Environmental Services Commission

Emergency Well Siting Study

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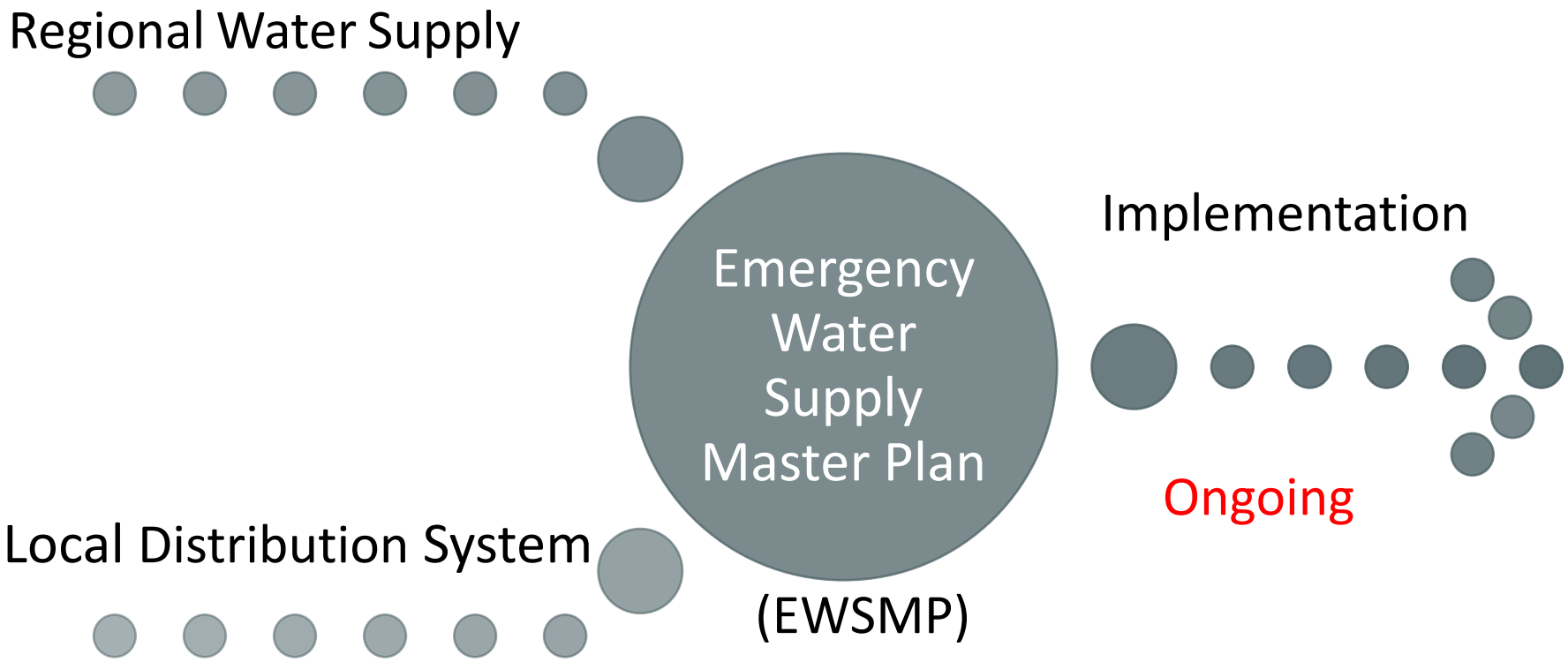
Tonight's Purpose

- Informational Briefing
- Background on Emergency Water Supply Work
- Present Well Siting Study Results

Background: Problem Statement

- 2016 Water System Plan identified need to address reliability of water supply
- Largest hazard to system is an earthquake
- Emergency plan seeks to improve resilience

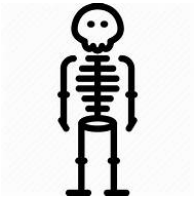
Background: Two Threats



Background: EWSMP Recommendations

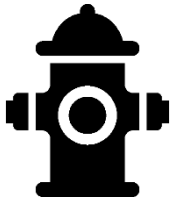
Resilient Supply:

- Install Emergency Wells
- Work with Cascade/SPU



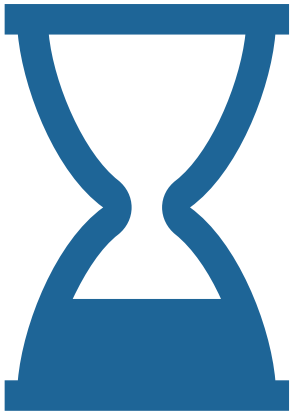
Backbone Piping

- Resilient pipe to key points



Distribution System R&R

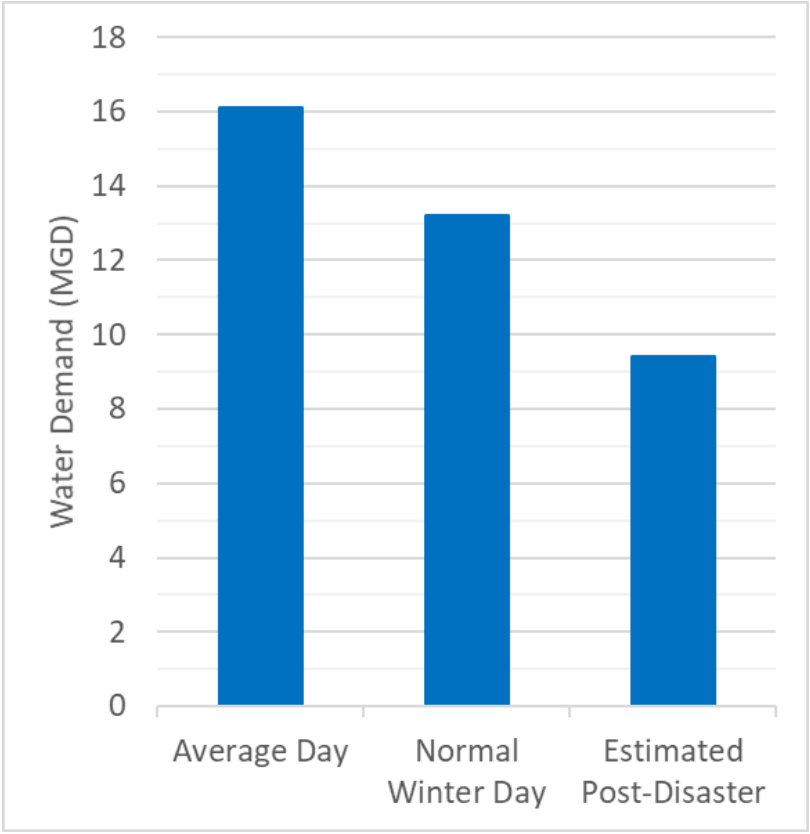
- Continue watermain replacements
- Prioritize pump stations and reservoirs along Backbones



50-year Timeline

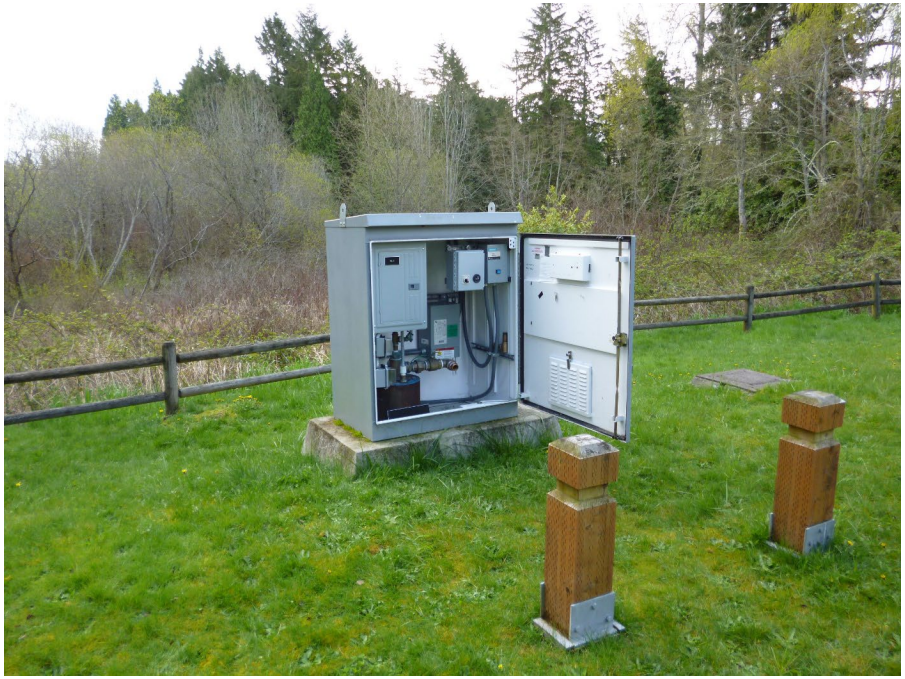
Emergency Well Siting Study Purpose

- Evaluate Existing Wells
- Develop Criteria for Siting Future Wells



Existing Wells

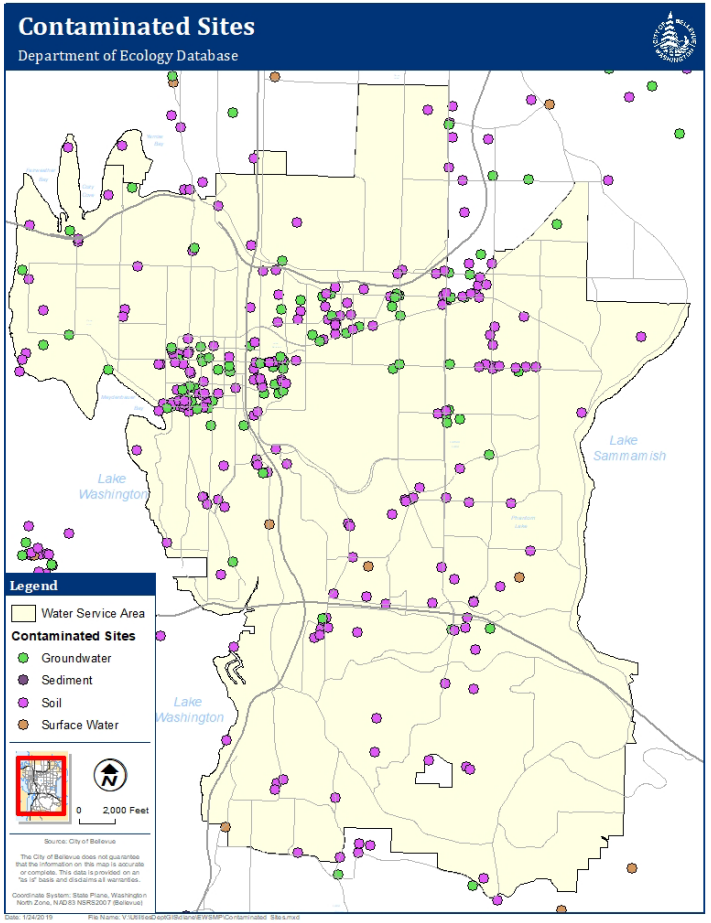
- Crossroads Wells
  - Drilled in 1950's and '60s
  - Redrilling recommended
- Samena Wells
  - Drilled in 1950's and '60s
  - Redrilling recommended
- Replacement Capacity
  - (1/3 of future need)



