

9TH Annual Poudre River Forum

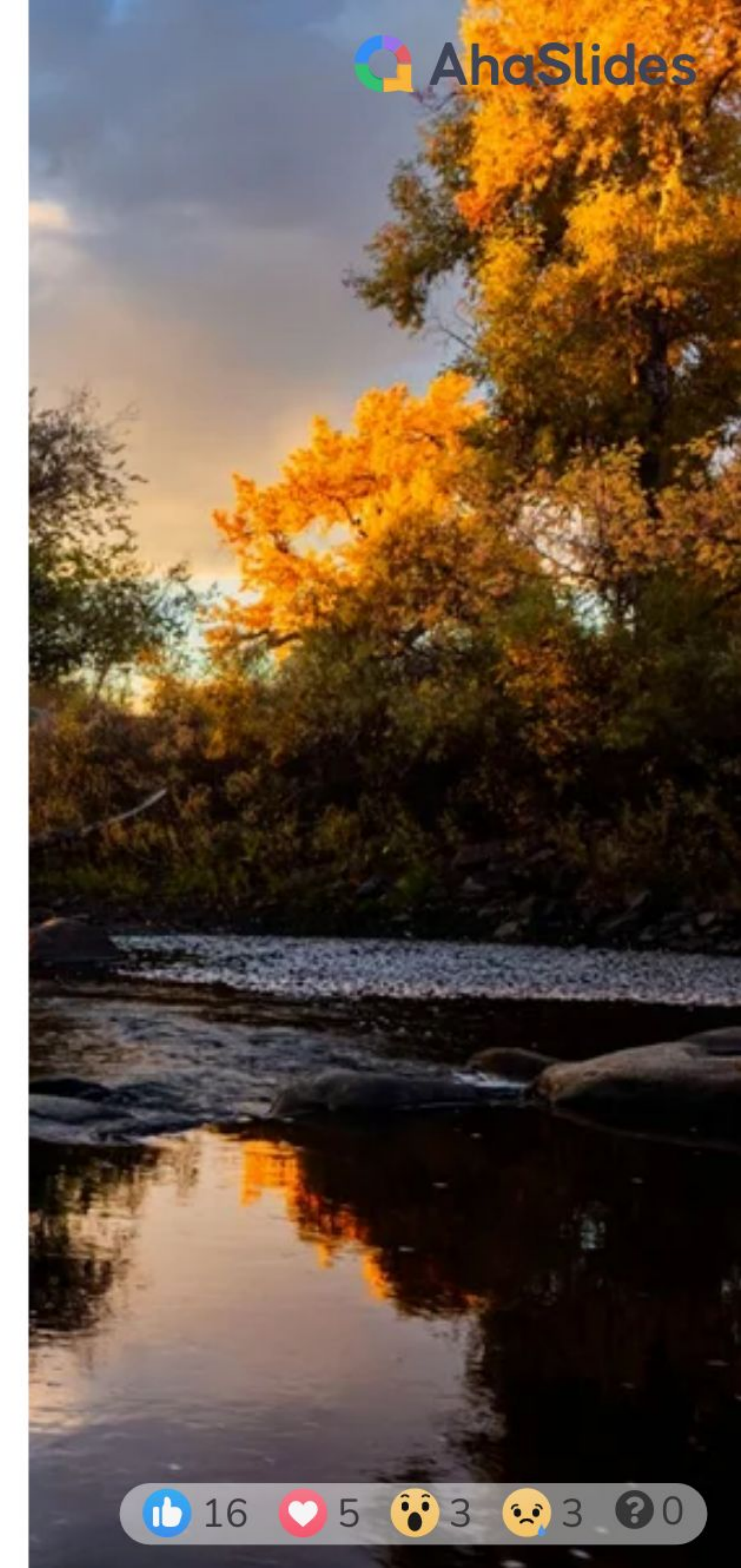
The Cost of Water



Poudre River Forum

Schedule of Events

- 8^{AM} Check-In, Networking, & Exhibitors
- 9^{AM} - 10^{AM} Welcome & The Cost of Water
- 10^{AM} Panel: Laying Out the Costs
- 11:30^{AM} 12:30^{PM} Lunch & Exhibitors
- 12:30-12:50 Poudre Pioneer Award
- 1^{PM} Panel: Working Toward Solutions
- 2:30^{PM} Keynote: Water - A Current Perspective, Robert Sakata
- 3^{PM} Closing Reception



Questions and Answers

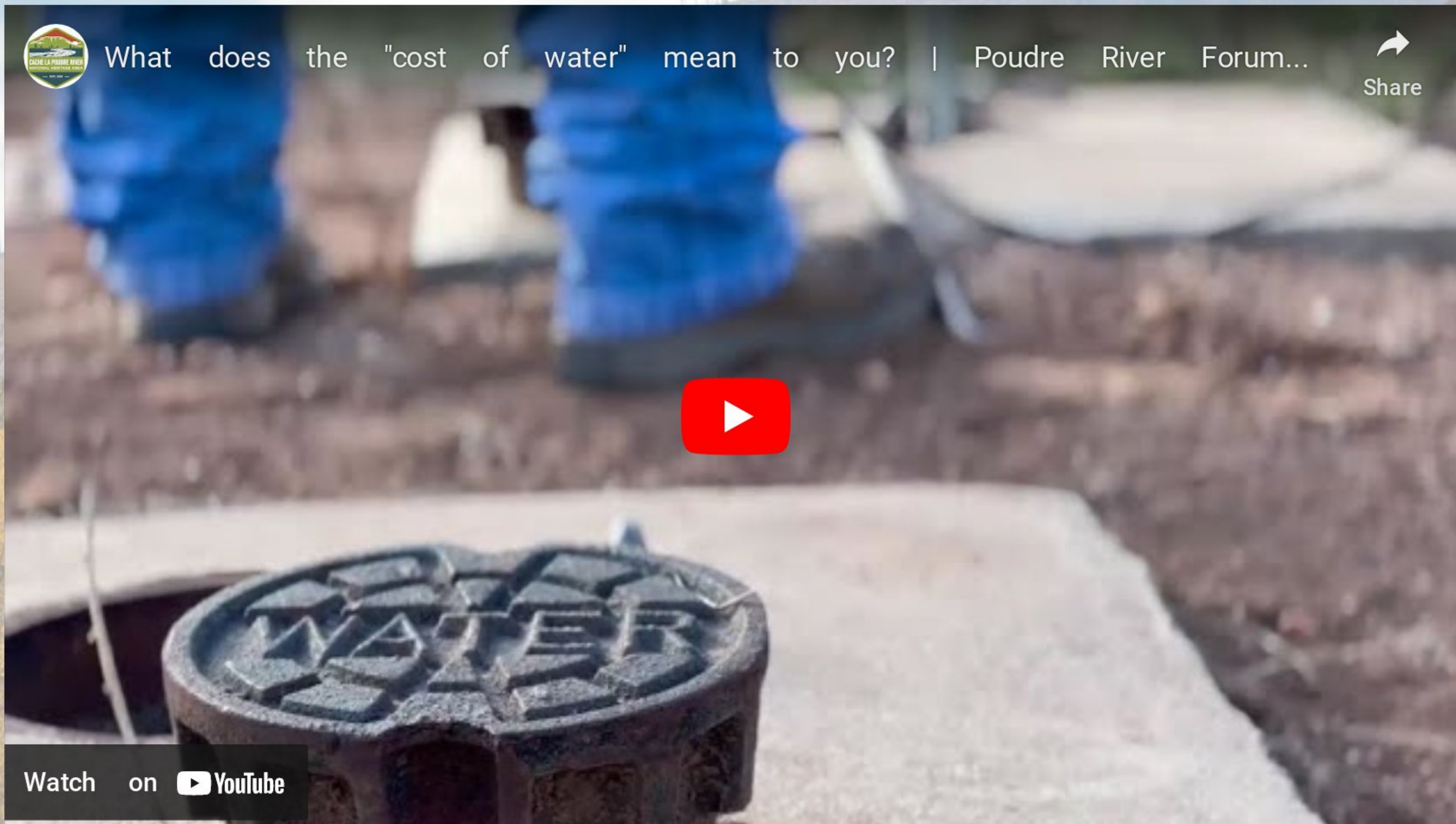
Participating is easy!

To join go to: <https://ahaslides.com/PRF>
or scan the QR code on your table

When you think about the cost of water, what word comes to mind?







Laying Out the Costs

Adam Jokerst Westwater Research

Dr. Chris Goemans Colorado State University

Donnie Dustin City of Fort Collins

Calar Chaussee Town of Wellington Mayor

Moderator: **Zach Thode** Roberts Ranch

The Cost of Water

Poudre River Forum| March 1, 2024



WestWater

16 5 3 3 0

Recent CBT Auctions

Auction of Colorado River water nets \$4.7 million

By HEATHER SACKETT Aspen Journalism Feb 21, 2024 Updated 25 mins ago

Unprecedented Water Auction: 91-Year-Old Widow Sells 90 Shares of Valuable CBT Water

A 91-year-old widow, Carol Oswald Yoakum, sold 90 shares of Colorado Big Thompson water at a historical auction.

LOCAL NEWS >

Once roughly \$1,600 a share, Colorado population growth lands family nearly \$5 million for 90 shares of Big Thompson River


CBS NEWS COLORADO

By Dillon Thomas
Updated on: February 14, 2024 / 7:02 PM MST / CBS Colorado





CBS NEWS COLORADO

Cost of water rights rising in Colorado

CBS-Denver

Wed, February 14, 2024 at 10:07 PM MST

LOCAL NEWS

SUBSCRIBER ONLY

Water auction at Boulder County Fairgrounds draws buyers for Colorado-Big Thompson Project units

Historic Water Auction: Colorado-Big Thompson Project Units Up for Grabs

A historic water auction is underway at the Boulder County Fairgrounds, with 186 water units from the Colorado-Big Thompson Project on the block. Northern Water will manage delivery, ensuring this vital resource reaches its new owners efficiently.

