

Greeley Water's Terry Ranch Conjunctive Use Project

CSU Subsurface Water Storage Symposium

February 23, 2024



Legacy of Resource Planning

June 1870
First water delivered to Union Colony through No.3 Ditch

1905
Voters approve bonds to build Belfvue Treatment Plant (Poudre River) and Pipeline

1945
Seaman Dam and Reservoir construction completed

1947
Greeley Council approves purchase of seven high mountain reservoirs

1960
Greeley population = 26,314

1964
Boyd Lake Treatment Plant (Big Thompson River) begins operations

1990
Greeley population = 60,535

1991
Greeley purchases water from area farmers for leasing back (20-year agreements)

1997
Greeley Water Conservation Garden opens

2020
Greeley population = 108,892

2020
Greeley secures \$15-million federal grant for advanced metering



Taken at the head of the Greeley Waterworks in 1908

Greeley Water: Legacy of Responsible Planning, Innovation & Service

1888
Greeley residents approve bond issue to build first water works facility

1938
Colorado-Big Thompson Project (Colorado River) construction begins. Greeley Council approves first purchase of C-BT supplies

1956
C-BT Project construction completed

1958
Greeley voters approve new City Charter creating Water Dept. and independent Water Board

1985
Windy Gap Project (Colorado River) completed

2004
Construction begins on new Belfvue Water Treatment Plant Pipeline

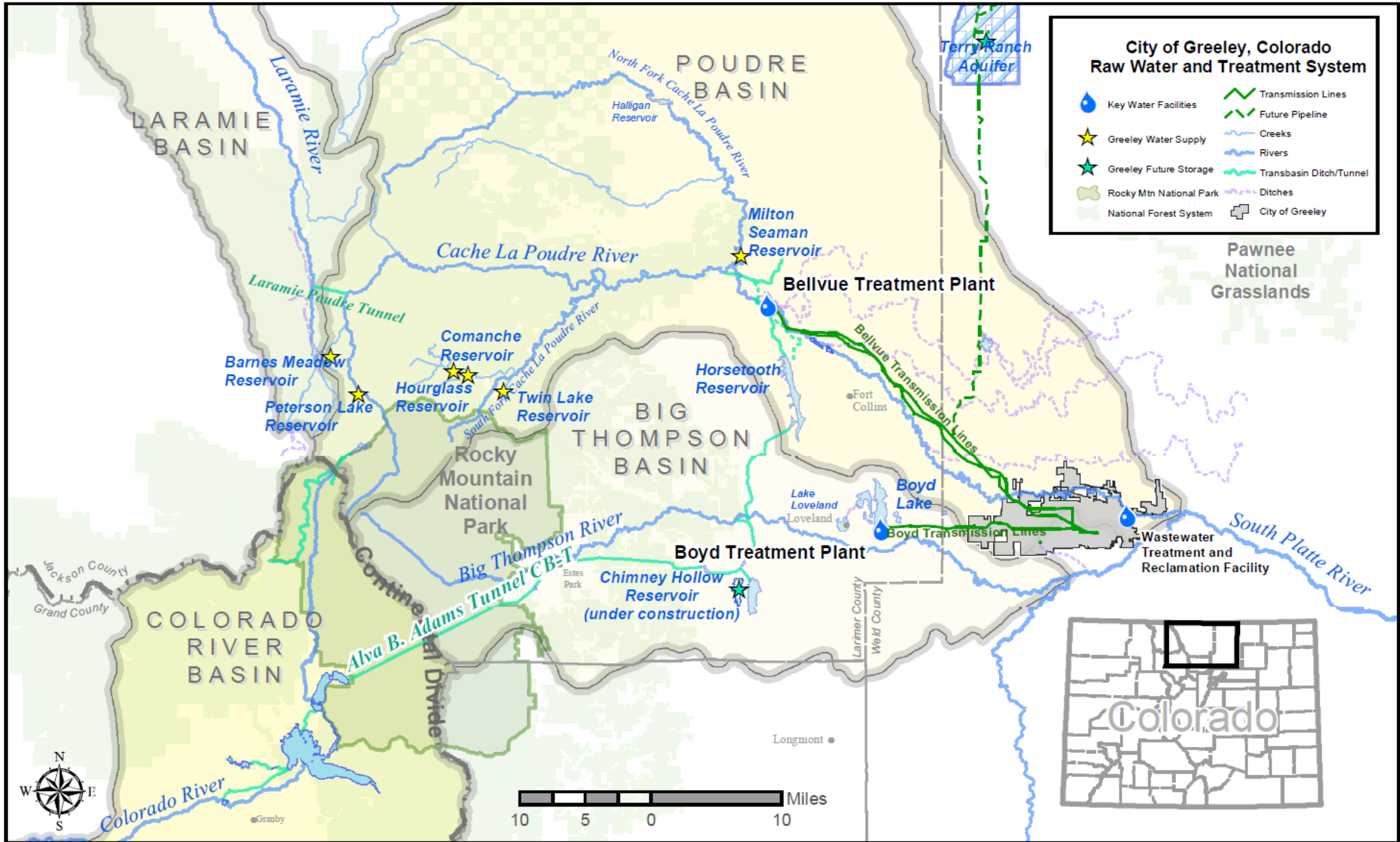
2017
Greeley Water wins first place and People's Choice in AWWA Taste Test competition

