



CLIMATE ACTION AND WATER

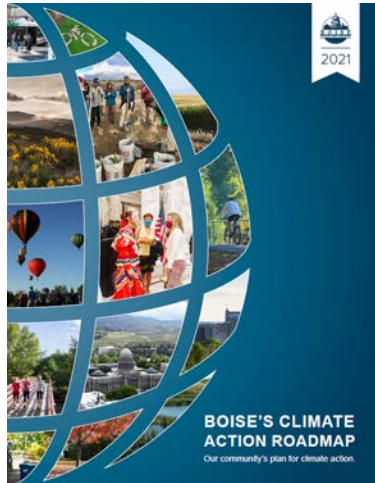
March 23, 2022

Haley Falconer, PE | Environmental Division Manager





CLIMATE ACTION ROADMAP



CLIMATE ACTION ROADMAP PURPOSE

- Prioritize climate action, with a focus on implementation
- Organize initiatives in a technical document
- Identify climate action goals
- Prioritize opportunities and actions, leverage public involvement with implementation activities
- A living, evolving document that adjusts with new policy, technology and community needs

CLIMATE ACTION ROADMAP

Vision & Goals

Vision: Create a city for everyone

Municipal Goal: Carbon Neutral by 2035

Community Goal: Carbon Neutral by 2050

Goal: Enhance Boise's resiliency and ability to adapt to climate change impacts

Guiding Principles

Advance Equity

Improve Human Health & Wellness

Grow a Climate Economy

Priorities

← Emissions Reduction Benefits

Resilience Benefits →

Energy & Buildings

Transportation

Consumption & Waste

Innovation & Engagement

Food Systems

Natural Environment

Water

Opportunities

PRIORITIES AND OPPORTUNITIES



BUILDINGS & ENERGY

1. **Building Efficiency**
2. **Clean Heat**
3. Geothermal Energy
4. Utility-Scale Clean Electricity
5. *Distributed Renewable Energy*



CONSUMPTION & WASTE

10. Waste Reduction
11. Material Recovery & Reuse



WATER

17. *Water Conservation*
18. *Water Supply Resilience*
19. Water Quality, Stormwater Management & Flooding



FOOD SYSTEMS

12. Local Security & Economy
13. *Regenerative Agriculture & Land Conservation*



TRANSPORTATION

6. Vehicle Trip Reduction
7. Convenient Transportation Options
8. **Electric & Efficient Vehicles & Equipment**
9. Airline & Freight Efficiency



NATURAL ENVIRONMENT

14. Urban Tree Canopy
15. *Healthy Ecosystems*
16. Access to Open Spaces



INNOVATION & ENGAGEMENT

20. *Resilient Development & Infrastructure Design*
21. Community Engagement & Education
22. **Climate Advocacy**
23. **Carbon Offsets & New Technologies**



WATER OPPORTUNITIES



WATER

- 17. *Water Conservation*
- 18. *Water Supply Resilience*
- 19. *Water Quality, Stormwater Management & Flooding*

WATER RESILIENCY APPROACH



- Preserve groundwater for drought conditions
- Diversification of water supply sources
- Fit-for-purpose strategy
- Conservation