186 water units of the Colorado-Big Thompson Project head to auction in February

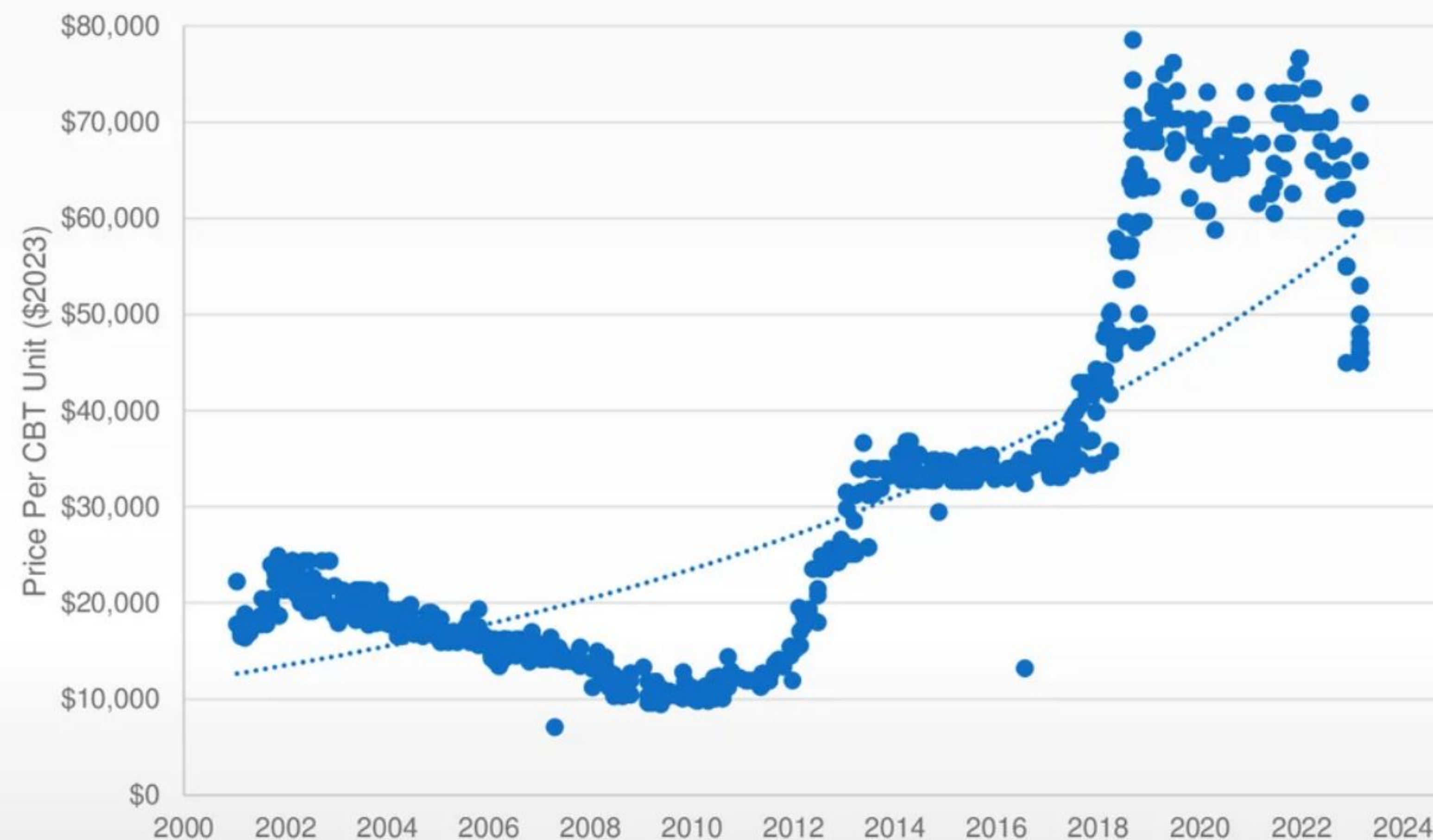
News [FOLLOW NEWS](#) | Jan 17, 2024

JANUARY 17, 2024 | 2:58:26 PM

Water auctions to exchange 186 C-BT units

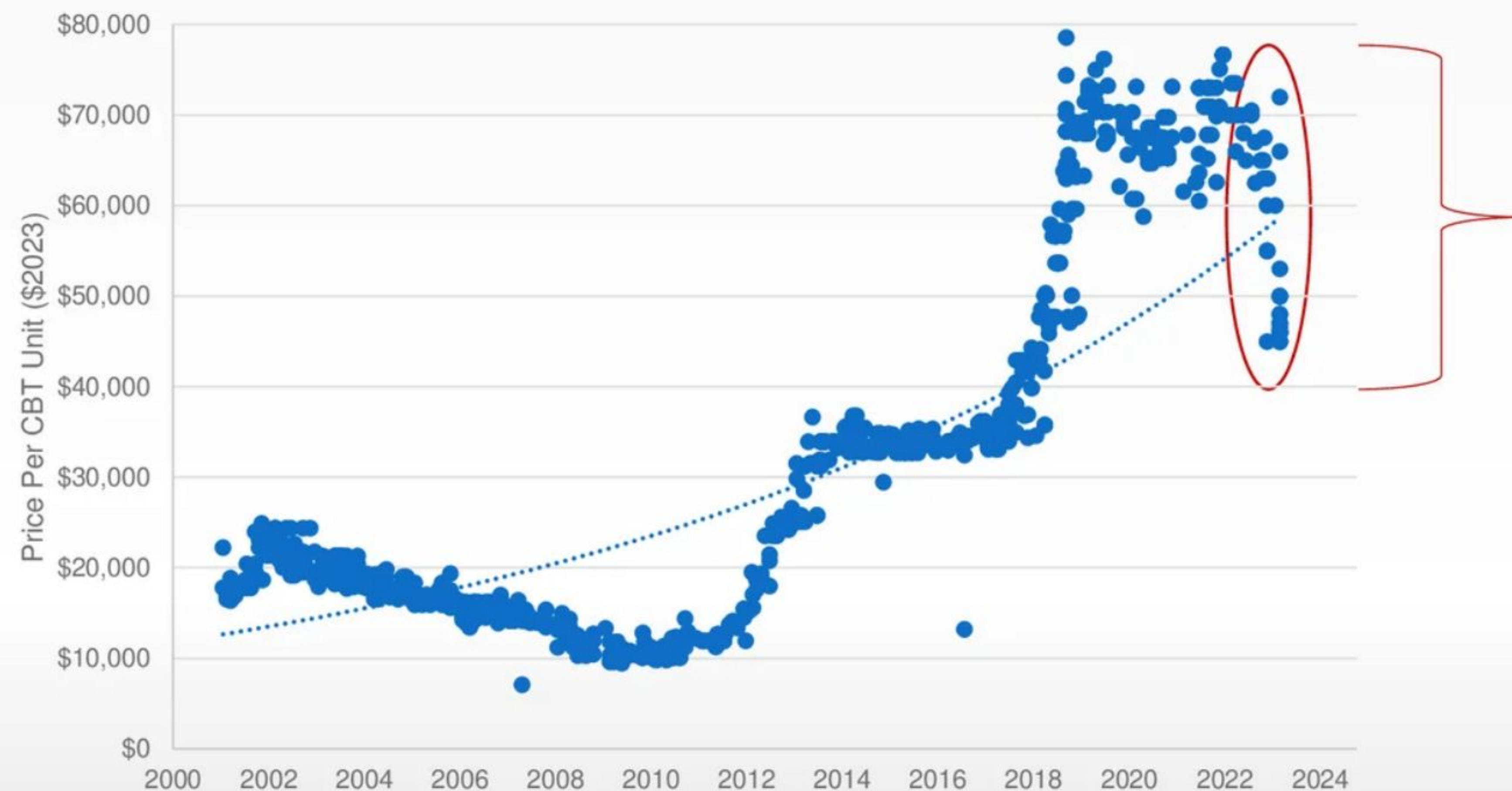
CBT Pricing Perspectives

CBT Prices Since 2000

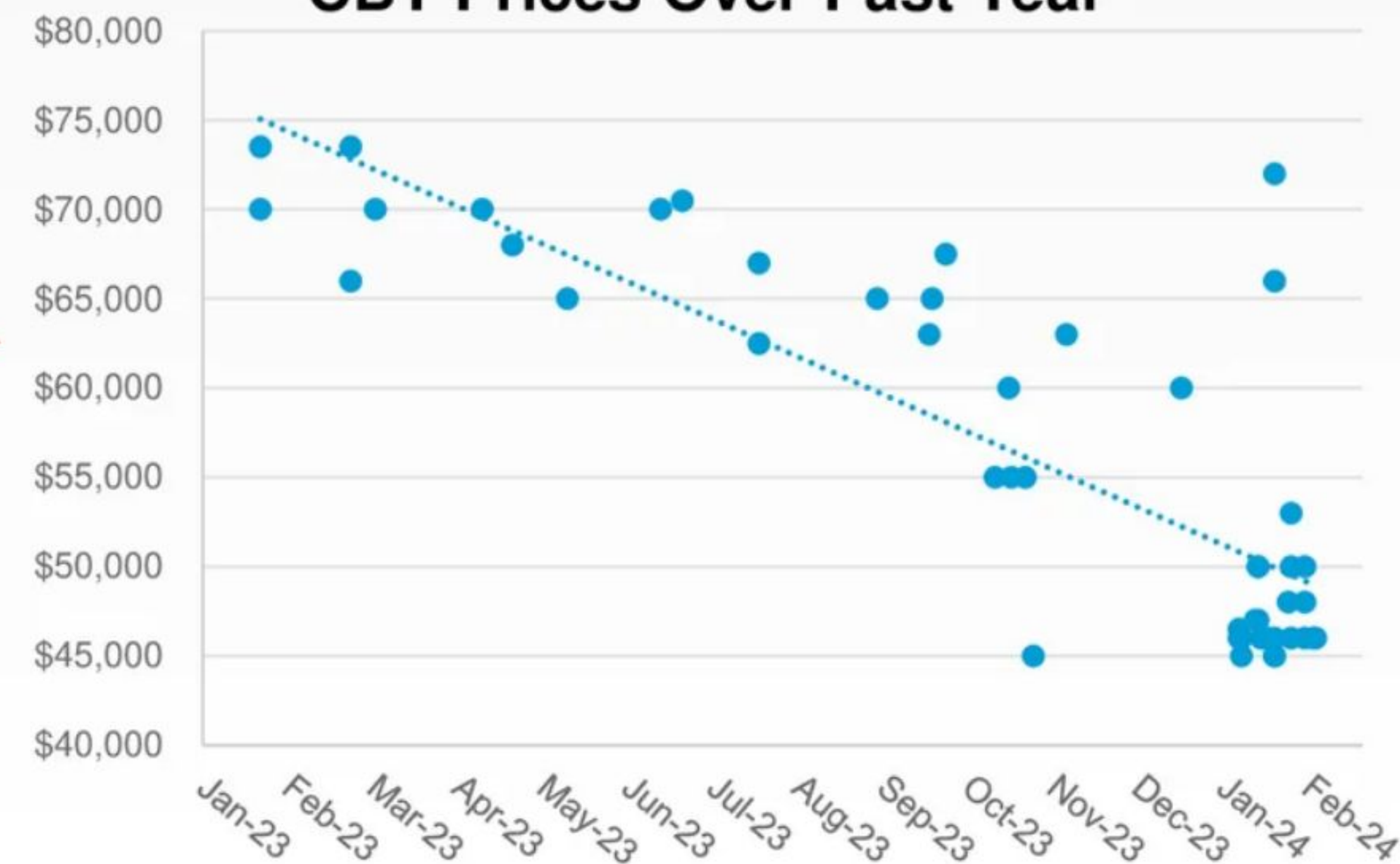


CBT Pricing Perspectives

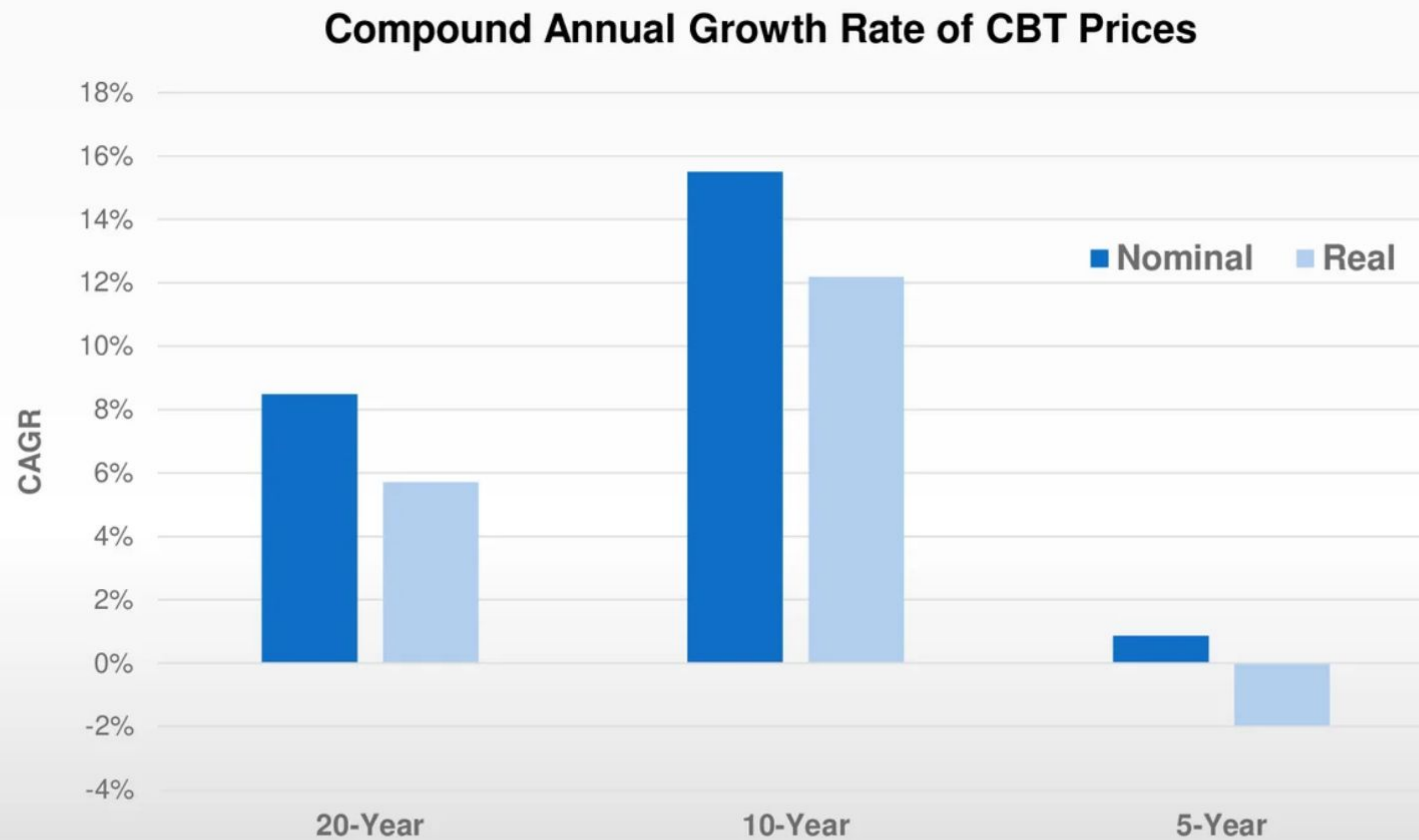
CBT Prices Since 2000



CBT Prices Over Past Year

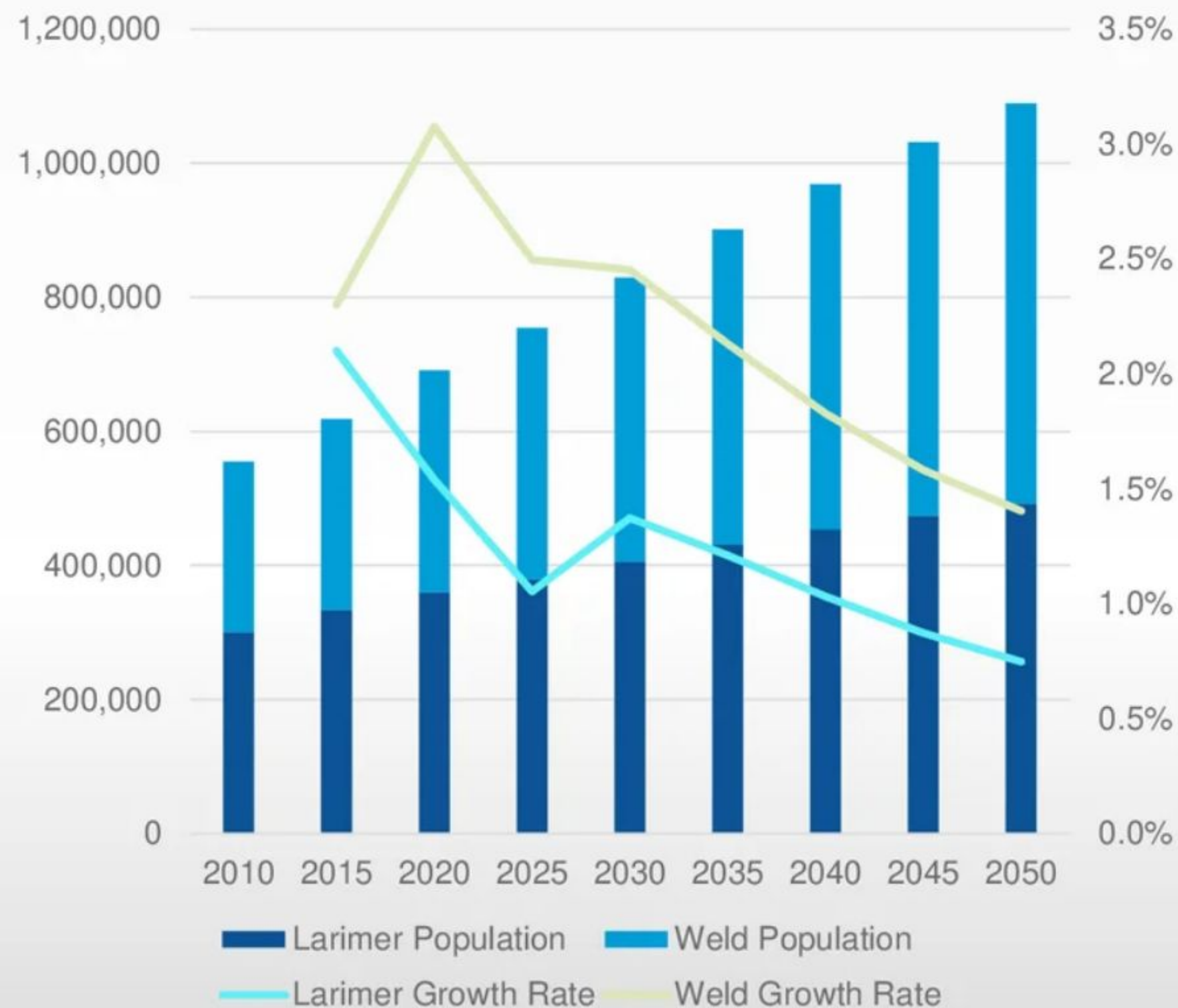


CBT Pricing Perspectives



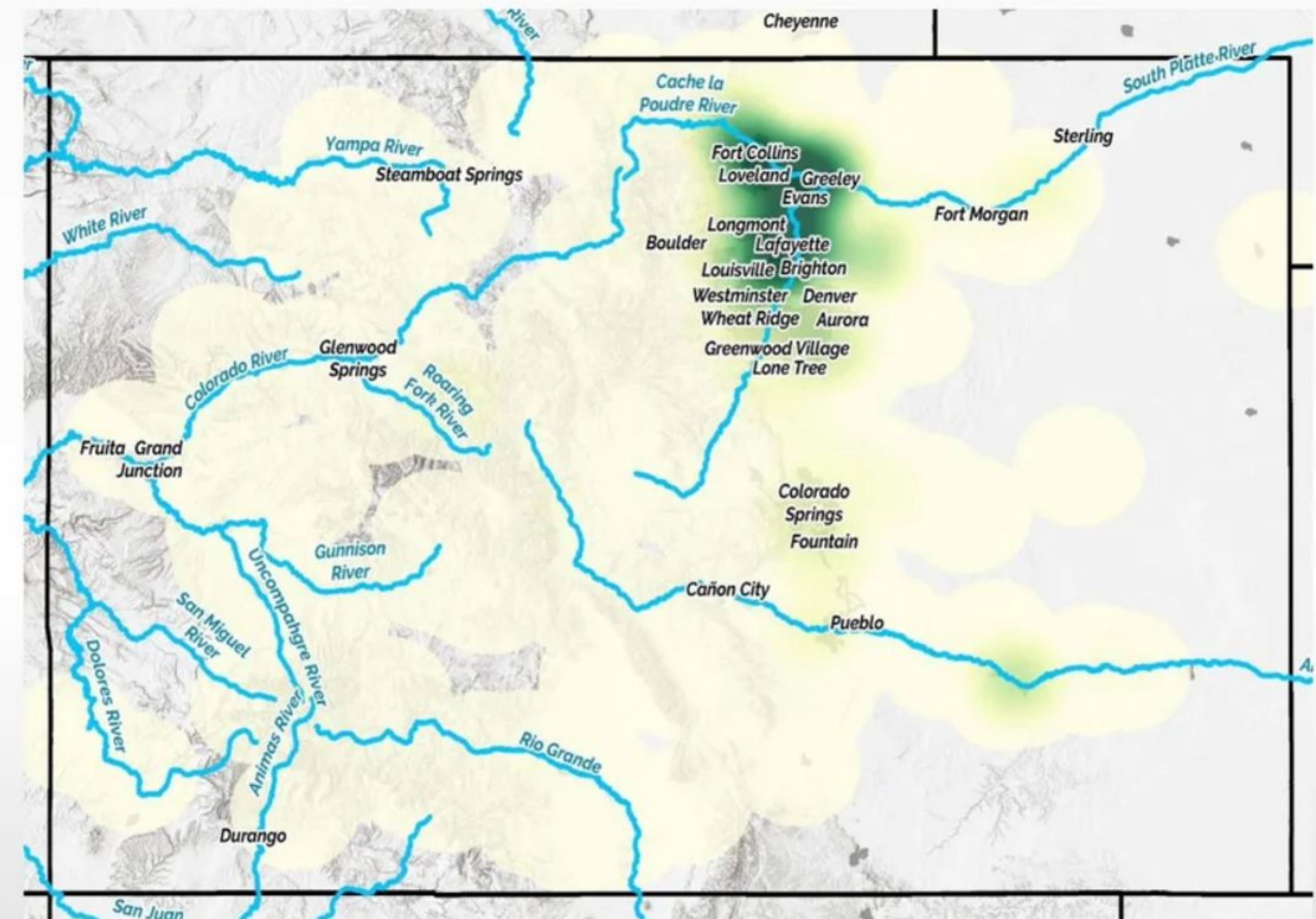
Long-Term Market Drivers

Population Growth



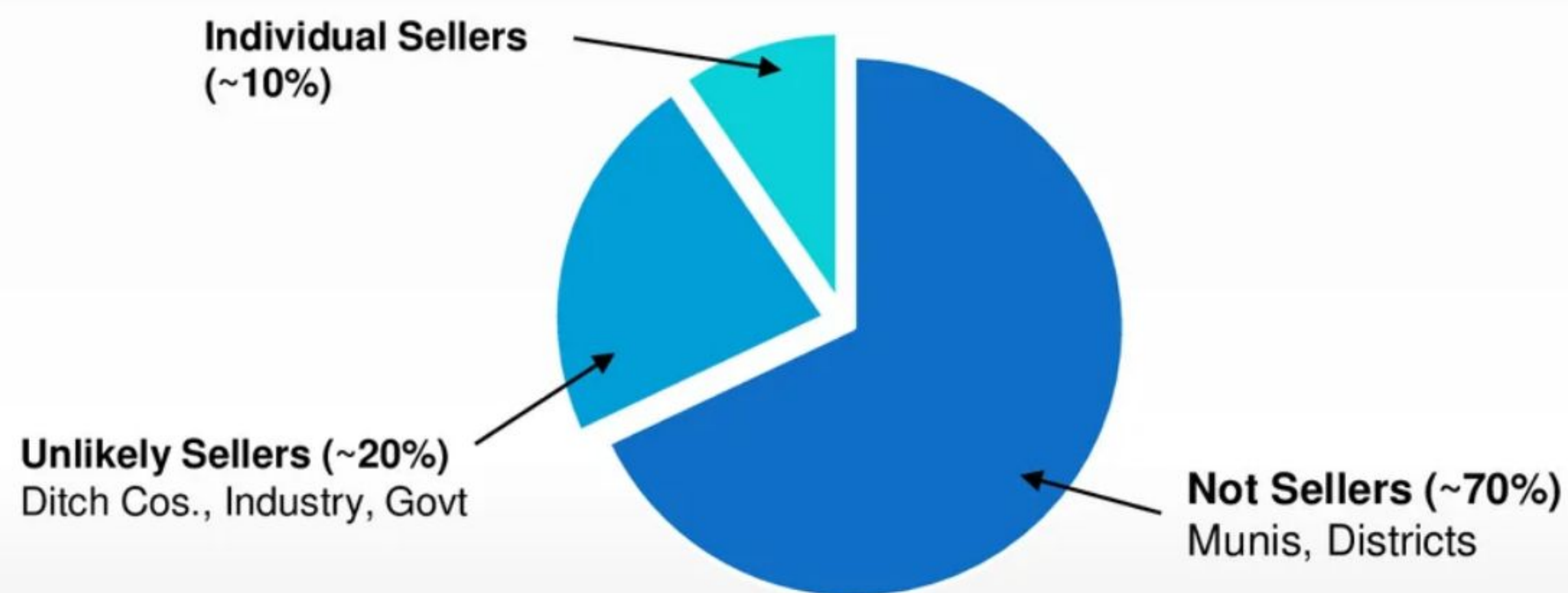
Source: Colorado State Demographer

Water Trading Value

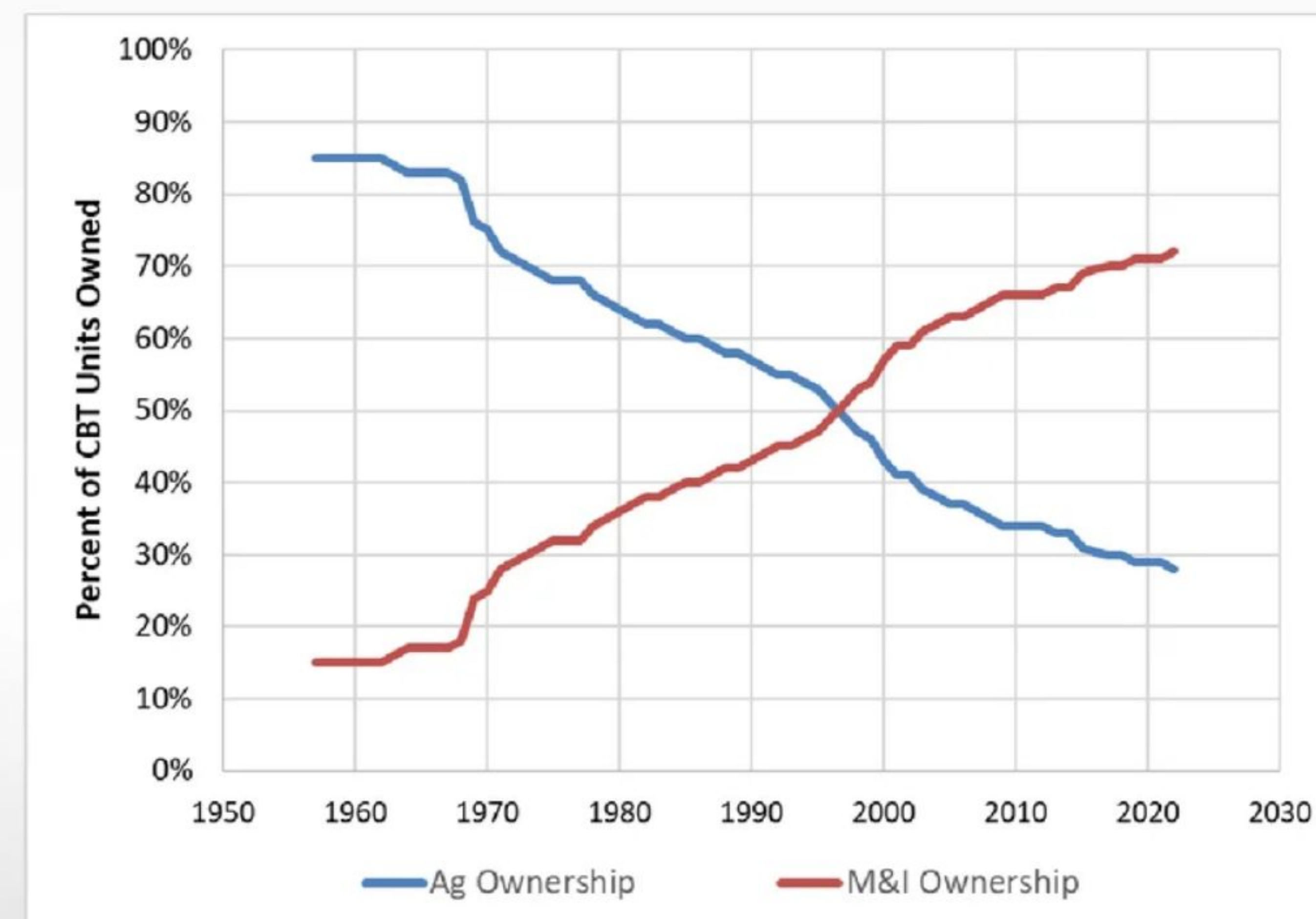


Long-Term Market Drivers

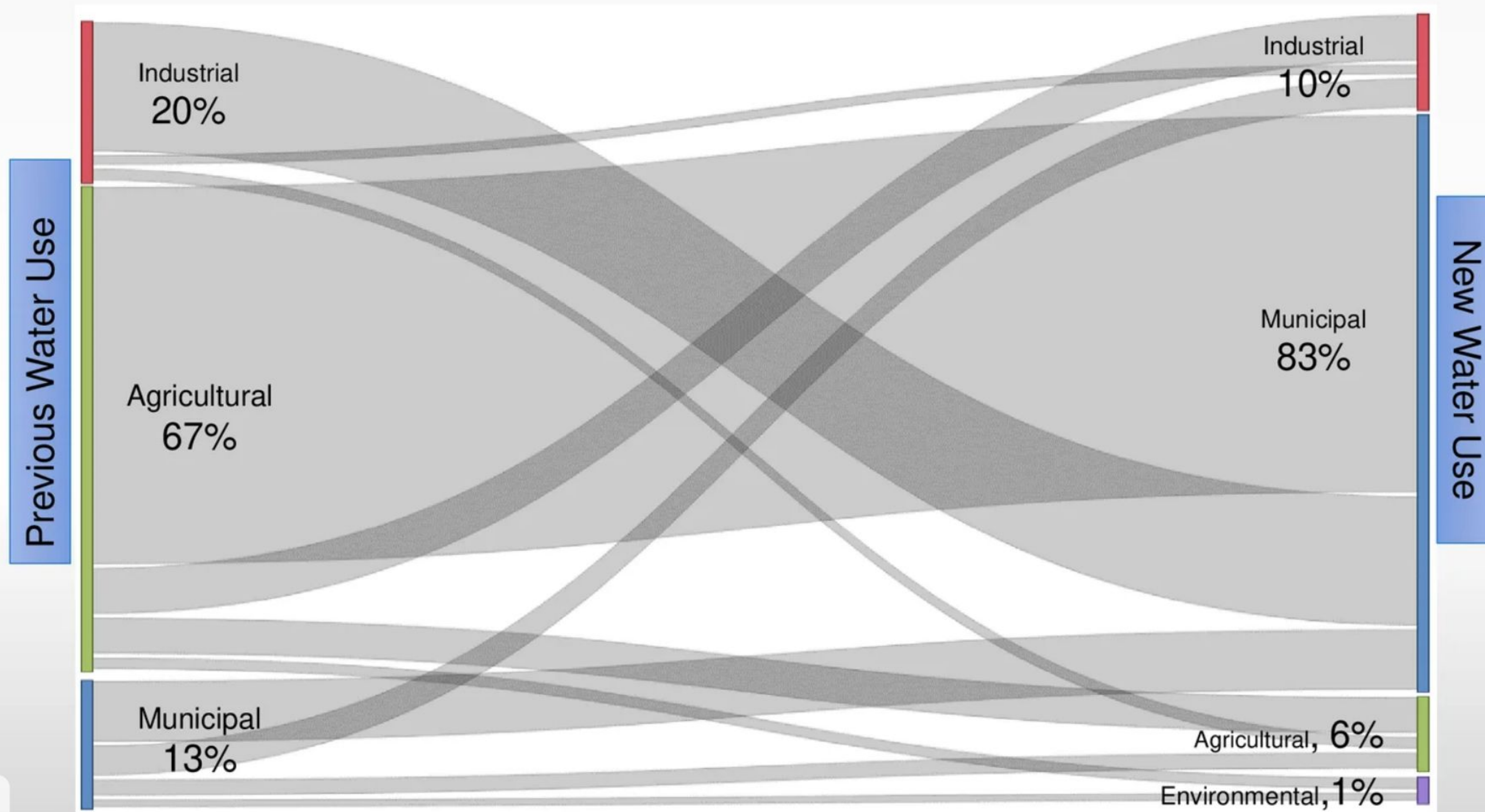
CBT Availability



CBT Ownership



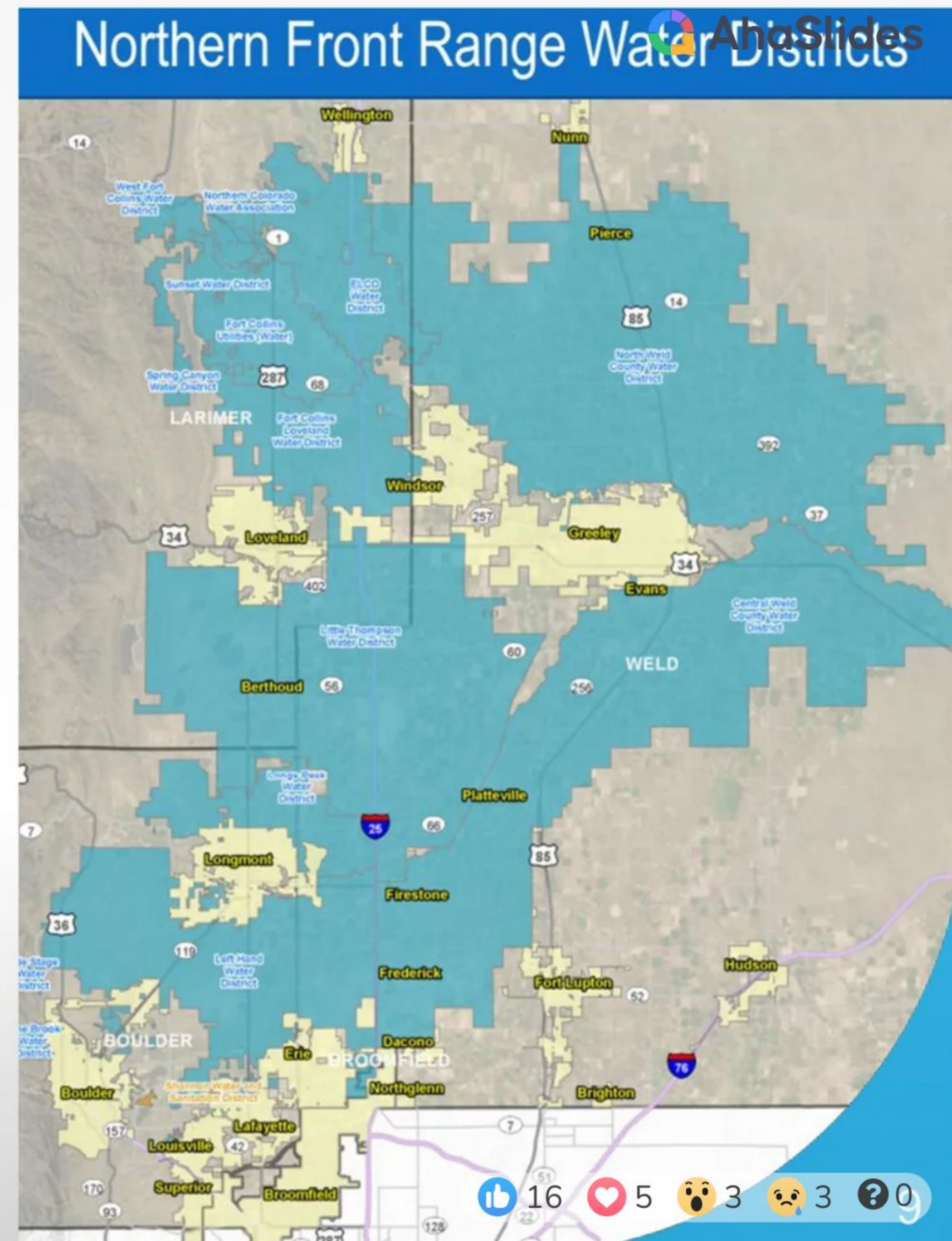
Water Transfers



Agricultural to Municipal transactions are the dominant transfer type

Long-Term Market Drivers

- Colorado water utilities are decentralized
- 70+ water utilities along the Front Range
- Buyer competition increases prices



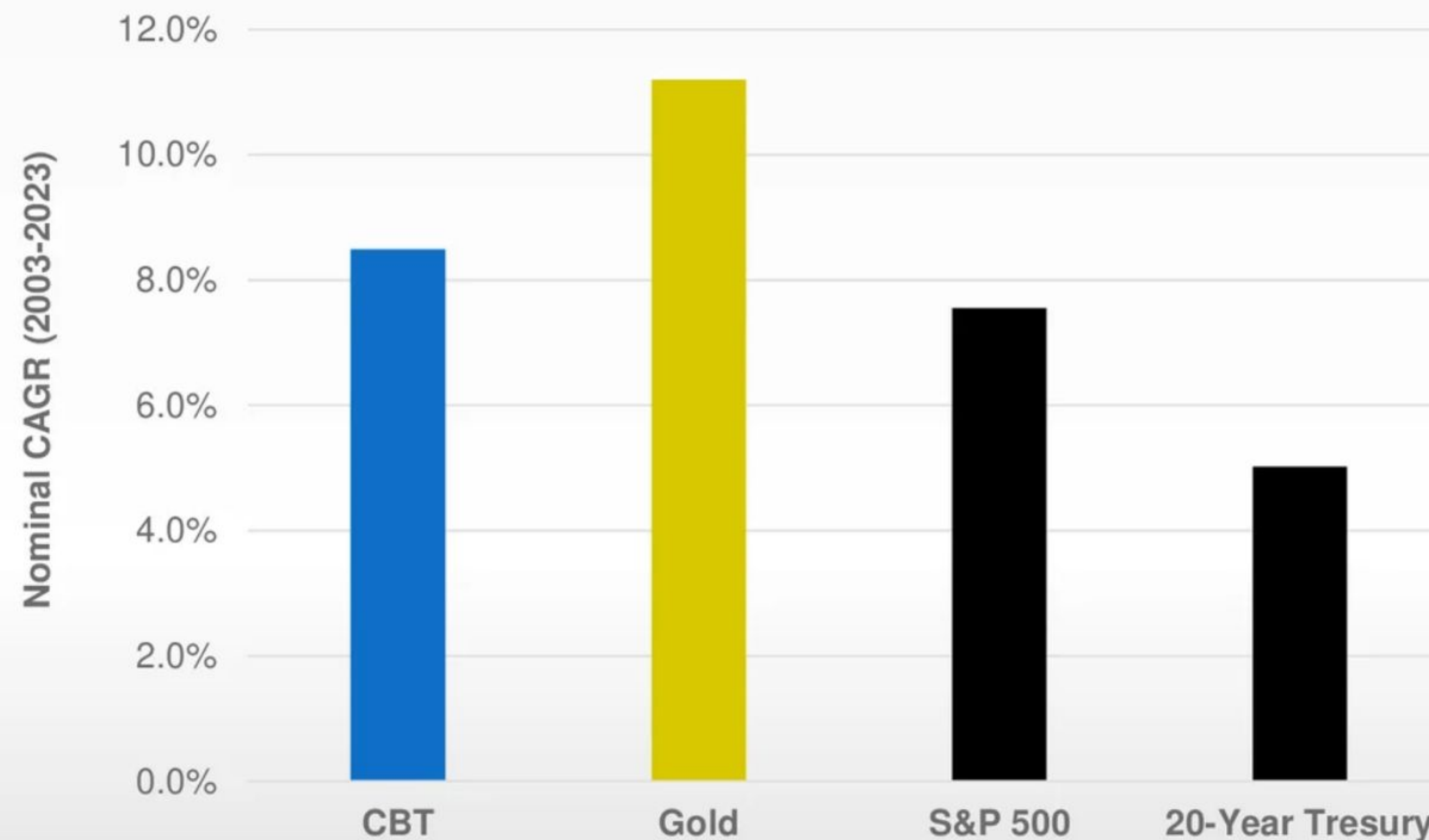
Keep it in Perspective

TECHNICAL ANALYSIS

Water Is the New Gold. What It Means for Investors.