March 2021
Greeley Council approves Terry Ranch purchase for future drought supply/aquifer storage













2021
Chimney Hollow Reservoir construction begins, increasing Windy Gap supplies and available water storage

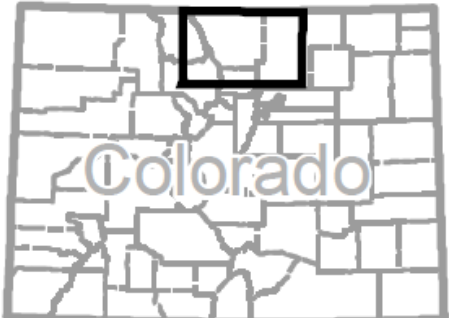
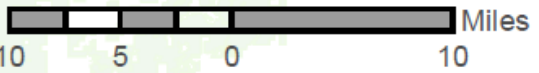
2021
Greeley leads watershed recovery in critical river basin severely damaged by 208,000-acre Cameron Peak Fire



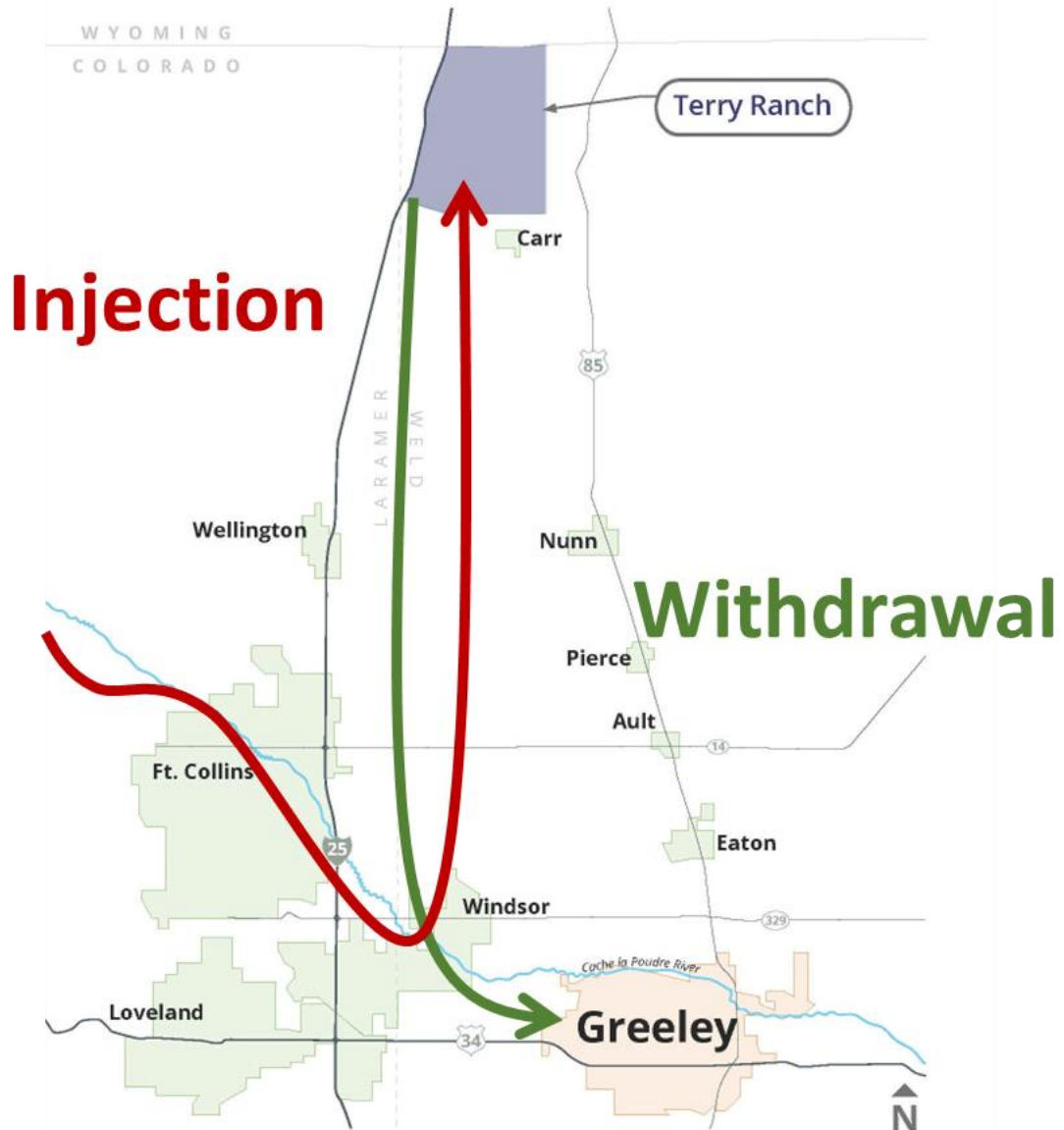


City of Greeley, Colorado Raw Water and Treatment System

	Key Water Facilities		Transmission Lines
	Greeley Water Supply		Future Pipeline
	Greeley Future Storage		Creeks
	Rocky Mtn National Park		Rivers
	National Forest System		Transbasin Ditch/Tunnel
			Ditches
			City of Greeley



