CLACKAMAS
WATER
ENVIRONMENT
SERVICES

WES Exchange

WES Advisory Committee Report

July 14, 2022

AGENDA

1. WES Exchange Overview
2. What we learned
3. Vision, Mission, Core Values
   - “How we describe ourselves”
   - “What we want to be known for”
4. Performance Clackamas – Next Steps

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WES Exchange *Purpose*

Create clarity around our vision, mission, and strategic priorities.

Enhance communication and foster organizational alignment.

Identify creative ways to share ideas, discuss obstacles, and identify opportunities for improvement.

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Discovery Approach

Group Interviews

☑

Leadership Workshop

☑

Online Survey

☑

Virtual Focus Groups

☑

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How do you describe WES' role in the community?

Education

Public Health

Healthy

Environmental Protection

Safe

Clean Water

Responsible

Operational

Community

Utility

Clean

Stewards

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What do you want WES to be known for?

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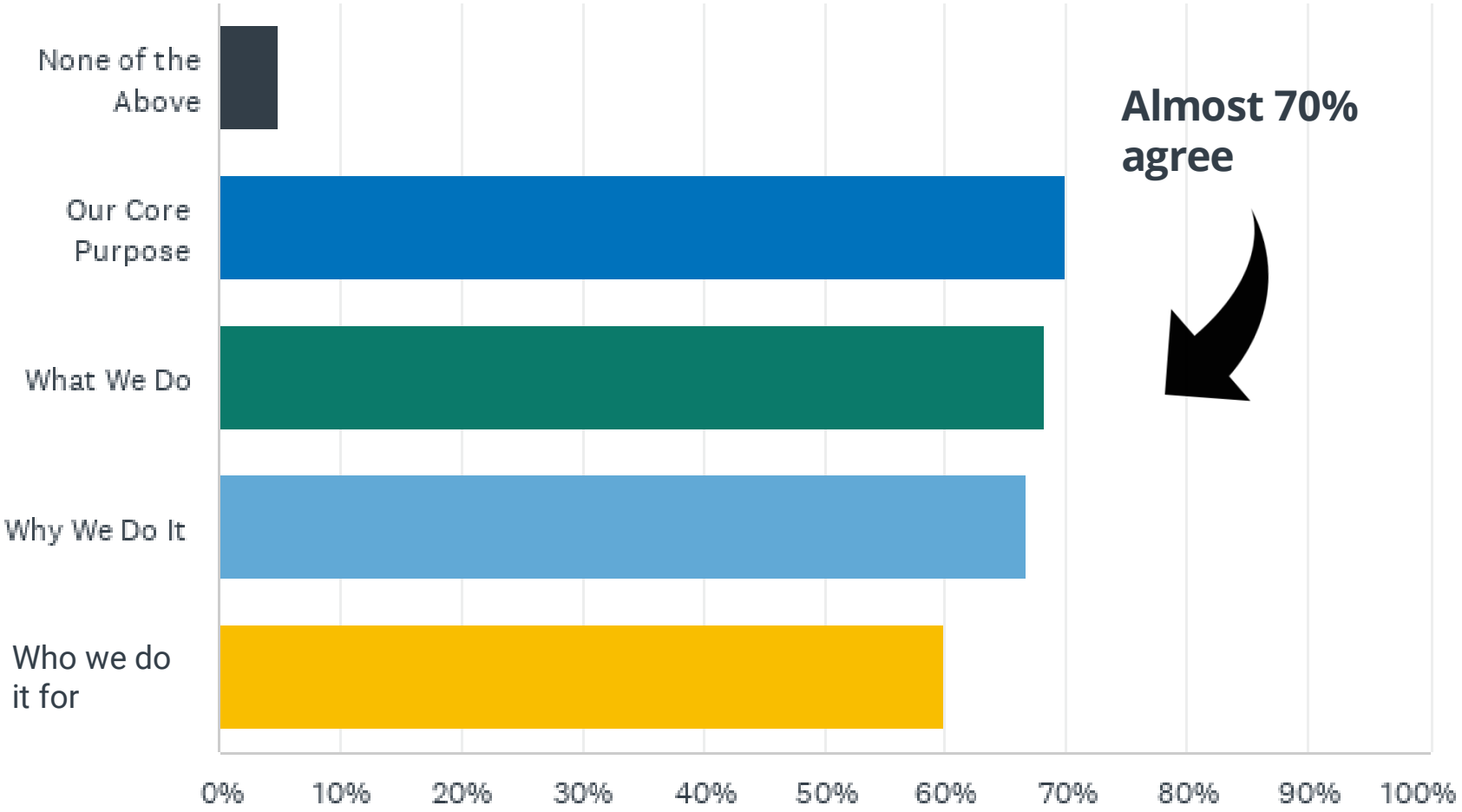
WES' mission statement **"provide resource recovery and watershed protection services to our community so we can live, work, and play in a healthy environment"** describes **…**



"It **sort of** describes what we do, but not in a way that would resonate or be understandable to our typical ratepayer"

"**resource recovery** and **watershed protection** don't fully represent the breadth of our core services"

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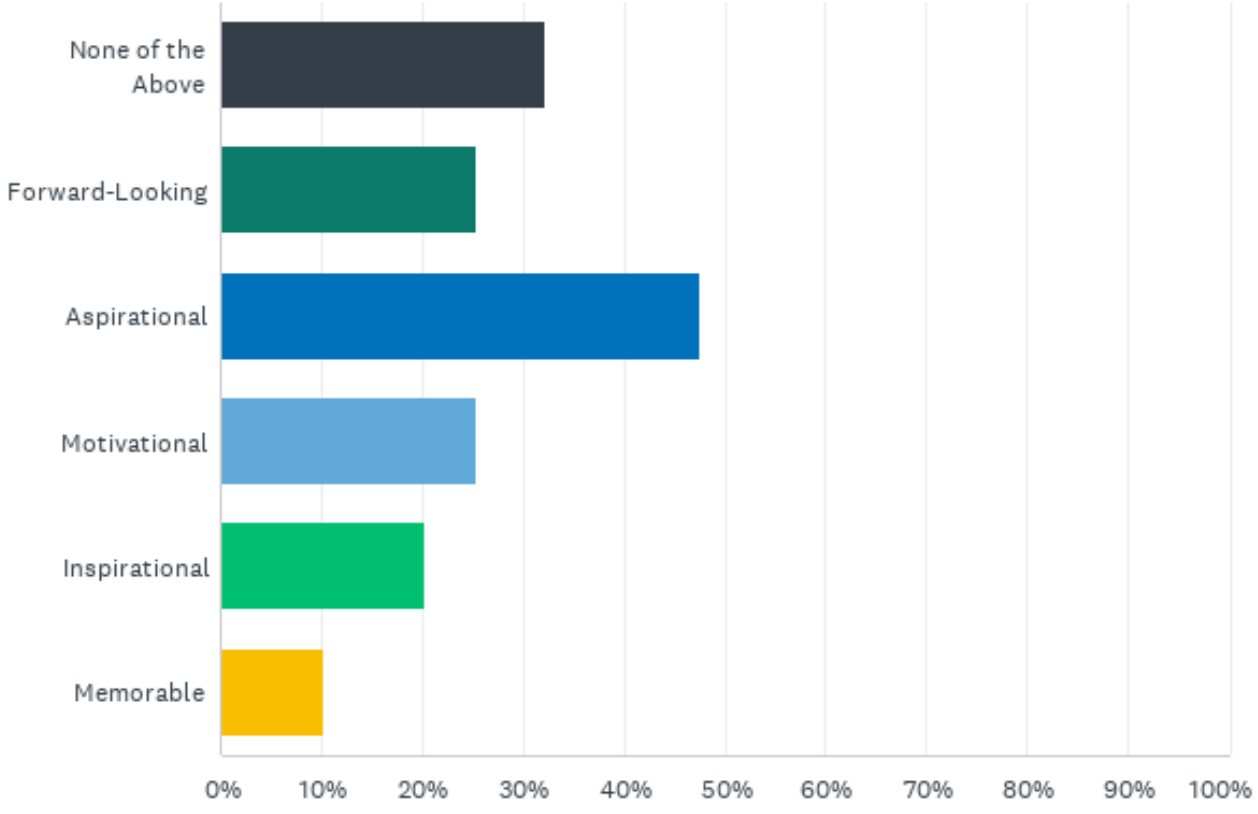
WES' Vision statement **"WES is regionally known as a premiere wastewater and surface water utility"** is…



Less than 30% agreement

Themes:

- Ranked low for motivational & inspirational
- **Over 30%** indicated the statement did not meet any of the criteria
- Missing 'collaborative' sentiment

