

Terry Ranch Project

City Council Work Session

January 12, 2021



Planning & Action Timeline

W&S Board
Approved
Master
Agreement
(Jun 2020)

Due Diligence
(Jun-Jan)

Present
Findings to
W&S Board
and City
Council
(Q1 2021)

City Council
Consider
Closing the
Purchase
(Q1 2021)

Collect Community Feedback



Introduction

by

Harold G. Evans, P.E., M.ASCE

Chairman, Greeley Water & Sewer Board



Thoughts on Terry Ranch

✓ THE BIG PICTURE

- Growing Regional Population
- Finite Regional Water Supply
- Major Agricultural Economy
- Potential Supply Challenges

✓ DUE DILIGENCE THROUGHNESS

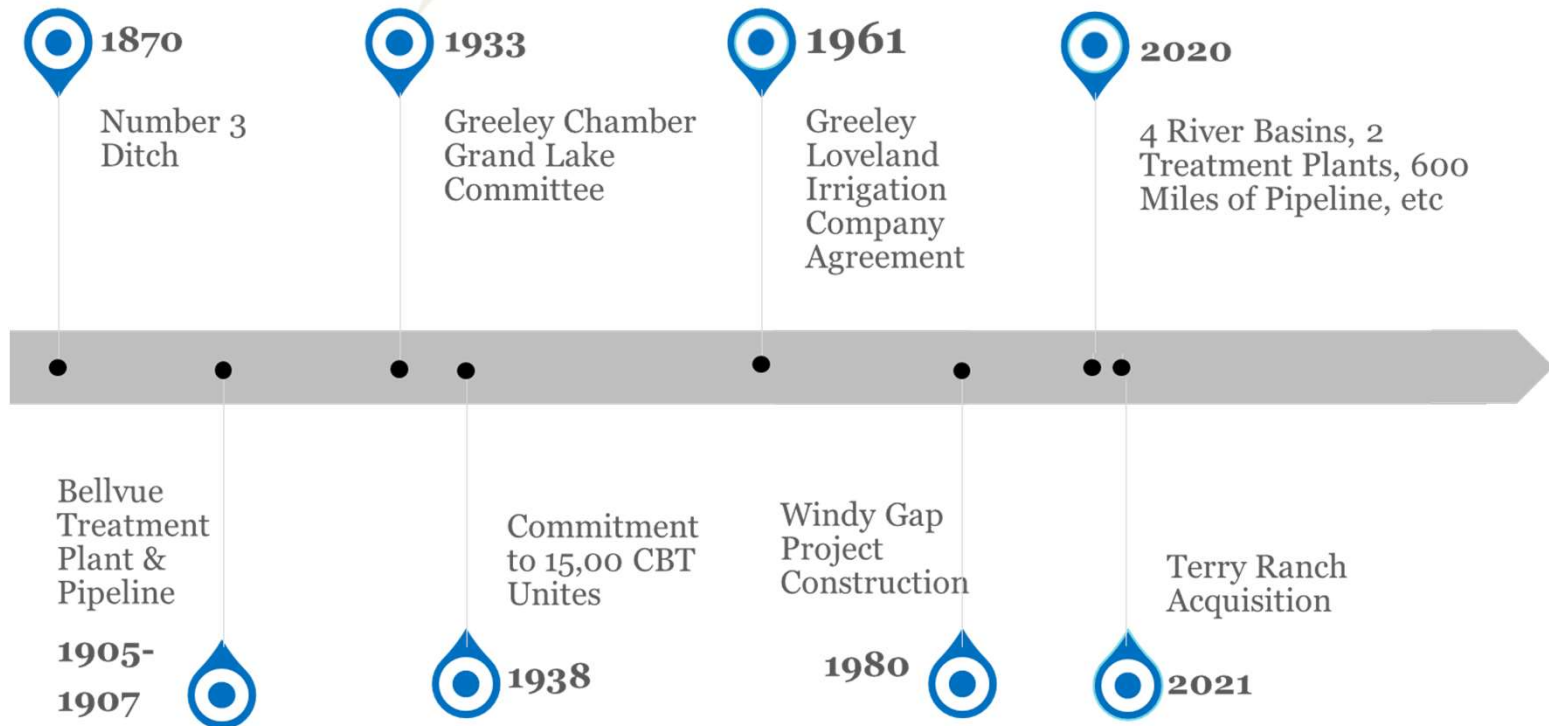
- Most Extensive in 24 Years
- Expertize and Competency of Staff and Consultants
- Independent Third Party Peer Review of Results

