

Developing a Water Resources Portfolio with Recycled Water

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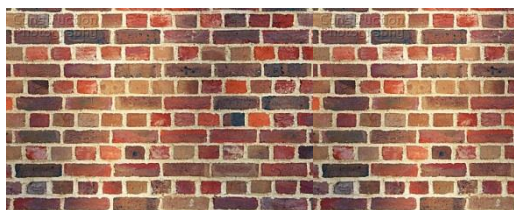
Kennedy/Jenks Consultants

Outline

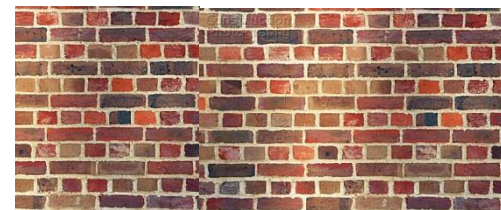
- **Dundee, OR**
- **WWTP Improvements**
- **Recycled Water**
- **Water System**
- **Feasibility Study**

ONE WATER

Drinking W



stewater



Stormwat



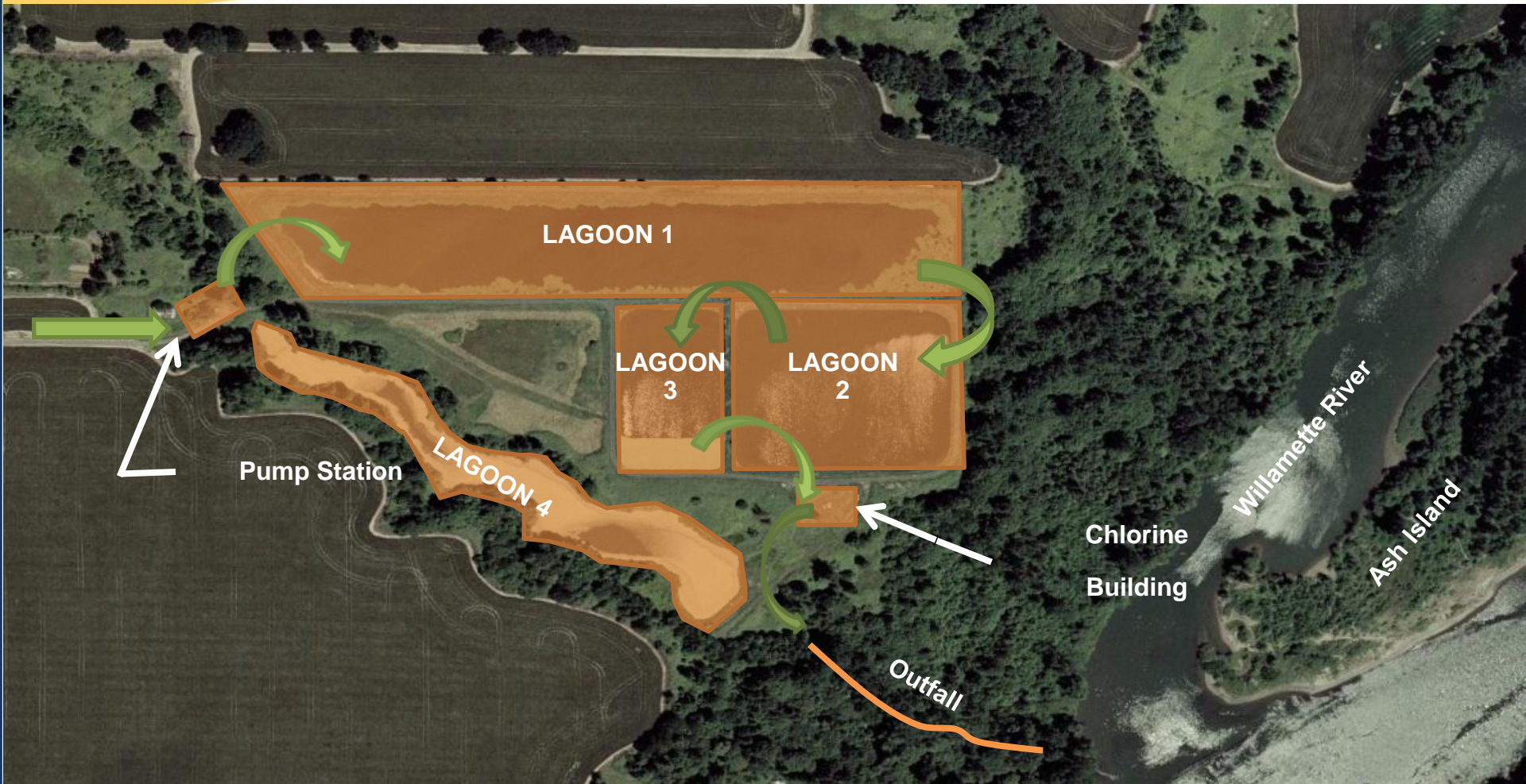
ycled Water

Dundee, Oregon



DUNDEE
Oregon

Previous Dundee WWTP



The Need

Flow Condition	2010 Flow (MGD)	2031 Flow (MGD)

