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(Summer Conference, June 8-10)

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SLIDES: Statewide Water Supply Initiative and Colorado River Compact Development

Rick Brown

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Rick Brown, *Statewide Water Supply Initiative and Colorado River Compact Development*, in *HARD TIMES ON THE COLORADO RIVER: DROUGHT, GROWTH AND THE FUTURE OF THE COMPACT* (Natural Res. Law Ctr., Univ. of Colo. Sch. of Law, 2005).

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Statewide Water Supply Initiative and Colorado River Compact Development



Rick Brown, CWCB

University of Colorado Natural Resources Law Center

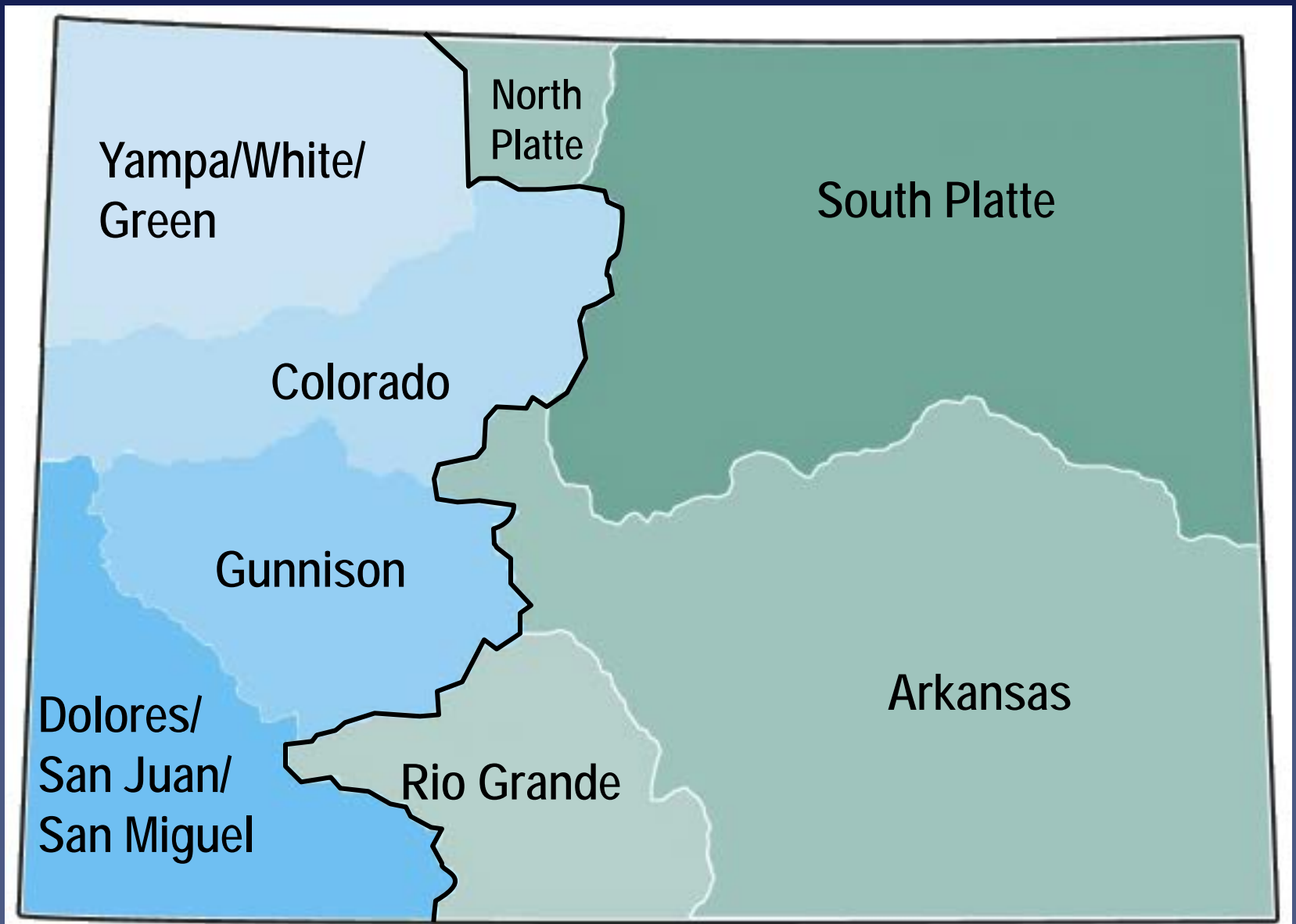
June 9, 2005

SWSI goals as authorized by Legislature (May 2003):

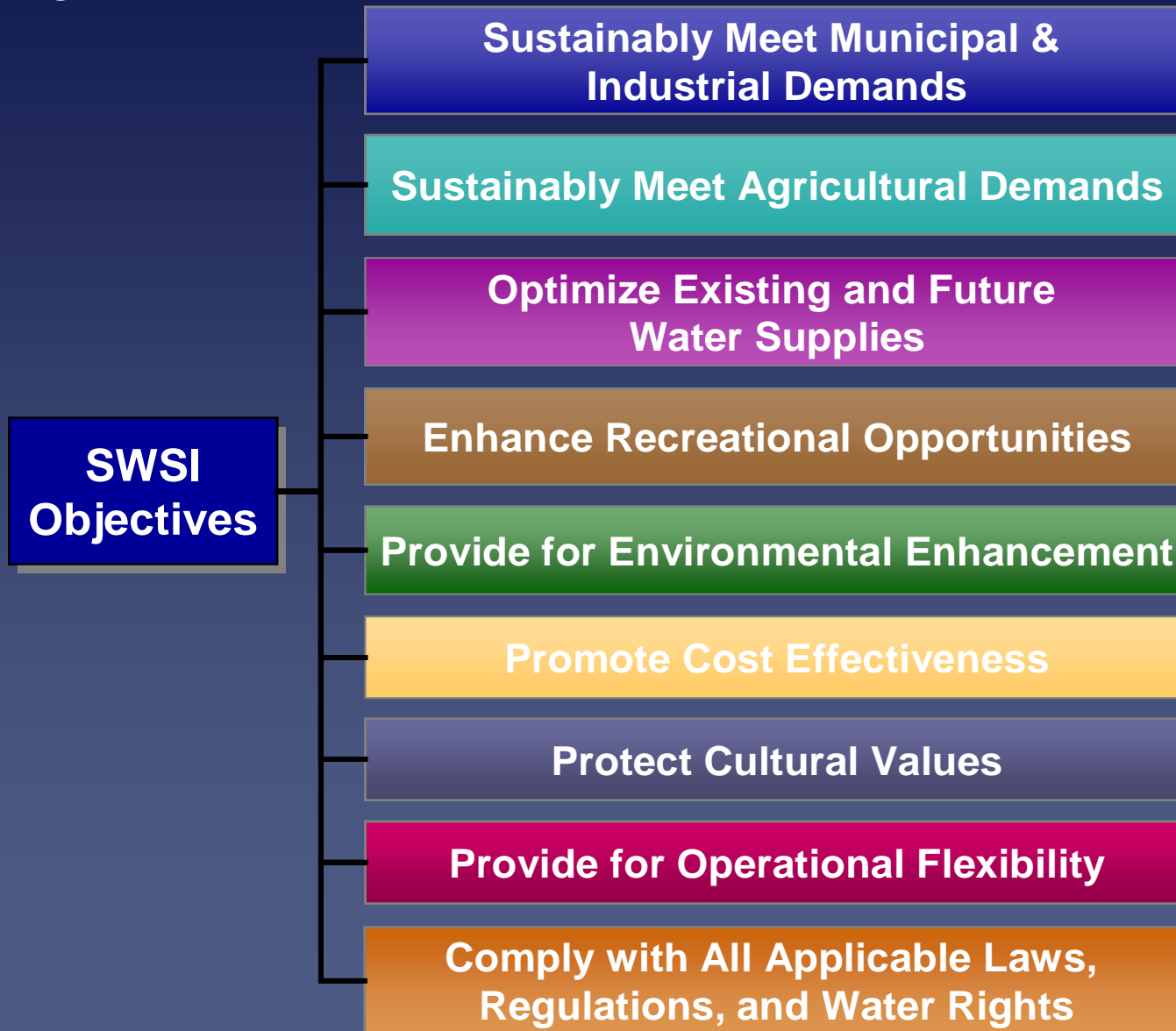
- Examine all aspects of Colorado water use over the next 30 years
- Evaluate water supply and water management alternatives in each river basin
- Formulate strategies and build consensus on alternatives to meet future water needs



