hydrocarbons were detected at concentrations exceeding the MTCA cleanup levels in soil samples from 4 of the 6 areas along the construction path. Samples submitted in 1990 during a site hazard assessment indicated the presence of diesel and heavy oil range hydrocarbons, metals and carcinogenic PAH's in soil. Three groundwater samples submitted in 1990 showed trichloroethene and metals at levels exceeding MTCA groundwater cleanup levels. The 6 remediated areas investigated were the Locomotive Idling Area, the Former Diesel Shop Area, the Covered Inspection Building Area, the Former Tank Car Cleaning Area, the Former Drop Pit Area, and the Turntable and Roundhouse Area. Remedial action began in December 1996 and concluded in April 1998 included excavation, sampling and removal of contaminated soil to a depth of approximately 20 feet bgs. Subsequent sampling indicated the presence of petroleum contamination in some areas exceeding MTCA in the soils. This soil was left in place because further excavation would compromise the facilities, the slopes and would create unsafe working conditions.	Known

Vancouver's Known and Suspected Contaminated Sites - from the Water Protection Program Database

Site Name	Address	Parcel #	Ecology Site Name	Ecology ID	Site Notes	Status
Cadet Mfg. Site	2500 (&2001) W Fourth Plain Blvd	59115055	Port of Vancouver - Swan/Cadet Manufacturing	85381664	<p>Ecology named the Port a potentially responsible party under MTCA. The Port entered an agreed order to remediate in 1998 and filed an MTCA contribution action against Cadet. About 14,000 cu. yards of TCE impacted soil was excavated and treated onsite. In 1999 Ecology approved the soil for industrial reuse. In early 2008 Ecology and the Port of Vancouver entered into an Agreed Order to complete an Interim Action at the Cadet and Building 2220 (former Swan Manufacturing) site in Vancouver. The proposed Interim Action will provide area-wide containment and continued treatment of contaminated groundwater.</p> <p>Under direction of the Departments of Ecology and Health the groundwater is being treated in two ways: 1) The groundwater under the Cadet facility is being treated with air sparging and soil vapor extraction systems. These systems move the solvent contamination from the groundwater into a vapor that is removed by a vacuum applied to the subsurface. 2) For contamination below the nearby Fruit Valley Neighborhood, AMEC Earth and Environmental has been contracted to treat the groundwater in place using a recirculating groundwater remediation well. Contaminated water is pumped so that an oxidizing agent can be injected to breakdown the solvent into harmless compounds. Additional recirculating wells were installed in April 2004. The wells draw contaminated water out of the ground so it can be cleaned with an oxidizing compound before it is returned to the ground.</p> <p>In 2006 the Port agreed to purchase Cadet's site and take responsibility for the cleanup. In 2008 the Port proposed a new pump and treat facility to contain the TCE plume. One pumping well will pull impacted water. It will be chlorinated then filtered and run through an air stripping tower. Treated water will be discharged to nearby city treatment ponds and backwash water will be sent to sanitary sewer.</p>	Known
Calhoun Property Site	5014 NE 20th Ave.	98136016	Calhoun Property	6928703	Confirmed petroleum products in soil and suspected in groundwater. Investigation was initiated in July 2008. Awaiting assessment.	Known
Camp Bonneville Military Site	East of Vancouver, Proebstel	167837000	US Army Camp Bonneville RAU-3 (also RAU-1&2)	5125990	Since 1995, investigations have been ongoing to characterize the contamination from the ammunitions and other hazardous substances and to develop a plan for re-using the site once it is cleaned up. RAU-1,2&3 were listed on the Hazardous Sites listings in 2003. Interim action began on RAU-2 in 2004. Ecology is currently soliciting comments (9/05) on the draft RI/FS report for RAU-3. A characterization, qualitative risk analysis and feasibility study for this RAU have been conducted. Based on the evaluations, the Army recommends clearing the MEC soil in various areas, installing signs and fencing and implementing land use controls. In a hearing on October 3, 2006, Clark County formally accepted ownership of the property from the U.S. Army, and then transferred the deed to the contractor who will conduct the cleanup at the site over the next several years. Clark County and Ecology will be working closely with experts in munitions cleanup during the project. Once the site is cleaned up, the county plans to retain about two thirds of the acreage for open space and wildlife and habitat conservation, and use one third as a regional park. In early 2007 the Bonneville Conservation Restoration and Renewal Team (BCRRT) submitted several documents to Ecology related to the site investigation and clean up.	Known
Carborundum Site	Port - 2100 W 26th Avenue	59115051	Carborundum Co.	1012	The contamination originated from baghouse slurry settling ponds. The ponds were filled but some of the covered material may be contaminated with residual polycyclic aromatic hydrocarbon (cPAH). The site was removed from the Hazardous Sites List with a No Further Action on 3/17/1998.	No Further Action
Caribou Realty Site	8914 NE St. Johns Road	106008002	Caribou Realty Group	34583642	Confirmed halogenated organics in groundwater and suspected in soils. Initial Ecology investigation in 1998 and a site hazard assessment completed in December 2005. In 2009 the site and Ecology began negotiations for an Agreed Order.	Known
Cascade Manufacturing Site	2424 E 2nd St	33828000	Cascade Manufacturing	46118215	The 1999 ESA study recommended further investigation into the solvent, oil and metal residues. A No Further Action was issued by Ecology on the soil contamination in Nov. 2002, but Ecology also asked for a "restrictive covenant" on groundwater at that time because diesel range and heavy oil range hydrocarbons were identified above MTCA cleanup levels in the groundwater. Following remedial work, Ecology issued a No Further Action determination on this property June 30, 2004.	No Further Action
Cascade Tempering Site	2501 SE Columbia Way Bldgs 39 & 5	31096000	Cascade Tempering	1013	Ecology designated cleanup complete in October, 1990. Not on Hazardous Site List.	Cleaned Up

Vancouver's Known and Suspected Contaminated Sites - from the Water Protection Program Database

Site Name	Address	Parcel #	Ecology Site Name	Ecology ID	Site Notes	Status
Chastain Residence Site	228 Phoenix Way	37916931	Chastain Residence	2764791	Independent remedial action performed for petroleum contaminants in soil. Leaking residential oil tank & impacted soils were bio-remediated in place. Some deisel-range organics remain in the soil at levels below MTCA cleanup thresholds. DOE required more site investigations to determine full scope of impact. No Further Action letter issued by Ecology for the site on 9/13/10. In-situ bioremediation deemed effective, no impacts to groundwater expected.	Known
Chevron Bulk Plant Site	1801 W 39th St	22000	Chevron Bulk Plant 61001854	1060	In 1993 Ecology completed a site hazard assessment and identified petroleum contaminated soil as well as free non-aqueous phase liquid (NAPL), light and dense, in groundwater at the eastern end of the site. In 1994 warehouse and other structures were removed and 5500 cubic yards of soil were removed and treated onsite. The current agreed order from Ecology requires Chevron to remove NAPL in groundwater and demolish remaining buildings on the site. They must also perform a risk assessment of the threats to human health and the environment.	Known
Chevron Mill Plain 96185 Site	5050 E. Mill Plain Blvd.	37910013	Chevron USA Inc Ss 96185	21296581	Submitted a Voluntary Application to DOE on 10/14/04 for an Independent Remedial Action. Ecology started receiving Remedial Investigations reports as of 2007. City issued a Notice of Determination of Nonsignificance June 2010 for excavating 1850 sq. ft. of petroleum contaminated soils to 15 feet below grade. Excavation to be filled in with clean soil and gravel.	Known
Chevron Mill Plain 96185 Site	5050 E. Mill Plain Blvd.	37910150	Chevron USA Inc Ss 96185	21296581	Submitted a Voluntary Application to DOE on 10/14/04 for an Independent Remedial Action. Ecology started receiving Remedial Investigations reports as of 2007. City issued a Notice of Determination of Nonsignificance June 2010 for excavating 1850 sq. ft. of petroleum contaminated soils to 15 feet below grade. Excavation to be filled in with clean soil and gravel.	Known
Chevron Station 205412 Site	9414 NE Vancouver Mall Dr	159861000	Cevron Station 205412		On April 5, 2005 the site submitted to the Dept. of Ecology a voluntary application for Independent Remedial Action.	Suspected
Clark County FD #4,5 Fire Station Site	13317 NE Fourth Plain Blvd.	107702000	Former Clark County Fire District #4 and #5 Fire Station	93619727	In October 2004 the sites of the previously decommissioned UST's were assessed. Sampling did not identify the presence of any hydrocarbons and the site met the requirements for permanent closure. In October 2004 a site assessment did identify the presence of hydrocarbons, volatiles, chromium and lead at the former floor drain outfall area. These concentrations exceeded Ecology's MTCA cleanup levels. In November 2004 an independent "routine cleanup action" was performed. About 24 tons of impacted soil was profiled and disposed at Waste Management's facility in Hillsboro, OR. Post-cleanup sampling confirmed that hydrocarbons and metals were below cleanup levels. The floor drain outfall area excavation was backfilled and restored by the City of Vancouver. In 2006 Ecology responded to the independent remedial action with a Partial Sufficiency Determination. It states that the actions performed satisfy requirements for petroleum hydrocarbons and metals but found that the actions were not sufficient for cleanup of PAH's in soil. Tasks to complete to receive a No Further Action are excavation of more soil and an investigation as to whether PAH concentrations are due to background contamination from historical uses in the area. Designated NFA January 2008.	No Further Action
Clarke's European Site	2612 Main St	8930000	Clarke's European Auto Repair	93513355	This site completed its independent remedial action and was delineated No Further Action by Ecology in July 2001.	No Further Action
Cliff Koppe Site	1700 W. 4th Plain	15000	Cliff Koppe Metals inc	54933627	An initial investioation into possible contamination on this site was initiated in August 2006 and an early notice letter was sent out in March 2007. Confirmed soil contaminants include metals and petroleum products although a cleanup has not been determined to be necessary at this stage. A site hazard assesment is being done by Clark Public Health.	Evaluating
Cliff Koppe South Site	1701 W. 4th Plain	58675000	Koppe Metals South	4754445	A site hazard assessment is being done by Clark County Public Health.	Evaluating
Columbia Business Ctr Bldg 41 Site	3001SE Columbia Way Bldg 41 Bay 3	30976000	Columbia Business Park Bldg 41 Bay 3	27945	This site completed its independent remedial action and was delineated No Further Action by Ecology in July 1996.	No Further Action
Columbia Business Ctr Bldg 56 Site	2301 SE Hidden Way Bldg 56	31092000	Columbia Business Center Old Bldg 56	24862	This site completed its independent remedial action and was delineated No Further Action by Ecology in September 1996.	No Further Action
Columbia Machines Site	107 Grand Ave.	31035000	Columbia Machines	45241242	Submitted voluntary cleanup plan May 2008. Independent remedial action in progress.	Known

Vancouver's Known and Suspected Contaminated Sites - from the Water Protection Program Database

Site Name	Address	Parcel #	Ecology Site Name	Ecology ID	Site Notes	Status
Columbia Marine Lines Site	6305 NW Lower River Rd	153110000	Columbia Marine Lines	26	Ecology issued an Agreed Order. A detailed description of the contamination, remedial activities and selection of the final measures can be found in the RIFS SLR, 2008. In July 2008 Crowley Maritime met with the City at a preapp meeting in preparation for initiating excavation and bioremediation activities at the site. Following removal the impacted soil will be landfarmed. Excavation was completed 2009. Currently following a post-cleanup O&M procedure.	Cleaned Up
Columbia Pest Control Dump Site	8405 NE Calef Rd	145284000	Columbia Pest Control Dump	1028	Designated cleaned up (NFA) in August 1991 by Ecology	Cleaned Up
Commercial Radiator Site	11408 NE Rosewood Ave	157502000	Commercial Radiator Service	98665473	Soil was sampled and analyzed for lead, copper and zinc. Analytical results for all three were above Washington's MTCA soil cleanup levels. A Health Dept. risk evaluation of the site indicated a moderate route score of 12.7 for surface water/human health risk, a fairly high route score of 24.5 for surface water/environment risk, and a high route score of 48.5 for ground water/human health risk. The site remains on Ecology's Confirmed and Suspected Contaminated Sites list.	Known
ConocoPhillips 4th Plain Station Site	2721 E. 4th Plain Blvd	29756000	Circle K Store 8831	64763623	Ecology issued a No Further Action letter in 2006.	No Further Action
ConocoPhillips Andresen Site	3105 NE Andresen Rd	162961000	TOSCO 1104430095		Involved in an independent cleanup. Currently submitting quarterly groundwater monitoring reports to Ecology (formerly BP Oil site).	Suspected
Crites Property Site	320 W. 28th St.	9640000	Crites Property	9189718	In Sept. 2006 Ecology completed an initial assesment and sent an early notice letter to the site owner. Confirmed petroleum products in the soil.	Evaluating
Crown Plating Site	4221 NE St. Johns Road Apt. G	100120122	Crown Plating Inc	51528464	This site completed its independent remedial action and was delineated No Further Action by Ecology in October 1998.	No Further Action
Curt Warner Chevrolet Site	10811 SE Mill Plain Blvd	165954000	Curt Warner Chevrolet	1068	This site completed its independent remedial action and was delineated No Further Action by Ecology in May 1994.	No Further Action
Custom Care Cleaners	6319 E Mill Plain Blvd	37909804	Custom Care Cleaners	1049	Clean up completed	Cleaned Up
Custom Care Cleaners Site	6319 E Mill Plain Blvd	37909804	Custom Care Cleaners	1049	Cleanup completed	Cleaned Up
Dick Hannah Chrysler Site	8900 SE Mill Plain Blvd.	110840000	Dick Hannah Chrysler Plymouth Site	61117355	Remedial activities included the removal of a waste oil tank, septic tank, hydraulic hoists, and concrete vault, and decommissioning of drywells. During decommissioning 363 tons of soil contaminated by petroleum hydrocarbons were excavated and disposed offsite. In March 1999 a Restrictive Covenant (RC) was recorded for the site. Ecology issued a Determination of No Further Action the same month. The main protections are to the asphalt and concrete cap that cover the contaminated soil.	Known
Dunmire Property Site	4103 Oregon Drive	37911208	Dunmire Property	8110344	In Oct. 2006 Ecology completed an initial assesment and sent an early notice letter to the site owner. Confirmed petroleum products in the soil.	Evaluating
Electro Heavy Equipment Site	7525 NE 47th Ave	99642000	Electro Heavy Equipment	1064	An initial Site Hazard Assessment was scheduled in March 2006 to investigate this property for suspected contamination. Based on the Assessment, as of September 2007 the site has been re-designated No Further Action.	No Further Action
Electro-Tech Site	13511 NE Kerr Road	107660000	Electro Tech Metal Finishing LLP,	74748387	In January 2007, Ecology issued an administrative order with 9 conditions. By September Electro-Tech had met only two of the conditions and ignored orders to clean up spill, insure tanks aren't leaking and check the septic tanks for contamination. Ecology and the County Health then tested the septic tanks and found high concentrations of chromium, copper, other metals and petroleum products. In July 2007 Electro-Tech had a spill with washed an unknown volume of wastewater into a drywell. By failing to report the spill they violated dangerous waste regulations and were fined \$30,000 by DOE. Groundwater samples indicated elevated concentrations of chromium, lead and arsenic. In 2008 the owner applied to connect to City sanitary sewer. The site was added to Ecology's contaminated sites listing in 2008.	Evaluating

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Electro-Tech Site	13511 NE Kerr Road	107650000	Electro Tech Metal Finishing LLP,	74748387	In January 2007, Ecology issued an administrative order with 9 conditions. By September Electro-Tech had met only two of the conditions and ignored orders to clean up spill, insure tanks aren't leaking and check the septic tanks for contamination. Ecology and the County Health then tested the septic tanks and found high concentrations of chromium, copper, other metals and petroleum products. In July 2007 Electro-Tech had a spill with washed an unknown volume of wastewater into a drywell. By failing to report the spill they violated dangerous waste regulations and were fined \$30,000 by DOE. Groundwater samples indicated elevated concentrations of chromium, lead and arsenic. In 2008 the owner applied to connect to City sanitary sewer. The site was added to Ecology's contaminated sites listing in 2008.	Evaluating
Electro-Tech Site	13511 NE Kerr Road	107640000	Electro Tech Metal Finishing LLP,	74748387	In January 2007, Ecology issued an administrative order with 9 conditions. By September Electro-Tech had met only two of the conditions and ignored orders to clean up spill, insure tanks aren't leaking and check the septic tanks for contamination. Ecology and the County Health then tested the septic tanks and found high concentrations of chromium, copper, other metals and petroleum products. In July 2007 Electro-Tech had a spill with washed an unknown volume of wastewater into a drywell. By failing to report the spill they violated dangerous waste regulations and were fined \$30,000 by DOE. Groundwater samples indicated elevated concentrations of chromium, lead and arsenic. In 2008 the owner applied to connect to City sanitary sewer. The site was added to Ecology's contaminated sites listing in 2008.	Evaluating
Electro-Tech Site	13511 NE Kerr Road	107613000	Electro Tech Metal Finishing LLP,	74748387	In January 2007, Ecology issued an administrative order with 9 conditions. By September Electro-Tech had met only two of the conditions and ignored orders to clean up spill, insure tanks aren't leaking and check the septic tanks for contamination. Ecology and the County Health then tested the septic tanks and found high concentrations of chromium, copper, other metals and petroleum products. In July 2007 Electro-Tech had a spill with washed an unknown volume of wastewater into a drywell. By failing to report the spill they violated dangerous waste regulations and were fined \$30,000 by DOE. Groundwater samples indicated elevated concentrations of chromium, lead and arsenic. In 2008 the owner applied to connect to City sanitary sewer. The site was added to Ecology's contaminated sites listing in 2008.	Evaluating
Emerald - Inman Contamination Site	1300 W 12th St	59890000	Emerald Petroleum Services Vancouver	47231541	A UST investigation evaluated the soil and groundwater chemistry in the vicinity of the UST sites. Soil samples were sampled for petroleum contamination, volatile organic hydrocarbons and total lead. Hydrocarbons were discovered at the site in concentrations above MTCA cleanup levels. In early 2000 another series of samplings were performed measuring for TPH, BTEX, polychlorinated byphenols (PCB's), phenols, and polynuclear aromatic hydrocarbons (PAH's). BTEX compounds were not detected in the groundwater samples. In a sampling study performed in mid-2003 samples showed the presence of MTBE, PCE and TCE in the groundwater at concentrations exceeding the MTCA cleanup levels. Chloroform and cis-1,2-dichloroethene were also detected, but at that time there was no MTCA cleanup level for these.	Known
Esquire Cleaners	7615 MacArthur Blv	37911149	Esquire Cleaners/MacArthur Center	96459896		Known
Esquire Cleaners Site	7615 MacArthur Blv	37911149	Esquire Cleaners/MacArthur Center	96459896	Phase I Site Assessment completed in July 2008. DOE has reviewed VCP application and will liley require additional testing. Soil samples have shown PCE is present on-site. No groundwater sampling has been done to date. Entered into VCP program in 2010.	Known

Vancouver's Known and Suspected Contaminated Sites - from the Water Protection Program Database

Site Name	Address	Parcel #	Ecology Site Name	Ecology ID	Site Notes	Status
Evergreen Airport Site	13910 SE Mill Plain Blvd	165167000	Evergreen Airport	7056386	The site was entered into the VCP program in October 2005. An Opinion Letter for the independent Cleanup Action Plan was completed and distributed in early 2006. Some samples of TPH-O, cadmium, total chromium, lead, and benzene from the Hangar area exceeded the MTCA Cleanup levels. Soil samples collected at the UST and Insurance Hangar showed results for TPH, VOC's, PCB's, PAH's and lead below the MTCA cleanup level. The reporting limit for benzene exceeded the Cleanup level. Ecology approved a proposed Cleanup Action for the site in Sept. 2006 provided that additional sampling is done for chromium and lead, and that drywell areas are tested and then decommissioned. Cleanup actions at the site included excavation of contaminated soil, removal of underground and above-ground storage tanks and piping, and disposal of contaminated soil. Based on sampling results and cleanup activities, Ecology determined that the site no longer poses a threat to the environment or human health. A No Further Action Opinion was proposed in December 2008 and in April 2009 Ecology removed the site from the Hazardous Sites List because the site no longer poses a threat and meets MTCA cleanup standards.	No Further Action
Evergreen Airport Site	13910 SE Mill Plain Blvd	165179000	Evergreen Airport	7056386	The site was entered into the VCP program in October 2005. An Opinion Letter for the independent Cleanup Action Plan was completed and distributed in early 2006. Some samples of TPH-O, cadmium, total chromium, lead, and benzene from the Hangar area exceeded the MTCA Cleanup levels. Soil samples collected at the UST and Insurance Hangar showed results for TPH, VOC's, PCB's, PAH's and lead below the MTCA cleanup level. The reporting limit for benzene exceeded the Cleanup level. Ecology approved a proposed Cleanup Action for the site in Sept. 2006 provided that additional sampling is done for chromium and lead, and that drywell areas are tested and then decommissioned. Cleanup actions at the site included excavation of contaminated soil, removal of underground and above-ground storage tanks and piping, and disposal of contaminated soil. Based on sampling results and cleanup activities, Ecology determined that the site no longer poses a threat to the environment or human health. A No Further Action Opinion was proposed in December 2008 and in April 2009 Ecology removed the site from the Hazardous Sites List because the site no longer poses a threat and meets MTCA cleanup standards.	No Further Action
Evergreen Airport Site	13910 SE Mill Plain Blvd	167669000	Evergreen Airport	7056386	The site was entered into the VCP program in October 2005. An Opinion Letter for the independent Cleanup Action Plan was completed and distributed in early 2006. Some samples of TPH-O, cadmium, total chromium, lead, and benzene from the Hangar area exceeded the MTCA Cleanup levels. Soil samples collected at the UST and Insurance Hangar showed results for TPH, VOC's, PCB's, PAH's and lead below the MTCA cleanup level. The reporting limit for benzene exceeded the Cleanup level. Ecology approved a proposed Cleanup Action for the site in Sept. 2006 provided that additional sampling is done for chromium and lead, and that drywell areas are tested and then decommissioned. Cleanup actions at the site included excavation of contaminated soil, removal of underground and above-ground storage tanks and piping, and disposal of contaminated soil. Based on sampling results and cleanup activities, Ecology determined that the site no longer poses a threat to the environment or human health. A No Further Action Opinion was proposed in December 2008 and in April 2009 Ecology removed the site from the Hazardous Sites List because the site no longer poses a threat and meets MTCA cleanup standards.	No Further Action
Evergreen Airport Site	13910 SE Mill Plain Blvd	167671000	Evergreen Airport	7056386	The site was entered into the VCP program in October 2005. An Opinion Letter for the independent Cleanup Action Plan was completed and distributed in early 2006. Some samples of TPH-O, cadmium, total chromium, lead, and benzene from the Hangar area exceeded the MTCA Cleanup levels. Soil samples collected at the UST and Insurance Hangar showed results for TPH, VOC's, PCB's, PAH's and lead below the MTCA cleanup level. The reporting limit for benzene exceeded the Cleanup level. Ecology approved a proposed Cleanup Action for the site in Sept. 2006 provided that additional sampling is done for chromium and lead, and that drywell areas are tested and then decommissioned. Cleanup actions at the site included excavation of contaminated soil, removal of underground and above-ground storage tanks and piping, and disposal of contaminated soil. Based on sampling results and cleanup activities, Ecology determined that the site no longer poses a threat to the environment or human health. A No Further Action Opinion was proposed in December 2008 and in April 2009 Ecology removed the site from the Hazardous Sites List because the site no longer poses a threat and meets MTCA cleanup standards.	No Further Action
Evergreen Memorial Gardens Site	1101 NE 112th Ave	164929000				Evaluating

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Site Name	Address	Parcel #	Ecology Site Name	Ecology ID	Site Notes	Status
Evergreen Memorial Gardens Site	1101 NE 112th Ave	16500000				Evaluating
Excel Designs	6019 NE 109th Avenue	109030000				Suspected
Excel Designs Site	6019 NE 109th Avenue	109030000	Excel Designs, Inc.	19464	Did groundwater sampling at site and found chromium, arsenic and lead contamination. County Health will continue to monitor and will change designation to confirmed.	Suspected
Exxon Station 73594 Site	13204 NE Hwy 99	186754000	Exxon Station 73594	53876575	Confirmed petroleum products in soil and groundwater. Voluntary Cleanup program initiated October 2002	Known
FAA - US DOT Maintenance Site	9018 NE 130th Ave	154435001	US DOT FAA Vancouver Field Maintenance Project	29289264	Confirmed petroleum products, cyanide and metals in soil. Contaminated soil, septic system, OWS, piping & drywell removed from site under VCP. New OWS installed, shop connected to sanitary sewer. NFA letter from Ecology issued May 23, 2011.	No Further Action
Flowsolve Site	10400 NE 13th Ave.	118093000	Flowsolve Corp	12775317	Confirmed petroleum products in soil and suspected in groundwater. Investigation was initiated in January 2005.	Known
FMC Corporation Site	1710 SE Access Road (now Columbia River Dr.)	35771494	FMC Corp Vancouver	1016	In 1987 under review of the Dept. of Ecology, approximately 60 cu. yd. of contaminated soil was removed from the pit area along with 75 cu.yd. of overburden material. The material was analyzed for cyanide. Portions of the basement area with concentrations greater than 20 ppm were further excavated, stockpiled and analyzed. About 175 cu.yd. total soil were removed and disposed offsite. After the excavation, all areas tested below 20 ppm for cyanide. Ecology designated the site cleaned up (NFA) in October 1990.	Cleaned Up
Former Chevron 92097 Site	7220 NE Hwy 99	98825010	Former Chevron 9209	41626836	Confirmed metals, solvents and petroleum products in soil and groundwater. Confirmed dioxin in soil. Voluntary Cleanup program initiated January 2006 with remedial action in progress	Known
Fort Vancouver Plywood Site	0 W 8th St	502100000	Fort Vancouver Plywood	1029	The Port is under a formal agreement with the Department of Ecology and has removed the contaminated soil from the site. This site is now in use by a metal recycling facility. Groundwater monitoring is on-going.	Known
Fourth Plain Dry Clean Site	2523 E Fourth Plain Blvd	29904000	EPA Fourth Plain Blvd. Dry Cleaners Site	EPA WAD988475	A site reassessment was completed for the EPA by K&S Environmental in December 2005. The EPA determined, based on this new assessment, that no further action under the Superfund program is warranted on the site.	No Further Action
Fred Meyer Hazel Dell Site	7700 NE Hwy 99	98825201	Fred Meyer Inc Hazel Dell	29822132	An independent investigation and Site Hazard assessment occurred in 1998. An independent report is scheduled for completion in 2006.	Known
Frito-Lay Truck Repair Site	4808 NW Fruit Valley Rd	6727033	Frito Lay Vancouver	81587474	After an early voluntary cleanup and assessment the site was given a No Further Action designation on 3/5/1999. In April 2009 Frito applied again in the Voluntary Cleanup Program for removing petroleum from the soils.	No Further Action
Frontier Hard Chrome Site	113 Y St.	33824000	Frontier Hardchrome	197	The EPA began the site cleanup in late 2002 removing 250 truckloads of contaminated soil. In 2003 workers demolished the old buildings and pulled up the concrete foundation. They also drilled hundreds of overlapping holes, injecting each with a sulfur-based chemical reactant devised to convert hexavalent chromium to an inert form of trivalent chromium. Although the chromium will be converted but not removed, combined with an underground reactive barrier of an iron-based chemical between the pollution hot spot and the Columbia River, EPA officials believe the groundwater will be safe enough to drink in a matter of years. In Sept. 2004 the EPA passed its authority as lead monitoring agency to the Dept. of Ecology. Ecology will continue to test groundwater every 6 months until cleanup goals are met. The EPA indicates that, although no new wells are allowed near or downgradient of the contamination, the site is now ready for redevelopment.	Cleaned Up
Garry Brown Photography	5905 NE 109th Avenue	108991000			Septic tank sampled by COV & DOE, found to contain toxic dangerous waste due to high silver content. Further characterization of waste & site evaluation at property owner's expense pending.	Suspected
Garry Brown Photography	5905 NE 109th Avenue	108991000	Gary Brown Photography	65134218	Clark County Health completed groundwater sampling and found Chromium and Lead. Will designate as known site.	Suspected
General Chemical Site	2611 W 26th St Extension	59118022	General Chemical Corp Vancouver	1011	A 10,000 gallon diesel tank was permanently decommissioned in 1998. Testing indicated non-detect on all TPH samples. In 1999 monitoring began at the site for sulfates, iron, chromium, arsenic and TDS. Site investigations included the installation of monitoring wells to evaluate groundwater quality in the vicinity of the pond.	Suspected

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Site Name	Address	Parcel #	Ecology Site Name	Ecology ID	Site Notes	Status
Glacier Northwest Site	3101 NW Gateway	152177000			In April 2003 Ecology's Voluntary Cleanup Program reviewed an independent cleanup report relating to this site. Based on this information, Ecology concluded the release addressed in this report does not represent a threat to human health and the environment and issued a No Further Action letter.	No Further Action
Gramor Development Site	5000 NE Fourth Plain Blvd	30242047	Gramor Development	81243434	The nearby Arco station was a suspected source of contamination. A subsequent Phase II report showed the contamination was limited in extent and not likely to be mobile. Currently scheduled for a site hazard assessment.	Known
Hazel Dell Auto Care Site	6900 NE Hwy 99	148020000	Hazel Dell Auto Care Center	66578798	Independent remedial action in progress.	Known
Hazel Dell Auto Care Site	6900 NE Hwy 99	148093000	Hazel Dell Auto Care Center	66578798	Independent remedial action in progress.	Known
Heuval Enterprises Site	4601 NE 78th St.	99620010	Heuval Enterprises	4273089	In 2003, Ecology's Voluntary Cleanup Program reviewed an independent cleanup report relating to this site. Ecology concluded the release addressed in this report does not represent a threat to human health and the environment and has issued a No Further Action letter with a Restrictive Covenant. Groundwater sampling in April 2011 indicated that contamination was no longer detected.	No Further Action
J & S Steel Site	13510 NE 4th Plain	158613000	J & S Steel	3844822	Site has been ranked by Ecology and was listed on the Hazardous Sites Listing in February 2008. It is awaiting Remedial Action.	Evaluating
Jackpot Food Mart Hwy 99 Site	9948 NE Hwy 99	96621107	Jackpot Food Mart 120		Independent remedial action. Opinion letter tendered.	Evaluating
Jiffy Lube 4th Plain Site	6317 E 4th Plain Blvd	29460000	Jiffy Lube Vancouver	62389552	Confirmed petroleum products, halogenated compounds, metals, cyanide and PAH's in soil and groundwater. Voluntary Cleanup program. Remedial action in process.	Known
Koppe Metals Site	1700 W. 4th Plain Blvd.	58675000	Cliff Koppe Metals, Inc.	54933627	Owner submitted a Voluntary Cleanup Application in April 2009. Soil and groundwater were contaminated with metals, cyanide, PCB's, petroleum products, and PAH's. An independent remedial action is in progress.	Known
KP McNamara Site	503 SE Maritime Ave.	31093000			A Focused Subsurface Investigation was done by Creekside Environmental for DOE and Clark County Health in early 2008 which revealed some contaminants in the soils at the site. A total of 30 soil boring samples were collected and some shallow groundwater was also collected. Soil analytical results: TPH was not detected; Metals - arsenic, barium, chromium III, and lead were detected in soil below concentrations of regulatory concern; Naphthalene at .37 mg/Kg; and detected concentrations of PAH's in shallow soil exceed regulatory levels of concern. No evidence that soil contaminants could leach to aquifer.	Evaluating
Kyocera 4th Plain Site	5713 E. Fourth Plain Blvd	29472018	Kyocera Industrial Ceramics Corp	78857363	The Dept. of Ecology prepared an ERTS report indicating that PCE was found at the site by Hahn Associates who were performing a Phase II site assessment for the Vancouver Housing Authority.	Known
L&L Land - Marine Park Site	3500 Hidden Way & Assembly Ave.	31087005	L&L Land Co.,	15550	In March 2009 the City was accepted into Ecology's Voluntary Cleanup Program. The City and L&L will perform monitoring and other remedial action in order to pursue a No Further Action designation.	Known
Larson's Dry Cleaner Site	501 NE 78th St	148226000	Larsons Dry Cleaner	75243248	The initial investigation and Site Hazard assessment by Ecology occurred in 2001. An independent report was prepared in 2004 and the routine cleanup continued through 2005.	Known
Leichner Landfill Site	9411 NE 94th Ave	199857000	Leichner Brothers Landfill	1017	In 1987 Ecology issued a Consent Order requiring Leichner to investigate the site. In 1992 about 68,000 yards of soil were removed from a former refuse burning area and placed under a composite cap. The cap was completed in 1996. Leichner's was a municipal solid waste landfill from the late 1930's through 1991. From the mid-60's on the landfill compacted waste materials in areas where sand and gravel had been mined. The extent of the landfill is about 70 acres. Investigations from 19897 to 1991 indicated that the landfill had contaminated the shallow groundwater. Testing showed elevated levels of inorganics and volatile organic compounds (VOC's). A gas collection system was installed to collect gas generated from the garbage. Gas condensate was first generated at the site in May 1990 and additional gas collection systems were added in 1992. The gas passes through a condenser and condensate is collected.	Known
Malcolm Montague Site	1600 W. 20th St.	58710000	Malcolm Montague	12436367	Began initial investigation in 1990. Site hazard assessments were done in 1992-1995 and it was listed as a confirmed site in 8/95. Site has been on the voluntary cleanup list since 2001. An RIFS was initiated in 3/07 and is anticipated to be completed by 12/09.	Known

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Manor Highway Auto Site	11418 NE 72nd	119887180	Manor Highway Auto Sales	3780556	Confirmed petroleum products and solvents in soil, suspected in groundwater. Early notice letter sent October 2008. Awaiting assessment	Known
Marine Park Boat Launch Site	SE Marine Park Way	502308000	City of Vancouver Boat Launch Site	9115551	In March 2009 the City was accepted into Ecology's Voluntary Cleanup Program. L&L Land and Oregon Ironworks worked together to develop a full site cleanup proposal. The City will submit a proposal for monitoring, paving and other measures in order to pursue a No Further Action designation.	Known
Marine Park Boat Launch Site	SE Marine Park Way	502389000	City of Vancouver Boat Launch Site	9115551	In March 2009 the City was accepted into Ecology's Voluntary Cleanup Program. L&L Land and Oregon Ironworks worked together to develop a full site cleanup proposal. The City will submit a proposal for monitoring, paving and other measures in order to pursue a No Further Action designation.	Known
Marine Park Boat Launch Site	SE Marine Park Way	503080000	City of Vancouver Boat Launch Site	9115551	In March 2009 the City was accepted into Ecology's Voluntary Cleanup Program. L&L Land and Oregon Ironworks worked together to develop a full site cleanup proposal. The City will submit a proposal for monitoring, paving and other measures in order to pursue a No Further Action designation.	Known
Matzen Property Site	3303 E. McLoughlin Blvd.	37301650	Matzen Property	938507	Initial investigation started 12/2001 and ended 4/2005.	Suspected
Miltons Dry Cleaners Site	6721 E 4th Plain Blvd	161896000	Miltons Dry Cleaners	19779	The initial investigation was done in 1994 and a site hazard assessment was completed in 1998. The site received a hazard rating of 2. Independent cleanup report was reviewed in 2001 and cleanup construction occurred in 2002. In 2007 Ecology and Milton's Dry Cleaners began negotiations for an agreed order to complete a remedial investigation, feasibility study and a draft cleanup action plan. Final consent decree was issued in February of 2008. Remedial investigations began in summer of 2008 involving new monitoring well installation and soil boring in the area surrounding the site to determine the full extent of the contaminant plume. In 2010 Fort Vancouver High was tested for possible vapor intrusion from the plume. The Washington Department of Health (DOH) evaluated the soil gas (vapor) and indoor and outdoor air data collected at the high school and concluded that the contaminated soil gas does not appear to pose a health threat in that it is not moving up through the foundation into indoor air.	Known
NuStar Energy - Port of Vancouver	2565 NW Harborside Dr. (POV Terminal 2)	502010000	NuStar Energy LP	1026	Agreed Order in Place, RI/FS in preparation.	Known
NuStar Energy - Port of Vancouver	2565 NW Harborside Dr. (POV Terminal 2)	502010002	NuStar Energy LP	1026	Agreed Order in Place, RI/FS in preparation.	Known
NuStar Energy - Port of Vancouver	2565 NW Harborside Dr. (POV Terminal 2)	151979000	NuStar Energy LP	1026	Agreed Order in Place, RI/FS in preparation.	Known
NuStar STOP Tank Farm Site	5420 NW Fruit Valley Road	147360000	ST Operating Partnership Tank Farm	61862781	The site was added to Ecology's database of Confirmed and Suspected Contaminated Sites" in 2005. Samples collected in May, August and November 2007 showed petroleum contaminant levels had dropped below MTCA cleanup levels except for benzene which had 71 ppb in May. Later samples show benzene below MTCA. The latest MTBE concentration measured was 83 ppb, still above MTCA. CPU's plan to develop a public water supply "could potentially induce migration of contaminated groundwater from under the NuStar site, and other remediation sites in the Vancouver lowlands, toward the CPU field. NuStar is required by Ecology to continue water sampling and to submit a Remedial Investigation report, Risk Assessment and Feasibility Study.	Known
Oregon Iron Works Site	3515 SE Columbia Way	37762000	Oregon Iron Works Vancouver Facility	28846857	A site discovery report was received in January 2007 and soil contamination was confirmed (metals and petroleum products). Groundwater contamination is also suspected. In 2010 OIW began excavation of the contaminated debris. Ecology issued VCP opinion letter.	Known
Oregon Iron Works Site	3515 SE Columbia Way	37763000	Oregon Iron Works Vancouver Facility	28846857	A site discovery report was received in January 2007 and soil contamination was confirmed (metals and petroleum products). Groundwater contamination is also suspected. In 2010 OIW began excavation of the contaminated debris. Ecology issued VCP opinion letter.	Known
Oregon Iron Works Site	3515 SE Columbia Way	31074005	Oregon Iron Works Vancouver Facility	28846857	A site discovery report was received in January 2007 and soil contamination was confirmed (metals and petroleum products). Groundwater contamination is also suspected. In 2010 OIW began excavation of the contaminated debris. Ecology issued VCP opinion letter.	Known

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Pacific Cogeneration Site	W. 11th St	59490000	Pacific Cogeneration Site	1066	Soil contamination was confirmed in 1994. Last update to Ecology database in 2005.	Evaluating
Perkins Dental	2616 NE 112th Avenue	162643000	Perkins Dental		Septic tank sludge sampled in February 2010 due to suspicion of amalgam waste discharge. Sludge designated as EHW for high mercury content. Waste removal and further site contamination evaluation pending.	Evaluating
Permalume Plastics Site	5015 NE 78th St	156786000	Permalume Plastics Corporation	1065	Project Status: On October 30, 1996 the Washington Department of Ecology began removing more than 1,500 containers of flammable and toxic materials, as well as hazardous waste, at this site in Vancouver. Ecology arranged for cleanup of materials onsite because of the serious fire hazard and threat to public safety and the environment. Cleanup actions have included emptying and removing a septic tank, and cleaning the concrete slab the facility sat on. Soil and groundwater were tested for TCE and chromium to check that the property was not being affected by contamination from the nearby Boomsnub/BOC Gases Superfund site or from Permalume's industrial operation. The wastes were packaged and hauled away. The business owner is cooperating in the materials cleanup and agreed to reimburse Ecology for cleanup expenses. In 2002, trichloroethylene (TCE) was found in drinking water wells on the site and the site later entered the Voluntary Cleanup program (VCP) An environmental cleanup firm was contracted to handle the septic tank and purge water disposal in early 2003. At the end of this cleanup, Permalume submitted an Independent Cleanup Report. Based on the Site Manager's review of this report, Ecology determined that the site is no longer a threat to human health or the environment. Ecology sent a no further action (NFA) letter in 2006 and the public comment period is the final step before removing the site from the Hazardous Sites List.	No Further Action
Phoenix 120 Property Site	2315 Grant St	56430000	Phoenix 120 Grant St Property	8734256	Project Status: After removing 11.4 tons of contaminated soil, Phoenix applied in January 2004 for a voluntary cleanup review from the Dept. of Ecology. No field evidence was found of contamination in the floor of the excavations site. In Sept. 2004 Ecology issued a No Further Action letter for the Remedial Action.	Cleaned Up
Plaid Pantry 4th Plain Site	5210 E 4th Plain	30243030	Plaid Pantry No. 23	78978458	Currently (2007) conducting an independent cleanup of the site. Submitting groundwater monitoring reports.	Known
Port Building 2220 (Swan Mfg) Site	2001 W 4th Plain Blvd	59115019	Port of Vancouver Bldg 2220	85381664	Ecology conducted a site hazard assessment and placed the site on the Hazardous Sites List. About 14,000 cubic yards of TCE-contaminated soil was excavated and stockpiled onsite. The soil was treated by injecting heated air in combination with soil vapor extraction in the stockpile. Groundwater cleanup is being conducted in cooperation with the Department of Ecology under an Agreed Order. Several source area cleanup methods were evaluated by the Port and Ecology, the chemical oxidation method using Fenton's reagent was ranked as the most efficient and cost effective, and safe way to eliminate TCE in groundwater at this location. Fenton's treatment of groundwater was initiated in January 2002 and continued through Spring 2004. In early 2008 Ecology and the Port of Vancouver entered into an Agreed Order to complete an Interim Action at the Cadet and Building 2220 (former Swan Manufacturing) site in Vancouver. The proposed Interim Action will provide area-wide containment and continued treatment of contaminated groundwater.	Known
Port Parcel 58720000 Site	1501 W 8th St	58720000	Port of Vancouver 058720-000	5922991	Initial investigation March 2008. Confirmed petroleum products in groundwater, suspected in soil. Awaiting assessment	Known
Port Way/Pacific Coast Shredding Site	Port Way right-of-way	58926000	Port Way ROW/Pacific Coast Shredding	2297659	As a result of an investigation done by Clark County Health, the site was added to Ecology's "Confirmed or Suspected Contaminated Sites" database in 2008. Both soil and groundwater contamination with petroleum hydrocarbons are suspected but not confirmed. Sampling done by the City of Vancouver showed non-detects in the soils below the most impacted section of the roadside. Ecology may conduct a more detailed "Site Hazard Assessment" in the future.	Suspected

Vancouver's Known and Suspected Contaminated Sites - from the Water Protection Program Database

Site Name	Address	Parcel #	Ecology Site Name	Ecology ID	Site Notes	Status
Portco Corporation Site	4200 SE Columbia Way	37910174	Portco Corp	98588242	An independent contractor performed a limited groundwater investigation in 1995. Four groundwater samples were analyzed for volatile organic compounds and one was analyzed for TPH. VOC's and TPH were detected in the samples but at concentrations below MTCA cleanup levels for groundwater. In June 1996 Pedigo requested a letter of No Further Action from the Dept. of Ecology. In 2013 Ecology found that soils contaminated with petroleum were left in place above MTCA cleanup levels. No further investigations into groundwater impacts were conducted. No final cleanup report was submitted to Ecology. In April 2013 the site was added to the State Cleanup Site List.	Known
Portco Pedigo Site	4000 SE Columbia Way	37910173	Portco Corp Pedigo Products	30759	An independent contractor performed a limited groundwater investigation in 1995. Four groundwater samples were analyzed for volatile organic compounds and one was analyzed for TPH. VOC's and TPH were detected in the samples but at concentrations below MTCA cleanup levels for groundwater. In June 1996 Pedigo requested a letter of No Further Action from the Dept. of Ecology. As of Dec. 2004 Ecology's evaluation was in progress. Samples taken in August 2007 showed elevated levels of benzene, toluene, ethylbenzene and xylenes.	Known
Precision Paving Site	7510 NE 99th St.	119500000	Precision Paving	8237457	Confirmed petroleum products in soil, surface water and groundwater. VCP Letter issued. Remedial action in process.	Known
Pyle Property Site	4416 NW Fruit Valley Rd	102291000	Pyle Property	2062470	Suspected metals and petroleum products in soil, groundwater and drinking water. Initial investigation January 2006. Awaiting a Targeted Brownfield Assessment by the EPA. .	Suspected
Robertsons Paint Shop Site	14114 SE Mill Plain Blvd	167680000	Robertson Paint Shop	1033	Soil samples were collected during installation of a water monitoring well at the site. Sample for TPH, VOC's and one sample of PAH's were below MTCA Cleanup levels. Metals and methylene chloride were not analyzed. A proposed cleanup presented to Ecology for the Robertson and Evergreen Airport sites in late 2005 was determined not likely sufficient to meet requirements.	Known
Roegner Heating Oil Tank Site	4904 NE 40th Ave	149543000	Roegner Heating Oil Tank	2484731	The environmental firm hired to evaluate the site reviewed the potential contaminant pathways and then sent a report to the DOE saying that "the depth and type of contamination is not a threat for leaching to groundwater", requesting that Ecology issue a "No Further Action" designation through the Voluntary Cleanup Program. As of 2/05 Ecology is still reviewing the report and the site.	Cleaned Up
Ropes Unlimited Site	7501 NE 47th Ave.	99643000	Ropes Unlimited	69432892	Independent report and routine cleanup started May 2005.	Known
Saint Johns Auto Repair Site	5520 NE St. Johns	99775010			Site entered into ERTS system for initial hazard assessment.	Evaluating
Sears UST 5379 Site	4911 NE Thurston Way	160251000	Sears Roebuck & Co UST 5379	87137559	The backfilled material had TPH concentrations of 9 ppm. The material was stockpiled and removed in 1995. The asphalt cap over the excavation site will minimize surface infiltration and allow for hydrocarbon degradation in any remaining contaminated soil. The Dept. of Ecology concluded in 1999 that No Further Action was necessary.	No Further Action
Shell Dennis Meadows Site	812 NE 78th St	145236000	Shell Dennis Meadows	46933333	Cleanup operations began in 1993 to remove gasoline contaminated soils from the site. Because of potential damage to a sewer line, not all soil was removed. Soil contamination was measured at over 100 ppm TPH. Excavation was backfilled in 1993. In Sept. 1993 3 groundwater wells were installed. Sampling showed TPH-G of 0.57 ppm, toluene .001 ppm, benzene .083 ppm, xylene .048 ppm, at lead at .022 ppm. By 1998 all samples were non-detect. In August 2006 the applicant for a Voluntary Cleanup withdrew the application.	Cleaned Up
Shull Property Site	317 W 28th St	9280000	Shull Property	2893056	An initial investigation in June 2006 confirmed soil contamination of petroleum products. Groundwater contamination is suspected.	Suspected

Vancouver's Known and Suspected Contaminated Sites - from the Water Protection Program Database

Site Name	Address	Parcel #	Ecology Site Name	Ecology ID	Site Notes	Status
Silgan Container Site	2601 NE Lower River Rd	59118012	Silgan Container Corp Vancouver	4999864	In 1997 a limited site investigation indicated the presence of petroleum hydrocarbons near the eastern railroad spur and other areas. The investigation showed hydrocarbon contamination levels of 610 ppm, 770 ppm, 960 ppm, 1660 ppm, and a maximum level detected at 5700 ppm. This contamination is likely associated with leaking oil from a train engine and equipment, or small spills during loading. The WDOE cleanup level for hydrocarbons in soil is 200 ppm. Elevated concentrations of lead exceeding 8600 ppm were also detected along the spur. The lead concentrations were greater than the WDOE action levels of 1000 ppm. Trimethylbenzene (1,3,5- and 1,2,4-) was also detected in the soils during the investigation. Results of the analyses of groundwater sampled did not indicate the presence of total lead or VOC's above detection limits. Shallow contaminated soils near the sump were previously remediated to about 4 feet below ground surface by Riedel Environmental. A study by the Park Corporation in 1998 recommended hand excavation of lead impacted soils near the former sump and a health-risk study to establish the viability of leaving the hydrocarbon impacted soils in that area in place. Park recommended that the hydrocarbon contamination near the storage area be capped with concrete to inhibit migration. For the lead and petroleum affected soils near the railroad spur it was recommended that the soil be excavated and disposed.	Cleaned Up
ST Services (NuStar) Site	2565 NW Harborside Dr	502010000	NuStar Energy LP	1026	In 1998 ST Services purchased the site and entered into an agreed order with Ecology to complete a remedial investigation, feasibility study and interim actions. In 2000 a treatment system was proposed to pump the plume and employ carbon absorption and air stripping. Groundwater remediation began in December 2001 under the supervision of the Toxics Cleanup Program of the DOE. To treat their contaminated area, a gradient was induced and permanganate was injected. The remediation effort was really a short-term pilot and was discontinued in late 2002. They were asked to prepare a Feasibility Study and an Action Plan. In 2007 Ecology and ST Services began negotiations for an agreed order to complete a remedial investigation, risk assessment, feasibility study and interim actions. The RI/FS was submitted in September 2008. In 2011 a new interim action proposed to expand the existing soil vapor extraction system to remove VOC's from the soil and expand the existing enhanced bioremediation system to treat groundwater.	Known
ST Services (NuStar) Site	2565 NW Harborside Dr	502010002	NuStar Energy LP	1026	In 1998 ST Services purchased the site and entered into an agreed order with Ecology to complete a remedial investigation, feasibility study and interim actions. In 2000 a treatment system was proposed to pump the plume and employ carbon absorption and air stripping. Groundwater remediation began in December 2001 under the supervision of the Toxics Cleanup Program of the DOE. To treat their contaminated area, a gradient was induced and permanganate was injected. The remediation effort was really a short-term pilot and was discontinued in late 2002. They were asked to prepare a Feasibility Study and an Action Plan. In 2007 Ecology and ST Services began negotiations for an agreed order to complete a remedial investigation, risk assessment, feasibility study and interim actions. The RI/FS was submitted in September 2008. In 2011 a new interim action proposed to expand the existing soil vapor extraction system to remove VOC's from the soil and expand the existing enhanced bioremediation system to treat groundwater.	Known
Sun Cleaners	10704 NE Fourth Plain	109167000			Dangerous Waste in septic tank, designated for high metals content. Tank clean-out, connection to sanitary sewer and further site evaluation to determine if leach field is contaminated are pending.	Suspected
Sun Dry Cleaners Site	10704 NE Fourth Plain	109167000		11197	Groundwater sampling found exceedances of chromium, lead and arsenic. Clark County Health will continue to monitor and will change designation to confirmed.	Suspected

Vancouver's Known and Suspected Contaminated Sites - from the Water Protection Program Database

Site Name	Address	Parcel #	Ecology Site Name	Ecology ID	Site Notes	Status
Tetra Pak Site	3125 Thompson Ave	50000	Tetra Pak	34822454	<p>Following a request for soil sampling in 1985 by Ecology, sample results showed concentrations of up to 35 ppm of PCP. Monitoring wells installed in 1987 found aliphatic and aromatic hydrocarbons in the soil at concentrations up to 2800 ppm and 1070 ppm respectively from a depth of 9-10 feet. PCP was detected at 15,200 ppm in the soil at about 7 feet below the surface. In 1988 chlorinated solvents were found in the groundwater, and in 1990 Ecology obtained a groundwater sample that showed chromium, arsenic and lead at concentrations above MTCA groundwater cleanup levels. The site was ranked 2 on the states Hazardous Sites List in August 2001. A Remedial Investigation, Risk Assessment and Feasibility Study was completed in late 2004 which identified constituents of concern in site soil and groundwater. Tetra Pak investigated and found contamination in both soil and groundwater. Tetra Pak found pentachlorophenol (PCP), dioxin and furan congeners contaminating the soil. (Congeners are chemically related substances.) Sampling also found PCP in groundwater.</p> <p>In 2013 Ecology proposed the site be removed from the Haz Site List by meeting: Removal or proper closure in place of underground storage tanks where most of the chemicals had been stored. Excavation of accessible contaminated soil and disposal off site. And covering the remaining contaminated soil with an asphalt cap.</p>	Known
Tidewater Barge Lines Site	6 Beach Dr SE	35770524	Tidewater Barge Lines	1021	Between 1986 and 1988, Tidewater pumped water from the pond, treated the water with activated carbon and excavated approximately 2800 cubic yards of contaminated soil from the pond area. Four soil "hot spots" were identified. In 1998, approximately 22,700 cubic yards of clean soil and 6300 cubic yards of contaminated soil were removed. Some petroleum contaminated soil had to be left in the west excavation because of Columbia River setback requirements. Groundwater sampling has verified that remediation was sufficient to protect the groundwater and the Columbia River. No contamination was detected in the final sampling for the "upland area" wells. Sampling in the "lowland area" wells indicated no contamination detectable after the cleanup. Ecology removed the Tidewater site from the Hazardous Sites List on October 8, 1999 with no further action needed.	No Further Action
Tidewater Barge Lines Site	6 Beach Dr SE	503110000	Tidewater Barge Lines	1021	Between 1986 and 1988, Tidewater pumped water from the pond, treated the water with activated carbon and excavated approximately 2800 cubic yards of contaminated soil from the pond area. Four soil "hot spots" were identified. In 1998, approximately 22,700 cubic yards of clean soil and 6300 cubic yards of contaminated soil were removed. Some petroleum contaminated soil had to be left in the west excavation because of Columbia River setback requirements. Groundwater sampling has verified that remediation was sufficient to protect the groundwater and the Columbia River. No contamination was detected in the final sampling for the "upland area" wells. Sampling in the "lowland area" wells indicated no contamination detectable after the cleanup. Ecology removed the Tidewater site from the Hazardous Sites List on October 8, 1999 with no further action needed.	No Further Action
Tidewater Condominiums Site	5615 SE Scenic Lane	503110000	Tidewater Cove Condominiums	7570126	A voluntary cleanup plan was submitted in August 2006. Interim action and remedial investigation/feasibility study submitted in 2008. Ecology completed opinion letter and independent remedial action is in progress. In August 2012 In December 2012 Ecology approved Kennedy/Jenks plans to conduct an additional round of investigation to characterize the extent of contamination in soil and groundwater.	Known
Tidewater Condominiums Site	5615 SE Scenic Lane	986028069	Tidewater Cove Condominiums	7570126	A voluntary cleanup plan was submitted in August 2006. Interim action and remedial investigation/feasibility study submitted in 2008. Ecology completed opinion letter and independent remedial action is in progress. In August 2012 In December 2012 Ecology approved Kennedy/Jenks plans to conduct an additional round of investigation to characterize the extent of contamination in soil and groundwater.	Known
Tidewater Condominiums Site	5615 SE Scenic Lane	35770524	Tidewater Cove Condominiums	7570126	A voluntary cleanup plan was submitted in August 2006. Interim action and remedial investigation/feasibility study submitted in 2008. Ecology completed opinion letter and independent remedial action is in progress. In August 2012 In December 2012 Ecology approved Kennedy/Jenks plans to conduct an additional round of investigation to characterize the extent of contamination in soil and groundwater.	Known

Vancouver's Known and Suspected Contaminated Sites - from the Water Protection Program Database

Site Name	Address	Parcel #	Ecology Site Name	Ecology ID	Site Notes	Status
Tidewater Condominiums Site	5615 SE Scenic Lane	37910192	Tidewater Cove Condominiums	7570126	A voluntary cleanup plan was submitted in August 2006. Interim action and remedial investigation/feasibility study submitted in 2008. Ecology completed opinion letter and independent remedial action is in progress. In August 2012 In December 2012 Ecology approved Kennedy/Jenks plans to conduct an additional round of investigation to characterize the extent of contamination in soil and groundwater.	Known
Time Oil - Handy Andy Site	3314 NE 44th (source) to 2818 NE Cherry Dr (treatment)	150021000	Time Oil Handy Andy 8	1063	An investigation in the early 90's determined that soils were contaminated with a volatile hydrocarbon plume originating from the UST system on the property. The soil was removed and remediated. The investigation also revealed that groundwater was contaminated and the plume had migrated off the property. Time Oil entered into an agreed order with Ecology to install an interim treatment system to capture and treat the gasoline contaminated groundwater. A feasibility study report was completed in 1999 and from that Time Oil and Ecology agreed on a three part cleanup action plan: 1) In-situ air sparging by pumping air into the plume. Hydrocarbons are collected in the soil and removed using soil vapor extraction. 2) Extraction wells at the end of the plume capture groundwater. 3) Monitoring will determine if bioremediation is degrading the central part of the plume. Plans were made in 2008 to install new air sparging wells in the lot adjacent to the site where pockets of contamination had been identified. Treatment will occur at the compound on the Handy Andy lot. Treated groundwater is discharged to Burnt Bridge Creek under NPDES permit WA0040967.	Known
Time Oil - Handy Andy Site	3314 NE 44th (source) to 2818 NE Cherry Dr (treatment)	149766000	Time Oil Handy Andy 8	1063	An investigation in the early 90's determined that soils were contaminated with a volatile hydrocarbon plume originating from the UST system on the property. The soil was removed and remediated. The investigation also revealed that groundwater was contaminated and the plume had migrated off the property. Time Oil entered into an agreed order with Ecology to install an interim treatment system to capture and treat the gasoline contaminated groundwater. A feasibility study report was completed in 1999 and from that Time Oil and Ecology agreed on a three part cleanup action plan: 1) In-situ air sparging by pumping air into the plume. Hydrocarbons are collected in the soil and removed using soil vapor extraction. 2) Extraction wells at the end of the plume capture groundwater. 3) Monitoring will determine if bioremediation is degrading the central part of the plume. Plans were made in 2008 to install new air sparging wells in the lot adjacent to the site where pockets of contamination had been identified. Treatment will occur at the compound on the Handy Andy lot. Treated groundwater is discharged to Burnt Bridge Creek under NPDES permit WA0040967.	Known
Time Oil - Handy Andy Site	3314 NE 44th (source) to 2818 NE Cherry Dr (treatment)	150029000	Time Oil Handy Andy 8	1063	An investigation in the early 90's determined that soils were contaminated with a volatile hydrocarbon plume originating from the UST system on the property. The soil was removed and remediated. The investigation also revealed that groundwater was contaminated and the plume had migrated off the property. Time Oil entered into an agreed order with Ecology to install an interim treatment system to capture and treat the gasoline contaminated groundwater. A feasibility study report was completed in 1999 and from that Time Oil and Ecology agreed on a three part cleanup action plan: 1) In-situ air sparging by pumping air into the plume. Hydrocarbons are collected in the soil and removed using soil vapor extraction. 2) Extraction wells at the end of the plume capture groundwater. 3) Monitoring will determine if bioremediation is degrading the central part of the plume. Plans were made in 2008 to install new air sparging wells in the lot adjacent to the site where pockets of contamination had been identified. Treatment will occur at the compound on the Handy Andy lot. Treated groundwater is discharged to Burnt Bridge Creek under NPDES permit WA0040967.	Known

Vancouver's Known and Suspected Contaminated Sites - from the Water Protection Program Database

Site Name	Address	Parcel #	Ecology Site Name	Ecology ID	Site Notes	Status
Time Oil - Handy Andy Site	3314 NE 44th (source) to 2818 NE Cherry Dr (treatment)	150049000	Time Oil Handy Andy 8	1063	An investigation in the early 90's determined that soils were contaminated with a volatile hydrocarbon plume originating from the UST system on the property. The soil was removed and remediated. The investigation also revealed that groundwater was contaminated and the plume had migrated off the property. Time Oil entered into an agreed order with Ecology to install an interim treatment system to capture and treat the gasoline contaminated groundwater. A feasibility study report was completed in 1999 and from that Time Oil and Ecology agreed on a three part cleanup action plan: 1) In-situ air sparging by pumping air into the plume. Hydrocarbons are collected in the soil and removed using soil vapor extraction. 2) Extraction wells at the end of the plume capture groundwater. 3) Monitoring will determine if bioremediation is degrading the central part of the plume. Plans were made in 2008 to install new air sparging wells in the lot adjacent to the site where pockets of contamination had been identified. Treatment will occur at the compound on the Handy Andy lot. Treated groundwater is discharged to Burnt Bridge Creek under NPDES permit WA0040967.	Known
Time Oil - Handy Andy Site	3314 NE 44th (source) to 2818 NE Cherry Dr (treatment)	150132000	Time Oil Handy Andy 8	1063	An investigation in the early 90's determined that soils were contaminated with a volatile hydrocarbon plume originating from the UST system on the property. The soil was removed and remediated. The investigation also revealed that groundwater was contaminated and the plume had migrated off the property. Time Oil entered into an agreed order with Ecology to install an interim treatment system to capture and treat the gasoline contaminated groundwater. A feasibility study report was completed in 1999 and from that Time Oil and Ecology agreed on a three part cleanup action plan: 1) In-situ air sparging by pumping air into the plume. Hydrocarbons are collected in the soil and removed using soil vapor extraction. 2) Extraction wells at the end of the plume capture groundwater. 3) Monitoring will determine if bioremediation is degrading the central part of the plume. Plans were made in 2008 to install new air sparging wells in the lot adjacent to the site where pockets of contamination had been identified. Treatment will occur at the compound on the Handy Andy lot. Treated groundwater is discharged to Burnt Bridge Creek under NPDES permit WA0040967.	Known
Tosco Corporation Site	7801 NE Hwy 99	145347000	Tosco Corporation Site 257323-31	11251483	In January 2003 Ecology's Voluntary Cleanup Program reviewed an independent cleanup report relating to the site. Based on this information, Ecology concluded the release addressed in this report does not represent a threat to human health and the environment and issued a No Further Action letter.	No Further Action
Totem Pole Restaurant Site	7720 NE Highway 99	148041000	Former Totem Pole Restaurant Site	21515785	A cleanup in 2000 included digging up over 2,000 tons of contaminated soils and disposing of them at landfills. Although contaminated soil remains on the site, the asphalt cap protects people from coming into contact with it. Also, the contamination is not impacting groundwater.	Known
Turnbull Landfill Site	12001 NE 4th Plain	158410000	Turnbull Landfill		Submitted to Ecology in Jan. 2007. Initiated an independent remedial action.	Evaluating
UHaul Hazel Dell Site	8250 NE Hwy 99	145268000	Uhaul Center of Hazel Dell		A groundwater sampling has been installed and remedial implementation reports are being sent to Ecology.	Evaluating
Valero Fruit Valley Site	5420 NW Fruit Valley Rd.	147360000	ST Services Vancouver	61862781	In 2002 AMEC conducted an initial Phase 1 Remedial Investigation in the vicinity of the former petroleum-vapor tank. Analytical results of groundwater samples revealed benzene at concentrations up to 15,000 micrograms per liter (µg/L). These concentrations exceeded the Ecology's MTCA cleanup standards of 5 µg/L for benzene in groundwater. On June 22, 2006, a site hazard assessment visit was made by Clark County Health Department. Although portions of the site are paved, the vast majority consists of bare soil and grass providing no containment. The Health Dept. gave the site a score of 80 for risk of Groundwater/Human Health and assessed an overall rank of 2, which represents the 2nd highest risk. Ecology's TCP group has initiated staff action on this site (WARM ranking of 2) and will manage it as a Formal site for remediation of petroleum-related soil and groundwater contamination.	Evaluating
VanAllen Property Site	3006 NE Whitman	110085640	VanAllen Property Site	7914101	An initial Site Hazard Assessment was scheduled in March 2006 to investigate this property for suspected contamination. After evaluation Ecology deemed the site No Further Action in August 2006	No Further Action
Vancouver Convention Center Site	4th to 6th, Columbia to Esther	48710000	Special Events & Convention	87668199	Designated NFA with restrictive covenant and institutional controls August 2005.	No Further Action
Vancouver Fish Hatchery Site	12208 SE Evergreen Hwy	167420000	Vancouver Hatchery	18962779	An initial investigation in July 2004 resulted in confirmed soil and groundwater petroleum contamination.	Known
Vancouver Hatchery Site	12208 SE Evergreen Hwy	167420000	Vancouver Hatchery	18962779	Confirmed petroleum products in soil and groundwater. Initial investigation December 2004. Awaiting assessment.	Known

Vancouver's Known and Suspected Contaminated Sites - from the Water Protection Program Database

Site Name	Address	Parcel #	Ecology Site Name	Ecology ID	Site Notes	Status
Vancouver Oil Company Site	1503 NE 136th St.	186584000	Vancouver Oil Company Inc.	29684432	Site submitted a voluntary cleanup plan on June 7, 2006 to Ecology. Ecology determined a site status of independent remedial action. Submitted RIFS. Consultation is complete. VCP opinion letter issued 2010.	Known
WA DOT Site	4200 Main St	12434000	WA DOT Vancouver	1050	1) In January 1991 Ecology notified the DOT that it was "potentially liable" for the contamination and required remedial action. In July of '91 and agreed order was issued which included requirements for monthly monitoring of VOC's in groundwater. 2) A remedial action report prepared in 1998 indicated that hydraulic fluid contamination still existed in the service bay location, but no further excavations were possible without "significant demolition" of the existing building. Approximately 40 cubic yards of petroleum contaminated soil was transported to a WA DOT pit site for bioremediation. 3) Early notice letters were sent out in July of 2003 on the most recent petroleum contamination issue. Currently a site hazard assessment is underway.	Known
WalMart 2947 Site	8908 NE Hwy 99	144947000	Wal Mart Store 2947	14975986	Petroleum products confirmed in soil and groundwater. Soil remediated. Voluntary Cleanup program initiated November 2000. Awaiting assessment	Known
Walnut Grove (Grimm) Site	6123 NE 63rd St.	156669000			In 1987, the EPA completed an inspection of the previous site of Borden Chemical. The EPA concluded that since the area of the septic drain field must have been located in fairly permeable soils, the quantities of waste were most likely dispersed. EPA recommended No Further Action under Superfund and deferred the site to state authority for further consideration. State designated NFA May 2002. SWWHD performed a site hazardous assessment in July 1995 to address a complaint of sewage discharge from two broken storm drainage pipes to a nearby marsh. The pipes were observed discharging liquid to the ground near a marsh adjacent to the industrial park. Soil/sediment test results from the east broken pipe indicated 10 ppm of cadmium, 29,000 ppm of TPH-oil, and 13,000 ppm TPH-diesel. Liquid test results from the east broken pipe indicated 18,000 ppb of TPH-oil, and 51,000 ppb of kerosene. The site was ranked by the Washington Ranking Method, by SWWHD, as a "1", which on a scale of 1-5 is of the most concern. A site visit to residences and the industrial site was conducted on April 23, 1997, to collect surface yard soil and drinking water samples. A total of five private off-site drinking water wells were sampled along with one private irrigation well. Of all the contaminants detected only arsenic was detected at a level above its health comparison value. The maximum level of arsenic found in drinking water was 1.0 part per billion (ppb). DOH concluded that no adverse health effects are expected to occur as a result of exposure to contaminants in residential drinking water or soil.	No Further Action
Walz Demolition Landfill Site	N of Mill Plain, W of NE 87th Ave.	110794004			The SW Wash. Health District became concerned that there was no closure plan for the facility and that landfill generated gas could migrate from the site. In 1981 SWHD measured trace amounts of combustible gas at the landfill. In 1990 HAZCON evaluated the site for methane. Results indicated methane concentrations in the soil at 0% to .4% of equivalent methane concentrations or up to 7% of the Lower Explosive Limit. A closure plan was developed which included grading the surface, filling with a minimum soil cover of 10', removal of scrap from the property and revegetation.	Cleaned Up
Wastler Site	8811 NE 212th Ave.	168168000	Wastler Property	12692	A Voluntary Cleanup Program letter has been issued. Remedial Investigation Report received in 2010 and remedial action is in progress.	Known
Western Station Site	716 NE 99th St	111011006	Western Station Corp	46254644	Halogenated organic solvents tested below cleanup levels in groundwater. Metals tested below cleanup levels in groundwater but confirmed in soils. Petroleum products confirmed in soils and groundwater. MTBE confirmed in groundwater and tested below cleanup levels in soils. Site discovered in March 1991. Routine cleanup in June 1991. Entered Voluntary Cleanup program in November 2001. Awaiting assessment	Known
Wood Property Site	504 W 37th St.	1210090	Wood Property	2099180	The site voluntary cleanup was initiated in May 2005. Designated No Further Action September 2007.	No Further Action
WSU Vancouver Site	1919 NE 78th	148084000	WA WSU Vancouver Res & Ext	57753233	Entered Voluntary Cleanup program August 2005	Known

**APPENDIX 5B – WATER PROTECTION PROGRAM
INSPECTIONS & SITE VISITS**

Water Protection Program Inspections and Site Visits - Jan. 2003 to Sept. 2014

	Facility Name	Insp Date	Insp Type	Inspector	Facility Type	Use Type
1	Perkins Dental Site	28-Apr-10	Septic Analysis	Doug Wise	Contaminated Site	Medical/Dental
2	Perkins Dental Site	23-Apr-10	Septic Analysis	Doug Wise	Contaminated Site	Medical/Dental
3	Anderson's Storage Place	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Storage/Distribution
4	Arntsport Concepts Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Service
5	Becker Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Residential
6	Bonge Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Residential
7	Cavanaugh Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Residential
8	Classic Cabinets by Design	13-Jul-09	Septic Analysis	Doug Wise	Not Determined	Manufacturing
9	Conradsen Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Residential
10	Delta Management	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business/Industrial Park
11	Double-J's Sandblasting	13-Jul-09	Septic Analysis	Doug Wise	Not Determined	Business/Industrial Park
12	Irvin Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Automotive
13	Koda & Scardigli Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Service
14	Koegler Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Service
15	Lennington Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Residential
16	Neth Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Residential
17	Neth Property 2	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business/Industrial Park
18	Northwest Truck Painting	13-Jul-09	Septic Analysis	Doug Wise	Not Determined	Paint
19	Pratka Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Automotive
20	Pratka Property 2	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Service
21	Sadri Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Automotive
22	Shoreland'r Trailer World	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Automotive
23	Thompson Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Residential
24	Wassman Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Residential
25	West Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Service
26	Willett Property	13-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business/Industrial Park
27	76 - Quick Mart	09-Jul-09	Septic Analysis	Doug Wise	Class I	Gas Station
28	Arco 5893 PSI 5423	09-Jul-09	Septic Analysis	Doug Wise	Class I	Gas Station

29	Blake Holdings Property	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business Plaza
30	Bournelis Property	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Industrial Services
31	Brown Seed Company	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Agricultural
32	Cascade Greenhouse	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Agricultural
33	Gilbert Dentistry	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Medical/Dental
34	Hamby Property	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business Plaza
35	Hargis Property	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Offices
36	Hargis Property	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Offices
37	Kim Property	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business Plaza
38	Landscape Mgmt Svcs, Inc. & Home Maintenance Co.	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Landscaping
39	MacLeod Property	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business/Industrial Park
40	Mike's Drugs	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business Plaza
41	MS Auto Glass	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Automotive
42	MS Mill Plain Property	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business Plaza
43	Muller Property	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business Plaza
44	Nicholson Property	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business Plaza
45	NW Industrial Leasing Property	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business/Industrial Park
46	Resleff Property	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business Plaza
47	Sirrah Property	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business Plaza
48	SZE Investment Property	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business Plaza
49	The Brake Shop	09-Jul-09	Septic Analysis	Doug Wise	Class I	Automotive
50	Wimer Property	09-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business Plaza
51	Anderson Property	07-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Residential
52	Anno Property	07-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Sales
53	Carlson RP Investments Property	07-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	School
54	Cossette Property	07-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Sales
55	Cowan Property	07-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Sales
56	DC Truck parts	07-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Automotive
57	DeWils Industries, Inc.	07-Jul-09	Septic Analysis	Doug Wise	Class I	Manufacturing
58	Eastside Steel	07-Jul-09	Septic Analysis	Doug Wise	Not Classified	Manufacturing

59	Evergreen Truss Company	07-Jul-09	Septic Analysis	Doug Wise	Class I	Manufacturing
60	Garry Brown Photography	07-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Printing/Photography
61	Gluntz Property	07-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Sales
62	Janus of SW WA property	07-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Residential
63	Michaelson Motors	07-Jul-09	Septic Analysis	Doug Wise	Not Classified	Automotive
64	Morgan Property	07-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Residential Services
65	Mroczek Property	07-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Residential
66	Orchards Feed Mill	07-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Storage/Distribution
67	Peck property	07-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Restaurant
68	Petrochem Insulation, Inc.	07-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Business/Industrial Park
69	Qwest Corp W00359	07-Jul-09	Septic Analysis	Doug Wise	Class I	Utility
70	Ron's Auto & RV Service Center	07-Jul-09	Septic Analysis	Doug Wise	Not in City	Automotive
71	Sun Cleaners	07-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Dry Cleaner
72	Vancouver Auto Company	07-Jul-09	Septic Analysis	Doug Wise	Class I	Automotive
73	Burton Rd Septic	06-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Automotive
74	Shell @ Andresen & 4th plain	06-Jul-09	Septic Analysis	Doug Wise	Class I	Gas Station
75	All Truck Parts	02-Jul-09	Septic Analysis	Doug Wise	Class I	Automotive
76	Chevron / Action Food Mart	02-Jul-09	Septic Analysis	Doug Wise	Class I	Gas Station
77	Clark County Health Dept. Office	02-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Government Services
78	Davenport Accounting & Tax Services	02-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Service
79	Furniture Sales & U-Haul	02-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Sales
80	Residence	02-Jul-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Residential
81	Rick's Garage	02-Jul-09	Septic Analysis	Doug Wise	Class I	Automotive
82	Thrifty Feed & Garden	02-Jul-09	Septic Analysis	Doug Wise	Not Classified	Food and Merchandise
83	Excel Designs	30-Jun-09	Septic Analysis	Doug Wise	Septic on Com/Ind Parcel	Contamination site
84	A&B Radiator & Speedometer Svc	29-Apr-09	Septic Analysis	Doug Wise	Class I	Automotive
1	14-09-4 Drain Pipe on 42nd	17-Sep-14	Referral/Complaint	Betsy Scrivner	Investigation	Residential
2	14-09-2 Oil leak white truck	09-Sep-14	Referral/Complaint	Betsy Scrivner	Investigation	

3	14-08-4 Hannah oil sheen	21-Aug-14	Referral/Complaint	Merek Strand	Investigation	Commercial Operation
4	14-08-3 Bus dump on 14th	11-Aug-14	Referral/Complaint	Betsy Scrivner	Investigation	Residential
5	14-07-3 Pesticide NE 98th	31-Jul-14	Referral/Complaint	Betsy Scrivner	Investigation	Residential
6	14-07-1 Hydraulic leak 15th St.	22-Jul-14	Referral/Complaint	Betsy Scrivner	Investigation	Contractor
7	14-05-6 Brickhouse grease	27-May-14	Referral/Complaint	Betsy Scrivner	Investigation	Restaurant
8	14-05-4 Dairy Queen discharge	21-May-14	Referral/Complaint	Betsy Scrivner	Investigation	Commercial Operation
9	14-03-6 Damaari diesel spill	24-Mar-14	Referral/Complaint	Betsy Scrivner	Investigation	Construction Activity
10	14-03-4 Wall to Wall wastewater	12-Mar-14	Referral/Complaint	Betsy Scrivner	Investigation	Manufacturing
11	14-02-5 C St Washing discharges	25-Feb-14	Referral/Complaint	Rhonda Morgan	Investigation	Commercial Operation
12	14-02-2 Chahan, Somlith Saeng	18-Feb-14	Referral/Complaint	Betsy Scrivner	Investigation	Residential
13	14-01-1 Minit Mart gas spill	04-Jan-14	Referral/Complaint	ECY Staff	Investigation	Gas Station
14	13-12-2 Kenan Tanker gas spill	13-Dec-13	Referral/Complaint	City staff	Investigation	Residential
15	13-12-1 4th Plain sewer block	05-Dec-13	Referral/Complaint	Betsy Scrivner	Investigation	Residential
16	13-11-3 Vanc Warehouse Collapse	19-Nov-13	Referral/Complaint	ECY Staff	Investigation	Storage/Distribution
17	13-11-2 Sediment discharge to swale	18-Nov-13	Referral/Complaint	ECY Staff	Investigation	Construction Activity
18	13-11-1 Mud from Gravel Pit	14-Nov-13	Referral/Complaint	Betsy Scrivner	Investigation	Construction Activity
19	VOCI-Cardlock at Columbia Way	14-Nov-13	Referral/Complaint	Merek Strand	Class I	Gas Station
20	13-09-2 SSO on W 11th	12-Sep-13	Referral/Complaint	Operations crew	Investigation	Residential
21	13-08-3 White puddle West 16th	27-Aug-13	Referral/Complaint	Richard Hoiland	Investigation	Residential Services
22	13-08-2 Oil dumping in alley	16-Aug-13	Referral/Complaint	Code Enforcement	Investigation	Residential
23	13-08-1 Van Leak on Broadway	15-Aug-13	Referral/Complaint	Betsy Scrivner	Investigation	Residential
24	13-07-5 Discharge in Cold Creek	01-Aug-13	Referral/Complaint	Betsy Scrivner	Investigation	Construction Activity
25	13-07-5 Discharge in Cold Creek	01-Aug-13	Referral/Complaint	Operations crew	Investigation	Construction Activity
26	13-07-4 Gen Chemical slurry spill	23-Jul-13	Referral/Complaint	Betsy Scrivner	Investigation	Commercial Operation
27	13-07-3 Oil pans at drain on 137th	17-Jul-13	Referral/Complaint	Operations crew	Investigation	Residential

28	13-07-2 SSO at Mall Dr - Outback	13-Jul-13	Referral/Complaint	Operations crew	Investigation	Commercial Operation
29	13-06-3 Evergreen dumping in creek	28-Jun-13	Referral/Complaint	Betsy Scrivner	Investigation	Residential
30	13-06-1 Spill off Mill Plain	13-Jun-13	Referral/Complaint	Operations crew	Investigation	Residential
31	13-05-4 4th Pl grease complaint	20-May-13	Referral/Complaint	Betsy Scrivner	Investigation	Food and Merchandise
32	13-05-1 Sinking boat on Columbia	07-May-13	Referral/Complaint	Betsy Scrivner	Investigation	Transportation/Storage
33	Action Auto Service	02-Apr-13	Referral/Complaint	Rhonda Morgan	Not Determined	Automotive
34	13-03-3 Leaking vehicles on Plains	13-Mar-13	Referral/Complaint	Betsy Scrivner	Investigation	Residential
35	13-04-2 37th Circle White Paint	09-Mar-13	Referral/Complaint	Rhonda Morgan	Investigation	Business/Industrial Park
36	13-03-1 NE 112th mud in cb	06-Mar-13	Referral/Complaint	Betsy Scrivner	Investigation	Construction
37	13-03-2 Pavillion hydraulic leak	06-Mar-13	Referral/Complaint	Betsy Scrivner	Investigation	Construction
38	13-01-1 Four Seasons private facility	11-Jan-13	Referral/Complaint	Betsy Scrivner	Investigation	Commercial Operation
39	12-12-5 Port Terminal 5 discharge	20-Dec-12	Referral/Complaint	Betsy Scrivner	Investigation	Business/Industrial Park
40	12-12-2 Koplands stain in street	06-Dec-12	Referral/Complaint	Betsy Scrivner	Investigation	Construction Activity
41	12-12-1 Gas in drain	05-Dec-12	Referral/Complaint	Richard Hoiland	Investigation	Residential
42	12-10-5 4201 E 4th Plain hose	30-Oct-12	Referral/Complaint	Betsy Scrivner	Investigation	Automotive
43	12-10-4 Guru Ram Dass Fire	12-Oct-12	Referral/Complaint	Doug and Betsy	Investigation	Business Plaza
44	12-10-3 15th st & Broadway Illicit connection	10-Oct-12	Referral/Complaint	Doug and Betsy	Investigation	Business Plaza
45	12-10-2 Larue Brothers Washwater	08-Oct-12	Referral/Complaint	Doug and Betsy	Investigation	Business/Industrial Park
46	12-10-1 NW Columbia Oil Spill	05-Oct-12	Referral/Complaint	Doug and Betsy	Investigation	Residential
47	12-09-02 Old Evergreen Hwy Pond	21-Sep-12	Referral/Complaint	Doug and Betsy	Investigation	Residential
48	12-09-01 M&M Autobody Fluid Spill	11-Sep-12	Referral/Complaint	Betsy Scrivner	Investigation	Automotive

49	12-08-08 Steamboat Landing Pet Waste	30-Aug-12	Referral/Complaint	Doug Wise	Investigation	Residential
50	12-08-06 Delaware Ln Oil Leaks	21-Aug-12	Referral/Complaint	Doug Wise	Investigation	Automotive
51	12-08-07 NE 32nd St Suspicious Catch Basin	21-Aug-12	Referral/Complaint	Doug Wise	Investigation	Automotive
52	12-08-05 NE 141st Drywell Discharge	14-Aug-12	Referral/Complaint	Doug Wise	Investigation	Construction Activity
53	12-08-04 NE 160th Pesticide Use	13-Aug-12	Referral/Complaint	Doug Wise	Investigation	Residential
54	12-08-02 W 13th St Discharges	08-Aug-12	Referral/Complaint	Doug Wise	Investigation	Manufacturing
55	12-08-03 Lower River Rd Auto Spill	07-Aug-12	Referral/Complaint	Operations crew	Investigation	Automotive
56	12-08-03 Lower River Rd Auto Spill	06-Aug-12	Referral/Complaint	Doug Wise	Investigation	Automotive
57	12-07-10 Columbia Way Diesel Spill	01-Aug-12	Referral/Complaint	Doug Wise	Investigation	Gas Station
58	12-08-01 Carlson Rd Sewer Backup	31-Jul-12	Referral/Complaint	Operations crew	Investigation	Sewage
59	12-07-09 SEH Discharge	25-Jul-12	Referral/Complaint	Doug and Betsy	Investigation	Manufacturing
60	12-07-07 NE 109th Washwater Discharge	23-Jul-12	Referral/Complaint	Doug Wise	Investigation	Residential
61	12-07-06 SE Riverside Erosion	18-Jul-12	Referral/Complaint	Doug Wise	Investigation	Residential
62	12-07-04 2nd & Y Pressure Washing	13-Jul-12	Referral/Complaint	Doug Wise	Investigation	Manufacturing
63	12-07-05 NE 28th Ct Sewer Backup	10-Jul-12	Referral/Complaint	Operations crew	Investigation	Sewage
64	12-07-03 W 8th St Auto Complaint	03-Jul-12	Referral/Complaint	Doug Wise	Investigation	Automotive
65	12-07-01 NE 131st Diesel Spill	02-Jul-12	Referral/Complaint	Doug Wise	Investigation	Transportation/Storage
66	12-07-02 Staybridge Suites Dumping	02-Jul-12	Referral/Complaint	Doug and Betsy	Investigation	Construction Activity
67	12-06-04 SE 12th Discharge Pipe	21-Jun-12	Referral/Complaint	Betsy Scrivner	Investigation	Residential
68	12-06-03 NE 135th Ave Oil Leak	15-Jun-12	Referral/Complaint	Doug Wise	Investigation	Automotive

69	12-06-02 NE Fourth Plain Diesel Spill	12-Jun-12	Referral/Complaint	Operations crew	Investigation	Automotive
70	12-06-01 Fruit Valley Oil Spill	06-Jun-12	Referral/Complaint	Doug Wise	Investigation	Automotive
71	12-05-05 Bella Vista Diesel Spill	01-Jun-12	Referral/Complaint	Doug Wise	Investigation	Automotive
72	12-05-04 E 28th St Sewer Backup	30-May-12	Referral/Complaint	Operations crew	Investigation	Sewage
73	12-05-02 39th & S Paint Dumping	21-May-12	Referral/Complaint	Doug Wise	Investigation	Residential
74	12-05-03 NE 13th Way Yard Debris	17-May-12	Referral/Complaint	Operations crew	Investigation	Landscaping
75	12-05-01 19th & D Concrete Discharge	10-May-12	Referral/Complaint	Doug Wise	Investigation	Contractor
76	12-04-10 Grant St Sewer Backup	23-Apr-12	Referral/Complaint	Operations crew	Investigation	Sewage
77	12-04-09 Main St Sewer Backup	20-Apr-12	Referral/Complaint	Operations crew	Investigation	Sewage
78	12-04-08 86th Ave & 28th Way Oil Spill	17-Apr-12	Referral/Complaint	Operations crew	Investigation	Automotive
79	12-04-07 33rd & U St Oil Spill	14-Apr-12	Referral/Complaint	Operations crew	Investigation	Automotive
80	12-04-06 3rd & Washington Cross Connection	11-Apr-12	Referral/Complaint	Doug Wise	Investigation	Sewage
81	12-04-05 Port Way Gas Spill	10-Apr-12	Referral/Complaint	Doug Wise	Investigation	Automotive
82	12-04-03 19th Cir Spa Drainage	06-Apr-12	Referral/Complaint	Doug Wise	Investigation	Residential
83	12-04-04 32nd & S Gas Spill	06-Apr-12	Referral/Complaint	Doug Wise	Investigation	Residential
84	12-04-01 Hidden Way Process Wastewater	05-Apr-12	Referral/Complaint	Doug Wise	Investigation	
85	12-04-02 Mill Plain Diesel Spill	03-Apr-12	Referral/Complaint	Doug Wise	Investigation	Automotive
86	12-03-10 109th Ct Sewer Backup	30-Mar-12	Referral/Complaint	Doug Wise	Investigation	Utility
87	12-03-09 NW 52nd Paint	29-Mar-12	Referral/Complaint	Doug Wise	Investigation	Paint
88	12-03-09 NW 52nd Paint	29-Mar-12	Referral/Complaint	Operations crew	Investigation	Paint
89	12-03-10 109th Ct Sewer Backup	29-Mar-12	Referral/Complaint	Operations crew	Investigation	Utility
90	12-03-07 39th St Pressure Washing	26-Mar-12	Referral/Complaint	Betsy Scrivner	Investigation	Property Management
91	12-03-08 Yeoman Yard Debris	26-Mar-12	Referral/Complaint	Operations crew	Investigation	Residential
92	12-03-06 CBC Fertilizer Spill	22-Mar-12	Referral/Complaint	Doug Wise	Investigation	Bulk dry storage/distribution

93	12-02-05 NE 31st St Sediment Discharges	19-Mar-12	Referral/Complaint	Doug Wise	Investigation	Residential
94	12-03-04 West Van Septic Effluent	19-Mar-12	Referral/Complaint	Doug Wise	Investigation	Septage
95	12-03-05 F St Gas Spill	19-Mar-12	Referral/Complaint	Doug Wise	Investigation	Automotive
96	12-03-03 Fourth Plain Sheen	15-Mar-12	Referral/Complaint	Operations crew	Investigation	Automotive
97	12-03-02 Main St Sheen	14-Mar-12	Referral/Complaint	Operations crew	Investigation	Automotive
98	12-03-01 Columbia Way Diesel Spill	08-Mar-12	Referral/Complaint	Doug Wise	Investigation	Automotive
99	12-02-06 NE 40th Circle Grease Discharges	15-Feb-12	Referral/Complaint	Doug Wise	Investigation	Residential
100	12-02-05 NE 31st St Sediment Discharges	14-Feb-12	Referral/Complaint	Betsy Scrivner	Investigation	Residential
101	12-02-04 Evergreen & Broadway Sewer Overflow	13-Feb-12	Referral/Complaint	Operations crew	Investigation	Restaurant
102	12-02-02 Mill Plain & Chkalov Spill	10-Feb-12	Referral/Complaint	Doug Wise	Investigation	Automotive
103	12-02-03 162nd & 4th Plain Gas Can	10-Feb-12	Referral/Complaint	Operations crew	Investigation	Automotive
104	12-02-01 4th Plain & 152nd Spill	08-Feb-12	Referral/Complaint	Operations crew	Investigation	Contractor
105	12-01-06 Hazel Dell Apt Roof Treatment	03-Feb-12	Referral/Complaint	Doug Wise	Investigation	Multifamily
106	12-01-08 Watson Ave Grease Dumping	03-Feb-12	Referral/Complaint	Doug Wise	Investigation	Residential
107	12-01-09 St James Auto Accident	02-Feb-12	Referral/Complaint	Operations crew	Investigation	Automotive
108	12-01-07 112th & 51st Auto Accident	31-Jan-12	Referral/Complaint	Operations crew	Investigation	Automotive
109	12-01-04 Burton Channel Waste Lagoon	27-Jan-12	Referral/Complaint	Doug Wise	Investigation	Solid Waste Related
110	12-01-05 NE 51st St Sewer Backup	25-Jan-12	Referral/Complaint	Operations crew	Investigation	Residential
111	12-01-03 Village Loop Gas Sheen	10-Jan-12	Referral/Complaint	Doug Wise	Investigation	Automotive
112	12-01-02 Andresen Car Fire	05-Jan-12	Referral/Complaint	Operations crew	Investigation	Automotive

113	12-01-01 NE 145th Ave Sewer Overflow	04-Jan-12	Referral/Complaint	Operations crew	Investigation	Residential
114	11-12-04 Washington St oil spill	30-Dec-11	Referral/Complaint	Doug Wise	Investigation	Residential
115	11-12-05 P St Street Sweeper Discharge	30-Dec-11	Referral/Complaint	Doug Wise	Investigation	Government Services
116	11-12-04 Washington St oil spill	29-Dec-11	Referral/Complaint	Richard Hoiland	Investigation	Residential
117	11-12-02 NE 22nd St Hose Discharge	22-Dec-11	Referral/Complaint	Operations crew	Investigation	Residential
118	11-12-03 W 27th St Sewer Backup	22-Dec-11	Referral/Complaint	Operations crew	Investigation	Utility
119	11-12-02 NE 22nd St Hose Discharge	13-Dec-11	Referral/Complaint	Doug Wise	Investigation	Residential
120	11-12-01 McLoughlin Sewer Backup	03-Dec-11	Referral/Complaint	Operations crew	Investigation	Residential
121	11-11-03 Downtown IDDE	22-Nov-11	Referral/Complaint	Doug Wise	Investigation	Automotive
122	11-11-02 Mill Plain Car Wash	17-Nov-11	Referral/Complaint	Doug Wise	Investigation	Car Wash
123	11-11-01 NE 124th Ave Oil in CDS	09-Nov-11	Referral/Complaint	Doug Wise	Investigation	Automotive
124	11-10-12 NE 125th Ave Sewer Overflow	27-Oct-11	Referral/Complaint	Operations crew	Investigation	Utility
125	11-10-11 NE 56th St Truck Repair	26-Oct-11	Referral/Complaint	Doug Wise	Investigation	Automotive
126	11-10-09 140th & 4th Plain Engine Cleaning	21-Oct-11	Referral/Complaint	Doug Wise	Investigation	Automotive
127	11-10-09 140th & 4th Plain Engine Cleaning	20-Oct-11	Referral/Complaint	Doug Wise	Investigation	Automotive
128	11-10-10 Mt Rainier Dr Herbicides	20-Oct-11	Referral/Complaint	Doug Wise	Investigation	Landscaping
129	11-10-07 NE 142nd Sewage Spill	13-Oct-11	Referral/Complaint	Doug Wise	Investigation	Residential
130	11-10-08 C-Tran Anti-freeze Spill	13-Oct-11	Referral/Complaint	Doug Wise	Investigation	Fleet Vehicle Services
131	11-10-06 30th & Watson Grease Dumping	12-Oct-11	Referral/Complaint	Doug Wise	Investigation	Residential
132	11-10-07 NE 142nd Sewage Spill	12-Oct-11	Referral/Complaint	Operations crew	Investigation	Residential

133	11-10-05 C-Tran Shelter Washing	11-Oct-11	Referral/Complaint	Doug Wise	Investigation	Mobile Washers
134	11-10-02 15th & Broadway Soap Discharge	07-Oct-11	Referral/Complaint	Doug Wise	Investigation	Mobile Washers
135	11-10-04 NE 41st Cir Creek Vandalism	07-Oct-11	Referral/Complaint	Doug Wise	Investigation	Solid Waste Related
136	11-10-03 NE 16th St Wastewater Discharge	06-Oct-11	Referral/Complaint	Doug Wise	Investigation	Contractor
137	City Bark & Recycling LLC	03-Oct-11	Referral/Complaint	Betsy Scrivner	Class I	Industrial Services
138	11-10-01 5th & Grand Sewage Spill	01-Oct-11	Referral/Complaint	Doug Wise	Investigation	Utility
139	11-09-07 Arizona Dr Oil Spills	30-Sep-11	Referral/Complaint	Doug Wise	Investigation	Automotive
140	11-09-07 Arizona Dr Oil Spills	26-Sep-11	Referral/Complaint	Doug and Betsy	Investigation	Automotive
141	11-09-07 Arizona Dr Oil Spills	23-Sep-11	Referral/Complaint	Doug Wise	Investigation	Automotive
142	11-09-07 Arizona Dr Oil Spills	22-Sep-11	Referral/Complaint	Doug Wise	Investigation	Automotive
143	11-09-06 Garrison Terrace Oil Spill	16-Sep-11	Referral/Complaint	Doug Wise	Investigation	Automotive
144	11-08-07 Columbia River Sheen	12-Sep-11	Referral/Complaint	Doug Wise	Investigation	Business/Industrial Park
145	11-09-05 Red Lion Discharge	12-Sep-11	Referral/Complaint	Doug and Betsy	Investigation	Restaurant
146	11-09-04 Port Way & 8th Gas Spill	07-Sep-11	Referral/Complaint	Doug Wise	Investigation	Automotive
147	11-09-01 Dirt at 138th Ave.	06-Sep-11	Referral/Complaint	Betsy Scrivner	Investigation	Residential
148	11-09-02 Paint at SE Baypoint	06-Sep-11	Referral/Complaint	Betsy Scrivner	Investigation	Residential
149	11-08-05 El Delfin Grease Dumping	31-Aug-11	Referral/Complaint	Doug Wise	Investigation	Restaurant
150	11-08-08 C-Tran Radiator Leak	31-Aug-11	Referral/Complaint	Doug Wise	Investigation	Automotive
151	11-08-03 Columbia Shores Condos	25-Aug-11	Referral/Complaint	Doug Wise	Investigation	Residential
152	11-08-04 Burton Drywell Flow	24-Aug-11	Referral/Complaint	Doug Wise	Investigation	Utility
153	11-08-06 NE 129th Ave Pool Discharge	24-Aug-11	Referral/Complaint	Doug Wise	Investigation	Residential
154	10-12-04 Olive St Erosion	09-Aug-11	Referral/Complaint	Doug and Betsy	Investigation	Residential

155	11-08-01 132nd Ave Swale Damage	08-Aug-11	Referral/Complaint	Doug Wise	Investigation	Contractor
156	11-08-02 Golden Metals Oil Spill	02-Aug-11	Referral/Complaint	Betsy Scrivner	Investigation	Automotive
157	Cemex	29-Jul-11	Referral/Complaint	Doug Wise	Not Determined	Construction Activity
158	11-07-08 Cherry Rd Oil Dumping	27-Jul-11	Referral/Complaint	Doug Wise	Investigation	Automotive
159	11-07-09 SEH Water Concerns	27-Jul-11	Referral/Complaint	Doug Wise	Investigation	Construction Activity
160	11-07-07 Balboa Dr Concrete Discharge	26-Jul-11	Referral/Complaint	Operations crew	Investigation	Contractor
161	11-07-07 Balboa Dr Concrete Discharge	26-Jul-11	Referral/Complaint	Doug Wise	Investigation	Contractor
162	11-07-06 Louisiana Dr Oil Spills	25-Jul-11	Referral/Complaint	Doug Wise	Investigation	Automotive
163	11-07-05 L&V Nails Dumping	22-Jul-11	Referral/Complaint	Doug Wise	Investigation	Business Plaza
164	11-07-04 Whitney Rd Release	19-Jul-11	Referral/Complaint	Doug Wise	Investigation	Solid Waste Related
165	11-07-03 Neals Lane Paint Dumping	13-Jul-11	Referral/Complaint	Operations crew	Investigation	Paint
166	11-07-02 SE 160th Engine Cleaning	11-Jul-11	Referral/Complaint	Doug Wise	Investigation	Automotive
167	11-07-02 SE 160th Engine Cleaning	08-Jul-11	Referral/Complaint	Doug Wise	Investigation	Automotive
168	11-06-05 SE 168th Boat Leak	05-Jul-11	Referral/Complaint	Doug Wise	Investigation	Residential
169	11-06-06 SE Evergreen Hwy Yard Debris	05-Jul-11	Referral/Complaint	Doug Wise	Investigation	Residential
170	11-07-01 14th & Washington Oil Spills	05-Jul-11	Referral/Complaint	Doug Wise	Investigation	Automotive
171	11-06-05 SE 168th Boat Leak	30-Jun-11	Referral/Complaint	Betsy Scrivner	Investigation	Residential
172	11-06-04 OK Pressure Washing	24-Jun-11	Referral/Complaint	Doug Wise	Investigation	Mobile Washers
173	11-06-03 NE 125th Ct Auto Leak	22-Jun-11	Referral/Complaint	Doug Wise	Investigation	Automotive
174	11-06-02 Waste Connections Fluid Leak	15-Jun-11	Referral/Complaint	Operations crew	Investigation	Automotive
175	11-06-01 SE 169th Pressure Washing	08-Jun-11	Referral/Complaint	Doug Wise	Investigation	Mobile Washers
176	11-05-10 8th & Franklin Mystery Pipe	27-May-11	Referral/Complaint	Doug Wise	Investigation	Business Plaza
177	11-05-11 NE 90th Ave Drilling	27-May-11	Referral/Complaint	Operations crew	Investigation	Residential

178	11-05-09 Hiddenbrook Downspouts	26-May-11	Referral/Complaint	Doug Wise	Investigation	Residential
179	11-05-07 BBC & 137th High Water	25-May-11	Referral/Complaint	Doug Wise	Investigation	Residential
180	11-05-07 BBC & 137th High Water	25-May-11	Referral/Complaint	Operations crew	Investigation	Residential
181	11-05-04 8th St Gasoline Dumping	24-May-11	Referral/Complaint	Doug Wise	Investigation	Automotive
182	11-05-08 Pierce Dr Dumping	24-May-11	Referral/Complaint	Betsy Scrivner	Investigation	Residential
183	11-05-08 Pierce Dr Dumping	21-May-11	Referral/Complaint	Operations crew	Investigation	Residential
184	11-05-06 Leverich Park Erosion	19-May-11	Referral/Complaint	Doug Wise	Investigation	Government Services
185	11-05-07 BBC & 137th High Water	19-May-11	Referral/Complaint	Doug Wise	Investigation	Residential
186	11-05-05 Tucson St Concrete Dumping	17-May-11	Referral/Complaint	Betsy Scrivner	Investigation	Contractor
187	11-05-04 8th St Gasoline Dumping	16-May-11	Referral/Complaint	Operations crew	Investigation	Automotive
188	11-05-03 Kathy's Court Auto Dumping	05-May-11	Referral/Complaint	Doug Wise	Investigation	Automotive
189	11-05-02 Hearthwood Pressure Washing	03-May-11	Referral/Complaint	Doug Wise	Investigation	Mobile Washers
190	11-05-01 Main St Pressure Washing	02-May-11	Referral/Complaint	Doug Wise	Investigation	Mobile Washers
191	11-04-05 Washington & 9th Detergent	24-Apr-11	Referral/Complaint	Operations crew	Investigation	Business Plaza
192	11-04-04 Evergreen Hwy Drums	22-Apr-11	Referral/Complaint	Doug Wise	Investigation	Automotive
193	11-04-03 Rivercrest Pipe Discharge	19-Apr-11	Referral/Complaint	Doug Wise	Investigation	Residential
194	11-04-01 Washington St Oil Sheen	05-Apr-11	Referral/Complaint	Doug Wise	Investigation	Automotive
195	11-04-02 Burton Channel Pet Waste	05-Apr-11	Referral/Complaint	Operations crew	Investigation	Residential
196	11-03-06 SE 12th St Pool Discharge	31-Mar-11	Referral/Complaint	Doug Wise	Investigation	Residential

197	11-03-05 4th Plain Janitorial Discharge	30-Mar-11	Referral/Complaint	Doug Wise	Investigation	Carpet Cleaner
198	11-03-05 4th Plain Janitorial Discharge	28-Mar-11	Referral/Complaint	Doug Wise	Investigation	Carpet Cleaner
199	11-03-04 Washington St Diesel on Roadway	21-Mar-11	Referral/Complaint	Doug Wise	Investigation	Construction Activity
200	11-03-03 Kevanna Park Truck Fire	11-Mar-11	Referral/Complaint	Operations crew	Investigation	Automotive
201	11-03-03 Kevanna Park Truck Fire	11-Mar-11	Referral/Complaint	Doug Wise	Investigation	Automotive
202	11-03-02 Mill Plain & Washington Diesel Spill	10-Mar-11	Referral/Complaint	Operations crew	Investigation	Automotive
203	10-12-04 Olive St Erosion	02-Mar-11	Referral/Complaint	Doug and Betsy	Investigation	Residential
204	11-03-01 33rd & Main Janitorial Discharge	01-Mar-11	Referral/Complaint	Doug Wise	Investigation	Residential Services
205	11-02-03 Evergreen Hwy & Ellsworth Paint	16-Feb-11	Referral/Complaint	Doug Wise	Investigation	Residential
206	11-02-04 Garden View Estates	16-Feb-11	Referral/Complaint	Doug Wise	Investigation	Residential
207	11-02-02 4th Plain ATF Spill	07-Feb-11	Referral/Complaint	Doug Wise	Investigation	Automotive
208	11-02-02 4th Plain ATF Spill	06-Feb-11	Referral/Complaint	Operations crew	Investigation	Automotive
209	11-02-01 BBC Yard Debris	02-Feb-11	Referral/Complaint	Doug and Betsy	Investigation	Residential
210	11-01-07 9th & Washington Dumpster	26-Jan-11	Referral/Complaint	Doug Wise	Investigation	Construction Activity
211	11-01-06 NE 57th Ave Oil Spill	24-Jan-11	Referral/Complaint	Operations crew	Investigation	Automotive
212	11-01-05 Fisher's Landing Pool Discharge	19-Jan-11	Referral/Complaint	Doug Wise	Investigation	Residential
213	11-01-03 105th & Evergreen Hwy Dumping	14-Jan-11	Referral/Complaint	Doug Wise	Investigation	Solid Waste Related
214	11-01-04 32nd & Lincoln Paint Dumping	14-Jan-11	Referral/Complaint	Doug Wise	Investigation	Paint
215	11-01-02 Carpet Cleaner Discharge	05-Jan-11	Referral/Complaint	Doug Wise	Investigation	Carpet Cleaner
216	Roadmaster Inc.	04-Jan-11	Referral/Complaint	Doug Wise	Class I	Manufacturing

217	10-12-06 Franklin Concrete Discharge	30-Dec-10	Referral/Complaint	Doug Wise	Investigation	Construction
218	10-12-05 Qwest Discharge	29-Dec-10	Referral/Complaint	Doug Wise	Investigation	Utility
219	10-12-04 Olive St Erosion	22-Dec-10	Referral/Complaint	Doug and Betsy	Investigation	Residential
220	10-12-02 NE 97th Ave Yard Debris	13-Dec-10	Referral/Complaint	Doug Wise	Investigation	Residential
221	10-12-03 SE 19th Sewer Backup	29-Nov-10	Referral/Complaint	Operations crew	Investigation	Residential
222	10-11-02 St Johns Paint Dumping	22-Nov-10	Referral/Complaint	Doug Wise	Investigation	Gas Station
223	10-11-03 Riverside Sewer Overflow	21-Nov-10	Referral/Complaint	Operations crew	Investigation	Residential
224	10-10-05 Milton's Drycleaners Site Wastes	26-Oct-10	Referral/Complaint	Doug Wise	Investigation	Contamination site
225	10-10-04 30th & L Drywell Flow	20-Oct-10	Referral/Complaint	Doug Wise	Investigation	Utility
226	10-10-03 SE 7th St Paint Dumping	15-Oct-10	Referral/Complaint	Doug Wise	Investigation	Residential
227	10-10-02 NE 94th Place Concrete Washout	08-Oct-10	Referral/Complaint	Doug Wise	Investigation	Contractor
228	10-10-01 NE 141st & 17th Paint Dumping	05-Oct-10	Referral/Complaint	Doug Wise	Investigation	Residential
229	10-09-12 Mill Plain & 97th Diesel Spill	30-Sep-10	Referral/Complaint	Doug Wise	Investigation	Gas Station
230	10-09-13 NE 28th Cr Oil Dumping	30-Sep-10	Referral/Complaint	Doug Wise	Investigation	Residential
231	10-09-08 Muchas Gracias Discharge	29-Sep-10	Referral/Complaint	Doug Wise	Investigation	Restaurant
232	10-09-09 Paint Dumping	29-Sep-10	Referral/Complaint	Doug Wise	Investigation	Contractor
233	10-09-10 Fred Meyer Garbage Compactor	29-Sep-10	Referral/Complaint	Doug Wise	Investigation	Solid Waste Related
234	10-09-11 Alki Rd Drum Leakage	29-Sep-10	Referral/Complaint	Operations crew	Investigation	Solid Waste Related
235	Riverview Estates PSW	29-Sep-10	Referral/Complaint	Operations crew	Private S/W Facility	Residential
236	10-09-07 Van Mall Diesel Spill	24-Sep-10	Referral/Complaint	Doug Wise	Investigation	Automotive
237	Eagle Street Automotive	22-Sep-10	Referral/Complaint	Doug Wise	Class I	Automotive
238	10-09-05 Vista Del Rio ASTs	21-Sep-10	Referral/Complaint	Doug Wise	Investigation	Automotive

239	10-09-06 Enterprise Rent a Car - 4th Plain	21-Sep-10	Referral/Complaint	Doug Wise	Investigation	Service
240	10-09-02 SE 192nd Home Depot Discharges	20-Sep-10	Referral/Complaint	Doug Wise	Investigation	Sales
241	10-09-04 W. 20th St. Possible Discharges	17-Sep-10	Referral/Complaint	Doug Wise	Investigation	Business/Industrial Park
242	10-09-03 SE Columbia Drilling Discharge	16-Sep-10	Referral/Complaint	Doug Wise	Investigation	Contractor
243	10-09-03 SE Columbia Drilling Discharge	15-Sep-10	Referral/Complaint	Betsy Scrivner	Investigation	Contractor
244	10-09-01 SE 192nd & 31st Fire Flow Testing	01-Sep-10	Referral/Complaint	Doug Wise	Investigation	Construction Activity
245	10-08-11 164th & Evergreen Oil Spill	23-Aug-10	Referral/Complaint	Doug Wise	Investigation	Automotive
246	10-08-12 Matt's Carpet Cleaning Discharge	23-Aug-10	Referral/Complaint	Doug Wise	Investigation	Carpet Cleaner
247	10-08-11 164th & Evergreen Oil Spill	20-Aug-10	Referral/Complaint	Operations crew	Investigation	Automotive
248	10-08-09 NE 65th Vehicle Leakage	19-Aug-10	Referral/Complaint	Doug Wise	Investigation	Automotive
249	10-08-10 NE 3rd St Washwater Discharge	19-Aug-10	Referral/Complaint	Doug Wise	Investigation	Residential
250	10-08-07 13th & Main Pressure Wash Discharge	11-Aug-10	Referral/Complaint	Doug Wise	Investigation	Mobile Washers
251	10-08-08 SE 162nd & 1st Machinery Discharge	11-Aug-10	Referral/Complaint	Doug Wise	Investigation	Industrial Services
252	10-08-06 NE 115th Ave & 2nd3rd Washwater Dump	09-Aug-10	Referral/Complaint	Rhonda Morgan	Investigation	Mobile Washers
253	10-08-04 Condo Washwater Discharge	05-Aug-10	Referral/Complaint	Doug Wise	Investigation	Residential
254	10-08-05 SE 192nd Car Fire	05-Aug-10	Referral/Complaint	Doug Wise	Investigation	Automotive
255	10-08-02 NE Thurston Restaurant Discharge	04-Aug-10	Referral/Complaint	Doug Wise	Investigation	Restaurant

256	10-08-03 Regal Cinemas Compactor Discharge	04-Aug-10	Referral/Complaint	Doug Wise	Investigation	Solid Waste Related
257	10-08-01 Tidewater Cove Discharge	02-Aug-10	Referral/Complaint	Doug Wise	Investigation	Contamination site
258	10-07-08 E 26th Gasoline Dumping	21-Jul-10	Referral/Complaint	Doug Wise	Investigation	Automotive
259	10-07-09 Hydraulic Oil Spill	16-Jul-10	Referral/Complaint	Doug Wise	Investigation	Construction Activity
260	10-07-10 NE 28th & 124th Oil Spill	16-Jul-10	Referral/Complaint	Doug Wise	Investigation	Automotive
261	10-07-05 112th & 51st Abandoned Oil	09-Jul-10	Referral/Complaint	Doug Wise	Investigation	Automotive
262	10-07-07 NE Hazel Dell Sewer Overflow	08-Jul-10	Referral/Complaint	Operations crew	Investigation	Residential
263	10-07-04 33rd & Main Manhole Overflow	07-Jul-10	Referral/Complaint	Doug Wise	Investigation	Medical/Dental
264	10-07-06 E 40th Sewer Overflow	05-Jul-10	Referral/Complaint	Operations crew	Investigation	Septage
265	10-07-02 NE 127th & 59th Paint Spill	02-Jul-10	Referral/Complaint	Doug Wise	Investigation	Solid Waste Related
266	10-07-03 17th & Main Sewer Overflow	02-Jul-10	Referral/Complaint	Doug Wise	Investigation	Utility
267	10-07-01 29th St Grease Discharge	01-Jul-10	Referral/Complaint	Doug Wise	Investigation	Residential
268	10-06-09 NE Knollcrest Oil Spill	25-Jun-10	Referral/Complaint	Doug Wise	Investigation	Automotive
269	10-06-11 R Street Gasoline Spill	25-Jun-10	Referral/Complaint	Doug Wise	Investigation	Automotive
270	10-06-10 SE Marine Park Way Oil Jug	23-Jun-10	Referral/Complaint	Doug Wise	Investigation	Automotive
271	10-06-06 Saint Johns Auto Repair	21-Jun-10	Referral/Complaint	Doug Wise	Investigation	Automotive
272	10-06-07 Old Evergreen Hwy & 86th	21-Jun-10	Referral/Complaint	Doug Wise	Investigation	Residential
273	10-06-08 Fisher's Landing Yard Debris	17-Jun-10	Referral/Complaint	Doug Wise	Investigation	Landscaping
274	10-06-03 Vancouver Plaza Swale	08-Jun-10	Referral/Complaint	Doug Wise	Investigation	Business Plaza

275	10-06-04 NE 28th Circle StormFilter	08-Jun-10	Referral/Complaint	Doug Wise	Investigation	Residential
276	10-06-02 36th & Harney Yard Debris	04-Jun-10	Referral/Complaint	Doug Wise	Investigation	Residential
277	10-06-01 4th Plain & 57th Mystery Pipe	02-Jun-10	Referral/Complaint	Doug Wise	Investigation	Automotive
278	10-05-06 SE 39th St & 172nd Ave Oil Spill	19-May-10	Referral/Complaint	Doug Wise	Investigation	Utility
279	10-05-04 Dubois Dr Grease Spill	17-May-10	Referral/Complaint	Doug Wise	Investigation	Residential
280	10-05-05 Van Mall Storage Discharge	17-May-10	Referral/Complaint	Doug Wise	Investigation	Construction Activity
281	10-05-01 Rapid Lube oil in lot	14-May-10	Referral/Complaint	Doug Wise	Investigation	Automotive
282	10-05-03 NE 84th Loop Dumping	12-May-10	Referral/Complaint	Doug Wise	Investigation	Residential
283	10-04-03 Oil in Catch Basin	23-Apr-10	Referral/Complaint	Doug Wise	Investigation	Residential
284	10-04-02 Mill Plain Dumping	22-Apr-10	Referral/Complaint	Doug Wise	Investigation	Construction Activity
285	10-04-01 NE 78th Ave Yard Debris	05-Apr-10	Referral/Complaint	Operations crew	Investigation	Residential
286	10-03-11 SE 13th Swale Pet Waste	30-Mar-10	Referral/Complaint	Operations crew	Investigation	Residential
287	10-03-10 Tidewater Cove Discharge	25-Mar-10	Referral/Complaint	Doug Wise	Investigation	Contamination site
288	10-03-07 NE 160th Private Stormwater Facility	23-Mar-10	Referral/Complaint	Doug Wise	Investigation	Business Plaza
289	10-03-09 29th & X St Concrete Discharge	23-Mar-10	Referral/Complaint	Operations crew	Investigation	Construction Activity
290	Mill Plain 76	23-Mar-10	Referral/Complaint	Doug Wise	Class I	Gas Station
291	10-03-08 164th & 1st Coffee Cart	19-Mar-10	Referral/Complaint	Doug Wise	Investigation	Restaurant
292	10-03-05 Leverich Park Discharge	17-Mar-10	Referral/Complaint	Doug Wise	Investigation	Residential
293	10-03-06 Riverside Rd Discharge	17-Mar-10	Referral/Complaint	Doug Wise	Investigation	Residential
294	10-03-03 NE 99th Ave Auto Spills	12-Mar-10	Referral/Complaint	Doug Wise	Investigation	Residential
295	10-03-02 NW 52nd st Sewer Back-up	11-Mar-10	Referral/Complaint	Doug Wise	Investigation	Residential

296	10-03-04 Hidden Way Mystery Pipe	09-Mar-10	Referral/Complaint	Operations crew	Investigation	Business/Industrial Park
297	10-03-01 112th & 39th Qwest Vault Discharge	05-Mar-10	Referral/Complaint	Doug Wise	Investigation	Utility
298	10-02-12 4th Plain Muchas Gracias Hose	26-Feb-10	Referral/Complaint	Doug Wise	Investigation	Construction Activity
299	10-02-13 4th Plain Oil Leak	26-Feb-10	Referral/Complaint	Doug Wise	Investigation	Automotive
300	10-02-11 NE 42nd St Swimming Pool	24-Feb-10	Referral/Complaint	Doug Wise	Investigation	Residential
301	10-02-10 NE 48th Cr Landscaping Debris	21-Feb-10	Referral/Complaint	Operations crew	Investigation	Residential
302	10-02-08 NE 57th St Swale Dumping	18-Feb-10	Referral/Complaint	Doug Wise	Investigation	Solid Waste Related
303	10-02-06 NE 41st St Vault Disturbance	09-Feb-10	Referral/Complaint	Doug Wise	Investigation	Business Plaza
304	10-02-03 NE 97th Mystery Pipe	08-Feb-10	Referral/Complaint	Doug Wise	Investigation	Residential
305	10-02-04 NE 99th Ave Gasoline Spill	05-Feb-10	Referral/Complaint	Doug Wise	Investigation	Automotive
306	10-02-01 Evergreen Inn Washwater	02-Feb-10	Referral/Complaint	Doug Wise	Investigation	Residential Services
307	10-01-08 Mill Plain Grease Discharge	25-Jan-10	Referral/Complaint	Operations crew	Investigation	Restaurant
308	10-01-07 Cascade Park Dog Waste	22-Jan-10	Referral/Complaint	Doug Wise	Investigation	Residential
309	10-01-04 39th St Sewer Backup	14-Jan-10	Referral/Complaint	Doug Wise	Investigation	Construction Activity
310	10-01-05 SE 19th St Dog Waste	12-Jan-10	Referral/Complaint	Doug Wise	Investigation	Residential
311	10-01-06 SE 10th Pool Discharge	12-Jan-10	Referral/Complaint	Doug Wise	Investigation	Residential
312	10-01-03 NE 9th Street Sewage Discharge	07-Jan-10	Referral/Complaint	Doug Wise	Investigation	Residential Services
313	10-01-02 Orchards Concrete Discharge	06-Jan-10	Referral/Complaint	Betsy Scrivner	Investigation	Construction Activity
314	09-12-02 NE 139th Oil Spill	22-Dec-09	Referral/Complaint	Operations crew	Investigation	Residential
315	09-12-01 Columbia Way Steam	11-Dec-09	Referral/Complaint	Doug Wise	Investigation	Business/Industrial Park

316	09-11-04 SE Rivercrest Oil Dumping	30-Nov-09	Referral/Complaint	Doug Wise	Investigation	Residential
317	09-11-03 Twin Perks Illicit Discharge	19-Nov-09	Referral/Complaint	Doug Wise	Investigation	Restaurant
318	09-11-02 NE 7th St Debris	13-Nov-09	Referral/Complaint	Doug Wise	Investigation	Residential
319	09-11-01 164th & Mill Plain Debris	10-Nov-09	Referral/Complaint	Doug Wise	Investigation	Business Plaza
320	09-10-04 Gas in NE 129th Ave	30-Oct-09	Referral/Complaint	Richard Hoiland	Investigation	Residential
321	09-10-03 18th St & BBC FC Exceedences	28-Oct-09	Referral/Complaint	Doug Wise	Investigation	Residential
322	09-09-01 NE 28th Swale	26-Oct-09	Referral/Complaint	Doug Wise	Investigation	Business/Industrial Park
323	09-10-02 Mill Plain RV Spill	16-Oct-09	Referral/Complaint	Operations crew	Investigation	Septage
324	09-09-03 Four Seasons Discharge	10-Sep-09	Referral/Complaint	Operations crew	Investigation	Business Plaza
325	09-09-02 NE 18th St Paving Spills	02-Sep-09	Referral/Complaint	Doug Wise	Investigation	
326	09-08-09 NW Grant Discharge	01-Sep-09	Referral/Complaint	Doug Wise	Investigation	Residential
327	09-08-08 SE 123rd Ave Pressure Wash	31-Aug-09	Referral/Complaint	Doug Wise	Investigation	Mobile Washers
328	09-08-07 NE 101st Ct Pressure Wash	28-Aug-09	Referral/Complaint	Doug Wise	Investigation	
329	09-08-06 NE 22nd St Dumping	24-Aug-09	Referral/Complaint	Doug Wise	Investigation	Residential
330	09-08-05 Marine Park Oil Discharge	21-Aug-09	Referral/Complaint	Doug Wise	Investigation	Business/Industrial Park
331	09-08-02 Albertson's 4th Plain Grease Discharge	11-Aug-09	Referral/Complaint	Doug Wise	Investigation	Solid Waste Related
332	09-08-03 NE 63rd St Auto Leak	11-Aug-09	Referral/Complaint	Doug Wise	Investigation	Automotive
333	09-08-04 Riverview Diesel Spill	06-Aug-09	Referral/Complaint	Operations crew	Investigation	Construction Activity
334	09-08-01 Kevanna Park Dumping	01-Aug-09	Referral/Complaint	Doug Wise	Investigation	Residential
335	09-07-07 NE 109th Mystery Odor	31-Jul-09	Referral/Complaint	Doug Wise	Investigation	Business/Industrial Park
336	09-07-06 Buena Vista Pool Discharge	24-Jul-09	Referral/Complaint	Doug Wise	Investigation	Residential

337	09-07-03 Downtown Grease Dumping	23-Jul-09	Referral/Complaint	Doug Wise	Investigation	Restaurant
338	09-07-05 Burton Channel Illicit Connection	22-Jul-09	Referral/Complaint	Doug Wise	Investigation	Business Plaza
339	09-07-04 NE 7th Street Discharge	21-Jul-09	Referral/Complaint	Doug Wise	Investigation	Residential
340	09-07-01 Reserve Car Oil Leak	06-Jul-09	Referral/Complaint	Doug Wise	Investigation	Residential
341	09-06-10 NE 51st Dumping	24-Jun-09	Referral/Complaint	Doug Wise	Investigation	Solid Waste Related
342	09-06-08 Old Friends Solvent Wastes	18-Jun-09	Referral/Complaint	Doug Wise	Investigation	Stripping and Finishing
343	09-06-06 NE148th Oil Leak	16-Jun-09	Referral/Complaint	Doug Wise	Investigation	Residential
344	09-06-07 Franklin & 4th Plain Concrete Discharge	16-Jun-09	Referral/Complaint	Doug Wise	Investigation	
345	09-06-05 NE 19th Ave Pool Discharge	15-Jun-09	Referral/Complaint	Doug Wise	Investigation	Residential
346	09-06-04 Twin Perks Espresso Discharge	10-Jun-09	Referral/Complaint	Doug Wise	Investigation	Food and Merchandise
347	09-05-01 Masco Masons Supply	09-Jun-09	Referral/Complaint	Doug Wise	Investigation	Industrial Services
348	09-06-01 Minnehaha Illicit Discharge	04-Jun-09	Referral/Complaint	Doug Wise	Investigation	Manufacturing
349	09-05-07 Grandview Stone Slurry Discharge	28-May-09	Referral/Complaint	Doug Wise	Investigation	Construction Activity
350	Shell (Formerly Texaco) Fishers Landing	26-May-09	Referral/Complaint	Doug Wise	Class I	Gas Station
351	09-05-05 Hearthwood Tow Truck	20-May-09	Referral/Complaint	Doug Wise	Investigation	Automotive
352	09-05-03 NE 116th Carpet Cleaner	18-May-09	Referral/Complaint	Doug Wise	Investigation	Carpet Cleaner
353	09-05-04 164th & Tech Ctr Paint Discharge	18-May-09	Referral/Complaint	Doug Wise	Investigation	Construction Activity
354	09-05-02 NE 159th Auto Shop	12-May-09	Referral/Complaint	Doug Wise	Investigation	Automotive
355	09-04-07 Mill Plain Janitorial Discharge	04-May-09	Referral/Complaint	Doug Wise	Investigation	Mobile Washers
356	09-04-06 Jefferson Stone Cutting Discharge	27-Apr-09	Referral/Complaint	Doug Wise	Investigation	Manufacturing

357	Cutting Edge Countertops	27-Apr-09	Referral/Complaint	Doug Wise	Not Classified	Manufacturing
358	09-04-03 Grand Blvd Illicit Connection	08-Apr-09	Referral/Complaint	Doug Wise	Investigation	Government Services
359	09-04-05 Yeoman Swale Debris	07-Apr-09	Referral/Complaint	Operations crew	Investigation	Residential
360	09-04-02 51st Circle Oil Dumping	06-Apr-09	Referral/Complaint	Doug Wise	Investigation	Automotive
361	09-04-01 Columbia Way Oil Trail	02-Apr-09	Referral/Complaint	Doug Wise	Investigation	Automotive
362	09-03-07 W. 30th Oil Leak	31-Mar-09	Referral/Complaint	Doug Wise	Investigation	Automotive
363	09-03-06 4th Plain & Gher Rd Carwash	27-Mar-09	Referral/Complaint	Doug Wise	Investigation	Car Wash
364	09-03-03 Golden Tent Grease	26-Mar-09	Referral/Complaint	Doug Wise	Investigation	Restaurant
365	09-03-05 Sewage on St Johns	26-Mar-09	Referral/Complaint	Operations crew	Investigation	Septage
366	09-03-02 Oil spill 31st & Lincoln	17-Mar-09	Referral/Complaint	Rhonda Morgan	Investigation	Residential
367	09-02-06 SE 14th St Oil Dumping	23-Feb-09	Referral/Complaint	Operations crew	Investigation	Automotive
368	09-02-04 Hiddenbrook Swale Debris	20-Feb-09	Referral/Complaint	Doug Wise	Investigation	Residential
369	09-02-05 Evergreen Concrete Waste	18-Feb-09	Referral/Complaint	Operations crew	Investigation	Contractor
370	09-02-03 Evergreen Auto Spills	13-Feb-09	Referral/Complaint	Doug Wise	Investigation	Automotive
371	09-02-01 Evergreen Oil Dumping	05-Feb-09	Referral/Complaint	Doug Wise	Investigation	Residential
372	09-02-02 BBC Sewage Dumping	05-Feb-09	Referral/Complaint	Doug Wise	Investigation	Septage
373	09-02-01 Evergreen Oil Dumping	04-Feb-09	Referral/Complaint	Richard Hoiland	Investigation	Residential
374	09-01-03 Andresen Ponds Soap Suds	30-Jan-09	Referral/Complaint	Doug Wise	Investigation	Business Plaza
375	09-01-04 NE 49th St Pressure Washing	28-Jan-09	Referral/Complaint	Doug Wise	Investigation	Residential
376	10-01-01 Burton Channel Illicit Connection	21-Jan-09	Referral/Complaint	Doug Wise	Investigation	Residential
377	09-01-02 Reserve Street Auto Dumping	16-Jan-09	Referral/Complaint	Doug Wise	Investigation	Automotive
378	09-01-01 39th Street Oil Dumping	09-Jan-09	Referral/Complaint	Doug Wise	Investigation	Residential
379	08-11-01 Evergreen & Winchell Auto Shop	18-Nov-08	Referral/Complaint	Doug Wise	Investigation	Automotive

380	08-10-05 E 4th Plain Sanitary Overflow	28-Oct-08	Referral/Complaint	Doug Wise	Investigation	Food and Merchandise
381	08-10-04 NE 122nd Washwater Discharge	17-Oct-08	Referral/Complaint	Doug Wise	Investigation	Residential
382	08-10-02 162nd Street Sweeper Discharge	10-Oct-08	Referral/Complaint	Doug Wise	Investigation	Government Services
383	08-10-01 E 16th Washing Machine & Oil	06-Oct-08	Referral/Complaint	Doug Wise	Investigation	Residential
384	08-07-06 Extreme Paintball	30-Sep-08	Referral/Complaint	Doug Wise	Investigation	Automotive
385	Time Oil - Handy Andy Site	29-Sep-08	Referral/Complaint	Doug Wise	Contaminated Site	Contamination site
386	08-09-06 Arnold Park Mystery Pipe	28-Sep-08	Referral/Complaint	Doug Wise	Investigation	Contamination site
387	08-09-04 Summerfield Swale Yard Waste	23-Sep-08	Referral/Complaint	Doug Wise	Investigation	Housing
388	08-09-03 30th & Watson Grease in Catch Basin	18-Sep-08	Referral/Complaint	Doug Wise	Investigation	Residential
389	08-09-02 Grand Catch Basin	16-Sep-08	Referral/Complaint	Doug Wise	Investigation	Restaurant
390	08-09-01 SE 158th Ave Illicit Discharge	15-Sep-08	Referral/Complaint	Doug Wise	Investigation	Residential
391	08-08-07 Grand & Evergreen Auto Painting	22-Aug-08	Referral/Complaint	Doug Wise	Investigation	Automotive
392	Evergreen Food Mart	22-Aug-08	Referral/Complaint	Doug Wise	Class I	Automotive
393	08-08-05 TSD 3517 NE 49th	12-Aug-08	Referral/Complaint	Richard Hoiland	Investigation	Storage/Distribution
394	08-08-06 NE 4th Plain Drums	12-Aug-08	Referral/Complaint	Doug Wise	Investigation	Remediation
395	08-08-04 Riverview Aluminum Sulfate Spill	11-Aug-08	Referral/Complaint	Doug Wise	Investigation	Construction Activity
396	08-08-02 Leverich Park Dye Test	08-Aug-08	Referral/Complaint	Doug Wise	Investigation	Septage
397	08-08-03 Ellsworth Sediment Discharge	08-Aug-08	Referral/Complaint	Doug Wise	Investigation	Construction Activity
398	08-08-01 W 39th Washington Trucking Fire	06-Aug-08	Referral/Complaint	Doug Wise	Investigation	Fleet Vehicle Services
399	Washington Trucking Inc	06-Aug-08	Referral/Complaint	Doug Wise	Not Determined	Fleet Vehicle Services

400	08-07-10 NE 66th St Oil in Catch Basins	31-Jul-08	Referral/Complaint	Doug Wise	Investigation	Residential
401	08-07-08 NW Thunderbird Concrete Slurry	30-Jul-08	Referral/Complaint	Doug Wise	Investigation	Construction Activity
402	08-07-09 SE 15th St Paint Dumping	30-Jul-08	Referral/Complaint	Doug Wise	Investigation	Paint
403	08-07-07 Drums near Emerald	29-Jul-08	Referral/Complaint	Richard Hoiland	Investigation	Industrial Services
404	08-07-04 E 17th Street Auto Shop	15-Jul-08	Referral/Complaint	Doug Wise	Investigation	Automotive
405	08-07-05 NW Grant Pool Discharge	15-Jul-08	Referral/Complaint	Doug Wise	Investigation	Residential
406	08-07-03 192nd & SE 34th Pond Sheen	14-Jul-08	Referral/Complaint	Doug Wise	Investigation	Residential
407	08-07-02 7th Way Auto Body Discharge	09-Jul-08	Referral/Complaint	Doug Wise	Investigation	Automotive
408	08-07-01 Peterson Channel Mystery Pipes	02-Jul-08	Referral/Complaint	Doug Wise	Investigation	Residential
409	08-06-09 4th Plain Bioswale Concrete	27-Jun-08	Referral/Complaint	Doug Wise	Investigation	Construction Activity
410	08-06-07 Northshore Circle	24-Jun-08	Referral/Complaint	Doug Wise	Investigation	Residential
411	08-06-08 Oil on I5 Bridge	24-Jun-08	Referral/Complaint	Richard Hoiland	Investigation	Government Services
412	08-06-04 W Evergreen RV Dumping	10-Jun-08	Referral/Complaint	Doug Wise	Investigation	Septage
413	08-06-01 Oil Can Henry's Antifreeze	06-Jun-08	Referral/Complaint	Doug Wise	Investigation	Automotive
414	08-06-02 The Oaks Muriatic Acid	06-Jun-08	Referral/Complaint	Doug Wise	Investigation	Construction Activity
415	Oil Can Henry's	06-Jun-08	Referral/Complaint	Doug Wise	Class I	Automotive
416	08-05-08 NE 101st Ct Oil Dumping	16-May-08	Referral/Complaint	Doug Wise	Investigation	Residential
417	08-05-07 Plomondon St Transmission Fluid Spill	14-May-08	Referral/Complaint	Doug Wise	Investigation	Automotive
418	08-05-06 NE 100th Ave Pool Discharge	13-May-08	Referral/Complaint	Doug Wise	Investigation	Residential
419	08-05-01 Port Way Gasoline Spill	09-May-08	Referral/Complaint	Doug Wise	Investigation	Automotive

420	08-05-05 Grand Blvd Coffee Cart	09-May-08	Referral/Complaint	Richard Hoiland	Investigation	Food and Merchandise
421	08-05-03 Excelsior Complaint	07-May-08	Referral/Complaint	Doug Wise	Investigation	Manufacturing
422	Excelsior Packaging	07-May-08	Referral/Complaint	Doug Wise	Class I	Manufacturing
423	08-04-05 Page One Washwater	29-Apr-08	Referral/Complaint	Richard and Doug	Investigation	Automotive
424	Page One Northwest	29-Apr-08	Referral/Complaint	Richard and Doug	Not Classified	Car Wash
425	08-04-06 BBC Neighborhood Swales	16-Apr-08	Referral/Complaint	Operations crew	Investigation	Residential
426	08-04-03 W 25th St Illicit Connection	11-Apr-08	Referral/Complaint	Doug Wise	Investigation	Residential
427	08-04-04 Butte Ave Illicit Connection	11-Apr-08	Referral/Complaint	Doug Wise	Investigation	Residential
428	08-04-01 Louie Lube Oil Leaks	04-Apr-08	Referral/Complaint	Doug Wise	Investigation	Automotive
429	General Chemical Corporation	04-Apr-08	Referral/Complaint	Doug Wise	Class I	Chemical Blending
430	08-03-02 192nd QFC Compactor Leachate	03-Apr-08	Referral/Complaint	Doug Wise	Investigation	Solid Waste Related
431	08-03-01 Spring Brook Village Sand Blasting	13-Mar-08	Referral/Complaint	Doug Wise	Investigation	Mobile Washers
432	08-02-05 Service Master Carpet Cleaning Discharge	21-Feb-08	Referral/Complaint	Doug Wise	Investigation	Carpet Cleaner
433	08-02-04 DOT Pond Oil Residues	18-Feb-08	Referral/Complaint	Doug Wise	Investigation	Contamination site
434	08-02-06 Leverich Park Debris	18-Feb-08	Referral/Complaint	Doug Wise	Investigation	Solid Waste Related
435	08-02-02 Hiddenbrook Ridge Sanitary Connection	14-Feb-08	Referral/Complaint	Doug Wise	Investigation	Septage
436	08-02-03 E 28th Street Plaster	14-Feb-08	Referral/Complaint	Doug Wise	Investigation	Residential
437	08-01-05 NE 94th Place Oil Leak	29-Jan-08	Referral/Complaint	Doug Wise	Investigation	Residential
438	08-01-04a WSWRF & Blandford Mystery Waste	24-Jan-08	Referral/Complaint	Doug Wise	Investigation	Solid Waste Related
439	08-01-04b WSWRF & Blandford Mystery Waste	24-Jan-08	Referral/Complaint	Doug Wise	Investigation	Solid Waste Related
440	08-01-02 Chappelles Towing Oil Discharge	23-Jan-08	Referral/Complaint	Doug Wise	Investigation	Automotive
441	Chappelle's Towing	23-Jan-08	Referral/Complaint	Doug Wise	Not Classified	Automotive

442	08-01-01 COV Hydraulic Fluid Spill	18-Jan-08	Referral/Complaint	Doug Wise	Investigation	Construction Activity
443	08-01-03 Vancouver Granite Discharge to Swale	18-Jan-08	Referral/Complaint	Doug Wise	Investigation	Construction Activity
444	Vancouver Granite Works	18-Jan-08	Referral/Complaint	Doug Wise	Not Classified	Manufacturing
445	07-12-03 Fourth Plain RV Dumping	05-Dec-07	Referral/Complaint	Doug Wise	Investigation	Septage
446	07-12-02 Evergreen Highway Engine	04-Dec-07	Referral/Complaint	Doug Wise	Investigation	Automotive
447	07-12-01 Andresen ARCO Gasoline Spill	30-Nov-07	Referral/Complaint	Doug Wise	Investigation	Gas Station
448	Arco 5998	30-Nov-07	Referral/Complaint	Doug Wise	Not Determined	Gas Station
449	07-11-03 SE 24th Paint Dumping	20-Nov-07	Referral/Complaint	Doug Wise	Investigation	Paint
450	07-11-01 NE 65th Stone Slurry Discharge	08-Nov-07	Referral/Complaint	Doug Wise	Investigation	Business/Industrial Park
451	07-10-06 NE 8th Oil Leak	31-Oct-07	Referral/Complaint	Doug Wise	Investigation	Residential
452	07-10-05 Cutting Edge Countertops Discharge	24-Oct-07	Referral/Complaint	Doug Wise	Investigation	Manufacturing
453	Cutting Edge Countertops	24-Oct-07	Referral/Complaint	Doug Wise	Not Classified	Manufacturing
454	07-10-04 NE 7th Concrete	17-Oct-07	Referral/Complaint	Doug Wise	Investigation	Construction Activity
455	07-10-03 147th & NE 63rd Brake Fluid	16-Oct-07	Referral/Complaint	Doug Wise	Investigation	Automotive
456	07-10-02 NE 10th Way Car Leak	10-Oct-07	Referral/Complaint	Rhonda Morgan	Investigation	Residential
457	07-10-01 Miami Way Concrete	02-Oct-07	Referral/Complaint	Doug Wise	Investigation	Construction Activity
458	07-09-05 Action Towing	27-Sep-07	Referral/Complaint	Doug Wise	Investigation	Automotive
459	Action Towing	27-Sep-07	Referral/Complaint	Doug Wise	Not Classified	Automotive
460	07-09-06 Tidewater Cove Drum	24-Sep-07	Referral/Complaint	Doug Wise	Investigation	Contamination site
461	07-09-04 NE 162nd Abandoned Container	19-Sep-07	Referral/Complaint	Doug Wise	Investigation	
462	07-09-03 NE 2nd Concrete	13-Sep-07	Referral/Complaint	Doug Wise	Investigation	Construction Activity
463	07-09-02 NE 154th Paint Discharge	11-Sep-07	Referral/Complaint	Doug Wise	Investigation	Residential
464	07-09-01 1804 X St Washing Machine	05-Sep-07	Referral/Complaint	Doug Wise	Investigation	Residential

465	07-08-5 Ding's Pavement Staining	31-Aug-07	Referral/Complaint	Doug Wise	Investigation	Automotive
466	Ding's Complete Car Care	31-Aug-07	Referral/Complaint	Doug Wise	Class I	Automotive
467	07-08-2 1911 Carlson Trailer Pipe	09-Aug-07	Referral/Complaint	Doug Wise	Investigation	Residential
468	07-08-4 NE 84th Carpet Cleaner Discharge	09-Aug-07	Referral/Complaint	Doug Wise	Investigation	Carpet Cleaner
469	07-08-1 105 E 31st Grease Discharge	08-Aug-07	Referral/Complaint	Doug Wise	Investigation	Restaurant
470	07-08-3 14112 NE 10th Paint	06-Aug-07	Referral/Complaint	Doug Wise	Investigation	Residential
471	07-07-3 2001 NE Landover	30-Jul-07	Referral/Complaint	Doug Wise	Investigation	Residential
472	07-07-4 Crown Estates Oil Spill	30-Jul-07	Referral/Complaint	Doug Wise	Investigation	Construction Activity
473	07-07-2 8500 Evergreen Pond	25-Jul-07	Referral/Complaint	Doug Wise	Investigation	Residential
474	07-07-1 La Frambois Rd Dumping	18-Jul-07	Referral/Complaint	Doug Wise	Investigation	
475	07-06-3 127th&12th Portable Toilet	29-Jun-07	Referral/Complaint	Doug Wise	Investigation	Construction
476	07-06-2 700 N Devine Dumping	26-Jun-07	Referral/Complaint	Doug Wise	Investigation	Medical/Dental
477	07-06-1 Pearson Air Museum Drums	05-Jun-07	Referral/Complaint	Doug Wise	Investigation	Museum
478	07-05 Catch Basin Dumping 8109 NE 14th Place	04-Jun-07	Referral/Complaint	Doug Wise	Investigation	Housing
479	07-04 Dumping on NE 47th St.	01-May-07	Referral/Complaint	Richard Hoiland	Investigation	Residential
480	07-04 Stevenson car oil leaking	12-Apr-07	Referral/Complaint	Richard and Rhonda	Investigation	Residential
481	07-03 Truck mud	18-Mar-07	Referral/Complaint	Rhonda Morgan	Investigation	Residential
482	07-03 Beaches Patio Cleaning	09-Mar-07	Referral/Complaint	Rhonda Morgan	Investigation	Restaurant
483	Premier Auto Collision Repair	21-Feb-07	Referral/Complaint	Richard and Rhonda	Not Classified	Automotive
484	07-02 RV Dumping to Storm	13-Feb-07	Referral/Complaint	Richard and Rhonda	Investigation	Storage/Distribution
485	07-01 Columbia River Logistics	23-Jan-07	Referral/Complaint	Richard Hoiland	Investigation	Transportation/Storage
486	07-01 Davita Medical	09-Jan-07	Referral/Complaint	Richard Hoiland	Investigation	Medical/Dental

487	06-09 trash compactor behind Regal Cinema 4th Plai	01-Sep-06	Referral/Complaint	Tiffany Yelton	Investigation	Business Plaza
488	06-08 Paint in storm gutter	04-Aug-06	Referral/Complaint	Richard Hoiland	Investigation	Residential
489	06-08 leaking car at 2311 NE 124th	03-Aug-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential
490	Taggart Auto Repair	28-Jul-06	Referral/Complaint	Tiffany Yelton	Class I	Automotive
491	06-07Professional Carpet Restorations	27-Jul-06	Referral/Complaint	Tiffany Yelton	Investigation	Carpet Cleaner
492	06-07 leaky car at 3512 NE 157th Ave	26-Jul-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential
493	06-07 oil spill in Fred Meyer parking lot	25-Jul-06	Referral/Complaint	Tiffany Yelton	Investigation	Business Plaza
494	06-07 red stuff in road to catch basin	21-Jul-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential
495	06-07 Hough School carpet cleaning	12-Jul-06	Referral/Complaint	Tiffany Yelton	Investigation	School
496	Addictive Auto Accessories	12-Jul-06	Referral/Complaint	Tiffany Yelton	Investigation	Paint
497	NW Auto Customs	12-Jul-06	Referral/Complaint	Tiffany Yelton	Not Determined	Automotive
498	06-06 Used oil dumped in CoV Bioswale #63	20-Jun-06	Referral/Complaint	Tiffany Yelton	Investigation	Utility
499	06-06 car work at a residence	13-Jun-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential
500	06-06 complaint of dog doo in yard	13-Jun-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential
501	Electro-Tech	05-Jun-06	Referral/Complaint	Tiffany Yelton	Not in City	Manufacturing
502	06-05 1903 W 31st puddle	30-May-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential
503	06-05 Agape Carpet Cleaning	26-May-06	Referral/Complaint	Tiffany Yelton	Investigation	Carpet Cleaner
504	06-05 dumping at end of Bella Vista Place	22-May-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential
505	06-05 Mud at 14905 SE Meadow Park Dr	17-May-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential
506	06-05 Mud in road	17-May-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential
507	06-05 Tim's Auto Detail-home based biz	11-May-06	Referral/Complaint	Tiffany Yelton	Investigation	Car Wash

508	06-05 Maroon car leaking transmission fluid	05-May-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential
509	06-05 Pressure washing fence	05-May-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential
510	06-05 Swimming Pool at Northcrest Manor	04-May-06	Referral/Complaint	Tiffany Yelton	Investigation	Multifamily
511	06-05 O St. home based auto repair	01-May-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential
512	06-04 residence with outdoor auto painting	25-Apr-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential
513	06-04 Complaint referral from VPD	19-Apr-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential
514	06-04 carpet cleaning 2418 E 6th	17-Apr-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential Services
515	06-04 Crane fly larvae	10-Apr-06	Referral/Complaint	Tiffany Yelton	Investigation	Residential
516	06-03 Eastside Meats	08-Mar-06	Referral/Complaint	Tiffany Yelton	Investigation	Meat Packing
517	Pacific Dynamics	02-Mar-06	Referral/Complaint	Tiffany Yelton	Not Classified	Industrial Services
518	Jiffy Lube	06-Feb-06	Referral/Complaint	Tiffany Yelton	Class I	Automotive
519	05-12 Gateway Produce	20-Dec-05	Referral/Complaint	Operations crew	Investigation	Food and Merchandise
520	Vancouver Granite Works	15-Nov-05	Referral/Complaint	Richard Hoiland	Not Classified	Manufacturing
521	05-10 Yard debris on river	02-Nov-05	Referral/Complaint	Richard Hoiland	Investigation	Residential
522	05-08 9th & Washington	23-Aug-05	Referral/Complaint	Richard Hoiland	Investigation	Construction Activity
523	Paul's Motor	22-Aug-05	Referral/Complaint	Richard Hoiland	Not Classified	Automotive
524	Paul's Motor	12-Aug-05	Referral/Complaint	Richard Hoiland	Not Classified	Automotive
525	05-07 Leaking Car	21-Jul-05	Referral/Complaint	Annette Jakubiak	Investigation	Residential
526	05-07 Mobile awning cleaning	20-Jul-05	Referral/Complaint	Annette Jakubiak	Investigation	Mobile Washer
527	05-06 Bagley Park Homeowners Assoc	29-Jun-05	Referral/Complaint	Annette Jakubiak	Investigation	Residential
528	05-06 Bleach water in street	16-Jun-05	Referral/Complaint	Annette Jakubiak	Investigation	Residential
529	05-06 Wonderful Cleaning	08-Jun-05	Referral/Complaint	Annette Jakubiak	Investigation	Mobile Washers
530	05-05 Radiator Fluid	31-May-05	Referral/Complaint	Annette Jakubiak	Investigation	Residential
531	05-05 Leaking flatbed truck	19-May-05	Referral/Complaint	Annette Jakubiak	Investigation	Residential
532	05-05 Sewer overflow at Clutch Doc	13-May-05	Referral/Complaint	Annette Jakubiak	Investigation	Sewer system

533	Cardinal Nutrition	24-Mar-05	Referral/Complaint	Spencer Bohaboy	Not Classified	Food and Merchandise
534	Louie Lube	28-Feb-05	Referral/Complaint	Annette Jakubiak	Not in Operation	Automotive
535	05-02 Carpet cleaner dumping	23-Feb-05	Referral/Complaint	Annette Jakubiak	Investigation	Carpet Cleaner
536	05-02 Oil in catch basin	23-Feb-05	Referral/Complaint	Annette Jakubiak	Investigation	Residential
537	05-02 White stuff in private swale	22-Feb-05	Referral/Complaint	Annette Jakubiak	Investigation	Residential
538	05-02 Paint on Property	08-Feb-05	Referral/Complaint	Annette Jakubiak	Investigation	Residential
539	05-02 Hidden View Pressure Washing	04-Feb-05	Referral/Complaint	Annette Jakubiak	Investigation	Construction Activity
540	05-01 Residential Auto Repair	24-Jan-05	Referral/Complaint	Annette Jakubiak	Investigation	Residential
541	05-01 Salvation Army Truck Spill	13-Jan-05	Referral/Complaint	Annette Jakubiak	Investigation	Spill/Accident
542	Jiffy Lube	11-Jan-05	Referral/Complaint	Annette Jakubiak	Class I	Automotive
543	05-01 Septage Dumping	07-Jan-05	Referral/Complaint	Annette Jakubiak	Investigation	Septage
544	04-12 Plaster dumping	03-Dec-04	Referral/Complaint	Annette Jakubiak	Investigation	Construction Activity
545	04-11 413 St. Louis	15-Nov-04	Referral/Complaint	Annette Jakubiak	Investigation	Residential
546	04-11 Oil Pour NE Lewis	05-Nov-04	Referral/Complaint	Spencer Bohaboy	Investigation	Government Services
547	04-11 Leaky car 1900 W 31st	02-Nov-04	Referral/Complaint	Annette Jakubiak	Investigation	Residential
548	04-10 Outfall State 60" I-5 and Columbia	14-Oct-04	Referral/Complaint	Annette Jakubiak	Investigation	Government Services
549	04-09 CBC Paint Investigation	24-Sep-04	Referral/Complaint	Richard Hoiland	Investigation	Business/Industrial Park
550	04-08 Sandblast grit and Paint	26-Aug-04	Referral/Complaint	Annette Jakubiak	Investigation	Residential
551	04-08 Sandblast grit and Paint	26-Aug-04	Referral/Complaint	Annette Jakubiak	Investigation	Residential
552	04-07 Leaky Car 12416 19th St	21-Jul-04	Referral/Complaint	Annette Jakubiak	Investigation	Residential
553	04-07 Burnt Bridge Terrace Apts	08-Jul-04	Referral/Complaint	Annette Jakubiak	Investigation	Residential
554	04-07 Grounds Central (Mill Plain)	02-Jul-04	Referral/Complaint	Annette Jakubiak	Investigation	Service
555	04-06 Adv Septic tipover 94th VanMallDr	28-Jun-04	Referral/Complaint	Annette Jakubiak	Investigation	Septage
556	04-06 Aptmt Resident vehicle wash	28-Jun-04	Referral/Complaint	Annette Jakubiak	Investigation	Residential
557	04-05 One Lake Place	19-May-04	Referral/Complaint	Annette Jakubiak	Investigation	Construction Activity

558	04-04 Professional Carpet Systems	23-Apr-04	Referral/Complaint	Annette Jakubiak	Investigation	Carpet Cleaner
559	04-04 Abandoned drum	22-Apr-04	Referral/Complaint	Annette Jakubiak	Investigation	Residential
560	04-04 Sweet Tomatoes	21-Apr-04	Referral/Complaint	Annette Jakubiak	Investigation	Restaurant
561	04-04 Lea's Drywall	16-Apr-04	Referral/Complaint	Annette Jakubiak	Investigation	Contractor
562	04-03 Vincent Complaint	19-Mar-04	Referral/Complaint	Annette Jakubiak	Investigation	Residential
563	04-03 Albertsons leaky trash bin	10-Mar-04	Referral/Complaint	Annette Jakubiak	Investigation	Food and Merchandise
564	04-03 Chandler complaint	08-Mar-04	Referral/Complaint	Annette Jakubiak	Investigation	Residential
565	04-03 Leaky car 11316 NE 28th	08-Mar-04	Referral/Complaint	Annette Jakubiak	Investigation	Residential
566	New Image Automotive Detailing	08-Mar-04	Referral/Complaint	Annette Jakubiak	Not Classified	Automotive
567	04-03 Tate Residence	01-Mar-04	Referral/Complaint	Annette Jakubiak	Investigation	Residential
568	M & M Auto Repair	05-Jan-04	Referral/Complaint	Annette Jakubiak	Not Determined	Automotive
569	M & M Auto Repair	05-Jan-04	Referral/Complaint	Annette Jakubiak	Not Determined	Automotive
570	03-11 Tate Carpet Care	25-Nov-03	Referral/Complaint	Annette Jakubiak	Investigation	Carpet Cleaner
571	03-11 S&W Truck Wash	13-Nov-03	Referral/Complaint	Annette Jakubiak	Investigation	Car Wash
572	03-11 55th Loop Home Auto Repair	04-Nov-03	Referral/Complaint	Annette Jakubiak	Investigation	Residential
573	03-09 Granite cutting	24-Sep-03	Referral/Complaint	Richard and Annette	Investigation	Industrial Services
574	03-09 Store Drain Dump	11-Sep-03	Referral/Complaint	Annette Jakubiak	Investigation	Residential
1	14-09-3 Lewis Ridge sw facility	12-Sep-14	Private Stormwater	Betsy Scrivner	Investigation	Residential
2	Lewis Ridge Stormwater Facility	12-Sep-14	Private Stormwater	Betsy Scrivner	Private S/W Facility	Property Management
3	Stonebrook Condo Assoc PSW	29-Jan-13	Private Stormwater	Betsy Scrivner	Private S/W Facility	Residential
4	Four Seasons private facility	11-Jan-13	Private Stormwater	Betsy Scrivner	Private S/W Facility	Commercial Operation
5	Alpine Auto Fast Lube PSW	06-Nov-12	Private Stormwater	Richard and Rhonda	Private S/W Facility	Automotive
6	Alpine Auto Fast Lube PSW	02-Nov-12	Private Stormwater	Betsy Scrivner	Private S/W Facility	Automotive
7	24 Hr Fitness PSW	08-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
8	Barkdusters Inc Ph A PSW	08-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business/Industrial Park

9	Costco East Vancouver PSW	08-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
10	Willapa Elementary Sch PSW	08-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	School
11	Lifepoint church PSW	08-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
12	Mc Callister Village PSW	08-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Multifamily
13	Parkrose hardware PSW	08-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
14	Vancouver Com. Library PSW	08-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
15	Vancouver Sch. Dist. Ware. PSW	08-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	
16	Wellon PH II PSW	08-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business/Industrial Park
17	CTC Bldg 651 Nautilus PSW	05-Oct-12	Private Stormwater	Betsy Scrivner	Private S/W Facility	Business/Industrial Park
18	192nd AV Plaza PSW	03-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
19	3912 H Street PSW	03-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Multifamily
20	Airport Industrial Warehouse PSW	03-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business/Industrial Park
21	Andersen Center PSW	03-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
22	Etengoff Office Bldge PSW	03-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
23	Fafwest Steel PSW	03-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business/Industrial Park
24	Farwest Steel Ph 1 & Ph2 PSW	03-Oct-12	Private Stormwater	Doug and Betsy	Not Determined	
25	Fred Meyer Fuel Exp. PSW	03-Oct-12	Private Stormwater	Betsy Scrivner	Private S/W Facility	Gas Station
26	Goldwal 4-plex PSW	03-Oct-12	Private Stormwater	Betsy Scrivner	Private S/W Facility	Multifamily
27	Safeway Fuel Station PSW	03-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Gas Station
28	Summit Park 2 PSW	03-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	
29	Turnbull SP Right Turn PSW	03-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business/Industrial Park
30	Vista Court Senior Housing PSW	03-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Multifamily
31	VSD Maintenance Facilities PSW	03-Oct-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business/Industrial Park
32	201 General Office PSW	28-Sep-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
33	Fiducial Office BLDG PSW	28-Sep-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
34	Hertiage Plaza PSW	28-Sep-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
35	L & C Investment properties PSW	28-Sep-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
36	Mill Plain Office PSW	28-Sep-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza

37	Van, W Police Precint PSW	28-Sep-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
38	Vancouver Office parking LT PSW	28-Sep-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
39	Vancouver Toyota PSW	28-Sep-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
40	Wee Care Daycare PSW	28-Sep-12	Private Stormwater	Doug and Betsy	Not Determined	Business Plaza
41	West Cost Self Storage PSW	28-Sep-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Business Plaza
42	Awbrey Glen PSW	16-Jul-12	Private Stormwater	Doug Wise	Private S/W Facility	Residential
43	Lile Business Center PSW	02-Jul-12	Private Stormwater	Doug Wise	Private S/W Facility	Manufacturing
44	Sifton Industrial PSW	02-Jul-12	Private Stormwater	Doug Wise	Not Classified	Business Plaza
45	Ryerson Square Condos PSW	29-Jun-12	Private Stormwater	Doug Wise	Private S/W Facility	Multifamily
46	Stonebrook Condo Assoc PSW	14-Jun-12	Private Stormwater	Doug and Betsy	Private S/W Facility	Residential
47	Riverview Estates PSW	30-May-12	Private Stormwater	Betsy Scrivner	Private S/W Facility	Residential
48	Washington Elementary PSW	06-Apr-12	Private Stormwater	Doug Wise	Private S/W Facility	School
49	Wal Mart Store 2550 PSW	26-Mar-12	Private Stormwater	Doug Wise	Private S/W Facility	Business Plaza
50	Stonebrook Condo Assoc PSW	09-Feb-12	Private Stormwater	Doug Wise	Private S/W Facility	Residential
51	Courtyard Vlg Sr Living PSW	16-Dec-11	Private Stormwater	Doug Wise	Private S/W Facility	Multifamily
52	M+M Manufacturing	05-Dec-11	Private Stormwater	Doug Wise	Not Classified	Manufacturing
53	M+M Manufacturing PSW	05-Dec-11	Private Stormwater	Doug Wise	Private S/W Facility	
54	Westridge Place PSW	18-Nov-11	Private Stormwater	Doug and Betsy	Private S/W Facility	Residential
55	Westridge Place PSW	10-Nov-11	Private Stormwater	Doug Wise	Private S/W Facility	Residential
56	USPS Mill Plain DCU PSW	08-Nov-11	Private Stormwater	Doug Wise	Private S/W Facility	Government Services
57	Hiddenbrook Terrace PSW	10-Oct-11	Private Stormwater	Doug Wise	Private S/W Facility	Residential
58	New Seasons PSW	23-Sep-11	Private Stormwater	Doug Wise	Not Classified	Business Plaza
59	Columbia Shores Condo PSW	25-Aug-11	Private Stormwater	Doug Wise	Not Classified	Multifamily
60	Columbia Shores Condos PSW	25-Aug-11	Private Stormwater	Doug Wise	Private S/W Facility	Multifamily
61	Hart Industrial Property PSW	19-Aug-11	Private Stormwater	Doug Wise	Private S/W Facility	Business/Industrial Park
62	112th Industrial Plaza PSW	11-Aug-11	Private Stormwater	Doug Wise	Private S/W Facility	Business/Industrial Park
63	Arnade Pointe Apt. PSW	10-Aug-11	Private Stormwater	Doug Wise	Not Classified	Multifamily
64	Arnada Pointe Apartments PSW	08-Aug-11	Private Stormwater	Doug Wise	Private S/W Facility	Residential
65	Ellsworth Springs Condos PSW	08-Aug-11	Private Stormwater	Doug Wise	Private S/W Facility	Multifamily
66	High Creek Estates Swale PSW	08-Aug-11	Private Stormwater	Doug Wise	Private S/W Facility	Residential
67	North Image Pond PSW	22-Jul-11	Private Stormwater	Doug Wise	Private S/W Facility	

68	USPS Mill Plain DCU PSW	22-Jul-11	Private Stormwater	Doug Wise	Private S/W Facility	Government Services
69	Maaco of Vancouver	15-Jul-11	Private Stormwater	Doug Wise	Class I	Automotive
70	Maaco of Vancouver PSW	15-Jul-11	Private Stormwater	Doug Wise	Private S/W Facility	
71	USPS Mill Plain DCU PSW	05-Jul-11	Private Stormwater	Doug Wise	Private S/W Facility	Government Services
72	Wendel Garage PSW	21-Jun-11	Private Stormwater	Doug and Betsy	Private S/W Facility	Residential
73	Orchard Point Apt PSW	27-May-11	Private Stormwater	Doug Wise	Not Classified	Multifamily
74	Kathy's Court PSW	06-May-11	Private Stormwater	Doug Wise	Private S/W Facility	Residential
75	Quay private swale PSW	03-May-11	Private Stormwater	Doug Wise	Not Classified	Business Plaza
76	Davis Industrial Park LLC PSW	22-Apr-11	Private Stormwater	Doug Wise	Not Classified	Business/Industrial Park
77	Davis Industrial Park PSW	22-Apr-11	Private Stormwater	Doug Wise	Private S/W Facility	Business/Industrial Park
78	Sir James Apartments PSW	11-Apr-11	Private Stormwater	Doug Wise	Private S/W Facility	Multifamily
79	Garden View Estates PSW	16-Feb-11	Private Stormwater	Doug Wise	Private S/W Facility	Residential
80	Qwest Corp W00359	15-Feb-11	Private Stormwater	Doug Wise	Class I	Utility
81	Qwest Corp W00359 PSW	15-Feb-11	Private Stormwater	Doug Wise	Private S/W Facility	
82	Seid Property S/W Facilities PSW	15-Feb-11	Private Stormwater	Doug Wise	Private S/W Facility	Business Plaza
83	Shell (Formerly Texaco) Fishers Landing	15-Feb-11	Private Stormwater	Doug Wise	Class I	Gas Station
84	Shell @ Fishers Landing PSW	15-Feb-11	Private Stormwater	Doug Wise	Private S/W Facility	
85	First Evangelical Church PSW	13-Jan-11	Private Stormwater	Doug and Betsy	Private S/W Facility	School
86	First Evangelical Church PSW	13-Jan-11	Private Stormwater	Doug Wise	Not Classified	Business Plaza
87	Courtyard Village Apartments PSW	07-Jan-11	Private Stormwater	Doug and Betsy	Private S/W Facility	Residential
88	Fred Meyer - Mill Plain PSW	07-Jan-11	Private Stormwater	Doug and Betsy	Private S/W Facility	Consumer Goods
89	Sir James Apartments PSW	07-Jan-11	Private Stormwater	Doug and Betsy	Private S/W Facility	Multifamily
90	Fred Meyer - Mill Plain PSW	08-Oct-10	Private Stormwater	Doug Wise	Private S/W Facility	Consumer Goods
91	The Village at Cedar Ridge PSW	07-Oct-10	Private Stormwater	Operations crew	Private S/W Facility	Residential
92	Sir James Apartments PSW	05-Oct-10	Private Stormwater	Doug Wise	Private S/W Facility	Multifamily
93	93rd Ave LLC StormFilter PSW	01-Oct-10	Private Stormwater	Doug Wise	Private S/W Facility	Residential
94	Courtyard Village Apartments PSW	23-Aug-10	Private Stormwater	Doug Wise	Private S/W Facility	Residential

95	Vancouver Village Property PSW	12-Aug-10	Private Stormwater	Doug Wise	Private S/W Facility	Business Plaza
96	Vancouver Hilton PSW	06-Aug-10	Private Stormwater	Doug Wise	Private S/W Facility	Service
97	Village at cedar Ridge PSW	27-Jul-10	Private Stormwater	Doug Wise	Private S/W Facility	Multifamily
98	hanna Kia PSW	16-Jul-10	Private Stormwater	Doug Wise	Not Classified	Business/Industrial Park
99	Camp ES Assoc Property PSW	15-Jul-10	Private Stormwater	Doug Wise	Private S/W Facility	Business Plaza
100	Hiddenbrook Terrace PSW	12-Jul-10	Private Stormwater	Doug Wise	Private S/W Facility	Residential
101	Firestome Packing PSW	06-Jul-10	Private Stormwater	Doug Wise	Private S/W Facility	Business/Industrial Park
102	Columbian Building PSW	30-Jun-10	Private Stormwater	Doug Wise	Private S/W Facility	Business Plaza
103	10-06-12 North Image Pond	25-Jun-10	Private Stormwater	Doug Wise	Investigation	Residential
104	North Image Pond PSW	25-Jun-10	Private Stormwater	Doug Wise	Private S/W Facility	
105	Camp ES Assoc Property PSW	17-Jun-10	Private Stormwater	Doug Wise	Private S/W Facility	Business Plaza
106	The Firs at Fisher's Landing PSW	17-Jun-10	Private Stormwater	Doug Wise	Private S/W Facility	Multifamily
107	93rd Ave LLC StormFilter PSW	08-Jun-10	Private Stormwater	Doug Wise	Private S/W Facility	Residential
108	Vancouver Plaza PSW	08-Jun-10	Private Stormwater	Doug Wise	Private S/W Facility	Business Plaza
109	7-Eleven Fourth Plain PSW	02-Jun-10	Private Stormwater	Doug Wise	Private S/W Facility	Gas Station
110	Van Mall Storage PSW	25-May-10	Private Stormwater	Doug Wise	Private S/W Facility	Residential
111	Norwood Villa PSW	24-May-10	Private Stormwater	Doug Wise	Private S/W Facility	Multifamily
112	10-05-01 Rapid Lube oil in lot	17-May-10	Private Stormwater	Doug Wise	Investigation	Automotive
113	PSW Rapid Lube PSW	17-May-10	Private Stormwater	Doug Wise	Not Determined	
114	Hegewald Property PSW	19-Apr-10	Private Stormwater	Doug Wise	Private S/W Facility	Automotive
115	Hart Industrial Property PSW	24-Mar-10	Private Stormwater	Doug Wise	Private S/W Facility	Business/Industrial Park
116	Mill Plain 164th PSW	23-Mar-10	Private Stormwater	Doug Wise	Private S/W Facility	Business Plaza
117	Tabor's Auto Machine	03-Mar-10	Private Stormwater	Doug Wise	Private S/W Facility	
118	Tabor's Automotive Machine, Inc.	03-Mar-10	Private Stormwater	Doug Wise	Class I	Automotive
119	Vancouver Market Center PSW	31-Dec-09	Private Stormwater	Doug Wise	Private S/W Facility	Business Plaza
120	Grand Central PSW	17-Nov-09	Private Stormwater	Doug Wise	Private S/W Facility	Business Plaza
121	Creekview Swale PSW	12-Nov-09	Private Stormwater	Doug Wise	Private S/W Facility	Residential
122	Vancouver Market Center PSW	12-Aug-09	Private Stormwater	Doug Wise	Private S/W Facility	Business Plaza
123	Riverview Estates PSW	27-Jul-09	Private Stormwater	Doug Wise	Private S/W Facility	Residential

124	Village Hope Condos PSW	27-Jul-09	Private Stormwater	Doug Wise	Private S/W Facility	Residential
125	Villarreal Property Swale PSW	28-Jun-09	Private Stormwater	Doug Wise	Private S/W Facility	Business/Industrial Park
126	09-06-04 Twin Perks Espresso Discharge	10-Jun-09	Private Stormwater	Doug Wise	Investigation	Food and Merchandise
127	Twin Perks Espresso PSW	10-Jun-09	Private Stormwater	Doug Wise	Private S/W Facility	
128	Masco Masons Supply	09-Jun-09	Private Stormwater	Doug Wise	Not Classified	Industrial Services
129	Masco Masons Supply PSW	09-Jun-09	Private Stormwater	Doug Wise	Private S/W Facility	
130	M2J Business Park PSW	05-Jun-09	Private Stormwater	Doug Wise	Private S/W Facility	Business/Industrial Park
131	Hart Industrial Property PSW	01-May-09	Private Stormwater	Richard and Doug	Private S/W Facility	Business/Industrial Park
132	Bob's Electric	29-Apr-09	Private Stormwater	Doug Wise	Not Classified	Contractor
133	Bob's Electric PSW	29-Apr-09	Private Stormwater	Doug Wise	Private S/W Facility	
134	09-03-04 121st & 60th Swale	26-Mar-09	Private Stormwater	Doug Wise	Investigation	Business/Industrial Park
135	121st & 60th Swale PSW	26-Mar-09	Private Stormwater	Doug Wise	Private S/W Facility	
136	09-02-04 Hiddenbrook Swale Debris	13-Feb-09	Private Stormwater	Operations crew	Investigation	Residential
137	Hiddenbrook Swale Debris PSW	13-Feb-09	Private Stormwater	Operations crew	Private S/W Facility	
1	Wafer Reclaim Service (formerly Isonics)	16-Jul-14	Inspection	City staff	Class I	Industrial Services
2	Century Link	11-Jul-14	Inspection	Merek Strand	Class I	Utility
3	Mercury Plastics	10-Jul-14	Inspection	Merek Strand	Class I	Manufacturing
4	Century Link	30-Jun-14	Inspection	Merek Strand	Class I	Utility
5	Pro-Caliber Motorsports	30-Jun-14	Inspection	Merek Strand	Class I	Automotive
6	In & Out Mart	30-May-14	Inspection	Merek Strand	Class I	Gas Station
7	Midas	24-Apr-14	Inspection	Merek Strand	Class I	Automotive
8	Oil Can Henry's	24-Apr-14	Inspection	Merek Strand	Class I	Automotive
9	Bbc Petroleum Group	08-Apr-14	Inspection	Merek Strand	Class I	Gas Station
10	St. Johns Mini Mart	03-Apr-14	Inspection	Merek Strand	Class I	Gas Station
11	Columbia River Logistics	13-Mar-14	Inspection	Merek Strand	Class I	Transportation/Storage
12	Macs Radiator & Repair Inc	14-Nov-13	Inspection	Merek Strand	Class I	Automotive

13	Sams Auto Repair	07-Nov-13	Inspection	Richard & Merek	Class I	Automotive
14	Garage	25-Sep-13	Inspection	Richard & Merek	Class I	Automotive
15	Tech Transmission	25-Sep-13	Inspection	Richard & Merek	Not Classified	Automotive
16	VA Medical Center Division	26-Apr-12	Inspection	Doug Wise	Class I	Medical/Dental
17	Gavilon Fertilizer, LLC	23-Mar-12	Inspection	Doug Wise	Not Classified	Bulk dry storage/distribution
18	QualaWash (Quala Systems Inc)	15-Mar-12	Inspection	Doug Wise	Class I	Industrial Services
19	Villegas Auto Shop	17-Feb-12	Inspection	Doug Wise	Class I	Automotive
20	Villegas Auto Shop	30-Dec-11	Inspection	Doug Wise	Class I	Automotive
21	Michaelson Motors	20-Oct-11	Inspection	Doug Wise	Not Classified	Automotive
22	West Van Material Recovery Center	07-Sep-11	Inspection	Doug Wise	Class I	Solid Waste Related
23	Vancouver Toyota	31-Aug-10	Inspection	Richard and Doug	Class I	Automotive
24	Vancouver Water Station 1	03-Mar-10	Inspection	Rhonda Morgan	Class I	Utility
25	Vancouver Water Station 15	03-Mar-10	Inspection	Rhonda Morgan	Class I	Utility
26	Vancouver Water Station 3	03-Mar-10	Inspection	Rhonda Morgan	Class I	Utility
27	Vancouver Water Station 4 Blandford	03-Mar-10	Inspection	Rhonda Morgan	Class I	Utility
28	Vancouver Water Station 7	03-Mar-10	Inspection	Rhonda Morgan	Class I	Utility
29	Vancouver Water Station Ellsworth	03-Mar-10	Inspection	Rhonda Morgan	Class I	Utility
30	Vancouver Water Station 14	09-Feb-10	Inspection	Rhonda Morgan	Not in City	Utility
31	Vancouver Water Station 5	09-Feb-10	Inspection	Rhonda Morgan	Not Classified	Utility
32	Vancouver Water Station 6	09-Feb-10	Inspection	Rhonda Morgan	Not Classified	Utility
33	Vancouver Water Station 8	09-Feb-10	Inspection	Rhonda Morgan	Not Determined	Utility
34	Vancouver Water Station 9	09-Feb-10	Inspection	Rhonda Morgan	Class I	Utility
35	09-10-01 AutoMax Vancouver	15-Oct-09	Inspection	Richard Hoiland	Investigation	Car Wash
36	AutoMax Vancouver	15-Oct-09	Inspection	Richard Hoiland	Not Classified	Automotive
37	Trim Systems L.L.C.	30-Apr-09	Inspection	Doug Wise	Class I	Manufacturing
38	A New Image Detailing - 4th Plain	29-Apr-09	Inspection	Doug Wise	Not Classified	Automotive
39	A&B Radiator & Speedometer Svc	29-Apr-09	Inspection	Doug Wise	Class I	Automotive

40	Old Friends Custom Furniture Finish	29-Apr-09	Inspection	Doug Wise	Class I	Stripping and Finishing
41	WA DOT Vancouver	11-Dec-08	Inspection	Richard and Doug	Class I	Government Services
42	K.P. McNamara NW, Inc.	08-Oct-08	Inspection	Doug Wise	Class I	Industrial Services
43	Bemis	15-Aug-08	Inspection	Doug Wise	Class I	Manufacturing
44	Micropump	12-Aug-08	Inspection	Doug Wise	Class I	Manufacturing
45	Northwest Packing Company	07-Aug-08	Inspection	Doug Wise	Class I	Industrial Services
46	Cadet Manufacturing Company	17-Jul-08	Inspection	Doug Wise	Class I	Manufacturing
47	Columbia Cascade	11-Jul-08	Inspection	Doug Wise	Class I	Manufacturing
48	Pro-Caliber Motorsports	09-Jul-08	Inspection	Doug Wise	Class I	Automotive
49	Nalco Chemical Company	13-Jun-08	Inspection	Doug Wise	Class I	Chemical Blending
50	Christensen Shipyards Limited	28-May-08	Inspection	Doug Wise	Class I	Manufacturing
51	K.P. McNamara NW, Inc.	07-May-08	Inspection	Doug Wise	Class I	Industrial Services
52	Emerald Petroleum Services Vancouver	28-Jan-08	Inspection	Doug Wise	Class I	Waste Treatment
53	Dave's Detail	31-Aug-07	Inspection	Doug Wise	Not Classified	Automotive
54	Excelsior Packaging	01-Aug-07	Inspection	Doug Wise	Class I	Manufacturing
55	Food Express Inc Fruit Valley Rd	28-Nov-06	Inspection	Tiffany Yelton	Class I	Transportation/Storage
56	Portco	11-Aug-06	Inspection	Tiffany Yelton	Not in City	Manufacturing
57	NuStar Energy - Port of Vancouver	15-Mar-06	Inspection	Tiffany Yelton	Class I	Storage/Distribution
58	Valero at the Port - now NuStar	15-Mar-06	Inspection	Tiffany Yelton	Class II	Storage/Distribution
59	Port of Vancouver Bulk Facility	21-Feb-06	Inspection	Tiffany Yelton	Class I	Bulk dry storage/distribution
60	Andy's Auto Repair	16-Feb-06	Inspection	Tiffany Yelton	Not Classified	Automotive
61	Nalco Chemical Company	14-Feb-06	Inspection	Tiffany Yelton	Class I	Chemical Blending
62	LaFarge Corporation	31-Jan-06	Inspection	Tiffany Yelton	Not Classified	Automotive
63	Kaneb now NuStar	12-Jul-05	Inspection	Annette Jakubiak	Class I	Storage/Distribution
64	NuStar Energy - Port of Vancouver	12-Jul-05	Inspection	Annette Jakubiak	Class I	Storage/Distribution
65	Valero at the Port - now NuStar	12-Jul-05	Inspection	Annette Jakubiak	Class II	Storage/Distribution
66	AAMCO Transmissions	01-Jun-05	Inspection	Annette Jakubiak	Not Classified	Automotive
67	Kens I A E	26-May-05	Inspection	Annette Jakubiak	Not Classified	Automotive

68	U-Haul - Fourth Plain	28-Mar-05	Inspection	Spencer Bohaboy	Not Classified	Transportation/Storage
69	A New Image Detailing - 4th Plain	23-Mar-05	Inspection	Spencer Bohaboy	Not Classified	Automotive
70	C Tran Clark County Public Transit	07-Mar-05	Inspection	Spencer Bohaboy	Class I	Automotive
71	Carr Group Used Cars	07-Mar-05	Inspection	Spencer Bohaboy	Not Classified	Automotive
72	Dave's Detail	07-Mar-05	Inspection	Spencer Bohaboy	Not Classified	Automotive
73	U-Haul - Andresen	07-Mar-05	Inspection	Spencer Bohaboy	Not Classified	Transportation/Storage
74	Enterprise Rent a Car - 4th Plain	22-Feb-05	Inspection	Spencer Bohaboy	Not Classified	Transportation/Storage
75	Enterprise Rent a Car - Mill Plain	22-Feb-05	Inspection	Spencer Bohaboy	Not Classified	Transportation/Storage
76	Walker's Auto Electric Repair	27-Oct-04	Inspection	Annette Jakubiak	Not Classified	Automotive
77	Eagle Street Automotive	14-Jul-04	Inspection	Annette Jakubiak	Class I	Automotive
78	Andy's Auto Repair	03-May-04	Inspection	Annette Jakubiak	Not Classified	Automotive
79	Dabney Wheel Alignment	23-Feb-04	Inspection	Annette Jakubiak	Class I	Automotive
80	Bill Copps Inc	23-Oct-03	Inspection	Annette Jakubiak	Class I	Automotive
81	SEH America	20-Aug-03	Inspection	Richard and Annette	Class I	Manufacturing
1	Chevron 204998	28-Aug-14	Initial Inspection	Merek Strand	Class I	Gas Station
2	Meineke Muffler	22-Aug-14	Initial Inspection	Merek Strand	Class I	Automotive
3	Shell Station - 11200 4th Plain	30-May-14	Initial Inspection	Merek Strand	Class I	Gas Station
4	Sapa Profiles	27-Feb-14	Initial Inspection	Merek Strand	Class I	Manufacturing
5	Villegas Auto Shop	27-Feb-14	Initial Inspection	Merek Strand	Class I	Automotive
6	Columbia Vista Corporation - Dry Kilns	05-Feb-14	Initial Inspection	Richard & Merek	Class I	Manufacturing
7	Columbia Vista Corporation - Re-Manufacturing Plan	05-Feb-14	Initial Inspection	Richard & Merek	Class I	Manufacturing
8	Columbia Vista Corporation - Warehouse & X-Arms	05-Feb-14	Initial Inspection	Richard & Merek	Not Classified	Manufacturing
9	Car Tech	23-Jan-14	Initial Inspection	Merek Strand	Class I	Automotive
10	Nuffield Imports	16-Jan-14	Initial Inspection	Merek Strand	Not Classified	Automotive

11	Quick Shop Minit Mart #9	07-Jan-14	Initial Inspection	Merek Strand	Class I	Gas Station
12	Alan Webb Mazda Dodge	13-Dec-13	Initial Inspection	Merek Strand	Class I	Automotive
13	Carr Vancouver	05-Dec-13	Initial Inspection	Richard & Merek	Class I	Automotive
14	Precise, Inc.	21-Nov-13	Initial Inspection	Merek Strand	Class I	Manufacturing
15	Company Wrench	07-Nov-13	Initial Inspection	Merek Strand	Class I	Industrial Services
16	Wall to Wall Tile & Stone	27-Aug-13	Initial Inspection	Richard Hoiland	Not Classified	Construction Activity
17	Interstate Plastics	05-Apr-12	Initial Inspection	Doug Wise	Not Classified	Manufacturing
18	Universal Auto Glass	21-Oct-11	Initial Inspection	Doug Wise	Not Classified	Automotive
19	Vancouver Sign Group	19-Aug-11	Initial Inspection	Doug Wise	Class I	Manufacturing
20	West Customs	08-Jul-11	Initial Inspection	Doug Wise	Not Classified	Automotive
21	Barkdusters, Inc.	20-May-11	Initial Inspection	Doug Wise	Class I	Industrial Services
22	Lupe's Auto	05-Apr-11	Initial Inspection	Doug Wise	Class I	Automotive
23	Leif's	21-Mar-11	Initial Inspection	Doug Wise	Not Classified	Automotive
24	Main Auto Repair	09-Mar-11	Initial Inspection	Doug Wise	Not Classified	Automotive
25	Vancouver Powder Coating	19-Jan-11	Initial Inspection	Doug Wise	Not Classified	Manufacturing
26	Vancouver School District Grounds Shop	03-Aug-10	Initial Inspection	Doug Wise	Class I	Fleet Vehicle Services
27	City Bark & Recycling LLC	17-Jun-10	Initial Inspection	Doug Wise	Class I	Industrial Services
28	Golden Metal Company	25-May-10	Initial Inspection	Doug Wise	Not Classified	Solid Waste Related
29	Taylor Transport, Inc.	19-Mar-10	Initial Inspection	Doug Wise	Class I	Transportation/Storage
30	Dusty's Machine Shop	09-Feb-10	Initial Inspection	Doug Wise	Septic on Com/Ind Parcel	Automotive
31	Inspectorate America Corp.	05-Jan-10	Initial Inspection	Doug Wise	Class I	Industrial Services
32	Eastside Steel	02-Dec-09	Initial Inspection	Doug Wise	Not Classified	Manufacturing
33	Evergreen Truss Company	02-Dec-09	Initial Inspection	Doug Wise	Class I	Manufacturing
34	Michaelson Motors	02-Dec-09	Initial Inspection	Doug Wise	Not Classified	Automotive
35	Petrochem Insulation, Inc.	02-Dec-09	Initial Inspection	Doug Wise	Septic on Com/Ind Parcel	Business/Industrial Park
36	The Brake Shop	02-Dec-09	Initial Inspection	Doug Wise	Class I	Automotive
37	Vancouver Auto Company	02-Dec-09	Initial Inspection	Doug Wise	Class I	Automotive
38	Westside Wastewater Plant	18-Nov-09	Initial Inspection	Richard and Doug	Class I	Waste Treatment
39	Fuel Only	09-Nov-09	Initial Inspection	Doug Wise	Not Classified	Research/Development
40	Wellons Water Technology	08-Oct-09	Initial Inspection	Richard Hoiland	Not Determined	Chemical Blending

41	Composites One NE Vancouver	24-Sep-09	Initial Inspection	Richard Hoiland	Not Determined	Storage/Distribution
42	Roadmaster Inc.	24-Sep-09	Initial Inspection	Richard Hoiland	Class I	Manufacturing
43	DeWils Industries, Inc.	04-Aug-09	Initial Inspection	Doug Wise	Class I	Manufacturing
44	Garry Brown Photography	04-Aug-09	Initial Inspection	Doug Wise	Septic on Com/Ind Parcel	Printing/Photography
45	Sun Cleaners	04-Aug-09	Initial Inspection	Doug Wise	Septic on Com/Ind Parcel	Dry Cleaner
46	Vancouver Toyota	18-Jun-09	Initial Inspection	Doug Wise	Class I	Automotive
47	Alliance	01-May-09	Initial Inspection	Richard and Doug	Not Classified	Transportation/Storage
48	Blue Lake Transport	01-May-09	Initial Inspection	Richard and Doug	Not Classified	Transportation/Storage
49	West Coast Freight	01-May-09	Initial Inspection	Richard and Doug	Not Classified	Transportation/Storage
50	Bob's Electric	29-Apr-09	Initial Inspection	Doug Wise	Not Classified	Contractor
51	CalPortland Company	29-Apr-09	Initial Inspection	Doug Wise	Not Classified	Storage/Distribution
52	Solid Solutions	29-Apr-09	Initial Inspection	Doug Wise	Not Classified	Manufacturing
53	Comcast Cable Communications	15-Apr-09	Initial Inspection	Doug Wise	Class I	Communications
54	JT Marine	15-Jan-09	Initial Inspection	Doug Wise	Class I	Industrial Services
55	Qwest Corp W00359	15-Oct-08	Initial Inspection	Doug Wise	Class I	Utility
56	Columbia River Logistics	25-Sep-08	Initial Inspection	Doug Wise	Class I	Transportation/Storage
57	S & B Repair Inc	16-Jun-08	Initial Inspection	Doug Wise	Class I	Automotive
58	Oil Can Henry's	06-Jun-08	Initial Inspection	Doug Wise	Class I	Automotive
59	United Road	29-Apr-08	Initial Inspection	Richard and Doug	Not Determined	Transportation/Storage
60	West Van Material Recovery Center	09-Apr-08	Initial Inspection	Doug Wise	Class I	Solid Waste Related
61	Custom Care Cleaners	08-Apr-08	Initial Inspection	Doug Wise	Not Classified	Dry Cleaner
62	Louie Lube	04-Apr-08	Initial Inspection	Doug Wise	Not in Operation	Automotive
63	Rose City Packaging	31-Mar-08	Initial Inspection	Doug Wise	Class I	Manufacturing
64	NW Industrial Mechanics	21-Mar-08	Initial Inspection	Richard and Doug	Not Classified	Manufacturing
65	QualaWash (Quala Systems Inc)	10-Jan-08	Initial Inspection	Richard Hoiland	Class I	Industrial Services
66	Berry Covalence Plastics	02-Jan-08	Initial Inspection	Richard Hoiland	Not Classified	Manufacturing
67	Pac Paper Inc.	11-Dec-07	Initial Inspection	Richard and Doug	Class I	Manufacturing
68	All American Classics	08-Nov-07	Initial Inspection	Doug Wise	Class I	Automotive