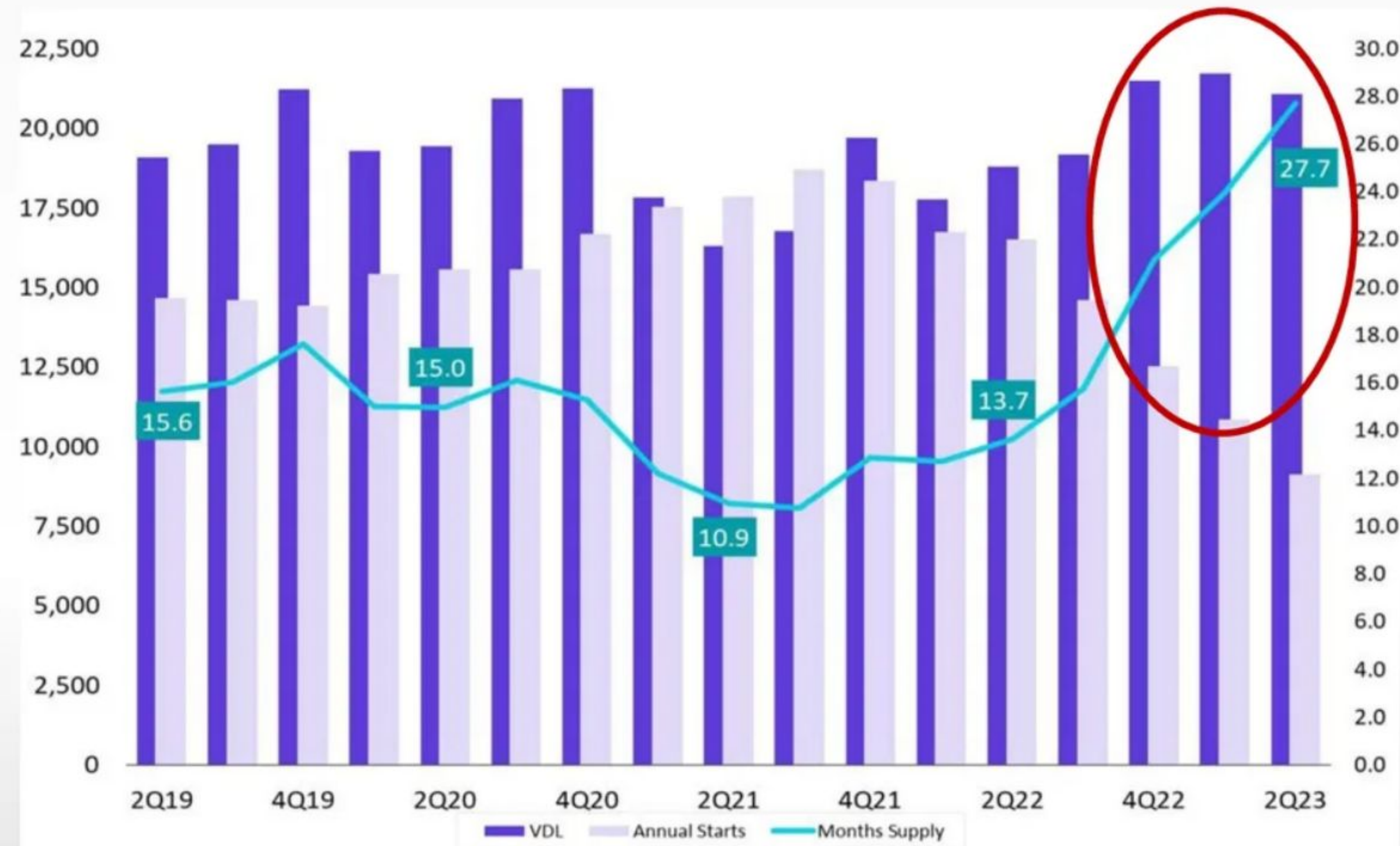
Updated Sept 07, 2022, 2:15 pm EDT / Original Sept 07, 2022, 2:14 pm EDT

20-Year Compound Annual Growth Rate



Short-Term Market Drivers

Housing Stock



11 County Front Range for Detached Homes
Credit: Colorado Association of Homebuilders, 2023 State Demography Summit

Fewer Buyers

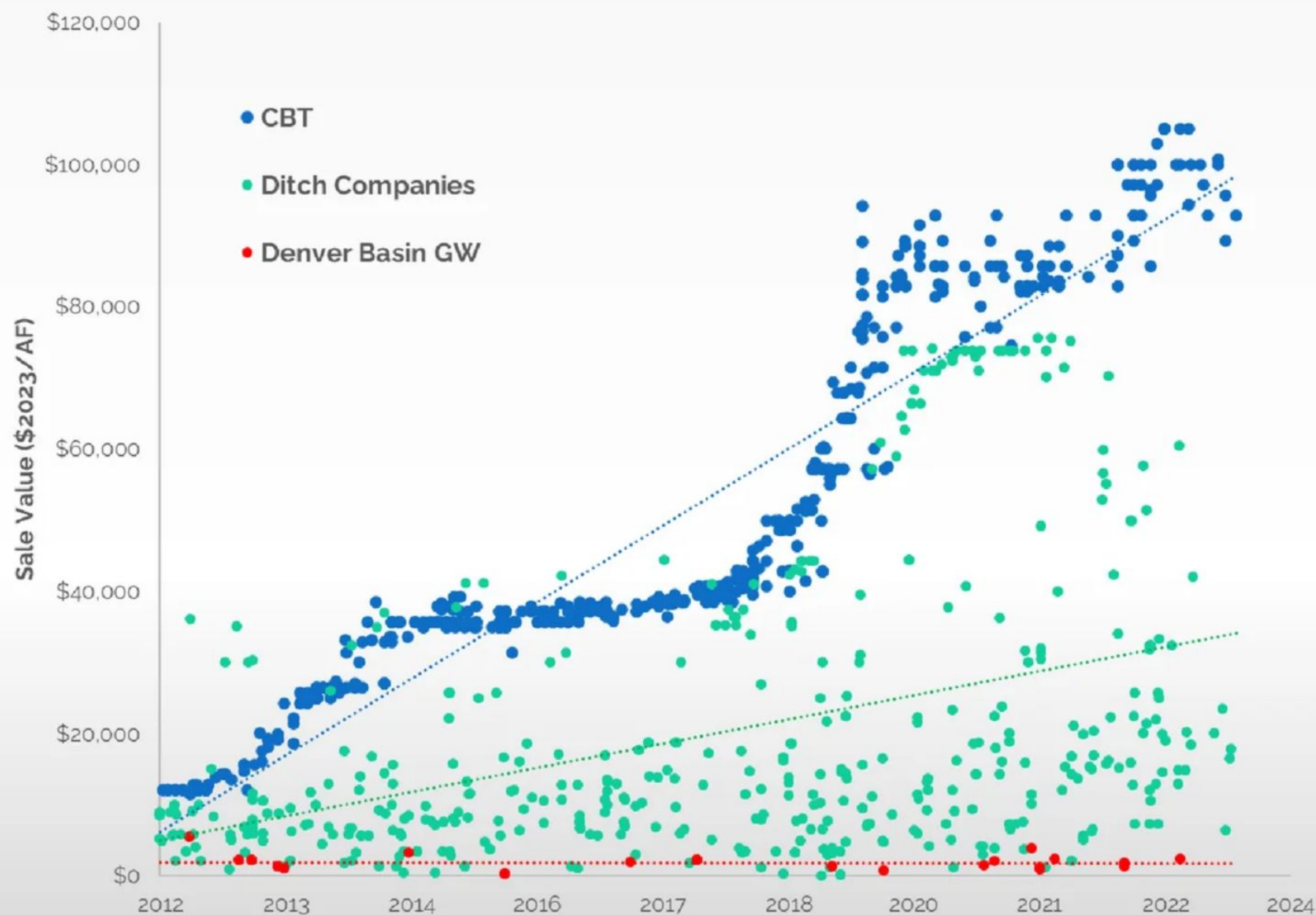
NORTHERN COLORADO WATER CONSERVANCY DISTRICT

**RESOLUTION
D-962-02-95**

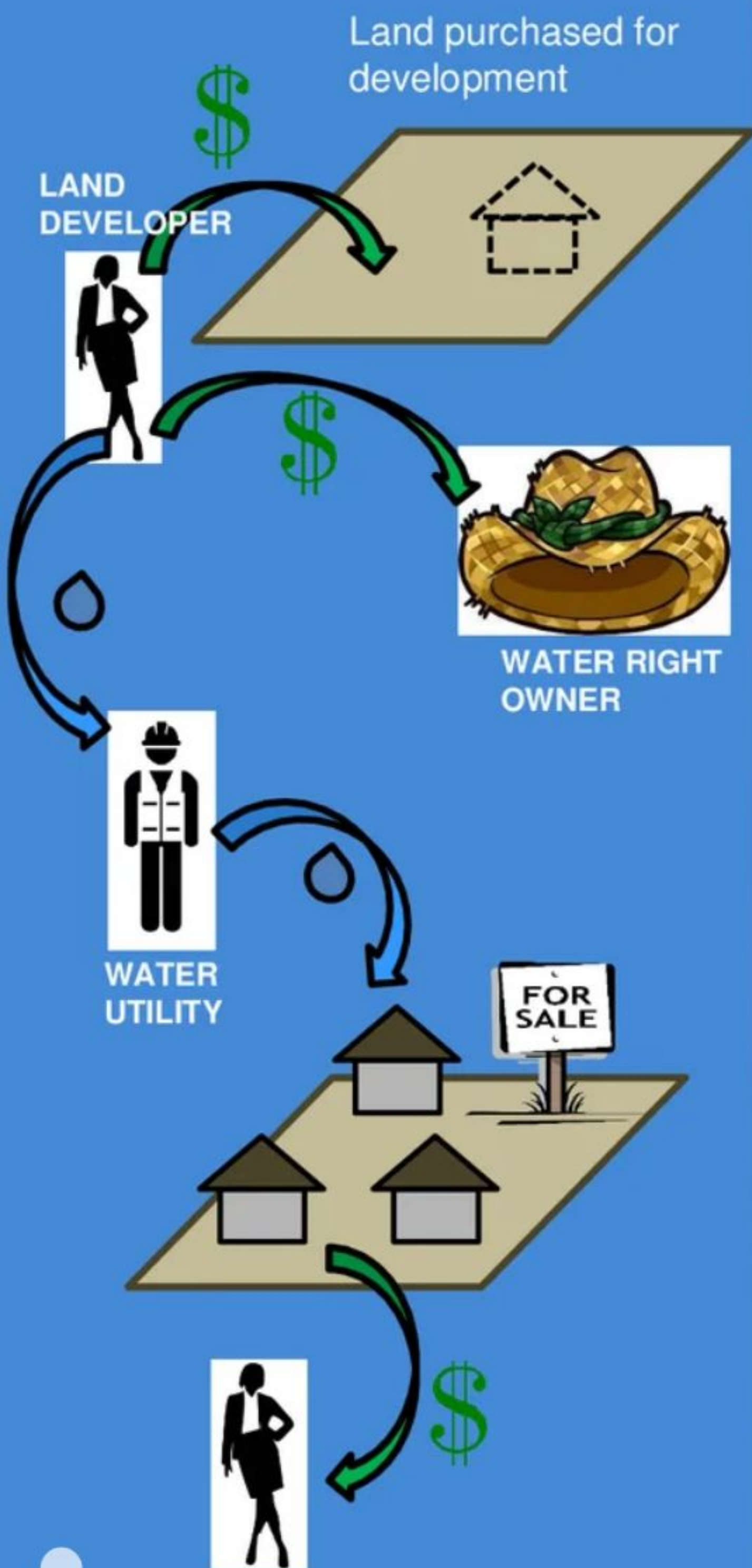
**INTERIM GUIDELINES ON LIMITATIONS ON OWNERSHIP
OF COLORADO-BIG THOMPSON ALLOTMENT CONTRACTS FOR DOMESTIC OR
MUNICIPAL PURPOSES**

Regional Water Markets

- Large range in Front Range water prices— markets are local!
- Influenced by location, availability, reliability, and transferability
- Influenced by acceptance for municipal dedication
- All water is not equal



Water Rights to Build New Homes



New homes need municipal water service

- Most common approach is to tie into an existing municipal water provider

Growth pays its own way

- Must dedicate water rights or an equivalent amount of cash (in lieu of water rights)
- One time transaction between the developer and the water utility
- Perpetual commitment for water service

How much does water cost for a new home?

