

CDM



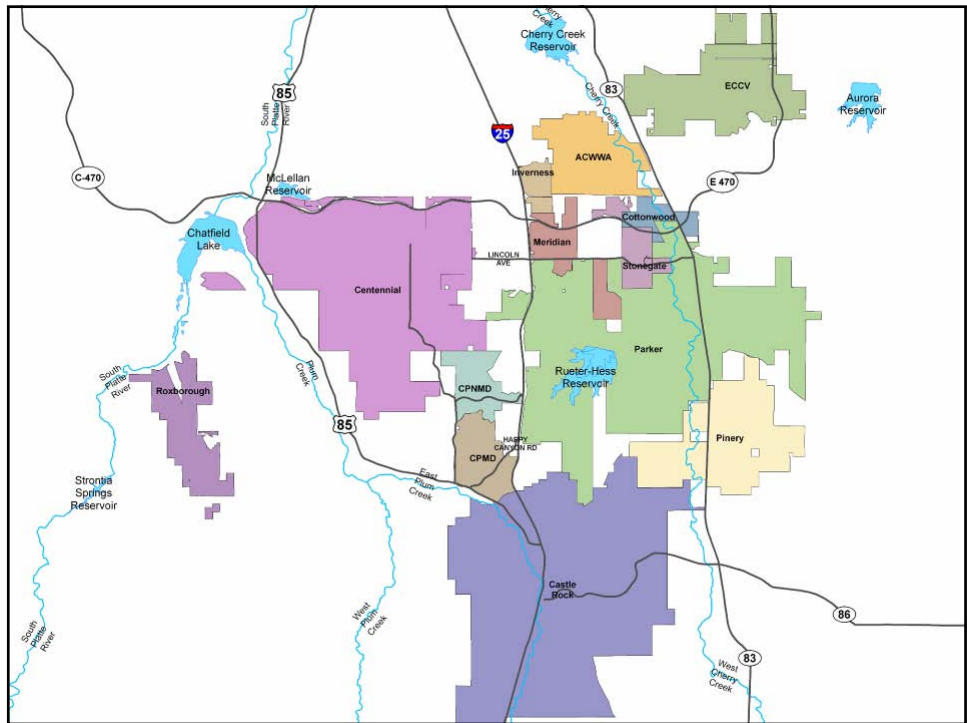
South Metro Water Supply Authority
Regional Water Master Plan Update

*Water Resources Review Committee
August 14, 2007*

Presentation Overview

- SMWSA Overview and Background
- Goals for Additional Renewable Supply
- Actions Being Taken Now
- Interim (2010) Renewable Supply Alternatives
- Mid- and Long-term Supply Alternatives
- Next Steps





Water Supply Background

- Deep wells have been the area's primary water source since the 1970s.
 - Local
 - Readily available
 - Cost-effective
 - Drought-proof supply
 - Little impact on the environment
- South Metro Participants in Two Forks anticipated over 16,000 acre-feet of supply for regional growth



Two Forks Yield Expectations

<u>Provider</u>	<u>% Interest</u>	<u>AF / YR</u>
Cottonwood	0.50	400
Douglas County Water Authority	4.50	3,600
East Cherry Creek Valley W&SD	6.05	4,840
Inverness	0.60	480
Centennial W&SD	<u>8.50</u>	<u>6,800</u>
South Metro Total	20.15	16,120



Groundwater Supply Issues

- Well productivity will decrease
- Growth and demands will increase
- Costs will escalate dramatically making groundwater uneconomical and infeasible for the sole long-term regional supply
- Continue to use conservation and water reuse to extend these supplies