69	Ding's Complete Car Care	30-Oct-07	Initial Inspection	Doug Wise	Class I	Automotive
70	All Truck Parts	04-Oct-07	Initial Inspection	Doug Wise	Class I	Automotive
71	Rainbow Glacier	16-Aug-07	Initial Inspection	Richard and Doug	Class I	Manufacturing
72	Express Care	13-Aug-07	Initial Inspection	Doug Wise	Class I	Automotive
73	K.P. McNamara NW, Inc.	01-Aug-07	Initial Inspection	Doug Wise	Class I	Industrial Services
74	Excelsior Packaging	04-Jan-07	Initial Inspection	Richard Hoiland	Class I	Manufacturing
75	Koppe Metals - JDH Enterprises	20-Dec-06	Initial Inspection	Richard Hoiland	Class I	Transportation/Storage
76	Hewlett Packard	12-Dec-06	Initial Inspection	Tiffany Yelton	Not Classified	Research/Development
77	M+M Manufacturing	14-Nov-06	Initial Inspection	Tiffany Yelton	Not Classified	Manufacturing
78	Ken's Auto Repair	27-Oct-06	Initial Inspection	Tiffany Yelton	Not Classified	Automotive
79	Old Friends Custom Furniture Finish	26-Oct-06	Initial Inspection	Tiffany Yelton	Class I	Stripping and Finishing
80	Albina Fuel - Asphalt	17-Oct-06	Initial Inspection	Tiffany Yelton	Not Classified	Industrial Services
81	Albina Fuel - Ice & Fuel	17-Oct-06	Initial Inspection	Tiffany Yelton	Class I	Oil Storage/Distribution
82	VOCI fueling station at Wubben Industrial Park	12-Oct-06	Initial Inspection	Tiffany Yelton	Not in City	Gas Station
83	VOCI-Cardlock at Columbia Way	12-Oct-06	Initial Inspection	Tiffany Yelton	Class I	Gas Station
84	CPU River Road Generating Facility	18-Sep-06	Initial Inspection	Tiffany Yelton	Class I	Utility
85	BPA Ross Complex - US DOE	18-Aug-06	Initial Inspection	Tiffany Yelton	Class I	Government Services
86	Emerald Petroleum Services Vancouver	17-Aug-06	Initial Inspection	Tiffany Yelton	Class I	Waste Treatment
87	Pacific Coast Shredding	08-Aug-06	Initial Inspection	Tiffany Yelton	Class I	Industrial Services
88	Northwest Packing Company	19-Jul-06	Initial Inspection	Tiffany Yelton	Class I	Industrial Services
89	Texaco Xpress Lube	27-Jun-06	Initial Inspection	Tiffany Yelton	Class I	
90	Vancouver Iron and Steel	27-Jun-06	Initial Inspection	Tiffany Yelton	Class I	Manufacturing
91	Tidewater Barge Lines Inc	21-Jun-06	Initial Inspection	Tiffany Yelton	Class I	Transportation/Storage
92	West Coast Marine Cleaning Inc	07-Jun-06	Initial Inspection	Tiffany Yelton	Not Determined	Industrial Services
93	Great Western Malting	01-Jun-06	Initial Inspection	Tiffany Yelton	Class I	Manufacturing
94	24 Food Mart - 76 Station	18-May-06	Initial Inspection	Tiffany Yelton	Class I	Gas Station

95	NuStar Energy - Fruit Valley Rd	17-May-06	Initial Inspection	Tiffany Yelton	Class I	Storage/Distribution
96	Valero Fruit Valley - now NuStar	17-May-06	Initial Inspection	Tiffany Yelton	Class I	Storage/Distribution
97	Vancouver Warehouse & Dist.	16-May-06	Initial Inspection	Tiffany Yelton	Class I	Storage/Distribution
98	Siemens (formerly US Filter)	12-May-06	Initial Inspection	Tiffany Yelton	Class I	Industrial Services
99	General Chemical Corporation	03-May-06	Initial Inspection	Tiffany Yelton	Class I	Chemical Blending
100	Service Battery Inc	19-Apr-06	Initial Inspection	Tiffany Yelton	Class I	Industrial Services
101	Cadet Manufacturing Company	05-Apr-06	Initial Inspection	Tiffany Yelton	Class I	Manufacturing
102	Calvert Co Inc	04-Apr-06	Initial Inspection	Tiffany Yelton	Class I	Wood products
103	Pro-Tekt Coatings Co.	10-Mar-06	Initial Inspection	Tiffany Yelton	Class I	Paint
104	Elixir Industries	07-Mar-06	Initial Inspection	Tiffany Yelton	Class I	Manufacturing
105	Pacific Die Casting Corp	22-Feb-06	Initial Inspection	Tiffany Yelton	Class I	Manufacturing
106	Diacon Technologies LTD	07-Feb-06	Initial Inspection	Tiffany Yelton	Class I	Chemical Blending
107	Trimac Panel Products	24-Jan-06	Initial Inspection	Tiffany Yelton	Class I	Manufacturing
108	Micropump	28-Jun-05	Initial Inspection	Annette Jakubiak	Class I	Manufacturing
109	C Tran Clark County Public Transit	10-Jun-05	Initial Inspection	Annette Jakubiak	Class I	Automotive
110	All Ford Performance	31-May-05	Initial Inspection	Annette Jakubiak	Class I	Automotive
111	Chris Integrity Repair	31-May-05	Initial Inspection	Annette Jakubiak	Class I	Automotive
112	Kyocera - facility closed	10-May-05	Initial Inspection	Annette Jakubiak	Not Classified	Manufacturing
113	Frito-Lay	13-Apr-05	Initial Inspection	Annette Jakubiak	Class I	Manufacturing
114	Bemis	12-Apr-05	Initial Inspection	Annette Jakubiak	Class I	Manufacturing
115	Controltek Incorporated	31-Mar-05	Initial Inspection	Annette Jakubiak	Class I	Manufacturing
116	Boise Cascade Paper Solutions	15-Mar-05	Initial Inspection	Annette Jakubiak	Class I	Manufacturing
117	Matsushita Kotobuki Electronics	10-Mar-05	Initial Inspection	Annette Jakubiak	Not in Operation	Manufacturing
118	American Car Care Center	28-Feb-05	Initial Inspection	Annette Jakubiak	Class I	Automotive
119	Alpine Dry Cleaning	11-Feb-05	Initial Inspection	Annette Jakubiak	Class I	Dry Cleaner
120	Pilgrim Cleaners	09-Feb-05	Initial Inspection	Annette Jakubiak	Class I	Dry Cleaner
121	Rose Dry Cleaners	20-Jan-05	Initial Inspection	Annette Jakubiak	Class I	Dry Cleaner
122	Esquire Cleaners	14-Jan-05	Initial Inspection	Annette Jakubiak	Class I	Dry Cleaner
123	Mountain View Cleaners	14-Jan-05	Initial Inspection	Annette Jakubiak	Class I	Dry Cleaner
124	Hi Tech Cleaners on 164th	07-Jan-05	Initial Inspection	Annette Jakubiak	Class I	Dry Cleaner
125	Vancouver Dry Cleaners	07-Jan-05	Initial Inspection	Annette Jakubiak	Class I	Dry Cleaner
126	Buckley Dry Cleaners	23-Dec-04	Initial Inspection	Annette Jakubiak	Class I	Dry Cleaner
127	Cook's Cleaners	15-Dec-04	Initial Inspection	Annette Jakubiak	Class I	Dry Cleaner

128	Humphrey's Cleaners	14-Dec-04	Initial Inspection	Annette Jakubiak	Class I	Dry Cleaner
129	Daisy Laundry and Dry Cleaning	07-Dec-04	Initial Inspection	Annette Jakubiak	Class I	Dry Cleaner
130	Mill Plain Cleaners	07-Dec-04	Initial Inspection	Annette Jakubiak	Class I	Dry Cleaner
131	Lincoln Cleaners	03-Dec-04	Initial Inspection	Annette Jakubiak	Class I	Dry Cleaner
132	QC Cleaners	01-Dec-04	Initial Inspection	Annette Jakubiak	Class I	Dry Cleaner
133	Ki's Japanese Engine Auto Repair	29-Nov-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
134	Sam's Auto Body	22-Nov-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
135	Kadel's Cascade Auto Body	02-Nov-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
136	Alpine Auto Body Inc Cascade Park	29-Oct-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
137	Master Tech Automotive	15-Oct-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
138	Wilson Radiator Service	13-Oct-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
139	M&M Auto Repair Mill Plain	21-Sep-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
140	Sears Unit 2239/6031	13-Sep-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
141	Tabor's Automotive Machine, Inc.	20-Aug-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
142	Curt Warner Chevrolet	19-Aug-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
143	Vancouver Ford	17-Aug-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
144	Somers Automotive Machine	04-Aug-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
145	Precision Tune Auto Care Vancouver	03-Aug-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
146	Gemini Goodyear of Vancouver - 123rd Ave	30-Jul-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
147	Gemini Goodyear of Vancouver-Andresen	30-Jul-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
148	Evergreen Food Mart	29-Jul-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
149	Maaco of Vancouver	27-Jul-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
150	Wrench -N- Time Quality Automotive	23-Jul-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
151	Towne Pump Knock Out Inc	16-Jul-04	Initial Inspection	Richard Hoiland	Class I	Gas Station
152	Gaynor's Automotive	13-Jul-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
153	Dings Frame & Axle Inc	09-Jul-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
154	Don Lorentz Auto Care Center	08-Jul-04	Initial Inspection	Annette Jakubiak	Class I	Automotive

155	Metro Nissan	29-Jun-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
156	Burlington Northern Santa Fe Railway Co	24-Jun-04	Initial Inspection	Annette Jakubiak	Class I	Transportation/Storage
157	Clarke's Discount Inc	17-Jun-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
158	Clarke's European Inc.	17-Jun-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
159	Sam's Auto Body	17-Jun-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
160	Tetra Pak Materials LP	08-Jun-04	Initial Inspection	Annette Jakubiak	Class I	Manufacturing
161	A&B Radiator & Speedometer Svc	24-May-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
162	Tesoro Refining and Marketing Company	20-May-04	Initial Inspection	Richard and Annette	Class I	Oil Storage/Distribution
163	Food Express Inc Fruit Valley Rd	19-May-04	Initial Inspection	Annette Jakubiak	Class I	Transportation/Storage
164	Portco	07-May-04	Initial Inspection	Annette Jakubiak	Not in City	Manufacturing
165	Peters Import Car Service	04-May-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
166	Reborn Auto Repair Inc	21-Apr-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
167	D&E Auto Care	20-Apr-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
168	Main St. Auto Care	16-Apr-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
169	Jim's Automotive	15-Apr-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
170	Dick Hannah Kia	13-Apr-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
171	Dick Hannah Volkswagen	13-Apr-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
172	Dick Hannah Subaru	01-Apr-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
173	Dick Hannah Chrysler Plymouth	18-Mar-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
174	Dick Hannah Collision Center	18-Mar-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
175	Dick Hannah Honda	18-Mar-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
176	Columbia Machine Incorporated	09-Mar-04	Initial Inspection	Annette Jakubiak	Class I	Manufacturing
177	Ron's Automotive Specialties	04-Mar-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
178	Smittys Automotive Inc	03-Mar-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
179	Taggart Auto Repair	25-Feb-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
180	Sams Auto Repair	20-Feb-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
181	Columbia Cascade	10-Feb-04	Initial Inspection	Annette Jakubiak	Class I	Manufacturing
182	Japanese Auto Repair	10-Feb-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
183	Quality Auto Care	09-Feb-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
184	Auto Service by Pinkerton	04-Feb-04	Initial Inspection	Annette Jakubiak	Class I	Automotive

185	Nalco Chemical Company	03-Feb-04	Initial Inspection	Annette Jakubiak	Class I	Chemical Blending
186	Encompass Materials (now Isonics)	27-Jan-04	Initial Inspection	Annette Jakubiak	Not in Operation	Industrial Services
187	Wafer Reclaim Service (formerly Isonics)	27-Jan-04	Initial Inspection	Annette Jakubiak	Class I	Industrial Services
188	Fabricated Products	21-Jan-04	Initial Inspection	Richard and Annette	Class II	Manufacturing
189	Hal's Motor Clinic	14-Jan-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
190	Garage	13-Jan-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
191	Hoesly Eco Automotive	13-Jan-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
192	Stevens Auto Service	13-Jan-04	Initial Inspection	Annette Jakubiak	Class I	Automotive
193	ST Services now NuStar	18-Dec-03	Initial Inspection	Richard and Annette	Not in Operation	Storage/Distribution
194	St. Johns Mini Mart	16-Dec-03	Initial Inspection	Annette Jakubiak	Class I	Gas Station
195	Meineke Muffler	12-Dec-03	Initial Inspection	Richard and Annette	Class I	Automotive
196	Paul's Motor	03-Dec-03	Initial Inspection	Annette Jakubiak	Not Classified	Automotive
197	Tech Transmission	03-Dec-03	Initial Inspection	Annette Jakubiak	Not Classified	Automotive
198	Arco AM/Pm on Main - 5379	02-Dec-03	Initial Inspection	Richard and Annette	Class I	Gas Station
199	Bbc Petroleum Group	02-Dec-03	Initial Inspection	Annette Jakubiak	Class I	Gas Station
200	WA DOT Vancouver	02-Dec-03	Initial Inspection	Richard and Annette	Class I	Government Services
201	Fourth Plain One Hour Dry Cleaning	10-Nov-03	Initial Inspection	Richard and Annette	Class I	Dry Cleaner
202	Vancouver Water Station 1	30-Oct-03	Initial Inspection	Annette Jakubiak	Class I	Utility
203	Vancouver Water Station 3	30-Oct-03	Initial Inspection	Annette Jakubiak	Class I	Utility
204	Vancouver Water Station 9	30-Oct-03	Initial Inspection	Annette Jakubiak	Class I	Utility
205	Christensen Shipyards Limited	28-Oct-03	Initial Inspection	Annette Jakubiak	Class I	Manufacturing
206	EI DuPont Co	27-Oct-03	Initial Inspection	Richard and Annette	Class I	Storage/Distribution
207	Trim Systems L.L.C.	23-Oct-03	Initial Inspection	Annette Jakubiak	Class I	Manufacturing
208	AHP LLC	16-Oct-03	Initial Inspection	Annette Jakubiak	Class I	Manufacturing

209	Marine Park Reclamation Facility	16-Oct-03	Initial Inspection	Annette Jakubiak	Class I	Utility
210	Macs Radiator & Repair Inc	13-Oct-03	Initial Inspection	Annette Jakubiak	Class I	Automotive
211	Composites One Columbia Way	09-Oct-03	Initial Inspection	Annette Jakubiak	Class I	Storage/Distribution
212	VA Medical Center Division	08-Oct-03	Initial Inspection	Annette Jakubiak	Class I	Medical/Dental
213	Clark College	26-Sep-03	Initial Inspection	Richard and Annette	Class I	School
214	Vancouver Water Station 15	25-Sep-03	Initial Inspection	Richard and Annette	Class I	Utility
215	Vancouver Water Station 4 Blandford	25-Sep-03	Initial Inspection	Richard and Annette	Class I	Utility
216	Vancouver Water Station 7	25-Sep-03	Initial Inspection	Annette Jakubiak	Class I	Utility
217	Vancouver Water Station Ellsworth	25-Sep-03	Initial Inspection	Richard and Annette	Class I	Utility
1	Quick Shop Minit Mart #9	23-Sep-14	Fact Finding	Richard and Betsy	Class I	Gas Station
2	Meineke Muffler	18-Sep-14	Fact Finding	Merek Strand	Class I	Automotive
3	Quick Shop Minit Mart #9	09-Sep-14	Fact Finding	Merek Strand	Class I	Gas Station
4	Gas Town USA	30-May-14	Fact Finding	Merek Strand	Not Classified	Gas Station
5	14-04-5 Food Waste to S/W Pond	30-Apr-14	Fact Finding	City staff	Investigation	Solid Waste Related
6	Villegas Auto Shop	20-Mar-14	Fact Finding	Merek Strand	Class I	Automotive
7	24 Food Mart - 76 Station	27-Feb-14	Fact Finding	Merek Strand	Class I	Gas Station
8	Golden Metal Company	23-Jan-14	Fact Finding	Merek Strand	Not Classified	Solid Waste Related
9	13-11-3 Vanc Warehouse Collapse	21-Nov-13	Fact Finding	Richard & Merek	Investigation	Storage/Distribution
10	Kyocera - facility closed	21-Nov-13	Fact Finding	Merek Strand	Not Classified	Manufacturing
11	13-11-3 Vanc Warehouse Collapse	20-Nov-13	Fact Finding	Code Enforcement	Investigation	Storage/Distribution
12	Garage	07-Nov-13	Fact Finding	Merek Strand	Class I	Automotive
13	National Container Group	18-Sep-13	Fact Finding	Richard & Merek	Class I	Industrial Services
14	13-07-1 SSO on Newhouse Rd	12-Jul-13	Fact Finding	Operations crew	Investigation	Residential
15	13-05-2 Sinkhole with water	07-May-13	Fact Finding	Operations crew	Investigation	Residential

16	12-12-3 CBC sand blasting	19-Dec-12	Fact Finding	Betsy Scrivner	Investigation	Business/Industrial Park
17	12-11-1 Cherry Park paint	01-Nov-12	Fact Finding	Betsy Scrivner	Investigation	Construction
18	12-04-06 3rd & Washington Cross Connection	26-Sep-12	Fact Finding	Operations crew	Investigation	Sewage
19	Vancouver School District Transportation	15-Aug-12	Fact Finding	Doug Wise	Class I	Transportation/Storage
20	12-05-05 Bella Vista Diesel Spill	07-Aug-12	Fact Finding	Doug Wise	Investigation	Automotive
21	VA Medical Center Division	03-Aug-12	Fact Finding	Doug Wise	Class I	Medical/Dental
22	12-07-06 SE Riverside Erosion	16-Jul-12	Fact Finding	Doug Wise	Investigation	Residential
23	12-05-02 39th & S Paint Dumping	29-May-12	Fact Finding	Doug Wise	Investigation	Residential
24	VA Medical Center Division	11-May-12	Fact Finding	Doug Wise	Class I	Medical/Dental
25	12-04-04 32nd & S Gas Spill	17-Apr-12	Fact Finding	Doug Wise	Investigation	Residential
26	12-04-06 3rd & Washington Cross Connection	10-Apr-12	Fact Finding	Operations crew	Investigation	Sewage
27	12-04-04 32nd & S Gas Spill	09-Apr-12	Fact Finding	Doug Wise	Investigation	Residential
28	10-06-06 Saint Johns Auto Repair	04-Apr-12	Fact Finding	Doug Wise	Investigation	Automotive
29	11-01-03 105th & Evergreen Hwy Dumping	04-Apr-12	Fact Finding	Doug Wise	Investigation	Solid Waste Related
30	11-09-05 Red Lion Discharge	13-Mar-12	Fact Finding	Doug Wise	Investigation	Restaurant
31	Villegas Auto Shop	01-Mar-12	Fact Finding	Doug Wise	Class I	Automotive
32	12-02-04 Evergreen & Broadway Sewer Overflow	16-Feb-12	Fact Finding	Doug Wise	Investigation	Restaurant
33	11-10-11 NE 56th St Truck Repair	15-Feb-12	Fact Finding	Doug Wise	Investigation	Automotive
34	12-02-05 NE 31st St Sediment Discharges	15-Feb-12	Fact Finding	Betsy Scrivner	Investigation	Residential
35	12-02-04 Evergreen & Broadway Sewer Overflow	14-Feb-12	Fact Finding	Doug Wise	Investigation	Restaurant
36	Columbia Shores Condos PSW	13-Feb-12	Fact Finding	Doug Wise	Private S/W Facility	Multifamily
37	11-10-11 NE 56th St Truck Repair	09-Feb-12	Fact Finding	Doug Wise	Investigation	Automotive
38	11-10-11 NE 56th St Truck Repair	08-Feb-12	Fact Finding	Doug Wise	Investigation	Automotive

39	11-03-03 Kevanna Park Truck Fire	07-Oct-11	Fact Finding	Doug Wise	Investigation	Automotive
40	Protech Composites Inc.	19-Sep-11	Fact Finding	Doug Wise	Not Classified	Manufacturing
41	Cottman Transmission	06-Sep-11	Fact Finding	Operations crew	Class I	Automotive
42	Vancouver Sign Group	30-Aug-11	Fact Finding	Operations crew	Class I	Manufacturing
43	Golden Metal Company	19-Aug-11	Fact Finding	Doug Wise	Not Classified	Solid Waste Related
44	11-03-03 Kevanna Park Truck Fire	11-Aug-11	Fact Finding	Doug Wise	Investigation	Automotive
45	Cemex	09-Aug-11	Fact Finding	Doug Wise	Not Determined	Construction Activity
46	Shell Rapid Lube	03-Aug-11	Fact Finding	Betsy Scrivner	Class I	Automotive
47	11-07-06 Louisiana Dr Oil Spills	26-Jul-11	Fact Finding	Doug Wise	Investigation	Automotive
48	Shell Rapid Lube	22-Jul-11	Fact Finding	Doug Wise	Class I	Automotive
49	Area Heating & Cooling	20-May-11	Fact Finding	Doug Wise	Not Classified	Industrial Services
50	Barkdusters, Inc.	12-May-11	Fact Finding	Doug Wise	Class I	Industrial Services
51	Lupe's Auto	13-Apr-11	Fact Finding	Doug Wise	Class I	Automotive
52	Don Lorentz Auto Care Center	09-Mar-11	Fact Finding	Doug Wise	Class I	Automotive
53	10-09-08 Muchas Gracias Discharge	14-Jan-11	Fact Finding	Doug Wise	Investigation	Restaurant
54	Daisy Laundry and Dry Cleaning	14-Jan-11	Fact Finding	Doug Wise	Class I	Dry Cleaner
55	Shell Rapid Lube	05-Jan-11	Fact Finding	Operations crew	Class I	Automotive
56	Villegas Auto Shop	05-Jan-11	Fact Finding	Operations crew	Class I	Automotive
57	Villegas Auto Shop	01-Nov-10	Fact Finding	Doug Wise	Class I	Automotive
58	10-08-02 NE Thurston Restaurant Discharge	12-Aug-10	Fact Finding	Doug Wise	Investigation	Restaurant
59	Vancouver School District Grounds Shop	29-Jul-10	Fact Finding	Doug Wise	Class I	Fleet Vehicle Services
60	10-03-03 NE 99th Ave Auto Spills	23-Apr-10	Fact Finding	Doug Wise	Investigation	Residential
61	Vancouver Eastside/English Pit Ops	12-Mar-10	Fact Finding	Doug and Rhonda	Not Determined	Government Services
62	10-02-04 NE 99th Ave Gasoline Spill	19-Feb-10	Fact Finding	Operations crew	Investigation	Automotive
63	10-02-07 W 26th Ave Drums	11-Feb-10	Fact Finding	Operations crew	Investigation	Business/Industrial Park
64	Clean Machine	09-Feb-10	Fact Finding	Doug Wise	Mobile Washing	Mobile Washers

65	Lincoln Cleaners	05-Feb-10	Fact Finding	Doug Wise	Class I	Dry Cleaner
66	10-02-09 18th St Swale Landscaping Debris	28-Jan-10	Fact Finding	Operations crew	Investigation	Landscaping
67	10-01-01 Burton Channel Illicit Connection	05-Jan-10	Fact Finding	Operations crew	Investigation	Residential
68	09-12-01 Columbia Way Steam	29-Dec-09	Fact Finding	Richard and Doug	Investigation	Business/Industrial Park
69	Ron's Auto & RV Service Center	02-Dec-09	Fact Finding	Doug Wise	Not in City	Automotive
70	Sun Cleaners	17-Nov-09	Fact Finding	Doug Wise	Septic on Com/Ind Parcel	Dry Cleaner
71	Vancouver City Operations Center	06-Nov-09	Fact Finding	Doug Wise	Class II	Government Services
72	Port of Vancouver Pump and Treat Facility	03-Sep-09	Fact Finding	Richard and Doug	Not Classified	Remediation
73	Masco Masons Supply	09-Jun-09	Fact Finding	Doug Wise	Not Classified	Industrial Services
74	09-06-02 NE 65th Pavement Staining	04-Jun-09	Fact Finding	Doug Wise	Investigation	
75	09-06-03 NE Minnehaha Stone Discharge	04-Jun-09	Fact Finding	Doug Wise	Investigation	Manufacturing
76	Trim Systems L.L.C.	29-May-09	Fact Finding	Doug Wise	Class I	Manufacturing
77	Trim Systems L.L.C.	18-May-09	Fact Finding	Doug Wise	Class I	Manufacturing
78	Pacific Towing	01-May-09	Fact Finding	Richard and Doug	Not Classified	Automotive
79	09-04-03 Grand Blvd Illicit Connection	17-Apr-09	Fact Finding	Operations crew	Investigation	Government Services
80	09-04-03 Grand Blvd Illicit Connection	08-Apr-09	Fact Finding	Operations crew	Investigation	Government Services
81	Pro-Caliber Motorsports	03-Nov-08	Fact Finding	Doug Wise	Class I	Automotive
82	Qwest Corp W00359	13-Oct-08	Fact Finding	Doug Wise	Class I	Utility
83	Auto Repair Shop	08-Oct-08	Fact Finding	Doug Wise	Not Classified	Automotive
84	All Truck Parts	03-Oct-08	Fact Finding	Doug Wise	Class I	Automotive
85	Lopez Auto Repair	16-Jun-08	Fact Finding	Doug Wise	Class I	Automotive
86	Alpha Ecological Pest Solutions	10-Jun-08	Fact Finding	Doug Wise	Not Classified	Service
87	Tesoro Refining and Marketing Company	05-Jun-08	Fact Finding	Richard and Doug	Class I	Oil Storage/Distribution
88	Thompson Metal Fabricators	03-Jun-08	Fact Finding	Doug Wise	Not Determined	Manufacturing

89	Rainbow Glacier	27-May-08	Fact Finding	Doug Wise	Class I	Manufacturing
90	Suburban Propane Vancouver	27-May-08	Fact Finding	Doug Wise	Not Classified	Retail
91	Albina Fuel - Asphalt	01-Nov-07	Fact Finding	Doug Wise	Not Classified	Industrial Services
92	Albina Fuel - Ice & Fuel	01-Nov-07	Fact Finding	Doug Wise	Class I	Oil Storage/Distribution
93	07-02 Washing Machine on Markel	05-Feb-07	Fact Finding	Richard Hoiland	Investigation	Residential
94	Pacific NW Plating	12-Jul-06	Fact Finding	Tiffany Yelton	Not in City	Industrial Services
95	06-06 Dry season flow in Tidewater Cove Bioswale	07-Jun-06	Fact Finding	Tiffany Yelton	Investigation	Residential
96	Gas Town USA	07-Mar-06	Fact Finding	Tiffany Yelton	Not Classified	Gas Station
97	Midas	07-Mar-06	Fact Finding	Tiffany Yelton	Class I	Automotive
98	Orchards Market	07-Mar-06	Fact Finding	Tiffany Yelton	Not Determined	Gas Station
99	Shell Station - 11200 4th Plain	07-Mar-06	Fact Finding	Tiffany Yelton	Class I	Gas Station
100	B&L Car Care	23-Feb-06	Fact Finding	Tiffany Yelton	Not Classified	Automotive
101	Commercial Radiator	23-Feb-06	Fact Finding	Tiffany Yelton	Not in City	Automotive
102	Holes Unlimited Concrete Cutting Inc	23-Feb-06	Fact Finding	Tiffany Yelton	Not Classified	Industrial Services
103	Kaso Plastics	23-Feb-06	Fact Finding	Tiffany Yelton	Not Classified	Manufacturing
104	Mass Fabrication Inc	23-Feb-06	Fact Finding	Tiffany Yelton	Not Classified	Industrial Services
105	Mr. Powder Kote	23-Feb-06	Fact Finding	Tiffany Yelton	Not Classified	Paint
106	Sabin Sound Products	23-Feb-06	Fact Finding	Tiffany Yelton	Not Classified	Manufacturing
107	Star Rentals	23-Feb-06	Fact Finding	Tiffany Yelton	Not Classified	Service
108	TuffTurf Inc.	23-Feb-06	Fact Finding	Tiffany Yelton	Not Classified	Landscaping/Fertilizer&Pesticide Application
109	Unlimited V-Dub Inc.	23-Feb-06	Fact Finding	Tiffany Yelton	Not in City	Automotive
110	Veolia Environmental Services Transfer Fac	23-Feb-06	Fact Finding	Tiffany Yelton	Class I	Waste Management
111	Praxair Inc Vancouver	24-Jan-06	Fact Finding	Tiffany Yelton	Not Classified	Transportation/Storage
112	Vancouver Transmission	25-May-05	Fact Finding	Annette Jakubiak	Not Classified	Automotive
113	Andy's Auto Repair	07-May-05	Fact Finding	Annette Jakubiak	Not Classified	Automotive

114	05-03 Red swale	04-Mar-05	Fact Finding	Annette Jakubiak	Investigation	Stormwater Treatment
115	Schoof's Chemicals	25-Feb-05	Fact Finding	Annette Jakubiak	Not Classified	Sales
116	Clutch Doctors	16-Jun-04	Fact Finding	Annette Jakubiak	Not Classified	Automotive
117	QualaWash (Quala Systems Inc)	19-Aug-03	Fact Finding	Annette Jakubiak	Class I	Industrial Services
118	Chrome Industrial Repair	13-Aug-03	Fact Finding	Annette Jakubiak	Not Determined	Industrial Services
1	VOCI-Cardlock at Columbia Way	02-Jul-13	Educational/Technical Assistance	Richard Hoiland	Class I	Gas Station
2	Alpine Express Lube	02-Nov-12	Educational/Technical Assistance	Richard and Rhonda	Class I	Automotive
3	11-10-02 15th & Broadway Soap Discharge	12-Oct-11	Educational/Technical Assistance	Richard and Doug	Investigation	Mobile Washers
4	Dick Hannah Kia	31-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
5	The Car Doctor	28-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
6	All Transmission	23-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
7	Alpine Auto Body	23-Mar-11	Educational/Technical Assistance	Doug Wise	Not Determined	Automotive
8	Alpine Auto Fast Lube PSW	23-Mar-11	Educational/Technical Assistance	Doug Wise	Private S/W Facility	Automotive
9	Alpine Express Lube	23-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
10	Cottman Transmission	23-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
11	Ira's Muffler	23-Mar-11	Educational/Technical Assistance	Doug Wise	Not Classified	Automotive
12	Midas	23-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
13	Oil Can Henry's	23-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
14	Orchards Muffler	23-Mar-11	Educational/Technical Assistance	Doug Wise	Not Classified	Automotive

15	Peterson Automotive	23-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
16	Pro-Caliber Motorsports	23-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
17	Vancouver Toyota	23-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
18	Alan Webb Auto Group	22-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
19	Dick Hannah Chrysler Plymouth	22-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
20	Dick Hannah Collision Center	22-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
21	Dick Hannah Honda	22-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
22	Dick Hannah Kia	22-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
23	Dick Hannah Subaru	22-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
24	Dick Hannah Volkswagen	22-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
25	AA Brakes	21-Mar-11	Educational/Technical Assistance	Doug Wise	Not Classified	Automotive
26	AAMCO Transmissions	21-Mar-11	Educational/Technical Assistance	Doug Wise	Not Classified	Automotive
27	Brake Team / Tires 4 Less	21-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
28	Carpenters Garage	21-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
29	Carr Vancouver	21-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
30	Clarke's Discount Inc	21-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
31	Clutch Doctors	21-Mar-11	Educational/Technical Assistance	Doug Wise	Not Classified	Automotive

32	Gemini Goodyear of Vancouver-Andresen	21-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
33	Lopez Auto Repair	21-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
34	Precision Tune Auto Care Vancouver	21-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
35	Shell Rapid Lube	21-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
36	Vancouver City Operations Center	21-Mar-11	Educational/Technical Assistance	Doug Wise	Class II	Government Services
37	Ding's Complete Car Care	18-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
38	Hoesly Eco Automotive	18-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
39	Rick's Advantech Automotive Center	18-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
40	Stevens Auto Service	18-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
41	Good Guy Auto Repair	17-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
42	Hard Notched Customs	17-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
43	Kadel's Cascade Auto Body	17-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
44	Pegoraro Auto Repair	17-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
45	Punk's Automotive	17-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
46	Reborn Auto Repair Inc	17-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
47	Valley Fleet & Auto Service	17-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
48	Woody's 4x4	17-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive

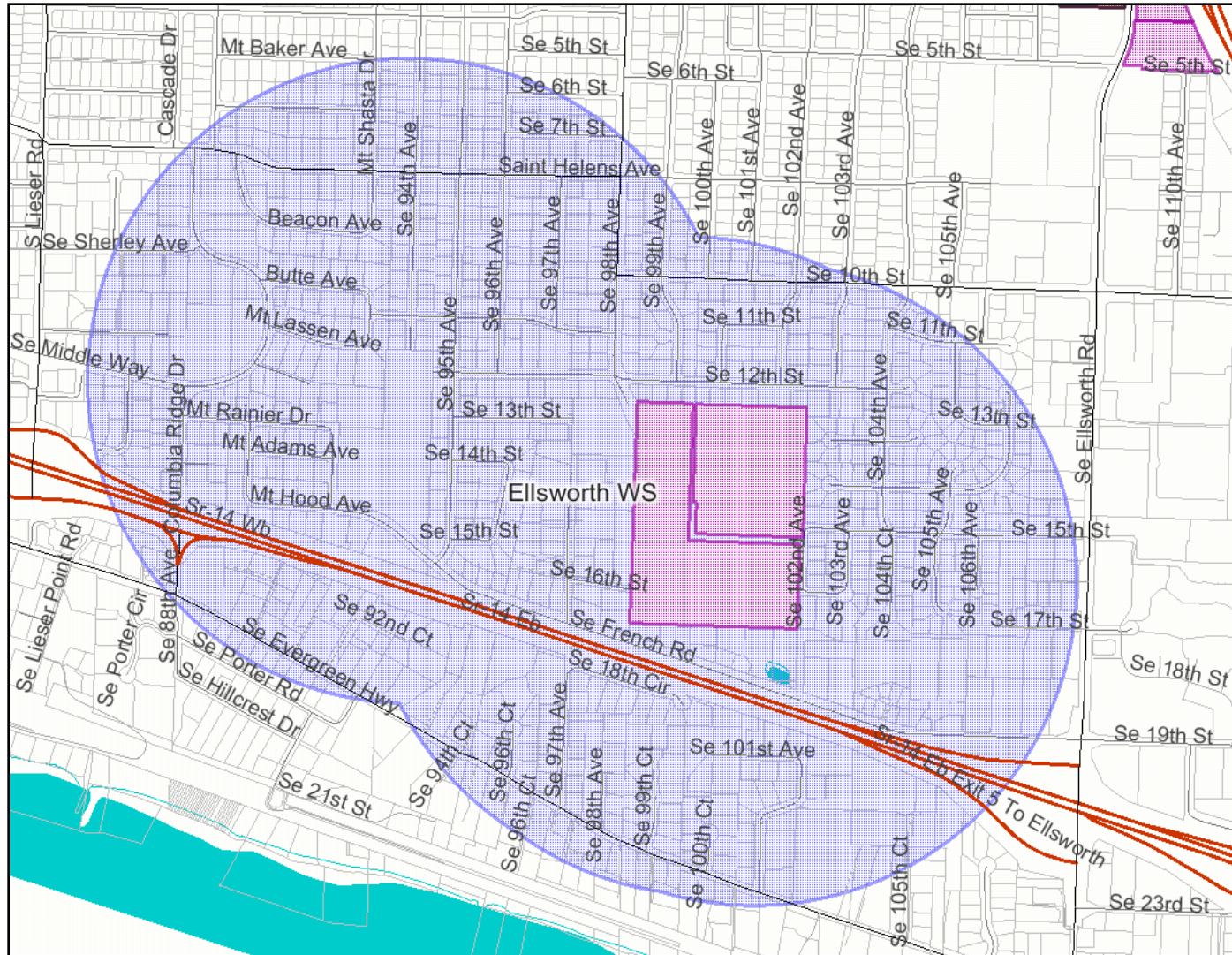
49	Clarke's European Inc.	09-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
50	Ki's Japanese Engine Auto Repair	09-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
51	Tech Transmission	09-Mar-11	Educational/Technical Assistance	Doug Wise	Not Classified	Automotive
52	Dabney Wheel Alignment	07-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
53	Eagle Street Automotive	07-Mar-11	Educational/Technical Assistance	Doug Wise	Class I	Automotive
54	Vancouver City Operations Center	09-Nov-10	Educational/Technical Assistance	Doug and Rhonda	Class II	Government Services
55	Vancouver City Operations Center	04-Nov-10	Educational/Technical Assistance	Doug and Rhonda	Class II	Government Services
56	Vancouver City Operations Center	04-Nov-10	Educational/Technical Assistance	Doug and Rhonda	Class II	Government Services
57	Vancouver City Operations Center	03-Nov-10	Educational/Technical Assistance	Doug and Rhonda	Class II	Government Services
58	Vancouver Fire Department Maintenance Shop	03-Nov-10	Educational/Technical Assistance	Doug and Rhonda	Not in City	Fleet Vehicle Services
59	Vancouver City Operations Center	28-Oct-10	Educational/Technical Assistance	Doug and Rhonda	Class II	Government Services
60	Vancouver City Operations Center	26-Oct-10	Educational/Technical Assistance	Doug and Rhonda	Class II	Government Services
61	Shell Rapid Lube	30-Jul-10	Educational/Technical Assistance	Doug Wise	Class I	Automotive
62	City Bark & Recycling LLC	20-Jul-10	Educational/Technical Assistance	Doug Wise	Class I	Industrial Services
63	Eagle Street Automotive	03-Mar-10	Educational/Technical Assistance	Doug Wise	Class I	Automotive
64	Good Guy Auto Repair	03-Mar-10	Educational/Technical Assistance	Doug Wise	Class I	Automotive
65	Johnny's Ol' Skool Motorcycle Repair	03-Mar-10	Educational/Technical Assistance	Doug Wise	Not Classified	Automotive

66	Premium Auto Repair	03-Mar-10	Educational/Technical Assistance	Doug Wise	Class I	Automotive
67	Rick's Advantech Automotive Center	03-Mar-10	Educational/Technical Assistance	Doug Wise	Class I	Automotive
68	Tabor's Automotive Machine, Inc.	03-Mar-10	Educational/Technical Assistance	Doug Wise	Class I	Automotive
69	Valley Fleet & Auto Service	03-Mar-10	Educational/Technical Assistance	Doug Wise	Class I	Automotive
70	10-01-07 Cascade Park Dog Waste	28-Jan-10	Educational/Technical Assistance	Doug Wise	Investigation	Residential
71	Burgerville - Heritage Center	23-Jul-09	Educational/Technical Assistance	Richard Hoiland	Not Classified	Charity Car Wash Site
72	09-07-02 Port Warehouse Evaluation	02-Jul-09	Educational/Technical Assistance	Richard Hoiland	Investigation	Storage/Distribution
73	09-03-04 121st & 60th Swale	24-Apr-09	Educational/Technical Assistance	Doug Wise	Investigation	Business/Industrial Park
74	Esquire Cleaners	13-Jan-09	Educational/Technical Assistance	Doug Wise	Class I	Dry Cleaner
75	Olympic Vancouver Delivery	06-Nov-07	Educational/Technical Assistance	Richard and Doug	Not Determined	Oil Storage/Distribution
76	Diacon Technologies LTD	28-Jun-07	Educational/Technical Assistance	Doug Wise	Class I	Chemical Blending
77	Vancouver Iron and Steel	30-Aug-06	Educational/Technical Assistance	Tiffany Yelton	Class I	Manufacturing
78	06-05 Near Driscoll Residence	01-May-06	Educational/Technical Assistance	Tiffany Yelton	Investigation	Residential
79	Oil Can Henry's	07-Mar-06	Educational/Technical Assistance	Tiffany Yelton	Class I	Automotive
80	K.P. McNamara NW, Inc.	09-Mar-05	Educational/Technical Assistance	Annette Jakubiak	Class I	Industrial Services
81	04-04 Tidewater Cove LLC	23-Apr-04	Educational/Technical Assistance	Richard Hoiland	Investigation	Multifamily
82	04-03 Owl Investigation	05-Mar-04	Educational/Technical Assistance	Richard and Annette	Investigation	Residential

83	Micropump	26-Jun-09	Charity Carwash Site Evaluation	Doug Wise	Class I	Manufacturing
84	09-06-09 Sterling Bank car washing	23-Jun-09	Charity Carwash Site Evaluation	Richard and Rhonda	Investigation	Residential Services

APPENDIX 5C – WATER STATION FACILITY RISK MAPS

Ellsworth Water Station - no classified sites



Legend

- Known/Suspected Contaminated Parcels

- Inspected WRPO Sites**

 - Class I
 - Class II
 - Not Classified

- Roads**

 - Alley
 - Arterial
 - DNR
 - DNR (Private Land)
 - Driveway
 - Interstate
 - Interstate Ramp
 - Primary Arterial
 - Private Roads
 - Private Roads w/o Names
 - Public Roads
 - SR Ramp
 - State Route
 - Special Wellhead Protection Areas

- Within 1,000 foot buffer
- Within 1,900 foot buffer
- Parcels
- Stream Channels

Scale: 1:12,000

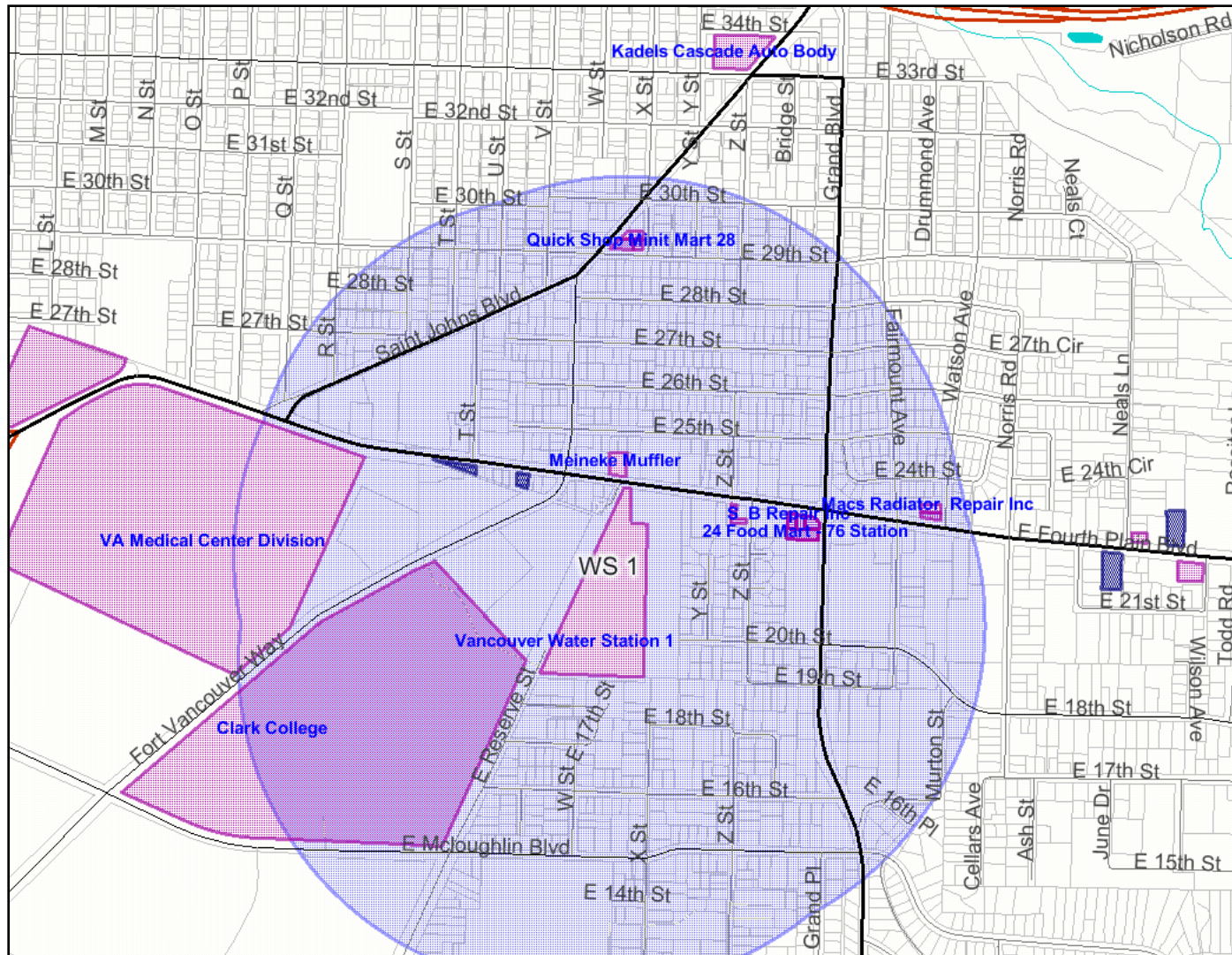
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Map center: 45° 36' 40" N, 122° 34' 19" W

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Water Station 1 - Classified Facilities



Legend

Inspected WRPO Sites

- Class I
- Class II
- Not Classified

Roads

- Alley
- Arterial
- DNR
- DNR (Private Land)
- Driveway
- Interstate
- Interstate Ramp
- Primary Arterial
- Private Roads
- Private Roads w/o Names
- Public Roads
- SR Ramp
- State Route

Special Wellhead Protection Areas

- Within 1,000 foot buffer
- Within 1,900 foot buffer

Other Features

- Parcels
- Stream Channels

N
Scale: 1:12,000

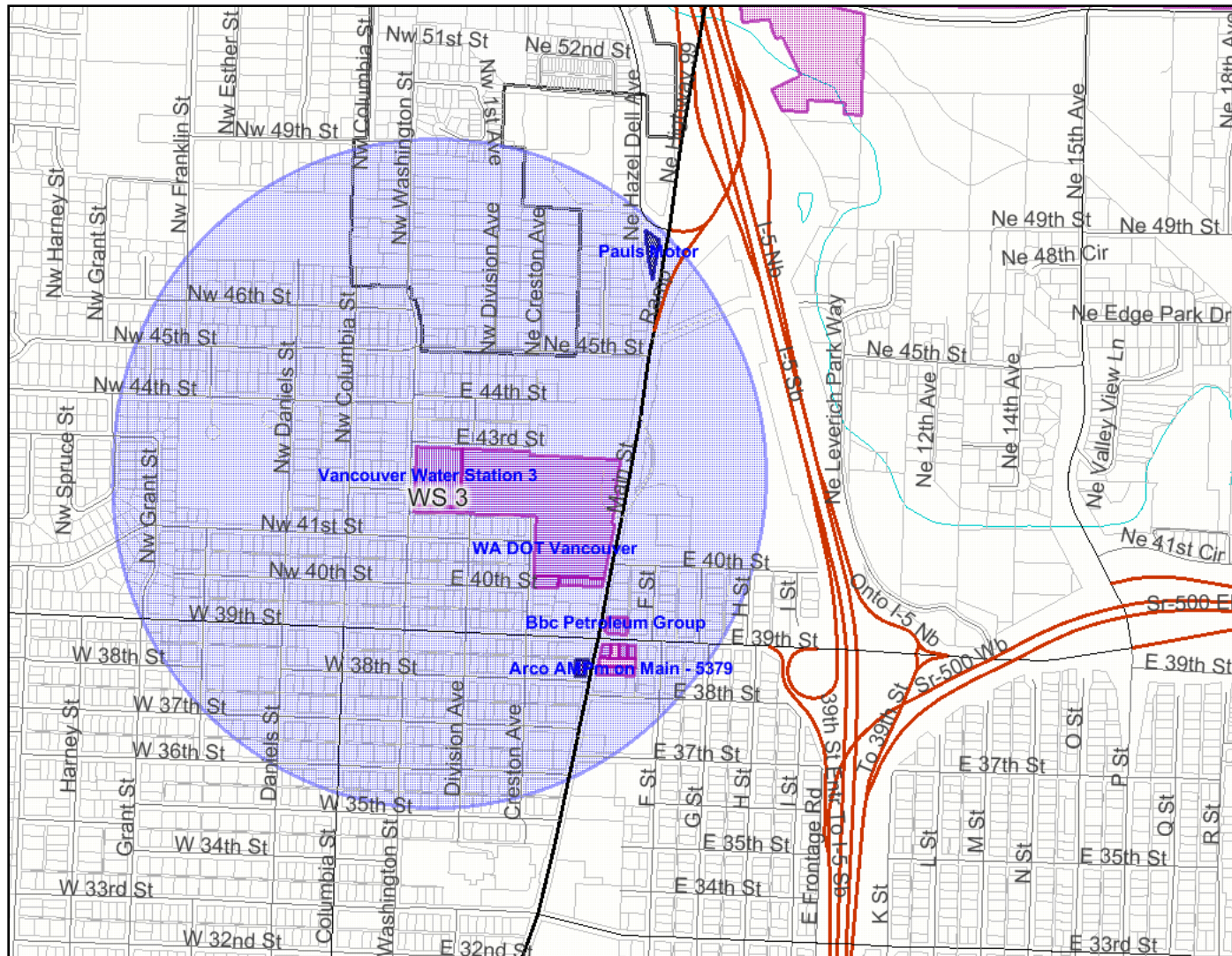
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Map center: 45° 38' 18" N, 122° 38' 47" W

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Water Station 3 - Classified Facilities



Legend

Inspected WRPO Sites

- Class I
- Class II
- Not Classified

Roads

- Alley
- Arterial
- DNR
- DNR (Private Land)
- Driveway
- Interstate
- Interstate Ramp
- Primary Arterial
- Private Roads
- Private Roads w/o Names
- Public Roads
- SR Ramp
- State Route

Special Wellhead Protection Areas

- Within 1,000 foot buffer
- Within 1,900 foot buffer
- Parcels
- Stream Channels

Scale: 1:12,000

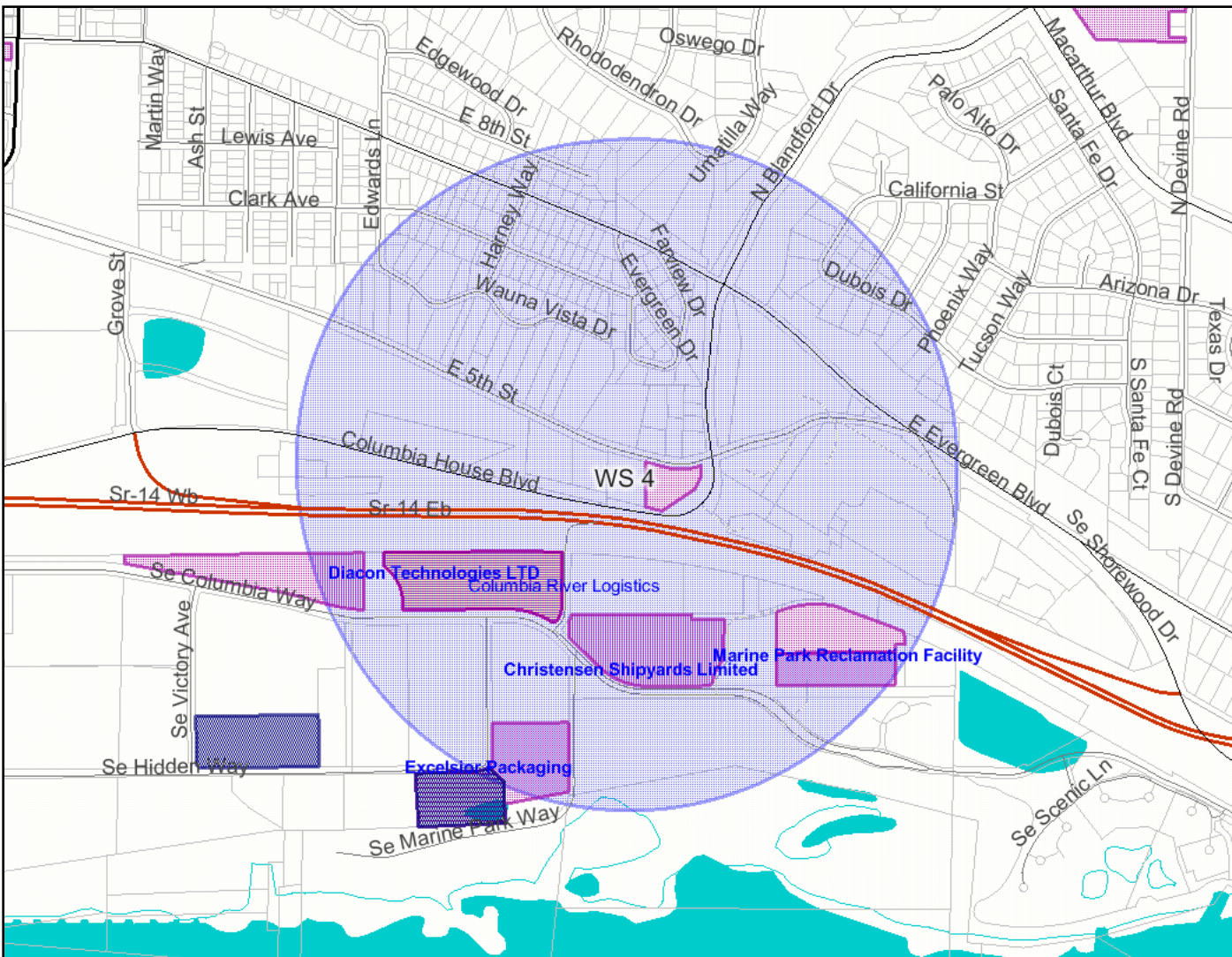
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Map center: 45° 39' 9" N, 122° 40' 1" W

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Water Station 4 - Classified Facilities



Legend

Inspected WRPO Sites

- Class I
- Class II
- Not Classified

Roads

- Alley
- Arterial
- DNR
- DNR (Private Land)
- Driveway
- Interstate
- Interstate Ramp
- Primary Arterial
- Private Roads
- Private Roads w/o Names
- Public Roads
- SR Ramp
- State Route

Special Wellhead Protection Areas

- Within 1,000 foot buffer
- Within 1,900 foot buffer
- Parcels
- Stream Channels

N

Scale: 1:12,000

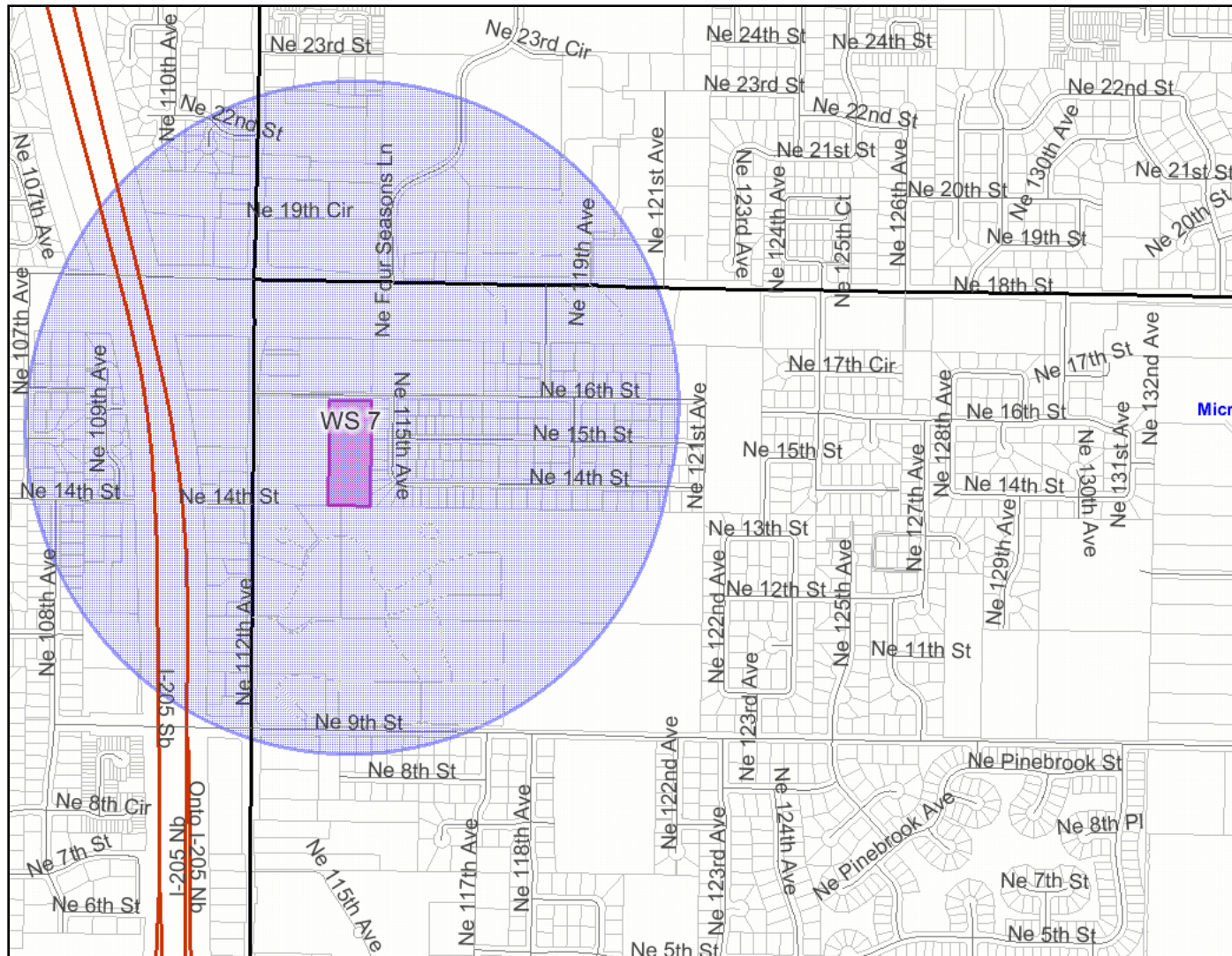
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Map center: 45° 37' 9" N, 122° 37' 35" W

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Water Station 7 - Classified Facilities



Legend

Inspected WRPO Sites

- Class I
- Class II
- Not Classified

Roads

- Alley
- Arterial
- DNR
- DNR (Private Land)
- Driveway
- Interstate
- Interstate Ramp
- Primary Arterial
- Private Roads
- Private Roads w/o Names
- Public Roads
- SR Ramp
- State Route

Special Wellhead Protection Areas

- Within 1,000 foot buffer
- Within 1,900 foot buffer

Other Features

- Parcels
- Stream Channels

Scale: 1:12,000

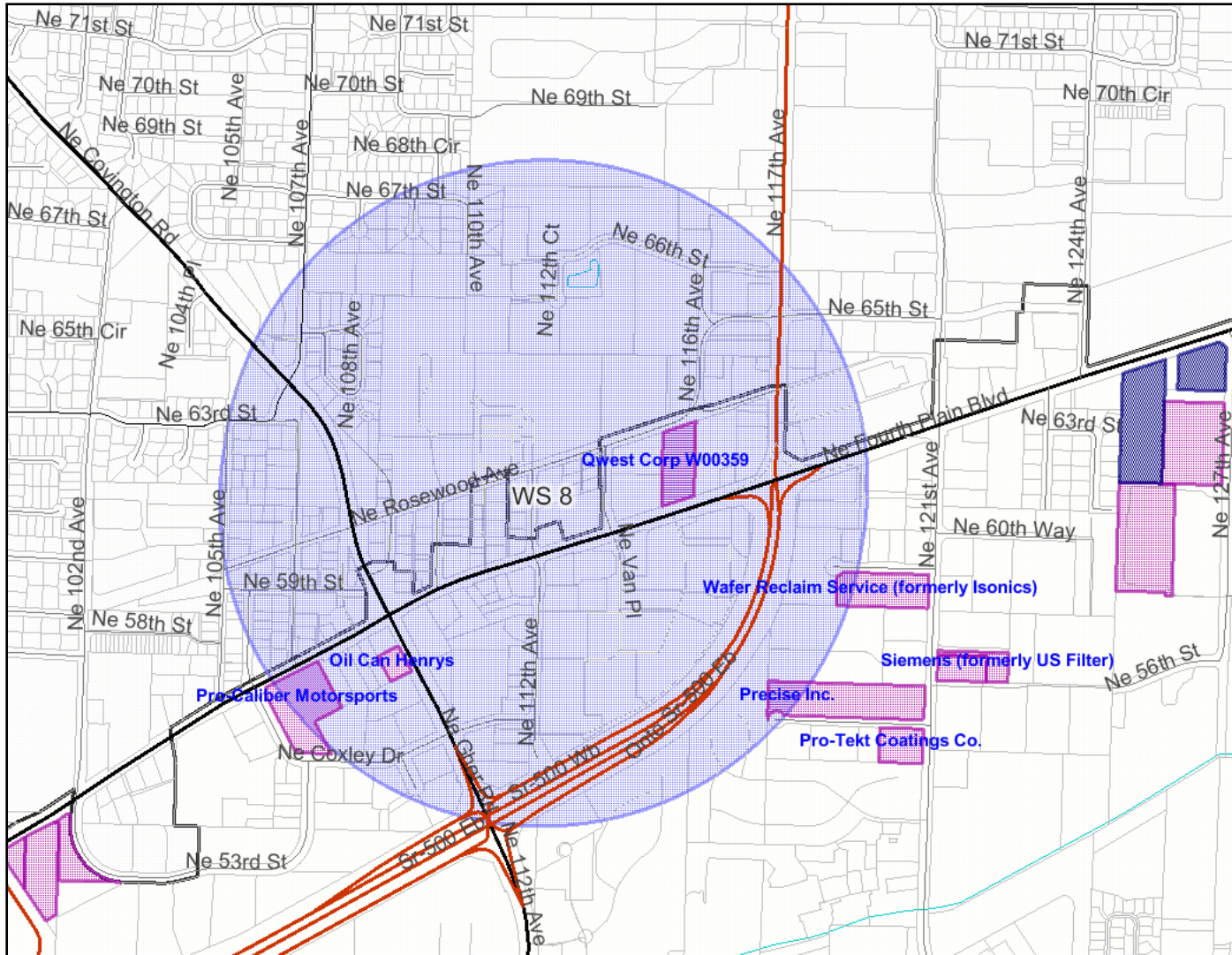
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Map center: 45° 37' 57" N, 122° 32' 57" W

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Water Station 8 - Classified Facilities



Legend

Inspected WRPO Sites

- Class I (Pink square)
- Class II (Red square)
- Not Classified (Blue square)

Roads

- Alley (Thin grey line)
- Arterial (Thick grey line)
- DNR (Green line)
- DNR (Private Land) (Light green line)
- Driveway (Thin grey line)
- Interstate (Thick red line)
- Interstate Ramp (Thin red line)
- Primary Arterial (Thick grey line)
- Private Roads (Thin grey line)
- Private Roads w/o Names (Thin grey line)
- Public Roads (Thick grey line)
- SR Ramp (Thin red line)
- State Route (Thick red line)

Special Wellhead Protection Areas

- Within 1,000 foot buffer (Light blue hatched area)
- Within 1,900 foot buffer (Dark blue hatched area)

Other Features

- Parcels (Thin grey outline)
- Stream Channels (Blue line)

Scale: 1:12,000

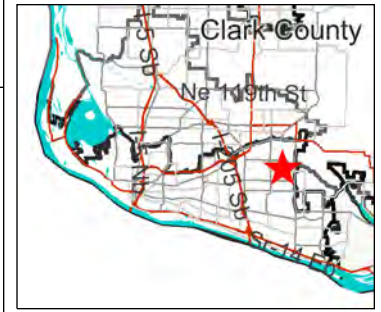
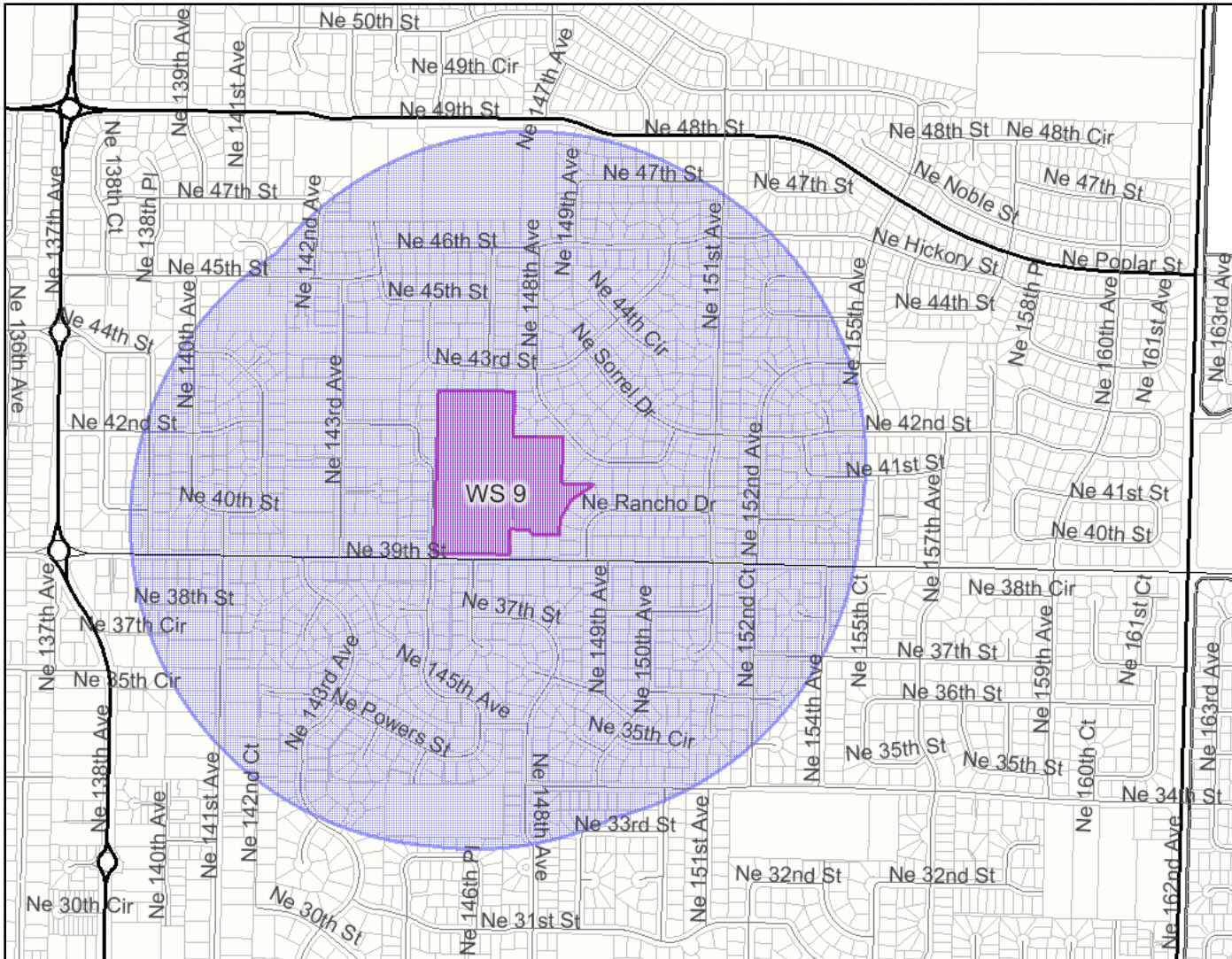


Map center: 45° 40' 2" N, 122° 33' 22" W

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Water Station 9 - no classified facilities



Legend

- Inspected WRPO Sites**
- Class I
 - Class II
 - Not Classified
- Roads**
- Alley
 - Arterial
 - DNR
 - DNR (Private Land)
 - Driveway
 - Interstate
 - Interstate Ramp
 - Primary Arterial
 - Private Roads
 - Private Roads w/o Names
 - Public Roads
 - SR Ramp
 - State Route
- Special Wellhead Protection Areas**
- Within 1,000 foot buffer
 - Within 1,900 foot buffer
 - Parcels
 - Stream Channels



Map center: 45° 39' 6" N, 122° 31' 8" W

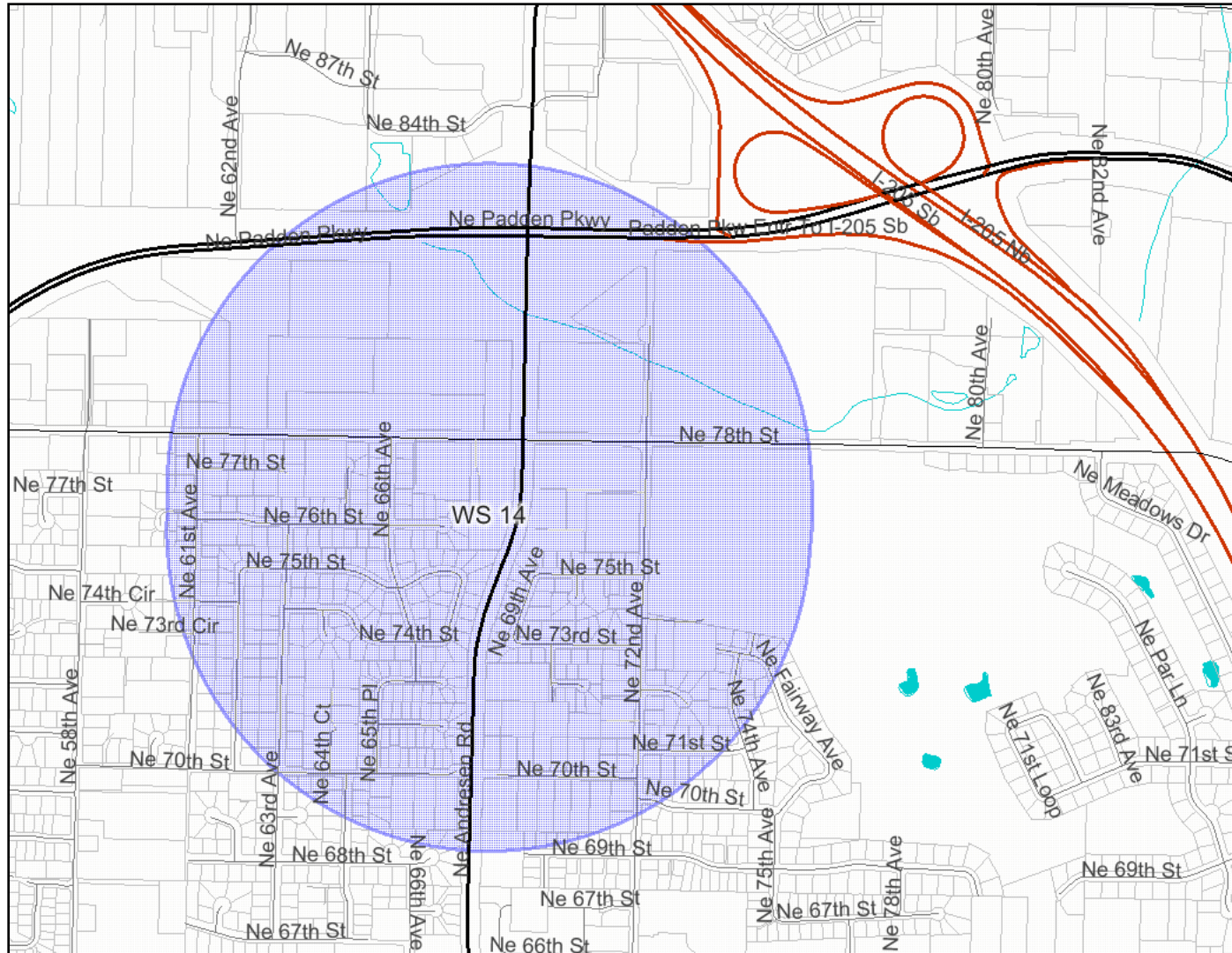


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Water Station 14 - no classified sites



Legend

- Known/Suspected Contaminated Parcels
- Inspected WRPO Sites
 - Class I
 - Class II
 - Not Classified
- Roads
 - Alley
 - Arterial
 - DNR
 - DNR (Private Land)
 - Driveway
 - Interstate
 - Interstate Ramp
 - Primary Arterial
 - Private Roads
 - Private Roads w/o Names
 - Public Roads
 - SR Ramp
 - State Route
- Special Wellhead Protection Areas
 - Within 1,000 foot buffer
 - Within 1,900 foot buffer
- Parcels
- Stream Channels

Scale: 1:12,000

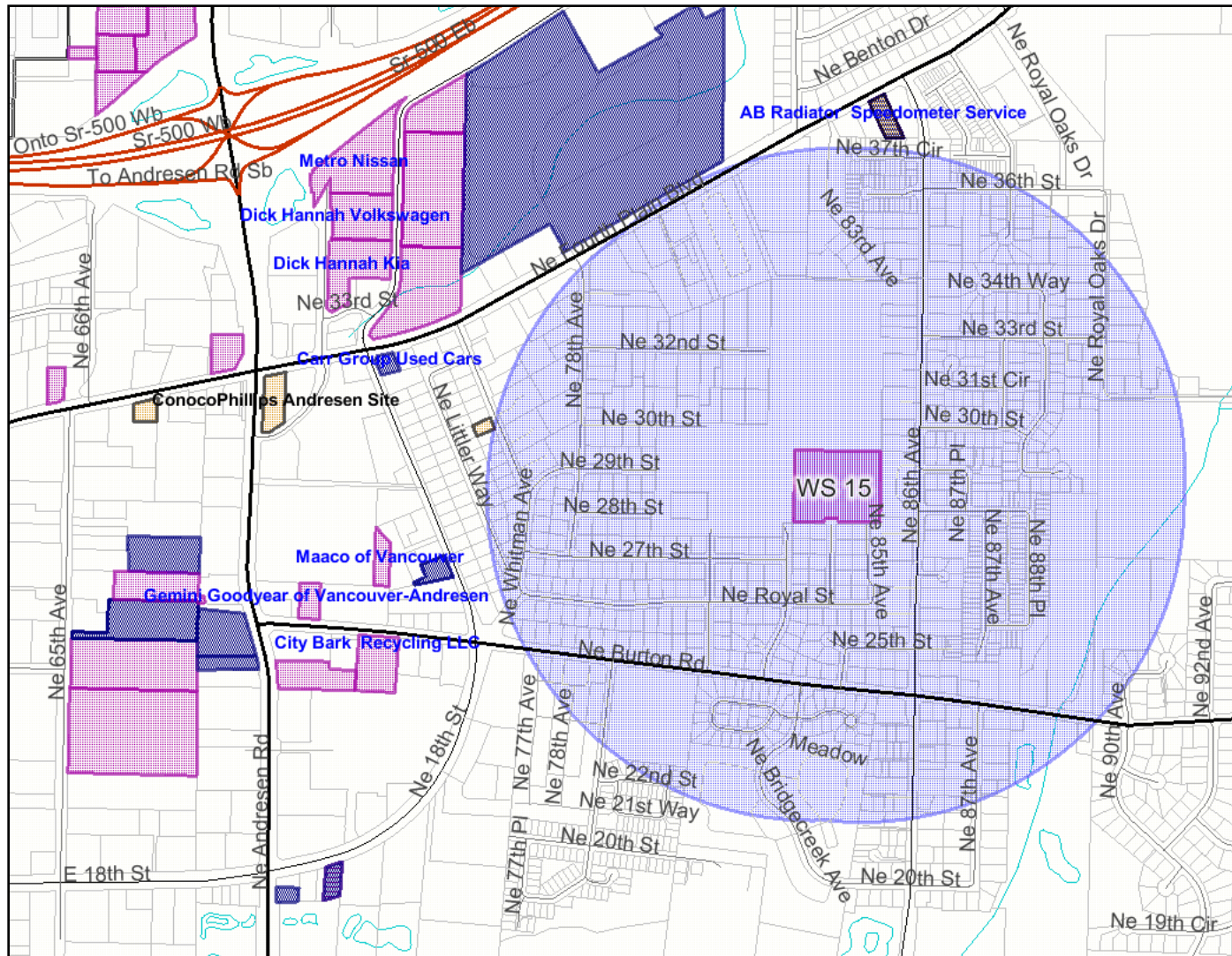
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Map center: 45° 40' 42" N, 122° 35' 59" W

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Water Station 15 - Classified Facilities



Legend

- Known/Suspected Contaminated Parcels
- Inspected WRPO Sites
 - Class I
 - Class II
 - Not Classified
- Roads
 - Alley
 - Arterial
 - DNR
 - DNR (Private Land)
 - Driveway
 - Interstate
 - Interstate Ramp
 - Primary Arterial
 - Private Roads
 - Private Roads w/o Names
 - Public Roads
 - SR Ramp
 - State Route
- Special Wellhead Protection Areas
 - Within 1,000 foot buffer
 - Within 1,900 foot buffer
- Parcels
- Stream Channels

Scale: 1:12,000

0 1200 2400 3600 ft.

Map center: 45° 38' 36" N, 122° 35' 32" W

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APPENDIX 6A – COLIFORM MONITORING PLAN

CITY OF VANCOUVER COLIFORM MONITORING PLAN

April 16, 2013

A. System Information

City of Vancouver Water System
PWS ID# 91200L
Clark County

Population Served: 231,206
Service Connections: 70,216

Sources:	SØ1	Water Station #1
	SØ2	Water Station #3
	SØ3	Water Station #4
	SØ4	Water Station #6 Out of Service
	SØ5	Water Station #7 - Well #1
	SØ6	Water Station #8
	SØ7	Water Station #9
	SØ8	Water Station #14
	SØ9	Water Station #15
	S1Ø	Water Station #7 - Well #2
	S11	Ellsworth Water Treatment Plant
	S12	Ellsworth Well #3

Storage: 5 storage reservoirs & 5 storage towers = 24,578,000 gallons.

Treatment: SØ1, SØ2, SØ3, SØ7 These well fields are treated with gas chlorine and powdered sodium fluoride.

SØ5, SØ6 This well field has sodium hypochlorite and sodium fluoride added.

SØ8 These well fields are treated with gas chlorine, powdered sodium fluoride and air stripping to adjust pH.

SØ9 This well field has caustic soda, sodium hypochlorite and powdered sodium fluoride are added

S10, S11, S12 Are Treatment facilities where Iron and Manganese are removed and gas chlorine and powdered sodium fluoride are added.

Pressure Zones:	7 pressure zones =	Lincoln High	-	370.0'
		Vancouver Low	-	236.8'
		Vancouver High	-	321.7'
		Heights High	-	413.3'
		Heights Low	-	298.8'
		Terrace Heights	-	450.0'
		Evergreen High	-	361.0'

B. Sampling Information

Required Sampling - 150 samples per month

Current Sampling - 40 sites sampled weekly

- A minimum of 160 samples per month
- Special purpose samples are taken in response to customer complaints.

All water storage towers & reservoirs can be sampled directly as necessary.

All water sources can be sampled directly as necessary.

C. Sampling locations:

Count	ID #	Name	Sample Location	Address	5 Up *	5 Down **
		Lincoln High Pressure Zone				
1	12	Ben Franklin School	Station	5206 Franklin	5231 Franklin ST	5007 Franklin ST
		Vancouver Low Pressure Zone				
2	58	Wtr Sta #4 east gate	Station	4205 E 5 th ST	110 Blandford	3500 E 5 th ST
3	37	Drypers	Station	801 Assembly	Hosebibi South of East Restroom	603 Assembly
4	7	E 25 th ST	Station	2410 Grand Blvd	2618 E 25 th ST	2803 E 26 th ST
5	55	Daniels	Station	1515 Daniels ST	1615 Daniels ST	406 W 12 th ST
6	36	W 31 st ST	Station	1910 W 31 st ST	1900 W 31 st ST	1915 W 31 st ST
7	76	12 th & C	Station	SE corner of 12 th & C	304 E 12 th ST	1109 Broadway
		Vancouver High Pressure Zone				
8	53	St Johns	Station	4615 NE St Johns	4517 NE St Johns	4803 NE St Johns
9	30	E Reserve (Wtr Sta)	Hose Bib	2103 E Reserve ST	1609 E Reserve ST	2200 Fourth Plain
10	8	Main ST (Fire)	Station	3701 Main ST	3509 Main ST	3801 Main ST
11	23	NE 49 th ST (Booster)	Station	1605 ½ NE 49 th ST	1700 NE 49 th ST	4805 NE 15 th AV
12	38	Washington (Wtr Sta)	Hose Bib	4201 Washington ST	4014 Washington ST	4300 Washington ST
		Heights High Pressure Zone				
13	41	Andresen (Wtr Sta)	Station	6803 NE 78 th ST	7700 NE 72 nd AV	7709 NE 66 th AV
14	59	Brookside	Station	2323 General Anderson	4711 E 4th Plain	2301 General Anderson
15	3	Burton School	Station	14015 NE 28th ST	14500 NE 28 th ST	13808 NE 28th ST
16	45	C P U	Station	8600 NE 117th AV	8819 NE 117 th AV	11211 NE 87th ST

17	64	Drive Services Inc.	Station	9401 NE Covington RD	9411 NE 76 th ST	7415 NE Covington RD
18	77	SE 12 ST & SE 98 th AVE	Station	South of guardrail on 98 th AV	9707 SE 12 th ST	9817 SE 12 th ST
Count	ID #	Name	Sample Location	Address	5 Up *	5 Down **
19	11	Fishers Lndg School	Station	3800 SE Hiddenbrook DR	3802 SE 182 CT	17718 SE 36 WY
20	13	Hearthwood (SPS)	Station	14709 NE 7th ST	14602 NE 7th ST	14901 NE 7th ST
21	14	Idaho (Wtr Sta)	Hose Bib	5401 Idaho ST	5305 Idaho ST	5410 Idaho ST
22	15	Image School	Station	4400 NE 122nd AV	4301 NE 122nd AV	4415 NE 122nd AV
23	17	Leiser School	Station	301 S Leiser RD	N 207 Lieser RD	S 321 Lieser RD
24	22	Water Station 9	Station	NE 145th AV / NE 39 th ST NE Corner	14704 NE 39th ST	14323 NE 39th ST
25	21	NE 16 th ST (Wtr Sta)	Station	1601 NE 112 th AV	1902 NE 112 th AV	1105 NE 112 th AV
26	67	NE 63 rd ST (VFD)	Station	7110 NE 63 rd ST	6600 NE 63 rd ST	7413 NE 63 rd ST
27	26	Ogden School	Station	8100 NE 28 th ST	7908 NE 29 th ST	7907 NE 28 th ST
28	29	Pioneer School	Station	7212 NE 166th AV	16501 NE 78 th WAY	7600 NE 166th AV
29	56	SE 120th AV	Station	213 SE 120th AV	12000 SE Mill Plain	211 SE 120th AV
30	69	SE 15th ST (VFD)	Station	17408 SE 15th ST	17712 SE 14th ST	16811 SE 15th ST
31	32	Sifton School	Station	7301 NE. 137th AV	13711 NE 76 th ST	7103 N.E. 137th AV
32	34	Sunset School	Station	9001 NE 95th ST	8718 N.E. 95th ST	9219 N.E. 95th ST
33	52	US Filter	Station	9115 NE 117th AV	9115A NE 117th AV	9113 NE 117th AV
34	35	Van Mall Retirement	Station	7808 NE 51st ST	7710 NE 51st ST	5300 NE 78 th AV
35	65	Water Station #8	Station	6115 NE 112th AV	6016 NE 112th AV	6109 NE 113 th CT
36	40	WyEast School	Station	1112 SE 136th AV	905 SE 136th AV	1201 SE 136th AV
37	20	NE 151st AV	Station	7803 NE 151st AV	7911 NE 151st AV	7709 NE Aquilla CT
Heights Low Pressure Zone						
38	57	2209 E 6 th ST	Station	2209 E 6 th ST	2205 E 6 th Str	2226 E 6 th ST
39	33	Steamboat	Station	13521 SE 37th ST	13708 SE 37th St	13614 SE 35 th ST
Terrace Heights Pressure Zone						
40	66	Terrace Hts	Station	3129 SE 196 th AV	3212 SE 196 th Av	19426 SE 30 th ST

Station = Dedicated Sample Station

E. Contact Person

Tim Brace
 Operations Superintendent
 P.O. Box 1995
 Vancouver, Washington 98668-1995
 Voice (360) 487-8275
 Fax (360) 487-8280

Plan Update: April 16, 2013

*= 5 Up refers to the number of services upstream from the original sampling point.

**= 5 Down refers to the number of services downstream from the original sampling point.

APPENDIX 6B – EMERGENCY RESPONSE PLAN

Emergency Response Plan

Vancouver Water System

Prepared for

City of Vancouver, WA
Public Works Department

Prepared by

Vancouver City Staff in Cooperation with



Updated
December 2011

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1.0 Introduction

The City of Vancouver (City) is the water utility responsible for municipal, industrial, and commercial water supply within the city limits and nearby unincorporated areas of Clark County. The City's Public Works Department (Department) is responsible for the planning, engineering, and operation of the water supply, treatment, and distribution system. The Department comprises several divisions of labor including Engineering Services, Operations, Construction Services, and Solid Waste. The Production/Quality group within the Operations Division is primarily responsible for day-to-day operations of the system, while the Engineering Division is responsible for system planning and engineering.

One of the Department's missions is "To ensure that an uninterrupted, safe, good tasting supply of water is delivered to each customer, and that adequate amounts of water and pressure are available during times of emergency." In order to meet this mission, the Public Works Department has developed the following emergency response plan (ERP) that outlines the Department's response to intentional malevolent acts. This ERP was developed to meet federal requirements, integrate with the City's current response actions, and incorporate elements of the recent security vulnerability assessment.

The intent of this ERP is to identify procedures that would assist in the response to malevolent acts such as system contamination or physical damage. This document also outlines measures that can be used in day-to-day system operations to minimize the chance or impact of intentional acts.

1.1 Federal Requirements and Guidance

In June 2002, H.R. 03448, the Bioterrorism Preparedness bill, became public law (PL 107-188). Title IV of the bill addressed drinking water security and safety by amending the Safe Drinking Water Act to require systems serving more than 3,300 persons to conduct a vulnerability assessment (VA) and an ERP to address intentional malevolent acts.

According to this law, the ERP "shall include, but not be limited to, plans, procedures, and identification of equipment that can be implemented or utilized in the event of a terrorist or other intentional attack on the public water system. The emergency response plan shall also include actions, procedures, and identification of equipment which can obviate or significantly lessen the impact of terrorist attacks or other intentional actions..."

1.2 ERP Integration

The ERP was developed to not only meet the requirements outlined in PL 107-188, but to integrate with the City's existing response plans and programs. A summary of these plans are provided below.

CRESA

The Clark Regional Emergency Services Agency (CRESA) is a regional public safety service provider of 9-1-1 Public Safety Dispatch, Emergency Medical Services (EMS), and operation and maintenance of the regional governmental radio system and emergency management coordination.

CRESA's Emergency Management Program was established to provide emergency management for Clark County and the cities of Battle Ground, Camas, LaCenter, Ridgefield, Vancouver, Washougal, and Yacolt. CRESA's Emergency Preparedness Program (EPP) assists local jurisdictions and agencies to prepare for, respond to, and recover from major emergencies and disasters.

In the event of an attack on the City's water supply, CRESA would only be contacted if the City's resources were insufficient to address the emergency or if there was a "boil water" or "do not drink water" public announcement. CRESA would then be used as the "clearinghouse" for external agency and third party communication and coordination. The procedures developed in this ERP for the emergencies resulting from malevolent acts aimed at the water supply, does *not* alter the type of support that Public Works would provide in the event of other outlined emergencies.

Natural Hazards Response

The City of Vancouver Public Works Department has an emergency response plan (plan) developed in 1996 as part of the Water System Comprehensive Plan. This plan focused on natural hazards such as earthquakes and power outages. As part of plan development, system hazards and priority facilities were evaluated, mitigation actions recommended, and response procedures summarized. City staff and HDR recently reviewed and modified this plan. For completeness, this updated natural hazards response plan has been included as its own section in this ERP.

Vulnerability Assessment

As part of the Bioterrorism Preparedness bill, the City was required to develop a Water System Vulnerability Assessment (VA) to assess the City's risk of a successful malevolent act and identify measures to reduce these risks. The City completed this VA in February 2003, and the result of this assessment was a series of recommendations to improve physical security and Cyber/SCADA security (i.e., mitigation measures).

For purposes of confidentiality, VA and mitigation measures will not be presented in this document. The Water Production/Quality Group almost in tandem with the VA implemented several additional security measures and is in the process of integrating some remaining items. As a result, this document will not address the assessment, or mitigation component of ERP.

1.3 ERP Update Procedures

Information presented in this ERP should be reviewed and updated as applicable. Contact names, staff names and capabilities, phone numbers, and equipment lists, for example, are all items that will require continuous updating. In addition, during the course of training or practical experience the Water Division may want to modify components of the plan or add additional information. Table 1-1 is provided to assist in tracking and updating this document.

Date	Changes Made	Person Making Modifications	Updated Pages Provided to Staff?

1.4 Document Outline

The ERP document has been divided into a series of sections. Section 1.0 presented herein summarizes the ERP background and approach. The remaining sections and their contents are provided below:

- Section 2.0, Training
- Section 3.0, Standard Operating Procedures
- Section 4.0, Response Procedures for Intentional Acts
- Section 5.0, Response Procedures for Natural Hazards
- Section 6.0, Acronyms and Abbreviations
- Section 7.0, References and Resources
- Attachment A: Contact Names and Numbers

2.0 Training

Effective implementation of this ERP will depend on organized, informed, and trained personnel. The training program must have a purpose, appropriately selected personnel, and proper instruction and supporting materials. Training should include all types of response personnel from the “decision makers” to supporting field staff.

The most critical component of ERP training is to provide a familiarity with the plan, an understanding of individual roles and responsibilities, and an identification of communication and decision making pathways. Because this ERP cannot provide an if/then solution for every possible scenario, the training should also focus on critical problem solving.

The Water Quality/Production and Water Distribution Groups within the Operations Center will be the “first responders” in the event of an emergency. These persons have the best distribution system knowledge, equipment and training. The Department should consider identifying and training additional support staff within the Department, so these persons can provide assistance for some response Actions.

2.1 Training Topics

The ERP training should review each general scenario and response procedures. The training should focus on communication methods and responsibilities, staging areas, and general procedures. Details on these items are summarized below.

Additional training topics related to the minimization and response of malevolent acts include the following:

- Identification of suspicious materials or chemicals
- Diffusing confrontations
- Identifying suspicious behavior
- How to flush a system for the non-operations staff
- Communicating with the general public while in the field during an incident
- How to work around a “crime scene”
- Safe driving and communications
- Identification of suspicious packages

Communications and Responsibilities

The ERP has a series of response Actions for various types of malevolent acts. Each response action has a primary and secondary lead. These persons are responsible for completion and decision making for each action. These persons in turn report to the Person-in-Charge for the entire response. The Person-in-Charge is the overall decision maker and will contact or designate contact to external parties (e.g., media, resource agencies). The overall communication paths are presented in Figure 2-1.

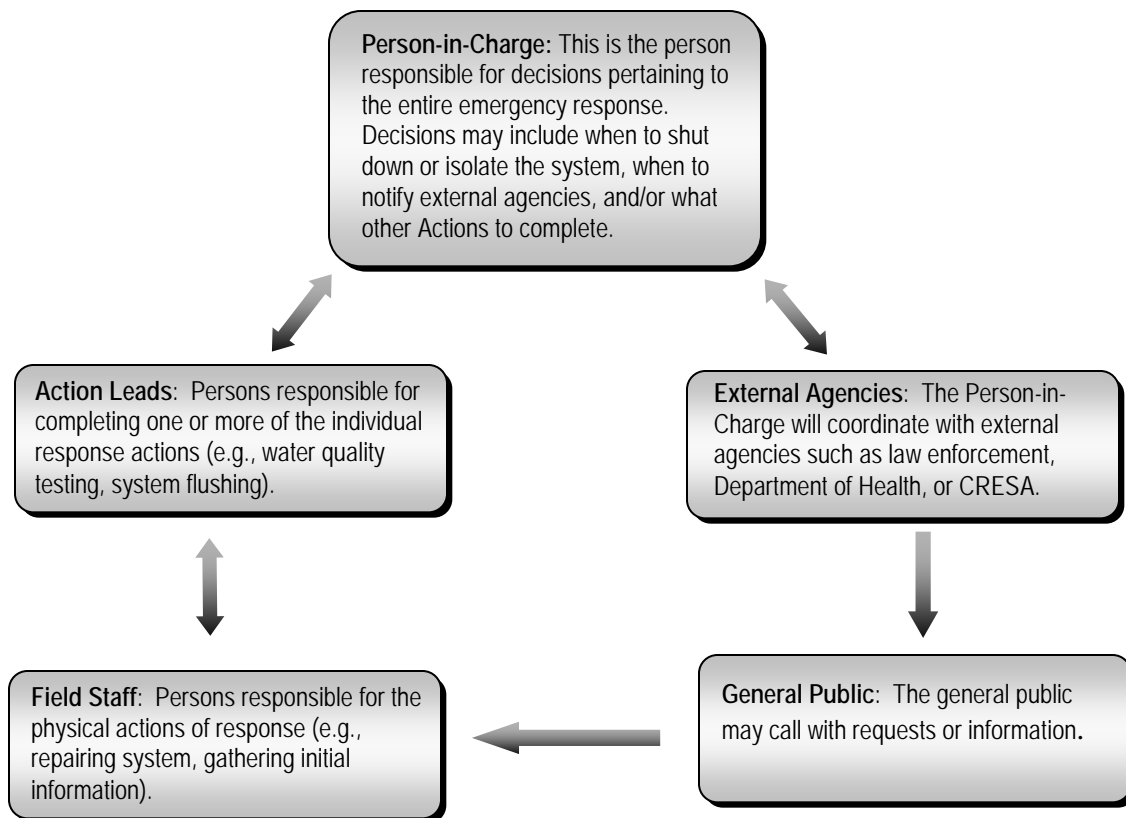


Figure 2-1. Lines of Communication

The Operations Center has full radio capabilities on both the Public Works and Water/Sewer radio frequencies. An emergency generator at that site provides emergency power for the main radio transmitter.

The City's Operations Center has an emergency generator which is capable of providing backup power for the Operations Center dispatch center, water system telemetry, phone system, and minimal miscellaneous power requirements.

Communications capabilities can still be maintained with the loss of power at the Operations Center, with some limitations, through the use of battery operated radio handsets.

Staff Tracking

The Person-in-Charge and Action Leads will be predetermined and immediately contacted during response procedures. Additional field staff will be contacted and assigned to appropriate duties. One person as noted in the ERP (Response and Finance Support Action) will be responsible for contacting and tracking field staff. This includes task and equipment assignment, tracking communication abilities, and arranging for food and water for staff if necessary. All staff will be responsible for checking in and out with Support Action Lead during the response action.

Emergency Procurement

If the normal approval process for emergency expenditures cannot take place because of the circumstances of a declared emergency, the following approval authority will apply:

- Operations Center Manager and above – unlimited
- Superintendents or equivalent - \$200,000 per transaction
- Supervisors or equivalent - \$100,000 per transaction
- Leadman or equivalent - \$50,000 per transaction

The City is currently developing Procurement Cards (P-Cards) that would be individually assigned and valid up to predetermined limits. Authorized individuals will also have access to a City “emergency” credit card number if other procurement methods are not available or accepted by a supplier. The City will also reimburse employees up to \$100 for purchases made during emergency response.

Each City employee expending resources in response to a declared emergency will maintain a detailed log during such disasters which will include date, name of contractor or supplier, dollar amount, type of work/supplies, person who authorized transaction, and payment method (or tracking number). The detailed log and any additional paperwork (such as invoices, quotes) shall be sent to the Procurement Services Manager as soon as feasible. The Emergency Financial/Procurement Team will reconcile and coordinate payments and documentation.

If Procurement Services is unable or unavailable to issue emergency purchase order numbers, individuals with approval authority can assign individual numbers (i.e., purchase order numbers) for tracking purposes. These purchase order numbers will be reconciled with the Oracle system by Procurement Services, when feasible.

2.2 Training Schedule

Employees should be trained within two months of hire and yearly thereafter. Training should include emergency response procedures and standard operating procedures. Training should be logged and updated as applicable (Table 2-1).

Table 2-1. Training Log				
Employee Name/ Department	Response Role (Lead, Field Response, Support)	Date Trained	Training Topic (ERP, Operating Procedures)	Additional Training Needed

3.0 Standard Operating Procedures

The EPA required the City to put procedures in place that will eliminate or reduce the potential or the impact of human-caused incidents. The following Standard Operating Procedures (SOPs) were adopted by the City based, in part, on recommendations from the consultant HDR. These measures may reduce the likelihood and consequences of a malevolent act. The City/Department will continue to review and modify the SOPs as necessary.

3.1 Access Control

The City's access control for facilities includes locked gates and building, key card systems, ID cards (with no access actuation feature), and administrative control via receptionists and counter staff, backed up by the Vancouver Police Department. The Operations Center also has a policy of escorting service personnel, delivery people, and contractors. Various departments of the City, including the Operations Center, will continue to revise access control as conditions warrant.

Employee Identification and Access

All employees are issued an identification card that is used to confirm identity when an employee enters a facility that is not his or her regular work place. These cards have a standard configuration, including a photo, logo, and first name on the face; and full name, department, and title on the back.

Per City policy, employees wear their issued identification card in plain view at all times unless impractical or unsafe to accomplish a specific task. In such cases the employees have their issued identification card in their possession during all work hours.

Contractor Access

Contractors are escorted, or work in the presence of an inspector, as needed.

Visitor Access

All visitors to the Operations Center sign in at the front desk. They may be escorted to other areas at the Operations Center as needed. Water production, treatment, and pumping facilities are locked. Visitors to these facilities are escorted.

Identification Card and Access Control

Some City offices have key card access control. The key cards are different than the photo ID cards. When an employee leaves the City, key cards are seized or electronically disabled.

3.2 Deliveries

All deliveries to water facilities are escorted. Vendors delivering materials to the Operations Center warehouse must request access from an Operation Center employee. Staff will match the vendor's purchase order number to the number in City records before accepting the shipment.

Suspicious packages are noted and the Fire Department's Hazardous Material team is notified.

3.3 Exterior Security and Landscape

All water facilities are inspected daily. Any fence or gate damage that is not an emergency is noted and repaired as soon as practical. Overgrown landscaping is trimmed as needed for visual inspection. Shrubs are removed as needed. Trees near security fences are limbed up to about five feet high. Inspections of site and exterior building lighting are done on a periodic basis.

3.4 Equipment/Key Tracking

The Operations Center staff has added keypad control to all Operations Center vehicles. A numerical code must be entered before the vehicle can be use. Keys to Department owned vehicles not assigned or in use, or that are stationary for long periods, are placed in a key control lock box or similar device. All Water Production and Quality trucks are locked when not in use.

3.5 Public Information

The Department has worked with other City departments and external agencies to reiterate water supply information to the general public. Information is often provided on the importance of emergency preparedness including stocking potable water. If individuals are prepared, there will be less of a strain on the supply in the event of an emergency.

4.0 Emergency Response Plan—Intentional Acts

The following section presents the ERP actions for intentional malevolent acts. The response procedures are *not* intended to provide answers for every possible situation. The procedures are intended to organize and facilitate information gathering, communication, and actions in the event of an emergency.

Potential human-caused acts are divided into four scenarios:

- Suspected or known water contamination
- Physical damage to the system
- Verbal threat or security breach
- Technological/Cyber intrusion

For each scenario, a series of actions were developed to assist the Department in responding to that emergency. Although the actions are numbered, they are not intended to represent sequential steps as more than one action can occur at anytime.

At any time the Department can opt to circumvent any of these actions if the situation warrants. For example, the response to suspected contamination that results in mild symptoms might necessitate a systematic approach as outlined in this Chapter. However, if a contaminant is immediately traced to the public water system and symptoms are acute, or if the source is identified, the City may choose to flush or isolate a component of the system prior to the completion of all the information gathering actions provided.

In many instances, the actions from one scenario to another are the same. However, in the interest of simplicity, each scenario is presented independently with all action items included.

4.1 Suspected/Known Contamination

Scenario: The City receives notification from a local health agency stating that they are seeing signs indicative of localized or widespread contamination. The contaminant and/or source (e.g., food, water, air) could be known or unknown.

This section provides an emergency response for the water utility if there is known or highly suspected contamination in the supply system. Contamination is considered “known” if the health agencies (e.g., DOH, CCHD) have identified a specific water borne contaminant that they have determined originated from the public water supply. Contamination will be considered “highly suspected” if there are members of the populace showing similar symptoms of illness, but the cause has yet to be identified.

4.2 Physical Damage

Scenario: The City receives notification that a portion of the water system infrastructure has been damaged. Notification may come from the public, personal observation by City

staff, the SCADA system, or another source. The damage may have been caused by an intentional human act.

This section provides an emergency response procedure for the water utility if there is physical damage to the infrastructure of the water system. Infrastructure is assumed to include the system's source wells, treatment, conveyance, and distribution facilities, including pumps, pipes, and reservoirs. Response to damage in the technological system (e.g., SCADA) and contamination are included in other sections. The damage is assumed to be caused by intentional human actions, including terrorism, sabotage, or vandalism.

4.3 Verbal Threat or Security Breach

Scenario: The City receives a verbal threat of harm or is alerted to a security breach either through alarm notifications or visual inspection.

This section provides an emergency response for the water utility if there is a threat of system disruption. Potential system disruption could include physical (e.g., bomb threat), or contamination-related threats.

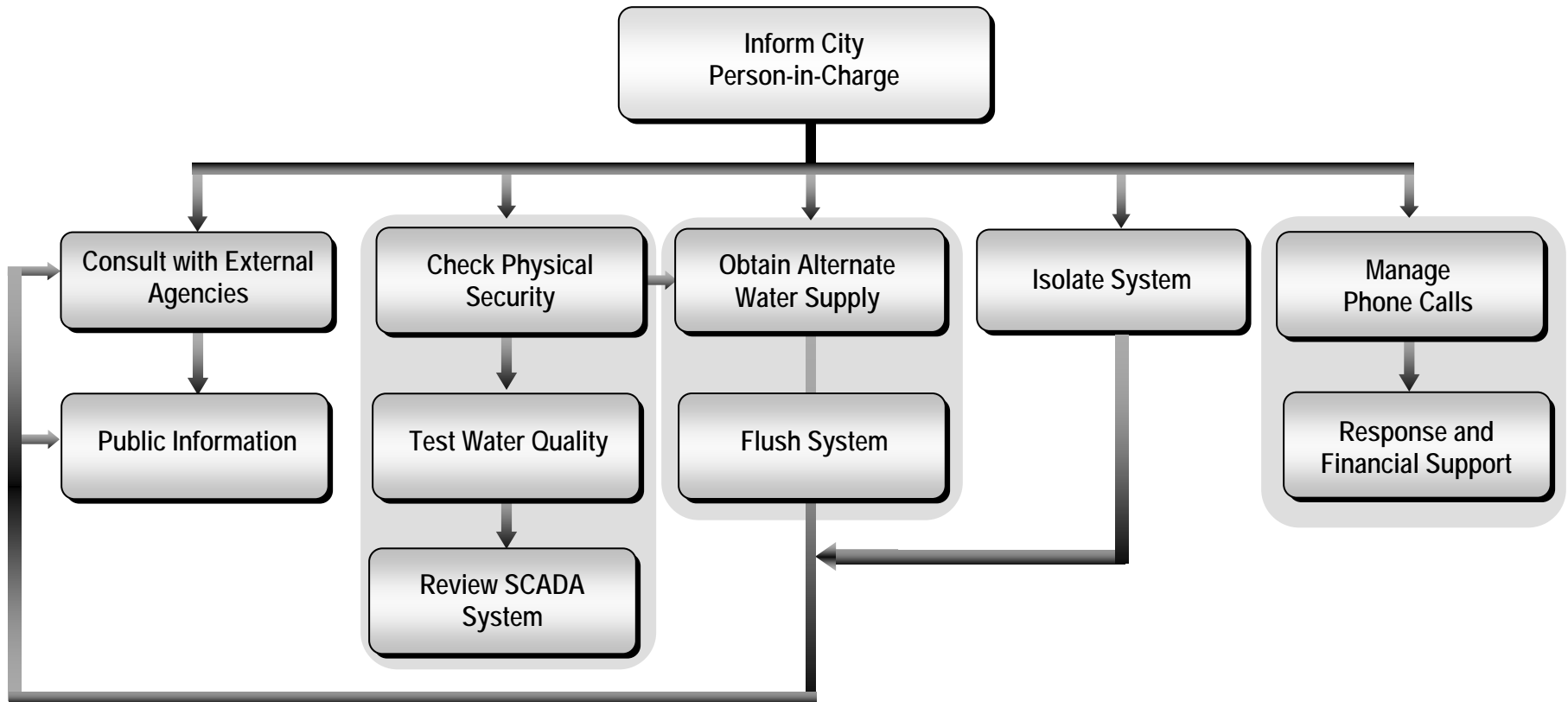
The emergency response to this group of threats will be general, as the degree and seriousness of perceived threats is variable. In some cases, a threat may be specific with enough detail provided to allow for a targeted response. In other cases, such as a security breach, the reason for entry might be vandalism.

4.4 Technological Intrusions

Scenario: City staff finds that the Supervisory Control and Data Acquisition (SCADA) telemetry and control system has been penetrated and/or is not functioning as intended.

This scenario assumes that the SCADA system has been penetrated and an external party is controlling system operation and/or masking information reported by the telemetry system. City staff may become aware of a SCADA problem either through alarms, checking baseline data, or noting differences between field readings and data relay at the Operations Center. Part of this action response includes distinguishing between intrusion and system malfunction. The SCADA system is physically isolated from the City's computer network, reducing the potential for technological intrusion.

Figure 4-1. City is Alerted to Known or Highly Suspected Contamination



Action 1: Inform City Person(s)-in-Charge

Goal: To alert the City Person(s)-in-Charge that water contamination is suspected.

Primary Lead: Initial point of contact for the City (i.e., staff first aware of situation)

Action Summary: The first action is for the City staff receiving the notification is to call the person that would be responsible for overall ERP response. These persons in order of contact hierarchy are listed in Table A-1 in Attachment A: Contact Names and Numbers.

The person selected for the overall response will be the person ultimately responsible for selecting a course of action for the response. The Person-in-Charge will then delegate contacts of the necessary personnel as listed in Table A-2 in Attachment A at the end of this document.

Action 2: Consult with External Agencies

Goal: To coordinate and communicate with external agencies as needed (e.g., hospitals, CRESA, law enforcement) to gather and share pertinent information.

Primary Lead: Brian Carlson

Secondary Lead: Terry McClure

Action Summary: The purpose of this action is to gather what information the health agencies have that would assist in contaminant identification, treatment, or to pinpoint contaminant in the distribution system. The second purpose is to present and discuss the Department's course of action for response. Contacts for external agencies are listed in Table A-3 at the end of this document.

Information Gathering

There are several items to discuss with the external agencies regarding patient status. These discussion items may help "pinpoint" the contamination location in the system, determine the longevity and properties of the contaminant (e.g., stable/not stable, or chlorine resistant), drive the level of Department response, and assist with selecting priority monitoring parameters.

- *Geographic Distribution and Symptoms of Patients*

Obtain information from the health agencies as to the locale of affected persons. This may help "pinpoint" contamination location, if any, and monitoring needs. For example: Are all patients from one office building, residents of a neighborhood, or dispersed throughout the City? Ask approximately when the symptoms occurred (e.g., hours, days) and if they are acute or chronic.

- *Suspect Contamination/ Constituent Sampling*

Determine if, based on symptoms and medical testing, the health agencies have been able to rule out *or* identify potential contaminants. A DOH representative will be assigned to work with the Department in the event of potential contamination. This representative will assist in determining appropriate water quality sampling and analysis.

- *Any Law Enforcement Issues*

Speak with the local law enforcement/ FBI to determine if there have been any incidents that could be related to potential contamination (e.g., break in at local industrial facility that stores hazardous chemicals).

Information Sharing

Provide involved agencies a summary of Department Actions that will be undertaken to address the issue. Information should be provided that includes the following:

- *Department Actions*

The actions of the Department/City should be outlined for the External Agencies as well as the expected timeline for completion. For example, inform the Agencies that the Department will be checking for physical damage and a full check is estimated to take 2 hours, however water quality sampling may take 6 hours or more for information return.

- *Communication Strategy*

The Action Lead should outline a communication strategy for the response. Decide which external agency will be contacted by the Water Department as information is received. Also, determine if updates will be provided as necessary, or on some pre-determined timeframe (e.g., hourly).

- *Request Additional Services*

If the City needs additional resources to respond to the incident, the City should contact and make such requests to CRESA. CRESA will be responsible for coordinating any additional local, state, or federal resources.

Action 3: Public Notification

Goal: To determine, coordinate, and provide public notification and communication.

Primary Lead: Brian Carlson

Secondary Lead: Terry McClure

Action Summary: Coordinate with DOH and CCHD to determine what actions the City should take for public notifications and information. Supply notifications to media and priority water users, and issue alerts as necessary.

The City's Public Involvement Policy is to provide its citizens with accurate and timely information on emergency conditions, protective actions, and emergency response activities throughout an emergency. As appropriate and if circumstances allow, the City will also provide pre-impact information to the media and to the public.

Public information will be handled by the appropriate City department directly involved in the incident. City departments that release information shall be coordinated in a timely manner with the City's public information officer (PIO). Before release, disaster information shall be coordinated with other involved organizations to the maximum extent possible to ensure consistency and accuracy

Notifications

Determine what and when notifications should be made. Consider input from DOH and CCHD in determining the degree of public contact that should be made. Possible types of notifications include:

- No or limited public notification.
- Public notification: Boil water and/or disinfect
- Public notification: Water not potable.

If public notification is made to boil or not drink the water additional notifications will be necessary to advise of alternate water supply locations or methods, as well as when the water is safe to drink. Sample notifications and related information are provided below.

Emergency Alert System

An Emergency Alert System (EAS) is available for the Department to use if warranted. If the City wishes to use the alert as a result of a malevolent act, the Department will coordinate through the City's Terrorism, Preparedness and Security Office. This coordination is done through either the Fire Chief or Police Chief. These persons can be reached 24 hours a day through the 911 system. The "Office" will then determine whether an alert notification is warranted. If so, the EAS is a system that will notify all media to broadcast a City/ Department notification.

If the Department wishes to issue an alert, but the reason is not related to an intentional act, the Department will begin contacting the news media. The Department will also contact CRESA who, depending on the urgency of the alert, may help notify the public.

City Web Page

The Department will use the City's web page as a method for public information. The web page will be used to post updated information as the response progresses. Media and others will be notified, so the web page address can be provided and relayed through subsequent coverage.

Priority Water Users

If any public notifications are made, the priority water users listed in Table A-4 in Attachment A will be directly contacted as well. For health centers, schools, and nursing centers the contact person's title is usually facilities manager, maintenance supervisor, or engineering. If person listed is not available, ask for the heads of these departments. CCHD maintains a database that includes restaurants and would assist in contacting these entities.

Media

The Action Lead or designee will contact the media if necessary. Media contact numbers are listed in Table A-5 at the end of this document. The Department will use the Clark/Vancouver Television (CVTV), which is the City's Local Government Cable Channel as an additional method for public information, either for special announcements or live updates as appropriate.

Boil Water Notification

On the following pages are templates for press releases for boil water advisories and for rescinding the advisory. These notices should be faxed to the media contacts listed above as needed.



MEDIA ADVISORY

Contact: _____

FOR IMMEDIATE RELEASE

Date Here

DRINKING WATER WARNING

The City of Vancouver's Water System, ID 91200L, located in Clark County, is contaminated with: fecal coliform / *E. coli* bacteria.

Fecal coliform / *E. coli* bacteria were detected/confirmed in the water supply on _____. These bacteria can make you sick and are a particular concern for people with weakened immune systems.

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a boil, let it boil 3 to 5 minutes, and let it cool before using. Boiled or purchased bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and food preparation until *further notice*. Boiling kills bacteria and other organisms in the water.

Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems. *The symptoms above are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care provider.*

The suspected or known source of contamination is:

The following is being done to correct the problem:

The advisory will remain in effect until the City of Vancouver and the Washington Department of Health are confident there is no longer a threat of illness to their customers. Once satisfactory results are reported, customers will be notified that the advisory has been lifted. We will notify you when you no longer need to boil the water. We anticipate resolving the problem by ___(date)/time____.

For more information, please contact _____ at ()____-____ or at _____.
(owner or operator) (phone number) (address)



MEDIA ADVISORY

Contact: _____

FOR IMMEDIATE RELEASE

Date Here

**City of Vancouver, Water Division
Boil Water Advisory Rescinded**

The City of Vancouver, Water Division is advising all its water customers that it is no longer necessary to boil their drinking water. Recent test samples show the absence of <fecal coliform, E. coli, total coliform> bacteria.

<SYSTEM SPOKESPERSON QUOTE> (e.g. "Working with the Washington State Department of Health over the last <NUMBER OF > days, we have completed inspections, water quality sampling, disinfection, and flushing to resolve the contamination problem," stated <NAME OF WATER SYSTEM MANAGER>. "We're pleased to be able to lift the boil water advisory."

The inspection of the water system indicated <DESCRIPTION OF SOURCE OF CONTAMINATION, if known, and what will be done to maintain good water quality>

If you have shut off or not used fixtures, water fountains, ice machines, soda machines, and/or other equipment over the past several days, flush the fixture or equipment until there is a change in water temperature before putting it back into service.

The City of Vancouver encourages customers with questions to call <TELEPHONE NUMBER>.

Action 4: Check Physical Security

Goal: To send staff to check physical system security and facilitate reporting back to the Response Lead.

Primary Lead: Tim Brace

Secondary Lead: Tony Sampson

Action Summary: The Action Lead will assign staff to check on the physical security of the distribution system including pipes and facilities. Each team of staff will have one or more locations to inspect. The staff responsible for inspection will report back with results to the Person-in-Charge or assigned delegate.

Inspection Checklist

The intent of physical inspections is to determine if there are any signs that could indicate the source of contamination. The external and internal physical security should be checked by a staff person that has the following:

- Knowledge of the facility
- Access keys/cards
- Ability to “shut down/isolate” system if needed

Table 4-1 on the following page is the inspection checklist for internal and external security checks.

Reporting Inspection Results

At the completion of the site inspection or when a physical security issue has been detected, the staff will report back to the Action Lead. The Action Lead will be responsible for contacting the Person-in-Charge and/or the appropriate Law Enforcement officials.

Isolating System

Based on the inspection results, the individual staff member or Action Lead will determine if the system should be isolated. The staff member will make this determination if a breach is evident and the staff member can safely shut the system down. The Action Lead will make the determination to isolate if the staff member is uncertain about the decision.

Contact Fire Department

If water supply is shut-off or isolated for any reason, notify the fire department. Identify areas that are without water to the fire department. Assign a crewmember to respond to the fire department’s request to open valves, if needed.

Physical Security Checklist, Page 1 of 2

Note: If at any time during the physical security check an evidence of tampering or break-in is identified or you feel your life is in jeopardy, call 911. Avoid or minimize any impact that may influence a crime investigation.

Table 4-1. Physical Security Checklist				
Check Item	Yes	No	N/A	Notes/Comments
Lighting				
Are all lights operational?				
Have any lights been broken?				
Gate, Window, and Door Locks				
Are all locks and doors operational?				
Is there any evidence of tampering?				
Fencing (walk entire perimeter)				
Are there any cuts or breaks in the fence? Are there any cuts or breaks in barbed wire or razor wire?				
Tool Inventory				
Does it appear that any are missing or been used to tamper with the facility/equipment?				
Entry Alarms				
Are alarms working properly or is there evidence of tampering?				
Pumps, Valves and Pipes				
Are pumping equipment controls operating properly for the existing system condition?				
Are pumps operating according to the readings on the SCADA system and instrument readout?				
Are automatic valves open/closed according to the readings on the valve control panel?				
Are manual valves open or closed according to operational protocol?				
Do the pipes and fittings show evidence of tampering?				

Physical Security Checklist, Page 2 of 2

Note: If at any time during the physical security check an evidence of tampering or break-in is identified or you feel your life is in jeopardy, call 911. Avoid or minimize any impact that may influence a crime investigation.

Item	Yes	No	N/A	Notes/Comments
Reservoir Water Levels				
Do the reservoir levels and the control panels readouts agree? (Be sure there is a means to physically measure the reservoir)				
Chemical Storage and Metering				
Have any chemicals been taken or is there evidence of tampering?				
Are seals/locks on all chemical containers intact?				
Is the chemical metering equipment operating?				
Have chemicals been switched?				
Flow Meters				
Are the readings within their correct ranges and do the meter readouts agree with the operation of the pumps?				
Power/Electronic				
Is the backup power supply and generator working? Test to ensure operation.				
Is the fuel supply adequate?				
Are the phones, modems, and telemetry working?				
Other Conditions				
Are there any unusual odors or oily droplets within the room or which could indicate contamination?				
Are there any unusual colors or froth within the wetwell, which could indicate contamination?				
Relay pumping conditions, water quality readouts back to lead for SCADA review. Is everything matching up?				

Action 5: Collect and Analyze Water Samples

Goal: To collect water quality samples from the distribution system and have them analyzed for contaminants.

Primary Lead: Tim Brace

Secondary Lead: Tony Sampson

Action Summary: This Action Lead will identify the location that water samples should be collected and coordinate with chosen analysis laboratories. The DOH will provide staff to assist in selecting appropriate contaminant tests and reviewing results. If the system is flushed, the water will have to be tested prior to putting the system back online. This coordination with DOH will overlap with Action 2: External Agency Coordination.

Determine Collection Locations

The Action Lead should first determine the water quality collection locations based upon the information gathered in Action 2 (External Agency Coordination) and/or results of Action 4 (Physical Security). Table 4-2 lists the current sampling locations used by the water quality staff. Figure 4-1 in the pocket foldout depicts these locations. Items to consider include:

- *Potential Contaminant Location (e.g., widespread or localized)*

Consider if the area of suspected contamination is localized (e.g., specific pressure zone) or widespread.

- *Obtaining a "Clean Sample"*

Consider selecting an area of the system that may be "clean" for a representative or comparative sample.

- *Source Location*

Determine which location in the distribution system is to be tested: source water (i.e., groundwater), stored water, or distribution system water.

Table 4-2.**Water Quality Sample Locations**

	Name	Address	Sample Point
Vancouver Low	12th & C	SE corner of 12th & C	Sample Hydrant
	2209 E 6th Street	2209 E 6th Street	Sample Hydrant
	E 25th Street	2410 Grand Blvd	Sample Hydrant
	E Reserve (Water Station)	2103 E Reserve Street	Hose Bib
	Esther @ 14th	Esther NE corner w/14th	Sample Hydrant
	Main Street (Fire)	3701 Main Street	Sample Hydrant
	Steamboat	13521 SE 37th Street	Sample Hydrant
	W 31st Street	1910 W 31st Street	Sample Hydrant
Heights Low	Drypers	801 Assembly	Sample Hydrant
	Water Station #4 east gate	4205 E 5th Street	Sample Hydrant
Lincoln High	Ben Franklin School	5206 Franklin	Sample Hydrant
Vancouver High	Washington (Water Station)	4201 Washington Street	Hose Bib
Heights High	Andresen (Water Station)	6803 NE 78th Street	Sample Hydrant
	Brookside	2323 General Anderson	Sample Hydrant
	Burton School	14015 NE 28th Street	Sample Hydrant
	C P U	8600 NE 117th Ave.	Sample Hydrant
	Drive Services Inc.	9401 NE Covington Rd.	Sample Hydrant
	Fishers Landing School	3800 SE Hiddenbrook Dr	Sample Hydrant
	Hearthwood (SPS)	14709 NE 7th Street	Sample Hydrant
	Idaho (Water Station)	5401 Idaho Street	Hose Bib
	Image School	4400 NE 122nd Ave.	Sample Hydrant
	Leiser School	301 S Leiser Rd	Sample Hydrant
	NE 145th Ave.	14704 NE 39th Street	Sample Hydrant
	NE 151st Ave	7803 NE 151st Ave.	Sample Hydrant
	NE 16th Str (Water Station)	1601 NE 112th Ave	Sample Hydrant
	NE 49th Str (Booster)	16051/2 NE 49th Street	Hose Bib
	NE 63rd Str (VFD)	7110 NE 63rd Street	Sample Hydrant
	Ogden School	8100 NE 28th Street	Sample Hydrant
	Pioneer School	7212 NE 166th Ave	Sample Hydrant
	SE 120th Ave	213 SE 120th Ave	Sample Hydrant
	SE 15th Str (VFD)	17408 SE 15th Street	Sample Hydrant
	Sifton School	7301 NE. 137th Ave	Sample Hydrant
	St Johns	4615 NE St Johns	Sample Hydrant
	Sunset School	9001 NE 95th Street	Sample Hydrant
	US Filter	9115 NE 117th Ave.	Sample Hydrant
	Van Mall Retirement	7808 NE 51st Street	Sample Hydrant
	Water Station #8	6115 NE 112th Ave.	Sample Hydrant
Wy'East School	1112 SE 136th Ave.	Sample Hydrant	

Collect Samples

If deemed necessary, the Department shall send out individuals to sample at predetermined locations. As a general rule, 10 liters in one-liter sterile containers shall be collected at each location. However, depending on the level of response or type of contaminant suspected, the sample quantity may be less. A chain of custody form (on next page) would be filled out for each sample collected.

If necessary, contact Haz-Mat Response Team at 911 to screen samples for radiological elements and explosives. Persons collecting samples shall be required to wear personal protective equipment including: goggles, gloves, rubber suits, and rubber boots.

Determine Contaminant Analysis

The Department will work with CCHD and DOH to determine the types and extent of water quality testing that should be performed. There are several categories of tests and hundreds of possible contaminants. The level of testing will depend on situation specific indicators. It is important to note that some tests may take a significant amount of time to complete. For example, bacteriological tests take approximately 24 hours.

Different groups of contaminants/tests include:

- Standard water quality tests (e.g., dissolved oxygen, pH)
- Bacteriological
- Inorganic chemicals (IOC)
- Volatile organic chemicals (VOC)
- Synthetic organic chemicals (SOC)

Contact Laboratories

The Action Lead or designee would contact laboratories and inform them of arriving samples. Laboratories and sampling capabilities are listed in Table A-6 at the end of this document. A list of contaminants to be tested and priority order will be provided. The laboratory will be instructed of contact and confidentiality procedures. For standard/ bacteriological test, most labs are capable of processing between 40 and 50 tests per hour.

Figure 4-2 is a sample Chain-of-Custody Form.

**Figure 4-2.
Sample Chain-of-Custody Form for Water Quality Analysis**

Collection Identification and Chain-of-Custody Form			
Sample ID #		Sample Date and Time	
Sample Description		Sample Location	
Comments			
Sampler (signature)	Date/Time	Witness (signature)	Date/Time
Print Name	Sample ID	Print Name	Location
1. Released by: (signature)	Date/Time	Received by: (signature)	Date/Time
Print Name	Sample ID	Print Name	Location
2. Released by: (signature)	Date/Time	Received by: (signature)	Date/Time
Print Name	Sample ID	Print Name	Location
3. Released by: (signature)	Date/Time	Received by: (signature)	Date/Time
Print Name	Sample ID	Print Name	Location
4. Released by: (signature)	Date/Time	Received by: (signature)	Date/Time
Print Name	Sample ID	Print Name	Location

Action 6: Review SCADA System Data

Goal: To ensure that SCADA is functioning properly and determine if there have been any operational or data anomalies.

Primary Lead: Tim Brace

Secondary Lead: Russ Stacks

Action Summary: This action includes reviewing SCADA system backlogs and comparing data telemetered to the Operations Center to actual field data.

Data Output

All data output (chlorine residuals, pumping rates/hours etc.) will be reviewed for the past 48 hours. The intent of this is to identify any anomalies that would be indicative of intentional contamination. For example, pumps running at off hours or a drop in the chlorine residual might indicate system tampering.

Field Comparison

Crews will be sent to the water stations with physical readouts such as flows and water quality instrumentation to determine if the SCADA system is accurately relaying field conditions. This will be done in conjunction with the physical security checks as part of Action 4.

Relay Information

If there are discrepancies between field information and SCADA reports, this information will be provided to the Person-in-Charge of the response action. If intentional contamination is suspected, this information may assist in targeting the contamination source or timeline.

Manual Controls

If a problem is found with the SCADA system, it would be overridden to rely on local control until the SCADA system problems are diagnosed, fixed, and the system is fully operational.

If significant SCADA system problems exist, contact the City's external SCADA contractor, Randy Stead of S&B (phone: 425-644-1700) for diagnosis and repair. Repair of the SCADA system could occur through modem connection or on site. If technological intrusion is suspected call:

- Local law enforcement
- FBI field office at 360-695-5661
- National Infrastructure Protection Center at 1-888-585-9078

Action 7: Flush System

Goal: To flush and test system to restore potable water service.

Primary Lead: Richard Hoffman

Secondary Lead: Gregg Stockton/Mike Permin

Action Summary: The Action Lead will provide oversight of system flushing; leak testing and water quality sampling needed to bring system online.

Water Quality Testing

Test water quality in accordance with standard DOH requirements after flushing. Select locations to test based on the estimated extent of system impact.

Public Notification

Work with the other Action Leads to inform the public that flushing is occurring and when the water is potable. The public will be instructed to flush residences as needed.

Items to include are:

- Drain hot water tank. Turn off electric elements or gas flame.
- Flush water from all faucets and/or hoses.
- Flush and reconnect water treatment/filtering equipment as applicable.

Flushing Protocol

The following protocol should be used after:

- A component and/or all of the system has been shut down for potable use because of known or suspected contamination.
 - The source and/or the geographic extent of the contamination has been determined.
 - The contaminant has been identified.
1. Work with DOH to determine flushing criteria. For example, use higher chlorine concentration if back-flow is suspected, or if a chlorine-resistant pathogen is detected.
 2. If a reservoir is contaminated, consider disinfection and/or chemical neutralization in place prior to flushing.
 3. Determine if non-potable water lines (separated from the supply with backflow prevention devices) need to be flushed. This includes fire lines, irrigation systems, process water in industry, etc.
 4. Determine what field water quality tests need to be conducted to cease flushing. If field kits can be used (e.g., to test chlorine residual), use department kits for this analysis. If needed, contact the Fire Department Haz-Mat team, CCHD or City of Portland to borrow equipment.
 5. Find a location where the contaminated water can be discharged or stored. Confer with DOH, Washington Department of Ecology, and City of Vancouver Wastewater Treatment Managers and Surface Water Managers. Possible options include:
 - Sanitary sewer

- Storm retention/detention ponds
 - Storm sewer
 - Directly to surface water
6. The Engineering Division can use spreadsheets, the water distribution model, and other tools to attempt to divide the system into areas to help manage the flushing (this capability is still under development). Determine the following:
 - Specific flushing locations
 - Discharge locations
 - Flushing sequence
 - Capacity of the discharge method (e.g., sanitary sewer lines)
 7. Identify persons to flush the system.
 8. Initiate flushing of the compromised portion of the distribution system.
 - Flush main lines, start at location closes to the source of potable water.
 - Install hose to direct water to discharge location if needed.
 9. Conduct necessary microbial tests and obtain approval from DOH prior to bringing water “online.”

Action 8: Obtain Alternate Water Supply

Goal: To obtain alternate water supplies if necessary.

Primary Lead: Richard Hoffman

Secondary Lead: Tim Brace

Action Summary: The Action Lead will be responsible for obtaining an alternate water supply in the event that all or part of the distribution system is unable to provide potable water. This includes estimating the amount of water needed, locating distribution locations, and water supply.

Supply Needs and Logistics

The Action Lead will first review the water supply needs and logistics for the delivery. Items that will be considered include the following:

Quantity of Water Needed. First estimate the quantity of water that will be needed based on the projected amount of time the supply will be out, the amount of water per day needed for the residents, and which priority water users are without water.

Distribution Locations. Determine which water users will require direct delivery of water and/or their own dedicated supply (e.g., hospitals, nursing homes) and which users will be required to acquire water from predetermined locations. Determine where water trucks (if needed) will be staged such as parks, schools, fire stations, police stations, shelters, libraries, and water stations.

Vancouver Source Water. Determine if well (source) water is safe to drink. If so plan to supply water directly from the well. This may include laying pipes, hoses, and using portable pumps to provide water at a well location. Manifolds could be assembled from PVC piping and mounted on perimeter station fencing. Manifolds can be constructed of 1 1/2-inch pipe with 1-inch ball valves, 4 to 6 shutoffs per manifold. Several manifolds could be used per station. Possible water stations to use:

- Water Station 1, Well 2 or 13 (PCE levels below 1.0), use the turn around at the top of the hill as a way for the public to get in and get out.
- Water Station 3, any well. Mount a manifold on the Washington Street fence so that public can park along Washington.
- Water Station 8, any well. Mount a manifold on the 112th Ave fence.
- Water Station 9, Well 6 or 7. Mount a manifold on the fence; allow the public to enter and leave across the grass area.

Distribution Assistance. Work with other City Departments to assist with water distribution assistance. If City parks/property is being used to distribute water, traffic and crowd control will be needed. Determine what other items may be needed for distribution:

- Chlorine bleach to de-contaminate hoses and water containers brought by the public to be filled.

- Couplings, valves, and/or hoses required to transfer water into public containers.
- Chlorine residual test kits if tanker trucks are used.

CRESA Coordination. Coordinate requests for state and/or federal assistance through CRESA. Examples may include using resources or water from the National Guard, Federal Emergency Management Agency.

Public Information. Work with the Action Lead for public information to assist with providing public notification. Items to include are the location of water distribution sites, the maximum amount of water allowed or restrictions, which types of containers to bring if needed, and hours of operation if applicable.

Secure Water Supply. The Department will investigate and/or use the following protocol to obtain/distribute water from an external source.

Clark Public Utilities Intertie Protocol

Follow these steps prior to opening the intertie with Clark Public Utilities:

- Contact Clark Public Utilities and inform them of the situation.
- Provide any documentation to Clark Public Utilities that may be required, indicating that the contamination has been isolated and the remainder of the distribution system has been tested and is safe to drink.
- Monitor locations within Clark County’s system and City of Vancouver’s system while the intertie is open to ensure that no contamination migrates into the Clark Public Utilities system.

Protocol for Acquiring and Distributing Water

1. Identify potential water sources. Options include:
 - Bottlers within the City of Portland (see Tables A-7)
 - Contamination free water stations within the City of Vancouver system available for tanker truck filling or water supply distribution to the public.
 - Tanker truck delivery of water from City of Portland, Clark Public Utilities, and/or City of Vancouver non-contaminated water stations.
2. Request the following information from each bottle supplier:
 - How much water can the supplier provide?
 - How quickly can they supply the water?
 - Can they transport the water to the distribution sites themselves or do they need assistance with transportation?
 - Do they have additional transportation capacity to move water from some other suppliers who cannot transport?
 - Are the bottles glass or plastic?
 - If bottled, what size will the bottles be?
 - How much water do they currently have in their inventory available for use?
 - Can they supply and/or fill tanker trucks?

3. Review with the bottling distributor the requirements for treating and handling the water according to the requirements of the Washington State Department of Health.
4. Request the following information for each tanker truck supplier:
 - How many trucks are available?
 - What is the capacity of each truck?
 - Are any coupling, valves, hoses required to fill and/or empty the truck?
 - Have the truck containers been previously used for potable water and been protected from contamination?
5. After contacting the suppliers, determine the best methods of distribution.
6. If the City plans to use tanker trucks, contact the Department of Health (360) 664-0768 or the local health department for approval of the operation. Follow the *Truck Transportation Emergency Water Supply For Public Use Guidelines* attached to this checklist.
7. If bottle suppliers need transportation help, make arrangements for transportation using public works vehicles, local shipment companies, or other bottling distributors who have additional transportation capacity.
8. Collect Hauler Water Quality Records (Figure 4-3).
9. Record information in the Emergency Water Supply Truck Transportation Record (Table 4-3).

This record is to be given to City personnel at the point of delivery.

Figure 4-3. Hauler Water Quality Record	
Hauler Name:	
Contact Phone Number:	
Date and Time of Truck Departure:	
Truck Number:	
Chlorine dose at fill point and free residual after filling:	
<input type="checkbox"/> Disinfection of container was not performed. Container approved by DOH for transport of water.	
<input type="checkbox"/> Disinfection of container was completed per Health Department guidelines.	

**Table 4-3.
Emergency Water Supply Truck Transportation Record**

Trucking Firm	Truck Number	Driver Name	Quantity (gal)	Source	Date/Time	Free Cl Residual (mg/L)	Water Quality Record (yes/no)	Comments

Washington Department of Health Guidelines for the Truck Transportation of Potable Water Supply for Public Use

Introduction

The purpose of these guidelines is to provide basic guidance to those utilities, companies or individuals who find it necessary to employ truck delivery of potable water during an emergency situation. The Department of Health (DOH) does not wish to encourage this method of supplying water. However, in recognition of the fact that it may be the only viable alternative in some emergency situations, it is important that the procedures and considerations set forth herein be strictly observed in order to protect public health.

It is recommended that whenever possible, potable trucking water systems be formulated and managed by an existing municipal utility. A utility of this type is normally staffed with people who are knowledgeable in the field of water treatment and public health considerations. Also, the management structure is already in place for procuring, maintaining and operating the necessary vehicles under closely controlled conditions.

Non-utility companies and individuals may develop and implement trucking programs, which are consistent with these guidelines. Anyone desiring to engage in this activity is advised to contact the appropriate regional office of DOH or local health department at an early date to discuss current requirements and to arrange a meeting to review the proposed operation. Before actually engaging in delivery of water, formal approval from DOH or the local health department must be received. Purchasers of water delivered by truck are advised to ask the supplier for proof that the trucking operations have received the required approval.

I. Transportation

- A. The trucks to be utilized must be of an acceptable type. Trucks such as milk trucks, military style water trucks and other approved by DOH or local health departments may be used. Units to be adopted for use in a water supply role must be scrubbed, flushed, visually inspected, disinfected (see attached sheet), and then tested satisfactory for bacteriological quality.
- B. Tank units that are unsatisfactory, as determined by DOH or the local health department shall not be used.
- C. Trucks previously used for substances other than water will be evaluate on an individual case basis, and their acceptability will depend upon ease of cleaning and the toxicity, as determined by DOH Toxic Substance Office, of the previous substance.
- D. All tanks will be filled and emptied through an air gap.
- E. All tank units must be covered and tightly sealed.

II. Source

- A. The source of supply for tankers utilized for public water supply purposes will be, existing approved public water supply, only after agreement is obtained from DOH or the local health department, and the purveyor.
- B. Purveyors supplying water to trucking operations will notify the operator of the trucking operations of his responsibility to comply with minimum standards.

III. Handling

- A. All hoses to be utilized in the operations will be stored off the ground at all times. They must be flushed thoroughly, disinfected, (see attached sheet) prior to use, and capped at both ends during those periods when they are not in use.
- B. Pumping equipment and plumbing to be utilized must also be flushed and thoroughly disinfected prior to use.

- C. All handling equipment to be utilized must be of an approved type for water supply purposes, and must be new or obtained from a water supply application.
- D. A high degree of care must be exhibited at all times in the undertaking of this operation.
- E. Water to be transported via tanker must have a free chlorine residual of one part per million at the beginning of the haul. This may be achieved by adding one cup of household bleach to each 1000 gallons. It must be added slowly during filling to insure uniform distribution.
- F. Proper record keeping must be performed at all times during the operation. This will include written records of quantity delivered, source utilized, customer delivered to (name and address), date delivered, time delivered, free chlorine residual at point of delivery, free chlorine residual after filling, notes regarding the receiving receptacle and any other significant items of note. The current daily record shall be kept in the vehicle. The records must be retained 6 months for inspection by health agencies upon request.

IV. Receiving Tanks

- A. The customer's receiving tanks (system) must be inspected by the handler. The customer shall be advised that cleaning, disinfection, etc., may be needed if the condition of the tanks are unacceptable. Comments regarding receiving tanks should be incorporated into the standard record keeping procedures.
- B. The customer's receiving tank must be filled through an air gap.

Disinfection of Water Trucks or Trailers and Accessories

To insure that water hauling equipment is adequately disinfected, it is necessary to rinse all rust and sediment from the tank and then fill the tank completely with water containing at least 50 parts per million of chlorine for a period of at least 24 hours. All hoses, pumps and other equipment, which will come in contact with the water must be disinfected in the same manner.

The table below indicates the amount of household bleach (sodium hypochlorite) required to produce 50 parts per million in various quantities of water. To insure adequate mixing, the bleach must be added slowly as the tank is being filled.

After the 24 hours have elapsed, flush the chlorine solution from the tank. It is important that this solution not be discharged directly to a stream because chlorine is toxic to fish. Refill the tank with water and collect a sample for bacteriological testing.

Capacity of Tank	Gallons of Bleach Required*
500	½ gallon
1000	1 gallon
1500	1 ½ gallons
2000	2 gallons
2500	2 ½ gallons
3000	3 gallons
3500	3 ½ gallons
4000	4 gallons
5000	5 gallons

* Assumes household bleach with 0.42 lbs available chlorine/gallon. If a stronger solution is available; the quantities may be reduced proportionately.

Action 9: Manage Incoming Phone Calls

Goal: To receive and route incoming calls as needed.

Primary Lead: Kimberly Frost

Secondary Lead: Amy Sorenson

Action Summary: Depending on the severity of the emergency and response, the Department/City may or may not receive phone calls from the general public. This Action item provides a protocol for receiving and routing phone calls.

Standard Message

The Action Lead responsible for public information will provide information to persons taking calls so that the same data is being provided to all members of the general public.

Screening and Routing

Depending on the volume of calls received, many Department personnel may be needed to screen calls. If persons need immediate fire, police, or medical attention they will be directed to call 911 and/or their health care provider.

If persons are requesting general information they will be routed to one extension. This person will answer their questions, provide information, or direct them to other sources (e.g., web page). If persons wish to report information or a problem, they will be routed to a different extension or extensions.

Gathering Information

For this response scenario, the calls will likely be received after there has been public notification. Persons may be calling to express a concern that their water is contaminated or to report suspicious activity they may have witnessed. Use the forms on the following pages (Figures 4-4 and 4-5) to gather information from the caller, provide information to the Action Lead, and inform the caller to call 911 if needed.

**Figure 4-4.
Water Quality Phone Record Checklist**

Date:	Time:	
Nature of Problem:		
Water Quality: <input type="checkbox"/> Color <input type="checkbox"/> Odor <input type="checkbox"/> Reduced flow or pressure	Illness Symptoms: <input type="checkbox"/> Person ill and seen by medical personnel <input type="checkbox"/> Person ill and not seen by medical personnel <input type="checkbox"/> Other (explain)	
Caller's Name, Address and Phone Number:		
Name of Individual that is ill:		
Call Received By :		
Call Reported to:	Date/Time:	
Action(s) Taken Following Receipt of Call:		

**Figure 4-5.
Suspicious Activity Phone Record**

Types of Suspicious Activity:

- | | |
|--|--|
| <input type="checkbox"/> Breach of security systems (e.g., lock cut, door forced open)

<input type="checkbox"/> Unauthorized personnel on water system property.

<input type="checkbox"/> Presence of personnel at the water system at unusual hours | <input type="checkbox"/> Changes in water quality noticed by customers (e.g., change in color, odor, taste) that were not planned or announced by the water system

<input type="checkbox"/> Other (explain) |
|--|--|

Location of Suspicious Activity:

- Distribution Line
 Water Storage Facilities
 Treatment Plant
 Raw Water Source
 Treatment Chemicals
 Other (explain):

Unauthorized personnel onsite? Yes No

If Yes, Describe these personnel (height, weight, hair color, clothes, facial hair, any distinguishing marks):

Where were these people? Specify location.

What made them suspicious?

What were they doing?

Caller's Name, Address and Number:

Call Received By :

Call Reported to:

Date/Time:

Action(s) Taken Following Receipt of Call:

Action 10: Response Support and Finance Tracking

Goal: To support the response effort and track financial outlay of the Water Division as needed.

Primary Lead: Debbie Pratt-Israel

Secondary Lead: Barbara Basnett

Action Summary: The Action Lead will delegate or otherwise notify individual City staff of their work order or reporting time and location. This Action Lead will work with other Action Leads to identify tasks for each individual and ensure that City staff is not committed to more than one task at a time.

This Action Lead will also be responsible for tracking finances associated with the response in the event that federal or state compensation is/becomes applicable.

Staff and Equipment Assignments and Tracking

This Action Lead will work with the rest of the response Action Leads to assign personnel to individual Tasks. This will be done to ensure that staff is not slated for more than one task. Table A-11 summarizes, by name or category, staff that would be used for individual responses. This person will ensure that staff is called to report to the staging areas for response. The primary staging area is the Operations Center and the secondary staging area, should the Operations Center be unavailable, is the Marine Park Engineering Building.

While assigning staff to individual tasks, items to consider include:

- Specialized knowledge or training (e.g., manually running valves)
- Vehicle needs
- Access to property (e.g., keys and codes)
- Equipment needs
- Current staff location (e.g., staff already in field)

All staff will be required to check in and out with this Action Lead during the response effort. This Lead will track what staff is in what position in the field and what equipment is being used where.

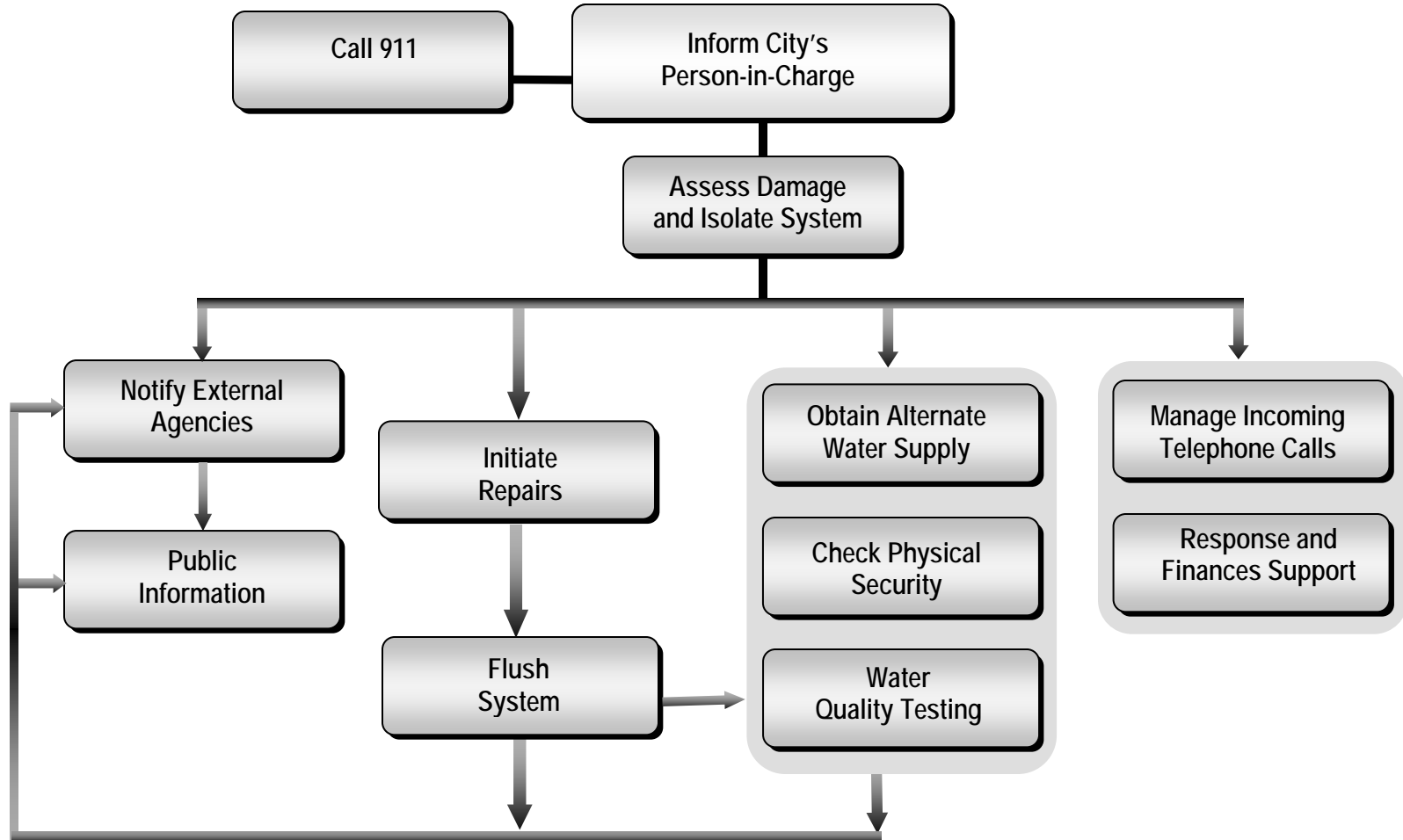
Financial Tracking Requirements

This Action Lead will be responsible for financial tracking during a response effort. A Department/City number will be set up so that time, equipment, and expenses are all recorded during the effort. This will assist in fiscal reimbursement should the incident be classified a disaster. This person would also be responsible for procurement of large items during the response effort.

Miscellaneous Support

This Action Lead would also be responsible for assisting with support functions not included here. Support functions may include obtaining water and food for City staff, gathering additional tools, or distributing safety equipment.

Figure 4-6. City becomes Aware of Physical Damage to System



Action 1: Inform City's Person(s)-in-Charge

Goal: To alert the City's Person-in-Charge of physical damage to the water system.

Primary Lead: Initial point of contact for the City (i.e., staff first aware of situation)

Action Summary: The first action for the City staff receiving the notification is to call the person that would be responsible for overall ERP response. These persons in order of contact hierarchy are listed below in Table A-1 at the end of the document.

The person selected for the overall response will be the person ultimately responsible for selecting a course of action for the response. The Person-in-Charge will then delegate contacts of the necessary personnel as listed in Table A-2 at the end of this document.

Action 2: Assess Damage and Isolate System

Goal: To determine the nature, location, and extent of the damage.

Primary Lead: Tim Brace

Secondary Lead: Richard Hoffmn

Action Summary: The intent of this action is to verify and assess damage to the system. Three sources of damage verification shall be employed:

- SCADA system output shall be assessed.
- Damaged area shall be visited by City staff.
- Impact to the overall system shall be determined.

There are two broad categories of physical damage: isolated (e.g., single water station out of service) or widespread (e.g., several system components out of service). Water Distribution and Production Groups that have the firsthand knowledge to properly inventory and potentially isolate the system should be used for this Action response.

Localized Damage

Localized damage could include a single pipe rupture, failure of a pump station, or loss of a single storage reservoir. This type of damage could either be detected by City staff or an external source such as the police or a local resident. This type of damage will likely only require one team to respond and inventory.

Precise location of the damaged area and facilities and the nature of the damage shall be noted from SCADA system information and from the field visit. City staff will inventory the specific extent of the damage. Information obtained from both sources shall be conveyed to the primary (or secondary) Action Lead.

Widespread Damage

Widespread damage could result from an intentional attack on the water system or as a secondary result of other malevolent acts. If damage is considered to be widespread, teams should be used to visit and inventory the entire system. The entire distribution

system should be inventoried including the water stations, pump houses, and main distribution lines.

To fully assess the extent of the damage, water system maps and possibly a hydraulic model may be needed. The intent of this action is to identify all areas of the system that may be impacted by the damage. Impacts may include contamination from the damage that travels to other parts of the system through the pipe network, or physical damage in adjacent or other parts of the system.

Particular attention will be paid to impacts on the various pressure zones (e.g., Can the zone be supplied without the damaged facilities?) and to the amount of elapsed time since the damage occurred (i.e., How much water remains in storage?).

Sources of information to determine the impacts of the damage include physical observation, the SCADA system, water system maps, and system hydraulic models.

Isolate System

The physically damaged facilities shall be removed from their normal operation within the system. Actions that can be performed to isolate the damaged area(s) may include valve closures, deactivation of pumps, adjustment of pressure reducing valves (PRVs), or other.

Personnel experience and water system maps are the best sources of information regarding locations of isolation valves and specific actions needed to isolate a damaged facility or area.

Action 3: Notify External Agencies

Goal: To coordinate and communicate with external agencies as needed (e.g., hospitals, CRESA, law enforcement)

Primary Lead: Brian Carlson

Secondary Lead: Terry McClure

Action Summary: The purpose of this action is to notify external agencies to inform them of water system status and/or request assistance in response. Contacts for external agencies are listed in Table A-3.

Action 4: Public Notification

Goal: To determine, coordinate, and provide public notification.

Primary Lead: Brian Carlson

Secondary Lead: Terry McClure

Action Summary: Coordinate with DOH and CCHD and determine what actions the City should take for public notifications, if any. Supply notifications to media and priority water users, and issue alerts as necessary.

The City's Public Involvement policy is to provide its citizens with accurate and timely information on emergency conditions, protective actions, and emergency response activities throughout an emergency. As appropriate and if circumstances allow, the City will also provide pre-impact information to the media and to the public.

Public information will be handled by the appropriate City department directly involved in the incident. City departments that release information shall be coordinated in a timely manner with the City's public information officer (PIO). Before release, disaster information shall be coordinated with other involved organizations to the maximum extent possible to ensure consistency and accuracy.

Notifications

Determine what and when notifications should be made. Consider input from DOH and CCHD in determining the degree of public contact that should be made. Possible types of notifications include:

- No or limited public notification.
- Public notification: Boil water and/or disinfect.
- Public notification: Water not potable.

If public notification is made to boil or not drink the water, additional notifications will be necessary to advise of alternate water supply locations or methods, as well as when the water is safe to drink. Sample notifications and related information are provided below.

Emergency Alert System

An Emergency Alert System (EAS) is available for the Department to use if warranted. If the City wishes to use the alert as a result of a malevolent act, the Department will coordinate through the City's Terrorism, Preparedness and Security Office. This coordination is done through either the Fire Chief or Police Chief. These persons can be reached 24 hours a day through the 911 system.

The "Office" will then determine whether an alert notification is warranted. If so, the EAS is a system that will notify all media to broadcast a City/ Department notification. If the Department wishes to issue an alert, but the reason is not related to an intentional act, the Department will contact CRESA, which will issue the alert.

City Web Page

The Department will use the City's web page as a method for public information. The web page will be used to post updated information as the response progresses. Media and others will be notified, so the web page address can be provided and relayed through subsequent coverage.

Priority Water Users

If any public notifications are made, the priority water users listed in Table A-4 in Attachment A will be directly contacted as well. For health centers, schools, and nursing centers the contact person's title is usually facilities manager, maintenance supervisor, or engineering. If person listed is not available, ask for the heads of these departments. CCHD maintains a database that includes restaurants and would assist in contacting these entities.

Media

The Action Lead or designee will contact the media if necessary. Media contact numbers are listed in Table A-5 at the end of this document. The Department will use the Clark/Vancouver Television (CVTV), which is the City's Local Government Cable Channel as an additional method for public information, either for special announcements or live updates as appropriate.

Boil Water Notification

On the following pages are templates for press releases for boil water advisories and for rescinding the advisory. These notices should be faxed to the media contacts listed above as needed.



MEDIA ADVISORY

Contact: _____

FOR IMMEDIATE RELEASE

Date Here

DRINKING WATER WARNING

The City of Vancouver's Water System, ID 91200L, located in Clark County, is contaminated with: fecal coliform / *E. coli* bacteria.

Fecal coliform / *E. coli* bacteria were detected/confirmed in the water supply on _____. These bacteria can make you sick and are a particular concern for people with weakened immune systems.

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a boil, let it boil 3 to 5 minutes, and let it cool before using. Boiled or purchased bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and food preparation until *further notice*. Boiling kills bacteria and other organisms in the water.

Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems. *The symptoms above are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care provider.*

The suspected or known source of contamination is:

The following is being done to correct the problem:

The advisory will remain in effect until the City of Vancouver and the Washington Department of Health are confident there is no longer a threat of illness to their customers. Once satisfactory results are reported, customers will be notified that the advisory has been lifted. We will notify you when you no longer need to boil the water. We anticipate resolving the problem by ___(date)/time____.

For more information, please contact _____ at ()____-____ or at _____.
(owner or operator) (phone number) (address)



MEDIA ADVISORY

Contact: _____

FOR IMMEDIATE RELEASE

Date Here

**City of Vancouver, Water Division
Boil Water Advisory Rescinded**

The City of Vancouver, Water Division is advising all its water customers that it is no longer necessary to boil their drinking water. Recent test samples show the absence of <fecal coliform, E. coli, total coliform> bacteria.

<SYSTEM SPOKESPERSON QUOTE> (e.g. "Working with the Washington State Department of Health over the last <NUMBER OF > days, we have completed inspections, water quality sampling, disinfection, and flushing to resolve the contamination problem," stated <NAME OF WATER SYSTEM MANAGER>. "We're pleased to be able to lift the boil water advisory."

The inspection of the water system indicated <DESCRIPTION OF SOURCE OF CONTAMINATION, if known, and what will be done to maintain good water quality>

If you have shut off or not used fixtures, water fountains, ice machines, soda machines, and/or other equipment over the past several days, flush the fixture or equipment until there is a change in water temperature before putting it back into service.

The City of Vancouver encourages customers with questions to call <TELEPHONE NUMBER>.

Action 5: Initiate Repairs

Goal: To repair the damaged area to operating condition.

Primary Lead: Richard Hoffman

Secondary Lead: Gregg Stockton/Mike Permin

Action Summary: This Action addresses the planning and implementation of the system repairs. The Lead will work with the Construction Group and Engineering as needed to complete the repairs. However, repair work shall commence only after the crime scene has been cleared.

Needs Identification

Materials, methods, equipment, personnel, and time required to perform the repairs will be identified. Secondary needs such as traffic control, and Fire Haz-Mat Response will also be determined. Determine if the Department has the crews, material, and equipment on site, or if external assistance is needed. Complete the repair if the Department/City has the materials and means.

There may be unaffected pipes, starters, pumps and/or motors that can be moved from other parts of the system. This will be evaluated if there is a delay in ordering new supplies.

Additional Resources

If the Department needs additional resources, contact CRESA and/or suppliers as indicated in Table A-10.

Action 6: Flush System

Goal: To flush and test system to remove contamination from system, and restore potable water service.

Primary Lead: Richard Hoffman

Secondary Lead: Gregg Stockton/Mike Permin

Action Summary: The Action Lead will provide oversight of system flushing, leak testing, and water quality sampling needed to bring system online.

Water Quality Testing

Test water quality in accordance with standard DOH requirements after flushing. Select locations to test based on the estimated extent of system impact.

Public Notification

Work with the other Action Leads to inform the public that flushing is occurring and when the water is potable. The public will be instructed to flush residences as needed. Items to include are:

- Drain hot water tank. Turn off electric elements or gas flame.
- Flush water from all faucets and/or hoses.
- Reconnect water treatment/filtering equipment as applicable.

Flushing Protocol

The following protocol should be used after:

- A component and/or all of the system has been shut down for potable use because of known or suspected contamination.
 - The source and/or the geographic extent of the contamination has been determined.
 - The contaminant has been identified.
1. Work with DOH to determine flushing criteria. For example, use higher chlorine concentration if back flow is suspected, or if a chlorine-resistant pathogen was detected.
 2. If a reservoir is contaminated, consider disinfection and/or chemical neutralization in place prior to flushing.
 3. Determine if non-potable water lines (separated from the supply with backflow prevention devices) need to be flushed. This includes fire lines, irrigation systems, process water in industry, etc.
 4. Determine what field water quality tests need to be conducted to cease flushing. If field kits can be used (e.g., to test chlorine residual), use department kits for this analysis. If needed contact the Fire Department Haz-Mat team, CCHD, or City of Portland to borrow equipment.

5. Find a location where the contaminated water can be discharged or stored. Confer with DOH, Washington Department of Ecology, and City of Vancouver Wastewater Treatment Managers and Surface Water Managers. Possible options include:
 - Sanitary sewer
 - Storm retention/detention ponds
 - Storm sewer
 - Directly to surface water
6. The Engineering Division can use spreadsheets, the water distribution model, and other tools to attempt to divide the system into areas to help manage the flushing (this capability is still under development). Determine the following:
 - Specific flushing locations
 - Discharge locations
 - Flushing sequence
 - Capacity of the discharge method (e.g., sanitary sewer lines)
7. Identify persons to flush the system.
8. Initiate flushing of the compromised portion of the distribution system.
 - Flush main lines, start at location closest to the source of potable water.
 - Install hose to direct water to discharge location if needed.
9. Conduct necessary microbial tests and obtain approval from DOH prior to bringing water “online.”

Action 7: Obtain Alternate Water Supply

Goal: To obtain alternate water supplies if necessary.

Primary Lead: Richard Hoffman

Secondary Lead: Tim Brace

Action Summary: The action lead will be responsible for obtaining an alternate water supply in the event that all or part of the distribution system is unable to provide potable water. This includes estimating the amount of water needed, locating distribution sites, and selecting water supply.

Supply Needs and Logistics

The Action Lead will first review the water supply needs and logistics for the delivery. Items that will be considered include the following:

Quantity of Water Needed. First estimate the quantity of water that will be needed based on the projected amount of time the supply will be out, the amount of water per day needed for the residents, and which priority water users are without water.

Distribution Locations. Determine which water users are affected by the damage and which will require direct delivery of water and/or their own dedicated supply (e.g., hospitals, nursing homes). Determine where water trucks (if needed) will be staged such as schools, fire stations, police stations, shelters, libraries, and water stations.

Vancouver Source Water. Determine if well (source) water is safe to drink. If so plan to distribute water from the well. Well water will likely be safe to drink, however there may be reasons to suspect additional supply sabotage.

Providing supply from the source will include laying pipes, hoses, and using portable pumps to provide water at a well location. Manifolds could be assembled from PVC piping and mounted on perimeter station fencing. Manifolds can be constructed of 1 1/2-inch pipe with 1-inch ball valves, and 4 to 6 shutoffs per manifold. Several manifolds could be used per station. Possible water stations to use:

- Water Station 1, Well 2 or 13 (PCE levels below 1.0). Use the turn-around at the top of the hill as a way for the public to get in and get out.
- Water Station 3, any well. Mount a manifold on the Washington Street fence so that public can park along Washington.
- Water Station 8, any well. Mount a manifold on the 112th Ave fence.
- Water Station 9, Well 6 or 7. Mount a manifold on the fence; allow the public to enter and leave across the grass area.

Distribution Assistance. Work with other City Departments to assist with distribution assistance. If City parks/property is being used to distribute, traffic and crowd control will be needed. Determine what other items may be needed for distribution:

- Chlorine bleach to de-contaminate hoses and water containers brought by the public to be filled.
- Couplings, valves, and/or hoses required to transfer water into public containers.
- Chlorine residual test kits if tanker trucks are used.

CRESA Coordination. Coordinate water sources requests from state and/or federal agencies through CRESA. Examples may include using resources or water from the National Guard, or from the Federal Emergency Management Agency.

Public Information. Work with the Public Information Action Lead to supply useful information. Items to include are: the location of water distribution sites; maximum amount of water allowed or restrictions; type of containers to bring if needed; and hours of operation if applicable.

Secure Water Supply

The Department will investigate and/or use the following protocol to obtain/distribute water from an external source.

Clark Public Utilities Intertie Protocol

Follow these steps prior to opening the intertie with Clark Public Utilities:

- Determine if the intertie would be useful to provide additional supply
- Contact Eric Beck at Clark Public Utilities and inform them of the situation.
- With Clark Public Utilities' permission and cooperation, open valves between respective distribution systems.

Protocol for Acquiring and Distributing Water:

1. Identify potential water sources. Options include:
 - Bottlers within the City of Portland (see Table A-7).
 - Contamination free water stations within the City of Vancouver system available for tanker truck filling or water supply distribution to the public.
 - Tanker truck delivery of water from City of Portland, Clark Public Utilities and/or City of Vancouver non-contaminated water stations.
2. Request the following information from each bottle supplier:
 - How much water can the supplier provide?
 - How quickly can they supply the water?
 - Can they transport the water to the distribution sites themselves or do they need assistance with transportation?
 - Do they have additional transportation capacity to move water from some other suppliers who cannot transport?
 - Are the bottles glass or plastic?
 - If bottled, what size will the bottles be?

- How much water do they currently have in their inventory and available for use?
 - Can they supply and/or fill tanker trucks?
3. Review with the bottling distributor the requirements for treating and handling the water according to the requirements of the Washington State Department of Health.
 4. Request the following information for each tanker truck supplier.
 - How many trucks are available?
 - What is the capacity of each truck?
 - Any coupling, valves, hoses required to fill and/or empty the truck?
 - Have the truck containers been previously used for potable water and been protected from contamination?
 5. After contacting the suppliers, determine the best methods of distribution.
 6. If the City plans to use tanker trucks, contact the Department of Health 360-664-0768 or the local health department for approval of the operation. Follow the *Truck Transportation Emergency Water Supply for Public Use Guidelines* below.
 7. If bottle suppliers need transportation help, make arrangements for transportation using public works vehicles, local shipment companies, or other bottling distributors who have additional transportation capacity.
 8. Collect Hauler Water Quality Records (Figure 4-7, below).
 9. Record information in the Emergency Water Supply Truck Transportation Record (Table 4-4).

Figure 4-7. Hauler Water Quality Record	
Hauler Name:	_____
Contact Phone Number:	_____
Date and Time of Truck Departure:	_____
Truck Number:	_____
Chlorine dose at fill point and free residual after filling:	_____
<input type="checkbox"/> Disinfection of container was not performed. Container approved for Health Department for transport of water.	
<input type="checkbox"/> Disinfection of container was completed per Health Department guidelines.	

**Table 4-4.
Emergency Water Supply Truck Transportation Record**

Trucking Firm	Truck Number	Driver Name	Quantity (gal)	Source	Date/Time	Free Cl Residual (mg/L)	Water Quality Record Receipt (yes/no)	Comments

Washington Department of Health Guidelines for the Truck Transportation of Potable Water Supply for Public Use

Introduction

The purpose of these guidelines is to provide basic guidance to those utilities, companies or individuals who find it necessary to employ truck delivery of potable water during an emergency situation. The Department of Health (DOH) does not wish to encourage this method of supplying water. However, in recognition of the fact that it may be the only viable alternative in some emergency situations, it is important that the procedures and considerations set forth herein be strictly observed in order to protect public health.

It is recommended that whenever possible, potable trucking water systems be formulated and managed by an existing municipal utility. A utility of this type is normally staffed with people who are knowledgeable in the field of water treatment and public health considerations. Also, the management structure is already in place for procuring, maintaining and operating the necessary vehicles under closely controlled conditions.

Non-utility companies and individuals may develop and implement trucking programs, which are consistent with these guidelines. Anyone desiring to engage in this activity is advised to contact the appropriate regional office of DOH or local health department at an early date to discuss current requirements and to arrange a meeting to review the proposed operation. Before actually engaging in delivery of water, formal approval from DOH or the local health department must be received. Purchasers of water delivered by truck are advised to ask the supplier for proof that the trucking operations have received the required approval.

I. Transportation

- A. The trucks to be utilized must be of an acceptable type. Trucks such as milk trucks, military style water trucks and other approved by DOH or local health departments may be used. Units to be adopted for use in a water supply role must be scrubbed, flushed, visually inspected, disinfected (see attached sheet), and then tested satisfactory for bacteriological quality.
- B. Tank units that are unsatisfactory, as determined by DOH or the local health department shall not be used.
- C. Trucks previously used for substances other than water will be evaluate on an individual case basis, and their acceptability will depend upon ease of cleaning and the toxicity, as determined by DOH Toxic Substance Office, of the previous substance.
- D. All tanks will be filled and emptied through an air gap.
- E. All tank units must be covered and tightly sealed.

II. Source

- A. The source of supply for tankers utilized for public water supply purposes will be, existing approved public water supply, only after agreement is obtained from DOH or the local health department, and the purveyor.
- B. Purveyors supplying water to trucking operations will notify the operator of the trucking operations of his responsibility to comply with minimum standards.

III. Handling

- A. All hoses to be utilized in the operations will be stored off the ground at all times. They must be flushed thoroughly, disinfected, (see attached sheet) prior to use, and capped at both ends during those periods when they are not in use.
- B. Pumping equipment and plumbing to be utilized must also be flushed and thoroughly disinfected prior to use.
- C. All handling equipment to be utilized must be of an approved type for water supply purposes, and must be new or obtained from a water supply application.
- D. A high degree of care must be exhibited at all times in the undertaking of this operation.
- E. Water to be transported via tanker must have a free chlorine residual of one part per million at the beginning of the haul. This may be achieved by adding one cup of household bleach to each 1000 gallons. It must be added slowly during filling to insure uniform distribution.
- F. Proper record keeping must be performed at all times during the operation. This will include written records of quantity delivered, source utilized, customer delivered to (name and address), date delivered, time delivered, free chlorine residual at point of delivery, free chlorine residual after filling, notes regarding the receiving receptacle and any other significant items of note. The current daily record shall be kept in the vehicle. The records must be retained 6 months for inspection by health agencies upon request.

IV. Receiving Tanks

- A. The customer's receiving tanks (system) must be inspected by the handler. The customer shall be advised that cleaning, disinfection, etc., may be needed if the condition of the tanks are unacceptable. Comments regarding receiving tanks should be incorporated into the standard record keeping procedures.
- B. The customer's receiving tank must be filled through an air gap.

Disinfection of Water Trucks or Trailers and Accessories

To insure that water hauling equipment is adequately disinfected, it is necessary to rinse all rust and sediment from the tank and then fill the tank completely with water containing at least 50 parts per million of chlorine for a period of at least 24 hours. All hoses, pumps and other equipment, which will come in contact with the water must be disinfected in the same manner.

The table below indicates the amount of household bleach (sodium hypochlorite) required to produce 50 parts per million in various quantities of water. To insure adequate mixing, the bleach must be added slowly as the tank is being filled.

After the 24 hours have elapsed, flush the chlorine solution from the tank. It is important that this solution not be discharged directly to a stream because chlorine is toxic to fish. Refill the tank with water and collect a sample for bacteriological testing.

Capacity of Tank	Gallons of Bleach Required*
500	½ gallon
1000	1 gallon
1500	1 ½ gallons
2000	2 gallons
2500	2 ½ gallons
3000	3 gallons
3500	3 ½ gallons
4000	4 gallons
5000	5 gallons

* Assumes household bleach with 0.42 lbs available chlorine/gallon. If a stronger solution is available; the quantities may be reduced proportionately.

Action 8: Check Physical Security

Goal: To send staff to check physical system security and facilitate reporting back to the Response Lead.

Primary Lead: Tim Brace

Secondary Lead: Tony Sampson

Action Summary: The Action Lead will assign staff to check on the physical security of the supply, treatment, and distribution system including pipes and facilities. Each team of staff will have one or more locations to inspect. The staff responsible for inspection will report back with results to the Response Lead or assigned delegate.

Inspection Checklist

The intent of physical inspections is to determine the character and extent of physical damage and/or indication of malevolent acts. The external and internal physical security should be checked by a staff person that has the following:

- Knowledge of the facility
- Access keys/cards
- Ability to “shut down/isolate” system if needed

Table 4-5, on the following page, is the inspection checklist for internal and external security checks.

Reporting Inspection Results

At the completion of the site inspection or when a physical security issue has been detected, the staff will report back to the Action Lead. The Action Lead will be responsible for contacting the Person-in-Charge and/or the appropriate Law Enforcement officials.

Isolating System

Based on inspection results, the individual staff member or Action Lead will determine if a portion of the system should be isolated. The staff member will make this determination if a breach is evident and the staff member can safely shut the system down. The Action Lead will make the determination to isolate if the staff member is uncertain about the decision.

Contact Fire Department

If water supply is shut-off or isolated for any reason, notify the fire department. Identify areas that are without water to the fire department. Assign a crewmember to respond to the fire department’s request to open valves, if needed.

Physical Security Checklist, Page 1 of 2

Note: If at any time during the physical security check an evidence of tampering or break-in is identified or you feel your life is in jeopardy, call 911. Avoid or minimize any impact that may influence a crime investigation.

Table 4-5. Physical Security Checklist				
Check Item	Yes	No	N/A	Notes/Comments
Lighting				
Are all lights operational?				
Have any lights been broken?				
Gate, Window, and Door Locks				
Are all locks and doors operational?				
Is there any evidence of tampering?				
Fencing (walk entire perimeter)				
Are there any cuts or breaks in the fence? Are there any cuts or breaks in barbed wire or razor wire?				
Tool Inventory				
Does it appear that any are missing or been used to tamper with the facility/equipment?				
Entry Alarms				
Are alarms working properly or is there evidence of tampering?				
Pumps, Valves and Pipes				
Are pumping equipment controls operating properly for the existing system condition?				
Are pumps operating according to the readings on the SCADA system and instrument readout?				
Are automatic valves open/closed according to the readings on the valve control panel?				
Are manual valves open or closed according to operational protocol?				
Do the pipes and fittings show evidence of tampering?				

Physical Security Checklist, Page 2 of 2

Note: If at any time during the physical security check an evidence of tampering or break-in is identified or you feel your life is in jeopardy, call 911. Avoid or minimize any impact that may influence a crime investigation.

Item	Yes	No	N/A	Notes/Comments
Reservoir Water Levels				
Do the reservoir levels and the control panels readouts agree? (Be sure there is a means to physically measure the reservoir)				
Chemical Storage and Metering				
Have any chemicals been taken or is there evidence of tampering?				
Are seals/locks on all chemical containers intact?				
Is the chemical metering equipment operating?				
Have chemicals been switched?				
Flow Meters				
Are the readings within their correct ranges and do the meter readouts agree with the operation of the pumps?				
Power/Electronic				
Is the backup power supply and generator working? Test to ensure operation.				
Is the fuel supply adequate?				
Are the phones, modems, and telemetry working?				
Other Conditions				
Are there any unusual odors or oily droplets within the room or which could indicate contamination?				
Are there any unusual colors or froth within the wetwell, which could indicate contamination?				

Action 9: Test Water Quality

Goal: To test system water quality if contamination is suspected.

Primary Lead: Tim Brace

Secondary Lead: Tony Sampson

Action Summary: It is assumed that significant physical damage to the water system will not include an intentional supply contamination as well. The testing and collection of chlorine residual and microbial samples will be completed as part of Action 6: Flush System.

If water supply contamination is suspected, use the response Action for the suspected water quality contamination scenario.

Action 10: Manage Incoming Phone Calls

Goal: To receive and route incoming calls as needed.

Primary Lead: Kimberly Frost

Secondary Lead: Amy Sorenson

Action Summary: Depending on the severity of the emergency and response, the Department/City may or may not receive phone calls from the general public. This Action provides a protocol for receiving and routing phone calls.

Standard Message

The Action Lead responsible for public information will provide information to persons taking calls so that the same information is being provided to all members of the general public.

Screening and Routing

Depending on their availability and the volume of calls received, many Department personnel may be needed to screen calls. If persons need immediate fire, police, or medical attention they will be directed to call 911 and/or their health care provider.

If persons are requesting general information they will be routed to one extension. This person will answer their questions, provide information, or direct them to other sources (e.g., web page). If persons wish to report information or a problem, they will be routed to a different extension or extensions.

Gathering Information

For this response scenario, the calls will likely be received after there has been public notification. Persons may be calling to express a concern that their water is contaminated or to report suspicious activity they may have witnessed. Use the forms below to gather information from the caller, provide information to the Action Lead, and inform the caller to call 911 if needed.

**Figure 4-8.
Water Quality Phone Record Checklist**

Date:	Time:	
Nature of Problem:		
Water Quality: <input type="checkbox"/> Color <input type="checkbox"/> Odor <input type="checkbox"/> Reduced flow or pressure	Illness Symptoms: <input type="checkbox"/> Person ill and seen by medical personnel <input type="checkbox"/> Person ill and not seen by medical personnel <input type="checkbox"/> Other (explain)	
Caller's Name, Address and Phone Number:		
Name of Individual that is ill:		
Call Received By :		
Call Reported to:	Date/Time:	
Action(s) Taken Following Receipt of Call:		

**Figure 4-9.
Suspicious Activity Phone Record**

Types of Suspicious Activity:

- | | |
|--|--|
| <input type="checkbox"/> Breach of security systems (e.g., lock cut, door forced open)

<input type="checkbox"/> Unauthorized personnel on water system property.

<input type="checkbox"/> Presence of personnel at the water system at unusual hours | <input type="checkbox"/> Changes in water quality noticed by customers (e.g., change in color, odor, taste) that were not planned or announced by the water system

<input type="checkbox"/> Other (explain) |
|--|--|

Location of Suspicious Activity:

- Distribution Line
 Water Storage Facilities
 Treatment Plant
 Raw Water Source
 Treatment Chemicals
 Other (explain):

Unauthorized personnel onsite? Yes No

If Yes, Describe these personnel (height, weight, hair color, clothes, facial hair, any distinguishing marks):

Where were these people? Specify location.

What made them suspicious?

What were they doing?

Caller's Name, Address and Number:

Call Received By :

Call Reported to:

Date/Time:

Action(s) Taken Following Receipt of Call:

Action 11: Response Support and Finance Tracking

Goal: To support the response effort and track financial outlay of the Department/City as needed.

Primary Lead: Debbie Pratt-Israel

Secondary Lead: Barbara Basnett

Action Summary: The Action Lead will delegate or otherwise notify individual City staff of their work order or reporting time and location. This Action Lead will work with other Action Leads to identify tasks for each individual and ensure that City staff is not committed to more than one task at a time.

This Action Lead will also be responsible for tracking finances associated with the response in the event that federal or state compensation is/becomes applicable.

Staff and Equipment Assignments and Tracking

This Action Lead will work with the rest of the response Action Leads to assign personnel to individual Tasks. This will be done to ensure that staff is not slated for more than one task at any one time. Table A-11 summarizes, by name or category, staff that would be used for individual responses. This person will ensure that staff is called to report to the staging areas for response. The primary staging area is the Operations Center and the secondary staging area, should the Operations Center be unavailable, is the Marine Park Engineering Building.

While assigning staff to individual tasks, items to consider include:

- Specialized knowledge or training (e.g., manually running valves)
- Vehicle needs
- Access to property (e.g., keys and codes)
- Equipment needs
- Current staff location (e.g., staff already in field)

All staff will be required to check in and out with this Action Lead during the response effort. This Lead will track what staff is in what position in the field and what equipment is being used where.

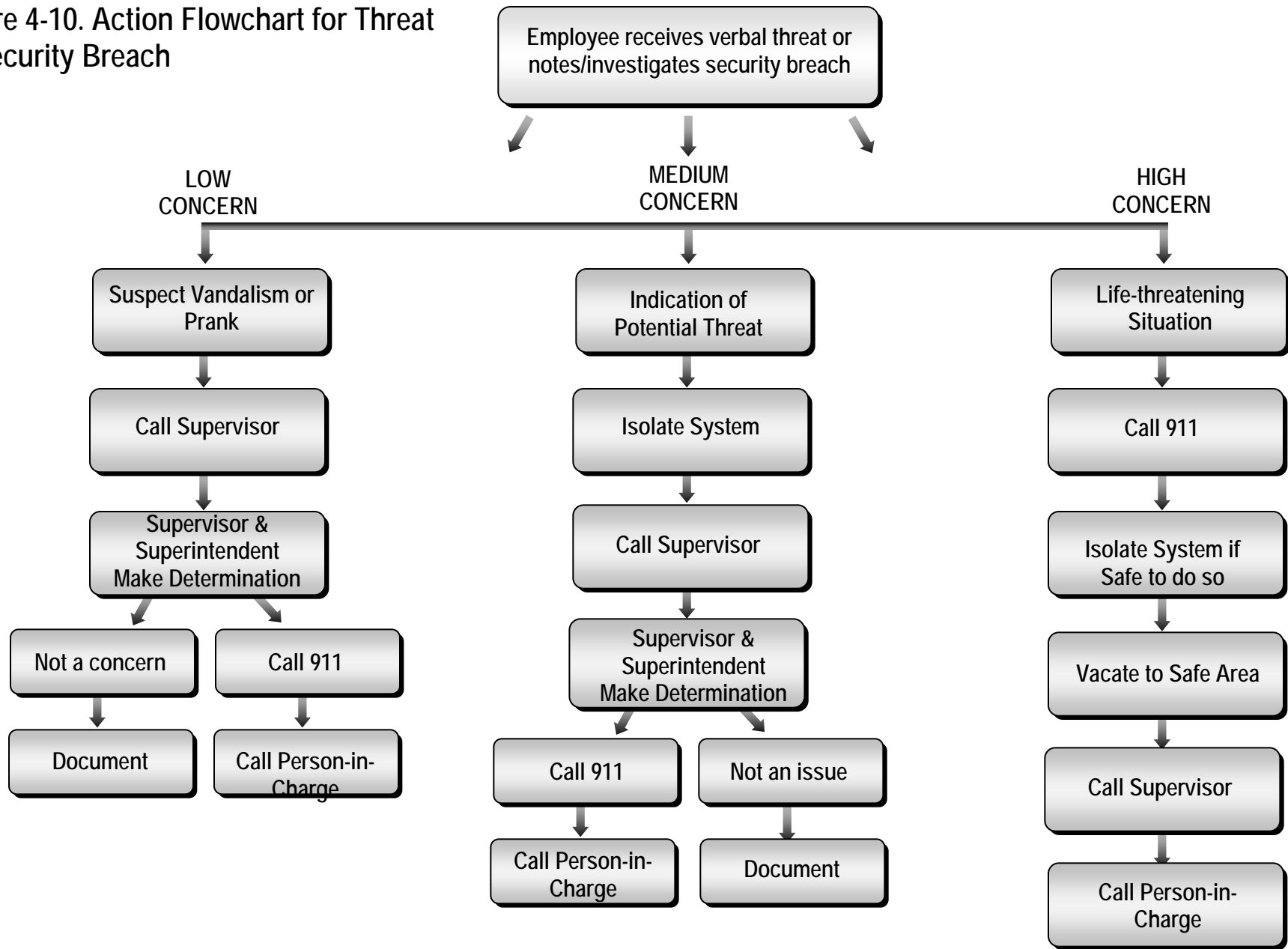
Financial Tracking Requirements

This Action Lead will be responsible for financial tracking during a response effort. A Department/City number will be set up so that time, equipment and expenses are all recorded during the effort. This will assist in fiscal reimbursement should the incident be classified a disaster. This person would also be responsible for procurement of large items during the response effort.

Miscellaneous Support

This Action Lead would also be responsible for assisting with support functions not included here. Support functions may include obtaining water and food for City staff, gathering additional tools, or distributing safety equipment.

Figure 4-10. Action Flowchart for Threat or Security Breach



Action 1: Document and Assess Incident

Goal: To document and assess the level of potential concern.

Primary Lead: City staff first aware of incident or immediate supervisor.

Action Summary: This action includes documenting and assessing the level of potential threat. Once information is gathered that indicates a threat has been carried out, response actions follow that of Known/Suspected Contamination and/or Physical Damage. This Action provides additional detail to assist with this assessment below.

Verbal Threat

If a City staff member receives a threat either over the phone or in person the staff member should do the following:

- Remain calm. Do not engage in an argument with the individual.
- Listen very carefully to the message, the individual's voice, and background noises.
- If possible, ask the caller to repeat the message to enable the listener to possibly identify the caller's voice. It is not unusual for a disgruntled former employee to make a threatening or inappropriate telephone call.
- The form on the following page should be filled out as much as possible.



Instructions

1. Do not hang up. Keep the caller on the line.
2. Write down the phone number if displayed on phone: _____.
3. Ask the questions below.
4. Complete each section below with as much detail as possible.
5. Contact 9-1-1 immediately and report the incident.
6. Notify a supervisor and follow his/her instructions.

Questions to Ask Caller

1. When is the bomb going to explode? <i>1. Or What is the Threat?</i>	
2. Where is it right now? <i>2. Or What Facility is Threatened?</i>	
3. What does it look like? <i>3. Or How will we know credibility of Threat?</i>	
3. What kind of bomb is it? <i>4. Or What did you introduce into the water?</i>	
4. What will cause the bomb to explode?	
5. Did you place the bomb? <i>6. Or Did you carry out this threat?</i>	
6. Why?	
7. What is your name?	
8. What is your address?	

What Did the Caller Say (Include as much detail as possible. Use back of form if necessary)

Description Of Caller's Voice (Circle all that apply)

Calm	Normal	Distinct	Slurred	Nasal	Intoxicated
Crying	Raspy	Deep	Cracking	Laughter	Clearing Throat
Lisp	Accent	Stutter	Disguised	Familiar	Deep Breathing
Angry	Excited	Slow	Rapid	Loud	Other:
If voice is familiar, whom does it sound like?					

Description of Background Noise (Circle all that apply)

Street	Train	Clear	Static	Machines	Traffic
Phone Booth	Motor	Voices	P.A. System	Music	TV/Radio
Animals	Airplanes	Office Equipment	Local	Long Distance	Other:

Language (Circle All That Apply)

Well Spoken	Foul	Irrational	Incoherent	Taped	Message Read
-------------	------	------------	------------	-------	--------------

CALLER

Race:	Age:	Gender (circle one): Male Female Unknown
-------	------	--

Employee Receiving Call

Name:	Position:	Dept:	
Phone:	Date:	Time:	Number called:

Security Breach

A security breach may be detected by City staff via alarms, physical evidence (e.g., cut fence or lock) or through an external source (e.g., law enforcement). It will be important to assess the reason for this breach. Reasons could range from vandalism, to theft, or system tampering. This action will rely on the person first aware of the situation to make the decision on how to proceed.

Alarms. If a facility alarm is sounded, staff should immediately investigate. If criminal activity is strongly suspected or confirmed, call 911. Staff should also contact field crews to determine if Water Division personnel may have inadvertently triggered the alarm.

Physical Breach. The Water Division staff should note the physical breach and call the Supervisor and/or 911 if the situation warrants. Table 4-6 on the following page is the inspection checklist for internal and external security checks. At the completion of the site inspection or when a physical security issue has been detected, the staff shall report back to the Supervisor.

In addition, presence of chemicals should be noted. Indications of a chemical or biological attack include:

- Droplets of oily film on surfaces
- Dead or dying animals in the area
- Unusual odors
- Vapor clouds

In the case of an intentional water attack, these indicators might only be found in a small area and could be as a result of an inadvertent leak. Personnel safety is important! Staff should move “upwind” and vacate area while waiting for emergency help to arrive.

Physical Security Checklist, Page 1 of 2

Note: If at any time during the physical security check an evidence of tampering or break-in is identified or you feel your life is in jeopardy, call 911. Avoid or minimize any impact that may influence a crime investigation.

Table 4-6. Physical Security Checklist				
Check Item	Yes	No	N/A	Notes/Comments
Lighting				
Are all lights operational?				
Have any lights been broken?				
Gate, Window, and Door Locks				
Are all locks and doors operational?				
Is there any evidence of tampering?				
Fencing (walk entire perimeter)				
Are there any cuts or breaks in the fence? Are there any cuts or breaks in barbed wire or razor wire?				
Tool Inventory				
Does it appear that any are missing or been used to tamper with the facility/equipment?				
Entry Alarms				
Are alarms working properly or is there evidence of tampering?				
Pumps, Valves and Pipes				
Are pumping equipment controls operating properly for the existing system condition?				
Are pumps operating according to the readings on the SCADA system and instrument readout?				
Are automatic valves open/closed according to the readings on the valve control panel?				
Are manual valves open or closed according to operational protocol?				
Do the pipes and fittings show evidence of tampering?				

Physical Security Checklist, Page 2 of 2

Note: If at any time during the physical security check an evidence of tampering or break-in is identified or you feel your life is in jeopardy, call 911. Avoid or minimize any impact that may influence a crime investigation.

Item	Yes	No	N/A	Notes/Comments
Reservoir Water Levels				
Do the reservoir levels and the control panels readouts agree? (Be sure there is a means to physically measure the reservoir)				
Chemical Storage and Metering				
Have any chemicals been taken or is there evidence of tampering?				
Are seals/locks on all chemical containers intact?				
Is the chemical metering equipment operating?				
Have chemicals been switched?				
Flow Meters				
Are the readings within their correct ranges and do the meter readouts agree with the operation of the pumps?				
Power/Electronic				
Is the backup power supply and generator working? Test to ensure operation.				
Is the fuel supply adequate?				
Are the phones, modems, and telemetry working?				
Other Conditions				
Are there any unusual odors or oily droplets within the room or which could indicate contamination?				
Are there any unusual colors or froth within the wetwell, which could indicate contamination?				

