



October 9, 2024

City of Folsom

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Dear Stakeholder Team,

Thank you for your ongoing involvement in the Folsom Water Vision planning initiative. This packet contains several resources to prepare you for our upcoming workshop on October 15.

Here is an overview of the contents:

Workshop #4 Agenda: This outlines the topics we will cover at this workshop.

Key Terminology List: A list of important key words and definitions to facilitate shared understanding of the upcoming workshop.

Summary of Workshop 3 Voting Results: Insights gathered from the previous workshop.

Summary of Evaluation Criteria Survey Results: Results from the survey sent asking you to rank the evaluation criteria.

Future Portfolio Summary Sheets: A one-page summary of the future water supply portfolios the City has developed.

We Want Your Input! In this workshop the City will explain the portfolios which scored the highest and the benefits and challenges each bring. We will seek your input on each proposed portfolio.

Thank you for your ongoing time and dedication to this initiative. Together, we are planning for a reliable, resilient water future in Folsom.

Sincerely,



Marcus Yasutake
City of Folsom Project Lead



Rob Natoli, PE
WSC Project Manager



Meeting Agenda

Project:	Folsom Water Vision
Date:	Tuesday, October 15, 2024
Time:	6:30 PM – 8:30 PM
Location:	Robert H. Miller III Rotary Club House 7150 Baldwin Dam Rd Folsom, CA 95630
Description:	Workshop #4: Future Water Supply Portfolios

1. Workshop Introduction (5)
 - a. Welcome everyone to the workshop.
 - b. Introduce workshop agenda.
2. Brief Project Recap (5)
 - a. Review what we have completed.
 - b. Foreshadow what will be discussed in Workshop 5 and 6.
 - c. State the goals of this workshop.
3. Overview of Evaluation Criteria (20)
 - a. How input to date developed into the evaluation criteria and weightings used.
 - b. Explain each evaluation criteria and how scoring for criteria works.
 - c. Pause: Open the discussion to questions.
4. Future Portfolios Evaluations (60)
 - a. Introduce comments cards.
 - b. Discuss how supply alternatives list was condensed for the portfolio selection.
 - c. Introduce the potential future portfolios.
 - d. Discuss each portfolio, including portfolio costs, estimated supply yields, evaluation scoring, and additional considerations.
 - e. Pause: Open the discussion to questions.
5. What's Next (5)
 - a. How input used today will inform next steps.



Key Terms

This sheet defines terms commonly used when discussing the Folsom Water Vision process for a shared understanding of the language that precisely describes this project.

New Terms for Workshop 4

Build-out: The estimate of the amount and location of potential development approved in the City's 2035 General Plan. Typically, the residential sector is denoted in the number of dwelling units and the non-residential sector is denoted in either square footage or floor area ratio of buildings.

Evaluation Criteria: The criteria for evaluating the performance of the future supply portfolios. The criteria used for this evaluation are as follows:

- *Implementation:* Evaluates the level of ease to construct a portfolio (e.g. the new infrastructure), including the permits that will be required, the level of agency coordination and agreements that may be required, and timelines to construct portfolio components.
- *Lifecycle Cost:* Compares the costs of portfolios over their lifecycle. Lifecycle costs will include upfront construction and annual costs for operations, maintenance, and energy.
- *Reliability:* Evaluates the portfolio's ability to consistently provide water in drought conditions. This criterion is rated based on the portfolio's ability to meet water demands during drought conditions when Folsom Lake is at or below elevation 330-ft. For reference, the lowest level on record was during the 2015 drought when the lake was at Elevation 355-ft+/-.
- *Resiliency:* Measures the ability of the portfolio to provide drinking water in the face of catastrophic events or major infrastructure failures. Events the portfolios will be evaluated against include:
 - Critical pipeline failure
 - Water treatment plant failures
 - Folsom Reservoir at extremely low levels (e.g. when essentially no water can be pulled from the lake)
- *Water Quality Impact:* Evaluates water quality impacts based on the types of water supply sources that are included in the portfolio.

Water Rights: This is legal permission to use a reasonable amount of water for beneficial purposes.

Review of Workshop 1 - 3 Terms

Infrastructure: The infrastructure includes pipes, pumps, valves, treatment systems, and other components that make up the water supply network, allowing water to flow efficiently from the source to the end-users.

Intertie: A connection between separate water systems that allows for the transfer of water between them. For instance, a junction at which the system owned by Agency A ties to the system owned by Agency B for mutual benefit and sharing water resources.

Non-Potable: Water that is not suitable for drinking, cooking, or washing due to contamination, impurities, or lack of treatment processes. Non-potable water can be used for practices such as landscape irrigation, industrial cooling processes, firefighting, and flushing toilets.

Potable: Water that is safe for drinking, cooking, and washing.

Raw Water: Untreated water from natural sources, such as rivers, lakes, or groundwater, which has not yet undergone any purification or processing for human consumption.

Wastewater Scalping Plant: Facilities designed to intercept and treat a portion of wastewater flows before it reaches a central wastewater treatment plant. These plants typically extract sewage from a sewer network, treat it to a specific standard, and then reuse it for purposes such as irrigation, industrial processes, or non-potable urban uses. Also known as Sewer Scalping Plant.

