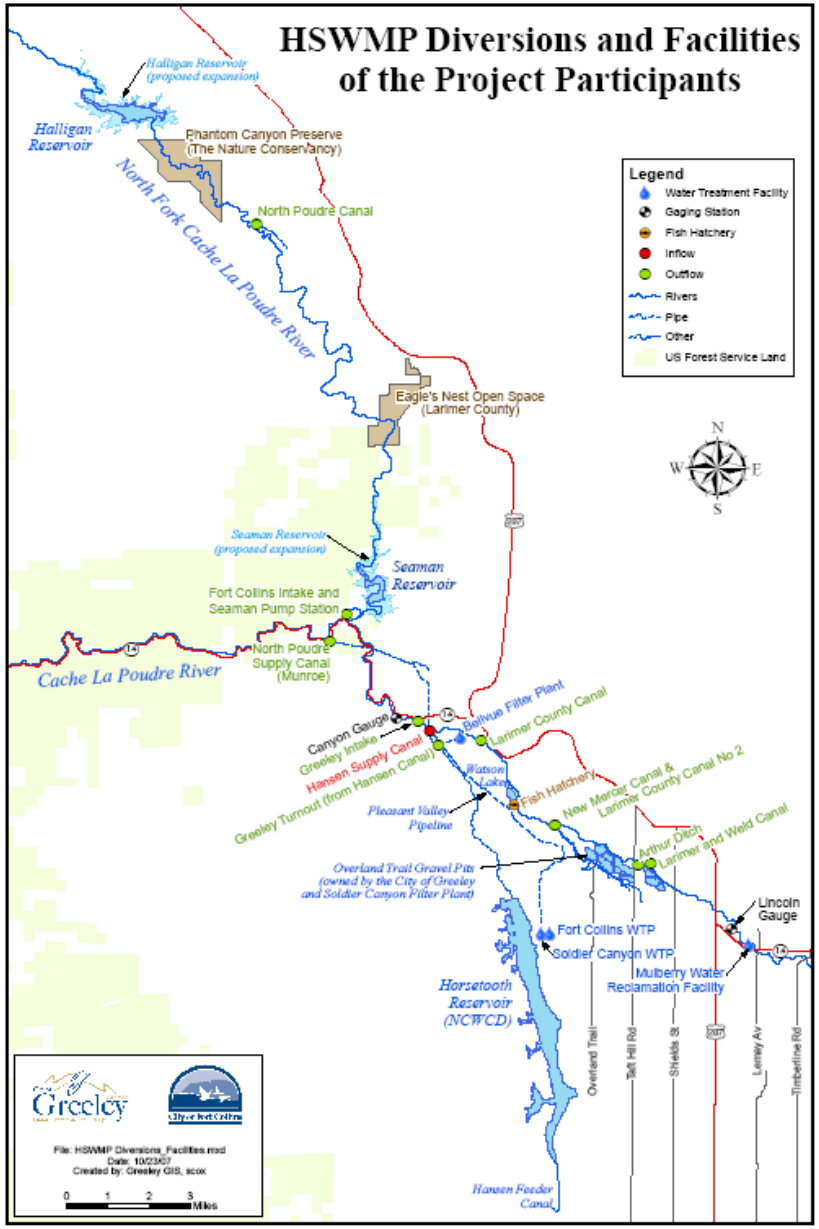
Halligan Seaman Reservoir Expansions Permit Update

"Nothing is more useful than water,
but it will purchase scarce anything;
scarce anything can be had in exchange for it."
Adam Smith, *The Wealth of Nations*, 1776

The HSWMP Preferred Alternative

- Halligan Reservoir is enlarged from 6,400 ac/ft to 19,500 ac/ft.
- Seaman Reservoir is enlarged from 5,000 ac- feet to 53,000 ac/ft.

Project Location



HSWMP Participants

- Halligan Reservoir
  - The City of Fort Collins
  - North Poudre Irrigation Company
- Milton Seaman Reservoir
  - The City of Greeley

