PROJECT MEMORANDUM

SWIFT PHASE 1

South Platte Water Renewal Partners

Date: December 17, 2018
Project No.: 10984A00

Prepared By:	David Pier, P.E.
Reviewed By:	John Rehring, P.E.
Subject:	South Platte Water Infrastructure for Tomorrow (SWIFT) Coalition Opportunities

Introduction

Water suppliers and wastewater treatment facilities are actively seeking opportunities to expand water reuse, balance nutrient treatment requirements, effectively use their water rights, and promote using the right water for the right use. A group of water and wastewater utilities formed the South Platte Water Infrastructure for Tomorrow (SWIFT) Coalition to investigate and consider these opportunities along the urban South Platte River watershed. The participating partners include the following organizations.

The coalition was formed to identify, evaluate, and create synergies around existing and proposed infrastructure in the urban South Platte River watershed. Entities in the study area are strategically situated to benefit from shared or coordinated infrastructure, increased reuse opportunities, efficiencies between interrelated systems, and scenarios that minimize the net cost to the collective water/wastewater ratepayer.

The SWIFT Coalition commissioned a study to investigate these opportunities, facilitated through a series of workshops in 2018. The study was supported through a Colorado Water Conservation Board (CWCB) Water Supply Reserve Fund (WSRF) grant and in-kind contributions from coalition members. The objectives of the study documented in this Project Memorandum were as follows:

- Project partners will meet regularly to improve their knowledge of each other's water and wastewater infrastructure, planning goals, and identified project opportunities.
- Learn from other Colorado and national level regional partnering successes.
- Explore opportunities for informal or formal future cooperation and additional outreach needs.
- Identify one or more projects that may be considered for further evaluation.
- Consider joint development of a detailed scope of work and proposal for additional projects. This may include a request for additional WSRF grant funding from the Metro or South Platte roundtables, statewide account funds, and/or State Water Plan Grant funds.
- Share geospatial information, and other information that will be useful for infrastructure project identification among project partners to facilitate discussions.
- Document results.

The coalition submitted a grant application to the CWCB and received authorization of the $25,000 budget and Notice to Proceed with the project on April 19, 2018. The partners provided an in-kind funding match of $101,000 to complete the following tasks:

1. Task 1 – Grant development and pre-planning activities.
2. Task 2 – Regional collaboration meetings.
3. Task 3 – Documentation of common goals, objectives, and next steps.
4. Task 4 – Regional infrastructure geospatial analysis.

Activities Completed

The coalition completed the following activities under the identified tasks:

1. Task 0 – Grant development and pre-planning activities:
    a. Between November 15, 2017 and January 26, 2018, the coalition members held three pre-planning meetings and coordinated the submittal of the grant application to CWCB in February 2018.
2. Task 1 – Regional collaboration meetings:
    a. Between January 29, 2018 and November 1, 2018, the coalition members held eight regional collaboration planning meetings. The results from these meetings are documented in Briefing Memoranda 1 and 2, and the meeting minutes provided with this report.
3. Task 2 – Documentation of common goals, objectives and next steps:
    a. The coalition developed two fact sheets, which can be used to communicate the SWIFT purpose and message for internal and external stakeholders. These fact sheets are included as part of this Project Memorandum. In addition, the Briefing Memoranda were developed as part of this task and attached to this Project Memorandum.
4. Task 3 – Regional infrastructure geospatial analysis:
    a. The SWIFT partners collaborated on a data sharing Memorandum of Understanding (MOU), which provides opportunities for the partners to share geographical information system data and other water and wastewater data needed to facilitate further collaboration. Through this MOU, the coalition produced a conceptual-level figure illustrating the service area boundaries for the SWIFT partners.

Obstacles Encountered

All of the scoped grant activities have been completed through the publication of this Project Memorandum. The only obstacles encountered were establishing a consistent meeting frequency and scheduling time for the partners.

Budget Status

During the execution of the SWIFT grant, two invoices were submitted and processed by CWCB. The overall summary of grant spending by task against the $25,000 WSRF budget is shown in Table 1. Table 1 summarizes the reimbursable expenses, which are reflected on the project invoices.

Table 1 Summary of Grant Spending

Task	Description	WSRF Budget	Expenses Incurred	Amount Remaining
0	Pre-Grant Planning Meetings and Grant Development	$ -		
1	Regional Collaboration Meetings	$ -		
2	Common Goals, Objectives	$23,600	$23,600	$0
3	Regional Infrastructure Geospatial	$1,400	$1,384.50	$15.50
	Totals	**$25,000**	**$24,984.50**	**$15.50**

A summary of the work accomplished, including the in-kind activities accomplished and budgets are provided in Table 2.

Table 2 Summary of Accomplishments

Task	Project Activities	Budget	Amount Completed	Remaining In-Kind Scope
0	Pre-planning meetings (3) and coordination conducted in November, December, and January	$9,162	$9,162	$0
1.1	Indirect Administrative Costs	$800	$800	$0
1.2	Project Management and Administration	$3,192	$3,192	$0
1.3	Regional Collaboration Planning Workshops: • Regional Partnering Success (1/29/18) • Wisdom from One Water Case Studies (2/22/18) • Wastewater Perspective (3/22/18) • Water Provider Perspective (4/19/18) • Recap and Visioning (6/6/18) • Visioning Fact Sheets (6/28/18) • Progress and Update Meeting (7/26/18) • Progress and Update Meeting (9/27/18) • Progress and Update Meeting (11/19/18) • General coordination occurring outside of scheduled workshops (2 hours per month per entity)	$54,462	$60,929	($6,467)
1.4	Tactical Coordination Meetings held by SPWRP using teleconference calls with other SWIFT 2 members	$7,000	$7,000	$0
2.0	Common Goals, Objectives: • Developed briefing memorandums and fact sheets • Submitted the final report to CWCB	$16,500	$12,400	$4,100
3.0	Regional Infrastructure Geospatial • Development of MOU between partners • Developed GIS mapping showing partner boundaries	$7,600	$7,600	$0
	Totals	**$98,716**	**$101,083**	**($2,367)**

Appendix A

FACT SHEETS

SOUTH PLATTE SUSTAINABLE WATER INFRASTRUCTURE FOR TOMORROW

Regional Collaboration

Sustainable Water Infrastructure For Tomorrow (SWIFT) is a coalition of drinking water and water reclamation agencies in the Urban South Platte Watershed. Initiated in 2017, SWIFT members share a common vision of collaborative regional stewardship of the South Platte River. Through cooperative planning and infrastructure management, the effort is committed to enhancing the environmental, social and economic health of communities within the Urban South Platte Watershed.

Members of the South Platte SWIFT coalition are using an integrated "One Water" planning approach to collaboratively manage our finite water resources and meet the region's long-term community, recreational and ecosystem needs.

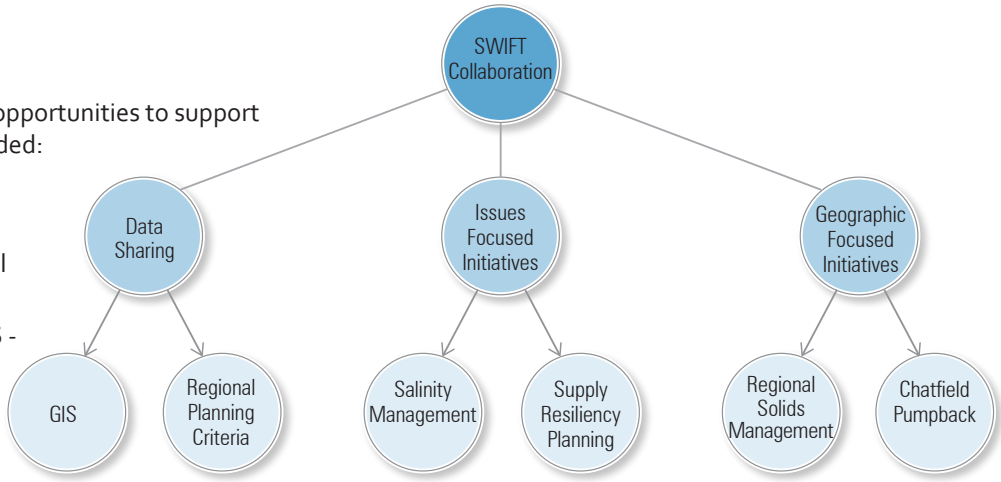
Building upon the substantial work of the Colorado's Water Plan and the South Platte Basin Implementation Plan, the SWIFT effort seeks to generate regional efficiencies while maximizing value for our collective ratepaying customers.

Photo: The Cultural Landscape Foundation

Planning Opportunities

The SWIFT coalition identified three opportunities to support regional planning efforts. These included:

1. **DATA SHARING -** the agencies developed an agreement to share regional planning and geographical data.
2. **ISSUES FOCUSED INITIATIVES -** the agencies identified specific initiatives that could be addressed in other watersheds.
3. **GEOGRAPHIC FOCUSED INITIATIVES -** the agencies identified specific initiatives that pertain only to the Urban South Platte watershed.



Who We Are

AURORA WATER

DENVER WATER

SMWSA
SOUTH METRO WATER SUPPLY AUTHORITY

METRO WASTEWATER RECLAMATION DISTRICT

ROXBOROUGH WATER AND SANITATION DISTRICT

SOUTH PLATTE WATER RENEWAL PARTNERS
OWNED BY LITTLETON/ENGLEWOOD

What We Do

Promote regional stewardship of the Urban South Platte Watershed through collaborative planning and infrastructure management.

Why We Do It

To enhance the environmental, social and economic health of the communities within the Urban South Platte Watershed.

Our Goals and Objectives

- Maximize value for millions of our collective ratepaying customers and generate regional economic benefits through cooperative long-term planning.
- Serve as a catalyst for accelerating the identification of collaborative and cost-effective regional water management and infrastructure solutions.
- Capitalize on potential information and infrastructure sharing opportunities to address water quantity and water quality challenges that are common in our arid climate.
- Advance environmental stewardship and resource conservation through a shared investment in the future of the Urban South Platte Watershed.

Where We Go From Here

Ultimately, as the work of the SWIFT coalition progresses, we will build towards developing a common understanding of the Urban South Platte Watershed. Based on this holistic view of our regional water supply and forecasted demand, we will be well positioned to identify and address future infrastructure gaps and regulatory challenges.

As opportunities with the potential for significant regional benefit are identified, the SWIFT partners may pursue a future Colorado Water Conservation Board (CWCB) State Water Plan Grant. Current activities are funded by a Metro Basin Roundtable grant and in-kind contributions from the SWIFT South Platte River coalition members.

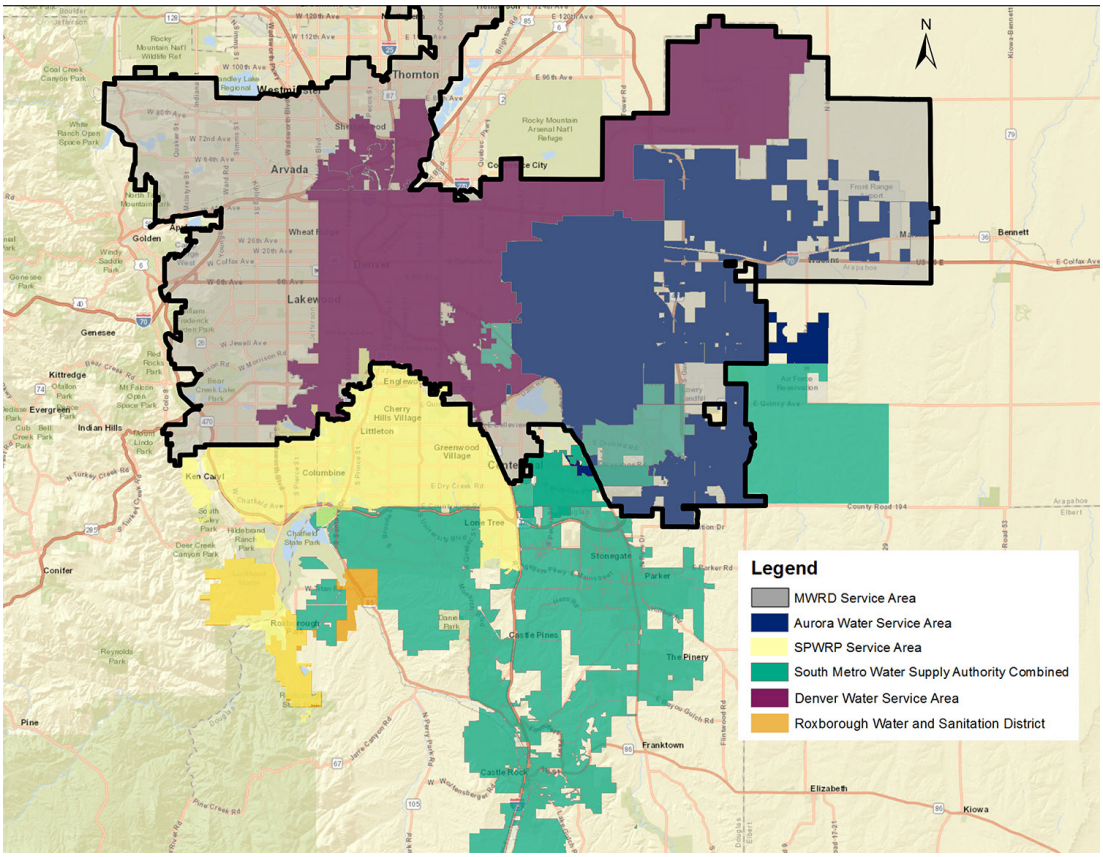


Figure 1: Service Area boundaries of the SWIFT members

Technical Support by:

carollo
Engineers...Working Wonders With Water®

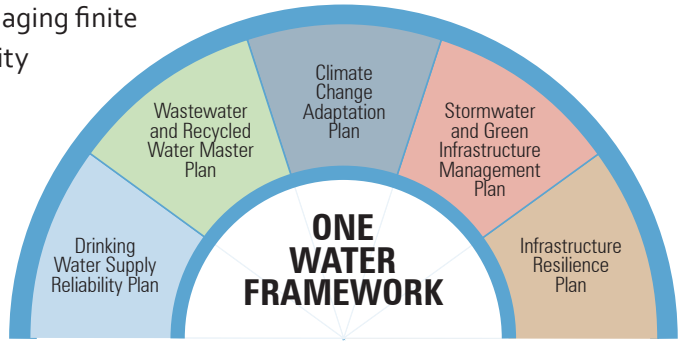
GBSM
INSIGHT | STRATEGY | RESULTS

SOUTH PLATTE SUSTAINABLE WATER INFRASTRUCTURE FOR TOMORROW

Data Sharing

Data Sharing Promotes Regional Collaboration and Planning. The South Platte SWIFT coalition members embrace the importance of the One Water framework. The framework focuses on developing an integrated planning and implementation approach for managing finite water resources to achieve long-term resilience and reliability while meeting rate payer and environmental objectives.

Water and wastewater utilities are facing pressures to make responsible investments to address population growth, increasing regulations, water quantity and quality changes, aging infrastructure, and the impacts of climate variability. The SWIFT members believe addressing these challenges using integrated regional planning begins with establishing a common foundation achieved through sharing data.



One Water framework integrates the water, wastewater and stormwater infrastructure needs and balances social and economic benefits and costs. (WRF)

What are we doing?

The SWIFT coalition members have achieved the following:

- **Data Sharing Agreements:** All coalition members have entered into a data sharing agreement to provide geospatial information on infrastructure, service area boundaries, and potential collaborative infrastructure planning ideas.
- **Regional Planning Criteria:** Each organization has established independent planning criteria and has initiated efforts to share data on population trends, water use, and wastewater loading. Sharing these data sets provides regional benchmarking information that can be used on collaborative projects to project future conditions.

Why are we doing this?

Utilities have come together to share data and infrastructure information to support data collection. Sharing GIS information helps identify opportunities for infrastructure partnerships. The benefits and efficiencies of regional planning and infrastructure sharing have already been proven through projects like the WISE partnership. Sharing data on planning criteria (e.g., per-capita water demands and wastewater flows) provide benchmarks and updated data for master planning in an era where many utilities are seeing conservation and efficiency vary significantly from historically accepted standards. Overly conservative values lead to oversized infrastructure; better information helps "right-size" infrastructure to more cost-effectively apply ratepayer dollars to the most critical investments.

What is the future of water use in the Metropolitan Denver Area?

Today, drought, conservation, and infrastructure improvements have resulted in an overall downward trend in per capita water demand despite ongoing increases in population.

The Denver area may continue to experience decreases in per capita water demands as building codes embrace water efficiency measures, as water conservation continues to increase, and as on-site water reuse becomes more commonplace. Comparing our water use to similar areas may provide a vision for future potential efficiencies beyond the region's impressive achievements to date. Water and wastewater utilities need to consider current trends while preparing adaptable plans to address potential future water demand changes.

How does decreasing water use impact our regional wastewater infrastructure?

Decreasing water use is increasing wastewater strength and the cost of wastewater treatment. The cost and effectiveness of wastewater treatment is more driven by constituent loading than flow now, and it can cost more to treat a given amount of flow due to increased concentrations. Discharge standards are increasingly stringent due to downstream municipal uses via the One Water cycle. Wastewater utilities will benefit from developing and sharing regional planning data by increasing efficiencies and uses of existing assets, while complying with more stringent regulatory pressures.

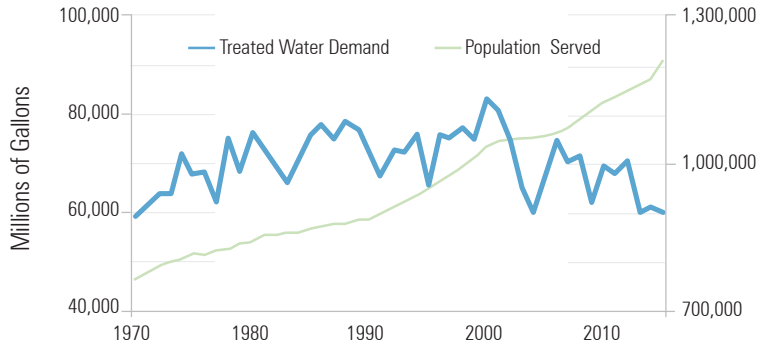


Figure 1: Denver Water treated water demand and service area population shows decrease in per-capita water demand over the past 50 years. Source: Denver Water website.

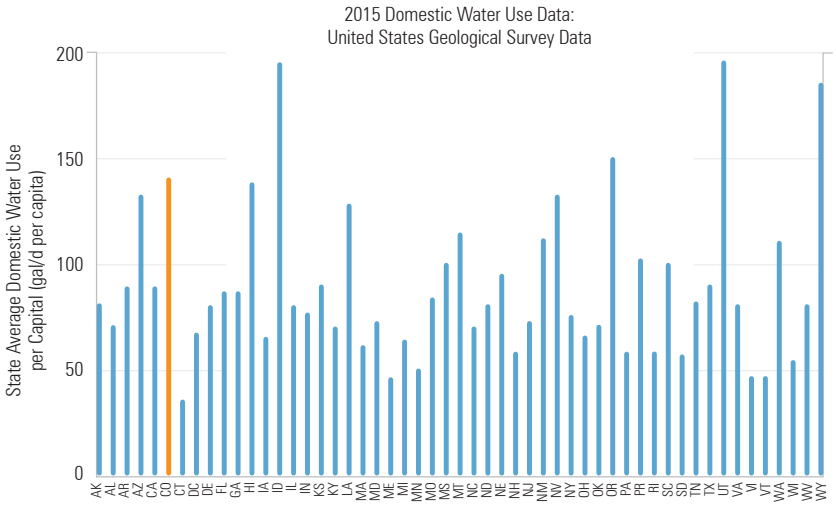


Figure 2 illustrates the domestic water use data for other States based on data from the USGS

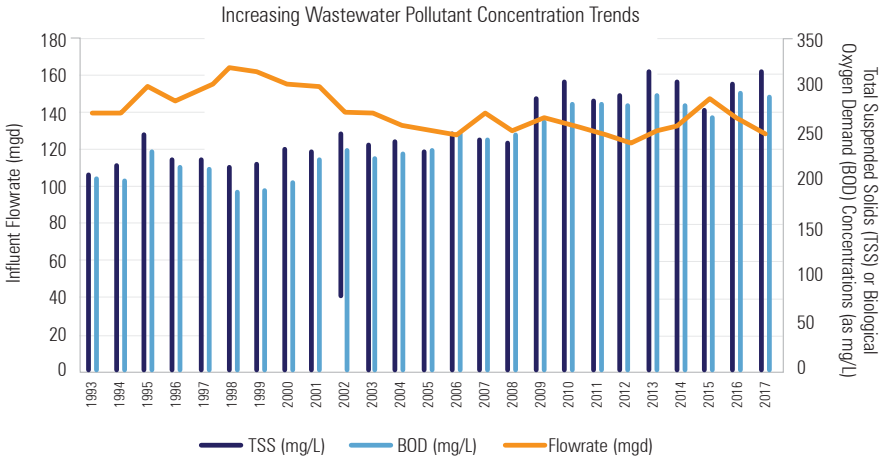


Figure 3 illustrates the increasing wastewater pollutant concentrations for the past 25 years.

Appendix B

BRIEFING MEMORANDA

DECEMBER 2018

SUSTAINABLE WATER INFRASTRUCTURE FOR TOMORROW (SWIFT)

Idea Capture Briefing #1: Meetings 1 through 4

The Sustainable Water Infrastructure for Tomorrow (SWIFT) coalition is a voluntary partnership of drinking water and water reclamation agencies in the urban South Platte Watershed. Initiated in 2017, SWIFT partners share a common vision of collaborative regional stewardship of the South Platte River. Through cooperative planning and infrastructure management, the effort is committed to enhancing the environmental, social, and economic health of communities within the urban South Platte Watershed. This effort was funded through a Water Supply Reserve Fund (WSRF) grant from the Colorado Water Conservation Board (CWCB) and through in-kind contributions from the SWIFT partners and consultants, including:

- City of Aurora (Aurora),
- Denver Water,
- Metro Wastewater Reclamation District (MWRD),
- Roxborough Water and Sanitation District (Roxborough),
- South Metro Water Supply Authority (SMWSA),
- South Platte Water Renewal Partners (SPWRP),
- Carollo Engineers, Inc. (Carollo), and
- GBSM, Inc.

This Idea Capture briefing memorandum satisfies one of the deliverable requirements of the CWCB grant, documenting the findings of the first four meetings of the SWIFT members in 2018.

In 2018, the SWIFT partners convened a series of meetings to discuss common needs and experiences in meeting regional water management and infrastructure goals. The first four SWIFT meetings brought together individuals to share lessons from managing, participating, or researching complex, multi-jurisdictional infrastructure projects.

The SWIFT partners used the first two meetings to establish practices that will guide success in pulling together ideas and personnel for the infrastructure sharing ideas along the urban South Platte River basin. The third and fourth meetings reviewed specific perspectives of SWIFT partners' wastewater and water infrastructure systems and anticipated future challenges. These meetings are summarized below. Presentation materials from meetings, where available, are attached to this briefing.

Meeting #1: Regional Partnering Success (January 29, 2018)

The first meeting highlighted recent multi-utility partnering successes. Understanding the pathways for success and challenges associated with other regional infrastructure partnerships provides perspective for the positive elements to be incorporated and the challenges to be addressed in regional planning and stewardship of water supplies and infrastructure in the urban South Platte River watershed. The presentations included the following.

Regionalization, Partnerships and Business Cases

Katie Henderson, a research manager for the Water Research Foundation (WRF), provided best practices used by national partnerships in the water sector through research completed by the WRF. The findings summarized how these national partnerships developed a common vision, mutually beneficial goals and project objectives. Katie indicated both WRF and the Environmental Protection Agency (EPA) have additional resources and literature available to establish the chartering, vision, and lessons learned for approaching complicated multi-jurisdictional infrastructure planning initiatives.

Water Infrastructure and Supply Efficiency Authority

Lisa Darling, Executive Director of SMWSA, presented on the Water Infrastructure and Supply Efficiency (WISE) project, which was initially developed by the City of Aurora and Denver Water to share water supplies and infrastructure to provide a regional benefit. Under the WISE water delivery agreement, SMWSA members that joined the WISE Authority and Denver Water receive water through Aurora's Prairie Waters infrastructure under certain conditions. This project required the entities to collaborate on the project development, construction, and operation of the system. The success factors included using the project charter and visioning to clearly define each entity's goals and objectives, and allowing for flexibility as project changes occurred.

National Western Center and Sun Valley Redevelopment Projects

Greg Fisher, Manager of Demand Planning from Denver Water, presented on Denver Water's redevelopment partnerships. First, the National Western Center redevelopment is a project where Denver Water is partnering with the project developers to increase water awareness and construct an environmental center or laboratory to advance the water awareness and innovation across the state. Secondly, the Sun Valley redevelopment project in central Denver includes integration of water resources and One Water concepts to create a unique urban center along the South Platte River. Denver Water's involvement in these projects focuses on increased awareness of water issues and water developments that benefit the organizational mission of Denver Water.

Chatfield Reallocation Project

Tom Browning, General Manager of the Chatfield Reservoir Mitigation Company, presented the status and construction for the Chatfield Reallocation Project. The project is a partnership among eight water providers in the Denver metropolitan area and northeast Colorado that will add 20,600 acre-feet of storage capacity in the reservoir. The state's Department of Natural Resources is the project's non-federal sponsor. Tom noted that the project's success has been driven by creating a transparent platform for allowing all stakeholders to provide input into the project development.

Key Findings from Meeting #1

The key findings from the first meeting include:

1. All partnerships have entry barriers that can limit the success of collaborative efforts. These barriers include:
    a. The loss of control or skepticism (by one or more partners),
    b. Change in political representatives or support for the project,
    c. Extensive permitting, legal, or public constraints,

d. Impacts to rate payers or to the financial position of Utility,
e. Perceived share of benefits and costs for the collaboration, and
f. Limited trust and long-term understanding of project and purpose.

2. Utilities are driven by transparency and mutually agreed-upon business case evaluation criteria and common goals.
3. Many partnerships are driven by a crisis situation such as drought or other environmental impacts.
4. Success can be supported by developing and promoting a culture of compromise and empathy. Each entity should identify the "deal breakers" versus the stated preferences for the project.
5. Understand the agreements and develop contingency plans to allow flexibility when conditions (or interests) change. Consider incorporating "off-ramps" or exit strategies into the agreements.
6. Regionally developed projects, if done well, provide a better return on the investment that transcends the mutual ratepayer base.

Meeting #2: Insights from One Water Case Studies (February 22, 2018)

The second meeting focused on national One Water efforts and how those programs use water resources planning as a foundation to address regional solutions in water quality, supply, and infrastructure costs.

One Water Los Angeles 2040 Plan

Inge Wiersema, One Water Los Angeles Project Manager for Carollo, presented on how the City of Los Angeles is addressing its goals to reduce imported water purchased 50 percent by 2025. The project established a vision statement within an integrated framework for managing the City's water resources from water, wastewater, and stormwater.

Implementing One Water Management: How to Get There

Cindy Paulson, Chief Technical Officer for Brown and Caldwell, presented the One Water Blueprint Project, which was completed for WRF. The blueprint provided a practical application for One Water planning and summarized case studies and best practices. Cindy presented the New York City and the Bay Area Regional Reliability case studies.

Denver Water's Perspective on One Water

Sarah Dominick, Senior Water Resources Engineer for Denver Water, and Cindy Paulson discussed the impacts of the One Water initiatives on the Denver Water integrated resource plan (IRP) and how the lessons learned from other projects could be brought to bear for the Denver Water initiative.

Key Findings from Meeting #2

The key findings from the second meeting include:

1. Developing vision statement and guiding principles early was used to breakdown institutional silos and increase overall collaboration.
2. Empowering a diverse steering committee that can direct the group and have the necessary authority for decision-making proved beneficial when facing project uncertainty.

3. Engaging with executive management teams across organizations ensured decisions makers were informed and aligned with their staff on the project development.
4. Communicating and collaborating frequently is never too much. Stakeholders (internal and external) want to understand the project direction and decisions.
5. Developing a framework for cost sharing during the project definition stage is crucial for transparency between partners.
6. Using a tiered approach to engage with staff, managers, and executives at different organizational levels proved beneficial.
7. Demonstrating early wins as soon as possible created team buy-in and support from decision makers in successful progress.
8. Being adaptive to change conditions and being transparent yields more a more stable foundation for planning work to execute and delivery the project.
9. Creating communication tools, such as a website, provides transparency.

Meeting #3: Wastewater Perspective (March 22, 2018)

The focus of this meeting was to bring the local wastewater providers together to identify collaborative projects they are engaged with or have completed and discuss their lessons learned. In addition, each entity was challenged to identify infrastructure opportunities and constraints when addressed with the larger group could lead to brainstorming regional solutions that benefit the common ratepayer.

South Platte Water Renewal Partners

John Kuosman, General Manager of the SPWRP, discussed many of the organization opportunities, goals, and ideas to increase the collaborative, regional infrastructure planning. A few of the ideas specific to the SPWRP include:

1. The SPWRP treatment facility has available liquid stream capacity, which could be leveraged to off-load other facilities or increase areas served in the upper South Platte basin.
2. SPWRP is evaluating beneficial reuse opportunities to reduce treatment costs and improve overall performance. The reuse opportunities include phosphorus, heat recovery, water reuse, methane gas, and energy.
3. The SPWRP goals for SWIFT collaboration include:
    a. Reducing future capital intensity by participating in regional infrastructure projects that increase the effectiveness of existing infrastructure or that share the benefits and costs for new projects.
    b. Providing a benefit the common ratepayer and increasing the environmental benefits for each city and the metropolitan Denver area.
    c. Evaluating the feasibility for regional treatment solutions at the SPWRP treatment facility or elsewhere to create regional wastewater solids management facility and/or a water reuse treatment center.
    d. Developing smart investments that can be shared between partners and increasing the water supply resiliency.

Metro Wastewater Reclamation District

Dawn Ambrosio, Strategic and Communications Manager at MWRD, provided an introduction to MWRD, their system, the system challenges and opportunities facing the largest wastewater provider in the metro area. A few of the highlights include:

1. Wastewater planning needs to be more coordinated with water supply and water use planning as changing social-economic criteria influence the water utilities, which impacts wastewater infrastructure planning.
2. Wastewater utilities are focusing on smart infrastructure including developing resource recovery, and energy management improvements outside the traditional organizational boundaries.
3. MWRD is participating in a number of successful regional partnerships including Denver Water recycling plant optimization study, National Western Complex heat recovery study, Second Creek Interceptor to NTP, and Aurora Sand Creek Water Reuse Facility.

City of Aurora

Sarah Young, Aurora Planning Services Manager, presented Aurora's perspective with wastewater infrastructure. The highlights from Aurora's perspective include:

1. Growth driven infrastructure improvements can divert organizational focus to other priorities. Developer growth is primarily focused in the northeast portion of the service area. Aurora's experience with developer led projects creates challenges with infrastructure planning.
2. Aurora is looking to optimize capital investments today while investing in long-term solutions that provide more economic value to Aurora.
3. Experiencing funding and reimbursement challenges with developer led projects.
4. Using data from other water providers and wastewater providers will assist in right-sizing wastewater infrastructure for future facility planning efforts.
5. Uncertainty around the future regulatory impacts at the Sand Creek Water Reuse Facility.

Meeting #4: Water Treatment Providers Perspective (April 19, 2018)

The focus of this meeting was to bring together the SWIFT water providers to identify collaborative projects they are engaged with or have completed and discuss key lessons. In addition, each entity was challenged to identify some infrastructure opportunities and constraints when addressed with the larger group may lead to brainstorming regional solutions.

City of Aurora

Alicia DuPree, Project Engineer, and John Murphy, Water Resources Engineer, presented Aurora's perspective on their water infrastructure and needs.

1. Prairie Waters serves as a long-term drought resiliency measure, which adds reliability via a renewable water supply for Aurora.
2. Aurora has sufficient treatment capacity to meet the water demands through 2070 based on the City's most recent integrated water planning study.
3. Aurora may face conveyance capacity limitations between Rampart Reservoir and the Aurora treatment facilities. Siting, permitting and constructing a parallel pipeline could be difficult endeavor to increase the capacity.

4. Major growth is occurring in the northeast portion of the City.
5. Aurora experiences funding and timing constraints with developer led growth for the transmission and distribution infrastructure.

South Metro Water Supply Authority

Lisa Darling and Chris Muller, Senior Water Resources Engineer, presented the SMWSA perspective on their water infrastructure and needs.

1. SMWSA anticipates growth in service area to increase population by 250,000 before 2050.
2. Currently, SMWSA is using WISE water to augment SMWSA members' supplies with renewable water. There are concerns about salinity concentrations with the WISE water and ongoing studies are being completed to evaluate impacts and solutions for the water users.
3. SMWSA projects a water supply deficit of 30,000 acre-feet per year to meet the build-out conditions, based on the current population growth and water use rates. SMWSA and others are evaluating different types of storage projects that would address this water supply challenge.
4. SMWSA believes capturing the maximum benefit of reusable effluent flows is key in solving the water supply deficit. Return flows from WISE water are fully reusable.
5. Other challenges facing SMWSA include the lead and copper rule, customer and financial impacts associated with regulatory, capacity, and reliable operations.

Denver Water

Greg Fisher and Sarah Dominick presented the Denver Water perspective on their water infrastructure and needs.

1. Water utilities need to optimize planning for the future by considering alternative strategies to appropriately balance infrastructure costs and future growth. Considering infrastructure modularity and planning for shorter design durations creates long-term adaption to face changing conditions.
2. Locally, the water providers should be considering best approach for recycled water systems and should these facilities be more regionally focused to decrease investment costs for facilities. Water rights will be critical factor for evaluating regional recycled water facilities.
3. Overall challenges facing Denver Water with infrastructure planning include climate change, which impacts supply and demand, water rights, population growth, reduced water use, regulations, and uncertainty of water futures.
4. Short-term capacity sharing agreements have been effective planning tool allowing other water providers to use existing infrastructure in emergency situations.
5. Future building and customer preferences and codes will continue to reduce water use. Additionally, water conservation awareness and measures will be incorporated into smart developments.

Roxborough Water and Sanitation District

Barbara Biggs, General Manager, presented Roxborough's perspective on their water and wastewater infrastructure needs.

1. Wastewater flows are conveyed to the SPWRP treatment plant and the City of Aurora retains the right to any reusable water under the IGA for Roxborough's water supply.
2. Roxborough serves a small portion its service area by conveying its Aurora water to Centennial Water and Sanitation District through Aurora Water's infrastructure.
3. There are opportunities for Roxborough to extend water and wastewater service to nearby communities.
4. Changing the irrigation water source for Arrowhead Golf Course could save approximately 225 acre-feet per year of potable water supply. This change results in using renewable effluent or raw water for irrigation purposes.
5. Roxborough provides contract operations for the Dominion Water and Sanitation District.