Where to Site Future Wells?

Factors to Consider:

- water utility infrastructure
- critical water supply customers
- water system customer distributions and density
- streets and accessibility
- known sources of potential contamination
- social equity factors
- potential seismic event impacts and risks



Evaluation Criteria

1: Seismic Backbone Pipe Routes

2: Critical Customers

3: Streets and Accessibility

4: Customer Density

5 and 6: Groundwater and Surface Contamination

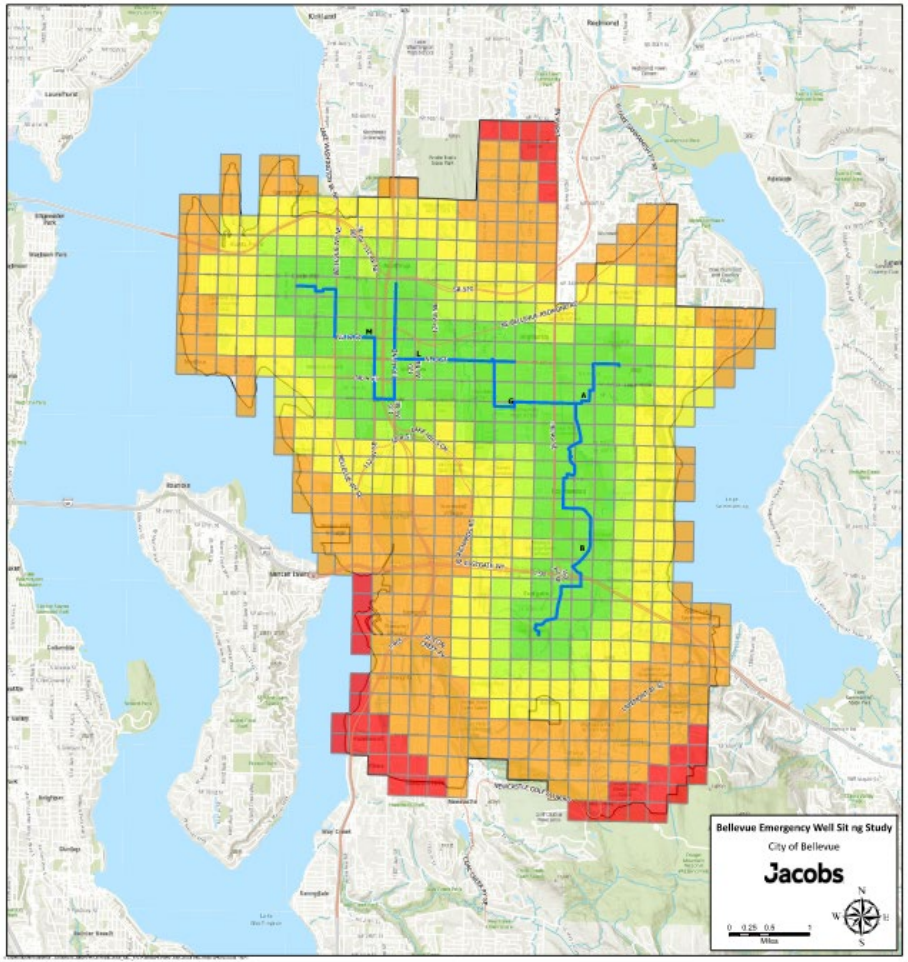
7 and 8: Equity – Average Income and Car Ownership