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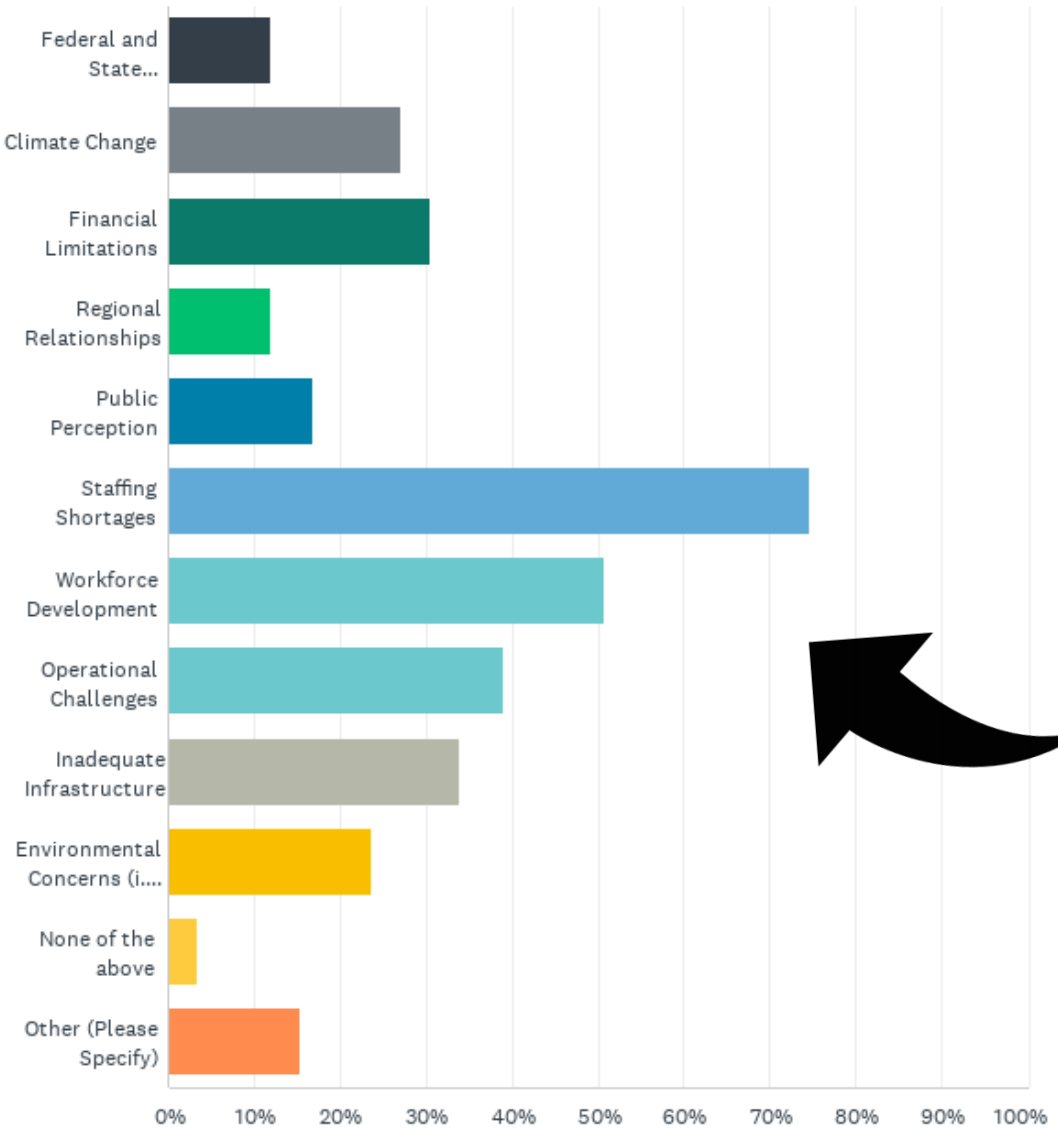

What obstacles are limiting us from reaching our vision?

Staffing, workforce development, and operational challenges remain top concerns.

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Survey Take-Aways

Strengths:

WES staff value:

- Collaboration & Teamwork
- Partnerships with Stakeholders
- Serving your Customers
- Your Charge as Clean Water Champions

WES staff take pride in:

- Your Work & Purpose
- Providing Environmental Protection
- Safeguarding Public Health
- Resolving Customer Issues Quickly
- Educating & Assisting the Community

Opportunities:

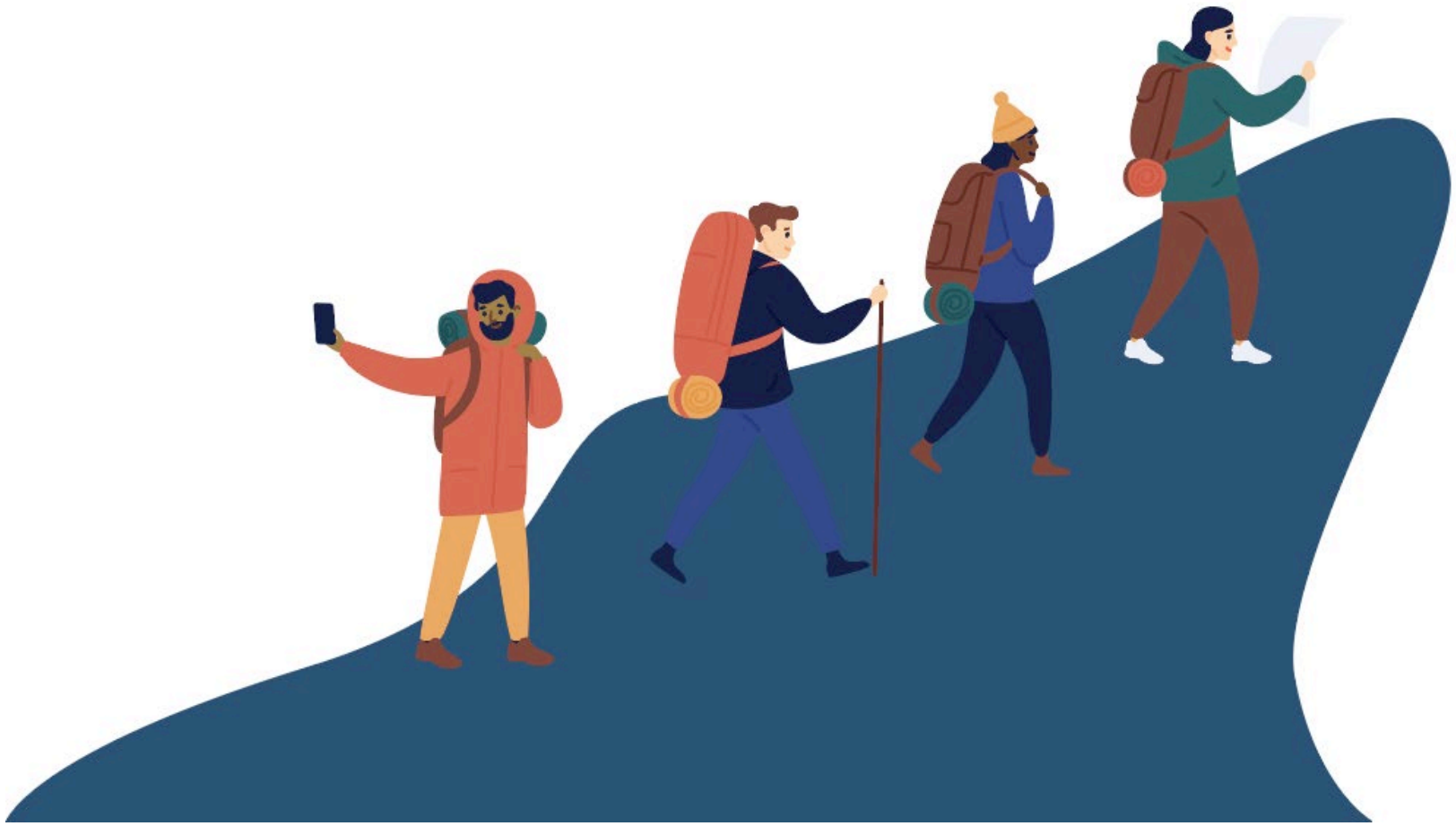
WES needs to focus on:

- Increasing Staff Engagement
- Addressing Staffing Shortages and Workforce Development
- Strengthening Organization Culture and Trust in Leadership
- Aligning Strategic Initiatives Priority and Vision

WES staff shared that:

- The Mission Statement sort of describes what we do, but not in a way that would resonate or be understandable to our typical ratepayer.
- The Vision Statement is not connecting with most staff.

Vision and Mission
Charting our Future, Together



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Vision

What are we working towards?
Where does WES want to be in the future?

Vision

Be a collaborative partner in building a resilient clean water future where all people benefit and rivers thrive.

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Mission

Who we are, what we do, why we matter

Mission

Clackamas Water Environment Services produces clean water, protects water quality and recovers renewable resources. We do this by providing wastewater services, stormwater management, and environmental education. It's our job to protect public health and support the vitality of our communities, natural environment, and economy.

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What We Stand For (Our Focus)

- Protecting Public Health
- Investment in Our People
- Stewardship of Healthy Watersheds
- Responsive Customer Service
- Fiscal Responsibility
- Water Resource Recovery

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Opportunities & Short-Term Wins

In order to strengthen bonds with each other, WES is identifying short-term actions to invest in:

- Education and Outreach
- Workforce Development
- Recruitment and Retention
- Workplace Culture

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Roadmap for Continued Communications

The WES Exchange team recommends creating a communication roadmap to keep staff engaged and connected to the strategic planning process and beyond. Example actions include:

1. Periodic Reports
2. Milestone celebrations
3. Team conversations

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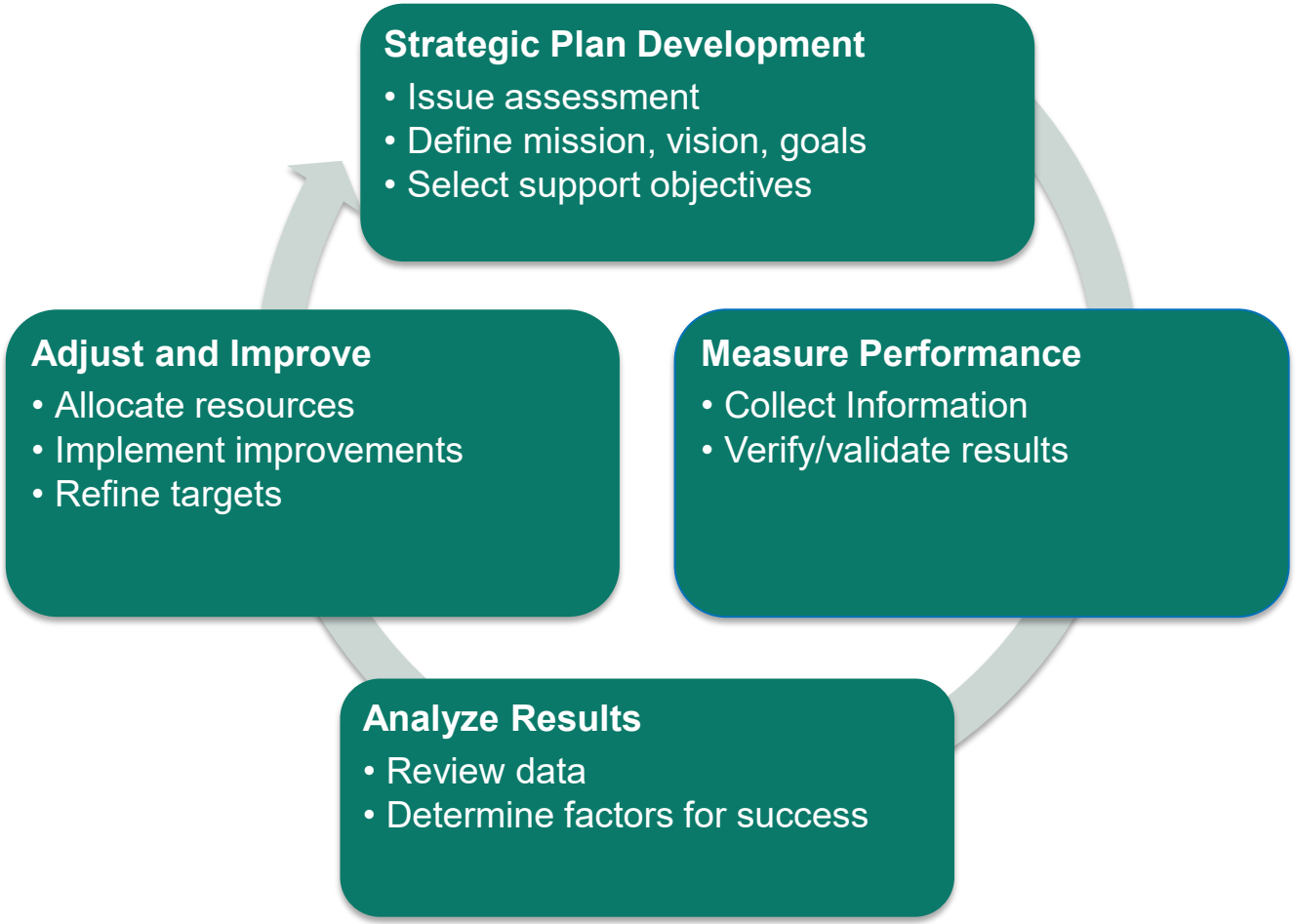
Performance Clackamas Process



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Next Steps

WES Exchange
Completed!

Performance Clackamas Adoption
Winter 2023

Mission & Vision, Values
Unveiled Summer 2022

Performance Clackamas Refresh
Fall 2022

Effective Utility Management Training
Utility Benchmarking
Summer/Fall 2022

Effective Utility Management Overview
WES Advisory Committee
Fall 2022

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WES Storm System Master Plan Update

Ron Wierenga, Assistant Director

July 14, 2022

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Plan Goals

- Document widespread or urgent system deficiencies
- Create operational programs to address existing issues and reduce backlog of system rehab/repair needs
- Develop a 10-year Capital Improvement Plan for larger more complex projects
- Identify regional projects to serve growth in the Pleasant Valley/North Carver Comprehensive Plan
- Advance policies to guide decision-making

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Master Plan Process

- **Discovery**
  - Review existing studies, reports, and databases
  - Document drainage and maintenance issues known by WES, City of Happy Valley, & Clackamas County staff
- **Visioning**
  - Values, priorities & rating system
  - Policy recommendations
- **Solutions**
  - Group systemic or frequent issues to be addressed through programs
  - Rate and rank capital projects
  - Develop a CIP, concepts, and costs for capital projects

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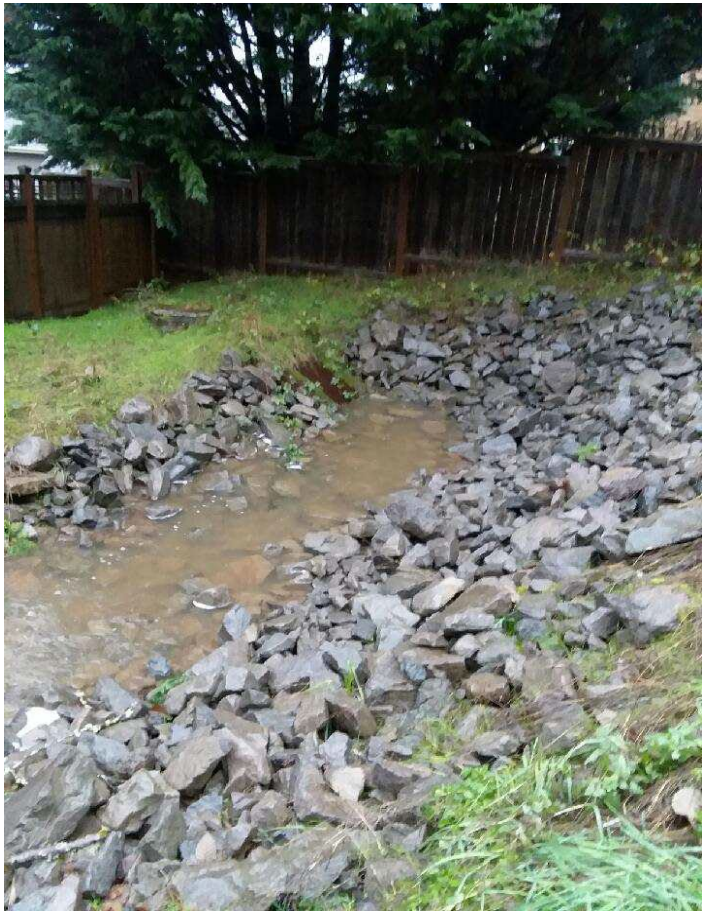
Programs

- Detention Pond Repair and Rehabilitation
- Water Quality Retrofits
- Small Drainage Projects
- Restoration and Property Acquisition
- UIC Decommissioning and Retrofits
- Priority CIP



Happy Valley Heights/Highland View Conveyance Project, Completed 2021

Detention Pond Repair & Rehabilitation

- Provide for repair and rehabilitation for WES owned/operated detention ponds:
  - Removal of sediment & vegetation
  - Clean and/or repair control structure, pipes, weirs
- Approximately 60 detention ponds currently in need of rehabilitation

SE Hines Dr., Detention Pond Rehab Project, Completed 2017

Water Quality Retrofits

- Modify existing infrastructure to add water quality treatment:
  - Build new structures/systems in older areas
  - Add/improve water quality structures in existing systems where beneficial to nearby stream/river:
    - Large stormwater ponds, stormwater planters in right of way & vegetated swales
- 9 water quality retrofit projects

Nella Way Water Quality & Drainage Project, Completed 2018

Small Drainage Projects

- Projects that help get runoff into and through the storm system:
  - New/modified inlets & manholes
  - Pipe repairs
  - Root removal/pipe Lining
- 35 known drainage issues

SE Knee Ct. Small Drainage Project Completed 2020

Restoration & Property Acquisition

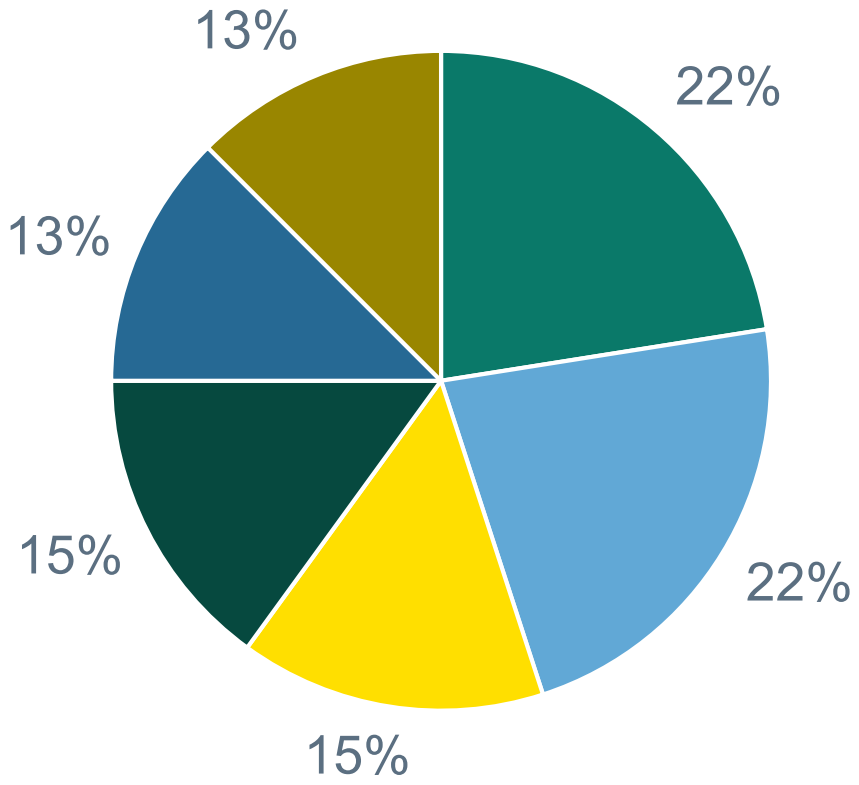
- Restore, revegetate, and acquire critical habitat and riparian areas:
  - In-stream habitat and riparian area restoration
  - Culvert replacement/repair
  - Property acquisition
- 13 Stream locations in need of restoration

