Water Treatment Plant Implementation Plan

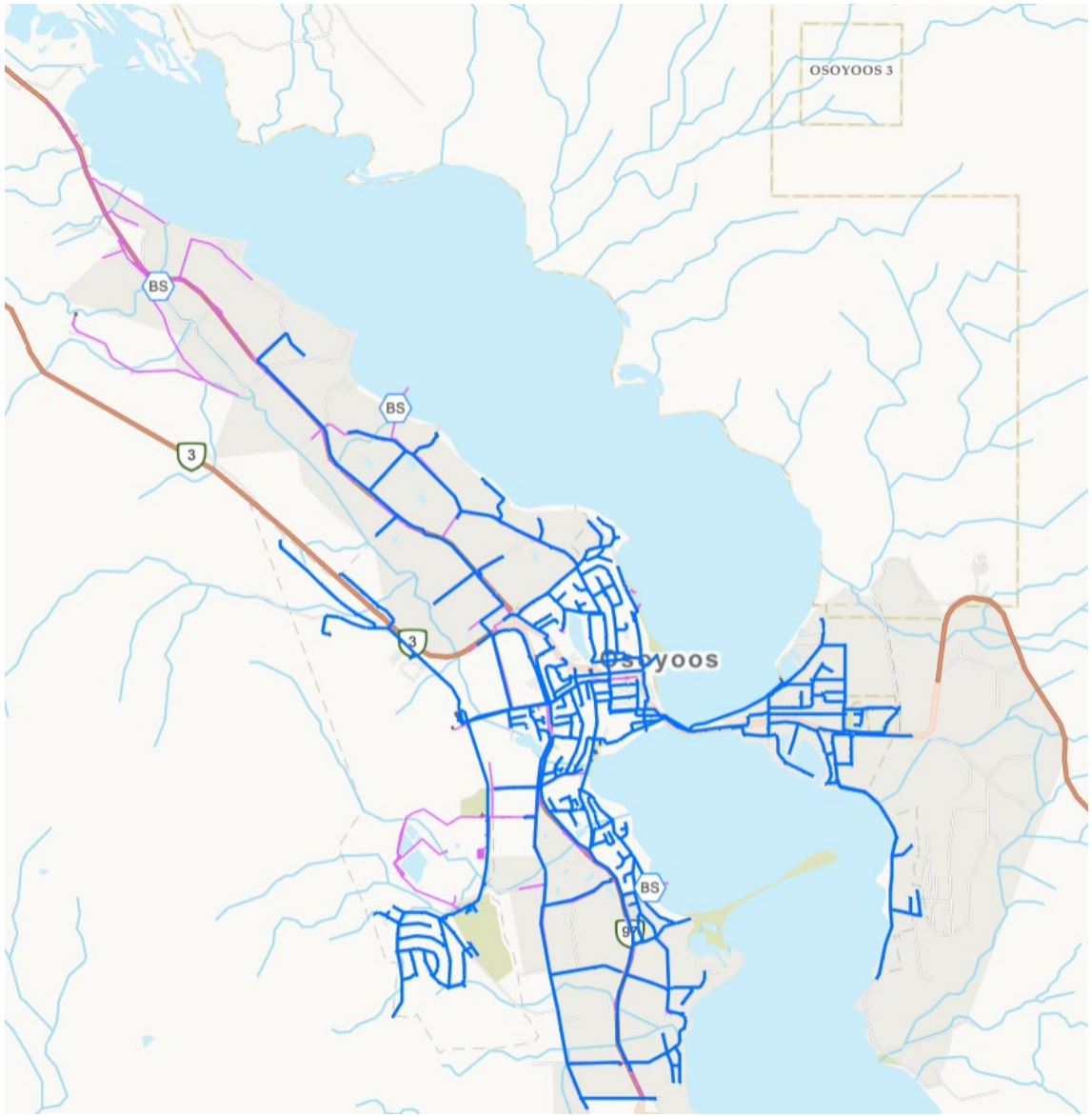
Town of Osoyoos

ENGINEERING ■ PLANNING ■ URBAN DESIGN ■ LAND SURVEYING

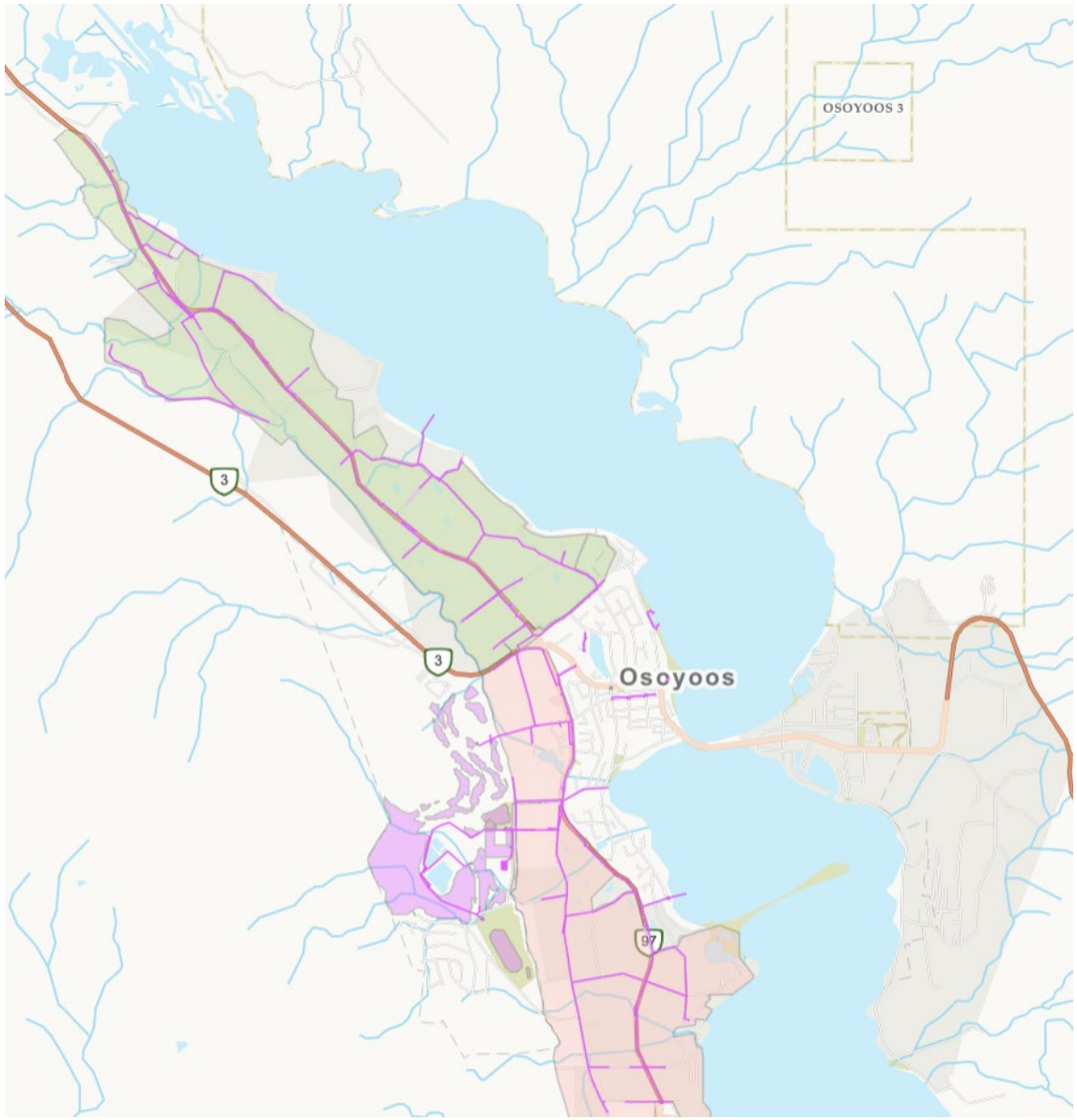
October 2026

Project: 302-1781

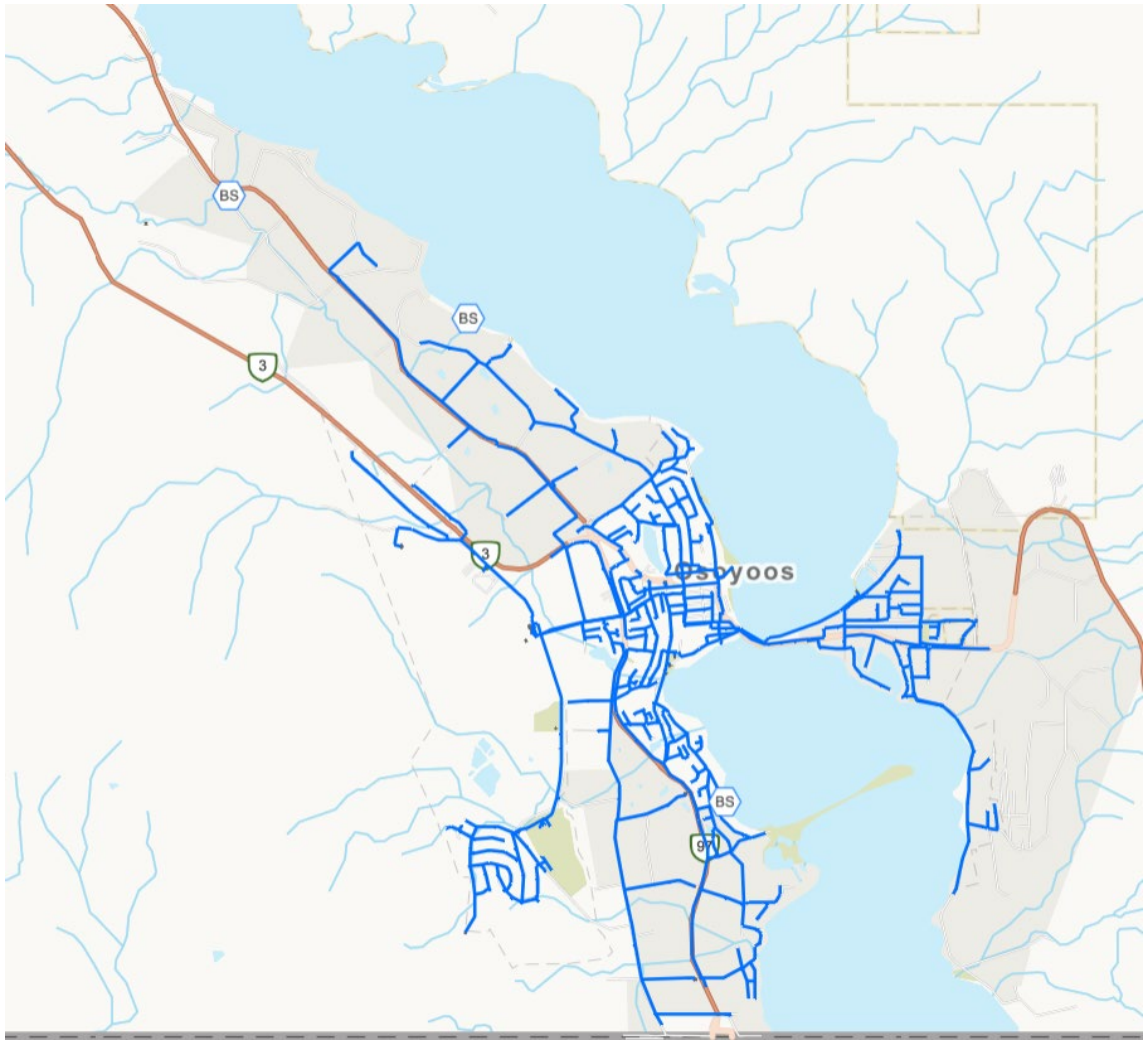
WATER AND IRRIGATION



IRRIGATION SYSTEMS



POTABLE WATER SYSTEM




Wells 6
Wells 4 & 5
Well 3
Well 8
Well 1

EXISTING WELL WATER QUALITY

WELL	CAPACITY MLD	HARDNESS	MANGANESE	TOC	AMMONIA
#1	2.2	330	0.002	4.13	0.050
#3	3.3	300	0.040	4.47	0.074
#4	3.8	240	0.136	4.25	0.807
#5	5.9	200	0.142	4.14	0.564
#6	1.1	320	0.130	3.06	0.050
#8	3.8	175	0.122	4.26	0.182

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OSOYOOS LAKE WATER QUALITY VS DEPTH

Summary of important water quality metrics at proposed intake depths

	Report Location	14 m (current intake)	20 m	30 m	40 m	50 m	60 m
Pipe Extension Length	Figure 2.1-2	-	91	152 m	202 m	253 m	476 m
Number of Seiches	Table 2.2-1	3	1	0	0	0	0
