OCTOBER 29, 2024

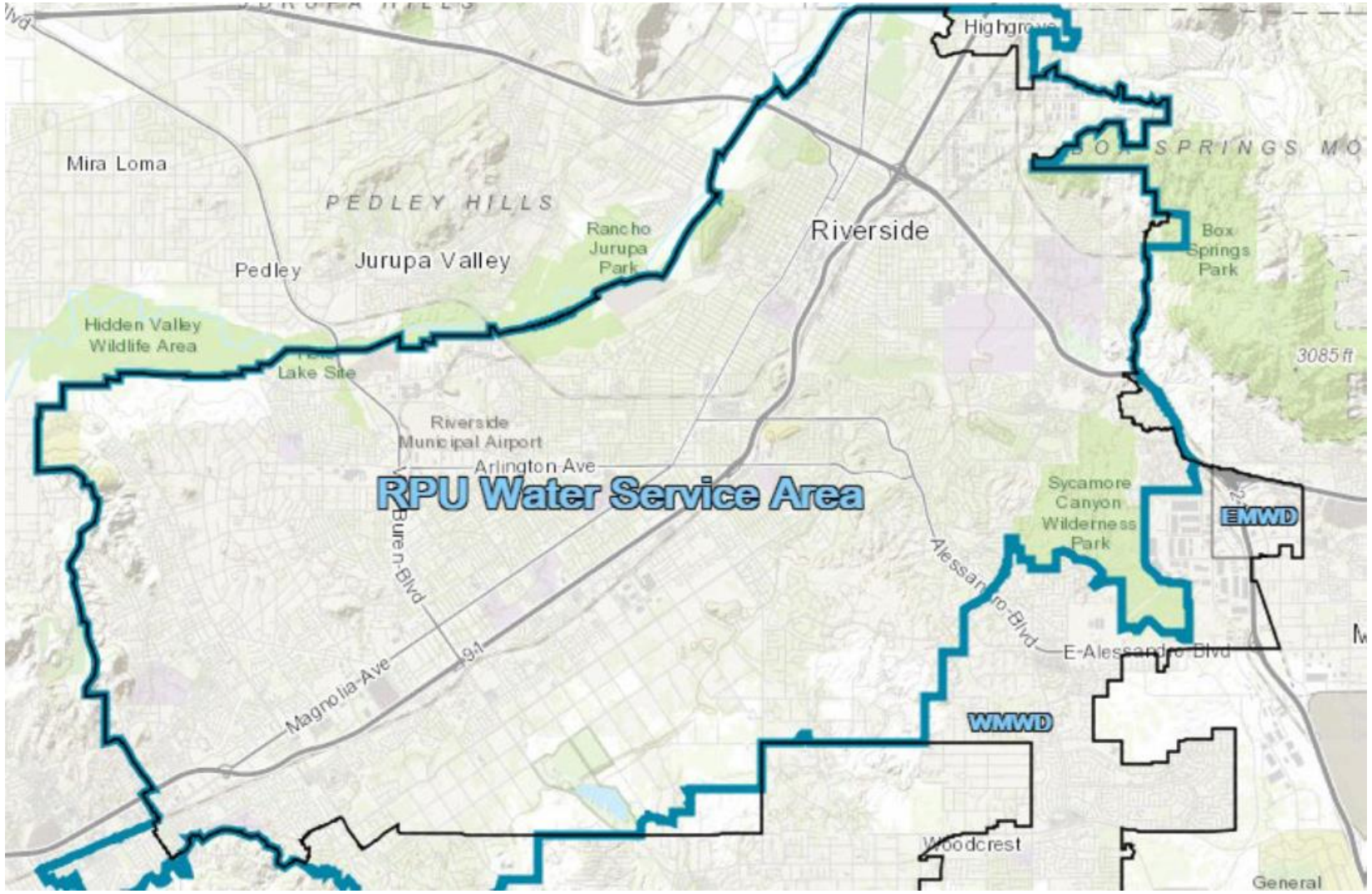
Making Life Easier in Water Operations

AVEVA Industrial Intelligence Summit

Robin Glenney – Riverside Public Utilities

- Riverside Public Utilities
- Utilizing PI to simplify processes
- Return on Investment
- Q & A

Riverside Public Utilities



City of Riverside

Public Utilities

- 60 miles east of Los Angeles
- Established in 1895
- Consumer owned Electric and Water Utility
- 81 square mile service territory