✓ KEY POINTS TO KEEP IN MIND

- Goal is Drought Year Supply
- No Federal Permit Required
- Conjunctive Use with Greeley's Surface Water Supplies
- Can be Phased over Multiple Years Minimizing Impact to Rate Payers

New Slide

Historical Legacy



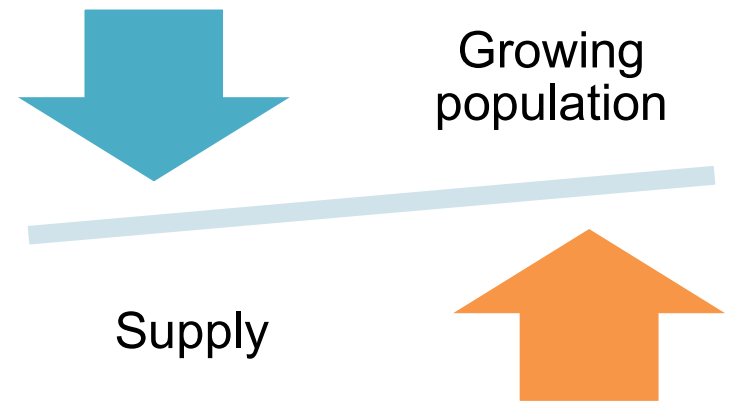


Project Recap



Planning for Growth

- ✓ 260,000+ people by 2065
- ✓ Current supply not enough to meet future needs
- ✓ Must develop new water sources while maintaining affordable water rates



Milton Seaman Enlargement

- ✓ Terry Ranch is an outcome of Greeley's efforts to enlarge Milton Seaman Reservoir
- ✓ Long been Greeley's preferred option to increase storage – enlarge existing reservoir 10x or more
- ✓ Requires numerous federal, state, & local permits
- ✓ Diligently working to get permits – 15 years and \$19M
- ✓ Requires evaluating less environmentally damaging alternatives



