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ROCKWOOD WATER PEOPLE'S UTILITY
DISTRICT & CITY OF GRESHAM

Groundwater Development Master Plan

Project No. 18-2336 | September 2020

Executive Summary

Rockwood Water PUD and City of Gresham
Groundwater Development Master Plan

Executive Summary

ES.1 Purpose

The Portland Water Bureau (PWB) is implementing significant rate increases to its wholesale customers, including the District and City. Rate increases are set to begin in the next few years with the design and construction of a new water filtration plant for the Bull Run surface water supply, and they will continue through future extensions of wholesale contracts with PWB starting in 2026.

The District and City are proposing improvements to its groundwater supply system which would eliminate the need for maintaining the existing wholesale contracts with the PWB. The purpose of this reporting is to summarize and document the feasibility and costs associated with proposed groundwater supply improvements. Conceptual implementation planning has also been completed to allow for the District and City to end the wholesale contracts with PWB by 2026. Proposed seismically resilient improvements include the development of multiple new groundwater wells throughout the District and City with associated wellhead improvements; rehabilitation of the 4.0 million gallon (MG) Cascade Reservoir 1; a new 6.0 MG prestressed concrete Cascade Reservoir 2; expansion of the existing Cascade and 141st Avenue Pump Stations; water treatment facilities at the Cascade, 141st Avenue sites, 223rd and Stark and one additional site; and improvements to the 141st Avenue Reservoir; transmission main improvements; site piping upgrades; and other miscellaneous infrastructure improvements required to achieve supply independence.

ES.2 Existing Groundwater Supply

RWPUD operates wells within their Cascade groundwater system to meet all peak water demand for the City and District beyond the base flow it is currently supplied from the PWB. To meet peaking needs the District operates three wells at its Cascade facility, Cascade Well Nos. 3, 4 & 5. All three wells are jointly operated under an intergovernmental agreement (IGA) with the City of Gresham. The firm capacity (capacity with the largest well out of service) of this existing groundwater supply system is 9.0 million gallons per day (mgd).

Water rights for the District's groundwater uses are authorized under water right certificate #83629 and permit G-8719 through the Oregon Water Resources Department (OWRD). The District holds adequate water rights to support the expansion of its available groundwater supply to meet long-term build-out needs for the City and the District. An Intergovernmental Agreement

(IGA) between the District and City grants 18.0 mgd of water right capacity to the City under water right Permit G-16917.

ES.3 Water Demand Projections

The term "water demand" refers to all the water requirements of the water system including domestic, commercial, municipal, institutional, as well as unaccounted-for water. Existing water demands were developed from a review of historical water billing records and operations data.

Water demand projections through 2045 are estimated based on an average annual demand growth rate of 1.5 percent and beginning with a District-measured 2018 maximum day demand (MDD) of 9.8 mgd to a future, year 2045, MDD of 16.2 mgd.

Water demand projections through the year 2050 for the City are taken from the City's draft Water System Master Plan (Murraysmith, 2020) and range from a current MDD of 10.7 mgd to a future, year 2050, MDD of 15.4 mgd.

ES.4 Water System Analysis Criteria

Criteria are established for evaluating water supply, water quality, storage and pumping capacity, and distribution system performance (service pressure and fire flow availability). The water supply performance criteria presented below are consistent with those provided in the District's 2013 WSMP and the City's current draft Water System Master Plan. The analysis in this study focuses on maintaining the same level of performance and reliability currently experienced with wholesale supply from PWB.

Water Supply

Source Capacity	MDD with the largest well out of service
Treatment Capacity	MDD
Standby Power	Two independent power sources for each well

Water Quality

Safe Drinking Water Act (SDWA)	All contaminant levels below MCLs
Manganese Scale Control	Less than 0.02 mg/L

ES.5 Cascade Reservoir Evaluation and Recommendations

Engineering evaluation services were performed on the District's existing Cascade Reservoir No. 1 to assess the current condition of the tank's exterior and interior coatings, exterior appurtenances, and interior piping and appurtenances. Additionally, a structural evaluation of the tank was performed to assess gravity and seismic vulnerability issues for the facility and determine those improvements required for compliance with current codes and standards.

