Kennedy/Jenks Consultants

Elsinore Valley Municipal Water District

EVMWD Indirect Potable Reuse (IPR) Future Consideration

WateReuse Inland Empire Chapter Meeting

May 9, 2017

Agenda

Kennedy/Jenks Consultants

Elsinore Valley Municipal Water District

- IPR Feasibility Study Summary
- Recycled Water Supply
- Preliminary Alternatives Analysis
- Groundwater Injection Alternatives
- Surface Water Augmentation Alternatives
- Cost Comparison
- Recommendations

IPR Feasibility Study Summary

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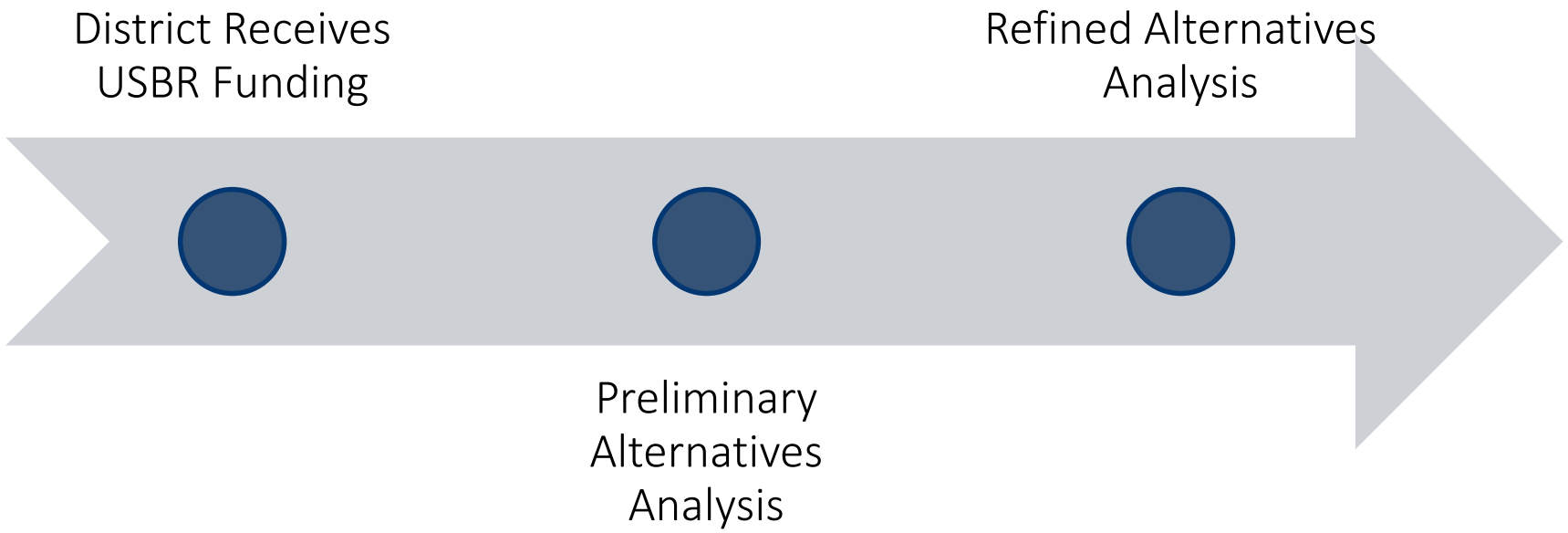

Project Recommendation:

Produce full advanced treated water for injection in the Back Basin

Available Recycled Water Supply

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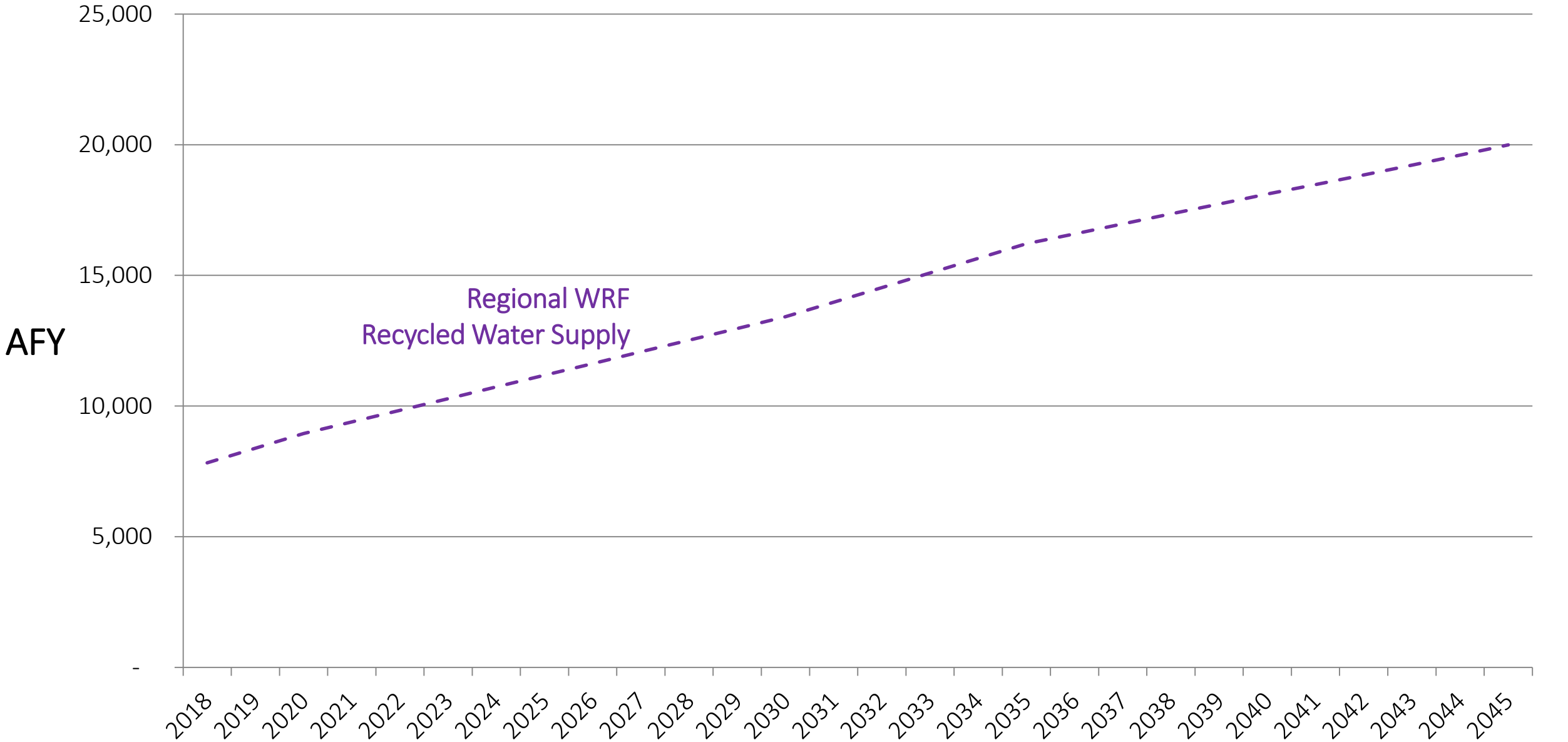