Water Conservation: The policies, programs and practices designed to help people change their behaviors and use less water.

Water Supply: The provision of water for a community. It includes both water sources and infrastructure.

Water Supply Portfolio: Provides an accounting of the sources your water comes from, who uses it, and to what degree it is used.

Water Supply Source: These are the origins of the water that is used in our communities and can be further broken into surface water sources or groundwater sources.

- *Surface Water:* Water from rivers, lakes, and reservoirs.
- *Groundwater:* Water obtained from wells that tap into underground aquifers.

Water Year Type: A classification indicating the water availability in a specific year. In this region it is determined by the amount of water entering Folsom Reservoir between March and November. The four water year types are Wet, Average, Drier, and Driest.

Well field: An area of land where multiple water wells are located. A well field typically includes the drilled well, well pumps, and localized water treatment processes.



Comment Card Results

Workshop No. 3: Water Supply Alternatives

The primary objective of Folsom Water Vision Workshop No. 3 was to select water supply alternatives to include in future supply portfolios. To achieve this, attendees provide feedback on comment cards. The following table summarizes the feedback received from these comment cards.

No.	Project Name	Participate Feedback by numbered cards																									Total	Percent
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	19	20	21	22	23	24	25			
1	Redundant Raw Water Pipeline	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24	100%	
2	Redundant Water Treatment Plant (WTP) Pipelines	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	23	96%		
4	Alder Reservoir	0.5	0	0	0	1	0.5	1	1	1	0	1	1	0	1	0	1	0	0		0	1	1	0	0.5	11.5	48%	
5	Folsom South Canal Diversion	0.5	1	1	1	1	0	1	1	1	1	1	0	1	0.5	1	1	0	0	1	0	1	0	0.5	0.5	16	67%	
6	USBR Raw Water Supply	0	1	1	1	1	0	1	1	1	1	1	1	0.5	1	1	0	0	1	0	1	0	0.5	0.5	16.5	69%		
7	El Dorado Irrigation District	1	0	1	1	0.5	0	1	1	1	1	0	1	1	0	1	1	1	1		1	0	1	0	1	16.5	69%	
8	Golden State Water Company	1	0	1	1	0.5	0	1	1	1	1	0	1	1	0.5	0	1	1	1	1	1	1	0.5	0	1	17.5	73%	
9	San Juan Water District or Partnering Agencies	1	1	1	1	0	0	1	1	1	1	0	1	1	0	0	1	1	1	1	1	1	0.5	0	1	17.5	73%	
11	South County Groundwater Supply	0.5	0	1	1	1	0	1	1	0	0	1	0	0	0	0	0	1	0.5	0	0	0	0	0	0.5	8.5	35%	
12	North County Groundwater Supply	0.5	1	1	1	0	0	1	1	1	1	1	0	0	0	0	0	1	0.5		0	1	0	0	0.5	11.5	48%	
16	Remediated Groundwater for Non-potable Use	1	1	1	1	1	0	1	1	1	1	1	0	1	0	1	0	1	1	0	1	1	1	0	1	18	75%	

Notes: Cards were numbered to easily correlate comment card with results. Card number 18 was left blank so its results are not included in results.

1 = yes, participate is supportive

0 = no, participate is not supportive

0.5 = maybe, participate expressed concerns or uncertainties but did not vote "no"



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Evaluation Criteria Survey Results

Thank you for participating in our survey designed to understand how you would rank the importance of each evaluation criteria. Definitions for each criteria are provided on the following page. In the survey you ranked the criteria from most to least important. A ranking of 5 was least important, while 1 was most important. Below is a summary of the results we received as well as calculated weighting based on these results.