The Cascade Reservoir was placed into service in 1976 with a storage capacity of 5.0 MG. The ground-level welded steel reservoir underwent a seismic upgrade in 2004, which resulted in lowering the overflow elevation of the tank and an associated reduction in capacity. The reservoir is experiencing excessive corrosion and coating failure above the waterline and, to a lesser extent, on the floor and shell.

Following reservoir interior and exterior evaluations, as well structural evaluations on the Cascade Reservoir, several improvements are recommended for the facility, including:

- Water quality improvements through the installation of a passive mixing system
- Exterior coatings improvements to remove and replace the roof coating
- Exterior appurtenance improvements to the roof hatch and roof vents
- Full removal and replacement of all interior coatings
- Interior piping improvements to remove existing stainless steel inlet piping
- Interior appurtenances improvements to painters plugs, ladder and level measurement
- Roof support system upgrades
- Structural improvements to meet Oregon Structural Specialty Code requirements
- Installation of flexible piping connections and isolation valving

The conceptual level project cost estimate for the recommended improvements to the Cascade Reservoir is approximately $3,205,000.

ES.6 Groundwater System Improvements

An analysis of supply, transmission, storage and pumping by pressure zone was completed. Using the District's hydraulic model to simulate existing and forecasted operating conditions in the water transmission and distribution system, each zone has been evaluated in the context of the performance criteria presented above and by considering the changes in supply and operation that will occur in each zone as supply is discontinued from the existing PWB wholesale connections. For the City, it is assumed all groundwater supply will be introduced into the Grant Butte and Intermediate pressure zones, similar to the existing PWB supply. As such, analysis of the distribution system performance is not included in this study.

The current and long-term water supply capacity needs are summarized in Table ES-1. *It is understood that the City and District will continue with joint development of groundwater wells, and shared management of the operation of these wells.* In doing so, firm capacity is based on the single largest well (regardless of well ownership) out of service. In addition to Cascade Wells 7, 8 and 9, currently under development, Cascade Well 6 is needed to meet the 2026 demands of the combined systems. Development of Cascade Well 10 by the City, is anticipated to be completed within the next 5 years to better define the potential or groundwater development within the City's service area. An additional 3 groundwater wells are anticipated beyond 2026 to meet growing water demands, with the City bearing the primary responsibility for developing this future capacity.

Table ES-1
Groundwater Supply Capacity Analysis Summary

Description	Shared Groundwater Supply (mgd)	
	City of Gresham	Rockwood Water PUD
Near-term (2026)		
Cascade Well No. 3	1.6	1.6
Cascade Well No. 4	3.0	3.0
Cascade Well No. 5	2.9	2.9
Cascade Well No. 7 (NE 202nd Ave & NE Glisan St)	2.8	2.8
Cascade Well No. 8 (141st Avenue Reservoir site - District)		2.0
Cascade Well No. 9 (Kirk Park)	2.2	2.2
Cascade Well No. 6 (NE 223rd Ave & SE Stark St)	2.2	2.2
Cascade Well No. 10 (SW Community Park - City)	1.0	
Anticipated groundwater supply (firm capacity), 2026	**12.7**	**13.7**
Forecasted MDD, 2026	**10.7**	**11.0**
Surplus/(Deficit)	**2.0**	**2.7**
Future (2045)		
Anticipated groundwater supply (firm capacity), 2026	12.7	13.7
Future well west of Cascade Site	2.0	2.0
Future additional well (TBD)	1.0	
Future additional well (TBD)	1.0	
Future additional well (TBD)		1.0
Anticipated groundwater supply, 2045	**16.7**	**16.7**
Forecasted MDD, 2045	**15.4**	**16.2**
Surplus/(Deficit)	**1.3**	**0.5**

ES.7 Water Treatment Analysis

Water quality data and source water change impacts were reviewed to identify constituents of concern and treatment needs for the drinking water supply change. The groundwater meets all primary drinking water quality regulatory standards, however some characteristics in the well water may become more noticeable after switching from surface water to 100 percent groundwater supply. These include:

- Elevated manganese levels
- Moderately hard water
- Higher silica levels
- Ambient Radon levels

The primary constituent of concern identified during the review is manganese. Manganese concentrations are elevated in the District's existing wells and will likely cause discoloration and increased scale development in the distribution system after switching to 100 percent

groundwater. *Treatment for manganese removal is recommended for the existing wells with elevated concentrations.*

Based on cost, treatment effectiveness, site layout, and typical practices with similar groundwater in the Pacific Northwest, it is recommended that the District/City provide manganese treatment with high rate manganese dioxide pressure filters (oxidation, precipitation, and adsorption). These treatment systems have the benefit of easy operation and control, high loading rates (high flow rates per square foot of filter area allowing for a smaller footprint), and the only chemical oxidant required is chlorine (already required for residual disinfection).