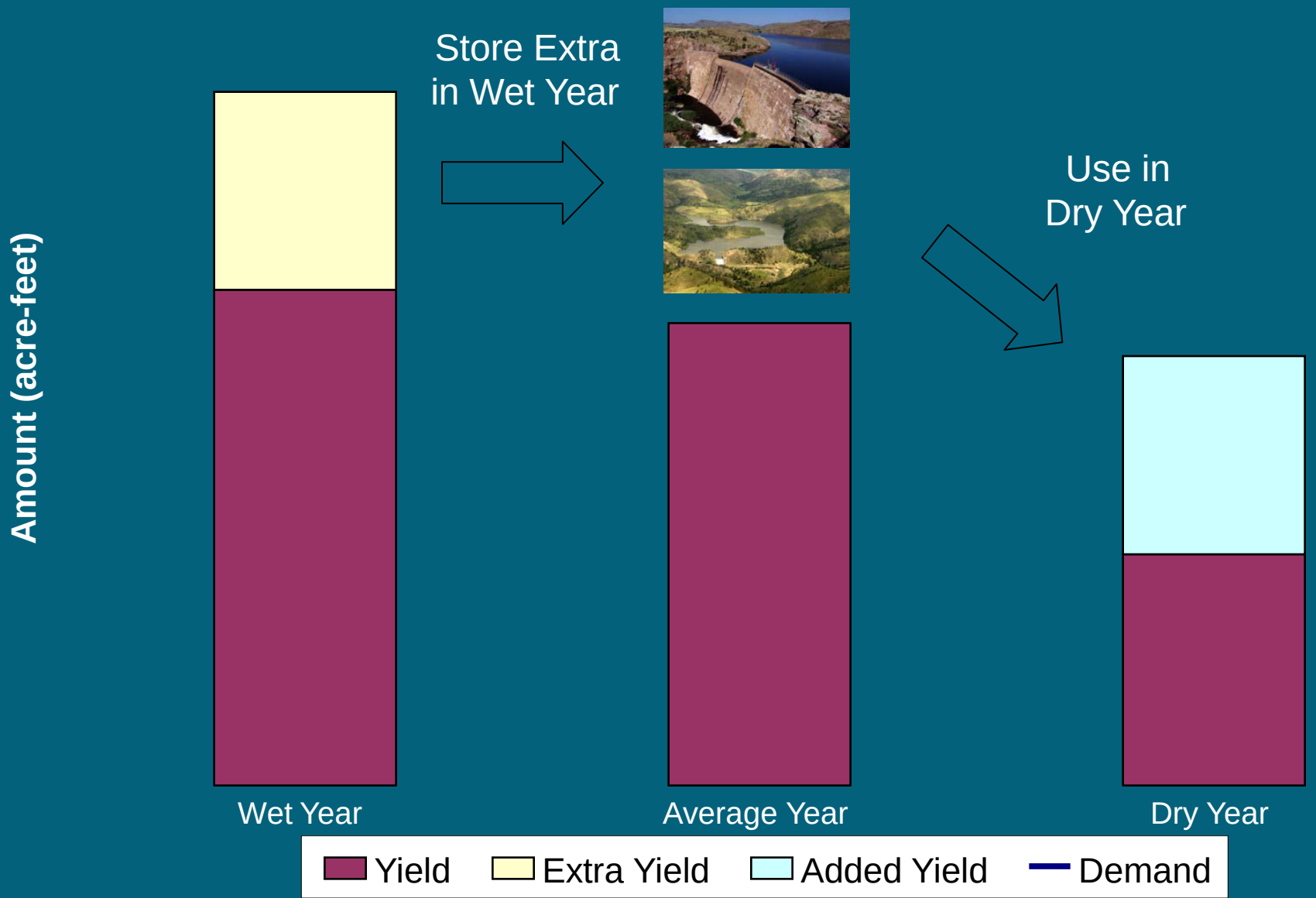
Overview

- Why storage?
- Regional partners - Proposed project
- Water resources planning
- Environmental issues
- National Environmental Policy Act (NEPA)
  Clean Water Act 404(b)(1) guidelines
- Next Steps/Schedule

Why Storage?

- Helps manage use of existing water rights
- Cost-efficient way to meet future demands while benefiting existing customers
  - SWSI Report population projections for Larimer & Weld Counties: 441,905 and 473,275, respectively, by 2030
- Provides place to store water in wet and average years to use in dry years

Storage Balancing Effect



Future Storage Needs

- Halligan Reservoir

  City of Fort Collins – 8,100 ac/ft
  North Poudre Irrigation Company – 5,000 ac/ft