SWIFT2 Regional Planning Group Meeting
February 22, 2018

ONE WATER LA 2040 PLAN

Inge Wiersema, P.E.
Carollo Engineers, Inc.

PRESENTATION OVERVIEW

1. What is One Water LA?
2. Partnerships & Public Engagement
3. Project Challenges & Solutions
4. Lessons Learned

THE CITY OF LOS ANGELES FACES MANY WATER CHALLENGES

Population Growth

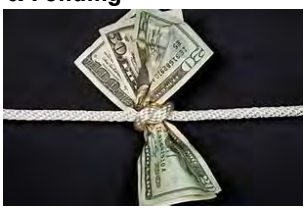
Aging Infrastructure

Heavy dependence on imported water

Climate Change Threats

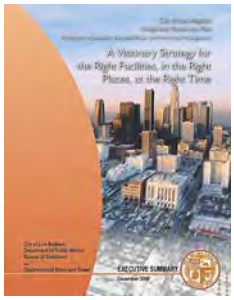
More Stringent Stormwater Quality Regulations

Limited Resources & Funding



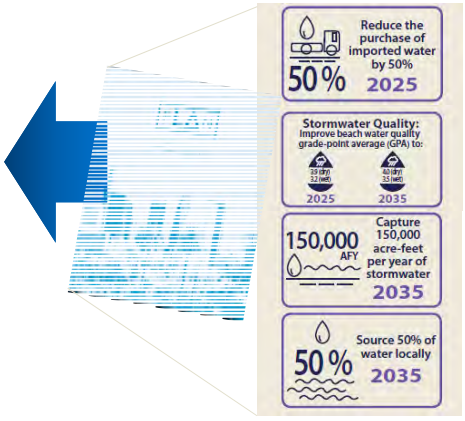
TO MANAGE ALL WATER AS "ONE WATER", THE CITY INITIATED THE ONE WATER LA 2040 PLAN

Implementation Strategies for the 2015 Sustainable City Plan's Water-Related Goals

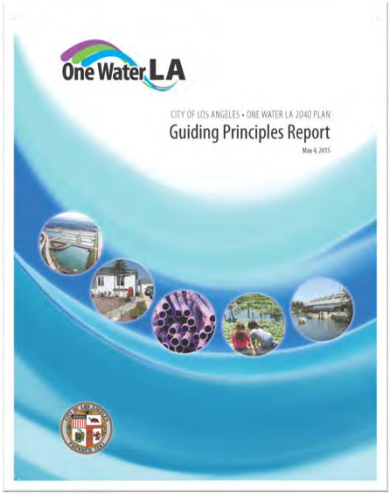


2006
Water Integrated Resources Plan
Planning Horizon: 2020

2018
One Water LA 2040 Plan
Planning Horizon: 2040



WHAT IS ONE WATER LA?



VISION STATEMENT

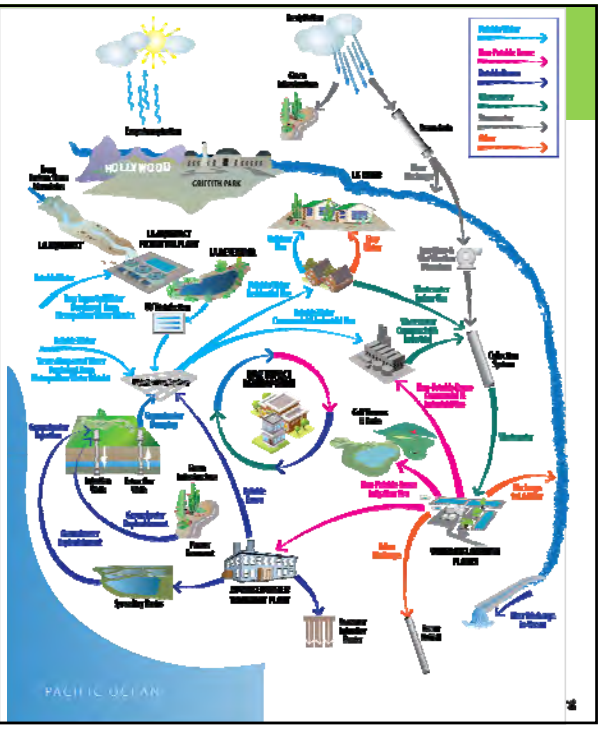
One Water LA is a collaborative approach to develop an integrated framework for managing the City's water resources, watersheds, and water facilities in an environmentally, economically, and socially beneficial manner.

One Water LA will lead to:

- *Smarter land use practices*
- *Healthier watersheds*
- *Greater reliability*
- *Increased efficiency & operation*
- *Enhanced livable communities*
- *Climate change resilience*
- *Protection of public health*
- *Protection of environment*

One Water LA.org

THE ONE WATER PARADIGM RESULTS IN A SMARTER URBAN WATER CYCLE



COLLABORATION IS THE KEY TO BREAK DOWN INSTITUTIONAL SILOS

Other City Departments

& Many Other Departments

Lead Agencies

Regional Agencies

ONE WATER LA USED A MULTI-PRONGED APPROACH TO PROMOTE EXTENSIVE COLLABORATION

EXECUTIVE LEADERSHIP

STAKEHOLDER WORKSHOPS

COMMUNITY EVENTS

STEERING COMMITTEE

NGO's

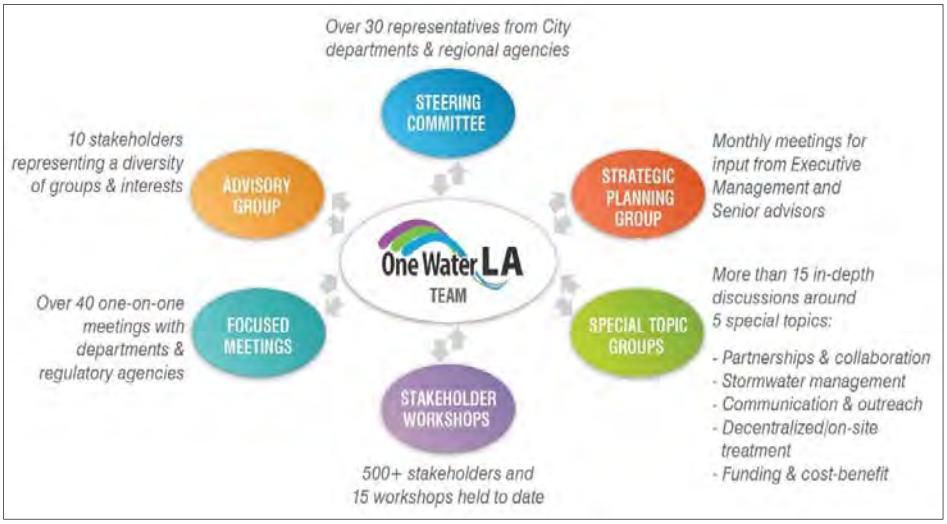
BUSINESS COMMUNITY

Los Angeles Area Chamber of Commerce

ACADEMIA

THE PLAN WAS DEVELOPMENT WITH INPUT FROM A VARIETY OF GROUPS

Multi-Level Collaboration



THE ONE WATER LA 2040 PLAN CONSISTS OF MANY ELEMENTS ORGANIZED IN 10 VOLUMES

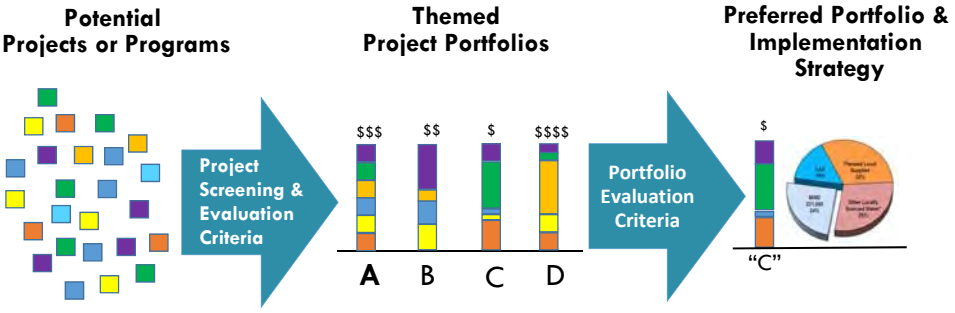
LA DWP

LA SANITATION

carollo

& 20 Subconsultants

LONG-TERM CONCEPT IDEAS WERE ANALYZED THROUGH A PORTFOLIO EVALUATION PROCESS



Mass Balance Tool

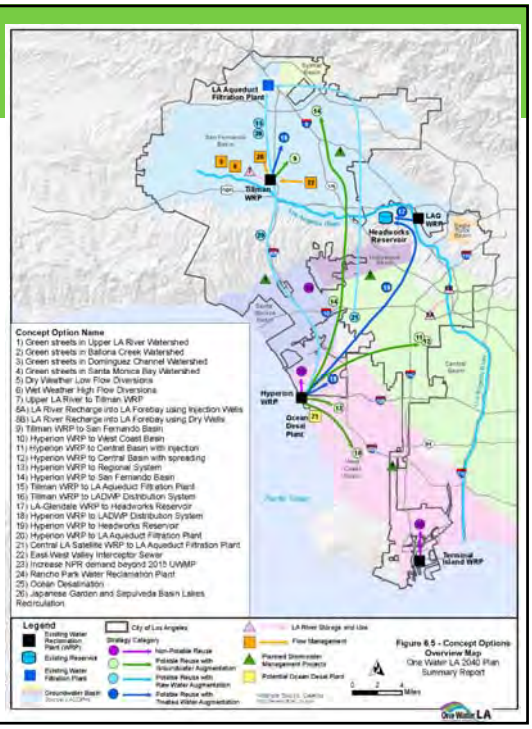
THE CITY HAS A VARIETY OF POTENTIAL LOCAL WATER SUPPLY STRATEGIES OPTIONS

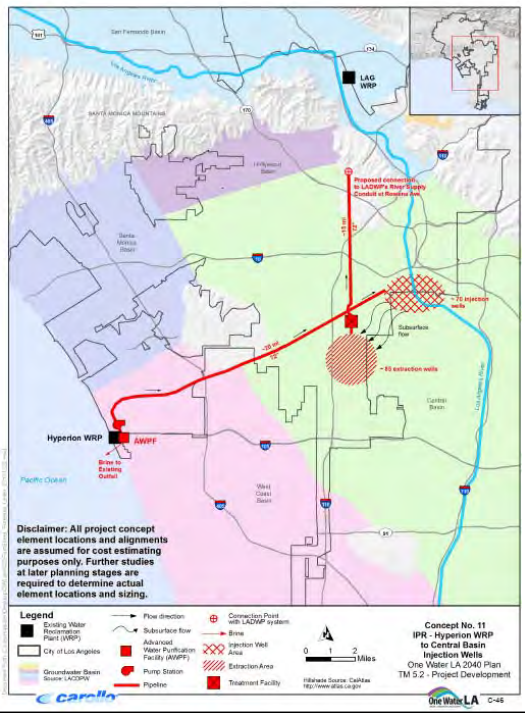
Concept Category	Number of Concepts
NPR	2
IPR	5
DPR	7
Stormwater	4
LA River	3
Ocean Desal	1
Flow Management	4
Total	**27**

14 new Reuse Concepts

BIG & BOLD REUSE CONCEPTS

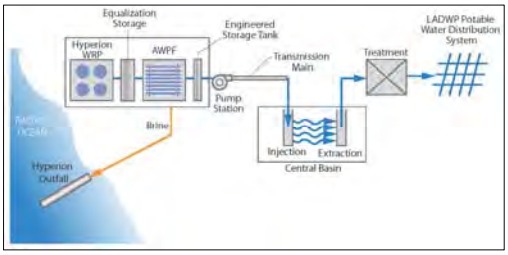
Type	Concept Idea	Capacity (afy)	
NPR	Increase Hyperion deliveries to West Basin	75,000	Non Potable Reuse (Purple Pipe)
	Purple Pipe expansion beyond 2015 UWMP	10,000	
IPR	Tillman to San Fernando Basin (beyond GWR)	30,000	Potable Reuse with Groundwater Augmentation
	Hyperion to West Coast Basin	20,000	
	Hyperion to Central Basin ★	75,000	
	Hyperion to San Fernando Basin	90,000	
	Hyperion to Regional Agency	90,000	
DPR	Tillman to LAAFP	15,000	Potable Reuse with Raw Water Augmentation
	Hyperion to LAAFP	90,000	
	New Satellite WRP to LAAFP	70,000	
	Tillman to distribution system	15,000	Potable Reuse with Treated Water Augmentation
	LAG to Headworks reservoir	5,000	
	Hyperion to Headworks reservoir	90,000	
	Hyperion to distribution system	90,000	





HYPERION WRP

POTABLE REUSE WITH GROUNDWATER AUGMENTATION IN CENTRAL BASIN

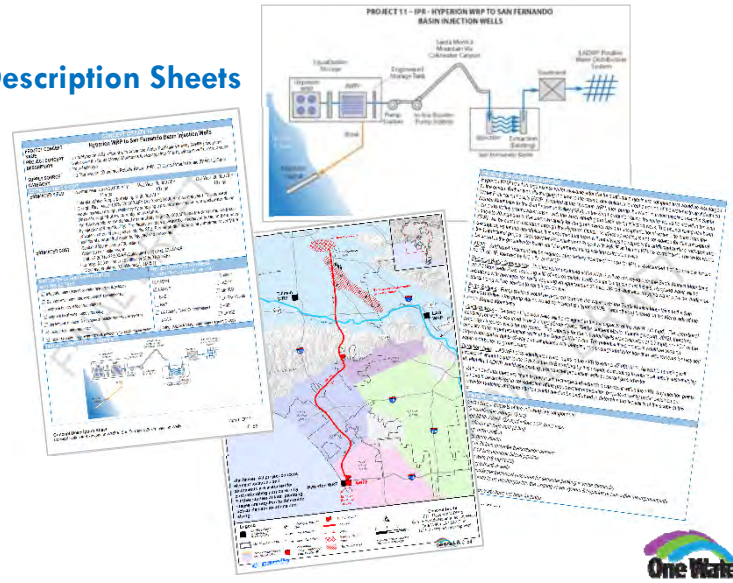


- 75,000 AFY
- $3,300 M
- $2,700/acre-ft

DETAILED CONCEPT DESCRIPTION SHEETS WERE DEVELOPED FOR ALL 27 PROJECT CONCEPTS

Project Concept Description Sheets

- Schematic
- Descriptions
- Yield/Capacity
- Map
- Facility Sizing
- Cost Estimates
- Energy Usage
- Project Benefits
- Project Partners
- Evaluation Metrics



COMPREHENSIVE EVALUATION CRITERIA & METRICS WERE USED TO COMPARE THE PROJECT CONCEPTS

Economic Criteria

- Unit cost
- Financial benefits
- Funding mechanism
- Likelihood to obtain outside funding

Resiliency Criteria

- Drought resiliency
- Earthquake resiliency
- Flood risk mitigation
- Local supply benefit
- Energy Impact/Green-House Gas Emissions

Implementation Criteria

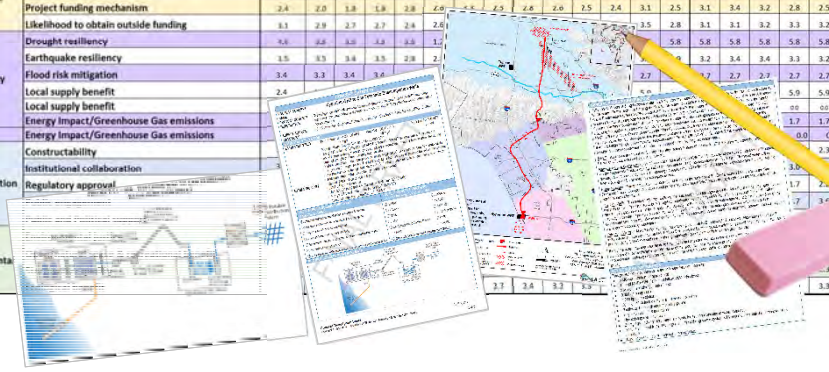
- Constructability
- Institutional collaboration
- Regulatory approval
- Public engagement
- Public and political support

Environmental Criteria

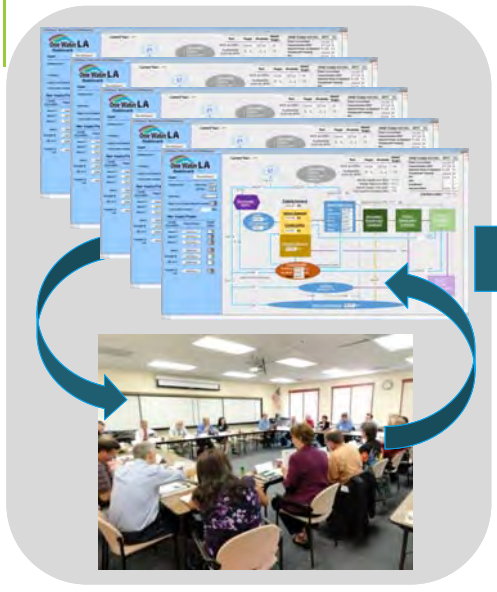
- Environmental justice
- Open/natural space and recreational benefit
- Stormwater quality
- Ecological benefit

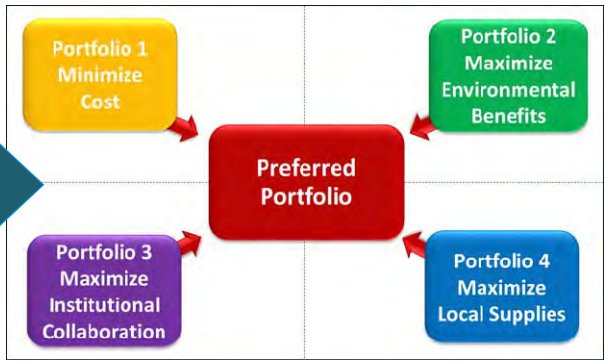
A TEAM OF CITY STAFF & TECHNICAL ADVISORS EVALUATED AND SCORED ALL PROJECT CONCEPTS

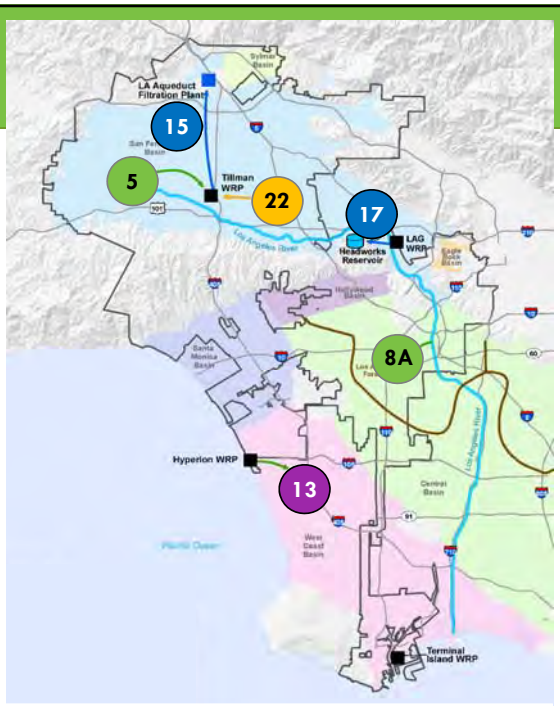
Category	Criteria	Project Concept Number & Name																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
		Upper Los Angeles River Watershed	Ballona Creek Watershed	Dominguez Channel Watershed	Santa Monica Bay/Marina del Rey	Dry Weather Low Flow Diversions	Wet Weather Flow Diversions	Upper LA River to Tillman WRP	LA River Recharge into LA Forebay	Tillman WRP to San Fernando Basin Injection	Hyperion WRP to West Coast Basin Injection Wells	Hyperion WRP to Central Basin Injection Wells	Hyperion WRP to Central Basin with Spreading Basins	Hyperion WRP to Metropolitan	Hyperion WRP to San Fernando Basin Injection	Tillman WRP to Los Angeles Aqueduct Filtration Plant	Tillman WRP to LADWP Distribution System	LA/Glendale (LAG) WRP to Headworks Reservoir	Hyperion WRP to LADWP Distribution System	Hyperion WRP to Headworks Reservoir	Hyperion WRP to Los Angeles Aqueduct Filtration	Central LA Satellite WRP to Los Angeles Aqueduct	East-West Valley Interceptor Sewer	Increase Recycled Water Demand beyond 2015	Rancho Park Recycled Water Satellite Plant	Ocean Desalination
Economic	Unit cost	1.1	1.1	1.1	1.1	5.4	1.1	5.6	2.2	4.3	2.2	4.2	4.2	4.5	5.2	4.5	4.5	4.5	4.3	3.2	4.2	2.2	5.4	3.2	3.2	3.2
	Financial benefits	4.3	4.4	4.2	4.3	4.0	1.4	4.1	2.9	2.0	2.1	2.5	2.3	3.1	2.7	3.0	3.6	3.4	2.7	2.4	2.1	1.8	3.3	2.7	3.0	2.3
	Project funding mechanism	2.4	2.0	1.8	1.8	2.8	2.6	4.5	2.5	2.8	2.6	2.5	2.4	3.1	2.5	3.1	3.4	3.2	2.8	2.5	2.5	2.1	3.1	2.8	2.9	2.0
	Likelihood to obtain outside funding	3.1	2.9	2.7	2.7	2.4	2.6							3.5	2.8	3.1	3.1	3.2	3.3	3.2	3.1	2.8	1.8	2.4	2.8	2.5
Resiliency	Drought resiliency	4.6	2.8	3.0	3.2	3.3	1.2							5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	4.6	4.6
	Earthquake resiliency	1.5	3.5	3.4	3.5	2.8	2.1									3.2	3.4	3.4	3.3	3.2	2.8	2.7	3.3	3.2	3.4	3.5
	Flood risk mitigation	3.4	3.3	3.4	3.6									2.7		2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	3.2	2.7
	Local supply benefit	2.4														5.9	5.9	5.9	5.9	5.9	5.9	5.9	1.2	3.5	2.4	4.7
	Local supply benefit															0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Energy Impact/Greenhouse Gas emissions															1.7	1.7	1.7	1.7	1.7	1.7	1.7	3.5	3.5	2.7	0.9
	Energy Impact/Greenhouse Gas emissions															0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Implementation	Constructability																			2.3	2.2	1.8	3.0	2.0	2.8	2.3
	Institutional collaboration																			2.9	2.9	2.7	3.2	3.1	3.1	3.1
	Regulatory approval																			1.7		2.0	4.0	3.8	3.8	2.6
Environmenta																							2.9	3.8	4.1	4.2
																							3.3	3.5	3.8	2.4
																						2.3	2.8	3.0	2.7	
																						2.7	2.7		2.8	2.7
																							3.0	2.8	3.2	2.5
		2.7	3.4	3.3	3.3											3.3	3.3	2.9	3.1	3.1					3.2	1.9



THE PREFERRED PORTFOLIO WAS DEFINED BY COMBINING THE MOST DESIRED ELEMENTS OF THE 4 "EXTREME" PORTFOLIOS







PREFERRED PORTFOLIO SUMMARY

Selected Concept Options:

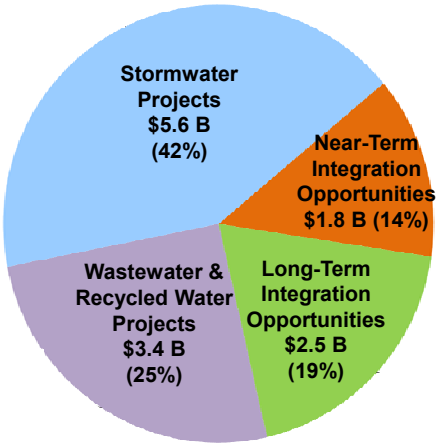
#13: MBR at Hyperion WRP to Regional System	95,000 afy
#15: Potable Reuse with raw water augmentation from Tillman to LAAFP	15,000 afy
#17: Potable Reuse with treated water augmentation from LAG to Headworks Reservoir	6,000 afy
#5: Dry Weather Low Flow Diversions	6,200 afy
#8A: LA River recharge into LA Forebay with injection wells	25,000 afy
#22: East-West Valley Interceptor Sewer	0 afy

Total Estimated Yield: 147,200 afy
Total Estimated Cost: $2.5 B

THE ONE WATER LA PLAN PROVIDES A ROADMAP TO MAKE LOS ANGELES A MORE RESILIENT CITY

ONE WATER LA 2040 PLAN
Ten Volumes

PLAN RECOMMENDATIONS
Total 13.3 Billion



PROJECT CHALLENGES & SOLUTIONS

CHALLENGES

SOLUTIONS

PROJECT SCHEDULE

- Large Consultant Team
- Dedicated Task Managers
- Frequent Meetings
- More Time

COMMUNICATIONS

- Consistent Core Team
- Multi-Level Meetings
- Consultant PM in City Office
- Diligent Record Keeping

MULTIPLE AGENCIES

- Understand Perspectives
- Joint RFP/Scope Development
- Work the Org Chart
- Patience & Have Fun!

LESSONS LEARNED

Big Successes

- Engagement of Executive Management via Strategic Planning Group
- Development of a Guiding Principles Report with the One Water Vision
- Aggressive Goals from Sustainability Plan created common sense of urgency
- Stakeholder Workshops with focus on Active Participation Elements
- Frequency of meetings and variety of groups to promote good communication & expedite decision making

Things to do Differently

- Avoid Monthly Management Meetings with focus on project updates vs advisor role
- Minimize Stakeholder meetings with focus on information sharing (presentation vs participation)
- Consider designation of a chair for the Advisory Group to obtain a point person in case discussions are compromised by a few members
- Develop a cost-sharing agreement between the lead agencies prior to (not during) the project
- Avoid creating too many evaluation criteria as this can dilute results too much (similar scores)

SWIFT 2 Partner Meeting #2
February 22, 2018

ONE WATER LA 2040 PLAN
Q&A

Inge Wiersema, P.E.
Carollo Engineers, Inc.

One Water LA

SWIFT2
L/E WWTP GOALS PRESENTATION
March 22, 2018

OVERVIEW

SOUTH PLATTE WATER RENEWAL PARTNERS

Our Purpose
Governance Structu
Challenges Ahead
New Branding
SWIFT2 Goals
Concept Projects

To sustainably protect and recover our communities' vital resources.

SOUTH PLATTE WATER RENEWAL PARTNERS

OUR PURPOSE

PURPOSE

SOUTH PLATTE WATER RENEWAL PARTNERS

REGIONAL SERVICE PROVIDER

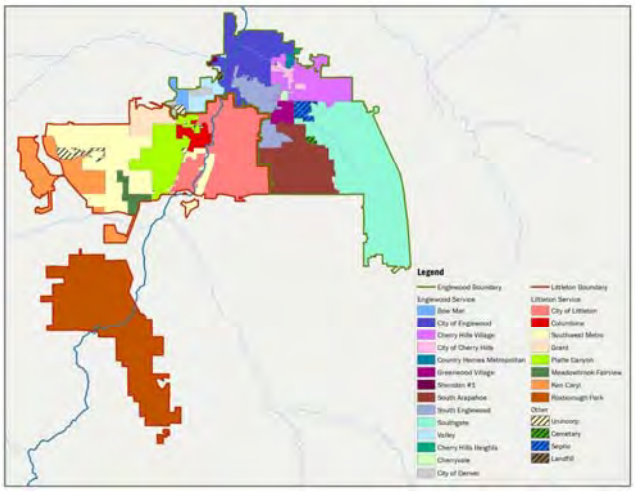
108 square mile service area

19 SANITATION DISTRICTS

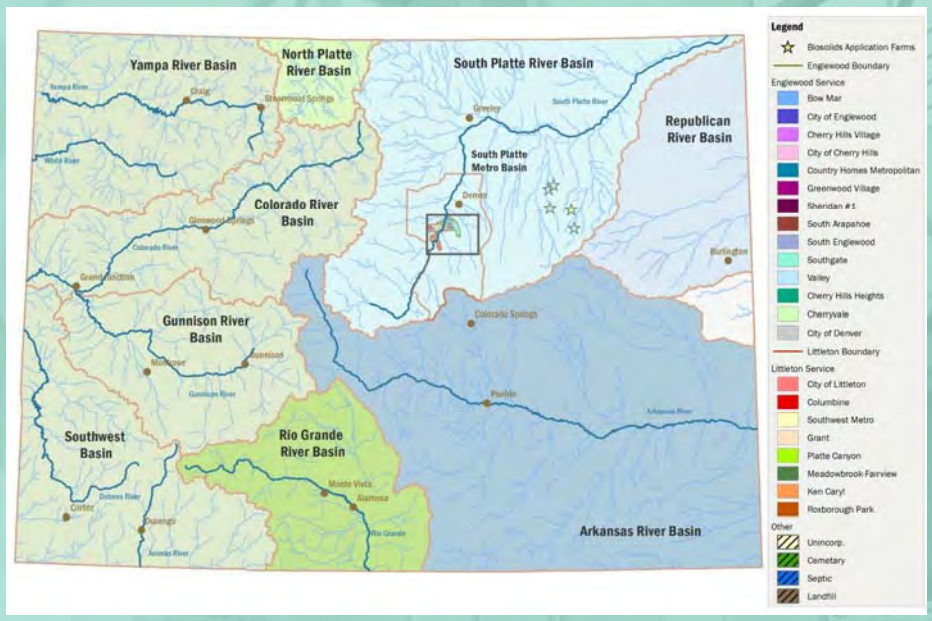
625 sewer miles

300,000+ CUSTOMERS

Plus downstream users



SOUTH PLATTE WATER RENEWAL PARTNERS



PURPOSE

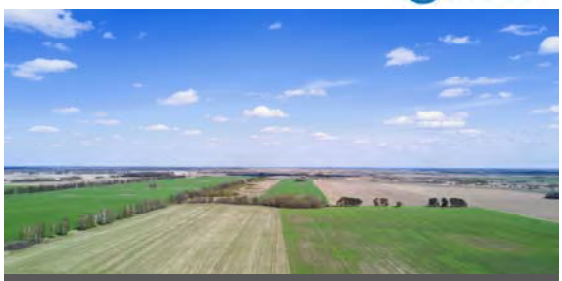
ALWAYS ON THE CLOCK
24 MGD
24/7 uptime requirement

$500+ MILLION PLANT
3rd largest facility in Colorado

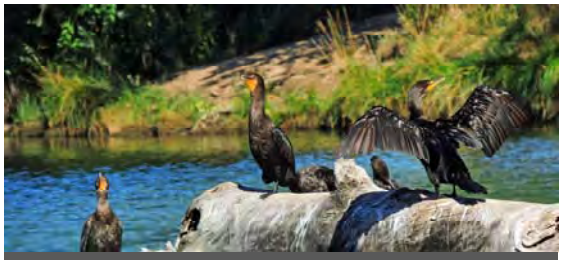
84 DEDICATED PROFESSIONALS
A-certified plant

PURPOSE

Recreational



Agricultural



Environmental

Municipal

PURPOSE

Local Industry Energy By[illegible]cts
Soil Amendments for A[illegible]riculture
Phosphorus Recovery
Heat Recovery
Leverage Capacity
Reduce Chemical Use
Reduce Energy Use
Distribute Value of Renewed Water

Win-Win Opportunities to Reduce Costs and Beneficially Use Community Resources

SOUTH PLATTE WATER RENEWAL PARTNERS

GOVERANCE

GOVERNANCE

Joint Use Agreement

- Signed Dec. 6, 1982
- Supervisory Committee oversees all operations & attendant matters
- Two admin. employees from each City
- SC meetings monthly
- Joint City Council Meeting annual
- Sanitation Districts connect through City

Littleton Public Works Department
- Bow Mar*
- Columbine*
- Grant
- Meadowbrook
- Fairview
- Southwest
- Metropolitan Platte Canyon
- Ken Caryl Ranch
- Roxborough Park

Englewood Utilities Department
- City of Cherry Hills
- Bow Mar*
- Columbine*
- South Arapahoe
- Southgate
- Cherry Hills Heights
- Cherry Hills Village
- Country Homes
- Metropolitan
- South Englewood
- Cherryvale
- Sheridan Sanitation #1
- Valley
- City of Sheridan

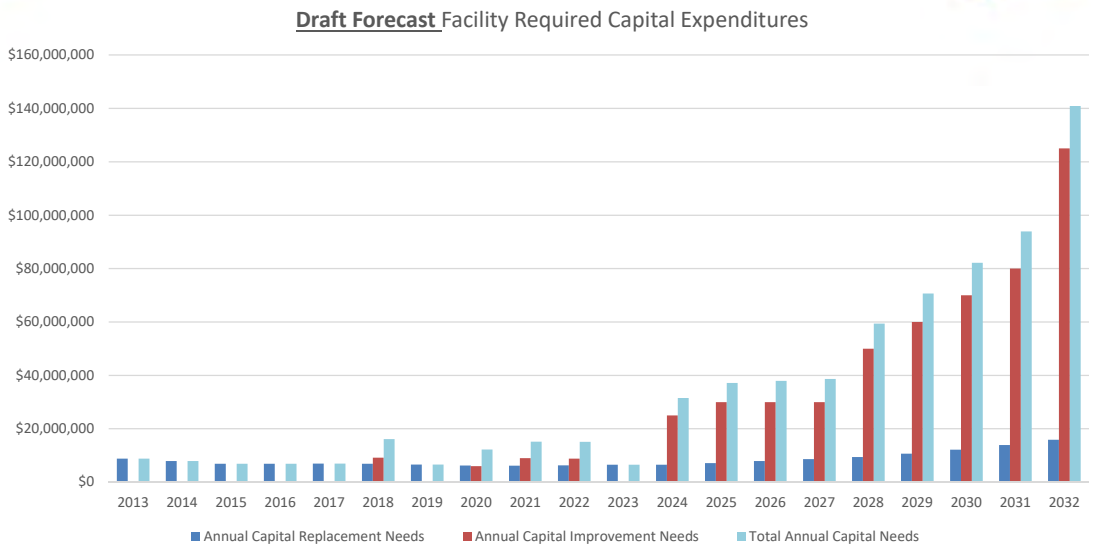
SOUTH PLATTE WATER RENEWAL PARTNERS

CHALLENGES AHEAD

CHALLENGES AHEAD

- (Nutrients)
- (Aging Infrastructure)
- (O&M Cost Centers)
- (Regional Opportunities)
- (Resource Recovery)
- Holistic Plan