It varies significantly by utility – ranges from 2% to >10% of home price

- **Dedication volumes** vary widely: 0.2 to 1.5 AF per home for similar product type across Front Range
- **Cash-in-lieu rates** differ considerably: \$5,000 to >\$100,000 per AF
- **“Wet” water dedication** vs. cash-in-lieu
 - Wet water requirements increase buyer competition
 - Developers purchase water rights in advance of need and pass on holding costs to home buyer vs. paying CIL at time of building

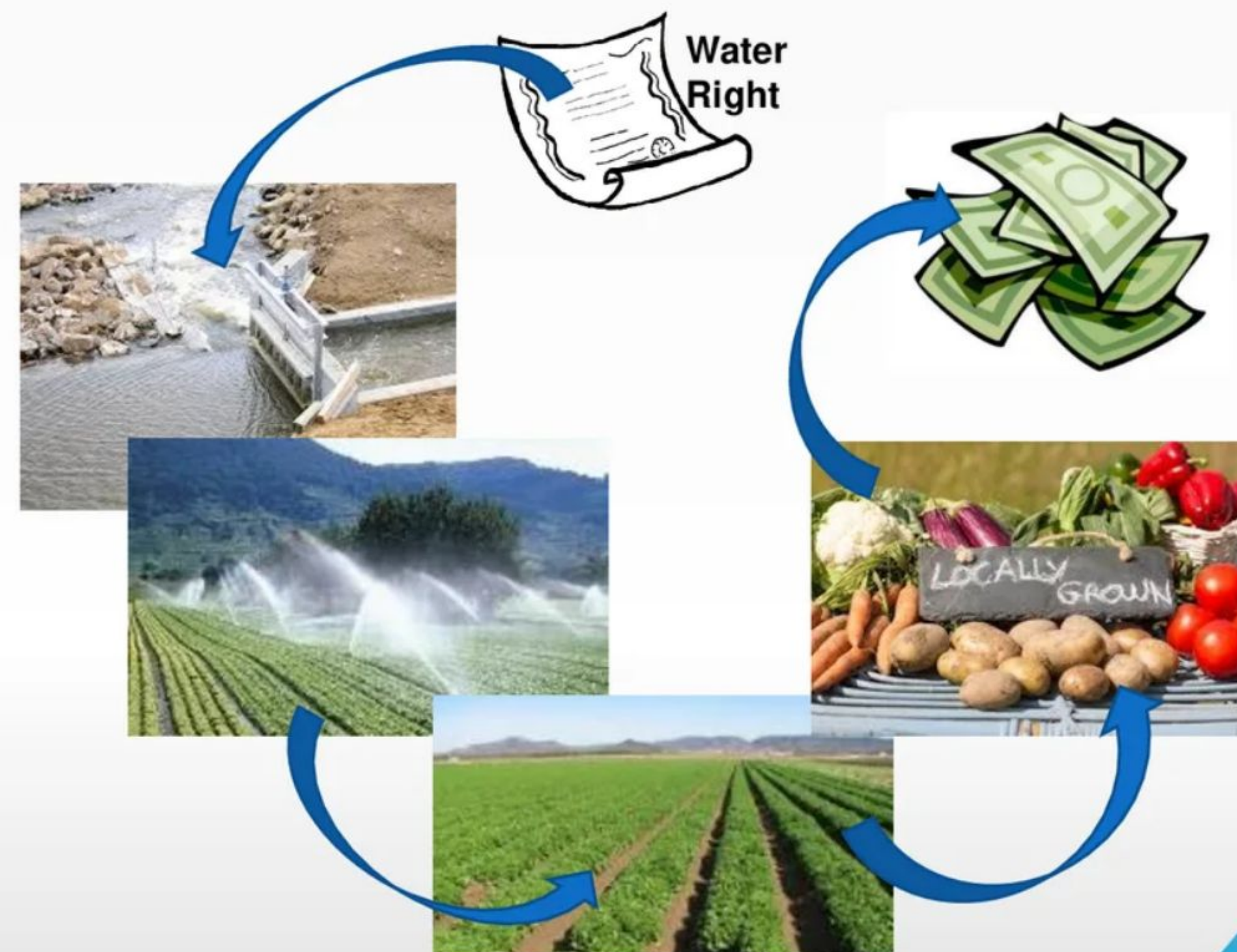
Example: Bloom Community



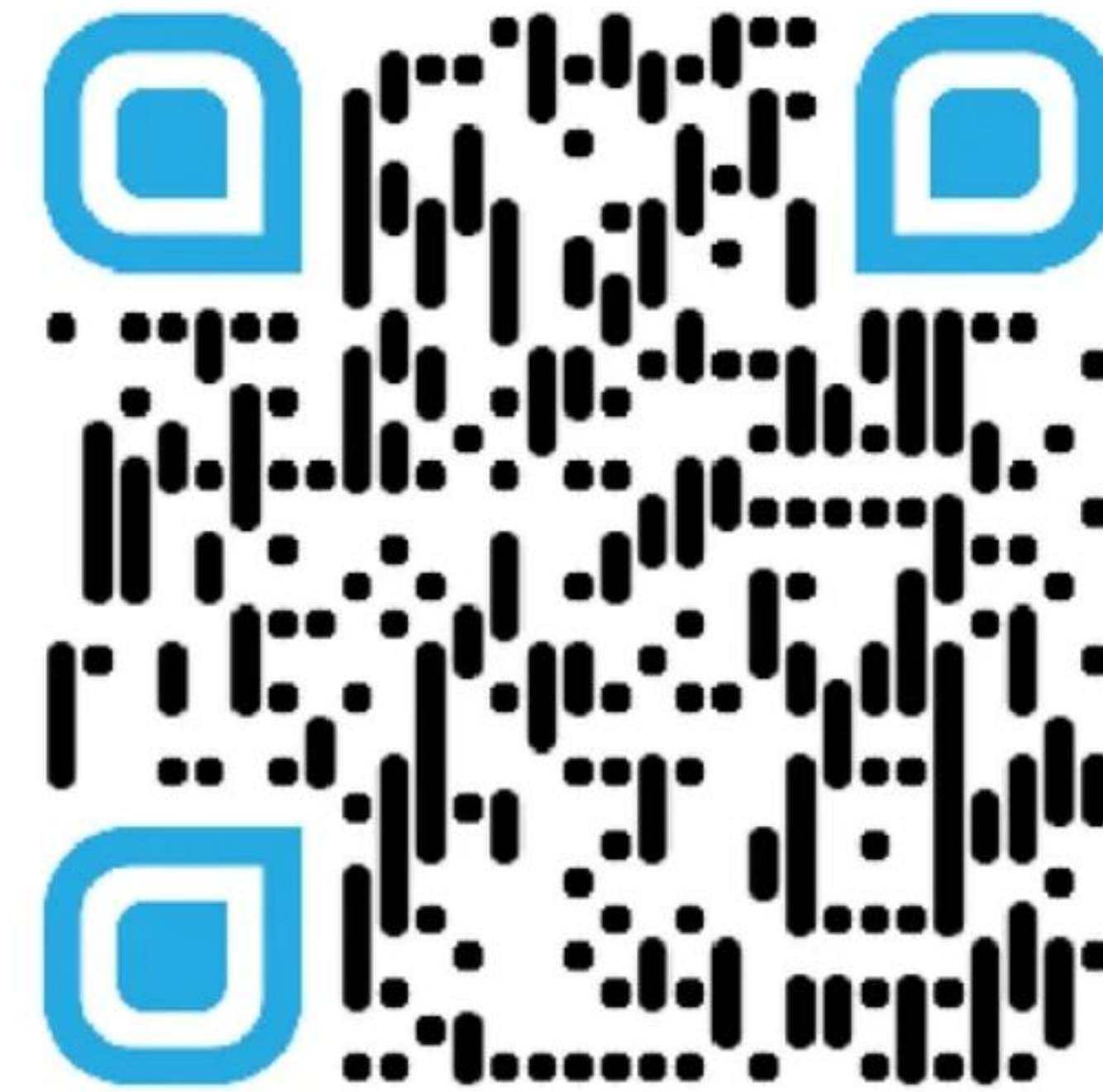
- 1,800 homes on 225 Acres in Fort Collins by Hartford Homes
- 0.22 AF per home = 396 AF needed for development
- If developer buys 566 CBT units
 - ~\$34,000,000 (at \$60,000 per CBT unit)
 - Average ~\$19,000 per home
- 30-year mortgage at 7% interest on \$19,000 water cost = **\$125 per month**
- Compare to a **\$53 per month** typical Fort Collins water bill

Impacts to Agriculture

- “Buy and Dry” is default
- Loss of farm economy disproportionately impacts rural communities
- But significant source of wealth to individual farmers
- Alternative transfer methods are possible, but have not gained traction – uncertainty, increased water court costs & risks, lack of willing buyers & sellers



Thank You



jokerst@waterexchange.com

Understanding the Cost of Water and Pricing Options

Chris Goemans

Professor, Department of Agricultural and Resource Economics

Colorado State University



Why are we here?

Coloradoan

'A finite supply': Ex-landowner sells 90 shares of Colorado-Big Thompson water at auction



Coloradoan

Fort Collins Utilities' electric and water rates are going up in 2024



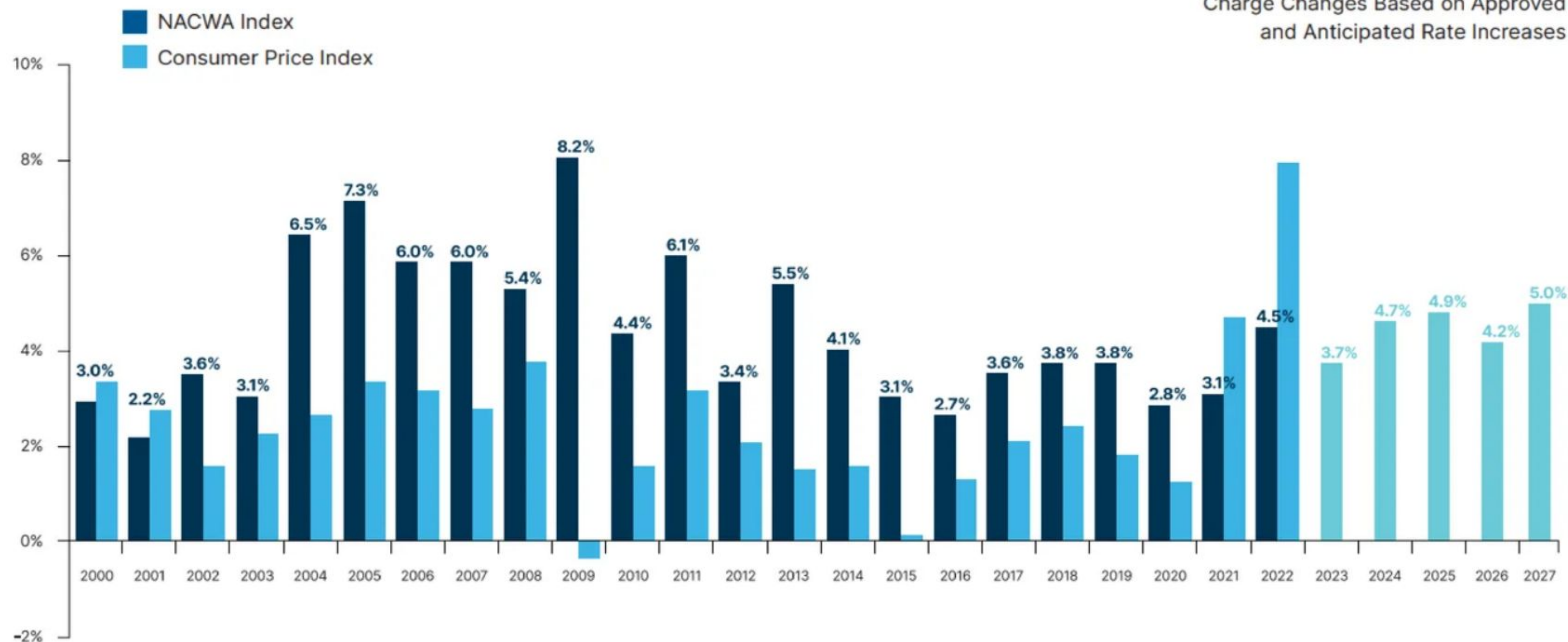
Coloradoan

Fort Collins' planned water fee hike spurs affordability concerns



Annual Change in Cost of Clean Water

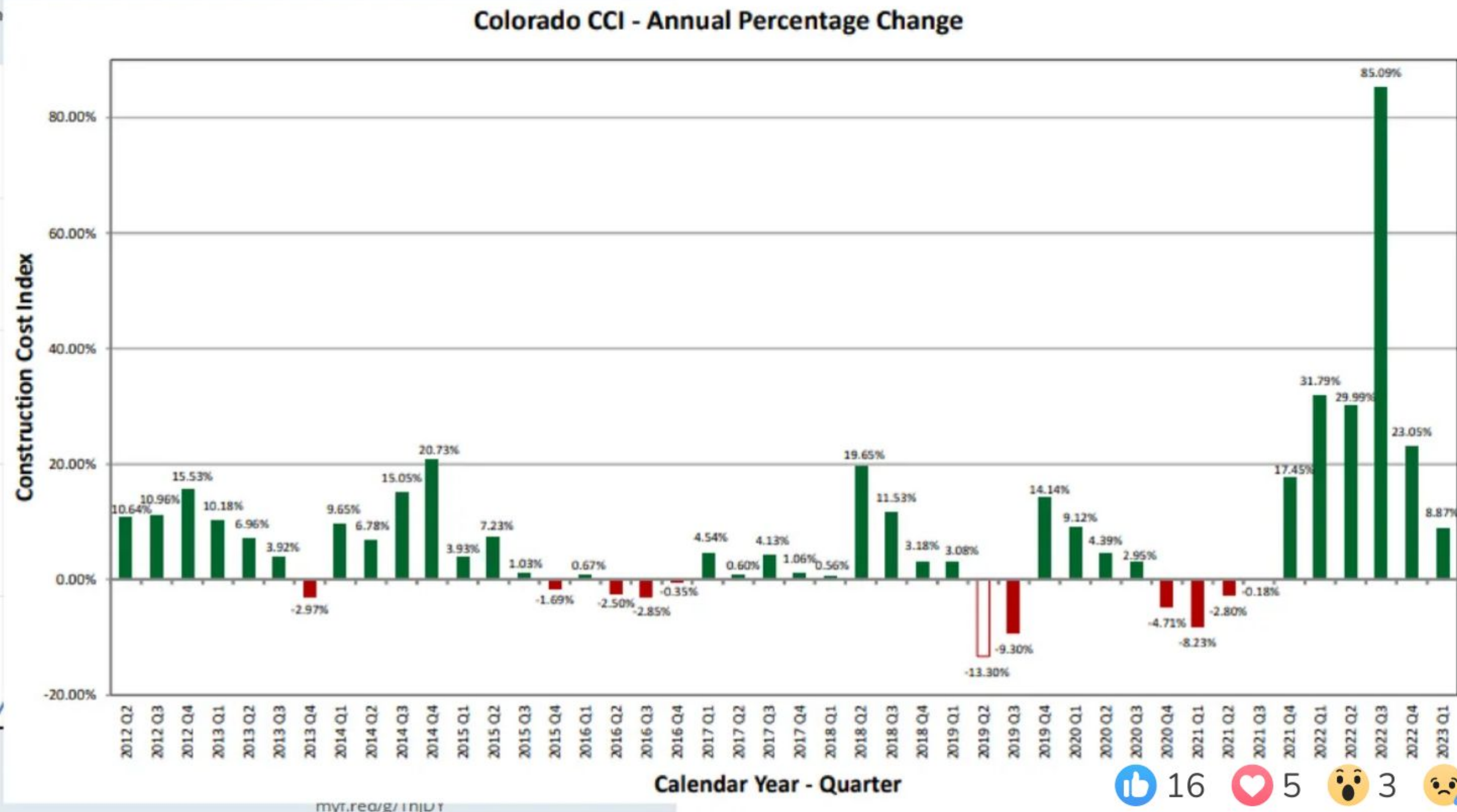
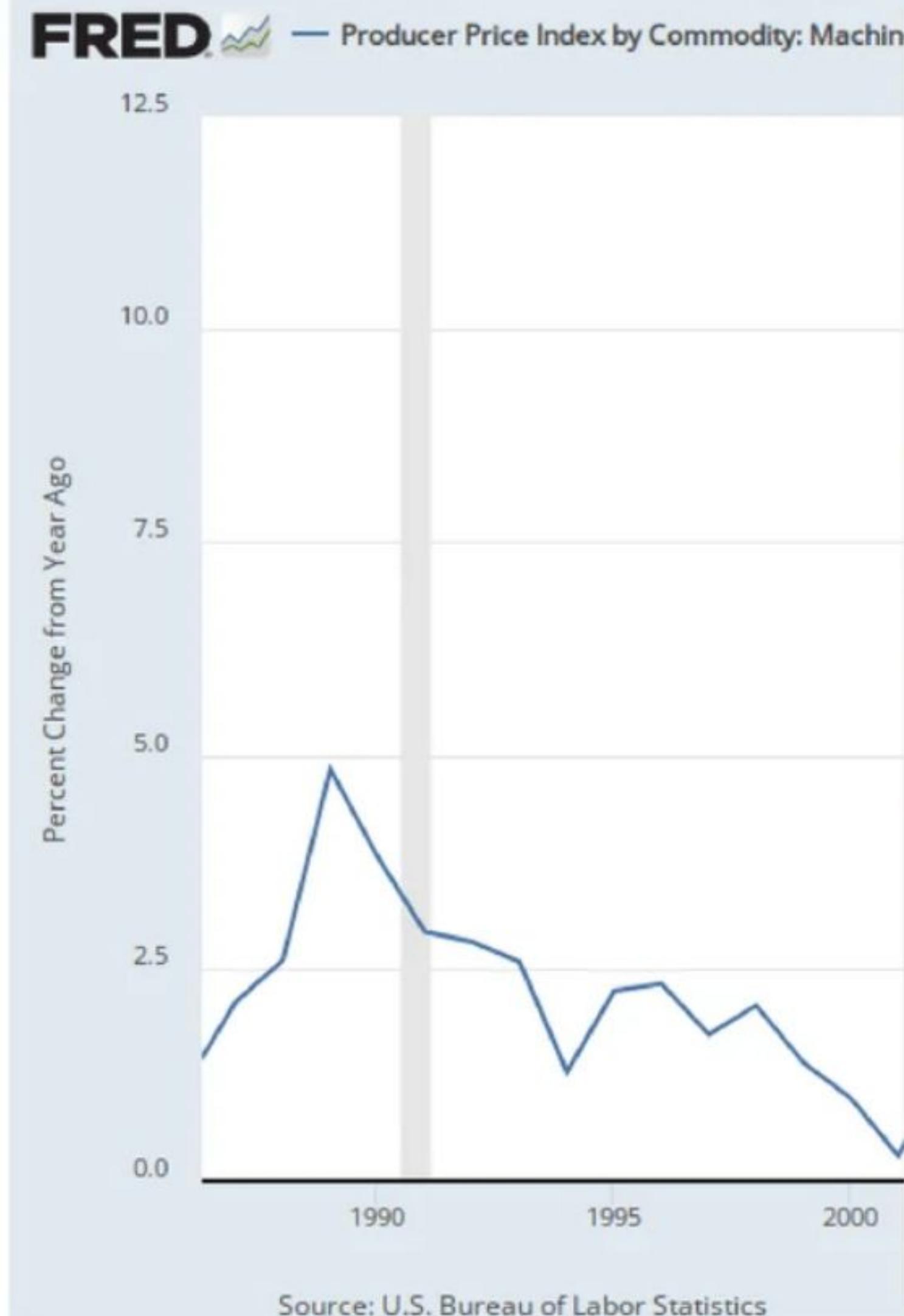
Index vs. Inflation



2022 Cost of Clean Water Index, 2022, National Association of Clean Water Agencies

Key factors driving the “cost of water”:

- Growth and system capacity
- System Age
 - Difference in the cost of emergency repairs versus being proactive.
- Changes in Input Costs
- Economies of Scale



What does this mean for the customer?