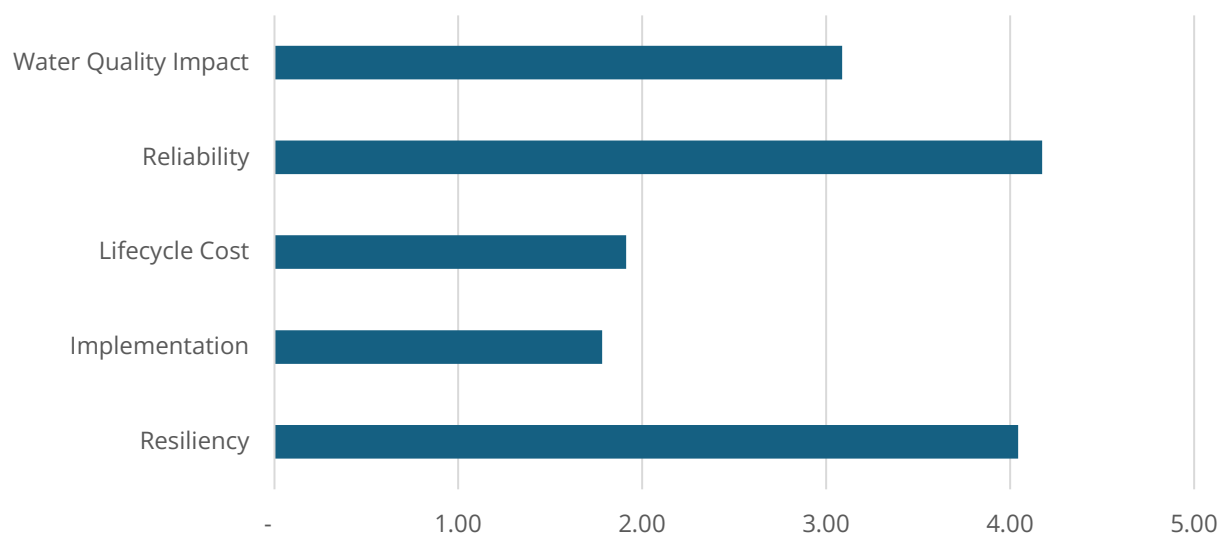
Evaluation Criteria Ranking Data

	1	2	3	4	5	Total	Average Ranking
Resiliency	10	8	2	2	1	23	1.96
Implementation	0	1	2	11	9	23	4.22
Lifecycle Cost	0	2	4	7	10	23	4.09
Reliability	9	10	3	1	0	23	1.83
Water Quality Impact	4	2	12	2	3	23	2.91

Weighting Based on Data

	5	4	3	2	1	Total	Weighting Score
Resiliency	10	8	2	2	1	23	4.04
Implementation	0	1	2	11	9	23	1.78
Lifecycle Cost	0	2	4	7	10	23	1.91
Reliability	9	10	3	1	0	23	4.17
Water Quality Impact	4	2	12	2	3	23	3.09

Weighting Based on Data



Evaluation Criteria Survey Results

Definitions for each criterion are below.

Reliability: Evaluates the portfolio's ability to consistently provide water in drought conditions. This criterion is rated based on the portfolio's ability to meet water demands during drought conditions when Folsom Lake is at elevation 330-ft and below. For reference, the lowest level on record was during the

Resiliency: Measures the ability of the portfolio to provide drinking water in the face of catastrophic events or major infrastructure failures. Events the portfolios will be evaluated against include:

1. Critical pipeline failures
2. Water treatment plant failures
3. Folsom Reservoir at extreme low levels (when essentially no water can be pulled from the lake)

Water Quality Impact: Evaluates water quality impacts based on the types of water supply sources that are included in the portfolio.

Implementation: Evaluates the level of ease to construct a portfolio (e.g. the new infrastructure), including the permits that will be required, the level of agency coordination and agreements that may be required, and timelines to construct portfolio components.

Lifecycle Cost: Compares the costs of portfolios over their lifecycle. Lifecycle costs will include upfront construction and annual costs for operations, maintenance, and energy.



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Future Portfolio Summary Sheets

The following one-page summaries provide an overview of each water supply portfolio currently under evaluation. These sheets outline key supply sources and critical infrastructure as well as estimate lifecycle costs for each portfolio. The portfolios under consideration include:

- Baseline (Existing) Portfolio
- Improved Infrastructure
- Enhanced Surface Water
- Groundwater
- Enhanced Groundwater

During the upcoming workshop, we will explore each portfolio in greater detail. These summaries are designed to give a snapshot of the currently considered water supply portfolio, setting the stage for informed discussions. We encourage stakeholders to review them carefully and come prepared to learn more, ask questions, and provide feedback.



