Comox Valley REGIONAL DISTRICT

Staff Report

DATE: October 17, 2019

FILE: 5600-01/BCOB

TO: Chair and Members
Black Creek/ Oyster Bay Services Committee

FROM: Russell Dyson
Chief Administrative Officer

Supported by Russell Dyson
Chief Administrative Officer

R. Dyson

RE: **Asset Management Planning for the Black Creek/ Oyster Bay Water Local Service Area**

Purpose

To present the preliminary asset management plan for the Black Creek/ Oyster Bay (BCOB) Water Local Service Area (WLSA) completed by AECOM Canada Ltd.

Recommendation from the Chief Administrative Officer:

THAT Bylaw No. 5 being the "Black Creek/ Oyster Bay Water Service Regulation, Fees and Charges Bylaw, 2008" be amended to include a five per cent rate increase for all commercial and residential minimum charge and tiered rates effective April 1, 2020.

Executive Summary

The Comox Valley Regional District (CVRD) is developing corporate policy with respect to asset management. To this end we have a working group in place consisting of key management staff from across the organization representing those services with essential infrastructure. The group has met regularly. Recently inventory, condition and risk assessment work has been completed for CVRD Water, Sewer, Solid Waste and Recreation Services. The results of this work will be presented to the relevant committees to inform them of the status of any issues moving forward.

In parallel, the CVRD is in the midst of recruiting for a Manager of Asset Management to help oversee the next steps including policy development, support services and information sharing to ensure the CVRD's approach to asset management is consistent and collaborative across all services. It is imperative that decisions regarding individual services and the response to asset condition and need be consistent across the organization. We must consider the bigger picture demands as well as the capacity of our tax-payers.

Asset management planning is becoming standard best practice for the delivery of sustainable services and an increasingly common requirement for grant funding. Asset management planning includes the development and implementation of a systematic approach that supports service, asset and financial sustainability for local governments. In 2018, the Comox Valley Regional District (CVRD) signed a contract with AECOM to help further the CVRD's asset management practices. The scope of work completed by AECOM has included:

1. Drafting a corporate wide asset management policy,
2. Drafting a strategy for water for wastewater services,
3. Development of individual asset management plans for each of the CVRD's water, sewer and solid waste services, including the BCOB WLSA.

The BCOB WLSA asset management plan will help to inform the asset replacement schedule for all assets, which includes water mains, the treatment plant, booster pump station and reservoirs. Asset replacement is based on expected service life (ESL), condition, criticality and risk. Any asset within the plan that scored a risk rating higher than 10, would have been triggered for immediate replacement, for the BCOB WLSA, a few electrical components were identified as high risk assets triggering immediate replacement.

The asset management plan made seven recommendations, the most important of which are summarized below:

1. The recommended annual reinvestment funding level for the next 20 years is $130,000. The current average annual reserve contribution as approved for 2020-2023 is $57,000 per year. However looking just beyond the 20 year horizon, significant increases to the reinvestment rate over and above the $130,000 noted in the AECOM report can be expected as part of the rate review being completed in 2020. The majority of the BCOB WLSA is constructed of asbestos cement pipe that is reaching the end of its expected service life that outside the 20 year planning horizon used by AECOM but within the next 25 years.
2. Consideration should be made to procure a computer maintenance management system (CMMS) to assist with management of day-to-day operations and a decision support system to help with capital investment planning. Funding for a CMMS system was already approved as part of the 2019-2023 financial plan for all water services, including function 313. Work on procuring a preferred CMMS is underway.
3. Improve data. CVRD staff are working on improving data and developing procedures for working with the asset inventory, including standardizing naming conventions and working with GIS. Further work on this is expected to be completed once the Manager of Asset Management role is filled.
4. Formalize the role of Asset Manager. The CVRD is currently in the process of hiring a Manager of Asset Management that will fill this role.

Rather than work to finalize the BCOB WLSA asset management plan now, staff plan to work collaboratively to establish a Board approved asset management policy, further advance asset management planning for the remaining core CVRD services, and bring forward specific recommendations for individual services.

As highlighted above by the difference between actual and recommended reinvestment rates, rate increases will be required to ensure the long term sustainability of this service. In the interim, a five per cent rate increase is recommended in 2020 to ensure the service reduce the risk of a deficit. A formal rate review will be completed in 2020 that includes a corporate approach to asset management and rates, along with a proposed rate increase schedule for the service. When completing the rate review, a review of asset replacements past the 20 year horizon as provided within the AECOM report will completed as the majority of the BCOB WLSA water mains will be requiring replacement in the next 20 to 25 years, resulting in significantly higher reinvestment rates.

Prepared by:	Concurrence:	Concurrence:
Z. Berkey	***K. La Rose***	***M. Rutten***
Zoe Berkey, EIT Engineering Analyst	Kris La Rose, P.Eng Senior Manager of Water/ Wastewater Services	Marc Rutten, P. Eng General Manager of Engineering Services

Background/Current Situation

Asset management planning is becoming a standard best practice for the delivery of sustainable services and an increasingly common requirement for grant funding. The principle behind asset management is the development of a systematic approach that supports service, asset and financial sustainability for local governments.

Asset management BC has developed a framework for asset management for sustainable service delivery. The framework is intended to address why asset management is necessary, what asset management is, how it can be implemented and to help establish a high-level systematic approach to support local governments toward financial, service and asset sustainability through an asset management process.

The framework identifies that asset management is a continuous quality improvement process, which includes assessing, planning and implementing. The CVRD is early on in the development of asset management and in 2018 awarded a contract to AECOM to help progress asset management planning for the water, sewer and solid waste departments following the AMBC framework.

Outlined below is the scope of work completed by AECOM and a description of how the BCOB WLSA asset management plan is connected to other asset management documents developed as part of this work.

- ***Development of an asset management policy and governance framework for the CVRD:*** The policy sets the vision and guiding principles for the management of CVRD assets and articulates the CVRD's commitment to improvements in asset management. A corporate wide policy for asset management has been drafted and is under review.
- ***Development of asset management strategy for water and wastewater services:*** The strategy is in draft form and outlines an action plan for how the CVRD will achieve the objectives of the policy. Actions outlined in the strategy address specific capability improvements required to advance asset management in the CVRD.
- ***Development of an asset management plan for the BCOB WLSA:*** The asset management plan details the plans for the lifecycle of assets. The plan includes all assets for the BCOB WLSA, which includes source water wells, watermains, reservoirs, treatment plant and booster pump station. Further discussion on the asset management plan is provided in the section below.
- ***Development of an improved understanding of asset management by CVRD staff:*** Training for staff from each department was also completed to further develop staff's understanding of asset management and to help with integrating the asset management plan into existing decision making processes. A handful of CVRD staff achieved a Certificate in Asset Management from the Institute of Asset Management (IAM).

BCOB WLSA Asset Management Plan

The asset management plan developed for the BCOB WLSA considers condition, levels of service, demand forecasts, projected performance, and remaining service life and risk management. These inputs help develop a long term financial forecast for replacement of assets. The full asset management plan is provided as Appendix A to this report. Shown in Figure No. 1 below is the 20 year asset replacement schedule for the service.

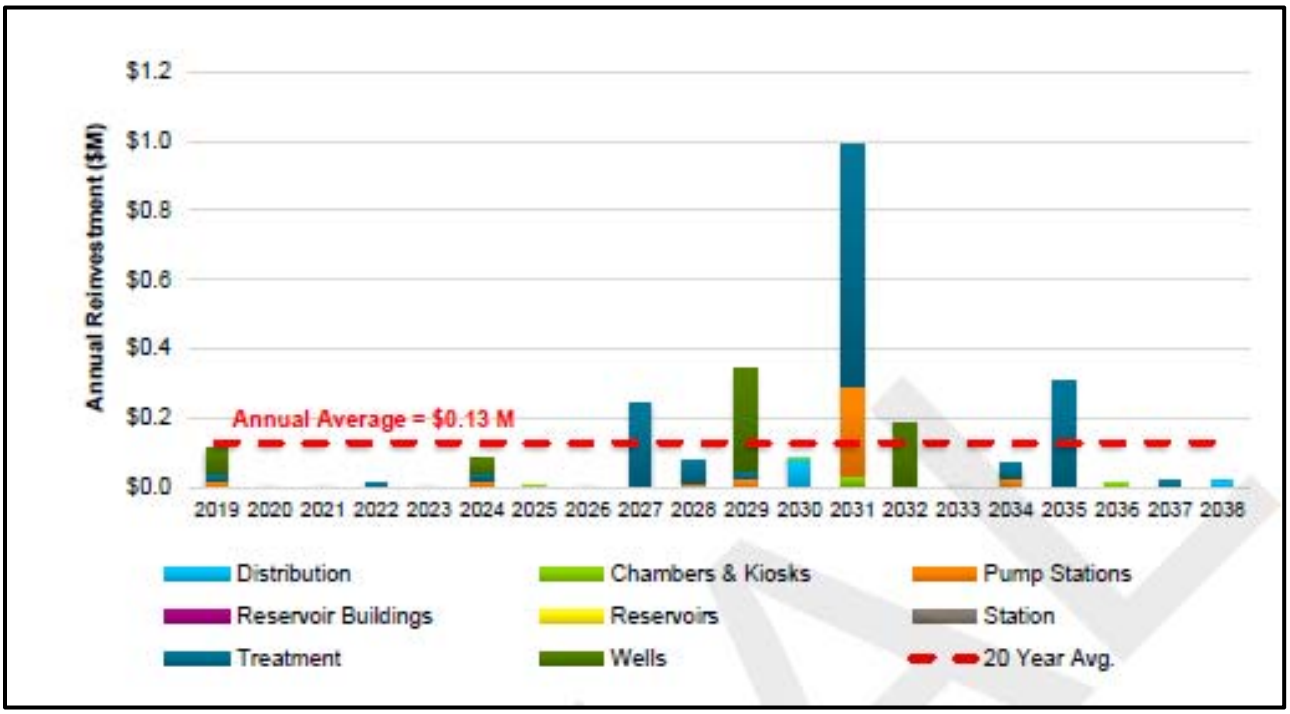


Figure No. 1: 20 Year Asset Replacement Schedule for the BCOB WLSA.

The plan outlines the following:

- Current state of the assets which included development of a comprehensive asset inventory for all assets, determining replacement values for all assets, reviewing expected services life and remaining life of assets. This piece of work also included reviewing condition, criticality and assigning a risk score for assets.
- Levels of service, which includes discussion on technical, customer and corporate levels of service and provides information on the technical levels of service benchmarks developed from the National Water and Wastewater Benchmarking Initiative (NWWBI).
- Asset lifecycle strategies, which provides discussion on the various life cycle stages of assets and strategies including acquisition, operating and maintaining, renewal and replacement and disposal.
- Funding strategies, indicates the recommended annual reinvestment rate for the assets based on the comprehensive inventory developed for the service.

The plan proceeds to make the following recommendations, discussed below.

1. Reinvestment Funding Levels 2019-2038.

The asset renewal forecast developed by AECOM is a long term forecast of what it will cost to replace assets as they age and move past their estimated service life or exceed the risk tolerance of the CVRD. It is important to note that the reinvestment funding levels developed by AECOM don't consider impacts to rates or otherwise, the reinvestment rate is based on replacing all assets as they reach the end of their expected service life. Further discussion on reinvestment funding and the impact to rates can be found within the financial factors section. The following assumptions are made when developing the annual reinvestment amount:

- Assets will be replaced when their theoretical useful life is reached or when their risk score exceeds a value of 10. The age of assets was adjusted to an apparent age for any asset where on site condition assessments and information were available.
- Total replacement costs are based on 2019 dollars and are inflated by two per cent per year to the year of replacement.

- When an asset is replaced it was assumed that the criticality score remains the same but that the age resets to zero and that the new assets last as long as their ESL.

The average annual funding need over the next 20 years for the BCOB WLSA is $130,000 per year. However just beyond the 20 year horizon, there is significant reinvestment required for main replacement as the majority of the BCOB WLSA is constructed of asbestos cement pipe that was installed at the same time and is reaching the end of its expected service life in 20-25 years. The recommended reinvestment rate of $130,000 by AECOM can be expected to increase significantly to meet the replacement needs that are currently just outside the 20 year planning horizon.

The current average reserve contribution for function 313 for 2020-2023 is $57,000. Increases to user rates and parcel tax will be necessary to close the gap between the recommended annual reinvestment rate and the current annual contribution to reserves. As an interim measure while a comprehensive rate review is undertaken a five per cent increase to rates for 2020 is recommended.

2. Establish a Dedicated Capital Reinvestment/ Renewal Reserve Fund.

All reserve contributions for function 313 are currently held in the capital works reserve fund. Utilizing a common reserve fund provides flexibility to the Financial Services department and reduces the level of effort required by finance to monitor multiple accounts.

The downside of utilizing a single reserve fund is that funds could be reallocated to projects that are not reinvestment projects, resulting in a funding gap. However the Financial Services department currently tracks the fund and what is being utilized for asset replacement projects, as such no further action is recommended at this time.

3. Replacement of Urgent/High Risk Assets

There is no immediate backlog of replacement projects for the BCOB WLSA nor are there many medium term projects (2019-2028) identified. The driver of the reinvestment rate is the large amount of asbestos cement pipe nearing the end of its expected service life in the later years of the plan.

4. Implement CMMS and Decision Support System (DSS) Software to Support Asset Management

CMMS software is intended to assist with operational planning (day-to-day maintenance activities), whereas DSS software focuses on capital investment planning. As part of the work completed by AECOM, functional requirements for both CMMS and DSS software were developed.

No CMMS software is utilized at this time by the Water Services department to track and manage work orders. CVRD staff are in the process of procuring a CMMS software for Water Services.

5. Levels of Service and NWWBI

The NWWBI was developed with the intent to allow Canadian municipal water and wastewater utilities to measure, track and report on their utility performance. The NWWBI outlines seven customer level goals and has developed a number of key performance indicators within each goal that municipalities can compare to.

When looking at the recommended annual reinvestment compared to the NWWBI average, the recommended annual reinvestment within the report for BCOB infrastructure is well below the average for Canadian water utilities. However, it should be noted that it is widely acknowledged that Canadian utilities in general are not adequately investing for renewal and replacement of infrastructure.

55 municipalities participate in the NWWBI, participation in the NWWBI would enable CVRD to report its performance to the Board and stakeholders in language that is consistent with most Canadian communities the size of Comox Valley or larger.

Participating in the NWWBI would include inputting CVRD operational data to compare CVRD operations of water services to the key performance indicators. An annual report would be made available that would compare CVRD to the national average.

6. Standardize, Update and Improve Data

A number of recommendations were made to improve data accuracy and reliability. This includes recommendation on development of standardized naming conventions, procedures for working with GIS on data management etc.

Completion of the asset management process with AECOM highlighted a need for CVRD to improve and standardize data collection, naming conventions etc. Work on development of procedures for editing the asset inventory and managing the data will be developed.

7. Formalizing Role of Asset Manager

AECOM's final recommendation was to formalize the role of an asset manager that would be responsible for assessing, planning and implementing asset management activities across the organization. A posting for a Manager for Asset Management has been made, CVRD hopes to have this role filled in the fall 2019.

The Manager of Asset Management will play a crucial role in finalizing the asset management policy and strategy and aiding in discussions/ procurement of CMMS or DSS software for the water services.

Policy Analysis

As part of the scope completed by AECOM a corporate wide asset management policy has been drafted. The intent of the policy is to provide the guiding principles for asset management for the CVRD.

The policy will be brought forward to the Board in 2020 date following the hiring of a Manager for Asset Management.

Options

The BCOB Services Committee has the following options:

1. Approve a five per cent user rate increase for 2020.
2. Not adopt the increase to rates.

Earlier asset management work for the service had concluded that annual capital reinvestments savings were needed, but rate increases were put off until completion of the asset management planning scope. This work has taken longer than expected, and a rate increase is now required in advance of the completion of the asset management planning to avoid the risk of a deficit in 2020. As such only Option No. 1 above is recommended.

Financial Factors

The asset inventory will help to inform the five year financial planning process. Any assets that are recommended for replacement within the five year financial plan, will be inspected for current condition and criticality. These inputs will be updated based on actual field conditions and

recommended asset replacements within the financial plan will reflect accordingly. A number of inputs will affect the exact replacement date of an asset however, the overall annual contribution to reserves for asset replacement is a critical consideration for rate increases moving forward to ensure funding needs meet replacement requirements.

A comprehensive rate review will be presented to the BCOB Services Committee in 2020, and will include a recommended rate increase schedule moving forward and will consider the corporate wide approach to asset management.

As an interim measure until a comprehensive rate review is completed it is recommended that a rate increase of five per cent be implemented for 2020, the changes to user rates are summarized in Table No. 1 below. Not approving a rate increase in 2020, would result in reserve contributions being further reduced for the service and increase the risk of running a deficit.

Table No. 1: Proposed User Rates in the BCOB WLSA for 2020 (effective April 1, 2020).

	Current Rates	Proposed 2020 Rates
Residential		
Minimum Charge (up to 15m^3)	$22.88	$24.02
Tier 1 (15m^3 to 45m^3)	$1.37/ m^3	$1.44/ m^3
Tier 2 (over 45m^3)	$2.06/$m^3$	$2.16/$m^3$
Commercial/ Multi-Family		
Minimum Charge (up to 15m^3)	$35.64	$37.42
Tier 1 (over 15m^3)	$1.78/$m^3$	$1.87/$m^3$

Legal Factors
A risk score was determined for each asset is based on the probability of failure multiplied by the consequence of failure. Any asset that has risk score greater than ten has been triggered to need immediate replacement. The defined risk values for assets help to prioritize asset replacement by identifying assets that present the greatest risk to the CVRD should a failure occur.

Regional Growth Strategy Implications
As described within Asset Management BC Framework, "sound asset management practices support sustainable service delivery by considering community priorities, informed by an understanding by an understanding of the trade-offs between the available resources ad desired services". Improving the CVRD's asset management practices will help to support the infrastructure objectives of the Regional Growth Strategy of providing affordable, effective and efficient infrastructure.

Intergovernmental Factors
This BCOB WLSA is located within the CVRD's Puntledge - Black Creek (Electoral Area C) and the Strathcona Regional District's (SRD) Area D and is governed by the BCOB Services Committee whose membership includes representation from CVRD Electoral Areas C and SRD Electoral Area D.

Interdepartmental Involvement
The Engineering Services department is leading this work.

Citizen/Public Relations
A newsletter will be included within the January water bill for the BCOB WLSA, providing notice to residents of a rate increase in 2020 that will allow the CVRD to maintain a minimum reserve and

avoid a deficit for the service. Information about the asset management process will be included in order to prepare residents for additional rate increases in the future.

Attachments: Appendix A – "CVRD BCOB WLSA Asset Management Plan, AECOM"

AECOM Imagine it. Delivered.

Appendix A

Asset Management Plan

Comox Valley Regional District
Black Creek / Oyster Bay Water Local Service Area (BCOB WLSA)

Project number: 60565872

October 2019

Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada Ltd. ("AECOM") for the benefit of the Client ("Client") in accordance with the agreement between AECOM and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations");
- represents AECOM's professional judgement in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to AECOM which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

AECOM shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. AECOM accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

AECOM agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but AECOM makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Without in any way limiting the generality of the foregoing, any estimates or opinions regarding probable construction costs or construction schedule provided by AECOM represent AECOM's professional judgement in light of its experience and the knowledge and information available to it at the time of preparation. Since AECOM has no control over market or economic conditions, prices for construction labour, equipment or materials or bidding procedures, AECOM, its directors, officers and employees are not able to, nor do they, make any representations, warranties or guarantees whatsoever, whether express or implied, with respect to such estimates or opinions, or their variance from actual construction costs or schedules, and accept no responsibility for any loss or damage arising therefrom or in any way related thereto. Persons relying on such estimates or opinions do so at their own risk.

Except (1) as agreed to in writing by AECOM and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

AECOM accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of AECOM to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

AECOM: 2015-04-13

Quality information

Prepared by	Prepared by	Prepared by
		
Chris Lombard, P. Eng., MBA Asset Management Leader, Americas Water	Alex Kolesov, M.Sc. Senior Asset Analyst	Devin Sauer, PhD Senior Asset Management Consultant

Deliverable Approver	Lead Verifier
	
Rebecca Dziedzic, PhD Senior Asset Management Consultant	David Main, B. Mgmt. Vice President

Revision History

Revision	Revision date	Details	Authorized	Name	Position
0	January 23rd, 2019	Draft Report		Chris Lombard	Project Manager
1	July 11th, 2019	Final Report V1		Chris Lombard	Project Manager
2	August 29th, 2019	Final Report V2		Chris Lombard	Project Manager
3	October 7th, 2019	Final Report V3		Chris Lombard	Project Manager

Distribution List

# Hard Copies	PDF Required	Association / Company Name
	1	Kris LaRose, Senior Manager of Water / Wastewater Services Comox Valley Regional District
	1	Mike Herschmiller, Manager of Water Services Comox Valley Regional District

Prepared for:

Comox Valley Regional District (CVRD)
600 Comox Road
Courtenay, BC V9N 3P6

Prepared by:

Chris Lombard
Asset Management Leader
T: +1.604.444.6427
M: +1.604.314.6167
E: christiaan.lombard@aecom.com

AECOM Canada Ltd.
3292 Production Way
Suite 330
Burnaby, BC V5A 4R4
Canada

T: 604.444.6400
F: 604.294.8597
aecom.com

The preparation of this project was carried out with assistance from the Government of Canada and the Federation of Canadian Municipalities. Notwithstanding this support, the views expressed are the personal views of the authors, and the Federation of Canadian Municipalities and the Government of Canada accept no responsibility for them

Table of Contents

1 INTRODUCTION 1

1.1 Background 1
1.2 Scope – The Black Creek / Oyster Bay Water Local Service Area 1
1.3 Connectivity to Other AM Documents 2
1.4 Guiding Principles 2
1.5 AM Best Practice and ISO 55000:2014 and IIMM 3
1.6 Key Steps Supporting this Asset Management Plan 3

2 CURRENT STATE OF ASSETS 5

2.1 Asset Hierarchy 5
2.2 Asset Inventory 6
2.3 Asset Value 7
2.4 Expected Service Life (ESL) and Remaining Life 8
2.5 Asset Condition 10
2.6 Asset Criticality 12
2.7 Probability of Failure 15
2.8 Asset Risk 17

3 LEVELS OF SERVICE (LOS) 19

3.1 Background to LoS 19
3.2 Corporate, Customer and Technical Levels of Service 19
3.3 LoS for BCOB WLSA Assets 21
3.4 LoS from the National Water and Wastewater Benchmarking Initiative (NWWBI) 21
3.4.1 Customer LoS from NWWBI 21
3.4.2 Technical LoS from NWWBI 22
3.5 Demand / Future Growth 25

4 ASSET LIFE CYCLE STRATEGIES 27

4.1 Background 27
4.2 Asset Acquisition Activities 27
4.3 Asset Operations and Maintenance (O&M) Activities 28
4.4 Asset Renewal and Replacement Activities 29
4.5 Decommissioning and Disposal Activities 29

5 FUNDING STRATEGIES 31

5.1 Funding Needs for BCOB WLSA Assets 31
5.1.1 Funding Needs Analysis 31
5.1.2 Reinvestment Rate Comparison with NWWBI 32

6 RECOMMENDATIONS 34

6.1 Reinvestment Funding Levels 2019 - 2038 34
6.2 Reserve Fund Contribution 35
6.3 Replacement of Urgent / High Risk Assets 35
6.4 Implement CMMS and DSS to Support AM 35
6.5 LoS and NWWBI 36
6.6 Recommendations for Data Improvements 36
6.7 Formalizing the Role of Asset Manager 37

APPENDIX A – LOCATION PLAN FOR BCOB WLSA ASSETS

APPENDIX B – BCOB WLSA ASSET INVENTORY

APPENDIX C - WATER MAIN RISK MODEL

APPENDIX D - O&M ACTIVITIES

APPENDIX E – ASSET REPLACEMENT OVER THE SHORT-TERM

APPENDIX F – JOB DESCRIPTION: ASSET MANAGER

Figures

Figure 1 – Service Area of the BCOB WLSA 1
Figure 2 - Successful AM Depends on Alignment from the AM Policy Down to Individual AM Plans 2
Figure 3 - Key Building Blocks in Developing this AMP 4
Figure 4 - First Level Asset Hierarchy for the BCOB WLSA 5
Figure 5 - Breakdown of BCOB WLSA Asset Condition by Replacement Value ($M) 11
Figure 6 – Location Plan: Criticality of BCOB WLSA Mains 14
Figure 7 – The Impact of the Shape Parameter 16
Figure 8 – PoF versus Asset Life Span Consumed 16
Figure 9 - Sample Risk-Based Intervention Plan 17
Figure 10 - Replacement Costs versus Risk 18
Figure 11 - Level of Service Linkages 19
Figure 12 - LoS Should Ensure Strategic Alignment of Activities throughout an Organization 20
Figure 13 - NWWBI Utility Management Model and Seven Customer-Level Goals 22
Figure 14 - Through Understanding the Full Life Cycle Costs of its Assets, CVRD Will Make Better, More Informed and Financially Sustainable Asset Decisions 27
Figure 15 - Quality of Construction Can Significantly Affect Asset Durability 28
Figure 16 – 20-Year BCOB WLSA Funding Need Analysis 32
Figure 17 – Comparison of NWWBI and Recommended BCOB WLSA Reinvestment Rates 33
Figure 18 - Recommended BCOB WLSA Funding Levels for Reinvestment (2019 – 2038) 34
Figure 19 – The Beneficial Use of a CMMS and DSS to Support Asset Management and Strategic Planning 36

Tables

Table 1 - High-Level Asset Inventory 6
Table 2 – Cost Mark-Ups 8
Table 3 - High-Level Asset Replacement Value 8
Table 4 – Sample Expected Service Lives (ESLs) 9
Table 5 - Condition Rating Scale 10
Table 6 – BCOB WLSA Assets with a Condition Score of Four (“Poor”) and Five (“Very Poor”) 11
Table 7 – Vertical Asset Criticality Rating Table 12
Table 8 - Criticality Score Boundary Values Used in Figure 6 14
Table 9 – Critical BCOB WLSA Assets 15
Table 10 - LoS for BCOB WLSA Assets 21
Table 11 - Technical LoS for Water Treatment (Groundwater System) 22
Table 12 - Technical LoS for Water Distribution (Integrated System) 23
Table 13 - Consideration of Demand / Future Growth Factors for BCOB WLSA 25
Table 14 – Recommended BCOB WLSA Funding Levels for Reinvestment (2019 – 2038) 34

1 Introduction

1.1 Background

According to ISO 55000:2014, an asset is defined an item, thing or entity that has potential or actual value to an organization. As such, the Comox Valley Regional District (hereafter referred to as “CVRD”) owns, operates and maintains a wide array of assets that include, but are not limited to, information technology systems, equipment, facilities, vehicles and even natural systems. These assets are expected to function efficiently and effectively for many years and support the mission-critical functions of the organization. Actions such as planning, delivery of assets, operations, maintenance, and performance management, which are performed by various divisions within CVRD, all contribute to effective asset management with support from finance and information systems. However, all of these assets have a defined service life and, as they age and deteriorate, it is imperative for CVRD to understand how to manage them in such a way to ensure that their full service life is reached, and to have in place a mechanism to enable their renewal or replacement whilst risks are managed.

The objective of this Asset Management (AM) Plan is to deliver the context and the financial and technical road map for the management of the Black Creek / Oyster Bay Water Local Service Area (BCOB WLSA) assets and to provide the basis for decision making and budgeting for the sustainable management of these assets well into the future.

1.2 Scope – The Black Creek / Oyster Bay Water Local Service Area

The Black Creek / Oyster Bay Water Local Service Area (hereafter referred to as “the BCOB WLSA”) provides domestic water to approximately 2,100 residents and 30 local businesses located in both the CVRD Electoral Area C and the Strathcona Regional District Electoral Area D. The service is owned and operated by the CVRD for the benefit of both regional districts and is funded through a combination of frontage tax and user rates.

The service consists of seven groundwater supply wells and one surface water infiltration gallery adjacent to the Oyster River (natural asset). Recently completed upgrades include rebuilding the water treatment facility that includes chlorination technology, pH control systems, a chlorine gas scrubber, UV disinfection technology and emergency backup power. The system also utilizes one pump station and two reservoirs.

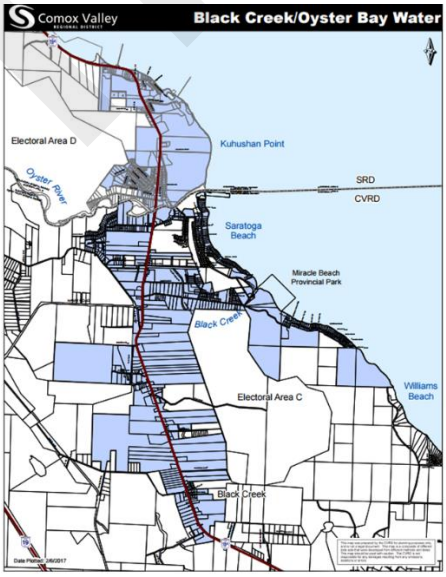


Figure 1 – Service Area of the BCOB WLSA

1.3 Connectivity to Other AM Documents

Because AM affects a large portion of the CVRD's activities, the development of this AM Plan and the practice of AM is a team effort. The Plan will define and document the activities that will be implemented and the resources applied to meet the key objectives for the organization. The formulation of the Plan should include the review of processes, systems, and available data; and based on these findings, determine the required resources and develop a schedule to address the gaps. As such, it is important to set the foundation during the AM Policy development for the subsequent AM planning by achieving alignment between the hierarchy of AM documents (**Figure 2**), including:

- **AM Policy & Governance Framework:** The AM Policy & Governance Framework sets the vision and guiding principles for the management of CVRD assets and articulates commitment to continuous improvement in AM.
- **AM Strategy:** An action plan that determines how the CVRD will implement the Policy and achieve its organizational objectives. Actions outlined address specific capability improvements required to advance AM in the CVRD.
- **AM Plans (this document for the BCOB WLSA):** Detailed plans for the lifecycle management of assets that consider criteria such as condition (acquired or derived), levels of service, demand forecasts, projected performance, remaining service life, and risk management. The plans also include long term financial forecasts and consider alternative scenarios and risks. This AMP for the BCOB WLSA is prepared in parallel to the AMPs for the three other water systems that CVRD manages, as well as the Comox Valley Recreation, Solid Waste, and Sewerage Systems.

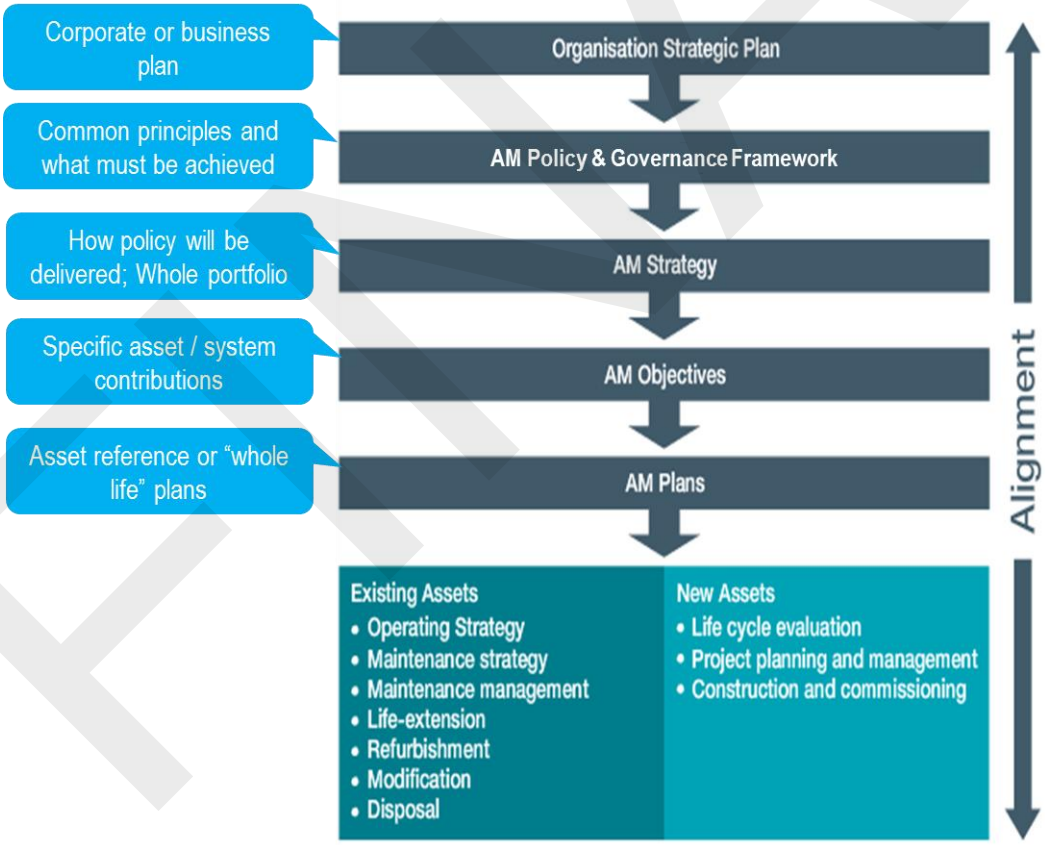


Figure 2 - Successful AM Depends on Alignment from the AM Policy Down to Individual AM Plans

1.4 Guiding Principles

A formal AM system provides an asset-based organization with a consistent framework for understanding, implementing and improving delivery of services. As per the guiding principles outlined in the CVRD's AM Policy, the objectives of this AMP were to equip CVRD with the knowledge and insights to:

- Make informed decisions identifying all revenues and costs (including operational, maintenance, replacement, and decommissioning costs) associated with asset decisions, including additions and deletions.
- Manage the CVRD's engineered assets in accordance with formal, consistent and repeatable methods that reinforce the confidence of member stakeholders (CVRD Board, municipalities, electoral areas, and staff) that the CVRD is managing its assets in an efficient, effective and responsible way.
- Integrate corporate, financial, operational, technical and budgetary planning for all assets.
- Determine and refine the levels of service in consultation with the service area.
- Take a whole life cost approach when selecting the most appropriate asset interventions, where all costs associated with the asset are taken into consideration and not just the initial capital cost.
- Minimize total life cycle costs of assets.
- Create a corporate culture where all employees play a part in the overall care for the CVRD's public assets by providing the necessary awareness, training and professional development.
- Manage assets to be sustainable.
- Identify and manage natural assets in a similar manner to engineered assets as systems and processes for doing so become available.
- Minimize risks to users and risks associated with failure.
- Pursue best practices where available.
- Report the performance of its AM program.
- Continually improve its AM approach by actively monitoring the effectiveness of its AM program, and driving innovation in the development of tools, practices and solutions.

1.5 AM Best Practice and ISO 55000:2014 and IIMM

With the recent growth in AM around the world, the International Organization for Standardization (ISO) brought together specialists from around the world in various industries to develop a standard that can be used by a wide range of asset owning organizations, to ensure consistency and share best practice. The focus of the ISO 55000:2014 Asset Management Standard suite (ISO 55000, 55001, 55002), is the creation of a management system. The management system aims to ensure that optimal value is delivered from an organization's assets through balancing performance, risk and expenditures to meet customer demands. The standard describes asset management as a management system similar to a corporate safety or environmental management system.

This AMP is a major step forward in aligning CVRD with the new ISO 55000:2014 best practice standard. Since certification against the standard is a lengthy and expensive process, CVRD will focus on aligning with the standard without seeking certification. This includes consolidating existing asset management practices into a management system. Doing so will help structure and standardize the practice of asset management within CVRD.

In addition to alignment with ISO 55000:2014, the AM Plan is also aligned with the guidance provided by the International Infrastructure Management Manual (IIMM), which is a widely accepted as one of the leading international documents on infrastructure asset management. The ISO 55001:2014 spells out the requirements for the establishment, implementation, maintenance and improvement of a management system for AM, and specifies "what" an organization needs to do to fulfil the Standards' requirements. The IIMM complements the ISO Standard by providing details regarding "how to" implement those requirements and, as such, will inform the more detailed and technical and financial oriented AMPs for Water, Wastewater and Solid Waste that feed into the CVRD's AM Strategy.

1.6 Key Steps Supporting this Asset Management Plan

In addition to the AM best practices outlined in the previous section, the actual steps used to develop this AMP are presented in **Figure 3**, and have been selected to ensure that reliable and robust useful information is provided from

which CVRD can have confidence to make fact-based and defensible business decisions. The basic building blocks of the step-by-step methodology outlined in **Figure 3** are founded upon the Water Environment Research Foundation (WERF) SIMPLE (Sustainable Infrastructure Management Program Learning Environment) process. The objective of SIMPLE is "*to drive a broad range of benefits to the industry by providing a systematic rationalization for determining where the most cost-effective investment (acquisition, maintenance, renewal) in the asset portfolio is, over the life cycle of the asset portfolio (that is, directing limited dollars toward the optimal application in any given budget cycle)*". At the heart of the SIMPLE process (and what was the primary focus thrust of this AMP) was to explore the following topics for the BCOB WLSA:

- Current State of Assets.
- Levels of Service.
- Asset Life Cycle Strategies.
- Funding Strategies.
- Implementation Pan.

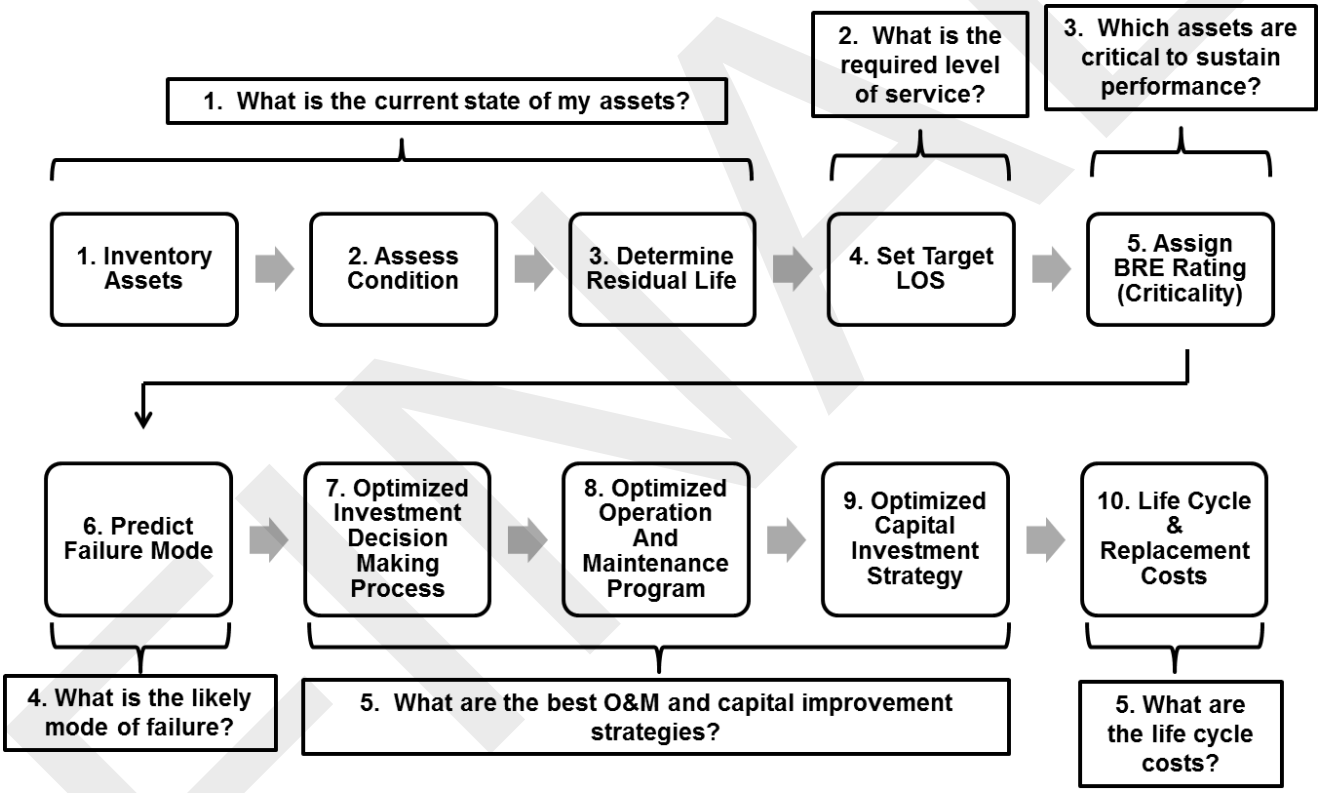


Figure 3 - Key Building Blocks in Developing this AMP

The following sections summarize the exploration and findings of the AM Planning process for the BCOB WLSA.

2 Current State of Assets

This section summarizes the data on asset inventory, value, condition, and risk based on the information currently available from a variety of sources and systems across the organization.

2.1 Asset Hierarchy

An asset inventory was generated to provide a comprehensive list of the assets within the BCOB WLSA ambit. CVRD staff had well-organized documentation for many of its assets and was able to augment this data through on-site records and historical knowledge of the division staff. The project team took this information as a starting point and further developed the asset inventory by adding information collected during site visits and through the review of historical information.

For the purpose of this study the asset inventory must be granular enough to identify which individual assets are due for renewal (refurbishment or replacement). However, it is important to note the fine balance between adequate granularity to provide the necessary information, and too much granularity that the effort to collect and manage the information outweighs the usefulness of the data itself.

The first two levels of the asset hierarchy for the BCOB WLSA are presented in **Figure 4**, as one branch of CVRD's broader inventory. For this study, the inventory includes assets down to a fourth level of detail. Generally, assets below this level would include consumable items that are typically replaced through a preventive maintenance program and are often funded out of the operations and maintenance budget and are therefore excluded from the analysis. The complete asset hierarchy, including all four levels, can be found in the supporting documents for this AMP included in the Appendices.

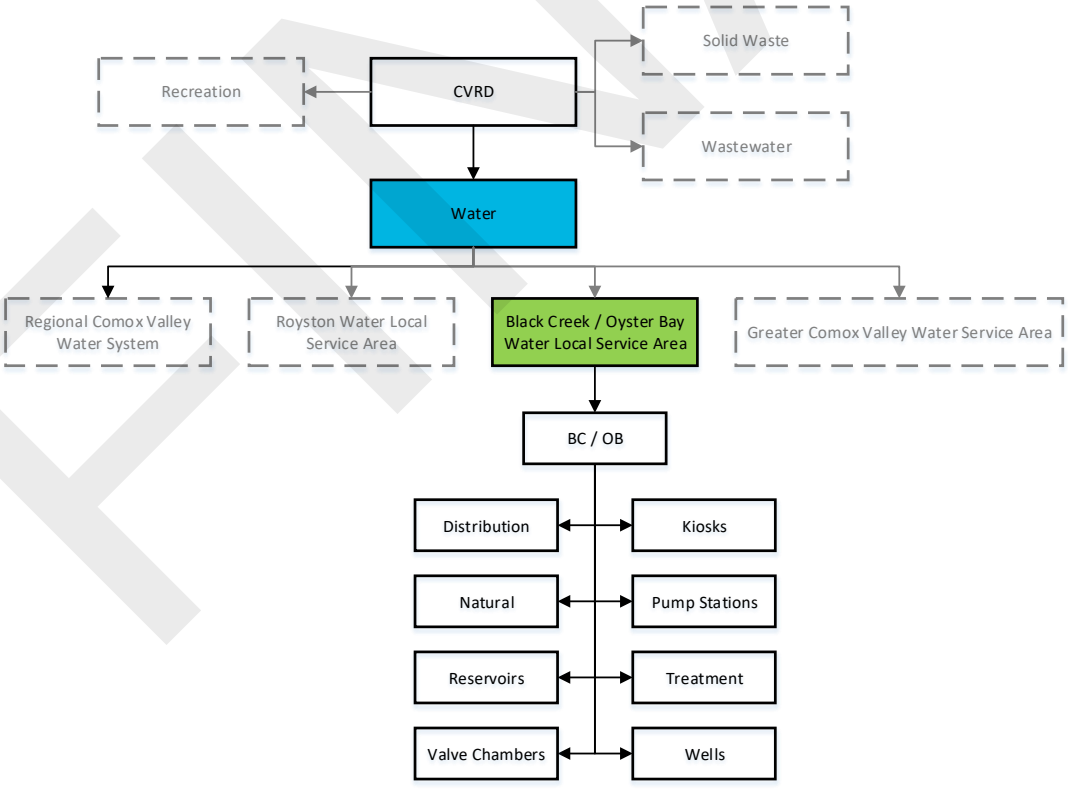


Figure 4 - First Level Asset Hierarchy for the BCOB WLSA

Each parent asset in the BCOB WLSA inventory has been categorized into a pre-defined asset hierarchy. This pre-defined structure allows an electronic inventory to be managed by asset type or by equipment type. A structured

hierarchy will allow CVRD to sort data for assets of common type, and manage the asset inventory as conditions change, including asset estimated service lives or replacement costs.

2.2 Asset Inventory

The total number of assets within the asset inventory for the BCOB WLSA is presented in summarised format in Table 1. The asset inventory information was obtained from the following sources:

- Geographic Information System (GIS).
- Various MS Excel spreadsheets.
- On-site verification of assets.
- Discussion and consultation with CVRD staff.

Table 1 - High-Level Asset Inventory

Asset System	Assets / Components	Quantity & Comments	
Distribution	• Hydrant Services • Hydrants • Mains • Services • Valves	• Hydrants: 122 • Pipes: 49.0 km • Valves: 399	• Pipe quantity contains mains, services, and hydrant services. In addition, it includes 246 m that has been assigned “Inactive”* status.
Kiosks	• Kelland Reservoir • MaCaulay Reservoir	• Two kiosks are currently operational.	• Each kiosk contains a micro processing unit and a breaker. In addition, the kiosk at Kelland Reservoir contains chlorine and pressure instrumentation, and a chlorine pump.
Natural	• Oyster Bay Watershed	• Watershed Storage and Collection. • The CVRD consumes approximately 380,000 m^3 of water per year from the Oyster Bay Watershed.	• The watershed provides the CVRD benefits related to water collection, storage and drought attenuation.
Pump Stations (PSs)	• Black Creek PS	• One pump station is currently operational.	• Contains a collection of building mechanical, electrical, instrumentation, process mechanical, and structural assets.
Reservoirs	• Kelland Reservoir • MaCaulay Reservoir	• Two reservoirs are currently operational.	• Two pipe segments (total length of 38 m) belonging to Kelland Reservoir have been assigned “Inactive”* status. Similar for MaCaulay Reservoir except total length is 39 m. • Contains a collection of process mechanical and structural assets.
Treatment	• Oyster Bay Water Treatment Plant	• Plant utilizes chlorine and ultraviolet light and is located near the source in Oyster River Nature Park.	• Contains a collection of building mechanical, electrical, instrumentation, process mechanical, and structural assets
Valve Chambers	• Kelland Reservoir • MaCaulay Reservoir	• Two valve chambers, one at each reservoir site.	• Each valve chamber houses a flow meter in addition to several valves.

Asset System	Assets / Components	Quantity & Comments	
Wells	• Test Well No. 1 • Test Well No. 2 • Test Well No. 5 • Well No. 1 • Well No. 2a & 2b • Well No. 2a & 2b Control Building • Well No. 4	• Six wells are currently operational. • There is a control building present at one of the well sites (Well No. 2a & 2b).	• Each Test Well contains a single structural asset. • Typical Wells contain a collection of process mechanical assets in addition to the well structure. • The Control Building at Well No. 2a & 2b houses the VFD and MCC for the well pumps in addition to other miscellaneous building mechanical and electrical assets.

*Assets assigned "Inactive" status are assumed to be still physically present in the system; therefore, they are included in the inventory for the organization and management of their decommissioning / disposal. However, Inactive assets are otherwise not considered in the development of this AM Plan.

Please refer to **Appendix A** for a location plan of the BCOB WLSA assets discussed within this section, and **Appendix B** for a full tabular listing of the asset inventory in terms of the asset hierarchy and the key asset data attributes referenced in this section.

2.3 Asset Value

The replacement valuation for all BCOB WLSA is based on the following assumptions:

- **Replacement Value:** Represents the cost in 2019 dollars to completely replace all the assets to a new condition with a current / similar model of equipment / asset, as applicable.
- **Natural Assets:** The "replacement value" of the natural assets (the Oyster Bay Watershed) was based on the benefit provided by the watershed in terms of water collection, storage and drought attenuation. I.e., the amount CVRD would have to pay to replace or mimic the benefit provided by the watershed. Please refer to the AECOM technical memorandum on the inventory and value of natural assets for more information[1].
- **Cost Estimates:** BCOB WLSA asset replacement values were estimated by AECOM in consultation with CVRD staff based on current equipment and construction pricing. Cost estimation considerations were as follows:
  - Mechanical assets included freight to site and installation (materials, and modest time and labour costs).
  - Major electrical assets did not include the cost of installation as parts of the electrical assets would generally be replaced as part of a larger capital project, as per the assumptions from previous studies on the sewer system.
  - Structural assets were estimated based on unit construction cost estimates.
  - Linear asset values were based on current unit construction costs for mains of similar size and function.
- **Mark-Ups**: In order to account for additional costs associated with engineering, project management, and contingency, the mark-ups shown in **Table 2** were applied across all cost estimates, as follows: the total markup of 37% was applied to all linear infrastructure (water mains, service connections, water main valves, and hydrants), but only the contingency of 25% was applied to non-linear infrastructure. Generally, assets are replaced on an ad hoc basis within facilities and do not require new design projects, unless a whole section of a facility is being renovated. Therefore, engineering and project management costs were not included in non-linear replacement costs.

[1] AECOM (2018): Inventory and Value of Natural Assets for the CVRD's Water and Wastewater Services.

Table 2 – Cost Mark-Ups

Type of Mark-Up	Percentage
Engineering	11%
Project Management	1%
Contingency	25%
TOTAL	**37%**

The total replacement value of each asset system is presented in Table 3. These values are based on the assumption that assets will be replaced "like-for-like". Therefore, they do not account for upgrades and improvements in level of service

Table 3 - High-Level Asset Replacement Value

Asset System		Total Replacement Value
Distribution		$29,610,000
Natural (Oyster Bay Watershed)		$6,250,000
Chambers & Kiosks*		$282,000
Pump Stations (PSs)		$467,000
Reservoirs		$2,688,000
Treatment		$2,610,000
Wells		$1,197,000
TOTAL	*(Including Natural)*	**$43,104,000**
	(Excluding Natural)	**$36,854,000**

*Includes the following asset systems: Kiosks and Valve Chambers.

2.4 Expected Service Life (ESL) and Remaining Life

The expected service life (ESL) is defined as the period over which an asset is actually available for use and able to provide the required level of service at an acceptable risk; e.g., without unforeseen costs of disruption for maintenance and repair. There are different theoretical modelling tools used in the industry for predicting when an asset will fail or no longer provide useful service. For this assignment, AECOM applied a constant ESL for each asset type based on industry standards. In reality, different assets will deteriorate at different rates, however, it is important to keep in mind the level of effort required to predict failure compared with the asset value. More sophisticated deterioration modelling may be warranted for very high value assets, whilst the cost of deterioration modeling for low-value assets may very well exceed the replacement cost of the asset. The actual service life can vary significantly from the ESL. For BCOB WLSA assets, a preventive maintenance program is in place to maintain assets and maximize the useful life of the system. In some instances, a variation in expected vs. actual service life was evident due to the following factors:

- **Operating conditions and demands:** Some equipment is operated intermittently or even infrequently, or is being operated a lower demand than its design capacity, thus the actual operating "age" of the asset is reduced.
- **Environment:** Some equipment is exposed to very aggressive environmental conditions (e.g., corrosive chemicals), while other assets are in relatively benign conditions, thus the deterioration of assets is affected differently.
- **Maintenance:** Equipment is maintained through refurbishment or replacement of components, which prolongs the service life of the asset.
- **Technological Obsolescence:** Some assets can theoretically be maintained indefinitely, although considerations such as maintenance cost, energy inefficiency and new technologies are likely to render this approach uneconomical.

A high-level listing of some of the ESLs used for this assignment are provided in **Table 4**, based on actual ESLs experienced in the field. For a full listing of all the ESL values applied in this study, please refer to the detailed asset inventory provided in **Appendix B**.

Table 4 – Sample Expected Service Lives (ESLs)

Assets / Components	ESL (years)
Mains	50 – 80 (depending on material)
Service Connections*	N/A
Hydrants*	N/A
Reservoirs and Building Structures	60
Pumps	20
Valves**	50
Transformers & Panels	20
Motor Control Centres	20
Instrumentation	15 – 25 (depending on function)

* The replacement year of these assets was set equal to their associative main.

** For valves associated with water mains, the replacement year of the valve was set equal to its associative main.

To address the variation in ESL versus actual service life based on the observed condition, the remaining life of each vertical asset (condition data was not collected on linear assets) was adjusted to reflect the current condition of the assets according to the following methodology:

- The expected condition of the asset was calculated based on age and typical expected service life.
- If the expected condition matched the recorded condition the original replacement date was left unchanged.
- Where the expected condition and recorded condition differed:
  - The condition rating was set equal to the recorded condition.

  - The age of the asset was then adjusted to an "apparent age" using the following formula (note: for this study the Maximum Condition Rating is 5 – refer to **Table 5**).

$$Apparent\ Age = \left(\frac{Recorded\ Condition\ Rating}{Maximum\ Condition\ Rating}\right) \times ESL$$

  - The remaining life of the asset was calculated based on the expected service life (ESL) less the apparent age.

- For example, if an asset is 15 years into its 25-year ESL, but its condition was observed to be Poor (i.e., a condition rating of 4), then the age of the asset would be adjusted to an apparent age of [(25 ÷ 5) × 4] = 20. In addition, the remaining life of the asset would be set to (25-20) = 5 years.

2.5 Asset Condition

All assets are expected to deteriorate over their lifetime, and their assigned condition reflects the physical state of the asset. The assessment of physical condition for vertical (non-linear) assets was based on on-site condition assessments, consultations with operators with experience in managing the assets, combined with information from past studies. Condition assessments were based on the five-point Condition Rating Scale presented in **Table 5**.

Table 5 - Condition Rating Scale

Condition Grades	Description	Maintenance Required
1 – Very Good	New or Excellent Condition: Sound modern structure / equipment, operable and well-maintained.	Preventive Maintenance
2 - Good	Minor Defects Only: As 1, but showing some minor signs of deterioration. Minor refurbishment and maintenance required.	Preventive Maintenance, Minor Corrective Maintenance
3 - Fair	Moderate Deterioration: Asset is functionally sound, but appearance is significantly affected by deterioration. Mechanical, electrical and instrumentation components function adequately but with some inefficiency and minor failures. Structure is marginal in its capacity to prevent leakage.	Preventive Maintenance, Major Corrective Maintenance
4 - Poor	Significant Deterioration: Mechanical, electrical and instrumentation components function but require significant maintenance to remain operational. Equipment functional but obsolete. Deterioration has a significant impact on performance of asset due to leakage or other structural problems.	Renewal (if possible)
5 – Very Poor	Virtually Unserviceable: Serious condition problems having a detrimental effect on the performance of the asset. Will require major overhaul / replacement within the immediate future.	Replace (immediately)

It was not considered practical to collect physical condition data on linear assets. As no existing data was available, the condition rating for linear assets was estimated by assuming that condition deteriorates linearly with age. The following formula was used to obtain a condition rating for linear assets consistent with the scale presented in **Table 5**. Please refer to **Section 2.4** for information on the expected service life (ESL) of assets.

$$Condition\ Rating\ (Linear\ Assets) = 4 \times \left(\frac{Age}{Expected\ Service\ Life}\right) + 1$$

The BCOB WLSA asset component condition ratings are presented in the asset inventory spreadsheet included in **Appendix B**. **Figure 5** presents the condition distribution for BCOB WLSA assets, by asset replacement value.

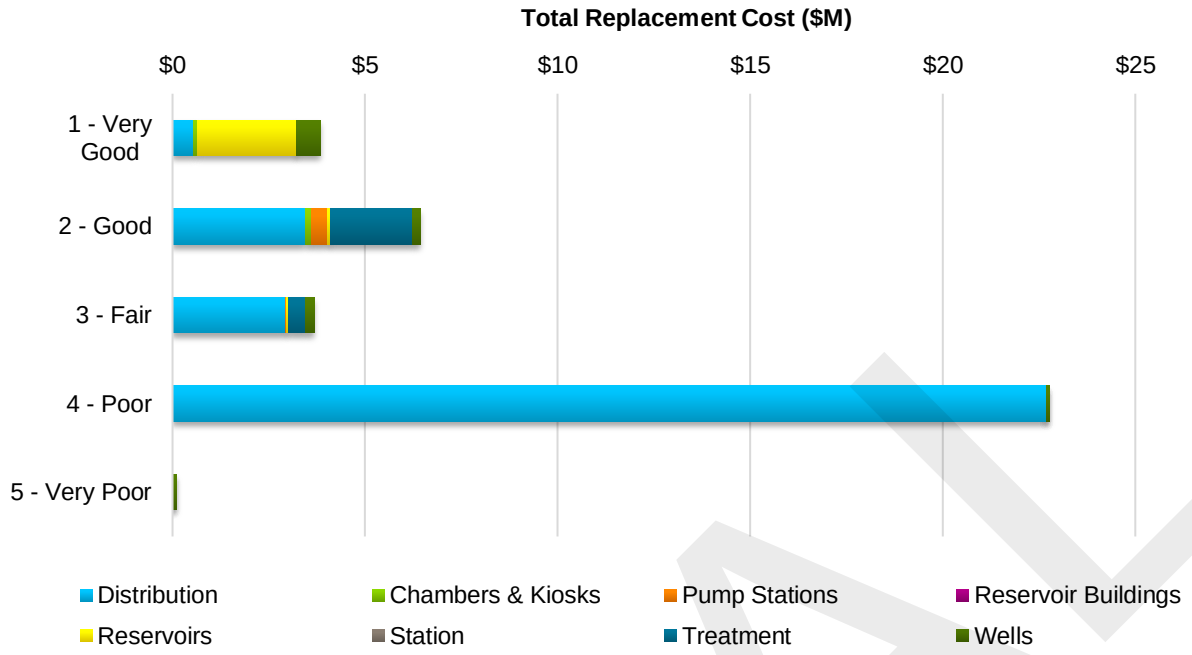


Figure 5 - Breakdown of BCOB WLSA Asset Condition by Replacement Value ($M)

In terms of asset condition, the BCOB WLSA assets that are of concern to the CVRD are summarized in **Table 6**. These are assets that currently have a condition score of 4 / "Poor" and 5 / "Very Poor".

Table 6 – BCOB WLSA Assets with a Condition Score of Four ("Poor") and Five ("Very Poor")

Asset System	Assets / Components	Comment
Distribution*	• 28.2 km of asbestos cement (AC) pipe • 9.9 km of copper (CU) pipe • 0.3 km of PVC pipe • 35 m of pipe with unknown material • 221 gate valves • 22 control valves • 94 hydrants	• Pipe diameters range from 19 to 250 mm. • AC pipes have an ESL of 60 years with ages ranging from 38 to 41 years (inclusive). • The majority of CU pipes are service connections that inherited the condition of their connecting main. • The majority of PVC pipes are hydrant services that inherited the condition of their connecting main.
Pump Stations	Black Creek Pump Station	• A computer station that has an age of 10 years versus an ESL of 5 years.
Treatment	Oyster Bay Treatment Plant	• The pressure transmitter, chlorine scale, rotameter, and emergency eye wash station/shower all have an age of 12 years versus an ESL of 15 years. • The computer station is 7 years past its ESL of 5 years.
Wells	Well No. 2a & 2b Control Building	• The exhaust fan, transformer, and MCC all have an age of 40 years versus an ESL of 20 years. • 2 VFDs have an age of 10 years versus an ESL of 15 years. • 2 - 150 mm check valves are approaching the end of its 50-year ESL. • The building structure is approaching the end of its 60-year ESL.

* Note: For especially the assets with long ESLs such as the mains (50-80 years), caution should be used in interpreting the condition rating. A condition state of four / "poor" does not necessarily mean that an asset is at risk of failing "soon". Please refer to **Sections 2.8** and **4.4** for how risk is used to rationalise when assets are triggered for replacement.

2.6 Asset Criticality

Every asset in the BCOB WLSA inventory should be reviewed / inspected on a regular basis to ensure that it is performing to the specified requirements. The inspection frequency can vary based on the condition and criticality of the respective asset and its function in supporting the organizational objectives. Criticality refers to the consequences of asset failure. For the purpose of this study, criticality was defined for vertical assets in terms of the five-point rating scale presented in **Table 7**. This criticality rating scale recognises that poor asset performance or asset failure could have impacts in terms of environmental, public safety, worker safety, equipment and process aspects, with severity of the criticality ranging from "Not Critical" to "Extremely High Criticality", as shown in **Table 7**.