Average Temperature (range)*	Figure 2.2-2	10.3 °C (7.9 – 14.6)	8.1 °C (6.8 – 9.5)	7.5 °C (6.5 – 8.1)	7.4 °C (6.3 – 8.1)	7.4 °C (6.3 – 8.1)	- -
Average DO (range)*	Figure 2.2-6	8.1 mg/L (4.9 – 10.4)	7.6 mg/L (4.4 – 10.3)	7.3 mg/L (3.4 – 10.3)	7.2 mg/L (3.2 – 10.2)	6.9 mg/L (3.3 – 11.2)	- -
Avg Turbidity (range)	Figure 2.2-10	0.99 NTU (0.53 – 1.42)	0.645 NTU (0.36 – 0.85)	1.16 NTU (0.77 – 1.62)	1.50 NTU (0.68 – 3.68)	1.72 NTU (1.05 – 3.68)	1.48 NTU (1.13 – 2.16)
Avg UVT (range)	Figure 2.2-11	82.10% (80.1 – 87.3)	81.60% (80.6 – 82.3)	82.30% (80.6 – 87.6)	81.10% (79.7 – 82.2)	81.20% (79.7 – 82.4)	80.90% (79.4 – 82.1)
Avg pH (range)	Figure 2.2-7	8.11 (8 – 8.24)	8.03 (7.99 – 8.06)	8.03 (7.89 – 8.23)	8.03 (7.87 – 8.23)	8.02 (7.87 – 8.23)	8.02 (7.87 – 8.24)
Avg TOC (range)	Figure 2.2-12	4.6 mg/L (4.2 – 5.2)	4.3 mg/L (4.1 – 4.5)	4.4 mg/L (4.2 – 4.5)	4.3 mg/L (4.2 – 4.6)	4.3 mg/L (4.1 – 4.4)	4.3 mg/L (4.1 – 4.6)