9: Fire Department Drafting Sites

10: Water Pressure Zones

11: Seismic Fault Zones

Seismic Backbone Pipe Routes

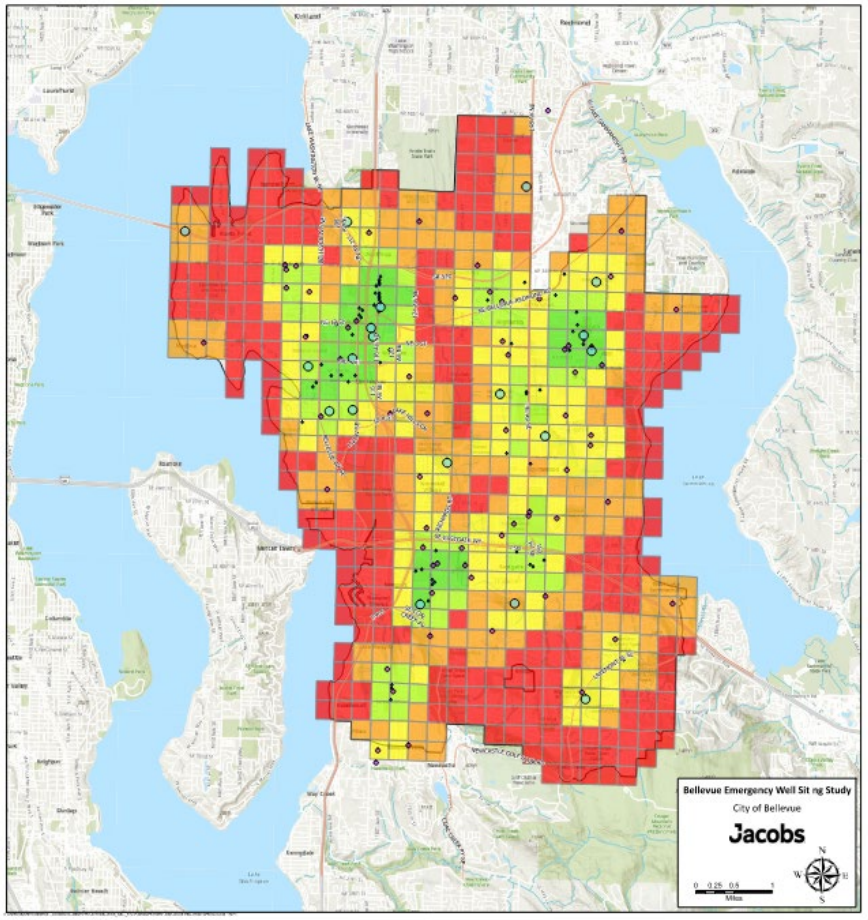


Site Favorability

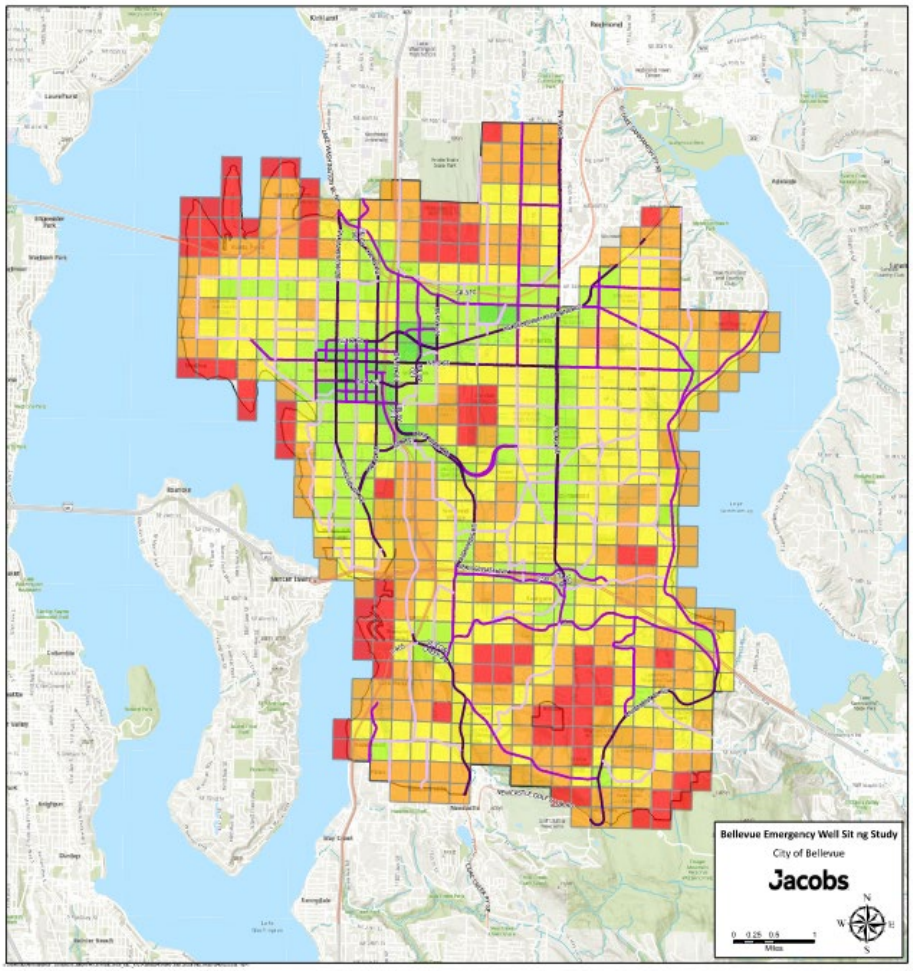
- 5 (Most)
- 4
- 3
- 2
- 1 (Least)