Colorado's Major River Basins



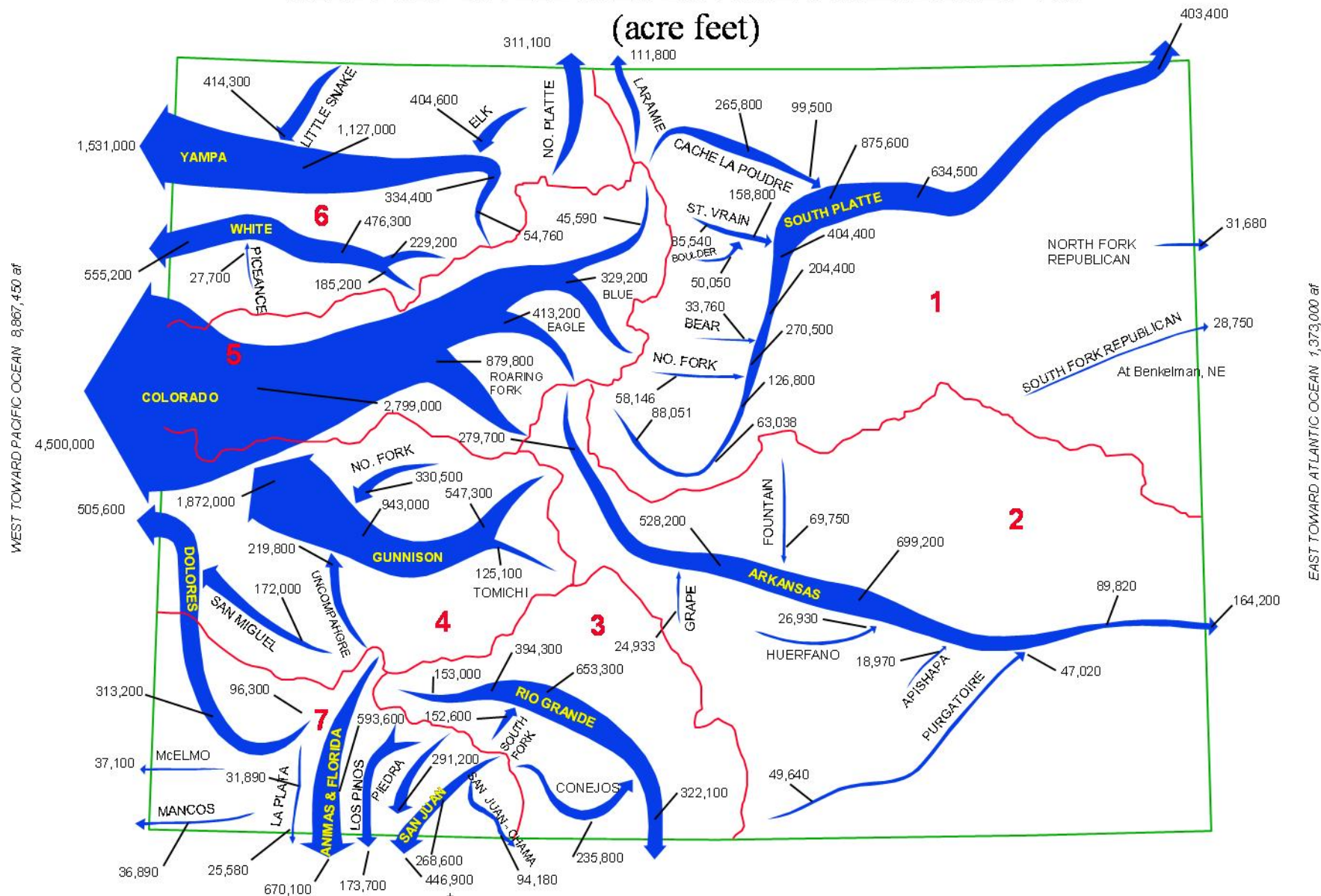
What's Important to Coloradans in Water Management?



COLORADO

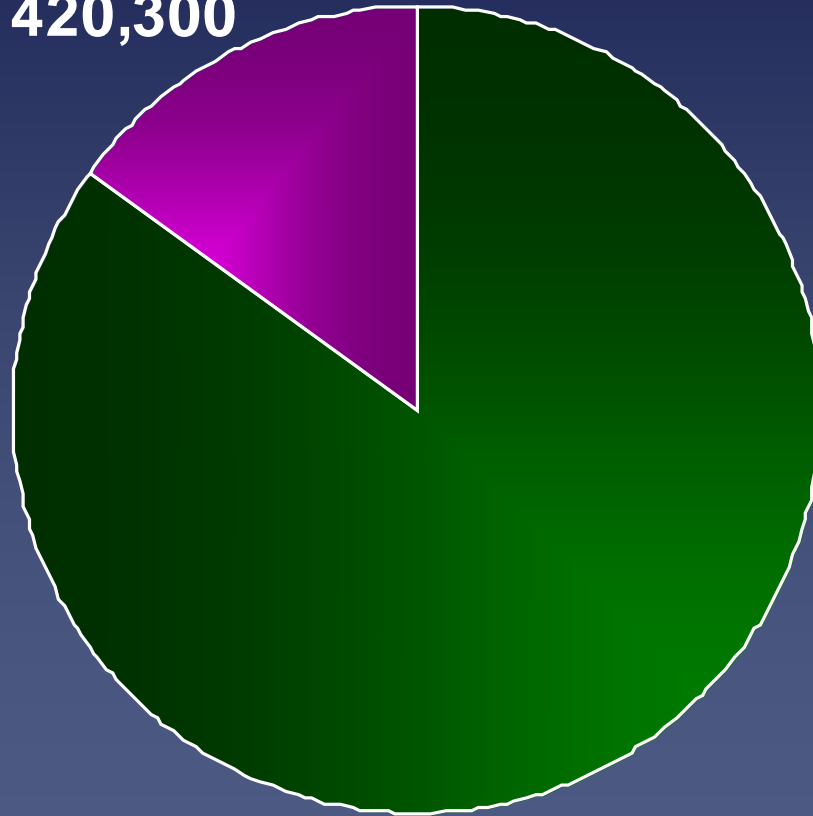
HISTORIC AVERAGE ANNUAL STREAM FLOWS

(acre feet)



Projected Colorado Increase in Population from 2000 to 2030

West Slope
420,300



East Slope
2,400,600

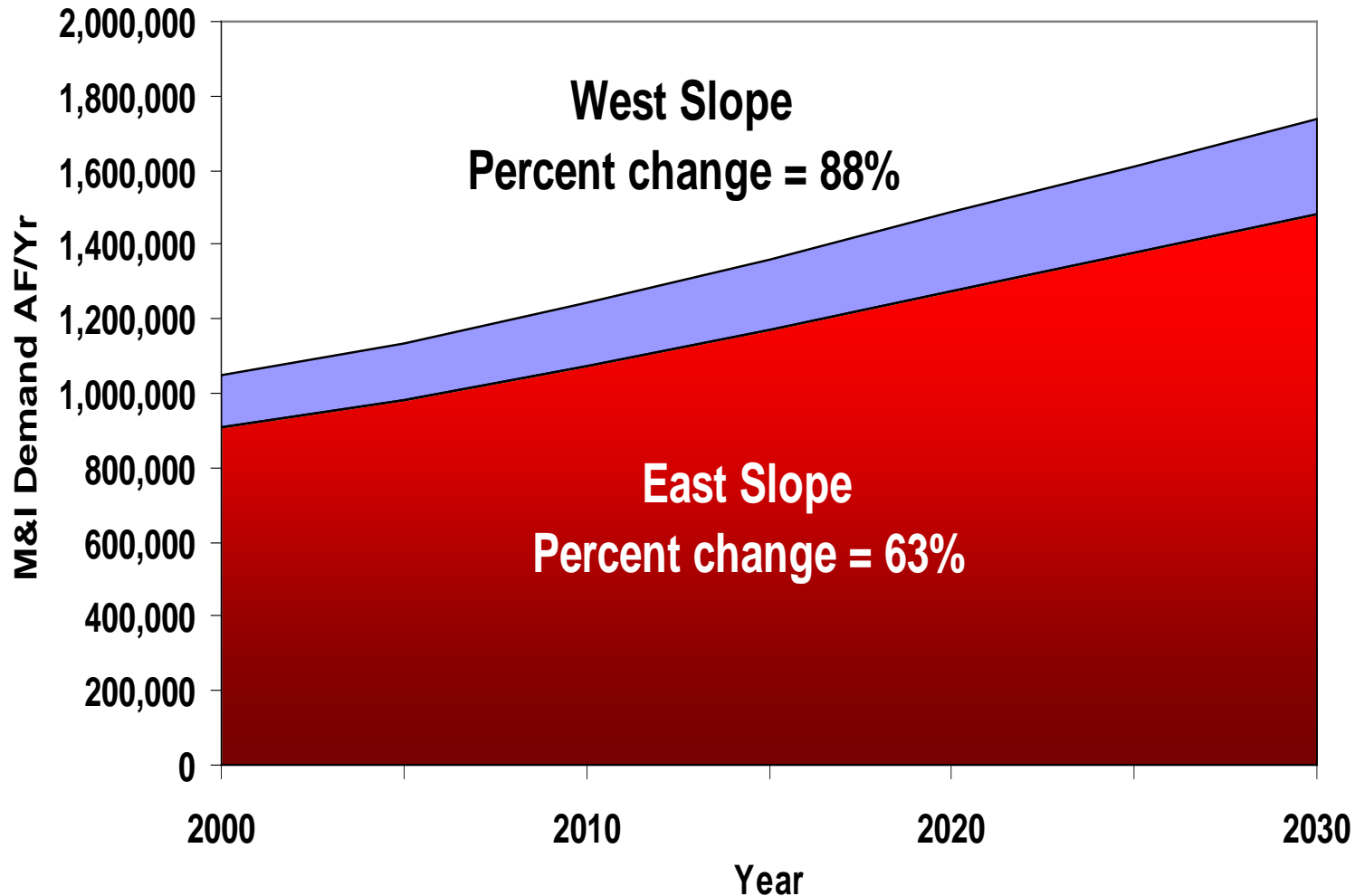
Statewide Gross M&I and Self-supplied Industrial Water Demands – 2000 to 2030