Rock Creek Confluence Restoration, Completed 2014

UIC Decommissioning & Retrofit

- Decommission or retrofit underground injection control (UIC) systems:
  - UICs that intersect groundwater
  - UICs near drinking water wells
  - UICs needing water quality treatment structures
- 10 Projects

CIP Priorities and Rating System



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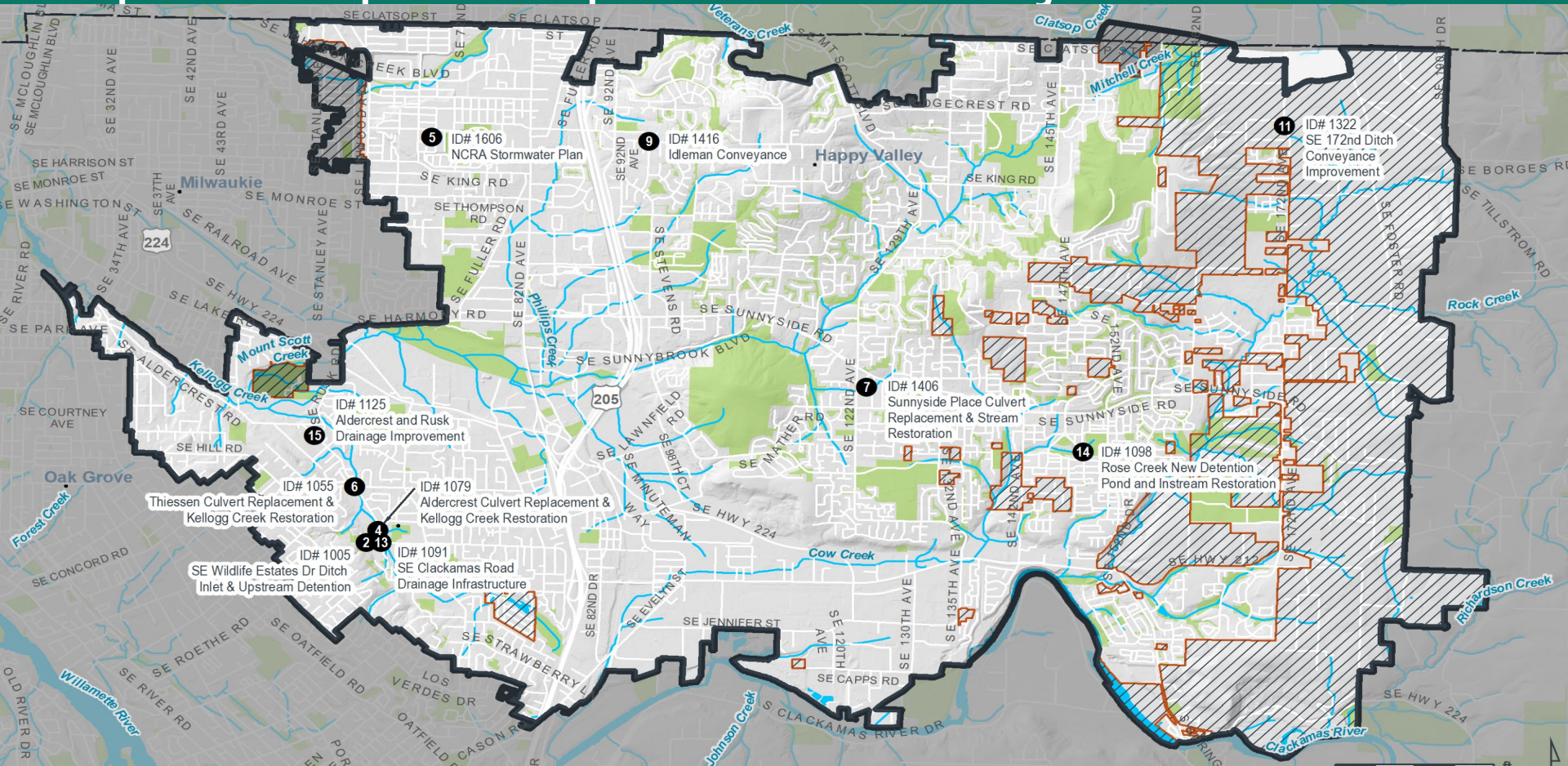
Top 10 Capital Improvement Projects



Priority Capital Improvement Projects (CIP)

Project Name	Score	Cost
3-Creeks Water Quality Project (In Progress)	75	$3,600,000
SE Wildlife Estates Dr Ditch Inlet & Upstream Detention	57.5	$1,679,470
Valley View Road Drainage (Storm Costs Only)	57	$3,277,958
Aldercrest Culvert Replacement & Kellogg Creek Restoration	56	$1,865,013
NCRA Stormwater Plan (Storm Costs & Storm Implementation Only)	56	$5,144,850
Thiessen Culvert Replacement & Kellogg Creek Restoration	55	$801,635
Sunnyside Place Culvert Replacement & Stream Restoration	53	$573,623
Idleman Conveyance System	51.5	$1,394,900
SE 172nd Ditch Conveyance Improvement	50.5	$88,800
SE Clackamas Road Drainage Infrastructure	47.5	$508,400
Rose Creek New Detention Pond and Instream Restoration	47	$2,589,010
Aldercrest & Rusk Conveyance System	45.5	$440,100
Total CIP Cost		**$21,963,759**

SE Clackamas Road Drainage Infrastructure

Capital Improvement Project Fact Sheet

Project Rank: 13

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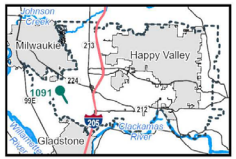
ID: 1091

Name: SE Clackamas Road Drainage Infrastructure

Study Area: Kellogg Creek

Location: SE Clackamas Road and SE Tidwells Way east of SE Stohler Road

Problem Summary



The problem area is located just west of where SE Clackamas Road crosses Kellogg Creek, southwest of Ann-Toni Schreiber Park.

A stream that drains a pond south of SE Tidwells Way is collected by a standard ditch inlet at the edge of a residential property and is conveyed in storm pipes down SE Clackamas Road to Kellogg Creek. The ditch inlet is not large enough to capture the stream flow, especially when debris collects at the inlet. Maintenance crews are called frequently to clear the inlet.

The stream frequently exceeds the capacity of the inlet, flows through a yard, and floods SE Clackamas Road and neighboring homes. The problem is compounded by the fact that Kellogg Creek is very flat at this location (0.1% slope), and the SE Clackamas Road crossing consists of a single undersized culvert. The storm pipes on SE Clackamas Road discharge into Kellogg Creek upstream of the road crossing, where a wetland has formed. Backwater from the undersized crossing limits the capacity of the storm pipes in SE Clackamas Road and contributes to the flooding issue.

Project Description

The purpose of this project is to reduce flooding of properties near the SE Clackamas Road-Kellogg Creek crossing without replacing the culvert or disrupting the wetland upstream of the crossing. This will be achieved by replacing the undersized ditch inlet that collects a tributary stream and routing new storm pipes on SE Clackamas Road to a new outfall on the downstream side of the Kellogg Creek crossing instead of into the wetland upstream of the crossing.

Landowner cooperation and an easement will be required for replacement of the storm pipe across private property.

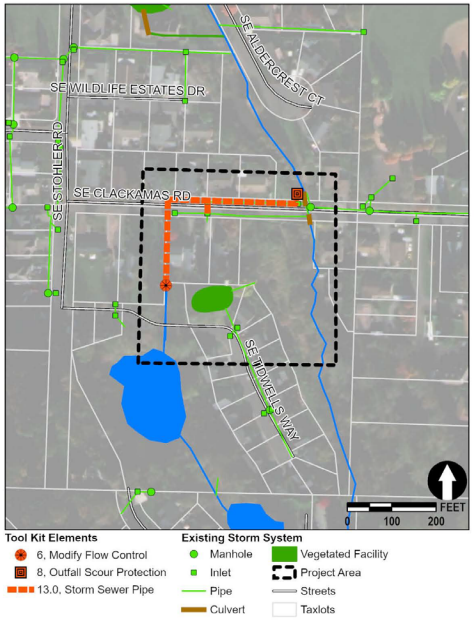
The benefits of this project include:

- Reduce flooding of private property, homes, and a roadway
- Reduce maintenance needs

Otak

Cost Estimate

Construction	Qty	Unit	Price	Amount
Modify Flow Control, large debris grate	1	EA	$24,500	$24,500
Outfall Scour Protection, 12-in to 24-in diam. pipe	1	EA	$1,900	$1,900
Storm Sewer Pipe, 18-in diam. pipe	30	FT	$195	$5,850
Storm Sewer Pipe, 24-in to 30-in diam. pipe	510	FT	$235	$119,850
Mobilization	10%	of Construction		$33,200
Erosion and Sediment Control	2%	of Construction		$6,600
Utility Conflict Resolution				$20,000
Temporary Water Management				$25,000
Construction Subtotal				***$236,900***
Construction Contingency	40%	of Construction		$94,800
Total Construction Cost				**$331,700**
Other	**Assumption**			
Design	25%	of Construction		$82,900
Basic Permitting				$10,000
Permitting in Jurisdictional Waters				$15,000
Project Administration	15%	of Construction		$49,800
Easement and Acquisition	1500	SF	$6.00	$9,000
Easement Administration	1	Per Lot	$10,000	$10,000
Total Cost				**$508,400**



Annual Program Cost Summary

Program	10-Year Annual Average Cost	15-Year Annual Average Cost
Small Drainage Projects	$97,100	$65,000
Detention Pond Repair/Rehab	$411,000	$411,000
Water Quality Retrofits	$172,000	$115,000
Restoration & Property Acquisition	$823,000	$823,000
UIC Decommissioning and Retrofits	$53,000	$35,000
Priority Capital Projects	$2,196,000	$1,464,000
Emergency Repairs	$100,000	$100,000
Total Annual Program Costs	**$3,852,000**	**$3,013,000**
Estimated Staff Needs (FTE)	**3.4**	**2.8**

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Thank you
Questions?
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July 14, 2022

Asset Management Overview

Matt House, Acting Division Manager

Defining Asset Management

- A process utilities use to make sure that planned maintenance is conducted and capital assets (pumps, motors, pipes, etc.) can be repaired, replaced, or upgraded on time and that there is enough money to pay for it.