Existing Water Supply Portfolio

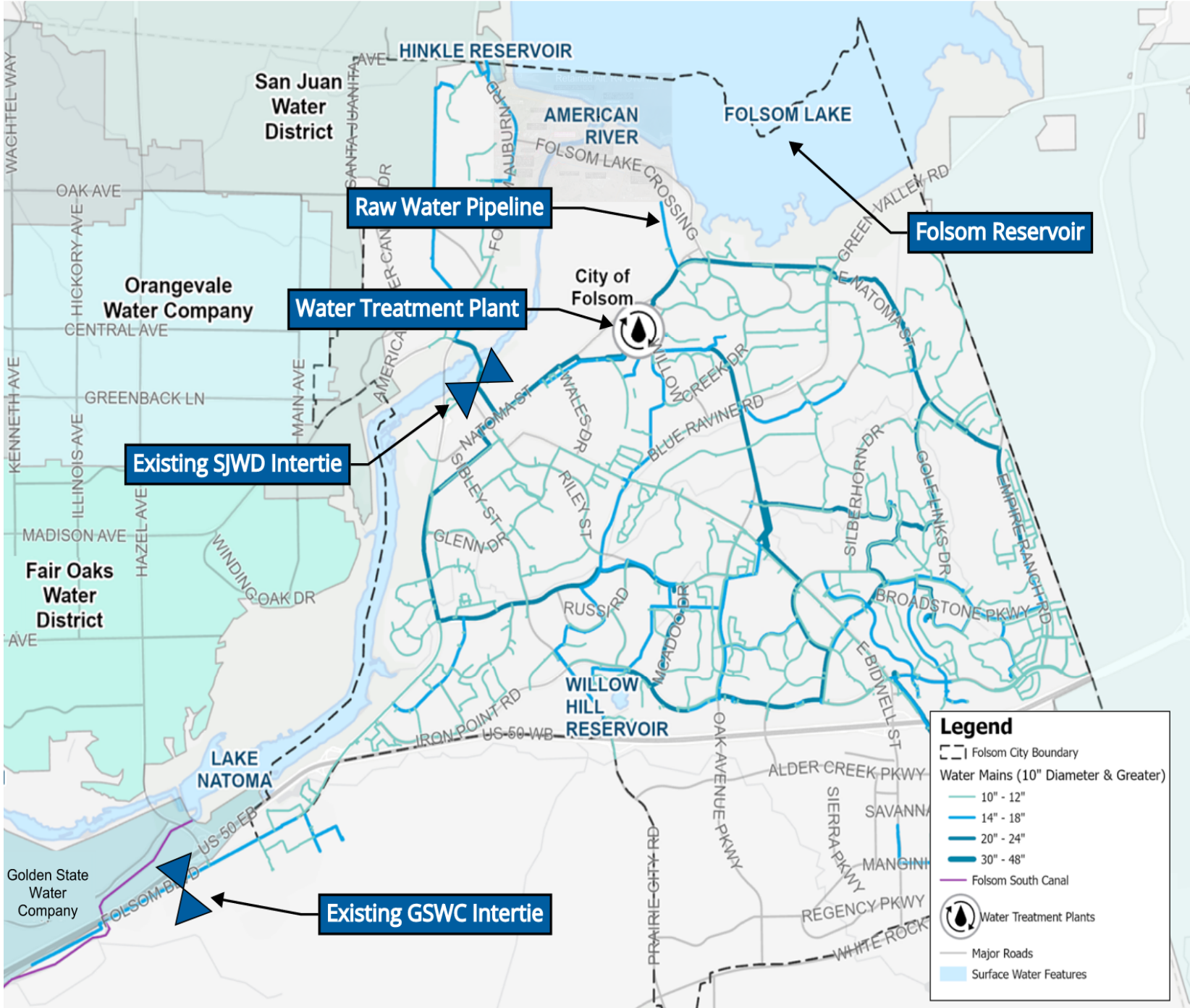
This is the City's current water supply portfolio. Water is drawn from the lake at Folsom Dam, after which it is treated at the treatment plant and then enters the distribution system. The non-potable water from Aerojet's GET A-B wells is not in use in the existing portfolio.

This portfolio relies on a single primary supply source. It is vulnerable to future lake levels. If the lake drops below the normal intake level, it requires a floating barge to deliver supply. If the lake were to ever drop below elevation 280-ft, it could lose most of its water supply.

Portfolio Components:

The water supply portfolio consists of both sources of supply and critical supply infrastructure.

	Sources of Supply	Critical Infrastructure
Existing	Folsom Reservoir	Raw Water Pipeline
	GSWC Intertie	Water Treatment Plant & Piping
	SJWD Intertie	Floating Barge (for extreme droughts)





Improved Infrastructure Portfolio

This portfolio focuses on improving infrastructure by adding new interties, a backup raw water pipeline, and redundancy at the water treatment plant. These improvements increase its reliability and resiliency compared to the current system. It continues to rely on Folsom Reservoir for potable water, making it vulnerable to low reservoir levels and restrictions on reservoir usage during extreme droughts. The portfolio also establishes Aerojet's GET A-B wells as a non-potable water source, reducing the City's reliance on the reservoir during the irrigation season (approximately April to October).

Portfolio Components:

The water supply portfolio consists of both sources of supply and critical supply infrastructure.