Avg D-Mn (range)	Figure 2.2-16	0.0017 mg/L (<0.0001 – 0.0053)	0.0014 mg/L (0.0003 – 0.0025)	0.0010 mg/L (0.0007 – 0.0014)	0.0026 mg/L (0.0008 – 0.0055)	0.0037 mg/L (0.0008 – 0.0113)	0.0090 mg/L (0.0011 – 0.0306)
Average Algae Density (range)	Figure 2.3-3	2988 cells/mL (920 – 9060)	1089 cells/mL (685 – 2530)	1558 cells/mL (410 – 4870)	1557 cells/mL (490 – 3840)	1863 cells/mL (540 – 3840)	1614 cells/mL (230 – 3670)
Average cyanobacteria density (range)	Figure 2.3-3	1284 cells/mL (0 – 2295)	546 cells/mL (25 – 1400)	782 cells/mL (25 – 2130)	749 cells/mL (250 – 1350)	912 cells/mL (50 – 1880)	828 cells/mL (0 – 2185)
Avg *E.coli* (range)	Figure 2.3-1	1 CFU/100mL (<1 – 5)	<1 CFU/100mL (<1)	1 CFU/100mL (<1 – 4)	2 CFU/100mL (<1 – 5)	2 CFU/100mL (<1 – 4)	1 CFU/100mL (<1 – 3)
# of Best Results			6	4	0	0	0
# of Worst Results			1	0	2	5	2

*Temperature/DO data is based on 2019 growing season monthly field profiles for relevant comparison across sites; sonde maximum depth was 50 m

