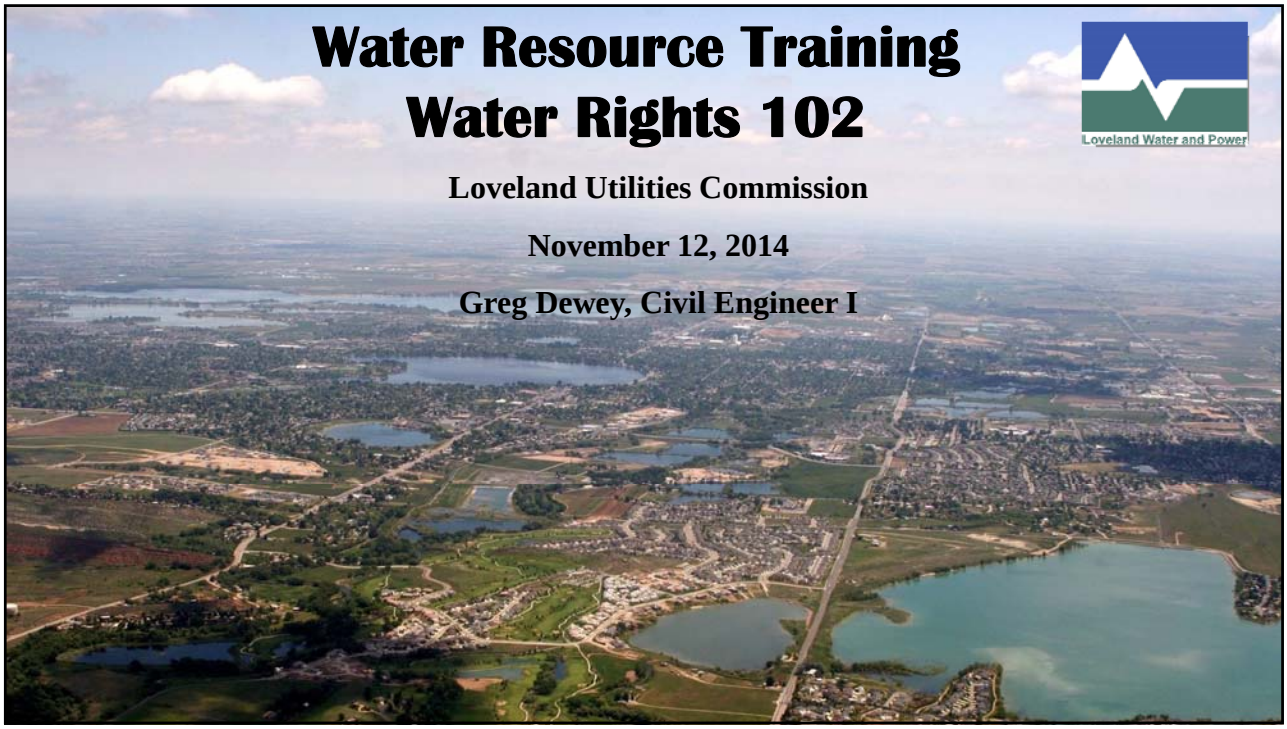
Water Resource Training 101 Review

- **Handouts**
  - Northern Water
    - Annual Report
    - Windy Gap Firming Project Brochure
    - Colorado Big Thompson Project Informational Booklet
    - Colorado-Big Thompson Project Boundaries and Facilities Map
  - Loveland Irrigation Features Map
  - Loveland's Ownership in Ditch Companies
  - Loveland's Water Supply Sources
  - Northern Colorado's Cities Raw Water Requirements/Credit Comparison



Agenda

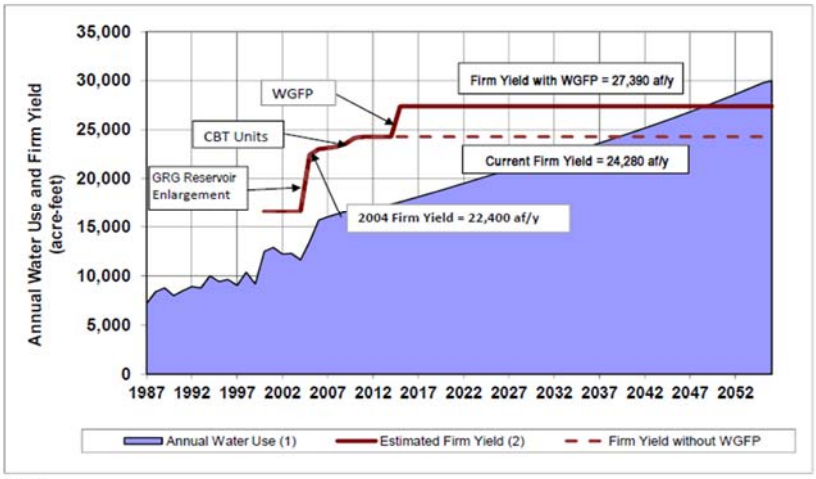
- Part A
  - Part 1: Review of Water Resource Material 101
- Part B
  - Part 1: Raw Water Master Plan
  - Part 2: Landscape Hydrozone Program
  - Part 3: Loveland Storage Reservoir Project
  - Part 4: Second Use Water Program Development Study (Purple Pipe)
  - Part 5: Downstream Storage
  - Part 6: Other Discussion Items
    - Waters of the U.S.
    - Public Trust Doctrine
    - Future Steps

