

STATE OF COLORADO

Colorado Water Conservation Board Department of Natural Resources

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TO: Colorado Water Conservation Board Members

Bill Ritter, Jr.
Governor

FROM: Eric Hecox
Intrastate Water Management & Development

Harris D. Sherman
DNR Executive Director

DATE: May 19, 2009

Jennifer L. Gimbel
CWCB Director

SUBJECT: **Agenda Item 13, May 18-19, 2009 Board Meeting**
Arkansas Basin Roundtable: Recent Successes in the Arkansas Basin

Dan McAuliffe
CWCB Deputy Director

Staff Recommendation

This is an *information* item and Board action is not required.

Background

The Interstate Water Management & Development section supports the on-going implementation of the Basin Roundtable process. Many of the recent water supply successes in the Arkansas Basin are directly or indirectly related to Arkansas Basin Roundtable Activities.

Gary Barber, chair of the Arkansas Basin Roundtable, will discuss recent successes in the basin from the perspective of the roundtable. He will discuss:

- The Arkansas Basin Roundtable
- Activities of the key sub-committees
 - Transfers Guidelines
 - Non-Consumptive Needs
 - Consumptive Needs
- Basin Challenges
- Where the Roundtable is now
- Where the Roundtable is headed

A preliminary draft of the presentation is attached.

Arkansas Basin Roundtable

Presentation

Colorado Water

Conservation Board

May, 2009

Topics for Presentation

- ✧ **The Arkansas Basin Roundtable**
- ✧ **Activities by Three Committees**
 - ✧ **Transfers Guidelines**
 - ✧ **Non-Consumptive Needs**
 - ✧ **Consumptive Needs**
- ✧ **Basin Challenges**
- ✧ **Where we are now**
- ✧ **Where we are headed**

Membership

Ark Roundtable Membership Roster (current 7/14/08)

Voting Members Representing		First Name	Last Name	Voting Members Representing		First Name	Last Name
1	At-Large Environmental	SeEtta	Moss	29	Huerfano County	Lindsay	Case
2	At-Large Lcl Dmstc Wtr Prov	Lissa	Pinello	30	Huerfano County WCD		
3	At-Large Agriculture	John	Proctor	31	Huerfano Muni		
4	At-Large Agriculture	Jonathan	Fox	32	Kiowa County	Rod	Brown
5	At-Large Agriculture	Tom	Brubaker	33	Kiowa Muni	Cardon	Berry
6	At-Large Agriculture	Dan	Henrichs	34	Lake County	Dennis	Smith
7	At-Large Agriculture	John	Schweizer	35	Lake Muni	Bud	Elliott
8	At-large Industrial	Jane	Rawlings	36	Las Animas County	Tom	Verquer
9	At-Large Recreation	Reed	Dils	37	Las Animas Muni	James	Fernandez
10	At-Large Water Rights Owner	Reeves	Brown	38	Legislative Appointment	Alan	Hamel
11	Baca County	Glen	Ausmus	39	Lincoln County	John	Reid
12	Baca Muni	Max	Smith	40	Lincoln Muni	Dave	Stone
13	Bent County	Frank	Wallace	41	Lower Arkansas Valley WCD	Jay	Winner
14	Bent Muni	Lawrence	Sena	42	North La Junta WCD		
15	Chaffee County	Tim	Glenn	43	Otero County	Kevin	Karney
16	Chaffee Muni	Patricia	Alderton	44	Otero Muni	Joe	Kelley
17	Cheyenne County			45	Prowers County	Virgil	Cochran
18	Cheyenne Muni			46	Prowers Muni	Doug	Montgomery
19	Crowley County	Terry	Rusher	47	Pueblo Conservancy District	Ricky	Kidd
20	Crowley Muni	Carl	McClure	48	Pueblo County	Anthony	Nunez
21	Custer County	Keith	Hood	49	Pueblo Muni	Tom	Florczak
22	Custer Muni			50	Purgatoire River WCD	Jeris	Danielson
23	El Paso County	Gary	Barber	51	Saguache County	Tom	Young
24	El Paso Muni	Wayne	Vanderschuere	52	Southeastern Colo WCD	Jim	Broderick
25	Elbert County	Larry	Reeves	53	Teller County		
26	Elbert Muni			54	Teller Muni		
27	Fremont County	Michael	Stiehl	55	Upper Arkansas WCD	Terry	Scanga
28	Fremont Muni	Tom	Pitlingsrud				