CHALLENGES AHEAD



NEW BRANDING

NEW BRANDING – OFFICIAL ROLLOUT APRIL 20

SOUTH PLATTE

Communicates our commitment to the South Platte watershed

Acknowledges our work goes beyond our boundaries

Honors our mission of being stewards of our communities' natural resources

WATER RENEWAL

"Water renewal" more accurately describes our process

Opportunity to educate the public about the value of water

No longer do we view the byproducts of cleaning water as waste

PARTNERS

Littleton and Englewood were the original partners and investors

Innovation and initiative of the two City's willingness to partner then, now and in the future

GOALS FOR SWIFT2 COLLABORATIONS

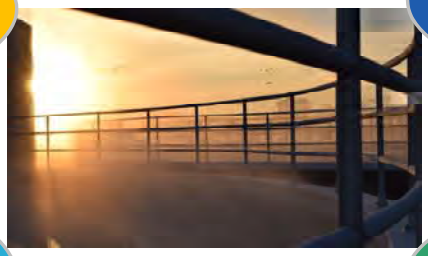
BROAD GOALS

SOUTH PLATTE WATER RENEWAL PARTNERS

Leverage Existing Infrastructure

Expand Benefits to Current Service Area

Identify New Opportunities to serve region



Produce Net Positive Environmental Benefits

Smart Investments for Collective Rate Payer

LEVERAGE EXISTING INFRASTRUCTURE

- **50 MGD OF PERMITTED CAPACITY**
  - Conservative Population Assumptions
  - Conservative Sewershed Assumptions
- **34 MGD CURRENT SERVICE AREA FORECAST**
- **DECISION POINT: CONVERT HYDRAULIC TO NUTRIENT CAPACITY?**
  - Regulation 61 and 22
  - Neighboring Providers

Leverage Existing Infrastructure

Metro Wastewater (Bear Creek Interceptor?)
Centennial W&S*
Roxborough W&S (Dominion W&S)*
***RETURN FLOWS CRITICAL**

EXPAND BENEFITS TO CURRENT SERVICE AREA

- **SEASONALLY RE-WET SP RIVER BETWEEN OUR CHATFIELD AND OUR PLANT**
  - Improved Recreation
  - River-centered commerce
  - Benefits to Englewood Water Quality
  - River Stabilization and Health
- **DROUGHT RESILIENCE**
  - Consistent River Flows
  - Wet Year Storage in Reservoirs

Expand Benefits to Current Service Area

IDENTIFY OPPORTUNITIES TO SERVE REGION

- **REGIONALIZED WASTEWATER TREATMENT**
  - Potential decommissioning of 2 plants, offload another
- **REGIONALIZED REUSE TREATMENT**
  - Denver Water is 2/3 of flow
  - Closer to storage reservoirs
  - “Custom” Water Quality
  - Proximity to Extensive Distribution Network
- **REGIONALIZED ENERGY AND NUTRIENT RECOVERY**

Identify New Opportunities to serve region

PRODUCE NET POSITIVE ENVIRONMENTAL BENEFITS

- **WATERSHED MODELING INFORMS REGULATORY APPROACH**
  - Nutrient sources and treatment
  - Seasonal Operations (Dilution)
- **SEASONALLY RE-WET SP RIVER BETWEEN OUR CHATFIELD AND OUR PLANT**
  - Aquatic Life
  - River Treatment
  - River Stabilization and Health
- **TEMPERATURE BENEFITS**

Produce Net Positive Environmental Benefits

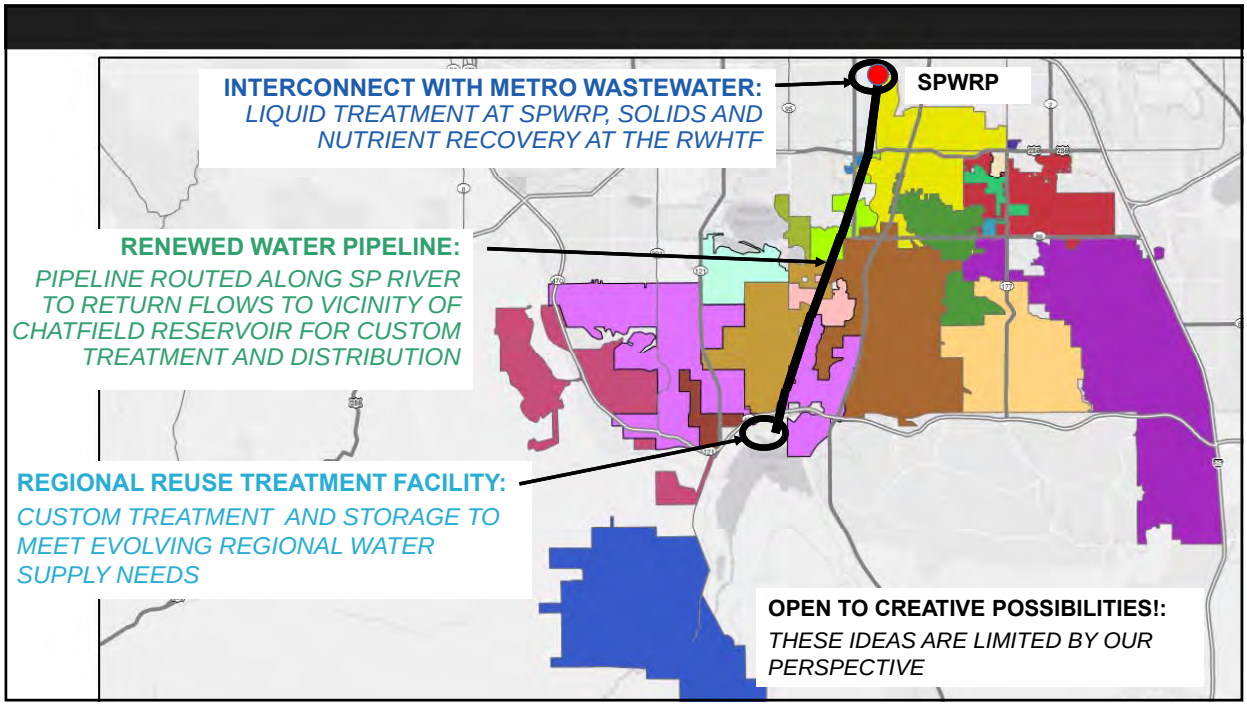
SMART INVESTMENTS FOR COLLECTIVE RATEPAYER

- **MINIMIZE NEW INVESTMENTS (TIMING)**
- **REGIONAL, NOT FACILITY CAPACITY**
- **OPERATING EFFICIENCIES**
  - Labor, Chemicals, and Energy
- **CUSTOM WATER QUALITY FOR EMERGING REGIONAL NEEDS**
- **MATCHING COSTS TO BENEFICIARIES**
- **MORE FINANCING OPTIONS AT SCALE**
- **PUBLIC EDUCATION AND AWARENESS**

Smart Investments for Collective Rate Payer

SOUTH PLATTE WATER RENEWAL PARTNERS

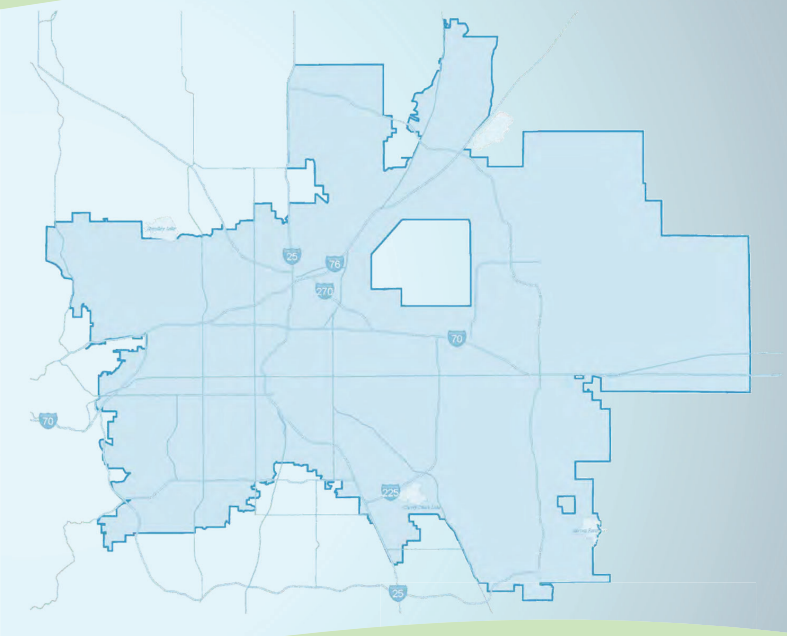
CONCEPT PROJECTS




QUESTIONS/
DISCUSSION

Metro Wastewater Reclamation District

Regional Resource Recovery



Dawn Ambrosio
Strategy and Communication Officer
Water Reclamation and SWIFT2
March 22, 2018

METRO WASTEWATER RECLAMATION DISTRICT

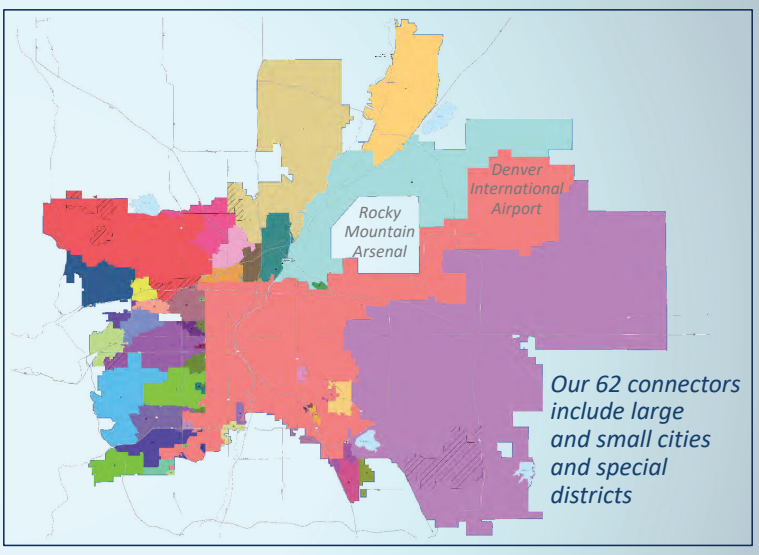
Stewards of the River

- Who We Are
- What We Do
- How We Do It
- How We Can Help

Drop structure adding oxygen to Segment 15 of the South Platte River

Who We Are

- Special district formed in 1961
- Water reclamation utility (wholesale – no water rights)
- 715-square mile service area
- 2 million people served (est.)
- 38-member Board of Directors
- 392 employees in 10 departments



Our 62 connectors include large and small cities and special districts

Legacy of Cooperation for Clean Water

1964 Groundbreaking for Metropolitan Denver Sewer Disposal District No. 1 Sewage Treatment Plant

1965 aerial showing construction

What We Do—Recover Resources

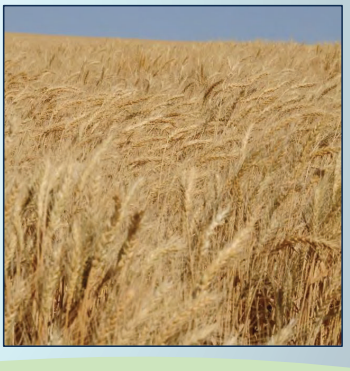
Water for the South Platte River

Agriculture
Drinking Water

Aquatic Life
Recreation

Methane for Heat and Power

Nitrogen for Farms



How We Do It—Our Facilities

Transmission System

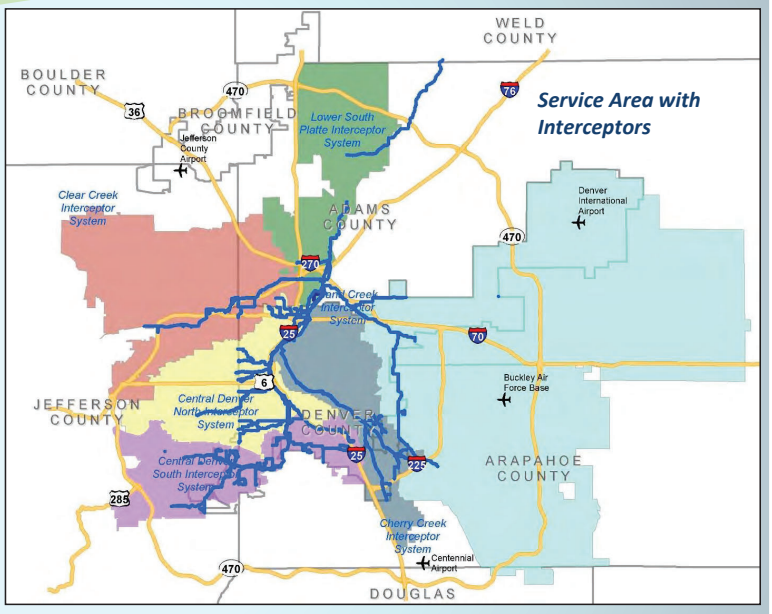
Robert W. Hite Treatment Facility

Northern Treatment Plant

METROGRO Farm

Transmission System

- Sanitary sewer (no stormwater)
- 234 miles of pipe
- 8-inch to 90-inch diameter
- Oldest from 1890
- Mostly gravity flow – only 3 lift stations
- 3,708 manholes



Robert W. Hite Treatment Facility

- 134 million gallons/day cleaned water
  - 220 million gallons/day capacity
- 81 dry tons/day Class B biosolids (2017)
- 134-acre site by the South Platte River
- Commissioned 1966
- 80% of river 50% of the year

South Secondary processes involve mechanical and biochemical transformation of water

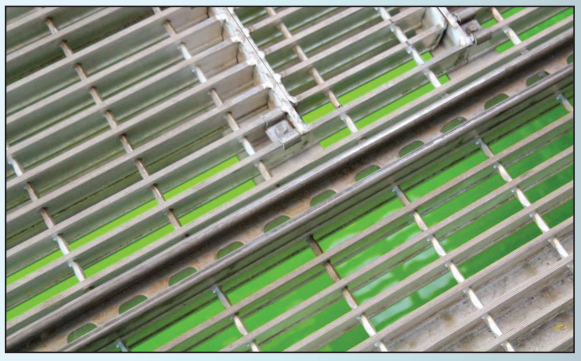
Pinch Points and Opportunities—Water Quality/Quantity Connection

- Hite facility at 90% capacity
  - Running out of real estate
  - Intensification of onsite processes
  - Offsite strategies to deliver
- "Restarting" the river
  - New approaches for use of urban water infrastructure

Hite Facility

Northern Treatment Plant

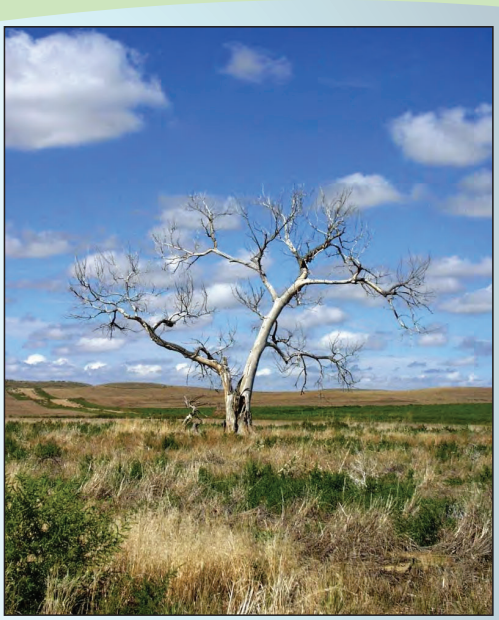
- 4.2 million gallons/day cleaned water
  - 28.8 million gallons/day capacity
- 1.8 dry tons/day Class B biosolids
- 90-acre site by South Platte River
- Commissioned 2016
- Visitors Center with educational exhibits



Ultraviolet disinfection (protective eye wear is required)

METROGRO Farm

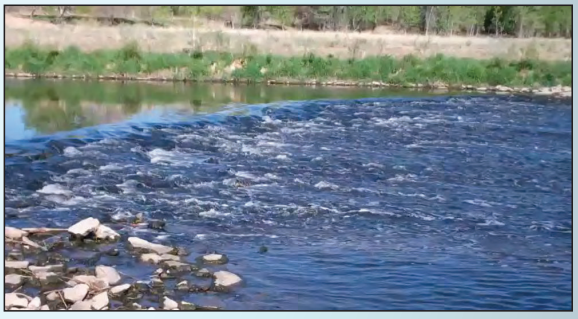
- 52,000 acres
- 70 miles east of Denver
- District owned and operated
- METROGRO® Class B biosolids
  - Registered fertilizer and soil amendment
  - Beneficially reused for dryland farming
    - Wheat, milo, corn, haygrazer
- Farm acquired 1993–1995



Colorado beauty on the Farm

Aquatic Life Habitat Improvements

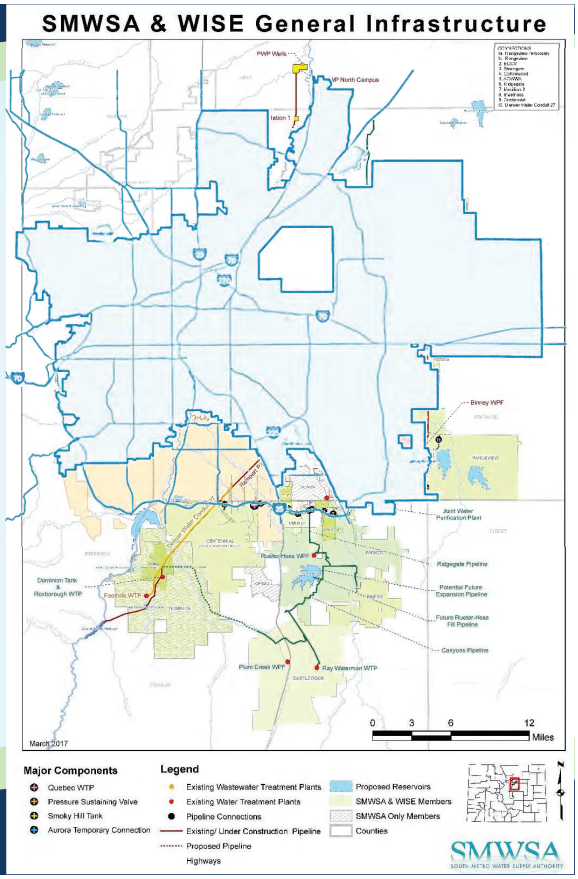
- In South Platte River reaches between our two treatment facilities
- Include pools, riffles and spur dikes
- Regulator-approved
- Constructed in four phases, since 2008
- Measurable improvement in aquatic species populations



Aquatic life habitat improvements constructed in the river

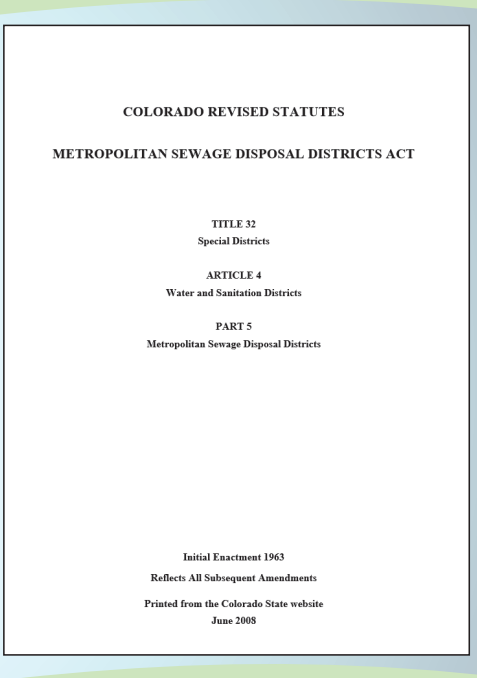
How We Can Help

- Service Drivers
- Regulatory Drivers
- Financial Drivers
- Regional Projects
- Interconnects and Partners



Service Driver 1—Statutory and Contractual Requirements

- State statute
- Other governing documents
  - Service agreements with Connectors (*Sewage Treatment and Disposal Agreement*)
  - *Rules and Regulations Governing the Operation, Use, and Services of the System*
  - *Bylaws of the Metro Wastewater Reclamation District*



COLORADO REVISED STATUTES

METROPOLITAN SEWAGE DISPOSAL DISTRICTS ACT

TITLE 32
Special Districts

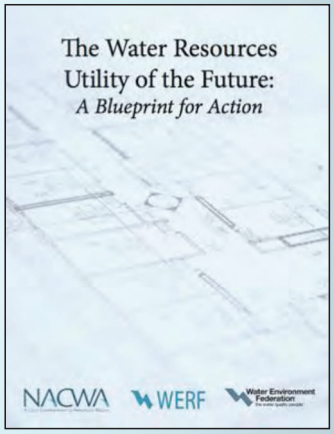
ARTICLE 4
Water and Sanitation Districts

PART 5
Metropolitan Sewage Disposal Districts

Initial Enactment 1963
Reflects All Subsequent Amendments
Printed from the Colorado State website
June 2008

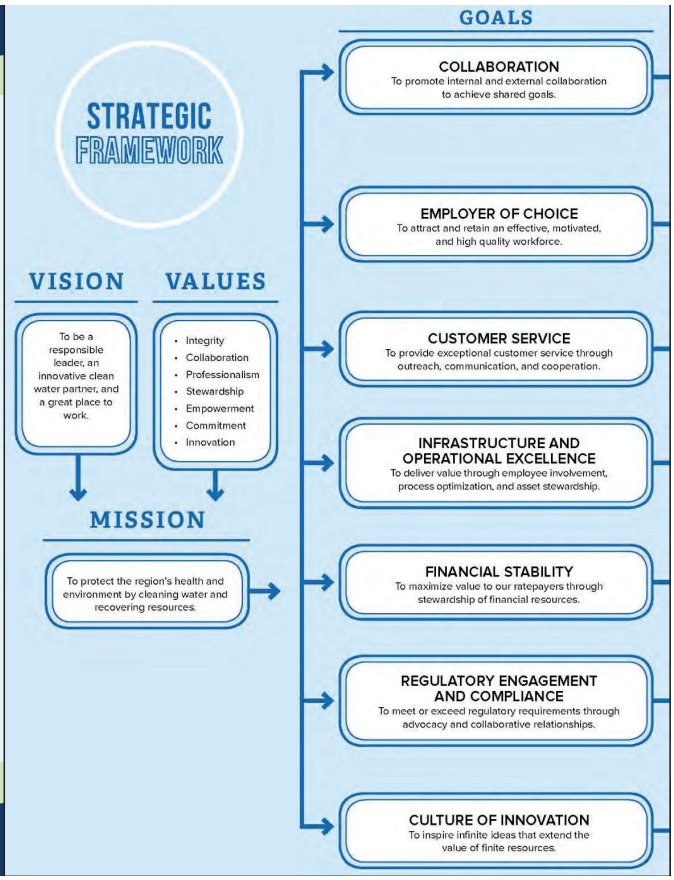
Service Driver 2—Industry Aspirations

- Utility of the Future Blueprint for Action—2013
  - National Association of Clean Water Agencies (NACWA)
  - Water Environment Federation (WEF)
  - Water Environment and Reuse Foundation (WE&RF)
- Rapid advancement in the clean water industry
- Execution plan to
  - Deliver 21st century strategies that go beyond mid-20th century standards (Clean Water Act—1972)



Service Driver 3—
Next Level Leadership

- Strategic Plan parallels UOTF concepts
- Strong utility and university relationships
- Innovative concepts beyond just technology
- Dedicated Strategy and Innovation Department



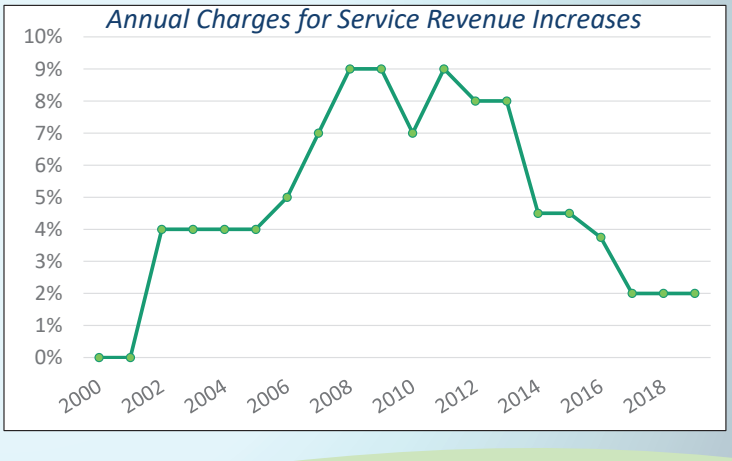
Regulatory Drivers—Nutrients and Temperature

- Seeking sustainable solutions for the region
  - Voluntary opt-in Nutrients Incentive Program
  - Sewer heat recovery

Hite outfalls in winter

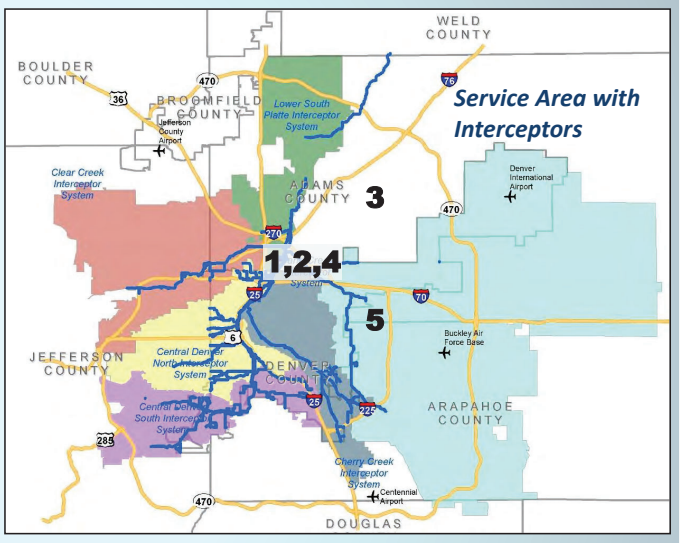
Financial Drivers

- Board desires stable rates
  - Connectors typically double our charges
- Financial fund requirements
  - Balances
  - Transfer protocols
- Strategic thinking in capital planning



Regional Water Projects and Partners

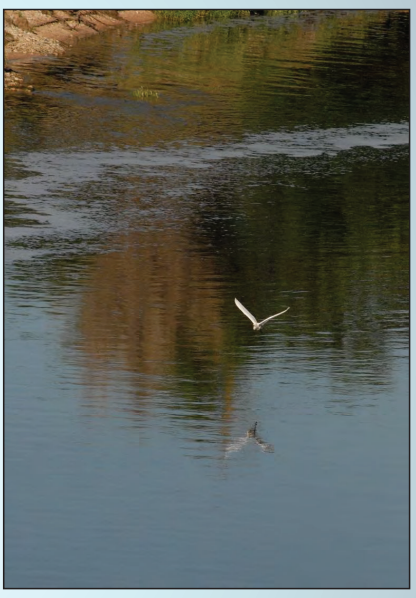
1. Denver Water Recycling Plant optimization study
2. National Western Complex sewer heat recovery
3. Second Creek Pipeline to NTP
4. Phosphorus Initiative and peracetic acid disinfection at Hite



5. Aurora Water Sand Creek Water Reclamation Facility solids

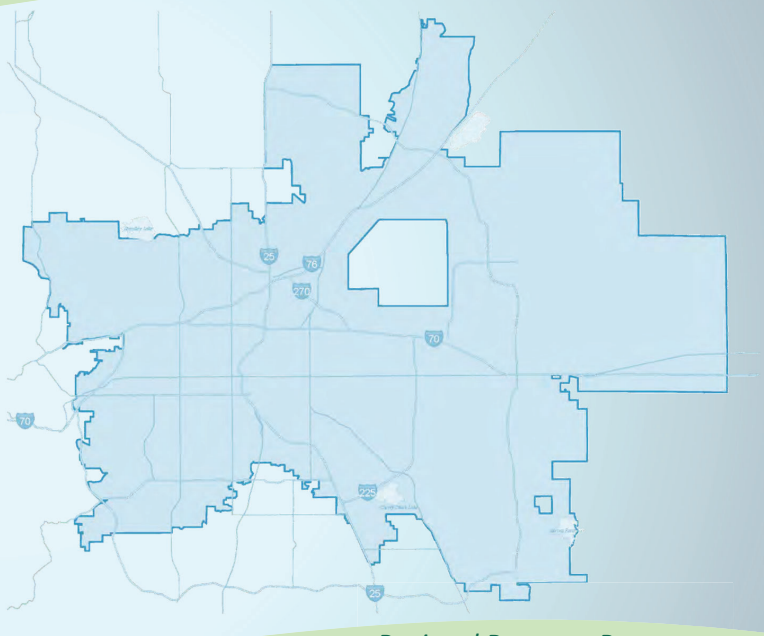
Recommended Role for SWIFT2

- Strategy and Communication Focus
  - Provide data and information to SWIFT2
  - Share the exciting work of SWIFT2 with our organization
    - Integrate with Enterprise Plan and 2018 and 2023 Facility Plans



South Platte River

Discussion



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Regional Resource Recovery

METRO WASTEWATER RECLAMATION DISTRICT

SWIFT2 Partners Meeting

City of Aurora Wastewater Perspective

March 22, 2018

Presented By:
Sarah Young – Aurora Water Planning Services Manager

City of Aurora

Overview

Aurora Quick Stats

- **3rd Largest City (Pop), 2nd in Area**
- **Lowest Crime Rate in Large CO Cities**
- **Transition into Full Fledged City**
- **Largest employers**
  - Anschutz Medical Campus – 21,000
  - Buckley Air Force Base – 12,000
- **New Areas of Interest**
  - Stanley Market Place
  - Amazon and Walmart Distribution Facilities
  - Fitzsimmons Innovation Campus
- **Fittest, Happiest, and "Parkiest" City**
- **Approval**
  - Water Policy Committee
  - City Council

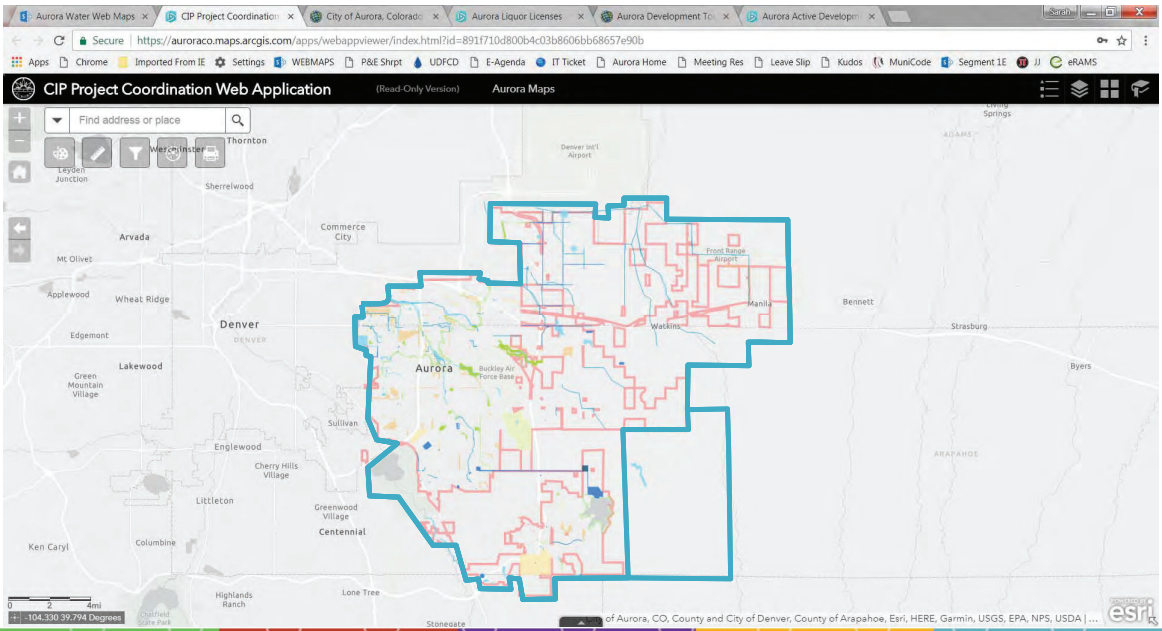
By the Numbers:

353,108
2014 population – third-largest city in Colorado

154.31
Land area in square miles (400 square km) – second-largest city in Colorado

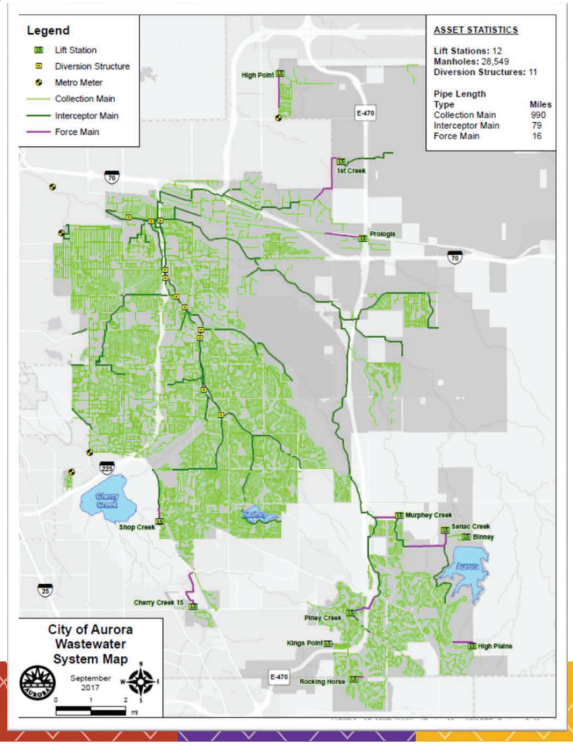
5,435
Elevation, in feet (1,656 m)

City of Aurora



Link

Major Wastewater Facilities



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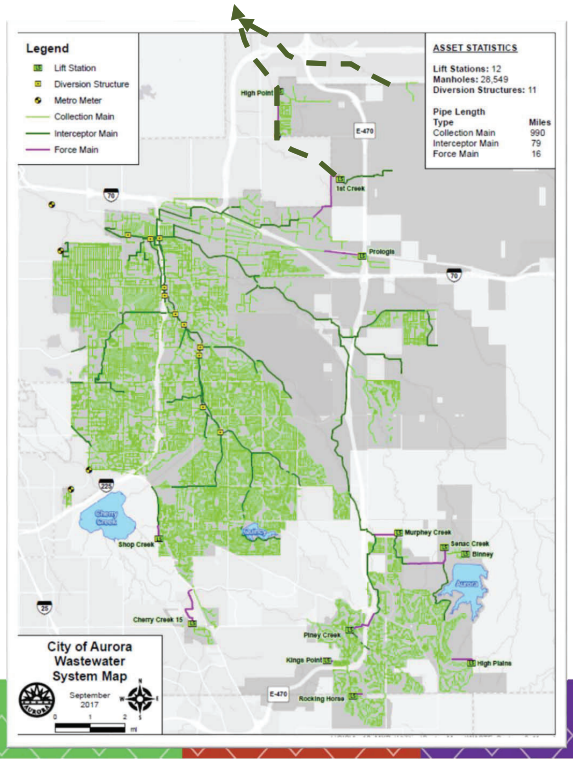
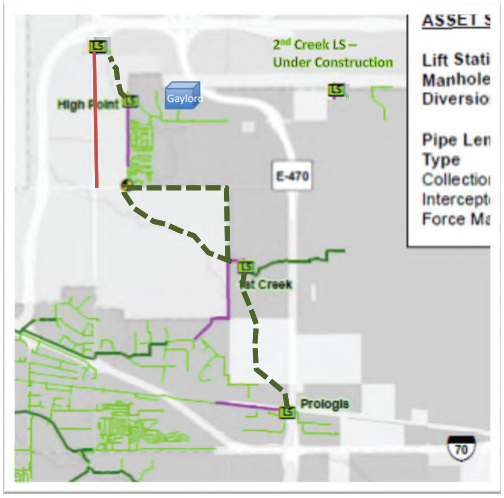
Pinch Points/Opportunities