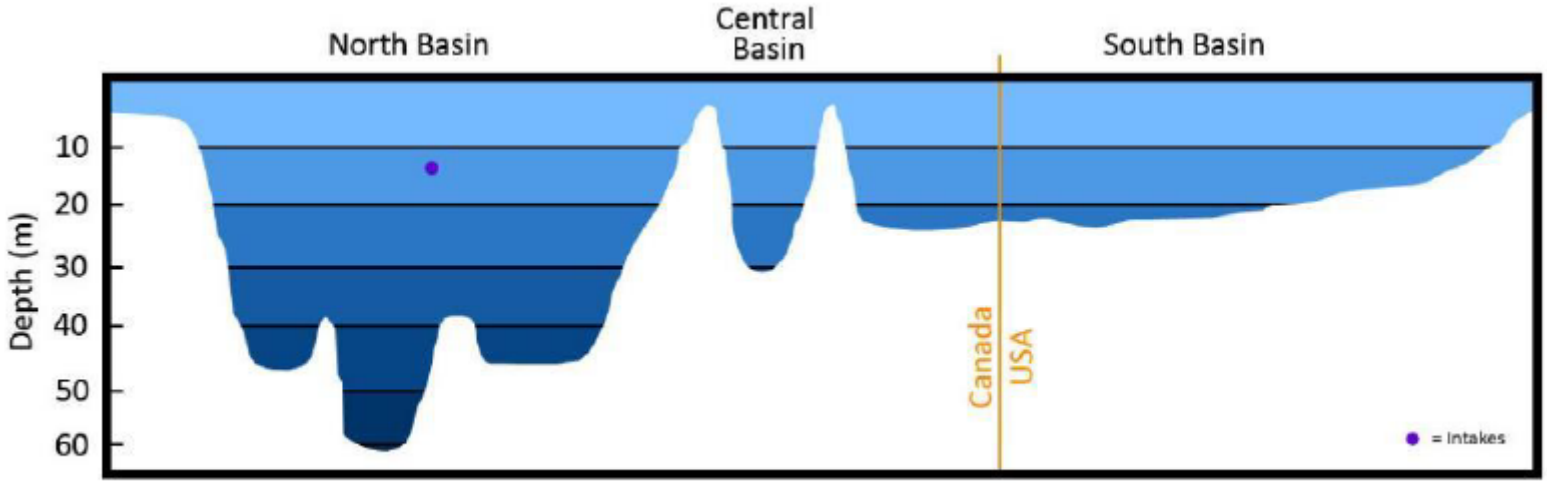


Figure 2.2-1: Cross section of Osoyoos Lake bathymetry with Intake No. 8 marked

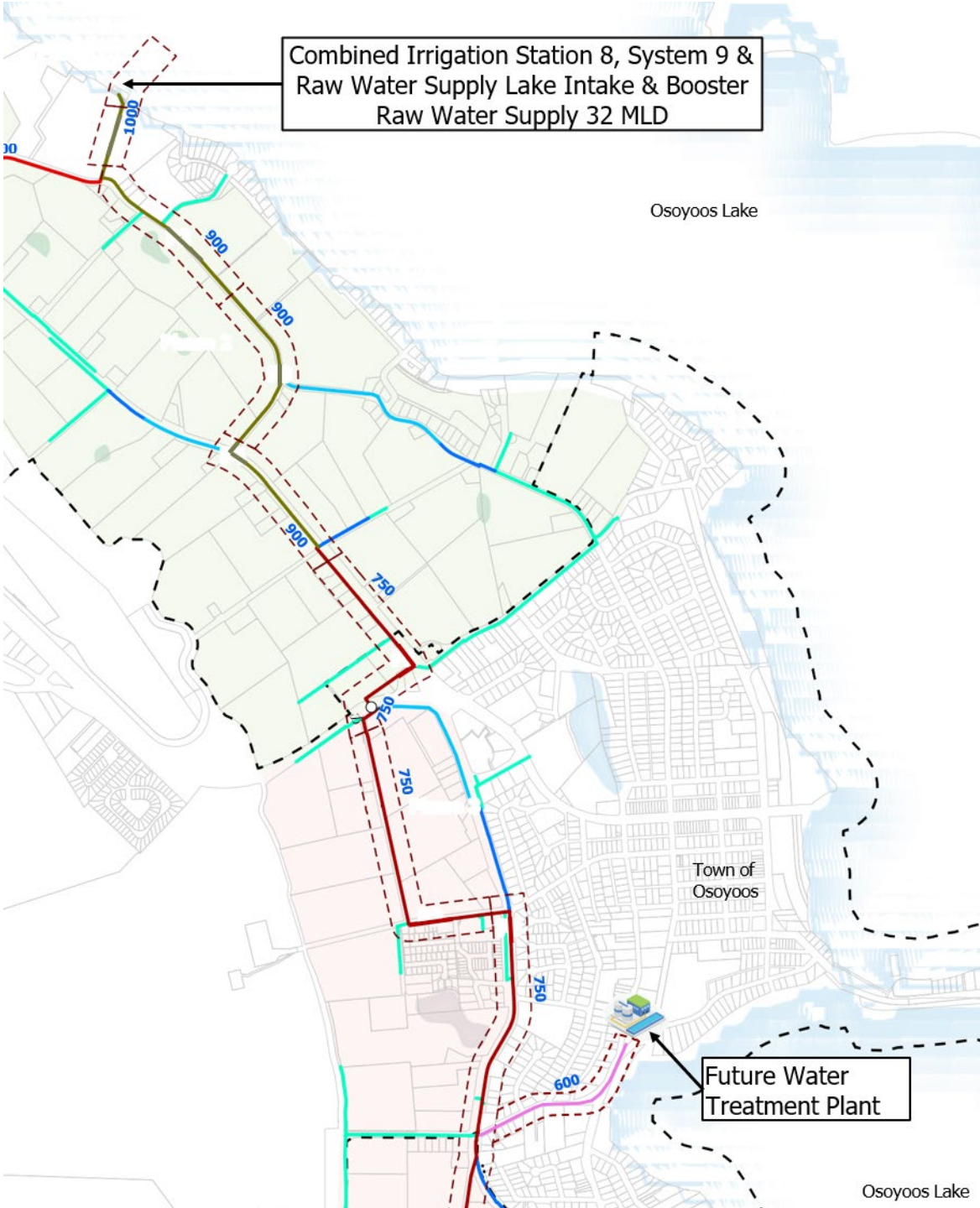
IDEAL TREATMENT PLANT CONFIGURATION

- Surface Water Treatment at Strawberry Creek
- All infrastructure required for implementation
- Cannot be phased
- $87 MILLION
- Uses all available borrowing capacity