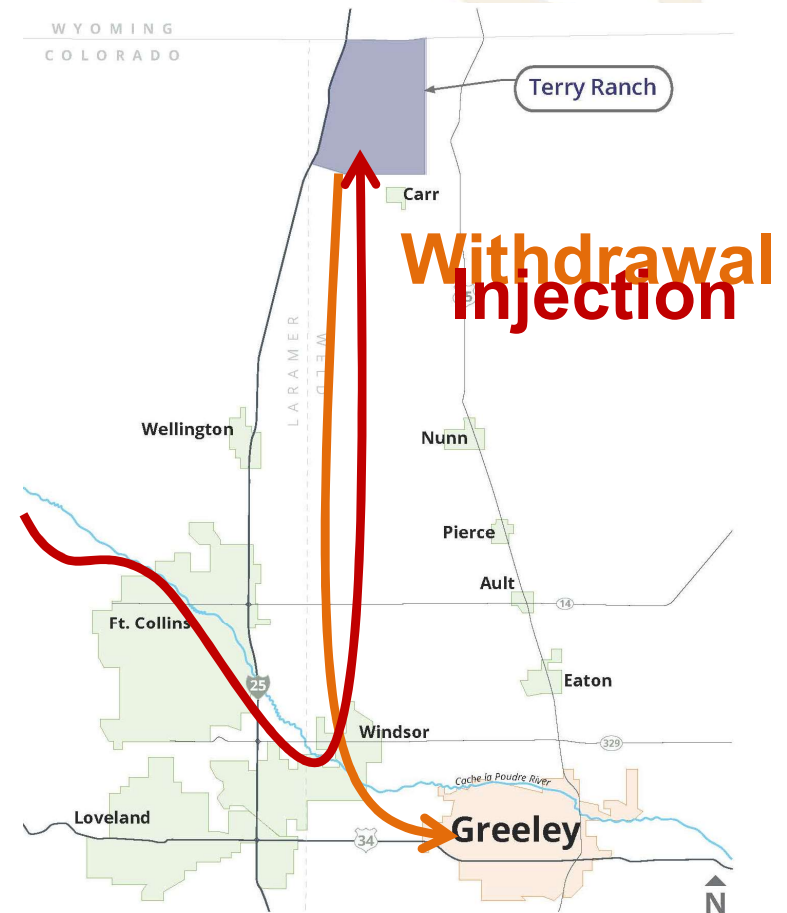
Milton Seaman

- ✓ Permitting complications
- ✓ Impacts to wetlands, stream channel, and endangered species critical habitat
- ✓ Inundation of U.S. Forest Service, State of Colorado, Larimer County, and City of Fort Collins lands

Uncertain that Greeley would receive necessary permits

Terry Ranch Project

- ✓ “Non-tributary Aquifer”
 - ✓ 1,200,000+ acre-feet of reusable water
 - ✓ 200 to 1,300 feet deep; unlike shallower irrigation/domestic wells common in & near Greeley
- ✓ Suitable for underground water storage
- ✓ Could meet Greeley’s water needs for generations to come



Unique Transaction

- ✓ Purchase with raw water “credits” rather than cash
 - ✓ Credits redeemable to meet Greeley’s raw water dedication
 - ✓ 1 Credit = 1 acre-foot of dedication
 - ✓ Greeley foregoes future water dedication (cash-in-lieu) revenue
- ✓ Seller assumes risk to sell Credits in the future
 - ✓ Seller is making an investment in Greeley’s future
- ✓ Greeley will solely own, control, and operate
- ✓ Seller will finance \$125 million for infrastructure





Due Diligence

Due Diligence Work

1. Environmental
2. Hydrogeology & Geochemistry
3. Water Quality
4. Water Treatment
5. Design & Cost Estimate
- 6. Peer Review of Findings**



Hydrogeology

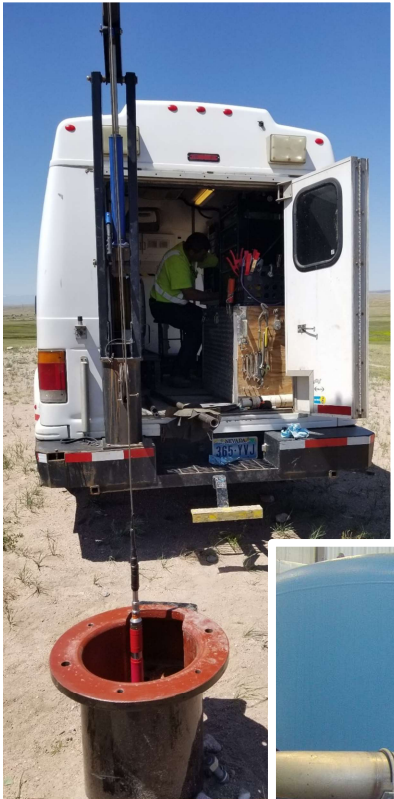
- ✓ Two exploratory bores drilled (in addition to five existing wells)
- ✓ Confirmed production rates
- ✓ Confirmed water can be injected and stored underground



Water Quality Inspection

- ✓ Extensive study: nearly 6,000 data points & 575 compounds from 7 wells
- ✓ Overall water quality is excellent
- ✓ Uranium is present

Uranium can be removed by treatment



Water Treatment

- ✓ Uranium treatment is common and proven – essentially a large water softener
- ✓ Greeley currently removes uranium from water
- ✓ 30-day pilot test: uranium removed below detection