Table 7 – Vertical Asset Criticality Rating Table

Criticality Rating	Criticality Level	Category	Impact of Asset Failure
1	Not Critical	Environmental	No Impact
		Public Safety	No Impact
		Worker Safety	No Impact
		Equipment	No Impact
		Process	Process running below design capacity and 100% redundancy available
2	Low Criticality	Environmental	Minor site only
		Public Safety	Low Impact
		Worker Safety	Low Impact
		Equipment	Minor repairs, no new parts necessary
		Process	100% redundancy available
3	Moderate Criticality	Environmental	Minor, local area
		Public Safety	Moderate Impact
		Worker Safety	Moderate
		Equipment	Repairs and new parts necessary
		Process	Backup available, between 99% and 25% redundancy available
4	High Criticality	Environmental	Major, large area affected
		Public Safety	Possible risk
		Worker Safety	Minor injury
		Equipment	Necessary to replace equipment
		Process	Reduced capacity of <25% redundancy available

Criticality Rating	Criticality Level	Category	Impact of Asset Failure
5	Extremely High Criticality	Environmental	Environmental disaster
		Public Safety	High risk of injury
		Worker Safety	Major injury or death
		Equipment	Entire process to be replaced
		Process	Equipment currently running over design capacity with no redundancy

The criticality of linear assets for all the CVRD water systems were evaluated according to the risk model discussed in greater detail in Appendix C. Since piped infrastructure is geographically dispersed over a wide area with many external influences, the criticality / consequence of failure for the CVRD water systems was evaluated using a model generated from a spatial data analysis. This model considered a variety of economic, social, environmental and operational criteria in determining the criticality of each main segment, in terms of a score from 0 to 100, which was then re-scaled to the 1 to 5 criticality bands presented above. **Figure 6** on the following page presents the criticality of the BCOB WLSA mains in terms of Low, Medium and High criticality according to the boundary values presented **Table 8**.

Table 8 - Criticality Score Boundary Values Used in Figure 6

Criticality	Criticality Score Boundary Values
Low	1 – 2.6
Medium	2.7 – 3.4
High	3.5 - 5

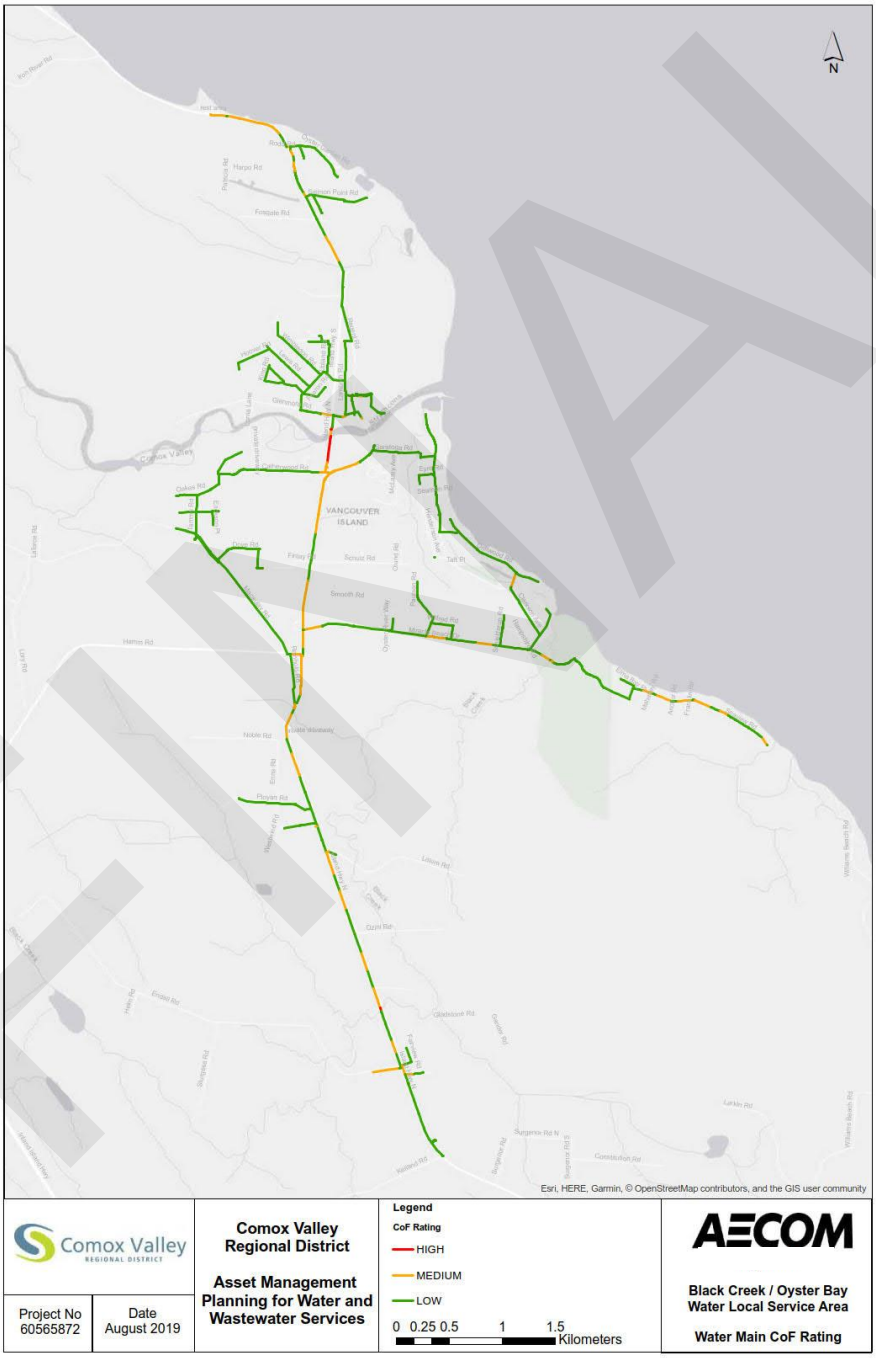


Figure 6 – Location Plan: Criticality of BCOB WLSA Mains

In terms of asset criticality, the BCOB WLSA assets that are of major concern to the CVRD are summarized in **Table 9**. In general, these are assets have a criticality score towards the top-end of the criticality scale (i.e., a score greater than or equal to 3.5).

Table 9 – Critical BCOB WLSA Assets

Asset System	Assets / Components	Comment
Distribution	• 316 m of pipe. • 2 gate valves and 2 control valves that are associated with critical pipes. • 1 hydrant that is associated with a critical pipe.	• Primarily 250 mm diameter asbestos cement pipes (269 m total). Pipe is situated underneath North Island Hwy and crosses Oyster River Estuary. • Remainder mostly comprises of 200 mm diameter steel pipe that is situated underneath Island Hwy and crosses Black Creek.
Natural	• Oyster Bay Watershed Storage and Collection	• Assigned a criticality rating of 5 because it is the only major, local source for drinking water collection and storage. The watershed is essentially considered to be near-irreplaceable and is therefore given the highest criticality rating.
Pump Stations	• Black Creek PS	• Electrical assets vital to the operation of the PS (MCC, UPS, Breaker, Transformer) were assigned a criticality rating of 4.
Reservoirs	• Kelland Reservoir • MaCaulay Reservoir	• All reservoirs were assigned a criticality rating of 4 due to their overall importance in balancing flows within the network and in providing emergency storage.
Treatment	• Oyster Bay Treatment Plant	• Various process mechanical equipment at the water treatment plant that serves a crucial function (certain valves, chlorine injector and scrubber, solution tank, etc.). • Vital electrical assets (MCC, UPS, Breaker, Transformer, etc.).
Wells	• Well No. 1 • Well No. 4	• Two check valves and one pressure relief valve were assigned a criticality rating of 4.

Critical assets were identified by using formalized criteria established above and typically included equipment that is critical to the functionality of the water system and that does not have redundancy. When making a decision on the timing of asset renewal or replacement it is important to consider the criticality of an asset. Ideally, assets that have a high criticality rating should be replaced before failure to prevent adverse impacts such as environmental disasters or severe injuries. Assets that have a low criticality rating may be allowed to run beyond the expected service life if a failure will not have an immediate negative impact. Please refer to **Appendix B** for a full listing of asset criticality for each asset within the BCOB WLSA inventory.

2.7 Probability of Failure

There will naturally be some level of variation in the service life of infrastructure assets of the same type due to inherent defects that may originate during manufacturing or installation, or due to specific local operating conditions. For that reason, some assets may fail prematurely, whereas other may live well beyond their theoretical life expectancy. Probabilistic methods of analysis are typically used to account for the variable nature of asset failure and the impact it has on risk. In this analysis, the probability associated with asset failure was determined using the two-parameter Weibull distribution.

The Weibull distribution has been used extensively in reliability studies and lifetime prediction models in industries ranging from the automotive to the oil and gas industries and provides a suitable distribution for this type of analysis. The probability of failure is represented by the cumulative distribution function, which is given by,

$$F(x) = 1 - e^{-\left(\frac{AGE}{ESL}\right)^{k}}$$

In addition to the age of the asset and its expected service life (ESL), the Weibull probability distribution is controlled by a shape parameter, k. The shape parameter is equal to the slope of the regressed line in a probability plot and, therefore, controls the rate at which the probability of failure (PoF) increases as assets age. The following figure shows the cumulative density function / probability of failure for several values of shape parameter.

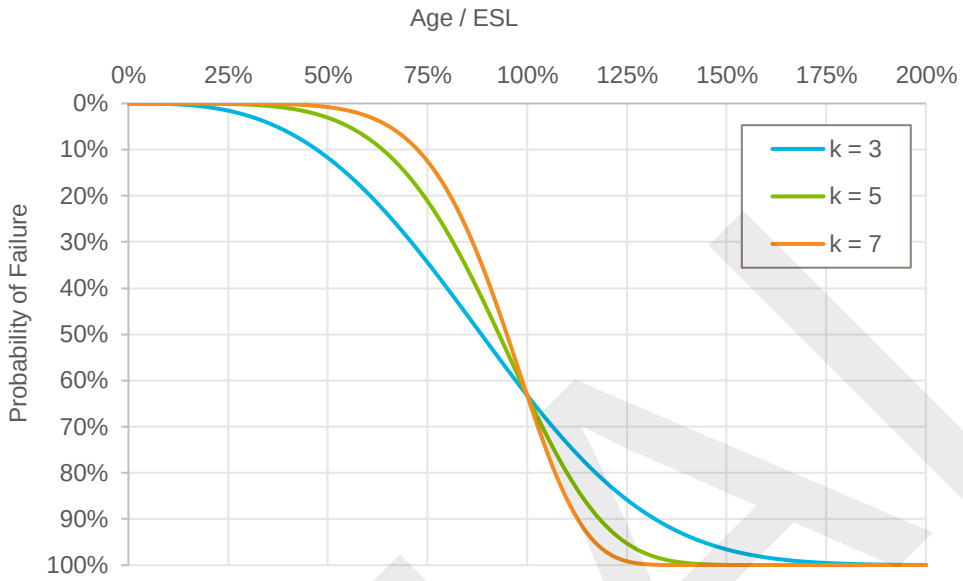


Figure 7 – The Impact of the Shape Parameter

A unique characteristic of the two-parameter Weibull distribution is that, regardless of the shape parameter chosen, an age over ESL of 100% always corresponds to a probability of failure of 63%. Said another way, the distribution assumes that 63% of assets will fail when they reach their expected service life. For this analysis, a shape factor of 3 was selected because it provides a suitable balance in estimating the probability of failure prior to, and after, an asset has reached its expected service life. **Figure 8** shows the resulting probability of failure for different values of asset age over ESL, along with bands representing what is considered as low, medium, and high PoF values.

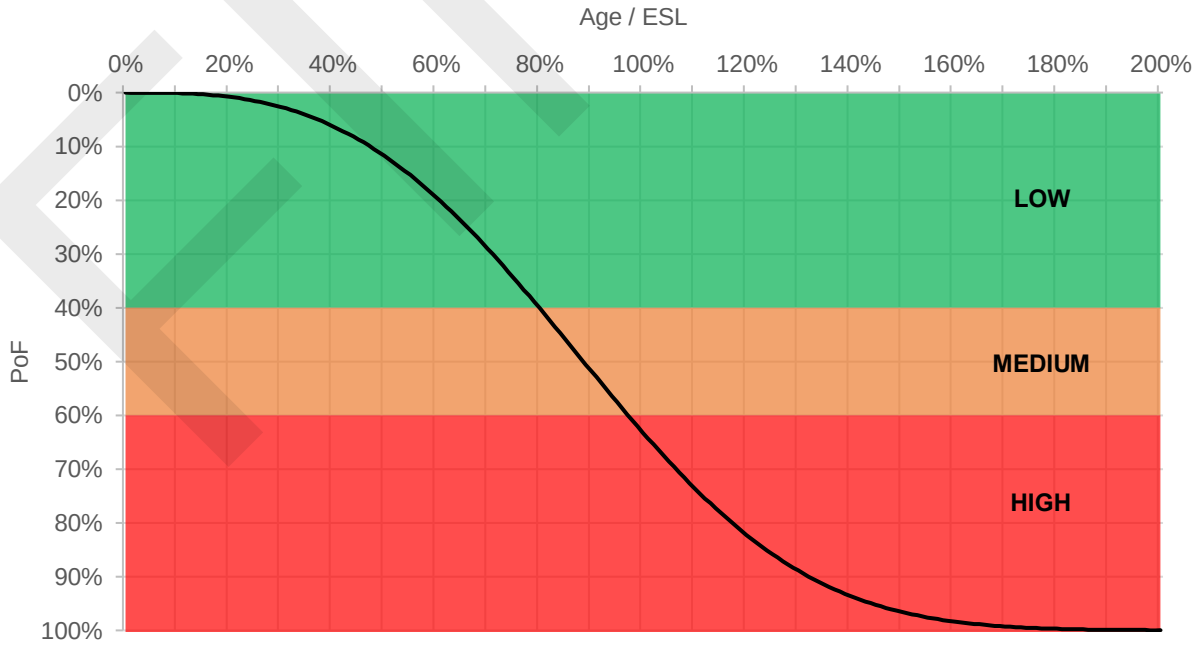


Figure 8 – PoF versus Asset Life Span Consumed

2.8 Asset Risk

A risk score was calculated for each asset. The risk score is a reflection of the probability of failure and the criticality ratings and was assigned using the following equation: **Risk Score = Probability of Failure x Criticality Rating**. Note, prior to calculating the risk score, PoF values were converted from a 0 to 100% scale to the same scale used for CoF (1 to 5).

The purpose of the risk score is to identify assets that require immediate attention. Understanding the risk exposure for a given set of assets allows CVRD to identify where the organization is most exposed, and to target investments to most effectively reduce that exposure. The range of the risk score is from 1 to 25. **Figure 9** presents a sample risk-based intervention plan that provides direction for asset interventions, ranging from monitoring asset condition or "run-to-failure" for low-risk assets to immediate replacement of the very high-risk assets.

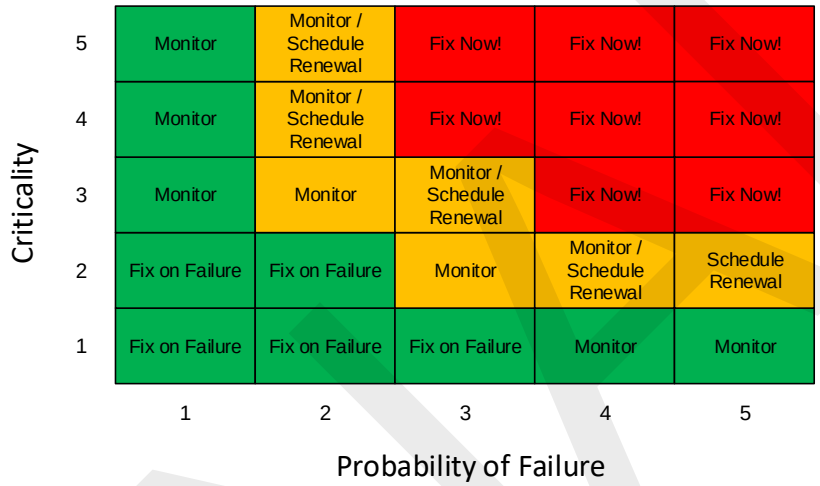


Figure 9 - Sample Risk-Based Intervention Plan

The risk values defined for assets enables CVRD to identify management strategies for the different risk categories, especially for the high-risk assets with a risk score in excess of 10, as presented in **Figure 9**. The failure of these assets presents the greatest risk to the organization and should be avoided through close monitoring, scheduling interventions, and performing the necessary renewals / replacements before failure occurs. To provide context for the risk values associated with BCOB WLSA assets, **Figure 10** presents an overview of the replacement costs associated with BCOB WLSA assets falling in the risk "buckets" of 1 to 25 (the highest risk score in the BCOB WLSA inventory was 15).

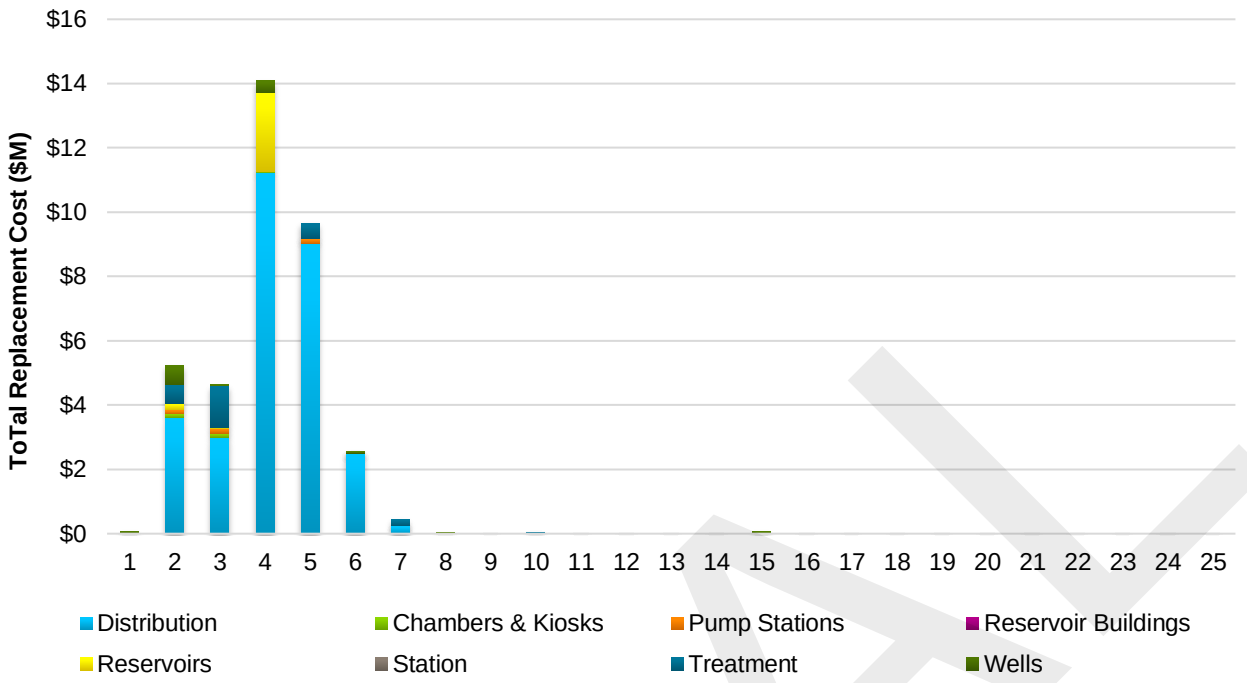


Figure 10 - Replacement Costs versus Risk

The majority of BCOB WLSA assets fall towards the lower end of the risk scale. However, there are $77,500 worth of assets that have a risk score greater than 10. Specifically, these assets include an MCC (valued at $62,500), an exhaust fan, and an electrical transformer in the control building for Well No. 2a & 2b. Please refer to **Appendix B** for a tabular summary of the entire BCOB WLSA asset inventory and associated risk values, and **Appendix E** for a listing of high-risk assets for each asset system.

3 Levels of Service (LoS)

3.1 Background to LoS

Levels of Service (LoS) are a key foundational element of the AM planning process. They form the basis for identifying and analyzing the performance (any deficiencies and / or risks) of CVRD assets and also inform decision-making related to the evaluation of issues, identification of potential options and development of the O&M and capital renewal plans. LoS are composite indicators that reflect the social and economic goals of CVRD and may include any of the following parameters: safety, customer satisfaction, quality, quantity, capacity, reliability, responsiveness, environmental acceptability, cost, and availability.

Defined LoS may be any combination of parameters deemed important by the CVRD and represent service-cost trade-offs, established in a flexible, rational, and transparent manner, as follows:

- LoS assist and support decision-making and investment planning related to the planning, development, operation, maintenance, rehabilitation, and replacement of municipal infrastructure.
- LoS promote good practice, sustainable development, and environmental stewardship.
- LoS facilitate community involvement and a public sense of ownership and incorporate community values.

The establishment of LoS is a dynamic process that requires ongoing linkage between a series of activities that overlap with one another (Figure 11).

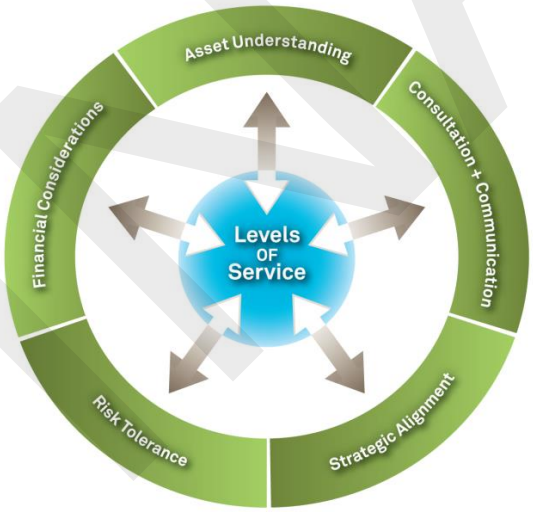


Figure 11 - Level of Service Linkages

3.2 Corporate, Customer and Technical Levels of Service

LoS are an important part of the asset management (AM) business cycle as they determine the expected requirements of assets. LoS are generally separated into the following three levels, as presented in Figure 12.

- **Corporate LoS** describe the organizational mission, vision and corporate goals and objectives, as reflected in the direction provided by elected officials and the municipal administration. The Corporate LoS generally set the tone for the LoS that stakeholders want and are willing / able to support financially. These goals and objectives should reflect the values of the stakeholders but may be directed by certain legislative / regulatory requirements.

- **Customer LoS** describe in plain language that is understandable by most stakeholders the service that individual stakeholders and users can expect.
- **Technical LoS** describe parameters that must be achieved to deliver Customer LoS. Technical LoS may be described in more technical language.

LoS do not stand alone. In fact, they must ensure the strategic alignment of corporate goals and objectives with the activities performed at the different levels within an organization. As such, LoS should be connected through the entire organization and, ultimately, to each individual asset and activity that contributes to providing the service. LoS are evident throughout a complex pyramid of data, performance indicators and information, as presented in **Figure 12**.

LoS must be supported by a suite of indicators that enable an organization to conduct analyses and investigations regarding the optimal selection of strategies to provide the required customer-based outcomes in the most economically efficient manner. Therefore, LoS should be tools to help an organization guide customer expectations about service and price, while at the same time, provide an organization with facts and numbers to help guide mission and business outcomes.

Since the organizational mission and vision forms the top of the pyramid, it is the logical place to begin. Once these statements are generally agreed upon, a cascading suite of goals and objectives, and customer and performance LoS and indicators supporting key performance indicators (KPIs) can be developed. Over time, this will ensure that the overall performance measurement system supports each different layer of the organization, so that it can be used to maintain or improve service delivery and the quality of AM.

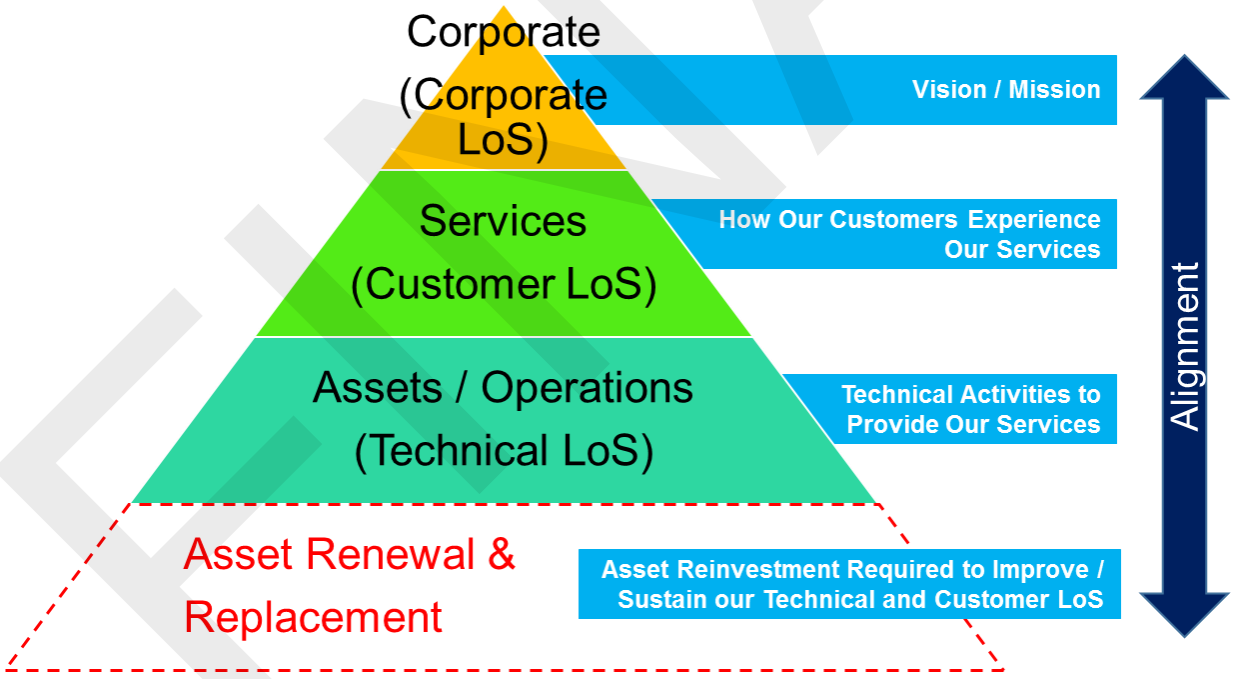


Figure 12 - LoS Should Ensure Strategic Alignment of Activities throughout an Organization

3.3 LoS for BCOB WLSA Assets

Table 10 presents a summary view of LoS at the different organizational levels within the CVRD.

Table 10 - LoS for BCOB WLSA Assets

Organizational Level	LoS	Comment
CVRD Vision Statement	The Comox Valley Regional District is a partnership of three electoral areas and three municipalities providing sustainable services for residents and visitors to the area. The local governments work collaboratively on services for the benefit of those living and visiting the diverse urban and rural areas of the Comox Valley.	From https://www.comoxvalleyrd.ca/about/about-cvrd accessed on December 11th, 2018.
BCOB WLSA Mission Statement / Goals & Objectives	The Black Creek – Oyster Bay water system (BCOB) is owned and operated by the Comox Valley Regional District (CVRD). It consists of two groundwater wells, one river infiltration gallery, two reservoirs, one pump station and a treatment facility that provides water to approximately 2,200 area residents. The CVRD has been working to assess the capacity of existing infrastructure and identify necessary capital improvements. The CVRD is also investigating alternative water sources in the hopes of improving the capacity of the system.	From https://www.comoxvalleyrd.ca/services/water/other-water-systems accessed on January 22nd, 2019.
Customer LoS	AECOM recommends that BCOB WLSA adopts the Customer LoS from the National Water and Wastewater Benchmarking Initiative (NWWBI).	See Section 3.4 below
Technical LoS	AECOM recommends that BCOB WLSA adopts the Technical LoS from the National Water and Wastewater Benchmarking Initiative (NWWBI).	See Section 3.4 below

3.4 LoS from the National Water and Wastewater Benchmarking Initiative (NWWBI)

AECOM has been managing a water and wastewater benchmarking initiative in Canada for close to 20 years. The National Water and Wastewater Benchmarking Initiative (NWWBI) – see http://www.nationalbenchmarking.ca/ – was developed to allow Canadian municipal water and wastewater utilities to measure, track, and report on their utility performance. Although fundamentally a high-level metric benchmarking process, it has developed into a network and information base for Canada's most progressive municipal utilities. The NWWBI was started in 1998 and has since grown to 55 member municipalities participating in stormwater, water, and wastewater benchmarking.

3.4.1 Customer LoS from NWWBI

The Customer LoS established through the NWWBI has been established through comprehensive discussions with key water and wastewater utility stakeholders since the project's inception in the late 1990's. At first, this process revealed significantly different points-of-view. However, through consultation and involvement, stakeholders generally reached consensus on the Customer LoS, which provided a strong focus for the management model developed for the NWWBI. Once set, these Customer LoS have remained relevant over the past two decades and continue to provide the basis for water and wastewater (and stormwater) utility decision-making. However, as individuals change at the political or management level, the emphasis on particular goals may also change. As a result, infrastructure

managers should stay attuned to the changing environment in terms of political and public opinion. This will help managers fine-tune their approach and priorities and stay aligned with the conditions of the day.

The water and wastewater Customer LoS that were identified and confirmed during the initial phases of the NWWBI were reviewed at each annual summary workshop to ensure that they continue to fully address all objectives of today's water and wastewater utility sector. The NWWBI's "management model" consists of seven basic customer-level service goals, supported by a range of technical LoS or KPIs, according to which utilities are annually benchmarked. The NWWBI customer-level goals are presented in **Figure 13**. It should be noted that these LoS are intentionally worded in a generic manner. The CVRD may wish to re-word the Customer LoS in a manner that integrates with their own municipal strategic plan; however, the essence of the goal is likely to remain the same.

Goal 1 – Provide reliable and sustainable service and infrastructure

Goal 2 – Ensure adequate capacity

Goal 3 – Meet service requirements with economic efficiency

Goal 4 – Protect the environment

Goal 5 – Have satisfied and informed customers

Goal 6 – Provide a safe and productive workplace

Goal 7 – Protect public health and safety

Figure 13 - NWWBI Utility Management Model and Seven Customer-Level Goals

3.4.2 Technical LoS from NWWBI

The NWWBI has identified approximately 50 Technical LoS (key performance indicators or KPIs) within each of the utility areas (wastewater, water and stormwater). Each NWWBI performance indicator is coded to a particular Customer LoS, as presented in the now familiar NWWBI goal model in **Figure 13**, and could also be coded to the specific types of assets that the BCOB WLSA owns and manages. **Table 11** and **Table 12** present a listing of technical LoS for BCOB WLSA to consider incorporating in its management and reporting procedures. These metrics have been found to be highly relevant indicators of water utility performance; the right-most column in each table presents the median value performance from the NWWBI utilities in 2017.

Table 11 - Technical LoS for Water Treatment (Groundwater System)

CUSTOMER LEVEL OF SERVICE	WATER TREATMENT SYSTEM: TECHNICAL LEVELS OF SERVICE	TARGET PERFORMANCE*
Provide Reliable Service and Infrastructure	Capital Reinvestment / Replacement Value	1.0%
	Reactive Maintenance Hours / Total Maintenance Hours	4.3%
Ensure Adequate Capacity	# of Days the Plant Operated at >90% Capacity	0
	Average Day Demand / Existing Water Licence Capacity	20%
Meet Service Requirements with Economic Efficiency	O&M Cost / ML Treated	$418
	Total FTEs / 1,000 ML Treated	0.91

CUSTOMER LEVEL OF SERVICE	WATER TREATMENT SYSTEM: TECHNICAL LEVELS OF SERVICE	TARGET PERFORMANCE*
	Energy Consumed in kWh / ML Treated	826
	Chemical Cost / ML Treated	$13
Protect Public Health and Safety	Average Value for Treated Water Turbidity (NTU)	0.3
	# of Occurrences of Total Coliforms in Treated Water	0
	Median Value for Nitrates (mg/L) in Treated Water	1.2
Provide a Safe and Productive Workplace	# of O&M Accidents with Lost Time / 1,000 Labour Hours	0
	# of Lost Hours due to O&M Accidents / 1,000 Labour Hours	0
	# of Sick Days Taken per O&M Employee	7.7
	Total Overtime O&M Hours / Total Paid O&M Hours	4.4%
Protect the Environment	% of Water Wasted During Treatment Process	0.2%

* Based on Canadian National Water and Wastewater Benchmarking median values for 2017 (www.nationalbenchmarking.com)

Table 12 - Technical LoS for Water Distribution (Integrated System)

CUSTOMER LEVEL OF SERVICE	WATER DISTRIBUTION SYSTEM: TECHNICAL LEVELS OF SERVICE	TARGET PERFORMANCE*
Ensure Adequate Capacity	# of Hours of Treated Water Storage Capacity at Average Day Demand	25
Provide Reliable Service and Infrastructure	# of Main Breaks / 100 km Length	6.2
	# of Unplanned System Interruptions / 100 km Length	7
	Total Customer Days without Service / Total # of Service Connections	0
	Capital Reinvestment / Replacement Value	1.0%
	Total Corrective Maintenance Hours / Total Maintenance Hours	55%
	Total Maintenance Hours / km Length	39.0
	Non-Revenue Water (L/connection/day)	146
	System Length Tested for Leakage / km Length	3%
	% of Valves Cycled	29%
	% of Inoperable or Leaking Valves	0%
	% of Hydrants Inspected or Winterized	98%

CUSTOMER LEVEL OF SERVICE	WATER DISTRIBUTION SYSTEM: TECHNICAL LEVELS OF SERVICE	TARGET PERFORMANCE*
	% of Inoperable or Leaking Hydrants	1%
	# of Emergency Service Connection Repairs & Replacements / # of Service Connections	0%
Meet Service Requirements with Economic Efficiency	Total Cost to Provide Water / Population Served	$190
	Administrative Overheads / Population Served	$6.70
	O&M Cost ('000) / km Length	$8.60
	Pump Station O&M Cost / Total Pump Station Horsepower	$267
	Pipes O&M Cost ('000) / km Length	$6.47
	Metering O&M Cost / # of Meters	$13.90
	# of O&M FTEs / 100 km Length	4.1
	Total # of FTEs / 100 km Length	5.6
	# of Inhouse Metering Field FTEs / 1,000 Meters	0.07
	Pump Station Energy Consumed kWh / Total Pump Station Horsepower	1061
	Cost of Fire Hydrant O&M / # of Fire Hydrants	$89
	Cost of Water Quality Monitoring / Population Served	$1.12
	Cost of Customer Billing (Water) / Total # of Service Connections	$10.80
Provide a Safe and Productive Workplace	# of O&M Accidents with Lost Time / 1,000 O&M Labour Hours	0.03
	# of Lost Hours Due to O&M Accidents / 1,000 O&M Labour Hours	1.7
	# of Sick Days Taken per O&M Employee	9.6
	Total Available O&M Hours / Total Paid O&M Hours	81%
	Total Overtime O&M Hours / Total Paid O&M Hours	5.4%
Protect the Environment	Per Capita Average Day Consumption for Residential Customers	182
	Cost of Water Conservation Program / Population Served	$0.42
	# of Days of Water Restrictions	120
Have Satisfied and Informed Customers	# of Water Quality Customer Complaints / 1,000 People Served	0.46
	# of Water Pressure Complaints by Customers / 1,000 People Served	0.41
Protect Public Health and Safety	Connections Affected by Boil Water Advisory / 1000 Service Connections	0
	Average Value for Turbidity (NTU)	0.19
	# of Total Coliform Occurrences	0
	Average Value for THMs (mg/L)	0.028

CUSTOMER LEVEL OF SERVICE	WATER DISTRIBUTION SYSTEM: TECHNICAL LEVELS OF SERVICE	TARGET PERFORMANCE*
	% of Cumulative Main Length Cleaned	17%

* Based on Canadian National Water and Wastewater Benchmarking median values for 2017 (www.nationalbenchmarking.com)

3.5 Demand / Future Growth

Demand / future growth plays an important role in an organisation's strategic investment planning to support its LoS – planning for an existing portfolio of assets or determining future requirements to expand their portfolio to meet changing demand. Demand analysis typically includes the analysis of future demand for the product or services being offered and the requirements this demand places on the asset portfolio. The CVRD's AM planning should address potential changes in demand / future growth that include attention to the following factors / topics for the BCOB WLSA:

Table 13 - Consideration of Demand / Future Growth Factors for BCOB WLSA

Demand / Future Growth Factors	Comment
Drivers of demand & future demand and changes in demand over time.	• Household water usage across Canada has tracked lower in recent years, in part due to improvement in water efficiency of toilets and appliances. Lower water consumption translates into lower volumes of bulk water purchased from the CVRD. • The 2011 rate review[2] indicated that CVRD has completed installation of water meters at all service connections within its service area boundaries. At the time it was recognized that volumetric pricing would give customers some control over their costs, and that demand was expected to reduce significantly; perhaps by as much as 15% to 30%. • Lower water consumption rates could negatively impact revenue generation that is linked to actual / volumetric water consumption. • The BCOB WLSA is funded through per cubic meter charges based on the metered water consumption charged to residential and commercial customers. The rate structure is based on a combination of a flat fee plus a tiered scale for per-cubic meter consumption. • To prepare for the significant capital project requirements in the coming years, the CVRD has already started to increase its bulk water rates. An increase in water rates at the BCOB WLSA-level to pay for the new water treatment plant might reduce overall water consumption, at least over the short term. A parcel tax projection analysis should be undertaken in concert with a user rate analysis to determine the appropriate mix of funding to support operational versus capital requirements. • Potential impact of climate change on water demand: hotter summers = higher water demand; cooler summers = lower water demand.
Changes in required levels of service & current and future utilization and capability of assets.	• Potential impacts of residential and commercial, industrial and institutional (ICI) developments in terms of water demand. • Impact of potential regulatory changes (see discussion below). • Removal of the need for turbidity-related boil water notices once the new water treatment plant is commissioned.
Impact on the future performance, condition and capability.	• If ageing BCOB WLSA infrastructure is not replaced in time it will have an adverse effect on service levels and expose the CVRD to varying levels of risk, depending on the nature of the asset failure.
New assets, asset systems or technology (including obsolescence).	• New technologies such as a computerized maintenance management system (CMMS) and / or decision support system (DSS) holds many benefits to the BCOB WLSA such as the tracking of maintenance (corrective, predictive and preventive), improved budgeting for O&M, better capital planning & prioritization, etc. However, implementing these systems will take some time and considerable staff resources for the systems to become fully functional.
Factors external to the organization (including new legal and regulatory requirements).	• The BCOB WLSA system is fed via a river infiltration gallery and seven wells, combined with a treatment facility that utilizes chlorine and ultraviolet light.

[2] AquaVic Water Solutions Inc (2011): CVRD Rate Review. P6.

Demand / Future Growth Factors	Comment
	• In response to regulatory pressures, a planned new water treatment plant feeding into the Regional Comox Valley Water System will use filtration, ultraviolet treatment and chlorination to remove or kill bacteria, viruses and parasites during the treatment process. • The BCOB WLSA is currently not connected to the Regional Comox Valley Water System. However, the potential exists to feed regional water into the BCOB WLSA in the future if it is hydraulically feasible.
Supply chain constraints	• BCOB WLSA to have line of sight to potential supply chain constraints, especially for the highly critical assets / components identified in this study.
Demands on resources	• Skilled resources for the operation, maintenance and renewal of BCOB WLSA assets should be a primary concern to CVRD Management. An ageing workforce, skills and knowledge retention and new technologies (see CMMS and DSS above) will place greater pressure on existing staff. This potential skills shortage could be exacerbated by the need to upskill and staff the new water treatment plant. • The competition for skills in the infrastructure sector in BC is expected to be fierce, especially with large capital projects in the Lower Mainland currently under way (e.g., Metro Vancouver's secondary treatment upgrade program; TransLink's SkyTrain expansions) and projects further afield (Victoria's McLoughlin Point WWTP; Woodfibre LNG in Squamish; LNG Canada in Kitimat and BC Hydro's Site C Dam in northeastern BC).

4 Asset Life Cycle Strategies

4.1 Background

Any responsible owner of assets such as the CVRD has a desire to preserve the condition of their existing assets for as long as possible, by maintaining or even extending their design lives through routine activities such as maintenance and active intervention. CVRD is continually acquiring assets that require increased funding for operating and maintenance. CVRD is also responsible for the replacement of deteriorated assets for as long as their service is required. While individual assets may have a useful life that can be predicted in years or decades, the service that the asset provides could be required for a substantially longer duration. The purpose of this section is to fully understand and predict the long-range financial requirements for BCOB WLSA, in order to facilitate planning and resource management in the most cost-effective manner possible.

Decisions that are made at the design stage can significantly influence the maintenance activities required and vice versa (Figure 14). Monitoring and measurements during the acquisition phase, and the quality of assembly / construction can significantly affect the durable nature of an asset and the expected serviceable life or operating costs.

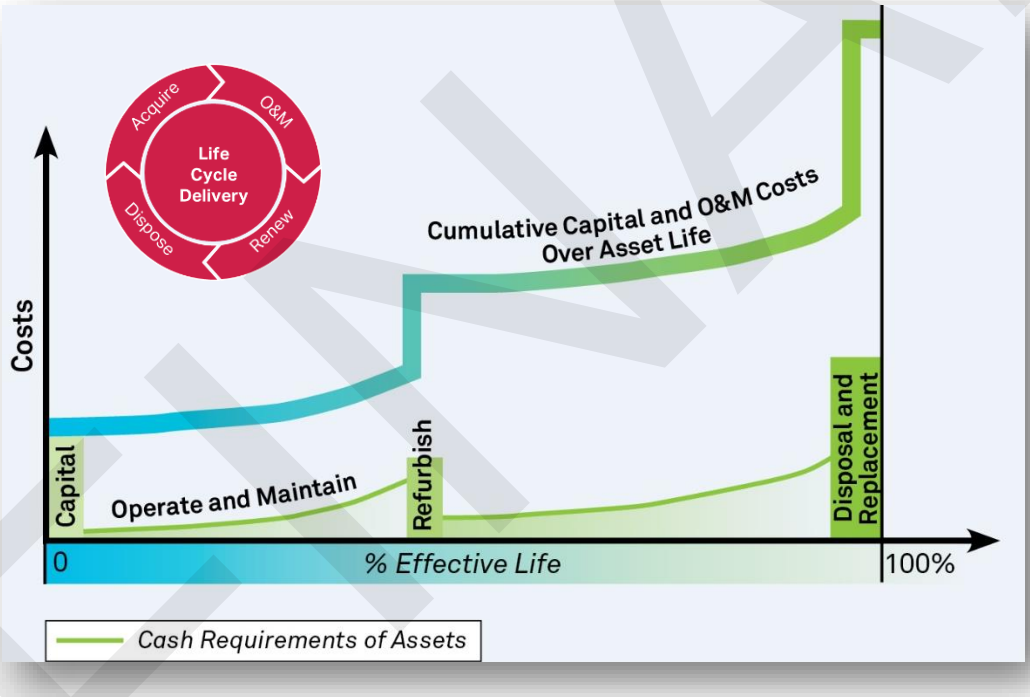
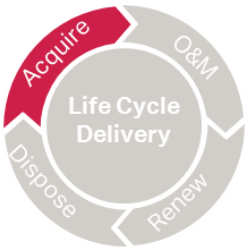


Figure 14 - Through Understanding the Full Life Cycle Costs of its Assets, CVRD Will Make Better, More Informed and Financially Sustainable Asset Decisions

4.2 Asset Acquisition Activities



As was shown in Section 2.3, CVRD has made significant investments in the design and acquisition of its water assets. The BCOB WLSA's asset inventory has, to a large extent, been created over the past four decades through funding provided by municipal customers and higher levels of government. Looking towards the future, when acquiring new assets, the CVRD should evaluate credible alternative design solutions that consider how the asset is to be managed at each of its life cycle stages. Asset management and full life cycle considerations for the acquisition of new assets include, but are not limited to the following:

- The asset's operability and maintainability.

- Availability and management of spares.
- Staff skill and availability to manage the asset.
- The manner of the asset's eventual disposal.

CVRD's procurement staff need clear requirement specifications and have to work with BCOB WLSA engineering and O&M staff to ensure specifications are complete, adequate and match required design criteria. Therefore, it is important that there is good mutual understanding and co-operation between procurement and other parts of the CVRD.

Organizations from a wide range of industries are quoting 20, 40, or even 50% gains in business performance while simultaneously controlling costs, risks and long-term capability, when whole life cycle and asset management principles are incorporated at the design stage[3]. The starting point for this is a design and construction process that produces the information and data required to manage assets throughout their life. A durability planning approach in specifying asset management and maintenance regimes on CVRD projects will form a continuous link through the full duration of each project, from design through to construction and operation. Figure 15 presents a sample durability planning approach applied by AECOM, together with several lessons learnt:

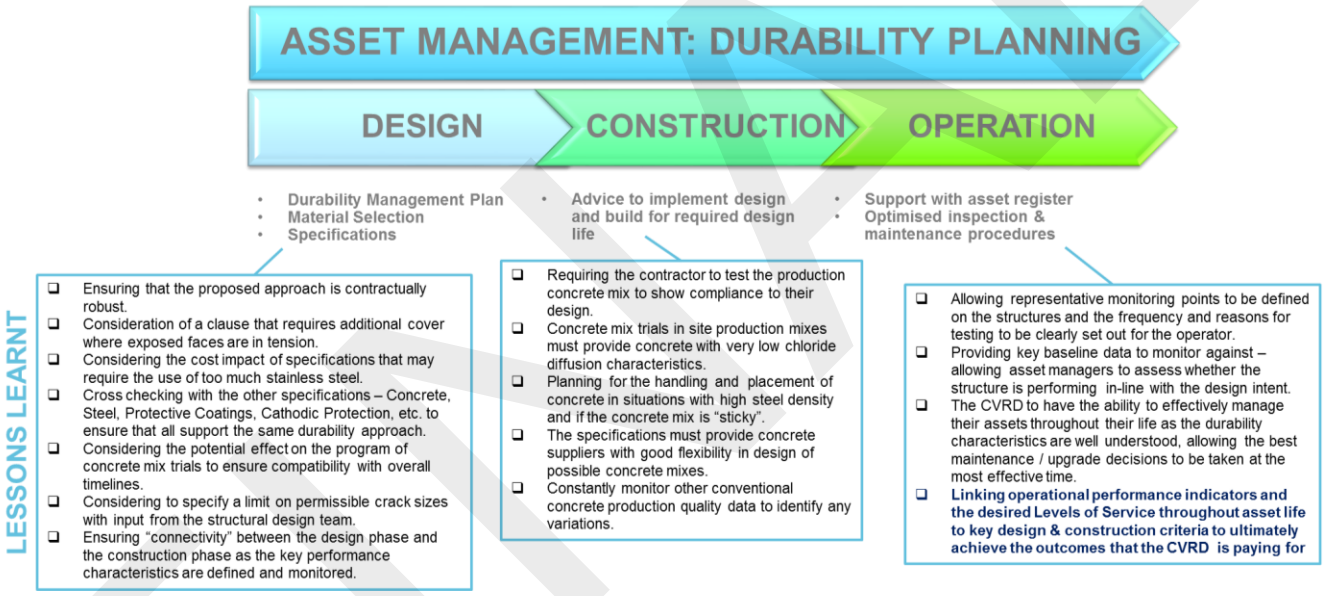


Figure 15 - Quality of Construction Can Significantly Affect Asset Durability

4.3 Asset Operations and Maintenance (O&M) Activities

As new assets are commissioned, CVRD accepts the responsibility of operating and maintaining the assets according to O&M standards to ensure that the assets are safe and reliable. Operations staff provide the day to day support required to operate the assets. In few cases, operations costs are minor, but normally there are noticeable increases from year-to-year. For example, water mains require limited operational support, while the treatment plant, reservoirs and pump station require frequent visits by CVRD staff to inspect the facilities and ensure they are operating safely and efficiently.

Maintenance expenses include periodic preventive maintenance to ensure that the assets can provide reliable service throughout the life of the asset, and corrective maintenance that is required to repair defective assets, as and when needed. Inadequate funding for O&M will have an adverse impact on the life span of assets. The amount of O&M resources required in any period is a function of the current inventory of assets and the total

[3] IAM (2011): An anatomy of Asset Management. Issue 1.0, December 2011.

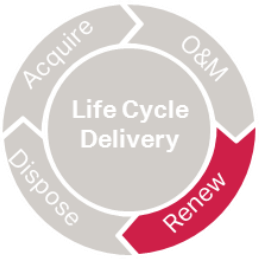
O&M needs required for each asset. It is of utmost importance to know that as the inventory of BCOB WLSA assets grows, total O&M requirements and associated budgets need to grow in a commensurate fashion.

Appendix D presents a listing of the typical O&M activities performed on water distribution assets (due to the specialized nature of the treatment plant, the standardization of maintenance activities are beyond the scope of this assignment). The activities provided in **Appendix D** should be considered for incorporation in the BCOB WLSA O&M practices and the future computerized maintenance management (CMMS) system implementation. Such a CMMS system will enable BCOB WLSA to maintain a direct relationship between an asset and all cost transactions associated with that asset to facilitate summary and detailed activity-based costs. A properly-implemented CMMS will also provide tools to create, maintain, and compare monthly and annual budgets in comparison to actual costs on an ongoing basis. This is especially important from a maintenance tracking point-of-view to ensure that BCOB WLSA performs adequate maintenance to support the life cycle and asset durability goals set at the design stage. Asset maintenance activities are typically divided in three general categories, as follows:

- **Corrective Maintenance:** Repairs that are made after the equipment has failed and cannot perform its normal function anymore.
- **Preventive Maintenance:** Maintenance tasks that are performed at regular intervals, based on industry expected equipment life spans and failure patterns.
- **Predictive Maintenance:** Maintenance that is conducted only when it is confirmed necessary through the use of non-destructive tests that detect potential failure conditions before their occurrence.

BCOB WLSA O&M and engineering staff understand the issues with assets found in service and are invaluable in providing practical input to improve asset strategies and maintenance instructions. The CVRD should encourage O&M staff to make recommendations that will improve asset management. These, along with other sources of information regarding asset performance and maintenance, should be analysed and used to improve asset management.

4.4 Asset Renewal and Replacement Activities

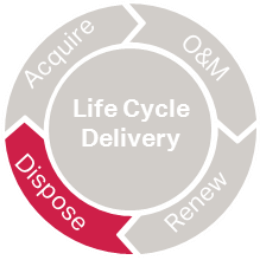


The third portion of full life cycle costing relates to the renewal and replacement of assets that have deteriorated to the point where they no longer provide the required service. Renewal cost is sometimes incurred during the life of an asset where an investment is made to improve the condition and / or functionality of the asset (e.g., refurbishment of a piece of equipment). Replacement occurs at the end of an asset's life when it is disposed of and replaced by a fully new asset.

The following assumptions were made in the analysis of future funding needs for asset renewal and replacement presented in **Section 5**:

- All assets (vertical and linear) are replaced when their age reaches their ESL and / or when their risk score currently exceeds 10. This, in general, meant that any asset with a risk value greater than 10 in year 2019 (i.e., criticality > 2 and probability of failure = 5, or criticality = 5 and probability of failure > 2) was triggered for replacement.
- When an asset is replaced (linear or vertical), it was assumed that the criticality score remains the same but that the age resets to zero (i.e., age zero = very good condition) and that the new assets last as long as their ESL.
- Please refer to **Section 2.3** for assumptions on the asset replacement values applied in the assessment.

4.5 Decommissioning and Disposal Activities



Asset decommissioning and disposal activities are performed to decommission and dispose of assets due to ageing or changes in performance and capacity requirements. This decision process includes the consideration of costs and benefits of rationalization using a whole life approach, the impact of asset rationalisation on other infrastructure and the processes for disposal of assets. More specifically, the following factors need to be evaluated when considering the decommissioning and disposal of assets:

- Assets not required for the delivery of services, either currently, or over the longer planning period.
- Assets that have become uneconomical to maintain or operate.
- Assets that are not suitable for service delivery.
- Assets that have a negative impact on service delivery, the environment, or community.
- Assets that no longer support BCOB WLSA's service objectives due to a change in type of service being delivered or the delivery method.
- Assets where their use has become uneconomical due to the limited availability of spares or the cost of their replacement parts.
- Assets where their technology has been outdated.
- Assets which can no longer be used for the purpose originally intended.

Considerations for BCOB WLSA asset decommissioning and disposal activities include, but are not limited to:

- Updates to the CVRD's Statement of Tangible Capital Assets. Considerations related to the determination of residual value and the disposal of assets include:
  - Residual value and the useful life of an asset should be reviewed, at the very least, at each financial year-end and, if expectations differ from previous estimates, any change should be accounted for prospectively as a change in estimate.
  - The depreciation method used should reflect the pattern in which the asset's economic benefits are consumed.
  - The depreciation method should be reviewed, at the very least, annually and, if the pattern of consumption of benefits has changed, the depreciation method should be changed prospectively as a change in estimate.
- Updates to asset databases such as the GIS and CMMS.
- Environmental impact of disposal and implications for land rehabilitation, where applicable.
- Residual value of assets.
- Continued service delivery while a new asset is being constructed / commissioned: overlap of the start-up of new assets / facilities and the decommissioning of existing assets / facilities being replaced.
- Cost of decommissioning and disposal.
- Other, as needed.

5 Funding Strategies

5.1 Funding Needs for BCOB WLSA Assets

The asset renewal forecasts prepared for this assessment are long-term estimates of what it will cost over the next 20 years to replace assets as they age and move past their ESLs and / or exceed the risk tolerances of the CVRD (see **Section 4.4**). Two sets of analysis results have been developed, and cross-checked against the NWWBI reinvestment rates for wastewater infrastructure, as follows:

- A spreadsheet-based analysis that triggers an asset replacement when an asset reaches its expected service life and / or exceeds the risk threshold of 10 in 2019.
- The “reinvestment rate” measure is calculated by dividing the annual amount of expenditure on reinvestment by the total replacement value of the respective assets. The recommended annual investment in BCOB WLSA assets was compared to the NWWBI values for water treatment and transmission / distribution systems, to confirm its validity.

As a final comment on the topic it is worth recalling the famous quotation that "*Prediction is very difficult, especially if it's about the future*". It is worth remembering that an analysis of this nature is based on literally thousands of data inputs and many assumptions, and is therefore, at best, a high-level estimate of future funding needs based on the best available information at the moment.

5.1.1 Funding Needs Analysis

The MS Excel analysis made use of the asset inventory, age and ESL, replacement values and risk scores to create a theoretical asset replacement cycle for each asset. It is a starting point for planning long term capital requirements for addressing future asset replacement needs. This forecast is based on the following assumptions:

- Assets will be replaced when their theoretical end of useful life is reached, or when their risk score exceeds a value of 10 in year 2019. The age of assets was adjusted to an “apparent age” based on the on-site condition assessment as per the methodology outlined in **Section 2.5**.
- The backlog is the total dollar value of all assets that are currently beyond their ESL. The backlog is included in the calculation of the average annual 20-year funding needs.
- Total replacement costs are based on 2019 Canadian dollars inflated by 2% to the year of replacement.
- No funding restrictions are applied.
- Full asset replacement was the only intervention strategy considered in the analysis.

The average annual funding need for the BCOB WLSA is $0.13 M, for a total of approximately $2.6 M over the next 20 years, as presented in **Figure 16**. Of note in **Figure 16** is that the immediate decade ahead does not require significant reinvestment in the BCOB WLSA as the assets are still of such an age that large scale investments are not triggered. Exceptions include minor investment in the treatment and wells assets. However, the period from 2027 to 2038 sees a greater need to reinvest primarily in wells, pump stations and treatment, as these assets start to reach the end of their respective ESLs.

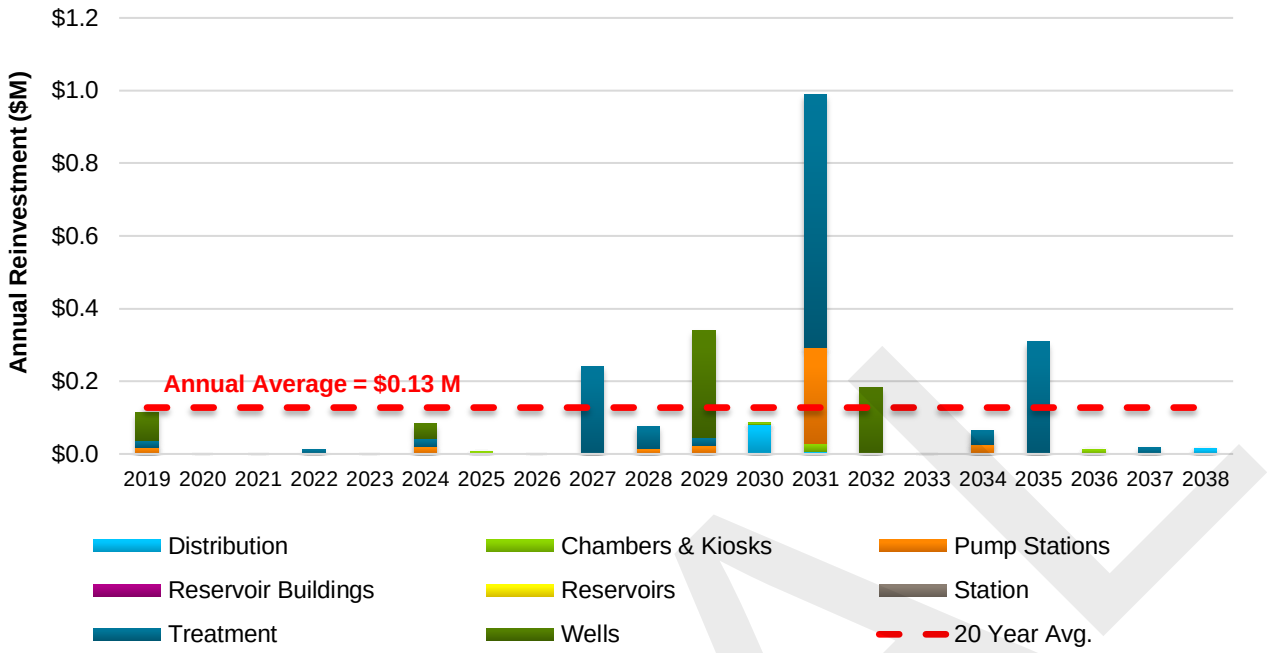


Figure 16 – 20-Year BCOB WLSA Funding Need Analysis

5.1.2 Reinvestment Rate Comparison with NWWBI

Since the inception of the NWWBI project, one indicator has been used consistently to highlight the urgent need for increasing the spending on the renewal and replacement of existing infrastructure. This measure is commonly known as the “infrastructure reinvestment” measure and is calculated by dividing the annual amount of expenditure on reinvestment by the total replacement value of the respective assets. This indicator focuses attention on whether the current infrastructure “owners” are compromising the ability of future generations to meet their own infrastructure needs by underinvesting in infrastructure renewal and replacement. For example, a utility with a reinvestment rate of 1% would take 100 years to fully replace its assets; a utility with a reinvestment rate of 2% would take 50 years to replace all its assets, and so forth.

In the case of the annual reinvestment amount identified in the previous section, the recommended reinvestment rate for the BCOB WLSA asset portfolio is as follows:

- Annual reinvestment = $0.13 M (from **Figure 16**).
- BCOB WLSA Replacement Value = $36.9 M (from **Table 3**).
- Annual Reinvestment Rate = $0.13 M / $36.9 M = 0.3%.

The NWWBI values for annual reinvestment at water treatment plants and transmission / distribution systems across Canada over the period from 2014 to 2017 ranged from a minimum of ~0.03% to a maximum of ~7.34%, with an average 1.01%. **Figure 17** presents a comparison of the range of NWWBI values with the recommended BCOB WLSA reinvestment rate.