Part 1: 2012 Raw Water Master Plan
Goal: Close the 2,610 Acre-Foot Gap

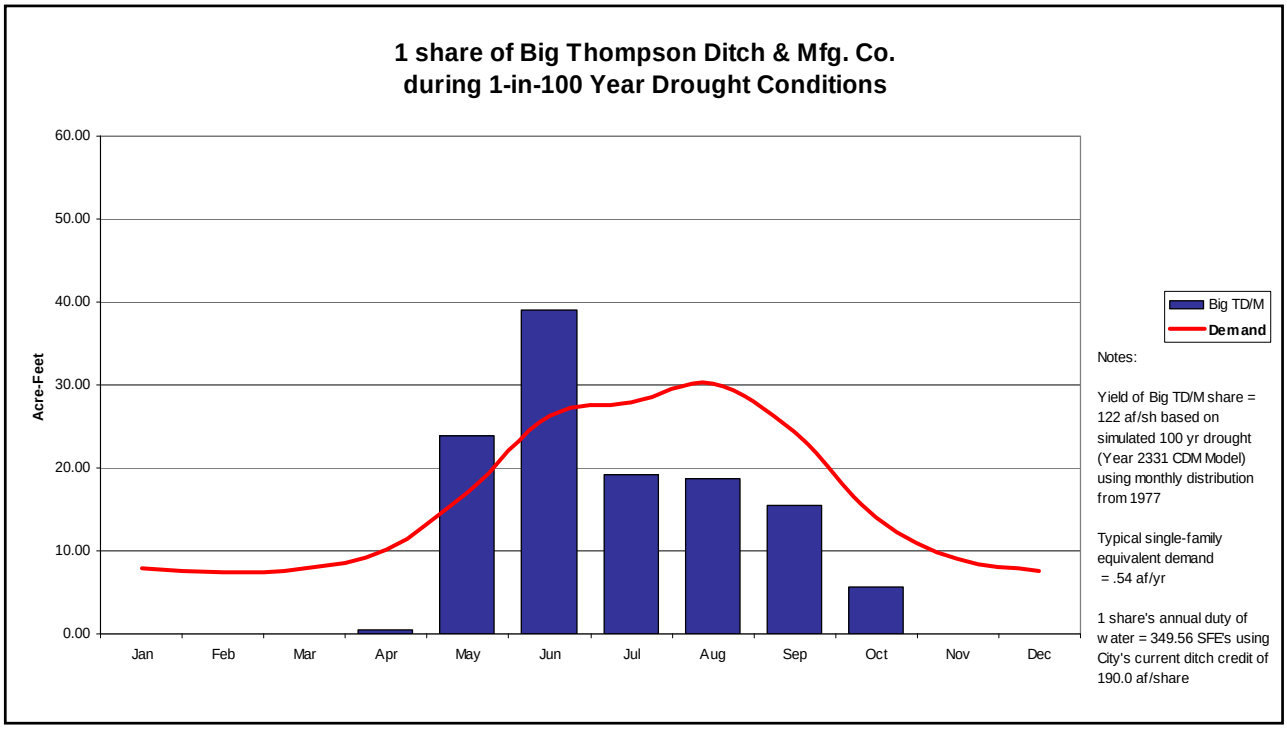
Outline

- Raw Water Master Plan (RWMP) description
- RWMP Recommendations
- Options to close the gap
- Water Bank Summary
- For the complete copy of the 2012 Raw Water Master Plan visit: http://www.ci.loveland.co.us/modules/showdocument.aspx?documentid=7725

Illustration of Historical and Projected Water Demand
vs. Estimated Firm Water Supply Yield
City of Loveland
1987 - 2056
(acre-feet per year)



Notes:
(1) Actual water use through 2006 (year of highest demand), and projected by City staff thereafter. Projected use includes augmentation demand of 590 af/y.
(2) Firm yield does not include additional supply from additional future water sources .



Alternative Supplies

The following were analyzed:

- Operational Changes
- Purchase Colorado/Big Thompson (CBT) units
- Increase participation in the Windy Gap Project / Firming Project
  - Acquire more units
  - Acquire more storage
  - Acquire units & storage
- Upstream Storage
- Downstream Storage
- Reuse
- River Exchanges
- Wells
- Acquire Native Rights
- Modify Water Policy

RWMP Recommendations

- Continue to use 1-in-100 year drought planning
- Use the 2011 Spronk Water Engineers (SWE) Model Update and Report
- Use water wisely and use conservation as a tool to address more severe droughts
- Adopt a raw water demand target of 30,000 AF

RWMP Recommendations

Modify the City's raw water policies as follows:

- **CBT**
  - Require that at least 50% of every raw water payment be made using a combination of CBT, existing cash credits in the Water Bank, or cash-in-lieu.
  - Keep the credit value of CBT, currently 1.0 AF per unit.
  - Continue to purchase CBT acre-foot units on an ongoing basis under favorable market conditions
- **Cash-In-Lieu**
  - Allow use of cash-in-lieu on any transaction
  - Keep the City's cash-in-lieu fee 5% higher than the recognized market price of CBT water

RWMP Recommendations

Modify the City's raw water policies for ditch shares:

- Adjust credits to the values determined by 2011 SWE report.
- Require the storage fee when granting average yield credits as determined in the SWE report.
- Allow firm yield credits for development as determined in the SWE report without collecting a storage fee.
- Accept any native water in the City's growth management area that can successfully be transferred in Water Court.
- Keep Native Raw Water Storage Fee at current values.