Terry Ranch



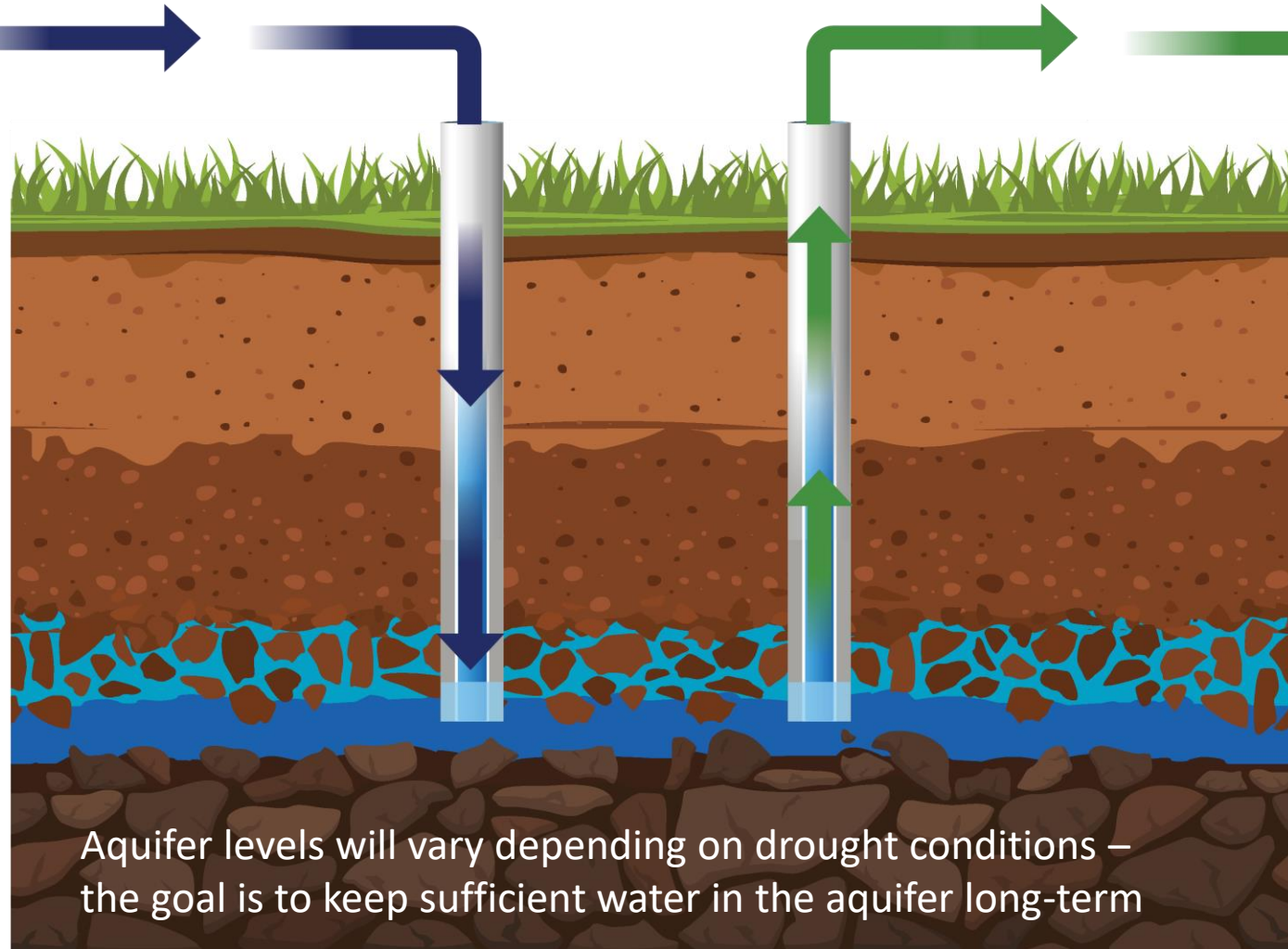
Terry Ranch is a non-tributary aquifer decreed with 1,200,000 acre-feet of native water



How can Greeley use the Terry Ranch Project?



When available, treated surface water is injected into the aquifer



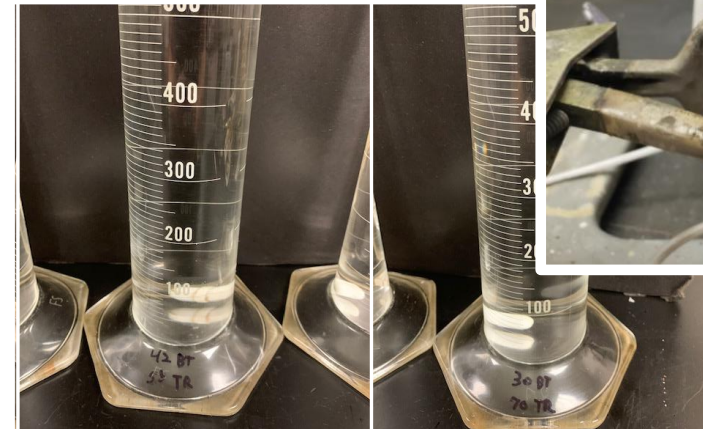
Aquifer levels will vary depending on drought conditions – the goal is to keep sufficient water in the aquifer long-term



During droughts, water is extracted from the aquifer, treated, and delivered to Greeley

