Colorado's Water
Supply Future

Metro Basin Roundtable Meeting
Denver, Colorado

February 11, 2009

Projects and Methods to Meet Identified Water Supply Needs

Basin-Wide Water Needs Assessments

- Identify Consumptive Water Needs (M&I and Agricultural)
- Identify Nonconsumptive Water Needs (Environmental and Recreational)
- Identify Available Water Supplies
- Identify Projects and Methods to Meet Consumptive and Nonconsumptive Water Needs

Path Forward – 2009

- Consumptive Needs Assessment done in Draft
- Nonconsumptive Priority Areas Identified

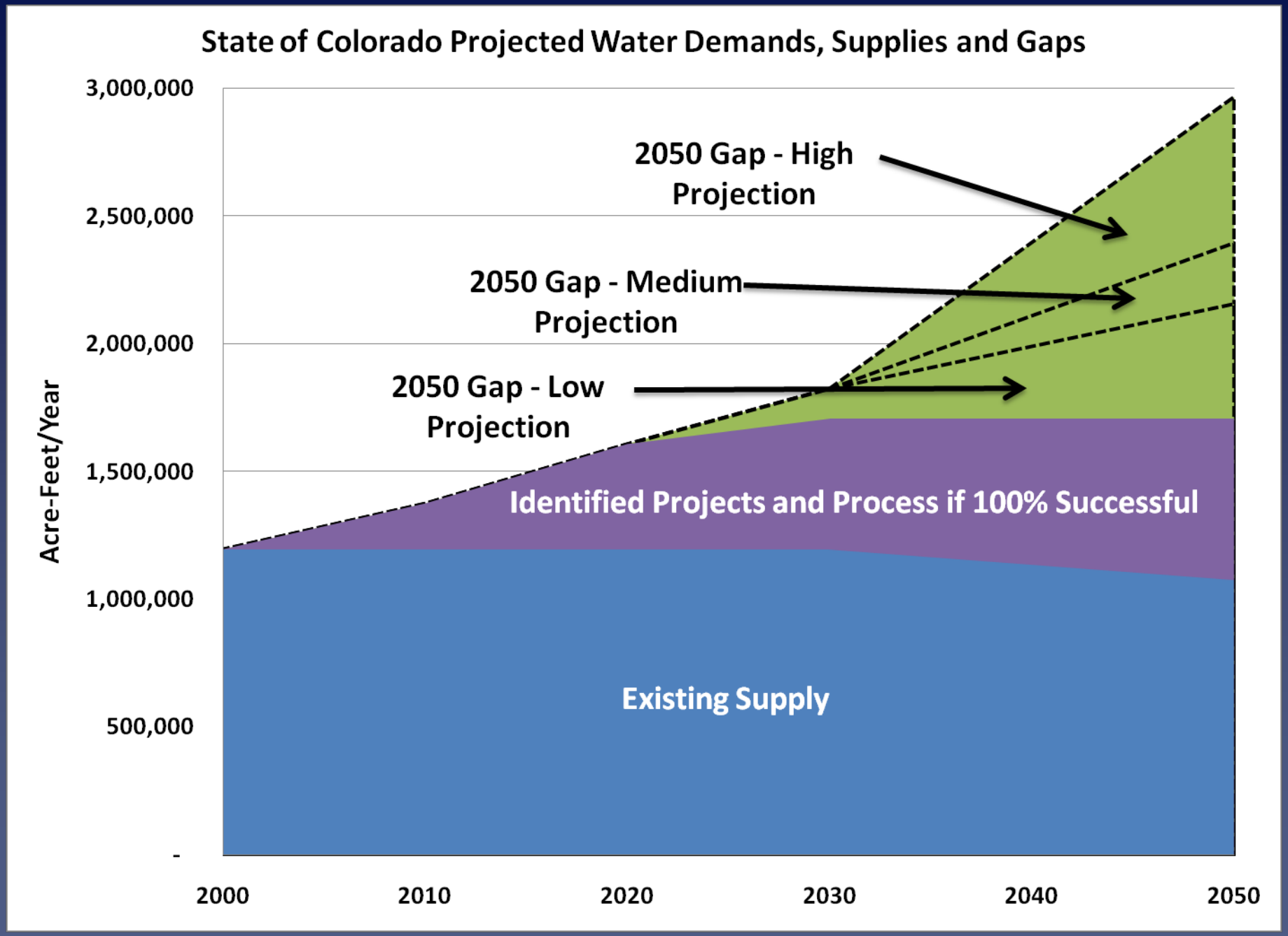
Focus of 2009:

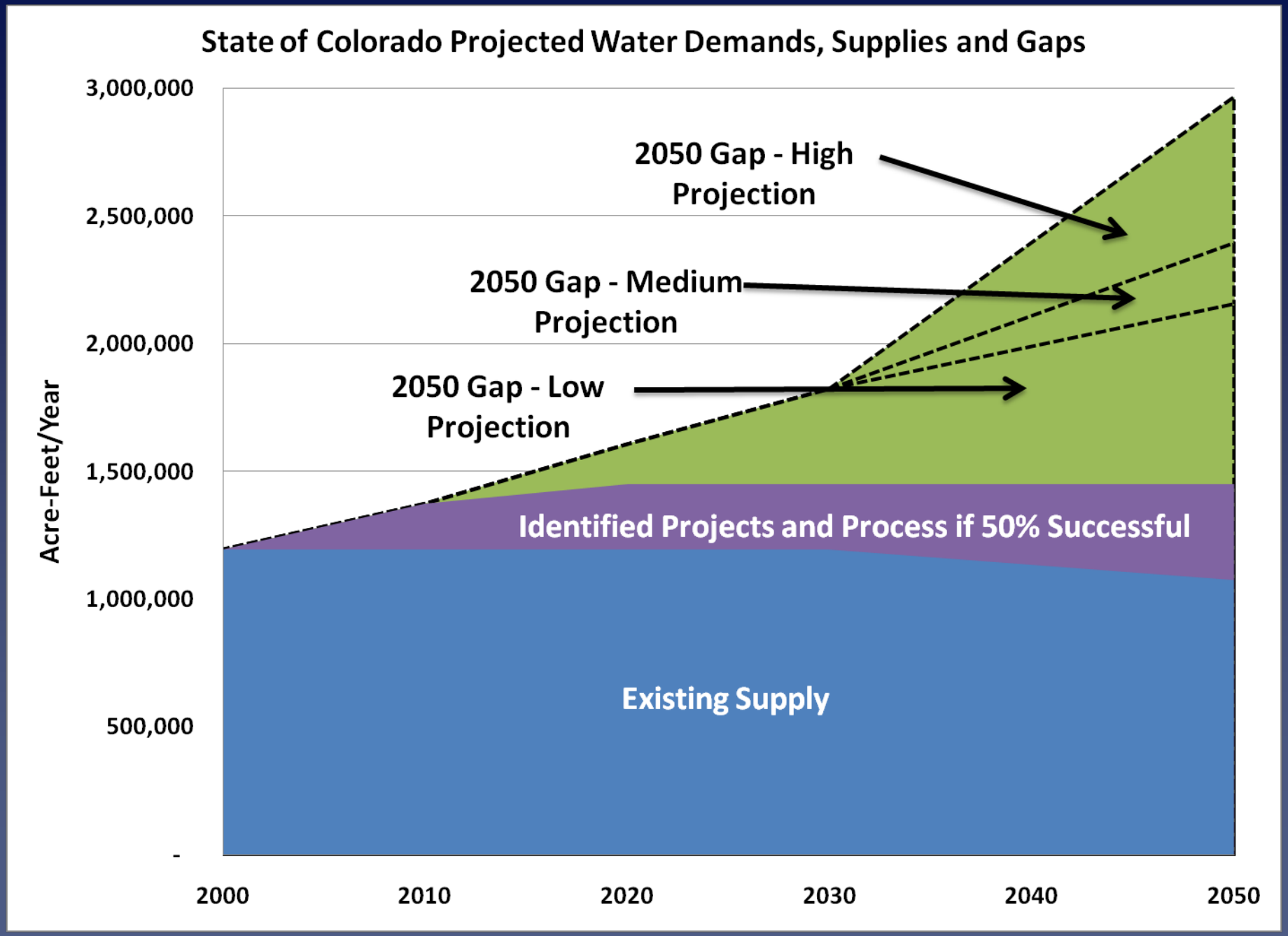
Projects and Methods to Meet Identified Needs (M&I and Nonconsumptive)

M&I Water Demands to 2050

By 2050, Colorado will need up to 1.7 MAF to Meet M&I Demands*

*This does not take into account demand reductions from conservation for future demands


State of Colorado Projected Water Demands, Supplies and Gaps
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
-
Acre-Feet/Year
2050 Gap - High Projection
2050 Gap - Medium Projection
2050 Gap - Low Projection
Identified Projects and Process if 100% Successful
Existing Supply
2000
2010
2020
2030
2040
2050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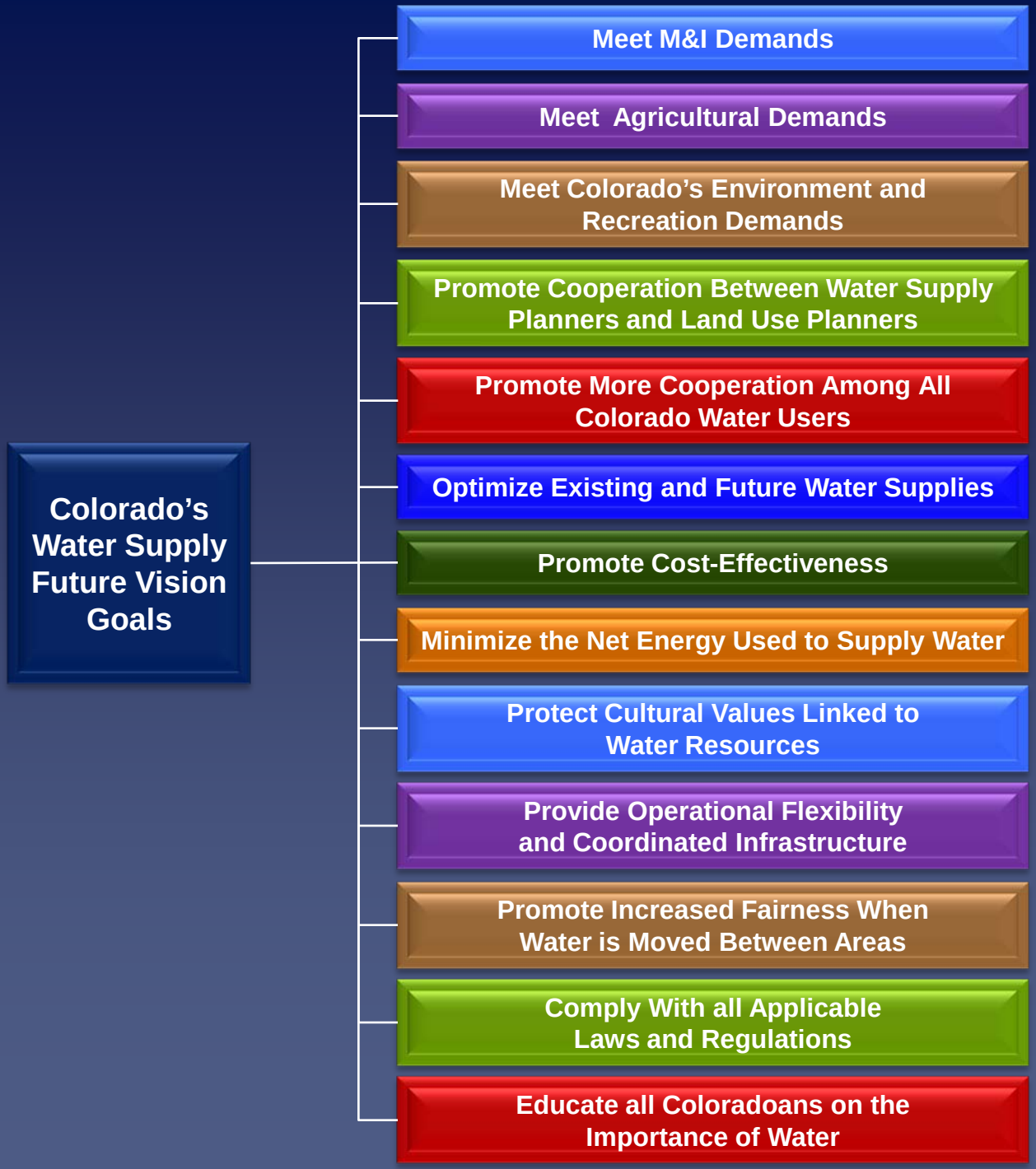
500,000
-
Acre-Feet/Year
2050 Gap - High Projection
2050 Gap - Medium Projection
2050 Gap - Low Projection
Identified Projects and Process if 50% Successful
Existing Supply
2000
2010
2020
2030
2040
2050