Action 2: Inform City's Person(s)-in-Charge

Goal: To alert the City's Person(s)-in-Charge that there has been a threat against the water system.

Primary Lead: Initial point of contact for the Department, Supervisor, or Superintendent.

Action Summary: The first action is to notify the Person(s)-in-Charge. These person(s) in order of contact hierarchy are listed in Table A-1 at the end of this document.

The person selected for the overall response will be the person ultimately responsible for selecting a course of action (i.e., the ultimate decision maker). The Person(s)-in-Charge will then determine the best course of action for Department Response.

Action 3. Determine Response Action

Goal: To determine the proactive or response actions that should be taken.

Primary Lead: Brian Carlson

Secondary Lead: Terry McClure

Action Summary: The intent of this Action is to determine if a full response action is needed or if steps can be taken to minimize the chance of the threat occurring. This will depend on whether the threat has been carried out or not. The Action Lead will work with external agencies to determine and facilitate the course of action.

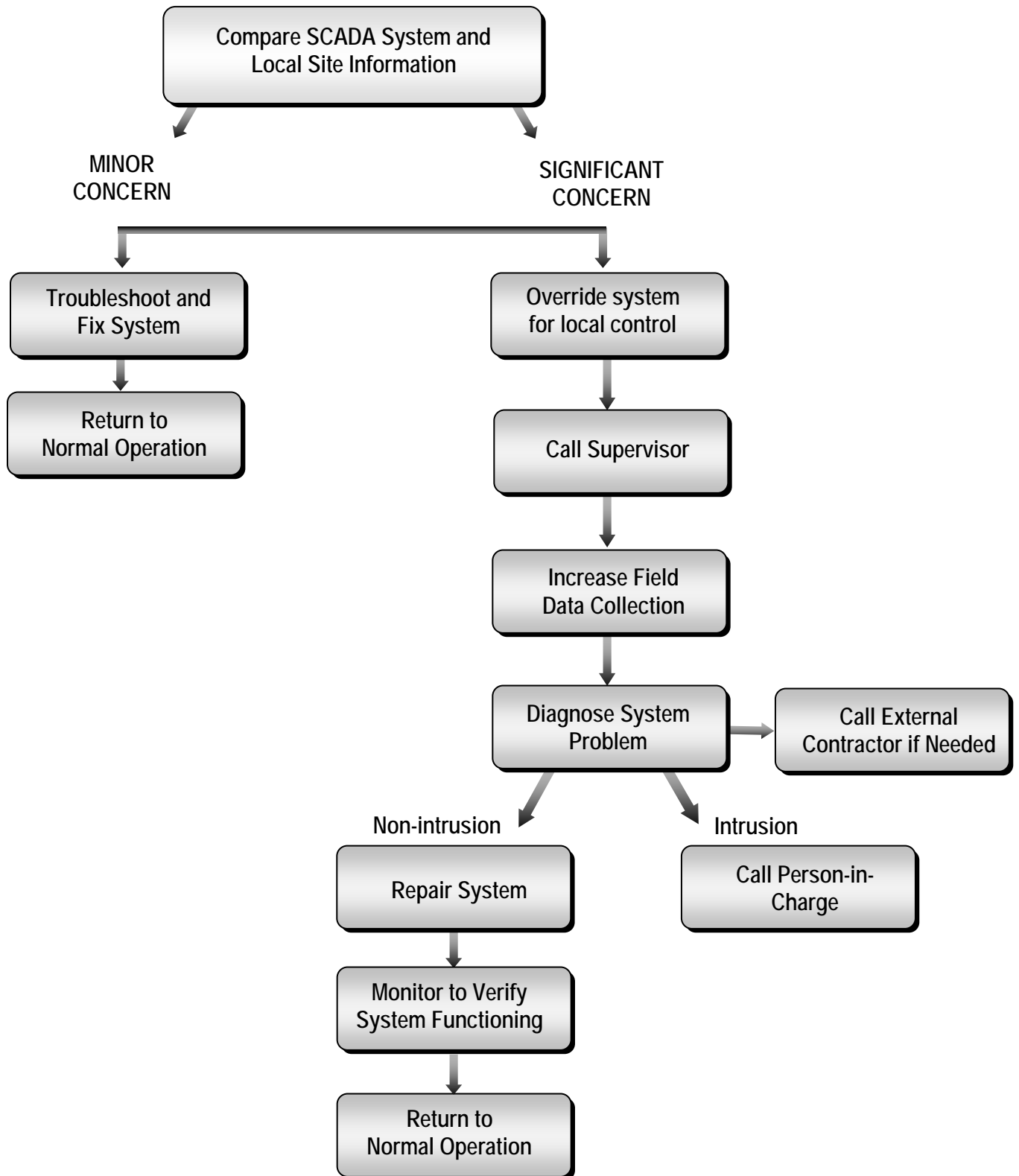
Threat Carried Out

If it is suspected that the threat has already been carried out, the response will follow the previously identified "Suspected or Known Contamination" or "Physical Damage" Action items. This would be the case if a "high concern" security breach were found, or the City received a credible report that someone had contaminated the water supply.

Threat Not Yet Carried Out

If the Department/City receives a threat for a specified or unspecified time in the future, the response will focus on increasing security (e.g., police patrols) and water quality sampling procedures. The Action Lead will coordinate with agencies and law enforcement to determine the appropriate procedures for City response and notifications. Agency contacts are listed in Table A-3.

Figure 4-11. SCADA System Not Functioning



Action 1: Compare SCADA System and Onsite Readings

Goal: To identify the system problem and determine the degree of concern.

Primary Lead: City staff first aware of incident and Tim Brace.

Secondary Lead: Richard Hoffman

Action Summary: This action includes identification of the SCADA system problem and determining the degree of concern. This would be accomplished through site investigation, manual reading of controls, and checking data backlogs.

If technological intrusion were to occur it could include:

- 1) control of facilities and/or
- 2) masking of monitoring information or alarms.
- 3) loss of remote control.

Intrusion resulting in only control of facilities is expected to be readily observed through monitoring information reported and alarmed through the SCADA system. For example, if pump operation is halted, low tank levels/pressures would be observed in the system.

Intrusion resulting in only masking of monitoring information is not expected to pose as serious of a threat since it is information-oriented and can be identified through comparison of local and SCADA readings. The more challenging threat is intrusion that combines malicious control of facilities and masking of monitoring information. In this scenario, it is possible that the system could be controlled maliciously with no apparent excursions obvious in viewing SCADA information. Identification of intrusion under this coordinated scenario would likely occur during the daily site visits or by customer complaints.

A variety of chemicals are added during water treatment and conditioning. The feed rates of these are generally flow-paced based on local instrumentation and are therefore not susceptible to control through technological intrusion.

Check Field Against SCADA Readouts

Have Operations personnel familiar with the water stations visit the site. Check items listed in Table 4-7 and report back to the Action Lead. Visit the water stations that are associated with the suspect readings. Portable water quality test kits will be brought and used to verify the readings.

Extra water quality test kits may be available from Fire and Rescue.

Table 4-7. SCADA Control Checklist				
Item	Yes	No	N/A	Comments
What is the pump status?				
What are the reservoir levels?				
Flow rates				
Are chemical feed rates appropriate for flow?				
Have chemicals been switched?				
Water quality values according to the field test, do they match the panel output?				
Are SCADA system alarms functioning?				

Action 2: Diagnose and Repair the Problem

Goal: To diagnose and initiate repairs to the system.

Primary Lead: Tim Brace

Secondary Lead: Russ Stacks

Action Summary: This action will diagnose and repair problems associated with the SCADA system. Problems could be fixed internally by City staff or could require support from the City's SCADA contractor, S&B Inc.

The primary lead will need to determine whether the identified SCADA problem is a minor concern or a major concern that could impact public health or the ability to supply water at adequate quantities and pressures.

Minor Concern

If the SCADA issue is determined to be a minor concern (e.g. false alarm), then City staff will be responsible for diagnosing and fixing the problem. The SCADA system will be left functioning while this diagnosis and repair is made.

Major Concern

If the issue is considered major in that public health or supply may be compromised, the following steps will be taken.

Manual Control

The system would be operated on local control until technological intrusion issues are resolved. In the event of malfunction or error, manual controls are provided on the Operations Center's control room telemetry panels. Appropriate water station facilities are also equipped with remote PLCs to provide automated local control in the event of telemetry or communications failure. Therefore, if technological intrusion is suspected or verified, City staff can readily override the SCADA system and operate each facility locally.

Field Testing

Each facility contains the necessary control and monitoring readouts (such as flows, pressures, and water quality information), to operate without reliance on the central SCADA system. Water quality information can also be verified from water samples using field instruments, reducing reliance on instrumentation.

Repair Assistance

Randy Stead at S&B will be contacted (425-644-1700) to assist in diagnosis and repair of the SCADA system, if needed. The City has a service contract with S&B to oversee and maintain the system programs. S&B would diagnose the system either through a dial-up modem connection or through a service call.

Intrusion Detection

In addition to diagnosing the problem, the diagnosis would also determine if technological intrusion is responsible for the malfunction. If technological intrusion is not suspected, the SCADA system would be repaired and returned to normal operation. If intrusion were suspected, the person-in-charge would be notified. Data relevant to a criminal investigation should be preserved.

Action 3: Inform City Person(s)-in-Charge

Goal: To alert the City Person(s)-in-Charge that SCADA malfunctions exist.

Primary Lead: Supervisor or Superintendent.

Action Summary: If there is a concern about the SCADA system, the Person(s)-in-charge should be notified. These persons, in order of contact hierarchy, are listed in Tables A-1 and A-2 at the end of this document. The person selected for the overall response will be the person ultimately responsible for selecting a course of action for the response.

Action 4: Contact External Agencies/Determine Course of Action

Goal: To get assistance from external agencies and determine if additional system response by the Department (e.g., public notification) is warranted.

Primary Lead: Brian Carlson

Secondary Lead: Terry McClure

Action Summary: This action includes determining if additional measures should be undertaken by the Department if intrusion is detected and contact external law enforcement agencies as needed.

Contact External Law Enforcement Agencies

If technological intrusion is suspected, external agencies should be contacted for assistance or warning as shown in Table A-3.

Determine Course of Action

The person -in-charge of the response will determine what further action is warranted. This further action could include public notification or additional water quality testing. If the intrusion results in chemical contamination or loss of ability to supply water, actions under Suspect/Known Contamination or Physical Damage would be initiated.

5.0 Emergency Response Plan - Natural Hazards

In 1996, the City completed a Water System Comprehensive Plan, which included an Operations Plan. As part of the operations plan, an Emergency Response Plan was developed for natural hazards. This plan was developed in accordance with WAC 246-290-440 (2). According to this WAC, the emergency response plan included:

- General procedures for routine or major emergencies within the water system
- A vulnerability analysis and a contingency plan for facilities that may become inoperable in a major emergency.

The City completed both a vulnerability analysis and general procedures according to AWWA's *Emergency Planning for Water Utility Management*. The general response procedures have been incorporated into this document in an effort to compile both types of response. The details of the vulnerability analysis and recommended measures are not included in this document.

5.1 Emergency Procedures

Although it is not possible to anticipate all potential disasters affecting the City's water system, formulating procedures to manage and remedy several common emergencies is appropriate. Figures 5-1 through 5-4 summarize the City's procedures for responding to various emergency situations. The actions recommended to mitigate the effects of an earthquake and power outage are not reflected in these figures. The general procedure by which Department personnel are called out in a water system emergency is illustrated in Figure 5-5.

Power Outage Emergency Call-Out Procedure

Actions the Department will take in the event of a complete area wide power failure is presented in Figure 5-2. Power failures can occur as a result of a number of events such as severe weather, transportation accidents, vandalism, sabotage, earthquake, and regional power system failure. Therefore, the City considers that there is a high probability that a major power outage may occur within the service area.

Earthquake Response Procedure

A major earthquake within the Vancouver area would likely surpass the capability of the Department to recover immediately. However, Figure 5-2 details some steps the Department would take in order to provide limited emergency service. Coordination with CRESA and neighboring water utilities is essential.

Chemical/Physical Characteristics Detection Procedures

A procedure to comply with DOH requirements in the event of a volatile organic chemical (VOC) or synthetic organic chemical (SOC) release, or inorganic chemical/physical release detection is presented in Figure 5-3.

Bacteriological Presence Detection Procedure

WAC 246-290-320 requires water utilities to follow specific procedures in the event coliform bacteria are detected in the water system. These procedures are outlined in Figure 5-4. In the event the City's chlorination facilities are inoperable, as in the case of a power failure or earthquake, batch chlorination of the reservoirs may be necessary to protect the health of the water users. Table 5-1 lists typical dosages of HTH and liquid chlorine necessary to raise the concentration of chlorine by 1.0 mg/l at the City's nine reservoirs, assuming that the reservoirs are full.

Reservoir	Volume (MG)	Calcium Hypochlorite (HTH) Needed to Raise the Chlorine Residual by 1.0 mg/l (lbs)¹	Sodium Hypochlorite (5.25%) Needed to Raise the Chlorine Residual by 1.0 mg/l (gal)²
Water Station No. 1 Reinforced Concrete	1	16.7	17.3
Water Station No. 1 Reinforced Concrete	4	66.8	69.2
Water Station No. 1 Elevated Steel	0.25	4.2	4.3
Water Station No. 3 Reinforced Concrete	1.25	20.9	21.6
Water Station No. 3 Elevated Steel	0.25	4.2	4
Water Station No. 5 Reinforced Concrete	8	133.6	138.4
Water Station No. 5 Elevated Steel	0.75		
Water Station No. 6 Elevated Steel	1	16.7	17.3
Water Station No. 7 Elevated Steel	1	16.7	17.3
Water Station No. 9 Post-tensioned Concrete	7	116.9	121.1
Notes: 1. The calculation was performed assuming that HT is 65% calcium hypochlorite and that the available chlorine in HTH is 50% the weight of HTH 2. A specific gravity of 1.1 for 5.25% sodium hypochlorite was used in the calculation			

5.2 Communications

City Staff Notification

Figure 5-5 is the emergency condition call-out list. This call-out procedure is enacted during after hour emergencies. Tables A-1 and A-2 lists home and emergency phone numbers of key personnel responsible for directing response actions during a water system emergency.

An emergency operation plan requires the cooperation of other agencies and utilities. Water system functions depend on the electrical utility, transportation agencies, and the communications network. Lists of the agencies that may be of assistance to the City in an emergency are included in Table A-3.

Priority Customers

There are industrial, commercial, and individual customers who require an uninterrupted supply of water service for health and safety reasons. Adequate supplies of water should be provided for public health needs, commercial and business uses, and fire suppression systems. Table A-4 presents a list of customers who must be notified in advance of a planned water outage. These customers must receive priority service in the event of an unplanned disruption of water service. The City maintains a current list of home dialysis patients.

There may be other customers who require priority water service. It is suggested that the City survey its water customers and find others who must receive priority service. A notice can be posted in the annual Water Quality Report.

Figure 5-1. Power Outage Emergency Action Procedure

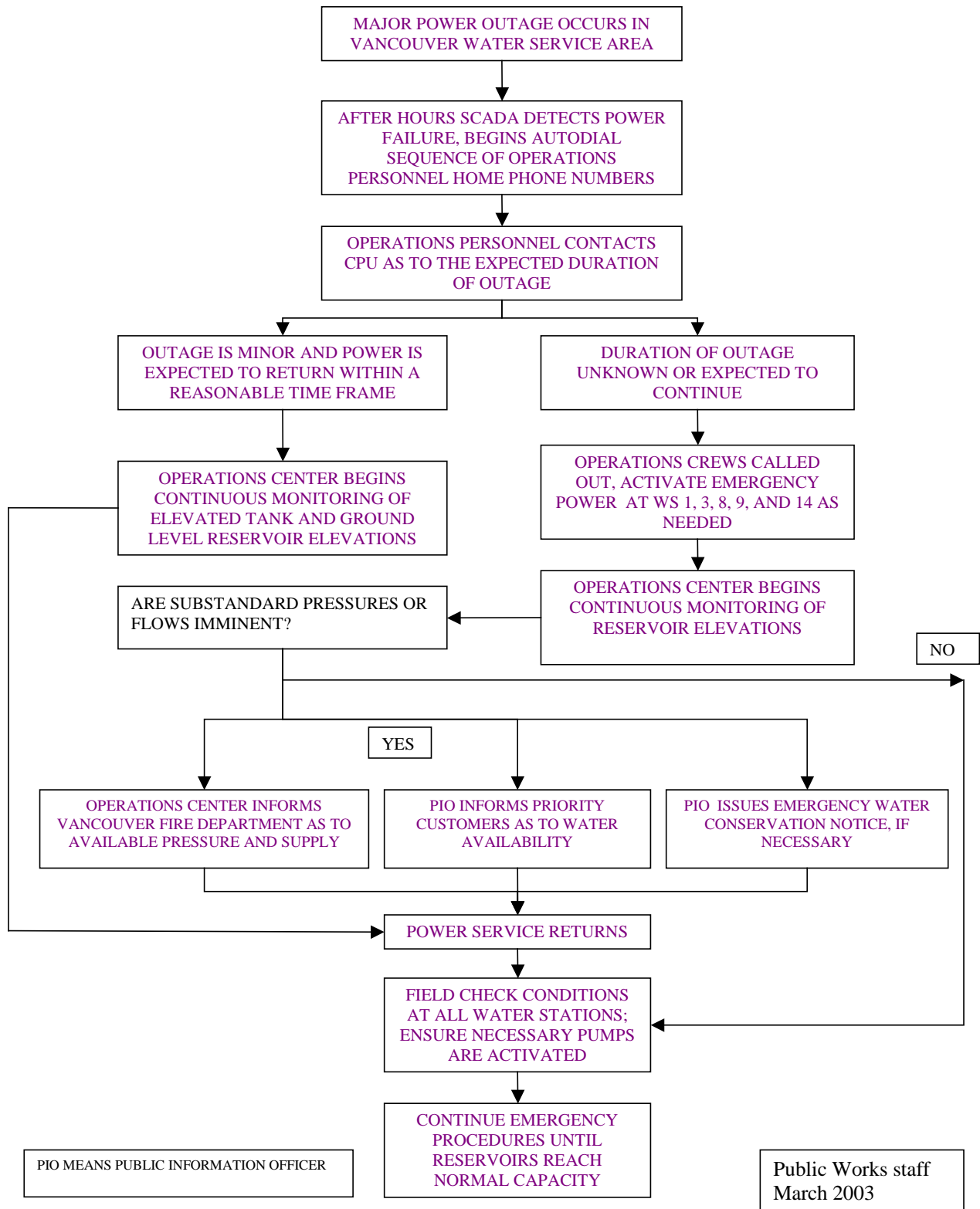


Figure 5-2. Earthquake Emergency Actions

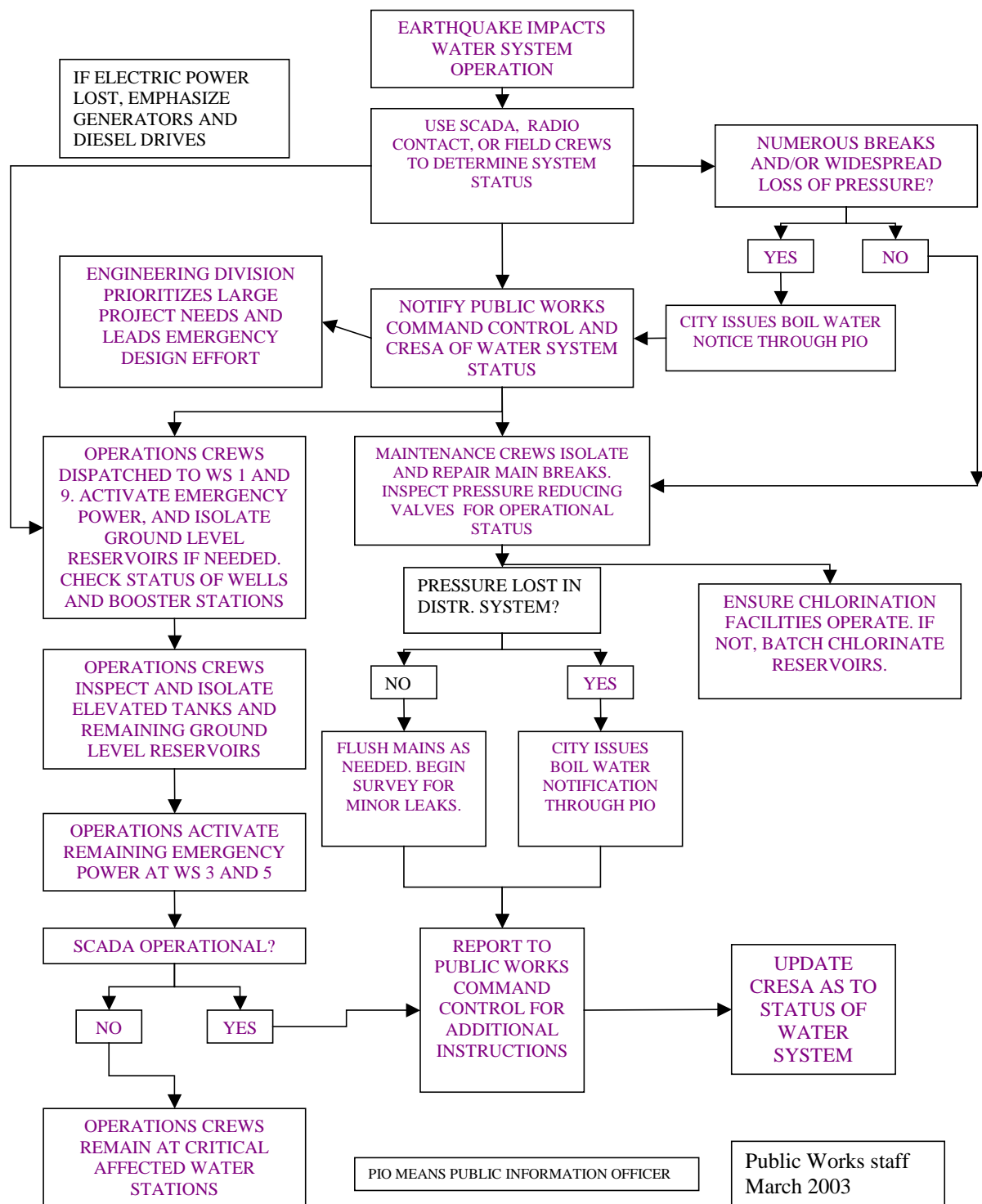


Figure 5-3. Chemical/Physical Characteristic Detection Emergency Actions

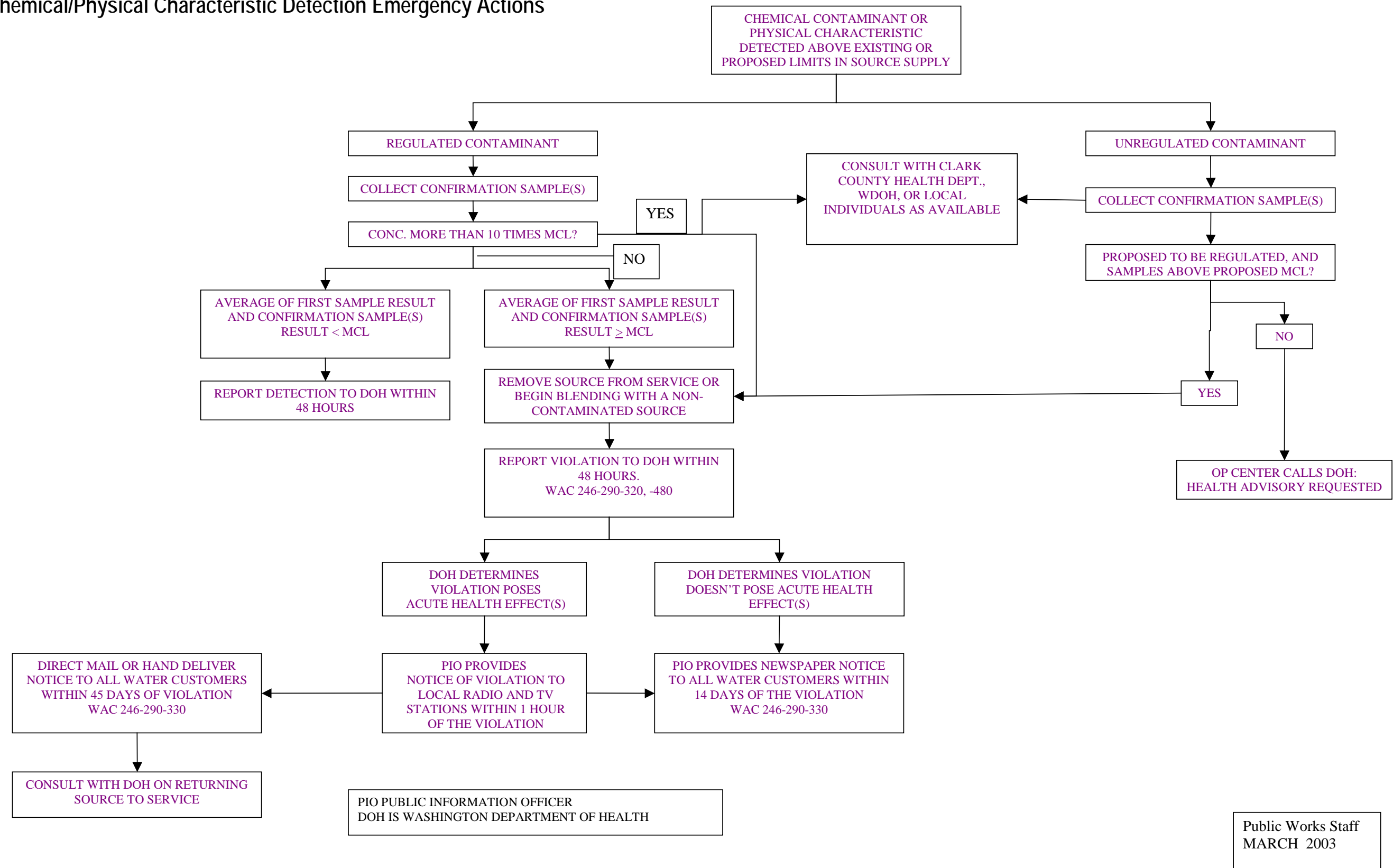
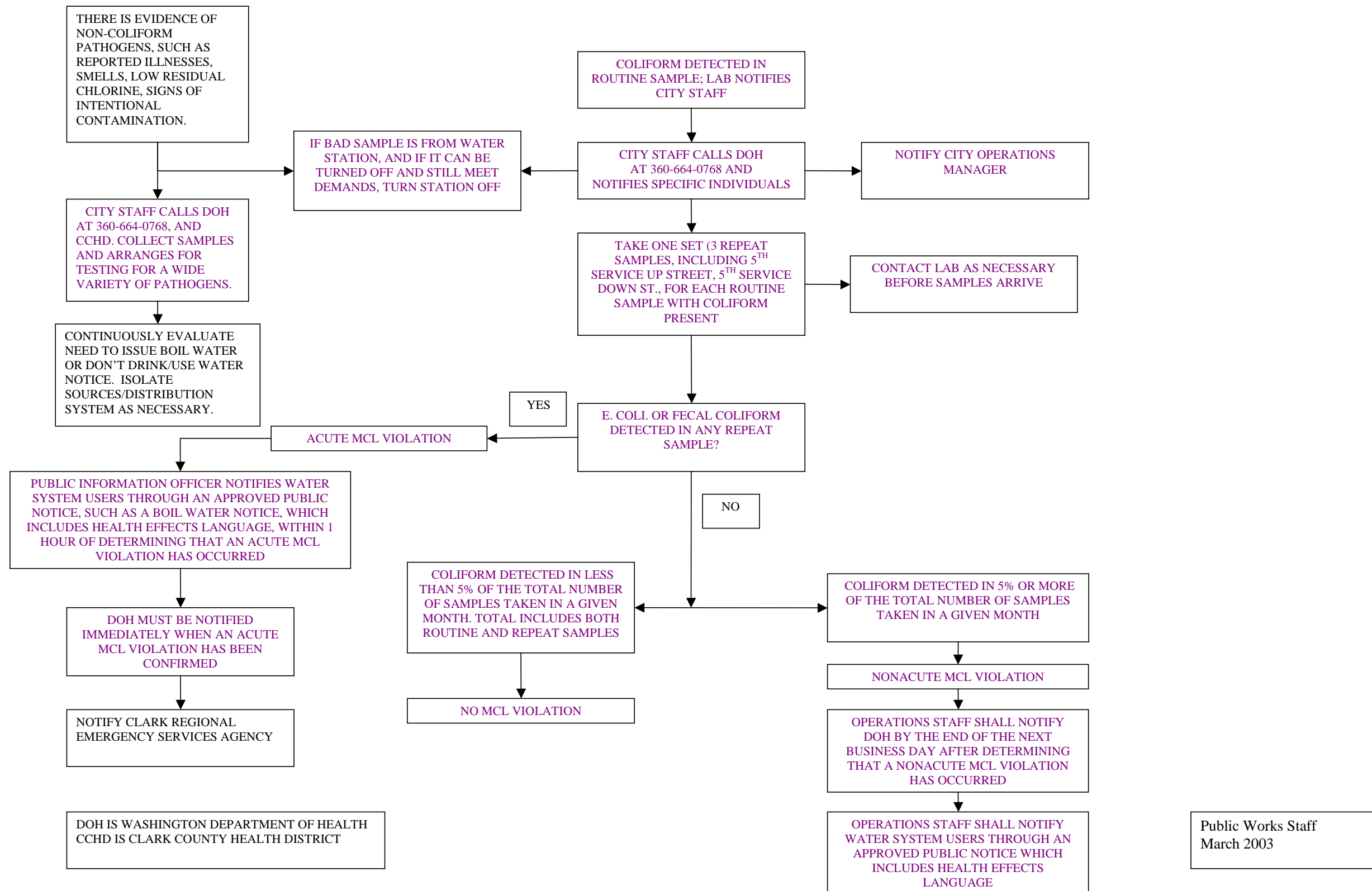
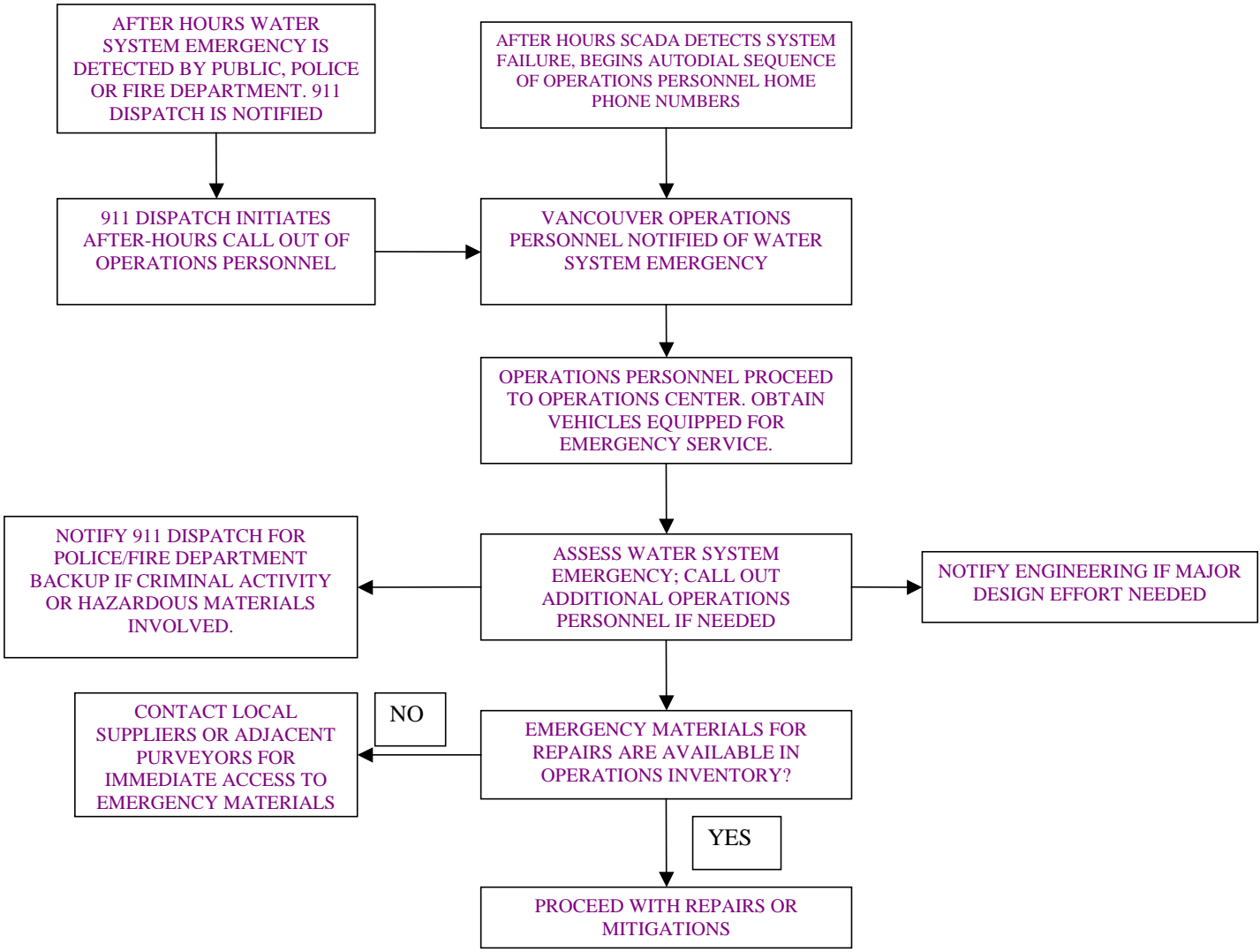


Figure 5-4: Bacteriological/Pathogen Detection Emergency Actions



Public Works Staff
March 2003

Figure 5-5: After-Hours Emergency Actions



6.0 Acronyms and Abbreviations

CCHD	Clark County Health Department
cfu	colony forming units
City	City of Vancouver, WA
CPU	Clark Public Utilities
CRESA	Clark Regional Emergency Services Agency
CVTV	Clark/Vancouver Television
Department	City of Vancouver Public Works Department
DOH	Washington State Department of Health
EAS	Emergency Alert System
EMS	Emergency Medical Services
ERP	emergency response plan
EPA	U.S. Environmental Protection Agency
EPP	Emergency Preparedness Program
FBI	Federal Bureau of Investigation
IOC	inorganic chemicals
mg/L	milligrams per liter
PIO	public information officer
PL	Public Law
PRV	pressure reducing valves
SCADA	System Control and Data Acquisition
SDWA	Safe Drinking Water Act
SOC	synthetic organic chemicals
SOP	Standard Operating Procedure
VA	vulnerability assessment
VOC	volatile organic chemicals
WAC	Washington Administrative Code

7.0 References and Resources

Center for Disease Control and Preparedness

<http://www.bt.cdc.gov>

Center for Infectious Disease Research and Policy

<http://www.cidrap.umn.edu/cidrap/content/bt/bioprep/>

Center for Research on Occupational and Environmental Toxicology

<http://www.ohsu.edu/croet/topics/bioterrorism.html>

Delaware Health and Social Services Division of Public Health

<http://www.state.de.us/dhss/dph/bio/links.html>

Infectious Disease Society of America

http://www.idsociety.org/PA/PS&P/BT_Preparedness_10-2-01.htm

Oregon Department of Human Services

<http://www.dhs.state.or.us/publichealth/bioterrorism/index.cfm>

U.S. Department of Health and Human Services, Health Resources and Services Administration <http://www.hrsa.gov/bioterrorism.htm>

U.S. EPA

<http://www.epa.gov/safewater/security/>

U.S. Food and Drug Administration

<http://www.fda.gov/oc/opacom/hottopics/bioterrorism.html>

Washington State Department of Health

<http://www.doh.wa.gov/ehp/dw/>

Attachment A - Contact Names and Numbers

Table A-1. Person(s)-in-Charge Contact Numbers				
Contact	Name	Position	Phone Numbers (area code 360 unless noted)	
			Home Phone	Other Phone
Primary	Brian Carlson	Public Works Director	694-1487	C: 607-0942 P: 690-1696
Secondary	Terry McClure	Operations Manager	694-5224	C: 518-3342
Tertiary	Richard Hoffman	Operations Superintendent	518-7823	C: 907-3156
List Updated: March 31, 2003 List Updated: January 25, 2011				

Table A-2. City Staff Responsible for First Action Response				
Name	Position/ Contact	Phone Numbers (area code 360 unless otherwise noted)		
		Home	Pager	Cell
Operations Superintendents				
Richard Hoffman	Water Production, Distribution & Quality	518-7823		907-3156
Mitch Moore	Wastewater/Drainage Maintenance	687-8084		772-4956
Richard Hoffman	Water Distribution	518-7823		907-3156
Tim Buck	Streets, Traffic & Grounds Maintenance	225-5671		772-4961
Barbara Basnett	Equipment Services	687-8857		518-0052
Amy Sorenson	Utilities Billing	687-5286		518-1849
Operations Supervisors				
Tim Brace	Water Quality/Production	574-1137		607-1426
Gregg Stockton	Water Distribution	571-9099		518-1435
Mike Permin	Maintenance	686-8484		608-8519
Mark Eccleston	Wastewater Collection	225-7906	759-8564	772-4957
Gerald Johnson	Wastewater Collection	573-5574		772-4969
Chris Marler	Stormwater Maintenance	666-6918		772-4960
Bob Eichhorst		693-3242		921-2732
Dave Wannamaker	Grounds Maintenance	696-1456	759-4483	606-0247
Ron Fredin	Street and Traffic Maintenance	513-2710		518-2303
Dale Netherda		666-8274		921-1381
Chris Christofferson	Signals/Streetlights			518-3236
Water Production Personnel				
Allen Trenda		687-5150		
Bruce Sloniker		574-1718		
Daniel Tiliano		503-353-6713		
Rob Weber		921-4793		
Toby Scott		673-3089		
Doug Cope		604-0135		
Jeff Coad		254-0673		
Russ Stacks		835-3805		
Rick Aragon		256-6267		
Water Quality Personnel				
Tony Sampson		687-9432		
Roger Durgin		834-5621		
Kristi Tompkins		503-991-6042		
Engineering and Support Staff				
Tyler Clary	Water Engineer	546-0652		
Michelle Henry	Civil Engineer	487-7155		281-8195
Debbie Pratt - Israel	Analyst	750-1352		721-4073
Kimberly Frost	Front Office	977-4181		977-4181

List Updated: December, 2011

Table A-3. External Agency Contacts			
Agency	Contact Name	Phone Numbers	
		Work	After-Hours
Clark Regional Emergency Services Agency (CRESA)	Ask for duty officer	Dispatch 696-4461	911 or 696-4461
Federal Bureau of Investigation (FBI)	Mike Rollins	360-695-5661	206-622-0460
Washington State Department of Health (DOH) SW Regional Office	Bonnie Waybright Regional Manager	360-236-3025 Main Line: 360-236-3030	877-481-4901
	Regina Grimm, District Engineer	Direct: 360-236-3035	877-481-4901
Clark County Health Department (CCHD) in order	John Wiseman, Director	397-8404	
	Dr. Alan Melnick	397-8412	
	Marni Storey, Deputy Dir.	397-8434	
	Jeff Harbison, Admin	397-8475	
	Julie Grimm, Admin Asst.	397-8477	
PeaceHealth Southwest Medical Center	Emergency Room Administration	514-2064	514-2064
List Updated: December, 2011			

Table A-4.**Priority Water Users Contact Names**

Facility	Address	Contact Name	Numbers (area code 360 unless specified)
PeaceHealth Southwest Medical Center	400 NE Mother Joseph Place	Ron Hulfe	Day: 514-2219 Night: 256-2000 (op.)
Southwest Medical Center-Memorial Campus	3400 Main Street. 98664	Mike Waters-Director of Facilities Management	Day: 696-5020 Night: 256-2000 (op.)
Kindred Transitional Care and Rehab Center	400 E. 33 rd Street. 98663	Devin Blair-Facilities	Day: 696-2561
Veterans Medical Center	1601 East 4 th Plain Blvd.	Richard Marange	Day:
		Dave Smith	Night: 503-220-8262 X33488
Cascade Park Care Center	801 SE Park Crest Avenue	Richard Seamon	Day: 253-2879 Night: 253-2879 (pager)
Evergreen School District	All School Facilities	Sue Steinbrenner	Day: 604-4077 Emerg. Pager: 360-418-5528
		Dan Modrall	Cell Phone: 360-518-2827 Emerg. Pager: 360-418-5528
Vancouver School District	All School Facilities	Jerry Turner	Day 1: 313-4779 Day 2: 313-4775 Nights: 892-9416
Frito Lay, Inc.	4808 NW Fruit Valley Rd.		360-737-3049
Vancouver Housing Authority	All Properties	Roman Jacobi	Cell Phone: 360-852-1391 Day: 694-4506 Night: 607-1628
Clark County Corrections	All Facilities	Darrel Stump-Facility Manger On call cell phone: 360-773-7880	Day: 360-397-4530 Night: 835-8617 or Proj. Coord. Dan Spencer 687-0338
SEH America	4111 NE 112 th Avenue	Ask for: Secretary of Facility	360-883-7005
BOC Gases	4715 NE 78 th Street	National Operations	Day: 800-232-4726
Precision Wood Products	Now Oregon based office none in Vancouver. (12/1/05)	Marley Petersen	503-285-0390
		Susan Petersen	503-285-0390
		Marley Petersen Jr.	503-285-0390
Fresenius Medical Care (Fort Vancouver Kidney Center) (Contact in order listed)	505 NE 87 th Avenue 312 SE Stone Mill Dr. Ste 150	Byron Roshto	Office: 503-944-2601 Cell: 503-706-3491
		Mike Reinland-Central Tech Prog. Mgr.	Direct: 509-522-5633 Cell Phone: 509-956-8738
		Stan Bower-Director of Operations (Stone Mill Dr.)	Direct: 360-213-0343 Cell Phone: 360-921-2394
Discovery Nursing & Rehab	5220 NE Hazel Dell Ave.	Brian Rerick	Day/Night: 360-693-1474 ext. 1705
List Updated: December, 2011			

Table A-5. Media Contact Numbers		
Newspapers	Phone Number	Fax Numbers
Oregonian Newspaper	503-221-8100	360-896-5716
Columbian Newspaper	360-699-6006	360-699-6033 Newsroom
Television		
KATU	503-231-4222	503-231-4263
KGW	503-226-5111	503-226-5059
KOIN	503-464-0600	503-464-0806
KPTV	503-906-1249	503-548-6920
FOX 49	503-548-4949	503-548-6920
KPXG 22 PAX	503-222-2221	
Radio		
KKCW/KEX	503-225-1190	503-802-1639
KUPL	503-223-0300	503-223-6542
KINK	503-228-5465	503-733-1190
KWJJ/ WOLF	503-223-1441	503-226-9653
KXL	503-517-6000	news@kxl.com
List Updated: December, 2011		

Table A-6. Local Laboratory Information				
Lab/Day Phone	Address	Contact Name	Emergency Nos.	Testing Ability*
Addy Lab 360-750-0055	2517 E. Evergreen Blvd Vancouver, WA	Tom Newman	H: 360-263-5184 C: 360-771-7345	Standard and Bacteriological
		Carl Addy	H: 360-699-3066 C: 360-771-5789	
Alexin Analytical Labs 503-639-9311	13035 SW Pacific Hwy Tigard, OR	John Scholz	H: 503-537-1939 C: 503-860-9235	Standard, Bacteriological, IOC, VOC
* Tests that can be done "in-house"				
List Updated: December, 2011				

Table A-4. List of Potential Sources of Bottled Water		
Name	Address	Number
Columbia Distributing Co	6840 N Cutter Circle Portland, OR	(503) 289-9600
H2Oregon Premium Bottled Water	Portland, OR	(800) 829-9287
Maletis Beverage	7000 N Cutter Cir Portland, OR	(503) 735-2300
Columbia Distribution Co.	3601 NW Yeon Portland, OR	503) 274-9990
Pacific Pure Northwest Bottled Water		(800) 755-3248
Portland Brewing Company	2730 NW 31 st Avenue Portland OR	(503) 228-8265
Widmer Brothers Brewing Company	929 N Russell Portland OR	(503) 281-2437
List Updated: December, 2011		

Table A-8. List of Potential Tanker Trucks not Requiring Disinfection		
Name	Address	Number
Sunshine Dairy Foods Inc	801 Northeast 21st Avenue Portland, OR	(503)-234-7526
Sunshine Dairy Foods	19217 NE San Rafael St. Portland, OR 97230	(503)-669-2431
Dairy Fresh Farms	Portland, OR 97222	(503) 353-9339
List Updated: December, 2011		

Table A-9. Potential Tanker Trucks Requiring Disinfection			
Name and Contact	Address	24-hour Contact Number	Number of Trucks/Volume
Water Truck Services Bob Jonas	Tualatin OR	H: 503-635-4804 C: 503-204-5375	2 Trucks/ 4,000 gallon
Food Express, Inc. marc	Vancouver, WA	360-694-1596	8 Trucks/ 11,000 gallon 6 Trucks / 7,000 gallon
LTI, Inc Don Guitherie	2720 SE 6 th Portland, OR	(360) 256-2577	35 Trucks/ 4,500 gallon
List Updated: December, 2011			

Table A-10. Contacts for Equipment and Supplies			
Needs	Contact	Phone Number	Comments
Crew	CRESA	911 or 360-737-1911	CRESA will provide coordination of these resources by requesting assistance from other local, state or federal resources.
Standard equipment (e.g., backhoes, dump trucks, etc)			
Specialized equipment (e.g., large cranes)	Interstate Rentals	(503) 285-6683	
	United Rentals Vancouver, WA and Portland , OR	360 260 7368 503 648-6233 503 656-1234 503 620-1235 503 224-2000 503 282-1313 503 796-1235 503 640-1235	Has several branches in Portland
Pumps, pipe, starters	Mather and Sons Vancouver, WA	360-256-1310	Company provides pump repair and carries pumps, valves and electrical panels
	Ferguson Enterprises Vancouver, WA Portland, OR	360- 574-7567 503- 283-3333	Sells HVAC components, large pumps, and pipe.
	United Pipe and Supply Vancouver, WA	360 253-3582	Sells HVAC components, large pumps, pipe, electrical panels, valves and flanges.
Reservoir Repairs	Western Tank and Pipe	503-760-9286	Welding and tank repairs
Transformers	Clark Public Utility	360-992-3000	
Chemical suppliers	Univar	(503) 222-1721	Provides water treatment chemicals
	Furrow Pump	503-682-4411	Chemical metering supplies
List Updated: December, 2011			

**Table A-5.
Staff Capabilities Matrix**

	Tasks								
	Public Information	Obtaining Alternate Water Supply	Manage Incoming Phone Calls	Review SCADA System	Check Physical Security	Water Quality Samples	Isolate System	Flush System	Response and Finance Support
Brian Carlson									
Terry McClure									
Richard Hoffman									
Tim Brace									
Tony Sampson									
Allen Trenda									
Rob Weber									
Bruce Sloniker									
Kristi Tompkins					XXXXXXX			XXXXXXXXX	
Daniel Tiliano									
Doug Cope									
Roger Durgin					XXXXXXX	XXXXXXX		XXXXXXXXX	
Debbie Pratt-Israel									
Kimberly Frost									
Russ Stacks									
Rick Aragon									
Tyler Clary									
Amy Sorenson									
Office Staff									
Distribution Crew									
Engineering Support									

List Updated: December, 2011

Table A-6. Equipment Inventory Checklist for Emergency Response					
Equipment	Description	Size	Location	Operator/Contact	Comment
Back Hoe					
Dump Truck					
Leak Detector					
Air Compressor(s)					
Standby Cl ₂ Equipment					
Trench Boxes					
Confined Space Equipment					
Hydrant Relief Valves					
Portable Water Tanks					
Boom Truck					
Jet Vac Truck					
Line Locator					
Sand Bags					
Portable Generators					
Emergency Lights					
Distribution and Facility Maps					
Extra Water Pipe					
List Updated: December, 2011					

APPENDIX 6C – CROSS CONNECTION CONTROL PROGRAM

Section 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. Backflow prevention assemblies to be installed. In addition to situations requiring backflow prevention assemblies as set forth in subsection A above, 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. 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. All backflow prevention assemblies shall be installed and maintained by, and at the expense of, the customer.

C. Backflow prevention assemblies to be inspected. Backflow prevention assemblies installed shall be inspected and tested:

1. At the time of initial installation;
2. Annually after initial installation;
3. After the device is repaired;
4. After the device is moved, relocated, or reinstated; and
5. More often if tests indicate repeated failures.

D. The city shall provide 30-day advance notification to the customer of the required annual test of the backflow prevention assembly. Failure of the city to provide notification shall not affect the customer's duty to obtain testing under this section. The customer shall have such test performed by any person certified by the Washington State of Health, and the results shall be delivered to the city on a form prescribed by the city. If such test is not performed within the time required herein, the city may initiate proceedings for termination of water service.

E. The customer shall be responsible for the repair, overhaul or replacement of backflow prevention assemblies as required by the city whenever they are found to be defective within a time period as required by the city.

(M-4022, Amended, 09/10/2012, Sec 8-Effective 10/10/2012; M-3755, Added, 08/28/2006, Sec 9 - Effective 10/01/2006)

APPENDIX 6D – CONSUMER CONFIDENCE REPORT

The Federal Safe Drinking Water regulations enacted by Congress and the Environmental Protection Agency (EPA) require us to send information to you each year about your drinking water. At the City of Vancouver, we are proud of the high quality and safety of the water we provide to more than 200,000 people in the Vancouver area. We are committed to continuing to work very hard to maintain and provide safe water for your consumption and use.

The quality and safety of drinking water is defined by the results of a series of bacteriological, chemical, physical and radiological tests conducted by chemists, microbiologists, and water technical specialists. Inside this report, you will learn where your water comes from, what's in it and how it compares with standards set by the Washington State Department of Health and the Environmental Protection Agency (EPA).

Since the early 1990's, the City of Vancouver has provided an annual report about drinking water quality to our customers.

Why?

Because it's the law. You have a right to know your drinking water is safe. In fact, the high-quality water you receive from the City of Vancouver not only meets all federal and state standards, it frequently exceeds them.

2003 Annual Water Quality Report



Water Quality Summary

The City of Vancouver has its water analyzed for over 238 different substances, some regulated and some not regulated. The substances listed below are REGULATED and were in Vancouver's water during 2003. All samples taken are from treated water that is delivered to the distribution system. All are below levels allowed by federal and state agencies.

Health Related (Primary) Standards

Primary standards are intended to protect public health against substances in the water that may be harmful to humans if consumed for long periods of time. EPA standards are set at levels that protect our most sensitive population, such as infants and the elderly.

Contaminant (unit)	Highest Level Allowed (MCL)	Highest Level Detected	Lowest Level Detected	Ideal Goal MCLG	Potential Sources of Contaminant
Inorganic Compounds					
Copper (ppm)	AL=1.3	0.14	0.00	1.30	Erosion of natural deposits, corrosion of plumbing systems
Fluoride (ppm)	4.0	1.59	0.00	4.00	Water additive which promotes strong teeth
Total Nitrates (ppm)	10.0	4.63	0.00	10.00	Fertilizer, animal waste, septic systems, sewage
Sodium (ppm)	¹ 20.0	² 25.0	5.9	20.0	Erosion of natural deposits and pH adjustment
Maximum Total Trihalomethane Potential (ppm)	0.0800	0.0086	0.0026	0.0000	By-product of disinfection with chlorine combined with organic matter
Zinc (ppm)	5.0	0.04	0.00	NA	Erosion of natural deposits
¹ A recommended level of concern for those on diets with daily sodium intake restrictions ² This "highest level detected" result was measured in only one of many samples taken throughout the water system.					
Volatile Organic Compounds					
1,1,1-Trichloroethane (ppm)	0.200	0.0017	0.0000	0.2000	Discharge from metal degreasing sites and other factories
1,1-Dichloroethylene (ppm)	0.0070	0.0007	0.0000	0.0070	Discharge from industrial and/or commercial sites
Tetrachloroethylene PCE (ppm)	0.0050	0.0002	0.0000	0.0000	Discharge from industrial and/or commercial sites
Total Trihalomethane (ppm)	0.1000	0.0038	0.0000	0.0000	Chlorination by-product caused by the reaction of Chlorine with organic matter
Trichloroethylene TCE (ppm)	0.0050	0.0003	0.0000	0.0000	Discharge from metal degreasing sites and other factories
Physical Characteristics					
pH	6.5-8.5	8.11	7.17	6.5-8.5	Natural occurring or treatment additive
Bacteriological					
Total Coliform Bacteria	Less Than 5% of Monthly Samples	0%	0%	0%	Contamination by mammals
Radionuclides					
Gross Alpha (pci/L)	15.0	3.2	1.0*	NA	Natural occurring
Radium 226 (pci/L)	3.0	0.2*	0.2*	NA	Natural occurring
* = less than					

Aesthetic (Secondary) Standards and Other Characteristics

Secondary standards are established to ensure aesthetic qualities of water such as taste, odor or clarity. These standards govern substances that may influence consumer acceptance of water, rather than health-related effects.

Inorganic Compounds					
Sulfate (ppm)	250.0	14.0	0.0	NA	Natural occurring
Physical Characteristics					
Conductivity (umhos/cm)	700.0	284.0	140.0	NA	Natural occurring
Total Dissolved Solids (ppm)	500.0	210.0	120.0	0.0	Natural occurring
Turbidity (NTU)	1.0	0.4	0.0	0.0	Natural occurring
Color - Color Units	15.0	8.0	0.0	0.0	Natural occurring

About Your Water

Old production record washed away: In the sizzling summer of 2003, Vancouver set a new all-time high of 58 million gallons of water produced during a 24-hour period. The new production high is attributed to last year's hot weather and an increase in population in the utilities service area. The previous record was 53 million gallons. Vancouver's water customers use approximately 9.6 billion gallons of water each year.



In the news, but NOT in our water: Arsenic, perchlorate, methyl-t-butyl ether (MTBE), and hexavalent chromium. During the past year, these chemicals have hit the headlines when discovered in drinking water supplies in the region. But not in our drinking water. For years, the City of Vancouver has taken a proactive approach and tested our drinking water for these chemicals. We're glad to say that these test results have been negative.

Above and beyond: Vancouver drinking water testing: Federal and state regulations require water utilities test for fewer than 100 different things in our drinking water once every three years. Vancouver's water utility, however, tests for more than 238 different things in our water each and every year. We take a proactive approach, testing for contaminants found in drinking water in other areas of the United States long before regulations and treatments are mandated.

Watching over our water resources: In February 2003, the City's Water Resources Protection (WRP) ordinance became law. Since then, our WRP team has inspected all classified businesses and industries in Special Protection Areas surrounding the City's water stations, looking for any activities that increase the risk of contamination of our storm water, streams or groundwater. Our focus now is on other businesses that have potentially hazardous materials. Our WRP team is busy providing recommendations for handling and storing such chemicals, maintaining facilities and tanks, minimizing pesticide and herbicide use, identifying drainage routes, and following best management practices. To contact the WRP team, please call the City of Vancouver's Engineering Services at 696-8008.

Special Information Is Available

Some people may be more vulnerable than the general population to contaminants in drinking water. Immunocompromised people, such as those with undergoing chemotherapy for cancer treatment; people who have had organ transplants; people with HIV/AIDS or other immune system disorders; some elderly; and infants may

be particularly at risk from infections. These people should seek advice from their health care providers about drinking water. Guidelines from the EPA and Centers for Disease Control, on appropriate means for lessening risk of infection by bacterial contaminants, are available from the

Safe Drinking Water Hotline at 1-800-426-4791.

The test results below are not required by law but are presented for your information.

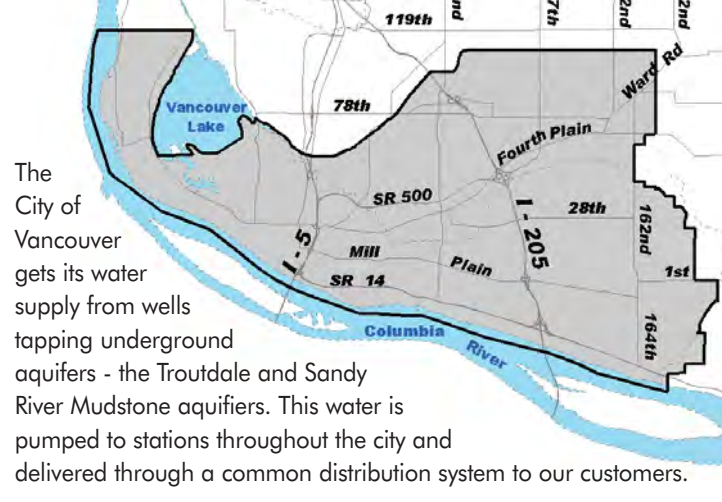
Contaminant	Highest Test	Lowest Test
Alkalinity (ppm)	121.0	71.0
Boron (ppm)	0.05	0.00
Bromodichloromethane (THM) (ppm)	0.0009	0.0000
Bromoform (THM) (ppm)	0.0009	0.0000
Calcium (ppm)	36.4	12.1
Chloroform (THM) (ppm)	0.0009	0.0000
DCPA acid metabolites (A) (ppm)	0.0019	0.0000
Dibromochloromethane (THM) (ppm)	0.0012	0.0000
Gross Beta (pci/L)	6.9	2.0*
Hardness (ppm)	135.0	55.6
Magnesium (ppm)	11.4	6.0
Potassium (ppm)	4.16	1.88
Radon 222 (pci/L)	555.0	100.0*
Surfactant, Foaming Agents (ppm)	0.06	0.00
Uranium (pci/L)	0.002	.001*

*= less than

Terms and Definitions: **AL:** Action Level - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow. **EPA:** United State Environmental Protection Agency. This federal agency enforces the Safe Drinking Water Act nationwide. **WDOH:** Washington State Department of Health. This state agency enforces the Safe Drinking Water Act within the State of Washington. **MCL:** Maximum Contaminant Level. The highest level of a contaminant allowed in drinking water. MCL's are set as close to ideal levels as current treatment technology allows. **ppb:** Parts per billion. One ppb equals one milligram per 1000 liters. **ppm:** Parts per million. One ppm equal one milligram per liter. **THM:** Trihalomethanes is the total concentration of a series of chlorinated organic compounds. These disinfection byproducts are unavoidable and are caused by a chemical reaction between chlorine and naturally occurring organic matter in the water. **MCLG:** Maximum Contaminant Level Goal. The level of contaminant in drinking water below which there is no known or expected health risk. MCLG's allow for a margin of safety. Only Primary Standards have MCLG's because Secondary Standards are not set for health reasons. **pci/L:** picocuries per liter. The unit of measurement for radionuclides. **NTU:** Nephelometric Turbidity Unit. The unit of measurement for turbidity. **umhos/cm:** Ability of water to conduct electricity based on mineral content and temperature of water.

Where Does Vancouver Get its Water?

Vancouver Water Service Area



The City of Vancouver gets its water supply from wells tapping underground aquifers - the Troutdale and Sandy River Mudstone aquifers. This water is pumped to stations throughout the city and delivered through a common distribution system to our customers.

What is an aquifer?

An aquifer is an underground layer of unconsolidated rock or sand that is saturated with usable amounts of water. Aquifers, which store and carry water, form significant natural water supplies. Recharge areas are necessary for a healthy aquifer. A recharge area is a place where water is able to seep into the earth and reach the aquifer, thus helping to resupply the resource. Through the City's Water Resource Protection Ordinance, state and federal regulations, and outreach efforts, we are working to keep our aquifers safe and recharged.

Want to Know More?

For more information about water quality or this report, please call 360-696-8177, or e-mail us at norm.kramm@ci.vancouver.wa.us.

Other Water Information from the City of Vancouver:
www.ci.vancouver.wa.us/opcenter/water/index.html
www.ci.vancouver.wa.us/watercenter/wrec/ourenvironment.htm
www.ci.vancouver.wa.us/solidwaste/index.htm

EPA – Safe Drinking Water Hotline, 800-426-4791
www.epa.gov/safewater

Free Disposal of Hazardous Waste Materials
360-397-6118, ext. 4016

VANCOUVER CITY COUNCIL: Mayor Royce E. Pollard • Pat Jollota • Dan Tonkovich • Jeanne Harris • Jeanne Stewart • Tim Leavitt • Larry J. Smith • City Manager Pat McDonnell



City of Vancouver
210 East 13th Street
Vancouver, Washington 98660

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Answers to Your Questions

Does my drinking water contain fluoride?

Yes. In the late 1960s, the citizens of Vancouver voted to add fluoride to the drinking water. Our water is fluoridated to a level of 1 milligram per liter. Fluoride helps reduce dental disease.

Does my drinking water contain chlorine?

Yes. Regulations require chlorine be added to the water. Chlorine destroys illness-causing organisms that might otherwise find their way into the water.

How can I get rid of the chlorine taste and smell?

Fill a pitcher with water and let it sit in the refrigerator for several hours prior to drinking. The chlorine will react with air and evaporate from the water.

How long can I store drinking water in my family's Emergency Preparedness kit?

Your drinking water can be stored for up to six months in capped, plastic containers. Plan to store one gallon per person for at least three days. For a family of four, that's 12 gallons of water. You'll need more if your family has special needs or if you have pets.

Attention: Non-English Speaking Customers

This report contains important information about your drinking water. Translate it, or speak with someone who can translate it for you. Translations below are from the Washington State Dept. of Health.

<http://www.doh.wa.gov/ehp/dw/translations/translations.htm>

Russian

В этом сообщении содержится важная информация о воде, которую вы пьёте. Попросите кого-нибудь перевести для вас это сообщение или поговорите с человеком, который понимает его содержание.

Spanish

Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.

Vietnamese

Tài liệu này có tin tức quan trọng về nước uống của quý vị. Hãy nhờ người dịch cho quý vị, hoặc hỏi người nào hiểu tài liệu này.

Postal Customer

What's in your water?

We can think of some clear reasons why you would want to know.

You drink it, you cook with it, you shower and bathe in it. And that's just the start. Water plays an important role in our lives each and every day. At the City of Vancouver, we take your health and that of your family very seriously. We are proud of the high quality and safety of the water we provide to nearly 200,000 people in the Vancouver area. Our water not only meets all state and federal requirements, it frequently exceeds them.

Why are we sending you this report? Because the Federal Safe Drinking Water regulations enacted by Congress and the Environmental Protection Agency (EPA) require us to inform you each year about the quality and safety of your drinking water. These are defined by results of a series of bacteriological, chemical, physical and radiological tests conducted by chemists, microbiologists and water technical specialists. Inside this report, you will learn where your water comes from, what's in it and how it compares with standards set by the Washington State Department of Health and the Environmental Protection Agency (EPA).

Please pour over the information inside. Find out more about what's in your drinking water.



2004 Annual Water Quality Report

Water Quality Summary

The City of Vancouver has its water analyzed for more than 238 different substances, some regulated and some not regulated. The substances listed below are REGULATED and were in Vancouver's water during 2004. All samples taken are from treated water that is delivered to the distribution system. All are below levels allowed by federal and state agencies.

Health Related (Primary) Standards

Primary standards are intended to protect public health against substances in the water that may be harmful to humans if consumed for long periods of time. EPA standards are set at levels that protect our most sensitive population, such as infants and the elderly.

Contaminant (unit)	Highest Level Allowed (MCL)	Highest Level Detected	Lowest Level Detected	Ideal Goal MCLG	Potential Sources of Contaminant
Inorganics					
Fluoride (ppm)	4.0	1.06	0.00	4.00	Water additive which promotes strong teeth
Total Nitrates (ppm)	10.0	4.31	0.00	10.00	Fertilizer, animal waste, septic systems, sewage
Sodium (ppm)	¹ 20.0	² 23.00	5.00	20.00	Erosion of natural deposits and pH adjustment

¹A recommended level of concern for those on diets with daily sodium intake restrictions ²This "highest level detected" result was measured in only one of many samples taken throughout the water system.

Organics					
1,1,1-Trichloroethane (ppm)	0.200	0.0012	0.0000	0.200	Discharge from metal degreasing sites and other factories
1,1-Dichloroethylene (ppm)	0.0070	0.0005	0.0000	0.0070	Discharge from industrial and/or commercial sites
Tetrachloroethylene PCE (ppm)	0.0050	0.0002	0.0000	0.0000	Discharge from industrial and/or commercial sites
Total Trihalomethane (ppm)	0.0800	0.0117	0.0013	0.0000	Chlorination by-product caused by the reaction of chlorine with organic matter
Trichloroethylene TCE (ppm)	0.0050	0.0002	0.0000	0.0000	Discharge from metal degreasing sites and other factories

Physical Characteristics					
pH	6.5-8.5	7.78	6.79	6.5-8.5	Natural occurring or treatment additive

Bacteriological					
Total Coliform Bacteria	Less Than 5% of Monthly Samples	1.4%	0%	0%	Contamination by mammals

Radionuclides					
Gross Alpha (pci/L)	15.0	1.3	0.0	NA	Natural occurring

Aesthetic (Secondary) Standards and Other Characteristics

Secondary standards are established to ensure aesthetic qualities of water such as taste, odor or clarity. These standards govern substances that may influence consumer acceptance of water, rather than health related effects.

Inorganic Compounds					
Sulfate (ppm)	250.00	13.000	0.0	NA	Natural occurring
Manganese (ppm)	0.05	0.023	0.0	0.0	Natural occurring
Physical Characteristics					
Conductivity (umhos/cm)	700.0	342.0	172.0	NA	Natural occurring
Total Dissolved Solids (ppm)*	500.0	210.0	120.0	0.0	Natural occurring
Turbidity (NTU)	1.0	0.4	0.0	0.0	Natural occurring

* 2003 result. Not measured in 2004.

More About Your Water

Testing above and beyond

At the City of Vancouver, simply meeting water quality regulations is not enough. We aim higher, putting our drinking water through far more stringent tests than U.S. and Washington laws require. Under federal and state regulations, water utilities must test for fewer than 100 different substances in drinking water once every three years. The City of Vancouver's water utility, however, tests for more than 225 different substances in our water every year. We take a proactive approach, testing for contaminants found in drinking water in other areas of the United States long before regulations might mandate such testing.

What you won't find in your water

In the past couple of years, arsenic, perchlorate, methyl-t-butyl ether (MTBE), and hexavalent chromium have hit the headlines when discovered in drinking water supplies in the region. Be assured, none of those chemicals have been found the City of Vancouver's drinking water. We have been testing for these chemicals for years, just as a precautionary approach, and we are glad to tell you that these test results to date have been negative. Now that's good news!



Disinfection Byproducts

In 2004, the City of Vancouver Water Utility completed testing of our potable drinking water in accordance with the Stage 2 Disinfectant Byproduct Rule passed by Congress as part of the 1996 Safe Drinking Water Act Amendments. This testing focuses on public health protection by limiting exposure to disinfection byproducts, which can form in water through disinfectants used to control microbial pathogens. The City's potable water is in compliance with the regulation, as shown by the testing results below.

Contaminant (unit)	Highest Level	Lowest Level	MCLG
Ttl Trihalomethane	11.7 ug/L	1.3ug/L	80 ug/L
5 Halo-Acetic Acids	1.3 ug/L	0.0	60 ug/L

The following test results are not required by law, but are presented to keep you well informed.

Contaminant	Highest Test Results	Lowest Test Results
Alkalinity (ppm)	111.0	66.0
Bromodichloromethane (THM) (ppm)	0.0016	0.0000
Bromoform (THM) (ppm)	0.0011	0.0000
Calcium (ppm)	33.0	12.0
Chloroform (THM) (ppm)	0.0021	0.0000
DCPA acid metabolites (A) (ppm)	0.00019	0.0000
Dibromochloromethane (THM) (ppm)	0.0018	0.0000
Gross Beta (pci/L)	4.4	0.0
Hardness (ppm)	124.0	55.0
Magnesium (ppm)	11.0	6.0
Potassium (ppm)	3.0	2.0
Radon 222 (pci/L)	537.0	<100.0
Maximum Total		
Trihalomethane Potential (ppm)	0.0242	0.001
Uranium (pci/L)	0.002	< 0.001*

*2003 Result. Not measured in 2004.

Special Information Is Available

Some people may be more vulnerable than the general population to contaminants in drinking water. Immuno-compromised people, such as those with undergoing chemotherapy for cancer treatment; people who have had organ transplants; people with HIV/AIDS or other immune system disorders; some elderly; and infants may be particularly at risk from infections. These people should seek advice from their health care providers about drinking water. Guidelines from the EPA and Centers for Disease Control on appropriate means for lessening the risk of infection by bacterial contaminants are available from the Safe Drinking Water Hotline by calling toll-free to 1-800-426-4791.

Terms and Definitions: **AL:** Action Level - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow. **EPA:** United State Environmental Protection Agency. This federal agency enforces the Safe Drinking Water Act nationwide. **WDOH:** Washington State Department of Health. This state agency enforces the Safe Drinking Water Act within the State of Washington. **<:** Less than. **MCL:** Maximum Contaminant Level. The highest level of a contaminant allowed in drinking water. MCL's are set as close to ideal levels as current treatment technology allows. **ppb:** Parts per billion. One ppb equals one milligram per 1000 liters. **ppm:** Parts per million. One ppm equal one milligram per liter. **THM:** Trihalomethanes is the total concentration of a series of chlorinated organic compounds. These disinfection byproducts are unavoidable and are caused by a chemical reaction between chlorine and naturally occurring organic matter in the water. **MCLG:** Maximum Contaminant Level Goal. The level of contaminant in drinking water below which there is no known or expected health risk. MCLG's allow for a margin of safety. Only Primary Standards have MCLG's because Secondary Standards are not set for health reasons. **pCi/L:** picocuries per liter. The unit of measurement for radionuclides. **NTU:** Nephelometric Turbidity Unit. The unit of measurement for turbidity. **umhos/cm:** Ability of water to conduct electricity based on mineral content and temperature of water.

What a Deal!

Compare prices for a gallon of these products to a gallon of your tap water from the City of Vancouver.

Cost per gallon*:

Chanel No. 5 Parfum:	\$45,056.00
Revlon Nail Enamel:	\$ 983.04
Vicks 44D Cough Syrup:	\$ 96.67
Evian Bottled Water:	\$ 21.19
Snapple:	\$ 10.32
Tide Liquid Detergent:	\$ 8.39
City of Vancouver Water:	\$.00178

*Source of product prices: American Water Works Association

How Much is That?

Most water quality reports refer to parts per million or parts per billion. What does that mean? Here are some measurements to compare:

One part per million equals:

- One inch in 16 miles
- One minute in two years
- One cent in \$10,000

One part per billion equals:

- One inch in 16,000 miles
- One second in 32 years
- One cent in \$10 million

Water Center Offers Wise-Water Activities and Education for All Ages

Vancouver's Water Resources Education Center near Marine Park offers engaging interactive exhibits, activities, fish, frogs and the nearby Columbia River to teach thousands of visitors each year about the wise use and protection of water. There's something for everyone at the Water Center! Our staff is also responsible for stewardship of the 50 adjacent acres of wetlands that serve as a natural outdoor laboratory for students and volunteers of all ages. For hours and additional information, please call 360-696-8478 or visit us our web site at www.ci.vancouver.wa.us/watercenter/index.html. Try this experiment from the Water Center:



Make Your Own Incredible, Edible Aquifer

Aquifers, underground layers of rock or sand saturated with water, are the source of our drinking water. Learn how aquifers work and why it's so important to protect them with this easy and yummy experiment.

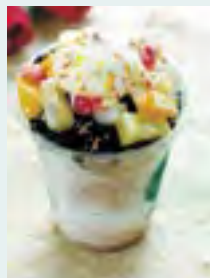
Ingredients

Clear plastic cups, drinking straws and spoons
Clear soda pop
Crushed ice or gummy bears

Vanilla ice cream
Strawberry syrup or red food coloring
Colored cake or cookie sprinkles

Your yummy aquifer

Fill a clear plastic cup about 1/3 full of crushed ice or gummy bears
Add soda to just cover
Add a layer of ice cream
Add more crushed ice
Add crushed Oreo cookies
Add green sprinkles
Add multicolored sprinkles
Add more soda
Add syrup or food coloring
Stick your straw into layers
Suck on straw
Watch the soda level through the glass
Watch the rock layers change from clear to colored layers



Your underground real-life aquifer

Gravel, sand and rocks
Ground water
Confining layer, such as clay
Porous rocks
Soil
Your lawn
Oh, oh. Chemicals on the lawn
Here comes the rain
Oh, oh. Oil spill on the ground
Drilling a drinking water well
Pump out water
Pumping lowers water table
Contaminants seep into earth

When you're enjoying your aquifer in a cup, remember that red ice cream may be tasty, but oil and other contaminants spilled on the ground can seep into our great aquifers and pollute our drinking water. Please help protect our aquifers.

Answers to Your Questions

Does my drinking water contain fluoride?

Yes. In the late 1960s, the citizens of Vancouver voted to add fluoride to the drinking water. Our water is fluoridated to 1 milligram per liter. Fluoride helps reduce dental disease.

Does my drinking water contain chlorine?

Yes. Regulations require chlorine be added to the water. Chlorine destroys illness-causing organisms that might otherwise find their way into the water. If you want to get rid of chlorine taste or smell, just fill a pitcher with water and let it sit in the refrigerator for several hours prior to drinking. The chlorine will react with air and evaporate from the water.

Should I buy bottled water?

The EPA sets standards for public drinking water. The US Food and Drug Administration sets bottled water standards equal to those EPA standards. Keep in mind that the finished product of bottled water is not government-monitored. Some bottled water is treated more than tap water and some is treated less or not at all. Read the label carefully, says the American Water Works Association.

Home Sprinkler Requirements

Did you know that homeowners are required to install, maintain and have inspected yearly the backflow prevention devices on their home garden sprinkler systems? Here's why: The backflow devices protect against possible contamination of your public drinking water.

Without a proper backflow device, water can become contaminated, particularly if chemicals are applied to lawns and gardens.



You should avoid harmful chemical pesticides and fertilizers to protect your children, pets and the environment. But even if you do, it's important to remember that backflow devices are required by Washington State Law, WAC 246-290. In addition, the law requires the annual inspection and testing be performed by a licensed tester.

A list of certified testers is available to you on the City of Vancouver's Web site at <http://www.ci.vancouver.wa.us/opcenter/backflow/Testers.pdf>. The list and additional information about backflows and testing requirements is also available to you by calling the City's Operations Center at 360-696-8177.

Use Water Wisely

Strategic planning and a sound supply system that relies on groundwater are expected to serve Vancouver water customers well this summer, despite the past dry winter. Conservation and groundwater protection are important ways to help ensure our vital water resources. Efficient water use is also a good way to help save money on water and utility costs. Here are a few tips to help:



- Fix those leaks, inside and outside, including old leaky faucets, toilets and sprinkler systems.
- Replace old fixtures and appliances. Toilets made before 1992 are major water guzzlers in the home.
- Plant native plants that don't need constant watering. If you must water, make it late at night or early in the morning, and then only about 1 inch of water per week.

Improvements on Tap at Vancouver's Water Works Park

The City of Vancouver has begun preparation of a new master plan for Water Works Park, home to Water Station No. 1, its most prolific source of drinking water.

The primary purpose of this City site has always been and will continue to be the production of potable water. Approximately one-third of the City's total water supply comes from this important site, north of Clark College at Fourth Plain Boulevard and Fort Vancouver Way. To maintain this vital water resource, the City plans to develop new facilities and upgrade aging facilities there.

The new master plan is needed before projects are designed to replace reservoirs and wells, expand capacity, delivery and address the new world of security concerns. A new reservoir, which will eliminate the amphitheater that is no longer used for the City's summer concert series, will be one of the first major new facilities constructed, according to the planning effort now under way. Plans at this time do not call for changes to the Swift Skate Park, located within Water Works Park.

With new security measures being considered are a park perimeter security fence, which would allow the park area to be closed at night, and enhanced security for water production, treatment and storage facilities.

The Central Park Neighborhood Association, Clark College and other stakeholders have been participating in the design process. If you have questions, please call the City's Engineering Services at 360-696-8008.

Where Does Vancouver Get its Water?

Vancouver Water Service Area

The City of Vancouver gets its water supply from wells tapping three underground aquifers – Orchards, Troutdale and the Sandy River Mudstone aquifers. This water is pumped to stations throughout the city and delivered through a common distribution system to our customers.



What is an aquifer?

An aquifer is an underground layer of unconsolidated rock or sand that is saturated with usable amounts of water. Aquifers, which store and carry water, form significant natural water supplies. Recharge areas are important to a healthy aquifer. In a recharge area, water is able to seep into the earth and down to the aquifer, helping to resupply the resource. Through our City, state of Washington and U.S. federal regulations and outreach efforts, we are working to keep our aquifers safe.

Want to Know More?

For more information about water quality or this report, please call 360-696-8177, or e-mail us at norm.kramm@ci.vancouver.wa.us.

Other Water Information from the City of Vancouver:

www.ci.vancouver.wa.us/water

www.ci.vancouver.wa.us/OurEnvironment

www.ci.vancouver.wa.us/solidwaste

EPA – Safe Drinking Water Hotline

800-426-4791

www.epa.gov/safewater

Free Disposal of Hazardous Waste Materials

360 397-6118, ext. 4016

VANCOUVER CITY COUNCIL: Mayor Royce E. Pollard • Pat Jollota • Dan Tonkovich • Jeanne Harris • Jeanne Stewart • Tim Leavitt • Larry J. Smith • City Manager Pat McDonnell



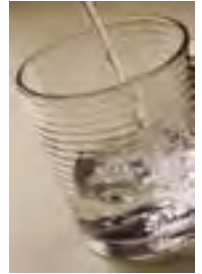
City of Vancouver
210 East 13th Street
Vancouver, Washington 98660

Watching over Water Resources

Since the City of Vancouver's Water Resources Protection (WRP) ordinance took effect in February 2003, our WRP Team has been busily working throughout the City, visiting more than 130 businesses and industries in an effort to prevent activities that might increase the risk of contamination of surface or ground water resources.

Our program, a leader in advancing ground water protections, focuses on education, cooperation and technical assistance. It also sets increased compliance standards for businesses and industries that manage hazardous materials and establishes Special Protection Areas around the City's water stations as an additional safeguard. The response to date has been positive.

In addition to visiting businesses throughout the City, our inspectors are available to respond to water resource concerns whenever a potential threat is observed.



To contact the Water Resources Protection Team, call the City of Vancouver's Engineering Services at 696-8008.

Attention: Non-English Speaking Customers

This report contains important information about your drinking water. Translate it, or speak with someone who can translate it for you.

Spanish – Este informe contiene información muy importante sobre su agua de beber. Tradúzcalo o hable con alguien que lo entienda bien.

Vietnamese

Tài liệu này có tin tức quan trọng về nước uống của quý vị. Hãy nhờ người dịch cho quý vị, hoặc hỏi người nào hiểu tài liệu này.

Russian

В этом сообщении содержится важная информация о воде, которую вы пьете. Попросите кого-нибудь перевести для вас это сообщение или поговорите с человеком, который понимает его содержание.

Postal Customer

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Vancouver, WA

ECRWSS

2005 Annual Water Quality Report



City of
VANCOUVER
WASHINGTON



Water plays an important role in our lives each and every day. At the City of Vancouver, we provide drinking water to nearly 210,000 people within the City limits and in the unincorporated area. In 2005, that amounted to more than 9.5 billion gallons of water! That's a responsibility we take very seriously. So we're proud to report that our water not only meets all state and federal requirements, it frequently exceeds them.

Why are we sending you this report? Federal Safe Drinking Water regulations enacted by Congress and the Environmental Protection Agency (EPA) require us to inform you each year about the quality and safety of your drinking water. These are defined by results of a series of bacteriological, chemical, physical and radiological tests conducted by chemists, microbiologists and water technical specialists.

Learn where your water comes from, what's in it and how it compares with standards set by the Washington State Department of Health and the Environmental Protection Agency (EPA). It's all inside.

Water Quality Summary

The City of Vancouver has its water analyzed for more than 230 different substances, some regulated and some not regulated. The substances listed below are REGULATED and were in Vancouver's water during 2005. All samples taken are from treated water that is delivered to the distribution system. All are below levels allowed by federal and state agencies.

Health Related (Primary) Standards

Primary standards are intended to protect public health against substances in the water that may be harmful to humans if consumed over long periods of time. EPA standards are set at levels that protect our most sensitive population, such as infants and the elderly.

Contaminant (unit)	Highest Level Allowed (MCL)	Highest Level Detected	Lowest Level Detected	Ideal Goal MCLG	Potential Sources of Contaminant
Inorganics					
Copper (ppm)	1.3	0.106	0.00	1.30	Erosion of natural deposits, corrosion of plumbing
Fluoride (ppm)	4.0	1.03	0.22	4.00	Water additive which promotes strong teeth
Total Nitrates (ppm)	10.0	4.57	0.00	10.00	Fertilizer, animal waste, septic systems, sewage
Sodium (ppm)	¹ 20.0	² 29.60	6.60	20.00	Erosion of natural deposits and pH adjustment
¹ A recommended level of concern for those on diets with daily sodium intake restrictions ² This "highest level detected" result was measured in only one of many samples taken throughout the water system.					
Organics					
1,1,1-Trichloroethane (ppm)	0.200	0.0012	0.0000	0.200	Discharge from metal degreasing sites and other factories
1,1-Dichloroethylene (ppm)	0.0070	0.0006	0.0000	0.0070	Discharge from industrial and/or commercial sites
Tetrachloroethylene PCE (ppm)	0.0020	0.0000	0.0000	0.0000	Discharge from industrial and/or commercial sites
Total Trihalomethane (ppm)	0.0800	0.0014	0.0000	0.0000	Chlorination by-product caused by the reaction of chlorine with organic matter
Trichloroethylene TCE (ppm)	0.0050	0.0003	0.0000	0.0000	Discharge from metal degreasing sites and other factories
Physical Characteristics					
pH	6.5-8.5	7.5	6.5	6.5-8.5	Natural occurring or treatment additive
Bacteriological					
Total Coliform Bacteria	Less Than 5% of Monthly Samples	0%	0%	0%	Contamination by mammals
Radionuclides					
Gross Alpha (pci/L)	15.0	1.3*	0.0	NA	Natural occurring
* 2004 result. Not measured in 2005.					

Aesthetic (Secondary) Standards and Other Characteristics

Secondary standards are established to ensure aesthetic qualities of water such as taste, odor or clarity. These standards govern substances that may influence consumer acceptance of water, rather than health related effects.

Inorganic Compounds					
Sulfate (ppm)	250.00	13.000	0.0	NA	Naturally occurring
Manganese (ppm)	0.05	0.023	0.0	0.0	Naturally occurring
Physical Characteristics					
Conductivity (umhos/cm)	700.0	294.0	149.0	NA	Naturally occurring
Total Dissolved Solids (ppm)	500.0	218.0	129	0.0	Naturally occurring
Turbidity (NTU)	1.0	0.31	0.0	0.0	Naturally occurring

What You Should Know About Your Water

Testing above and beyond

Just meeting water quality regulations is not enough for the City of Vancouver. We aim higher, putting our drinking water through far more stringent tests than federal and state laws require. Those regulations say utilities must test for fewer than 100 different substances in drinking water once every three years. Vancouver's water utility, however, tests for more than 225 different substances in our water every year.

What you won't find in your water

You may have seen reports in local media that arsenic, perchlorate, methyl-t-butyl ether (MTBE), and hexavalent chromium have been discovered in drinking water supplies in the region. We want you to know that none of those chemicals have been detected in the City of Vancouver's drinking water. We have been testing for these chemicals for years and are glad to tell you all the test results to date have been negative.

Live in Fruit Valley?

Recently, we've received calls from Fruit Valley customers concerned about reports of ground water contamination near Lower River Road. Be assured: Your Vancouver tap water is safe and clean. It is supplied by City wells located far outside the impacted area. For cleanup information, contact Washington Department of Ecology, 360-690-4795, or Port of Vancouver, 360-693-3611, which has taken cleanup responsibility for the soil and ground water contamination caused by previous industrial practices.



Disinfection Byproducts

In 2004, the City of Vancouver Water Utility completed testing of our potable drinking water in accordance with the Stage 1 Disinfectant Byproduct Rule passed by Congress as part of 1996 Safe Drinking Water Act Amendments. This testing focuses on public health protection by limiting exposure to disinfection byproducts, which can form in water through disinfectants used to control microbial pathogens. The City's potable water is in compliance with the regulation, as shown by the testing results for 2005, below.

Contaminant (unit)	Highest Level	Lowest Level	MCLG
Total Trihalomethane	8.7 ug/L	1.5ug/L	80 ug/L
5 Halo-Acetic Acids	2.8 ug/L	1.1ug/L	60 ug/L

Additional Information

The following test results are not required by law, but are provided here to keep you well informed:

Contaminant	Highest Test Results	Lowest Test Results
Alkalinity (ppm)	119.0	69.0
Aluminum (ppm)	0.02	0.00
Ammonia (ppm)	0.05	0.00
Boron	0.06	0.00
Bromodichloromethane (THM) (ppm)	0.003	0.0000
Bromoform (THM) (ppm)	0.003	0.0000
Calcium (ppm)	33.9	12.3
Chloroform (THM) (ppm)	0.0011	0.0000
DCPA acid metabolites (A) (ppm)	0.0001	0.0000
Dibromochloromethane (THM) (ppm)	0.0004	0.0000
Endrin (ppm)	0.0009	0.0000
Gross Beta (pci/L)	7.5	2.6
Hardness (ppm)	125	56.7
Magnesium (ppm)	11.1	6.2
Perchlorate (ppm)	0.0024	0.0000
Potassium (ppm)	3.8	1.8
Radon 222 (pci/L)	1160	<100.0
Maximum Total Trihalomethane Potential (ppm)	0.023	0.0095
Uranium (pci/L)	0.002	< 0.001*

*2003 result.

Special Information Is Available

Some people may be more vulnerable than the general population to contaminants in drinking water. Immuno-compromised people, such as those undergoing chemotherapy for cancer treatment; people who have had organ transplants; people with HIV/AIDS or other immune system disorders; some elderly; and infants may be particularly at risk from infections. These people should seek advice from their health care providers about drinking water.

Guidelines from the EPA and Centers for Disease Control on appropriate means for lessening risk of infection by bacterial contaminants are available from the Safe Drinking Water Hotline by calling toll-free to: 1-800-426-4791.

Terms and Definitions: **AL:** Action Level - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow. **EPA:** United State Environmental Protection Agency. This federal agency enforces the Safe Drinking Water Act nationwide. **WSDOH:** Washington State Department of Health. This state agency enforces the Safe Drinking Water Act within the State of Washington. **<:** Less than. **MCL:** Maximum Contaminant Level. The highest level of a contaminant allowed in drinking water. MCL's are set as close to ideal levels as current treatment technology allows. **ppb:** Parts per billion. One ppb equals one milligram per 1000 liters. **ppm:** Parts per million. One ppm equals one milligram per liter. **THM:** Trihalomethanes is the total concentration of a series of chlorinated organic compounds. These disinfection byproducts are unavoidable and are caused by a chemical reaction between chlorine and naturally occurring organic matter in the water. **MCLG:** Maximum Contaminant Level Goal. The level of contaminant in drinking water below which there is no known or expected health risk. MCLG's allow for a margin of safety. Only Primary Standards have MCLG's because Secondary Standards are not set for health reasons. **pCi/L:** picocuries per liter. The unit of measurement for radionuclides. **NTU:** Nephelometric Turbidity Unit. The unit of measurement for turbidity. **umhos/cm:** Ability of water to conduct electricity based on mineral content and temperature of water.

Bottled Water Better? Better Check!

Bottled water has become a billion dollar business. But test after test shows no evidence bottled water is better than tap water.

In reality, despite the pretty pictures on some labels, some bottled water may contain contaminants, according to the EPA, which sets standards for tap water provided by public water systems. Bottled water standards are set by the Food and Drug Administration (FDA), based on EPA's standards. Contaminants in bottled water are to be below the maximum permitted level set by the FDA or the state. Fluoride may also be added within the limits set by the FDA. But unlike utilities, which must publish their lab results in a public record like this report, bottlers are not required to show their tests or findings.

That makes it difficult to easily see that some bottled water is treated more than tap water, while some is treated less or not at all. In fact, some brands of bottled water come directly from a municipal water tap! Do you know what you're getting when you buy bottled water? Where it comes from? What's inside? The EPA suggests calling bottlers directly to find out what, if any, contaminants are present. Be water wise! Check it out!

Can You Read Your Meter?

Knowing how to read your water meter will help you better track your water usage. That information can help you catch leaks, boost conservation efforts and save money.

The most common residential meter is the Straight Reading meter, which looks like an odometer and shows total gallons used since the meter was installed. To read it, simply note all digits and subtract the first reading's numbers from the next reading's numbers. The sweep hand is the cubic foot indicator. Once around equals about 7.5 gallons.

What a deal!

A gallon of City of Vancouver drinking water costs less than .002 cents!

The round, or several separate circular, meters have meter, start with the dials. To read this largest-numbered dial and record the number from each dial in descending or clockwise order, ending with the "10" dial. If a hand appears to be between numbers, record the lower number. Finally, subtract the first reading's numbers from a later reading to determine amount of water used.

Vancouver's Water Center Offers Wise Water Activities and Education for All



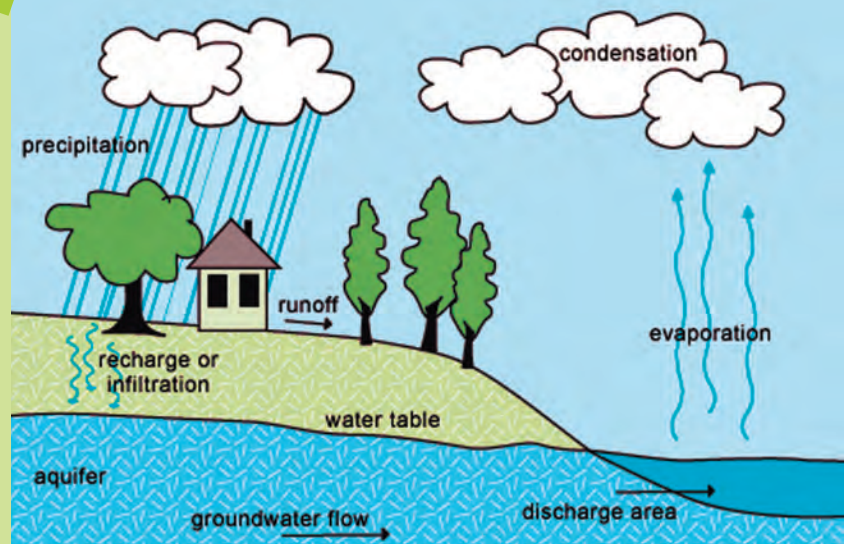
FUN FOR KIDS!

Join the thousands of kids of all ages who enjoy exciting interactive exhibits, activities, extra special events and much more each year at the Water Resources Education Center, 4600 SE Columbia Way. Experience this magical facility overlooking the Columbia River beside nearly 50 acres of protected wetlands, which serve as a natural outdoor laboratory for students and volunteers. We're open from 9 a.m. to 5 p.m., Mondays through Saturdays. Please call 360-696-8478 or visit us online at www.cityofvancouver.us/watercenter for additional information. Admission is free!

Water Cycle Word Game

1. The process when water becomes a gas in the atmosphere is called _____.
2. The movement of water underground is called _____.
3. _____ is water that falls from clouds as rain or snow.
4. Water on the earth's surface which moves into a stream or lake without absorbing into the soil is called _____.
5. Groundwater is contained in layers of rock or sediment that is called a (an) _____.
6. _____ is the downward movement of water through the spaces of rock or soil; when surface water becomes groundwater.
7. The process when gas condenses to form clouds is called _____.
8. The top of the saturated zone is known as the _____.
9. The _____ is the area where groundwater enters a lake or stream.

The Water Cycle



Directions: Fill in the blanks. Then turn this page upside down to check answer key, below.

1.evaporation 2.groundwater flow 3.precipitation 4.runoff 5.aquifer 6.recharge or infiltration 7.condensation 8.water table 9.discharge area

Answers to Your Questions

Does my drinking water contain fluoride?

Yes. In the late 1960s, Vancouver citizens voted to add fluoride to drinking water. Our water is fluoridated to 1 milligram per liter. These levels of fluoride help reduce dental disease and promote oral health of children and adults alike.

According to a Clark County Health Department survey during the 2004-2005 school year, tooth decay remains a significant public health problem for Clark County children. Poor oral health and loss of teeth can affect children's self-esteem, eating habits, the ability to learn, social interaction, and other critical aspects of childhood health and development, Health Department officials said.

The Health Department recommends expanding dental decay prevention programs including community water fluoridation, school-based dental sealant programs, fluoride varnish programs for pre-school children, and Access to Baby and Child Dentistry (ABCD) program.*

**Excerpt from a 03/10/2006
Clark County Health
Department news release*



Does my drinking water contain chlorine?

Yes. Regulations require chlorine be added to the water. Chlorine destroys illness-causing organisms that might otherwise find their way into the water. Bothered by chlorine taste or smell? Here's a simple solution: Just fill a pitcher with water and let it sit in the refrigerator for several hours prior to drinking. The chlorine will react with the air and evaporate from the water.

Is Your Sprinkler System Due for Its Annual Checkup?

If you have a home sprinkler system, here's an important fact you should know: Washington property owners are required by law to install, maintain and have inspected yearly the backflow prevention devices on in-ground sprinkler systems. Backflow occurs when water flows in the opposite direction than intended. Without a proper backflow protection device, water could become contaminated, particularly if chemicals are applied to lawns and gardens. Sometimes the contaminant is confined to the customer's plumbing system. Other times it may enter the distribution system.

Of course, the best way to protect children, pets, health and environment is to avoid harmful chemical pesticides and fertilizers on lawns and gardens. However, everyone must have a backflow device, as set forth in Washington State Law, WAC 246-290.

That law says annual inspection and testing of the backflow device must be performed by a licensed tester. For your convenience, the City of Vancouver provides a list of certified testers on its web site at <http://www.cityofvancouver.us/water>. The list and other helpful information also be obtained by calling the City's Operations Center at 360-696-8177.

Have a Cup on Us



Many enjoyed a free cup of cold, clean, refreshing Vancouver water during Fourth of July festivities in 2005.

Stop by Vancouver's water booth at this year's Fourth of July celebrations and we'll pour you some!

Conserving and Protecting Water Makes Good \$en\$e

Through water conservation and protection we can help ensure a clean, ample supply of our vital water resources AND also help save on water and utility costs.

How to conserve water resources:

- Fix leaks inside and outside, including old leaky faucets, toilets, hoses and sprinkler systems.
- Replace old fixtures and check appliances that use water.
- Plant native plants that don't need constant watering
- If you must water, make it late at night or early in the morning, and then apply only about 1 inch of water per week.

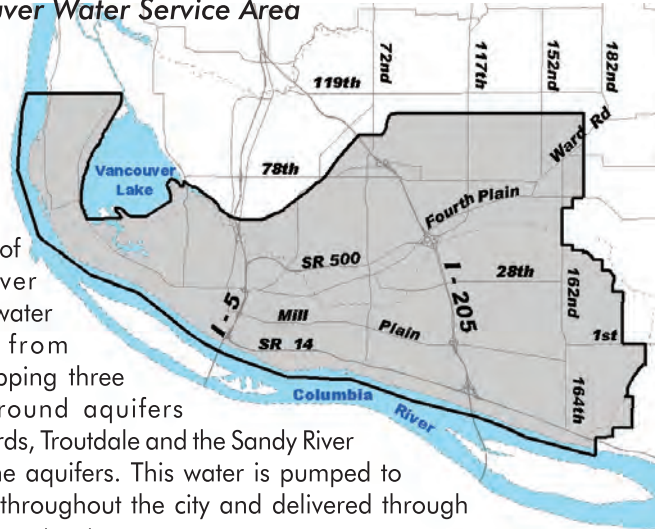
How to protect water resources:

- Avoid fertilizers and pesticides, which can pollute ground and surface water. These chemicals can even be tracked into your home and onto carpets, where they can remain for months!
- When washing vehicles of all kinds, use a commercial car wash or a storm drain filter. Or divert washwater to a grassy surface. But please don't let the polluted runoff go down the storm drain and contaminate your water resources.
- If you see possible water pollution, report it to the Water Resources Protection Team at 360-696-8008.



Where Does Vancouver Get its Water?

Vancouver Water Service Area



The City of Vancouver gets its water supply from wells tapping three underground aquifers – Orchards, Troutdale and the Sandy River Mudstone aquifers. This water is pumped to stations throughout the city and delivered through a common distribution system to our customers.

What is an aquifer?

An aquifer is an underground layer of unconsolidated rock or sand that is saturated with usable amounts of water. Aquifers, which store and carry water, form significant natural water supplies. Recharge areas are important to a healthy aquifer. In a recharge area, water is able to seep into the earth and down to the aquifer, helping to resupply the resource. Through our City, state of Washington and U.S. federal regulations and outreach efforts, we are working to keep our aquifers safe.

Want More Information? We're Here to Help

For more information about water quality or this report, please call 360-696-8177, or e-mail us at norm.kramm@ci.vancouver.wa.us.

Go online for other water information from the City of Vancouver:

www.cityofvancouver.us/water
www.cityofvancouver.us/waterprotection
www.cityofvancouver.us/watercenter

Questions for EPA – Safe Drinking Water Hotline
 800-426-4791 or www.epa.gov/safewater

Disposal of Hazardous Waste Materials
 Information: 360-397-6118, ext. 4352
www.cityofvancouver.us/solidwaste

New Plan Supports a Vibrant Vancouver!

The City of Vancouver's water system has been carefully and thoughtfully developed over time. Thanks to diligent management and maintenance, the water infrastructure we all depend upon is in good condition.

Vancouver is a thriving, vibrant community. Not only are we experiencing a revitalization of the City's center area, but also strong expansion east of I-205. As a result, water demands are expected to increase by 60 percent over the next 20 years. To meet future demands and enhance reliability and security, the City's Public Works Department has developed a new 2006 Water System Comprehensive Plan.

The plan, developed in coordination with Washington Departments of Ecology and Health, anticipates future growth and outlines actions needed to continue to provide clean, reliable water service.

Future improvements include: transmission improvements to move water from south/west to northeast; standby power facilities at three major water stations, and new reservoir, wells and expansion of pumping systems at Water Station No. 1, also known as Water Works Park. About one-third of the City's total water supply comes from this important site.

Important Information for our Non-English Speaking Customers

This report contains important information about your drinking water. Translate it, or speak with someone who can translate it for you.

- Spanish **Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.**
- Vietnamese **Tài liệu này có tin tức quan trọng về nước uống của quý vị. Hãy nhờ người dịch cho quý vị, hoặc hỏi người nào hiểu tài liệu này.**
- Russian **В этом сообщении содержится важная информация о воде, которую вы пьёте. Попросите кого-нибудь перевести для вас это сообщение или поговорите с человеком, который понимает его содержание.**

VANCOUVER CITY COUNCIL: Mayor Royce E. Pollard • Pat Jollota • Dan Tonkovich • Jeanne Harris • Jeanne Stewart • Tim Leavitt • Larry J. Smith • City Manager Pat McDonnell



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2006 Annual Water Quality Report



Cover Photo - See Inside

Water plays an important role in our lives each and every day. The City of Vancouver is one of the largest providers of drinking water in the state of Washington, serving nearly 210,000 people within the city and a portion of the unincorporated area. In 2006, that equaled more than 10.25 billion gallons of water!

Why are we sending this report? It's the law! Federal Safe Drinking Water regulations require community water systems send their customers a water quality report by July 1 of each year. The report is to inform you about your drinking water's quality and safety, as defined by results of a series of bacteriological, chemical, physical and radiological tests conducted by chemists, microbiologists and water technical specialists.

The City of Vancouver is proud to report our water not only meets all state and federal requirements, it frequently exceeds them. Get the facts about your drinking water and how it compares with Washington State Department of Health and U.S. Environmental Protection Agency (EPA) standards. It's all inside.

Water Quality Summary

The City of Vancouver has its water analyzed for more than 240 different substances, some regulated and some not regulated. The substances listed below are REGULATED and were in Vancouver's water during 2006. All samples taken are from treated water that is delivered to the distribution system. All are below levels allowed by federal and state agencies.

Health Related (Primary) Standards

Primary standards are intended to protect public health against substances in the water that may be harmful to humans if consumed over long periods of time. EPA standards are set at levels that protect our most sensitive population, such as infants and the elderly.

Contaminant (unit)	Highest Level Allowed (MCL)	Highest Level Detected	Lowest Level Detected	Ideal Goal (MCLG)	Potential Sources of Contaminant
Inorganics					
Copper (ppm)	1.3	0.041	0.00	1.30	Erosion of natural deposits, corrosion of plumbing
Fluoride (ppm)	4.0	1.30	0.00	4.00	Water additive which promotes strong teeth
Total Nitrates (ppm)	10.0	4.76	0.51	10.00	Fertilizer, animal waste, septic systems, sewage
Sodium (ppm)	¹ 20.0	² 30.70	6.70	20.00	Erosion of natural deposits and pH adjustment
¹ A recommended level of concern for those on diets with daily sodium intake restrictions ² This "highest level detected" result was measured in only one of many samples taken throughout the water system.					
1,1,1-Trichloroethane (ppm)	0.200	0.0009	0.0000	0.200	Discharge from metal degreasing sites and other factories
1,1-Dichloroethylene (ppm)	0.0070	0.0006	0.0000	0.0070	Discharge from industrial and/or commercial sites
Tetrachloroethylene PCE (ppm)	0.0050	0.0002	0.0000	0.0000	Discharge from industrial and/or commercial sites
Total Trihalomethane (ppm)	0.0800	0.0016	0.0001	0.0000	Chlorination by-product caused by the reaction of chlorine with organic matter
Toluene (ppm)	1.0	0.0001	0.0000	1.0	Petroleum products, factories
Total Xylene (ppm)	10.0	0.0001	0.0000	10.00	Petroleum products, factories
Trichloroethylene TCE (ppm)	0.0050	0.0003	0.0000	0.0000	Discharge from metal degreasing sites and other factories

Physical Characteristics

pH	6.5-8.5	7.8	6.8	6.5-8.5	Naturally occurring or treatment additive
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Bacteriological

Total Coliform Bacteria	Less Than 5% of Monthly Samples	1.7%	0%	0%	Contamination by mammals
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Radionuclides

Gross Beta (pci/L)	5.0	4.1	0.0	NA	Naturally occurring
Radium 226+228	5 pci/L	1.8	0.0	0.0	Naturally occurring

Aesthetic (Secondary) Standards and Other Characteristics

Secondary standards are established to ensure aesthetic qualities of water such as taste, odor or clarity. These standards govern substances that may influence consumer acceptance of water, rather than health-related effects.

Inorganic Compounds

Sulfate (ppm)	250.00	13.000	0.0	NA	Naturally occurring
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Physical Characteristics

Conductivity (umhos/cm)	700.0	305.0	159.0	NA	Naturally occurring
Total Dissolved Solids (ppm)	500.0	211.0	171	0.0	Naturally occurring
Turbidity (NTU)	1.0	0.25	0.0	0.0	Naturally occurring

What You Should Know About Your Water

Testing Above and Beyond

At the City of Vancouver, meeting water quality regulations alone is not enough. Vancouver puts drinking water through far more stringent tests than required by federal and state laws, which say utilities must test for fewer than 100 different substances in drinking water once every three years. Going above and beyond, Vancouver's water utility tests for more than 240 different substances in our water each and every year.

Completed Corrosion Control Testing Shows Efforts Working

In 2006, the City of Vancouver completed its third round of lead and copper testing. The first tests were conducted in 1992, and the second in 1999. Our most recent tests verified that Vancouver's Corrosion Control measures are working well. Lead and copper levels at consumer faucets were low. In light of these test results, no further control measures are necessary.

EPA Provides City of Vancouver Water with Disinfection Testing Waiver

In 2004 and 2005, the City of Vancouver water utility completed testing of potable drinking water in accordance with the Stage 1 Disinfectant Byproduct Rule passed by Congress as part of 1996 Safe Drinking Water Act Amendments. This testing focuses on public health protection by limiting exposure to disinfection byproducts, which can form in water through disinfectants used to control microbial pathogens. Due to test results being below set thresholds, the U.S. Environmental Protection Agency has issued a certificate of waiver to the City of Vancouver's water division for Stage 2 disinfection and disinfection byproducts testing. The waiver allows for reduced annual testing until 2012.

More About What's NOT in the City of Vancouver's Water

Over the past few years, you may have seen some local media reports about arsenic, methyl-t-butyl ether (MTBE), and hexavalent chromium in some drinking water supplies in the region. Please be assured, none of those chemicals have been detected in the City of Vancouver's drinking water. The city has been testing for these chemicals for years. We are glad to inform you all the test results to date have been negative.

Special Information Available

Some people may be more vulnerable than the general population to contaminants in drinking water.

Immuno-compromised people, such as those undergoing chemotherapy for cancer treatment; people who have had organ transplants; people with HIV/AIDS or other immune system disorders; some elderly; and infants may be particularly at risk from infections. These people should seek advice from their health care providers about drinking water.

Guidelines from the U.S. Environmental Protection Agency (EPA) and Centers for Disease Control (CDC) on appropriate means for lessening risk of infection by bacterial contaminants are available from the Safe Drinking Water Hotline by calling the following toll-free number: 1-800-426-4791.

Additional Information

The following test results are not required by law, but are provided to keep you informed:

Contaminant	Highest Test Results	Lowest Test Results
Alkalinity (ppm)	120.0	67.0
Boron	0.01	0.00
Bromodichloromethane (THM) (ppm)	0.007	0.0000
Bromoform (THM) (ppm)	0.002	0.0000
Calcium (ppm)	34.2	12.1
Chloroform (THM) (ppm)	0.0012	0.0000
Dibromochloromethane (THM) (ppm)	0.0006	0.0000
Gross Beta (pci/L)	4.1	0.0
Hardness (ppm)	128	55.4
Magnesium (ppm)	10.8	6.1
Perchlorate (ppm)	0.0021	0.0007
Potassium (ppm)	4.0	2.0
Radon 222 (pci/L)	805	<188.0
Maximum Total Trihalomethane Potential (ppm)	0.08	0.00
Surfactants (Foaming Agent)	0.024	0.0079

Terms and Definitions: **AL:** Action Level - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow. **EPA:** United State Environmental Protection Agency. This federal agency enforces the Safe Drinking Water Act nationwide. **WSDOH:** Washington State Department of Health. This state agency enforces the Safe Drinking Water Act within the State of Washington. **<:** Less than. **MCL:** Maximum Contaminant Level. The highest level of a contaminant allowed in drinking water. MCL's are set as close to ideal levels as current treatment technology allows. **ppb:** Parts per billion. One ppb equals one milligram per 1000 liters. **ppm:** Parts per million. One ppm equals one milligram per liter. **THM:** Trihalomethanes is the total concentration of a series of chlorinated organic compounds. These disinfection byproducts are unavoidable and are caused by a chemical reaction between chlorine and naturally occurring organic matter in the water. **MCLG:** Maximum Contaminant Level Goal. The level of contaminant in drinking water below which there is no known or expected health risk. MCLG's allow for a margin of safety. Only Primary Standards have MCLG's because Secondary Standards are not set for health reasons. **pCi/L:** picocuries per liter. The unit of measurement for radionuclides. **NTU:** Nephelometric Turbidity Unit. The unit of measurement for turbidity. **umhos/cm:** Ability of water to conduct electricity based on mineral content and temperature of water. **Hardness:** To convert ppm to grains per gallon, divide by 17.12.

Answers to Your Questions

Does My Drinking Water Contain Fluoride?

Yes. In the early 1960s, Vancouver citizens voted to add fluoride to drinking water. Our water is fluoridated to 1 milligram per liter. These levels of fluoride are intended to help reduce dental disease and promote oral health of children and adults. According to a Clark County Public Health survey during the 2004-2005 school year, tooth decay remained a significant public health problem for Clark County children. The department recommends expanding dental decay prevention programs, including community water fluoridation, school-based dental sealant programs, fluoride varnish programs for pre-school children, and Access to Baby and Child Dentistry (ABCD) program. *Results from a 03/10/2006 Clark County Public Health news release

Does My Drinking Water Contain Chlorine?

Yes. Regulations require water contain a disinfectant residual as a precaution against potential contaminants that might somehow enter the system. Chlorine, which destroys illness-causing organisms, fulfills this requirement. Bothered by chlorine taste or smell? Here's a simple solution: Just fill a pitcher with water and let it sit in the refrigerator for several hours prior to drinking. The chlorine will react with the air and evaporate from the water.

What About Drinking Water in Fruit Valley?

In recent years, we've heard from some Fruit Valley customers concerned about ground water contamination near Lower River Road. Please be assured: City of Vancouver water is supplied by city wells located far outside the impacted area. Your tap water is safe and clean. If you have questions about the clean-up effort there, please contact Washington Department of Ecology, 360-690-4795, or Port of Vancouver, 360-693-3611, which has taken cleanup responsibility for the soil and ground water contamination caused by previous industrial practices.

Is Bottled Water Better?

Bottled water has become a billion dollar business, but test after test shows no evidence bottled water is better than tap water. Bottled water standards are set by the Food and Drug Administration (FDA), based on EPA's standards. Contaminants in bottled water must be below the maximum permitted level set by the FDA or the state. Fluoride may also be added within the limits set by the FDA. But unlike utilities, which must publish their lab results in a public record like this report, bottlers are not required to show tests or findings. The EPA suggests calling bottlers directly to find out what, if any, contaminants are present. Get the facts!

Cost-effective and Earth-friendly!

Compare the cost of bottled water vs. high quality, tested and reported Vancouver drinking water, below. Note: This doesn't include all the fossil fuel used to produce a plastic bottle and ship it to the store!

Typical Bottled Water

16.9 ounces a bottle
35 bottles/4.62 gallons in a case
\$6.99 per case
= \$1.51 per gallon

City of Vancouver Water

\$1.34 per 748 gallons
= 0.179 of a penny per gallon

That's less than 1 cent for a case!



Experience and Discover Vancouver's Water Center!

Join the thousands who enjoy exciting events, interactive exhibits, hands-on learning activities and more each year at the Water Resources Education Center, 4600 S.E. Columbia Way, Vancouver. The Water Center is open from 9 a.m. to 5 p.m., Mondays through Saturdays. Don't miss our Second Saturdays, with a special theme from 1 to 3 p.m., on the second Saturday of each month. For information, please call 360-696-8478 or visit us at www.cityofvancouver.us/watercenter for additional information. Remember: Admission is free!

BUILD YOUR OWN WATER CYCLE

The water cycle is how moisture evaporates into the atmosphere, re-enters the atmosphere as rain or snow, and then evaporates again.

You will need:

1. A large jar with lid
2. Plants
3. A bottle cap filled with water
4. Soil
5. Sand
6. Small rocks

Instructions: Fill the bottom of the jar with the rocks, followed by sand. Put soil on top of the sand – enough so the plants' roots can rest inside it. Place the cap filled with water in the jar and put the lid on top of the jar. Put the jar in a sunny place. The water in the cap will travel into the atmosphere, and will take the form of water spots on the inside of the jar. What happens when you take the cap or shell of water out?



FUN FOR KIDS!

From the US Environmental Protection Agency

Vancouver's Water: From the Past into the Future

It began back in 1868, when three men organized the Vancouver Water Company, Louis Meyers, Louis Seelius and S.M. Brewer acquired a spring 4.5 miles east of the military reserve and began moving water through a flume to a 35,000-gallon brick structure. Not long after, a second water purveyor, the Columbia Land and Improvement Company, came onto the scene and drilled a deep well. A rate war ensued until both companies were purchased by John Norris and Edmond Rice, forming the Vancouver Water Works Company. Wooden transmission main lines and reservoirs were constructed. Early electric plumbing equipment was installed. The years that followed were marked by acquisitions, expansions and even a foreclosure. By 1937, citizens of Vancouver had gathered enough support and votes to approve an \$850,000 bond that would pave the way for municipal ownership of their water system.



What Does the Future Hold?

Vancouver's revitalization on the west and strong expansion on the east are expected to boost water demands by 60 percent over the next 20 years. The city's 2006 Water System Comprehensive Plan is designed to meet these future needs and enhance system reliability and security. The plan, developed in cooperation with Washington Departments of Ecology and Health, outlines actions to ensure continued clean, reliable water service.

In the years that followed, the City of Vancouver's water system was challenged to meet a rapidly growing population and changing service needs. Money for maintenance was in short supply. The threat of contamination to ground water grew. In 1976, the federal Safe Drinking Water Act initiated a comprehensive program to ensure the public's drinking water would be clean and safe. In response to concerns, the city increased testing beyond federal and state requirements. Carefully and thoughtfully, backed by studies and modeling, Vancouver's water system was improved and expanded in quality and supply.

Improvements, some of which have already been put in place, include new transmission lines to move water to growing areas, new standby power facilities, and a new reservoir, wells and expansion of pumping systems at Water Station No. 1, also known as Water Works Park. About one-third of the City's total water supply comes from this site, an important part of our water system past and our water system future.

Today, thanks to diligent management and increased maintenance, the water infrastructure we all depend upon is in very good condition. The City of Vancouver's water utility, serving a thriving community, is now the fourth largest in the state of Washington.

Decades of Dedicated Service to Providing Clean, Safe Drinking Water

This year's Water Quality Report cover proudly features 9-year-old McKenna Bush with her grandfather, Norm Kramm, who retired in March 2007 after more than 30 years with the City of Vancouver. Since 1983, Kramm has served as superintendent of water quality and production. In May 2007, the Washington Department of Health recognized Kramm's significant contribution with its Lifetime Achievement Award.



March 2007 also marked the retirement of John Repman, Operations Supervisor, Water Division, shown at right, after 30 years of dedicated service to Vancouver.



The City of Vancouver extends its thanks to both men. The efforts of these and other dedicated individuals have helped ensure our community's quality of life includes clean, safe drinking water for current residents and those to come.

It's the Law! In-Ground Sprinkler Systems and Private Wells Need Backflow Prevention Devices and Annual Testing

If you have a private well or an in-ground sprinkler system, here's an important fact you should know: Property owners are required by law to install, maintain and have inspected yearly the backflow prevention devices. Backflow occurs when water flows in the opposite direction than intended. Without a proper backflow protection device, water could become contaminated.

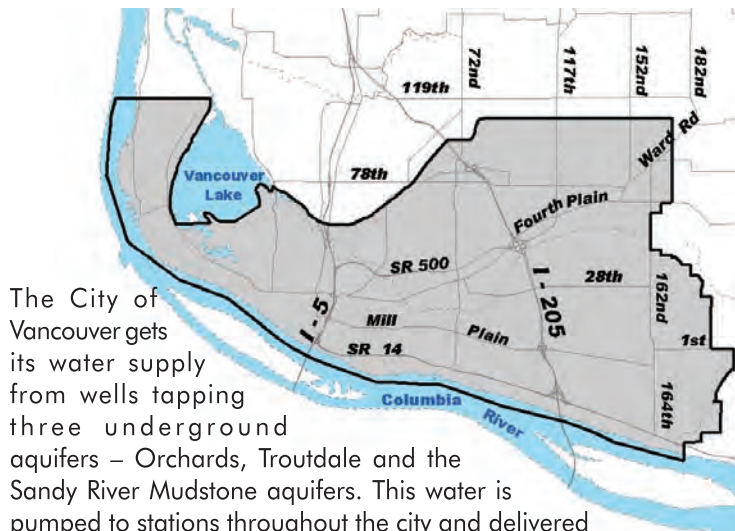
The City of Vancouver's Municipal Code states that any property within the city's water service area that has a private well and city water service must install and maintain a backflow prevention device on their city water service line. Washington State Law, WAC 246-290, also states that any property with an in-ground sprinkler or similar system is required to have and maintain a backflow prevention device.

The law says annual inspection and testing of the backflow device must be performed by a licensed tester. For your convenience, the City of Vancouver provides a list of certified testers on its web site at www.cityofvancouver.us/water. The list and other helpful information also be obtained by calling the City's Operations Center at 360-696-8177.



Where Does Vancouver Get its Water?

Vancouver Water Service Area



The City of Vancouver gets its water supply from wells tapping three underground aquifers – Orchards, Troutdale and the Sandy River Mudstone aquifers. This water is pumped to stations throughout the city and delivered through a common distribution system to our customers.

What is an Aquifer?

An aquifer is an underground layer of unconsolidated rock or sand that is saturated with usable amounts of water. Aquifers, which store and carry water, form significant natural water supplies. Recharge areas are important to a healthy aquifer. In a recharge area, water is able to seep into the earth and down to the aquifer, helping to resupply the resource. Through our City, state of Washington and U.S. federal regulations and outreach efforts, we are working to keep our aquifers safe.

Want More Information? We Can Help!

For more information about water quality or this report, please call 360-696-8177 or visit us on the Internet. You'll find water information from the City of Vancouver at the following sites:

www.cityofvancouver.us/water
www.cityofvancouver.us/waterprotection
www.cityofvancouver.us/watercenter

Questions for EPA – Safe Drinking Water Hotline
 800-426-4791 or www.epa.gov/safewater

Disposal of Hazardous Waste Materials
 Information: 360-397-6118, ext. 4352
www.cityofvancouver.us/solidwaste

It's Your Water. Keep it Clean and Safe!

Through water conservation and protection, you help ensure a clean supply of water AND save on utility costs. Here's how:

To conserve water:

- Fix leaks inside and outside, including old leaky faucets, toilets, hoses and sprinkler systems.
- Replace old fixtures and appliances with water-efficient ones.
- Plant native plants, which don't need as much watering.
- If you must water the lawn or garden, make it late at night or early in the morning, and then only 1 inch of water per week.

To protect water:

- Avoid fertilizers and pesticides, which can pollute our ground and surface water resources.
- When washing vehicles, go to a commercial car wash that filters and recycles water; use a storm water drain filter; or wash the vehicle on a grassy surface. These methods will help keep oil, sediment and other pollutants from going down the drain and into lakes, creeks, rivers or ground water resources.
- Spills of oil or hazardous materials must be reported. If you see possible water pollution, please call our Water Resources Protection Team at 360-696-8008. For after hours emergencies (before 7:30 a.m. or after 4:30 p.m. Monday-Friday or during weekends) please call 360-693-9302.

Important Information for our Non-English Speaking Customers

This report contains important information about your drinking water. Translate it, or speak with someone who can translate it for you.

Spanish	Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.
Vietnamese	Tài liệu này có tin tức quan trọng về nước uống của quý vị. Hãy nhờ người dịch cho quý vị, hoặc hỏi người nào hiểu tài liệu này.
Russian	В этом сообщении содержится важная информация о воде, которую вы пьёте. Попросите кого-нибудь перевести для вас это сообщение или поговорите с человеком, который понимает его содержание.

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2007 Water Quality Report



Each and every day, water is an important part of our lives. We're sending you this water quality report for two simple reasons: Because you should know the facts about your water and it's the law.

The facts: Good news! Your drinking water not only meets federal and state standards for safety and quality, it frequently outperforms those strict requirements.

The law: Federal Safe Drinking Water regulations require that community water systems send their customers a water quality report by July 1 each year. This report contains important information about your drinking water's quality and safety, as defined by results of a series of bacteriological, chemical, physical and radiological tests conducted by chemists, microbiologists and water technical specialists, with comparisons to Washington State Department of Health and U.S. Environmental Protection Agency (EPA) standards.

Please take a moment to read about your drinking water and how it measures up. Get the good news inside.

Water Quality Summary

The City of Vancouver reaches beyond state and federal requirements and has its water analyzed for more than 250 different substances, some regulated and some not regulated. The substances listed below are regulated and were in Vancouver's water during 2007. All samples taken are from treated water delivered to the distribution system. Chemical analysis of organics is measured in parts per billion (ppb). Analysis of inorganics is in parts per million (ppm). Highest measured values represent an exception to the overall average concentrations in water delivered in the system. All results are below levels allowed by federal and state agencies.

Health Related (Primary) Standards

Primary standards are intended to protect public health against substances in the water that may be harmful to humans if consumed over long periods of time. EPA standards are set at levels that protect our most sensitive population, such as infants and the elderly.

Contaminant (unit)	Highest Level Allowed (MCL)	Highest Level Detected	Lowest Level Detected	Ideal Goal (MCLG)	Potential Sources of Contaminant
Inorganics					
Copper (ppm)	1.3	0.09	0.00	1.30	Erosion of natural deposits, corrosion of plumbing
Fluoride (ppm)	4.0	1.3	0.00	4.00	Water additive which promotes strong teeth
Total Nitrates (ppm)	10.0	9.70 ¹	0.00	10.00	Fertilizer, animal waste, septic systems, sewage
Sodium (ppm)	20.0 ²	34.00 ³	6.81	20.00	Erosion of natural deposits and pH adjustment
<p>¹This "highest level detected" is below maximum allowed (MCL) and represents one (1) of 12 routine samples taken from a single water station. An immediate follow-up test to the "highest level" detected the result of 5.0 (ppm), the normal for this station, indicating the strong likelihood of a sampling error in the "highest level" test. However, regulations require the following notices: Major sources of nitrogen in drinking water: fertilizer runoff, septic tank leaching, sewage and natural deposit erosions. Health effects: Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and "blue baby" syndrome. ²A recommended level of concern for those on diets with daily sodium intake restrictions. ³This elevated level is from one station and a byproduct of pH adjustment for EPA-required corrosion control.</p>					
Organics					
Total Trihalomethane (ppb)	80	3.00	0.00	0.00	Chlorination by-product caused by the reaction of chlorine with organic matter
Physical Characteristics					
pH	8.5	9.14	6.83	6.5-8.5	Naturally occurring or treatment additive
Bacteriological					
Total Coliform Bacteria	Less Than 5%	0.60%	0%	0%	Contamination by mammals

Aesthetic (Secondary) Standards and Other Characteristics

Secondary standards are established to ensure aesthetic qualities of water such as taste, odor or clarity. These standards govern substances that may influence consumer acceptance of water, rather than health-related effects.

Inorganic Compounds					
Sulfate (ppm)	250.00	14.00	0.0	NA	Naturally occurring
Physical Characteristics					
Conductivity (umhos/cm)	700.0	319.0	170.0	NA	Naturally occurring
Total Dissolved Solids (ppm)	500.0	218.0	0.0	0.0	Naturally occurring
Turbidity (NTU)	1.0	1.73 ⁴	0.0	0.0	Naturally occurring
<p>⁴This "highest level detected" result was measured at one station and in only one of many samples throughout the water system. Follow-up test results were at levels rated as non-detect, and the "highest detect" result was determined to be a likely sampling error.</p>					

What You Should Know About Your Water

Does My Drinking Water Contain Fluoride?

Yes. In 1962, Vancouver citizens voted to add fluoride to the drinking water. Our water is fluoridated to 1 milligram per liter. These levels of fluoride are intended to help reduce dental disease and promote oral health of children and adults. A Clark County Public Health survey during the 2004-2005 school year showed tooth decay remained a significant public health problem for area children.* The department has recommended expanding dental decay prevention programs, including community water fluoridation, school-based dental sealant programs, fluoride varnish programs for pre-school children, and Access to Baby and Child Dentistry (ABCD) program.*Results from a 03/10/2006 Clark County Public Health news release

Does My Drinking Water Contain Chlorine?

Yes. Regulations require water contain a disinfectant residual as a precaution against potential contaminants that might somehow enter the system. Chlorine, which destroys illness-causing organisms, fulfills this requirement. Bothered by chlorine taste or smell? Use a filter or this no-cost simple solution: Just fill a pitcher with water and let it sit in the refrigerator for several hours prior to drinking. The chlorine will react with the air and evaporate from the water.

What About Drinking Water in Fruit Valley?

City of Vancouver tap water in Fruit Valley is safe, clean and free from any ground water contamination near Lower River Road. If you have questions about the clean-up effort in the Fruit Valley area, please contact Washington Department of Ecology, 360-690-4795, or Port of Vancouver, 360-693-3611, which has taken cleanup responsibility for the soil and ground water contamination caused by previous industrial practices.

More About What's NOT in the City of Vancouver's Water

Over the past few years, you may have seen some local media reports about arsenic, methyl-t-butyl ether (MTBE), and hexavalent chromium in some drinking water supplies in the region. Rest assured, none of those chemicals have been detected in the City of Vancouver's drinking water. The city has been testing for these chemicals for years. We are glad to inform you test results to date continue to all be negative.

Special Information Available

Some people may be more vulnerable than the general population to contaminants in drinking water.

Immuno-compromised people, such as those undergoing chemotherapy for cancer treatment; people who have had organ transplants; people with HIV/AIDS or other immune system disorders; some elderly; and infants may be particularly at risk from infections. These people should seek advice from their health care providers about drinking water.

Guidelines from the U.S. Environmental Protection Agency (EPA) and Centers for Disease Control (CDC) on appropriate means for lessening risk of infection by bacterial contaminants are available from the Safe Drinking Water Hotline by calling the following toll-free number: 1-800-426-4791.

Additional Information

The following test results are not required by law, but are provided by the City of Vancouver to keep you informed about the quality of your water:

Contaminant	Highest Test Results	Lowest Test Results
Alkalinity (ppm)	132.0	69.0
Boron (ppm)	0.04	0.00
Bromodichloromethane (THM) (ppb)	0.70	0.0000
Bromoform (THM) (ppb)	0.50	0.0000
Calcium (ppm)	34.20	11.80
Chloroform (THM) (ppb)	1.00	0.0000
Dibromochloromethane (THM) (ppb)	0.80	0.0000
Gross Beta (pci/L)	5.2	0.0
Hardness (ppm)	130.00	56.70
Magnesium (ppm)	11.00	6.36
Perchlorate (ppm)	.00243	0.00
Potassium (ppm)	3.95	1.88
Radon 222 (pci/L)	609.70	0.00
Maximum Total Trihalomethane Potential (ppb)	0.00	0.00

Terms and Definitions: **AL:** Action Level - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow. **EPA:** United States Environmental Protection Agency. This federal agency enforces the Safe Drinking Water Act nationwide. **WSDOH:** Washington State Department of Health. This state agency enforces the Safe Drinking Water Act within the State of Washington. **<:** Less than. **MCL:** Maximum Contaminant Level. The highest level of a contaminant allowed in drinking water. MCL's are set as close to ideal levels as current treatment technology allows. **ppb:** Parts per billion. One ppb equals one milligram per 1000 liters. **ppm:** Parts per million. One ppm equals one milligram per liter. **THM:** Trihalomethanes is the total concentration of a series of chlorinated organic compounds. These disinfection byproducts are unavoidable and are caused by a chemical reaction between chlorine and naturally occurring organic matter in the water. **MCLG:** Maximum Contaminant Level Goal. The level of contaminant in drinking water below which there is no known or expected health risk. MCLG's allow for a margin of safety. Only Primary Standards have MCLG's because Secondary Standards are not set for health reasons. **pCi/L:** picocuries per liter. The unit of measurement for radionuclides. **NTU:** Nephelometric Turbidity Unit. The unit of measurement for turbidity. **umhos/cm:** Ability of water to conduct electricity based on mineral content and temperature of water. **Hardness:** To convert ppm to grains per gallon, divide by 17.12.

To Our Water Customers ...

The City of Vancouver is the fourth largest provider of drinking water in the state of Washington, serving up more than 9.8 billion gallons to nearly 210,000 people within the city and a portion of the unincorporated area in 2007. Federal and state laws say utilities must test for fewer than 100 different substances in drinking water once every three years. Vancouver does more. The city tests its water for 240-plus substances each and every year to ensure we're providing you, our customer, with the highest quality water possible.

This year, the City of Vancouver went a step further to find out how good its water is. When national news raised the coast-to-coast issue of trace amounts of drugs turning up in the drinking water supply of millions of Americans, Vancouver submitted water from each of its stations to very stringent parts-per-trillion pharmaceutical testing. The results are now in. In tests for 15 different common pharmaceuticals, ranging from acetaminophen to antibiotics, no pharmaceuticals were detected in Vancouver's water. Only minute traces of caffeine were found at the parts-per-trillion level, and none at the parts-per-billion measurement most often used in state and federal standards.

Why the concern? Some fraction of pharmaceuticals and caffeine that people consume in coffee, sodas, tea and prescription and over-the-counter medications passes unmetabolized through the body and is flushed down the toilet and into wastewater systems. There currently are no regulatory requirements for testing or removing pharmaceuticals from wastewater as it is cleaned up and released back to waterways, where it may eventually flow to communities that use surface water for drinking water.

All of Vancouver's drinking water, 100 percent, comes from wells that tap three underground aquifers. Our Water Resources Protection Ordinance regulates protection of these critical aquifers and recharge areas, including compliance for businesses and industries that manage hazardous materials. During the past five years, about 400 businesses have been visited, inspected, and provided with technical assistance and education as part of this program. Meanwhile, the city's Sewer Connection Incentive Program (SCIP) makes public sewers available and affordable for neighborhoods where septic systems still exist within the city's service area. Between 1998 and winter 2007, some 729 homes switched from septic to safe, reliable public sewer, and another 1,134 now have sewer available for connection.

You can help protect our vital water resources, too. The City of Vancouver, in conjunction with Clark County Solid Waste, encourages everyone to dispose of unwanted pharmaceutical medications properly. Only human waste and toilet paper - not pharmaceuticals or other products - should ever be flushed down the toilet. Remember - Our decisions and actions today impact options and opportunities for generations to come.

For information on how to dispose of unwanted medications safely, please visit www.clark.wa.gov/recycle. To learn more about our water, visit www.cityofvancouver.us/water.

Tap into the Benefits of Your Drinking Water

Whether it comes out of the tap or in a bottle, safe drinking water is essential to good health. But test after test shows no evidence bottled water is healthier than tap water. In fact, a large percentage of water that's been bottled and placed on the shelf - more than 25 percent by some estimates - is believed to have come out of a tap somewhere. Bottlers use standard terms, set forth by the FDA, to describe the geological source of their water and how it has been treated. Some terms, however, such as "glacier water" may have nothing to do with the bottled water's source or quality. Tap water, on the other hand, is subject to much more rigorous testing under federal EPA and state health regulations than bottled water, regulated by the Food and Drug Administration. Unlike public utilities, which must test frequently and publish lab results in an annual report to all customers like this one, bottlers are not required to distribute or show their test results to their customers.

The difference in the cost of tap and bottled water is also huge. In the City of Vancouver, a gallon of water costs less than a cent, about 0.179 of one penny. A typical gallon of bottled water, purchased as a case of 16.9-ounce bottles, costs about \$1.51 per gallon. That doesn't include the environmental impacts from the fossil fuel it takes to make a package, ship the package and dispose of the package for a moment's convenience.

City of Vancouver 2008 Strategic Plan

It's a good idea to have a road map before embarking on a major journey. The City of Vancouver's 2008 Strategic Plan, created with the involvement of more than 2,000 people, sets forth a dynamic roadmap to help realize our community's future and, in concert with other planning and policy documents, provides us with the tools to achieve our community's vision. Our pledge is to build a community that balances environmental protection, economic health and social equity. Among the strategic directions to accomplish this - protecting and enhancing our natural infrastructure, including our tree canopy, habitat, open space and greenways so that we improve our air and water quality. Learn more about Vancouver's 2008 Strategic Plan. Visit www.cityofvancouver.us.

Be sustainable. Kick the bottle. Switch to tap.
Visit www.epa.gov/safewater.





Water Quality at Work

At Vancouver's Operations Center, Kristi Tompkins, Roger Durgin, Steph Kowalski and Tony Sampson, shown from left to right, are your Water Quality Team. It's their job to ensure compliance of backflow prevention devices and connections, sample the water distribution system, enter data, field calls about water quality and respond to those customers. That's a big job.

If you are a property owner with a private well or in-ground sprinkler system, the law requires you to install, maintain and have inspected yearly by licensed testers the backflow prevention device on your service line. Backflow occurs when water flows in an opposite direction. Without a proper, working backflow protection device, water could become contaminated. To learn more, visit www.cityofvancouver.us/water or call the Operations Center at 360-696-8177.

Get to Know Your Water Resources Education Center

Water RESOURCES EDUCATION Center

- Sturgeon Festival, World Water Day & Other Free Events
- Second Saturday Fun Every Month From 1-3 pm
- Spacious Community Room with Scenic River Views
- Hands-on Educational Exhibits & Activities
- White Sturgeon Gallery Nature-Interpreted Expressions
- Classrooms & Laboratory for Science Fun
- Naturally Beautiful Demonstration Gardens
- Solar Panel & Kiosk
- Welcoming Educators & Staff to Help You!

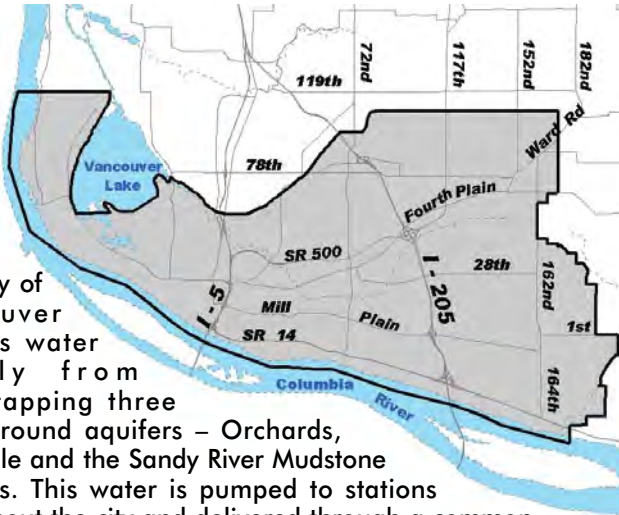
Explore! Discover! Enjoy!

Vancouver's Water Resources Education Center at 4600 SE Columbia Way was built for you. Every year, people of all ages explore the center and discover the wonders of our natural resources. You can, too. Whether it's a

special event, a Second Saturday family adventure or a pleasant break in a busy day, we invite you to visit and learn how we can sustain water and other resources wisely for generations to come. Your Water Center is open from 9 a.m. to 5 p.m, Monday through Saturday, except some holidays. Admission is free! Visit www.cityofvancouver.us/watercenter for more information or call 360-487-7111.

Where Does Vancouver Get its Water?

Vancouver Water Service Area



The City of Vancouver gets its water supply from wells tapping three underground aquifers – Orchards, Troutdale and the Sandy River Mudstone aquifers. This water is pumped to stations throughout the city and delivered through a common distribution system to our customers.

What is an Aquifer?

An aquifer is an underground layer of unconsolidated rock or sand that is saturated with usable amounts of water. Aquifers, which store and carry water, form significant natural water supplies. Recharge areas are important to a healthy aquifer. In a recharge area, water is able to seep into the earth and down to the aquifer, helping to resupply the resource. Through our City, state of Washington and U.S. federal regulations and outreach efforts, we are working to keep our aquifers safe.

Contacts for More Information

For more information about water quality or this report, please call 360-696-8177 or visit us on the Internet. You'll find water information from the City of Vancouver at the following sites:

www.cityofvancouver.us/water

www.cityofvancouver.us/waterprotection

www.cityofvancouver.us/watercenter

Questions for EPA – Safe Drinking Water Hotline
800-426-4791 or www.epa.gov/safewater

Disposal of Hazardous Waste Materials
Information: 360-397-6118, ext. 4352
www.cityofvancouver.us/solidwaste

It's Your Water. Keep it Clean and Safe!

Through water conservation and protection, you help ensure a clean supply of water AND save on utility costs. Here's how:

To conserve water:

- Fix leaks inside and outside, including old leaky faucets, toilets, hoses and sprinkler systems.
- Replace old fixtures and appliances with water-efficient ones that have the EPA WaterSense label.
- Plant native plants, which don't need as much watering.
- If you must water the lawn or garden, make it late at night or early in the morning, and then just 1 inch per week.

To protect water:

- Avoid fertilizers and pesticides, which can pollute our ground and surface water resources.
- When washing vehicles, go to a commercial car wash that filters and recycles water. It's the safe way to keep oil, sediment and other pollutants from going down the drain and harming lakes, creeks, rivers or ground water.
- Spills of oil or hazardous materials must be reported. If you see possible water pollution, please call our Water Resources Protection Team at 360-487-7130. For after hours emergencies (before 7:30 a.m. or after 4:30 p.m. Monday-Friday or during weekends) please call 360-693-9302.

Did you know you can pay your water bill online? Visit www.cityofvancouver.us/AtYourService for easy bill payment options that help save you time and fees.

Important Information for our Non-English Speaking Customers

This report contains important information about your drinking water. Translate it, or speak with someone who can translate it for you.

Spanish Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.

Vietnamese Tài liệu này có tin tức quan trọng về nước uống của quý vị. Hãy nhờ người dịch cho quý vị, hoặc hỏi người nào hiểu tài liệu này.

Russian В этом сообщении содержится важная информация о воде, которую вы пьёте. Попросите кого-нибудь перевести для вас это сообщение или поговорите с человеком, который понимает его содержание.

VANCOUVER CITY COUNCIL: Mayor Royce E. Pollard • Pat Jollota • Jeanne Harris • Jeanne Stewart • Tim Leavitt • Larry J. Smith • Pat Campbell • City Manager Pat McDonnell

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City of
VANCOUVER
WASHINGTON

2008 Water Quality Report

When you turn on the tap, you expect clean, safe water. This annual report is here to confirm your City of Vancouver drinking water is clean and safe. Vancouver's water not only meets federal and state standards for safety and quality, it frequently outperforms those strict requirements and more.

You are receiving this water quality report for two important reasons: You deserve to know all the facts about your water, and it's the law. Federal Safe Drinking Water regulations require that community water systems send all customers an annual water quality report that contains important information about their drinking water, as defined by results of bacteriological, chemical, physical and radiological tests, with comparisons to Washington State Department of Health and U.S. Environmental Protection Agency (EPA) standards.

All of Vancouver's drinking water, 100 percent, comes from wells that tap three underground aquifers. This water is pumped to stations throughout the city and delivered through a common distribution system to you. Protecting those aquifers and our municipal water system is critical to ensuring clean, safe, drinking water for our community. That's why the City of Vancouver is:

- Planning strategically, in cooperation with the state Department of Ecology and Department of Health, to address future water needs and ensure system reliability
- Ensuring constant attention to critical aquifers and recharge areas through the Water Resources Protection Program, with inspectors visiting more than 500 businesses during the past six years to offer technical assistance and education
- Eliminating aging septic systems through Vancouver's Sewer Connection Incentive Program, which makes public sanitary sewers available and affordable
- Managing the day-to-day business and monitoring the city's water system through our Operations Water Production, Distribution and Quality divisions, including responding to customer questions, providing suggestions and ensuring backflow and cross-connection prevention
- Using hands-on activities, events and exhibits to teach thousands of visitors annually at the Water Resources Education Center to learn more about using our community's precious water wisely
- Educating customers about conservation and much, much more...

Why? So when you turn on the tap, you get the clean, safe water from the City of Vancouver just as you expect.

Water Quality Summary

The City of Vancouver reaches beyond state and federal requirements and has its water analyzed for more than 245 different substances, some regulated and some not regulated. The substances listed below are regulated and were in Vancouver's water during 2008. All samples taken are from treated water delivered to the distribution system. Chemical analysis of organics is measured in parts per billion (ppb). Analysis of inorganics is in parts per million (ppm). Highest measured values represent an exception to the overall average concentrations in water delivered in the system. All results are below levels allowed by federal and state agencies.

Health Related (Primary) Standards

Primary standards are intended to protect public health against substances in the water that may be harmful to humans if consumed over long periods of time. EPA standards are set at levels that protect our most sensitive population, such as infants and the elderly.

Contaminant (unit)	Highest Level Allowed (MCL)	Highest Level Detected	Lowest Level Detected	Ideal Goal (MCLG)	Potential Sources of Contaminant
Inorganics					
Copper (ppm)	1.3	0.56	0.00	1.30	Erosion of natural deposits, corrosion of plumbing
Fluoride (ppm)	4.0	1.12	0.00	4.00	Water additive which promotes strong teeth
Total Nitrates (ppm)	10.0	4.91	0.00	10.00	Fertilizer, animal waste, septic systems, sewage
Sodium (ppm)	20.0 ¹	28.1	7.04	20.00	Erosion of natural deposits and pH adjustment

¹A recommended level of concern for those on diets with daily sodium intake restrictions.

Organics					
1,1-Dichloroethylene (ppb)	7	0.5	0	7	Discharge from industrial and/or commercial sites Discharge from metal degreasing sites and other factories Discharge from industrial and/or commercial sites Chlorination byproduct caused by the reaction of chlorine with organic matter
1,1,1-Trichloroethane (ppb)	200	0.7	0	200	
Tetrachloroethylene PCE (ppb)	5	0.2	0	0	
Total Trihalomethane (ppb)	80	5.6	0	0	

Physical Characteristics					
pH	8.5	7.95	6.83	6.5-8.5	Naturally occurring or treatment additive

Bacteriological					
Total Coliform Bacteria	Less Than 5%	0%	0%	0%	Contamination by mammals

Aesthetic (Secondary) Standards and Other Characteristics

Secondary standards are established to ensure aesthetic qualities of water such as taste, odor or clarity. These standards govern substances that may influence consumer acceptance of water, rather than health-related effects.

Inorganic Compounds					
Sulfate (ppm)	250.00	12.00	0.0	NA	Naturally occurring
Physical Characteristics					
Conductivity (umhos/cm)	700.0	306.0	152.0	NA	Naturally occurring
Total Dissolved Solids (ppm)	500.0	227.0	0.0	0.0	Naturally occurring
Turbidity (NTU)	1.0	0.24	0.0	0.0	Naturally occurring

What You Should Know About Your Water

Does My Drinking Water Contain Fluoride?

Yes. In 1962, Vancouver citizens voted to add fluoride to the drinking water. Our water is fluoridated to 1 milligram per liter. These levels of fluoride are intended to help reduce dental disease and promote oral health of children and adults. A Clark County Public Health survey during the 2004-2005 school year showed tooth decay remained a significant public health problem for area children.* The agency has recommended expanding dental decay prevention programs, including community water fluoridation, school-based dental sealant programs, fluoride varnish programs for pre-school children, and Access to Baby and Child Dentistry (ABCD) program. *Results cited from a 03/10/2006 Clark County Public Health news release.

Does My Drinking Water Contain Chlorine?

Yes. Regulations require water contain a disinfectant residual as a precaution against potential contaminants that might somehow enter the system. Chlorine, which destroys illness-causing organisms, fulfills this requirement. To reduce or eliminate chlorine taste or smell, we recommend using a filter or this no-cost simple solution: Fill a pitcher with water and let it sit in the refrigerator for several hours prior to drinking. The chlorine will react with the air and evaporate from the water.

Is Drinking Water in Fruit Valley Safe?

City of Vancouver tap water in Fruit Valley is safe, clean and free from any ground water contamination detected near Lower River Road. Questions about the cleanup effort in the Fruit Valley area? Please contact Washington Department of Ecology, 360-690-4795, or Port of Vancouver, 360-693-3611, which has taken on cleanup responsibility for soil and groundwater contamination caused by previous industrial practices.

More About What's NOT in the City of Vancouver's Water

In recent years, you may have seen local media reports about arsenic, methyl-t-butyl ether (MTBE), and hexavalent chromium in some drinking water supplies in the region. Please be assured none of those chemicals have been detected in the City of Vancouver's drinking water. The city has tested for these chemicals for years, and test results to date are all negative.

What Should I Do if I Have Concerns About Lead in My Home's Plumbing?

Lead levels at some homes may be higher than others due to materials in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested or follow the good practice of flushing your tap for 30 seconds to 2 minutes before using tap water. More information is available from EPA at (1-800-426-4791).

Special Information Available

Drinking water, including bottled water, may be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate a health risk.

Some people may be more vulnerable than the general population to drinking water contaminants. Immuno-compromised people, such as those undergoing chemotherapy for cancer treatment; people who have had organ transplants; people with HIV/AIDS or other immune system disorders; some elderly; and infants may be particularly at risk from infections. These people should seek advice from their health care providers about drinking water.

Contaminants that may be present in some drinking water include microbial contaminants, inorganic contaminants, pesticides and herbicides, organic chemical contaminants and radioactive contaminants in areas of the country with oil, gas and mining production.

Guidelines from the U.S. Environmental Protection Agency (EPA) and Centers for Disease Control (CDC) on appropriate means for lessening risk of infection by Cryptosporidium and other bacterial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Additional Information

The following test results are not required by law, but are provided by the City of Vancouver to keep you informed about the quality of your water:

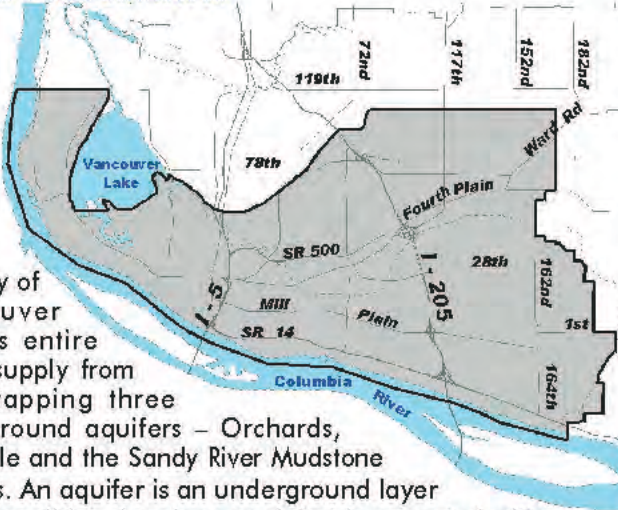
Contaminant	Highest Test Results	Lowest Test Results
Alkalinity (ppm)	117.0	68.0
Boron (ppm)	0.28	0.00
Bromodichloromethane (THM) (ppb)	2.0	0.0000
Bromoform (THM) (ppb)	6.0	0.0000
Calcium (ppm)	35.1	11.70
Chloroform (THM) (ppb)	3.1	0.0000
Dibromochloromethane (THM) (ppb)	1.3	0.0000
Gross Beta (pci/L)	3.87	0.0
Hardness (ppm)	131.00	55.6
Magnesium (ppm)	10.60	6.16
Potassium (ppm)	3.9	1.90
Radon 222 (pci/L)	728.00	113.00
Surfactants (ppm)	.07	0.00
Maximum Total Trihalomethane Potential (ppb)	0.00	0.00
Zinc (ppm)	0.028	0.00

Terms and Definitions: AL: Action Level - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow. EPA: United States Environmental Protection Agency. This federal agency enforces the Safe Drinking Water Act nationwide. WSDOH: Washington State Department of Health. This state agency enforces the Safe Drinking Water Act within the State of Washington. <: Less than. MCL: Maximum Contaminant Level. The highest level of a contaminant allowed in drinking water. MCL's are set as close to ideal levels as current treatment technology allows. ppb: Parts per billion. One ppb equals one milligram per 1000 liters. ppm: Parts per million. One ppm equals one milligram per liter. THM: Trihalomethanes is the total concentration of a series of chlorinated organic compounds. These disinfection byproducts are unavoidable and are caused by a chemical reaction between chlorine and naturally occurring organic matter in the water. MCLG: Maximum Contaminant Level Goal. The level of contaminant in drinking water below which there is no known or expected health risk. MCLG's allow for a margin of safety. Only Primary Standards have MCLG's because Secondary Standards are not set for health reasons. pCi/L: picocuries per liter. The unit of measurement for radionuclides. NTU: Nephelometric Turbidity Unit. The unit of measurement for turbidity. umhos/cm: Ability of water to conduct electricity based on mineral content and temperature of water. Hardness: To convert ppm to grains per gallon, divide by 17.12.

Postal Customer

Where Does Vancouver Get its Water?

Vancouver's Water Service Area



The City of Vancouver gets its entire water supply from wells tapping three underground aquifers – Orchards, Troutdale and the Sandy River Mudstone aquifers. An aquifer is an underground layer of unconsolidated rock or sand that is saturated with usable amounts of water. Aquifers, which store and carry water, form significant natural water supplies. Recharge areas are important to a healthy aquifer. In a recharge area, water is able to seep into the earth and down to the aquifer, helping to resupply the resource. In order to ensure tap water is safe, EPA prescribes regulations that limit contaminants. City, state of Washington and U.S. federal regulations, work together to keep our aquifers safe and our drinking water clean.

Has Your Sprinkler System Been Tested?

If you are a property owner with a private well or in-ground sprinkler system, the law requires you to install, maintain and have inspected yearly by licensed testers the backflow prevention device on your service line. Backflow occurs when water flows in an opposite direction. Without a proper, working backflow protection device, water could become contaminated. To learn more, visit www.cityofvancouver.us/water or call the Operations Center at 360-696-8177.

Tap into the Benefits of Your Water

Did you know that test after test shows no evidence that bottled water is healthier than tap water? In fact, a large percentage of bottled water may have come out of a tap somewhere. Bottlers use terms, set by the FDA, to describe the geological source of their water and treatment. Some terms, however, such as "glacier water" may have nothing to do with quality. Tap water is subject to much more rigorous testing under federal EPA and state regulations than bottled water, regulated by the Food and Drug Administration. Unlike public systems, bottlers are not required to test frequently and publish the results for customers. The difference in the cost of tap and bottled water is huge. A gallon of City of Vancouver water costs less than a cent. A typical gallon of bottled water, purchased as a case of 16.9-ounce bottles, can cost about \$1.51 per gallon.

Easy and Convenient! Did you know you can pay your water bill online? Visit www.cityofvancouver.us/AtYourService for options that help save you time and stamps. Try AutoPay!

Contacts for More Information

For more information about water quality or this report, please call 360-696-8177 or visit us on the Internet. You'll find water information from the City of Vancouver at the following sites:

www.cityofvancouver.us/water
www.cityofvancouver.us/waterprotection
www.cityofvancouver.us/watercenter

Questions for EPA – Safe Drinking Water Hotline
800-426-4791 or www.epa.gov/safewater

Disposal of Hazardous Waste Materials
Information: 360-397-6118, ext. 4352
www.cityofvancouver.us/solidwaste

Important Information for our Non-English Speaking Customers

This report contains important information about your drinking water. Translate it, or speak with someone who can translate it for you.

- | | |
|------------|--|
| Spanish | Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda. |
| Vietnamese | Tài liệu này có tin tức quan trọng về nước uống của quý vị. Hãy nhờ người dịch cho quý vị, hoặc hỏi người nào hiểu tài liệu này. |
| Russian | В этом сообщении содержится важная информация о воде, которую вы пьёте. Попросите кого-нибудь перевести для вас это сообщение или поговорите с человеком, который понимает его содержание. |



2009 Water Quality Report

We all need water. From the biggest to the smallest of creatures, water is essential to a healthy life.

City of Vancouver customers expect clean, safe drinking water for themselves, their families and their four-legged friends. Clean, safe drinking water is exactly what we deliver to more than 200,000 people each and every day. This annual report confirms that the City of Vancouver's water not only meets federal and state standards for safety and quality, it frequently outperforms those strict requirements.

Why do we take this extra step of sending you this report? Federal Safe Drinking Water regulations require it. All community water systems must send all customers an annual water quality report that contains important information about their drinking water, as defined by results of bacteriological, chemical, physical and radiological tests, with comparisons to Washington State Department of Health and U.S. Environmental Protection Agency (EPA) standards.

Vancouver's drinking water, 100 percent of it, comes from wells that tap three underground aquifers. This water is pumped to stations throughout the city and delivered through a common distribution system to you. Protecting those aquifers and our municipal water system is critical to ensuring clean, safe, drinking water for our community.

Managing the day-to-day business and monitoring the city's water system is done through our Operations Water Production, Distribution and Quality divisions, which also respond to customer questions and ensure backflow and cross-connection prevention. Planning strategically to address future water needs and ensure system reliability is the job of our Water Systems Engineering division. Constant attention to critical aquifers and recharge areas is ensured through the Water Resources Protection Program, as well as our Sewer Connection Incentive Program efforts to eliminate aging septic. In addition, Vancouver's Water Resources Education Center, supported by our many volunteers, teaches thousands of visitors each year about using our precious water wisely. With these efforts and your help, generations to come can expect to have the same clean, safe drinking water we enjoy today.

Has Your Sprinkler System Been Tested?

If you are a property owner with a in-ground sprinkler system or private well, state and local laws require that you install and maintain a backflow prevention device on your service line and have it inspected yearly by a licensed tester. Proper working backflow protection devices prevent the water system from becoming contaminated. To learn more, please visit www.cityofvancouver.us/water or call Vancouver's Operations Center at 360-696-8177.

Water Quality Summary

The City of Vancouver reaches beyond state and federal requirements and has its water analyzed for more than 245 different substances, some regulated and some not regulated. The substances listed below are regulated and were in Vancouver's water during 2009. All samples taken are from treated water delivered to the distribution system. Chemical analysis of organics is measured in parts per billion (ppb). Analysis of inorganics is in parts per million (ppm). Highest measured values represent an exception to the overall average concentrations in water delivered in the system. All results are below levels allowed by federal and state agencies.

Health Related (Primary) Standards

Primary standards are intended to protect public health against substances in the water that may be harmful to humans if consumed over long periods of time. EPA standards are set at levels that protect our most sensitive population, such as infants and the elderly.

Contaminant (unit)	Highest Level Allowed (MCL)	Highest Level Detected	Lowest Level Detected	Ideal Goal (MCLG)	Potential Sources of Contaminant
Inorganics					
Fluoride (ppm)	4.0	0.89	0.070	4.00	Water additive which promotes strong teeth
Total Nitrates (ppm)	10.0	5.0	0.00	10.00	Fertilizer, animal waste, septic systems, sewage
Sodium (ppm)	20.0 ¹	32.0	6.90	20.00	Erosion of natural deposits and pH adjustment
Lead (ppm)	0.015	0.0006	0.00	0	Erosion of natural deposits, plumbing corrosion
Chromium (ppm)	0.10	0.0021	0.0	0	Erosion of natural deposits
Barium (ppm)	2.0	0.0270	0.0019	2	Erosion of natural deposits
Arsenic (ppm)	0.010	0.0011	0	0	Erosion of natural deposits
¹ A recommended level of concern for those on diets with daily sodium intake restrictions.					
Organics					
Total Trihalomethane (ppb)	80	13.6	0	0	By-product of disinfection with chlorine
Physical Characteristics					
pH	8.5	8.3	6.8	6.5-8.5	Naturally occurring or treatment additive
Bacteriological					
Total Coliform Bacteria	Less Than 5%	0.21%	0%	0%	Contamination by mammals
Radionuclides					
Gross Beta (pCi/l)	50	3.0	0	0	Natural occurring
Radium 226 + 228 (pCi/l)	5	1.3	0	0	Natural occurring

Aesthetic (Secondary) Standards and Other Characteristics

Secondary standards are established to ensure aesthetic qualities of water such as taste, odor or clarity. These standards govern substances that may influence consumer acceptance of water, rather than health-related effects.

Inorganic Compounds					
Sulfate (ppm)	250.00	11.00	2.0	NA	Naturally occurring
Physical Characteristics					
Conductivity (umhos/cm)	700.0	300.0	160.0	NA	Naturally occurring
Total Dissolved Solids (ppm)	500.0	200.0	110.0	0.0	Naturally occurring
Turbidity (NTU)	1.0	0.16	0.083	0.0	Naturally occurring

Vancouver Sees Good Results in First Round of EPA's Unregulated Contaminant Monitoring

EPA is requiring select public water systems to monitor for 25 chemicals using five different analytical methods. All public water systems serving more than 10,000 people, and a representative sample of 800 public water systems serving 10,000 or fewer people are required to conduct Assessment Monitoring for 10 chemicals during a 12-month period. All public water systems serving more than 100,000 people are required to conduct the Screening Survey for 15 contaminants during a 12-month period.

The City of Vancouver conducted the first round of sampling under the UCMR2 requirements in July 2009. All sample results came back with no detection for any of the 25 contaminants. The city conducted its second and final round of sampling in January 2010. Results from that sampling will be posted in the 2010 Water Quality Report, which you will receive next year.

This program was developed in coordination with the Contaminant Candidate List (CCL), a list of contaminants that are not regulated by national primary drinking water regulation, are known or anticipated to occur at public water systems, and may warrant regulation under the Safe Drinking Water Act. Data collected are stored in the National Contaminant Occurrence Database to support analysis and review of contaminant occurrence, to guide the CCL selection process, and to support EPA's determination of whether to regulate a contaminant to protect public health.

How were these contaminants selected? EPA reviewed contaminants targeted through existing prioritization processes, including previous UCMR "reserved" contaminants (i.e., those contaminants for which analytical methods were not yet available), and the Contaminant Candidate List (CCL). Additional contaminants were identified based on current research on occurrence and health effects risk factors. Pesticides not registered for use in the United States, contaminants that did not have an analytical reference standard, and contaminants whose analytical methods were not ready for use were removed from the list. EPA further prioritized remaining contaminants based on more extensive health effects evaluations by the Office of Water's Office of Science and Technology. Procedures for evaluating health effects scores were developed to support the ranking of contaminants for future CCLs.

The UCMR benefits the environment and public health by providing EPA and other interested parties with scientifically valid data on occurrence of these contaminants in drinking water, permitting assessment of population exposed and levels of that exposure. This information is the primary source of exposure data for EPA to determine whether to regulate these contaminants to protect public health.

Special Information Available

Drinking water, including bottled water, may be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate a health risk.

Some people may be more vulnerable than the general population to drinking water contaminants. Immuno-compromised people, such as those undergoing chemotherapy for cancer treatment; people who have had organ transplants; people with HIV/AIDS or other immune system disorders; some elderly; and infants may be particularly at risk from infections. These people should seek advice from their health care providers about drinking water.

Contaminants that may be present in some drinking water include microbial contaminants, inorganic contaminants, pesticides and herbicides, organic chemical contaminants and radioactive contaminants in areas of the country with oil, gas and mining production.

Guidelines from the U.S. Environmental Protection Agency (EPA) and Centers for Disease Control (CDC) on appropriate means for lessening risk of infection by *Cryptosporidium* and other bacterial contaminants are available from the EPA's Safe Drinking Water Hotline at 1-800-426-4791).

Additional Information

The following test results are not required by law, but are provided by the City of Vancouver to keep you informed about the quality of your water:

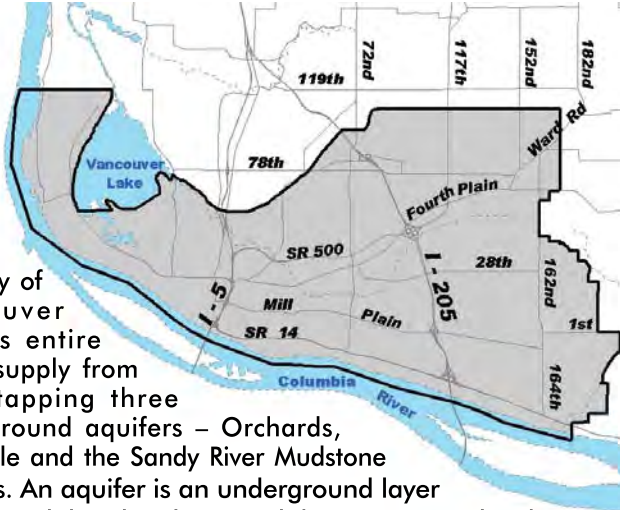
Contaminant	Highest Test Results	Lowest Test Results
Alkalinity (ppm)	120.0	67
Bromodichloromethane (THM) (ppb)	0.0032	0
Bromoform (THM) (ppb)	0.0011	0
Calcium (ppm)	37	13
Chloride (ppm)	11	5.3
Chloroform (THM) (ppb)	0.0065	0
Dibromochloromethane (THM) (ppb)	0.0031	0
Hardness (ppm)	140	58
Magnesium (ppm)	11	6.3
Potassium (ppm)	3.8	2
Radon 222 (pci/L)	410	0

Terms and Definitions: **AL:** Action Level - Concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow. **EPA:** United States Environmental Protection Agency. This federal agency enforces the Safe Drinking Water Act. **WSDOH:** Washington Department of Health. This state agency enforces the Safe Drinking Water Act within the State of Washington. **<:** Less than. **MCL:** Maximum Contaminant Level. Highest level of a contaminant allowed in drinking water. MCLs are set as close to ideal levels as current treatment technology allows. **ppb:** Parts per billion. One ppb equals one milligram per 1000 liters. **ppm:** Parts per million. One ppm equals one milligram per liter. **THM:** Trihalomethanes. Total concentration of a series of chlorinated organic compounds, disinfection byproducts that are unavoidable and caused by a chemical reaction between chlorine and naturally occurring organic matter in water. **MCLG:** Maximum Contaminant Level Goal. Level of contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety. Only Primary Standards have MCLGs because Secondary Standards are not set for health reasons. **pci/L:** picocuries per liter. Unit of measurement for radionuclides. **NTU:** Nephelometric Turbidity Unit. Unit of measurement for turbidity. **umhos/cm:** Ability of water to conduct electricity based on mineral content and water temperature. **Hardness:** To convert ppm to grains per gallon, divide by 17.12.

Postal Customer

Where Does Vancouver Get its Water?

Vancouver Water Service Area



The City of Vancouver gets its entire water supply from wells tapping three underground aquifers – Orchards, Troutdale and the Sandy River Mudstone aquifers. An aquifer is an underground layer of unconsolidated rock or sand that is saturated with usable amounts of water. Aquifers, which store and carry water, form significant natural water supplies. Recharge areas are important to a healthy aquifer. In a recharge area, water is able to seep into the earth and down to the aquifer, helping to resupply the resource. In order to ensure tap water is safe, EPA prescribes regulations that limit contaminants. City, state of Washington and U.S. federal regulations, work together to keep our aquifers safe and our drinking water clean.

Lead and Copper at Safe Levels in Your Water

The federal Safe Drinking Water Act and Washington Department of Health require testing for lead and copper. The presence of lead in drinking water has been a source of concern for parents because of the potential health effects on young children. Copper is tested because people with the rare Wilson's disease cannot regulate copper in their bodies. In June 2009, the City of Vancouver tested water at the taps of more than 50 residential homes, generally built between 1982-1987 with lead solder and copper pipes, posing the greatest potential risk. We are glad to report that our results showed lead and copper concentrations below EPA action levels. Questions about these or any water quality testing, please call Richard Hoffman at 735-8894 or email at richard.hoffman@ci.vancouver.wa.us.

Does My Drinking Water Contain Fluoride?

Yes. The Vancouver City Council voted in 1961 to add fluoride to the drinking water, a decision supported by a citizens' vote in 1962. As a result, our water is fluoridated to 1 milligram per liter - less than the allowed 4 milligrams per liter, but in compliance with city code and levels intended to help reduce dental disease.

Does My Drinking Water Contain Chlorine?

Yes. Regulations require water contain a disinfectant residual as a precaution against potential contaminants that might somehow enter the system. Chlorine destroys illness-causing organisms, fulfilling this requirement. To reduce chlorine taste or smell, use a filter or fill a pitcher with water and let it sit for several hours. The chlorine will react with the air and evaporate from the water.

Easy and Quick!

Save time and stamps by paying your water bill online at www.cityofvancouver.us/AtYourService. Pay when you get the bill or use AutoPay, and never get a late fee again! To pay by phone using the automated voice response system, please call 360-487-7999.



Contacts for More Information

More information about your water is available online or by calling us at 360-696-8177. Your resources for information:

www.cityofvancouver.us/water
www.cityofvancouver.us/waterprotection
www.cityofvancouver.us/watercenter

Questions for EPA – Safe Drinking Water Hotline
800-426-4791 or www.epa.gov/safewater

Disposal of Hazardous Waste Materials
Information: www.cityofvancouver.us/solidwaste

Important Information for our Non-English Speaking Customers

This report contains important information about your drinking water. Translate it, or speak with someone who can translate it for you.

Spanish Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.

Vietnamese Tài liệu này có tin tức quan trọng về nước uống của quý vị. Hãy nhờ người dịch cho quý vị, hoặc hỏi người nào hiểu tài liệu này.

Russian В этом сообщении содержится важная информация о воде, которую вы пьёте. Попросите кого-нибудь перевести для вас это сообщение или поговорите с человеком, который понимает его содержание.

City of Vancouver 2010 Water Quality Report



As a City of Vancouver water customer, you expect and deserve the best drinking water for yourself and your family.

Clean, safe drinking water is exactly what we provide to you and more than 200,000 people, each and every day.

This annual report confirms that your drinking water not only meets federal and state standards for safety and quality, it surpasses strict standards. The quality of your water is excellent.

We're sending you this report for two reasons:

First, we think it's important that you know how good your water is and what's in it.

Second, federal Safe Drinking Water regulations require it.

All community water systems must send all customers an annual water quality report that contains important information about their drinking water, as defined by results of bacteriological, chemical, physical and radiological tests, with comparisons to Washington State Department of Health and U.S. Environmental Protection Agency (EPA) standards. You can also find this report online at www.cityofvancouver.us/water, along with past Water Quality Reports and other useful information about your drinking water.

We hope you will take time to read this report and call 360-696-8177 or visit us at www.cityofvancouver.us/water if you have any questions.

Dear Vancouver Water Customers,

Behind the clean, safe water that flows from our faucets and through an extensive system of pipes, pumps and stations, are dedicated people designing, protecting, operating and maintaining the state's fourth largest municipal water system, twenty-four hours a day, seven days a week.

In 2010, the City of Vancouver's Water Utility, under the Department of Public Works, served up 8.5 billion gallons of high quality drinking water to more than 200,000 people in Vancouver and much of the surrounding community. With 11 water stations, 40 wells, about 1,000 miles of Utility water pipe, 53 booster pumps and nearly 69,000 service connections, keeping the water flowing is no small task. Along with all other City of Vancouver employees, we are continuously striving to find new ways of doing things more effectively to better serve you.

- Our Operations Water Production, Distribution and Quality teams manage day-to-day business, monitor the water system, and ensure private backflow and cross-connection preventions meet state requirements.
- Our Water Systems Engineering Program strategically addresses future water needs to ensure continued reliability.
- Our Water Resources Protection Program actively inspects and assists businesses to ensure protection of aquifers and critical recharge areas.
- Our Sewer Connection Incentive Program (SCIP) helps to protect groundwater and eliminate aging septic systems by extending reliable public sewer and making connection easy and affordable.
- Our Water Resources Education Center, supported by dozens of volunteers, each year helps thousands of students and adults learn how to use and protect our community's precious water supplies.

Just as regular upkeep is critical to preserving your home, protecting and maintaining Utility well stations, pumps and lines is critical to preserving the assets that serve you and ensuring our community continues to have a reliable supply of the clean, safe drinking water.

In 2010, in addition to projects that replaced substandard and aging lines and boosted energy efficiency of pumps, we constructed the southeast/Northeast 97th Avenue transmission main line from the north Ellsworth Water Station, and installed the Northeast 99th Street transmission main line east of Northeast 117th Avenue. In addition, three layers of protective coating were applied to the Water Station 5 Tower, near Devine Road, to guard against weather-related corrosion.

More projects are taking place in 2011. These include 3,900 feet of new main water line pipe installed along Fourth Plain Boulevard, near Water Station 1, replacing aging pipes from as long ago as 1929. Another major project, the Eastside Water Line extension, will install 12,800 feet of pipe line along McGillivray Boulevard and 164th Avenue, and will move water from the west, where water supplies are greatest, to the east, where growth potential is greatest. In addition, the Water Station 7 Tower will also be getting three new layers of coating to protect against weather-related corrosion.

We are proud of our efforts to serve you in 2010, and we look forward to continuing to provide the clean, safe water you want and need in 2011 and the years ahead.

Thank you!
Brian Carlson, Director of Vancouver Public Works
City of Vancouver, Washington

Water Quality Summary

The City of Vancouver goes far beyond state and federal requirements. In 2010, we analyzed your water for more than 238 different substances, some regulated and some not regulated. The regulated substances listed below were detected in Vancouver's water during 2010. All samples taken are from treated water delivered to the distribution system. Highest measured values represent an exception to the overall average concentrations in water delivered in the system. All results are below levels allowed by federal and state agencies.

Health Related (Primary) Standards

Primary standards are intended to protect public health against substances in the water that may be harmful to humans if consumed over long periods of time. EPA standards are set at levels that protect our most sensitive population, such as infants and the elderly.

Contaminant (unit)	Highest Level Allowed (MCL)	Highest Detected	Lowest Detected	Ideal Goal (MCLG)	Potential Sources
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Inorganics

Fluoride (ppm)	4.0	1.10	0.016	4.0	Additive for strong teeth
Total Nitrates (ppm)	10.0	5.0	0.0	10.00	Animal waste, sewage, septic systems, fertilizer
Sodium (ppm)	20.0*	33.0**	7.20	20.00	Erosion of natural deposits and pH adjustment
Barium (ppm)	2.0	0.0270	0.0054	2	Erosion of natural deposits
Arsenic (ppm)	0.01	0.0011	0.0	0	Erosion of natural deposits
Copper (ppm)	1.30	0.0120	0.0	0	Erosion of natural deposits, corrosion of plumbing

* A recommended level of concern for those on diets with daily sodium intake restrictions.

** This elevated level, from only one water station, is a byproduct of pH adjustment for EPA required corrosion control.

Organics

Tetrachoroethylene (ppb)	5	0.4	0	0	Discharge from industrial and/or commercial sites
Total Trihalomethane (ppb)	80	1.4	0	0	By-product of disinfection with chlorine

Physical Characteristics

pH	8.5	8.2	6.8	6.5-8.5	Naturally occurring or treatment additive
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Bacteriological

Total Coliform Bacteria	Less than 5%	0%	0%	0%	Contamination by mammals
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Aesthetic (Secondary) Standards and Other Characteristics

Secondary standards are established to ensure aesthetic qualities of water such as taste, odor or clarity. These govern substances that may influence consumer acceptance of water, rather than health effects

Contaminant (unit)	Highest Level Allowed (MCL)	Highest Detected	Lowest Detected	Ideal Goal (MCLG)	Potential Sources
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Inorganic Compounds

Sulfate (ppm)	250	12	2	NA	Naturally occurring
Iron (ppm)	0.30	0.05	0.00	NA	Erosion of natural deposits
Silver (ppm)	0.10	0.0006	0.0	NA	Erosion of natural deposits

Physical Characteristics

Conductivity (umhos/cm)	700.0	310	160	NA	Naturally occurring
Total Dissolved Solids (ppm)	500	210	110	0	Naturally occurring
Turbidity (ntu)	1	0.41	0.08	0	Naturally occurring

Special Information Available

Drinking water, including bottled water, may be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate a health risk. Some people may be more vulnerable than the general population to drinking water contaminants. Immuno-compromised people, such as those undergoing chemotherapy for cancer treatment; people who have had organ transplants; people with HIV/AIDS or other immune system disorders; some elderly; and infants may be particularly at risk from infections. These people should seek advice from their health care providers. Environmental Protection Agency (EPA) and Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other bacterial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Important information for our non English-speaking customers

This report contains important information about your drinking water. Translate it, or speak with someone who can translate it for you.

Spanish	Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.
Vietnamese	Tài liệu này có tin tức quan trọng về nước uống của quý vị. Hãy nhờ người dịch cho quý vị, hoặc hỏi người nào hiểu tài liệu này.
Russian	информация о воде, которую вы пьёте. Попросите кого-нибудь перевести для вас это сообщение или поговорите с человеком, который понимает его содержание.

Additional information about your water

The following test results are not required by law, but are provided by the City of Vancouver to keep you informed.

Contaminant	Highest Test Results	Lowest Test Results
Alkalinity (ppm)	120	67
Boron (ppb)	0.057	0
Bromodichloromethane (THM) (ppb)	0.7	0
Calcium (ppm)	38	12
Chloride (ppm)	13	2.7
Chloroform (THM) (ppb)	0.8	0
Dibromochloromethane (THM) (ppb)	0.6	0
Hardness (ppm)	140	57
Magnesium (ppm)	11	6.2
Potassium (ppm)	4	1.9
Radon 222 (pci/L)	560	0

Terms and Definitions: **AL:** Action Level - Concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow. **EPA:** United States Environmental Protection Agency. This federal agency enforces the Safe Drinking Water Act. **WSDOH:** Washington Department of Health. This state agency enforces the Safe Drinking Water Act within the State of Washington. **<:** Less than. **MCL:** Maximum Contaminant Level. Highest level of a contaminant allowed in drinking water. MCLs are set as close to ideal levels as current treatment technology allows. **ppb:** Parts per billion. One ppb equals one milligram per 1000 liters. **ppm:** Parts per million. One ppm equals one milligram per liter. **THM:** Trihalomethanes. Total concentration of a series of chlorinated organic compounds, disinfection byproducts that are unavoidable and caused by a chemical reaction between chlorine and naturally occurring organic matter in water. **MCLG:** Maximum Contaminant Level Goal. Level of contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety. Only Primary Standards have MCLGs because Secondary Standards are not set for health reasons. **pci/L:** picocuries per liter. Unit of measurement for radionuclides. **NTU:** Nephelometric Turbidity Unit. Unit of measurement for turbidity. **umhos/cm:** Ability of water to conduct electricity based on mineral content and water temperature. **Hardness:** To convert ppm to grains per gallon, divide by 17.12.

Vancouver continues excellent results in second round of EPA's Unregulated Contaminant Monitoring

EPA is requiring select public water systems to monitor for 25 chemicals using five different analytical methods. All public water systems serving more than 10,000 people, and a representative sample of 800 public water systems serving 10,000 or fewer people are required to conduct Assessment Monitoring for 10 chemicals during a 12-month period. All public water systems serving more than 100,000 people are required to conduct the Screening Survey for 15 contaminants during a 12-month period.

The City of Vancouver conducted the first round of sampling under the UCMR2 (Unregulated Contaminant Monitoring Rule 2) requirements in July 2009 and its second and final round in January 2010. We are pleased to report that all sample results in both 2009 and 2010 came back detection-free for the 25 contaminants.

This program was developed in coordination with the Contaminant Candidate List (CCL), a list of contaminants that are not regulated by national primary drinking water regulation, are known or anticipated to occur at public water systems, and may warrant regulation under the Safe Drinking Water Act. Data collected are stored in the National Contaminant Occurrence Database to support analysis and review of contaminant occurrence, to guide the CCL selection process, and to support EPA's determination of whether to regulate a contaminant to protect public health.

How were these contaminants selected? EPA reviewed contaminants targeted through existing prioritization processes, including previous UCMR "reserved" contaminants (i.e., those contaminants for which analytical methods were not yet available), and the Contaminant Candidate List (CCL). Additional contaminants were identified based on current research on occurrence and health effects risk factors. Pesticides not registered for use in the United States, contaminants that did not have an analytical reference standard, and contaminants whose analytical methods were not ready for use were removed from the list. EPA further prioritized remaining contaminants based on more extensive health effects evaluations by the Office of Water's Office of Science and Technology. Procedures for evaluating health effects scores were developed to support the ranking of contaminants for future CCLs. The UCMR benefits the environment and public health by providing EPA and other interested parties with scientifically valid data on occurrence of these contaminants in drinking water, permitting assessment of population exposed and levels of that exposure. This is the primary source of exposure data for EPA to determine whether to regulate these contaminants.



The City of Vancouver, WA, and City of Vancouver Department of Public Works can be found on Facebook, offering helpful tips and information.

Aquifers supply 100 percent of Vancouver's water

The City of Vancouver gets its entire water supply from wells tapping three underground aquifers – Orchards, Troutdale and the Sandy River Mudstone aquifers.

An aquifer is an underground layer of unconsolidated rock or sand that is saturated with usable amounts of water. Aquifers, which store and carry water, form significant natural water supplies. Recharge areas are important to a healthy aquifer. In a recharge area, water is able to seep into the earth and down to the aquifer, helping to resupply the resource. In order to ensure tap water is safe, EPA prescribes regulations that limit contaminants. City, state of Washington and U.S. federal regulations, work together to keep our aquifers safe and our drinking water clean.

Vancouver's Water Service Area



Lead and copper testing slated for 2011; tests for 2009 showed safe levels

The City of Vancouver will be conducting tests for lead and copper in 2011, in keeping with federal Safe Drinking Water Act and Washington Department of Health requirements. The presence of lead in drinking water has been a source of concern for parents because of the potential health effects on young children. Copper is tested because people with the rare Wilson's disease cannot regulate copper in their bodies. In June 2009, the City of Vancouver tested water at the taps of more than 50 residential homes, generally built between 1982-1987 with lead solder and copper pipes, posing the greatest potential risk. We are happy to report that our results showed lead and copper concentrations below EPA action levels. Questions about these or any water quality testing, please call Richard Hoffman at 735-8894 or email at richard.hoffman@cityofvancouver.us.

Does my drinking water contain fluoride?

Yes. The Vancouver City Council voted in 1961 to add fluoride to the drinking water, a decision supported by a citizens' vote in 1962. As a result, our water was fluoridated to 1 milligram per liter in 2010 - less than the allowed 4 milligrams per liter for 2010, but in compliance with city code and levels intended to help reduce dental disease. For 2011, the fluoridated target is 0.7 milligrams per liter, per latest EPA recommendations.

Does my drinking water contain chlorine?

Yes. City of Vancouver water contains a trace amount of chlorine residual that has been added as a precaution against potential contaminants that might somehow enter the system. To reduce chlorine taste or smell, just use a filter or fill a pitcher with water and let it sit for several hours. The chlorine will react with the air and evaporate from the water.

Does my drinking water contain hexavalent chromium?

No! The City of Vancouver has been testing for hexavalent chromium, even though there is no requirement to do so, at each of its water stations since 2001. We are happy to report that no hexavalent chromium has been detected in our drinking water. Learn more on our website at www.cityofvancouver.us/water.

More information

More information about your water is available online or by calling us at 360-696-8177. Here are some additional resources where you can find helpful information:

City of Vancouver online resources:

Water Production/Distribution: www.cityofvancouver.us/water

Utility Billing: www.cityofvancouver.us/AtYourService

Water Resources Protection: www.cityofvancouver.us/waterprotection

Water Resources Education Center: www.cityofvancouver.us/watercenter

Questions for EPA – Safe Drinking Water Hotline
800-426-4791 or www.epa.gov/safewater

Hazardous Waste Disposal Information: www.recyclingA-Z.com

New community program coming in 2011

Watch for more information in the coming months for how you can join this community wave to help to those in need.

In response to community requests, City of Vancouver will be launching a new Help 2 Others (H2O) program in 2011 that will allow citizens and businesses the opportunity to make tax deductible contributions to keep water flowing for those in our community who have a demonstrated need.



We've partnered with Clark Public Utilities, which has led the way with Operation Warm Heart, to evaluate applicants who are seeking emergency help to pay their water bills. Watch for an announcement in your City of Vancouver Utility bill and online at www.cityofvancouver.us/AtYourService in the coming months heralding the start of the program and information about how you can join in this Vancouver wave to share H2O.

Go paperless, go green

Whether you want to go green or simply want to reduce paper in your mailbox, paperless eBill is a perfect solution that is free, fast and secure. When you enroll in eBill, instead of a paper bill, you'll get an email letting you know that your latest City of Vancouver Utility bill is available to view online. As always, your billing and account history can be viewed at a glance, 24/7, through our website. Visit www.cityofvancouver.us/AtYourService today to learn more about eBill.



When's the last time your sprinkler system was tested?

If you are a property owner with an in-ground sprinkler system or private well, you should know that state and local laws require you install and maintain a backflow prevention device on your service line and have it inspected each year by a licensed tester. Proper working backflow protection devices prevent the water system from becoming contaminated. Visit www.cityofvancouver.us/water or call the Operations Center at 360-696-8177 to learn more or view a list of certified testers.

We're using water wisely and so are you - Thank you!

The City of Vancouver is required to set Water Conservation Goals for its municipal system per state Department of Health water use efficiency requirements (WAC 246-290-830(4)(a)). Vancouver City Council adopted the following goals in 2009:

Vancouver's Supply Side Goal is to maintain annual water loss from the distribution system at 6 percent or less, which the city aims to achieve by continued monitoring of water loss through meter calibration, meter exchange program and leak detection. In 2010, the City of Vancouver's supply side leakage decreased to 4.2 percent.

Vancouver's Demand Side Goal is to reduce the average equivalent residential unit (ERU) annual water consumption by a minimum of 1 percent within six years. Since adoption of the goal, consumption per capita has decreased by roughly 3.7 percent.

Learn more about how you can conserve water at these sites:
www.cityofvancouver.us/water

Water Resources Education
Center, 4600 SE Columbia Way
www.cityofvancouver.us/watercenter

EPA Water Sense
www.epa.gov/watersense



City of Vancouver
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Vancouver, Washington 98668-1995

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**The highest quality,
clean, safe drinking water
is as close as your faucet**

**VANCOUVER CITY COUNCIL: Mayor Timothy D. Leavitt • Jeanne Harris • Jeanne E. Stewart • Larry Smith
Pat Campbell • Jack Burkman • Bart Hansen • City Manager Eric Holmes**





2011

Annual **Water**
Quality
Report

Report
Quality
Annual Water

Clean, safe drinking water is as close as your tap.

Your City of Vancouver drinking water meets all and surpasses many federal and state standards for safety and quality. We're sending you this report for two reasons:

First, we think it's important that you know how good your water is and what's in it. Second, federal Safe Drinking Water regulations require it.

All community water systems must send all customers an annual water quality report that contains important information about their drinking water, as defined by results of bacteriological, chemical, physical and radiological tests, with comparisons to Washington State Department of Health and U.S. Environmental Protection Agency (EPA) standards. Your report is here. You can also find it online at www.cityofvancouver.us/water, along with past Water Quality Reports and other information about your drinking water. Please take a moment to look over this report and learn more.

City of Vancouver, Washington

Dear Vancouver Water Customer,

We are pleased to present the 2011 Drinking Water Quality Report, with details about our water quality and monitoring data. Bringing clean, safe water to your home or business each and every day is one of the most important things that we do. It's a responsibility that we take very seriously.

The City of Vancouver's extensive system of pipes, pumps and stations provide clean, safe water each hour of every day throughout the year for every aspect of our community – our homes, recreation, organizations, emergency services, businesses and industries. Ours is the fourth largest municipal water system in the state of Washington, with 11 water stations, 40 wells, 1,026 miles of pipes, 52 booster pumps, and nearly 69,000 service connections (water meters) in our water service area. Most important is the team of dedicated people who design, protect, operate and maintain this infrastructure, handling the routine and emergency alike with professional expertise and community concern.

In 2011, the City of Vancouver's Water Utility, under the Department of Public Works, provided approximately 8.95 billion gallons of high quality drinking water to more than 200,000 people in Vancouver and much of the surrounding community. At the same time, our operations, system and water quality met, and in many cases bettered, all local, state and federal regulations, as well as rigorous testing beyond what is required.