Potential Members	55
Active Members	46
Quorum Regular (50%)	32

Non-Voting Members and Interested Parties

Non Voting Members		First Name	Last Name
1	Aqua Engineering Inc (Contract Facilitator)	MaryLou	Smith
2	Colo. Div. of Water Resources (Division 2 Engineer)	Steve	Witte
3	Colo. Division of Wildlife (liason)	Jay	Skinner
4	Colo. Division of Wildlife (liason)	John	Tonko
5	Colo. Geological Survey (liason)	Ralf	Topper
6	Colo. State Parks, Ark Headwaters Rec Area	Rob	White
7	Colo. State University (liason)	Perry	Cabot
8	Colo. State University (liason)	Jeff	Tranel
9	Director of Natural Resources (IBCC)	Viola	Bralish
10	Director of Natural Resources (IBCC)	Eric	Hecox
11	DMSC, LLC (Secretary to Roundtable)	Elise	Bergsten
12	Ft. Carson liason	Gary	Belew
13	Non-Voting At Large Member (Aurora Water)	Mark	Pifher
14	Non-Voting At Large Member (Roaring Fork)	Phil	Overeynder
15	Rep John Salazar's Office	Loretta	Kennedy
16	U.S. Army Corps of Eng (liason)	Van	Truan
17	U.S. Bureau of Land Management	Paul	Trentzsch
18	U.S. Bureau of Reclamation (liason)	Tom	Musgrove
19	U.S. Bureau of Reclamation (liason)	Roy	Vaughan
20	U.S. Bureau of Reclamation (liason)	Ed	Warner
21	U.S. Forest Service (liason)	Misty	DeSalvo
22	U.S. Forest Service (liason)	Deb	Entwistle

Interested Parties		Name	Last Name
1	Aqua Prima Center, Inc.	Jack	Flobeck
2	Arkansas Groundwater Users Asso	Brenda	Fillmore
3	Arkansas Groundwater Users Asso	John	Sliman
4	Aurora Water	Tom	Simpson
5	CU-Boulder	John	Wiener
6	Lake County	Bill	Klauber
7	Lower Arkansas Valley WCD	Bill	Hancock
8	Pikes Peak Whitewater	Gordon	Stringer
9	Pueblo Chieftain	Chris	Woodka
10	Round Mtn Water & San Dist	Chris	Haga
11	self	Ken	Weber
12	self	Loren	Whittemore
13	Teller County	Kurt	Dahl

Executive Committee

* Two Vice-Chairs

* SeEtta Moss – Non-consumptive Needs Assessment

* Jim Broderick – Consumptive Needs Assessment (SWSI Update)