Metro IPPs

- Review and update IPPs and base options
- Worksheet Provided

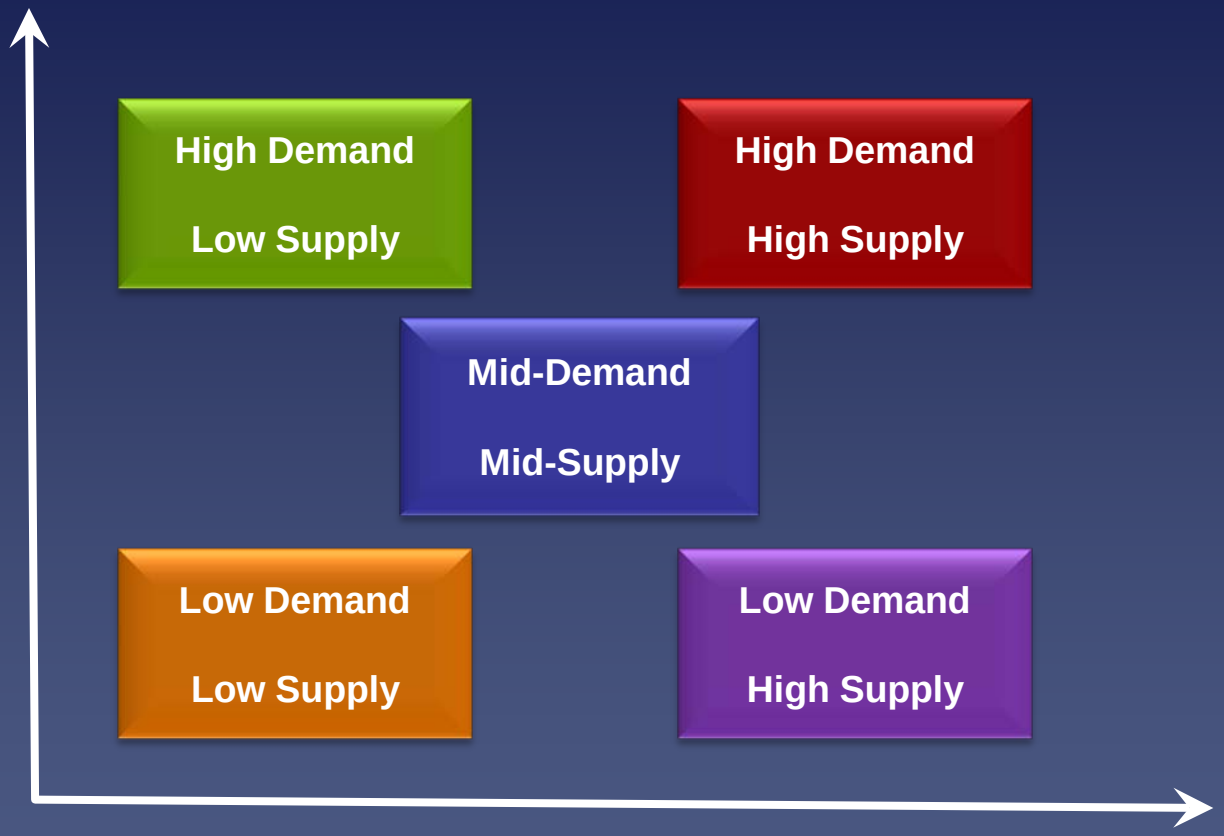
Development of Water Supply Strategies

Elements of the Visioning Process


Colorado's Water Supply Future Vision Goals
Meet M&I Demands
Meet Agricultural Demands
Meet Colorado's Environment and Recreation Demands
Promote Cooperation Between Water Supply Planners and Land Use Planners
Promote More Cooperation Among All Colorado Water Users
Optimize Existing and Future Water Supplies
Promote Cost-Effectiveness
Minimize the Net Energy Used to Supply Water
Protect Cultural Values Linked to Water Resources
Provide Operational Flexibility and Coordinated Infrastructure
Promote Increased Fairness When Water is Moved Between Areas
Comply With all Applicable Laws and Regulations
Educate all Coloradoans on the Importance of Water

2050 Planning Horizon for Colorado's Water Supply Future

Demand Factors:
- **M&I Growth**
- **Energy Demands**



Supply Factors:
- **Colorado River Hydrologic Variability**
- **Climate Change**
- **Compact Call**