- Practice of managing the entire portfolio of utility capital assets to minimize the total cost of owning and operating these assets while delivering desired service levels.

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Performance Clackamas

- The purpose of the Asset Management Program is to provide strategies, technology and asset tracking services to WES employees so they can make proactive, data-driven decisions that align to WES' strategic business plan and budget.

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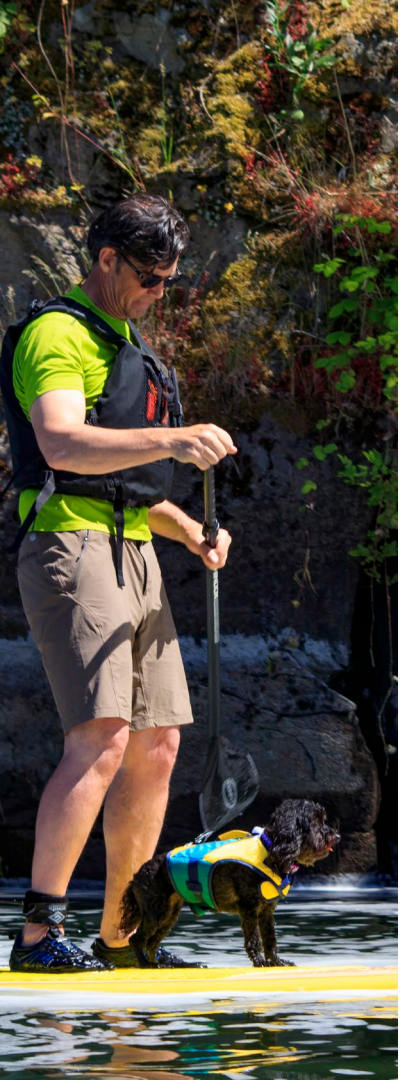


Performance Clackamas Program Services

- Asset Inventories
- Asset renewal replacement plans
- GIS Mapping
- Databases
- Computer software licensing, support and training
- Computer hardware acquisitions
- Fleet management
- Utility management best practices

CLACKAMAS WATER ENVIRONMENT SERVICES

Proactive Data-Driven Decisions

Hydraulic Modeling

GIS

Asset Mgmt. (CMMS)