- Explicitly or implicitly most utilities are subject to cost-recovery fee/rate setting principles

“Setting rates for a water or sewer utility should be a process of allocating expenses (operations, maintenance, debt service, repair/replacement, capital improvements, etc.) to customer classes (residential, commercial, industrial, etc.).” (Co DoLA, 2020)

- (Loosely speaking) This means setting rates so that:

$$\text{Total Revenue} = \text{Total Cost}$$

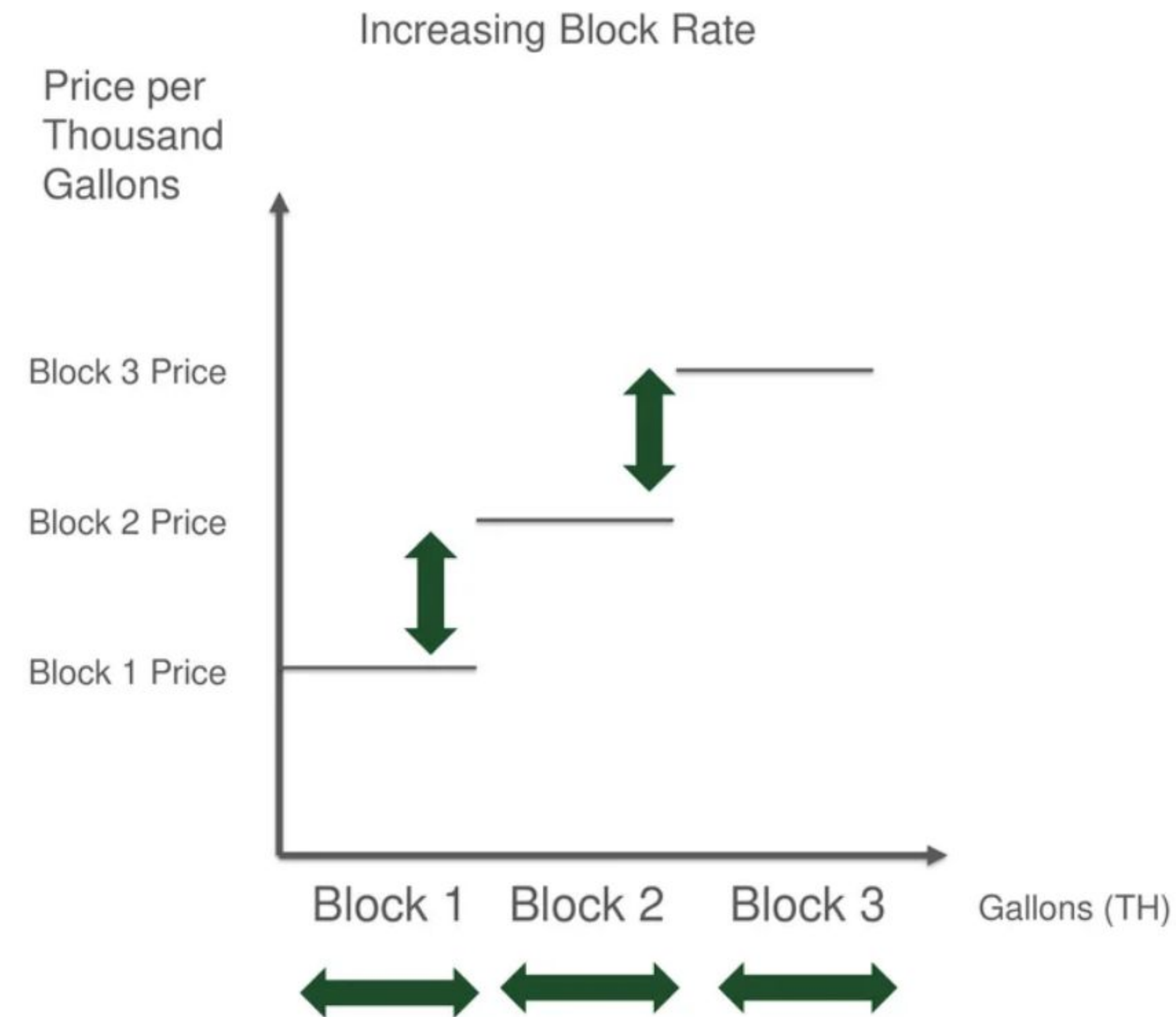
- Where do these funds come from?
 - Customer, Local/State, Federal

“In 1977, the federal government invested 63 percent of all capital spending on water infrastructure. Forty years later, federal spending on capital water infrastructure accounts for less than ten percent.” (ASCE, 2020)

What does the customer pay?

- “Water” costs versus treatment and delivery.
- Key Considerations:
 1. How do we allocate the cost of growth?
 1. Raw water charge, plant investment fee,...
 2. Fixed versus volumetric charges.
 3. How we structure the volumetric charges?
- How charge customers has significant implications for:
 - revenue variability
 - conservation incentives, and
 - who pays.

Options for Pricing Water- Volumetric Charges





Chris Goemans, Department of Agricultural and Resource Economics

Email: chris.goemans@gmail.com

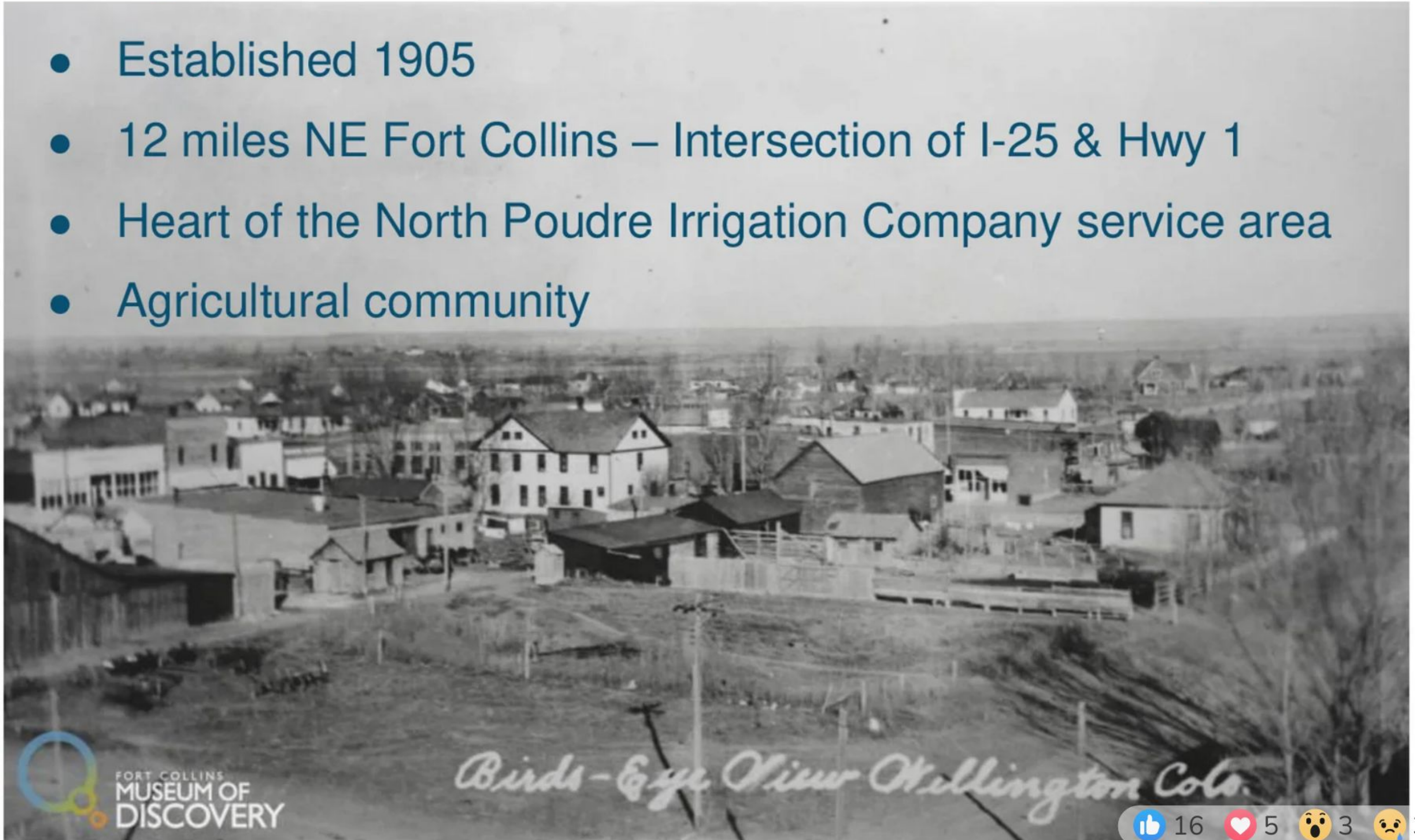
Community Costs of Drinking Water Treatment & Water Reclamation

Poudre River Forum – March 1, 2024
Calar Chaussee – Mayor, Town of Wellington

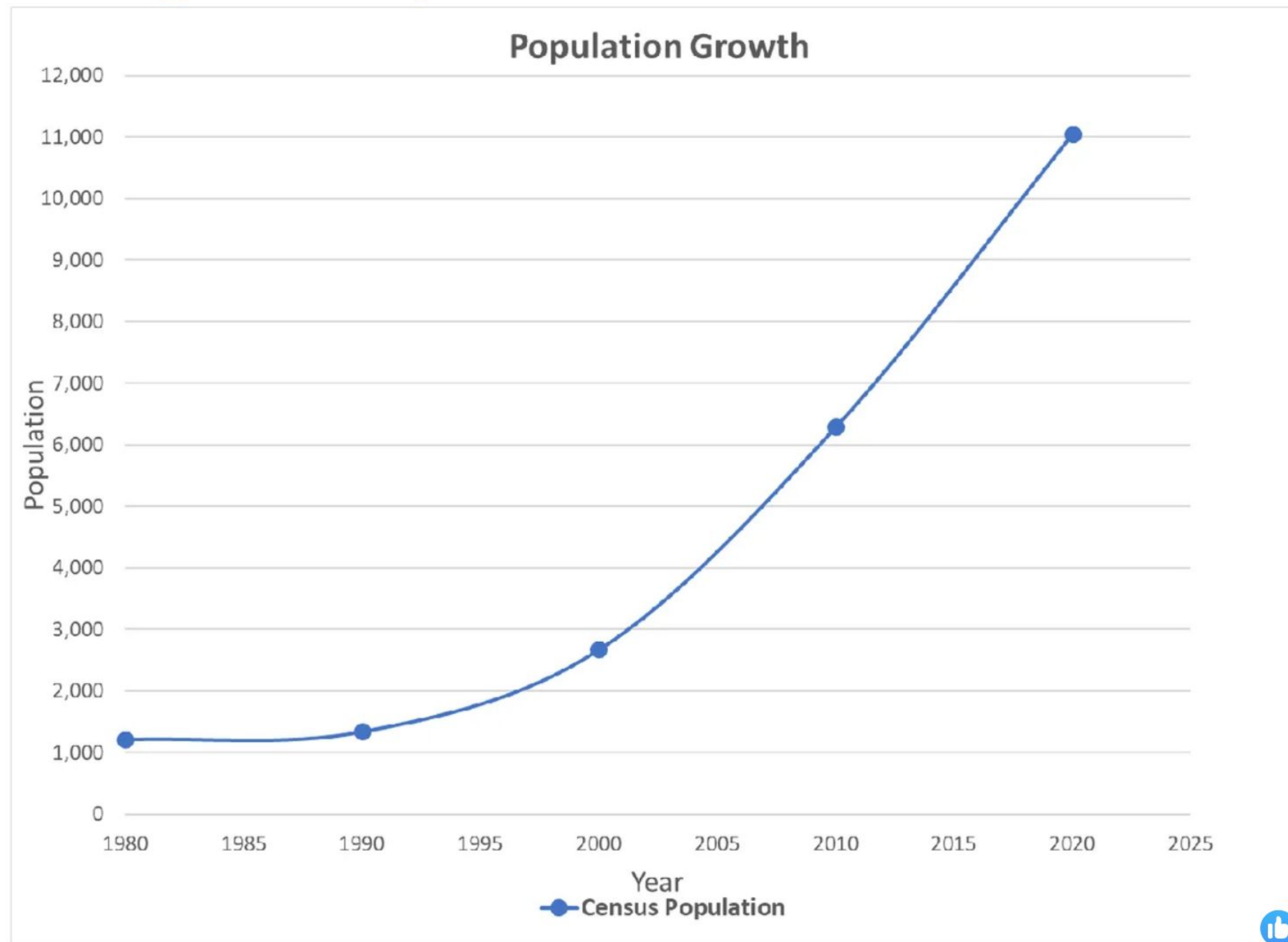


Wellington – Colorado's Northern Gateway

- Established 1905
- 12 miles NE Fort Collins – Intersection of I-25 & Hwy 1
- Heart of the North Poudre Irrigation Company service area
- Agricultural community



Wellington Population Growth 1980 - 2020



Wellington Today

- Population today - ~12,500
- Water Treatment Facility
 - Online 1983 – 1.0 MGD
 - 1st expansion in 2002 – 2.0 MGD
 - Current expansion – 4.2 MGD
- Water Reclamation Facility
 - Online 2003 – 0.45 MGD
 - 1st expansion in 2016 – 0.9 MGD
 - Current expansion – 1.8 MGD



Treatment Facility Expansion Projects

- Water Treatment Facility
 - Construction cost - \$35.2M
- Water Reclamation Facility
 - Construction cost - \$48.0M
- Challenges and Impacts
 - State Revolving Fund loan requirements
 - Supply chain issues
 - Significant inflation



Rate Setting Lessons Learned

- Engage residents / rate-payers early and often
- Develop rate/impact fee models
- Review / update usage rates and impact fees regularly
- Growth projections matter





Questions?

Thank you

Calar Chaussee – Mayor
chausseec@wellingtoncolorado.gov



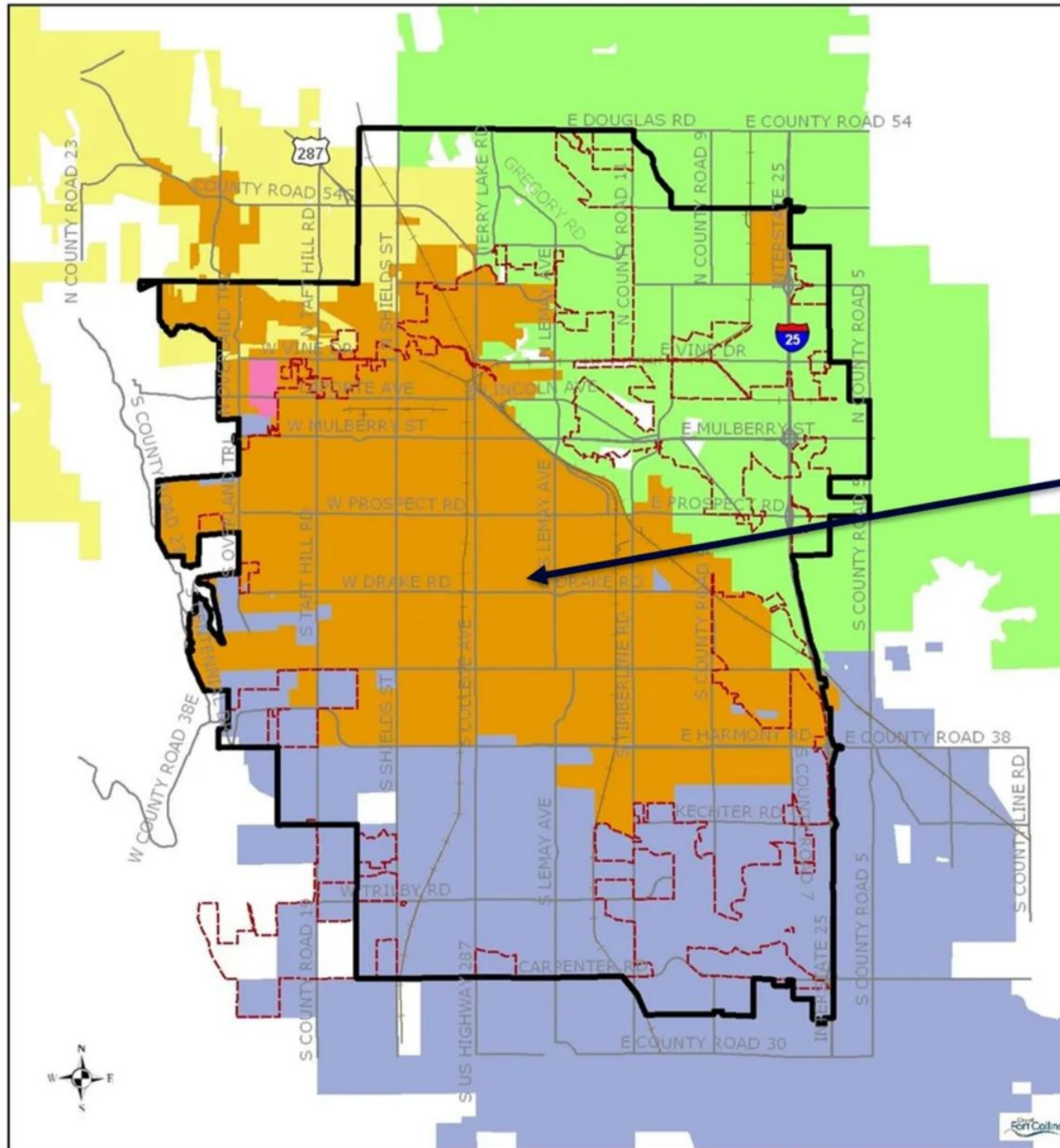
Poudre River Forum

HALLIGAN WATER SUPPLY PROJECT

Donnie Dustin, P.E.

Water Resources Engineer


Fort Collins Area Water Districts Map



Utilities Water
Service Area

-  GMA
-  Major Streets
-  City Limits
-  Railroad

Water Districts

-  ELCO Water District
-  Fort Collins Loveland Water District
-  Fort Collins Utilities (Water)
-  Sunset Water District
-  West Fort Collins Water District