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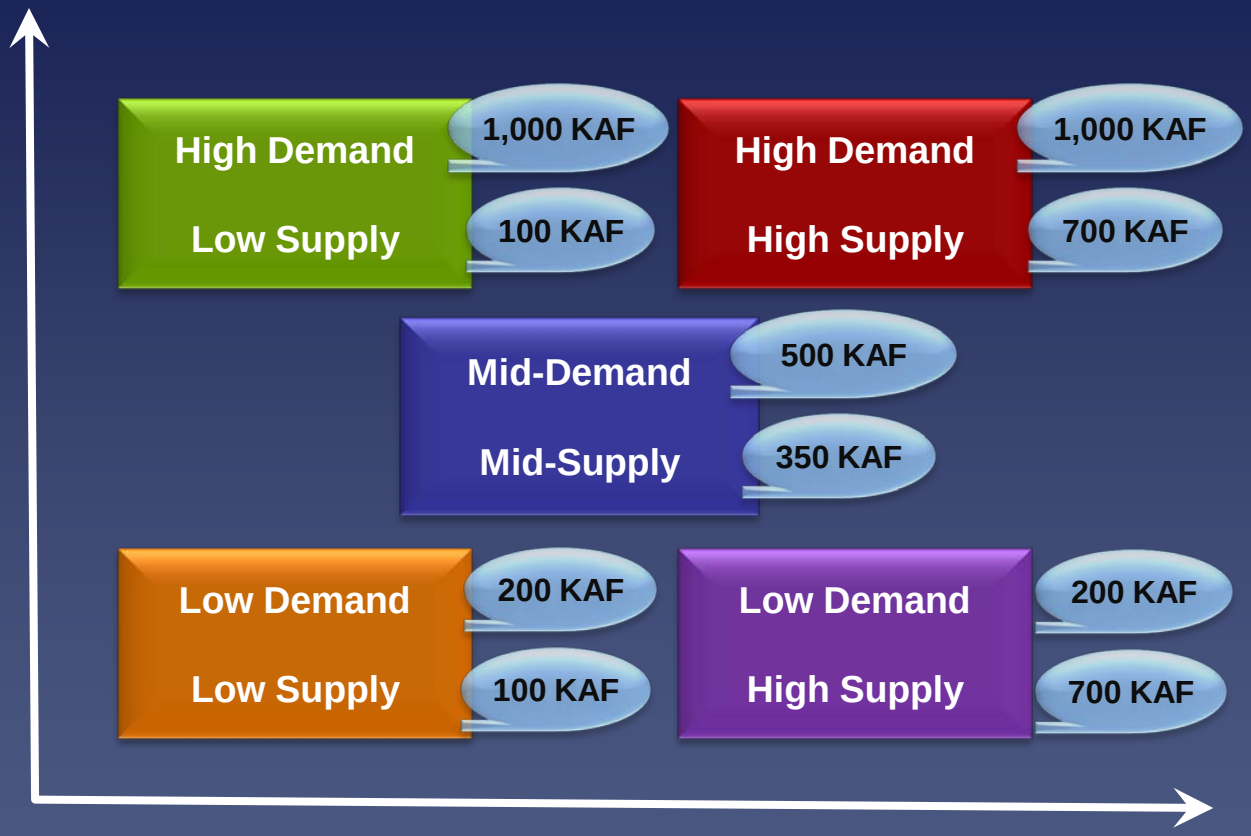

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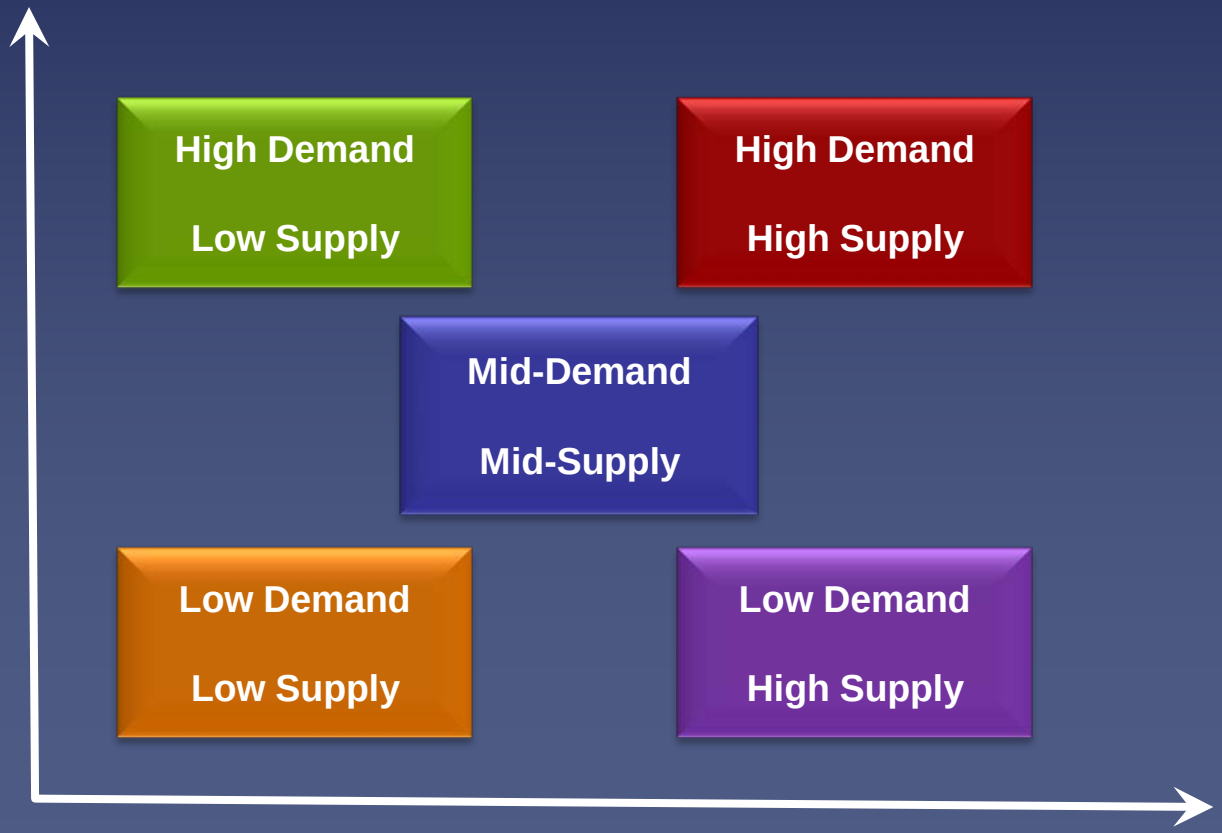
Narratives about Colorado's Water Supply Future