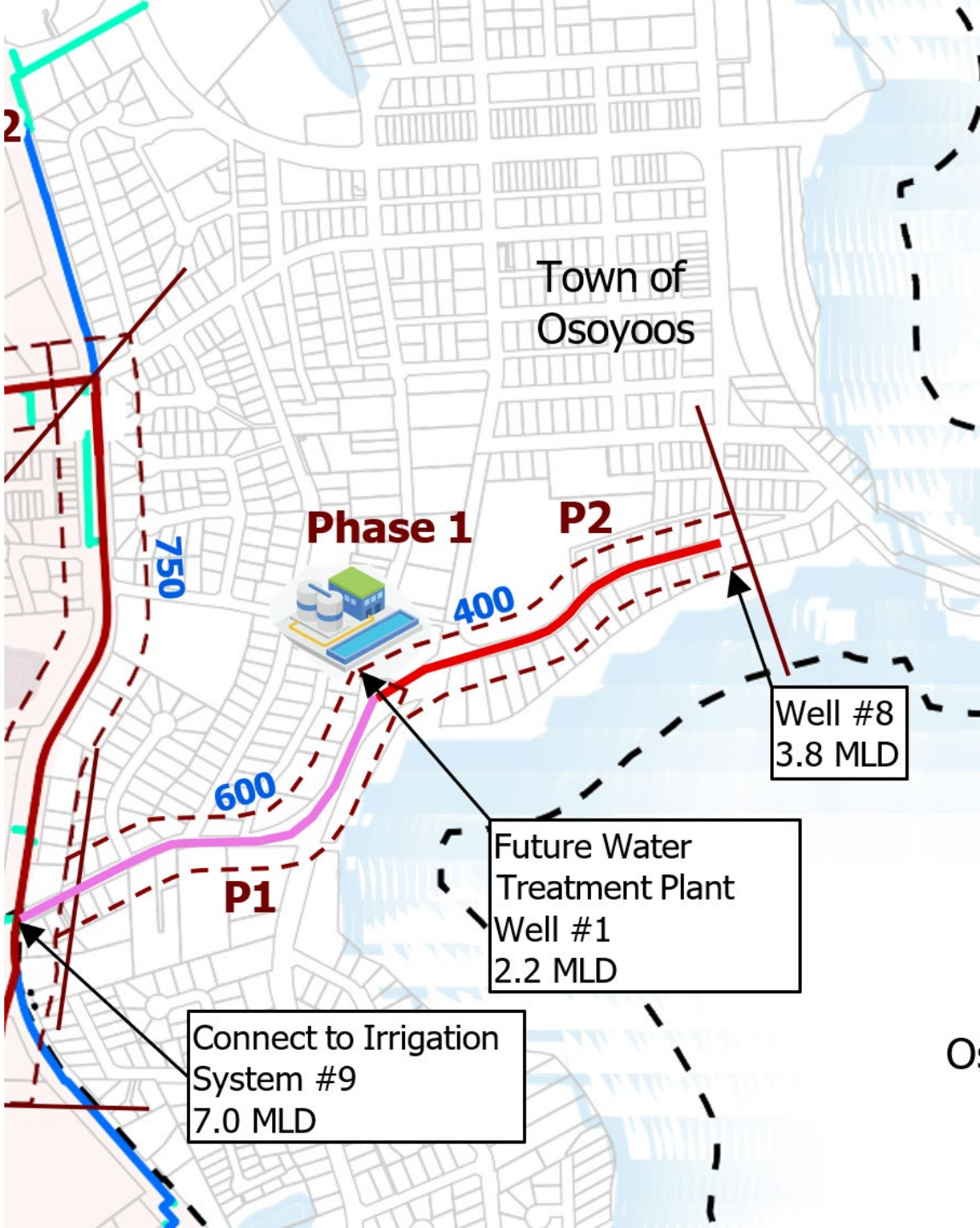
Phased Implementation Plan

- Surface Water Treatment
- 32 MLD
- N-1 redundancy
- Irrigation System Intakes and Trunk Mains Replaced
- Blended groundwater and surface water initially
- Transitioning to all surface water