DIVERSIFY WATER SUPPLY SOURCES



Existing natural flow rights



Existing surface storage



Recycled water from water renewal facilities



Groundwater recharge and banking



Exchanges



New surface storage capacity

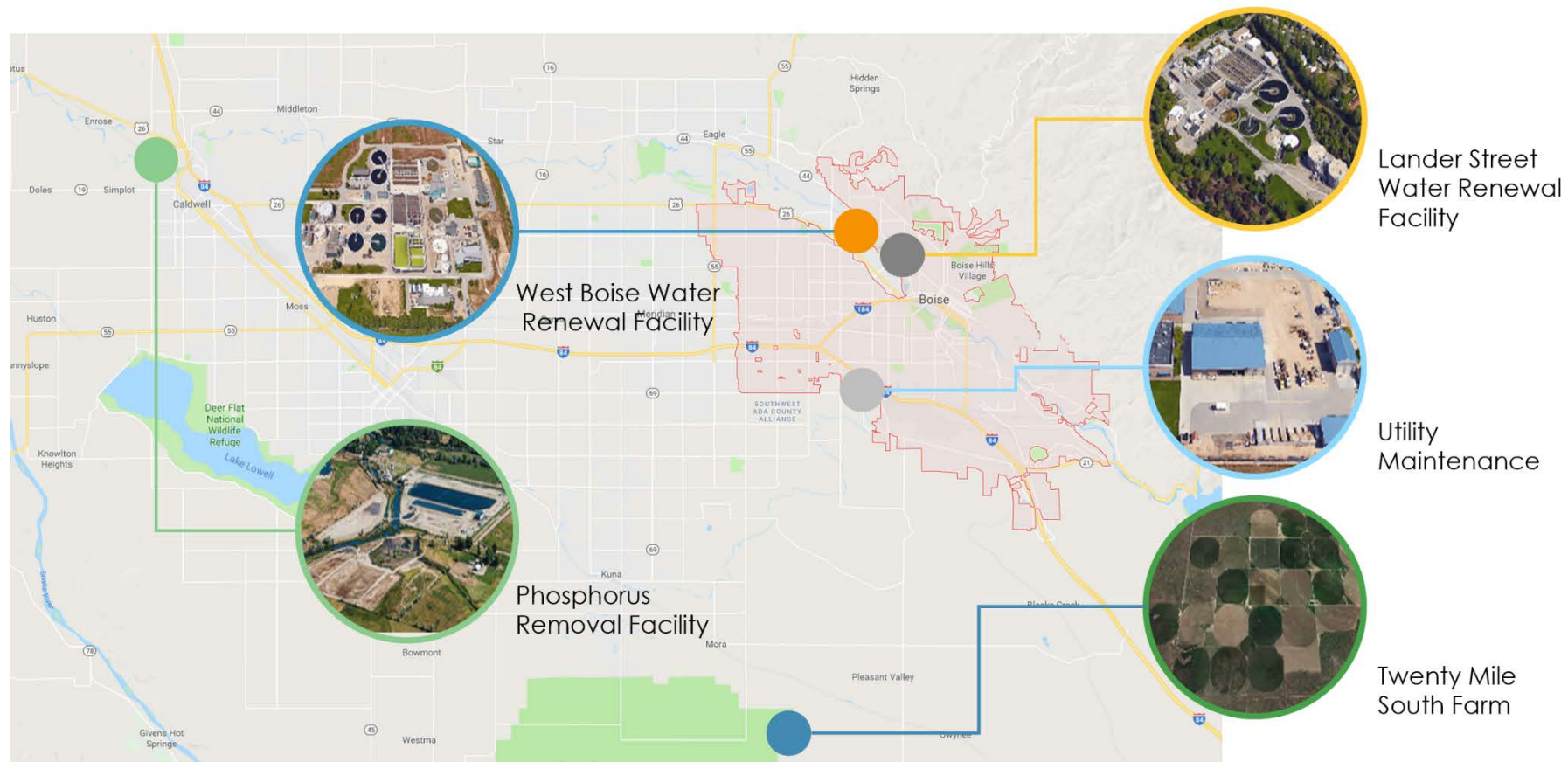
Water Supply Portfolio



CITY OF BOISE'S WATER RENEWAL SERVICES

- Part of the City of Boise's Public Works Department
- Residential, commercial and industrial customers across three cities
- Over 10 billion gallons of water treated every year