Improvement Drivers

**Improve Treatment
Performance**

Reclaim Site for Beneficial Use

Provide Capacity for Growth

Proposed Solution

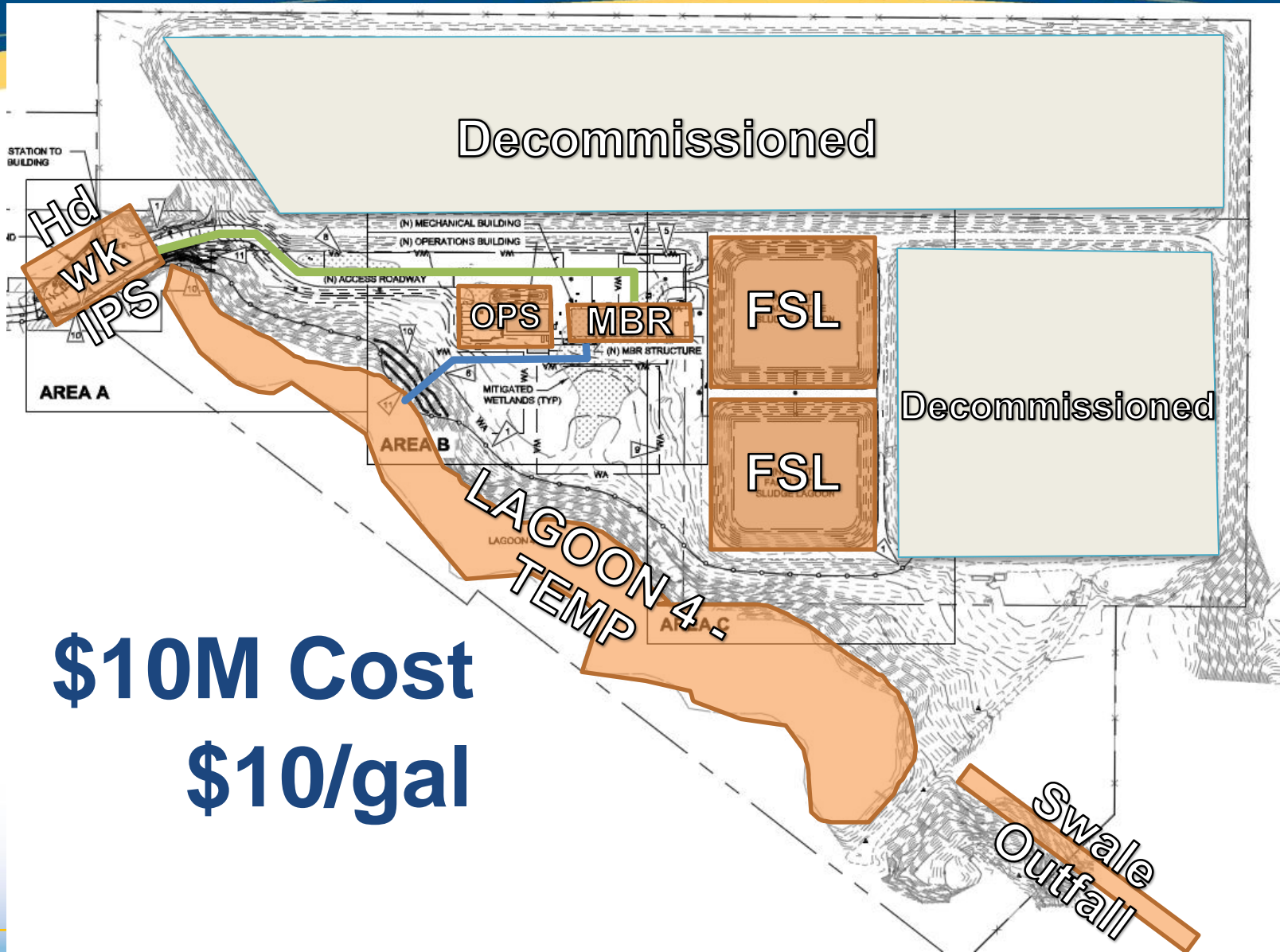
Improve Treatment
Performance

Reclaim Site for Beneficial Use

Provide Capacity for Growth

MBRS

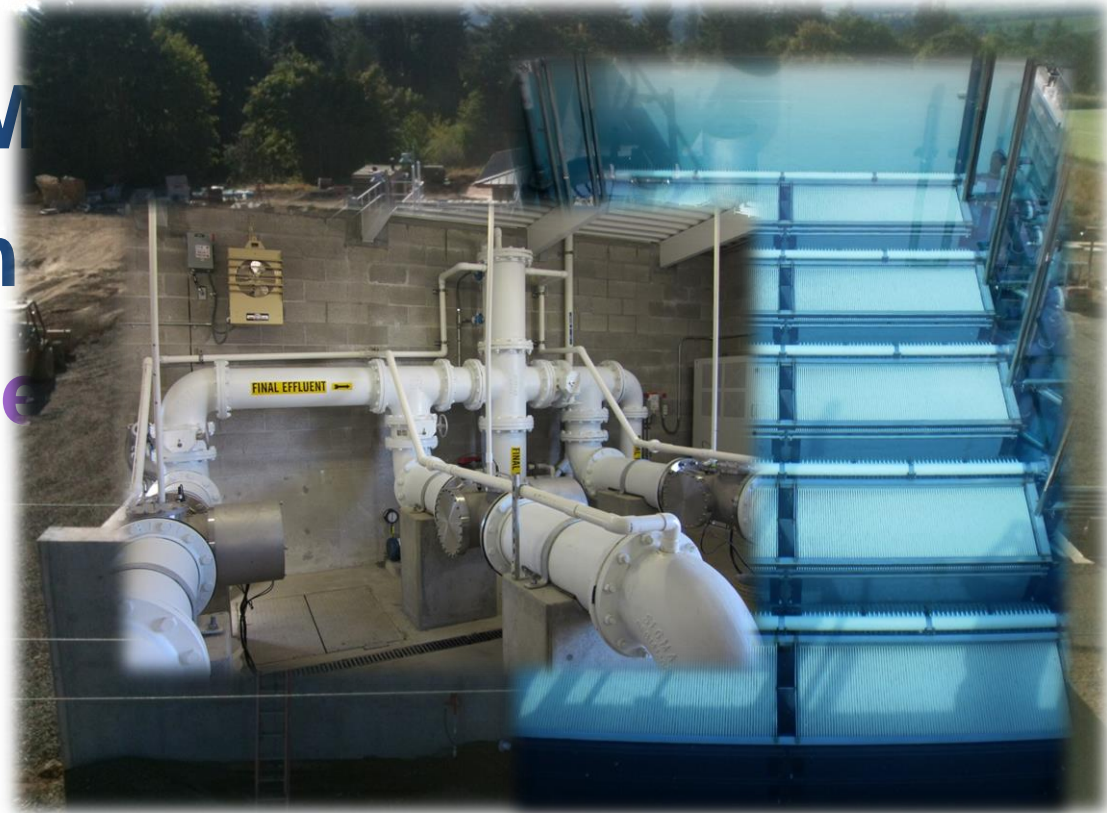
Summary of Improvements



\$10M Cost
\$10/gal

Treatment Process

- Multi-Train
- Ovivo/Kubota M
- UV Disinfection
- Class A Recycle Water



Recycled Water Defined

OAR 340-055-0010 (13) “Recycled Water means treated effluent from a wastewater treatment system which as a result of treatment is suitable for a direct beneficial purpose.”

Terminology:

RCW 90.46.010 (15) “reclaimed water means water derived in any part from wastewater with a domestic wastewater component that has been adequately and reliably treated, so that it can be used for beneficial purposes.”

Recycled Water = Reclaimed Water = Reuse Water

IAC 58.01.17 200 (33) “Water that has been treated by a wastewater treatment system and is used in accordance with these rules.”

(35) “(Reuse) The use of recycled water for irrigation, ground water recharge, landscape impoundments, toilet flushing in commercial buildings, dust control, and other uses.”