RPU STATS

46 POTABLE WELLS

6 NON-POTABLE WELLS

16 RESERVOIRS

108 MG OF STORAGE

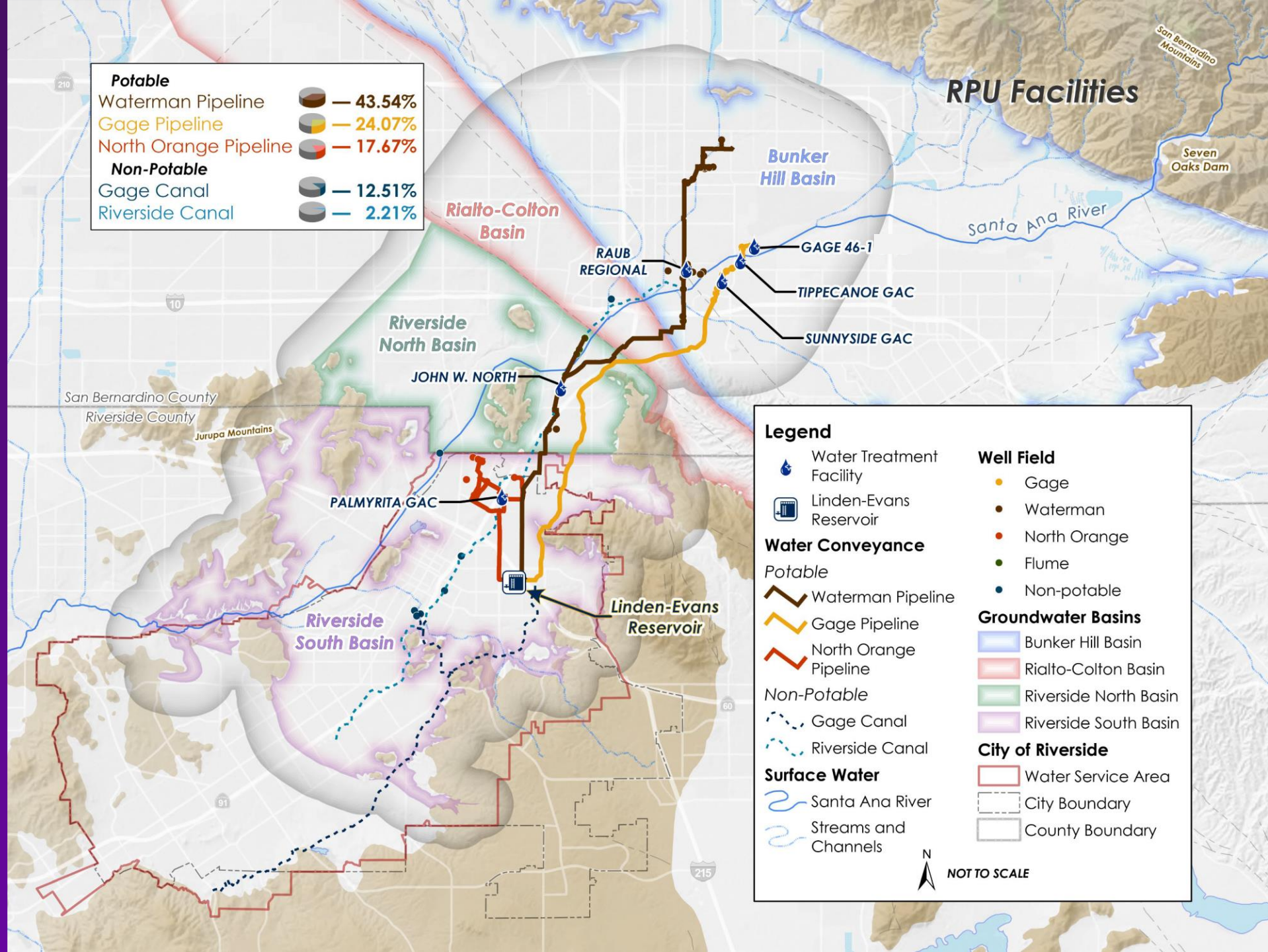
1,000+ MILES OF PIPELINE

68,000+ SERVICE CONNECTIONS

6 TREATMENT PLANTS

42 ION EXCHANGE VESSELS

53 GAC VESSELS