Basin	Total 2000 Gross Demand (AF)	Projected Conservation Savings (AF)	Projected 2030 Gross Demand (AF)	Increase in Gross Demand (AF)	Estimated Demand met by future water supplies and additional conservation (AF)	Identified Gross Demand Shortfall (AF)
Arkansas	256,900	18,600	354,900	98,000	80,500	17,500
Colorado	74,100	7,800	136,000	61,900	58,700	3,200
San Juan / Dolores / San Miguel	23,600	2,400	42,400	18,800	13,900	4,900
Gunnison	20,600	2,100	35,500	14,900	12,500	2,400
North Platte	500	—	600	100	100	—
Rio Grande	17,400	1,400	21,700	4,300	4,300	—
South Platte	772,400	68,700	1,182,100	409,700	319,100	90,600
Yampa / White / Green	29,400	900	51,700	22,300	22,300	—
TOTAL	1,194,900	101,900	1,824,900	630,000	511,400	118,600

Statewide Agricultural Demands

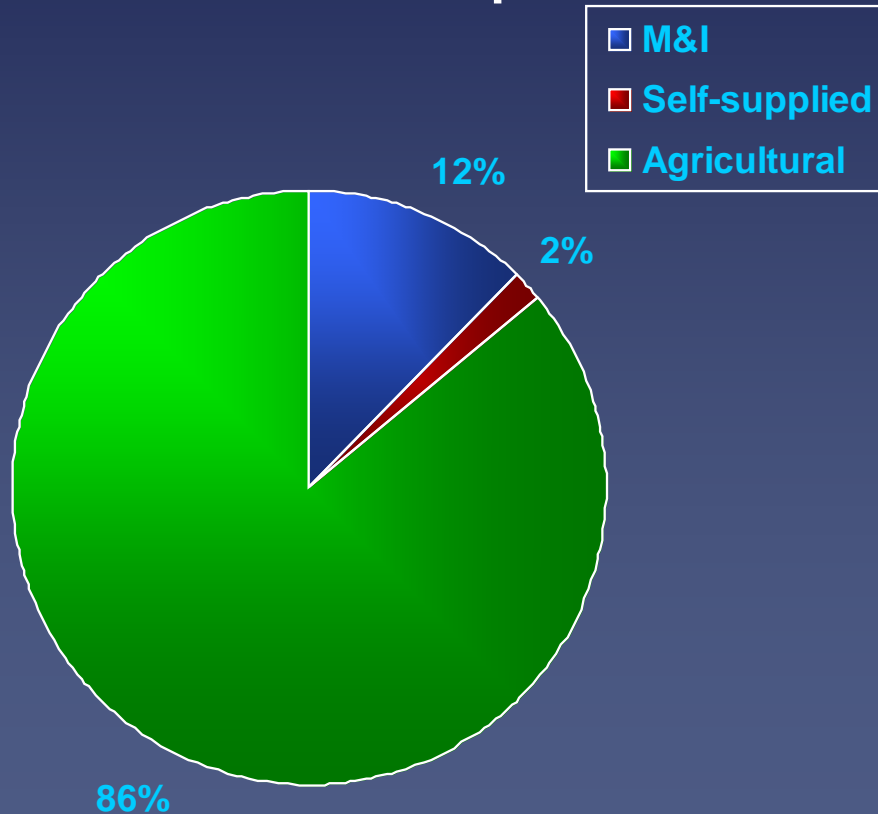
Basin	2000 Irrigated Acres	Irrigation Water Requirement (AF/Year)	Water Supply Limited Consumptive Use (AF/Year)	Gross Diversions (AF/ Year)
Arkansas *	405,000	748,000	619,000	1,770,000
Colorado	238,000	366,000	319,000	1,764,000
Dolores/San Juan/ San Miguel	255,000	370,000	294,000	953,000
Gunnison	264,000	473,000	396,000	1,705,000
North Platte	116,000	96,000	96,000	397,000
Rio Grande	633,000	1,108,000	776,000	1,660,000
South Platte	1,027,000	1,798,000	1,541,000	2,606,000
Yampa/White/Green	118,000	138,000	123,000	642,000
TOTAL	3,056,000	5,097,000	4,164,000	11,497,000

M&I and Self-supplied Industrial Gross Demand by Basin - 2000 - 2030

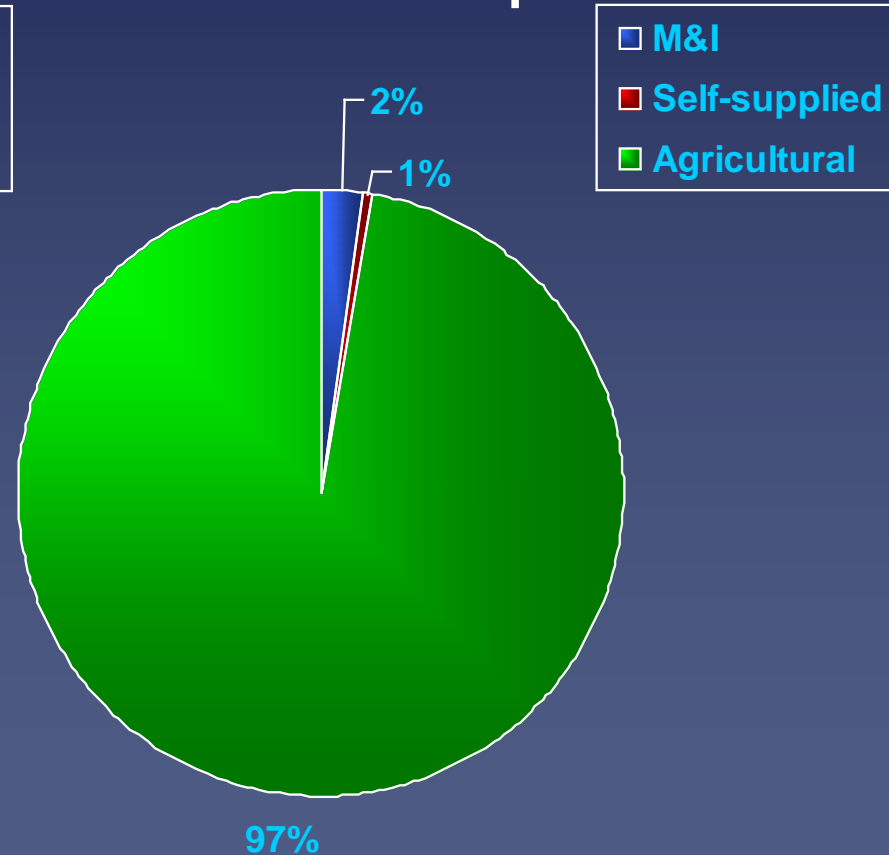


State of Colorado 2000 M&I, Self-supplied Industrial and Agricultural Water Demands