Recycled Water



Recycled Water Treatment

Treatment Steps:



Sewage



Stormwater



Discharge to River

Classes of Recycled Water

A

B

C

D

Classes of Recycled Water

A

- Oxidized, Coagulated, Filtered Disinfected

- <2 NTUs

- 2.2 per 100 mL TC

B

- Oxidized, Disinfected

- 2.2 per 100 mL TC

C

- Oxidized, Disinfected

- 23 per 100 mL TC

D

- Oxidized, Disinfected

- 240 per 100 mL TC

Wait a minute...

Drinking ~~Waste~~water

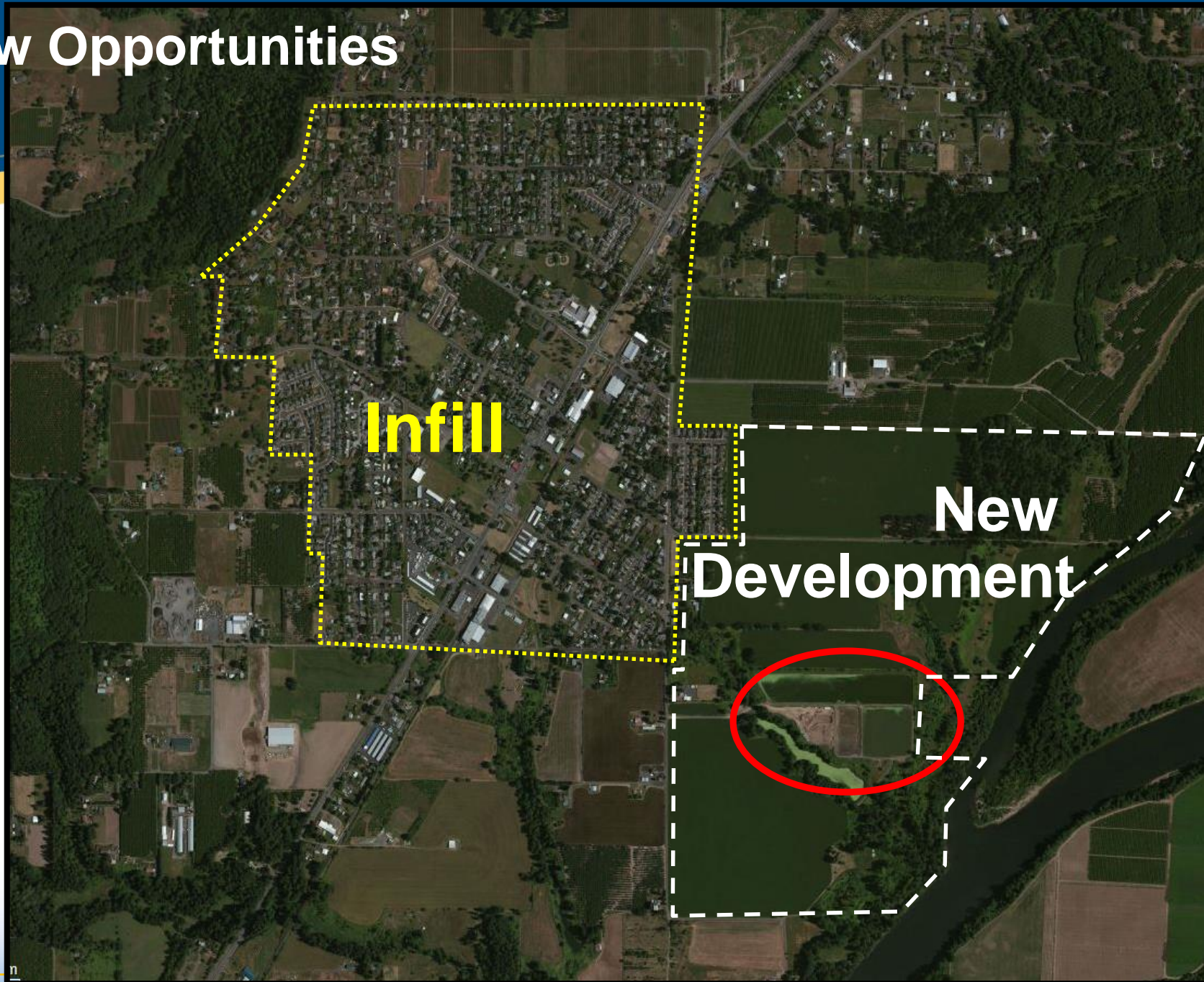
Improvement Drivers

**Improve Treatment
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Reclaim Site for Beneficial Use

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New Opportunities



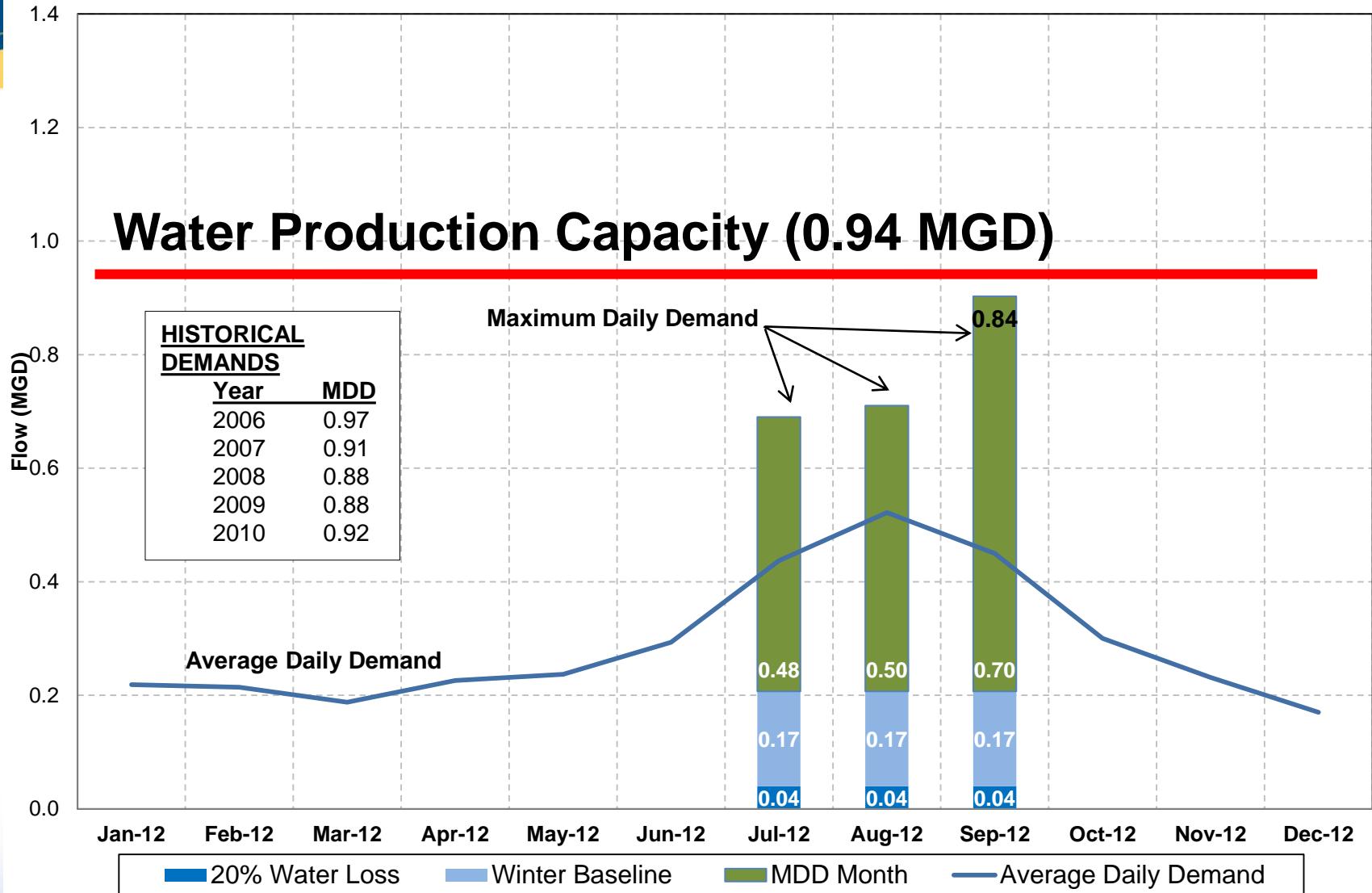
Recycled Water Feasibility Study Drivers