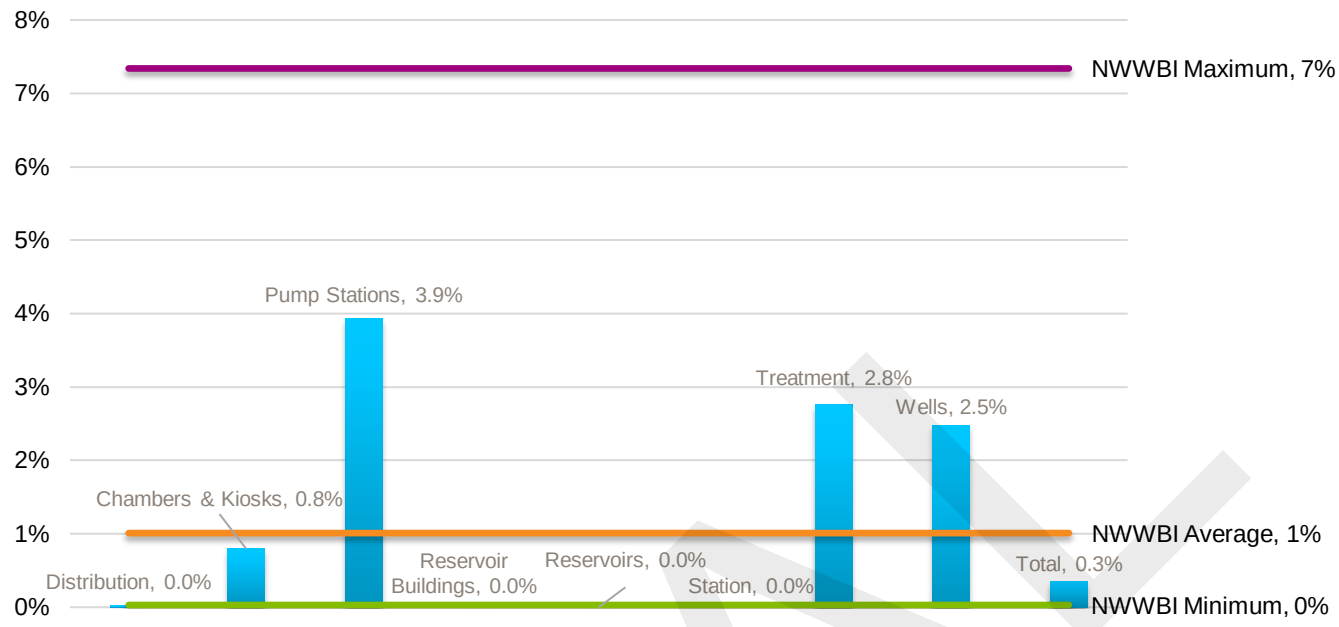


Figure 17 – Comparison of NWWBI and Recommended BCOB WLSA Reinvestment Rates

From **Figure 17**, it is worth noting that the recommended reinvestment rate for BCOB WLSA for 2019-2038 is well below the average for Canadian water utilities (0.3% versus 1.0%). This is due to the relatively low reinvestment required in the next 20 years for the distribution system which, when compared to the other asset systems in BCOB WLSA, has a substantially greater replacement value (refer to **Table 3**; the relatively large replacement value of mains tends to skew the total reinvestment rate lower). It is generally known that Canadian utilities are not investing adequately in the renewal and replacement of infrastructure, thus the BCOB WLSA will be well advised to aim for a reinvestment rate that is the same or higher than the average for the NWWBI. This so-called “asset management premium” is the additional investment that the CVRD will need to make to maintain its water assets in a sustainable fashion over the medium to long term and ensure that there are enough reserves to help fund the replacement of distribution assets when they eventually come up for renewal starting in the 2040s.

6 Recommendations

6.1 Reinvestment Funding Levels 2019 - 2038

AECOM recommends that the funding levels for BCOB WLSA AM and asset reinvestment be increased to the values shown in Table 14. Note that these are total expected expenditures and do not differentiate between the source of funding, be it through debt, grants, or reserves. The values were calculated for each asset class by averaging the total recommended reinvestment from Figure 16 over the 20-year analysis, as presented in Figure 18. Accordingly, the recommended funding levels are consistent with the recommended reinvestment rates given in Section 5.1.2 and increasing funding to the levels shown will help ensure that the CVRD has the resources required to meet current and future needs.

Table 14 – Recommended BCOB WLSA Funding Levels for Reinvestment (2019 – 2038)

	Distribution	Chambers & Kiosks	Pump Stations	Reservoirs	Treatment	Wells	TOTAL per Year
2019-2038, per year	$5,000	$2,250	$18,500	$0	$72,000	$30,000	**$127,500**
TOTAL 2019 - 2038	**$100,000**	**$45,000**	**$370,000**	**$0**	**$1,440,000**	**$600,000**	**$2,550,000**

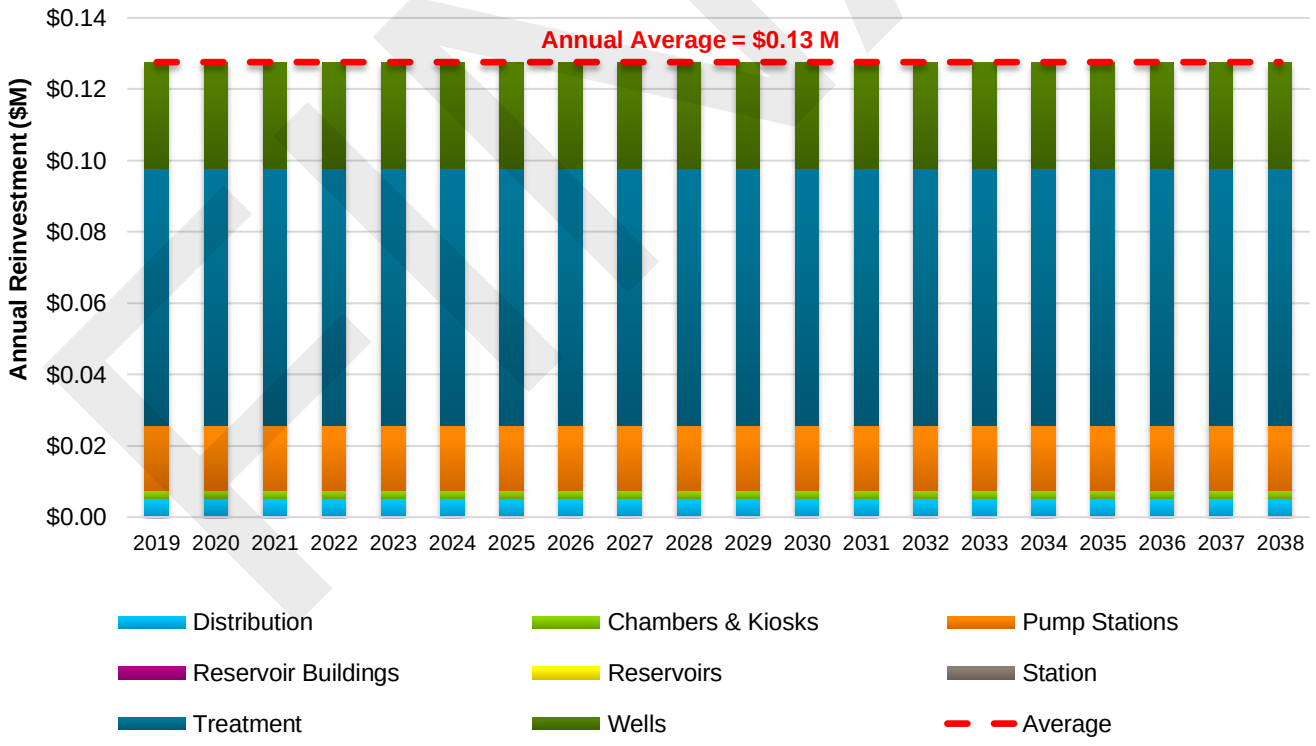


Figure 18 - Recommended BCOB WLSA Funding Levels for Reinvestment (2019 – 2038)

6.2 Reserve Fund Contribution

This section will focus on the CVRD's current strategy for funding asset renewal and assessment of the adequacy of the annual reserve fund contributions for the BCOB WLSA. The CVRD's goal is to finance asset renewal according to the following principles:

- Affordable to customer: minimise the impact on rates and minimise the need to make significant or wild adjustments to rates from year to year.
- Provide for a stable rate of reserve fund contributions and minimise the need to make significant or wild adjustments to rates from year to year.
- Equitable to current and future customers: best matches the use of assets with the payment of assets.

The 2019 starting Capital Works Reserve fund balance (excluding the DCC reserve) for the BCOB WLSA is $0.54 M. The AM reserve funds are held in the general water system reserve fund in lieu of a dedicated asset renewal fund. However, the balance of the fund associated with AM is being tracked by the Finance Department and is used only for infrastructure reinvestment projects. The use of a common reserve fund provides greater flexibility to the Finance Department and reduces the labour burden associated with the management of separate accounts. However, the disadvantage is that the funds could potentially be reallocated to projects that are not reinvestment projects, resulting in an infrastructure funding gap at a later date. **AECOM therefore recommends that the CVRD establish a dedicated capital reinvestment / renewal reserve fund.**

6.3 Replacement of Urgent / High Risk Assets

Figure 16 presents the funding needs for the period 2019 – 2038 and highlights the investment needs over the short term (i.e., 2019). Please refer to **Appendix E** for a summary listing of assets that are at, or past their ESL, and / or assets with a high-risk value that theoretically, at the very least, require replacement or major renewal in 2019. AECOM recommends that the CVRD firstly review the list of assets presented in **Appendix E** to confirm the validity of the age and ESLs, condition and criticality scores and replacement values. Should the data presented be correct, then **the CVRD should act to replace the assets identified in the list as a matter of urgency to avoid the catastrophic failure of these high-risk assets.**

6.4 Implement CMMS and DSS to Support AM

As part of the overall AM assignment, AECOM has developed two technical memoranda outlining the functional requirements for a computerized maintenance management system (CMMS)[4] and a Decision Support System (DSS)[5], respectively. **AECOM recommends that the CVRD proceed with procuring and implementing both types of systems to support the improvement of AM capabilities, not only for BCOB WLSA assets, but also for other Water, Wastewater, Solid Waste and Recreation assets.** **Figure 19** presents a diagrammatical summary of the beneficial use of a CMMS and DSS to support short-term / operational planning, medium-term / tactical planning and, ultimately, long-term / strategic planning.

[4] AECOM (2018): Computerized Maintenance Management System (CMMS) Functional Requirements.
[5] AECOM (2018): Decision Support System (DSS) Functional Requirements.

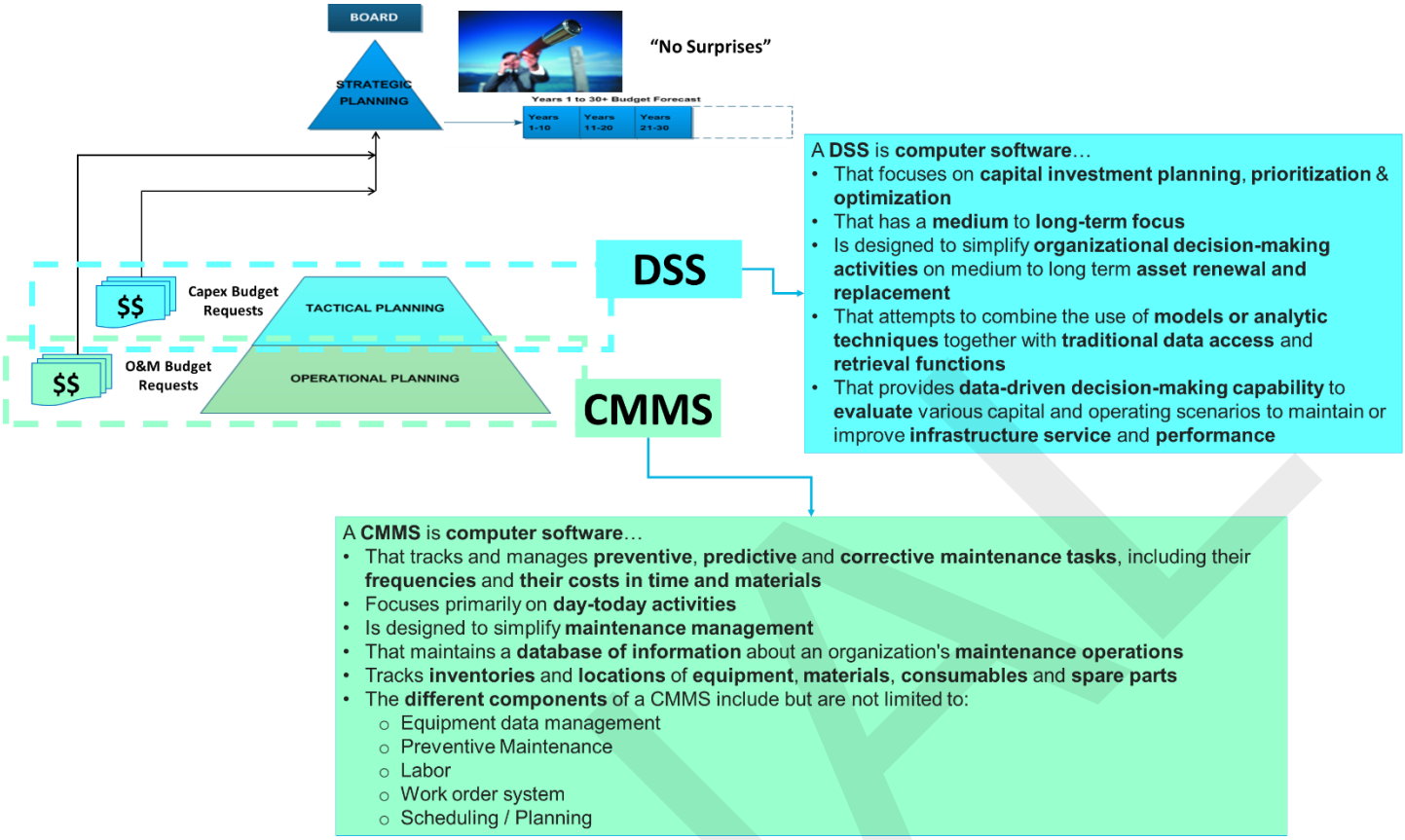


Figure 19 – The Beneficial Use of a CMMS and DSS to Support Asset Management and Strategic Planning

To ensure a successful CMMS and / or DSS implementation, CVRD should allow for the allocation of adequate organizational resources (cost and labour) to successfully implement a new system(s), and to adequately plan for the internal change management required to successfully implement the new system(s).

6.5 LoS and NWWBI

Section 3 presented an overview of the Customer and Technical LoS identified for the BCOB WLSA, which aligns with the levels of service that the majority of advanced water and wastewater utilities in Canada are measuring and reporting on. **AECOM recommends that the CVRD starts to participate in the NWWBI to build out its capabilities to measure its performance in terms of the range of metrics used in the NWWBI.** This will enable CVRD to report its performance to its Board and stakeholders in a "language" that is consistent with most of its Canadian peer agencies, and learn from and share in the best AM practices applied at these utilities.

6.6 Recommendations for Data Improvements

Informed asset management decision-making relies on information that is accurate, complete and reliable. Having gained some understanding of the current state of infrastructure data of the BCOB WLSA, **AECOM makes the following recommendations for improving the data:**

- Develop a list of standard facility / asset naming conventions to be used by all staff.
- Improve the spatial accuracy of the hydraulic data for water mains. Alternatively, develop a means by which the hydraulic data can be matched, through an ID field, to CVRD's GIS database.
- Update GIS database to reflect current inventory. In addition, correct duplicate ID numbers, ensure that assets are classified appropriately, and estimate missing install dates based on staff knowledge (the year 1985 was

assumed in this analysis for all missing install dates). This task may be promoted through the next recommendation.

- There is a need for GIS to be deployed in the field so that staff are less dependent on paper maps and are able to perform updates in the field.
- A work process is needed whereby all data collected in field books gets updated in GIS (e.g., always opening up a work ticket when changes in GIS are needed).
- The CVRD needs to ensure on an ongoing basis that as-built information is correctly uploaded to GIS.
- A document management system is needed to store O&M manuals. There is also the need to store pictures from the field in a central location.
- A formal procedure is needed whereby the CVRD's statement of tangible capital assets is kept up to date. New entries should be documented with enough detail to ascertain what exactly is included in the cost entry.
- Develop standards, procedures, and controls to clearly identify and define what infrastructure asset data exists, who is accountable for managing it, methods of data collection, and ensuring data quality. Benefits of such "data governance standards" will include:
  - Improved confidence in decision making and reporting on the CVRD's infrastructure assets.
  - Improved enforcement of asset data integrity for engineering and financial analysis.
- Develop a strategy for the management and documentation of "Inactive" assets to minimize risks (i.e. safety and environmental) and costs associated with their decommissioning / disposal.

6.7 Formalizing the Role of Asset Manager

While the CVRD has made significant strides over the years in advancing AM, especially on the sewer side, recent experience has pointed to the need for an Asset Manager role to be formalised within the CVRD. Such a role should join the CVRD's Executive Management Branch and be responsible for assessing, planning, and implementing AM activities across the organization. The position of Asset Manager has been formalised at many of CVRD's peer agencies and would help the CVRD to align its operations with AM best practices and solidify its commitment to AM at all levels of the organization. Please refer to **Appendix F** for a sample job description.

Appendix A – Location Plan for BCOB WLSA Assets

Comox Valley Regional District

Asset Management Planning for Water and Wastewater Services

Legend

- Reservoirs
- Water Mains
- Pump Station
- Treatment Plant

0 0.25 0.5 1 1.5 Kilometers

AECOM

Figure 1

Black Creek / Oyster Bay Water Local Service Area

Project No	Date
60565872	July 2019

Appendix B – BCOB WLSA Asset Inventory

Appendix B - BCOB WLSA Asset Inventory

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
BC / OB-PS-1	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	ELECTRICAL	Active	Breaker			1	Ea	2009	8	20	2	4.0	1.2	5	$ 625	2031
BC / OB-PS-15	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	ELECTRICAL	Active	MCC			1	Ea	2009	8	20	2	4.0	1.2	5	$ 150,000	2031
BC / OB-PS-9	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	ELECTRICAL	Active	Transformer			1	Ea	2009	8	20	2	4.0	1.2	5	$ 5,000	2031
BC / OB-PS-3	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	ELECTRICAL	Active	Uninterruptible Power Supply			1	Ea	2009	10	25	3	4.0	1.2	5	$ 1,250	2034
BC / OB-PS-8	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	ELECTRONICS	Active	Computer Station			1	Ea	2009	10	5	5	2.0	5.0	10	$ 18,750	2019
BC / OB-PS-6	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	ELECTRONICS	Active	Instrument	Flow Meter		1	Ea	2009	6	15	2	2.0	1.2	2	$ 5,000	2028
BC / OB-PS-4	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	ELECTRONICS	Active	Instrument	Flow Meter Display		1	Ea	2009	6	15	2	2.0	1.2	2	$ 1,875	2028
BC / OB-PS-7	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	ELECTRONICS	Active	Instrument	Pressure		2	Ea	2009	6	15	2	2.0	1.2	2	$ 5,000	2028
WCV136	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Control Valve	Flow Meter	100	1	Ea		UNK	N/A	3	1.6	1.3	2	$ 4,795	2065
WM2364	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	1	m		34	80	3	1.6	1.3	2	$ 590	2065
WM2365	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	2	m		34	80	3	1.6	1.3	2	$ 710	2065
WM2366	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	1	m		34	80	3	1.6	1.3	2	$ 499	2065
WM2368	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	1	m		34	80	3	1.6	1.3	2	$ 354	2065
WM2369	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	1	m		34	80	3	1.6	1.3	2	$ 378	2065
WM2370	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	1	m		34	80	3	1.6	1.3	2	$ 378	2065
WM2371	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	1	m		34	80	3	1.6	1.3	2	$ 295	2065
WM2372	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	1	m		34	80	3	1.6	1.3	2	$ 590	2065
WM2373	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	1	m		34	80	3	1.6	1.3	2	$ 295	2065
WM2375	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	1	m		34	80	3	1.6	1.3	2	$ 590	2065
WM2376	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	1	m		34	80	3	1.6	1.3	2	$ 590	2065
WM2377	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	1	m		34	80	3	1.6	1.3	2	$ 482	2065
WM2378	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	1	m		34	80	3	1.6	1.3	2	$ 295	2065
WM2379	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	2	m		34	80	3	1.6	1.3	2	$ 782	2065
WM2380	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	1	m		34	80	3	1.6	1.3	2	$ 280	2065
WM2381	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	100	1	m		34	80	3	1.6	1.3	2	$ 354	2065
WM2362	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	150	2	m		34	80	3	1.7	1.3	2	$ 1,219	2065
WM2374	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	150	1	m		34	80	3	1.7	1.3	2	$ 327	2065
WM2382	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	150	0	m		34	80	3	1.7	1.3	2	$ 185	2065
WM2383	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	150	0	m		34	80	3	1.7	1.3	2	$ 194	2065
WM2384	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	150	0	m		34	80	3	1.7	1.3	2	$ 185	2065
WM2385	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	150	2	m		34	80	3	1.7	1.3	2	$ 1,238	2065
WM2386	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	150	2	m		34	80	3	1.7	1.3	2	$ 1,153	2065
WM2387	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	150	0	m		34	80	3	1.7	1.3	2	$ 244	2065
WM2363	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	200	1	m		34	80	3	1.7	1.3	2	$ 805	2065
WM2367	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	200	1	m		34	80	3	1.7	1.3	2	$ 600	2065
WM2388	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pipe	ST	200	0	m		34	80	3	1.7	1.3	2	$ 300	2065
BC / OB-PS-17	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Pump			2	Ea	2009	8	20	2	2.0	1.2	2	$ 40,000	2031
BC / OB-PS-5	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Valve	Air	25	2	Ea	2009	10	50	2	2.0	1.0	2	$ 2,000	2059
BC / OB-PS-10	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Valve	Check	100	2	Ea	2009	10	50	2	2.0	1.0	2	$ 8,750	2059
BC / OB-PS-11	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Valve	Gate	100	2	Ea	2009	10	50	2	2.0	1.0	2	$ 8,750	2059
BC / OB-PS-14	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Valve	Gate	100	4	Ea	2009	10	50	2	2.0	1.0	2	$ 17,500	2059
BC / OB-PS-12	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Valve	Gate	150	2	Ea	2009	10	50	2	2.0	1.0	2	$ 8,750	2059
WSV415	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	Process Mechanical	Active	Valve	Gate	150	1	Ea		UNK	N/A	3	1.7	1.3	2	$ 4,795	2065
BC / OB-PS-13	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	PROCESS MECHANICAL	Active	Valve	Pressure Relief		1	Ea	2009	8	20	2	3.0	1.2	4	$ 12,500	2031
BC / OB-PS-16	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	STRUCTURAL	Active	Building			1	Ea	2009	10	60	2	3.0	1.0	3	$ 156,250	2069
BC / OB-PS-2	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	STRUCTURAL	Active	Roof	Membrane		1	Ea	2009	10	60	2	3.0	1.0	3	$ 1,125	2069
BC / OB-K-5	BCOB WLSA	BC / OB	Kelland Reservoir	Kiosks	ELECTRICAL	Active	Breaker			1	Ea	2016	3	20	2	3.0	1.0	3	$ 625	2036
BC / OB-K-4	BCOB WLSA	BC / OB	Kelland Reservoir	Kiosks	ELECTRICAL	Active	Micro Processor (RTU)			1	Ea	2016	3	20	2	3.0	1.0	3	$ 2,500	2036
BC / OB-K-1	BCOB WLSA	BC / OB	Kelland Reservoir	Kiosks	ELECTRONICS	Active	Instrument	Chlorine Analyzer		1	Ea	2016	3	15	2	3.0	1.0	3	$ 6,250	2031
BC / OB-K-2	BCOB WLSA	BC / OB	Kelland Reservoir	Kiosks	ELECTRONICS	Active	Instrument	Pressure Transmitter		1	Ea	2016	3	15	2	3.0	1.0	3	$ 2,500	2031
BC / OB-K-6	BCOB WLSA	BC / OB	Kelland Reservoir	Kiosks	PROCESS MECHANICAL	Active	Pump	Chlorine Pump		1	Ea	2016	3	20	2	3.0	1.0	3	$ 6,250	2036
BC / OB-K-3	BCOB WLSA	BC / OB	Kelland Reservoir	Kiosks	STRUCTURAL	Active	Kiosk			1	Ea	2016	3	50	1	3.0	1.0	3	$ 6,250	2066
WCV157	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Control Valve	Meter Valve	200	1	Ea		UNK	N/A	3	1.7	1.4	2	$ 7,946	2055
WM2610	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	DI	200	22	m	2016	3	70	1	2.4	1.0	2	$ 14,156	2086
WM2614	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	DI	200	2	m	2016	3	70	1	2.4	1.0	2	$ 1,179	2086
WM2617	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	DI	200	1	m		34	70	3	1.7	1.4	2	$ 505	2055
WM2618	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	DI	200	2	m	2016	3	70	1	1.7	1.0	2	$ 1,031	2086
WM2620	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	DI	200	1	m		34	70	3	1.7	1.4	2	$ 486	2055
WM2622	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	DI	200	1	m		34	70	3	1.7	1.4	2	$ 486	2055
WM2623	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	DI	200	1	m		34	70	3	1.7	1.4	2	$ 505	2055
WM2624	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	DI	200	1	m		34	70	3	1.7	1.4	2	$ 505	2055

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WM2628	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	DI	200	1	m	2016	3	70	1	1.7	1.0	2	$ 742	2086
WM2629	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	DI	200	1	m	2016	3	70	1	1.7	1.0	2	$ 615	2086
WM2630	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	DI	200	0	m	2016	3	70	1	1.7	1.0	2	$ 217	2086
WM2652	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	PVC	100	1	m	2015	4	80	1	1.8	1.0	2	$ 482	2095
WM2651	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	PVC	200	32	m	2015	4	80	1	2.5	1.0	3	$ 21,157	2095
WM2619	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	ST	200	2	m		34	80	3	1.7	1.3	2	$ 1,600	2065
WM2621	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	ST	200	2	m		34	80	3	1.7	1.3	2	$ 1,600	2065
WM2625	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	ST	200	1	m	2016	3	80	1	1.7	1.0	2	$ 774	2096
WM2626	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	ST	200	2	m		34	80	3	1.7	1.3	2	$ 1,329	2065
WM2615	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Inactive	Pipe	UNK	0	20	m		34	60	3	1.7	1.7	3	$ -	2045
WM2616	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	PROCESS MECHANICAL	Inactive	Pipe	UNK	0	18	m		34	60	3	1.7	1.7	3	$ -	2045
WSV422	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	Process Mechanical	Active	Valve	Gate	200	1	Ea	2016	3	N/A	3	1.7	1.4	2	$ 7,946	2055
WSV62	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	Process Mechanical	Active	Valve	Gate	200	1	Ea	2016	3	N/A	3	1.7	1.3	2	$ 7,946	2065
WSV710	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	Process Mechanical	Active	Valve	Gate	200	1	Ea	2016	3	N/A	3	1.7	1.4	2	$ 7,946	2055
BC / OB-RES-2	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	STRUCTURAL	Active	Chamber	Dechlorination Chamber		1	Ea	2016	3	60	1	2.0	1.0	2	$ 62,500	2076
BC / OB-RES-1	BCOB WLSA	BC / OB	Kelland Reservoir	Reservoirs	STRUCTURAL	Active	Reservoir			1	Ea	2016	3	60	1	4.0	1.0	4	$ 1,200,000	2076
BC / OB-CH-2	BCOB WLSA	BC / OB	Kelland Reservoir	Valve Chambers	ELECTRONICS	Active	Instrument	Flow Meter		1	Ea	2016	3	15	2	3.0	1.0	3	$ 5,000	2031
BC / OB-CH-1	BCOB WLSA	BC / OB	Kelland Reservoir	Valve Chambers	ELECTRONICS	Active	Instrument	Flow Transmitter		1	Ea	2016	3	15	2	3.0	1.0	3	$ 3,750	2031
BC / OB-CH-5	BCOB WLSA	BC / OB	Kelland Reservoir	Valve Chambers	PROCESS MECHANICAL	Active	Valve	Check	200	1	Ea	2016	3	50	1	3.0	1.0	3	$ 10,625	2066
BC / OB-CH-3	BCOB WLSA	BC / OB	Kelland Reservoir	Valve Chambers	PROCESS MECHANICAL	Active	Valve	Gate	200	4	Ea	2016	3	50	1	3.0	1.0	3	$ 29,750	2066
BC / OB-CH-4	BCOB WLSA	BC / OB	Kelland Reservoir	Valve Chambers	STRUCTURAL	Active	Chamber	Valve Chamber		1	Ea	2016	3	60	1	3.0	1.0	3	$ 62,500	2076
BC / OB-K-9	BCOB WLSA	BC / OB	MaCaulay Reservoir	Kiosks	ELECTRICAL	Active	Breaker			1	Ea	2010	9	20	3	3.0	1.3	4	$ 625	2030
BC / OB-K-8	BCOB WLSA	BC / OB	MaCaulay Reservoir	Kiosks	ELECTRICAL	Active	Micro Processor (RTU)			1	Ea	2010	9	20	3	3.0	1.3	4	$ 2,500	2030
BC / OB-K-7	BCOB WLSA	BC / OB	MaCaulay Reservoir	Kiosks	STRUCTURAL	Active	Kiosk			1	Ea	2010	9	50	2	3.0	1.0	3	$ 6,250	2060
WCV110	BCOB WLSA	BC / OB	MaCaulay Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Control Valve	Air Release	250	1	Ea	2010	9	N/A	1	1.9	1.0	2	$ 7,946	2090
WCV109	BCOB WLSA	BC / OB	MaCaulay Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Control Valve	Meter Valve	250	1	Ea	2010	9	N/A	1	1.9	1.0	2	$ 7,946	2090
WM1929	BCOB WLSA	BC / OB	MaCaulay Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	DI	250	20	m	1980	39	70	3	2.0	1.6	3	$ 15,927	2050
WM1937	BCOB WLSA	BC / OB	MaCaulay Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	PVC	250	1	m	2010	9	80	1	1.9	1.0	2	$ 1,075	2090
WM1939	BCOB WLSA	BC / OB	MaCaulay Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	PVC	250	1	m	2010	9	80	1	1.9	1.0	2	$ 684	2090
WM1940	BCOB WLSA	BC / OB	MaCaulay Reservoir	Reservoirs	PROCESS MECHANICAL	Active	Pipe	PVC	250	0	m	2010	9	80	1	1.9	1.0	2	$ 313	2090
WM1927	BCOB WLSA	BC / OB	MaCaulay Reservoir	Reservoirs	PROCESS MECHANICAL	Inactive	Pipe	UNK	0	20	m	2010	9	60	2	1.7	1.0	2	$ -	2070
WM1928	BCOB WLSA	BC / OB	MaCaulay Reservoir	Reservoirs	PROCESS MECHANICAL	Inactive	Pipe	UNK	0	19	m	2010	9	60	2	1.7	1.0	2	$ -	2070
BC / OB-RES-4	BCOB WLSA	BC / OB	MaCaulay Reservoir	Reservoirs	STRUCTURAL	Active	Chamber	Dechlorination Chamber		1	Ea	2010	9	60	2	2.0	1.0	2	$ 62,500	2070
BC / OB-RES-3	BCOB WLSA	BC / OB	MaCaulay Reservoir	Reservoirs	STRUCTURAL	Active	Reservoir			1	Ea	2010	12	60	1	4.0	1.0	4	$ 1,250,000	2067
BC / OB-CH-9	BCOB WLSA	BC / OB	MaCaulay Reservoir	Valve Chambers	ELECTRONICS	Active	Instrument	Flow Meter		1	Ea	2010	9	15	3	2.0	1.8	4	$ 5,000	2025
BC / OB-CH-8	BCOB WLSA	BC / OB	MaCaulay Reservoir	Valve Chambers	PROCESS MECHANICAL	Active	Valve	Check	150	2	Ea	2010	9	50	2	2.0	1.0	2	$ 16,250	2060
BC / OB-CH-7	BCOB WLSA	BC / OB	MaCaulay Reservoir	Valve Chambers	PROCESS MECHANICAL	Active	Valve	Check	250	1	Ea	2010	9	50	2	2.0	1.0	2	$ 12,500	2060
BC / OB-CH-6	BCOB WLSA	BC / OB	MaCaulay Reservoir	Valve Chambers	PROCESS MECHANICAL	Active	Valve	Gate	200	1	Ea	2010	9	50	2	2.0	1.0	2	$ 7,438	2060
BC / OB-CH-10	BCOB WLSA	BC / OB	MaCaulay Reservoir	Valve Chambers	PROCESS MECHANICAL	Active	Valve	Gate	250	4	Ea	2010	9	50	2	2.0	1.0	2	$ 32,500	2060
BC / OB-CH-11	BCOB WLSA	BC / OB	MaCaulay Reservoir	Valve Chambers	STRUCTURAL	Active	Chamber	Meter Chamber		1	Ea	2010	9	60	2	2.0	1.0	2	$ 62,500	2070
BC / OB-WTP-45	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	BUILDING MECHANICAL	Active	Emergency Eye Wash			1	Ea	2007	12	15	4	3.0	2.6	8	$ 750	2022
BC / OB-WTP-44	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	BUILDING MECHANICAL	Active	Emergency Shower			1	Ea	2007	12	15	4	3.0	2.6	8	$ 1,250	2022
BC / OB-WTP-19	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	BUILDING MECHANICAL	Active	Fan	ExhaustFan		2	Ea	2007	8	20	2	1.0	1.2	1	$ 20,000	2031
BC / OB-WTP-9	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	BUILDING MECHANICAL	Active	Heater			3	Ea	2007	10	25	2	1.0	1.2	1	$ 3,750	2034
BC / OB-WTP-14	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	BUILDING MECHANICAL	Active	Hot Water Tank			1	Ea	2007	10	25	2	1.0	1.2	1	$ 6,250	2034
BC / OB-WTP-42	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	BUILDING MECHANICAL	Active	Tank	Sewer Holding		1	Ea	2007	12	60	2	3.0	1.0	3	$ 68,750	2067
BC / OB-WTP-30	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRICAL	Active	Auxiliary Power	Generator		1	Ea	2007	8	20	2	4.0	1.2	5	$ 125,000	2031
BC / OB-WTP-2	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRICAL	Active	Breaker			1	Ea	2007	8	20	2	4.0	1.2	5	$ 625	2031
BC / OB-WTP-3	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRICAL	Active	Breaker			1	Ea	2007	8	20	2	4.0	1.2	5	$ 625	2031
BC / OB-WTP-28	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRICAL	Active	Control Panel			1	Ea	2007	8	20	2	4.0	1.2	5	$ 76,500	2031
BC / OB-WTP-29	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRICAL	Active	Control Panel			1	Ea	2007	8	20	2	4.0	1.2	5	$ 76,500	2031
BC / OB-WTP-1	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRICAL	Active	Lighting	Warning		1	Ea	2007	6	15	2	2.0	1.2	2	$ 375	2028
BC / OB-WTP-31	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRICAL	Active	MCC			1	Ea	2007	8	20	2	4.0	1.2	5	$ 150,000	2031
BC / OB-WTP-7	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRICAL	Active	Switch	Transfer Switch		1	Ea	2007	8	20	2	4.0	1.2	5	$ 2,500	2031
BC / OB-WTP-13	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRICAL	Active	Transformer			1	Ea	2007	8	20	2	4.0	1.2	5	$ 5,000	2031
BC / OB-WTP-5	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRICAL	Active	Uninterruptible Power Supply			1	Ea	2007	12	25	3	4.0	1.4	6	$ 1,250	2032
BC / OB-WTP-41	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRONICS	Active	Computer Station			1	Ea	2007	12	5	5	2.0	5.0	10	$ 18,750	2019
BC / OB-WTP-48	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRONICS	Active	Control	Vacuum Regulator		2	Ea	2007	12	50	2	3.0	1.1	3	$ 8,750	2057
BC / OB-WTP-25	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRONICS	Active	Instrument	Causticlevel		1	Ea	2007	6	15	2	2.0	1.2	2	$ 1,250	2028
BC / OB-WTP-26	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRONICS	Active	Instrument	Chlorine		1	Ea	2007	6	15	2	2.0	1.2	2	$ 6,250	2028
BC / OB-WTP-27	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRONICS	Active	Instrument	Chlorine		1	Ea	2007	6	15	2	2.0	1.2	2	$ 6,250	2028

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
BC / OB-WTP-40	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRONICS	Active	Instrument	Chlorine Scale		2	Ea	2007	12	15	4	3.0	2.6	8	$ 3,750	2022
BC / OB-WTP-37	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRONICS	Active	Instrument	Flow Meter		2	Ea	2007	6	15	2	2.0	1.2	2	$ 10,000	2028
BC / OB-WTP-35	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRONICS	Active	Instrument	pH		1	Ea	2007	6	15	2	2.0	1.2	2	$ 6,250	2028
BC / OB-WTP-38	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRONICS	Active	Instrument	Pressure		3	Ea	2007	6	15	2	2.0	1.2	2	$ 7,500	2028
BC / OB-WTP-49	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRONICS	Active	Instrument	Pressure Transmitter		2	Ea	2007	12	15	4	3.0	2.6	8	$ 5,000	2022
BC / OB-WTP-43	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRONICS	Active	Instrument	Rotameter		2	Ea	2007	12	15	4	3.0	2.6	8	$ 1,250	2022
BC / OB-WTP-36	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRONICS	Active	Instrument	Turbidimeter		1	Ea	2007	6	15	2	2.0	1.2	2	$ 6,250	2028
BC / OB-WTP-39	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRONICS	Active	Instrument	UVT		2	Ea	2007	6	15	2	2.0	1.2	2	$ 7,500	2028
BC / OB-WTP-47	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRONICS	Active	Instrument	Vacuum Gauge		2	Ea	2007	12	50	2	3.0	1.1	3	$ 3,750	2057
WCV155	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Control Valve	Air Release	0	1	Ea		UNK	N/A	3	2.1	1.3	3	$ 13,700	2065
WCV151	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Control Valve	Air Release	50	1	Ea		UNK	N/A	2	2.1	1.0	2	$ 4,795	2089
WCV152	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Control Valve	Flush Out	100	1	Ea		UNK	N/A	3	2.1	1.3	3	$ 4,795	2065
WCV153	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Control Valve	Flush Out	100	1	Ea		UNK	N/A	2	2.1	1.0	2	$ 4,795	2087
WCV154	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Control Valve	Flush Out	100	1	Ea		UNK	N/A	2	2.1	1.0	2	$ 4,795	2067
BC / OB-WTP-52	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Ejector			2	Ea	2007	12	50	2	3.0	1.1	3	$ 3,750	2057
BC / OB-WTP-32	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Emergency Scrubber	Chlorine Scrubber		1	Ea	2007	12	20	3	4.0	1.8	7	$ 150,313	2027
BC / OB-WTP-51	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Heat Manifold			2	Ea	2007	12	50	2	3.0	1.1	3	$ 6,250	2057
BC / OB-WTP-18	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Injector	Chlorine Injector		4	Ea	2007	12	20	3	4.0	1.8	7	$ 18,750	2027
WM2559	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	AC	100	3	m	2007	12	60	2	2.1	1.0	2	$ 1,316	2067
WM2560	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	AC	100	4	m	2007	12	60	2	2.1	1.0	2	$ 1,638	2067
WM2509	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	AC	150	84	m	2007	12	60	2	2.2	1.0	2	$ 44,654	2067
WM2510	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	AC	150	18	m	2009	10	60	2	2.2	1.0	2	$ 9,869	2069
WM2511	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	AC	150	16	m	2007	12	60	2	2.2	1.0	2	$ 8,559	2067
WM2556	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	AC	250	40	m	2007	12	60	2	2.3	1.0	2	$ 30,926	2067
WM2562	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	AC	250	5	m	2007	12	60	2	2.3	1.0	2	$ 3,622	2067
WM2547	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	DI	200	6	m	1985	34	70	3	1.9	1.4	3	$ 3,959	2055
WM2550	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	DI	200	6	m	1985	34	70	3	1.9	1.4	3	$ 3,896	2055
WM2520	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	DI	250	108	m	2009	10	70	2	2.4	1.0	2	$ 84,368	2079
WM2533	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	DI	250	81	m	1985	34	70	3	2.2	1.4	3	$ 63,321	2055
WM2535	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	DI	250	28	m	1985	34	70	3	2.0	1.4	3	$ 21,956	2055
WM2549	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	DI	250	5	m	1985	34	70	3	1.9	1.4	3	$ 3,993	2055
WM2553	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	DI	250	18	m	1985	34	70	3	2.0	1.4	3	$ 14,122	2055
BC / OB-WTP-4	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	Pipe		1	Ea	2007	8	20	2	3.0	1.2	4	$ 1,250	2031
BC / OB-WTP-6	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	Pipe		2	Ea	2007	8	20	2	3.0	1.2	4	$ 2,500	2031
WM2522	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	50	12	m	2009	10	80	2	2.1	1.0	2	$ 3,638	2089
WM2526	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	50	4	m	2009	10	80	2	2.1	1.0	2	$ 1,210	2089
WM2531	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	50	4	m	2009	10	80	2	2.1	1.0	2	$ 1,324	2089
WM2532	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	50	2	m	2009	10	80	2	2.1	1.0	2	$ 534	2089
WM2539	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	100	2	m	1985	34	80	3	2.1	1.3	3	$ 731	2065
WM2540	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	100	4	m	1985	34	80	3	2.1	1.3	3	$ 1,780	2065
WM2542	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	100	1	m	1985	34	80	3	2.1	1.3	3	$ 432	2065
WM2546	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	100	2	m	1985	34	80	3	2.1	1.3	3	$ 784	2065
WM2568	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	100	1	m	2007	12	80	2	2.1	1.0	2	$ 491	2087
WM2570	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	100	1	m	2007	12	80	2	2.1	1.0	2	$ 491	2087
WM2517	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	150	12	m	2009	10	80	2	2.2	1.0	2	$ 6,523	2089
WM2524	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	150	3	m	2009	10	80	2	2.2	1.0	2	$ 1,642	2089
WM2565	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	150	3	m	2007	12	80	2	2.2	1.0	2	$ 1,587	2087
WM2567	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	150	5	m	2007	12	80	2	2.2	1.0	2	$ 2,463	2087
WM2572	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	150	1	m	2007	12	80	2	2.2	1.0	2	$ 534	2087
WM2536	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	200	9	m	1985	34	80	3	2.2	1.3	3	$ 6,183	2065
WM2543	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	200	21	m	1985	34	80	3	2.2	1.3	3	$ 13,734	2065
WM2548	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	200	17	m	1985	34	80	3	2.2	1.3	3	$ 11,302	2065
WM2554	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	200	8	m	1985	34	80	3	2.2	1.3	3	$ 5,389	2065
WM2521	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	250	10	m	2009	10	80	2	2.3	1.0	2	$ 7,426	2089
WM2525	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	250	7	m	2009	10	80	2	2.3	1.0	2	$ 5,474	2089
WM2558	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	250	13	m	2007	12	80	2	2.3	1.0	2	$ 10,473	2087
WM2566	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	250	77	m	2007	12	80	2	2.3	1.0	2	$ 60,419	2087
WM2569	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	250	78	m	2007	12	80	2	2.3	1.0	2	$ 61,222	2087
WM2605	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	PVC	250	2	m	2007	12	80	2	2.3	1.0	2	$ 1,171	2087
WM2516	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	ST	150	11	m	2007	12	80	2	2.0	1.0	2	$ 5,754	2087
WM2577	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	ST	250	3	m		34	80	3	2.1	1.3	3	$ 2,450	2065

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WM2578	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	ST	250	1	m		34	80	3	2.1	1.3	3	$ 736	2065
WM2579	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	ST	250	2	m		34	80	3	2.1	1.3	3	$ 1,612	2065
WM2580	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	ST	250	2	m		34	80	3	2.1	1.3	3	$ 1,321	2065
WM2581	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	ST	250	5	m		34	80	3	2.1	1.3	3	$ 3,830	2065
WM2582	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	ST	250	5	m		34	80	3	2.1	1.3	3	$ 3,879	2065
WM2585	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	ST	250	2	m		34	80	3	2.1	1.3	3	$ 1,911	2065
WM2586	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	ST	250	2	m		34	80	3	2.1	1.3	3	$ 1,206	2065
WM2590	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	ST	250	0	m		34	80	3	2.1	1.3	3	$ 228	2065
WM2591	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	ST	250	0	m		34	80	3	2.1	1.3	3	$ 228	2065
WM2593	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pipe	ST	250	1	m		34	80	3	2.1	1.3	3	$ 736	2065
BC / OB-WTP-20	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pump			2	Ea	2007	8	20	2	2.0	1.2	2	$ 26,250	2031
BC / OB-WTP-22	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Pump			2	Ea	2007	8	20	2	2.0	1.2	2	$ 31,250	2031
BC / OB-WTP-33	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Reactor	UVReactor		2	Ea	2015	4	20	2	3.0	1.0	3	$ 225,000	2035
BC / OB-WTP-17	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Tank	Solution		1	Ea	2007	8	20	2	4.0	1.2	5	$ 18,750	2031
BC / OB-WTP-8	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Valve	Ball		15	Ea	2007	12	50	2	2.0	1.1	2	$ 2,813	2057
BC / OB-WTP-10	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Valve	Chloromatic		4	Ea	2007	12	20	3	4.0	1.8	7	$ 25,000	2027
BC / OB-WTP-50	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Valve	Chloromatic		2	Ea	2007	12	20	3	4.0	1.8	7	$ 12,500	2027
BC / OB-WTP-15	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Valve	Gate	100	2	Ea	2007	12	50	2	3.0	1.1	3	$ 8,750	2057
BC / OB-WTP-12	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Valve	Gate	150	1	Ea	2007	12	50	2	2.0	1.1	2	$ 4,375	2057
WSV597	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	Process Mechanical	Active	Valve	Gate	150	1	Ea	2009	10	N/A	2	2.2	1.0	2	$ 4,795	2087
BC / OB-WTP-23	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Valve	Gate	250	4	Ea	2007	12	50	2	2.0	1.1	2	$ 32,500	2057
WSV129	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	Process Mechanical	Active	Valve	Gate	250	1	Ea	2009	10	N/A	3	2.1	1.3	3	$ 7,946	2065
WSV421	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	Process Mechanical	Active	Valve	Gate	250	1	Ea	2009	10	N/A	3	2.1	1.3	3	$ 7,946	2065
WSV56	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	Process Mechanical	Active	Valve	Gate	250	1	Ea	2009	10	N/A	3	2.1	1.3	3	$ 7,946	2065
WSV598	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	Process Mechanical	Active	Valve	Gate	250	1	Ea	2009	10	N/A	3	2.1	1.3	3	$ 7,946	2065
WSV691	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	Process Mechanical	Active	Valve	Gate	250	1	Ea	2009	10	N/A	3	2.1	1.3	3	$ 7,946	2065
BC / OB-WTP-24	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Valve	Gate	300	3	Ea	2007	12	50	2	2.0	1.1	2	$ 32,813	2057
BC / OB-WTP-16	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Valve	Pressure Relief		1	Ea	2007	8	20	2	4.0	1.2	5	$ 12,500	2031
BC / OB-WTP-11	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	PROCESS MECHANICAL	Active	Valve	VacuumRegulator		4	Ea	2007	12	50	2	4.0	1.1	4	$ 4,000	2057
BC / OB-WTP-34	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	STRUCTURAL	Active	Building			1	Ea	2007	12	60	2	3.0	1.0	3	$ 700,000	2067
BC / OB-WTP-46	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	STRUCTURAL	Active	Chamber	Dechlorination Manhole		1	Ea	2007	12	60	2	2.0	1.0	2	$ 25,000	2067
BC / OB-WTP-21	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	STRUCTURAL	Active	Roof	Membrane		1	Ea	2007	12	60	2	3.0	1.0	3	$ 30,000	2067
BC / OB-Natural-1	BCOB WLSA	BC / OB	Oyster Bay Watershed	Natural	NATURAL	Active	Collection			1	Ea	1967	40	200	1	5.0	1.0	5	$ 2,500,000	2179
BC / OB-Natural-2	BCOB WLSA	BC / OB	Oyster Bay Watershed	Natural	NATURAL	Active	Storage			1	Ea	1967	40	200	1	5.0	1.0	5	$ 3,750,000	2179
BC / OB-WTP-53	BCOB WLSA	BC / OB	Test Well No. 1	Wells	STRUCTURAL	Active	Well			1	Ea	2009	12	60	1	2.0	1.0	2	$ 43,750	2067
BC / OB-WTP-54	BCOB WLSA	BC / OB	Test Well No. 2	Wells	STRUCTURAL	Active	Well			1	Ea	2009	12	60	1	2.0	1.0	2	$ 43,750	2067
BC / OB-WTP-55	BCOB WLSA	BC / OB	Test Well No. 5	Wells	STRUCTURAL	Active	Well			1	Ea	2017	2	60	1	1.0	1.0	1	$ 43,750	2077
WH100	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1981	38	N/A	3	2.0	1.4	3	$ 12,193	2061
WH101	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1981	38	N/A	4	2.0	1.9	4	$ 12,193	2041
WH102	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	2	2.2	1.1	2	$ 12,193	2065
WH103	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH104	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	2005	14	N/A	2	2.3	1.0	2	$ 12,193	2085
WH105	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1983	36	N/A	3	1.9	1.3	3	$ 12,193	2063
WH106	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service		Hydrant	C-71P Hydrant		1	Ea	2005	14	N/A	2	1.9	1.0	2	$ 12,193	2085
WH107	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	2005	14	N/A	2	2.2	1.0	2	$ 12,193	2085
WH108	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	2005	14	N/A	2	2.2	1.0	2	$ 12,193	2085
WH109	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	2005	14	N/A	2	2.4	1.0	2	$ 12,193	2085
WH110	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	2005	14	N/A	2	2.4	1.0	2	$ 12,193	2085
WH111	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service		Hydrant	C-71P Hydrant		1	Ea	2005	14	N/A	2	2.4	1.0	2	$ 12,193	2085
WH112	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service		Hydrant	C-71P Hydrant		1	Ea	2005	14	N/A	2	2.4	1.0	2	$ 12,193	2085
WH113	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service		Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.6	2.0	5	$ 12,193	2040
WH114	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.3	2.0	4	$ 12,193	2040
WH115	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 12,193	2040
WH116	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service		Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH117	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 12,193	2040
WH118	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 12,193	2040
WH119	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.3	2.0	4	$ 12,193	2040
WH120	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 12,193	2040
WH121	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 12,193	2040
WH122	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service		Hydrant	C-71P Hydrant		1	Ea	2007	12	N/A	2	2.1	1.0	2	$ 12,193	2087
WH123	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	2007	12	N/A	2	2.1	1.0	2	$ 12,193	2087

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WH124	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	2007	12	N/A	2	2.1	1.0	2	$ 12,193	2087
WH125	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	4	3.1	2.0	6	$ 12,193	2040
WH126	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	4	2.1	2.0	4	$ 12,193	2040
WH127	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	4	2.4	2.0	5	$ 12,193	2040
WH128	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	4	2.5	2.0	5	$ 12,193	2040
WH129	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	4	2.3	1.9	4	$ 12,193	2041
WH130	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.8	2.0	5	$ 12,193	2040
WH131	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	3	2.1	1.4	3	$ 12,193	2061
WH132	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1981	38	N/A	3	1.9	1.4	3	$ 12,193	2061
WH133	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1981	38	N/A	4	2.1	1.9	4	$ 12,193	2041
WH134	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1981	38	N/A	4	2.4	1.9	5	$ 12,193	2041
WH135	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1981	38	N/A	4	2.2	1.9	4	$ 12,193	2041
WH136	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1981	38	N/A	2	2.4	1.0	2	$ 12,193	2066
WH137	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	2006	13	N/A	2	2.3	1.0	2	$ 12,193	2086
WH138	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	4	3.0	1.9	6	$ 12,193	2041
WH140	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1981	38	N/A	4	2.5	1.9	5	$ 12,193	2041
WH141	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	2	2.4	1.0	2	$ 12,193	2086
WH142	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 12,193	2040
WH143	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH144	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1994	25	N/A	2	2.2	1.1	2	$ 12,193	2074
WH145	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1994	25	N/A	4	2.7	2.0	5	$ 12,193	2040
WH146	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 12,193	2040
WH147	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.7	2.0	5	$ 12,193	2040
WH148	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 12,193	2040
WH149	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	4	2.7	2.0	5	$ 12,193	2040
WH150	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	4	2.4	2.0	5	$ 12,193	2040
WH151	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	4	2.4	2.0	5	$ 12,193	2040
WH152	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	3.0	2.0	6	$ 12,193	2040
WH153	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH154	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH155	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.6	2.0	5	$ 12,193	2040
WH156	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.8	2.0	5	$ 12,193	2040
WH157	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.6	2.0	5	$ 12,193	2040
WH158	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.7	2.0	5	$ 12,193	2040
WH159	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	4	2.8	2.0	6	$ 12,193	2040
WH160	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	1.9	2.0	4	$ 12,193	2040
WH161	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 12,193	2040
WH162	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 12,193	2040
WH163	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	1.8	2.0	4	$ 12,193	2040
WH164	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.1	2.0	4	$ 12,193	2040
WH165	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 12,193	2040
WH166	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	3	2.0	1.4	3	$ 12,193	2060
WH167	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.8	2.0	5	$ 12,193	2040
WH168	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.8	2.0	5	$ 12,193	2040
WH169	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 12,193	2040
WH170	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.7	2.0	5	$ 12,193	2040
WH171	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.7	2.0	5	$ 12,193	2040
WH172	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 12,193	2040
WH173	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	3	2.0	1.4	3	$ 12,193	2060
WH174	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.1	2.0	4	$ 12,193	2040
WH175	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.6	2.0	5	$ 12,193	2040
WH176	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 12,193	2040
WH177	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 12,193	2040
WH178	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 12,193	2040
WH241	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	2006	13	N/A	2	2.4	1.0	2	$ 12,193	2086
WH245	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	2	2.4	1.0	2	$ 12,193	2086
WH246	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	2006	13	N/A	2	2.4	1.0	2	$ 12,193	2086
WH355	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service		Hydrant	C-71P Hydrant		1	Ea	1994	25	N/A	2	2.2	1.1	2	$ 12,193	2074
WH363	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	2012	7	N/A	1	2.4	1.0	2	$ 12,193	2092
WH367	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	3.7	2.0	7	$ 12,193	2040
WH62	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.8	2.0	6	$ 12,193	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WH63	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.8	2.0	6	$ 12,193	2040
WH64	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.8	2.0	6	$ 12,193	2040
WH65	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH66	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH67	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.9	2.0	6	$ 12,193	2040
WH68	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.1	2.0	4	$ 12,193	2040
WH69	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH70	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.9	2.0	6	$ 12,193	2040
WH71	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.9	2.0	6	$ 12,193	2040
WH72	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH73	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH74	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH75	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 12,193	2040
WH76	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH77	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH78	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH79	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH80	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH81	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH82	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	4	2.2	2.0	4	$ 12,193	2040
WH83	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	4	2.2	2.0	4	$ 12,193	2040
WH84	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 12,193	2040
WH85	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	3	2.2	1.4	3	$ 12,193	2060
WH86	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea		UNK	N/A	4	2.4	2.0	5	$ 12,193	2040
WH87	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 12,193	2040
WH88	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH89	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	2012	7	N/A	4	2.4	2.0	5	$ 12,193	2040
WH90	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.3	2.0	4	$ 12,193	2040
WH91	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 12,193	2040
WH92	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 12,193	2040
WH93	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	3.3	2.0	6	$ 12,193	2040
WH94	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH95	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 12,193	2040
WH96	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.1	2.0	4	$ 12,193	2040
WH97	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	2.1	2.0	4	$ 12,193	2040
WH98	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1981	38	N/A	4	1.9	1.9	4	$ 12,193	2041
WH99	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Hydrant	C-71P Hydrant		1	Ea	1980	39	N/A	4	1.9	1.9	4	$ 12,193	2041
WM1889	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	AC	100	1	m	1980	39	60	4	2.0	2.0	4	$ 492	2040
WM1696	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	AC	150	1	m	1980	39	60	4	2.2	2.0	4	$ 773	2040
WM1699	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	AC	150	3	m	1980	39	60	4	2.2	2.0	4	$ 1,450	2040
WM1720	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	AC	150	2	m	1980	39	60	4	2.3	2.0	4	$ 986	2040
WM1739	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	AC	150	2	m	1980	39	60	4	2.4	2.0	5	$ 919	2040
WM1748	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	AC	150	2	m	1980	39	60	4	2.2	2.0	4	$ 801	2040
WM1749	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	AC	150	2	m	1980	39	60	4	2.2	2.0	4	$ 1,082	2040
WM1761	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	AC	150	2	m	1980	39	60	4	2.2	2.0	4	$ 801	2040
WM1764	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	AC	150	2	m	1980	39	60	4	2.2	2.0	4	$ 801	2040
WM1782	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	AC	150	1	m	1980	39	60	4	2.5	2.0	5	$ 801	2040
WM1830	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	AC	150	3	m	1980	39	60	4	2.3	2.0	5	$ 1,603	2040
WL1002	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	8	m	1980	39	N/A	4	3.7	2.0	7	$ 4,222	2040
WL1003	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	3.3	2.0	6	$ 1,252	2040
WL1004	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.3	2.0	4	$ 1,205	2040
WL1005	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	1	m	1980	39	N/A	4	2.0	2.0	4	$ 793	2040
WL1025	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.1	2.0	4	$ 1,603	2040
WL1026	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.1	2.0	4	$ 1,603	2040
WL1027	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1981	38	N/A	4	1.9	1.9	4	$ 1,605	2041
WL1028	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1981	38	N/A	4	1.9	1.9	4	$ 1,603	2041
WL1051	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	2005	14	N/A	2	2.3	1.0	2	$ 1,247	2085
WL1052	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1983	36	N/A	3	1.9	1.3	3	$ 1,603	2063
WL1053	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	5	m	2005	14	N/A	2	1.9	1.0	2	$ 2,585	2085
WL1054	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	4	m	2005	14	N/A	2	1.8	1.0	2	$ 2,215	2085
WL1055	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	2005	14	N/A	2	2.2	1.0	2	$ 1,092	2085