ES.8 Conceptual Improvement Plan Development

For the RWPUD and City of Gresham to move to a system fully supplied by groundwater, several improvements are required throughout the District and City. Large-scale improvements are required at the 141st Avenue Reservoir and Pump Station site and at the Cascade site. Large diameter transmission main improvements are also required. An overview map highlighting all proposed groundwater system improvements is providing in Figure ES-1.

Groundwater development projects proposed in this section have been separated in nine project packages based on similarity of work and project locations. Project cost estimates developed in this report are a sum of construction costs; project engineering, administration, and permitting (EA&P) costs; and program administration costs. Construction cost estimates have been developed to be consistent with Association for the Advancement of Cost Engineering (AACE International) Class 4 standards with an expected accuracy range of +50% to -30% and include a 25 percent contingency based on a level of project definition for a feasibility study.

Project Package No. 1, Cascade Reservoir Improvements

Project Package No. 1 proposes the construction of a new 6.0 MG Cascade Reservoir No. 2, as well as coating rehabilitation and miscellaneous improvements to Cascade Reservoir No. 1. This project package also includes the construction of a new wellhead facility and associated transmission main for the recently drilled Cascade Well No. 7, located at a District-owned property near the intersection of NE 202nd Avenue and NE Glisan Street. Additional site improvements, including the construction of a water treatment facility, expansion of the existing Cascade Pump Station, and the relocation of the Operations parking and storage facility, are included in Project Package No. 4, Cascade Site Improvements.

Total Project Package No. 1 costs are approximately $22,620,000. It is assumed that the project costs will be split equally between the partners (with City overhead only applied to the City's share of the project).

G:\PDX_Projects\18\2336 - RWPUD GW Development Master Plan\GIS\Groundwater Development Master Plan MXD\18-2336-OR-FIGURE 8-1 REVISED.mxd 10/5/2020 5:23:27 PM bmg

Columbia River
Columbia Slough
Arata Creek
Blue Lake
Salmon Creek
Fairview Creek
Johnson Creek
Butler Creek
Kelly Creek
Burlingame Creek
Rock Creek

NE MARINE DR
NE AIRPORT WAY
NE BLUE LAKE RD
NW MARINE DR
NE SANDY BLVD
NE 148TH AVE
NE 162ND AVE
NE 181ST AVE
NE 223RD AVE
NE 238TH DR
NE HALSEY ST
NE GLISAN ST
E BURNSIDE ST
SE STARK ST
NW BURNSIDE RD
NE BURNSIDE RD
NE DIVISION ST
NW DIVISION ST
SE DIVISION ST
SE POWELL BLVD
E POWELL BLVD
W POWELL BLVD
SE HOLGATE BLVD
SW HIGHLAND DR
SW BUTLER RD
SE BUTLER RD
SE FOSTER RD
SE TILLSTROM RD
SE 172ND AVE
SE 190TH DR
SE 136TH AVE
SE 148TH AVE
SE 162ND AVE
SE 182ND AVE
SE 202ND AVE
NE 242ND DR
FAIRVIEW AVE
NW BIRDSDALE AVE
NW EASTMAN PKWY
N MAIN AVE
NE HOGAN DR
SE HOGAN RD
SW PLEASANT VIEW DR
SW TOWLE AVE

City of Gresham
City of Gresham

60" PWB GROUNDWATER
56" PWB CONDUIT 4
44" PWB CONDUIT 2

WTP
18"
30"
36"
24"