The City of Vancouver is continuously seeking new ways to serve you and future generations more effectively. Just as regular upkeep is critical to preserving your home, protecting and maintaining Utility well stations, pumps and lines is critical to preserving the assets that serve you and ensuring our community continues to have a reliable supply of the clean, safe drinking water. We also strive to provide infrastructure to support water service prior to or at the time of new development.

In 2011, major water improvement projects included replacing World War II era pipe with 3,900 feet of new water main along Fourth Plain Boulevard near Water Station 1; and installing 12,800 feet of pipe line along McGillivray Boulevard and 164th Avenue to allow the system to move water from Vancouver's west side to the east to meet demands of growth. Intersection improvements and paving this year will finish up the 164th Avenue effort, a good example of how combining management and timing of Utility and street projects allows for a more efficient, better overall product for you. In addition, several grant-funded energy efficiency projects were completed at our water stations in 2011. Beginning in 2011 and continuing through 2012, upgrades are being made at all water stations to improve security and reliability.

Other projects under way for 2012 include replacing aging, substandard water mains with approximately 6,800 feet of new 8-inch ductile iron water mains and 300 feet of new 6-inch ductile iron water mains in the Fruit Valley Neighborhood. In addition, painting of the Water Station 7 Tower will be taking place beginning in June 2012, a needed step to protect against weather-related corrosion.

This year also marks the start of our new Help to Others (H2O) Program, which helps qualifying low-income residents in crisis situations pay for water service through the generous contributions of citizens like you. Every cent donated by you goes directly to helping others, and is eligible as a tax deduction.

We are proud of our service to you, and we look forward to continuing to provide clean, safe water to our community.

Thank you!

Brian Carlson, Public Works Director
City of Vancouver, Washington

Water Quality Summary

The City of Vancouver reaches beyond state and federal requirements and has its water analyzed for more than 238 different substances, some regulated and some not regulated. The substances listed below are regulated and were detected in Vancouver's water during 2011. All samples taken are from treated water delivered to the distribution system. Highest measured values represent an exception to the overall average concentrations in water delivered in the system. All results are below maximum levels allowed by federal and state agencies.

Health Related (Primary) Standards

Contaminant (unit)	Highest Level Allowed (MCL)	Highest Detected	Lowest Detected	Ideal Goal (MCLG)	Potential Sources
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Inorganics

Arsenic (ppm)	0.01	0.0010	0.0	0	Erosion of natural deposits
Barium (ppm)	2.00	0.0280	0.0028	2	Erosion of natural deposits
Copper (ppm)	1.30	0.0340	0.0	0	Erosion of natural deposits, corrosion of plumbing
Fluoride (ppm)	4.00	0.87	0.090	4.00	Additive for strong teeth
Sodium (ppm)	- *	31.0**	6.50	20.00	Erosion of natural deposits and pH adjustment
Total Nitrates (ppm)	10.00	5.0	0.00	10.00	Fertilizer, animal waste, septic systems, sewage

* EPA currently recommends 20 MCL as a level of concern for those on diets with daily sodium intake restrictions.

** This elevated level, from only one water station, is a byproduct of pH adjustment for EPA required corrosion control.

Organics

Tetrachloroethylene (ppb)	5	1	0	0	Discharge from industrial and/or commercial sites
Total Trihalomethane (ppb)	80	1.3	0	0	Byproduct of disinfection

Physical Characteristics

pH	8.5	7.9	6.8	6.5-8.5	Naturally occurring or treatment additive
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Radionuclides

Gross Beta (pCi/L)	50	4.2	0	0	Naturally occurring
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Bacteriological

Total Coliform Bacteria	Less than 5%	0%	0%	0%	Contamination by mammals
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Aesthetic (Secondary) Standards and Other Characteristics

Secondary standards are established to ensure aesthetic qualities of water such as taste, odor or clarity. These govern substances that may influence consumer acceptance of water, rather than health effects.

Contaminant (unit)	Highest Level Allowed (MCL)	Highest Detected	Lowest Detected	Ideal Goal (MCLG)	Potential Sources
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Inorganic Compounds

Sulfate (ppm)	250	9.8	1.8	NA	Naturally occurring
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Physical Characteristics

Conductivity (umhos/cm)	700.0	300	150	NA	Naturally occurring
Total Dissolved Solids (ppm)	500	220	120	0	Naturally occurring
Turbidity (ntu)	1	0.48	0.084	0	Naturally occurring

Special information available

Drinking water, including bottled water, may be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate a health risk. Some people may be more vulnerable than the general population to drinking water contaminants. Immuno-compromised people, such as those undergoing chemotherapy for cancer treatment; people who have had organ transplants; people with HIV/AIDS or other immune system disorders; some elderly; and infants may be particularly at risk from infections. These people should seek advice from their health care providers. Environmental Protection Agency (EPA) and Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other bacterial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Important information for our non English-speaking customers

This report contains important information about your drinking water. Translate it, or speak with someone who can translate it for you.

Spanish	Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.
Vietnamese	Tài liệu này có tin tức quan trọng về nước uống của quý vị. Hãy nhờ người dịch cho quý vị, hoặc hỏi người nào hiểu tài liệu này.
Russian	информация о воде, которую вы пьёте. Попросите кого-нибудь перевести для вас это сообщение или поговорите с человеком, который понимает его содержание.

Additional information about your water

The following test results are not required by law, but are provided by the City of Vancouver to keep you informed.

Contaminant	Highest Test Results	Lowest Test Results
Alkalinity (ppm)	120	65
Boron (ppm)	0.56	0
Bromodichloromethane (THM) (ppm)	0.0032	0
Bromoform (THM) (ppm)	0.0015	0
Calcium (ppm)	36	12
Chloride (ppm)	13	2.6
Chloroform (THM) (ppm)	0.0062	0
Dibromochloromethane (THM) (ppm)	0.0026	0
Hardness (ppm)	140	57
Hexavalent Chromium (ppm)	0.0007	0
Magnesium (ppm)	11	6.5
Potassium (ppm)	4.1	2.1
Radon 222 (pci/L)	380	0

Terms and Definitions: **AL:** Action Level - Concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow. **EPA:** United States Environmental Protection Agency. This federal agency enforces the Safe Drinking Water Act. **WSDOH:** Washington Department of Health. This state agency enforces the Safe Drinking Water Act within the State of Washington. **<:** Less than. **MCL:** Maximum Contaminant Level. Highest level of a contaminant allowed in drinking water. MCLs are set as close to ideal levels as current treatment technology allows. **ppb:** Parts per billion. One ppb equals one milligram per 1000 liters. **ppm:** Parts per million. One ppm equals one milligram per liter. **THM:** Trihalomethanes. Total concentration of a series of chlorinated organic compounds, disinfection byproducts that are unavoidable and caused by a chemical reaction between chlorine and naturally occurring organic matter in water. **MCLG:** Maximum Contaminant Level Goal. Level of contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety. Only Primary Standards have MCLGs because Secondary Standards are not set for health reasons. **pCi/L:** picocuries per liter. Unit of measurement for radionuclides. **NTU:** Nephelometric Turbidity Unit. Unit of measurement for turbidity. **umhos/cm:** Ability of water to conduct electricity based on mineral content and water temperature. **Hardness:** To convert ppm to grains per gallon, divide by 17.12.



When's the last time your system was tested?

If you are a property owner with an in-ground sprinkler system or private well, you should know that state and local laws require you install and maintain a backflow prevention device on your service line and have it inspected yearly by a certified tester.

Backflow occurs when water or other substances flow in the opposite direction than intended, allowing contaminants to enter your plumbing or the public water system. Proper working backflow protection devices protect your pipes and the public water supply from contamination. Visit www.cityofvancouver.us/water or call the Public Works Operations Center at 360-696-8177 to learn more or view a list of certified testers.

Where does your water come from? Aquifers, 100 percent.

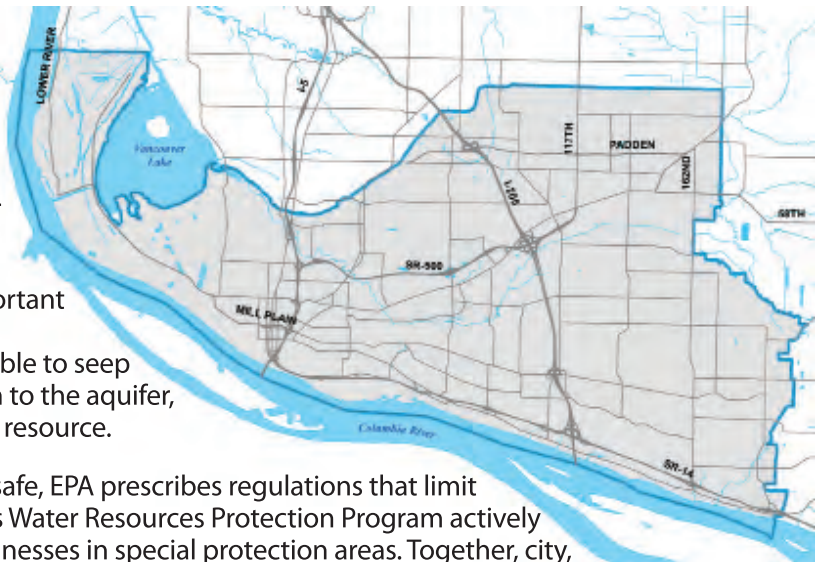
The City of Vancouver gets all of the water supplied throughout our service area from wells tapping three underground aquifers – Orchards, Troutdale and the Sand-and-Gravel aquifers.

An aquifer is an underground layer of unconsolidated rock or sand that is saturated with usable amounts of water. Aquifers, which store and carry water, form significant natural water supplies.

Recharge areas are important to a healthy aquifer. In a recharge area, water is able to seep into the earth and down to the aquifer, helping to resupply the resource.

To help keep tap water safe, EPA prescribes regulations that limit contaminants. The city's Water Resources Protection Program actively inspects and assists businesses in special protection areas. Together, city, state of Washington and U.S. federal regulations are working to keep our aquifers safe and our drinking water clean.

Vancouver's Water Service Area



We're on Facebook. Get City of Vancouver Public Works updates, information and tips at www.facebook.com/VancouverPublicWorks. Pining for more? Visit us at www.pinterest.com/vanpublicworks.



Answers to your questions about your water

How are organics and inorganics measured for drinking water?

Generally, chemical analysis of organics is measured in parts per billion (ppb), and analysis of inorganics is in parts per million (ppm). To put that into perspective, four drops of ink in one 55-gallon barrel of water (mixed thoroughly) would produce an ink concentration of 1 ppm. One part per billion is the equivalent of one drop (mixed thoroughly) with a total of 250 55-gallon barrels of water.

Does my drinking water contain fluoride?

Yes. The Vancouver City Council voted in 1961 to add fluoride to the drinking water, a decision supported by a citizens' vote in 1962. As a result, fluoridation is required by the Vancouver Municipal Code, as adopted by the Council. In accordance, for 2011, Vancouver's water was fluoridated using sodium fluoride to less than 0.7 milligrams per liter, in keeping with the latest EPA recommendations.

Does my drinking water contain hexavalent chromium?

The City of Vancouver has been testing for hexavalent chromium (chromium-6) at each of its water stations since 2001, despite no requirement to do so, with results showing none detected. Newer testing methods have recently become available, allowing detections of significantly lower levels of hexavalent chromium. The previous EPA approved and accepted lab method detected hexavalent chromium as low as 5 parts per billion. In 2011, the city used the latest EPA accepted and recommended lab method at that time, which has much greater detection capabilities, down to 0.02 parts per billion. Under that new method, the highest result for hexavalent chromium from among all water stations was 0.0007 parts per million or 0.7 parts per billion, and the lowest was 0. Those results are shown in this report under "Additional information about your water," non-required test results the city provides to keep you informed. Currently, EPA has a drinking water standard maximum contaminant level for all total chromium of 0.1 parts per million, which translates into 100 parts per billion. EPA is currently re-evaluating that standard, which was established in 1991, and has further increased the level of detection in its testing method. More information is available on the EPA website at <http://water.epa.gov/drink/hotline> or by calling 1-800-426-4791.

Does my drinking water contain chlorine?

Yes. Vancouver's water contains a trace amount of chlorine residual added as a precaution against potential contaminants that might somehow enter the system. To reduce chlorine taste or smell, use a filter or simply fill a pitcher with water and let it sit for several hours. The chlorine will react with the air and evaporate from the water.

Why is sodium included on the list?

While high levels of salt intake may be associated with hypertension in some individuals, sodium levels in drinking water are usually low and unlikely to be a significant contribution to adverse health effects, according to the EPA. The EPA is considering updating the guidance level for sodium, and says the current one is probably low. Sodium was included on the list to provide an opportunity for more study. FDA imposes quality standards for sodium in bottled water that are equivalent to EPA's standards so switching to bottled water won't necessarily solve the sodium question if that is a concern for you. Instead, EPA recommends talking with your doctor or a dietician about how to reduce sodium in your food intake.

More information

More information about your water is available online or by calling us at 360-696-8177. Here are some additional resources where you can find helpful information:

City of Vancouver Water Production/Distribution: www.cityofvancouver.us/water

City of Vancouver Backflow/Cross Connection Testing: www.cityofvancouver.us/water

City of Vancouver Utility Service, Billing and Rates: www.cityofvancouver.us/AtYourService

City of Vancouver Water Resources Protection: www.cityofvancouver.us/waterprotection

City of Vancouver Water Resources Education Center: www.cityofvancouver.us/watercenter

Questions for EPA – Safe Drinking Water Hotline: 800-426-4791 or www.epa.gov/safewater

Hazardous Waste Disposal Information: www.recyclingA-Z.com

Go paperless, go green

Whether you want to go green or simply want to reduce paper in your mailbox, our paperless eBill is a perfect solution that is free, fast and secure. When you enroll in eBill, instead of a paper bill, you'll get an email letting you know that your latest City of Vancouver Utility bill is available to view online. As always, your billing and account history can be viewed at a glance, 24/7, through our website. It's easy. Visit www.cityofvancouver.us/AtYourService to learn more and sign up.



Lead and copper testing in 2011 show safe levels

Plus tips you can use in your home

The City of Vancouver conducted tests for lead and copper in 2011, in keeping with federal Safe Drinking Water Act and Washington Department of Health requirements. In June 2011, we tested water at the taps of more than 50 residential homes most at risk for contamination. These are homes generally built between 1982 and 1987 with lead solder and copper pipes. We are happy to report that our results showed lead and copper concentrations below EPA action levels.

The presence of lead in drinking water has been a source of concern for parents because of the potential health effects on young children. Copper is tested because people with the rare Wilson's disease cannot regulate copper in their bodies.

In June 2009, the City of Vancouver tested water at the taps of more than 50 residential homes, generally built between 1982 and 1987 with lead solder and copper pipes, with the same good results. If you have questions about these tests, please call Tony Sampson, water quality coordinator, at 360-487-8276 or send an email to tony.sampson@cityofvancouver.us.

In Washington State, lead in drinking water comes primarily from materials and components used in household plumbing. The more time water has been sitting in pipes, the more dissolved metals, such as lead, it may contain. Elevated levels of lead can cause serious health problems, especially in pregnant women and young children. If you are concerned about lead in your household plumbing, here are some things you can do to help reduce potential exposure: For drinking water taps that have not been used for six hours or more, flush water through the tap until the water is noticeably colder before using for drinking or cooking. You can use the flushed water for watering plants, washing dishes or general cleaning. Only use water from the cold water tap for drinking, cooking and especially for making baby formula. Hot water is more likely to contain higher levels of lead. If you are concerned about lead in your water, you also may wish to have your water tested.

Information on lead in drinking water is available from EPA's Safe Drinking Water Hotline at 1-800-426-4791 or online at www.epa.gov/safewater/lead.

Join Vancouver in bringing Help to Others in our community



Help to Others, or H2O, is a City of Vancouver Utility program designed to help qualifying low-income residents in crisis situations pay for water and/or sewer. Applicants requesting help are carefully screened and must meet financial and service requirements to be eligible for H2O assistance. Funding is provided through the generous contributions of concerned citizens, like you.

Every penny you donate goes directly to helping people in our community, and the donation is eligible as a charitable tax deduction. Please contact us or visit our website to learn how you can making a one-time donation or a recurring donation to be paid with your Utility bill using a check or your credit card. For information, call 360-487-7999 or visit us online at: www.cityofvancouver.us/AtYourService.

City of Vancouver
P.O. Box 1995
Vancouver, Washington 98668-1995

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VANCOUVER CITY COUNCIL: Mayor Timothy D. Leavitt • Jeanne Harris • Jeanne E. Stewart
Larry Smith • Jack Burkman • Bart Hansen • Bill Turlay • City Manager Eric Holmes

Get water smart at the City of Vancouver's Water Center

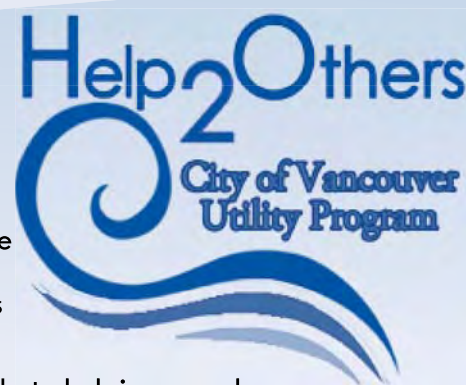
Protecting our community's bountiful water resources is important to the City of Vancouver. Through active, engaging programs and dedicated volunteers, we're helping people of all ages learn how to use water wisely so the clean, safe drinking water we enjoy now can be enjoyed by many generations to come, too.

We invite you to get water smart at Vancouver's Water Resources Education Center. Enjoy indoor exhibits and outdoor gardens and walks, overlooking Columbia River wetlands. You'll also discover a variety of fun-filled events, including the popular Sturgeon Festival each fall. Please join us for free family fun and activities every Second Saturday of each month from 1 to 3 p.m. Visit www.cityofvancouver.us/watercenter to see what's in store for this month's Second Saturday at the Water Center.

Water Resources Education Center
4600 SE Columbia Way, Vancouver, WA
360-487-7111 • FREE Admission
9 a.m. to 5 p.m., Monday through Saturday
www.cityofvancouver.us/watercenter



Give help to others in our community



Help to Others, or H2O, is a City of Vancouver Utility program that helps qualifying low-income residents in crisis pay for water. Applicants are carefully screened and must meet financial and service requirements to be eligible for assistance. Funding is provided through the contributions of concerned citizens, like you.

Every penny you donate to H2O goes directly to helping people in our community, and the donation is eligible as a charitable tax deduction. Contact us to learn how you can make a one-time donation or a recurring donation to be paid with your Utility bill by check or credit card. Please call 360-487-7999 or visit us online at: www.cityofvancouver.us/AtYourService for more information about giving H2O to those in need in our community.

In 2012, nearly 3,000 students and 5,200 walk-in visitors enjoyed hands-on learning and exhibits at the Water Resources Education Center, recipient of a 2013 statewide award for Excellence in Environmental & Sustainability Education. Learn how you can explore the Water Center at www.cityofvancouver.us/watercenter.

Save paper, save time. Sign up for eBill!



What saves paper, time and energy? Your paperless Utility eBill. It's the perfect solution to reducing paper in your mailbox and getting your statement quickly and securely.

When you enroll in eBill, instead of waiting for a paper statement to arrive in your postal box, you'll get an email letting you know you can now view your latest Utility bill online. Your billing and account history can be conveniently viewed at any time through our website, as always.

Visit www.cityofvancouver.us/AtYourService to sign up for eBill today!

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The City of Vancouver - core services for a thriving community

From clean drinking water to public safety, from public streets to economic development, from community centers to events that bring us all together, City services enhance Vancouver's quality of life.

VANCOUVER CITY COUNCIL:
Mayor Timothy D. Leavitt
Jeanne Harris • Jeanne E. Stewart
Larry Smith • Jack Burkman • Bart Hansen
Bill Turlay • City Manager Eric Holmes



CITY OF
Vancouver
WASHINGTON

2012 Water Quality Report

City of Vancouver Utility



Great news for you, your family and our community!

The quality of your City of Vancouver drinking water is excellent. Vancouver's water not only meets all federal and state standards for safety and quality, it excels in surpassing many.

We're sending you this report for two reasons: First, we think it's important that you know how good your water is. Second, federal Safe Drinking Water regulations require that Vancouver put its annual drinking water report into the hands of all of our customers.

All community water systems must provide customers with an annual water quality report that contains important information about their drinking water, as defined by results of bacteriological, chemical, physical and radiological tests, with comparisons to Washington State Department of Health and U.S. Environmental Protection Agency (EPA) standards. That's what you'll find inside this report. We invite you to read it and learn more.

For other helpful information about your water and your Utility, we also encourage you to visit www.cityofvancouver.us/water.

Dear Vancouver Water Customer,

We are pleased to present the 2012 Drinking Water Quality Report, your key source for detailed information about the quality of your water. Bringing clean, safe water to your home or business each and every day, 24 hours a day, is our mission and an essential service to our community.

In 2012, the City of Vancouver's Water Utility, under the direction of Vancouver Public Works, provided 9.2 billion gallons of high quality drinking water to more than 230,000 people in Vancouver and much of the surrounding urban area. All of that water, every drop, comes from aquifers, not surface water. Once again in 2013, we put our water through rigorous testing, far beyond what the laws require. Once again, the quality of Vancouver's water met and in many cases was far better than what is required by local, state and federal regulations.

As a customer of the Utility, you are served by an extensive system of pipes, pumps, stations and reservoirs. Your Utility is the fourth largest municipal water system in the state of Washington, with 11 water stations, 40 wells, 1,026 miles of pipes, 52 booster pumps, and more than 69,000 service connections (water meters) in our water service area. These are backed by a team of dedicated people who design, protect, operate and maintain this infrastructure with professional expertise and concern for the community.

Managing these assets means taking care of what we have, from design to replacement and all steps in between. Several Water Utility projects were completed in 2012, including replacement of aging, substandard mains in the Fruit Valley Neighborhood and repainting of the Water Station 7 tower, shown on the cover of this report, to protect against weather-related corrosion. For 2013-2014, the Utility will begin its major project to improve and secure Water Station 1, the most prolific and critical source of water for the entire system. Other key projects include seismic evaluation of water towers and reservoirs; installation of a new transmission main from Water Station 14 in the north to Water Station 9 in the northeast; and property acquisition in the northeast and southeast areas for future water tank sites.

The Utility is also about people. You, our customer, are at the heart of all we do. In 2012, our customer service representatives fielded more than 84,382 customer calls and nearly 1,500 emails. We also launched a new charitable Help to Others (H2O) Program, which helps qualifying low-income residents in crisis situations pay for water services through the contributions of citizens like you. Through H2O, a helping hand was extended to 150 eligible families in crisis who received water/sewer assistance. I hope you will join me and other Vancouver residents in making an H2O commitment to our community for 2013. Every cent donated to the Vancouver Utility H2O goes directly to helping others and is eligible as a tax deduction.

Vancouver's quality of life and economic health are contingent on safe, sound, effective and efficient community infrastructure. Your Utility is committed to maintaining and strengthening the strong foundation our community needs to thrive. We are proud of our service to you, and we look forward to continuing to provide clean, safe water to our community.

Thank you!

Brian Carlson, Public Works Director
City of Vancouver, Washington

Water Quality Summary

The City of Vancouver Utility reaches beyond state and federal requirements and analyzes your water for more than 238 different substances, some regulated and some not. The substances listed below are regulated and were detected in Vancouver's water in 2012. All samples taken were from treated water delivered to the distribution system. Highest measured values represent an exception to overall average concentrations in water delivered in the system. All results are below maximum levels set by federal and state agencies.

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Inorganics

Arsenic (ppm)	0.01	0.0010	0.0	0	Erosion of natural deposits
Barium (ppm)	2.00	0.0270	0.0020	2	Erosion of natural deposits
Copper (ppm)	1.30	0.0110	0.0	0	Erosion of natural deposits, corrosion of plumbing
Fluoride (ppm)	4.00	0.85	0.100	4.00	Additive for strong teeth
Sodium (ppm)	20.0 *	11.0	3.60	20.00	Erosion of natural deposits and pH adjustment
Total Nitrates (ppm)	10.00	4.6	0.00	10.00	Fertilizer, animal waste, septic systems, sewage

* EPA current recommended level of concern for those on diets with daily sodium intake restrictions.

Organics

Total Trihalomethane (ppb)	80	0.0133	0.0026	0	By-product of disinfection
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Physical Characteristics

pH	8.5	7.9	6.8	6.5-8.5	Naturally occurring or treatment additive
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Radionuclides

Gross Beta (pCi/L)	50	3.5	0	0	Naturally occurring
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Bacteriological

Total Coliform Bacteria	Less than 5%	0%	0%	0%	Contamination by mammals
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Aesthetic (Secondary) Standards and Other Characteristics

Secondary standards are established to ensure aesthetic qualities of water such as taste, odor or clarity. These govern substances that may influence consumer acceptance of water, rather than health effects.

Contaminant (unit)	Highest Level Allowed (MCL)	Highest Detected	Lowest Detected	Ideal Goal (MCLG)	Potential Sources
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Inorganic Compounds

Sulfate (ppm)	250	9.9	1.9	NA	Naturally occurring
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Physical Characteristics

Conductivity (umhos/cm)	700	310	150	NA	Naturally occurring
Total Dissolved Solids (ppm)	500	200	110	0	Naturally occurring
Turbidity (ntu)	1	0.21	0.014	0	Naturally occurring

Special Information Available

Drinking water, including bottled water, may be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate a health risk. Some people may be more vulnerable than the general population to drinking water contaminants. Immuno-compromised people, such as those undergoing chemotherapy for cancer treatment; people who have had organ transplants; people with HIV/AIDS or other immune system disorders; some elderly; and infants may be particularly at risk from infections. These people should seek advice from their health care providers. Environmental Protection Agency (EPA) and Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other bacterial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Important information for our non English-speaking customers

This report contains important information about your drinking water. Please translate it, or speak with someone who can translate it for you.

Spanish Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.

Vietnamese Tài liệu này có tin tức quan trọng về nước uống của quý vị. Hãy nhờ người dịch cho quý vị, hoặc hỏi người nào hiểu tài liệu này.

Russian информация о воде, которую вы пьёте. Попросите кого-нибудь перевести для вас это сообщение или поговорите с человеком, который понимает его содержание.

Additional Information About Your Water

The following test results are not required by law, but are provided by the City of Vancouver to keep you informed.

Contaminant	Highest Test Results	Lowest Test Results
Alkalinity (ppm)	120	64
Boron (ppm)	0.058	0
Bromodichloromethane (THM) (ppm)	0.0092	0.001
Bromoform (THM) (ppm)	0.0069	0
Calcium (ppm)	41	13
Chloride (ppm)	8.2	2.7
Chloroform (THM) (ppm)	0.0065	0
Dibromochloromethane (THM) (ppm)	0.0027	0
Hardness (ppm)	150	62
Hexavalent Chromium (ppm)	0.0007	0
Magnesium (ppm)	12	0
Potassium (ppm)	4.4	2.3
Radon 222 (pci/L)	440	0

Terms and Definitions: **AL:** Action Level - Concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow. **EPA:** United States Environmental Protection Agency. This federal agency enforces the Safe Drinking Water Act. **WSDOH:** Washington Department of Health. This state agency enforces the Safe Drinking Water Act within the State of Washington. **<:** Less than. **MCL:** Maximum Contaminant Level. Highest level of a contaminant allowed in drinking water. MCLs are set as close to ideal levels as current treatment technology allows. **ppb:** Parts per billion. One ppb equals one milligram per 1000 liters. **ppm:** Parts per million. One ppm equals one milligram per liter. **THM:** Trihalomethanes. Total concentration of a series of chlorinated organic compounds, disinfection byproducts that are unavoidable and caused by a chemical reaction between chlorine and naturally occurring organic matter in water. **MCLG:** Maximum Contaminant Level Goal. Level of contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety. Only Primary Standards have MCLGs because Secondary Standards are not set for health reasons. **pCi/L:** picocuries per liter. Unit of measurement for radionuclides. **NTU:** Nephelometric Turbidity Unit. Unit of measurement for turbidity. **umhos/cm:** Ability of water to conduct electricity based on mineral content and water temperature. **Hardness:** To convert ppm to grains per gallon, divide by 17.12.



It's test time! Schedule your yearly backflow inspection now.

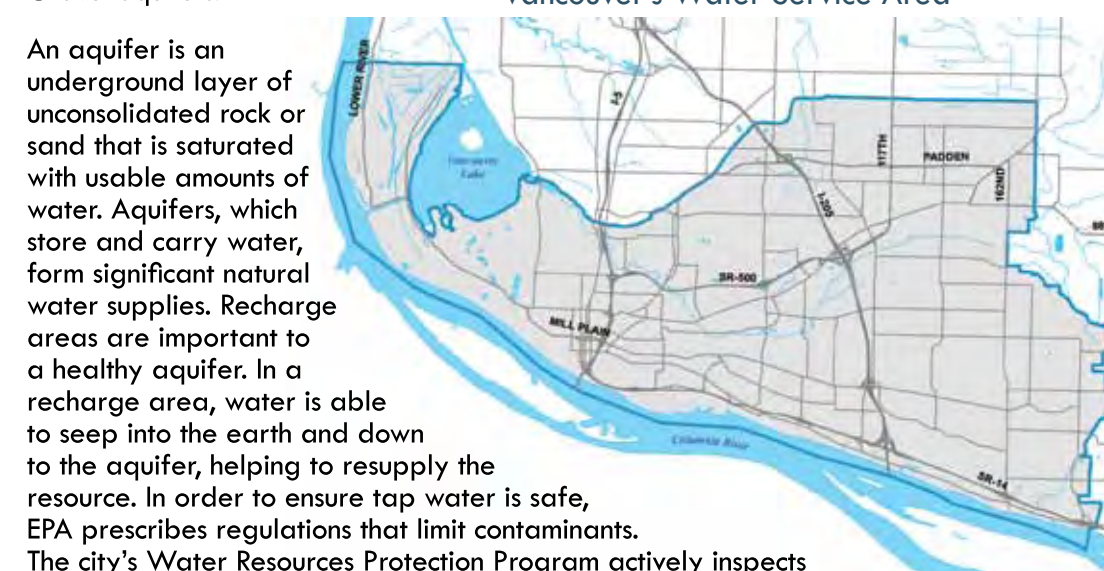
If you are a property owner with an in-ground sprinkler system or private well, you should know that state and local laws require you install and maintain a backflow prevention device on your service line and have it inspected yearly by a certified tester.

Backflow occurs when water or other substances flow in the opposite direction than intended, allowing contaminants to enter your plumbing or the public water system. Proper working backflow protection devices prevent your pipes and the public water supply from contamination. Visit www.cityofvancouver.us/water or call the Public Works Operations Center at 360-487-8177 to learn more or view a list of certified testers.

Where does your water come from? Aquifers, 100 percent.

The City of Vancouver gets all of the water supplied throughout our service area from wells tapping three underground aquifers – Orchards, Troutdale and the Sand-and-Gravel aquifers.

Vancouver's Water Service Area



An aquifer is an underground layer of unconsolidated rock or sand that is saturated with usable amounts of water. Aquifers, which store and carry water, form significant natural water supplies. Recharge areas are important to a healthy aquifer. In a recharge area, water is able to seep into the earth and down to the aquifer, helping to resupply the resource. In order to ensure tap water is safe, EPA prescribes regulations that limit contaminants. The city's Water Resources Protection Program actively inspects and assists businesses in special protection areas. Together, city, state and Washington and U.S. federal regulations are working to keep our aquifers safe and our drinking water clean.



Connect with your Utility! Stay informed with the latest updates on Facebook at www.facebook.com/VancouverPublicWorks, on Pinterest at www.pinterest.com/vanpublicworks and on Twitter at @VanPubWorksUS. Also visit www.cityofvancouver.us for more!

Answers to your questions about water

Does my drinking water contain chlorine?

Yes. Vancouver's water contains a trace amount of chlorine residual added as a precaution against potential contaminants that might somehow enter the system. To reduce chlorine taste or smell, use a filter or fill a pitcher with water and let it sit for a while. The chlorine will react with the air and evaporate from the water.

Why is sodium included on the list?

Sodium has been included on the list by EPA to provide an opportunity for more study. While high levels of salt intake may be associated with hypertension in some individuals, sodium levels in drinking water are usually low and unlikely to be a significant contribution to adverse health effects, according to the EPA. The EPA is considering updating the guidance level for sodium and says the current one is probably low. FDA imposes quality standards for bottled water that are equivalent to EPA's drinking water standards so switching to bottled water won't solve the sodium question if that is a concern for you. Instead, EPA recommends talking with your doctor or a dietician about reducing sodium in food intake.

Does my drinking water contain fluoride?

Yes. Vancouver's water is fluoridated using sodium fluoride, not fluoride byproducts from other processes, to about 0.6-0.8 milligrams per liter in compliance with federal and state regulations and guidelines.

Fluoride compounds are salts that form when the element fluorine combines with minerals in soil or rocks. According to the EPA, most water supplies contain some naturally occurring fluoride. Many communities add fluoride to their drinking water to promote dental health. Fluoridation in the City of Vancouver water system dates back to a Council ordinance adopted into code in late 1961. A citizens' referendum vote in early 1962 supported that Council decision. *(In 2011, the Washington Supreme Court held that city council decisions on fluoridation are an administrative decision, and not subject to local referendum or initiative.)* Since 1961, Vancouver's water has been fluoridated in compliance with Vancouver Municipal Code and EPA standards.

The Safe Drinking Water Act requires EPA to periodically review the national primary drinking water regulations and revise them, if appropriate. The current enforceable EPA drinking water standard for fluoride is 4.0 mg/L, the maximum amount allowed in water from public water systems. That standard level is now under EPA review, and the most current guideline from the U.S. Department of Health and Human Services (HHS) is 0.7 milligrams per liter.

For more information on fluoride in drinking water, visit the EPA website at water.epa.gov/drink. Additional information can be found on the websites for the Washington Department of Health at doh.wa.gov and the U.S. Department of Health and Human Services at cdc.gov/Fluoridation.

More information

More information about your water is available online or by calling us at 360-487-8177. Here are some additional resources where you can find helpful information:

City of Vancouver Water Production/Distribution: www.cityofvancouver.us/water
 City of Vancouver Backflow/Cross Connection Testing: www.cityofvancouver.us/water
 City of Vancouver Utility Service, Billing and Rates: www.cityofvancouver.us/AtYourService
 City of Vancouver Water Resources Protection: www.cityofvancouver.us/waterprotection
 City of Vancouver Water Resources Education Center: www.cityofvancouver.us/watercenter
 Questions for EPA – Safe Drinking Water Hotline: 800-426-4791 or www.epa.gov/safewater
 Hazardous Waste Disposal Information: www.recyclingA-Z.com

**APPENDIX 6E – DOH WATER QUALITY
MONITORING SCHEDULE**



Water Quality Monitoring Schedule

System: VANCOUVER, CITY OF
Contact: Tim J Brace

PWS ID: 91200 L
Group: A - Comm

Region: SOUTHWEST
County: CLARK

NOTE: To receive credit for compliance samples, you must fill out laboratory and sample paperwork completely, send your samples to a laboratory accredited by Washington State to conduct the analyses, AND ensure the results are submitted to DOH Office of Drinking Water. There is often a lag time between when you collect your sample, when we credit your system with meeting the monitoring requirement, and when we generate the new monitoring requirement.

Coliform Monitoring Requirements

	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016	Sep 2016	Oct 2016	Nov 2016
Coliform Monitoring Population	231000	231000	231000	231000	231000	231000	231000	231000	231000	231000	231000	231000
Number of Routine Samples Required	150	150	150	150	150	150	150	150	150	150	150	150

- Collect samples from representative points throughout the distribution system.
- Collect required repeat samples following an unsatisfactory sample. In addition, collect a sample from each operating groundwater source.
- Collect no less than 5 routine samples in the month following one or more unsatisfactory samples, in accordance with your system's Coliform Monitoring Plan.
- For systems that chlorinate, record chlorine residual (measured when the coliform sample is collected) on the coliform lab slip.

Chemical Monitoring Requirements

Distribution Monitoring

<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>
Lead and Copper	50	Jan 2015 - Dec 2017	standard - 3 year	09/17/2015	Jul 2017
Asbestos	0	Jan 2011 - Dec 2019	waiver - 9 year	03/25/1998	
Total Trihalomethane (THM)	2	Jan 2015 - Mar 2015	quarterly	06/25/2015	Mar 2015
Total Trihalomethane (THM)	2	Apr 2015 - Jun 2015	quarterly	06/25/2015	
Total Trihalomethane (THM)	2	Jul 2015 - Sep 2015	quarterly	06/25/2015	Sep 2015
Total Trihalomethane (THM)	2	Oct 2015 - Dec 2015	quarterly	06/25/2015	Dec 2015
Halo-Acetic Acids (HAA5)	2	Jan 2015 - Mar 2015	quarterly	09/23/2015	Mar 2015
Halo-Acetic Acids (HAA5)	2	Apr 2015 - Jun 2015	quarterly	09/23/2015	
Halo-Acetic Acids (HAA5)	2	Jul 2015 - Sep 2015	quarterly	09/23/2015	
Halo-Acetic Acids (HAA5)	2	Oct 2015 - Dec 2015	quarterly	09/23/2015	Dec 2015

Notes on Distribution System Chemical Monitoring

- For *Lead and Copper*:
- Collect samples from indoor faucets after the water has sat unused in the pipes for at least 6 hours, but no more than 12 hours.
 - Flush sample faucets with cold water the evening prior to collecting the sample.
 - If your sampling frequency is annual or once every 3 years, collect samples between June 1 and September 30.

For *Asbestos*: Collect the sample from one of your routine coliform sampling sites in an area of your distribution system that has asbestos concrete pipe.
Asbestos:

For *Disinfection Byproducts (HAA5 and THM)*: Collect the samples at the locations identified in your Disinfection Byproducts (DBP) monitoring plan.

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels or analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- If "R&C" is listed in a monitoring requirement's frequency, the requirements are based on detections which are reliably and consistently below the health standard.

<u>Source S01</u>	<u>WS #1 WF</u>	<u>Well Field</u>	<u>Use - Permanent</u>	<u>Susceptibility - High</u>	
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>
Nitrate	1	Jan 2015 - Dec 2015	standard - 1 year	12/08/2014	Oct 2015
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019
Arsenic	1	Jan 2014 - Dec 2016	standard - 3 year	09/20/2010	May 2015

Source S01	WS #1 WF	Well Field	Use - Permanent	Susceptibility - High	
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>
Volatile Organics (VOC)	1	Jan 2014 - Dec 2016	standard - 3 year	10/26/2011	Oct 2016
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	11/05/2013	Sep 2016
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Soil Fumigants	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019

Source S02	WS #3 WF	Well Field	Use - Permanent	Susceptibility - High	
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>
Nitrate	1	Jan 2015 - Dec 2015	standard - 1 year	12/08/2014	Oct 2015
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019
Volatile Organics (VOC)	1	Jan 2015 - Dec 2015	R&C - 1 year	11/18/2014	Sep 2015
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	11/05/2013	Sep 2016
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Soil Fumigants	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019

Source S03	WS #4 WF	Well Field	Use - Permanent	Susceptibility - High	
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>
Nitrate	1	Jan 2015 - Dec 2015	standard - 1 year	12/08/2014	Oct 2015
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019
Arsenic	1	Jan 2014 - Dec 2016	standard - 3 year	09/20/2010	May 2015
Volatile Organics (VOC)	1	Jan 2014 - Dec 2016	standard - 3 year	10/26/2011	Oct 2016
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	11/05/2013	Sep 2016
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Soil Fumigants	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019

Source S03		WS #4 WF		Well Field	Use - Permanent	Susceptibility - High	
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>		
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019		
Source S05		WS #7 Well #1 ABR665		Well	Use - Permanent	Susceptibility - High	
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>		
Nitrate	1	Jan 2015 - Dec 2015	standard - 1 year	12/08/2014	Oct 2015		
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019		
Arsenic	1	Jan 2014 - Dec 2016	standard - 3 year	09/20/2010	May 2015		
Iron	1	Jan 2014 - Dec 2016	standard - 3 year	09/20/2010	May 2015		
Manganese	1	Jan 2014 - Dec 2016	standard - 3 year	09/20/2010	May 2015		
Volatile Organics (VOC)	1	Jan 2014 - Dec 2016	standard - 3 year	10/26/2011	Oct 2016		
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	11/18/2008	Oct 2015		
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	11/18/2008			
Soil Fumigants	0	Jan 2014 - Dec 2016	waiver - 3 year	11/18/2008			
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019		
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019		
Source S06		WS #8 WF		Well Field	Use - Permanent	Susceptibility - High	
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>		
Nitrate	1	Jan 2015 - Dec 2015	R&C - 1 year	10/29/2015			
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019		
Arsenic	1	Jan 2014 - Dec 2016	standard - 3 year	09/28/2010	May 2015		
Volatile Organics (VOC)	1	Jan 2014 - Dec 2016	standard - 3 year	10/26/2011	Oct 2016		
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	10/14/2008	Oct 2015		
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008			
Soil Fumigants	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008			
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019		
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019		

Source S07	WS #9 WF	Well Field	Use - Permanent	Susceptibility - High	
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>
Nitrate	1	Jan 2015 - Dec 2015	R&C - 1 year	10/29/2015	
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019
Arsenic	1	Jan 2014 - Dec 2016	standard - 3 year	09/20/2010	May 2015
Iron	1	Jan 2014 - Dec 2016	standard - 3 year	09/20/2010	May 2015
Volatile Organics (VOC)	1	Jan 2014 - Dec 2016	standard - 3 year	10/26/2011	Oct 2016
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	10/14/2008	Oct 2015
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Soil Fumigants	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019

Source S08	WS #14 WF	Well Field	Use - Permanent	Susceptibility - High	
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>
Nitrate	1	Jan 2015 - Dec 2015	standard - 1 year	12/08/2014	Oct 2015
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019
Volatile Organics (VOC)	1	Jan 2014 - Dec 2016	standard - 3 year	10/26/2011	Oct 2016
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	10/14/2008	Oct 2015
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Soil Fumigants	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019

Source S09	WS #15 WF	Well Field	Use - Permanent	Susceptibility - High	
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>
Nitrate	1	Jan 2015 - Dec 2015	standard - 1 year	12/08/2014	Oct 2015
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019
Volatile Organics (VOC)	1	Jan 2014 - Dec 2016	standard - 3 year	10/26/2011	Oct 2016
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	11/05/2013	Sep 2016



Source S09	WS #15 WF	Well Field	Use - Permanent	Susceptility - High	
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Soil Fumigants	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019

Source S10	WS #7 Well #2 AFP658	Well	Use - Permanent	Susceptility - Low	
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>
Nitrate	1	Jan 2015 - Dec 2015	standard - 1 year	12/08/2014	Oct 2015
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019
Iron	1	Jan 2014 - Dec 2016	standard - 3 year	09/20/2010	May 2015
Manganese	1	Jan 2014 - Dec 2016	standard - 3 year	09/20/2010	May 2015
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	10/26/2011	Oct 2017
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	10/14/2008	Oct 2017
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Soil Fumigants	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019

Source S11	ELLSWORTH WTP	Well Field	Use - Permanent	Susceptility - Moderate	
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>
Nitrate	1	Jan 2015 - Dec 2015	standard - 1 year	12/08/2014	Oct 2015
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019
Manganese	1	Jan 2014 - Dec 2016	standard - 3 year	09/20/2010	May 2015
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	10/26/2011	Oct 2017
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	10/14/2008	Oct 2017
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Soil Fumigants	0	Jan 2014 - Dec 2016	waiver - 3 year	10/14/2008	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019



<i>Source S11</i>	<i>ELLSWORTH WTP</i>	<i>Well Field</i>	<i>Use - Permanent</i>	<i>Susceptibility - Moderate</i>		
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	11/05/2013	Nov 2019	



Generated on: 12/09/2015

Other Information

Other Reporting Schedules	Due Date
Measure chlorine residuals and submit monthly reports if your system uses continuous chlorination:	monthly
Submit Consumer Confidence Report (CCR) to customers and ODW (Community systems only):	07/01/2015
Submit CCR certification form to ODW (Community systems only):	10/01/2015
Submit Water Use Efficiency report online to ODW (Community and other municipal water systems only):	07/01/2015
Send notices of lead and copper sample results to the customers sampled:	30 days after you receive the laboratory results
Submit Certification of customer notification of lead and copper results to ODW:	90 days after end of monitoring period

Special Notes

None

Southwest Regional Water Quality Monitoring Contacts

- For questions regarding chemical monitoring: Sophia Petro: (360) 236-3046 or sophia.petro@doh.wa.gov
- For questions regarding DBPs: Regina Grimm, p.e.: (360) 236-3035 or regina.grimm@doh.wa.gov
- For questions regarding coliform bacteria and microbial issues: Sandy Brentlinger: (360) 236-3044 or sandy.brentlinger@doh.wa.gov

Additional Notes

The information on this monitoring schedule is valid as of the date in the upper left corner on the first page. However, the information may change with subsequent updates in our water quality monitoring database as we receive new data or revise monitoring schedules. There is often a lag time between when you collect your sample and when we credit your system with meeting the monitoring requirement.

We have not designed this monitoring schedule to display all compliance requirements. The purpose of this schedule is to assist water systems with planning for most water quality monitoring, and to allow systems to compare their records with DOH ODW records. Please be aware that this monitoring schedule does not include constituents that require a special monitoring frequency, such as monitoring affiliated with treatment.

Any inaccuracies on this schedule will not relieve the water system owner and operator of the requirement to comply with applicable regulations.

If you have any questions about your monitoring requirements, please contact the regional office staff listed above.

APPENDIX 6F – SCADA SUMMARY

City of Vancouver Water System Comprehensive Plan: SCADA

PREPARED FOR: Tyler Clary/COV
PREPARED BY: Brittany Hughes/CH2M HILL
Mike Karl/CH2M HILL
Brad Phelps/CH2M HILL
DATE: February 10, 2015
PROJECT NUMBER: 478433

Supervisory Control and Data Acquisition (SCADA) systems are computerized control systems that are used to control and monitor assets at a centralized data acquisition location. Over the past three to four decades, SCADA systems have evolved to support operations staff and reduce operating costs tremendously. The City of Vancouver's (City's) SCADA system provides the Water Department with real-time and historical information pertaining to the City's geographically-dispersed supply, storage, pumping and distribution facilities. The City's core SCADA system was installed in the early 1990's and has performed well for the past 25 years. Upgrades have occurred over this life cycle, and the City has been able to maintain the SCADA well beyond its expected electronic lifespan. As such, the City is currently preparing to make major upgrades to its SCADA system over a series of planned phases and multiple years. This portion of the Capital Improvements Plan identifies the features and capabilities of the City's existing SCADA system, outlines the planned near-term improvements, and provides recommendations and costs for planning of future SCADA projects.

Planning for the Entire SCADA Lifecycle

In order to create a centralized monitoring and control system to enable efficient operations, SCADA systems must integrate data acquisition systems with data transmission systems and software. To accomplish this, SCADA systems are composed of the following components: field equipment, controllers, a communications network, computers, and advanced applications.

Field equipment control local operations such as turning pumps on and off, opening and closing valves, and collecting data from sensors located at various facilities across the system. Information from the field equipment is transmitted to the programmable logic controllers (PLCs) or remote telemetry units (RTUs) which then use the data to control the field equipment and send the data over a communications network to a central computer. The computer, also known as the human-machine interface (HMI), is the centralized location of software and hardware that displays the information about the entire system. This HMI allows operators to monitor or control the entire system from a central location in real-time. Also part of the central computer system is a database (called a historian) that logs and processes all the information within the SCADA system. From this warehouse of information, data can be reviewed and analyzed for planning, making operational changes, monitoring performance and enhancing operations.

Lastly, the computer can feed system information into advanced applications used for asset management, energy and process optimization, remote and mobile operations applications, and other useful tools. These advanced operations can easily provide a significant return on the investment through higher efficiency of operations.

Figure 1 shows these individualized SCADA components as interdependent layers of the overall SCADA lifecycle. Each layer relies heavily on the layer above or below it, communicating or receiving information from the associated layers. The software, hardware and/or equipment within each of these layers age or become obsolete at different rates. As these components age, rehabilitation, or replacement become necessary to maintain operation, reduce risk and improve the resilience of the system. Understanding the underpinning of the SCADA system also provides a roadmap for a SCADA system to be built in a way which can prevent an isolated replacement of a single layer without impacting the remaining layers.

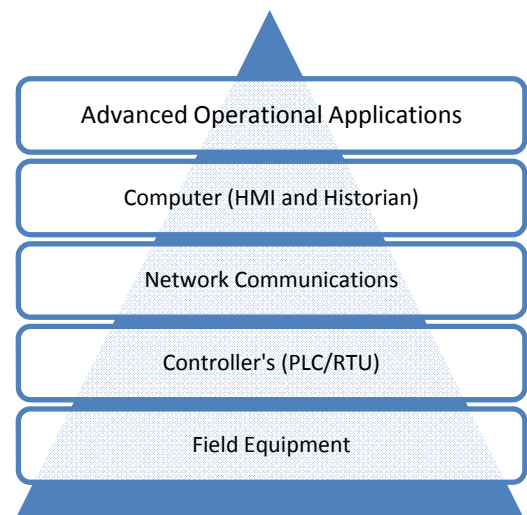


Figure 1: The SCADA Lifecycle

The recommended upgrade and replacement cycle for each of the components is as follows:

- Field equipment, including components such as transmitters, and data collection equipment are typically updated or replaced on an as-needed basis, or with other capital improvement projects being conducted on the site.
- The controller's layer, which includes both PLCs and RTUs, requires routine software patches with equipment replacement and software redevelopment occurring every 15 to 20 years.
- The network layer of SCADA systems, which includes routers, firewalls and modems, can be maintained through regular software patches, with hardware being replaced every 7 to 14 years.
- The computer layer, which includes both the human-machine interface (HMI) and historian, requires the most frequent maintenance. The software associated with this layer requires upgrades every 2 years, with hardware replacement occurring every 3 to 7 years. Complete redevelopment of the computer layer is recommended every 10 to 14 years.
- The advanced applications layer which includes incorporation of asset management programs, energy management, source protection, and water demand tools, and other technologies has a continuous timeline. These advanced applications can be incorporated into the system as they are developed.

Planning for the entire SCADA elemental lifecycles throughout the design of the SCADA system is important, as it will drive design decisions about the selected software, hardware, and communication systems that are used.

Existing SCADA System Summary

The City's existing SCADA system provides the City with automation of its facilities and the ability to monitor and control remote sites from a centralized location. Since its original design and implementation beginning in 1989, the City has completed several SCADA upgrades at its facilities, creating a SCADA system where some remote facilities are able to communicate directly with one another (multi-master approach) while others remain in a master-slave arrangement (that is, the remote facilities are only able to communicate with the master computer).

Currently, the singular master system is located at the Operations Center and includes a full control panel and two computer HMI stations. These two computers are configured to talk to a local master PLC to convey information to and from the remaining master-slave facilities via dedicated point-to-point phone lines. These two computers also communicate with the multi-master facilities using virtual private network (VPN) technology across the Internet. While some of the remote facilities have been upgraded to support the

multi-master approach and VPN technologies, the overall SCADA system has not been reprogrammed to communicate or utilize the full capability of the remote facility upgrades.

The current configuration of the SCADA system limits the City's ability to make their own modifications to the system, requiring a reliance on outside support to maintain the system. Security best practices have also evolved since the system's original implementation, and with ever expanding presence of cyber security threats, increased attention to preserve the integrity of the SCADA system is necessary. Therefore, the City has planned to make significant changes to its SCADA system in the near future to replace obsolete equipment, increase the system's redundancy and security, and to provide the City with more control to make changes to its system.

To upgrade the twenty-five year old system, a phased upgrade/replacement program has been developed. A part of the phasing has been initiated including a number of phases that have been bundled together and termed the Near-Term SCADA system improvements. The details of these improvements and the various phases are described below.

Near-Term SCADA System Improvements

The City is currently underway with infrastructure improvements at its Water Station No. 1 site. As a part of these improvements, the City is also initiating upgrades to its control system at the site to enable Water Station No. 1 to become a redundant (second) main control system to be available as an secondary main control system at its emergency command center to assure a resilient operations in the event of a failure of systems at the City's Operations Center. In order to facilitate this multi-master approach, additional SCADA upgrades at the Operations Center and other supply, treatment, booster pump, and pressure reducing valve stations are required. These near-term improvements include phases one through six that are described more fully in the following sections.

These improvements are planned to occur during 2015 and 2016 and funding for these improvements has already been allocated. Therefore no additional funding needs to be apportioned for the near-term improvements as a part of the capital improvements plan.

Phase 1: Operations Center Human Machine Interface (HMI) and External Communications Replacement

The Operations Center will be upgraded with a new HMI that enables a documented, open-source, and fully redundant SCADA system between Water Station No. 1 and the Operations Center. The control room will have the legacy panels removed and replaced by a server rack and a remodeled workspace that can accommodate a series of large monitors and two operator work stations will be provided.

The communication linkage between the Operations Center and Water Station No. 1 will also be upgraded to a utility-owned, dedicated fiber optic connection. This will provide the low latency network required by the SCADA technologies that are being implemented as a part of the SCADA system upgrades which facilitate redundancy between the Operations Center and Water Station 1. Modifications will also be made to the existing network firewalls and site-to-site communications to enhance the communication capability, and reduce the risk and exposure to outside security threats. In addition, this phase includes development of automated back-up procedures and includes disaster recovery procedures and hardware.

Phase 2: Water Station No. 1 SCADA Upgrades

The upgrades at the Water Station No. 1 site are being completed to replace antiquated equipment, obtain further detailed operations, and create redundancy within the overall water system. All of the wells, booster pump stations, and treatment facilities at the site will have new, individual PLCs and touch panels installed that will be connected through a redundant on-site fiber optics network. This will include the new booster pump station, on-site backup generation system, and new sodium hypochlorite facilities that are being built as a part of infrastructure improvements at the site. The upgrades also include one new, local SCADA computer providing redundancy within the Water Station No. 1 site, as well as being capable of operating the entire Vancouver Water System from multiple locations at the site. Site upgrades also include a secure

Wi-Fi system to provide the City with the ability to communicate with SCADA, lighting, security, and cameras using mobile access devices.

Phase 3: Ellsworth HMI Replacement

The existing HMI located at the Ellsworth site will be replaced with a local, redundant HMI with integrated touch panel. The upgrades will be completed using the same approach and technologies utilized as a part of the Water Station No. 1 improvements.

Phase 4: Operations Center PLCs and DAQ Site Replacements

The City's remote booster pump and well facilities known as Bagley Downs, Lincoln High (45th & Daniels), and Ellsworth Well 3 currently utilize a very old system of communications known as point-to-point communication systems, or DAQ to communicate with the master PLC located at the Operations Center. These sites can only communicate with the Operations Center which prevents the ability to provide the desired level of communications redundancy. These facilities will be upgraded to have local high speed internet communications protocol enabling these facilities to communicate directly with the other system wide facilities on the control system network. Each facility will receive a new PLC and control panel to allowing the remote facility to make control decisions locally based upon the parameters chosen by operators.

Phase 5: Ellsworth Programmable Logic Controllers (PLCs) Upgrade

The Ellsworth PLC and remote input/output (I/O) will be replaced with new PLCs for the water treatment system, booster station 1, and on-site wells. The firewall at the treatment facility will be replaced to facilitate communication with the Water Station No. 1 and Operations Center. The existing PLC logic for booster pump station 2 will be re-written to match the city-wide standard PLC logic providing a consistency of equipment of operational logic. Ethernet network extensions will be implemented to facilitate communications between the two on-site booster pump stations. Network and internet equipment will also be upgraded at booster pump station 2.

Phase 6: PLC Direct Upgrades

The City's Terrace booster pump station and chlorine storage facilities currently utilize point-to-point communication similar to that previously described in Phase 4 above. The Terrace booster pump station will be upgraded to have local high speed internet added with a VPN that enables it to communicate directly with the other facilities on the control system network. The Terrace booster pump station will also receive a new PLC and control panel. In order to facilitate removal of the existing PLC at the Operations Center, the chlorine storage facility will receive a new radio and PLC that facilitates communication between the newly installed SCADA system and the PLC Direct for remote monitoring and control.

Recommended SCADA System Improvements

Following completion of the near-term improvements (Phases 1 through 6), upgrades to many of the City's other remote sites are recommended, to make all systems standardized. These recommended improvements are described in more detail below.

Phase 7: Security Upgrades

This phase will start with an updated cyber security assessment and risk evaluation to prioritize the upgrades according to the current threat level and technology updates. The City should develop written cyber and SCADA security policies and procedures to help ensure security now and in the future as part of this phase of improvements. It is anticipated that the suggested improvements of this future assessment would include recommendations to increase the level of monitoring and logging software that monitors all of the firewalls, networking and security devices. It is also anticipated that intrusion detection tools and prevention software and hardware devices would likely be recommended and represent some of the anticipated upgrades under this phase of work.

Security upgrades are needed at several of the City's facilities to bolster against electronic and physical sabotage threats. These security upgrades include replacing and improving the communication firewalls, facilitating local Wi-Fi access, and enabling the City to connect security cameras to dedicated VPNs at remote facilities. These improvements are recommended at the Operations Center, many of the City's Water Stations (specific locations are shown in the table below), the 49th Street booster pump station, and three of the City's underground pressure reducing valve (PRV) sites.

Phase 8: PLC Software Standardization

As the City transitions to a self-supported and open, non-proprietary software package for its SCADA system, the sites that are not upgraded during the near-term improvements are recommended to have their PLC software upgraded to the City's new, standardized software. This work would be accomplished in Phase 8.

Phase 9: Other Recommended SCADA System Improvements

The three recommended improvements listed below can be undertaken at any time. These improvements do not have sequencing constraints and could be bundled with other capital improvements as they occur at each of the City's facilities.

SCADA Master Plan. Development of a detailed SCADA master plan is recommended. The improvements plan defined in this document should be further documented in a SCADA master plan to establish a well-documented, comprehensive plan for all aspects of automated control including, but not limited to, technology, networks and communication, security, governance, standards, and operation. The plan can then be used as a detailed guide for budgeting and planning of future SCADA system additions and enhancements.

Advanced Application Development. The City has selected and is implementing a city-wide asset management system. It is recommended that the SCADA system be integrated with this asset management system allowing the City to better manage its assets, generate work orders, etc.

Other advanced applications including development of an integrated electronic operations and maintenance manual that could be accessed through the SCADA system, would be a useful tool.

Instrumentation Upgrades. Several of the sites within the City's water system require instrumentation upgrades (pressure transducers, flow meters, etc.) to replace obsolete or non-functioning equipment, or to provide the City with additional monitoring capabilities through its SCADA system. These instrumentation improvements are listed in Table 2 below and can be undertaken in conjunction with other infrastructure improvements at each site.

PRV Station Automation. Several of the PRV stations are not currently connected to the existing SCADA network. It is recommended that these PRV stations be added to the existing SCADA system network in order to understand the flow at each PRV, provide real time data to understand demand, and for alarming with regards to abnormal flow and pressure. Each of the PRVs would need both a SCADA network connection to be established and would require power to be brought to the vault. No upgrades are needed at the 164th Avenue (which is hardwired to the Evergreen PRV station), Evergreen, and Ellsworth PRV stations.

Summary of Recommended SCADA System Improvement Projects

All of the near-term improvement costs are listed in Table 1 below. Estimated costs shown are in 2014 dollars and are determined to be a Class 5 estimate as defined by the American Association of Cost Estimators (AACE). A Class 5 estimate, as defined by AACE, can have a range of -30% to +50%.

TABLE 1
SCADA System Near-Term Improvement Projects

Phase	Description	Cost ^a
1	Operations Center Human Machine Interface (HMI) and External Communications Replacement	\$1,500K
2	Water Station No. 1 SCADA Upgrades	\$1,500K
3	Ellsworth HMI Replacement	\$240K
4	Operations Center PLCs and DAQ Site Replacements	\$260K
5	Ellsworth Programmable Logic Controllers (PLCs) Upgrade	\$480K
6	PLC Direct Upgrades	\$52K

^a Costs are in 2014 dollars and are determined to be a Class 5 estimate as defined by AACE.

Table 2

City of Vancouver Sites	Phase*	Proposed Improvements**				Cost	Notes
		Communications	Instrumentation	Control Systems	Security		
Headquarters	Near Term Imp	-	-	New HMI, server rack, Planned Replacement 2015	-		
Water Station 1	Near Term Imp	External: Planned Replacement 2015, switch over to fiber Internal: Planned Replacement 2016, switch over to fiber	New Power Meters and Well Flow Meters 2016. Replacement of Gas Chlorine with Hypo 2016	All Facility Control Panel Replacement 2014/15, and redundant Master HMI in 2015	-		
Water Station 3	Phase 7	-	-	-	Improve firewall	\$10,000	
	Phase 8	-	-	-	PLC software and standardization	\$44,000	
	Other	Internal: Change system over to copper, potentially remote I/O or smart MCCs \$10,000	-Add aquifer level to wells 1 &3 -Add individual water flow meter per well -Fix valve electronics and replace flow meter for XFR Pipe between Tower #1 & Tower #3 -Repair pH probe -Replace the tower pressure transmitter -Add power monitoring to Booster pumps and evaluate using Simocode \$50,000	PLC Replacement \$100,000	\$16,000	\$176,000	
Water Station 4	Phase 7	-	-	-	Improve firewall	\$10,000	
	Phase 8	-	-	-	PLC software and standardization	\$65,000	
	Other	-	-	-	\$18,000	\$18,000	
Water Station 5	Phase 7	-	-	-	Improve firewall	\$10,000	
	Phase 8	-	-	-	PLC software and standardization	\$36,000	
	Other	External: Upgrade to fiber	-New pressure transmitter for the elevated tank/tower "5,000 -Replace starters with MCC Maybe 100k? Don't know	PLC Replacement	\$8,000	\$113,000	
Water Station 6	Phase 7	-	-	-	Improve firewall	\$10,000	
	Phase 8	-	-	-	PLC software and standardization	\$7,500	
	Other	-	-	-	\$8,000	\$8,000	
Water Station 7	Phase 7	-	-	-	Improve firewall	\$10,000	
	Phase 8	-	-	-	PLC software and standardization	\$15,000	
	Other	External: If video is added, will need fiber	-Repair each aquifer level 7,000 -Tank Level Pressure Transmitter needs replaced \$5000	-	\$18,000	\$30,000	

City of Vancouver Sites	Phase*	Proposed Improvements**				Cost	Notes
		Communications	Instrumentation	Control Systems	Security		
Water Station 8	Phase 7	-	-	-	Improve firewall	\$10,000	
	Phase 8	-	-	-	PLC software and standardization	\$15,000	
	Other	-	-Add aquifer level \$5,000 if probe can fit inside -Add individual water flow per well 10k for meters + Install -Add discharge pressure transmitter and \$3500 associated code for local pressure control for backup for telemetry failures. In PLC Standard	-	\$5,000	\$23,500	
Water Station 9	Phase 7	-	-	-	Improve firewall	\$10,000	
	Phase 8	-	-	-	PLC software and standardization	\$108,500	
	Other	External: If video is added, will need fiber Internal: Communication resiliency upgrades to reduce single point of failure ~\$10K	-Enhance the Reservoir fill valve control to prevent the nearest water elevated tank/tower from losing pressure when opening the valve. Change in programming I assume -Add flow meters to each well 25k for meters + Install	-	\$50,000	\$85,000	
Water Station 14	Phase 7	-	-	-	Improve firewall	\$10,000	
	Phase 8	-	-	-	PLC software and standardization	\$36,000	
	Other	-	-Add flow meter to the common well flow header at a minimum, ideally one flow meter per well \$15k for meters + Install -Replace each MCC for each Well due to safety and problems with CB's etc No idea, 50k? -Add level xmr on each well \$8k if fit down well -Add code to the site for pressure backup if the communications were lost off site In PLC Standard	-	\$18,000	\$91,000	
Water Station 15	Phase 7	-	-	-	Improve firewall	\$10,000	
	Phase 8	-	-	-	PLC software and standardization	\$29,000	
	Other	-	-One flow meter per well \$20k for meters + Install -Well level XMR's \$10k if fit down well -Power monitoring for treatment building \$4500	-	\$18,000	\$52,500	

City of Vancouver Sites	Phase*	Proposed Improvements**				Cost	Notes
		Communications	Instrumentation	Control Systems	Security		
Ellsworth Water Station	Near Term Imp	-	-	Planned Treatment Plant Panel Replacement 2016	-		
	Other	-	-	-	\$30,000	\$30,000	
PRV Station: Ellsworth	Other	-	Flow meter? \$10k plus install		0	\$10,000	
Ellsworth Well 3	Near Term Imp	External: Upgrade Communications: Potential license free to Ellsworth water station or implement DSL	-	Replace DAQ with PLC based System	-		
	Other	-	-Add power monitoring \$5,000 -Add flow meter \$ 7k plus install	-	\$5,000	\$17,000	
Terrace Booster Pump Station	Near Term Imp	External: Planned Replacement 2016	-	Planned Replacement 2016	-		
Bagley Downs Booster Pump Station	Near Term Imp	External: Planned Replacement 2016	-	Planned Replacement 2016. Replace the DAQ with a PLC.	-		
	Other	-	-Add code for local pressure control for backup for telemetry failures. -Add Suction Pressure Indicating Transmitter and Discharge Pressure Transmitters \$7000	-	-	\$7,000	
49th Street Booster Pump Station	Phase 7	-	-	-	Improve firewall	\$10,000	
	Phase 8	-	-	-	PLC software and standardization	\$7,500	
	Other	-	-	-	\$5,000	\$5,000	
Lincoln High Booster Pump Station (45th & Daniels)	Near Term Imp	External: Replace with DSL 2016. Plan is to demo this site and build new at the nearby water station	-	Put new PLC panel with DSL modem and firewall inside, setup VFD with remote control from the PLC so that the PLC operates the drive more efficiently. Plan is to demo this site and build new at the nearby water station	n/a		
	Other	-	Replace the Pressure Transmitter \$4k	-	n/a	\$4,000	
PRV Station: 39th Street	Phase 7	-	-	-	Improve firewall	\$10,000	
	Phase 8	-	-	-	PLC software and standardization	\$7,500	
	Other	-	-	-	n/a		
PRV Station: 164th Avenue	Phase 7	-	-	-	Improve firewall	\$10,000	
	Phase 8	-	-	-	PLC software and standardization		
	Other	-	-	-	n/a		

City of Vancouver Sites	Phase*	Proposed Improvements**				Cost	Notes
		Communications	Instrumentation	Control Systems	Security		
PRV Station: Andresen Road	Other	-	Flow meter?	Add SCADA and power \$75k	n/a	\$75,000	
PRV Station: Bella Vista	Other	-	Flow meter?	Add SCADA and power \$75k	n/a	\$75,000	
PRV Station: Bernie Drive	Other	-	-	-	-	-	
PRV Station: Columbia Way	Other	-	Flow meter?	Add SCADA and power \$75k	n/a	\$75,000	
PRV Station: Evergreen Highway	Phase 7	-	-	-	Improve firewall	\$10,000	
	Phase 8	-	-	-	PLC software and standardization	\$7,500	
	Other	-	-	-	n/a		
Chlorine Storage Room	Near Term Imp	Internal: Upgrade communications between HQ and PLC	-	-	-		

*Phase indicates the phase of work identified in presentation by Mike Karl on 5/21/14. Phases are defined as the following:

- Near Term Improvements: Improvements to be made during 2015 and 2016 in which budget has already been allocated for project
- Phase 7: Security Upgrades
- Phase 8: PLC Software Standardization
- Other: Improvements can be bundled with other infrastructure improvements at the various sites. No construction sequencing requirements apply.

**Additional CIP projects that are not site-specific include a detailed SCADA System Master Plan (\$30K), Asset Management Integration (\$200K)

**APPENDIX 7A – CITY OF VANCOUVER
GENERAL REQUIREMENTS AND DETAILS FOR THE DESIGN
AND CONSTRUCTION OF WATER SYSTEMS**

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WATER DESIGN AND CONSTRUCTION REQUIREMENTS

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SECTION 2 WATER DESIGN AND CONSTRUCTION REQUIREMENTS

2-1.01 Introduction

The City of Vancouver Water Utility provides drinking water to areas within the City limits and outside the City limits as designated by the 1999 Coordinated Water System plan. This entire area is considered the “City of Vancouver Water System Boundary”. The goal of the Water System Planning and Design Section is to provide technical management, comprehensive planning, and sound engineering to expand and maintain a safe, reliable and sustainable water supply, distribution, and storage system for high-quality customer service and fire protection.

The Water System Planning and Design section provides engineering, standards, and conducts reviews to support a water supply and distribution system that is safe, reliable, durable, and maintainable. Privately-funded water mains proposed to be connected to the City’s system are reviewed for compliance with City standards and to ensure that water mains can continue to be extended to new users in a logical and cost-effective manner.

The following requirements are intended to be used as guidance during the design stages of new developments needing connection to the City of Vancouver water system. The Requirements do not replace professional engineering design or specific project reviews. City staff, including Fire Department officials, may impose different requirements based on site-specific reviews.

These requirements are intended to supplement but not duplicate the construction and installation details in Section 2-2 and Water Standard Plan Details W-1 to W-29. These requirements are also published as the City of Vancouver Standard Water Line and Backflow Detail sheets 1-5.

2-1.02 Distribution System Extensions to Support Development

Developing properties must extend utility lines to the site, across the property frontage, and through the property, to allow connection and provide for future extensions for the development of adjacent parcels. Any existing water main that is substandard in size or material shall be replaced. Proposed water line sizes and alignments must be designed in accordance with the latest Water System Comprehensive Plan, or other appropriate master plans, as determined by the City staff for overall system development and network extension (City of Vancouver Resolution M-2492). To obtain a written statement of the utility requirements for a specific site, a Request for Utility Service (RUS) may be submitted. RUS forms are available from the City’s Development Review Services Engineering Counter located in the 4400 NE 77th Avenue, 360-487-7800.

2-1.03 Connection to Existing System

All new water mains must connect to an existing public water main. This can be accomplished by cutting the existing main and inserting a tee or cross, by tapping an existing main, or by removing a cap or plug on an existing main and connecting to the

end of the main. Connection to an existing main may be done only after disinfection, testing, and approval by City staff of the new main. An exception to this is to use a pre-sterilized, closed, approved valve to connect to the new main before any water is allowed to flow. A note should be added to the construction drawing, with text similar to the following: “After disinfection, pressure testing, bacteriological testing, and approval of the new main, connect to the existing main.”

2-1.04 Water Main Locations; Easements

Water mains shall generally be in public rights of way, except where needed to serve onsite fire hydrants, buildings on private roads, and adjacent properties.

The standard location for water mains is on the north or east side of street centerline, 6 feet from the curb, on the street side of the curb. Other locations to avoid existing utilities and proposed utility crossings may be approved.

Public water facilities that are not in the public right-of-way must be in an easement dedicated to the City of Vancouver. The easement is intended to allow access for maintenance by City staff, and to prevent any structure or tree from interfering with the facility or hindering access to it. The easement shall be of a standard form, provided at the City’s Development Review Services Engineering Counter located at 4400 NE 77th Avenue, 360-487-7800.

Water facilities that require easements on private property include water mains, fire hydrants, water services to the water meter, and water meters. The easement boundary should generally be near the downstream side of a water meter, or 7.5 feet past the fire hydrant.

Water easements shall be 15 feet wide or greater. Shared utility easements with water and one other utility such as sanitary sewer or storm water shall generally be a minimum of 20 feet wide. Shared utility easements with water and two other utilities such as sanitary sewer and storm water shall generally be a minimum of 25 feet wide. Wider easements may be required depending on the depth and size of the utilities or if there are public water mains within 10 feet of a property line. Spite strips and any separations intended to deny access to the water main by adjoining properties shall not be allowed. Easements shall have no structures on them, and shall be paved or covered with approved landscaping (not to include trees). Easements for private roads shall include the entire roadway and all water meters. The easement shall be described as such.

2-1.05 System Reliability; Looping

Looped water mains are desirable for fire flow, system reliability during maintenance, and for water quality. Dead ends shall be avoided, except as needed to provide for future service, and for cul-de-sacs and fire hydrants. Water main loops shall be completed wherever possible. An extension to provide for future looping may be required, even if such extension is not required to serve adjacent properties. Dead-end extensions shall be provided with a standard blowoff assembly, or with a standard temporary blowoff assembly; see Water Standard Detail Sheets.

2-1.06 Water Pipe Materials and Size

The water meter shall be determined by the water customer or their designee. Water services shall be sized as required by water demand and on-site fire protection service flow. Services 1 to 2 inches in diameter shall be Type K copper. Services 3 inches or larger in diameter shall be a minimum of 4 inches and be Class 52 ductile iron pipe. No 2-1/2 or 3 inch pipe shall be allowed.

Water mains shall be constructed of ductile iron pipe (Class 52 up to and including 12 inches in diameter, Pressure Class 350 for 14 inches and larger and per the City of Vancouver Water Standard Detail Sheets.

New water mains that are provided for future extensions will be sized consistent with the City of Vancouver Water System Comprehensive Plan, as interpreted by City staff. For locations not covered by the Comprehensive Plan, City staff will determine the necessary size during the development review process. For preliminary planning, size the new main according to the existing grid, or 8 inches diameter, whichever is larger.

Mains of a size larger than indicated above may be required based on fire flow needs and the water system pressure at a particular location.

In certain cases, the City may require a water main that is larger than needed by the development alone. If this oversize main is 12 inches or more in diameter, the City may participate in the cost difference between the larger main required, and the size of the main needed for the development alone. However, recent decisions by the courts may mean that the developer must pay prevailing wages to qualify for this cost participation. To initiate a review of this possible participation, the developer needs to submit a request for City participation to Development Review Services Engineering, 4400 NE 77th Avenue, 360-487-7800.

Dead end mains 50 feet or shorter, to serve only a hydrant, shall be a minimum of 6 inches in diameter. Dead end runs longer than 50 feet to a fire hydrant shall be a minimum 8 inches in diameter.

Dead end mains to the end of a residential cul-de-sac, where the water main can not be extended in the future, shall be minimum 8 inches in diameter to the last hydrant, and 4 inches in diameter past the last hydrant to the end. The diameter reduction is to minimize the amount of potentially stagnant water in the end of a main.

2-1.07 Depth of Cover

The minimum pipe cover is 3 feet for mains smaller than 12 inches, and 4 feet for pipe 12 inches and larger, except for services as shown on the Water Standard Detail Sheets. The cover shall not exceed 6 feet unless greater depth is required to avoid other utilities, or where special circumstances arise and greater cover is approved by the City.

2-1.08 Coordination with Other Utilities; Water Main Profiles

Parallel runs of water and sanitary sewer main shall be separated by 10 feet, edge to closest edge. If 10 feet separation is impossible, separations of between 5 feet and 10 feet may be approved, based on City staff review and on the guidance in Washington Department of Ecology, Water Quality Program, "Criteria for Sewage Works Design". Sewer mains should cross under water mains and be separated by 18 inches vertically. Where sewer mains cross over water mains, there shall be minimum 18 inches of vertical separation and the sewer mains shall be constructed of ductile iron pipe or other approved material, and the sewer main joints shall be located as far as possible from the water main. Oblique crossings (close to parallel) shall be avoided.

The water main shall be located more than 5 feet from other non-sanitary-sewer utility pipes, measured center-to-center. An edge-to-edge separation of 3 feet may be allowed where no reasonable alternative exists, if approved by the City of Vancouver staff. To facilitate coordination with other utilities, and City staff review of proposed water facilities, water main profile drawings must be included for all mains 12 inches or larger in diameter. Profile drawings should show all crossings with other utilities. Water mains must be deflected vertically, or vertical bends must be used, as necessary, to provide 6 inch minimum crossing clearance with other utilities (18 inches minimum crossing clearance where water mains cross below sewer mains).

2-1.09 Air Release, Vacuum Release and Blow-Off Valves

A combination air release valve (see Water Standard Plan W-7) shall be installed at designated high points on mains 8 inches and larger. The release valve may not be required if a fire hydrant is close to the high point.

2 inch standard blowoff assemblies (see Water Standard Plan W-8) shall be installed at designated low points on mains 8 inches and larger, and near the end of dead-end mains that will not be extended in the future. The blowoff may not be required if a fire hydrant is close to the low point, or to the end of the main.

Standard 2 inch temporary construction blowoff assemblies shall be installed in the plug at the end of water mains to be extended later, per the Water Standard Plan W-9.

2-1.10 Isolation Valves

Isolation valves must be installed to facilitate new connections to the system, and to provide for the isolation of pipe segments during maintenance. Generally two isolation valves per tee, and three isolation valves per cross are required. At least one isolation valve per 1000 feet of main run must be installed.

Where tees or crosses are installed to provide for both new and future connections, isolation valves should be located so as to minimize loss of service when the future connection is made.

2-1.11 Thrust Blocks and Restrained Joints

Thrust blocks are only allowed at “live taps” and where connections are made to the end of an existing main. Bends, valves, and all reducers 4 inches or larger, shall be supported from separation by restrained joints. Restrained joints must be Megalug or approved equal. Tie rods may not be used for buried water mains. Where restrained joints are used, there must be no unrestrained joints within a sufficient distance from the fitting to provide the necessary earth support and frictional resistance. This distance must be calculated by accepted engineering methods, such as the calculative methods provided by the Ductile Iron Pipe Research Association (DIPRA) or EBAA Iron Inc. (see Resources). Minimum DIPRA design criteria shall be laying condition of “type 3”, soil designation of “coh-gran”, pressure of 150 psi and safety factor of 1.5. Minimum EBAA criteria shall be “3” trench type, “GW” soil type, 150 psi test pressure and 2:1 safety factor.

Isolation valves for hydrants shall be located or restrained such that the hydrant can be removed for maintenance without the closed valve being displaced due to water pressure. This is normally achieved by a flange (FLG) by mechanical joint (MJ) valve being bolted to an MJ x FLG branch tee in the street main, per the Water Standard Detail Sheets. Where the hydrant isolation valve is not at a tee, additional restrained joints upstream from the valve may be required.

Underground flanged joints are only allowed for restraining valves installed for “Live Taps”, fire hydrants or fire protection services. They can not be used elsewhere, because of the difficulty of achieving the precise alignment needed for flanged joints, during field repair.

All the joints on fire hydrant mains including the tee are to be mechanically restrained. Thrust blocks for hydrants shall not be allowed.

Two adjacent MJ fittings, or a valve and adjacent MJ fitting, may be joined with a Foster adapter or similar approved product.

2-1.12 Deflection at Pipe Joints

Water main pipe joints can be deflected to achieve a non-linear alignment, provided the deflection at each joint does not exceed the maximum deflection recommended by the pipe manufacturer. The deflection angle or bend radius shall be stated on the civil plans.

2-1.13 Cross-connection Control

The prevention of non-potable water or any deleterious substance from entering the distribution system is extremely important to public safety. The City of Vancouver recognizes the Washington State Department of Health regulations (WAC Chapter 246-290-490) with regard to the protection of the public via minimum requirements for design, construction, operation, and maintenance of public water supplies. All developers or applicants constructing public water mains or facilities should be familiar with, and comply with, these requirements. These referenced regulations and standards are a minimum, and the City specifically reserves the right to require additional safety features and items as may be deemed appropriate by the City. The Standard Backflow Prevention

Details sheet (see Water Standard Plans W-20 to W-29) provides some guidance as to when backflow prevention devices are required. Premise isolation by a reduced pressure backflow assembly (RPBA) approved by the City is required for all customers with access to auxiliary water supplies connected to a piping system, whether or not an interconnection exists between the auxiliary supply and the city water system. For other information or interpretation, contact the Water Quality group of the Operations Services Division, Public Works, City of Vancouver, 360-487-8177.

2-1.14 Water Demand vs. Meter Size

For water services that require more flow than available through a standard 5/8 inch-3/4 inch residential meter, the water meter size requested should be sized to serve the expected peak and continuous demands. Guidance for the safe maximum operating capacity and the recommended rate for continuous operation can be found in the American Water Works Association Standards, C-700 through C-710. General guidance can be found in the American Water Works Association Manual of Water Supply Practices, "Sizing Water Service Lines and Meters," M22.

The minimum diameter for a new service pipe is 1 inch. The service pipe shall be reduced at the meter as necessary.

2-1.15 WSDOT/Railroad Crossings

The developer shall obtain and make full payment for any permits required from WSDOT/railroad prior to constructing a water main under any highway or railroad tracks. The permit should be on behalf of the City of Vancouver. All requirements of the permit shall be met prior to acceptance of any construction. Requirements usually include boring with a steel casing for installation of the main.

2-1.16 Fire Hydrant Spacing Requirements

All fire hydrant spacing shall, at a minimum, meet the City of Vancouver VMC 16.04.160 spacing standards. More stringent standards may be required by other agencies within the City of Vancouver water service area.

2-1.17 Resources

American Water Works Association Standards, covering many aspects of water supply, treatment, and distribution.

City of Vancouver, Vancouver Municipal Code section 14.04 “Water And Sewer Use—Regulations And Charges”, available from Vancouver’s website:
www.ci.vancouver.wa.us.

City of Vancouver Standard Water Line Details (three sheets) and the Backflow Prevention Details (two sheets), latest version, available from the permit counter, lower level of the 4400 Building, 4400 NE 77th Av., Vancouver, Washington. The same details are also published as Water Standard Plans W-1 to W-29 herein.

Ductile Iron Pipe Research Association (DIPRA), Birmingham, Alabama, “Installation Guide for Ductile Iron Pipe,” Chapter 5, Restraining Thrusts, and DIPRA computer program, “Thrust Restraint for Ductile Iron Pipe.”

Great Lakes Upper Mississippi River Board of State Public Health & Environmental Managers, Recommended Standards for Water Works (also known as 10-State Standards), latest version.

Washington Department of Ecology, Water Quality Program, Publication #98-37 WQ, “Criteria for Sewage Works Design,” section C1-9.1 “Required Separation Between Water Lines and Sanitary Sewers.”

Washington State Department of Health, Environmental Health Programs, Division of Drinking Water, “Water System Design Manual”, DOH #331-123, June 1999. Post-1999 revisions are available on:
<http://www.doh.wa.gov/ehp/dw/publications/design.htm>

Washington State Department of Transportation, with Washington Chapter of the American Public Works Association, Standard Specifications for Road, Bridge, and Municipal Construction, M41-10, latest version adopted by the City of Vancouver Water System Planning and Design section.

2-2 CONSTRUCTION REQUIREMENTS

2-2.01 General

Materials and construction methods shall be in conformance with the most current version of the "STANDARD SPECIFICATIONS for ROAD, BRIDGE & MUNICIPAL CONSTRUCTION" as prepared by Washington State Department of Transportation and the Washington State Chapter of the APWA, and as amended by the City of Vancouver Amendments to the most recent edition of the *Standard Specifications* for Road, Bridge, and Municipal Construction except as noted herein. All references to American Water Works Association (AWWA) specifications shall mean their latest revision. Operation of, or connection to existing city water facilities shall only be performed under the observation of authorized city personnel.

2-2.02 Ductile Iron Pipe

All water main pipe furnished shall be new ductile iron (DI) pipe conforming to the requirements of AWWA C151. Pipe sizes 12 inch and smaller shall be Class 52 and pipe 14 inch and larger shall be Class 51 or Pressure Class 350, unless otherwise noted on the plans. All pipe shall be furnished in 18 to 20 foot lengths and shall be cement lined per AWWA C104. All rubber gasket joints for ductile iron shall conform to the requirements of AWWA C111.

2-2.03 Ductile Iron Fittings

All fittings shall conform to the requirements of AWWA C110 or C153. Fittings shall be of the size, type, and type of joint as called for on the plans. All fittings shall have a pressure rating of 250 psi minimum. All fittings shall be ductile iron unless approved by the City. All ductile iron fittings shall be cement lined. All compact fittings shall be DI, cement lined, and have a pressure rating of 350 psi. All rubber gasket joints for ductile iron fittings shall conform to the requirements of AWWA C111. All vertical elbow installations shall be engineered and calculations submitted with plans to the City's Engineering Division for approval. Bolts for buried flanged fittings shall be galvanized or zinc-cadmium plated and coated with 2 coats of bitumastic after installation. Bolts for mechanical joints shall be NSS Corten steel or Ductile iron only. No Flg x Flg fittings are allowed, Flg x MJ fittings are only allowed on fire hydrant and fire protection tees, "live taps", compound meters, DCVA's and RPBA's

2-2.04 Restrained Joint Pipe

All Restrained Joint Pipe, as called for on the plans, shall be either TR Flex by US Pipe, Lok Ring by American Pipe, or approved equal.

2-2.05 Allowable Restraint Systems

All new joints requiring restraint shall utilize mechanical joint restraining glands, Megalug brand or approved equal. Thrust blocks are only allowed at "live taps" and where connections are made to the end of an existing main. See "Design Requirements" section 2-1.11 regarding the number of joints adjacent to a fitting that must be restrained. The minimum working pressure rating of restrained joint systems shall be 350 psi. Restraining gaskets may be used where thrust restraint is required for push-on joint

(tyton) pipe. Restraining gaskets shall be US field lok or approved equal and installed per manufacturer's written instructions. All reducers 6 inches and larger shall be restrained. Tie rods for joint restraint shall not be allowed.

2-2.06 Valves

Resilient-seated gate valves may be used for valve installations of 10 inch and smaller and shall be used on all fire hydrant and fire protection service. Resilient-seated gate valves shall conform to AWWA C509 or C515 and shall be epoxy coated on the inside. Butterfly valves shall be used for all valve installations of 12 inch and larger. Butterfly valves shall conform to AWWA C504 and shall be Class 150-B with short body. Butterfly valves shall be required to have a minimum of 28 turns to move fully open to fully closed. The operator shall be mounted directly on the valve with no exposed or external couplings. Units shall be fully gasketed and grease packed. Valves shall be installed with the operator on the side of the pipe nearest the road centerline. All valves shall be furnished with an underground manual (AWWA 2 inch square) operating opening with a counterclockwise rotation. Install the operator nut such that the depth from finish grade to the operator nut is 18 to 36 inches. Valve stem extensions, if required, shall be of the polyfiber type. Valves shall be installed directly to tees and crosses, spools are not allowed. No Flg x Flg valves shall be allowed.

2-2.07 Valve Boxes

Valve boxes shall be Fort Vancouver Pattern No. 910, cast iron or approved equal. Valve box extensions shall be one piece and constructed of 6 inch ASTM D 3034 SDR 35 PVC pipe. Valve boxes not set in paved areas, shall be set in a concrete or asphalt pad. (24 inches square, 4 inches thick).

2-2.08 Standard Air Release Valves

Manual and Combination Air Release Valves are to be furnished as called for in the plans. Valves shall be of the size indicated and shall be suitable for a working pressure of 150 psi All Air Release Valves shall be installed at the crest of pipe runs. Combination valves shall be APCO No. 145C or approved equal.

2-2.09 Standard Blowoff Assemblies

Standard blowoff assemblies are to be placed 1 foot from the end of a dead end main, when that main will not be extended. Standard blowoff assemblies shall be placed at low points in the main, as indicated in the plans, to allow for main cleaning.

Temporary construction blowoff assemblies shall be placed on the end of water mains that will be extended, or connected to at a later date.

2-2.10 Tapping Sleeves

Tapping sleeves shall be rated at 150 psi working pressure with ANSI/AWWA C207 Class D 150 pound flanges or equivalent stainless steel pattern. All sleeves shall be designated by the manufacturer as suitable for the service proposed. All fabricated steel tapping sleeves shall have fusion-applied epoxy coating. All stainless steel tapping sleeves shall have stainless steel nuts and bolts. All bolts for the sleeve body shall be the

drop-in type, not welded. All nuts and bolts shall be stainless steel (with nuts or bolts treated to prevent galling) or high-strength, low alloy steel bolts with the steel meeting ANSI/AWWA C111/A21.11 specifications. After a tap is made, all exposed areas of the pipe and sleeve shall be coated with either bitumastic coating or Brown primer and Trenton #1 wax or approved equal. Tapping sleeve gaskets shall be NSF approved for potable water. Sleeves shall be tested, on the pipe, at 150 psi for 15 minutes with no pressure drop prior to making the tap. All sleeves shall have a test outlet and plug. Concrete blocking for tapping sleeves shall be the same as required for an equal size tee. Sleeves furnished for ductile iron pipe taps, reduced outlet taps on steel pipe or reduced outlet taps on cast iron pipe larger than 12 inches, shall be fabricated steel with outlet gasket. (JCM 412, Dresser style 610, Smith-Blair 622, Romac FTS420, Ford FTSC or approved equal). For reduced outlet taps on steel, JCM 422 is also approved. Size on size taps on steel pipe shall not be allowed. Tapping sleeves furnished for taps on cast iron 12 inches and smaller, or taps on asbestos cement, shall be stainless steel with full circumferential gasket: Romac SST III, JCM432, Smith-Blair 664/5, Dresser 630, Ford FTSS or approved equal. Tapping sleeves for pipes not listed above must be approved by the City.

2-2.11 Tapping Valves

Tapping valves shall have the same construction as specified for gate valves. The inlet end of valve shall be flanged and outlet end shall be a mechanical joint. Tapping valves shall be supported by an 8 inch x 8 inch concrete block prior to making the tap. Tapping sleeves and valves shall be used only when specifically called for in the plans.

2-2.12 Standard Fire Hydrant Assembly

All fire hydrants shall conform to AWWA standard specifications (C-502) for fire hydrants. All fire hydrants shall be of the latest design that the manufacturer is producing. All hydrants shall be 3 port with (2) 2-1/2 inch hose nozzles with national standard fire hose coupling screw thread, 7-1/2 threads per inch, and one 4-1/2 inch steamer nozzle with Storz quick connect fitting or equal.

Quick connect coupling: Aluminum alloy hydrant adapters shall be 5 inch and secured to steamer nozzle if adapter is threaded on steamer nozzle. Each unit shall have 1/4 inch #20 thread stainless steel set screws for permanently securing adapters to hydrant. Each unit will have a blind cap with plastic coated aircraft cable attaching it to the hydrant steamer post. Facing on the adapter shall be metal and not rubber gasketed to avert sticking during freezing weather conditions. The blind cap shall fit the adapter tight enough so that it cannot be removed without a spanner wrench.

All hydrant nozzle caps must be installed with gaskets. All hydrants shall have 'O' ring seals on the operating stem, and all working parts shall be of bronze and all 'O' ring surfaces shall be rust-free material. The compression hydrant operating threads shall be lubricated and shall be 'O' ring sealed from water, moisture and foreign matter. The operating nut shall be 1-1/2" pentagon. The center of the lowest port shall be minimum 17 inches from the ground bury mark. All fire hydrants shall be placed no closer than 5

feet from all trees and 3 feet from all shrubs and utility structures. Bollards shall not be installed as fire hydrant protection.

All hydrants shall be constructed with mechanical joint connections and provisions shall be made to automatically drain the barrel in order to protect the unit from freezing. The barrel shall be a minimum seven (7) inches I.D. and of such length as to be suitable for installation with connections to piping. Minimum barrel length shall be 28-1/4 inches. All working parts shall be removable through the top of the hydrant without the necessity of digging.

All hydrants shall have the interior and exterior prepared and coated or painted per AWWA standard C502. The exterior of the barrel shall be factory painted with safety yellow. The Storz adapter shall not be painted. Mechanical restraint shall be used on all fire hydrants. Thrust blocks are not allowed on fire hydrants.

2-2.13 Trench Excavation, Bedding and Backfill

The existing road surface shall be cut in a neat line by saw or wheel cutting prior to removal. Trench backfill shall be according to the backfill section, shown on the plans and/or the utility permit. All excess material not used for trench backfill shall be removed and disposed of by the contractor. Placement of backfill shall be brought up at substantially the same rate on both sides of the pipe and care shall be taken so that the pipe is not floated or displaced.

During construction, the contractor shall stockpile the excavated trench materials so as to do the least damage to adjacent lawns, gardens, shrubbery, trees or fences, regardless of the ownership of these areas. All excavated materials shall be removed from these areas, and these surfaces shall be left in a condition equivalent to, or better than their original condition and free from all rocks, gravel, boulders or other foreign material.

Replace topsoil areas as specified. All existing drainage ditches and culverts shall be reopened and graded, and original drainage restored. All damaged irrigation, house drainage pipe, drain tiles, sewer laterals and culverts shall be repaired or replaced. All clearing, grubbing, and stripping shall be performed in advance of excavation operations.

All weeds, roots, trash, debris and similar objectionable materials shall be removed from excavation areas. All asphalt rubble, rocks, trash, or debris shall be hauled away. Asphalt pavement shall be neatly saw-cut at designated limits and shall be removed and hauled away.

2-2.14 Compaction of Backfill

The inspector may conduct periodic testing of backfill compaction, using a nuclear densometer, at intervals of his choosing. The contractor shall provide safe trench conditions at all times for testing at any depth. Compaction control tests to determine optimum moisture content and maximum density shall be by the following methods:

1. For non-granular materials - Method of test for compaction control of non-granular materials (WSDOT Test Method No. 609).
2. For granular materials - Method of test for compaction of granular materials (WSDOT Test Method No. 606).
3. Field moisture and density of backfill material shall be determined by the Nuclear Moisture/Density Gauge.

The contractor shall fill all open trenches at the completion of each day's work. Open trenches over night shall not be allowed. Trenches filled but not compacted shall be re-excavated the following working day and compacted according to these specifications.

2-2.15 Cutting and Plugging Existing Pipe

Where shown on the plans, the contractor shall cut and plug the existing main. The existing main, which is to be abandoned, shall have a concrete plug poured around and in the end of the pipe for a distance of two pipe diameters. The part of the main which is to remain shall have a new metal plug or cap installed on the existing pipe, cross, or tee, or shall be connected to the new fitting or pipe with thrust restraint. All valve boxes on mains which are abandoned (cut and plugged) shall be removed and the holes shall be patched to match finished surface.

Cutting of all pipe and specifically asbestos cement pipe shall conform to the latest rules and regulations of the Department of Labor and Industries.

2-2.16 Water Services

Water services are to be installed by the contractor, and inspected by the city. Call (360-487-7780) 48 hours in advance. All development projects with 3 or more services where the combined public and private service length individually exceeds 100 feet, shall install a 4" minimum diameter public ductile iron main to serve the project. The water main shall be extended to the nearest property line of the most remote served parcel of the project. Water meters shall be placed no closer than 5 feet from all trees and 3 feet from all shrubs and utility structures. Water meters are to be installed by the city when the following have been satisfied:

- 1) Acceptance of newly installed mains and services by the Construction Manager including:
 - a) Disinfection, flushing and testing of mains.
 - b) Submittal and approval of record drawings
- 2) Payment of required hookup fees and main charges

The minimum water service size to be installed shall be 1 inch, constructed of a seamless type K soft annealed copper. Single family services shall be centered along the property frontage.

2-2.17 Relocating Existing Water Services

If an existing water meter/service is to be relocated a distance less than 15 feet, the existing service may be used. When the distance is 15 feet or greater, a new water service must be installed at the new location.

2-2.18 Abandoning Water Service

If an existing meter is to be taken out of service, when the main is not being abandoned, the service shall be abandoned by turning off the corporation stop at the main, followed by cutting and plugging the service just after the corporation stop, and removing the meter set (yoke).

2-2.19 Hydrostatic Testing

All sizes of pipe shall be tested hydrostatically at 150 psi. for 15 minutes with no pressure drop.

2-2.20 Disinfecting Water Mains

Disinfection and bacteriological testing of water mains shall conform to the requirements of AWWA C651.

Following chlorination, treated water shall be flushed from the water main until the replacement water chlorine residual does not exceed the City of Vancouver water supply residual throughout the length of the new main. The contractor shall be responsible for the proper chlorine neutralization prior to disposal.

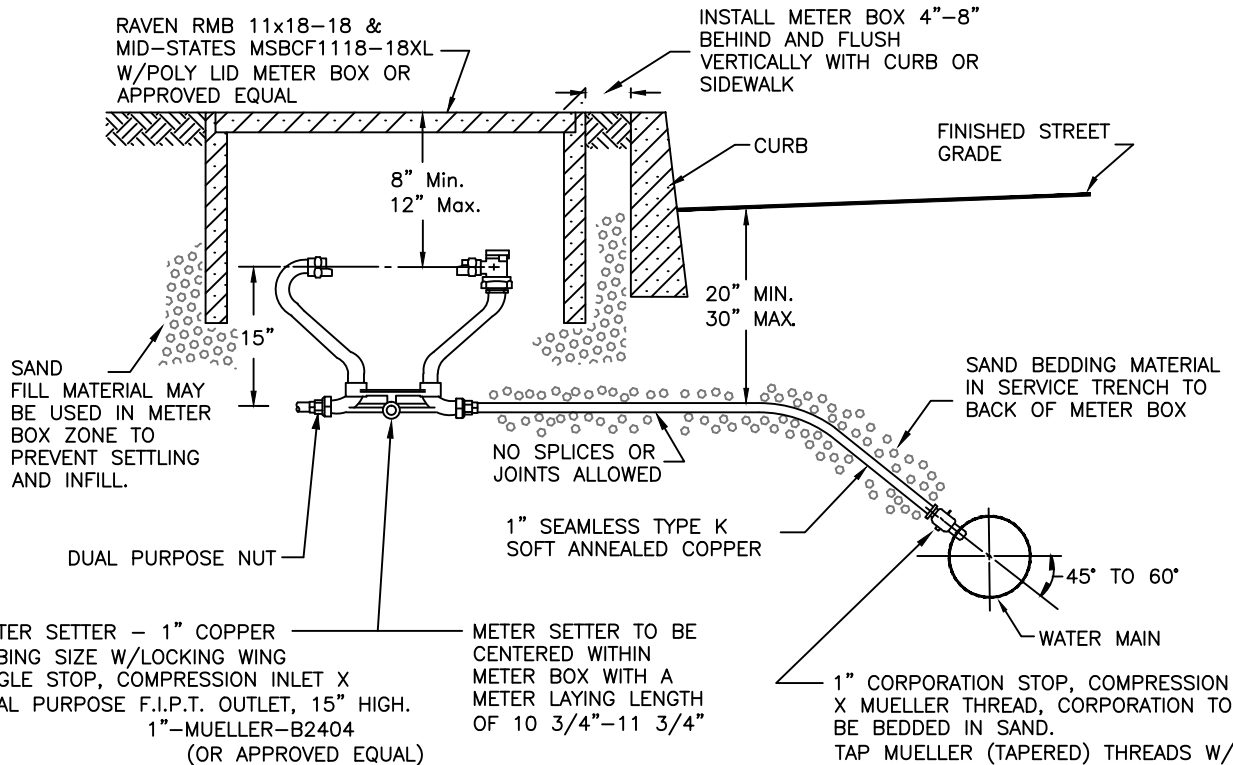
2-2.21 Connection to Existing System

Pipelines that have not been disinfected may be connected to the existing distribution system with a disinfected pre-tested closed inline valve and only at points approved by the Engineer. The contractor shall supply documentation from the valve supplier certifying that the valve has been pre-tested.

2-3 WATER STANDARD PLAN DETAIL SHEETS

Standard Plan Numbers and Description

W-1	Standard 1" Water Service
W-2	Standard 1½" and 2" Water Service
W-3	Standard Compound Meter Installation
W-4	Meter Service Transfer and Replacement
W-5	Water Pipe Trench Bedding and Backfill
W-6	Standard Manual Air Release Valve
W-7	Combination Air Release Valve
W-8	Standard Blowoff Assembly
W-9	Temporary Blowoff Assemblies
W-10	Standard Fire Hydrant Assembly
W-11	Hydrant Retaining Wall Detail
W-12	Standard Valve Box and Cover
W-13	Pipe and Casing Detail
W-14	Standard Thrust Block
W-15	Water and Sewer Spacing
W-20	Standard Double Check Valve Assembly 2" and Smaller
W-21	Standard RPBA 2" and Smaller
W-22	Standard PVBA 2" and Smaller
W-23	Standard Double Check Valve Assembly 2½" and Larger
W-24	Standard RPBA 2½" and Larger
W-25	Standard Fire Protection Backflow Locations
W-26	Standard Domestic Meter Locations
W-27	Standard Deduct Meter Locations
W-28	Compound Meter Reductions
W-29	General Backflow Notes



METER SETTER - 1" COPPER TUBING SIZE W/LOCKING WING ANGLE STOP, COMPRESSION INLET X DUAL PURPOSE F.I.P.T. OUTLET, 15" HIGH. 1"-MUELLER-B2404 (OR APPROVED EQUAL)

METER SETTER TO BE CENTERED WITHIN METER BOX WITH A METER LAYING LENGTH OF 10 3/4"-11 3/4"

1" CORPORATION STOP, COMPRESSION X MUELLER THREAD, CORPORATION TO BE BEDDED IN SAND. TAP MUELLER (TAPERED) THREADS W/ B-100 OR B-101 TAPPING MACHINE. MINIMUM BIT SIZE IS 15/16" FOR 1" SADDLE (SADDLE MUELLER DR2S SERIES AWWA/CC THREAD, OR APPROVED EQUAL). DUCTILE IRON MAINS 6" & LARGER MAY BE TAPPED DIRECT. 1"-MUELLER-B25008 (OR APPROVED EQUAL)

NOTES:

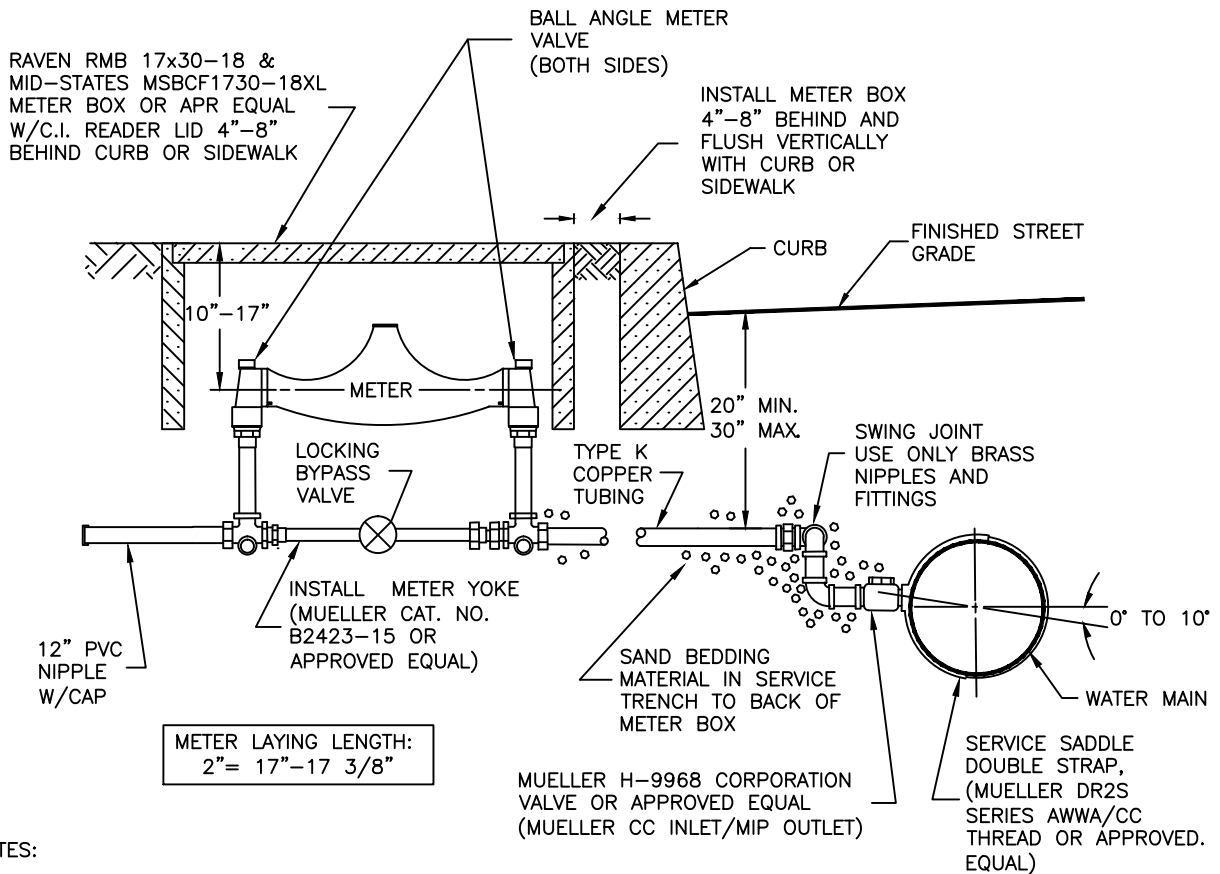
1. ALL DOMESTIC AND IRRIGATION METERS SHALL BE SUPPLIED, OWNED AND INSTALLED BY THE CITY OF VANCOUVER PER VMC 14.04.170(B)
2. ALL METERS 2" AND LESS SHALL BE OF THE DISC/OSCILATING PISTON TYPE, TURBINE METERS ARE NOT ALLOWED.
3. PRIOR TO CITY INSTALLATION OF METERS, ALL SERVICE APPLICATIONS MUST BE COMPLETED AND APPROVED. SERVICE FEES PAID IN FULL AND AS-BUILTS SUBMITTED AND APPROVED
4. CONTRACTOR SHALL CONTACT CITY CONSTRUCTION MANAGER'S OFFICE (360) 487-7750 48 HRS. PRIOR TO INSTALLING ANY WATER SERVICE CONNECTIONS.
5. METERS WILL NOT BE SET BY THE CITY PRIOR TO DISINFECTION OF THE MAIN AND SERVICE, AND PRIOR TO A SUCCESSFUL BACTERIOLOGICAL TEST.
6. WATER SERVICES SHALL BE PRESSURE TESTED ALONG WITH THE MAIN.
7. DURING THE PRESSURE TEST, THE MAIN SHALL BE OPEN TO INSPECTION AT ALL CORPORATIONS.
8. METER BOX SHALL NOT BE ALLOWED IN HARD SURFACE AREAS WITHOUT PRIOR WRITTEN APPROVAL. METER BOXES AND LIDS IN HARD SURFACING SHALL BE TRAFFIC RATED AND PLACED SLIGHTLY ABOVE SURROUNDING GRADE AND MADE TO DRAIN AWAY FROM BOX.
9. METERS PLACED IN HARD SURFACED AREAS SHALL BE CALLED OUT AS SUCH ON THE PLANSET.
10. ALL SINGLE FAMILY LOTS 50' AND WIDER SHALL PLACE THE SERVICES AND METER BOXES ALONG THE PROPERTY FRONTAGE NEAR THE CENTER OF THE LOT LINE
11. ALL SERVICE REPLACEMENTS MUST TERMINATE AT EITHER A NEW YOKE, AN ANGLE STOP OR A CURB STOP. NEW ANGLE OR CURB STOPS SHALL BE MUELLER 110 FITTINGS OR APPROVED EQUAL.
12. A MAXIMUM OF ONE FITTING (MUELLER 110 3 PART COMPRESSION X COMPRESSION, OR APPROVED EQUAL) SHALL BE ALLOWED BETWEEN THE CORP. STOP AND THE METER SET ON ALL SERVICE TRANSFERS.
13. ALL SERVICE TAPS IN AC PIPE MUST BE PERFORMED USING A SERVICE SADDLE.
14. AS OF JANUARY 4, 2014 ALL NEWLY INSTALLED FITTINGS IN CONTACT WITH WATER SHALL BE IN COMPLIANCE WITH THE REVISED SECTION 1417 OF THE EPA SAFE WATER DRINKING ACT AND CERTIFIED LEAD FREE USING NSF 372 STANDARDS.

N.T.S.



STANDARD 1" WATER SERVICE					
CITY OF VANCOUVER DEPARTMENT OF PUBLIC WORKS WATER ENGINEERING		REV. NO.	DATE	BY	APPROVED
		5	12/06	G.P.H.	T.D.B.
		6	12/08	G.P.H.	T.D.B.
		7	10/10	G.P.H.	T.D.B.
		8	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.
W-1
13 WATER DETAILS



NOTES:

1. ALL DOMESTIC AND IRRIGATION METERS SHALL BE SUPPLIED, OWNED AND INSTALLED BY THE CITY OF VANCOUVER PER VMC 14.04.170(B)
2. ALL METERS 2" AND LESS SHALL BE THE DISC/OSCILATING PISTON TYPE, TURBINE METERS ARE NOT ALLOWED.
3. PRIOR TO CITY INSTALLATION OF METERS, ALL SERVICE APPLICATIONS MUST BE COMPLETED AND APPROVED. SERVICE FEES PAID IN FULL AND AS-BUILTS SUBMITTED AND APPROVED.
4. CONTRACTOR SHALL CONTACT CITY CONSTRUCTION MANAGER'S OFFICE (360)487-7750 48 HOURS PRIOR TO INSTALLING ANY WATER SERVICE CONNECTIONS.
5. METERS WILL NOT BE SET BY THE CITY PRIOR TO DISINFECTION OF THE MAIN AND SERVICE, AND PRIOR TO A SUCCESSFUL BACTERIOLOGICAL TEST.
6. WATER SERVICES SHALL BE PRESSURE TESTED ALONG WITH THE MAIN.
7. DURING THE PRESSURE TEST, THE MAIN SHALL BE OPEN FOR INSPECTION OF ALL CORPORATION STOPS.
8. USE 1-7/8" BIT FOR ALL 2" SADDLE TAPS.
9. METER BOXES ARE NOT ALLOWED IN HARD SURFACED AREAS WITHOUT PRIOR WRITTEN APPROVAL. METER BOXES IN HARD SURFACE AREAS SHALL BE SLIGHTLY HIGHER (1/8" MAX.) THAN SURROUNDING GRADE AND BOTH THE BOX AND LID MUST BE TRAFFIC RATED.
10. METERS PLACED IN HARD SURFACED AREAS SHALL BE CALLED OUT AS SUCH ON THE PLANSET.
11. BROOKS 65 METER BOX SHALL NOT BE ALLOWED.
12. ALL 1-1/2" AND 2" METER INSTALLATIONS SHALL BE 2" TAPS AND 2" SERVICE PIPING.
13. AS OF JANUARY 4, 2014 ALL NEWLY INSTALLED FITTINGS IN CONTACT WITH WATER SHALL BE IN COMPLIANCE WITH THE REVISED SECTION 1417 OF THE EPA SAFE WATER DRINKING ACT AND CERTIFIED LEAD FREE USING NSF 372 STANDARDS.

N.T.S.



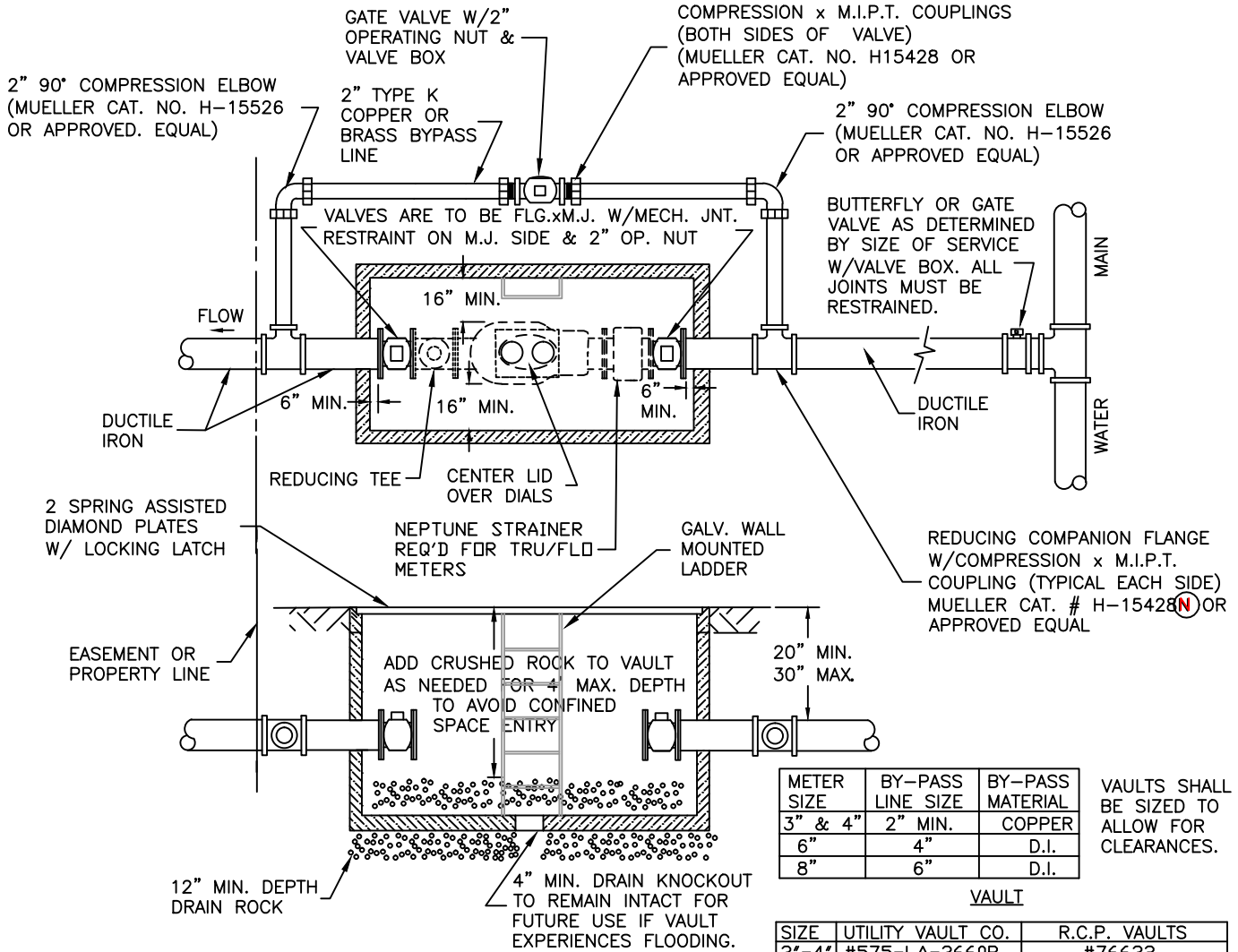
STANDARD 1 1/2" & 2" WATER SERVICE

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
4	12/06	G.P.H.	T.D.B.
5	12/08	G.P.H.	T.D.B.
6	10/10	G.P.H.	T.D.B.
7	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-2



METER SIZE	BY-PASS LINE SIZE	BY-PASS MATERIAL
3" & 4"	2" MIN.	COPPER
6"	4"	D.I.
8"	6"	D.I.

VAULT

SIZE	UTILITY VAULT CO.	R.C.P. VAULTS
3"-4"	#575-LA-3660P	#76632
6"+	#676-WA-3660P	W/#57-TL-B LID

SPECIFY WATER VAULT WHEN ORDERING

VAULTS SHALL BE SIZED TO ALLOW FOR CLEARANCES.

NOTES:

1. CITY TO SUPPLY, OWN AND MAINTAIN THE METER, METER SPACER, REDUCING TEE AND STRAINER. CONTACT CITY INSPECTOR 2 WEEKS PRIOR TO INSTALLATION.
2. ALL METERS 3" AND LARGER SHALL BE A COMPOUND METER LAYOUT, TURBINE METERS ARE NOT ALLOWED.
3. TEN PIPE DIAMETERS OF STRAIGHT PIPE REQ'D. IN & OUT OF METER. (IF USING 6" PIPE, NO BENDS ALLOWED WITHIN 5' OF THE METER IN EITHER DIRECTION. IE: 6" x 10 = 60")
4. CONTRACTOR SHALL USE APPROPRIATE METHODS TO ENSURE COPPER PIPE, FITTINGS AND JOINTS WILL REMAIN LEAK-TIGHT.
5. ALL METERS SHALL BE INSTALLED BY THE CITY OF VANCOUVER PER VMC 14.04.170(B). CONTRACTOR TO INSTALL TEMP. SPACER AS PER NOTE 1.
6. INSTALL VAULT IN SOFT-SCAPE AREA, VERTICALLY FLUSH WITH CURB OR SIDEWALK.
7. METER BOX SHALL NOT BE ALLOWED IN HARD SURFACED AREAS WITHOUT PRIOR WRITTEN APPROVAL. METER BOXES AND LIDS IN HARD SURFACE AREAS SHALL BE SLIGHTLY HIGHER THAN SURROUNDING GRADE AND BOTH MUST BE TRAFFIC RATED.
8. METERS PLACED IN HARD SURFACED AREAS SHALL BE CALLED OUT AS SUCH ON THE PLANSET.
9. IF VAULT MUST BE LOCATED IN A WALKING AREA, A NON-SKID TRAFFIC RATED LID SHALL BE REQUIRED.
10. AS OF JANUARY 4, 2014 ALL NEWLY INSTALLED FITTINGS IN CONTACT WITH WATER SHALL BE IN COMPLIANCE WITH THE REVISED SECTION 1417 OF THE EPA SAFE WATER DRINKING ACT AND CERTIFIED LEAD FREE USING NSF 372 STANDARDS.

N.T.S.



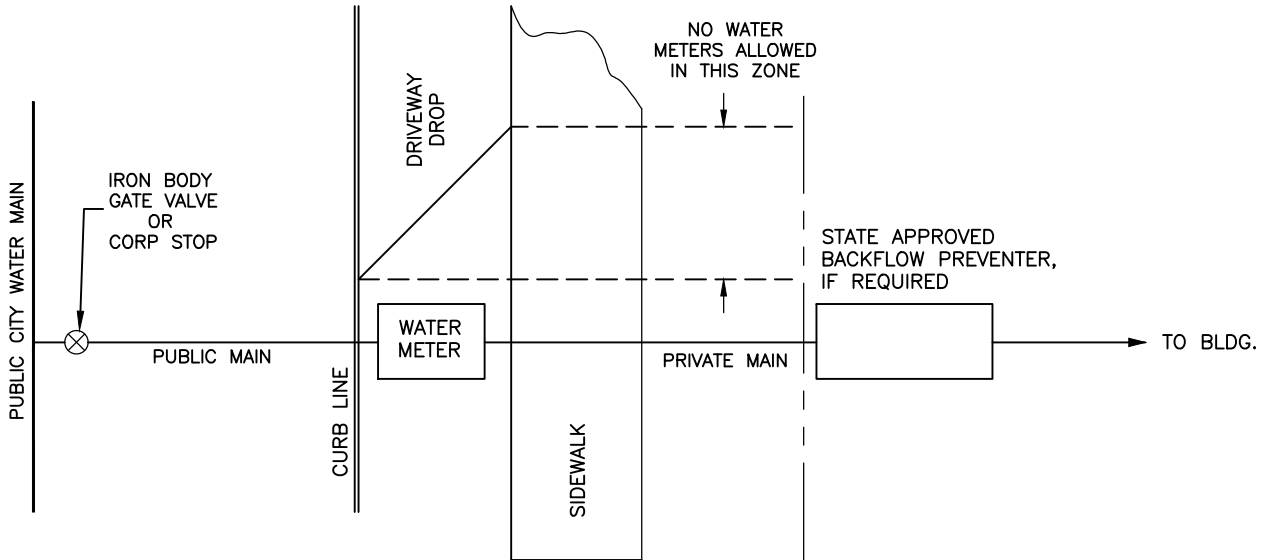
STANDARD COMPOUND METER INSTALLATION

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

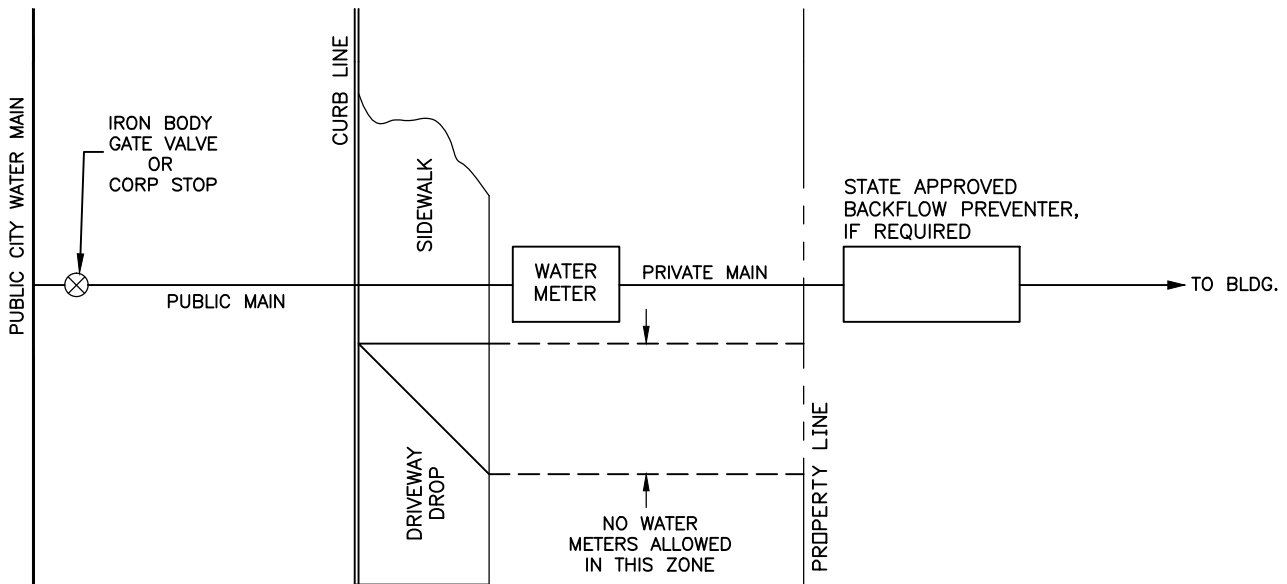
REV. NO.	DATE	BY	APPROVED
4	12/06	G.P.H.	T.D.B.
5	12/08	G.P.H.	T.D.B.
6	10/10	G.P.H.	T.D.B.
7	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-3



DETACHED SIDEWALK



ATTACHED SIDEWALK

NOTES:

1. ALL NON-SINGLE FAMILY DOMESTIC SERVICES SHALL BE TAPPED SEPARATELY FROM ANY FIRE PROTECTION AND FIRE HYDRANT LEAD PIPING.
2. SEE WATER METER DETAILS W-1 THROUGH W-4 FOR WATER METER INSTALLATION INFORMATION.
3. ALL SINGLE FAMILY LOTS 50' AND WIDER SHALL PLACE THE SERVICES AND METER BOXES ALONG THE PROPERTY FRONTAGE NEAR THE CENTER OF THE LOT LINE.
4. WATER METERS ARE NOT ALLOWED IN THE DRIVEWAY WING EXTENSION AREAS.
5. EXCEPTIONS TO THESE REQUIREMENTS SHALL BE SUBMITTED IN WRITING WITH A PLAN FOR REVIEW TO COMMUNITY DEVELOPMENT DEPARTMENT ENGINEERING (360) 487-7800 FOR ROUTING TO WATER ENGINEERING.
6. DIRECT ALL DESIGN QUESTIONS TO CITY OF VANCOUVER WATER ENGINEERING AT (360) 487-7130.

N.T.S.



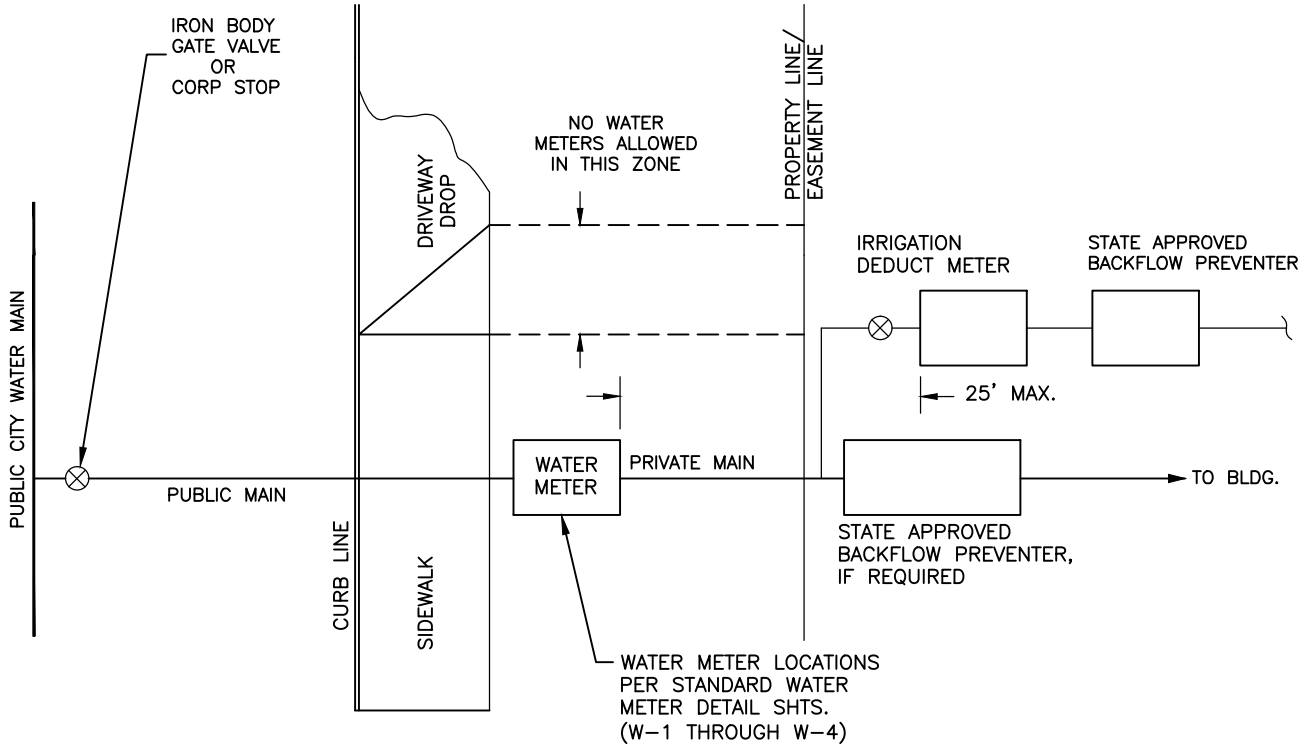
STANDARD DOMESTIC METER LOCATIONS

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
3	12/06	G.P.H.	T.D.B.
4	12/08	G.P.H.	T.D.B.
5	10/10	G.P.H.	T.D.B.
6	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-4



NOTES:

1. WATER METERS ARE NOT ALLOWED IN THE DRIVEWAY WING EXTENSION AREAS.
2. ALL DEDUCT METERS SHALL BE PER APPROVED PLAN.
3. DEDUCT METERS SHALL BE PLACED IN A STANDARD METER BOX WITH READER LID ACCORDING TO METER SIZE. (SEE W-1 & W-2)
4. DEDUCT METERS SHALL BE CONSTRUCTED PER THE DOMESTIC METER DETAIL OF THE SAME METER SIZE (SEE W-1, W-2 & W-3)
5. ALL METERS 2" AND LESS SHALL BE OF THE DISC/OSCILATING PISTON TYPE. METERS 3" AND LARGER SHALL BE A COMPOUND METER LAYOUT. TURBINE METERS SHALL NOT BE ALLOWED.
6. IRRIGATION DEDUCT METERS WILL BE READ DURING THE BILLING CYCLES FROM APRIL THROUGH OCTOBER.
7. DEDUCT METERS SHALL BE PURCHASED FROM THE CITY OF VANCOUVER COMMUNITY DEVELOPMENT DEPARTMENT PERMIT COUNTER
8. DEDUCT METERS ARE SUPPLIED AND INSTALLED BY THE CITY OF VANCOUVER OPERATIONS DEPARTMENT
9. DEDUCT METERS SHALL BE OWNED AND MAINTAINED BY THE CUSTOMER, INCLUDING ANY BATTERY REPLACEMENT.
10. IF THE DEDUCT METER CANNOT BE LOCATED WITHIN 25' OF THE DOMESTIC METER, A TOUCH READ DEVICE WILL BE REQUIRED.
11. EXCEPTIONS TO THESE REQUIREMENTS SHALL BE SUBMITTED IN WRITING WITH A PLAN FOR REVIEW TO COMMUNITY DEVELOPMENT DEPARTMENT ENGINEERING (360) 487-7800 FOR ROUTING TO WATER ENGINEERING.
12. DIRECT ALL DESIGN QUESTIONS TO CITY OF VANCOUVER WATER ENGINEERING AT (360) 487-7130.
13. INSTALLATION QUESTIONS SHOULD BE DIRECTED TO CITY OF VANCOUVER UTILITIES AT (360) 487-7999.

N.T.S.



STANDARD DEDUCT METER

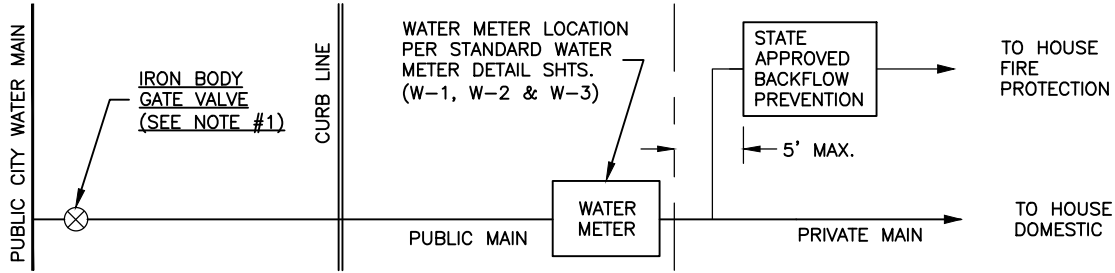
CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
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2	10/10	G.P.H.	T.D.B.
3	1/13	G.P.H.	T.W.C.

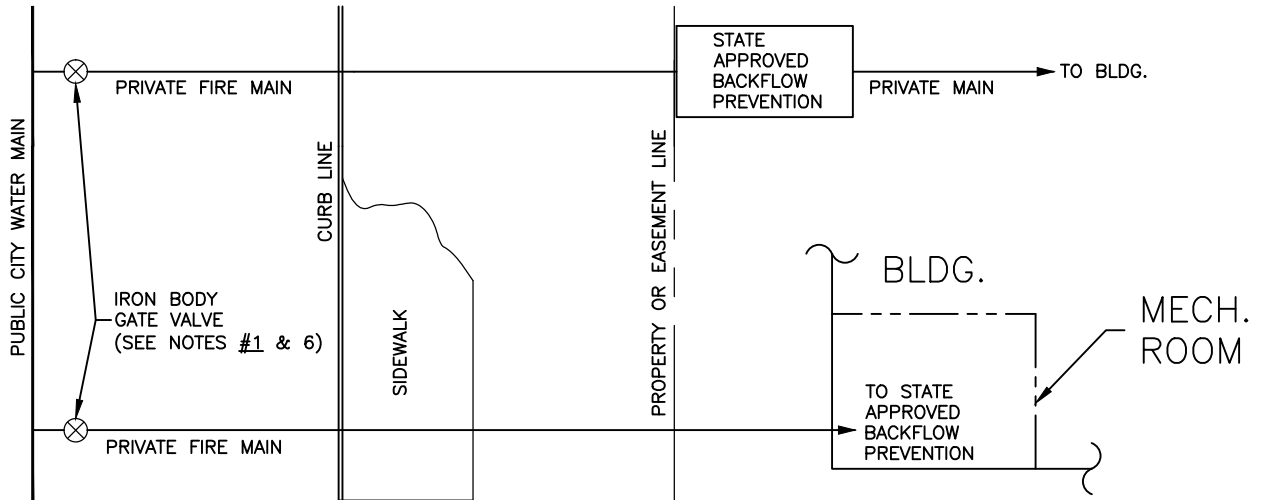
STANDARD PLAN NO.

W-5

SINGLE FAMILY FIRE PREVENTION INSTALLATION



COMMERCIAL/MULTI-FAMILY BACKFLOW PREVENTION INSTALLATION



NOTES:

1. ALL FIRE PROTECTION SERVICES (F.P.S.) SHALL HAVE A 2" OR LARGER IRON BODY GATE VALVE AS DESCRIBED ON SHEET 3 OF THE STANDARD WATER LINE DETAILS OR 2-2.06 IN THE CITY OF VANCOUVER ENGINEERING SERVICES GENERAL REQUIREMENTS AND DETAILS BOOK. VALVES SHALL BE LOCATED AT THE CONNECTION TO THE WATER MAIN. WATER METERS ARE NOT REQUIRED ON FIRE PROTECTION SERVICES.
2. FIRE PROTECTION SERVICES 2" AND SMALLER SHALL BE TYPE "K" COPPER AND F.P.S. LARGER THAN 2" SHALL BE 4" OR LARGER DUCTILE IRON PIPE.
3. ALL BACKFLOW DEVICES SHALL BE PER APPROVED PLAN.
4. BACKFLOW DEVICES SHALL BE PLACED IN A STANDARD CONCRETE METER BOX, PLASTIC IRRIGATION BOX OR CONCRETE VAULT WITH LID PER W-20, W-21, W-22, W-23 AND W-24 AS APPROPRIATE.
5. COMMERCIAL BACKFLOW DEVICES MAY BE INSTALLED INSIDE THE BUILDING IN A MECHANICAL ROOM, AS ALLOWED BY U.B.C. AND U.P.C., PROVIDED THE ROOM REMAINS ACCESSIBLE TO INSPECTORS.
6. ALL COMMERCIAL FIRE PROTECTION SERVICES SHALL BE PRIVATELY OWNED AND MAINTAINED DOWNSTREAM OF THE GATE VALVE LOCATED AT THE PUBLIC MAIN.
7. REQUESTS FOR EXCEPTIONS TO THESE REQUIREMENTS MAY BE SUBMITTED IN WRITING WITH THE PLAN VIEW TO COMMUNITY DEVELOPMENT DEPARTMENT ENGINEERING (360) 487-7200 x8678. ALL RESPONSES SHALL BE MADE IN WRITING.
8. ALL BACKFLOW DEVICES ARE PRIVATELY OWNED, TESTED AND MAINTAINED.
9. SINGLE FAMILY WATER METERS SHALL BE SIZED TO MEET THE REQUIRED FIRE FLOW.
10. PER RCW CHAPTER 70.119A.210, THE CITY OF VANCOUVER SHALL NOT BE LIABLE FOR DAMAGES RESULTING FROM THE SHUTDOWN OF SINGLE FAMILY SERVICES DUE TO ROUTINE MAINTENANCE, NONPAYMENT; OR WATER SYSTEM EMERGENCIES.
11. ALL FIRE PROTECTION SERVICES, EXCEPT SINGLE FAMILY APPLICATIONS, SHALL BE TAPPED SEPARATELY FROM ALL DOMESTIC SERVICES AND FIRE HYDRANT LEADS.

N.T.S.



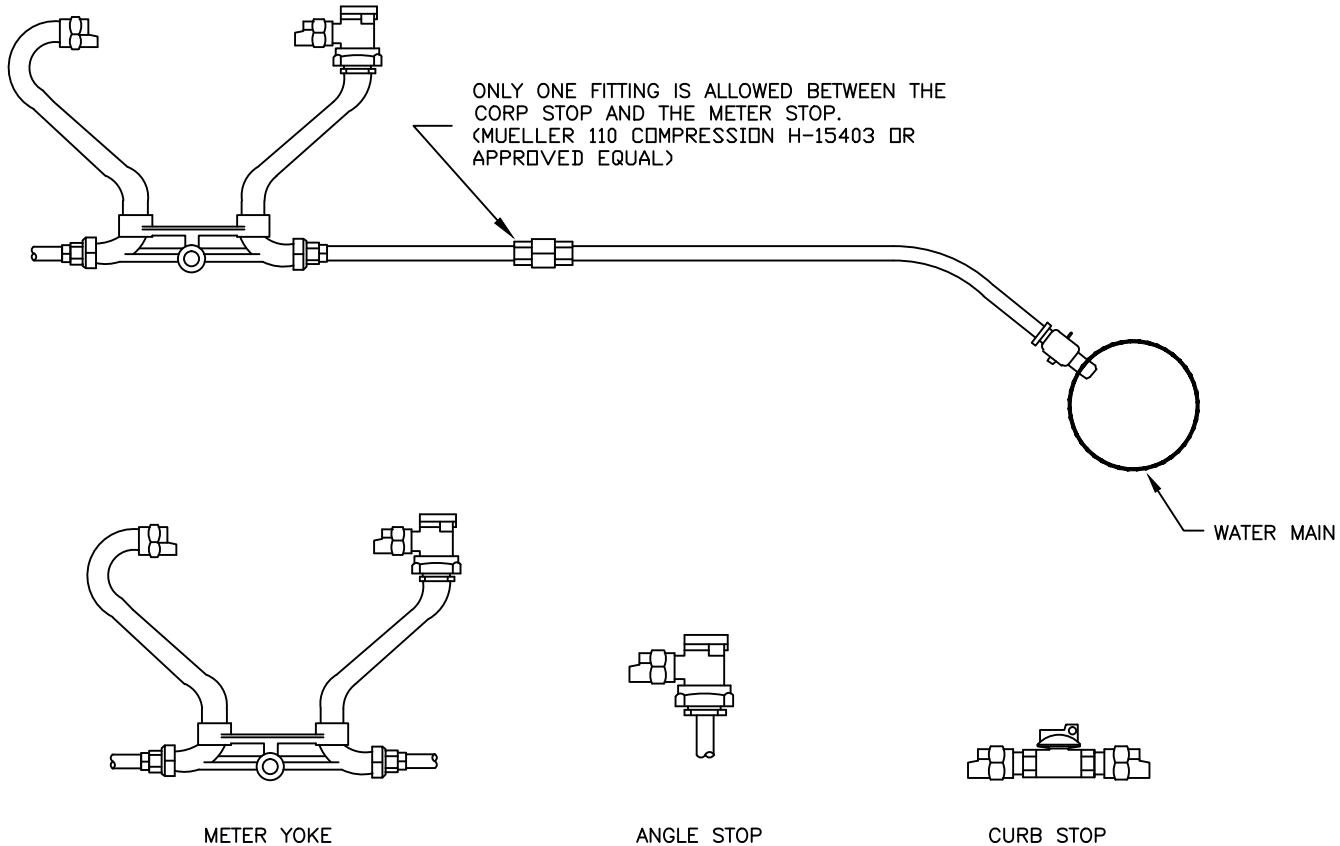
STANDARD FIRE PROTECTION BACKFLOW LOCATIONS

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
4	12/06	G.P.H.	T.D.B.
5	10/07	G.P.H.	T.D.B.
6	10/10	G.P.H.	T.D.B.
7	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-6



NOTE:

1. REPLACE ALL SERVICES WHICH MEET ANY OF THE FOLLOWING CONDITIONS:
 - A. METER BOX IS RELOCATED
 - B. SUBSTANDARD EITHER BY MATERIALS OR LACK OF COVER
 - C. THE YOKE MUST BE REPLACED
2. ALL SERVICES MUST TERMINATE AT EITHER A NEW YOKE, CURB STOP OR ANGLE STOP. (MUELLER "110 COMPRESSION" OR APPROVED EQUAL)
3. FOR SERVICE TRANSFERS, ONLY ONE FITTING IS ALLOWED BETWEEN THE CORP STOP AND THE METER STOP. A METER ADAPTER REDUCING FROM A 1" SERVICE TO A SMALLER METER MAY BE ALLOWED IN ADDITION TO THE ONE FITTING.
4. AS OF JANUARY 4, 2014 ALL NEWLY INSTALLED FITTINGS IN CONTACT WITH WATER SHALL BE IN COMPLIANCE WITH THE REVISED SECTION 1417 OF THE EPA SAFE WATER DRINKING ACT AND CERTIFIED LEAD FREE USING NSF 372 STANDARDS.

N.T.S.

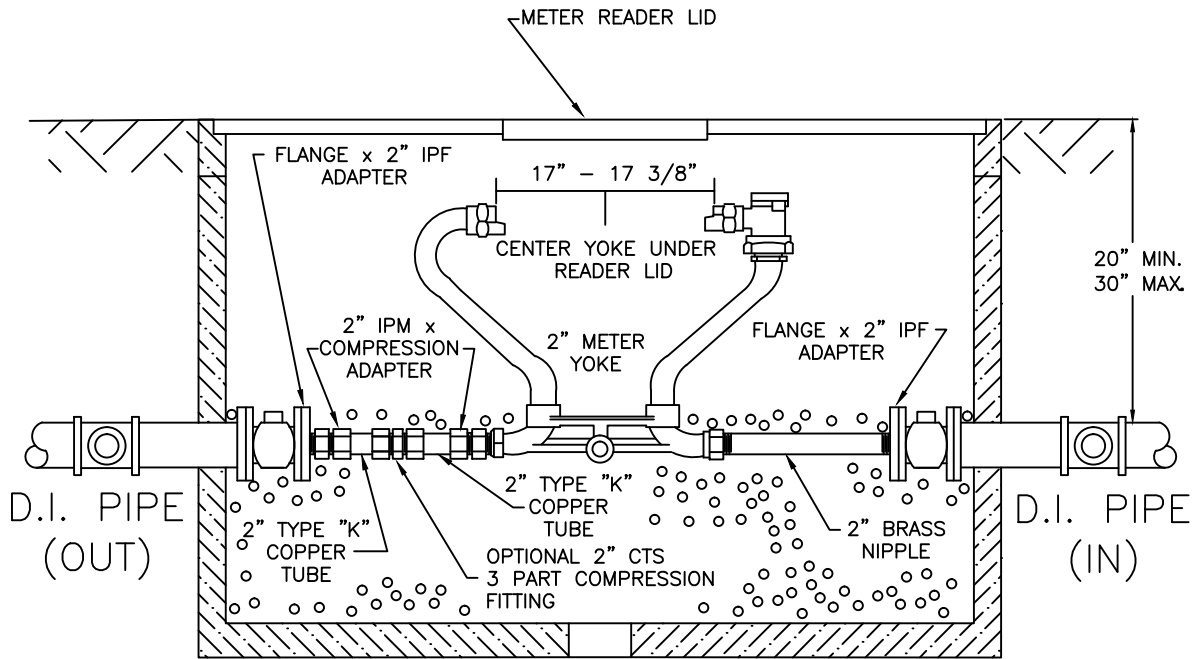


METER SERVICE TRANSFER AND REPLACEMENT

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
2	12/06	G.P.H.	T.D.B.
3	10/07	G.P.H.	T.D.B.
4	10/10	G.P.H.	T.D.B.
5	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.
W-7
13 WATER DETAILS



NOTES:

1. 2", 1-1/2" 1" AND 5/8" METERS SET IN COMPOUND METER VAULT SHALL BE SET IN A 2" METER YOKE ONLY.
2. FILL VAULT WITH 5/8" ROCK TO BOTTOM OF OPERATIONAL NUTS ON THE CONTROL VALVES.
3. CENTER THE 2" METER YOKE UNDER THE METER READER LID.
4. AS OF JANUARY 4, 2014 ALL NEWLY INSTALLED FITTINGS IN CONTACT WITH WATER SHALL BE IN COMPLIANCE WITH THE REVISED SECTION 1417 OF THE EPA SAFE WATER DRINKING ACT AND CERTIFIED LEAD FREE USING NSF 372 STANDARDS.

N.T.S.



COMPOUND METER REDUCTION

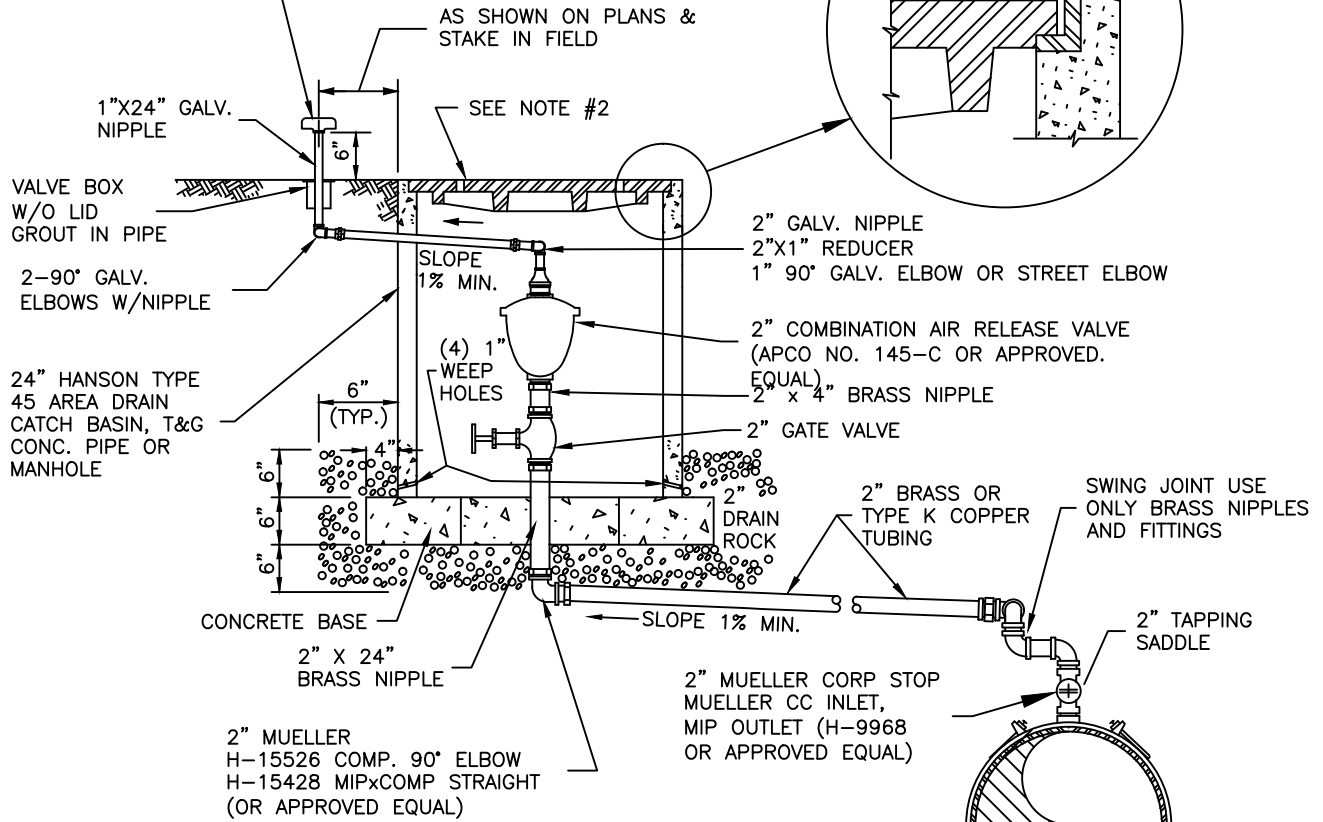
CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
3	12/06	G.P.H.	T.D.B.
4	12/08	G.P.H.	T.D.B.
5	12/10	G.P.H.	T.D.B.
6	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-8

MORRISON #155 TEE VENT
OR APPROVED EQUAL



NOTE:

1. PLACE VENT AND AIR RELEASE UNIT ASSEMBLY OUTSIDE OF HARD SURFACED AREA IN R.O.W. OR 15' EASEMENT DEDICATED TO THE CITY OF VANCOUVER
2. MANHOLE COVER SHALL MEET SANITARY SEWER STANDARD DETAIL S-2.2 STANDARD LID OR APPROVED EQUAL.
3. AS OF JANUARY 4, 2014 ALL NEWLY INSTALLED FITTINGS IN CONTACT WITH WATER SHALL BE IN COMPLIANCE WITH THE REVISED SECTION 1417 OF THE EPA SAFE WATER DRINKING ACT AND CERTIFIED LEAD FREE USING NSF 372 STANDARDS.

N.T.S.



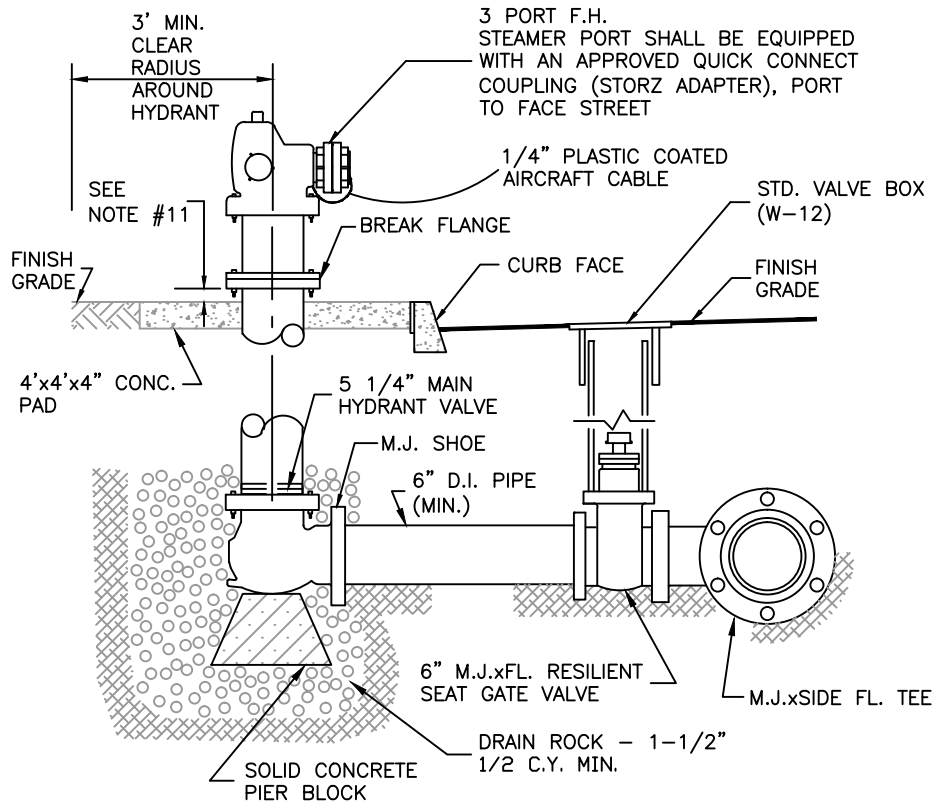
COMBINATION AIR RELEASE VALVE

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
3	12/06	G.P.H.	T.D.B.
4	12/08	G.P.H.	T.D.B.
5	10/10	G.P.H.	T.D.B.
6	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-9



NOTES:

1. FIRE HYDRANT INSTALLATIONS SHALL BE APPROVED BY THE CITY INSPECTOR PRIOR TO BACKFILLING.
2. IN GENERAL, FIRE HYDRANT LOCATIONS SHALL BE AS SHOWN ON THE PLANS BUT SHALL CONFORM TO THIS DETAIL. FIRE HYDRANTS SHALL NOT BE SET UNTIL LOCATION AND DEPTH ARE APPROVED BY THE CITY.
3. THE FIRE HYDRANT SHALL BE INSTALLED SO THAT IT IS PLUMB IN ALL DIRECTIONS.
4. NO DOMESTIC OR FIRE PROTECTION SERVICES SHALL BE TAPPED OFF OF THE FIRE HYDRANT PIPING.
5. A CONCRETE PAD NO LESS THAN 4'x4'x4", SHALL BE CENTERED AROUND THE FIRE HYDRANT.
6. THE CONCRETE PAD SHALL BE PLACED FLUSH IN ELEVATION AND ADJOINED W/BACK OF CURB (IF THE SIDEWALK IS DETACHED OR DOESN'T EXIST) OR BACK OF SIDEWALK (IF SIDEWALK IS ATTACHED). EXPANSION JOINT MATERIAL SHALL BE PLACED BETWEEN THE CONCRETE PAD AND CURB/SIDEWALK.
7. CONCRETE PAD SHALL BE FINISHED TO APWA SIDEWALK STANDARDS.
8. ALL JOINTS SHALL BE RESTRAINED UTILIZING MECHANICAL RESTRAINT SYSTEMS. CONCRETE THRUST BLOCKS SHALL NOT BE ALLOWED.
9. FIRE HYDRANTS SHALL BE FACTORY PAINTED OR QUALITY FIELD PAINTED WITH RODDA SILICONE ALKYD ENAMEL HEAVY DUTY GLOSS SAFETY YELLOW 7-32616-1 TO NEW CONDITION.
10. FIRE HYDRANT MAINS SHALL BE 8" MIN., A 6" MAIN CAN BE USED FOR A DEAD-END RUN OF LESS THAN 50' TO A HYDRANT SUBJECT TO ADEQUATE FIRE FLOW.
11. DESIGN SEPARATION SHALL BE 3 INCHES, WITH AN AS-BUILT SEPARATION OF 2-4 INCHES.
12. BOLLARDS SHALL NOT BE INSTALLED AS FIRE HYDRANT PROTECTION.

N.T.S.



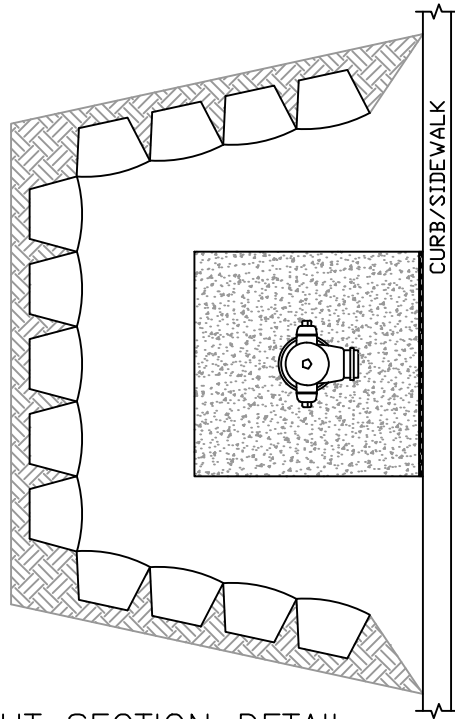
STANDARD FIRE HYDRANT ASSEMBLY

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

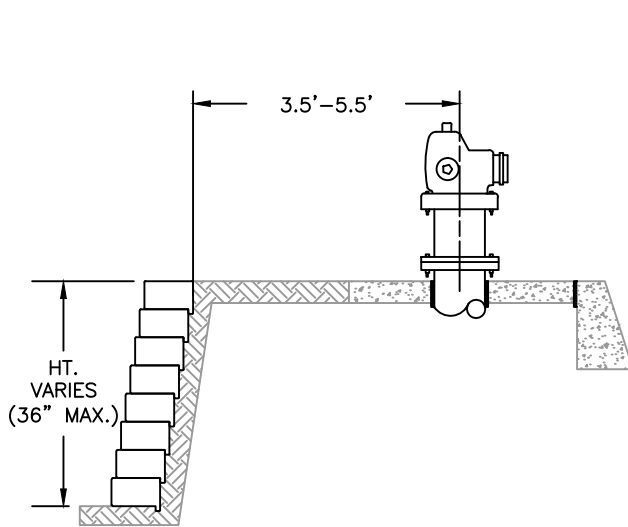
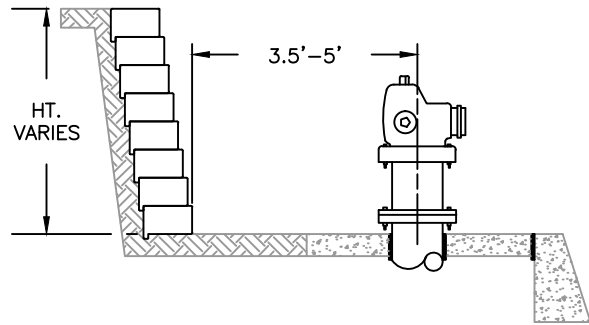
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3	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

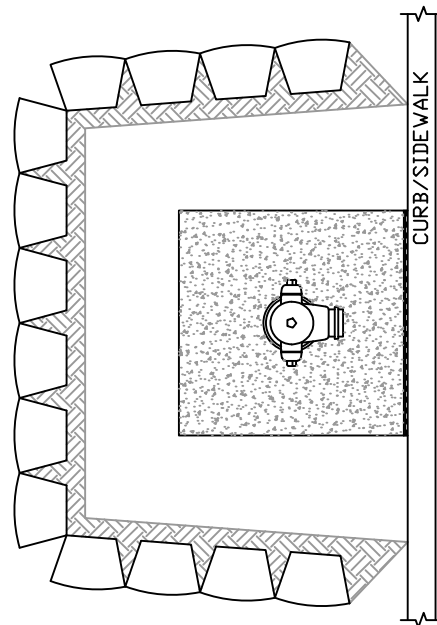
W-10



CUT SECTION DETAIL



FILL SECTION DETAIL



NOTES:

1. CONSULT I.B.C. FOR RETAINING WALL CONSTRUCTION REQUIREMENTS.
2. THE AREA WITHIN THE RETAINING WALL BOUNDARIES FROM THE CURB/SIDEWALK TO THE REAR RETAINING WALL SHALL HAVE A MAXIMUM SLOPE OF 1% IN ANY DIRECTION.
3. THE 4'x4' CONCRETE PAD SHALL HAVE A MAXIMUM SLOPE OF 1%.
4. RETAINING WALL SHALL MAINTAIN A MINIMUM RADIUS OF 3.5' AROUND THE HYDRANT

N.T.S.



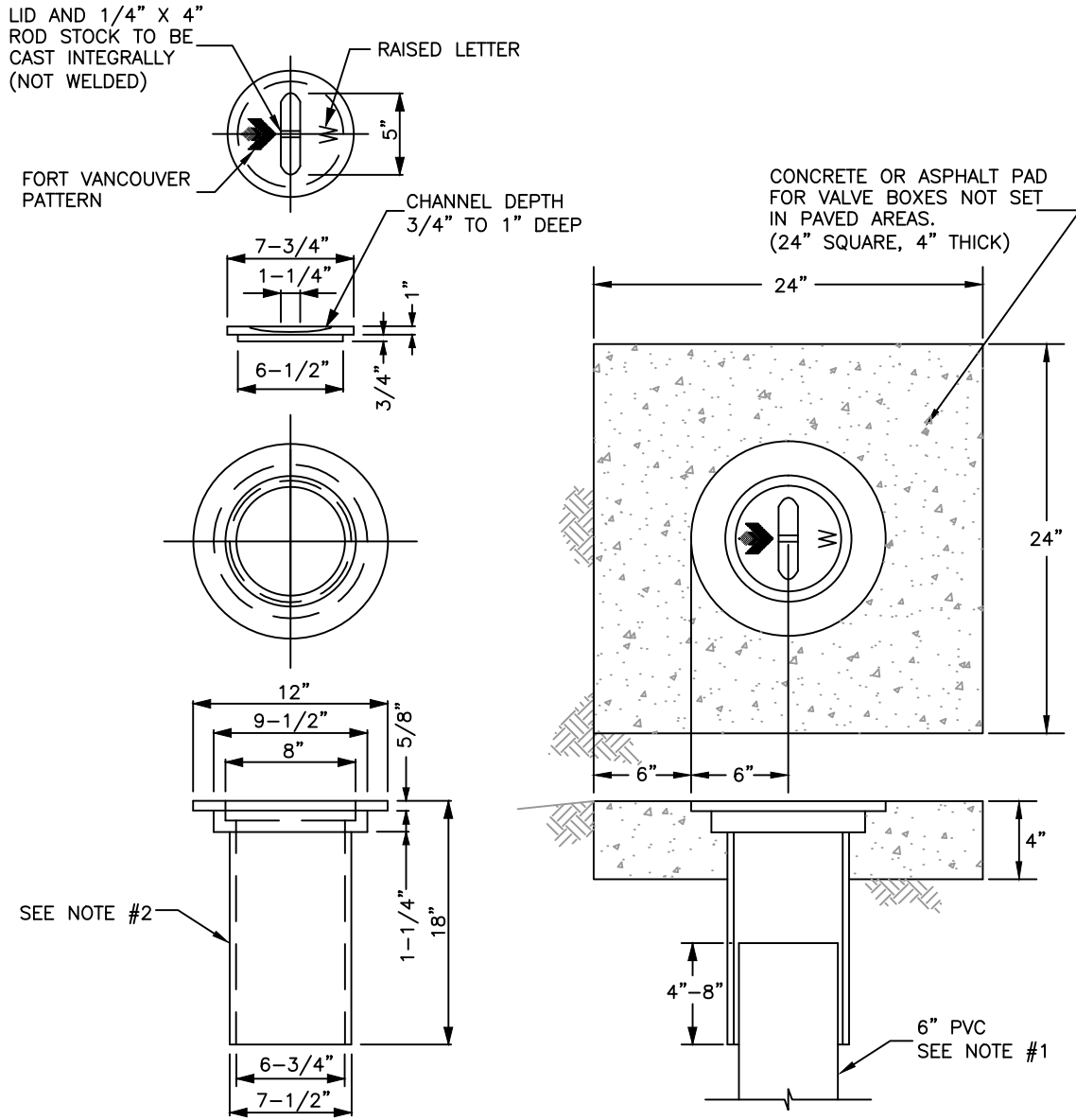
HYDRANT RETAINING WALL DETAIL

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
3	12/06	G.P.H.	T.D.B.
4	12/08	G.P.H.	T.D.B.
5	10/10	G.P.H.	T.D.B.
6	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-11



NOTES:

1. EXTENSIONS SHALL BE 6" ASTM D 3034 SDR 35 PVC PIPE (ONE PIECE)
2. VALVE BOX SHALL BE U.S. FILTER/PACIFIC WATER WORKS NO. 910 OR EQUAL.
3. THE LID SHALL INCLUDE THE FORT VANCOUVER LOGO AND "W" IN THE DESIGN.
4. IF THE ORIGIN IS OTHER THAN USA, THE COUNTRY OF ORIGIN SHALL BE CAST ON THE UNDERSIDE OF THE LID
5. THERE SHALL BE 1/2" CLEARANCE UNDER THE PIN CAST INTO THE LID.
6. THE OPERATOR NUT SHALL HAVE A DEPTH FROM 18"-36" FROM FINISH GRADE TO THE OPERATOR NUT.

N.T.S.



STANDARD VALVE BOX AND COVER

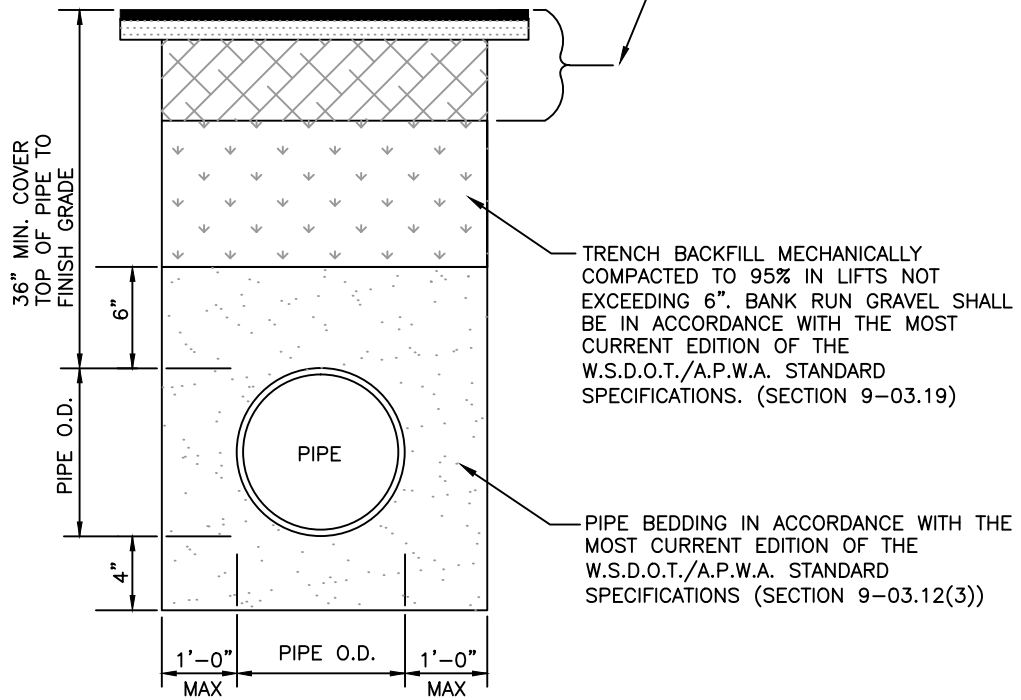
CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
3	12/06	G.P.H.	T.D.B.
4	12/08	G.P.H.	T.D.B.
5	10/10	G.P.H.	T.D.B.
6	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-12

FOR THIS ZONE OF THE TRENCH SECTION, SEE CITY, COUNTY OR WSDOT STANDARD PLANS AND/OR PERMIT CONDITIONS. FOR NON-PAVED SURFACES, MATCH EXISTING GRAVEL OR SEEDED LAWN, OR REFER TO APPROVED DRAWINGS.



NOTE:

1. CLEAN NATIVE MATERIAL MAY BE USED AS PIPE BEDDING AND TRENCH BACKFILL AS APPROVED BY CITY OF VANCOUVER CONSTRUCTION INSPECTOR.
2. CONTROL DENSITY FILL (CDF) MAY BE REQUIRED BASED ON THE LOCAL JURISDICTION'S STANDARDS.
3. OVERSIZE MATERIAL (4"+) SHALL NOT BE ALLOWED IN TRENCH.

N.T.S.



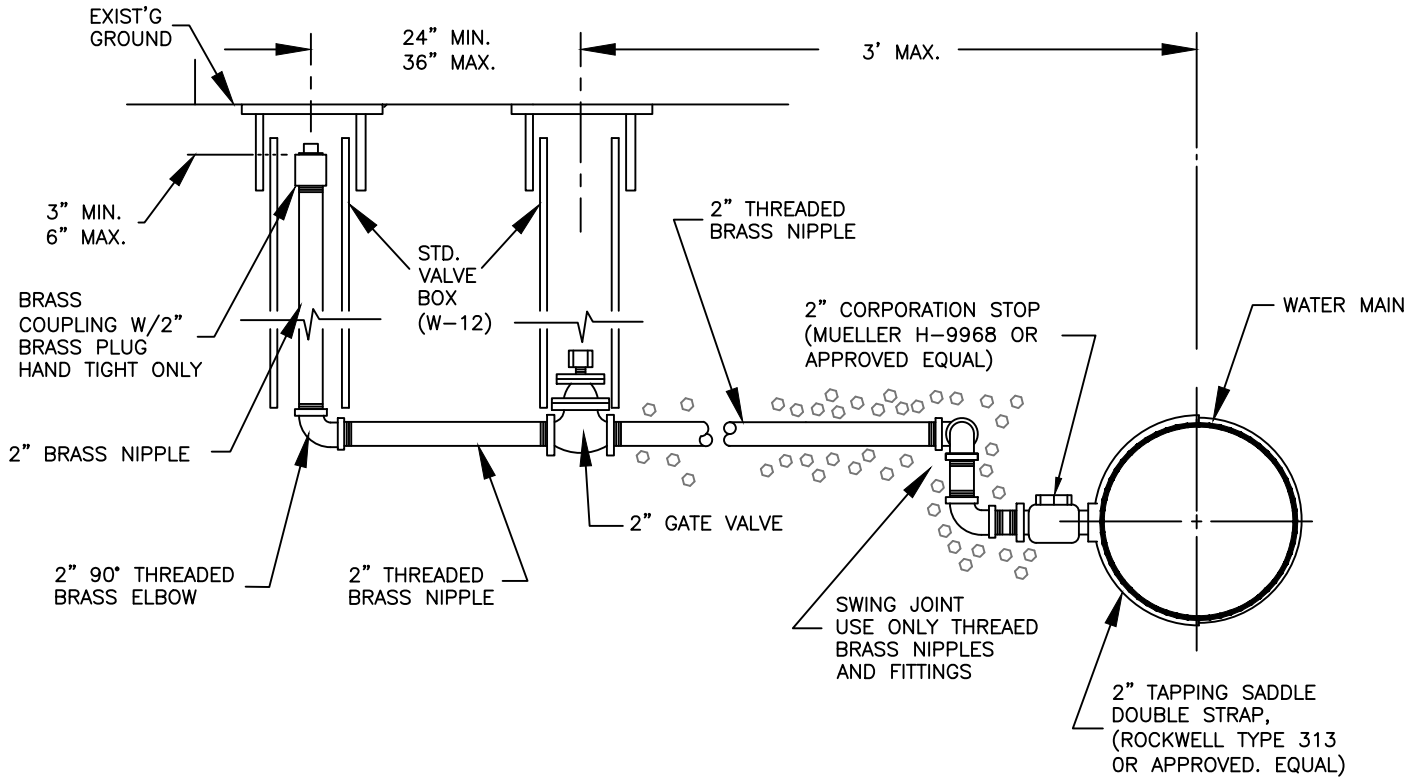
WATER PIPE TRENCH BEDDING & BACKFILL

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
3	12/06	G.P.H.	T.D.B.
4	12/08	G.P.H.	T.D.B.
5	10/10	G.P.H.	T.D.B.
5	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-13



NOTES:

1. BLOWOFFS SHALL BE INSTALLED 1' FROM THE END OF THE MAIN.
2. (5/8-) GRAVEL SHALL BE USED AS BEDDING AROUND THE SERVICE.
3. ALL PIPING UPSTREAM OF THE 2" GATE VALVE SHALL BE TYPE K COPPER OR BRASS
4. AS OF JANUARY 4, 2014 ALL NEWLY INSTALLED FITTINGS IN CONTACT WITH WATER SHALL BE IN COMPLIANCE WITH THE REVISED SECTION 1417 OF THE EPA SAFE WATER DRINKING ACT AND CERTIFIED LEAD FREE USING NSF 372 STANDARDS.

N.T.S.



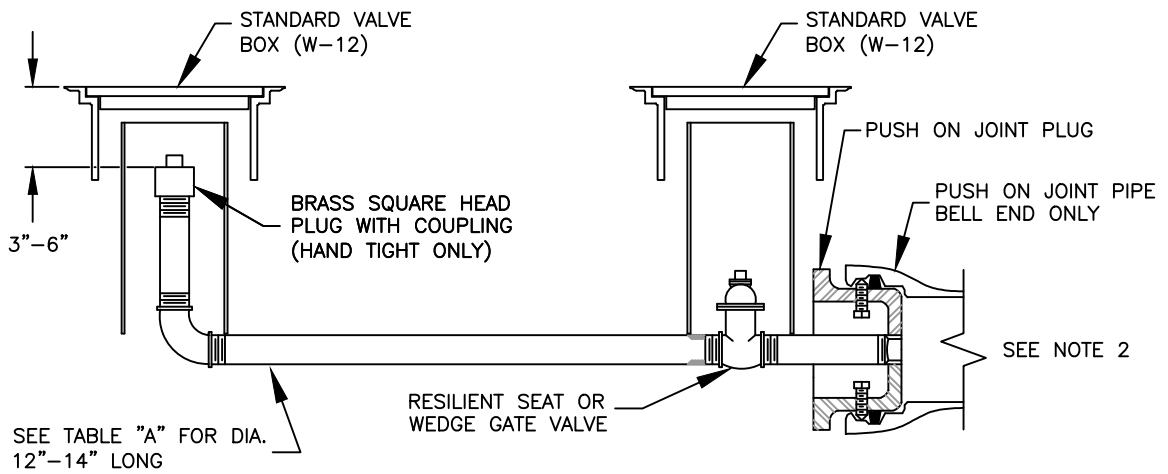
STANDARD BLOWOFF ASSEMBLY

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

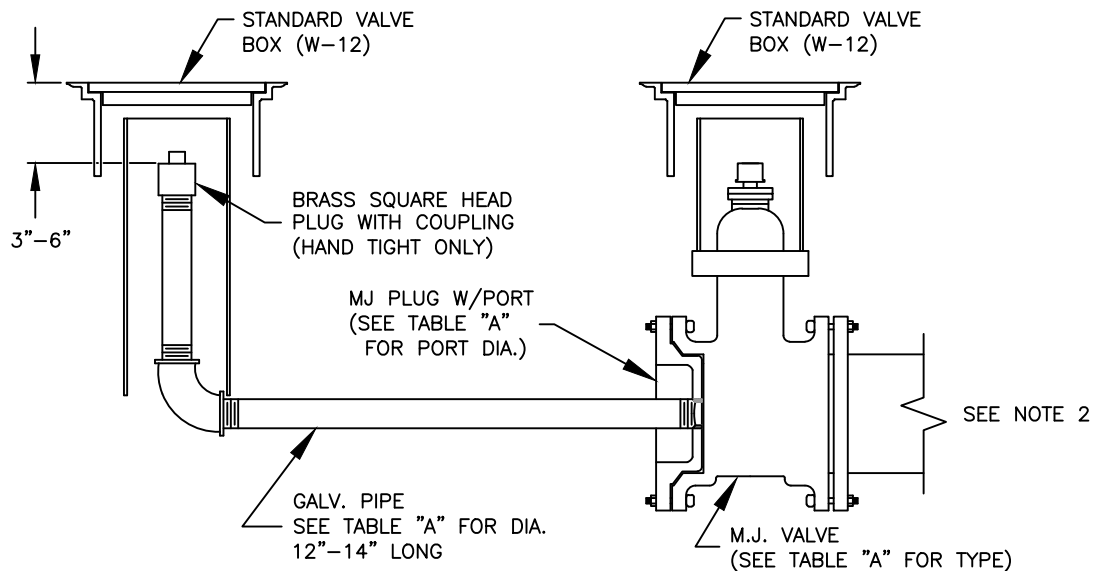
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3	12/06	G.P.H.	T.D.B.
4	12/08	G.P.H.	T.D.B.
5	10/10	G.P.H.	T.D.B.
6	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-14



TYPE "A"



TYPE "B"

TABLE "A"

MAIN DIAMETER	VALVE TYPE	BLOW-OFF DIAMETER
<12"	GATE	2" MINIMUM
12"-20"	BUTTERFLY	4" MINIMUM
>20"	BUTTERFLY	6" MINIMUM

TABLE "B"

MAIN DIAMETER	4"	6"	8"	10"	12"	14"	16"	18"
RESTRAINT LENGTH	26'	38'	47'	60'	64'	74'	84'	93'

NOTES:

1. SIZE OF BLOWOFF DETERMINED BY SIZE AND LENGTH OF MAIN
2. ALL JOINTS SHALL BE RESTRAINED UPSTREAM OF VALVE. SEE TABLE 'B' FOR MINIMUM RESTRAINT DISTANCES.
3. A SPOOL SHALL BE REQUIRED ON BUTTERFLY VALVE INSTALLATIONS DOWNSTREAM OF THE BUTTERFLY VALVE.
4. CIVIL PLANS SHALL CLEARLY INDICATE WHICH TYPE OF BLOWOFF IS TO BE INSTALLED AT EACH LOCATION.

N.T.S.



TEMPORARY BLOWOFF ASSEMBLIES

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
3	12/06	G.P.H.	T.D.B.
4	12/08	G.P.H.	T.D.B.
5	10/10	G.P.H.	T.D.B.
6	01/13	G.P.H.	T.W.C.

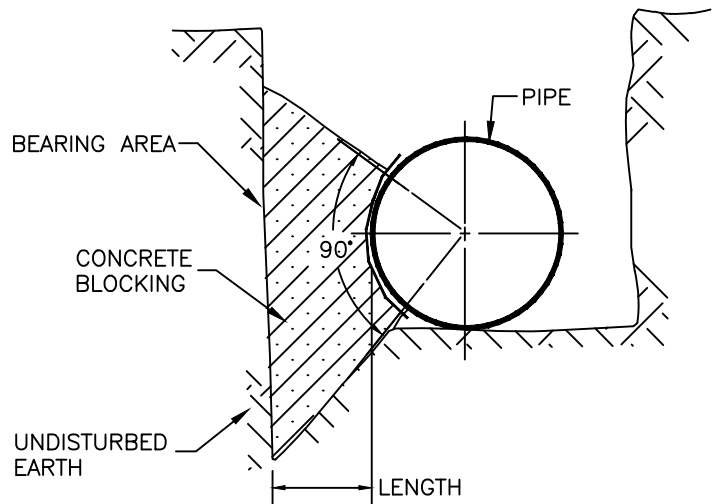
STANDARD PLAN NO.

W-15

SOIL BEARING = 2000 LB/S.F.				
PIPE SIZE	HORZ. BENDS	MIN. BEARING AREA S.F.	MIN. VOL. OF BLOCKING C.F.	MIN. LENGTH OF BLOCKING
4"	TEE	2.3	0.8	0.86
	90°	3.2	1.4	1.06
	45°	1.7	0.5	0.73
	22-1/2°	0.9	0.2	0.46
	11-1/4°	-	-	-
6"	TEE	4.7	2.4	1.24
	90°	6.6	4.0	1.53
	45°	3.6	1.6	1.05
	22-1/2°	1.8	0.6	0.66
	11-1/4°	0.9	0.2	0.39
8"	TEE	8.0	5.4	1.63
	90°	11.4	9.0	2.00
	45°	6.2	3.6	1.37
	22-1/2°	3.1	1.3	0.87
	11-1/4°	1.6	0.5	0.51
10"	TEE	12.1	9.9	2.00
	90°	17.1	16.7	2.46
	45°	9.3	6.6	1.69
	22-1/2°	4.7	2.4	1.08
	11-1/4°	2.4	0.9	0.63
12"	TEE	17.1	16.7	2.37
	90°	24.2	28.0	2.93
	45°	13.1	11.2	2.01
	22-1/2°	6.7	4.1	1.28
	11-1/4°	3.4	1.5	0.74
16"	TEE	23.8	27.3	2.73
	90°	33.6	46.0	3.37
	45°	18.2	18.3	2.29
	22-1/2°	9.3	6.7	1.42
	11-1/4°	4.7	2.4	0.80
18"	TEE	29.9	38.5	3.05
	90°	42.2	64.7	3.79
	45°	22.9	25.8	2.57
	22-1/2°	11.7	9.4	1.60
	11-1/4°	5.9	3.3	0.90
24"	TEE	52.3	89.1	4.03
	90°	74.0	149.8	5.00
	45°	40.0	59.7	3.55
	22-1/2°	20.4	21.7	2.11
	11-1/4°	10.3	7.7	1.18

NOTES:

1. ALL BLOCKING SHALL BE POURED AGAINST FIRM UNDISTURBED SOIL.
2. ALL CONCRETE BLOCKING SHALL BE POURED IN PLACE WITHOUT DIRECT CONTACT TO PIPE, FITTINGS OR FLANGES. 15 LB. ASPHALT-IMPREGNATED FELT, OR EQUIVALENT AS APPROVED BY THE INSPECTOR, SHALL BE PLACED BETWEEN THE CONCRETE AND PIPE, FITTINGS OR FLANGES.
3. LAYOUT TO BE APPROVED BY THE INSPECTOR PRIOR TO AND AFTER CONCRETE POUR.
4. CONCRETE FOR ALL BLOCKING SHALL HAVE A 28-DAY MINIMUM COMPRESSIVE STRENGTH OF 2,300 P.S.I.
5. THIS CHART IS NOT APPLICABLE TO VERTICAL BENDS. LOCATION SPECIFIC DESIGN IS REQUIRED FOR SUCH INSTALLATIONS.
6. WHERE THE TRENCH SOIL HAS A BEARING PRESSURE LESS THAN 2000 POUNDS PER SQUARE FOOT, LOCATION SPECIFIC DESIGN IS REQUIRED.
7. THRUST BLOCKS SHALL ONLY BE USED AT CONNECTIONS TO EXISTING WATER MAIN AND AT ALL "LIVE TAP" CONNECTIONS



N.T.S.



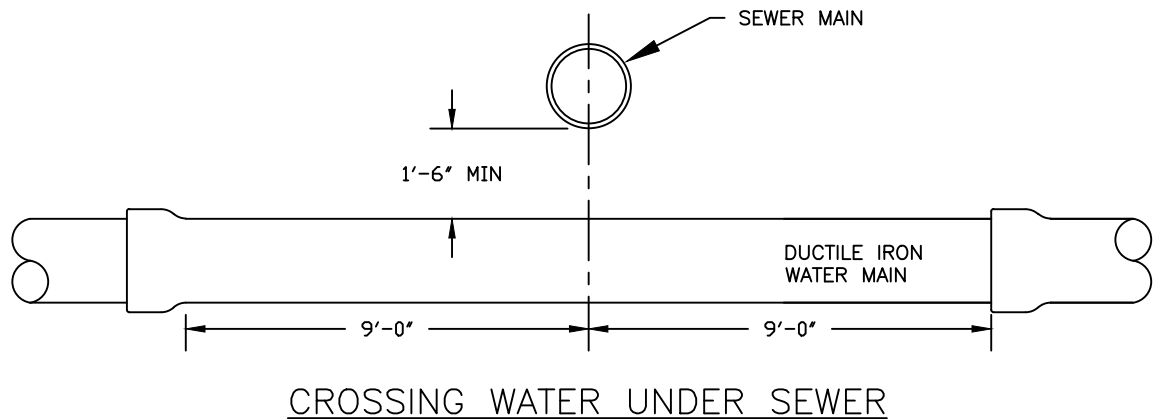
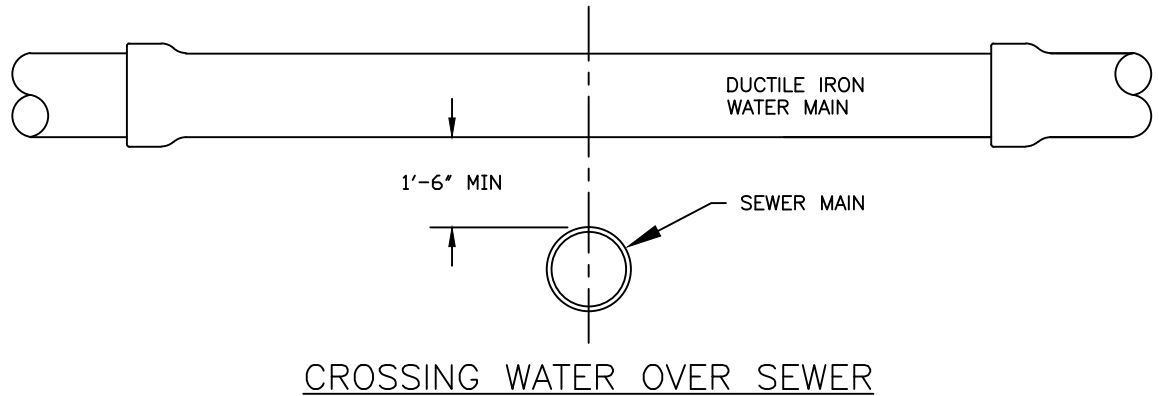
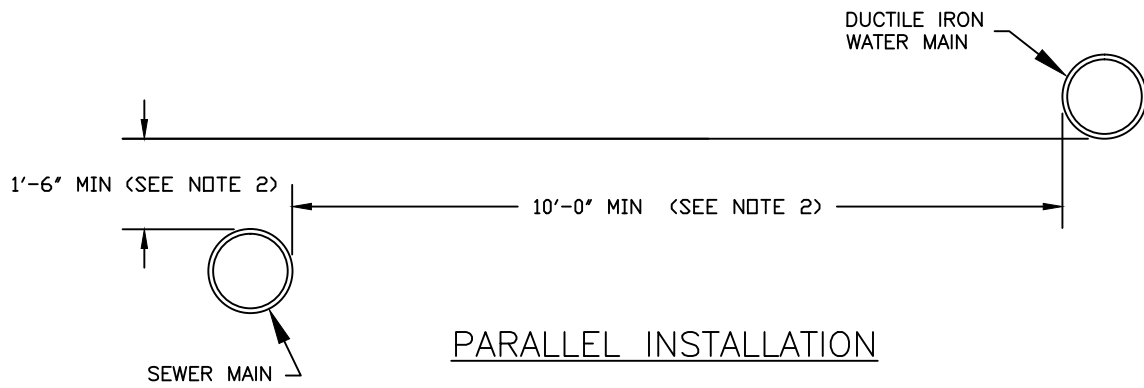
STANDARD THRUST BLOCK

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
3	12/06	G.P.H.	T.D.B.
4	12/08	G.P.H.	T.D.B.
5	10/10	G.P.H.	T.D.B.
6	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-16



NOTES:

1. EXCEPTIONS SHALL BE APPROVED BY THE CITY OF VANCOUVER IN WRITING.
2. WHERE MINIMUM CLEARANCES CANNOT BE MET, THE SEWER MAIN SHALL BE PLACED IN SEPARATE TRENCHES AND CONSTRUCTED OF MATERIALS EQUIVALENT TO THE CITY OF VANCOUVER WATER MAIN STANDARDS, INCLUDING PRESSURE TESTING. ADEQUATE RESTRAINT SHALL BE PROVIDED TO ALLOW TESTING TO OCCUR.
3. ALL SEWER CROSSINGS OVER OR UNDER WATER MAINS SHALL MAXIMIZE THE JOINT SEPARATION BY USING THE LONGEST STANDARD LENGTH PIPE AVAILABLE FROM THE MANUFACTURER FOR BOTH THE WATER AND SEWER MAINS. BOTH PIPES SHALL BE CENTERED AT THE POINT OF CROSSING.
4. ALL SEWER CROSSING OVER WATER MAINS SHALL BE CONSTRUCTED OF MATERIALS EQUIVALENT TO THE CITY OF VANCOUVER WATER MAIN STANDARDS, INCLUDING PRESSURE TESTING

N.T.S.