Cache la Poudre River



Colorado-Big Thompson Project (CBT)
via Horsetooth Reservoir

City Strategic Plan



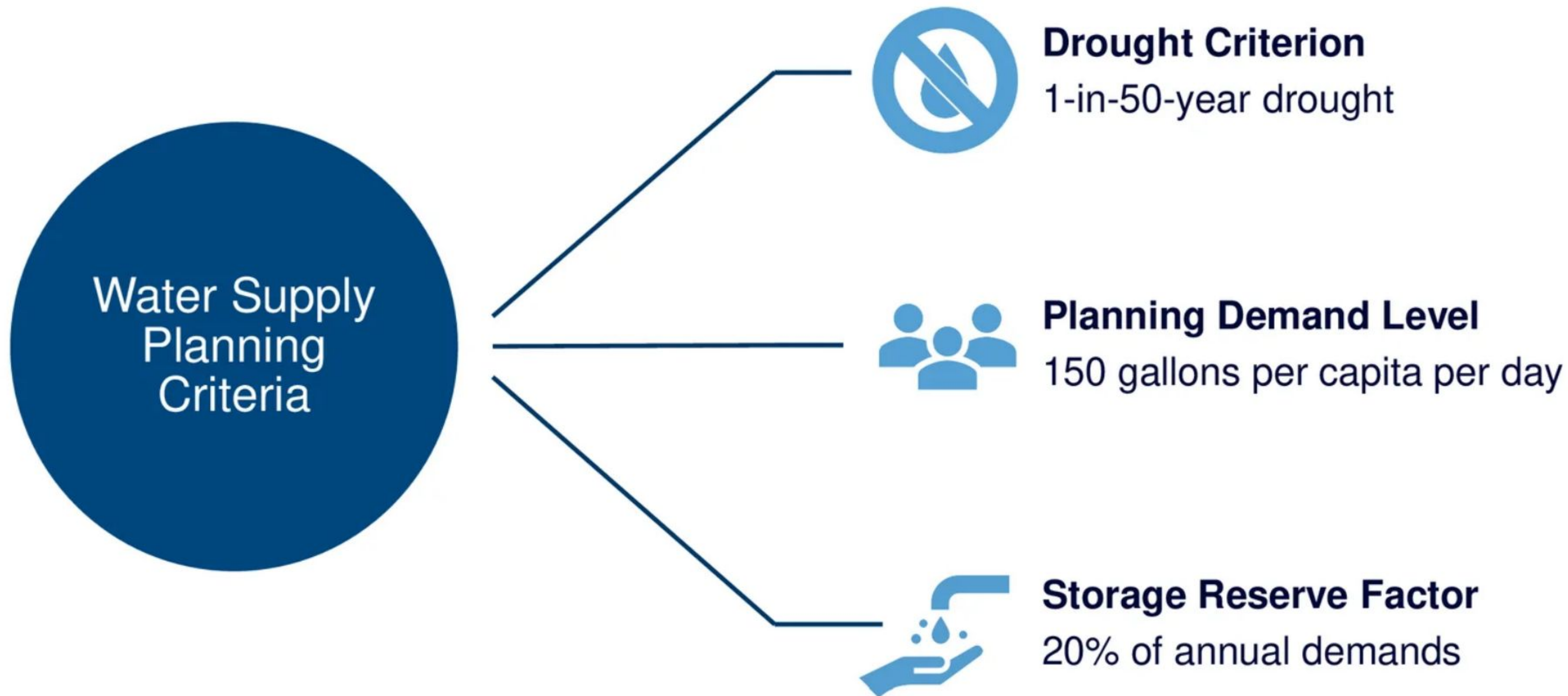
Policy



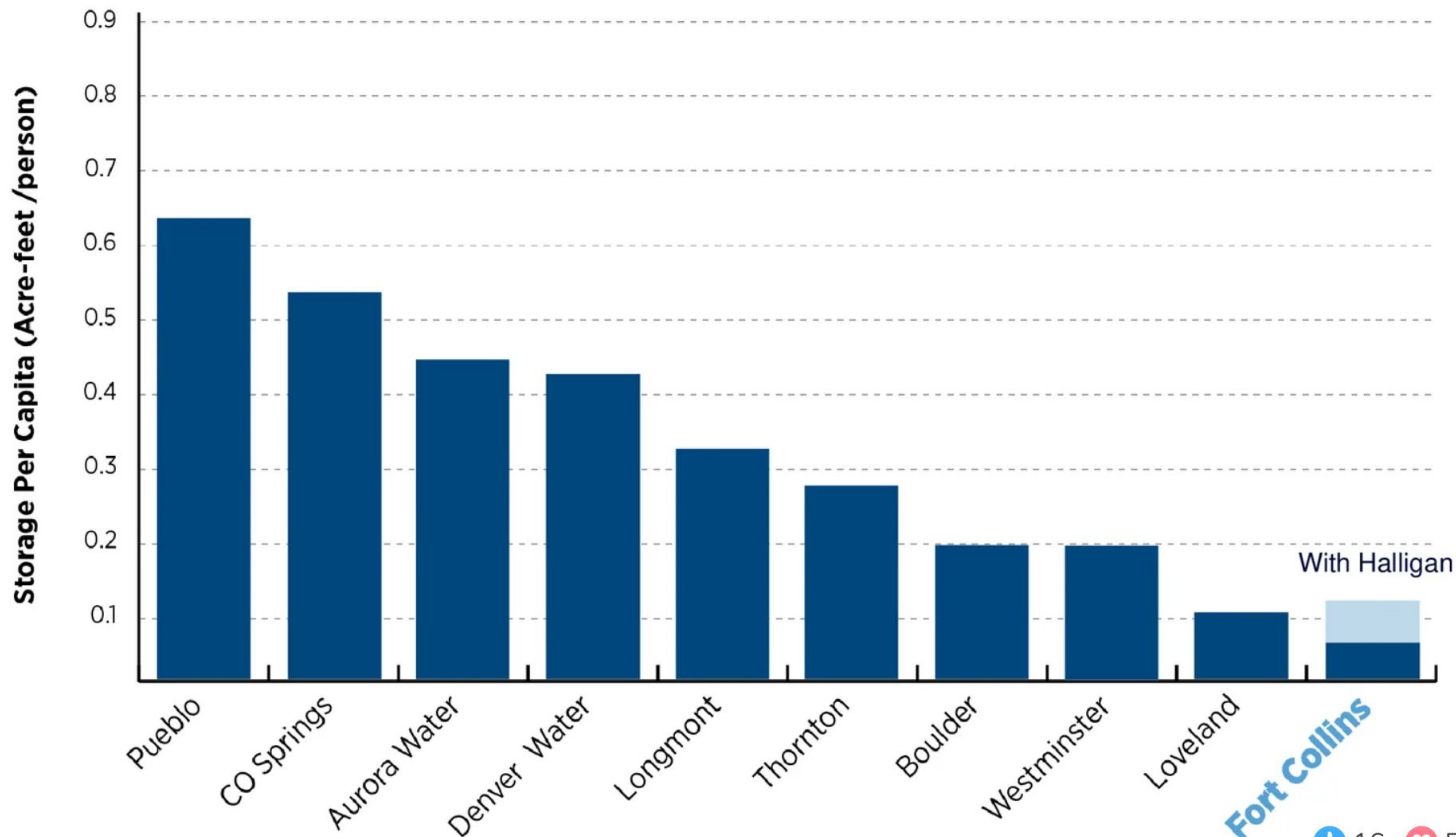
Water Supply & Demand Management Policy

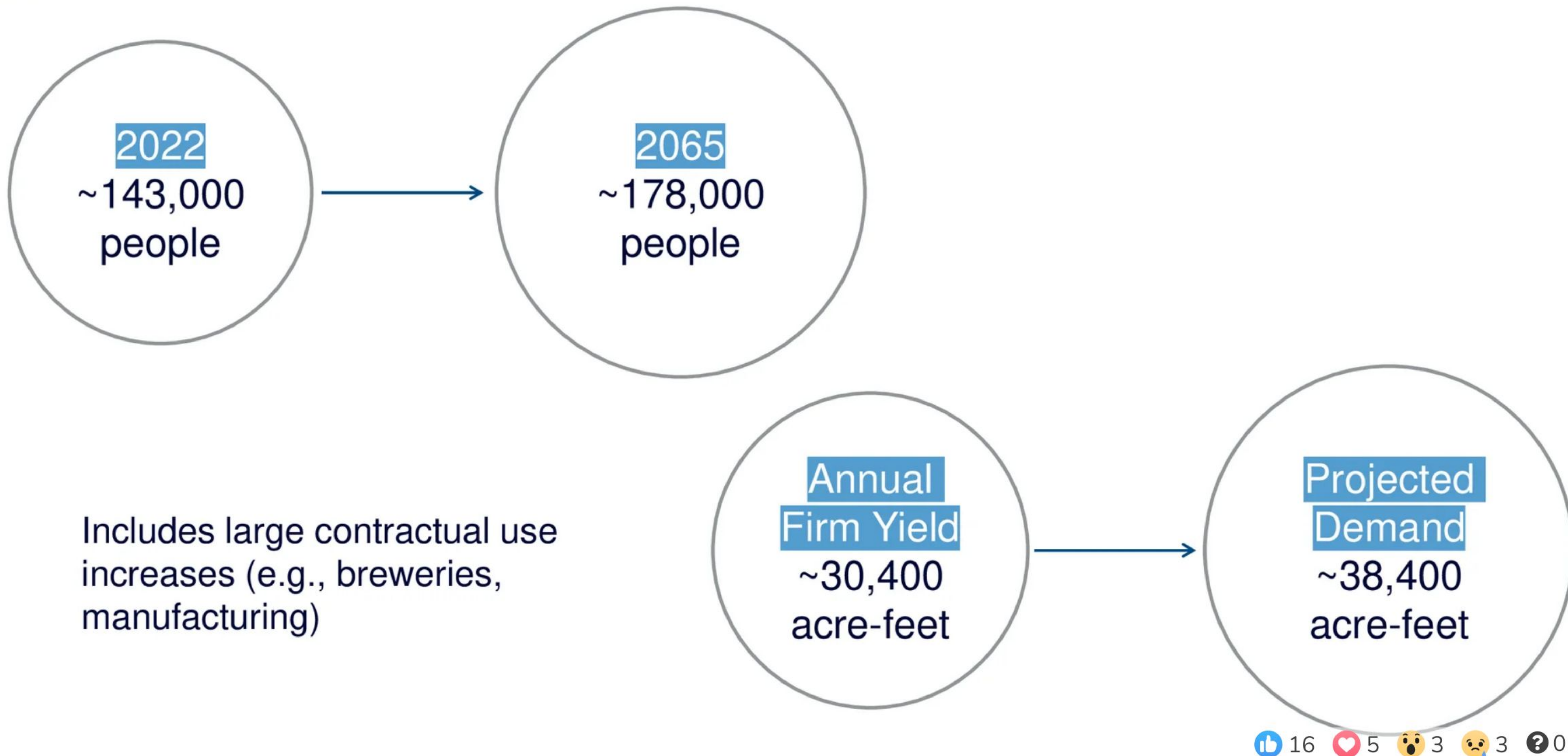
- Doing more with less
 - ~30% reduction in 20+ years
- Reduces capital expansion projects and certain operational costs
- Prepare for potential impacts of climate change





Storage Available to Provider 7







Warmer / drier climate poses largest risk to long-term planning



Adequate storage is crucial to meet current policy criteria

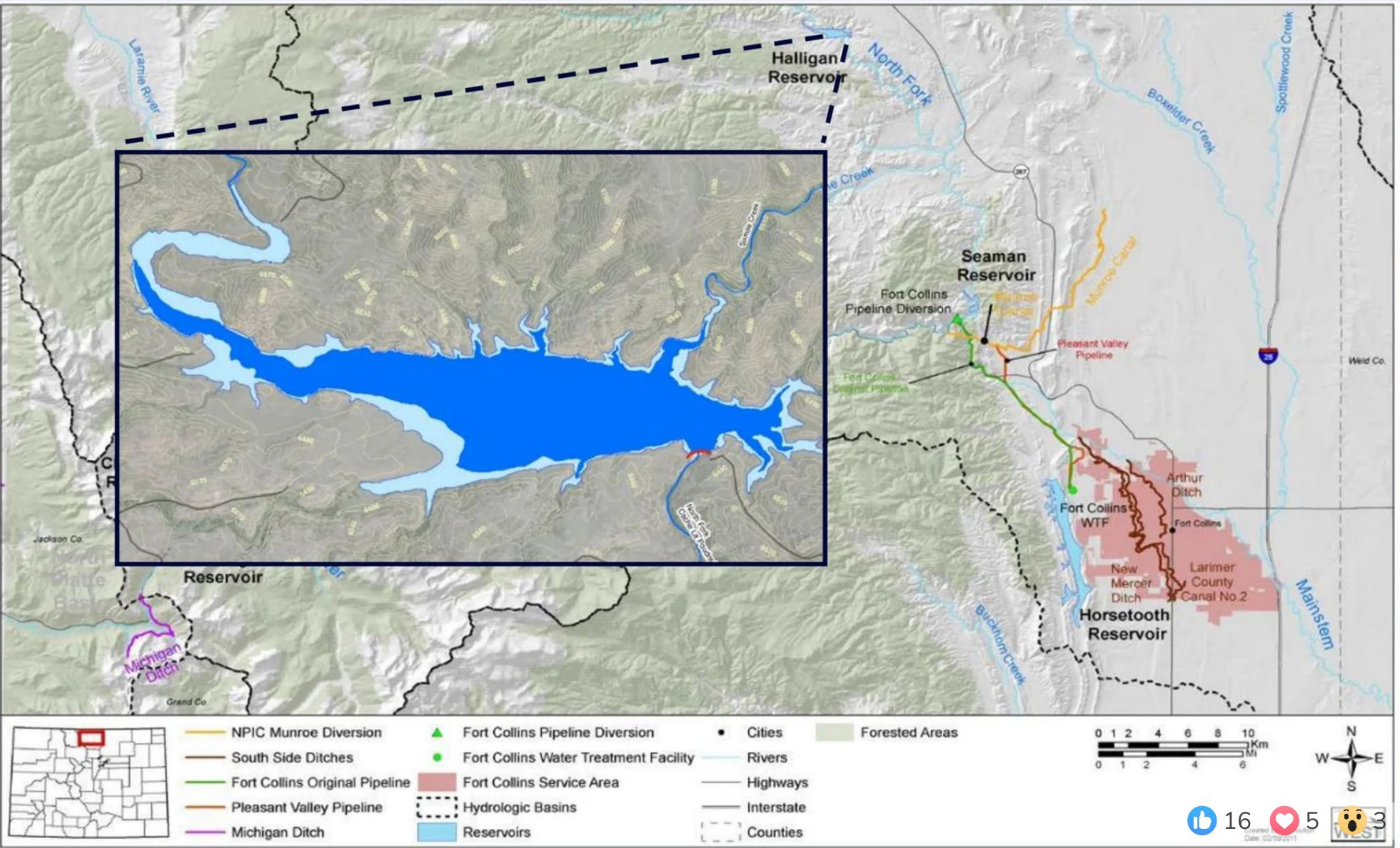


Long-term reduction in Colorado-Big Thompson supplies impacts ability to meet demands

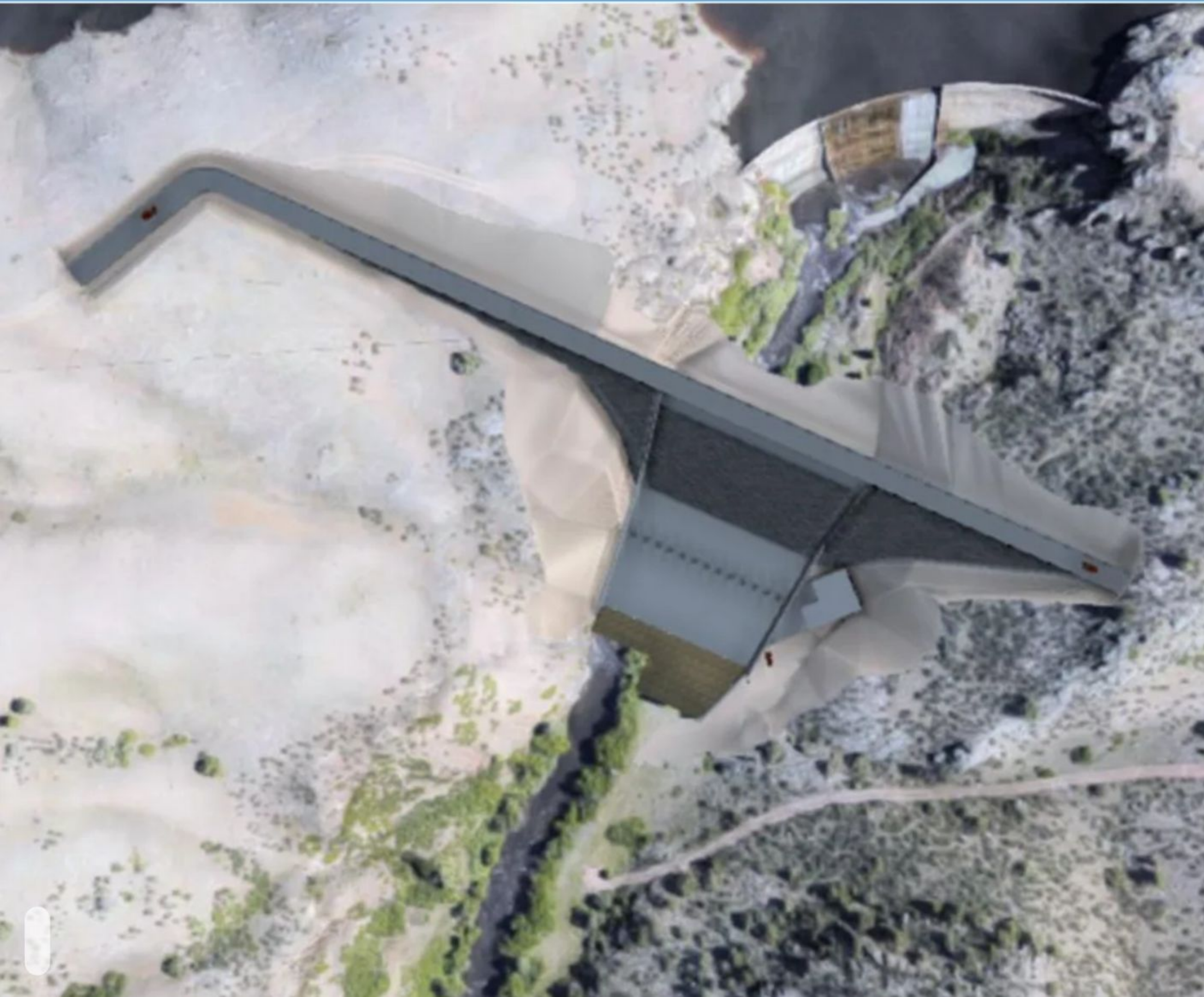


- North Poudre Irrigation Company built Halligan Dam in 1909
- Enlargement considered for decades
- Federal permitting process started in 2006
- Project would increase the existing reservoir by ~8,200 acre-feet
 - ~14,600 acre-feet total capacity
- New dam construction projected to start in 2026

Halligan Reservoir Enlargement



New versus Old Dam



Existing dam

- 78' high, 350' length, 8-foot crest width
- Two 34" outlet pipes
- 12,000 CFS spillway capacity
- Cyclopean masonry and slip form concrete

New dam

- 144.5' high, 1,000' length, 26-foot crest width
- One 42" outlet and one 24" outlet
- 104,000 CFS spillway capacity
- Roller Compacted Concrete (RCC) construction

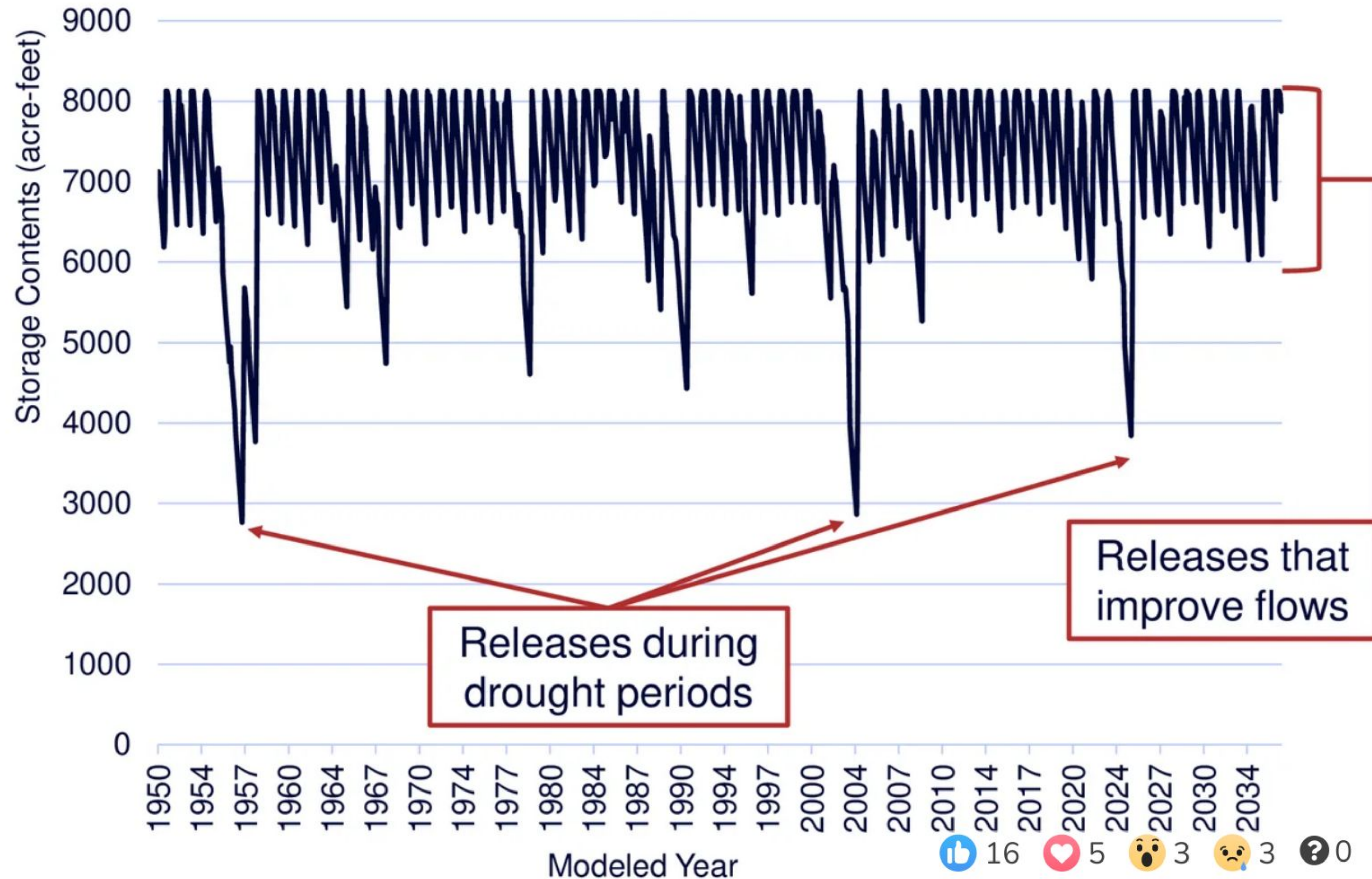
Water surface only increases 26'

What Differentiates Halligan?