**New Growth = PW Capacity
Upgrades**

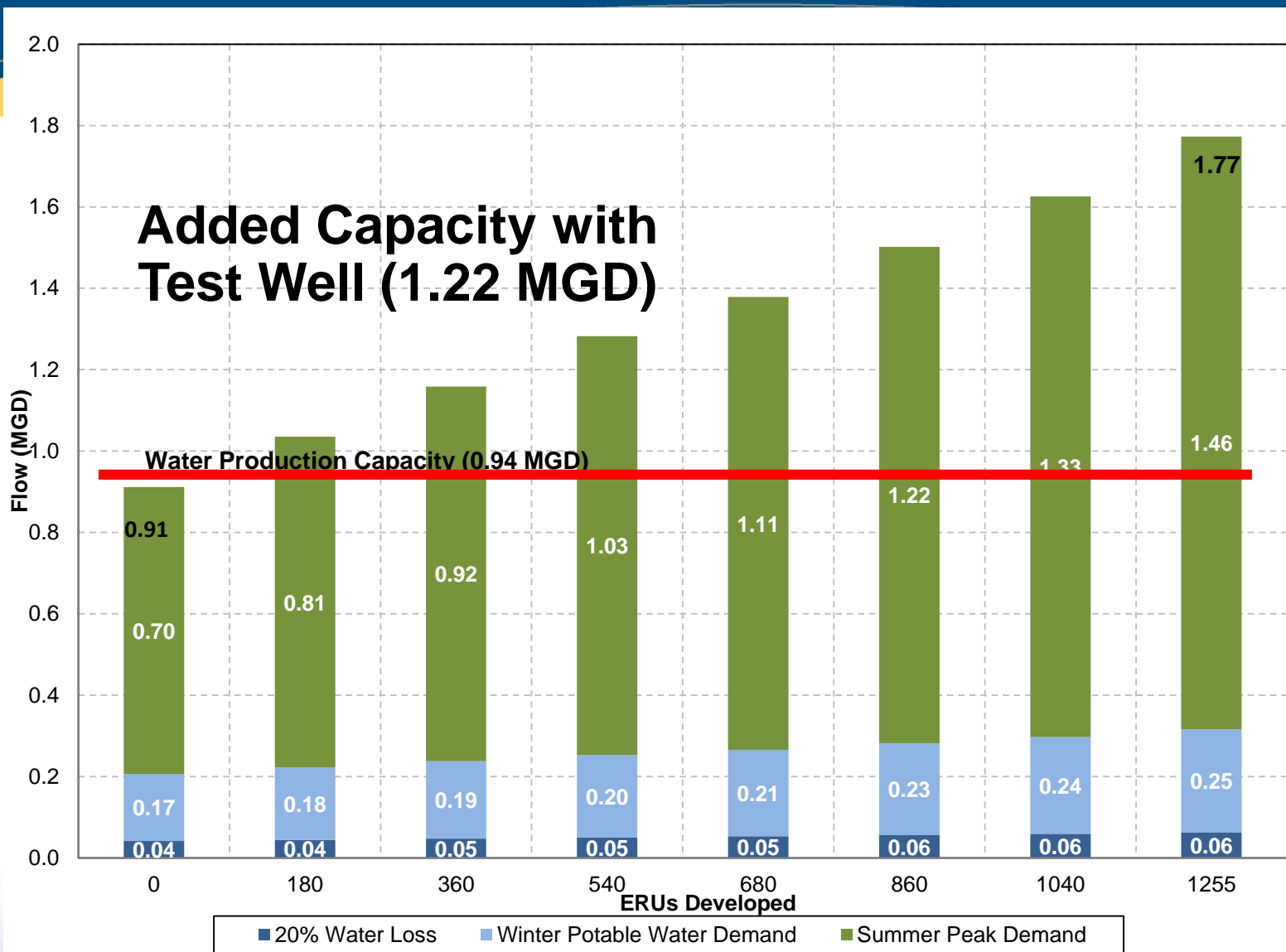
Maximize Available City Assets

**Align City services with City
ethos**

Existing Water Demands



Projected Water Demands



Define Feasibility