* Recorder

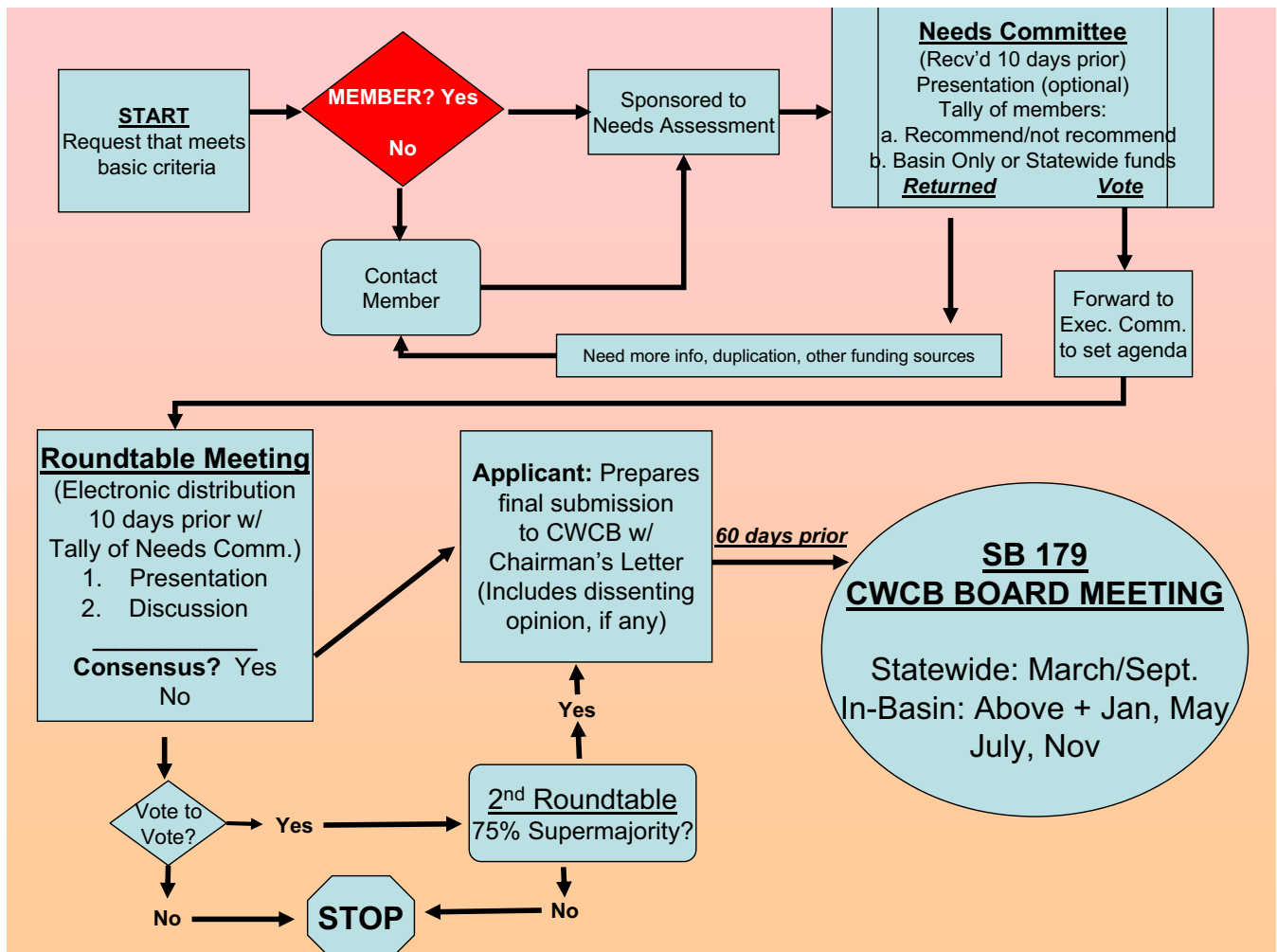
* Jay Winner – Needs Assessment Committee (screens WSR grant requests)

* IBCC Reps from Roundtable

* Jeris Danielson

* Jay Winner

* Alternate: Jim Broderick



Approved	CWCB Mtg	Basin	Statewide
Ark Valley Conduit	March 07	\$0	\$200,000
Tamrisk		\$0	\$50,000
Upper Black Squirrel Recharge	March 07	\$45,200	
Ground Water Conference	March 07	\$24,721	
Fountain Creek Vision Task Force	May 07	\$75,000	
Round Mountain Water District	May 07	\$120,000	
Lower Ark Rotational Fallowing (Superditch)	October 07	\$150,000	
Upper Big Sandy Water Balance	Jan 08	\$45,000	
Transfers Subcommittee Facilitation	Jan 08	\$23,860	
GARNA Arkansas Headwaters Diversion Improvements	Jan 09		\$57,955
City of Las Animas	March 08	\$100,000	\$200,000
State Parks Zebra Mussel Response	March 08		\$1,000,000
Colo. State University Basin wide investigation	September 08	\$100,000	\$500,000
Zero Liquid Discharge (La Junta R.O. Brine)	September 08	\$25,000	\$700,000
Upper Ark Conservancy Water Monitoring Devices	September 08	\$75,000	\$210,332
	Subtotal	\$783,781	\$2,918,287
Pending			
Non-Consumptive Needs Quantification	May, 09	\$148,975	\$0
Bedload/Sediment Removal and Collection System	September, 09	\$40,000	\$145,000
Groundwater Policy: Aquifer Storage and Recovery*	July, 09	\$20,000	\$0
	Subtotal	\$208,975	\$145,000
*Pending commitment by other Basin Roundtables (total: \$60,000)			
Total by Category	Summary	\$992,756	\$3,063,287
IBCC/CWCB Allocation		\$1,000,000	
Remaining Funds		\$7,244	