Mobile Field Devices
GPS Telematics

Data Reporting Portal

Financial

Data Analysis Tools

LIMS

Historian

Financial Plan

Business Strategy

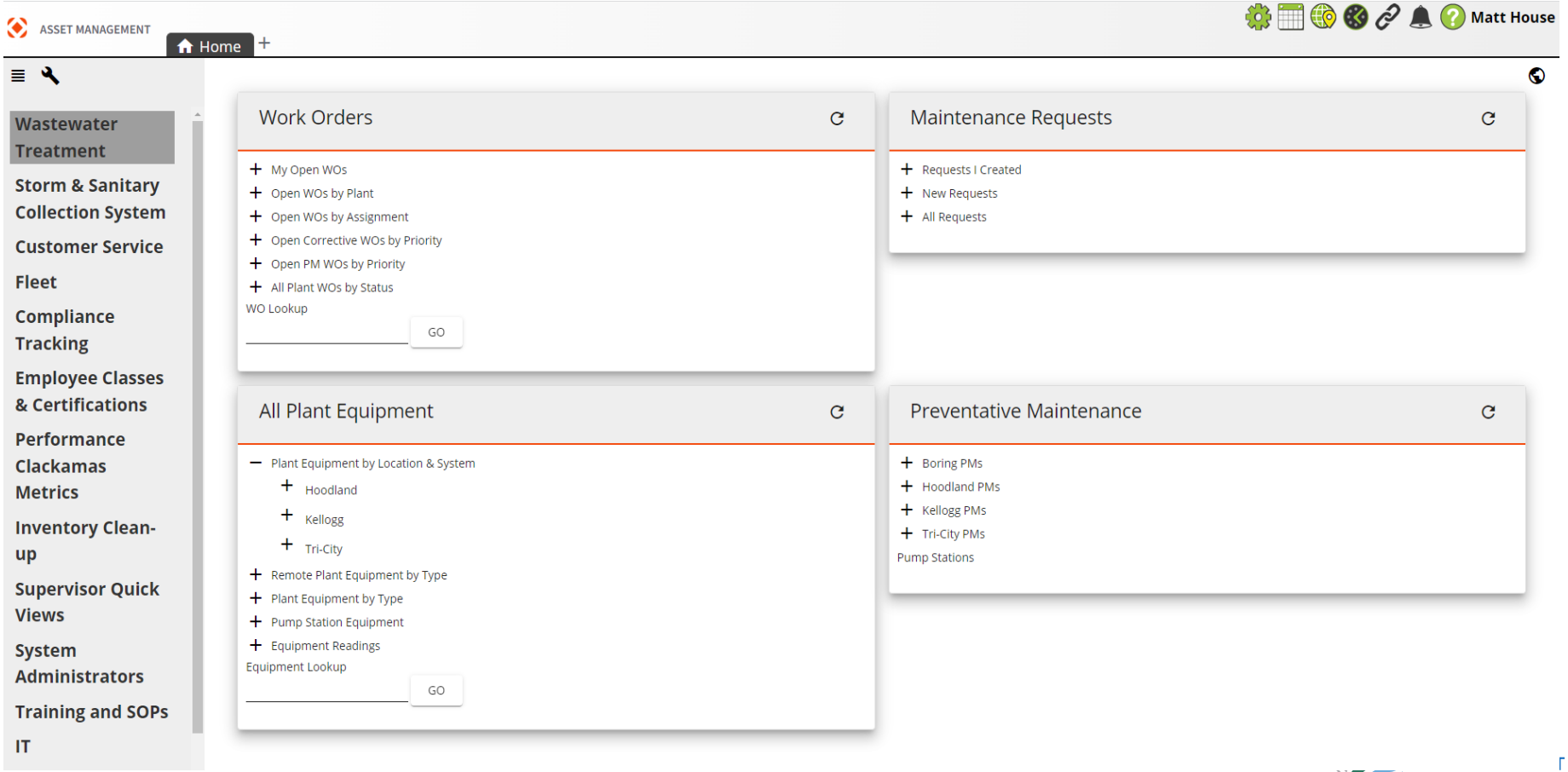
Rates

Levels of Service

Decision Making Dashboards

CLACKAMAS WATER ENVIRONMENT SERVICES

Asset Inventories



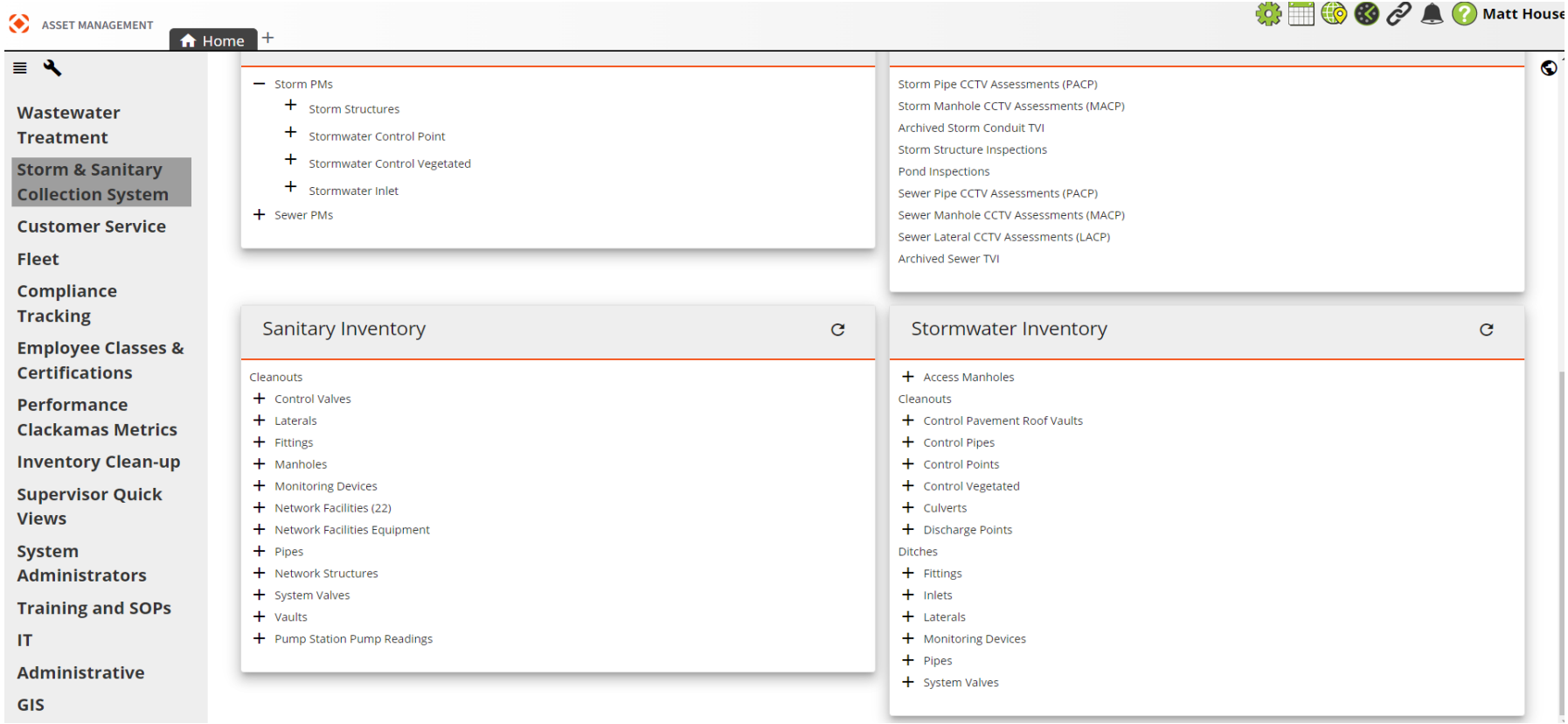
SERVICES

Asset Inventories

		Equip. ID	Equipment Desc.	Equipment Class	Equipment Type	Plant	Loca	System	Manufacturer	Condition	Service Life	Model
+		TCTP-1867	MBR UV Module 2 CH 1	Support Equipment	Reactor	Tri-City	MBR	UV Disinfection	OZONIA	Good	20	Aquaray 40 HO
+		TCTP-1868	MBR UV Module 2 CH 2	Support Equipment	Reactor	Tri-City	MBR	UV Disinfection	OZONIA	Good	20	Aquaray 40 HO
+		TCTP-1869	MBR UV Rm MUA Unit _630-44-001	HVAC Equipment	Make-up Units	Tri-City	MBR	HVAC Group	Innovent	Very Good	15	E-CAHU-1A-4275-H\
+		TCTP-1874	MBR W3 Pump 1_110-63-111	Pumps	Centrifugal	Tri-City	MBR	Non-Potable Water	Goulds Pumps	Good	22	3196LTI
+		TCTP-1877	MBR W3 Pump 1_110-63-111VFD	Electrical Devices	Variable Frequency Drives	Tri-City	MBR	Non-Potable Water	Siemens	Good	15	W120CP-40750-101
+		TCTP-1883	MBR W3 Pump 2_110-63-121	Pumps	Centrifugal	Tri-City	MBR	Non-Potable Water	Goulds Pumps	Good	22	3196LTI
+		TCTP-1886	MBR W3 Pump 2_ 110-63-121VFD	Electrical Devices	Variable Frequency Drives	Tri-City	MBR	Non-Potable Water	Siemens	Good	15	W120CP-40750-101
+		TCTP-1901	MBR W3 Flow Indicating Transmitter	Electrical Devices	Instrumentation	Tri-City	MBR	Non-Potable Water	SIEMENS	Good	10	
+		TCTP-1902	MBR W3 Flow Indicating Transmitter	Electrical Devices	Instrumentation	Tri-City	MBR	Non-Potable Water	SIEMENS	Good	10	
+		TCTP-1923	MBR WAS Valve_540-35-059	Gates and Valves	Plug Valves	Tri-City	MBR	MBR Process	Dezurick	Good	30	SHC-632
+		TCTP-1925	MBR WAS Valve_540-35-061	Gates and Valves	Plug Valves	Tri-City	MBR	MBR Process	Dezurick	Good	30	SHC-632
+		TCTP-1932	MBR WAS Pump 1_110-35-051	Pumps	Centrifugal	Tri-City	MBR	Waste Activated Sludge	Weir Flow Control (Wemco)	Good	22	D4K-HS-DOW
+		TCTP-1939	MBR WAS Pump 2_110-35-052	Pumps	Centrifugal	Tri-City	MBR	Waste Activated Sludge	Weir Flow Control (Wemco)	Good	22	D4K-HS-DOW
+		TCTP-1948	MBR WAS Valve_540-35-060	Gates and Valves	Plug Valves	Tri-City	MBR	Waste Activated Sludge	Dezurick	Good	30	SHC-632
+		TCTP-1953	MBR Mix Liquor WAS Gate 510-35-021	Gates and Valves	Gates	Tri-City	MBR	Waste Activated Sludge	Golden Harvest Inc.	Good	15	GH-66
+		TCTP-1954	MBR Mix Liquor WAS Gate 510-35-022	Gates and Valves	Gates	Tri-City	MBR	MBR Process	Golden Harvest Inc.	Good	15	GH-66
+		TCTP-204	MBR Aeration Basin 5	Tanks	Tanks, Basins, Wet Wells	Tri-City	MBR	Aeration		Good	75	
+		TCTP-205	MBR AB 5 DeWater Pump_110-38-015	Pumps	Centrifugal	Tri-City	MBR	Aeration	KBS Aktiengesellschaff	Good	22	K200-400/G3/ NH
+		TCTP-226	MBR AB5 Gallery Booster Fan 610-90-002	HVAC Equipment	Exhaust Fans	Tri-City	MBR	HVAC Group	Greenheck Corp.	Very Good	15	TCB-2-18-10
+		TCTP-227	MBR AB Gallery EF_VFD610-90-002	HVAC Equipment	Variable Frequency Drives	Tri-City	MBR	HVAC Group	Dan Foss	Very Good	15	VLT
+		TCTP-264	MBR Basin 1A Turbidity Meter	Electrical Devices	Instrumentation	Tri-City	MBR	MBR Process	Hach Instruments	Good	10	AIT-39-028
+		TCTP-265	MBR Basin 1B Turbidity Meter	Electrical Devices	Instrumentation	Tri-City	MBR	MBR Process	Hach Instruments	Very Good	10	AIT-39-048
+		TCTP-266	MBR Basin 2A Turbidity Meter	Electrical Devices	Instrumentation	Tri-City	MBR	MBR Process	Hach Instruments	Good	10	AIT-39-068
+		TCTP-267	MBR Basin 2B Turbidity Meter	Electrical Devices	Instrumentation	Tri-City	MBR	MBR Process	Hach Instruments	Good	10	AIT-39-088

CLACKAMAS WATER ENVIRONMENT SERVICES

Asset Inventories



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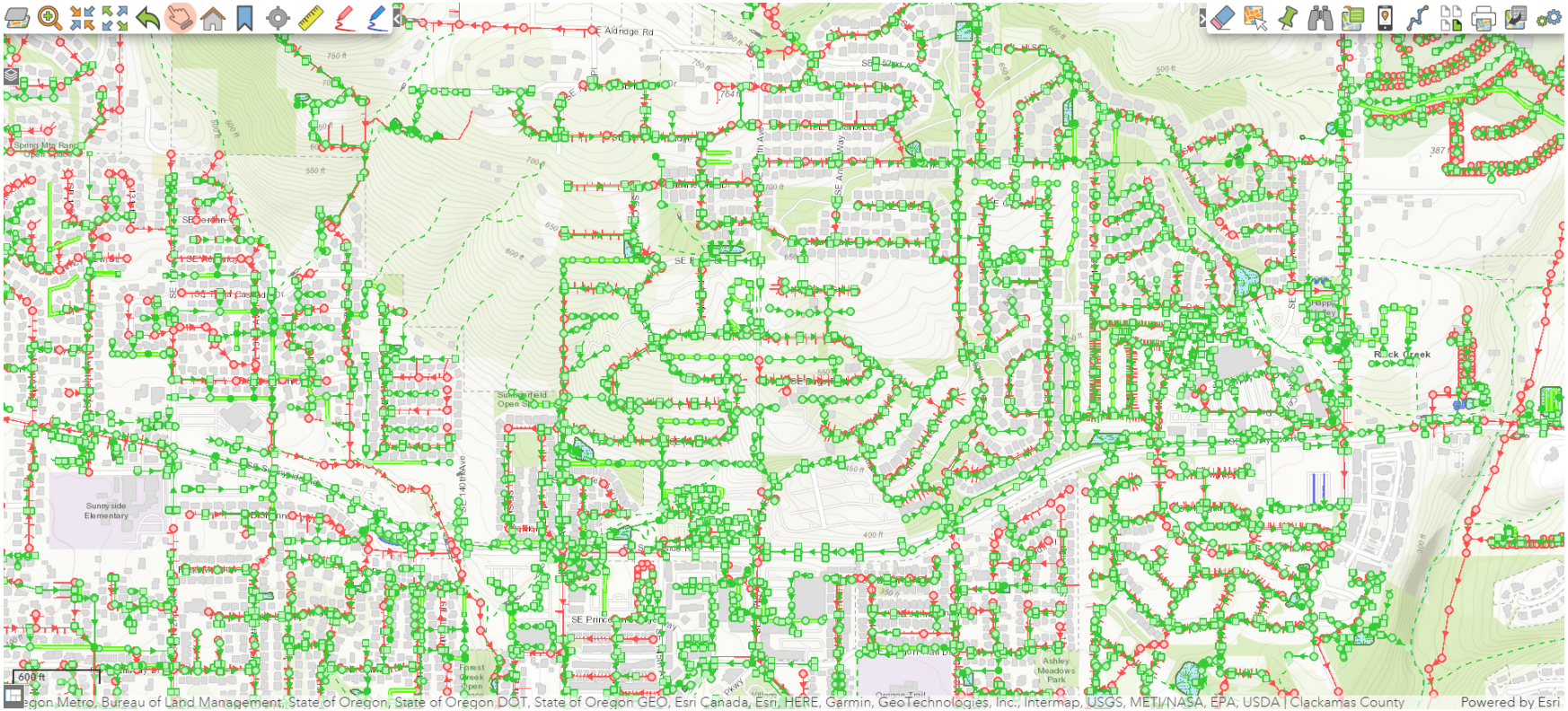
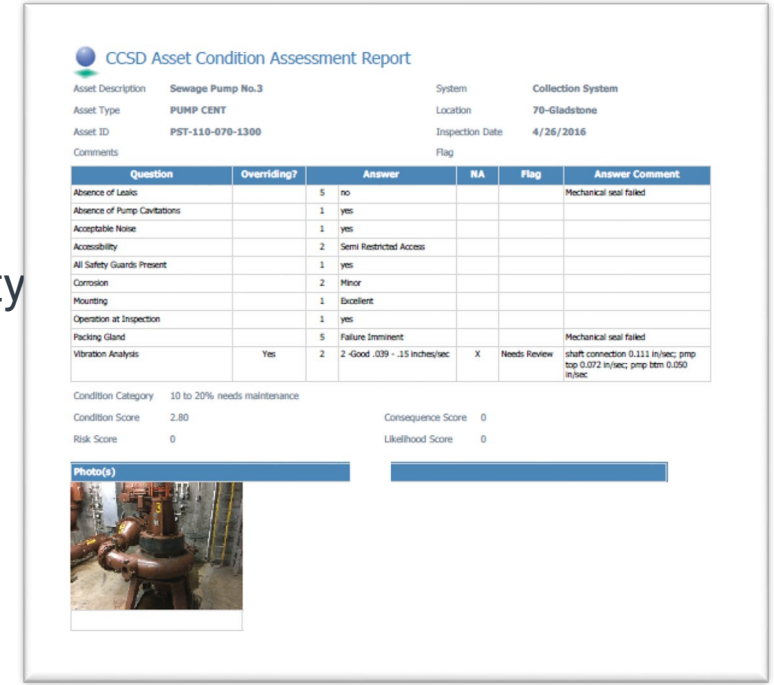
Asset Inventories