CASCADE RESERVOIR 1
CAP: 4.0 MG
OE: 264.5'
CASCADE RESERVOIR 2
CAP: 6.0 MG
OE: 264.5'
CASCADE PUMP STATION

CASCADE WELL NO.s 7 AND 9
CASCADE WELL NO.s 3, 4 AND 5
CASCADE WATER TREATMENT FACILITY

30" CASCADE GROUNDWATER

GLENDOVEER PZ Tx MAIN

141ST AVE RESERVOIR
CAP: 2.2 MG
OE: 363'
141ST AVE PUMP STATION
141ST AVE WATER TREATMENT FACILITY
CASCADE WELL NO. 8

GRESHAM NORTH METER STATION

CASCADE WELL NO. 10 AND WATER TREATMENT FACILITY

CASCADE WELL NO. 6 AND WATER TREATMENT FACILITY

18" GRESHAM FINISHED WATER Tx MAIN

CLEVELAND RESERVOIR #1
CAP: 2.7 MG
OE: 404.5'
CLEVELAND PUMP STATION

GRANT BUTTE RESERVOIR
BON-AL BOOSTER PUMP STATION
GRESHAM SOUTH METER STATION

BELLA VISTA RESERVOIR
CAP: 6.7 MG
OE: 449'
BELLA VISTA PUMP STATION

MAIN AVE PUMP STATION

CEDARVILLE PUMP STATION

WALTERS HILL RESERVOIR (RETIRED) & WALTERS PUMP STATION

HUNTERS HIGHLAND RESERVOIR
HUNTERS HIGHLAND PUMP STATION

GABBERT RESERVOIR
GABBERT PUMP STATION

REGNER RESERVOIR & SOUTH HILLS PUMP STATION

BUTLER RESERVOIR

SOUTH HILLS RESERVOIR

Legend

Proposed Facilities:
- Reservoir
- WTP — Water Treatment Facility
- W — Well
- Pressure Reducing Valve (PRV)
- Transmission (Tx) Main

Existing Facilities:
- Reservoir
- P — Pump Station
- Existing Transmission Main
- PWB Conduit
- Railroad/Light Rail
- Stream
- Rockwood Water PUD Service Boundary
- City of Gresham
- Other Cities

0 3,000 Feet

Data Sources:
Rockwood Water PUD
Metro RLIS - February 2020
Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
Projection: Lambert Conformal Conic
Datum: North American 1983 HARN
Vertical Datum: NAVD88 (Intl Feet)
Disclaimer: Rockwood Water PUD makes no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, or surveying purposes. Notification of any errors is appreciated.

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Rockwood Water People's Utility District
CITY OF GRESHAM

N W E S

Groundwater Development Master Plan

Figure ES-1 Water System Map, Proposed Improvements

Project Package No. 2, Transmission Mains

Project Package No. 2 consists of the construction of two large-diameter transmission main improvements recommended for the full development of the groundwater supply system.

To assist the District in meeting long-term MDD for the Glendoveer PZ in excess of the anticipated 2 mgd capacity for Cascade Well No. 8, as well as to meet fire flow requirements for the zone should the 141st Avenue Reservoir and/or Cascade Well No. 8 be down, a new 30-inch diameter transmission main is recommended for providing gravity supply from the Main PZ directly to the 141st Avenue Reservoir and Pump Station.

In order to transmit the expanded capacity of the Cascade site supply to the Bella Vista and Grant Butte Reservoirs, a new finished water transmission main is recommended from the Cascade site to the City's North Meter Station and the District's 202nd and Division Street Master Meter.

Total Project Package No. 2 costs are approximately $22,870,000. It is assumed that the project costs will be 100% District for the Glendoveer Pressure Zone Transmission Main. The project costs for the Cascade to Bella Vista/Grant Butte Transmission Main will be split equally between the partners (with City overhead only applied to the City's share of the project) with a separate buy-in (not accounted for in the estimated presented herein) by the City of Gresham for the existing 24-inch diameter segment of District owned transmission main that will be integrated into the transmission system.

Project Package No. 3, 141st Avenue Site Improvements

Future site improvements included in Project Package No. 3 are the construction of a new groundwater wellhouse, seismic retrofitting of the existing reservoir, and construction of a new Water Treatment Facility (WTF). Upgrades internal to the existing pump station are also planned at the site. With upgrades and additional pumping capacity planned for the 141st Avenue Pump Station, as well as the planned demolition and removal of the existing Glendoveer Pump Station, a new Northwest Glendoveer PZ will be created, requiring a new PRV station.

Total Project Package No. 3 costs for the District are approximately $9,410,000.

Project Package No. 4, Cascade Site Improvements

Project Package No. 4 site improvements include the construction of a WTF, yard piping improvements and the relocation of the Operations parking and storage facility. Additionally, improvements are recommended for the Cascade Pump Station, and the off-site Cleveland Pump Station, to expand existing pumping capacities.