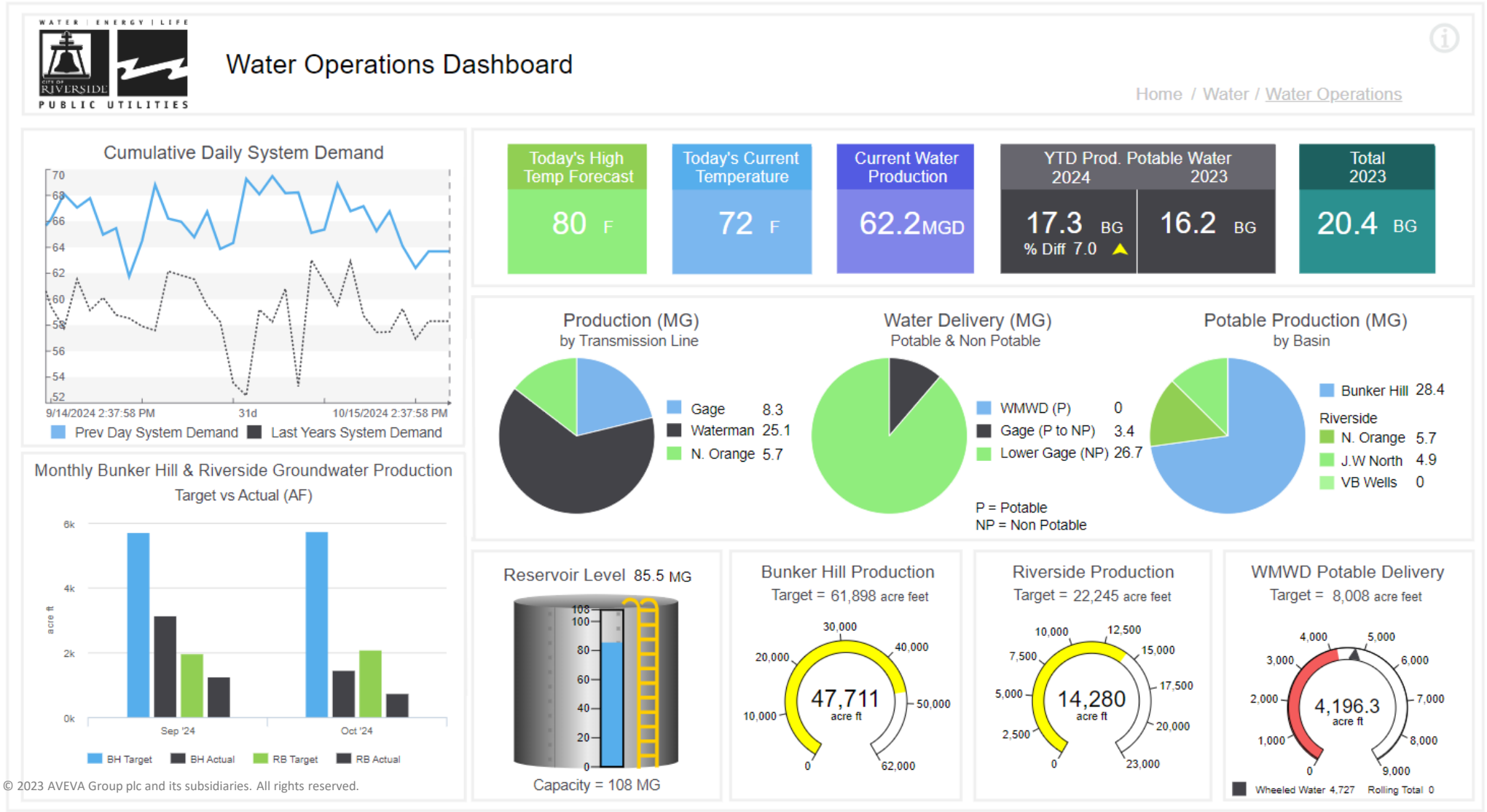
Utilizing PI to simplify processes

Utilizing PI to Simplify Processes

PI Vision

UPDATED DAILY REPORT

- 4-HOURS A DAY TO SEND OUT PREVIOUS DAY'S INFORMATION
- DATA AVAILABLE TO ALL STAFF IN REAL TIME