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL1056	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	2005	14	N/A	2	2.4	1.0	2	$ 1,603	2085
WL1057	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	2005	14	N/A	2	2.4	1.0	2	$ 1,603	2085
WL1058	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	2005	14	N/A	2	2.4	1.0	2	$ 1,603	2085
WL1059	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	2005	14	N/A	2	2.4	1.0	2	$ 1,603	2085
WL1078	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.6	2.0	5	$ 1,603	2040
WL1080	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.3	2.0	5	$ 1,173	2040
WL1081	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.2	2.0	4	$ 1,169	2040
WL1157	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1981	38	N/A	3	2.1	1.4	3	$ 820	2061
WL1159	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1981	38	N/A	4	2.1	1.9	4	$ 1,277	2041
WL1160	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1981	38	N/A	4	2.7	1.9	5	$ 996	2041
WL1165	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	2006	13	N/A	2	2.4	1.0	2	$ 1,617	2086
WL1166	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	2006	13	N/A	2	2.4	1.0	2	$ 885	2086
WL1167	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1981	38	N/A	4	2.4	1.9	5	$ 880	2041
WL1168	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	2006	13	N/A	2	2.3	1.0	2	$ 1,589	2086
WL1169	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1981	38	N/A	4	2.4	1.9	5	$ 1,296	2041
WL1179	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1981	38	N/A	4	2.5	1.9	5	$ 1,072	2041
WL1182	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	1	m	2006	13	N/A	2	2.4	1.0	2	$ 801	2086
WL1183	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.5	2.0	5	$ 1,603	2040
WL1184	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.2	2.0	4	$ 1,139	2040
WL1236	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	3.0	2.0	6	$ 1,603	2040
WL1237	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	13	m	1980	39	N/A	4	2.2	2.0	4	$ 6,811	2040
WL1238	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.2	2.0	4	$ 1,603	2040
WL1239	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	4	m	1980	39	N/A	4	2.6	2.0	5	$ 2,267	2040
WL1240	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	7	m	1980	39	N/A	4	2.9	2.0	6	$ 3,558	2040
WL1241	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	5	m	1980	39	N/A	4	2.6	2.0	5	$ 2,650	2040
WL1242	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	1	m	1980	39	N/A	4	2.7	2.0	5	$ 738	2040
WL1243	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	4	m	1980	39	N/A	4	2.1	2.0	4	$ 2,152	2040
WL1244	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	6	m	1980	39	N/A	4	2.7	2.0	5	$ 3,024	2040
WL1245	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.0	2.0	4	$ 1,695	2040
WL1246	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	3	2.0	1.4	3	$ 1,603	2060
WL1247	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.7	2.0	5	$ 1,603	2040
WL1248	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.6	2.0	5	$ 1,603	2040
WL1249	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	6	m	1980	39	N/A	4	2.5	2.0	5	$ 3,443	2040
WL1250	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	4	m	1980	39	N/A	4	2.5	2.0	5	$ 1,940	2040
WL1251	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.5	2.0	5	$ 1,167	2040
WL2294	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.8	2.0	6	$ 1,635	2040
WL2311	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	10	m	1980	39	N/A	4	2.2	2.0	4	$ 5,357	2040
WL2319	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	6	m	1980	39	N/A	4	2.2	2.0	4	$ 3,127	2040
WL2327	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	6	m	1980	39	N/A	4	2.9	2.0	6	$ 3,146	2040
WL2337	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	6	m	1980	39	N/A	4	2.3	2.0	4	$ 2,966	2040
WL2338	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	4	m	1980	39	N/A	4	2.9	2.0	6	$ 2,356	2040
WL2341	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	26	m	1980	39	N/A	4	2.9	2.0	6	$ 13,948	2040
WL2348	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	7	m	1980	39	N/A	4	2.2	2.0	4	$ 3,477	2040
WL2351	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	1	m	1980	39	N/A	4	2.2	2.0	4	$ 694	2040
WL2352	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.3	2.0	5	$ 927	2040
WL2374	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.2	2.0	4	$ 905	2040
WL2423	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.2	2.0	4	$ 1,603	2040
WL2428	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.5	2.0	5	$ 1,603	2040
WL2429	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	3	2.2	1.4	3	$ 877	2060
WL2432	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.4	2.0	5	$ 1,603	2040
WL2433	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.4	2.0	5	$ 1,603	2040
WL2457	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	4	m	2012	7	N/A	1	2.4	1.0	2	$ 2,286	2092
WL2459	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.4	2.0	5	$ 1,603	2040
WL2474	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	1	m	1980	39	N/A	4	2.4	2.0	5	$ 723	2040
WL2531	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1981	38	N/A	3	2.0	1.4	3	$ 1,363	2061
WL2532	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1981	38	N/A	4	2.0	1.9	4	$ 1,603	2041
WL2533	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	2005	14	N/A	2	2.2	1.1	2	$ 1,375	2065
WL2534	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.2	2.0	4	$ 1,103	2040
WL2558	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.3	2.0	5	$ 1,058	2040
WL2559	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.3	2.0	5	$ 1,603	2040
WL2561	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.3	2.0	4	$ 1,396	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL2562	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.3	2.0	5	$ 1,117	2040
WL2563	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.3	2.0	5	$ 1,050	2040
WL2564	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	2007	12	N/A	2	2.1	1.0	2	$ 1,382	2087
WL2565	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	2007	12	N/A	2	2.1	1.0	2	$ 1,022	2087
WL2566	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	2007	12	N/A	2	2.1	1.0	2	$ 1,419	2087
WL2642	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	12	m	1980	39	N/A	4	3.0	2.0	6	$ 6,166	2040
WL2643	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	1	m	1980	39	N/A	4	2.5	2.0	5	$ 696	2040
WL2644	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.0	2.0	4	$ 1,603	2040
WL2645	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.1	2.0	4	$ 1,603	2040
WL2646	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1981	38	N/A	4	2.3	1.9	4	$ 826	2041
WL2647	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.8	2.0	5	$ 1,603	2040
WL2658	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1981	38	N/A	4	2.2	1.9	4	$ 1,603	2041
WL2659	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	2006	13	N/A	2	2.4	1.0	2	$ 1,743	2086
WL2673	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	7	m	1994	25	N/A	2	2.2	1.1	2	$ 3,558	2074
WL2674	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1994	25	N/A	2	2.2	1.1	2	$ 1,267	2074
WL2675	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1994	25	N/A	4	2.7	2.0	5	$ 1,116	2040
WL2676	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1994	25	N/A	4	2.4	2.0	5	$ 1,004	2040
WL2677	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	1	m	1994	25	N/A	4	2.7	2.0	5	$ 771	2040
WL2754	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.7	2.0	5	$ 887	2040
WL2755	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.7	2.0	5	$ 1,248	2040
WL2756	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.4	2.0	5	$ 963	2040
WL2757	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.4	2.0	5	$ 1,250	2040
WL2804	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	6	m	1980	39	N/A	4	1.9	2.0	4	$ 3,018	2040
WL2805	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.0	2.0	4	$ 1,363	2040
WL2806	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.0	2.0	4	$ 1,243	2040
WL2807	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	1.8	2.0	4	$ 1,151	2040
WL2808	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.1	2.0	4	$ 1,258	2040
WL2809	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.0	2.0	4	$ 1,603	2040
WL2810	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	3	2.0	1.4	3	$ 1,138	2060
WL2811	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	11	m	1980	39	N/A	4	2.8	2.0	5	$ 5,906	2040
WL2812	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.8	2.0	5	$ 1,865	2040
WL2813	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.0	2.0	4	$ 1,420	2040
WL2814	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.7	2.0	5	$ 1,573	2040
WL842	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.0	2.0	4	$ 971	2040
WL866	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	6	m	1980	39	N/A	4	2.1	2.0	4	$ 3,047	2040
WL917	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.2	2.0	4	$ 1,603	2040
WL918	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.2	2.0	4	$ 1,603	2040
WL925	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	4	m	1980	39	N/A	4	2.2	2.0	4	$ 2,137	2040
WL926	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.2	2.0	4	$ 1,603	2040
WL927	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.2	2.0	4	$ 1,603	2040
WL949	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.2	2.0	4	$ 1,603	2040
WL969	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	4	m	1980	39	N/A	3	2.1	1.4	3	$ 1,895	2060
WL994	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m	1980	39	N/A	4	2.3	2.0	4	$ 1,403	2040
WL999	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.5	2.0	5	$ 844	2040
WM1870	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	80	3	2.0	1.4	3	$ 843	2060
WM1873	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Proposed	Pipe	PVC	150	1	m	1980	39	80	3	2.1	1.4	3	$ -	2060
WM1877	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	2	m	1980	39	80	3	2.1	1.4	3	$ 810	2060
WM2355	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Pipe	PVC	150	3	m		34	80	3	2.7	1.3	4	$ 1,603	2065
WSV1033	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV1034	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.9	2.0	6	$ 4,795	2040
WSV1035	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.9	2.0	6	$ 4,795	2040
WSV104	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.8	2.0	6	$ 4,795	2040
WSV1043	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.3	2.0	4	$ 4,795	2040
WSV1053	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.4	1.0	2	$ 4,795	2085
WSV1056	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 4,795	2040
WSV1058	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	2007	12	N/A	2	2.1	1.0	2	$ 4,795	2087
WSV1059	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	2007	12	N/A	2	2.1	1.0	2	$ 4,795	2087
WSV106	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.8	2.0	6	$ 4,795	2040
WSV1073	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	3.0	1.9	6	$ 4,795	2041
WSV1080	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.5	1.9	5	$ 4,795	2041
WSV1082	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.4	1.0	2	$ 4,795	2086

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WSV1085	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV1086	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.2	1.1	2	$ 4,795	2074
WSV1087	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.2	1.1	2	$ 4,795	2074
WSV1088	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Proposed	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.6	2.0	5	$ -	2040
WSV109	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.3	2.0	4	$ 4,795	2040
WSV1092	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 4,795	2040
WSV1093	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Proposed	Valve	Gate	150	1	Ea	1980	39	N/A	3	2.0	1.4	3	$ -	2060
WSV1099	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.6	2.0	5	$ 4,795	2040
WSV1100	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 4,795	2040
WSV112	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV113	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV114	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV115	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV118	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV120	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	3.3	2.0	6	$ 4,795	2040
WSV121	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.3	2.0	4	$ 4,795	2040
WSV124	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1981	38	N/A	3	2.0	1.4	3	$ 4,795	2061
WSV1246	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.8	2.0	6	$ 4,795	2040
WSV1254	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.5	2.0	5	$ 4,795	2040
WSV1264	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	1.9	1.0	2	$ 4,795	2085
WSV1265	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	1.9	1.0	2	$ 4,795	2085
WSV127	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.4	1.0	2	$ 4,795	2085
WSV1271	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.3	1.9	4	$ 4,795	2041
WSV1277	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.9	2.0	6	$ 4,795	2040
WSV1286	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 4,795	2040
WSV1287	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.7	2.0	5	$ 4,795	2040
WSV1289	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	3	2.0	1.4	3	$ 4,795	2060
WSV1290	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.1	2.0	4	$ 4,795	2040
WSV1291	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 4,795	2040
WSV130	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.3	2.0	5	$ 4,795	2040
WSV131	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 4,795	2040
WSV132	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.1	1.0	2	$ 4,795	2087
WSV137	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV140	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.8	2.0	5	$ 4,795	2040
WSV143	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.3	1.0	2	$ 4,795	2086
WSV148	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.7	2.0	5	$ 4,795	2040
WSV150	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV164	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service		Valve	Gate	150	1	Ea	1988	31	N/A	4	2.3	2.0	4	$ -	2040
WSV168	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.5	2.0	5	$ 4,795	2040
WSV178	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	3.0	2.0	6	$ 4,795	2040
WSV180	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.1	2.0	4	$ 4,795	2040
WSV335	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV336	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.9	2.0	6	$ 4,795	2040
WSV338	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.1	2.0	4	$ 4,795	2040
WSV339	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV342	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service		Valve	Gate	150	1	Ea	1988	31	N/A	4	2.2	1.9	4	$ -	2041
WSV347	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.8	2.0	5	$ 4,795	2040
WSV351	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 4,795	2040
WSV354	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.7	2.0	5	$ 4,795	2040
WSV356	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 4,795	2040
WSV357	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 4,795	2040
WSV422	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV426	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV429	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	3	2.2	1.4	3	$ 4,795	2060
WSV430	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV431	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	1	2.4	1.0	2	$ 4,795	2092
WSV433	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV434	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 4,795	2040
WSV437	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	3.7	2.0	7	$ 4,795	2040
WSV438	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.1	2.0	4	$ 4,795	2040
WSV439	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.1	2.0	4	$ 4,795	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WSV442	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1981	38	N/A	4	1.9	1.9	4	$ 4,795	2041
WSV448	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service		Valve	Gate	150	1	Ea	1988	31	N/A	4	2.6	2.0	5	$ -	2040
WSV451	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.3	2.0	4	$ 4,795	2040
WSV454	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	3	2.4	1.4	3	$ 4,795	2060
WSV574	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV578	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.0	2.0	4	$ 4,795	2040
WSV579	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.0	1.9	4	$ 4,795	2041
WSV580	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	3	1.9	1.3	3	$ 4,795	2063
WSV582	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.2	1.0	2	$ 4,795	2085
WSV587	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.5	2.0	5	$ 4,795	2040
WSV588	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	3	2.1	1.4	3	$ 4,795	2061
WSV589	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	3	1.9	1.4	3	$ 4,795	2061
WSV591	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	2006	13	N/A	2	2.4	1.0	2	$ 4,795	2086
WSV600	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.7	2.0	5	$ 4,795	2040
WSV601	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV602	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV603	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV605	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.7	2.0	5	$ 4,795	2040
WSV607	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.8	2.0	5	$ 4,795	2040
WSV715	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV716	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 4,795	2040
WSV717	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV718	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV719	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV720	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV726	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	1.9	1.9	4	$ 4,795	2041
WSV729	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.2	1.1	2	$ 4,795	2065
WSV730	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV731	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.3	1.0	2	$ 4,795	2085
WSV732	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.4	1.0	2	$ 4,795	2085
WSV733	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.4	1.0	2	$ 4,795	2085
WSV734	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.4	1.0	2	$ 4,795	2085
WSV738	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 4,795	2040
WSV740	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV741	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	3.0	2.0	6	$ 4,795	2040
WSV742	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.1	2.0	4	$ 4,795	2040
WSV744	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.4	1.9	4	$ 4,795	2041
WSV745	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.4	1.9	5	$ 4,795	2041
WSV755	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV757	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV830	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 4,795	2040
WSV835	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.4	1.0	2	$ 4,795	2086
WSV836	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.4	1.0	2	$ 4,795	2086
WSV837	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1988	31	N/A	2	2.4	1.0	2	$ 4,795	2066
WSV841	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.6	2.0	5	$ 4,795	2040
WSV846	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.1	2.0	4	$ 4,795	2040
WSV847	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.8	2.0	6	$ 4,795	2040
WSV848	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 4,795	2040
WSV852	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.9	2.0	6	$ 4,795	2040
WSV854	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 4,795	2040
WSV581	BCOB WLSA	BC / OB	Varies	Distribution	Hydrant Service	Active	Valve	Gate	250	1	Ea	1988	31	N/A	2	2.2	1.0	2	$ 7,946	2085
WCV150	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	0	1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 13,700	2040
WCV144	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	19	1	Ea	1980	39	N/A	3	3.4	1.4	5	$ 4,795	2060
WCV156	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	25	1	Ea		UNK	N/A	3	2.1	1.4	3	$ 4,795	2060
WCV102	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	50	1	Ea	2012	7	N/A	1	2.1	1.0	2	$ 4,795	2092
WCV123	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	150	1	Ea	1981	38	N/A	3	2.1	1.4	3	$ 4,795	2061
WCV89	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	150	1	Ea	1980	39	N/A	4	2.8	2.0	6	$ 4,795	2040
WCV119	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	200	1	Ea	2007	12	N/A	2	2.1	1.0	2	$ 7,946	2087
WCV125	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	200	1	Ea	2006	13	N/A	2	2.4	1.0	2	$ 7,946	2086
WCV126	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	200	1	Ea	2006	13	N/A	2	2.4	1.0	2	$ 7,946	2086
WCV129	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	200	1	Ea		UNK	N/A	4	2.7	1.9	5	$ 7,946	2041

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WCV133	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	200	1	Ea		UNK	N/A	3	1.9	1.5	3	$ 7,946	2058
WCV134	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	200	1	Ea		UNK	N/A	4	2.6	2.0	5	$ 7,946	2040
WCV139	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	200	1	Ea	1980	39	N/A	4	1.9	2.0	4	$ 7,946	2040
WCV143	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	200	1	Ea		UNK	N/A	4	2.7	2.0	5	$ 7,946	2040
WCV146	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	200	1	Ea	1980	39	N/A	4	2.7	2.0	5	$ 7,946	2040
WCV92	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	200	1	Ea	1980	39	N/A	4	2.3	2.0	4	$ 7,946	2040
WCV95	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	200	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 7,946	2040
WCV104	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	250	1	Ea	1980	39	N/A	3	3.5	1.4	5	$ 7,946	2060
WCV113	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Air Release	250	1	Ea	2005	14	N/A	2	2.2	1.0	2	$ 7,946	2085
WCV131	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Blowoff	150	1	Ea	1994	25	N/A	2	2.2	1.1	2	$ 4,795	2074
WCV120	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	0	1	Ea		UNK	N/A	1	2.2	1.0	2	$ 13,700	2096
WCV128	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	0	1	Ea		UNK	N/A	3	2.9	1.4	4	$ 13,700	2061
WCV132	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	0	1	Ea		UNK	N/A	4	2.0	2.5	5	$ 13,700	2030
WCV138	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	0	1	Ea		UNK	N/A	3	2.8	1.5	4	$ 13,700	2058
WCV100	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1980	39	N/A	3	2.1	1.4	3	$ 4,795	2060
WCV101	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	2012	7	N/A	1	2.1	1.0	2	$ 4,795	2092
WCV103	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1980	39	N/A	3	3.3	1.4	5	$ 4,795	2060
WCV105	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1980	39	N/A	3	3.5	1.4	5	$ 4,795	2060
WCV112	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1982	37	N/A	3	1.8	1.4	2	$ 4,795	2062
WCV115	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1980	39	N/A	4	2.0	2.5	5	$ 4,795	2030
WCV116	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1980	39	N/A	4	2.1	2.5	5	$ 4,795	2030
WCV117	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea		UNK	N/A	3	2.4	1.4	3	$ 4,795	2060
WCV118	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1980	39	N/A	4	2.0	2.5	5	$ 4,795	2030
WCV124	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1981	38	N/A	4	2.0	2.4	5	$ 4,795	2031
WCV127	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea		UNK	N/A	2	2.5	1.0	3	$ 4,795	2086
WCV140	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1980	39	N/A	4	1.8	2.5	4	$ 4,795	2030
WCV141	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1980	39	N/A	4	2.7	2.5	7	$ 4,795	2030
WCV142	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1980	39	N/A	3	1.9	1.4	3	$ 4,795	2060
WCV145	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1980	39	N/A	3	2.3	1.4	3	$ 4,795	2060
WCV147	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea		UNK	N/A	3	1.9	1.4	3	$ 4,795	2060
WCV149	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea		UNK	N/A	3	1.9	1.4	3	$ 4,795	2060
WCV94	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1980	39	N/A	3	2.1	1.4	3	$ 4,795	2060
WCV96	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1980	39	N/A	4	2.1	2.5	5	$ 4,795	2030
WCV97	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1980	39	N/A	4	1.9	2.5	5	$ 4,795	2030
WCV98	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	2005	14	N/A	2	2.2	1.0	2	$ 4,795	2085
WCV99	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	50	1	Ea	1980	39	N/A	3	2.3	1.4	3	$ 4,795	2060
WCV90	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	100	1	Ea	1980	39	N/A	3	2.2	1.4	3	$ 4,795	2060
WCV106	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	150	1	Ea	1981	38	N/A	3	1.9	1.4	3	$ 4,795	2061
WCV107	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	150	1	Ea	1981	38	N/A	3	2.0	1.4	3	$ 4,795	2061
WCV108	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	150	1	Ea	2010	9	N/A	1	1.8	1.0	2	$ 4,795	2090
WCV111	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	150	1	Ea	1982	37	N/A	3	2.0	1.4	3	$ 4,795	2062
WCV114	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	150	1	Ea	1980	39	N/A	4	2.1	2.0	4	$ 4,795	2040
WCV148	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	150	1	Ea		UNK	N/A	4	2.7	2.0	5	$ 4,795	2040
WCV91	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	150	1	Ea	1980	39	N/A	4	2.1	2.5	5	$ 4,795	2030
WCV93	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Flush Out	150	1	Ea	1980	39	N/A	4	2.9	2.0	6	$ 4,795	2040
WCV135	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Control Valve	Simple Check	0	1	Ea		UNK	N/A	3	2.5	1.5	4	$ 13,700	2058
WM1789	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	100	3	m	1980	39	60	4	2.3	2.0	5	$ 1,392	2040
WM2041	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	100	3	m	1980	39	60	4	2.2	2.0	4	$ 1,233	2040
WM2048	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	100	11	m	1980	39	60	4	2.2	2.0	4	$ 4,686	2040
WM2049	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	100	1	m	1980	39	60	4	2.4	2.0	5	$ 616	2040
WM2051	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	100	2	m	1980	39	60	4	2.2	2.0	4	$ 617	2040
WM2103	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	100	11	m	1980	39	60	4	2.2	2.0	4	$ 4,681	2040
WM2182	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	100	2	m	1981	38	60	4	2.2	1.9	4	$ 1,027	2041
WM2184	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	100	2	m	1981	38	60	4	2.2	1.9	4	$ 767	2041
WM2260	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	100	2	m	2006	13	60	2	2.4	1.0	2	$ 822	2066
WM1627	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	14	m	1980	39	60	4	2.8	2.0	6	$ 7,497	2040
WM1628	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.8	2.0	6	$ 1,603	2040
WM1629	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	141	m	1980	39	60	4	2.8	2.0	6	$ 75,421	2040
WM1630	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	161	m	1980	39	60	4	2.8	2.0	6	$ 85,762	2040
WM1631	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	62	m	1980	39	60	4	2.8	2.0	6	$ 32,996	2040
WM1632	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	31	m	1980	39	60	4	2.8	2.0	6	$ 16,407	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WM1633	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.8	2.0	6	$ 1,603	2040
WM1634	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	61	m	1980	39	60	4	2.8	2.0	6	$ 32,428	2040
WM1635	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	4	m	1980	39	60	4	2.2	2.0	4	$ 2,302	2040
WM1636	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	129	m	1980	39	60	4	2.8	2.0	6	$ 69,023	2040
WM1637	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	146	m	1980	39	60	4	2.0	2.0	4	$ 78,090	2040
WM1638	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	50	m	1980	39	60	4	2.8	2.0	6	$ 26,907	2040
WM1639	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	35	m	1980	39	60	4	2.8	2.0	6	$ 18,700	2040
WM1640	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.2	2.0	4	$ 1,651	2040
WM1641	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	34	m	1980	39	60	4	2.8	2.0	6	$ 18,406	2040
WM1642	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.2	2.0	4	$ 1,603	2040
WM1643	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	82	m	1980	39	60	4	2.2	2.0	4	$ 43,793	2040
WM1644	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.2	2.0	4	$ 1,603	2040
WM1649	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	63	m	1980	39	60	4	2.2	2.0	4	$ 33,496	2040
WM1651	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	83	m	1980	39	60	4	2.2	2.0	4	$ 44,172	2040
WM1652	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	147	m	1980	39	60	4	2.2	2.0	4	$ 78,596	2040
WM1653	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	92	m	1980	39	60	4	2.2	2.0	4	$ 49,278	2040
WM1654	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	115	m	1980	39	60	4	2.4	2.0	5	$ 61,644	2040
WM1661	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.9	2.0	6	$ 1,069	2040
WM1662	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.9	2.0	6	$ 801	2040
WM1666	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	274	m	1980	39	60	4	2.2	2.0	4	$ 146,586	2040
WM1669	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	24	m	1980	39	60	4	2.2	2.0	4	$ 12,958	2040
WM1670	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.2	2.0	4	$ 1,603	2040
WM1671	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	4	m	1980	39	60	4	2.2	2.0	4	$ 1,923	2040
WM1672	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	43	m	1980	39	60	4	2.2	2.0	4	$ 23,204	2040
WM1675	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.2	2.0	4	$ 1,603	2040
WM1676	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.2	2.0	4	$ 1,603	2040
WM1685	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.2	2.0	4	$ 545	2040
WM1686	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.2	2.0	4	$ 654	2040
WM1714	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	65	m	1980	39	60	4	2.3	2.0	4	$ 34,753	2040
WM1716	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.3	2.0	4	$ 1,585	2040
WM1722	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	13	m	1980	39	60	4	2.5	2.0	5	$ 6,713	2040
WM1723	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.4	2.0	5	$ 1,469	2040
WM1724	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	59	m	1980	39	60	4	2.4	2.0	5	$ 31,762	2040
WM1725	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	42	m	1980	39	60	4	2.4	2.0	5	$ 22,454	2040
WM1726	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.4	2.0	5	$ 1,386	2040
WM1727	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	34	m	1980	39	60	4	2.4	2.0	5	$ 18,113	2040
WM1728	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	91	m	1980	39	60	4	2.5	2.0	5	$ 48,830	2040
WM1729	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	15	m	1980	39	60	4	2.4	2.0	5	$ 8,052	2040
WM1730	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	11	m	1980	39	60	4	2.4	2.0	5	$ 5,939	2040
WM1731	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	78	m	1980	39	60	4	2.4	2.0	5	$ 41,843	2040
WM1732	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.4	2.0	5	$ 1,847	2040
WM1733	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.4	2.0	5	$ 1,608	2040
WM1734	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	139	m	1980	39	60	4	2.4	2.0	5	$ 74,114	2040
WM1735	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	204	m	1980	39	60	4	2.2	2.0	4	$ 108,924	2040
WM1736	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.4	2.0	5	$ 1,490	2040
WM1737	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	15	m	1980	39	60	4	2.4	2.0	5	$ 7,762	2040
WM1738	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	21	m	1980	39	60	4	2.4	2.0	5	$ 11,062	2040
WM1740	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	159	m	1980	39	60	4	2.4	2.0	5	$ 85,041	2040
WM1741	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	162	m	1980	39	60	4	2.2	2.0	4	$ 86,468	2040
WM1742	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.2	2.0	4	$ 1,797	2040
WM1743	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	37	m	1980	39	60	4	2.2	2.0	4	$ 19,680	2040
WM1744	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.2	2.0	4	$ 1,468	2040
WM1745	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	151	m	1980	39	60	4	2.2	2.0	4	$ 80,478	2040
WM1746	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	4	m	1980	39	60	4	2.2	2.0	4	$ 1,966	2040
WM1747	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.2	2.0	4	$ 1,603	2040
WM1750	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	148	m	1980	39	60	4	2.2	2.0	4	$ 78,824	2040
WM1751	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	59	m	1980	39	60	4	2.2	2.0	4	$ 31,624	2040
WM1752	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	4	m	1980	39	60	4	2.2	2.0	4	$ 1,918	2040
WM1753	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.2	2.0	4	$ 760	2040
WM1755	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	118	m	1980	39	60	4	2.2	2.0	4	$ 63,085	2040
WM1756	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	169	m	1980	39	60	4	2.2	2.0	4	$ 90,415	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WM1757	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	159	m	1980	39	60	4	2.2	2.0	4	$ 84,897	2040
WM1758	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.2	2.0	4	$ 1,496	2040
WM1759	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	144	m	1980	39	60	4	2.2	2.0	4	$ 76,876	2040
WM1760	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.2	2.0	4	$ 534	2040
WM1762	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.2	2.0	4	$ 534	2040
WM1763	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	49	m	1980	39	60	4	2.2	2.0	4	$ 26,428	2040
WM1768	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	21	m	1980	39	60	4	2.2	2.0	4	$ 11,161	2040
WM1769	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.2	2.0	4	$ 551	2040
WM1770	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	148	m	1980	39	60	4	2.5	2.0	5	$ 79,136	2040
WM1783	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	109	m	1980	39	60	4	2.4	2.0	5	$ 58,312	2040
WM1786	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	2012	7	60	1	2.4	1.0	2	$ 608	2072
WM1788	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	6	m	2012	7	60	1	2.4	1.0	2	$ 3,417	2072
WM1793	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	108	m	1980	39	60	4	2.2	2.0	4	$ 57,910	2040
WM1804	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	2012	7	60	1	2.4	1.0	2	$ 487	2072
WM1805	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	2012	7	60	1	2.4	1.0	2	$ 487	2072
WM1810	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	93	m	1980	39	60	4	2.4	2.0	5	$ 49,541	2040
WM1811	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	17	m	1980	39	60	4	2.2	2.0	4	$ 8,860	2040
WM1831	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.4	2.0	5	$ 474	2040
WM1833	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	92	m	1980	39	60	4	2.4	2.0	5	$ 49,214	2040
WM1834	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	27	m	1980	39	60	4	2.4	2.0	5	$ 14,441	2040
WM1842	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	159	m	1980	39	60	4	2.3	2.0	4	$ 85,220	2040
WM1843	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	15	m	1980	39	60	4	2.4	2.0	5	$ 7,769	2040
WM1845	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	69	m	1980	39	60	4	2.5	2.0	5	$ 36,930	2040
WM1846	BCOB WLSA	BC / OB	Varies	Distribution	Main	Inactive	Pipe	AC	150	46	m	1980	39	60	4	2.3	2.0	4	$ -	2040
WM1847	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.6	2.0	5	$ 806	2040
WM1848	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.4	2.0	5	$ 1,302	2040
WM1880	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	169	m	1980	39	60	4	2.1	2.0	4	$ 90,175	2040
WM1881	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	12	m	1980	39	60	4	2.1	2.0	4	$ 6,208	2040
WM1883	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.1	2.0	4	$ 801	2040
WM1884	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	14	m	1980	39	60	4	2.1	2.0	4	$ 7,347	2040
WM1885	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	10	m	1980	39	60	4	2.1	2.0	4	$ 5,510	2040
WM1886	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	126	m	1980	39	60	4	2.1	2.0	4	$ 67,206	2040
WM1887	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.1	2.0	4	$ 1,603	2040
WM1888	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.1	2.0	4	$ 1,603	2040
WM1890	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	122	m	1980	39	60	4	2.0	2.0	4	$ 64,995	2040
WM1891	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	97	m	1980	39	60	4	2.0	2.0	4	$ 51,710	2040
WM1892	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	9	m	1980	39	60	4	1.9	2.0	4	$ 4,657	2040
WM1894	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	75	m	1981	38	60	4	1.9	1.9	4	$ 40,291	2041
WM1895	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	1.9	2.0	4	$ 801	2040
WM1896	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	1.9	2.0	4	$ 801	2040
WM1897	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	74	m	1981	38	60	4	1.9	1.9	4	$ 39,686	2041
WM1898	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1981	38	60	4	1.9	1.9	4	$ 1,482	2041
WM1899	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	43	m	1980	39	60	4	1.9	2.0	4	$ 23,020	2040
WM1900	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.0	2.0	4	$ 793	2040
WM1901	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	9	m	1980	39	60	4	2.0	2.0	4	$ 4,768	2040
WM1910	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.4	2.0	5	$ 380	2040
WM1923	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	24	m	2005	14	60	2	2.2	1.1	2	$ 12,988	2065
WM1924	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	20	m	1980	39	60	4	1.9	2.0	4	$ 10,736	2040
WM1926	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	1.9	2.0	4	$ 801	2040
WM1945	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.1	2.0	4	$ 267	2040
WM1946	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	168	m	2005	14	60	2	2.2	1.1	2	$ 89,799	2065
WM1947	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.2	2.0	4	$ 738	2040
WM1951	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.1	2.0	4	$ 1,095	2040
WM1952	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.1	2.0	4	$ 534	2040
WM1995	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	49	m	1980	39	60	4	2.2	2.0	4	$ 26,303	2040
WM1997	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.2	2.0	4	$ 801	2040
WM2002	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	1.8	2.0	4	$ 972	2040
WM2014	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.5	2.0	5	$ 945	2040
WM2016	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	138	m	1980	39	60	4	2.2	2.0	4	$ 73,672	2040
WM2017	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.2	2.0	4	$ 1,603	2040
WM2018	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.2	2.0	4	$ 801	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WM2019	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	149	m	1980	39	60	4	2.2	2.0	4	$ 79,587	2040
WM2021	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	82	m	1980	39	60	4	2.3	2.0	5	$ 43,746	2040
WM2022	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	76	m	1980	39	60	4	2.6	2.0	5	$ 40,438	2040
WM2023	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	102	m	1980	39	60	4	2.5	2.0	5	$ 54,392	2040
WM2025	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.2	2.0	4	$ 801	2040
WM2027	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.2	2.0	4	$ 801	2040
WM2028	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.2	2.0	4	$ 801	2040
WM2037	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.3	2.0	4	$ 1,197	2040
WM2050	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.3	2.0	4	$ 801	2040
WM2055	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	39	m	1980	39	60	4	2.3	2.0	4	$ 20,788	2040
WM2056	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.3	2.0	4	$ 801	2040
WM2057	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	65	m	1980	39	60	4	2.3	2.0	4	$ 34,662	2040
WM2058	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	31	m	1980	39	60	4	2.3	2.0	4	$ 16,706	2040
WM2060	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.3	2.0	4	$ 1,234	2040
WM2065	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.3	2.0	4	$ 1,603	2040
WM2118	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.4	2.0	5	$ 1,603	2040
WM2124	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.1	2.0	4	$ 1,053	2040
WM2129	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	2016	3	60	1	2.3	1.0	2	$ 1,137	2076
WM2136	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	130	m	1981	38	60	4	2.5	1.9	5	$ 69,611	2041
WM2139	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1981	38	60	4	2.7	1.9	5	$ 801	2041
WM2140	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	118	m	1980	39	60	4	2.3	2.0	5	$ 63,122	2040
WM2141	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	46	m	1981	38	60	4	2.1	1.9	4	$ 24,346	2041
WM2142	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1981	38	60	4	2.3	1.9	4	$ 1,603	2041
WM2143	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1981	38	60	4	2.3	1.9	4	$ 1,603	2041
WM2144	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	84	m	1981	38	60	4	2.3	1.9	4	$ 45,086	2041
WM2154	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	126	m	1980	39	60	4	2.3	2.0	5	$ 67,539	2040
WM2155	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	5	m	1980	39	60	4	2.3	2.0	5	$ 2,523	2040
WM2156	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.3	2.0	5	$ 801	2040
WM2158	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.3	2.0	5	$ 801	2040
WM2161	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.4	2.0	5	$ 1,069	2040
WM2163	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.6	2.0	5	$ 1,069	2040
WM2166	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	11	m	1981	38	60	4	2.1	1.9	4	$ 6,108	2041
WM2177	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	169	m	1981	38	60	4	2.2	1.9	4	$ 90,563	2041
WM2181	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1981	38	60	4	2.4	1.9	4	$ 1,603	2041
WM2183	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	94	m	1981	38	60	4	2.2	1.9	4	$ 49,982	2041
WM2185	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1981	38	60	4	2.2	1.9	4	$ 1,603	2041
WM2186	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	19	m	1981	38	60	4	2.2	1.9	4	$ 9,927	2041
WM2261	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	2006	13	60	2	2.4	1.0	3	$ 801	2066
WM2268	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	5	m	1980	39	60	4	2.3	2.0	4	$ 2,873	2040
WM2289	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.6	2.0	5	$ 1,572	2040
WM2298	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.6	2.0	5	$ 1,603	2040
WM2301	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.6	2.0	5	$ 1,603	2040
WM2309	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	3.2	2.0	6	$ 1,255	2040
WM2314	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	3.0	2.0	6	$ 991	2040
WM2318	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.2	2.0	4	$ 1,603	2040
WM2321	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.2	2.0	4	$ 1,603	2040
WM2324	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.2	2.0	4	$ 1,603	2040
WM2329	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	4	m	1980	39	60	4	3.0	2.0	6	$ 1,976	2040
WM2338	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.2	2.0	4	$ 1,093	2040
WM2394	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.8	2.0	6	$ 1,603	2040
WM2406	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	85	m	1980	39	60	4	2.0	2.0	4	$ 45,260	2040
WM2407	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	51	m	1980	39	60	4	2.0	2.0	4	$ 27,061	2040
WM2410	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.0	2.0	4	$ 1,603	2040
WM2411	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	9	m	1980	39	60	4	2.0	2.0	4	$ 4,611	2040
WM2412	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	95	m	1980	39	60	4	2.0	2.0	4	$ 50,494	2040
WM2414	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	2	m	1980	39	60	4	2.0	2.0	4	$ 1,047	2040
WM2415	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	165	m	1980	39	60	4	2.0	2.0	4	$ 87,946	2040
WM2416	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.0	2.0	4	$ 1,603	2040
WM2418	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	163	m	1980	39	60	4	2.0	2.0	4	$ 87,002	2040
WM2419	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	119	m	1980	39	60	4	1.8	2.0	4	$ 63,710	2040
WM2420	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.0	2.0	4	$ 1,347	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WM2421	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.0	2.0	4	$ 1,347	2040
WM2423	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	150	m	1980	39	60	4	2.0	2.0	4	$ 80,385	2040
WM2425	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.1	2.0	4	$ 1,603	2040
WM2427	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	23	m	1980	39	60	4	2.1	2.0	4	$ 12,116	2040
WM2428	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.1	2.0	4	$ 1,606	2040
WM2429	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	127	m	1980	39	60	4	2.1	2.0	4	$ 67,657	2040
WM2430	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.0	2.0	4	$ 749	2040
WM2447	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.7	2.0	5	$ 1,603	2040
WM2452	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.7	2.0	5	$ 749	2040
WM2455	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.7	2.0	5	$ 1,603	2040
WM2467	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.0	2.0	4	$ 1,603	2040
WM2471	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.6	2.0	5	$ 1,603	2040
WM2473	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	253	m	1980	39	60	4	2.7	2.0	5	$ 135,020	2040
WM2474	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	94	m	1980	39	60	4	2.0	2.0	4	$ 50,057	2040
WM2475	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	16	m	1980	39	60	4	2.7	2.0	5	$ 8,646	2040
WM2479	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.1	2.0	4	$ 1,603	2040
WM2480	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.7	2.0	5	$ 1,603	2040
WM2482	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.0	2.0	4	$ 1,603	2040
WM2486	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	15	m	1980	39	60	4	2.1	2.0	4	$ 7,998	2040
WM2487	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	72	m	1980	39	60	4	2.0	2.0	4	$ 38,604	2040
WM2489	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.7	2.0	5	$ 1,603	2040
WM2490	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	67	m	1980	39	60	4	2.6	2.0	5	$ 35,916	2040
WM2491	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	31	m	1980	39	60	4	2.0	2.0	4	$ 16,625	2040
WM2494	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.1	2.0	4	$ 1,603	2040
WM2498	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.5	2.0	5	$ 1,603	2040
WM2506	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.5	2.0	5	$ 618	2040
WM2507	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	1	m	1980	39	60	4	2.5	2.0	5	$ 618	2040
WM2599	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.3	2.0	4	$ 1,530	2040
WM2600	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.3	2.0	4	$ 1,858	2040
WM2631	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	1980	39	60	4	2.5	2.0	5	$ 1,603	2040
WM3140	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	61	m	2018	1	60	1	2.3	1.0	2	$ 32,810	2078
WM3142	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	3	m	2018	1	60	1	2.3	1.0	2	$ 1,603	2078
WM3150	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	150	18	m	2018	1	60	1	2.2	1.0	2	$ 9,433	2078
WM1645	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	41	m	1980	39	60	4	2.3	2.0	4	$ 27,244	2040
WM1656	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.3	2.0	4	$ 1,973	2040
WM1657	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	57	m	1980	39	60	4	2.9	2.0	6	$ 37,579	2040
WM1658	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	104	m	1980	39	60	4	2.9	2.0	6	$ 68,106	2040
WM1659	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	228	m	1980	39	60	4	2.1	2.0	4	$ 150,243	2040
WM1660	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	37	m	1980	39	60	4	2.3	2.0	4	$ 24,055	2040
WM1663	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	35	m	1980	39	60	4	2.9	2.0	6	$ 22,818	2040
WM1665	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	134	m	1980	39	60	4	2.3	2.0	4	$ 88,297	2040
WM1678	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	35	m	1980	39	60	4	2.2	2.0	4	$ 22,915	2040
WM1679	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	19	m	1980	39	60	4	2.9	2.0	6	$ 12,188	2040
WM1680	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	58	m	1980	39	60	4	2.2	2.0	4	$ 37,882	2040
WM1681	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	192	m	1980	39	60	4	2.2	2.0	4	$ 126,436	2040
WM1682	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	209	m	1980	39	60	4	2.9	2.0	6	$ 137,302	2040
WM1683	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	40	m	1980	39	60	4	2.9	2.0	6	$ 26,383	2040
WM1684	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.2	2.0	4	$ 2,183	2040
WM1687	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	9	m	1980	39	60	4	2.9	2.0	6	$ 5,853	2040
WM1688	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	226	m	1980	39	60	4	2.2	2.0	4	$ 148,306	2040
WM1689	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	68	m	1980	39	60	4	2.2	2.0	4	$ 44,635	2040
WM1690	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	150	m	1980	39	60	4	2.1	2.0	4	$ 98,339	2040
WM1691	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	93	m	1980	39	60	4	2.2	2.0	4	$ 60,921	2040
WM1692	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	9	m	1980	39	60	4	2.2	2.0	4	$ 5,791	2040
WM1693	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	15	m	1980	39	60	4	2.2	2.0	4	$ 9,840	2040
WM1694	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	13	m	1980	39	60	4	2.2	2.0	4	$ 8,495	2040
WM1695	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	1	m	1980	39	60	4	2.2	2.0	4	$ 658	2040
WM1697	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	84	m	1980	39	60	4	2.2	2.0	4	$ 55,293	2040
WM1698	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	6	m	1980	39	60	4	2.2	2.0	4	$ 3,777	2040
WM1700	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	102	m	1980	39	60	4	2.2	2.0	4	$ 66,761	2040
WM1701	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	48	m	1980	39	60	4	2.3	2.0	5	$ 31,293	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WM1702	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	13	m	1980	39	60	4	2.3	2.0	5	$ 8,413	2040
WM1703	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	36	m	1980	39	60	4	2.3	2.0	5	$ 23,356	2040
WM1704	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.3	2.0	5	$ 1,942	2040
WM1705	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	8	m	1980	39	60	4	2.3	2.0	5	$ 5,108	2040
WM1706	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	4	m	1980	39	60	4	2.3	2.0	5	$ 2,380	2040
WM1708	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	165	m	1980	39	60	4	2.3	2.0	5	$ 108,571	2040
WM1709	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	26	m	1980	39	60	4	2.3	2.0	5	$ 17,361	2040
WM1710	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	138	m	1980	39	60	4	2.3	2.0	5	$ 90,883	2040
WM1711	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	87	m	1980	39	60	4	2.3	2.0	5	$ 57,249	2040
WM1712	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.3	2.0	5	$ 2,278	2040
WM1717	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.3	2.0	5	$ 2,160	2040
WM1718	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	30	m	1980	39	60	4	2.3	2.0	5	$ 19,655	2040
WM1719	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	16	m	1980	39	60	4	2.3	2.0	5	$ 10,214	2040
WM1721	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	6	m	1980	39	60	4	2.3	2.0	5	$ 4,033	2040
WM1827	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	122	m	1980	39	60	4	2.4	2.0	5	$ 80,131	2040
WM1829	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	122	m	1980	39	60	4	2.9	2.0	6	$ 80,275	2040
WM1862	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	27	m	1980	39	60	4	3.2	2.0	6	$ 18,068	2040
WM1867	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	1	m	1980	39	60	4	3.2	2.0	6	$ 986	2040
WM1909	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.3	2.0	5	$ 1,353	2040
WM1918	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	91	m	1980	39	60	4	2.2	2.0	4	$ 60,039	2040
WM1919	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	61	m	1980	39	60	4	2.2	2.0	4	$ 40,437	2040
WM1920	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	4	m	1980	39	60	4	2.2	2.0	4	$ 2,324	2040
WM1921	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	10	m	1980	39	60	4	2.2	2.0	4	$ 6,576	2040
WM1922	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.2	2.0	4	$ 2,078	2040
WM1943	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	1	m	1980	39	60	4	2.2	2.0	4	$ 329	2040
WM1949	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	7	m	1980	39	60	4	2.2	2.0	4	$ 4,477	2040
WM1983	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	200	m	1980	39	60	4	2.6	2.0	5	$ 131,845	2040
WM1984	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	17	m	1980	39	60	4	2.6	2.0	5	$ 11,137	2040
WM1985	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	144	m	1980	39	60	4	3.0	2.0	6	$ 95,018	2040
WM1986	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	1	m	1980	39	60	4	2.6	2.0	5	$ 986	2040
WM1987	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.6	2.0	5	$ 986	2040
WM1988	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	64	m	1980	39	60	4	2.6	2.0	5	$ 41,976	2040
WM1989	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	143	m	1980	39	60	4	2.3	2.0	4	$ 94,102	2040
WM1991	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	43	m	1980	39	60	4	2.6	2.0	5	$ 28,019	2040
WM1992	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.3	2.0	4	$ 986	2040
WM1993	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	18	m	1980	39	60	4	2.3	2.0	4	$ 11,661	2040
WM1994	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	186	m	1980	39	60	4	2.3	2.0	4	$ 122,317	2040
WM1998	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.3	2.0	4	$ 986	2040
WM1999	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	24	m	1980	39	60	4	2.3	2.0	4	$ 15,497	2040
WM2003	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	46	m	1980	39	60	4	1.8	2.0	4	$ 30,466	2040
WM2004	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	1.8	2.0	4	$ 1,973	2040
WM2011	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	174	m	1980	39	60	4	2.4	2.0	5	$ 114,604	2040
WM2012	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	35	m	1980	39	60	4	2.3	2.0	4	$ 22,724	2040
WM2013	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	26	m	1980	39	60	4	2.5	2.0	5	$ 17,033	2040
WM2015	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	1	m	1980	39	60	4	2.5	2.0	5	$ 755	2040
WM2024	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	120	m	1980	39	60	4	2.3	2.0	4	$ 78,639	2040
WM2026	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.3	2.0	4	$ 1,973	2040
WM2029	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	47	m	1980	39	60	4	2.3	2.0	5	$ 31,031	2040
WM2030	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	98	m	1980	39	60	4	2.3	2.0	5	$ 64,592	2040
WM2035	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.3	2.0	5	$ 1,305	2040
WM2036	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.3	2.0	5	$ 1,530	2040
WM2038	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.3	2.0	5	$ 986	2040
WM2039	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.3	2.0	5	$ 986	2040
WM2040	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	173	m	1980	39	60	4	2.3	2.0	5	$ 113,923	2040
WM2042	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	16	m	1980	39	60	4	2.3	2.0	5	$ 10,280	2040
WM2043	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.3	2.0	5	$ 1,973	2040
WM2044	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	89	m	1980	39	60	4	2.3	2.0	5	$ 58,714	2040
WM2045	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	165	m	1980	39	60	4	2.3	2.0	5	$ 108,418	2040
WM2047	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.3	2.0	5	$ 1,973	2040
WM2053	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	85	m	1980	39	60	4	2.3	2.0	5	$ 55,868	2040
WM2054	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	17	m	1980	39	60	4	2.3	2.0	5	$ 11,091	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WM2061	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	75	m	1980	39	60	4	2.3	2.0	5	$ 49,262	2040
WM2062	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	146	m	1980	39	60	4	2.3	2.0	5	$ 95,944	2040
WM2063	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.3	2.0	5	$ 1,973	2040
WM2064	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	97	m	1980	39	60	4	2.3	2.0	5	$ 63,989	2040
WM2066	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	149	m	1980	39	60	4	2.3	2.0	5	$ 97,858	2040
WM2067	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.3	2.0	5	$ 986	2040
WM2068	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	142	m	1980	39	60	4	2.3	2.0	5	$ 93,566	2040
WM2082	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.3	2.0	5	$ 1,973	2040
WM2116	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	168	m	1980	39	60	4	2.0	2.0	4	$ 110,285	2040
WM2117	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	181	m	1980	39	60	4	3.0	2.0	6	$ 119,313	2040
WM2119	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	1	m	1980	39	60	4	2.5	2.0	5	$ 458	2040
WM2120	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	4	m	1980	39	60	4	2.4	2.0	5	$ 2,850	2040
WM2121	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	57	m	1980	39	60	4	2.1	2.0	4	$ 37,540	2040
WM2122	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	75	m	1980	39	60	4	2.5	2.0	5	$ 49,455	2040
WM2123	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	1	m	1980	39	60	4	2.1	2.0	4	$ 986	2040
WM2125	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	160	m	1980	39	60	4	2.1	2.0	4	$ 105,472	2040
WM2126	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	166	m	1980	39	60	4	2.4	2.0	5	$ 108,960	2040
WM2127	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	1	m	1980	39	60	4	2.4	2.0	5	$ 986	2040
WM2128	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	109	m	1980	39	60	4	2.5	2.0	5	$ 71,391	2040
WM2131	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	5	m	1980	39	60	4	2.4	2.0	5	$ 3,541	2040
WM2134	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	122	m	1980	39	60	4	2.1	2.0	4	$ 80,546	2040
WM2135	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	1	m	1980	39	60	4	2.5	2.0	5	$ 986	2040
WM2137	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	124	m	1980	39	60	4	2.8	2.0	5	$ 81,413	2040
WM2138	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.8	2.0	5	$ 986	2040
WM2145	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	39	m	1980	39	60	4	2.5	2.0	5	$ 25,904	2040
WM2157	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	168	m	1981	38	60	4	2.7	1.9	5	$ 110,163	2041
WM2159	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.4	2.0	5	$ 986	2040
WM2160	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	70	m	1980	39	60	4	2.8	2.0	5	$ 45,822	2040
WM2162	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	74	m	1980	39	60	4	2.2	2.0	4	$ 48,892	2040
WM2164	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	44	m	1980	39	60	4	2.4	2.0	5	$ 28,783	2040
WM2173	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	77	m	1981	38	60	4	2.1	1.9	4	$ 50,358	2041
WM2175	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	154	m	1981	38	60	4	2.4	1.9	4	$ 101,539	2041
WM2176	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	65	m	1981	38	60	4	2.4	1.9	5	$ 42,917	2041
WM2179	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	255	m	1981	38	60	4	2.4	1.9	5	$ 167,942	2041
WM2180	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1981	38	60	4	2.4	1.9	5	$ 1,973	2041
WM2201	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	139	m	1981	38	60	4	2.4	1.9	5	$ 91,087	2041
WM2206	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	11	m	2006	13	60	2	2.4	1.0	2	$ 6,958	2066
WM2214	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	231	m	1981	38	60	4	2.5	1.9	5	$ 151,691	2041
WM2217	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	85	m	1981	38	60	4	3.0	1.9	6	$ 56,094	2041
WM2218	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	9	m	1981	38	60	4	3.3	1.9	6	$ 5,912	2041
WM2219	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1981	38	60	4	3.0	1.9	6	$ 1,062	2041
WM2220	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	14	m	1981	38	60	4	2.5	1.9	5	$ 9,310	2041
WM2221	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	10	m	1981	38	60	4	2.7	1.9	5	$ 6,566	2041
WM2254	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	161	m	2006	13	60	2	2.2	1.0	2	$ 106,053	2066
WM2256	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1981	38	60	4	2.2	1.9	4	$ 1,973	2041
WM2257	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	20	m	1981	38	60	4	2.2	1.9	4	$ 13,392	2041
WM2258	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	300	m	1980	39	60	4	2.2	2.0	4	$ 197,531	2040
WM2259	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	2006	13	60	2	2.5	1.0	3	$ 1,973	2066
WM2265	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	117	m	1980	39	60	4	2.5	2.0	5	$ 76,712	2040
WM2266	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	63	m	1980	39	60	4	2.5	2.0	5	$ 41,363	2040
WM2267	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	103	m	1980	39	60	4	2.5	2.0	5	$ 67,730	2040
WM2269	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.5	2.0	5	$ 1,973	2040
WM2270	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	161	m	1980	39	60	4	2.7	2.0	5	$ 105,620	2040
WM2272	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1994	25	60	3	2.2	1.3	3	$ 1,315	2054
WM2274	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1994	25	60	3	2.2	1.3	3	$ 1,315	2054
WM2278	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	96	m	1980	39	60	4	2.2	2.0	4	$ 63,084	2040
WM2279	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	97	m	1980	39	60	4	2.7	2.0	5	$ 64,099	2040
WM2281	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	21	m	1980	39	60	4	2.4	2.0	5	$ 13,656	2040
WM2282	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.4	2.0	5	$ 1,315	2040
WM2283	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	134	m	1980	39	60	4	2.7	2.0	5	$ 87,859	2040
WM2285	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	65	m	1980	39	60	4	2.4	2.0	5	$ 42,793	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WM2286	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.7	2.0	5	$ 1,315	2040
WM2287	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	126	m	1980	39	60	4	2.4	2.0	5	$ 82,754	2040
WM2288	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	15	m	1980	39	60	4	2.4	2.0	5	$ 9,713	2040
WM2290	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	8	m	1980	39	60	4	2.4	2.0	5	$ 5,558	2040
WM2291	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.4	2.0	5	$ 1,315	2040
WM2297	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	164	m	1980	39	60	4	2.7	2.0	5	$ 108,151	2040
WM2299	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	92	m	1980	39	60	4	2.4	2.0	5	$ 60,817	2040
WM2300	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	88	m	1980	39	60	4	2.7	2.0	5	$ 58,112	2040
WM2302	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	204	m	1980	39	60	4	2.4	2.0	5	$ 134,145	2040
WM2303	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	22	m	1980	39	60	4	2.4	2.0	5	$ 14,543	2040
WM2304	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.4	2.0	5	$ 1,315	2040
WM2305	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	93	m	1980	39	60	4	2.7	2.0	5	$ 60,897	2040
WM2306	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	22	m	1980	39	60	4	2.4	2.0	5	$ 14,556	2040
WM2308	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	91	m	1980	39	60	4	3.2	2.0	6	$ 60,018	2040
WM2310	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	1	m	1980	39	60	4	3.2	2.0	6	$ 678	2040
WM2311	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	74	m	1980	39	60	4	3.0	2.0	6	$ 48,623	2040
WM2312	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	113	m	1980	39	60	4	3.0	2.0	6	$ 74,073	2040
WM2313	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	1	m	1980	39	60	4	3.0	2.0	6	$ 986	2040
WM2315	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	171	m	1980	39	60	4	2.2	2.0	4	$ 112,471	2040
WM2316	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	109	m	1980	39	60	4	2.9	2.0	6	$ 71,494	2040
WM2317	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	59	m	1980	39	60	4	2.9	2.0	6	$ 39,101	2040
WM2319	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	61	m	1980	39	60	4	2.2	2.0	4	$ 40,194	2040
WM2320	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.2	2.0	4	$ 1,973	2040
WM2322	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	91	m	1980	39	60	4	2.2	2.0	4	$ 59,640	2040
WM2323	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	102	m	1980	39	60	4	3.0	2.0	6	$ 67,151	2040
WM2325	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	135	m	1980	39	60	4	2.2	2.0	4	$ 88,828	2040
WM2326	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	168	m	1980	39	60	4	2.6	2.0	5	$ 110,380	2040
WM2327	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	3.3	2.0	6	$ 1,969	2040
WM2328	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	94	m	1980	39	60	4	3.3	2.0	6	$ 62,069	2040
WM2330	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	99	m	1980	39	60	4	3.1	2.0	6	$ 65,101	2040
WM2331	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	80	m	1980	39	60	4	3.0	2.0	6	$ 52,515	2040
WM2332	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	4	m	1980	39	60	4	2.4	2.0	5	$ 2,406	2040
WM2333	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	1	m	1980	39	60	4	2.4	2.0	5	$ 839	2040
WM2334	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.4	2.0	5	$ 986	2040
WM2335	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.4	2.0	5	$ 1,315	2040
WM2336	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	96	m	1980	39	60	4	2.9	2.0	6	$ 62,814	2040
WM2337	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	5	m	1980	39	60	4	2.9	2.0	6	$ 3,377	2040
WM2339	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	59	m	1980	39	60	4	2.2	2.0	4	$ 38,508	2040
WM2340	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	134	m	1980	39	60	4	2.6	2.0	5	$ 88,318	2040
WM2341	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	13	m	1980	39	60	4	2.9	2.0	6	$ 8,828	2040
WM2346	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1978	41	60	4	2.9	2.1	6	$ 1,973	2038
WM2354	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	55	m	1980	39	60	4	2.9	2.0	6	$ 36,088	2040
WM2356	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	176	m	1980	39	60	4	2.8	2.0	5	$ 115,615	2040
WM2360	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	82	m	1980	39	60	4	1.9	2.0	4	$ 54,026	2040
WM2361	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.6	2.0	5	$ 1,771	2040
WM2389	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	22	m	1980	39	60	4	1.9	2.0	4	$ 14,294	2040
WM2390	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	4	m	1980	39	60	4	1.9	2.0	4	$ 2,938	2040
WM2391	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	24	m	1980	39	60	4	2.6	2.0	5	$ 15,754	2040
WM2392	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	263	m	1980	39	60	4	2.7	2.0	5	$ 172,868	2040
WM2393	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	47	m	1980	39	60	4	2.0	2.0	4	$ 31,174	2040
WM2396	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	19	m	1980	39	60	4	2.9	2.0	6	$ 12,268	2040
WM2397	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	137	m	1980	39	60	4	2.1	2.0	4	$ 90,351	2040
WM2398	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.1	2.0	4	$ 1,315	2040
WM2399	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	118	m	1980	39	60	4	2.8	2.0	6	$ 77,767	2040
WM2400	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	159	m	1980	39	60	4	1.9	2.0	4	$ 104,233	2040
WM2401	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	97	m	1980	39	60	4	2.8	2.0	6	$ 63,496	2040
WM2402	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.8	2.0	6	$ 1,973	2040
WM2403	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	162	m	1980	39	60	4	2.1	2.0	4	$ 106,423	2040
WM2405	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	10	m	1980	39	60	4	2.1	2.0	4	$ 6,756	2040
WM2408	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	173	m	1980	39	60	4	2.2	2.0	4	$ 113,556	2040
WM2409	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.1	2.0	4	$ 1,973	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WM2424	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	141	m	1980	39	60	4	2.1	2.0	4	$ 92,932	2040
WM2426	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.2	2.0	4	$ 1,973	2040
WM2433	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	97	m	1980	39	60	4	2.8	2.0	5	$ 63,991	2040
WM2438	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	116	m	1980	39	60	4	2.2	2.0	4	$ 76,167	2040
WM2440	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.8	2.0	5	$ 1,973	2040
WM2441	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	56	m	1980	39	60	4	2.8	2.0	5	$ 36,683	2040
WM2442	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	81	m	1980	39	60	4	2.8	2.0	5	$ 53,128	2040
WM2444	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	187	m	1980	39	60	4	2.8	2.0	5	$ 123,008	2040
WM2445	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	154	m	1980	39	60	4	2.0	2.0	4	$ 101,042	2040
WM2446	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.9	2.0	6	$ 1,973	2040
WM2448	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	182	m	1980	39	60	4	2.7	2.0	5	$ 119,503	2040
WM2449	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	5	m	1980	39	60	4	2.8	2.0	5	$ 3,288	2040
WM2450	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	234	m	1980	39	60	4	2.0	2.0	4	$ 153,957	2040
WM2451	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.8	2.0	5	$ 1,973	2040
WM2453	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	178	m	1980	39	60	4	2.0	2.0	4	$ 117,343	2040
WM2454	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	184	m	1980	39	60	4	2.1	2.0	4	$ 121,059	2040
WM2456	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	146	m	1980	39	60	4	2.7	2.0	5	$ 95,733	2040
WM2457	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	123	m	1980	39	60	4	2.7	2.0	5	$ 80,967	2040
WM2458	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.7	2.0	5	$ 1,973	2040
WM2459	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	64	m	1980	39	60	4	2.7	2.0	5	$ 42,004	2040
WM2464	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.4	2.0	5	$ 1,973	2040
WM2465	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.2	2.0	4	$ 986	2040
WM2468	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	120	m	1980	39	60	4	2.2	2.0	4	$ 78,862	2040
WM2469	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	154	m	1980	39	60	4	2.0	2.0	4	$ 101,279	2040
WM2470	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.0	2.0	4	$ 1,973	2040
WM2472	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	116	m	1980	39	60	4	2.0	2.0	4	$ 76,274	2040
WM2476	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	84	m	1980	39	60	4	2.7	2.0	5	$ 55,224	2040
WM2478	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.1	2.0	4	$ 1,973	2040
WM2485	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.7	2.0	5	$ 1,973	2040
WM2488	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.7	2.0	5	$ 1,973	2040
WM2493	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	144	m	1980	39	60	4	2.5	2.0	5	$ 94,428	2040
WM2495	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	91	m	1980	39	60	4	2.1	2.0	4	$ 59,857	2040
WM2496	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	163	m	1980	39	60	4	2.0	2.0	4	$ 107,121	2040
WM2497	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.5	2.0	5	$ 1,973	2040
WM2499	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	137	m	1980	39	60	4	1.9	2.0	4	$ 90,015	2040
WM2500	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	81	m	1980	39	60	4	2.5	2.0	5	$ 53,588	2040
WM2501	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	81	m	1980	39	60	4	2.5	2.0	5	$ 53,034	2040
WM2502	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	26	m	1980	39	60	4	2.5	2.0	5	$ 17,045	2040
WM2503	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.5	2.0	5	$ 1,973	2040
WM2504	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	75	m	1980	39	60	4	2.5	2.0	5	$ 49,195	2040
WM2505	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	1	m	1980	39	60	4	2.5	2.0	5	$ 948	2040
WM2508	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	1	m	1980	39	60	4	2.5	2.0	5	$ 948	2040
WM2609	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	3	m	1980	39	60	4	2.7	2.0	5	$ 1,973	2040
WM2611	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	43	m	1980	39	60	4	2.5	2.0	5	$ 28,590	2040
WM2612	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.5	2.0	5	$ 1,340	2040
WM2613	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	2	m	1980	39	60	4	2.5	2.0	5	$ 1,513	2040
WM2632	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	5	m	1980	39	60	4	2.5	2.0	5	$ 3,223	2040
WM3149	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	200	65	m	2018	1	60	1	2.3	1.0	2	$ 42,960	2078
WM1713	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	53	m	1980	39	60	4	2.4	2.0	5	$ 41,345	2040
WM1832	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	154	m	1980	39	60	4	2.4	2.0	5	$ 120,438	2040
WM1835	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	14	m	1980	39	60	4	2.7	2.0	5	$ 10,687	2040
WM1836	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	101	m	1980	39	60	4	2.3	2.0	4	$ 78,631	2040
WM1837	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	5	m	1980	39	60	4	2.3	2.0	4	$ 4,243	2040
WM1838	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	84	m	1980	39	60	4	2.3	2.0	4	$ 65,650	2040
WM1839	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	3	m	1980	39	60	4	2.3	2.0	4	$ 2,376	2040
WM1840	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	4	m	1980	39	60	4	2.3	2.0	4	$ 2,781	2040
WM1841	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	26	m	1980	39	60	4	2.4	2.0	5	$ 19,966	2040
WM1849	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	27	m	1980	39	60	4	2.6	2.0	5	$ 21,140	2040
WM1850	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	25	m	1980	39	60	4	3.5	2.0	7	$ 19,140	2040
WM1851	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	4	m	1980	39	60	4	2.3	2.0	4	$ 3,044	2040
WM1855	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	242	m	1980	39	60	4	3.7	2.0	7	$ 189,073	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WM1856	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	2	m	1980	39	60	4	3.8	2.0	8	$ 1,712	2040
WM1857	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	1	m	1980	39	60	4	3.5	2.0	7	$ 395	2040
WM1859	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	46	m	1980	39	60	4	3.2	2.0	6	$ 35,968	2040
WM1860	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	48	m	1980	39	60	4	3.2	2.0	6	$ 37,234	2040
WM1861	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	171	m	1980	39	60	4	2.0	2.0	4	$ 133,552	2040
WM1863	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	3	m	1980	39	60	4	3.2	2.0	6	$ 2,343	2040
WM1866	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	2	m	1980	39	60	4	3.3	2.0	6	$ 1,171	2040
WM1868	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	65	m	1980	39	60	4	3.3	2.0	6	$ 50,583	2040
WM1869	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	146	m	1980	39	60	4	2.5	2.0	5	$ 113,960	2040
WM1871	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	191	m	1980	39	60	4	2.1	2.0	4	$ 148,986	2040
WM1872	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	2	m	1980	39	60	4	2.3	2.0	4	$ 1,171	2040
WM1874	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	161	m	1980	39	60	4	2.2	2.0	4	$ 125,935	2040
WM1875	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	138	m	1980	39	60	4	2.0	2.0	4	$ 107,891	2040
WM1876	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	2	m	1980	39	60	4	2.2	2.0	4	$ 1,562	2040
WM1878	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	134	m	1980	39	60	4	2.2	2.0	4	$ 104,379	2040
WM1879	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	92	m	1980	39	60	4	2.2	2.0	4	$ 71,869	2040
WM1882	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	2	m	1980	39	60	4	2.2	2.0	4	$ 1,171	2040
WM1893	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	180	m	1981	38	60	4	2.0	1.9	4	$ 140,448	2041
WM1905	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	159	m	1981	38	60	4	2.0	1.9	4	$ 123,993	2041
WM1908	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	4	m	1981	38	60	4	2.0	1.9	4	$ 3,325	2041
WM1917	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	28	m	1981	38	60	4	2.0	1.9	4	$ 21,680	2041
WM1925	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	2	m	1980	39	60	4	2.0	2.0	4	$ 1,171	2040
WM1931	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	18	m	2005	14	60	2	2.2	1.1	2	$ 13,813	2065
WM1944	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	1	m	1980	39	60	4	2.2	2.0	4	$ 781	2040
WM2563	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	1	m	2007	12	60	2	2.3	1.0	2	$ 586	2067
WM2597	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	12	m	1980	39	60	4	2.4	2.0	5	$ 9,356	2040
WM2598	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	11	m	1980	39	60	4	2.4	2.0	5	$ 8,322	2040
WM2602	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	250	3	m	1980	39	60	4	2.4	2.0	5	$ 2,235	2040
WM2557	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	AC	900	89	m	2007	12	60	2	3.0	1.0	3	$ 258,657	2067
WM1655	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	CU	50	9	m	1980	39	50	4	2.1	2.5	5	$ 2,706	2030
WM1707	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	CU	50	1	m	1980	39	50	4	2.1	2.5	5	$ 370	2030
WM1754	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	CU	50	7	m	1980	39	50	4	1.9	2.5	5	$ 2,257	2030
WM1996	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	CU	50	2	m	1980	39	50	4	2.0	2.5	5	$ 686	2030
WM2020	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	CU	50	2	m	1980	39	50	4	2.1	2.5	5	$ 555	2030
WM2059	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	CU	50	5	m	1980	39	50	4	2.0	2.5	5	$ 1,559	2030
WM2187	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	CU	50	3	m	1981	38	50	4	2.0	2.4	5	$ 868	2031
WM2307	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	CU	50	4	m	1980	39	50	4	2.0	2.5	5	$ 1,342	2030
WM2422	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	CU	50	2	m	1980	39	50	4	1.8	2.5	4	$ 625	2030
WM2431	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	CU	50	13	m	1980	39	50	4	2.7	2.5	7	$ 4,044	2030
WM1715	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	DI	150	44	m	1980	39	70	3	2.2	1.6	4	$ 23,345	2050
WM1844	BCOB WLSA	BC / OB	Varies	Distribution	Main	Inactive	Pipe	DI	150	22	m	1980	39	70	3	2.4	1.6	4	$ -	2050
WM2513	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	DI	150	1	m	2007	12	70	2	2.0	1.0	2	$ 534	2077
WM2514	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	DI	150	1	m	2007	12	70	2	2.0	1.0	2	$ 534	2077
WM2477	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	DI	200	12	m	1980	39	70	3	2.6	1.6	4	$ 7,878	2050
WM2534	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	DI	250	3	m	1985	34	70	3	2.0	1.4	3	$ 2,569	2055
WM2537	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	DI	250	2	m	1985	34	70	3	1.9	1.4	3	$ 1,226	2055
WM2551	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	DI	250	4	m	1985	34	70	3	1.9	1.4	3	$ 3,432	2055
WM2552	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	DI	250	1	m	1985	34	70	3	2.0	1.4	3	$ 813	2055
WM2555	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	DI	250	8	m	1985	34	70	3	2.0	1.4	3	$ 6,300	2055
WM1772	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	38	189	m	1980	39	80	3	2.1	1.4	3	$ 51,452	2060
WM1648	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	2	m	1980	39	80	3	2.2	1.4	3	$ 543	2060
WM1677	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	6	m	1980	39	80	3	2.1	1.4	3	$ 1,719	2060
WM1765	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	221	m	2005	14	80	2	2.2	1.0	2	$ 66,488	2085
WM1766	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	3	m	2005	14	80	2	2.2	1.0	2	$ 934	2085
WM1767	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	10	m	2005	14	80	2	2.2	1.0	2	$ 2,887	2085
WM1784	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	4	m	1980	39	80	3	2.3	1.4	3	$ 1,223	2060
WM1794	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	3	m	1980	39	80	3	2.1	1.4	3	$ 904	2060
WM1965	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	4	m	1982	37	80	3	1.8	1.4	2	$ 1,189	2062
WM2031	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	124	m	1980	39	80	3	2.4	1.4	3	$ 37,292	2060
WM2032	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	82	m	1980	39	80	3	2.4	1.4	3	$ 24,704	2060
WM2033	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	10	m	1980	39	80	3	2.4	1.4	3	$ 3,031	2060