Water Quality Inspection

- Extensive evaluation and analysis:
 - Over 7,000 sampling data points
 - 575 compounds from 7 municipal grade wells
- Overall water quality is excellent
- Natural Uranium is present
 - Uranium can be removed cost effectively

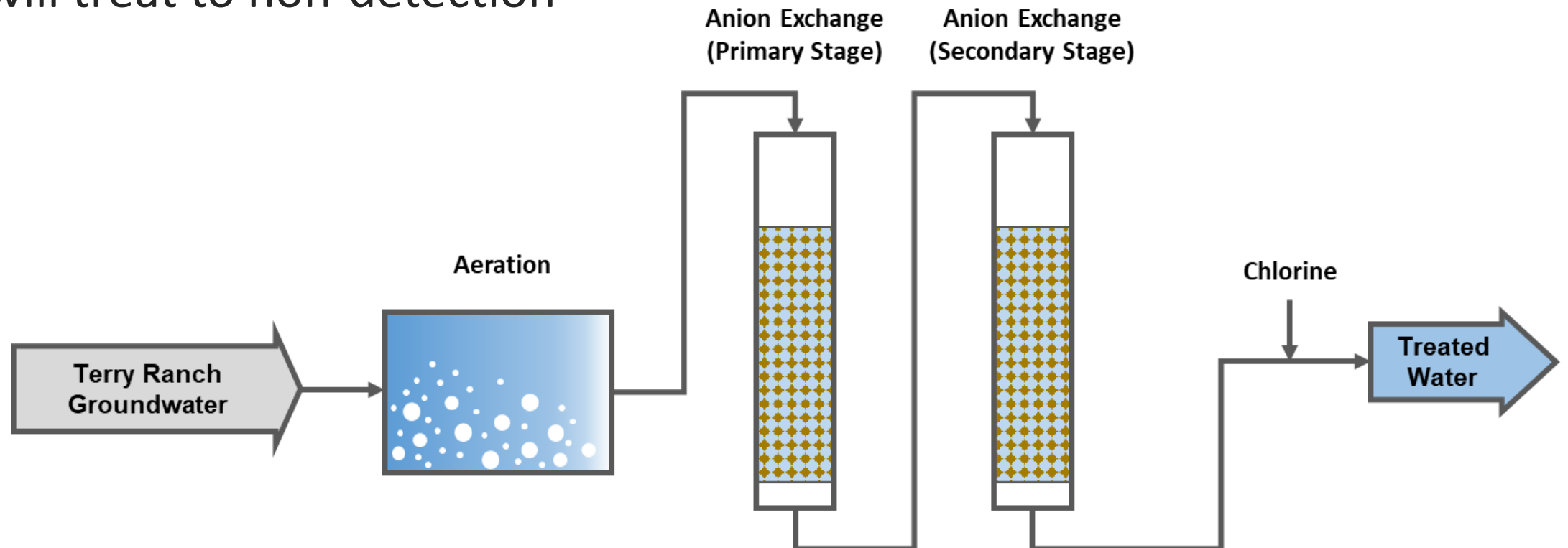


42% Bellvue
58% Terry Ranch

30% Bellvue
70% Terry Ranch

Uranium Removal

- Ion Exchange Treatment - common and proven
- **30-day pilot test** at Terry Ranch confirmed treatment results
- City will treat to non-detection