Available Recycled Water Supply

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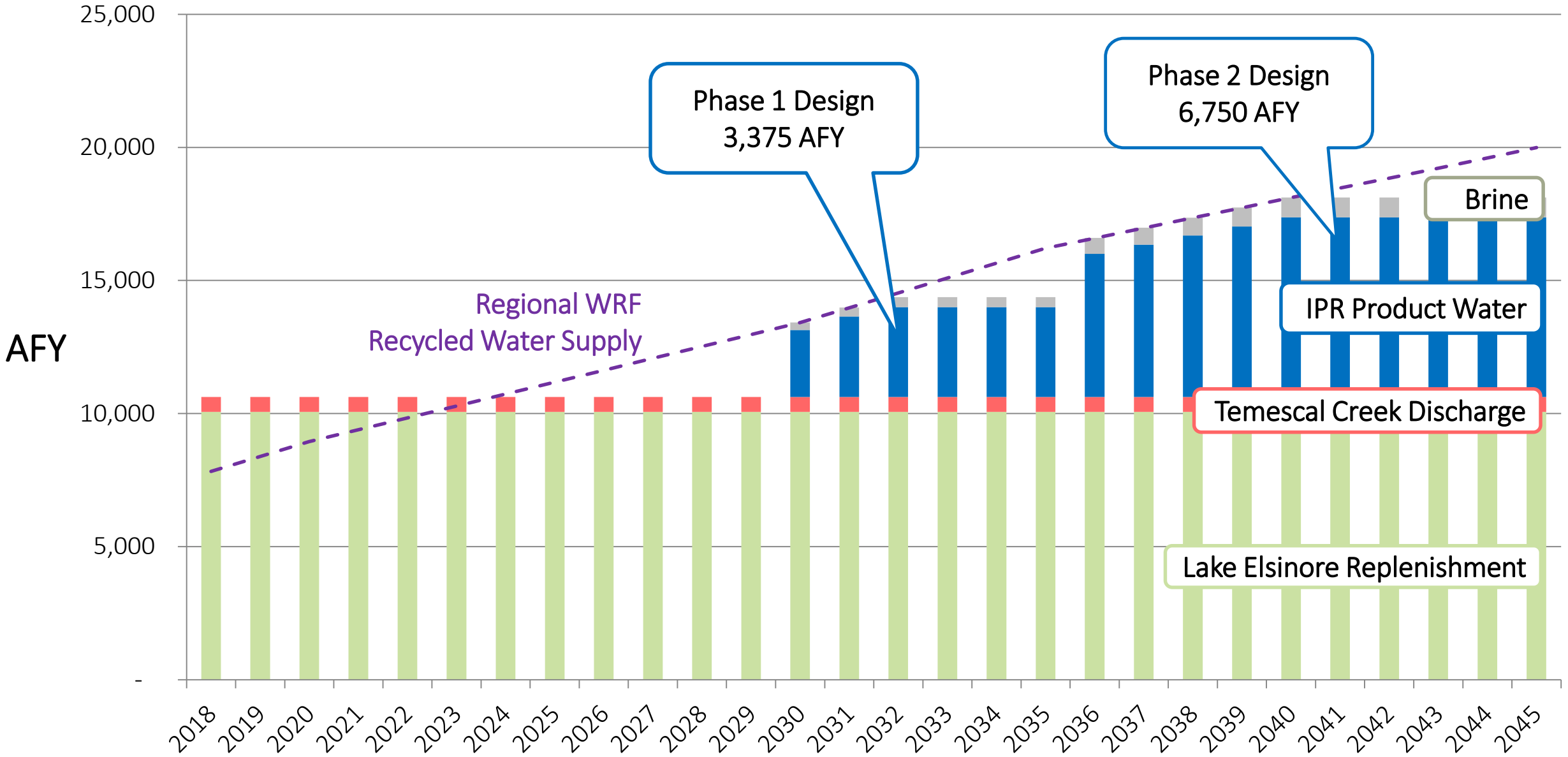

Preliminary Alternatives Analysis

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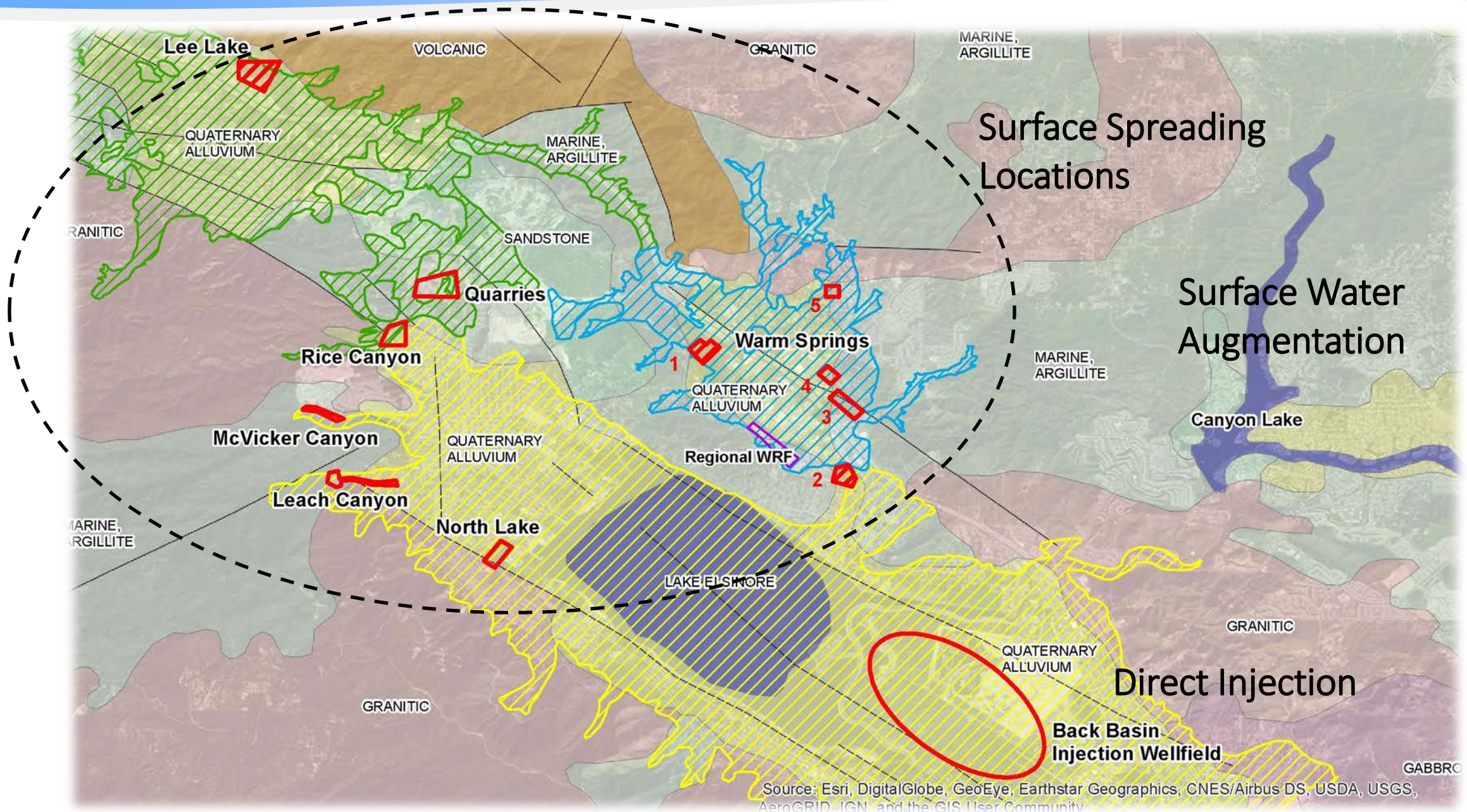