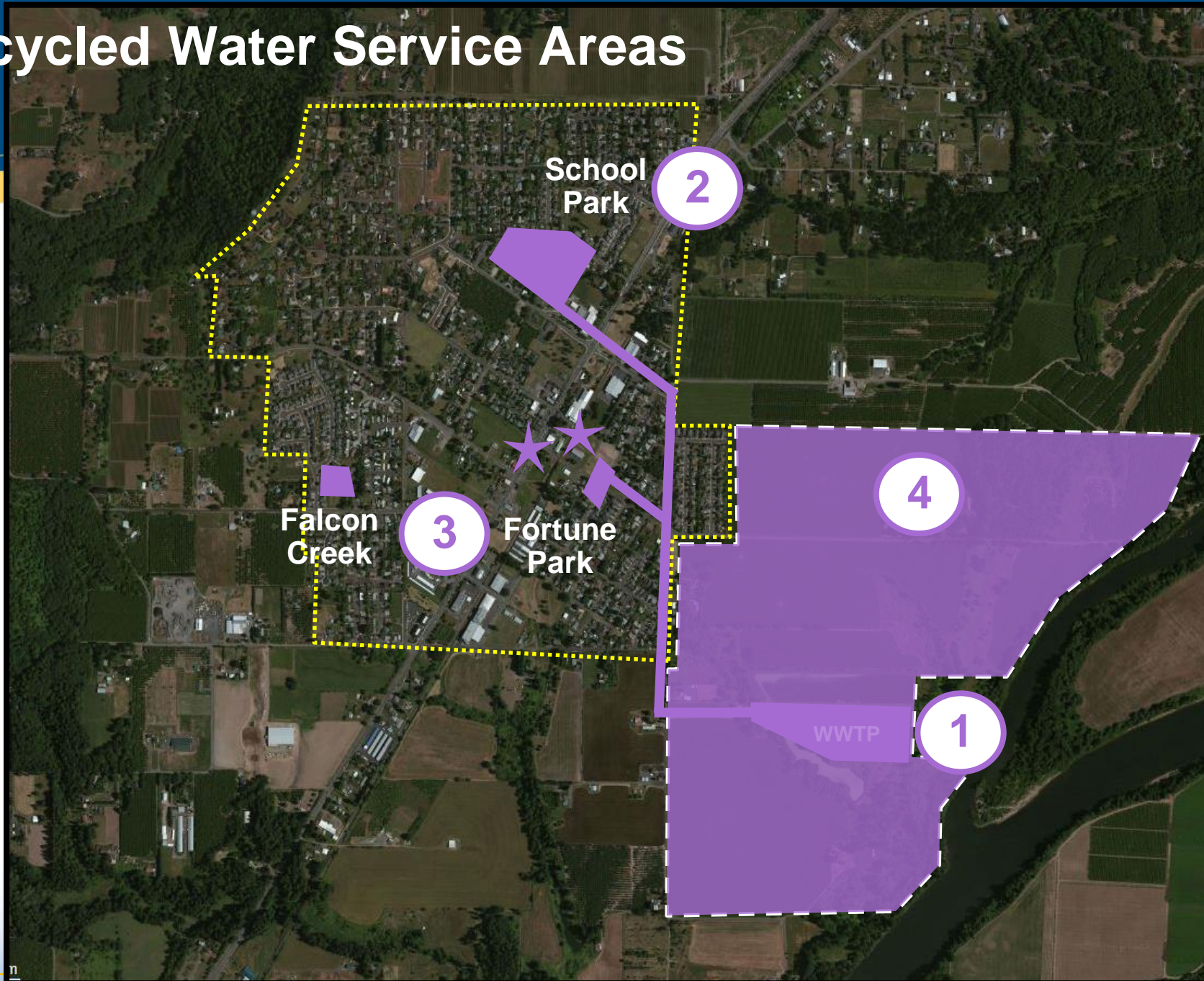
Project is Feasible (Positive):

Total Water Demand – Recycle Water Demand – Other Consumption Reductions
< Future Potable Water Capacity

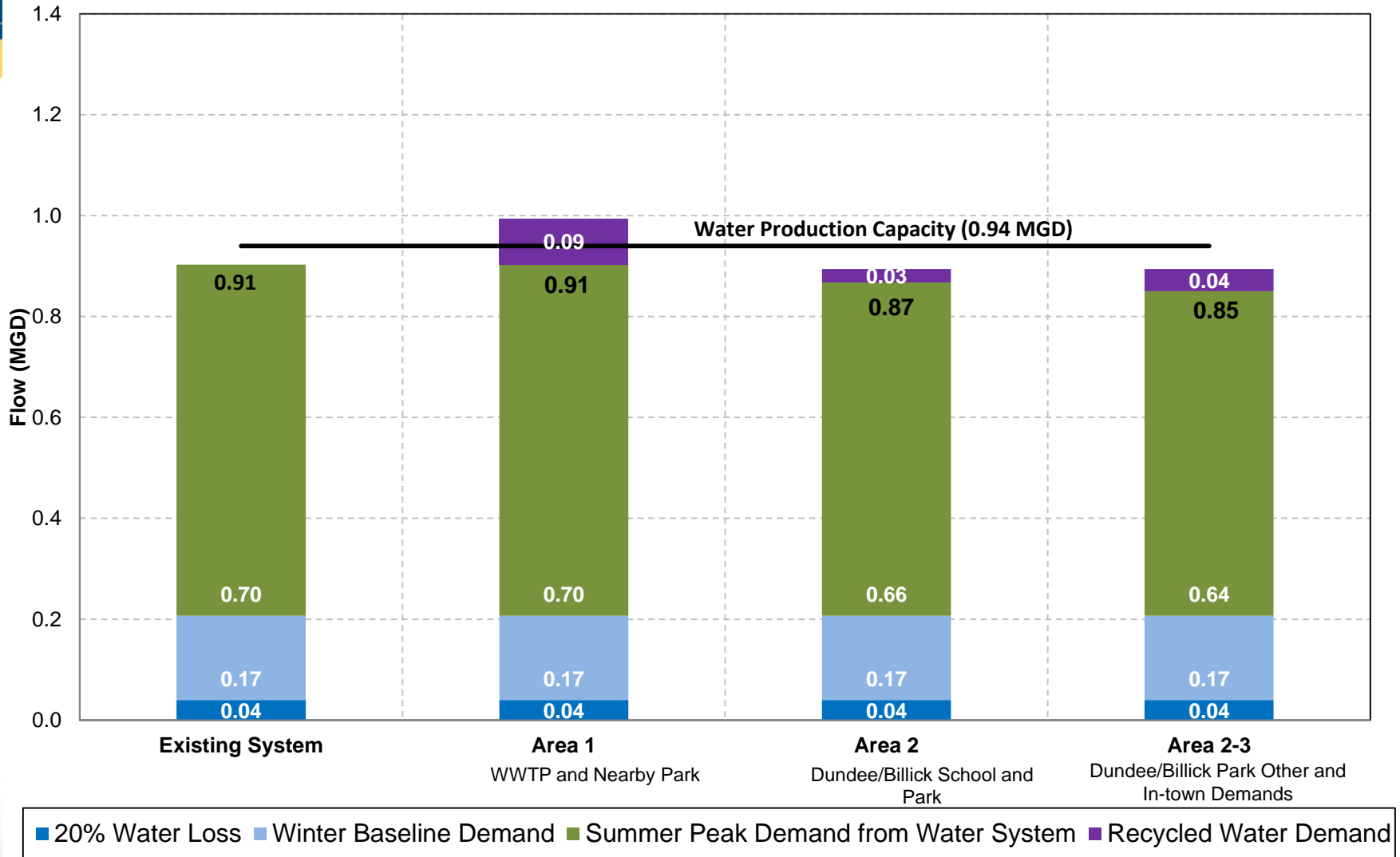
Project is not Feasible (Negative):

