Brown AND Caldwell | Stantec | LeonardRice ENGINEERS, INC. | SIGLER | HOLLAND & HART | *Doug Robotham*

PRESENTATION OF FINAL RESULTS

South Platte Regional Opportunities Water Group (SPROWG) Feasibility Study

Lower South Platte Water Conservancy District

March, 2020

Communities in the South Platte River Basin continue to make great strides in meeting future water demands through aggressive conservation measures, but we need additional supply

Project Urgency and Necessity

- Basin population expected to grow to around **6 million by the year 2050**
- Projected **M&I gap by 2050 is 185,000 to 540,000 acre-feet annually**
  - 75% of the statewide gap
  - Largest gap of the basins in the state
- Water also needed for **agriculture** and for **environment and recreation**
- **Water is periodically available** for future use
  - Amounts are significant but highly variable

SPROWG is <u>not an alternative for existing or planned projects</u>.

Dec 2013 – April 2015

South Platte Basin Implementation Plan (SPBIP)
described the original "Conceptual Future In-Basin Multipurpose Project" in Section 4.6.2

June 2015 – May 2018

South Platte Regional Opportunities Working Group (SPROWG)
advanced the SPBIP concept and developed the initial regional water project

South Platte BIP Update

May 2013 – Nov 2015

Colorado's Water Plan
voiced the need for storage and collaborative projects

Jan 2017 – Dec 2017

South Platte Storage Study (SPSS)
identified potential South Platte River storage projects

June 2018 – Oct 2018

SPROWG Task Force
developed scope of study and grant application for feasibility study

Mar 2019 – Mar 2020

SPROWG Feasibility Study
will conduct outreach, explore organizational alternatives, and refine the concept

Principles describing what SPROWG *IS*

The Guiding Principles describe the framework for developing the SPROWG concept. The Principles may be modified as the project progresses.

Guiding Principles are not presented in any specific order or priority and are paraphrased.

1. SPROWG will advance the goals of the South Platte/Metro Basin Implementation Plan (BIP) and Colorado's Water Plan.
2. SPROWG intends to provide at least 50,000 acre-feet of yield to meet part of the projected municipal and industrial water supply project gap in the South Platte basin. A significant portion of this yield is targeted for smaller but rapidly growing communities between Denver and Greeley and also larger communities in the Denver Metro area and northern Colorado. The project will also explore providing supplies to smaller communities east of Greeley.
3. SPROWG intends to meet a portion of the agricultural gap.
4. SPROWG will identify and incorporate strategies to address environmental and recreational needs.

Principles describing what SPROWG *IS*

The Guiding Principles describe the framework for developing the SPROWG concept. The Principles may be modified as the project progresses.

Guiding Principles are not presented in any specific order or priority and are paraphrased.

5. SPROWG intends to enhance the ability to conduct alternative water transfers, thus reducing the need for traditional buy-and-dry transfers.
6. SPROWG will utilize different sources of water available in the South Platte basin and manage them conjunctively to achieve an overall reliable yield beyond what an individual source could produce.
7. SPROWG is intended to help water supply organizations and water users maximize the use of in-basin supplies.
8. SPROWG intends to improve integration of water quality and quantity planning and management activities.