Preliminary Alternatives Analysis

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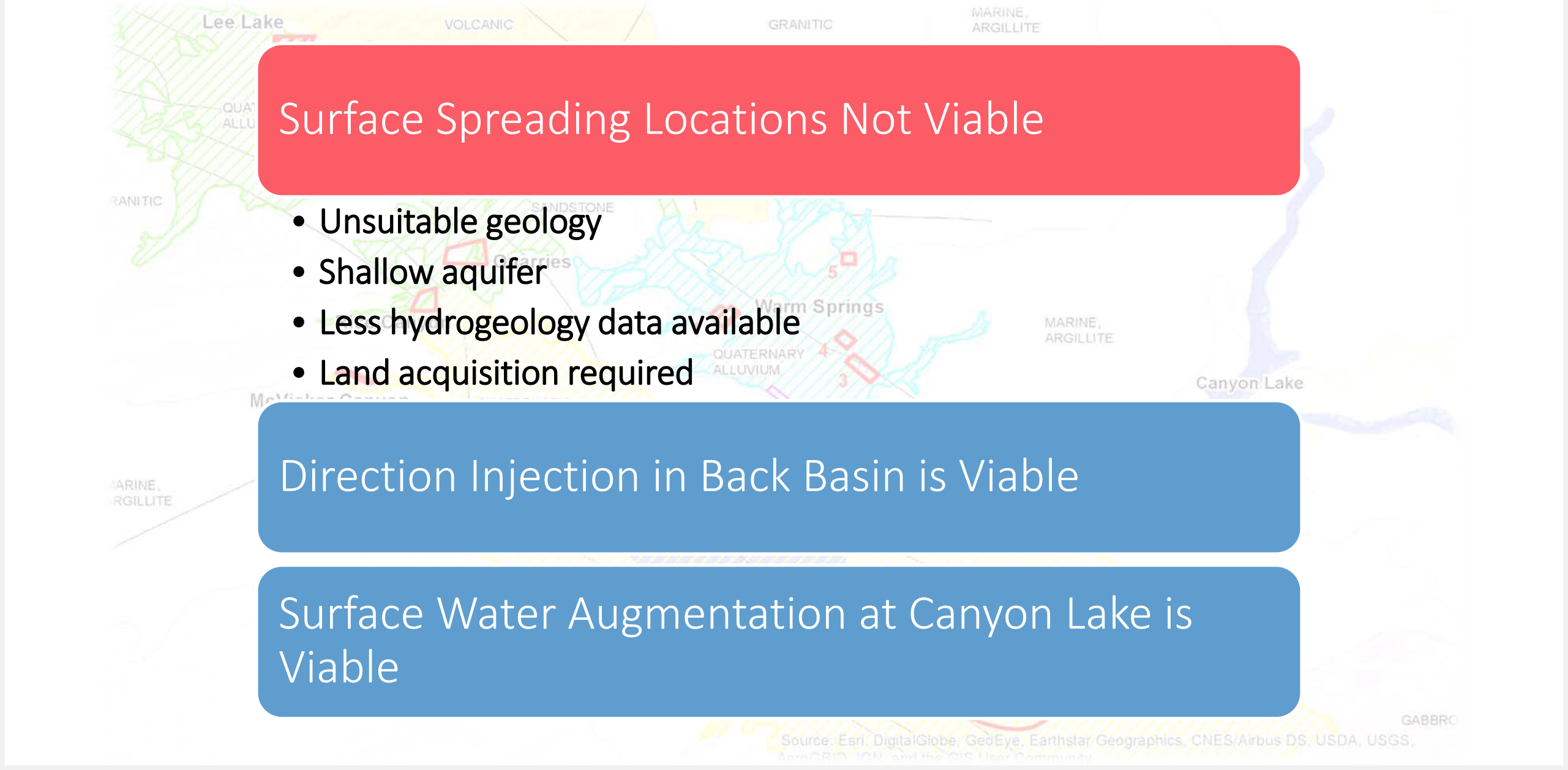
Surface Spreading Locations Not Viable

- Unsuitable geology
- Shallow aquifer
- Less hydrogeology data available
- Land acquisition required

Direction Injection in Back Basin is Viable

Surface Water Augmentation at Canyon Lake is Viable



Back Basin – Most of District's Groundwater Production

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Injection Well Locations with 2 Alignment Alternatives

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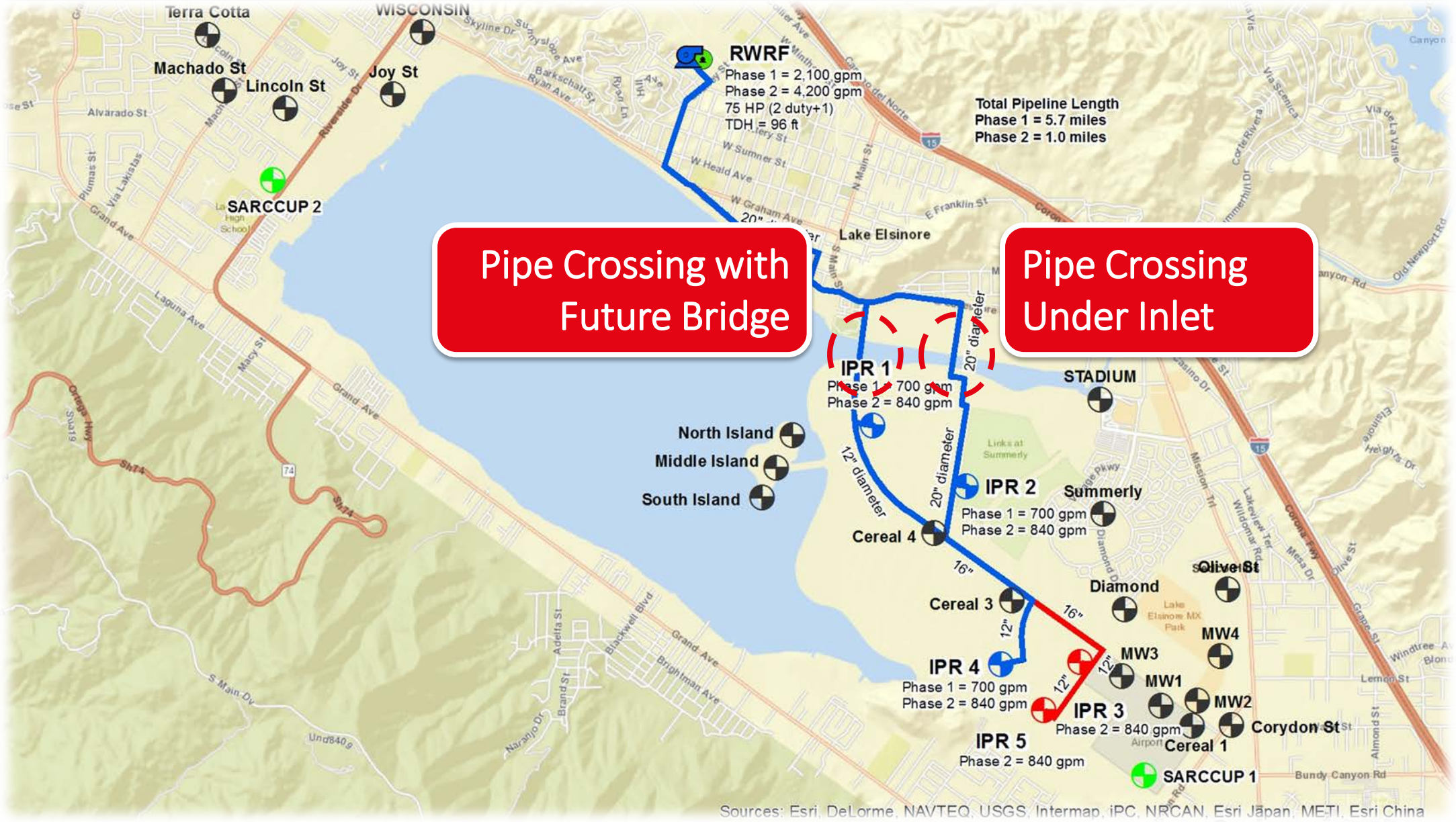