Total Water Demand – Recycle Water Demand – Other Consumption Reductions
> Future Potable Water Capacity

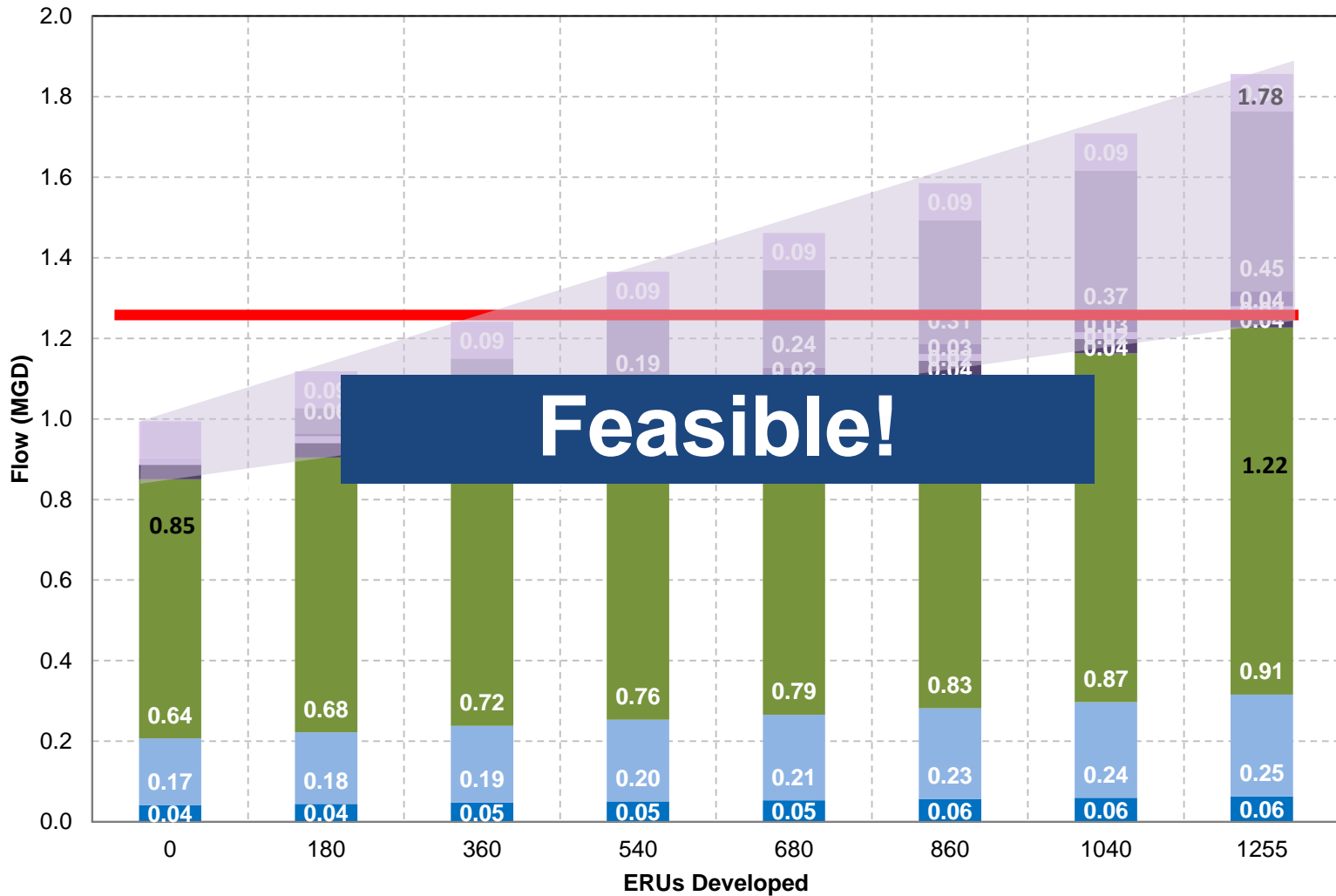
Recycled Water Service Areas



Reducing Current Demands



Project Recycled Water Demand



Cost Basis

- **FTE - \$65,000/yr**
- **PGE Schedule 85 (\$0.061 kWh)**
- **Discount Rate – 3%**
- **Loan Interest Rate – 4%**
- **Pump Station Maintenance – 5% of capital/yr**
- **Pipe Maintenance - \$5,000/mile/yr**