Planning for Terry Ranch- Integrated Water Resources Plan

Present •

Potential Futures of Greeley's Water
Supply System

Accounts for the uncertain future conditions

Uncertain
Future

How climate change impact water supplies

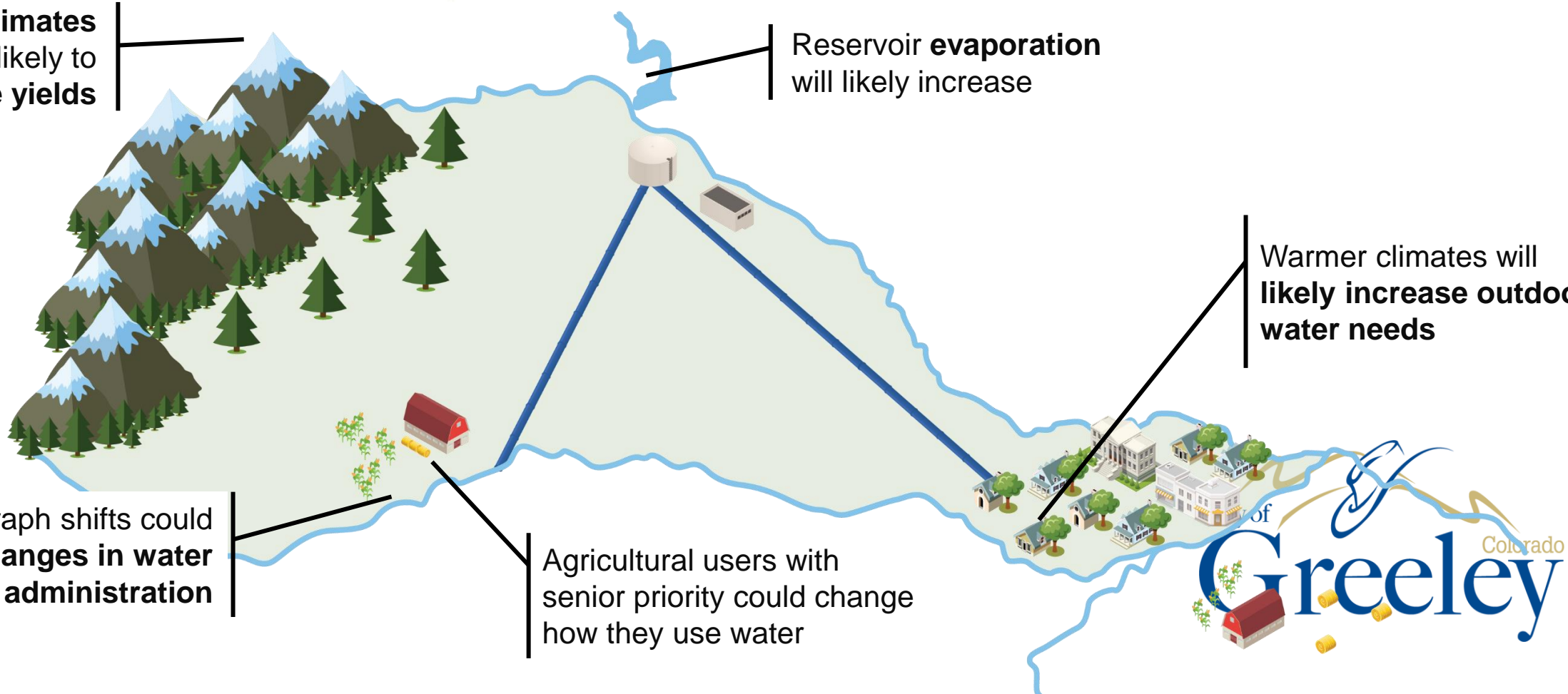
Warmer climates are likely to reduce yields

Reservoir evaporation will likely increase

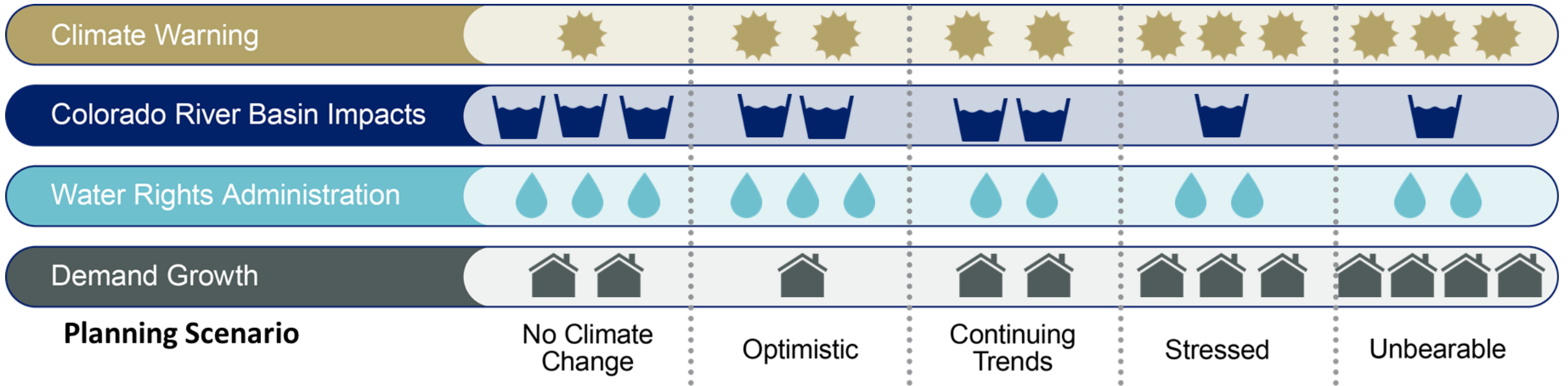
Warmer climates will likely increase outdoor water needs