Create a narrative describing what would lead to the 5 different scenarios



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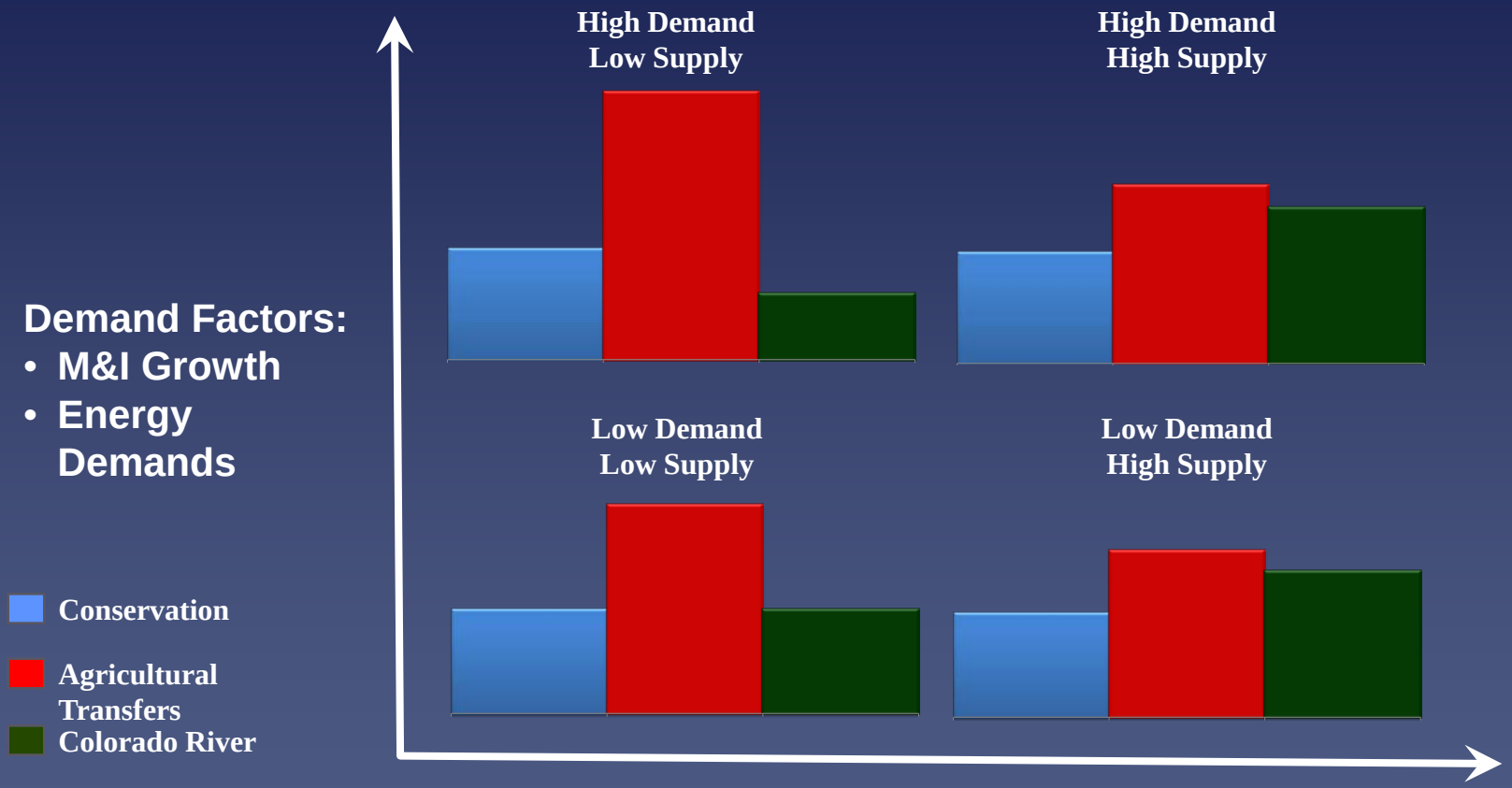

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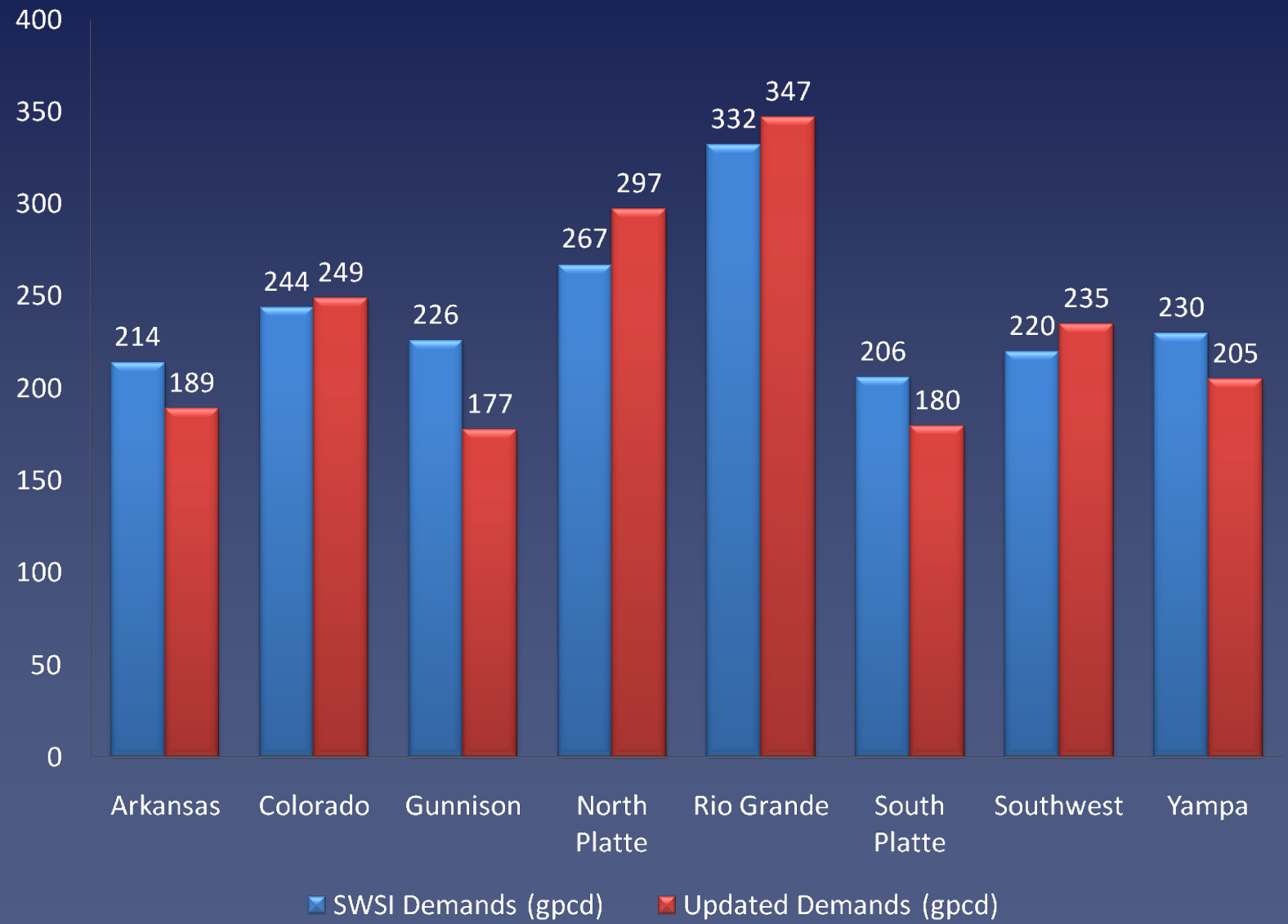
Water Supply Strategies