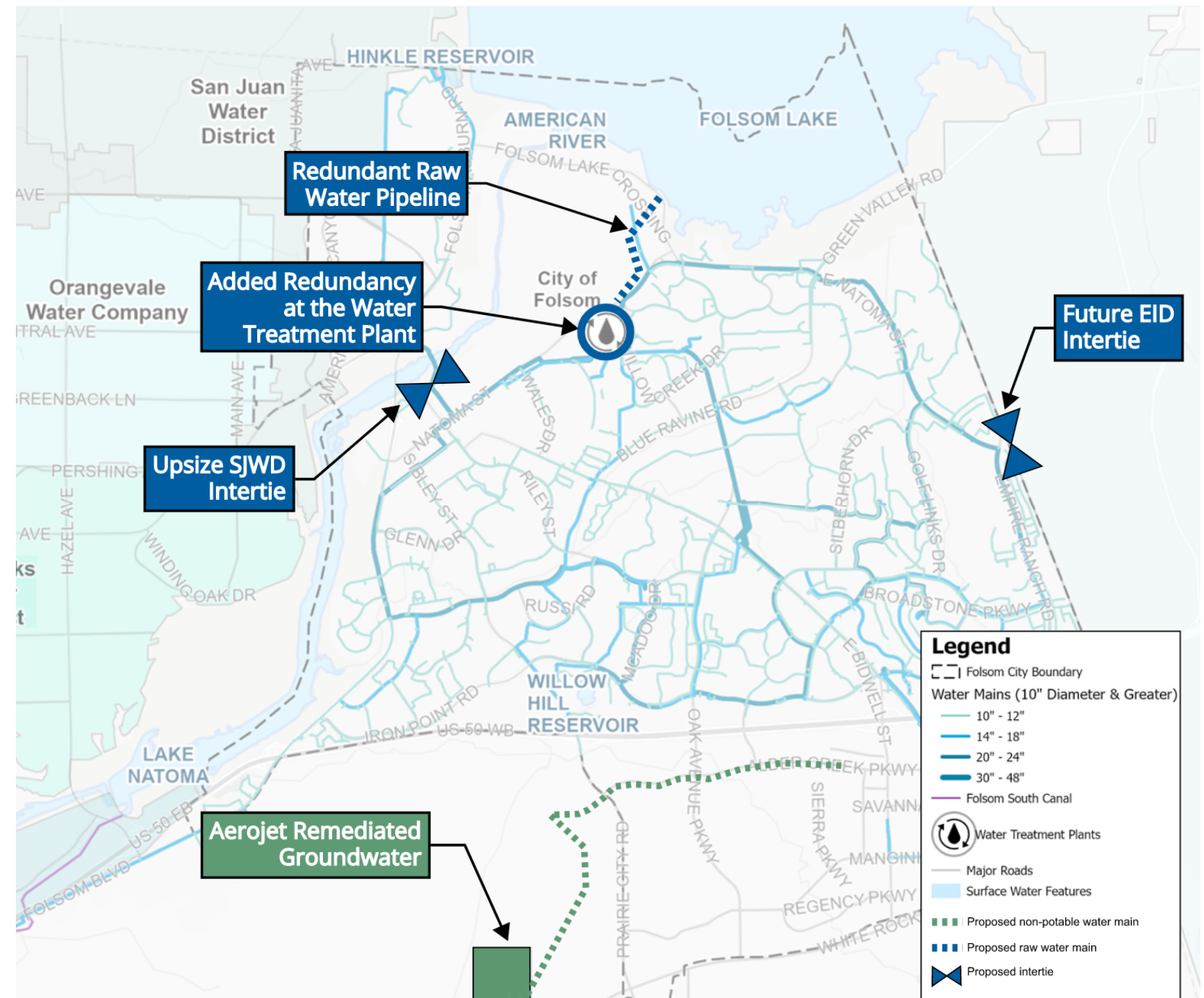
	Sources of Supply	Critical Infrastructure
Existing	Folsom Reservoir	Raw Water Pipeline
	GSWC Intertie	Water Treatment Plant
	SJWD Intertie	Floating Barge (for extreme droughts)
New	Additional Emergency Interties*	Redundant Raw Water Pipeline
	Aerojet Remediated Groundwater	Added redundancy at the Water Treatment Plant

*Includes new interties with San Juan Water District and El Dorado Irrigation District.

Portfolio Lifecycle Cost Estimate:

Lifecycle costs will include upfront construction and annual costs for operations, maintenance, and energy. All costs are in millions of 2024 dollars.

Portfolio Components	Capital Cost	Lifecycle O&M	Total Lifecycle Cost
Additional Emergency Interties	\$11.1	\$0.69	\$11.8
Aerojet Remediated Groundwater	\$7.4	\$21.7	\$29.1
Redundant Raw Water Pipeline	\$31.8	\$2.0	\$33.8
Added redundancy at the Water Treatment Plant	\$4.9	\$0.63	\$5.5
Total Lifecycle Cost			\$80.2



Concept Level Rate Impact of Portfolio: \$15/month



Enhanced Surface Water Portfolio

This portfolio strengthens the City's surface water supply by adding an intake downstream of Folsom Dam and building redundancy at the water treatment plant. While it still depends on Folsom Reservoir for potable water, the new intake and treatment plant redundancy boost reliability and resiliency. It remains vulnerable to low reservoir levels and restrictions on reservoir usage during extreme droughts. The portfolio also taps into Aerojet's GET A-B wells for non-potable water, reducing its reliance on the reservoir during the irrigation season (April to October).

Portfolio Components:

The water supply portfolio consists of both sources of supply and critical supply infrastructure.