Total Project Package No. 4 costs are approximately $32,140,000.

Project Package No. 5, Cascade Well No. 6

Project Package No. 5 site improvements, at SE 223rd Avenue and SE Stark Street, include the construction of wellhead improvements, a dedicated WTF, yard piping improvements and transmission piping to convey the treated groundwater to the City of Gresham's distribution system.

Total Project Package No. 5 costs are approximately $14,170,000. It is assumed that the project costs will be 100% City for the Gresham Finished Water Transmission Main. The project costs for the Cascade Well No. 6 site work including wellhead improvements and the WTF will be split equally between the partners (with City overhead only applied to the City's share of the project).

Project Package No. 6, Cascade Well No. 9

The drilling of Cascade Well No. 9, located at Kirk Park (south of NE Halsey Street and west of NE 188th Avenue), is currently underway and well development and testing will be complete late in 2020. Wellhead improvements are scheduled to follow in 2023/2024 for design and 2024/2025 for construction. A new raw water transmission main will be required to direct groundwater flows to the centralized Cascade site for treatment.

Preliminary project cost estimates for the proposed improvements at Cascade Well No. 9 total $5,460,000.

Project Package No. 7, Cascade Well No. 10

Project Package No. 7 site improvements include the construction of wellhead improvements, a dedicated water treatment facility, yard piping improvements and transmission piping to convey the treated groundwater to the City of Gresham's distribution system. It is anticipated that development of Cascade Well No. 10 will occur further south within the City's water servicer area and will be owned and operated solely by the City.

Preliminary project cost estimates for improvements at the proposed Cascade Well No. 10 (not including well drilling) total $6,390,000.

Project Package No. 8, North Meter Station

The City of Gresham will need to complete additional improvements at the North Meter Station and between the meter station and the Grant Butte Reservoir, in order to transmit the full groundwater supply from the Cascade site into the City's Grant Butte pressure zone.

Preliminary project cost estimates for improvements at the North Meter station total $3,420,000.

Project Package No. 9, Columbia South Shore

The City of Gresham serves the Columbia South Shore pressure zone, located north of the District's service area along NE Sandy Boulevard as an isolated service area currently supplied through a wholesale metered connection with the City of Portland and also individual customer meters that receive wheeled water from City of Portland distribution mains. In order to supply this area, the City is planning to construction facilities to allow direct City service to all customers.

Preliminary project cost estimates for improvements at the Columbia South Shore area total $3,350,000.

ES.9 Capital Improvement Plan

This section presents a summary of recommended improvements for the District and City to fully develop a local groundwater supply and terminate wholesale water purchase from PWB. These improvements include source, treatment, storage reservoirs, pump stations, and transmission main projects. The Groundwater Development Capital Improvement Plan (CIP) presented in Table ES-2 summarizes recommended improvements and provides a timeframe for each project by fiscal year for the total program. Phasing of proposed projects has been developed following discussions with District and City staff and aligning available budgets with anticipated funding by fiscal year.

ES.10 Summary

This report outlines the key concepts and projects required for groundwater development within the District and City. Improvements include source, treatment, storage reservoirs, pump stations, and transmission main projects. System improvements analysis completed using the District's existing hydraulic model has been used to verify RWPUD's ability to eliminate its existing wholesale water agreement with PWB and be supplied from local groundwater sources. For the City of Gresham, participation with the District in the expansion of the Cascade groundwater supply with development of additional groundwater supplies within the City's water service area will allow the City to terminate, or significantly reduce, its dependence on wholesale water supply from PWB. The avoidance of this significant cost increase from PWB will ensure affordability and continued local decision making and cost control in the future. Conceptual project cost estimates have been established for the recommended upgrades to assist in developing budgets for the proposed improvements. Additionally, conceptual site layouts have been provided for key improvement areas, including the 141st Avenue and Cascade sites.