Critical Customers

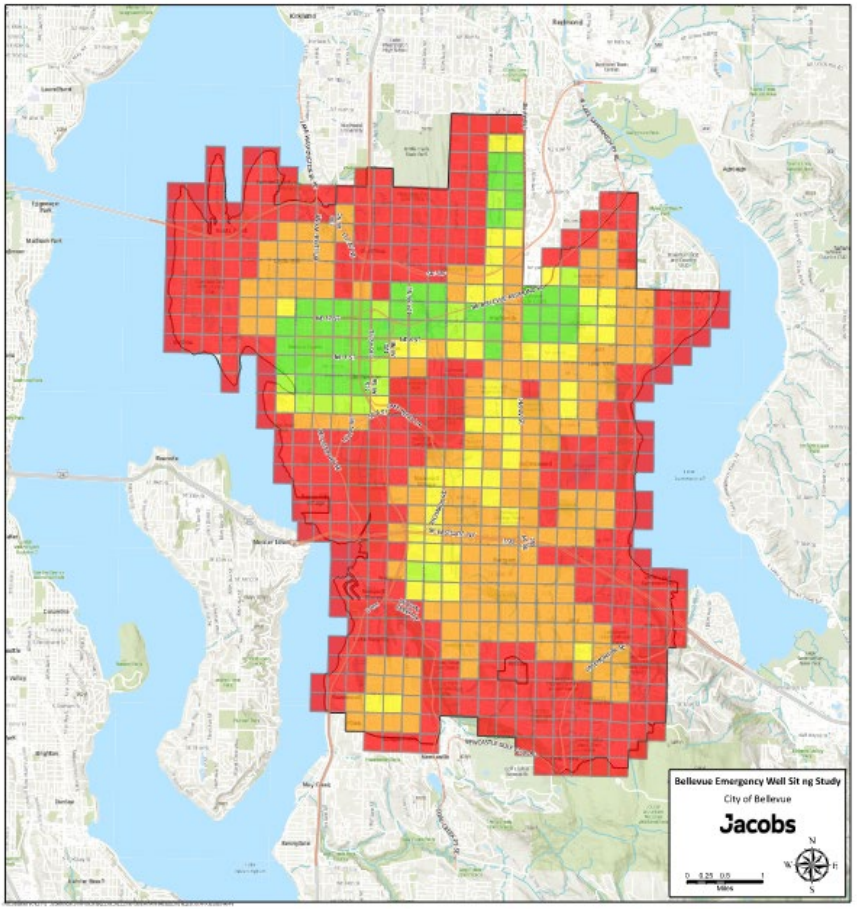
- Hospitals
- Schools
- Community Centers
- WSDOT Facilities
- City Hall