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WM2034	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	14	m	1980	39	80	3	2.2	1.4	3	$ 4,335	2060
WM2213	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	259	m	2006	13	80	2	2.5	1.0	3	$ 78,020	2086
WM2216	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	2	m	1981	38	80	3	2.9	1.4	4	$ 603	2061
WM2395	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	2	m	1978	41	80	3	2.8	1.5	4	$ 629	2058
WM2435	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	2	m	1980	39	80	3	1.9	1.4	3	$ 603	2060
WM2466	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	3	m	1980	39	80	3	2.3	1.4	3	$ 904	2060
WM2484	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	3	m	1980	39	80	3	1.9	1.4	3	$ 904	2060
WM2492	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	3	m	1980	39	80	3	1.9	1.4	3	$ 781	2060
WM2527	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	50	0	m	2009	10	80	2	2.1	1.0	2	$ 119	2089
WM1646	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	97	m	1980	39	80	3	2.2	1.4	3	$ 39,718	2060
WM1647	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	26	m	1980	39	80	3	2.2	1.4	3	$ 10,569	2060
WM1650	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	3	m	1980	39	80	3	2.2	1.4	3	$ 1,233	2060
WM1664	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	125	m	1980	39	80	3	2.1	1.4	3	$ 51,403	2060
WM1667	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	28	m	1980	39	80	3	2.2	1.4	3	$ 11,618	2060
WM1668	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	3	m	1980	39	80	3	2.2	1.4	3	$ 1,233	2060
WM1673	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	6	m	1980	39	80	3	2.1	1.4	3	$ 2,561	2060
WM1674	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	24	m	1980	39	80	3	2.1	1.4	3	$ 9,742	2060
WM1785	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	112	m	1980	39	80	3	2.3	1.4	3	$ 46,184	2060
WM1787	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	18	m	1980	39	80	3	2.3	1.4	3	$ 7,228	2060
WM1790	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	175	m	1980	39	80	3	2.1	1.4	3	$ 72,027	2060
WM1791	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	12	m	1980	39	80	3	2.1	1.4	3	$ 4,991	2060
WM1792	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	4	m	1980	39	80	3	2.1	1.4	3	$ 1,812	2060
WM1795	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	14	m	1980	39	80	3	2.1	1.4	3	$ 5,760	2060
WM1796	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	4	m	1980	39	80	3	2.1	1.4	3	$ 1,516	2060
WM1797	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	132	m	1980	39	80	3	2.1	1.4	3	$ 54,169	2060
WM1798	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	19	m	1980	39	80	3	2.1	1.4	3	$ 7,795	2060
WM1800	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	3	m	1980	39	80	3	2.1	1.4	3	$ 1,369	2060
WM1806	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	3	m	1980	39	80	3	2.1	1.4	3	$ 1,360	2060
WM1812	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	4	m	1980	39	80	3	2.1	1.4	3	$ 1,728	2060
WM1813	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	42	m	1980	39	80	3	2.1	1.4	3	$ 17,152	2060
WM1814	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	132	m	1980	39	80	3	2.1	1.4	3	$ 54,128	2060
WM1864	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	12	m	1980	39	80	3	3.1	1.4	4	$ 5,029	2060
WM1865	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	3	m	1980	39	80	3	3.1	1.4	4	$ 1,136	2060
WM2357	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	3	m	1978	41	80	3	2.7	1.5	4	$ 1,041	2058
WM2358	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	5	m	1978	41	80	3	2.5	1.5	4	$ 2,082	2058
WM2359	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	3	m	1978	41	80	3	2.7	1.5	4	$ 1,041	2058
WM2538	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	0	m	1985	34	80	3	2.1	1.3	3	$ 201	2065
WM2545	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	100	0	m	1985	34	80	3	2.1	1.3	3	$ 38	2065
WM1771	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	61	m	1980	39	80	3	2.2	1.4	3	$ 32,581	2060
WM1773	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	50	m	1980	39	80	3	2.2	1.4	3	$ 26,740	2060
WM1774	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	21	m	1980	39	80	3	2.2	1.4	3	$ 11,085	2060
WM1775	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1980	39	80	3	2.2	1.4	3	$ 1,123	2060
WM1776	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	19	m	1980	39	80	3	2.5	1.4	4	$ 10,152	2060
WM1777	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	14	m	1980	39	80	3	2.5	1.4	4	$ 7,545	2060
WM1778	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	21	m	1980	39	80	3	2.2	1.4	3	$ 11,248	2060
WM1779	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	9	m	1980	39	80	3	2.2	1.4	3	$ 4,792	2060
WM1780	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1980	39	80	3	2.2	1.4	3	$ 1,096	2060
WM1781	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	3	m	1980	39	80	3	2.2	1.4	3	$ 1,603	2060
WM1902	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	147	m	1981	38	80	3	1.9	1.4	3	$ 78,579	2061
WM1903	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	10	m	1981	38	80	3	1.9	1.4	3	$ 5,290	2061
WM1904	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	6	m	1981	38	80	3	1.9	1.4	3	$ 3,206	2061
WM1906	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1981	38	80	3	1.9	1.4	3	$ 801	2061
WM1911	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	126	m	1981	38	80	3	2.0	1.4	3	$ 67,352	2061
WM1914	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1981	38	80	3	2.0	1.4	3	$ 801	2061
WM1936	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	3	m	2010	9	80	1	1.8	1.0	2	$ 1,603	2090
WM1950	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	103	m	2005	14	80	2	2.1	1.0	2	$ 55,240	2085
WM1953	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	322	m	1983	36	80	3	1.9	1.3	3	$ 171,857	2063
WM1954	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	15	m	2005	14	80	2	1.9	1.0	2	$ 8,034	2085
WM1955	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	1	m	1983	36	80	3	1.9	1.3	3	$ 534	2063
WM1956	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	1	m	1983	36	80	3	1.9	1.3	3	$ 534	2063
WM1957	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	108	m	1982	37	80	3	1.9	1.4	3	$ 57,789	2062

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WM1958	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	163	m	1982	37	80	3	1.9	1.4	3	$ 86,911	2062
WM1959	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	17	m	1982	37	80	3	2.0	1.4	3	$ 8,846	2062
WM1960	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1982	37	80	3	2.0	1.4	3	$ 801	2062
WM1961	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1982	37	80	3	2.0	1.4	3	$ 801	2062
WM1962	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1982	37	80	3	2.0	1.4	3	$ 801	2062
WM1963	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	47	m	1982	37	80	3	1.8	1.4	2	$ 24,845	2062
WM1964	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	11	m	1982	37	80	3	1.8	1.4	2	$ 5,610	2062
WM1966	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1982	37	80	3	1.8	1.4	2	$ 801	2062
WM1967	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1982	37	80	3	1.8	1.4	2	$ 801	2062
WM1968	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	3	m	1982	37	80	3	1.8	1.4	2	$ 1,787	2062
WM1969	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	18	m	1982	37	80	3	1.8	1.4	2	$ 9,505	2062
WM1972	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	4	m	2005	14	80	2	1.9	1.0	2	$ 2,009	2085
WM1974	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	1	m	2005	14	80	2	2.1	1.0	2	$ 267	2085
WM1990	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	3	m	1980	39	80	3	2.2	1.4	3	$ 1,603	2060
WM2165	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	166	m	1981	38	80	3	2.1	1.4	3	$ 88,443	2061
WM2167	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1981	38	80	3	1.9	1.4	3	$ 1,057	2061
WM2168	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	1	m	1981	38	80	3	1.9	1.4	3	$ 672	2061
WM2169	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	179	m	1981	38	80	3	2.1	1.4	3	$ 95,484	2061
WM2170	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1981	38	80	3	2.1	1.4	3	$ 1,069	2061
WM2171	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	42	m	1981	38	80	3	2.1	1.4	3	$ 22,215	2061
WM2172	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	5	m	1981	38	80	3	1.9	1.4	3	$ 2,517	2061
WM2174	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1981	38	80	3	2.4	1.4	3	$ 1,069	2061
WM2262	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	3	m	2006	13	80	2	2.4	1.0	2	$ 1,430	2086
WM2264	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	2006	13	80	2	2.4	1.0	2	$ 1,069	2086
WM2271	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	70	m	1994	25	80	2	2.2	1.1	2	$ 37,353	2074
WM2273	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	25	m	1994	25	80	2	2.2	1.1	2	$ 13,245	2074
WM2275	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1994	25	80	2	2.2	1.1	2	$ 1,069	2074
WM2276	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	8	m	1994	25	80	2	2.2	1.1	2	$ 4,362	2074
WM2277	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	63	m	1994	25	80	2	2.2	1.1	2	$ 33,632	2074
WM2280	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	3	m	1980	39	80	3	2.6	1.4	4	$ 1,643	2060
WM2284	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	3	m	1980	39	80	3	2.6	1.4	4	$ 1,728	2060
WM2404	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	3	m	1980	39	80	3	2.0	1.4	3	$ 1,447	2060
WM2413	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1980	39	80	3	2.0	1.4	3	$ 1,044	2060
WM2417	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1980	39	80	3	2.0	1.4	3	$ 1,183	2060
WM2432	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	3	m	1980	39	80	3	2.1	1.4	3	$ 1,603	2060
WM2434	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	52	m	1980	39	80	3	2.0	1.4	3	$ 27,815	2060
WM2436	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	26	m	1980	39	80	3	2.0	1.4	3	$ 13,666	2060
WM2437	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	19	m	1980	39	80	3	2.7	1.4	4	$ 9,970	2060
WM2439	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	3	m	1980	39	80	3	2.7	1.4	4	$ 1,603	2060
WM2443	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	3	m	1980	39	80	3	2.7	1.4	4	$ 1,603	2060
WM2481	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	138	m	1980	39	80	3	2.0	1.4	3	$ 73,508	2060
WM2483	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	3	m	1980	39	80	3	2.0	1.4	3	$ 1,603	2060
WM2512	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	2007	12	80	2	2.2	1.0	2	$ 978	2087
WM2515	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	15	m	2007	12	80	2	2.2	1.0	2	$ 7,805	2087
WM2518	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	2009	10	80	2	2.2	1.0	2	$ 1,087	2089
WM2519	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	1	m	2009	10	80	2	2.2	1.0	2	$ 534	2089
WM2523	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	7	m	2009	10	80	2	2.2	1.0	2	$ 3,474	2089
WM2528	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	0	m	2009	10	80	2	2.2	1.0	2	$ 81	2089
WM2571	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	1	m	2007	12	80	2	2.2	1.0	2	$ 534	2087
WM2596	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	0	m	2007	12	80	2	2.2	1.0	2	$ 159	2087
WM2603	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	3	m	2007	12	80	2	2.2	1.0	2	$ 1,603	2087
WM2604	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1980	39	80	3	2.2	1.4	3	$ 801	2060
WM2607	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	3	m	1981	38	80	3	1.9	1.4	3	$ 1,603	2061
WM2608	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	150	2	m	1981	38	80	3	2.1	1.4	3	$ 1,072	2061
WM1799	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	1	m	2012	7	80	1	2.4	1.0	2	$ 738	2092
WM1801	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	10	m	2012	7	80	1	2.4	1.0	2	$ 6,273	2092
WM1802	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	3	m	2012	7	80	1	2.4	1.0	2	$ 1,973	2092
WM1803	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	2	m	1980	39	80	3	2.4	1.4	4	$ 1,342	2060
WM1807	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	1	m	2012	7	80	1	2.4	1.0	2	$ 460	2092
WM1808	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	0	m	2012	7	80	1	2.4	1.0	2	$ 294	2092
WM1809	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	1	m	2012	7	80	1	2.4	1.0	2	$ 337	2092

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WM1815	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	102	m	2012	7	80	1	2.4	1.0	2	$ 66,746	2092
WM1816	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	18	m	2012	7	80	1	2.4	1.0	2	$ 11,823	2092
WM1817	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	36	m	2012	7	80	1	2.4	1.0	2	$ 23,453	2092
WM1818	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	52	m	2012	7	80	1	2.4	1.0	2	$ 34,126	2092
WM1819	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	7	m	2012	7	80	1	2.4	1.0	2	$ 4,932	2092
WM1820	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	1	m	2012	7	80	1	2.4	1.0	2	$ 986	2092
WM1823	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	1	m	2012	7	80	1	2.4	1.0	2	$ 871	2092
WM1824	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	1	m	2012	7	80	1	2.4	1.0	2	$ 986	2092
WM1828	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	10	m	1980	39	80	3	2.4	1.4	3	$ 6,659	2060
WM1907	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	149	m	1981	38	80	3	2.0	1.4	3	$ 97,724	2061
WM1912	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	52	m	1981	38	80	3	2.0	1.4	3	$ 34,117	2061
WM1913	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	2	m	1981	38	80	3	2.0	1.4	3	$ 986	2061
WM1915	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	7	m	1981	38	80	3	2.0	1.4	3	$ 4,919	2061
WM1916	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	2	m	1981	38	80	3	1.9	1.4	3	$ 986	2061
WM2069	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	87	m	2007	12	80	2	2.1	1.0	2	$ 56,930	2087
WM2070	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	22	m	1980	39	80	3	2.1	1.4	3	$ 14,775	2060
WM2071	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	41	m	2007	12	80	2	2.1	1.0	2	$ 26,709	2087
WM2072	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	11	m	2007	12	80	2	2.1	1.0	2	$ 7,399	2087
WM2073	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	138	m	2006	13	80	2	2.8	1.0	3	$ 90,868	2086
WM2074	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	69	m	2007	12	80	2	2.1	1.0	2	$ 45,574	2087
WM2075	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	5	m	2007	12	80	2	2.1	1.0	2	$ 3,135	2087
WM2076	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	2	m	2007	12	80	2	2.1	1.0	2	$ 986	2087
WM2077	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	2	m	2007	12	80	2	2.1	1.0	2	$ 986	2087
WM2078	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	21	m	2007	12	80	2	2.1	1.0	2	$ 13,905	2087
WM2079	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	52	m	2007	12	80	2	2.1	1.0	2	$ 34,057	2087
WM2080	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	61	m	2007	12	80	2	2.1	1.0	2	$ 39,792	2087
WM2081	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	8	m	2007	12	80	2	2.1	1.0	2	$ 5,004	2087
WM2130	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	133	m	2016	3	80	1	2.1	1.0	2	$ 87,502	2096
WM2132	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	1	m	2016	3	80	1	2.4	1.0	2	$ 594	2096
WM2133	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	1	m	2016	3	80	1	2.2	1.0	2	$ 793	2096
WM2188	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	7	m	2006	13	80	2	2.3	1.0	2	$ 4,704	2086
WM2189	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	6	m	2006	13	80	2	2.3	1.0	2	$ 4,024	2086
WM2190	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	1	m	2006	13	80	2	2.3	1.0	2	$ 986	2086
WM2191	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	2	m	2006	13	80	2	2.3	1.0	2	$ 986	2086
WM2192	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	3	m	2006	13	80	2	2.3	1.0	2	$ 1,973	2086
WM2193	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	105	m	2006	13	80	2	2.4	1.0	2	$ 69,076	2086
WM2194	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	10	m	2006	13	80	2	2.3	1.0	2	$ 6,254	2086
WM2195	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	33	m	2006	13	80	2	2.4	1.0	2	$ 21,564	2086
WM2196	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	6	m	2006	13	80	2	2.4	1.0	2	$ 4,236	2086
WM2197	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	226	m	2006	13	80	2	2.4	1.0	2	$ 148,933	2086
WM2198	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	6	m	2006	13	80	2	2.4	1.0	2	$ 3,787	2086
WM2199	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	16	m	2006	13	80	2	2.4	1.0	2	$ 10,811	2086
WM2200	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	111	m	2006	13	80	2	2.4	1.0	2	$ 73,038	2086
WM2202	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	151	m	2006	13	80	2	2.2	1.0	2	$ 99,623	2086
WM2203	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	26	m	2006	13	80	2	2.4	1.0	2	$ 16,883	2086
WM2204	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	1	m	2006	13	80	2	2.4	1.0	2	$ 942	2086
WM2205	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	1	m	2006	13	80	2	2.4	1.0	2	$ 942	2086
WM2207	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	15	m	2006	13	80	2	2.3	1.0	2	$ 9,537	2086
WM2208	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	4	m	2006	13	80	2	2.2	1.0	2	$ 2,391	2086
WM2209	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	3	m	2006	13	80	2	2.2	1.0	2	$ 1,795	2086
WM2210	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	13	m	2006	13	80	2	2.3	1.0	2	$ 8,625	2086
WM2211	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	2	m	2006	13	80	2	2.2	1.0	2	$ 1,315	2086
WM2212	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	2	m	2006	13	80	2	2.3	1.0	2	$ 1,315	2086
WM2342	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	91	m	1978	41	80	3	2.9	1.5	4	$ 59,999	2058
WM2343	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	13	m	1978	41	80	3	2.9	1.5	4	$ 8,466	2058
WM2344	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	1	m	1978	41	80	3	2.9	1.5	4	$ 967	2058
WM2345	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	1	m	1978	41	80	3	2.9	1.5	4	$ 967	2058
WM2347	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	311	m	1978	41	80	3	1.9	1.5	3	$ 204,576	2058
WM2349	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	3	m	1978	41	80	3	1.9	1.5	3	$ 1,973	2058
WM2350	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	3	m	1978	41	80	3	1.9	1.5	3	$ 1,973	2058
WM2351	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	3	m	1978	41	80	3	1.9	1.5	3	$ 1,973	2058

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WM2352	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	132	m	1978	41	80	3	1.9	1.5	3	$ 86,785	2058
WM2353	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	24	m	1978	41	80	3	1.9	1.5	3	$ 16,061	2058
WM2541	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	3	m	1985	34	80	3	2.2	1.3	3	$ 2,017	2065
WM2544	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	200	0	m	1985	34	80	3	2.2	1.3	3	$ 148	2065
WM1930	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	176	m	2005	14	80	2	2.3	1.0	2	$ 137,289	2085
WM1932	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	9	m	2010	9	80	1	1.9	1.0	2	$ 7,044	2090
WM1933	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	2	m	2010	9	80	1	1.9	1.0	2	$ 1,171	2090
WM1934	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	1	m	2010	9	80	1	1.9	1.0	2	$ 390	2090
WM1935	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	0	m	2010	9	80	1	1.9	1.0	2	$ 390	2090
WM1938	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	0	m	2010	9	80	1	1.9	1.0	2	$ 390	2090
WM1941	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	1	m	2010	9	80	1	1.9	1.0	2	$ 509	2090
WM1942	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	1	m	2005	14	80	2	2.2	1.0	2	$ 781	2085
WM1948	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	142	m	2005	14	80	2	2.3	1.0	2	$ 110,932	2085
WM1970	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	122	m	2005	14	80	2	1.8	1.0	2	$ 95,597	2085
WM1971	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	8	m	2005	14	80	2	2.2	1.0	2	$ 6,010	2085
WM1973	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	1	m	2005	14	80	2	2.2	1.0	2	$ 781	2085
WM1975	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	1	m	2005	14	80	2	2.2	1.0	2	$ 1,171	2085
WM1976	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	231	m	2005	14	80	2	2.2	1.0	2	$ 180,775	2085
WM1977	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	135	m	2005	14	80	2	2.2	1.0	2	$ 105,559	2085
WM1978	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	150	m	2005	14	80	2	2.4	1.0	2	$ 116,884	2085
WM1979	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	166	m	2005	14	80	2	2.4	1.0	2	$ 129,707	2085
WM1980	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	150	m	2005	14	80	2	2.4	1.0	2	$ 116,825	2085
WM1981	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	132	m	2005	14	80	2	2.4	1.0	2	$ 103,008	2085
WM1982	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	1	m	2005	14	80	2	2.4	1.0	2	$ 1,171	2085
WM2348	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	24	m	1978	41	80	3	1.9	1.5	3	$ 18,877	2058
WM2529	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	0	m	2009	10	80	2	2.3	1.0	2	$ 129	2089
WM2530	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	0	m	2009	10	80	2	2.3	1.0	2	$ 118	2089
WM2561	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	2	m	2007	12	80	2	2.3	1.0	2	$ 1,633	2087
WM2564	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	1	m	2007	12	80	2	2.3	1.0	2	$ 586	2087
WM2573	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	4	m	2007	12	80	2	2.3	1.0	2	$ 2,891	2087
WM2574	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	6	m	2007	12	80	2	2.3	1.0	2	$ 4,792	2087
WM2606	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	PVC	250	3	m	2009	10	80	2	2.3	1.0	2	$ 2,343	2089
WM2463	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	19	1	m	1980	39	80	3	3.4	1.4	5	$ 347	2060
WM2601	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	25	4	m	1980	39	80	3	2.1	1.4	3	$ 995	2060
WM1821	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	50	1	m	2012	7	80	1	2.1	1.0	2	$ 349	2092
WM1822	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	50	1	m	2012	7	80	1	2.1	1.0	2	$ 349	2092
WM1825	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	50	1	m	2012	7	80	1	2.1	1.0	2	$ 349	2092
WM1826	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	50	1	m	2012	7	80	1	2.1	1.0	2	$ 349	2092
WM1853	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	50	1	m	1980	39	80	3	3.3	1.4	5	$ 374	2060
WM1858	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	50	1	m	1980	39	80	3	3.5	1.4	5	$ 155	2060
WM2460	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	200	3	m	1980	39	80	3	3.2	1.4	5	$ 2,266	2060
WM2461	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	200	33	m	1980	39	80	3	3.5	1.4	5	$ 21,629	2060
WM2462	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	200	3	m	1980	39	80	3	3.5	1.4	5	$ 2,177	2060
WM2627	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	200	3	m	2016	3	80	1	1.7	1.0	2	$ 1,792	2096
WM1852	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	250	2	m	1980	39	80	3	3.5	1.4	5	$ 1,372	2060
WM1854	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	250	70	m	1980	39	80	3	2.9	1.4	4	$ 54,573	2060
WM2575	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	250	10	m	2007	12	80	2	2.1	1.0	2	$ 7,710	2087
WM2576	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	250	6	m	2007	12	80	2	2.1	1.0	2	$ 4,526	2087
WM2583	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	250	2	m	2007	12	80	2	2.1	1.0	2	$ 1,234	2087
WM2584	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	250	1	m	2007	12	80	2	2.1	1.0	2	$ 654	2087
WM2587	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	250	1	m	2007	12	80	2	2.1	1.0	2	$ 777	2087
WM2588	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	250	2	m	2007	12	80	2	2.1	1.0	2	$ 1,184	2087
WM2589	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	250	2	m	2007	12	80	2	2.1	1.0	2	$ 1,209	2087
WM2592	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	250	1	m	2007	12	80	2	2.1	1.0	2	$ 467	2087
WM2594	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	250	0	m	2007	12	80	2	2.1	1.0	2	$ 356	2087
WM2595	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Pipe	ST	250	0	m	2007	12	80	2	2.1	1.0	2	$ 207	2087
WSV119	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	0	1	Ea		UNK	N/A	3	2.7	1.5	4	$ 13,700	2058
WSV264	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	0	1	Ea	1980	39	N/A	4	2.1	2.0	4	$ 13,700	2040
WSV687	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	0	1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 13,700	2040
WSV688	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	0	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 13,700	2040
WSV852	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	0	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 13,700	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WSV151	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	50	1	Ea	2005	14	N/A	2	2.2	1.0	2	$ 4,795	2085
WSV38	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	50	1	Ea	2012	7	N/A	1	2.1	1.0	2	$ 4,795	2092
WSV523	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	50	1	Ea	2012	7	N/A	1	2.1	1.0	2	$ 4,795	2092
WSV596	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	50	1	Ea	2009	10	N/A	2	2.1	1.0	2	$ 4,795	2089
WSV156	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea		UNK	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV209	BCOB WLSA	BC / OB	Varies	Distribution	Main	Proposed	Valve	Gate	100	1	Ea	2009	10	N/A	3	1.6	1.3	2	$ -	2065
WSV213	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea	2009	10	N/A	3	2.1	1.3	3	$ 4,795	2065
WSV215	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea		UNK	N/A	3	2.1	1.4	3	$ 4,795	2061
WSV263	BCOB WLSA	BC / OB	Varies	Distribution	Main	Proposed	Valve	Gate	100	1	Ea	2009	10	N/A	3	1.6	1.3	2	$ -	2065
WSV36	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea	1980	39	N/A	3	2.2	1.4	3	$ 4,795	2060
WSV403	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea	1980	39	N/A	3	2.1	1.4	3	$ 4,795	2060
WSV405	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea		UNK	N/A	3	3.1	1.4	4	$ 4,795	2060
WSV409	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV412	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea	1981	38	N/A	4	2.2	1.9	4	$ 4,795	2041
WSV522	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea	1980	39	N/A	3	2.3	1.4	3	$ 4,795	2060
WSV545	BCOB WLSA	BC / OB	Varies	Distribution	Main	Proposed	Valve	Gate	100	1	Ea	2009	10	N/A	3	1.6	1.3	2	$ -	2065
WSV546	BCOB WLSA	BC / OB	Varies	Distribution	Main	Proposed	Valve	Gate	100	1	Ea	2009	10	N/A	3	1.6	1.3	2	$ -	2065
WSV575	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea	1980	39	N/A	3	2.1	1.4	3	$ 4,795	2060
WSV576	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea	1980	39	N/A	3	2.1	1.4	3	$ 4,795	2060
WSV689	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea	2009	10	N/A	3	2.1	1.3	3	$ 4,795	2065
WSV818	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea	1980	39	N/A	3	2.2	1.4	3	$ 4,795	2060
WSV825	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea	1980	39	N/A	3	2.1	1.4	3	$ 4,795	2060
WSV837	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 4,795	2040
WSV850	BCOB WLSA	BC / OB	Varies	Distribution	Main	Proposed	Valve	Gate	100	1	Ea	2009	10	N/A	3	1.6	1.3	2	$ -	2065
WSV851	BCOB WLSA	BC / OB	Varies	Distribution	Main	Proposed	Valve	Gate	100	1	Ea	2009	10	N/A	3	1.6	1.3	2	$ -	2065
WSV856	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea	2009	10	N/A	2	2.1	1.0	2	$ 4,795	2087
WSV857	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	100	1	Ea	2009	10	N/A	2	2.1	1.0	2	$ 4,795	2067
WSV128	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	125	1	Ea	2009	10	N/A	2	2.2	1.0	2	$ 4,795	2087
WSV115	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV116	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.9	2.0	6	$ 4,795	2040
WSV121	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 4,795	2040
WSV122	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 4,795	2040
WSV127	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	2009	10	N/A	2	2.2	1.0	2	$ 4,795	2087
WSV150	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV153	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	1.9	2.0	4	$ 4,795	2040
WSV155	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1982	37	N/A	3	1.8	1.4	2	$ 4,795	2062
WSV159	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea		UNK	N/A	4	2.3	1.9	4	$ 4,795	2041
WSV199	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.8	2.0	6	$ 4,795	2040
WSV201	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV202	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV210	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	3	2.7	1.4	4	$ 4,795	2060
WSV211	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.7	2.0	5	$ 4,795	2040
WSV212	BCOB WLSA	BC / OB	Varies	Distribution	Main	Proposed	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.7	2.0	5	$ -	2040
WSV265	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 4,795	2040
WSV315	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	2012	7	N/A	1	2.4	1.0	2	$ 4,795	2072
WSV318	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1982	37	N/A	3	1.9	1.4	3	$ 4,795	2062
WSV323	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 4,795	2040
WSV328	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	2006	13	N/A	2	2.4	1.0	2	$ 4,795	2086
WSV333	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	2009	10	N/A	2	2.2	1.0	2	$ 4,795	2069
WSV334	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	2009	10	N/A	2	2.2	1.0	2	$ 4,795	2067
WSV37	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.3	2.0	4	$ 4,795	2040
WSV39	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1981	38	N/A	3	2.0	1.4	3	$ 4,795	2061
WSV396	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.8	2.0	6	$ 4,795	2040
WSV397	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV398	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV40	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1983	36	N/A	4	2.1	2.0	4	$ 4,795	2040
WSV400	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV401	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV402	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	3	2.2	1.4	3	$ 4,795	2060
WSV406	BCOB WLSA	BC / OB	Varies	Distribution	Main		Valve	Gate	150	1	Ea	1983	36	N/A	3	1.9	1.3	3	$ -	2063
WSV410	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea		UNK	N/A	4	2.1	1.9	4	$ 4,795	2041

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WSV411	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1981	38	N/A	4	2.2	1.9	4	$ 4,795	2041
WSV418	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 4,795	2040
WSV419	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	2009	10	N/A	2	2.2	1.0	2	$ 4,795	2089
WSV517	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.8	2.0	6	$ 4,795	2040
WSV518	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV519	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV52	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea		UNK	N/A	3	1.7	1.3	2	$ 4,795	2065
WSV520	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV521	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	1	2.4	1.0	2	$ 4,795	2072
WSV528	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	1.9	2.0	4	$ 4,795	2040
WSV529	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1981	38	N/A	3	1.9	1.4	3	$ 4,795	2061
WSV53	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	3	2.0	1.4	3	$ 4,795	2060
WSV532	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV534	BCOB WLSA	BC / OB	Varies	Distribution	Main		Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ -	2040
WSV543	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1981	38	N/A	4	2.2	1.9	4	$ 4,795	2041
WSV547	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.1	2.0	4	$ 4,795	2040
WSV55	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea		UNK	N/A	2	2.2	1.0	2	$ 4,795	2069
WSV573	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 4,795	2040
WSV574	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV577	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.1	2.0	4	$ 4,795	2040
WSV579	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	1.9	2.0	4	$ 4,795	2040
WSV581	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1982	37	N/A	3	1.9	1.4	3	$ 4,795	2062
WSV582	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1982	37	N/A	3	1.8	1.4	2	$ 4,795	2062
WSV586	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea		UNK	N/A	4	2.7	1.9	5	$ 4,795	2041
WSV587	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 4,795	2040
WSV593	BCOB WLSA	BC / OB	Varies	Distribution	Main	Proposed	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.7	2.0	5	$ -	2040
WSV595	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea		UNK	N/A	2	2.2	1.0	2	$ 4,795	2089
WSV675	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	2	2.2	1.1	2	$ 4,795	2065
WSV678	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV679	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.6	2.0	5	$ 4,795	2040
WSV816	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.8	2.0	6	$ 4,795	2040
WSV817	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 4,795	2040
WSV822	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV823	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	3	2.2	1.4	3	$ 4,795	2060
WSV824	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	3	2.4	1.4	4	$ 4,795	2060
WSV829	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 4,795	2040
WSV832	BCOB WLSA	BC / OB	Varies	Distribution	Main		Valve	Gate	150	1	Ea	1983	36	N/A	3	1.9	1.3	3	$ -	2063
WSV835	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1980	39	N/A	4	2.3	2.0	4	$ 4,795	2040
WSV838	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1981	38	N/A	3	1.9	1.4	3	$ 4,795	2061
WSV846	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea	1994	25	N/A	2	2.2	1.1	2	$ 4,795	2074
WSV859	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	150	1	Ea		UNK	N/A	4	2.3	2.0	4	$ 4,795	2040
WSV118	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea		UNK	N/A	4	2.9	2.1	6	$ 7,946	2038
WSV120	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.8	2.0	6	$ 7,946	2040
WSV123	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 7,946	2040
WSV124	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 7,946	2040
WSV125	BCOB WLSA	BC / OB	Varies	Distribution	Main		Valve	Gate	200	1	Ea	1980	39	N/A	4	2.5	2.0	5	$ -	2040
WSV126	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 7,946	2040
WSV130	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2016	3	N/A	1	1.7	1.0	2	$ 7,946	2096
WSV161	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea		UNK	N/A	4	2.5	1.9	5	$ 7,946	2041
WSV200	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 7,946	2040
WSV203	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	1	2.4	1.0	2	$ 7,946	2092
WSV204	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 7,946	2040
WSV205	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2007	12	N/A	2	2.1	1.0	2	$ 7,946	2087
WSV206	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2006	13	N/A	2	2.3	1.0	2	$ 7,946	2086
WSV207	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1994	25	N/A	3	2.2	1.3	3	$ 7,946	2054
WSV208	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.7	2.0	5	$ 7,946	2040
WSV216	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.7	2.0	5	$ 7,946	2040
WSV217	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2016	3	N/A	1	1.7	1.0	2	$ 7,946	2086
WSV218	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2016	3	N/A	1	1.7	1.0	2	$ 7,946	2086
WSV248	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 7,946	2040
WSV249	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2012	7	N/A	1	2.4	1.0	2	$ 7,946	2092

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WSV250	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.3	2.0	4	$ 7,946	2040
WSV251	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 7,946	2040
WSV259	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.3	2.0	4	$ 7,946	2040
WSV261	BCOB WLSA	BC / OB	Varies	Distribution	Main		Valve	Gate	200	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ -	2040
WSV319	BCOB WLSA	BC / OB	Varies	Distribution	Main		Valve	Gate	200	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ -	2040
WSV322	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea		UNK	N/A	4	2.5	2.0	5	$ 7,946	2040
WSV324	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea		UNK	N/A	4	3.0	1.9	6	$ 7,946	2041
WSV327	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1981	38	N/A	4	2.2	1.9	4	$ 7,946	2041
WSV329	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.5	2.0	5	$ 7,946	2040
WSV330	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	3.3	2.0	6	$ 7,946	2040
WSV331	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 7,946	2040
WSV332	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 7,946	2040
WSV335	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2009	10	N/A	3	2.2	1.3	3	$ 7,946	2065
WSV337	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea		UNK	N/A	1	2.4	1.0	2	$ 7,946	2086
WSV399	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 7,946	2040
WSV404	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	3.2	2.0	6	$ 7,946	2040
WSV407	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	1.8	2.0	4	$ 7,946	2040
WSV41	BCOB WLSA	BC / OB	Varies	Distribution	Main		Valve	Gate	200	1	Ea	1980	39	N/A	4	2.3	2.0	4	$ -	2040
WSV413	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	3.0	2.0	6	$ 7,946	2040
WSV414	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1987	32	N/A	3	2.9	1.5	4	$ 7,946	2058
WSV416	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.1	2.0	4	$ 7,946	2040
WSV417	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.7	2.0	5	$ 7,946	2040
WSV47	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1981	38	N/A	4	2.4	1.9	5	$ 7,946	2041
WSV48	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 7,946	2040
WSV524	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2012	7	N/A	1	2.4	1.0	2	$ 7,946	2092
WSV530	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1981	38	N/A	3	2.0	1.4	3	$ 7,946	2061
WSV531	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1981	38	N/A	3	2.0	1.4	3	$ 7,946	2061
WSV533	BCOB WLSA	BC / OB	Varies	Distribution	Main		Valve	Gate	200	1	Ea	1980	39	N/A	4	2.3	2.0	4	$ -	2040
WSV535	BCOB WLSA	BC / OB	Varies	Distribution	Main		Valve	Gate	200	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ -	2040
WSV536	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2007	12	N/A	2	2.1	1.0	2	$ 7,946	2087
WSV54	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.7	2.0	5	$ 7,946	2040
WSV540	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea		UNK	N/A	4	2.1	2.0	4	$ 7,946	2040
WSV541	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea		UNK	N/A	4	2.4	2.0	5	$ 7,946	2040
WSV542	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea		UNK	N/A	1	2.1	1.0	2	$ 7,946	2096
WSV544	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1994	25	N/A	4	2.7	2.0	5	$ 7,946	2040
WSV548	BCOB WLSA	BC / OB	Varies	Distribution	Main	Proposed	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.1	2.0	4	$ -	2040
WSV585	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea		UNK	N/A	4	2.8	2.0	5	$ 7,946	2040
WSV588	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 7,946	2040
WSV591	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea		UNK	N/A	4	2.4	2.0	5	$ 7,946	2040
WSV592	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	3.0	2.0	6	$ 7,946	2040
WSV594	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 7,946	2040
WSV672	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 7,946	2040
WSV673	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 7,946	2040
WSV677	BCOB WLSA	BC / OB	Varies	Distribution	Main		Valve	Gate	200	1	Ea	1980	39	N/A	4	2.6	2.0	5	$ -	2040
WSV680	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 7,946	2040
WSV686	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	2	2.5	1.0	3	$ 7,946	2066
WSV693	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2016	3	N/A	1	1.7	1.0	2	$ 7,946	2096
WSV694	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2016	3	N/A	1	1.7	1.0	2	$ 7,946	2086
WSV711	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2016	3	N/A	1	1.7	1.0	2	$ 7,946	2096
WSV819	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 7,946	2040
WSV820	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 7,946	2040
WSV821	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 7,946	2040
WSV826	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2012	7	N/A	1	2.4	1.0	2	$ 7,946	2092
WSV827	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.3	2.0	4	$ 7,946	2040
WSV833	BCOB WLSA	BC / OB	Varies	Distribution	Main		Valve	Gate	200	1	Ea	1980	39	N/A	4	2.6	2.0	5	$ -	2040
WSV834	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 7,946	2040
WSV839	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2006	13	N/A	2	2.3	1.0	2	$ 7,946	2086
WSV840	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2006	13	N/A	2	2.4	1.0	2	$ 7,946	2086
WSV841	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2006	13	N/A	2	2.3	1.0	2	$ 7,946	2086
WSV842	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	2006	13	N/A	2	2.2	1.0	2	$ 7,946	2086
WSV847	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 7,946	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WSV848	BCOB WLSA	BC / OB	Varies	Distribution	Main	Proposed	Valve	Gate	200	1	Ea	1987	32	N/A	3	1.9	1.5	3	$ -	2058
WSV849	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea	1987	32	N/A	3	1.9	1.5	3	$ 7,946	2058
WSV853	BCOB WLSA	BC / OB	Varies	Distribution	Main	Proposed	Valve	Gate	200	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ -	2040
WSV860	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea		UNK	N/A	4	2.5	2.0	5	$ 7,946	2040
WSV861	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	200	1	Ea		UNK	N/A	4	2.5	2.0	5	$ 7,946	2040
WSV152	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	1980	39	N/A	4	3.7	2.0	7	$ 7,946	2040
WSV154	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	2010	9	N/A	1	1.9	1.0	2	$ 7,946	2090
WSV214	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	2009	10	N/A	3	2.0	1.4	3	$ 7,946	2055
WSV260	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	1980	39	N/A	4	3.2	2.0	6	$ 7,946	2040
WSV314	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	1980	39	N/A	4	2.3	2.0	5	$ 7,946	2040
WSV316	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	1980	39	N/A	4	2.0	2.0	4	$ 7,946	2040
WSV317	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	1980	39	N/A	4	2.0	1.9	4	$ 7,946	2041
WSV336	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	2009	10	N/A	2	2.1	1.0	2	$ 7,946	2087
WSV420	BCOB WLSA	BC / OB	Varies	Distribution	Main	Proposed	Valve	Gate	250	1	Ea	2009	10	N/A	2	2.2	1.0	2	$ -	2087
WSV525	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	1980	39	N/A	4	2.3	2.0	4	$ 7,946	2040
WSV526	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	1980	39	N/A	4	2.3	2.0	4	$ 7,946	2040
WSV527	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	1980	39	N/A	4	2.1	2.0	4	$ 7,946	2040
WSV578	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	1980	39	N/A	4	2.2	2.0	4	$ 7,946	2040
WSV580	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	2010	9	N/A	1	1.9	1.0	2	$ 7,946	2090
WSV674	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	1980	39	N/A	2	2.2	1.1	2	$ 7,946	2065
WSV676	BCOB WLSA	BC / OB	Varies	Distribution	Main	Proposed	Valve	Gate	250	1	Ea	2005	14	N/A	2	2.2	1.0	2	$ -	2085
WSV690	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	2009	10	N/A	2	2.3	1.0	2	$ 7,946	2067
WSV692	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	2009	10	N/A	2	2.1	1.0	2	$ 7,946	2087
WSV828	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	1980	39	N/A	4	2.4	2.0	5	$ 7,946	2040
WSV830	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	2010	9	N/A	1	1.9	1.0	2	$ 7,946	2090
WSV831	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	2010	9	N/A	2	2.3	1.0	2	$ 7,946	2085
WSV854	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	2009	10	N/A	2	2.3	1.0	2	$ 7,946	2089
WSV855	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea	2009	10	N/A	2	2.3	1.0	2	$ 7,946	2089
WSV858	BCOB WLSA	BC / OB	Varies	Distribution	Main	Active	Valve	Gate	250	1	Ea		UNK	N/A	4	2.4	2.0	5	$ 7,946	2040
WL1000	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	6	m	1980	39	N/A	4	2.6	2.0	5	$ 1,465	2040
WL1001	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	49	m	1980	39	N/A	4	2.6	2.0	5	$ 11,411	2040
WL1006	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL1007	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,952	2040
WL1008	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,970	2040
WL1009	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.0	2.0	4	$ 3,816	2040
WL1010	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.0	2.0	4	$ 3,819	2040
WL1011	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,821	2040
WL1012	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,827	2040
WL1013	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,828	2040
WL1014	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,837	2040
WL1015	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL1016	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,845	2040
WL1017	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,846	2040
WL1018	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,851	2040
WL1019	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL1020	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL1021	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 694	2040
WL1022	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.5	2.0	5	$ 3,984	2040
WL1023	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL1024	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	3.3	2.0	6	$ 677	2040
WL1029	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL1030	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL1031	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL1032	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.1	2.0	4	$ 3,650	2040
WL1033	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	10	m	1980	39	N/A	4	2.1	2.0	4	$ 2,302	2040
WL1034	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	39	m	1980	39	N/A	4	2.1	2.0	4	$ 9,052	2040
WL1035	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.1	2.0	4	$ 1,598	2040
WL1036	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.2	2.0	4	$ 3,727	2040
WL1037	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.2	2.0	4	$ 3,727	2040
WL1038	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	21	m	1980	39	N/A	4	2.0	2.0	4	$ 4,752	2040
WL1039	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 685	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL1040	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	1.9	1.9	4	$ 3,944	2041
WL1041	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	1.9	1.9	4	$ 695	2041
WL1042	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	1.9	1.9	4	$ 695	2041
WL1043	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	1.9	1.9	4	$ 695	2041
WL1044	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	1.9	1.9	4	$ 695	2041
WL1045	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	1.9	1.9	4	$ 3,952	2041
WL1046	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	1.9	1.9	4	$ 3,951	2041
WL1047	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	1.9	1.9	4	$ 3,948	2041
WL1048	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	1.9	1.9	4	$ 3,948	2041
WL1049	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	1.9	1.9	4	$ 695	2041
WL1050	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	1.9	1.9	4	$ 695	2041
WL1060	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	2005	14	N/A	2	2.4	1.0	2	$ 695	2085
WL1061	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1982	37	N/A	3	1.8	1.4	2	$ 695	2062
WL1062	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1982	37	N/A	3	1.8	1.4	2	$ 695	2062
WL1063	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	2005	14	N/A	2	2.1	1.0	2	$ 1,158	2085
WL1064	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	2005	14	N/A	2	2.2	1.1	2	$ 1,273	2065
WL1065	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	2005	14	N/A	2	2.2	1.1	2	$ 695	2065
WL1066	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	2005	14	N/A	2	2.2	1.1	2	$ 695	2065
WL1067	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	2005	14	N/A	2	2.2	1.1	2	$ 695	2065
WL1068	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	2005	14	N/A	2	2.2	1.1	2	$ 695	2065
WL1069	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL1070	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL1071	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL1072	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	3	2.0	1.4	3	$ 3,933	2061
WL1073	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	18	m	1981	38	N/A	3	2.0	1.4	3	$ 4,121	2061
WL1074	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	3	2.0	1.4	3	$ 3,974	2061
WL1075	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	2	m	1981	38	N/A	3	2.0	1.4	3	$ 446	2061
WL1076	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.0	1.9	4	$ 3,965	2041
WL1077	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,959	2040
WL1082	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	21	m	1980	39	N/A	4	2.6	2.0	5	$ 4,823	2040
WL1083	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.6	2.0	5	$ 695	2040
WL1084	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.6	2.0	5	$ 701	2040
WL1085	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.6	2.0	5	$ 695	2040
WL1086	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.6	2.0	5	$ 695	2040
WL1087	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	21	m	1980	39	N/A	4	2.3	2.0	4	$ 4,828	2040
WL1088	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	20	m	1980	39	N/A	4	2.3	2.0	4	$ 4,527	2040
WL1089	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	4	$ 3,949	2040
WL1090	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,911	2040
WL1091	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 689	2040
WL1092	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 692	2040
WL1093	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1094	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1095	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.6	2.0	5	$ 695	2040
WL1096	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.6	2.0	5	$ 695	2040
WL1097	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL1098	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 696	2040
WL1099	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 709	2040
WL1100	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 691	2040
WL1101	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 674	2040
WL1102	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 689	2040
WL1103	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	50	m	1980	39	N/A	4	2.3	2.0	5	$ 11,471	2040
WL1104	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	70	m	1980	39	N/A	4	2.3	2.0	5	$ 16,273	2040
WL1105	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	3	2.4	1.4	3	$ 3,556	2060
WL1106	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	3	2.4	1.4	3	$ 1,046	2060
WL1107	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,983	2040
WL1108	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,978	2040
WL1109	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1110	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,961	2040
WL1111	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1112	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1113	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,935	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL1114	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,918	2040
WL1115	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1116	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1117	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1118	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1119	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1120	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1121	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,942	2040
WL1122	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,942	2040
WL1123	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,937	2040
WL1124	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.3	2.0	5	$ 3,743	2040
WL1125	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	4	m	1980	39	N/A	4	2.3	2.0	5	$ 812	2040
WL1126	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,948	2040
WL1127	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,949	2040
WL1128	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1129	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1130	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 692	2040
WL1131	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,951	2040
WL1132	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,955	2040
WL1133	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,955	2040
WL1134	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1135	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1136	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,962	2040
WL1137	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1138	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1139	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1140	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,962	2040
WL1141	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,962	2040
WL1142	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,962	2040
WL1143	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,958	2040
WL1144	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,943	2040
WL1145	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	6	m	2007	12	N/A	2	2.1	1.0	2	$ 1,413	2087
WL1146	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	2007	12	N/A	2	2.1	1.0	2	$ 1,585	2087
WL1147	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	25	m	2007	12	N/A	2	2.1	1.0	2	$ 5,840	2087
WL1148	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	8	m	1980	39	N/A	3	2.4	1.4	3	$ 1,968	2060
WL1149	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	9	m	1980	39	N/A	3	2.4	1.4	3	$ 1,968	2060
WL1150	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	8	m	1980	39	N/A	3	2.4	1.4	3	$ 1,968	2060
WL1155	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.4	1.9	5	$ 695	2041
WL1156	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL1171	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	1	m	1981	38	N/A	4	2.5	1.9	5	$ 325	2041
WL1181	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	26	m	1980	39	N/A	4	2.9	2.0	6	$ 6,097	2040
WL1185	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,995	2040
WL1186	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,876	2040
WL1187	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL1188	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL1189	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,904	2040
WL1190	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 698	2040
WL1191	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL1192	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,986	2040
WL1193	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,985	2040
WL1194	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL1195	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	4	m	2006	13	N/A	2	2.4	1.0	2	$ 1,022	2086
WL1196	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	2006	13	N/A	2	2.4	1.0	2	$ 3,499	2086
WL1197	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	2006	13	N/A	2	2.5	1.0	3	$ 695	2086
WL1201	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.4	1.9	5	$ 3,845	2041
WL1202	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.4	1.9	5	$ 695	2041
WL1203	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.4	1.9	5	$ 695	2041
WL1204	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.4	1.9	5	$ 3,841	2041
WL1205	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.4	1.9	5	$ 695	2041
WL1206	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.4	1.9	5	$ 695	2041
WL1207	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	82	m	1981	38	N/A	4	2.2	1.9	4	$ 18,873	2041

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL1208	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.2	1.9	4	$ 695	2041
WL1209	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.2	1.9	4	$ 695	2041
WL1210	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.2	1.9	4	$ 3,968	2041
WL1211	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.2	1.9	4	$ 3,957	2041
WL1212	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.8	2.0	5	$ 695	2040
WL1213	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.8	2.0	5	$ 3,896	2040
WL1214	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.8	2.0	5	$ 3,896	2040
WL1215	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.8	2.0	5	$ 692	2040
WL1216	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.8	2.0	5	$ 694	2040
WL1217	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.8	2.0	5	$ 3,903	2040
WL1218	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.8	2.0	5	$ 695	2040
WL1219	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.8	2.0	5	$ 3,906	2040
WL1220	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.5	1.9	5	$ 694	2041
WL1221	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.5	1.9	5	$ 3,956	2041
WL1222	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.5	1.9	5	$ 694	2041
WL1223	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL1224	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,989	2040
WL1225	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,995	2040
WL1226	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL1227	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 4,008	2040
WL1228	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 694	2040
WL1229	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 4,014	2040
WL1230	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 4,014	2040
WL1231	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL1232	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 4,014	2040
WL1233	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,865	2040
WL1234	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL1235	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL1255	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	21	m	1981	38	N/A	4	2.1	1.9	4	$ 4,762	2041
WL1256	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	4	m	1981	38	N/A	3	2.1	1.4	3	$ 940	2061
WL1257	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	3	2.1	1.4	3	$ 695	2061
WL1258	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	3	2.1	1.4	3	$ 696	2061
WL1259	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1981	38	N/A	3	2.1	1.4	3	$ 3,807	2061
WL1260	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	3	2.1	1.4	3	$ 3,974	2061
WL1261	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	3	2.1	1.4	3	$ 3,975	2061
WL1262	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	3	2.1	1.4	3	$ 695	2061
WL1263	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	3	2.1	1.4	3	$ 693	2061
WL1264	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	3	2.1	1.4	3	$ 3,980	2061
WL1265	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	3	2.1	1.4	3	$ 3,976	2061
WL1266	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	23	m	1980	39	N/A	4	2.4	2.0	5	$ 5,216	2040
WL1267	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL1268	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL1269	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	23	m	1980	39	N/A	4	2.4	2.0	5	$ 5,337	2040
WL1270	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	23	m	1980	39	N/A	4	2.4	2.0	5	$ 5,337	2040
WL1271	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL1272	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	21	m	1980	39	N/A	4	2.0	2.0	4	$ 4,835	2040
WL1273	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	21	m	1980	39	N/A	4	2.1	2.0	4	$ 4,856	2040
WL1274	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL1275	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	21	m	1980	39	N/A	4	2.1	2.0	4	$ 4,899	2040
WL1276	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	21	m	1980	39	N/A	4	2.1	2.0	4	$ 4,902	2040
WL1277	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	13	m	1980	39	N/A	4	2.2	2.0	4	$ 2,976	2040
WL1278	BCOB WLSA	BC / OB	Varies	Distribution	Service		Pipe	CU	19	24	m	1980	39	N/A	4	2.2	2.0	4	$ 5,454	2040
WL1279	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	22	m	1980	39	N/A	4	2.2	2.0	4	$ 5,152	2040
WL1280	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL1281	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	14	m	1980	39	N/A	4	2.2	2.0	4	$ 3,332	2040
WL1282	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	38	m	1980	39	N/A	4	2.2	2.0	4	$ 8,720	2040
WL1283	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	14	m	1980	39	N/A	4	2.2	2.0	4	$ 3,329	2040
WL1284	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	14	m	1980	39	N/A	4	2.2	2.0	4	$ 3,331	2040
WL1285	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	14	m	1980	39	N/A	4	2.2	2.0	4	$ 3,340	2040
WL1286	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	28	m	1980	39	N/A	4	2.2	2.0	4	$ 6,495	2040
WL1287	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	19	m	1980	39	N/A	4	2.2	2.0	4	$ 4,372	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL1288	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	10	m	1980	39	N/A	4	2.8	2.0	5	$ 2,345	2040
WL1289	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	27	m	1980	39	N/A	4	2.8	2.0	5	$ 6,191	2040
WL1290	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.8	2.0	5	$ 3,681	2040
WL1291	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.6	2.0	5	$ 3,613	2040
WL1292	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.6	2.0	5	$ 3,614	2040
WL1293	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	9	m	1980	39	N/A	4	2.1	2.0	4	$ 2,052	2040
WL1294	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	9	m	1980	39	N/A	4	2.0	2.0	4	$ 2,062	2040
WL1295	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 696	2040
WL1296	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,932	2040
WL1297	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,938	2040
WL1298	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 694	2040
WL1299	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 694	2040
WL1300	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL1301	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL1302	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL1303	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL1304	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL1305	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.2	2.0	4	$ 3,773	2040
WL1306	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	18	m	1980	39	N/A	4	2.2	2.0	4	$ 4,064	2040
WL1307	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	2.2	2.0	4	$ 3,535	2040
WL1308	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.2	2.0	4	$ 3,776	2040
WL1309	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.8	2.0	5	$ 3,695	2040
WL1310	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.8	2.0	5	$ 1,513	2040
WL1311	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	2.8	2.0	5	$ 3,537	2040
WL1312	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.0	2.0	4	$ 1,158	2040
WL1313	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	24	m	1980	39	N/A	4	2.0	2.0	4	$ 5,621	2040
WL1314	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	13	m	1980	39	N/A	4	2.0	2.0	4	$ 3,018	2040
WL1315	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	32	m	1980	39	N/A	4	2.0	2.0	4	$ 7,325	2040
WL1316	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.0	2.0	4	$ 1,158	2040
WL1317	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	95	m	1980	39	N/A	4	2.0	2.0	4	$ 22,084	2040
WL1318	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	33	m	1980	39	N/A	4	2.0	2.0	4	$ 7,597	2040
WL1319	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	33	m	1980	39	N/A	4	2.0	2.0	4	$ 7,596	2040
WL1320	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.7	2.0	5	$ 1,158	2040
WL1321	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.2	2.0	4	$ 1,158	2040
WL1322	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,871	2040
WL1323	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.0	2.0	4	$ 1,157	2040
WL1324	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.0	2.0	4	$ 1,158	2040
WL1325	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,872	2040
WL1326	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.0	2.0	4	$ 1,158	2040
WL1327	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,872	2040
WL1328	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.7	2.0	5	$ 1,158	2040
WL1329	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.7	2.0	5	$ 1,158	2040
WL1330	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,879	2040
WL1331	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	28	m	1980	39	N/A	4	2.7	2.0	5	$ 6,486	2040
WL1332	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.7	2.0	5	$ 1,158	2040
WL1333	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL1334	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL1335	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL1336	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	26	m	1980	39	N/A	4	2.7	2.0	5	$ 5,980	2040
WL1337	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.6	2.0	5	$ 694	2040
WL1338	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.6	2.0	5	$ 695	2040
WL1339	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,967	2040
WL1340	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL1341	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 693	2040
WL1342	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,962	2040
WL1343	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 699	2040
WL1344	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	10	m	1980	39	N/A	4	1.9	2.0	4	$ 2,316	2040
WL1345	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	14	m	1980	39	N/A	4	1.9	2.0	4	$ 3,344	2040
WL1346	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.5	2.0	5	$ 1,649	2040
WL1347	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	2.5	2.0	5	$ 3,377	2040
WL1348	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.5	2.0	5	$ 1,158	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL1349	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	2.5	2.0	5	$ 3,407	2040
WL1350	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	2.5	2.0	5	$ 3,431	2040
WL1351	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.5	2.0	5	$ 3,972	2040
WL1352	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.5	2.0	5	$ 3,982	2040
WL1353	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.5	2.0	5	$ 1,158	2040
WL1354	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.5	2.0	5	$ 1,158	2040
WL1355	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	20	m	1980	39	N/A	4	2.5	2.0	5	$ 4,697	2040
WL2295	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.8	2.0	6	$ 1,158	2040
WL2296	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.8	2.0	6	$ 1,158	2040
WL2298	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.8	2.0	6	$ 1,158	2040
WL2299	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.8	2.0	6	$ 1,158	2040
WL2301	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.8	2.0	6	$ 1,158	2040
WL2302	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	8	m	1980	39	N/A	4	2.8	2.0	6	$ 1,737	2040
WL2303	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.8	2.0	6	$ 3,743	2040
WL2304	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	27	m	1980	39	N/A	4	2.8	2.0	6	$ 6,314	2040
WL2305	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	9	m	1980	39	N/A	4	2.8	2.0	6	$ 2,086	2040
WL2307	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	3	2.2	1.4	3	$ 3,521	2060
WL2308	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	3	2.2	1.4	3	$ 1,734	2060
WL2309	BCOB WLSA	BC / OB	Varies	Distribution	Service		Pipe	CU	19	12	m	1980	39	N/A	4	2.2	2.0	4	$ 2,760	2040
WL2310	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	10	m	1980	39	N/A	4	2.2	2.0	4	$ 2,315	2040
WL2312	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	11	m	1980	39	N/A	4	2.2	2.0	4	$ 2,616	2040
WL2313	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	10	m	1980	39	N/A	4	2.2	2.0	4	$ 2,315	2040
WL2314	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	10	m	1980	39	N/A	4	2.2	2.0	4	$ 2,315	2040
WL2315	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	10	m	1980	39	N/A	4	2.2	2.0	4	$ 2,325	2040
WL2316	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	30	m	1980	39	N/A	4	2.2	2.0	4	$ 6,872	2040
WL2317	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.2	2.0	4	$ 1,621	2040
WL2318	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.2	2.0	4	$ 1,623	2040
WL2320	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.4	2.0	5	$ 1,615	2040
WL2321	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.4	2.0	5	$ 1,621	2040
WL2322	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.4	2.0	5	$ 1,621	2040
WL2323	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	9	m	1980	39	N/A	4	2.4	2.0	5	$ 2,031	2040
WL2324	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.4	2.0	5	$ 1,621	2040
WL2325	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	8	m	1980	39	N/A	4	2.4	2.0	5	$ 1,740	2040
WL2326	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	2.4	2.0	5	$ 3,580	2040
WL2328	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	2.9	2.0	6	$ 3,505	2040
WL2329	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	3	2.1	1.4	3	$ 3,568	2060
WL2330	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL2331	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	3	2.1	1.4	3	$ 3,592	2060
WL2332	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL2333	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	3	2.1	1.4	3	$ 3,678	2060
WL2334	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 702	2060
WL2335	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	3	2.1	1.4	3	$ 1,174	2060
WL2336	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	6	m	1980	39	N/A	3	2.1	1.4	3	$ 1,355	2060
WL2339	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	24	m	1980	39	N/A	4	2.3	2.0	4	$ 5,526	2040
WL2340	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.9	2.0	6	$ 684	2040
WL2343	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	2	m	1980	39	N/A	4	2.2	2.0	4	$ 463	2040
WL2344	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	25	m	1980	39	N/A	4	2.2	2.0	4	$ 5,858	2040
WL2345	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	2	m	1980	39	N/A	4	2.1	2.0	4	$ 463	2040
WL2346	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	2	m	1980	39	N/A	4	2.2	2.0	4	$ 498	2040
WL2347	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	27	m	1980	39	N/A	4	2.2	2.0	4	$ 6,145	2040
WL2349	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	13	m	1980	39	N/A	4	2.2	2.0	4	$ 3,009	2040
WL2350	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	47	m	1980	39	N/A	4	2.2	2.0	4	$ 10,963	2040
WL2353	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.3	2.0	5	$ 3,819	2040
WL2354	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2355	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2356	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.3	2.0	5	$ 3,804	2040
WL2357	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.3	2.0	5	$ 3,796	2040
WL2358	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2359	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.3	2.0	5	$ 3,784	2040
WL2360	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2361	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL2362	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,927	2040
WL2363	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 757	2040
WL2364	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2365	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL2366	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.5	2.0	5	$ 3,966	2040
WL2367	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL2368	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL2369	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.5	2.0	5	$ 3,960	2040
WL2370	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2371	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2372	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2373	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2375	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2376	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,984	2040
WL2377	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,977	2040
WL2378	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2379	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2380	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,974	2040
WL2381	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,980	2040
WL2382	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2383	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2384	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 4,009	2040
WL2385	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2386	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2387	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,933	2040
WL2388	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2389	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,932	2040
WL2390	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,905	2040
WL2391	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.2	2.0	4	$ 3,676	2040
WL2392	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,860	2040
WL2393	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 722	2040
WL2394	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2395	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 4,020	2040
WL2396	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 4,030	2040
WL2397	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2398	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 4,039	2040
WL2399	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,975	2040
WL2400	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2401	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 712	2040
WL2402	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,907	2040
WL2403	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2404	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,980	2040
WL2405	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2406	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2407	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 4,037	2040
WL2408	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2409	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 4,017	2040
WL2410	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,960	2040
WL2411	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2412	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2413	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,943	2040
WL2414	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2415	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 4,018	2040
WL2416	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2417	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 4,015	2040
WL2418	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 4,000	2040
WL2419	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2420	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2421	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2422	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 697	2040
WL2424	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	2005	14	N/A	2	2.2	1.0	2	$ 1,060	2085