Greeley residents will not receive water with measurable uranium

Pilot Treatment Plant



Ion Exchange Columns



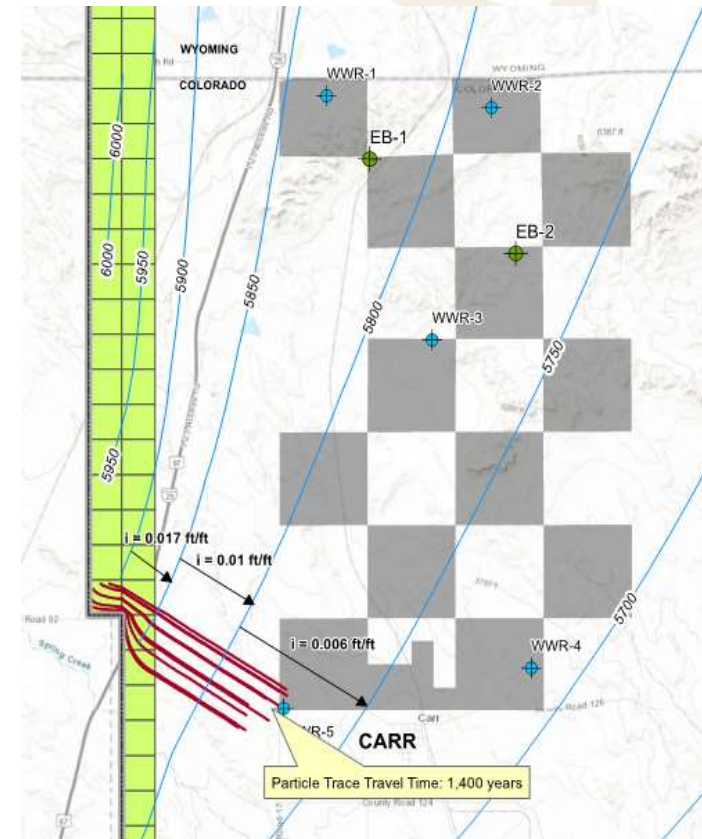
Additional Water Quality Studies

- ✓ Pilot injection test – inject, store, & recover water
 - ✓ Preliminary: no uranium mobilization detected
 - ✓ Also performing bench-scale tests
- ✓ Mixing analysis – test for pipe corrosion & metal release
 - ✓ Preliminary: treated water from Terry Ranch will not react with existing water sources or supply system



Other Water Quality Considerations

- ✓ Recharge of Terry Ranch aquifer is very slow (1,000+ years)
- ✓ Lag protects groundwater from surface activities (Meadow Springs Ranch)
- ✓ Risk of surface contamination from oil & gas development is low at present
- ✓ No producing wells on Terry Ranch
- ✓ 11 exploratory bores drilled over the years; all have been abandoned

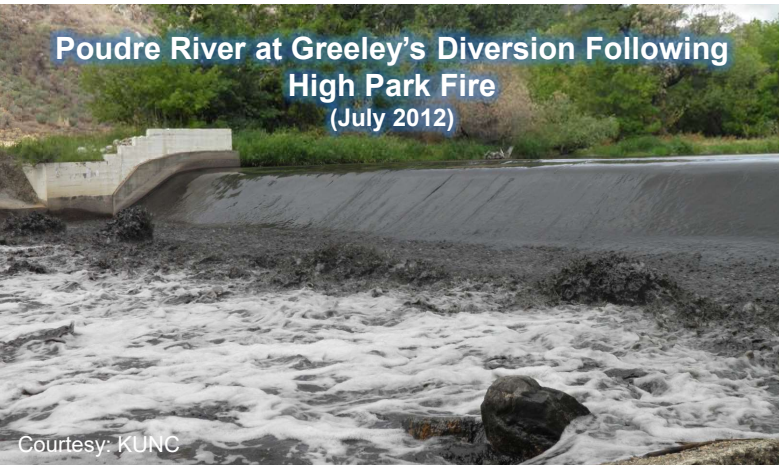


Other Water Quality Considerations

Chambers Reservoir Following Cameron Peak Fire
(October 2020)