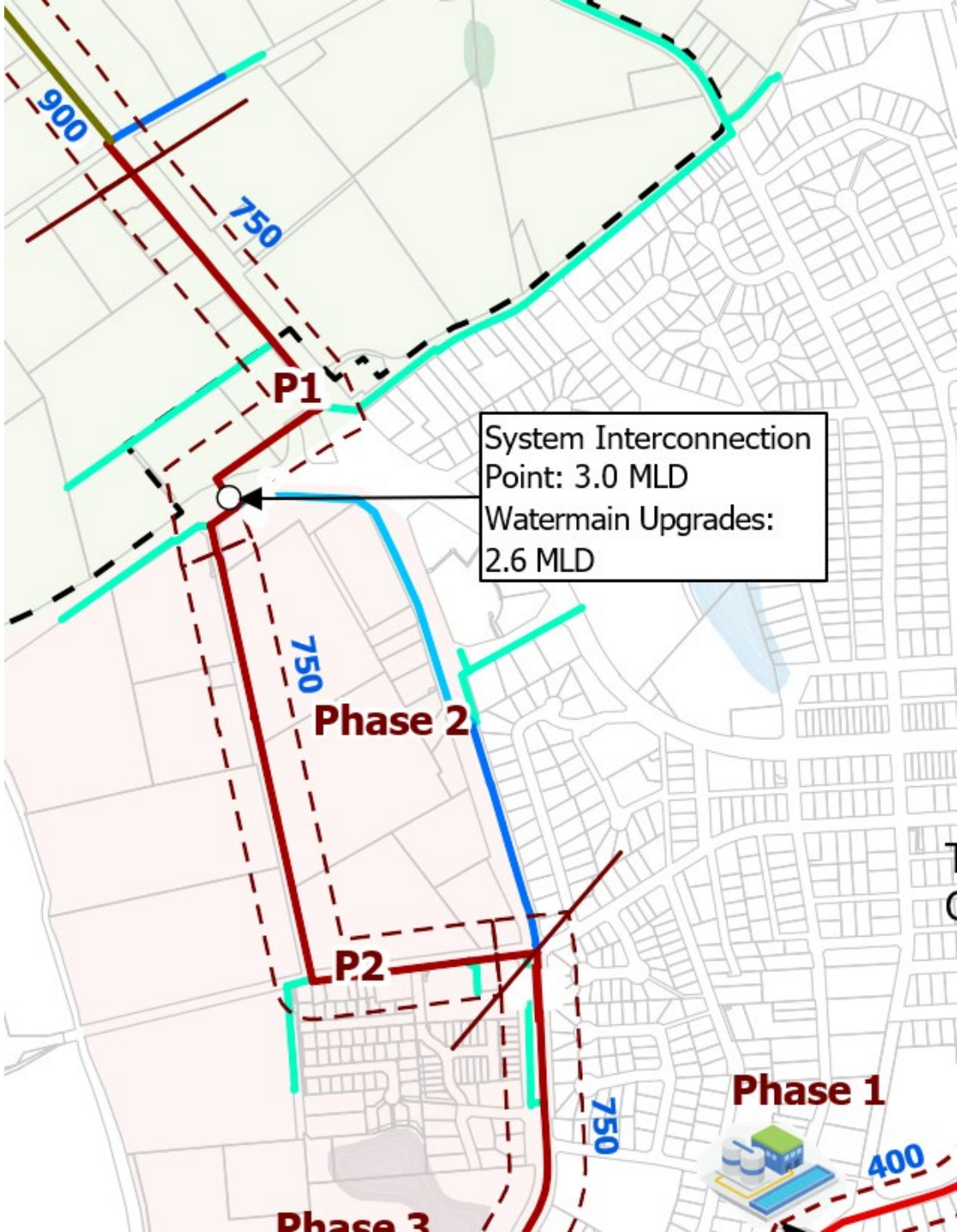
Phase 1

- Water Treatment Plant 18MLD Capacity
  - Membrane Filtration
  - Chlorine Disinfection
- Raw Water Supply
  - Irrigation System #9, 7 MLD
  - Well #1, 2.2 MLD
  - Well #8, 3.8 MLD
- Existing Water Supply
  - Well #3, 3.3 MLD



