LOVELAND UTILITIES COMMISSION

Raw Water Master Plan Discussion

Larry Howard, Water Resources Manager

August 21, 2019

1-in-100 Year Drought Planning

City Council Direction

Provide the City's customers with a full water supply without curtailment up to a 1-in-100 year drought event.

- Use of Conservation
  - Not a long-term planning tool to directly reduce future demands
  - Help meet demands during drought events more severe than a 1-in-100 year event

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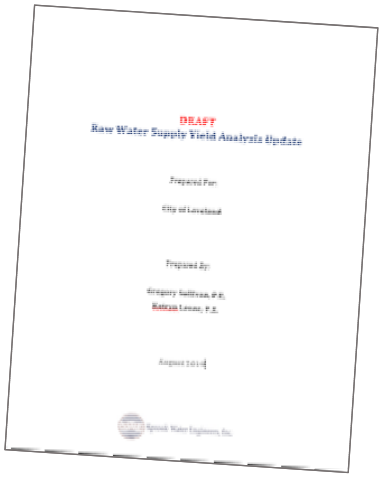
2019 Raw Water Supply Yield Analysis

- Spronk Water Engineers completed in *2019*
- Use as City's raw water supply model
- 2002 drought conditions modeled as a 1-in-100 year drought
- Tool to:
  - Evaluate proposed policy changes
  - Acquire additional raw water supplies
  - Plan for raw water resources


DRAFT
Raw Water Supply Yield Analysis Update
Prepared For:
City of Loveland
Prepared By:
Gregory Sullivan, P.E.
Katrina Loman, P.E.
August 2019
Spronk Water Engineers, Inc.

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Raw Water Demand Target Scenarios

	Scenario A	Scenario B	Scenario C
Start Demand of Scenario Projections	Largest historical annual treated water produced from the Loveland WTP *(14,969 AF from 2012)*		5-year average treated water produced from the Loveland WTP *(13,820 AF from 2014 to 2018)*
Beginning Year of Scenarios	Highest Demand Year *(2012)*	Prior Year *(2018)*	
Beginning Population	Last year's population estimate for Loveland* *(77,262 from 2018)*		
Demand Growth Rate	Through the year 2045, increased demands were based on estimated population growth rates*. For projections beyond 2045, the average of last 15-years *(2031-2045)* of estimated growth rates* was applied.		
End Year of Projections	Approximately 40 years into the future *(2060)*		

*Notes: Based on the population estimates and estimated growth rates through the year 2045 from the *Annual Data and Assumptions Report* published in August 2018 by the City of Loveland Community and Strategic Planning Department. See Attachment C for an excerpt from this report.

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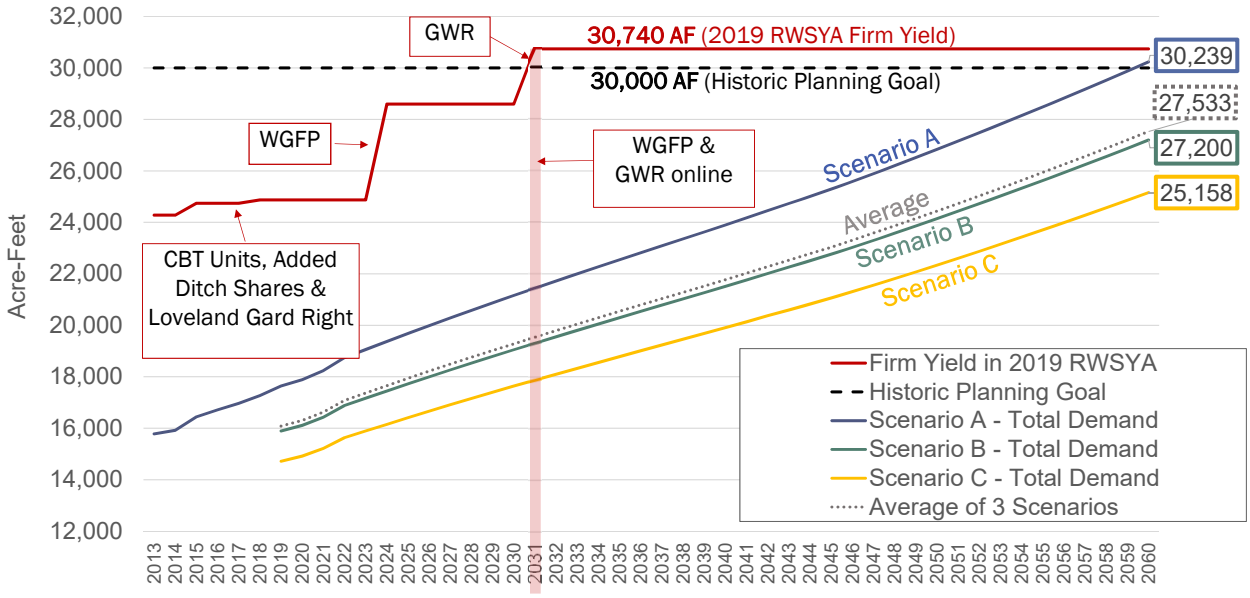
Total Water Demand Projections vs. Firm Yield Projections