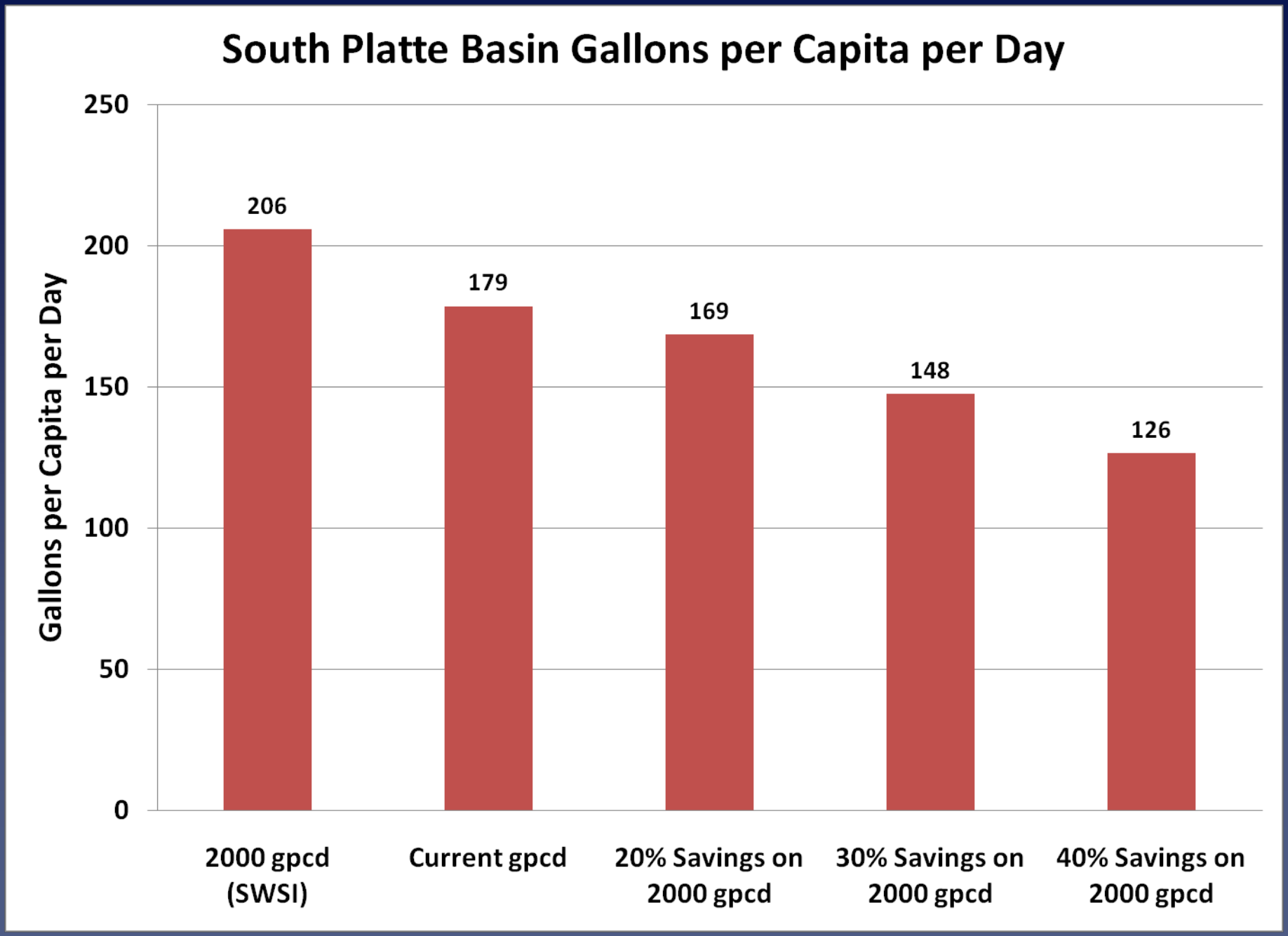
- Water Conservation
- Agricultural Transfers
  - Conventional and alternative transfers
- Development of New Supplies
  - New Storage
  - Transbasin