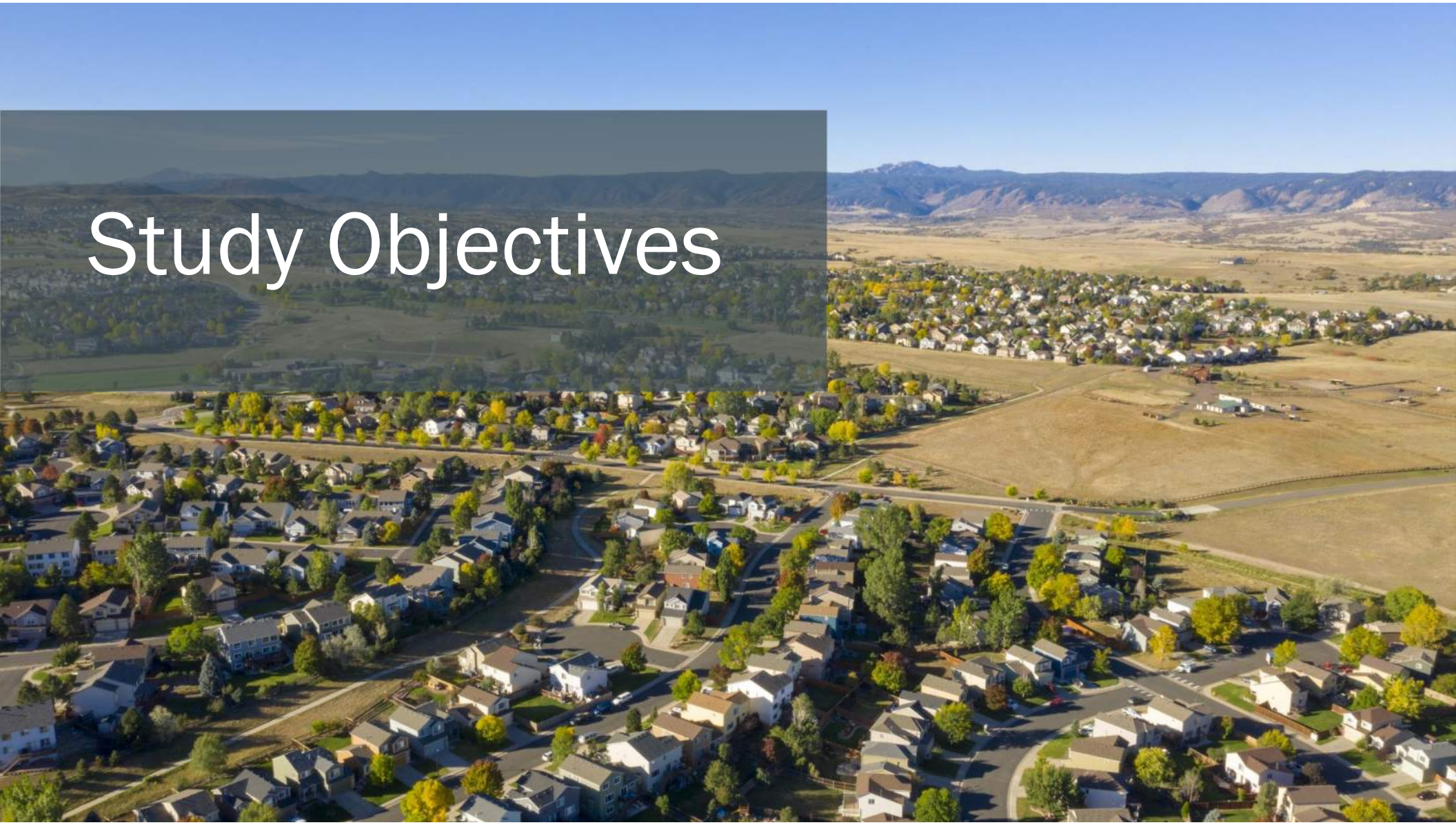
Principles describing what SPROWG *IS NOT*

The Guiding Principles describe the framework for developing the SPROWG concept. The Principles may be modified as the project progresses.

Guiding Principles are not presented in any specific order or priority and are paraphrased.

9. SPROWG is not intended to be a substitute for existing or planned projects.
10. SPROWG is not intended to be used to deliver water developed from the permanent dry up of irrigated lands in the South Platte basin.
11. SPROWG is not intended to store supplies from an existing or new transmountain diversion project (though it will provide a means to utilize unused reusable return flows from transmountain diversions).

Study Objectives



The Study Advanced the SPROWG Concept on Several Fronts

- Conducted extensive outreach and education
- Assessed potential organizational frameworks
- Refined and modeled the SPROWG Concept
- Examined water treatment needs and strategies
- Estimated costs
- Proposed further communication and outreach activities

Overview of Results

Description and Results of Outreach

- Summary of stakeholder groups and outreach objectives
- Description of activities
  - Meetings
  - Survey
- Overview of important results

Summary of Feedback from Stakeholder Meetings

Municipal/Industrial

The State Engineer should be consulted in the development of the SPROWG Concept.

Water from the SPROWG Concept should be used as efficiently as possible.

Development of an organizational framework will be iterative given the diversity of potential participants and the variety of water needs.

SPROWG Concept participation costs and timelines need to be evaluated and provided to potential participants so that they can compare with other alternatives.

Agricultural

The SPROWG Concept should not convey or manage supplies from buy and dry activities.

Water from the SPROWG Concept, as well as other sources, should be used as efficiently as possible.