WATER AND SEWER SPACING

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
2	12/06	G.P.H.	P.G.E.
3	12/08	G.P.H.	T.D.B.
4	10/10	G.P.H.	T.D.B.
5	01/13	G.P.H.	T.W.C.

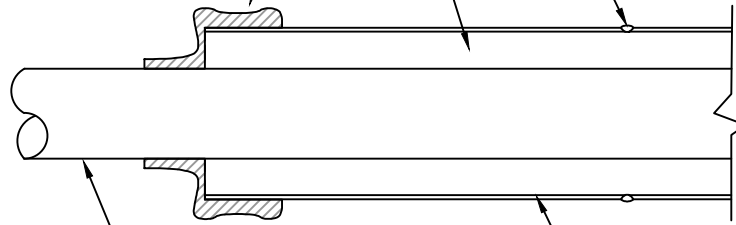
STANDARD PLAN NO.

W-17

INSTALL FLEXIBLE END SEAL
ON EACH END OF CASING PIPE.
(*PSI MODEL "W" OR
APPROVED EQUAL).

FILL SPACE BETWEEN
CASING PIPE & CARRIER PIPE WITH
BLOWN IN SAND AS
REQUIRED BY INSTALLATION PERMITS.

WELDED JOINT



(***)RESTRAINED JOINT
D.I. CARRIER PIPE

(**)STEEL CASING
ASTM A 139 GRADE B
MIN. WALL THICKNESS(**)

(**)SEE PLANS FOR CASING SIZE
AND MINIMUM WALL THICKNESS

(***)SEE PLANS FOR CARRIER PIPE
SIZE AND CLASS RATING

*Pipeline Seal and Insulator, Inc.

PVC COATED STEEL CASING SPACER
SEE SCHEDULE FOR SIZE
(*PSI MODEL C8G-2 OR APPROVED EQUAL)
3 PER 18' JOINT OF PIPE, EQUALLY SPACED

CASING SIZING REQUIREMENTS

CARRIER PIPE	MINIMUM CASING REQUIREMENTS	WALL THICKNESS
4"	16" A36 STEEL	3/8"
6"	16" A36 STEEL	3/8"
8"	24" A36 STEEL	3/8"
10"	24" A36 STEEL	3/8"
12"	24" A36 STEEL	3/8"
16"	36" A36 STEEL	5/8"
24"	48" A36 STEEL	5/8"

1. CASING TO BE EXTENDED 5' BEYOND ANY CURBS, WALLS, STRUCTURES OR FOOTINGS
2. PUBLIC AND PRIVATE MAINS SHALL BE PLACED IN SEPARATE CASINGS.
3. FOR CASINGS UNDER RAILROAD TRACKS, WRITTEN PERMISSION FROM THE OWNER OF THE RAILROAD TRACKS IS REQUIRED PRIOR TO OBTAINING CITY OF VANCOUVER PERMITS TO PROCEED.
4. NO PRIVATE UTILITIES SHALL BE ALLOWED IN CITY OF VANCOUVER CASINGS.

N.T.S.



PIPE AND CASING DETAIL

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
3	12/06	G.P.H.	T.D.B.
4	12/08	G.P.H.	T.D.B.
5	10/10	G.P.H.	T.D.B.
6	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-18

13 WATER DETAILS

W-19 & W-20
RESERVED FOR
FUTURE DETAILS

N.T.S.

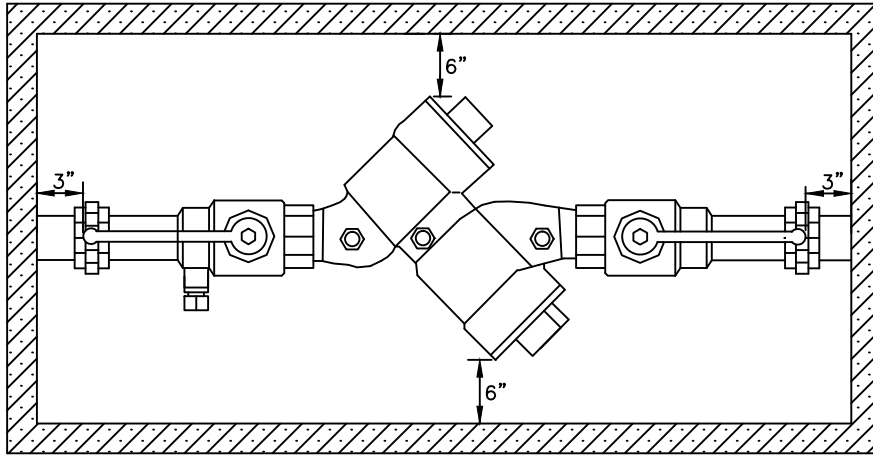


BLANK SHEET

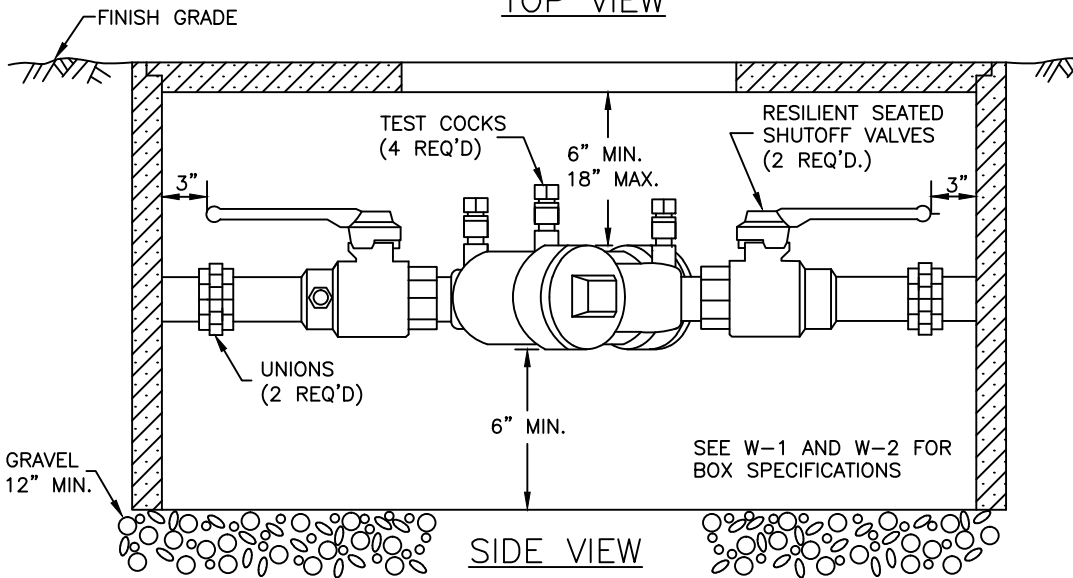
CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED

STANDARD PLAN NO.



TOP VIEW



SIDE VIEW

NOTES:

1. APPROVED DOUBLE CHECK VALVE ASSEMBLY (DCVA) TO LAY HORIZONTAL WITH GROUND. (VERTICAL ALLOWED IF APPROVED BY WA. DEPT. OF HEALTH)
2. DCVA MAY BE INSTALLED ABOVE OR BELOW GROUND PROVIDED ALL CLEARANCES ARE MET.
3. DESIGN FOR BACK SIPHONAGE AND BACK PRESSURE.
4. TEST COCKS TO EITHER FACE OUTWARDS OR UPWARDS FROM ASSEMBLY.
5. THOROUGHLY FLUSH LINES PRIOR TO INSTALLATION OF BACKFLOW PREVENTER.
6. DCVA SHALL NOT BE INSTALLED IN AN AREA SUBJECT TO FLOODING.
7. DCVA MUST BE ACCESSIBLE.
8. PROTECT DCVA FROM FREEZING.
9. DCVA SHALL BE APPROVED BY THE STATE OF WASHINGTON
10. A PLUMBING PERMIT IS REQUIRED—CONTACT THE APPROPRIATE JURISDICTION’S PERMITS COUNTER
11. DCVA MUST BE TESTED AFTER INSTALLATION, THEN ANNUALLY BY A WA. STATE CERTIFIED BACKFLOW TESTER. RESULTS SHALL BE SENT TO THE CITY WATER QUALITY SERVICES.
12. AS OF JANUARY 4, 2014 ALL NEWLY INSTALLED FITTINGS IN CONTACT WITH WATER SHALL BE IN COMPLIANCE WITH THE REVISED SECTION 1417 OF THE EPA SAFE WATER DRINKING ACT AND CERTIFIED LEAD FREE USING NSF 372 STANDARDS.

N.T.S.



STANDARD DOUBLE CHECK VALVE ASSEMBLY 2" AND SMALLER

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

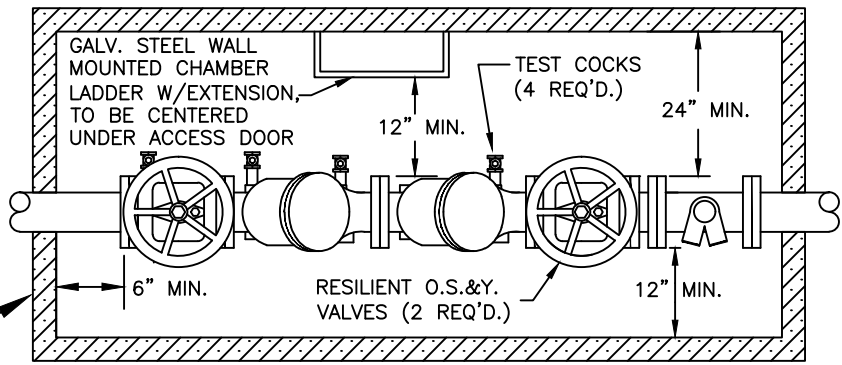
REV. NO.	DATE	BY	APPROVED
3	12/06	G.P.H.	T.D.B.
4	12/08	G.P.H.	T.D.B.
5	10/10	G.P.H.	T.D.B.
6	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-21

UTILITY VAULT SIZING CHART
(OR APPROVED EQUAL)

PIPE DEPTH UP TO	DCVA SIZE	FDC TEE INSIDE VAULT	FDC TEE OUTSIDE VAULT
4'	4"	675-WA W/2-332P	575-WA W/2
6'	4"	676-WA	577-WA
4'	6"	687-WA	675-WA W/2
6'	6"		676-WA
6'	8"	5106-WA	687-WA
6'	10"	5106-WA	5106-WA

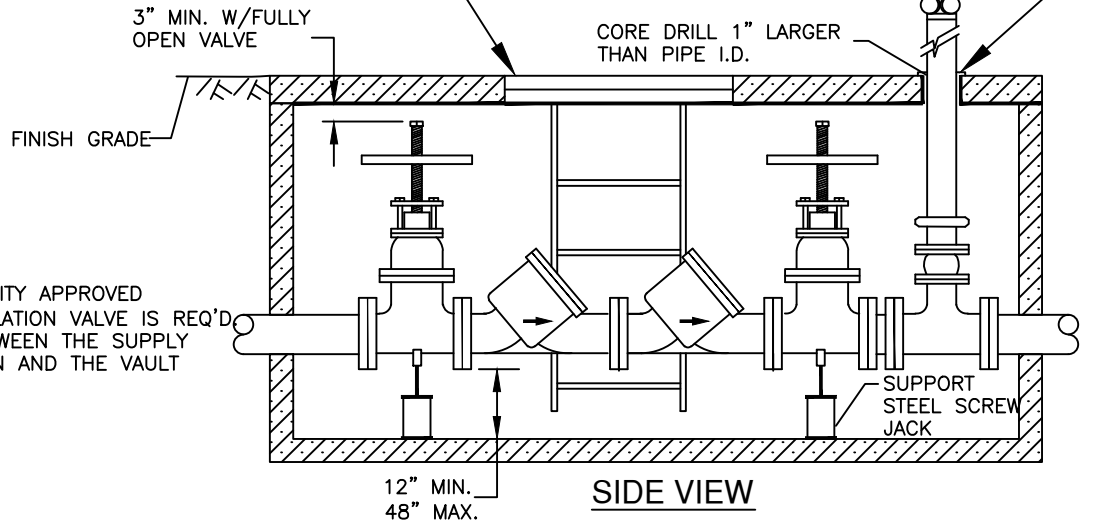


TOP VIEW

PRE-CAST CONC.
VAULT H-20 LOADING
LID W/LADDER

VAULT SHALL BE EQUIPPED W/36"x36"
SPRING ASSISTED, HOT DIPPED GALV.
DIAMOND PLATE DOOR.
UTILITY VAULT #332P

PUMPER CONNECTION (FDC) MAY
BE INSTALLED THROUGH VAULT
LID (AS SHOWN), SIDE WALL OR
DOWNSTREAM OF VAULT, DEPENDING
UPON SITE LOCATION



SIDE VIEW

NOTES:

1. THE DCVA MAY BE INSTALLED ABOVE OR BELOW GROUND PROVIDED ALL CLEARANCES ARE MET.
2. APPROVED DCVA TO LAY HORIZONTAL WITH THE GROUND. (VERTICAL IF APPROVED BY DEPT. OF HEALTH)
3. DESIGNED FOR BACK SIPHONAGE AND BACK PRESSURE.
4. THE WATER LINE SHALL BE DISINFECTED, FLUSHED AND PRESSURE TESTED PRIOR TO INSTALLING THE BACKFLOW ASSEMBLY. THE DCVA SHALL BE PROTECTED FROM FREEZING AND FLOODING.
5. ALL PIPE, VALVE AND FITTING JOINTS, FROM SUPPLY MAIN, SHALL BE FLANGED OR RESTRAINED.
6. AS OF JANUARY 4, 2014 ALL NEWLY INSTALLED FITTINGS IN CONTACT WITH WATER SHALL BE IN COMPLIANCE WITH THE REVISED SECTION 1417 OF THE EPA SAFE WATER DRINKING ACT AND CERTIFIED LEAD FREE USING NSF 372 STANDARDS.
7. ALL VAULTS SHALL BE PRE-APPROVED PRIOR TO INSTALLATION.
8. DCVA SHALL BE INSTALLED AT THE PROPERTY LINE OR EASEMENT LINE AND ON OWNER'S PROPERTY.
9. DCVA SHALL HAVE A MINIMUM OF 3' CLEARANCE FROM ALL STRUCTURES.
10. DCVA SHALL BE TESTED AFTER INSTALLATION AND PRIOR TO ACCEPTANCE AND ALSO YEARLY THEREAFTER BY A WASHINGTON STATE CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST RESULTS SHALL BE SENT TO THE CITY OF VANCOUVER WATER QUALITY SERVICES.
11. GROUT PIPE ENTRANCE AND EXIT, IN VAULT, WITH WATERTIGHT GROUT.

N.T.S.



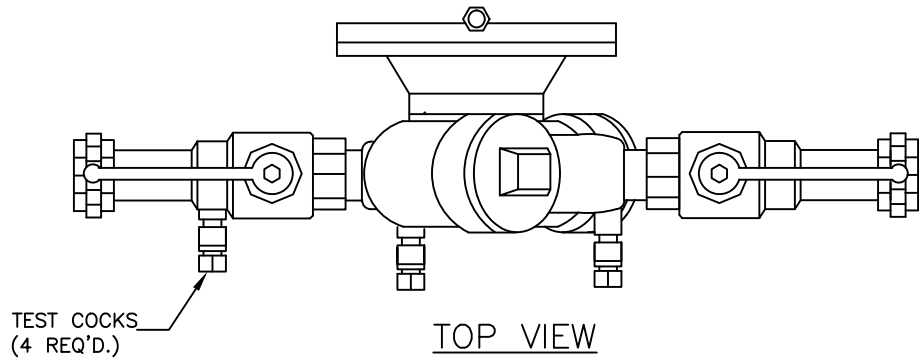
STANDARD DOUBLE CHECK VALVE ASSEMBLY-2 1/2" & LARGER

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

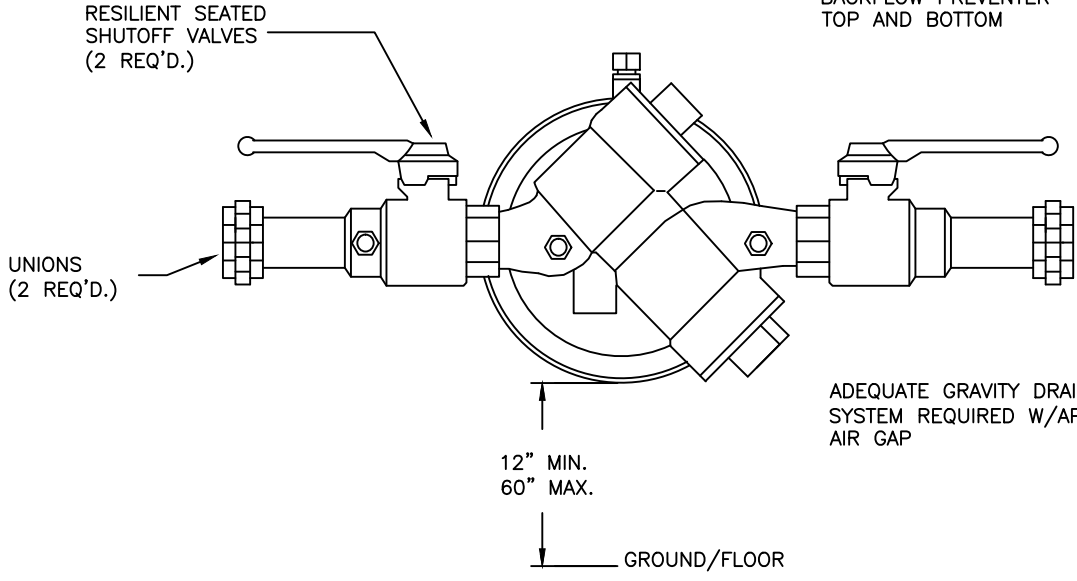
REV. NO.	DATE	BY	APPROVED
4	12/06	G.P.H.	T.D.B.
5	12/08	G.P.H.	T.D.B.
6	10/10	G.P.H.	T.D.B.
7	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-22



MIN. 12" CLEARANCES AROUND
BACKFLOW PREVENTER - ALL SIDES,
TOP AND BOTTOM



NOTES:

1. APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) TO LAY HORIZONTAL WITH GROUND. (VERTICAL ALLOWED IF APPROVED BY WA. DEPT. OF HEALTH)
2. DESIGN RPBA FOR BACK SIPHONAGE AND BACK PRESSURE.
3. THOROUGHLY FLUSH LINES PRIOR TO INSTALLATION OF BACKFLOW PREVENTER.
4. DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
5. RPBA MUST BE ACCESSIBLE.
6. PROTECT RPBA FROM FREEZING.
7. A PLUMBING PERMIT IS REQUIRED—CONTACT THE APPROPRIATE JURISDICTION'S PERMITS COUNTER
8. RPBA MUST BE TESTED AFTER INSTALLATION, THEN ANNUALLY BY A WA. STATE CERTIFIED BACKFLOW TESTER. RESULTS SHALL BE SENT TO THE CITY WATER QUALITY SERVICES.
9. RPBA SHALL BE APPROVED BY THE STATE OF WASHINGTON.
10. AS OF JANUARY 4, 2014 ALL NEWLY INSTALLED FITTINGS IN CONTACT WITH WATER SHALL BE IN COMPLIANCE WITH THE REVISED SECTION 1417 OF THE EPA SAFE WATER DRINKING ACT AND CERTIFIED LEAD FREE USING NSF 372 STANDARDS.

(ABOVE GROUND INSTALLATION ONLY)

N.T.S.



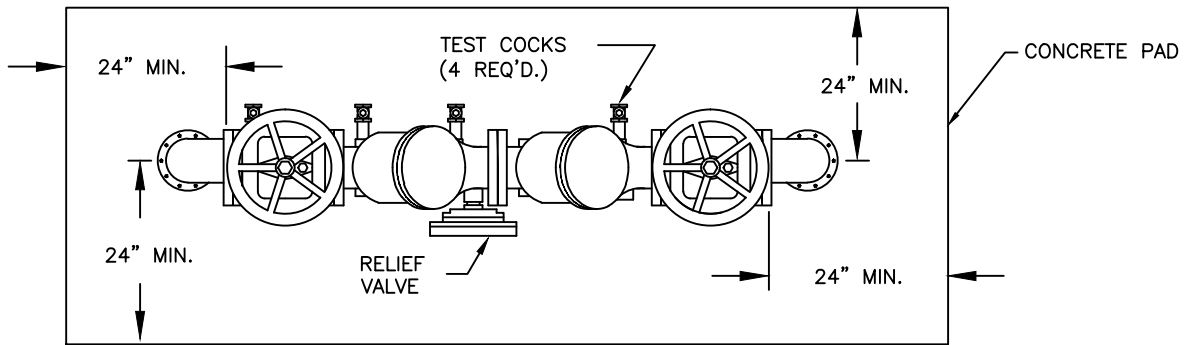
**STANDARD REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY
2" & SMALLER**

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

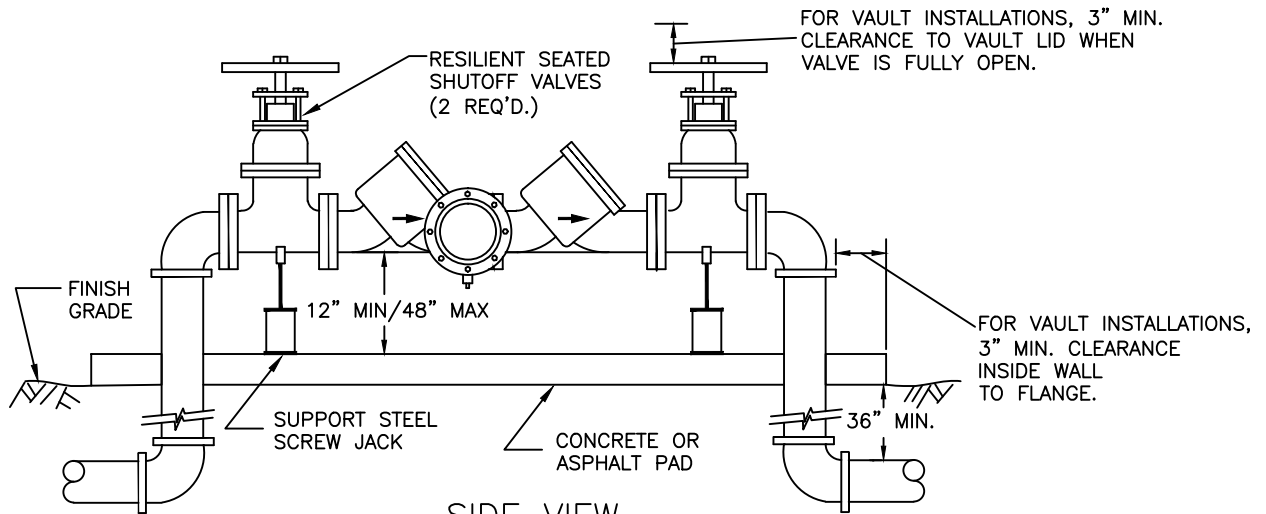
REV. NO.	DATE	BY	APPROVED
3	12/06	G.P.H.	T.D.B.
4	12/08	G.P.H.	T.D.B.
5	10/10	G.P.H.	T.D.B.
6	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-23



TOP VIEW



SIDE VIEW

NOTE:
A CITY APPROVED VALVE IS REQ'D.
BETWEEN THE SUPPLY MAIN AND
THE R.P.B.A.

NOTE:
PROVIDE HEAT
AND/OR INSULATION

NOTES:

1. APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) TO LAY HORIZONTAL ONLY. (VERTICAL IF APPROVED BY DEPT. OF HEALTH)
2. DESIGNED FOR BACK SIPHONAGE AND BACK PRESSURE.
3. THE WATER LINE SHALL BE DISINFECTED, FLUSHED AND PRESSURE TESTED PRIOR TO INSTALLING THE RPBA. THE RPBA SHALL BE PROTECTED FROM FREEZING AND FLOODING.
4. ALL UNDERGROUND PIPE, VALVES AND FITTING JOINTS SHALL BE RESTRAINED FROM THE SUPPLY MAIN. ALL ABOVE GROUND JOINTS SHALL BE FLANGED.
5. GROUT PIPE ENTRANCE AND EXIT IN VAULT, WITH WATERTIGHT GROUT.
6. ALL ENCLOSURES SHALL BE PRE-APPROVED PRIOR TO INSTALLATION.
7. RPBA SHALL BE INSTALLED AT PROPERTY LINE OR EASEMENT LINE AND ON OWNER'S PROPERTY.
8. ADEQUATE GRAVITY DRAINAGE SYSTEM REQUIRED WITH APPROVED AIR GAP.
9. MINIMUM 24" CLEARANCE ON ALL SIDES AROUND RPBA.
10. THE RPBA SHALL BE TESTED AFTER INSTALLATION AND PRIOR TO ACCEPTANCE, ALSO YEARLY THEREAFTER BY A CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST RESULTS SHALL BE SENT TO THE CITY OF VANCOUVER WATER QUALITY SERVICES.
11. HEAT AND/OR INSULATION SHALL BE PROVIDED TO PREVENT FREEZING

(ABOVE GROUND INSTALLATIONS ONLY)

N.T.S.



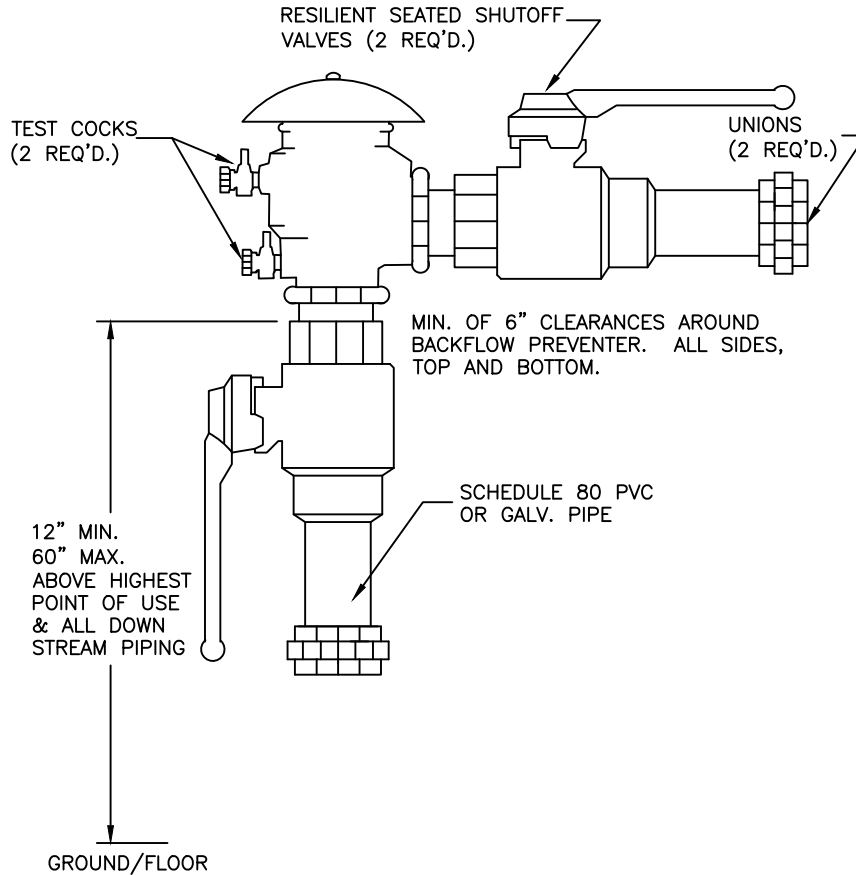
**STANDARD REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY
2 1/2" & LARGER**

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
4	12/06	G.P.H.	T.D.B.
5	12/08	G.P.H.	T.D.B.
6	10/10	G.P.H.	T.D.B.
7	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-24



NOTE:

1. APPROVED PRESSURE VACUUM BREAKER ASSEMBLY, (PVBA), MUST BE INSTALLED VERTICALLY, 12" MIN. – 60" MAX. ABOVE THE HIGHEST POINT OF USE AND ALL DOWNSTREAM PIPING.
2. DESIGNED FOR BACK SIPHONAGE ONLY, NOT BACK PRESSURE.
3. THOROUGHLY FLUSH LINES PRIOR TO INSTALLATION OF BACKFLOW PREVENTER.
4. IF A PVBA IS INSTALLED INDOORS, CONSIDERATION MUST BE GIVEN TO THE WATER LEAKAGE IF BACKFLOW PREVENTER FAILS. (EXCESSIVE WATER SPILLAGE)
5. DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
6. UNIT MUST BE PROTECTED FROM FREEZING CONDITIONS.
7. THE BACKFLOW ASSEMBLY SHALL BE A STATE APPROVED MODEL.
8. A PLUMBING PERMIT IS REQ'D. – PLEASE CONTACT YOUR LOCAL PLUMBING PERMIT CENTER.
9. MUST BE TESTED AFTER INSTALLATION AND YEARLY THEREAFTER BY A WASHINGTON STATE CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST RESULTS SHALL BE SENT TO THE CITY OF VANCOUVER WATER QUALITY SERVICES.
10. PVBA SHALL BE APPROVED BY THE STATE OF WASHINGTON.
11. AS OF JANUARY 4, 2014 ALL NEWLY INSTALLED FITTINGS IN CONTACT WITH WATER SHALL BE IN COMPLIANCE WITH THE REVISED SECTION 1417 OF THE EPA SAFE WATER DRINKING ACT AND CERTIFIED LEAD FREE USING NSF 372 STANDARDS.

(ABOVE GROUND INSTALLATION ONLY)

N.T.S.



STANDARD PRESSURE VACUUM BREAKER ASSEMBLY 2" & SMALLER

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
3	12/06	G.P.H.	T.D.B.
4	12/08	G.P.H.	T.D.B.
5	10/10	G.P.H.	T.D.B.
6	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-25

All reduced pressure and backflow devices shall be WA State approved, per WAC 246-290. Fire sprinkler and irrigation systems shall be protected with State approved backflow protection as prescribed in WAC 246-290.

All commercial, industrial and multi-family facilities shall be protected with Washington State approved backflow protection.

Further backflow prevention shall be required depending on water usage, i.e. boilers, chillers, chemical addition, booster pumps, wells, medical equip. soda pop machines etc.

All hosebibs shall be protected with vacuum breakers.

If chemicals are added to the Fire Protection System, a reduced pressure principle backflow preventer is required.

An approved air gap or reduced pressure backflow assembly is required for all service connections and fire protection systems on a site with access to unapproved auxiliary water supplies connected to a piping system whether or not an interconnection exists between the unapproved auxiliary water supply and City water system.

Where a vault is required, a galv. steel wall mounted chamber ladder w/extensions is required and shall be centered under the access door.

Double check assemblies shall be installed in either an approved vault or inside the building in a mechanical room.

Reduced pressure assemblies shall be installed either outside above ground or inside the building with adequate drainage.

All backflow devices shall be protected from freezing.

Backflow prevention assembly vaults (i.e.: fire and service protection) must be installed at the customer's side of the easement or property line. Alternate locations must be requested in writing and approved by City of Vancouver Water Quality Services prior to installation.

No part of the backflow prevention assembly shall be submerged in water or installed in a location subject to flooding. If a backflow prevention assembly is installed in a vault or basement, adequate drainage shall be provided.

All fire protection services shall have a iron body gate valve at the public main and shall be private after that valve.

All fire protection services shall be constructed to City of Vancouver public main material and restraint standards up to the backflow device.

All domestic services with backflow protection shall be private after the domestic water meter.

All Backflow prevention devices shall be tested after installation and prior to acceptance, also yearly thereafter by a certified backflow assembly tester. Test results shall be sent to the City of Vancouver Water Quality Services.

Mail test results to:

Operations Center - Water Quality Services
 City of Vancouver
 P.O. Box 1995
 Vancouver, WA. 98668
 Fax# (360) 759-4429

N.T.S.



GENERAL BACKFLOW NOTES

CITY OF VANCOUVER
 DEPARTMENT OF PUBLIC WORKS
 WATER ENGINEERING

REV. NO.	DATE	BY	APPROVED
2	12/06	G.P.H.	T.D.B.
3	10/07	G.P.H.	T.D.B.
4	10/10	G.P.H.	T.D.B.
5	01/13	G.P.H.	T.W.C.

STANDARD PLAN NO.

W-26

**APPENDIX 7B – WATER & SEWER REVIEW CHECKLIST FOR
PROJECTS BY OUTSIDE PARTIES**



WATER ENGINEERING
REVIEW CHECKLIST
Marine Park
(360) 487-7130; FAX (360) 487-7139

SUBMITTAL REQUIREMENTS:

Revise and Resubmit New and Current Checkprint

Project Name:

Activity Number: **ENG-**

1st Review

WATER ENGINEERING

Reviewed by:

Review Date:

GENERAL INFORMATION

- NEED** Construction Notes:
- NEED** Easement(s) Required, Shown, Called Out:
- NEED** Existing easement(s) Shown, Called out.
- NEED** Legend:
- NEED** Street Names & Widths:
- NEED** Length of Public Improvements (Water) in signature block:
- NEED** Most Current Standard Detail Sheets (Due at or prior to Final Approval) OR
 Note referencing latest edition of City of Vancouver General Requirements & Detail:
 Water (12/10) Backflow (12/10) COV Gen. Req. (12/10)

PLAN AND PROFILE INFORMATION

- NEED** Water Engineering notes:
- NEED** Show all possible conflicts (utilities, structures, trees, wells, show driveway location, etc.):
- NEED** Tree Plan Included & Checked for Meter Conflict:
- NEED** Separation from sewer (10' horizontal, 18" vertical):
- NEED** Profile required for Utility Main crossings:
- NEED** Pipe size, lengths, & material:
- NEED** Dimensioning (6' from curb North/East, and within easement):
- NEED** Fire hydrant connections, materials, and all joints restrained:
- NEED** Valves shown and called out:
- NEED** Fittings shown & called out:
- NEED** Restraint length called out:
- NEED** Thrust blocks called out (tapping tees and connections to unrestrained pipe):
- NEED** Pipe deflection (angle or radius, beginning and endpoints):
- NEED** Blow-off (standard or temporary):

SERVICE & BACKFLOW PROTECTION

- NEED** Water meter/Service (locations, service size and material):
- NEED** Approved backflow device (make & model):
- NEED** Complies with RUS/PIR:
- NEED** Each lot served:

COMMENTS:

APPENDIX 7C – PROJECT REVIEW FOR OUTSIDE PARTIES



Plans reviewed for compliance with City Standards and Policies

Application Number _____

Recommended for Approval:

_____	_____
Fire Review	Date
_____	_____
Water Review	Date
_____	_____
Sewer Review	Date
_____	_____
Grading (IBC Compliance)	Date
_____	_____
Stormwater and Erosion Control	Date
_____	_____
Transportation Review	Date
_____	_____
Traffic Review	Date
_____	_____
Planning Review	Date

Improvement Summary:

Water Main Footage	_____	LF
Sewer Main Footage	_____	LF
Septic System Decommissioned	_____	EA
Total Hard Surface	_____	SF
Private Hard Surface	_____	AC
Grading	Cut _____ CY	Fill _____ CY
Total Trenching within City Right of Way	_____	LF
Total Street Improvements (Curb/Pavmnt)	_____	LF
Right of Way Dedication	_____	SF
Easements	Utility _____ SF	Non-Util _____ SF
	Arterial	Local
Full St Const.	_____ LF	_____ LF
Total Pavmnt Add	_____ SF	_____ SF
Curb/Gutter	_____ LF	_____ LF
Sidewalk	_____ SF	_____ SF
Street Lights	_____ #	_____ #
Traffic Signals	_____ #	



Plans reviewed for compliance with City Standards and Policies

Application Number _____

Recommended for Approval:

_____	_____
Fire Review	Date
_____	_____
Water Review	Date
_____	_____
Sewer Review	Date
_____	_____
Transportation Review	Date

Improvement Summary:

Street Improvements	_____	LF
Water Main Footage	_____	LF
Sewer Main Footage	_____	LF
Septic System Decommissioned	_____	EA
Trenching within COUNTY Right of Way	_____	LF
Right of Way Dedicaton	_____	SF
Easements Utility _____	SF	Non-Util _____ SF

**APPENDIX 7D – WATER MAIN DESIGN PROCEDURES
FOR CAPITAL PROJECTS**

WATER MAIN DESIGN PROCEDURE GUIDELINE

Project Name & Project #:

Budget #:

- 1- Create Project File Folders (Electronic & Hard Copy).
- ELECTRONIC:
- In I:\WATER\Projects\DESIGN FORMS, copy “Blank Project Folder” to I:\WATER\Projects\ (Water Capital, SCIP or Roadway Coordination).
 - Rename *copied* “Blank Project Folder” to Actual project name (IE: NE 50th Ave).
- HARD COPY:
- Using Green File Guide, label with Project Name & Number on upper left tab.
 - Create Project Folders with headings of **BID DOCS, CORRESPONDENCE, DESIGN, SEPA, SURVEY, SWPP, NEIGHBORHOOD MEETING** (if appropriate).
 - Place Hard Copy folder in Room MP09, in drawer D-109.

- 2- Create Boundary Map for Project: Copies to Survey w/request, Sewer, Storm, & Transportation for project notification in advance.

- 3- Send Boundary Map to Survey with Survey request form ([Survey Request](#)). Request Survey to Initiate Utility Locates – at the ITIC website (<http://wa.itic.occinc.com/iMenu/wa/index.html>) For directions on how to request locates, see this PDF. [..\..\Locates\Locates ITIC Washington.pdf](#)

Identify “Survey Monuments” in project vicinity and add to Design plan – Locate monuments using this website:

<http://www.wsdot.wa.gov/Monument/gis/index.htm?Title=WSDOT%20Monument%20Mapping%20Engine%20v4.0>

****If NO Survey required, Request locates & “mark” locate boundary extents in the field with white paint as required per new no dig laws.****

- 4- Identify Permits/Easements required and submit application(s):
(***Some permits have lengthy process times... Start Early***)
- N/A - Clark County Right of Way Permit. See Item 8 of this document.
 - N/A - S.E.P.A./D.N.S. (Required for 10" and larger main installations. Not required for main replacements that will be the same size or smaller than the existing main or less than 10"), Mailing list @ (..\..\WATER\Projects\DESIGN [..\..\StdDocs\SEPA\SEPA Mailing Lables.doc](#) . If not current, contact planning. Also send SEPA DNS notice to be printed in The Columbian.
 - N/A - Railroad Crossings
 - N/A - W.S.D.O.T. Utility Permit
 - N/A - B.P.A.
 - N/A - Corps of Engineers.
 - N/A - Private Property Easements
 - N/A - DOE (if 1+ Acre material to be disturbed)/NPDES Stormwater Construction Permit

- 5- Check if Archaeological Predetermination is needed. Level A requires further action; level B, no further action required. [M:\Maps\Environmental Maps](#) File Name: Archaeological Probability 34

- 6- Acquire Project Area Topo data and all existing Utility location data (IE: Stm, San, Gas) using FME to convert most current information from GIS. Start preparing plans using CAD to drawing and configuring your design.

Additional information for water services and some outside utilities can be found in the GIS **LAYERS**:

- GIS City Water Service Info
+ SDE ⇨ Vancouver ⇨ Water Utilities ⇨ Completed Water Service
- CRWWD Sewer Lines
+ Shapes ⇨ Clark ⇨ SanitarySewerLines_Carto
- CLARK PUBLIC UTILITIES STORM
+ Shapes ⇨ County ⇨ StormSewerLines_Carto

- 7- At approximately 30% design:
- 1) Send a Site Map to the Water Dept. (Operations c/o Denny O'Neil) with a request to verify which Hydrants need replaced and to survey the existing meter boxes and services. [GIS Layer- SDE – Vancouver – Water Utilities – Completed Water Services](#)
 - 2) Send plans to Charles Ray, Urban Forestry, to check for tree protection and pruning where needed. If tree pruning is needed, work through Charles to have pruning completed prior to construction. Send pruning post card to affected residents.
 - 3) Send plans to Pavement Management, Ryan Miles – City or Nicole Olsen – County, to make them aware of the project and discuss trench and pavement restoration requirements.
- 8- At approximately 90% design, route Draft Plans for review and comment using the routing document @ ([.\..\StndDocs\PLAN ROUTING.doc](#)) *If emailing, attach the routing document to the email for recipients to return with their redlines.*
- 10- Apply for Clark County Right of Way Permit *Online*. (You will need to set-up an account with the County for a 1st time user. Call Nicole Olsen 360-397-6118 x4982 or email her to get an account set-up). <http://www.clark.wa.gov/public-works/UtilPermits/index.html>
- 11- Address all review comments and create final plans for signatures.
- 12- Print out the Capital Plan & Asbuilt Procedure Document to start the records management process. [Tracking Plan & As-built.doc](#)
- 13- Create and send out a postcard to all residents that will be affected by the project construction.
- 14- Create a **Proposal** with bid items for all construction items & appurtenances associated with the project. (i.e.: pavement restoration, valves, hydrants, elbows, etc.)
- 15- Create **Special Provisions** for all bid items and construction methods not covered by the general provisions or amendments to the standard specifications. (i.e.: Horizontal earth boring & tunneling, etc.). These provisions need to take APWA specs. into consideration. ([Special Provision Base Files\Water Capital Project Specials.doc](#))

- 16- Calculate final Engineers estimate (incl. sales tax)
<..\Estimator\Project Estimator updated 2011.xls>
- 17- Fill out a **Formal Bid Construction** request form if project is >\$300,000 or a **Small Works Quote** request form if project is \$35,000 - \$300,000
(<http://citynet/procurement/forms.asp>)
- 18- Have an engineer &/or technician review your Quantities, Proposal, Specials and Plans for any edits needed. When complete, have plans stamped and signed by Engineer, and have cover sheet signed by the Engineering Manager.
- 19- Send: **Formal Bid Construction** or **Small Works Request**, Proposal, Special Provisions including County details if in County (<I:\Surface Water\Standard Details\Clark County\Drainage Details>), Permit copies, and ½ Size Plans to Procurement for advertisement.
- 20- If proposed main is larger than 12 inch and **NOT** approved as a project in the most recent Water System Comp plan, Send copy of plans & specs to DOH:
Regina Grimm, PE
WSDOH Regional Engineer
Southwest Drinking Water Operations
PO Box 47823
Olympia, WA 98504-7823
- 21- Prepare staff report for City Council to Award Bid if it is Formal Bid project.
- 22- **THIS STEP SHOULD TAKE PLACE AFTER CONSTRUCTION, IF APPLICABLE:**
Water Main Fee Calculation: For NEW construction, when a project is complete, calculate the "Water Main Fee" and make notifications as follows:
- Divide Final cost by Total Pipe Footage = "*Water Main Fee*"
 - Send a copy of the As-Built and Memo to DRS Counter team. The "Memo" should include: The statement "*Project is Complete*", *Project Name*, *Project #*, *Final Cost*, *Size and LF of Pipe Installed*.
 - Send Memo to Finance. Memo should include: *The Project Name*, *Project #*, *Final Cost*, *Size and LF of Pipe Installed*, and *Size and LF of Pipe Abandoned*.

APPENDIX 8A – CIP PIPE PROJECT COSTS



City of Vancouver
Water System Comprehensive Plan
Capital Improvement Plan



Project Identification:

P-1

Project Name:

Pipe Improvement Program

Project Description:

Pipeline projects required to increase distribution capacity to accommodate future demands.

Project Element	Quantity	Unit	Construction Cost	Final Project Cost	Project Schedule
Short-Term Pipe Improvement Program				\$ 16,243,000	Short-Term
Mid-Term Pipe Improvement Program				\$ 8,490,000	Mid-Term
Long-Term Pipe Improvement Program				\$ 14,299,425	Long-Term

Notes on Cost Estimation:

See attached table

Project	Purpose	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total	Cost Estimating Notes
New Improvement Projects																						
Pressure Improvements (See "Pressure Improvements" Table)							\$ 3,650,000				\$ 7,290,000									\$ 3,010,000	\$ 13,950,000	Total of project costs in "Pressure Improvements" excluding overlapping projects listed below.
Heights High Zone HGL Balance Improvements																				\$ 3,012,425	\$ 3,012,425	As estimated in "Pressure Improvements"
Currently Planned City Projects:																						
Water Demand Response	Rehabilitate	\$ 250,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 400,000	\$ 400,000	\$ 400,000	\$ 5,950,000	City-provided costs
CP-1 Southwest of Lower River Rd., northwest of Gateway Ave.	Rehab/New																				\$ -	No City costs - development driven
CP-2 Port Water System Upgrade	New Systems	\$ 200,000																			\$ 200,000	City-provided costs
CP 3 & 4 NE 47th Ave - 68th North County	Rehabilitate	\$ 132,000																			\$ 132,000	City-provided costs
CP - 5 Transmission Main (WS 14 to WS9 Ph 2)	New Systems	\$ 2,500,000																			\$ 2,500,000	City-provided costs
Transmission Main - NE 99th St. - 115th Ave. to Eastridge Blvd./Sr 503 (WS 14 to WS 9 Trans Main - Ph 3) (T-31)	New Systems		\$ 508,000																		\$ 508,000	Costs as estimated in "Pressure Improvements"; Project T-31 costs omitted in "Pressure Improvements"
99th St Trans Main - 140th Ct to Ward Rd (WS 14 to WS9 Trans Main Ph 4) (T-33)	New Systems											\$ 2,777,000									\$ 2,777,000	Project T-33 costs omitted in "Pressure Improvements"
Transmission Main- Burton Rd (T-34)	New Systems											\$ 200,000	\$ 2,300,000								\$ 2,500,000	City-provided costs; Project T-34 costs omitted in "Pressure Improvements"
Vancouver Mall Drive Transportation Coordination	New Systems	\$ 150,000																			\$ 150,000	City-provided costs
WS 5 to WS 9 Transmission Main (T-27)	New Systems					\$ 200,000	\$ 2,500,000														\$ 2,700,000	City-provided costs; Project T-27 costs omitted in "Pressure Improvements"
WS 5 to Ellsworth Transmission Main (T-51)	New Systems						\$ 932,000														\$ 932,000	Costs as estimated in "Pressure Improvements"; Project T-51 costs omitted in "Pressure Improvements"
NE 94th Ave - 88th St Trans Main County Coord	New Systems	\$ 161,000																			\$ 161,000	City-provided costs
Evergreen Transmission Main (T-26)	Rehab/New		\$ 500,000	\$ 2,500,000																	\$ 3,000,000	City-provided costs; Project T-26 costs omitted in "Pressure Improvements"
99th St. Extension, 94th Ave. to 104th Ave. (County Road Pr	Rehab/New			\$ 560,000																	\$ 560,000	Costs based on 2,300-LF of 12-inch DIP using cost estimating assumptions
Total		\$ 3,393,000	\$ 1,308,000	\$ 3,360,000	\$ 300,000	\$ 500,000	\$ 7,382,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 7,590,000	\$ 3,277,000	\$ 2,600,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 400,000	\$ 400,000	\$ 6,422,425	\$ 39,032,425	

* Costs omitted from "Pressure Improvements" due to City provided cost estimates



City of Vancouver
Water System Comprehensive Plan
Capital Improvement Plan



Pressure Improvement Projects

Project	CIP Type	Diameter, in	Length, ft	Location	Purpose	Year Needed	Unit Cost	Construction Costs	Project Costs	Short-Term Cost	Mid-Term Cost	Long-Term Cost	Notes
Projects to Balance Heights High HGL								\$ 4,211,870	\$ 6,296,746	\$ -	\$ -	\$ 3,012,425	
T-27	Replace	24	10,370	Idaho St., Kansas St., and 12th St. from Ogden Ave. to 87th Ave.	Balances HH HGL	2034	\$ 250	\$ -	\$ -	\$ -	\$ -	\$ -	See City costs for WS 5 to WS 9 pipe project
T-31	Replace	24	1,350	99th St - 115th Ave. to Eastridge Blvd.	Balances HH HGL	2034	\$ 250	\$ 337,500	\$ 504,563	\$ -	\$ -	\$ -	
		16	10			2034	\$ 208	\$ 2,080	\$ 3,110	\$ -	\$ -	\$ -	
T-31 Total			1,360	99th St - 115th Ave. to Eastridge Blvd.	Balances HH HGL	2034		\$ 339,580	\$ 507,672	\$ -	\$ -	\$ -	Costs included in P-1
T-33	New	18	8,540	99th St - 140th Ct. to 152nd Ave., 152nd Ave.	Balances HH HGL	2034	\$ 215	\$ 1,836,100	\$ 2,744,970	\$ -	\$ -	\$ -	
		12	130	99th St. to Ward Rd.	Balances HH HGL	2034	\$ 163	\$ 21,190	\$ 31,679	\$ -	\$ -	\$ -	
T-33 Total			8,670		Balances HH HGL	2034		\$ 1,857,290	\$ 2,776,649	\$ -	\$ -	\$ -	Costs included in P-1
T-34	New	24	10,420	Burton Rd. - 98th Ave. to 124th Ave., 110th Ave. - Burton Rd. to 18th St.	Balances HH HGL	2034	\$ 250	\$ -	\$ -	\$ -	\$ -	\$ -	See City costs for Burton Road pipe project
T-40	New	24	8,060	18th St. - 130th Ave. to 162nd Ave.	Balances HH HGL	2034	\$ 250	\$ 2,015,000	\$ 3,012,425	\$ -	\$ -	\$ 3,012,425	
Currently Planned City Projects								\$ -	\$ 2,499,860	\$ -	\$ -	\$ -	
CP-1	Current	12	4,270	Southwest of Old Lower River Rd., northwest of Gateway Ave.	Currently planned City project	2020	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Development Driven - no City costs
	Current	8	2,790			2020	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CP-2	Current	12	1,690	Railroad tracks East of Gateway Ave.	Currently planned City project	2020	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	City share of cost is \$200,000
CP-3	Current	10	980	68th St. - 51st Pl. to 47th Ave., 47th Ave. - 68th St. to 300 ft.	Currently planned City project	2020	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	City share of costs for CP-3 and CP-4
CP-4	Current	10	700	68th St. - End of existing at 53rd way to end of existing at 56th Ave.	Currently planned City project	2020	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	City share of costs for CP-3 and CP-4
CP-5	Current	24	7,830	86th St. - 94th Ave. to 111th Ave., 111th Ave. - 86th St. to 99th St.	Currently planned City project	2020	\$ -	\$ -	\$ 2,499,860	\$ -	\$ -	\$ -	Costs provided from City
Pressure Improvements								\$ 9,574,740	\$ 11,869,911	\$ 3,646,484	\$ 7,291,892	\$ -	
D-3	Replace	8	740	17th St. to McLoughlin Blvd., F St. to I-5	Improves Pressure & Fire Flow	2020	\$ 133	\$ 98,420	\$ 147,138	\$ 147,138	\$ -	\$ -	
D-10	Replace	8	3,210	41st St. and 43rd St., Lincoln Ave. to Daniels St.	Improves Pressure & Fire Flow	2020	\$ 133	\$ 426,930	\$ 638,260	\$ 638,260	\$ -	\$ -	
D-18	Replace	8	370	Ash St. - south of 17th St.	Improves Pressure & Fire Flow	2020	\$ 133	\$ 49,210	\$ 73,569	\$ 73,569	\$ -	\$ -	
T-12	Replace	12	530	Grant St., 39th St. to 41st St.	Improves Pressure & Fire Flow	2020	\$ 163	\$ 86,390	\$ 129,153	\$ 129,153	\$ -	\$ -	
T-3	New	24	4,120	4th Plain Blvd., 36th Ave. to Lincoln Ave.	Improves Pressure	2020	\$ 250	\$ 1,030,000	\$ 1,539,850	\$ 1,539,850	\$ -	\$ -	
T-6	Replace	12	3,040	Daniels St. to Main St., 19th St. to 4th Plain Blvd.	Improves Pressure	2020	\$ 163	\$ 495,520	\$ 740,802	\$ 740,802	\$ -	\$ -	
T-7	Replace	12	1,550	E St., 16th St. to 22nd St.	Improves Pressure	2020	\$ 163	\$ 252,650	\$ 377,712	\$ 377,712	\$ -	\$ -	
T-26	Replace	24	6,540	Evergreen Blvd., Blanford Dr. to Sleret Ave.	Improves Pressure	2020	\$ 250	\$ 1,635,000	\$ -	\$ -	\$ -	\$ -	See City costs for Evergreen Transmission
T-51	Replace	30	2,077	N Blandford Dr., north of East Evergreen Blvd to existing 24-inch	Improves Pressure	2020	\$ 300	\$ 623,100	\$ 931,535	\$ -	\$ -	\$ -	See City costs for WS 5 to Ellsworth Transmission Main
T-4	Replace	12	1,590	4th Plain Blvd. and 25th St., Loncoln Ave. to Grant St.	Improves Pressure	2024	\$ 163	\$ 259,170	\$ 387,459	\$ -	\$ 387,459	\$ -	
T-5	New	12	280	25th St., Grant St. to Franklin St.	Improves Pressure	2024	\$ 163	\$ 45,640	\$ 68,232	\$ -	\$ 68,232	\$ -	
T-36	Replace	24	10,380	9th Ave. to 18th St., 112th Ave. to 129th Ave.	Improves Pressure	2024	\$ 250	\$ 2,595,000	\$ 3,879,525	\$ -	\$ 3,879,525	\$ -	
	Replace	18	4,390			2024	\$ 215	\$ 943,850	\$ 1,411,056	\$ -	\$ 1,411,056	\$ -	
T-36 Total			14,770		Improves Pressure	2024		\$ 3,538,850	\$ 5,290,581	\$ -	\$ 5,290,581	\$ -	
T-37	New	16	670	Haagen Park, north of 9th St.	Improves Pressure	2024	\$ 208	\$ 139,360	\$ 208,343	\$ -	\$ 208,343	\$ -	
T-45	Replace	10	1,350	Chkalov Dr., south of Mill Plain Blvd.	Improves Pressure	2024	\$ 148	\$ 199,800	\$ 298,701	\$ -	\$ 298,701	\$ -	
		6	1,110			2024	\$ 130	\$ 144,300	\$ 215,729	\$ -	\$ 215,729	\$ -	
T-45 Total			2,460	Chkalov Dr., south of Mill Plain Blvd.	Improves Pressure			\$ 344,100	\$ 514,430	\$ -	\$ 514,430	\$ -	
T-46	Replace	18	2,560	Mill Plain Blvd. - 124th Ave. to 131st Ave.	Improves Pressure	2024	\$ 215	\$ 550,400	\$ 822,848	\$ -	\$ 822,848	\$ -	
Total								\$ 13,790,000	\$ 20,670,000	\$ 3,650,000	\$ 7,290,000	\$ 3,010,000	
Annual Costs									\$ 1,033,500				



City of Vancouver
Water System Comprehensive Plan
Capital Improvement Plan



Project Identification:

P-2

Project Name:

Pipe Repair Program

Project Description:

Pipeline projects required to address aging and leaking pipes.

Project Element	Quantity	Unit	Construction Cost	Final Project Cost	Project Schedule
Short-Term Pipe Repair Program				\$ 5,754,862	Short-Term
Mid-Term Pipe Repair Program				\$ 4,050,000	Mid-Term
Long-Term Pipe Repair Program				\$ 12,100,000	Long-Term

Notes on Cost Estimation:

See attached table

APPENDIX 9A – WATER FIXED ASSETS

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	BUILDINGS.OFFICE	28,292	07/01/86	BROOKSIDE - OFFICE BUILDING	1986	\$ 95,634	\$ 70,069	\$ 165,703	\$ 67,342	\$ 116,683	\$ 49,020
445	BUILDINGS.OTHER	1,295	01/01/78	PARKING LOT PAVING	1978	15,544	9,366	24,910	14,249	22,834	2,076
445	BUILDINGS.OTHER	49,325	01/01/78	STRUCTURES & IMPR	1978	591,902	356,667	948,569	542,577	869,521	79,048
445	BUILDINGS.OTHER	3,845	01/01/80	MEZZANINE EXPANSION	1980	28,834	24,725	53,559	24,989	46,418	7,141
445	BUILDINGS.OTHER	253,612	07/01/86	OPERATIONS CENTER ADJUSTME	1986	857,280	628,111	1,485,392	603,668	1,045,963	439,429
445	BUILDINGS.OTHER	6,808	07/01/86	OPERATIONS CENTER HVAC REN	1986	23,012	16,861	39,873	16,204	28,077	11,796
445	BUILDINGS.OTHER	19,137	01/01/88	BROOKSIDE FENCING	1988	57,410	44,102	101,513	38,274	67,675	33,837
445	BUILDINGS.OTHER	95,829	01/01/88	BROOKSIDE GRAVEL & HOPPER	1988	287,487	220,846	508,333	191,658	338,888	169,444
445	BUILDINGS.OTHER	55,516	01/01/88	BROOKSIDE METEL BUILDINGS	1988	166,546	127,940	294,486	111,031	196,324	98,162
445	BUILDINGS.OTHER	11,041	01/01/88	BROOKSIDE OFFICE BUILDING RE	1988	33,122	25,444	58,566	22,081	39,044	19,522
445	BUILDINGS.OTHER	568,451	01/01/88	BROOKSIDE STRUCTURES AND IM	1988	1,705,353	1,310,039	3,015,392	1,136,902	2,010,261	1,005,131
445	BUILDINGS.OTHER	3,606	07/01/88	VW11888 REST ROOM FACILITIES	1988	10,426	8,009	18,436	6,820	12,060	6,376
445	BUILDINGS.OTHER	9,313	01/01/89	VW36685 REPAIR ROOF - EQUIPMI	1989	25,991	18,781	44,772	16,677	28,729	16,043
445	BUILDINGS.OTHER	10,668	07/01/90	OPEN STEEL CARPORT	1990	26,950	19,593	46,543	16,282	28,120	18,423
445	BUILDINGS.OTHER	15,793	01/01/92	CONSTRUCT OPS CENTER CARPC	1992	36,446	23,460	59,906	20,653	33,947	25,959
445	BUILDINGS.OTHER	8,845	01/01/92	REMODEL OPERATIONS CENTER	1992	20,411	13,139	33,550	11,566	19,011	14,539
445	BUILDINGS.OTHER	5,558	07/01/92	VW72260 OPS CENTER METER SH	1992	12,466	8,024	20,490	6,908	11,355	9,135
445	BUILDINGS.OTHER	72,728	07/01/93	REMODELING NEW OFFICES/CONI	1993	154,466	86,335	240,801	81,739	127,424	113,377
445	BUILDINGS.OTHER	5,146	07/01/94	OP CENTER PUMP ROOM REMODI	1994	10,378	6,420	16,798	5,232	8,469	8,329
445	BUILDINGS.OTHER	69,211	07/01/94	REROOF OP CENTER	1994	139,585	86,352	225,938	70,374	113,910	112,028
445	BUILDINGS.OTHER	1,598,122	04/01/96	MARINE PARK WATER RESOURCE	1996	2,961,770	1,704,556	4,666,325	1,363,648	2,148,454	2,517,872
445	BUILDINGS.OTHER	282,189	07/01/96	MARINE PARK WATER RESOURCE	1996	516,987	297,536	814,523	234,798	369,929	444,594
445	BUILDINGS.OTHER	32,868	07/01/96	MARINE PARK WATER RESOURCE	1996	60,217	34,656	94,873	27,348	43,088	51,785
445	BUILDINGS.OTHER	23,581	07/01/96	MARINE PARK WATER RESOURCE	1996	43,201	24,863	68,064	19,620	30,912	37,152
445	BUILDINGS.OTHER	276,590	07/01/96	MARINE PARK WATER RESOURCE	1996	506,729	291,632	798,362	230,140	362,589	435,772
445	BUILDINGS.OTHER	32,718	07/01/97	ENCLOSE & ADD OVERHEAD DOO	1997	57,316	31,614	88,930	24,598	38,166	50,764
445	BUILDINGS.OTHER	34,107	07/01/97	REMODELING, NEW OFFICES 4TH	1997	59,749	32,955	92,704	25,642	39,785	52,919
445	BUILDINGS.OTHER	46,272	07/01/99	CATHODIC PROTECTION FUEL TAI	1999	74,531	40,518	115,049	28,260	43,623	71,426
445	BUILDINGS.OTHER	7,498	07/01/99	VW101791 HVAC - CONFERENCE F	1999	12,077	6,565	18,642	4,579	7,068	11,574
445	BUILDINGS.OTHER	95,806	07/01/00	Z0002 - OPERATION CENTER REMI	2000	148,344	84,472	232,817	52,539	82,456	150,361
445	BUILDINGS.OTHER	22,406	07/01/00	WREC REMODEL	2000	34,693	19,755	54,449	12,287	19,284	35,165
445	BUILDINGS.OTHER	9,161	07/06/02	Installation of new oil Furnace	2002	13,165	6,630	19,795	4,004	6,021	13,774
445	BUILDINGS.OTHER	20,313	10/15/01	XB877 English Pit	2001	30,000	15,452	45,452	9,688	14,677	30,775
445	BUILDINGS.OTHER	(37,125)	05/15/09	2121 St Francis Ln - #26 Geo Malick I	2009	-	-	-	37,125	-	-
445	COMM EQUIP.OTHER	-	07/01/96	XB 697 WATER RESOURCE EDUC#	1996	25,262	14,539	39,801	25,262	39,801	-
445	EQUIPMENT.COMPRE	13,767	12/26/12	Westside Water Reclamation Facility	2012	21,181	1,580	22,760	7,413	7,966	14,794
445	EQUIPMENT.COPIER	-	01/01/92	VW 29209 RICOH MODEL FT6655 C	1992	17,483	11,254	28,736	17,483	28,736	-
445	EQUIPMENT.COPIER	6,113	04/30/11	OCE COLORWAVE 300 PLOTTER/C	2011	19,303	2,604	21,907	13,190	14,970	6,937
445	EQUIPMENT.HEAVY	14,426	12/31/13	New Motor Instalation	2013	16,972	724	17,696	2,546	2,654	15,041
445	EQUIPMENT.OFFICE	-	01/01/94	VW 21295 STEEL CASE MODULAR	1994	12,070	7,467	19,536	12,070	19,536	-
445	EQUIPMENT.OFFICE	-	07/01/96	XB 697 WATER RESOURCE EDUC#	1996	72,471	41,708	114,179	72,471	114,179	-
445	EQUIPMENT.OFFICE	-	07/01/96	XB 697 WATER RESOURCE EDUC#	1996	26,656	15,341	41,997	26,656	41,997	-
445	EQUIPMENT.OFFICE	-	07/01/96	XB 697 WATER RESOURCE EDUC#	1996	126,008	72,520	198,528	126,008	198,528	-
445	EQUIPMENT.OFFICE	-	07/01/96	XB 697 WATER RESOURCE EDUC#	1996	10,018	5,766	15,784	10,018	15,784	-
445	EQUIPMENT.OFFICE	-	07/01/98	VW 84057 RADIX PASSPORT METE	1998	21,384	10,879	32,263	21,384	32,263	-
445	EQUIPMENT.OFFICE	-	12/31/08	FDNR COLOR INTEGRATED PRINTI	2008	82,775	24,144	106,919	82,775	106,919	-
445	EQUIPMENT.OTHER	-	07/01/84	VW 57003 PHILLPSBURG EXPEDIT	1984	19,062	19,260	38,322	19,062	38,322	-
445	EQUIPMENT.OTHER	-	07/01/85	VW77531 CARD ACCESS EQUIPME	1985	15,345	13,955	29,300	15,345	29,300	-
445	EQUIPMENT.OTHER	-	01/01/86	VW87491 RADIO RECEIVER	1986	15,373	11,263	26,636	15,373	26,636	-
445	EQUIPMENT.OTHER	-	07/01/86	VW87877 H-P DRAFTING PLATTER	1986	11,103	8,135	19,239	11,103	19,239	-
445	EQUIPMENT.OTHER	-	01/01/90	BOOSTER PUMP NO 2 TELEMETR)	1990	13,862	10,078	23,940	13,862	23,940	-
445	EQUIPMENT.OTHER	-	01/01/90	STATION 14, WELL E TELEMETRY	1990	13,390	9,734	23,124	13,390	23,124	-
445	EQUIPMENT.OTHER	-	01/01/90	STATION 9 WELL 7 & PUMPHOUSE	1990	144,687	105,187	249,875	144,687	249,875	-
445	EQUIPMENT.OTHER	-	07/01/91	TELEMETRY- @ OPS STATION	1991	193,504	133,740	327,244	193,504	327,244	-
445	EQUIPMENT.OTHER	-	07/01/91	TELEMETRY @WS-1/WS-5 PUMPS	1991	145,588	100,624	246,212	145,588	246,212	-
445	EQUIPMENT.OTHER	-	07/01/93	SCADA SYSTEM EXPANSION	1993	22,401	12,521	34,922	22,401	34,922	-
445	EQUIPMENT.OTHER	-	07/01/93	CONTROL VISION UNIT 1 OZCOO6	1993	12,213	6,826	19,040	12,213	19,040	-
445	EQUIPMENT.OTHER	-	07/01/93	CONTROL VISION UNIT 2 13CO247	1993	12,213	6,826	19,040	12,213	19,040	-
445	EQUIPMENT.OTHER	-	07/01/93	SCADA SYSTEM EXPANSION	1993	111,721	62,443	174,164	111,721	174,164	-
445	EQUIPMENT.OTHER	-	07/01/93	SCADA SYSTEM EXPANSION	1993	31,683	17,708	49,391	31,683	49,391	-
445	EQUIPMENT.OTHER	-	07/01/93	SCADA SYSTEM EXPANSION	1993	31,683	17,708	49,391	31,683	49,391	-
445	EQUIPMENT.OTHER	-	07/01/93	SCADA SYSTEM EXPANSION	1993	16,214	9,062	25,276	16,214	25,276	-
445	EQUIPMENT.OTHER	-	01/01/94	VW 27578 SAFETY EQUIPMENT FC	1994	20,974	12,975	33,949	20,974	33,949	-
445	EQUIPMENT.OTHER	-	07/01/95	VW 34287 SOKKIA SETSE TOTAL S	1995	13,057	7,753	20,811	13,057	20,811	-
445	EQUIPMENT.OTHER	-	07/01/96	VW 40076THERMOLYNE #90-8593-I	1996	12,078	6,951	19,029	12,078	19,029	-
445	EQUIPMENT.OTHER	-	07/01/97	VW 63799 PETROLEUM MANAGEM	1997	13,190	7,275	20,465	13,190	20,465	-
445	EQUIPMENT.OTHER	-	07/01/97	VW 67752 CONSTRUCTION ENGINI	1997	128,641	70,954	199,595	128,641	199,595	-
445	EQUIPMENT.OTHER	-	07/01/98	VW 83630 SOUND ATTENUATED EI	1998	11,772	5,989	17,761	11,772	17,761	-
445	EQUIPMENT.OTHER	-	07/01/99	OPERATIONS CENTER PHONE SY	1999	136,139	74,010	210,149	136,139	210,149	-
445	EQUIPMENT.OTHER	-	07/01/99	VW102846 CAMERA SECURITY SY	1999	16,990	9,236	26,226	16,990	26,226	-
445	EQUIPMENT.OTHER	-	07/01/99	VW105011 GEODIMETER 610 AUTC	1999	26,792	14,565	41,358	26,792	41,358	-
445	EQUIPMENT.OTHER	-	07/01/99	VW108655 GENERATOR & FUEL TR	1999	93,186	50,659	143,845	93,186	143,845	-
445	EQUIPMENT.OTHER	-	07/01/99	VW172670 TELEMETRY CONTROL	1999	72,702	39,523	112,226	72,702	112,226	-
445	EQUIPMENT.OTHER	-	01/01/00	2000 TELEPHONE UPGRADE	2000	156,660	89,208	245,868	156,660	245,868	-
445	EQUIPMENT.OTHER	-	01/01/00	VW124720 2 STEEL STORAGE COM	2000	22,659	12,903	35,562	22,659	35,562	-
445	EQUIPMENT.OTHER	-	01/01/00	VW125162 H2O NET ANALYZER	2000	11,007	6,268	17,275	11,007	17,275	-
445	EQUIPMENT.OTHER	-	03/22/05	2005 ADDCO Vehicle Mount Sign	2005	-	-	-	-	-	-
445	EQUIPMENT.OTHER	-	01/28/05	Trimble Robotic Geodimeter Control U	2005	28,450	11,256	39,706	28,450	39,706	-
445	EQUIPMENT.OTHER	-	02/01/06	PINE GYROTORARY COMPACTOR - 1	2006	30,227	10,642	40,869	30,227	40,869	-
445	EQUIPMENT.OTHER	-	08/13/07	TRIMBLE S6 3" ROBOTIC TOTAL ST	2007	33,407	10,289	43,696	33,407	43,696	-
445	EQUIPMENT.OTHER	-	10/31/08	TRIMBLE S6 3" ROBOTIC STATION	2008	31,643	9,230	40,873	31,643	40,873	-
445	EQUIPMENT.OTHER	-	12/31/08	TROXLER 4640B THIN-LIFT COMPA	2008	9,559	2,788	12,348	9,559	12,348	-

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	EQUIPMENT.PUMP	(6,531)	01/01/42	PUMP 5	1942	-	-	-	6,531	-	-
445	EQUIPMENT.PUMP	-	01/01/43	PUMP 6	1943	6,531	1,262	7,793	6,531	7,793	-
445	EQUIPMENT.PUMP	-	01/01/54	AUXIL DIESEL	1954	17,500	4,178	21,678	17,500	21,678	-
445	EQUIPMENT.PUMP	-	01/01/64	AUXIL DIESEL PUMP	1964	5,000	1,602	6,602	5,000	6,602	-
445	EQUIPMENT.PUMP	-	01/01/68	FUEL TANK & BUILDING	1968	7,000	3,108	10,108	7,000	10,108	-
445	EQUIPMENT.PUMP	-	01/01/75	AUXIL DIESEL GENER	1975	13,000	9,176	22,176	13,000	22,176	-
445	EQUIPMENT.PUMP	(12,540)	01/01/75	BOOSTER PUMP 1	1975	-	-	-	12,540	-	-
445	EQUIPMENT.PUMP	(12,540)	01/01/75	BOOSTER PUMP 2	1975	-	-	-	12,540	-	-
445	EQUIPMENT.PUMP	(12,540)	01/01/75	BOOSTER PUMP 3	1975	-	-	-	12,540	-	-
445	EQUIPMENT.PUMP	-	01/01/75	BOOSTER PUMP 5	1975	12,540	8,851	21,391	12,540	21,391	-
445	EQUIPMENT.PUMP	-	07/01/75	AUXIL GENERATOR	1975	13,282	9,375	22,657	13,282	22,657	-
445	EQUIPMENT.PUMP	-	01/01/76	PUMP 7	1976	80,045	53,011	133,056	80,045	133,056	-
445	EQUIPMENT.PUMP	-	01/01/78	BOOSTER PUMP 4	1978	15,180	9,147	24,327	15,180	24,327	-
445	EQUIPMENT.PUMP	(10,551)	01/01/78	PUMP 2	1978	-	-	-	10,551	-	-
445	EQUIPMENT.PUMP	-	01/01/79	PUMP 5	1979	11,178	7,286	18,464	11,178	18,464	-
445	EQUIPMENT.PUMP	-	01/10/79	AUXIL DIESEL	1979	40,799	26,593	67,392	40,799	67,392	-
445	EQUIPMENT.PUMP	(18,900)	01/01/80	BOOSTER PUMP 1	1980	-	-	-	18,900	-	-
445	EQUIPMENT.PUMP	(18,900)	01/01/80	BOOSTER PUMP 2	1980	-	-	-	18,900	-	-
445	EQUIPMENT.PUMP	-	01/01/80	BOOSTER PUMP 3	1980	18,900	16,207	35,107	18,900	35,107	-
445	EQUIPMENT.PUMP	(11,100)	01/01/80	PUMP 1	1980	-	-	-	11,100	-	-
445	EQUIPMENT.PUMP	-	01/01/80	PUMP 2	1980	11,089	9,509	20,598	11,089	20,598	-
445	EQUIPMENT.PUMP	-	01/01/80	PUMP 3	1980	11,059	9,483	20,542	11,059	20,542	-
445	EQUIPMENT.PUMP	-	01/01/81	PUMP 1	1981	9,579	10,891	20,470	9,579	20,470	-
445	EQUIPMENT.PUMP	-	01/01/81	PUMP 1	1981	10,793	12,271	23,064	10,793	23,064	-
445	EQUIPMENT.PUMP	-	01/01/81	PUMP 2	1981	7,807	8,876	16,683	7,807	16,683	-
445	EQUIPMENT.PUMP	-	01/01/81	PUMP 2	1981	10,793	12,271	23,064	10,793	23,064	-
445	EQUIPMENT.PUMP	-	01/01/81	PUMP 6	1981	10,250	11,654	21,904	10,250	21,904	-
445	EQUIPMENT.PUMP	-	01/01/81	PUMP 1	1981	20,476	23,280	43,756	20,476	43,756	-
445	EQUIPMENT.PUMP	-	01/01/82	PUMP 4	1982	11,416	13,280	24,696	11,416	24,696	-
445	EQUIPMENT.PUMP	-	01/01/82	BOOSTER PUMP 6	1982	24,877	28,939	53,816	24,877	53,816	-
445	EQUIPMENT.PUMP	-	01/01/82	BOOSTER PUMP 7	1982	24,877	28,939	53,816	24,877	53,816	-
445	EQUIPMENT.PUMP	-	01/01/82	BOOSTER PUMP 8	1982	24,877	28,939	53,816	24,877	53,816	-
445	EQUIPMENT.PUMP	-	07/01/84	FLOW METER XB 519	1984	10,656	10,767	21,424	10,656	21,424	-
445	EQUIPMENT.PUMP	-	07/01/84	PUMP 10	1984	18,120	18,309	36,429	18,120	36,429	-
445	EQUIPMENT.PUMP	-	07/01/84	PUMP 8	1984	18,120	18,309	36,429	18,120	36,429	-
445	EQUIPMENT.PUMP	-	07/01/84	PUMP 9	1984	18,120	18,309	36,429	18,120	36,429	-
445	EQUIPMENT.PUMP	-	01/01/85	INSTALLATION OF AUXIL DIESEL	1985	17,016	15,475	32,492	17,016	32,492	-
445	EQUIPMENT.PUMP	-	01/01/85	PUMP 3	1985	23,223	21,120	44,343	23,223	44,343	-
445	EQUIPMENT.PUMP	-	07/01/85	BOOSTER PUMP XB551	1985	27,000	24,555	51,555	27,000	51,555	-
445	EQUIPMENT.PUMP	-	07/01/85	WB359 WELL 1	1985	13,686	12,447	26,133	13,686	26,133	-
445	EQUIPMENT.PUMP	-	07/01/85	WB359 WELL 4	1985	9,045	8,226	17,270	9,045	17,270	-
445	EQUIPMENT.PUMP	-	07/01/85	WB429 BELLA VISTA RD PRESSUR	1985	14,786	13,447	28,232	14,786	28,232	-
445	EQUIPMENT.PUMP	-	07/01/87	WB470 BOOSTER PUMP	1987	15,203	11,651	26,854	15,203	26,854	-
445	EQUIPMENT.PUMP	-	01/01/90	BOOSTER PUMP NO 2 XB614	1990	47,796	34,748	82,544	47,796	82,544	-
445	EQUIPMENT.PUMP	-	01/01/90	BOOSTER PUMP XB631	1990	8,822	6,413	15,235	8,822	15,235	-
445	EQUIPMENT.PUMP	-	01/01/90	BOOSTER PUMP XB631	1990	8,822	6,413	15,235	8,822	15,235	-
445	EQUIPMENT.PUMP	-	01/01/90	BOOSTER PUMP XB631	1990	8,822	6,413	15,235	8,822	15,235	-
445	EQUIPMENT.PUMP	-	01/01/90	BOOSTER PUMP XB631	1990	8,822	6,413	15,235	8,822	15,235	-
445	EQUIPMENT.PUMP	-	01/01/90	BOOSTER PUMP XB631	1990	8,822	6,413	15,235	8,822	15,235	-
445	EQUIPMENT.PUMP	-	01/01/90	BOOSTER PUMP XB631	1990	8,822	6,413	15,235	8,822	15,235	-
445	EQUIPMENT.PUMP	-	01/01/90	BOOSTER PUMP XB631	1990	8,822	6,413	15,235	8,822	15,235	-
445	EQUIPMENT.PUMP	-	01/01/90	BOOSTER PUMP XB631	1990	8,822	6,413	15,235	8,822	15,235	-
445	EQUIPMENT.PUMP	(79,018)	01/01/90	DIESEL GENERATOR	1990	-	-	-	79,018	-	-
445	EQUIPMENT.PUMP	-	07/01/91	BOOSTER PUMP XB636 S/N PD0B0	1991	26,081	18,026	44,106	26,081	44,106	-
445	EQUIPMENT.PUMP	-	07/01/91	BOOSTER PUMP XB636 S/N PD90B	1991	26,081	18,026	44,106	26,081	44,106	-
445	EQUIPMENT.PUMP	-	07/01/91	BOOSTER PUMP XB636-S/NPD90B	1991	26,081	18,026	44,106	26,081	44,106	-
445	EQUIPMENT.PUMP	-	07/01/91	BOOSTER PUMP XB636-S/NPD91B	1991	26,081	18,026	44,106	26,081	44,106	-
445	EQUIPMENT.PUMP	-	07/01/91	BOOSTER PUMP XB636-SN PD90B	1991	26,081	18,026	44,106	26,081	44,106	-
445	EQUIPMENT.PUMP	-	07/01/92	BOOSTER PUMP NO 1 S/N 259082	1992	88,942	57,252	146,194	88,942	146,194	-
445	EQUIPMENT.PUMP	-	07/01/92	BOOSTER PUMP NO 2 S/N 259081	1992	88,942	57,252	146,194	88,942	146,194	-
445	EQUIPMENT.PUMP	-	07/01/92	BOOSTER PUMP NO 3 S/N 259083	1992	88,942	57,252	146,194	88,942	146,194	-
445	EQUIPMENT.PUMP	-	07/01/92	BOOSTER PUMP@WELL #1	1992	7,665	4,934	12,600	7,665	12,600	-
445	EQUIPMENT.PUMP	-	07/01/92	WELL 2 PUMP 2 S/N2391046004	1992	112,743	72,573	185,316	112,743	185,316	-
445	EQUIPMENT.PUMP	-	01/01/93	BOOSTER PUMP NO 1 S/N 115196	1993	13,493	7,541	21,034	13,493	21,034	-
445	EQUIPMENT.PUMP	-	01/01/93	BOOSTER PUMP NO 2 S/N 115197	1993	13,493	7,541	21,034	13,493	21,034	-
445	EQUIPMENT.PUMP	-	01/01/93	BOOSTER PUMP NO 3 S/N 115198	1993	13,493	7,541	21,034	13,493	21,034	-
445	EQUIPMENT.PUMP	-	01/01/93	BOOSTER PUMP NO 4 S/N 115199	1993	13,493	7,541	21,034	13,493	21,034	-
445	EQUIPMENT.PUMP	-	01/01/93	BOOSTER PUMP NO 5 S/N 115200	1993	13,493	7,541	21,034	13,493	21,034	-
445	EQUIPMENT.PUMP	(20,239)	07/01/93	PUMPING STATION MOTOR 1 S/N \	1993	-	-	-	20,239	-	-
445	EQUIPMENT.PUMP	-	07/01/93	PUMPING STATION MOTOR 2 S/N \	1993	20,239	11,312	31,551	20,239	31,551	-
445	EQUIPMENT.PUMP	-	07/01/93	PUMPING STATION MOTOR 3 S/N \	1993	20,239	11,312	31,551	20,239	31,551	-
445	EQUIPMENT.PUMP	-	07/01/93	PUMPING STATION MOTOR 4 S/N \	1993	20,239	11,312	31,551	20,239	31,551	-
445	EQUIPMENT.PUMP	-	07/01/93	PUMPING STATION MOTOR 5 S/N \	1993	20,239	11,312	31,551	20,239	31,551	-
445	EQUIPMENT.PUMP	-	07/01/93	75 HP MOTOR, WELL 4B (RECORD	1993	5,266	2,944	8,210	5,266	8,210	-
445	EQUIPMENT.PUMP	-	07/01/93	75 HP MOTOR, WELL 5B (RECORD	1993	5,266	2,944	8,210	5,266	8,210	-
445	EQUIPMENT.PUMP	-	07/01/93	TURBINE PUMP WELL 1 MODEL #1	1993	11,024	6,161	17,185	11,024	17,185	-
445	EQUIPMENT.PUMP	-	07/01/93	TURBINE PUMP WELL 2B MODEL #	1993	14,835	8,292	23,127	14,835	23,127	-
445	EQUIPMENT.PUMP	-	07/01/93	TURBINE PUMP WELL 3B MODEL #	1993	14,717	8,226	22,943	14,717	22,943	-
445	EQUIPMENT.PUMP	-	07/01/93	TURBINE PUMP WELL 4B MODEL #	1993	13,138	7,343	20,481	13,138	20,481	-
445	EQUIPMENT.PUMP	-	07/01/93	TURBINE PUMP WELL 5B MODEL #	1993	13,632	7,619	21,251	13,632	21,251	-

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	EQUIPMENT.PUMP	-	07/01/93	TURBINE PUMP WELL 9 MODEL #1	1993	11,763	6,574	18,337	11,763	18,337	-
445	EQUIPMENT.PUMP	-	07/01/93	VERT TURBINE PUMP WELL 1 (RE	1993	14,182	7,927	22,109	14,182	22,109	-
445	EQUIPMENT.PUMP	(13,682)	07/01/93	VERT TURBINE PUMP WELL 10 (RE	1993	-	-	-	13,682	-	-
445	EQUIPMENT.PUMP	(16,291)	07/01/93	VERT TURBINE PUMP WELL 2 (RE	1993	-	-	-	16,291	-	-
445	EQUIPMENT.PUMP	(14,008)	07/01/93	VERT TURBINE PUMP WELL 3 (RE	1993	-	-	-	14,008	-	-
445	EQUIPMENT.PUMP	(10,027)	07/01/93	VERT TURBINE PUMP WELL 4 (RE	1993	-	-	-	10,027	-	-
445	EQUIPMENT.PUMP	(10,963)	07/01/93	VERT TURBINE PUMP WELL 5 (RE	1993	-	-	-	10,963	-	-
445	EQUIPMENT.PUMP	-	07/01/93	VERT TURBINE PUMP WELL 7 (RE	1993	16,777	9,377	26,154	16,777	26,154	-
445	EQUIPMENT.PUMP	-	07/01/93	VERT TURBINE PUMP WELL 8 (RE	1993	13,189	7,372	20,561	13,189	20,561	-
445	EQUIPMENT.PUMP	-	07/01/93	VERT TURBINE PUMP WELL 9 (RE	1993	12,418	6,940	19,358	12,418	19,358	-
445	EQUIPMENT.PUMP	-	07/01/96	TURBINE PUMP WELL 1	1996	156,005	89,784	245,789	156,005	245,789	-
445	EQUIPMENT.PUMP	-	07/01/96	TURBINE PUMP WELL 2	1996	156,005	89,784	245,789	156,005	245,789	-
445	EQUIPMENT.PUMP	-	07/01/96	XB 654 EMERGENCY GENERATOR	1996	44,578	25,656	70,234	44,578	70,234	-
445	EQUIPMENT.PUMP	-	07/01/96	BOOSTER PUMP #3	1996	6,694	3,852	10,546	6,694	10,546	-
445	EQUIPMENT.PUMP	-	07/01/97	PUMP WELL 1	1997	100,012	55,163	155,176	100,012	155,176	-
445	EQUIPMENT.PUMP	-	07/01/97	PUMP WELL 2	1997	59,039	32,564	91,603	59,039	91,603	-
445	EQUIPMENT.PUMP	-	07/01/97	PUMP WELL 3	1997	59,536	32,838	92,374	59,536	92,374	-
445	EQUIPMENT.PUMP	-	07/01/97	PUMP WELL 3	1997	42,023	23,178	65,202	42,023	65,202	-
445	EQUIPMENT.PUMP	-	07/01/97	PUMP WELL 3	1997	49,957	27,555	77,512	49,957	77,512	-
445	EQUIPMENT.PUMP	-	07/01/98	ELECTRICAL CONTROL CENTER W	1998	72,818	37,046	109,864	72,818	109,864	-
445	EQUIPMENT.PUMP	-	07/01/98	TURBINE PUMP WELL 3	1998	134,309	68,330	202,639	134,309	202,639	-
445	EQUIPMENT.PUMP	-	07/01/99	WELL 2B PITLESS ADAPTER	1999	8,657	4,706	13,363	8,657	13,363	-
445	EQUIPMENT.PUMP	-	07/01/99	WELL 2B PUMP	1999	22,171	12,053	34,224	22,171	34,224	-
445	EQUIPMENT.PUMP	3,628	06/01/01	WELL 7 - MOTOR CONROLLER	2001	31,095	16,017	47,112	27,468	41,616	5,497
445	EQUIPMENT.PUMP	2,353	06/01/01	WELL 2 - MOTOR CONTROLLER	2001	20,164	10,386	30,549	17,811	26,985	3,564
445	EQUIPMENT.PUMP	19,991	12/31/09	Capitalized Pump's cost Water Statio	2009	29,255	6,738	35,993	9,264	11,398	24,595
445	EQUIPMENT.PUMP	17,033	12/31/09	Capitalized Pump's cost Water Statio	2009	24,926	5,741	30,667	7,893	9,711	20,956
445	EQUIPMENT.PUMP	26,415	11/30/11	Move Rep&Maint exp to Mach&Equip	2011	32,567	4,394	36,961	6,152	6,981	29,979
445	EQUIPMENT.PUMP	18,398	11/30/11	Move Rep&Maint exp to Mach&Equip	2011	22,683	3,060	25,743	4,285	4,863	20,881
445	EQUIPMENT.PUMP	14,948	11/30/11	Move Rep&Maint exp to Mach&Equip	2011	18,429	2,486	20,915	3,481	3,951	16,965
445	EQUIPMENT.PUMP	36,531	11/30/12	Move Rep&Maint exp to Mach&Equip	2012	41,618	3,104	44,722	5,087	5,466	39,256
445	EQUIPMENT.PUMP	41,022	11/30/12	Move Rep&Maint exp to Mach&Equip	2012	46,733	3,485	50,219	5,712	6,138	44,081
445	EQUIPMENT.PUMP	14,828	12/26/12	Westside Water Reclamation Facility ,	2012	16,786	1,252	18,038	1,958	2,104	15,934
445	EQUIPMENT.PUMP	15,526	12/26/12	Westside Water Reclamation Facility ,	2012	17,576	1,311	18,887	2,050	2,203	16,683
445	EQUIPMENT.PUMP	25,934	12/31/13	Station # 8 Well 3	2013	27,299	1,164	28,463	1,365	1,423	27,040
445	EQUIPMENT.PUMP	25,493	12/31/13	Station # 9 Well 4	2013	26,835	1,144	27,979	1,342	1,399	26,580
445	EQUIPMENT.PUMP	24,865	12/31/13	Station # 9 Well 7	2013	26,174	1,116	27,290	1,309	1,364	25,925
445	EQUIPMENT.PUMP	8,521	12/31/10	Capitalize Pump cost Water Station 4	2010	11,361	1,960	13,321	2,840	3,330	9,991
445	EQUIPMENT.PUMP	15,994	12/31/10	Capitalize Pump cost Water Station 4	2010	21,325	3,680	25,005	5,331	6,251	18,754
445	EQUIPMENT.PUMP	40,080	12/31/10	Capitalize cost of Ellsworth Well Pum	2010	53,440	9,221	62,661	13,360	15,665	46,996
445	EQUIPMENT.PUMP	43,314	12/31/10	Capitalize cost of Ellsworth Well Pum	2010	57,752	9,965	67,717	14,438	16,929	50,788
445	EQUIPMENT.WATER T	(22,893)	01/01/72	CHLORIDE EQUIP	1972	-	-	-	22,893	-	-
445	EQUIPMENT.WATER T	(74,704)	01/01/72	FLOURIDE/CHLORIDE EQUIP	1972	-	-	-	74,704	-	-
445	EQUIPMENT.WATER T	-	01/01/75	CHLORIDE EQUIPMENT	1975	7,500	5,294	12,794	7,500	12,794	-
445	EQUIPMENT.WATER T	-	01/01/78	CHLORIDE EQUIP	1978	10,000	6,026	16,026	10,000	16,026	-
445	EQUIPMENT.WATER T	-	01/01/80	CHLORIDE/FLOURIDE EQUIP	1980	30,000	25,725	55,725	30,000	55,725	-
445	EQUIPMENT.WATER T	-	01/01/81	CHLORIDE/FLOURIDE EQUIP	1981	11,500	13,075	24,575	11,500	24,575	-
445	EQUIPMENT.WATER T	-	01/01/81	FLOURIDE/CHLORIDE EQUIP	1981	17,969	20,430	38,399	17,969	38,399	-
445	EQUIPMENT.WATER T	-	07/01/84	CHLORIDE EQUIP XB 519	1984	12,500	12,630	25,130	12,500	25,130	-
445	EQUIPMENT.WATER T	-	07/01/84	FLOURIDE EQUIP XB 519	1984	13,325	13,464	26,790	13,325	26,790	-
445	EQUIPMENT.WATER T	-	07/01/85	FLOURIDE EQUIP	1985	20,179	18,351	38,530	20,179	38,530	-
445	EQUIPMENT.WATER T	-	07/01/85	FLOURIDE EQUIPMENT	1985	30,976	28,170	59,146	30,976	59,146	-
445	EQUIPMENT.WATER T	-	01/01/86	FLOURIDE EQUIP WB496	1986	21,270	15,584	36,854	21,270	36,854	-
445	EQUIPMENT.WATER T	-	01/01/86	FLOURIDE EQUIP WB496	1986	21,270	15,584	36,854	21,270	36,854	-
445	EQUIPMENT.WATER T	-	07/01/89	VW 33021CHLORINE FLOW TOTAL	1989	7,225	5,221	12,446	7,225	12,446	-
445	EQUIPMENT.WATER T	-	01/01/90	CHLORINE EQUIPMENT XB 631	1990	32,767	23,821	56,588	32,767	56,588	-
445	EQUIPMENT.WATER T	-	07/01/91	VW61767VACUUM CHLORINATOR	1991	5,084	3,514	8,598	5,084	8,598	-
445	EQUIPMENT.WATER T	-	07/01/92	VW76402 WATER SPECIALITIES 12	1992	9,883	6,362	16,245	9,883	16,245	-
445	EQUIPMENT.WATER T	-	07/01/94	TETRACHLORETHYLNE ABSORBEI	1994	5,810	3,595	9,405	5,810	9,405	-
445	EQUIPMENT.WATER T	-	07/01/94	TETRACHLORETHYLNE ABSORBEI	1994	5,810	3,595	9,405	5,810	9,405	-
445	EQUIPMENT.WATER T	-	07/01/94	TETRACHLORETHYLNE ABSORBEI	1994	5,810	3,595	9,405	5,810	9,405	-
445	EQUIPMENT.WATER T	-	07/01/94	TETRACHLORETHYLNE ABSORBEI	1994	5,810	3,595	9,405	5,810	9,405	-
445	EQUIPMENT.WATER T	-	07/01/95	VW 25030 V75VA2 CHLORINATOR 1	1995	5,052	3,000	8,052	5,052	8,052	-
445	EQUIPMENT.WATER T	-	07/01/95	VW 36365 V75VA2 CHLORINATOR 1	1995	6,051	3,593	9,645	6,051	9,645	-
445	EQUIPMENT.WATER T	-	07/01/95	XB 655 FILTERATION EQUIPMENT	1995	168,015	99,766	267,781	168,015	267,781	-
445	EQUIPMENT.WATER T	-	07/01/95	XB 655 FILTERATION EQUIPMENT	1995	168,015	99,766	267,781	168,015	267,781	-
445	EQUIPMENT.WATER T	-	07/01/95	XB 722 FLOURIDE PUMP WS7/WEL	1995	5,844	3,470	9,315	5,844	9,315	-
445	EQUIPMENT.WATER T	-	07/01/96	XB 654 CHLORIDE EQUIPMENT WE	1996	25,248	14,531	39,778	25,248	39,778	-
445	EQUIPMENT.WATER T	-	07/01/96	VW 40637 V75VA2 CHLORINATOR 1	1996	6,413	3,691	10,104	6,413	10,104	-
445	EQUIPMENT.WATER T	-	07/01/97	XB812 CHLORINE SCRUBBERS - BI	1997	66,497	36,677	103,174	66,497	103,174	-
445	INTANGIBLE.PLANT A	-	01/01/66	ORCHARDS UTILITY PLANT	1966	526,284	200,706	726,990	526,284	726,990	-
445	INTANGIBLE.SOFTWA	-	07/01/86	VW90651 TOTAL STATION DATA C	1986	18,144	13,294	31,438	18,144	31,438	-
445	INTANGIBLE.SOFTWA	-	07/01/96	VW 44235 ACD SOFTWARE FOR U	1996	29,051	16,719	45,770	29,051	45,770	-
445	INTANGIBLE.SOFTWA	-	07/01/96	VW 45010 INTERACTIVE COMPUTE	1996	20,188	11,619	31,807	20,188	31,807	-
445	INTANGIBLE.SOFTWA	-	07/01/97	VW 64213 PETROLEUM DISPENSIN	1997	27,946	15,414	43,360	27,946	43,360	-
445	INTANGIBLE.SOFTWA	-	01/01/99	VW112434 CASS WORKS MODULE	1999	33,505	18,215	51,720	33,505	51,720	-
445	INTANGIBLE.SOFTWA	-	12/31/12	Hansen Utility Billing System	2012	-	-	-	-	-	-
445	INTANGIBLE.SOFTWA	-	01/09/07	TOPCON GR-3 GNSS SYSTEM INCI	2007	41,790	12,871	54,661	41,790	54,661	-
445	INTANGIBLE.SOFTWA	36,874	05/06/11	940603 Hansen Asset Mgmt	2011	36,874	4,975	41,849	-	-	41,849
445	INTANGIBLE.SOFTWA	21,678	05/06/11	940604-Utility Billing	2011	21,678	2,925	24,603	-	-	24,603
445	INTANGIBLE.SOFTWA	-	01/01/02	Vision Project - Water portion	2002	1,746,560	879,561	2,626,121	1,746,560	2,626,121	-
445	IT EQUIPMENT.PLOTT	(11,844)	01/01/00	W898205 IKON: PLOTTER SCAN	2000	-	-	-	11,844	-	-

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	LAND.EASEMENTS	31,110	05/03/11	Comarnitchi Multi-Family/ENG2007-00	2011	31,110	4,197	35,307	-	-	35,307
445	LAND.EASEMENTS	22,500	04/28/11	Jennelle's place town house/ENG200	2011	22,500	3,036	25,536	-	-	25,536
445	LAND.EASEMENTS	750	04/01/11	Mccallister Village/ENG2009-00106/2	2011	750	101	851	-	-	851
445	LAND.EASEMENTS	53,195	02/18/10	Sifton Gardens Lot 20	2010	53,195	9,179	62,374	-	-	62,374
445	LAND.EASEMENTS	1,565	06/10/11	Vancouver Community Library/ENG20	2011	1,565	211	1,776	-	-	1,776
445	LAND.EASEMENTS	129,000	07/14/11	Costco E Vancouver/ENG2009-00100	2011	129,000	17,400	146,400	-	-	146,400
445	LAND.EASEMENTS	3,495	07/20/11	Providence Health&Services - ENG20	2011	3,495	472	3,967	-	-	3,967
445	LAND.EASEMENTS	7,000	07/27/11	NE 48th CR Short Plat/ENG2010-000	2011	7,000	944	7,944	-	-	7,944
445	LAND.EASEMENTS	19,950	09/26/11	Chase Bank/ ENG2010-00008/6700	2011	19,950	2,692	22,642	-	-	22,642
445	LAND.EASEMENTS	2,475	09/28/11	Costco Offsite/ENG2010-00015/113	2011	2,475	334	2,809	-	-	2,809
445	LAND.EASEMENTS	117,610	10/27/11	ARMY Project/ENG2010-00069/1500	2011	117,610	15,867	133,477	-	-	133,477
445	LAND.EASEMENTS	11,950	10/10/11	Home of God Christian Church/ENG2	2011	11,950	1,612	13,562	-	-	13,562
445	LAND.EASEMENTS	43,575	11/09/11	Nutrition Now/ ENG2009-00108	2011	43,575	5,879	49,454	-	-	49,454
445	LAND.EASEMENTS	14,190	11/10/11	Home Cold Creek Industrial/ENG200	2011	14,190	1,914	16,104	-	-	16,104
445	LAND.EASEMENTS	18,190	12/23/11	138th AV COM'L/ENG2009-00018	2011	18,190	2,454	20,644	-	-	20,644
445	LAND.EASEMENTS	17,897	12/06/11	2nd Street Warehouse/ENG2008-000	2011	17,897	2,414	20,311	-	-	20,311
445	LAND.EASEMENTS	11,044	12/06/11	2nd Street Warehouse/ENG2008-000	2011	11,044	1,490	12,534	-	-	12,534
445	LAND.EASEMENTS	1,805	12/06/11	ILLAHEE ELEM SCHOOL/ENG2010-	2011	1,805	244	2,049	-	-	2,049
445	LAND.EASEMENTS	5,545	12/06/11	ILLAHEE ELEM SCHOOL/ENG2010-	2011	5,545	748	6,293	-	-	6,293
445	LAND.EASEMENTS	41,800	12/06/11	ILLAHEE ELEM SCHOOL/ENG2010-	2011	41,800	5,639	47,439	-	-	47,439
445	LAND.EASEMENTS	56,561	04/01/10	NE 131st Ave(Kia Subdivision)/SR 16	2010	56,561	9,760	66,321	-	-	66,321
445	LAND.EASEMENTS	22,743	02/02/12	72nd Street Townhomes/ENG2007-00	2012	22,743	1,696	24,439	-	-	24,439
445	LAND.EASEMENTS	3,252	02/02/12	72nd Street Townhomes/ENG2007-00	2012	3,252	243	3,495	-	-	3,495
445	LAND.EASEMENTS	29,215	02/08/12	Wellons PH3/ENG2010-00079/2525	2012	29,215	2,179	31,394	-	-	31,394
445	LAND.EASEMENTS	15,920	02/13/12	Meadow Point Apartments/ENG2009-	2012	15,920	1,187	17,107	-	-	17,107
445	LAND.EASEMENTS	124,650	02/17/12	Port of Vancouver Alcoa/ENG2008-00	2012	124,650	9,296	133,946	-	-	133,946
445	LAND.EASEMENTS	1,075	02/23/12	Garden Creek /ENG2007-00230/1801	2012	1,075	80	1,155	-	-	1,155
445	LAND.EASEMENTS	11,200	04/17/12	Bakdusters WTR Main Extension/EN	2012	11,200	835	12,035	-	-	12,035
445	LAND.EASEMENTS	30,245	05/23/12	Mountain View business Center/ENG	2012	30,245	2,256	32,501	-	-	32,501
445	LAND.EASEMENTS	7,250	05/23/12	B-52 Poine At Evergreen/ENG2007-0	2012	7,250	541	7,791	-	-	7,791
445	LAND.EASEMENTS	1,700	05/23/12	B-52 Poine At Evergreen PH-2/ENG2	2012	1,700	127	1,827	-	-	1,827
445	LAND.EASEMENTS	190,940	05/23/12	Farwest Steel/ENG2010-00071/3702	2012	190,940	14,240	205,180	-	-	205,180
445	LAND.EASEMENTS	250	08/01/12	Dutch Brother/ENG2012-00003	2012	250	19	269	-	-	269
445	LAND.EASEMENTS	50,020	07/31/12	CTC 651 Building/ENG2011-00049/17	2012	50,020	3,730	53,750	-	-	53,750
445	LAND.EASEMENTS	5,155	09/07/12	VSD Maintenance Facilities /ENG201	2012	5,155	384	5,539	-	-	5,539
445	LAND.EASEMENTS	12,675	11/30/12	Commercial Center at 164th Ave and	2012	12,675	945	13,620	-	-	13,620
445	LAND.EASEMENTS	40,910	12/12/12	Vancouver Mall Theater Addition /EN	2012	40,910	3,051	43,961	-	-	43,961
445	LAND.EASEMENTS	1,400	11/13/12	S.E.H. America Bldg 15 /ENG2011-00	2012	1,400	104	1,504	-	-	1,504
445	LAND.EASEMENTS	3,895	11/21/12	SE 148th Ave Improvements /ENG20	2012	3,895	290	4,185	-	-	4,185
445	LAND.EASEMENTS	10,290	04/20/12	ENG2011-00009 / Columbia Office B	2012	10,290	767	11,057	-	-	11,057
445	LAND.EASEMENTS	11,740	11/07/12	Andersen Retain Center Phase 3/ EN	2012	11,740	876	12,616	-	-	12,616
445	LAND.EASEMENTS	32,355	07/26/12	Airport Industrial Warehouse / ENG20	2012	32,355	2,413	34,768	-	-	34,768
445	LAND.EASEMENTS	1,000	04/04/13	Madeline Eastates / ENG2012-00029	2013	1,000	43	1,043	-	-	1,043
445	LAND.EASEMENTS	99,750	04/08/13	192nd tation / ENG2011-00018	2013	99,750	4,253	104,003	-	-	104,003
445	LAND.EASEMENTS	4,375	04/18/13	Elite Care / ENG2011-00030	2013	4,375	187	4,562	-	-	4,562
445	LAND.EASEMENTS	199,375	04/29/13	Columbia Ridge Apartments PH1 / EN	2013	199,375	8,501	207,876	-	-	207,876
445	LAND.EASEMENTS	450	05/21/13	Hess Subdivision / ENG2011-00057 /	2013	450	19	469	-	-	469
445	LAND.EASEMENTS	17,095	06/12/13	Wee Care Day Care / ENG2012-0002	2013	17,095	729	17,824	-	-	17,824
445	LAND.EASEMENTS	63,130	07/10/13	Orchards Feed Mill/ENG2008-00126/	2013	63,130	2,692	65,822	-	-	65,822
445	LAND.EASEMENTS	58,585	08/22/13	Joan Park / ENG2007-00181/14407	2013	58,585	2,498	61,083	-	-	61,083
445	LAND.EASEMENTS	3,085	09/26/13	ENG2012-00055 / Columbia Ridge AF	2013	3,085	132	3,217	-	-	3,217
445	LAND.EASEMENTS	54,965	09/19/13	ABBY Manor / ENG2013-00008 / 123	2013	54,965	2,344	57,309	-	-	57,309
445	LAND.EASEMENTS	76,625	09/26/13	ENG2012-00055 / Columbia Ridge AF	2013	76,625	3,267	79,892	-	-	79,892
445	LAND.EASEMENTS	70,225	10/01/13	7-11@136th Ave Place / ENG2012-00	2013	70,225	2,994	73,219	-	-	73,219
445	LAND.EASEMENTS	236,980	10/30/13	ENG2012-00026 / Burton Park Appar	2013	236,980	10,104	247,084	-	-	247,084
445	LAND.EASEMENTS	509,350	12/03/13	Padden Employment Center / ENG20	2013	509,350	21,717	531,067	-	-	531,067
445	LAND.EASEMENTS	11,500	12/02/13	Dunning Meadow Ph 2 / ENG-30186 /	2013	11,500	490	11,990	-	-	11,990
445	LAND.EASEMENTS	22,605	12/03/13	Marie's Meadow / ENG2007-00148 /7	2013	22,605	964	23,569	-	-	23,569
445	LAND.EASEMENTS	37,150	12/13/13	Dogwood Park Estates / ENG2011-00	2013	37,150	1,584	38,734	-	-	38,734
445	LAND.EASEMENTS	680	03/27/13	Health and Bioscience - ENG2011-00	2013	680	29	709	-	-	709
445	LAND.EASEMENTS	1,090	01/13/14	Heritage Bank/ENG2012-00063/1640	2014	1,090	-	1,090	-	-	1,090
445	LAND.EASEMENTS	265,185	02/18/14	Cascade Garden Villas (Aka Overlook	2014	265,185	-	265,185	-	-	265,185
445	LAND.EASEMENTS	212,565	02/19/14	Andresen Heights Apartments (Aka T	2014	212,565	-	212,565	-	-	212,565
445	LAND.EASEMENTS	15,370	03/28/14	Willow Crest Apartments /ENG2011-0	2014	15,370	-	15,370	-	-	15,370
445	LAND.EASEMENTS	62,765	03/31/14	Concorde Estates / ENG2006-00071	2014	62,765	-	62,765	-	-	62,765
445	LAND.EASEMENTS	26,875	05/09/14	Stephen's Place / ENG2012-00002	2014	26,875	-	26,875	-	-	26,875
445	LAND.EASEMENTS	1,385	05/23/14	Moses Dustin Dental Bldg / ENG2012	2014	1,385	-	1,385	-	-	1,385
445	LAND.EASEMENTS	128,500	07/01/14	Contractors Village Ph 1 / ENG2008-C	2014	128,500	-	128,500	-	-	128,500
445	LAND.EASEMENTS	2,160	09/26/14	Generation Place II Short Plat / ENG-	2014	2,160	-	2,160	-	-	2,160
445	LAND.PURCHASE	11,300	01/01/22	LAND 14.8 ACRES	1922	11,300	4,783	16,083	-	-	16,083
445	LAND.PURCHASE	6,843	01/01/42	LAND 5.30 ACRES 037910-014 MILLI	1942	6,843	1,546	8,389	-	-	8,389
445	LAND.PURCHASE	8,758	01/01/61	LAND 4.379 ACRES 160799-000 580	1961	8,758	3,029	11,787	-	-	11,787
445	LAND.PURCHASE	62,462	01/01/64	LAND 14.96 ACRES 9810 SE 16TH 1	1964	62,462	20,011	82,473	-	-	82,473
445	LAND.PURCHASE	45,862	01/01/67	LAND 3.64 ACRES 110261-000 1661	1967	45,862	18,070	63,932	-	-	63,932
445	LAND.PURCHASE	9,040	01/01/67	LAND .76 ACRES 157508-002	1967	9,040	3,562	12,602	-	-	12,602
445	LAND.PURCHASE	16,500	01/01/68	LAND 4.74 ACRES 9810 SE 16TH 11	1968	16,500	7,326	23,826	-	-	23,826
445	LAND.PURCHASE	61,400	01/01/73	LAND 14.60 ACRES 162422-003 140	1973	61,400	31,904	93,304	-	-	93,304
445	LAND.PURCHASE	70,000	01/01/78	PARKING LOT	1978	70,000	42,180	112,180	-	-	112,180
445	LAND.PURCHASE	155,000	01/01/78	LAND 4.74	1978	155,000	93,399	248,399	-	-	248,399
445	LAND.PURCHASE	186,200	01/01/78	BROOKSIDE CONCRETE PROPER	1978	186,200	112,200	298,400	-	-	298,400
445	LAND.PURCHASE	190,000	01/01/79	LAND ADJACENT TO STA 8.54 + 5.0	1979	190,000	123,843	313,843	-	-	313,843
445	LAND.PURCHASE	80,727	01/01/79	LAND 3.5 ACRES 156823-000 6803 I	1979	80,727	52,618	133,345	-	-	133,345

Water Fixed Assets as of September 30,2014

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Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	LAND.PURCHASE	245,095	01/01/80	LAND 4.85 ACRES 86TH AVE/4TH P	1980	245,095	210,167	455,262	-	-	455,262
445	LAND.PURCHASE	254,161	10/15/01	XB877 English Pit - Lot 2	2001	254,161	130,913	385,074	-	-	385,074
445	LAND.PURCHASE	-	10/15/01	XB877 English Pit - Lot 1 sold to Hum	2001	-	-	-	-	-	-
445	LAND.ROWS	2,888	05/02/11	Grozav New SFR/ENG2008-00117/10	2011	2,888	390	3,277	-	-	3,277
445	LAND.ROWS	151,250	04/28/11	Jennelle's place town house/ENG200	2011	151,250	20,406	171,656	-	-	171,656
445	LAND.ROWS	12,625	07/27/11	NE 48th CR Short Plat/ENG2010-000	2011	12,625	1,703	14,328	-	-	14,328
445	LAND.ROWS	5,750	11/09/11	Nutrition Now/ ENG2009-00108	2011	5,750	776	6,526	-	-	6,526
445	LAND.ROWS	9,750	12/23/11	138th AV COM/L/ENG2009-00018	2011	9,750	1,315	11,065	-	-	11,065
445	LAND.ROWS	2,650	12/06/11	ILLAHEE ELEM SCHOOL/ENG2010-	2011	2,650	358	3,008	-	-	3,008
445	LAND.TRADE	-	05/15/09	2121 St Francis Ln - #26 Geo Malick I	2009	-	-	-	-	-	-
445	UTILITY IMPR.HYDRAI	-	01/01/49	HYDRANT IN CITY	1949	42,737	9,193	51,930	42,737	51,930	-
445	UTILITY IMPR.HYDRAI	-	01/01/50	HYDRANT IN CITY	1950	4,484	860	5,344	4,484	5,344	-
445	UTILITY IMPR.HYDRAI	-	01/01/51	HYDRANT IN CITY	1951	3,371	659	4,030	3,371	4,030	-
445	UTILITY IMPR.HYDRAI	-	01/01/52	HYDRANT IN CITY	1952	9,659	2,119	11,778	9,659	11,778	-
445	UTILITY IMPR.HYDRAI	-	01/01/53	HYDRANT IN CITY	1953	8,937	2,444	11,381	8,937	11,381	-
445	UTILITY IMPR.HYDRAI	-	01/01/54	HYDRANT IN CITY	1954	10,819	2,583	13,402	10,819	13,402	-
445	UTILITY IMPR.HYDRAI	75	01/01/55	HYDRANT IN CITY	1955	13,464	3,339	16,802	13,389	16,709	93
445	UTILITY IMPR.HYDRAI	6	01/01/55	HYDRANT OUT OF CITY	1955	962	238	1,200	956	1,193	7
445	UTILITY IMPR.HYDRAI	284	01/01/56	HYDRANT IN CITY	1956	12,794	3,539	16,334	12,510	15,971	363
445	UTILITY IMPR.HYDRAI	36	01/01/56	HYDRANT OUT OF CITY	1956	1,599	442	2,042	1,563	1,996	46
445	UTILITY IMPR.HYDRAI	476	01/01/57	HYDRANT IN CITY	1957	12,230	4,021	16,251	11,754	15,619	632
445	UTILITY IMPR.HYDRAI	74	01/01/57	HYDRANT OUT OF CITY	1957	1,902	626	2,528	1,828	2,429	99
445	UTILITY IMPR.HYDRAI	549	01/01/58	HYDRANT IN CITY	1958	9,878	3,122	13,000	9,329	12,278	723
445	UTILITY IMPR.HYDRAI	157	01/01/58	HYDRANT OUT OF CITY	1958	2,822	892	3,714	2,665	3,507	207
445	UTILITY IMPR.HYDRAI	691	01/01/59	HYDRANT IN CITY	1959	9,565	3,406	12,972	8,874	12,035	937
445	UTILITY IMPR.HYDRAI	1,509	01/01/60	HYDRANT IN CITY	1960	16,976	5,966	22,942	15,467	20,903	2,039
445	UTILITY IMPR.HYDRAI	216	01/01/60	HYDRANT OUT OF CITY	1960	2,425	852	3,277	2,209	2,986	292
445	UTILITY IMPR.HYDRAI	1,205	01/01/61	HYDRANT IN CITY	1961	11,409	3,946	15,355	10,205	13,734	1,621
445	UTILITY IMPR.HYDRAI	228	01/01/61	HYDRANT OUT OF CITY	1961	2,159	746	2,905	1,930	2,598	307
445	UTILITY IMPR.HYDRAI	1,380	01/01/62	HYDRANT IN CITY	1962	11,289	3,559	14,848	9,909	13,033	1,815
445	UTILITY IMPR.HYDRAI	192	01/01/62	HYDRANT OUT OF CITY	1962	1,568	494	2,062	1,376	1,810	252
445	UTILITY IMPR.HYDRAI	1,046	01/01/63	HYDRANT IN CITY	1963	7,526	2,383	9,909	6,481	8,532	1,377
445	UTILITY IMPR.HYDRAI	305	01/01/63	HYDRANT OUT OF CITY	1963	2,195	695	2,890	1,890	2,488	402
445	UTILITY IMPR.HYDRAI	1,261	01/01/64	HYDRANT IN CITY	1964	8,101	2,595	10,696	6,840	9,032	1,664
445	UTILITY IMPR.HYDRAI	454	01/01/64	HYDRANT OUT OF CITY	1964	2,916	934	3,851	2,462	3,251	599
445	UTILITY IMPR.HYDRAI	1,588	01/01/65	HYDRANT IN CITY	1965	9,220	3,012	12,232	7,631	10,124	2,107
445	UTILITY IMPR.HYDRAI	227	01/01/65	HYDRANT OUT OF CITY	1965	1,317	430	1,747	1,090	1,446	301
445	UTILITY IMPR.HYDRAI	1,694	01/01/66	HYDRANT IN CITY	1966	8,969	3,420	12,389	7,274	10,048	2,341
445	UTILITY IMPR.HYDRAI	652	01/01/66	HYDRANT OUT OF CITY	1966	3,450	1,316	4,765	2,798	3,865	900
445	UTILITY IMPR.HYDRAI	1,261	01/01/67	HYDRANT IN CITY	1967	6,131	2,415	8,546	4,870	6,789	1,757
445	UTILITY IMPR.HYDRAI	1,409	01/01/67	HYDRANT OUT OF CITY	1967	6,852	2,700	9,552	5,443	7,588	1,964
445	UTILITY IMPR.HYDRAI	1,526	01/01/68	HYDRANT IN CITY	1968	6,868	3,049	9,917	5,341	7,712	2,204
445	UTILITY IMPR.HYDRAI	2,120	01/01/68	HYDRANT OUT OF CITY	1968	9,538	4,235	13,773	7,419	10,712	3,061
445	UTILITY IMPR.HYDRAI	2,019	01/01/69	HYDRANT IN CITY	1969	8,451	4,834	13,285	6,432	10,111	3,174
445	UTILITY IMPR.HYDRAI	6,826	01/01/69	HYDRANT OUT OF CITY	1969	28,573	16,343	44,916	21,747	34,186	10,730
445	UTILITY IMPR.HYDRAI	2,132	01/01/70	HYDRANT IN CITY	1970	8,341	5,291	13,633	6,210	10,149	3,484
445	UTILITY IMPR.HYDRAI	2,132	01/01/70	HYDRANT OUT OF CITY	1970	8,341	5,291	13,633	6,210	10,149	3,484
445	UTILITY IMPR.HYDRAI	3,625	01/01/71	HYDRANT IN CITY	1971	13,317	7,294	20,611	9,692	15,000	5,611
445	UTILITY IMPR.HYDRAI	3,108	01/01/71	HYDRANT OUT OF CITY	1971	11,415	6,252	17,667	8,307	12,857	4,810
445	UTILITY IMPR.HYDRAI	2,152	01/01/72	HYDRANT IN CITY	1972	7,448	3,915	11,363	5,296	8,080	3,283
445	UTILITY IMPR.HYDRAI	8,463	01/01/72	HYDRANT OUT OF CITY	1972	29,295	15,401	44,695	20,832	31,783	12,912
445	UTILITY IMPR.HYDRAI	6,388	01/01/73	HYDRANT IN CITY	1973	20,906	10,863	31,769	14,518	22,062	9,707
445	UTILITY IMPR.HYDRAI	16,130	01/01/73	HYDRANT OUT OF CITY	1973	52,788	27,429	80,216	36,658	55,706	24,511
445	UTILITY IMPR.HYDRAI	1,078	01/01/74	HYDRANT IN CITY	1974	3,345	2,064	5,409	2,267	3,665	1,743
445	UTILITY IMPR.HYDRAI	13,796	01/01/74	HYDRANT OUT OF CITY	1974	42,815	26,415	69,230	29,019	46,922	22,308
445	UTILITY IMPR.HYDRAI	5,048	01/01/75	HYDRANT IN CITY	1975	14,895	10,513	25,409	9,847	16,798	8,611
445	UTILITY IMPR.HYDRAI	3,720	01/01/75	HYDRANT OUT OF CITY	1975	10,976	7,747	18,722	7,256	12,377	6,345
445	UTILITY IMPR.HYDRAI	14,276	01/01/76	HYDRANT IN CITY	1976	40,150	26,590	66,740	25,874	43,010	23,730
445	UTILITY IMPR.HYDRAI	19,241	01/01/76	HYDRANT OUT OF CITY	1976	54,115	35,839	89,953	34,874	57,970	31,984
445	UTILITY IMPR.HYDRAI	12,256	01/01/77	HYDRANT IN CITY	1977	32,927	18,703	51,630	20,670	32,411	19,218
445	UTILITY IMPR.HYDRAI	53,110	01/01/77	HYDRANT OUT OF CITY	1977	142,682	81,046	223,729	89,572	140,451	83,277
445	UTILITY IMPR.HYDRAI	11,435	01/01/78	HYDRANT IN CITY	1978	29,404	17,718	47,123	17,969	28,797	18,325
445	UTILITY IMPR.HYDRAI	53,626	01/01/78	HYDRANT OUT OF CITY	1978	137,896	83,093	220,989	84,270	135,048	85,940
445	UTILITY IMPR.HYDRAI	5,677	01/01/79	HYDRANT IN CITY	1979	13,997	9,123	23,120	8,320	13,743	9,377
445	UTILITY IMPR.HYDRAI	32,312	01/01/79	HYDRANT OUT OF CITY	1979	79,673	51,931	131,604	47,361	78,231	53,373
445	UTILITY IMPR.HYDRAI	8,366	01/01/80	HYDRANT IN CITY	1980	19,814	16,990	36,804	11,448	21,264	15,540
445	UTILITY IMPR.HYDRAI	2,953	01/01/80	HYDRANT OUT OF CITY	1980	6,993	5,996	12,990	4,040	7,505	5,485
445	UTILITY IMPR.HYDRAI	5,597	01/01/81	HYDRANT IN CITY	1981	12,753	14,499	27,252	7,155	15,291	11,961
445	UTILITY IMPR.HYDRAI	9,515	01/01/81	HYDRANT OUT OF CITY	1981	21,679	24,649	46,328	12,164	25,995	20,333
445	UTILITY IMPR.HYDRAI	12,900	01/01/82	HYDRANT IN CITY	1982	28,317	32,940	61,257	15,417	33,351	27,906
445	UTILITY IMPR.HYDRAI	6,143	01/01/82	HYDRANT OUT OF CITY	1982	13,484	15,686	29,170	7,341	15,881	13,289
445	UTILITY IMPR.HYDRAI	4,958	01/01/83	HYDRANT IN CITY	1983	10,500	9,986	20,486	5,542	10,812	9,674
445	UTILITY IMPR.HYDRAI	13,458	01/01/83	HYDRANT OUT OF CITY	1983	28,500	27,104	55,604	15,042	29,346	26,257
445	UTILITY IMPR.HYDRAI	66,119	01/01/84	HYDRANT IN CITY	1984	135,243	136,650	271,892	69,124	138,967	132,925
445	UTILITY IMPR.HYDRAI	32,884	01/01/84	HYDRANT OUT OF CITY	1984	67,262	67,962	135,224	34,378	69,114	66,110
445	UTILITY IMPR.HYDRAI	23,703	01/01/85	HYDRANT IN CITY	1985	46,885	42,638	89,523	23,182	44,264	45,259
445	UTILITY IMPR.HYDRAI	44,782	01/01/85	HYDRANT OUT OF CITY	1985	88,580	80,557	169,137	43,798	83,629	85,508
445	UTILITY IMPR.HYDRAI	42,084	01/01/86	HYDRANT IN CITY	1986	80,587	59,044	139,631	38,503	66,713	72,919
445	UTILITY IMPR.HYDRAI	56,047	01/01/86	HYDRANT OUT OF CITY	1986	107,324	78,634	185,958	51,277	88,846	97,112
445	UTILITY IMPR.HYDRAI	25,690	01/01/87	HYDRANT IN CITY	1987	47,672	36,533	84,205	21,982	38,827	45,378
445	UTILITY IMPR.HYDRAI	47,308	01/01/87	HYDRANT OUT OF CITY	1987	87,788	67,274	155,062	40,480	71,501	83,562
445	UTILITY IMPR.HYDRAI	65,890	01/01/88	HYDRANT IN CITY	1988	118,601	91,109	209,710	52,711	93,204	116,506

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.HYDRAI	51,640	01/01/88	HYDRANT OUT OF CITY	1988	92,951	71,404	164,355	41,312	73,047	91,309
445	UTILITY IMPR.HYDRAI	33,959	01/01/89	HYDRANT IN CITY	1989	59,346	42,884	102,231	25,387	43,732	58,499
445	UTILITY IMPR.HYDRAI	137,790	01/01/89	HYDRANT OUT OF CITY	1989	240,797	174,003	414,800	103,007	177,442	237,358
445	UTILITY IMPR.HYDRAI	27,259	01/01/90	HYDRANT IN CITY	1990	46,289	33,652	79,942	19,030	32,865	47,077
445	UTILITY IMPR.HYDRAI	140,443	01/01/90	HYDRANT OUT OF CITY	1990	238,488	173,381	411,869	98,045	169,323	242,545
445	UTILITY IMPR.HYDRAI	48,807	01/01/91	HYDRANT IN CITY	1991	80,599	55,706	136,305	31,792	53,764	82,540
445	UTILITY IMPR.HYDRAI	195,617	01/01/91	HYDRANT OUT OF CITY	1991	323,037	223,267	546,304	127,420	215,486	330,818
445	UTILITY IMPR.HYDRAI	61,102	01/01/92	HYDRANT IN CITY	1992	98,199	63,211	161,410	37,097	60,977	100,433
445	UTILITY IMPR.HYDRAI	170,469	01/01/92	HYDRANT OUT OF CITY	1992	273,968	176,353	450,320	103,499	170,121	280,199
445	UTILITY IMPR.HYDRAI	87,648	01/01/93	HYDRANT IN CITY	1993	137,188	76,678	213,866	49,540	77,229	136,637
445	UTILITY IMPR.HYDRAI	184,717	01/01/93	HYDRANT OUT OF CITY	1993	289,122	161,597	450,719	104,405	162,759	287,959
445	UTILITY IMPR.HYDRAI	80,917	01/01/94	HYDRANT IN CITY	1994	123,433	76,360	199,794	42,516	68,818	130,976
445	UTILITY IMPR.HYDRAI	278,676	01/01/94	HYDRANT OUT OF CITY	1994	425,100	262,981	688,081	146,423	237,006	451,075
445	UTILITY IMPR.HYDRAI	126,981	01/01/95	HYDRANT IN CITY	1995	188,898	112,166	301,064	61,916	98,682	202,382
445	UTILITY IMPR.HYDRAI	329,396	01/01/95	HYDRANT OUT OF CITY	1995	490,010	290,964	780,974	160,614	255,986	524,988
445	UTILITY IMPR.HYDRAI	311,103	01/01/96	HYDRANT IN CITY	1996	451,600	259,905	711,505	140,498	221,357	490,148
445	UTILITY IMPR.HYDRAI	112,289	01/01/96	HYDRANT OUT OF CITY	1996	162,999	93,809	256,809	50,711	79,896	176,913
445	UTILITY IMPR.HYDRAI	206,091	01/01/97	HYDRANT IN CITY	1997	292,097	161,111	453,208	86,006	133,444	319,764
445	UTILITY IMPR.HYDRAI	106,111	01/01/97	HYDRANT OUT OF CITY	1997	150,393	82,952	233,345	44,282	68,707	164,638
445	UTILITY IMPR.HYDRAI	183,326	01/01/98	HYDRANT IN CITY	1998	253,836	129,139	382,975	70,510	106,382	276,593
445	UTILITY IMPR.HYDRAI	172,350	01/01/98	HYDRANT OUT OF CITY	1998	238,638	121,407	360,045	66,288	100,012	260,033
445	UTILITY IMPR.HYDRAI	200,905	01/01/99	HYDRANT IN CITY	1999	271,902	147,815	419,717	70,996	109,593	310,124
445	UTILITY IMPR.HYDRAI	128,146	01/01/99	HYDRANT OUT OF CITY	1999	173,431	94,283	267,714	45,285	69,903	197,811
445	UTILITY IMPR.HYDRAI	3,010	06/03/09	B&L Development / ENG2001-00148	2009	3,299	760	4,059	289	355	3,704
445	UTILITY IMPR.HYDRAI	5,384	08/07/09	Vancouver W. Police Precinct / ENG2001-00148	2009	5,882	1,355	7,237	498	613	6,624
445	UTILITY IMPR.HYDRAI	4,015	06/24/09	Royal Oaks Country Club / ENG2007-00016	2009	4,400	1,013	5,413	385	474	4,940
445	UTILITY IMPR.HYDRAI	4,373	07/22/09	Westside Concrete Warehouse / ENC2009-00016	2009	4,785	1,102	5,887	412	507	5,380
445	UTILITY IMPR.HYDRAI	8,760	06/30/09	Marjorie Manor / ENG2001-00016	2009	9,600	2,211	11,811	840	1,033	10,778
445	UTILITY IMPR.HYDRAI	8,225	07/02/09	B&L Development / ENG2001-00148	2009	9,000	2,073	11,073	775	953	10,119
445	UTILITY IMPR.HYDRAI	17,867	07/10/09	Grandview Phase 1 / ENG2008-00051	2009	19,550	4,503	24,053	1,683	2,071	21,982
445	UTILITY IMPR.HYDRAI	6,215	07/14/09	SW WA Humane Society / ENG2008-00051	2009	6,800	1,566	8,366	586	720	7,646
445	UTILITY IMPR.HYDRAI	3,936	08/06/09	49th Street Infill Short Subdivision / E	2009	4,300	990	5,290	364	448	4,842
445	UTILITY IMPR.HYDRAI	4,253	09/11/09	SE 6th WY / ENG2008-00005	2009	4,640	1,069	5,709	387	476	5,233
445	UTILITY IMPR.HYDRAI	19,477	10/27/09	Birtcher PH 2 Street Improvements / E	2009	21,216	4,886	26,102	1,739	2,139	23,963
445	UTILITY IMPR.HYDRAI	2,138	11/03/09	Washington School For the Deaf/ENC	2009	2,325	535	2,860	187	230	2,630
445	UTILITY IMPR.HYDRAI	2,011	11/03/09	Washington State School for the blind	2009	2,187	504	2,691	176	217	2,474
445	UTILITY IMPR.HYDRAI	844	11/18/09	WS Sch for blind (PH.2)/ENG2005-00	2009	918	211	1,129	74	91	1,038
445	UTILITY IMPR.HYDRAI	3,746	11/25/09	East Vancouver Library/ENG2007-00	2009	4,074	938	5,012	328	404	4,608
445	UTILITY IMPR.HYDRAI	5,333	12/17/09	St Johns Condominiums / ENG2007-0	2009	5,792	1,334	7,126	458	564	6,562
445	UTILITY IMPR.HYDRAI	3,499	12/30/09	Sahaly @ Tidewater (Phase1) / ENG2	2009	3,800	875	4,675	301	370	4,305
445	UTILITY IMPR.HYDRAI	2,771	02/05/10	New Heights East PH 1AKA Journey	2010	3,000	518	3,518	229	269	3,249
445	UTILITY IMPR.HYDRAI	6,346	07/30/10	Andresen Center / ENG2008-00141/	2010	6,820	1,177	7,997	474	555	7,442
445	UTILITY IMPR.HYDRAI	3,531	06/30/10	Andresen Retail CenterPH-2 / ENG20	2010	3,800	656	4,456	269	316	4,140
445	UTILITY IMPR.HYDRAI	3,374	08/12/10	NE 42nd St / ENG2007-00134 / 4201	2010	3,620	625	4,245	246	289	3,956
445	UTILITY IMPR.HYDRAI	4,200	09/24/10	192nd Plaza PH1 /ENG2009-00083 /2	2010	4,500	776	5,276	300	352	4,925
445	UTILITY IMPR.HYDRAI	2,366	08/12/10	LES SCHWAB Tire Center/ENG2009-	2010	2,539	438	2,977	173	203	2,774
445	UTILITY IMPR.HYDRAI	2,330	08/23/10	NW Industrial Mech PH-1/ENG2005-C	2010	2,500	431	2,931	170	199	2,732
445	UTILITY IMPR.HYDRAI	3,272	10/12/10	NE 43rd Ave Industrial Business Park	2010	3,500	604	4,104	228	268	3,836
445	UTILITY IMPR.HYDRAI	8,400	09/21/10	Walgreen's Store #11633/ENG2008-C	2010	9,000	1,553	10,553	600	704	9,849
445	UTILITY IMPR.HYDRAI	9,547	11/22/10	Tidewater Terminal CO/ENG2009-00	2010	10,199	1,760	11,959	652	764	11,195
445	UTILITY IMPR.HYDRAI	10,938	01/21/11	Vancouver Toyota/ENG2007-00213/1	2011	11,650	1,572	13,222	712	808	12,414
445	UTILITY IMPR.HYDRAI	2,066	01/27/11	Wee Cre Daycare/ENG2010-00023/4/	2011	2,200	297	2,497	134	153	2,344
445	UTILITY IMPR.HYDRAI	6,601	04/01/11	Mccallister Village/ENG2009-00106/2	2011	7,000	944	7,944	399	452	7,492
445	UTILITY IMPR.HYDRAI	3,678	04/28/11	Jennelle's place town house/ENG200	2011	3,900	526	4,426	222	252	4,174
445	UTILITY IMPR.HYDRAI	7,083	05/03/11	Comarnitchi Multi-Family/ENG2007-0	2011	7,500	1,012	8,512	417	473	8,039
445	UTILITY IMPR.HYDRAI	2,952	06/10/11	Vancouver Community Library/ENG20	2011	3,121	421	3,542	169	192	3,350
445	UTILITY IMPR.HYDRAI	3,594	06/10/11	FRED MEYER Fuel Stop/ENG2009-0	2011	3,800	513	4,313	206	234	4,079
445	UTILITY IMPR.HYDRAI	12,535	07/14/11	Costco E Vancouver ENG2009-0010	2011	13,233	1,785	15,018	698	793	14,226
445	UTILITY IMPR.HYDRAI	4,073	07/27/11	NE 48th CR Short Plat/ENG2010-000	2011	4,300	580	4,880	227	258	4,623
445	UTILITY IMPR.HYDRAI	6,631	07/29/11	West Coast Self Storage/ENG2008-0	2011	7,000	944	7,944	369	419	7,525
445	UTILITY IMPR.HYDRAI	1,425	09/20/11	VFT Post 7824 Hydrant Relocation/E	2011	1,500	202	1,702	75	85	1,617
445	UTILITY IMPR.HYDRAI	2,090	09/23/11	Covington Middle School/ENG2007-0	2011	2,200	297	2,497	110	125	2,372
445	UTILITY IMPR.HYDRAI	18,549	09/28/11	COSTCO Offsite/ENG2010-00015/11	2011	19,525	2,634	22,159	976	1,108	21,051
445	UTILITY IMPR.HYDRAI	13,548	10/27/11	ARMY Project/ENG2010-00069/1500	2011	14,240	1,921	16,161	692	786	15,376
445	UTILITY IMPR.HYDRAI	10,264	10/10/11	Home of God Christian Church/ENG2	2011	10,789	1,456	12,244	524	595	11,649
445	UTILITY IMPR.HYDRAI	3,097	11/09/11	Nutrition Now/ENG2009-00108	2011	3,250	438	3,688	153	174	3,514
445	UTILITY IMPR.HYDRAI	4,175	11/10/11	Home Cold Creek Industrial/ENG200	2011	4,382	591	4,974	207	235	4,739
445	UTILITY IMPR.HYDRAI	2,385	12/23/11	138th AV COM/L/ENG2009-00018	2011	2,500	337	2,837	115	130	2,707
445	UTILITY IMPR.HYDRAI	1,908	12/19/11	2nd Street Warehouse/ENG2008-000	2011	2,000	270	2,270	92	104	2,166
445	UTILITY IMPR.HYDRAI	4,209	12/06/11	ILLAHEE ELEM SCHOOL /ENG2010	2011	4,411	595	5,006	202	229	4,777
445	UTILITY IMPR.HYDRAI	3,435	12/31/11	Tumbull Commercial Center/ ENG200	2011	3,600	486	4,086	165	187	3,898
445	UTILITY IMPR.HYDRAI	2,871	02/08/12	Wellons PH 3/ENG2010-00079 2525	2012	3,000	224	3,224	129	139	3,085
445	UTILITY IMPR.HYDRAI	5,562	02/13/12	Meadow Point Apsrtmnts/ENG2009-0	2012	5,812	433	6,245	250	269	5,976
445	UTILITY IMPR.HYDRAI	3,062	02/17/12	Port of Vancouver Alcoa /ENG2008-0	2012	3,200	239	3,439	138	148	3,291
445	UTILITY IMPR.HYDRAI	3,546	03/14/12	Autozone Store#1169/ENG2011-000	2012	3,700	276	3,976	154	166	3,810
445	UTILITY IMPR.HYDRAI	7,496	04/12/12	Vista Court Senior Housing/ENG2010	2012	7,811	583	8,394	315	338	8,055
445	UTILITY IMPR.HYDRAI	8,020	05/23/12	B-52 Pointe at Evergreen/ENG2007-0	2012	8,344	622	8,966	325	349	8,618
445	UTILITY IMPR.HYDRAI	5,002	05/23/12	B-52 Pointe at Evergreen PH-2/ENG2	2012	5,204	388	5,592	202	217	5,375
445	UTILITY IMPR.HYDRAI	30,416	05/23/12	Farwest Steel / ENG2010-00071 / 37	2012	31,647	2,360	34,007	1,231	1,322	32,685
445	UTILITY IMPR.HYDRAI	5,375	06/07/12	Jackie's Landing PH 2 / ENG2010-00	2012	5,584	416	6,000	209	225	5,775
445	UTILITY IMPR.HYDRAI	2,072	07/31/12	CTC 651 Building/ENG2011-00049/17	2012	2,150	160	2,310	78	83	2,227
445	UTILITY IMPR.HYDRAI	2,900	09/07/12	VSD Maintenance Facilities/ENG2011	2012	3,000	224	3,224	100	107	3,116

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.HYDRAI	6,932	12/12/12	Vancouver Mall Theater Addition/ENC	2012	7,140	532	7,672	208	224	7,449
445	UTILITY IMPR.HYDRAI	4,799	11/07/12	Andresen Retain Center Phase 3/ EN	2012	4,950	369	5,319	151	163	5,157
445	UTILITY IMPR.HYDRAI	960	04/20/12	ENG2011-00009 / Columbia Office Bld	2012	1,000	75	1,075	40	43	1,031
445	UTILITY IMPR.HYDRAI	4,936	09/26/12	ENG2011-00024 / Van East Parking I	2012	5,106	381	5,487	170	183	5,304
445	UTILITY IMPR.HYDRAI	1,928	07/26/12	Airport Industrial Warehouse / ENG2	2012	2,000	149	2,149	72	78	2,072
445	UTILITY IMPR.HYDRAI	3,906	04/04/13	Madeline Estates / ENG2012-00029/1	2013	4,000	171	4,171	94	99	4,072
445	UTILITY IMPR.HYDRAI	2,402	04/18/13	Elite Care / ENG2011-00030	2013	2,460	105	2,565	58	61	2,504
445	UTILITY IMPR.HYDRAI	7,049	04/29/13	Columbia Ridge Apartments PH 1 / EI	2013	7,219	308	7,527	170	178	7,349
445	UTILITY IMPR.HYDRAI	6,346	05/20/13	Jenkins Meadows / ENG2008-00039	2013	6,490	277	6,767	144	150	6,616
445	UTILITY IMPR.HYDRAI	3,879	05/21/13	Hess Subdivision / ENG2011-00057 /	2013	3,967	169	4,136	88	92	4,044
445	UTILITY IMPR.HYDRAI	3,716	05/30/13	Covington Village Townhomes II / EN	2013	3,800	162	3,962	84	88	3,874
445	UTILITY IMPR.HYDRAI	3,427	06/12/13	Wee Care Day Care/ENG2012-00020	2013	3,500	149	3,649	73	76	3,573
445	UTILITY IMPR.HYDRAI	7,825	07/10/13	Orchards Feed Mill / ENG2008-00126	2013	7,980	340	8,320	155	162	8,158
445	UTILITY IMPR.HYDRAI	3,229	08/27/13	Jackie's Landing PH 4/ENG2010-000	2013	3,288	140	3,428	59	62	3,366
445	UTILITY IMPR.HYDRAI	3,933	09/19/13	ABBY Manor/ENG2013-00008/12317	2013	4,000	171	4,171	67	70	4,101
445	UTILITY IMPR.HYDRAI	7,234	09/26/13	ENG2012-00055 / Columbia Ridge Af	2013	7,356	314	7,670	123	128	7,542
445	UTILITY IMPR.HYDRAI	4,136	10/01/13	7-11 @136th Ave Place / ENG2012-0	2013	4,200	179	4,379	64	67	4,312
445	UTILITY IMPR.HYDRAI	2,560	10/30/13	ENG2012-00026 / Burton Park Apartr	2013	2,600	111	2,711	40	41	2,669
445	UTILITY IMPR.HYDRAI	11,909	12/02/13	Dunning Meadow PH2 / ENG-30186 /	2013	12,060	514	12,574	151	157	12,417
445	UTILITY IMPR.HYDRAI	3,970	12/02/13	Dunning Meadow PH 1 / ENG2013-0	2013	4,020	171	4,191	50	52	4,139
445	UTILITY IMPR.HYDRAI	3,970	12/02/13	Dunning Meadow PH 3 / ENG-30206	2013	4,020	171	4,191	50	52	4,139
445	UTILITY IMPR.HYDRAI	17,405	12/03/13	Padden Employment Center / ENG20	2013	17,625	751	18,376	220	230	18,147
445	UTILITY IMPR.HYDRAI	3,752	12/13/13	Dogwood Park Estates / ENG2011-0	2013	3,800	162	3,962	48	50	3,912
445	UTILITY IMPR.HYDRAI	3,977	08/22/13	Joan Park / ENG2007-00181 / 14407	2013	4,050	173	4,223	73	76	4,146
445	UTILITY IMPR.HYDRAI	3,164	01/13/14	Heritage Bank/ENG2012-00063/1640	2014	3,200	-	3,200	36	36	3,164
445	UTILITY IMPR.HYDRAI	6,032	01/13/14	Preston Estates/ENG2012-00006/614	2014	6,100	-	6,100	68	68	6,032
445	UTILITY IMPR.HYDRAI	7,693	02/18/14	Cascade Garden Villas (Aka Overlook	2014	7,768	-	7,768	76	76	7,693
445	UTILITY IMPR.HYDRAI	6,897	02/19/14	Andresen Heights Apartments (Aka T	2014	6,964	-	6,964	68	68	6,897
445	UTILITY IMPR.HYDRAI	7,284	02/22/14	Columbia Ridge Apartments Phase 3	2014	7,356	-	7,356	72	72	7,284
445	UTILITY IMPR.HYDRAI	12,064	03/04/14	Norwegian Hollow/ENG-34564	2014	12,165	-	12,165	101	101	12,064
445	UTILITY IMPR.HYDRAI	3,634	03/31/14	Concorde Estates / ENG2006-00071	2014	3,665	-	3,665	31	31	3,634
445	UTILITY IMPR.HYDRAI	1,986	04/09/14	192nd Plaza South & Westridge Soutl	2014	2,000	-	2,000	14	14	1,986
445	UTILITY IMPR.HYDRAI	8,057	04/18/14	Jackie's Landing Ph 3/ENG2010-000	2014	8,114	-	8,114	56	56	8,057
445	UTILITY IMPR.HYDRAI	8,057	04/21/14	Jackie's Landing Ph 5/ENG2010-000	2014	8,114	-	8,114	56	56	8,057
445	UTILITY IMPR.HYDRAI	11,380	05/09/14	Stephen's Place / ENG2012-00002	2014	11,444	-	11,444	64	64	11,380
445	UTILITY IMPR.HYDRAI	4,986	07/01/14	Contractor Village PH1/ENG2008-001	2014	5,000	-	5,000	14	14	4,986
445	UTILITY IMPR.HYDRAI	3,789	07/16/14	Columbia Presbyterian Church/ENG2	2014	3,800	-	3,800	11	11	3,789
445	UTILITY IMPR.HYDRAI	4,365	07/21/14	Keffel Residence / ENG2007-00205/	2014	4,377	-	4,377	12	12	4,365
445	UTILITY IMPR.HYDRAI	14,919	08/01/14	The Reserve Ph4(aka Columbia Ridg	2014	14,940	-	14,940	21	21	14,919
445	UTILITY IMPR.HYDRAI	11,684	08/26/14	Crestline Elementary / ENG-34565 /1	2014	11,700	-	11,700	16	16	11,684
445	UTILITY IMPR.HYDRAI	4,200	09/12/14	Tall Tree Meadow/ENG2007-00191/3	2014	4,200	-	4,200	-	-	4,200
445	UTILITY IMPR.HYDRAI	10,089	09/19/14	Hampton Inn & Suites / ENG-30247/	2014	10,089	-	10,089	-	-	10,089
445	UTILITY IMPR.METER	-	01/01/50	METER IN CITY, SIZE: 6	1950	3,675	705	4,380	3,675	4,380	-
445	UTILITY IMPR.METER	-	01/01/52	METER IN CITY, SIZE: 3	1952	216	47	264	216	264	-
445	UTILITY IMPR.METER	-	01/01/52	METER IN CITY, SIZE: 6	1952	760	167	927	760	927	-
445	UTILITY IMPR.METER	-	01/01/53	METER IN CITY, SIZE: 3	1953	461	126	587	461	587	-
445	UTILITY IMPR.METER	-	01/01/53	METER IN CITY, SIZE: 4	1953	559	153	711	559	711	-
445	UTILITY IMPR.METER	-	01/01/53	METER IN CITY, SIZE: 6	1953	810	221	1,031	810	1,031	-
445	UTILITY IMPR.METER	-	01/01/54	METER IN CITY, SIZE: 3	1954	237	57	294	237	294	-
445	UTILITY IMPR.METER	-	01/01/54	METER IN CITY, SIZE: 4	1954	576	137	713	576	713	-
445	UTILITY IMPR.METER	-	01/01/54	METER IN CITY, SIZE: 6	1954	835	199	1,034	835	1,034	-
445	UTILITY IMPR.METER	-	01/01/55	METER IN CITY, SIZE: 3	1955	496	123	619	496	619	-
445	UTILITY IMPR.METER	-	01/01/55	METER IN CITY, SIZE: 4	1955	1,203	298	1,502	1,203	1,502	-
445	UTILITY IMPR.METER	-	01/01/55	METER IN CITY, SIZE: 6	1955	872	216	1,088	872	1,088	-
445	UTILITY IMPR.METER	-	01/01/55	METER IN CITY, SIZE: 8	1955	1,138	282	1,420	1,138	1,420	-
445	UTILITY IMPR.METER	-	01/01/56	METER IN CITY, SIZE: 3	1956	273	75	348	273	348	-
445	UTILITY IMPR.METER	-	01/01/56	METER IN CITY, SIZE: 4	1956	662	183	845	662	845	-
445	UTILITY IMPR.METER	-	01/01/56	METER IN CITY, SIZE: 6	1956	959	265	1,225	959	1,225	-
445	UTILITY IMPR.METER	-	01/01/56	METER IN CITY, SIZE: 8	1956	1,252	346	1,598	1,252	1,598	-
445	UTILITY IMPR.METER	-	01/01/57	METER IN CITY, SIZE: 3	1957	276	91	367	276	367	-
445	UTILITY IMPR.METER	-	01/01/57	METER IN CITY, SIZE: 4	1957	670	220	891	670	891	-
445	UTILITY IMPR.METER	-	01/01/57	METER IN CITY, SIZE: 6	1957	972	319	1,291	972	1,291	-
445	UTILITY IMPR.METER	-	01/01/57	METER IN CITY, SIZE: 8	1957	1,268	417	1,685	1,268	1,685	-
445	UTILITY IMPR.METER	-	01/01/58	METER IN CITY, SIZE: 3	1958	276	87	364	276	364	-
445	UTILITY IMPR.METER	-	01/01/58	METER IN CITY, SIZE: 4	1958	670	212	882	670	882	-
445	UTILITY IMPR.METER	-	01/01/58	METER IN CITY, SIZE: 6	1958	972	307	1,279	972	1,279	-
445	UTILITY IMPR.METER	-	01/01/58	METER IN CITY, SIZE: 8	1958	1,268	401	1,669	1,268	1,669	-
445	UTILITY IMPR.METER	-	01/01/59	METER IN CITY, SIZE: 3	1959	276	98	375	276	375	-
445	UTILITY IMPR.METER	-	01/01/59	METER IN CITY, SIZE: 4	1959	670	239	909	670	909	-
445	UTILITY IMPR.METER	-	01/01/59	METER IN CITY, SIZE: 6	1959	972	346	1,318	972	1,318	-
445	UTILITY IMPR.METER	-	01/01/59	METER IN CITY, SIZE: 8	1959	1,268	452	1,720	1,268	1,720	-
445	UTILITY IMPR.METER	-	01/01/60	METER IN CITY, SIZE: 3	1960	553	194	747	553	747	-
445	UTILITY IMPR.METER	-	01/01/60	METER IN CITY, SIZE: 4	1960	670	236	906	670	906	-
445	UTILITY IMPR.METER	-	01/01/60	METER IN CITY, SIZE: 6	1960	972	341	1,313	972	1,313	-
445	UTILITY IMPR.METER	-	01/01/60	METER IN CITY, SIZE: 8	1960	1,268	446	1,714	1,268	1,714	-
445	UTILITY IMPR.METER	-	01/01/61	METER IN CITY, SIZE: 1	1961	1,780	616	2,395	1,780	2,395	-
445	UTILITY IMPR.METER	-	01/01/61	METER IN CITY, SIZE: 2	1961	145	50	194	145	194	-
445	UTILITY IMPR.METER	-	01/01/61	METER IN CITY, SIZE: 3	1961	276	96	372	276	372	-
445	UTILITY IMPR.METER	-	01/01/61	METER IN CITY, SIZE: 4	1961	670	232	902	670	902	-
445	UTILITY IMPR.METER	-	01/01/61	METER IN CITY, SIZE: 6	1961	972	336	1,308	972	1,308	-
445	UTILITY IMPR.METER	-	01/01/61	METER IN CITY, SIZE: 8	1961	1,268	439	1,707	1,268	1,707	-
445	UTILITY IMPR.METER	-	01/01/62	METER IN CITY, SIZE: 1	1962	2,825	891	3,715	2,825	3,715	-

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.METER	-	01/01/62	METER IN CITY, SIZE: 2	1962	3,269	1,031	4,299	3,269	4,299	-
445	UTILITY IMPR.METER	-	01/01/62	METER IN CITY, SIZE: 3	1962	298	94	392	298	392	-
445	UTILITY IMPR.METER	-	01/01/62	METER IN CITY, SIZE: 4	1962	722	228	950	722	950	-
445	UTILITY IMPR.METER	-	01/01/63	METER IN CITY, SIZE: 1	1963	1,498	474	1,972	1,498	1,972	-
445	UTILITY IMPR.METER	-	01/01/63	METER IN CITY, SIZE: 2	1963	1,773	562	2,335	1,773	2,335	-
445	UTILITY IMPR.METER	-	01/01/63	METER IN CITY, SIZE: 3	1963	308	98	406	308	406	-
445	UTILITY IMPR.METER	-	01/01/63	METER IN CITY, SIZE: 4	1963	748	237	984	748	984	-
445	UTILITY IMPR.METER	-	01/01/64	METER IN CITY, SIZE: 1	1964	1,358	435	1,793	1,358	1,793	-
445	UTILITY IMPR.METER	-	01/01/64	METER IN CITY, SIZE: 2	1964	1,612	516	2,129	1,612	2,129	-
445	UTILITY IMPR.METER	-	01/01/64	METER IN CITY, SIZE: 3	1964	308	99	407	308	407	-
445	UTILITY IMPR.METER	-	01/01/64	METER IN CITY, SIZE: 4	1964	1,495	479	1,974	1,495	1,974	-
445	UTILITY IMPR.METER	-	01/01/65	METER IN CITY, SIZE: 1	1965	1,824	596	2,420	1,824	2,420	-
445	UTILITY IMPR.METER	-	01/01/65	METER IN CITY, SIZE: 2	1965	2,068	676	2,744	2,068	2,744	-
445	UTILITY IMPR.METER	-	01/01/65	METER IN CITY, SIZE: 3	1965	330	108	437	330	437	-
445	UTILITY IMPR.METER	-	01/01/65	METER IN CITY, SIZE: 4	1965	1,599	522	2,121	1,599	2,121	-
445	UTILITY IMPR.METER	-	01/01/66	METER IN CITY, SIZE: 1	1966	1,779	678	2,457	1,779	2,457	-
445	UTILITY IMPR.METER	-	01/01/66	METER IN CITY, SIZE: 2	1966	2,059	785	2,844	2,059	2,844	-
445	UTILITY IMPR.METER	-	01/01/66	METER IN CITY, SIZE: 3	1966	358	137	495	358	495	-
445	UTILITY IMPR.METER	-	01/01/66	METER IN CITY, SIZE: 4	1966	1,736	662	2,398	1,736	2,398	-
445	UTILITY IMPR.METER	-	01/01/67	METER IN CITY, SIZE: 1	1967	1,294	510	1,804	1,294	1,804	-
445	UTILITY IMPR.METER	-	01/01/67	METER IN CITY, SIZE: 2	1967	1,497	590	2,087	1,497	2,087	-
445	UTILITY IMPR.METER	-	01/01/67	METER IN CITY, SIZE: 3	1967	358	141	499	358	499	-
445	UTILITY IMPR.METER	-	01/01/68	METER IN CITY, SIZE: 1	1968	1,051	467	1,518	1,051	1,518	-
445	UTILITY IMPR.METER	-	01/01/68	METER IN CITY, SIZE: 2	1968	1,310	582	1,892	1,310	1,892	-
445	UTILITY IMPR.METER	-	01/01/69	METER IN CITY, SIZE: 1	1969	1,231	704	1,934	1,231	1,934	-
445	UTILITY IMPR.METER	-	01/01/69	METER IN CITY, SIZE: 2	1969	1,375	786	2,161	1,375	2,161	-
445	UTILITY IMPR.METER	-	01/01/69	METER IN CITY, SIZE: 3	1969	376	215	591	376	591	-
445	UTILITY IMPR.METER	10	01/01/70	METER IN CITY, SIZE: 1	1970	1,340	850	2,190	1,330	2,174	17
445	UTILITY IMPR.METER	12	01/01/70	METER IN CITY, SIZE: 2	1970	1,601	1,016	2,617	1,589	2,596	20
445	UTILITY IMPR.METER	6	01/01/70	METER IN CITY, SIZE: 3	1970	766	486	1,251	760	1,242	9
445	UTILITY IMPR.METER	4	01/01/70	METER OUT OF CITY, SIZE: 1.5	1970	516	328	844	512	837	7
445	UTILITY IMPR.METER	41	01/01/71	METER IN CITY, SIZE: 1	1971	1,383	758	2,141	1,342	2,077	64
445	UTILITY IMPR.METER	48	01/01/71	METER IN CITY, SIZE: 2	1971	1,601	877	2,478	1,553	2,404	74
445	UTILITY IMPR.METER	23	01/01/71	METER IN CITY, SIZE: 3	1971	766	419	1,185	743	1,150	35
445	UTILITY IMPR.METER	26	01/01/71	METER OUT OF CITY, SIZE: 1.5	1971	861	471	1,332	835	1,292	40
445	UTILITY IMPR.METER	5	01/01/71	METER OUT OF CITY, SIZE: 3/4	1971	171	93	264	165	255	8
445	UTILITY IMPR.METER	35	01/01/72	METER IN CITY, SIZE: 1	1972	679	357	1,036	643	982	54
445	UTILITY IMPR.METER	41	01/01/72	METER IN CITY, SIZE: 2	1972	786	413	1,199	744	1,136	63
445	UTILITY IMPR.METER	97	01/01/72	METER OUT OF CITY, SIZE: 1.5	1972	1,859	977	2,836	1,762	2,688	147
445	UTILITY IMPR.METER	18	01/01/72	METER OUT OF CITY, SIZE: 3/4	1972	335	176	511	317	484	27
445	UTILITY IMPR.METER	1,378	01/01/72	METER OUT OF CITY, SIZE:5/8 X 3/	1972	26,555	13,966	40,531	25,187	38,429	2,102
445	UTILITY IMPR.METER	128	01/01/73	METER IN CITY, SIZE: 1	1973	1,721	894	2,616	1,594	2,422	194
445	UTILITY IMPR.METER	151	01/01/73	METER IN CITY, SIZE: 2	1973	2,038	1,059	3,097	1,887	2,867	230
445	UTILITY IMPR.METER	53	01/01/73	METER IN CITY, SIZE: 3	1973	709	368	1,077	656	997	80
445	UTILITY IMPR.METER	128	01/01/73	METER IN CITY, SIZE: 4	1973	1,719	893	2,612	1,591	2,418	194
445	UTILITY IMPR.METER	142	01/01/73	METER OUT OF CITY, SIZE: 1.5	1973	1,913	994	2,907	1,771	2,691	216
445	UTILITY IMPR.METER	27	01/01/73	METER OUT OF CITY, SIZE: 3/4	1973	355	185	540	329	500	40
445	UTILITY IMPR.METER	2,439	01/01/73	METER OUT OF CITY, SIZE:5/8 X 3/	1973	32,923	17,107	50,030	30,485	46,325	3,706
445	UTILITY IMPR.METER	24	01/01/74	METER IN CITY, SIZE: 1	1974	252	156	408	228	368	39
445	UTILITY IMPR.METER	32	01/01/74	METER IN CITY, SIZE: 2	1974	334	206	539	301	487	52
445	UTILITY IMPR.METER	97	01/01/74	METER OUT OF CITY, SIZE: 1.5	1974	1,004	620	1,624	907	1,467	157
445	UTILITY IMPR.METER	17	01/01/74	METER OUT OF CITY, SIZE: 3/4	1974	178	110	287	160	259	28
445	UTILITY IMPR.METER	1,540	01/01/74	METER OUT OF CITY, SIZE:5/8 X 3/	1974	15,990	9,865	25,855	14,450	23,365	2,490
445	UTILITY IMPR.METER	49	01/01/75	METER IN CITY, SIZE: 1	1975	410	289	699	361	616	83
445	UTILITY IMPR.METER	41	01/01/75	METER IN CITY, SIZE: 2	1975	345	243	588	304	518	70
445	UTILITY IMPR.METER	18	01/01/75	METER OUT OF CITY, SIZE: 1.5	1975	148	105	253	130	222	30
445	UTILITY IMPR.METER	5	01/01/75	METER OUT OF CITY, SIZE: 3/4	1975	37	26	63	32	55	8
445	UTILITY IMPR.METER	527	01/01/75	METER OUT OF CITY, SIZE:5/8 X 3/	1975	4,441	3,134	7,575	3,914	6,677	898
445	UTILITY IMPR.METER	214	01/01/76	METER IN CITY, SIZE: 1	1976	1,521	1,007	2,529	1,307	2,173	356
445	UTILITY IMPR.METER	183	01/01/76	METER IN CITY, SIZE: 2	1976	1,297	859	2,156	1,114	1,852	304
445	UTILITY IMPR.METER	6	01/01/76	METER IN CITY, SIZE: 3/4	1976	39	26	66	34	56	10
445	UTILITY IMPR.METER	271	01/01/76	METER OUT OF CITY, SIZE: 1	1976	1,921	1,273	3,194	1,651	2,744	450
445	UTILITY IMPR.METER	33	01/01/76	METER OUT OF CITY, SIZE: 3/4	1976	237	157	394	203	338	56
445	UTILITY IMPR.METER	2,486	01/01/76	METER OUT OF CITY, SIZE:5/8 X 3/	1976	17,665	11,699	29,364	15,179	25,231	4,133
445	UTILITY IMPR.METER	343	01/01/77	METER IN CITY, SIZE: 1	1977	2,102	1,194	3,297	1,760	2,759	537
445	UTILITY IMPR.METER	275	01/01/77	METER IN CITY, SIZE: 2	1977	1,684	957	2,641	1,410	2,211	430
445	UTILITY IMPR.METER	117	01/01/77	METER IN CITY, SIZE: 3	1977	716	407	1,123	599	940	183
445	UTILITY IMPR.METER	13	01/01/77	METER IN CITY, SIZE: 3/4	1977	80	45	125	67	105	20
445	UTILITY IMPR.METER	425	01/01/77	METER IN CITY, SIZE: 4	1977	2,604	1,479	4,083	2,179	3,417	666
445	UTILITY IMPR.METER	619	01/01/77	METER OUT OF CITY, SIZE: 1	1977	3,800	2,159	5,959	3,181	4,988	971
445	UTILITY IMPR.METER	52	01/01/77	METER OUT OF CITY, SIZE: 3/4	1977	319	181	500	267	418	82
445	UTILITY IMPR.METER	4,660	01/01/77	METER OUT OF CITY, SIZE:5/8 X 3/	1977	28,591	16,240	44,831	23,931	37,524	7,306
445	UTILITY IMPR.METER	156	01/01/78	METER IN CITY, SIZE: 1	1978	841	507	1,347	685	1,098	249
445	UTILITY IMPR.METER	181	01/01/78	METER IN CITY, SIZE: 2	1978	973	586	1,559	792	1,270	289
445	UTILITY IMPR.METER	16	01/01/78	METER IN CITY, SIZE: 3/4	1978	83	50	133	67	108	25
445	UTILITY IMPR.METER	911	01/01/78	METER OUT OF CITY, SIZE: 1	1978	4,918	2,963	7,881	4,007	6,421	1,460
445	UTILITY IMPR.METER	279	01/01/78	METER OUT OF CITY, SIZE: 1.5	1978	1,506	908	2,414	1,227	1,967	447
445	UTILITY IMPR.METER	62	01/01/78	METER OUT OF CITY, SIZE: 3/4	1978	332	200	531	270	432	99
445	UTILITY IMPR.METER	167	01/01/78	METER OUT OF CITY, SIZE: 4	1978	902	544	1,446	735	1,178	268
445	UTILITY IMPR.METER	316	01/01/78	METER OUT OF CITY, SIZE: 8	1978	1,707	1,029	2,736	1,391	2,229	507
445	UTILITY IMPR.METER	6,090	01/01/78	METER OUT OF CITY, SIZE:5/8 X 3/	1978	32,883	19,814	52,697	26,793	42,938	9,759
445	UTILITY IMPR.METER	61	01/01/79	METER IN CITY, SIZE: 1	1979	291	190	481	231	381	100

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.METER	160	01/01/79	METER IN CITY, SIZE: 2	1979	771	502	1,273	611	1,009	264
445	UTILITY IMPR.METER	518	01/01/79	METER OUT OF CITY, SIZE: 1	1979	2,498	1,628	4,126	1,980	3,270	856
445	UTILITY IMPR.METER	138	01/01/79	METER OUT OF CITY, SIZE: 1.5	1979	663	432	1,095	525	868	227
445	UTILITY IMPR.METER	43	01/01/79	METER OUT OF CITY, SIZE: 3/4	1979	205	134	339	163	269	70
445	UTILITY IMPR.METER	185	01/01/79	METER OUT OF CITY, SIZE: 4	1979	894	583	1,476	708	1,170	306
445	UTILITY IMPR.METER	351	01/01/79	METER OUT OF CITY, SIZE: 8	1979	1,691	1,102	2,793	1,340	2,213	580
445	UTILITY IMPR.METER	3,343	01/01/79	METER OUT OF CITY, SIZE:5/8 X 3/	1979	16,116	10,505	26,621	12,773	21,099	5,522
445	UTILITY IMPR.METER	194	01/01/80	METER IN CITY, SIZE: 1	1980	844	724	1,567	650	1,207	360
445	UTILITY IMPR.METER	211	01/01/80	METER IN CITY, SIZE: 2	1980	919	788	1,707	708	1,315	392
445	UTILITY IMPR.METER	91	01/01/80	METER OUT OF CITY, SIZE: 1	1980	397	341	738	306	568	170
445	UTILITY IMPR.METER	12	01/01/80	METER OUT OF CITY, SIZE: 3/4	1980	49	42	91	37	70	21
445	UTILITY IMPR.METER	732	01/01/80	METER OUT OF CITY, SIZE:5/8 X 3/	1980	3,187	2,732	5,919	2,455	4,560	1,359
445	UTILITY IMPR.METER	64	01/01/81	METER IN CITY, SIZE: 1	1981	254	289	543	190	406	137
445	UTILITY IMPR.METER	60	01/01/81	METER IN CITY, SIZE: 2	1981	235	268	503	176	376	127
445	UTILITY IMPR.METER	141	01/01/81	METER OUT OF CITY, SIZE: 1	1981	559	636	1,195	418	894	301
445	UTILITY IMPR.METER	51	01/01/81	METER OUT OF CITY, SIZE: 1.5	1981	202	230	433	151	323	110
445	UTILITY IMPR.METER	13	01/01/81	METER OUT OF CITY, SIZE: 3/4	1981	50	57	107	37	80	27
445	UTILITY IMPR.METER	1,021	01/01/81	METER OUT OF CITY, SIZE:5/8 X 3/	1981	4,051	4,606	8,657	3,031	6,476	2,181
445	UTILITY IMPR.METER	321	01/01/82	METER IN CITY, SIZE: 1	1982	1,169	1,360	2,530	849	1,836	693
445	UTILITY IMPR.METER	323	01/01/82	METER IN CITY, SIZE: 2	1982	1,177	1,369	2,545	854	1,847	698
445	UTILITY IMPR.METER	28	01/01/82	METER IN CITY, SIZE: 3/4	1982	100	117	217	73	157	60
445	UTILITY IMPR.METER	140	01/01/82	METER OUT OF CITY, SIZE: 1	1982	508	591	1,100	369	798	302
445	UTILITY IMPR.METER	56	01/01/82	METER OUT OF CITY, SIZE: 1.5	1982	202	236	438	147	317	121
445	UTILITY IMPR.METER	14	01/01/82	METER OUT OF CITY, SIZE: 3/4	1982	50	58	108	36	78	30
445	UTILITY IMPR.METER	958	01/01/82	METER OUT OF CITY, SIZE:5/8 X 3/	1982	3,496	4,066	7,562	2,537	5,489	2,073
445	UTILITY IMPR.METER	61	01/01/83	METER IN CITY, SIZE: 1	1983	205	195	400	144	281	119
445	UTILITY IMPR.METER	70	01/01/83	METER IN CITY, SIZE: 2	1983	237	226	463	167	326	137
445	UTILITY IMPR.METER	104	01/01/83	METER IN CITY, SIZE:5/8 X 3/4	1983	350	333	683	246	480	203
445	UTILITY IMPR.METER	213	01/01/83	METER OUT OF CITY, SIZE: 1	1983	717	682	1,400	505	985	415
445	UTILITY IMPR.METER	61	01/01/83	METER OUT OF CITY, SIZE: 1.5	1983	204	194	398	144	280	118
445	UTILITY IMPR.METER	15	01/01/83	METER OUT OF CITY, SIZE: 3/4	1983	51	48	99	35	69	30
445	UTILITY IMPR.METER	1,106	01/01/83	METER OUT OF CITY, SIZE:5/8 X 3/	1983	3,733	3,550	7,283	2,627	5,125	2,158
445	UTILITY IMPR.METER	212	01/01/84	METER IN CITY, SIZE: 1	1984	666	673	1,339	454	912	427
445	UTILITY IMPR.METER	418	01/01/84	METER IN CITY, SIZE: 2	1984	1,312	1,325	2,637	894	1,797	840
445	UTILITY IMPR.METER	366	01/01/84	METER IN CITY, SIZE: 4	1984	1,150	1,162	2,312	784	1,575	737
445	UTILITY IMPR.METER	766	01/01/84	METER IN CITY, SIZE:5/8 X 3/4	1984	2,403	2,428	4,831	1,637	3,292	1,539
445	UTILITY IMPR.METER	196	01/01/84	METER OUT OF CITY, SIZE: 1	1984	615	621	1,236	419	842	394
445	UTILITY IMPR.METER	720	01/01/84	METER OUT OF CITY, SIZE: 1.5	1984	2,262	2,285	4,547	1,541	3,099	1,448
445	UTILITY IMPR.METER	151	01/01/84	METER OUT OF CITY, SIZE: 2	1984	474	479	954	323	650	304
445	UTILITY IMPR.METER	1,016	01/01/84	METER OUT OF CITY, SIZE: 6	1984	3,189	3,222	6,411	2,173	4,369	2,042
445	UTILITY IMPR.METER	2,408	01/01/84	METER OUT OF CITY, SIZE:5/8 X 3/	1984	7,559	7,638	15,196	5,151	10,356	4,841
445	UTILITY IMPR.METER	105	01/01/85	METER IN CITY, SIZE: 1	1985	307	280	587	203	387	200
445	UTILITY IMPR.METER	162	01/01/85	METER IN CITY, SIZE: 2	1985	474	431	906	313	597	309
445	UTILITY IMPR.METER	17	01/01/85	METER IN CITY, SIZE: 3/4	1985	51	46	96	33	63	33
445	UTILITY IMPR.METER	1,835	01/01/85	METER IN CITY, SIZE:5/8 X 3/4	1985	5,385	4,897	10,282	3,550	6,778	3,504
445	UTILITY IMPR.METER	192	01/01/85	METER OUT OF CITY, SIZE: 1	1985	564	513	1,076	371	709	367
445	UTILITY IMPR.METER	377	01/01/85	METER OUT OF CITY, SIZE: 1.5	1985	1,107	1,006	2,113	730	1,393	720
445	UTILITY IMPR.METER	645	01/01/85	METER OUT OF CITY, SIZE: 2	1985	1,894	1,723	3,617	1,249	2,384	1,232
445	UTILITY IMPR.METER	17	01/01/85	METER OUT OF CITY, SIZE: 3/4	1985	51	46	96	33	63	33
445	UTILITY IMPR.METER	6,660	01/01/85	METER OUT OF CITY, SIZE: 8	1985	19,547	17,777	37,323	12,886	24,606	12,718
445	UTILITY IMPR.METER	2,957	01/01/85	METER OUT OF CITY, SIZE:5/8 X 3/	1985	8,679	7,893	16,572	5,721	10,925	5,647
445	UTILITY IMPR.METER	56	01/01/86	METER IN CITY, SIZE: 1	1986	154	113	266	98	169	97
445	UTILITY IMPR.METER	311	01/01/86	METER IN CITY, SIZE: 1.5	1986	855	626	1,481	544	943	538
445	UTILITY IMPR.METER	75	01/01/86	METER IN CITY, SIZE: 2	1986	207	152	358	132	228	131
445	UTILITY IMPR.METER	467	01/01/86	METER IN CITY, SIZE: 3	1986	1,285	942	2,227	819	1,419	809
445	UTILITY IMPR.METER	19	01/01/86	METER IN CITY, SIZE: 3/4	1986	51	37	88	32	55	32
445	UTILITY IMPR.METER	973	01/01/86	METER IN CITY, SIZE:5/8 X 3/4	1986	2,681	1,964	4,646	1,708	2,960	1,686
445	UTILITY IMPR.METER	205	01/01/86	METER OUT OF CITY, SIZE: 1	1986	564	413	977	359	622	355
445	UTILITY IMPR.METER	207	01/01/86	METER OUT OF CITY, SIZE: 1.5	1986	570	418	988	363	629	359
445	UTILITY IMPR.METER	451	01/01/86	METER OUT OF CITY, SIZE: 2	1986	1,241	910	2,151	791	1,370	781
445	UTILITY IMPR.METER	6,028	01/01/86	METER OUT OF CITY, SIZE:5/8 X 3/	1986	16,608	12,169	28,777	10,580	18,332	10,445
445	UTILITY IMPR.METER	576	01/01/87	METER IN CITY, SIZE: 1	1987	1,494	1,145	2,639	919	1,623	1,017
445	UTILITY IMPR.METER	311	01/01/87	METER IN CITY, SIZE: 1.5	1987	808	619	1,427	497	877	550
445	UTILITY IMPR.METER	575	01/01/87	METER IN CITY, SIZE: 2	1987	1,494	1,145	2,638	918	1,622	1,016
445	UTILITY IMPR.METER	878	01/01/87	METER IN CITY, SIZE:5/8 X 3/4	1987	2,279	1,746	4,025	1,401	2,474	1,550
445	UTILITY IMPR.METER	151	01/01/87	METER OUT OF CITY, SIZE: 1	1987	390	299	690	240	424	266
445	UTILITY IMPR.METER	178	01/01/87	METER OUT OF CITY, SIZE: 1.5	1987	462	354	815	284	501	315
445	UTILITY IMPR.METER	459	01/01/87	METER OUT OF CITY, SIZE: 2	1987	1,192	913	2,105	733	1,294	811
445	UTILITY IMPR.METER	789	01/01/87	METER OUT OF CITY, SIZE: 6	1987	2,049	1,571	3,620	1,260	2,226	1,394
445	UTILITY IMPR.METER	5,212	01/01/87	METER OUT OF CITY, SIZE:5/8 X 3/	1987	13,530	10,368	23,898	8,318	14,692	9,206
445	UTILITY IMPR.METER	152	01/01/88	METER IN CITY, SIZE: 1	1988	373	287	660	221	391	269
445	UTILITY IMPR.METER	517	01/01/88	METER IN CITY, SIZE: 1.5	1988	1,269	975	2,245	752	1,330	915
445	UTILITY IMPR.METER	1,458	01/01/88	METER IN CITY, SIZE: 2	1988	3,579	2,749	6,328	2,121	3,750	2,578
445	UTILITY IMPR.METER	838	01/01/88	METER IN CITY, SIZE: 4	1988	2,056	1,580	3,636	1,218	2,154	1,482
445	UTILITY IMPR.METER	740	01/01/88	METER IN CITY, SIZE:5/8 X 3/4	1988	1,817	1,396	3,212	1,076	1,903	1,309
445	UTILITY IMPR.METER	105	01/01/88	METER OUT OF CITY, SIZE: 1	1988	258	198	455	153	270	186
445	UTILITY IMPR.METER	94	01/01/88	METER OUT OF CITY, SIZE: 1.5	1988	231	177	408	137	242	167
445	UTILITY IMPR.METER	1,870	01/01/88	METER OUT OF CITY, SIZE: 2	1988	4,590	3,526	8,117	2,720	4,809	3,307
445	UTILITY IMPR.METER	419	01/01/88	METER OUT OF CITY, SIZE: 4	1988	1,028	790	1,818	609	1,077	741
445	UTILITY IMPR.METER	6,965	01/01/88	METER OUT OF CITY, SIZE:5/8 X 3/	1988	17,096	13,133	30,230	10,131	17,914	12,316
445	UTILITY IMPR.METER	274	01/01/89	METER IN CITY, SIZE: 1	1989	638	461	1,099	364	626	472
445	UTILITY IMPR.METER	645	01/01/89	METER IN CITY, SIZE: 1.5	1989	1,502	1,085	2,587	856	1,475	1,112

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.METER	1,038	01/01/89	METER IN CITY, SIZE: 2	1989	2,416	1,746	4,161	1,378	2,373	1,788
445	UTILITY IMPR.METER	428	01/01/89	METER IN CITY, SIZE: 4	1989	996	720	1,717	568	979	737
445	UTILITY IMPR.METER	1,558	01/01/89	METER IN CITY, SIZE:5/8 X 3/4	1989	3,627	2,621	6,247	2,069	3,563	2,684
445	UTILITY IMPR.METER	374	01/01/89	METER OUT OF CITY, SIZE: 1	1989	870	628	1,498	496	854	644
445	UTILITY IMPR.METER	2,561	01/01/89	METER OUT OF CITY, SIZE: 1.5	1989	5,962	4,308	10,269	3,400	5,857	4,412
445	UTILITY IMPR.METER	3,030	01/01/89	METER OUT OF CITY, SIZE: 2	1989	7,052	5,096	12,148	4,022	6,929	5,220
445	UTILITY IMPR.METER	8,430	01/01/89	METER OUT OF CITY, SIZE:5/8 X 3/4	1989	19,622	14,179	33,801	11,192	19,279	14,522
445	UTILITY IMPR.METER	1,980	01/01/90	METER IN CITY, SIZE: 1	1990	4,381	3,185	7,566	2,401	4,147	3,419
445	UTILITY IMPR.METER	765	01/01/90	METER IN CITY, SIZE: 1.5	1990	1,693	1,231	2,924	928	1,602	1,321
445	UTILITY IMPR.METER	2,129	01/01/90	METER IN CITY, SIZE: 2	1990	4,713	3,426	8,139	2,583	4,461	3,678
445	UTILITY IMPR.METER	23	01/01/90	METER IN CITY, SIZE: 3/4	1990	51	37	87	28	48	40
445	UTILITY IMPR.METER	3,247	01/01/90	METER IN CITY, SIZE:5/8 X 3/4	1990	7,185	5,224	12,409	3,939	6,802	5,607
445	UTILITY IMPR.METER	3,749	01/01/90	METER OUT OF CITY, SIZE: 1	1990	8,296	6,031	14,328	4,547	7,853	6,474
445	UTILITY IMPR.METER	1,785	01/01/90	METER OUT OF CITY, SIZE: 1.5	1990	3,950	2,871	6,821	2,165	3,739	3,082
445	UTILITY IMPR.METER	7,254	01/01/90	METER OUT OF CITY, SIZE: 2	1990	16,054	11,671	27,726	8,800	15,197	12,528
445	UTILITY IMPR.METER	137	01/01/90	METER OUT OF CITY, SIZE: 3/4	1990	303	220	524	166	287	237
445	UTILITY IMPR.METER	35,624	01/01/90	METER OUT OF CITY, SIZE:5/8 X 3/4	1990	78,840	57,317	136,156	43,216	74,634	61,523
445	UTILITY IMPR.METER	1,401	01/01/91	METER IN CITY, SIZE: 1	1991	2,956	2,043	4,998	1,554	2,629	2,370
445	UTILITY IMPR.METER	726	01/01/91	METER IN CITY, SIZE: 1.5	1991	1,531	1,058	2,588	805	1,361	1,227
445	UTILITY IMPR.METER	2,025	01/01/91	METER IN CITY, SIZE: 2	1991	4,270	2,951	7,222	2,246	3,798	3,424
445	UTILITY IMPR.METER	3,483	01/01/91	METER IN CITY, SIZE:5/8 X 3/4	1991	7,346	5,077	12,423	3,863	6,533	5,890
445	UTILITY IMPR.METER	8,574	01/01/91	METER OUT OF CITY, SIZE: 1	1991	18,086	12,500	30,587	9,512	16,086	14,501
445	UTILITY IMPR.METER	3,143	01/01/91	METER OUT OF CITY, SIZE: 1.5	1991	6,630	4,583	11,213	3,487	5,897	5,316
445	UTILITY IMPR.METER	7,954	01/01/91	METER OUT OF CITY, SIZE: 2	1991	16,779	11,597	28,375	8,824	14,923	13,452
445	UTILITY IMPR.METER	998	01/01/91	METER OUT OF CITY, SIZE: 6	1991	2,105	1,455	3,559	1,107	1,872	1,687
445	UTILITY IMPR.METER	40,029	01/01/91	METER OUT OF CITY, SIZE:5/8 X 3/4	1991	84,436	58,358	142,794	44,407	75,099	67,696
445	UTILITY IMPR.METER	839	01/01/92	METER IN CITY, SIZE: 1	1992	1,691	1,088	2,779	851	1,399	1,379
445	UTILITY IMPR.METER	718	01/01/92	METER IN CITY, SIZE: 1.5	1992	1,446	931	2,377	728	1,197	1,180
445	UTILITY IMPR.METER	1,574	01/01/92	METER IN CITY, SIZE: 2	1992	3,173	2,042	5,215	1,598	2,627	2,588
445	UTILITY IMPR.METER	2,523	01/01/92	METER IN CITY, SIZE:5/8 X 3/4	1992	5,082	3,272	8,354	2,560	4,208	4,146
445	UTILITY IMPR.METER	9,328	01/01/92	METER OUT OF CITY, SIZE: 1	1992	18,796	12,099	30,894	9,467	15,562	15,333
445	UTILITY IMPR.METER	4,079	01/01/92	METER OUT OF CITY, SIZE: 1.5	1992	8,219	5,291	13,510	4,140	6,805	6,705
445	UTILITY IMPR.METER	6,153	01/01/92	METER OUT OF CITY, SIZE: 2	1992	12,397	7,980	20,378	6,245	10,264	10,114
445	UTILITY IMPR.METER	1,056	01/01/92	METER OUT OF CITY, SIZE: 3	1992	2,128	1,370	3,498	1,072	1,762	1,736
445	UTILITY IMPR.METER	54	01/01/92	METER OUT OF CITY, SIZE: 3/4	1992	108	70	178	54	89	88
445	UTILITY IMPR.METER	998	01/01/92	METER OUT OF CITY, SIZE: 4	1992	2,010	1,294	3,304	1,012	1,664	1,640
445	UTILITY IMPR.METER	55,325	01/01/92	METER OUT OF CITY, SIZE:5/8 X 3/4	1992	111,475	71,756	183,232	56,150	92,294	90,937
445	UTILITY IMPR.METER	440	01/01/93	METER IN CITY, SIZE: 1	1993	848	474	1,322	408	636	685
445	UTILITY IMPR.METER	927	01/01/93	METER IN CITY, SIZE: 1.5	1993	1,788	1,000	2,788	861	1,342	1,446
445	UTILITY IMPR.METER	4,190	01/01/93	METER IN CITY, SIZE: 2	1993	8,081	4,517	12,598	3,891	6,065	6,533
445	UTILITY IMPR.METER	2,326	01/01/93	METER IN CITY, SIZE:5/8 X 3/4	1993	4,486	2,507	6,993	2,160	3,367	3,626
445	UTILITY IMPR.METER	10,231	01/01/93	METER OUT OF CITY, SIZE: 1	1993	19,731	11,028	30,759	9,500	14,809	15,949
445	UTILITY IMPR.METER	7,890	01/01/93	METER OUT OF CITY, SIZE: 1.5	1993	15,217	8,505	23,722	7,327	11,422	12,301
445	UTILITY IMPR.METER	12,009	01/01/93	METER OUT OF CITY, SIZE: 2	1993	23,161	12,945	36,106	11,151	17,384	18,722
445	UTILITY IMPR.METER	384	01/01/93	METER OUT OF CITY, SIZE: 3	1993	741	414	1,154	356	556	599
445	UTILITY IMPR.METER	247	01/01/93	METER OUT OF CITY, SIZE: 3/4	1993	475	266	741	229	357	385
445	UTILITY IMPR.METER	50,083	01/01/93	METER OUT OF CITY, SIZE:5/8 X 3/4	1993	96,589	53,986	150,574	46,506	72,499	78,076
445	UTILITY IMPR.METER	1,049	01/01/94	METER IN CITY, SIZE: 1	1994	1,939	1,199	3,138	890	1,441	1,697
445	UTILITY IMPR.METER	3,052	01/01/94	METER IN CITY, SIZE: 1.5	1994	5,644	3,492	9,136	2,592	4,196	4,941
445	UTILITY IMPR.METER	3,081	01/01/94	METER IN CITY, SIZE: 2	1994	5,697	3,525	9,222	2,617	4,235	4,987
445	UTILITY IMPR.METER	5,316	01/01/94	METER IN CITY, SIZE: 3	1994	9,830	6,081	15,912	4,515	7,307	8,604
445	UTILITY IMPR.METER	8,370	01/01/94	METER IN CITY, SIZE:5/8 X 3/4	1994	15,479	9,576	25,055	7,109	11,507	13,549
445	UTILITY IMPR.METER	9,221	01/01/94	METER OUT OF CITY, SIZE: 1	1994	17,053	10,550	27,603	7,832	12,677	14,926
445	UTILITY IMPR.METER	10,877	01/01/94	METER OUT OF CITY, SIZE: 1.5	1994	20,114	12,443	32,558	9,238	14,952	17,606
445	UTILITY IMPR.METER	12,412	01/01/94	METER OUT OF CITY, SIZE: 2	1994	22,953	14,200	37,153	10,541	17,062	20,090
445	UTILITY IMPR.METER	1,685	01/01/94	METER OUT OF CITY, SIZE: 3	1994	3,117	1,928	5,045	1,431	2,317	2,728
445	UTILITY IMPR.METER	140	01/01/94	METER OUT OF CITY, SIZE: 3/4	1994	260	161	420	119	193	227
445	UTILITY IMPR.METER	52,495	01/01/94	METER OUT OF CITY, SIZE:5/8 X 3/4	1994	97,080	60,057	157,138	44,585	72,167	84,971
445	UTILITY IMPR.METER	4,538	01/01/95	METER IN CITY, SIZE: 1	1995	8,060	4,786	12,846	3,523	5,614	7,232
445	UTILITY IMPR.METER	3,077	01/01/95	METER IN CITY, SIZE: 1.5	1995	5,466	3,246	8,712	2,389	3,807	4,905
445	UTILITY IMPR.METER	5,040	01/01/95	METER IN CITY, SIZE: 2	1995	8,953	5,316	14,270	3,913	6,236	8,033
445	UTILITY IMPR.METER	3,810	01/01/95	METER IN CITY, SIZE: 3	1995	6,767	4,018	10,785	2,957	4,713	6,072
445	UTILITY IMPR.METER	1,223	01/01/95	METER IN CITY, SIZE: 4	1995	2,172	1,290	3,461	949	1,513	1,949
445	UTILITY IMPR.METER	2,210	01/01/95	METER IN CITY, SIZE: 6	1995	3,925	2,331	6,256	1,715	2,734	3,522
445	UTILITY IMPR.METER	11,981	01/01/95	METER IN CITY, SIZE:5/8 X 3/4	1995	21,282	12,637	33,919	9,301	14,824	19,095
445	UTILITY IMPR.METER	5,236	01/01/95	METER OUT OF CITY, SIZE: 1	1995	9,300	5,522	14,822	4,064	6,477	8,344
445	UTILITY IMPR.METER	4,145	01/01/95	METER OUT OF CITY, SIZE: 1.5	1995	7,362	4,372	11,734	3,217	5,128	6,606
445	UTILITY IMPR.METER	6,811	01/01/95	METER OUT OF CITY, SIZE: 2	1995	12,099	7,184	19,283	5,288	8,427	10,856
445	UTILITY IMPR.METER	211	01/01/95	METER OUT OF CITY, SIZE: 3/4	1995	375	223	598	164	261	337
445	UTILITY IMPR.METER	42,931	01/01/95	METER OUT OF CITY, SIZE:5/8 X 3/4	1995	76,259	45,282	121,542	33,328	53,118	68,423
445	UTILITY IMPR.METER	5,943	01/01/96	METER IN CITY, SIZE: 1	1996	10,156	5,845	16,000	4,213	6,637	9,363
445	UTILITY IMPR.METER	5,721	01/01/96	METER IN CITY, SIZE: 1.5	1996	9,776	5,626	15,402	4,055	6,389	9,014
445	UTILITY IMPR.METER	10,628	01/01/96	METER IN CITY, SIZE: 2	1996	18,161	10,452	28,614	7,533	11,869	16,745
445	UTILITY IMPR.METER	4,379	01/01/96	METER IN CITY, SIZE: 3	1996	7,483	4,307	11,789	3,104	4,890	6,899
445	UTILITY IMPR.METER	124	01/01/96	METER IN CITY, SIZE: 3/4	1996	212	122	334	88	138	195
445	UTILITY IMPR.METER	3,789	01/01/96	METER IN CITY, SIZE: 4	1996	6,476	3,727	10,202	2,686	4,232	5,970
445	UTILITY IMPR.METER	9,634	01/01/96	METER IN CITY, SIZE: 6	1996	16,463	9,475	25,938	6,829	10,760	15,179
445	UTILITY IMPR.METER	25,964	01/01/96	METER IN CITY, SIZE:5/8 X 3/4	1996	44,368	25,535	69,903	18,404	28,996	40,906
445	UTILITY IMPR.METER	1,796	01/01/96	METER OUT OF CITY, SIZE: 1	1996	3,069	1,766	4,835	1,273	2,006	2,830
445	UTILITY IMPR.METER	1,677	01/01/96	METER OUT OF CITY, SIZE: 1.5	1996	2,866	1,649	4,515	1,189	1,873	2,642
445	UTILITY IMPR.METER	2,389	01/01/96	METER OUT OF CITY, SIZE: 2	1996	4,081	2,349	6,430	1,693	2,667	3,763
445	UTILITY IMPR.METER	907	01/01/96	METER OUT OF CITY, SIZE: 3	1996	1,550	892	2,442	643	1,013	1,429