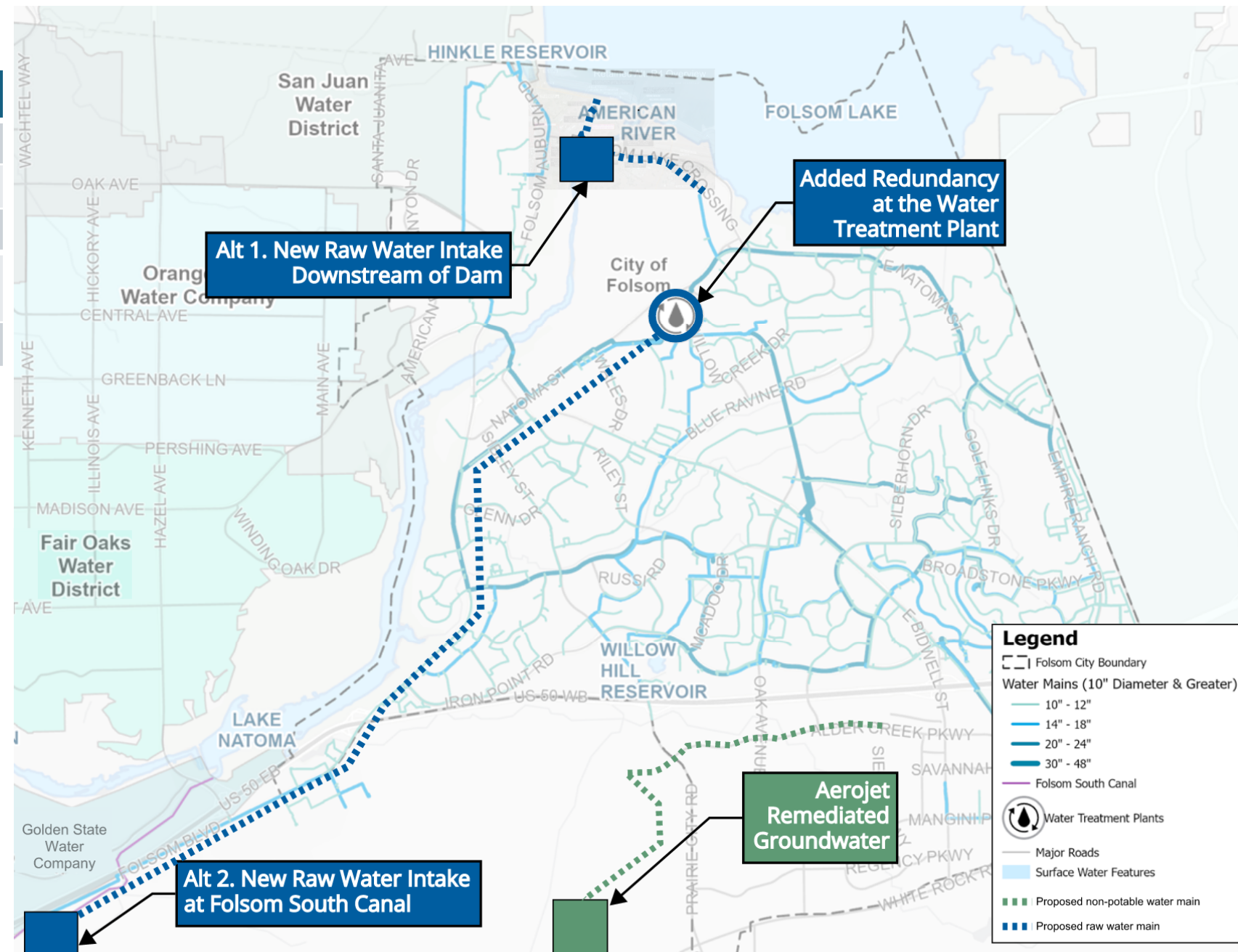
	Sources of Supply	Critical Infrastructure
Existing	Folsom Reservoir	Raw Water Pipeline
	GSWC Intertie	Water Treatment Plant
	SJWD Intertie	
New	Aerojet Remediated Groundwater	Added redundancy at the Water Treatment Plant
		New Intake Downstream of Dam*

*Includes either a new raw water intake either at the Folsom South Canal or downstream of the Folsom Dam.

Portfolio Lifecycle Cost Estimate:

Lifecycle costs will include upfront construction and annual costs for operations, maintenance, and energy. All costs are in millions of 2024 dollars.

Portfolio Components	Capital Cost	Lifecycle O&M	Total Lifecycle Cost
New Intake Downstream of Dam	\$157.2	\$22.9	\$180.1
Aerojet Remediated Groundwater	\$7.4	\$21.7	\$29.1
Added redundancy at the Water Treatment Plant	\$4.9	\$0.63	\$5.5
Total Lifecycle Cost			\$214.7



Concept Level Rate Impact of Portfolio: \$45/month

Groundwater Portfolio



This portfolio introduces groundwater by constructing a wellfield with Aquifer Storage and Recovery (ASR) wells outside the City's service area. This independent source adds both reliability and resiliency, providing two separate water sources. This portfolio also allows the City to join the Sacramento Regional Water Bank, adding surplus water to the bank during average and wet year and withdrawing water during dry years.

Portfolio Components:

The water supply portfolio consists of both sources of supply and critical supply infrastructure.