Hydrograph shifts could require changes in water rights administration

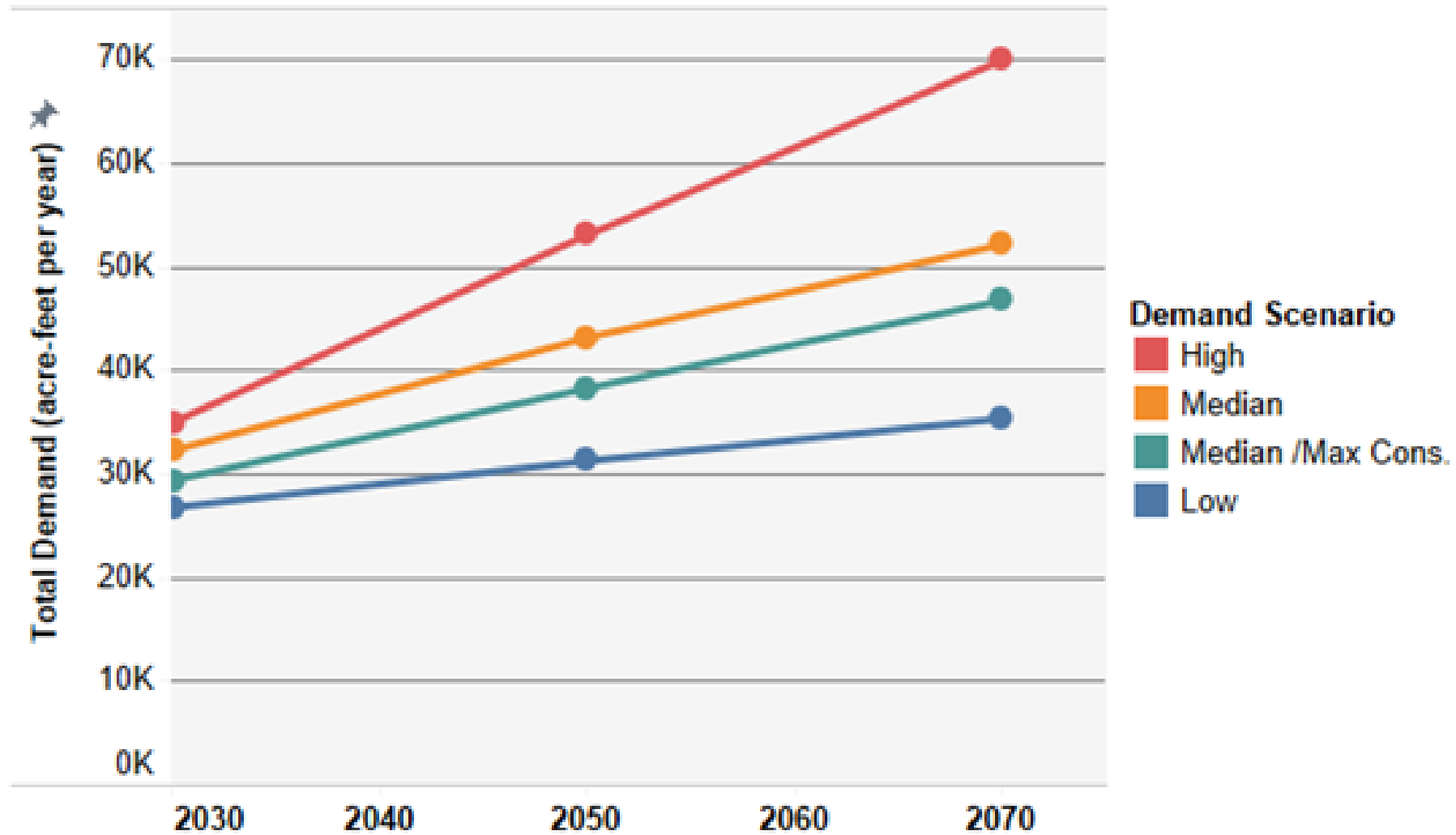
Agricultural users with senior priority could change how they use water



Integrated Water Resource Plan: Planning Scenarios



Water Demand Projections



What will Terry Ranch implementation look like?