WATER RENEWAL SERVICES



**Redefines the
future of water
for the city of
Boise providing
multiple benefits
to the
community**

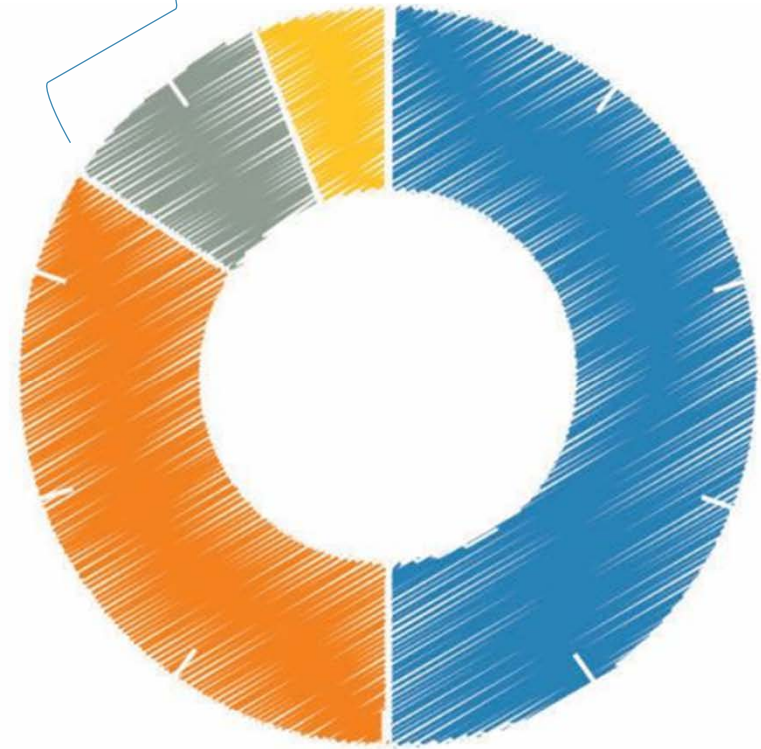
CREATING A CITY FOR EVERYONE



UTILITY PLANNING TO RECYCLED WATER

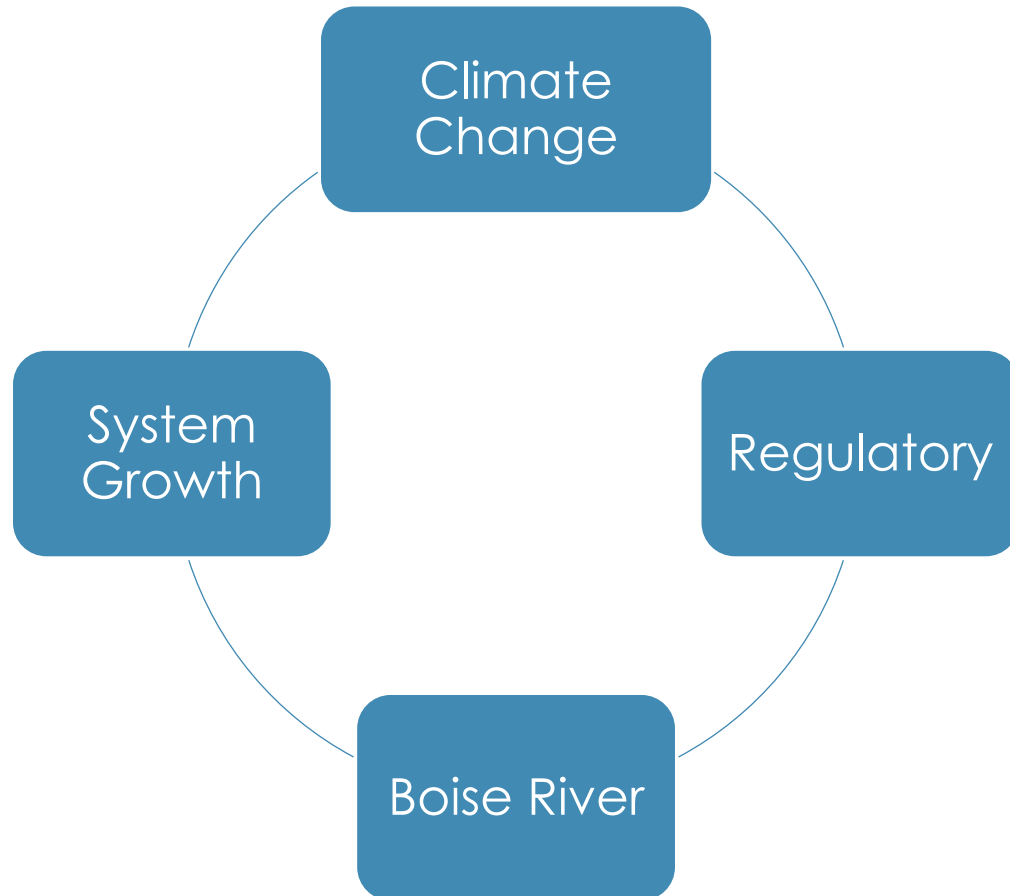
The Water Renewal Utility Plan recommended a portfolio of investments including the Recycled Water Program

All new capacity shifts to recycled water



- River Discharge
- Enhance the River
- Industrial Reuse
- Aquifer Recharge

WHY RECYCLED WATER?