Poudre River at Greeley's Diversion Following
High Park Fire
(July 2012)



Courtesy: KUNC

- ✓ Groundwater supply & storage provides protection from surface contamination – fires, spills, etc.
- ✓ 2020 fires burned all four of Greeley's water supply basins
- ✓ Groundwater supply & storage adds redundancy to surface water system
- ✓ Greeley excels at water treatment –
 - ✓ Boyd Lake has periodic poor water quality from stormwater and algae blooms

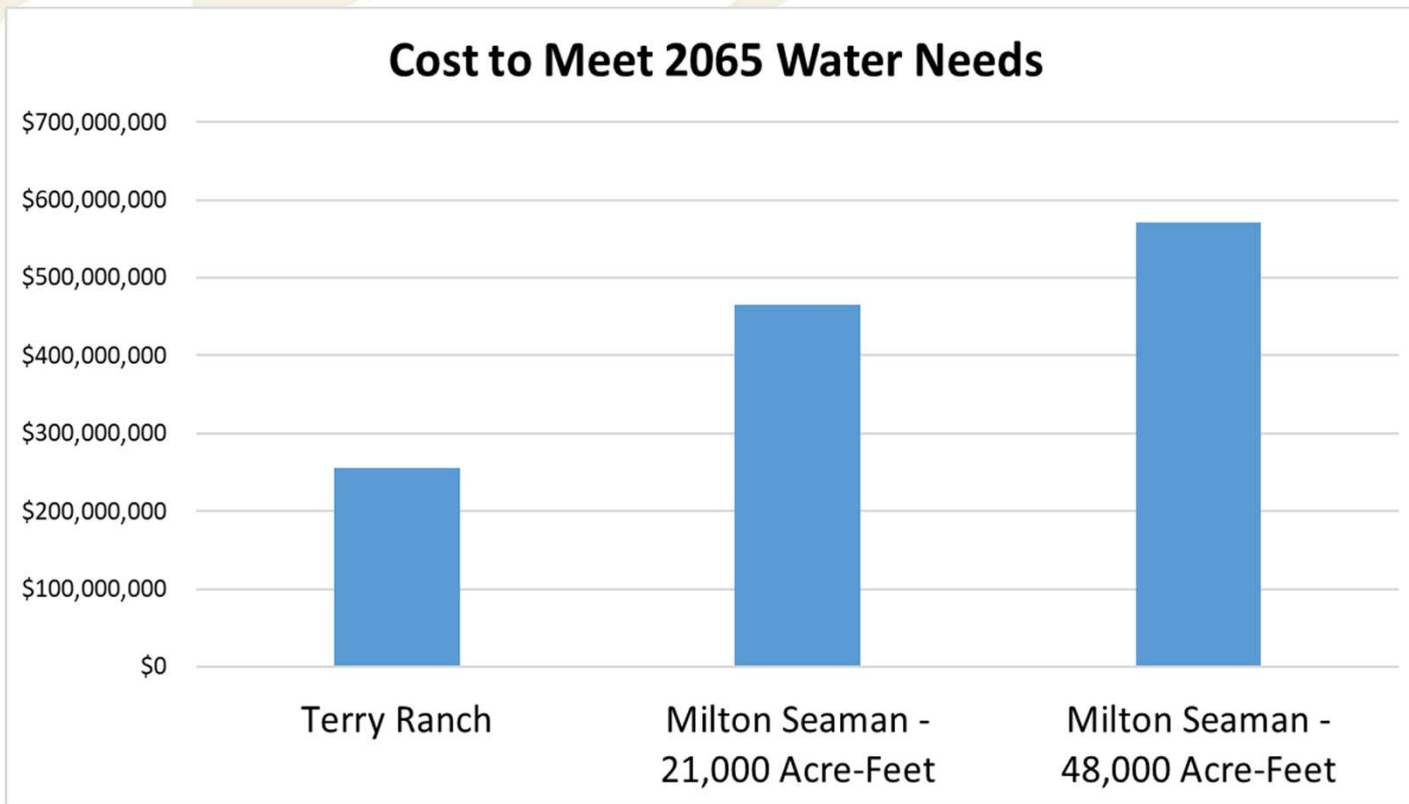
Construction Cost Estimates

Target Event	Cumulative Construction Cost Estimate (if constructed today)	Cumulative Greeley's Portion of Cost* (if constructed today)	Cumulative Greeley's Escalated Cost in 2020 dollars (phased construction)
1st Pipeline Segment (6 miles) & Acquisition	\$34,000,000	\$7,000,000	\$7,000,000
All Backbone Infrastructure	\$210,000,000	\$85,000,000	\$101,000,000
Treat and Deliver Water to Greeley, 8 Wells	\$288,000,000	\$163,000,000	\$209,000,000
16 Wells Online, Meets 2065 Needs	\$318,000,000	\$193,000,000	\$256,000,000
45 Wells & Injection, Meets Buildout Needs	\$470,000,000	\$345,000,000	\$589,000,000

*Deducts Wingfoot's \$125 million contribution.