- Milton Seaman Reservoir

  City of Greeley – 48,000 acre/feet

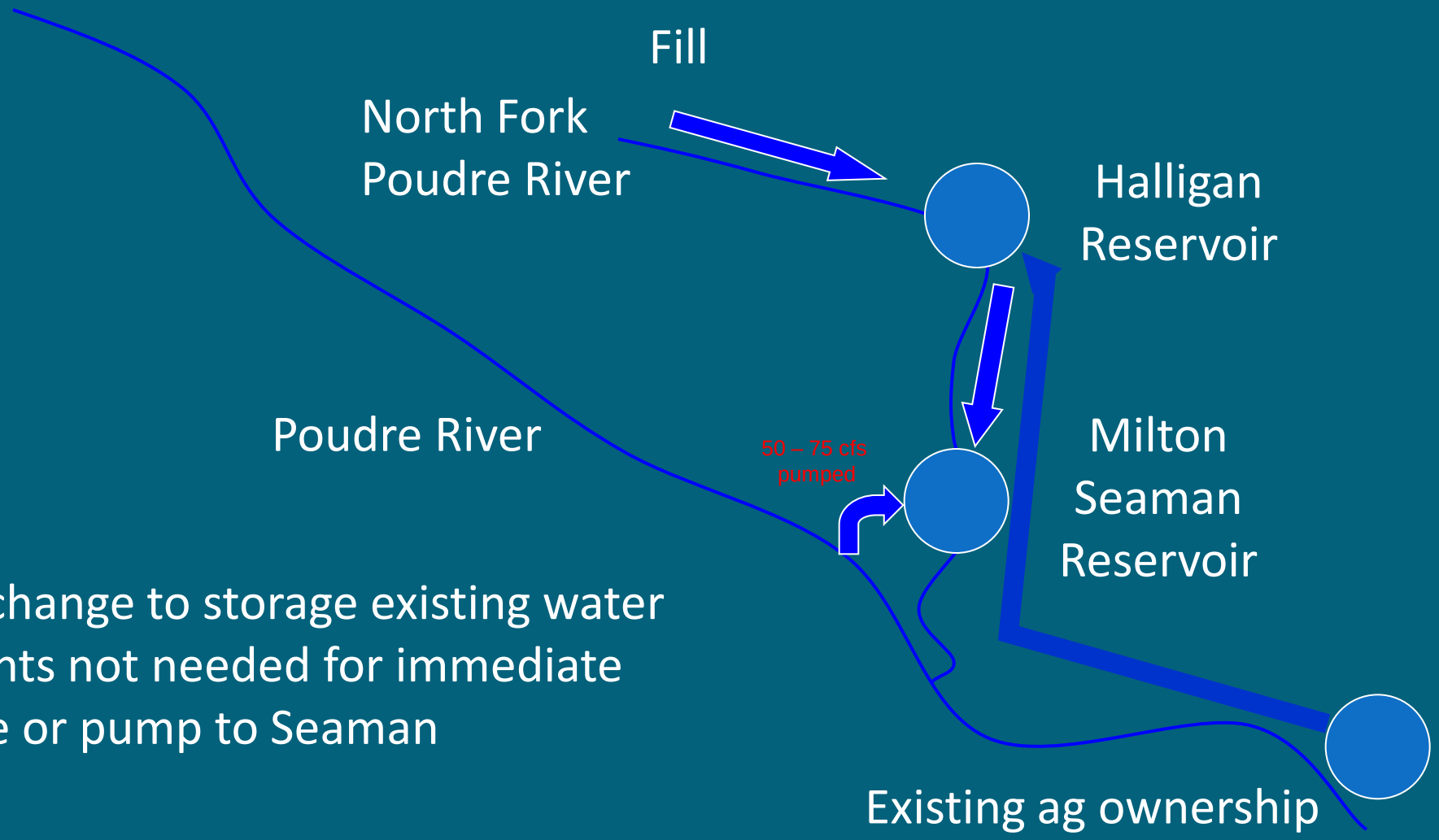
Benefits of Regional Project

- Reduced costs to participants
- Phase construction of projects as needed
  - Halligan Enlargement – near 2015
  - Seaman Enlargement – near 2030
- Provides a regional solution for participants with Poudre basin water rights
- Cooperation between the project participants offers improved water management strategies

Benefits of Regional Project

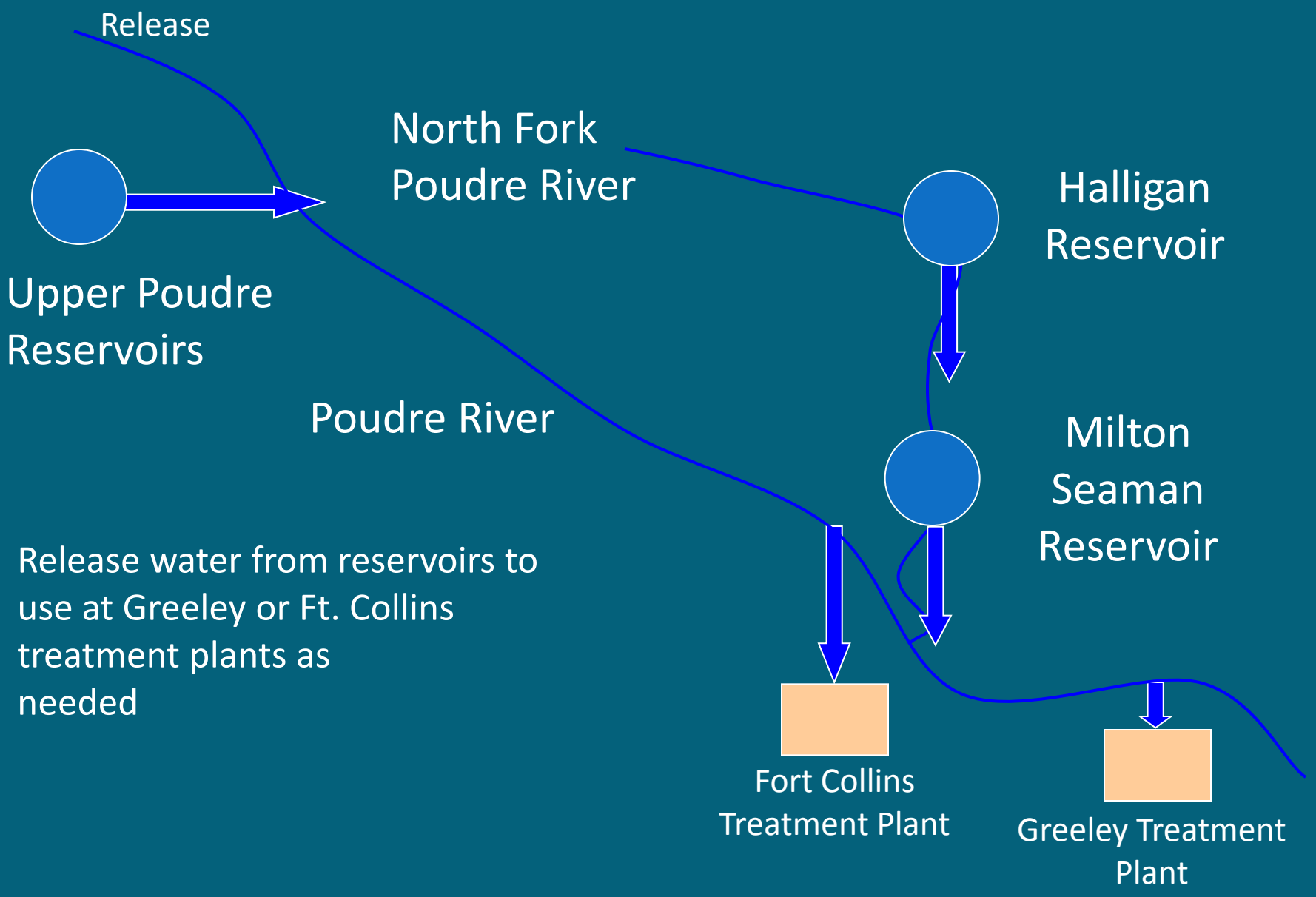
- Promote regional cooperation and encourage stream flow and ecosystem protection while maintaining project yields
- Opportunity to incorporate agricultural storage to the project