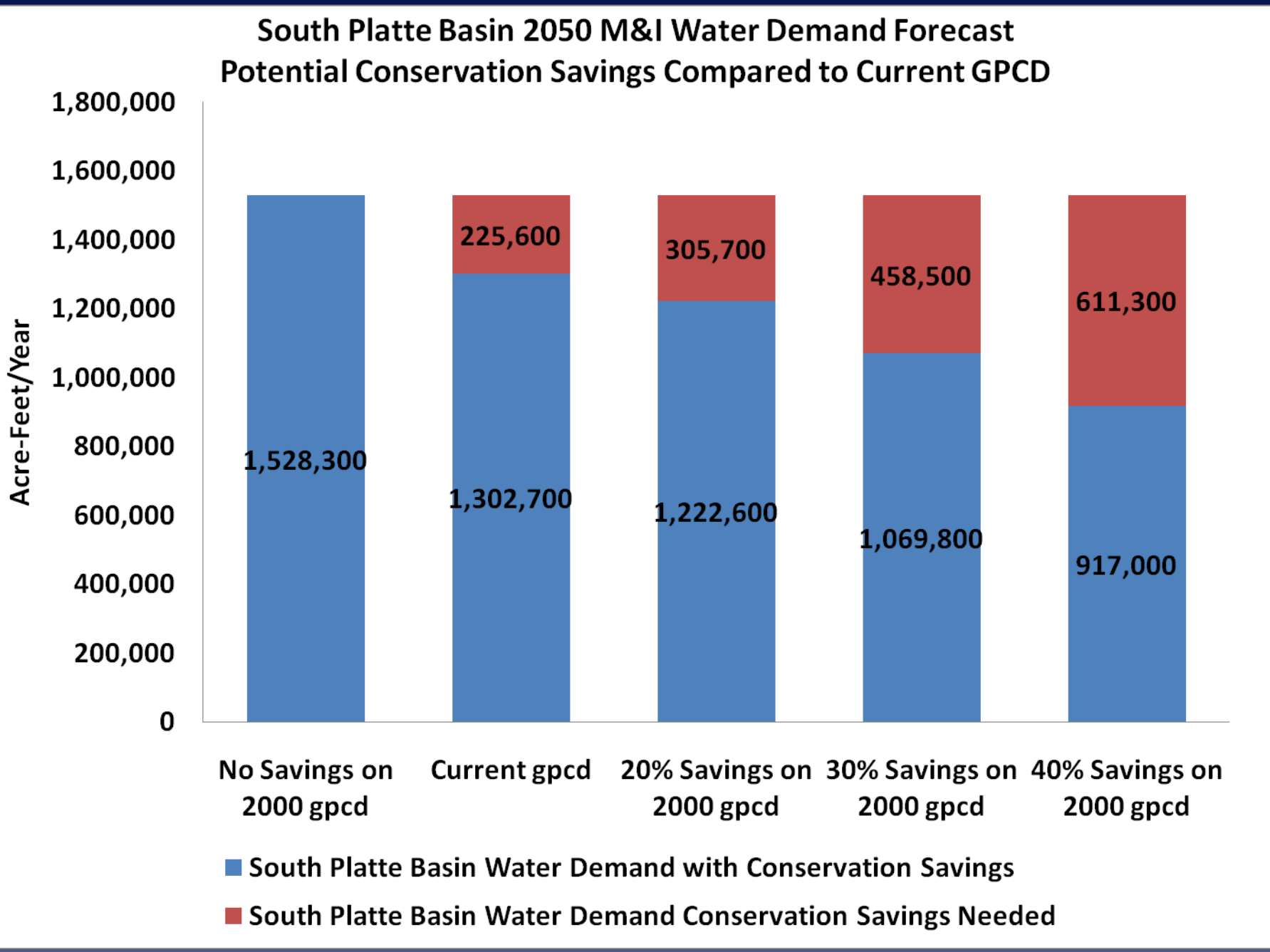
These strategies address M&I needs, but options to address agricultural and nonconsumptive needs will be added as strategies are evaluated

Water Conservation

M&I Water Usage Rates by Basin




South Platte Basin Gallons per Capita per Day
Gallons per Capita per Day
250
200
150
100
50
0
206
179
169
148
126
2000 gpcd (SWSI)
Current gpcd
20% Savings on 2000 gpcd
30% Savings on 2000 gpcd
40% Savings on 2000 gpcd


South Platte Basin 2050 M&I Water Demand Forecast
Potential Conservation Savings Compared to Current GPCD
Acre-Feet/Year
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
1,528,300
225,600
1,302,700
305,700
1,222,600
458,500
1,069,800
611,300
917,000
No Savings on 2000 gpcd
Current gpcd
20% Savings on 2000 gpcd
30% Savings on 2000 gpcd
40% Savings on 2000 gpcd
South Platte Basin Water Demand with Conservation Savings
South Platte Basin Water Demand Conservation Savings Needed

Ag Transfer Strategy

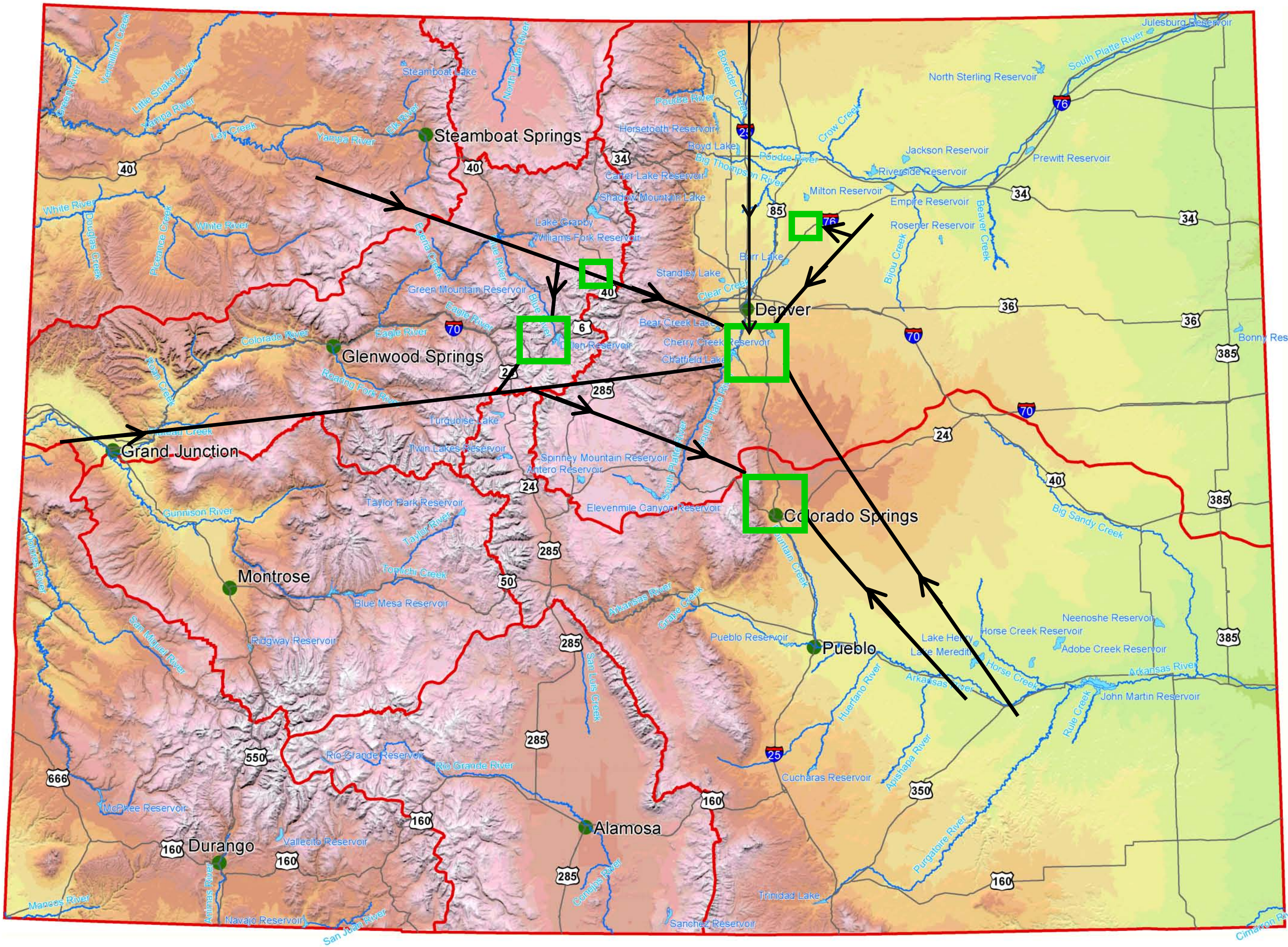
- Lower South Platte Transfer
- Lower Arkansas Transfer