Water supplies for irrigation well augmentation would be beneficial. Long term augmentation needs could total 35,000 to 40,000 acre-feet per year (AF/yr) for some augmentation plans.

ATMs are preferable to traditional buy-and-dry but need to provide significant value to agriculture and should only be used after development of unappropriated supplies.

The selected governance structure should provide flexibility on water use.

Straightforward, personal communications are preferred.

Environment/Recreation

Additional storage in various locations along the South Platte can provide much needed habitat

Water from the SPROWG Concept, as well as other sources, should be used as efficiently as possible.

Providing specific environmental and recreational strategies is difficult at this phase of concept development due to the location and operation specific nature of such opportunities.

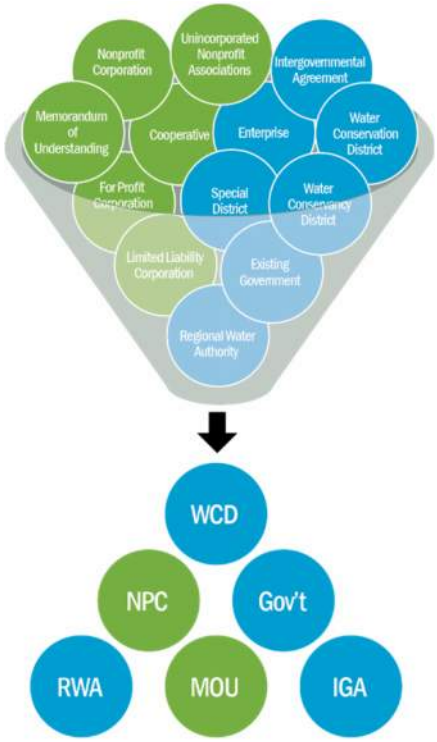
Strategies to improve diversion structures should be considered that allow for recreational bypass, elimination of dry-up points, and the reestablishment of hydrology and habitat at existing dry-up points.

The selected governance structure should be capable of implementing best practices in environmental stewardship

Environmental and Recreational water users appreciate being included in early project development and desire to continue to be engaged.

Evaluation of Governance Frameworks

Our evaluation process looked at pertinent potential structures and identified six most-relevant frameworks



1. Nonprofit Corporations
2. Water Conservancy Districts
3. Existing Governmental Entities
4. Regional Water Authorities
5. Intergovernmental Agreements
6. Memoranda of Understanding

This Study provides an evaluation of advantages and disadvantages of six organizational frameworks.

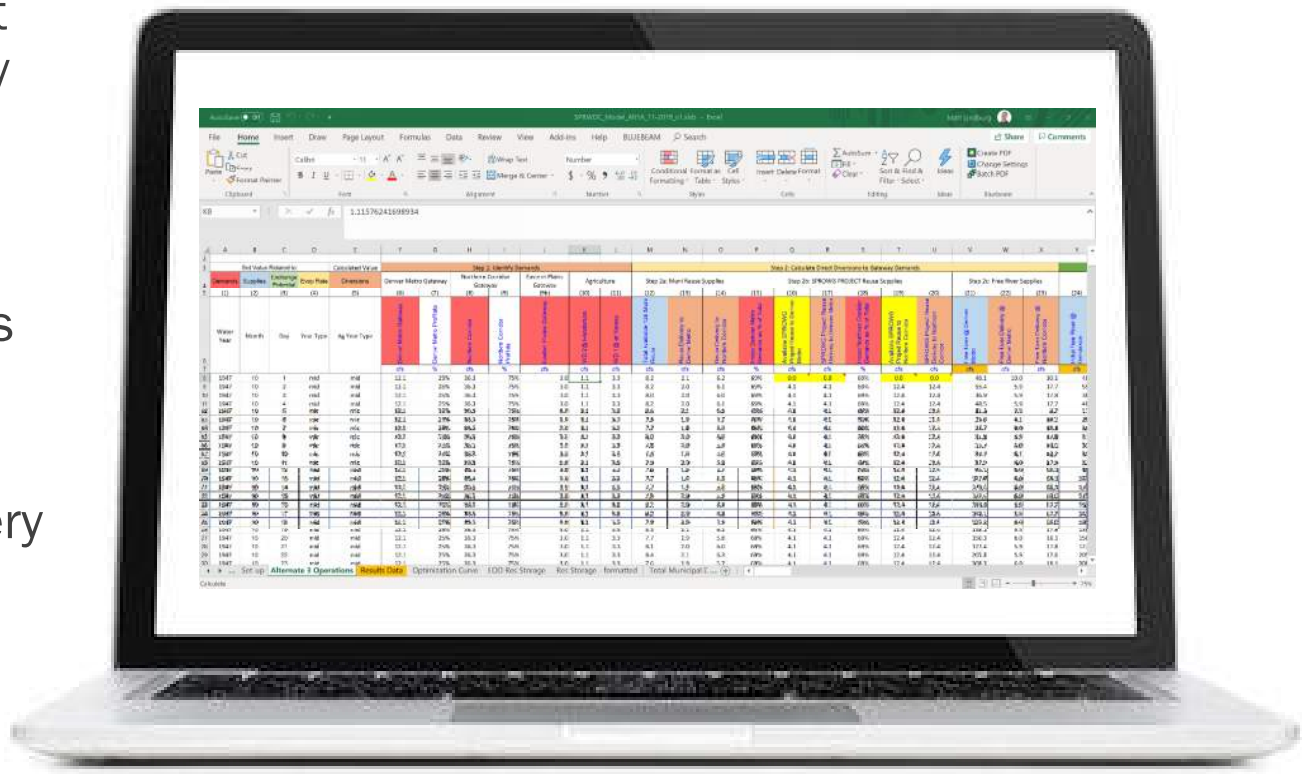
Table 14. Organizational Frameworks Qualitative Assessment