RWMP Recommendations

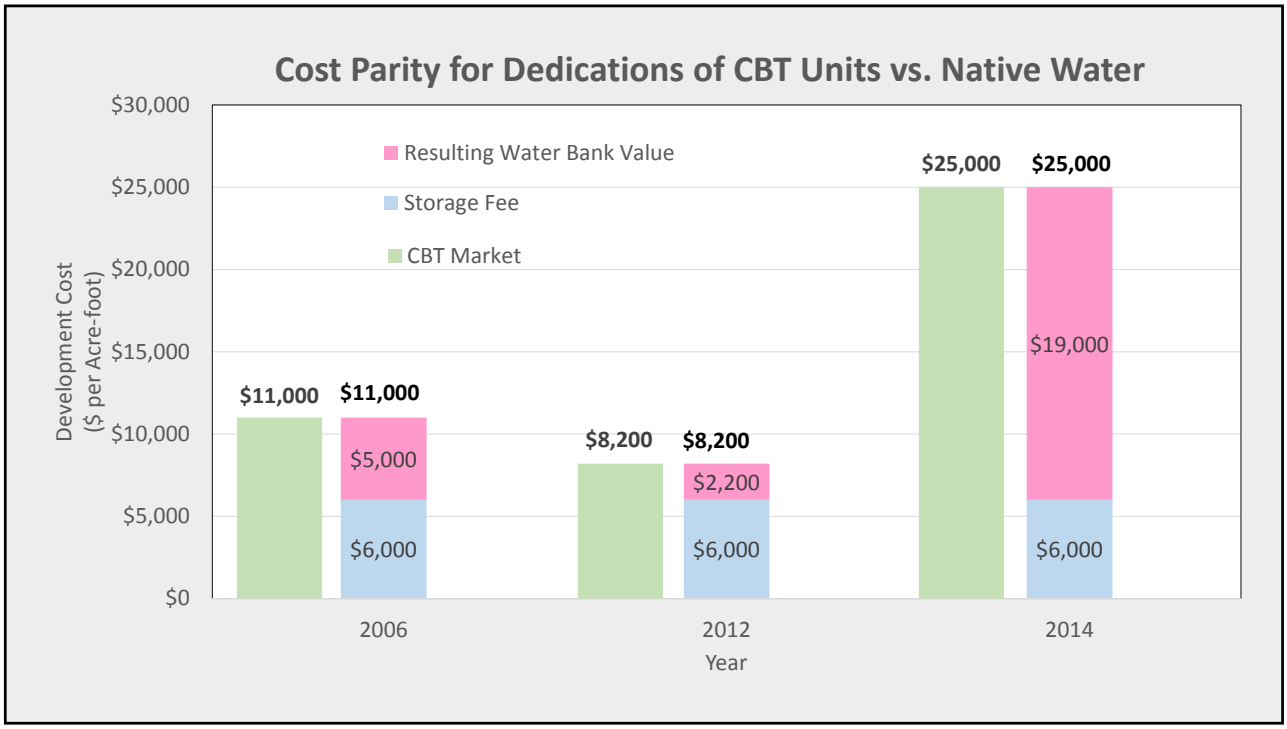
Irrigation Company	Current & Recommended NRWSF ($/AF)	Recommended Average Credit (af/sh)	Recommended Firm Credit w/o storage (af/sh)
South Side	$6,770	4.55	1.46
Louden	$6,850	12.17	2.43
Buckingham	$7,400	6.36	0.38
Barnes	$5,750	3.32	0.86
Chubbuck	$7,400	2.94	0.41
Big TD&M	$3,530	186.57	70.9

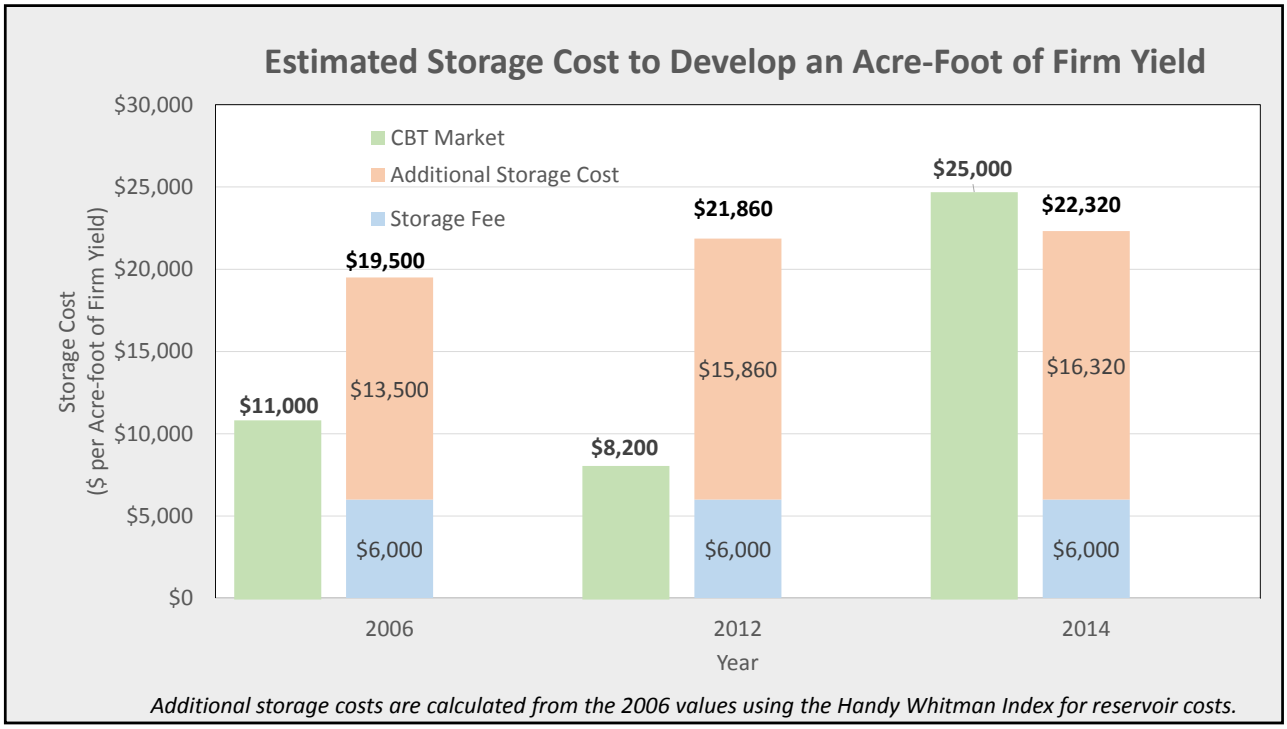
RWMP Recommendations

- **Upstream Storage**
  - Continue to monitor comparison of costs per AF of firm yield with other options
- **Downstream Storage**
  - Monitor options and comparison of costs per AF of firm yield with other options
- **Operational Changes – focus on the following:**
  - Domestic Rights
  - Lawn Irrigation Return Flows (LIRFs)
- **Formulate Policy on Reusable Supplies**