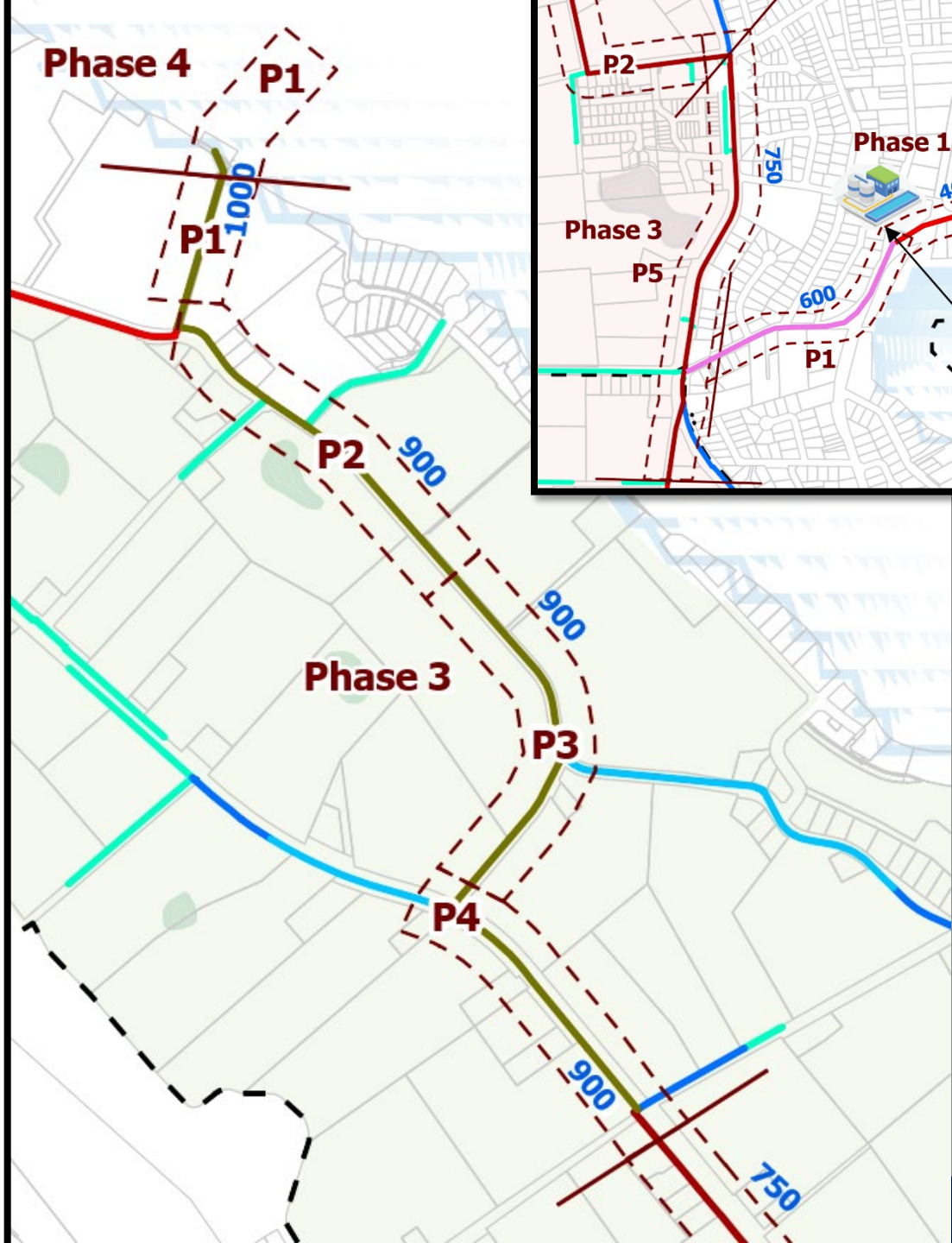
Phase 2

- Irrigation Systems Interconnection
  - Additional Raw Water Supply: 3.0 MLD
- Watermain Upgrades
  - Additional Raw Water Supply: 2.6 MLD



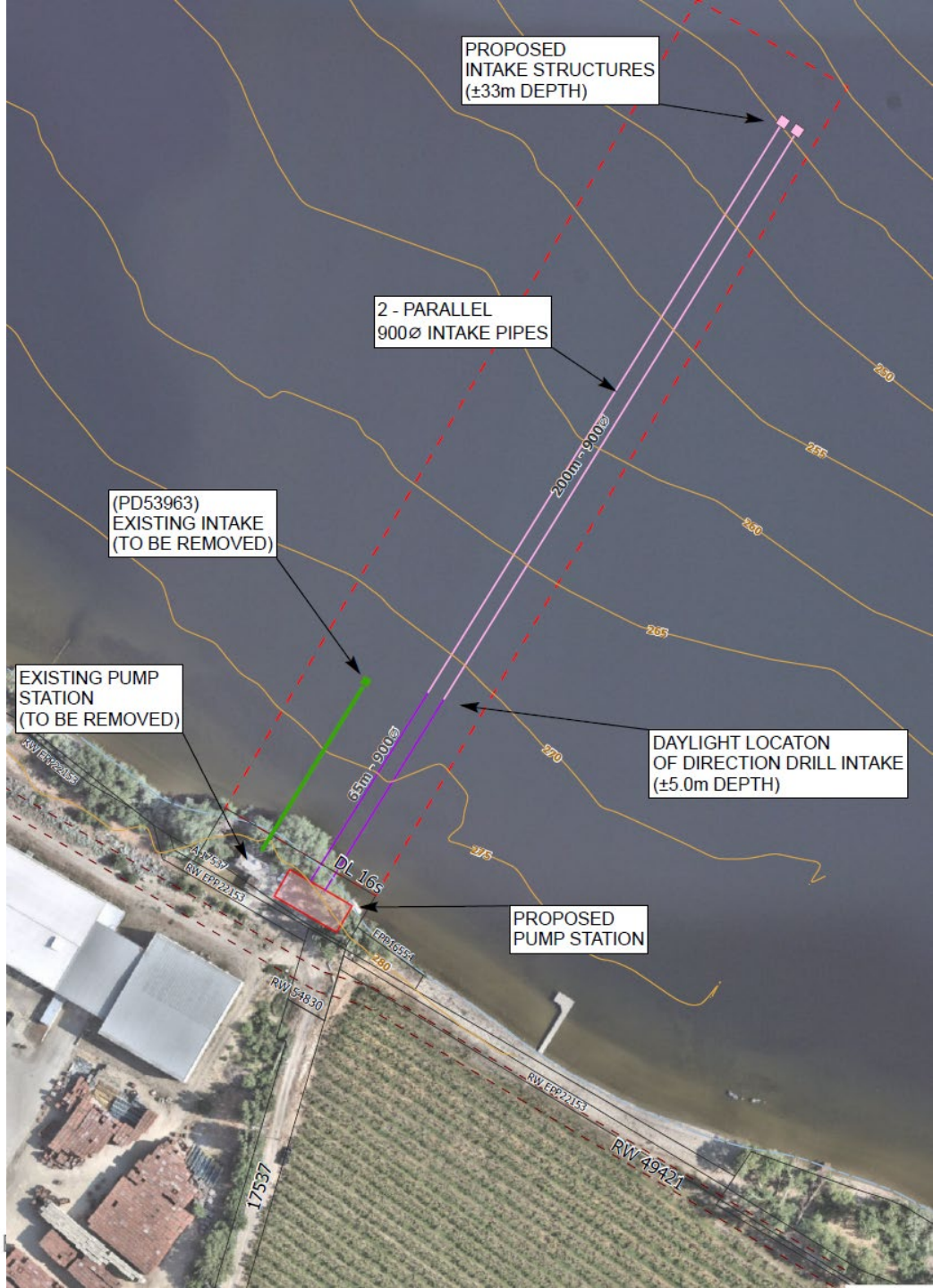
Phase 3

- Irrigation Systems Watermain Upgrades
  - Increase conveyance capacity of flows
  - Surface water intake required for additional Capacity