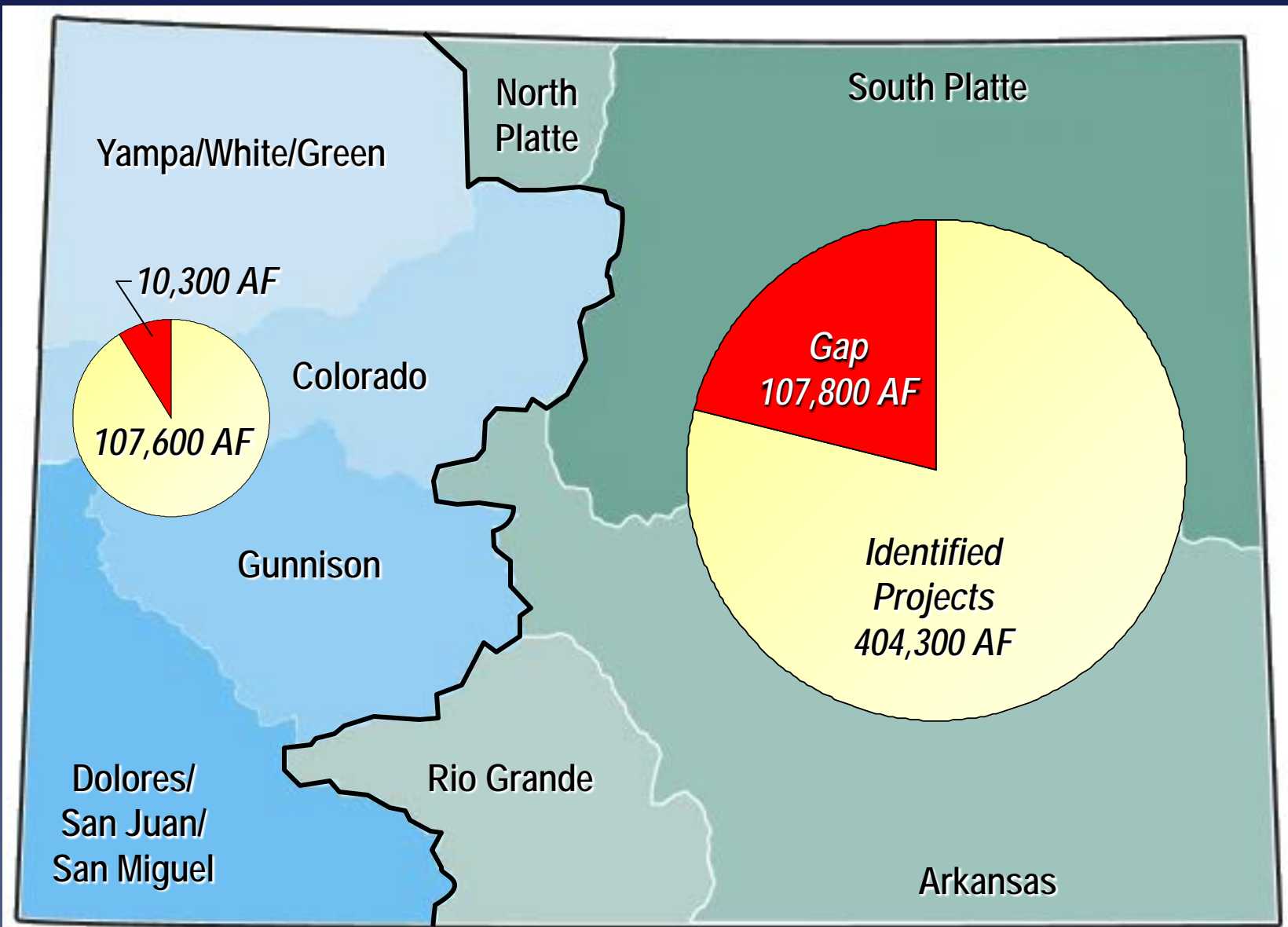
East Slope



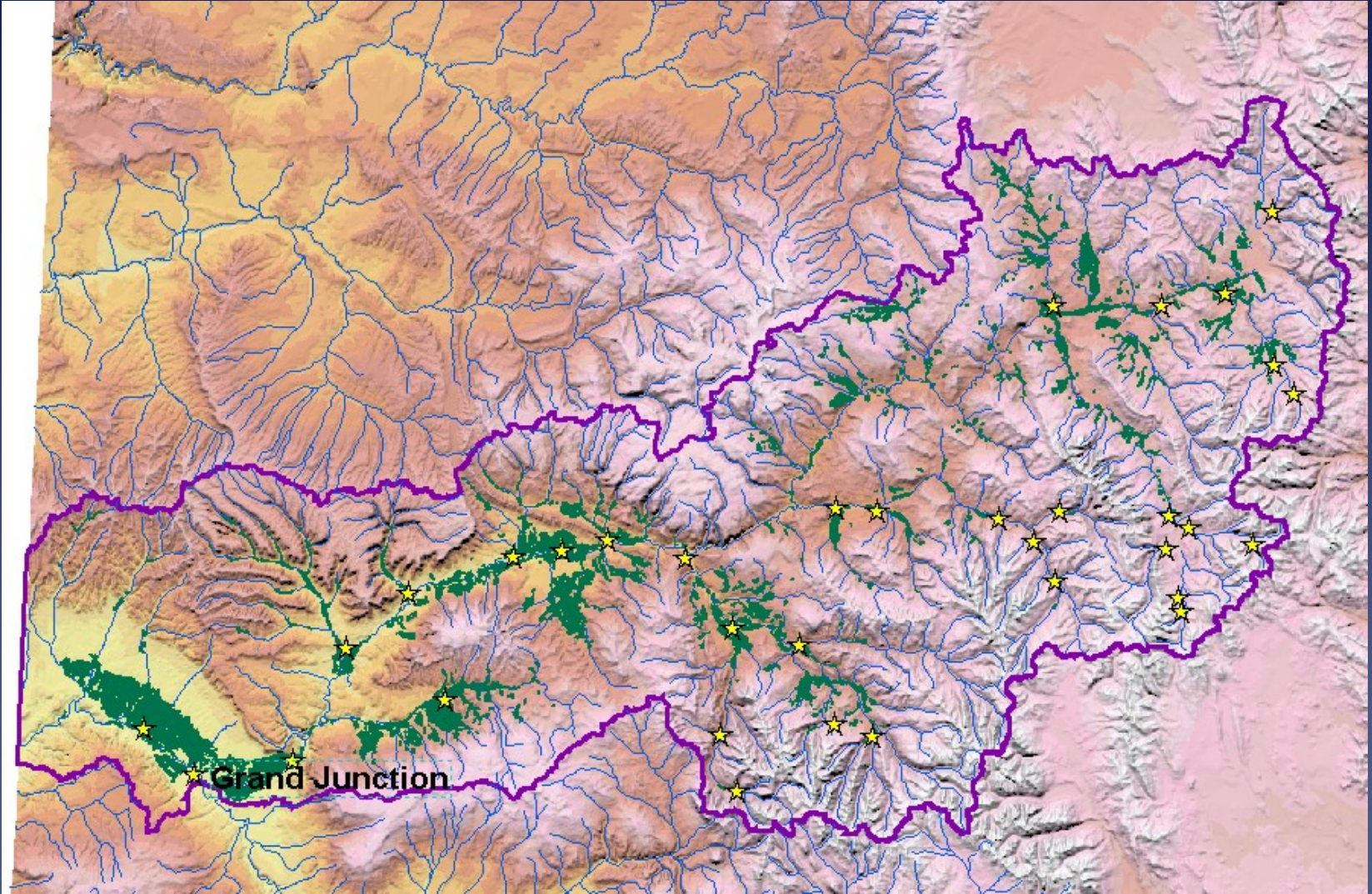
West Slope



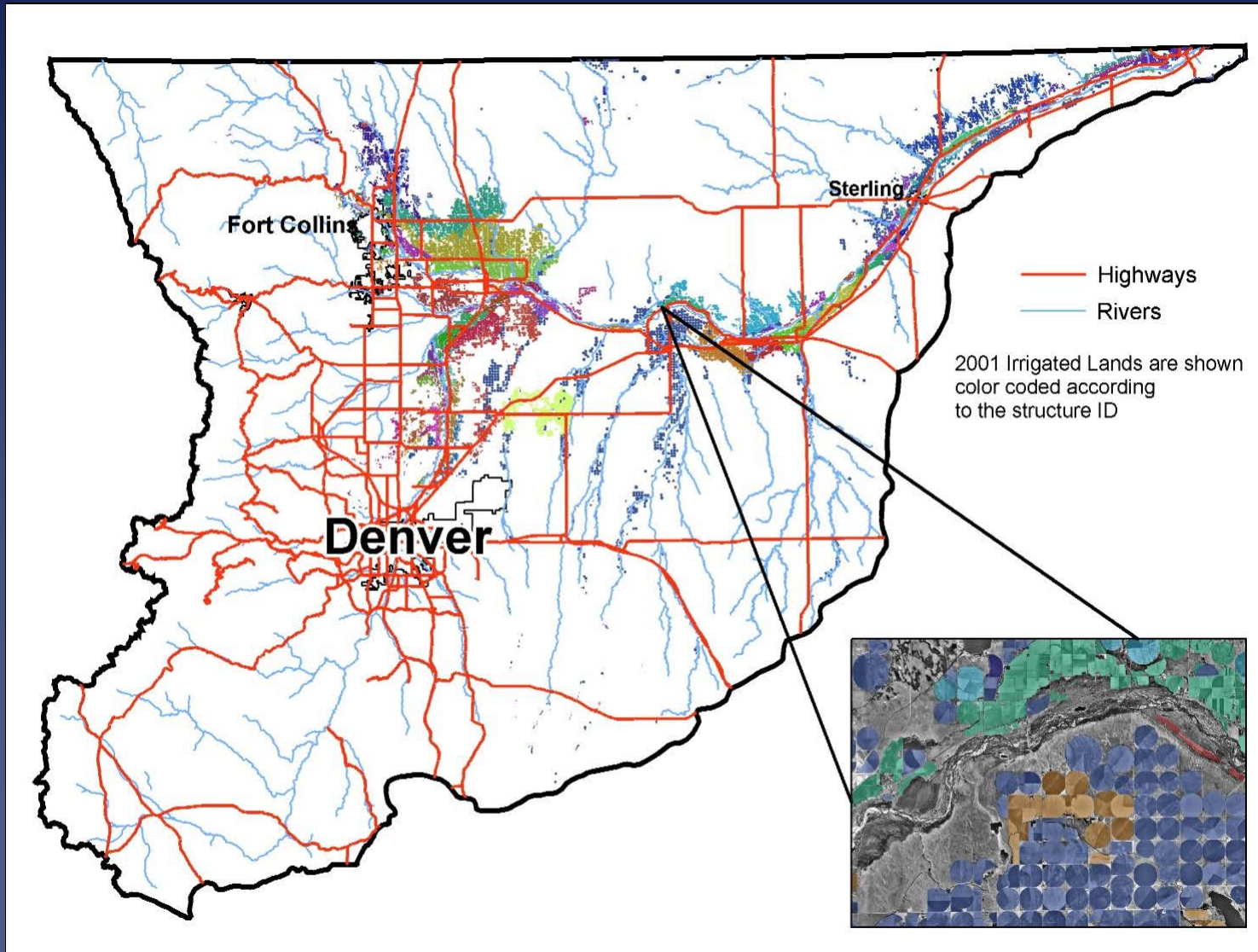
2030 M&I Water Demands and Gaps