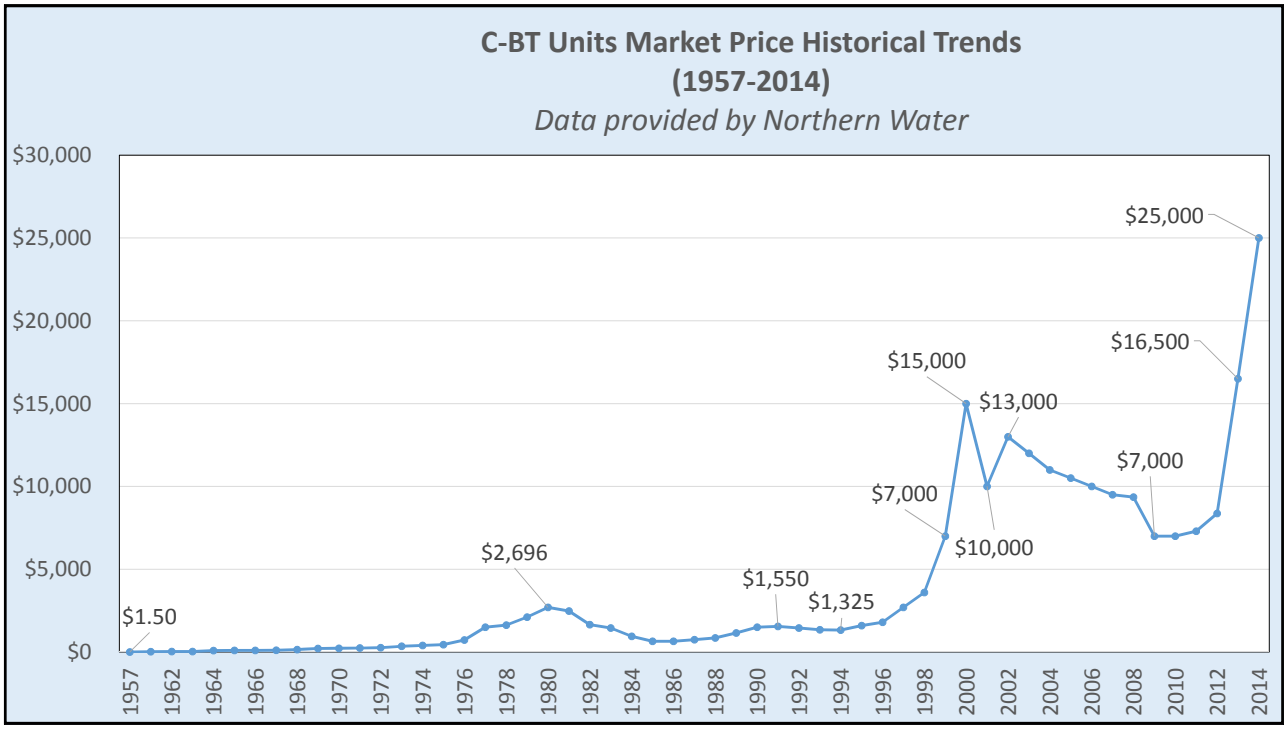
Options to Close the 2,610 AF Gap

- **Purchase CBT**
  - Stored when acquired, available on demand
- **Accept Cash-in-Lieu for Total Amounts Due**
  - Use to create a raw water supply
- **Accept Native Water without Storage Fee**
  - Smaller firm yield
- **Accept Native Water Dedications with Storage Fee**
  - Native water holders are responsible for a portion (about 1/3) of total storage cost
  - Remaining portion (about 2/3) to be borne by customers with rate increases long-term financing or debt





Additional storage costs are calculated from the 2006 values using the Handy Whitman Index for reservoir costs.



What is the Water Bank?

- Subset of City's water rights portfolio
- Created to help transition local water rights from owners to the City
- Owners are people committed to using the water for development in Loveland
- City takes the water rights through Water Court
- City bears the legal cost in money/time
- Ancillary benefit to owners is that the Water Bank created a market for development credits

Water Bank Highlights

- **Willing Depositor, Signs Agreement**
- **When Credit is Used, the Following Occurs:**
  - Value of the credit is determined in acre-feet/share
  - Native Raw Water Storage Fee charged at current rate
- **Treatment of Water Bank Account Holders Equitable**
  - Deposits prior to 1995, grandfathered with no storage fee
  - Adequate notice given about increased fees and could have withdrawn water prior to 2005
  - Sliding scale of storage fees phased in over three years of implementation (2006, 2007 and 2008)

Water Bank Summary as of 2010

- **3,752 ac-ft in 355 Total Accounts**
- **1,728 ac-ft in 287 Accounts**
  - CBT or cash credits
  - No storage fee applies
- **790 ac-ft in 24 Grandfathered Accounts**
  - No storage fee required
- **1,234 ac-ft in 44 Accounts**
  - Storage fee requirement applies