Direct Injection Advanced Treatment Process

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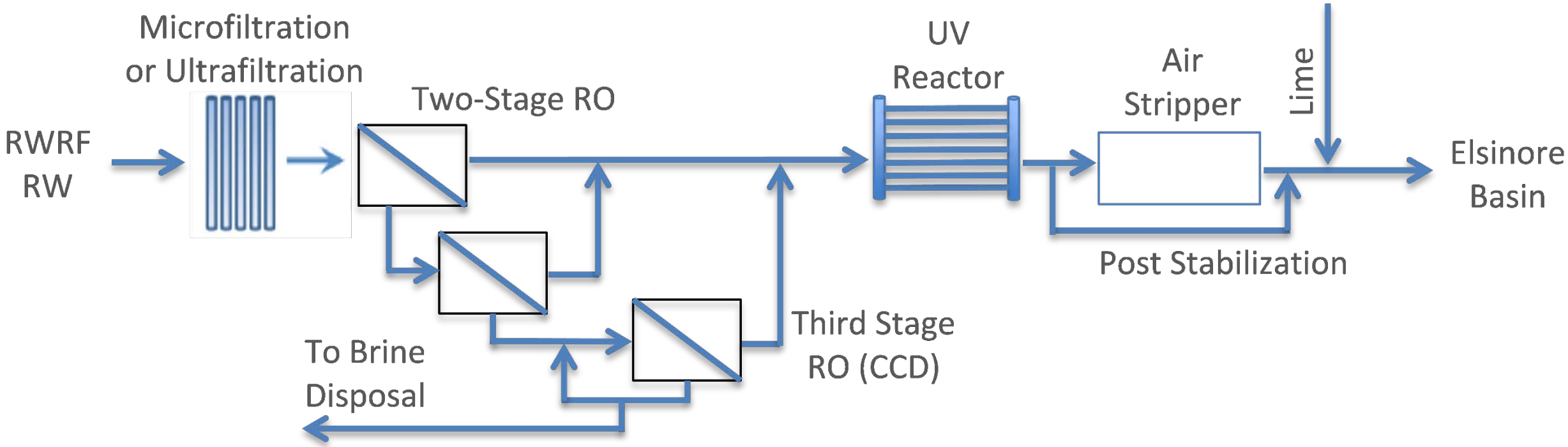

Brine Disposal via Inland Empire Brine Line

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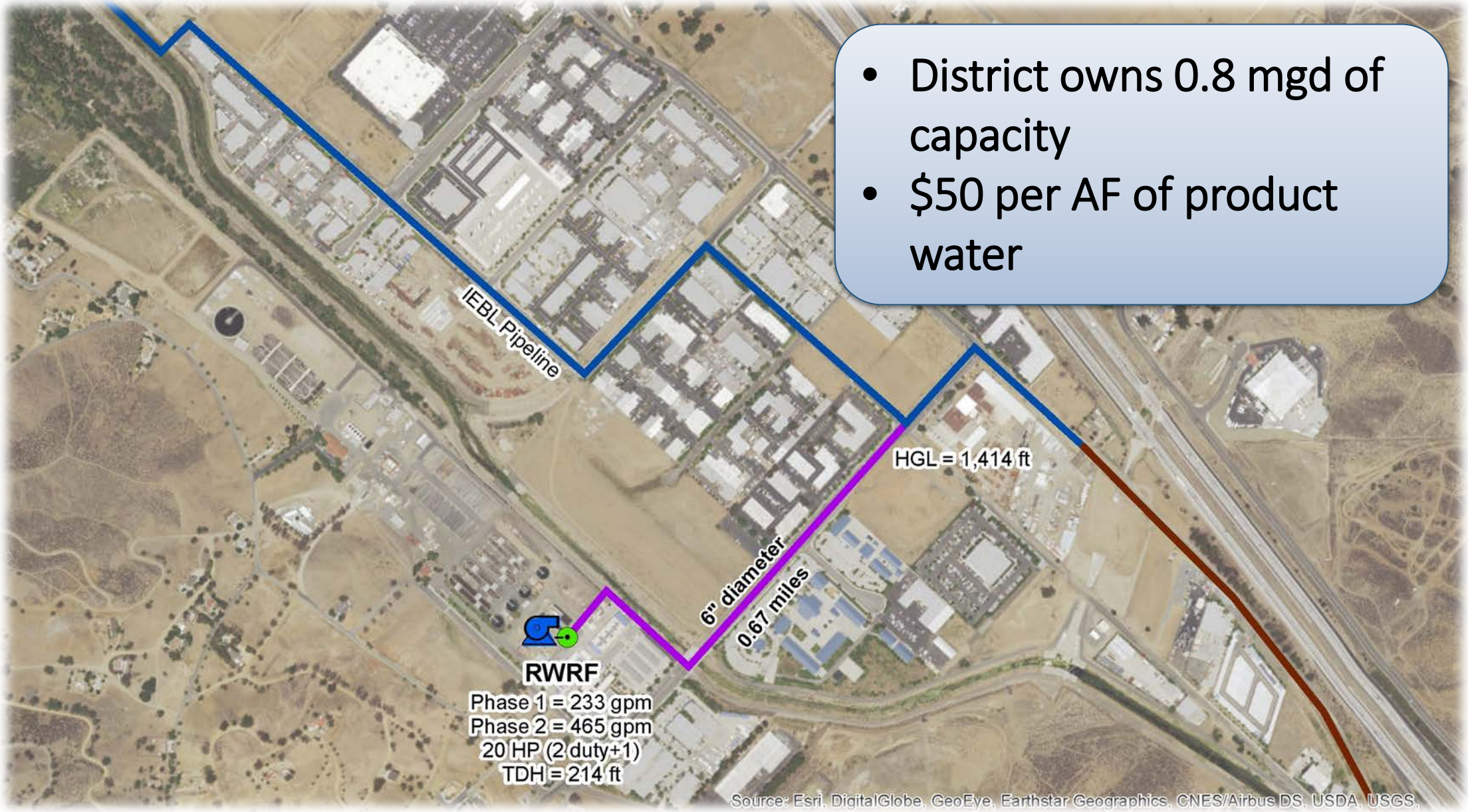

- District owns 0.8 mgd of capacity
- $50 per AF of product water

Groundwater Travel Time to Nearest Production Well

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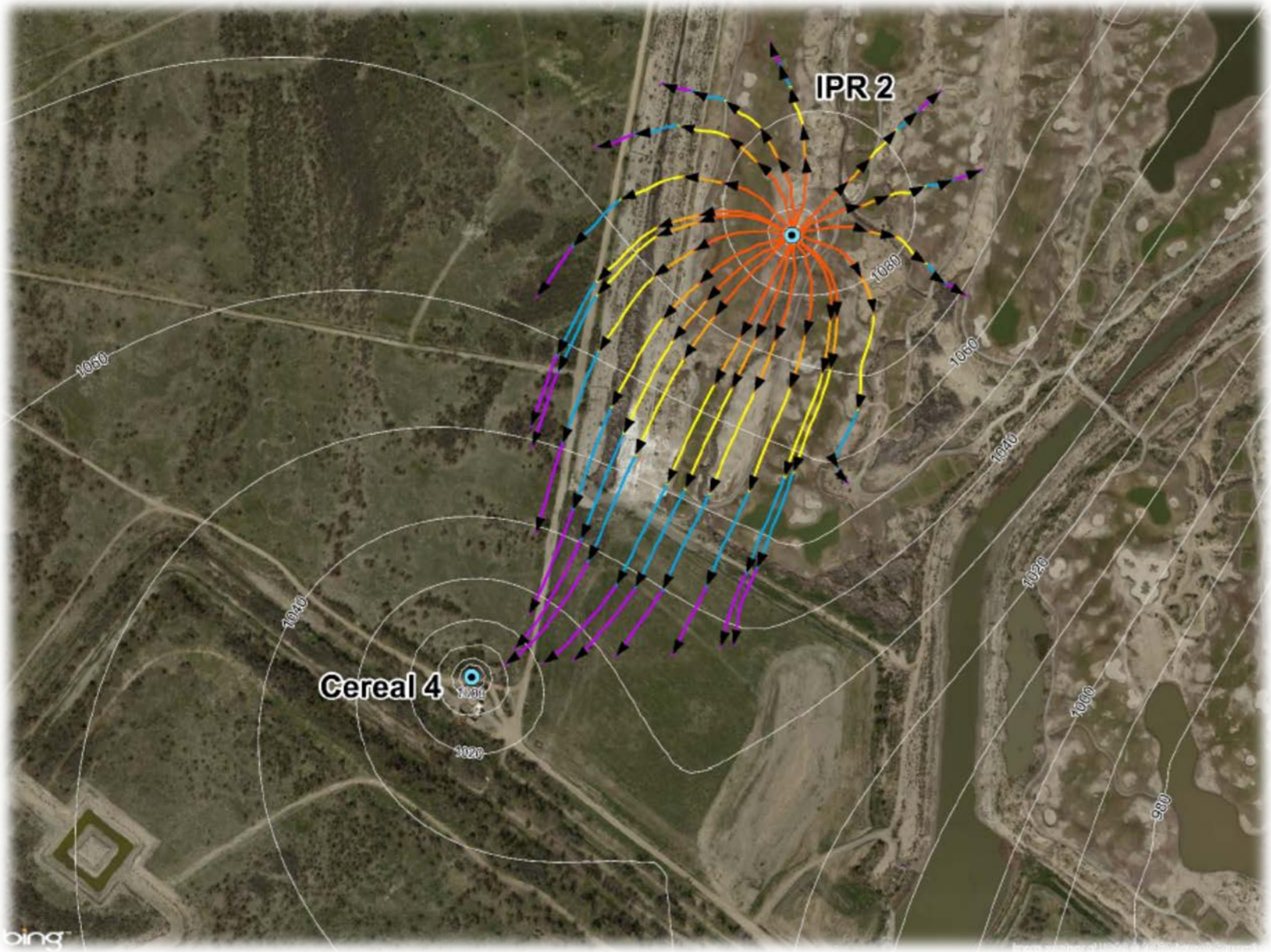