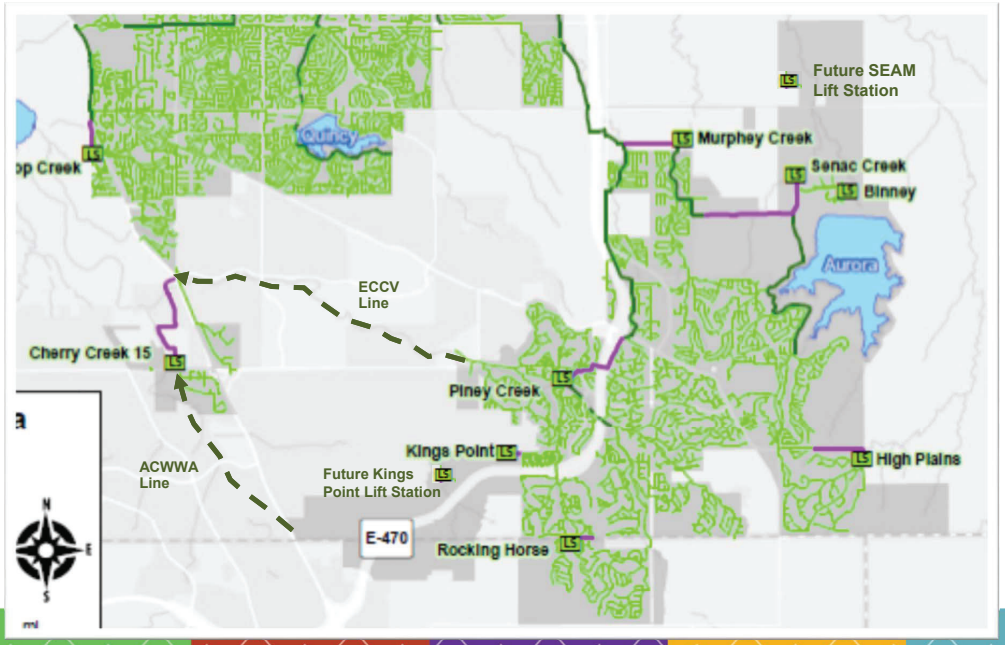




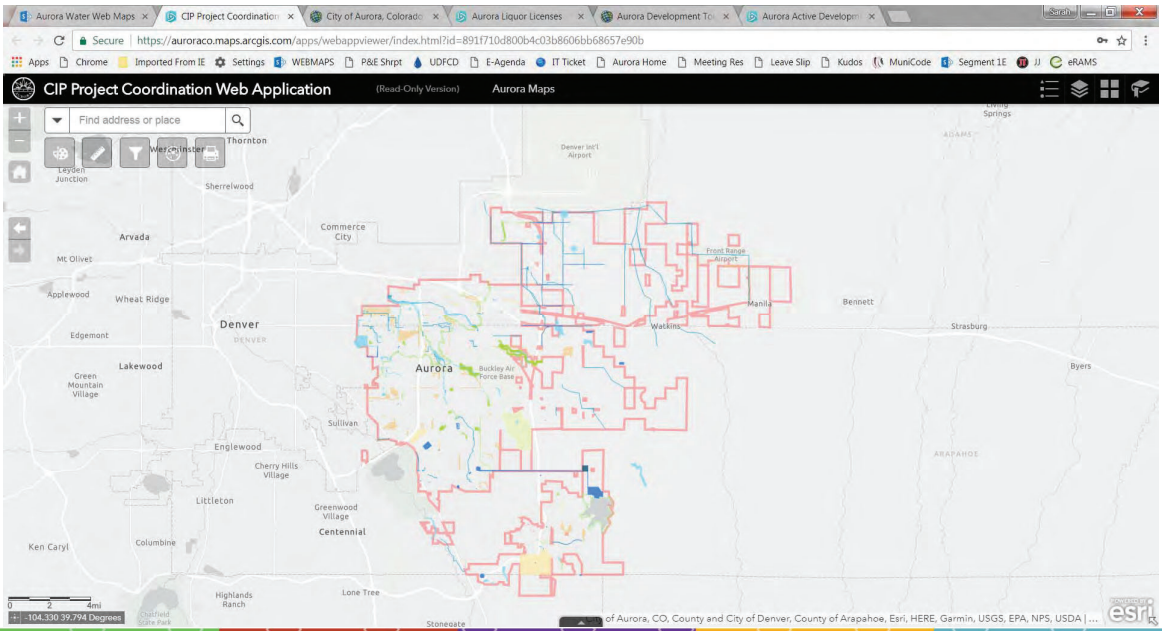
Northeast Aurora

Pinch Points/Opportunities

Southeast Aurora



Projects



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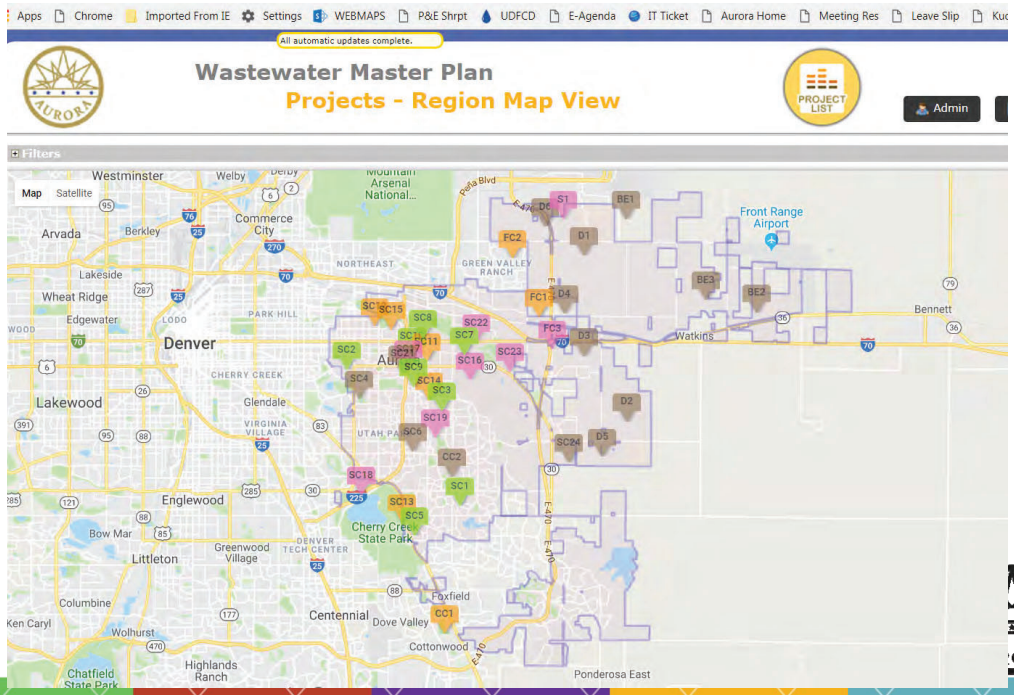
Projects



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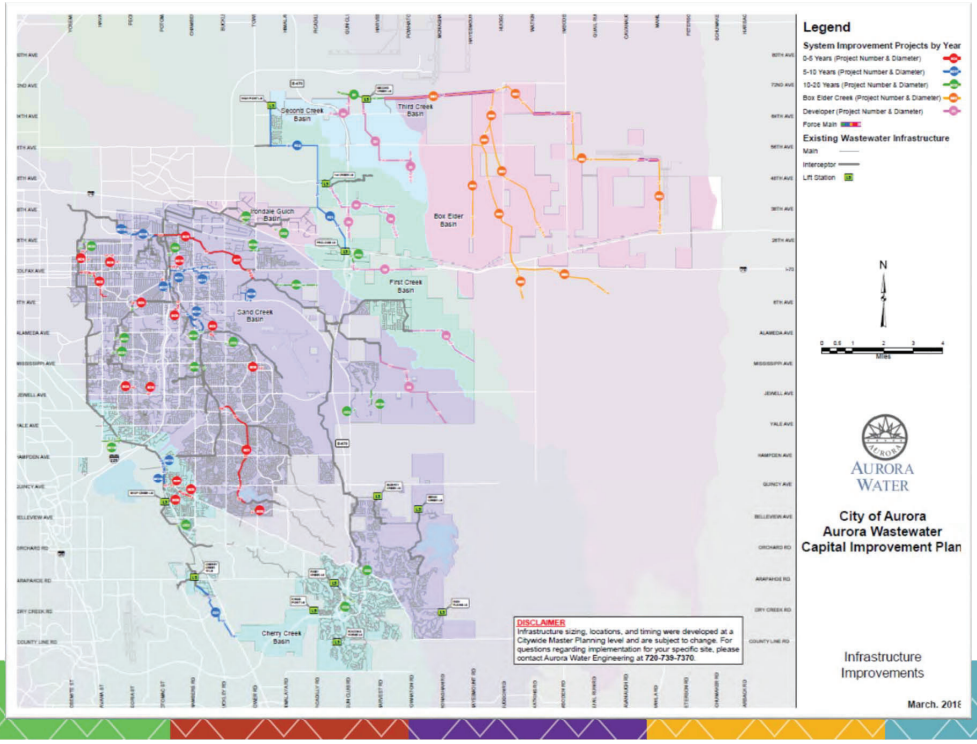
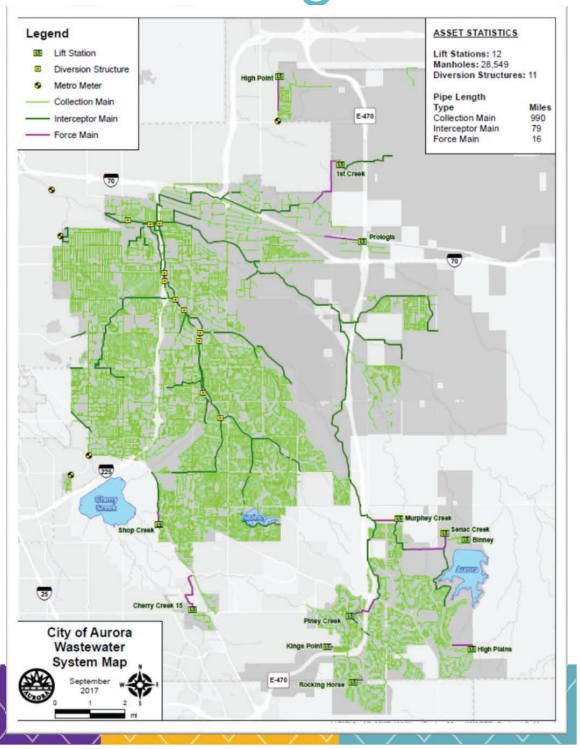
Projects



Business Drivers/Challenges

- Development Location and Timing
  - Keeping up with the cyclical nature of development (first creek lift station example)
  - Expanding to Kansas – what options besides interceptor upsizing
  - Defining and getting dedicated easements now that no one wants roads on quarter sections anymore.



Business Drivers/Challenges

- Infrastructure Sizing
  - Big enough but not too big
  - Zoning granularity
  - WW Master Planning – 43 flow monitors and still not confident in pipe size
  - Planned flows vs. Will Serve letters, vs. utility flows vs. actual flows and developer accountability for changes.
  - Long range future…DPR?

5.03.9 Recommended Sewer Loading Rates for Different Types of Developments

RESIDENTIAL

Zoning	Peo	Average Day Per Capita Flow (gpd)	Dwe Units	Average Flow (gpd/acre)
R-A, R-E R-O, R-1				1856
R-2, R-2M P-MH				3360
R-3, R-3MH, MH R-4, R-4H, R-5				5440

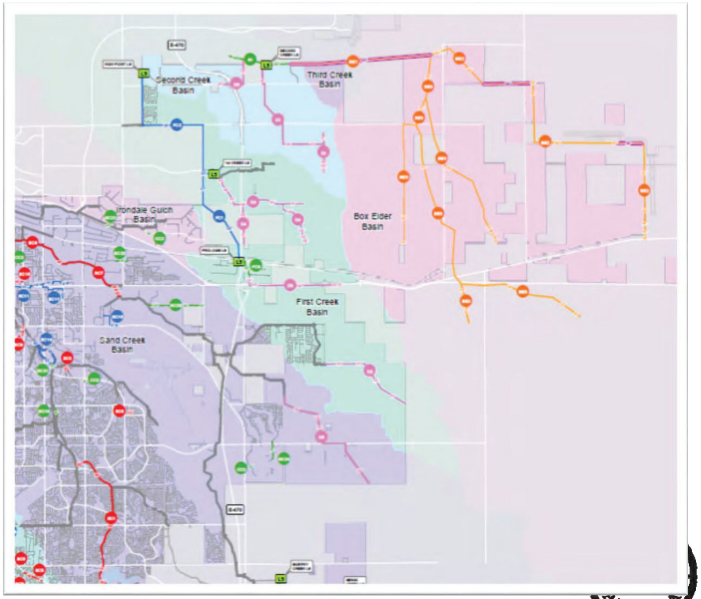
2018 Changed to Residential = 68 gpcd and 2.77 people per house
Commercial = 1,500 gpd/acre and 50 ppl/acre
Industrial/Schools = 1,200 gpd/acre and 15 ppl/acre

Zo		
B-	00	
A- B-O	2000	
M-O, M-1, M-2, M-3 *	1200	15

* High water usage industries in M Zonings require special calculations based

Business Drivers/Challenges

- Funding/Reimbursement/CIP
  - How to calculate and/or budget for reimbursements
  - Asset management replacement timing (FRAMC)
  - Interceptor inspection



Questions?

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Front Range Asset Management Council
Steve Simon
Principal Engineer – Asset Management
ssimon@auroragov.org
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SWIFT2 Partners Meeting

City of Aurora Water Perspective

April 19, 2018

Presented By:
Alicia DuPree– Aurora Water, Project Engineer
John Murphy – Aurora Water, Water Resources Project Specialist

City of Aurora

Overview

Aurora Quick Stats

- **3rd Largest City (Pop) in the state**
- **Encompasses 154 square miles**
  - More than 80 sq miles of undeveloped land
- **More than 361,000 residents**
  - Population is expected to double by 2070
- **Largest employers**
  - Anschutz Medical Campus – 21,000
  - Buckley Air Force Base – 12,000
- **New Areas of Interest**
  - Stanley Market Place
  - Amazon and Walmart Distribution Facilities
  - Fitzsimmons Innovation Campus
  - Gaylord Development
- **Approval**
  - Water Policy Committee
  - City Council

By the Numbers:

353,108
2014 population – third-largest city in Colorado

154.31
Land area in square miles (400 square km) – second largest city in Colorado

5,435
Elevation, in feet (1,656 m)

Water Resources

2 locations
- AMC
- Rocky Ford

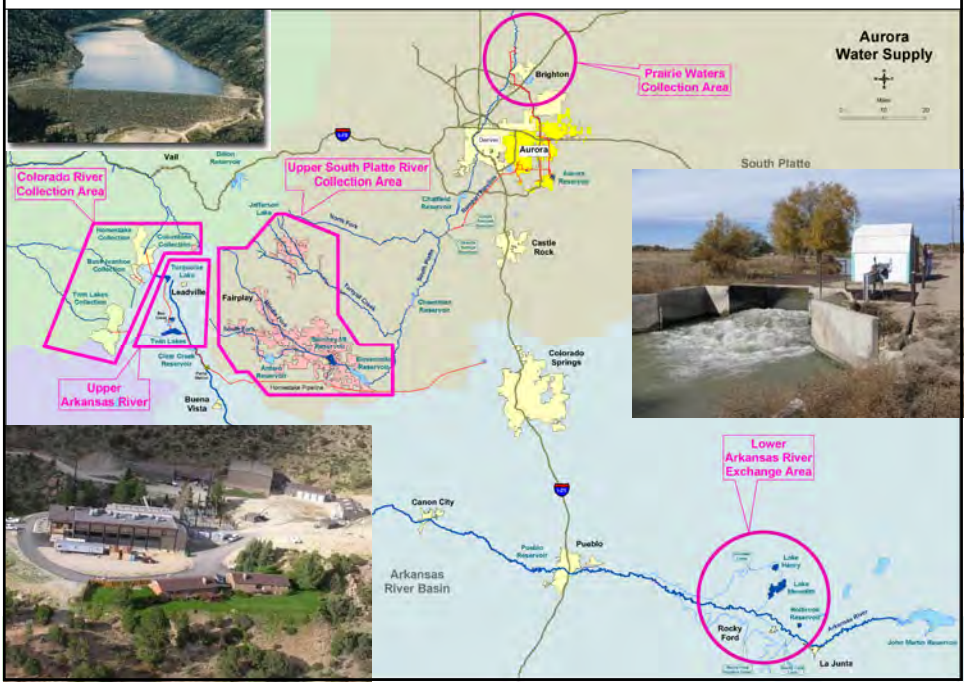
3 basins
- South Platte, Arkansas and Colorado

12 storage reservoirs
- Aurora, Quincy, Rampart, Strontia, Spinney, Homestake, Jefferson Lake, Twin Lakes, Pueblo, Turquoise, Henry and Meredith
- over 156,000 AF capacity
- In multiple counties (Eagle, Pitkin, Lake, Pueblo, Otero, etc.)

Over 300 individual water rights
- Surface water rights
- Cherry Creek Well fields (Alluvial, renewable)
- Deep Aquifer wells non-renewable

System can meet annual firm yield demands of the City up to 63,600 AF/YR

AURORA WATER SYSTEM

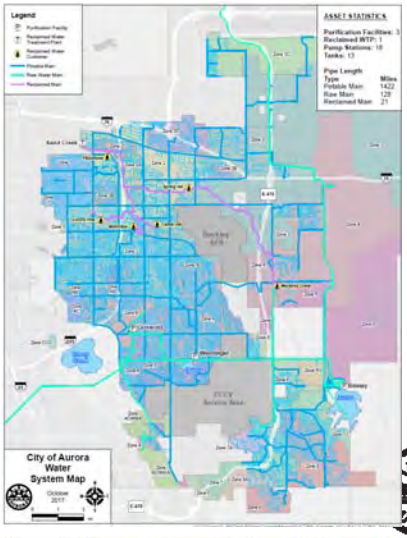


Prairie Waters

- Current capacity ~12 MGD
- Expandable to 40 MGD with additional infrastructure
- Improve long-term "drought resistance"
- Improve reliability of supply for all customers
- WISE IGA
  - Renewable supply for SMWSA
  - Aurora & Denver Water supplies 50/50
  - Various sources, primary supply is PW

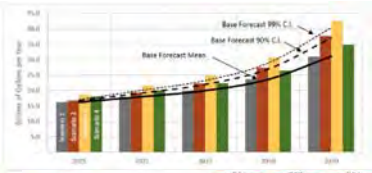
Treatment & Distribution

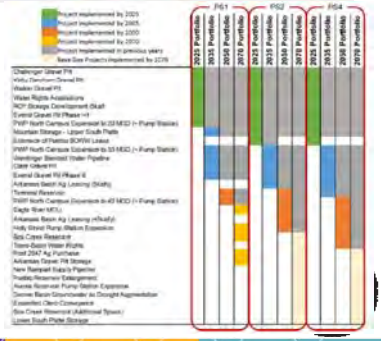
- Treatment Plants
  - 3 Potable Treatment Facilities
  - Sand Creek Reuse Facility
    - 1968 – One of Colorado's 1st Reuse Facilities
    - 5 MGD Capacity
    - Customers: Golf Courses, Parks, Greenbelts
- Distribution System
  - 8 main pressure zones
  - ~1,400 miles of pipe: 6 inch to 72 inch
  - Interconnections
    - 3 w/ Denver
    - 7 w/ ECCV
    - Emergency Use



Integrated Water Master Plan

- Water Resources, Treatment, T&D, and Non-Pot
- Completed in 2016
- Plan to repeat every 5 years



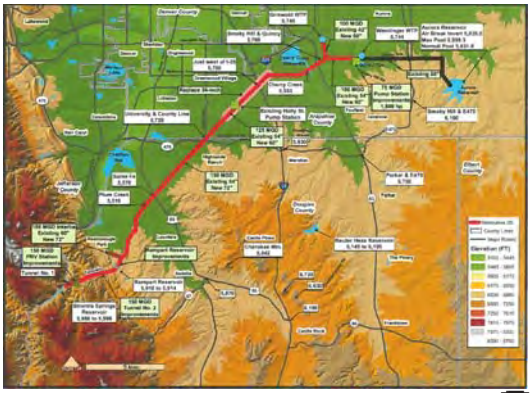


Future Water Storage

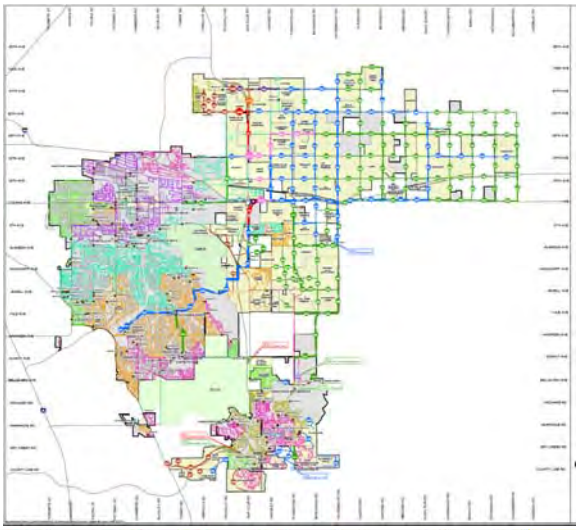
- Wild Horse Reservoir
  - Upstream of Aurora's Spinney Reservoir
  - Will be Aurora's largest reservoir
  - In early stages of design and permitting
  - Anticipated completion in mid-2020s
- Box Creek Reservoir
- Gravel Pits
  - North Campus Master Plan
- Aquifer Storage and Recovery

Rampart Expansion

- Evaluating the Expansion of the Rampart System
  - Upsize one of the existing pipelines
  - Parallel pipeline
- Challenges – easements along the existing and proposed alignment.



T&D System Expansion



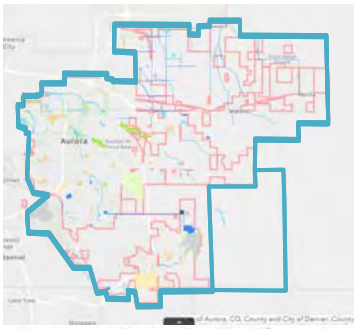
- Near Term
  - Support future growth in the existing service area and northern part of the City.
- Long Term
  - Focus on future growth in the eastern and northeastern side of the City
- Backbone Projects
  - Accommodate future growth and existing treatment capacity

Non-Potable Strategic Plan

- Expected completion early 2019
- Identify the most efficient way to use our non-pot supplies:
  - Sand Creek,
  - Prairie Waters,
  - Mountain Supplies,
- Consider future regs for Sand Creek (Reg 85 and 31)
- Pressurize existing reclaimed system?
- Identify potential users with a year round demand opposed to seasonal

Business Drivers

- Accommodate Growth:
  - Water Resources:
    - Water Supplies
    - Efficient Use of Existing Supplies
  - Distribution
    - Installing key T&D Infrastructure ahead of growth - Moving target
    - Development occurring in remote areas of the City
    - Developer alignments not on quarter sections – challenges getting easements
    - How to calculate and/or budget for reimbursements



Business Drivers

- Flexibility & Redundancy in the System
  - Water Resources and T&D
- Asset Management
  - In process of developing AMPs for raw and potable water systems.

Questions?

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Front Range Asset Management Council
Steve Simon
Principal Engineer – Asset Management
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SMWSA
SOUTH METRO WATER SUPPLY AUTHORITY

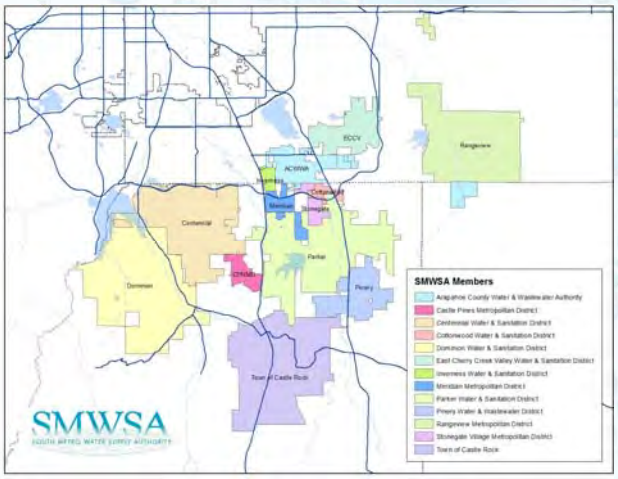
SWIFT2
Water Providers
South Metro WISE Authority

Chris Muller, Water Resources/Design Engineer
Lisa Darling, Executive Director
April 19, 2018

SMWSA
SOUTH METRO WATER SUPPLY AUTHORITY

Who We Are

- 13 Members
- Serve 300,000 people
- Projected to serve 550,000 people by 2050
  - 80% of Douglas County
  - 10% of Arapahoe County



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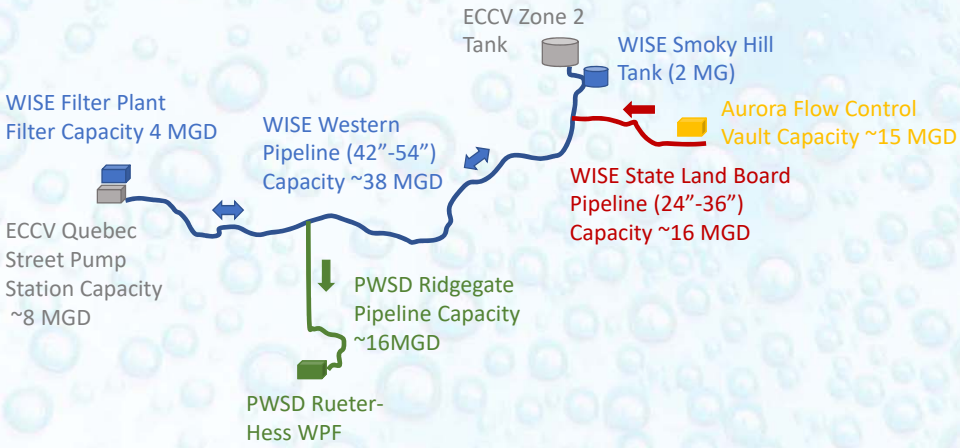
SMWSA
SOUTH METRO WATER SUPPLY AUTHORITY

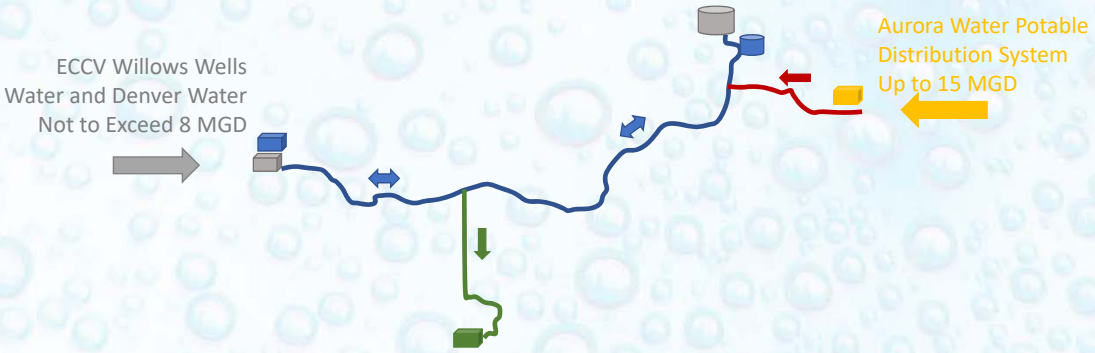
SMWSA & WISE General Infrastructure

SMWSA
SOUTH METRO WATER SUPPLY AUTHORITY

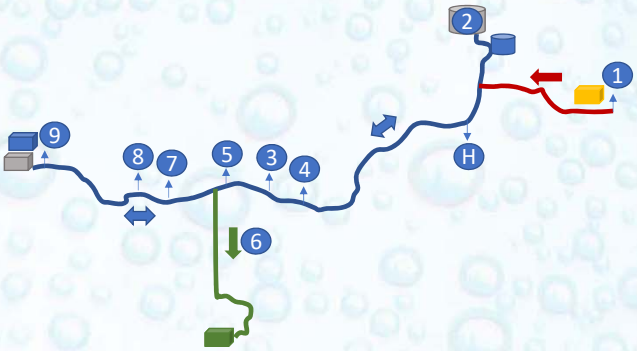
WISE Phase 1 Infrastructure (2017-2021)



WISE Phase 1 Inflow Locations (2017-2021)



WISE Phase 1 Delivery Locations (2017-2021)

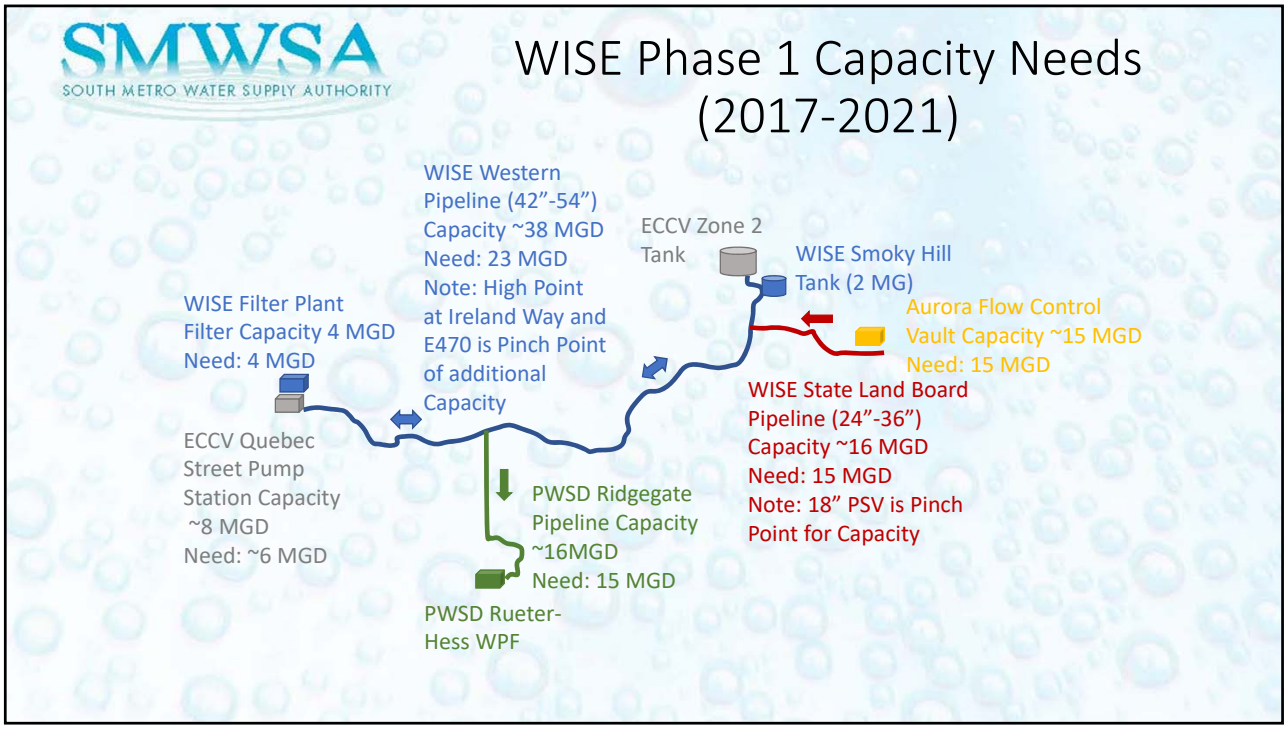


Note: Ridgegate Pipeline Delivers Water to PWSD, Pinery, Castle Rock, and Dominion

1. Rangeview (SLBL)
2. ECCV Zone 2 Potable System
3. Cottonwood Potable System
4. Stonegate Potable System
5. ACWWA Potable System
6. Ridgegate (PWSD) Potable System
7. Meridian ASR System
8. Inverness Potable System
9. Centennial Potable System

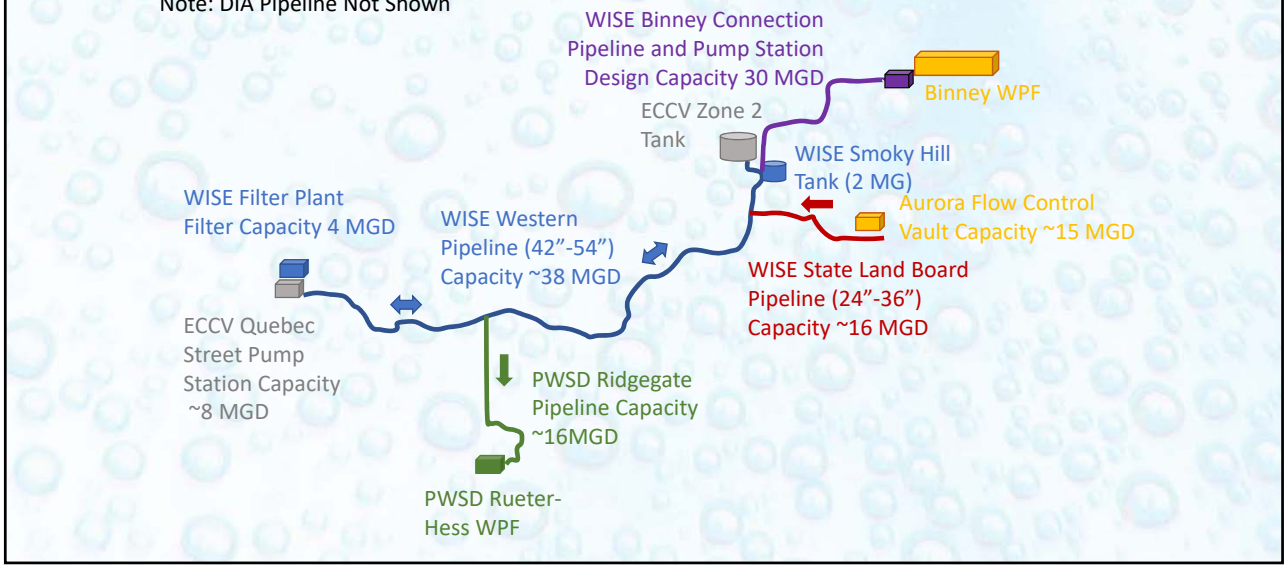
H. Heritage Eagle Bend Golf Course

WISE Phase 1 Capacity Needs (2017-2021)