Horsetooth Reservoir
~157,000 acre-feet

Proposed Halligan Reservoir
~14,600 acre-feet

Halligan Reservoir Enlargement Storage Levels (Utilities Portion)





- Inundation of wetlands
- Upstream inundation of $\frac{3}{4}$ -mile stream channel
- Wildlife habitat
- Construction
- Changes in river flows

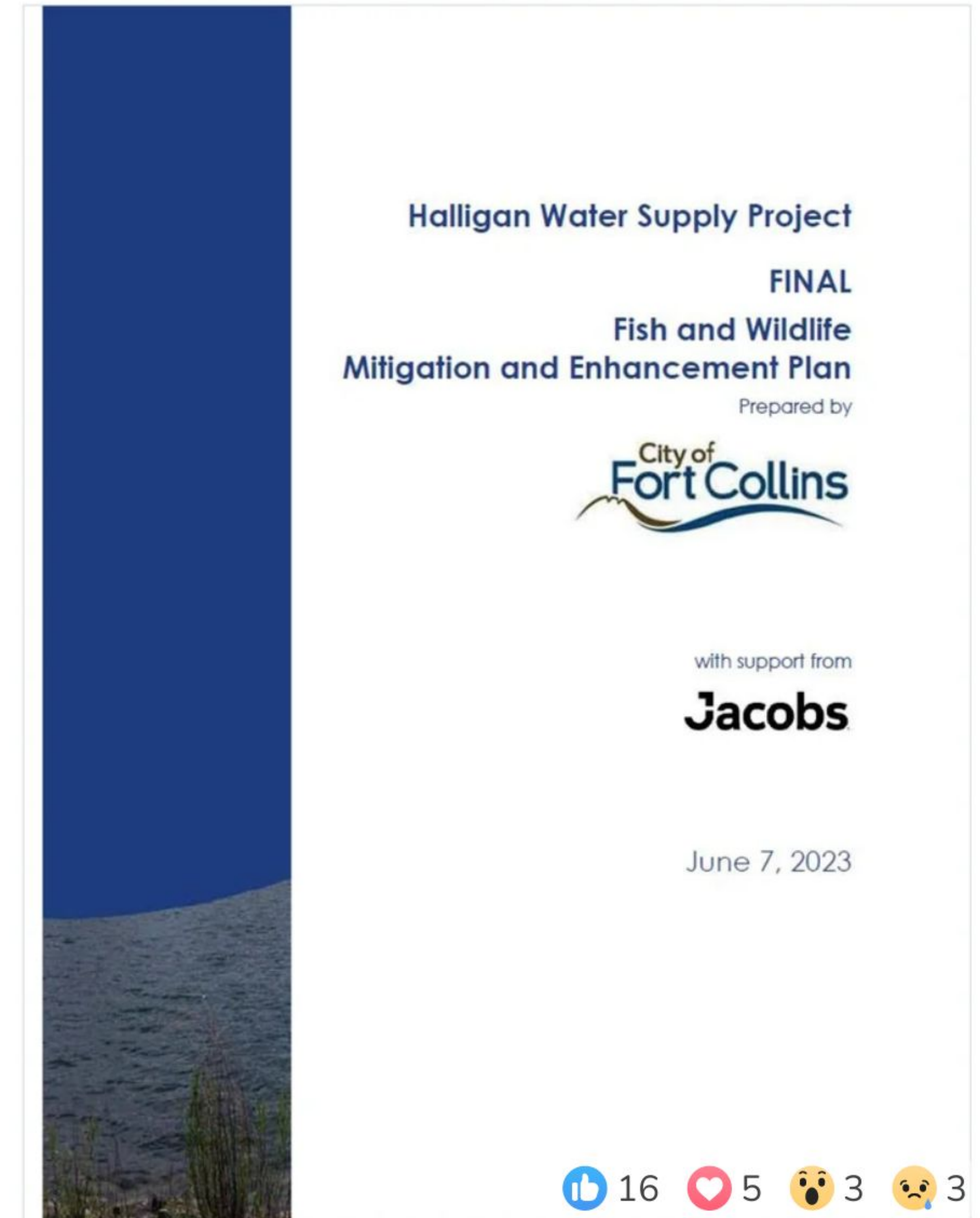
- Ensures year-round flows on North Fork
 - Winter & summer release plans (3-5 cfs)
- Enables fish passage
- Improves water temperatures



Fish and Wildlife Mitigation and Enhancement Plan (FWMEP)

3

- Comprehensive plan for addressing Halligan Project impacts
- Over 3 years of intensive work and negotiations with CPW
- Approved by the CPW Commission and CWCB (summer 2023)
- Key flow commitments

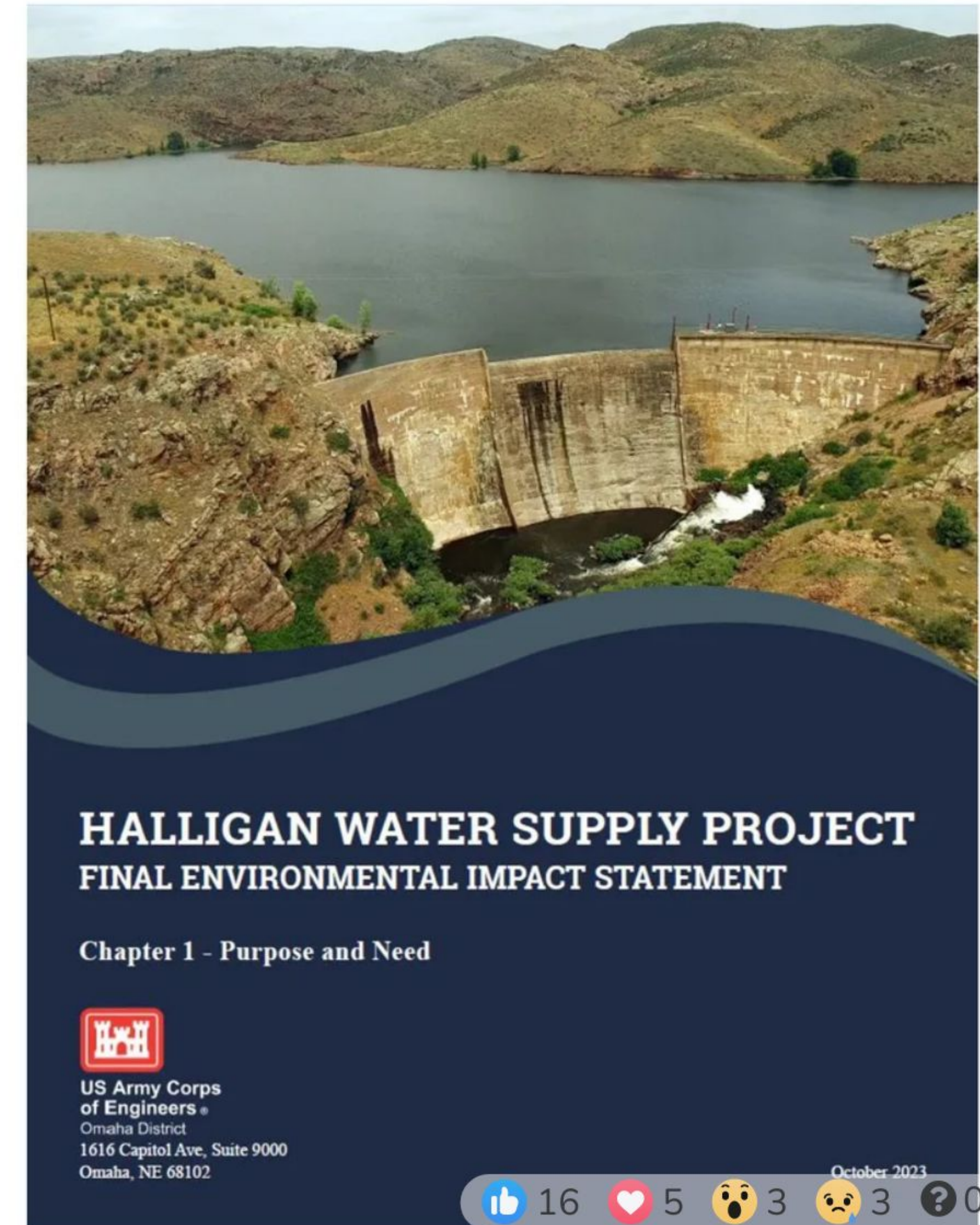


Flow-Related Operational Measures

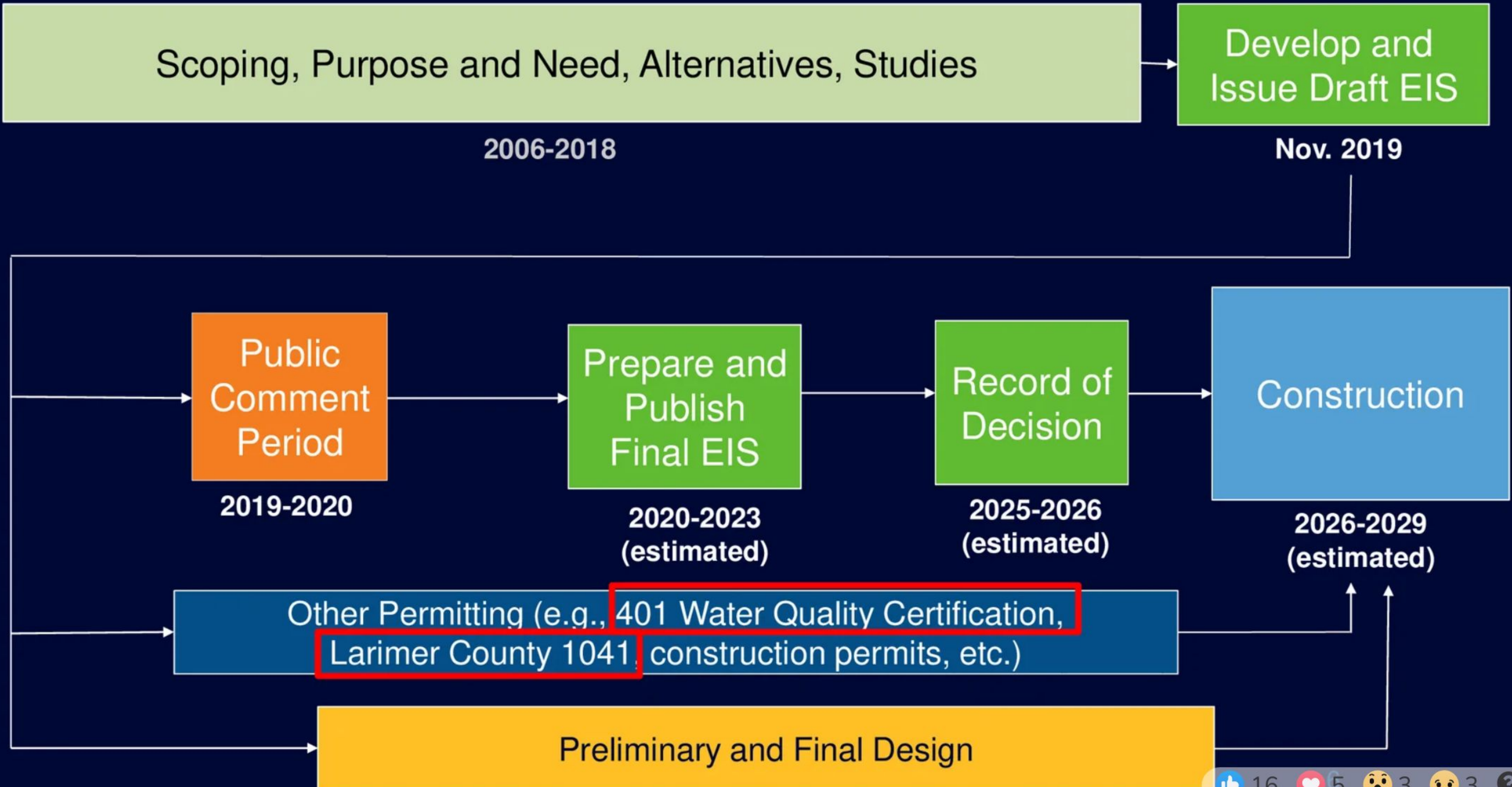
- Several measures will be included to avoid, minimize, and improve impacts on stream functions:
 - Winter Release Plan (3 cfs)
 - Summer Low-flow Plan (5 cfs)
 - Ramping Rate Limitations
 - Peak Flow Bypass Program
- Attempt to protect releases using the Protected Mitigation Releases statute
- These provide varying beneficial effects on about 22 miles of the North Fork from the replacement dam to Seaman Reservoir.



- Final Environmental Impact Statement (EIS) released in October 2023
- Alternatives considered in the EIS
- None of these alternatives will provide benefits of the proposed Halligan alternative

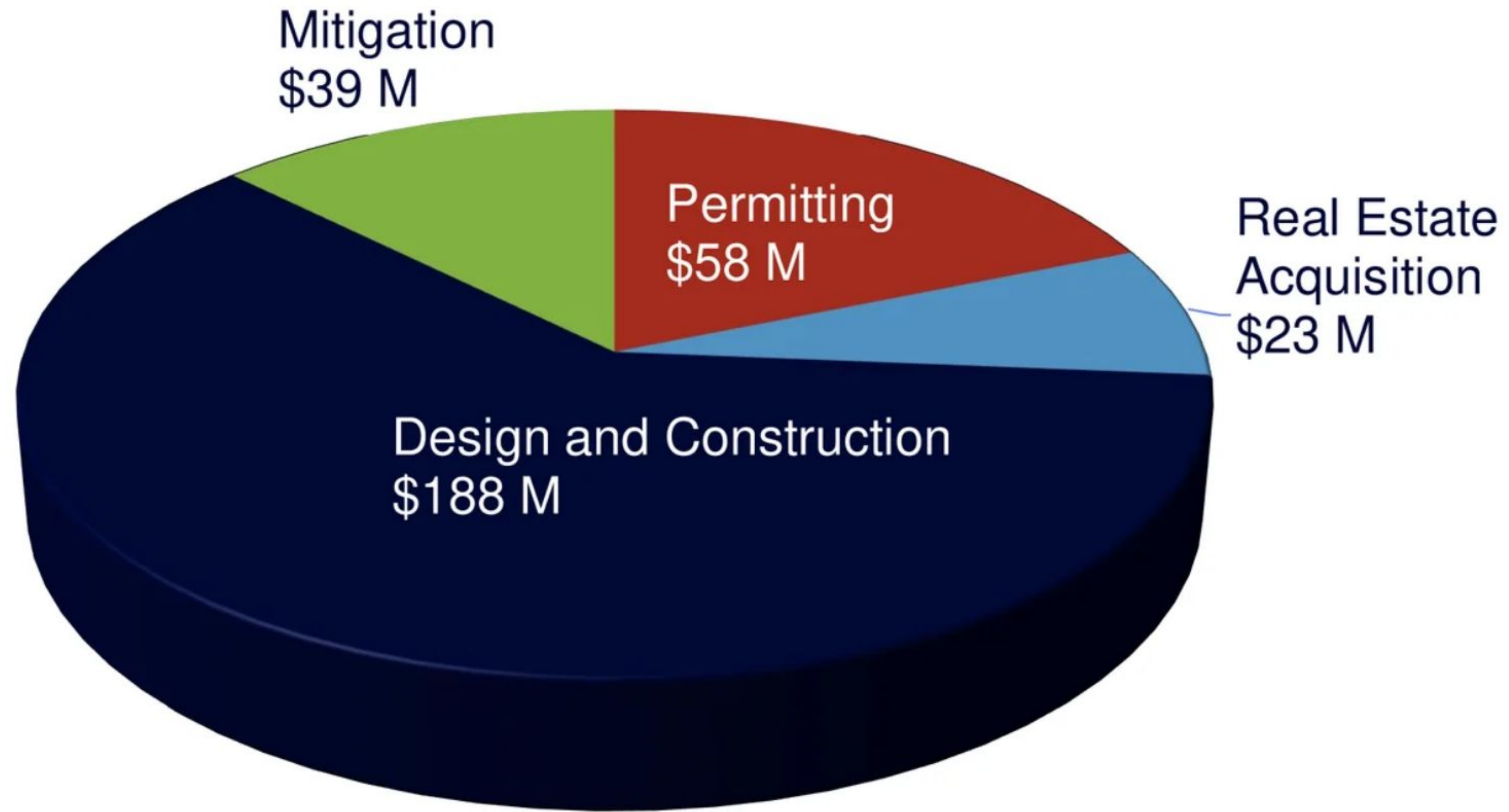


Permitting Schedule

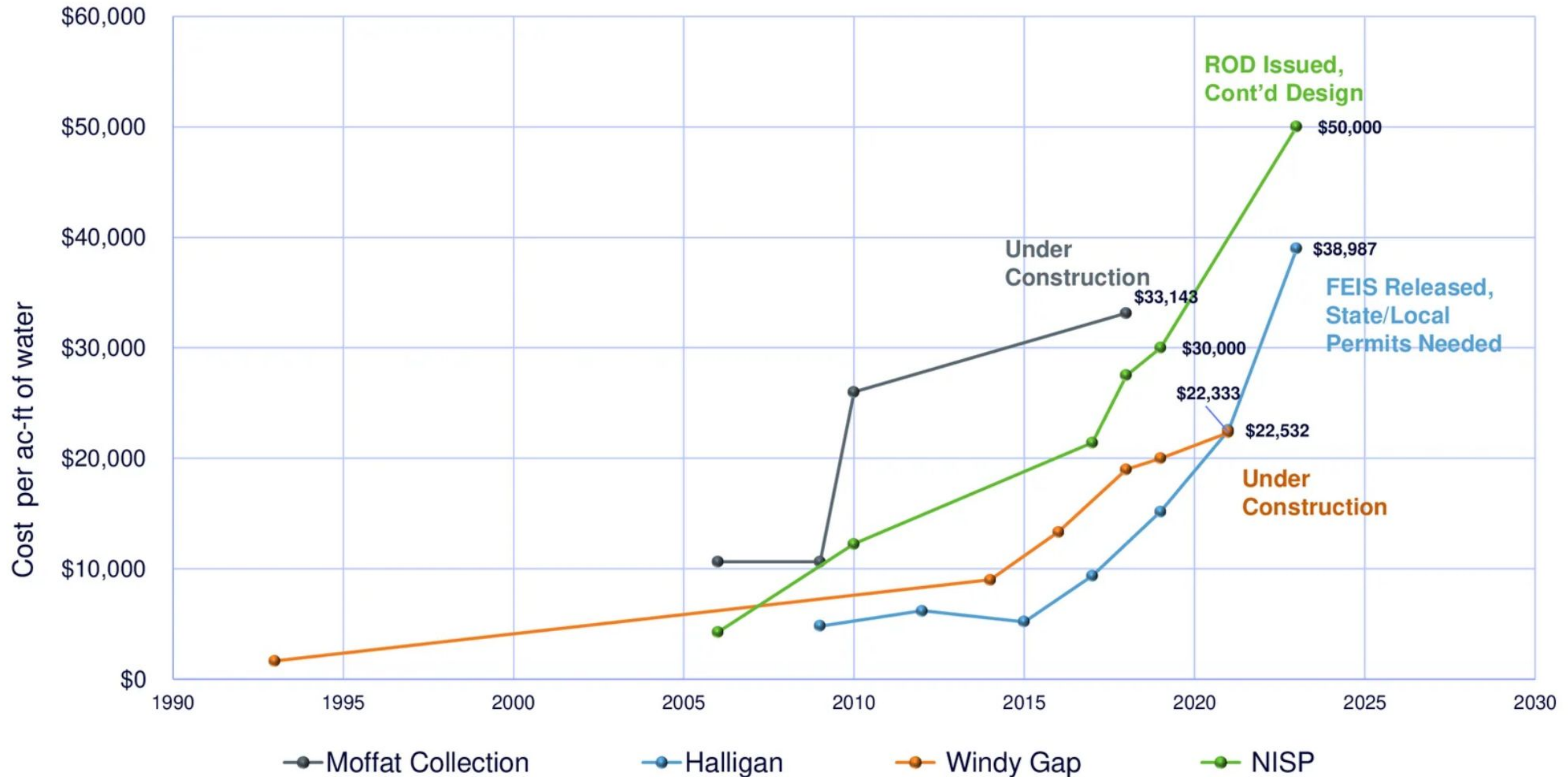


Current Project Cost Estimate

**Total Costs
= \$308 M**



Regional Water Supply Projects Unit Cost Through Time



*Costs shown for other projects were published information at that time and may not represent actual current cost estimates.



Thank you!

fcgov.com/Halligan

Laying Out the Costs

Adam Jokerst Westwater Research

Dr. Chris Goemans Colorado State University

Donnie Dustin City of Fort Collins

Calar Chaussee Town of Wellington Mayor

Moderator: **Zach Thode** Roberts Ranch

Lunch, Networking, Exhibitors



1 0

MINUTE COUNTDOWN TIMER-YouTube

Share



Watch on YouTube

Previous Poudre Pioneer Award Winners

CO Senator Peggy Reeves, 2018

U.S. Senator Hank Brown, 2018

Loren Maxey, 2019

Tom Shoemaker, 2019

Jeff Burley, 2020

Ben Loeffler, 2020

Tim O'Hara, 2020

Marylou Smith, 2023

Reagan Waskom, 2023

The Poudre Pioneer Award recognizes individuals or organizations, who have markedly contributed to furthering the goal of PRTI to make the Cache la Poudre River a premier example of a healthy working river.