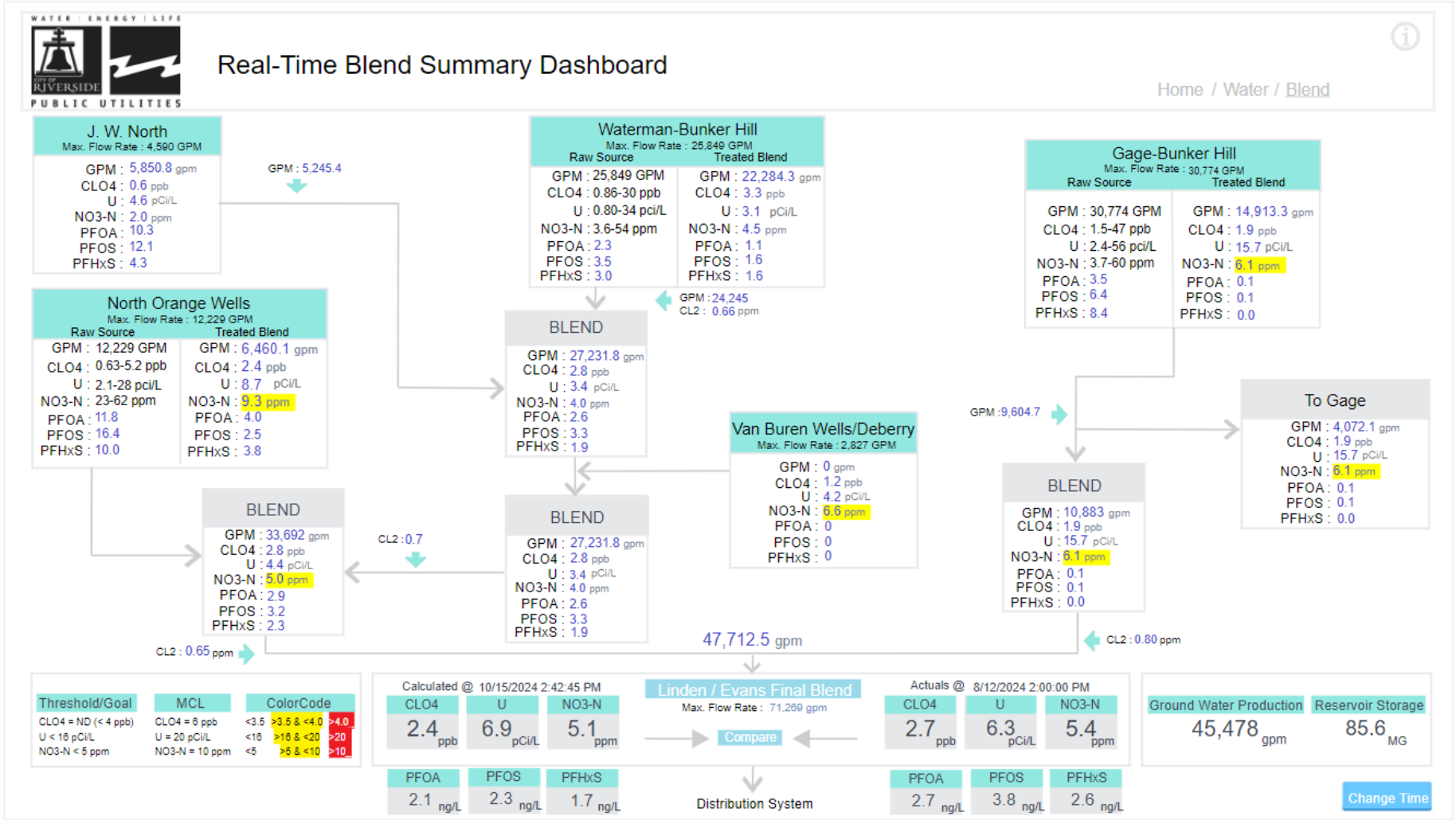


Utilizing PI to Simplify Processes

PI Vision

BLEND SUMMARY

- OVER 500 CALCULATIONS RUN EVERY 2 MINUTES
- CONNECTED TO WATERTRAX AND SCADA
- TEXT AND EMAIL ALERTS
- IMPERATIVE TO KEEP UP WITH CHANGING REGULATIONS AND PSPS EVENTS