Continue completing high-priority pipeline



Construct treatment facility and remaining pipeline



Install initial wells with extraction capabilities



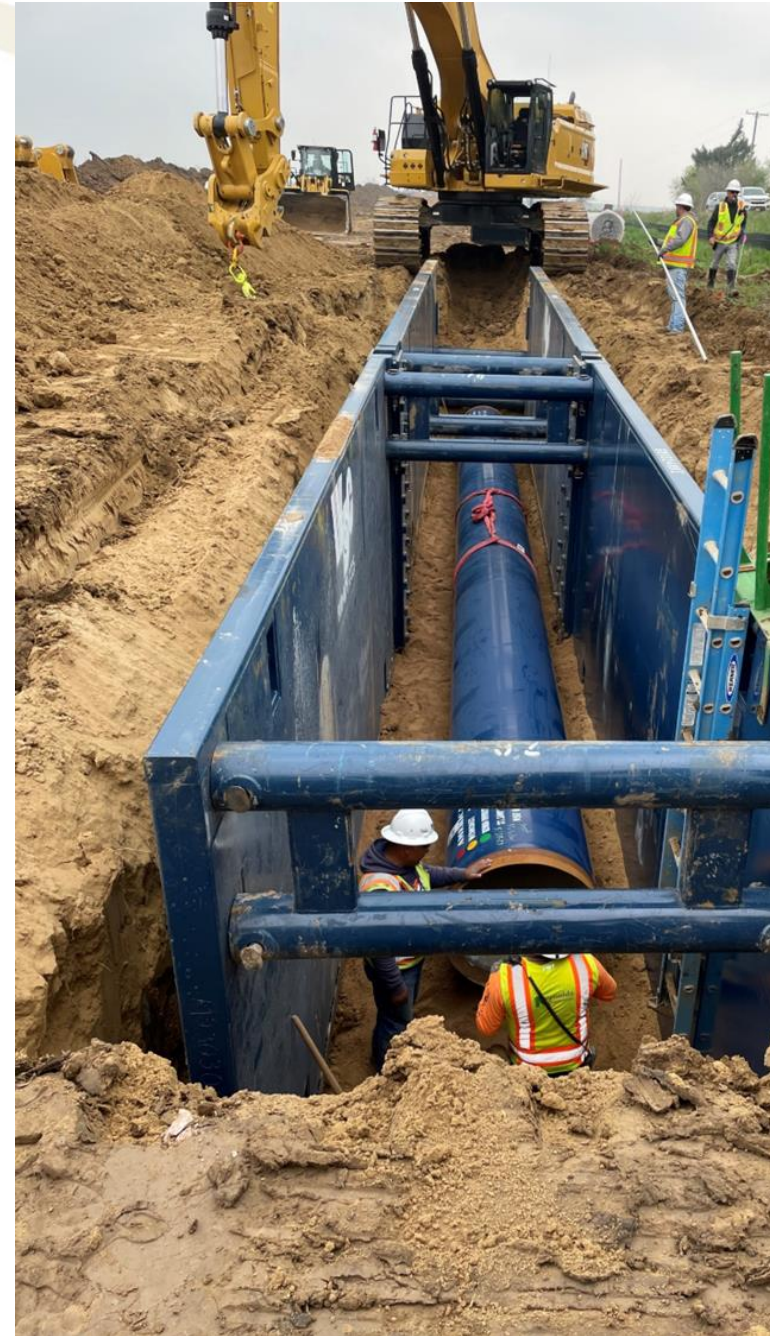
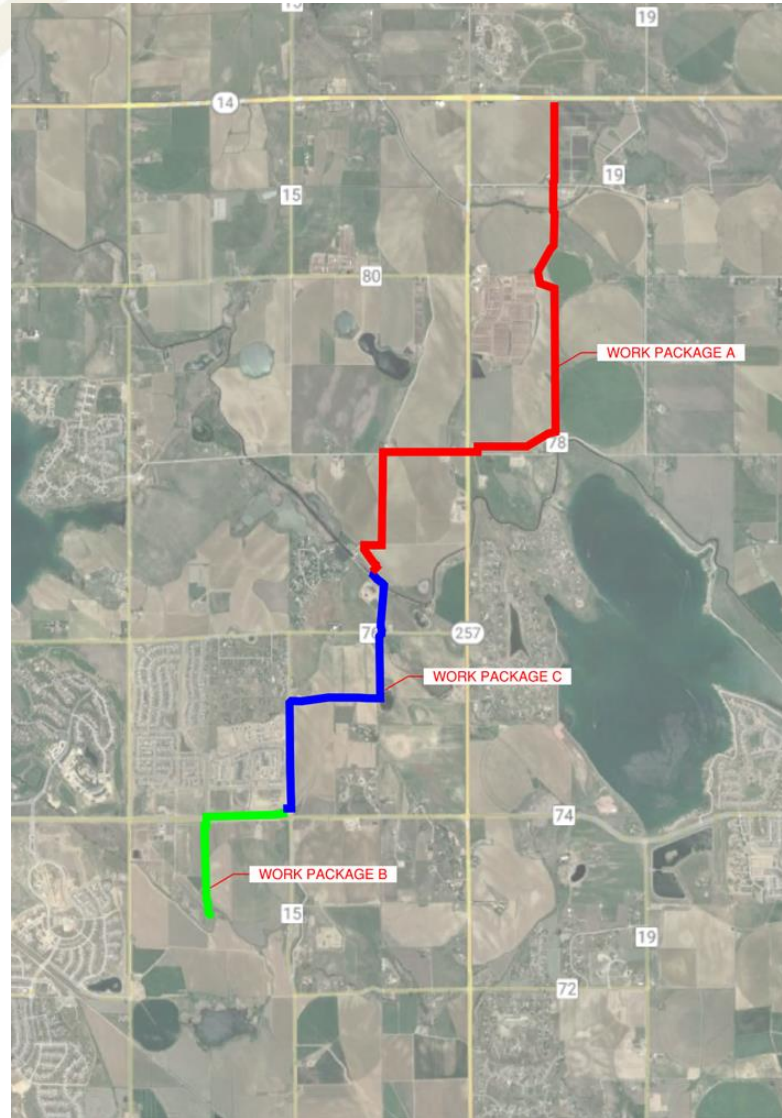
Upgrade existing wells with injection capabilities