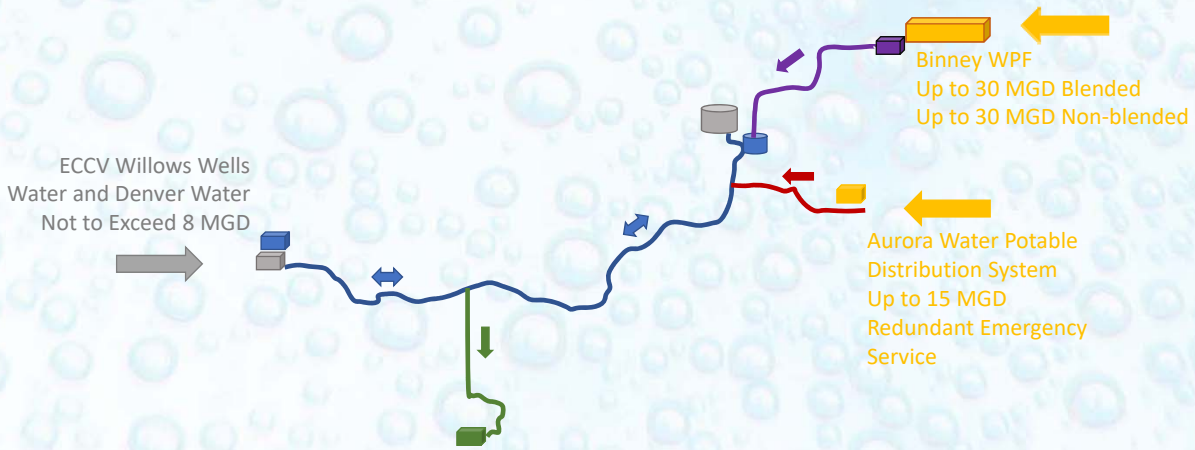


WISE Phase 2 Infrastructure (2021-2030)

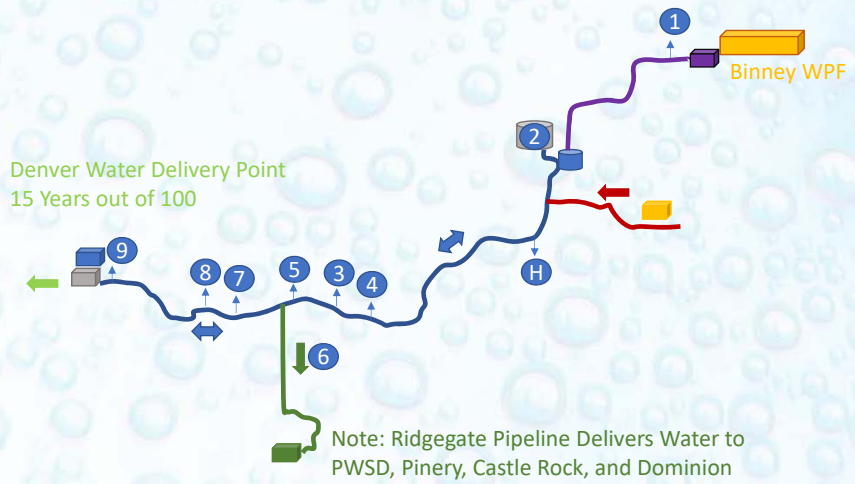
Note: DIA Pipeline Not Shown



WISE Phase 2 Inflow Locations (2021-2030)



WISE Phase 2 Delivery Locations (2021-2030)



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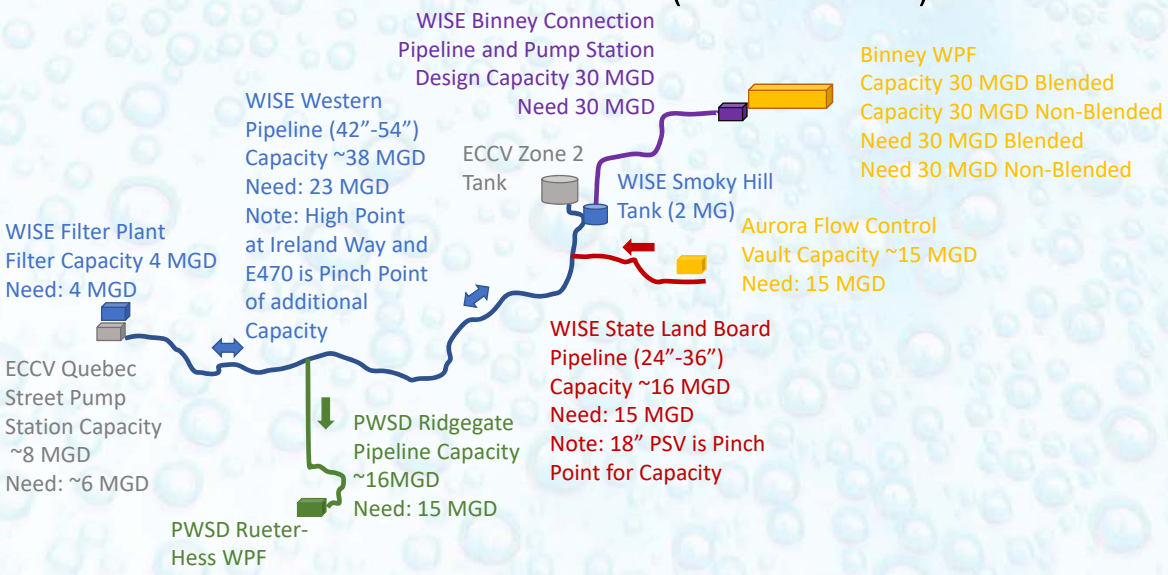
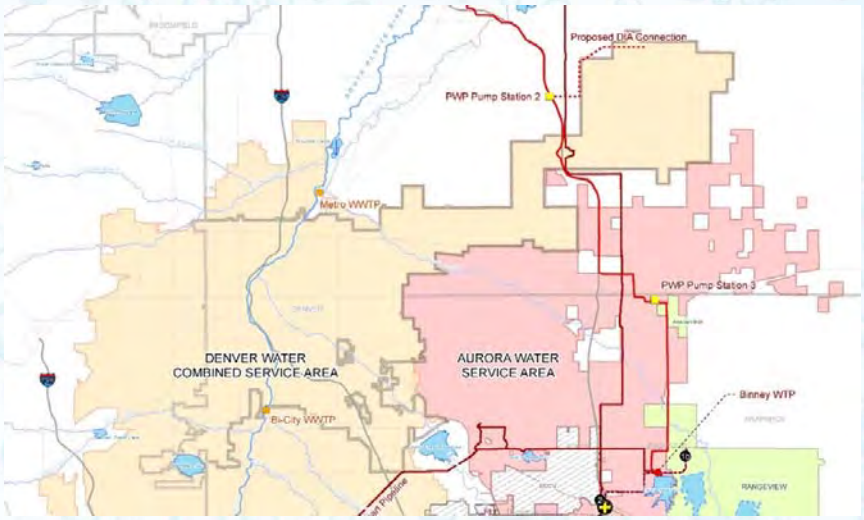


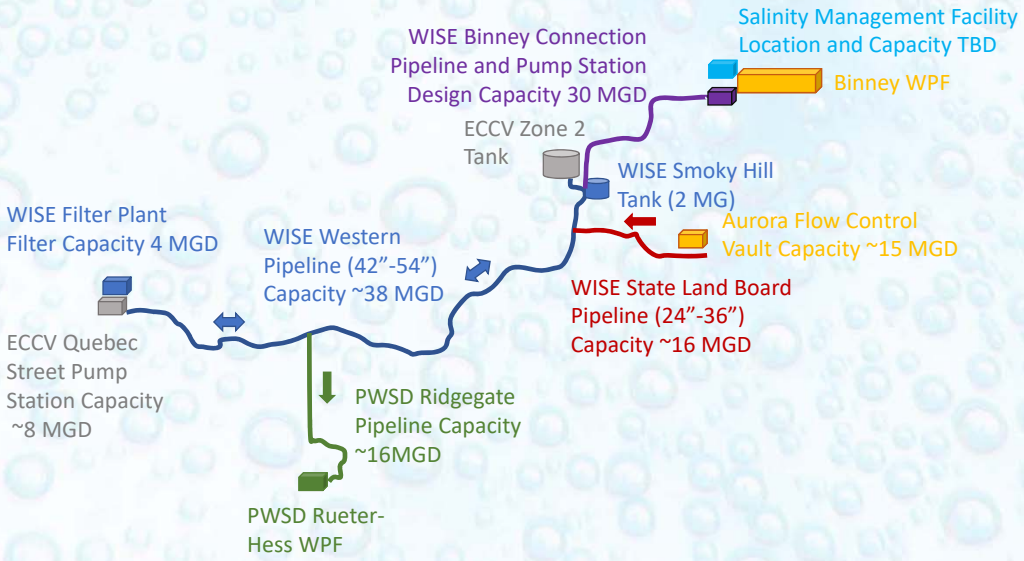
WISE Phase 2 Infrastructure (2021-2030)



- Deliver Denver Blend Water to Aurora
- Moves Water from DIA Potable System to Aurora Prairie Waters Pipeline (raw water)
- Capacity = 6.5 MGD
- Alternative: Convey Denver Blend Water through ECCV Northern Pipeline

SMWSA
SOUTH METRO WATER SUPPLY AUTHORITY

WISE Phase 3 Infrastructure (2030 and beyond)



SMWSA
SOUTH METRO WATER SUPPLY AUTHORITY

Opportunities

- Regional ASR
- Regional Water Storage Facilities
- Regional Salinity Management Facility
- SPROWG

SMWSA
SOUTH METRO WATER SUPPLY AUTHORITY

Who is SPROWG?

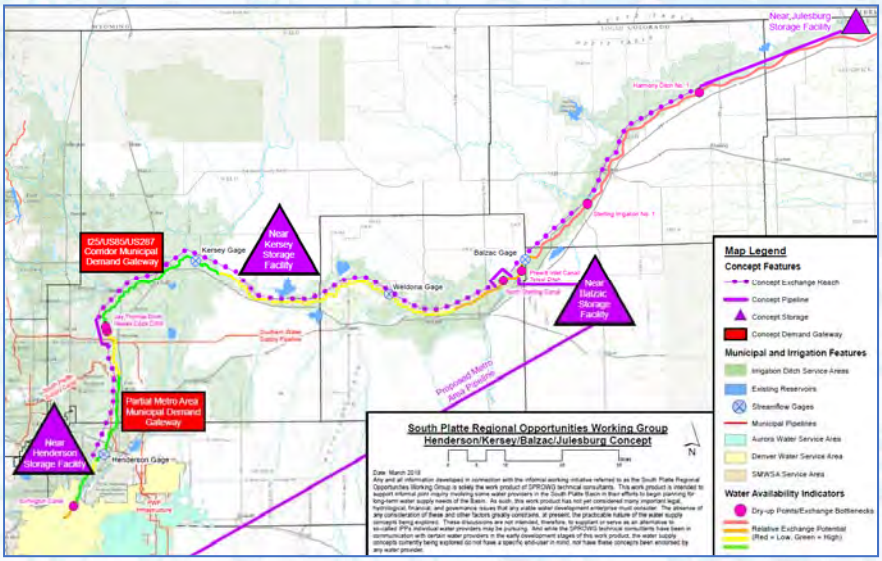
- "South Platte Regional Opportunities Working Group"
  - Water interests brought together in 2015 to investigate regional supply concepts
  - Took off agency hats

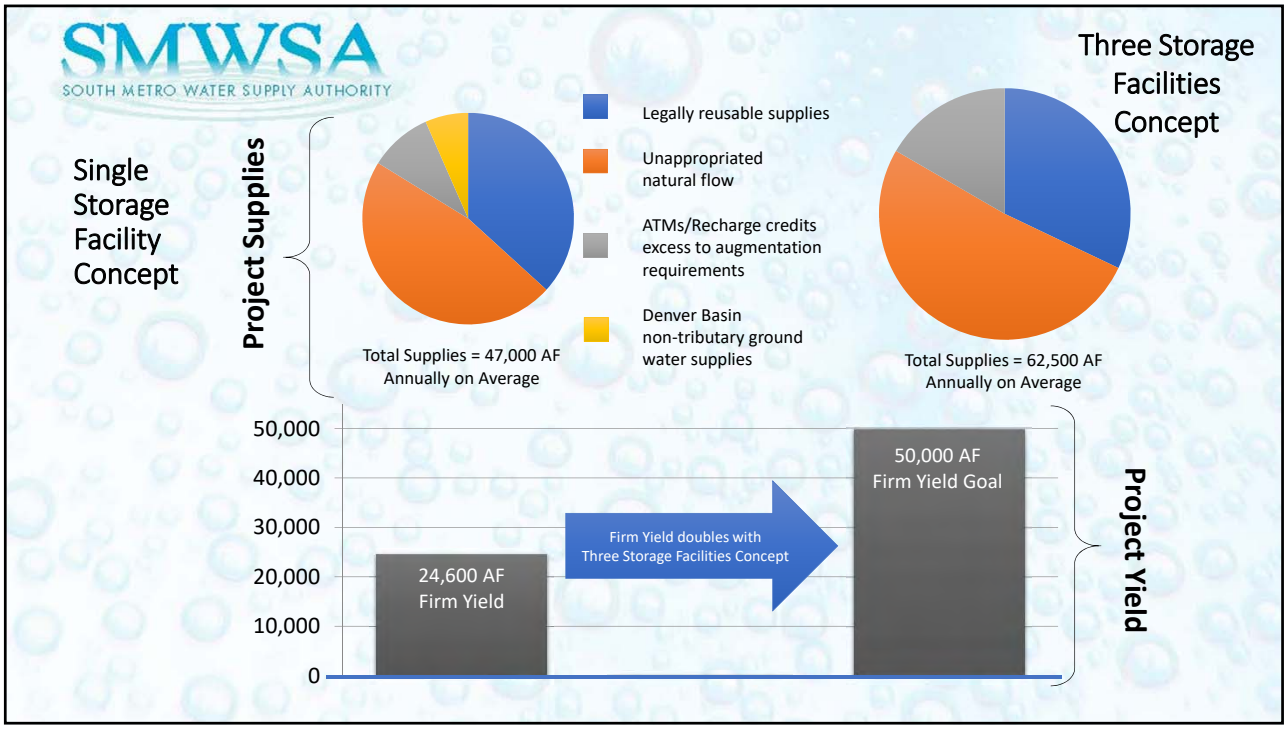
Why?

- Maximize use and effectiveness of available water on South Platte
- Minimize traditional agricultural "buy and dry"
- Evaluate cooperative, multi-purpose/user supply projects to fill Ag and M&I gap

SMWSA
SOUTH METRO WATER SUPPLY AUTHORITY

SPROWG Project Concepts





SMWSA
SOUTH METRO WATER SUPPLY AUTHORITY

Initial Lessons Learned

- Storage Facility/Conveyance Infrastructure combination that feasibly could provide 50,000 AF firm yield
- Upstream storage is critical, unless willing to rely exclusively on pumps/pipelines
- Capacity is key
  - Large intake capacity to capture Free River flows
  - Storage facility carry-over for five-year drought period (2003-2008)
- Reusable supplies are critical for firm yield

SMWSA
SOUTH METRO WATER SUPPLY AUTHORITY

Next Steps

Form SPROWG Task Force (South Platte & Metro BRT members and interested stakeholders) and identify funding sources to further study the concept through:

1. Identifying Partners/Organizational Framework

   Two education/outreach meetings set:
   - May 10 at Denver Water
   - May 15 at Northern Water

2. Developing Scope of Work
   - Integration with SPSS Results
   - Perform Additional Technical Analysis

SMWSA
SOUTH METRO WATER SUPPLY AUTHORITY

Business Drivers

- Regulatory
  - Lead and Copper Rule
  - State/Federal Permitting
- Customer Service
  - Finding common ground to best serve all members
- Financial
  - Controlling infrastructure costs
  - Controlling water rates

SMWSA
SOUTH METRO WATER SUPPLY AUTHORITY

Denver Water Overview

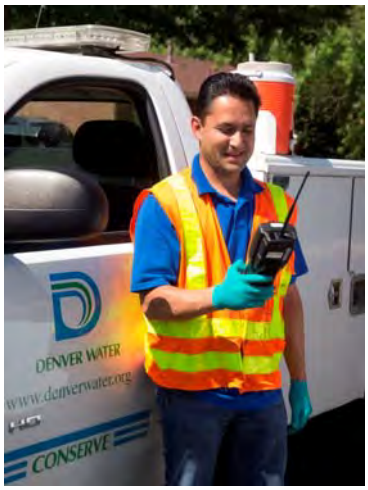
Greg Fisher

April 19, 2018

DENVER WATER

Who We Are

- Established in 1918
- Governed by Board of Water Commissioners
  (not the City and County of Denver)
- Total watershed area: 4,000 square miles
  (State's third largest public landowner)
- 1,100 Employees

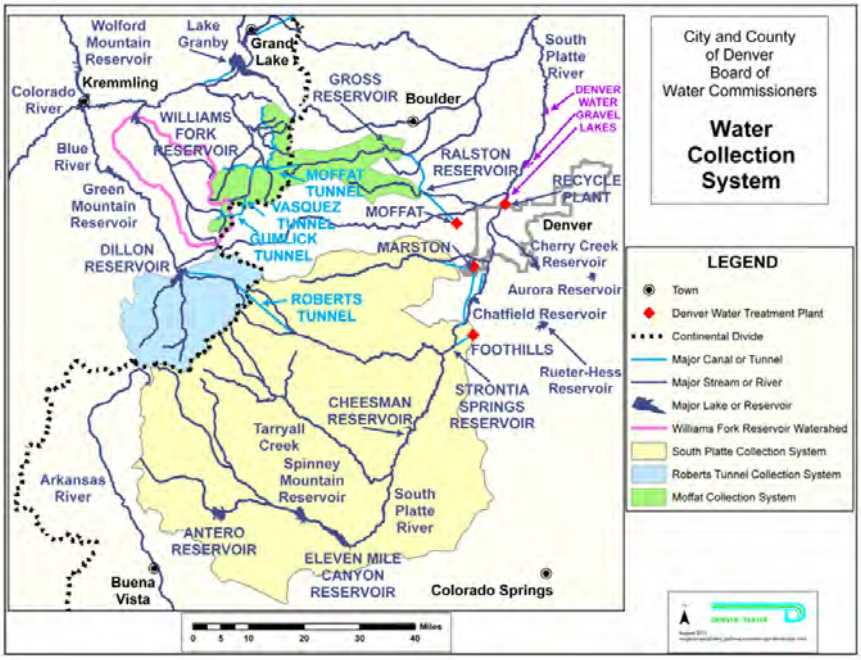


DENVER WATER

Denver Water Service

- 25% - of state population
- <1% - land area
- 2% - of available water

DENVER WATER



DENVER WATER

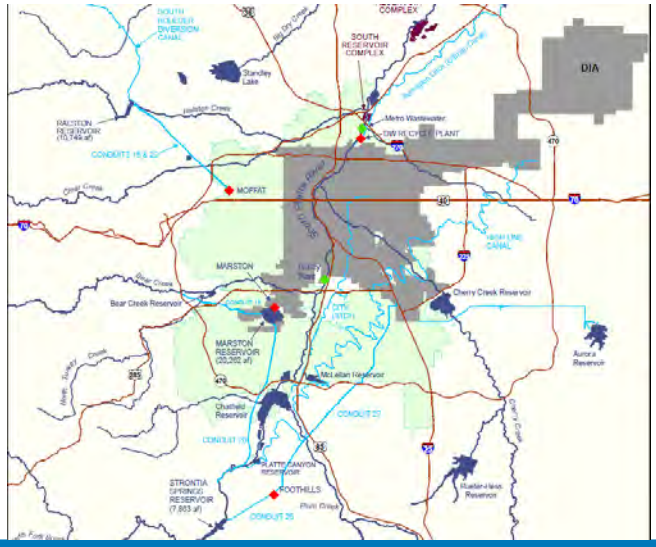
Issues facing Denver Water supply

- Climate change
- Growth
- Colorado River

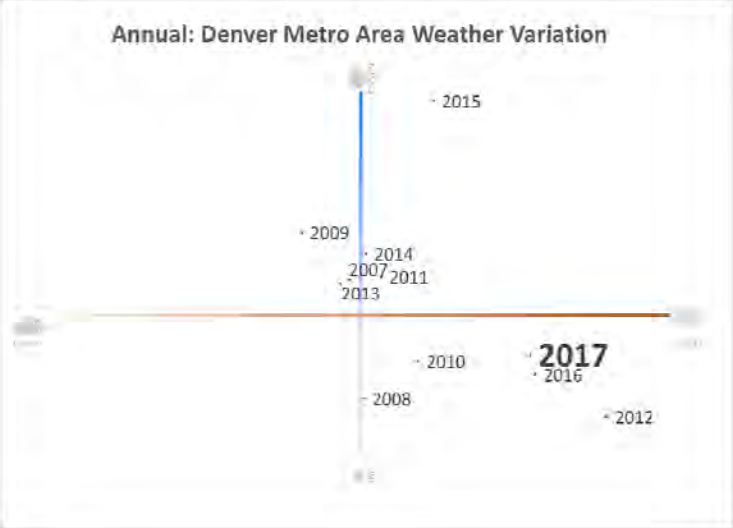
Strontia Springs Reservoir

DENVER WATER

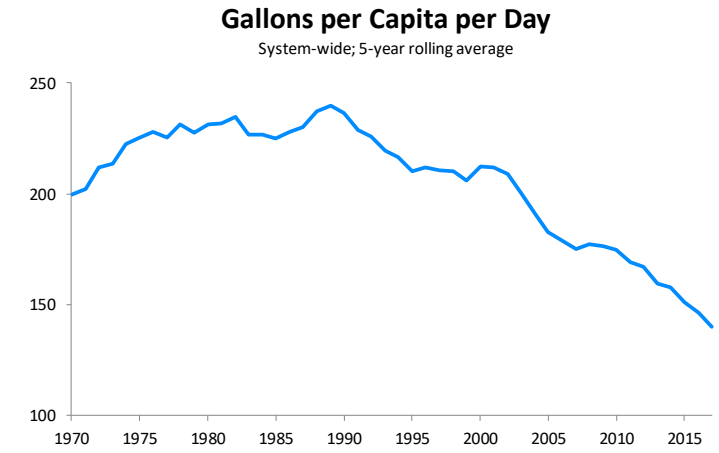
Treatment and Distribution



Weather

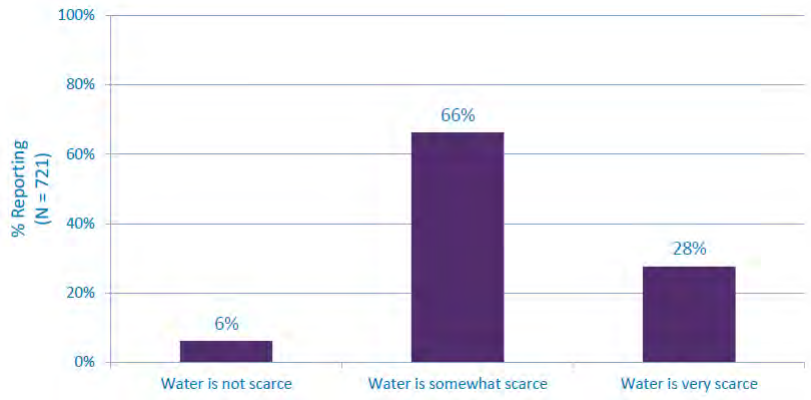


Per Capita Water Use

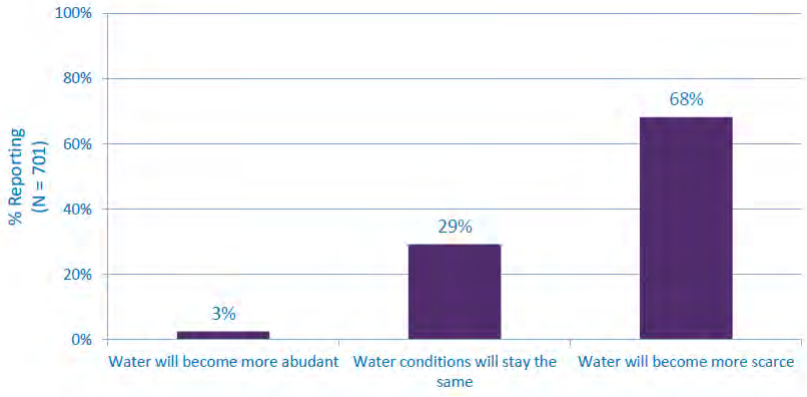


Source: Comprehensive Annual Financial Report

Residential: View Of Current Water Supply Conditions



Residential: View Of Future Water Supply Conditions



Indoor use

State legislation passed in 2013 to allow sales of only WaterSense Approved fixtures

DENVER WATER

Land use

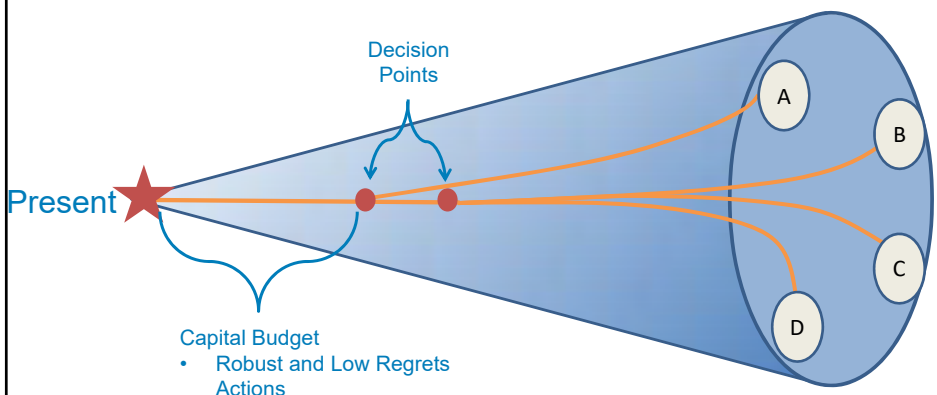
Embracing Uncertainty

"Uncertainty is an uncomfortable position. But certainty is an absurd one."

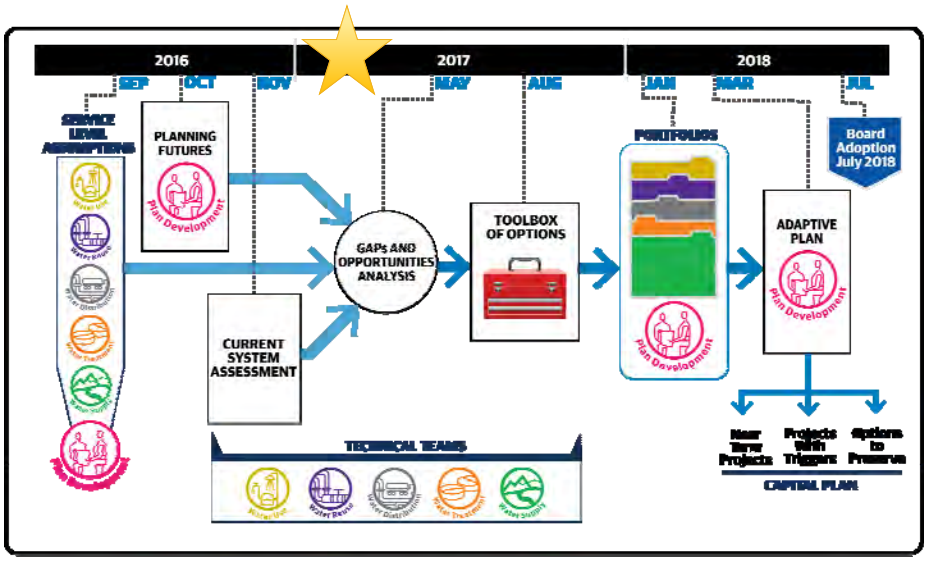
-VOLTAIRE

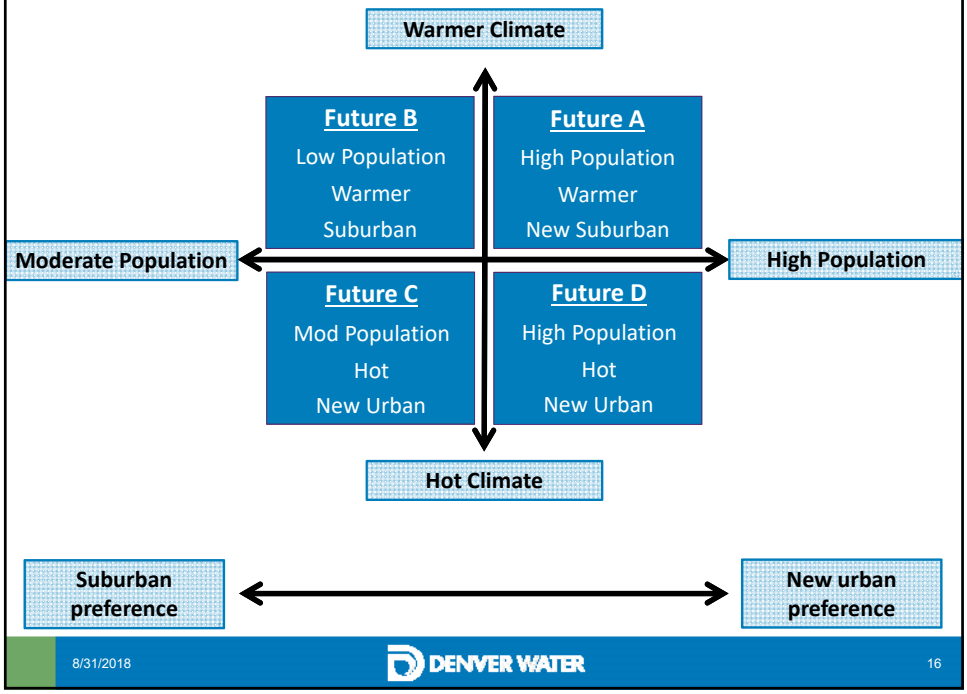
Scenario Planning

Cone of Uncertainty



Process Diagram





Planning Futures

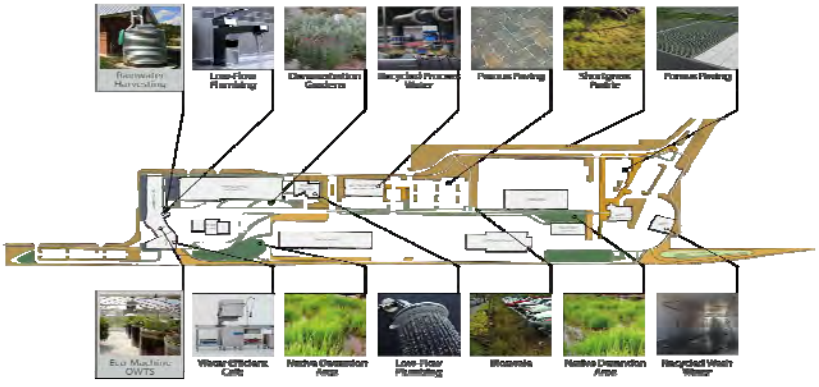
BACK TO THE 'BURBS

GREEN AND GROWING

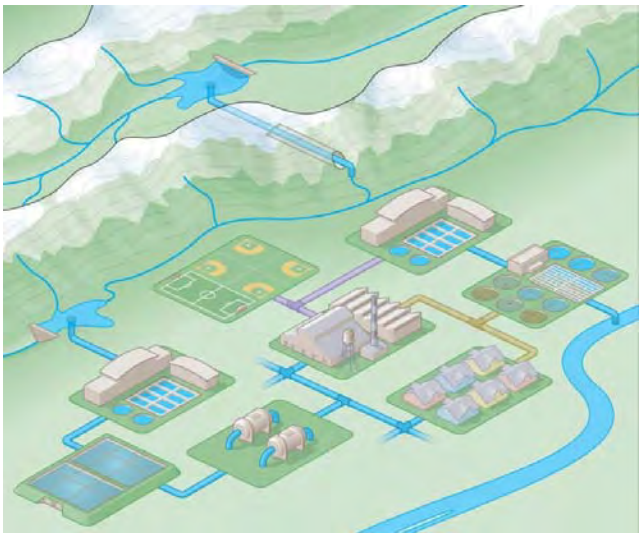
THE BIG UGLY

HOT AND HAPPENING

One Water Strategies



Denver Water System



IRP 2065

Establish a secure water future for our customers through 2065

- Inform Capital Plan
- Plan for the Entire Water System
- Encourage Innovation

Template

1. Who you are in the region
2. Major facilities
    1. map or list
    2. pinch points
    3. opportunities
3. Business drivers/challenges
    1. Financial
    2. Regulatory
    3. Service
4. Ongoing Projects and Decision Timing
5. Existing Interconnects and Partners

SUSTAINABLE WATER INFRASTRUCTURE FOR TOMORROW (SWIFT)

Idea Capture Briefing #2: Meetings 5 through 8

The Sustainable Water Infrastructure for Tomorrow (SWIFT) coalition is a voluntary partnership of drinking water and water reclamation agencies in the urban South Platte Watershed. Initiated in 2017, SWIFT partners share a common vision of collaborative regional stewardship of the South Platte River. Through cooperative planning and infrastructure management, the effort is committed to enhancing the environmental, social, and economic health of communities within the urban South Platte Watershed. This effort was funded through a Water Supply Reserve Fund (WSRF) grant from the Colorado Water Conservation Board (CWCB) and through in-kind contributions from the SWIFT partners and consultants, including:

- City of Aurora (Aurora),
- Denver Water,
- Metro Wastewater Reclamation District (MWRD),
- Roxborough Water and Sanitation District,
- South Metro Water Supply Authority (SMWSA),
- South Platte Water Renewal Partners (SPWRP),
- Carollo Engineers, Inc. (Carollo), and
- GBSM, Inc.

This Idea Capture briefing memorandum satisfies one of the deliverable requirements of the CWCB grant, documenting the findings of the fifth through final meetings of the SWIFT members in 2018.