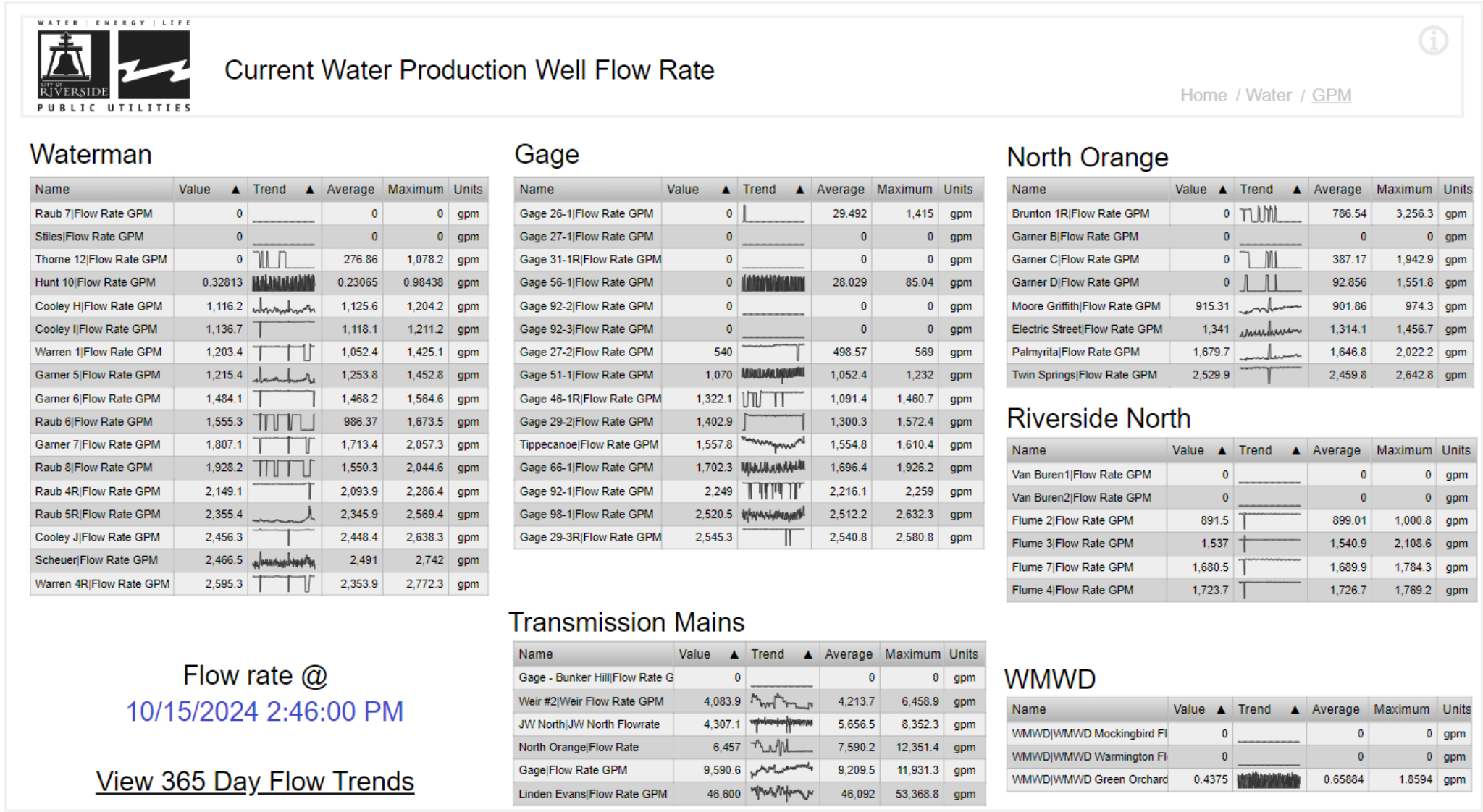


Utilizing PI to Simplify Processes

PI Vision

WELL FLOW RATES

- ALLOWS STAFF, WITHOUT SCADA, TO SEE WHAT SOURCES ARE ACTIVE, FLOW RATES AND TRENDS
- MOBILE VERSION FOR SAMPLERS



WATER | ENERGY | LIFE
CITY OF RIVERSIDE PUBLIC UTILITIES

Current Water Production Well Flow Rate

Home / Water / GPM

Waterman

Name	Value	Trend	Average	Maximum	Units
Raub 7|Flow Rate GPM	0		0	0	gpm
Stiles|Flow Rate GPM	0		0	0	gpm
Thorne 12|Flow Rate GPM	0		276.86	1,078.2	gpm
Hunt 10|Flow Rate GPM	0.32813		0.23065	0.98438	gpm
Cooley H|Flow Rate GPM	1,116.2		1,125.6	1,204.2	gpm
Cooley I|Flow Rate GPM	1,136.7		1,118.1	1,211.2	gpm
Warren 1|Flow Rate GPM	1,203.4		1,052.4	1,425.1	gpm
Garner 5|Flow Rate GPM	1,215.4		1,253.8	1,452.8	gpm
Garner 6|Flow Rate GPM	1,484.1		1,468.2	1,564.6	gpm
Raub 6|Flow Rate GPM	1,555.3		986.37	1,673.5	gpm
Garner 7|Flow Rate GPM	1,807.1		1,713.4	2,057.3	gpm
Raub 8|Flow Rate GPM	1,928.2		1,550.3	2,044.6	gpm
Raub 4R|Flow Rate GPM	2,149.1		2,093.9	2,286.4	gpm
Raub 5R|Flow Rate GPM	2,355.4		2,345.9	2,569.4	gpm
Cooley J|Flow Rate GPM	2,456.3		2,448.4	2,638.3	gpm
Scheuer|Flow Rate GPM	2,466.5		2,491	2,742	gpm
Warren 4R|Flow Rate GPM	2,595.3		2,353.9	2,772.3	gpm

Gage

Name	Value	Trend	Average	Maximum	Units
Gage 26-1|Flow Rate GPM	0		29.492	1,415	gpm
Gage 27-1|Flow Rate GPM	0		0	0	gpm
Gage 31-1R|Flow Rate GPM	0		0	0	gpm
Gage 56-1|Flow Rate GPM	0		28.029	85.04	gpm
Gage 92-2|Flow Rate GPM	0		0	0	gpm
Gage 92-3|Flow Rate GPM	0		0	0	gpm
Gage 27-2|Flow Rate GPM	540		498.57	569	gpm
Gage 51-1|Flow Rate GPM	1,070		1,052.4	1,232	gpm
Gage 46-1R|Flow Rate GPM	1,322.1		1,091.4	1,460.7	gpm
Gage 29-2|Flow Rate GPM	1,402.9		1,300.3	1,572.4	gpm
Tippecanoe|Flow Rate GPM	1,557.8		1,554.8	1,610.4	gpm
Gage 66-1|Flow Rate GPM	1,702.3		1,696.4	1,926.2	gpm
Gage 92-1|Flow Rate GPM	2,249		2,216.1	2,259	gpm
Gage 98-1|Flow Rate GPM	2,520.5		2,512.2	2,632.3	gpm
Gage 29-3R|Flow Rate GPM	2,545.3		2,540.8	2,580.8	gpm