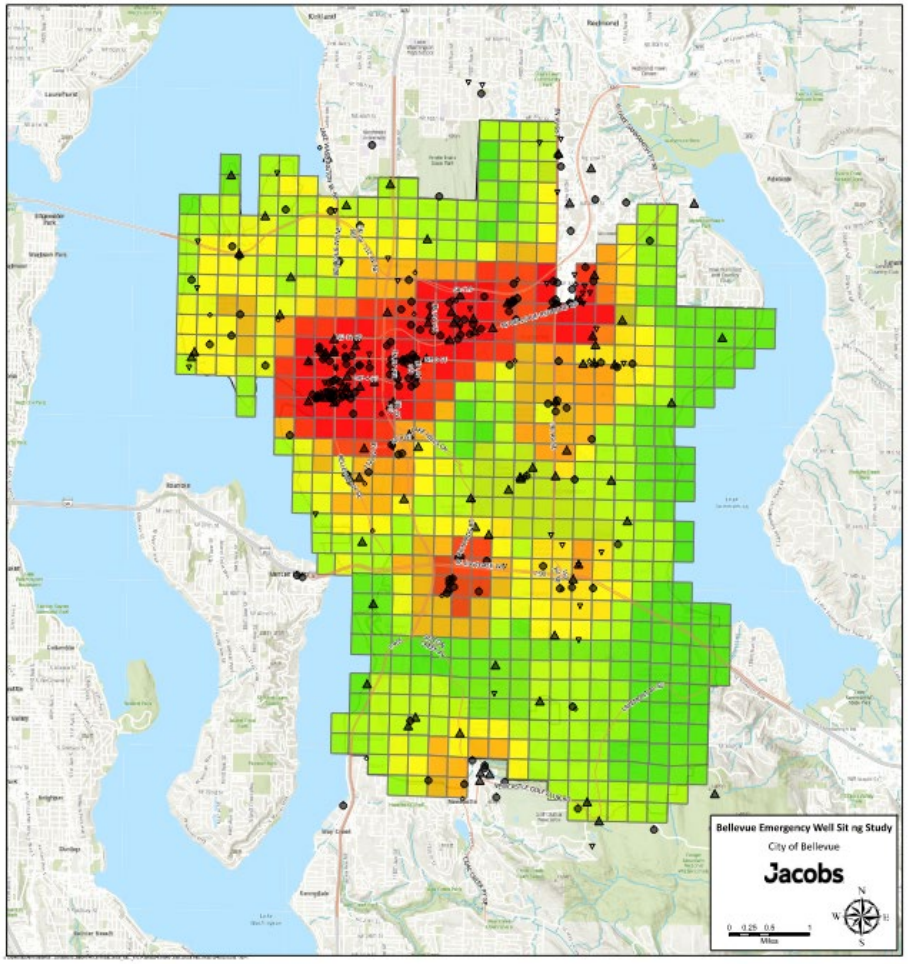
Streets and Accessibility



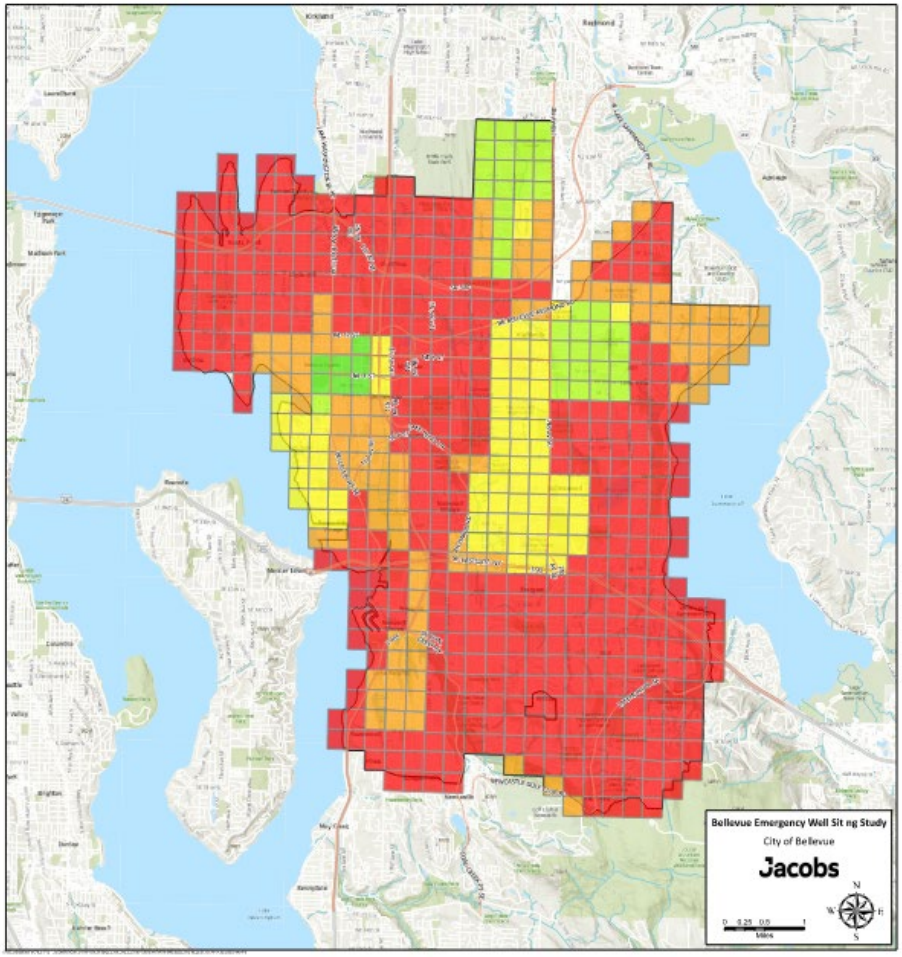
Customer Density



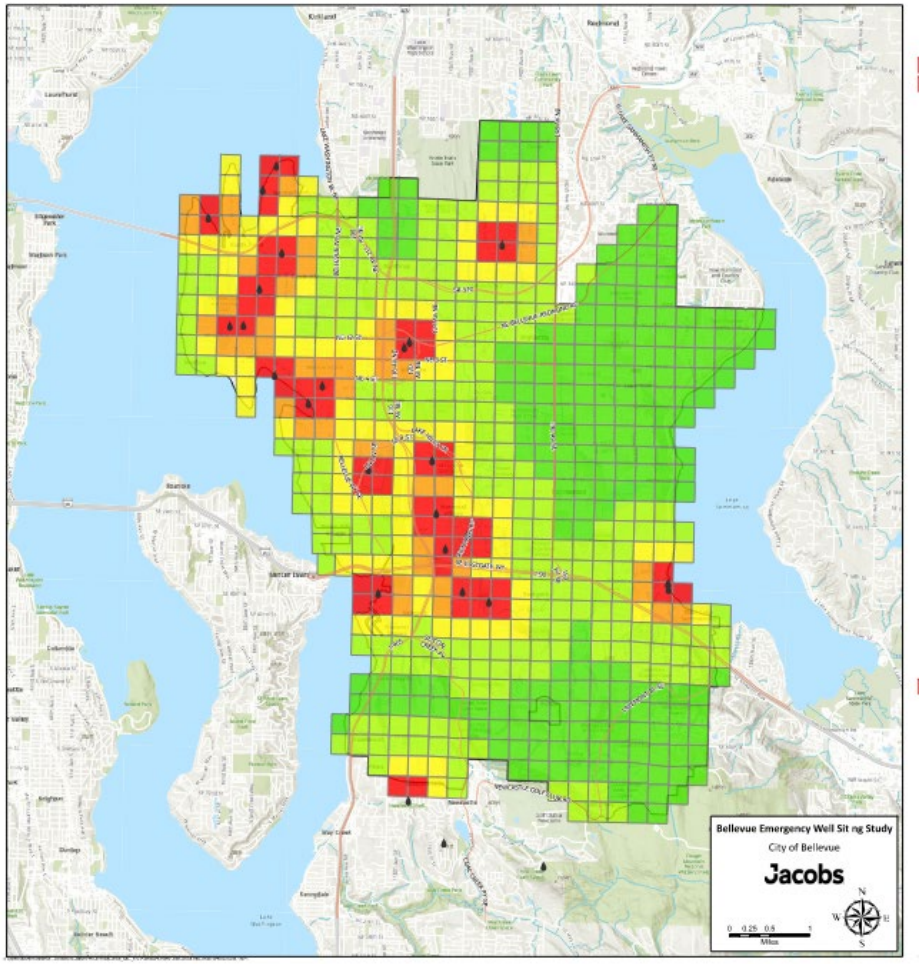
Groundwater and Surface Contamination



Equity (Car Ownership)