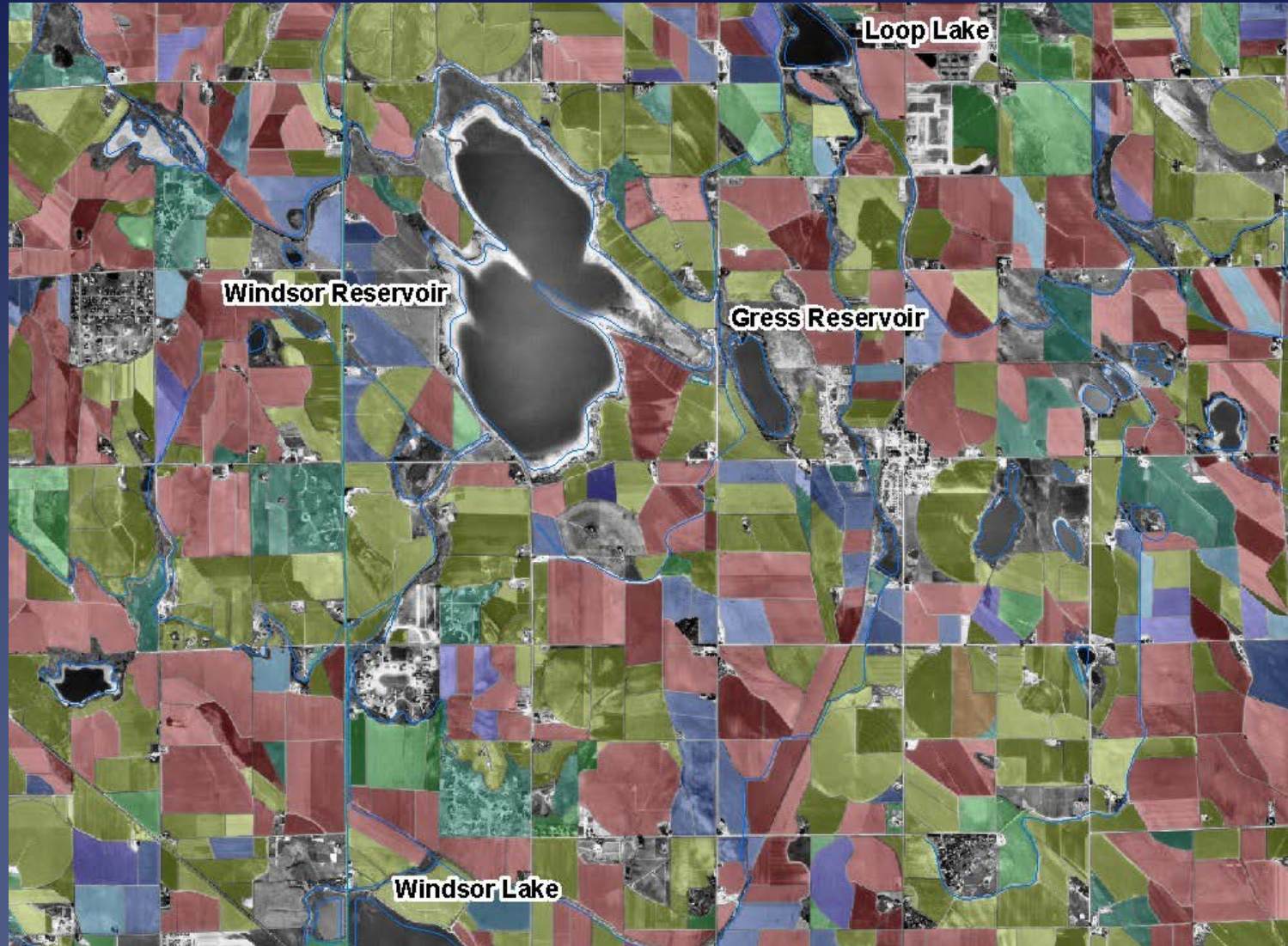
Colorado River Basin 2000 Irrigated Lands



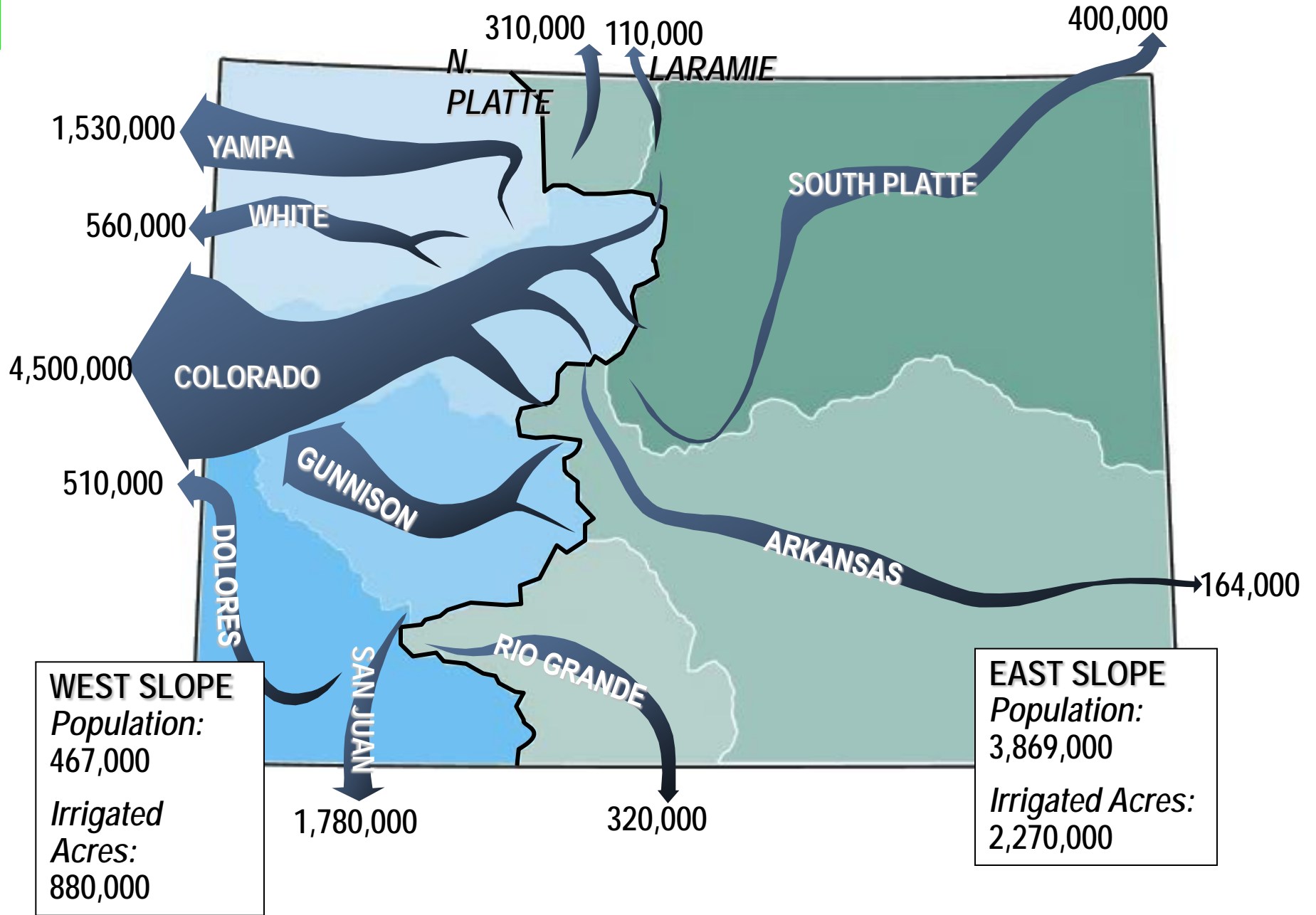
State DSS Proved Invaluable Determining Agricultural Uses