Policy for Accepting Raw Water Payments

- **Minimum Amount** of every payment made using CBT, CIL or existing cash credits in Water Bank
  - Exceptions for transactions ≤ 1 AF
- **Payment Types Allowed:** CBT, Cash Credit, CIL
- **50% Rule Modification:**
  - Exceptions for transactions ≤ 1 AF
- **CBT Credit:** Decrease from 1.0 AF/unit to 0.9/AF unit

Modify Ditch Share Credits

Native Ditch Right	Current AF Credit WITH Payment of Storage Fee (Municipal Code)	AF Value WITH Payment of Storage Fee (Average Yield)	AF Value WITHOUT Payment of Storage Fee (Firm Yield)
Barnes	3.32 per inch	3.31 per inch	0.66 per inch
BTDM	186.57 per share	189.11 per share	68.08 per share
Buckingham	6.36 per share	5.76 per share	0.35 per share
Chubbuck	2.94 per inch	2.90 per inch	0.29 per inch
Louden	12.17 per share	11.92 per share	2.14 per share
South Side	4.55 per share	4.97 per share	1.49 per share

Only accept native water rights that can, in the City's opinion and based on a review of the historical use of the specific native water rights proposed for acceptance, successfully be transferred in Water Court.

Modify Native Raw Water Storage Fee Methodology

- Tie Costs to Storage in Chimney Hollow Reservoir
- Adjust Fee by Relative Ratios of Firm Yields Among the Ditches

Irrigation Company	Firm Ratio (AF Storage/ AF Firm Yield)	Recommended NRWSF	Current NRWSF	Difference (Recommended less Current)
Barnes	3.60	$8,080	$5,750	$2,320
BTDM	2.42	$5,430	$3,530	$1,900
Buckingham	3.40	$7,630	$7,400	$230
Chubbuck	3.44	$7,720	$7,400	$320
Louden	3.00	$6,730	$6,850	($120)
South Side	2.86	$6,420	$6,770	($350)

Modify Cash-In-Lieu Policy & Calculations

- No limit on CIL transactions, if specific projects to fund.
- Calculation Options:
  - **Existing Method:** Price tied to CBT market value

    Note: Reducing the CBT credit to 0.9 AF/Unit, would increase the CIL price.
  - **Staff Recommendation:** Tie price to firmed storage in Chimney Hollow Reservoir. Adjust based on actual project costs and change orders.

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Maximize Water Storage Benefits

- Upstream Storage
  - Annual and firming storage
    - Complete WGFP
    - Expand Green Ridge Glade Reservoir if feasible
    - Store native waters in Chimney Hollow if feasible
    - Consider other upstream options
- Downstream Storage
  - Staging for upstream exchanges or meeting required downstream releases
    - Complete infrastructure required at Great Western Reservoir
- Staff Recommendation
  - Complete Chimney Hollow Reservoir
  - Complete Great Western Reservoir
  - Explore and evaluate other water storage opportunities

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Maximize Reusable Supplies

- Exchange Upstream for Municipal Use
- Sell or Lease to Downstream Users
  - Apply augmentation water policy approved by LUC on May 15, 2019
- Purple Pipe System
  - Monitor feasibility and applicability
  - Evaluate costs relative to the costs of developing water

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Discuss Recommendations from LUC

1. 1-in-100 Year Drought Planning
2. 2019 RWSYA Update - Raw Water Supply Model
3. Raw Water Demand Target
4. Policy for Accepting Raw Water
   (Payments, Types, Credits, Storage Fees, CIL Calcs)
5. Maximize the Benefits of Storage
   (Upstream & Downstream)
6. Maximize Raw Water Operations
7. Evaluate the Most Effective Ways to Make Use of Reusable Supplies
8. Other Recommendations from LUC?

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QUESTIONS?