In 2018, the SWIFT partners convened a series of meetings to discuss common needs and experiences in meeting regional water management and infrastructure goals. After the first four SWIFT meetings brought together individuals to share lessons on multi-jurisdictional infrastructure projects, the later meetings honed in on potential regional projects for managing supplies and infrastructure in the urban South Platte River watershed.

The SWIFT partners used the fifth through eighth meetings to develop, vet, and refine potential projects. These meetings are summarized below. Presentation materials from meetings, where available, are attached to this briefing.

Meeting #5: SWIFT Mission, Goals, and Identification of Potential Projects (June 6, 2018)

The workgroup members discussed the deliverables and outcomes expected following the previous four meetings. To convey a consistent communication for the SWIFT initiative, 2-page fact sheets were discussed as a method for documenting information. The initial fact sheet identifies the purpose, goals, members, and mission of the SWIFT workgroup. This fact sheet and other will be provided as part of the final report.

The workgroup discussed the potential projects identified and opportunities to develop collaborative approaches. A couple of the quick wins for this collaborative workgroup included:

- Conducted monthly data and information sharing between organizations,
- Developed and received feedback on the data sharing agreements, and
- Identified a variety of opportunities that each member may be interested in developing further as part of the SWIFT workgroup or as part of other regional partnerships.

Projects identified were grouped into the following categories:

1. Regional Planning Criteria – includes ideas to share planning data and resources across the Urban South Platte Basin. Opportunities to collaborate include sharing service area mapping, population data, infrastructure mapping, water demand and use data, and wastewater use data.
2. Aquatic Habitat Improvements – includes brainstorming ideas to increase the aquatic habitat benefits along the Urban South Platte River. These could be collaborative ideas could increase the quantity or quality of the river to support aquatic life and recreation.
3. Water Supply Resiliency Planning – includes brainstorming ideas to consider opportunities to increase water planning resiliency in the Urban South Platte basin during impacts of drought.
4. Wastewater Treatment Efficiences – includes ideas to share wastewater infrastructure among entities to drive more efficient process and conveyance solutions.

Meeting #6: Screening of Potential Projects (June 28, 2018)

In analyzing and discussing the potential project ideas developed during Meeting #5, the workgroup decided to develop the following fact sheets. These fact sheets will be used as a communication tool to convey information to managers, political appointees, and internal stakeholders. Fact sheets will be developed and provided with the final report for the following ideas:

1. Mission statement which defines the purpose,
2. Regional planning criteria,
3. Role of indirect and direct potable water infrastructure in the Urban South Platte Basin, and
4. Ideas for regionalization initiatives in wastewater treatment and conveyance.

The SWIFT workgroup members were actively engaged in other multi-agency collaborative efforts and the other ideas or initiatives identified would be addressed as part of those specific groups as to avoid duplication of effort.

As part of another CWCB grant, the SMWSA is evaluating the regional impacts and approaches for total dissolved solids reduction and management in water supplies. As this evaluation progresses, there may be opportunity to leverage both workgroups to develop a common fact sheet addressing the regions salinity challenges and opportunities.

Meeting #7: Data Sharing and Refinement of Potential Project Descriptions (July 26, 2018)

This meeting was used to review the first two fact sheets recommended as part of Meeting #6 and to review the progress on the data sharing agreements.

Revisions to the data sharing agreement were discussed and distributed to each of the workgroup members.

Meeting #8: Detailed Description and Documentation of Potential Projects (September 27, 2018)

This meeting was to finalize the two fact sheets that recommend and collaborate on final direction for needed information and data requests. The final report will be discussed at the next meeting and further direction provided on the next steps for the SWIFT initiative.

SWIFT 2: Recap and Next Steps

June 6, 2018

Agenda

- Introductions
- SWIFT2 Mission and Goals
- Projects to Explore the Potential Benefits
- Data Sharing
- Wrap-up and Next Meeting Date/Location and Goals

Agenda

- Introductions
- **SWIFT2 Mission and Goals**
- Projects to Explore the Potential Benefits
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Recap SWIFT2 Initiative – Goals and Objectives

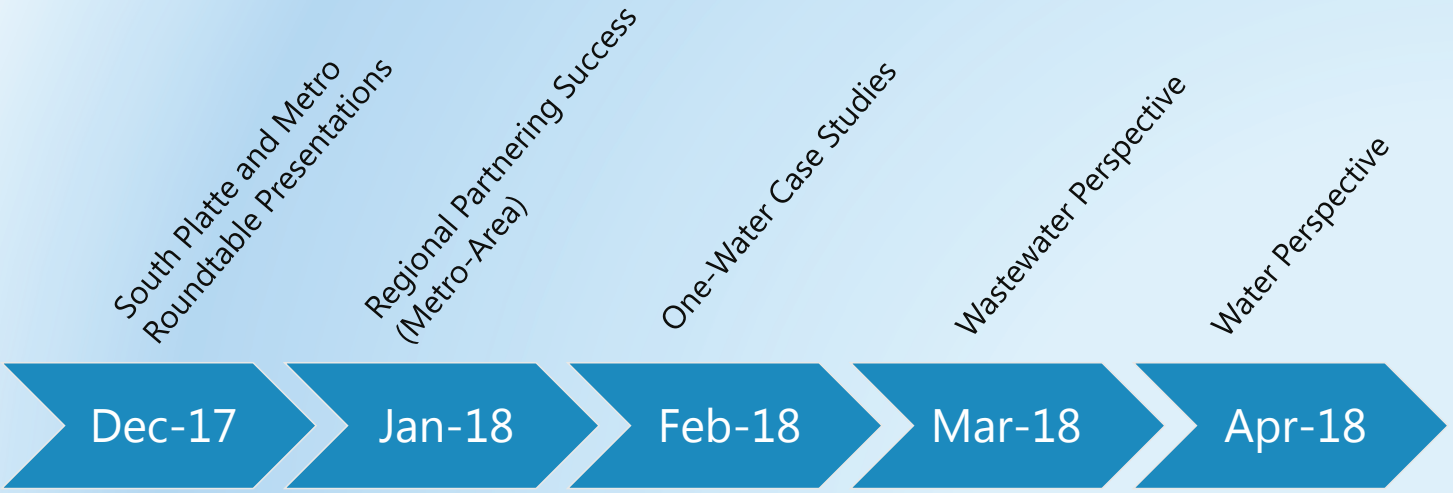
Goals

- Use collaborative approach to cost-effectively solve common water management challenges
- Address water quantity (supply/flow) and water quality (treatment/environment) needs
- Capitalize on regionalization and infrastructure sharing both economically and hydrologically
- Explore reuse sources and limitations
- Develop collaborative interconnections between water utilities or improve water resources

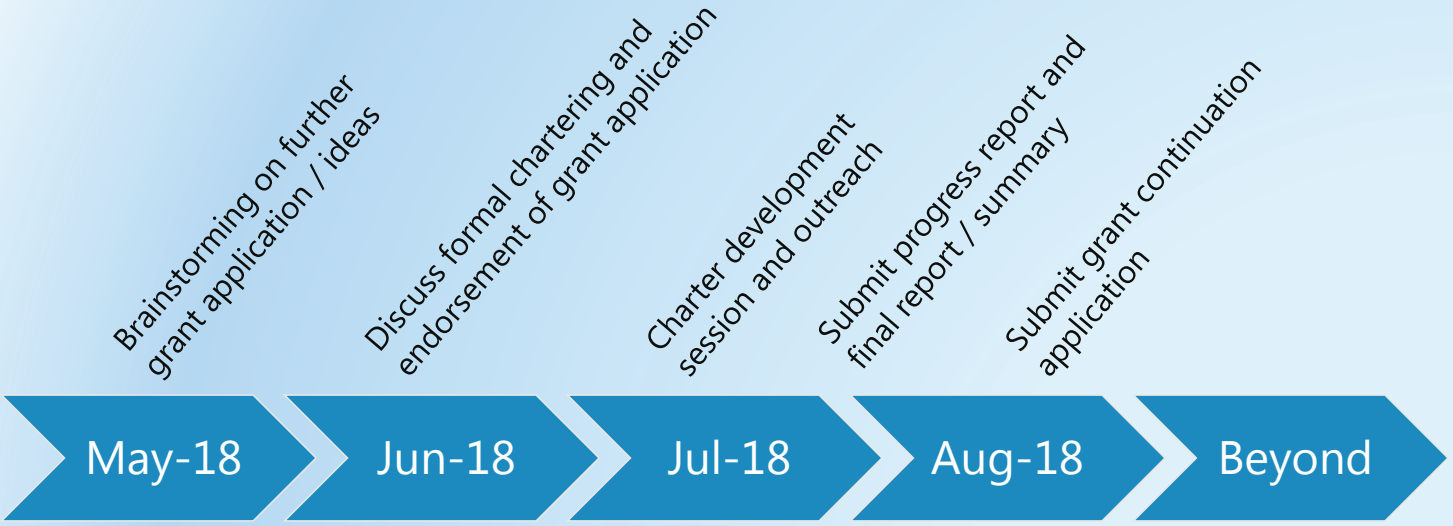
Objectives

- Share knowledge of water and wastewater infrastructure, planning goals, and identified project opportunities.
- Learn from other Colorado and national-level regional partnering successes
- Explore opportunities for informal or formal future cooperation and additional outreach needs.
- Identify projects that may be considered for further evaluation and funding
- Share GIS information
- Document ideas, opportunities, and potential benefits

Progress to Date



Continue Motivation to Grant Application Next Steps



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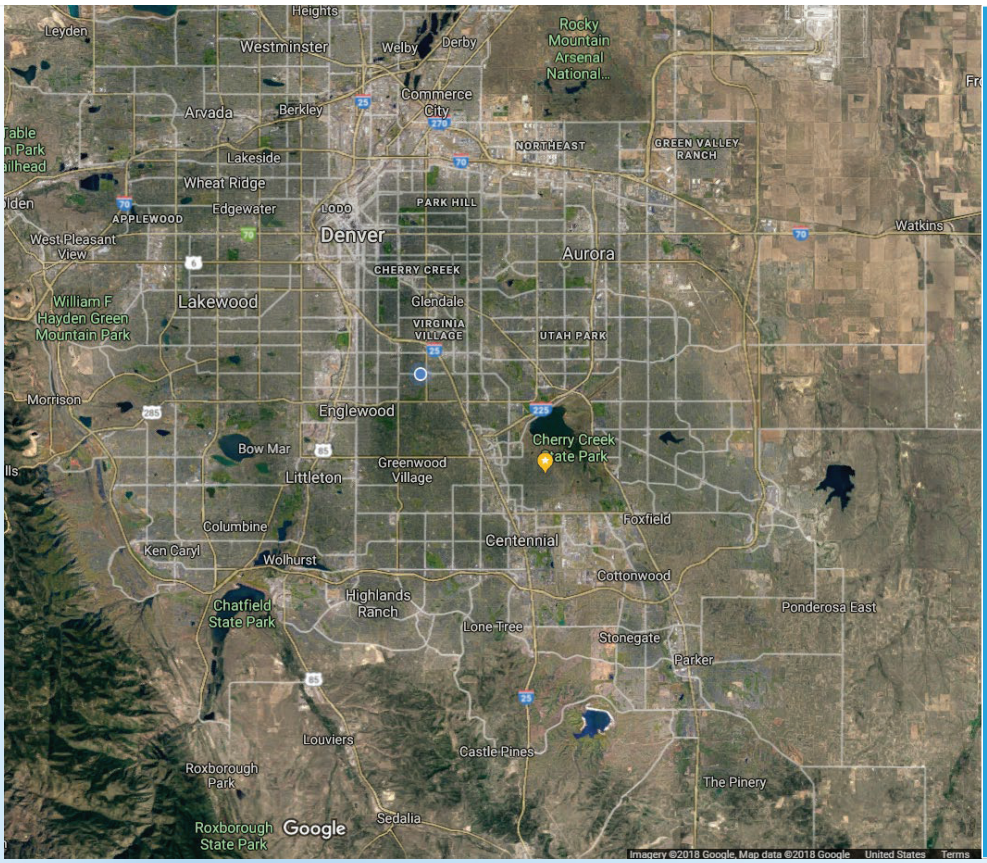
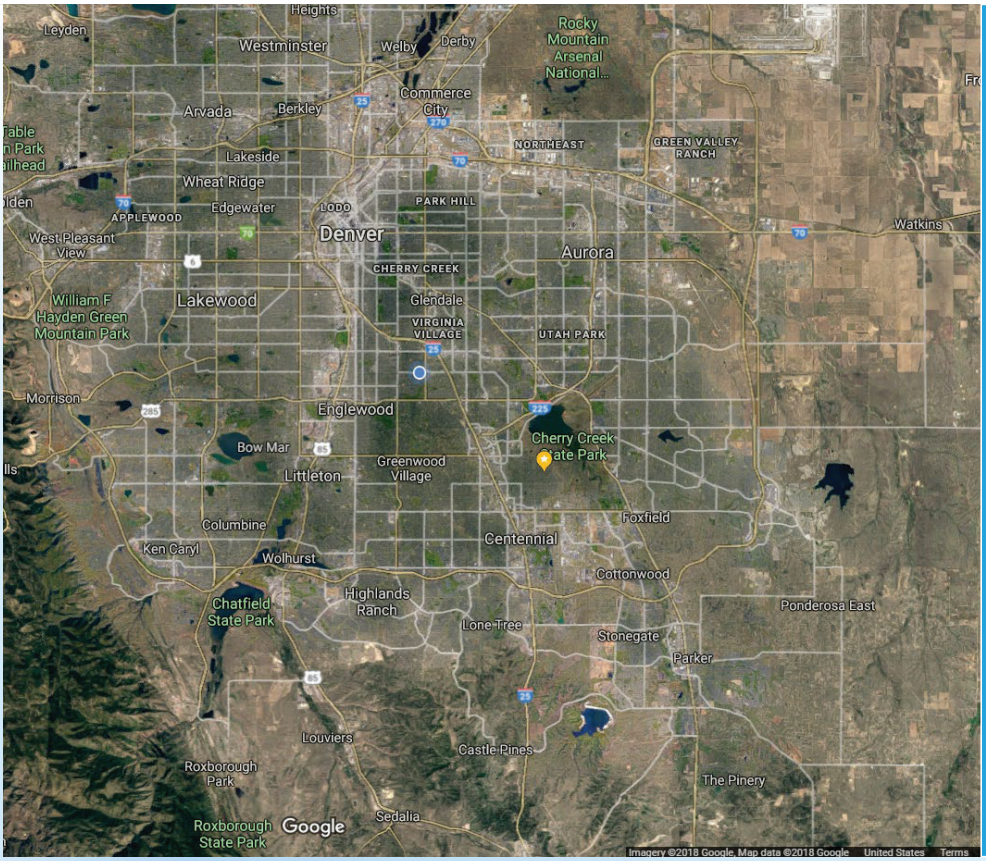


Quick Wins:

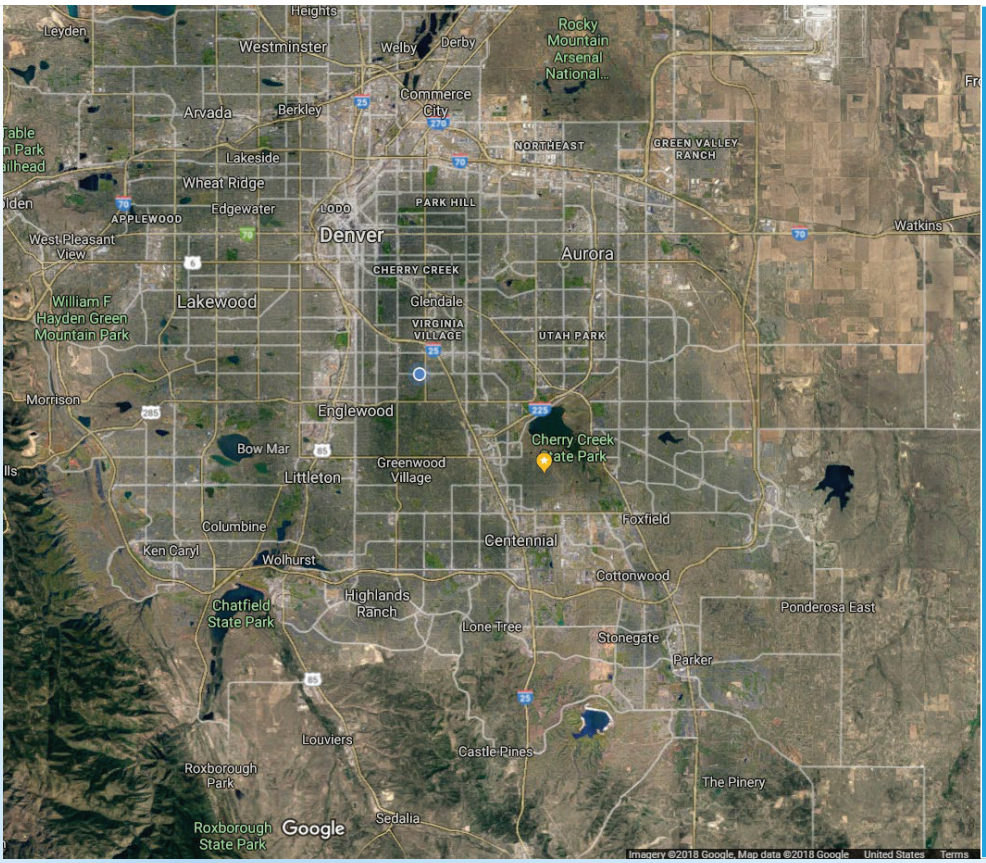
1. Shared W/WW Information
2. Identified multitude of projects with various complexities
3. Enforced existing positive regional partnerships



Regional Planning Criteria

1. Shared data, service area mapping, population projections
2. Per Capita Use Criteria
3. Regulation 22 Support for phased infrastructure benefits

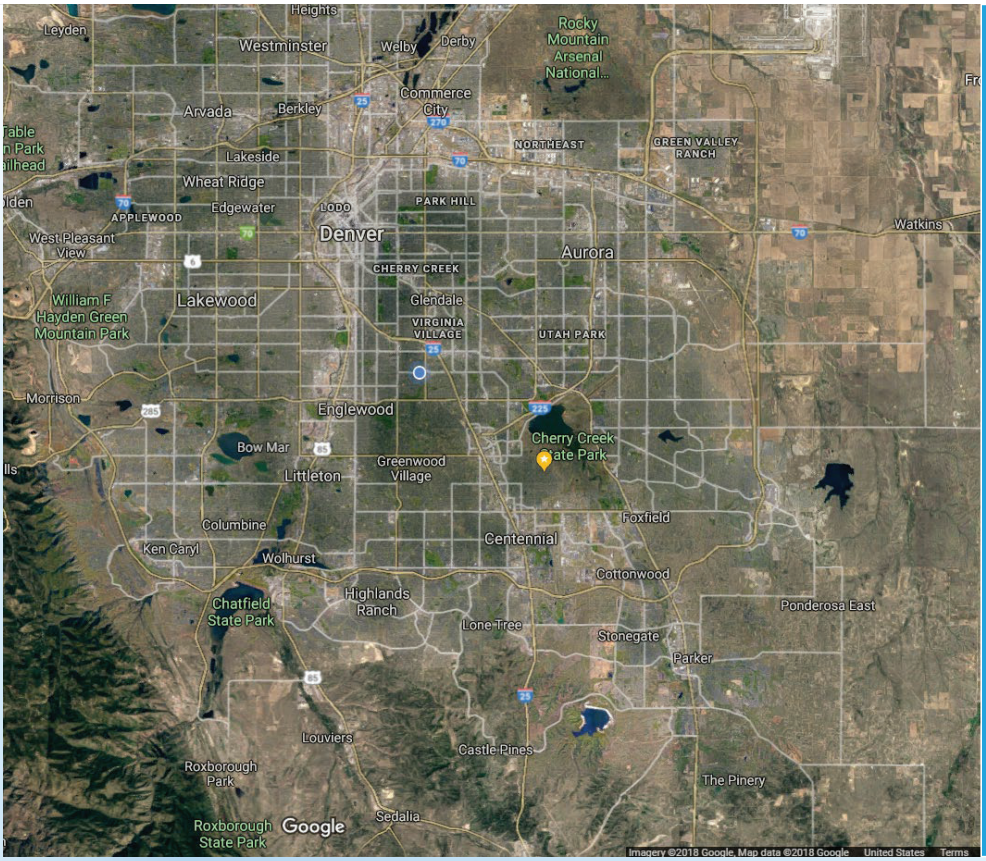
Filename.ppt/9



Aquatic Habitat Enhancements

1. Increase return flows
2. Nutrient trading between Utilities
3. Stormwater management

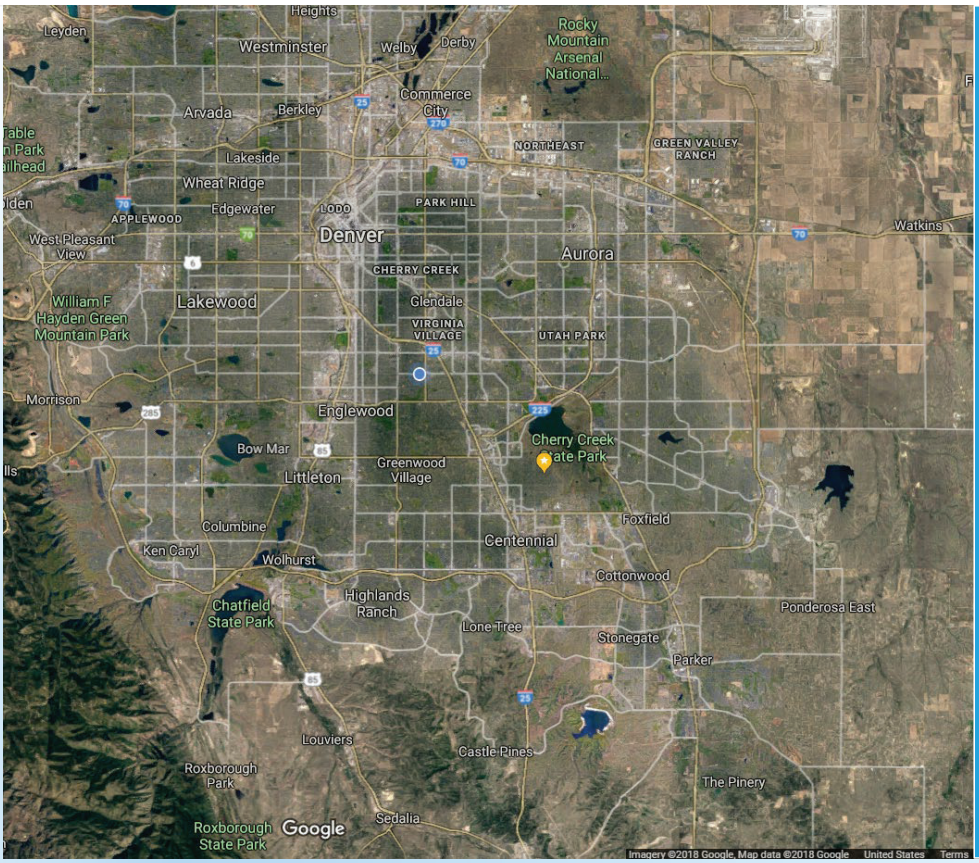
Filename.ppt/10



Water Supply Resiliency Planning

1. WISE, Aurora, Roxborough firming
2. IPR/DPR reuse "hub"
   - To Chatfield
   - To Marston
3. Water storage projects higher in basin

Filename.ppt/11



Wastewater Treatment Efficiencies

1. SPWRP expansions (regional liquid treatment)
2. Regionalization of solids facilities
3. Basin-wide nutrient trading and integrated permitting

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Prioritization of Ideas for Further Evaluation

Regional Planning Criteria

1. Shared data, service area mapping, population projections
2. Per Capita demand and flow criteria
3. Reg. 22 Support for phased infrastructure benefits

Aquatic Habitat Enhancements

1. Increase return flows / enhance streamflows
2. Nutrient trading between Utilities
3. Stormwater management

Water Supply Resiliency Planning

1. WISE, Aurora, Roxborough firming
2. IPR/DPR reuse "hub"
   - To Chatfield
   - To Marston
3. Water storage projects higher in basin
4. TDS reduction/ management

Wastewater Treatment Efficiencies

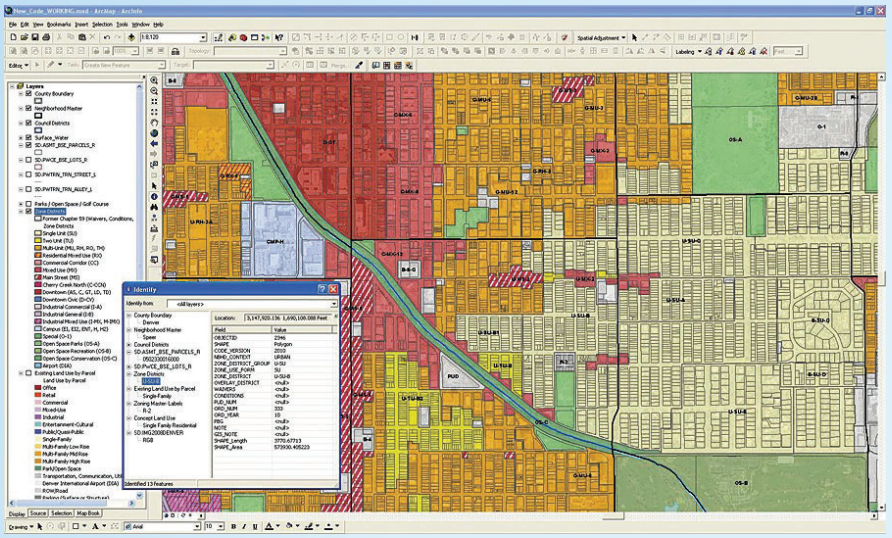
1. SPWRP expansions (regional liquid treatment)
2. Regionalization of solids facilities
3. Basin-wide nutrient trading and integrated permitting

Agenda

- Introductions
- SWIFT2 Mission and Goals
- Projects to Explore the Potential Benefits
- **Data Sharing**
- Wrap-up and Next Meeting Date/Location and Goals

Data Sharing Status

- Goals of data sharing approach
- Use of Data
- Types of data and format
- Timeline and logistics
- Memorandum of Understanding?



Agenda

1. **Introductions**
2. **SWIFT2 Mission and Goals**
3. **Projects to Explore the Potential Benefits**
4. **Data Sharing**
5. **Wrap-up and Next Meeting Date/Location and Goals**

Next Meeting (June)

- Scheduled – June 28th
- Location?

- Data sharing follow-up
- Prioritization of ideas
  - Benefits
  - Components underway or in planning
  - Hurdles for implementation
  - Next steps for each key project
- Common visioning for next steps
- Grant application amendment

Colorado Water Conservation Board

Water Supply Reserve Fund
Grant Application

Instructions

All WSRF grant applications shall conform to the current 2016 WSRF Criteria and Guidelines.

To receive funding from the WSRF, a proposed water activity must be approved by a Roundtable(s) **AND** the Colorado Water Conservation Board (CWCB). The process for Roundtable consideration and recommendation is outlined in the 2016 WSRF Criteria and Guidelines. The CWCB meets bimonthly according to the schedule on page 2 of this application.

If you have questions, please contact the current CWCB staff Roundtable liaison:

Arkansas	**Gunnison | North Platte | South Platte | Yampa/White**	**Colorado | Metro | Rio Grande | Southwest**
Ben Wade	Craig Godbout	Megan Holcomb
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303-866-3441 x3238	303-866-3441 x3210	303-866-3441 x3222

WSRF Submittal Checklist (Required)

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X	Budget & Schedule(2) *(Excel Spreadsheet – see Exhibit A Template)*
X	Letters of Matching and/or Pending 3rd Party Commitments(2)
Exhibit C	
N/A	Map(2)
N/A	Photos/Drawings/Reports
X	Letters of Support
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Contracting Documents	
	Certificate of Good Standing(3)
	W-9(3)
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	Electronic Funds Transfer (ETF) Form(3)

SWIFT 2: Mission and Projects

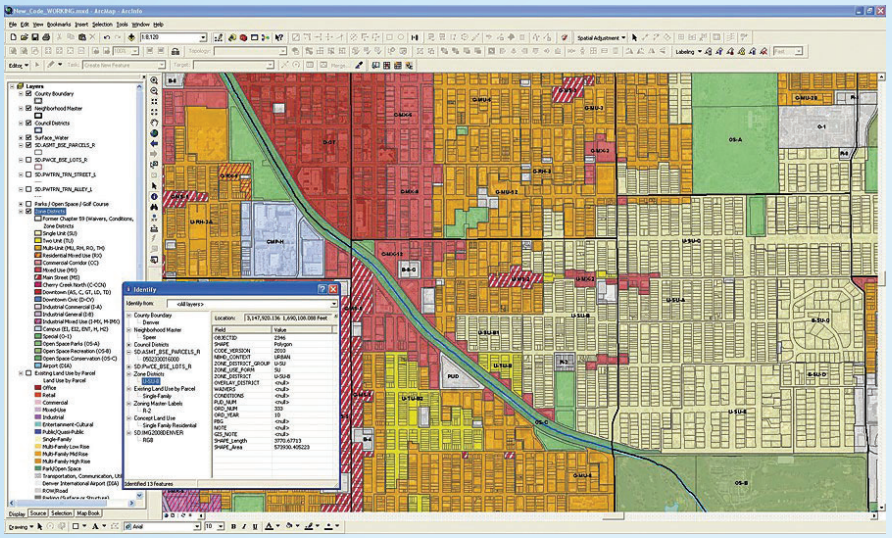
June 26, 2018

Agenda

- Introductions
- Data Sharing Update
- Draft Fact Sheet
- Short-Listed Projects
- Reporting and Invoicing Update
- Wrap-up and Next Meeting Date/Location and Goals

Status of NDA's and Comments on Data Sharing Status

- Goals of data sharing approach
- Use of Data
- Types of data and format
- Timeline and logistics
- Memorandum of Understanding?



Agenda

1. **Introductions**
2. **Data Sharing Update**
3. **Draft Fact Sheet**
4. **Short-Listed Projects**
5. **Reporting and Invoicing Update**
6. **Wrap-up and Next Meeting Date/Location and Goals**

SWIFT2 Fact Sheet

SWIFT2

South Platte Water Infrastructure From Today creating Sustainable Water Infrastructure For Tomorrow

Sustainable Water Infrastructure For Tomorrow (SWIFT) is an informal coalition of drinking water and water reclamation agencies in the Urban South Platte Watershed. Initiated in late 2017, SWIFT members share a common vision of collaborative regional stewardship of Colorado's South Platte River. Through cooperative planning and responsible infrastructure management, the SWIFT effort is committed to enhancing the environmental, social and economic health of the communities within the Urban South Platte Watershed.

Members of the SWIFT coalition are leveraging an integrated "One Water" planning and implementation approach to manage finite water resources for long-term resilience and reliability, to meet both community and ecosystem needs.

Photo: The Cultural Landscape Foundation

This effort builds upon the substantial work completed in both Colorado's State Water Plan and the South Platte Basin Implementation Plan. Specifically, this initiative seeks to identify reuse, environmental, recreation, and conservation opportunities, while generating regional economic benefits and maximizing value for our collective ratepaying customers.

Who We Are *(INSERT LOGOS FOR THE FOLLOWING PARTNER ORGANIZATIONS)*

Aurora Water
Carollo Engineers
Denver Water
GBSM, Inc.
Metro Wastewater Reclamation District
Roxborough Water and Sanitation District
South Metro Water Supply Authority
South Platte Water Renewal Partners

Mission: *Collaborative regional stewardship of Colorado's South Platte River through cooperative planning and responsible infrastructure management.*

Vision: *To enhance the environmental, social and economic health of the communities that live, work and recreate within the Urban South Platte Watershed.*

Goals

- Identify opportunities to collaboratively and cost-effectively solve common water management and infrastructure challenges
- Address water quantity (supply/flow) and water quality (treatment/environment) needs in the Urban South Platte Watershed
- Identify and capitalize on potential regional infrastructure sharing opportunities – both economically and hydrologically
- Explore current water reuse sources and limitations, along with future opportunities to address infrastructure gaps and regulatory challenges
- Develop collaborative interconnections between water utilities and regional resources

Objectives

- Compile existing information and share knowledge of water and wastewater infrastructure, planning goals, and identified project opportunities
- Apply best practices from other local, regional and national-level partnering successes
- Explore opportunities for informal or formal future cooperation, as well as additional partnership and outreach needs
- Identify priority projects and concepts – as well as potential benefits – that may be considered for further exploration and funding evaluation

The Path Forward

Ultimately, as the work of the SWIFT coalition progresses, the effort will build towards a more thorough evaluation of the Urban South Platte Watershed. As one or more priority opportunities are identified for cooperative implementation, the SWIFT partners may pursue a CWCB State Water Plan Grant. Current activities are funded by a Metro Basin Roundtable grant and in-kind contributions from SWIFT coalition members.