Operations of Expanded Halligan and Seaman Reservoirs



Exchange to storage existing water rights not needed for immediate use or pump to Seaman

Operations of Expanded Halligan and Seaman Reservoirs



Release water from reservoirs to use at Greeley or Ft. Collins treatment plants as needed

Preferred Alternative-Water Supply

- Halligan Reservoir
  - Senior Poudre water rights owned or to be acquired
  - Reservoir filled by capturing direct flows by exchange
- Seaman Reservoir
  - Senior Poudre water rights owned or to be acquired
  - Reservoir filled by capturing direct flows by exchange or through a 50 cfs (approximately) pump station on the main stem Poudre

HSWMP Preferred Alternative Operations

- Project allows participants to store water that would have been lost and diverted by the next water right.
  - Although agricultural water rights yield in the summer months, storage and re-timing of releases will help meet the participants' year-round municipal demands.
- During a drought, project storage enables participants to re-time water stored in wet and average years.
- Participants will release water annually for operational purposes.

Preferred Alternative Flow Impacts

- The proposed operation of the HSWMP:
  - Will increase winter time flows through Phantom Canyon on the North Fork.
  - Will increase winter flows on the North Fork below the North Poudre Canal.
  - May reduce flows in a small river reach of the main stem between the confluence and the City of Fort Collins as senior ag rights are exchanged up to the reservoirs.
  - Will rarely affect historic flows through the City of Fort Collins because most of ag water rights were historically diverted up stream of the City.
  - Will have minor impact in town due to use of junior water rights.

Preferred Alternative Results

- Firm Yield
  - Participants gain firm yield from existing rights through project storage.
- Drought Reserve
  - Participants gain a drought reserve to provide water to customers through droughts.
- Potential Stream Flow Enhancements
  - Hopefully, together we can find some additional stream flow enhancement opportunities that work within the limits of the preferred alternative.

Fort Collins Water Resources Planning

- City of Fort Collins Water Supply and Demand Management Policy
  - Directs the acquisition, development and management of the City's water supply
- Updated/adopted by City Council (Nov. 2012)
- Water Supply Planning Criteria
  - Planning demand level: 150 gpcd (recent use)
  - Drought criterion: 1-in-50 year drought event
  - Storage reserve factor: maintain 20% of annual demand in storage (through 1-in-50 droughts)

FTC Water Supply Planning Criteria

- Determines water supply and/or facility needs
  - (e.g., amount of storage)
- Should be conservative to account for planning uncertainties (e.g., population projections)
- Critical for long-term planning (especially storage)