Organizational Framework	Adaptability	Flexibility	Ease of formation	Long-term certainty	Legal protections	Inclusiveness	Interim effectiveness
Nonprofit Corporation	Medium	Medium	Medium	High	High	High	Medium
Existing Government	Medium	Low	Medium	High	High	Medium	Medium
Water Conservancy District	Medium	Low	Low	High	High	Low	Low
Regional Water Authority	Medium	Medium	Medium	High	High	Medium	Medium
Memorandum of Understanding	High	High	High	Low	Low	High	High
Intergovernmental Agreement	High	High	High	Medium	Low	Medium	High

LEGEND: Low (1-3) Medium (4-7) High (8-10)

Concept Refinement and Modeling

- Refined the SPROWG Concept based on outreach and survey feedback
- Evaluated four alternatives to explore a range of possibilities
- Used model to size infrastructure based on delivery goals
- Developed environment and recreation strategies



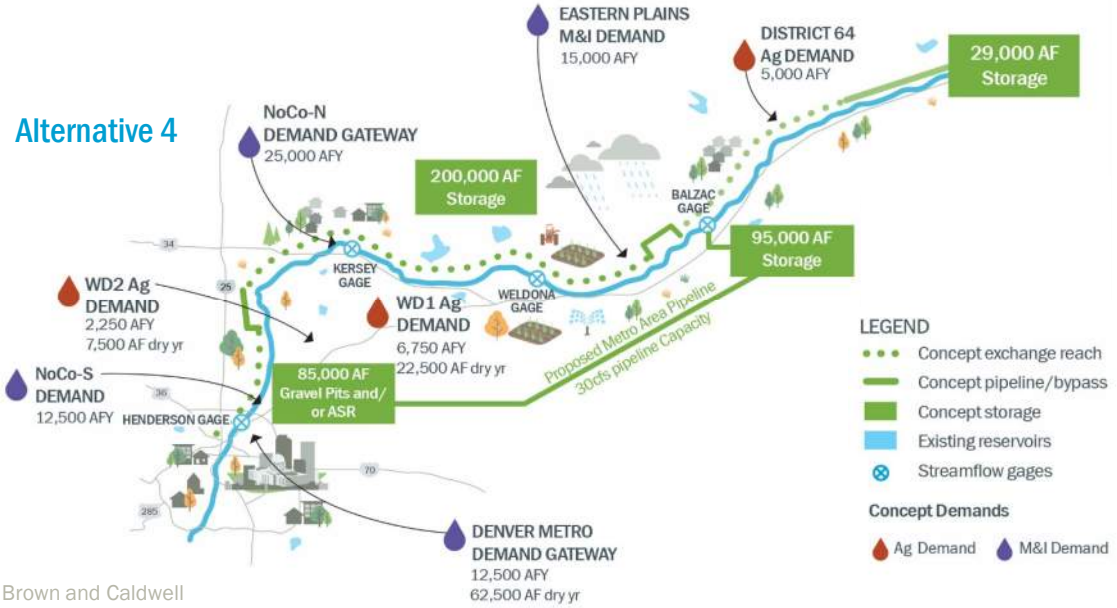
Summary of Important Modeling Assumptions