Table ES-2
Groundwater Development Capital Improvement Plan Summary - TOTAL COST

Project Package No.	Project Description	CIP Schedule and Project Cost Summary								Preliminary SDC Eligibility
		FY 2019 / 2020	FY 2020 / 2021	FY 2021 / 2022	FY 2022 / 2023	FY 2023 / 2024	FY 2024 / 2025	FY 2025 / 2026	TOTAL	
Project Package No. 1 - Cascade Reservoir Improvements	6.0 MG Cascade Reservoir No. 2		$960,000	$3,370,000	$9,530,000				$13,860,000	100%
	Cascade Reservoir No. 1 Improvements		$470,000	$1,450,000	$1,450,000				$3,370,000	32%
	Cascade Well No. 7 Wellhouse and Site		$440,000	$2,710,000					$3,150,000	100%
	Raw Water Transmission Main (Cascade 7) Improvements		$310,000	$1,940,000					$2,250,000	100%
	Subtotal	$0	$2,180,000	$9,470,000	$10,980,000	$0	$0	$0	$22,630,000	
Project Package No. 2 - Transmission Mains	Glendoveer Pressure Zone Transmission Main (30")		$470,000	$4,360,000	$1,920,000				$6,750,000	32%
	Cascade to Bella Vista Transmission Main			$1,030,000	$6,650,000	$8,440,000			$16,120,000	100%
	Subtotal		$470,000	$5,390,000	$8,570,000	$8,440,000			$22,870,000	
Project Package No. 3 - 141st Avenue Site Improvements	Cascade Well No 8 Wellhouse			$100,000	$610,000	$760,000			$1,470,000	100%
	141st Avenue Reservoir Improvements & Interim Zone Improvements			$190,000	$1,140,000	$1,430,000			$2,760,000	32%
	141st Avenue Pump Station Expansion			$120,000	$730,000	$910,000			$1,760,000	100%
	141st Avenue Water Treatment Facility (2 mgd)			$210,000	$1,270,000	$1,590,000			$3,070,000	32%
	NW Glendoveer PRV Vault					$150,000			$150,000	32%
	Demolition/Removal of Glendoveer Pump Station & Zone Expansion					$200,000			$200,000	0%
	Subtotal	$0		$620,000	$3,750,000	$5,040,000			$9,410,000	
Project Package No. 4 - Cascade Site Improvements	Cascade Water Treatment Facility				$1,800,000	$9,130,000	$17,100,000		$28,030,000	32%
	Cascade Pump Station Expansion				$200,000	$1,020,000	$1,900,000		$3,120,000	100%
	Yard Piping/Site Improvements				$50,000	$260,000	$480,000		$790,000	100%
	Cleveland Pump Station Improvements						$200,000		$200,000	0%
	Subtotal	$0	$0	$0	$2,050,000	$10,410,000	$19,680,000	$0	$32,140,000	
Project Package No. 5 - Cascade Well 6	Wellhead, Wellhouse and Site Improvements				$270,000	$1,500,000	$1,360,000		$3,130,000	100%
	Treatment Facility				$740,000	$4,130,000	$3,760,000		$8,630,000	100%
	Transmission (Gresham) to Stark and Cleveland				$210,000	$1,150,000	$1,050,000		$2,410,000	100%
	Subtotal	$0	$0	$0	$1,220,000	$6,780,000	$6,170,000	$0	$14,170,000	
Project Package No. 6 - Cascade Well 9	Wellhead, Wellhouse and Site Improvements					$400,000	$2,720,000		$3,120,000	100%
	Raw Water Transmission					$300,000	$2,040,000		$2,340,000	100%
	Subtotal	$0	$0	$0	$0	$700,000	$4,760,000	$0	$5,460,000	
Project Package No. 7 - Cascade Well 10	Wellhead, Wellhouse and Site Improvements					$240,000	$1,750,000		$1,990,000	100%
	Treatment Facility					$420,000	$3,020,000		$3,440,000	100%
	Transmission to Distribution					$120,000	$840,000		$960,000	100%
	Subtotal	$0	$0	$0	$0	$780,000	$5,610,000	$0	$6,390,000	
Project Package No. 8 - North Meter Station	North Meter Station Upgrades Transmission Main Upgrades (NM to GB Reservoir)				$498,400	$2,920,624			$3,419,024	21%
	Subtotal	$0	$0	$0	$498,400	$2,920,624	$0		$3,419,024	
Project Package No. 9 - Columbia South Shore	Sandy Boulevard Waterline and Connections Master Meter to Rockwood					$404,640	$2,949,826		$3,354,466	21%
	Subtotal	$0	$0	$0	$0	$404,640	$2,949,826		$3,354,466	
		$0	**$2,650,000**	**$15,480,000**	**$27,068,400**	**$35,475,264**	**$39,169,826**	**$0**	**$119,843,490**	