Surface Water Augmentation @ Canyon Lake

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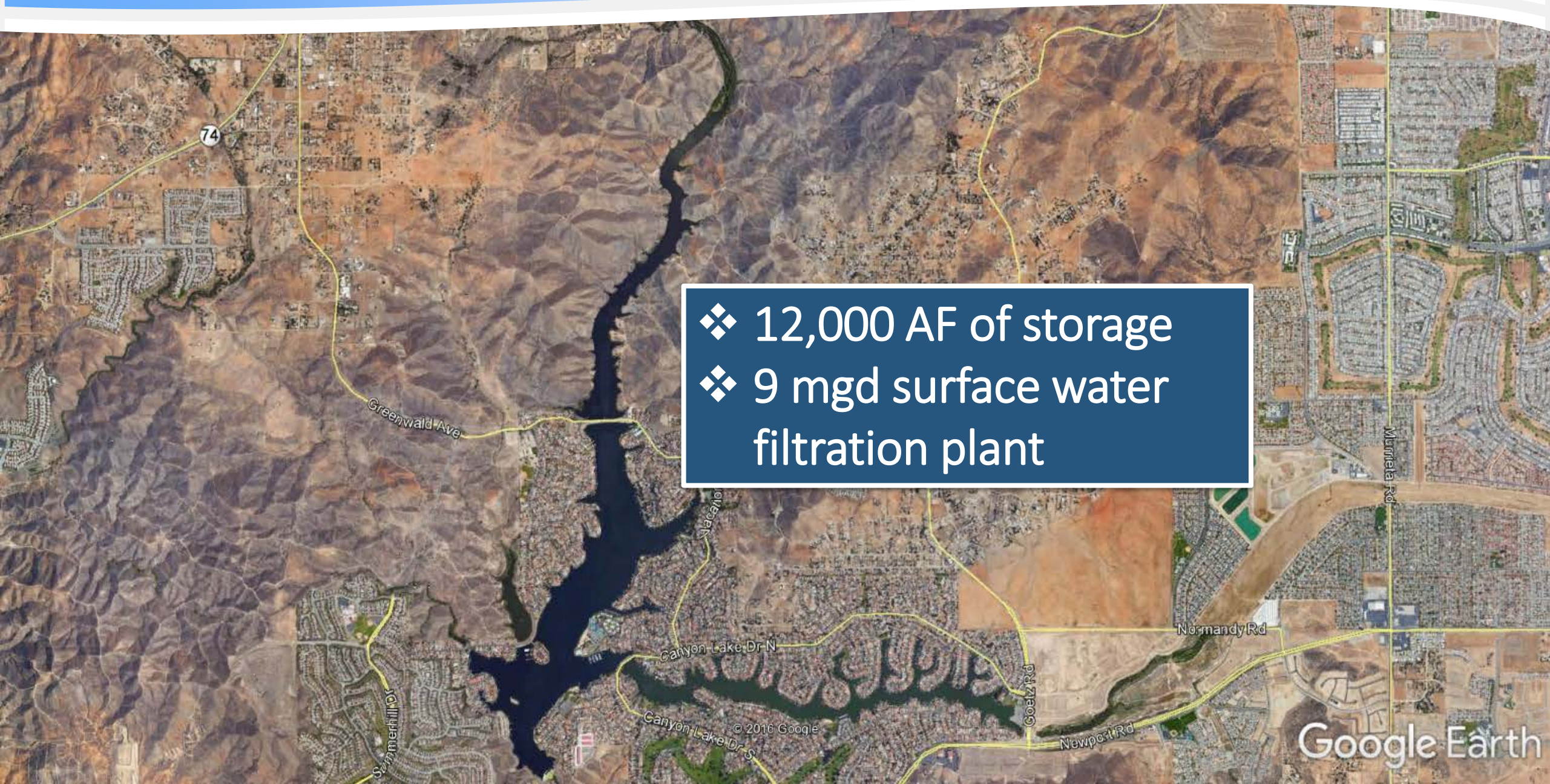

- 12,000 AF of storage
- 9 mgd surface water filtration plant

Surface Water Augmentation @ Canyon Lake

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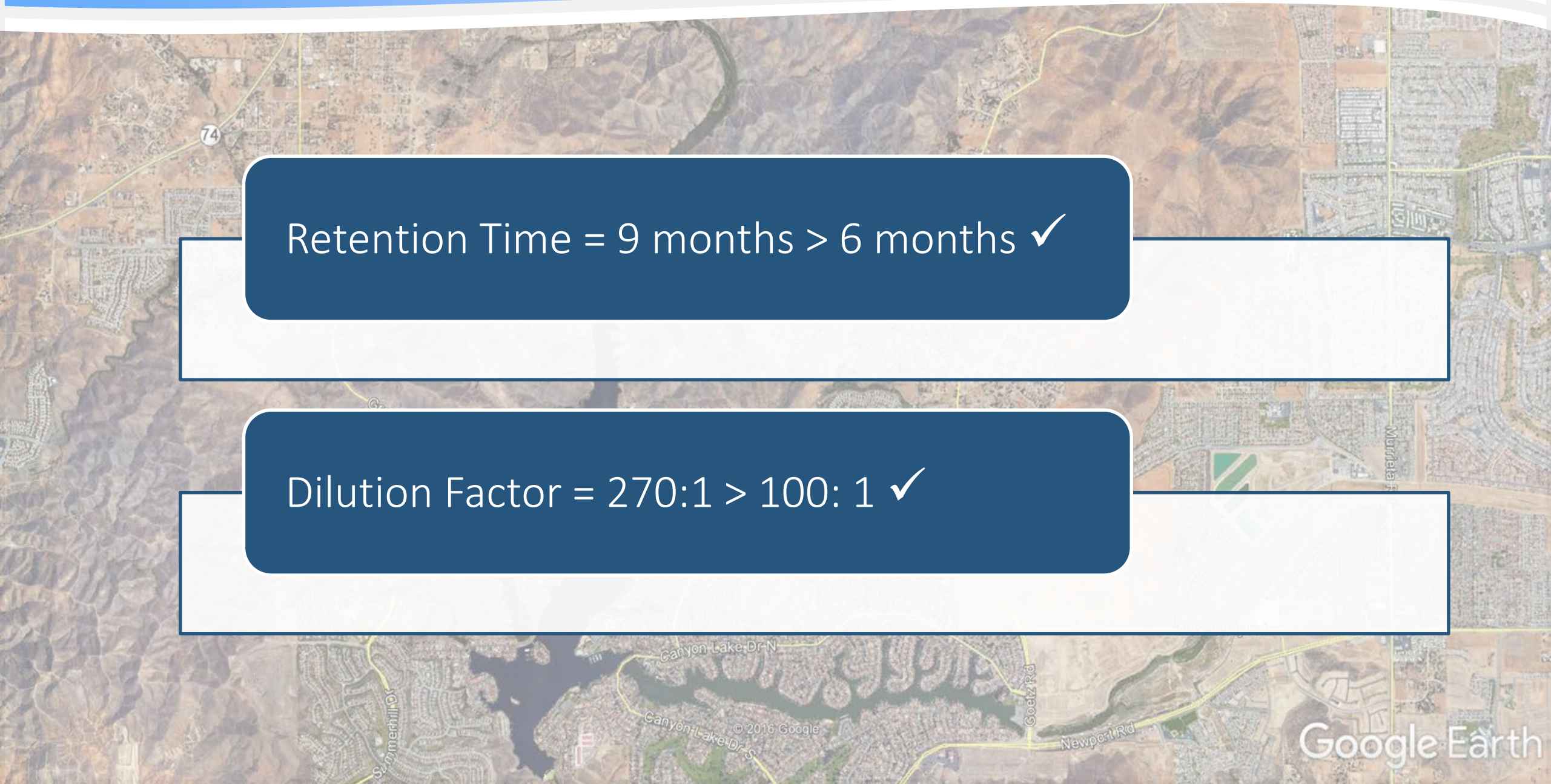
Retention Time = 9 months > 6 months ✓