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.METER	124	01/01/96	METER OUT OF CITY, SIZE: 3/4	1996	212	122	334	88	138	195
445	UTILITY IMPR.METER	2,661	01/01/96	METER OUT OF CITY, SIZE: 8	1996	4,547	2,617	7,163	1,886	2,971	4,192
445	UTILITY IMPR.METER	19,707	01/01/96	METER OUT OF CITY, SIZE:5/8 X 3/	1996	33,677	19,382	53,059	13,970	22,010	31,049
445	UTILITY IMPR.METER	10,621	01/01/97	METER IN CITY, SIZE: 1	1997	17,486	9,645	27,131	6,865	10,651	16,480
445	UTILITY IMPR.METER	11,424	01/01/97	METER IN CITY, SIZE: 1.5	1997	18,808	10,374	29,182	7,384	11,456	17,725
445	UTILITY IMPR.METER	12,418	01/01/97	METER IN CITY, SIZE: 2	1997	20,445	11,277	31,722	8,026	12,454	19,268
445	UTILITY IMPR.METER	3,893	01/01/97	METER IN CITY, SIZE: 3	1997	6,409	3,535	9,944	2,516	3,904	6,040
445	UTILITY IMPR.METER	225	01/01/97	METER IN CITY, SIZE: 3/4	1997	370	204	575	145	226	349
445	UTILITY IMPR.METER	2,556	01/01/97	METER IN CITY, SIZE: 4	1997	4,207	2,321	6,528	1,652	2,563	3,965
445	UTILITY IMPR.METER	5,241	01/01/97	METER IN CITY, SIZE: 6	1997	8,628	4,759	13,387	3,387	5,256	8,131
445	UTILITY IMPR.METER	450	01/01/97	METER IN CITY, SIZE: METRON 1.5	1997	740	408	1,148	290	451	698
445	UTILITY IMPR.METER	876	01/01/97	METER IN CITY, SIZE: METRON 3	1997	1,443	796	2,238	566	878	1,360
445	UTILITY IMPR.METER	3,749	01/01/97	METER IN CITY, SIZE: METRON 6	1997	6,172	3,404	9,576	2,423	3,759	5,817
445	UTILITY IMPR.METER	47,154	01/01/97	METER IN CITY, SIZE:5/8 X 3/4	1997	77,631	42,819	120,450	30,477	47,288	73,162
445	UTILITY IMPR.METER	792	01/01/97	METER OUT OF CITY, SIZE: 1	1997	1,305	720	2,024	512	795	1,230
445	UTILITY IMPR.METER	633	01/01/97	METER OUT OF CITY, SIZE: 1.5	1997	1,041	574	1,616	409	634	981
445	UTILITY IMPR.METER	618	01/01/97	METER OUT OF CITY, SIZE: 2	1997	1,018	561	1,579	399	620	960
445	UTILITY IMPR.METER	13,215	01/01/97	METER OUT OF CITY, SIZE:5/8 X 3/	1997	21,757	12,000	33,758	8,542	13,253	20,505
445	UTILITY IMPR.METER	7,543	01/01/98	METER IN CITY, SIZE: 1	1998	11,980	6,095	18,074	4,437	6,694	11,381
445	UTILITY IMPR.METER	11,711	01/01/98	METER IN CITY, SIZE: 1.5	1998	18,600	9,463	28,063	6,889	10,393	17,670
445	UTILITY IMPR.METER	14,182	01/01/98	METER IN CITY, SIZE: 2	1998	22,524	11,459	33,983	8,342	12,586	21,397
445	UTILITY IMPR.METER	4,896	01/01/98	METER IN CITY, SIZE: 3	1998	7,775	3,956	11,731	2,880	4,345	7,386
445	UTILITY IMPR.METER	114	01/01/98	METER IN CITY, SIZE: 3/4	1998	182	93	274	67	102	173
445	UTILITY IMPR.METER	5,510	01/01/98	METER IN CITY, SIZE: 4	1998	8,750	4,452	13,202	3,241	4,889	8,312
445	UTILITY IMPR.METER	6,813	01/01/98	METER IN CITY, SIZE: 6	1998	10,821	5,505	16,326	4,008	6,046	10,279
445	UTILITY IMPR.METER	951	01/01/98	METER IN CITY, SIZE: METRON 3	1998	1,511	769	2,280	560	844	1,435
445	UTILITY IMPR.METER	49,710	01/01/98	METER IN CITY, SIZE:5/8 X 3/4	1998	78,952	40,167	119,119	29,241	44,118	75,001
445	UTILITY IMPR.METER	730	01/01/98	METER OUT OF CITY, SIZE: 1	1998	1,159	590	1,748	429	648	1,101
445	UTILITY IMPR.METER	878	01/01/98	METER OUT OF CITY, SIZE: 1.5	1998	1,394	709	2,104	516	779	1,325
445	UTILITY IMPR.METER	1,709	01/01/98	METER OUT OF CITY, SIZE: 2	1998	2,714	1,381	4,095	1,005	1,517	2,578
445	UTILITY IMPR.METER	12,681	01/01/98	METER OUT OF CITY, SIZE:5/8 X 3/	1998	20,140	10,246	30,386	7,459	11,254	19,132
445	UTILITY IMPR.METER	13,549	01/01/99	METER IN CITY, SIZE: 1	1999	20,785	11,300	32,085	7,236	11,170	20,915
445	UTILITY IMPR.METER	11,237	01/01/99	METER IN CITY, SIZE: 1.5	1999	17,238	9,371	26,609	6,001	9,264	17,345
445	UTILITY IMPR.METER	14,442	01/01/99	METER IN CITY, SIZE: 2	1999	22,156	12,045	34,201	7,714	11,907	22,294
445	UTILITY IMPR.METER	2,186	01/01/99	METER IN CITY, SIZE: 3	1999	3,354	1,823	5,177	1,168	1,802	3,375
445	UTILITY IMPR.METER	158	01/01/99	METER IN CITY, SIZE: 3/4	1999	243	132	374	84	130	244
445	UTILITY IMPR.METER	5,659	01/01/99	METER IN CITY, SIZE: 4	1999	8,682	4,720	13,402	3,023	4,666	8,736
445	UTILITY IMPR.METER	4,906	01/01/99	METER IN CITY, SIZE: 6	1999	7,526	4,091	11,617	2,620	4,045	7,573
445	UTILITY IMPR.METER	4,070	01/01/99	METER IN CITY, SIZE: 8	1999	6,243	3,394	9,637	2,173	3,355	6,282
445	UTILITY IMPR.METER	54,381	01/01/99	METER IN CITY, SIZE:5/8 X 3/4	1999	83,425	45,353	128,778	29,044	44,834	83,945
445	UTILITY IMPR.METER	724	01/01/99	METER OUT OF CITY, SIZE: 1	1999	1,111	604	1,715	387	597	1,118
445	UTILITY IMPR.METER	673	01/01/99	METER OUT OF CITY, SIZE: 1.5	1999	1,032	561	1,594	359	555	1,039
445	UTILITY IMPR.METER	1,059	01/01/99	METER OUT OF CITY, SIZE: 2	1999	1,624	883	2,507	565	873	1,634
445	UTILITY IMPR.METER	14,942	01/01/99	METER OUT OF CITY, SIZE:5/8 X 3/	1999	22,922	12,461	35,383	7,980	12,318	23,064
445	UTILITY IMPR.OTHER	4,164	12/31/04	Wellfield Development 2001-2	2004	8,124	3,800	11,924	3,960	5,813	6,111
445	UTILITY IMPR.OTHER	18,377	12/31/04	Water Sta 6 Well 4 Completion	2004	35,858	16,771	52,629	17,481	25,656	26,972
445	UTILITY IMPR.OTHER	24,957	12/31/04	Water Sta 9 Radon Treatment	2004	48,696	22,776	71,472	23,739	34,843	36,630
445	UTILITY IMPR.OTHER	-	12/31/04	Wtr Main 192nd Ave Grid Imp	2004	-	-	-	-	-	-
445	UTILITY IMPR.OTHER	35,725	12/31/04	Wtr Main-130th Ave-Padden	2004	69,707	32,603	102,310	33,982	49,876	52,434
445	UTILITY IMPR.OTHER	59,786	12/31/04	Wtr Syst. Vulnerability/Emerg	2004	116,656	54,561	171,217	56,870	83,469	87,749
445	UTILITY IMPR.OTHER	6,164	12/31/04	Water Main, Van Mall M&F	2004	12,028	5,626	17,654	5,864	8,606	9,047
445	UTILITY IMPR.OTHER	3,830	12/31/04	Wedgewood 2, SCIP Project	2004	7,474	3,496	10,970	3,644	5,348	5,622
445	UTILITY IMPR.OTHER	-	12/31/11	083184 Marine Pk Engineering Bldg	2011	-	-	-	-	-	-
445	UTILITY IMPR.OTHER	8,582	05/25/07	Byblos Subdivision ENG2006-00045	2007	13,550	4,173	17,723	4,968	6,499	11,225
445	UTILITY IMPR.OTHER	918	05/25/07	Byblos Subdivision ENG2006-00045	2007	1,450	447	1,897	532	695	1,201
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	548	232	780	548	780	-
445	UTILITY IMPR.PIPE W.	(2,412)	01/01/22	WATER PIPE INSIDE CITY	1922	-	-	-	2,412	-	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	529	224	753	529	753	-
445	UTILITY IMPR.PIPE W.	(34)	01/01/22	WATER PIPE INSIDE CITY	1922	-	-	-	34	-	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	369	156	525	369	525	-
445	UTILITY IMPR.PIPE W.	(68)	01/01/22	WATER PIPE INSIDE CITY	1922	-	-	-	68	-	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	756	320	1,076	756	1,076	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	240	102	342	240	342	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	SERVICES IN CITY	1922	65	27	92	65	92	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	SERVICES IN CITY	1922	119	50	169	119	169	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	SERVICES IN CITY	1922	200	85	285	200	285	-
445	UTILITY IMPR.PIPE W.	(224)	01/01/22	WATER PIPE INSIDE CITY	1922	-	-	-	224	-	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	448	190	638	448	638	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	3,397	1,438	4,835	3,397	4,835	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	2,506	1,060	3,566	2,506	3,566	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	1,652	699	2,351	1,652	2,351	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	1,640	694	2,334	1,640	2,334	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	SERVICES IN CITY	1922	20	8	28	20	28	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	1,386	587	1,973	1,386	1,973	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	43	18	61	43	61	-
445	UTILITY IMPR.PIPE W.	(739)	01/01/22	WATER PIPE INSIDE CITY	1922	-	-	-	739	-	-
445	UTILITY IMPR.PIPE W.	(1,061)	01/01/22	WATER PIPE INSIDE CITY	1922	-	-	-	1,061	-	-
445	UTILITY IMPR.PIPE W.	(117)	01/01/22	WATER PIPE INSIDE CITY	1922	-	-	-	117	-	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	972	412	1,384	972	1,384	-
445	UTILITY IMPR.PIPE W.	(214)	01/01/22	WATER PIPE INSIDE CITY	1922	-	-	-	214	-	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	574	243	817	574	817	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	32	14	46	32	46	-

Water Fixed Assets as of September 30,2014

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Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	25	11	36	25	36	-
445	UTILITY IMPR.PIPE W.	(119)	01/01/22	WATER PIPE INSIDE CITY	1922	-	-	-	119	-	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	671	284	955	671	955	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	139	59	197	139	197	-
445	UTILITY IMPR.PIPE W.	(135)	01/01/22	WATER PIPE INSIDE CITY	1922	-	-	-	135	-	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	952	403	1,355	952	1,355	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	50	21	71	50	71	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	1,372	581	1,953	1,372	1,953	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	138	58	196	138	196	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	SERVICES IN CITY	1922	43	18	62	43	62	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	SERVICES IN CITY	1922	96	41	137	96	137	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	623	263	886	623	886	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	1,142	484	1,626	1,142	1,626	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	3,414	1,445	4,859	3,414	4,859	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	647	274	921	647	921	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	290	123	412	290	412	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	930	393	1,323	930	1,323	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	267	113	380	267	380	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	167	70	237	167	237	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	515	218	733	515	733	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	640	271	911	640	911	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	644	273	917	644	917	-
445	UTILITY IMPR.PIPE W.	-	01/01/22	WATER PIPE INSIDE CITY	1922	395	167	562	395	562	-
445	UTILITY IMPR.PIPE W.	(628)	01/01/22	WATER PIPE INSIDE CITY	1922	-	-	-	628	-	-
445	UTILITY IMPR.PIPE W.	-	01/01/24	WATER PIPE INSIDE CITY	1924	308	130	438	308	438	-
445	UTILITY IMPR.PIPE W.	-	01/01/24	WATER PIPE INSIDE CITY	1924	337	142	479	337	479	-
445	UTILITY IMPR.PIPE W.	-	01/01/25	SERVICES IN CITY	1925	48	20	68	48	68	-
445	UTILITY IMPR.PIPE W.	-	01/01/25	WATER PIPE INSIDE CITY	1925	1,013	418	1,431	1,013	1,431	-
445	UTILITY IMPR.PIPE W.	-	01/01/26	SERVICES IN CITY	1926	48	20	68	48	68	-
445	UTILITY IMPR.PIPE W.	-	01/01/26	WATER PIPE INSIDE CITY	1926	837	347	1,183	837	1,183	-
445	UTILITY IMPR.PIPE W.	-	01/01/27	WATER PIPE INSIDE CITY	1927	899	360	1,259	899	1,259	-
445	UTILITY IMPR.PIPE W.	-	01/01/28	SERVICES IN CITY	1928	47	19	65	47	65	-
445	UTILITY IMPR.PIPE W.	-	01/01/28	SERVICES IN CITY	1928	104	42	146	104	146	-
445	UTILITY IMPR.PIPE W.	-	01/01/28	WATER PIPE INSIDE CITY	1928	640	259	899	640	899	-
445	UTILITY IMPR.PIPE W.	-	01/01/28	WATER PIPE INSIDE CITY	1928	138	56	193	138	193	-
445	UTILITY IMPR.PIPE W.	(4,392)	01/01/28	WATER PIPE INSIDE CITY	1928	-	-	-	4,392	-	-
445	UTILITY IMPR.PIPE W.	-	01/01/29	SERVICES IN CITY	1929	186	80	267	186	267	-
445	UTILITY IMPR.PIPE W.	-	01/01/29	SERVICES IN CITY	1929	571	246	817	571	817	-
445	UTILITY IMPR.PIPE W.	-	01/01/29	SERVICES IN CITY	1929	152	65	217	152	217	-
445	UTILITY IMPR.PIPE W.	-	01/01/29	SERVICES IN CITY	1929	277	119	396	277	396	-
445	UTILITY IMPR.PIPE W.	-	01/01/29	WATER PIPE INSIDE CITY	1929	640	276	916	640	916	-
445	UTILITY IMPR.PIPE W.	-	01/01/29	WATER PIPE INSIDE CITY	1929	15,472	6,665	22,137	15,472	22,137	-
445	UTILITY IMPR.PIPE W.	-	01/01/29	WATER PIPE INSIDE CITY	1929	10,140	4,368	14,508	10,140	14,508	-
445	UTILITY IMPR.PIPE W.	-	01/01/29	WATER PIPE INSIDE CITY	1929	1,485	640	2,125	1,485	2,125	-
445	UTILITY IMPR.PIPE W.	-	01/01/29	WATER PIPE INSIDE CITY	1929	2,719	1,171	3,890	2,719	3,890	-
445	UTILITY IMPR.PIPE W.	-	01/01/29	WATER PIPE INSIDE CITY	1929	18,115	7,803	25,918	18,115	25,918	-
445	UTILITY IMPR.PIPE W.	-	01/01/29	WATER PIPE INSIDE CITY	1929	9,818	4,229	14,046	9,818	14,046	-
445	UTILITY IMPR.PIPE W.	-	01/01/30	SERVICES IN CITY	1930	327	135	462	327	462	-
445	UTILITY IMPR.PIPE W.	-	01/01/30	SERVICES IN CITY	1930	47	19	66	47	66	-
445	UTILITY IMPR.PIPE W.	-	01/01/30	SERVICES IN CITY	1930	104	43	147	104	147	-
445	UTILITY IMPR.PIPE W.	-	01/01/30	WATER PIPE INSIDE CITY	1930	99	41	140	99	140	-
445	UTILITY IMPR.PIPE W.	-	01/01/30	WATER PIPE INSIDE CITY	1930	1,216	502	1,718	1,216	1,718	-
445	UTILITY IMPR.PIPE W.	-	01/01/30	WATER PIPE INSIDE CITY	1930	7,218	2,980	10,197	7,218	10,197	-
445	UTILITY IMPR.PIPE W.	-	01/01/32	SERVICES IN CITY	1932	27	13	40	27	40	-
445	UTILITY IMPR.PIPE W.	-	01/01/32	SERVICES IN CITY	1932	112	54	166	112	166	-
445	UTILITY IMPR.PIPE W.	-	01/01/32	SERVICES IN CITY	1932	44	21	66	44	66	-
445	UTILITY IMPR.PIPE W.	-	01/01/32	WATER PIPE INSIDE CITY	1932	306	147	453	306	453	-
445	UTILITY IMPR.PIPE W.	-	01/01/32	WATER PIPE INSIDE CITY	1932	2,115	1,014	3,128	2,115	3,128	-
445	UTILITY IMPR.PIPE W.	-	01/01/33	SERVICES IN CITY	1933	28	14	42	28	42	-
445	UTILITY IMPR.PIPE W.	-	01/01/33	WATER PIPE INSIDE CITY	1933	698	354	1,052	698	1,052	-
445	UTILITY IMPR.PIPE W.	-	01/01/34	SERVICES IN CITY	1934	61	27	87	61	87	-
445	UTILITY IMPR.PIPE W.	-	01/01/34	WATER PIPE INSIDE CITY	1934	83	36	119	83	119	-
445	UTILITY IMPR.PIPE W.	-	01/01/34	WATER PIPE INSIDE CITY	1934	736	321	1,057	736	1,057	-
445	UTILITY IMPR.PIPE W.	-	01/01/35	WATER PIPE INSIDE CITY	1935	336	115	451	336	451	-
445	UTILITY IMPR.PIPE W.	-	01/01/35	WATER PIPE INSIDE CITY	1935	684	235	919	684	919	-
445	UTILITY IMPR.PIPE W.	(272)	01/01/35	WATER PIPE INSIDE CITY	1935	-	-	-	272	-	-
445	UTILITY IMPR.PIPE W.	-	01/01/36	WATER PIPE INSIDE CITY	1936	624	191	815	624	815	-
445	UTILITY IMPR.PIPE W.	-	01/01/37	SERVICES IN CITY	1937	33	10	43	33	43	-
445	UTILITY IMPR.PIPE W.	-	01/01/37	SERVICES IN CITY	1937	175	52	228	175	228	-
445	UTILITY IMPR.PIPE W.	-	01/01/37	SERVICES IN CITY	1937	56	17	72	56	72	-
445	UTILITY IMPR.PIPE W.	-	01/01/37	WATER PIPE INSIDE CITY	1937	2,472	739	3,210	2,472	3,210	-
445	UTILITY IMPR.PIPE W.	-	01/01/37	WATER PIPE INSIDE CITY	1937	465	139	604	465	604	-
445	UTILITY IMPR.PIPE W.	-	01/01/37	WATER PIPE INSIDE CITY	1937	4,153	1,241	5,394	4,153	5,394	-
445	UTILITY IMPR.PIPE W.	-	01/01/38	SERVICES IN CITY	1938	268	81	348	268	348	-
445	UTILITY IMPR.PIPE W.	-	01/01/38	SERVICES IN CITY	1938	33	10	44	33	44	-
445	UTILITY IMPR.PIPE W.	-	01/01/38	SERVICES IN CITY	1938	1,297	391	1,689	1,297	1,689	-
445	UTILITY IMPR.PIPE W.	-	01/01/38	SERVICES IN CITY	1938	200	60	260	200	260	-
445	UTILITY IMPR.PIPE W.	-	01/01/38	SERVICES IN CITY	1938	500	151	651	500	651	-
445	UTILITY IMPR.PIPE W.	-	01/01/38	SERVICES IN CITY	1938	162	49	211	162	211	-
445	UTILITY IMPR.PIPE W.	-	01/01/38	SERVICES IN CITY	1938	296	89	386	296	386	-
445	UTILITY IMPR.PIPE W.	-	01/01/38	WATER PIPE INSIDE CITY	1938	378	114	492	378	492	-
445	UTILITY IMPR.PIPE W.	-	01/01/38	WATER PIPE INSIDE CITY	1938	883	266	1,150	883	1,150	-

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	-	01/01/38	WATER PIPE INSIDE CITY	1938	906	273	1,180	906	1,180	-
445	UTILITY IMPR.PIPE W.	-	01/01/38	WATER PIPE INSIDE CITY	1938	3,763	1,135	4,898	3,763	4,898	-
445	UTILITY IMPR.PIPE W.	-	01/01/38	WATER PIPE INSIDE CITY	1938	12,053	3,636	15,689	12,053	15,689	-
445	UTILITY IMPR.PIPE W.	-	01/01/38	WATER PIPE INSIDE CITY	1938	7,896	2,382	10,278	7,896	10,278	-
445	UTILITY IMPR.PIPE W.	-	01/01/38	WATER PIPE INSIDE CITY	1938	4,223	1,274	5,497	4,223	5,497	-
445	UTILITY IMPR.PIPE W.	-	01/01/38	WATER PIPE INSIDE CITY	1938	2,911	878	3,789	2,911	3,789	-
445	UTILITY IMPR.PIPE W.	-	01/01/39	SERVICES IN CITY	1939	201	57	258	201	258	-
445	UTILITY IMPR.PIPE W.	-	01/01/39	SERVICES IN CITY	1939	33	9	43	33	43	-
445	UTILITY IMPR.PIPE W.	-	01/01/39	SERVICES IN CITY	1939	982	278	1,260	982	1,260	-
445	UTILITY IMPR.PIPE W.	-	01/01/39	SERVICES IN CITY	1939	150	42	192	150	192	-
445	UTILITY IMPR.PIPE W.	-	01/01/39	SERVICES IN CITY	1939	389	110	500	389	500	-
445	UTILITY IMPR.PIPE W.	-	01/01/39	WATER PIPE INSIDE CITY	1939	2,769	784	3,554	2,769	3,554	-
445	UTILITY IMPR.PIPE W.	-	01/01/39	WATER PIPE INSIDE CITY	1939	1,720	487	2,208	1,720	2,208	-
445	UTILITY IMPR.PIPE W.	-	01/01/39	WATER PIPE INSIDE CITY	1939	10,726	3,038	13,765	10,726	13,765	-
445	UTILITY IMPR.PIPE W.	-	01/01/39	WATER PIPE INSIDE CITY	1939	1,221	346	1,567	1,221	1,567	-
445	UTILITY IMPR.PIPE W.	-	01/01/39	WATER PIPE INSIDE CITY	1939	3,201	907	4,107	3,201	4,107	-
445	UTILITY IMPR.PIPE W.	(264)	01/01/39	WATER PIPE INSIDE CITY	1939	-	-	-	264	-	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	SERVICES IN CITY	1940	8,797	2,254	11,051	8,797	11,051	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	SERVICES IN CITY	1940	435	111	546	435	546	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	SERVICES IN CITY	1940	67	17	84	67	84	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	SERVICES IN CITY	1940	2,279	584	2,863	2,279	2,863	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	SERVICES IN CITY	1940	300	77	376	300	376	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	SERVICES IN CITY	1940	890	228	1,118	890	1,118	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	SERVICES IN CITY	1940	162	42	204	162	204	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	SERVICES IN CITY	1940	296	76	372	296	372	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	SERVICES IN CITY	1940	501	128	629	501	629	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	WATER PIPE INSIDE CITY	1940	166	43	209	166	209	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	WATER PIPE INSIDE CITY	1940	125	32	156	125	156	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	WATER PIPE INSIDE CITY	1940	3,510	899	4,409	3,510	4,409	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	WATER PIPE INSIDE CITY	1940	2,305	590	2,895	2,305	2,895	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	WATER PIPE INSIDE CITY	1940	4,117	1,055	5,171	4,117	5,171	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	WATER PIPE INSIDE CITY	1940	17,085	4,377	21,461	17,085	21,461	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	WATER PIPE INSIDE CITY	1940	21,528	5,515	27,043	21,528	27,043	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	WATER PIPE INSIDE CITY	1940	3,988	1,022	5,009	3,988	5,009	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	WATER PIPE INSIDE CITY	1940	3,093	792	3,885	3,093	3,885	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	WATER PIPE INSIDE CITY	1940	6,864	1,758	8,622	6,864	8,622	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	WATER PIPE INSIDE CITY	1940	9,619	2,464	12,083	9,619	12,083	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	SERVICES IN CITY	1941	1,534	328	1,862	1,534	1,862	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	SERVICES IN CITY	1941	71	15	87	71	87	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	SERVICES IN CITY	1941	299	64	363	299	363	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	SERVICES IN CITY	1941	53	11	65	53	65	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	SERVICES IN CITY	1941	119	25	144	119	144	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE INSIDE CITY	1941	2,160	462	2,622	2,160	2,622	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE INSIDE CITY	1941	1,123	240	1,363	1,123	1,363	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE INSIDE CITY	1941	869	186	1,055	869	1,055	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE INSIDE CITY	1941	679	145	824	679	824	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE INSIDE CITY	1941	568	122	690	568	690	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE INSIDE CITY	1941	2,355	504	2,858	2,355	2,858	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE INSIDE CITY	1941	460	98	558	460	558	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE INSIDE CITY	1941	628	134	762	628	762	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE INSIDE CITY	1941	12,620	2,699	15,319	12,620	15,319	-
445	UTILITY IMPR.PIPE W.	-	01/01/42	SERVICES IN CITY	1942	2,199	497	2,696	2,199	2,696	-
445	UTILITY IMPR.PIPE W.	-	01/01/42	SERVICES IN CITY	1942	114	26	139	114	139	-
445	UTILITY IMPR.PIPE W.	-	01/01/42	SERVICES IN CITY	1942	517	117	633	517	633	-
445	UTILITY IMPR.PIPE W.	-	01/01/42	SERVICES IN CITY	1942	57	13	69	57	69	-
445	UTILITY IMPR.PIPE W.	-	01/01/42	WATER PIPE INSIDE CITY	1942	2,176	492	2,667	2,176	2,667	-
445	UTILITY IMPR.PIPE W.	-	01/01/42	WATER PIPE INSIDE CITY	1942	5,292	1,196	6,488	5,292	6,488	-
445	UTILITY IMPR.PIPE W.	-	01/01/42	WATER PIPE INSIDE CITY	1942	5,058	1,143	6,200	5,058	6,200	-
445	UTILITY IMPR.PIPE W.	-	01/01/42	WATER PIPE INSIDE CITY	1942	1,248	282	1,530	1,248	1,530	-
445	UTILITY IMPR.PIPE W.	-	01/01/43	SERVICES IN CITY	1943	3,051	590	3,640	3,051	3,640	-
445	UTILITY IMPR.PIPE W.	-	01/01/43	SERVICES IN CITY	1943	120	23	144	120	144	-
445	UTILITY IMPR.PIPE W.	-	01/01/43	SERVICES IN CITY	1943	589	114	703	589	703	-
445	UTILITY IMPR.PIPE W.	-	01/01/43	SERVICES IN CITY	1943	60	12	71	60	71	-
445	UTILITY IMPR.PIPE W.	-	01/01/43	SERVICES IN CITY	1943	200	39	239	200	239	-
445	UTILITY IMPR.PIPE W.	-	01/01/43	WATER PIPE INSIDE CITY	1943	815	158	973	815	973	-
445	UTILITY IMPR.PIPE W.	-	01/01/43	WATER PIPE INSIDE CITY	1943	5,304	1,025	6,329	5,304	6,329	-
445	UTILITY IMPR.PIPE W.	-	01/01/43	WATER PIPE INSIDE CITY	1943	2,148	415	2,563	2,148	2,563	-
445	UTILITY IMPR.PIPE W.	-	01/01/43	WATER PIPE INSIDE CITY	1943	8,874	1,715	10,589	8,874	10,589	-
445	UTILITY IMPR.PIPE W.	-	01/01/44	SERVICES IN CITY	1944	5,178	857	6,035	5,178	6,035	-
445	UTILITY IMPR.PIPE W.	-	01/01/44	SERVICES IN CITY	1944	161	27	187	161	187	-
445	UTILITY IMPR.PIPE W.	-	01/01/44	SERVICES IN CITY	1944	40	7	47	40	47	-
445	UTILITY IMPR.PIPE W.	-	01/01/44	SERVICES IN CITY	1944	926	153	1,079	926	1,079	-
445	UTILITY IMPR.PIPE W.	-	01/01/44	SERVICES IN CITY	1944	120	20	140	120	140	-
445	UTILITY IMPR.PIPE W.	-	01/01/44	SERVICES IN CITY	1944	334	55	389	334	389	-
445	UTILITY IMPR.PIPE W.	-	01/01/44	WATER PIPE INSIDE CITY	1944	805	133	938	805	938	-
445	UTILITY IMPR.PIPE W.	-	01/01/44	WATER PIPE INSIDE CITY	1944	770	127	898	770	898	-
445	UTILITY IMPR.PIPE W.	-	01/01/44	WATER PIPE INSIDE CITY	1944	1,877	311	2,188	1,877	2,188	-
445	UTILITY IMPR.PIPE W.	-	01/01/44	WATER PIPE INSIDE CITY	1944	13,834	2,289	16,123	13,834	16,123	-
445	UTILITY IMPR.PIPE W.	-	01/01/44	WATER PIPE INSIDE CITY	1944	611	101	712	611	712	-
445	UTILITY IMPR.PIPE W.	-	01/01/44	WATER PIPE INSIDE CITY	1944	5,517	913	6,430	5,517	6,430	-
445	UTILITY IMPR.PIPE W.	-	01/01/45	SERVICES IN CITY	1945	1,695	255	1,950	1,695	1,950	-
445	UTILITY IMPR.PIPE W.	-	01/01/45	SERVICES IN CITY	1945	42	6	49	42	49	-

Water Fixed Assets as of September 30,2014

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Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	-	01/01/45	SERVICES IN CITY	1945	311	47	358	311	358	-
445	UTILITY IMPR.PIPE W.	-	01/01/45	SERVICES IN CITY	1945	63	10	73	63	73	-
445	UTILITY IMPR.PIPE W.	-	01/01/45	SERVICES IN CITY	1945	141	21	162	141	162	-
445	UTILITY IMPR.PIPE W.	-	01/01/45	WATER PIPE INSIDE CITY	1945	456	69	524	456	524	-
445	UTILITY IMPR.PIPE W.	-	01/01/45	WATER PIPE INSIDE CITY	1945	130	20	149	130	149	-
445	UTILITY IMPR.PIPE W.	-	01/01/45	WATER PIPE INSIDE CITY	1945	977	147	1,123	977	1,123	-
445	UTILITY IMPR.PIPE W.	-	01/01/45	WATER PIPE INSIDE CITY	1945	3,920	590	4,510	3,920	4,510	-
445	UTILITY IMPR.PIPE W.	-	01/01/45	WATER PIPE INSIDE CITY	1945	4,041	608	4,649	4,041	4,649	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	SERVICES IN CITY	1946	7,867	1,177	9,044	7,867	9,044	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	SERVICES IN CITY	1946	281	42	323	281	323	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	SERVICES IN CITY	1946	47	7	54	47	54	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	SERVICES IN CITY	1946	1,472	220	1,693	1,472	1,693	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	SERVICES IN CITY	1946	210	31	241	210	241	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	SERVICES IN CITY	1946	623	93	716	623	716	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	SERVICES IN CITY	1946	227	34	261	227	261	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	WATER PIPE INSIDE CITY	1946	180	27	207	180	207	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	WATER PIPE INSIDE CITY	1946	1,600	239	1,839	1,600	1,839	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	WATER PIPE INSIDE CITY	1946	1,277	191	1,467	1,277	1,467	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	WATER PIPE INSIDE CITY	1946	4,505	674	5,178	4,505	5,178	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	WATER PIPE INSIDE CITY	1946	7,453	1,115	8,568	7,453	8,568	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	WATER PIPE INSIDE CITY	1946	14,496	2,168	16,664	14,496	16,664	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	SERVICES IN CITY	1947	3,569	681	4,250	3,569	4,250	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	SERVICES IN CITY	1947	112	21	133	112	133	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	SERVICES IN CITY	1947	701	134	835	701	835	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	SERVICES IN CITY	1947	83	16	99	83	99	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	SERVICES IN CITY	1947	278	53	331	278	331	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	WATER PIPE INSIDE CITY	1947	1,836	350	2,186	1,836	2,186	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	WATER PIPE INSIDE CITY	1947	551	105	656	551	656	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	WATER PIPE INSIDE CITY	1947	2,461	470	2,931	2,461	2,931	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	WATER PIPE INSIDE CITY	1947	2,867	547	3,414	2,867	3,414	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	WATER PIPE INSIDE CITY	1947	1,769	338	2,107	1,769	2,107	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	WATER PIPE INSIDE CITY	1947	5,538	1,057	6,595	5,538	6,595	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	WATER PIPE INSIDE CITY	1947	4,334	827	5,161	4,334	5,161	-
445	UTILITY IMPR.PIPE W.	-	01/01/48	SERVICES IN CITY	1948	7,556	1,781	9,338	7,556	9,338	-
445	UTILITY IMPR.PIPE W.	-	01/01/48	SERVICES IN CITY	1948	250	59	309	250	309	-
445	UTILITY IMPR.PIPE W.	-	01/01/48	SERVICES IN CITY	1948	62	15	77	62	77	-
445	UTILITY IMPR.PIPE W.	-	01/01/48	SERVICES IN CITY	1948	1,440	339	1,779	1,440	1,779	-
445	UTILITY IMPR.PIPE W.	-	01/01/48	SERVICES IN CITY	1948	186	44	230	186	230	-
445	UTILITY IMPR.PIPE W.	-	01/01/48	SERVICES IN CITY	1948	519	122	641	519	641	-
445	UTILITY IMPR.PIPE W.	-	01/01/48	WATER PIPE INSIDE CITY	1948	2,667	629	3,296	2,667	3,296	-
445	UTILITY IMPR.PIPE W.	-	01/01/48	WATER PIPE INSIDE CITY	1948	4,834	1,139	5,973	4,834	5,973	-
445	UTILITY IMPR.PIPE W.	-	01/01/48	WATER PIPE INSIDE CITY	1948	2,043	482	2,525	2,043	2,525	-
445	UTILITY IMPR.PIPE W.	-	01/01/48	WATER PIPE INSIDE CITY	1948	6,195	1,460	7,655	6,195	7,655	-
445	UTILITY IMPR.PIPE W.	-	01/01/48	WATER PIPE INSIDE CITY	1948	7,711	1,818	9,529	7,711	9,529	-
445	UTILITY IMPR.PIPE W.	-	01/01/48	WATER PIPE INSIDE CITY	1948	4,279	1,009	5,288	4,279	5,288	-
445	UTILITY IMPR.PIPE W.	-	01/01/48	WATER PIPE INSIDE CITY	1948	6,734	1,587	8,321	6,734	8,321	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	SERVICES IN CITY	1949	5,886	1,266	7,152	5,886	7,152	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	SERVICES IN CITY	1949	323	70	393	323	393	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	SERVICES IN CITY	1949	65	14	79	65	79	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	SERVICES IN CITY	1949	1,695	365	2,059	1,695	2,059	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	SERVICES IN CITY	1949	193	42	235	193	235	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	SERVICES IN CITY	1949	645	139	784	645	784	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	WATER PIPE INSIDE CITY	1949	245	53	297	245	297	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	WATER PIPE INSIDE CITY	1949	2,808	604	3,412	2,808	3,412	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	WATER PIPE INSIDE CITY	1949	1,612	347	1,959	1,612	1,959	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	WATER PIPE INSIDE CITY	1949	1,934	416	2,350	1,934	2,350	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	WATER PIPE INSIDE CITY	1949	2,347	505	2,851	2,347	2,851	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	WATER PIPE INSIDE CITY	1949	3,572	768	4,340	3,572	4,340	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	WATER PIPE INSIDE CITY	1949	8,977	1,931	10,908	8,977	10,908	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	WATER PIPE INSIDE CITY	1949	19,139	4,117	23,256	19,139	23,256	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	SERVICES IN CITY	1950	19,471	3,735	23,205	19,471	23,205	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	SERVICES IN CITY	1950	736	141	877	736	877	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	SERVICES IN CITY	1950	134	26	159	134	159	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	SERVICES IN CITY	1950	3,716	713	4,429	3,716	4,429	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	SERVICES IN CITY	1950	499	96	595	499	595	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	SERVICES IN CITY	1950	1,446	277	1,723	1,446	1,723	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	SERVICES IN CITY	1950	325	62	387	325	387	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	SERVICES IN CITY	1950	593	114	707	593	707	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	SERVICES IN CITY	1950	8,010	1,536	9,546	8,010	9,546	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	WATER PIPE INSIDE CITY	1950	465	89	554	465	554	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	WATER PIPE INSIDE CITY	1950	8,038	1,542	9,580	8,038	9,580	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	WATER PIPE INSIDE CITY	1950	28,127	5,395	33,522	28,127	33,522	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	WATER PIPE INSIDE CITY	1950	8,068	1,547	9,615	8,068	9,615	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	WATER PIPE INSIDE CITY	1950	20,690	3,969	24,659	20,690	24,659	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	WATER PIPE INSIDE CITY	1950	2,288	439	2,727	2,288	2,727	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	WATER PIPE INSIDE CITY	1950	3,322	637	3,959	3,322	3,959	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	WATER PIPE INSIDE CITY	1950	11,961	2,294	14,255	11,961	14,255	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	WATER PIPE INSIDE CITY	1950	6,961	1,335	8,296	6,961	8,296	-
445	UTILITY IMPR.PIPE W.	-	01/01/51	SERVICES IN CITY	1951	7,280	1,422	8,702	7,280	8,702	-
445	UTILITY IMPR.PIPE W.	-	01/01/51	SERVICES IN CITY	1951	285	56	341	285	341	-
445	UTILITY IMPR.PIPE W.	-	01/01/51	SERVICES IN CITY	1951	71	14	85	71	85	-
445	UTILITY IMPR.PIPE W.	-	01/01/51	SERVICES IN CITY	1951	1,346	263	1,609	1,346	1,609	-

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	-	01/01/51	SERVICES IN CITY	1951	213	42	255	213	255	-
445	UTILITY IMPR.PIPE W.	-	01/01/51	SERVICES IN CITY	1951	593	116	709	593	709	-
445	UTILITY IMPR.PIPE W.	-	01/01/51	WATER PIPE INSIDE CITY	1951	2,236	437	2,673	2,236	2,673	-
445	UTILITY IMPR.PIPE W.	-	01/01/51	WATER PIPE INSIDE CITY	1951	5,912	1,155	7,067	5,912	7,067	-
445	UTILITY IMPR.PIPE W.	-	01/01/51	WATER PIPE INSIDE CITY	1951	1,937	379	2,316	1,937	2,316	-
445	UTILITY IMPR.PIPE W.	-	01/01/51	WATER PIPE INSIDE CITY	1951	10,650	2,081	12,731	10,650	12,731	-
445	UTILITY IMPR.PIPE W.	-	01/01/51	WATER PIPE INSIDE CITY	1951	4,213	823	5,036	4,213	5,036	-
445	UTILITY IMPR.PIPE W.	-	01/01/51	WATER PIPE INSIDE CITY	1951	10,884	2,127	13,011	10,884	13,011	-
445	UTILITY IMPR.PIPE W.	-	01/01/51	WATER PIPE INSIDE CITY	1951	10,430	2,038	12,468	10,430	12,468	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	SERVICES IN CITY	1952	26,864	5,893	32,757	26,864	32,757	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	SERVICES IN CITY	1952	957	210	1,167	957	1,167	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	SERVICES IN CITY	1952	147	32	179	147	179	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	SERVICES IN CITY	1952	5,091	1,117	6,207	5,091	6,207	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	SERVICES IN CITY	1952	659	145	803	659	803	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	SERVICES IN CITY	1952	2,080	456	2,536	2,080	2,536	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	SERVICES IN CITY	1952	357	78	435	357	435	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	SERVICES IN CITY	1952	652	143	795	652	795	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	SERVICES IN CITY	1952	1,101	242	1,343	1,101	1,343	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	WATER PIPE INSIDE CITY	1952	815	179	993	815	993	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	WATER PIPE INSIDE CITY	1952	8,362	1,834	10,196	8,362	10,196	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	WATER PIPE INSIDE CITY	1952	1,893	415	2,308	1,893	2,308	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	WATER PIPE INSIDE CITY	1952	2,473	542	3,015	2,473	3,015	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	WATER PIPE INSIDE CITY	1952	21,395	4,694	26,088	21,395	26,088	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	WATER PIPE INSIDE CITY	1952	23,529	5,162	28,691	23,529	28,691	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	WATER PIPE INSIDE CITY	1952	6,876	1,508	8,385	6,876	8,385	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	WATER PIPE INSIDE CITY	1952	25,996	5,703	31,698	25,996	31,698	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	WATER PIPE INSIDE CITY	1952	1,242	272	1,514	1,242	1,514	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	WATER PIPE INSIDE CITY	1952	57,481	12,610	70,091	57,481	70,091	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	SERVICES IN CITY	1953	44,320	12,118	56,438	44,320	56,438	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	SERVICES IN CITY	1953	1,606	439	2,045	1,606	2,045	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	SERVICES IN CITY	1953	241	66	307	241	307	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	SERVICES IN CITY	1953	1,198	328	1,526	1,198	1,526	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	SERVICES IN CITY	1953	3,337	912	4,249	3,337	4,249	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	SERVICES IN CITY	1953	779	213	992	779	992	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	SERVICES IN CITY	1953	712	195	906	712	906	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	SERVICES IN CITY	1953	1,201	329	1,530	1,201	1,530	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE INSIDE CITY	1953	1,090	298	1,389	1,090	1,389	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE INSIDE CITY	1953	8,653	2,366	11,018	8,653	11,018	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE INSIDE CITY	1953	45,647	12,481	58,127	45,647	58,127	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE INSIDE CITY	1953	470	129	599	470	599	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE INSIDE CITY	1953	25,979	7,103	33,082	25,979	33,082	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE INSIDE CITY	1953	29,365	8,029	37,393	29,365	37,393	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE INSIDE CITY	1953	20,550	5,619	26,169	20,550	26,169	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE INSIDE CITY	1953	14,661	4,009	18,670	14,661	18,670	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE INSIDE CITY	1953	7,290	1,993	9,283	7,290	9,283	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE INSIDE CITY	1953	45,227	12,366	57,593	45,227	57,593	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE INSIDE CITY	1953	13,525	3,698	17,223	13,525	17,223	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	SERVICES IN CITY	1954	32,629	7,790	40,419	32,629	40,419	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	SERVICES IN CITY	1954	1,187	283	1,470	1,187	1,470	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	SERVICES IN CITY	1954	170	40	210	170	210	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	SERVICES IN CITY	1954	885	211	1,097	885	1,097	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	SERVICES IN CITY	1954	2,395	572	2,967	2,395	2,967	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	SERVICES IN CITY	1954	411	98	509	411	509	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	SERVICES IN CITY	1954	751	179	930	751	930	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	SERVICES IN CITY	1954	1,268	303	1,571	1,268	1,571	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	WATER PIPE INSIDE CITY	1954	257	61	319	257	319	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	WATER PIPE INSIDE CITY	1954	2,630	628	3,258	2,630	3,258	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	WATER PIPE INSIDE CITY	1954	7,775	1,856	9,631	7,775	9,631	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	WATER PIPE INSIDE CITY	1954	4,526	1,081	5,606	4,526	5,606	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	WATER PIPE INSIDE CITY	1954	65,076	15,537	80,612	65,076	80,612	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	WATER PIPE INSIDE CITY	1954	44,090	10,526	54,616	44,090	54,616	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	WATER PIPE INSIDE CITY	1954	5,372	1,283	6,655	5,372	6,655	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	WATER PIPE INSIDE CITY	1954	6,158	1,470	7,628	6,158	7,628	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	SERVICES IN CITY	1955	51,296	12,721	64,017	51,296	64,017	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	SERVICES IN CITY	1955	1,963	487	2,449	1,963	2,449	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	SERVICES IN CITY	1955	268	66	334	268	334	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	SERVICES IN CITY	1955	1,331	330	1,661	1,331	1,661	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	SERVICES IN CITY	1955	4,004	993	4,997	4,004	4,997	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	SERVICES IN CITY	1955	866	215	1,081	866	1,081	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	SERVICES IN CITY	1955	1,581	392	1,973	1,581	1,973	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	SERVICES IN CITY	1955	1,335	331	1,666	1,335	1,666	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	SERVICES IN CITY	1955	1,385	344	1,729	1,385	1,729	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE INSIDE CITY	1955	4,497	1,115	5,612	4,497	5,612	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE INSIDE CITY	1955	12,010	2,978	14,988	12,010	14,988	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE INSIDE CITY	1955	2,137	530	2,667	2,137	2,667	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE INSIDE CITY	1955	6,244	1,549	7,793	6,244	7,793	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE INSIDE CITY	1955	104,377	25,885	130,262	104,377	130,262	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE INSIDE CITY	1955	27,284	6,767	34,051	27,284	34,051	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE INSIDE CITY	1955	23,571	5,846	29,416	23,571	29,416	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE INSIDE CITY	1955	5,575	1,383	6,958	5,575	6,958	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE INSIDE CITY	1955	4,992	1,238	6,230	4,992	6,230	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE INSIDE CITY	1955	5,792	1,436	7,228	5,792	7,228	-

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE INSIDE CITY	1955	16,632	4,125	20,757	16,632	20,757	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE INSIDE CITY	1955	5,730	1,421	7,151	5,730	7,151	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	SERVICES IN CITY	1956	43,276	11,971	55,246	43,276	55,246	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	SERVICES IN CITY	1956	1,592	440	2,033	1,592	2,033	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	SERVICES IN CITY	1956	281	78	359	281	359	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	SERVICES IN CITY	1956	1,118	309	1,427	1,118	1,427	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	SERVICES IN CITY	1956	3,270	904	4,174	3,270	4,174	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	SERVICES IN CITY	1956	455	126	580	455	580	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	SERVICES IN CITY	1956	830	230	1,060	830	1,060	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	SERVICES IN CITY	1956	1,402	388	1,789	1,402	1,789	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	SERVICES IN CITY	1956	1,455	402	1,857	1,455	1,857	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE INSIDE CITY	1956	1,225	339	1,564	1,225	1,564	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE INSIDE CITY	1956	858	237	1,095	858	1,095	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE INSIDE CITY	1956	882	244	1,126	882	1,126	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE INSIDE CITY	1956	5,683	1,572	7,255	5,683	7,255	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE INSIDE CITY	1956	3,136	867	4,003	3,136	4,003	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE INSIDE CITY	1956	71,089	19,664	90,754	71,089	90,754	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE INSIDE CITY	1956	24,280	6,716	30,996	24,280	30,996	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE INSIDE CITY	1956	33,645	9,307	42,952	33,645	42,952	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE INSIDE CITY	1956	12,804	3,542	16,345	12,804	16,345	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE INSIDE CITY	1956	9,691	2,681	12,372	9,691	12,372	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE INSIDE CITY	1956	24,990	6,913	31,903	24,990	31,903	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	SERVICES IN CITY	1957	40,144	13,200	53,344	40,144	53,344	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	SERVICES IN CITY	1957	1,505	495	2,000	1,505	2,000	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	SERVICES IN CITY	1957	201	66	267	201	267	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	SERVICES IN CITY	1957	1,048	345	1,393	1,048	1,393	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	SERVICES IN CITY	1957	3,003	987	3,990	3,003	3,990	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	SERVICES IN CITY	1957	487	160	647	487	647	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	SERVICES IN CITY	1957	889	292	1,182	889	1,182	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	SERVICES IN CITY	1957	1,502	494	1,996	1,502	1,996	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	SERVICES IN CITY	1957	1,558	512	2,071	1,558	2,071	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	WATER PIPE INSIDE CITY	1957	19,121	6,287	25,408	19,121	25,408	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	WATER PIPE INSIDE CITY	1957	79,159	26,028	105,187	79,159	105,187	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	WATER PIPE INSIDE CITY	1957	16,602	5,459	22,061	16,602	22,061	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	WATER PIPE INSIDE CITY	1957	35,069	11,531	46,600	35,069	46,600	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	WATER PIPE INSIDE CITY	1957	3,955	1,300	5,255	3,955	5,255	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	WATER PIPE INSIDE CITY	1957	12,848	4,224	17,072	12,848	17,072	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	WATER PIPE INSIDE CITY	1957	8,194	2,694	10,888	8,194	10,888	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	SERVICES IN CITY	1958	37,360	11,809	49,170	37,360	49,170	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	SERVICES IN CITY	1958	1,392	440	1,832	1,392	1,832	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	SERVICES IN CITY	1958	214	68	282	214	282	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	SERVICES IN CITY	1958	958	303	1,261	958	1,261	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	SERVICES IN CITY	1958	2,847	900	3,747	2,847	3,747	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	SERVICES IN CITY	1958	519	164	684	519	684	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	SERVICES IN CITY	1958	949	300	1,249	949	1,249	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	SERVICES IN CITY	1958	1,602	506	2,108	1,602	2,108	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	SERVICES IN CITY	1958	1,662	525	2,188	1,662	2,188	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	WATER PIPE INSIDE CITY	1958	1,762	557	2,319	1,762	2,319	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	WATER PIPE INSIDE CITY	1958	1,695	536	2,230	1,695	2,230	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	WATER PIPE INSIDE CITY	1958	11,696	3,697	15,393	11,696	15,393	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	WATER PIPE INSIDE CITY	1958	73,788	23,324	97,112	73,788	97,112	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	WATER PIPE INSIDE CITY	1958	28,137	8,894	37,031	28,137	37,031	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	WATER PIPE INSIDE CITY	1958	3,192	1,009	4,201	3,192	4,201	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	WATER PIPE INSIDE CITY	1958	16,881	5,336	22,217	16,881	22,217	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	WATER PIPE INSIDE CITY	1958	15,445	4,882	20,327	15,445	20,327	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	WATER PIPE INSIDE CITY	1958	19,078	6,030	25,108	19,078	25,108	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	SERVICES IN CITY	1959	35,487	12,638	48,125	35,487	48,125	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	SERVICES IN CITY	1959	1,251	446	1,697	1,251	1,697	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	SERVICES IN CITY	1959	227	81	308	227	308	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	SERVICES IN CITY	1959	849	302	1,151	849	1,151	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	SERVICES IN CITY	1959	2,647	943	3,590	2,647	3,590	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	SERVICES IN CITY	1959	552	197	749	552	749	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	SERVICES IN CITY	1959	1,008	359	1,367	1,008	1,367	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	SERVICES IN CITY	1959	1,702	606	2,308	1,702	2,308	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	SERVICES IN CITY	1959	1,766	629	2,395	1,766	2,395	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE INSIDE CITY	1959	2,009	716	2,725	2,009	2,725	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE INSIDE CITY	1959	759	270	1,029	759	1,029	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE INSIDE CITY	1959	48,240	17,180	65,420	48,240	65,420	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE INSIDE CITY	1959	35,659	12,699	48,358	35,659	48,358	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE INSIDE CITY	1959	14,583	5,194	19,777	14,583	19,777	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE INSIDE CITY	1959	45,030	16,037	61,066	45,030	61,066	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE INSIDE CITY	1959	12,978	4,622	17,600	12,978	17,600	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE INSIDE CITY	1959	36,376	12,955	49,330	36,376	49,330	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE INSIDE CITY	1959	11,376	4,052	15,428	11,376	15,428	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE INSIDE CITY	1959	15,444	5,500	20,943	15,444	20,943	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	SERVICES IN CITY	1960	70,211	24,675	94,886	70,211	94,886	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	SERVICES IN CITY	1960	2,409	846	3,255	2,409	3,255	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	SERVICES IN CITY	1960	361	127	488	361	488	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	SERVICES IN CITY	1960	1,797	632	2,429	1,797	2,429	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	SERVICES IN CITY	1960	5,005	1,759	6,764	5,005	6,764	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	SERVICES IN CITY	1960	1,169	411	1,580	1,169	1,580	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	SERVICES IN CITY	1960	1,067	375	1,442	1,067	1,442	-

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	-	01/01/60	SERVICES IN CITY	1960	1,802	633	2,436	1,802	2,436	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	SERVICES IN CITY	1960	1,870	657	2,527	1,870	2,527	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	13,728	4,825	18,553	13,728	18,553	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	409	144	553	409	553	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	1,612	566	2,178	1,612	2,178	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	4,136	1,453	5,589	4,136	5,589	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	3,283	1,154	4,437	3,283	4,437	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	3,721	1,308	5,029	3,721	5,029	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	101,961	35,833	137,794	101,961	137,794	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	29,945	10,524	40,468	29,945	40,468	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	25,529	8,972	34,500	25,529	34,500	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	3,620	1,272	4,892	3,620	4,892	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	17,168	6,033	23,201	17,168	23,201	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	1,032	363	1,395	1,032	1,395	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	1,209	425	1,634	1,209	1,634	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	84,434	29,674	114,108	84,434	114,108	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	9,422	3,311	12,733	9,422	12,733	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE INSIDE CITY	1960	37,623	13,222	50,846	37,623	50,846	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	SERVICES IN CITY	1961	53,078	18,356	71,434	53,078	71,434	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	SERVICES IN CITY	1961	1,998	691	2,689	1,998	2,689	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	SERVICES IN CITY	1961	250	86	336	250	336	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	SERVICES IN CITY	1961	1,305	451	1,756	1,305	1,756	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	SERVICES IN CITY	1961	3,944	1,364	5,308	3,944	5,308	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	SERVICES IN CITY	1961	606	210	816	606	816	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	SERVICES IN CITY	1961	1,107	383	1,490	1,107	1,490	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	SERVICES IN CITY	1961	1,869	646	2,515	1,869	2,515	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	SERVICES IN CITY	1961	1,939	671	2,610	1,939	2,610	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE INSIDE CITY	1961	2,799	968	3,767	2,799	3,767	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE INSIDE CITY	1961	572	198	770	572	770	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE INSIDE CITY	1961	4,282	1,481	5,763	4,282	5,763	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE INSIDE CITY	1961	3,371	1,166	4,537	3,371	4,537	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE INSIDE CITY	1961	93,870	32,463	126,332	93,870	126,332	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE INSIDE CITY	1961	31,936	11,044	42,980	31,936	42,980	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE INSIDE CITY	1961	43,632	15,089	58,721	43,632	58,721	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE INSIDE CITY	1961	7,825	2,706	10,531	7,825	10,531	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE INSIDE CITY	1961	7,987	2,762	10,749	7,987	10,749	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE INSIDE CITY	1961	4,644	1,606	6,249	4,644	6,249	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE INSIDE CITY	1961	31,801	10,998	42,799	31,801	42,799	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	SERVICES IN CITY	1962	57,458	18,115	75,573	57,458	75,573	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	SERVICES IN CITY	1962	2,161	681	2,842	2,161	2,842	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	SERVICES IN CITY	1962	381	120	502	381	502	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	SERVICES IN CITY	1962	1,518	478	1,996	1,518	1,996	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	SERVICES IN CITY	1962	4,438	1,399	5,837	4,438	5,837	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	SERVICES IN CITY	1962	617	194	811	617	811	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	SERVICES IN CITY	1962	1,127	355	1,482	1,127	1,482	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE INSIDE CITY	1962	2,809	885	3,694	2,809	3,694	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE INSIDE CITY	1962	3,889	1,226	5,115	3,889	5,115	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE INSIDE CITY	1962	885	279	1,163	885	1,163	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE INSIDE CITY	1962	1,125	355	1,480	1,125	1,480	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE INSIDE CITY	1962	4,236	1,336	5,572	4,236	5,572	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE INSIDE CITY	1962	8,296	2,615	10,911	8,296	10,911	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE INSIDE CITY	1962	108,507	34,209	142,716	108,507	142,716	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE INSIDE CITY	1962	3,111	981	4,092	3,111	4,092	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE INSIDE CITY	1962	38,513	12,142	50,655	38,513	50,655	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE INSIDE CITY	1962	10,322	3,254	13,576	10,322	13,576	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE INSIDE CITY	1962	3,355	1,058	4,413	3,355	4,413	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE INSIDE CITY	1962	69,596	21,941	91,537	69,596	91,537	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE INSIDE CITY	1962	21,487	6,774	28,261	21,487	28,261	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE INSIDE CITY	1962	18,890	5,955	24,846	18,890	24,846	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	SERVICES IN CITY	1963	30,785	9,748	40,533	30,785	40,533	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	SERVICES IN CITY	1963	1,164	369	1,533	1,164	1,533	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	SERVICES IN CITY	1963	129	41	170	129	170	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	SERVICES IN CITY	1963	772	244	1,017	772	1,017	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	SERVICES IN CITY	1963	2,365	749	3,114	2,365	3,114	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	SERVICES IN CITY	1963	628	199	826	628	826	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	SERVICES IN CITY	1963	1,146	363	1,509	1,146	1,509	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	WATER PIPE INSIDE CITY	1963	334	106	439	334	439	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	WATER PIPE INSIDE CITY	1963	1,143	362	1,505	1,143	1,505	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	WATER PIPE INSIDE CITY	1963	2,581	817	3,398	2,581	3,398	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	WATER PIPE INSIDE CITY	1963	73,235	23,189	96,424	73,235	96,424	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	WATER PIPE INSIDE CITY	1963	12,545	3,972	16,518	12,545	16,518	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	WATER PIPE INSIDE CITY	1963	10,995	3,481	14,477	10,995	14,477	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	WATER PIPE INSIDE CITY	1963	9,962	3,154	13,116	9,962	13,116	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	SERVICES IN CITY	1964	28,769	9,217	37,986	28,769	37,986	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	SERVICES IN CITY	1964	1,070	343	1,413	1,070	1,413	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	SERVICES IN CITY	1964	134	43	177	134	177	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	SERVICES IN CITY	1964	799	256	1,055	799	1,055	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	SERVICES IN CITY	1964	2,224	713	2,937	2,224	2,937	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	SERVICES IN CITY	1964	649	208	857	649	857	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	SERVICES IN CITY	1964	2,372	760	3,132	2,372	3,132	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	WATER PIPE INSIDE CITY	1964	1,064	341	1,405	1,064	1,405	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	WATER PIPE INSIDE CITY	1964	3,193	1,023	4,215	3,193	4,215	-

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	-	01/01/64	WATER PIPE INSIDE CITY	1964	7,013	2,247	9,260	7,013	9,260	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	WATER PIPE INSIDE CITY	1964	52,555	16,837	69,392	52,555	69,392	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	WATER PIPE INSIDE CITY	1964	36,903	11,822	48,725	36,903	48,725	-
445	UTILITY IMPR.PIPE W.	(626)	01/01/64	WATER PIPE INSIDE CITY	1964	-	-	-	626	-	-
445	UTILITY IMPR.PIPE W.	249	01/01/65	SERVICES IN CITY	1965	37,333	12,197	49,530	37,084	49,199	331
445	UTILITY IMPR.PIPE W.	10	01/01/65	SERVICES IN CITY	1965	1,383	452	1,834	1,373	1,822	13
445	UTILITY IMPR.PIPE W.	2	01/01/65	SERVICES IN CITY	1965	277	90	367	275	364	3
445	UTILITY IMPR.PIPE W.	7	01/01/65	SERVICES IN CITY	1965	1,032	337	1,369	1,025	1,359	9
445	UTILITY IMPR.PIPE W.	15	01/01/65	SERVICES IN CITY	1965	2,299	751	3,049	2,283	3,029	20
445	UTILITY IMPR.PIPE W.	4	01/01/65	SERVICES IN CITY	1965	671	219	890	667	884	6
445	UTILITY IMPR.PIPE W.	17	01/01/65	SERVICES IN CITY	1965	2,451	801	3,252	2,434	3,229	22
445	UTILITY IMPR.PIPE W.	5	01/01/65	WATER PIPE INSIDE CITY	1965	705	230	935	700	929	6
445	UTILITY IMPR.PIPE W.	10	01/01/65	WATER PIPE INSIDE CITY	1965	1,523	498	2,020	1,512	2,007	14
445	UTILITY IMPR.PIPE W.	4	01/01/65	WATER PIPE INSIDE CITY	1965	626	205	831	622	825	6
445	UTILITY IMPR.PIPE W.	8	01/01/65	WATER PIPE INSIDE CITY	1965	1,189	389	1,578	1,181	1,567	11
445	UTILITY IMPR.PIPE W.	526	01/01/65	WATER PIPE INSIDE CITY	1965	78,832	25,755	104,588	78,307	103,890	698
445	UTILITY IMPR.PIPE W.	195	01/01/65	WATER PIPE INSIDE CITY	1965	29,266	9,561	38,827	29,070	38,568	259
445	UTILITY IMPR.PIPE W.	63	01/01/65	WATER PIPE INSIDE CITY	1965	9,440	3,084	12,523	9,377	12,440	84
445	UTILITY IMPR.PIPE W.	8	01/01/65	WATER PIPE INSIDE CITY	1965	1,099	359	1,458	1,091	1,448	10
445	UTILITY IMPR.PIPE W.	46	01/01/65	WATER PIPE INSIDE CITY	1965	6,890	2,251	9,141	6,844	9,080	61
445	UTILITY IMPR.PIPE W.	194	01/01/65	WATER PIPE INSIDE CITY	1965	29,018	9,481	38,499	28,824	38,242	257
445	UTILITY IMPR.PIPE W.	963	01/01/66	SERVICES IN CITY	1966	36,095	13,765	49,860	35,133	48,531	1,330
445	UTILITY IMPR.PIPE W.	35	01/01/66	SERVICES IN CITY	1966	1,305	498	1,802	1,270	1,754	48
445	UTILITY IMPR.PIPE W.	4	01/01/66	SERVICES IN CITY	1966	145	55	200	141	194	6
445	UTILITY IMPR.PIPE W.	23	01/01/66	SERVICES IN CITY	1966	865	330	1,195	842	1,163	32
445	UTILITY IMPR.PIPE W.	71	01/01/66	SERVICES IN CITY	1966	2,651	1,011	3,662	2,580	3,564	98
445	UTILITY IMPR.PIPE W.	19	01/01/66	SERVICES IN CITY	1966	703	268	972	684	945	27
445	UTILITY IMPR.PIPE W.	69	01/01/66	SERVICES IN CITY	1966	2,570	980	3,549	2,501	3,455	95
445	UTILITY IMPR.PIPE W.	38	01/01/66	WATER PIPE INSIDE CITY	1966	1,395	532	1,927	1,357	1,875	52
445	UTILITY IMPR.PIPE W.	101	01/01/66	WATER PIPE INSIDE CITY	1966	3,793	1,447	5,240	3,692	5,100	140
445	UTILITY IMPR.PIPE W.	1,563	01/01/66	WATER PIPE INSIDE CITY	1966	58,615	22,354	80,968	57,051	78,809	2,159
445	UTILITY IMPR.PIPE W.	1,050	01/01/66	WATER PIPE INSIDE CITY	1966	39,371	15,015	54,386	38,321	52,935	1,451
445	UTILITY IMPR.PIPE W.	134	01/01/66	WATER PIPE INSIDE CITY	1966	5,033	1,919	6,952	4,898	6,766	185
445	UTILITY IMPR.PIPE W.	506	01/01/66	WATER PIPE INSIDE CITY	1966	18,986	7,241	26,227	18,480	25,527	699
445	UTILITY IMPR.PIPE W.	1,257	01/01/67	SERVICES IN CITY	1967	26,929	10,610	37,539	25,672	35,787	1,752
445	UTILITY IMPR.PIPE W.	43	01/01/67	SERVICES IN CITY	1967	923	364	1,287	880	1,227	60
445	UTILITY IMPR.PIPE W.	7	01/01/67	SERVICES IN CITY	1967	154	61	215	146	204	10
445	UTILITY IMPR.PIPE W.	32	01/01/67	SERVICES IN CITY	1967	689	271	960	656	915	45
445	UTILITY IMPR.PIPE W.	96	01/01/67	SERVICES IN CITY	1967	2,046	806	2,853	1,951	2,719	134
445	UTILITY IMPR.PIPE W.	35	01/01/67	SERVICES IN CITY	1967	747	294	1,041	712	992	49
445	UTILITY IMPR.PIPE W.	305	01/01/67	WATER PIPE INSIDE CITY	1967	6,531	2,573	9,105	6,226	8,680	425
445	UTILITY IMPR.PIPE W.	1,175	01/01/67	WATER PIPE INSIDE CITY	1967	25,166	9,916	35,082	23,992	33,444	1,638
445	UTILITY IMPR.PIPE W.	725	01/01/67	WATER PIPE INSIDE CITY	1967	15,523	6,116	21,639	14,798	20,629	1,010
445	UTILITY IMPR.PIPE W.	641	01/01/67	WATER PIPE INSIDE CITY	1967	13,739	5,413	19,152	13,097	18,258	894
445	UTILITY IMPR.PIPE W.	444	01/01/67	WATER PIPE INSIDE CITY	1967	9,519	3,750	13,269	9,075	12,650	619
445	UTILITY IMPR.PIPE W.	181	01/01/67	WATER PIPE INSIDE CITY	1967	3,885	1,531	5,416	3,704	5,163	253
445	UTILITY IMPR.PIPE W.	2,038	01/01/67	WATER PIPE INSIDE CITY	1967	43,680	17,210	60,890	41,642	58,048	2,842
445	UTILITY IMPR.PIPE W.	600	01/01/67	WATER PIPE INSIDE CITY	1967	12,848	5,062	17,910	12,248	17,074	836
445	UTILITY IMPR.PIPE W.	1,629	01/01/68	SERVICES IN CITY	1968	24,426	10,845	35,271	22,797	32,919	2,352
445	UTILITY IMPR.PIPE W.	55	01/01/68	SERVICES IN CITY	1968	825	366	1,192	770	1,112	80
445	UTILITY IMPR.PIPE W.	11	01/01/68	SERVICES IN CITY	1968	165	73	238	154	222	16
445	UTILITY IMPR.PIPE W.	50	01/01/68	SERVICES IN CITY	1968	739	328	1,067	689	995	72
445	UTILITY IMPR.PIPE W.	128	01/01/68	SERVICES IN CITY	1968	1,920	853	2,773	1,792	2,588	185
445	UTILITY IMPR.PIPE W.	53	01/01/68	WATER PIPE INSIDE CITY	1968	790	351	1,140	737	1,064	76
445	UTILITY IMPR.PIPE W.	221	01/01/68	WATER PIPE INSIDE CITY	1968	3,318	1,473	4,791	3,097	4,472	319
445	UTILITY IMPR.PIPE W.	4,301	01/01/68	WATER PIPE INSIDE CITY	1968	64,516	28,644	93,160	60,215	86,949	6,211
445	UTILITY IMPR.PIPE W.	95	01/01/68	WATER PIPE INSIDE CITY	1968	1,423	632	2,055	1,328	1,917	138
445	UTILITY IMPR.PIPE W.	171	01/01/68	WATER PIPE INSIDE CITY	1968	2,568	1,140	3,708	2,397	3,461	247
445	UTILITY IMPR.PIPE W.	1,311	01/01/68	WATER PIPE INSIDE CITY	1968	19,660	8,729	28,389	18,349	26,496	1,893
445	UTILITY IMPR.PIPE W.	1,030	01/01/68	WATER PIPE INSIDE CITY	1968	15,456	6,862	22,318	14,426	20,830	1,488
445	UTILITY IMPR.PIPE W.	1,638	01/01/68	WATER PIPE INSIDE CITY	1968	24,572	10,909	35,481	22,933	33,115	2,366
445	UTILITY IMPR.PIPE W.	2,397	01/01/69	SERVICES IN CITY	1969	27,660	15,820	43,480	25,262	39,711	3,768
445	UTILITY IMPR.PIPE W.	91	01/01/69	SERVICES IN CITY	1969	1,044	597	1,641	953	1,498	143
445	UTILITY IMPR.PIPE W.	15	01/01/69	SERVICES IN CITY	1969	174	99	273	158	249	24
445	UTILITY IMPR.PIPE W.	68	01/01/69	SERVICES IN CITY	1969	779	445	1,224	711	1,118	106
445	UTILITY IMPR.PIPE W.	176	01/01/69	SERVICES IN CITY	1969	2,024	1,158	3,182	1,849	2,906	276
445	UTILITY IMPR.PIPE W.	73	01/01/69	SERVICES IN CITY	1969	844	483	1,327	771	1,212	115
445	UTILITY IMPR.PIPE W.	152	01/01/69	WATER PIPE INSIDE CITY	1969	1,752	1,002	2,755	1,600	2,515	239
445	UTILITY IMPR.PIPE W.	4,748	01/01/69	WATER PIPE INSIDE CITY	1969	54,776	31,330	86,106	50,029	78,643	7,463
445	UTILITY IMPR.PIPE W.	426	01/01/69	WATER PIPE INSIDE CITY	1969	4,914	2,811	7,725	4,488	7,055	669
445	UTILITY IMPR.PIPE W.	408	01/01/69	WATER PIPE INSIDE CITY	1969	4,708	2,693	7,401	4,300	6,760	641
445	UTILITY IMPR.PIPE W.	1,520	01/01/69	WATER PIPE INSIDE CITY	1969	17,540	10,032	27,572	16,020	25,183	2,390
445	UTILITY IMPR.PIPE W.	839	01/01/69	WATER PIPE INSIDE CITY	1969	9,683	5,538	15,221	8,844	13,902	1,319
445	UTILITY IMPR.PIPE W.	1,715	01/01/69	WATER PIPE INSIDE CITY	1969	19,786	11,317	31,102	18,071	28,407	2,696
445	UTILITY IMPR.PIPE W.	4,186	01/01/70	SERVICES IN CITY	1970	39,241	24,892	64,133	35,055	57,291	6,842
445	UTILITY IMPR.PIPE W.	122	01/01/70	SERVICES IN CITY	1970	1,137	721	1,859	1,016	1,660	199
445	UTILITY IMPR.PIPE W.	20	01/01/70	SERVICES IN CITY	1970	190	120	310	169	277	33
445	UTILITY IMPR.PIPE W.	573	01/01/70	SERVICES IN CITY	1970	5,364	3,403	8,767	4,792	7,831	936
445	UTILITY IMPR.PIPE W.	91	01/01/70	SERVICES IN CITY	1970	849	538	1,387	758	1,239	148
445	UTILITY IMPR.PIPE W.	269	01/01/70	SERVICES IN CITY	1970	2,521	1,599	4,120	2,252	3,680	440
445	UTILITY IMPR.PIPE W.	196	01/01/70	SERVICES IN CITY	1970	1,840	1,167	3,007	1,643	2,686	321
445	UTILITY IMPR.PIPE W.	433	01/01/70	WATER PIPE INSIDE CITY	1970	4,052	2,570	6,622	3,619	5,915	707

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	425	01/01/70	WATER PIPE INSIDE CITY	1970	3,987	2,529	6,515	3,561	5,820	695
445	UTILITY IMPR.PIPE W.	6,113	01/01/70	WATER PIPE INSIDE CITY	1970	57,307	36,352	93,659	51,194	83,668	9,991
445	UTILITY IMPR.PIPE W.	259	01/01/70	WATER PIPE INSIDE CITY	1970	2,431	1,542	3,973	2,172	3,549	424
445	UTILITY IMPR.PIPE W.	2,106	01/01/70	WATER PIPE INSIDE CITY	1970	19,741	12,522	32,264	17,635	28,822	3,442
445	UTILITY IMPR.PIPE W.	1,500	01/01/70	WATER PIPE INSIDE CITY	1970	14,057	8,917	22,974	12,557	20,523	2,451
445	UTILITY IMPR.PIPE W.	5,612	01/01/70	WATER PIPE INSIDE CITY	1970	52,610	33,372	85,981	46,998	76,810	9,171
445	UTILITY IMPR.PIPE W.	1,358	01/01/70	WATER PIPE INSIDE CITY	1970	12,730	8,075	20,805	11,372	18,586	2,219
445	UTILITY IMPR.PIPE W.	4,400	01/01/71	SERVICES IN CITY	1971	34,738	19,026	53,764	30,338	46,954	6,810
445	UTILITY IMPR.PIPE W.	149	01/01/71	SERVICES IN CITY	1971	1,178	645	1,823	1,028	1,591	231
445	UTILITY IMPR.PIPE W.	25	01/01/71	SERVICES IN CITY	1971	196	107	304	171	265	39
445	UTILITY IMPR.PIPE W.	834	01/01/71	SERVICES IN CITY	1971	6,582	3,605	10,187	5,748	8,897	1,290
445	UTILITY IMPR.PIPE W.	111	01/01/71	SERVICES IN CITY	1971	879	481	1,360	767	1,187	172
445	UTILITY IMPR.PIPE W.	331	01/01/71	SERVICES IN CITY	1971	2,610	1,429	4,039	2,279	3,527	512
445	UTILITY IMPR.PIPE W.	242	01/01/71	SERVICES IN CITY	1971	1,905	1,043	2,948	1,663	2,574	374
445	UTILITY IMPR.PIPE W.	93	01/01/71	WATER PIPE INSIDE CITY	1971	729	399	1,128	636	985	143
445	UTILITY IMPR.PIPE W.	5,367	01/01/71	WATER PIPE INSIDE CITY	1971	42,366	23,205	65,571	37,000	57,265	8,306
445	UTILITY IMPR.PIPE W.	9,865	01/01/71	WATER PIPE INSIDE CITY	1971	77,875	42,653	120,529	68,011	105,261	15,268
445	UTILITY IMPR.PIPE W.	4,478	01/01/71	WATER PIPE INSIDE CITY	1971	35,351	19,362	54,713	30,873	47,783	6,930
445	UTILITY IMPR.PIPE W.	2,706	01/01/72	SERVICES IN CITY	1972	18,448	9,698	28,147	15,742	24,018	4,129
445	UTILITY IMPR.PIPE W.	93	01/01/72	SERVICES IN CITY	1972	629	331	960	536	818	141
445	UTILITY IMPR.PIPE W.	516	01/01/72	SERVICES IN CITY	1972	3,515	1,848	5,363	3,000	4,576	787
445	UTILITY IMPR.PIPE W.	92	01/01/72	SERVICES IN CITY	1972	626	329	955	534	814	140
445	UTILITY IMPR.PIPE W.	205	01/01/72	SERVICES IN CITY	1972	1,394	733	2,127	1,189	1,814	313
445	UTILITY IMPR.PIPE W.	41	01/01/72	WATER PIPE INSIDE CITY	1972	281	148	428	239	365	63
445	UTILITY IMPR.PIPE W.	35	01/01/72	WATER PIPE INSIDE CITY	1972	236	124	361	201	307	54
445	UTILITY IMPR.PIPE W.	1,181	01/01/72	WATER PIPE INSIDE CITY	1972	8,051	4,233	12,284	6,870	10,482	1,802
445	UTILITY IMPR.PIPE W.	312	01/01/72	WATER PIPE INSIDE CITY	1972	2,124	1,117	3,241	1,812	2,765	475
445	UTILITY IMPR.PIPE W.	5,760	01/01/72	WATER PIPE INSIDE CITY	1972	39,271	20,645	59,917	33,511	51,128	8,788
445	UTILITY IMPR.PIPE W.	398	01/01/72	WATER PIPE INSIDE CITY	1972	2,715	1,427	4,143	2,317	3,535	608
445	UTILITY IMPR.PIPE W.	6,939	01/01/72	WATER PIPE INSIDE CITY	1972	47,314	24,873	72,187	40,374	61,599	10,588
445	UTILITY IMPR.PIPE W.	1,841	01/01/72	WATER PIPE INSIDE CITY	1972	12,551	6,598	19,150	10,710	16,341	2,809
445	UTILITY IMPR.PIPE W.	2,169	01/01/72	WATER PIPE INSIDE CITY	1972	14,785	7,773	22,557	12,616	19,249	3,309
445	UTILITY IMPR.PIPE W.	8,735	01/01/73	SERVICES IN CITY	1973	52,410	27,232	79,642	43,675	66,368	13,274
445	UTILITY IMPR.PIPE W.	335	01/01/73	SERVICES IN CITY	1973	2,007	1,043	3,050	1,673	2,542	508
445	UTILITY IMPR.PIPE W.	1,675	01/01/73	SERVICES IN CITY	1973	10,051	5,222	15,273	8,375	12,727	2,546
445	UTILITY IMPR.PIPE W.	222	01/01/73	SERVICES IN CITY	1973	1,331	692	2,023	1,109	1,686	337
445	UTILITY IMPR.PIPE W.	680	01/01/73	SERVICES IN CITY	1973	4,078	2,119	6,197	3,398	5,164	1,033
445	UTILITY IMPR.PIPE W.	361	01/01/73	SERVICES IN CITY	1973	2,165	1,125	3,289	1,804	2,741	548
445	UTILITY IMPR.PIPE W.	659	01/01/73	SERVICES IN CITY	1973	3,953	2,054	6,007	3,294	5,006	1,001
445	UTILITY IMPR.PIPE W.	321	01/01/73	WATER PIPE INSIDE CITY	1973	1,926	1,001	2,927	1,605	2,439	488
445	UTILITY IMPR.PIPE W.	843	01/01/73	WATER PIPE INSIDE CITY	1973	5,061	2,630	7,691	4,218	6,409	1,282
445	UTILITY IMPR.PIPE W.	9,355	01/01/73	WATER PIPE INSIDE CITY	1973	56,130	29,165	85,295	46,775	71,079	14,216
445	UTILITY IMPR.PIPE W.	5,246	01/01/73	WATER PIPE INSIDE CITY	1973	31,477	16,355	47,832	26,230	39,860	7,972
445	UTILITY IMPR.PIPE W.	7,103	01/01/73	WATER PIPE INSIDE CITY	1973	42,614	22,143	64,757	35,512	53,964	10,793
445	UTILITY IMPR.PIPE W.	34,398	01/01/73	WATER PIPE INSIDE CITY	1973	206,388	107,240	313,628	171,990	261,357	52,271
445	UTILITY IMPR.PIPE W.	2,828	01/01/73	WATER PIPE INSIDE CITY	1973	16,964	8,815	25,779	14,137	21,482	4,297
445	UTILITY IMPR.PIPE W.	2,608	01/01/74	SERVICES IN CITY	1974	13,970	8,619	22,589	11,362	18,372	4,217
445	UTILITY IMPR.PIPE W.	48	01/01/74	SERVICES IN CITY	1974	259	160	418	210	340	78
445	UTILITY IMPR.PIPE W.	355	01/01/74	SERVICES IN CITY	1974	1,898	1,171	3,069	1,543	2,495	573
445	UTILITY IMPR.PIPE W.	72	01/01/74	SERVICES IN CITY	1974	386	238	624	314	508	117
445	UTILITY IMPR.PIPE W.	161	01/01/74	SERVICES IN CITY	1974	860	531	1,391	699	1,131	260
445	UTILITY IMPR.PIPE W.	10,208	01/01/74	WATER PIPE INSIDE CITY	1974	54,686	33,738	88,424	44,477	71,918	16,506
445	UTILITY IMPR.PIPE W.	858	01/01/74	WATER PIPE INSIDE CITY	1974	4,597	2,836	7,434	3,739	6,046	1,388
445	UTILITY IMPR.PIPE W.	32,213	01/01/74	WATER PIPE INSIDE CITY	1974	172,571	106,466	279,037	140,358	226,950	52,087
445	UTILITY IMPR.PIPE W.	873	01/01/74	WATER PIPE INSIDE CITY	1974	4,676	2,885	7,561	3,803	6,149	1,411
445	UTILITY IMPR.PIPE W.	2,898	01/01/75	SERVICES IN CITY	1975	14,024	9,898	23,922	11,125	18,978	4,944
445	UTILITY IMPR.PIPE W.	121	01/01/75	SERVICES IN CITY	1975	584	412	997	463	790	207
445	UTILITY IMPR.PIPE W.	190	01/01/75	SERVICES IN CITY	1975	919	648	1,567	729	1,243	324
445	UTILITY IMPR.PIPE W.	90	01/01/75	SERVICES IN CITY	1975	436	308	744	346	590	154
445	UTILITY IMPR.PIPE W.	201	01/01/75	SERVICES IN CITY	1975	971	686	1,657	770	1,314	343
445	UTILITY IMPR.PIPE W.	9,363	01/01/75	WATER PIPE INSIDE CITY	1975	45,301	31,974	77,275	35,938	61,304	15,971
445	UTILITY IMPR.PIPE W.	1,764	01/01/75	WATER PIPE INSIDE CITY	1975	8,533	6,023	14,556	6,769	11,547	3,009
445	UTILITY IMPR.PIPE W.	5,945	01/01/75	WATER PIPE INSIDE CITY	1975	28,764	20,302	49,066	22,819	38,926	10,140
445	UTILITY IMPR.PIPE W.	3,807	01/01/75	WATER PIPE INSIDE CITY	1975	18,421	13,002	31,423	14,614	24,929	6,494
445	UTILITY IMPR.PIPE W.	8,635	01/01/75	WATER PIPE INSIDE CITY	1975	41,780	29,489	71,269	33,145	56,540	14,729
445	UTILITY IMPR.PIPE W.	3,124	01/01/75	WATER PIPE INSIDE CITY	1975	15,114	10,668	25,782	11,990	20,453	5,328
445	UTILITY IMPR.PIPE W.	10,404	01/01/76	SERVICES IN CITY	1976	45,898	30,397	76,295	35,494	59,001	17,294
445	UTILITY IMPR.PIPE W.	354	01/01/76	SERVICES IN CITY	1976	1,561	1,034	2,595	1,207	2,007	588
445	UTILITY IMPR.PIPE W.	317	01/01/76	SERVICES IN CITY	1976	1,398	926	2,323	1,081	1,796	527
445	UTILITY IMPR.PIPE W.	823	01/01/76	SERVICES IN CITY	1976	3,633	2,406	6,039	2,810	4,670	1,369
445	UTILITY IMPR.PIPE W.	8,035	01/01/76	WATER PIPE INSIDE CITY	1976	35,446	23,475	58,921	27,412	45,566	13,356
445	UTILITY IMPR.PIPE W.	16,544	01/01/76	WATER PIPE INSIDE CITY	1976	72,986	48,336	121,323	56,442	93,823	27,500
445	UTILITY IMPR.PIPE W.	9,954	01/01/76	WATER PIPE INSIDE CITY	1976	43,915	29,084	72,999	33,961	56,452	16,547
445	UTILITY IMPR.PIPE W.	6,520	01/01/76	WATER PIPE INSIDE CITY	1976	28,764	19,050	47,814	22,244	36,976	10,838
445	UTILITY IMPR.PIPE W.	31,488	01/01/76	WATER PIPE INSIDE CITY	1976	138,916	92,000	230,916	107,428	178,574	52,341
445	UTILITY IMPR.PIPE W.	34,395	01/01/76	WATER PIPE INSIDE CITY	1976	151,743	100,495	252,238	117,348	195,064	57,174
445	UTILITY IMPR.PIPE W.	16,626	01/01/77	SERVICES IN CITY	1977	67,401	38,285	105,686	50,776	79,617	26,069
445	UTILITY IMPR.PIPE W.	643	01/01/77	SERVICES IN CITY	1977	2,605	1,480	4,085	1,962	3,077	1,008
445	UTILITY IMPR.PIPE W.	479	01/01/77	SERVICES IN CITY	1977	1,944	1,104	3,047	1,464	2,296	752
445	UTILITY IMPR.PIPE W.	1,202	01/01/77	SERVICES IN CITY	1977	4,871	2,767	7,638	3,670	5,754	1,884
445	UTILITY IMPR.PIPE W.	780	01/01/77	SERVICES IN CITY	1977	3,160	1,795	4,955	2,381	3,733	1,222
445	UTILITY IMPR.PIPE W.	1,424	01/01/77	SERVICES IN CITY	1977	5,772	3,278	9,050	4,348	6,818	2,232

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	1,821	01/01/77	WATER PIPE INSIDE CITY	1977	7,381	4,193	11,574	5,560	8,719	2,855
445	UTILITY IMPR.PIPE W.	1,341	01/01/77	WATER PIPE INSIDE CITY	1977	5,435	3,087	8,522	4,094	6,420	2,102
445	UTILITY IMPR.PIPE W.	1,132	01/01/77	WATER PIPE INSIDE CITY	1977	4,587	2,605	7,192	3,455	5,418	1,774
445	UTILITY IMPR.PIPE W.	14,852	01/01/77	WATER PIPE INSIDE CITY	1977	60,211	34,201	94,412	45,359	71,123	23,289
445	UTILITY IMPR.PIPE W.	31,782	01/01/77	WATER PIPE INSIDE CITY	1977	128,847	73,187	202,034	97,064	152,199	49,835
445	UTILITY IMPR.PIPE W.	26,655	01/01/77	WATER PIPE INSIDE CITY	1977	108,058	61,379	169,438	81,404	127,643	41,795
445	UTILITY IMPR.PIPE W.	1,347	01/01/77	WATER PIPE INSIDE CITY	1977	5,461	3,102	8,563	4,114	6,451	2,113
445	UTILITY IMPR.PIPE W.	2,615	01/01/77	WATER PIPE INSIDE CITY	1977	10,602	6,022	16,624	7,987	12,524	4,101
445	UTILITY IMPR.PIPE W.	787	01/01/77	WATER PIPE INSIDE CITY	1977	3,192	1,813	5,005	2,405	3,771	1,235
445	UTILITY IMPR.PIPE W.	984	01/01/77	WATER PIPE INSIDE CITY	1977	3,988	2,265	6,252	3,004	4,710	1,542
445	UTILITY IMPR.PIPE W.	1,140	01/01/77	WATER PIPE INSIDE CITY	1977	4,620	2,624	7,244	3,480	5,457	1,787
445	UTILITY IMPR.PIPE W.	10,769	01/01/77	WATER PIPE INSIDE CITY	1977	43,655	24,797	68,452	32,887	51,567	16,885
445	UTILITY IMPR.PIPE W.	33,253	01/01/77	WATER PIPE INSIDE CITY	1977	134,811	76,575	211,387	101,558	159,244	52,142
445	UTILITY IMPR.PIPE W.	9,010	01/01/78	SERVICES IN CITY	1978	33,788	20,360	54,147	24,777	39,708	14,439
445	UTILITY IMPR.PIPE W.	357	01/01/78	SERVICES IN CITY	1978	1,338	806	2,144	981	1,572	572
445	UTILITY IMPR.PIPE W.	267	01/01/78	SERVICES IN CITY	1978	998	602	1,600	732	1,173	427
445	UTILITY IMPR.PIPE W.	742	01/01/78	SERVICES IN CITY	1978	2,780	1,675	4,456	2,039	3,267	1,189
445	UTILITY IMPR.PIPE W.	964	01/01/78	WATER PIPE INSIDE CITY	1978	3,615	2,178	5,793	2,651	4,249	1,545
445	UTILITY IMPR.PIPE W.	8,354	01/01/78	WATER PIPE INSIDE CITY	1978	31,328	18,878	50,206	22,974	36,817	13,388
445	UTILITY IMPR.PIPE W.	22,673	01/01/78	WATER PIPE INSIDE CITY	1978	85,025	51,234	136,259	62,351	99,923	36,336
445	UTILITY IMPR.PIPE W.	60,436	01/01/78	WATER PIPE INSIDE CITY	1978	226,634	136,564	363,198	166,198	266,345	96,853
445	UTILITY IMPR.PIPE W.	8,482	01/01/78	WATER PIPE INSIDE CITY	1978	31,808	19,167	50,975	23,326	37,381	13,593
445	UTILITY IMPR.PIPE W.	20,975	01/01/78	WATER PIPE INSIDE CITY	1978	78,656	47,396	126,052	57,681	92,438	33,614
445	UTILITY IMPR.PIPE W.	3,122	01/01/78	WATER PIPE INSIDE CITY	1978	11,708	7,055	18,763	8,585	13,759	5,004
445	UTILITY IMPR.PIPE W.	1,793	01/01/79	SERVICES IN CITY	1979	6,256	4,078	10,333	4,462	7,371	2,962
445	UTILITY IMPR.PIPE W.	106	01/01/79	SERVICES IN CITY	1979	368	240	608	262	433	175
445	UTILITY IMPR.PIPE W.	332	01/01/79	SERVICES IN CITY	1979	1,157	754	1,911	825	1,363	548
445	UTILITY IMPR.PIPE W.	175	01/01/79	SERVICES IN CITY	1979	612	399	1,010	436	721	290
445	UTILITY IMPR.PIPE W.	2,627	01/01/79	WATER PIPE INSIDE CITY	1979	9,165	5,974	15,139	6,538	10,799	4,340
445	UTILITY IMPR.PIPE W.	898	01/01/79	WATER PIPE INSIDE CITY	1979	3,132	2,041	5,173	2,234	3,690	1,483
445	UTILITY IMPR.PIPE W.	7,150	01/01/79	WATER PIPE INSIDE CITY	1979	24,941	16,257	41,198	17,791	29,388	11,810
445	UTILITY IMPR.PIPE W.	6,792	01/01/79	WATER PIPE INSIDE CITY	1979	23,694	15,444	39,138	16,902	27,918	11,220
445	UTILITY IMPR.PIPE W.	10,415	01/01/80	SERVICES IN CITY	1980	33,962	29,122	63,084	23,547	43,738	19,346
445	UTILITY IMPR.PIPE W.	386	01/01/80	SERVICES IN CITY	1980	1,258	1,079	2,336	872	1,620	717
445	UTILITY IMPR.PIPE W.	1,752	01/01/80	SERVICES IN CITY	1980	5,712	4,898	10,611	3,960	7,356	3,255
445	UTILITY IMPR.PIPE W.	192	01/01/80	SERVICES IN CITY	1980	626	536	1,162	434	805	357
445	UTILITY IMPR.PIPE W.	855	01/01/80	SERVICES IN CITY	1980	2,788	2,391	5,178	1,933	3,590	1,588
445	UTILITY IMPR.PIPE W.	2,254	01/01/80	WATER PIPE INSIDE CITY	1980	7,348	6,301	13,649	5,095	9,463	4,186
445	UTILITY IMPR.PIPE W.	20,122	01/01/80	WATER PIPE INSIDE CITY	1980	65,614	56,264	121,878	45,492	84,502	37,376
445	UTILITY IMPR.PIPE W.	23,088	01/01/80	WATER PIPE INSIDE CITY	1980	75,286	64,557	139,843	52,198	96,957	42,885
445	UTILITY IMPR.PIPE W.	15,942	01/01/80	WATER PIPE INSIDE CITY	1980	51,986	44,578	96,564	36,044	66,951	29,613
445	UTILITY IMPR.PIPE W.	7,034	01/01/80	WATER PIPE INSIDE CITY	1980	22,938	19,669	42,607	15,903	29,540	13,066
445	UTILITY IMPR.PIPE W.	2,689	01/01/81	SERVICES IN CITY	1981	8,229	9,357	17,586	5,541	11,841	5,745
445	UTILITY IMPR.PIPE W.	150	01/01/81	SERVICES IN CITY	1981	457	520	977	308	658	319
445	UTILITY IMPR.PIPE W.	470	01/01/81	SERVICES IN CITY	1981	1,437	1,634	3,072	968	2,068	1,004
445	UTILITY IMPR.PIPE W.	248	01/01/81	SERVICES IN CITY	1981	760	864	1,624	511	1,093	531
445	UTILITY IMPR.PIPE W.	12,994	01/01/81	WATER PIPE INSIDE CITY	1981	39,777	45,225	85,003	26,783	57,235	27,768
445	UTILITY IMPR.PIPE W.	7,948	01/01/81	WATER PIPE INSIDE CITY	1981	24,330	27,662	51,992	16,382	35,008	16,984
445	UTILITY IMPR.PIPE W.	2,522	01/01/81	WATER PIPE INSIDE CITY	1981	7,719	8,776	16,495	5,197	11,107	5,388
445	UTILITY IMPR.PIPE W.	20,426	01/01/81	WATER PIPE INSIDE CITY	1981	62,527	71,091	133,617	42,101	89,969	43,649
445	UTILITY IMPR.PIPE W.	40,498	01/01/81	WATER PIPE INSIDE CITY	1981	123,975	140,955	264,930	83,477	178,386	86,544
445	UTILITY IMPR.PIPE W.	73,511	01/01/81	WATER PIPE INSIDE CITY	1981	225,034	255,855	480,889	151,523	323,799	157,090
445	UTILITY IMPR.PIPE W.	20,443	01/01/82	SERVICES IN CITY	1982	58,972	68,600	127,571	38,528	83,347	44,225
445	UTILITY IMPR.PIPE W.	699	01/01/82	SERVICES IN CITY	1982	2,016	2,345	4,361	1,317	2,849	1,512
445	UTILITY IMPR.PIPE W.	350	01/01/82	SERVICES IN CITY	1982	1,008	1,173	2,181	659	1,425	756
445	UTILITY IMPR.PIPE W.	3,846	01/01/82	SERVICES IN CITY	1982	11,093	12,904	23,997	7,247	15,678	8,319
445	UTILITY IMPR.PIPE W.	522	01/01/82	SERVICES IN CITY	1982	1,504	1,750	3,254	983	2,126	1,128
445	UTILITY IMPR.PIPE W.	1,452	01/01/82	SERVICES IN CITY	1982	4,189	4,873	9,062	2,737	5,920	3,142
445	UTILITY IMPR.PIPE W.	7,797	01/01/82	WATER PIPE INSIDE CITY	1982	22,492	26,164	48,656	14,695	31,788	16,867
445	UTILITY IMPR.PIPE W.	54,767	01/01/82	WATER PIPE INSIDE CITY	1982	157,981	183,775	341,756	103,214	223,280	118,476
445	UTILITY IMPR.PIPE W.	24,847	01/01/82	WATER PIPE INSIDE CITY	1982	71,675	83,377	155,053	46,828	101,301	53,752
445	UTILITY IMPR.PIPE W.	1,262	01/01/82	WATER PIPE INSIDE CITY	1982	3,641	4,235	7,876	2,379	5,145	2,731
445	UTILITY IMPR.PIPE W.	47,648	01/01/82	WATER PIPE INSIDE CITY	1982	137,445	159,886	297,331	89,798	194,256	103,074
445	UTILITY IMPR.PIPE W.	4,675	01/01/82	WATER PIPE INSIDE CITY	1982	13,486	15,688	29,174	8,811	19,060	10,114
445	UTILITY IMPR.PIPE W.	1,511	01/01/83	SERVICES IN CITY	1983	4,121	3,919	8,041	2,610	5,092	2,949
445	UTILITY IMPR.PIPE W.	396	01/01/83	SERVICES IN CITY	1983	1,080	1,027	2,107	684	1,334	773
445	UTILITY IMPR.PIPE W.	15,987	01/01/83	WATER PIPE INSIDE CITY	1983	43,602	41,466	85,068	27,615	53,876	31,191
445	UTILITY IMPR.PIPE W.	8,571	01/01/83	WATER PIPE INSIDE CITY	1983	23,375	22,230	45,605	14,804	28,883	16,722
445	UTILITY IMPR.PIPE W.	21,017	01/01/84	SERVICES IN CITY	1984	54,354	54,919	109,273	33,337	67,020	42,253
445	UTILITY IMPR.PIPE W.	6,421	01/01/84	SERVICES IN CITY	1984	16,604	16,777	33,381	10,184	20,473	12,908
445	UTILITY IMPR.PIPE W.	2,972	01/01/84	SERVICES IN CITY	1984	7,687	7,767	15,453	4,714	9,478	5,975
445	UTILITY IMPR.PIPE W.	34,803	01/01/84	SERVICES IN CITY	1984	90,008	90,944	180,952	55,205	110,983	69,968
445	UTILITY IMPR.PIPE W.	343	01/01/84	WATER PIPE INSIDE CITY	1984	887	896	1,783	544	1,093	690
445	UTILITY IMPR.PIPE W.	22,357	01/01/84	WATER PIPE INSIDE CITY	1984	57,820	58,422	116,242	35,463	71,295	44,947
445	UTILITY IMPR.PIPE W.	35,790	01/01/84	WATER PIPE INSIDE CITY	1984	92,560	93,523	186,084	56,770	114,131	71,953
445	UTILITY IMPR.PIPE W.	40,002	01/01/84	WATER PIPE INSIDE CITY	1984	103,453	104,530	207,983	63,451	127,562	80,421
445	UTILITY IMPR.PIPE W.	115,131	01/01/84	WATER PIPE INSIDE CITY	1984	297,752	300,849	598,601	182,621	367,142	231,460
445	UTILITY IMPR.PIPE W.	72,399	01/01/84	WATER PIPE INSIDE CITY	1984	187,240	189,188	376,428	114,841	230,876	145,552
445	UTILITY IMPR.PIPE W.	16,404	01/01/84	WATER PIPE INSIDE CITY	1984	42,425	42,866	85,291	26,021	52,312	32,979
445	UTILITY IMPR.PIPE W.	21,019	01/01/84	WATER PIPE INSIDE CITY	1984	54,360	54,926	109,286	33,341	67,028	42,257
445	UTILITY IMPR.PIPE W.	42,370	01/01/84	WATER PIPE INSIDE CITY	1984	109,578	110,718	220,296	67,208	135,114	85,182
445	UTILITY IMPR.PIPE W.	54,981	01/01/84	WATER PIPE INSIDE CITY	1984	142,192	143,671	285,863	87,211	175,330	110,534

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	24,792	01/01/85	SERVICES IN CITY	1985	60,964	55,443	116,407	36,172	69,068	47,339
445	UTILITY IMPR.PIPE W.	1,783	01/01/85	SERVICES IN CITY	1985	4,386	3,988	8,374	2,602	4,968	3,405
445	UTILITY IMPR.PIPE W.	666	01/01/85	SERVICES IN CITY	1985	1,637	1,488	3,125	971	1,854	1,271
445	UTILITY IMPR.PIPE W.	546	01/01/85	SERVICES IN CITY	1985	1,344	1,222	2,565	797	1,522	1,043
445	UTILITY IMPR.PIPE W.	6,316	01/01/85	WATER PIPE INSIDE CITY	1985	15,531	14,125	29,656	9,215	17,596	12,060
445	UTILITY IMPR.PIPE W.	17,659	01/01/85	WATER PIPE INSIDE CITY	1985	43,425	39,492	82,916	25,765	49,197	33,719
445	UTILITY IMPR.PIPE W.	45,763	01/01/85	WATER PIPE INSIDE CITY	1985	112,531	102,340	214,871	66,768	127,490	87,381
445	UTILITY IMPR.PIPE W.	16,393	01/01/85	WATER PIPE INSIDE CITY	1985	40,310	36,659	76,970	23,917	45,668	31,301
445	UTILITY IMPR.PIPE W.	3,763	01/01/85	WATER PIPE INSIDE CITY	1985	9,252	8,414	17,666	5,489	10,481	7,184
445	UTILITY IMPR.PIPE W.	55,597	01/01/85	WATER PIPE INSIDE CITY	1985	136,714	124,332	261,046	81,117	154,887	106,159
445	UTILITY IMPR.PIPE W.	342,105	01/01/85	WATER PIPE INSIDE CITY	1985	841,240	765,053	1,606,293	499,136	953,067	653,226
445	UTILITY IMPR.PIPE W.	1,556	01/01/85	WATER PIPE INSIDE CITY	1985	3,826	3,479	7,305	2,270	4,334	2,971
445	UTILITY IMPR.PIPE W.	41,137	01/01/86	SERVICES IN CITY	1986	96,415	70,641	167,056	55,278	95,778	71,278
445	UTILITY IMPR.PIPE W.	651	01/01/86	SERVICES IN CITY	1986	1,525	1,117	2,642	874	1,515	1,128
445	UTILITY IMPR.PIPE W.	232	01/01/86	SERVICES IN CITY	1986	543	398	941	311	539	402
445	UTILITY IMPR.PIPE W.	4,615	01/01/86	SERVICES IN CITY	1986	10,817	7,926	18,743	6,202	10,746	7,997
445	UTILITY IMPR.PIPE W.	979	01/01/86	WATER PIPE INSIDE CITY	1986	2,294	1,681	3,975	1,315	2,279	1,696
445	UTILITY IMPR.PIPE W.	637	01/01/86	WATER PIPE INSIDE CITY	1986	1,492	1,093	2,585	855	1,482	1,103
445	UTILITY IMPR.PIPE W.	2,209	01/01/86	WATER PIPE INSIDE CITY	1986	5,178	3,794	8,972	2,969	5,144	3,828
445	UTILITY IMPR.PIPE W.	16,351	01/01/86	WATER PIPE INSIDE CITY	1986	38,323	28,079	66,402	21,972	38,070	28,332
445	UTILITY IMPR.PIPE W.	93,156	01/01/86	WATER PIPE INSIDE CITY	1986	218,335	159,970	378,305	125,179	216,895	161,410
445	UTILITY IMPR.PIPE W.	53,736	01/01/86	WATER PIPE INSIDE CITY	1986	125,943	92,276	218,219	72,207	125,112	93,107
445	UTILITY IMPR.PIPE W.	52,367	01/01/86	WATER PIPE INSIDE CITY	1986	122,734	89,925	212,659	70,367	121,924	90,735
445	UTILITY IMPR.PIPE W.	65,690	01/01/86	WATER PIPE INSIDE CITY	1986	153,960	112,804	266,764	88,270	152,944	113,820
445	UTILITY IMPR.PIPE W.	7,717	01/01/86	WATER PIPE INSIDE CITY	1986	18,088	13,252	31,340	10,370	17,968	13,372
445	UTILITY IMPR.PIPE W.	12,463	01/01/86	WATER PIPE INSIDE CITY	1986	29,210	21,402	50,612	16,747	29,017	21,595
445	UTILITY IMPR.PIPE W.	7,797	01/01/87	SERVICES IN CITY	1987	17,455	13,376	30,831	9,658	17,060	13,772
445	UTILITY IMPR.PIPE W.	966	01/01/87	SERVICES IN CITY	1987	2,162	1,657	3,819	1,196	2,112	1,706
445	UTILITY IMPR.PIPE W.	487	01/01/87	SERVICES IN CITY	1987	1,091	836	1,926	603	1,066	860
445	UTILITY IMPR.PIPE W.	964	01/01/87	WATER PIPE INSIDE CITY	1987	2,157	1,653	3,809	1,193	2,108	1,702
445	UTILITY IMPR.PIPE W.	22,947	01/01/87	WATER PIPE INSIDE CITY	1987	51,372	39,368	90,740	28,426	50,209	40,531
445	UTILITY IMPR.PIPE W.	875	01/01/87	WATER PIPE INSIDE CITY	1987	1,958	1,500	3,458	1,083	1,913	1,545
445	UTILITY IMPR.PIPE W.	43,395	01/01/87	WATER PIPE INSIDE CITY	1987	97,154	74,451	171,605	53,758	94,955	76,650
445	UTILITY IMPR.PIPE W.	66,565	01/01/87	WATER PIPE INSIDE CITY	1987	149,024	114,201	263,226	82,460	145,651	117,575
445	UTILITY IMPR.PIPE W.	1,947	01/01/87	WATER PIPE INSIDE CITY	1987	4,359	3,340	7,699	2,412	4,260	3,439
445	UTILITY IMPR.PIPE W.	67,855	01/01/87	WATER PIPE INSIDE CITY	1987	151,915	116,417	268,332	84,060	148,477	119,855
445	UTILITY IMPR.PIPE W.	72,007	01/01/87	WATER PIPE INSIDE CITY	1987	161,209	123,539	284,748	89,202	157,560	127,188
445	UTILITY IMPR.PIPE W.	641	01/01/88	SERVICES IN CITY	1988	1,372	1,054	2,427	732	1,294	1,133
445	UTILITY IMPR.PIPE W.	13,946	01/01/88	SERVICES IN CITY	1988	29,885	22,957	52,843	15,939	28,183	24,660
445	UTILITY IMPR.PIPE W.	1,811	01/01/88	SERVICES IN CITY	1988	3,881	2,982	6,863	2,070	3,660	3,203
445	UTILITY IMPR.PIPE W.	19,699	01/01/88	SERVICES IN CITY	1988	42,213	32,427	74,640	22,513	39,808	34,832
445	UTILITY IMPR.PIPE W.	1,033	01/01/88	WATER PIPE INSIDE CITY	1988	2,214	1,701	3,914	1,181	2,087	1,827
445	UTILITY IMPR.PIPE W.	4,220	01/01/88	WATER PIPE INSIDE CITY	1988	9,042	6,946	15,988	4,822	8,526	7,461
445	UTILITY IMPR.PIPE W.	55,876	01/01/88	WATER PIPE INSIDE CITY	1988	119,735	91,979	211,714	63,858	112,914	98,800
445	UTILITY IMPR.PIPE W.	92,964	01/01/88	WATER PIPE INSIDE CITY	1988	199,208	153,030	352,238	106,244	187,860	164,378
445	UTILITY IMPR.PIPE W.	226,399	01/01/88	WATER PIPE INSIDE CITY	1988	485,139	372,680	857,819	258,740	457,503	400,316
445	UTILITY IMPR.PIPE W.	14,455	01/01/88	WATER PIPE INSIDE CITY	1988	30,976	23,795	54,771	16,520	29,211	25,560
445	UTILITY IMPR.PIPE W.	2,209	01/01/89	SERVICES IN CITY	1989	4,539	3,280	7,819	2,330	4,013	3,806
445	UTILITY IMPR.PIPE W.	6,665	01/01/89	SERVICES IN CITY	1989	13,695	9,896	23,591	7,030	12,110	11,482
445	UTILITY IMPR.PIPE W.	733	01/01/89	SERVICES IN CITY	1989	1,505	1,088	2,593	773	1,331	1,262
445	UTILITY IMPR.PIPE W.	6,773	01/01/89	WATER PIPE INSIDE CITY	1989	13,916	10,056	23,972	7,143	12,305	11,667
445	UTILITY IMPR.PIPE W.	10,642	01/01/89	WATER PIPE INSIDE CITY	1989	21,866	15,801	37,666	11,224	19,335	18,331
445	UTILITY IMPR.PIPE W.	92,759	01/01/89	WATER PIPE INSIDE CITY	1989	190,600	137,730	328,330	97,841	168,543	159,788
445	UTILITY IMPR.PIPE W.	20,931	01/01/89	WATER PIPE INSIDE CITY	1989	43,008	31,078	74,087	22,077	38,031	36,056
445	UTILITY IMPR.PIPE W.	62,384	01/01/89	WATER PIPE INSIDE CITY	1989	128,185	92,628	220,813	65,801	113,350	107,463
445	UTILITY IMPR.PIPE W.	10,044	01/01/90	SERVICES IN CITY	1990	19,824	14,412	34,236	9,780	16,889	17,346
445	UTILITY IMPR.PIPE W.	312	01/01/90	SERVICES IN CITY	1990	616	448	1,065	304	525	540
445	UTILITY IMPR.PIPE W.	202	01/01/90	SERVICES IN CITY	1990	398	289	687	196	339	348
445	UTILITY IMPR.PIPE W.	347	01/01/90	WATER PIPE INSIDE CITY	1990	685	498	1,183	338	584	600
445	UTILITY IMPR.PIPE W.	41,593	01/01/90	WATER PIPE INSIDE CITY	1990	82,091	59,680	141,771	40,498	69,940	71,831
445	UTILITY IMPR.PIPE W.	29,034	01/01/90	WATER PIPE INSIDE CITY	1990	57,303	41,659	98,962	28,269	48,821	50,141
445	UTILITY IMPR.PIPE W.	47,137	01/01/90	WATER PIPE INSIDE CITY	1990	93,033	67,635	160,667	45,896	79,262	81,405
445	UTILITY IMPR.PIPE W.	28,084	01/01/90	WATER PIPE INSIDE CITY	1990	55,428	40,296	95,725	27,344	47,224	48,501
445	UTILITY IMPR.PIPE W.	6,683	01/01/91	SERVICES IN CITY	1991	12,689	8,770	21,459	6,006	10,157	11,302
445	UTILITY IMPR.PIPE W.	9,627	01/01/91	WATER PIPE INSIDE CITY	1991	18,280	12,634	30,914	8,653	14,633	16,282
445	UTILITY IMPR.PIPE W.	8,799	01/01/91	WATER PIPE INSIDE CITY	1991	16,707	11,547	28,254	7,908	13,373	14,881
445	UTILITY IMPR.PIPE W.	52,555	01/01/91	WATER PIPE INSIDE CITY	1991	99,787	68,968	168,756	47,232	79,877	88,878
445	UTILITY IMPR.PIPE W.	1,705	01/01/91	WATER PIPE INSIDE CITY	1991	3,238	2,238	5,476	1,533	2,592	2,884
445	UTILITY IMPR.PIPE W.	28,722	01/01/91	WATER PIPE INSIDE CITY	1991	54,536	37,693	92,228	25,813	43,654	48,574
445	UTILITY IMPR.PIPE W.	40,129	01/01/91	WATER PIPE INSIDE CITY	1991	76,194	52,662	128,856	36,065	60,992	67,864
445	UTILITY IMPR.PIPE W.	440,275	01/01/91	WATER PIPE INSIDE CITY	1991	835,965	577,778	1,413,743	395,690	669,172	744,571
445	UTILITY IMPR.PIPE W.	24,707	01/01/92	SERVICES IN CITY	1992	45,194	29,092	74,286	20,488	33,676	40,610
445	UTILITY IMPR.PIPE W.	15,117	01/01/92	SERVICES IN CITY	1992	27,653	17,800	45,453	12,536	20,605	24,848
445	UTILITY IMPR.PIPE W.	5,651	01/01/92	WATER PIPE INSIDE CITY	1992	10,336	6,654	16,990	4,686	7,702	9,288
445	UTILITY IMPR.PIPE W.	711	01/01/92	WATER PIPE INSIDE CITY	1992	1,300	837	2,137	589	969	1,168
445	UTILITY IMPR.PIPE W.	136,162	01/01/92	WATER PIPE INSIDE CITY	1992	249,076	160,330	409,406	112,915	185,597	223,809
445	UTILITY IMPR.PIPE W.	73,171	01/01/92	WATER PIPE INSIDE CITY	1992	133,849	86,159	220,008	60,678	99,737	120,271
445	UTILITY IMPR.PIPE W.	50,802	01/01/92	WATER PIPE INSIDE CITY	1992	92,931	59,820	152,751	42,129	69,247	83,504
445	UTILITY IMPR.PIPE W.	99,097	01/01/92	WATER PIPE INSIDE CITY	1992	181,274	116,686	297,961	82,177	135,075	162,886
445	UTILITY IMPR.PIPE W.	36,295	01/01/93	SERVICES IN CITY	1993	64,050	35,799	99,849	27,755	43,268	56,581
445	UTILITY IMPR.PIPE W.	1,001	01/01/93	SERVICES IN CITY	1993	1,767	988	2,755	766	1,194	1,561
445	UTILITY IMPR.PIPE W.	2,911	01/01/93	SERVICES IN CITY	1993	5,137	2,871	8,008	2,226	3,470	4,538

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	1,054	01/01/93	SERVICES IN CITY	1993	1,859	1,039	2,898	805	1,256	1,642
445	UTILITY IMPR.PIPE W.	220	01/01/93	WATER PIPE INSIDE CITY	1993	389	217	606	168	263	344
445	UTILITY IMPR.PIPE W.	3,430	01/01/93	WATER PIPE INSIDE CITY	1993	6,053	3,383	9,435	2,623	4,089	5,347
445	UTILITY IMPR.PIPE W.	405	01/01/93	WATER PIPE INSIDE CITY	1993	714	399	1,113	309	482	631
445	UTILITY IMPR.PIPE W.	47,328	01/01/93	WATER PIPE INSIDE CITY	1993	83,521	46,682	130,202	36,192	56,421	73,781
445	UTILITY IMPR.PIPE W.	24,792	01/01/93	WATER PIPE INSIDE CITY	1993	43,750	24,453	68,203	18,958	29,555	38,648
445	UTILITY IMPR.PIPE W.	21,063	01/01/93	WATER PIPE INSIDE CITY	1993	37,170	20,775	57,945	16,107	25,110	32,836
445	UTILITY IMPR.PIPE W.	63,446	01/01/93	WATER PIPE INSIDE CITY	1993	111,963	62,579	174,542	48,517	75,634	98,907
445	UTILITY IMPR.PIPE W.	14,386	01/01/93	WATER PIPE INSIDE CITY	1993	25,386	14,189	39,575	11,001	17,149	22,426
445	UTILITY IMPR.PIPE W.	60,401	01/01/94	SERVICES IN CITY	1994	102,956	63,692	166,648	42,555	68,881	97,767
445	UTILITY IMPR.PIPE W.	4,070	01/01/94	SERVICES IN CITY	1994	6,936	4,291	11,227	2,867	4,640	6,587
445	UTILITY IMPR.PIPE W.	8,757	01/01/94	SERVICES IN CITY	1994	14,927	9,234	24,161	6,170	9,986	14,174
445	UTILITY IMPR.PIPE W.	10,485	01/01/94	WATER PIPE INSIDE CITY	1994	17,873	11,057	28,930	7,387	11,957	16,972
445	UTILITY IMPR.PIPE W.	18,235	01/01/94	WATER PIPE INSIDE CITY	1994	31,082	19,228	50,310	12,847	20,795	29,515
445	UTILITY IMPR.PIPE W.	141,170	01/01/94	WATER PIPE INSIDE CITY	1994	240,631	148,862	389,493	99,461	160,990	228,503
445	UTILITY IMPR.PIPE W.	108,733	01/01/94	WATER PIPE INSIDE CITY	1994	185,340	114,658	299,998	76,607	123,999	175,999
445	UTILITY IMPR.PIPE W.	60,335	01/01/95	SERVICES IN CITY	1995	99,453	59,054	158,507	39,118	62,346	96,161
445	UTILITY IMPR.PIPE W.	912	01/01/95	SERVICES IN CITY	1995	1,503	892	2,395	591	942	1,453
445	UTILITY IMPR.PIPE W.	2,735	01/01/95	SERVICES IN CITY	1995	4,508	2,677	7,185	1,773	2,826	4,359
445	UTILITY IMPR.PIPE W.	2,984	01/01/95	WATER PIPE INSIDE CITY	1995	4,919	2,921	7,840	1,935	3,084	4,756
445	UTILITY IMPR.PIPE W.	23,369	01/01/95	WATER PIPE INSIDE CITY	1995	38,520	22,873	61,393	15,151	24,148	37,245
445	UTILITY IMPR.PIPE W.	52,184	01/01/95	WATER PIPE INSIDE CITY	1995	86,017	51,076	137,093	33,833	53,923	83,170
445	UTILITY IMPR.PIPE W.	359,863	01/01/95	WATER PIPE INSIDE CITY	1995	593,181	352,227	945,408	233,318	371,860	573,547
445	UTILITY IMPR.PIPE W.	14,219	01/01/95	WATER PIPE INSIDE CITY	1995	23,438	13,917	37,355	9,219	14,693	22,662
445	UTILITY IMPR.PIPE W.	17,849	01/01/95	WATER PIPE INSIDE CITY	1995	29,421	17,470	46,891	11,572	18,444	28,447
445	UTILITY IMPR.PIPE W.	119,600	01/01/96	SERVICES IN CITY	1996	190,850	109,838	300,688	71,251	112,257	188,431
445	UTILITY IMPR.PIPE W.	1,205	01/01/96	SERVICES IN CITY	1996	1,924	1,107	3,031	718	1,132	1,899
445	UTILITY IMPR.PIPE W.	1,205	01/01/96	SERVICES IN CITY	1996	1,924	1,107	3,031	718	1,132	1,899
445	UTILITY IMPR.PIPE W.	75,801	01/01/96	WATER PIPE INSIDE CITY	1996	120,958	69,614	190,572	45,158	71,147	119,425
445	UTILITY IMPR.PIPE W.	148,788	01/01/96	WATER PIPE INSIDE CITY	1996	237,427	136,644	374,071	88,639	139,653	234,418
445	UTILITY IMPR.PIPE W.	1,115,598	01/01/96	WATER PIPE INSIDE CITY	1996	1,780,210	1,024,545	2,804,754	664,612	1,047,108	1,757,646
445	UTILITY IMPR.PIPE W.	60,907	01/01/96	WATER PIPE INSIDE CITY	1996	97,192	55,936	153,127	36,285	57,168	95,960
445	UTILITY IMPR.PIPE W.	768,649	01/01/96	WATER PIPE INSIDE CITY	1996	1,226,567	705,913	1,932,480	457,918	721,459	1,211,021
445	UTILITY IMPR.PIPE W.	12,008	01/01/96	WATER PIPE INSIDE CITY	1996	19,162	11,028	30,191	7,154	11,271	18,919
445	UTILITY IMPR.PIPE W.	1,676,627	01/01/96	WATER PIPE INSIDE CITY	1996	2,675,468	1,539,783	4,215,251	998,841	1,573,693	2,641,557
445	UTILITY IMPR.PIPE W.	207,475	01/01/97	SERVICES IN CITY	1997	320,837	176,963	497,800	113,362	175,889	321,911
445	UTILITY IMPR.PIPE W.	3,937	01/01/97	SERVICES IN CITY	1997	6,089	3,358	9,447	2,151	3,338	6,109
445	UTILITY IMPR.PIPE W.	34,151	01/01/97	WATER PIPE INSIDE CITY	1997	52,810	29,128	81,939	18,660	28,952	52,987
445	UTILITY IMPR.PIPE W.	130,253	01/01/97	WATER PIPE INSIDE CITY	1997	201,422	111,098	312,520	71,169	110,423	202,096
445	UTILITY IMPR.PIPE W.	744,038	01/01/97	WATER PIPE INSIDE CITY	1997	1,150,574	634,618	1,785,192	406,536	630,768	1,154,425
445	UTILITY IMPR.PIPE W.	50,166	01/01/97	WATER PIPE INSIDE CITY	1997	77,576	42,788	120,364	27,410	42,529	77,836
445	UTILITY IMPR.PIPE W.	79,915	01/01/97	WATER PIPE INSIDE CITY	1997	123,580	68,163	191,743	43,665	67,749	123,994
445	UTILITY IMPR.PIPE W.	115,614	01/01/97	WATER PIPE INSIDE CITY	1997	178,783	98,611	277,394	63,170	98,012	179,382
445	UTILITY IMPR.PIPE W.	191,412	01/01/98	SERVICES IN CITY	1998	287,119	146,072	433,190	95,706	144,397	288,794
445	UTILITY IMPR.PIPE W.	1,886	01/01/98	SERVICES IN CITY	1998	2,829	1,439	4,268	943	1,422	2,846
445	UTILITY IMPR.PIPE W.	6,895	01/01/98	SERVICES IN CITY	1998	10,343	5,262	15,605	3,448	5,201	10,403
445	UTILITY IMPR.PIPE W.	20	01/01/98	WATER PIPE INSIDE CITY	1998	30	15	45	10	15	30
445	UTILITY IMPR.PIPE W.	3,318	01/01/98	WATER PIPE INSIDE CITY	1998	4,978	2,532	7,510	1,659	2,503	5,006
445	UTILITY IMPR.PIPE W.	48,786	01/01/98	WATER PIPE INSIDE CITY	1998	73,179	37,230	110,408	24,393	36,803	73,606
445	UTILITY IMPR.PIPE W.	176,464	01/01/98	WATER PIPE INSIDE CITY	1998	264,697	134,664	399,361	88,232	133,120	266,241
445	UTILITY IMPR.PIPE W.	593,240	01/01/98	WATER PIPE INSIDE CITY	1998	889,860	452,716	1,342,577	296,620	447,525	895,051
445	UTILITY IMPR.PIPE W.	26,033	01/01/98	WATER PIPE INSIDE CITY	1998	39,050	19,867	58,916	13,016	19,639	39,278
445	UTILITY IMPR.PIPE W.	157,835	01/01/98	WATER PIPE INSIDE CITY	1998	236,753	120,448	357,201	78,918	119,067	238,134
445	UTILITY IMPR.PIPE W.	67,513	01/01/98	WATER PIPE INSIDE CITY	1998	101,269	51,521	152,790	33,756	50,930	101,860
445	UTILITY IMPR.PIPE W.	168,753	01/01/99	SERVICES IN CITY	1999	245,756	133,601	379,357	77,003	118,865	260,492
445	UTILITY IMPR.PIPE W.	2,346	01/01/99	SERVICES IN CITY	1999	3,416	1,857	5,273	1,070	1,652	3,621
445	UTILITY IMPR.PIPE W.	769	01/01/99	WATER PIPE INSIDE CITY	1999	1,120	609	1,729	351	542	1,187
445	UTILITY IMPR.PIPE W.	700	01/01/99	WATER PIPE INSIDE CITY	1999	1,020	554	1,574	319	493	1,081
445	UTILITY IMPR.PIPE W.	37,789	01/01/99	WATER PIPE INSIDE CITY	1999	55,033	29,918	84,950	17,244	26,618	58,333
445	UTILITY IMPR.PIPE W.	104,997	01/01/99	WATER PIPE INSIDE CITY	1999	152,909	83,126	236,035	47,911	73,958	162,077
445	UTILITY IMPR.PIPE W.	759,196	01/01/99	WATER PIPE INSIDE CITY	1999	1,105,625	601,056	1,706,681	346,429	534,760	1,171,921
445	UTILITY IMPR.PIPE W.	151,509	01/01/99	WATER PIPE INSIDE CITY	1999	220,644	119,950	340,594	69,135	106,719	233,875
445	UTILITY IMPR.PIPE W.	164,637	01/01/99	WATER PIPE INSIDE CITY	1999	239,763	130,343	370,106	75,126	115,966	254,140
445	UTILITY IMPR.PIPE W.	132,606	01/01/99	WATER PIPE INSIDE CITY	1999	193,116	104,985	298,101	60,510	93,405	204,696
445	UTILITY IMPR.PIPE W.	11,296	01/01/99	WATER PIPE INSIDE CITY	1999	16,450	8,943	25,393	5,154	7,957	17,436
445	UTILITY IMPR.PIPE W.	1,895	01/01/99	WATER PIPE INSIDE CITY	1999	2,760	1,500	4,260	865	1,335	2,925
445	UTILITY IMPR.PIPE W.	33,440	01/01/00	WATER PIPE INSIDE CITY	2000	47,321	26,946	74,267	13,881	21,785	52,482
445	UTILITY IMPR.PIPE W.	48,907	01/01/00	WATER PIPE INSIDE CITY	2000	69,208	39,409	108,617	20,301	31,861	76,756
445	UTILITY IMPR.PIPE W.	514,954	01/01/00	WATER PIPE INSIDE CITY	2000	728,708	414,951	1,143,659	213,754	335,473	808,186
445	UTILITY IMPR.PIPE W.	55,479	01/01/00	WATER PIPE INSIDE CITY	2000	78,508	44,705	123,212	23,029	36,142	87,070
445	UTILITY IMPR.PIPE W.	315,026	01/01/00	WATER PIPE INSIDE CITY	2000	445,792	253,849	699,641	130,766	205,228	494,413
445	UTILITY IMPR.PIPE W.	210,689	01/01/00	WATER PIPE INSIDE CITY	2000	298,145	169,774	467,919	87,456	137,256	330,663
445	UTILITY IMPR.PIPE W.	1,082,405	01/03/01	WATER PIPE INSIDE CITY	2001	1,489,549	767,234	2,256,783	407,143	616,854	1,639,929
445	UTILITY IMPR.PIPE W.	769,137	01/03/01	WATER PIPE INSIDE CITY	2001	1,058,446	545,183	1,603,628	289,309	438,325	1,165,303
445	UTILITY IMPR.PIPE W.	43,604	01/18/01	WATER PIPE INSIDE CITY	2001	60,006	30,908	90,913	16,402	24,850	66,064
445	UTILITY IMPR.PIPE W.	42,890	01/18/01	WATER PIPE INSIDE CITY	2001	59,023	30,401	89,424	16,133	24,442	64,981
445	UTILITY IMPR.PIPE W.	110,114	01/18/01	WATER PIPE INSIDE CITY	2001	151,532	78,051	229,583	41,419	62,753	166,831
445	UTILITY IMPR.PIPE W.	29,398	01/18/01	WATER PIPE INSIDE CITY	2001	40,456	20,838	61,294	11,058	16,754	44,540
445	UTILITY IMPR.PIPE W.	180,573	01/18/01	WATER PIPE INSIDE CITY	2001	248,494	127,994	376,488	67,922	102,907	273,582
445	UTILITY IMPR.PIPE W.	53,331	01/18/01	WATER PIPE INSIDE CITY	2001	73,392	37,802	111,194	20,060	30,393	80,801
445	UTILITY IMPR.PIPE W.	2,006	01/18/01	WATER PIPE INSIDE CITY	2001	2,760	1,422	4,182	754	1,143	3,039
445	UTILITY IMPR.PIPE W.	294,901	04/11/01	WATER PIPE INSIDE CITY	2001	403,053	207,604	610,657	108,153	163,860	446,798

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	7,816	04/11/01	WATER PIPE INSIDE CITY	2001	10,683	5,503	16,186	2,867	4,343	11,842
445	UTILITY IMPR.PIPE W.	74,597	04/11/01	WATER PIPE INSIDE CITY	2001	101,955	52,515	154,470	27,358	41,450	113,020
445	UTILITY IMPR.PIPE W.	5,427	05/31/01	WATER PIPE INSIDE CITY	2001	7,400	3,812	11,212	1,973	2,990	8,223
445	UTILITY IMPR.PIPE W.	12,947	05/31/01	WATER PIPE INSIDE CITY	2001	17,655	9,093	26,748	4,708	7,133	19,615
445	UTILITY IMPR.PIPE W.	1,840	01/02/02	CTC Building 610 - ENG2000-00042	2002	2,464	1,241	3,705	624	939	2,766
445	UTILITY IMPR.PIPE W.	2,184	01/02/02	CTC Building 610 - ENG2000-00043	2002	2,925	1,473	4,398	741	1,114	3,284
445	UTILITY IMPR.PIPE W.	2,240	01/03/02	Jack in the Box - ENG2001-00043	2002	3,000	1,511	4,511	760	1,143	3,368
445	UTILITY IMPR.PIPE W.	30,016	01/14/02	English Ridge - ENG2001-00095	2002	40,200	20,245	60,445	10,184	15,313	45,132
445	UTILITY IMPR.PIPE W.	2,763	01/14/02	English Ridge - ENG2001-00095	2002	3,700	1,863	5,563	937	1,409	4,154
445	UTILITY IMPR.PIPE W.	7,722	01/17/02	Country Breeze - ENG2001-00097	2002	10,341	5,208	15,549	2,620	3,939	11,610
445	UTILITY IMPR.PIPE W.	5,185	01/17/02	Country Breeze - ENG2001-00097	2002	6,944	3,497	10,441	1,759	2,645	7,796
445	UTILITY IMPR.PIPE W.	11,541	01/24/02	Fishers Terrace Lot 179 - ENG2000-0	2002	15,457	7,784	23,241	3,916	5,888	17,353
445	UTILITY IMPR.PIPE W.	2,594	01/24/02	Fishers Terrace Lot 179 - ENG2000-0	2002	3,474	1,749	5,223	880	1,323	3,900
445	UTILITY IMPR.PIPE W.	30,441	02/01/02	Cobblestone Subdivision - ENG2001-1	2002	40,679	20,486	61,165	10,237	15,393	45,772
445	UTILITY IMPR.PIPE W.	14,585	02/01/02	Cobblestone Subdivision - ENG2001-1	2002	19,490	9,815	29,305	4,905	7,375	21,930
445	UTILITY IMPR.PIPE W.	1,325	02/12/02	Cotters Grove Phase 2 - ENG2001-0C	2002	1,770	891	2,661	445	670	1,992
445	UTILITY IMPR.PIPE W.	5,877	02/12/02	Cotters Grove Phase 2 - ENG2001-0C	2002	7,854	3,955	11,809	1,977	2,972	8,837
445	UTILITY IMPR.PIPE W.	48,088	02/12/02	Karyssas Place - ENG2000-00145	2002	64,260	32,361	96,621	16,172	24,316	72,305
445	UTILITY IMPR.PIPE W.	2,211	02/12/02	Karyssas Place - ENG2000-00145	2002	2,955	1,488	4,443	744	1,118	3,325
445	UTILITY IMPR.PIPE W.	1,123	02/13/02	Yokoyama Short Plat - WB2022/SB17	2002	1,500	755	2,255	378	568	1,688
445	UTILITY IMPR.PIPE W.	28,414	02/27/02	Zidell Lot - ENG2000-00181	2002	37,969	19,121	57,090	9,556	14,368	42,723
445	UTILITY IMPR.PIPE W.	15,439	03/08/02	Maplecrest Woods - ENG2001-00111	2002	20,585	10,367	30,952	5,146	7,738	23,214
445	UTILITY IMPR.PIPE W.	5,943	03/08/02	Stonewall Townhomes - ENG2000-00	2002	7,924	3,991	11,915	1,981	2,979	8,936
445	UTILITY IMPR.PIPE W.	8,950	03/08/02	Stonewall Townhomes - ENG2000-00	2002	11,933	6,010	17,943	2,983	4,486	13,457
445	UTILITY IMPR.PIPE W.	825	03/11/02	Marina Facility	2002	1,100	554	1,654	275	413	1,241
445	UTILITY IMPR.PIPE W.	9,000	03/12/02	Best Western Motel - ENG1999-0000	2002	12,000	6,043	18,043	3,000	4,511	13,532
445	UTILITY IMPR.PIPE W.	10,893	03/12/02	Birchwood Meadows Phase 2 - ENG2	2002	14,524	7,314	21,838	3,631	5,460	16,379
445	UTILITY IMPR.PIPE W.	2,835	03/12/02	Birchwood Meadows Phase 2 - ENG2	2002	3,780	1,904	5,684	945	1,421	4,263
445	UTILITY IMPR.PIPE W.	6,379	03/12/02	Birchwood Meadows Phase 2 - ENG2	2002	8,505	4,283	12,788	2,126	3,197	9,591
445	UTILITY IMPR.PIPE W.	4,410	03/12/02	Killian Pacific - ENG2000-00041	2002	5,880	2,961	8,841	1,470	2,210	6,631
445	UTILITY IMPR.PIPE W.	10,366	03/14/02	Gramore East - V98UT100 WB1940	2002	13,822	6,961	20,783	3,456	5,196	15,587
445	UTILITY IMPR.PIPE W.	41,526	03/19/02	Road End Farm Estates - ENG2001-C	2002	55,368	27,883	83,251	13,842	20,813	62,438
445	UTILITY IMPR.PIPE W.	3,976	03/19/02	Road End Farm Estates - ENG2001-C	2002	5,301	2,670	7,971	1,325	1,993	5,978
445	UTILITY IMPR.PIPE W.	3,225	03/20/02	Wisteria Manor - ENG2000-00046	2002	4,300	2,165	6,465	1,075	1,616	4,849
445	UTILITY IMPR.PIPE W.	22,575	03/21/02	SWWMC Parking Lpot Expansion - W	2002	30,100	15,158	45,258	7,525	11,315	33,944
445	UTILITY IMPR.PIPE W.	2,263	03/22/02	Jakes Plaza - WB1938, V98UT074	2002	3,017	1,519	4,536	754	1,134	3,402
445	UTILITY IMPR.PIPE W.	59,578	03/28/02	Morning Star View	2002	79,437	40,004	119,441	19,859	29,860	89,581
445	UTILITY IMPR.PIPE W.	48,707	03/28/02	Morning Star View	2002	64,943	32,705	97,647	16,236	24,412	73,235
445	UTILITY IMPR.PIPE W.	2,859	04/02/02	Hudsons Bay High School - WB1770,	2002	3,803	1,915	5,718	944	1,420	4,298
445	UTILITY IMPR.PIPE W.	17,997	04/02/02	Hudsons Bay High School - WB1770,	2002	23,943	12,058	36,001	5,946	8,940	27,060
445	UTILITY IMPR.PIPE W.	34,831	04/02/02	Hudsons Bay High School - WB1770,	2002	46,338	23,356	69,674	11,507	17,302	52,371
445	UTILITY IMPR.PIPE W.	10,389	04/08/02	Gramor 162nd Place East Side - WB1	2002	13,822	6,961	20,783	3,433	5,161	15,622
445	UTILITY IMPR.PIPE W.	26,872	04/10/02	Loris Meadow - ENG2001-00069	2002	35,750	18,004	53,754	8,878	13,349	40,405
445	UTILITY IMPR.PIPE W.	1,458	04/11/02	OPUS 208 Development - ENG1999-1	2002	1,940	977	2,917	482	724	2,193
445	UTILITY IMPR.PIPE W.	467	04/11/02	OPUS 208 Development - ENG1999-1	2002	622	313	935	155	232	703
445	UTILITY IMPR.PIPE W.	54,538	04/11/02	OPUS 208 Development - ENG1999-1	2002	72,556	36,539	109,095	18,018	27,092	82,003
445	UTILITY IMPR.PIPE W.	15,999	04/11/02	OPUS 208 Development - ENG1999-1	2002	21,285	10,719	32,004	5,286	7,948	24,056
445	UTILITY IMPR.PIPE W.	14,822	04/22/02	Stonebrook Phase 1 - V97UT150 WB	2002	19,719	9,930	29,649	4,897	7,363	22,286
445	UTILITY IMPR.PIPE W.	13,951	04/22/02	Carissa Subdivision ENG2000-00148	2002	18,560	9,347	27,907	4,609	6,930	20,977
445	UTILITY IMPR.PIPE W.	9,014	05/02/02	Mill Plain Town Center - ENG2001-00	2002	11,966	6,026	17,992	2,952	4,438	13,554
445	UTILITY IMPR.PIPE W.	601	05/02/02	Mill Plain Town Center - ENG2001-00	2002	798	402	1,200	197	296	904
445	UTILITY IMPR.PIPE W.	28,792	05/02/02	Target - ENG2000-00174	2002	38,220	19,247	57,467	9,428	14,175	43,292
445	UTILITY IMPR.PIPE W.	8,843	05/03/02	Stonebrook Phase 2 WB2099-V99UT	2002	11,739	5,912	17,651	2,896	4,354	13,297
445	UTILITY IMPR.PIPE W.	42,676	05/08/02	Columbia Place Townhomes - ENG2C	2002	56,649	28,528	85,177	13,973	21,010	64,167
445	UTILITY IMPR.PIPE W.	6,412	05/15/02	Corporate Woods Apts - ENG2001-0C	2002	8,512	4,287	12,799	2,100	3,157	9,642
445	UTILITY IMPR.PIPE W.	572	05/15/02	Corporate Woods Apts - ENG2001-0C	2002	760	383	1,143	188	282	861
445	UTILITY IMPR.PIPE W.	7,798	05/23/02	Marrion Meadows Subdivision - V98U	2002	10,351	5,213	15,563	2,553	3,839	11,724
445	UTILITY IMPR.PIPE W.	2,575	06/04/02	Maplecrest Phase 2 - V98UT150, WB	2002	3,410	1,717	5,128	835	1,256	3,871
445	UTILITY IMPR.PIPE W.	3,371	06/04/02	Maplecrest Phase 2 - V98UT150, WB	2002	4,465	2,249	6,714	1,094	1,645	5,069
445	UTILITY IMPR.PIPE W.	3,686	06/04/02	Maplecrest Phase 2 - V98UT150, WB	2002	4,882	2,458	7,340	1,196	1,798	5,542
445	UTILITY IMPR.PIPE W.	22,023	06/05/02	Maplecrest Phase 2A - V98UT150, WI	2002	29,170	14,690	43,860	7,147	10,746	33,114
445	UTILITY IMPR.PIPE W.	12,480	06/05/02	Maplecrest Phase 2A - V98UT150, WI	2002	16,530	8,324	24,854	4,050	6,089	18,765
445	UTILITY IMPR.PIPE W.	51,784	06/13/02	Vancouver East Retail (Wal-mart) - W	2002	68,588	34,541	103,129	16,804	25,266	77,862
445	UTILITY IMPR.PIPE W.	30,834	06/13/02	Vancouver East Retail (Wal-mart) - W	2002	40,840	20,567	61,407	10,006	15,045	46,362
445	UTILITY IMPR.PIPE W.	4,498	06/13/02	Vancouver East Retail (Wal-mart) - W	2002	5,958	3,000	8,958	1,460	2,195	6,764
445	UTILITY IMPR.PIPE W.	18,008	06/18/02	Evergreen Mobile Home Park Extensi	2002	23,852	12,012	35,864	5,844	8,787	27,077
445	UTILITY IMPR.PIPE W.	5,678	06/18/02	Evergreen Mobile Home Park Extensi	2002	7,520	3,787	11,307	1,842	2,770	8,537
445	UTILITY IMPR.PIPE W.	4,651	06/27/02	Ops Center - ENG2000-00189	2002	6,160	3,102	9,262	1,509	2,269	6,993
445	UTILITY IMPR.PIPE W.	1,284	06/27/02	Ops Center - ENG2000-00189	2002	1,700	856	2,556	416	626	1,930
445	UTILITY IMPR.PIPE W.	11,585	06/27/02	Fabrication Products - V99UT116/WB	2002	15,344	7,727	23,071	3,759	5,652	17,419
445	UTILITY IMPR.PIPE W.	9,080	07/09/02	Waterford @ Fairway Village 2, 3 - EN	2002	12,000	6,043	18,043	2,920	4,391	13,653
445	UTILITY IMPR.PIPE W.	7,718	07/09/02	Waterford @ Fairway Village 2, 3 - EN	2002	10,200	5,137	15,337	2,482	3,732	11,605
445	UTILITY IMPR.PIPE W.	560	07/09/02	Waterford @ Fairway Village 2, 3 - EN	2002	740	373	1,113	180	271	842
445	UTILITY IMPR.PIPE W.	2,951	07/10/02	Mac Electric - ENG2000-00094	2002	3,900	1,964	5,864	949	1,427	4,437
445	UTILITY IMPR.PIPE W.	470	07/11/02	Auto Parts Store - WB1880/V97UT27	2002	621	313	934	151	227	707
445	UTILITY IMPR.PIPE W.	15,275	07/11/02	Auto Parts Store - WB1880/V97UT27	2002	20,188	10,167	30,355	4,912	7,386	22,968
445	UTILITY IMPR.PIPE W.	4,743	08/01/02	West Coast Marine - ENG2001-0007	2002	6,254	3,150	9,404	1,511	2,272	7,132
445	UTILITY IMPR.PIPE W.	4,941	08/15/02	Cedarbrook - PH 2 / V99UT173	2002	6,516	3,281	9,797	1,575	2,368	7,430
445	UTILITY IMPR.PIPE W.	13,944	08/15/02	Cedarbrook - PH 2 / V99UT173	2002	18,388	9,260	27,648	4,444	6,682	20,966
445	UTILITY IMPR.PIPE W.	48,952	08/22/02	First Place Phase 4 - V99UT044 - WE	2002	64,552	32,508	97,060	15,600	23,456	73,604
445	UTILITY IMPR.PIPE W.	1,947	08/22/02	First Place Phase 4 - V99UT044 - WE	2002	2,568	1,293	3,861	621	933	2,928
445	UTILITY IMPR.PIPE W.	3,519	08/22/02	First Place Phase 4 - V99UT044 - WE	2002	4,640	2,337	6,977	1,121	1,686	5,291

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	2,948	02/11/04	Wellons - ENG2002-00115	2004	3,740	1,749	5,489	792	1,162	4,327
445	UTILITY IMPR.PIPE W.	3,358	02/11/04	Wellons - ENG2002-00115	2004	4,260	1,992	6,252	902	1,323	4,929
445	UTILITY IMPR.PIPE W.	19,820	02/11/04	Wellons - ENG2002-00115	2004	25,141	11,759	36,900	5,321	7,810	29,089
445	UTILITY IMPR.PIPE W.	4,730	02/13/04	Neals Lane Apartments - ENG2001-0	2004	6,000	2,806	8,806	1,270	1,864	6,942
445	UTILITY IMPR.PIPE W.	9,566	02/18/04	Iron Gate Storage 5th St - ENG2002-0	2004	12,135	5,676	17,811	2,569	3,770	14,041
445	UTILITY IMPR.PIPE W.	642	03/19/04	Eastside Steel - ENG2002-00088	2004	813	380	1,193	171	251	943
445	UTILITY IMPR.PIPE W.	2,473	03/19/04	Eastside Steel - ENG2002-00088	2004	3,130	1,464	4,595	657	965	3,630
445	UTILITY IMPR.PIPE W.	3,140	04/29/04	Sherwin Williams - ENG2003-00078	2004	3,966	1,855	5,821	826	1,213	4,608
445	UTILITY IMPR.PIPE W.	8,188	06/03/04	Elliott Meadows - ENG2003-00129	2004	10,300	4,817	15,117	2,112	3,099	12,018
445	UTILITY IMPR.PIPE W.	2,656	06/18/04	Alicias Glen - ENG2003-00092	2004	3,341	1,563	4,903	685	1,005	3,898
445	UTILITY IMPR.PIPE W.	16,366	06/15/04	Vancouver Clinic- ENG2003-00034	2004	20,586	9,628	30,214	4,220	6,194	24,020
445	UTILITY IMPR.PIPE W.	8,661	06/25/04	Andrews Place Subdivision - V99UT1	2004	10,894	5,095	15,989	2,233	3,278	12,711
445	UTILITY IMPR.PIPE W.	3,670	06/29/04	Beacock Music - ENG2003-00027	2004	4,616	2,159	6,775	946	1,389	5,386
445	UTILITY IMPR.PIPE W.	12,367	06/29/04	Pine Hollow - ENG2002-00153	2004	15,556	7,276	22,832	3,189	4,681	18,152
445	UTILITY IMPR.PIPE W.	1,987	06/29/04	Pine Hollow - ENG2002-00153	2004	2,500	1,169	3,669	513	752	2,917
445	UTILITY IMPR.PIPE W.	358	06/29/04	Pine Hollow - ENG2002-00153	2004	450	210	660	92	135	525
445	UTILITY IMPR.PIPE W.	2,027	06/18/04	Hidden View - V98UT216	2004	2,550	1,193	3,743	523	767	2,975
445	UTILITY IMPR.PIPE W.	2,390	07/19/04	CTC Building 616-ENG2003-00141	2004	3,000	1,403	4,403	610	895	3,508
445	UTILITY IMPR.PIPE W.	22,307	07/19/04	CTC Building 616-ENG2003-00141	2004	28,000	13,096	41,096	5,693	8,356	32,740
445	UTILITY IMPR.PIPE W.	9,979	08/03/04	Arlenes Acre-ENG2003-00156	2004	12,500	5,846	18,346	2,521	3,700	14,647
445	UTILITY IMPR.PIPE W.	23,570	07/29/04	Mill Plain Plaza Ph 2-ENG2000-00161	2004	29,586	13,838	43,424	6,016	8,829	34,594
445	UTILITY IMPR.PIPE W.	3,044	07/27/04	Teng Subdivision-ENG2003-00160	2004	3,821	1,787	5,608	777	1,140	4,468
445	UTILITY IMPR.PIPE W.	124,923	07/27/04	Teng Subdivision-ENG2003-00160	2004	156,807	73,340	230,147	31,884	46,797	183,351
445	UTILITY IMPR.PIPE W.	3,871	07/27/04	Teng Subdivision-ENG2003-00160	2004	4,859	2,273	7,132	988	1,450	5,682
445	UTILITY IMPR.PIPE W.	3,384	05/14/04	Bostons Pizza	2004	4,266	1,995	6,261	882	1,294	4,967
445	UTILITY IMPR.PIPE W.	1,217	06/03/04	Southview Center 2-ENG2003-00018	2004	1,531	716	2,246	314	460	1,786
445	UTILITY IMPR.PIPE W.	3,573	06/03/04	Southview Center 2-ENG2003-00018	2004	4,494	2,102	6,596	921	1,352	5,244
445	UTILITY IMPR.PIPE W.	9,668	07/14/04	Iron Gate Storage-ENG2002-00102	2004	12,135	5,676	17,811	2,467	3,622	14,189
445	UTILITY IMPR.PIPE W.	876	07/14/04	Iron Gate Storage-ENG2002-00102	2004	1,100	514	1,614	224	328	1,286
445	UTILITY IMPR.PIPE W.	20,176	06/28/04	Ellsworth Terrace Phase 3-ENG2000-	2004	25,378	11,870	37,248	5,203	7,636	29,612
445	UTILITY IMPR.PIPE W.	302	06/06/04	Pate Triplex-V98UT070	2004	380	178	558	78	114	443
445	UTILITY IMPR.PIPE W.	21,164	08/04/04	Fruit Valley Housing	2004	26,510	12,399	38,909	5,346	7,847	31,062
445	UTILITY IMPR.PIPE W.	671	08/04/04	Fruit Valley Housing	2004	840	393	1,233	169	249	984
445	UTILITY IMPR.PIPE W.	10,099	08/09/04	Fruit Valley Housing	2004	12,650	5,917	18,567	2,551	3,744	14,822
445	UTILITY IMPR.PIPE W.	34,648	08/19/04	Evergreen Elementary School-ENG20	2004	43,400	20,299	63,699	8,752	12,846	50,853
445	UTILITY IMPR.PIPE W.	3,717	08/19/04	Sirrah Office Building - ENG2001-001	2004	4,656	2,178	6,834	939	1,378	5,456
445	UTILITY IMPR.PIPE W.	37,101	10/04/04	Madison Field-ENG2003-00135	2004	46,280	21,646	67,926	9,179	13,472	54,454
445	UTILITY IMPR.PIPE W.	14,839	10/04/04	Madison Field-ENG2003-00135	2004	18,510	8,657	27,167	3,671	5,388	21,779
445	UTILITY IMPR.PIPE W.	17,597	10/05/04	Shull Utility Ext-ENG2002-00021	2004	21,950	10,266	32,216	4,353	6,390	25,827
445	UTILITY IMPR.PIPE W.	120	10/05/04	Shull Utility Ext-ENG2002-00021	2004	150	70	220	30	44	176
445	UTILITY IMPR.PIPE W.	1,199	10/05/04	Shull Utility Ext-ENG2002-00021	2004	1,495	699	2,194	296	435	1,759
445	UTILITY IMPR.PIPE W.	3,447	10/06/04	Tylers Glen II	2004	4,300	2,011	6,311	853	1,252	5,059
445	UTILITY IMPR.PIPE W.	409	10/06/04	Tylers Glen II	2004	510	239	749	101	148	600
445	UTILITY IMPR.PIPE W.	38,458	10/06/04	The Glen - ENG2002-00086	2004	47,972	22,437	70,409	9,514	13,964	56,445
445	UTILITY IMPR.PIPE W.	54,349	10/06/04	The Glen - ENG2002-00086	2004	67,795	31,709	99,504	13,446	19,735	79,769
445	UTILITY IMPR.PIPE W.	529	10/07/04	Mill Plain Center - ENG2003-00016	2004	660	309	969	131	192	777
445	UTILITY IMPR.PIPE W.	3,672	10/07/04	Mill Plain Center - ENG2003-00016	2004	4,580	2,142	6,722	908	1,333	5,389
445	UTILITY IMPR.PIPE W.	6,697	10/14/04	Vancouver Office Park	2004	8,353	3,907	12,260	1,657	2,431	9,829
445	UTILITY IMPR.PIPE W.	1,211	10/14/04	Vancouver Office Park	2004	1,511	707	2,218	300	440	1,778
445	UTILITY IMPR.PIPE W.	16,362	10/18/04	Axford Lane Subdivision-ENG2003-00	2004	20,410	9,546	29,956	4,048	5,941	24,015
445	UTILITY IMPR.PIPE W.	4,289	10/21/04	United Pipe & Supply-ENG2003-0015	2004	5,350	2,502	7,852	1,061	1,557	6,295
445	UTILITY IMPR.PIPE W.	4,954	10/21/04	Tidewater Office Ph 2A & 2B-ENG200	2004	6,180	2,890	9,070	1,226	1,799	7,271
445	UTILITY IMPR.PIPE W.	3,960	10/21/04	Tidewater Office Ph 2A & 2B-ENG200	2004	4,940	2,310	7,250	980	1,438	5,813
445	UTILITY IMPR.PIPE W.	823	10/21/04	Tidewater Office Ph 2A & 2B-ENG200	2004	1,026	480	1,506	203	299	1,207
445	UTILITY IMPR.PIPE W.	41,681	10/21/04	North Pointe Phases 3,4,5-ENG2003-	2004	51,993	24,318	76,311	10,312	15,135	61,176
445	UTILITY IMPR.PIPE W.	3,761	10/21/04	North Pointe Phases 3,4,5-ENG2003-	2004	4,692	2,195	6,887	931	1,366	5,521
445	UTILITY IMPR.PIPE W.	45,348	11/03/04	Fishers Grove South Phase 2	2004	56,450	26,402	82,852	11,102	16,294	66,558
445	UTILITY IMPR.PIPE W.	7,712	11/03/04	Extended Stay America	2004	9,600	4,490	14,090	1,888	2,771	11,319
445	UTILITY IMPR.PIPE W.	2,410	11/03/04	Extended Stay America	2004	3,000	1,403	4,403	590	866	3,537
445	UTILITY IMPR.PIPE W.	11,676	11/03/04	Esther Short Commons-ENG2002-001	2004	14,534	6,798	21,332	2,858	4,195	17,137
445	UTILITY IMPR.PIPE W.	1,044	11/03/04	Esther Short Commons-ENG2002-001	2004	1,300	608	1,908	256	375	1,533
445	UTILITY IMPR.PIPE W.	7,569	11/22/04	Peoples Credit Union-ENG2003-0009	2004	9,422	4,407	13,828	1,853	2,719	11,109
445	UTILITY IMPR.PIPE W.	19,690	11/10/04	121st Avenue Business Park - ENG20	2004	24,510	11,464	35,974	4,820	7,075	28,899
445	UTILITY IMPR.PIPE W.	1,142	11/10/04	121st Avenue Business Park - ENG20	2004	1,421	665	2,086	279	410	1,676
445	UTILITY IMPR.PIPE W.	1,401	11/10/04	121st Avenue Business Park - ENG20	2004	1,744	816	2,560	343	503	2,056
445	UTILITY IMPR.PIPE W.	15,765	12/17/04	The Ridge ENG2001-00179	2004	19,584	9,160	28,744	3,819	5,605	23,139
445	UTILITY IMPR.PIPE W.	684	12/30/04	Bank of America CTC-ENG2004-0000	2005	850	398	1,248	166	243	1,004
445	UTILITY IMPR.PIPE W.	1,758	01/04/05	WA State School for the Blind - ENG2	2005	2,179	862	3,041	421	588	2,453
445	UTILITY IMPR.PIPE W.	1,594	01/05/05	The Gables Phase 1 - ENG2003-0001	2005	1,976	782	2,758	382	533	2,225
445	UTILITY IMPR.PIPE W.	42,384	01/05/05	The Gables Phase 1 - ENG2003-0001	2005	52,542	20,789	73,331	10,158	14,177	59,154
445	UTILITY IMPR.PIPE W.	16,432	01/05/05	The Gables Phase 1 - ENG2003-0001	2005	20,370	8,060	28,430	3,938	5,496	22,933
445	UTILITY IMPR.PIPE W.	2,468	01/06/05	Hiddenbrook Terrace Lot 197	2005	3,059	1,210	4,269	591	825	3,444
445	UTILITY IMPR.PIPE W.	2,468	01/06/05	Hiddenbrook Terrace Lot 197	2005	3,059	1,210	4,269	591	825	3,444
445	UTILITY IMPR.PIPE W.	1,931	01/06/05	Hiddenbrook Terrace Lot 197	2005	2,394	947	3,341	463	646	2,695
445	UTILITY IMPR.PIPE W.	9,332	01/19/05	ESD 112 Child Care - ENG 2003-0001	2005	11,569	4,577	16,146	2,237	3,122	13,025
445	UTILITY IMPR.PIPE W.	25,975	01/26/05	Guinn Acres Subdivision-V98UT024-V	2005	32,200	12,740	44,940	6,225	8,688	36,252
445	UTILITY IMPR.PIPE W.	18,011	01/31/05	The Gables Phase 2 - ENG2004-0004	2005	22,328	8,834	31,162	4,317	6,025	25,138
445	UTILITY IMPR.PIPE W.	13,855	06/16/05	V99UT159-WB2121	2005	17,000	6,726	23,726	3,145	4,389	19,337
445	UTILITY IMPR.PIPE W.	15,974	06/20/05	Countryside Estates-ENG2004-00008	2005	19,600	7,755	27,355	3,626	5,061	22,294
445	UTILITY IMPR.PIPE W.	782	06/21/05	Taylor's Subdivision-ENG2004-00122	2005	960	380	1,340	178	248	1,092
445	UTILITY IMPR.PIPE W.	12,738	02/17/05	Summer's Walk A-6-V997T084 / WB2	2005	15,759	6,235	21,994	3,020	4,215	17,778
445	UTILITY IMPR.PIPE W.	13,836	04/27/05	Westbury Commons-ENG2004-00083	2005	17,046	6,745	23,791	3,210	4,481	19,311

Water Fixed Assets as of September 30,2014

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Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	4,860	03/18/05	CTC Irrigation Pump Station - ENG20	2005	6,000	2,374	8,374	1,140	1,591	6,783
445	UTILITY IMPR.PIPE W.	4,860	03/18/05	CTC Irrigation Pump Station - ENG20	2005	6,000	2,374	8,374	1,140	1,591	6,783
445	UTILITY IMPR.PIPE W.	13,865	05/20/05	Westbury Commons - ENG2004-0006	2005	17,046	6,745	23,791	3,182	4,441	19,350
445	UTILITY IMPR.PIPE W.	9,231	05/25/05	Diamond Estates-ENG2003-000157	2005	11,350	4,491	15,841	2,119	2,957	12,884
445	UTILITY IMPR.PIPE W.	34,570	05/26/05	Westridge Phase 6	2005	42,504	16,817	59,321	7,934	11,073	48,248
445	UTILITY IMPR.PIPE W.	51,964	05/27/05	Snyder's Country Place Phase 3-ENC	2005	63,890	25,279	89,169	11,926	16,645	72,524
445	UTILITY IMPR.PIPE W.	16,462	05/31/05	RS Medical Phase III-ENG2003-0011	2005	20,240	8,008	28,248	3,778	5,273	22,975
445	UTILITY IMPR.PIPE W.	907	05/31/05	RS Medical Phase III-ENG2003-0011	2005	1,115	441	1,556	208	290	1,266
445	UTILITY IMPR.PIPE W.	52,975	06/03/05	Tech Center Plaza Utility Improvemen	2005	65,000	25,718	90,718	12,025	16,783	73,935
445	UTILITY IMPR.PIPE W.	103,790	06/03/05	Landover Commons - ENG2004-0000	2005	127,350	50,387	177,737	23,560	32,881	144,856
445	UTILITY IMPR.PIPE W.	5,982	06/03/05	Diamond Estates - ENG2004-00006	2005	7,340	2,904	10,244	1,358	1,895	8,349
445	UTILITY IMPR.PIPE W.	4,303	06/03/05	Diamond Estates - ENG2004-00006	2005	5,280	2,089	7,369	977	1,363	6,006
445	UTILITY IMPR.PIPE W.	5,905	06/21/05	Taylor's Subdivision-ENG2004-00122	2005	7,245	2,867	10,112	1,340	1,871	8,241
445	UTILITY IMPR.PIPE W.	193,672	06/28/05	Cottage Homes Estates - ENG2003-0	2005	237,634	94,022	331,656	43,962	61,356	270,300
445	UTILITY IMPR.PIPE W.	1,525	06/28/05	Cottage Homes Estates - ENG2003-0	2005	1,871	740	2,612	346	483	2,128
445	UTILITY IMPR.PIPE W.	36,002	06/27/05	Port of Vancouver-Tristar Transport -	2005	44,174	17,478	61,652	8,172	11,406	50,246
445	UTILITY IMPR.PIPE W.	21,190	06/28/05	Orchards Retail Center-ENG2004-001	2005	26,000	10,287	36,287	4,810	6,713	29,574
445	UTILITY IMPR.PIPE W.	63,379	07/14/05	The Woods of Royal Oaks-ENG2003-	2005	77,607	30,706	108,313	14,228	19,857	88,456
445	UTILITY IMPR.PIPE W.	5,534	07/15/05	Logan's Landing-ENG2004-00049	2005	6,776	2,681	9,457	1,242	1,734	7,723
445	UTILITY IMPR.PIPE W.	862	07/15/05	Logan's Landing-ENG2004-00049	2005	1,056	418	1,474	194	270	1,204
445	UTILITY IMPR.PIPE W.	229	07/25/05	SW Washington Regional Crime Lab-	2005	280	111	391	51	72	319
445	UTILITY IMPR.PIPE W.	7,448	07/25/05	SW Washington Regional Crime Lab-	2005	9,120	3,608	12,728	1,672	2,334	10,395
445	UTILITY IMPR.PIPE W.	1,323	07/26/05	Banner Bank - ENG2004-00108	2005	1,620	641	2,261	297	415	1,846
445	UTILITY IMPR.PIPE W.	11,584	08/05/05	Autumn Chase Subdivision - ENG200	2005	14,155	5,601	19,756	2,571	3,589	16,167
445	UTILITY IMPR.PIPE W.	47,843	08/17/05	CTC Out Parcel Retail - Utility - ENG2	2005	58,464	23,132	81,596	10,621	14,823	66,773
445	UTILITY IMPR.PIPE W.	4,776	09/01/05	Sarah's Place - ENG2004-00073	2005	5,825	2,305	8,130	1,049	1,463	6,666
445	UTILITY IMPR.PIPE W.	4,740	09/13/05	Pearl Place Short Plat - ENG2004-00	2005	5,780	2,287	8,067	1,040	1,452	6,615
445	UTILITY IMPR.PIPE W.	992	09/13/05	Pearl Place Short Plat - ENG2004-00	2005	1,210	479	1,689	218	304	1,385
445	UTILITY IMPR.PIPE W.	18,023	10/17/05	Vineyard Estates	2005	21,935	8,679	30,614	3,912	5,459	25,154
445	UTILITY IMPR.PIPE W.	926	10/17/05	Nautilus World Headquarters	2005	1,127	446	1,573	201	281	1,293
445	UTILITY IMPR.PIPE W.	411	10/17/05	Nautilus World Headquarters	2005	500	198	698	89	124	574
445	UTILITY IMPR.PIPE W.	10,926	10/19/05	C & N Short Plat - ENG2004-00125	2005	13,297	5,261	18,558	2,371	3,310	15,249
445	UTILITY IMPR.PIPE W.	19,794	10/20/05	CTC Bldg 202 Riverview Bank	2005	24,090	9,531	33,621	4,296	5,996	27,626
445	UTILITY IMPR.PIPE W.	11,280	11/21/05	Over Short Plat - ENG2001-00010	2005	13,700	5,421	19,121	2,420	3,378	15,743
445	UTILITY IMPR.PIPE W.	720	11/22/05	Westminister Church - ENG2003-001	2005	875	346	1,221	155	216	1,005
445	UTILITY IMPR.PIPE W.	24,379	12/05/05	Westridge Phase 4A - ENG2004-001	2005	29,550	11,692	41,242	5,171	7,217	34,024
445	UTILITY IMPR.PIPE W.	13,200	12/08/05	Park Tower V - ENG2004-00092	2005	16,000	6,331	22,331	2,800	3,908	18,423
445	UTILITY IMPR.PIPE W.	1,238	12/08/05	Park Tower V - ENG2004-00092	2005	1,500	593	2,093	263	366	1,727
445	UTILITY IMPR.PIPE W.	7,425	12/20/05	Firstenberg Community Center - ENG	2005	9,000	3,561	12,561	1,575	2,198	10,363
445	UTILITY IMPR.PIPE W.	10,412	12/20/05	Hidden Homestead - ENG2003-00172	2005	12,621	4,994	17,615	2,209	3,083	14,532
445	UTILITY IMPR.PIPE W.	1,411	12/20/05	Hidden Homestead - ENG2003-00172	2005	1,710	677	2,387	299	418	1,969
445	UTILITY IMPR.PIPE W.	12,391	01/31/06	TNT Creekside - ENG2002-00013	2006	14,989	5,277	20,266	2,598	3,513	16,754
445	UTILITY IMPR.PIPE W.	34,651	01/31/06	Fisher's Terrace - ENG2004-00019	2006	41,916	14,758	56,674	7,265	9,823	46,850
445	UTILITY IMPR.PIPE W.	3,340	01/31/06	Sea Mar Community Health Center - E	2006	4,040	1,422	5,462	700	947	4,516
445	UTILITY IMPR.PIPE W.	37,412	01/31/06	Courtyard Village - ENG2004-00082	2006	45,256	15,934	61,190	7,844	10,606	50,583
445	UTILITY IMPR.PIPE W.	6,431	01/31/06	Courtyard Village - ENG2004-00082	2006	7,779	2,739	10,518	1,348	1,823	8,695
445	UTILITY IMPR.PIPE W.	12,598	01/31/06	Courtyard Village - ENG2004-00082	2006	15,240	5,366	20,606	2,642	3,572	17,034
445	UTILITY IMPR.PIPE W.	15,508	01/31/06	Tidewater Cove Phase 1B - ENG200	2006	18,760	6,605	25,365	3,252	4,397	20,968
445	UTILITY IMPR.PIPE W.	3,472	01/31/06	Tidewater Cove Phase 1B - ENG200	2006	4,200	1,479	5,679	728	984	4,694
445	UTILITY IMPR.PIPE W.	781	01/31/06	Pedigo - ENG2004-00103	2006	945	333	1,278	164	222	1,056
445	UTILITY IMPR.PIPE W.	7,592	01/31/06	Pedigo - ENG2004-00103	2006	9,184	3,233	12,417	1,592	2,152	10,265
445	UTILITY IMPR.PIPE W.	57,977	01/31/06	58th St. Cottages - ENG2005-00014	2006	70,134	24,693	94,827	12,157	16,437	78,390
445	UTILITY IMPR.PIPE W.	17,109	01/31/06	58th St. Cottages - ENG2005-00014	2006	20,696	7,287	27,983	3,587	4,850	23,132
445	UTILITY IMPR.PIPE W.	15,624	01/31/06	Fruit Valley Addition - ENG2005-0001	2006	18,900	6,654	25,554	3,276	4,429	21,125
445	UTILITY IMPR.PIPE W.	6,448	01/31/06	Evergreen Townhomes - ENG2004-0	2006	7,800	2,746	10,546	1,352	1,828	8,718
445	UTILITY IMPR.PIPE W.	13,651	02/28/06	Mission Hills Apts - Clubhouse - ENG	2006	16,480	5,802	22,282	2,829	3,825	18,457
445	UTILITY IMPR.PIPE W.	1,305	02/28/06	Mission Hills Apts - Clubhouse - ENG	2006	1,575	555	2,130	270	366	1,764
445	UTILITY IMPR.PIPE W.	17,272	02/28/06	Westridge Blvd - ENG2004-00058	2006	20,851	7,341	28,192	3,579	4,840	23,353
445	UTILITY IMPR.PIPE W.	3,322	02/28/06	Conference Center/Hotel - ENG2003-	2006	4,010	1,412	5,422	688	931	4,491
445	UTILITY IMPR.PIPE W.	1,163	02/28/06	Conference Center/Hotel - ENG2003-	2006	1,404	494	1,898	241	326	1,572
445	UTILITY IMPR.PIPE W.	39,972	02/28/06	Mission Hill Apartments - ENG2003-0	2006	48,256	16,990	65,246	8,284	11,201	54,045
445	UTILITY IMPR.PIPE W.	13,596	02/28/06	Lone Birch Subdivision - ENG2004-0	2006	16,414	5,779	22,193	2,818	3,810	18,383
445	UTILITY IMPR.PIPE W.	6,401	02/28/06	Clark County Public Service Center - I	2006	7,728	2,721	10,449	1,327	1,794	8,655
445	UTILITY IMPR.PIPE W.	1,023	02/28/06	Clark County Public Service Center - I	2006	1,235	435	1,670	212	287	1,383
445	UTILITY IMPR.PIPE W.	92,194	02/28/06	Northwood Park on Site - ENG2005-0	2006	111,300	39,186	150,486	19,107	25,833	124,653
445	UTILITY IMPR.PIPE W.	24,514	02/28/06	Meadow East - ENG2004-00107	2006	29,595	10,420	40,014	5,080	6,869	33,145
445	UTILITY IMPR.PIPE W.	4,976	02/28/06	Meadow East - ENG2004-00107	2006	6,007	2,115	8,122	1,031	1,394	6,728
445	UTILITY IMPR.PIPE W.	48,250	02/28/06	Kohl's Department Store - ENG2005-	2006	58,250	20,508	78,758	10,000	13,520	65,238
445	UTILITY IMPR.PIPE W.	1,408	02/28/06	Kohl's Department Store - ENG2005-	2006	1,700	599	2,299	292	395	1,904
445	UTILITY IMPR.PIPE W.	5,566	02/28/06	Evergreen Point - ENG2005-00024	2006	6,720	2,366	9,086	1,154	1,560	7,526
445	UTILITY IMPR.PIPE W.	5,011	02/28/06	Cold Creek - ENG2005-00035	2006	6,050	2,130	8,180	1,039	1,404	6,776
445	UTILITY IMPR.PIPE W.	21,364	03/31/06	CTC Building 216 - ENG2004-00154	2006	25,740	9,062	34,802	4,376	5,916	28,886
445	UTILITY IMPR.PIPE W.	1,348	03/31/06	CTC Building 216 - ENG2004-00154	2006	1,624	572	2,196	276	373	1,822
445	UTILITY IMPR.PIPE W.	9,553	03/31/06	CTC Building 217 - ENG2004-00043	2006	11,510	4,052	15,562	1,957	2,646	12,917
445	UTILITY IMPR.PIPE W.	422	03/31/06	CTC Building 217 - ENG2004-00043	2006	509	179	688	87	117	571
445	UTILITY IMPR.PIPE W.	21,031	03/31/06	One Lake Place Phase III - ENG2003	2006	25,338	8,921	34,259	4,307	5,824	28,435
445	UTILITY IMPR.PIPE W.	5,902	04/30/06	Damaari Terrace - ENG2004-00102	2006	7,097	2,499	9,595	1,195	1,615	7,980
445	UTILITY IMPR.PIPE W.	75,596	04/30/06	Damaari Terrace - ENG2004-00102	2006	90,897	32,003	122,900	15,301	20,688	102,212
445	UTILITY IMPR.PIPE W.	4,670	04/30/06	Dreiling Professional Office - ENG200	2006	5,615	1,977	7,592	945	1,278	6,314
445	UTILITY IMPR.PIPE W.	45,996	05/31/06	PAC Paper Phase 1 - ENG2002-0012	2006	55,195	19,433	74,628	9,199	12,438	62,190
445	UTILITY IMPR.PIPE W.	3,636	05/31/06	PAC Paper Phase 1 - ENG2002-0012	2006	4,363	1,536	5,899	727	983	4,916
445	UTILITY IMPR.PIPE W.	13,896	05/31/06	Camille Court - ENG2002-00048	2006	16,675	5,871	22,546	2,779	3,758	18,788

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	1,715	05/31/06	Camille Court - ENG2002-00048	2006	2,058	725	2,783	343	464	2,319
445	UTILITY IMPR.PIPE W.	2,545	06/30/06	Westfield Place - ENG2005-00012	2006	3,048	1,073	4,121	503	680	3,441
445	UTILITY IMPR.PIPE W.	11,356	06/30/06	Westfield Place - ENG2005-00012	2006	13,600	4,788	18,388	2,244	3,034	15,354
445	UTILITY IMPR.PIPE W.	23,856	06/30/06	Ashford Lane Short Subdivision - ENC	2006	28,570	10,059	38,629	4,714	6,374	32,255
445	UTILITY IMPR.PIPE W.	47,909	06/30/06	Columbia Crossing - ENG2005-00143	2006	57,376	20,201	77,577	9,467	12,800	64,777
445	UTILITY IMPR.PIPE W.	6,332	06/30/06	Columbia Crossing - ENG2005-00143	2006	7,584	2,670	10,253	1,251	1,692	8,562
445	UTILITY IMPR.PIPE W.	20,917	07/31/06	Western Vancouver Holding - ENG20	2006	25,000	8,802	33,802	4,083	5,521	28,281
445	UTILITY IMPR.PIPE W.	1,740	07/31/06	Western Vancouver Holding - ENG20	2006	2,080	732	2,812	340	459	2,353
445	UTILITY IMPR.PIPE W.	6,077	08/31/06	Sheldon Estates S.P. - ENG2005-000	2006	7,249	2,552	9,801	1,172	1,584	8,217
445	UTILITY IMPR.PIPE W.	3,707	08/31/06	Mill Plain East - ENG2005-00168	2006	4,422	1,557	5,979	715	967	5,012
445	UTILITY IMPR.PIPE W.	2,204	08/31/06	Riley Short Plat - ENG2005-00046	2006	2,628	925	3,554	425	574	2,979
445	UTILITY IMPR.PIPE W.	316	08/31/06	Riley Short Plat - ENG2005-00046	2006	377	133	509	61	82	427
445	UTILITY IMPR.PIPE W.	634	08/31/06	Riley Short Plat - ENG2005-00046	2006	757	266	1,023	122	165	858
445	UTILITY IMPR.PIPE W.	3,916	08/31/06	The Bridge - ENG2004-00093	2006	4,672	1,645	6,316	755	1,021	5,295
445	UTILITY IMPR.PIPE W.	1,571	08/31/06	The Bridge - ENG2004-00093	2006	1,873	660	2,533	303	409	2,123
445	UTILITY IMPR.PIPE W.	6,772	08/31/06	Laurel Woods - ENG2006-00014	2006	8,077	2,844	10,921	1,306	1,765	9,156
445	UTILITY IMPR.PIPE W.	503	08/31/06	Gate Program - ENG2002-00049	2006	600	211	811	97	131	680
445	UTILITY IMPR.PIPE W.	503	08/31/06	Gate Program - ENG2002-00049	2006	600	211	811	97	131	680
445	UTILITY IMPR.PIPE W.	12,924	08/31/06	Hiddenbrook Ridge - ENG2005-0009C	2006	15,416	5,427	20,843	2,492	3,370	17,474
445	UTILITY IMPR.PIPE W.	11,424	09/01/06	Westfield Place - ENG2005-00012	2006	13,600	4,788	18,388	2,176	2,942	15,446
445	UTILITY IMPR.PIPE W.	2,560	09/01/06	Westfield Place - ENG2005-00012	2006	3,048	1,073	4,121	488	659	3,462
445	UTILITY IMPR.PIPE W.	1,260	09/01/06	Asghar Sadri Development - ENG200	2006	1,500	528	2,028	240	324	1,704
445	UTILITY IMPR.PIPE W.	19,215	09/01/06	Evergreen Heights - ENG2004-00084	2006	22,875	8,054	30,929	3,660	4,949	25,980
445	UTILITY IMPR.PIPE W.	13,530	09/01/06	Evergreen Heights - ENG2004-00084	2006	16,108	5,671	21,779	2,577	3,485	18,294
445	UTILITY IMPR.PIPE W.	12,949	09/01/06	Hiddenbrook Ridge - ENG2005-0009C	2006	15,416	5,427	20,843	2,466	3,335	17,508
445	UTILITY IMPR.PIPE W.	18,772	09/01/06	Odem Infill Subd - ENG2006-00010	2006	22,347	7,868	30,215	3,576	4,834	25,381
445	UTILITY IMPR.PIPE W.	4,551	09/01/06	Odem Infill Subd - ENG2006-00010	2006	5,417	1,907	7,325	867	1,172	6,153
445	UTILITY IMPR.PIPE W.	4,377	10/01/06	Cassidy Short Subdivision - ENG2005	2006	5,200	1,831	7,031	823	1,113	5,918
445	UTILITY IMPR.PIPE W.	6,851	10/01/06	Finn Subdivision - ENG2006-00004	2006	8,140	2,866	11,006	1,289	1,743	9,264
445	UTILITY IMPR.PIPE W.	15,437	10/01/06	Finn Subdivision - ENG2006-00004	2006	18,340	6,457	24,798	2,904	3,926	20,871
445	UTILITY IMPR.PIPE W.	4,623	10/01/06	S & L Short Plat - ENG2004-00135	2006	5,492	1,934	7,426	870	1,176	6,250
445	UTILITY IMPR.PIPE W.	9,296	10/01/06	Harteloo Subdivision - ENG2006-0002	2006	11,045	3,889	14,934	1,749	2,365	12,569
445	UTILITY IMPR.PIPE W.	50,507	11/01/06	Stonebrook - PH-5 - V99UT133	2006	59,890	21,086	80,976	9,383	12,686	68,290
445	UTILITY IMPR.PIPE W.	15,502	11/01/06	Nick's Place - ENG2004-00024	2006	18,382	6,472	24,854	2,880	3,894	20,960
445	UTILITY IMPR.PIPE W.	22,348	11/01/06	Lilac Lane - ENG2005-00020	2006	26,500	9,330	35,830	4,152	5,613	30,217
445	UTILITY IMPR.PIPE W.	14,303	11/01/06	Walgreens - ENG2005-00186	2006	16,960	5,971	22,931	2,657	3,593	19,339
445	UTILITY IMPR.PIPE W.	4,056	12/01/06	Ellsworth Short Plat - ENG2005-00191	2006	4,800	1,690	6,490	744	1,006	5,484
445	UTILITY IMPR.PIPE W.	12,191	01/09/07	C & N Shortplat-ENG2006-00064	2007	14,398	4,435	18,833	2,208	2,888	15,945
445	UTILITY IMPR.PIPE W.	7,285	01/03/07	Quail Crossing-ENG2005-00002	2007	8,604	2,650	11,254	1,319	1,726	9,528
445	UTILITY IMPR.PIPE W.	67,587	01/03/07	Quail Crossing-ENG2005-00002	2007	79,827	24,587	104,414	12,240	16,010	88,404
445	UTILITY IMPR.PIPE W.	6,400	05/17/07	Evergreen Village APT ENG 2005-00	2007	7,500	2,310	9,810	1,100	1,439	8,371
445	UTILITY IMPR.PIPE W.	2,799	05/17/07	Evergreen Village APT ENG 2005-00	2007	3,280	1,010	4,290	481	629	3,661
445	UTILITY IMPR.PIPE W.	1,562	05/17/07	Evergreen Village APT ENG 2005-00	2007	1,831	564	2,395	269	351	2,044
445	UTILITY IMPR.PIPE W.	7,969	04/09/07	Bella Vista Heights-ENG2005-00044	2007	9,357	2,882	12,239	1,388	1,815	10,424
445	UTILITY IMPR.PIPE W.	21,070	04/09/07	Bella Vista Heights-ENG2005-00044	2007	24,740	7,620	32,360	3,670	4,800	27,560
445	UTILITY IMPR.PIPE W.	84,636	04/09/07	Bella Vista Heights-ENG2005-00044	2007	99,377	30,608	129,985	14,741	19,281	110,704
445	UTILITY IMPR.PIPE W.	4,927	04/04/07	Evergreen Center-ENG2002-00055	2007	5,785	1,782	7,567	858	1,122	6,444
445	UTILITY IMPR.PIPE W.	22,314	04/04/07	Evergreen Center-ENG2002-00055	2007	26,200	8,070	34,270	3,886	5,083	29,186
445	UTILITY IMPR.PIPE W.	43,475	04/03/07	Evergreen Acres-ENG2006-00022	2007	51,047	15,722	66,769	7,572	9,904	56,865
445	UTILITY IMPR.PIPE W.	22,678	04/02/07	Edwards Subdivision-ENG2005-0000	2007	26,628	8,201	34,829	3,950	5,166	29,663
445	UTILITY IMPR.PIPE W.	595	03/31/07	Kezar Medical-Sewer-ENG2004-0008	2007	700	216	916	105	137	778
445	UTILITY IMPR.PIPE W.	1,870	03/31/07	Kezar Medical-Sewer-ENG2004-0008	2007	2,200	678	2,878	330	432	2,446
445	UTILITY IMPR.PIPE W.	4,675	03/31/07	Kezar Medical-Sewer-ENG2004-0008	2007	5,500	1,694	7,194	825	1,079	6,115
445	UTILITY IMPR.PIPE W.	22,389	03/26/07	Stonebrook Residence PH 4-V99UT1	2007	26,340	8,113	34,453	3,951	5,168	29,285
445	UTILITY IMPR.PIPE W.	31,391	03/26/07	Stonebrook Residence PH 4-V99UT1	2007	36,930	11,374	48,304	5,540	7,246	41,059
445	UTILITY IMPR.PIPE W.	6,911	03/26/07	Crown Estates Phase 1-ENG2006-00	2007	8,130	2,504	10,634	1,220	1,595	9,039
445	UTILITY IMPR.PIPE W.	4,985	03/26/07	Crown Estates Phase 1-ENG2006-00	2007	5,865	1,806	7,671	880	1,151	6,521
445	UTILITY IMPR.PIPE W.	977	03/23/07	Rowland Heights-ENG2006-00061	2007	1,150	354	1,504	173	226	1,279
445	UTILITY IMPR.PIPE W.	5,578	03/23/07	Rowland Heights-ENG2006-00061	2007	6,562	2,021	8,583	984	1,288	7,296
445	UTILITY IMPR.PIPE W.	2,125	03/22/07	Honest 1 Auto Center-ENG2002-0011	2007	2,500	770	3,270	375	491	2,779
445	UTILITY IMPR.PIPE W.	2,720	03/22/07	Mackenzie Manor-ENG2006-00088	2007	3,200	986	4,186	480	628	3,558
445	UTILITY IMPR.PIPE W.	10,410	03/21/07	Riverview Estates-ENG2005-00176	2007	12,247	3,772	16,019	1,837	2,403	13,616
445	UTILITY IMPR.PIPE W.	9,509	03/21/07	Riverview Estates-ENG2005-00176	2007	11,187	3,446	14,633	1,678	2,195	12,438
445	UTILITY IMPR.PIPE W.	144,074	03/19/07	Clarkwood-ENG2005-00118	2007	169,499	52,206	221,704	25,425	33,256	188,448
445	UTILITY IMPR.PIPE W.	7,650	03/19/07	Christensen Warehouse V97UT125/M	2007	9,000	2,772	11,772	1,350	1,766	10,006
445	UTILITY IMPR.PIPE W.	9,671	03/07/07	Pensco Subdivision- ENG2005-00087	2007	11,378	3,504	14,882	1,707	2,232	12,650
445	UTILITY IMPR.PIPE W.	92,443	02/22/07	Woodridge Subdivision-ENG2005-000	2007	108,970	33,563	142,533	16,527	21,618	120,916
445	UTILITY IMPR.PIPE W.	3,964	02/22/07	Woodridge Subdivision-ENG2005-000	2007	4,673	1,439	6,112	709	927	5,185
445	UTILITY IMPR.PIPE W.	24,296	02/22/07	Aurora Place Apts-ENG2005-00203	2007	28,640	8,821	37,461	4,344	5,682	31,780
445	UTILITY IMPR.PIPE W.	15,508	02/22/07	Yvonne Manor-ENG2005-00181	2007	18,280	5,630	23,910	2,772	3,626	20,284
445	UTILITY IMPR.PIPE W.	21,412	02/22/07	CTC Building 645-ENG2006-00059	2007	25,240	7,774	33,014	3,828	5,007	28,007
445	UTILITY IMPR.PIPE W.	55,064	02/02/07	The Lakes at Fisher's Landing ENG21	2007	64,908	19,992	84,900	9,844	12,876	72,024
445	UTILITY IMPR.PIPE W.	116,844	01/30/07	Eastside Spectrum-ENG2005-00030	2007	138,005	42,506	180,511	21,161	27,678	152,832
445	UTILITY IMPR.PIPE W.	7,452	01/30/07	Eastside Spectrum-ENG2005-00030	2007	8,802	2,711	11,513	1,350	1,765	9,748
445	UTILITY IMPR.PIPE W.	1,407	01/26/07	Safe and Sound Mini Storage ENG20	2007	1,662	512	2,174	255	333	1,841
445	UTILITY IMPR.PIPE W.	1,122	01/26/07	Safe and Sound Mini Storage ENG20	2007	1,325	408	1,733	203	266	1,467
445	UTILITY IMPR.PIPE W.	1,016	01/25/07	Sunrise Medical ENG2003-00126	2007	1,200	370	1,570	184	241	1,329
445	UTILITY IMPR.PIPE W.	13,547	01/25/07	Sunrise Medical ENG2003-00126	2007	16,000	4,928	20,928	2,453	3,209	17,719
445	UTILITY IMPR.PIPE W.	33,812	01/24/07	Redwood Acres ENG2000-00163	2007	39,936	12,300	52,236	6,124	8,010	44,227
445	UTILITY IMPR.PIPE W.	1,456	01/24/07	Redwood Acres ENG2000-00163	2007	1,720	530	2,250	264	345	1,905
445	UTILITY IMPR.PIPE W.	5,334	01/23/07	Belmont Place ENG2004-00052	2007	6,300	1,940	8,240	966	1,264	6,977
445	UTILITY IMPR.PIPE W.	32,808	01/23/07	Belmont Place ENG2004-00052	2007	38,750	11,935	50,685	5,942	7,772	42,913