As of: March 31, 2009

Fountain Creek Vision Task Force

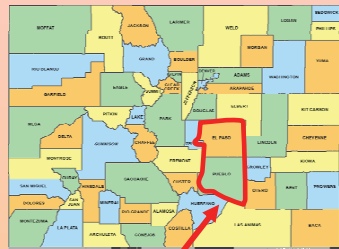
- ✳ \$75,000 WSRA grant for “facilitation”
- ✳ Three (3) years
- ✳ IGA between El Paso and Pueblo Counties Dec, 2008
- ✳ Legislatively created subdivision of the State of Colorado: SB 09-141



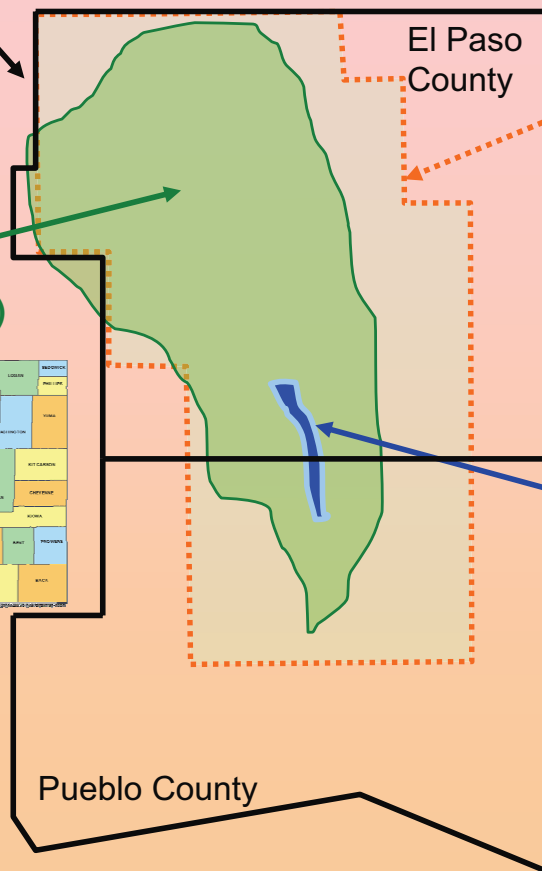
11.5-202 The "District":

All of Both
Counties

The hydrologic
watershed:
(HUC # 11020003)