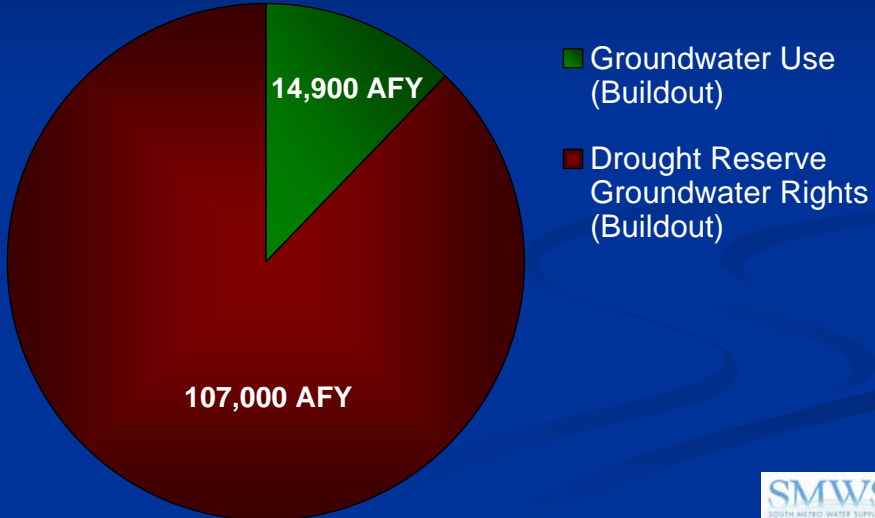


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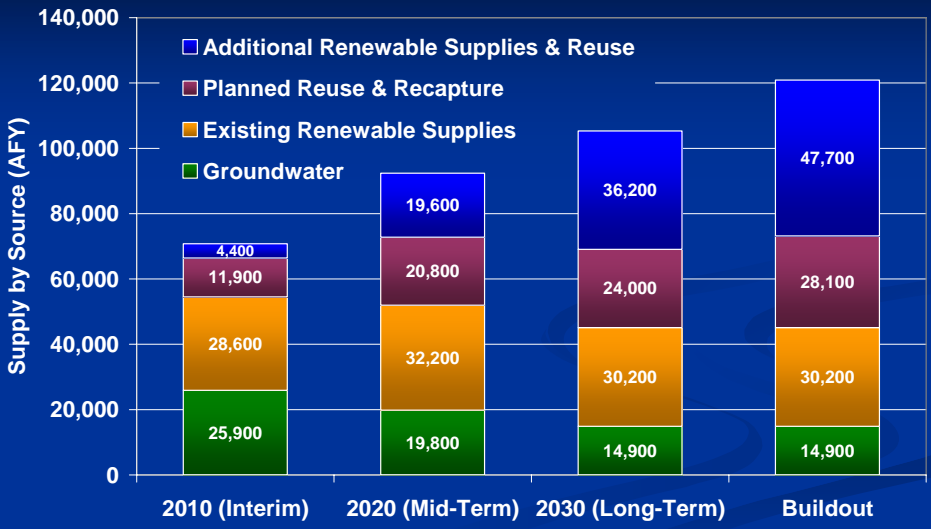
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Groundwater Rights vs. Groundwater Use at Buildout



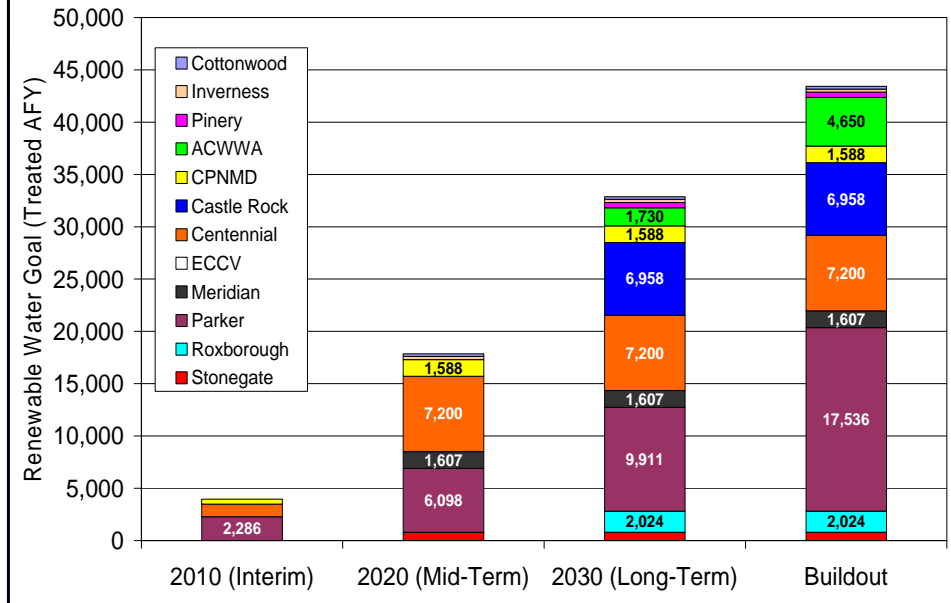
Projected Water Supplies Over Time



* Includes additional 10% additional renewable water for uncertainty / unincorporated areas