**2020 net present value considering 5% construction escalation and 3% discount rate. Timeline assumed.

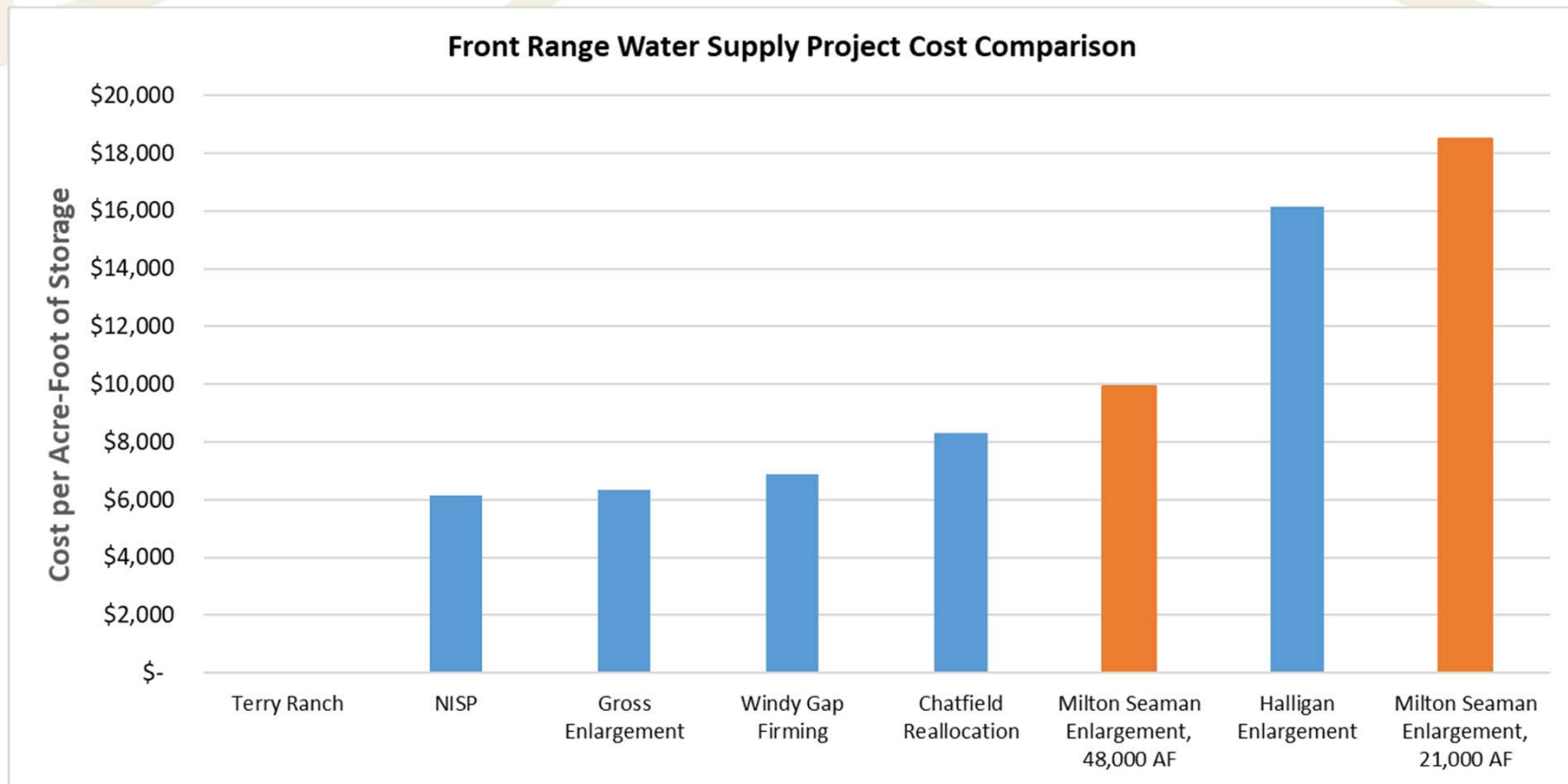
Milton Seaman Comparison



- ✓ Other considerations:
 - ✓ Terry Ranch costs spread over many decades
 - ✓ Milton Seaman costs cannot be phased
 - ✓ Terry Ranch requires less water acquisitions
 - ✓ Both projects operated for drought supply

*Costs presented as 2020 net present values using 5% construction escalation and 3% discount rate. Timeline assumed.

Surface Reservoir Cost Comparison



*Calculated from total project costs from most recent, publically available sources. All costs adjusted to 2020 dollars and divided by added storage volume.

Operational Costs

Cost per 1,000 gallons	Terry Ranch Withdrawal	Boyd Treatment Plant*	Bellvue Treatment Plant*
Treatment Plant Only	\$0.81	\$0.84	\$0.27
Total Cost to Deliver Water	\$1.63	\$1.48	\$0.79

*2016-2019 Boyd & Bellvue Averages

Terry Ranch will be operated as a drought supply.