Part 2: 2006 Landscape Hydrozone Program

BACKGROUND

- **October 2005** – New irrigation meter system impact fee, substantial increase over previous fee. Council requested additional information about irrigation meters and options for mitigating the impact of the proposed fee increase.
- **January 2006** – A Landscape/Irrigation Taskforce was formed and began working on this issue.
- Various meetings of the taskforce and presentations to City boards, commissions and council
- **January 2008** – Program went into effect

CONTRIBUTORS

- Loveland Utilities Commission Members
- Planning Commission Members
- Construction Advisory Board Members
- Northern Water
- Local Developers
- Landscape Designers
- Landscape Professionals
- State Dept. of Local Affairs (DOLA) publications
- City Staff

OVERVIEW OF THE HYDROZONE PROGRAM

- Encourage design, installation, and maintenance of water efficient landscape
- Program is voluntary
- Require separate, dedicated irrigation meters for areas using a water budget
- Set number of gallons of water used per year before surcharge.
- Allow retrofitting existing systems to use water budget

Hydrozone Plan

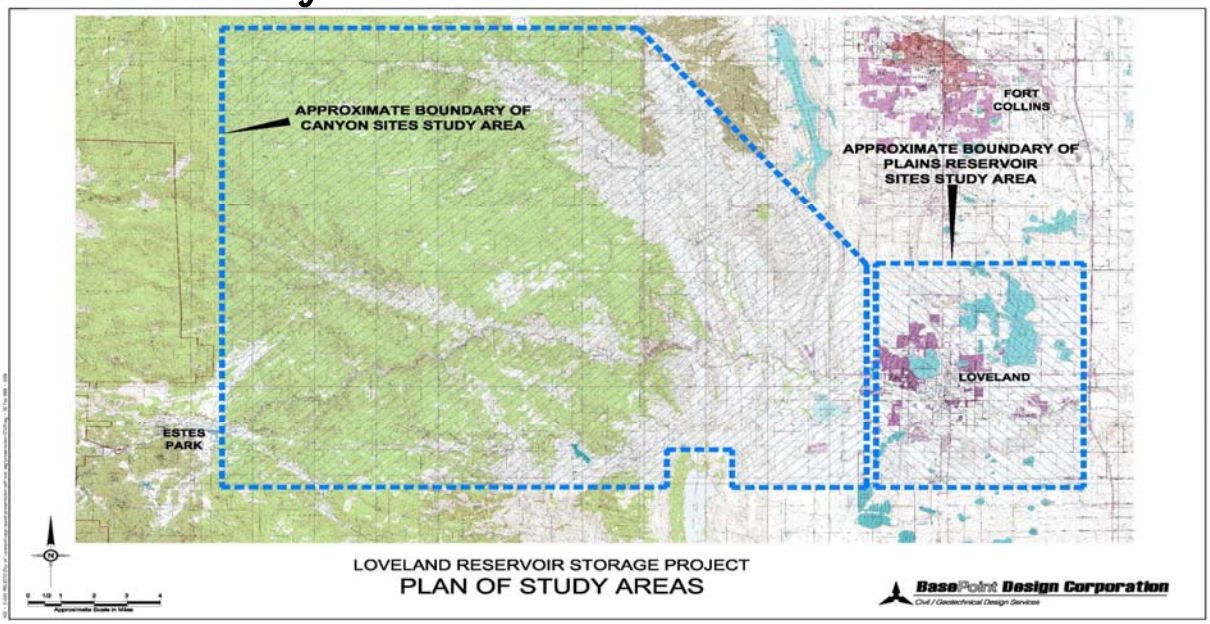
Design landscape using hydrozone methodology

Type of Water Hydrozone	Gallons per Square Foot per Season
High	20
Moderate	10
Low	3
Very Low	0

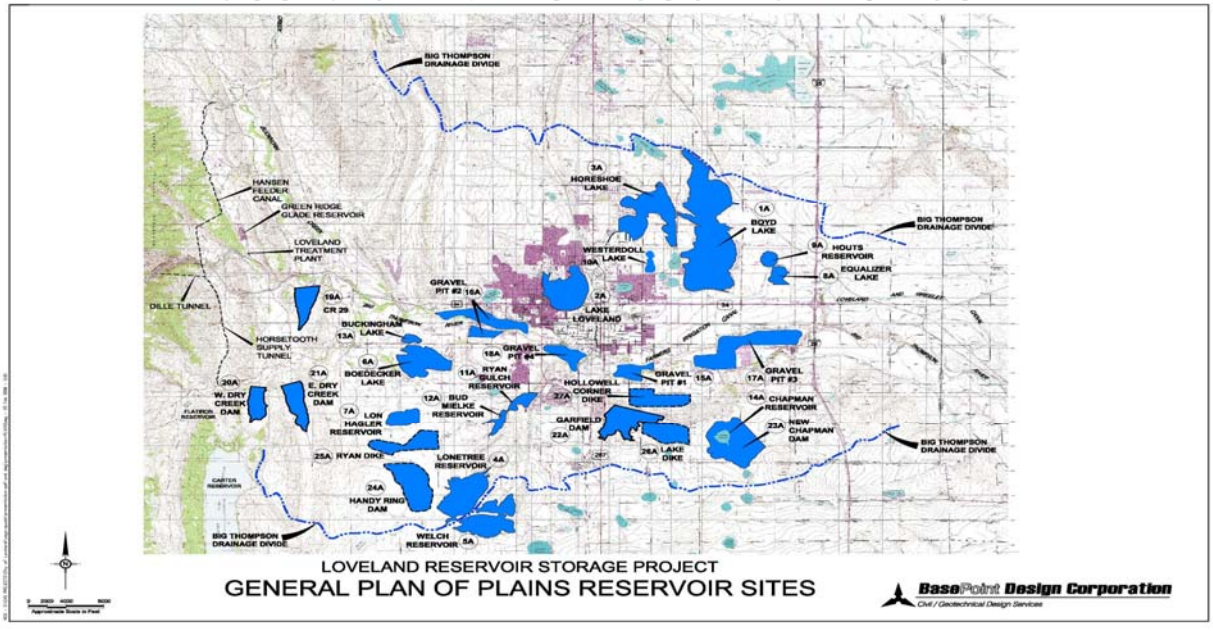
Part 3: 2008 Loveland Storage Reservoir Project