Phase 4

- Surface Water Intake
  - Raw Water Supply: 32.0 MLD
- Booster Station
  - N-1 pump redundancy




Chickadee Cr
Jack Shaw Splash Park
Kingfisher Dr
Jack Shaw Gardens Park
89 St

Implementation Plan Costing

Phase	Cumulative Raw Water Supply (MLD)	Total Project Cost (2026 CAN)	Water System Cost (2026 CAN)	Irrigation System Cost (2026 CAN)	Proposed Schedule
1	13.0 + 3.3	$43,300,000	$43,300,000		2028
2	18.6 + 3.3	$8,967,616	$4,657,177	$4,310,439	2029
3	18.6 + 3.3	$17,006,630	$7,547,778	$9,458,852	2032 - 2035
4	32 + 3.3	$20,680,951	$6,824,714	$13,856,237	2036
Totals		**$87,555,197**	**$62,329,669**	**$27,625,528**	

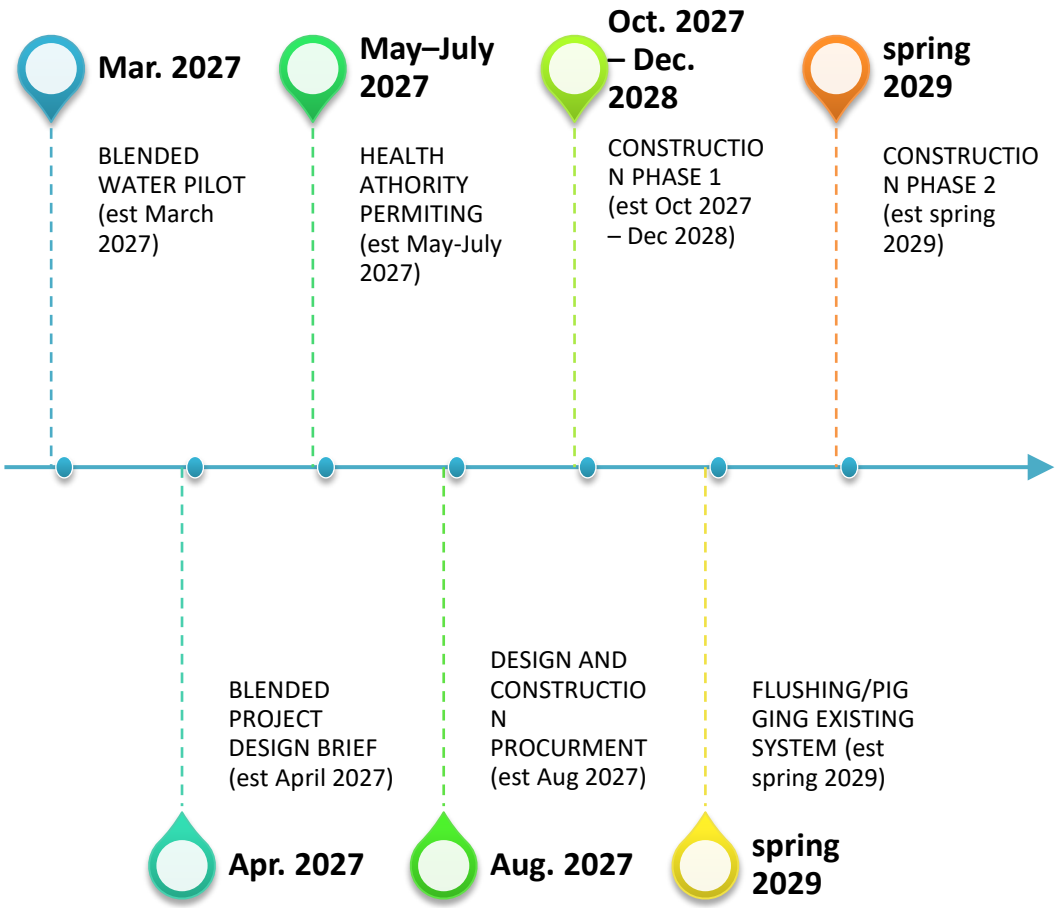
PRIORITIES OF THE PROPOSED PLAN

- Remove Manganese water quality advisory As Soon As Possible
- Prefer Surface water to remove hardness
- Avoid further rate increases
- Phase the project to reduce initial cost

WHAT HAS BEEN DONE SO FAR

- GROUNDWATER TREATMENT PILOT
- GROUNDWATER TREATMENT PRE-DESIGN
- OSOYOOS LAKE WATER QUALITY STUDY
- SURFACE WATER TREATMENT PILOT STUDY
- TREATMENT PLANT LOCATION STUDY
- COUNCIL ENDORSED WATER CONSERVATION PLAN
- SURFACE WATER TREATMENT IMPLEMENTATION PLANNING

NEXT STEPS


Mar. 2027
BLENDED WATER PILOT (est March 2027)
May–July 2027
HEALTH ATHORITY PERMITING (est May-July 2027)
Oct. 2027 – Dec. 2028
CONSTRUCTION PHASE 1 (est Oct 2027 – Dec 2028)
spring 2029
CONSTRUCTION PHASE 2 (est spring 2029)
BLENDED PROJECT DESIGN BRIEF (est April 2027)
Apr. 2027
DESIGN AND CONSTRUCTION PROCURMENT (est Aug 2027)
Aug. 2027
FLUSHING/PIGGING EXISTING SYSTEM (est spring 2029)
spring 2029

Questions?