Agenda

- Introductions
- Data Sharing Update
- Draft Fact Sheet
- **Short-Listed Projects**
- Reporting and Invoicing Update
- Wrap-up and Next Meeting Date/Location and Goals

Prioritization of Ideas for Further Evaluation

Regional Planning Criteria

1. **Shared data, service area mapping, population projections**
2. **Per Capita demand and flow criteria**
3. Reg. 22 Support for phased infrastructure benefits

Aquatic Habitat Enhancements

1. **Increase return flows / enhance streamflows**
2. Nutrient trading between Utilities
3. Stormwater management

Water Supply Resiliency Planning

1. WISE, Aurora, Roxborough firming
2. **IPR/DPR reuse "hub"**
   - **To Chatfield**
   - **To Marston**
3. Water storage projects higher in basin
4. **TDS reduction/ management**

Wastewater Treatment Efficiencies

1. **SPWRP expansions (regional liquid treatment)**
2. **Regionalization of solids facilities**
3. Basin-wide nutrient trading and integrated permitting

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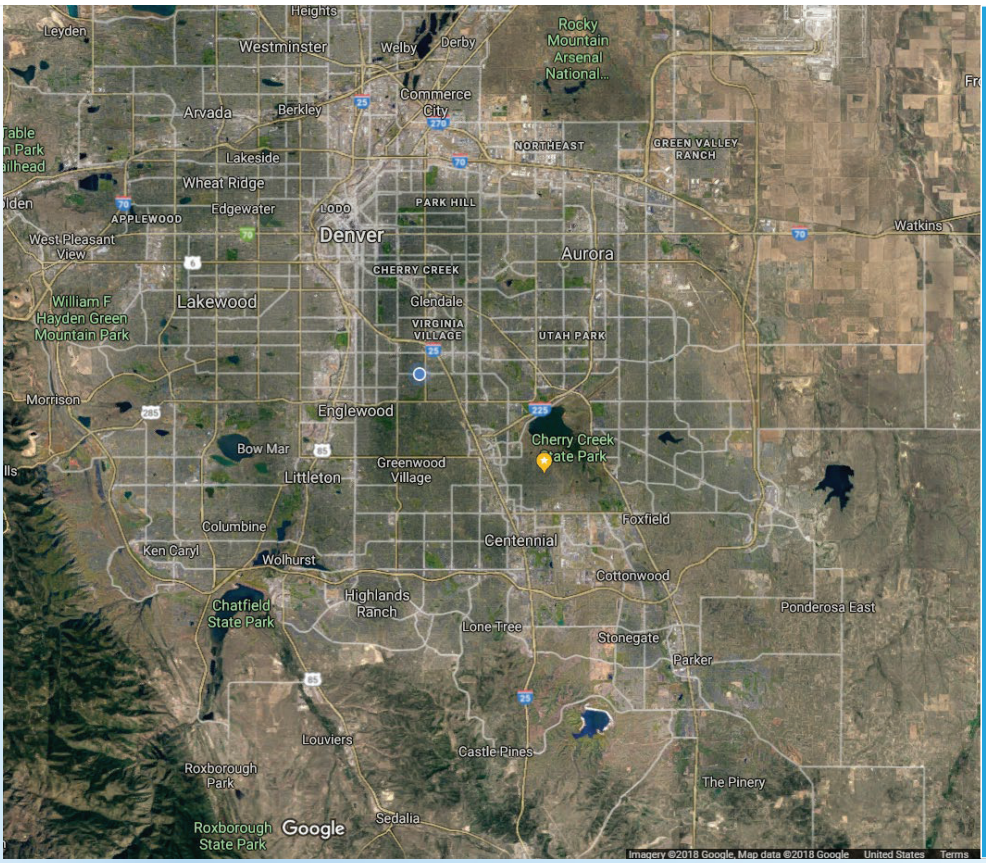

Brainstorming

1. Group or prioritize
2. Benefits to SWIFT2 and Community
3. Define projects
4. Challenges ahead
5. Clean Water Plan Impact
6.

Filename.ppt/8

Agenda

- Introductions
- SWIFT2 Mission and Goals
- Projects to Explore the Potential Benefits
- Data Sharing
- Wrap-up and Next Meeting Date/Location and Goals

Next Meeting (July)

- Scheduled – July 26th
- Location?

- Data sharing follow-up
- Feedback on Fact Sheet
- Progress Reporting Update
- Overall next steps and meetings

Colorado Water Conservation Board

Water Supply Reserve Fund Grant Application

Instructions

All WSRF grant applications shall conform to the current 2016 WSRF Criteria and Guidelines.

To receive funding from the WSRF, a proposed water activity must be approved by a Roundtable(s) **AND** the Colorado Water Conservation Board (CWCB). The process for Roundtable consideration and recommendation is outlined in the 2016 WSRF Criteria and Guidelines. The CWCB meets bimonthly according to the schedule on page 2 of this application.

If you have questions, please contact the current CWCB staff Roundtable liaison:

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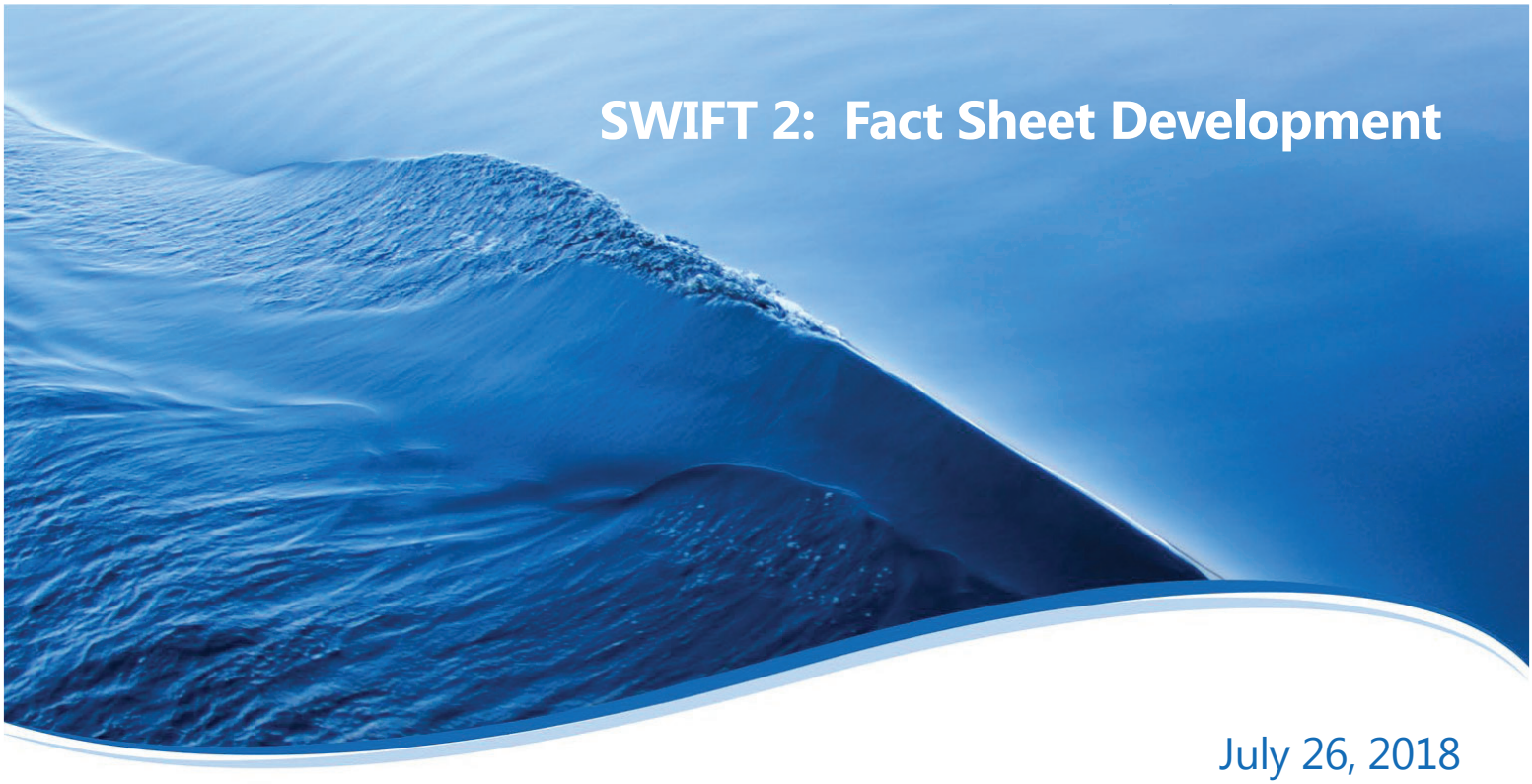

SWIFT 2: Fact Sheet Development

July 26, 2018

Agenda

- Introductions
- Data Sharing Update
- Purpose Fact Sheet
- Short-Listed Projects – Planning Criteria Fact Sheet
- Reporting and Invoicing Update
- Wrap-up and Next Meeting Date/Location and Goals

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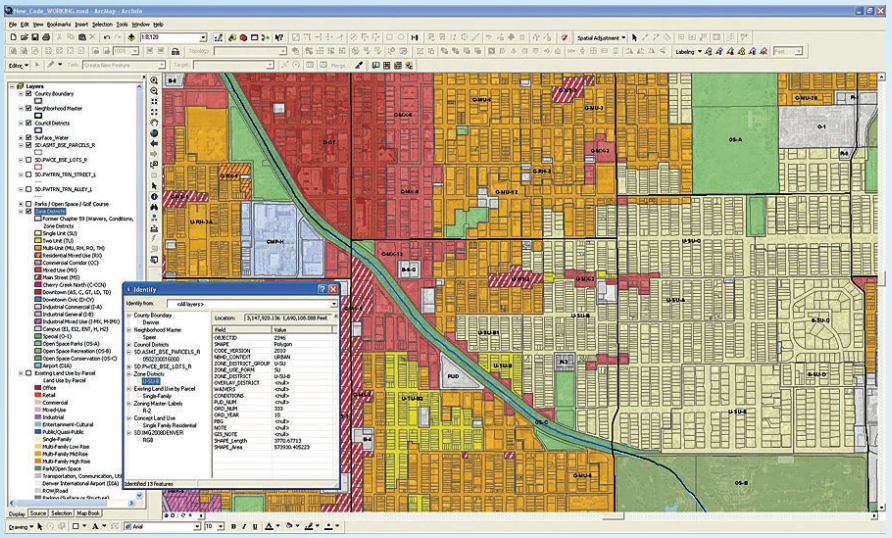


Agenda

1. Introductions
2. Data Sharing Update
3. **Mission / Purpose Fact Sheet**
4. Short-Listed Projects – Planning Criteria Fact Sheet
5. Reporting and Invoicing Update
6. Wrap-up and Next Meeting Date/Location and Goals

Sustainable Water Infrastructure For Tomorrow (SWIFT) is a coalition of drinking water and water reclamation agencies in the Urban South Platte Watershed. Initiated in late 2017, SWIFT members share a common vision of collaborative regional stewardship of the South Platte River. Through cooperative planning and infrastructure management, the SWIFT effort is committed to enhancing the environmental, social and economic health of the communities within the Urban South Platte Watershed.

Members of the SWIFT South Platte River coalition are using an integrated "One Water" planning approach to collaboratively manage our finite water resources and meet the region's long-term community and ecosystem needs.

Photo: The Cultural Landscape Foundation

The SWIFT effort builds upon the substantial work completed in the Colorado State Water Plan and the South Platte Basin Implementation Plan. This initiative seeks to identify reuse, environmental, recreation, and conservation opportunities, while generating regional efficiencies and maximizing value for our collective ratepaying customers.

Who We Are:

MAP IN DEVELOPMENT WITH LOGOS FOR PARTNER SERVICE AREAS (BASED ON WISE MAP)

Aurora Water

Carollo Engineers

Denver Water

GBSM, Inc.

Metro Wastewater Reclamation District

Roxborough Water and Sanitation District

South Metro Water Supply Authority

South Platte Water Renewal Partners

SWIFT
Sustainable Water Infrastructure For Tomorrow — South Platte River

What We Do:

Promote regional stewardship of the Urban South Platte Watershed through collaborative planning and infrastructure management.

Why We Do It:

To enhance the environmental, social and economic health of the communities within the Urban South Platte Watershed.

Our Goals & Objectives:

- Maximize value for millions of our collective ratepaying customers and generate regional economic benefits through cooperative long-term planning.
- Serve as a catalyst for accelerating the identification of collaborative and cost-effective regional water management and infrastructure solutions.
- Capitalize on potential information and infrastructure sharing opportunities to address water quantity and water quality challenges that are common in our arid climate.
- Advance environmental stewardship and resource conservation through a shared investment in the future of the Urban South Platte Watershed.

Where We Go From Here:

Ultimately, as the work of the SWIFT coalition progresses, the effort will build towards developing a common methodology for a more thorough evaluation of the Urban South Platte Watershed. Based on this holistic understanding of our regional water supply and forecasted demand, we will be well positioned to identify and address future infrastructure gaps and regulatory obstacles.

As opportunities with the potential for significant regional benefit are identified, the SWIFT partners may pursue a future Colorado Water Conservation Board (CWCB) State Water Plan Grant. Current activities are funded by a Metro Basin Roundtable grant and in-kind contributions from the SWIFT South Platte River coalition members.

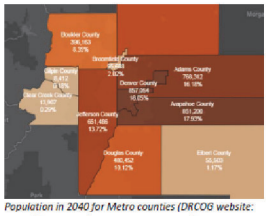
Agenda

- Introductions
- Data Sharing Update
- Mission / Purpose Fact Sheet
- **Short-Listed Projects – Planning Criteria Fact Sheet**
- Reporting and Invoicing Update
- Wrap-up and Next Meeting Date/Location and Goals

SWIFT

South Platte Sustainable Water Infrastructure For Tomorrow

Regional Planning Criteria drive sensible and sustainable water infrastructure for tomorrow. Members of the South Platte SWIFT coalition understand the importance of sharing data to achieve cooperative planning and responsible infrastructure management. This fact sheet summarizes the baseline regional planning criteria developed for the Denver metropolitan area associated with projecting water and wastewater service.



Population in 2040 for Metro counties (DRCOG website: https://drcog.org/services-and-resources/denver-regional-visual-resources/population-trends)

In September 2016, the Denver Regional Council of Governments (DRCOG) published the Metro Vision 2040 (MV2040) which states "by 2040, the region population is forecasted to increase nearly 50 percent or to 4.3 million people." In addition, MV2040 established a goal to increase the housing density within the urban growth boundary by 25 percent as compared to the 2014 baseline. Development of consistent planning criteria across the region allows the water utilities to ensure their infrastructure meets these regional growth patterns.

Sharing data on planning criteria for water and wastewater systems provides a basis of comparison for updated, modernized planning that reflects current trends in water conservation and water use across the metro area in lieu of a centralized agency to coordinate such planning. While water use data will always be unique to an individual utility's service area characteristics, these data can also serve as a reference point for utilities that are not members of the South Platte SWIFT coalition.

What are we Doing? The SWIFT coalition collected water and wastewater planning criteria from water and wastewater utilities located from the DRCOG urban growth boundary areas, summarized in table below.

COULD ADD MAP OF REGION –

WITH Pin points for Utilities providing data.

Filename.ppt/7

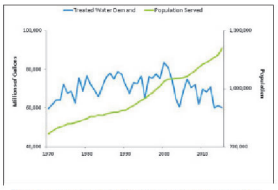
SWIFT

South Platte Sustainable Water Infrastructure For Tomorrow

Population and Land-Use Data: DRCOG maintains a Regional Data Catalog where population and employment forecasts can be obtained for service areas in the Denver metro area. In addition, detailed land-use plans provided by each of the metro-area counties could be used to determine growth patterns, especially urban in-fill.

Water Demand Data:

Drought, conservation, and infrastructure improvements have resulted in an overall downward trend in per-capita potable water demands over the past 10 to 20 years. Even with these decreases, the *Colorado Water Plan (CWCB, 2017)* and Governor Hickenlooper's Executive Order indicate the annual municipal and industrial water supply gap in the South Platte Basin could exceed 500,000 acre feet by 2050. Looking ahead, many utilities expect they will continue to experience decreases in per-capita water demands.



Denver Water Treated Water Demand and Service Area Population https://www.denverwater.org/your-water/water-supply-and-planning/water-use)

Graphic showing continued decrease in unit flow criteria or decrease in future projection.

Size of Utility by population	Winter Condition	Peak Condition
< 50k population	X - X gpcd	X – X gpcd
50k to 150k		
> 150k population		
Literature Criteria		

1. gpcd = gallons per capita

Wastewater Influent Characteristics

The decrease in water usage has challenged wastewater infrastructure. Wastewater utilities now face oversized infrastructure, potential for solids deposition and odor, changes in peaking conditions, and more concentrated pollutants.

Influent Pollutant	Utility Data	Literature Data
Flow (gpcd)		
Biological Oxygen Demand (BOD) (mg/L)		

Prioritization of Ideas for Further Evaluation

Regional Planning Criteria

1. Shared data, service area mapping, population projections
2. Per Capita demand and flow criteria

Aquatic Habitat Enhancements

1. Stream enhancements (flows, habitat, economical development)

Water Supply Resiliency Planning

1. **IPR/DPR reuse "hub"**
2. TDS reduction/ management – HOLD UNTIL OTHER EFFORTS DEVELOP

Wastewater Treatment Efficiencies

1. ~~SPWRP expansions (regional liquid treatment)~~
2. **Regionalization of solids facilities**

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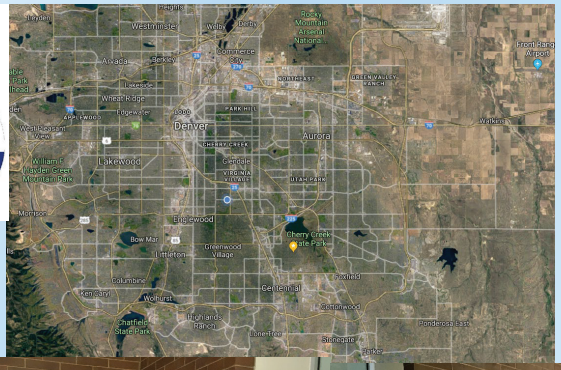
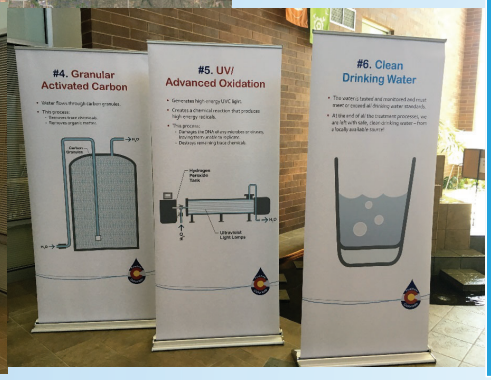
Brainstorm for IPR/DPR Reuse Hub





FACT SHEET OUTLINE

1. Introduction & Purpose for IPR/DPR
2. "What is being done"
   - local
   - benefits
3. "What is the future"
4. "What needs to be done"

Filename.ppt/9

Agenda

- Introductions
- Data Sharing Update
- Purpose Fact Sheet
- Short-Listed Projects – Planning Criteria Fact Sheet
- **Reporting and Invoicing Update**
- Wrap-up and Next Meeting Date/Location and Goals

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Progress Report and Invoicing – Due in mid-October

SCOPE of PROJECT

- ✓Task 1 Pre-Planning Tasks (11/17-1/18)
- ✓Task 2 Regional Collaboration (1/18 – 7/18)
- Task 3 – Documentation
  - "Idea Capture" Meeting Briefs (2)
- Task 4 – Geospatial Analysis
  - Conceptual Figure

Project Objectives – Satisfied?

- ✓ Meet regularly to share knowledge
- ✓ Explore future cooperation and additional outreach needs
- ✓ Identify projects that may be considered for further evaluation
- ❑ Share geospatial information, water rights information, and other information
- ❑ Document findings in report

Budget and Schedule (Original)

Task No.[1]	Description	Matching Funds (cash & in-kind)[3]	WSRF Funds (Basin & Statewide combined)[3]	Total
1	Pre-Grant Planning Meetings and Grant Development	$ 9,200	$ -	$ 9,200
2	Regional Collaboration Meetings	$ 65,500	$ -	$ 65,500
3	Common Goals, Objectives	$ 16,500	$ 23,600	$ 40,100
4	Regional Infrastructure Geospatial	$ 7,600	$ 1,400	$ 9,000
		$98,800	**$25,000**	**$123,800**

Tracking of In-Kind Hours

ask No.	Description	L/E WWTP Staff	Denver Water Staff	Aurora Water	Roxborough W&SD	South Metro Supply Authority	
	# Stakeholders	5	3	2	1	2	
0	Pre-Grant Planning Meetings and Grant Development (Nov - Jan)	14	14	0	7	14	Hours satisified. Conducted pre-planning meetings and discussions in Nov, Dec, and Jan
1.1	Indirect Administration Costs (Grant Administration & Invoicing)	0	0	0	0	0	Admin for invoicing (not yet incurred)
1.2	Project Management and Administration	0	0	0	0	0	Oversight provided by Carollo
1.3	Regional Collaboration Meetings: (7 meetings @ 4 hours)	140	56	42	28	56	Held 6 of 7 meetings after today. Typically SPWRP Staff 2 vs. 5
1.4	Tactical and Coordination Meetings: (7 meetings @ 2hours)	28	14	0	14	14	Coordination completed by stakeholders
2	Common Goals, Objectives	75	45	0	15	30	*Input on final report, invoice*
3	Regional Infrastructure Geospatial	16	48	0	4	8	*input on mapping*

Original staffing assumptions have been modified – how should we approach this?

Continue to exclude MWRD participation from in-kind contributions?

Agenda

- Introductions
- Data Sharing Update
- Purpose Fact Sheet
- Short-Listed Projects – Planning Criteria Fact Sheet
- Reporting and Invoicing Update
- Wrap-up and Next Meeting Date/Location and Goals

Next Meeting (Aug)

- Scheduled – August 23rd
- Location?

- Data sharing follow-up
- Feedback on existing Fact Sheets
- Development of 2 New Fact Sheets
- Transition Phase to next Grant
- Progress Reporting Update
- Report Outline / Content
- Overall next steps and meetings

Colorado Water Conservation Board

Water Supply Reserve Fund
Grant Application

Instructions

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Appendix C

MEETING MINUTES

Meeting Summary

SWIFT2

South Platte Water Infrastructure From Today creating Sustainable Water Infrastructure For Tomorrow

January 29, 2018
1:30 to 3:30 p.m.
Englewood Civic Center, Community Room (2nd floor)
1000 Englewood Parkway, Englewood CO 80110

ATTENDEES:

LEWWTP – Blair Corning, Dan DeLaughter, Kurt Carson
Denver Water – Greg Fisher, Sarah Dominick
MWRD – Lisa Hollander, Dawn Ambrosio
GBSM/Carollo – John Rehring, Dave Pier, Miles Graham, Steve Coffin
Chatfield Reservoir Mitigation Company - Tom Browning
WRF – Katie Henderson
South Metro – Chris Muller, Lisa Darling
Aurora Water - Alicia Dupree, John Murphy
Roxborough – Barb Biggs

Regionalization, Partnerships, and Business Cases – Katie Henderson, Research Manager, Water Research Foundation (WRF)

1. WRF Project 4750 – Water Systems Partnerships (Corona Environmental) report, findings conclude in Q2-2019. Project focusing on collaboration value and legal/partnering agreements.
2. EPA – Water System Partnerships developed websites for water system partnerships. See EPA's new interactive website on Water System Partnerships.
3. Bay Area Regional Reliability partnership
4. AWWA – Technical and Education Council Report (survey of 45 utilities). Most of agreements are informal collaborations. *No one size fits all due to legal requirements.*
5. Barriers for collaboration – loss of control, next election, skepticism, rate shock, equity of cost/benefits, debt, limited long term vision, etc.
6. Larger scale – limited understanding / appetite for regionalization.
7. Business Case Evaluation – needs to be transparent, agreed financial terms, can include social, environmental, include financing terms, operations, etc.
    a. Regional Water Providers (Portland, OR) – 1997: "regionalh2o.org"
    b. Connecticut Water Company – contract operations,
    c. Tripp County Water User District (South Dakota) – 1970. Interconnection agreements
8. Deliverable – toolbox, educational information, research road map.
9. Many partnerships are driven by a crisis situation, but many are driven by business-case needs and efficiency opportunities.

Water Infrastructure and Supply Efficiency (WISE) Partnership – Lisa Darling, Executive Director, South Metro Water Supply Authority

1. Video focused on benefits of WISE partnership. Concepts began way before 2007. Still developing services to all South Metro customers.
2. Established goal supported by: Partnership, Shared Investments, Shared Efficiency. Consider each other party's goals from their perspective and keep those goals in mind as you proceed through the planning process..
3. Stronger voice through regional collaboration.
4. Infrastructure owned/operated by Aurora. Use a capacity charge for capital recovery.
5. Primary partners (Aurora, South Metro WISE Authority, Denver Water) – all had benefits for their operations. Shared goals to achieve the benefits.
6. Strive for equity, provide benefits to all, no one gets everything they want. Compromise and empathy for others in the partnership.
7. Infrastructure takes time and patience to get through funding, planning, delays in partners.
8. Agreements go on for long time; and back-up plans/understandings are needed as contingency plans. Consider operational details in advance and recognize you can't anticipate all the operational details. Have to remain flexible when conditions changes.
9. Breaking a partnership is difficult and conditions make it difficult to exit. Consideration of exit strategies should be contemplated with the group early.
10. Leave the ego at the door – be empathetic, people change.
11. Understand the process to make an agreement develop strong foundation at current time and space. Don't always look forward.
12. SMWSA – understood they had a challenge with water supply and needed resolution for future.

National Western Center – Partners in Redevelopment and Sun Valley – Greg Fisher, Denver Water

1. One Water: building scale, entity/agency scale, and regional scale.
   a. DW building toolbox to help redevelopments achieve objectives.
2. Redevelopments in Metro Area: Sun Valley, National Western Center
3. Finding co-benefits of water developments to ensure benefits organizational mission.
4. Understanding the impacts to the rate payers and common impact, is crucial.
5. Large infrastructure investments could be reduced by exploring partnerships along the way to explore One Water concepts. Ok to take an evolutionary approach to redevelopment and One Water implementation.
6. One Water can be implemented at three scales: building scale (e.g., DW central campus redevelopment), district scale (e.g., National Western redevelopment), or regional scale (like this group is discussing). Regional development of projects provides better return on investment and has benefits that transcend our collective/shared customer bases. It can be expensive to implement, so we should look for co-benefits.

7. A good model for scalping plants – Aurora Sand Creek WRF.
8. Holistic look at water / wastewater infrastructure across Metro-area for shared benefits – water quality, infrastructure reductions, solids/energy.

Chatfield Reallocation – Tom Browning

1. Chatfield expansion project – regional effort to increase volume, efficiency and uses of reservoir.
2. Partnership of local, regional and National groups to complete the project. Includes environmental groups.
3. Challenges: cost control, financial equity during construction period, survey differences and earthwork requirements, existing practices or operational constraints (storage requirements), lengthy permitting and study period to gain buy-in, Legal aspects, Media inquiries
4. Opportunities: improved quality of life, close water resources gap, public amenity
5. Did work in other parts of Water basin to improve environmental benefits in a whole – looking at bigger ecological impacts and not "isolated" to reservoir only.
6. May need to do things that were not expected and maybe controversial (tree-cutting). Each entity will have "must-have" and "nice-to-have" requirements for the project.
7. Media message can change and present an inaccurate representation of what is going on with the project. As a team, learn how to educate each individual management team and work with press/media to spin positive value based messages.

Project Updates from Partners

Grant Update – Dan DeLaughter

- WSRF grant proposal was presented to Metro Roundtable for background information - formal vote will occur in February.
- Carollo will be grantee, L/E will be applicant. Other utilities can be third party contributors. Not asking for cash match, just in kind contributions. There could be a future task where we do some geospatial analysis at conceptual level.
- CWCB wants commitments of in-kind by Thursday, would be helpful if L/E had them by 1/31.
- Dan will send out the scope that accompanies the grant application.

Meeting Summary

SWIFT2

***S**outh Platte **W**ater **I**nfrastructure **F**rom **T**oday creating **S**ustainable **W**ater **I**nfrastructure **F**or **T**omorrow*

February 22, 2018
1:30 to 3:30 p.m.
Littleton/Englewood Wastewater Treatment Plant

ATTENDEES:

LEWWTP – Blair Corning, Dan DeLaughter, Kurt Carson, Jennifer Doane, John Kuosman
Denver Water – Sarah Dominick
MWRD – Lisa Hollander, Dawn Ambrosio
GBSM/Carollo – John Rehring, Inge Wiersema (via tel.), Miles Graham
South Metro – Chris Muller
Aurora Water – Alicia Dupree, John Murphy
Roxborough – Barb Biggs
Brown and Caldwell – Cindy Paulson

Presentation on the One Water LA 2040 Plan – Inge Wiersema, One Water LA Project Manager, Carollo Engineers

1. See presentation slides (appended to this meeting summary).
2. Los Angeles is facing 500K+ population growth by 2040, climate change, dependence on imported water – these add up to water supply risks.
3. City also set proactive goals such as source 50% of water locally by 2035. Reduce imported water purchase by 50% by 2025. Currently, 80-90% of water is imported.
4. Set a good vision statement up front with an integrated framework for managing water resources. Vision to close the one water cycle. Need to break institutional silos to make this happen - collaboration is the key to breaking down institutional silos between agencies with water responsibilities within the City of LA.
5. Steering committee consisted of 14 city departments and 6 regional agencies. Also involved an Executive leadership, stakeholder w/s, community events, NGOs, business community, and academia to do planning. Steering committee picked based on people with enough authority and decision making power to contribute and make decisions on behalf of the agencies they represent. Steering committee has evolved along the way, and ensured that it includes management, mid-management, and executive level positions in addition to staff.
6. Challenges and Solutions:
    a. Schedule - large consultant team, dedicated task managers, frequent meetings, more time - slowed down
    b. Communications - consistent core team, multi-level meetings, consultant PM in city office 2+ days/week, diligent record keeping
    c. Multiple Agencies working together at once - understand perspectives, joint RFP/scope development, work the org chart, patience and have fun!
    d. Long-term alternatives analysis included portfolio evaluation approach with themed portfolios and identification of preferred portfolio implementation. Created schematics

for each conceptual project, quantified rough costs and supply amounts that would be achieved.

e. Stakeholders developed alternatives rating criteria (economic, resiliency, implementability, environmental). City staff and external advisory ranked 27 options, then combined options into portfolios.

7. Big Successes:
    a. Engage Executive Management via Strategic Planning Group (not the Steering Committee)
    b. Development of Guiding Principles Report with the One Water Vision
    c. Aggressive Goals from Sustainability Plan created common sense of urgency
    d. Stakeholder workshops with focus on active participation elements
    e. Frequency of meetings and variety of groups to promote good communication and expedite decision making
8. Things to Do Differently:
    a. Avoid monthly meetings with focus on monthly updates vs advisor role
    b. Minimize stakeholder meetings with focus on info sharing (ppt vs. participation)
    c. Consider designating a chair for the Advisory Group to obtain a point person in case discussions are compromised by a few members
    d. Develop cost sharing agreement by lead agencies prior to the project, not during
    e. Avoid creating too many evaluation criteria as it can dilute results too much (similar scores between alternatives)
9. Q&A
    a. Did the stakeholder process delay of about a year come as a relief or more of a concern? Some agencies wanted to slow the process down, some wanted to hurry up. Large stakeholder groups take time. But you also have to keep things moving to maintain momentum. 18 months was very aggressive for this effort.
    b. When was community engaged? From the initial phase, including advisory group and input on guiding principles. Recycled Water Advisory Group weighed in on issues like IPR. Some had already been working for years prior to initiation of One Water 2040 LA project. Lots of public events as well; including neighborhood council meetings and presence.

Presentation on the Blueprint for One Water ("Implementing One Water Management: How to Get There") – Cindy Paulson, Chief Technical Officer, Brown and Caldwell

1. One Water Blueprint started with survey responses from 800+ water professionals, 10 one on one interviews, 2 day workshop with 35 water professionals
2. Holistic, resiliency, integrated, right resource for the right us -- key words from utility participants; responses varied a bit depending on the location/focus of the respondent.
3. Important to define some boundaries around it, as it can become all-encompassing and difficult to manage.
4. Consider focusing on the most relevant or important portions of the one water cycle to your issues, otherwise too complex to analyze and tackle.

5. NYC case study:
    a. Developed guiding principles as an outcome of day 3 of a 3 day workshop.
    b. Common ground seemed to be the challenges they deal with as an agency, particularly new people coming into office in the mayoral cycle. The group decided One Water could be a unifying effort that provides continuity.
6. Bay Area Regional Reliability (BARR) MOU case study:
    a. 8 agencies motivated by 1) shared infrastructure for efficiency, and 2) by reliability. One single MOU is much more powerful and efficient than 8 individual MOUs. Each agency contributed about $200K to the effort. Details available on BARR website.
    b. Guiding principles set the tone, e.g., balanced, transparent, regional, equitable, inclusive, work cooperatively, etc. GMs were worried about what they had to give up; staff level saw the potential benefits. Having meetings of just the GMs helped keep them motivated and engaged, they'd share things they would not share openly in staff level meetings, but then would debrief at the staff level.
    c. One of first outputs was a BOR grant-funded Drought Plan developed via a BARR Drought Task Force. Drought Task Force had lots of interest from Environmental groups, had to ask them to be representative for their interests and communicate back to their groups. Drought Task Force included environmental, business, environmental justice, and public policy/planning representatives.
    d. Project options included studies or infrastructure: Interties, Storage, Treatment/Supply, and Operations (Automated Meter Infrastructure etc.) - developed fact sheets for each one. See documents at www.bayareareliability.com.
    e. In public forum, 7 member reps spoke on behalf of the group, some with focus on one topic or aspect, but spoke as a group.
7. What works well:
    a. Need to have a catalyst to drive and maintain motivation. Show tangible progress (grants, deliverables, etc), and create new “chapters”
    b. Set the foundation so that common ground is established early. Having a single MOA signed by all agencies is more effective than separate agreements between different partner agencies.
    c. Need someone (BARR had one utility) to serve as a PM, can't do everything by committee. Outside facilitation - need someone in the mix enough who knows the ropes enough but has enough perspective to guide the process.
    d. Multiple tiers works really well. Staff really want to be involved, but management and outside consultants can have a different level of conversations, then keep staff informed.
    e. Design Task Forces/other working groups very carefully to ensure the right mix of representation. Set the expectations early.
    f. Try to convince partners that they don’t necessarily need to recoup all costs invested in a project that will be used cooperatively. Focus on future benefits of cooperation.
    g. Entities start to be self-regulating if they all have a perceived benefit in the project. They will defend the project, process, and the partners from criticism if it is set up well.
    h. Entities made a real commitment to each other to share information about deals – at least enough info to avoid surprises and develop mutual trust.

Meeting Summary

SWIFT2

***S**outh Platte **W**ater **I**nfrastructure **F**rom **T**oday creating **S**ustainable **W**ater **I**nfrastructure **F**or **T**omorrow*

Mini Panel - Blueprint for One Water and Denver Water Perspective – Cindy Paulson (Brown & Caldwell) and Sarah Dominick (Denver Water)

1. Denver Water's Integrated Water Resource Plan has been very internally focused, not much of a stakeholder process in the past. That will likely change in future updates. Much of that is driven by permitting. Attendees noted examples of stakeholder participants using detailed permitting info against local projects as the project developed.
2. Sarah noted that crafting the vision and goals has been important for DW's IWRP. Adaptive planning is also valuable -- things change and can be unpredictable.
3. Tiered engagement works well -- management, staff, task force, and maybe public engagement of some sort. Here, should John K and Barb B not be participating in these monthly meetings?
4. Denver Water conducted a "clean slate" exercise, and developed about 6 takeaways, some visionary, and some actionable.
5. We should start to look at developing some guiding principles to engage management-level participation from all agencies if we want to form a management level group to parallel these monthly meetings -- but thus far we have not defined any tangible goals or actionable details.
6.
7. BARR projects were not prioritized, they were "qualified" to get on the list. To prioritize them would pit them against one another and be counter-productive to the partnership approach.
8. Next steps? What are the expectations of each of the 6 agencies here, with some level of transparency. BARR compiled info on water supplies from all 7 participants, with a go-by to make sure they got consistent information.
9. Be flexible and adaptable.
10. SharePoint or OneNote or similar site is important for info sharing between the participants is key.