Development of New Water Supplies

- Green Mountain Concept <100,000 acre-ft
- Yampa Concept >100,000 acre-ft
- Flaming Gorge Concept >100,000 acre-ft

Risk Management Strategies

- West Slope Water Bank
- Compact Delivery via Blue Mesa
- Conjunctive Use of Denver Basin Aquifer
- Timing/Phased Development



Steamboat Springs
Glenwood Springs
Grand Junction
Montrose
Durango
Alamosa
Denver
Colorado Springs
Pueblo
Steamboat Lake
North Platte River
Vermillion Creek
Little Snake River
Yampa River
Green River
Elk River
Lay Creek
White River
Douglas Creek
Piceance Creek
Poudre River
Horsetooth Reservoir
Boyd Lake
Big Thompson River
Carter Lake Reservoir
Shadow Mountain Lake
Lake Granby
Williams Fork Reservoir
Green Mountain Reservoir
Eagle River
Colorado River
Roaring Fork River
Roan Creek
Blue River
Dillon Reservoir
Standley Lake
Clear Creek
Bear Creek Lake
Cherry Creek Reservoir
Chatfield Lake
Boxelder Creek
Crow Creek
Barr Lake
Milton Reservoir
Jackson Reservoir
Riverside Reservoir
Empire Reservoir
Prewitt Reservoir
Rosener Reservoir
Beaver Creek
Bijou Creek
North Sterling Reservoir
South Platte River
Julesburg Reservoir
Bonny Reser
Turquoise Lake
Twin Lakes Reservoir
Spinney Mountain Reservoir
Antero Reservoir
Elevenmile Canyon Reservoir
Taylor Park Reservoir
Taylor River
Tomichi Creek
Gunnison River
Blue Mesa Reservoir
Ridgway Reservoir
San Miguel River
Dolores River
McPhee Reservoir
Vallecito Reservoir
Mancos River
Animas River
Navajo Reservoir
San Juan River
Rio Grande Reservoir
Rio Grande River
San Luis Creek
Conejos River
Sanchez Reservoir
Trinidad Lake
Cucharas Reservoir
Arkansas River
Grape Creek
Pueblo Reservoir
Huerfano River
Apishapa River
Purgatoire River
Lake Henry
Lake Meredith
Horse Creek
Horse Creek Reservoir
Neenoshe Reservoir
Adobe Creek Reservoir
John Martin Reservoir
Rule Creek
Big Sandy Creek
Cimarron River
40
34
85
76
25
70
6
24
285
36
385
50
550
666
160
350

Assumptions for Water Supply Strategies

- Delivery of similar water quality
- Storage areas common to all strategies will be considered
- Termination points will be common to strategies
- Strategies will deliver water in the range of 100KAF to 250KAF

Engineering Evaluation Elements
(Examined by March CWCB/IBCC meeting)

- Description of strategy or project elements – water source, conveyance and storage, water quality
- Capital costs – permitting, mitigation, water rights, land acquisition, pumps, pipe, treatment, storage
- Annual Operation and Maintenance costs – energy, equipment maintenance and replacement

Strategy Evaluation
(Examined after March CWCB/IBCC meeting)

Identification of:

- Project benefits
- Implementation issues
- Potential attributes/additional options
- Acceptability

Other evaluation elements:

- Discuss potential attributes/additional options for ag transfer and new supply development options with Basin Roundtables
- Incorporate other conservation elements such as sharing of conserved water and the infrastructure and institutional arrangements required

Qualitative description of how each strategy meets the Vision Statement and Vision Goals

Basin Roundtable Technical Support

Proposed Technical Work – 2009

MEETING 1

- Present status of needs assessment (SWSI I, “Other appropriate sources,” task orders, WSRA studies)
- Present demands to 2050
- Discuss projects and methods for meeting in-basin needs (SWSI IPPs, SWSI base options, other projects identified since SWSI)
- Review nonconsumptive basin maps final product (attributes and priorities)
- Present approach to evaluating water supply strategies

Proposed Technical Work – 2009

MEETING 2

- Refine demands to 2050
- Screen projects and methods for meeting identified needs
- Discuss next steps on nonconsumptive priority areas (quantification and/or implementation strategies)
- Discuss progress on evaluation of water supply strategies

Proposed Technical Work – 2009

MEETING 3

- Discuss progress on nonconsumptive quantification and implementation strategies
- Discuss progress on projects and methods for meeting identified needs and evaluation of water supply strategies
- Discuss integrating needs assessments with Colorado River supply availability preliminary results

Proposed Technical Work – 2009

MEETING 4

- Present draft results of nonconsumptive quantification and implementation strategies
- Present draft results of projects and methods for meeting identified needs
- Present draft results of evaluation of water supply strategies