Keep water local



Combat future water shortages



Produce high quality water that can be used for a variety of purposes

Drought in U.S. West Is Driest Period in Centuries

ast 22 years are also close to surpassing duration of multidecade drought in the 1500s, according to



RESEARCH NEWS

Study finds Western megadrought is the worst in 1,200 years

February 14, 2022 · 11:04 AM ET
Heard on Morning Edition



NATHAN ROTT



3-Minute Listen

+ PLAYLIST



News

Weather

Near Me

VERIFY

Watch

7 INVESTIGATES

COVID-19

THE 20s

VERIFY

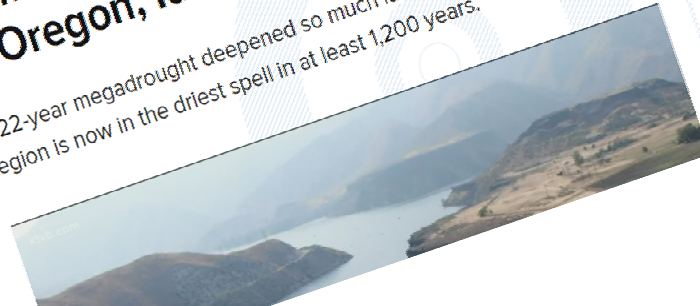
REGIONAL

IDAHO TODAY

SCORCHED EARTH

Climatologists: Drought to worsen in Oregon, Idaho this year

A 22-year megadrought deepened so much last year that the broader region is now in the driest spell in at least 1,200 years.



COMMUNITY COMMITMENT



Support for recycled water



Ongoing studies



Robust community engagement

RECYCLED WATER PROGRAM DEVELOPMENT

RECYCLED WATER PROGRAM ELEMENTS



Community Engagement



Policy and Partnership Development



Siting and Land Acquisition



Research, Innovation and Pilot Testing



Permitting

PROGRAM MILESTONES





COMMUNITY ENGAGEMENT

- **Engagement this Spring**
 - Focus Groups
 - Listening Tour
 - Stakeholder Outreach
 - Community Survey
- **Education and engagement with pilot process**
- **NWRI Panels**

NATIONAL WATER RESEARCH INSTITUTE PANEL

Rick Warner, PE
Rick Warner & Associates
Engineer

Shawn Benner, PhD
Boise State University
Hydrogeologist

Daniel Gerrity, PhD
Southern Nevada Water Authority
Strategist

David Reckhow, PhD
University of Massachusetts Amherst
Chemist

Channah Rock, PhD
University of Arizona
Microbiologist

Rupam Soni, PE
Metropolitan Water District of
Southern California
Outreach



NWRI RECOMMENDATIONS

Community Engagement

Regulatory

Water Quality



POTENTIAL AQUIFER RECHARGE LOCATIONS

- GIS Screening of potential parcels for Recycled Water Facility and Aquifer Recharge
- Select up to six sites for site characterization this summer
- Stakeholder outreach and site visits

SOURCE WATER CHARACTERIZATION

- Questions we are trying to answer with source water quality characterization
 - What regulated and unregulated chemicals are in the source waters?
 - How would we treat those chemicals and what would be the cost?

TIER 1	TIER 2	TIER 3
✓ Regulated constituents	✓ Unregulated constituents of interest to public health	✓ Unregulated constituents useful for evaluating treatment effectiveness