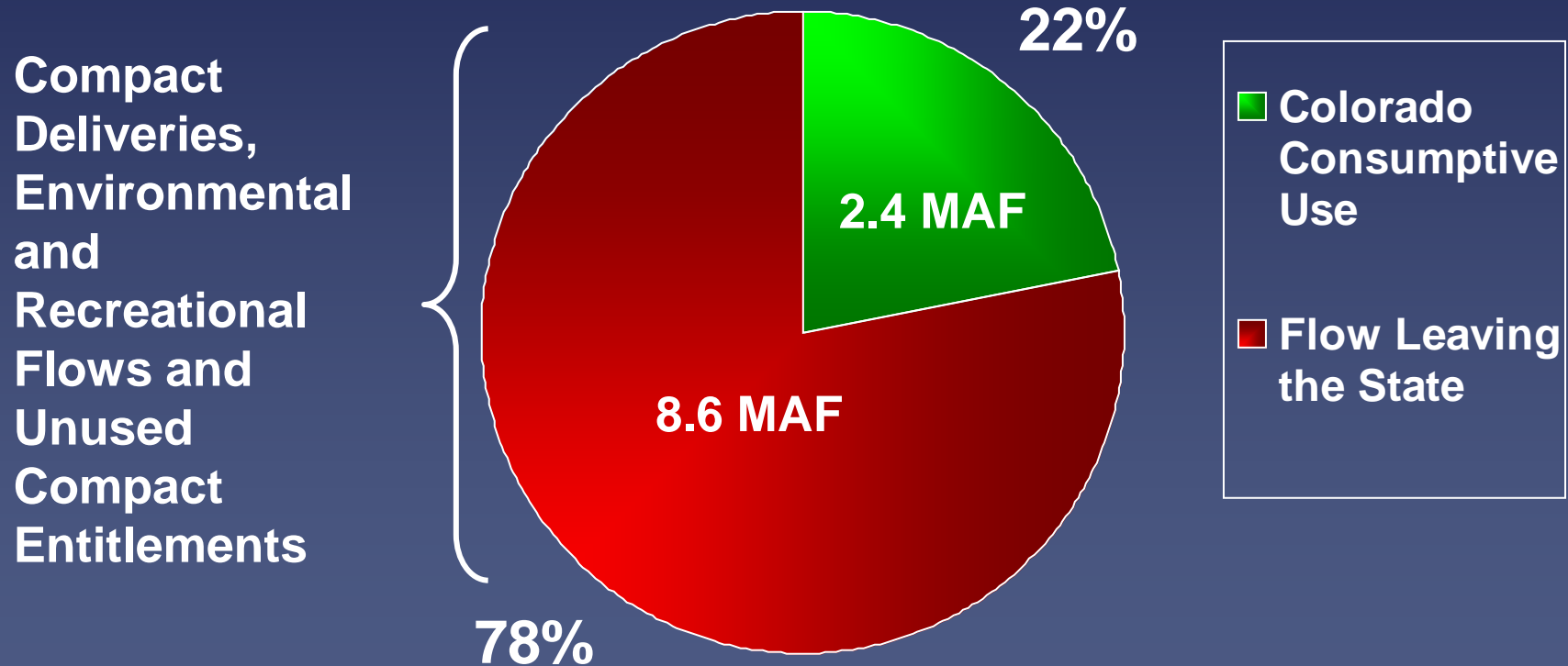
DSS Irrigated Acreage Coverage



2000 Population, Irrigated Acres and Flows



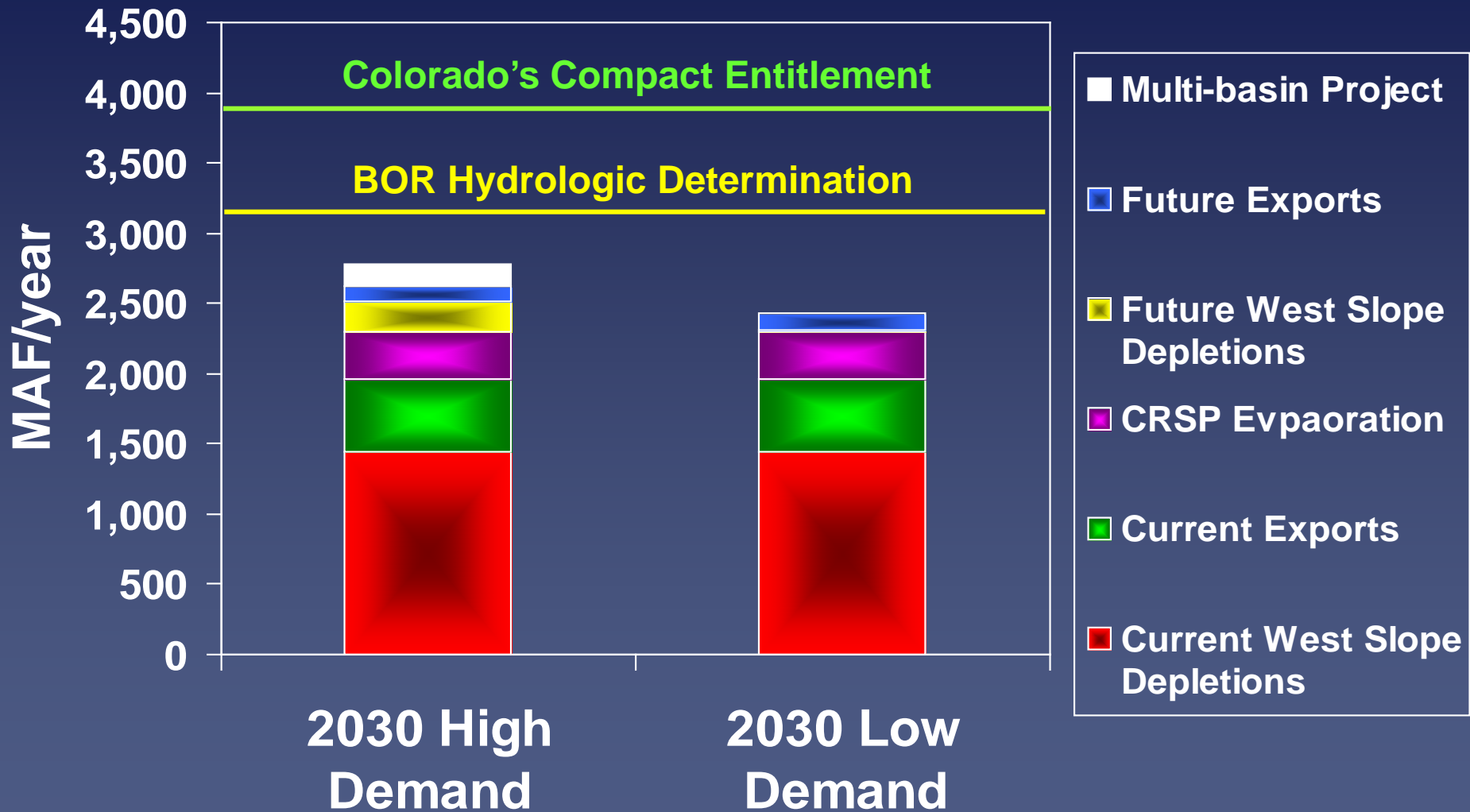
Use of Colorado River Basin Flows Originating in Colorado



Availability of Colorado's Share of Colorado River Compact "Apportionment"

	BOR Hydrologic Determinations	Colorado River Compact Correct Assumptions
Available to Upper Basin States	6.0 MAF	7.5 MAF
Colorado Share of Consumptive Use	3.08 MAF	3.85 MAF

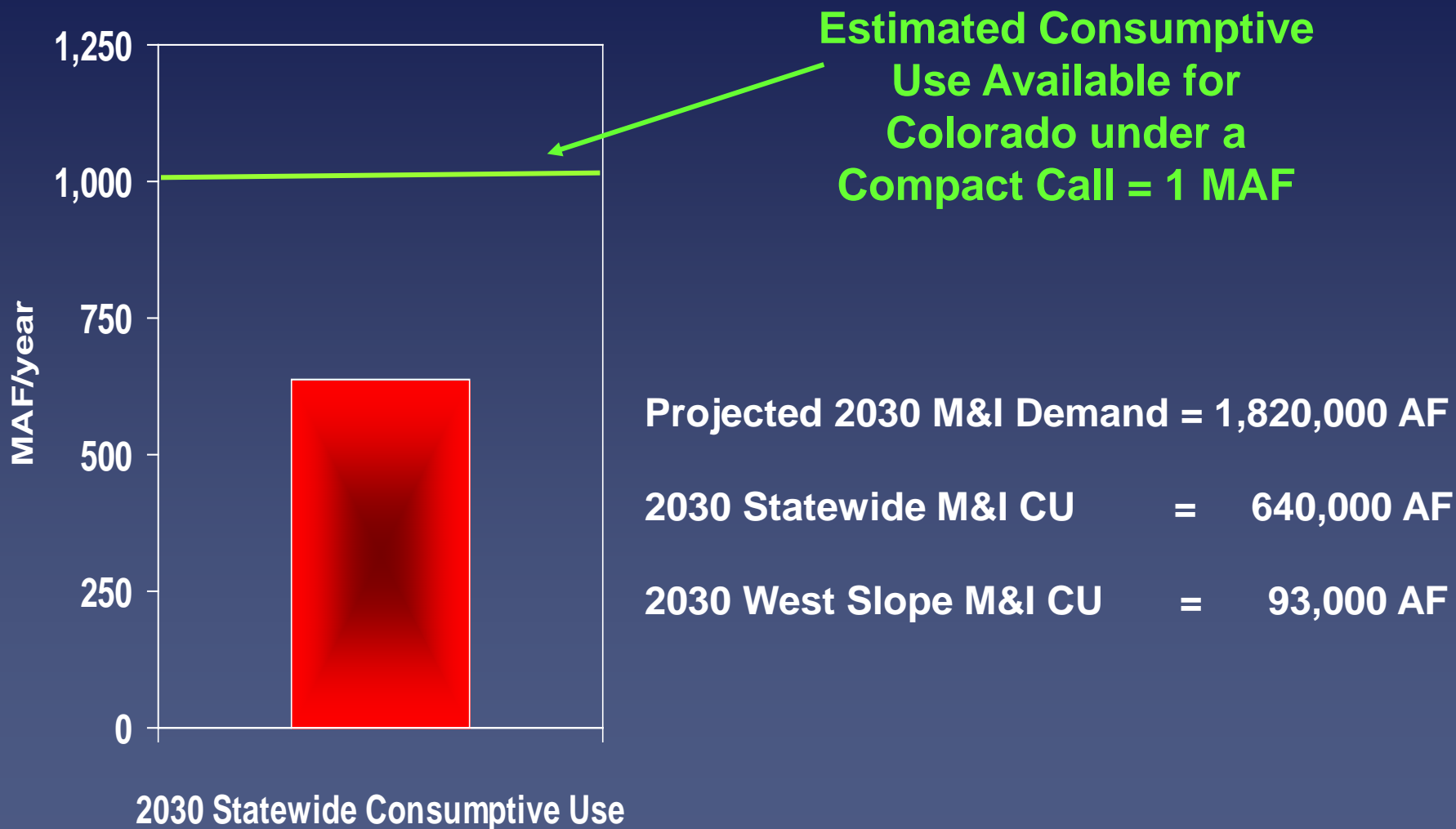
High and Low Estimates of 2030 State of Colorado's Share of Colorado River Compact Depletions