CLACKAMAS WATER ENVIRONMENT SERVICES

Asset Condition Assessments

- Pipes 18-inches and larger
- Pipes smaller than 18-inches
- Pump station equipment
- Water resource recovery facility equipment
- Stormwater infrastructure
- Fleet



CCSD Asset Condition Assessment Report

Asset Description	Sewage Pump No.3	System	Collection System
Asset Type	PUMP CENT	Location	70-Gladstone
Asset ID	PST-110-070-1300	Inspection Date	4/26/2016
Comments		Flag	

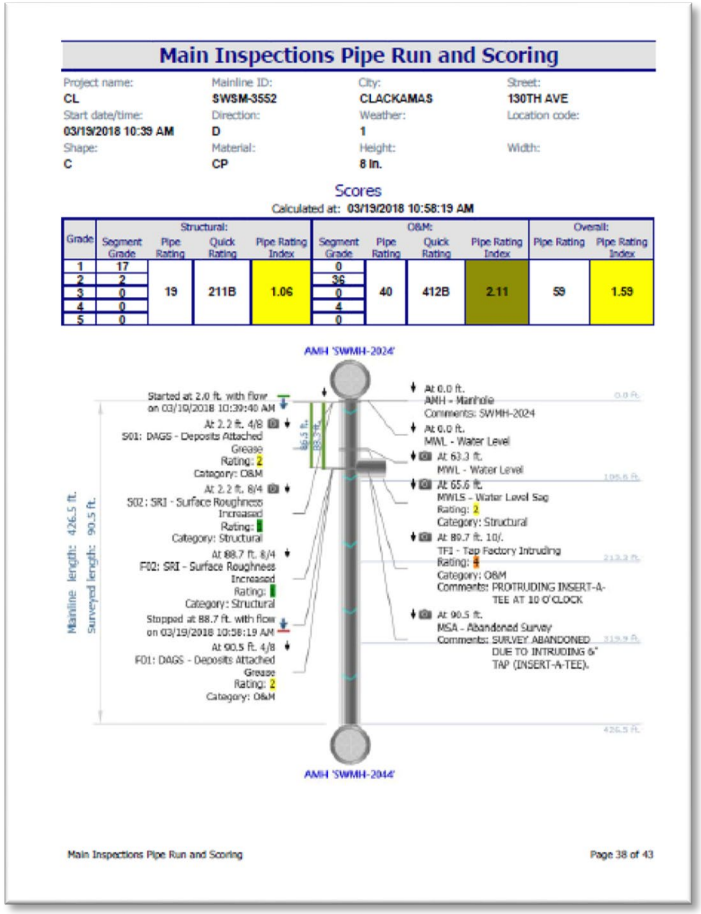
Question	Overriding?	Answer		NA	Flag	Answer Comment
Absence of Leaks		5	no			Mechanical seal failed
Absence of Pump Cavitations		1	yes			
Acceptable Noise		1	yes			
Accessibility		2	Semi Restricted Access			
All Safety Guards Present		1	yes			
Corrosion		2	Minor			
Mounting		1	Excellent			
Operation at Inspection		1	yes			
Packing Gland		5	Failure Imminent			Mechanical seal failed
Vibration Analysis	Yes	2	2 -Good .039 - .15 inches/sec	X	Needs Review	shaft connection 0.111 in/sec; pmp top 0.072 in/sec; pmp btm 0.050 in/sec

Condition Category	10 to 20% needs maintenance		
Condition Score	2.80	Consequence Score	0
Risk Score	0	Likelihood Score	0

Photo(s)

CLACKAMAS WATER ENVIRONMENT SERVICES

Asset Condition Assessments



Main Inspections Pipe Run and Scoring

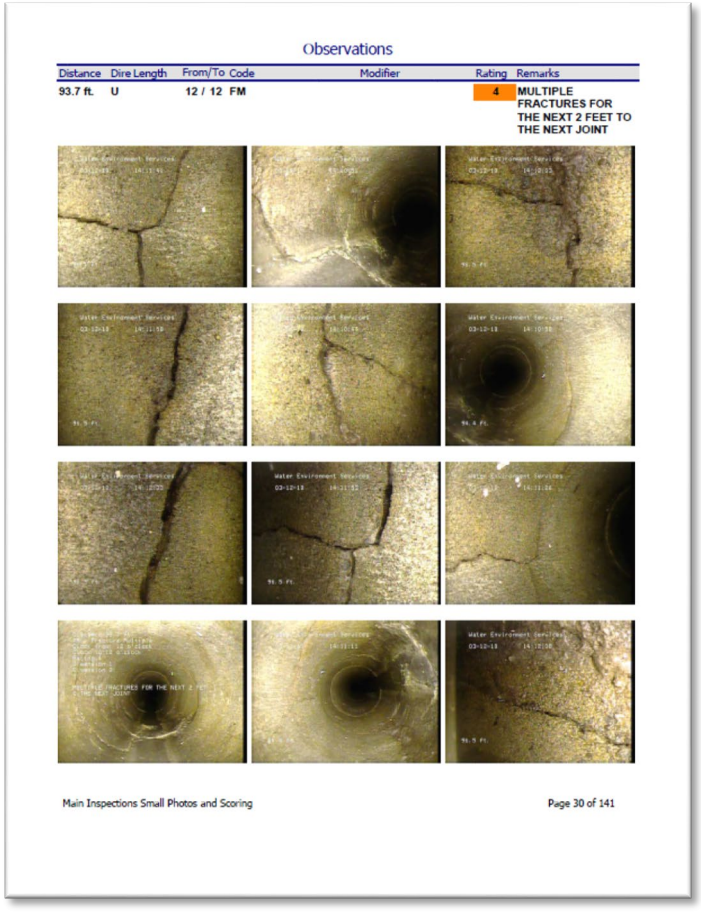
Project name:	Mainline ID:	City:	Street:
CL	SWSM-3552	CLACKAMAS	130TH AVE
Start date/time:	Direction:	Weather:	Location code:
03/19/2018 10:39 AM	D	1	
Shape:	Material:	Height:	Width:
C	CP	8 in.	

Scores

Calculated at: 03/19/2018 10:58:19 AM

Grade	Structural: Segment Grade	Structural: Pipe Rating	Structural: Quick Rating	Structural: Pipe Rating Index	O&M: Segment Grade	O&M: Pipe Rating	O&M: Quick Rating	O&M: Pipe Rating Index	Overall: Pipe Rating	Overall: Pipe Rating Index
1	17				0					
2	2				36					
3	0	19	211B	1.06	0	40	412B	2.11	59	1.59
4	0				4					
5	0				0					