A year of monitoring is typical to get a comprehensive picture

RESEARCH, INNOVATION, PILOT TESTING





RESEARCH: APPROACH TO EMERGING CONSTITUENTS

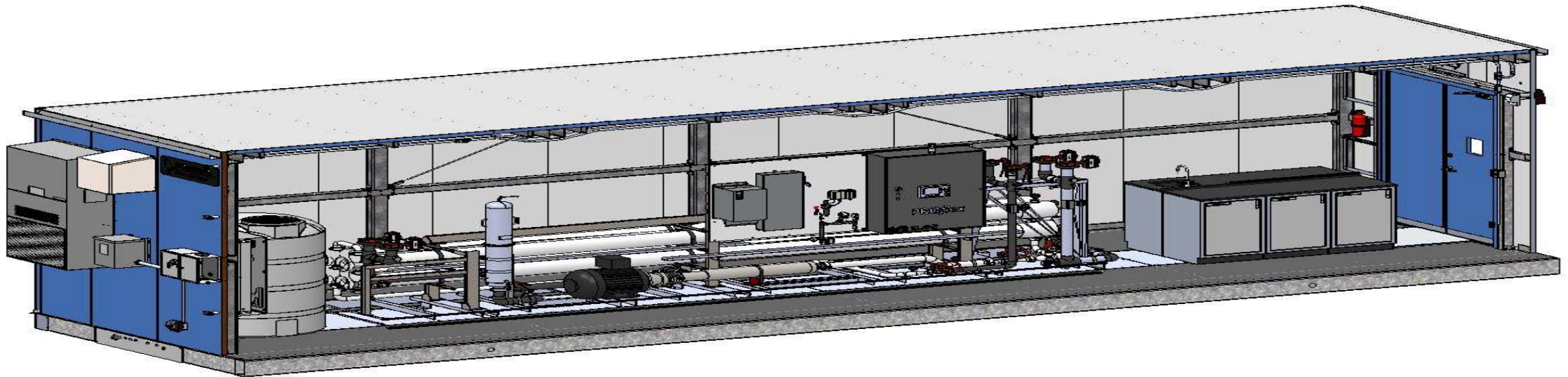
- Source water characterization
- Literature review for emerging constituents, unit processes and removals
- Multi-barrier approach assessing various removal mechanisms:
 - Separation and filtration
 - Adsorption
 - Photolysis
 - Advanced oxidation

PILOT TESTING OBJECTIVES

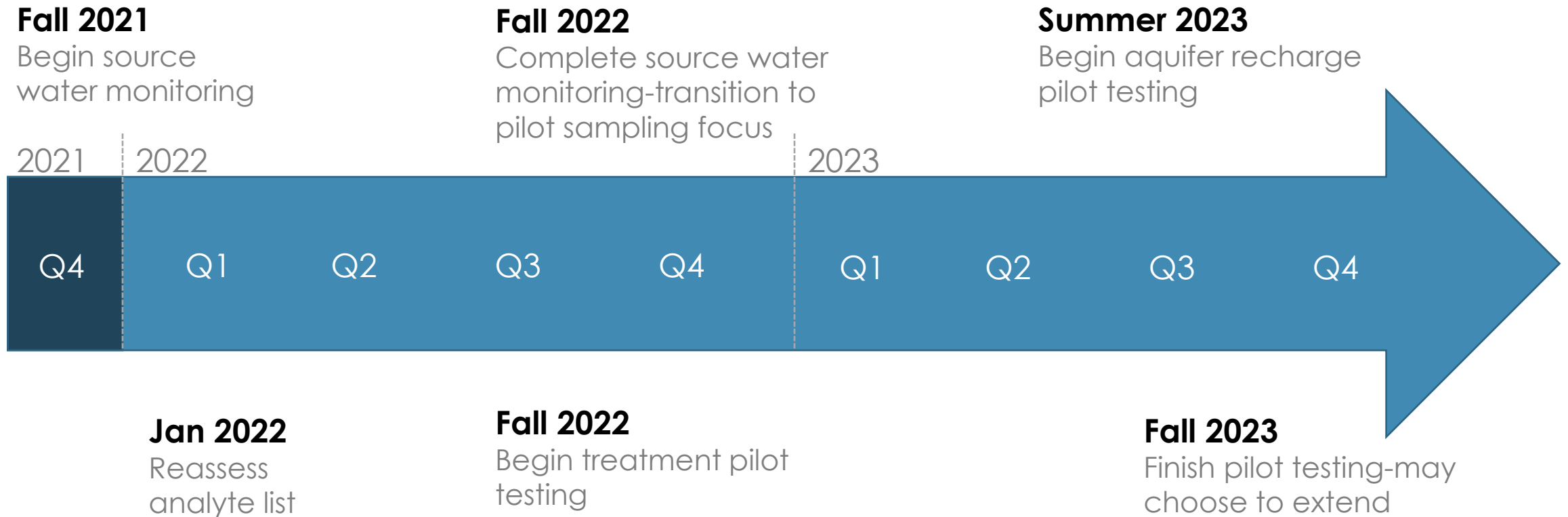
- Demonstrate the **effectiveness and reliability**
- **Inform design** criteria for full-scale facilities
- Support **operator training and engagement**
- Provide meaningful opportunity for **community engagement**