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL2425	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	2005	14	N/A	2	2.2	1.0	2	$ 1,042	2085
WL2426	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	4	m	2005	14	N/A	2	2.2	1.0	2	$ 1,042	2085
WL2430	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL2431	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL2434	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2435	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2436	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2437	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2438	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	2.4	2.0	5	$ 3,578	2040
WL2439	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.3	1.4	3	$ 695	2060
WL2440	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.3	1.4	3	$ 695	2060
WL2441	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.3	1.4	3	$ 695	2060
WL2442	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.3	1.4	3	$ 695	2060
WL2443	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 724	2040
WL2444	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	9	m	1980	39	N/A	3	2.1	1.4	3	$ 2,137	2060
WL2445	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL2446	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL2447	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL2448	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL2449	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL2450	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 694	2060
WL2451	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 694	2060
WL2452	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL2453	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL2454	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2455	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL2456	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL2458	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	19	m	2012	7	N/A	1	2.4	1.0	2	$ 4,360	2092
WL2460	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.4	1.4	3	$ 695	2060
WL2461	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	3	2.4	1.4	3	$ 3,958	2060
WL2462	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,965	2040
WL2463	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2464	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,935	2040
WL2465	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2466	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 697	2040
WL2467	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,970	2040
WL2468	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 618	2040
WL2469	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 702	2040
WL2470	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,961	2040
WL2471	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 696	2040
WL2472	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	1	m	1980	39	N/A	4	2.4	2.0	5	$ 347	2040
WL2473	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	2	m	1980	39	N/A	4	2.4	2.0	5	$ 347	2040
WL2475	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 4,029	2040
WL2476	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	18	m	1980	39	N/A	4	2.4	2.0	5	$ 4,063	2040
WL2477	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2478	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,964	2040
WL2479	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2480	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,963	2040
WL2481	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,962	2040
WL2482	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,962	2040
WL2483	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 668	2040
WL2484	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2485	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,963	2040
WL2486	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2487	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.0	2.0	4	$ 3,805	2040
WL2488	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.2	2.0	4	$ 3,813	2040
WL2489	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,859	2040
WL2490	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,866	2040
WL2491	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,868	2040
WL2492	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL2493	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,877	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL2494	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.1	2.0	4	$ 3,882	2040
WL2495	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.1	2.0	4	$ 3,910	2040
WL2496	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.1	2.0	4	$ 3,910	2040
WL2497	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 694	2040
WL2498	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.5	2.0	5	$ 3,952	2040
WL2499	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL2500	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL2501	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL2502	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.1	2.0	4	$ 3,790	2040
WL2503	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL2504	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL2505	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL2506	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL2507	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.1	2.0	4	$ 3,653	2040
WL2508	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL2509	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.1	2.0	4	$ 3,665	2040
WL2510	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL2511	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.1	2.0	4	$ 3,659	2040
WL2512	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2513	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2514	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,967	2040
WL2515	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,967	2040
WL2516	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2517	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,961	2040
WL2518	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2519	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2520	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2521	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2522	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,949	2040
WL2523	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	1.9	2.0	4	$ 3,939	2040
WL2524	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	1.9	1.9	4	$ 3,951	2041
WL2525	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	3	1.9	1.4	3	$ 695	2061
WL2526	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	3	1.9	1.4	3	$ 3,932	2061
WL2527	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	3	1.9	1.4	3	$ 3,931	2061
WL2528	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	3	1.9	1.4	3	$ 664	2061
WL2529	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	1	m	1981	38	N/A	3	1.9	1.4	3	$ 299	2061
WL2530	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1981	38	N/A	3	1.9	1.4	3	$ 3,520	2061
WL2535	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	2005	14	N/A	2	1.8	1.0	2	$ 1,551	2085
WL2536	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1983	36	N/A	3	1.9	1.3	3	$ 3,950	2063
WL2537	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1983	36	N/A	3	1.9	1.3	3	$ 695	2063
WL2538	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1983	36	N/A	3	1.9	1.3	3	$ 695	2063
WL2539	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1983	36	N/A	3	1.9	1.3	3	$ 3,935	2063
WL2540	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1983	36	N/A	3	1.9	1.3	3	$ 3,935	2063
WL2541	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1983	36	N/A	3	1.9	1.3	3	$ 695	2063
WL2542	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1983	36	N/A	3	1.9	1.3	3	$ 695	2063
WL2543	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1982	37	N/A	3	1.9	1.4	3	$ 3,935	2062
WL2544	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1982	37	N/A	3	1.9	1.4	3	$ 3,935	2062
WL2545	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1982	37	N/A	3	1.9	1.4	3	$ 695	2062
WL2546	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1982	37	N/A	3	1.9	1.4	3	$ 695	2062
WL2547	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2548	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2549	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.0	1.9	4	$ 695	2041
WL2550	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.0	1.9	4	$ 695	2041
WL2551	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.0	1.9	4	$ 695	2041
WL2552	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	3	2.0	1.4	3	$ 695	2061
WL2553	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	3	2.0	1.4	3	$ 3,940	2061
WL2554	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	3	2.0	1.4	3	$ 3,942	2061
WL2555	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	3	2.0	1.4	3	$ 3,942	2061
WL2556	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	3	2.0	1.4	3	$ 695	2061
WL2557	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	3	2.0	1.4	3	$ 695	2061
WL2568	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	23	m	1980	39	N/A	4	2.6	2.0	5	$ 5,426	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL2569	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	25	m	1980	39	N/A	4	2.2	2.0	4	$ 5,727	2040
WL2570	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	4	$ 695	2040
WL2571	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	4	$ 3,958	2040
WL2572	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	4	$ 3,952	2040
WL2573	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	4	$ 695	2040
WL2574	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	4	$ 3,944	2040
WL2575	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.4	2.0	5	$ 1,158	2040
WL2576	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	9	m	1980	39	N/A	4	2.5	2.0	5	$ 1,972	2040
WL2577	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	31	m	1980	39	N/A	4	2.2	2.0	4	$ 7,214	2040
WL2578	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	4	$ 695	2040
WL2579	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	1	m	1980	39	N/A	4	2.2	2.0	4	$ 330	2040
WL2580	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	1	m	1980	39	N/A	4	2.2	2.0	4	$ 338	2040
WL2581	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,940	2040
WL2582	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,852	2040
WL2583	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,843	2040
WL2584	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2585	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	4	$ 695	2040
WL2586	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	4	$ 694	2040
WL2587	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	4	$ 3,899	2040
WL2588	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	4	$ 3,914	2040
WL2589	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	4	$ 695	2040
WL2590	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	4	$ 695	2040
WL2591	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	4	$ 695	2040
WL2592	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	4	$ 3,955	2040
WL2593	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,960	2040
WL2594	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2595	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	54	m	1980	39	N/A	4	2.3	2.0	5	$ 12,429	2040
WL2596	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	90	m	1980	39	N/A	4	2.3	2.0	5	$ 20,735	2040
WL2597	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2598	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,962	2040
WL2599	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2600	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,964	2040
WL2601	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,964	2040
WL2602	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,975	2040
WL2603	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2604	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	4	$ 3,961	2040
WL2605	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	4	$ 695	2040
WL2606	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	4	$ 695	2040
WL2607	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	4	$ 3,964	2040
WL2608	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	4	$ 695	2040
WL2609	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	4	$ 3,964	2040
WL2610	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	4	$ 3,964	2040
WL2611	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	4	$ 695	2040
WL2612	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	4	$ 695	2040
WL2613	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	28	m	1980	39	N/A	4	2.3	2.0	4	$ 6,382	2040
WL2614	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,896	2040
WL2615	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2616	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2617	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2618	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,957	2040
WL2619	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2620	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,962	2040
WL2621	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,962	2040
WL2622	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2623	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2624	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,962	2040
WL2625	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,962	2040
WL2626	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 694	2040
WL2627	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	2007	12	N/A	2	2.1	1.0	2	$ 1,621	2087
WL2628	BCOB WLSA	BC / OB	Varies	Distribution	Service		Pipe	CU	19	7	m	2007	12	N/A	2	2.1	1.0	2	$ 1,621	2087
WL2629	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	2007	12	N/A	2	2.1	1.0	2	$ 1,621	2087

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL2630	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	2007	12	N/A	2	2.1	1.0	2	$ 1,620	2087
WL2631	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	2007	12	N/A	2	2.1	1.0	2	$ 1,620	2087
WL2632	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	2007	12	N/A	2	2.1	1.0	2	$ 1,620	2087
WL2633	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	8	m	2007	12	N/A	2	2.1	1.0	2	$ 1,900	2087
WL2634	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	8	m	2007	12	N/A	2	2.1	1.0	2	$ 1,815	2087
WL2635	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	8	m	2007	12	N/A	2	2.1	1.0	2	$ 1,924	2087
WL2636	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	8	m	2007	12	N/A	2	2.1	1.0	2	$ 1,906	2087
WL2637	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	10	m	2007	12	N/A	2	2.1	1.0	2	$ 2,231	2087
WL2648	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.4	1.9	5	$ 695	2041
WL2684	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2685	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 4,033	2040
WL2686	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 4,031	2040
WL2687	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 691	2040
WL2688	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 694	2040
WL2689	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL2690	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL2691	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,915	2040
WL2692	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL2693	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL2694	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,937	2040
WL2695	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,936	2040
WL2696	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 4,030	2040
WL2697	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 4,030	2040
WL2698	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 694	2040
WL2699	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 694	2040
WL2700	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 4,021	2040
WL2701	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,995	2040
WL2702	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 4,010	2040
WL2703	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1994	25	N/A	2	2.2	1.1	2	$ 695	2074
WL2704	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1994	25	N/A	2	2.2	1.1	2	$ 695	2074
WL2705	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1994	25	N/A	2	2.2	1.1	2	$ 695	2074
WL2706	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1994	25	N/A	2	2.2	1.1	2	$ 1,506	2074
WL2707	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1994	25	N/A	2	2.2	1.1	2	$ 3,935	2074
WL2708	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2709	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,977	2040
WL2710	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,976	2040
WL2711	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2712	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,971	2040
WL2713	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2714	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1994	25	N/A	2	2.2	1.1	2	$ 695	2074
WL2715	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL2716	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL2717	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL2718	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL2719	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL2720	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.5	2.0	5	$ 3,968	2040
WL2721	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	3.0	1.9	6	$ 702	2041
WL2722	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.4	1.9	5	$ 3,845	2041
WL2723	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.4	1.9	5	$ 695	2041
WL2724	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.4	1.9	5	$ 3,847	2041
WL2725	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.4	1.9	5	$ 695	2041
WL2726	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.2	1.9	4	$ 695	2041
WL2727	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.2	1.9	4	$ 3,959	2041
WL2728	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.2	1.9	4	$ 3,959	2041
WL2729	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.2	1.9	4	$ 695	2041
WL2730	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.2	1.9	4	$ 695	2041
WL2731	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.2	1.9	4	$ 695	2041
WL2732	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.2	1.9	4	$ 3,960	2041
WL2733	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.2	1.9	4	$ 3,959	2041
WL2734	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.7	1.9	5	$ 3,871	2041
WL2735	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.4	1.9	4	$ 3,877	2041

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL2736	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.4	1.9	4	$ 695	2041
WL2737	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.4	1.9	4	$ 695	2041
WL2738	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.4	1.9	4	$ 695	2041
WL2739	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.2	1.9	4	$ 695	2041
WL2740	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.2	1.9	4	$ 695	2041
WL2741	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.2	1.9	4	$ 695	2041
WL2742	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.4	1.9	5	$ 3,858	2041
WL2743	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.7	1.9	5	$ 3,860	2041
WL2744	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.7	1.9	5	$ 695	2041
WL2745	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.4	1.9	4	$ 695	2041
WL2746	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.4	1.9	4	$ 3,886	2041
WL2747	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.1	1.9	4	$ 695	2041
WL2748	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.1	1.9	4	$ 3,887	2041
WL2749	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.1	1.9	4	$ 695	2041
WL2750	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.1	1.9	4	$ 3,890	2041
WL2751	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2752	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.8	2.0	5	$ 695	2040
WL2753	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.5	1.9	5	$ 3,951	2041
WL2758	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	11	m	1980	39	N/A	4	2.7	2.0	5	$ 2,592	2040
WL2759	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 704	2040
WL2760	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL2761	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL2762	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL2763	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,934	2040
WL2764	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,932	2040
WL2765	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 4,014	2040
WL2766	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 4,014	2040
WL2767	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2768	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2769	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 4,013	2040
WL2770	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2771	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 4,014	2040
WL2772	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2773	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2774	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2775	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2776	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 4,014	2040
WL2777	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2778	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 4,019	2040
WL2779	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2780	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2781	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 4,013	2040
WL2782	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2783	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 4,017	2040
WL2784	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL2785	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,975	2040
WL2786	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,949	2040
WL2788	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,905	2040
WL2789	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 4,014	2040
WL2790	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL2791	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL2792	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 4,013	2040
WL2793	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,994	2040
WL2794	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL2795	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL2796	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,852	2040
WL2797	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL2798	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,853	2040
WL2799	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL2800	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.7	2.0	5	$ 3,858	2040
WL2801	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL2802	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL2803	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	2017	2	N/A	3	1.9	1.5	3	$ 1,159	2049
WL2815	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	31	m	1980	39	N/A	4	2.3	2.0	5	$ 7,159	2040
WL2816	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,974	2040
WL2817	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2818	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2819	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,965	2040
WL2820	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL2821	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,965	2040
WL2822	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 694	2040
WL2823	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	4	2.3	1.9	4	$ 3,954	2041
WL2824	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.3	1.9	4	$ 695	2041
WL2825	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.3	1.9	4	$ 695	2041
WL2826	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	4	2.1	1.9	4	$ 695	2041
WL2827	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	3	2.1	1.4	3	$ 695	2061
WL2828	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	3	2.1	1.4	3	$ 695	2061
WL2829	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1981	38	N/A	3	2.1	1.4	3	$ 695	2061
WL2830	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	3	2.1	1.4	3	$ 3,964	2061
WL2831	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1981	38	N/A	3	2.1	1.4	3	$ 3,963	2061
WL2832	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	26	m	1981	38	N/A	3	1.9	1.4	3	$ 5,904	2061
WL2833	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	22	m	1981	38	N/A	3	1.9	1.4	3	$ 5,048	2061
WL2834	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	11	m	1981	38	N/A	3	2.1	1.4	3	$ 2,605	2061
WL2835	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	20	m	1980	39	N/A	4	2.5	2.0	5	$ 4,568	2040
WL2836	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	20	m	1980	39	N/A	4	2.5	2.0	5	$ 4,601	2040
WL2837	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	20	m	1980	39	N/A	4	2.1	2.0	4	$ 4,625	2040
WL2838	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL2839	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	4	m	2016	3	N/A	1	2.1	1.0	2	$ 926	2096
WL2840	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 721	2040
WL2841	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL2842	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	21	m	1980	39	N/A	4	2.5	2.0	5	$ 4,940	2040
WL2843	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	21	m	1980	39	N/A	4	2.5	2.0	5	$ 4,961	2040
WL2844	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL2845	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.1	2.0	4	$ 695	2040
WL2846	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	22	m	1980	39	N/A	4	3.0	2.0	6	$ 5,018	2040
WL2849	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	19	m	1980	39	N/A	4	3.0	2.0	6	$ 4,432	2040
WL2850	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	8	m	1980	39	N/A	4	3.0	2.0	6	$ 1,852	2040
WL2851	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	21	m	1980	39	N/A	4	2.6	2.0	5	$ 4,773	2040
WL2852	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	24	m	1980	39	N/A	4	2.6	2.0	5	$ 5,554	2040
WL2853	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	2.2	2.0	4	$ 3,373	2040
WL2854	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	24	m	1980	39	N/A	4	2.9	2.0	6	$ 5,512	2040
WL2855	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	96	m	1980	39	N/A	4	2.9	2.0	6	$ 22,141	2040
WL2856	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	23	m	1980	39	N/A	4	3.0	2.0	6	$ 5,239	2040
WL2857	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	1	m	1980	39	N/A	4	3.0	2.0	6	$ 232	2040
WL2858	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.9	2.0	6	$ 695	2040
WL2859	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	35	m	1980	39	N/A	4	2.9	2.0	6	$ 8,140	2040
WL2860	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2861	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL2862	BCOB WLSA	BC / OB	Varies	Distribution	Service		Pipe	CU	19	7	m	1980	39	N/A	4	2.9	2.0	6	$ 1,651	2040
WL2863	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.9	2.0	6	$ 1,651	2040
WL2864	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	61	m	1980	39	N/A	4	2.9	2.0	6	$ 14,052	2040
WL2865	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.9	2.0	6	$ 1,651	2040
WL2866	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.8	2.0	6	$ 1,619	2040
WL2867	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	2.8	2.0	6	$ 3,556	2040
WL2868	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	10	m	1980	39	N/A	4	2.8	2.0	6	$ 2,289	2040
WL2869	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	2.8	2.0	6	$ 3,521	2040
WL2870	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	10	m	1980	39	N/A	4	1.9	2.0	4	$ 2,310	2040
WL2871	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1978	41	N/A	3	1.9	1.5	3	$ 695	2058
WL2872	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	18	m	1980	39	N/A	4	2.0	2.0	4	$ 4,248	2040
WL2873	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.0	2.0	4	$ 1,638	2040
WL2874	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	18	m	1980	39	N/A	4	2.7	2.0	5	$ 4,228	2040
WL2875	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	20	m	1980	39	N/A	4	2.7	2.0	5	$ 4,622	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL2876	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	18	m	1980	39	N/A	4	2.7	2.0	5	$ 4,212	2040
WL2877	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	2.1	2.0	4	$ 3,588	2040
WL2878	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	1.9	2.0	4	$ 3,522	2040
WL2879	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	10	m	1980	39	N/A	4	1.9	2.0	4	$ 2,303	2040
WL2880	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	9	m	1980	39	N/A	4	1.9	2.0	4	$ 2,155	2040
WL2881	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.1	2.0	4	$ 3,798	2040
WL2882	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.1	2.0	4	$ 1,550	2040
WL2883	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.1	2.0	4	$ 3,778	2040
WL2884	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.1	2.0	4	$ 3,733	2040
WL2885	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2886	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,872	2040
WL2887	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	1.8	2.0	4	$ 3,864	2040
WL2888	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	1.8	2.0	4	$ 3,862	2040
WL2889	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	1.8	2.0	4	$ 695	2040
WL2890	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,947	2040
WL2891	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 693	2040
WL2892	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 694	2040
WL2893	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,897	2040
WL2894	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2895	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2896	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2897	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	1.8	2.0	4	$ 695	2040
WL2898	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2899	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,892	2040
WL2900	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	21	m	1980	39	N/A	4	2.0	2.0	4	$ 4,851	2040
WL2901	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.1	2.0	4	$ 1,606	2040
WL2902	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.1	2.0	4	$ 1,673	2040
WL2903	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.1	2.0	4	$ 3,626	2040
WL2904	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	20	m	1980	39	N/A	4	2.2	2.0	4	$ 4,557	2040
WL2905	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 4,048	2040
WL2906	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	19	m	1980	39	N/A	4	2.2	2.0	4	$ 4,490	2040
WL2907	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	20	m	1980	39	N/A	4	2.2	2.0	4	$ 4,556	2040
WL2908	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.2	2.0	4	$ 1,158	2040
WL2909	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.2	2.0	4	$ 1,158	2040
WL2910	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	3	2.0	1.4	3	$ 4,012	2060
WL2911	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	2.8	2.0	5	$ 3,506	2040
WL2912	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.8	2.0	5	$ 3,653	2040
WL2913	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	21	m	1980	39	N/A	4	2.8	2.0	5	$ 4,786	2040
WL2914	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	8	m	1980	39	N/A	4	2.8	2.0	5	$ 1,819	2040
WL2915	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	8	m	1980	39	N/A	4	2.0	2.0	4	$ 1,791	2040
WL2916	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,920	2040
WL2917	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	13	m	1980	39	N/A	4	2.7	2.0	5	$ 2,976	2040
WL2918	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	13	m	1980	39	N/A	4	2.7	2.0	5	$ 2,976	2040
WL2919	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	13	m	1980	39	N/A	4	2.7	2.0	5	$ 2,992	2040
WL2920	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.1	2.0	4	$ 1,158	2040
WL2921	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.1	2.0	4	$ 3,803	2040
WL2922	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	14	m	1980	39	N/A	4	2.1	2.0	4	$ 3,159	2040
WL2923	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.7	2.0	5	$ 1,160	2040
WL2924	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.7	2.0	5	$ 1,160	2040
WL2925	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	25	m	1980	39	N/A	4	2.7	2.0	5	$ 5,851	2040
WL2926	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	9	m	1980	39	N/A	4	2.7	2.0	5	$ 2,177	2040
WL2927	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	14	m	1980	39	N/A	4	2.7	2.0	5	$ 3,270	2040
WL2928	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,931	2040
WL2929	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2930	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,963	2040
WL2931	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.0	2.0	4	$ 3,963	2040
WL2932	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.0	2.0	4	$ 695	2040
WL2933	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	3	2.0	1.4	3	$ 3,962	2060
WL2934	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.0	1.4	3	$ 695	2060
WL2935	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	3	2.0	1.4	3	$ 3,962	2060
WL2936	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	3	2.0	1.4	3	$ 3,962	2060

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL2937	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	3	2.0	1.4	3	$ 3,962	2060
WL2938	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	19	m	1980	39	N/A	3	1.9	1.4	3	$ 4,430	2060
WL2939	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.7	2.0	5	$ 695	2040
WL2940	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	25	m	1980	39	N/A	4	2.7	2.0	5	$ 5,702	2040
WL2941	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.0	2.0	4	$ 1,185	2040
WL2942	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	27	m	1980	39	N/A	4	2.0	2.0	4	$ 6,299	2040
WL2943	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.1	2.0	4	$ 3,731	2040
WL2944	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	14	m	1980	39	N/A	4	2.1	2.0	4	$ 3,218	2040
WL2945	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.1	2.0	4	$ 3,734	2040
WL2946	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	14	m	1980	39	N/A	4	2.0	2.0	4	$ 3,242	2040
WL2947	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.0	2.0	4	$ 1,158	2040
WL2948	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	14	m	1980	39	N/A	4	2.0	2.0	4	$ 3,259	2040
WL2949	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.0	2.0	4	$ 1,158	2040
WL2950	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	25	m	1980	39	N/A	4	2.0	2.0	4	$ 5,884	2040
WL2951	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	25	m	1980	39	N/A	4	2.0	2.0	4	$ 5,899	2040
WL2952	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	14	m	1980	39	N/A	4	1.9	2.0	4	$ 3,314	2040
WL2953	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	10	m	1980	39	N/A	4	1.9	2.0	4	$ 2,315	2040
WL2954	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.5	2.0	5	$ 1,158	2040
WL828	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.8	2.0	6	$ 1,158	2040
WL829	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.8	2.0	6	$ 1,158	2040
WL830	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.8	2.0	6	$ 1,158	2040
WL831	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.8	2.0	6	$ 1,158	2040
WL832	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.8	2.0	6	$ 1,158	2040
WL833	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.8	2.0	6	$ 1,158	2040
WL835	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.8	2.0	6	$ 1,158	2040
WL836	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.8	2.0	6	$ 1,646	2040
WL837	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.8	2.0	6	$ 1,158	2040
WL838	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.8	2.0	6	$ 1,158	2040
WL839	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.8	2.0	6	$ 1,246	2040
WL841	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	29	m	1980	39	N/A	4	2.0	2.0	4	$ 6,626	2040
WL843	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	10	m	1980	39	N/A	4	2.2	2.0	4	$ 2,315	2040
WL844	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	12	m	1980	39	N/A	4	2.2	2.0	4	$ 2,704	2040
WL845	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	12	m	1980	39	N/A	4	2.2	2.0	4	$ 2,764	2040
WL846	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	3	2.2	1.4	3	$ 3,786	2060
WL847	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.2	1.4	3	$ 695	2060
WL848	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	3	2.2	1.4	3	$ 3,718	2060
WL849	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	8	m	1980	39	N/A	3	2.2	1.4	3	$ 1,859	2060
WL850	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	13	m	1980	39	N/A	4	2.2	2.0	4	$ 3,072	2040
WL851	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	13	m	1980	39	N/A	4	2.2	2.0	4	$ 3,057	2040
WL852	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	13	m	1980	39	N/A	4	2.2	2.0	4	$ 3,053	2040
WL853	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.2	2.0	4	$ 1,621	2040
WL854	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.2	2.0	4	$ 1,621	2040
WL855	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	13	m	1980	39	N/A	4	2.2	2.0	4	$ 2,971	2040
WL856	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.2	2.0	4	$ 1,621	2040
WL857	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	12	m	1980	39	N/A	4	2.2	2.0	4	$ 2,833	2040
WL858	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.2	2.0	4	$ 1,621	2040
WL859	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.2	2.0	4	$ 1,621	2040
WL860	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	12	m	1980	39	N/A	4	2.2	2.0	4	$ 2,668	2040
WL861	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	25	m	1980	39	N/A	4	2.1	2.0	4	$ 5,897	2040
WL864	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	20	m	1980	39	N/A	4	2.1	2.0	4	$ 4,613	2040
WL865	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	18	m	1980	39	N/A	4	2.1	2.0	4	$ 4,238	2040
WL867	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	7	m	1980	39	N/A	4	2.2	2.0	4	$ 1,736	2040
WL868	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL869	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL870	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL871	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	3	2.1	1.4	3	$ 3,575	2060
WL872	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	21	m	1980	39	N/A	4	2.3	2.0	4	$ 4,747	2040
WL873	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	21	m	1980	39	N/A	4	2.3	2.0	4	$ 4,815	2040
WL874	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	18	m	1980	39	N/A	4	2.2	2.0	4	$ 4,241	2040
WL875	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	19	m	1980	39	N/A	4	2.2	2.0	4	$ 4,367	2040
WL876	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	2.2	2.0	4	$ 3,510	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL877	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	20	m	1980	39	N/A	4	2.2	2.0	4	$ 4,685	2040
WL878	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	20	m	1980	39	N/A	4	2.2	2.0	4	$ 4,675	2040
WL879	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	6	m	1980	39	N/A	4	2.2	2.0	4	$ 1,389	2040
WL880	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	23	m	1980	39	N/A	4	2.2	2.0	4	$ 5,222	2040
WL881	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	23	m	1980	39	N/A	4	2.9	2.0	6	$ 5,390	2040
WL882	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL883	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	24	m	1980	39	N/A	4	2.3	2.0	5	$ 5,583	2040
WL884	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL885	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	18	m	1980	39	N/A	4	2.3	2.0	5	$ 4,283	2040
WL886	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL887	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 685	2040
WL888	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	18	m	1980	39	N/A	4	2.3	2.0	5	$ 4,279	2040
WL889	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	18	m	1980	39	N/A	4	2.3	2.0	5	$ 4,275	2040
WL890	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 588	2040
WL891	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	5	$ 3,892	2040
WL892	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 646	2040
WL893	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 690	2040
WL894	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.3	2.0	5	$ 3,696	2040
WL895	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL896	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL897	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	16	m	1980	39	N/A	4	2.3	2.0	5	$ 3,792	2040
WL898	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	5	$ 695	2040
WL899	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.3	2.0	4	$ 695	2040
WL900	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	4	$ 3,833	2040
WL901	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL902	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,931	2040
WL903	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL904	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL905	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL907	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL908	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,944	2040
WL909	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL910	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,945	2040
WL911	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,984	2040
WL912	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,987	2040
WL913	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL914	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,964	2040
WL915	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL916	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,965	2040
WL919	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,959	2040
WL920	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	32	m	1980	39	N/A	4	2.2	2.0	4	$ 7,367	2040
WL921	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,904	2040
WL922	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL923	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,964	2040
WL924	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,982	2040
WL928	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	20	m	1980	39	N/A	4	2.2	2.0	4	$ 4,642	2040
WL929	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	15	m	1980	39	N/A	4	2.2	2.0	4	$ 3,456	2040
WL930	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 772	2040
WL931	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL932	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL933	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	18	m	1980	39	N/A	4	2.2	2.0	4	$ 4,059	2040
WL934	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL935	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,951	2040
WL936	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL937	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,970	2040
WL938	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,965	2040
WL939	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL940	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,952	2040
WL941	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL942	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,960	2040
WL943	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL944	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,960	2040
WL945	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,992	2040
WL946	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 3,986	2040
WL947	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL948	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL950	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL951	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL952	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL953	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL954	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL955	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 690	2040
WL956	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.2	1.4	3	$ 695	2060
WL957	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.5	2.0	5	$ 3,969	2040
WL958	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL959	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL960	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.5	2.0	5	$ 3,961	2040
WL961	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.5	2.0	5	$ 3,961	2040
WL962	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL963	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.5	2.0	5	$ 3,959	2040
WL964	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.5	2.0	5	$ 3,961	2040
WL965	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.5	2.0	5	$ 3,960	2040
WL966	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.5	2.0	5	$ 695	2040
WL967	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.3	1.4	3	$ 695	2060
WL968	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	4	m	1980	39	N/A	3	2.3	1.4	3	$ 835	2060
WL970	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL971	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 4,013	2040
WL972	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 4,014	2040
WL973	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL974	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL975	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.2	2.0	4	$ 4,028	2040
WL976	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.2	2.0	4	$ 695	2040
WL978	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 689	2060
WL980	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL981	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL982	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL983	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL984	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL985	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL986	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	3	2.1	1.4	3	$ 3,990	2060
WL987	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	3	2.1	1.4	3	$ 695	2060
WL988	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.4	2.0	5	$ 695	2040
WL989	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,859	2040
WL990	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.9	2.0	6	$ 695	2040
WL991	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.9	2.0	6	$ 3,858	2040
WL992	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.9	2.0	6	$ 3,866	2040
WL993	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	3	m	1980	39	N/A	4	2.9	2.0	6	$ 695	2040
WL995	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.3	2.0	4	$ 1,143	2040
WL996	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.3	2.0	4	$ 3,859	2040
WL997	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	5	m	1980	39	N/A	4	2.6	2.0	5	$ 1,059	2040
WL998	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	19	17	m	1980	39	N/A	4	2.4	2.0	5	$ 3,972	2040
WL1198	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	25	87	m	1981	38	N/A	4	2.4	1.9	5	$ 21,311	2041
WL1199	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	25	29	m	1981	38	N/A	4	2.4	1.9	5	$ 7,046	2041
WL1200	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	25	2	m	1981	38	N/A	4	2.4	1.9	5	$ 462	2041
WL1252	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	25	112	m	1980	39	N/A	4	2.5	2.0	5	$ 27,388	2040
WL2847	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	25	24	m	1990	29	N/A	4	3.1	2.0	6	$ 5,767	2040
WL2848	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	25	24	m	1980	39	N/A	4	3.1	2.0	6	$ 5,776	2040
WL977	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	25	49	m	1980	39	N/A	3	2.1	1.4	3	$ 11,944	2060
WL979	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	25	47	m	1980	39	N/A	3	2.1	1.4	3	$ 11,618	2060
WL2787	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	50	62	m	1980	39	N/A	4	2.4	2.0	5	$ 18,773	2040
WL862	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	CU	75	26	m	1980	39	N/A	4	2.1	2.0	4	$ 9,194	2040
WL1079	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.3	2.0	4	$ 955	2040

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
WL1158	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	PVC	150	1	m	1981	38	N/A	3	1.9	1.4	3	$ 724	2061
WL2342	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	PVC	150	2	m	1980	39	N/A	4	2.2	2.0	4	$ 1,069	2040
WL2427	BCOB WLSA	BC / OB	Varies	Distribution	Service	Inactive	Pipe	UNK	0	178	m	2005	14	N/A	2	2.2	1.0	2	$ -	2085
WL906	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	UNK	0	17	m	1980	39	N/A	4	2.4	2.0	5	$ 7,000	2040
WL1253	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	UNK	25	1	m	1980	39	N/A	4	2.2	2.0	4	$ 362	2040
WL1254	BCOB WLSA	BC / OB	Varies	Distribution	Service	Active	Pipe	UNK	25	17	m	1980	39	N/A	4	2.2	2.0	4	$ 4,156	2040
WSV160	BCOB WLSA	BC / OB	Varies	Distribution	Valve	Inactive	PRV Station	Gate	100	1	Ea	1980	39	N/A	4	2.5	2.0	5	$ -	2040
BC / OB-WTP-62	BCOB WLSA	BC / OB	Well No. 1	Wells	PROCESS MECHANICAL	Active	Pump			1	Ea	2012	7	20	2	3.0	1.2	4	$ 70,000	2032
BC / OB-WTP-58	BCOB WLSA	BC / OB	Well No. 1	Wells	PROCESS MECHANICAL	Active	Valve	Check	100	1	Ea	2009	10	50	2	4.0	1.0	4	$ 4,375	2059
BC / OB-WTP-56	BCOB WLSA	BC / OB	Well No. 1	Wells	PROCESS MECHANICAL	Active	Valve	Gate	100	1	Ea	2009	10	50	2	3.0	1.0	3	$ 4,375	2059
BC / OB-WTP-61	BCOB WLSA	BC / OB	Well No. 1	Wells	PROCESS MECHANICAL	Active	Valve	Gate	150	3	Ea	2009	10	50	2	2.0	1.0	2	$ 13,125	2059
BC / OB-WTP-57	BCOB WLSA	BC / OB	Well No. 1	Wells	PROCESS MECHANICAL	Active	Valve	Gate	200	1	Ea	2009	10	50	2	3.0	1.0	3	$ 7,438	2059
BC / OB-WTP-59	BCOB WLSA	BC / OB	Well No. 1	Wells	PROCESS MECHANICAL	Active	Valve	Gate	250	1	Ea	2009	10	50	2	3.0	1.0	3	$ 8,125	2059
BC / OB-WTP-60	BCOB WLSA	BC / OB	Well No. 1	Wells	PROCESS MECHANICAL	Active	Valve	Pressure Relief		1	Ea	2009	10	20	3	4.0	1.5	6	$ 12,500	2029
BC / OB-WTP-63	BCOB WLSA	BC / OB	Well No. 1	Wells	STRUCTURAL	Active	Well & Well Chamber			1	Ea	1970	12	60	1	2.0	1.0	2	$ 125,000	2067
BC / OB-WTP-65	BCOB WLSA	BC / OB	Well No. 2a & 2b	Wells	PROCESS MECHANICAL	Active	Pump			1	Ea	2009	10	20	3	3.0	1.5	4	$ 106,250	2029
BC / OB-WTP-66	BCOB WLSA	BC / OB	Well No. 2a & 2b	Wells	PROCESS MECHANICAL	Active	Pump			1	Ea	2009	10	20	3	3.0	1.5	4	$ 106,250	2029
BC / OB-WTP-64	BCOB WLSA	BC / OB	Well No. 2a & 2b	Wells	STRUCTURAL	Active	Well & Well Chamber			2	Ea	2009	12	60	1	2.0	1.0	2	$ 250,000	2067
BC / OB-WTP-72	BCOB WLSA	BC / OB	Well No. 2a & 2b Control Building	Wells	BUILDING MECHANICAL	Active	Fan	Exhaust Fan		1	Ea	1979	40	20	5	3.0	5.0	15	$ 10,000	2019
BC / OB-WTP-69	BCOB WLSA	BC / OB	Well No. 2a & 2b Control Building	Wells	ELECTRICAL	Active	MCC			1	Ea	1979	40	20	5	3.0	5.0	15	$ 62,500	2019
BC / OB-WTP-71	BCOB WLSA	BC / OB	Well No. 2a & 2b Control Building	Wells	ELECTRICAL	Active	Transformer			1	Ea	1979	40	20	5	3.0	5.0	15	$ 5,000	2019
BC / OB-WTP-70	BCOB WLSA	BC / OB	Well No. 2a & 2b Control Building	Wells	ELECTRONICS	Active	Motor Drive	VFD		2	Ea	2009	10	15	4	3.0	2.0	6	$ 37,500	2024
BC / OB-WTP-68	BCOB WLSA	BC / OB	Well No. 2a & 2b Control Building	Wells	PROCESS MECHANICAL	Active	Valve	Check	150	2	Ea	1979	40	50	4	3.0	2.6	8	$ 16,250	2029
BC / OB-WTP-67	BCOB WLSA	BC / OB	Well No. 2a & 2b Control Building	Wells	STRUCTURAL	Active	Building			1	Ea	1979	40	60	4	3.0	2.0	6	$ 15,000	2039
BC / OB-WTP-76	BCOB WLSA	BC / OB	Well No. 4	Wells	PROCESS MECHANICAL	Active	Pump			1	Ea	2012	7	20	2	3.0	1.2	4	$ 70,000	2032
BC / OB-WTP-73	BCOB WLSA	BC / OB	Well No. 4	Wells	PROCESS MECHANICAL	Active	Valve	Check	100	1	Ea	2009	10	50	2	4.0	1.0	4	$ 4,375	2059
BC / OB-WTP-74	BCOB WLSA	BC / OB	Well No. 4	Wells	PROCESS MECHANICAL	Active	Valve	Gate	100	1	Ea	2009	10	50	2	3.0	1.0	3	$ 4,375	2059
BC / OB-WTP-75	BCOB WLSA	BC / OB	Well No. 4	Wells	PROCESS MECHANICAL	Active	Valve	Gate	150	2	Ea	2009	10	50	2	3.0	1.0	3	$ 8,750	2059
BC / OB-WTP-77	BCOB WLSA	BC / OB	Well No. 4	Wells	STRUCTURAL	Active	Well & Well Chamber			1	Ea	2009	12	60	1	2.0	1.0	2	$ 125,000	2067

Appendix C - Water Main Risk Model

AECOM Imagine it. Delivered.

Comox Valley Regional District

Water Main Risk Model

Technical Memorandum

Prepared by:

AECOM
3292 Production Way
Burnaby., BC
V5A 4R4
Tel: 604.444.6400
Contact: Chris Lombard
Christiaan.lombard@aecom.com

Date: August 2019

Project #: 60565872

Distribution List

# Hard Copies	PDF Required	Association / Company Name
0	1	Kris La Rose, Senior Manager of Water/Wastewater Services, Comox Valley Regional District

Revision History

Rev #	Date	Revised By:	Revision Description
0.0	January 18, 2019	Chris Lombard	Draft Technical Memorandum
1.0	July 5, 2019	Chris Lombard	Final Technical Memorandum
2.0	August 28, 2019	Chris Lombard	Final v.2 Technical Memorandum

AECOM
3292 Production Way
Burnaby., BC
V5A 4R4
Tel: 604.444.6400

Kris La Rose, P. Eng.
Senior manager of water/wastewater services
Comox Valley Regional District
600 Comox Road
Courtenay, BC
V9N 3P6

August 28, 2019

Project #
60565872

Dear Mr. La Rose

Subject:

Please find enclosed AECOM's Final Technical Memorandum on CVRD's Water Main Risk Model for your review.

We trust the enclosed meets your approval. Should you have any questions or require further information about our submission, please do not hesitate to contact Chris Lombard at 604.444.6400.

Sincerely,
AECOM Canada Ltd.

Chris Lombard, P. Eng. MBA IAM Cert.
Asset Management Leader / Project Manager
christiaan.lombard@aecom.com

Encl.
cc:

Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada Ltd. ("AECOM") for the benefit of the Client ("Client") in accordance with the agreement between AECOM and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations");
- represents AECOM's professional judgement in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to AECOM which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

AECOM shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. AECOM accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

AECOM agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but AECOM makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Without in any way limiting the generality of the foregoing, any estimates or opinions regarding probable construction costs or construction schedule provided by AECOM represent AECOM's professional judgement in light of its experience and the knowledge and information available to it at the time of preparation. Since AECOM has no control over market or economic conditions, prices for construction labour, equipment or materials or bidding procedures, AECOM, its directors, officers and employees are not able to, nor do they, make any representations, warranties or guarantees whatsoever, whether express or implied, with respect to such estimates or opinions, or their variance from actual construction costs or schedules, and accept no responsibility for any loss or damage arising therefrom or in any way related thereto. Persons relying on such estimates or opinions do so at their own Risk.

Except (1) as agreed to in writing by AECOM and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

AECOM accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of AECOM to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

AECOM: 2015-04-13

Authors

Report Prepared By:

Rebecca Dziedzic, PhD
Senior Asset Management Consultant

Report Reviewed By:

Devin Sauer, PhD
Senior Asset Management Consultant

Report Approved By:

Chris Lombard, P. Eng. MBA IAM Cert.
Asset Management Leader / Project Manager

Table of Contents

page

1. Introduction 7
   - 1.1 Project Overview 7
   - 1.2 Objective of This Technical Memorandum 9
2. Risk Management: Theory and Application 10
   - 2.1 Risk Assessment Best Practices 10
     - 2.1.1 AWWA J100:10 Risk and Resilience Management of Water and Wastewater Systems 10
     - 2.1.2 ISO31000:2009 Risk Management – Principles and Guidelines 11
     - 2.1.3 Implementing Quality Management: A Guide for Ontario's Drinking Water Systems 12
     - 2.1.4 Canadian Guidance for Managing Drinking-Water Systems: A Risk Assessment / Risk Management Approach (Canadian Water and Wastewater Association, 2005) 12
   - 2.2 Risk Assessment Framework 12
     - 2.2.1 Consequence of Failure 13
     - 2.2.2 Probability of Failure 14
     - 2.2.3 Renewal Decision Making 15
3. Methodology for Risk Model Development 18
   - 3.1 Overview 18
   - 3.2 Consequence of Failure 18
     - 3.2.1 Criticality Categories and Indicators 19
     - 3.2.2 Indicator Scoring 20
     - 3.2.3 Consequence of Failure Multi-Criteria Rating 21
   - 3.3 Probability of Failure Methodology 21
     - 3.3.1 Assumptions 23
       - 3.3.1.1 Asbestos Cement 23
       - 3.3.1.2 Age Accuracy 23
       - 3.3.1.3 Condition 23
   - 3.4 Defining the Rating System 23
     - 3.4.1.1 Consequence of Failure, Probability of Failure and Risk Percentile Rating 24
   - 3.5 Non-Linear Asset Methodology 25
   - 3.6 Geoprocessing 26
     - 3.6.1 Data Requirements 26
4. Results 27
   - 4.1 Summary of Index Weightings 27
   - 4.2 Consequence of Failure Summary 27
   - 4.3 Probability of Failure Summary 28
   - 4.4 Risk 30

5. Recommendations and Next Steps 33

5.1 Data Management 33
5.2 Data Accuracy 33
5.2.1 Reclassify Small Diameter Mains 33
5.2.2 Add Depth Data 33
5.2.3 Add Data Reference 33
5.2.4 Sort Asset Types by Layer 34
5.2.5 Review Asset ID Information 34
5.3 Geodatabase Management 34
5.4 Hydraulic Model Results Management in GIS 34
5.5 Probability of Failure Factors 34
5.6 Next Steps 34
5.6.1 Geoprocessing Model Handover 34

Appendix A - Risk Framework Index Hierarchies

Appendix B - Consequence of Failure Maps

Appendix C - Probability of Failure Maps

Appendix D - Risk Maps

List of Figures

Figure 1 – Regional Comox Valley Water System 7
Figure 2 – Royston WLSA 8
Figure 3 - Comox Valley, Greaves Crescent, Arden, England Road, Sandwick and Marsden / Camco WLSAs 8
Figure 4 - Black Creek / Oyster Bay WLSA 9
Figure 5 - AWWA J100:10 Seven-Step RAMCAP Process (extracted from AWWA, 2010, p.xvii) 11
Figure 6 - ISO31000 Risk Management Process (adapted from ISO 31000, 2009, p.14) 11
Figure 7 - Risk Based Treatment Response 15
Figure 8 – Preliminary (left) Versus Advanced (right) Decision Matrices 16
Figure 9 – High Level CoF Model 19
Figure 10 – PoF versus Asset Life Span Consumed 22
Figure 11 - Risk Matrix and Management Strategy 25
Figure 12 – CoF Distribution by Length 28
Figure 13 – CoF Score Distribution by Main Material (Left) and Diameter (Right) 28
Figure 14 - PoF Distribution by Length 29
Figure 15 - PoF Score Distribution by Main Material (Left) and Diameter (Right) 29
Figure 16 – Water Main Installation Profile 30

List of Tables

Table 1 - Influence of Asset Criticality on Management Strategy 16
Table 2 – Common “Types” of Infrastructure Failure....17
Table 3 – Influence of Asset Criticality on Assessment Strategy....17
Table 4 – Risk Model Development Schedule 18
Table 5 – Summary of Consequence of Failure Indicators....19
Table 6 – Expected Service Life (ESL) for Water Mains by Material....22
Table 7 – Probability of Failure Breakpoints....24
Table 8 – Consequence of Failure Breakpoints 24
Table 9 – Risk Breakpoints....24
Table 10 – CoF and PoF method by Asset Type....25
Table 11 – Consequence of Failure Model Data Requirements....26
Table 12 - Indicators and Weightings....27
Table 13 – Top 40 Risk Scores for CVRD Water Mains 32

1. Introduction

1.1 Project Overview

The Comox Valley Regional District (the "CVRD") is charged with maintaining and renewing a diverse portfolio of mixed vintage water infrastructure within the bounds of available funding levels. At the same time, the CVRD continues to be subject to public demands for high levels of municipal service, increased development and growth, and as infrastructure networks continue to age, the CVRD faces increased exposure to liability and risk. While some assets are aging, water infrastructure is also undergoing active expansion within existing developments, with upgrades being made to ensure volume and quality control and to comply with the Drinking Water Treatment Objectives for Surface Water Supplies. The water infrastructure is subject to increasing regulation and the challenges of climate change, creating the need for additional funding. The CVRD wishes to operate and maintain the water network in a manner which ensures a high quality of service delivery for the lowest total lifecycle cost while addressing these upcoming challenges.

Recognizing the complexity of efficiently managing this broad network of water assets, the CVRD has engaged AECOM to provide the tools and strategies that may be used to provide the desired level of service for water infrastructure for the lowest total life cycle cost. To do this, CVRD must move to a portfolio governance model with better decision making, standardized reporting frameworks, and whole life cycle considerations in its investment decision making and prioritization. An added complexity is the fact that CVRD owns and operates multiple water systems and each of the services vary in their current stage of asset management development, as follows:

- **Regional Comox Valley Water System:** The CVRD owns and operates the Regional Comox Valley Water System (RCVWS) that supplies domestic water to approximately 45,000 residents, including supplying bulk water to both the Town of Comox and the City of Courtenay and six water local service areas (WLSAs). Water for the RCVWS is sourced from Comox Lake (an important natural asset) and collected from the Puntledge River via BC Hydro's penstock. Water travels through two pipes to the CVRD's chlorination station where it is metered, sampled and chlorinated before entering the distribution system. The system utilizes 33.6km of pipe, a pump station at Puntledge River, and four pump stations throughout the transmission system as well as six reservoirs with the ability to store a combined volume of 31ML.

Figure 1 – Regional Comox Valley Water System

- **Greater Comox Valley Water Service Area:** The Greater Comox Valley Water Service Area (GCVWSA) consists of five Local Service Areas (WLSAs): Comox Valley, Greaves Crescent, Arden, England Road and Marsden / Camco Water. The WLSAs are all supplied bulk water from the RCVWS. The WLSAs vary in size from 22 to 1,309 connections, for a total of 1,685 connections. Each WLSA consists primarily of linear infrastructure.

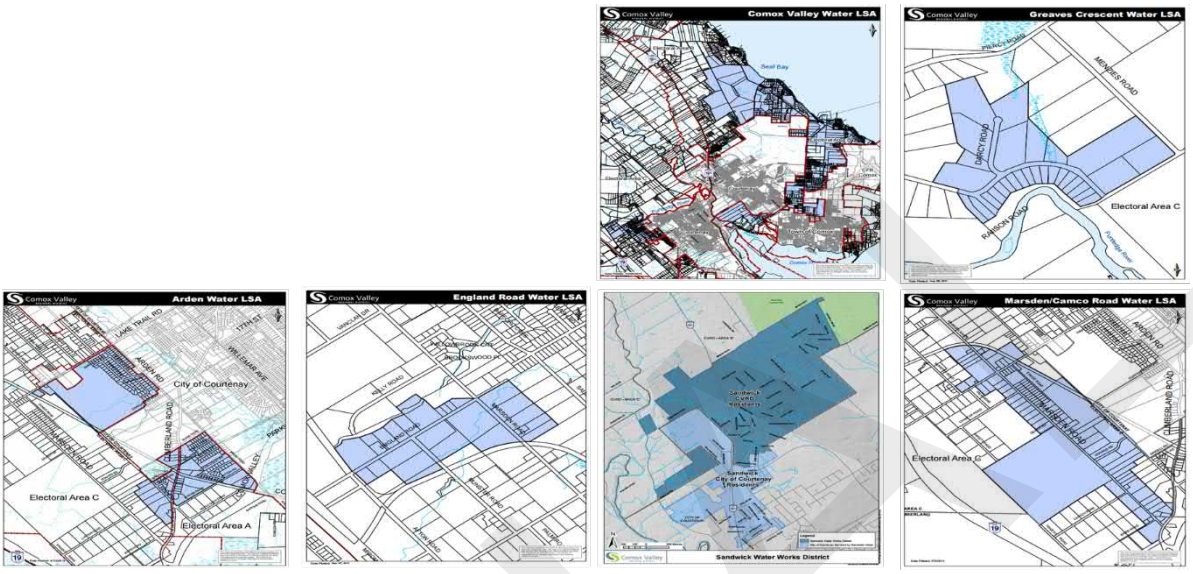


Figure 3 - Comox Valley, Greaves Crescent, Arden, England Road, Sandwick and Marsden / Camco WLSAs

- **Royston WLSA:** The Royston water service provides domestic water to approximately 879 connections, and is located in the CVRD Electoral Area A. The service is owned and operated by the CVRD and is funded through a combination of parcel tax and user rates. Treated water is supplied for the service area via a transmission main from the Village of Cumberland. Once water enters the Royston system, it is given a secondary dose of chlorine prior to distribution. The system consists of two reservoirs and five pressure reducing valves.

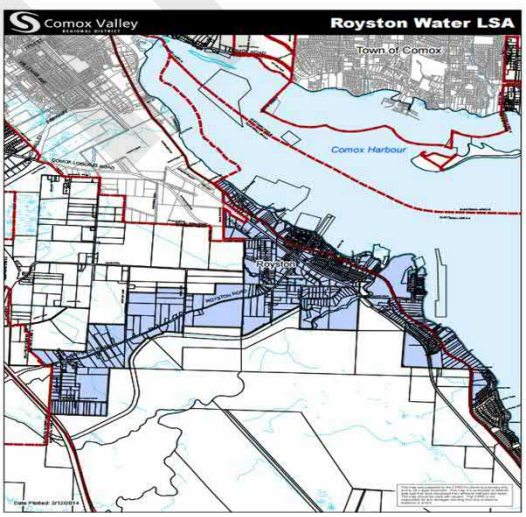


Figure 2 – Royston WLSA

- **Black Creek / Oyster Bay WLSA:** The Black Creek / Oyster Bay water service provides domestic water to approximately 2,100 residents and 30 local businesses located in both the CVRD Electoral Area C and the Strathcona Regional District Electoral Area D. The service is owned and operated by the CVRD for the benefit of both regional districts and is funded through a combination of frontage tax and user rates.

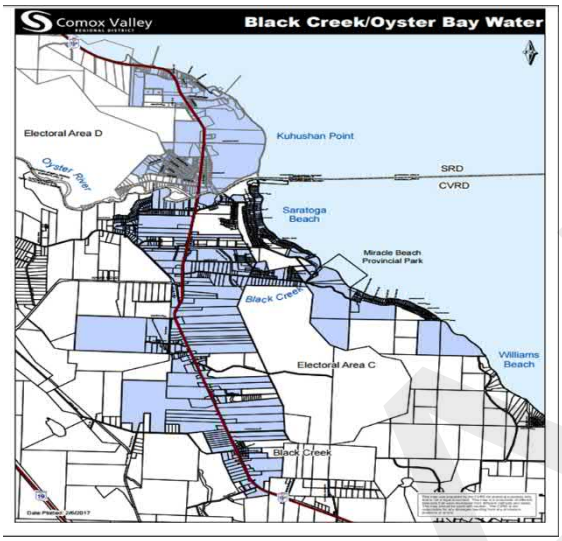


Figure 4 - Black Creek / Oyster Bay WLSA

1.2 Objective of This Technical Memorandum

This Technical Memorandum (TM) encompasses the development, calibration and delivery of a Risk Model for the CVRD's water mains. The outputs from this model will be used to evaluate the CVRD's risk prioritization of water asset failure on a system-wide basis. The specific goals of this TM are as follows:

- Provide an overview of the Consequence of Failure (CoF) approach and parameters.
- Provide an overview of the Probability of Failure (PoF) approach and parameters.
- Highlight the consequence criteria, rationale and weightings.
- Provide an overview of the Risk Profile for water assets.
- Inform the four Asset Management Plans (AMPs) developed for the above four water systems, especially in terms of the life cycle models and when main replacements are triggered according to their respective risk scores.

Note that the water risk model is developed across all four water systems so that all water mains are compared according to the same risk model encompassing the entire CVRD water main portfolio. However, the MS Excel asset inventory provided together with the four AMPs allows for the sorting of the main inventory for each of the four systems so that CVRD cab also identify the most critical / high risk mains within each water system.

2. Risk Management: Theory and Application

In recent years, infrastructure-related risks have increasingly become the subject of discussion among organizations responsible for physical infrastructure. A risk assessment and management strategy should be well-structured and systematic. Globally, several methodologies have been developed to assess and manage infrastructure risk. The risk assessment process described in each is similar, typically with minor differences in the terms used, and in the method of calculating risk.

2.1 Risk Assessment Best Practices

The following is a brief literature review of the approaches, standards, and guidelines for risk-based assessment. These standards will inform the approach taken in developing the CVRD's Risk Management Model. While some literature writes in reference to water or wastewater utilities, the overall approach remains the same when applying to most types of assets. The literature review examines the following methods:

- AWWA J100:10 – Risk and Resilience Management of Water and Wastewater Systems (AWWA, 2010).
- ISO 31000:2009 Risk Management – Principles and guidelines (ISO31000, 2009).
- Implementing Quality Management (Ministry of Environment, 2007) .
- Canadian Guidance for Managing Drinking-Water Systems: A Risk Assessment/Risk Management Approach (Canadian Water and Wastewater Association, 2005).

2.1.1 AWWA J100:10 Risk and Resilience Management of Water and Wastewater Systems

AWWA J100, Risk and Resilience Management of Water and Wastewater Systems standard (RAMCAP), was developed as a result of the attacks of September 11, 2001, by the American Society of Mechanical Engineers. The framework is specific to water and wastewater systems and considers a wide range of failures. These failures include man-made threats, natural hazards and dependency hazards (interruptions of supply chains or proximity to dangerous sites). For the purposes of this study, man-made threats and natural hazards (tornadoes, floods, etc.) are assumed to be extremely unlikely and are not considered in the likelihood of failure parameter.

The RAMCAP approach breaks down likelihood of failure into two elements: vulnerability analysis and threat analysis. Threat analysis estimates the likelihood that a particular threat occurs. Vulnerability analysis predicts the likelihood that each specific threat, given it occurs, will have the consequences predicted. Thus, risk is calculated as the product of consequences, vulnerability, and threat. **Figure 5** outlines the RAMCAP risk assessment approach.