Pueblo & El
Paso Counties



SB09-141

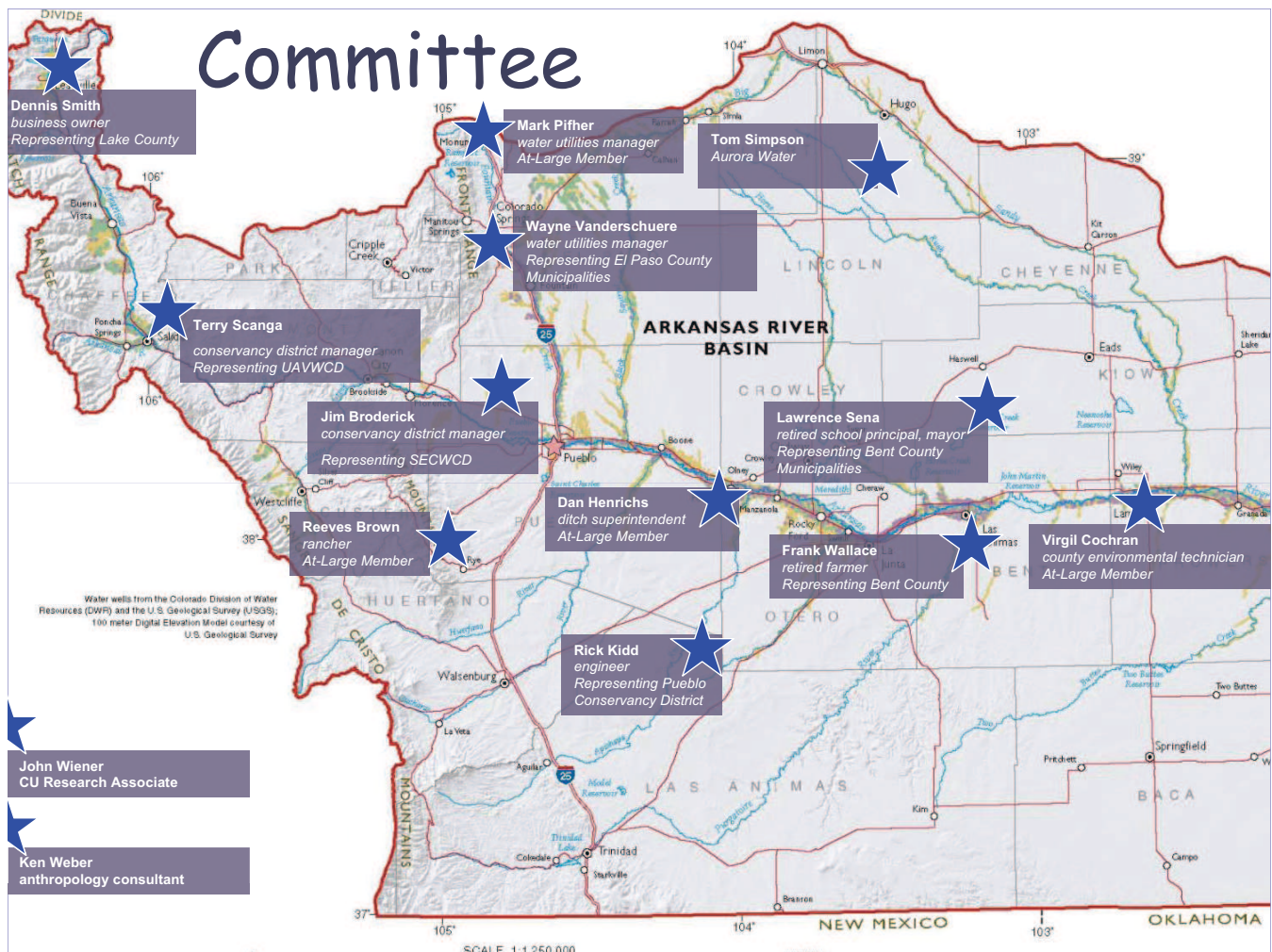
Amendment

L001: The
Watershed
Management
Area: slightly
larger geographic
area subject to
future Fees.
Legal description
by Townships.

11.5-205 3b(I):
The "Corridor,"
the 100 Year
Floodplain
(FEMA) S. of
Fountain & N. of
Pueblo City
limits. Limit of
land use
authority.