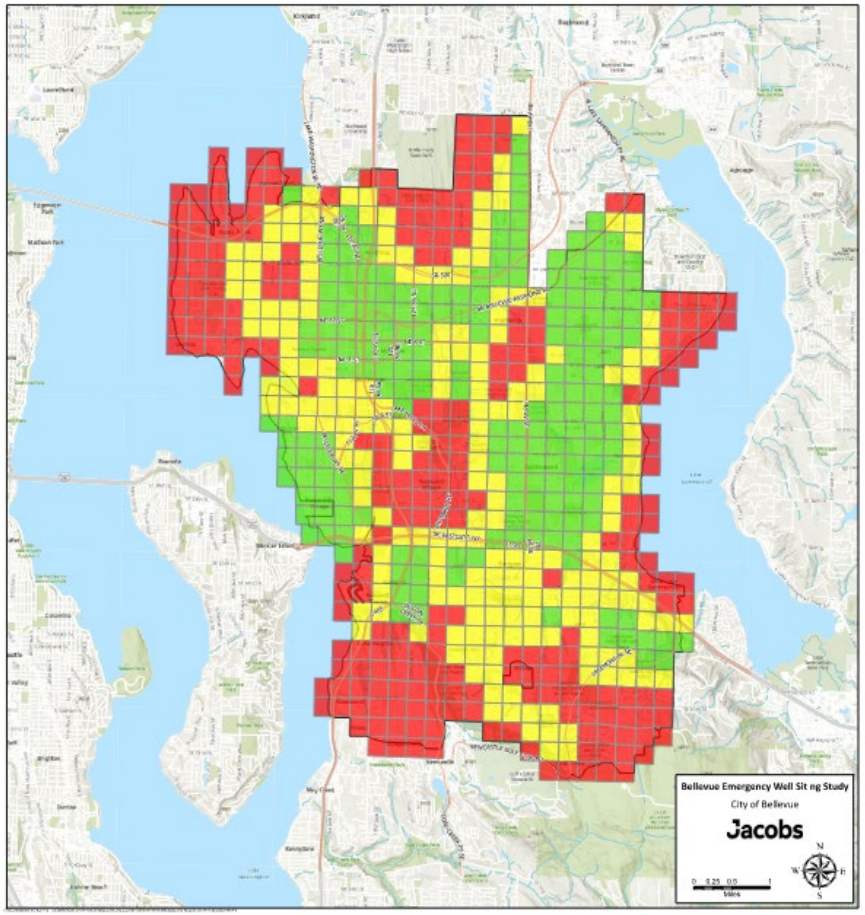


Fire Department Drafting Sites

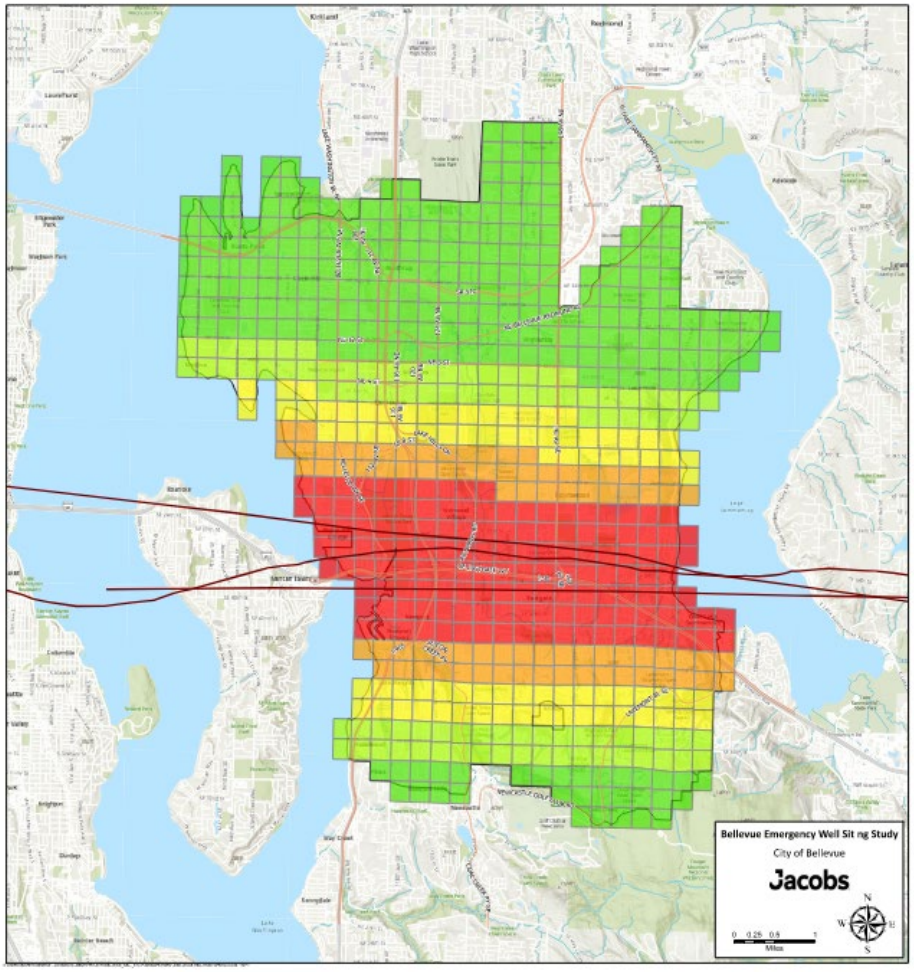


Water Pressure Zones

- Lake Hills 520
- Factoria 290
- Bellevue 400
- Enatai 300
- Somerset 850



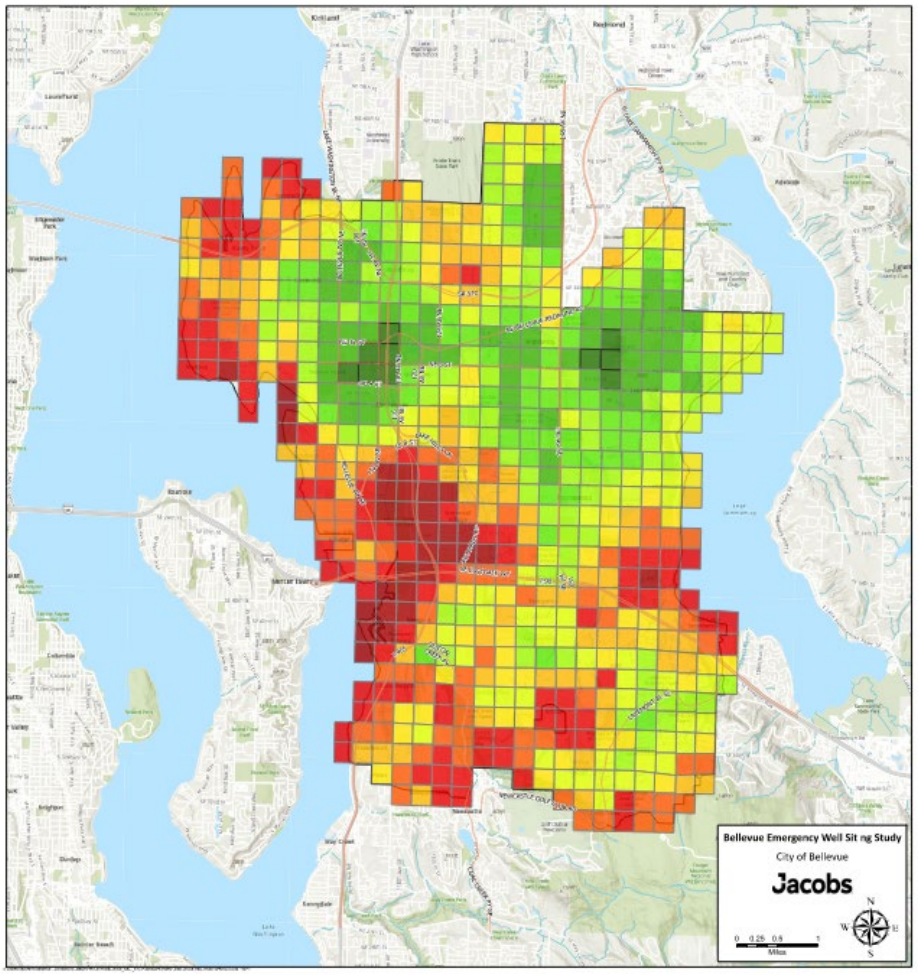
Seismic Fault Zones



MODA Analysis & Weighting

Evaluation Criteria	Assessment Scale / Units	Weighting
1. Seismic Backbone Pipe Routes	Distance (mi) from QQ to nearest Backbone Pipe Route	12%
2. Water Pressure Zones	QQ Water Pressure Zone Proximity	8%
3. Critical Customers	Total Scaled Critical Customers Score within 0.25 miles of QQ	16%
4. Streets and Accessibility	Total Scaled Arterial Mileage Score within 0.1 miles of QQ	9%
5. Customer Density	Total Scaled Winter Water Demand Score within 0.25 miles of QQ	14%
6. Groundwater Contamination	Total Scaled Groundwater Contamination Score within 0.5 miles of QQ	9%
7. Surface Contamination	Total Scaled Surface Contamination Score within 0.5 miles of QQ	8%
8. Average Income (Equity)	Average QQ Household Income ($K)	4%
9. Car Ownership (Equity)	QQ Households Owning At Least One Car (%)	4%
10. Fire Department Drafting Sites	Distance (mi) from QQ to nearest Drafting Site	3%
11. Seismic Fault Zones	Distance (mi) from QQ to nearest Seattle Faultline	13%

MODA Analysis Results



Next Steps

- Improve Existing Wells
  - Crossroads ’25-’33
  - Samena ‘29-’32

- Detailed Siting Study
  - 2029-2031

Happy to Answer Questions