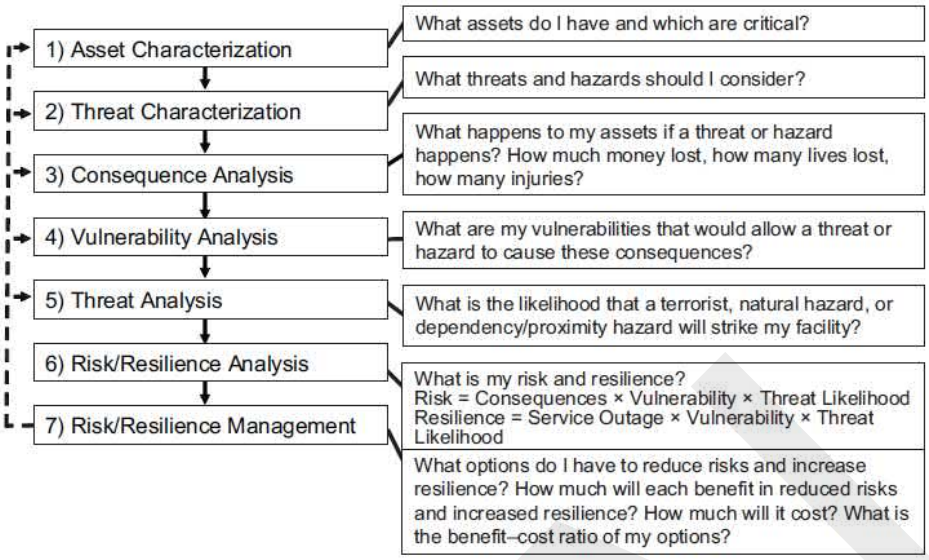


Figure 5 - AWWA J100:10 Seven-Step RAMCAP Process (extracted from AWWA, 2010, p.xvii)

2.1.2 ISO31000:2009 Risk Management – Principles and Guidelines

The ISO 31000:2009 Risk Management standard provides generic guidelines to risk assessment and management and is not specific to an industry or sector. The role of Risk management within an organization is emphasized, as well as the need for communication, monitoring and review throughout the Risk management process. The standard defines Risk evaluation as "the process of comparing the results of Risk analysis with Risk criteria to determine whether the Risk and/or its magnitude is acceptable or tolerable" (ISO31000, 2009, p. 6). The key steps in evaluating Risk within this framework are shown in **Figure 6**.

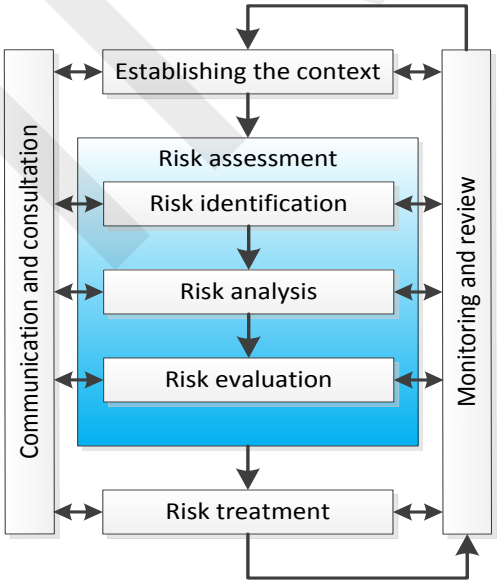


Figure 6 - ISO31000 Risk Management Process (adapted from ISO 31000, 2009, p.14)

2.1.3 Implementing Quality Management: A Guide for Ontario's Drinking Water Systems

This guide pertains to the implementation of the Ontario Drinking Water Quality Management Standard (DWQMS). It includes elements of ISO 9001 (regarding quality management systems) and the Hazard Analysis and Critical Control Point (HACCP) standard. It should be noted that this guide is geared towards assessing the Risk associated with water quality hazards rather than the risk associated with water infrastructure. The "Plan and Do" methodology published in this guidance outlines the requirement for a risk management process that:

1. Identifies potential hazardous events and associated hazards.
2. Assesses risks associate with the occurrence of hazardous events.
3. Ranks the hazardous events according to the associated risk.
4. Identifies control measures to address the potential hazards and hazardous events.
5. Identifies critical control points.
6. Identifies a method to verify at least once a year, the currency of information and the validity of the assumptions use in the risk assessment.
7. Ensures that a risk assessment is conducted at least once every thirty-six months.
8. Considers equipment reliability and redundancy.

The method for scoring risk described in this guide uses detectability as a parameter along with Probability of Failure (PoF) and Consequence of Failure (CoF). For each asset, a score from 1 to 5 is assigned to each parameter, and the parameters are summed (rather than multiplied) to calculate an overall risk score.

2.1.4 Canadian Guidance for Managing Drinking-Water Systems: A Risk Assessment / Risk Management Approach (Canadian Water and Wastewater Association, 2005)

This approach to risk assessment is similar in many ways to Implementing Quality Management: A Guide for Ontario's Drinking Water Systems. The suggested method of assessing the risk associated with each asset, however, varies between the two guides. Where the Implementing Quality Management sums parameter values to determine an overall score, the Canadian Guidance for Managing Drinking-Water Systems: A Risk Assessment / Risk Management Approach multiplies the CoF and PoF to find an overall risk score. This document also makes reference to the relative scoring of assets. It suggests that an accelerated scale (e.g., 1,3,5,7, 9 instead of 1,2,3,4, 5), an exponential, or a log rating scale be used when evaluating risk to give greater emphasis to high PoF and CoF events.

2.2 Risk Assessment Framework

Based on industry accepted risk assessment best practices, AECOM has developed a system for prioritizing assets based on an index that describes individual asset importance or "criticality" relative to the other assets within the same inventory, using CoF and PoF to determine risk. Risk is a key consideration for the decision-making at the strategic level of an organization, such as identifying which activities or projects are the highest priority and / or are economically justified. As such, there is a growing need by municipalities to find better ways to prioritize their infrastructure asset maintenance, renewal and replacement projects, especially for their linear underground networks that have for the most part, to date, been "out of sight and out of mind". The challenge in effective linear infrastructure management is one of understanding the risks, identifying the appropriate intervention methodologies and when to use them, and then prioritizing the interventions to minimize risk exposure while optimizing budgetary allowances. On this basis, the infrastructure can be managed preventively, through proactive risk management

strategies such as inspection and operational adjustments, or the provision of adequate system resilience to mitigate / manage the effects of failure, thereby extending the useful service lives of the assets.

While PoF and CoF are often abstract and challenging to predict, it is typical to develop data-driven quantitative risk frameworks to ensure that risk assessments are structured, consistent and repeatable. The criticality index is used to determine both inspection and performance asset priorities as well as for prioritizing rehabilitation work. By applying specific indices, the risk assessment framework generates a risk (or priority) score for each asset. The risk score is a rating of the asset based on the detailed assessment of the PoF and CoF based on a number of key parameters. All indicators are then equated using the risk equation presented in **Equation 1**. In order to assess risk, it is generally accepted that the probability (or likelihood) of asset failure and the consequences of asset failure (criticality) be independently assessed and multiplied, as follows:

Equation 1 – Risk Equation

$$Risk = Probability\ of\ Failure \times Consequence\ of\ Failure \quad [1]$$

Sections 2.2.1 through **2.2.3** describe the principles and approaches applied in computing each component of the risk equation, and how these results are used to inform risk management, life cycle activities, or further assessment.

2.2.1 Consequence of Failure

The fundamental principle of consequence (or criticality) models is that they evaluate the relative importance of assets based on select criteria. Based on this principal, the risk associated with a given asset's failure can be managed by limiting the likelihood of failure, or by mitigating the impact realized, should a failure occur. Consequence of Failure (CoF) reflects the relative "impact" of a given asset's failure. Traditionally, impact has been evaluated in purely economic terms (i.e., repair cost, loss of revenue, etc.), however, the truth is that investment decisions are often driven by non-economic factors. Understanding both the economic and non-economic impacts associated with loss or limitation of service help in categorizing an asset's "criticality" and justifying infrastructure decisions in a consistent, defensible manner. Even without understanding when failure will occur, categorizing assets based on "criticality" or "failure consequence" allows municipalities to effectively target management strategies aimed at mitigating risk. **Section 2.2.3** describes the renewal decision making process and how "consequence" related data can be combined in shaping the approach to managing an individual asset.

Successful implementation of risk-based planning and decision making requires the identification of critical infrastructure to determine the CoF side of the risk equation. This is typically performed within a computerized work process or model that is based on a rating system of various failure consequence indicators, together with a system of multi-variant weightings among these indicators to derive a final overall value. A methodology for classifying the CoF within categories that rank the infrastructure with respect to high benefit / cost ratio for risk mitigation are typically custom developed for each municipal agency with direct input from stakeholders to help ensure organizational infrastructure management goals will be met. CoF is semi-quantitative and is developed to reflect an organization's policy and goals as closely as possible.

Piped infrastructure is geographically dispersed over a wide area with many external influences; therefore the consequence model is generated from a spatial data analysis that is automated and repeatable, with minimal user intervention to lessen long term data maintenance effort. Current industry best-practices for risk-based infrastructure management typically identifies a consequence model by considering the following impacts of failure:

- **Economic:** Reflects potential impact in terms of the direct and indirect capital cost of pipe failure. Generally considers the magnitude of the break, direct cost of repairing the pipe and the potential collateral damage to neighboring properties and structures. The scoring range for the economic risk model indices are typically

proportional to the sum of the direct and indirect costs of repairs. This criterion also considers the complexity of potential system impacts.

- **Social:** Reflects the potential impact to the public in the event of pipe failure, and by inference, the associated political and reputational ramifications. Generally, it considers the magnitude of the break and potential disruption to nearby roadway traffic and / or commercial activity. For example, there will be a greater impact to customers when a pipe servicing larger population fails, or when a repair disrupts a greater number of people.
- **Environmental:** Reflects the potential impact to the environment in the event of pipe failure, or the impact on the agency's achievement of environmental stewardship goals by not having its water mains in a state of good repair. The main concern is the type of constituents that may be transported with leaking water whether it has a detrimental effect on wellhead protection areas, terrestrial life or aquatic life within neighboring environmentally sensitive areas or other water bodies.
- **Operational:** Reflects the potential impact to system operations in the event of pipe failure. Generally, it considers both organizational impact and system impact in terms of whether there is enough redundancy within the system to circumvent the failed asset for an extended period of time. In addition, the operational criteria may consider the urgency and complexity of remediation of a failure. For example, a pipe located within a steep slope or stream crossing will rate higher under this criterion.

Weights are applied to each impact category and are dependent on a balance of the goals and priorities of stakeholders. The weightings are intended to form a balance among different stakeholder requirements in an environment where each may have a different perception of risk and operational priorities. The weightings can be altered in the future as stakeholder views and overall organizational drivers change over time. The ultimate weight given to each category is qualitative but is nonetheless a true reflection of the overall goals and priorities of stakeholders. There is a practical consideration to the weighting determinations and the ultimate rating system should reasonably delineate the assets in broad categories of low, medium and high consequence.

The importance weighting of each of these impacts is typically tailored for the organization based on their tolerance to CoF for given asset classifications. Calibration of the model over time is based on developing an impact model that reasonably reflects an organization's unique drivers and service level objectives. The drivers used to assess failure impacts are often external to the assets themselves (for example, the social impact of a water main failure is heavily influenced by the land use and number of people that would be exposed to the failure), and are typically derived through spatial analysis within a Geographic Information System (GIS). Extensive and complete data is required to produce an effective criticality index. Gaps in data are often evaluated as a part of the development of the criticality assessment framework to determine opportunities for future data collection and improvement.

2.2.2 Probability of Failure

Probability of Failure (PoF) is defined as the likelihood an asset will fail based on the predicted degradation of construction materials, the influence of construction and design practices, and the operational and / or maintenance practices taken by the asset owner. PoF information augments asset criticality ratings by contextualizing how the risk of a particular failure should be managed.

PoF in the context of structural failure is largely dependent on the physical condition of the asset and, therefore, also its expected service life. An asset's expected service life is the period of time over which it is expected to provide value to the owner, after which it would need to be renewed or replacement. Comparing age and expected service life provides an indication of the lifecycle stage of an asset. The age of an asset in the context of its design life plays a role in the assessment of condition due to the general assumption that an older asset will have a greater probability of failure than a newer one. A PoF score can be assigned a value using a scale roughly analogous to the expected deterioration curve of the assets. **Section 3.3** describes the methodology taken for the CVRD's assets to complete this process.

2.2.3 Renewal Decision Making

The primary objective of asset management is to reduce risk exposure in the most cost-effective manner possible. Failure risk reduction can be achieved by either reducing PoF, CoF, or some combination of the two. This is most often achieved by a capital or maintenance expenditure that can be quantified into a financial metric and compared with the savings associated with the risk reduction.

Treatment options and associated costs to reduce asset risk exposure are thus required to be rationalized for the asset type and for local conditions. The selection of an appropriate treatment can either be a manual process or could be automated through a Renewal Decision Model process. Whichever process is used, a rule-based decision model should first be rationalized that examines the failure modes and driver defect types within physical inspection data for a given asset. **Figure 7** illustrates the overall response process that would be used in the application of treatment for the purpose of reducing asset risk exposure based on structural failure considerations. At the core of the treatment response process are risk-based decision models, which are best represented in a two-part process using traditional policy driver matrices as depicted in **Figure 8**.

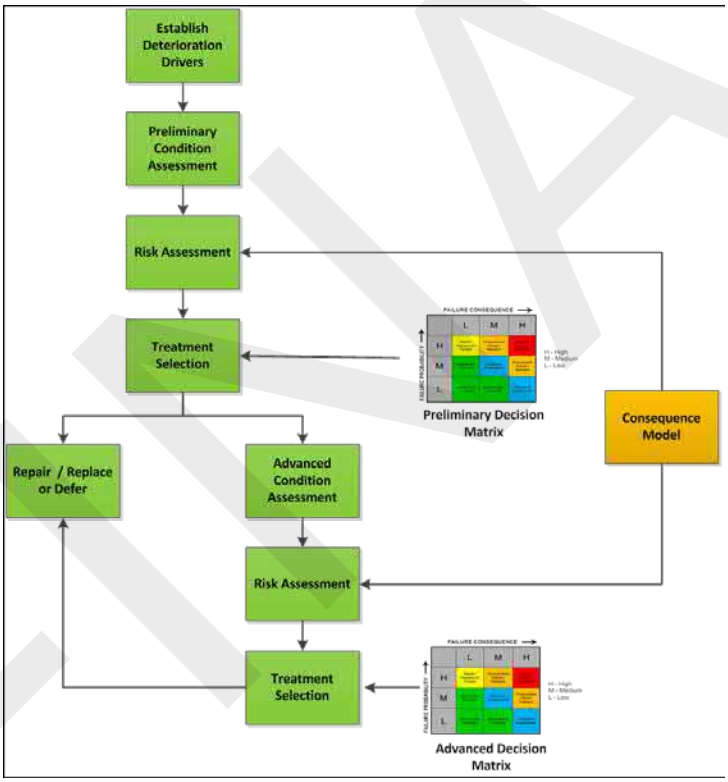


Figure 7 - Risk Based Treatment Response

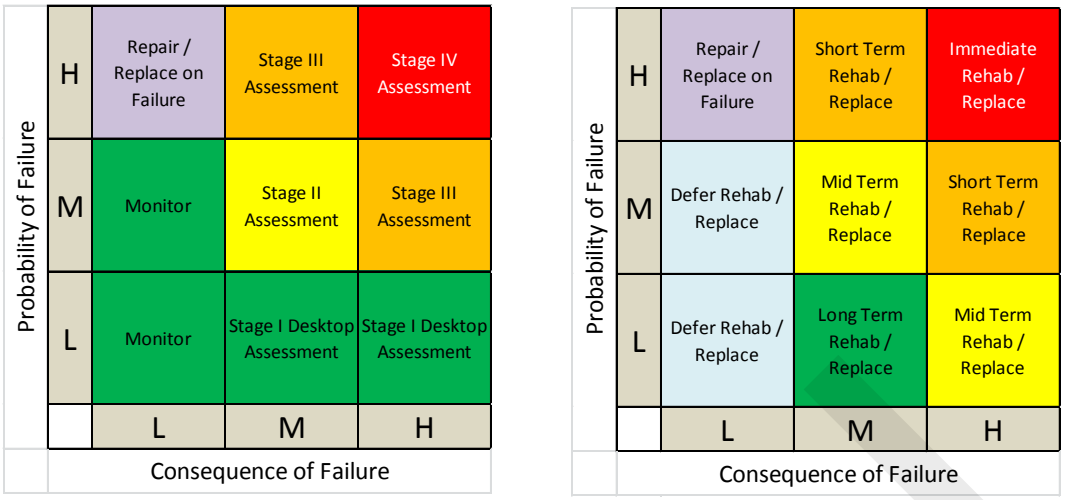


Figure 8 – Preliminary (left) Versus Advanced (right) Decision Matrices

In **Figure 8**, the unique Stage Assessment types for the Condition Assessment matrix on the left implies a more sophisticated condition assessment technique that has increased cost with increasing Stage Type, but is geared to increase the certainty of actual condition with increasing Stage classification as well (i.e., a Stage I assessment having the lowest cost of implementation and the lowest certainty of outcome and a Stage IV being the most expensive but delivering the highest level of certainty of actual condition and associated failure probability).

The use of a risk-based approach to assigning treatment responses in this manner provides a clear direction for the overall condition assessment and rehabilitation process in terms of balancing priorities and assisting in the clarification of what level of investment is prudent to be made with each specific asset. It also provides transparency to the public and other stakeholders to demonstrate that decisions are made in an impartial and consistent manner, without unreasonable bias, and in accordance with agreed upon policy and priorities.

Table 1 shows how CoF ratings will influence a renewal decision, and how these influences can be combined in shaping the approach to managing an individual asset:

Table 1 - Influence of Asset Criticality on Management Strategy

Criticality Rating	Low	Moderate/High	Highest
Service Implication	Negligible impact to service delivery	Noticeable to significant impact to service	Catastrophic impact to service and/or public safety
Operational Impact	Failure can be addressed through normal operations	Failure can be accommodated but strains operations	Failure cannot be handled in an effective manner
Management Strategy	Run-to-Failure	Manage failure	Avoid failure

"Failure" is a reflection of an asset's ability to provide its required level of service. This is often interpreted in a physical sense – as a measure of deterioration of an asset's structure, for example – loss of service can occur on a number of fronts. **Table 2** provides some common examples of "failure" occurrences useful for conceptualizing the potential consequence outcomes.

Table 2 – Common "Types" of Infrastructure Failure

Structural – Leak/ Break – Collapse	**Operational** – Insufficient capacity (pressure / flow) – Back-ups and / or overflows (sewers)
Economic – Cost of maintenance exceeds replacement	**Regulatory** – Maintenance requirements – Fire flow requirements

Understanding which failure types are most prevalent to a given type of asset, and how potential "failure modes" will develop over an asset's lifecycle, provide valuable insight when developing management strategies. The type and amount of effort (and investment) placed on diagnosing and tracking factors contributing to loss of service should reflect the ultimate value of the information collected in supporting staff in making planning and management decisions. **Table 3** has been expanded to highlight factors influencing this decision.

Table 3 – Influence of Asset Criticality on Assessment Strategy

Criticality Rating	Low	Moderate/ High	Highest
Service Impact	Negligible	Noticeable/ Significant	Catastrophic
Operational Impact	Failure can be addressed through normal operations	Failure can be accommodated but strains operations	Failure cannot be handled in an effective manner
Management Strategy	Run-to-Failure	Failure Management	Failure Avoidance
Assessment Priorities	Monitoring and forecasting	Assessment and planning	Proactive maintenance and rehabilitation
Accuracy Requirements	High tolerance for performance uncertainty	Low tolerance for performance uncertainty	No tolerance for performance uncertainty

Because of the limited impact of failure in low criticality assets, taking a reactive approach to data collection and asset renewal will not pose significant risk and liability. While adopting a "run-to-failure" policy may be politically unpalatable, using lifecycle costing and hard economics to drive system renewal / rehabilitation can provide a consistent, defensible framework for planning and decision making. Data collection for low criticality assets should focus on maximizing coverage for the lowest cost, augmented by identifying failure patterns, past observations and statistical modelling to predict medium and long- range needs. A data collection strategy based on asset monitoring and forecasting will provide effective results.

At the other end of the spectrum, the highest criticality assets must be managed proactively to avoid catastrophic failure. Doing so effectively requires an accurate understanding of the asset's deterioration mechanisms, which can only be achieved through significant commitment of time and resources over its lifecycle. Here, a multi-modal assessment strategy combining a range of techniques will provide effective results. Inspection of high criticality assets whose failure will produce noticeable to significant impact to service should be optimized based on overall risk exposure. The frequency of assessment should increase as condition deteriorates and the rate of degradation increases. Tools and techniques used should expand to increase certainty of data collected as condition deteriorates and the need for accurate understanding grows. A mixed use of tools and techniques will improve certainty and compensate for individual weaknesses provided that they are replicable to track performance over time.

3. Methodology for Risk Model Development

3.1 Overview

The development of the risk model requires a two-step methodology concerning the two separate components of the risk equation. CoF is customized to the CVRD, and the development of the CoF model was a collaborative process between CVRD operations and engineering staff. The methodology for establishing a CoF score for water assets is described in **Section 3.2**. PoF calculations are performed as the second step in the risk calculation methodology, using desktop assessment techniques described in **Section 3.3**.

3.2 Consequence of Failure

To initiate the collaborative process of developing a CoF framework, a series of interactions took place with the CVRD to understand the agency's potential failure mechanisms and consequence outcomes, as well as how organizational priorities should be reflected in the CoF scoring system. The number of steps guided the process of developing the CoF model for the CVRD, as described in **Table 4**.

Table 4 – Risk Model Development Schedule

Steps	Dates	Objective Completed
Workshop #1 - Risk Model Introduction	September 18th, 2018	• Introduction of risk concepts • Review of case studies • CoF parameter review • PoF parameter review
CVRD Provide Model Weightings & Criteria for CoF	September 26th, 2018	• AECOM develop pair-wise comparison survey to establish categorical and indicator weightings • CVRD provide categorical weightings and evaluation criteria for water CoF
Risk Model Development	December 2018 – January 2019	• Obtain relevant supporting data for risk model inputs • Perform geoprocessing and proximity analysis for criterion scoring • Risk model QA / QC • Development of draft TM
Risk Model Review & Workshop #2	May 2019	• Handover of draft geoprocessing and MS Excel model • CVRD familiarization with risk model and review • Workshop #2 to present model and discuss results
Risk Model Finalization	June - July 2019	• Incorporate CVRD comments and revise risk model • Submit final risk model • Submit geoprocessing model & training of CVRD staff.

Using this series of interactions, the risk model was developed and finalized using feedback from the CVRD. The approach taken used the underlying principles and standards described in **Section 2** of this report, with customization based on the needs of the CVRD.

The remainder of this section will outline the specific methodology applied to the CVRD's CoF model.

3.2.1 Criticality Categories and Indicators

To develop the CoF index for CVRD, an approach was taken that reflected the agency's method for conceptualizing risk, strategic policy, and customer service. The approach utilizes the holistic framework of Economy, Society, and Environment, augmented by Operational indicators, as summarized in **Figure 9**.

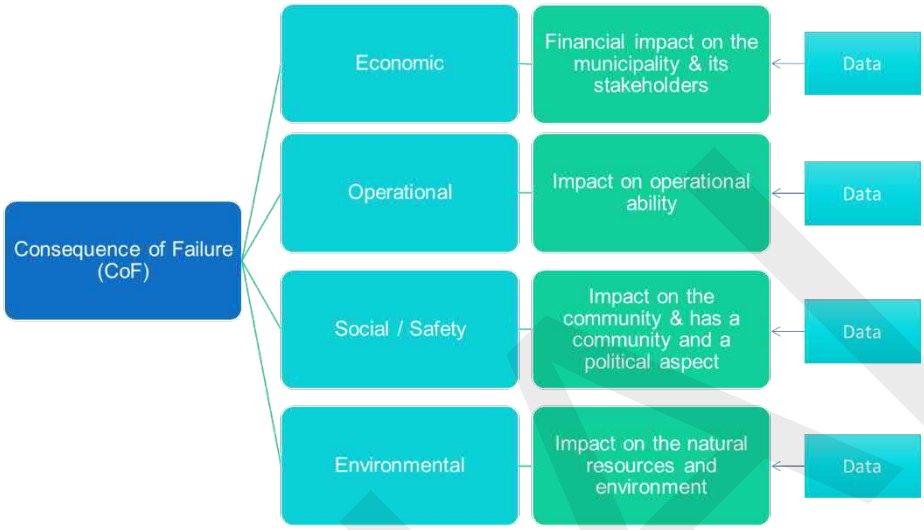


Figure 9 – High Level CoF Model

Within each of the above categories, the most critical factors were identified that affect each major grouping of the CoF index. For example, factors of the Economic category included the financial replacement cost of a given pipe material and size. Following Workshop #1, indicators were selected by CVRD that most accurately described the most important drivers for each factor, with the constraint that an indicator must have the ability to be described through information systems and data available to the agency. The resulting CoF index weightings and indicators provided by CVRD are detailed in **Table 5.**

Table 5 – Summary of Consequence of Failure Indicators

Category & Weightings	Indicator	Reasoning
Economic – 25%	**Road Type**	Failures occurring in proximity to roads classified as carrying higher volume with lower redundancy will carry increased costs associated with traffic delays and control.
	Pipe Diameter	Increases in pipe diameter will present an increase in the cost associated with failure, replacement and remediation.
	Pipe Material	Different pipe materials vary in cost, meaning that expenses to remediate / replace a failed asset will vary.
	Pipe Pressure	Increases in pipe pressure will present an increase in the cost associated with remediation due to catastrophic pipe failure and the associated flooding.
Operational – 25%	**Pipe Diameter**	Increases in pipe diameter will present an increase in the difficulty to replace a main following a failure, as well as the time it takes to execute a repair.
	Soil Issues	Different soils might present varying degrees of accessibility following a main break.
	Accessibility	Asset failure in locations that present challenges regarding accessibility by CVRD staff, e.g. mains crossing water bodies require a specialized response with potentially greater coordination and other operational challenges

Category & Weightings	Indicator	Reasoning
	Pipe Depth (Future)	Deeper pipes present greater operational challenges to access and respond to a pipe failure through excavation.
Social – 35%	**Road Type**	Failures occurring in proximity to roads classified as carrying higher volume with lower redundancy will have an increased social impact associated with traffic delays and even safety
	Population Density	Failures occurring in proximity to more densely populated areas will have an increased social impact associated with safety, traffic delays and property damage
	Land Use	Land use designations with higher scores are assumed as areas where failure will have a higher impact on local stakeholders.
	Pipe Flow	Pipes carrying an increasing flow of water will have a greater social impact in the event of failure in terms of safety and property damage
Environmental - 15%	**Proximity to ESA**	Pipe is close to an Environmentally Sensitive Area (ESA) will have a greater impact on the environment e.g., discharge of chlorinated water to a fish-bearing stream.
	Pipe Pressure	Increases in pipe pressure will present an increase in the environmental damage caused by catastrophic pipe failure and the associated flooding.
	Pipe Flow	Pipes carrying an increasing flow of water will have a greater environmental impact in the event of failure in terms of e.g., scour, undermining, sediment loading or conveying a spilled material.
	Fish Stream	Pipes failing in close proximity to a stream with confirmed fish presence will have a greater environmental impact in terms of e.g., discharge of chlorinated water and / or sediment load.

3.2.2 Indicator Scoring

To represent the relative consequence impacts of segments of pipe, scores were assigned to the attribute values describing each indicator as extracted from the GIS dataset. For example, attribute values for the Pipe Material indicator would include cast iron, ductile iron, asbestos cement, concrete, PVC, and others. Each attribute value was assigned a 0 to 100 rating as a score, such that a score of 0 would indicate minimal consequence impact while a score of 100 would indicate the highest consequence impact.

In some cases, the method for assigning an indicator score to a pipe segment was dependent on if the indicator is directly assigned a score, or if it requires a logical, mathematical, or geographical evaluation of a condition. Several indicators use a list of scores mapped to the unique attribute values contained in the given dataset. Following the previous example of pipe material, each unique value in the CVRD dataset describing pipe material would be directly assigned a 0 to 100 score dependent on the economic cost of the given pipe material. This follows for other indicators that use categorical data, such as land use designation or pipe type classification. Other indicators are calculated by evaluating a logical condition, with possible values being “Yes” or “No” corresponding to “100” or “0” depending on the indicator.

Logical conditions could be applied to a geographic property (e.g., falling within a defined indicator’s geographic boundary) or an attribute value (e.g., containing attribute data that either met or failed the logical condition). Finally, some indicators are scored based on how a given numeric value falls within defined ranges for the indicator. This range could be measured geographically (e.g., the proximity of a pipe to a geographic feature) or with attribute data (e.g., the road type in proximity to the pipe). Once scores were assigned, the Multi-Criteria Rating Technique (**Section 3.2.3**) was applied to the weightings to obtain an overall CoF score for each pipe segment.

Individual scoring of the criticality indicators is detailed in **Appendix A** together with a visual representation of the criticality index weightings and all scored attribute values for each indicator.

3.2.3 Consequence of Failure Multi-Criteria Rating

Using the Multi Criteria Rating Technique, a CoF value was calculated as per **Equation 2**.

Equation 2: Multi-Criteria Weighting Calculation

$$CoF_{j=(eco,soc,ope,env)} = \sum_{i=1}^{N} I_i \times W_i$$

Where:

CoF_j: CoF index for each category (economic, social, operational, and environment)

I_i: Factor Score from 1 to 100

W_i: Factor weight as a percentage.

j: Piped infrastructure criticality category (economic, social, operational and environmental,).

Once established, asset criticality was assessed based on the tabulation of index values using the weighted average approach. The Weighted Average approach uses the weighted average of all four categories. Each category (j) contributes to the overall asset criticality according to its respective weight to establish a blended value. This is reflected in **Equation 3**.

Equation 3: Weighted Average Calculation

$$CoF_{Pipe} = \sum_{i=1}^{4} CoF_j \times W_j$$

3.3 Probability of Failure Methodology

An asset's expected service life is that period of time which the asset is expected to be of use to the owner, after which it would need to be renewed or replacement. Although it is assumed a given cohort of pipes will last a given amount of time based on its material and knowledge of industry observed performance, not all pipes of a given type will fail at exactly their expected service life deadline. The PoF calculation recognizes that as an asset approaches later milestones in its service life, without any information about current performance, it can be assumed the asset is at a greater risk of failure.

To simulate this reality, a Weibull probability distribution is used to model a replacement envelope and predict water main failure as the network ages. This means that a portion of the mains will fail before their expected service life and a portion will last beyond their expected service life. The underlying premise of the Weibull type of analysis is that some assets fail prematurely due to severe conditions or improper installation while other assets are very long-lived and function well beyond their theoretical life expectancy. The Weibull probability distribution provides a left-skewed distribution that rises slowly and diminishes quickly as the population is consumed. The Weibull distribution has been used extensively in reliability studies and lifetime prediction models in industries ranging from the automotive to the oil and gas industries and provides a suitable distribution for this type of analysis.

The Weibull probability distribution has two parameters for shape and scale, as set out below (**Equation 4 – Weibull**):

Equation 4 – Weibull Probability Density Function

$$f(x) = \frac{\alpha}{\beta}\left(\frac{x}{\beta}\right)^{\alpha-1} e^{-\left(\frac{x}{\beta}\right)^{\alpha}}$$

Where: α = shape parameter (or slope)
β = scale parameter

In **Equation 4**, x is the current age of the asset, β is the expected service life, and α depends on how failure rate changes over time. The shape parameter is equal to the slope of the regressed line in a probability plot and, therefore, controls the rate at which the PoF increases as assets age. It was set to a value of 3 for the purpose of this study, and is consistent with general pipe mode of failure, where wear-out failures increase rapidly at the end of life. Based on a pipe's age and where it sits on a deterioration curve, some rough assumptions can be made about the predicted performance of that pipe. **Figure 10** shows the resulting probability of failure for different values of asset age over ESL, along with bands representing what is considered as low, medium, and high PoF values.

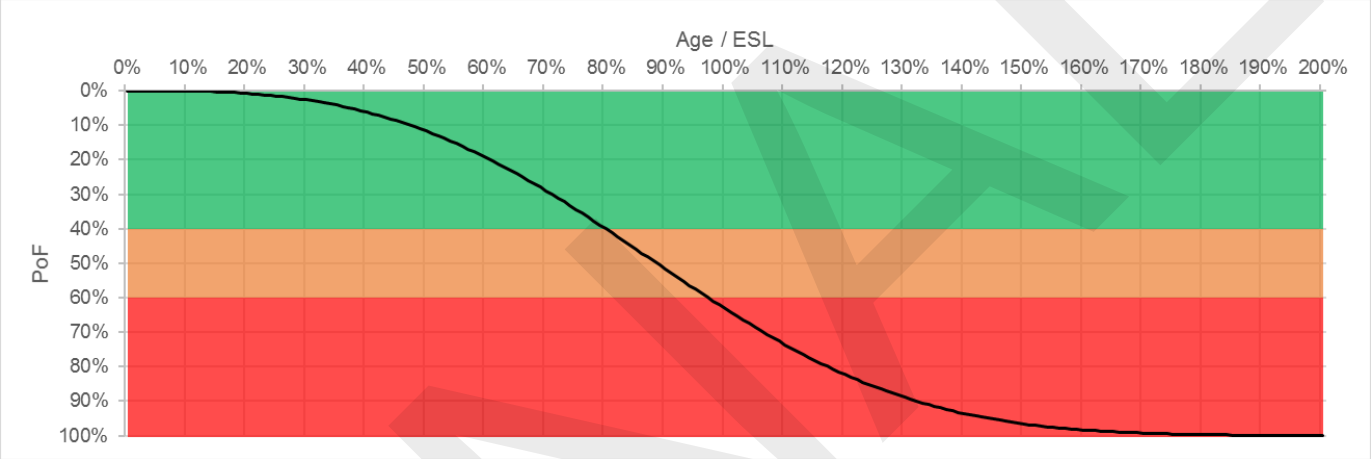


Figure 10 – PoF versus Asset Life Span Consumed

Expected service life (ESL) as a Weibull parameter input is measured in number of years, and is typically derived from knowledge of industry practice and performance, as well as the Canadian National Water and Wastewater Benchmarking Initiative. These figures are typically tailored to the municipality in question based on their breakage history, construction practices, environmental setting, and pipe performance observations. The ESL values used for this assessment provide a starting point for the analysis and will be refined during further consultation with the CVRD and its O&M staff. The following values were applied to the Weibull Equation (**Table 6**):

Table 6 – Expected Service Life (ESL) for Water Mains by Material

Material	ESL (years)*
ABS	80
Asbestos Cement	60
Concrete	60
Cast Iron	70
Copper	50
Ductile Iron	70
Galvanized Steel	50
Prestressed Concrete	60
PVC	80
Reinforced Concrete	60

Material	ESL (years)*
Segmented Block	60
Steel	80
Unknown	60

*See Section 3.3.1 - Assumptions

3.3.1 Assumptions

There are several assumptions associated with this PoF methodology that are addressed in the following sections.

3.3.1.1 Asbestos Cement

From discussions with other municipal agencies, asbestos cement (AC) generally underperforms and fails prematurely when compared to the industry standard expected service life of other mains. Accordingly, an ESL of 60 years has been selected for AC mains compared to other mains at 80 years. For mains of unknown material, a conservative 60 years was assumed in line with that of AC mains.

3.3.1.2 Age Accuracy

The method for applying age and expected service life to evaluate the state of the infrastructure in the absence of condition data is heavily reliant on install date information that accurately captures the age of the assets. The challenge with a mixed-vintage asset portfolio is that not all information may be available, and activities in an asset's lifecycle may not always be well documented. The current approach to calculating asset age uses construction dates extracted from as-built drawings and does not capture additional life cycle activities such as replacement or renewal. This means that the assumptions about asset age are likely very conservative. If this information was not captured in an as-built drawing then the PoF of an asset is likely overstated. The solution to this limitation is to begin to capture lifecycle activities in the CVRD's information systems moving forward.

3.3.1.3 Condition

To firmly establish a water main's condition without assumptions or uncertainty, a vast array of inspection tools and techniques, with varying levels of cost, resolution, and complexity, can be employed to determine the condition, assess failure risk, and estimate residual design life in the water main infrastructure. The challenge in effective water main management is one of understanding the risks, identifying the appropriate inspection methodology and when to use it, and then prioritizing the inspections to minimize risk exposure while optimizing budgetary allowances. On this basis, the water mains can be managed preventatively, through proactive risk management strategies such as inspection and operational adjustments, to reduce the risks of failure, and extend the service lives of the assets.

In the absence of such information, desktop assessment provides a useful estimation of how a system is performing as a means to prioritize inspections in order to obtain a source of truth. An expected service life calculation should never be interpreted as a definitive rating for a pipe, but rather as a way to evaluate potential performance relative to similar assets of varying ages within a portfolio.

3.4 Defining the Rating System

When computing CoF and PoF, scores from each equation must be produced on a consistent scale appropriate for the risk equation and allowing for the effective prioritization of individual assets. Scores must be grounded in the

realities of CoF and PoF to reflect a semi-quantitative understanding of a comparative prioritization scheme, simplified and expressed as "Low", "Medium", or "High" risk. A qualitative grading system was used to relate scoring to the CVRD's ability to respond to asset failure should it occur.

To relate a 0-100 score to a qualitative category ("Low", "Medium", or "High"), breakpoints must be set to capture the magnitude of difference in potential consequences. This was accomplished using two methods outlined in **Sections 3.4.1.1.**

3.4.1.1 Consequence of Failure, Probability of Failure and Risk Percentile Rating

Given that the development of the risk framework is a collaborative process with the CVRD using indicators and scorings based on multi-stakeholder input, it is reasonable to assume that the CVRD will have their own tolerance for risk within the self-identified indicators. This also ensures results match the CVRD's desired lifecycle activities and business cases. To assist in this process, AECOM will recommend breakpoints (or cut-off values) for CoF, PoF and risk before calibrating the breakpoints with the municipality. Calibration performed during Workshop #2 will confirm whether the breakpoints are appropriate and capture the magnitude of Risk anticipated at known problem areas where preliminary results were viewed using GIS. CoF, PoF and Risk breakpoints were delineated through different methods.

The Probability of Failure Breakpoints, given in **Table 7**, were based on the Weibull probability of failure distribution calculation, so that assets in poor or very poor condition (condition 4 or 5 on a 1-5 scale) are considered high PoF.

Table 7 – Probability of Failure Breakpoints

Lower	Upper	Score
0	40	LOW
40	60	MEDIUM
60	100	HIGH

The Consequence of Failure Breakpoints, shown in **Table 8**, were set so that on a scale from 1 to 5, a criticality of 4 or 5 would be rated high.

Table 8 – Consequence of Failure Breakpoints

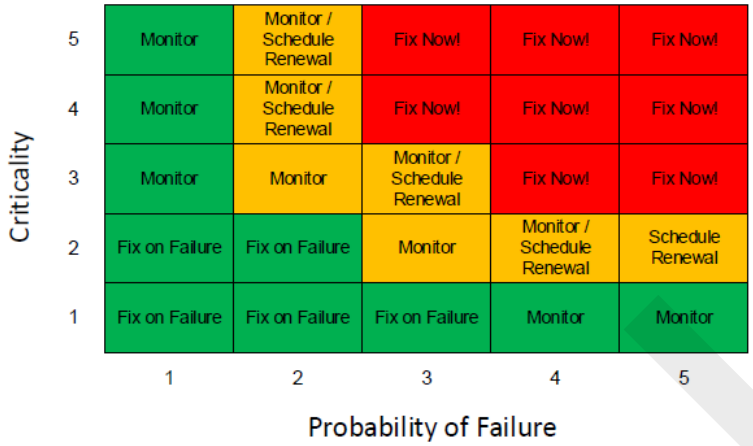
Lower	Upper	Score
0	40	LOW
40	60	MEDIUM
60	100	HIGH

The Risk Breakpoints, shown in **Table 9**, align with the PoF and CoF breakpoints and were set to prioritize action, similar to **Figure 11**.

Table 9 – Risk Breakpoints

Lower	Upper	Score
0	10	LOW
10	31	MEDIUM
31	100	HIGH

Figure 11 - Risk Matrix and Management Strategy



3.5 Non-Linear Asset Methodology

Non-linear assets associated with the water main network owned by the CVRD include hydrants, valves, chambers, reservoirs, pump stations, and treatment plants. The risk of failure of these assets was calculated in different ways depending on their location and replacement cycle. The method for assigning PoF and CoF for each of these asset types is described in **Table 10.**. Details on the methodology for non-linear assets and resulting risk scores are given in the Asset Management Plans.

Table 10 – CoF and PoF method by Asset Type

Asset Type	CoF	PoF
Mains	Calculated in GIS through CoF Framework	Age based
Services / Laterals	Calculated in GIS through CoF Framework	Age based
Valves	Assigned CoF of nearest main	Assigned PoF of nearest main
Hydrants	Assigned CoF of nearest main	Age based
Pump Stations	Established through discussion with CVRD	Age based, but considers site assessment and discussion with CVRD
Reservoirs	Established through discussion with CVRD	Age based, but considers site assessment and discussion with CVRD
Chambers	Established through discussion with CVRD	Age based
Wells	Established through discussion with CVRD	Age based
Treatment Plants	Established through discussion with CVRD	Age based, but considers site assessment and discussion with CVRD

3.6 Geoprocessing

3.6.1 Data Requirements

Table 11 provides a brief summary of each indicator used in the CoF models, and the specific CVRD provided dataset that was used to compute the indicator score. Note that depth data is currently not available and was considered non-critical for all mains for the purpose of this draft. It is recommended that CVRD identify mains that are deeper and pose a concern so that they can be prioritized in the risk model.

Table 11 – Consequence of Failure Model Data Requirements

Model Input	Dataset (GIS Layer)	Field	Geo-Processing
Accessibility	Digital Road Atlas TRANSPORT_LINE	TRANSPORT_LINE_STRUCTURE_CODE	Spatial Join between Mains and Transport Line
	k20_RiversLakes	TYPE	Spatial Join between Mains and Rivers/Lakes
Depth	TBD		
Fish Stream Class	HA_Streams_5k	FISH_PRES	Spatial Join between Mains and Fish Stream Class
Flow Rate	Pipe Data, PipeData_Royston, Pipe Data_BCOB	FLOW__L_S	Spatial Join between Mains and Pipe Data
Land Use	Zoning	ZONING	Spatial Join between Mains and Land Use
Material	Mains	Material	None, in attribute table
Pipe Size	Mains	Diameter	None, in attribute table
Pop. Density	ldb_000a16a_e and 2016_92-151_XBB.xlsx (Open Statcan Data)	DBpop2016, Dbarea	Spatial Join between Mains and closest Dissemination Blocks
Pressure	Pipe Data, Junction Data Pipe Data_Royston, Junction Data_Royston, Pipe Data_BCOB, Junction Data_BCOB	P__PSI	Pipe Data was assigned the average of the intersecting junction data. This data was then spatially joined to mains.
Proximity to ESA	SEI_CVCSP (Comox Valley Conservation Strategy Project Area)	CODE2	Spatial Join between Mains and Conservation Area
Road Type	Digital Road Atlas TRANSPORT_LINE	TRANSPORT_LINE_TYPE_CODE	Spatial Join between Mains and Roads
Soil Type	LandCapforAg	UNIMP_LABEL (Soil Type)	Spatial Join between Mains and Soil Type

4. Results

4.1 Summary of Index Weightings

The final weightings for the CoF indicators identified are shown in **Table 12**. These tables describe the weighting that were applied within the categories obtained from the CVRD, as well as the overall percent contribution to CoF when the overriding category weightings were applied. Note that depth data is currently not available and was considered non-critical for all mains for the purpose of this tech memo. A visual representation of the indicator weightings is depicted in **Appendix A**. These values represent the efforts of Workshop #1 and subsequent calibration sessions used to ensure CoF results reflect the CVRD's priorities and concepts of Risk with adjustments having been made accordingly. As mentioned previously, these ratings can be adjusted as necessary to match consequence driven policy.

Table 12 - Indicators and Weightings

	Economic 25%	Operational 25%	Social 35%	Environmental 15%	Combined
Accessibility	-	33%	-	-	8%
Depth	-	-	-	-	-
Fish Stream	-	-	-	25%	4%
Flow Rate	-	-	25%	25%	13%
Land Use	-	-	25%	-	9%
Material	25%	-	-	-	6%
Pipe Size	25%	33%	-	-	15%
Pop. Density	-	-	25%	-	9%
Pressure	25%	-	-	25%	10%
Proximity to ESA	-	-	-	25%	4%
Road Type	25%	-	25%	-	15%
Soil Issues	-	33%	-	-	8%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**

4.2 Consequence of Failure Summary

This section summarizes the CVRD's CoF distributions for water mains. Results are symbolized as low, medium, or high CoF using the breakpoints for CoF described in **Section 3.4**. Overall, it was found that approximately 7% of all water mains by length (approximately 13 km) were classified as high criticality. In terms of the criteria weightings currently applied, the key drivers for the high CoF mains were primarily the main material, road type, flow and pressure, which is consistent with the "Combined" column presented in **Table 12**.

Figure 12 provides a visualization of the CVRD's CoF distribution for water mains in terms of the total number of individual main segments in GIS. **Figure 13** provides a histogram of the main lengths per CoF score "bin" (0 to 100 scale), broken down by main material in the graph on the left, and main diameter in the graph on the right.

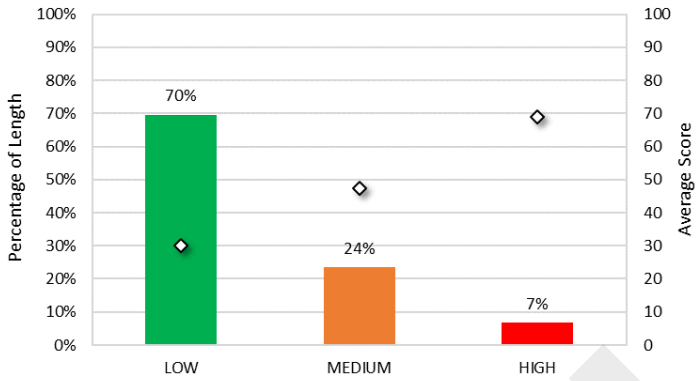


Figure 12 – CoF Distribution by Length

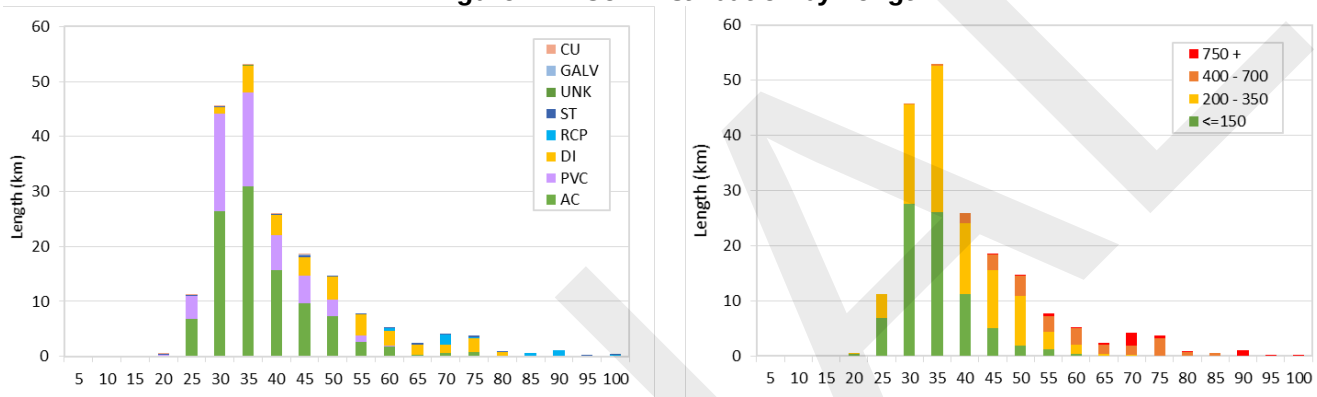


Figure 13 – CoF Score Distribution by Main Material (Left) and Diameter (Right)

The left side of **Figure 13** shows Reinforced Concrete Pipes (RCP) with the highest CoF scores. These mains not only have a material with a higher CoF but also have high pressures and flows. On the right side of **Figure 13** it is shown that mains of all sizes lead to low, medium, and high CoF. Therefore, even though main diameter is one of the most important criticality factors, the combination of other critical factors is driving criticality. Maps of the CVRD's consequence of failure distribution for the four water systems can be viewed in **Appendix B.**

4.3 Probability of Failure Summary

This section summarizes the CVRD's PoF distribution for water mains, using a number of system metrics to analyze the results. Results are symbolized as low, medium, or high PoF using the breakpoints for PoF described in **Section 3.4**. Overall, it was found that 4% of all water mains by length were classified as high PoF (approximately 7 km). Maps of the CVRD's probability of failure distribution for the four water systems can be viewed in **Appendix C.**

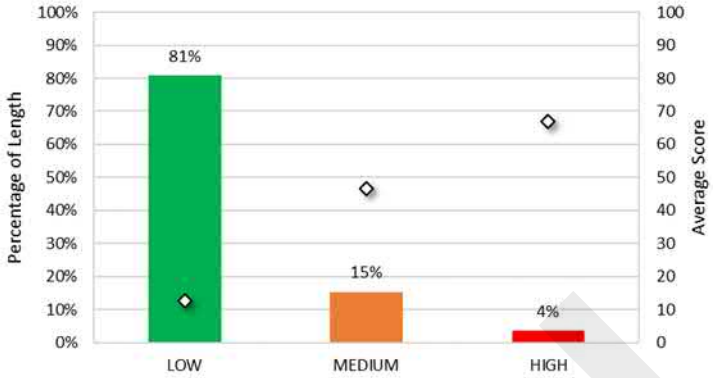


Figure 14 - PoF Distribution by Length

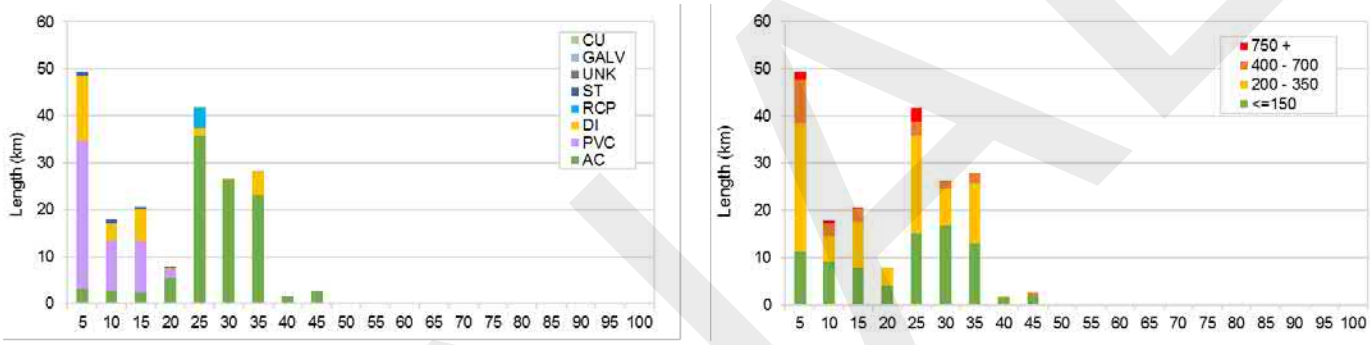


Figure 15 - PoF Score Distribution by Main Material (Left) and Diameter (Right)

Figure 14 provides a visualization of the CVRD's PoF distribution for water mains by length. **Figure 15** provides a histogram of the main lengths per PoF score "bin" (0 to 100 scale), broken down by main material in the graph on the left, and main diameter in the graph in the on the right. The results of the Weibull analysis show that all water mains considered to have a medium PoF were composed of either asbestos cement (AC) or copper (CU). This reflects the low expectations for performance and expected service life assigned to AC mains. Not only do these mains have a relatively low ESL of 60 years compared to other materials, but they were also installed earlier, in the 1970s. The CVRD should continue to monitor the performance and risk exposure of this cohort of assets. The remainder of the CVRD's water mains are relatively young compared to their ESL, as demonstrated by the Age Distribution profile provided in **Figure 16**. Approximately 30% of water mains are less than 30 years in age.

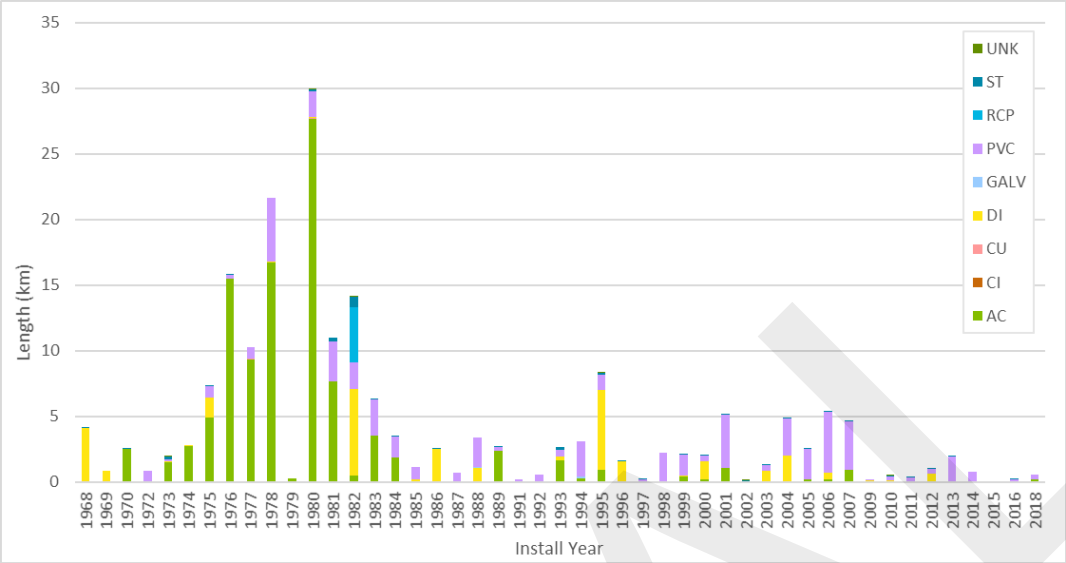


Figure 16 – Water Main Installation Profile

4.4 Risk

This section summarizes the CVRD's risk distribution for water mains, using a number of system metrics. Results are symbolized as low, medium, or high risk using the breakpoints for risk described in **Section 3.4**. Maps of the CVRD's risk distribution for the four water systems can be viewed in **Appendix D**. Overall, it was found that 77% of all water mains (by length) have a low risk and 23% medium risk. Non of the water mains are currently classified as high risk according to the risk score boundaries defined in **Table 9**, largely due to the fact that the system is still relatively new and the constituent water mains are not beyond their respective ESLs. AC mains currently have the highest probability of failure, but their consequence of failure is generally not high. Nevertheless, the mains with highest risk should be prioritized for monitoring and renewal as they will approach their ESL within the next two decades.

Categorizing assets based on risk allows municipalities to effectively target management strategies aimed at mitigating risk. These findings and the identified gaps in the CVRD's GIS database will serve as the basis for recommended asset lifecycle activities, including maintenance, inspection, and rehabilitation during subsequent project tasks. For the sake of brevity, and to assist the CVRD to focus its initial CoF and risk assessment efforts on its most critical assets, the characteristics of the top 40 high-risk water mains are presented**.** These findings summarise the key risk drivers (i.e., provide insights into which factors play the most important role in determining how large the impact / risk of asset failure is). To assist the CVRD in focusing on the highest risk mains, a "Top 40" list of highest risk mains is presented in **Table 13**. The aforementioned table contains the scores of the various CoF and PoF factors that contribute the high overall risk score, which helps the reader understand the key drivers to the high scores. This table provides insight into the drivers of water main risk through several key findings:

- The top 4 water mains with the highest risk scores are located in the Greater Comox Valley Water System. They are located on Powerhouse Road together with a cluster of other higher risk water mains. They are all AC pipes of small to medium diameters between 100 and 450 mm.
- The next two highest risk score mains are part of the Regional Comox Valley Water System but are also located on Powerhouse Road. These are 500 mm ductile iron pipes located near Puntledge River.
- Another area with higher risk mains in the Greater Comox Valley Water System is near the intersection of Ryan Road and Anderton Road, which are both collector roads.

- In Royston the highest risk mains are located next to Island Highway. They are 200 AC mains, and because of their location next to a major arterial road have a high consequence of failure.
- The majority of the flagged higher risk mains are AC pipes of small to medium diameter.
- The majority of higher risk mains were located along residential lands, next to roads classified as “Arterial”, “Collector”, ”Ramp”, or “Local”.

Table 13 – Top 40 Risk Scores for CVRD Water Mains

Risk Rank	GIS ID	Water System	Consequence of Failure Factor Scores												CoF Component Scores				CoF Score	PoF Score	Risk Score	Total Replacement Cost
			Access.	Depth	Fish Stream	Flow Score	Land Use	Material	Diameter	Pop Density	Pressure	ESA	Road Type	Soil Type	Economic	Operational	Social	Environmental				
1	WM3321	CV	0	0	0	100	10	50	60	20	50	100	50	0	53	20	45	63	72	42	30	$153,162
2	WM3321	CV	0	0	0	100	10	50	60	20	50	100	50	0	53	20	45	63	72	42	30	$461,149
3	WM3371	CV	0	0	0	100	10	50	60	20	50	0	25	0	46	20	39	38	59	42	25	$244,353
4	WM3379	CV	0	0	0	50	10	50	60	5	25	100	50	0	46	20	29	44	55	42	23	$2,409
5	WM3336	RW	0	0	100	100	10	10	70	40	75	0	25	0	45	23	44	69	71	32	23	$1,645,821
6	WM3336	RW	0	0	100	100	10	10	70	40	75	0	25	0	45	23	44	69	71	32	23	$1,676,373
7	WM3361	CV	0	0	0	100	10	50	30	20	50	0	25	0	39	10	39	38	52	42	22	$52,417
8	WM3405	RW	100	0	100	100	5	50	100	0	100	100	25	0	69	67	33	100	100	21	21	$131,225
9	WM3694	RW	0	0	0	10	5	50	50	0	100	100	100	25	75	25	29	53	71	29	21	$327,906
10	WM968	ROY	0	0	0	10	10	50	15	100	50	0	100	0	54	5	55	15	60	34	21	$3,743
11	WM3922	RW	0	0	0	100	5	50	80	100	75	0	100	0	76	27	76	44	98	21	20	$8,193
12	WM4856	RW	0	0	0	75	10	50	20	40	50	0	100	0	55	7	56	31	66	31	20	$2,343
13	WM3734	RW	0	0	0	75	5	50	40	100	50	100	25	25	41	22	51	56	70	29	20	$25,028
14	WM4854	CV	0	0	0	75	10	50	15	40	50	0	100	0	54	5	56	31	65	31	20	$1,973
15	WM4839	CV	0	0	0	75	10	50	15	40	50	0	100	0	54	5	56	31	65	31	20	$50,660
16	WM3361	CV	0	0	0	100	10	50	10	20	50	0	25	0	34	3	39	38	47	42	20	$1,093
17	WM3364	CV	0	0	0	100	10	50	10	20	50	0	25	0	34	3	39	38	47	42	20	$1,823
18	WM3902	RW	0	0	0	100	5	50	80	50	100	0	100	0	83	27	64	50	95	21	20	$88,723
19	WM3120	CV	0	0	0	100	10	50	10	40	75	0	25	0	40	3	44	44	54	36	20	$107,442
20	WM3719	RW	0	0	100	50	5	50	50	100	75	0	25	0	50	17	45	56	68	29	20	$378,921
21	WM3718	RW	0	0	100	50	5	50	50	100	75	0	25	0	50	17	45	56	68	29	20	$33,788
22	WM4853	CV	0	0	0	75	10	50	10	40	50	0	100	0	53	3	56	31	64	31	20	$1,720
23	WM4851	CV	0	0	0	75	10	50	10	40	50	0	100	0	53	3	56	31	64	31	20	$13,203
24	WM4850	CV	0	0	0	75	10	50	10	40	50	0	100	0	53	3	56	31	64	31	20	$1,239
25	WM3220	CV	0	0	0	75	10	50	10	20	75	0	25	0	40	3	33	38	46	42	19	$62,040
26	WM3824	RW	0	0	0	50	5	10	30	100	50	0	50	25	35	18	51	25	58	32	19	$284,123
27	WM3319	CV	0	0	0	10	10	50	10	100	50	0	25	25	34	12	36	15	44	42	18	$39,874
28	WM974	ROY	0	0	0	10	10	50	15	50	50	0	100	0	54	5	43	15	53	34	18	$3,372
29	WM972	ROY	0	0	0	10	10	50	15	50	50	0	100	0	54	5	43	15	53	34	18	$8,549
30	WM958	ROY	0	0	0	10	10	50	15	50	50	0	100	0	54	5	43	15	53	34	18	$54,711
31	WM956	ROY	0	0	0	10	10	50	15	50	50	0	100	0	54	5	43	15	53	34	18	$26,118
32	WM923	ROY	0	0	0	10	10	50	15	50	50	0	100	0	54	5	43	15	53	34	18	$65,426
33	WM3400	RW	0	0	0	100	5	50	100	0	100	100	50	0	75	33	39	75	86	21	18	$2,462,785
34	WM3362	RW	0	0	0	100	10	10	70	20	75	0	25	0	45	23	39	44	62	29	18	$8,006
35	WM3363	RW	0	0	0	100	10	10	70	20	75	0	25	0	45	23	39	44	62	29	18	$7,606
36	WM3181	CV	0	0	0	100	10	50	10	40	75	0	25	0	40	3	44	44	54	33	18	$9,577
37	WM3830	RW	0	0	0	50	5	10	30	100	50	0	50	0	35	10	51	25	55	32	18	$3,330
38	WM3733	RW	0	0	0	75	5	50	40	100	50	0	25	0	41	13	51	31	60	29	17	$4,394
39	WM3924	RW	0	0	0	100	5	50	80	100	100	0	25	0	64	27	58	50	83	21	17	$5,466
40	WM3919	RW	0	0	0	100	5	50	80	100	100	0	25	0	64	27	58	50	83	21	17	$78,222

5. Recommendations and Next Steps

5.1 Data Management

The Risk model presents a "snapshot in time," and should be revisited and revised as conditions change. The recommended next steps for improving the accuracy and functionality of CVRD's risk models will be to address data gaps and inaccuracies that are present within the CVRD's asset database. The following recommendations are made for improving CVRD's asset inventory database to enhance the usefulness of the Risk model.