Install additional wells as needed

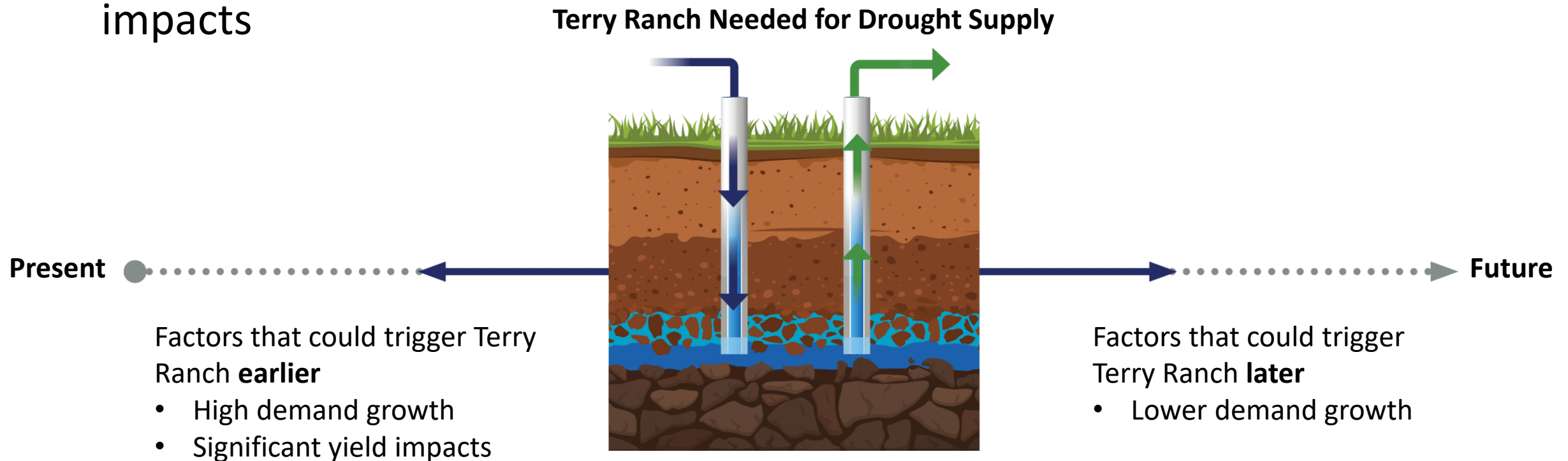
Terry Ranch Integration

Construction Segment No. 1 and Bellvue 60" Potable Tie-in Vault



What are the triggers for needing Terry Ranch?

- Terry Ranch is eventually required in all future conditions as a drought supply
- Triggering Terry Ranch will be influenced by demand growth and yield impacts



What is water supply system strategy?

Build Robust Water Portfolio

- Change agricultural water rights
- Continue strategic acquisitions
- Continue developing storage projects



Responsibly Develop Terry Ranch

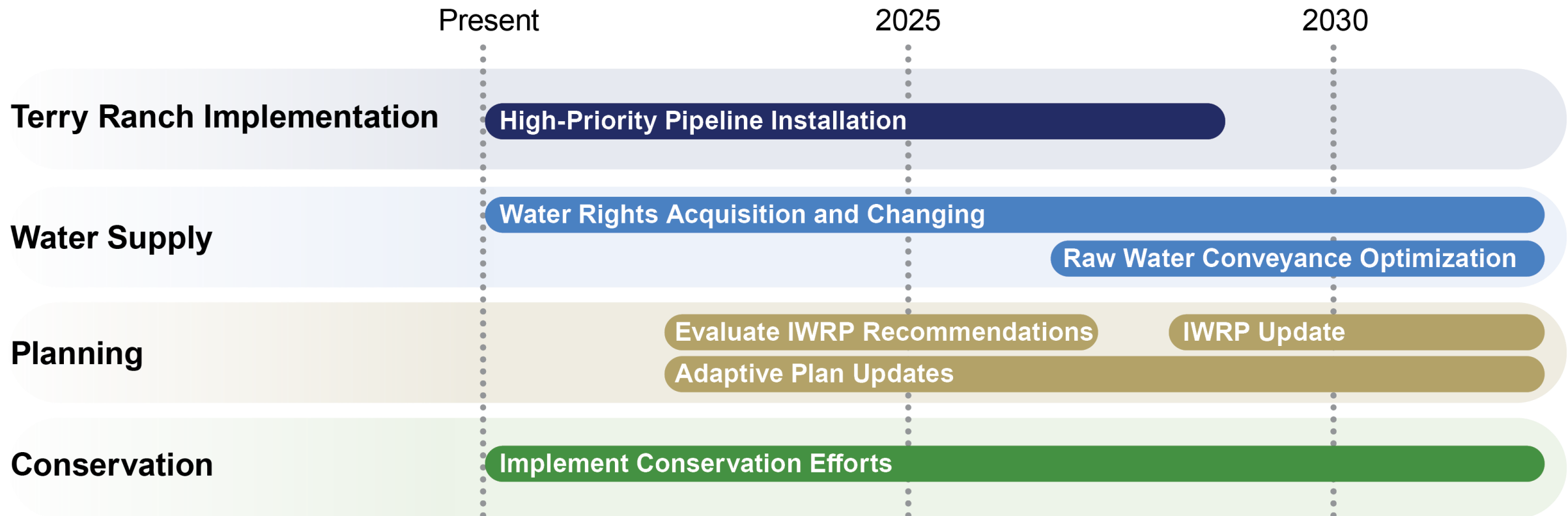
- Complete priority Terry Ranch infrastructure
- Balance phasing Terry Ranch with other needs
- Study IWRP-recommended projects

Ensure Sustainable and Affordable Water

- Continue implementing demand management
- Monitor demand growth and supply conditions
- Implement Adaptive Planning

What is Greeley's near-term Terry Ranch plan?

- Balance Terry Ranch investment with other needs

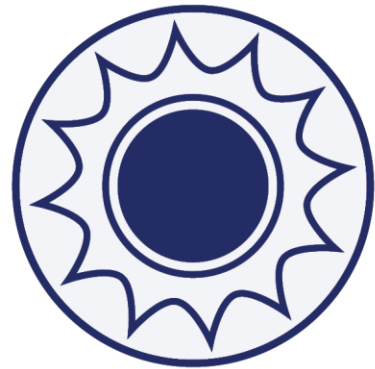


How will Greeley move forward?

- Adaptive Plan defines actions for Greeley to take each year



Monitor Demand
Growth and Water
Supply Conditions



Evaluate
Terry Ranch
Triggers



Update Terry Ranch
Implementation
Plan



Assess Water
Rights Changes
and Acquisitions



Review Other
Water Supply
Opportunities

Complete Adaptive Plan Actions Each Year



Questions?