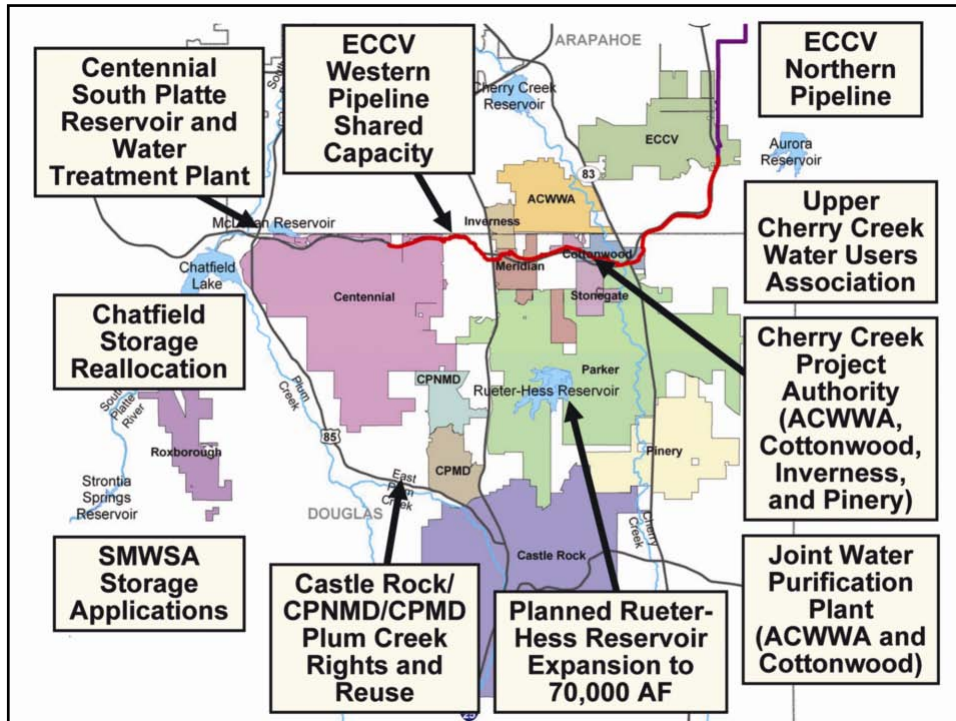


Additional Renewable Supply Goals



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Rueter-Hess Reservoir



Current Capacity: 16,000 acre-feet

Proposed Capacity: 70,000 acre-feet

Estimated Expansion Cost: \$80 million

Participants: Parker, Castle Rock, Castle Pines North, Stonegate







ECCV Northern Pipeline

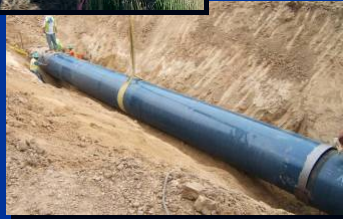


Pipeline Capacity: 47 MGD
(45,000 acre-feet/year)

Estimated Cost: \$51 million

Participants:

East Cherry Creek Valley, Castle
Rock, Centennial, Stonegate,
ACWWA, Cottonwood, Inverness



Reuse Facility



Plant Capacity: 3.6 to 7.2 MGD

Estimated Cost: \$27.3 million

Participants:

Inverness, ACWWA and Cottonwood





South Platte Reservoir and Diversion



6,400 af capacity
constructed by CWSD

On-line mid-2007

Diversion at Chatfield

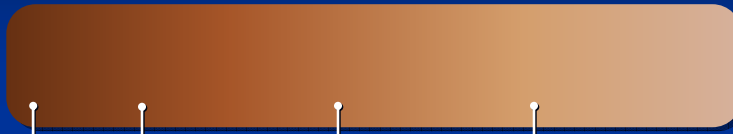
Treatment and delivery to
South Metro providers
through CWSD facilities

Return flow recapture

Conjunctive use water
source



Phased Implementation



2007

2010

2020

2030

INTERIM

Supply options
currently available
with minor
infrastructure
modifications /
additions

MID-TERM

Purchase of
additional
water rights
with no new
major
infrastructure

LONG-TERM

Regional supply projects
that would not go online
for at least 20 years.
Would require major
infrastructure to connect
to South Metro area



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SMWSA Interim Distribution Alternatives

- Denver Water Treated Water System via Foothills Water Treatment Plant
- Denver Raw Water delivered at Chatfield
- ECCV Northern Treated Water system
 - Denver leased return flows
 - Other M&I leased water (return flows/ag transfers)
 - ECCV surplus
 - Leased ag water via Substitute Water Supply Plan