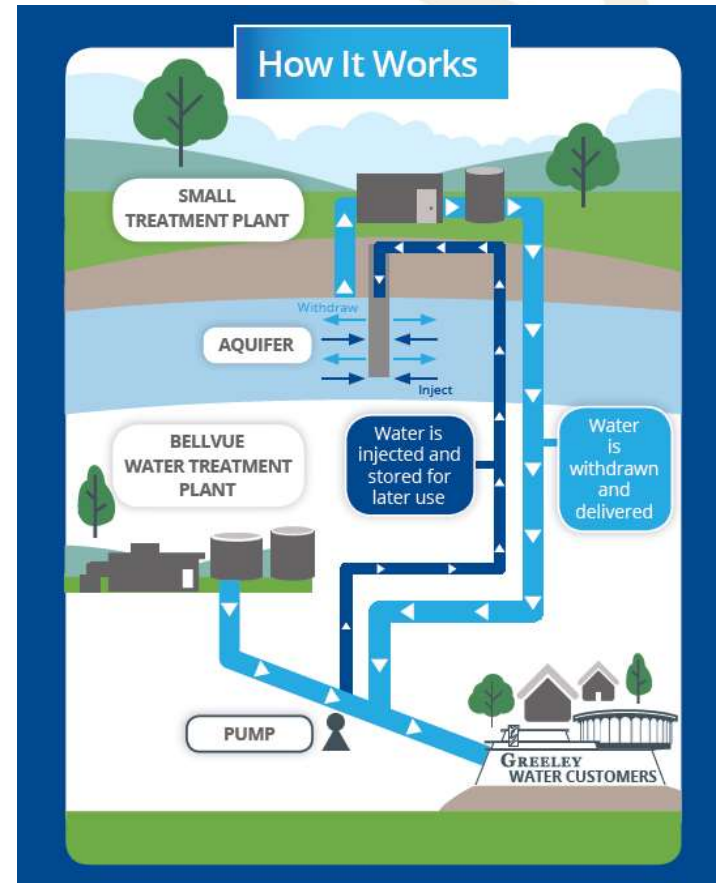


Outreach & Next Steps



Community Outreach

- ✓ Community Open Houses
- ✓ City Council Meetings
- ✓ Monthly W&S Board meetings
- ✓ City Boards & Commissions
- ✓ Service Organizations (Chamber of Commerce, Rotary, etc.)
- ✓ Website: greeleygov.com/terryranch
- ✓ Social Media



Community Feedback & Questions

- ✓ How will the water taste?
 - ✓ Terry Ranch will deliver the same great-tasting water Greeley is known for
- ✓ What if uranium treatment fails?
 - ✓ Terry Ranch treatment will be designed to be fully redundant, just like existing treatment plants
- ✓ Could water quality change over time?
 - ✓ Unlikely and certainly less than surface water
- ✓ Will Greeley lose water rights associated with Milton Seaman?
 - ✓ No. Rights will be moved. Rights are very junior.

Community Feedback & Questions

- ✓ Will Greeley own the Terry Ranch surface land?
 - ✓ No. Greeley would own an exclusive, perpetual property right to the groundwater and underground storage. It will also own an easement to use the surface to develop the water storage.
- ✓ What happens to the uranium after it is removed from water?
 - ✓ Third-party vendors will handle all treatment media – collect from site, haul, and dispose.
- ✓ Is this like the Centennial Project that proposed mining uranium near Nunn?
 - ✓ No. That proposal would have mined uranium from a very different formation separated from the Terry Ranch aquifer by 400-500 feet of impervious shale.

Community Feedback & Questions

- ✓ Will Wingfoot control Greeley's water?
 - ✓ No. Wingfoot only receives credits to sell to developers. Greeley will continue to own, operate, and control all of its water assets.
- ✓ How will Wingfoot make money and what will Greeley residents pay?