- **Objective**
  - Evaluate locations for a future reservoir in the Thompson River Basin & Loveland
  - Target storage: 5000 – 10,000 acre-ft
- **Comprehensive Site Study**
  - Identified potential sites
  - Screened potential sites
  - Feasibility design

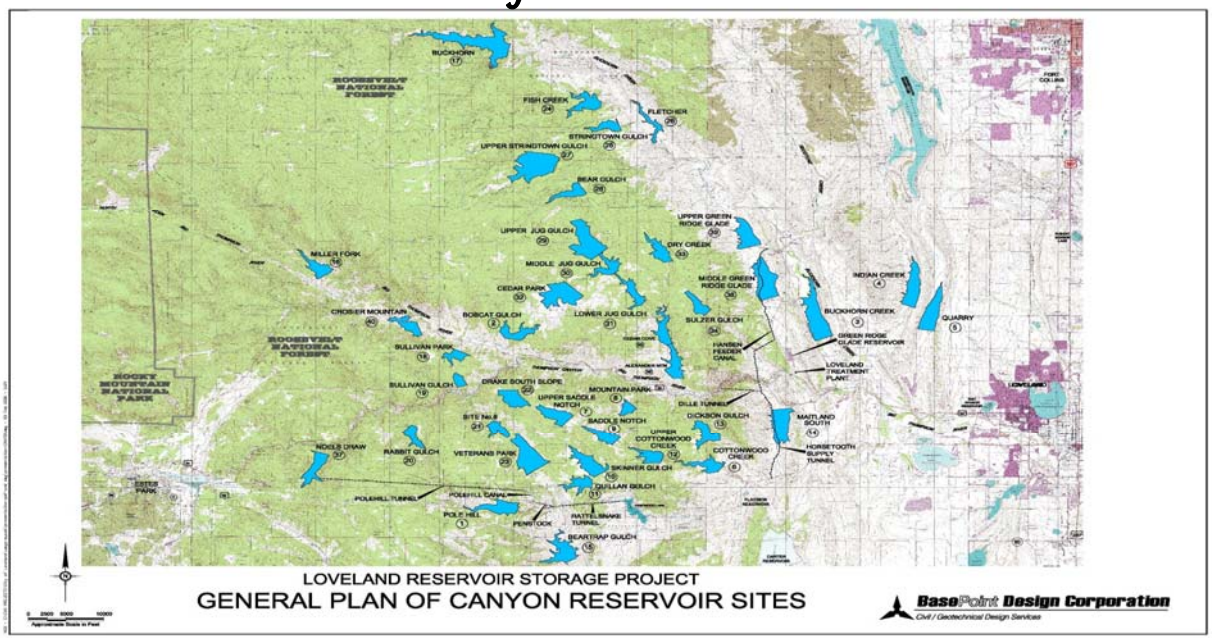
Study Area



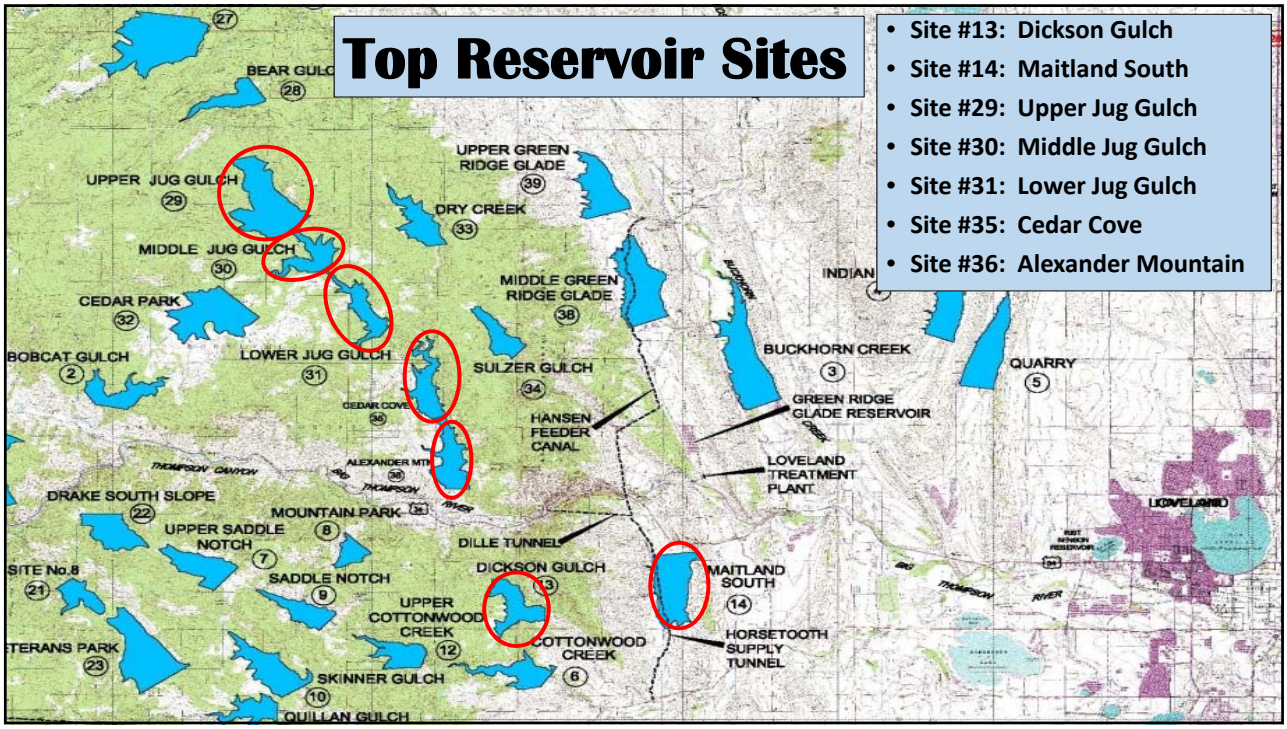
Possible Plains Reservoir Sites



Possible Canyon Reservoir Sites



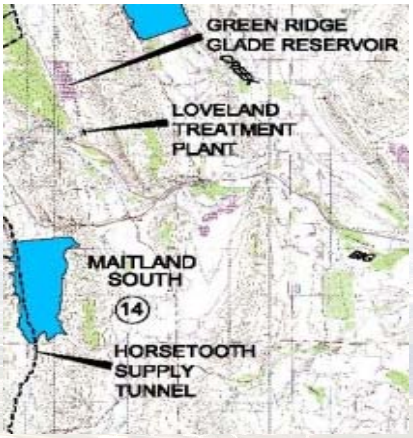
Top Reservoir Sites



- Site #13: Dickson Gulch
- Site #14: Maitland South
- Site #29: Upper Jug Gulch
- Site #30: Middle Jug Gulch
- Site #31: Lower Jug Gulch
- Site #35: Cedar Cove
- Site #36: Alexander Mountain

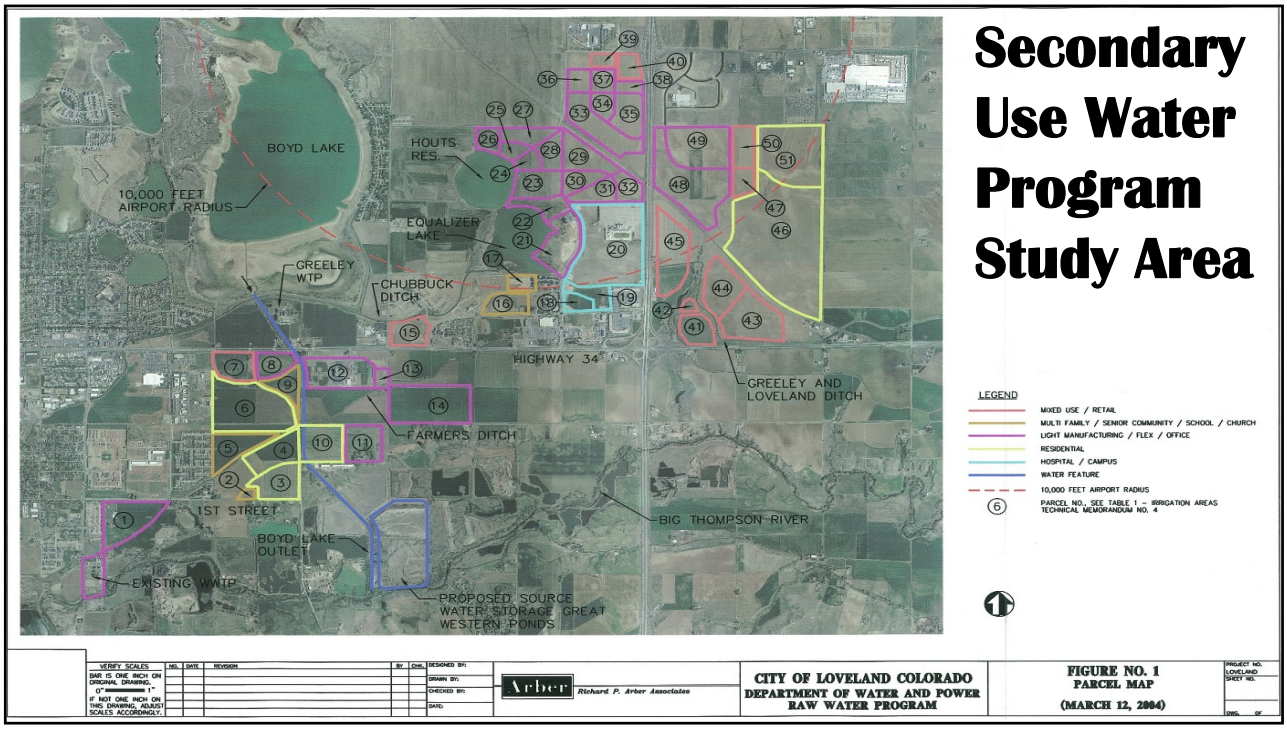
Interim Evaluations

- **Best Site #14: Maitland South**
  - Preliminary costs: $49.3 -$55.0 million
    - Construction costs & Program costs
  - Dam: 145' high embankment
  - Size: 9,000 acre-foot reservoir
  - Storage per acre-foot cost: $5,478 - $6,111
    - Firm yield per acre-foot: x2.2 storage ratio
  - Storage per acre-foot firm yield cost: $12,052 - $13,444
  - Note: Cost estimates are from 2008
- **Next Phase:**
  - Feasibility design



Part 4: 2004 Second Use Water Program Development Study (Purple Pipe)

- **Feasibility:** With significant development on the eastern area of Loveland, the City looked into the possibility of reusing water released to the Big Thompson River for landscape irrigation.
- **Second Use Water Definition:** Water that is used more than one time before it passes back into the natural water cycle. Allows communities to reuse water for many different purposes, including irrigation and industrial uses. This water is treated differently depending upon the source and use of the water and how it gets delivered.
- **Purple Pipe:** Reclaimed water is often distributed in light purple colored dual piping networks that keep the reclaimed water pipes completely separate from potable water pipes.