PILOT TESTING

- **Treatment Pilot Testing** – September 2022
 - Design is currently in development
 - Vendor secured-SUEZ/Intuitech

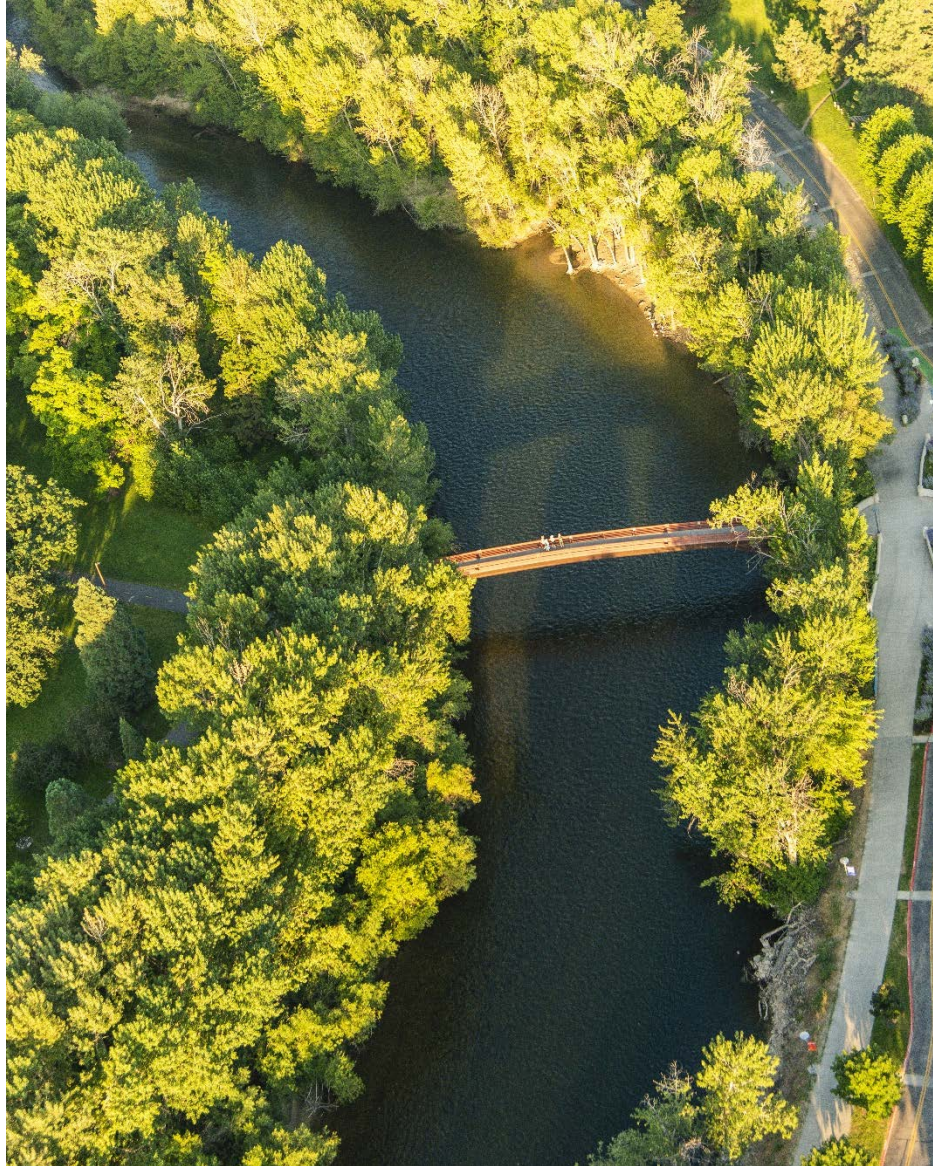


PILOT TESTING SCHEDULE





PERMITTING GOALS AND DISCUSSION



KEY PERMITTING OUTCOMES AND DECISIONS

- Regular meetings with IDEQ
- Inform pilot facility permit requirements
- Determine full scale permitting requirements
- Support IDEQ rulemaking and guidance development

WHAT'S NEXT?

- Community engagement
- Key policy decisions
- Source water and pilot data
- Site characterization and land acquisition
- Pilot tours

QUESTIONS?