Dilution Factor = 270:1 > 100: 1 ✓



Surface Water Augmentation Advanced Treatment Process

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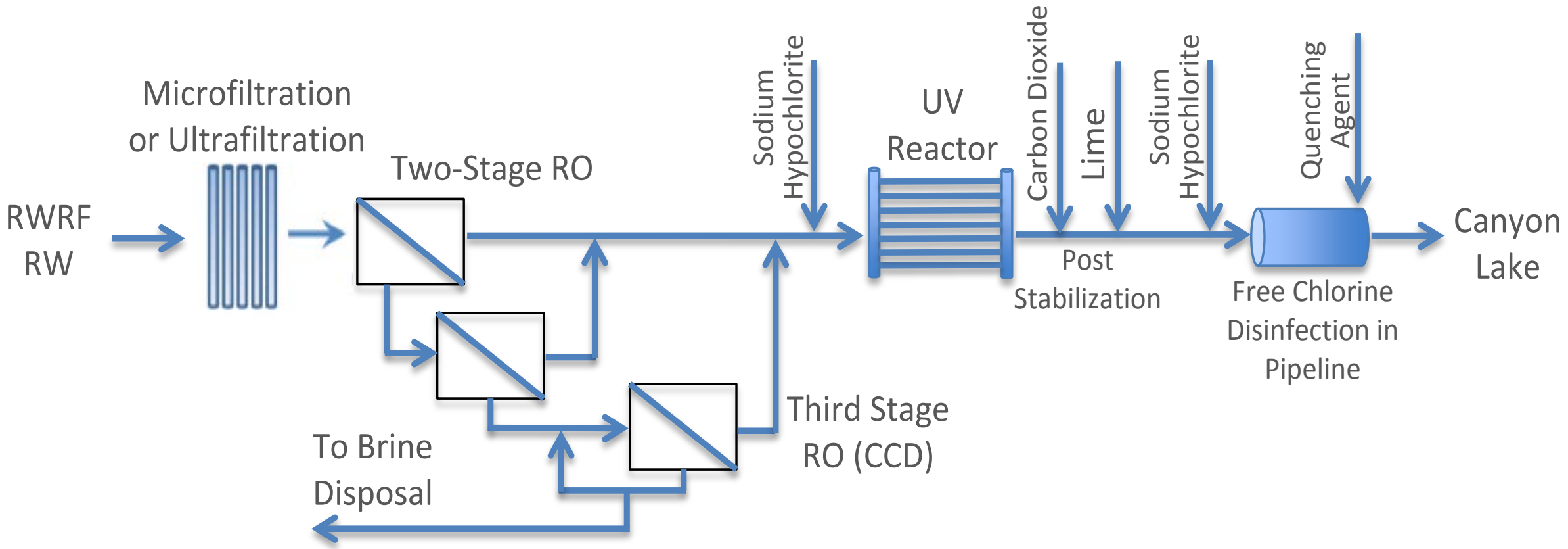

Canyon Lake Alignment Alternatives

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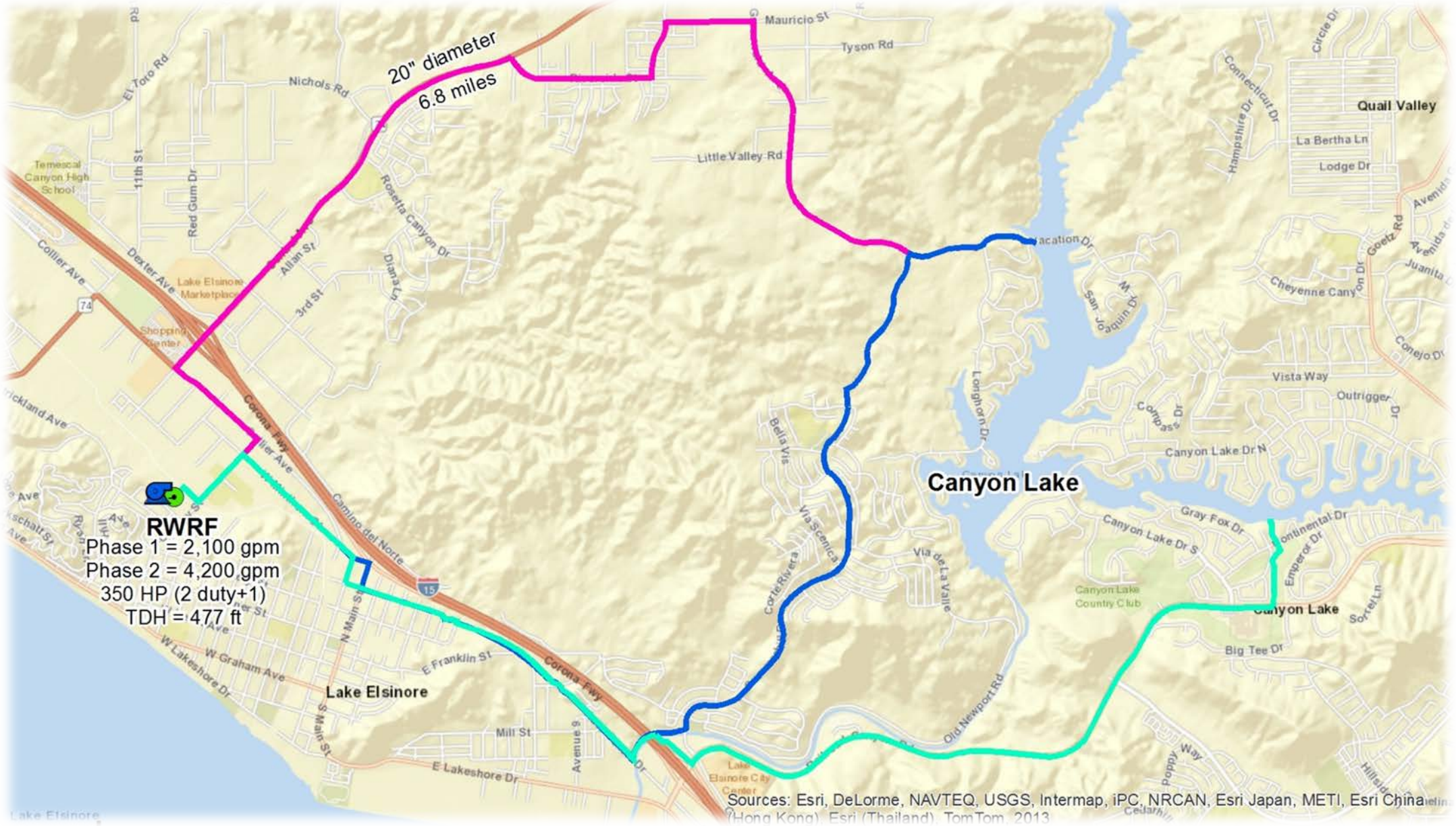