Main Inspections Pipe Run and Scoring — Page 38 of 43



Observations

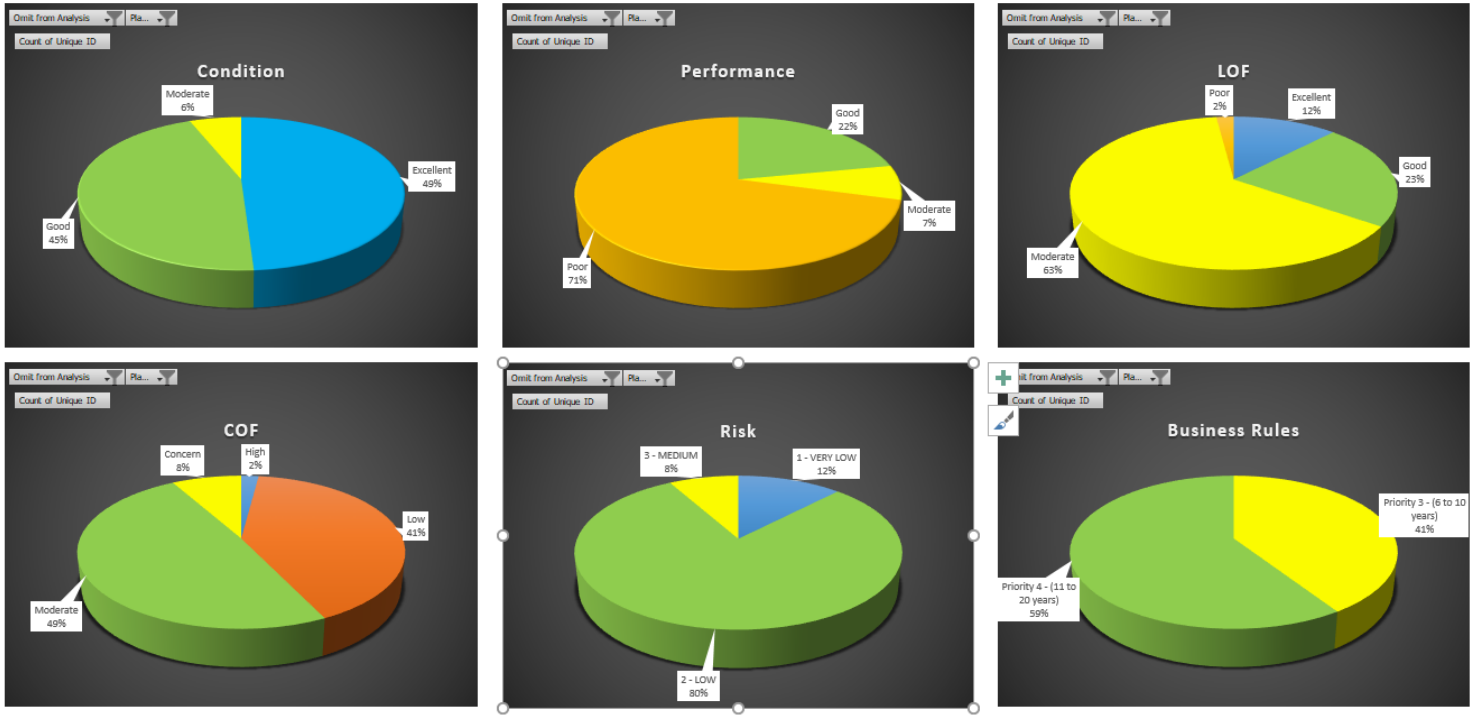
Distance	Dire	Length	From/To	Code	Modifier	Rating	Remarks
93.7 ft.	U		12 / 12	FM		4	MULTIPLE FRACTURES FOR THE NEXT 2 FEET TO THE NEXT JOINT

Main Inspections Small Photos and Scoring — Page 30 of 141

CLACKAMAS WATER ENVIRONMENT SERVICES

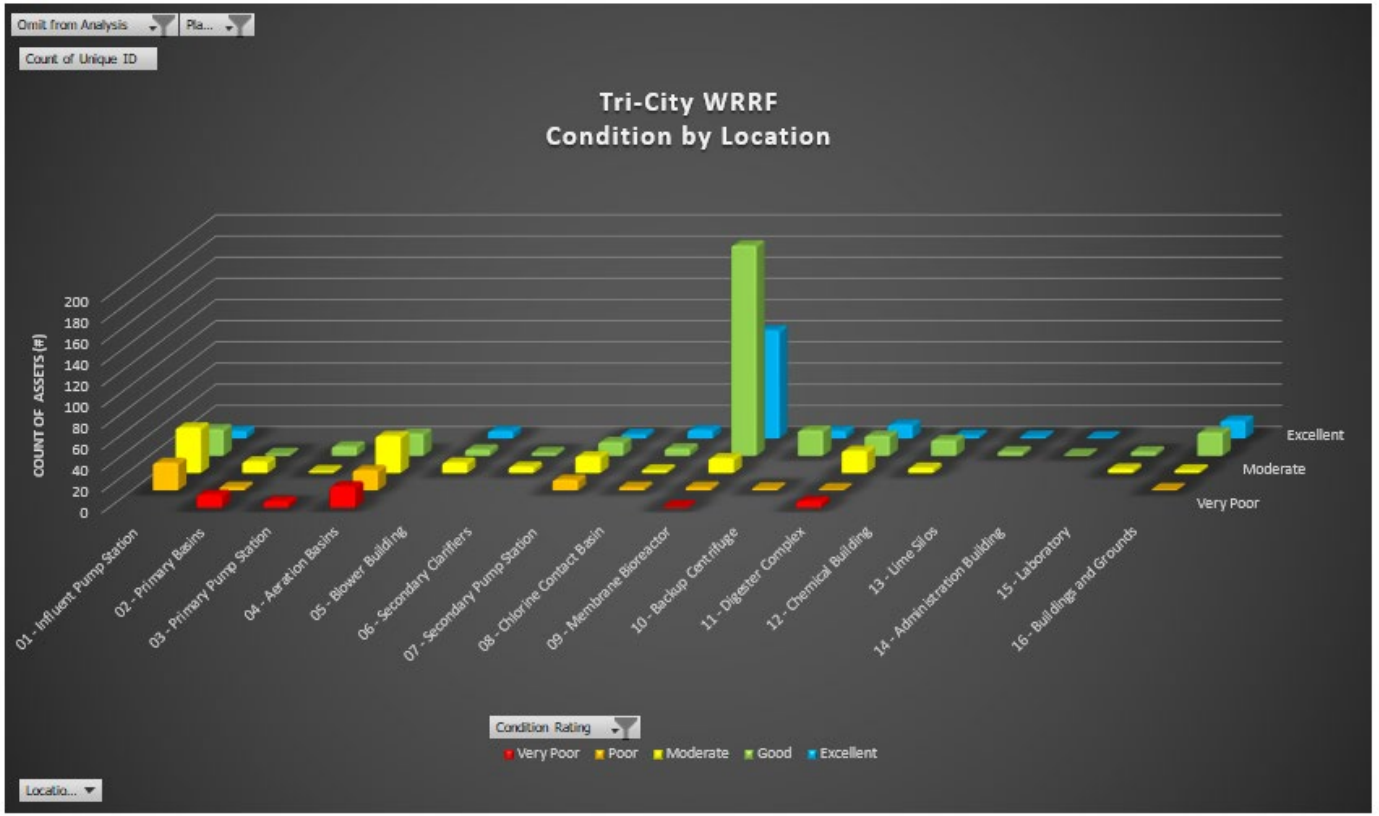
Data-Driven Dashboards

Intertie 2 Pump Station



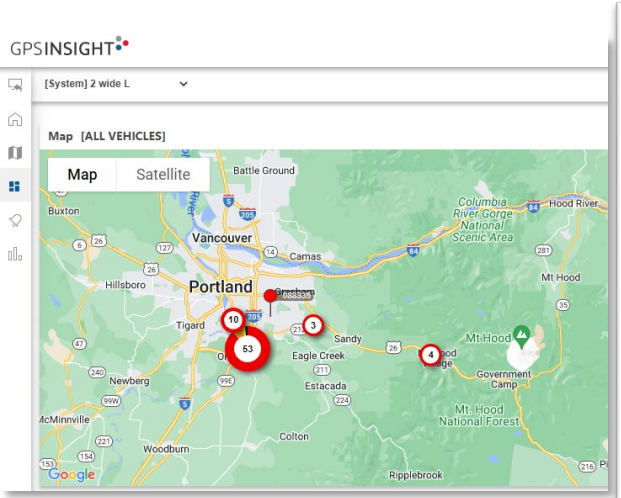
CLACKAMAS WATER ENVIRONMENT SERVICES

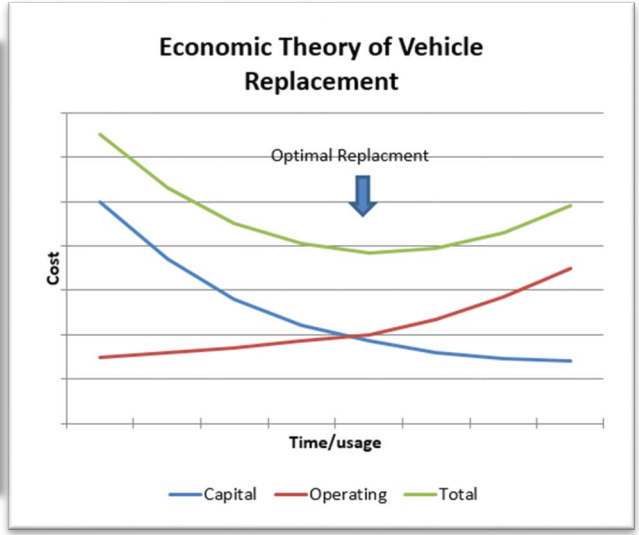
Data-Driven Dashboards



CLACKAMAS WATER ENVIRONMENT SERVICES

Fleet Management





During the past 9 years, we have decreased the average age of our fleet from 12.2 to 9.8 years old and the median age from 11 to 7 years old. **Why** is this significant? Operational reliability, reduced maintenance costs, improved safety features and better fuel economy.

CLACKAMAS WATER ENVIRONMENT SERVICES

Continuous Improvements

IMPROVEMENT

Clean and repair conveyance pipes

PACP driven pipe rehabilitation

Identify and prioritize capital projects based on performance or asset condition

Prepare capital and O&M budgets

Pump rebuild planning

Respond to emergencies to limit service interruptions

Fleet risk metrics informed by GPS telematics

System integrations

Upgrade flow monitoring equipment and rain gauges

Hydraulic model and master plan updates

Condition Assessments

Asset Inventories

Monitor operational performance

Knowledge Transfer

Issue work orders to inspect equipment and order necessary repairs

Training

Identify risks to the system or plant

Engage with customers and stakeholders about their expectations

Track SSOs or other regulatory compliance measures

CLACKAMAS WATER ENVIRONMENT SERVICES


Thank you
Questions?
CLACKAMAS
WATER
ENVIRONMENT
SERVICES