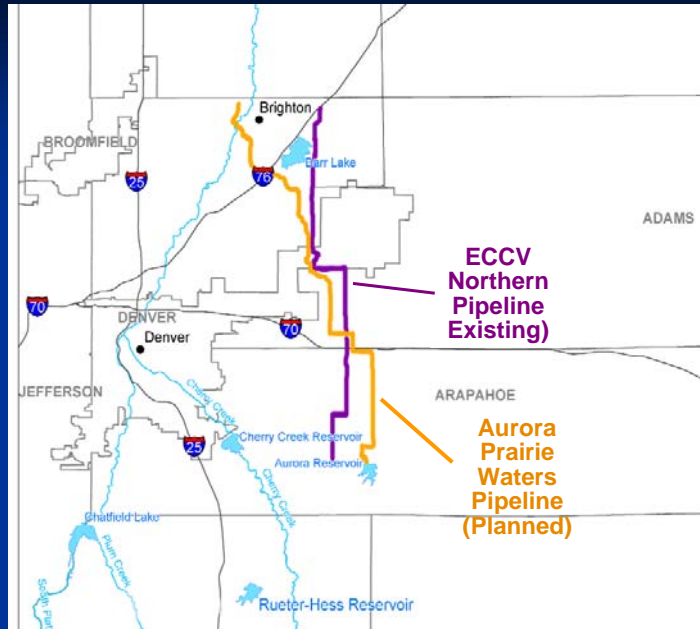




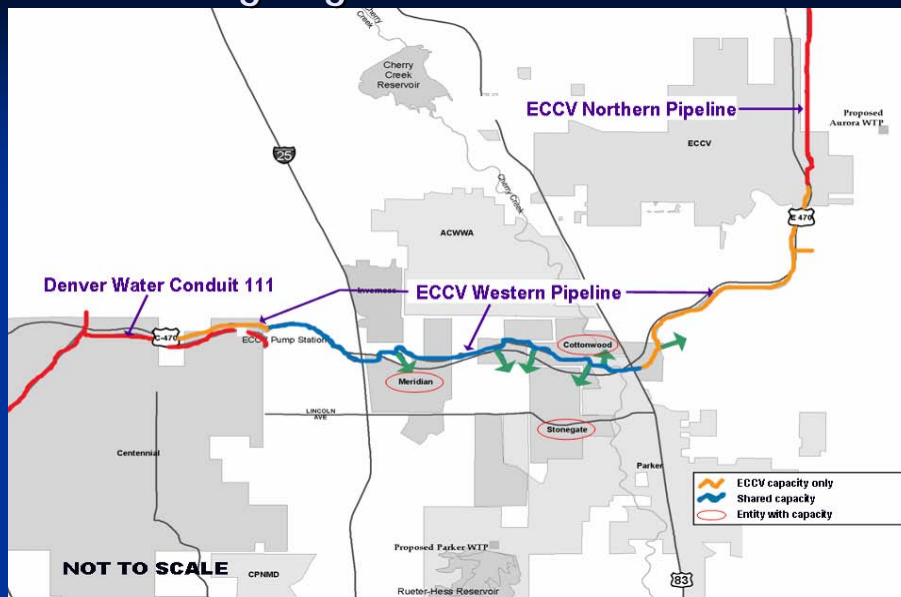
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Existing and Planned Transmission Lines



Existing Regional Transmission Lines



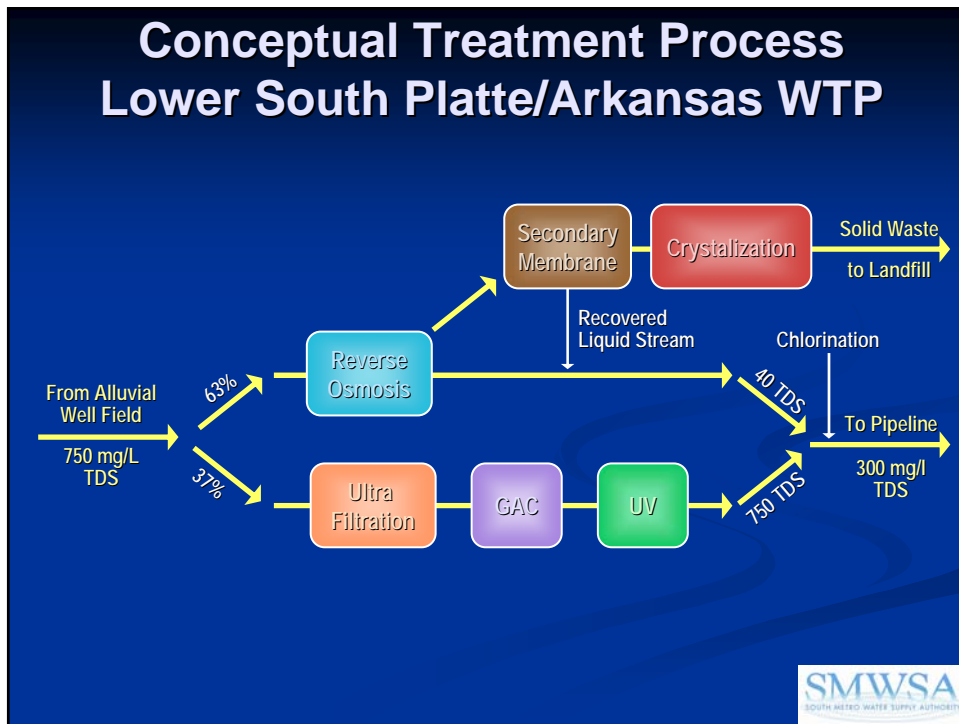
Potential Sources of Mid and Long-term Renewable Supplies