Economic Analysis Parameters

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2016 Dollars

25 years

Discount rate = 4%

General cost escalation = 2%

Energy cost escalation = 4%

Construction contingency = 30%

Engineering & Administration = 20%

Net Present Costs

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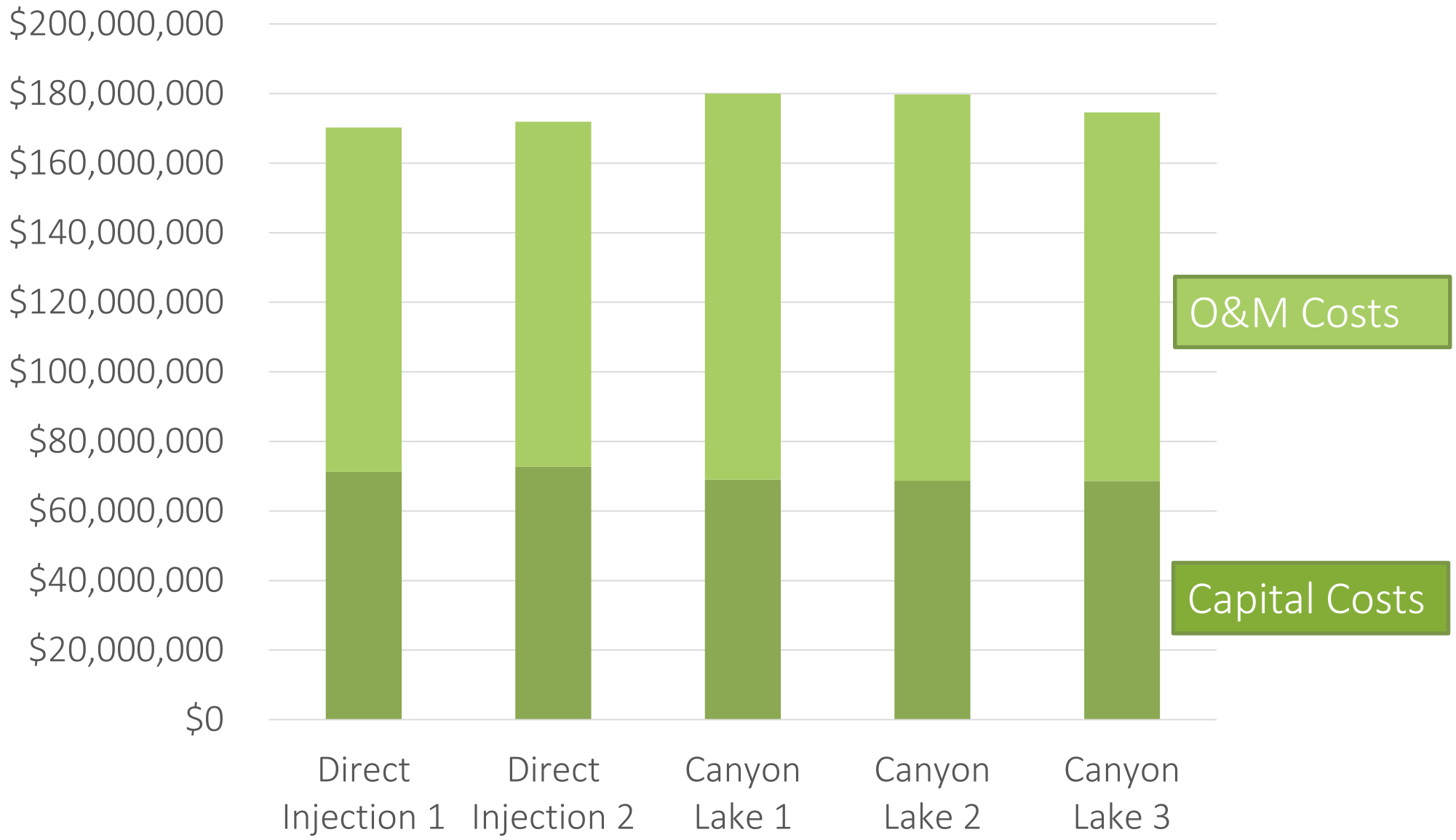
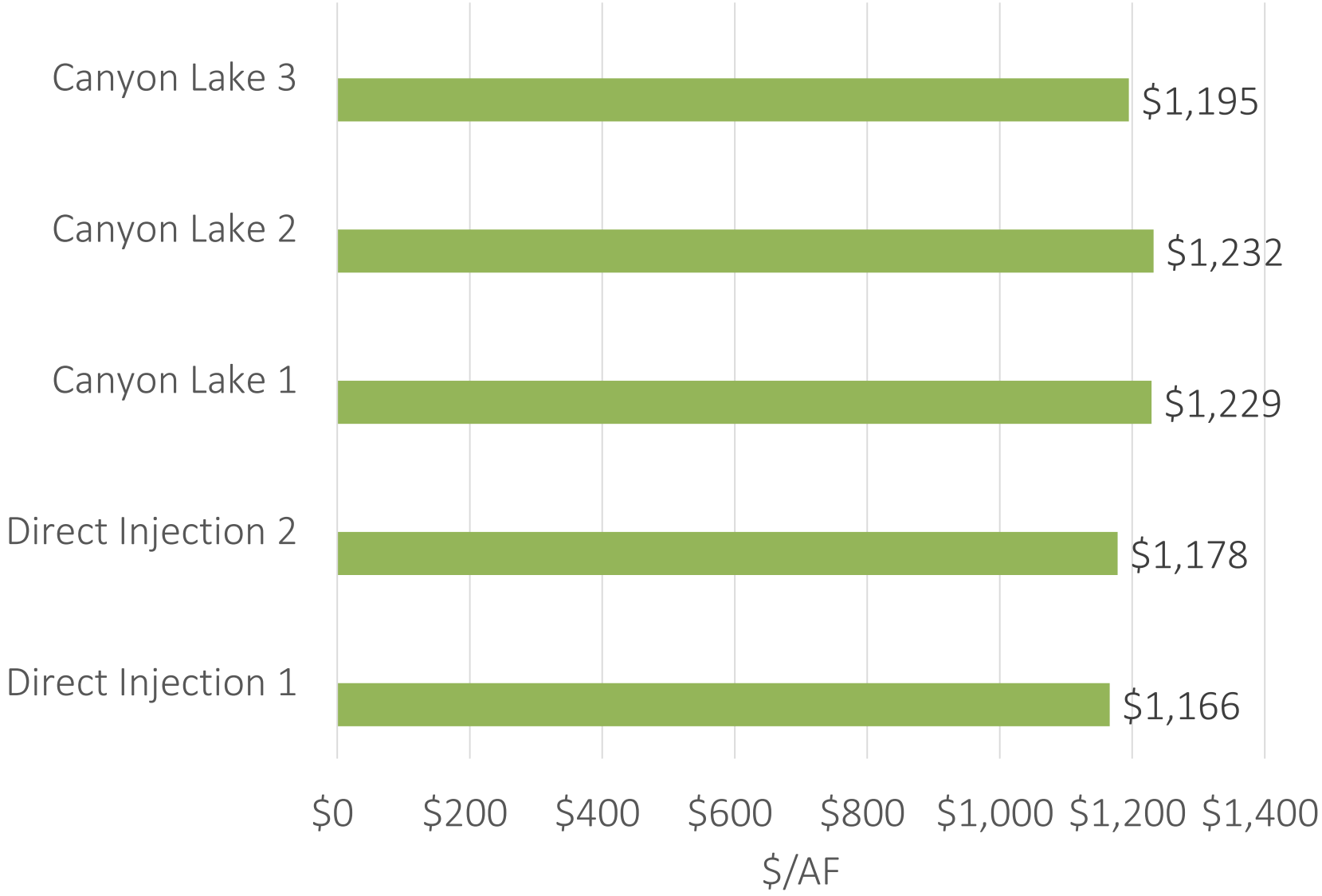


Unit Costs


Canyon Lake 3
$1,195
Canyon Lake 2
$1,232
Canyon Lake 1
$1,229
Direct Injection 2
$1,178
Direct Injection 1
$1,166
$0
$200
$400
$600
$800
$1,000
$1,200
$1,400
$/AF