5.2 Data Accuracy

CVRD maintains a geodatabase with water assets. This data was populated by GIS staff and had not been reviewed in detail by the Engineering Services Department until the beginning of the present project.
In order to advance this study, AECOM filled data gaps in water main install dates and diameters based on available as-built drawings. However, CVRD identified further errors in the original data, where data was not accurately entered. AECOM reviewed the geodatabase based on these comments, but there are still outstanding inaccuracies that need to be addressed. It is recommended that CVRD review its asset inventory and clean its GIS data in order to facilitate further updates and studies. Specific suggestions are given below.

5.2.1 Reclassify Small Diameter Mains

In particular, the water mains layer contains various sections of small diameter pipe that are not mains, but were recorded as such. Although some of these have already been identified in GIS through review with CVRD, more clean-up is needed.

5.2.2 Add Depth Data

The water mains layer currently does not contain information on pipe depth, even though this information is available in as-built drawings and in the hydraulic model. It is recommended this data be added to the asset inventory to support the risk analysis, evaluation of replacement costs, and overall asset management.

5.2.3 Add Data Reference

CVRD currently maintains a Point layer named "AsBuilt" with the general location and names of as-built drawings. This is very useful in identifying the source of asset data, however there are currently gaps and overlapping drawings. It is recommended that the water mains layer include a column with the data reference, be it the name of an as-built drawing, other record, or inference. It is also helpful for data management if the as-built layer is a polygon with the bounds of the as-built drawing and is linked to the drawing for easy user access.

5.2.4 Sort Asset Types by Layer

It is also recommended that different asset types be saved under different GIS layers, to facilitate data management and mapping. For example, currently, services and hydrant services are included under mains.

5.2.5 Review Asset ID Information

There are several water mains in GIS that currently have the same asset ID. These duplicate ID's should be corrected so that each asset has its own unique identifier. Doing so will help to avoid confusion and potential errors in data management.

5.3 Geodatabase Management

CVRD Water staff currently does not have direct access to the geodatabase. Data is viewed through a GIS viewer but cannot be edited. Although this avoids potential errors from Water staff manipulating the data, it hinders revision. The two groups should collaborate in improving and updating the GIS data so that it meets the needs of the Engineering Service Department.

5.4 Hydraulic Model Results Management in GIS

The CVRD hydraulic model created and managed by Koers & Associates Engineering Ltd. was not based on GIS data and was not created to be spatially accurate. This means the hydraulic model results, when exported to a shapefile do not match the location of mains within GIS. For the purpose of this study, the hydraulic model shapefile mains were moved so that they would better match GIS. This exercise will have to be repeated whenever the risk model is updated. It is recommended that either the model be edited to become spatially accurate, or that CVRD maintain the currently shifted shapefiles and only join new results by Pipe and Junction label to the original data.

5.5 Probability of Failure Factors

Presently, the probability of failure of water mains is based solely on the install year of the main and expected service life of the material. In order to better prioritize actions and predict failures, other data can feed into the PoF calculation. Historical data on replacements, and the actual useful life of different materials under different vintages in CVRD would better inform the expected service life values. Number of main breaks for each main in GIS, as well as estimated leakage in each area, would also help predict failures.

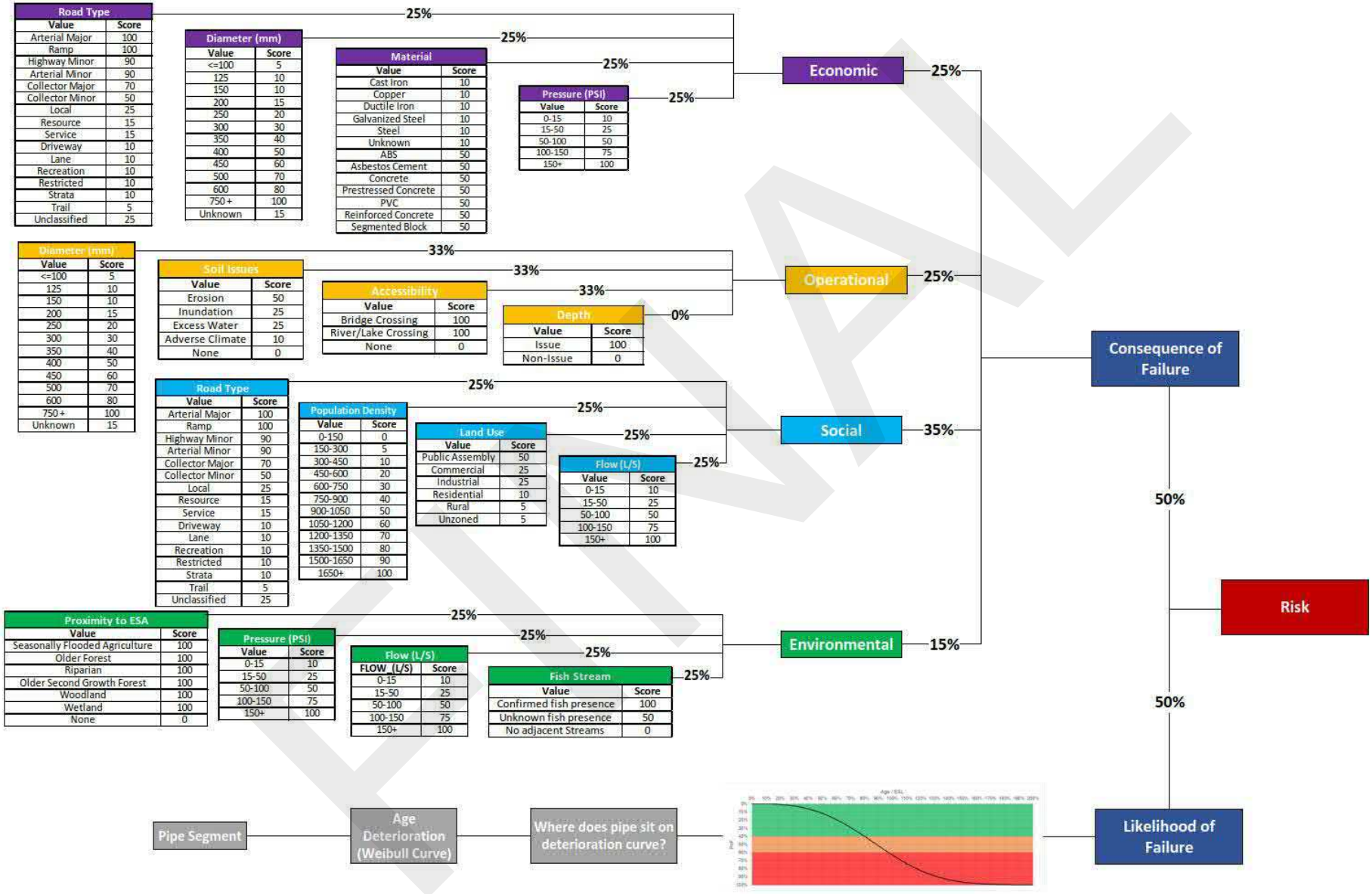
5.6 Next Steps

5.6.1 Geoprocessing Model Handover

Following the submittal of this technical memo, a final technology handover will be scheduled to provide CVRD with the Excel Dashboard and geoprocessing tools created in support of this task. The technology handover session will include installing the data on a CVRD workstation, running the model to confirm proper function, and discussing data management with CVRD's GIS project staff.

Appendix A - Risk Framework Index Hierarchies

CVRD Risk and Criticality Model – Water Mains



Appendix B - Consequence of Failure Maps

Comox Valley Regional District

Comox Valley Regional District

Asset Management Planning for Water and Wastewater Services

Project No 60565872

Date August 2019

Legend

CoF Rating

- HIGH
- MEDIUM
- LOW

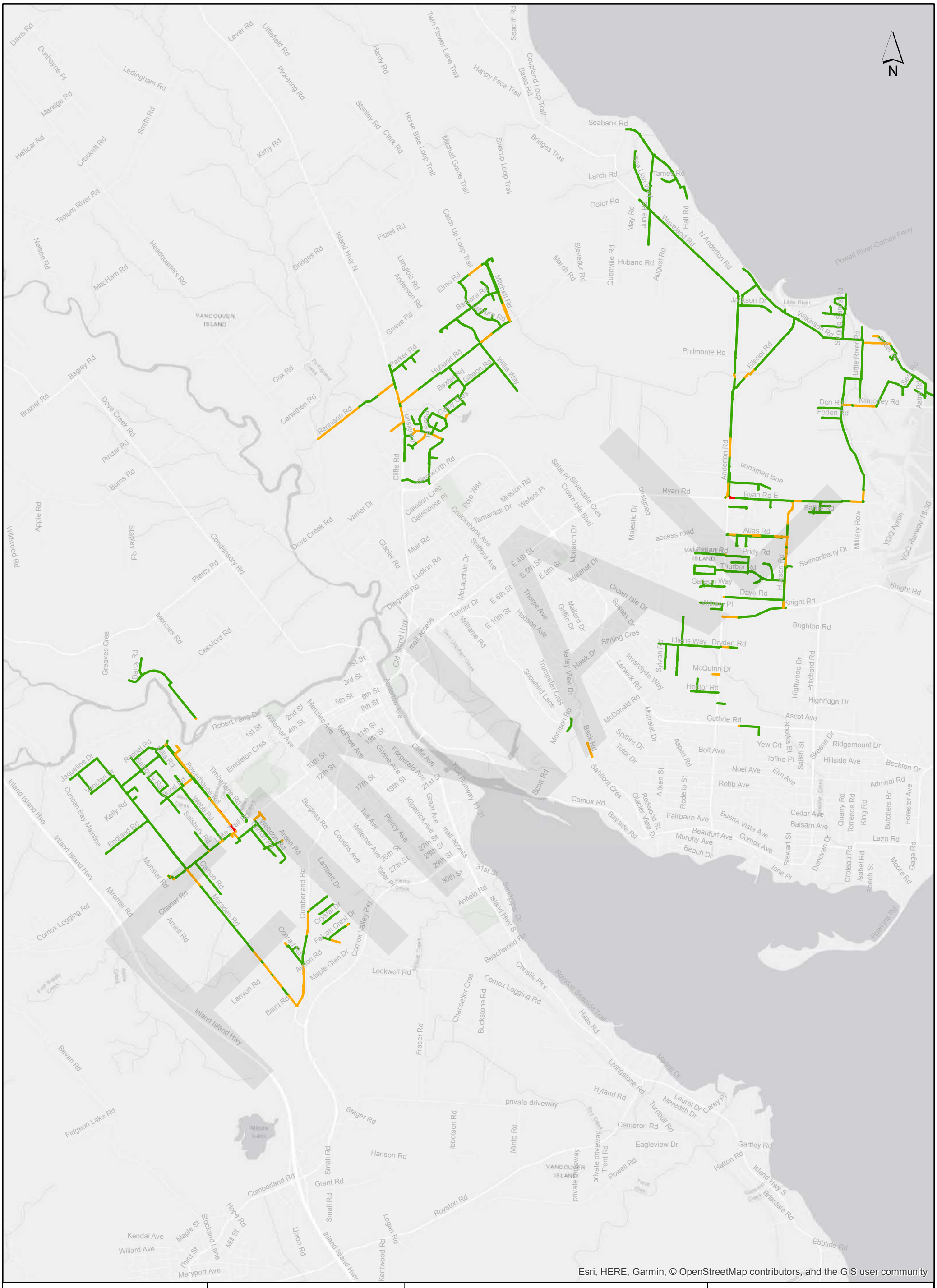
0 0.25 0.5 1 1.5 Kilometers

AECOM

Figure 1a

Black Creek / Oyster Bay Water Local Service Area

Water Main CoF Rating



Comox Valley Regional District

Asset Management Planning for Water and Wastewater Services

Project No	Date
60565872	August 2019

Legend

CoF Rating

- HIGH
- MEDIUM
- LOW

0 0.45 0.9 1.8 2.7 Kilometers

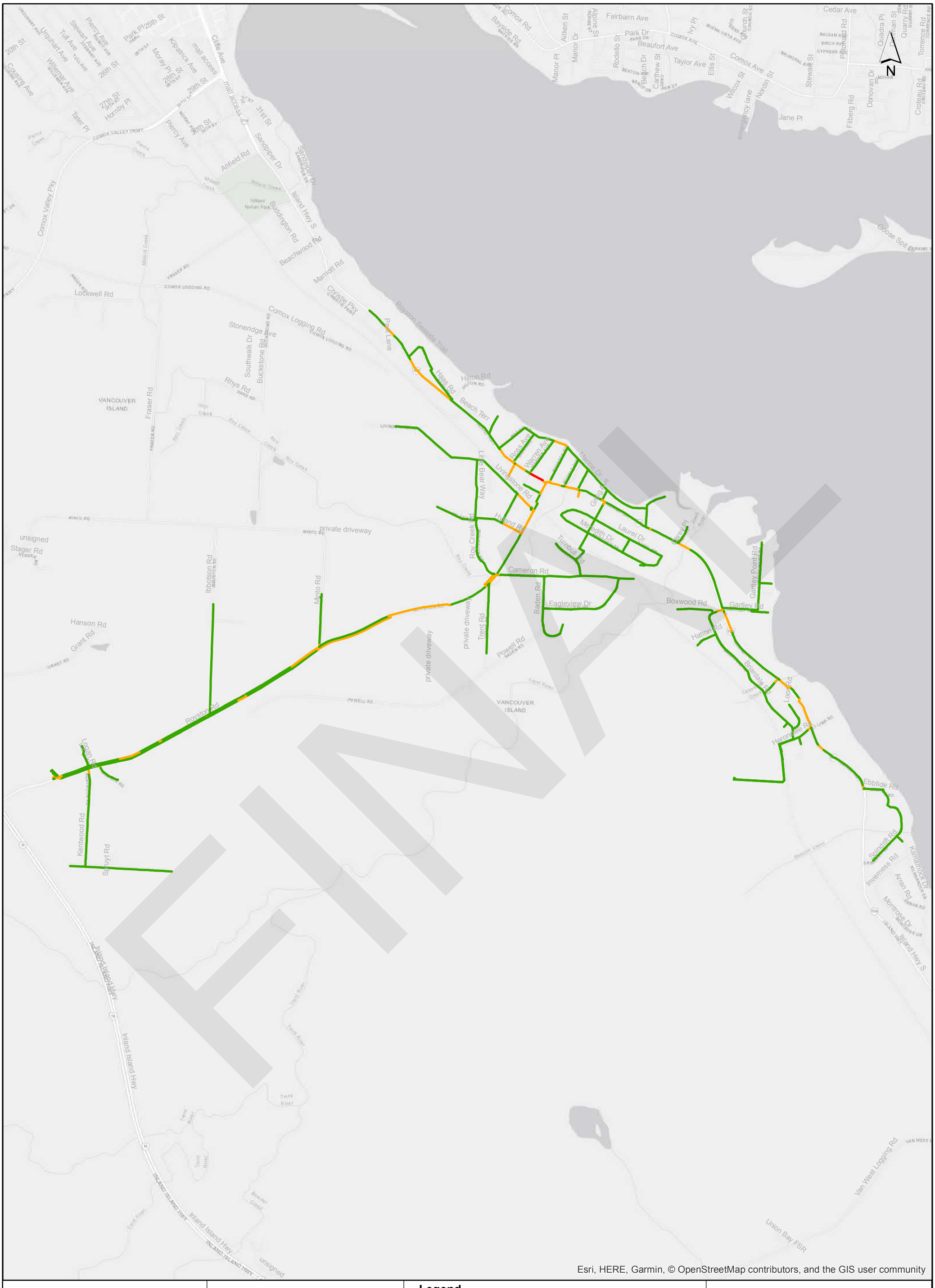
AECOM

Figure 1b

Greater Comox Valley Water Local Service Area

Water Main CoF Rating

Comox Valley Regional District	**Comox Valley Regional District** **Asset Management Planning for Water and Wastewater Services**	**Legend** **CoF Rating** HIGH MEDIUM LOW 0 0.35 0.7 1.4 2.1 Kilometers	AECOM **Figure 1c** **Regional Comox Valley Water System** **Water Main CoF Rating**
Project No 60565872	Date August 2019		



Comox Valley Regional District

Asset Management Planning for Water and Wastewater Services

Project No	Date
60565872	August 2019

Legend

CoF Rating

- HIGH
- MEDIUM
- LOW

0 0.2 0.4 0.8 1.2 Kilometers

AECOM

Figure 1d

Royston Water Local Service Area

Water Main CoF Rating

Appendix C - Probability of Failure Maps

Comox Valley Regional District

Asset Management Planning for Water and Wastewater Services

Project No	Date
60565872	August 2019

Legend

PoF Rating

LOW

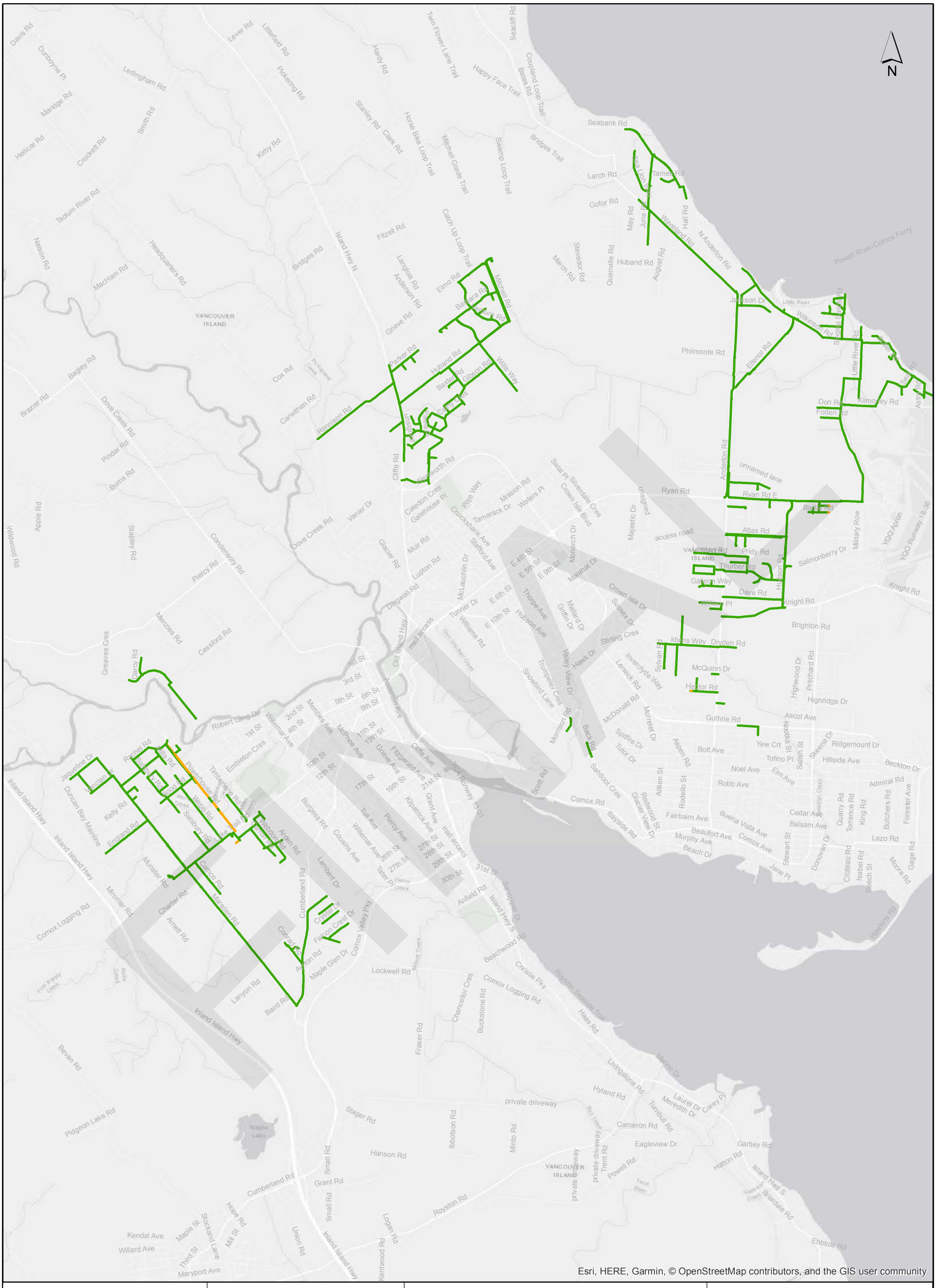
0 0.25 0.5 1 1.5 Kilometers

AECOM

Figure 2a

Black Creek / Oyster Bay Water Local Service Area

Water Main PoF Rating



Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Comox Valley Regional District

Asset Management Planning for Water and Wastewater Services

Legend

PoF Rating

MEDIUM

LOW

0 0.45 0.9 1.8 2.7 Kilometers

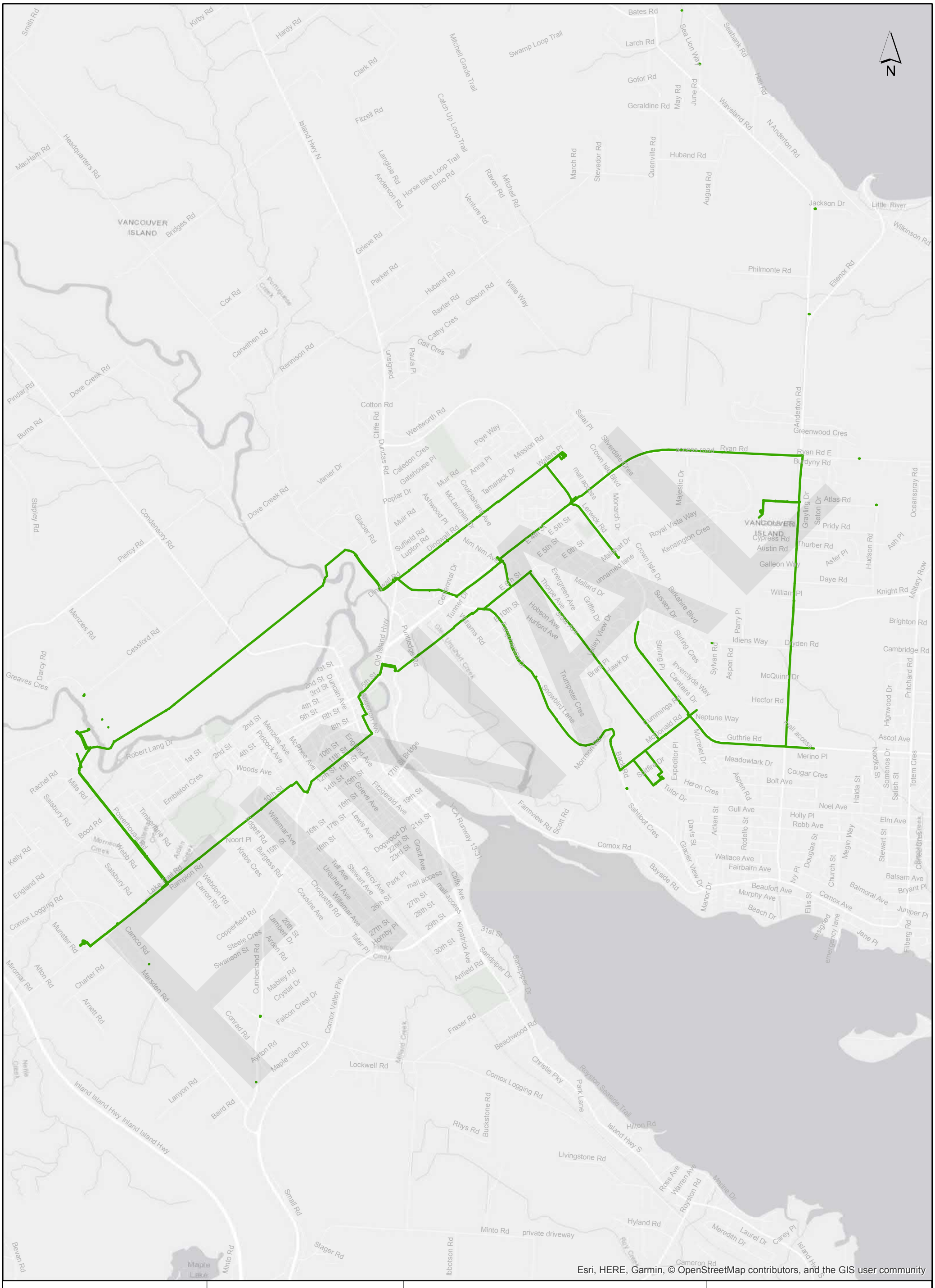
AECOM

Figure 2b

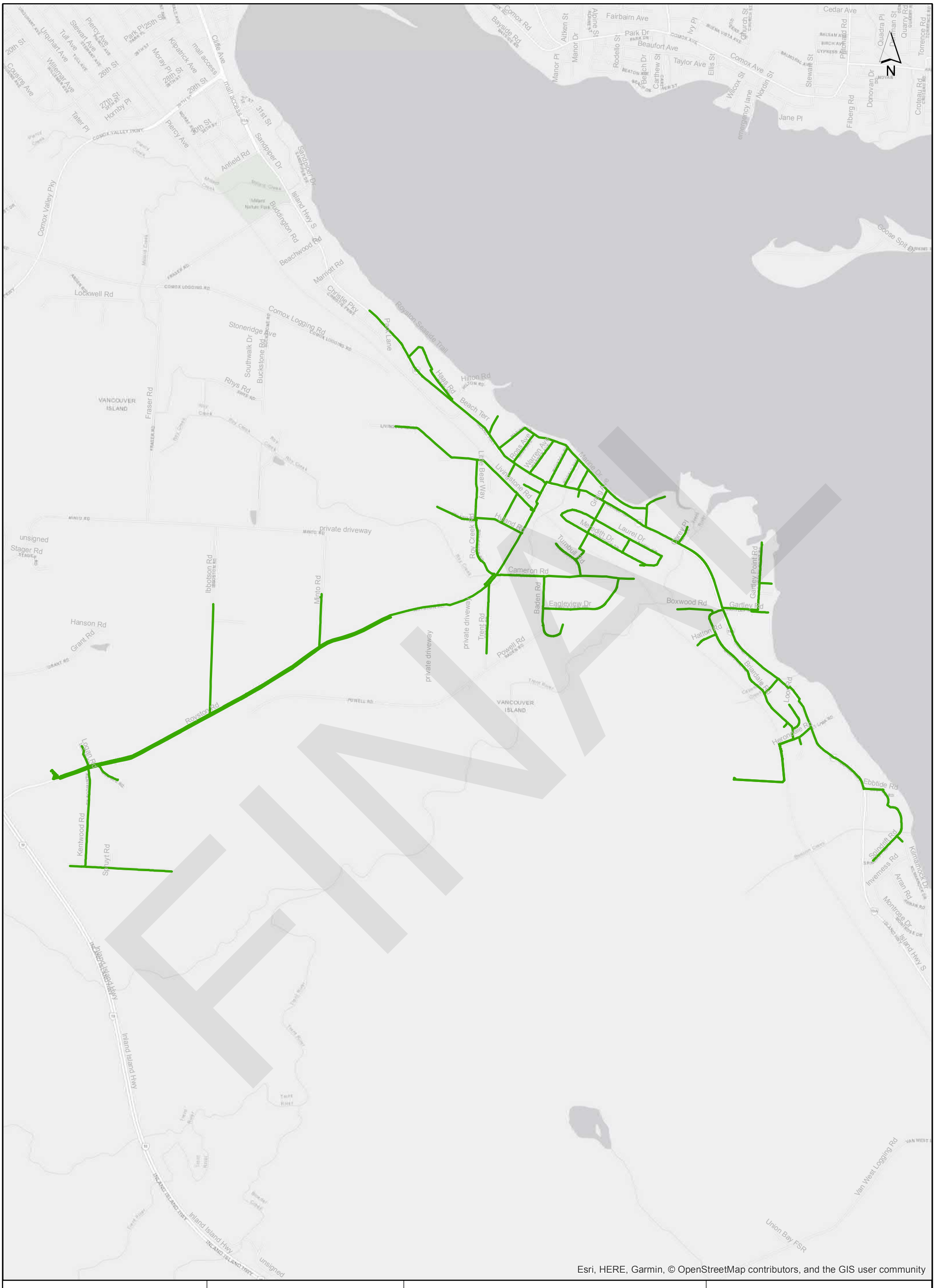
Greater Comox Valley Water Local Service Area

Water Main PoF Rating

Project No	Date
60565872	August 2019



Comox Valley Regional District	**Comox Valley Regional District** **Asset Management Planning for Water and Wastewater Services**	**Legend** **PoF Rating** LOW 0 0.35 0.7 1.4 2.1 Kilometers	AECOM **Figure 2c** **Regional Comox Valley Water System** **Water Main PoF Rating**
Project No 60565872	Date August 2019		



Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Comox Valley Regional District			AECOM
Project No 60565872	Date August 2019	**Asset Management Planning for Water and Wastewater Services**	**Figure 2d** **Royston Water Local Service Area** **Water Main PoF Rating**

Legend

PoF Rating

LOW

0 0.2 0.4 0.8 1.2 Kilometers

Appendix D - Risk Maps

Comox Valley Regional District

Asset Management Planning for Water and Wastewater Services

Project No	Date
60565872	August 2019

Legend

Risk Rating

- MEDIUM
- LOW

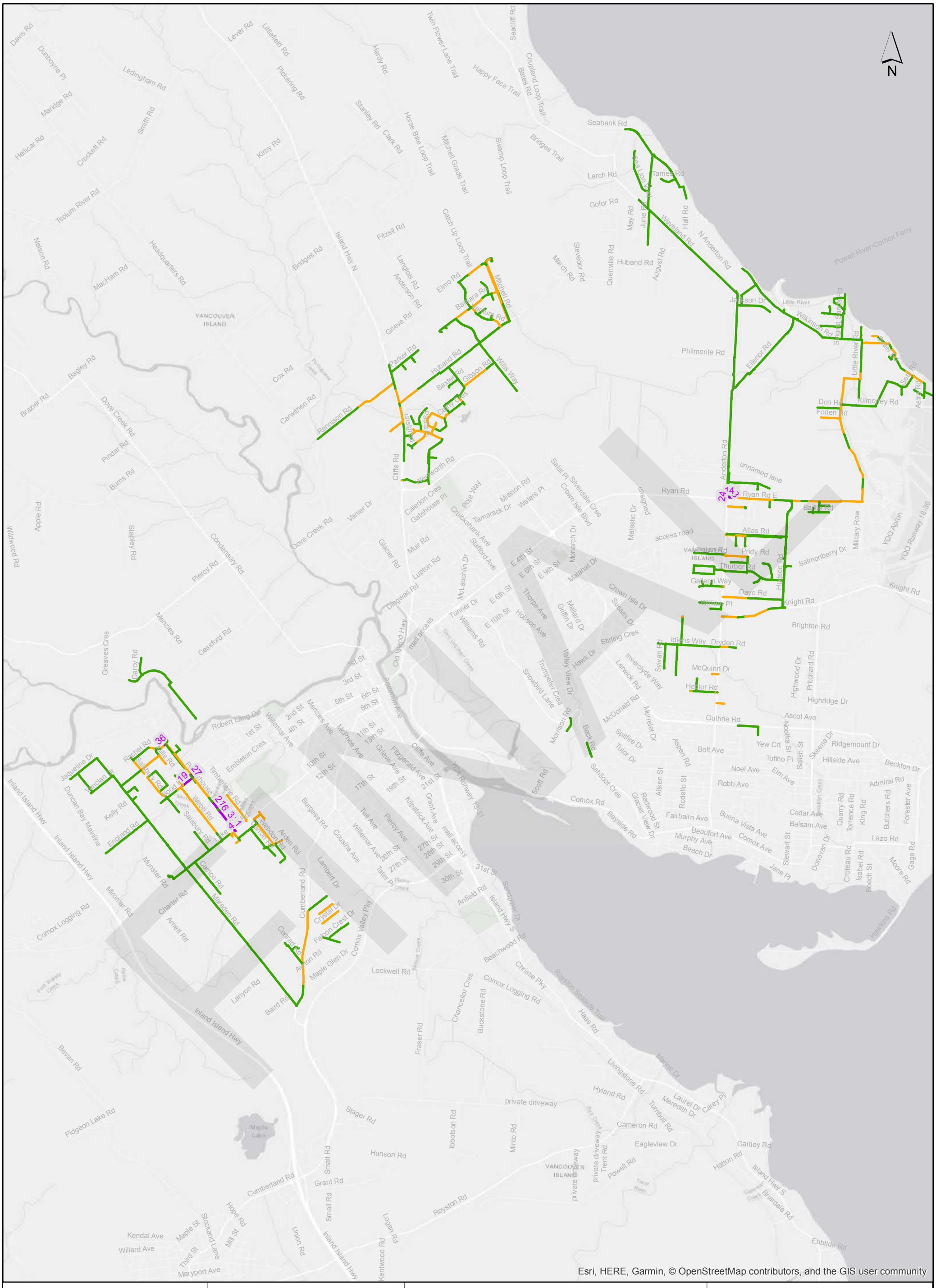
0 0.25 0.5 1 1.5 Kilometers

AECOM

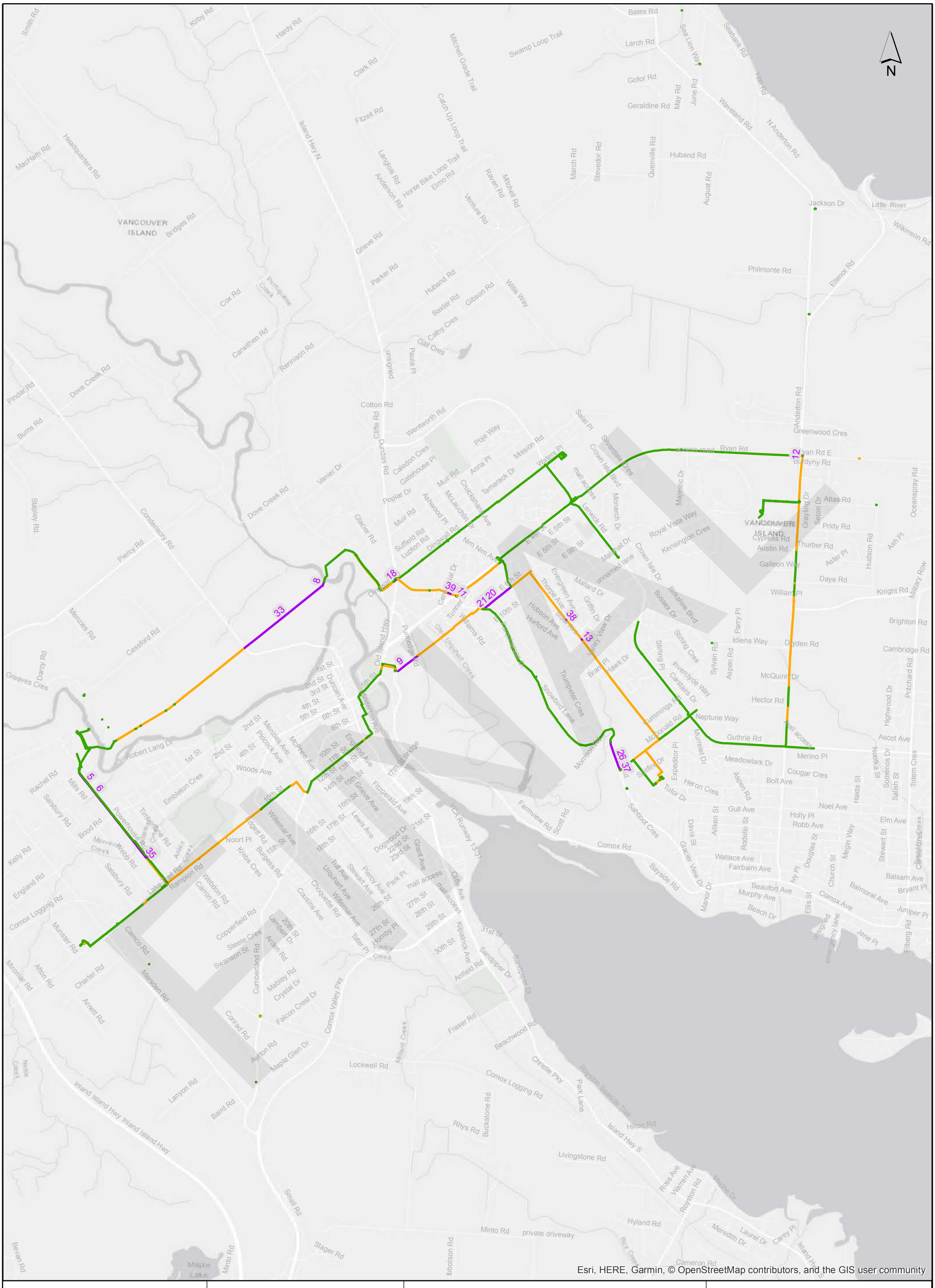
Figure 3a

Black Creek / Oyster Bay Water Local Service Area

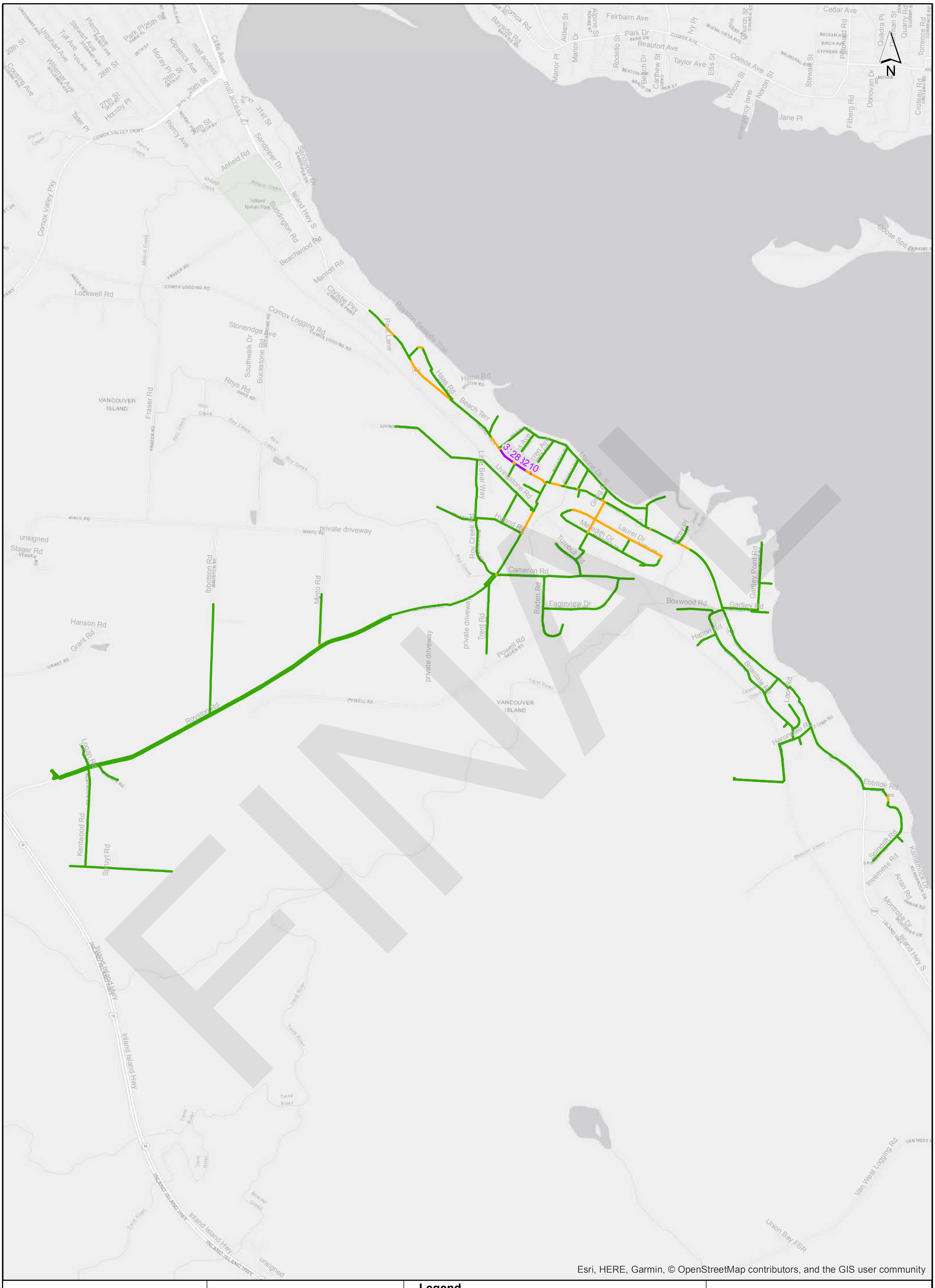
Water Main Risk Rating



Comox Valley Regional District		**Legend** **Risk Rating** TOP 40 MEDIUM LOW 0 0.45 0.9 1.8 2.7 Kilometers	AECOM
Project No 60565872	Date August 2019	**Asset Management Planning for Water and Wastewater Services**	**Figure 3b** **Greater Comox Valley Water Local Service Area** **Water Main Risk Rating**



Comox Valley Regional District	**Comox Valley Regional District** **Asset Management Planning for Water and Wastewater Services**	**Legend** **Risk Rating** TOP 40 MEDIUM LOW 0 0.35 0.7 1.4 2.1 Kilometers	AECOM **Figure 3c** **Regional Comox Valley Water System** **Water Main Risk Rating**
Project No 60565872	Date August 2019		



Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Comox Valley Regional District

Asset Management Planning for Water and Wastewater Services

Project No 60565872

Date August 2019

Legend

Top 40

- TOP 40
- MEDIUM
- LOW

0 0.2 0.4 0.8 1.2 Kilometers

AECOM

Figure 3d

Royston Water Local Service Area

Water Main Risk Rating

Contact

Chris Lombard
Asset Management Leader: Americas Water
T (604) 444.6427
E [Christiaan.lombard@aecom.com]

Appendix D - O&M Activities

The tables presented in **Appendix D** identify O&M activities for water mains, service connections, water valves, hydrants and pump station. The information for the water O&M activities were primarily sourced from the National Water and Wastewater Benchmarking Initiative (NWWBI, see www.nationalbenchmarking.com). In particular, the NWWBI's Linear Maintenance Task Force has been compiling a set of typical O&M activities that are generally performed by water utilities for assets similar to the BCOB WLSA's assets presented in **Table 1 - High-Level Asset Inventory**. All of the O&M activities presented in **Appendix D** might not be currently performed at the BCOB WLSA, but reflect best management practice within the utility sector in Canada and should be considered for incorporation in the BCOB WLSA's O&M practices where currently not present.

Table D1 – Water Main O&M Activities

Maintenance Activity	Activity Definition	Benefit to the CVRD	Maintenance Priority
Inspection of Exposed Mains	Checks condition of expansion joints, hangers, supports, wrapping and casing. Identifies any cleaning, vegetation control or repairs required.	Ensures exposed mains are in good condition.	Preventive Maintenance
Warranty Bond Inspection	Final inspection of mains, valves, hydrants, etc. 30 days prior to expiration of warranty	Ensures systems are in good condition when the CVRD assumes maintenance responsibilities.	Preventive Maintenance
Mains Flushing	Seasonal pressure flushing of water main to remove sediment accumulation	Improves water quality, prevents damage to pipe infrastructure	Preventive Maintenance
Corrective Main Flushing	Pressure flushing of water main to remove sediment in response to reported or potential water quality problem	Remove localized sediments or water contaminants	Scheduled Corrective
Mains - Replacements (Asset Betterment)	Replacement of mains that have deteriorated	To replace mains that have come to the end of their useful life before they fail and cause disruptions to service.	Scheduled Corrective
Mains - Relining (Asset Betterment)	Relining mains that have deteriorated as a cost effective alternative to full main replacement	To reline mains that have come to the end of their useful life before they fail and cause disruptions to service.	Scheduled Corrective
Main Repairs	Planned repairs to facility or equipment to ensure proper continued operation.	Ensures main operates as intended; prevents failure and potential loss of service.	Scheduled Corrective
Main Repairs and Break Response	Immediate repairs to water main breaks required to maintain or restore service to customer and to protect property and public safety.	Restores service or isolates break so that complete repair can be safely conducted.	Emergency - Corrective
Water Quality Testing	Regular water sampling and testing based on regulatory requirements to ensure water quality	Identifies water quality issues so that immediate action can be taken to protect public health	Preventive Maintenance
Leak Detection	Regular testing detects leaks in order to prevent loss of water from the system	Prevents water lost and reduced cost of treating and pumping water	Preventive Maintenance

Maintenance Activity	Activity Definition	Benefit to the CVRD	Maintenance Priority
Water Main PM Other	Describe Preventive Maintenance Activity	Why do you do this PM / inspection activity?	Preventive Maintenance

Table D2 – Water Valves O&M Activities

Maintenance Activity	Activity Definition	Benefit to the CVRD	Maintenance Priority
Valve Exercising (in Accordance with SOP)	Periodic maintenance to locate and exercise the valve, clean out valve box, paint valve lid, and record data about the valve.	Ensures that valves can be easily located and operated when and as needed	Preventive Maintenance
Valve Inspection	Inspect, clean and exercise valves.	Ensures the continued operation and reliability of valves.	Preventive Maintenance
Air Valve Winterization	Install insulation around air valve.	Prevents freezing in the lines.	Preventive Maintenance
Valve Replacement (Betterment)	Replacement of valves that have deteriorated or that have broken during exercising	Maintain the functionality of the system by ensuring all valves are operable.	Scheduled Corrective
Valve Corrective Maintenance	Repair value to ensure proper continued operation.	Ensures valve operates as intended; prevents failure and potential loss of service.	Scheduled Corrective
Valve Emergency Maintenance	Emergency repair or replacement of inoperable or broken valve that is putting service or the system at immediate risk.	Prevents loss of service or restores service that has been lost.	Emergency Corrective

Table D3 – Hydrant O&M Activities

Maintenance Activity	Activity Definition	Benefit to the CVRD	Maintenance Priority
Hydrant Annual Tear-Down	Disassemble hydrant, check threads, seals, alignment, etc., replace worn parts, lubricate, and reassemble.	Maintain public safety from the threat of fire. Ensures hydrants are in good working condition.	Preventive Maintenance
Hydrant Annual Inspection	Hydrant checks can include checking operation, caps, oil, pressure, sounding access, winter leakage, freezing, and string test.	Ensures hydrants are in good working condition. Hydrant checks are required by the Fire Code	Preventive Maintenance
Hydrant Replacement (Betterment)	Replacement of hydrants that have deteriorated to the point where they are not reliable to support fire fighting	Maintain public safety from the threat of fire	Scheduled Corrective

Maintenance Activity	Activity Definition	Benefit to the CVRD	Maintenance Priority
Hydrant Corrective Maintenance	Planned repairs to hydrants that have been identified as potentially defective to ensure proper continued operation.	Restores hydrant operability. Maintain public safety from the threat of fire	Scheduled Corrective
Hydrant Emergency Maintenance	Repairs or replacement of hydrants that are defective or that have been accidentally damaged.	Respond to broken hydrants that may be causing local damage through flooding	Emergency - Corrective

Table D4 – Water Service Connection O&M Activities

Maintenance Activity	Activity Definition	Benefit to the CVRD	Maintenance Priority
Locate Service Boxes	Water crews to locate difficult to find service boxes on request	Ensures that service boxes are not accidently damaged from local excavation or construction activities	Emergency - Corrective
Water Connection Repair	Scheduled repairs to Water Services, on CVRD property and under CVRD jurisdiction	Ensures the continued reliability and proper functioning of Service Connections throughout the CVRD	Scheduled Corrective
Water Service Turn On/Off	Water Service Shut Offs/Turn ones under CVRD Responsibility	Provides a high level of customer service	Emergency - Corrective
Water Service Box Inspect/Repair	Repairs to Water Services boxes	Ensures the continued reliability and proper functioning of Service Connections	Scheduled Corrective
Service Replacement and Renewals (Betterment)	Replace Service Connections prior to failure as a result of deterioration	Prevents future breakdowns of services, ensuring the proper function of service connections.	Scheduled Corrective
Connection Corrective Maintenance	Repairs to connections that have been identified as potentially defective to ensure proper continued operation.	Restores connection operability. Maintains water service to customer	Scheduled Corrective
Connection Emergency Maintenance	Repairs or replacement of connections that are defective or that have been accidentally damaged.	Respond to broken connection to restore service to customer	Emergency - Corrective

Table D5 – Pump Stations O&M Activities

Maintenance Activity	Activity Definition	Benefit to the CVRD	Maintenance Priority
Pump Station Inspection (in accordance with SOP)	Inspection of facility and equipment for cleanliness, leaks, corrosion and damage. The lights, ventilation fans, heater, sump pump and drains are also checked for operation. The pump meters are read and, where applicable, fire pumps are tested.	To ensure that the station is operating properly and that potential maintenance issues are identified and prioritized for repair to avoid equipment failure.	Preventive Maintenance
Strainer Cleaning and Inspection (in accordance to SOP)	Cleaning and inspection and Y-strainers (where applicable).	Ensures proper filtration and prevents clogging that affects system pressure.	Preventive Maintenance
Control PRV Tear-Down and Inspection (in accordance with SOP)	Annual Tear-down and inspection of control valves (where applicable).	Ensures PRVs are in good operating condition; allows crews to identify any corrective maintenance required.	Preventive Maintenance
Pump Station Corrective Maintenance	Repairs to pump station and equipment to ensure proper continued operation. No immediate concern over loss of service	Lift station response due to alarm or reported failure but redundancy or back up system is available.	Scheduled Corrective
Emergency Pump Station Maintenance	Emergency repairs to facility or equipment; usually triggered by customer calls or SCADA system alarms. Emergency back or redundancy may not be available.	Pump station response due to failure alarm or reported failure. Immediate response is required to restore or maintain service.	Emergency Corrective

Table D6 – Reservoirs O&M Activities

Maintenance Activity	Activity Definition	Benefit to the CVRD	Maintenance Priority
Reservoir Security and Maintenance Inspection (in accordance with SOP)	Inspection of general condition of reservoir, including vent screens, overflows, dry well, control chamber, piping, and valves. Security is checked (locks, fence) and cleaning is done as required.	Ensures the security of the water supply; checks that facility and equipment are in good operating condition; allows crews to identify any corrective maintenance required.	Preventive Maintenance
Reservoir Draining and Cleaning (in accordance with SOP)	Periodic draining, cleaning and re-disinfection of reservoir.	Ensures water quality.	Preventive Maintenance

Maintenance Activity	Activity Definition	Benefit to the CVRD	Maintenance Priority
Vegetation Control	Clearing vegetation around reservoir.	Ensures facilities are accessible and appear well-maintained.	Preventive Maintenance
Reservoir and Equipment Corrective Maintenance	Planned upgrades and/or repairs to critical equipment to ensure proper continued operation.	Ensures equipment operates as intended; prevents failure and potential loss of service.	Scheduled Corrective
Reservoir and Equipment Emergency Maintenance	Unplanned upgrades and/or repairs to facility or equipment; usually triggered by customer calls or SCADA system alarms.	Prevents loss of service or restores service that has been lost.	Emergency - Corrective
Fall Protection / Safety Check	Inspection and testing of fall protection and safety equipment.	Ensures safety equipment is in good working order to protect worker safety.	Preventive Maintenance
Painting	Painting the reservoir inside and out.	Provides corrosion protection	Preventive Maintenance
Divers (Inspections)	Underwater inspections of reservoir.	Ensures that potential maintenance issues that are not normally visible are identified.	Preventive Maintenance
Access Road Maintenance	Planned upgrades and/or repairs to road infrastructure to ensure proper road conditions.	Ensures reservoir is safely accessible at all times.	Preventive Maintenance

Table D7 – Pressure Reducing Stations O&M Activities

Maintenance Activity	Activity Definition	Benefit to the CVRD	Maintenance Priority
Pressure Reducing Station Inspection (in accordance with SOP)	Inspection of facility and equipment for cleanliness, leaks, corrosion and damage. The lights, ventilation fans, heater, sump pump and drains are also checked for operation. The pump meters are read and, where applicable, fire pumps are tested.	Ensures the facility and equipment are in good operating condition; allows crews to identify any corrective maintenance required.	Preventive Maintenance
Strainer Cleaning and Inspection	Cleaning and inspection of basket strainers (basket and/or Y)	Ensures proper filtration and prevents clogging that affects system pressure.	Preventive Maintenance
Control PRV Tear-Down and Inspection (in accordance with SOP)	Tear-down and inspection of control valves.	Ensures PRVs are in good operating condition; allows crews to identify any corrective maintenance required.	Preventive Maintenance

Maintenance Activity	Activity Definition	Benefit to the CVRD	Maintenance Priority
PRV Corrective Maintenance	Planned upgrades and/or repairs to PRV station and equipment to ensure proper continued operation.	Ensures equipment operates as intended; prevents failure and potential loss of service.	Scheduled Corrective
PRV Emergency Maintenance	Emergency repairs to PRV station or equipment; usually triggered by customer calls or SCADA system alarms.	Restores service and/or reduces risk of damage to system.	Emergency Corrective

Table D8 – Meters O&M Activities

Maintenance Activity	Activity Definition	Benefit to the CVRD	Maintenance Priority\
Vault Chamber Inspection	Inspect vault for water, debris, deficiencies; apply spray lubricant to sump pump.	Ensure vaults are safe and clean.	Preventive Maintenance
Testing and Calibration (Large Meters)	Testing and calibrating large meters.	Ensures reliability of meters and accuracy of water flow recordings.	Preventive Maintenance
Meter Reading	Meter reading	Ensures accurate billing and reading of residential water meters	Standing Work Order
Meter Replacement (Betterment)	Replacement of water meters that have deteriorated to the point where they are not reliable or are obsolete	Ensures billing accuracy	Scheduled Corrective
Meter Corrective Maintenance	Planned upgrades and/or repairs to meters that are not recording water flow correctly (or have been damaged)	Ensures billing accuracy	Scheduled Corrective
Meter Emergency Maintenance	Repairs to faulty or broken meters; usually triggered by customer calls.	Ensures billing accuracy	Emergency Corrective
Battery Change	Changing the battery	Prevents missed readings due to battery failure	Preventive Maintenance
Remote Change	Changing the remote reader (used when meter is located inside a house)	Prevents missed readings due to battery failure	Preventive Maintenance
Bypass Inspections	Inspect meters for presence of illegal bypass	Prevents theft of water and loss of utility revenue	Preventive Maintenance

Appendix E – Asset Replacement Over the Short-Term

Appendix E - BCOB WLSA Asset Replacement Over the Short Term

Asset ID	Water System (Abv)	Service Area	Asset Name (Location)	Asset System	Asset Class	Asset Status	Description 1 (Primary Type)	Description 2 (Mat'l / Secondary Type)	Descr. 3 (Diameter)	Quantity	Unit	Inst. Year	Apparent Age (yrs)	ESL (yrs)	Condition	CoF	PoF	Risk	Total Repl. Cost	1st Repl. Year
BC / OB-WTP-72	BCOB WLSA	BC / OB	Well No. 2a & 2b Control Building	Wells	BUILDING MECHANICAL	Active	Fan	Exhaust Fan		1	Ea	1979	40	20	5	3.0	5.0	15	$ 10,000	2019
BC / OB-WTP-69	BCOB WLSA	BC / OB	Well No. 2a & 2b Control Building	Wells	ELECTRICAL	Active	MCC			1	Ea	1979	40	20	5	3.0	5.0	15	$ 62,500	2019
BC / OB-WTP-71	BCOB WLSA	BC / OB	Well No. 2a & 2b Control Building	Wells	ELECTRICAL	Active	Transformer			1	Ea	1979	40	20	5	3.0	5.0	15	$ 5,000	2019
BC / OB-WTP-41	BCOB WLSA	BC / OB	Oyster Bay Treatment Plant	Treatment	ELECTRONICS	Active	Computer Station			1	Ea	2007	12	5	5	2.0	5.0	10	$ 18,750	2019
BC / OB-PS-8	BCOB WLSA	BC / OB	Black Creek Pump Station	Pump Stations	ELECTRONICS	Active	Computer Station			1	Ea	2009	10	5	5	2.0	5.0	10	$ 18,750	2019

Appendix F – Job Description: Asset Manager

The Asset Manager will be responsible for undertaking the challenges associated with the development, implementation and maintenance of asset management activities across the organization. This position forms part of CVRD's Executive Management Branch and work performed will be done under the general direction of the Chief Financial Officer, with the aid of existing support staff.

Duties:

- Ensures that CVRD's AM policy, strategy, and plans are aligned, up-to-date, and implemented.
- Leads the development, implementation and maintenance of the CVRD's inventory-based data management systems.
- Assesses the condition and risk of assets and coordinates contractors and consultants to provide this data, e.g. non-destructive testing, CCTV inspection asset data analysis, facility condition assessments, review of lifecycle cost data.
- Evaluates alternative asset rehabilitation and replacement technologies from both a technical and sustainability perspective.
- Directs and / or participates in the development, monitoring, analysis, and reporting of infrastructure performance with respect to service level standards and life-cycle costs. Specific tasks may include:
  - Consultation with Operations and other divisions regarding the collection of infrastructure performance data (e.g., sewer blockages, forcemain and water main break data, numbers of affected customers, pump failures, equipment failures, corrective actions, etc.);
  - Query, analysis and reporting of performance data, and identification of trends (e.g., impact of asset preservation strategies on the overall cost of ownership, cathode / anode protection on leak frequency in pressure systems, comparison of maintenance costs for various types of infrastructure);
  - Asset condition prediction through the use of asset deterioration models;
  - Prediction of life-cycle costs and service level impacts using deterioration models, and the prediction of capital and maintenance cost data.
- Participates in the provision of asset management services by assisting to set project objectives and terms of reference, evaluating consultant proposals, participating on advisory committees, providing contract administration duties, directing / monitoring asset management projects, providing direction to consultants, reviewing / evaluating consultant reports, and liaising with other Divisions, Departments, and outside agencies.
- Assists with planning-level and detailed-level cost estimates for infrastructure projects, as well as the preparation and prioritization of the CVRD's Capital Program and related budgets.
- Provides technical input regarding annual capital programs for the CVRD's assets by recommending optimal asset management strategies (including undertaking cost-benefit analysis for alternate projects and alternate technologies). Specific tasks may include:
  - Economic life-cycle and present value analysis;
  - Prioritization of needs using asset classification systems, economic analysis and risk analysis;
  - Technical assessment of asset condition and recommendation of rehabilitation projects;
  - Participation in the review of asset rehabilitation and renewal programs.
- Participates on a variety of staff teams and committees to develop recommended maintenance management and cost control policies and procedures.
- Assists in the development, implementation and delivery of staff training programs for asset management.

- Performs additional related work as required.
- All persons employed by the CVRD will be required to assist the CVRD in providing emergency services. Duties assigned during an emergency may differ from regular duties.

Required Education and Experience

- Bachelor's degree in Engineering or Business, supplemented by courses in Asset Management.
- Minimum 5 years' experience related to Asset Management and municipal infrastructure.
- Experience managing small projects and personnel, including timing and budget.
- An equivalent combination of education and experience may be considered.

Required Knowledge, Skills and Abilities

- Demonstrated knowledge of Asset Management principles, tools, and data management systems.
- Technically proficient in the development and implementation of Municipal Asset Management procedures and practices.
- Demonstrated proficiency in preparing and interpreting plans, specifications, manuals, contract documents and terms of reference. Ability to apply written and oral work instructions, and to communicate effectively, both orally and in writing.
- Proficiency with preparation of clear, accurate, and complete reports, records, and other written materials.
- Demonstrated ability to apply sound independent judgment and knowledgeable in the operations of municipal infrastructure systems.
- Demonstrated proficiency in the use of various business and data management tools and applications including but not limited to the MS Office Suite, Adobe Acrobat, and Sharepoint.
- Knowledgeable in the use, suitability and application of various infrastructure rehabilitation and condition assessment technologies.
- Ability to organize and prioritize workload.
- Demonstrated ability to establish and maintain positive working relationships with employees at all levels of the organization, external contacts and the public.

Valid BC drivers' Class 5 license.

This page is intentionally left blank

FINAL