North Orange

Name	Value	Trend	Average	Maximum	Units
Brunton 1R|Flow Rate GPM	0		786.54	3,256.3	gpm
Garner B|Flow Rate GPM	0		0	0	gpm
Garner C|Flow Rate GPM	0		387.17	1,942.9	gpm
Garner D|Flow Rate GPM	0		92.856	1,551.8	gpm
Moore Griffith|Flow Rate GPM	915.31		901.86	974.3	gpm
Electric Street|Flow Rate GPM	1,341		1,314.1	1,456.7	gpm
Palmyrita|Flow Rate GPM	1,679.7		1,646.8	2,022.2	gpm
Twin Springs|Flow Rate GPM	2,529.9		2,459.8	2,642.8	gpm

Riverside North

Name	Value	Trend	Average	Maximum	Units
Van Buren1|Flow Rate GPM	0		0	0	gpm
Van Buren2|Flow Rate GPM	0		0	0	gpm
Flume 2|Flow Rate GPM	891.5		899.01	1,000.8	gpm
Flume 3|Flow Rate GPM	1,537		1,540.9	2,108.6	gpm
Flume 7|Flow Rate GPM	1,680.5		1,689.9	1,784.3	gpm
Flume 4|Flow Rate GPM	1,723.7		1,726.7	1,769.2	gpm

Transmission Mains

Name	Value	Trend	Average	Maximum	Units
Gage - Bunker Hill|Flow Rate G	0		0	0	gpm
Weir #2|Weir Flow Rate GPM	4,083.9		4,213.7	6,458.9	gpm
JW North|JW North Flowrate	4,307.1		5,656.5	8,352.3	gpm
North Orange|Flow Rate	6,457		7,590.2	12,351.4	gpm
Gage|Flow Rate GPM	9,590.6		9,209.5	11,931.3	gpm
Linden Evans|Flow Rate GPM	46,600		46,092	53,368.8	gpm

WMWD

Name	Value	Trend	Average	Maximum	Units
WMWD|WMWD Mockingbird Fl	0		0	0	gpm
WMWD|WMWD Warmington Fl	0		0	0	gpm
WMWD|WMWD Green Orchard	0.4375		0.65884	1.8594	gpm