Drought Criterion

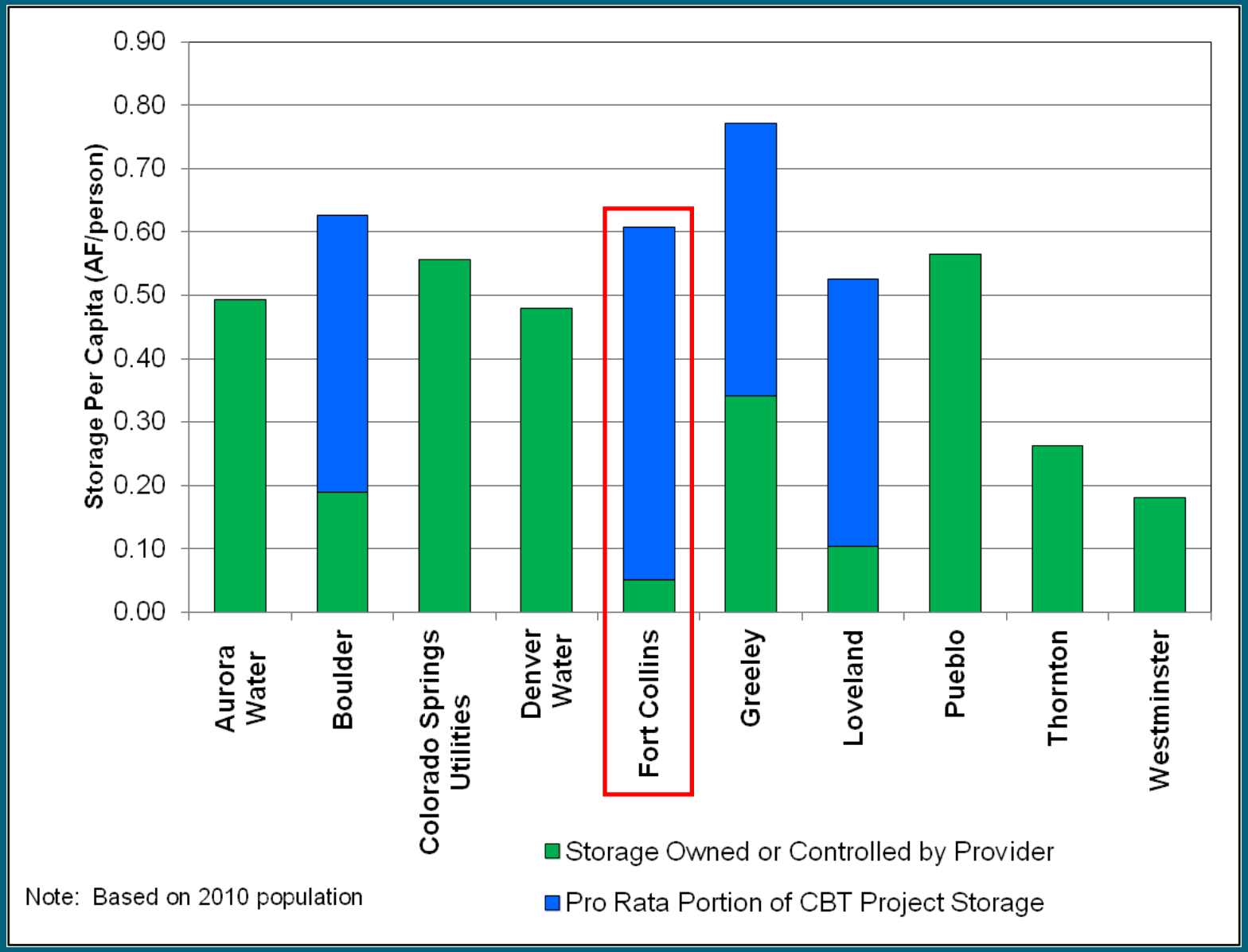
- Defines level of reliability for supply system
- Supplies yield less in more severe droughts
- Policy approved 1-in-50 year drought
  - Used since 1988 Water Supply Policy
  - Has provided adequate supplies to date

    (Except through severe drought of 2002/03)

Storage Reserve Factor

- Percent of annual demand in storage (through 1-in-50)
  - Policy approved 20% factor
  - About 3.5 months winter and 1.5 months summer
- Provides short-term emergency supply (i.e., pipeline or CBT shutdown)
- Diversifies water supply system
  - Minimizes reliance on CBT

Storage per Capita Comparison



Planning Demand Level

- Sets the amount of demand the water supply system should be developed to meet
  - Policy approved 150 GPCD level (recent average)
- Recognizes that water supply projects take many years to develop
- Can be higher than conservation goal
  - Accounts for future uncertainties

Potential Uncertainties???

- Modeling does not include:
  - Climate change
  - CBT curtailment
  - Water quality blending

- Supplies could be reduced by:
  - River administration changes
  - Competing water rights

Fort Collins Future Water Demands/Supplies

- Depends on population/commercial growth
  - Build out by 2050 given surrounding districts
- Estimated utility population is 165,100 by 2050 (129,900 in 2010)
- Large contractual use increase of 3,000 acre-feet/year by 2050
- Future total demands 38,000 acre-feet
  - Existing firm yield 31,000 acre-feet

Fort Collins
Planning Criteria and Halligan

- Enlargement would meet needs defined by the planning criteria
  - Increases firm yield to meet future demands
  - Provides storage reserve factor
  - Diversifies supply system (less CBT reliance)
  - Prepares for potential effects of climate change
  - Helps meet legal return flow obligations
- Would use mostly Fort Collins existing rights
  - Less expensive than acquiring new rights
  - Long-term plan since 1960s