Location	Water Rights/Regional Projects
North	<ul style="list-style-type: none"> ■ Middle / lower South Platte Ag Transfer (traditional or alternative ag transfer) ■ Consumptive use return flows ■ Yampa Pumpback (new appropriation) ■ Flaming Gorge (Bureau contract or new appropriation)
South	<ul style="list-style-type: none"> ■ Lower Arkansas Agricultural Water Rights (traditional or alternative ag transfer)
West Slope via Upper South Platte	<ul style="list-style-type: none"> ■ Green Mountain Pumpback (new appropriation or Denver conditional rights) ■ Blue Mesa Pumpback (Bureau contract) ■ Colorado River Return (new appropriation)

Mid-Term Alternative Regional Infrastructure

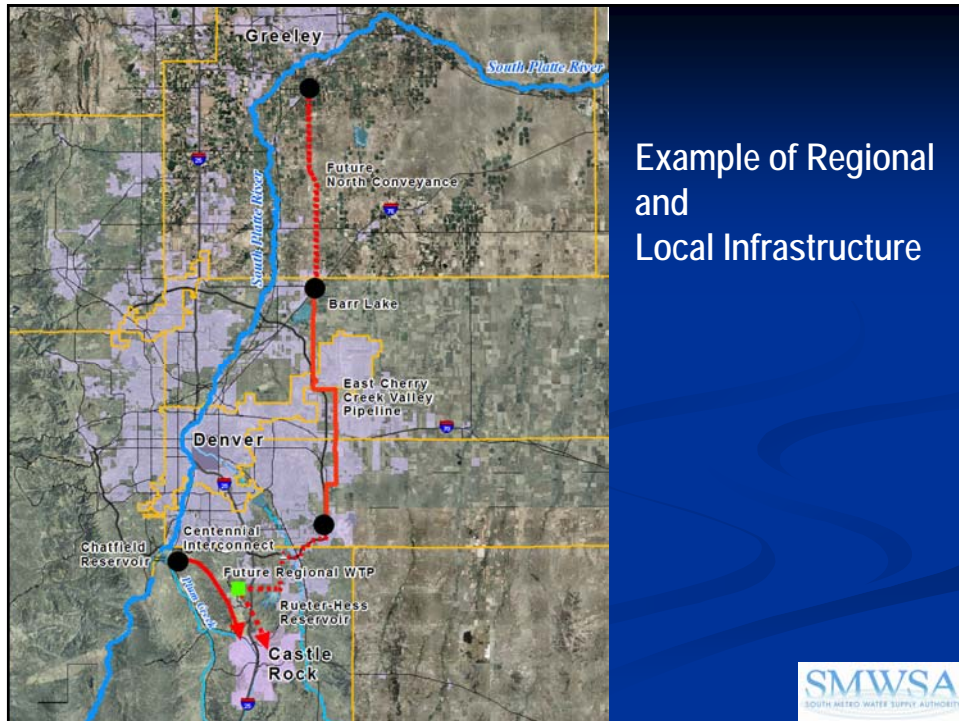
- Acquisition and transfer of water rights to deliver 26,000 AFY of firm yield of renewable water
- Development of firming storage and alluvial well fields
- 50 to 75 miles of 48" pipeline
- 1,000 to 2,000 feet elevation of pumping
- Regional Reverse Osmosis Water Treatment with Zero Liquid Discharge of Brine

Conceptual Treatment Process Lower South Platte/Arkansas WTP



Mid-Term Alternative Local Infrastructure

- Local Reservoir storage in South Metro area
- Aquifer Storage and Recovery where cost-effective
- Local Water Treatment Facilities in South Metro area
- \$40,000 to \$50,000 per AF total capital costs
- \$1,000,000,000 +/- total capital cost



Example of Regional and Local Infrastructure

Next Steps – Plan Implementation

- Continue water conservation and reuse efforts
- Explore partnerships for sharing existing and planned infrastructure
- Confirm and implement mid-term source
- Track and participate in long-term regional water supply alternatives