Flow rate @
10/15/2024 2:46:00 PM

View 365 Day Flow Trends

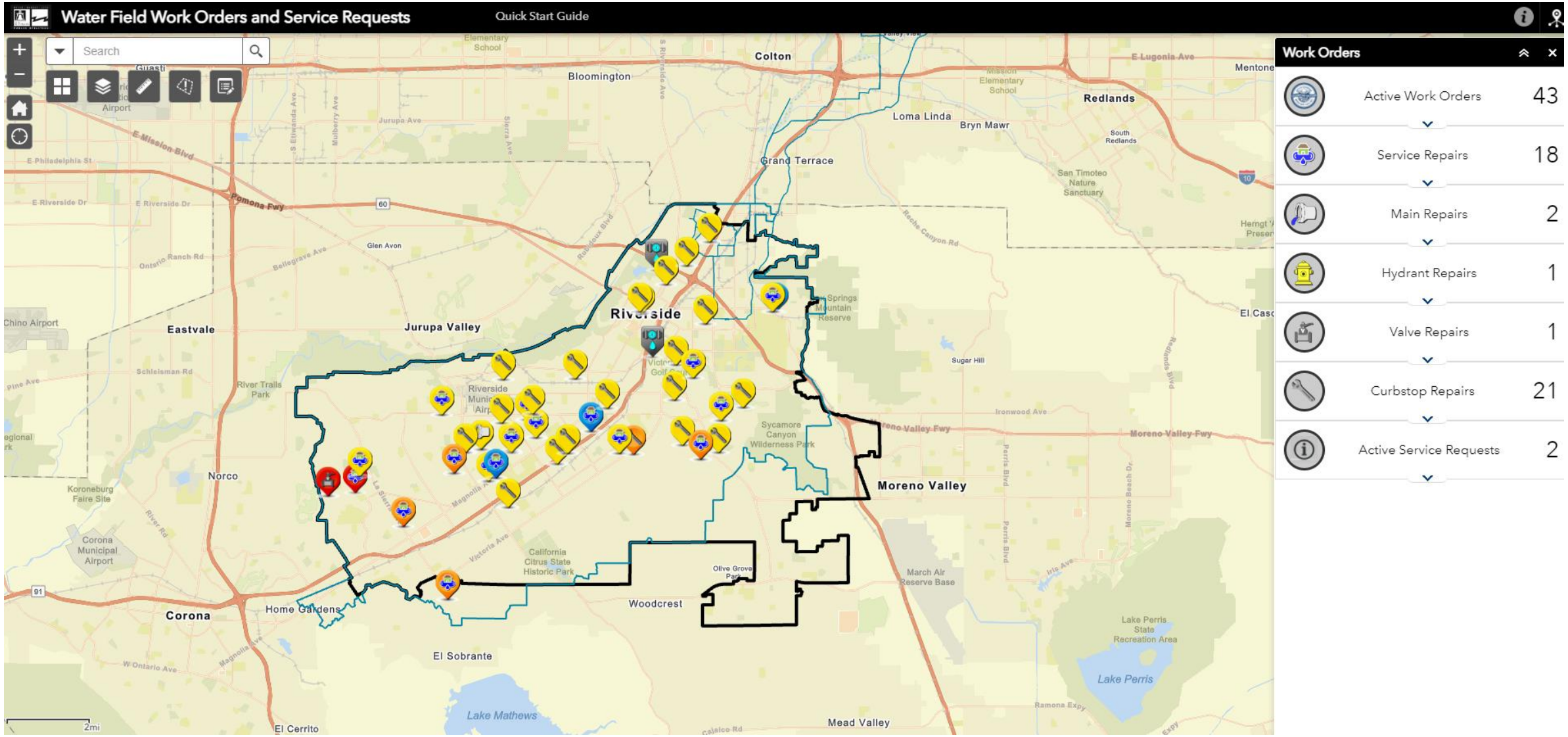
AVEVA

Utilizing PI to Simplify Processes

PI Vision

WORK ORDERS AND SERVICE REQUESTS

- INTEGRATES GIS AND ASSET MANAGEMENT SYSTEM
- ALLOWS STAFF TO PRIORITIZE WORK, AND COMPLETE WORK BY PROXIMITY



Utilizing PI to Simplify Processes

PI Datalink

CT Compliance Worksheet

Water System Name:	City of Riverside	
System Number:	3310031	
Month and Year:	Sep-24	
Section - North Orange & Waterman Transmission Line @ Linden	3,064,387	Gallons
Short-Circuiting Factor for Pipeline	1.00	T_{10}/T
Required Log Inactivation of Virus:	4.0	Log

North Orange Transmission Line

Date	Hourly Flow Rate @ Lowest Residual, gpm	Temperature	Lowest Chlorine Residual, mg/L	Max. pH	Effective Contact Time (T_{10}), minutes	Calculated CT_{10}	Sum of Calculated CT_{10}	Required CT	CT Ratio (CT_{10}/CT)	Calculated Log Inactivation
1	40,109	23.4	0.61	6.9	76	46	46	2	20	80
2	42,841	23.5	0.42	6.9	72	30	30	2	13	53
3	42,366	23.8	0.51	7.0	72	37	37	2	16	66
4	40,680	23.4	0.51	6.9	75	39	39	2	17	66
5	37,454	24.5	0.39	6.9	82	32	32	2	15	60
6	40,069	24.3	0.53	6.9	76	41	41	2	19	76
7	42,183	24.1	0.53	7.0	73	39	39	2	18	71
8	41,220	23.9	0.54	7.0	74	40	40	2	18	72
9	41,966	23.9	0.52	6.9	73	38	38	2	17	69
10	42,138	23.8	0.51	6.9	73	37	37	2	17	67
11	39,724	23.4	0.59	6.9	77	45	45	2	20	78
12	38,034	23.3	0.53	6.9	81	43	43	2	18	74
13	37,684	23.8	0.46	7.0	81	37	37	2	17	66
14	41,851	23.5	0.42	7.0	73	30	30	2	13	53
15	33,882	23.2	0.64	6.9	90	57	57	2	24	97
16	35,387	23.5	0.56	6.9	87	48	48	2	21	84
17	36,178	23.0	0.60	6.9	85	51	51	2	21	85
18	35,190	23.2	0.64	6.9	87	56	56	2	24	95
19	33,888	22.9	0.65	6.9	90	59	59	2	24	97
20	35,325	22.9	0.58	6.9	87	50	50	2	21	83
21	31,705	22.7	0.50	6.9	97	48	48	2	20	78
22	37,347	23.5	0.60	6.9	82	49	49	2	21	86
23	37,397	23.3	0.55	6.9	82	45	45	2	19	76
24	37,218	23.2	0.58	6.9	82	48	48	2	20	81
25	37,228	22.6	0.51	6.9	82	42	42	2	17	67
26	37,150	22.5	0.50	6.9	82	42	42	2	17	67
27	34,909	23.0	0.39	6.9	88	35	35	2	14	58
28	37,164	22.4	0.62	6.9	82	51	51	3	20	81
29	33,774	23.3	0.60	6.9	91	54	54	2	23	93
30	37,175	23.0	0.53	6.9	82	43	43	2	18	72

MONTHLY CT REPORTS

- 1 PER TRANSMISSION MAIN AND MEMBRANE PLANT
- DATALINK REPORT SET UP ONCE
- MONTHLY ENTER DATE RANGE
- PRINT AND SUBMIT
- ALSO USED FOR TURBIDITY REPORTING