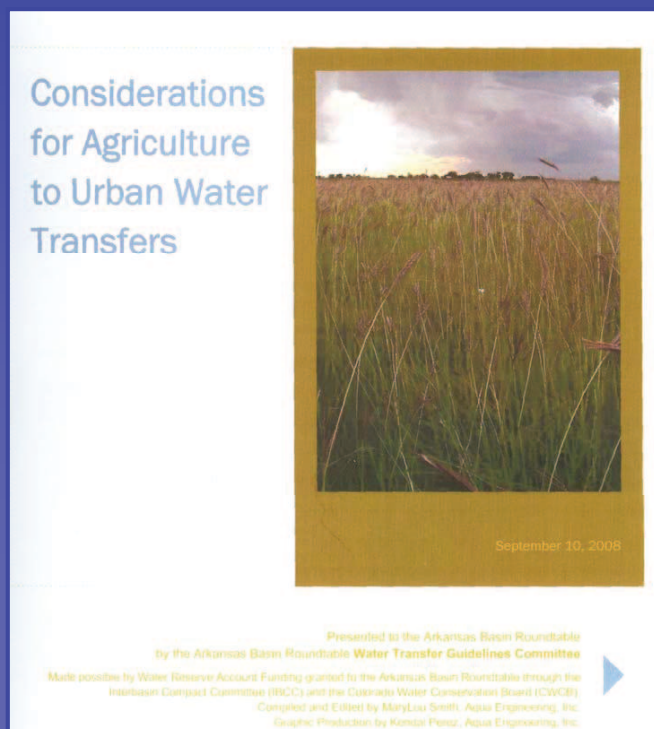
Transfers Guidelines Committee

- ✳ Included Voting and Non-Voting Members along with Interested Parties
- ✳ Gubernatorial Appointee to IBCC: Wayne Vanderschuere, EPC Muni Rep
- ✳ Facilitation by Ms. Mary Lou Smith of AquaEngineering



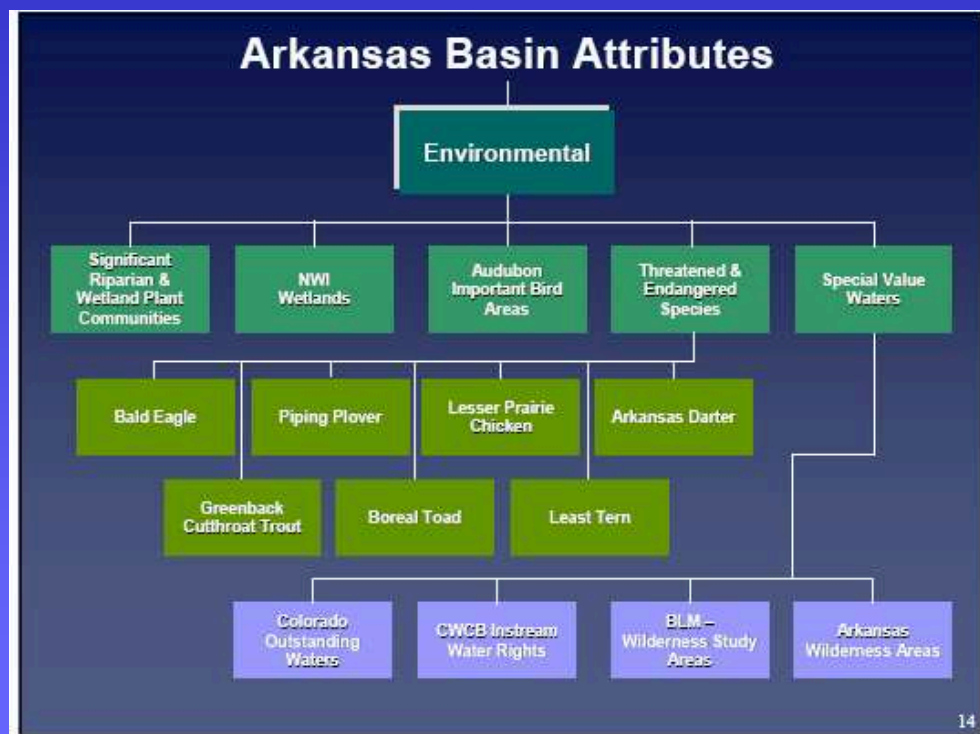
Committee Report in Hand

- ✧ Plenty of discussion
 - ✧ Plenty of interest by others
 - ✧ Featured at the Colorado Water Congress Annual Conference
- January 29, 2009