Water Fixed Assets as of September 30,2014

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Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	17,848	01/23/07	Belmont Place ENG2004-00052	2007	21,080	6,493	27,573	3,232	4,228	23,345
445	UTILITY IMPR.PIPE W.	8,721	01/18/07	Galligan Civil Improvements-ENG200-	2007	10,300	3,172	13,472	1,579	2,066	11,407
445	UTILITY IMPR.PIPE W.	24,889	06/27/07	Zachary Landing-ENG2006-00132	2007	29,110	8,966	38,075	4,221	5,521	32,555
445	UTILITY IMPR.PIPE W.	496	06/27/07	Zachary Landing-ENG2006-00132	2007	580	179	759	84	110	649
445	UTILITY IMPR.PIPE W.	3,463	06/27/07	Zachary Landing-ENG2006-00132	2007	4,051	1,248	5,298	587	768	4,530
445	UTILITY IMPR.PIPE W.	57,397	07/12/07	BURBERRY SUBDIVISION ENG200-	2007	67,000	20,636	87,636	9,603	12,561	75,075
445	UTILITY IMPR.PIPE W.	2,039	07/23/07	SPRINGHILL SUITES/ENG2005-001	2007	2,381	733	3,114	341	446	2,667
445	UTILITY IMPR.PIPE W.	3,629	07/23/07	SPRINGHILL SUITES/ENG2005-001	2007	4,236	1,305	5,541	607	794	4,747
445	UTILITY IMPR.PIPE W.	24,359	07/24/07	CROWN ESTATES 2/ENG2006-0001	2007	28,435	8,758	37,193	4,076	5,331	31,862
445	UTILITY IMPR.PIPE W.	394	07/24/07	CROWN ESTATES 2/ENG2006-0001	2007	460	142	602	66	86	515
445	UTILITY IMPR.PIPE W.	1,648	08/09/07	NICOLE MEADOWS/ENG2005-0015	2007	1,920	591	2,511	272	356	2,156
445	UTILITY IMPR.PIPE W.	54,637	08/24/07	SE 117E 6/ENG2001-00136	2007	63,655	19,606	83,261	9,018	11,795	71,465
445	UTILITY IMPR.PIPE W.	22,274	09/06/07	Meadowlark Subdivision-ENG2006-0	2007	25,900	7,977	33,877	3,626	4,743	29,134
445	UTILITY IMPR.PIPE W.	4,128	09/06/07	Meadowlark Subdivision-ENG2006-0	2007	4,800	1,478	6,278	672	879	5,399
445	UTILITY IMPR.PIPE W.	648	11/08/07	Columbia Surface Parking Lot-ENG2	2007	750	231	981	103	134	847
445	UTILITY IMPR.PIPE W.	22,481	11/21/07	Miller Landing-ENG2005-00205	2007	26,040	8,020	34,060	3,559	4,655	29,405
445	UTILITY IMPR.PIPE W.	7,662	11/21/07	Miller Landing-ENG2005-00205	2007	8,875	2,734	11,609	1,213	1,586	10,022
445	UTILITY IMPR.PIPE W.	32,783	11/27/07	The Lakes 2 Fishers Landing PH 2/3	2007	37,973	11,696	49,669	5,190	6,788	42,881
445	UTILITY IMPR.PIPE W.	135,440	11/29/07	Columbia River Crossing Eng2005-00	2007	156,880	48,319	205,199	21,440	28,044	177,155
445	UTILITY IMPR.PIPE W.	9,226	11/29/07	Columbia River Crossing Eng2005-00	2007	10,686	3,291	13,977	1,460	1,910	12,067
445	UTILITY IMPR.PIPE W.	9,454	11/29/07	Columbia River Crossing Eng2005-00	2007	10,950	3,373	14,323	1,497	1,957	12,365
445	UTILITY IMPR.PIPE W.	4,860	09/13/07	Four Seasons Place ENG2005-0018	2007	5,651	1,741	7,392	791	1,035	6,357
445	UTILITY IMPR.PIPE W.	28,573	10/02/07	CTC BLDG 631 ENG2006-00086	2007	33,160	10,213	43,373	4,587	6,000	37,373
445	UTILITY IMPR.PIPE W.	711	10/02/07	CTC BLDG 631 ENG2006-00086	2007	825	254	1,079	114	149	930
445	UTILITY IMPR.PIPE W.	582	10/02/07	CTC BLDG 631 ENG2006-00086	2007	675	208	883	93	122	761
445	UTILITY IMPR.PIPE W.	28,242	10/16/07	JORDANS CT ENG2006-00142	2007	32,776	10,095	42,871	4,534	5,931	36,940
445	UTILITY IMPR.PIPE W.	776	10/29/07	COMPANION PET CLINIC ENG2005	2007	900	277	1,177	125	163	1,014
445	UTILITY IMPR.PIPE W.	41,129	10/29/07	SE 184th AVE-ENG2006-00102	2007	47,732	14,701	62,433	6,603	8,637	53,797
445	UTILITY IMPR.PIPE W.	23,723	12/28/07	ONE LAKE PLACE PH 4-ENG2003-0	2007	27,425	8,447	35,872	3,702	4,843	31,029
445	UTILITY IMPR.PIPE W.	1,526	12/28/07	ONE LAKE PLACE PH 4-ENG2003-0	2007	1,764	543	2,307	238	311	1,996
445	UTILITY IMPR.PIPE W.	7,266	12/31/07	VALLEY VIEW PH 2 ENG2006-0008	2007	8,400	2,587	10,987	1,134	1,483	9,504
445	UTILITY IMPR.PIPE W.	3,069	12/31/07	VALLEY VIEW PH 2 ENG2006-0008	2007	3,547	1,093	4,640	479	626	4,014
445	UTILITY IMPR.PIPE W.	5,895	12/31/07	VALLEY VIEW PH 2 ENG2006-0008	2007	6,815	2,099	8,914	920	1,203	7,711
445	UTILITY IMPR.PIPE W.	590	12/31/07	VALLEY VIEW PH 2 ENG2006-0008	2007	682	210	892	92	120	772
445	UTILITY IMPR.PIPE W.	57,269	01/03/08	THE QUARRY SR LIVING-ENG2005-	2008	66,080	19,274	85,354	8,811	11,381	73,974
445	UTILITY IMPR.PIPE W.	2,687	01/03/08	THE QUARRY SR LIVING-ENG2005-	2008	3,100	904	4,004	413	534	3,470
445	UTILITY IMPR.PIPE W.	3,091	01/09/08	RIVERSIDE ESTATES-ENG-2006-00	2008	3,566	1,040	4,606	475	614	3,992
445	UTILITY IMPR.PIPE W.	1,446	01/09/08	RIVERSIDE ESTATES-ENG-2006-00	2008	1,668	487	2,155	222	287	1,867
445	UTILITY IMPR.PIPE W.	19,267	01/09/08	RIVERSIDE ESTATES-ENG-2006-00	2008	22,231	6,484	28,715	2,964	3,829	24,887
445	UTILITY IMPR.PIPE W.	4,215	01/22/08	MEADOWBROOK TERRACE ENG20	2008	4,864	1,419	6,283	649	838	5,445
445	UTILITY IMPR.PIPE W.	6,933	01/29/08	CHERRY LANE-ENG2005-00204	2008	8,000	2,333	10,333	1,067	1,378	8,956
445	UTILITY IMPR.PIPE W.	485	01/29/08	CHERRY LANE-ENG2005-00204	2008	560	163	723	75	96	627
445	UTILITY IMPR.PIPE W.	5,770	01/29/08	J & J TRUCKING/MML ENT-ENG200	2008	6,658	1,942	8,600	888	1,147	7,453
445	UTILITY IMPR.PIPE W.	4,314	01/29/08	J & J TRUCKING/MML ENT-ENG200	2008	4,978	1,452	6,430	664	857	5,573
445	UTILITY IMPR.PIPE W.	27,191	02/11/08	FISHERS POINTE SUBDIVISION EN	2008	31,314	9,134	40,448	4,123	5,326	35,122
445	UTILITY IMPR.PIPE W.	6,711	03/03/08	TREASURE ISLAND-ENG2005-0013	2008	7,714	2,250	9,964	1,003	1,295	8,669
445	UTILITY IMPR.PIPE W.	104	03/03/08	TREASURE ISLAND-ENG2005-0013	2008	120	35	155	16	20	135
445	UTILITY IMPR.PIPE W.	17,674	03/04/08	CRYSTAL MEADOWS ENG2005-002	2008	20,315	5,925	26,240	2,641	3,411	22,829
445	UTILITY IMPR.PIPE W.	3,011	03/04/08	CRYSTAL MEADOWS ENG2005-002	2008	3,461	1,010	4,471	450	581	3,889
445	UTILITY IMPR.PIPE W.	3,438	03/04/08	POLICE EVIDENCE FACILITY -ENG	2008	3,952	1,153	5,104	514	664	4,441
445	UTILITY IMPR.PIPE W.	345	03/04/08	POLICE EVIDENCE FACILITY -ENG	2008	396	116	512	51	66	445
445	UTILITY IMPR.PIPE W.	6,521	04/14/08	LOGAN'S GLEN ENG2006-00077	2008	7,481	2,182	9,663	960	1,240	8,423
445	UTILITY IMPR.PIPE W.	39,630	12/12/07	MILL PLAIN IRON GATE MINI ENG2	2007	45,815	14,111	59,926	6,185	8,090	51,836
445	UTILITY IMPR.PIPE W.	4,678	12/12/07	MILL PLAIN IRON GATE MINI ENG2	2007	5,408	1,666	7,074	730	955	6,119
445	UTILITY IMPR.PIPE W.	2,336	12/03/07	CHRISTENSEN SHIPYARD ENG200	2007	2,700	832	3,532	365	477	3,055
445	UTILITY IMPR.PIPE W.	6,341	01/11/08	DEER BRUSH 11 SHORT PLAT ENC	2008	7,316	2,134	9,450	975	1,260	8,190
445	UTILITY IMPR.PIPE W.	51,385	04/21/08	PEBBLE CREEK ENG2004-00143	2008	58,950	17,194	76,144	7,565	9,772	66,373
445	UTILITY IMPR.PIPE W.	9,921	05/01/08	EAST PARK CHURCH EXP ENG200	2008	11,360	3,313	14,673	1,439	1,859	12,815
445	UTILITY IMPR.PIPE W.	88,368	05/07/08	THE OAKS ENG2004-00106	2008	101,185	29,514	130,699	12,817	16,555	114,143
445	UTILITY IMPR.PIPE W.	9,319	05/13/08	DEER BRUSH 1 ENG2006-00110	2008	10,670	3,112	13,782	1,352	1,746	12,037
445	UTILITY IMPR.PIPE W.	6,379	05/13/08	DEER BRUSH 1 ENG2006-00110	2008	7,304	2,130	9,434	925	1,195	8,239
445	UTILITY IMPR.PIPE W.	25,183	05/15/08	SPRING HILL ESTATES NORTH EN	2008	28,835	8,411	37,246	3,652	4,718	32,528
445	UTILITY IMPR.PIPE W.	1,437	05/15/08	SPRING HILL ESTATES NORTH EN	2008	1,645	480	2,125	208	269	1,856
445	UTILITY IMPR.PIPE W.	9,349	05/15/08	SPRING HILL ESTATES NORTH EN	2008	10,705	3,122	13,827	1,356	1,751	12,076
445	UTILITY IMPR.PIPE W.	1,677	05/15/08	MARSHALL HIGHTS CONDOS ENG	2008	1,920	560	2,480	243	314	2,166
445	UTILITY IMPR.PIPE W.	13,537	05/15/08	CARR VANCOUVER ENG2007-0011	2008	15,500	4,521	20,021	1,963	2,536	17,485
445	UTILITY IMPR.PIPE W.	480	05/15/08	CARR VANCOUVER ENG2007-0011	2008	550	160	710	70	90	620
445	UTILITY IMPR.PIPE W.	36,475	06/02/08	VANCOUVER RETAIL CENTER ENC	2008	41,686	12,159	53,845	5,211	6,731	47,114
445	UTILITY IMPR.PIPE W.	1,166	06/02/08	VANCOUVER RETAIL CENTER ENC	2008	1,332	389	1,721	167	215	1,505
445	UTILITY IMPR.PIPE W.	3,773	06/02/08	PARKSIDE COURT ENG2006-00085	2008	4,312	1,258	5,570	539	696	4,873
445	UTILITY IMPR.PIPE W.	5,641	06/02/08	PARKSIDE COURT ENG2006-00085	2008	6,447	1,880	8,327	806	1,041	7,286
445	UTILITY IMPR.PIPE W.	9,157	06/09/08	15TH ST INFILL SHORT PLAT ENG	2008	10,465	3,052	13,517	1,308	1,690	11,828
445	UTILITY IMPR.PIPE W.	52,626	07/21/08	MAIAH'S MEADOWS PHASE 1-ENG	2008	60,030	17,509	77,539	7,404	9,563	67,976
445	UTILITY IMPR.PIPE W.	10,790	07/21/08	MAIAH'S MEADOWS PHASE 1-ENG	2008	12,309	3,590	15,899	1,518	1,961	13,938
445	UTILITY IMPR.PIPE W.	584	07/21/08	MAIAH'S MEADOWS PHASE 1-ENG	2008	666	194	860	82	106	754
445	UTILITY IMPR.PIPE W.	6,240	07/28/08	MAGNOLIA MEADOWS ENG2005-0	2008	7,118	2,076	9,194	878	1,134	8,060
445	UTILITY IMPR.PIPE W.	14,855	07/29/08	PACIFIC CREST PLAZA ENG2006-0	2008	16,945	4,943	21,888	2,090	2,699	19,188
445	UTILITY IMPR.PIPE W.	158	07/29/08	PACIFIC CREST PLAZA ENG2006-0	2008	180	53	233	22	29	204
445	UTILITY IMPR.PIPE W.	28,880	08/04/08	SANTA FE COURT ENG2006-00121	2008	32,880	9,590	42,470	4,000	5,167	37,303
445	UTILITY IMPR.PIPE W.	121,763	08/13/08	WINCO OFFSITE ENG2007-00055	2008	138,630	40,435	179,065	16,867	21,786	157,279
445	UTILITY IMPR.PIPE W.	2,429	08/13/08	WINCO OFFSITE ENG2007-00055	2008	2,765	806	3,571	336	435	3,137
445	UTILITY IMPR.PIPE W.	27,316	08/20/08	CHRISTMAS VILLAGE ENG2006-00	2008	31,100	9,071	40,171	3,784	4,887	35,284

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	38,755	08/20/08	ROYAL VIEW ESTATES ENG2005-0	2008	44,123	12,870	56,993	5,368	6,934	50,059
445	UTILITY IMPR.PIPE W.	1,805	08/20/08	ROYAL VIEW ESTATES ENG2005-0	2008	2,056	600	2,655	250	323	2,332
445	UTILITY IMPR.PIPE W.	32,782	08/20/08	THE PALMS ENG2007-00095	2008	37,323	10,886	48,209	4,541	5,866	42,344
445	UTILITY IMPR.PIPE W.	5,428	08/20/08	THE PALMS ENG2007-00095	2008	6,180	1,803	7,983	752	971	7,011
445	UTILITY IMPR.PIPE W.	264	08/28/08	OIL CAN HENRY @ CTC ENG2007-0	2008	300	88	388	37	47	340
445	UTILITY IMPR.PIPE W.	41,368	01/11/08	SE 184TH AVE ENG2006-00102	2008	47,732	13,922	61,654	6,364	8,221	53,434
445	UTILITY IMPR.PIPE W.	98,753	09/11/08	CTC-192ND AVE SOUTH RETAIL P	2008	112,219	32,732	144,951	13,466	17,394	127,557
445	UTILITY IMPR.PIPE W.	3,326	09/11/08	CTC-192ND AVE SOUTH RETAIL P	2008	3,780	1,103	4,883	454	586	4,297
445	UTILITY IMPR.PIPE W.	7,806	09/12/08	JC PENNY @ CTC(PHASE 2) ENG20	2008	8,870	2,587	11,457	1,064	1,375	10,082
445	UTILITY IMPR.PIPE W.	1,191	09/12/08	JC PENNY @ CTC(PHASE 2) ENG20	2008	1,353	395	1,748	162	210	1,538
445	UTILITY IMPR.PIPE W.	13,997	09/18/08	INNOVATIVE SERVICES NW ENG20	2008	15,905	4,639	20,544	1,909	2,465	18,079
445	UTILITY IMPR.PIPE W.	4,226	10/14/08	VANCOUVER HUNDAI SUZUKI-ENC	2008	4,793	1,398	6,191	567	733	5,458
445	UTILITY IMPR.PIPE W.	1,340	10/14/08	VANCOUVER HUNDAI SUZUKI-ENC	2008	1,520	443	1,963	180	232	1,731
445	UTILITY IMPR.PIPE W.	73,428	10/14/08	LOWE'S LACAMAS LAKE @ CTC E	2008	83,283	24,292	107,575	9,855	12,730	94,845
445	UTILITY IMPR.PIPE W.	17,426	10/21/08	EAST PARK ESTATES ENG2006-00	2008	19,765	5,765	25,530	2,339	3,021	22,509
445	UTILITY IMPR.PIPE W.	1,112	10/21/08	EAST PARK ESTATES ENG2006-00	2008	1,261	368	1,629	149	193	1,436
445	UTILITY IMPR.PIPE W.	1,994	10/21/08	EAST PARK ESTATES ENG2006-00	2008	2,262	660	2,922	268	346	2,576
445	UTILITY IMPR.PIPE W.	21,268	10/23/08	SUNRISE VILLAGE ENG2006-00105	2008	24,122	7,036	31,158	2,854	3,687	27,471
445	UTILITY IMPR.PIPE W.	13,535	10/23/08	SUNRISE VILLAGE ENG2006-00105	2008	15,352	4,478	19,830	1,817	2,347	17,483
445	UTILITY IMPR.PIPE W.	1,767	11/07/08	LYNCH SHORT PLAT ENG2007-001	2008	2,000	583	2,583	233	301	2,282
445	UTILITY IMPR.PIPE W.	795	11/07/08	UNION HIGH SCHOOL PORTABLE I	2008	900	263	1,163	105	136	1,027
445	UTILITY IMPR.PIPE W.	583	11/07/08	PORT OF VANCOUVER ADMIN. OF	2008	660	193	853	77	99	753
445	UTILITY IMPR.PIPE W.	3,902	11/25/08	LOT 181 NORTH ENG2005-00145	2008	4,417	1,288	5,705	515	666	5,040
445	UTILITY IMPR.PIPE W.	1,106	12/04/08	WASHINGTON MUTUAL-ENG2006-0	2008	1,250	365	1,615	144	186	1,429
445	UTILITY IMPR.PIPE W.	11,703	12/16/08	PARKSIDE GREEN INFILL SUBDIVI	2008	13,224	3,857	17,081	1,521	1,964	15,117
445	UTILITY IMPR.PIPE W.	5,003	12/16/08	PARKSIDE GREEN INFILL SUBDIVI	2008	5,653	1,649	7,302	650	840	6,462
445	UTILITY IMPR.PIPE W.	40,816	12/16/08	BIRTCHEER PH-1 147TH ST IMP-ENC	2008	46,120	13,452	59,572	5,304	6,851	52,721
445	UTILITY IMPR.PIPE W.	11,903	12/16/08	BIRTCHEER PH-1 147TH ST IMP-ENC	2008	13,449	3,923	17,372	1,547	1,998	15,374
445	UTILITY IMPR.PIPE W.	1,730	12/16/08	BIRTCHEER PH-1 147TH ST IMP-ENC	2008	1,955	570	2,525	225	290	2,235
445	UTILITY IMPR.PIPE W.	6,864	12/18/08	EASTSIDE SPECTRUM ENG2007-0	2008	7,755	2,262	10,018	892	1,152	8,866
445	UTILITY IMPR.PIPE W.	3,457	12/18/08	EASTSIDE SPECTRUM ENG2007-0	2008	3,906	1,139	5,046	449	580	4,466
445	UTILITY IMPR.PIPE W.	2,039	12/18/08	SIFTON INDUSTRIAL (PHASE 1) EN	2008	2,304	672	2,976	265	342	2,634
445	UTILITY IMPR.PIPE W.	49,122	12/18/08	SIFTON INDUSTRIAL (PHASE 1) EN	2008	55,505	16,190	71,695	6,383	8,245	63,450
445	UTILITY IMPR.PIPE W.	12,100	09/25/08	SWMC REVISED MASTER PLAN EN	2008	13,750	4,011	17,761	1,650	2,131	15,629
445	UTILITY IMPR.PIPE W.	72,482	12/09/08	GRAND CENTRAL-ENG2006-00196	2008	81,900	23,889	105,789	9,419	12,166	93,623
445	UTILITY IMPR.PIPE W.	12,700	12/09/08	GRAND CENTRAL-ENG2006-00196	2008	14,350	4,186	18,536	1,650	2,132	16,404
445	UTILITY IMPR.PIPE W.	4,840	05/25/08	ENG2004-00101 NE 4th ST IMPROV	2008	5,542	1,616	7,158	702	907	6,252
445	UTILITY IMPR.PIPE W.	13,210	02/04/09	CASCADE POINT SUB ENG2005-00	2009	14,871	3,425	18,296	1,661	2,043	16,253
445	UTILITY IMPR.PIPE W.	5,542	02/04/09	CASCADE POINT SUB ENG2005-00	2009	6,239	1,437	7,676	697	857	6,819
445	UTILITY IMPR.PIPE W.	528	02/04/09	CASCADE POINT SUB ENG2005-00	2009	594	137	731	66	82	649
445	UTILITY IMPR.PIPE W.	7,384	02/04/09	REED OFFICE BLDG ENG2007-0011	2009	8,312	1,914	10,226	928	1,142	9,084
445	UTILITY IMPR.PIPE W.	50,191	02/04/09	127TH AVE BUSINESS PARK ENG2	2009	56,500	13,012	69,512	6,309	7,762	61,750
445	UTILITY IMPR.PIPE W.	64,264	02/04/09	127TH AVE BUSINESS PARK ENG2	2009	72,342	16,661	89,003	8,078	9,939	79,064
445	UTILITY IMPR.PIPE W.	2,252	02/04/09	127TH AVE BUSINESS PARK ENG2	2009	2,535	584	3,119	283	348	2,770
445	UTILITY IMPR.PIPE W.	41,936	02/25/09	FOUR SEASONS ELEMENTARY SC	2009	47,208	10,872	58,080	5,272	6,486	51,595
445	UTILITY IMPR.PIPE W.	68,021	02/26/09	HERITAGE PLAZA ENG2007-00093	2009	76,571	17,635	94,206	8,550	10,520	83,686
445	UTILITY IMPR.PIPE W.	1,555	02/26/09	HERITAGE PLAZA ENG2007-00093	2009	1,750	403	2,153	195	240	1,913
445	UTILITY IMPR.PIPE W.	18,468	03/05/09	172nd Ave Retail Center Eng2007-00	2009	20,750	4,779	25,529	2,282	2,808	22,721
445	UTILITY IMPR.PIPE W.	6,630	03/05/09	ALAN WEBB MAZDA DODGE ENG2	2009	7,450	1,716	9,166	820	1,008	8,158
445	UTILITY IMPR.PIPE W.	1,557	03/05/09	ALAN WEBB MAZDA DODGE ENG2	2009	1,750	403	2,153	193	237	1,916
445	UTILITY IMPR.PIPE W.	75,561	03/11/09	COLD CREEK INDUSTRIAL ENG200	2009	84,900	19,553	104,453	9,339	11,490	92,963
445	UTILITY IMPR.PIPE W.	58,384	03/11/09	COLD CREEK INDUSTRIAL ENG200	2009	65,600	15,108	80,708	7,216	8,878	71,830
445	UTILITY IMPR.PIPE W.	7,889	03/13/09	VALLEY VIEW APARTMENTS PHAS	2009	8,864	2,042	10,906	975	1,200	9,706
445	UTILITY IMPR.PIPE W.	12,676	03/13/09	VALLEY VIEW APARTMENTS PHAS	2009	14,243	3,280	17,523	1,567	1,928	15,595
445	UTILITY IMPR.PIPE W.	668	03/19/09	VALLEY VIEW APARTMENTS PHAS	2009	750	173	923	83	102	821
445	UTILITY IMPR.PIPE W.	22,737	03/26/09	HOLIDAY INN EXPRESS ENG2007-0	2009	25,547	5,884	31,431	2,810	3,457	27,973
445	UTILITY IMPR.PIPE W.	4,815	04/21/09	EVERGREEN BIBLE CHURCH ENG	2009	5,400	1,244	6,644	585	720	5,924
445	UTILITY IMPR.PIPE W.	27,132	04/29/09	VANCOUVER CLINIC 87TH AVE EN	2009	30,429	7,008	37,437	3,297	4,056	33,381
445	UTILITY IMPR.PIPE W.	804	04/29/09	VANCOUVER CLINIC 87TH AVE EN	2009	902	208	1,110	98	120	990
445	UTILITY IMPR.PIPE W.	24,321	05/12/09	CTC CLARK COLLEGE SATELLITE I	2009	27,225	6,270	33,495	2,904	3,573	29,922
445	UTILITY IMPR.PIPE W.	1,394	05/12/09	CTC CLARK COLLEGE SATELLITE I	2009	1,560	359	1,919	166	205	1,715
445	UTILITY IMPR.PIPE W.	3,813	05/12/09	TOLER ESTATES ENG2007-00009	2009	4,268	983	5,251	455	560	4,691
445	UTILITY IMPR.PIPE W.	74,900	05/13/09	HAWTHORNE ACRES ENG2006-000	2009	83,843	19,310	103,152	8,943	11,003	92,149
445	UTILITY IMPR.PIPE W.	14,815	05/13/09	HAWTHORNE ACRES ENG2006-000	2009	16,584	3,819	20,403	1,769	2,176	18,227
445	UTILITY IMPR.PIPE W.	1,257	05/13/09	HAWTHORNE ACRES ENG2006-000	2009	1,407	324	1,731	150	185	1,546
445	UTILITY IMPR.PIPE W.	30,195	05/15/09	RIVERSTONE CHEVRON ENG2008-	2009	33,800	7,784	41,584	3,605	4,436	37,149
445	UTILITY IMPR.PIPE W.	13,132	05/28/09	HAAGAN PARK PH 1 ENG2002-0000	2009	14,700	3,386	18,086	1,568	1,929	16,156
445	UTILITY IMPR.PIPE W.	14,440	06/30/09	MARJORIE MANOR ENG2001-00010	2009	16,134	3,716	19,850	1,694	2,084	17,766
445	UTILITY IMPR.PIPE W.	6,831	06/30/09	MARJORIE MANOR ENG2001-00010	2009	7,632	1,758	9,390	801	986	8,404
445	UTILITY IMPR.PIPE W.	1,159	09/11/09	Fisher Investments Parking Expansio	2009	1,288	297	1,585	129	159	1,426
445	UTILITY IMPR.PIPE W.	22,478	08/07/09	Vancouver W. Police Precinct / ENG2	2009	25,022	5,763	30,785	2,544	3,130	27,655
445	UTILITY IMPR.PIPE W.	1,405	08/07/09	Vancouver W. Police Precinct / ENG2	2009	1,564	360	1,924	159	196	1,729
445	UTILITY IMPR.PIPE W.	7,128	07/21/09	Heathman Lodge Expansion / ENG20	2009	7,949	1,831	9,780	821	1,011	8,769
445	UTILITY IMPR.PIPE W.	17,882	06/24/09	Royal Oaks Country Club / ENG2007-	2009	19,980	4,602	24,582	2,098	2,581	22,000
445	UTILITY IMPR.PIPE W.	14,440	06/30/09	Marjorie Manor / ENG2001-00016	2009	16,134	3,716	19,850	1,694	2,084	17,766
445	UTILITY IMPR.PIPE W.	6,831	06/30/09	Marjorie Manor / ENG2001-00016	2009	7,632	1,758	9,390	801	986	8,404
445	UTILITY IMPR.PIPE W.	98,452	07/10/09	Grandview Phase 1 / ENG2008-00050	2009	109,798	25,287	135,085	11,346	13,959	121,126
445	UTILITY IMPR.PIPE W.	36,596	07/14/09	SW WA Humane Society / ENG2008-	2009	40,813	9,400	50,213	4,217	5,189	45,024
445	UTILITY IMPR.PIPE W.	9,254	07/14/09	SW WA Humane Society / ENG2008-	2009	10,320	2,377	12,697	1,066	1,312	11,385
445	UTILITY IMPR.PIPE W.	38,151	09/11/09	SE 6th WY / ENG2008-00005	2009	42,390	9,763	52,153	4,239	5,215	46,937
445	UTILITY IMPR.PIPE W.	56,055	10/27/09	Birtcher PH 2 Street Improvements / E	2009	62,168	14,318	76,486	6,113	7,521	68,965
445	UTILITY IMPR.PIPE W.	1,330	10/27/09	Birtcher PH 2 Street Improvements / E	2009	1,475	340	1,815	145	178	1,637

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	17,465	10/27/09	Birtcher PH 2 Street Improvements / E	2009	19,370	4,461	23,830	1,905	2,343	21,487
445	UTILITY IMPR.PIPE W.	4,950	08/20/09	Neals Square / ENG2006-00108	2009	5,510	1,269	6,779	560	689	6,090
445	UTILITY IMPR.PIPE W.	14,311	11/23/09	Clark County Skills Center Addition/E	2009	15,842	3,649	19,491	1,531	1,884	17,606
445	UTILITY IMPR.PIPE W.	420	11/03/09	Washington School For the Deaf/ENC	2009	465	107	572	45	55	517
445	UTILITY IMPR.PIPE W.	7,026	11/03/09	Washington School For the Deaf/ENC	2009	7,778	1,791	9,569	752	925	8,644
445	UTILITY IMPR.PIPE W.	1,968	11/03/09	Washington State School for the blind	2009	2,179	502	2,681	211	259	2,422
445	UTILITY IMPR.PIPE W.	3,935	11/09/09	Washington State School for the blind	2009	4,356	1,003	5,359	421	518	4,841
445	UTILITY IMPR.PIPE W.	3,624	11/09/09	Washington State School for the blind	2009	4,012	924	4,936	388	477	4,459
445	UTILITY IMPR.PIPE W.	130	11/09/09	Washington State School for the blind	2009	144	33	177	14	17	160
445	UTILITY IMPR.PIPE W.	613	11/10/09	Evergreen BLDG C/ENG2007-00076/	2009	679	156	835	66	81	754
445	UTILITY IMPR.PIPE W.	2,710	11/18/09	WS Sch for blind (PH.2)/ENG2005-00	2009	3,000	691	3,691	290	357	3,334
445	UTILITY IMPR.PIPE W.	16,325	11/18/09	WS Sch for blind (PH.2)/ENG2005-00	2009	18,072	4,162	22,234	1,747	2,149	20,085
445	UTILITY IMPR.PIPE W.	23,574	11/25/09	East Vancouver Library/ENG2007-00:	2009	26,097	6,010	32,107	2,523	3,104	29,003
445	UTILITY IMPR.PIPE W.	21,945	12/17/09	St Johns Condominiums / ENG2007-(	2009	24,249	5,585	29,833	2,304	2,834	26,999
445	UTILITY IMPR.PIPE W.	1,115	12/17/09	St Johns Condominiums / ENG2007-(	2009	1,232	284	1,516	117	144	1,372
445	UTILITY IMPR.PIPE W.	19,016	12/30/09	Sahaly @ Tidewater (Phase1) / ENG2	2009	21,012	4,839	25,851	1,996	2,456	23,395
445	UTILITY IMPR.PIPE W.	1,394	12/30/09	Sahaly @ Tidewater (Phase1) / ENG2	2009	1,540	355	1,895	146	180	1,715
445	UTILITY IMPR.PIPE W.	14,215	02/12/10	Sorenson Development/ENG2008-00-	2010	15,650	2,700	18,350	1,435	1,682	16,668
445	UTILITY IMPR.PIPE W.	454	02/12/10	Sorenson Development/ENG2008-00-	2010	500	86	586	46	54	533
445	UTILITY IMPR.PIPE W.	22,849	03/22/10	Dragon Properties/ENG2006-00157/8	2010	25,109	4,333	29,442	2,260	2,650	26,792
445	UTILITY IMPR.PIPE W.	12,462	07/30/10	Andresen Center / ENG2008-00141/	2010	13,595	2,346	15,941	1,133	1,328	14,612
445	UTILITY IMPR.PIPE W.	366	06/30/10	Andresen Retail CenterPH-2 / ENG20	2010	400	69	469	34	40	429
445	UTILITY IMPR.PIPE W.	13,403	08/12/10	NE 42nd St / ENG2007-00134 / 4201	2010	14,595	2,518	17,113	1,192	1,397	15,716
445	UTILITY IMPR.PIPE W.	121	09/24/10	192nd Plaza PH1 /ENG2009-00083 /2	2010	132	23	155	11	12	142
445	UTILITY IMPR.PIPE W.	1,012	09/24/10	192nd Plaza PH1 /ENG2009-00083 /2	2010	1,100	190	1,290	88	103	1,187
445	UTILITY IMPR.PIPE W.	339	08/12/10	LES SCHWAB Tire Center/ENG2009-	2010	369	64	433	30	35	397
445	UTILITY IMPR.PIPE W.	6,855	08/23/10	NW Industrial Mech PH-1/ENG2005-C	2010	7,465	1,288	8,753	610	715	8,038
445	UTILITY IMPR.PIPE W.	557	08/23/10	NW Industrial Mech PH-1/ENG2005-C	2010	606	105	711	49	58	653
445	UTILITY IMPR.PIPE W.	17,451	11/16/10	West Coast Self Storage/ENG2009-0	2010	18,900	3,261	22,161	1,449	1,699	20,462
445	UTILITY IMPR.PIPE W.	5,909	11/16/10	West Coast Self Storage/ENG2009-0	2010	6,400	1,104	7,504	491	575	6,929
445	UTILITY IMPR.PIPE W.	4,801	11/16/10	West Coast Self Storage/ENG2009-0	2010	5,200	897	6,097	399	467	5,630
445	UTILITY IMPR.PIPE W.	40,949	01/21/11	Vancouver Toyota/ENG2007-00213/1	2011	44,190	5,962	50,152	3,241	3,678	46,474
445	UTILITY IMPR.PIPE W.	4,319	01/21/11	Vancouver Toyota/ENG2007-00213/1	2011	4,661	629	5,290	342	388	4,902
445	UTILITY IMPR.PIPE W.	741	01/27/11	Wee Cre Daycare/ENG2010-00023/4	2011	800	108	908	59	67	841
445	UTILITY IMPR.PIPE W.	5,578	04/01/11	Mccallister Village/ENG2009-00106/2	2011	5,988	808	6,795	409	464	6,331
445	UTILITY IMPR.PIPE W.	20,455	04/28/11	Jennelle's place town house/ENG200	2011	21,955	2,962	24,917	1,500	1,703	23,214
445	UTILITY IMPR.PIPE W.	5,963	04/28/11	Jennelle's place town house/ENG200	2011	6,400	863	7,263	437	496	6,767
445	UTILITY IMPR.PIPE W.	470	05/26/11	Columbia Vista Hydrant Relocate/ENC	2011	504	68	572	34	38	534
445	UTILITY IMPR.PIPE W.	230	06/10/11	Vancouver Community Library/ENG20	2011	246	33	279	16	18	261
445	UTILITY IMPR.PIPE W.	112	06/10/11	FRED MEYER Fuel Stop/ENG2009-0	2011	120	16	136	8	9	127
445	UTILITY IMPR.PIPE W.	14,487	07/14/11	Costco E Vancouver/ENG2009-00100	2011	15,467	2,087	17,554	980	1,112	16,442
445	UTILITY IMPR.PIPE W.	23,495	07/14/11	Costco E Vancouver/ENG2009-00100	2011	25,084	3,384	28,468	1,589	1,803	26,665
445	UTILITY IMPR.PIPE W.	18,014	07/14/11	Costco E Vancouver/ENG2009-00100	2011	19,232	2,595	21,827	1,218	1,382	20,444
445	UTILITY IMPR.PIPE W.	1,495	07/27/11	NE 48th CR Short Plat/ENG2010-000	2011	1,596	215	1,811	101	115	1,697
445	UTILITY IMPR.PIPE W.	1,440	07/27/11	NE 48th CR Short Plat/ENG2010-000	2011	1,537	207	1,744	97	110	1,634
445	UTILITY IMPR.PIPE W.	6,433	09/28/11	COSTCO Offsite/ENG2010-00015/11	2011	6,844	923	7,767	411	466	7,301
445	UTILITY IMPR.PIPE W.	72,234	09/28/11	COSTCO Offsite/ENG2010-00015/11	2011	76,845	10,367	87,212	4,611	5,233	81,980
445	UTILITY IMPR.PIPE W.	12,510	09/28/11	COSTCO Offsite/ENG2010-00015/11	2011	13,309	1,796	15,105	799	906	14,198
445	UTILITY IMPR.PIPE W.	890	07/20/11	Providence Health&Services-ENG201	2011	950	128	1,078	60	68	1,010
445	UTILITY IMPR.PIPE W.	7,006	10/27/11	ARMY Project/ENG2010-00069/1500:	2011	7,440	1,004	8,444	434	493	7,951
445	UTILITY IMPR.PIPE W.	41,989	10/27/11	ARMY Project/ENG2010-00069/1500:	2011	44,590	6,016	50,606	2,601	2,952	47,654
445	UTILITY IMPR.PIPE W.	22,404	11/09/11	Nutrition Now/ENG2009-00108	2011	23,750	3,204	26,954	1,346	1,527	25,427
445	UTILITY IMPR.PIPE W.	21,735	12/23/11	138th AV COM'L/ENG2009-00018	2011	23,000	3,103	26,103	1,265	1,436	24,667
445	UTILITY IMPR.PIPE W.	5,387	12/19/11	2nd Street Warehouse/ENG2008-000	2011	5,700	769	6,469	314	356	6,113
445	UTILITY IMPR.PIPE W.	2,115	12/06/11	ILLAHEE ELEM SCHOOL /ENG2010	2011	2,238	302	2,540	123	140	2,400
445	UTILITY IMPR.PIPE W.	10,617	12/06/11	ILLAHEE ELEM SCHOOL /ENG2010	2011	11,235	1,516	12,751	618	701	12,049
445	UTILITY IMPR.PIPE W.	1,032	12/31/11	Tumbull Commercial Center/ ENG200	2011	1,092	147	1,239	60	68	1,171
445	UTILITY IMPR.PIPE W.	13,699	12/31/11	Tumbull Commercial Center/ ENG200	2011	14,496	1,956	16,452	797	905	15,547
445	UTILITY IMPR.PIPE W.	23,708	12/31/11	Tumbull Commercial Center/ ENG200	2011	25,088	3,385	28,473	1,380	1,566	26,907
445	UTILITY IMPR.PIPE W.	22,760	02/08/12	Wellons PH 3/ENG2010-00079 2525`	2012	24,000	1,790	25,790	1,240	1,332	24,457
445	UTILITY IMPR.PIPE W.	948	02/08/12	Wellons PH 3/ENG2010-00079 2525`	2012	1,000	75	1,075	52	56	1,019
445	UTILITY IMPR.PIPE W.	19,470	02/17/12	Port of Vancouver Alcoa /ENG2008-0	2012	20,531	1,531	22,062	1,061	1,140	20,923
445	UTILITY IMPR.PIPE W.	16,982	02/17/12	Port of Vancouver Alcoa /ENG2008-0	2012	17,907	1,335	19,242	925	994	18,248
445	UTILITY IMPR.PIPE W.	397	04/12/12	Vista Court Senior Housing/ENG2010	2012	417	31	448	20	22	426
445	UTILITY IMPR.PIPE W.	18,063	04/17/12	Barkdusters WTR Main Extension/EN	2012	18,980	1,415	20,395	917	986	19,410
445	UTILITY IMPR.PIPE W.	952	04/17/12	Barkdusters WTR Main Extension/EN	2012	1,000	75	1,075	48	52	1,023
445	UTILITY IMPR.PIPE W.	5,599	05/23/12	B-52 Pointe at Evergreen/ENG2007-0	2012	5,873	438	6,311	274	295	6,017
445	UTILITY IMPR.PIPE W.	31,160	05/23/12	B-52 Pointe at Evergreen/ENG2007-0	2012	32,685	2,438	35,123	1,525	1,639	33,484
445	UTILITY IMPR.PIPE W.	15,615	05/23/12	B-52 Pointe at Evergreen PH-2/ENG2	2012	16,379	1,222	17,601	764	821	16,779
445	UTILITY IMPR.PIPE W.	111,438	05/23/12	Farwest Steel / ENG2010-00071 / 370	2012	116,893	8,718	125,610	5,455	5,862	119,749
445	UTILITY IMPR.PIPE W.	12,931	05/23/12	Farwest Steel / ENG2010-00071 / 370	2012	13,564	1,012	14,576	633	680	13,895
445	UTILITY IMPR.PIPE W.	4,095	05/23/12	Farwest Steel / ENG2010-00071 / 370	2012	4,295	320	4,616	200	215	4,400
445	UTILITY IMPR.PIPE W.	14,637	07/25/12	Summit Park 2 /ENG2010-00062 /391	2012	15,300	1,141	16,441	663	712	15,729
445	UTILITY IMPR.PIPE W.	4,018	07/26/12	Westfield Vancouver-SE Entry Sitewo	2012	4,200	313	4,513	182	196	4,318
445	UTILITY IMPR.PIPE W.	1,339	07/26/12	Westfield Vancouver-SE Entry Sitewo	2012	1,400	104	1,504	61	65	1,439
445	UTILITY IMPR.PIPE W.	26,739	07/31/12	CTC 651 Building/ENG2011-00049/17	2012	27,950	2,084	30,034	1,211	1,301	28,733
445	UTILITY IMPR.PIPE W.	1,082	07/31/12	CTC 651 Building/ENG2011-00049/17	2012	1,131	84	1,215	49	53	1,163
445	UTILITY IMPR.PIPE W.	7,920	09/07/12	VSD Maintenance Facilities/ENG2011	2012	8,250	615	8,865	330	355	8,511
445	UTILITY IMPR.PIPE W.	2,138	09/07/12	VSD Maintenance Facilities/ENG2011	2012	2,228	166	2,394	89	96	2,298
445	UTILITY IMPR.PIPE W.	655	11/30/12	Commercial Center At 164th Ave and	2012	680	51	731	25	27	704
445	UTILITY IMPR.PIPE W.	33,532	12/12/12	Vancouver Mall Theater Addition/ENC	2012	34,748	2,591	37,339	1,216	1,307	36,033
445	UTILITY IMPR.PIPE W.	2,535	12/12/12	Vancouver Mall Theater Addition/ENC	2012	2,627	196	2,823	92	99	2,724

Water Fixed Assets as of September 30,2014

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445	UTILITY IMPR.PIPE W.	5,228	11/13/12	S.E.H. America Bldg 15/ENG2011-00	2012	5,427	405	5,832	199	214	5,618
445	UTILITY IMPR.PIPE W.	2,370	11/21/12	SE 148th Ave Improvements/ ENG20	2012	2,460	183	2,643	90	97	2,547
445	UTILITY IMPR.PIPE W.	5,958	11/07/12	Andresen Retain Center Phase 3/ EN	2012	6,185	461	6,646	227	244	6,403
445	UTILITY IMPR.PIPE W.	1,523	04/20/12	ENG2011-00009 / Columbia Office Bt	2012	1,600	119	1,719	77	83	1,636
445	UTILITY IMPR.PIPE W.	257	04/20/12	ENG2011-00009 / Columbia Office Bt	2012	270	20	290	13	14	276
445	UTILITY IMPR.PIPE W.	968	09/26/12	ENG2011-00024 / Van East Parking L	2012	1,008	75	1,083	40	43	1,040
445	UTILITY IMPR.PIPE W.	17,411	07/26/12	Airoport Industrial Warehouse / ENG2	2012	18,200	1,357	19,557	789	847	18,710
445	UTILITY IMPR.PIPE W.	42,753	04/08/13	192nd Station / ENG2011-00018	2013	44,000	1,876	45,876	1,247	1,300	44,576
445	UTILITY IMPR.PIPE W.	1,749	04/08/13	192nd Station / ENG2011-00018	2013	1,800	77	1,877	51	53	1,824
445	UTILITY IMPR.PIPE W.	15,179	04/18/13	Elite Care / ENG2011-00030	2013	15,622	666	16,288	443	462	15,827
445	UTILITY IMPR.PIPE W.	48,582	04/29/13	Columbia Ridge Apartments PH 1 / EI	2013	49,999	2,132	52,130	1,417	1,477	50,653
445	UTILITY IMPR.PIPE W.	885	04/29/13	Columbia Ridge Apartments PH 1 / EI	2013	911	39	950	26	27	923
445	UTILITY IMPR.PIPE W.	11,212	06/12/13	Wee Care Day Care/ENG2012-00020	2013	11,500	490	11,990	288	300	11,691
445	UTILITY IMPR.PIPE W.	780	06/12/13	Wee Care Day Care/ENG2012-00020	2013	800	34	834	20	21	813
445	UTILITY IMPR.PIPE W.	6,672	08/22/13	Joan Park / ENG2007-00181/14407 N	2013	6,820	291	7,111	148	154	6,957
445	UTILITY IMPR.PIPE W.	4,500	08/22/13	Joan Park / ENG2007-00181/14407 N	2013	4,600	196	4,796	100	104	4,692
445	UTILITY IMPR.PIPE W.	24,043	09/26/13	ENG2012-00055 / Columbia Ridge AF	2013	24,533	1,046	25,579	491	512	25,068
445	UTILITY IMPR.PIPE W.	2,602	09/26/13	ENG2012-00055 / Columbia Ridge AF	2013	2,655	113	2,768	53	55	2,713
445	UTILITY IMPR.PIPE W.	31,594	10/01/13	7-11@136th Ave Place / ENG2012-00	2013	32,184	1,372	33,556	590	615	32,941
445	UTILITY IMPR.PIPE W.	3,658	10/01/13	7-11@136th Ave Place / ENG2012-00	2013	3,726	159	3,885	68	71	3,814
445	UTILITY IMPR.PIPE W.	79,824	10/30/13	ENG2012-00026 / Burton Park Apartr	2013	81,315	3,467	84,782	1,491	1,554	83,228
445	UTILITY IMPR.PIPE W.	2,052	10/30/13	ENG2012-00026 / Burton Park Apartr	2013	2,090	89	2,179	38	40	2,139
445	UTILITY IMPR.PIPE W.	4,074	03/27/13	Health and Bioscience - ENG2011-00	2013	4,200	179	4,379	126	131	4,248
445	UTILITY IMPR.PIPE W.	29,655	01/13/14	Preston Estates/ENG2012-00006/614	2014	30,056	-	30,056	401	401	29,655
445	UTILITY IMPR.PIPE W.	97,293	02/18/14	Cascade Garden Villas (Aka Overlook	2014	98,442	-	98,442	1,148	1,148	97,293
445	UTILITY IMPR.PIPE W.	2,180	02/18/14	Cascade Garden Villas (Aka Overlook	2014	2,206	-	2,206	26	26	2,180
445	UTILITY IMPR.PIPE W.	593	02/18/14	Cascade Garden Villas (Aka Overlook	2014	600	-	600	7	7	593
445	UTILITY IMPR.PIPE W.	45,547	02/19/14	Andresen Heights Apartments (Aka T	2014	46,085	-	46,085	538	538	45,547
445	UTILITY IMPR.PIPE W.	365	02/19/14	Andresen Heights Apartments (Aka T	2014	369	-	369	4	4	365
445	UTILITY IMPR.PIPE W.	15,956	02/19/14	Andresen Heights Apartments (Aka T	2014	16,145	-	16,145	188	188	15,956
445	UTILITY IMPR.PIPE W.	58,757	02/22/14	SE 1st Street Improvements/ENG201	2014	59,451	-	59,451	694	694	58,757
445	UTILITY IMPR.PIPE W.	1,285	02/22/14	SE 1st Street Improvements/ENG201	2014	1,300	-	1,300	15	15	1,285
445	UTILITY IMPR.PIPE W.	24,409	02/22/14	Columbia Ridge Apartments Phase 3	2014	24,697	-	24,697	288	288	24,409
445	UTILITY IMPR.PIPE W.	6,957	03/04/14	Norwegian Hollow/ENG-34564	2014	7,027	-	7,027	70	70	6,957
445	UTILITY IMPR.PIPE W.	133,628	03/04/14	Norwegian Hollow/ENG-34564	2014	134,978	-	134,978	1,350	1,350	133,628
445	UTILITY IMPR.PIPE W.	20,945	03/04/14	Norwegian Hollow/ENG-34564	2014	21,157	-	21,157	212	212	20,945
445	UTILITY IMPR.PIPE W.	2,475	03/28/14	Willow Crest Apartments/ENG2011-00	2014	2,500	-	2,500	25	25	2,475
445	UTILITY IMPR.PIPE W.	4,455	03/28/14	Willow Crest Apartments/ENG2011-00	2014	4,500	-	4,500	45	45	4,455
445	UTILITY IMPR.PIPE W.	2,558	03/31/14	Concorde Estates / ENG2006-00071	2014	2,584	-	2,584	26	26	2,558
445	UTILITY IMPR.PIPE W.	7,727	03/31/14	Concorde Estates / ENG2006-00071	2014	7,805	-	7,805	78	78	7,727
445	UTILITY IMPR.PIPE W.	602	03/31/14	Concorde Estates / ENG2006-00071	2014	608	-	608	6	6	602
445	UTILITY IMPR.PIPE W.	37,683	04/09/14	192nd Plaza South & Westridge Soutl	2014	38,000	-	38,000	317	317	37,683
445	UTILITY IMPR.PIPE W.	1,587	04/09/14	192nd Plaza South & Westridge Soutl	2014	1,600	-	1,600	13	13	1,587
445	UTILITY IMPR.PIPE W.	15,019	05/09/14	Stephen's Place / ENG2012-00002	2014	15,120	-	15,120	101	101	15,019
445	UTILITY IMPR.PIPE W.	13,124	05/09/14	Stephen's Place / ENG2012-00002	2014	13,212	-	13,212	88	88	13,124
445	UTILITY IMPR.PIPE W.	13,455	07/01/14	Contractor Village PH1/ENG2008-001	2014	13,500	-	13,500	45	45	13,455
445	UTILITY IMPR.PIPE W.	2,183	07/01/14	Contractor Village PH1/ENG2008-001	2014	2,190	-	2,190	7	7	2,183
445	UTILITY IMPR.PIPE W.	4,575	07/10/14	Clark County Skills Center / ENG2013	2014	4,590	-	4,590	15	15	4,575
445	UTILITY IMPR.PIPE W.	384	07/16/14	Columbia Presbyterian Church/ENG20	2014	385	-	385	1	1	384
445	UTILITY IMPR.PIPE W.	5,326	07/21/14	Keffel Residence / ENG2007-00205/ '	2014	5,343	-	5,343	18	18	5,326
445	UTILITY IMPR.PIPE W.	63,242	08/01/14	The Reserve Ph4(aka Columbia Ridgr	2014	63,348	-	63,348	106	106	63,242
445	UTILITY IMPR.PIPE W.	389	08/01/14	The Reserve Ph4(aka Columbia Ridgr	2014	390	-	390	1	1	389
445	UTILITY IMPR.PIPE W.	2,444	08/01/14	The Reserve Ph4(aka Columbia Ridgr	2014	2,448	-	2,448	4	4	2,444
445	UTILITY IMPR.PIPE W.	2,971	08/26/14	Crestline Elementary / ENG-34565 /1'	2014	2,976	-	2,976	5	5	2,971
445	UTILITY IMPR.PIPE W.	66,293	09/19/14	Hampton Inn & Suites / ENG-30247/ '	2014	66,293	-	66,293	-	-	66,293
445	UTILITY IMPR.PIPE W.	3,664	09/19/14	Hampton Inn & Suites / ENG-30247/ '	2014	3,664	-	3,664	-	-	3,664
445	UTILITY IMPR.PIPE W.	-	01/01/38	WATER PIPE OUTSIDE CITY	1938	1,452	438	1,890	1,452	1,890	-
445	UTILITY IMPR.PIPE W.	-	01/01/40	WATER PIPE OUTSIDE CITY	1940	214,822	55,030	269,852	214,822	269,852	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	SERVICES OUT OF CITY	1941	2,783	595	3,378	2,783	3,378	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE OUTSIDE CITY	1941	542	116	658	542	658	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE OUTSIDE CITY	1941	662	142	804	662	804	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE OUTSIDE CITY	1941	177	38	215	177	215	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE OUTSIDE CITY	1941	5,525	1,181	6,707	5,525	6,707	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE OUTSIDE CITY	1941	5,133	1,098	6,231	5,133	6,231	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE OUTSIDE CITY	1941	3,548	759	4,306	3,548	4,306	-
445	UTILITY IMPR.PIPE W.	-	01/01/41	WATER PIPE OUTSIDE CITY	1941	127	27	154	127	154	-
445	UTILITY IMPR.PIPE W.	-	01/01/42	SERVICES OUT OF CITY	1942	1,137	257	1,394	1,137	1,394	-
445	UTILITY IMPR.PIPE W.	-	01/01/42	WATER PIPE OUTSIDE CITY	1942	221	50	271	221	271	-
445	UTILITY IMPR.PIPE W.	-	01/01/42	WATER PIPE OUTSIDE CITY	1942	555	125	680	555	680	-
445	UTILITY IMPR.PIPE W.	-	01/01/42	WATER PIPE OUTSIDE CITY	1942	1,162	263	1,425	1,162	1,425	-
445	UTILITY IMPR.PIPE W.	-	01/01/43	SERVICES OUT OF CITY	1943	1,365	264	1,628	1,365	1,628	-
445	UTILITY IMPR.PIPE W.	-	01/01/43	WATER PIPE OUTSIDE CITY	1943	1,642	317	1,959	1,642	1,959	-
445	UTILITY IMPR.PIPE W.	-	01/01/43	WATER PIPE OUTSIDE CITY	1943	200	39	238	200	238	-
445	UTILITY IMPR.PIPE W.	-	01/01/43	WATER PIPE OUTSIDE CITY	1943	1,258	243	1,501	1,258	1,501	-
445	UTILITY IMPR.PIPE W.	-	01/01/44	WATER PIPE OUTSIDE CITY	1944	245	41	286	245	286	-
445	UTILITY IMPR.PIPE W.	-	01/01/44	WATER PIPE OUTSIDE CITY	1944	2,513	416	2,929	2,513	2,929	-
445	UTILITY IMPR.PIPE W.	-	01/01/44	WATER PIPE OUTSIDE CITY	1944	1,599	265	1,864	1,599	1,864	-
445	UTILITY IMPR.PIPE W.	-	01/01/45	SERVICES OUT OF CITY	1945	847	128	975	847	975	-
445	UTILITY IMPR.PIPE W.	-	01/01/45	WATER PIPE OUTSIDE CITY	1945	1,053	158	1,211	1,053	1,211	-
445	UTILITY IMPR.PIPE W.	-	01/01/45	WATER PIPE OUTSIDE CITY	1945	3,900	587	4,487	3,900	4,487	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	SERVICES OUT OF CITY	1946	2,201	329	2,530	2,201	2,530	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	WATER PIPE OUTSIDE CITY	1946	2,342	350	2,693	2,342	2,693	-

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	-	01/01/46	WATER PIPE OUTSIDE CITY	1946	3,216	481	3,697	3,216	3,697	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	WATER PIPE OUTSIDE CITY	1946	288	43	331	288	331	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	WATER PIPE OUTSIDE CITY	1946	3,488	522	4,010	3,488	4,010	-
445	UTILITY IMPR.PIPE W.	-	01/01/46	WATER PIPE OUTSIDE CITY	1946	9,178	1,373	10,551	9,178	10,551	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	SERVICES OUT OF CITY	1947	1,394	266	1,660	1,394	1,660	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	WATER PIPE OUTSIDE CITY	1947	826	158	984	826	984	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	WATER PIPE OUTSIDE CITY	1947	826	158	984	826	984	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	WATER PIPE OUTSIDE CITY	1947	1,966	375	2,341	1,966	2,341	-
445	UTILITY IMPR.PIPE W.	-	01/01/47	WATER PIPE OUTSIDE CITY	1947	2,108	402	2,510	2,108	2,510	-
445	UTILITY IMPR.PIPE W.	-	01/01/48	SERVICES OUT OF CITY	1948	1,187	280	1,466	1,187	1,466	-
445	UTILITY IMPR.PIPE W.	-	01/01/48	WATER PIPE OUTSIDE CITY	1948	3,683	868	4,551	3,683	4,551	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	SERVICES OUT OF CITY	1949	259	56	314	259	314	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	WATER PIPE OUTSIDE CITY	1949	2,151	463	2,614	2,151	2,614	-
445	UTILITY IMPR.PIPE W.	-	01/01/49	WATER PIPE OUTSIDE CITY	1949	1,739	374	2,113	1,739	2,113	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	SERVICES OUT OF CITY	1950	9,100	1,745	10,845	9,100	10,845	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	SERVICES OUT OF CITY	1950	67	13	80	67	80	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	SERVICES OUT OF CITY	1950	100	19	119	100	119	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	WATER PIPE OUTSIDE CITY	1950	1,730	332	2,062	1,730	2,062	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	WATER PIPE OUTSIDE CITY	1950	1,660	318	1,978	1,660	1,978	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	WATER PIPE OUTSIDE CITY	1950	13,194	2,531	15,724	13,194	15,724	-
445	UTILITY IMPR.PIPE W.	-	01/01/50	WATER PIPE OUTSIDE CITY	1950	1,845	354	2,199	1,845	2,199	-
445	UTILITY IMPR.PIPE W.	-	01/01/51	SERVICES OUT OF CITY	1951	2,712	530	3,242	2,712	3,242	-
445	UTILITY IMPR.PIPE W.	-	01/01/51	WATER PIPE OUTSIDE CITY	1951	758	148	907	758	907	-
445	UTILITY IMPR.PIPE W.	-	01/01/51	WATER PIPE OUTSIDE CITY	1951	5,179	1,012	6,191	5,179	6,191	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	SERVICES OUT OF CITY	1952	5,741	1,259	7,000	5,741	7,000	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	SERVICES OUT OF CITY	1952	74	16	90	74	90	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	SERVICES OUT OF CITY	1952	110	24	134	110	134	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	SERVICES OUT OF CITY	1952	122	27	149	122	149	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	WATER PIPE OUTSIDE CITY	1952	1,387	304	1,691	1,387	1,691	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	WATER PIPE OUTSIDE CITY	1952	1,012	222	1,233	1,012	1,233	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	WATER PIPE OUTSIDE CITY	1952	2,263	496	2,760	2,263	2,760	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	WATER PIPE OUTSIDE CITY	1952	15,173	3,329	18,502	15,173	18,502	-
445	UTILITY IMPR.PIPE W.	-	01/01/52	WATER PIPE OUTSIDE CITY	1952	3,448	756	4,204	3,448	4,204	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	SERVICES OUT OF CITY	1953	11,160	3,051	14,212	11,160	14,212	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	SERVICES OUT OF CITY	1953	80	22	102	80	102	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	SERVICES OUT OF CITY	1953	80	22	102	80	102	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	SERVICES OUT OF CITY	1953	120	33	153	120	153	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	SERVICES OUT OF CITY	1953	133	36	170	133	170	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE OUTSIDE CITY	1953	690	189	878	690	878	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE OUTSIDE CITY	1953	13,860	3,790	17,650	13,860	17,650	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE OUTSIDE CITY	1953	1,144	313	1,457	1,144	1,457	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE OUTSIDE CITY	1953	2,759	754	3,513	2,759	3,513	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE OUTSIDE CITY	1953	18,320	5,009	23,329	18,320	23,329	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE OUTSIDE CITY	1953	154,648	42,284	196,932	154,648	196,932	-
445	UTILITY IMPR.PIPE W.	-	01/01/53	WATER PIPE OUTSIDE CITY	1953	16,111	4,405	20,516	16,111	20,516	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	SERVICES OUT OF CITY	1954	17,459	4,168	21,627	17,459	21,627	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	SERVICES OUT OF CITY	1954	85	20	105	85	105	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	SERVICES OUT OF CITY	1954	85	20	105	85	105	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	SERVICES OUT OF CITY	1954	-	-	-	-	-	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	SERVICES OUT OF CITY	1954	126	30	157	126	157	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	SERVICES OUT OF CITY	1954	141	34	175	141	175	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	WATER PIPE OUTSIDE CITY	1954	740	177	917	740	917	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	WATER PIPE OUTSIDE CITY	1954	2,290	547	2,836	2,290	2,836	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	WATER PIPE OUTSIDE CITY	1954	1,304	311	1,615	1,304	1,615	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	WATER PIPE OUTSIDE CITY	1954	44,990	10,741	55,731	44,990	55,731	-
445	UTILITY IMPR.PIPE W.	-	01/01/54	WATER PIPE OUTSIDE CITY	1954	619	148	767	619	767	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	SERVICES OUT OF CITY	1955	12,579	3,119	15,698	12,579	15,698	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	SERVICES OUT OF CITY	1955	89	22	111	89	111	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	SERVICES OUT OF CITY	1955	89	22	111	89	111	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	SERVICES OUT OF CITY	1955	935	232	1,167	935	1,167	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	SERVICES OUT OF CITY	1955	133	33	166	133	166	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	SERVICES OUT OF CITY	1955	148	37	185	148	185	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE OUTSIDE CITY	1955	722	179	901	722	901	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE OUTSIDE CITY	1955	4,456	1,105	5,560	4,456	5,560	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE OUTSIDE CITY	1955	26,155	6,486	32,641	26,155	32,641	-
445	UTILITY IMPR.PIPE W.	-	01/01/55	WATER PIPE OUTSIDE CITY	1955	3,485	864	4,349	3,485	4,349	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	SERVICES OUT OF CITY	1956	11,428	3,161	14,589	11,428	14,589	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	SERVICES OUT OF CITY	1956	94	26	120	94	120	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	SERVICES OUT OF CITY	1956	94	26	120	94	120	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	SERVICES OUT OF CITY	1956	884	244	1,128	884	1,128	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	SERVICES OUT OF CITY	1956	140	39	178	140	178	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	SERVICES OUT OF CITY	1956	156	43	199	156	199	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE OUTSIDE CITY	1956	1,815	502	2,317	1,815	2,317	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE OUTSIDE CITY	1956	4,447	1,230	5,677	4,447	5,677	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE OUTSIDE CITY	1956	2,259	625	2,884	2,259	2,884	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE OUTSIDE CITY	1956	6,419	1,776	8,195	6,419	8,195	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE OUTSIDE CITY	1956	19,326	5,346	24,671	19,326	24,671	-
445	UTILITY IMPR.PIPE W.	-	01/01/56	WATER PIPE OUTSIDE CITY	1956	2,965	820	3,785	2,965	3,785	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	SERVICES OUT OF CITY	1957	15,154	4,983	20,137	15,154	20,137	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	SERVICES OUT OF CITY	1957	100	33	133	100	133	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	SERVICES OUT OF CITY	1957	100	33	133	100	133	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	SERVICES OUT OF CITY	1957	947	311	1,258	947	1,258	-

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	-	01/01/57	SERVICES OUT OF CITY	1957	150	49	199	150	199	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	SERVICES OUT OF CITY	1957	167	55	222	167	222	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	WATER PIPE OUTSIDE CITY	1957	668	220	888	668	888	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	WATER PIPE OUTSIDE CITY	1957	2,368	779	3,147	2,368	3,147	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	WATER PIPE OUTSIDE CITY	1957	9,946	3,270	13,216	9,946	13,216	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	WATER PIPE OUTSIDE CITY	1957	5,960	1,960	7,919	5,960	7,919	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	WATER PIPE OUTSIDE CITY	1957	7,838	2,577	10,415	7,838	10,415	-
445	UTILITY IMPR.PIPE W.	-	01/01/57	WATER PIPE OUTSIDE CITY	1957	6,469	2,127	8,596	6,469	8,596	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	SERVICES OUT OF CITY	1958	19,162	6,057	25,219	19,162	25,219	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	SERVICES OUT OF CITY	1958	107	34	141	107	141	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	SERVICES OUT OF CITY	1958	107	34	141	107	141	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	SERVICES OUT OF CITY	1958	1,346	426	1,772	1,346	1,772	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	SERVICES OUT OF CITY	1958	160	50	210	160	210	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	SERVICES OUT OF CITY	1958	178	56	234	178	234	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	WATER PIPE OUTSIDE CITY	1958	283	89	373	283	373	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	WATER PIPE OUTSIDE CITY	1958	1,103	349	1,452	1,103	1,452	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	WATER PIPE OUTSIDE CITY	1958	14,687	4,643	19,330	14,687	19,330	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	WATER PIPE OUTSIDE CITY	1958	26,832	8,481	35,313	26,832	35,313	-
445	UTILITY IMPR.PIPE W.	-	01/01/58	WATER PIPE OUTSIDE CITY	1958	11,307	3,574	14,881	11,307	14,881	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	SERVICES OUT OF CITY	1959	23,885	8,506	32,392	23,885	32,392	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	SERVICES OUT OF CITY	1959	227	81	308	227	308	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	SERVICES OUT OF CITY	1959	114	41	154	114	154	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	SERVICES OUT OF CITY	1959	1,669	594	2,263	1,669	2,263	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	SERVICES OUT OF CITY	1959	339	121	460	339	460	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	SERVICES OUT OF CITY	1959	189	67	256	189	256	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE OUTSIDE CITY	1959	2,248	801	3,049	2,248	3,049	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE OUTSIDE CITY	1959	506	180	686	506	686	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE OUTSIDE CITY	1959	11,273	4,015	15,287	11,273	15,287	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE OUTSIDE CITY	1959	1,883	670	2,553	1,883	2,553	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE OUTSIDE CITY	1959	3,363	1,198	4,560	3,363	4,560	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE OUTSIDE CITY	1959	4,450	1,585	6,034	4,450	6,034	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE OUTSIDE CITY	1959	765	272	1,037	765	1,037	-
445	UTILITY IMPR.PIPE W.	-	01/01/59	WATER PIPE OUTSIDE CITY	1959	1,326	472	1,798	1,326	1,798	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	SERVICES OUT OF CITY	1960	39,140	13,755	52,895	39,140	52,895	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	SERVICES OUT OF CITY	1960	361	127	488	361	488	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	SERVICES OUT OF CITY	1960	241	85	326	241	326	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	SERVICES OUT OF CITY	1960	2,903	1,020	3,923	2,903	3,923	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	SERVICES OUT OF CITY	1960	359	126	486	359	486	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	SERVICES OUT OF CITY	1960	400	141	541	400	541	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE OUTSIDE CITY	1960	736	259	995	736	995	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE OUTSIDE CITY	1960	1,685	592	2,277	1,685	2,277	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE OUTSIDE CITY	1960	5,780	2,031	7,811	5,780	7,811	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE OUTSIDE CITY	1960	322	113	436	322	436	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE OUTSIDE CITY	1960	10,698	3,760	14,457	10,698	14,457	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE OUTSIDE CITY	1960	3,671	1,290	4,962	3,671	4,962	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE OUTSIDE CITY	1960	7,618	2,677	10,295	7,618	10,295	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE OUTSIDE CITY	1960	47,697	16,763	64,460	47,697	64,460	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE OUTSIDE CITY	1960	21,442	7,535	28,977	21,442	28,977	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE OUTSIDE CITY	1960	48,258	16,960	65,218	48,258	65,218	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE OUTSIDE CITY	1960	13,511	4,748	18,259	13,511	18,259	-
445	UTILITY IMPR.PIPE W.	-	01/01/60	WATER PIPE OUTSIDE CITY	1960	3,853	1,354	5,208	3,853	5,208	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	SERVICES OUT OF CITY	1961	28,600	9,891	38,490	28,600	38,490	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	SERVICES OUT OF CITY	1961	250	86	336	250	336	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	SERVICES OUT OF CITY	1961	125	43	168	125	168	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	SERVICES OUT OF CITY	1961	2,094	724	2,818	2,094	2,818	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	SERVICES OUT OF CITY	1961	373	129	502	373	502	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	SERVICES OUT OF CITY	1961	415	144	559	415	559	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE OUTSIDE CITY	1961	1,791	619	2,410	1,791	2,410	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE OUTSIDE CITY	1961	5,534	1,914	7,447	5,534	7,447	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE OUTSIDE CITY	1961	5,629	1,947	7,575	5,629	7,575	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE OUTSIDE CITY	1961	27,016	9,343	36,359	27,016	36,359	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE OUTSIDE CITY	1961	7,825	2,706	10,531	7,825	10,531	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE OUTSIDE CITY	1961	2,285	790	3,075	2,285	3,075	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE OUTSIDE CITY	1961	17,561	6,073	23,634	17,561	23,634	-
445	UTILITY IMPR.PIPE W.	-	01/01/61	WATER PIPE OUTSIDE CITY	1961	20,155	6,970	27,125	20,155	27,125	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	SERVICES OUT OF CITY	1962	30,382	9,578	39,960	30,382	39,960	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	SERVICES OUT OF CITY	1962	254	80	334	254	334	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	SERVICES OUT OF CITY	1962	127	40	167	127	167	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	SERVICES OUT OF CITY	1962	2,265	714	2,979	2,265	2,979	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	SERVICES OUT OF CITY	1962	379	120	499	379	499	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	SERVICES OUT OF CITY	1962	211	67	278	211	278	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE OUTSIDE CITY	1962	991	313	1,304	991	1,304	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE OUTSIDE CITY	1962	3,672	1,158	4,830	3,672	4,830	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE OUTSIDE CITY	1962	770	243	1,013	770	1,013	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE OUTSIDE CITY	1962	1,800	567	2,367	1,800	2,367	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE OUTSIDE CITY	1962	3,270	1,031	4,300	3,270	4,300	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE OUTSIDE CITY	1962	28,115	8,864	36,979	28,115	36,979	-
445	UTILITY IMPR.PIPE W.	-	01/01/62	WATER PIPE OUTSIDE CITY	1962	31,208	9,839	41,047	31,208	41,047	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	SERVICES OUT OF CITY	1963	11,253	3,563	14,817	11,253	14,817	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	SERVICES OUT OF CITY	1963	129	41	170	129	170	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	SERVICES OUT OF CITY	1963	813	258	1,071	813	1,071	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	SERVICES OUT OF CITY	1963	193	61	254	193	254	-

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	-	01/01/63	SERVICES OUT OF CITY	1963	215	68	283	215	283	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	WATER PIPE OUTSIDE CITY	1963	1,004	318	1,322	1,004	1,322	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	WATER PIPE OUTSIDE CITY	1963	209	66	275	209	275	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	WATER PIPE OUTSIDE CITY	1963	2,995	948	3,943	2,995	3,943	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	WATER PIPE OUTSIDE CITY	1963	4,405	1,395	5,799	4,405	5,799	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	WATER PIPE OUTSIDE CITY	1963	4,335	1,373	5,708	4,335	5,708	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	WATER PIPE OUTSIDE CITY	1963	28,258	8,947	37,205	28,258	37,205	-
445	UTILITY IMPR.PIPE W.	-	01/01/63	WATER PIPE OUTSIDE CITY	1963	315	100	415	315	415	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	SERVICES OUT OF CITY	1964	42,953	13,761	56,714	42,953	56,714	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	SERVICES OUT OF CITY	1964	268	86	353	268	353	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	SERVICES OUT OF CITY	1964	268	86	353	268	353	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	SERVICES OUT OF CITY	1964	3,085	988	4,074	3,085	4,074	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	SERVICES OUT OF CITY	1964	399	128	527	399	527	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	SERVICES OUT OF CITY	1964	445	143	587	445	587	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	WATER PIPE OUTSIDE CITY	1964	201	64	265	201	265	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	WATER PIPE OUTSIDE CITY	1964	18,780	6,016	24,796	18,780	24,796	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	WATER PIPE OUTSIDE CITY	1964	32,264	10,336	42,601	32,264	42,601	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	WATER PIPE OUTSIDE CITY	1964	12,792	4,098	16,890	12,792	16,890	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	WATER PIPE OUTSIDE CITY	1964	97,996	31,395	129,391	97,996	129,391	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	WATER PIPE OUTSIDE CITY	1964	9,585	3,071	12,656	9,585	12,656	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	WATER PIPE OUTSIDE CITY	1964	7,721	2,474	10,195	7,721	10,195	-
445	UTILITY IMPR.PIPE W.	-	01/01/64	WATER PIPE OUTSIDE CITY	1964	7,581	2,429	10,009	7,581	10,009	-
445	UTILITY IMPR.PIPE W.	160	01/01/65	SERVICES OUT OF CITY	1965	23,921	7,815	31,736	23,761	31,524	212
445	UTILITY IMPR.PIPE W.	1	01/01/65	SERVICES OUT OF CITY	1965	138	45	183	137	182	2
445	UTILITY IMPR.PIPE W.	1	01/01/65	SERVICES OUT OF CITY	1965	138	45	183	137	182	2
445	UTILITY IMPR.PIPE W.	12	01/01/65	SERVICES OUT OF CITY	1965	1,739	568	2,307	1,727	2,292	15
445	UTILITY IMPR.PIPE W.	2	01/01/65	SERVICES OUT OF CITY	1965	206	67	274	205	271	2
445	UTILITY IMPR.PIPE W.	2	01/01/65	SERVICES OUT OF CITY	1965	230	75	305	228	302	3
445	UTILITY IMPR.PIPE W.	1	01/01/65	WATER PIPE OUTSIDE CITY	1965	169	55	224	168	223	2
445	UTILITY IMPR.PIPE W.	5	01/01/65	WATER PIPE OUTSIDE CITY	1965	689	225	914	684	907	6
445	UTILITY IMPR.PIPE W.	68	01/01/65	WATER PIPE OUTSIDE CITY	1965	10,173	3,323	13,496	10,105	13,406	90
445	UTILITY IMPR.PIPE W.	330	01/01/65	WATER PIPE OUTSIDE CITY	1965	49,499	16,172	65,671	49,169	65,232	438
445	UTILITY IMPR.PIPE W.	43	01/01/65	WATER PIPE OUTSIDE CITY	1965	6,445	2,106	8,551	6,402	8,493	58
445	UTILITY IMPR.PIPE W.	4	01/01/65	WATER PIPE OUTSIDE CITY	1965	620	203	823	616	817	6
445	UTILITY IMPR.PIPE W.	62	01/01/65	WATER PIPE OUTSIDE CITY	1965	9,287	3,034	12,321	9,225	12,238	82
445	UTILITY IMPR.PIPE W.	870	01/01/66	SERVICES OUT OF CITY	1966	32,616	12,439	45,055	31,746	43,853	1,201
445	UTILITY IMPR.PIPE W.	4	01/01/66	SERVICES OUT OF CITY	1966	145	55	200	141	194	6
445	UTILITY IMPR.PIPE W.	4	01/01/66	SERVICES OUT OF CITY	1966	145	55	200	141	194	6
445	UTILITY IMPR.PIPE W.	65	01/01/66	SERVICES OUT OF CITY	1966	2,431	927	3,358	2,366	3,268	90
445	UTILITY IMPR.PIPE W.	12	01/01/66	SERVICES OUT OF CITY	1966	433	165	598	421	581	16
445	UTILITY IMPR.PIPE W.	13	01/01/66	SERVICES OUT OF CITY	1966	482	184	666	469	647	18
445	UTILITY IMPR.PIPE W.	14	01/01/66	WATER PIPE OUTSIDE CITY	1966	527	201	728	513	709	20
445	UTILITY IMPR.PIPE W.	2	01/01/66	WATER PIPE OUTSIDE CITY	1966	63	24	88	61	85	3
445	UTILITY IMPR.PIPE W.	54	01/01/66	WATER PIPE OUTSIDE CITY	1966	2,029	774	2,803	1,974	2,727	75
445	UTILITY IMPR.PIPE W.	2,427	01/01/66	WATER PIPE OUTSIDE CITY	1966	91,007	34,707	125,713	88,580	122,361	3,352
445	UTILITY IMPR.PIPE W.	34	01/01/66	WATER PIPE OUTSIDE CITY	1966	1,251	477	1,729	1,218	1,682	46
445	UTILITY IMPR.PIPE W.	158	01/01/66	WATER PIPE OUTSIDE CITY	1966	5,914	2,255	8,169	5,756	7,951	218
445	UTILITY IMPR.PIPE W.	2,672	01/01/67	SERVICES OUT OF CITY	1967	57,243	22,554	79,797	54,572	76,073	3,724
445	UTILITY IMPR.PIPE W.	15	01/01/67	SERVICES OUT OF CITY	1967	308	121	429	293	409	20
445	UTILITY IMPR.PIPE W.	15	01/01/67	SERVICES OUT OF CITY	1967	308	121	429	293	409	20
445	UTILITY IMPR.PIPE W.	188	01/01/67	SERVICES OUT OF CITY	1967	4,032	1,589	5,621	3,844	5,358	262
445	UTILITY IMPR.PIPE W.	32	01/01/67	SERVICES OUT OF CITY	1967	689	271	960	656	915	45
445	UTILITY IMPR.PIPE W.	36	01/01/67	SERVICES OUT OF CITY	1967	767	302	1,070	731	1,019	50
445	UTILITY IMPR.PIPE W.	83	01/01/67	WATER PIPE OUTSIDE CITY	1967	1,782	702	2,483	1,698	2,368	116
445	UTILITY IMPR.PIPE W.	224	01/01/67	WATER PIPE OUTSIDE CITY	1967	4,797	1,890	6,688	4,573	6,375	312
445	UTILITY IMPR.PIPE W.	253	01/01/67	WATER PIPE OUTSIDE CITY	1967	5,417	2,134	7,551	5,164	7,199	352
445	UTILITY IMPR.PIPE W.	4,452	01/01/67	WATER PIPE OUTSIDE CITY	1967	95,401	37,588	132,989	90,949	126,783	6,206
445	UTILITY IMPR.PIPE W.	1,329	01/01/67	WATER PIPE OUTSIDE CITY	1967	28,474	11,219	39,692	27,145	37,840	1,852
445	UTILITY IMPR.PIPE W.	128	01/01/67	WATER PIPE OUTSIDE CITY	1967	2,737	1,078	3,816	2,609	3,637	179
445	UTILITY IMPR.PIPE W.	1,422	01/01/67	WATER PIPE OUTSIDE CITY	1967	30,464	12,003	42,467	29,042	40,484	1,982
445	UTILITY IMPR.PIPE W.	5,160	01/01/68	SERVICES OUT OF CITY	1968	77,404	34,366	111,770	72,243	104,318	7,452
445	UTILITY IMPR.PIPE W.	44	01/01/68	SERVICES OUT OF CITY	1968	660	293	953	616	889	64
445	UTILITY IMPR.PIPE W.	33	01/01/68	SERVICES OUT OF CITY	1968	495	220	715	462	667	48
445	UTILITY IMPR.PIPE W.	415	01/01/68	SERVICES OUT OF CITY	1968	6,227	2,764	8,991	5,811	8,392	599
445	UTILITY IMPR.PIPE W.	66	01/01/68	SERVICES OUT OF CITY	1968	985	437	1,422	919	1,327	95
445	UTILITY IMPR.PIPE W.	55	01/01/68	SERVICES OUT OF CITY	1968	823	365	1,188	768	1,108	80
445	UTILITY IMPR.PIPE W.	54	01/01/68	SERVICES OUT OF CITY	1968	801	356	1,156	747	1,079	78
445	UTILITY IMPR.PIPE W.	350	01/01/68	WATER PIPE OUTSIDE CITY	1968	5,248	2,330	7,577	4,898	7,072	505
445	UTILITY IMPR.PIPE W.	79	01/01/68	WATER PIPE OUTSIDE CITY	1968	1,186	527	1,713	1,107	1,598	114
445	UTILITY IMPR.PIPE W.	89	01/01/68	WATER PIPE OUTSIDE CITY	1968	1,327	589	1,916	1,239	1,788	128
445	UTILITY IMPR.PIPE W.	14,382	01/01/68	WATER PIPE OUTSIDE CITY	1968	215,724	95,777	311,501	201,342	290,734	20,767
445	UTILITY IMPR.PIPE W.	169	01/01/68	WATER PIPE OUTSIDE CITY	1968	2,530	1,123	3,653	2,361	3,409	244
445	UTILITY IMPR.PIPE W.	3,201	01/01/68	WATER PIPE OUTSIDE CITY	1968	48,022	21,321	69,342	44,820	64,719	4,623
445	UTILITY IMPR.PIPE W.	269	01/01/68	WATER PIPE OUTSIDE CITY	1968	4,027	1,788	5,815	3,759	5,427	388
445	UTILITY IMPR.PIPE W.	1,874	01/01/68	WATER PIPE OUTSIDE CITY	1968	28,112	12,481	40,593	26,238	37,887	2,706
445	UTILITY IMPR.PIPE W.	517	01/01/68	WATER PIPE OUTSIDE CITY	1968	7,763	3,446	11,209	7,245	10,462	747
445	UTILITY IMPR.PIPE W.	240	01/01/68	WATER PIPE OUTSIDE CITY	1968	3,590	1,594	5,184	3,351	4,838	346
445	UTILITY IMPR.PIPE W.	23,821	01/01/69	SERVICES OUT OF CITY	1969	274,857	157,208	432,065	251,036	394,618	37,446
445	UTILITY IMPR.PIPE W.	151	01/01/69	SERVICES OUT OF CITY	1969	1,740	995	2,735	1,589	2,497	237
445	UTILITY IMPR.PIPE W.	121	01/01/69	SERVICES OUT OF CITY	1969	1,392	796	2,188	1,271	1,998	190
445	UTILITY IMPR.PIPE W.	1,738	01/01/69	SERVICES OUT OF CITY	1969	20,054	11,470	31,524	18,316	28,792	2,732
445	UTILITY IMPR.PIPE W.	270	01/01/69	SERVICES OUT OF CITY	1969	3,115	1,782	4,897	2,845	4,472	425

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	301	01/01/69	SERVICES OUT OF CITY	1969	3,470	1,985	5,455	3,169	4,981	473
445	UTILITY IMPR.PIPE W.	147	01/01/69	SERVICES OUT OF CITY	1969	1,688	966	2,654	1,542	2,423	231
445	UTILITY IMPR.PIPE W.	60	01/01/69	WATER PIPE OUTSIDE CITY	1969	691	395	1,086	631	991	95
445	UTILITY IMPR.PIPE W.	914	01/01/69	WATER PIPE OUTSIDE CITY	1969	10,548	6,033	16,581	9,634	15,144	1,437
445	UTILITY IMPR.PIPE W.	3,359	01/01/69	WATER PIPE OUTSIDE CITY	1969	38,758	22,168	60,926	35,399	55,645	5,281
445	UTILITY IMPR.PIPE W.	724	01/01/69	WATER PIPE OUTSIDE CITY	1969	8,346	4,774	13,120	7,623	11,983	1,137
445	UTILITY IMPR.PIPE W.	1,803	01/01/69	WATER PIPE OUTSIDE CITY	1969	20,801	11,897	32,698	18,998	29,864	2,834
445	UTILITY IMPR.PIPE W.	255	01/01/69	WATER PIPE OUTSIDE CITY	1969	2,940	1,682	4,622	2,685	4,221	401
445	UTILITY IMPR.PIPE W.	25,158	01/01/69	WATER PIPE OUTSIDE CITY	1969	290,284	166,031	456,315	265,126	416,768	39,548
445	UTILITY IMPR.PIPE W.	23,322	01/01/69	WATER PIPE OUTSIDE CITY	1969	269,091	153,910	423,002	245,770	386,341	36,661
445	UTILITY IMPR.PIPE W.	187	01/01/69	WATER PIPE OUTSIDE CITY	1969	2,160	1,235	3,395	1,973	3,101	294
445	UTILITY IMPR.PIPE W.	7,685	01/01/69	WATER PIPE OUTSIDE CITY	1969	88,665	50,713	139,378	80,980	127,298	12,080
445	UTILITY IMPR.PIPE W.	819	01/01/69	WATER PIPE OUTSIDE CITY	1969	9,442	5,400	14,842	8,623	13,556	1,287
445	UTILITY IMPR.PIPE W.	5,525	01/01/69	WATER PIPE OUTSIDE CITY	1969	63,754	36,465	100,218	58,228	91,533	8,686
445	UTILITY IMPR.PIPE W.	15,935	01/01/69	WATER PIPE OUTSIDE CITY	1969	183,864	105,163	289,027	167,929	263,978	25,049
445	UTILITY IMPR.PIPE W.	1,577	01/01/69	WATER PIPE OUTSIDE CITY	1969	18,186	10,402	28,588	16,610	26,110	2,478
445	UTILITY IMPR.PIPE W.	13,892	01/01/70	SERVICES OUT OF CITY	1970	130,235	82,611	212,846	116,343	190,142	22,704
445	UTILITY IMPR.PIPE W.	101	01/01/70	SERVICES OUT OF CITY	1970	948	601	1,549	846	1,383	166
445	UTILITY IMPR.PIPE W.	81	01/01/70	SERVICES OUT OF CITY	1970	758	481	1,239	677	1,107	133
445	UTILITY IMPR.PIPE W.	1,039	01/01/70	SERVICES OUT OF CITY	1970	9,735	6,175	15,911	8,697	14,213	1,698
445	UTILITY IMPR.PIPE W.	151	01/01/70	SERVICES OUT OF CITY	1970	1,414	897	2,312	1,263	2,065	247
445	UTILITY IMPR.PIPE W.	168	01/01/70	SERVICES OUT OF CITY	1970	1,576	999	2,575	1,408	2,300	275
445	UTILITY IMPR.PIPE W.	99	01/01/70	SERVICES OUT OF CITY	1970	920	584	1,503	821	1,342	161
445	UTILITY IMPR.PIPE W.	192	01/01/70	WATER PIPE OUTSIDE CITY	1970	1,803	1,144	2,947	1,611	2,633	314
445	UTILITY IMPR.PIPE W.	585	01/01/70	WATER PIPE OUTSIDE CITY	1970	5,477	3,474	8,951	4,892	7,996	955
445	UTILITY IMPR.PIPE W.	720	01/01/70	WATER PIPE OUTSIDE CITY	1970	6,752	4,283	11,034	6,031	9,857	1,177
445	UTILITY IMPR.PIPE W.	2,232	01/01/70	WATER PIPE OUTSIDE CITY	1970	20,920	13,270	34,190	18,688	30,543	3,647
445	UTILITY IMPR.PIPE W.	461	01/01/70	WATER PIPE OUTSIDE CITY	1970	4,319	2,739	7,058	3,858	6,305	753
445	UTILITY IMPR.PIPE W.	10,846	01/01/70	WATER PIPE OUTSIDE CITY	1970	101,679	64,498	166,177	90,833	148,451	17,725
445	UTILITY IMPR.PIPE W.	2,690	01/01/70	WATER PIPE OUTSIDE CITY	1970	25,214	15,994	41,208	22,524	36,812	4,396
445	UTILITY IMPR.PIPE W.	13,965	01/01/70	WATER PIPE OUTSIDE CITY	1970	130,916	83,044	213,960	116,952	191,137	22,823
445	UTILITY IMPR.PIPE W.	2,243	01/01/70	WATER PIPE OUTSIDE CITY	1970	21,023	13,335	34,358	18,780	30,693	3,665
445	UTILITY IMPR.PIPE W.	1,727	01/01/70	WATER PIPE OUTSIDE CITY	1970	16,188	10,269	26,457	14,461	23,634	2,822
445	UTILITY IMPR.PIPE W.	18,446	01/01/71	SERVICES OUT OF CITY	1971	145,625	79,760	225,385	127,179	196,836	28,549
445	UTILITY IMPR.PIPE W.	124	01/01/71	SERVICES OUT OF CITY	1971	981	537	1,519	857	1,326	193
445	UTILITY IMPR.PIPE W.	99	01/01/71	SERVICES OUT OF CITY	1971	785	430	1,215	686	1,061	154
445	UTILITY IMPR.PIPE W.	1,303	01/01/71	SERVICES OUT OF CITY	1971	10,285	5,633	15,917	8,982	13,901	2,016
445	UTILITY IMPR.PIPE W.	186	01/01/71	SERVICES OUT OF CITY	1971	1,464	802	2,266	1,279	1,979	287
445	UTILITY IMPR.PIPE W.	207	01/01/71	SERVICES OUT OF CITY	1971	1,631	893	2,525	1,424	2,205	320
445	UTILITY IMPR.PIPE W.	121	01/01/71	SERVICES OUT OF CITY	1971	952	522	1,474	831	1,287	187
445	UTILITY IMPR.PIPE W.	108	01/01/71	WATER PIPE OUTSIDE CITY	1971	849	465	1,314	742	1,148	167
445	UTILITY IMPR.PIPE W.	5,582	01/01/71	WATER PIPE OUTSIDE CITY	1971	44,069	24,137	68,206	38,487	59,567	8,639
445	UTILITY IMPR.PIPE W.	33,302	01/01/71	WATER PIPE OUTSIDE CITY	1971	262,911	143,999	406,910	229,609	355,369	51,542
445	UTILITY IMPR.PIPE W.	7,038	01/01/71	WATER PIPE OUTSIDE CITY	1971	55,561	30,431	85,992	48,523	75,099	10,893
445	UTILITY IMPR.PIPE W.	1,296	01/01/71	WATER PIPE OUTSIDE CITY	1971	10,229	5,603	15,832	8,933	13,826	2,005
445	UTILITY IMPR.PIPE W.	532	01/01/71	WATER PIPE OUTSIDE CITY	1971	4,198	2,299	6,497	3,666	5,674	823
445	UTILITY IMPR.PIPE W.	21,065	01/01/71	WATER PIPE OUTSIDE CITY	1971	166,300	91,085	257,385	145,235	224,783	32,602
445	UTILITY IMPR.PIPE W.	47,013	01/01/72	SERVICES OUT OF CITY	1972	320,540	168,511	489,051	273,527	417,323	71,728
445	UTILITY IMPR.PIPE W.	308	01/01/72	SERVICES OUT OF CITY	1972	2,096	1,102	3,199	1,789	2,729	470
445	UTILITY IMPR.PIPE W.	505	01/01/72	SERVICES OUT OF CITY	1972	3,441	1,809	5,250	2,936	4,480	770
445	UTILITY IMPR.PIPE W.	562	01/01/72	SERVICES OUT OF CITY	1972	3,833	2,015	5,848	3,271	4,990	858
445	UTILITY IMPR.PIPE W.	299	01/01/72	SERVICES OUT OF CITY	1972	2,035	1,070	3,104	1,736	2,649	456
445	UTILITY IMPR.PIPE W.	545	01/01/72	SERVICES OUT OF CITY	1972	3,716	1,954	5,669	3,171	4,837	832
445	UTILITY IMPR.PIPE W.	171	01/01/72	WATER PIPE OUTSIDE CITY	1972	1,162	611	1,773	992	1,513	260
445	UTILITY IMPR.PIPE W.	2,292	01/01/72	WATER PIPE OUTSIDE CITY	1972	15,624	8,214	23,838	13,332	20,342	3,496
445	UTILITY IMPR.PIPE W.	10,393	01/01/72	WATER PIPE OUTSIDE CITY	1972	70,857	37,250	108,107	60,464	92,251	15,856
445	UTILITY IMPR.PIPE W.	2,320	01/01/72	WATER PIPE OUTSIDE CITY	1972	15,819	8,316	24,136	13,499	20,595	3,540
445	UTILITY IMPR.PIPE W.	74,740	01/01/72	WATER PIPE OUTSIDE CITY	1972	509,590	267,898	777,488	434,850	663,456	114,032
445	UTILITY IMPR.PIPE W.	3,613	01/01/72	WATER PIPE OUTSIDE CITY	1972	24,633	12,950	37,583	21,020	32,071	5,512
445	UTILITY IMPR.PIPE W.	19,103	01/01/72	WATER PIPE OUTSIDE CITY	1972	130,248	68,473	198,721	111,145	169,575	29,146
445	UTILITY IMPR.PIPE W.	408	01/01/72	WATER PIPE OUTSIDE CITY	1972	2,781	1,462	4,243	2,373	3,621	622
445	UTILITY IMPR.PIPE W.	16,893	01/01/72	WATER PIPE OUTSIDE CITY	1972	115,179	60,551	175,730	98,286	149,955	25,774
445	UTILITY IMPR.PIPE W.	47,804	01/01/72	WATER PIPE OUTSIDE CITY	1972	325,937	171,349	497,286	278,133	424,350	72,936
445	UTILITY IMPR.PIPE W.	2,479	01/01/72	WATER PIPE OUTSIDE CITY	1972	16,900	8,885	25,785	14,421	22,003	3,782
445	UTILITY IMPR.PIPE W.	4,731	01/01/72	WATER PIPE OUTSIDE CITY	1972	32,260	16,959	49,219	27,529	42,001	7,219
445	UTILITY IMPR.PIPE W.	1,777	01/01/72	WATER PIPE OUTSIDE CITY	1972	12,117	6,370	18,487	10,340	15,776	2,711
445	UTILITY IMPR.PIPE W.	67,947	01/01/73	SERVICES OUT OF CITY	1973	407,681	211,832	619,513	339,734	516,261	103,252
445	UTILITY IMPR.PIPE W.	446	01/01/73	SERVICES OUT OF CITY	1973	2,676	1,391	4,067	2,230	3,389	678
445	UTILITY IMPR.PIPE W.	777	01/01/73	SERVICES OUT OF CITY	1973	4,659	2,421	7,080	3,883	5,900	1,180
445	UTILITY IMPR.PIPE W.	804	01/01/73	SERVICES OUT OF CITY	1973	4,819	2,504	7,324	4,016	6,102	1,221
445	UTILITY IMPR.PIPE W.	541	01/01/73	SERVICES OUT OF CITY	1973	3,247	1,687	4,934	2,705	4,111	823
445	UTILITY IMPR.PIPE W.	659	01/01/73	SERVICES OUT OF CITY	1973	3,953	2,054	6,007	3,294	5,006	1,001
445	UTILITY IMPR.PIPE W.	1,255	01/01/73	WATER PIPE OUTSIDE CITY	1973	7,527	3,911	11,439	6,272	9,532	1,907
445	UTILITY IMPR.PIPE W.	13,846	01/01/73	WATER PIPE OUTSIDE CITY	1973	83,073	43,165	126,238	69,227	105,198	21,040
445	UTILITY IMPR.PIPE W.	911	01/01/73	WATER PIPE OUTSIDE CITY	1973	5,462	2,838	8,300	4,552	6,917	1,384
445	UTILITY IMPR.PIPE W.	73,876	01/01/73	WATER PIPE OUTSIDE CITY	1973	443,256	230,317	673,573	369,380	561,311	112,262
445	UTILITY IMPR.PIPE W.	25,778	01/01/73	WATER PIPE OUTSIDE CITY	1973	154,669	80,366	235,035	128,890	195,862	39,173
445	UTILITY IMPR.PIPE W.	36,000	01/01/73	WATER PIPE OUTSIDE CITY	1973	215,998	112,233	328,231	179,998	273,526	54,705
445	UTILITY IMPR.PIPE W.	103,183	01/01/73	WATER PIPE OUTSIDE CITY	1973	619,096	321,684	940,780	515,913	783,983	156,797
445	UTILITY IMPR.PIPE W.	5,733	01/01/73	WATER PIPE OUTSIDE CITY	1973	34,398	17,873	52,271	28,665	43,559	8,712
445	UTILITY IMPR.PIPE W.	4,831	01/01/73	WATER PIPE OUTSIDE CITY	1973	28,987	15,062	44,049	24,156	36,707	7,342
445	UTILITY IMPR.PIPE W.	266	01/01/73	WATER PIPE OUTSIDE CITY	1973	1,596	829	2,425	1,330	2,021	404

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	47,182	01/01/74	SERVICES OUT OF CITY	1974	252,760	155,938	408,698	205,578	332,407	76,290
445	UTILITY IMPR.PIPE W.	290	01/01/74	SERVICES OUT OF CITY	1974	1,552	958	2,510	1,262	2,041	469
445	UTILITY IMPR.PIPE W.	505	01/01/74	SERVICES OUT OF CITY	1974	2,702	1,667	4,369	2,198	3,553	816
445	UTILITY IMPR.PIPE W.	562	01/01/74	SERVICES OUT OF CITY	1974	3,010	1,857	4,867	2,448	3,959	909
445	UTILITY IMPR.PIPE W.	469	01/01/74	SERVICES OUT OF CITY	1974	2,511	1,549	4,060	2,042	3,301	758
445	UTILITY IMPR.PIPE W.	856	01/01/74	SERVICES OUT OF CITY	1974	4,586	2,829	7,415	3,729	6,030	1,384
445	UTILITY IMPR.PIPE W.	723	01/01/74	SERVICES OUT OF CITY	1974	3,871	2,388	6,260	3,148	5,091	1,169
445	UTILITY IMPR.PIPE W.	7,766	01/01/74	WATER PIPE OUTSIDE CITY	1974	41,604	25,667	67,272	33,838	54,714	12,558
445	UTILITY IMPR.PIPE W.	67,830	01/01/74	WATER PIPE OUTSIDE CITY	1974	363,375	224,181	587,556	295,545	477,879	109,677
445	UTILITY IMPR.PIPE W.	41,709	01/01/74	WATER PIPE OUTSIDE CITY	1974	223,444	137,852	361,295	181,734	293,854	67,442
445	UTILITY IMPR.PIPE W.	36,338	01/01/74	WATER PIPE OUTSIDE CITY	1974	194,667	120,098	314,766	158,329	256,009	58,756
445	UTILITY IMPR.PIPE W.	46,529	01/01/74	WATER PIPE OUTSIDE CITY	1974	249,258	153,778	403,037	202,730	327,802	75,234
445	UTILITY IMPR.PIPE W.	25,378	01/01/74	WATER PIPE OUTSIDE CITY	1974	135,955	83,876	219,831	110,576	178,796	41,035
445	UTILITY IMPR.PIPE W.	17,269	01/01/75	SERVICES OUT OF CITY	1975	83,558	58,976	142,534	66,289	113,076	29,457
445	UTILITY IMPR.PIPE W.	121	01/01/75	SERVICES OUT OF CITY	1975	584	412	997	463	790	207
445	UTILITY IMPR.PIPE W.	181	01/01/75	SERVICES OUT OF CITY	1975	872	615	1,487	691	1,179	308
445	UTILITY IMPR.PIPE W.	201	01/01/75	SERVICES OUT OF CITY	1975	971	686	1,657	770	1,314	343
445	UTILITY IMPR.PIPE W.	437	01/01/75	WATER PIPE OUTSIDE CITY	1975	2,116	1,493	3,609	1,678	2,863	746
445	UTILITY IMPR.PIPE W.	3,612	01/01/75	WATER PIPE OUTSIDE CITY	1975	17,475	12,334	29,809	13,863	23,648	6,161
445	UTILITY IMPR.PIPE W.	14,313	01/01/75	WATER PIPE OUTSIDE CITY	1975	69,254	48,880	118,135	54,941	93,720	24,415
445	UTILITY IMPR.PIPE W.	31,655	01/01/75	WATER PIPE OUTSIDE CITY	1975	153,168	108,108	261,276	121,513	207,279	53,997
445	UTILITY IMPR.PIPE W.	6,147	01/01/75	WATER PIPE OUTSIDE CITY	1975	29,744	20,994	50,738	23,597	40,252	10,486
445	UTILITY IMPR.PIPE W.	6,238	01/01/75	WATER PIPE OUTSIDE CITY	1975	30,186	21,306	51,492	23,948	40,850	10,642
445	UTILITY IMPR.PIPE W.	443	01/01/75	WATER PIPE OUTSIDE CITY	1975	2,141	1,511	3,652	1,699	2,897	755
445	UTILITY IMPR.PIPE W.	78,840	01/01/76	SERVICES OUT OF CITY	1976	347,824	230,353	578,177	268,984	447,124	131,054
445	UTILITY IMPR.PIPE W.	496	01/01/76	SERVICES OUT OF CITY	1976	2,186	1,447	3,633	1,690	2,809	824
445	UTILITY IMPR.PIPE W.	951	01/01/76	SERVICES OUT OF CITY	1976	4,193	2,777	6,970	3,243	5,390	1,580
445	UTILITY IMPR.PIPE W.	941	01/01/76	SERVICES OUT OF CITY	1976	4,152	2,750	6,902	3,211	5,337	1,565
445	UTILITY IMPR.PIPE W.	687	01/01/76	SERVICES OUT OF CITY	1976	3,030	2,007	5,037	2,343	3,895	1,142
445	UTILITY IMPR.PIPE W.	627	01/01/76	SERVICES OUT OF CITY	1976	2,767	1,833	4,600	2,140	3,557	1,043
445	UTILITY IMPR.PIPE W.	1,059	01/01/76	SERVICES OUT OF CITY	1976	4,672	3,094	7,767	3,613	6,006	1,761
445	UTILITY IMPR.PIPE W.	745	01/01/76	WATER PIPE OUTSIDE CITY	1976	3,288	2,177	5,465	2,542	4,226	1,239
445	UTILITY IMPR.PIPE W.	413	01/01/76	WATER PIPE OUTSIDE CITY	1976	1,820	1,205	3,025	1,407	2,339	686
445	UTILITY IMPR.PIPE W.	13,325	01/01/76	WATER PIPE OUTSIDE CITY	1976	58,784	38,931	97,715	45,460	75,566	22,149
445	UTILITY IMPR.PIPE W.	84,533	01/01/76	WATER PIPE OUTSIDE CITY	1976	372,938	246,986	619,924	288,405	479,407	140,516
445	UTILITY IMPR.PIPE W.	77,130	01/01/76	WATER PIPE OUTSIDE CITY	1976	340,278	225,356	565,634	263,148	437,423	128,210
445	UTILITY IMPR.PIPE W.	45,316	01/01/76	WATER PIPE OUTSIDE CITY	1976	199,921	132,401	332,322	154,605	256,995	75,327
445	UTILITY IMPR.PIPE W.	43,019	01/01/76	WATER PIPE OUTSIDE CITY	1976	189,790	125,692	315,481	146,771	243,972	71,509
445	UTILITY IMPR.PIPE W.	127,383	01/01/77	SERVICES OUT OF CITY	1977	516,417	293,335	809,753	389,034	610,013	199,739
445	UTILITY IMPR.PIPE W.	803	01/01/77	SERVICES OUT OF CITY	1977	3,256	1,850	5,106	2,453	3,846	1,259
445	UTILITY IMPR.PIPE W.	1,438	01/01/77	SERVICES OUT OF CITY	1977	5,831	3,312	9,143	4,392	6,887	2,255
445	UTILITY IMPR.PIPE W.	1,602	01/01/77	SERVICES OUT OF CITY	1977	6,495	3,689	10,184	4,893	7,672	2,512
445	UTILITY IMPR.PIPE W.	1,559	01/01/77	SERVICES OUT OF CITY	1977	6,320	3,590	9,910	4,761	7,465	2,445
445	UTILITY IMPR.PIPE W.	712	01/01/77	SERVICES OUT OF CITY	1977	2,886	1,639	4,525	2,174	3,408	1,116
445	UTILITY IMPR.PIPE W.	1,202	01/01/77	SERVICES OUT OF CITY	1977	4,872	2,768	7,640	3,670	5,755	1,885
445	UTILITY IMPR.PIPE W.	778	01/01/77	WATER PIPE OUTSIDE CITY	1977	3,154	1,791	4,945	2,376	3,725	1,220
445	UTILITY IMPR.PIPE W.	42,262	01/01/77	WATER PIPE OUTSIDE CITY	1977	171,334	97,321	268,654	129,071	202,386	66,268
445	UTILITY IMPR.PIPE W.	131,459	01/01/77	WATER PIPE OUTSIDE CITY	1977	532,940	302,720	835,661	401,481	629,531	206,130
445	UTILITY IMPR.PIPE W.	807	01/01/77	WATER PIPE OUTSIDE CITY	1977	3,273	1,859	5,132	2,465	3,865	1,266
445	UTILITY IMPR.PIPE W.	235,273	01/01/77	WATER PIPE OUTSIDE CITY	1977	953,811	541,783	1,495,594	718,538	1,126,681	368,913
445	UTILITY IMPR.PIPE W.	54,014	01/01/77	WATER PIPE OUTSIDE CITY	1977	218,975	124,382	343,357	164,961	258,662	84,695
445	UTILITY IMPR.PIPE W.	90,040	01/01/77	WATER PIPE OUTSIDE CITY	1977	365,028	207,343	572,371	274,988	431,186	141,185
445	UTILITY IMPR.PIPE W.	1,344	01/01/77	WATER PIPE OUTSIDE CITY	1977	5,450	3,096	8,546	4,106	6,438	2,108
445	UTILITY IMPR.PIPE W.	155,579	01/01/78	SERVICES OUT OF CITY	1978	583,420	351,556	934,976	427,841	685,649	249,327
445	UTILITY IMPR.PIPE W.	982	01/01/78	SERVICES OUT OF CITY	1978	3,680	2,217	5,897	2,698	4,324	1,573
445	UTILITY IMPR.PIPE W.	1,864	01/01/78	SERVICES OUT OF CITY	1978	6,989	4,211	11,200	5,125	8,213	2,987
445	UTILITY IMPR.PIPE W.	1,780	01/01/78	SERVICES OUT OF CITY	1978	6,673	4,021	10,694	4,893	7,842	2,852
445	UTILITY IMPR.PIPE W.	1,732	01/01/78	SERVICES OUT OF CITY	1978	6,494	3,913	10,406	4,762	7,631	2,775
445	UTILITY IMPR.PIPE W.	791	01/01/78	SERVICES OUT OF CITY	1978	2,965	1,787	4,751	2,174	3,484	1,267
445	UTILITY IMPR.PIPE W.	1,335	01/01/78	SERVICES OUT OF CITY	1978	5,006	3,016	8,022	3,671	5,882	2,140
445	UTILITY IMPR.PIPE W.	1,385	01/01/78	SERVICES OUT OF CITY	1978	5,195	3,130	8,325	3,809	6,105	2,220
445	UTILITY IMPR.PIPE W.	1,901	01/01/78	WATER PIPE OUTSIDE CITY	1978	7,128	4,295	11,424	5,227	8,377	3,047
445	UTILITY IMPR.PIPE W.	38,794	01/01/78	WATER PIPE OUTSIDE CITY	1978	145,478	87,662	233,139	106,683	170,968	62,171
445	UTILITY IMPR.PIPE W.	944	01/01/78	WATER PIPE OUTSIDE CITY	1978	3,539	2,133	5,672	2,595	4,159	1,513
445	UTILITY IMPR.PIPE W.	99,678	01/01/78	WATER PIPE OUTSIDE CITY	1978	373,791	225,238	599,029	274,114	439,288	159,741
445	UTILITY IMPR.PIPE W.	355,395	01/01/78	WATER PIPE OUTSIDE CITY	1978	1,332,732	803,074	2,135,806	977,337	1,566,257	569,548
445	UTILITY IMPR.PIPE W.	19,933	01/01/78	WATER PIPE OUTSIDE CITY	1978	74,749	45,042	119,791	54,816	87,846	31,945
445	UTILITY IMPR.PIPE W.	136,167	01/01/78	WATER PIPE OUTSIDE CITY	1978	510,625	307,691	818,316	374,458	600,098	218,218
445	UTILITY IMPR.PIPE W.	100,110	01/01/79	SERVICES OUT OF CITY	1979	349,223	227,626	576,848	249,112	411,485	165,363
445	UTILITY IMPR.PIPE W.	633	01/01/79	SERVICES OUT OF CITY	1979	2,208	1,439	3,647	1,575	2,601	1,046
445	UTILITY IMPR.PIPE W.	1,102	01/01/79	SERVICES OUT OF CITY	1979	3,844	2,505	6,349	2,742	4,529	1,820
445	UTILITY IMPR.PIPE W.	1,228	01/01/79	SERVICES OUT OF CITY	1979	4,282	2,791	7,073	3,054	5,045	2,028
445	UTILITY IMPR.PIPE W.	1,024	01/01/79	SERVICES OUT OF CITY	1979	3,571	2,328	5,899	2,547	4,208	1,692
445	UTILITY IMPR.PIPE W.	935	01/01/79	SERVICES OUT OF CITY	1979	3,261	2,126	5,387	2,326	3,843	1,544
445	UTILITY IMPR.PIPE W.	1,579	01/01/79	SERVICES OUT OF CITY	1979	5,507	3,589	9,096	3,928	6,488	2,607
445	UTILITY IMPR.PIPE W.	1,638	01/01/79	SERVICES OUT OF CITY	1979	5,714	3,725	9,439	4,076	6,733	2,706
445	UTILITY IMPR.PIPE W.	5,702	01/01/79	WATER PIPE OUTSIDE CITY	1979	19,891	12,965	32,856	14,189	23,437	9,419
445	UTILITY IMPR.PIPE W.	18,808	01/01/79	WATER PIPE OUTSIDE CITY	1979	65,607	42,763	108,371	46,800	77,304	31,066
445	UTILITY IMPR.PIPE W.	5,234	01/01/79	WATER PIPE OUTSIDE CITY	1979	18,260	11,902	30,161	13,025	21,515	8,646
445	UTILITY IMPR.PIPE W.	64,128	01/01/79	WATER PIPE OUTSIDE CITY	1979	223,703	145,811	369,515	159,575	263,587	105,928
445	UTILITY IMPR.PIPE W.	9,698	01/01/79	WATER PIPE OUTSIDE CITY	1979	33,831	22,051	55,882	24,133	39,863	16,020
445	UTILITY IMPR.PIPE W.	18,496	01/01/79	WATER PIPE OUTSIDE CITY	1979	64,519	42,054	106,573	46,024	76,022	30,551

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	192,203	01/01/79	WATER PIPE OUTSIDE CITY	1979	670,475	437,021	1,107,496	478,272	790,014	317,482
445	UTILITY IMPR.PIPE W.	18,123	01/01/79	WATER PIPE OUTSIDE CITY	1979	63,220	41,207	104,427	45,097	74,491	29,936
445	UTILITY IMPR.PIPE W.	145,824	01/01/79	WATER PIPE OUTSIDE CITY	1979	508,686	331,566	840,252	362,863	599,379	240,873
445	UTILITY IMPR.PIPE W.	43,847	01/01/79	WATER PIPE OUTSIDE CITY	1979	152,955	99,697	252,651	109,107	180,225	72,427
445	UTILITY IMPR.PIPE W.	22,116	01/01/80	SERVICES OUT OF CITY	1980	72,116	61,839	133,955	50,000	92,875	41,080
445	UTILITY IMPR.PIPE W.	129	01/01/80	SERVICES OUT OF CITY	1980	419	360	779	291	540	239
445	UTILITY IMPR.PIPE W.	129	01/01/80	SERVICES OUT OF CITY	1980	419	360	779	291	540	239
445	UTILITY IMPR.PIPE W.	1,482	01/01/80	SERVICES OUT OF CITY	1980	4,834	4,145	8,978	3,351	6,225	2,753
445	UTILITY IMPR.PIPE W.	192	01/01/80	SERVICES OUT OF CITY	1980	626	536	1,162	434	805	357
445	UTILITY IMPR.PIPE W.	214	01/01/80	SERVICES OUT OF CITY	1980	697	598	1,295	483	897	398
445	UTILITY IMPR.PIPE W.	11,505	01/01/80	WATER PIPE OUTSIDE CITY	1980	37,515	32,169	69,683	26,010	48,313	21,370
445	UTILITY IMPR.PIPE W.	2,977	01/01/80	WATER PIPE OUTSIDE CITY	1980	9,707	8,323	18,030	6,730	12,501	5,529
445	UTILITY IMPR.PIPE W.	22,094	01/01/80	WATER PIPE OUTSIDE CITY	1980	72,047	61,779	133,826	49,952	92,786	41,040
445	UTILITY IMPR.PIPE W.	18,530	01/01/80	WATER PIPE OUTSIDE CITY	1980	60,422	51,811	112,233	41,892	77,814	34,419
445	UTILITY IMPR.PIPE W.	20,028	01/01/80	WATER PIPE OUTSIDE CITY	1980	65,307	56,000	121,307	45,279	84,105	37,201
445	UTILITY IMPR.PIPE W.	45,395	01/01/80	WATER PIPE OUTSIDE CITY	1980	148,029	126,933	274,962	102,634	190,641	84,322
445	UTILITY IMPR.PIPE W.	29,721	01/01/81	SERVICES OUT OF CITY	1981	90,981	103,442	194,422	61,260	130,911	63,512
445	UTILITY IMPR.PIPE W.	150	01/01/81	SERVICES OUT OF CITY	1981	457	520	977	308	658	319
445	UTILITY IMPR.PIPE W.	150	01/01/81	SERVICES OUT OF CITY	1981	457	520	977	308	658	319
445	UTILITY IMPR.PIPE W.	2,035	01/01/81	SERVICES OUT OF CITY	1981	6,229	7,082	13,311	4,194	8,963	4,349
445	UTILITY IMPR.PIPE W.	223	01/01/81	SERVICES OUT OF CITY	1981	682	776	1,458	459	981	476
445	UTILITY IMPR.PIPE W.	248	01/01/81	SERVICES OUT OF CITY	1981	760	864	1,624	511	1,093	531
445	UTILITY IMPR.PIPE W.	9,572	01/01/81	WATER PIPE OUTSIDE CITY	1981	29,302	33,315	62,616	19,730	42,162	20,455
445	UTILITY IMPR.PIPE W.	18,733	01/01/81	WATER PIPE OUTSIDE CITY	1981	57,346	65,200	122,547	38,613	82,515	40,032
445	UTILITY IMPR.PIPE W.	59,275	01/01/81	WATER PIPE OUTSIDE CITY	1981	181,453	206,305	387,758	122,178	261,090	126,668
445	UTILITY IMPR.PIPE W.	7,229	01/01/81	WATER PIPE OUTSIDE CITY	1981	22,128	25,158	47,286	14,899	31,839	15,447
445	UTILITY IMPR.PIPE W.	25,303	01/01/81	WATER PIPE OUTSIDE CITY	1981	77,457	88,066	165,523	52,154	111,452	54,071
445	UTILITY IMPR.PIPE W.	46,803	01/01/81	WATER PIPE OUTSIDE CITY	1981	143,275	162,898	306,172	96,471	206,156	100,016
445	UTILITY IMPR.PIPE W.	74,205	01/01/81	WATER PIPE OUTSIDE CITY	1981	227,157	258,268	485,425	152,952	326,852	158,573
445	UTILITY IMPR.PIPE W.	92,094	01/01/81	WATER PIPE OUTSIDE CITY	1981	281,919	320,531	602,450	189,826	405,650	196,800
445	UTILITY IMPR.PIPE W.	388,814	01/01/81	WATER PIPE OUTSIDE CITY	1981	1,190,247	1,353,266	2,543,513	801,433	1,712,631	830,881
445	UTILITY IMPR.PIPE W.	31,626	01/01/82	SERVICES OUT OF CITY	1982	91,229	106,124	197,354	59,603	128,937	68,417
445	UTILITY IMPR.PIPE W.	175	01/01/82	SERVICES OUT OF CITY	1982	504	586	1,090	329	712	378
445	UTILITY IMPR.PIPE W.	175	01/01/82	SERVICES OUT OF CITY	1982	504	586	1,090	329	712	378
445	UTILITY IMPR.PIPE W.	2,198	01/01/82	SERVICES OUT OF CITY	1982	6,339	7,374	13,713	4,141	8,958	4,754
445	UTILITY IMPR.PIPE W.	261	01/01/82	SERVICES OUT OF CITY	1982	752	875	1,627	491	1,063	564
445	UTILITY IMPR.PIPE W.	291	01/01/82	SERVICES OUT OF CITY	1982	838	975	1,812	547	1,184	629
445	UTILITY IMPR.PIPE W.	342	01/01/82	WATER PIPE OUTSIDE CITY	1982	988	1,149	2,137	646	1,397	741
445	UTILITY IMPR.PIPE W.	3,544	01/01/82	WATER PIPE OUTSIDE CITY	1982	10,224	11,893	22,116	6,679	14,449	7,667
445	UTILITY IMPR.PIPE W.	26,629	01/01/82	WATER PIPE OUTSIDE CITY	1982	76,813	89,354	166,167	50,184	108,562	57,605
445	UTILITY IMPR.PIPE W.	9,466	01/01/82	WATER PIPE OUTSIDE CITY	1982	27,306	31,764	59,070	17,840	38,592	20,478
445	UTILITY IMPR.PIPE W.	100,609	01/01/82	WATER PIPE OUTSIDE CITY	1982	290,218	337,601	627,819	189,609	410,175	217,644
445	UTILITY IMPR.PIPE W.	112,992	01/01/82	WATER PIPE OUTSIDE CITY	1982	325,939	379,154	705,093	212,946	460,661	244,432
445	UTILITY IMPR.PIPE W.	30,948	01/01/82	WATER PIPE OUTSIDE CITY	1982	89,274	103,849	193,123	58,325	126,173	66,950
445	UTILITY IMPR.PIPE W.	44,014	01/01/83	SERVICES OUT OF CITY	1983	120,037	114,155	234,192	76,023	148,321	85,871
445	UTILITY IMPR.PIPE W.	378	01/01/83	SERVICES OUT OF CITY	1983	1,030	980	2,010	652	1,273	737
445	UTILITY IMPR.PIPE W.	189	01/01/83	SERVICES OUT OF CITY	1983	515	490	1,005	326	636	369
445	UTILITY IMPR.PIPE W.	3,168	01/01/83	SERVICES OUT OF CITY	1983	8,639	8,216	16,854	5,471	10,674	6,180
445	UTILITY IMPR.PIPE W.	564	01/01/83	SERVICES OUT OF CITY	1983	1,538	1,462	3,000	974	1,900	1,100
445	UTILITY IMPR.PIPE W.	628	01/01/83	SERVICES OUT OF CITY	1983	1,713	1,629	3,342	1,084	2,116	1,226
445	UTILITY IMPR.PIPE W.	21,549	01/01/83	WATER PIPE OUTSIDE CITY	1983	58,770	55,890	114,660	37,221	72,618	42,042
445	UTILITY IMPR.PIPE W.	6,358	01/01/83	WATER PIPE OUTSIDE CITY	1983	17,340	16,490	33,830	10,982	21,426	12,404
445	UTILITY IMPR.PIPE W.	23,857	01/01/83	WATER PIPE OUTSIDE CITY	1983	65,065	61,877	126,942	41,208	80,396	46,545
445	UTILITY IMPR.PIPE W.	68,267	01/01/83	WATER PIPE OUTSIDE CITY	1983	186,184	177,061	363,245	117,917	230,055	133,190
445	UTILITY IMPR.PIPE W.	37,755	01/01/84	SERVICES OUT OF CITY	1984	97,640	98,656	196,297	59,886	120,395	75,902
445	UTILITY IMPR.PIPE W.	3,600	01/01/84	SERVICES OUT OF CITY	1984	9,309	9,406	18,714	5,709	11,478	7,237
445	UTILITY IMPR.PIPE W.	3,686	01/01/84	SERVICES OUT OF CITY	1984	9,532	9,631	19,163	5,846	11,754	7,410
445	UTILITY IMPR.PIPE W.	2,678	01/01/84	SERVICES OUT OF CITY	1984	6,925	6,997	13,922	4,247	8,539	5,383
445	UTILITY IMPR.PIPE W.	251	01/01/84	SERVICES OUT OF CITY	1984	650	657	1,307	399	801	505
445	UTILITY IMPR.PIPE W.	4,012	01/01/84	SERVICES OUT OF CITY	1984	10,375	10,483	20,858	6,363	12,793	8,065
445	UTILITY IMPR.PIPE W.	5,776	01/01/84	WATER PIPE OUTSIDE CITY	1984	14,938	15,093	30,031	9,162	18,419	11,612
445	UTILITY IMPR.PIPE W.	18,064	01/01/84	WATER PIPE OUTSIDE CITY	1984	46,718	47,204	93,921	28,653	57,605	36,316
445	UTILITY IMPR.PIPE W.	85,351	01/01/84	WATER PIPE OUTSIDE CITY	1984	220,736	223,032	443,768	135,384	272,177	171,591
445	UTILITY IMPR.PIPE W.	93,922	01/01/84	WATER PIPE OUTSIDE CITY	1984	242,901	245,428	488,329	148,979	299,508	188,821
445	UTILITY IMPR.PIPE W.	145,672	01/01/84	WATER PIPE OUTSIDE CITY	1984	376,739	380,658	757,397	231,066	464,537	292,861
445	UTILITY IMPR.PIPE W.	117,052	01/01/84	WATER PIPE OUTSIDE CITY	1984	302,720	305,869	608,589	185,668	373,267	235,322
445	UTILITY IMPR.PIPE W.	65,682	01/01/85	SERVICES OUT OF CITY	1985	161,514	146,886	308,399	95,831	182,984	125,416
445	UTILITY IMPR.PIPE W.	1,295	01/01/85	SERVICES OUT OF CITY	1985	3,184	2,896	6,080	1,889	3,607	2,472
445	UTILITY IMPR.PIPE W.	848	01/01/85	SERVICES OUT OF CITY	1985	2,083	1,895	3,978	1,236	2,360	1,618
445	UTILITY IMPR.PIPE W.	9,713	01/01/85	WATER PIPE OUTSIDE CITY	1985	23,884	21,721	45,605	14,171	27,059	18,546
445	UTILITY IMPR.PIPE W.	39,150	01/01/85	WATER PIPE OUTSIDE CITY	1985	96,271	87,552	183,823	57,120	109,068	74,755
445	UTILITY IMPR.PIPE W.	161,689	01/01/85	WATER PIPE OUTSIDE CITY	1985	397,596	361,587	759,183	235,907	450,448	308,734
445	UTILITY IMPR.PIPE W.	69,840	01/01/85	WATER PIPE OUTSIDE CITY	1985	171,739	156,185	327,924	101,898	194,568	133,356
445	UTILITY IMPR.PIPE W.	82,234	01/01/85	WATER PIPE OUTSIDE CITY	1985	202,215	183,901	386,116	119,981	229,095	157,021
445	UTILITY IMPR.PIPE W.	22,998	01/01/85	WATER PIPE OUTSIDE CITY	1985	56,553	51,431	107,984	33,555	64,071	43,914
445	UTILITY IMPR.PIPE W.	24,358	01/01/86	SERVICES OUT OF CITY	1986	57,089	41,828	98,916	32,731	56,712	42,204
445	UTILITY IMPR.PIPE W.	163	01/01/86	SERVICES OUT OF CITY	1986	381	279	661	218	378	282
445	UTILITY IMPR.PIPE W.	232	01/01/86	SERVICES OUT OF CITY	1986	543	398	941	311	539	402
445	UTILITY IMPR.PIPE W.	246	01/01/86	SERVICES OUT OF CITY	1986	577	423	1,000	331	573	427
445	UTILITY IMPR.PIPE W.	2,355	01/01/86	SERVICES OUT OF CITY	1986	5,519	4,043	9,562	3,164	5,482	4,080
445	UTILITY IMPR.PIPE W.	3,747	01/01/86	WATER PIPE OUTSIDE CITY	1986	8,783	6,435	15,218	5,035	8,725	6,493
445	UTILITY IMPR.PIPE W.	32,163	01/01/86	WATER PIPE OUTSIDE CITY	1986	75,383	55,231	130,614	43,219	74,885	55,728

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	139,027	01/01/86	WATER PIPE OUTSIDE CITY	1986	325,845	238,740	564,585	186,817	323,695	240,890
445	UTILITY IMPR.PIPE W.	42,628	01/01/86	WATER PIPE OUTSIDE CITY	1986	99,909	73,201	173,110	57,281	99,249	73,861
445	UTILITY IMPR.PIPE W.	241,427	01/01/86	WATER PIPE OUTSIDE CITY	1986	565,843	414,581	980,424	324,416	562,109	418,315
445	UTILITY IMPR.PIPE W.	8,518	01/01/86	WATER PIPE OUTSIDE CITY	1986	19,962	14,626	34,588	11,445	19,830	14,758
445	UTILITY IMPR.PIPE W.	2,715	01/01/86	WATER PIPE OUTSIDE CITY	1986	6,364	4,663	11,027	3,649	6,322	4,705
445	UTILITY IMPR.PIPE W.	142,527	01/01/86	WATER PIPE OUTSIDE CITY	1986	334,048	244,750	578,797	191,521	331,844	246,954
445	UTILITY IMPR.PIPE W.	23,407	01/01/87	SERVICES OUT OF CITY	1987	52,404	40,159	92,563	28,997	51,218	41,345
445	UTILITY IMPR.PIPE W.	1,610	01/01/87	SERVICES OUT OF CITY	1987	3,603	2,761	6,365	1,994	3,522	2,843
445	UTILITY IMPR.PIPE W.	1,833	01/01/87	SERVICES OUT OF CITY	1987	4,104	3,145	7,250	2,271	4,011	3,238
445	UTILITY IMPR.PIPE W.	948	01/01/87	SERVICES OUT OF CITY	1987	2,123	1,627	3,750	1,175	2,075	1,675
445	UTILITY IMPR.PIPE W.	6,611	01/01/87	WATER PIPE OUTSIDE CITY	1987	14,800	11,342	26,142	8,189	14,465	11,677
445	UTILITY IMPR.PIPE W.	28,077	01/01/87	WATER PIPE OUTSIDE CITY	1987	62,859	48,170	111,029	34,782	61,436	49,593
445	UTILITY IMPR.PIPE W.	140,378	01/01/87	WATER PIPE OUTSIDE CITY	1987	314,280	240,841	555,121	173,902	307,167	247,954
445	UTILITY IMPR.PIPE W.	51,166	01/01/87	WATER PIPE OUTSIDE CITY	1987	114,552	87,784	202,335	63,385	111,959	90,377
445	UTILITY IMPR.PIPE W.	15,999	01/01/87	WATER PIPE OUTSIDE CITY	1987	35,818	27,448	63,266	19,819	35,007	28,259
445	UTILITY IMPR.PIPE W.	22,269	01/01/88	SERVICES OUT OF CITY	1988	47,720	36,658	84,377	25,450	45,001	39,376
445	UTILITY IMPR.PIPE W.	448	01/01/88	SERVICES OUT OF CITY	1988	959	737	1,696	511	904	792
445	UTILITY IMPR.PIPE W.	478	01/01/88	SERVICES OUT OF CITY	1988	1,024	787	1,811	546	965	845
445	UTILITY IMPR.PIPE W.	339	01/01/88	SERVICES OUT OF CITY	1988	726	557	1,283	387	684	599
445	UTILITY IMPR.PIPE W.	22,540	01/01/88	WATER PIPE OUTSIDE CITY	1988	48,299	37,103	85,403	25,760	45,548	39,855
445	UTILITY IMPR.PIPE W.	63,271	01/01/88	WATER PIPE OUTSIDE CITY	1988	135,580	104,152	239,732	72,309	127,857	111,875
445	UTILITY IMPR.PIPE W.	181,927	01/01/88	WATER PIPE OUTSIDE CITY	1988	389,842	299,474	689,316	207,916	367,635	321,681
445	UTILITY IMPR.PIPE W.	85,695	01/01/88	WATER PIPE OUTSIDE CITY	1988	183,632	141,065	324,697	97,937	173,171	151,525
445	UTILITY IMPR.PIPE W.	43,152	01/01/88	WATER PIPE OUTSIDE CITY	1988	92,470	71,034	163,504	49,317	87,202	76,302
445	UTILITY IMPR.PIPE W.	49,863	01/01/88	WATER PIPE OUTSIDE CITY	1988	106,849	82,081	188,930	56,986	100,762	88,167
445	UTILITY IMPR.PIPE W.	13,412	01/01/89	SERVICES OUT OF CITY	1989	27,558	19,914	47,472	14,146	24,368	23,103
445	UTILITY IMPR.PIPE W.	24,439	01/01/89	SERVICES OUT OF CITY	1989	50,218	36,288	86,506	25,778	44,406	42,099
445	UTILITY IMPR.PIPE W.	1,465	01/01/89	SERVICES OUT OF CITY	1989	3,010	2,175	5,185	1,545	2,662	2,524
445	UTILITY IMPR.PIPE W.	1,197	01/01/89	SERVICES OUT OF CITY	1989	2,460	1,778	4,238	1,263	2,175	2,063
445	UTILITY IMPR.PIPE W.	1,137	01/01/89	WATER PIPE OUTSIDE CITY	1989	2,337	1,688	4,025	1,199	2,066	1,959
445	UTILITY IMPR.PIPE W.	19,799	01/01/89	WATER PIPE OUTSIDE CITY	1989	40,682	29,397	70,079	20,883	35,974	34,105
445	UTILITY IMPR.PIPE W.	168,781	01/01/89	WATER PIPE OUTSIDE CITY	1989	346,811	250,611	597,421	178,029	306,676	290,745
445	UTILITY IMPR.PIPE W.	290,560	01/01/89	WATER PIPE OUTSIDE CITY	1989	597,041	431,431	1,028,472	306,481	527,949	500,523
445	UTILITY IMPR.PIPE W.	190,549	01/01/89	WATER PIPE OUTSIDE CITY	1989	391,539	282,932	674,472	200,990	346,229	328,243
445	UTILITY IMPR.PIPE W.	210,054	01/01/89	WATER PIPE OUTSIDE CITY	1989	431,617	311,893	743,511	221,563	381,668	361,842
445	UTILITY IMPR.PIPE W.	219,242	01/01/89	WATER PIPE OUTSIDE CITY	1989	450,498	325,537	776,034	231,255	398,364	377,670
445	UTILITY IMPR.PIPE W.	32,453	01/01/90	SERVICES OUT OF CITY	1990	64,052	46,566	110,618	31,599	54,571	56,047
445	UTILITY IMPR.PIPE W.	29,426	01/01/90	SERVICES OUT OF CITY	1990	58,077	42,222	100,299	28,651	49,481	50,819
445	UTILITY IMPR.PIPE W.	1,117	01/01/90	SERVICES OUT OF CITY	1990	2,203	1,602	3,805	1,087	1,877	1,929
445	UTILITY IMPR.PIPE W.	497	01/01/90	SERVICES OUT OF CITY	1990	980	713	1,693	483	835	858
445	UTILITY IMPR.PIPE W.	23,521	01/01/90	WATER PIPE OUTSIDE CITY	1990	46,423	33,750	80,173	22,902	39,552	40,621
445	UTILITY IMPR.PIPE W.	73,231	01/01/90	WATER PIPE OUTSIDE CITY	1990	144,534	105,076	249,610	71,303	123,141	126,469
445	UTILITY IMPR.PIPE W.	316,007	01/01/90	WATER PIPE OUTSIDE CITY	1990	623,698	453,429	1,077,127	307,691	531,383	545,745
445	UTILITY IMPR.PIPE W.	154,906	01/01/90	WATER PIPE OUTSIDE CITY	1990	305,736	222,270	528,006	150,830	260,483	267,523
445	UTILITY IMPR.PIPE W.	118,616	01/01/90	WATER PIPE OUTSIDE CITY	1990	234,110	170,198	404,309	115,494	199,458	204,850
445	UTILITY IMPR.PIPE W.	26,133	01/01/90	WATER PIPE OUTSIDE CITY	1990	51,578	37,498	89,076	25,445	43,944	45,132
445	UTILITY IMPR.PIPE W.	100,957	01/01/90	WATER PIPE OUTSIDE CITY	1990	199,256	144,859	344,115	98,299	169,763	174,352
445	UTILITY IMPR.PIPE W.	278,895	01/01/90	WATER PIPE OUTSIDE CITY	1990	550,449	400,177	950,626	271,555	468,975	481,651
445	UTILITY IMPR.PIPE W.	57,711	01/01/90	WATER PIPE OUTSIDE CITY	1990	113,904	82,808	196,711	56,192	97,044	99,667
445	UTILITY IMPR.PIPE W.	36,778	01/01/91	SERVICES OUT OF CITY	1991	69,833	48,265	118,097	33,054	55,899	62,198
445	UTILITY IMPR.PIPE W.	418	01/01/91	SERVICES OUT OF CITY	1991	793	548	1,341	375	635	706
445	UTILITY IMPR.PIPE W.	560	01/01/91	WATER PIPE OUTSIDE CITY	1991	1,063	735	1,797	503	850	947
445	UTILITY IMPR.PIPE W.	39,534	01/01/91	WATER PIPE OUTSIDE CITY	1991	75,065	51,881	126,946	35,531	60,088	66,858
445	UTILITY IMPR.PIPE W.	63,900	01/01/91	WATER PIPE OUTSIDE CITY	1991	121,329	83,857	205,186	57,429	97,121	108,065
445	UTILITY IMPR.PIPE W.	300,756	01/01/91	WATER PIPE OUTSIDE CITY	1991	571,055	394,685	965,740	270,299	457,117	508,623
445	UTILITY IMPR.PIPE W.	187,667	01/01/91	WATER PIPE OUTSIDE CITY	1991	356,330	246,278	602,607	168,663	285,234	317,374
445	UTILITY IMPR.PIPE W.	166,123	01/01/91	WATER PIPE OUTSIDE CITY	1991	315,423	218,005	533,427	149,300	252,489	280,939
445	UTILITY IMPR.PIPE W.	4,228	01/01/91	WATER PIPE OUTSIDE CITY	1991	8,027	5,548	13,575	3,799	6,425	7,150
445	UTILITY IMPR.PIPE W.	3,655	01/01/91	WATER PIPE OUTSIDE CITY	1991	6,940	4,797	11,737	3,285	5,555	6,181
445	UTILITY IMPR.PIPE W.	485,911	01/01/91	WATER PIPE OUTSIDE CITY	1991	922,615	637,666	1,560,281	436,704	738,533	821,748
445	UTILITY IMPR.PIPE W.	338,678	01/01/92	SERVICES OUT OF CITY	1992	619,533	398,792	1,018,326	280,855	461,641	556,685
445	UTILITY IMPR.PIPE W.	1,193	01/01/92	SERVICES OUT OF CITY	1992	2,182	1,405	3,587	989	1,626	1,961
445	UTILITY IMPR.PIPE W.	79	01/01/92	SERVICES OUT OF CITY	1992	145	93	239	66	108	131
445	UTILITY IMPR.PIPE W.	100,421	01/01/92	WATER PIPE OUTSIDE CITY	1992	183,696	118,245	301,941	83,276	136,880	165,061
445	UTILITY IMPR.PIPE W.	160,697	01/01/92	WATER PIPE OUTSIDE CITY	1992	293,959	189,221	483,179	133,261	219,041	264,138
445	UTILITY IMPR.PIPE W.	459,825	01/01/92	WATER PIPE OUTSIDE CITY	1992	841,143	541,442	1,382,585	381,318	626,771	755,814
445	UTILITY IMPR.PIPE W.	59,773	01/01/92	WATER PIPE OUTSIDE CITY	1992	109,340	70,382	179,722	49,567	81,473	98,248
445	UTILITY IMPR.PIPE W.	267,375	01/01/92	WATER PIPE OUTSIDE CITY	1992	489,101	314,833	803,934	221,726	364,450	439,484
445	UTILITY IMPR.PIPE W.	18,170	01/01/93	SERVICES OUT OF CITY	1993	32,064	17,921	49,985	13,894	21,660	28,325
445	UTILITY IMPR.PIPE W.	78,812	01/01/93	SERVICES OUT OF CITY	1993	139,080	77,735	216,815	60,268	93,953	122,862
445	UTILITY IMPR.PIPE W.	318	01/01/93	SERVICES OUT OF CITY	1993	561	314	875	243	379	496
445	UTILITY IMPR.PIPE W.	2,760	01/01/93	SERVICES OUT OF CITY	1993	4,871	2,723	7,594	2,111	3,291	4,303
445	UTILITY IMPR.PIPE W.	52,418	01/01/93	WATER PIPE OUTSIDE CITY	1993	92,502	51,701	144,203	40,084	62,488	81,716
445	UTILITY IMPR.PIPE W.	134,086	01/01/93	WATER PIPE OUTSIDE CITY	1993	236,622	132,254	368,876	102,536	159,846	209,030
445	UTILITY IMPR.PIPE W.	609,282	01/01/93	WATER PIPE OUTSIDE CITY	1993	1,075,204	600,956	1,676,160	465,922	726,336	949,824
445	UTILITY IMPR.PIPE W.	82,643	01/01/93	WATER PIPE OUTSIDE CITY	1993	145,840	81,513	227,353	63,197	98,520	128,834
445	UTILITY IMPR.PIPE W.	37,942	01/01/93	WATER PIPE OUTSIDE CITY	1993	66,957	37,424	104,380	29,014	45,231	59,149
445	UTILITY IMPR.PIPE W.	31,157	01/01/93	WATER PIPE OUTSIDE CITY	1993	54,983	30,731	85,715	23,826	37,143	48,572
445	UTILITY IMPR.PIPE W.	3,896	01/01/93	WATER PIPE OUTSIDE CITY	1993	6,876	3,843	10,719	2,979	4,645	6,074
445	UTILITY IMPR.PIPE W.	711,931	01/01/93	WATER PIPE OUTSIDE CITY	1993	1,256,349	702,202	1,958,551	544,418	848,705	1,109,846
445	UTILITY IMPR.PIPE W.	286,414	01/01/93	WATER PIPE OUTSIDE CITY	1993	505,436	282,500	787,936	219,022	341,439	446,498
445	UTILITY IMPR.PIPE W.	41,810	01/01/93	WATER PIPE OUTSIDE CITY	1993	73,782	41,238	115,020	31,972	49,842	65,178

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	27,134	01/01/93	WATER PIPE OUTSIDE CITY	1993	47,884	26,763	74,647	20,750	32,347	42,300
445	UTILITY IMPR.PIPE W.	18,702	01/01/94	SERVICES OUT OF CITY	1994	31,879	19,721	51,600	13,176	21,328	30,272
445	UTILITY IMPR.PIPE W.	75,225	01/01/94	SERVICES OUT OF CITY	1994	128,224	79,324	207,548	52,999	85,787	121,761
445	UTILITY IMPR.PIPE W.	3,266	01/01/94	SERVICES OUT OF CITY	1994	5,567	3,444	9,011	2,301	3,725	5,287
445	UTILITY IMPR.PIPE W.	1,383	01/01/94	SERVICES OUT OF CITY	1994	2,357	1,458	3,815	974	1,577	2,238
445	UTILITY IMPR.PIPE W.	73,492	01/01/94	WATER PIPE OUTSIDE CITY	1994	125,270	77,497	202,767	51,778	83,810	118,957
445	UTILITY IMPR.PIPE W.	125,694	01/01/94	WATER PIPE OUTSIDE CITY	1994	214,250	132,543	346,793	88,557	143,341	203,452
445	UTILITY IMPR.PIPE W.	1,023,446	01/01/94	WATER PIPE OUTSIDE CITY	1994	1,744,511	1,079,215	2,823,726	721,065	1,167,140	1,656,586
445	UTILITY IMPR.PIPE W.	138,151	01/01/94	WATER PIPE OUTSIDE CITY	1994	235,484	145,679	381,163	97,333	157,547	223,616
445	UTILITY IMPR.PIPE W.	288,715	01/01/94	WATER PIPE OUTSIDE CITY	1994	492,127	304,447	796,574	203,412	329,250	467,324
445	UTILITY IMPR.PIPE W.	86,275	01/01/95	SERVICES OUT OF CITY	1995	142,212	84,445	226,657	55,937	89,152	137,505
445	UTILITY IMPR.PIPE W.	301	01/01/95	SERVICES OUT OF CITY	1995	495	294	789	195	310	479
445	UTILITY IMPR.PIPE W.	1,823	01/01/95	SERVICES OUT OF CITY	1995	3,006	1,785	4,790	1,182	1,884	2,906
445	UTILITY IMPR.PIPE W.	83,402	01/01/95	WATER PIPE OUTSIDE CITY	1995	137,476	81,632	219,108	54,074	86,182	132,926
445	UTILITY IMPR.PIPE W.	111,773	01/01/95	WATER PIPE OUTSIDE CITY	1995	184,240	109,401	293,641	72,468	115,499	178,142
445	UTILITY IMPR.PIPE W.	1,006,685	01/01/95	WATER PIPE OUTSIDE CITY	1995	1,659,370	985,321	2,644,692	652,686	1,040,245	1,604,446
445	UTILITY IMPR.PIPE W.	135,282	01/01/95	WATER PIPE OUTSIDE CITY	1995	222,992	132,411	355,403	87,710	139,792	215,612
445	UTILITY IMPR.PIPE W.	112,516	01/01/95	WATER PIPE OUTSIDE CITY	1995	185,467	110,129	295,595	72,950	116,267	179,328
445	UTILITY IMPR.PIPE W.	18,081	01/01/96	SERVICES OUT OF CITY	1996	28,853	16,605	45,458	10,772	16,971	28,487
445	UTILITY IMPR.PIPE W.	21,554	01/01/96	WATER PIPE OUTSIDE CITY	1996	34,395	19,795	54,190	12,841	20,231	33,959
445	UTILITY IMPR.PIPE W.	38,751	01/01/96	WATER PIPE OUTSIDE CITY	1996	61,837	35,588	97,425	23,086	36,372	61,053
445	UTILITY IMPR.PIPE W.	281,204	01/01/96	WATER PIPE OUTSIDE CITY	1996	448,729	258,252	706,982	167,525	263,940	443,042
445	UTILITY IMPR.PIPE W.	45,408	01/01/96	WATER PIPE OUTSIDE CITY	1996	72,460	41,702	114,162	27,052	42,621	71,541
445	UTILITY IMPR.PIPE W.	51,185	01/01/97	SERVICES OUT OF CITY	1997	79,152	43,657	122,809	27,967	43,392	79,417
445	UTILITY IMPR.PIPE W.	27,180	01/01/97	WATER PIPE OUTSIDE CITY	1997	42,031	23,183	65,214	14,851	23,042	42,172
445	UTILITY IMPR.PIPE W.	63,895	01/01/97	WATER PIPE OUTSIDE CITY	1997	98,807	54,498	153,305	34,912	54,168	99,138
445	UTILITY IMPR.PIPE W.	234,178	01/01/97	WATER PIPE OUTSIDE CITY	1997	362,130	199,739	561,869	127,953	198,527	363,342
445	UTILITY IMPR.PIPE W.	51,003	01/01/97	WATER PIPE OUTSIDE CITY	1997	78,870	43,502	122,372	27,867	43,238	79,134
445	UTILITY IMPR.PIPE W.	59,173	01/01/97	WATER PIPE OUTSIDE CITY	1997	91,505	50,471	141,975	32,332	50,165	91,811
445	UTILITY IMPR.PIPE W.	19,542	01/01/98	SERVICES OUT OF CITY	1998	29,313	14,913	44,226	9,771	14,742	29,484
445	UTILITY IMPR.PIPE W.	435	01/01/98	SERVICES OUT OF CITY	1998	653	332	985	218	328	657
445	UTILITY IMPR.PIPE W.	785	01/01/98	WATER PIPE OUTSIDE CITY	1998	1,177	599	1,776	392	592	1,185
445	UTILITY IMPR.PIPE W.	565	01/01/98	WATER PIPE OUTSIDE CITY	1998	848	431	1,279	282	426	853
445	UTILITY IMPR.PIPE W.	40,629	01/01/98	WATER PIPE OUTSIDE CITY	1998	60,944	31,005	91,949	20,314	30,649	61,299
445	UTILITY IMPR.PIPE W.	284,019	01/01/98	WATER PIPE OUTSIDE CITY	1998	426,029	216,742	642,771	142,010	214,257	428,514
445	UTILITY IMPR.PIPE W.	555,297	01/01/98	WATER PIPE OUTSIDE CITY	1998	832,945	423,761	1,256,706	277,648	418,902	837,804
445	UTILITY IMPR.PIPE W.	141,158	01/01/98	WATER PIPE OUTSIDE CITY	1998	211,738	107,722	319,459	70,579	106,486	212,973
445	UTILITY IMPR.PIPE W.	78,961	01/01/98	WATER PIPE OUTSIDE CITY	1998	118,441	60,257	178,697	39,480	59,566	119,132
445	UTILITY IMPR.PIPE W.	1,597	01/01/98	WATER PIPE OUTSIDE CITY	1998	2,395	1,218	3,613	798	1,204	2,409
445	UTILITY IMPR.PIPE W.	348,000	01/01/98	WATER PIPE OUTSIDE CITY	1998	522,000	265,567	787,567	174,000	262,522	525,045
445	UTILITY IMPR.PIPE W.	18,270	01/01/99	SERVICES OUT OF CITY	1999	26,607	14,465	41,072	8,337	12,869	28,202
445	UTILITY IMPR.PIPE W.	30,791	01/01/99	WATER PIPE OUTSIDE CITY	1999	44,841	24,377	69,218	14,050	21,688	47,530
445	UTILITY IMPR.PIPE W.	46,203	01/01/99	WATER PIPE OUTSIDE CITY	1999	67,286	36,579	103,865	21,083	32,544	71,321
445	UTILITY IMPR.PIPE W.	431,930	01/01/99	WATER PIPE OUTSIDE CITY	1999	629,024	341,959	970,983	197,094	304,241	666,741
445	UTILITY IMPR.PIPE W.	65,909	01/01/99	WATER PIPE OUTSIDE CITY	1999	95,984	52,180	148,164	30,075	46,424	101,739
445	UTILITY IMPR.PIPE W.	33,120	01/01/99	WATER PIPE OUTSIDE CITY	1999	48,232	26,221	74,453	15,113	23,329	51,124
445	UTILITY IMPR.PIPE W.	27,589	01/01/00	WATER PIPE OUTSIDE CITY	2000	39,041	22,231	61,272	11,452	17,973	43,299
445	UTILITY IMPR.PIPE W.	104,996	01/01/00	WATER PIPE OUTSIDE CITY	2000	148,579	84,606	233,185	43,583	68,401	164,784
445	UTILITY IMPR.PIPE W.	330,459	01/01/00	WATER PIPE OUTSIDE CITY	2000	467,631	266,285	733,916	137,172	215,282	518,634
445	UTILITY IMPR.PIPE W.	68,730	01/01/00	WATER PIPE OUTSIDE CITY	2000	97,260	55,383	152,643	28,530	44,775	107,868
445	UTILITY IMPR.PIPE W.	31,476	01/01/00	WATER PIPE OUTSIDE CITY	2000	44,542	25,364	69,906	13,066	20,506	49,400
445	UTILITY IMPR.PIPE W.	105,198	02/01/01	WATER PIPE OUTSIDE CITY	2001	144,436	74,396	218,832	39,239	59,449	159,383
445	UTILITY IMPR.PIPE W.	22,297	02/01/01	WATER PIPE OUTSIDE CITY	2001	30,613	15,768	46,381	8,316	12,600	33,781
445	UTILITY IMPR.PIPE W.	46,249	02/15/01	WATER PIPE OUTSIDE CITY	2001	63,500	32,707	96,207	17,251	26,136	70,071
445	UTILITY IMPR.PIPE W.	7,189	03/20/01	WATER PIPE OUTSIDE CITY	2001	9,848	5,072	14,920	2,659	4,028	10,892
445	UTILITY IMPR.PIPE W.	6,548	04/13/01	WATER PIPE OUTSIDE CITY	2001	8,950	4,610	13,560	2,402	3,639	9,921
445	UTILITY IMPR.PIPE W.	911	01/16/03	ENG2002-00081 - Pebble Creek Apar	2003	1,188	563	1,751	277	409	1,343
445	UTILITY IMPR.PIPE W.	19,765	01/16/03	ENG2002-00081 - Pebble Creek Apar	2003	25,780	12,227	38,007	6,015	8,868	29,138
445	UTILITY IMPR.PIPE W.	6,900	01/24/03	Grill Meadows PH 2 ENG2001-00168	2003	9,000	4,268	13,268	2,100	3,096	10,172
445	UTILITY IMPR.PIPE W.	64,894	01/31/03	ENG2002-00020 - Lowes Home Impr	2003	84,645	40,144	124,789	19,751	29,118	95,671
445	UTILITY IMPR.PIPE W.	1,095	01/31/03	ENG2002-00020 - Lowes Home Impr	2003	1,428	677	2,105	333	491	1,614
445	UTILITY IMPR.PIPE W.	10,708	03/04/03	ENG2001-00121-Heritage Park Apar	2003	13,907	6,596	20,502	3,199	4,716	15,787
445	UTILITY IMPR.PIPE W.	2,293	03/04/03	WB1983-Les Schwab Orchards	2003	2,978	1,412	4,390	685	1,010	3,381
445	UTILITY IMPR.PIPE W.	12,293	03/07/03	Maplecrest Phase 3A - V99UT091	2003	15,965	7,572	23,537	3,672	5,413	18,124
445	UTILITY IMPR.PIPE W.	18,988	03/07/03	Maplecrest Phase 3A - V99UT091	2003	24,660	11,695	36,355	5,672	8,362	27,994
445	UTILITY IMPR.PIPE W.	6,006	03/21/03	Vancouver Mall RV Park & Hotel - V9	2003	7,800	3,699	11,499	1,794	2,645	8,854
445	UTILITY IMPR.PIPE W.	36,460	04/04/03	Autumn Walk/ENG2002-00069	2003	47,248	22,408	69,656	10,788	15,905	53,751
445	UTILITY IMPR.PIPE W.	8,748	04/30/03	Brookside Knoll, ENG2002-00046	2003	11,337	5,377	16,714	2,589	3,816	12,898
445	UTILITY IMPR.PIPE W.	14,465	04/22/03	Padden Parkway Market - ENG2002-(	2003	18,745	8,890	27,635	4,280	6,310	21,325
445	UTILITY IMPR.PIPE W.	2,759	04/22/03	Padden Parkway Market - ENG2002-(	2003	3,576	1,696	5,272	817	1,204	4,068
445	UTILITY IMPR.PIPE W.	28,617	04/22/03	Padden Parkway Market - ENG2002-(	2003	37,085	17,588	54,673	8,468	12,484	42,189
445	UTILITY IMPR.PIPE W.	9,353	05/13/03	Truman School - ENG2002-00093	2003	12,095	5,736	17,831	2,742	4,042	13,789
445	UTILITY IMPR.PIPE W.	948	05/13/03	Truman School - ENG2002-00093	2003	1,226	581	1,807	278	410	1,398
445	UTILITY IMPR.PIPE W.	24,220	07/01/03	Ironwood Estates - ENG2002-00121	2003	31,185	14,790	45,975	6,965	10,268	35,707
445	UTILITY IMPR.PIPE W.	3,883	07/01/03	Hardman Meadows - ENG2002-0007	2003	5,000	2,371	7,371	1,117	1,646	5,725
445	UTILITY IMPR.PIPE W.	25,541	07/01/03	Allison Heights Subdivision - ENG200	2003	32,885	15,596	48,481	7,344	10,828	37,654
445	UTILITY IMPR.PIPE W.	3,064	07/01/03	Allison Heights Subdivision - ENG200	2003	3,945	1,871	5,816	881	1,299	4,517
445	UTILITY IMPR.PIPE W.	326,225	07/01/03	Operation Center Expansion XB876	2003	420,032	199,206	619,237	93,807	138,296	480,941
445	UTILITY IMPR.PIPE W.	315,070	06/30/03	Operation Center Expansion XB876	2003	406,542	192,808	599,351	91,472	134,854	464,497
445	UTILITY IMPR.PIPE W.	13,978	06/30/03	Operation Center Expansion XB876	2003	18,036	8,554	26,591	4,058	5,983	20,608
445	UTILITY IMPR.PIPE W.	4,078	07/16/03	Orchards Lane ENG2002-00097	2003	5,250	2,490	7,740	1,173	1,729	6,011
445	UTILITY IMPR.PIPE W.	11,831	08/07/03	Sun Prairie Subdivision - ENG2003-0	2003	15,200	7,209	22,409	3,369	4,967	17,442

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	17,925	07/30/03	Evergreen Elementary - ENG2002-00	2003	23,080	10,946	34,026	5,155	7,599	26,427
445	UTILITY IMPR.PIPE W.	12,349	07/30/03	Evergreen Elementary - ENG2002-00	2003	15,900	7,541	23,441	3,551	5,235	18,206
445	UTILITY IMPR.PIPE W.	2,439	08/29/03	VAN MALL TOWNHOUSES ENG200	2003	3,133	1,486	4,619	694	1,024	3,595
445	UTILITY IMPR.PIPE W.	32,311	08/29/03	VAN MALL TOWNHOUSES ENG200	2003	41,513	19,688	61,201	9,202	13,566	47,635
445	UTILITY IMPR.PIPE W.	8,174	08/29/03	VAN MALL TOWNHOUSES ENG200	2003	10,502	4,981	15,483	2,328	3,432	12,051
445	UTILITY IMPR.PIPE W.	29,640	09/05/03	SHULLER ESTATES - ENG2001-001	2003	38,000	18,022	56,022	8,360	12,325	43,697
445	UTILITY IMPR.PIPE W.	3,471	10/03/03	Julius Court - ENG2003-00076	2003	4,440	2,106	6,546	969	1,429	5,117
445	UTILITY IMPR.PIPE W.	3,568	10/09/03	Rons Automotive - ENG2003-00020	2003	4,565	2,165	6,730	997	1,469	5,261
445	UTILITY IMPR.PIPE W.	1,379	10/09/03	Rons Automotive - ENG2003-00020	2003	1,764	836	2,600	385	568	2,033
445	UTILITY IMPR.PIPE W.	20,137	10/16/03	Cascadia Village PH 1 & 2 - ENG200	2003	25,762	12,218	37,980	5,625	8,292	29,688
445	UTILITY IMPR.PIPE W.	816	10/16/03	Cascadia Village PH 1 & 2 - ENG200	2003	1,044	495	1,539	228	336	1,203
445	UTILITY IMPR.PIPE W.	3,786	10/21/03	Pebble Creek Apartments -ENG2002	2003	4,844	2,297	7,141	1,058	1,559	5,582
445	UTILITY IMPR.PIPE W.	1,688	10/21/03	Pebble Creek Apartments -ENG2002	2003	2,160	1,024	3,184	472	695	2,489
445	UTILITY IMPR.PIPE W.	51,245	12/02/03	Fir Acres - ENG2003-00032	2003	65,280	30,960	96,240	14,035	20,692	75,548
445	UTILITY IMPR.PIPE W.	11,957	12/03/03	Maplecrest Estates - ENG2003-0010	2003	15,232	7,224	22,456	3,275	4,828	17,628
445	UTILITY IMPR.PIPE W.	16,889	12/16/03	Padden Pkwy Market 2 - ENG2003-0	2003	21,515	10,204	31,719	4,626	6,819	24,899
445	UTILITY IMPR.PIPE W.	4,195	12/17/03	Krispy Kreme - ENG2003-00127	2003	5,344	2,534	7,878	1,149	1,694	6,184
445	UTILITY IMPR.PIPE W.	34,938	01/22/04	Heritage Farm Estates - ENG2003-00	2004	44,413	20,772	65,185	9,475	13,906	51,279
445	UTILITY IMPR.PIPE W.	2,478	03/10/04	Springbrook Ridge NE 162nd Av - EN	2004	3,137	1,467	4,604	659	967	3,637
445	UTILITY IMPR.PIPE W.	1,787	03/09/04	Springbrook Ridge NE 39th St Improv	2004	2,262	1,058	3,320	475	697	2,623
445	UTILITY IMPR.PIPE W.	75,277	03/11/04	Springbrook Ridge Subdivision - ENG	2004	95,287	44,567	139,854	20,010	29,369	110,485
445	UTILITY IMPR.PIPE W.	3,330	02/20/04	Sunset Oaks Subdivision - ENG2003-	2004	4,224	1,976	6,200	894	1,312	4,887
445	UTILITY IMPR.PIPE W.	80,322	02/20/04	Sunset Oaks Subdivision - ENG2003-	2004	101,888	47,654	149,542	21,566	31,653	117,889
445	UTILITY IMPR.PIPE W.	1,785	05/11/04	Ultrablock Headquarters - ENG2003-(	2004	2,250	1,052	3,302	465	682	2,620
445	UTILITY IMPR.PIPE W.	397	05/11/04	Ultrablock Headquarters - ENG2003-(	2004	500	234	734	103	152	582
445	UTILITY IMPR.PIPE W.	10,399	06/22/04	North Pointe 6 & 7	2004	13,080	6,118	19,198	2,681	3,936	15,262
445	UTILITY IMPR.PIPE W.	26,101	06/23/04	Orchard Estates - ENG2003-00140	2004	32,832	15,356	48,188	6,731	9,879	38,309
445	UTILITY IMPR.PIPE W.	70,754	07/29/04	SE 192nd Waterline-ENG2000-00129	2004	88,812	41,538	130,350	18,058	26,505	103,846
445	UTILITY IMPR.PIPE W.	1,993	07/29/04	SE 192nd Waterline-ENG2000-00129	2004	2,502	1,170	3,672	509	747	2,926
445	UTILITY IMPR.PIPE W.	36,799	08/30/04	Covington Road Project 083087, Cou	2004	46,095	21,559	67,654	9,296	13,643	54,010
445	UTILITY IMPR.PIPE W.	12,155	08/30/04	Covington Road Project 083087, Cou	2004	15,225	7,121	22,346	3,070	4,506	17,840
445	UTILITY IMPR.PIPE W.	2,447	09/03/04	NE 88th Street - ENG2003-00110	2004	3,059	1,431	4,489	612	898	3,591
445	UTILITY IMPR.PIPE W.	7,821	09/03/04	NE 88th Street - ENG2003-00110	2004	9,776	4,572	14,348	1,955	2,869	11,479
445	UTILITY IMPR.PIPE W.	22,327	09/03/04	NE 88th Street - ENG2003-00110	2004	27,908	13,053	40,961	5,582	8,192	32,769
445	UTILITY IMPR.PIPE W.	12,228	09/03/04	NE 88th Street - ENG2003-00110	2004	15,285	7,149	22,434	3,057	4,487	17,947
445	UTILITY IMPR.PIPE W.	4,144	09/15/04	Cascade Park Animal-ENG2002-0004	2004	5,180	2,423	7,603	1,036	1,520	6,082
445	UTILITY IMPR.PIPE W.	6,694	11/01/04	Violet Glen - ENG2004-00065	2004	8,333	3,897	12,230	1,639	2,405	9,825
445	UTILITY IMPR.PIPE W.	2,608	11/01/04	Violet Glen - ENG2004-00065	2004	3,246	1,518	4,764	638	937	3,827
445	UTILITY IMPR.PIPE W.	49,204	11/10/04	Costco/ENG2003-00133	2004	61,250	28,647	89,897	12,046	17,680	72,218
445	UTILITY IMPR.PIPE W.	714	01/05/05	McCullough PUD - ENG2004-00003	2005	885	350	1,235	171	239	996
445	UTILITY IMPR.PIPE W.	40,040	01/05/05	McCullough PUD - ENG2004-00003	2005	49,636	19,639	69,275	9,596	13,393	55,882
445	UTILITY IMPR.PIPE W.	6,043	01/11/05	Caribou Lane - ENG2000-00040	2005	7,491	2,964	10,455	1,448	2,021	8,434
445	UTILITY IMPR.PIPE W.	3,977	01/25/05	Morning Glenn Subdivision - ENG200	2005	4,931	1,951	6,881	953	1,330	5,551
445	UTILITY IMPR.PIPE W.	42,221	01/25/05	Morning Glenn Subdivision - ENG200	2005	52,340	20,709	73,048	10,119	14,123	58,926
445	UTILITY IMPR.PIPE W.	6,468	03/10/05	99TH Street Industrial - ENG2003-00	2005	7,985	3,159	11,144	1,517	2,117	9,027
445	UTILITY IMPR.PIPE W.	5,472	03/10/05	99TH Street Industrial - ENG2003-00	2005	6,755	2,673	9,428	1,283	1,791	7,636
445	UTILITY IMPR.PIPE W.	33,210	03/23/05	Mt. View Business Park	2005	41,000	16,222	57,222	7,790	10,872	46,350
445	UTILITY IMPR.PIPE W.	2,622	03/24/05	Brungardt Water Line-ENG2004-0013	2005	3,237	1,281	4,517	615	858	3,659
445	UTILITY IMPR.PIPE W.	7,540	04/15/05	Marin's Manor-ENG2004-00064	2005	9,289	3,675	12,964	1,749	2,442	10,523
445	UTILITY IMPR.PIPE W.	14,637	04/15/05	Marin's Manor-ENG2004-00064	2005	18,033	7,135	25,168	3,396	4,740	20,428
445	UTILITY IMPR.PIPE W.	22,013	05/20/05	Centerpoint Retail	2005	27,065	10,709	37,774	5,052	7,051	30,722
445	UTILITY IMPR.PIPE W.	8,231	05/25/05	44th Street Cottages-ENG2004-0006	2005	10,120	4,004	14,124	1,889	2,637	11,488
445	UTILITY IMPR.PIPE W.	87,266	05/25/05	44th Street Cottages-ENG2004-0006	2005	107,294	42,452	149,746	20,028	27,953	121,793
445	UTILITY IMPR.PIPE W.	46,942	05/26/05	Blossom Wood Farm Subdivision	2005	57,716	22,836	80,552	10,774	15,036	65,516
445	UTILITY IMPR.PIPE W.	14,661	06/09/05	Orchard's Place Phase II	2005	17,990	7,118	25,107	3,328	4,645	20,462
445	UTILITY IMPR.PIPE W.	42,323	06/09/05	Orchard's Place Phase II	2005	51,930	20,546	72,476	9,607	13,408	59,068
445	UTILITY IMPR.PIPE W.	4,157	06/09/05	Laurel Hills - ENG2004-00123	2005	5,100	2,018	7,118	944	1,317	5,801
445	UTILITY IMPR.PIPE W.	16,300	06/09/05	Laurel Hills - ENG2004-00123	2005	20,000	7,913	27,913	3,700	5,164	22,749
445	UTILITY IMPR.PIPE W.	135,815	06/09/05	Merritt's Hideaway - END2004-00157	2005	166,644	65,934	232,578	30,829	43,027	189,551
445	UTILITY IMPR.PIPE W.	5,540	06/09/05	Cold Creek Court - ENG2004-00095	2005	6,797	2,689	9,486	1,257	1,755	7,731
445	UTILITY IMPR.PIPE W.	12,818	06/09/05	Cold Creek Court - ENG2004-00095	2005	15,727	6,223	21,950	2,909	4,061	17,889
445	UTILITY IMPR.PIPE W.	19,065	07/01/05	Berdinner Glen-ENG2004-00062	2005	23,345	9,237	32,582	4,280	5,973	26,608
445	UTILITY IMPR.PIPE W.	4,244	07/12/05	Rhodehouse Short Plat-ENG2005-00	2005	5,197	2,056	7,253	953	1,330	5,924
445	UTILITY IMPR.PIPE W.	15,674	07/22/05	Minnehaha Industrial Park-ENG2003-	2005	19,193	7,594	26,787	3,519	4,911	21,876
445	UTILITY IMPR.PIPE W.	22,161	07/27/05	Harmony Lanes - ENG2005-00021	2005	27,136	10,737	37,873	4,975	6,943	30,929
445	UTILITY IMPR.PIPE W.	55,046	08/10/05	Windsor Downs - ENG2004-00161	2005	67,266	26,614	93,880	12,220	17,055	76,826
445	UTILITY IMPR.PIPE W.	6,522	08/10/05	Windsor Downs - ENG2004-00161	2005	7,970	3,153	11,124	1,448	2,021	9,103
445	UTILITY IMPR.PIPE W.	31,637	08/09/05	Church of Christ - ENG2003-00096	2005	38,660	15,296	53,956	7,023	9,802	44,154
445	UTILITY IMPR.PIPE W.	13,990	08/26/05	Cory's Place Townhomes - ENG2005	2005	17,096	6,764	23,860	3,106	4,335	19,526
445	UTILITY IMPR.PIPE W.	12,939	08/25/05	Serena Estates - ENG2005-00034	2005	15,812	6,256	22,068	2,872	4,009	18,059
445	UTILITY IMPR.PIPE W.	22,979	09/07/05	Walnut Grove Apartments - ENG2004	2005	28,023	11,088	39,111	5,044	7,040	32,071
445	UTILITY IMPR.PIPE W.	151,572	09/09/05	CTC Home Depot / Off Site Utilities - I	2005	184,844	73,135	257,979	33,272	46,436	211,543
445	UTILITY IMPR.PIPE W.	3,238	09/12/05	Burton Park Place - ENG2004-00159	2005	3,948	1,562	5,511	711	992	4,519
445	UTILITY IMPR.PIPE W.	569	09/12/05	Burton Park Place - ENG2004-00159	2005	694	274	968	125	174	794
445	UTILITY IMPR.PIPE W.	62,320	09/16/05	Camilie Estates - ENG2004-00207	2005	76,000	30,070	106,070	13,680	19,093	86,978
445	UTILITY IMPR.PIPE W.	1,479	10/04/05	Hannah Corporate Offices - ENG200	2005	1,800	712	2,512	321	448	2,064
445	UTILITY IMPR.PIPE W.	23,556	10/10/05	Walnut Manor II - ENG2004-00068	2005	28,668	11,343	40,011	5,112	7,135	32,876
445	UTILITY IMPR.PIPE W.	15,978	10/17/05	Peach Tree Vista Subdivision - ENG2	2005	19,445	7,694	27,139	3,468	4,840	22,299
445	UTILITY IMPR.PIPE W.	47,851	10/24/05	Covington Middle School - ENG2004-	2005	58,236	23,042	81,278	10,385	14,495	66,783
445	UTILITY IMPR.PIPE W.	40,590	10/24/05	121st Ave Business Park Phase II - E	2005	49,399	19,545	68,944	8,809	12,295	56,649
445	UTILITY IMPR.PIPE W.	6,056	10/24/05	121st Ave Business Park Phase II - E	2005	7,370	2,916	10,286	1,314	1,834	8,452
445	UTILITY IMPR.PIPE W.	35,873	10/26/05	East Padden Square Phase II - ENG2	2005	43,659	17,274	60,933	7,786	10,866	50,067

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PIPE W.	1,643	10/26/05	East Padden Square Phase II - ENG2	2005	2,000	791	2,791	357	498	2,294
445	UTILITY IMPR.PIPE W.	718	10/27/05	Bella Terra - ENG2005-00032	2005	874	346	1,220	156	218	1,002
445	UTILITY IMPR.PIPE W.	5,361	10/27/05	Bella Terra - ENG2005-00032	2005	6,525	2,582	9,107	1,164	1,624	7,483
445	UTILITY IMPR.PIPE W.	10,393	11/22/05	Redinger Infill - ENG2004-00114	2005	12,623	4,994	17,617	2,230	3,112	14,504
445	UTILITY IMPR.PIPE W.	23,852	11/30/05	Candlewood Subdivision - ENG2005-00003	2005	28,970	11,462	40,432	5,118	7,143	33,289
445	UTILITY IMPR.PIPE W.	3,092	11/30/05	Candlewood Subdivision - ENG2005-00003	2005	3,755	1,486	5,241	663	926	4,315
445	UTILITY IMPR.PIPE W.	8,628	12/09/05	Orchards Park - ENG2004-00111	2005	10,458	4,138	14,596	1,830	2,554	12,042
445	UTILITY IMPR.PIPE W.	66,712	01/31/06	Prairie Estates PUD - ENG2004-0011	2006	80,700	28,413	109,112	13,988	18,913	90,200
445	UTILITY IMPR.PIPE W.	5,555	01/31/06	Karoven Subdivision - ENG2005-0007	2006	6,720	2,366	9,086	1,165	1,575	7,511
445	UTILITY IMPR.PIPE W.	5,683	01/31/06	Karoven Subdivision - ENG2005-0007	2006	6,875	2,421	9,296	1,192	1,611	7,684
445	UTILITY IMPR.PIPE W.	18,216	01/31/06	Walnut Grove Subdivision - ENG2004	2006	22,035	7,758	29,793	3,819	5,164	24,629
445	UTILITY IMPR.PIPE W.	29,310	01/31/06	Walnut Village Subdivision - ENG200	2006	35,456	12,483	47,939	6,146	8,309	39,630
445	UTILITY IMPR.PIPE W.	2,872	01/31/06	Maplecrest Glen Subdivision - ENG20	2006	3,474	1,223	4,697	602	814	3,883
445	UTILITY IMPR.PIPE W.	38,999	02/28/06	Sunny Meadows - ENG2004-00194	2006	47,081	16,576	63,657	8,082	10,928	52,729
445	UTILITY IMPR.PIPE W.	64,316	02/28/06	Sifton Commerce Center - ENG2004-	2006	77,645	27,337	104,982	13,329	18,022	86,960
445	UTILITY IMPR.PIPE W.	18,253	03/31/06	Orchard's Elementary - ENG2004-00	2006	21,991	7,743	29,734	3,738	5,055	24,679
445	UTILITY IMPR.PIPE W.	67,009	04/30/06	Northwood Park Off Site - ENG2005-0	2006	80,572	28,368	108,940	13,563	18,338	90,601
445	UTILITY IMPR.PIPE W.	20,002	04/30/06	The Woodlands - ENG2005-0089	2006	24,050	8,467	32,517	4,048	5,474	27,044
445	UTILITY IMPR.PIPE W.	1,140	04/30/06	The Woodlands - ENG2005-0089	2006	1,371	483	1,854	231	312	1,542
445	UTILITY IMPR.PIPE W.	21,355	06/30/06	Julia's Garden - ENG2005-00092	2006	25,575	9,004	34,579	4,220	5,706	28,874
445	UTILITY IMPR.PIPE W.	4,395	06/30/06	Padden Crossing - ENG2005-00053	2006	5,263	1,853	7,116	868	1,174	5,942
445	UTILITY IMPR.PIPE W.	1,131	06/30/06	Padden Crossing - ENG2005-00053	2006	1,355	477	1,832	224	302	1,530
445	UTILITY IMPR.PIPE W.	6,118	06/30/06	Crosspointe Baptist Church - ENG200	2006	7,327	2,580	9,907	1,209	1,634	8,272
445	UTILITY IMPR.PIPE W.	1,916	06/30/06	Crosspointe Baptist Church - ENG200	2006	2,294	808	3,102	378	512	2,590
445	UTILITY IMPR.PIPE W.	3,529	06/30/06	Crosspointe Baptist Church - ENG200	2006	4,227	1,488	5,715	697	943	4,772
445	UTILITY IMPR.PIPE W.	45,578	06/30/06	Prairie Estates 2 - ENG2005-00065	2006	54,585	19,218	73,803	9,007	12,178	61,626
445	UTILITY IMPR.PIPE W.	6,710	06/30/06	Para Los Nietos - ENG2004-00137	2006	8,036	2,829	10,865	1,326	1,793	9,073
445	UTILITY IMPR.PIPE W.	11,705	07/31/06	Caitlin Glen - ENG2006-00039	2006	13,990	4,926	18,916	2,285	3,090	15,826
445	UTILITY IMPR.PIPE W.	46,535	07/31/06	Avalon Estates - ENG2005-00050	2006	55,619	19,582	75,201	9,084	12,283	62,918
445	UTILITY IMPR.PIPE W.	5,263	07/31/06	Younger's Infill Short Plat - ENG2005	2006	6,290	2,215	8,505	1,027	1,389	7,116
445	UTILITY IMPR.PIPE W.	361	07/31/06	Chateau Estates - ENG2005-00197	2006	432	152	584	71	95	489
445	UTILITY IMPR.PIPE W.	12,728	07/31/06	Chateau Estates - ENG2005-00197	2006	15,213	5,356	20,569	2,485	3,360	17,209
445	UTILITY IMPR.PIPE W.	37,973	08/31/06	Orchard Hills Subdivision - ENG2005-	2006	45,296	15,948	61,244	7,323	9,901	51,343
445	UTILITY IMPR.PIPE W.	3,135	08/31/06	Washington St Infill - ENG2005-00138	2006	3,740	1,317	5,057	605	817	4,239
445	UTILITY IMPR.PIPE W.	3,860	08/31/06	Mary's Circle - ENG2006-00021	2006	4,605	1,621	6,226	744	1,006	5,220
445	UTILITY IMPR.PIPE W.	53,491	09/01/06	Westfield Park - ENG2005-00078	2006	63,680	22,420	86,100	10,189	13,776	72,324
445	UTILITY IMPR.PIPE W.	6,375	09/01/06	Westfield Park - ENG2005-00078	2006	7,589	2,672	10,261	1,214	1,642	8,619
445	UTILITY IMPR.PIPE W.	24,603	09/01/06	Lintz Subdivision - ENG2005-00171	2006	29,289	10,312	39,601	4,686	6,336	33,265
445	UTILITY IMPR.PIPE W.	18,503	10/01/06	Harmony Crest Subdivision - ENG200	2006	21,984	7,740	29,723	3,481	4,706	25,017
445	UTILITY IMPR.PIPE W.	545	10/01/06	Harmony Crest Subdivision - ENG200	2006	648	228	876	103	139	737
445	UTILITY IMPR.PIPE W.	17,928	10/01/06	Farnsworth Heights - ENG2005-0012	2006	21,300	7,499	28,799	3,373	4,560	24,239
445	UTILITY IMPR.PIPE W.	98,896	10/01/06	Misty Meadows Estates - ENG2005-0	2006	117,500	41,369	158,869	18,604	25,154	133,715
445	UTILITY IMPR.PIPE W.	44,845	10/01/06	Misty Meadows Estates - ENG2005-0	2006	53,281	18,759	72,040	8,436	11,406	60,634
445	UTILITY IMPR.PIPE W.	8,757	10/01/06	Charladen Fields - ENG2006-00041	2006	10,404	3,663	14,067	1,647	2,227	11,840
445	UTILITY IMPR.PIPE W.	2,083	10/01/06	Merritt's Hideaway Phase 2 - ENG200	2006	2,475	871	3,346	392	530	2,816
445	UTILITY IMPR.PIPE W.	5,138	10/01/06	Orr Lyda Acres II - ENG2006-00016	2006	6,104	2,149	8,253	966	1,307	6,946
445	UTILITY IMPR.PIPE W.	13,223	10/01/06	Covington Townhomes - ENG2006-00	2006	15,710	5,531	21,241	2,487	3,363	17,878
445	UTILITY IMPR.PIPE W.	3,150	10/01/06	Covington Townhomes - ENG2006-00	2006	3,742	1,318	5,060	593	801	4,259
445	UTILITY IMPR.PIPE W.	9,486	10/01/06	Cascade Woods - ENG2006-00027	2006	11,270	3,968	15,238	1,784	2,413	12,825
445	UTILITY IMPR.PIPE W.	30,571	11/01/06	Fair Haven - ENG2005-00133	2006	36,250	12,763	49,013	5,679	7,679	41,334
445	UTILITY IMPR.PIPE W.	61,563	11/01/06	Generation Place - ENG2005-00107	2006	73,000	25,702	98,702	11,437	15,463	83,238
445	UTILITY IMPR.PIPE W.	1,687	11/01/06	Generation Place - ENG2005-00107	2006	2,000	704	2,704	313	424	2,281
445	UTILITY IMPR.PIPE W.	26,677	12/01/06	Farmview Estates - ENG2006-00033	2006	31,570	11,115	42,685	4,893	6,616	36,069
445	UTILITY IMPR.PIPE W.	83,393	12/01/06	Hazelnut Grove - ENG2005 - 00183	2006	98,690	34,746	133,436	15,297	20,683	112,754
445	UTILITY IMPR.PIPE W.	71,634	12/01/06	High Meadow Subdivision - ENG2005	2006	84,773	29,847	114,620	13,140	17,766	96,854
445	UTILITY IMPR.PIPE W.	6,229	12/01/06	High Meadow Subdivision - ENG2005	2006	7,372	2,595	9,967	1,143	1,545	8,422
445	UTILITY IMPR.PIPE W.	119,954	12/01/06	Fieldstone Subdivision Phase 1 - ENC	2006	141,957	49,980	191,936	22,003	29,750	162,186
445	UTILITY IMPR.PIPE W.	47,620	12/01/06	Fieldstone Subdivision Phase 1 - ENC	2006	56,355	19,841	76,196	8,735	11,810	64,386
445	UTILITY IMPR.PIPE W.	6,650	12/01/06	Fieldstone Subdivision Phase 1 - ENC	2006	7,870	2,771	10,641	1,220	1,649	8,991
445	UTILITY IMPR.PIPE W.	59,913	05/14/07	Fieldstone Sub Phase 2/ Eng2006-00	2007	70,210	21,625	91,835	10,297	13,469	78,366
445	UTILITY IMPR.PIPE W.	853	05/16/07	Alfano Subdivision/ ENG2005-00120	2007	1,000	308	1,308	147	192	1,116
445	UTILITY IMPR.PIPE W.	5,496	05/16/07	Alfano Subdivision/ ENG2005-00120	2007	6,440	1,984	8,424	945	1,235	7,188
445	UTILITY IMPR.PIPE W.	14,495	05/15/07	Fieldstone Sub Phase 2/ Eng2006-00	2007	16,986	5,232	22,218	2,491	3,259	18,959
445	UTILITY IMPR.PIPE W.	8,631	05/15/07	Fieldstone Sub Phase 2/ Eng2006-00	2007	10,115	3,115	13,230	1,484	1,940	11,290
445	UTILITY IMPR.PIPE W.	149	05/15/07	Fieldstone Sub Phase 2/ Eng2006-00	2007	175	54	229	26	34	195
445	UTILITY IMPR.PIPE W.	11,349	05/15/07	Walnut Manor 3/ENG2006-00120	2007	13,300	4,096	17,396	1,951	2,552	14,845
445	UTILITY IMPR.PIPE W.	30,031	05/14/07	Odne Estates Subdivision ENG2005-0	2007	35,192	10,839	46,031	5,161	6,751	39,280
445	UTILITY IMPR.PIPE W.	11,974	04/02/07	Jones Corner Sub-ENG2006-00040	2007	14,060	4,330	18,390	2,086	2,728	15,663
445	UTILITY IMPR.PIPE W.	26,913	04/02/07	Jones Corner Sub-ENG2006-00040	2007	31,600	9,733	41,333	4,687	6,131	35,202
445	UTILITY IMPR.PIPE W.	213	05/20/07	Liam's Place-ENG2006-00072	2007	250	77	327	37	48	279
445	UTILITY IMPR.PIPE W.	32,266	07/07/07	Fieldstone South/ENG2006-00084	2007	37,665	11,601	49,266	5,399	7,061	42,204
445	UTILITY IMPR.PIPE W.	55,240	07/07/07	Fieldstone South/ENG2006-00084	2007	64,482	19,860	84,342	9,242	12,089	72,253
445	UTILITY IMPR.PIPE W.	45,588	07/07/07	Fieldstone South/ENG2006-00084	2007	53,215	16,390	69,605	7,627	9,977	59,629
445	UTILITY IMPR.PIPE W.	2,463	07/07/07	Fieldstone South/ENG2006-00084	2007	2,875	886	3,761	412	539	3,222
445	UTILITY IMPR.PIPE W.	55,121	07/13/07	MEADOWCHARM/ENG2006-00141	2007	64,344	19,818	84,162	9,223	12,063	72,099
445	UTILITY IMPR.PIPE W.	6,960	07/13/07	MEADOWCHARM/ENG2006-00141	2007	8,125	2,503	10,628	1,165	1,523	9,104
445	UTILITY IMPR.PIPE W.	13,991	08/01/07	COVINGTON VILLAGE/ENG2006-00	2007	16,300	5,020	21,320	2,309	3,020	18,300
445	UTILITY IMPR.PIPE W.	205,519	08/03/07	EAST HI SCHOOL/ENG2005-00079	2007	239,440	73,748	313,188	33,921	44,368	268,819
445	UTILITY IMPR.PIPE W.	12,849	08/09/07	PRUITT BRICKENER PUGH SHORT	2007	14,970	4,611	19,581	2,121	2,774	16,807
445	UTILITY IMPR.PIPE W.	15,018	08/09/07	THE MEADOWS @51/ENG2005-001	2007	17,496	5,389	22,885	2,479	3,242	19,643
445	UTILITY IMPR.PIPE W.	4,249	08/09/07	THE MEADOWS @51/ENG2005-001	2007	4,950	1,525	6,475	701	917	5,557
445	UTILITY IMPR.PIPE W.	14,592	08/13/07	KRUSE RETAIL CENTER/ENG2006-	2007	17,000	5,236	22,236	2,408	3,150	19,086