Greeley Water Resource Planning

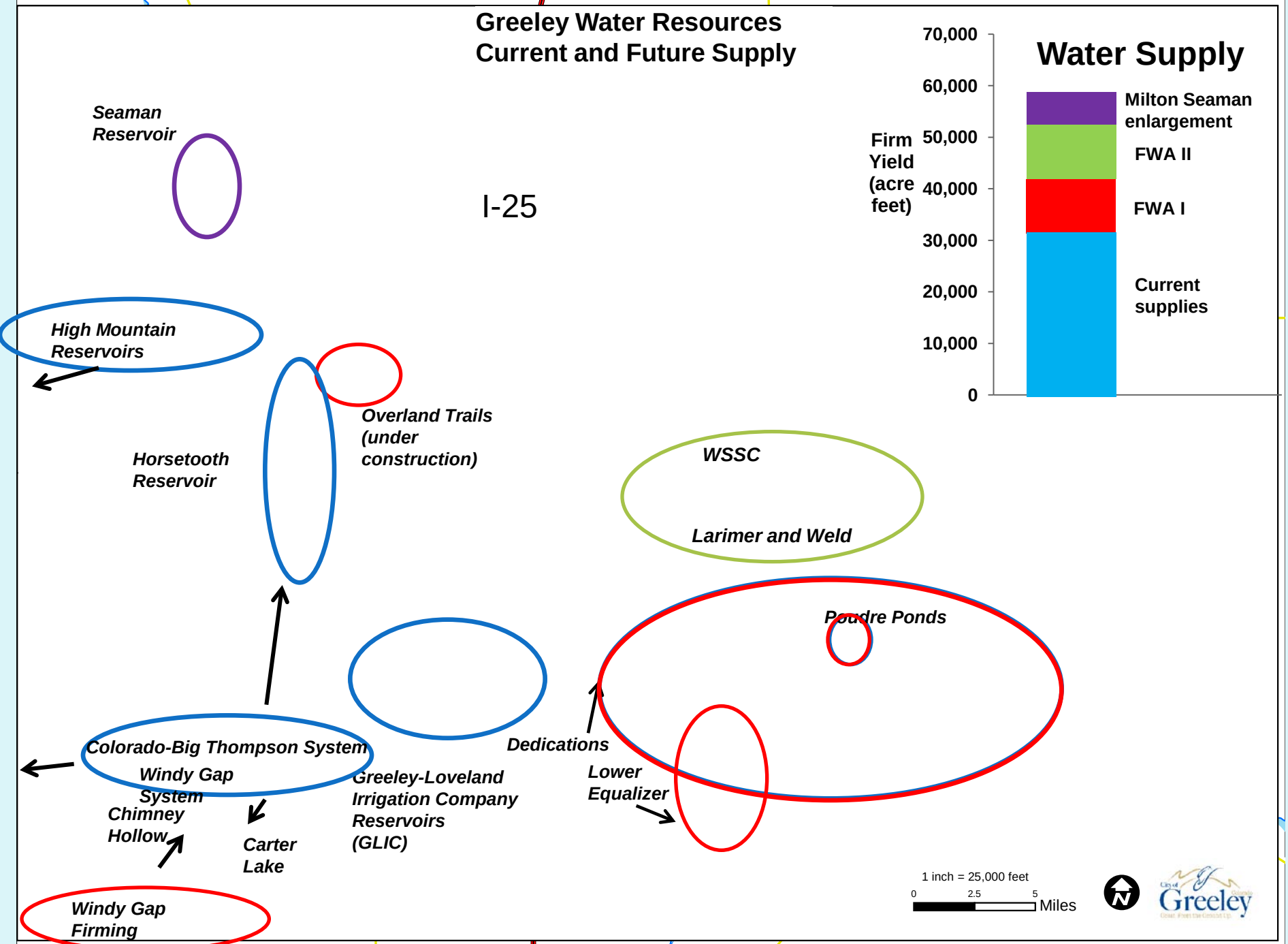
City of Greeley Water Master Plan defines the specific steps for providing a reliable water supply.

- Near-term (to 2020):
  - Incrementally increase the efficiency of Greeley's water system
  - Acquire new supplies
  - Focus on small storage projects
  - Conservation

What We Are Planning

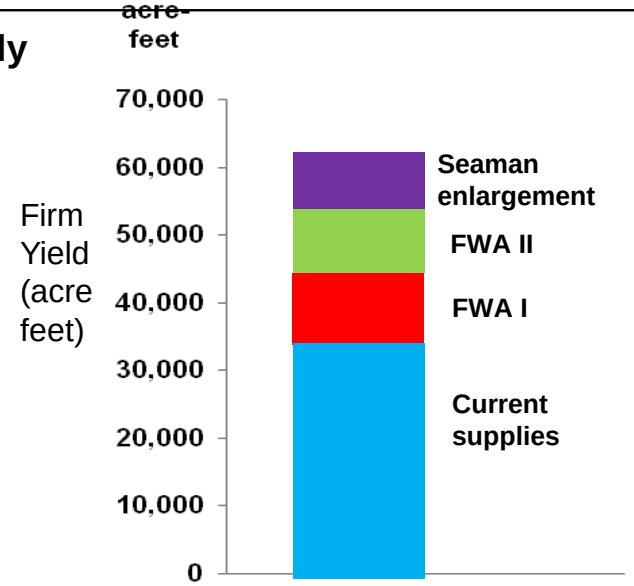
- Population in Greeley is projected to increase from 95,000 to 240,000 by 2050.
- Demand = 25,000 ac/ft today
  60,000 ac/ft projected in 2050
  75,000 ac/ft in 2060
- Even after implementing conservation, improving infrastructure and purchasing water rights, Greeley will not have sufficient water to meet 2050 demands.
- Additional storage will help meet the 2050 demands.