Poudre Pioneer Awardee

Randy Gustafson





Working toward Solutions

Dena Egenhoff City of Greeley

Karen Schlatter Colorado Water Center

Chris Matkins Ally Utility Consulting

Kate Ryan Colorado Water Trust

Moderator: **Alex Hager** KUNC

Kate Ryan

Executive Director
Colorado Water Trust



Chris Matkins

Owner

Ally Utility Consulting



Karen Schlatter

Associate Director

Colorado Water Center at Colorado State University



Water Literate Leaders of Northern Colorado

Agriculture | Business | Environment | Recreation | Urban



Dena Egenhoff

Water Conservation Manager
City of Greeley





Water Budget & Conservation Tools

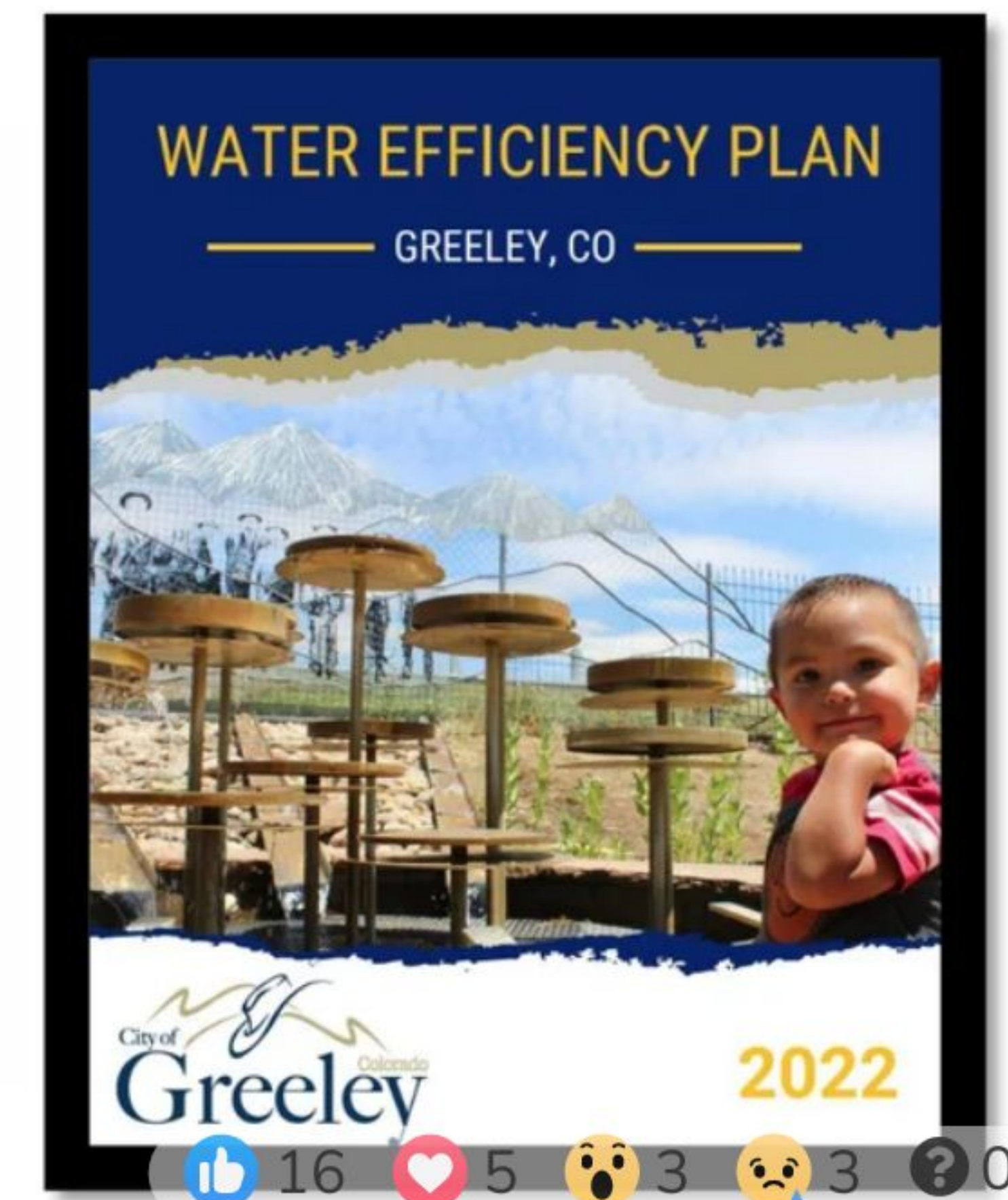
March 1, 2024

Dena Egenhoff- Water Conservation Manager

Greeley History

Innovation Everyday

- 1893 & 1907 outdoor water restrictions
- 1990s fully metered
- 1994 Water Efficiency Plan
- 2013 water budget
- 2022 Water Efficiency Plan with triple bottom line approach
- 2023 water conservation position for environmental justice



Water Conservation

Climate	Regulations Federal, State & Local	Demand Management
Drought	Regulation change	Population change
Wildfire	M36- Water Loss	Economics
Major infrastructure failure	Land use codes	Rates
Urban heat- index and tree canopy health	Non- potable water	Demand hardening
	Water Rights	Reduce peak plant demands



Water Budget



HOUSEHOLD
WATER
BUDGET



Persons Per
Household (Default 3)

X



45 Gallons Per
Person/Day

X



Days in Billing
Cycle

=



Indoor
Consumption



Your Yard
Size

X



Our Local
Weather

X



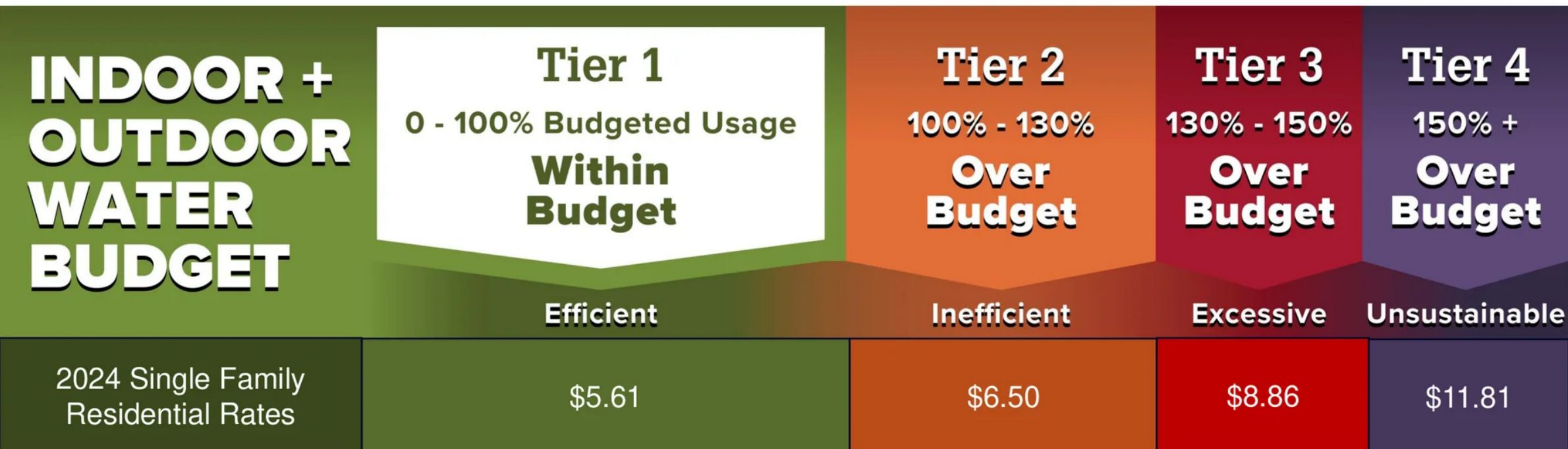
0.7 Landscape
Adjustment

=



Outdoor
Consumption

Water Budget



Water Budget



Why

- Promotes and rewards water efficiency
- Maintain revenue stability
- More flexibility
- Equitable

Calculated Water Savings

- 9-13%



Water Budget + AMI+ GIS

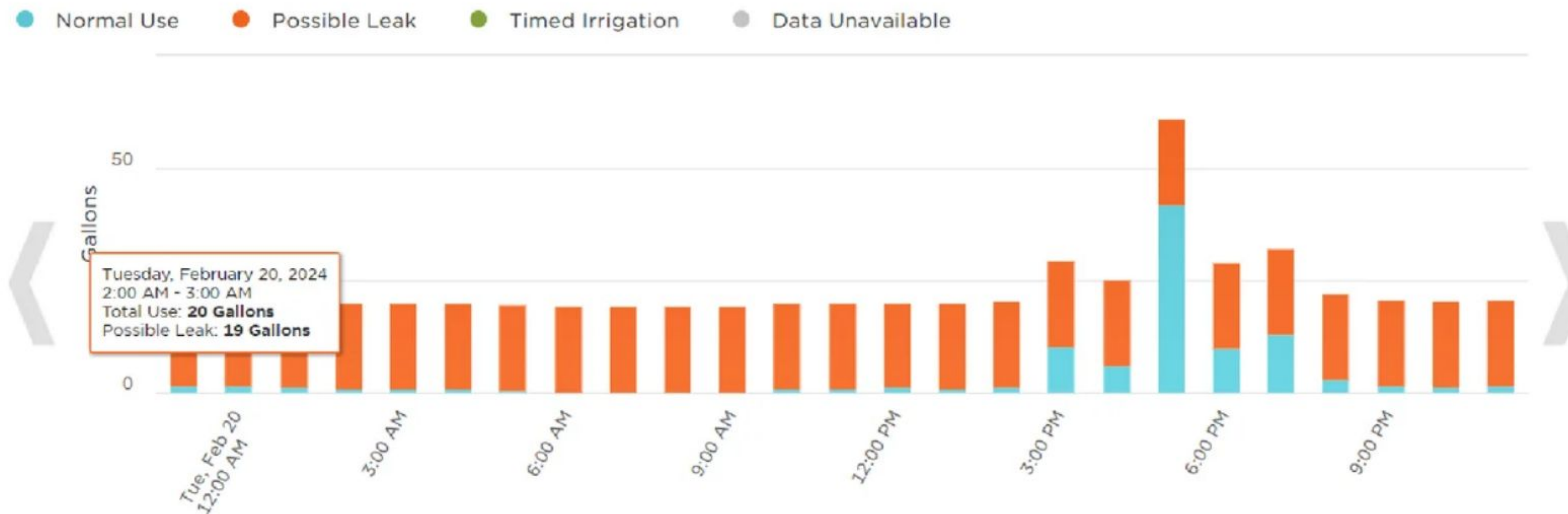
Advanced Meter Infrastructure (AMI)

- \$3.5 million grants from BOR
- 27,193 AMI meters to be installed in 2026

Water Savings from AMI

Total of 1,146 AF or 4.5%

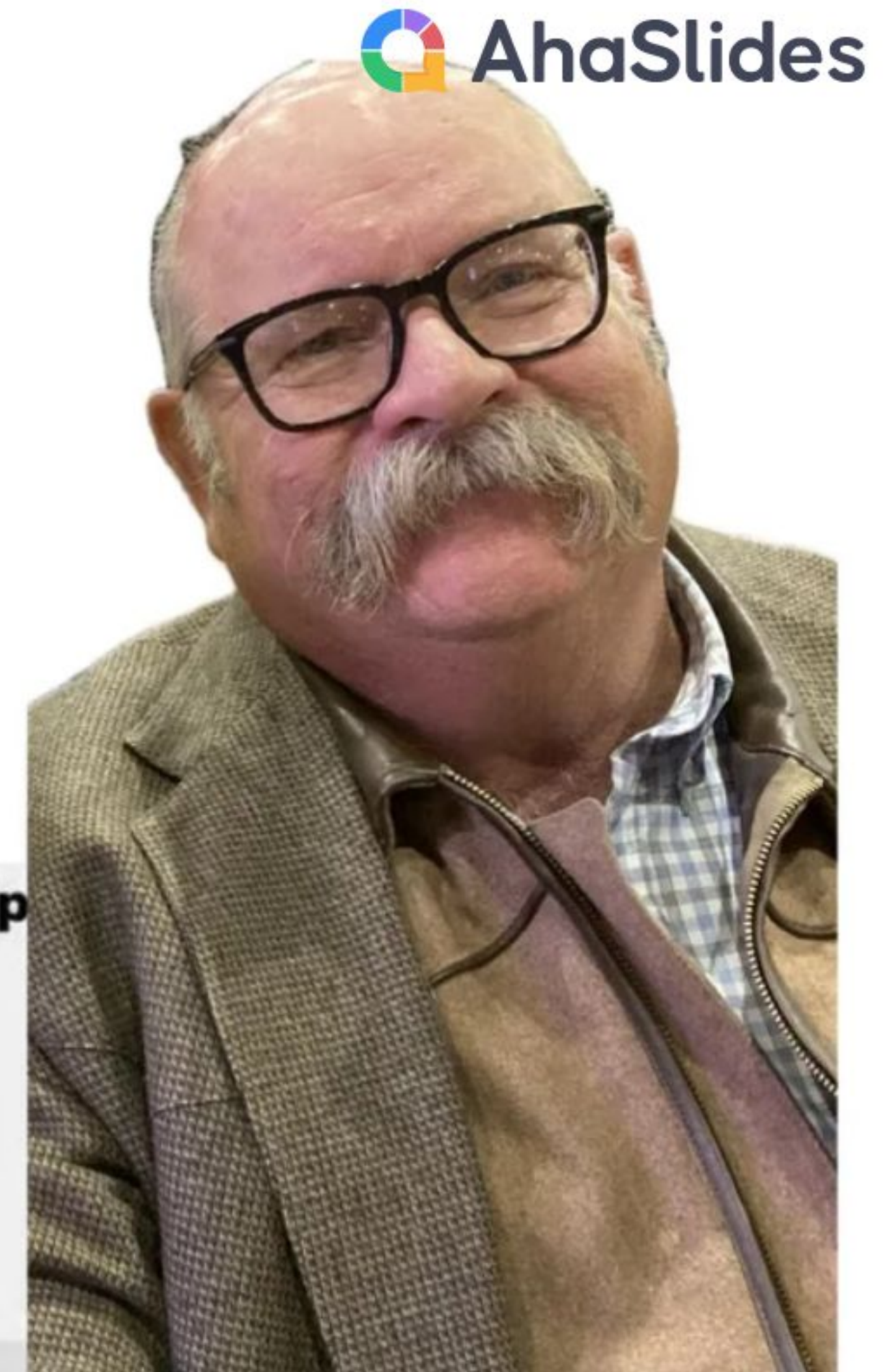
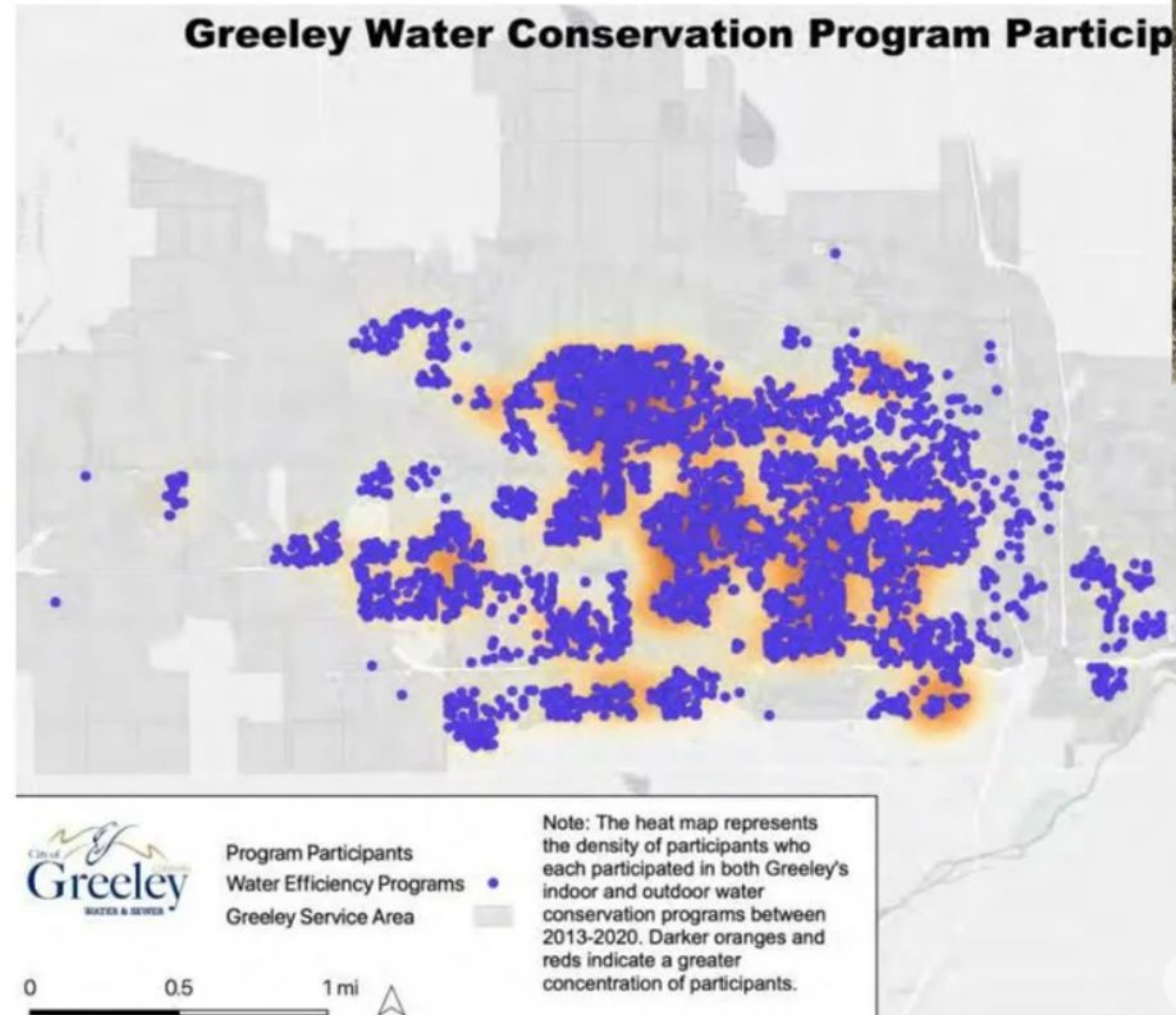
1. Meter accuracy
2. Leak alerts and detection
3. Education



Water Budget + AMI + GIS + Randy

Water Conservation Tools

- Gap analysis
- Target assistance programs
- Proactive measures
- Environmental justice
- Equity

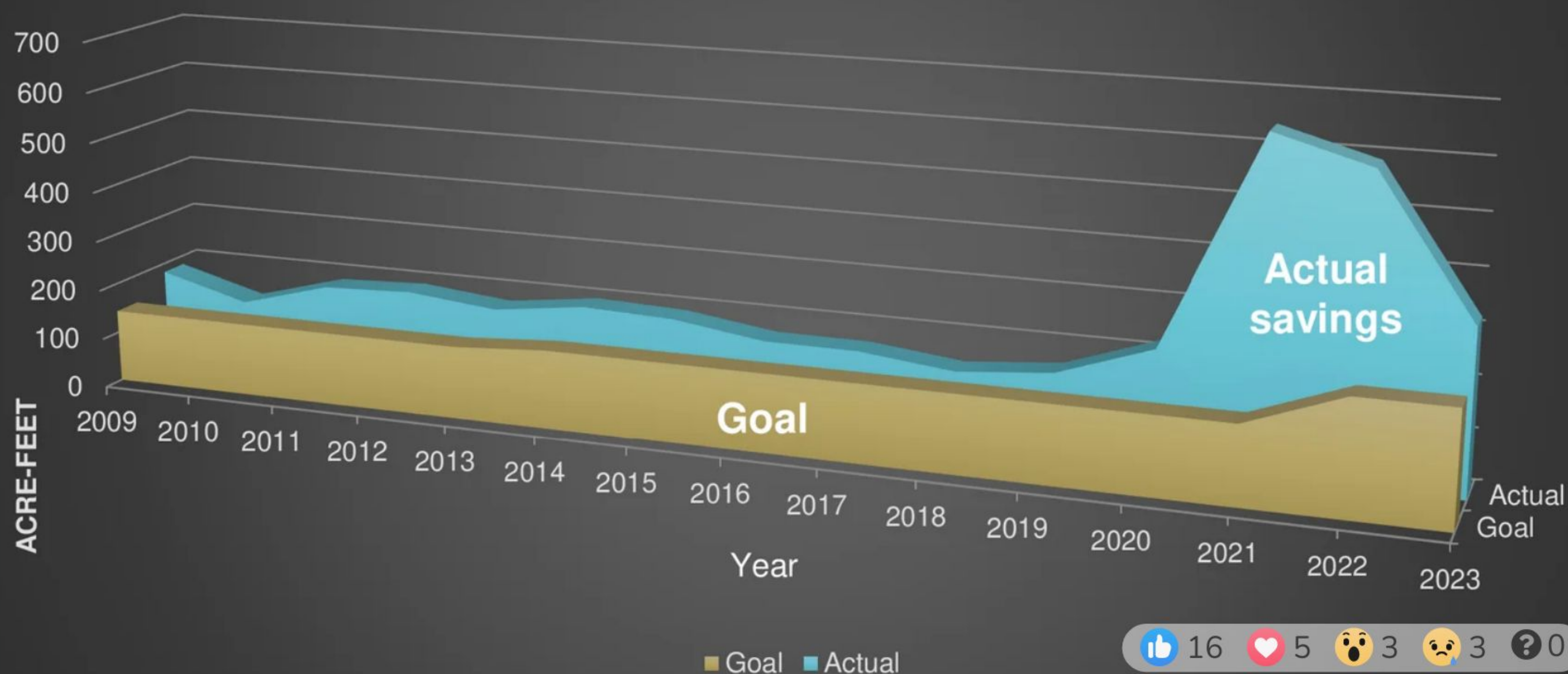


2023 Largest Benefits

- Leak Alerts (based on AMI data only)
- AMI meters
- Education
- Water Assessments
- Life After Lawn



Water Savings Estimate



Water Conservation Team

Conserve@greeleygov.com



WC Manager
Dena Egenhoff



WC Specialist II
Rita Jokerst



WC Administrator
Ruth Quade



WC Efficiency
Coordinator
Margarita Padilla



WC Specialist II
Ben Schaffer



WC Intern
Adam Schofield

Working toward Solutions

Dena Egenhoff City of Greeley

Karen Schlatter Colorado Water Center

Chris Matkins Ally Utility Consulting

Kate Ryan Colorado Water Trust

Moderator: **Alex Hager** KUNC



Optimism | Poudre River Forum 2024 Cost of Water



Watch on YouTube



COLORADO

Department of Agriculture

2024 Poudre River Forum
March 1, 2024
Greeley, CO

*Alex Hager visits with
CDA's new Ag Water Policy Advisor, Robert Sakata*









COLORADO
Department of Agriculture

Thank you!

Robert.Sakata@state.co.us

720-512-6868

Ag.Colorado.gov



Thank you!

Save the Date:
10th Annual Poudre River Forum
March 7, 2025