 - ✓ Wingfoot will sell credits to developers. Wingfoot does not receive any ongoing compensation from water sold to Greeley customers.
 - ✓ Greeley foregoes future fees (cash-in-lieu) from developers, but in return, receives water and storage upfront. Cash-in-lieu revenue is used to develop water supply projects like Terry Ranch.
 - ✓ Wingfoot will also receive a portion of revenue for sales of Terry Ranch water to non-Greeley customers, for example, water sold to oil & gas operators.

Community Feedback & Questions

- ✓ What will Wingfoot charge for credits?
 - ✓ Wingfoot will likely sell credits at a price less than Greeley's cash-in-lieu rate. Greeley effectively sets the credit price ceiling. Credits will reduce development costs.
- ✓ What happens if Greeley defaults?
 - ✓ A primary tenet of the agreement with Wingfoot is that Greeley will accept credits for raw water dedication. If Greeley no longer accept credits or specifically disadvantages credits, it must pay Wingfoot \$30,000 per outstanding credit escalated 3% annually.
- ✓ Were there other water providers interested in the project?
 - ✓ Yes, but Greeley is uniquely situated to use Terry Ranch water given its location and existing infrastructure.

Proposed Next Steps

Event	Date
Collect Council Feedback	Tonight
Finalize Diligence and Peer Reviews*	January - February
W&S Board Consideration of Closing	February 17, 2021
First City Council Reading	March 2, 2021
Second City Council Reading	March 16, 2021
Closing Deadline	March 22, 2021

*Diligence findings are being progressively reviewed by staff and 3rd party peer reviewers



*“Look ahead and plan for others
as others have planned for you”*

More information at:
greeleygov.com/terryranch