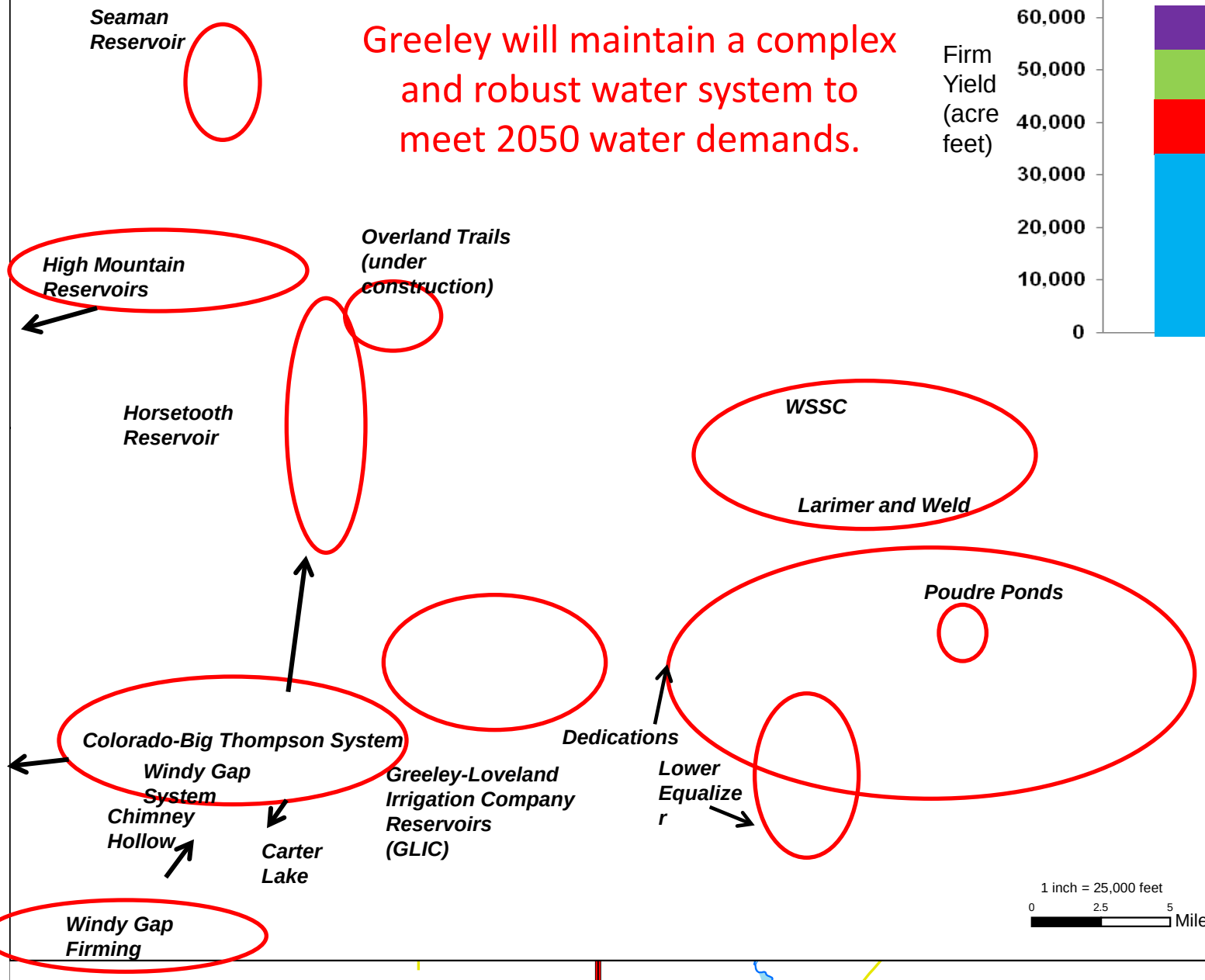
Greeley Water Resources
Current and Future Supply



Greeley Water Resources Current and Future Supply

Greeley will maintain a complex and robust water system to meet 2050 water demands.





Halligan Reservoir

Halligan Reservoir

- Located on the North Fork of the Poudre River, northwest of Livermore
- Operated as an irrigation reservoir since 1910 when the dam was completed
- Provides 6,400 acre-feet of water storage
- 1987 agreement with Phantom Canyon Ranches to facilitate Halligan enlargement
- 1989 feasibility study completed by City