	Sources of Supply	Critical Infrastructure
Existing	Folsom Reservoir	Raw Water Pipeline
	GSWC Intertie	Water Treatment Plant
	SJWD Intertie	
New	Groundwater Supply*	

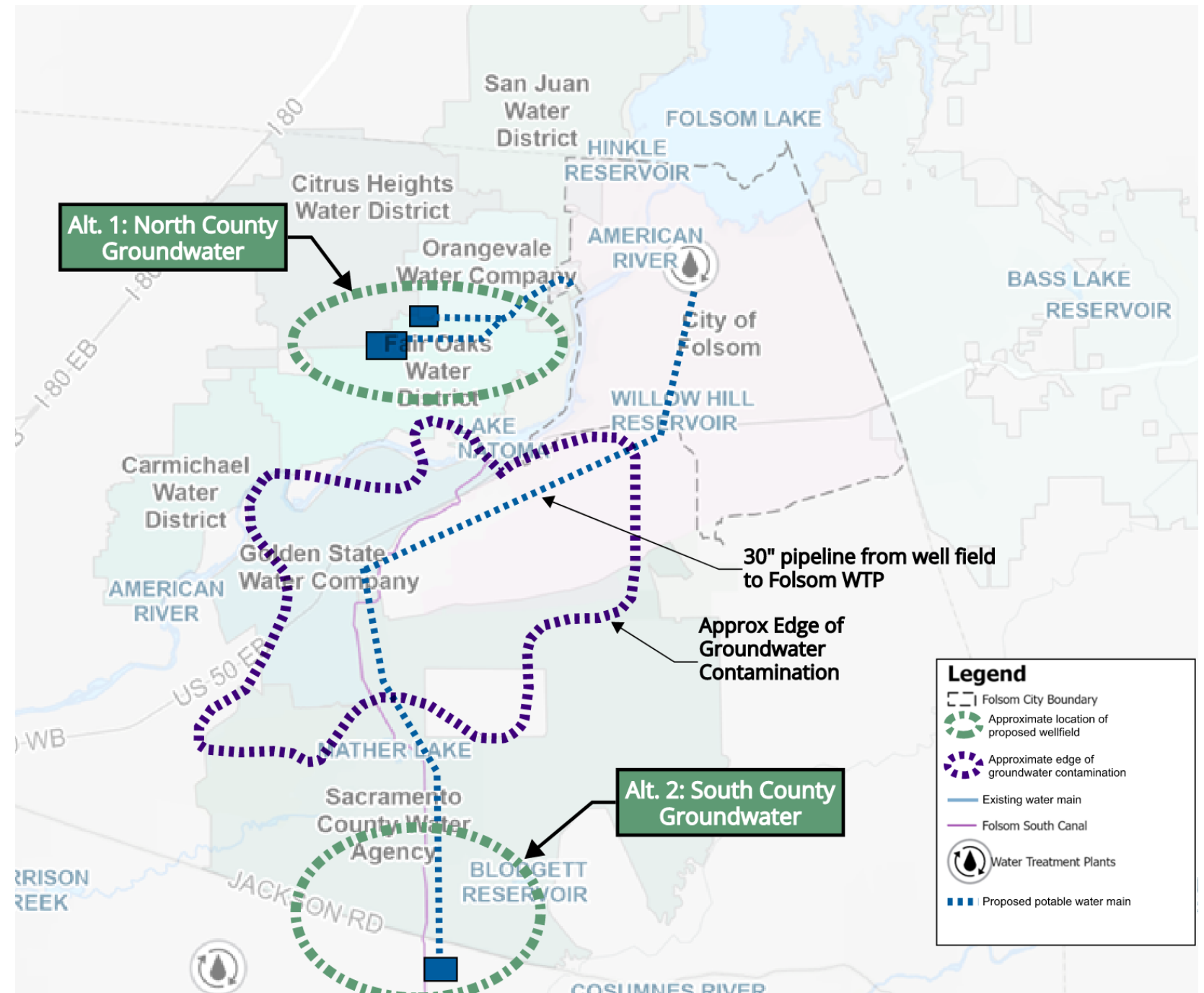
*This groundwater supply could come from a wellfield located either north of the American River (North County Groundwater Supply) or south of the American River (South County Groundwater Supply).

Portfolio Lifecycle Cost Estimate:

Lifecycle costs will include upfront construction and annual costs for operations, maintenance, and energy. All costs are in millions of 2024 dollars.

Portfolio Components	Capital Cost	Lifecycle O&M	Total Lifecycle Cost
North County Groundwater Wellfield	\$71.9 ¹	\$13.6	\$85.5
South County Groundwater Wellfield	\$173.4 ¹	\$39.3	\$212.7

¹ Grants, bonds, and other funding opportunities could likely reduce to this cost.



Concept Level Rate Impact of Portfolio (North): \$20/month
 Concept Level Rate Impact of Portfolio (South): \$45/month



Enhanced Groundwater Portfolio

This portfolio introduces groundwater by constructing a wellfield with Aquifer Storage and Recovery (ASR) wells outside the City's service area and increases resiliency by improving redundancy at the water treatment plant. Groundwater adds both reliability and resiliency, providing two separate water sources, and allows the City to join the Sacramento Regional Water Bank. This portfolio also uses Aerojet's GET A-B wells as a non-potable water source, reducing its reliance on the reservoir during the irrigation season (April to October).

Portfolio Components:

The water supply portfolio consists of both sources of supply and critical supply infrastructure.