Non-Economic Analysis Criteria

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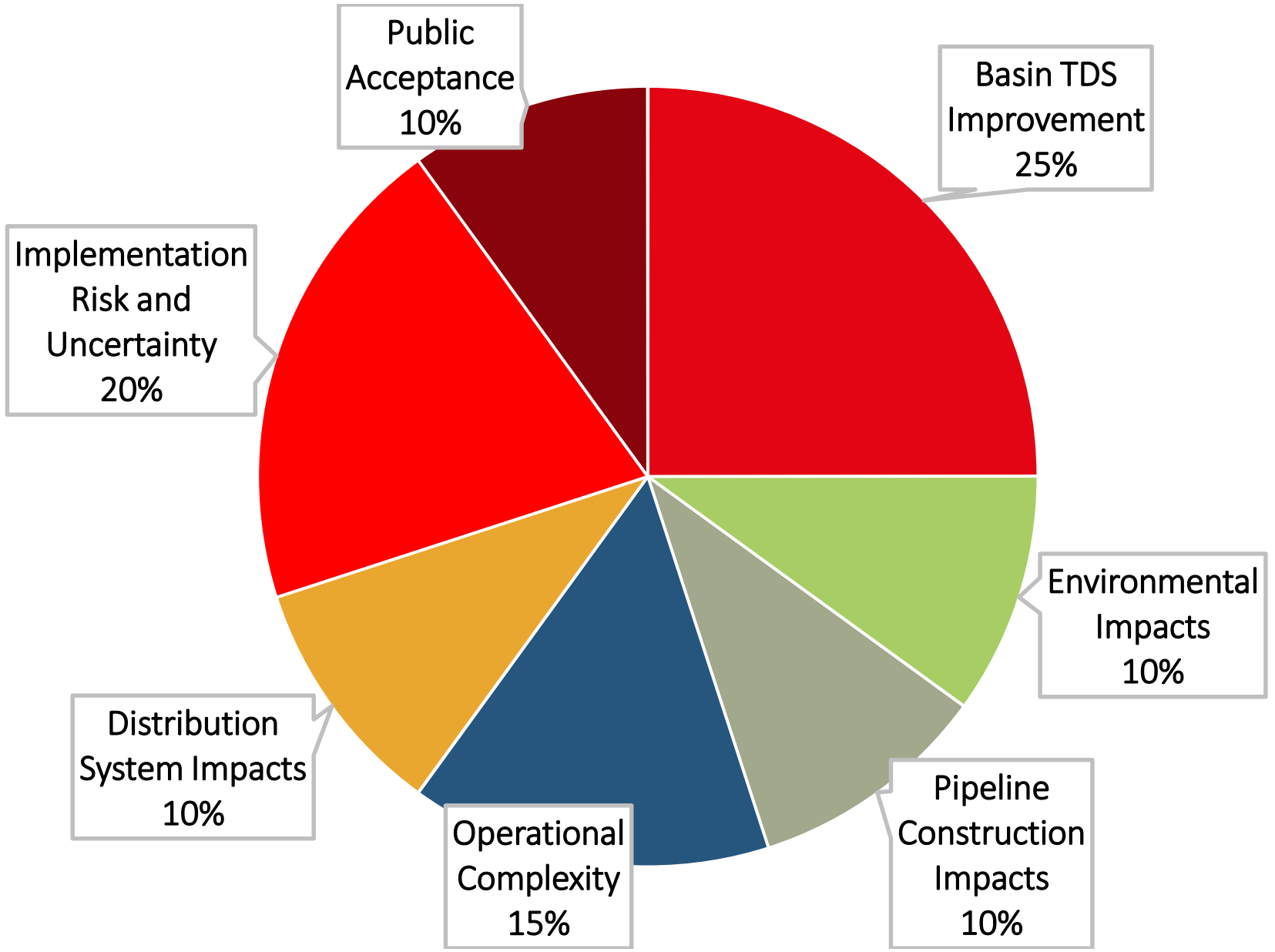

Non-Economic Analysis

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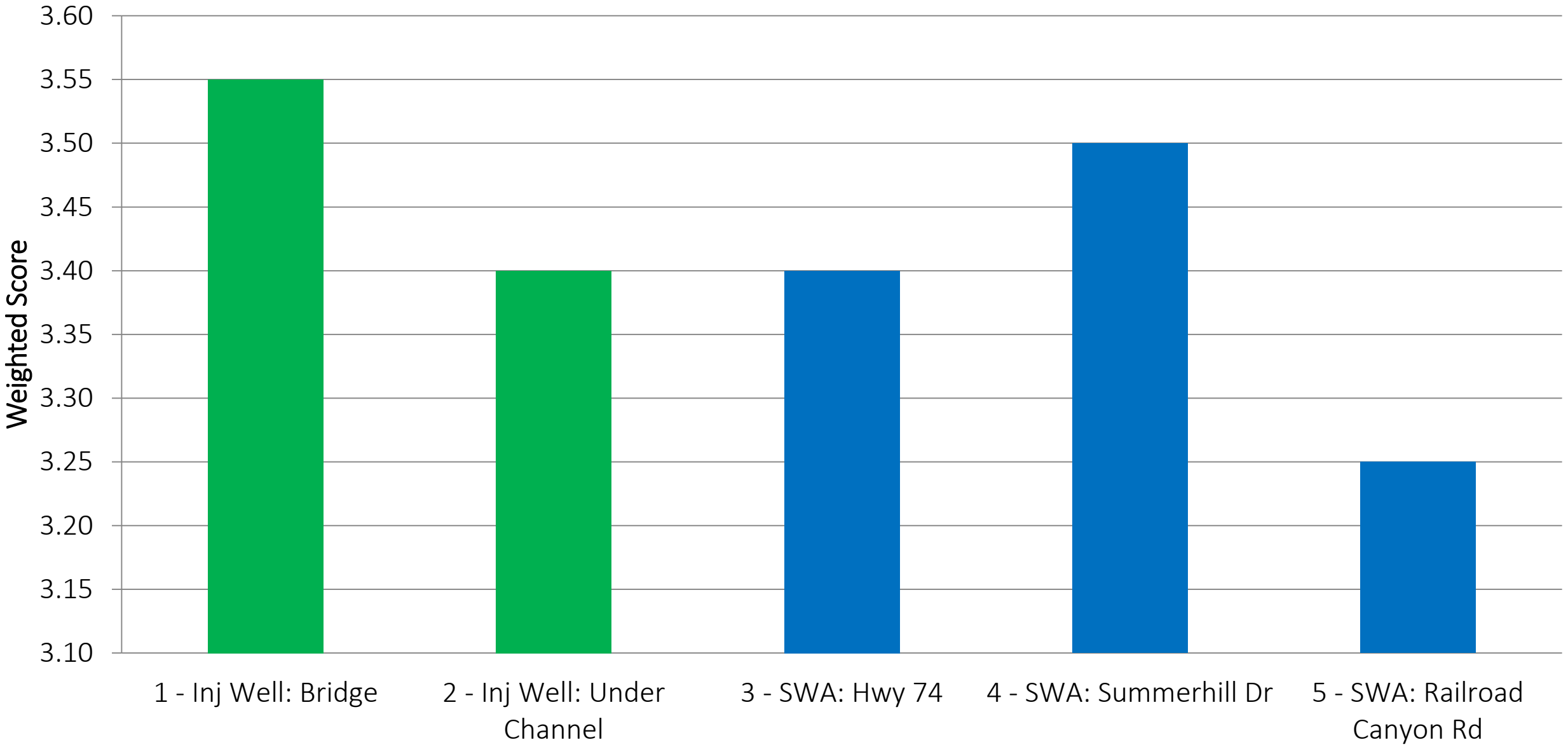

Recommended Project

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Recommended Project

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Elsinore Valley Municipal Water District

Phase 1
2030

- 3 mgd Advanced Water Treatment Facility
- 3 injection wells
- Pipelines
- Pump stations

Phase 2
2036

- 3 mgd expansion of AWTF
- 2 injection wells
- Pipeline extensions
- Expand pump stations

Thank You

Team Effort

Kennedy/Jenks Consultants

Elsinore Valley Municipal Water District

HELIX Environmental Planning — Environmental Impact Review

MWH® now part of Stantec — Groundwater Modeling

M2 Resource Consulting, Inc. — Technical Writing Support

Trussell TECHNOLOGIES INC — Regulations & Advanced Water Treatment