Halligan Reservoir

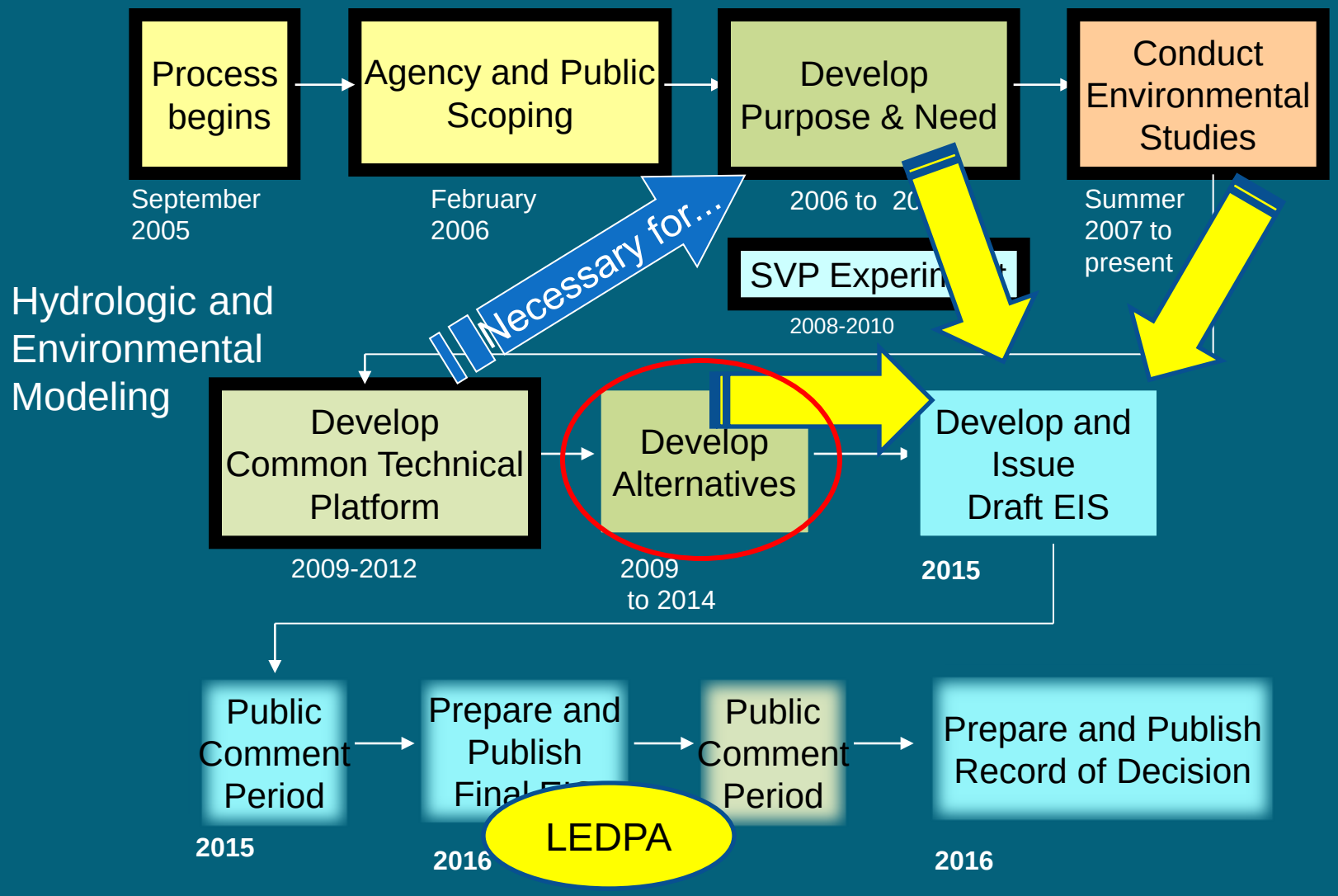
- 1993 purchase option agreement with NPIC
- Fort Collins City Council approval to exercise option on Nov. 4, 2003
- January 2004 Fort Collins closed on property
- Enlargement from 6,400 acre-feet up to 19,500 acre-feet

Milton Seaman Reservoir

Milton Seaman Reservoir

- Located on the North Fork of the Poudre River above Fort Collins' Gateway Park
- Owned and operated by the City of Greeley since 1943 for municipal water storage
- One of six Greeley reservoirs in the upper Poudre River Basin
- Provides 5,000 acre-feet of water storage
- Enlargement up to 53,000 acre-feet

Permitting: Where are we now?



Permitting Progress

- Common Technical Platform – Complete
- Purpose and Need Report – Pending
- No Action Alternative – Draft prepared
- Technical reports begun to quantify impacts to
  - Fisheries
  - Riparian ecology
  - Water quality
  - Geomorphology
  - Groundwater
- Alternatives analysis is underway

Permitting takes a long time.

- Denver Moffat began in 2002. FEIS published 2012
- NISP began in 2004. DEIS published in 2008. Corps required supplemental. SDEIS still not published.
- Windy Gap Firming began in 2003. FEIS published Nov 2011; awaiting ROD.
- Southern Delivery System permit took 12 years. Then were sued over 401 certification. In design.
- Chatfield Reallocation (Corps facility) -- 18 years of planning, began permitting 2005 DEIS published 2012

Permitting Next Steps - Long Term

- Corps will publish DEIS (2015) and take public comments
- Corps will select the Least Environmentally Damaging Practicable Alternative (LEDPA): either an enlarged Seaman or one of the alternatives.
- Greeley will develop mitigation plan for impacts
  - Artificial wetlands
  - Habitat preservation and enhancement
  - Operational constraints

Schedule

- EIS process – 2005- 2015/16
- Complete design (Halligan)– 2016
- Construction (Halligan)– 2017
- Complete design (Milton Seaman)– 2028
- Construction (Milton Seaman)– 2029-2030

(Schedule subject to NEPA and CWA process)