Participating Agencies: Setting our Goals and Identifying Common Needs and Potential for Infrastructure Sharing

1. Upcoming months' meetings: Presentations from participating utilities should include a discussion from each utility on:
    a. Who we are, how do we fit in as a service provider, what is our decision process.
    b. Major facilities overview - map or list with major facilities, interconnects (whether active or not actively used) and partnerships, "pinch points," and opportunities (excess capacity etc.?)
    c. Business drivers for your utility - financial, regulatory, service drivers, challenges and opportunities
    d. Key projects going on right now - planning initiatives and design/construction projects. Timing of major decision points.

2. Blair will identify which utilities will present in March and which will present in April. John Kuosman will take the lead in developing an example for L/E WWTP.
3. Discussion about WWTP capacity – Barb highlighted new regulations that disallow any new discharge unless TMDL has been prepared and implemented. Previous discussions around amending Reg. 22 to allow facilities to be flexible for current treatment requirements while maintaining right to utilize future capacity.
4. Metropolitan Water Supply study from mid-1990s -- could there be some ideas from that we could pull? Sarah Dominick will look to see if she has an e-copy she can circulate among the group.

Meeting Summary

SWIFT2

***S**outh Platte **W**ater **I**nfrastructure **F**rom **T**oday creating **S**ustainable **W**ater **I**nfrastructure **F**or **T**omorrow*

March 22, 2018
1:30 to 3:30 p.m.
Metro Wastewater Reclamation District

ATTENDEES:

LEWWTP – Blair Corning, Dan DeLaughter, John Kuosman
Denver Water – Greg Fisher
MWRD – Theresa Stone, Dawn Ambrosio, Jim McQuarrie
GBSM/Carollo – John Rehring, Dave Pier, Steve Coffin
South Metro – Chris Muller, Lisa Darling
Aurora Water – Alicia DuPree, John Murphy, Sarah Young
Roxborough – Barb Biggs
South Metro – Lisa Darling

Littleton/Englewood WWTP Goals – John Kuosman, L/E WWTP General Manager

- LE rebranding with new logo and mission statement will be launched on Earth Day on April 20, 2018.
- Opportunities to improve the watershed through Denver as the largest WWTP upstream of the MWRD Hite Facility.
- Win-Win Opportunities to reduce costs and beneficially use community resources.
    - Local industry by-products, phosphorus and heat recovery, leverage capacity, reduce chemicals and energy use, distribute water as renewed source.
- Owned by bi-Cities. Managed through supervisory committee.
- Challenges facing LE – Nutrients, Aging infrastructure, O&M Costs/Staffing, Regional Opportunities, Resource Recovery,
- Infrastructure upgrades in the future – forecasting $10M a year in the near term and up to $40-60M a year for the Regulation 31 limits.
- Goals for SWIFT2 Collaborations
    - Leverage existing infrastructure
        - 50mgd Permitted Capacity / 34mgd in Service Area / 22mgd current flows
        - Extend timeframe for implementation of Regulation 31 and 61.
        - Regulation 22 – discussions between MWRD and CDPHE looking to change the capacity threshold and design criteria for designing current facilities to meet a narrower term capacity limit instead of the ultimate capacity.
        - Potential Partners to use some of the capacity – MWRD (Bear Creek interceptor), Centennial W&S (return flows cirtical); Roxborough W&S (Dominion W&S – return flows critical).

            In these opportunities LE could be the liquid stream treatment and return flows to the S.Platte while solids could be delivered downstream to the MWRD-Hite facility for a regional solids treatment approach.

- Expand benefits to customers
  - Relocate discharge point to create more flows in the river. Benefits: improved recreation, river-centered commerece, river stabilization, aquatic health.
  - Drought resilience – consistent river flows, wet year storage in reservoir. (return pipeline from LE to Chatfield equals about 7-8 miles).
- Identify new opportunities to serve the region
  - Regionalized WWTP – increasing flows to LE and decommission other WWTPs
  - Regionalized Reuse Treatment – DW currently 60% of LE flows, closer to storage reservoirs, proximity to extensive distribution networks, customized water quality.
  - Regionalized energy and nutrient recovery. (sending solids to MWRD)
- Produce Net Positive Environmental Benefits
  - Watershed modeling informs regulatory approach – nutrient sources/treatment and available capacity treatment to reduce common ratepayer costs, seasonal operations and dilution factors.
  - Seasonally re-wet SP river between Chatfield and our Plant
    - Improve aquatic life, drinking water T&O could be improved during low-flow seasons, river stabilization and health.
  - Temperature benefits
    - Could chatfield be used as a cooling source for effluent temperature regulations.
- Smart Investments for Collective Rate Payer
  - Minimize new investments
  - Regional, not facility capacity evaluations.
  - Operating Efficiencies – leverage cost centers into single points.
  - Custom water quality for emerging regional needs
  - Financing options at this scale
  - Public education and communications.

- Potential Projects:
  - Interconnect with MWRD – send solids to MWRD
  - Renewed Water Pipeline – LE send return flows to vicinity of Chatfield
  - Regional Reuse Treatment Facility
  - Open to Creative Possibilities

Metro Wastewater Reclamation District – Dawn Ambrosio, Strategy and Communications Manager

- Metro District is built on partnerships; considers itself a key steward of the South Platte River. Focus in recent years has shifted toward resource recovery. Facilities include Transmission System, Robert W. Hite Treatment Facility (RWHTF), Metrogro farm, and relatively new Northern Treatment Plant (NTP). Only three lift stations in the transmission system.
- Pinch points:

  - RWHTF is landlocked and at 90% of capacity. River "restarts" at RWHTF, opportunities enhance flow at different points?
  - NTP is at 4.2 mgd vs. 28.8 mgd capacity, with advanced treatment capabilities. Has visitor center and educational exhibits. Smaller facility on larger site; learning how to operate smaller-flow facility.
  - Metrogro farm constrained by application rates. Waitlist of farmers wanting to use biosolids.
  - Aquatic life habitat improvements in the river constructed in four phases since 2008. Resulted in measurable improvement in aquatic species populations. Looking for additional opportunities, wrapping into facility planning for the future.
- How Metro District can help as a partner?
  - Drivers to go beyond Clean Water Act – following the Utility of the Future Blueprint
  - Innovation focus via Jim McQuarrie's Strategy and Innovation group, not limited strictly to technology
  - Strategic Plan adding new focus for continual improvement across all departments
- Drivers for the District include regulatory drivers, as well as sustainable solutions such as energy recovery and resource recovery. Make smart investments and good timing of those investments. Financial drivers include stable rates, strategic thinking in capital planning.
- Regional partnerships and projects:
  - Denver Water recycling plant optimization study with DW and Xcel Energy
  - National Western Complex heat recovery study with Denver, Colorado State University, and Denver Water
  - Second Creek Interceptor to NTP with Aurora, Denver, SACWSD, and Brighton
  - Phosphorus Initiative and Peracetic Acid Disinfection at RWHTF
  - Aurora Sand Creek Water Reuse Facility solids treatment at RWHTF
- Recommendations for SWIFT2: Strategy and communications focus. Provide data and information to SWIFT2 group, integrate this with Enterprise Plan and 2018 and 2023 Facility Plans with urban water infrastructure.
- Jim McQuarrie suggested that a SWIFT2/regional focus changes perspectives. If you're simply focused on meeting permit limits, peracetic acid helps with water quality goals beyond simply meeting pathogen goals.

City of Aurora - Sarah Young, Planning Services Manager

- Aurora rebranding its image and employers with Anschutz Medical Campus, Stanley Marketplace, and other community amenities.
- Planning area boundary includes areas that the City considers potentially appropriate for future annexations, including and beyond what is currently in City boundaries or annexed. Annexed area is only about 50% built out.
- Wastewater collection system largely feeds Metro water reclamation facilities except a 5 mgd reuse facility used for irrigation based reuse.

- Pinch points and opportunities:
    - Northeast wastewater conveyance: Gaylord Hotel is spurring development and flows, which will be served by Metro Second Creek Interceptor by 2023. Need to expand lift station (LS) improvements in the interim. Avoiding significant capital upgrade to High Point LS upgrades ($15M) that would function only 5 years by building a segment of Second Creek Interceptor early and sharing capacity in existing City and County of Denver downstream LS until remainder of SC Interceptor is built.
    - Southeast Aurora: Leasing capacity with ACWWA and ECCV in existing lines.
    - WW Master Plan has been developed in GIS with CIP project cut sheets georeferenced to locations in GIS. Some of the far eastern developments will have interceptors built by the development community.
- Business drivers / challenges:
    - Keeping up with cyclical nature of development – timing improvements vs. demand for infrastructure
    - Extending collection system further east; options other than upsizing interceptors?
    - Infrastructure sizing relative to developer projections and timing and flows after conservation
    - Funding/reimbursement/CIP – how to pay back developers that size for regional flows when they only need to size for their own contributions; asset management replacement timing.
- Front Range Asset Management Council started by Steve Simon, Principal Engineer for Aurora Asset Management. 303-739-7374, ssimon@auroragov.org. Not exclusive to wastewater.
- Flows at 68 gpcd used for planning now, which is the State's recommended number. Aurora monitoring from recent wastewater master planning shows empirically that Aurora flows are typically even lower than that. Jim McQuarrie noted that the SWIFT2 effort is a good opportunity to challenge the assumed planning unit flow numbers.

Wrap-up/April Meeting Logistics

- Theresa Stone: Is there a timeline? Blair clarified that we are exploring concepts and overall feasibility of infrastructure sharing. John Kuosman noted that this first phase runs through late summer, where we understand the potential feasibility and understand if there is benefit in an IGA or MOU to move forward toward more in-depth analyses of external partnerships. Theresa asked if there are set criteria to judge that? John noted that it would be a more formal agreement in terms of agreeing to meet on a certain frequency, etc. We have set time up in future workshops to identify common missions, values, etc. Seems early to set specific criteria at this point. But perhaps there are opportunities to recognize the forthcoming need to treat to near-drinking water standards, for capacity improvements, "re-wetting" the river, etc., where there can be economies of scale of collaborating and regionalizing – to serve as an "elevator speech" for board members.

Meeting Summary

SWIFT2

South Platte Water Infrastructure From Today creating Sustainable Water Infrastructure For Tomorrow

- Greg asked, are there other urgent decisions that individual organizations will be making, where we'll miss an opportunity if we don't act soon? Like Aurora's example of the lift stations that need to be expanded if we don't get the interceptor built soon. John noted that it takes so long to plan, design, and build infrastructure, the time to move discussions forward is now – 5 years passes quickly. Sarah noted that some of their decisions are located in development areas where other utilities are, unfortunately, not geographically located.
- Jim noted that the group might be interested in hearing more about the history of the SCWRF and its future. Sarah noted that it is being considered now as part of Aurora's non-potable water strategic planning.
- Dan asked about salinity/salt loading and proposed grant for SMWSA (grant was approved). This is a huge issue for SMWSA providers. SMWSA will share report, but it will be more focused on RO treatment vs. blending to meet 10-year guarantee on TDS levels. John noted that there is relevance to the SWIFT2 effort, in that every pound of salt we add into the water cycle will end up somewhere and will need to be managed.
- Next month: Continuation of "pinch points and opportunities" dialogue with the water providers. SMWSA, Denver, Aurora, Roxborough. Blair will send out a reminder with the bullet points for what the presentations should cover.
- GIS to be compiled by Denver Water: Each entity to identify point person for GIS, and Greg Fisher to develop data sharing purpose and agreement to explain the rationale for sharing each entity's data. Intent is to show existing infrastructure on a common platform.
- Next month meeting to be moved to 4/19/18 at Aurora Municipal Center.

Meeting Summary

SWIFT2

South Platte Water Infrastructure From Today creating Sustainable Water Infrastructure For Tomorrow

April 19th, 2018
1:30 to 3:30 p.m.
Aurora Municipal Center

ATTENDEES:

LEWWTP – Blair Corning, Dan DeLaughter,
Denver Water – Greg Fisher, Sarah Dominick
MWRD – Lisa Hollander,
GBSM/Carollo – John Rehring, Dave Pier, Jason Assouline, Steve Coffin
South Metro – Chris Muller, Lisa Darling, Kara Scheel
Aurora Water – Alicia DuPree, John Murphy, Sarah Young, Elizabeth Carter, Dan Mikesell, Alexandra Davis
Roxborough – Barb Biggs

Aurora Water – Alicia DuPree and John Murphy

- Water Rights – surface water, cherry creek well fields, and have access to deep aquifer (Denver Basin). Firm yield = 63,000 ac-ft /year.
- Rampart Reservoir serves as main source of raw water.
- Prairie Waters – long-term drought resistance, reliability of supply, renewable supply. Partnership between Aurora, Denver Water. Current capacity = 12 mgd with existing well field. Expandable in future with additional infrastructure.
- Water Treatment – interconnections with Denver Water, 7 with ECCV for emergency uses.
- Integrated Water Master Plan completed in 2016. Updates every 5-years.
- Enough treatment capacity through 2070.
- Water Supply / Storage – Wild Horse Reservoir (upstream of Spinney) – completed in mid-2020's. Box Creek Reservoir, North Campus Master Plan, investigating Aquifer Storage and Recovery.
- Rampart Expansion could be a bottle neck in-terms of conveyance to Aurora. Maintenance and age for the line are a concern along with environmental and easements. Sequencing of pipeline expansion could use parallel line or upsize existing. Challenges with easements and alignment.
- Anticipating significant growth on NE portion of City, and have plans for T&D grid expansion. WTPs are all on south side. Enough WTP capacity through 2070, but water supply capacity depends on demand and climate change scenarios. So far, tracking on the low end of the demand scenarios.
- Non-potable Strategic Plan underway. Examining how to most efficiently use non-potable supplies and meet demands. How do the regulations impact the Sand Creek WWTP? Not a pressurized system. Need year-round demand to operate the plant in the winter.
- Business drivers include accommodating growth - not landlocked like many communities/utilities on Front Range. Be efficient with supplies. Install T&D ahead of growth but

not too early -- development is occurring in remote areas of the City. Flexibility and redundancy in the system, including increasing focus on proactive asset management.

South Metro Water Supply Authority – Chris Young and Lisa Darling

- Serve ~ 300k currently in 2050 ~550k served
- WISE Phase 1 Infrastructure 2017-2021- to PWSD RHWTP. Can take up to 8 mgd from ECCV Willows Wells and Denver Water from west into the west end of Western Line and up to 15 mgd from Aurora potable distribution system.
- ACWWA, Cottonwood, ECCV are all breakpoint to free chlorine, others are all on chloramines like Aurora and the WISE system.
- Meridan uses water for ASR.
- WISE Western Pipeline – have additional capacity of 15mgd (pinch at High Point at Ireland Way).
- Phase 2 (2021 – 2030). Capacity at the Binney WPF could be up to 30mgd (blended or non-blended). Past 2030 all could be non-blended water.
- Salinity management for Prairie Waters source. Received a grant to look at different options for the addressing the salinity challenges.
- Opportunities: ASR Facilities, Regional Water Storage Facilities, Salinity Management, SPROWG,
- Water Supply Challenges – 30,000 acre-ft/year demand needed near end of build-out.
- Storage Options – Storage Study segmented the amount of storage gap (LSP storage gaps from Greeley to State-Line).
- South Platte Regional Opportunities Working Group (SPROWG) – Maximize Use/Effectiveness, Minimize traditional agriculture impacts, identify regional opportunities.
    - Project Concepts: Three storage system along the S. Platte could achieve 50,000 AF/year. Capture of reusable effluent is critical for making this work.
- Challenges: regulatory Issues/Drivers – Lead and Copper Rule, Customer Service, and Financial Controls and Rates.

Denver Water - Greg Fischer and Sarah Dominick

- How do utilities better sequencing capital investments now and provide enough flexibility in the future for managing growth/new demands on the system. Long Range Planning evaluations.
- Evaluating the best approach for recycled water systems. How to leverage the investment previously made.
- At 30% design on 150 mgd new Northwater Treatment Plant recently reduced the initial phase to 75 mgd with expansion capability to the 150 mgd build-out capacity. Maybe the next investment is there, maybe it is direct potable reuse - leaving options open in light of continuing efficiencies, and uncertainties in future demand.
- Gravel Pits provide storage downstream of Denver.
- Challenges: Climate change (supply/demand), growth (population with less use and types of development MF vs. SF), Colorado River (water rights), Regulations (water quality, recycled water quality, etc.), and uncertainty in future.
    - Need to:

  - Develop more scalable solutions
  - Find a path for reuse - possibly through partnerships
  - Continue to pursue cooperative projects
  - Create short term capacity sharing agreements
  - Research our customers - water use patterns and perspectives
  - Identify and plan for uncertainty
- Water usage (indoor) – State Law decreasing amount of water for flushing. Outdoor uses – smaller green areas. Large Buildings use cooling towers which may impact water demands.
- Density of Metro Areas is reliant on good transportation networks.
- Future Growth: Scalable options with flexibility, path for reuse, cooperative projects, short-term capacity sharing arrangements, Research our customers (patterns, perspectives), Identify uncertainties and plan for those uncertainties.
- DW has extra capacity in winter time flows.
- Master Planning on a continuous basis versus a 5-year approach.
- Emergency inter-connects with other water providers. Provides flexibility for other water providers.
- Reusable supplies – 15% from SPWRP, 85% MWRD.
- Excess water Reusable Supply equals 10,000AF/year
- Modularity critical for planning to meet future conditions; however, make steps more implementable (20 years vs. 50 years).

Roxborough Water & Sanitation District

- WTP – 4MGD Roxborough. 2MGD – Dominion. Reserved future capacity = 2MGD.
- Provides water to Centennial through Aurora Water.
- 1 EQR = 100,000 gallons on annual basis
- Douglas County interested in sewer service to area instead of septic.
  - Improved water quality, improve economic development.
- Wastewater goes to SPWRP plant. 100% renewable water.
- Serves as contract operations for Dominion. Dominion looking at updates to the wastewater plant to meet future regulations.
- Water efficient - normal restrictions are the same as Aurora's drought restrictions. Average use is 3000 gal/mo.
- Looking to potentially extend service to Louviers.
- Replacing irrigation at Arrowhead GC and Roxborough Park with renewable supplies would save 225 AF/yr of potable water supply.
- They have ~80 AF of surface water rights that are unused.
- Roxborough has a lift station that pumps to South Plate Water Renewal Partners Treatment Plant. Lockheed Martin pumps domestic WW to Roxoborough's lift station.
-

Meeting Summary

SWIFT2

South Platte Water Infrastructure From Today creating Sustainable Water Infrastructure For Tomorrow

Data Sharing Agreement/GIS Plan and May Meeting Input

- DW legal / data sharing concerns – confidentially,
- Greg indicated would have a draft of agreement out next month for the review with other Utility legal counsel.
- Information: capacity, current use, future planned use, identify the opportunities, infrastructure aspects (treatment / pipelines),

Action Items:

- Send March and April presentation to the Blair/Dan.
- Carollo/GBSM to facilitate the discussion for next meeting.
- 1999 Metro Water Supply Study
- Flows in Chatfield reallocation – Trout Unlimited (Bill Miller, Wright Water Engineers)
- Dave Akers/Dave Clark – nutrient training (Water Quality Forum Meeting).
- Blair or Dave to send out doodle poll to reschedule next meeting.

Meeting Summary

SWIFT2

***S**outh Platte **W**ater **I**nfrastructure **F**rom **T**oday creating **S**ustainable **W**ater **I**nfrastructure **F**or **T**omorrow*

June 6, 2018
1:30 to 3:00 p.m.
City of Englewood: Anderson Room, First Floor

ATTENDEES:

SPWRP – Blair Corning, Dan Delaughter
Denver Water – Sarah Dominick
MWRD – Lisa Hollander,
GBSM/Carollo – John Rehring, Dave Pier, Miles Graham
South Metro – Chris Muller, Lisa Darling, Kara Scheel
Aurora Water – Alicia DuPree,
Roxborough – Barb Biggs

SWIFT2 Mission and Goals

- Concepts still seem nebulous to members of the group.
- Water rights and other factors in water supply could constrain future projects.
- If obstacles for collaboration remain, a minimum effort would be to further discussions in the workgroup regarding upcoming projects.
- Data sharing and GIS mapping seemed to gain traction.
- The management team at Bi-Cities is supportive of regionalization efforts.
- Should develop vision statement and logic for why group (1 page) infographic type – developed by GBSM.
- Final report, which will include the vision statement, could be shared with management and executive teams based on each entities desired efforts.
- Upcoming schedule includes deliverables to CWCB per grant requirements. August grant application may not be realistic. Chartering could affect how we go after a grant and who cost-shares; this could require legal support.

Projects to Explore the Potential Benefits

- Governance issues for shared funding of projects, which may require additional legal documents for continued workgroup involvement.
    - Questions: is future funding needed? What would be the scope and target of future efforts?
- Regional Planning Criteria:
    - Workgroup had interest in developing per Capita Use Criteria to share (water demands and uses by size and new/old construction).
    - Shared data, service area mapping, and projections would be something to continue moving forward. Denver Water and Aurora have projects in the works to really update the actual flow data and share based on AMI installations and updates.

  - Regulation 22 going through CDPHE process. Would recommend this effort goes through the wastewater utility council instead of the SWIFT2 group.
- Aquatic Habitat Enhancements
  - Increase return flows / storage – is this concept viable based on the water rights issues associate with who owns the water. Interest from State and possible Greenway Foundation to improve aquatic habitat enhancements along Chatfield to SPWRP.
    - Denver Trout Unlimited doing a water management / supply along the South Platte.
  - Nutrient Trading – this would be a low priority for the group.
  - Storm Water – may still be a little early and lower priority in the efforts.
- Water Supply Resiliency Planning
  - WISE, Aurora, Roxborough firming – limited interested in this effort as ongoing discussions happening between specific utilities.
  - IPR/DPR reuse "hub" – would be interesting effort to continue looking at options and ideas to develop. IPR - could help augment reallocation pool, which is only projected to fill "naturally" with junior rights once every three years. There's interest in the IPR/DPR concept in the Chatfield area with other utilities not currently participating in SWIFT also.
  - Water Storage – part of SPROG storage. Not consider for future evaluations.
- Wastewater Treatment Efficiencies
  - SPWRP expansions - regional liquid treatment: for example, some higher density areas along Highway 85 off septic. Dominion wants to keep treatment of their WW in the basin so they can keep/reuse return flows.
  - Regionalization of solids facilities. Would free up space at SPWRP, maybe allow potable reuse at space-constrained SPWRP. Some interest from Denver Water with reuse of their water too. SPWRP needs to pay back their biogas project, will take several years. Keep it on the list for now.
  - Basin wide nutrient trading and integrated permitting. Overlaps with previous discussion - has some potential benefit, but history in the state shows a lot of implementation hurdles. More appropriate topic for Barr Milton Watershed.

Data Sharing

- Sarah sent out a Denver Water non-disclosure agreement to allow data sharing between entities.

Wrap-up and Next Meeting Date/Location and Goals

- Next meeting is June 28th.

Meeting Summary

SWIFT

South Platte Sustainable Water Infrastructure For Tomorrow

June 28, 2018
1:30 to 3:00 p.m.
City of Englewood: Community Service Room

ATTENDEES:

SPWRP – Blair Corning, Dan Delaughter
Denver Water – Greg Fisher
MWRD – Lisa Hollander, Dawn Ambrosio
GBSM/Carollo – John Rehring, Dave Pier, Miles Graham
South Metro – Lisa Darling
Aurora Water – Alicia DuPree,
Roxborough – Barbara Biggs

Data sharing update – Greg Fisher

- S. Metro and MWRD have sent comments back to Sarah
- Aurora has some legal questions to confirm with DW.
- SPWRP is still reviewing the document
- Carollo has provided comments back to DW.
- Need to send NDA to Roxborough
- Comments due by July 15th.

Mission / vision statement – Miles Graham

- Change the name and brand. Considering – South Platte SWIFT will be used moving forward.
- SP Basin Implementation Plan – has some good maps to look at for the Fact Sheet.
    - Show the overlap of service area? How to show water and wastewater topics
    - Greg to lead the map developing showing the service areas.
    - Different map to show each service area – maybe include in the report or in the data sharing / flows and loads information.
    - Others to send shape files or service area boundaries to Greg at Denver Water.
    - SWIFT projects really only focus on high-level conceptual direction and collaboration (an incubator of ideas). Brainstorming area to launch projects.
    - Feedback from group on goals and objectives will not include SMART goals.
    - Can we boil down to two or three values/objectives.
    - State's Water Plan and Basin Implementation Plan – make the projects aligned with BIP as part of the second page instead of objectives. Maybe add a figure and map to illustrate.
    - Maybe change titles – from Mission / Vision to more "What we are Doing", "Why we are doing it," "How we accomplish it" – something not so charter oriented.
    - Greg mentioned adding "Urban" to the South Platte Basin

- Highlight the last sentence in third paragraph for the effect.
- Add a Chartering session – document in the future.
- Miles will update the fact sheet based on today's conversation and circulate back to the group for further consideration and discussion. Adding visuals would help with communicating this to others outside the core planning group.

Discussion on short-listed projects

2 page fact sheets with

- Regional Planning: per capita use factors; shared data
  - Land use growth patterns would be interesting to lookat
  - Comparison of regional efforts and
  - Endpoint of this effort is publishing projection estimates
  - Value to data sharing between organizations.
  - Benefit of filling the 208 Planning Agency
  - Impacts to infrastructure capacity and future capital planning which impacts the rate payers.
  - Greg Fisher, Alicia to provide
- River Enhancements
  - Aquatic Life and Economic development along the river bank.
  - Timing of return flows is possible and
- Water Supply Resiliency Planning – IPR/DPR Reuse,
  - Need some basic information for the return flows.
  - Value to demonstrate opportunity for augmenting
  - Add the entities that would be interested in the effort.
- Wastewater Treatment Efficiencies – SPWRP expansions, regionalization of solids

- TDS reduction and management – Fact Sheet
  - Some opportunity to evaluate SPRWOG, WISE Study, and other efforts going on.
  - Survey other on-going efforts and highlight.
  - CWCB effort
  - Hold on this until we have more information from other groups.
  - SMWSA has a grant to do a salinity study; could this group add to this to add a more regional element to it? As Brighton has challenges with RO brine, ECCV has spent $Ms on deep well injection, there is a lot we could pull together to see what has been done and see what gaps exist.
  - SPWRP has thought about UV and other process options in light of TDS. Parker is doing chem-P but recognizes the impacts on Cherry Creek TDS.

Reporting and invoicing update

- Dave to develop draft invoice and will request billable hours from others.

Wrap-up and next meeting date/location

- Next meeting is July 26 at Denver Water.

Meeting Summary

SWIFT

***S**outh Platte **S**ustainable **W**ater **I**nfrastructure **F**or **T**omorrow*

July 26, 2018
1:30 to 3:00 p.m.
Denver Water: Conference Room H-115

Attendees: Greg Fisher, Miles Graham, Blair Corning, Barbara Biggs, Lisa Darling, Dawn Ambrosio, Lisa Hollander, Dave Pier, Dan DeLaughter,

Data sharing update – Greg Fisher and other

- Comments on the data sharing agreement are due to Greg by 8/15/18.
- Greg will coordinate with each entity and the respective legal groups to resolve remaining questions or concerns.
- Anticipate having updated Data Sharing Agreement for distribution at the next meeting – 8/30/18.
- Greg to send Barbara Biggs the updated agreement.

Mission / vision statement review – Miles

- Comments due back to Miles on the SWIFT organizational Fact Sheet by 8/15/18.
- Greg and Miles are coordinating on the mapping for the Fact Sheet.
- May want to get better photo's from Greenway or of the S. Platte closer to Chatfield.

Regional Planning Fact Sheet – Dave

- Comments due back to Dave on the Regional Planning Fact Sheet by 8/15/18.
- Participants recommended making the fact sheet more generic and provide more general background/knowledge. The group decided the target audience was the organizational decision makers, utility managers, Boards, Councils, etc.
- Key concepts that need to be integrated into the fact sheet: growth occurring, look at efficiencies between water / wastewater, snap shot of future projects of water demands and potential impacts to wastewater.
- Dave to revise the fact sheet and send out to group by 8/27/18.

Regional Solids Treatment Fact Sheet – Dawn/Blair/Dave

- Dawn indicated MWRD would be willing to contribute to development of a regional fact sheet for regional solids/energy/nutrient recovery fact sheet.
- This fact sheet would not likely impact the water providers.

IPR/DPR Fact Sheet – Rehring/Biggs

- The IPR/DPR fact sheet would consider implications of how IPR/DPR could be regional solution to water shortfalls or could help booster storage as part of the Chatfield reallocation project.
- John to develop a draft fact sheet and send out to the group by 8/27/18.

Meeting Summary

SWIFT

***S**outh Platte **S**ustainable **W**ater **I**nfrastructure **F**or **T**omorrow*

Progress Report and Status:

- Invoicing – Carollo will submit an invoice for time and services through mid-August.
    - Dawn confirmed MWRD does not want to include in-kind hours in the grant accounting.
- Progress Report and Final Report
    - Needs to be submitted in October.
    - Dave will develop a draft for review at the September meeting.

Wrap-up and next meeting date/location

- Next meeting is Aug 30th, Blair updated the invite.
- Location –

Meeting Summary

SWIFT

***S**outh Platte **S**ustainable **W**ater **I**nfrastructure **F**or **T**omorrow*

September 27, 2018
1:30 to 3:00 p.m.
Englewood Civic Center

Attendees: Dawn Ambrosio, Blair Corning, Dan DeLaughter, Alicia DuPree, Miles Graham, Steve Coffin, John Rehring

Data Sharing Update

- Metro has submitted its agreement to Denver Water and has sent GIS data to Denver Water.
- Aurora needs one more approval on the agreement; full approval expected in 1-2 weeks.
- SPWRP agreement is still in legal review.
- Blair will check with Greg Fisher on status of each member's agreement.
- Once agreements are in place, the intent is for each partner to send a GIS file of water and wastewater and reuse infrastructure to Denver Water, then Denver Water will compile all data into a single GIS file.

Final Report Development

- John reviewed the overall plans for the report that is due to CWCB as part of the grant requirements.
- The report will include two Idea Capture Briefing Memos that summarize key elements of the workgroup's efforts and findings, drawing from meeting minutes. Idea Capture Briefing Memo 1 will summarize the first four meetings, which established practices that guide success for infrastructure sharing ideas along the urban South Platte River basin and reviewed specific perspectives of SWIFT partners' wastewater and water infrastructure systems. Idea Capture Briefing Memo 2 will summarize the remaining SWIFT collaboration meetings, which focused on specific opportunities and a path forward.
- The report will also include the SWIFT overview fact sheet, any opportunity-specific fact sheets developed as part of this process, and an overview of how the project team completed the scope of work requirements of the CWCB grant.

Focus Area Structure Workflow and Fact Sheets

- The group questioned whether the GIS data sharing map will be completed in time to include it in the CWCB report, or if our end point for the CWCB report will be the data sharing agreement. This will depend on how quickly the partners can finalize the agreement reviews and get data submitted to Denver Water.
- John and Miles reviewed the new opportunity flowchart with the group. The group provided positive feedback on the structure and how it organizes and focuses many of the recent discussions of the SWIFT partners.
- It was noted that the "opportunities chart" may not need to go down to the bottom row of detail on the overall "about SWIFT" fact sheet.

- Some participants expressed concern that some utility managers could lose focus on the overall goals by focusing on the level of detail at the bottom of the opportunities chart (e.g., climate change, growth/boundaries, etc.). But some in the group also identified that there may be benefits in working together on those issues – i.e., the next level of regional planning is basin implementation plans or state level planning, which tends to be fairly abstract, not specific to utilities' needs and plans. Issues-based or Regional-based initiatives could be subcommittee based. Not every SWIFT utility needs to be part of each SWIFT project or process, but could be apprised on those groups' activities via regular (perhaps quarterly) meetings.
- It was noted that "geographic" focused initiatives sounds like GIS; consider renaming to "locational" initiatives or other alternate language.
- SWIFT Overview Fact Sheet comments:
    - Replace map with SWIFT members' service areas, add Chatfield Reservoir.
    - In conjunction with meeting minutes distribution: Ask for members to provide GIS coverage of service area boundary for this map. This will show some overlap, but that will help reinforce the need for and benefits of collaborative planning.
- Data Sharing Fact Sheet comments:
    - Dawn will gather data from the Metro Hite Facility on water quality and flow to support creation of a chart where there is now a blue box chart placeholder.
    - **Carollo to revise text at end of the fact sheet:** costs and effectiveness of treatment is more about loading than flow now, and it can cost more to treat a given amount of flow due to concentrations. Discharge standards are getting more and more stringent due to downstream uses via the One Water cycle.
    - **Carollo to improve fact sheet graphics** (currently low-resolution and inconsistent).
    - Carollo to revise wording on water demand – e.g., focus on reduction in per capita demand (vs. total). We do not want the fact sheet to sound like no projects are needed in any part of the Front Range. Revise from "Denver" to Denver area or Denver region.
    - Carollo to seek replacement chart for per-capita demand. The group felt it would be preferable to compare the Denver area or Colorado to other parts of the US, not the US to other countries.
- The group discussed the two fact sheets and whether another fact sheet is needed. If another one were to be developed, it would make the most sense to do one at the second level (Issues-Focused Initiatives or Geographic-Focused Initiatives). The previously-identified IPR/DPR fact sheet was discontinued during its development because it focused at a level perceived to be too detailed in the overall opportunities structure.
- It was noted that the Chatfield Pumpback project idea may have some merit, but the group is unsure if they would want to pursue it. The group directed Carollo to wrap up the draft report with existing fact sheets; the group will then determine if that documents their interests and needs adequately.

Wrap-up and Next Meeting Date

- A potential schedule as follows was discussed:
    - Send draft report materials to members by October 18, 2018
    - Review at meeting on October 25, 2018

  - Submit to CWCB October 31, 2018
- It was noted that Metro has a Board Workshop on October 25, and other SWIFT members also have conflicts that will require finding a new date for this meeting. It was also suggested that we should invite a broader group of utility management to the next meeting to gain more management input and awareness of the SWIFT goals, process, and opportunities.
- Action items summarized from above:
  - Blair will check with Greg Fisher on status of each member's data sharing agreement.
  - Members to provide GIS coverage of their service area boundary for a map to go in the SWIFT overview fact sheet.
  - Dawn will gather data from the Metro Hite Facility on water quality and flow to support creation of a chart where there is now a blue box chart placeholder.
  - Carollo to make edits to fact sheets based on input described above and draft the Idea Capture Briefing memos and final CWCB report.
  - Carollo/Dan/Blair to schedule a late October or early November meeting, perhaps with the assistance of a Doodle poll.