- Depletions from Chatfield Reallocation, conditional storage rights at gravel pits, and Northern Integrated Supply Project were incorporated
- Considered existing conditional exchanges
- In dry conditions, municipal water providers would implement additional water conservation strategies
- Agricultural demands met with available supplies after municipal deliveries
- ATMs are used primarily for drought supply/recovery

Concept Refinement and Modeling

Alternatives explore a range of conditions

1. Refine the Initial Concept
2. Balzac First
3. Add Julesburg Storage
4. Additional Delivery



Delivery Goal (AF/yr)		Low	High
Municipal			
	Avg and wet years	42,000	65,000
	Dry years	82,000	115,000
Agricultural			
	Avg and wet years	3,000	14,000
	Dry years	10,000	35,000
Total Storage (AF)		215,000	409,000

Environment and Recreation Strategies

- Allocation of project reservoir storage for needs such as flood control, conservation/multi-use, or sediment accumulation
- Delivery of water into project reservoirs to support specific environmental needs
- Delivery of water from a SPROWG reservoir back to the South Platte River for the purpose of meeting water needs for specific resource values
- Additional project definition is needed before the SPROWG Concept is ready for consideration from the permitting perspective

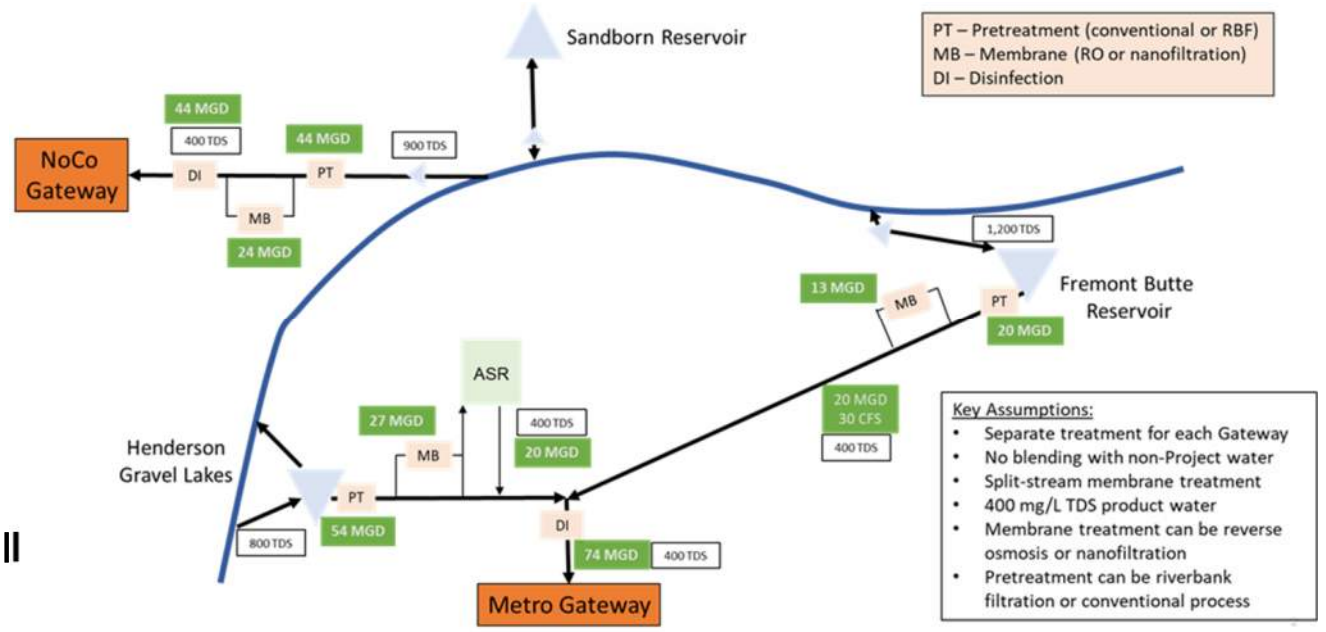
Water Treatment Strategies

TDS and nutrients are key constituents

Split-stream nanofiltration / RO + Conventional treatment

Brine disposal by mechanical evaporation + landfill

Treatment at Henderson, Gold Hill and Balzac Storage (desal only)



Range of treatment costs

$1.19 billion ⟷ $1.48 billion

Nonpoint source measures applied to agricultural and urban lands could be a companion strategy.