	Sources of Supply	Critical Infrastructure
Existing	Folsom Reservoir	Raw Water Pipeline
	GSWC Intertie	Water Treatment Plant
	SJWD Intertie	
New	Groundwater Supply*	Added redundancy at the Water Treatment Plant
	Aerojet Remediated Groundwater	

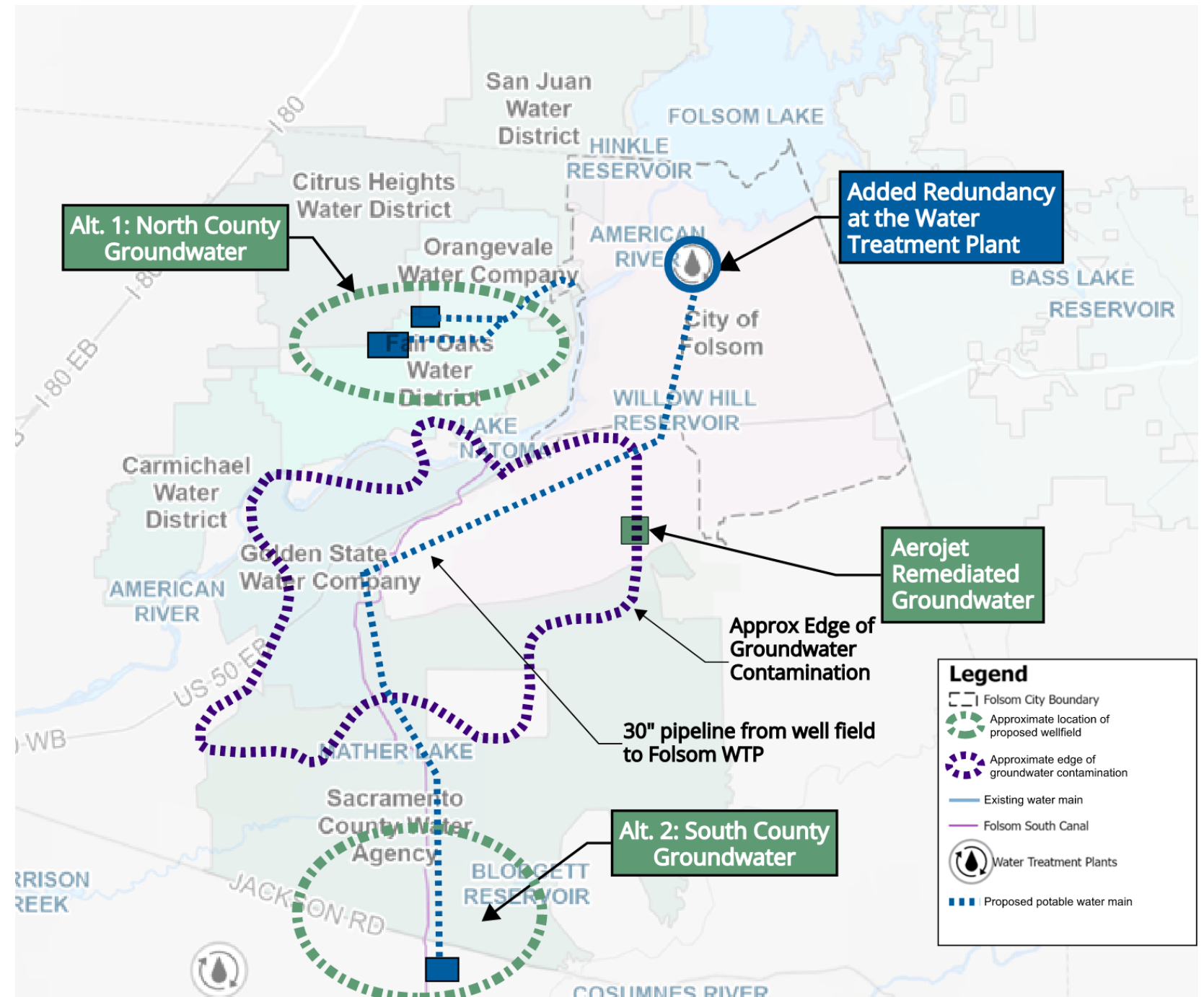
*This groundwater supply could come from a wellfield located either north of the American River (North County Groundwater Supply) or south of the American River (South County Groundwater Supply).

Portfolio Lifecycle Cost Estimate:

Lifecycle costs will include upfront construction and annual costs for operations, maintenance, and energy. All costs are in millions of 2024 dollars.

Portfolio Components	Capital Cost	Annualize Capital Cost	Total Annualized Cost
Groundwater Wellfield ¹	\$71.9 to \$173.4	\$13.6 to \$39.3	\$85.5 to \$212.7
Aerojet Remediated Groundwater	\$7.4	\$21.7	\$29.1
Added redundancy at the Water Treatment Plant	\$4.9	\$0.63	\$5.5
Total Lifecycle Cost			\$120.1 to \$247.3

¹ Grants, bonds, and other funding opportunities could likely reduce to this cost.



Concept Level Rate Impact of Portfolio: \$25 to 50/month