Secondary Use Water Program Study Area

Study Final Recommendations

- **Overall Findings:**
  - Savings were uncertain for the project area
  - Water rates are too low compared to secondary use rates
  - FAA restrictions on open water near airport
  - Window of opportunity closing

- **Recommendations:**
  - Hold off on development of the Purple Pipe system
  - Review periodically to determine if economic or conditions have changed significantly to justify further development of a Second Use Water Program.

Part 5: 2014 Downstream Storage

- **Transfer Decrees**
  - 108/354 (202A) and 392, the city's primary transfer decrees provide for reuse
  - Must be able to maintain "dominion and control"
- **Possible Storage for Re-use**
  - Downstream storage 'stages' reusable effluent
  - Allows transfer back upstream when stream flows allow
    - 1000 AF of storage would provide about 400 AF of firm yield
  - Allows timed delivery to other users for sale or trade

Part 6: Other Discussion Items

- **Waters of the U.S.**
- **Public Trust Doctrine**
- **Future Steps**

Waters of the U.S.

- **Current Definition of Waters of the U.S.:** Navigable waters including: waters used in interstate or foreign commerce (past, present and future), territorial seas, interstate waters, impoundments of waters of the U.S., intrastate waters, where their use, degradation, or destruction could affect interstate commerce, tributaries of above waters, wetlands adjacent to above waters
- **Proposed Rule:**
  - Expands definition to include; "other waters (nexus)"
  - Defines "tributary" and "neighboring waters"

Waters of the U.S.

- **Clean Water Act (CWA):** Requires 404 permits when pollutants are discharged from a point source into the a Water of the U.S.
  - EPA has been pushing for jurisdiction over virtually all surface waters, wherever located, while the regulated community has been working to contain this jurisdiction to what was originally envisioned – the navigable waters of the United States.
  - To bring clarity to the issue, the EPA determined to enter into rulemaking to "clarify", by regulation, the extent of its jurisdiction, and has prepared a proposed rule running some 88 pages intended to describe its jurisdiction by better defining what is meant by "Waters of the United States" under the Clean Water Act.

Waters of the U.S. – Concerns about the proposed rule

- Will Expand EPA Jurisdiction for Clean Water Act, Section 404.
- **Will require more permits which will result in the following:**
  - Higher costs
  - Longer project durations
  - Some projects may become infeasible
- News Article, *Senators want EPA, Corps to Withdraw Proposed "Waters of the Unites States" Rule,* Public Power Daily. For full article visit: http://www.publicpower.org/media/daily/ArticleDetail.cfm?ItemNumber=42509

Public Trust Doctrine

- Assumes an underlying ownership of or interest in the water resource which supersedes established private ownership of decreed water rights
- Would disrupt ownership and management of Colorado's water Resources.
  - The Public Trust Initiative "would drop what amounts to a nuclear bomb on Colorado water rights and land rights," and "would strip members of the public, cities, farms and families throughout this state of their most valuable economic interests."

    — Justice Gregory Hobbs
- **Ballots**
  - No Public Trust Doctrine initiatives made it on the 2014 or earlier ballots
  - Some public trust doctrine initiatives will likely be proposed for the 2015 ballot
- For more information visit http://cowaterstewardship.com/

Public Trust Doctrine

- Initiatives as proposed would grant local governments power to enact laws more restrictive than State laws causing confusion. With ad hoc local regulation and a patch-work of confusing requirements across jurisdictions and State-wide.
- This broad standard less statement that environmental resources are common property. This would insert potential uncertainty into virtually all aspects of natural resource ownership and regulation.

Future Steps

- **Purchasing CBT** - dollar cost average approach
  - $200,000 remaining in 2014 budget
  - $200,000 in 2015 and 2016 budgets
  - $500,000 beginning in 2017 and each following year
  - Updating the Raw Water Master Plan
    - Evaluate downstream raw water storage
    - Evaluate upstream raw water storage

Future Steps

- **Cost to firm up raw water and build reservoir vs. Continuing to buy CBT (Windy Gap).**
  - Price of firmed native water may be favorable compared to CBT purchase
  - Price of firmed yield from increased Windy Gap storage looks favorable compared to CBT purchase
- **Big Thompson Basin water vulnerable from take over from water providers to the south?**
  - In 1985 Thornton purchased 20,000 acres of Poudre Valley farmland for the water
    - No water has yet been delivered to Thornton, but the legal right is established in Water Court
  - Water Supply & Storage Company is very large

Future Steps

- **Colorado State Water Plan:** In 2013, the Governor mandated that the CWCB prepare the Colorado Water Plan and address the following:
  - State wide the water demand is expected to exceed supply by 500,000 acre feet by 2050 with half of that in the South Platte
  - Alternative ag transfers ("buy and dry")
  - Water conservation
  - Identified Projects & Processes (IPPs)
  - Future projects
- **Timeline**
  - A draft will be compiled by December 2014
  - Open to public comment in 2015
  - Final draft completed by December 2015

For more information on the Colorado Water Plan visit http://www.coloradowaterplan.com/

Learning Opportunities

- Transbasin Diversion Webinar Series
  - November 12, 2014 9 am to 10 am
  - December 10, 2014 9 am to 10 am
  - January 8, 2014 9:30 am to 10:30 am **time and date recently changed**
- Informational Workshops offered by Northern Water
- Informational Workshops offered by Colorado Water Congress
- Colorado Water Congress – January 28-30, 2015

Summary

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Questions?