Cost Estimates

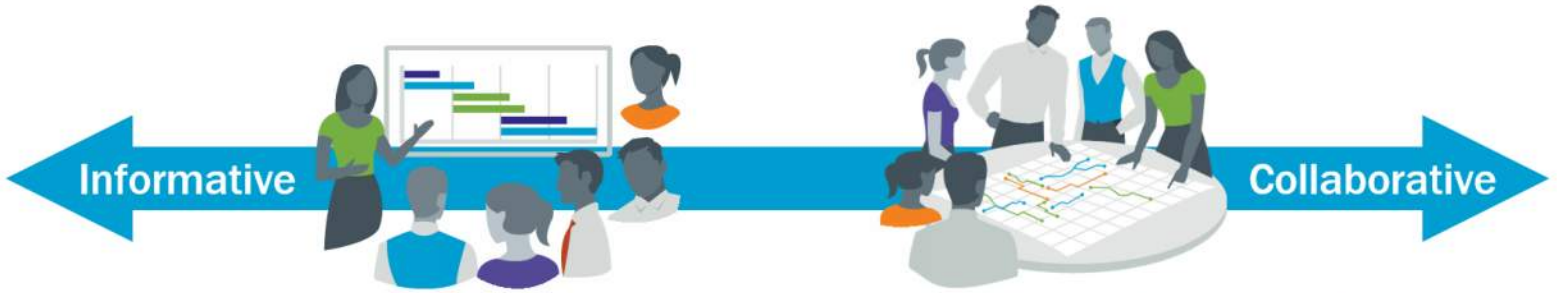
	Raw Water	Treated Water
Capital Cost	**$1.2 billion to $1.8 billion** $18,400 to $22,800 per acre-foot	**$2.4 billion to $3.4 billion** $33,600 to $43,200 per acre-foot
Life-cycle Costs (Capital cost plus 50 years O&M)	**$1.8 billion to $2.6 billion** $25,800 to $33,400 per acre-foot	**$3.2 billion to $4.4 billion** $44,100 to $58,300 per acre-foot

The costs of SPROWG alternatives compare favorably with costs of other regional water supplies.

Communications and Outreach Plan

GOALS

1. Educate stakeholders and collaborate on refinements
2. Engage potential participants
3. Educate general public on the need for the concept
4. Continue outreach to stakeholders



Colorado Legislature

Federal regulatory and permitting agencies and adjacent states

State of Colorado water policy, water quality and environmental agencies

West Slope water districts and water interests

Businesses and industry groups

Associations that represent municipalities and districts

Interbasin Compact Committee (IBCC) and Basin Roundtables

Watershed groups and coalitions

Recreation organizations

Water providers and water conservancy districts

Agriculture groups and ditch companies

Environmental/Conservation organizations

Recommendations

Recommendations

The Study validated previous findings that the SPROWG Concept is technically and financially feasible. Additional studies are warranted.

Recommendations

Consider the SPROWG Concept in the upcoming update of the South Platte Basin Implementation Plan

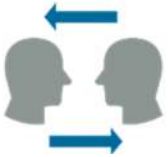
Evaluate the performance of the SPROWG Concept under the five future planning scenarios in the Colorado Water Plan

Implement the Communications and Outreach Plan and focus on identifying concept proponents

Recommendations

Continue evaluating potential organizational frameworks and eventually identify a “best-fit”

Evaluate alternatives for financing the design, construction, and operation of the SPROWG Concept



Continue discussions focused on ATMs

Further evaluate regional water treatment strategies

Suggested path forward

- Advancing the SPROWG Concept will require leadership
- An agreement (MOU/statement of intent) could be a vehicle for advancement
  - Defines relationships and responsibilities
  - Facilitates acquisition of future funding assistance
  - Creates an interim organization for exploring partnerships with other organizations who pursue individual water projects that could form a component of the SPROWG Concept
  - Provides a platform for inviting committed partners

Bottom line: Take measured steps to maintain momentum

Questions and Discussion