	A	B	C	D	E	F
1	NO CT Calc					
2						
3	Start Time	9/1/2024				
4	End Time	10/1/2024				
5						
6		\\PU-PIAFAPPRD\Wate	\\PU-PIAFAPPRD\V	\\PU-PIODMSDA\LIND.BSTRM		\\PU-PIODMSDA\LI
7						
8		Minimum Cl each day	Associated GPM	Associated Temp	Temp in C	Associated pH
9						
10	01-Sep-24 01:34:00	0.61	40109	74	23	6.928688
11	02-Sep-24 08:02:00	0.42	42841	74	24	6.933938
12	03-Sep-24 10:34:00	0.51	42366	75	24	6.973313
13	04-Sep-24 01:28:00	0.51	40680	74	23	6.947937
14	05-Sep-24 10:10:00	0.39	37454	76	24	6.937875
15	06-Sep-24 07:42:00	0.53	40069	76	24	6.93875
16	07-Sep-24 11:30:00	0.53	42183	75	24	6.9615
17	08-Sep-24 07:14:00	0.54	41220	75	24	6.950125
18	09-Sep-24 22:56:00	0.52	41966	75	24	6.932188
19	10-Sep-24 08:58:00	0.51	42138	75	24	6.9265
20	11-Sep-24 11:08:00	0.59	39724	74	23	6.920375
21	12-Sep-24 12:38:00	0.53	38034	74	23	6.92125
22	13-Sep-24 12:58:00	0.46	37684	75	24	6.96325
23	14-Sep-24 13:42:00	0.42	41851	74	24	6.972438
24	15-Sep-24 09:52:00	0.64	33882	74	23	6.906813
25	16-Sep-24 15:00:00	0.56	35387	74	23	6.941375
26	17-Sep-24 10:04:00	0.60	36178	73	23	6.9195
27	18-Sep-24 17:18:00	0.64	35190	74	23	6.936125
28	19-Sep-24 09:42:00	0.65	33888	73	23	6.909
29	20-Sep-24 10:18:00	0.58	35325	73	23	6.938313
30	21-Sep-24 09:54:00	0.50	31705	73	23	6.915125
31	22-Sep-24 16:06:00	0.60	37347	74	23	6.937438
32	23-Sep-24 12:10:00	0.55	37397	74	23	6.93525
33	24-Sep-24 13:24:00	0.58	37218	74	23	6.937438
34	25-Sep-24 09:32:00	0.51	37228	73	23	6.926063
35	26-Sep-24 07:16:00	0.50	37150	73	23	6.912938
36	27-Sep-24 12:06:00	0.39	34909	73	23	6.922563
37	28-Sep-24 06:28:00	0.62	37164	72	22	6.908125
38	29-Sep-24 17:20:00	0.60	33774	74	23	6.91425
39	30-Sep-24 10:36:00	0.53	37175	73	23	6.923875

AVEVA

Return on Investment

PI System benefits

Return on Investment

- Improved operational efficiencies
- Reduced staff time by automating processes
- Increased visibility into systems and assets
- Improved system reliability
- Reduced operating costs
- $1,000,000 in savings per year (Electric and Water)

Questions

Robin Glenney

rglenney@riversideca.gov

This presentation may include predictions, estimates, intentions, beliefs and other statements that are or may be construed as being forward-looking. While these forward-looking statements represent our current judgment on what the future holds, they are subject to risks and uncertainties that could result in actual outcomes differing materially from those projected in these statements. No statement contained herein constitutes a commitment by AVEVA to perform any particular action or to deliver any particular product or product features. Readers are cautioned not to place undue reliance on these forward-looking statements, which reflect our opinions only as of the date of this presentation.

The Company shall not be obliged to disclose any revision to these forward-looking statements to reflect events or circumstances occurring after the date on which they are made or to reflect the occurrence of future events.

linkedin.com/company/aveva

@avevagroup

ABOUT AVEVA

AVEVA is a world leader in industrial software, providing engineering and operational solutions across multiple industries, including oil and gas, chemical, pharmaceutical, power and utilities, marine, renewables, and food and beverage. Our agnostic and open architecture helps organizations design, build, operate, maintain and optimize the complete lifecycle of complex industrial assets, from production plants and offshore platforms to manufactured consumer goods.

Over 20,000 enterprises in over 100 countries rely on AVEVA to help them deliver life's essentials: safe and reliable energy, food, medicines, infrastructure and more. By connecting people with trusted information and AI-enriched insights, AVEVA enables teams to engineer efficiently and optimize operations, driving growth and sustainability.

Named as one of the world's most innovative companies, AVEVA supports customers with open solutions and the expertise of more than 6,400 employees, 5,000 partners and 5,700 certified developers. The company is headquartered in Cambridge, UK.

Learn more at www.aveva.com

AVEVA