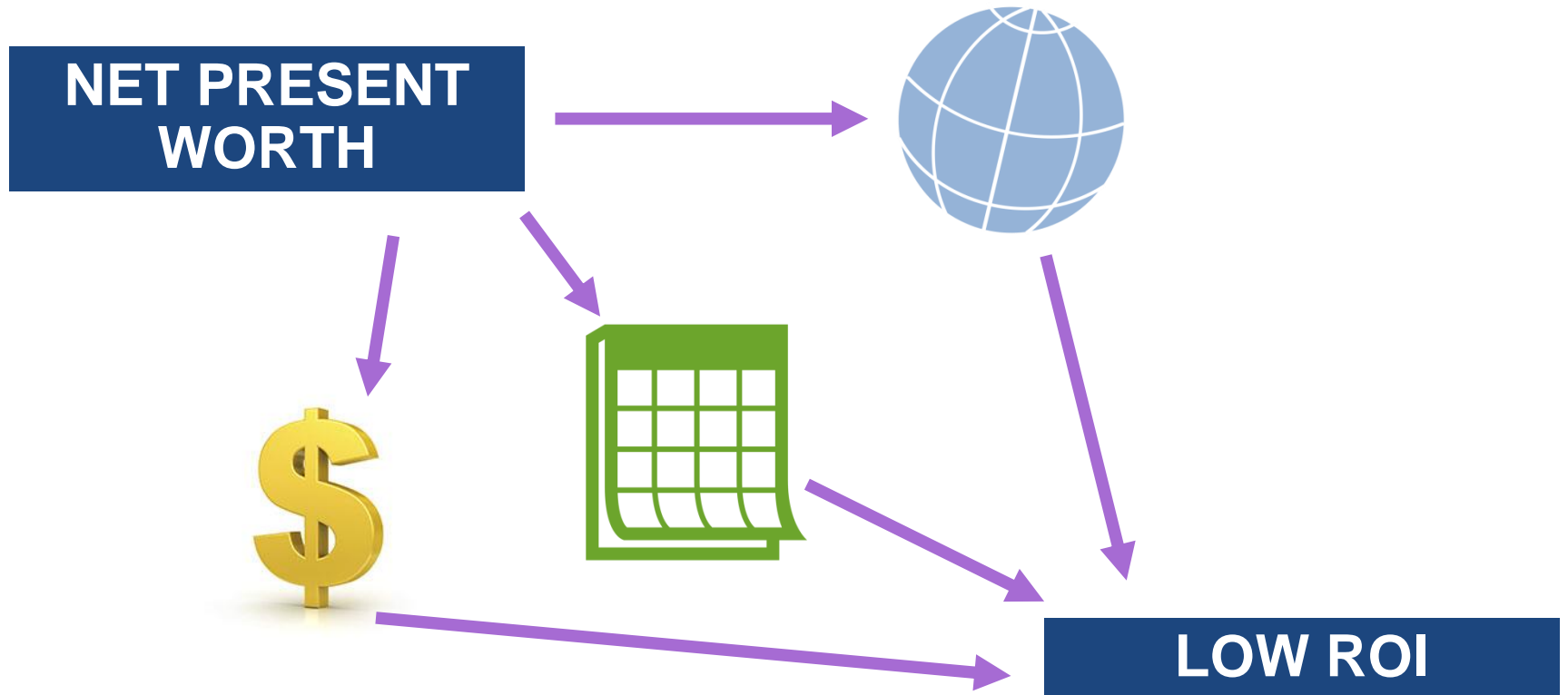
Capital and O&M Cost

Location	Estimated Capital Cost	Estimated Annual O&M
WWTP Onsite Piping	\$ 48,000	\$ 700
Onsite Storage and Pumping ^(a)	\$ 2,060,000	\$ 1,600
Dundee Billick School and Park	\$ 710,000	\$ 6,600
Fortune Park	\$ 80,000	\$ 900
Highway 99 Properties	\$ 130,000	\$ 700
Falcon Crest Park	\$ 510,000	\$ 5,000
Totals used in Program NPW Evaluation	\$ 3,538,000	\$ 15,500

Notes:

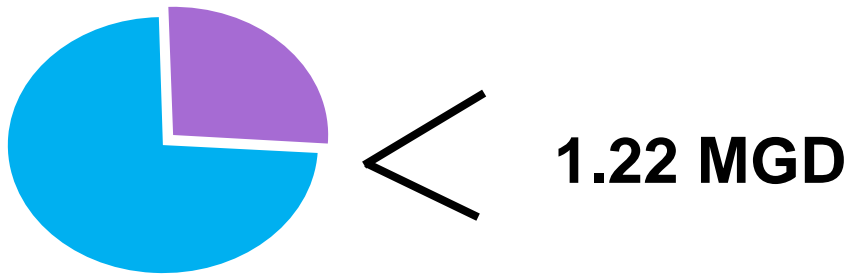
a. Located at the WWTP

NPW Analysis

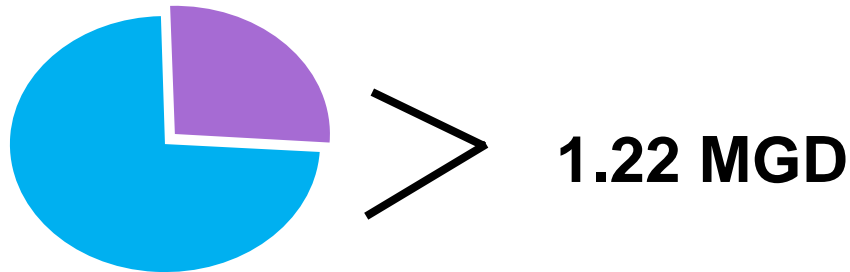


Back to the definition...

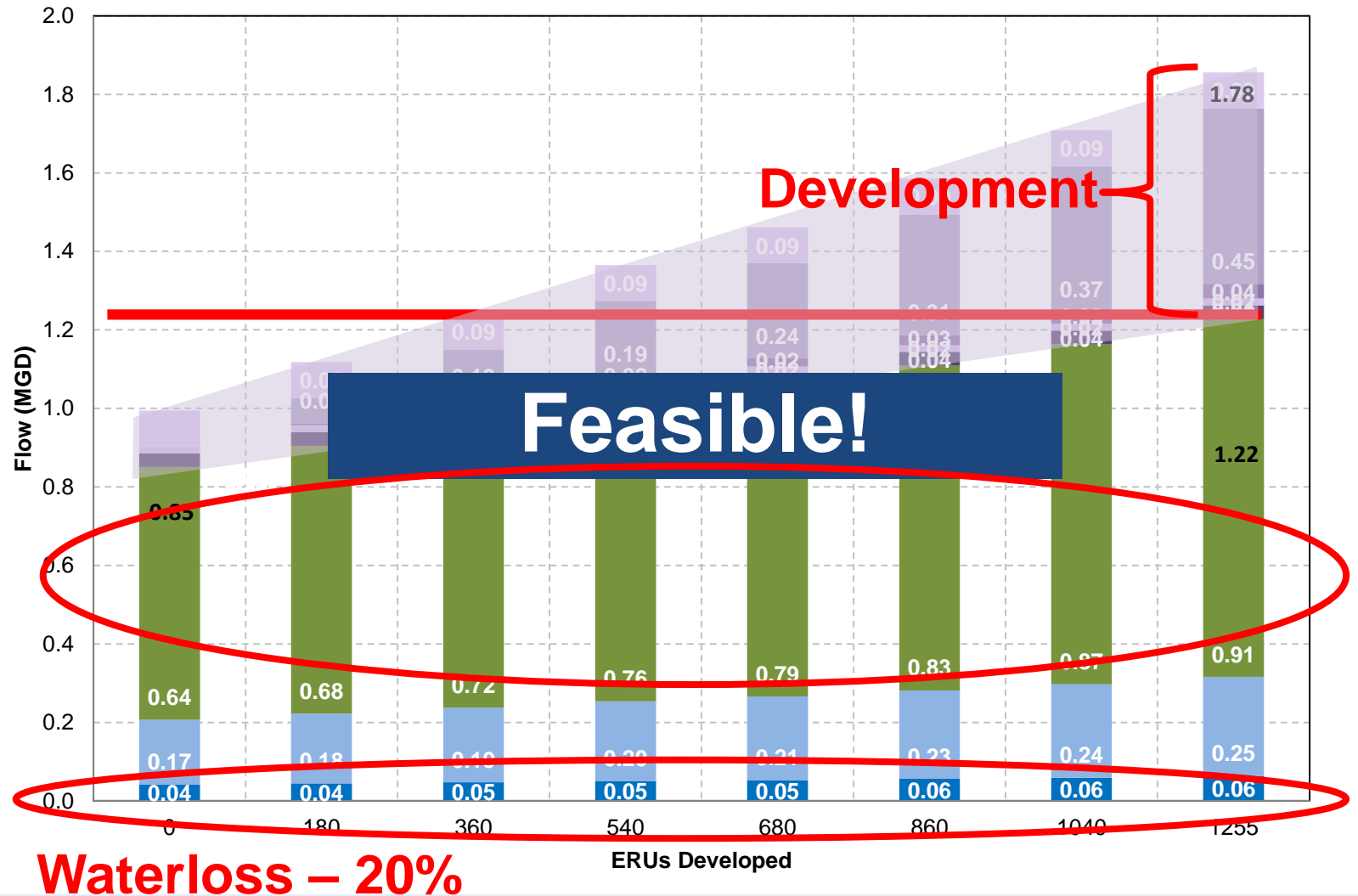
Project is Feasible (Positive):