Water Fixed Assets as of September 30, 2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PE W.	22,849	08/13/07	GARDEN TERRACE/ENG2005-0021	2007	26,620	8,199	34,819	3,771	4,933	29,886
445	UTILITY IMPR.PE W.	68,667	08/14/07	88 ST MINI STORAGE/ENG2005-001	2007	80,000	24,640	104,640	11,333	14,824	89,816
445	UTILITY IMPR.PE W.	13,733	08/14/07	88 ST MINI STORAGE/ENG2005-001	2007	16,000	4,928	20,928	2,267	2,965	17,963
445	UTILITY IMPR.PE W.	333	09/20/07	Goodwill-ENG2006-00181	2007	388	119	507	54	71	436
445	UTILITY IMPR.PE W.	28,665	09/20/07	Goodwill-ENG2006-00181	2007	33,331	10,266	43,597	4,666	6,104	37,493
445	UTILITY IMPR.PE W.	6,259	11/26/07	Wilson Estates-ENG2007-00050	2007	7,250	2,233	9,483	991	1,296	8,187
445	UTILITY IMPR.PE W.	1,640	11/26/07	Wilson Estates-ENG2007-00050	2007	1,900	585	2,485	260	340	2,146
445	UTILITY IMPR.PE W.	5,114	11/20/07	Stones Throw@Westfield ENG2006-C	2007	5,923	1,824	7,747	809	1,059	6,689
445	UTILITY IMPR.PE W.	16,655	11/20/07	Stones Throw@Westfield ENG2006-C	2007	19,292	5,942	25,234	2,637	3,449	21,785
445	UTILITY IMPR.PE W.	16,928	10/02/07	PHOENICIA SUB ENG2006-00199	2007	19,646	6,051	25,697	2,718	3,555	22,142
445	UTILITY IMPR.PE W.	9,234	12/24/07	EAST WOOD PRESBYTERIAN ENG	2007	10,675	3,288	13,963	1,441	1,885	12,078
445	UTILITY IMPR.PE W.	856	12/24/07	EAST WOOD PRESBYTERIAN ENG	2007	990	305	1,295	134	175	1,120
445	UTILITY IMPR.PE W.	14,495	05/15/07	LEILANI LAE/SAMIELLE PARK ENG	2007	16,986	5,232	22,218	2,491	3,259	18,959
445	UTILITY IMPR.PE W.	8,631	05/15/07	LEILANI LAE/SAMIELLE PARK ENG	2007	10,115	3,115	13,230	1,484	1,940	11,290
445	UTILITY IMPR.PE W.	149	05/15/07	LEILANI LAE/SAMIELLE PARK ENG	2007	175	54	229	26	34	195
445	UTILITY IMPR.PE W.	48,527	12/11/07	KELLAMS SUBDIVISION ENG2006-C	2007	56,100	17,279	73,379	7,574	9,906	63,473
445	UTILITY IMPR.PE W.	16,171	04/12/08	EASTWOOD PRESBYTERIAN ENG	2008	18,552	5,411	23,963	2,381	3,075	20,888
445	UTILITY IMPR.PE W.	2,282	04/12/08	EASTWOOD PRESBYTERIAN ENG	2008	2,618	764	3,382	336	434	2,948
445	UTILITY IMPR.PE W.	13,973	05/06/08	COLE'S PLACE (MAPLE CREST 4 E	2008	16,000	4,667	20,667	2,027	2,618	18,049
445	UTILITY IMPR.PE W.	218	05/06/08	COLE'S PLACE (MAPLE CREST 4 E	2008	250	73	323	32	41	282
445	UTILITY IMPR.PE W.	25,976	05/15/08	SCHEURER INDUSTRIAL ENG2007-	2008	29,744	8,676	38,420	3,768	4,866	33,553
445	UTILITY IMPR.PE W.	2,848	05/15/08	SCHEURER INDUSTRIAL ENG2007-	2008	3,261	951	4,212	413	534	3,679
445	UTILITY IMPR.PE W.	28,255	06/11/08	SHYANNE'S CORRAL ENG2007-000	2008	32,291	9,419	41,710	4,036	5,214	36,496
445	UTILITY IMPR.PE W.	704	06/11/08	SHYANNE'S CORRAL ENG2007-000	2008	805	235	1,040	101	130	910
445	UTILITY IMPR.PE W.	32,200	06/19/08	FOREST'S EDGE SUBDIVISION EN	2008	36,800	10,734	47,534	4,600	5,942	41,592
445	UTILITY IMPR.PE W.	3,706	06/27/08	PATTEN PARK SHORT PLAT ENG2	2008	4,235	1,235	5,470	529	684	4,786
445	UTILITY IMPR.PE W.	58,143	07/01/08	SUNRISE GROVE-ENG2007-00099	2008	66,323	19,345	85,668	8,180	10,566	75,102
445	UTILITY IMPR.PE W.	878	08/07/08	MICAH'S PLACE ENG2008-00013	2008	1,000	292	1,292	122	157	1,134
445	UTILITY IMPR.PE W.	1,537	08/07/08	MICAH'S PLACE ENG2008-00013	2008	1,750	510	2,260	213	275	1,985
445	UTILITY IMPR.PE W.	8,520	08/15/08	CONTRACT FURNISHINGS MART E	2008	9,700	2,829	12,529	1,180	1,524	11,005
445	UTILITY IMPR.PE W.	764	08/15/08	CONTRACT FURNISHINGS MART E	2008	870	254	1,124	106	137	987
445	UTILITY IMPR.PE W.	8,696	08/29/08	HOLY REDEEMER CATHOLIC END	2008	9,900	2,888	12,788	1,205	1,556	11,232
445	UTILITY IMPR.PE W.	1,296	08/29/08	HOLY REDEEMER CATHOLIC END	2008	1,475	430	1,905	179	232	1,673
445	UTILITY IMPR.PE W.	6,911	10/09/08	TILLMAN SHORT PLAT/ ENG2007-0	2008	7,838	2,286	10,125	927	1,198	8,927
445	UTILITY IMPR.PE W.	31,335	10/20/08	MATHEW'S CREST SUBDIVISION E	2008	35,541	10,367	45,908	4,206	5,432	40,475
445	UTILITY IMPR.PE W.	6,460	10/20/08	MATHEW'S CREST SUBDIVISION E	2008	7,327	2,137	9,464	867	1,120	8,344
445	UTILITY IMPR.PE W.	9,875	10/29/08	STATE PIPE SUPPLY ENG2001-000	2008	11,200	3,267	14,467	1,325	1,712	12,755
445	UTILITY IMPR.PE W.	392	10/29/08	STATE PIPE SUPPLY ENG2001-000	2008	445	130	575	53	68	507
445	UTILITY IMPR.PE W.	4,280	11/13/08	CHERRY LANES ESTATES PH 2 EN	2008	4,845	1,413	6,258	565	730	5,528
445	UTILITY IMPR.PE W.	8,820	11/13/08	CHERRY LANES ESTATES PH 2 EN	2008	9,984	2,912	12,897	1,165	1,505	11,392
445	UTILITY IMPR.PE W.	249,257	11/13/08	FALCON'S NEST ENG2007-00225	2008	282,178	82,305	364,483	32,921	42,523	321,960
445	UTILITY IMPR.PE W.	21,822	12/23/08	VANCOUVER LAKE SUBDIVISION E	2008	24,657	7,192	31,849	2,836	3,663	28,187
445	UTILITY IMPR.PE W.	62,425	01/27/09	COVINGTON MANOR SUB ENG200	2009	70,404	16,215	86,619	7,979	9,817	76,802
445	UTILITY IMPR.PE W.	3,311	01/27/09	COVINGTON MANOR SUB ENG200	2009	3,734	860	4,594	423	521	4,073
445	UTILITY IMPR.PE W.	443	01/27/09	COVINGTON MANOR SUB ENG200	2009	500	115	615	57	70	545
445	UTILITY IMPR.PE W.	4,012	02/04/09	EDWARDS DUPLEXES ENG2006-00	2009	4,516	1,040	5,556	504	620	4,936
445	UTILITY IMPR.PE W.	19,261	02/19/09	MEADOW ESTATES ENG2007-0013	2009	21,682	4,994	26,676	2,421	2,979	23,697
445	UTILITY IMPR.PE W.	25,751	04/09/09	COLD CREEK INDUSTRIAL LOT 9 E	2009	28,880	6,651	35,531	3,129	3,849	31,682
445	UTILITY IMPR.PE W.	1,231	04/09/09	COLD CREEK INDUSTRIAL LOT 9 E	2009	1,380	318	1,698	150	184	1,514
445	UTILITY IMPR.PE W.	29,423	03/23/09	MINNEHAHA BUSINESS PARK ENG	2009	33,060	7,614	40,674	3,637	4,474	36,200
445	UTILITY IMPR.PE W.	35,506	04/30/09	BURNT BRIDGE VILLAGE ENG2006	2009	39,820	9,171	48,991	4,314	5,307	43,683
445	UTILITY IMPR.PE W.	7,193	05/12/09	TOLER ESTATES ENG2007-00009	2009	8,051	1,854	9,906	859	1,057	8,849
445	UTILITY IMPR.PE W.	23,227	05/15/09	RIVERSTONE CHEVRON ENG2008-	2009	26,000	5,988	31,988	2,773	3,412	28,576
445	UTILITY IMPR.PE W.	5,829	05/15/09	RIVERSTONE CHEVRON ENG2008-	2009	6,525	1,503	8,028	696	856	7,171
445	UTILITY IMPR.PE W.	9,085	06/03/09	B&L DEVELOPMENT ENG2001-0014	2009	10,151	2,338	12,489	1,066	1,311	11,178
445	UTILITY IMPR.PE W.	996	06/03/09	B&L DEVELOPMENT ENG2001-0014	2009	1,113	256	1,369	117	144	1,225
445	UTILITY IMPR.PE W.	9,085	06/03/09	B&L Development / ENG2001-00148	2009	10,151	2,338	12,489	1,066	1,311	11,178
445	UTILITY IMPR.PE W.	996	06/03/09	B&L Development / ENG2001-00148	2009	1,113	256	1,369	117	144	1,225
445	UTILITY IMPR.PE W.	24,719	07/22/09	Westside Concrete Warehouse / ENC	2009	27,568	6,349	33,917	2,849	3,505	30,412
445	UTILITY IMPR.PE W.	30,630	07/02/09	B&L Development / ENG2001-00148	2009	34,160	7,867	42,027	3,530	4,343	37,685
445	UTILITY IMPR.PE W.	12,180	07/02/09	B&L Development / ENG2001-00148	2009	13,584	3,128	16,712	1,404	1,727	14,986
445	UTILITY IMPR.PE W.	16,227	12/24/09	VFD Fire Station 810 / ENG2008-000	2009	17,930	4,129	22,059	1,703	2,096	19,964
445	UTILITY IMPR.PE W.	25,943	02/05/10	New Heights East PH 1AKA Journey	2010	28,561	4,928	33,489	2,618	3,070	30,420
445	UTILITY IMPR.PE W.	16,492	02/05/10	New Heights East PH 1AKA Journey	2010	18,156	3,133	21,289	1,664	1,951	19,337
445	UTILITY IMPR.PE W.	59,683	02/05/10	New Heights ast PH 1 AKA Journey C	2010	65,706	11,338	77,044	6,023	7,062	69,981
445	UTILITY IMPR.PE W.	16,773	02/05/10	New Heights ast PH 1 AKA Journey C	2010	18,466	3,186	21,652	1,693	1,985	19,667
445	UTILITY IMPR.PE W.	8,936	10/12/10	NE 43rd Ave Industrial Business Park	2010	9,695	1,673	11,368	759	890	10,477
445	UTILITY IMPR.PE W.	806	10/12/10	NE 43rd Ave Industrial Business Park	2010	875	151	1,026	69	80	946
445	UTILITY IMPR.PE W.	4,163	12/08/10	Arthur's Place Short Plan/ENG2007-0	2010	4,500	776	5,276	338	396	4,881
445	UTILITY IMPR.PE W.	25,438	09/21/10	Walgreen's Store #11633/ENG2008-C	2010	27,650	4,771	32,421	2,212	2,594	29,827
445	UTILITY IMPR.PE W.	1,656	09/21/10	Walgreen's Store #11633/ENG2008-C	2010	1,800	311	2,111	144	169	1,942
445	UTILITY IMPR.PE W.	9,613	05/03/11	Comarnitchi Multi-Family/ENG2007-00	2011	10,300	1,390	11,690	687	779	10,910
445	UTILITY IMPR.PE W.	1,027	05/03/11	Comarnitchi Multi-Family/ENG2007-00	2011	1,100	148	1,248	73	83	1,165
445	UTILITY IMPR.PE W.	29,106	07/29/11	West Coast Self Storage/ENG2008-00	2011	31,074	4,192	35,266	1,968	2,233	33,033
445	UTILITY IMPR.PE W.	1,861	09/23/11	Covington Middle School/ENG2007-00	2011	1,980	267	2,247	119	135	2,112
445	UTILITY IMPR.PE W.	376	09/23/11	Covington Middle School/ENG2007-00	2011	400	54	454	24	27	427
445	UTILITY IMPR.PE W.	13,553	10/10/11	Home of God Christian Church/ENG2	2011	14,393	1,942	16,334	840	953	15,381
445	UTILITY IMPR.PE W.	2,878	10/10/11	Home of God Christian Church/ENG2	2011	3,056	412	3,468	178	202	3,266
445	UTILITY IMPR.PE W.	13,135	11/10/11	Home Cold Creek Industrial/ENG2006	2011	13,924	1,879	15,803	789	896	14,907
445	UTILITY IMPR.PE W.	3,140	02/02/12	72nd St Townhomes/ENG2007-00217	2012	3,311	247	3,558	171	184	3,374
445	UTILITY IMPR.PE W.	9,555	02/13/12	Meadow Point Apstrmnts/ENG2009-C	2012	10,076	751	10,827	521	559	10,268
445	UTILITY IMPR.PE W.	757	02/13/12	Meadow Point Apstrmnts/ENG2009-C	2012	798	60	858	41	44	813

Water Fixed Assets as of September 30,2014

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Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.PUMP	14,723	06/01/84	PUMPHOUSE 10	1984	60,400	61,028	121,428	45,677	91,830	29,598
445	UTILITY IMPR.PUMP	5,960	06/01/84	PUMPHOUSE 7	1984	24,449	24,704	49,153	18,490	37,172	11,981
445	UTILITY IMPR.PUMP	14,723	06/01/84	PUMPHOUSE 8	1984	60,400	61,028	121,428	45,677	91,830	29,598
445	UTILITY IMPR.PUMP	14,723	06/01/84	PUMPHOUSE 9	1984	60,400	61,028	121,428	45,677	91,830	29,598
445	UTILITY IMPR.PUMP	10,167	11/01/84	CHEMICAL BUILDING XB 519	1984	40,000	40,416	80,416	29,833	59,977	20,439
445	UTILITY IMPR.PUMP	22,875	11/01/84	PUMPHOUSE 4B XB519	1984	90,000	90,936	180,936	67,125	134,948	45,988
445	UTILITY IMPR.PUMP	22,875	11/01/84	PUMPHOUSE 5B XB519	1984	90,000	90,936	180,936	67,125	134,948	45,988
445	UTILITY IMPR.PUMP	85	01/01/85	WB425 TO CORRECT JV105 (SEE L	1985	330	300	631	245	468	163
445	UTILITY IMPR.PUMP	20,997	07/01/85	PUMPHOUSE 2	1985	77,526	70,505	148,031	56,529	107,939	40,092
445	UTILITY IMPR.PUMP	40,338	08/01/85	BOOSTER PUMPHOUSE XB551	1985	147,803	134,417	282,220	107,465	205,197	77,023
445	UTILITY IMPR.PUMP	5,368	10/01/85	WB425 IRRIGATION SYSTEM	1985	19,373	17,618	36,991	14,005	26,741	10,250
445	UTILITY IMPR.PUMP	9,183	10/01/85	WB425 IRRIGATION SYSTEM	1985	33,142	30,140	63,282	23,959	45,747	17,534
445	UTILITY IMPR.PUMP	14,920	02/01/86	XB519 LANDSCAPING	1986	52,273	38,300	90,573	37,354	64,722	25,851
445	UTILITY IMPR.PUMP	20,807	04/01/87	XB573 IRRIGATION SYSTEM	1987	66,140	50,685	116,826	45,334	80,074	36,751
445	UTILITY IMPR.PUMP	9,193	04/01/87	XB573 IRRIGATION SYSTEM	1987	29,223	22,394	51,617	20,030	35,379	16,238
445	UTILITY IMPR.PUMP	2,327	06/01/87	MAY-VW03100 ROD IRON FENCE	1987	7,299	5,593	12,892	4,972	8,782	4,109
445	UTILITY IMPR.PUMP	2,934	07/01/88	VW05895 FENCING	1988	8,483	6,517	15,000	5,549	9,812	5,188
445	UTILITY IMPR.PUMP	3,678	07/01/88	WB558 2 DRY WELLS	1988	10,636	8,170	18,806	6,958	12,302	6,504
445	UTILITY IMPR.PUMP	1,933	01/01/90	CHAIN LINK FENCING	1990	5,041	3,665	8,706	3,108	5,368	3,338
445	UTILITY IMPR.PUMP	460,772	01/01/90	PUMPHOUSE	1990	1,202,013	873,863	2,075,876	741,241	1,280,123	795,753
445	UTILITY IMPR.PUMP	52,247	01/01/90	PUMPHOUSE 3	1990	136,296	99,087	235,384	84,049	145,153	90,231
445	UTILITY IMPR.PUMP	10,517	07/01/91	FLOW METER VAULT & METER	1991	24,990	17,272	42,261	14,473	24,476	17,785
445	UTILITY IMPR.PUMP	478,499	07/01/91	WS1/WS5-PUMPSTATION	1991	1,137,027	785,858	1,922,885	658,528	1,113,671	809,214
445	UTILITY IMPR.PUMP	13,821	01/01/92	XB688 LANDSCAPING AT WATER	1992	31,894	20,530	52,424	18,073	29,707	22,717
445	UTILITY IMPR.PUMP	358,994	07/01/92	AIR STRIPPER PROJECT (RECOR	1992	805,221	518,319	1,323,540	446,226	733,462	590,078
445	UTILITY IMPR.PUMP	10,445	07/01/92	FENCING (RECORDED IN AUGUST	1992	23,427	15,080	38,507	12,983	21,340	17,168
445	UTILITY IMPR.PUMP	2,789	07/01/92	IRRIGATION (RECORDED IN AUGU	1992	6,256	4,027	10,283	3,467	5,698	4,585
445	UTILITY IMPR.PUMP	22,312	07/01/92	PARKING/ACCESS ROAD/LANDSC	1992	50,045	32,214	82,259	27,733	45,585	36,674
445	UTILITY IMPR.PUMP	609,414	08/01/92	PUMPHOUSE & MOTOR CONTROL	1992	1,360,553	875,786	2,236,339	751,139	1,234,645	1,001,693
445	UTILITY IMPR.PUMP	287,067	01/01/93	XB 718 BOOSTER PUMPING HOUS	1993	626,327	350,669	976,396	339,261	528,881	447,515
445	UTILITY IMPR.PUMP	4,075	01/01/93	XB 718 VAULT AT ELLSWORTH PU	1993	8,892	4,970	13,861	4,816	7,508	6,353
445	UTILITY IMPR.PUMP	1,666,070	11/01/93	AIR STRIPPER PROJECT (RECOR	1993	3,477,016	1,943,385	5,420,401	1,810,946	2,823,125	2,597,276
445	UTILITY IMPR.PUMP	269,558	07/01/95	XB 722 WS7/WELL #2 TREATMENT	1995	517,550	307,317	824,868	247,993	395,249	429,619
445	UTILITY IMPR.PUMP	1,373,626	07/01/96	XB 654 ELECTRICAL & MECHANIC	1996	2,516,567	1,448,332	3,964,899	1,142,941	1,800,725	2,164,174
445	UTILITY IMPR.PUMP	125,882	07/01/96	XB 654 PRESSURE FILTER TANK #	1996	230,623	132,728	363,351	104,741	165,022	198,330
445	UTILITY IMPR.PUMP	125,882	07/01/96	XB 654 PRESSURE FILTER TANK #	1996	230,623	132,728	363,351	104,741	165,022	198,330
445	UTILITY IMPR.PUMP	125,882	07/01/96	XB 654 PRESSURE FILTER TANK #	1996	230,623	132,728	363,351	104,741	165,022	198,330
445	UTILITY IMPR.PUMP	125,882	07/01/96	XB 654 PRESSURE FILTER TANK #	1996	230,623	132,728	363,351	104,741	165,022	198,330
445	UTILITY IMPR.PUMP	1,045,043	07/01/96	XB 654 TREATMENT FACILITY BUIL	1996	1,914,583	1,101,879	3,016,462	869,539	1,369,976	1,646,486
445	UTILITY IMPR.PUMP	81,567	07/01/96	XB 654 WELL PUMP HOUSE #1	1996	149,436	86,003	235,439	67,869	106,929	128,511
445	UTILITY IMPR.PUMP	78,369	07/01/96	XB 654 WELL PUMP HOUSE #2	1996	143,576	82,631	226,207	65,207	102,735	123,471
445	UTILITY IMPR.PUMP	50,444	07/01/97	VW 13697 WATER DISTRIBUTION	1997	88,369	48,741	137,110	37,925	58,843	78,267
445	UTILITY IMPR.PUMP	177,600	07/01/98	XB780 WELL PUMP HOUSE #3	1998	298,069	151,643	449,712	120,470	181,758	267,953
445	UTILITY IMPR.PUMP	37,483	07/01/98	GAC BUILDING	1998	62,909	32,005	94,913	25,425	38,361	56,553
445	UTILITY IMPR.PUMP	792,586	01/01/99	XB814 STATION 14 TREATMENT FA	1999	1,302,882	708,291	2,011,173	510,295	787,709	1,223,464
445	UTILITY IMPR.PUMP	293,467	01/01/00	XB847 STATION 15 TREATMENT FA	2000	463,369	263,858	727,227	169,902	266,650	460,577
445	UTILITY IMPR.PUMP	11,792	07/01/02	English Pit	2002	16,946	8,534	25,480	5,154	7,750	17,730
445	UTILITY IMPR.PUMP	10,444	07/08/02	New Installation of Pump Ops Center	2002	15,009	7,559	22,568	4,565	6,864	15,703
445	UTILITY IMPR.PUMP	145,258	12/31/02	083081 Chlorine Safety Wtr St 7	2002	205,675	103,577	309,253	60,417	90,843	218,410
445	UTILITY IMPR.PUMP	29,936	07/01/03	Ellsworth, well	2003	41,530	19,696	61,226	11,594	17,092	44,134
445	UTILITY IMPR.RESER	-	01/01/22	RESERVOIR 1 1.078 MG	1922	6,000	2,540	8,540	6,000	8,540	-
445	UTILITY IMPR.RESER	-	01/01/38	RESERVOIR 2 4 MG	1938	37,654	11,359	49,013	37,654	49,013	-
445	UTILITY IMPR.RESER	-	01/01/38	TOWER 250,000	1938	16,896	5,097	21,993	16,896	21,993	-
445	UTILITY IMPR.RESER	-	01/01/57	ELEV TOWER 1 MIL GAL	1957	197,618	64,978	262,596	197,618	262,596	-
445	UTILITY IMPR.RESER	-	01/01/57	ELEV TOWER 250,000 GAL	1957	49,400	16,243	65,643	49,400	65,643	-
445	UTILITY IMPR.RESER	-	01/01/57	RESERVOIR 1.25 MIL GAL	1957	85,000	27,949	112,949	85,000	112,949	-
445	UTILITY IMPR.RESER	-	01/01/57	RESERVOIR 8 MIL GAL	1957	544,000	178,871	722,871	544,000	722,871	-
445	UTILITY IMPR.RESER	-	01/01/63	ELEV TOWER 1 MIL GAL	1963	201,609	63,836	265,445	201,609	265,445	-
445	UTILITY IMPR.RESER	24,783	01/01/69	ELEV TOWER 1 MIL GAL	1969	285,953	163,554	449,507	261,170	410,550	38,957
445	UTILITY IMPR.RESER	2,933	04/01/87	MODIFICATIONS TO DRAIN	1987	6,492	4,975	11,468	3,560	6,288	5,180
445	UTILITY IMPR.RESER	2,400	04/01/87	WB494,WB495 RESERVOIR AND T	1987	5,313	4,071	9,384	2,913	5,145	4,239
445	UTILITY IMPR.RESER	3,641	04/01/87	WB494,WB495 RESERVOIR MODIF	1987	8,061	6,177	14,238	4,420	7,807	6,431
445	UTILITY IMPR.RESER	4,305	04/01/87	WB494,WB495 TOWER MODIF TO I	1987	9,530	7,303	16,834	5,226	9,230	7,604
445	UTILITY IMPR.RESER	2,738	04/01/87	WB494,WB495 TOWER MODIF TO I	1987	6,060	4,644	10,705	3,323	5,869	4,835
445	UTILITY IMPR.RESER	969,791	01/01/90	RESERVOIR 7 MIL GAL	1990	1,914,062	1,391,523	3,305,585	944,270	1,630,755	1,674,830
445	UTILITY IMPR.RESER	450,998	07/01/95	XB 717 WATER STATION 5 RESER	1995	731,348	434,269	1,165,617	280,350	446,820	718,797
445	UTILITY IMPR.RESER	32,640	07/01/97	XB 730 WATER STATION 1 RESER	1997	49,706	27,416	77,122	17,066	26,478	50,644
445	UTILITY IMPR.RESER	85,317	07/01/97	XB 730 WATER STATION 1 RESER	1997	129,925	71,662	201,587	44,607	69,211	132,376
445	UTILITY IMPR.WELLS	-	01/01/38	WELL 1 250 LF	1938	5,000	1,508	6,508	5,000	6,508	-
445	UTILITY IMPR.WELLS	-	01/01/38	WELL 2 280 LF	1938	8,151	2,459	10,610	8,151	10,610	-
445	UTILITY IMPR.WELLS	-	01/01/38	WELL 3 251 LF	1938	7,000	2,112	9,112	7,000	9,112	-
445	UTILITY IMPR.WELLS	-	01/01/42	WELL 5 235 LF	1942	8,875	2,005	10,880	8,875	10,880	-
445	UTILITY IMPR.WELLS	-	01/01/45	WELL 1 278 LF	1945	6,555	987	7,542	6,555	7,542	-
445	UTILITY IMPR.WELLS	-	01/01/51	WELL 2 270 LF	1951	9,500	1,856	11,356	9,500	11,356	-
445	UTILITY IMPR.WELLS	-	01/01/52	WELL 1 127 LF	1952	9,666	2,121	11,787	9,666	11,787	-
445	UTILITY IMPR.WELLS	-	01/01/68	AUXIL DIESEL	1968	8,569	3,804	12,373	8,569	12,373	-
445	UTILITY IMPR.WELLS	-	01/01/70	WELL 1 510 LF	1970	13,368	8,480	21,848	13,368	21,848	-
445	UTILITY IMPR.WELLS	-	01/01/73	WELL 3 200 LF	1973	21,091	10,959	32,050	21,091	32,050	-
445	UTILITY IMPR.WELLS	-	01/01/74	WELL 3 147 LF	1974	31,768	19,599	51,368	31,768	51,368	-
445	UTILITY IMPR.WELLS	-	01/01/74	WELL 4 200 LF	1974	44,279	27,317	71,596	44,279	71,596	-
445	UTILITY IMPR.WELLS	-	01/01/75	WELL 2 172 LF	1975	20,452	14,435	34,887	20,452	34,887	-

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
445	UTILITY IMPR.WELLS/	-	01/01/75	WELL 5 236 LF	1975	43,251	30,527	73,778	43,251	73,778	-
445	UTILITY IMPR.WELLS/	-	01/01/75	WELL 7 267 LF	1975	31,350	22,127	53,477	31,350	53,477	-
445	UTILITY IMPR.WELLS/	-	01/01/78	WELL 3B 127 LF	1978	15,066	9,078	24,144	15,066	24,144	-
445	UTILITY IMPR.WELLS/	-	01/01/78	WELL 9 112 LF	1978	13,287	8,006	21,293	13,287	21,293	-
445	UTILITY IMPR.WELLS/	-	01/01/79	WELL 1 194 LF	1979	31,696	20,660	52,356	31,696	52,356	-
445	UTILITY IMPR.WELLS/	-	01/01/79	WELL 2B 99 LF	1979	46,637	30,398	77,035	46,637	77,035	-
445	UTILITY IMPR.WELLS/	-	01/01/79	WELL 3 261 LF	1979	35,000	22,813	57,813	35,000	57,813	-
445	UTILITY IMPR.WELLS/	-	01/01/79	WELL 6 217 LF	1979	39,660	25,851	65,510	39,660	65,510	-
445	UTILITY IMPR.WELLS/	1,360	01/01/81	WELL 1	1981	35,704	40,594	76,298	34,344	73,391	2,907
445	UTILITY IMPR.WELLS/	831	01/01/81	WELL 2	1981	21,801	24,787	46,588	20,970	44,813	1,775
445	UTILITY IMPR.WELLS/	788	01/01/81	WELL 3 117 LF	1981	20,696	23,531	44,227	19,908	42,542	1,685
445	UTILITY IMPR.WELLS/	988	01/01/81	WELL 4 119 LF	1981	25,916	29,465	55,381	24,928	53,271	2,110
445	UTILITY IMPR.WELLS/	5,809	06/01/84	WELL 10 264 LF	1984	42,800	43,245	86,045	36,991	74,367	11,678
445	UTILITY IMPR.WELLS/	5,809	06/01/84	WELL 8 264 LF	1984	42,800	43,245	86,045	36,991	74,367	11,678
445	UTILITY IMPR.WELLS/	5,809	06/01/84	WELL 9 264 LF	1984	42,800	43,245	86,045	36,991	74,367	11,678
445	UTILITY IMPR.WELLS/	4,180	11/01/84	WELL 4B 107 LF 15.25in XB519	1984	28,314	28,609	56,923	24,135	48,520	8,403
445	UTILITY IMPR.WELLS/	4,570	11/01/84	WELL 5B 117 LF 15.25in XB519	1984	30,960	31,282	62,241	26,389	53,053	9,188
445	UTILITY IMPR.WELLS/	13,268	11/01/90	MONITORING WELL - DUBOIS PAR	1990	41,586	30,233	71,820	28,318	48,905	22,914
445	UTILITY IMPR.WELLS/	13,268	11/01/90	MONITORING WELL - EAST 5TH ST	1990	41,586	30,233	71,820	28,318	48,905	22,914
445	UTILITY IMPR.WELLS/	13,268	11/01/90	MONITORING WELL - HARNEY SC	1990	41,586	30,233	71,820	28,318	48,905	22,914
445	UTILITY IMPR.WELLS/	13,268	11/01/90	MONITORING WELL - PARK HILL	1990	41,586	30,233	71,820	28,318	48,905	22,914
445	UTILITY IMPR.WELLS/	16,880	11/01/90	WELL 3, STATION 14	1990	52,906	38,463	91,369	36,027	62,218	29,151
445	UTILITY IMPR.WELLS/	33,093	11/01/90	WELL 7, STATION 9	1990	103,725	75,408	179,134	70,632	121,982	57,152
445	UTILITY IMPR.WELLS/	134,810	11/01/93	XB 652 ELLSWORTH SPRINGS WEI	1993	333,059	186,154	519,214	198,249	309,056	210,158
445	UTILITY IMPR.WELLS/	169,923	07/01/96	XB 742 ELLSWORTH SPRINGS, WE	1996	353,306	203,334	556,641	183,383	288,923	267,718
445	UTILITY IMPR.WELLS/	227,246	07/01/96	XB652 ELLSWORTH SPRINGS, WEI	1996	472,492	271,928	744,420	245,246	386,389	358,030
445	UTILITY IMPR.WELLS/	48,725	07/01/98	XB744 WATER STATION 1, WELL #	1998	90,552	46,068	136,620	41,826	63,105	73,515
445	UTILITY IMPR.WELLS/	47,964	07/01/98	XB744 WATER STATION 1, WELL #	1998	89,137	45,348	134,486	41,173	62,119	72,366
445	UTILITY IMPR.WELLS/	53,292	07/01/98	XB744 WATER STATION 1, WELL #	1998	99,038	50,386	149,424	45,746	69,020	80,404
445	UTILITY IMPR.WELLS/	134,151	05/01/99	XB772 WATER STATION 7, WELL 2	1999	238,742	129,789	368,531	104,592	161,451	207,079
445	UTILITY IMPR.WELLS/	72,771	05/01/99	XB844 WATER STATION 6 WELL D	1999	129,507	70,405	199,912	56,737	87,580	112,332
445	UTILITY IMPR.WELLS/	116,307	09/01/99	WELL 11, XB794	1999	203,536	110,649	314,186	87,230	134,651	179,535
445	UTILITY IMPR.WELLS/	408,342	09/01/99	WELL 12, XB794	1999	714,599	388,484	1,103,079	306,256	472,748	630,331
445	UTILITY IMPR.WELLS/	472,980	09/01/99	WELL 13, XB794	1999	827,714	449,971	1,277,688	354,735	547,581	730,108
445	UTILITY IMPR.WELLS/	46,005	08/31/01	WATER STATION 8 HYPOCHLORIT	2001	73,468	37,842	111,310	27,463	41,608	69,701
448	BUILDINGS.OFFICE	-	12/31/11	770023 Office & restroom remodel - I	2011	-	-	-	-	-	-
448	EQUIPMENT.COMPRE	52,772	12/31/10	083009 /Water Station 9, Site Improv	2010	211,087	36,423	247,510	158,315	185,633	61,878
448	EQUIPMENT.HEAVY	10,552	09/06/11	049001-Water Station 1 Motor Replac	2011	26,380	3,559	29,939	15,828	17,963	11,976
448	EQUIPMENT.PUMP	20,157	10/31/11	049001-49th St Booster Pump Replac	2011	25,022	3,376	28,398	4,865	5,522	22,876
448	INTANGIBLE.SOFTWA	-	12/31/13	Hansen 8 Project Upgrade	2013	-	-	-	-	-	-
448	INTANGIBLE.SOFTWA	-	09/05/06	Hansen Utility Billing System (VCIS)	2006	2,861,302	1,007,399	3,868,701	2,861,302	3,868,701	-
448	INTANGIBLE.SOFTWA	-	12/31/07	083187 Asset Management System	2007	1,444,038	444,764	1,888,802	1,444,038	1,888,802	-
448	INTANGIBLE.SOFTWA	-	09/05/06	073000-VCIS Cashiering Module-Han	2006	55,131	19,410	74,541	55,131	74,541	-
448	INTANGIBLE.SOFTWA	-	12/31/07	083212 VCIS Phase 2-Web Portal	2007	957,445	294,893	1,252,338	957,445	1,252,338	-
448	IT EQUIPMENT.SERVE	-	01/17/05	PowerEdge 6650 3.0GHz / 4MB (Har	2005	19,713	7,800	27,513	19,713	27,513	-
448	LAND.ANNEXATION	-	07/14/09	Water line	2009	-	-	-	-	-	-
448	LAND.ANNEXATION	218,000	01/01/93	Water line & easement	1993	218,000	121,845	339,845	-	-	339,845
448	LAND.EASEMENTS	8,500	09/12/05	Water Line Easement / Magnuson	2005	8,500	3,363	11,863	-	-	11,863
448	LAND.EASEMENTS	53,060	03/18/10	Sidewalk & Utility Easement - SE Mill	2010	53,060	9,156	62,216	-	-	62,216
448	LAND.EASEMENTS	450	01/28/10	Garden Grove SCIP	2010	450	78	528	-	-	528
448	LAND.EASEMENTS	14,272	01/28/10	Sewer Main	2010	14,272	2,463	16,734	-	-	16,734
448	LAND.EASEMENTS	13,937	03/22/10	Offsite Sewer Easement Deer Brush I	2010	13,937	2,405	16,341	-	-	16,341
448	LAND.EASEMENTS	65,370	05/05/10	Costco Offsite	2010	65,370	11,280	76,650	-	-	76,650
448	LAND.EASEMENTS	57,408	05/17/10	POV Terminal 5 Utility Easement	2010	57,408	9,906	67,314	-	-	67,314
448	LAND.EASEMENTS	8,628	05/19/10	Lauracrest 7 Lot 1 Sewer Easement	2010	8,628	1,489	10,117	-	-	10,117
448	LAND.EASEMENTS	36,620	05/24/10	Colf Nutter Sewer Extension 7311 NE	2010	36,620	6,319	42,939	-	-	42,939
448	LAND.EASEMENTS	14,988	06/14/10	Vancouver Granite Sanitary Sewer Ea	2010	14,988	2,586	17,574	-	-	17,574
448	LAND.EASEMENTS	5,982	07/15/10	PBC Development Sewer Easement	2010	5,982	1,032	7,014	-	-	7,014
448	LAND.EASEMENTS	12,573	07/15/10	Lacamas Community Credit Union Se	2010	12,573	2,169	14,742	-	-	14,742
448	LAND.EASEMENTS	4,964	07/22/10	Burton Road Plaza Off Site Sewer Ea	2010	4,964	857	5,821	-	-	5,821
448	LAND.EASEMENTS	257,005	01/28/10	Access Road, Water Meter & Fire Hy	2010	257,005	44,346	301,351	-	-	301,351
448	LAND.EASEMENTS	32,574	03/24/10	Dragon Properties Lot 1 & 2	2010	32,574	5,621	38,195	-	-	38,195
448	LAND.EASEMENTS	26,504	04/05/10	Fellmans 4 & 5 Waterline Extension E	2010	26,504	4,573	31,078	-	-	31,078
448	LAND.EASEMENTS	-	04/05/10	Fellmans 4 & 5 Waterline Extension E	2010	-	-	-	-	-	-
448	LAND.EASEMENTS	-	04/05/10	Fellmans 4 & 5 Waterline Extension E	2010	-	-	-	-	-	-
448	LAND.EASEMENTS	-	04/05/10	Fellmans 4 & 5 Waterline Extension E	2010	-	-	-	-	-	-
448	LAND.EASEMENTS	4,334	05/26/10	Correction to Water Easement Recor	2010	4,334	748	5,082	-	-	5,082
448	LAND.EASEMENTS	1,650	07/01/10	Andresen Retail Center Phase II Wat	2010	1,650	285	1,935	-	-	1,935
448	LAND.EASEMENTS	603	07/15/10	Lacamas Community Credit Union We	2010	603	104	707	-	-	707
448	LAND.EASEMENTS	57,913	07/15/10	PBC Development Water Easement	2010	57,913	9,993	67,906	-	-	67,906
448	LAND.EASEMENTS	1,875	07/15/10	Barkdusters Water Main Extension 2	2010	1,875	324	2,199	-	-	2,199
448	LAND.EASEMENTS	7,596	07/23/10	Barkdusters Water Main Extension 2	2010	7,596	1,311	8,907	-	-	8,907
448	LAND.EASEMENTS	5,250	08/13/10	Water Easement NE 38th St	2010	5,250	906	6,156	-	-	6,156
448	LAND.EASEMENTS	22,514	09/02/10	Andresen 63rd Walgreens Water Eas	2010	22,514	3,885	26,398	-	-	26,398
448	LAND.EASEMENTS	1,900	09/22/10	Lot 1, Short plat Book 3, Page 661 W	2010	1,900	328	2,228	-	-	2,228
448	LAND.EASEMENTS	1,000	09/22/10	Bosco Place Park CRP 400772 Fire I	2010	1,000	173	1,173	-	-	1,173
448	LAND.EASEMENTS	51,850	10/14/10	Lot 1 of 43rd Business Park 7311 NE	2010	51,850	8,947	60,797	-	-	60,797
448	LAND.EASEMENTS	565	10/25/10	Terrace at Fishers Landing Phase 1 #	2010	565	97	662	-	-	662
448	LAND.EASEMENTS	750	11/01/10	Norelius Orchard Tract #4 & 5 Lot 8 V	2010	750	129	879	-	-	879
448	LAND.EASEMENTS	455	11/01/10	Catalyst Storage Water Easement	2010	455	79	534	-	-	534
448	LAND.EASEMENTS	28,300	11/09/10	NW Industrial Mechanics Water Ease	2010	28,300	4,883	33,183	-	-	33,183
448	LAND.EASEMENTS	725	11/09/10	NW Industrial Mechanics Water Ease	2010	725	125	850	-	-	850

Water Fixed Assets as of September 30,2014

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Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
448	LAND.EASEMENTS	-	11/12/10	Utility Service Covenant	2010	-	-	-	-	-	-
448	LAND.EASEMENTS	80,443	12/28/10	Hutchinson Short Plat (3-358) Water f	2010	80,443	13,880	94,323	-	-	94,323
448	LAND.EASEMENTS	19,950	12/28/10	Chase Bank	2010	19,950	3,442	23,392	-	-	23,392
448	LAND.EASEMENTS	2,679	06/21/13	Calvin N Rector--Columbia Terrace #	2013	2,679	114	2,793	-	-	2,793
448	LAND.PURCHASE	4,386,993	06/13/05	083133 - East Side Operations Cente	2005	4,386,993	1,735,759	6,122,752	-	-	6,122,752
448	LAND.PURCHASE	2,188,662	06/30/13	083405 - Land Acquisition for SE Star	2013	2,188,662	93,317	2,281,979	-	-	2,281,979
448	LAND.PURCHASE	732,636	12/31/13	083333 - Land Acquisition for NE Star	2013	732,636	31,237	763,873	-	-	763,873
448	OTHER IMPROVE.NOI	-	12/31/13	083188 Vancouver Service Center	2013	-	-	-	-	-	-
448	STRUCTURES.OTHER	251,178	12/31/12	083327-Central Operations Center Re	2012	275,264	20,528	295,792	24,086	25,882	269,910
448	UTILITY IMPR.HYDRAI	2,302	12/07/09	083206.06-NW 53rd St Water Main -v	2009	2,500	576	3,076	198	243	2,832
448	UTILITY IMPR.HYDRAI	2,282	12/31/09	083261-Water Main - Riverview Heigh	2009	2,478	571	3,049	196	241	2,807
448	UTILITY IMPR.OTHER	111,675	09/12/06	083020 Wtr Main-NE 76th-94th-101s	2006	186,125	65,530	251,655	74,450	100,662	150,993
448	UTILITY IMPR.OTHER	68,201	04/28/06	083021 Wtr Main-Burton Rd 86th-11	2006	117,757	41,459	159,216	49,556	67,003	92,213
448	UTILITY IMPR.OTHER	-	12/31/05	083043 Fruit Valley Roadway Coord	2005	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	07/31/05	Wtr Mains, E 11th St& Mclough	2005	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	13,386	10/01/04	083121 NE 76th St 94th to 107th Avc	2004	26,551	12,418	38,970	13,165	19,323	19,647
448	UTILITY IMPR.OTHER	-	03/11/05	Mill Pl Ex Ph 3b,4&5 Wtr Lines	2005	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	12/31/04	Wellfield Development 2001-2	2004	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	9,150	12/31/05	Water Sta 9 Radon Treatment	2005	16,266	6,436	22,702	7,117	9,932	12,770
448	UTILITY IMPR.OTHER	-	12/31/04	Water Sta 6 Well 4 Completion	2004	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	12/31/04	Wtr Main-130th Ave-Padden	2004	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	12/31/04	Wtr Syst. Vulnerability/Emerg	2004	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	12/31/04	Water Main, Van Mall M&F	2004	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	12/31/04	Wedgewood 2, SCIP Project	2004	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	6,609	12/31/04	Sunwood(SCIP)	2004	12,896	6,032	18,927	6,287	9,227	9,700
448	UTILITY IMPR.OTHER	21,074	12/31/04	Rancho Grande (SCIP)	2004	41,120	19,232	60,352	20,046	29,422	30,931
448	UTILITY IMPR.OTHER	43,295	03/08/06	083138 Ampere Acres SCIP	2006	75,296	26,510	101,806	32,001	43,267	58,538
448	UTILITY IMPR.OTHER	113,952	12/31/06	083139 The Colony SCIP	2006	186,044	65,502	251,546	72,092	97,474	154,072
448	UTILITY IMPR.OTHER	138,826	12/31/06	083140 Edelweiss SCIP	2006	226,655	79,800	306,455	87,829	118,751	187,704
448	UTILITY IMPR.OTHER	289,946	11/01/07	083141 Fellmans Addition 3 SCIP	2007	440,425	135,651	576,075	150,478	196,826	379,250
448	UTILITY IMPR.OTHER	53,244	09/30/07	083142 Alpine Meadows SCIP	2007	81,914	25,229	107,143	28,670	37,500	69,643
448	UTILITY IMPR.OTHER	-	12/31/12	083002 Chlorine Safety-Water Station	2012	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	12/31/11	083003 Chlorine Safety-Water Station	2011	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	12/31/11	083017 Water Facility Meter, Teleme	2011	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	2,721	09/15/06	083173 Leak Abatement Fire Safety	2006	4,535	1,597	6,132	1,814	2,453	3,679
448	UTILITY IMPR.OTHER	90,331	03/28/06	083189 Heathergate (SCIP)	2006	157,098	55,310	212,408	66,766	90,273	122,135
448	UTILITY IMPR.OTHER	114,677	10/12/07	083190 Millplain Terrain (SCIP)	2007	175,302	53,993	229,295	60,625	79,298	149,997
448	UTILITY IMPR.OTHER	-	07/31/05	Demand Response Construction - We	2005	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	83,562	12/03/07	083181 Water 138th Ave 18th to 28th	2007	126,131	38,848	164,979	42,569	55,681	109,299
448	UTILITY IMPR.OTHER	159,935	07/13/06	083176 Wtr Main-V st, repl 8", St Jor	2006	270,313	95,171	365,484	110,378	149,239	216,245
448	UTILITY IMPR.OTHER	954	09/21/06	083171 Water Main 11th, 12th, 13th	2006	1,591	560	2,151	636	860	1,290
448	UTILITY IMPR.OTHER	291,531	12/13/07	083168 Allwood \$ SCIP	2007	440,047	135,535	575,582	148,516	194,259	381,323
448	UTILITY IMPR.OTHER	-	11/16/09	083195 Water Main-Columbia, 15th-4	2009	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	18,479	08/28/06	083196 Water Main-Edgepark Dr	2006	31,013	10,919	41,932	12,534	16,947	24,984
448	UTILITY IMPR.OTHER	623,296	06/30/08	083184 Marine Pk Engineering Bldg	2008	906,612	264,440	1,171,052	283,316	365,954	805,098
448	UTILITY IMPR.OTHER	-	12/31/11	Westside Evidence Building	2011	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	12/31/11	Water Main - Harney, 11th to 13th St	2011	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	56,540	10/12/07	Askim SCIP (25 Homes)	2007	86,431	26,621	113,051	29,891	39,097	73,955
448	UTILITY IMPR.OTHER	-	11/07/06	NE 137th Ave -- NE 72nd St to NE 76	2006	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	12/31/13	Water Main Main St repl 4", 12th to 14	2013	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	12/31/11	083124 Allwood Manor Phase 3	2011	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	12/31/11	083210 Central Police Precinct	2011	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	12/31/13	083133 Public Wks-Ops Center East	2013	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	30,478	10/12/07	083191 Evergreen Village SCIP	2007	46,590	14,350	60,940	16,112	21,075	39,865
448	UTILITY IMPR.OTHER	181,522	12/01/08	083214-Allwood 5 SCIP (40 Homes)	2008	254,767	74,310	329,077	73,246	94,610	234,468
448	UTILITY IMPR.OTHER	604	12/31/07	083234-Water Main-Harney, 11th St t	2007	911	281	1,192	308	402	790
448	UTILITY IMPR.OTHER	-	12/31/11	Water Main Grand/Mclaughlin-E13th	2011	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	119,870	01/01/08	SCADA System Upgrade (SC-01	2008	119,870	34,964	154,834	-	-	154,834
448	UTILITY IMPR.OTHER	-	12/31/13	Transmission Main NE 18th St	2013	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	11/18/09	Transmission Main WS 9 PH 2 (DST-	2009	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	02/28/09	NE 138th Ave, 28th to 39th	2009	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	02/28/09	Demand Response-SCIP 2005-06	2009	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	02/28/09	NE 18th St, 87th to 138th	2009	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	03/31/09	Water Main 4th Plain to O Street	2009	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	03/31/09	Water Demand Response	2009	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	11/19/09	Waterfront Sewer Relocation 083233	2009	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	218,401	02/28/09	NE 138th Ave, 28th to 39th	2009	218,401	50,300	268,701	-	-	268,701
448	UTILITY IMPR.OTHER	214,080	02/28/09	Demand Response-SCIP 2005-06	2009	214,080	49,304	263,385	-	-	263,385
448	UTILITY IMPR.OTHER	940,341	12/31/11	083009-Water Station 9, Site Improve	2011	1,090,251	147,089	1,237,340	149,909	170,134	1,067,206
448	UTILITY IMPR.OTHER	-	12/31/10	083295 - Ellsworth Well Rehabilitation	2010	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	1,097	04/30/10	083310 - NE 124th Ave SCIP	2010	1,097	189	1,286	-	-	1,286
448	UTILITY IMPR.OTHER	-	12/31/11	083297 - Water Station 5 Tower Coat	2011	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	10/31/11	083317 - Fluoride Room Drains	2011	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	342,407	08/31/10	083220 - Scada System Upgrade (SC	2010	342,407	59,083	401,489	-	-	401,489
448	UTILITY IMPR.OTHER	-	12/31/10	083299 - Crestwood (SWM)	2010	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	26,932	08/31/10	083313 - Evergreen Meadows SCIP	2010	26,932	4,647	31,580	-	-	31,580
448	UTILITY IMPR.OTHER	387,397	05/31/10	083283 - Water Front Access	2010	387,397	66,846	454,242	-	-	454,242
448	UTILITY IMPR.OTHER	137,560	12/31/10	FURNISH & INSTALL RELIABLE CO	2010	137,560	23,736	161,296	-	-	161,296
448	UTILITY IMPR.OTHER	77,686	01/01/11	083232-Booster Station Flowmeters	2011	77,686	10,481	88,166	-	-	88,166
448	UTILITY IMPR.OTHER	2,511	04/01/11	083332-PRV Flowmeters/Scada Syst	2011	2,511	339	2,850	-	-	2,850
448	UTILITY IMPR.OTHER	-	12/31/11	083334-Chlorine Contact Time Projec	2011	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	11/22/11	083307-E.16th Street Water Main Rej	2011	-	-	-	-	-	-

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
448	UTILITY IMPR.OTHER	2,104,744	06/30/11	083336-32nd St-Q to Fairfront and Sc	2011	2,104,744	283,958	2,388,702	-	-	2,388,702
448	UTILITY IMPR.OTHER	28,223	07/31/11	083331-PRV Flush Valves	2011	28,223	3,808	32,031	-	-	32,031
448	UTILITY IMPR.OTHER	-	09/30/11	083336-32nd St-Q to Fairmont and Sc	2011	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	12/31/11	083355-Underground Injection Contro	2011	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	9,808	12/31/13	083227-Lincoln Booster Upgrade & Ch	2013	10,190	434	10,625	382	398	10,226
448	UTILITY IMPR.OTHER	36,936	12/31/11	083228 - 39th St Bridge Water Main	2011	42,824	5,778	48,601	5,888	6,683	41,919
448	UTILITY IMPR.OTHER	93,913	02/29/12	083326 -Water Main-138th Ave-28th t	2012	93,913	7,004	100,917	-	-	100,917
448	UTILITY IMPR.OTHER	-	12/31/13	083333 -Land Acquisition for NE Stan	2013	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	11/28/12	083345- E 13th St and E Water Main	2012	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	1,588,464	03/31/12	083347 - Maple Acres SCIP (41 Hom	2012	1,588,464	118,463	1,706,927	-	-	1,706,927
448	UTILITY IMPR.OTHER	794,224	03/31/12	083348 - Columbia Terrace SCIP (38	2012	794,224	59,231	853,455	-	-	853,455
448	UTILITY IMPR.OTHER	156,467	04/30/12	083390 - 88th Street (CRWWD)	2012	156,467	11,669	168,136	-	-	168,136
448	UTILITY IMPR.OTHER	10,771	08/31/12	083346 -Well Level Probes	2012	10,771	803	11,574	-	-	11,574
448	UTILITY IMPR.OTHER	14,628	11/30/12	083400 -Holly Acres SCIP (Water)	2012	14,628	1,091	15,719	-	-	15,719
448	UTILITY IMPR.OTHER	577,661	10/31/12	083352 - Homola SCIP (59 Homes)	2012	577,661	43,080	620,741	-	-	620,741
448	UTILITY IMPR.OTHER	318,648	01/31/13	083402-Water Station 1 Standby Pow	2013	318,648	13,586	332,234	-	-	332,234
448	UTILITY IMPR.OTHER	91,985	03/31/13	083423- Homola SCIP (Water)	2013	91,985	3,922	95,907	-	-	95,907
448	UTILITY IMPR.OTHER	316,807	04/30/13	083425-Main Street Replacement 12t	2013	316,807	13,508	330,315	-	-	330,315
448	UTILITY IMPR.OTHER	13,725	07/31/13	083406 - E 13th ST -V St and W St	2013	13,725	585	14,311	-	-	14,311
448	UTILITY IMPR.OTHER	28,475	08/31/13	083407 - Transmission Main - WS14 I	2013	28,475	1,214	29,689	-	-	29,689
448	UTILITY IMPR.OTHER	15,187	09/30/13	083408 - Sodium Hypo Gen System a	2013	15,187	648	15,835	-	-	15,835
448	UTILITY IMPR.OTHER	19,251	08/31/13	083424 - NE 53rd Ave - NE 49th Strei	2013	19,251	821	20,072	-	-	20,072
448	UTILITY IMPR.OTHER	49,932	07/31/13	083428 - Columbia Terrace SCIP (We	2013	49,932	2,129	52,060	-	-	52,060
448	UTILITY IMPR.OTHER	20,128	07/31/13	083404 - NW 52nd Street Cul-de-sac	2013	20,128	858	20,986	-	-	20,986
448	UTILITY IMPR.OTHER	198,567	11/30/13	083409 - E 28th St - Broadway to F S	2013	198,567	8,466	207,033	-	-	207,033
448	UTILITY IMPR.OTHER	59,114	10/31/13	083436 - P Street Water Main Replac	2013	59,114	2,520	61,635	-	-	61,635
448	UTILITY IMPR.OTHER	8,629	12/31/13	083437 - 18th Street - Mission Hills S	2013	8,629	368	8,997	-	-	8,997
448	UTILITY IMPR.OTHER	128,169	12/31/13	083172-Evergreen PRV Installation	2013	133,162	5,678	138,840	4,994	5,206	133,634
448	UTILITY IMPR.OTHER	-	06/30/14	083313-Evergreen Meadows SCIP	2014	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	-	06/30/14	083332-PRV Flowmeters/Scada Syst	2014	-	-	-	-	-	-
448	UTILITY IMPR.OTHER	38,684	01/31/14	083350-Village Green/Alder Grove SC	2014	38,684	-	38,684	-	-	38,684
448	UTILITY IMPR.OTHER	27,011	05/31/14	083411-NE 59th St Cul-de-sac	2014	27,011	-	27,011	-	-	27,011
448	UTILITY IMPR.OTHER	2,841	02/28/14	083415-NE 47th Ave - 68th to North C	2014	2,841	-	2,841	-	-	2,841
448	UTILITY IMPR.OTHER	425	04/30/14	083417-45th St East of 72nd Ave Tra	2014	425	-	425	-	-	425
448	UTILITY IMPR.OTHER	404,003	02/28/14	083440-49th St Water Main-St. Johns	2014	404,003	-	404,003	-	-	404,003
448	UTILITY IMPR.OTHER	15,204	04/30/14	083443- NE 47th Ave SCIP	2014	15,204	-	15,204	-	-	15,204
448	UTILITY IMPR.OTHER	978	06/30/14	083412 - NE 60th Ave - NE 70th St M	2014	978	-	978	-	-	978
448	UTILITY IMPR.PIPE SE	42,200	12/17/04	Demand Response Projects-SCIP / F	2004	52,422	24,518	76,940	10,222	15,003	61,937
448	UTILITY IMPR.PIPE SE	1,056	12/17/04	Demand Response Projects-SCIP / F	2004	1,312	614	1,926	256	376	1,550
448	UTILITY IMPR.PIPE SE	59	12/17/04	Demand Response Projects-SCIP / F	2004	73	34	107	14	21	86
448	UTILITY IMPR.PIPE SE	23,447	12/17/04	Demand Response Projects-SCIP / F	2004	29,127	13,623	42,750	5,680	8,336	34,414
448	UTILITY IMPR.PIPE SE	501	12/17/04	Demand Response Projects-SCIP / F	2004	622	291	913	121	178	735
448	UTILITY IMPR.PIPE SE	239,424	12/17/04	Allwood Ph 3	2004	297,422	139,107	436,529	57,997	85,123	351,406
448	UTILITY IMPR.PIPE SE	64,148	12/17/04	Allwood Ph 3	2004	79,686	37,270	116,957	15,539	22,806	94,150
448	UTILITY IMPR.PIPE SE	77,452	07/31/05	NE 54th Street	2005	94,839	37,524	132,364	17,387	24,267	108,097
448	UTILITY IMPR.PIPE SE	18,272	07/31/05	NE 54th Street	2005	22,374	8,853	31,227	4,102	5,725	25,502
448	UTILITY IMPR.PIPE SE	2,695	07/31/05	NE 54th Street	2005	3,300	1,306	4,605	605	844	3,761
448	UTILITY IMPR.PIPE SE	3,272	07/31/05	NE 54th Street	2005	4,007	1,585	5,592	735	1,025	4,567
448	UTILITY IMPR.PIPE SE	61,152	12/31/06	The Colony Sanitary Sewer Ext	2006	72,369	25,479	97,849	11,217	15,167	82,682
448	UTILITY IMPR.PIPE SE	9,565	12/31/06	The Colony Sanitary Sewer Ext	2006	11,320	3,985	15,305	1,755	2,372	12,933
448	UTILITY IMPR.PIPE SE	107,642	12/31/06	Eidelweiss Sewer Main Ext	2006	127,387	44,850	172,237	19,745	26,697	145,540
448	UTILITY IMPR.PIPE SE	18,402	12/31/06	Eidelweiss Sewer Main Ext	2006	21,777	7,667	29,444	3,375	4,564	24,880
448	UTILITY IMPR.PIPE SE	132,918	10/01/07	Felmans Addition 3 SCIP	2007	154,257	47,511	201,768	21,339	27,911	173,857
448	UTILITY IMPR.PIPE SE	642,083	09/30/07	Alpine Meadows SCIP	2007	746,608	229,955	976,564	104,525	136,719	839,845
448	UTILITY IMPR.PIPE SE	219,672	09/30/07	Alpine Meadows SCIP	2007	255,433	78,673	334,106	35,761	46,775	287,331
448	UTILITY IMPR.PIPE SE	79,337	09/30/07	Alpine Meadows SCIP	2007	92,252	28,414	120,665	12,915	16,893	103,772
448	UTILITY IMPR.PIPE SE	184,962	12/13/07	Allwood 4 SCIP	2007	213,829	65,859	279,688	28,867	37,758	241,930
448	UTILITY IMPR.PIPE SE	11,446	12/13/07	Allwood 4 SCIP	2007	13,223	4,076	17,308	1,786	2,337	14,972
448	UTILITY IMPR.PIPE SE	127,494	10/12/07	Evergreen Villiage SCIP	2007	147,962	45,572	193,534	20,468	26,772	166,762
448	UTILITY IMPR.PIPE SE	9,425	10/12/07	Evergreen Villiage SCIP	2007	10,938	3,369	14,307	1,513	1,979	12,328
448	UTILITY IMPR.PIPE SE	13,062	10/12/07	Evergreen Villiage SCIP	2007	15,159	4,669	19,828	2,097	2,743	17,085
448	UTILITY IMPR.PIPE SE	13,308	10/12/07	Evergreen Villiage SCIP	2007	15,444	4,757	20,201	2,136	2,794	17,407
448	UTILITY IMPR.PIPE SE	21,634	11/30/10	Felmans Addition 1&2 SCIP (162 Hor	2010	23,430	4,043	27,473	1,796	2,106	25,367
448	UTILITY IMPR.PIPE SE	215,421	06/18/09	Hazelwood SCIP	2009	240,693	55,434	296,127	25,273	31,093	265,034
448	UTILITY IMPR.PIPE SE	93,954	12/31/13	NE 18th St, 87th to 138th	2013	95,385	4,067	99,452	1,431	1,492	97,960
448	UTILITY IMPR.PIPE SE	116,720	12/31/10	083274-Ellsworth Terrace 4- East Hei	2010	126,184	21,773	147,957	9,464	11,097	136,860
448	UTILITY IMPR.PIPE SE	77,006	11/30/10	083276-Garden Grove SCIP	2010	83,400	14,391	97,791	6,394	7,497	90,294
448	UTILITY IMPR.PIPE SE	199,746	10/31/11	083277- Grestwood SCIP	2011	212,119	28,618	240,737	12,374	14,043	226,694
448	UTILITY IMPR.PIPE SE	146,864	12/31/11	083312 - Maple Grove Estates SCIP	2011	155,411	20,967	176,378	8,548	9,701	166,678
448	UTILITY IMPR.PIPE SE	927,216	11/30/12	083309 - Cascade Park SCIP	2012	962,507	71,781	1,034,288	35,292	37,924	996,364
448	UTILITY IMPR.PIPE SE	114,743	12/31/13	083311 - Lauracres SCIP	2013	116,490	4,967	121,457	1,747	1,822	119,635
448	UTILITY IMPR.PIPE SE	217,120	11/30/10	083216 Fellman's 1& 2	2010	235,148	40,575	275,723	18,028	21,139	254,584
448	UTILITY IMPR.PIPE SE	22,864	11/30/10	083276/ Garden Grove	2010	24,762	4,273	29,035	1,898	2,226	26,809
448	UTILITY IMPR.PIPE SE	5,569	11/30/10	083276/ Garden Grove	2010	6,032	1,041	7,073	462	542	6,530
448	UTILITY IMPR.PIPE SE	220,143	12/31/10	083218 Fellman's 4 & 5	2010	237,992	41,066	279,058	17,849	20,929	258,128
448	UTILITY IMPR.PIPE SE	48,065	12/31/10	083218 Fellman's 4 & 5	2010	51,962	8,966	60,928	3,897	4,570	56,358
448	UTILITY IMPR.PIPE SE	81,839	12/31/13	083323 - Linwood Heights SCIP	2013	83,085	3,542	86,627	1,246	1,299	85,328
448	UTILITY IMPR.PIPE SE	384,435	12/31/13	083324 - Steret Highlands SCIP	2013	390,289	16,641	406,930	5,854	6,104	400,826
448	UTILITY IMPR.PIPE SE	210,037	12/31/10	083274 - Ellsworth Terrace/East Heig	2010	227,067	39,181	266,248	17,030	19,969	246,279
448	UTILITY IMPR.PIPE SE	29,490	12/31/10	083274 - Ellsworth Terrace/East Heig	2010	31,881	5,501	37,382	2,391	2,804	34,578
448	UTILITY IMPR.PIPE SE	23,393	10/31/11	083312 -Maple Grove Estates SCIP	2011	24,842	3,351	28,193	1,449	1,645	26,549
448	UTILITY IMPR.PIPE SE	284,189	12/31/13	083349 - Sunhill SCIP (35 Homes)	2013	288,516	12,301	300,818	4,328	4,512	296,305

Water Fixed Assets as of September 30,2014

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Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
448	UTILITY IMPR.PIPE SE	180,513	12/06/13	083323-Linwood Heights SCIP	2013	183,262	7,814	191,075	2,749	2,866	188,209
448	UTILITY IMPR.PIPE SE	15,750	12/06/13	083323-Linwood Heights SCIP	2013	15,990	682	16,672	240	250	16,422
448	UTILITY IMPR.PIPE SE	426,020	12/06/13	083311-Lauracrest SCIP	2013	432,508	18,441	450,949	6,488	6,764	444,184
448	UTILITY IMPR.PIPE SE	56,846	12/06/13	083311-Lauracrest SCIP	2013	57,711	2,461	60,172	866	903	59,269
448	UTILITY IMPR.PIPE SE	71,386	12/06/13	083311-Lauracrest SCIP	2013	72,473	3,090	75,563	1,087	1,133	74,429
448	UTILITY IMPR.PIPE SE	70,108	10/07/13	083324-Sleret Highlands SCIP	2013	71,417	3,045	74,462	1,309	1,365	73,097
448	UTILITY IMPR.PIPE SE	163,322	10/07/13	083324-Sleret Highlands SCIP	2013	166,372	7,094	173,466	3,050	3,180	170,286
448	UTILITY IMPR.PIPE W.	2,652	10/12/04	Wedgewood Sanitary Sewer	2004	3,308	1,547	4,855	656	963	3,892
448	UTILITY IMPR.PIPE W.	-	03/07/05	083070 11th Street & McLoughlin Blv	2005	-	-	-	-	-	-
448	UTILITY IMPR.PIPE W.	-	03/07/05	083070 11th Street & McLoughlin Blv	2005	-	-	-	-	-	-
448	UTILITY IMPR.PIPE W.	-	03/07/05	083070 11th Street & McLoughlin Blv	2005	-	-	-	-	-	-
448	UTILITY IMPR.PIPE W.	-	03/07/05	083070 11th Street & McLoughlin Blv	2005	-	-	-	-	-	-
448	UTILITY IMPR.PIPE W.	5,032	01/03/05	SE 192nd Avenue, Phase I / SE 1st S	2005	6,238	2,468	8,706	1,206	1,683	7,023
448	UTILITY IMPR.PIPE W.	27,033	01/03/05	SE 192nd Avenue, Phase I / SE 1st S	2005	33,512	13,259	46,771	6,479	9,042	37,729
448	UTILITY IMPR.PIPE W.	8,638	01/03/05	SE 192nd Avenue, Phase I / SE 1st S	2005	10,708	4,237	14,944	2,070	2,889	12,055
448	UTILITY IMPR.PIPE W.	183,973	01/03/05	SE 192nd Avenue, Phase I / SE 1st S	2005	228,066	90,237	318,303	44,093	61,539	256,764
448	UTILITY IMPR.PIPE W.	5,885	01/03/05	SE 192nd Avenue, Phase I / SE 1st S	2005	7,296	2,887	10,182	1,411	1,969	8,214
448	UTILITY IMPR.PIPE W.	1,177	01/03/05	SE 192nd Avenue, Phase I / SE 1st S	2005	1,459	577	2,036	282	394	1,643
448	UTILITY IMPR.PIPE W.	4,120	01/03/05	SE 192nd Avenue, Phase I / SE 1st S	2005	5,107	2,021	7,128	987	1,378	5,750
448	UTILITY IMPR.PIPE W.	687	01/03/05	SE 192nd Avenue, Phase I / SE 1st S	2005	851	337	1,188	165	230	958
448	UTILITY IMPR.PIPE W.	687	01/03/05	SE 192nd Avenue, Phase I / SE 1st S	2005	851	337	1,188	165	230	958
448	UTILITY IMPR.PIPE W.	63,452	03/14/05	083043 Fruit Valley Road / Roadway	2005	78,336	30,995	109,331	14,884	20,773	88,558
448	UTILITY IMPR.PIPE W.	27,580	03/11/05	083128 Mill Plain Extension / Roadway	2005	34,049	13,472	47,521	6,469	9,029	38,492
448	UTILITY IMPR.PIPE W.	185,891	03/11/05	083128 Mill Plain Extension / Roadway	2005	229,495	90,802	320,297	43,604	60,856	259,440
448	UTILITY IMPR.PIPE W.	253,721	05/31/05	National Hist Reserve Util	2005	311,952	123,427	435,379	58,231	81,271	354,108
448	UTILITY IMPR.PIPE W.	91,357	05/31/05	Wtr Main-28th st, 112th-142nd	2005	112,324	44,442	156,766	20,967	29,263	127,503
448	UTILITY IMPR.PIPE W.	49,516	12/31/05	Wtr Main NE 162nd/39th St	2005	60,020	23,747	83,767	10,503	14,659	69,108
448	UTILITY IMPR.PIPE W.	-	05/27/05	083018 SE 192nd Ave - Phase I & II	2005	-	-	-	-	-	-
448	UTILITY IMPR.PIPE W.	-	05/27/05	083018 SE 192nd Ave - Phase I & II	2005	-	-	-	-	-	-
448	UTILITY IMPR.PIPE W.	-	05/27/05	083018 SE 192nd Ave - Phase I & II	2005	-	-	-	-	-	-
448	UTILITY IMPR.PIPE W.	-	05/27/05	083018 SE 192nd Ave - Phase I & II	2005	-	-	-	-	-	-
448	UTILITY IMPR.PIPE W.	-	05/27/05	083018 SE 192nd Ave - Phase I & II	2005	-	-	-	-	-	-
448	UTILITY IMPR.PIPE W.	-	09/09/05	083086 Esther Short Streetscape - V	2005	-	-	-	-	-	-
448	UTILITY IMPR.PIPE W.	-	09/09/05	083086 Esther Short Streetscape - V	2005	-	-	-	-	-	-
448	UTILITY IMPR.PIPE W.	137,857	08/31/05	083069 Water Main-NW 16th, Frank	2005	168,460	66,653	235,113	30,604	42,712	192,401
448	UTILITY IMPR.PIPE W.	97,825	08/29/05	Water Main - Special Events Center	2005	119,542	47,298	166,839	21,717	30,309	136,530
448	UTILITY IMPR.PIPE W.	5,340	03/07/05	East 13th Street & McLoughlin Blvd.	2005	6,592	2,608	9,201	1,253	1,748	7,452
448	UTILITY IMPR.PIPE W.	2,302	03/07/05	East 13th Street & McLoughlin Blvd.	2005	2,842	1,124	3,966	540	754	3,213
448	UTILITY IMPR.PIPE W.	73,130	03/07/05	East 13th Street & McLoughlin Blvd.	2005	90,284	35,722	126,006	17,154	23,941	102,065
448	UTILITY IMPR.PIPE W.	153,000	03/07/05	East 13th Street & McLoughlin Blvd.	2005	188,889	74,736	263,626	35,889	50,089	213,537
448	UTILITY IMPR.PIPE W.	2,330,349	04/16/08	083174 Trans Main WS 6 to WS 14	2008	2,673,441	779,787	3,453,228	343,092	443,164	3,010,064
448	UTILITY IMPR.PIPE W.	-	07/31/05	Columbia Ridge Sanitary - Demand R	2005	-	-	-	-	-	-
448	UTILITY IMPR.PIPE W.	-	07/31/05	Columbia Ridge Sanitary - Demand R	2005	-	-	-	-	-	-
448	UTILITY IMPR.PIPE W.	-	07/31/05	Columbia Ridge Sanitary - Demand R	2005	-	-	-	-	-	-
448	UTILITY IMPR.PIPE W.	41,527	08/29/05	Esther Short Streetscape	2005	50,746	20,078	70,824	9,219	12,866	57,958
448	UTILITY IMPR.PIPE W.	129,060	12/31/05	NE 162nd Ave NE 39th to WARD	2005	156,436	61,895	218,331	27,376	38,208	180,123
448	UTILITY IMPR.PIPE W.	11,772	08/31/05	Water Main-NW 16th, Frank to Kaufm	2005	14,385	5,692	20,077	2,613	3,647	16,430
448	UTILITY IMPR.PIPE W.	5,181	08/31/05	Water Main-NW 16th, Frank to Kaufm	2005	6,332	2,505	8,837	1,150	1,605	7,231
448	UTILITY IMPR.PIPE W.	3,604	08/31/05	Water Main-NW 16th, Frank to Kaufm	2005	4,403	1,742	6,146	800	1,116	5,029
448	UTILITY IMPR.PIPE W.	18,057	08/31/05	Water Main-NW 16th, Frank to Kaufm	2005	22,065	8,730	30,795	4,009	5,595	25,201
448	UTILITY IMPR.PIPE W.	2,833	08/31/05	Water Main-NW 16th, Frank to Kaufm	2005	3,462	1,370	4,832	629	878	3,954
448	UTILITY IMPR.PIPE W.	2,833	08/31/05	Water Main-NW 16th, Frank to Kaufm	2005	3,462	1,370	4,832	629	878	3,954
448	UTILITY IMPR.PIPE W.	3,187	08/31/05	Water Main-NW 16th, Frank to Kaufm	2005	3,895	1,541	5,436	707	987	4,449
448	UTILITY IMPR.PIPE W.	43,212	05/31/05	Wtr Main-28th st, 112th-142nd	2005	53,130	21,021	74,151	9,918	13,841	60,310
448	UTILITY IMPR.PIPE W.	3,477	05/31/05	National Hist Reserve Util	2005	4,275	1,691	5,966	798	1,114	4,852
448	UTILITY IMPR.PIPE W.	16,547	05/31/05	National Hist Reserve Util	2005	20,345	8,050	28,395	3,798	5,300	23,094
448	UTILITY IMPR.PIPE W.	30,110	05/31/05	National Hist Reserve Util	2005	37,021	14,648	51,669	6,910	9,645	42,024
448	UTILITY IMPR.PIPE W.	14,283	05/31/05	National Hist Reserve Util	2005	17,561	6,948	24,509	3,278	4,575	19,934
448	UTILITY IMPR.PIPE W.	33,074	12/31/13	083172 Wtr-Evergreen 164-192 Ave	2013	33,577	1,432	35,009	504	525	34,484
448	UTILITY IMPR.PIPE W.	339,949	12/31/08	083180 Water Main NE 72nd Av, 88t	2008	384,124	112,041	496,165	44,174	57,059	439,105
448	UTILITY IMPR.PIPE W.	265,241	04/26/08	083024 Water Main-Grand, McLaugh	2008	304,292	88,756	393,048	39,051	50,441	342,607
448	UTILITY IMPR.PIPE W.	270,164	11/01/08	Water Main - M Street, 29th to SR500	2008	305,846	89,209	395,055	35,682	46,090	348,965
448	UTILITY IMPR.PIPE W.	3,854	07/13/06	V" Street Water Main Replacement	2006	4,606	1,622	6,228	752	1,017	5,211
448	UTILITY IMPR.PIPE W.	19,603	07/13/06	V" Street Water Main Replacement	2006	23,430	8,249	31,679	3,827	5,174	26,505
448	UTILITY IMPR.PIPE W.	42,975	04/28/06	NE Burton Rd Phase 2 - NE 86th ave	2006	51,674	18,193	69,867	6,698	11,761	58,106
448	UTILITY IMPR.PIPE W.	4,015	09/12/06	Water Main - NE 81st, St Vicinity	2006	4,780	1,683	6,463	765	1,034	5,429
448	UTILITY IMPR.PIPE W.	14,535	03/28/06	Heathergate (SCIP)	2006	17,512	6,166	23,678	2,977	4,025	19,653
448	UTILITY IMPR.PIPE W.	1,673	03/28/06	Heathergate (SCIP)	2006	2,015	710	2,725	343	463	2,262
448	UTILITY IMPR.PIPE W.	277,582	02/01/07	083170-Water Pipe Replacement at C	2007	327,208	100,780	427,988	49,627	64,912	363,077
448	UTILITY IMPR.PIPE W.	1,117	04/01/07	083092-Demand Response pipe repl	2007	1,311	404	1,715	195	254	1,461
448	UTILITY IMPR.PIPE W.	212,463	11/01/08	083203-Transmission Main WS5 to C	2008	240,524	70,156	310,679	28,061	36,246	274,434
448	UTILITY IMPR.PIPE W.	661,721	12/01/08	083213-Landover Hills SCIP (150 Hor	2008	747,708	218,091	965,799	85,986	111,067	854,732
448	UTILITY IMPR.PIPE W.	98,119	12/01/08	083197 Water Main 4th St. realignmei	2008	110,869	32,338	143,207	12,750	16,469	126,738
448	UTILITY IMPR.PIPE W.	21,368	08/14/08	Demand Response-SCIP	2008	24,328	7,096	31,424	2,960	3,823	27,601
448	UTILITY IMPR.PIPE W.	1,335,112	11/30/10	Transmission Main Wtr Sta 9 PH 1	2010	1,445,969	249,503	1,695,473	110,858	129,986	1,565,487
448	UTILITY IMPR.PIPE W.	82,918	12/31/08	Water Main 65th/66th & 33rd Street	2008	93,692	27,328	121,020	10,774	13,917	107,103
448	UTILITY IMPR.PIPE W.	89,273	11/01/08	NE 39th Ave SCIP	2008	101,063	29,478	130,541	11,791	15,230	115,312
448	UTILITY IMPR.PIPE W.	15,227	12/31/07	NE 91st Ave NE 11th Demand Respor	2007	17,604	5,422	23,026	2,376	3,108	19,917
448	UTILITY IMPR.PIPE W.	43,161	12/31/07	32nd Ave Water main	2007	49,897	15,368	65,266	6,736	8,811	56,455
448	UTILITY IMPR.PIPE W.	3,924	12/31/07	32nd Ave Water main	2007	4,536	1,397	5,933	612	801	5,132
448	UTILITY IMPR.PIPE W.	250,356	04/01/07	Fellmans Phase 3	2007	293,959	90,540	384,499	43,604	57,034	327,465
448	UTILITY IMPR.PIPE W.	8,865	10/01/04	NE 76th Street 94th to 107th	2004	11,059	5,172	16,231	2,193	3,219	13,012

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
448	UTILITY IMPR.PIPE W.	162	09/21/06	Water Main 11th, 12th, 13th near Mck	2006	193	68	261	31	42	219
448	UTILITY IMPR.PIPE W.	13,799	09/21/06	Water Main 11th, 12th, 13th near Mck	2006	16,428	5,784	22,212	2,628	3,554	18,658
448	UTILITY IMPR.PIPE W.	183,179	09/15/06	Leak Abatement Fire Safety	2006	218,070	76,777	294,847	34,891	47,176	247,672
448	UTILITY IMPR.PIPE W.	54,552	12/03/07	Water main 138th Ave 18th to 28th	2007	63,066	19,424	82,490	8,514	11,136	71,354
448	UTILITY IMPR.PIPE W.	1,051	12/31/07	Harney 11th to 134th Water Main	2007	1,215	374	1,589	164	214	1,374
448	UTILITY IMPR.PIPE W.	50,697	12/31/07	Harney 11th to 134th Water Main	2007	58,610	18,052	76,662	7,912	10,349	66,312
448	UTILITY IMPR.PIPE W.	25,162	12/31/09	F St 4th Plain to 31st	2009	27,803	6,403	34,206	2,641	3,250	30,957
448	UTILITY IMPR.PIPE W.	483,560	12/31/09	Riverview Heights SCIP	2009	534,321	123,058	657,379	50,760	62,451	594,928
448	UTILITY IMPR.PIPE W.	36,006	12/31/09	Riverview Heights (Water)	2009	39,786	9,163	48,949	3,780	4,650	44,299
448	UTILITY IMPR.PIPE W.	33,233	04/26/08	Water Main-Grand/ Mcloughlin	2008	38,125	11,120	49,246	4,893	6,320	42,926
448	UTILITY IMPR.PIPE W.	22,465	04/16/08	Transmission Main Sta 6 to Sta 14	2008	25,773	7,517	33,290	3,307	4,272	29,018
448	UTILITY IMPR.PIPE W.	38,435	12/31/08	Wtr Main NE 72nd Ave 88th to RR tra	2008	43,430	12,668	56,097	4,994	6,451	49,646
448	UTILITY IMPR.PIPE W.	1,618	12/31/08	Wtr Main NE 72nd Ave 88th to RR tra	2008	1,829	533	2,362	210	272	2,090
448	UTILITY IMPR.PIPE W.	4,866	12/01/08	4th St Realignment Water Main	2008	5,499	1,604	7,102	632	817	6,286
448	UTILITY IMPR.PIPE W.	8,542	12/01/08	4th St Realignment Water Main	2008	9,652	2,815	12,468	1,110	1,434	11,034
448	UTILITY IMPR.PIPE W.	1,430	11/01/08	Transmission Main Sta 5 to Cascade	2008	1,619	472	2,091	189	244	1,847
448	UTILITY IMPR.PIPE W.	63,854	08/16/08	39th Avenue Water Main	2008	72,699	21,205	93,904	8,845	11,425	82,479
448	UTILITY IMPR.PIPE W.	2,722	08/16/08	39th Avenue Water Main	2008	3,099	904	4,003	377	487	3,516
448	UTILITY IMPR.PIPE W.	15,447	11/01/08	M St Wtr Main E 29th St to SR500	2008	17,488	5,101	22,588	2,040	2,635	19,953
448	UTILITY IMPR.PIPE W.	3,181	12/31/08	65/66th Avenue Realignment	2008	3,594	1,048	4,643	413	534	4,109
448	UTILITY IMPR.PIPE W.	152,336	12/01/08	Landover Hills SCIP	2008	172,131	50,207	222,338	19,795	25,569	196,769
448	UTILITY IMPR.PIPE W.	15,235	12/31/08	NE U Street	2008	17,215	5,021	22,236	1,980	2,557	19,679
448	UTILITY IMPR.PIPE W.	29,708	11/01/08	Grove Street	2008	33,632	9,810	43,441	3,924	5,068	38,373
448	UTILITY IMPR.PIPE W.	78,583	05/02/08	NE 50th Ave-NE 44th Street	2008	89,980	26,245	116,226	11,397	14,722	101,504
448	UTILITY IMPR.PIPE W.	4,782	10/01/08	NE 16th Street Brandt East Water Ma	2008	5,423	1,582	7,005	642	829	6,176
448	UTILITY IMPR.PIPE W.	4,523	10/01/08	NE 16th Street Brandt East Water Ma	2008	5,130	1,496	6,627	607	784	5,843
448	UTILITY IMPR.PIPE W.	67,525	10/01/08	NE 16th Street Brandt East Water Ma	2008	76,588	22,339	98,927	9,063	11,706	87,221
448	UTILITY IMPR.PIPE W.	88,988	03/16/08	NE 122nd Ave	2008	102,285	29,834	132,120	13,297	17,176	114,944
448	UTILITY IMPR.PIPE W.	9,507	04/26/08	Water Main-Grand/ Mcloughlin	2008	10,907	3,181	14,088	1,400	1,808	12,280
448	UTILITY IMPR.PIPE W.	238,616	12/31/10	Fellmans Addition 4 SCIP(29 Homes)	2010	257,963	44,512	302,475	19,347	22,686	279,789
448	UTILITY IMPR.PIPE W.	180,567	12/31/10	Water Main Petticoat, St Johns to NE	2010	195,208	33,683	228,891	14,641	17,167	211,724
448	UTILITY IMPR.PIPE W.	12,063	12/31/11	Water Main 4th Plain to O Street	2011	12,766	1,722	14,488	702	797	13,691
448	UTILITY IMPR.PIPE W.	69,863	12/31/09	Water Demand Response	2009	77,197	17,779	94,976	7,334	9,023	85,953
448	UTILITY IMPR.PIPE W.	71,536	10/31/11	083206-Fire Flow Improvements (DSF	2011	75,968	10,249	86,217	4,431	5,029	81,187
448	UTILITY IMPR.PIPE W.	203,523	12/31/13	083275-Harry's Addition SCIP	2013	206,622	8,810	215,432	3,099	3,231	212,200
448	UTILITY IMPR.PIPE W.	15,868	12/31/11	083228-39th Street Bridge Watermain	2011	16,792	2,265	19,057	924	1,048	18,009
448	UTILITY IMPR.PIPE W.	2,730	12/31/09	083286-W 8th St- King to Jefferson V	2009	3,016	695	3,711	287	353	3,358
448	UTILITY IMPR.PIPE W.	12,866	12/07/09	083268.02- SE 105th Ct. Water Main	2009	14,216	3,274	17,491	1,350	1,662	15,829
448	UTILITY IMPR.PIPE W.	1,346	12/07/09	083206.06-NW 53rd St Water Main -v	2009	1,487	342	1,830	141	174	1,656
448	UTILITY IMPR.PIPE W.	37,664	12/07/09	083206.06-NW 53rd St Water Main -v	2009	41,618	9,585	51,203	3,954	4,864	46,339
448	UTILITY IMPR.PIPE W.	88,264	12/07/09	083286 - W 8th St Water Main - King	2009	97,529	22,462	119,991	9,265	11,399	108,592
448	UTILITY IMPR.PIPE W.	1,672	12/10/09	083236 - 'F' St Vicinity Water Main Rej	2009	1,848	426	2,273	176	216	2,057
448	UTILITY IMPR.PIPE W.	323,359	12/10/09	083236 - 'F' St Vicinity Water Main Rej	2009	357,303	82,290	439,592	33,944	41,761	397,831
448	UTILITY IMPR.PIPE W.	21,499	12/10/09	083236 - 'F' St Vicinity Water Main Rej	2009	23,756	5,471	29,227	2,257	2,776	26,450
448	UTILITY IMPR.PIPE W.	29,654	12/31/09	083255- Riverview Heights SCIP	2009	32,767	7,546	40,313	3,113	3,830	36,484
448	UTILITY IMPR.PIPE W.	87,899	12/31/09	083093.21-Demand Response SCIP/I	2009	97,126	22,369	119,495	9,227	11,352	108,143
448	UTILITY IMPR.PIPE W.	44,505	12/31/09	083093.23-Demand Response SCIP,	2009	49,176	11,326	60,502	4,672	5,748	54,754
448	UTILITY IMPR.PIPE W.	38,699	12/31/09	083093.23-Demand Response SCIP,	2009	42,761	9,848	52,609	4,062	4,998	47,611
448	UTILITY IMPR.PIPE W.	40,248	11/30/10	083296 - Garden Grove (Water)	2010	43,590	7,521	51,111	3,342	3,919	47,193
448	UTILITY IMPR.PIPE W.	12,957	12/31/09	083261-Water Main - Riverview Heigh	2009	14,318	3,297	17,615	1,360	1,673	15,942
448	UTILITY IMPR.PIPE W.	143,594	12/31/09	083261-Water Main - Riverview Heigh	2009	158,667	36,542	195,210	15,073	18,545	176,665
448	UTILITY IMPR.PIPE W.	64,088	12/31/11	083281- Harry's Addition (Water)	2011	67,818	9,150	76,968	3,730	4,233	72,735
448	UTILITY IMPR.PIPE W.	49,516	11/30/10	083287- SE 5th St&100-101srt Ave W	2010	53,627	9,253	62,881	4,111	4,821	58,060
448	UTILITY IMPR.PIPE W.	1,544	11/30/10	083296 - Garden Grove (Water)	2010	1,672	289	1,961	128	150	1,811
448	UTILITY IMPR.PIPE W.	24,073	12/31/10	083307 - E. 16th Street Water Main R	2010	26,024	4,491	30,515	1,952	2,289	28,226
448	UTILITY IMPR.PIPE W.	287,821	12/31/13	083305 - SR500/St Johns Overpass (	2013	292,204	12,459	304,663	4,383	4,570	300,093
448	UTILITY IMPR.PIPE W.	81,878	12/31/10	083306 - Water Main Repl. Nocholsor	2010	88,516	15,274	103,790	6,639	7,784	96,006
448	UTILITY IMPR.PIPE W.	10,730	12/31/11	083319 - Trans Main-McGillivray & 16	2011	11,354	1,532	12,886	624	709	12,177
448	UTILITY IMPR.PIPE W.	581,901	03/17/10	083198 Ellsworth Water Station Imprc	2010	639,452	110,338	749,790	57,551	67,481	682,309
448	UTILITY IMPR.PIPE W.	16,533	11/30/10	083205 Water Transmission Main Ells	2010	17,906	3,090	20,996	1,373	1,610	19,386
448	UTILITY IMPR.PIPE W.	7,960	11/30/10	083205 Water Transmission Main Ells	2010	8,620	1,487	10,108	661	775	9,333
448	UTILITY IMPR.PIPE W.	16,011	11/30/10	083205 Water Transmission Main Ells	2010	17,340	2,992	20,332	1,329	1,559	18,773
448	UTILITY IMPR.PIPE W.	552	11/30/10	083206.08 /SE 97th Ave North of Frei	2010	598	103	701	46	54	648
448	UTILITY IMPR.PIPE W.	33,971	11/30/10	083206.08 /SE 97th Ave North of Frei	2010	36,792	6,348	43,140	2,821	3,307	39,833
448	UTILITY IMPR.PIPE W.	4,550	12/31/10	083235 Petticoat Lane Water Line Re	2010	4,919	849	5,768	369	433	5,336
448	UTILITY IMPR.PIPE W.	4,341	12/31/10	083306 Nicholson Water Main Replac	2010	4,693	810	5,503	352	413	5,090
448	UTILITY IMPR.PIPE W.	20,421	12/31/10	083306 Nicholson Water Main Replac	2010	22,076	3,809	25,886	1,656	1,941	23,944
448	UTILITY IMPR.PIPE W.	50,691	10/31/12	083325- Water Construction Lauracre	2012	52,712	3,931	56,643	2,021	2,171	54,472
448	UTILITY IMPR.PIPE W.	842,474	12/31/12	083329-Water Main around Weigel-W	2012	873,030	65,108	938,138	30,556	32,835	905,303
448	UTILITY IMPR.PIPE W.	79,046	10/31/12	083341-18th St Roadway Phase 1	2012	82,197	6,130	88,327	3,151	3,386	84,941
448	UTILITY IMPR.PIPE W.	1,845	02/25/11	083206.09-NE 45th St&NE 54th Ave 1	2011	1,988	268	2,256	142	162	2,094
448	UTILITY IMPR.PIPE W.	100,528	10/31/12	083385-Stapleton Water Main Replac	2012	104,535	7,796	112,331	4,007	4,306	108,025
448	UTILITY IMPR.PIPE W.	30,937	12/31/11	083281-Harry's Addition Water Main	2011	32,737	4,417	37,154	1,801	2,043	35,111
448	UTILITY IMPR.PIPE W.	21,577	12/31/11	083281-Harry's Addition Water Main	2011	22,832	3,080	25,913	1,256	1,425	24,488
448	UTILITY IMPR.PIPE W.	230	12/31/11	083228 - 39th St Bridge Water Main	2011	243	33	276	13	15	261
448	UTILITY IMPR.PIPE W.	2,990	12/31/11	083228 - 39th St Bridge Water Main	2011	3,164	427	3,590	174	197	3,393
448	UTILITY IMPR.PIPE W.	3,910	12/31/11	083228 - 39th St Bridge Water Main	2011	4,137	558	4,695	228	258	4,437
448	UTILITY IMPR.PIPE W.	23,935	12/31/11	4th Plain Water Main Replacement	2011	25,328	3,417	28,746	1,393	1,581	27,165
448	UTILITY IMPR.PIPE W.	186,504	12/31/11	4th Plain Water Main Replacement	2011	197,359	26,266	223,985	10,855	12,319	211,666
448	UTILITY IMPR.PIPE W.	70,274	12/31/11	4th Plain Water Main Replacement	2011	74,364	10,033	84,397	4,090	4,642	79,755
448	UTILITY IMPR.PIPE W.	530,216	12/31/11	4th Plain Water Main Replacement	2011	561,075	75,697	636,771	30,859	35,022	601,749
448	UTILITY IMPR.PIPE W.	847,778	12/31/11	McGillivray & 164th Ave Water Transr	2011	897,120	121,034	1,018,153	49,342	55,998	962,155

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
448	UTILITY IMPR.PIPE W.	1,541,222	12/31/11	McGillivray & 164th Ave Water Transr	2011	1,630,923	220,033	1,850,956	89,701	101,802	1,749,153
448	UTILITY IMPR.PIPE W.	28,723	12/31/13	083396 -Sunhill SCIP (Water)	2013	29,160	1,243	30,403	437	456	29,947
448	UTILITY IMPR.PIPE W.	11,681	12/31/12	083397 -Billing Court Water Main	2012	12,105	903	13,007	424	455	12,552
448	UTILITY IMPR.PIPE W.	41,633	10/31/12	083385 - Stapleton Road Water Main	2012	43,292	3,229	46,521	1,659	1,783	44,738
448	UTILITY IMPR.PIPE W.	24,685	10/31/12	083325 - Lauracrest SCIP -Water	2012	25,668	1,914	27,583	984	1,057	26,525
448	UTILITY IMPR.PIPE W.	59,201	06/13/12	083341 - NE 18th Street Improvemen	2012	61,991	4,623	66,614	2,790	2,998	63,616
448	UTILITY IMPR.PIPE W.	10,210	06/13/12	083341 - NE 18th Street Improvemen	2012	10,691	797	11,488	481	517	10,971
448	UTILITY IMPR.PIPE W.	40,810	12/26/12	083329- Weigel Avenue Vicinity Wate	2012	42,290	3,154	45,444	1,480	1,590	43,853
448	UTILITY IMPR.PIPE W.	27,312	12/31/13	083337 - Pacific Ave Water Replacem	2013	27,728	1,182	28,910	416	434	28,476
448	UTILITY IMPR.PIPE W.	23,023	12/31/13	083410-E 31st St - H St to I-5	2013	23,374	997	24,370	351	366	24,005
448	UTILITY IMPR.PIPE W.	13,711	12/31/13	083427 - California Court Watermain I	2013	13,920	594	14,514	209	218	14,296
448	UTILITY IMPR.PIPE W.	42,513	12/31/13	083433 - Columbia Ridge Apt Offsite	2013	43,161	1,840	45,001	647	675	44,326
448	UTILITY IMPR.PIPE W.	49,661	12/19/13	083396-Sunhill SCIP (Water)	2013	50,417	2,150	52,567	756	789	51,778
448	UTILITY IMPR.PIPE W.	1,639	12/20/13	083337 - Pacific Ave Water Main Rep	2013	1,664	71	1,735	25	26	1,709
448	UTILITY IMPR.PIPE W.	29,497	12/20/13	083337 - Pacific Ave Water Main Rep	2013	29,946	1,277	31,223	449	468	30,754
448	UTILITY IMPR.PIPE W.	52,440	05/31/05	Wtr Main-Covington-9800-94th A	2005	64,476	25,511	89,986	12,035	16,797	73,189
448	UTILITY IMPR.PIPE W.	39,169	04/08/05	Wtr Main NE 76th St 117 Ave	2005	48,258	19,094	67,351	9,089	12,684	54,667
448	UTILITY IMPR.PIPE W.	5,248	10/11/05	Wtr Main SE Camas Lk Rd	2005	6,387	2,527	8,914	1,139	1,590	7,325
448	UTILITY IMPR.PIPE W.	19,160	10/11/05	083118 Camas Lake Road / SE 1st St	2005	23,318	9,226	32,544	4,158	5,804	26,740
448	UTILITY IMPR.PIPE W.	122,425	10/11/05	083118 Camas Lake Road / SE 1st St	2005	148,996	58,952	207,947	26,571	37,084	170,863
448	UTILITY IMPR.PIPE W.	17,321	05/31/05	Wtr Main-Covington-9800-94th A	2005	21,296	8,426	29,722	3,975	5,548	24,174
448	UTILITY IMPR.PIPE W.	158,969	06/10/08	Water Main 63rd St, 72nd to Meadow	2008	181,679	52,992	234,671	22,710	29,334	205,337
448	UTILITY IMPR.PIPE W.	428,915	11/30/10	Transmission Main WS 14 to WS 19	2010	464,529	80,155	544,684	35,614	41,759	502,925
448	UTILITY IMPR.PIPE W.	109,485	06/10/08	63rd & 72nd Ave Water Main -County	2008	125,125	36,496	161,622	15,641	20,203	141,419
448	UTILITY IMPR.PIPE W.	30,531	06/10/08	63rd & 72nd Ave Water Main -County	2008	34,893	10,177	45,070	4,362	5,634	39,436
448	UTILITY IMPR.PIPE W.	37,514	04/14/10	083278-NE 96th St, 157th -160th Ave	2010	41,149	7,100	48,249	3,635	4,262	43,987
448	UTILITY IMPR.PIPE W.	45,268	12/31/13	083293-Regency Place Connection	2013	45,957	1,959	47,917	689	719	47,198
448	UTILITY IMPR.PIPE W.	39,051	11/16/10	083256 Transm. Main WS14-19 (DST	2010	42,293	7,298	49,591	3,242	3,802	45,789
448	UTILITY IMPR.PIPE W.	10,810	11/16/10	083256 Transm. Main WS14-19 (DST	2010	11,707	2,020	13,727	898	1,052	12,675
448	UTILITY IMPR.PIPE W.	22,116	11/16/10	083256 Transm. Main WS14-19 (DST	2010	23,953	4,133	28,086	1,836	2,153	25,933
448	UTILITY IMPR.PIPE W.	2,256	11/16/10	083256 Transm. Main WS14-19 (DST	2010	2,443	422	2,864	187	220	2,645
448	UTILITY IMPR.PIPE W.	34,481	12/31/10	083206.07 NE 65th Street Main Replc	2010	37,276	6,432	43,709	2,796	3,278	40,430
448	UTILITY IMPR.PIPE W.	1,301	12/31/10	083206.07 NE 65th Street Main Replc	2010	1,407	243	1,649	105	124	1,526
448	UTILITY IMPR.PIPE W.	407	12/31/10	083206.07 NE 65th Street Main Replc	2010	440	76	515	33	39	477
448	UTILITY IMPR.PIPE W.	16,789	10/31/11	083321- Covington Park Water Main	2011	17,829	2,405	20,234	1,040	1,180	19,054
448	UTILITY IMPR.PIPE W.	122,946	10/31/12	083338-69th & 79th St East of 94th Av	2012	127,846	9,534	137,381	4,901	5,266	132,114
448	UTILITY IMPR.PIPE W.	21,916	12/31/11	083384-NE 55th Circle Water main	2011	23,191	3,129	26,320	1,275	1,448	24,872
448	UTILITY IMPR.PIPE W.	17,619	05/31/11	083321 - Covington Park Water Main	2011	18,877	2,547	21,424	1,258	1,428	19,996
448	UTILITY IMPR.PIPE W.	38,392	12/31/13	083389 - Ward Road at 152nd Ave W	2013	38,977	1,662	40,638	585	610	40,029
448	UTILITY IMPR.PIPE W.	25,446	12/31/13	083430 - Dunning Meadows	2013	25,834	1,101	26,935	388	404	26,531
448	UTILITY IMPR.PIPE W.	680,442	12/31/13	083223-88th St. Water Transmission	2013	706,953	30,142	737,095	26,511	27,641	709,454
448	UTILITY IMPR.PIPE W.	7,097	12/31/13	083223 - 88th St. Water Transmissior	2013	7,205	307	7,513	108	113	7,400
448	UTILITY IMPR.PIPE W.	659	12/31/13	083223 - 88th St. Water Transmissior	2013	669	29	697	10	10	687
448	UTILITY IMPR.PIPE W.	231	12/31/13	083293-Regency Place Water Main C	2013	234	24	244	4	4	241
448	UTILITY IMPR.PIPE W.	693	12/31/13	083293-Regency Place Water Main C	2013	703	30	733	11	11	722
448	UTILITY IMPR.PUMP S	3,269,209	03/17/10	083198 Ellsworth Water Station Imprc	2010	3,683,616	635,611	4,319,228	414,407	485,913	3,833,314
448	UTILITY IMPR.PUMP S	106,316	09/26/12	049001- Energy Efficiency & Conserv.	2012	111,911	8,346	120,257	5,596	6,013	114,245
448	UTILITY IMPR.PUMP S	26,452	12/17/04	Demand Response Projects-SCIP / F	2004	32,860	15,369	48,228	6,408	9,405	38,824
448	UTILITY IMPR.SEWER	6,221	12/17/04	Demand Response Projects-SCIP / F	2004	7,727	3,614	11,342	1,507	2,212	9,130
448	UTILITY IMPR.SEWER	6,309	12/17/04	Demand Response Projects-SCIP / F	2004	7,837	3,666	11,503	1,528	2,243	9,260
448	UTILITY IMPR.SEWER	71,298	12/17/04	Allwood Ph 3	2004	88,568	41,424	129,993	17,271	25,348	104,644
448	UTILITY IMPR.SEWER	3,463	12/17/04	Allwood Ph 3	2004	4,302	2,012	6,314	839	1,231	5,083
448	UTILITY IMPR.SEWER	41,636	10/01/07	Felmans Addition 3 SCIP	2007	48,321	14,883	63,203	6,684	8,743	54,460
448	UTILITY IMPR.SEWER	6,898	10/01/07	Felmans Addition 3 SCIP	2007	8,005	2,466	10,471	1,107	1,448	9,023
448	UTILITY IMPR.SEWER	92,844	10/12/07	Mill Plain Terrain SCIP	2007	107,750	33,187	140,937	14,905	19,496	121,441
448	UTILITY IMPR.SEWER	8,343	10/12/07	Mill Plain Terrain SCIP	2007	9,682	2,982	12,664	1,339	1,752	10,912
448	UTILITY IMPR.SEWER	46,199	10/12/07	Askim Sewer Main Ext	2007	53,616	16,514	70,129	7,417	9,701	60,428
448	UTILITY IMPR.SEWER	5,810	10/12/07	Askim Sewer Main Ext	2007	6,743	2,077	8,820	933	1,220	7,600
448	UTILITY IMPR.SEWER	98,919	06/18/09	083251-Hazelwood SCIP	2009	110,524	25,455	135,979	11,605	14,278	121,701
448	UTILITY IMPR.SEWER	105,382	06/18/09	083251-Hazelwood SCIP	2009	117,745	27,118	144,863	12,363	15,211	129,652
448	UTILITY IMPR.SEWER	302,003	11/30/10	083216 Fellman's 1& 2	2010	327,079	56,438	383,517	25,076	29,403	354,114
448	UTILITY IMPR.SEWER	162,119	11/30/10	083216 Fellman's 1& 2	2010	175,580	30,297	205,877	13,461	15,784	190,093
448	UTILITY IMPR.SEWER	3,737	11/30/10	083216 Fellman's 1& 2	2010	4,047	698	4,745	310	364	4,381
448	UTILITY IMPR.SEWER	80,896	11/30/10	083276/ Garden Grove	2010	87,613	15,118	102,731	6,717	7,876	94,855
448	UTILITY IMPR.SEWER	68,351	11/30/10	083276/ Garden Grove	2010	74,027	12,773	86,800	5,675	6,655	80,145
448	UTILITY IMPR.SEWER	14,437	11/30/10	083276/ Garden Grove	2010	15,636	2,698	18,334	1,199	1,406	16,928
448	UTILITY IMPR.SEWER	7,524	11/30/10	083276/ Garden Grove	2010	8,149	1,406	9,555	625	733	8,823
448	UTILITY IMPR.SEWER	252,766	04/26/11	083277-Crestwood SCIP	2011	271,306	36,603	307,909	18,539	21,040	286,868
448	UTILITY IMPR.SEWER	116,699	04/26/11	083277-Crestwood SCIP	2011	125,258	16,899	142,157	8,559	9,714	132,443
448	UTILITY IMPR.SEWER	227,242	10/31/11	083312 -Maple Grove Estates SCIP	2011	241,319	32,557	273,877	14,077	15,976	257,901
448	UTILITY IMPR.SEWER	83,522	10/31/11	083312 -Maple Grove Estates SCIP	2011	88,696	11,966	100,662	5,174	5,872	94,790
448	UTILITY IMPR.SEWER	67,840	10/31/11	083312 -Maple Grove Estates SCIP	2011	72,043	9,720	81,763	4,202	4,769	76,993
448	UTILITY IMPR.SEWER	437,916	10/15/12	083309 - Cascade Park SCIP	2012	455,372	33,960	489,332	17,456	18,758	470,574
448	UTILITY IMPR.SEWER	175,452	10/15/12	083309 - Cascade Park SCIP	2012	182,446	13,606	196,052	6,994	7,515	188,537
448	UTILITY IMPR.SEWER	263,234	12/06/13	083275- Harry's Addition SCIP project	2013	267,242	11,394	278,637	4,009	4,180	274,457
448	UTILITY IMPR.SEWER	39,859	12/06/13	083275- Harry's Addition SCIP project	2013	40,466	1,725	42,192	607	633	41,559
448	UTILITY IMPR.SEWER	380,684	12/06/13	083323-Linwood Heights SCIP	2013	386,481	16,478	402,960	5,797	6,044	396,915
448	UTILITY IMPR.SEWER	99,693	12/06/13	083323-Linwood Heights SCIP	2013	101,212	4,315	105,527	1,518	1,583	103,944
448	UTILITY IMPR.SEWER	18,686	12/06/13	083323-Linwood Heights SCIP	2013	18,970	809	19,779	285	297	19,482
448	UTILITY IMPR.SEWER	309,798	12/06/13	083311-Lauracrest SCIP	2013	314,515	13,410	327,925	4,718	4,919	323,006
448	UTILITY IMPR.SEWER	6,583	12/06/13	083311-Lauracrest SCIP	2013	6,683	285	6,968	100	105	6,864
448	UTILITY IMPR.SEWER	21,505	12/06/13	083311-Lauracrest SCIP	2013	21,833	931	22,764	328	341	22,422

Water Fixed Assets as of September 30,2014

\$ 221,709,673 \$ 109,402,126 \$ 331,111,799 \$ 97,561,318 \$ 153,894,867 \$ 177,216,932

Fund	Asset Category	NetBook Value	Date in Svc	Description	Year	Original Cost	Interest	Adjusted Cost	Depreciation	Adjusted Depreciation	Adjusted Cost Less Depr.
448	UTILITY IMPR.SEWER	19,450	12/06/13	083311-Lauracrest SCIP	2013	19,747	842	20,588	296	309	20,280
448	UTILITY IMPR.SEWER	64,068	12/06/13	083311-Lauracrest SCIP	2013	65,044	2,773	67,817	976	1,017	66,800
448	UTILITY IMPR.SEWER	105,114	10/07/13	083324-Sleret Highlands SCIP	2013	107,077	4,565	111,643	1,963	2,047	109,596
448	UTILITY IMPR.SEWER	6,147	10/07/13	083324-Sleret Highlands SCIP	2013	6,262	267	6,529	115	120	6,409
448	UTILITY IMPR.SEWER	9,583	10/07/13	083324-Sleret Highlands SCIP	2013	9,762	416	10,178	179	187	9,992
448	UTILITY IMPR.SEWER	33,279	10/07/13	083324-Sleret Highlands SCIP	2013	33,901	1,445	35,346	622	648	34,698
448	UTILITY IMPR.SEWER	432,568	10/07/13	083349- Sunhill SCIP	2013	440,647	18,788	459,434	8,079	8,423	451,011
448	UTILITY IMPR.SEWER	104,589	10/07/13	083349- Sunhill SCIP	2013	106,542	4,543	111,085	1,953	2,037	109,048
459	BONDS REVENUE.DIS	-	01/01/02	1993 Discount	2002	9,159	4,612	13,771	9,159	13,771	-
459	BONDS REVENUE.DIS	-	01/01/02	1998 Discount	2002	4,112	2,071	6,183	4,112	6,183	-
459	BONDS REVENUE.DIS	-	01/01/02	1999 Discount	2002	74	37	112	74	112	-
459	BONDS REVENUE.ISS	-	12/17/02	2002 Issuance Costs	2002	-	-	-	-	-	-
459	BONDS REVENUE.ISS	-	02/26/04	2004 Revenue Refunding Bond	2004	-	-	-	-	-	-
459	BONDS REVENUE.ISS	-	04/04/05	2005 Revenue Refunding Bond	2005	-	-	-	-	-	-
459	BONDS REVENUE.ISS	-	06/03/08	2008 Deferred Issuance Costs	2008	-	-	-	-	-	-
459	BONDS REVENUE.ISS	-	01/01/02	1993 Deferred Issuance Costs	2002	-	-	-	-	-	-
459	BONDS REVENUE.ISS	-	01/01/02	1997 Deferred Issuance Costs	2002	-	-	-	-	-	-
459	BONDS REVENUE.ISS	-	01/01/02	1998 Deferred Issuance Costs	2002	-	-	-	-	-	-
459	BONDS REVENUE.ISS	-	01/01/02	1999 Deferred Issuance Costs	2002	-	-	-	-	-	-
459	BONDS REVENUE.PRI	-	12/17/02	2002 Premium	2002	(271,818)	(136,887)	(408,705)	(271,818)	(408,705)	-
459	BONDS REVENUE.PRI	(17,018)	02/26/04	2004 Revenue Refunding Bond	2004	(50,267)	(23,511)	(73,778)	(33,250)	(48,801)	(24,977)
459	BONDS REVENUE.PRI	(8,894)	04/04/05	2005 Revenue Refunding Bond	2005	(32,265)	(12,766)	(45,031)	(23,372)	(32,619)	(12,413)
459	BONDS REVENUE.PRI	(35,202)	06/03/08	2008 Premium	2008	(160,921)	(46,937)	(207,858)	(125,720)	(162,389)	(45,469)
459	BONDS REVENUE.PRI	-	01/01/02	1997 Premium	2002	(139)	(70)	(209)	(139)	(209)	-
459	BONDS REVENUE.REI	-	12/17/02	2002 Deferred Amount on Refunding	2002	222,065	111,831	333,897	222,065	333,897	-
459	BONDS REVENUE.REI	23,648	02/26/04	2004 Revenue Refunding Bond	2004	69,853	32,671	102,524	46,205	67,815	34,708
459	BONDS REVENUE.REI	6,110	04/04/05	2005 Revenue Refunding Bond	2005	22,165	8,770	30,935	16,055	22,408	8,527
459	BONDS REVENUE.REI	5,428	06/03/08	2008 Revenue Refunding Bond	2008	24,813	7,237	32,050	19,385	25,039	7,011
459	BONDS REVENUE.REI	-	01/01/02	1995 Deferred Amount on Refunding	2002	286,904	144,484	431,388	286,904	431,388	-

APPENDIX 9B – FUNDING ALTERNATIVES

Appendix 9B
Current Funding Strategy
All Monetary Values in Millions

Cash Flows	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034
Revenues																				
Pre-Increase Rate Revenue	\$27.9	\$29.7	\$30.0	\$30.4	\$30.7	\$31.5	\$32.1	\$32.7	\$33.2	\$33.7	\$34.1	\$34.4	\$35.0	\$35.5	\$35.9	\$36.3	\$36.8	\$37.3	\$37.7	\$38.2
Other Revenue	6.6	6.7	6.8	7.0	7.1	7.2	7.4	7.5	7.6	7.8	7.9	8.1	8.3	8.4	8.6	8.8	9.0	9.1	9.3	9.5
SDC Revenue	3.7	4.4	4.5	4.6	5.3	10.1	9.6	9.7	8.0	7.1	7.5	4.8	10.7	7.9	8.3	8.5	8.7	10.2	9.3	10.4
Debt Proceeds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adopted Rate Adjustments	5%	5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forecasted Adjustments	-	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Increase in Annual Revenue from New Rate Adjus	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Post-Increase Revenue	\$38.2	\$40.8	\$41.3	\$41.9	\$43.1	\$48.8	\$49.1	\$49.9	\$48.9	\$48.6	\$49.6	\$47.3	\$54.0	\$51.8	\$52.8	\$53.7	\$54.5	\$56.6	\$56.4	\$58.2
Requirements																				
O&M	(\$29.9)	(\$31.0)	(\$31.8)	(\$32.7)	(\$33.6)	(\$34.6)	(\$35.6)	(\$36.6)	(\$37.6)	(\$39.0)	(\$39.8)	(\$41.0)	(\$42.1)	(\$43.3)	(\$44.5)	(\$45.9)	(\$47.3)	(\$48.8)	(\$50.4)	(\$52.0)
Debt	(0.6)	(0.6)	(0.1)	(0.1)	(0.1)	(0.1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capital Expenditures	(12.2)	(12.5)	(12.9)	(13.3)	(13.7)	(14.1)	(15.3)	(15.8)	(16.2)	(16.7)	(7.5)	(7.7)	(7.9)	(8.1)	(8.4)	(8.6)	(8.9)	(9.2)	(9.4)	(9.7)
Post-Increase Requirements	(\$42.7)	(\$44.2)	(\$44.8)	(\$46.1)	(\$47.4)	(\$48.8)	(\$50.9)	(\$52.4)	(\$53.9)	(\$55.7)	(\$47.2)	(\$48.7)	(\$50.0)	(\$51.4)	(\$52.9)	(\$54.5)	(\$56.2)	(\$58.0)	(\$59.8)	(\$61.7)
Post-Increase Cash Flow (Use of Reserves)	(\$4.5)	(\$3.3)	(\$3.5)	(\$4.1)	(\$4.2)	\$0.0	(\$1.8)	(\$2.4)	(\$5.0)	(\$7.1)	\$2.4	(\$1.4)	\$4.1	\$0.4	(\$0.1)	(\$0.9)	(\$1.8)	(\$1.4)	(\$3.4)	(\$3.5)
Capital Funding																				
CIP Expenditures																				
Repair and Replacement	\$6.6	\$6.8	\$7.0	\$7.2	\$7.4	\$7.6	\$12.5	\$12.9	\$13.3	\$13.7	\$3.5	\$3.6	\$3.7	\$3.9	\$4.0	\$4.1	\$4.2	\$4.3	\$4.5	\$4.6
Expansion	\$5.6	\$5.7	\$5.9	\$6.1	\$6.3	\$6.5	\$2.8	\$2.9	\$3.0	\$3.1	\$3.9	\$4.0	\$4.2	\$4.3	\$4.4	\$4.5	\$4.7	\$4.8	\$5.0	\$5.1
Total CIP Expenditures	\$12.2	\$12.5	\$12.9	\$13.3	\$13.7	\$14.1	\$15.3	\$15.8	\$16.2	\$16.7	\$7.5	\$7.7	\$7.9	\$8.1	\$8.4	\$8.6	\$8.9	\$9.2	\$9.4	\$9.7
CIP Funding Sources																				
Cash Funded (Fund 447 and 448)	\$12.2	\$12.5	\$12.9	\$13.3	\$13.7	\$14.1	\$15.3	\$15.8	\$16.2	\$12.7	\$7.5	\$5.4	\$7.9	\$8.1	\$8.4	\$8.6	\$8.9	\$9.2	\$9.4	\$9.7
Bond Proceeds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PayGo	-	-	-	-	-	-	-	-	-	4.1	-	2.3	-	-	-	-	-	-	-	-
Total Funding Sources	\$12.2	\$12.5	\$12.9	\$13.3	\$13.7	\$14.1	\$15.3	\$15.8	\$16.2	\$16.7	\$7.5	\$7.7	\$7.9	\$8.1	\$8.4	\$8.6	\$8.9	\$9.2	\$9.4	\$9.7
Projected Fund Balance																				
Water Operating Fund: 445	\$7.7	\$7.8	\$8.1	\$8.2	\$8.4	\$8.7	\$9.0	\$9.2	\$9.5	\$8.2	\$10.2	\$9.5	\$10.7	\$11.2	\$11.2	\$10.6	\$9.2	\$7.3	\$4.5	\$1.0
Water Construction fund: 448	35.0	31.8	28.3	24.3	20.0	20.0	18.1	15.6	10.4	5.0	5.5	5.0	7.9	7.9	7.9	7.9	7.8	8.9	8.9	9.7
Water System Development Fund: 447	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Emergency Fund: 446	3.2	3.2	3.2	3.3	3.4	3.4	3.5	3.6	3.6	3.7	3.8	3.9	3.9	4.0	4.1	4.2	4.3	4.3	4.4	4.5
Water Debt Service Reserve Fund	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Reserves	\$45.9	\$42.8	\$39.6	\$35.7	\$31.8	\$32.1	\$30.6	\$28.4	\$23.6	\$16.9	\$19.4	\$18.3	\$22.5	\$23.1	\$23.2	\$22.6	\$21.3	\$20.5	\$17.8	\$15.2

Notes:
Under the current funding strategy the City could meet the projected operational and capital requirements. However, reserve levels would drop significantly due to the need to use cash on hand to fund capital improvements. Additionally, this effect could be exacerbated in the event that revenues do not materialize as projected due to slower than expected growth, water conservation or other outside factors.

Appendix 9B

Option 1: No New Debt Issuances

All Monetary Values in Millions

Cash Flows	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034
Revenues																				
Pre-Increase Rate Revenue	\$27.9	\$29.7	\$30.0	\$30.4	\$30.7	\$31.5	\$32.1	\$32.7	\$33.2	\$33.7	\$34.1	\$34.4	\$35.0	\$35.5	\$35.9	\$36.3	\$36.8	\$37.3	\$37.7	\$38.2
Other Revenue	6.6	6.7	6.8	7.0	7.1	7.2	7.4	7.5	7.6	7.8	7.9	8.1	8.3	8.4	8.6	8.8	9.0	9.1	9.3	9.5
SDC Revenue	3.7	4.4	4.5	4.6	5.3	10.1	9.6	9.7	8.0	7.1	7.5	4.8	10.7	7.9	8.3	8.5	8.7	10.2	9.3	10.4
Debt Proceeds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adopted Rate Adjustments	5%	5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forecasted Adjustments	-	-	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Increase in Annual Revenue from New Rate Adjus	\$0.0	\$0.0	\$0.9	\$1.8	\$2.8	\$3.8	\$4.9	\$6.1	\$7.3	\$8.5	\$9.8	\$11.1	\$12.6	\$14.0	\$15.6	\$17.2	\$18.8	\$20.6	\$22.4	\$24.3
Post-Increase Revenue	\$38.2	\$40.8	\$42.2	\$43.8	\$46.0	\$52.6	\$54.0	\$56.0	\$56.1	\$57.1	\$59.4	\$58.5	\$66.6	\$65.9	\$68.4	\$70.8	\$73.3	\$77.2	\$78.8	\$82.5
Requirements																				
O&M	(\$29.9)	(\$31.0)	(\$32.0)	(\$33.1)	(\$34.2)	(\$35.4)	(\$36.6)	(\$37.9)	(\$39.2)	(\$40.5)	(\$41.9)	(\$43.2)	(\$44.8)	(\$46.2)	(\$47.8)	(\$49.4)	(\$51.0)	(\$52.8)	(\$54.5)	(\$56.4)
Debt	(0.6)	(0.6)	(0.1)	(0.1)	(0.1)	(0.1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capital Expenditures	(12.2)	(12.5)	(12.9)	(13.3)	(13.7)	(14.1)	(15.3)	(15.8)	(16.2)	(16.7)	(7.5)	(7.7)	(7.9)	(8.1)	(8.4)	(8.6)	(8.9)	(9.2)	(9.4)	(9.7)
Post-Increase Requirements	(\$42.7)	(\$44.2)	(\$45.0)	(\$46.5)	(\$47.9)	(\$49.5)	(\$51.9)	(\$53.6)	(\$55.4)	(\$57.2)	(\$49.3)	(\$50.9)	(\$52.7)	(\$54.4)	(\$56.2)	(\$58.0)	(\$59.9)	(\$61.9)	(\$64.0)	(\$66.1)
Post-Increase Cash Flow (Use of Reserves)	(\$4.5)	(\$3.3)	(\$2.8)	(\$2.7)	(\$2.0)	\$3.1	\$2.1	\$2.4	\$0.7	(\$0.1)	\$10.1	\$7.6	\$13.9	\$11.5	\$12.2	\$12.8	\$13.4	\$15.3	\$14.8	\$16.3
Capital Funding																				
CIP Expenditures																				
Repair and Replacement	\$6.6	\$6.8	\$7.0	\$7.2	\$7.4	\$7.6	\$12.5	\$12.9	\$13.3	\$13.7	\$3.5	\$3.6	\$3.7	\$3.9	\$4.0	\$4.1	\$4.2	\$4.3	\$4.5	\$4.6
Expansion	\$5.6	\$5.7	\$5.9	\$6.1	\$6.3	\$6.5	\$2.8	\$2.9	\$3.0	\$3.1	\$3.9	\$4.0	\$4.2	\$4.3	\$4.4	\$4.5	\$4.7	\$4.8	\$5.0	\$5.1
Total CIP Expenditures	\$12.2	\$12.5	\$12.9	\$13.3	\$13.7	\$14.1	\$15.3	\$15.8	\$16.2	\$16.7	\$7.5	\$7.7	\$7.9	\$8.1	\$8.4	\$8.6	\$8.9	\$9.2	\$9.4	\$9.7
CIP Funding Sources																				
Cash Funded (Fund 447 and 448)	\$12.2	\$12.5	\$12.9	\$13.3	\$13.7	\$14.1	\$15.3	\$15.8	\$16.2	\$16.7	\$7.5	\$7.7	\$7.9	\$8.1	\$8.4	\$8.6	\$8.9	\$9.2	\$9.4	\$9.7
Bond Proceeds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PayGo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Funding Sources	\$12.2	\$12.5	\$12.9	\$13.3	\$13.7	\$14.1	\$15.3	\$15.8	\$16.2	\$16.7	\$7.5	\$7.7	\$7.9	\$8.1	\$8.4	\$8.6	\$8.9	\$9.2	\$9.4	\$9.7
Projected Fund Balance																				
Water Operating Fund: 445	\$7.7	\$7.8	\$8.1	\$8.2	\$8.4	\$8.7	\$9.0	\$9.2	\$9.5	\$9.8	\$10.2	\$10.5	\$10.8	\$11.2	\$11.5	\$11.9	\$12.3	\$12.7	\$13.1	\$13.5
Water Construction fund: 448	35.0	31.8	29.0	26.5	24.5	27.7	30.0	32.7	33.8	34.2	44.9	53.3	68.3	81.0	94.7	109.1	124.2	141.6	158.7	177.6
Water System Development Fund: 447	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Emergency Fund: 446	3.2	3.2	3.2	3.3	3.4	3.4	3.5	3.6	3.6	3.7	3.8	3.9	3.9	4.0	4.1	4.2	4.3	4.3	4.4	4.5
Water Debt Service Reserve Fund	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Reserves	\$45.9	\$42.8	\$40.3	\$37.9	\$36.3	\$39.8	\$42.5	\$45.5	\$47.0	\$47.7	\$58.8	\$67.6	\$83.0	\$96.2	\$110.3	\$125.1	\$140.8	\$158.6	\$176.2	\$195.7

Notes:

Under this funding strategy, the City could implement rate increases near the level of inflation in each year. This practice is considered prudent financial planning as revenues are more likely to keep up with the expected inflationary increases in expenditures. Additionally the City would be able to absorb unforeseen increases in expenditures, or decreases in revenue slower than expected growth, water conservation or other outside factors. Due to the front loaded schedule of the CIP, expenditures drop in the later years of the projection period, leading to a buildup of fund balance in the construction fund. At that time, the City could undertake additional capital projects.

Appendix 9B

Option 2: Issue Additional Debt for CIP *No new debt is required with inflationary increases.*

All Monetary Values in Millions

Cash Flows	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034
Revenues																				
Pre-Increase Rate Revenue	\$27.9	\$29.7	\$30.0	\$30.4	\$30.7	\$31.5	\$32.1	\$32.7	\$33.2	\$33.7	\$34.1	\$34.4	\$35.0	\$35.5	\$35.9	\$36.3	\$36.8	\$37.3	\$37.7	\$38.2
Other Revenue	6.6	6.7	6.8	7.0	7.1	7.2	7.4	7.5	7.6	7.8	7.9	8.1	8.3	8.4	8.6	8.8	9.0	9.1	9.3	9.5
SDC Revenue	3.7	4.4	4.5	4.6	5.3	10.1	9.6	9.7	8.0	7.1	7.5	4.8	10.7	7.9	8.3	8.5	8.7	10.2	9.3	10.4
Debt Proceeds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adopted Rate Adjustments	5%	5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forecasted Adjustments	-	-	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Increase in Annual Revenue from New Rate Adjus	\$0.0	\$0.0	\$0.9	\$1.8	\$2.8	\$3.8	\$4.9	\$6.1	\$7.3	\$8.5	\$9.8	\$11.1	\$12.6	\$14.0	\$15.6	\$17.2	\$18.8	\$20.6	\$22.4	\$24.3
Post-Increase Revenue	\$38.2	\$40.8	\$42.2	\$43.8	\$46.0	\$52.6	\$54.0	\$56.0	\$56.1	\$57.1	\$59.4	\$58.5	\$66.6	\$65.9	\$68.4	\$70.8	\$73.3	\$77.2	\$78.8	\$82.5
Requirements																				
O&M	(\$29.9)	(\$31.0)	(\$32.0)	(\$33.1)	(\$34.2)	(\$35.4)	(\$36.6)	(\$37.9)	(\$39.2)	(\$40.5)	(\$41.9)	(\$43.2)	(\$44.8)	(\$46.2)	(\$47.8)	(\$49.4)	(\$51.0)	(\$52.8)	(\$54.5)	(\$56.4)
Debt	(0.6)	(0.6)	(0.1)	(0.1)	(0.1)	(0.1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capital Expenditures	(12.2)	(12.5)	(12.9)	(13.3)	(13.7)	(14.1)	(15.3)	(15.8)	(16.2)	(16.7)	(7.5)	(7.7)	(7.9)	(8.1)	(8.4)	(8.6)	(8.9)	(9.2)	(9.4)	(9.7)
Post-Increase Requirements	(\$42.7)	(\$44.2)	(\$45.0)	(\$46.5)	(\$47.9)	(\$49.5)	(\$51.9)	(\$53.6)	(\$55.4)	(\$57.2)	(\$49.3)	(\$50.9)	(\$52.7)	(\$54.4)	(\$56.2)	(\$58.0)	(\$59.9)	(\$61.9)	(\$64.0)	(\$66.1)
Post-Increase Cash Flow (Use of Reserves)	(\$4.5)	(\$3.3)	(\$2.8)	(\$2.7)	(\$2.0)	\$3.1	\$2.1	\$2.4	\$0.7	(\$0.1)	\$10.1	\$7.6	\$13.9	\$11.5	\$12.2	\$12.8	\$13.4	\$15.3	\$14.8	\$16.3
Capital Funding																				
CIP Expenditures																				
Repair and Replacement	\$6.6	\$6.8	\$7.0	\$7.2	\$7.4	\$7.6	\$12.5	\$12.9	\$13.3	\$13.7	\$3.5	\$3.6	\$3.7	\$3.9	\$4.0	\$4.1	\$4.2	\$4.3	\$4.5	\$4.6
Expansion	\$5.6	\$5.7	\$5.9	\$6.1	\$6.3	\$6.5	\$2.8	\$2.9	\$3.0	\$3.1	\$3.9	\$4.0	\$4.2	\$4.3	\$4.4	\$4.5	\$4.7	\$4.8	\$5.0	\$5.1
Total CIP Expenditures	\$12.2	\$12.5	\$12.9	\$13.3	\$13.7	\$14.1	\$15.3	\$15.8	\$16.2	\$16.7	\$7.5	\$7.7	\$7.9	\$8.1	\$8.4	\$8.6	\$8.9	\$9.2	\$9.4	\$9.7
CIP Funding Sources																				
Cash Funded (Fund 447 and 448)	\$12.2	\$12.5	\$12.9	\$13.3	\$13.7	\$14.1	\$15.3	\$15.8	\$16.2	\$16.7	\$7.5	\$7.7	\$7.9	\$8.1	\$8.4	\$8.6	\$8.9	\$9.2	\$9.4	\$9.7
Bond Proceeds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PayGo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Funding Sources	\$12.2	\$12.5	\$12.9	\$13.3	\$13.7	\$14.1	\$15.3	\$15.8	\$16.2	\$16.7	\$7.5	\$7.7	\$7.9	\$8.1	\$8.4	\$8.6	\$8.9	\$9.2	\$9.4	\$9.7
Projected Fund Balance																				
Water Operating Fund: 445	\$7.7	\$7.8	\$8.1	\$8.2	\$8.4	\$8.7	\$9.0	\$9.2	\$9.5	\$9.8	\$10.2	\$10.5	\$10.8	\$11.2	\$11.5	\$11.9	\$12.3	\$12.7	\$13.1	\$13.5
Water Construction fund: 448	35.0	31.8	29.0	26.5	24.5	27.7	30.0	32.7	33.8	34.2	44.9	53.3	68.3	81.0	94.7	109.1	124.2	141.6	158.7	177.6
Water System Development Fund: 447	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Emergency Fund: 446	3.2	3.2	3.2	3.3	3.4	3.4	3.5	3.6	3.6	3.7	3.8	3.9	3.9	4.0	4.1	4.2	4.3	4.3	4.4	4.5
Water Debt Service Reserve Fund	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Reserves	\$45.9	\$42.8	\$40.3	\$37.9	\$36.3	\$39.8	\$42.5	\$45.5	\$47.0	\$47.7	\$58.8	\$67.6	\$83.0	\$96.2	\$110.3	\$125.1	\$140.8	\$158.6	\$176.2	\$195.7

Notes:

Under this funding strategy, the City could implement rate increases near the level of inflation in each year, and no additional debt would be required. However the City could elect to debt fund capital expenditures in the short term in order to mitigate a portion of the reserve drawdown in the early years of the projection period. Due to the front loaded schedule of the CIP, expenditures drop in the later years of the projection period, leading to a buildup of fund balance in the construction fund. At that time, the City could undertake additional capital projects.

**APPENDIX 10A – STATE ENVIRONMENTAL POLICY ACT
(SEPA) CHECKLIST**

A. BACKGROUND

1. Name of proposed project, if applicable: *City of Vancouver Comprehensive Water System Plan*

2. Name of applicant: *City of Vancouver*

3. Address and phone number of applicant and contact person:

<i>Applicant</i>	<i>Contact Person</i>
<i>City of Vancouver</i>	<i>City of Vancouver</i>
<i>Tracy Tuntland</i>	<i>Tracy Tuntland</i>
<i>PO Box 1995</i>	<i>PO Box 1995</i>
<i>Vancouver, WA 98668-1995</i>	<i>Vancouver, WA 98668-1995</i>
<i>(360)487-7168</i>	<i>(360)487-7168</i>

4. Date checklist prepared: *April 15, 2015*

5. Agency requesting checklist: *City of Vancouver*

6. Proposed timing or schedule (including phasing, if applicable): *The City of Vancouver Comprehensive Water System Plan (Plan) is scheduled for adoption during 2015 and identifies near-term projects for the next six years, mid-term projects for the next ten years, and long-term projects over the next twenty years. A suggested capital improvement schedule is included in Chapter 8 of the Plan.*

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

No. This Plan lists capital improvement projects planned by the City within the next six years, ten years, and also longer-term projects over the next twenty years. Proposed locations are shown in the proposed Comprehensive Water System Plan. Projects identified in the Plan that are not SEPA exempt will undergo review at the project level.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Additional environmental documents may be required for implementation of specific projects recommended in the Plan. Completion of individual environmental checklists and threshold determination will be accomplished as specified projects are proposed for construction.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

None are applicable to this proposal.

10. List any government approvals or permits that will be needed for your proposal, if known.

The Water System Plan will need to be approved by the Washington Department of Health, adopted by the Vancouver City Council, and reviewed for consistency by Clark County.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

This proposal contemplates adoption of the City of Vancouver Comprehensive Water System Plan, which supersedes the existing Comprehensive Water System Plan adopted in 2007. It addresses future water service to all areas within the City's retail water service area. The purpose of this Plan is to document changes to the water system, identify required system improvements based on demand projections, hydraulic analyses, and minimum design criteria, and to outline a capital improvement schedule while ensuring the water utility is well managed and financially stable.

Vancouver's water is supplied entirely from groundwater resources. An average of 23 million gallons every day is pumped out of 40 wells that take water from 3 different aquifers. The City's major water system facilities include 11 water station sites and 4 additional sites with booster pumps. Water station sites are typically composed of a variety of facilities, including source wells, water treatment facilities, ground level reservoirs, elevated storage tanks, booster pump stations, flowmeters, and auxiliary power generators. Vancouver's water system also includes close to 1,000 miles of transmission mains and distribution system piping.

No changes to the water service area or sources of supply are proposed in this plan. However, the Plan update includes an up-to-date Wellhead Protection Plan.

Capital improvement projects are included in the Plan and are intended to serve additional growth and improve the reliability and security of the City's water system. These improvements include pipeline replacements, transmission main installations, installation of standby power generation facilities with some additional booster pumping capacity, maintenance and replacement of existing wells, installation or modifications to equipment in existing structures, and modifications to chlorine treatment systems.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

In general, the City water Utility is located in the southwest corner of Clark County on the north side of the Columbia River. The Vancouver Service Area is approximately 72 square miles including both the incorporated city limits and unincorporated areas of Clark County surrounding the city.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other

b. What is the steepest slope on the site (approximate percent slope)? *The city contains slopes exceeding 40%. Specific slope information will be determined during project-specific environmental review when the precise location of each project is identified.*

- c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.**

Soil types underlying the plan area are predominantly of the Hillsboro-Dollar-Cove and Lauren-Sifton-Wind River associations. These associations are based on the 1971 Soil Survey of Clark County (USDA, SCS 1972) The Hillsboro-Dollar-Cove association consists of deep, well- to poorly-drained, medium textured soils on nearly level to sloping terraces. The Lauren-Sifton-Wind River association consists of somewhat excessively drained, gravelly, medium-textured and moderately coarse-textured soils on nearly-level to gently sloping terraces.

- d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.**

According to the City of Vancouver critical areas map for Landslide and Soil Erosion Hazard Areas, there are several locations of landslide hazard and soil erosion hazard areas throughout the city.

- e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.**

Excavation, filling, and grading will occur during pipeline replacement, construction of standby power and booster pumping facilities, and replacement of flowmeters. Grade and fill quantities have not been estimated at this time. More specific information will be available during preliminary design of individual projects. If necessary, a grading permit and/or fill permit will be obtained.

- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.**

Excavation of transmission and distribution pipes, and construction activities such as site clearing, excavation, grading, materials handling, and stockpiling could temporarily increase erosion potential. More detailed analysis of erosion potential, including excavation and fill volumes, would occur during project-specific review. Once constructed, operation of the proposed facilities would not cause erosion.

- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?**

Does not apply to this non-project action. There may be slight increases in impervious surfaces as a result of the additional buildings proposed in the capital improvement plan. However, water system projects rarely create impervious surfaces. Most of the water distribution system is installed under existing roadways or in easements where structures are prohibited. Specific projects will be subject to individual environmental review before implementation.

- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:**

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation. However, where applicable, erosion and sedimentation control measures, together with best management practices will be used in all areas of potential erosion.

2. Air

- a. **What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.**

Air quality effects associated with capital improvement projects in the plan will be temporary and occur from construction activities such as increased dust from excavation and increased exhaust from construction vehicles and equipment. These emissions are expected to be minimal and localized at the point of active construction.

- b. **Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.**

There are no off-site sources of emissions or odor that may affect the proposal.

- c. **Proposed measures to reduce or control emissions or other impacts to air, if any:**

Specific projects will be subject to individual environmental review before implementation. However, construction equipment will be equipped with standard air filtering devices, and dust control measures will be utilized during construction of projects recommended by this Plan to minimize impacts to air quality.

3. Water

- a. **Surface:**

- 1) **Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.**

Pipeline construction would occur in the vicinity of several bodies of water throughout the service area, including multiple locations along Burnt Bridge Creek, Cold Creek, Curtain Creek, and Fisher Creek, near the Columbia River.

- 2) **Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.**

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation.

- 3) **Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.**

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation.

- 4) **Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.**

Does not apply to this non-project action. The proposed non-project action consists of adoption of the Comprehensive Water System Plan, which will not itself result in the withdrawal of surface water.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

Does not apply to this non-project action.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

Does not apply to this non-project action.

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

Does not apply to this non-project action. The proposed non-project action consists of adoption of the Comprehensive Water System Plan, which will not itself result in the withdrawal of groundwater. The City's water sources are described in detail in the Plan, which includes detailed information on water rights, and ground water withdrawals. Groundwater withdrawals are in accordance with regulations promulgated by the Washing State Department of Ecology and existing groundwater rights as identified in the Plan.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste material will be discharged in the ground as a result of this Plan.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Does not apply to this non-project action.

2) Could waste materials enter ground or surface waters? If so, generally describe.

Does not apply to this non-project action.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation.

4. Plants

a. Check or circle types of vegetation found on the site:

- _____ deciduous tree: alder, maple, aspen, other
- _____ evergreen tree: fir, cedar, pine, other
- _____ shrubs
- _____ grass
- _____ pasture
- _____ crop or grain
- _____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
- _____ water plants: water lily, eelgrass, milfoil, other
- _____ other types of vegetation

Does not apply to this non-project action. A wide variety of plants exist across the water service area. Existing vegetation will be addressed with individual construction projects.

b. What kind and amount of vegetation will be removed or altered?

Does not apply to this non-project action. Adoption of the Plan will not itself result in the direct alteration of the environment. With the exception of some of the work at individual water stations, the majority of work contemplated in the Plan will occur in dedicated rights-of-way. In most cases, disturbed vegetation will be replaced and sites will be restored to pre-construction condition where appropriate.

c. List threatened or endangered species known to be on or near the site.

Does not apply to this non-project action. Any threatened or endangered species on or near the recommended project areas of this Plan will be listed at the time of the environmental review process for each individual project.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation.

5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

- birds:** hawk, heron, eagle, songbirds, other:
- mammals:** deer, bear, elk, beaver, other:
- fish:** bass, salmon, trout, herring, shellfish, other:

Does not apply to this non-project action. Existing animals will be addressed for individual construction projects.

b. List any threatened or endangered species known to be on or near the site.

Does not apply to this non-project action. Threatened or endangered species will be addressed for individual construction projects.

c. Is the site part of a migration route? If so, explain.

Does not apply to this non-project action. Migration routes will be addressed at the time of the environmental review process for individual projects.

d. Proposed measures to preserve or enhance wildlife, if any:

Does not apply to this non-project action. Necessary measures to preserve wildlife will be addressed at the time of the environmental review process for individual projects.

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Does not apply to this non-project action. Adoption of the Plan will not itself use energy. Specific projects will be subject to individual review to establish energy and natural resource needs.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

Does not apply to this non-project action.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Does not apply to this non-project action.

7. Environmental health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation.

1) Describe special emergency services that might be required.

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation.

2) Proposed measures to reduce or control environmental health hazards, if any:

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Does not apply to this non-project action.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Does not apply to this non-project action.

3) Proposed measures to reduce or control noise impacts, if any:

Does not apply to this non-project action. Noise impacts will be addressed at the time of the environmental review process for individual projects.

8. Land and shoreline use

a. What is the current use of the site and adjacent properties?

Does not apply to this non-project action. However, the water service area is composed of various land uses including residential, commercial, industrial, institutional, parks, and open space.

b. Has the site been used for agriculture? If so, describe.

Does not apply to this non-project action.

c. Describe any structures on the site.

Does not apply to this non-project action.

d. Will any structures be demolished? If so, what?

Does not apply to this non-project action. However, several structures will be removed with projects in the Capital Improvement Plan, and impacts will be dealt with during review of those specific projects.

e. What is the current zoning classification of the site?

The plan area is an urban environment and includes a variety of zoning classifications.

f. What is the current comprehensive plan designation of the site?

The City of Vancouver Comprehensive Plan designations vary throughout the plan area.

g. If applicable, what is the current shoreline master program designation of the site?

Shoreline designations vary, depending on the location within the plan area.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

Sensitive areas are those considered Critical Areas by the City of Vancouver and Clark County. Construction of specific projects in environmentally sensitive areas will require coordination with jurisdictional agencies and implementation of mitigation measures in accordance with permitted activities.

i. Approximately how many people would reside or work in the completed project?

Does not apply to this non-project action.

j. Approximately how many people would the completed project displace?

Does not apply to this non-project action.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Does not apply to this non-project action.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The Comprehensive Water System Plan was developed as a guideline for responding to growth and land uses projected by the both the City and Clark County. Land use documents were evaluated during planning to ensure consistency with the Plan.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

Does not apply to this non-project action. Adoption of the Comprehensive Water System Plan will not provide housing units. The Plan's programs and projects are not intended to provide housing units.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

Does not apply to this non-project action. The Plan's programs and projects are not intended to eliminate housing units.

c. Proposed measures to reduce or control housing impacts, if any:

Does not apply to this non-project action.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Does not apply to this non-project action. Adoption of the Comprehensive Water System Plan will not itself result in a structure. The height of any proposed structures will be determined at the time of design.

b. What views in the immediate vicinity would be altered or obstructed?

Does not apply to this non-project action.

c. Proposed measures to reduce or control aesthetic impacts, if any:

Does not apply to this non-project action.

11. Light and glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Does not apply to this non-project action. Adoption of the Comprehensive Water System Plan will not itself result in light or glare.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Does not apply to this non-project action.

c. What existing off-site sources of light or glare may affect your proposal?

Does not apply to this non-project action.

d. Proposed measures to reduce or control light and glare impacts, if any:

Does not apply to this non-project action.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

Does not apply to this non-project action.

b. Would the proposed project displace any existing recreational uses? If so, describe.

Does not apply to this non-project action. Several water department owned properties allow on-site public recreation and some of the projects outlined in the Plan may impact public recreation. These impacts will be evaluated individually with each project.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

Does not apply to this non-project action.

13. Historic and cultural preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

Does not apply to this non-project action.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

Does not apply to this non-project action. Required historical or archeological studies will take place with individual projects.

c. Proposed measures to reduce or control impacts, if any:

Does not apply to this non-project action.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

Wide varieties of streets exist in the water service area and serve the City of Vancouver. These include Interstate 5 and Interstate 205 as well as various state highways, arterials, and local streets.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

Does not apply to this non-project action.

c. How many parking spaces would the completed project have? How many would the project eliminate?

Does not apply to this non-project action.

- d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).**

Does not apply to this non-project action.

- e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.**

Does not apply to this non-project action.

- f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.**

Does not apply to this non-project action.

- g. Proposed measures to reduce or control transportation impacts, if any:**

Does not apply to this non-project action.

15. Public services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.**

Does not apply to this non-project action.

- b. Proposed measures to reduce or control direct impacts on public services, if any.**

Does not apply to this non-project action. However, implementation of the proposed projects within the City of Vancouver Comprehensive Water System Plan will increase the capabilities of the water system to meet future domestic water demands and fire flow requirements.

16. Utilities

- a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.**

Does not apply to this non-project action.

- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.**

Does not apply to this non-project action.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature:

Date Submitted:

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Overall, adoption of the Plan is not likely to increase discharge to water or produce or release additional toxic or hazardous substances to the environment. The plan is intended to outline the direction of the management of the water system in order to protect the quantity and quality of drinking water for customers of the Vancouver Service Area.

However, the recommended projects of the Plan do have the potential to result in discharges to water and air. As the plan is responsive to population growth in Vancouver and a need for increased reliability of water service, additional wells or modifications to increase water rights utilization proposed in the plan may increase the withdrawal of groundwater. The addition of new pumps and standby generators will increase potential noise impacts from the facilities. In addition, the plan will increase the amount of diesel fuel stored on-site to power these generators. Increased air emissions from standby engine generators will occur, but this will happen only during emergencies and during routine operation for maintenance. There may be slight increases in impervious surfaces as a result of the additional buildings proposed in the capital improvement plan. Projects that are subject to environmental review will be evaluated for potential impacts and corresponding mitigation measures prior to implementation.

Proposed measures to avoid or reduce such increases are:

No specific mitigation is proposed for the Plan adoption.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

The Plan adoption will not affect plants, animals, fish, or marine life. There may be short term impacts on plants, fish, and wildlife as a result of construction activities proposed in the plan. Construction of these projects may temporarily remove existing vegetation and/or disturb wildlife habitat. Projects that are subject to environmental review will be evaluated for their potential impacts and corresponding mitigation measures prior to implementation.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

No such measures are proposed for the Plan Adoption.

3. How would the proposal be likely to deplete energy or natural resources?

The Plan adoption will not deplete energy or natural resources. However, proposed projects and maintenance activities within the Plan may require use of energy and natural resources.

Proposed measures to protect or conserve energy and natural resources are:

Newly designed facilities will conserve power by utilizing energy efficient equipment. The City of Vancouver's Water Use Efficiency program, as outlined in the Plan will result in conservation of water and energy.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

The Plan adoption will not impact any of the above-listed areas. While programs and projects proposed in the Plan may occur in the immediate vicinity of sensitive areas, the potential impacts from these actions are currently unknown. Projects that impact sensitive areas will require coordination with jurisdictional agencies and implementation of mitigation measure in accordance with permitted activities. Conformance with applicable local, state and federal guidelines and regulations would be required.

Proposed measures to protect such resources or to avoid or reduce impacts are:

No such measures are proposed for the Plan adoption. Individual measures will be addressed as appropriate and practical for each individual project.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

The Comprehensive Water System Plan does not allow for, or encourage, uses incompatible with existing plans. Specific projects will be subject to individual environmental review before implementation. Any future work completed by the City of Vancouver Water Department will be consistent with the rules and regulations governing the protection of such resources.

Proposed measures to avoid or reduce shoreline and land use impacts are:

Proposed projects will be reviewed on an individual basis and addressed by the appropriate agencies prior to implementation. Conformance with the applicable local, state, and federal guidelines and regulations would be required.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Adoption of the Comprehensive Water System Plan will not increase the demand for transportation, public services, or utilities. The Plan will serve as a guideline for future water system development in support of land use plans of agencies having jurisdiction.

Proposed measures to reduce or respond to such demand(s) are:

No measures are proposed for the Plan adoption.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

The plan and its proposed capital improvement projects are intended to comply with all applicable laws and requirements.

**APPENDIX 10B – NOTICE OF DETERMINATION OF
NON-SIGNIFICANCE (DNS)**



July 21, 2015

**Notice of Determination of Nonsignificance (DNS)
City of Vancouver Comprehensive Water System Plan**

The City of Vancouver, lead agency, has reviewed the Environmental Checklist as required by WAC 197-11-330(1)(a). It has been determined that the following described project will not have a probable significant adverse impact on the environment. Under the authority of WAC 197-11-330(1) and 197-11-340, a Determination of Nonsignificance (DNS) has been issued. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

The proposal, which is subject to the State Environmental Policy Act (SEPA) review, is as follows:

Project Description: This is a non-project proposal for the Comprehensive Water System Plan.

Project Location: This is a non-point proposal.

Lead Agency: City of Vancouver
PO Box 1995
Vancouver, WA 98668-1995

Contact Person: Tracy Tuntland
Water System Planning and Design
P.O. Box 1995
Vancouver, WA 98668-1995
(360) 487-7168

This DNS is issued under WAC 197-11-340(2). **Comments regarding this decision should be made in writing to the responsible official by 5 p.m., Friday, July 31, 2015.**

Responsible Official: Tyler Clary, Water Engineering Program Manager
Email Address: Tyler.Clary@cityofvancouver.us
Telephone: (360) 487-7169
Mailing Address: City of Vancouver
PO Box 1995
Vancouver, WA 98668-1995

Tyler Clary, Water Engineering Program Manager

7/14/15

Date

A. BACKGROUND

1. Name of proposed project, if applicable: *City of Vancouver Comprehensive Water System Plan*

2. Name of applicant: *City of Vancouver*

3. Address and phone number of applicant and contact person:

Applicant:

City of Vancouver

Tracy Tuntland

PO Box 1995

Vancouver, WA 98668-1995

(360)487-7168

Contact Person:

City of Vancouver

Tracy Tuntland

PO Box 1995

Vancouver, WA 98668-1995

(360)487-7168

4. Date checklist prepared: *April 15, 2015*

5. Agency requesting checklist: *City of Vancouver*

6. Proposed timing or schedule (including phasing, if applicable): *The City of Vancouver Comprehensive Water System Plan (Plan) is scheduled for adoption during 2015 and identifies near-term projects for the next six years, mid-term projects for the next ten years, and long-term projects over the next twenty years. A suggested capital improvement schedule is included in Chapter 8 of the Plan.*

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

No. This Plan lists capital improvement projects planned by the City within the next six years, ten years, and also longer-term projects over the next twenty years. Proposed locations are shown in the proposed Comprehensive Water System Plan. Projects identified in the Plan that are not SEPA exempt will undergo review at the project level.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Additional environmental documents may be required for implementation of specific projects recommended in the Plan. Completion of individual environmental checklists and threshold determination will be accomplished as specified projects are proposed for construction.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

None are applicable to this proposal.

10. List any government approvals or permits that will be needed for your proposal, if known.

The Water System Plan will need to be approved by the Washington Department of Health, adopted by the Vancouver City Council, and reviewed for consistency by Clark County.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

This proposal contemplates adoption of the City of Vancouver Comprehensive Water System Plan, which supersedes the existing Comprehensive Water System Plan adopted in 2007. It addresses future water service to all areas within the City's retail water service area. The purpose of this Plan is to document changes to the water system, identify required system improvements based on demand projections, hydraulic analyses, and minimum design criteria, and to outline a capital improvement schedule while ensuring the water utility is well managed and financially stable.

Vancouver's water is supplied entirely from groundwater resources. An average of 23 million gallons every day is pumped out of 40 wells that take water from 3 different aquifers. The City's major water system facilities include 11 water station sites and 4 additional sites with booster pumps. Water station sites are typically composed of a variety of facilities, including source wells, water treatment facilities, ground level reservoirs, elevated storage tanks, booster pump stations, flowmeters, and auxiliary power generators. Vancouver's water system also includes close to 1,000 miles of transmission mains and distribution system piping.

No changes to the water service area or sources of supply are proposed in this plan. However, the Plan update includes an up-to-date Wellhead Protection Plan.

Capital improvement projects are included in the Plan and are intended to serve additional growth and improve the reliability and security of the City's water system. These improvements include pipeline replacements, transmission main installations, installation of standby power generation facilities with some additional booster pumping capacity, maintenance and replacement of existing wells, installation or modifications to equipment in existing structures, and modifications to chlorine treatment systems.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

In general, the City water Utility is located in the southwest corner of Clark County on the north side of the Columbia River. The Vancouver Service Area is approximately 72 square miles including both the incorporated city limits and unincorporated areas of Clark County surrounding the city.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. **General description of the site (circle one):** Flat, rolling, hilly, steep slopes, mountainous, other.

b. **What is the steepest slope on the site (approximate percent slope)?** *The city contains slopes exceeding 40%. Specific slope information will be determined during project-specific environmental review when the precise location of each project is identified.*

c. **What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.**

Soil types underlying the plan area are predominantly of the Hillsboro-Dollar-Cove and Lauren-Sifton-Wind River associations. These associations are based on the 1971 Soil Survey of Clark County (USDA, SCS 1972) The Hillsboro-Dollar-Cove association consists of deep, well-to poorly-drained, medium textured soils on nearly level to sloping terraces. The Lauren-Sifton-Wind River association consists of somewhat excessively drained, gravelly, medium-textured and moderately course-textured soils on nearly-level to gently sloping terraces.

d. **Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.**

According to the City of Vancouver critical areas map for Landslide and Soil Erosion Hazard Areas, there are several locations of landslide hazard and soil erosion hazard areas throughout the city.

e. **Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.**

Excavation, filling, and grading will occur during pipeline replacement, construction of standby power and booster pumping facilities, and replacement of flowmeters. Grade and fill quantities have not been estimated at this time. More specific information will be available during preliminary design of individual projects. If necessary, a grading permit and/or fill permit will be obtained.

f. **Could erosion occur as a result of clearing, construction, or use? If so, generally describe.**

Excavation of transmission and distribution pipes, and construction activities such as site clearing, excavation, grading, materials handling, and stockpiling could temporarily increase erosion potential. More detailed analysis of erosion potential, including excavation and fill volumes, would occur during project-specific review. Once constructed, operation of the proposed facilities would not cause erosion.

g. **About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?**

Does not apply to this non-project action. There may be slight increases in impervious surfaces as a result of the additional buildings proposed in the capital improvement plan. However, water system

projects rarely create impervious surfaces. Most of the water distribution system is installed under existing roadways or in easements where structures are prohibited. Specific projects will be subject to individual environmental review before implementation.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation. However, where applicable, erosion and sedimentation control measures, together with best management practices will be used in all areas of potential erosion.

2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Air quality effects associated with capital improvement projects in the plan will be temporary and occur from construction activities such as increased dust from excavation and increased exhaust from construction vehicles and equipment. These emissions are expected to be minimal and localized at the point of active construction.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

There are no off-site sources of emissions or odor that may affect the proposal.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Specific projects will be subject to individual environmental review before implementation. However, construction equipment will be equipped with standard air filtering devices, and dust control measures will be utilized during construction of projects recommended by this Plan to minimize impacts to air quality.

3. Water

a. Surface:

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.**

Pipeline construction would occur in the vicinity of several bodies of water throughout the service area, including multiple locations along Burnt Bridge Creek, Cold Creek, Curtain Creek, and Fisher Creek, near the Columbia River.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

Does not apply to this non-project action. The proposed non-project action consists of adoption of the Comprehensive Water System Plan, which will not itself result in the withdrawal of surface water.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

Does not apply to this non-project action.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

Does not apply to this non-project action.

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

Does not apply to this non-project action. The proposed non-project action consists of adoption of the Comprehensive Water System Plan, which will not itself result in the withdrawal of groundwater. The City's water sources are described in detail in the Plan, which includes detailed information on water rights, and ground water withdrawals. Groundwater withdrawals are in accordance with regulations promulgated by the

Washington State Department of Ecology and existing groundwater rights as identified in the Plan.

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.**

No waste material will be discharged in the ground as a result of this Plan.

c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

Does not apply to this non-project action.

- 2) Could waste materials enter ground or surface waters? If so, generally describe.**

Does not apply to this non-project action.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation.

4. Plants

a. Check or circle types of vegetation found on the site:

_____ deciduous tree: alder, maple, aspen, other

_____ evergreen tree: fir, cedar, pine, other

_____ shrubs

_____ grass

_____ pasture

_____ crop or grain

_____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

_____ water plants: water lily, eelgrass, milfoil, other

_____ other types of vegetation

Does not apply to this non-project action. A wide variety of plants exist across the water service area. Existing vegetation will be addressed with individual construction projects.

b. What kind and amount of vegetation will be removed or altered?

Does not apply to this non-project action. Adoption of the Plan will not itself result in the direct alteration of the environment. With the exception of some of the work at individual water stations, the majority of work contemplated in the Plan will occur in dedicated rights-of-way. In most cases, disturbed vegetation will be replaced and sites will be restored to pre-construction condition where appropriate.

c. List threatened or endangered species known to be on or near the site.

Does not apply to this non-project action. Any threatened or endangered species on or near the recommended project areas of this Plan will be listed at the time of the environmental review process for each individual project.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation.

5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other:

Does not apply to this non-project action. Existing animals will be addressed for individual construction projects.

b. List any threatened or endangered species known to be on or near the site.

Does not apply to this non-project action. Threatened or endangered species will be addressed for individual construction projects.

c. Is the site part of a migration route? If so, explain.

Does not apply to this non-project action. Migration routes will be addressed at the time of the environmental review process for individual projects.

d. Proposed measures to preserve or enhance wildlife, if any:

Does not apply to this non-project action. Necessary measures to preserve wildlife will be addressed at the time of the environmental review process for individual projects.

6. Energy and natural resources

- a. **What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.**

Does not apply to this non-project action. Adoption of the Plan will not itself use energy. Specific projects will be subject to individual review to establish energy and natural resource needs.

- b. **Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.**

Does not apply to this non-project action.

- c. **What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:**

Does not apply to this non-project action.

7. Environmental health

- a. **Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.**

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation.

- 1) Describe special emergency services that might be required.**

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation.

- 2) Proposed measures to reduce or control environmental health hazards, if any:**

Does not apply to this non-project action. Specific projects will be subject to individual environmental review before implementation.

b. Noise

- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?**

Does not apply to this non-project action.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Does not apply to this non-project action.

3) Proposed measures to reduce or control noise impacts, if any:

Does not apply to this non-project action. Noise impacts will be addressed at the time of the environmental review process for individual projects.

8. Land and shoreline use

a. What is the current use of the site and adjacent properties?

Does not apply to this non-project action. However, the water service area is composed of various land uses including residential, commercial, industrial, institutional, parks, and open space.

b. Has the site been used for agriculture? If so, describe.

Does not apply to this non-project action.

c. Describe any structures on the site.

Does not apply to this non-project action.

d. Will any structures be demolished? If so, what?

Does not apply to this non-project action. However, several structures will be removed with projects in the Capital Improvement Plan, and impacts will be dealt with during review of those specific projects.

e. What is the current zoning classification of the site?

The plan area is an urban environment and includes a variety of zoning classifications.

f. What is the current comprehensive plan designation of the site?

The City of Vancouver Comprehensive Plan designations vary throughout the plan area.

g. If applicable, what is the current shoreline master program designation of the site?

Shoreline designations vary, depending on the location within the plan area.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

Sensitive areas are those considered Critical Areas by the City of Vancouver and Clark County. Construction of specific projects in environmentally sensitive areas will require coordination with jurisdictional agencies and implementation of mitigation measures in accordance with permitted activities.

i. Approximately how many people would reside or work in the completed project?

Does not apply to this non-project action.

j. Approximately how many people would the completed project displace?

Does not apply to this non-project action.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Does not apply to this non-project action.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The Comprehensive Water System Plan was developed as a guideline for responding to growth and land uses projected by the both the City and Clark County. Land use documents were evaluated during planning to ensure consistency with the Plan.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

Does not apply to this non-project action. Adoption of the Comprehensive Water System Plan will not provide housing units. The Plan's programs and projects are not intended to provide housing units.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

Does not apply to this non-project action. The Plan's programs and projects are not intended to eliminate housing units.

c. Proposed measures to reduce or control housing impacts, if any:

Does not apply to this non-project action.

10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?**

Does not apply to this non-project action. Adoption of the Comprehensive Water System Plan will not itself result in a structure. The height of any proposed structures will be determined at the time of design.

- b. What views in the immediate vicinity would be altered or obstructed?**

Does not apply to this non-project action.

- c. Proposed measures to reduce or control aesthetic impacts, if any:**

Does not apply to this non-project action.

11. Light and glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?**

Does not apply to this non-project action. Adoption of the Comprehensive Water System Plan will not itself result in light or glare.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?**

Does not apply to this non-project action.

- c. What existing off-site sources of light or glare may affect your proposal?**

Does not apply to this non-project action.

- d. Proposed measures to reduce or control light and glare impacts, if any:**

Does not apply to this non-project action.

12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity?**

Does not apply to this non-project action.

- b. Would the proposed project displace any existing recreational uses? If so, describe.**

Does not apply to this non-project action. Several water department owned properties allow on-site public recreation and some of the projects outlined in the Plan may impact public recreation. These impacts will be evaluated individually with each project.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

Does not apply to this non-project action.

13. Historic and cultural preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

Does not apply to this non-project action.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

Does not apply to this non-project action. Required historical or archeological studies will take place with individual projects.

c. Proposed measures to reduce or control impacts, if any:

Does not apply to this non-project action.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

Wide varieties of streets exist in the water service area and serve the City of Vancouver. These include Interstate 5 and Interstate 205 as well as various state highways, arterials, and local streets.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

Does not apply to this non-project action.

c. How many parking spaces would the completed project have? How many would the project eliminate?

Does not apply to this non-project action.

- d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).**

Does not apply to this non-project action.

- e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.**

Does not apply to this non-project action.

- f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.**

Does not apply to this non-project action.

- g. Proposed measures to reduce or control transportation impacts, if any:**

Does not apply to this non-project action.

15. Public services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.**

Does not apply to this non-project action.

- b. Proposed measures to reduce or control direct impacts on public services, if any.**

Does not apply to this non-project action. However, implementation of the proposed projects within the City of Vancouver Comprehensive Water System Plan will increase the capabilities of the water system to meet future domestic water demands and fire flow requirements.

16. Utilities

- a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.**

Does not apply to this non-project action.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Does not apply to this non-project action.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature:

Date Submitted:

D. SUPPLEMENTAL SHEET FOR NON-PROJECT ACTIONS

(do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Overall, adoption of the Plan is not likely to increase discharge to water or produce or release additional toxic or hazardous substances to the environment. The plan is intended to outline the direction of the management of the water system in order to protect the quantity and quality of drinking water for customers of the Vancouver Service Area.

However, the recommended projects of the Plan do have the potential to result in discharges to water and air. As the plan is responsive to population growth in Vancouver and a need for increased reliability of water service, additional wells or modifications to increase water rights utilization proposed in the plan may increase the withdrawal of groundwater. The addition of new pumps and standby generators will increase potential noise impacts from the facilities. In addition, the plan will increase the amount of diesel fuel stored on-site to power these generators. Increased air emissions from standby engine generators will occur, but this will happen only during emergencies and during routine operation for maintenance. There may be slight increases in impervious surfaces as a result of the additional buildings proposed in the capital improvement plan. Projects that are subject to environmental review will be evaluated for potential impacts and corresponding mitigation measures prior to implementation.

Proposed measures to avoid or reduce such increases are:

No specific mitigation is proposed for the Plan adoption.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

The Plan adoption will not affect plants, animals, fish, or marine life. There may be short term impacts on plants, fish, and wildlife as a result of construction activities proposed in the plan. Construction of these projects may temporarily remove existing vegetation and/or disturb wildlife habitat. Projects that are subject to environmental review will be evaluated for their potential impacts and corresponding mitigation measures prior to implementation.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

No such measures are proposed for the Plan Adoption.

3. How would the proposal be likely to deplete energy or natural resources?

The Plan adoption will not deplete energy or natural resources. However, proposed projects and maintenance activities within the Plan may require use of energy and natural resources.

Proposed measures to protect or conserve energy and natural resources are:

Newly designed facilities will conserve power by utilizing energy efficient equipment. The City of Vancouver's Water Use Efficiency program, as outlined in the Plan will result in conservation of water and energy.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

The Plan adoption will not impact any of the above-listed areas. While programs and projects proposed in the Plan may occur in the immediate vicinity of sensitive areas, the potential impacts from these actions are currently unknown. Projects that impact sensitive areas will require coordination with jurisdictional agencies and implementation of mitigation measure in accordance with permitted activities. Conformance with applicable local, state and federal guidelines and regulations would be required.

Proposed measures to protect such resources or to avoid or reduce impacts are:

No such measures are proposed for the Plan adoption. Individual measures will be addressed as appropriate and practical for each individual project.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

The Comprehensive Water System Plan does not allow for, or encourage, uses incompatible with existing plans. Specific projects will be subject to individual environmental review before implementation. Any future work completed by the City of Vancouver Water Department will be consistent with the rules and regulations governing the protection of such resources.

Proposed measures to avoid or reduce shoreline and land use impacts are:

Proposed projects will be reviewed on an individual basis and addressed by the appropriate agencies prior to implementation. Conformance with the applicable local, state, and federal guidelines and regulations would be required.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Adoption of the Comprehensive Water System Plan will not increase the demand for transportation, public services, or utilities. The Plan will serve as a guideline for future water system development in support of land use plans of agencies having jurisdiction.

Proposed measures to reduce or respond to such demand(s) are:

No measures are proposed for the Plan adoption.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

The plan and its proposed capital improvement projects are intended to comply with all applicable laws and requirements.

Legal Notices

Notice of Determination of Nonsignificance (DNS) City of Vancouver Comprehensive Water System Plan

The City of Vancouver, lead agency, has reviewed the Environmental Checklist as required by WAC 197-11-330(1)(a). It has been determined that the following described project will not have a probable significant adverse impact on the environment. Under the authority of WAC 197-11-330(1) and 197-11-340, a Determination of Nonsignificance (DNS) has been issued. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

The proposal, which is subject to the State Environmental Policy Act (SEPA) review, is as follows:

Project Description:

This is a non-project proposal for the Comprehensive Water System Plan.

Project Location:

This is a non-point proposal.
Lead Agency: City of Vancouver
PO Box 1995

Vancouver, WA 98668-1995

Contact Person: Tracy Tuntland
Water System Planning and Design

P.O. Box 1995

Vancouver, WA 98668-1995

(360) 487-7168

This DNS is issued under WAC 197-11-340(2). Comments regarding this decision should be made in writing to the responsible official by 5 p.m., Tuesday, August 4th, 2015.

Responsible Official: Tyler Clary,
Water Engineering Program Manager

Email Address:

Tyler.Clary@cityofvancouver.us

Telephone: (360) 487-7169

Mailing Address: City of Vancouver

PO Box 1995

Vancouver, WA 98668-1995

Tyler Clary,

Water Engineering Program Manager

Date 7/14/15

July 21

539993

**APPENDIX 10C – WATER SYSTEM PLAN SUBMITTAL FORM &
PLAN CONTENT CHECKLIST**

**Department of Health, Office of Drinking Water
Southwest Regional Office
Pre-Plan Agreement**

Pre-Plan Date: **10/30/2012**
 Water System Name: **City of Vancouver**
 PWS # **91200**
 Existing WSP expiration date: **2/5/2013**
 Operating Permit Color: **Green**
 WSP Submittal Due Date:

The purpose of this Pre-Plan is to:

1. Determine the scope and level of detail of the WSP update.
2. Establish a schedule for submittal of the WSP update.

Water System Plan (WSP) Checklist

<i>√ Required</i>	<i>Content Description</i>	<i>WSP Page #</i>
(√)	Water System Plan Submittal Form	<i>App 10</i>
Chapter 1	Description of Water System	
(√)	Ownership and management (updated/current WFI)	<u>1-1, App 1A</u>
(√)	System history and background	<u>1-3</u>
(√)	Brief inventory of existing facilities	<u>1-40</u>
(√)	Description of and discussion about related plans: CWSP, ground water management, basin and City/County land use plans & zoning. Include land use maps for 6 & 20-years	<u>1-13</u>
(√)	Service area characteristics, agreements, & policies including conditions of service and how new service will be provided in the retail service area. Service area maps identifying existing, future & retail service areas	<u>1-5</u>
(√)	Duty to serve statement for the retail service area	<u>1-20</u>
(√)	Satellite Management Agency information	<u>N/A</u>
(√)	Local Government Consistency from planning agencies-City and County	<u>App 10E</u>

Chapter 2	Basic Planning Data	
(√)	Current data: population, service connections & ERUs	<u>2-2, 2-8</u>
(√)	Data Collection: Monthly and annual production totals per source including purchased water Annual usage by customer class Annual usage for water supplied to other systems ≥ 1000 connections – description of seasonal variations in use by customer class	<u>2-2, 2-17</u>
(√)	6 & 20 year service area projections for: Land use Zoning Population, service connections & ERUs Water demand - use WAC 246-290-221 and include demands with and without expected efficiency	<u>2-19, 2-37,</u> <u>4-40</u>
(√)	DSL percentage and volume	<u>2-14</u>
(√)	≥ 1000 connections - include demand forecast if all measures deemed cost-effective were	<u>4-35</u>
Chapter 3	System Analysis	
(√)	System design standards (fire flow, system pressures, etc.)	<u>3-1</u>
(√)	System inventory, description and analysis	<u>3-2</u>
(√)	Source	<u>3-3</u>
(√)	Storage	<u>3-12</u>
(√)	Distribution system/hydraulics (with equalization & FFS depleted)	<u>3-43</u>
(√)	Add pressure zones	<u>3-12</u>
(√)	Treatment	<u>3-11</u>
(√)	Written legal & physical system capacity analysis & DOH Capacity & ERU Determinations (WSDM 6-1)	<u>App 3F</u>
(√)	Water quality analysis	<u>3-11</u>
(√)	Summary of system deficiencies	<u>CH 3</u>
(√)	Analysis of possible improvement projects	<u>Ch 3</u>
Chapter 4	Water Resource Analysis & Water Use Efficiency (WUE)	
(√)	Metering Program <ul style="list-style-type: none"> • Description of all source meters (existing and new sources) • Description of service meter program included how all meters are operated and maintained, if not fully metered submit installation schedule & include in the budget • Description of permanent & seasonal intertie meter program, if not fully metered submit meter installation schedule & include in the budget • Describe activities to minimize leakage if not fully service & intertie metered 	<u>6-17</u>

(√)	Water Use Efficiency Program (WUE) A WUE program should be designed to achieve the WUE goal by implementing cost effective measures per WAC 246-290-810	<u>4-31</u>
	<ul style="list-style-type: none"> • Describe the current conservation (WUE) program • Describe WUE goal & document public adoption process • Describe measures that will be implemented to achieve the goal & include schedule & costs in the budget • Describe process used to evaluate the WUE measures you did not implement • Describe yearly consumer education • Estimate projected water savings from selected measures 	
(√)	≥ 1000 Connections	<u>4-34</u>
	<ul style="list-style-type: none"> • Estimate water saved from efficiency measures over the past 6 years • Quantitative evaluation of measures to determine if they are cost-effective, include marginal costs of water production • Evaluate measures for cost-effectiveness if shared with other systems • Quantitative or qualitative evaluation of measures to determine if they are cost-effective from the societal perspective 	
(√)	Distribution System Leakage (DSL) 4.1% 3 yr. Avg 4.4% Evaluate and discuss DSL - WAC 246-290-820(2)	<u>4-35</u>
(√)	Source of supply analysis:	<u>4-1</u>
	<ul style="list-style-type: none"> • Evaluate water supply alternatives if additional water rights will be pursued within 20 years • Describe water supply characteristics & discuss any foreseeable impact (quantity & quality) to the resource (WAC 246-290-100 (4)(f) (ii) (B)) 	
(√)	Water rights self-assessment:	<u>4-1,</u> <u>App 4B</u>
	<ol style="list-style-type: none"> 1) Water right self-assessment forms: existing, 6 & 20 year 2) Description of water right status 3) Legal description from water right 4) Copies of water right certificate(s) 5) Well log & USGS map with point of withdrawal/diversion & place of use 	
(√)	Water supply reliability analysis	<u>4-8</u>
(√)	Interties – descriptions and agreements	<u>1.5.4 & 1.6</u>
(√)	≥ 1000 connections - explore reclaimed water opportunities	<u>4-22</u>
Chapter 5	Source Water Protection (Check One or Both)	
(√)	Wellhead protection program (updated contaminate inventory, brief discussion on overall program)	<u>5-1</u>
(√)	Watershed control program (surface water systems)	<u>N/A</u>
Chapter 6	Operation and Maintenance Program	
(√)	Water system management and personnel	<u>6-1</u>

(√)	Operator certification	<u>6-3</u>
(√)	Routine operating procedures and preventive maintenance	<u>6-5, 6-8</u>
(√)	Water quality sampling procedures & program	<u>6-10</u>
(√)	Coliform monitoring plan and map-Ground Water Rule	<u>App 6A</u>
(√)	Emergency Response program,	<u>App 6B</u>
(√)	Address sanitary survey findings	<u>App 3A</u>
(√)	Cross-connection control program	<u>6-12</u>
(√)	Recordkeeping, reporting, and customer complaint program	<u>6-14</u>
(√)	Summary of O&M deficiencies, include cost in budget	<u>6-16</u>

Chapter 7 **Distribution Facilities Design and Construction Standards**

(√)	Standard construction specifications for distribution mains	<u>App 7A</u>
(√)	Design and construction standards for distribution-related projects	<u>7-4</u>

Chapter 8 **Improvement Program**

(√)	Capital improvement program including 6-year CIP schedule	<u>8-14</u>
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Chapter 9 **Financial Program**

	A financial program to demonstrate financial viability:	
(√)	Summary of past income and expenses- Last 6 years	<u>9-2</u>
(√)	Balanced 6-year operational budget	<u>9-2</u>
(√)	Plan for collecting the revenue necessary to maintain cash flow stability and to fund capital and emergency improvements	<u>9-3</u>
(√)	Rate structure evaluation that considers:	<u>9-3</u>
	• Affordability of water rates	
	• Feasibility of implementing rate structure that encourages water demand efficiency	

Chapter 10 **Miscellaneous Documents**

(√)	Informational meeting for the consumers, include notification and minutes	<u>App 10D</u>
(√)	Attach notice to adjacent utilities that WSP is available for review & comment. Attach comments received.	<u>App 10E</u>
(√)	>1000 connections - completed SEPA process with signed Determination	<u>App 10A</u>
(√)	Agreements: franchise, wheeling, mutual aid, inter-local and other agreements	<u>App 1C</u>
()	Satellite Management Contract and Water User Agreement	<u>App 1B</u>
(√)	When DOH is ready to approve the final WSP, the plan must be adopted by the governing body; include meeting minutes.	<u>App 10F</u>

Miscellaneous Items

Here are some items that the Office of Drinking Water (ODW) must have with your submittal:

- 1. Three (3) copies of the WSP are required – two for ODW use and one to be routed to the Department of Ecology (Ecology).**
 - Three-ring binders are preferable to comb binders as it allows for page revisions to be added in the draft.**
- 2. A Water System Plan Approval Application.**
- 3. The water system is required to transmit a copy of the WSP to local governments.**
- 4. Community water systems are required to hold an information meeting for customers prior to approval of the WSP.**

ODW expects that the water system take ownership of the WSP. A WSP written as if from a third party consultant making recommendations to the water system is not acceptable.

**APPENDIX 10D – NOTICE OF PUBLIC HEARING
& MEETING MINUTES**

Comp Plan Comments

8/10/15

No Public Comment



WUE Goal Setting Public Forum Information

City of Vancouver	
ID Number:	91200
County:	Clark
Contact Name:	Tyler Clary
Phone:	360-487-7169
Date and Time:	Monday, August 10, 2015 - 5:30pm
Location:	Vancouver City Hall (Aspen Room) 415 W. Sixth Street, Vancouver, WA 98660
Purpose of Forum:	Discussion of City of Vancouver's proposed Water Use Efficiency Goals
For More Info:	http://www.cityofvancouver.us/publicworks/page/water-use-efficiency

[Back to Water Use Efficiency](#)

LEGAL NOTICE

Per the requirements of Washington Administrative Code (WAC) 246-290-100, the City of Vancouver Water Utility will host an open house to provide the opportunity for water system consumers to review and comment on the draft update of the City's Comprehensive Water System Plan. This open house will take place from 5:30 p.m. to 6:30 p.m., Aug. 10, 2015, in the first floor Aspen Room of Vancouver City Hall, 415 W. Sixth Street, Vancouver. Details of the draft updated plan will be presented to the Vancouver City Council in a regular workshop that is open to the public and may be viewed on CTVV online at www.ctvv.org or on cable Channel 23 at 4 p.m., Aug. 10, in the Council Chambers, City Hall. The plan is currently available to review on the City website at <http://www.cityofvancouver.us/publicworks/page/engineering-requirements-system-plans> and in print format from 8 a.m. to 5 p.m., Monday through Friday, at City of Vancouver Marine Park Engineering Services, 4500 S.E. Columbia Way, Vancouver.

July 27

540491

LEGAL NOTICE

Per the requirements of Washington Administrative Code (WAC) 246-290-830, the City of Vancouver Water Utility will host an open house to provide the opportunity for water system consumers and the general public to comment on the City's proposed Water Use Efficiency Goals. This open house will take place from 5:30 p.m. to 6:30 p.m., Aug. 10, 2015, in the first floor Aspen Room of Vancouver City Hall, 415 W. Sixth Street, Vancouver. The draft Water Use Efficiency Program and proposed goals are currently available to review on the City website at <http://www.cityofvancouver.us/publicworks/page/water-use-efficiency> and in print format from 8 a.m. to 5 p.m., Monday through Friday, at City of Vancouver Marine Park Engineering Services, 4500 S.E. Columbia Way, Vancouver.

July 27

540492

**APPENDIX 10E – GOVERNMENT CONSISTENCY REVIEW
CHECKLISTS AND STATEMENTS**



Local Government Consistency Review Checklist

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

Planning/Engineering Document Title: Comprehensive Water System Plan Plan Date: April 2015

Local Government with Jurisdiction: Clark County

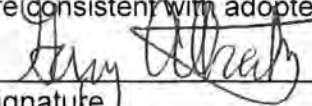
WAC 246-290-108 Consistency with local plans and regulations:

Consistency with local plans and regulations applies to planning and engineering documents under WAC 246-290-106, 246-290-107, and 246-290-110(4)(b) (ii).

1) Municipal water suppliers must include a consistency review and supporting documentation in its planning or engineering document describing how it has addressed consistency with **local plans and regulations**. This review must include specific elements of local plans and regulations, as they reasonably relate to water service as determined by Department of Health (DOH). Complete the table below and see instructions on back.

Local Government Consistency Statement	Page(s) in Planning Document	Yes – No – Not Applicable
a) The water system service area is consistent with the adopted <u>land use and zoning</u> within the applicable service area.	Sec. 1.5-1.7	Yes
b) The <u>six-year growth projection</u> used to forecast water demand is consistent with the adopted city/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 Sec. 2.4	Yes
c) Applies to <u>cities and towns that provide water service</u> : All water service area policies of the city or town are consistent with the <u>utility service extension ordinances</u> of the city or town.	Table 1.3	Yes
d) <u>Service area policies</u> for new service connections are consistent with the adopted local plans and adopted development regulations of all jurisdictions with authority over the service area [City(ies), County(ies)].	Table 1.3	Yes
e) <u>Other relevant elements</u> related to water supply are addressed in the water system plan, if applicable; Coordinated Water System plans, Regional Wastewater plans, Reclaimed Water plans, Groundwater Area Management plans, and Capital Facilities Element of 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.



 Signature
 Gary Albrecht, Planner II, AICP, Clark County, Washington

7-14-2015

 Date

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 retail 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 non-community 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 per WAC 246-290-110(4)(b)(ii).

A) Documenting Consistency: Municipal water suppliers must document all of the elements in a consistency review per WAC 246-290-108.

- 1 a) Provide 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 are related to water supply planning.
- 1 b) Include a copy of the **six-year growth projections** that corresponds to the service area. If the local population growth rate projections are not used, provide a detailed explanation on why the chosen projections more accurately describe the expected growth rate. Explain how it is consistent with the adopted land use.
- 1 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.
- 1 d) Include all **service area policies** for how new water service will be provided to new customers.
- 1 e) **Other relevant elements** related to water supply planning as determined by the department (DOH). 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 provide direction on how this inconsistency can be resolved.

C) Documenting Lack of Consistency Review by Local Government: 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 their review. Please include: name of contact, date, and efforts made (letters, phone calls, and e-mails). In order to self-certify, please contact the DOH Planner.

The Department of Health is an equal opportunity agency. For persons with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TTY 1-800-833-6388).



proud past, promising future

CLARK COUNTY
WASHINGTON

COMMUNITY PLANNING

July 14, 2015

Tyler Clary,

415 W. 6th St.
P.O. Box 1995
Vancouver, WA 98668-1995

Subject: City of Vancouver Comprehensive Water System Plan

Mr. Tyler,

As requested, I have completed the attached Local Government Consistency Review Checklist for the City of Vancouver Comprehensive Water System Plan. Thank you for this opportunity to continue consistency reviews between local plans.

Sincerely,

Gary Albrecht, AICP, Planner II
Clark County Community Planning

Attachment: Local Government Consistency Review Checklist

C: Oliver Orjiako, Community Planning Director
Euler Gordy, Community Planning Manager



Local Government Consistency Review Checklist

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

Planning/Engineering Document Title: Comprehensive Water System Plan Plan Date: April 2015

Local Government with Jurisdiction: City of Vancouver

WAC 246-290-108 Consistency with local plans and regulations:

Consistency with local plans and regulations applies to planning and engineering documents under WAC 246-290-106, 246-290-107, and 246-290-110(4)(b) (ii).

1) Municipal water suppliers must include a consistency review and supporting documentation in its planning or engineering document describing how it has addressed consistency with **local plans and regulations**. This review must include specific elements of local plans and regulations, as they reasonably relate to water service as determined by Department of Health (DOH). Complete the table below and see instructions on back.

Local Government Consistency Statement	Page(s) in Planning Document	Yes – No – Not Applicable
a) The water system service area is consistent with the adopted <u>land use and zoning</u> within the applicable service area.	Sec. 1.5-1.7	Yes, within City
b) The <u>six-year growth projection</u> used to forecast water demand is consistent with the adopted city/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 Sec. 2.4	Yes
c) Applies to <u>cities and towns that provide water service</u> : All water service area policies of the city or town are consistent with the <u>utility service extension ordinances</u> of the city or town.	Table 1.3	Yes
d) <u>Service area policies</u> for new service connections are consistent with the adopted local plans and adopted development regulations of all jurisdictions with authority over the service area [City(ies), County(ies)].	Table 1.3	Yes
e) <u>Other relevant elements</u> related to water supply are addressed in the water system plan, if applicable; Coordinated Water System plans, Regional Wastewater plans, Reclaimed Water plans, Groundwater Area Management plans, and Capital Facilities Element of 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.

June 12, 2015

Signature

Date

Bryan Snodgrass, Principal Planner, City of Vancouver Community and Economic Development

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; 1 a), b), c), d), and e), when they apply.

For **water system plans (WSP)**, a consistency review is required for the retail 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 non-community 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 per WAC 246-290-110(4)(b)(ii).

A) Documenting Consistency: Municipal water suppliers must document all of the elements in a consistency review per WAC 246-290-108.

- 1 a) Provide 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 are related to water supply planning.
- 1 b) Include a copy of the **six-year growth projections** that corresponds to the service area. If the local population growth rate projections are not used, provide a detailed explanation on why the chosen projections more accurately describe the expected growth rate. Explain how it is consistent with the adopted land use.
- 1 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.
- 1 d) Include all **service area policies** for how new water service will be provided to new customers.
- 1 e) **Other relevant elements** related to water supply planning as determined by the department (DOH). See Local Government Consistency – Other Relevant Elements, Policy B.07, September 2009.

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June 12, 2015

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 the draft copy of the City of Vancouver Comprehensive Water System Plan for your review.

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

Additionally, I have attached a Local Consistency Review Checklist 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 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



June 12, 2015

Gary Albrecht
Clark County
PO Box 9810
Vancouver, WA 98666

Subject: City of Vancouver Comprehensive Water System Plan

Mr. Albrecht,

Below is a link to the draft copy of the City of Vancouver Comprehensive Water System Plan for your review.

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

Additionally, I have attached a Local Consistency Review Checklist 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 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

APPENDIX 10F – ADOPTING RESOLUTION

9/14/15

RESOLUTION NO. M-381e8

A RESOLUTION related to the Washington State Department of Health Water Use Efficiency requirements (Washington Administrative Code WAC 246-290), which mandate that municipal water suppliers shall develop and implement a Water Use Efficiency program that establishes goals to enhance the efficient use of water, with opportunity for public information and comment. Such goals must be presented in a public forum with an opportunity for input and shall be reestablished every six (6) years by the elected governing body of the water system (WAC 246-290-830).

WHEREAS, as directed by state requirements, water use efficiency goals (previously referred to as water conservation goals) were adopted by the City of Vancouver in 2009; and

WHEREAS, WAC 246-290-830 requires the reestablishment of water use efficiency goals every six years; and

WHEREAS, as directed by state requirements, draft City of Vancouver Water Use Efficiency Goals were proposed, published, and made available for public comment through the City's web site, in hard copy form at the City's Marine Park Engineering Services building and at a public meeting on August 10th, 2015, at City Hall; and

WHEREAS, with water use efficiency strategies developed, public input received, and all comments taken into consideration, the following City of Vancouver Water Use Efficiency Goals are recommended to achieve Washington State Water Use Efficiency requirements:

- **Supply-Side Goal:** Maintain annual distribution system leakage (DSL) to six (6) percent or less.
- **Demand-Side Goal:** Reduce the average equivalent residential unit annual water consumption by one (1) percent per six years, to achieve 200 gpd/ERU.

NOW, THEREFORE,

BE IT RESOLVED BY THE CITY OF VANCOUVER

Section 1. That the aforementioned water use efficiency goals be adopted.

ADOPTED at regular session of the Council of the City of Vancouver, this 14th day of September, 2015.



Timothy D. Leavitt, Mayor

Attest:



Lloyd Tyler, City Clerk
By: Carrie Lewellen, Deputy City Clerk

Approved as to form:



E. Bronson Potter, City Attorney