Determination of Availability of Colorado's Developable Flows under the Colorado River Compact

Planning Criteria	Severe Hydrology Scenario	Firm Yield Planning Criteria
Planning Period for Analysis of Developable Yield	Anasazi Drought, Tree Ring periods or worst case climate change scenario	Critical Period (1954 - 1966) during Period of Record
Estimated Historical Drought Recurrence	1 in 500/1,000 years	1 in 75/100 years
Estimated Drought Length, Years	25 to 75 years	10 years
Available Consumptive Use for Colorado, AF per year (including CRSP evaporation)	1,350,000	3,079,000
Additional Developable Flow, AF per Year	Reduction of > 1,000,000	600,000
Options to Meet M&I Demands	Interruptible Agreements or Dry-up of pre-compact irrigated lands or abandonment of area	Additional Storage at a 3:1 to 6:1 storage to firm yield ratio

State of Colorado Statewide M&I 2030 Consumptive Use and Estimated Supply Availability under a Compact Call

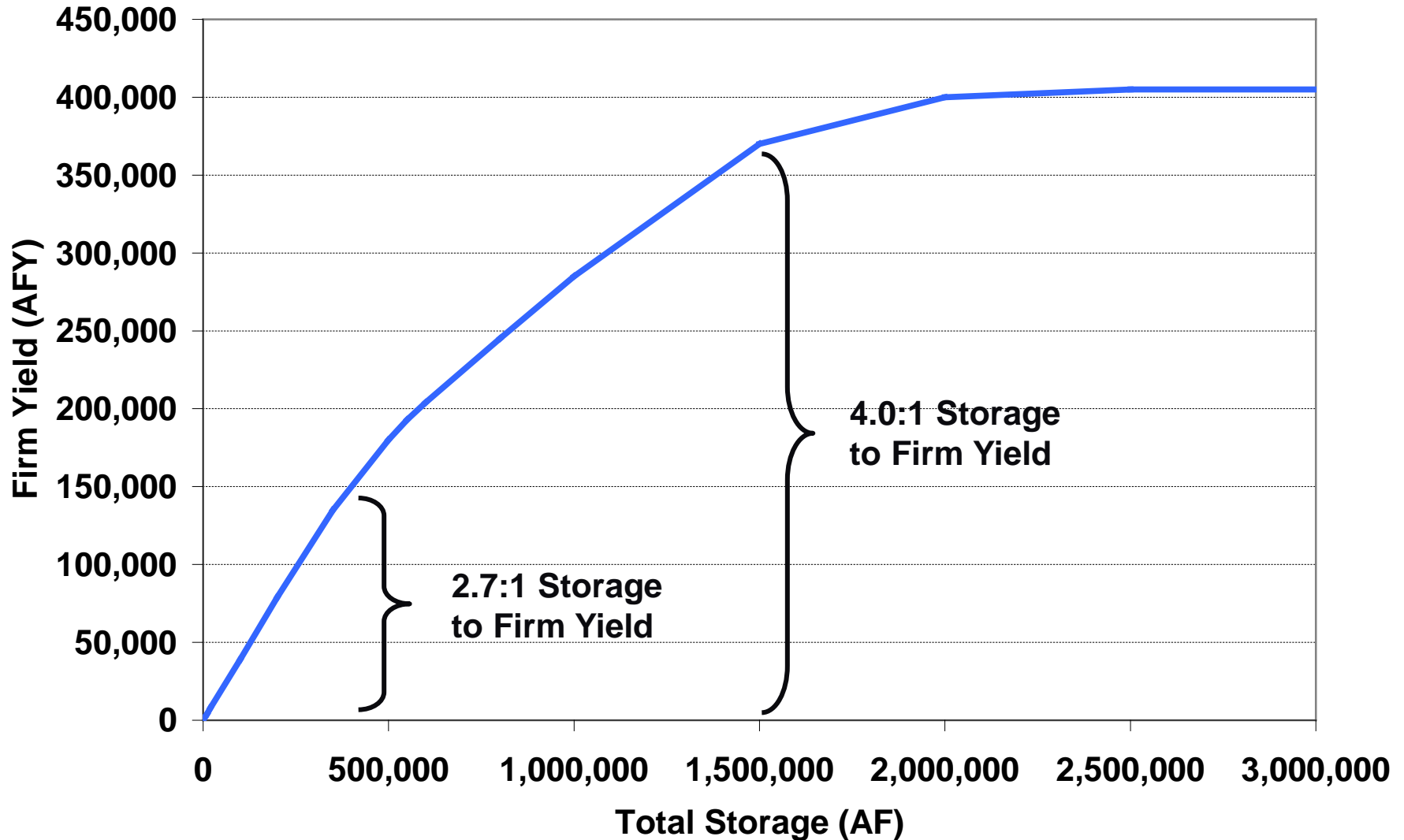


Projects with available or future yield using firm yield criteria

- Existing Reservoirs
 - Ruedi Reservoir contract pool
 - Blue Mesa Reservoir contract pool
 - Wolford Mountain Reservoir contract pool
 - Ridgway Reservoir
- Planned/Proposed Projects
 - Moffat Firming
 - Windy Gap Firming
 - Elkhead Reservoir enlargement
 - Wolcott Reservoir (proposed?)
 - Green Mountain Pumpback?

Firm Yield for New Storage Reservoir

Gunnison River below Gunnison Tunnel (1909-2002)

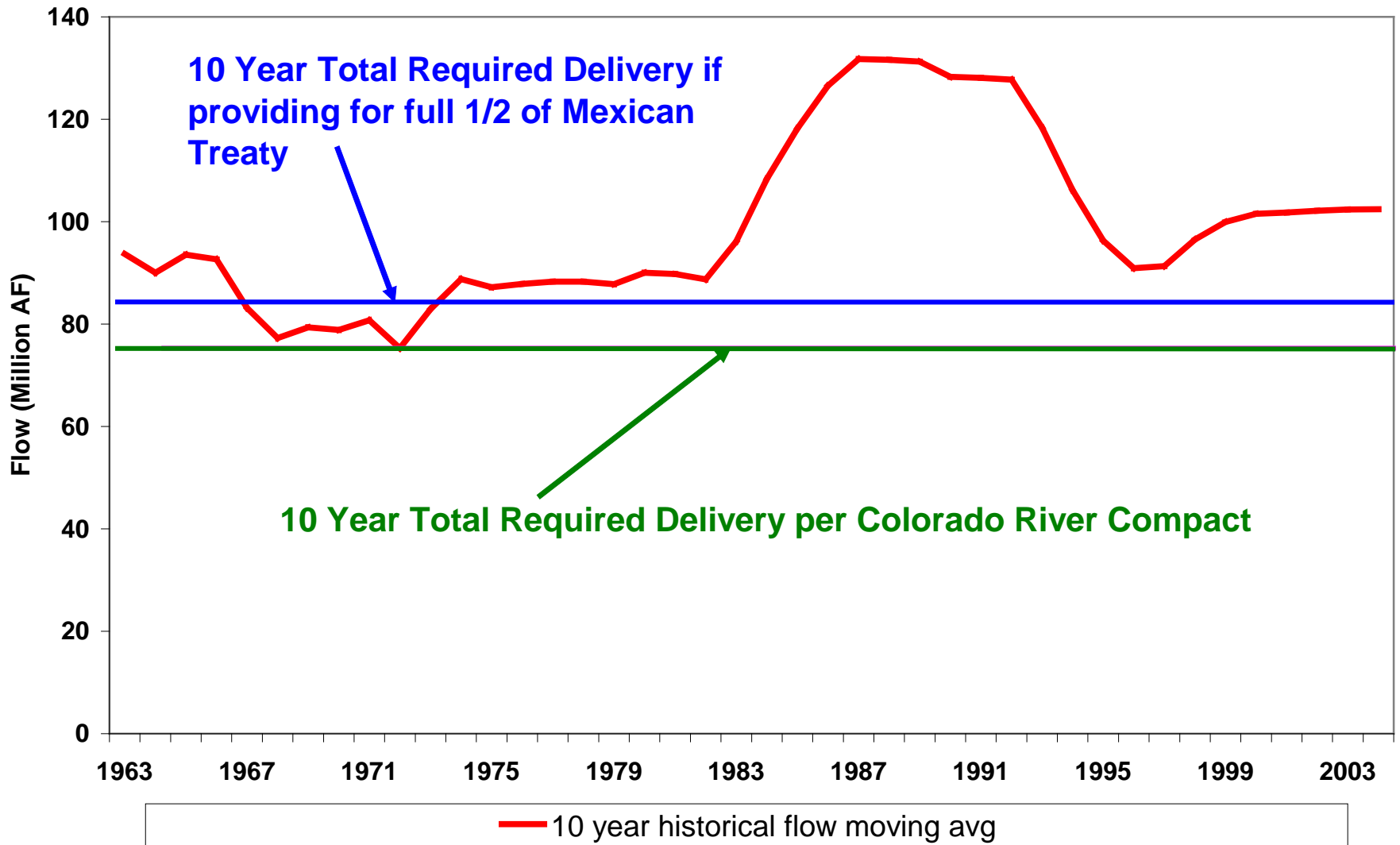


JUST SAY NO!