Project is not Feasible (Negative):



What do we do now...



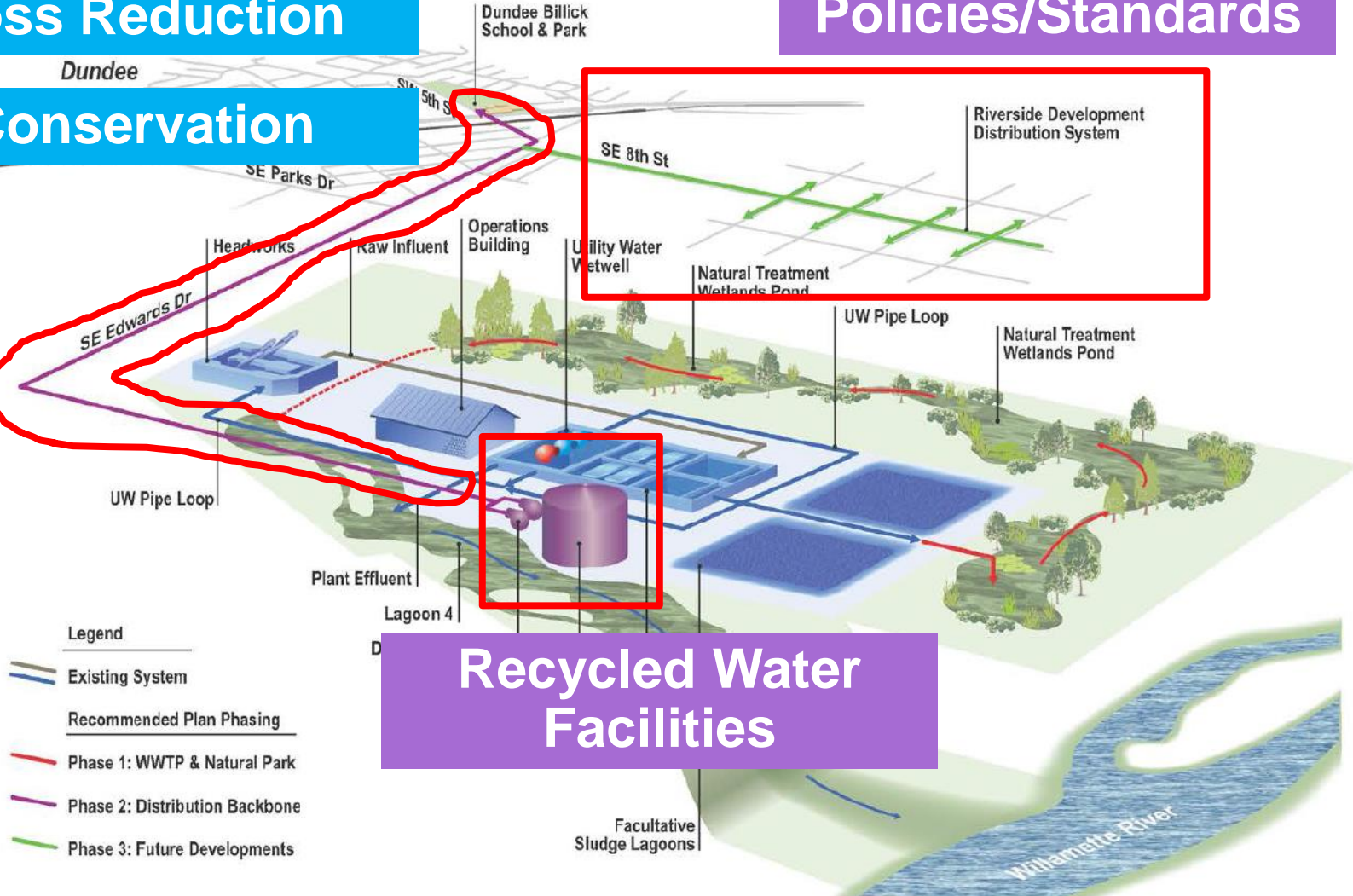
Recommended Plan

Loss Reduction

Conservation

Development Policies/Standards

Recycled Water Facilities



Public Involvement

Is it **SAFE**?

WHY?

What does it **LOOK** like?

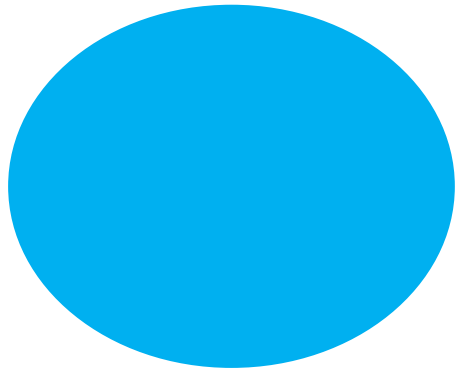


What is the **QUALITY**?

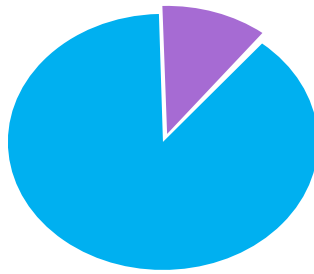
Does it **SMELL**?

What does it **COST**?

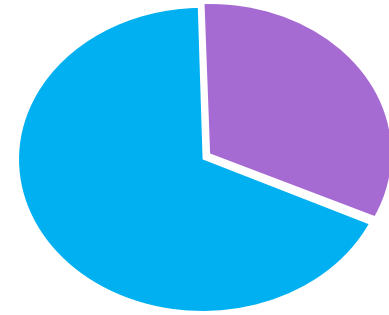
Water Resources Portfolio



Existing



0 ERUs



1255 ERUs



one water

Questions?



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