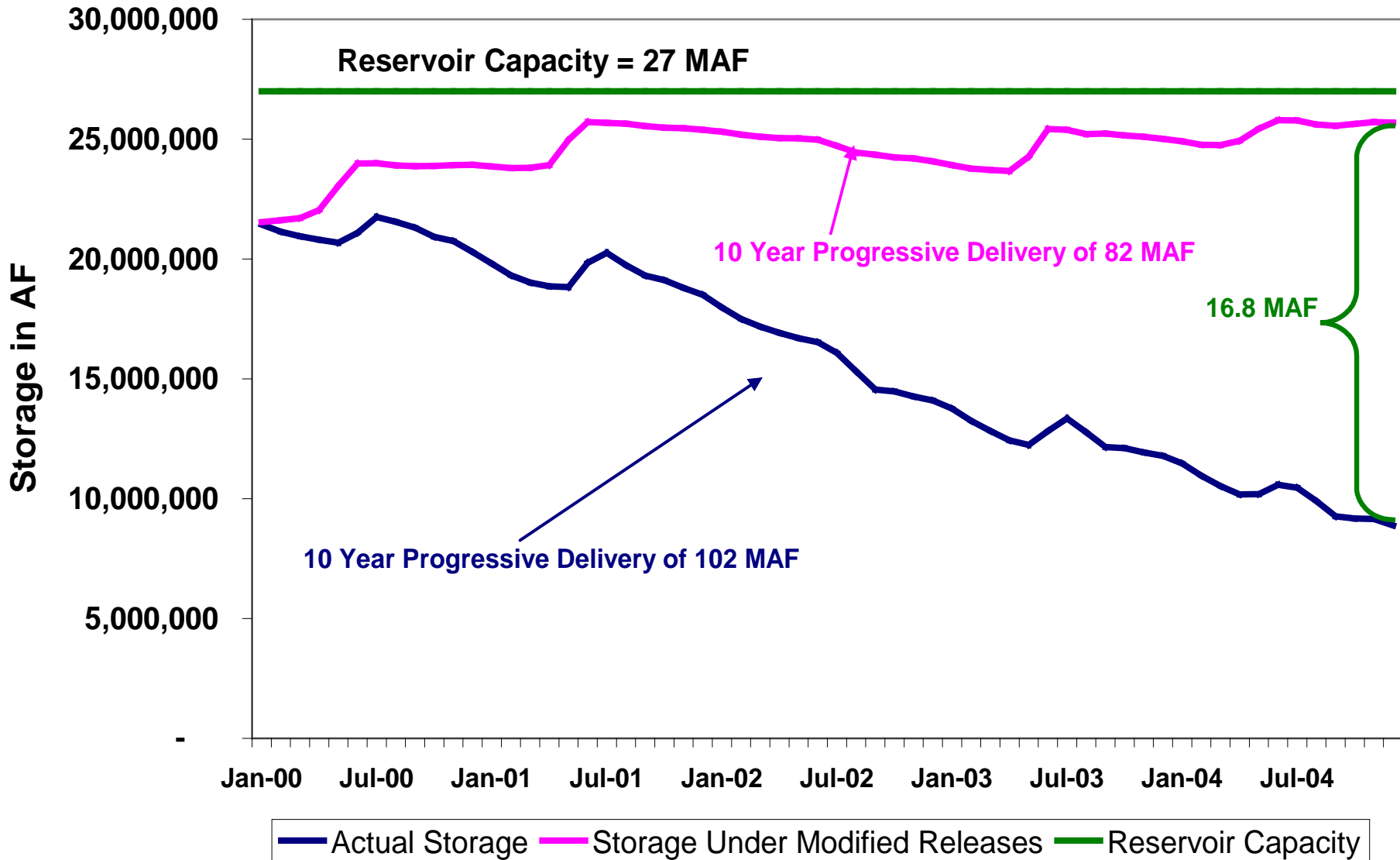


Historical 10 Year Progressive Total Flow at Lee Ferry (1963-2004)

Source: Upper Colorado River Commission



Actual and Projected Lake Powell Storage Under Modified Release Scenario 2000 - 2004



Conclusions Regarding Colorado River Compact

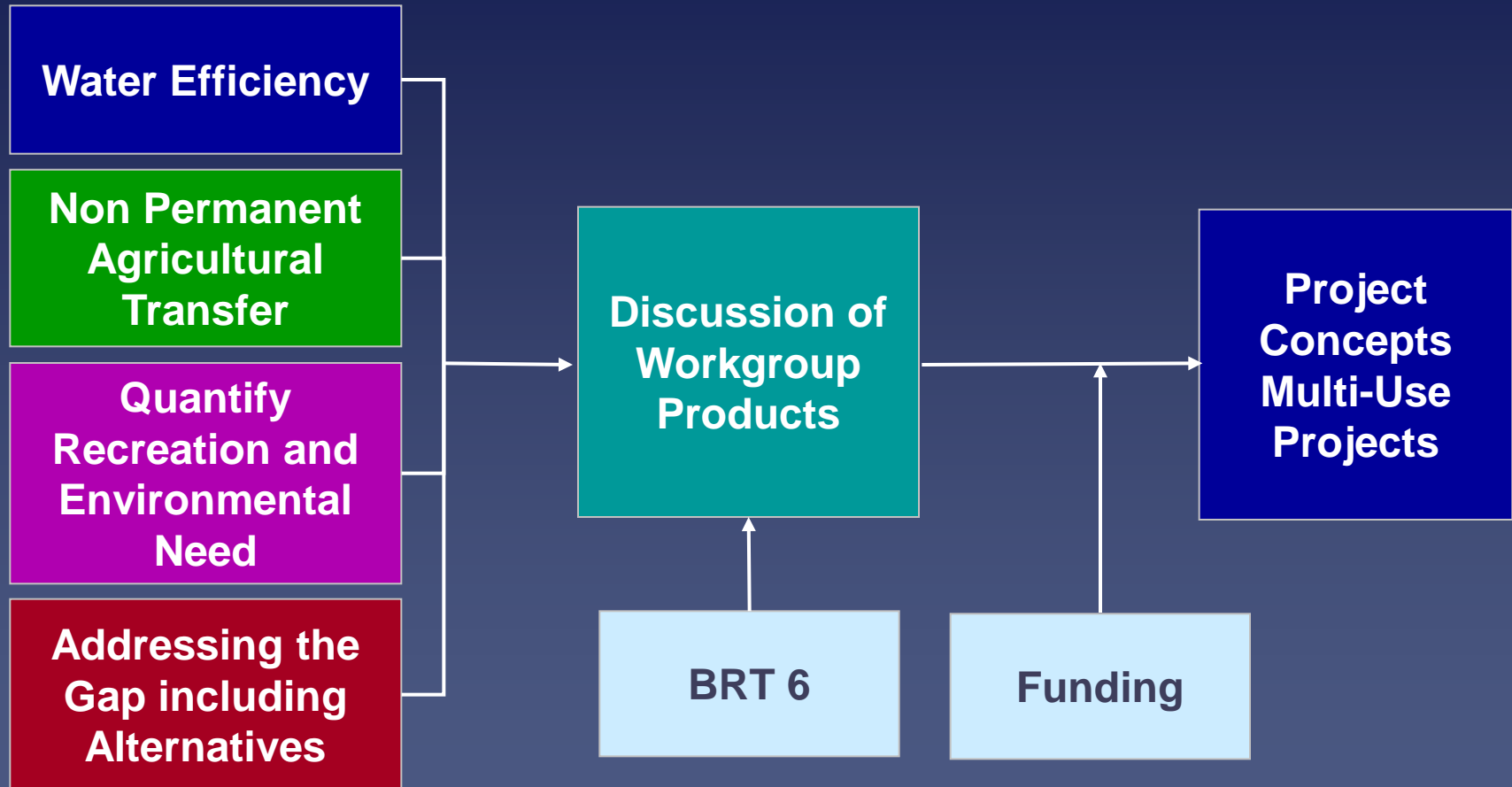
- The Lower Basin is overusing its share under the Compact
- Colorado's water needs will continue to increase
- Colorado will fully develop its Compact entitlement under reasonable hydrologic planning scenarios
- The BOR Hydrologic Determination is a comparable planning method to M&I planning criteria
- Colorado's future compact deliveries of > 7 MAFY can be managed to maximize environmental and recreational benefits
- Change in planning criteria to account for the negative effects of climate change will result in additional transfer of West Slope irrigated lands to M&I use

CWCB November 2004
Statewide Water Supply Initiative (SWSI)
Mission Statement

**The 20% M&I Gap, Agricultural Shortages and
Environmental and Recreational Enhancements**

*Foster cooperation among water suppliers and citizens
in every water basin to examine and implement options
to fill the gap between ongoing water planning and future
water needs.*

SWSI Technical Roundtables Input to CWCB





Additional Information

www.cwcb.state.co.us

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