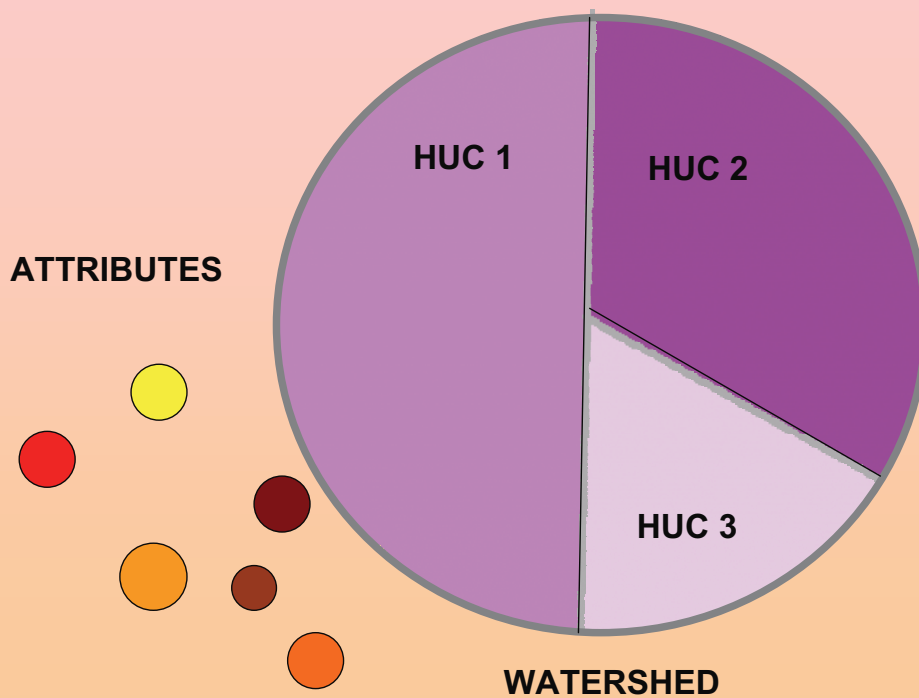
Non-Consumptive Needs Assessment

- ✧ Configured on Hydraulic Unit Codes (HUC's) and their attributes
- ✧ Adopted at the April, 2008 Roundtable Meeting
- ✧ Using the balance of our Basin Funds to complete site specific investigations

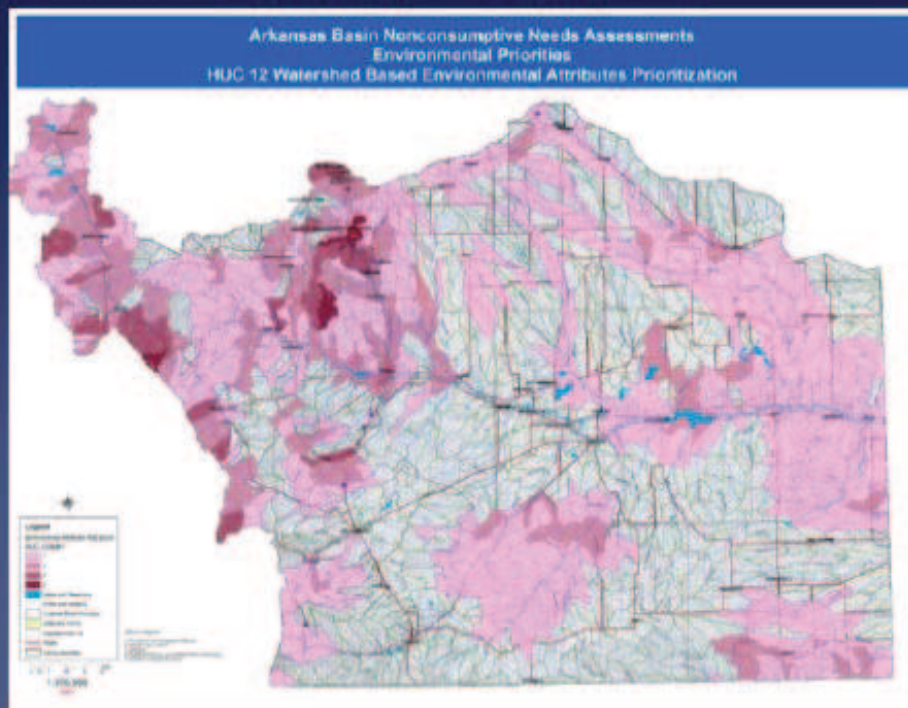


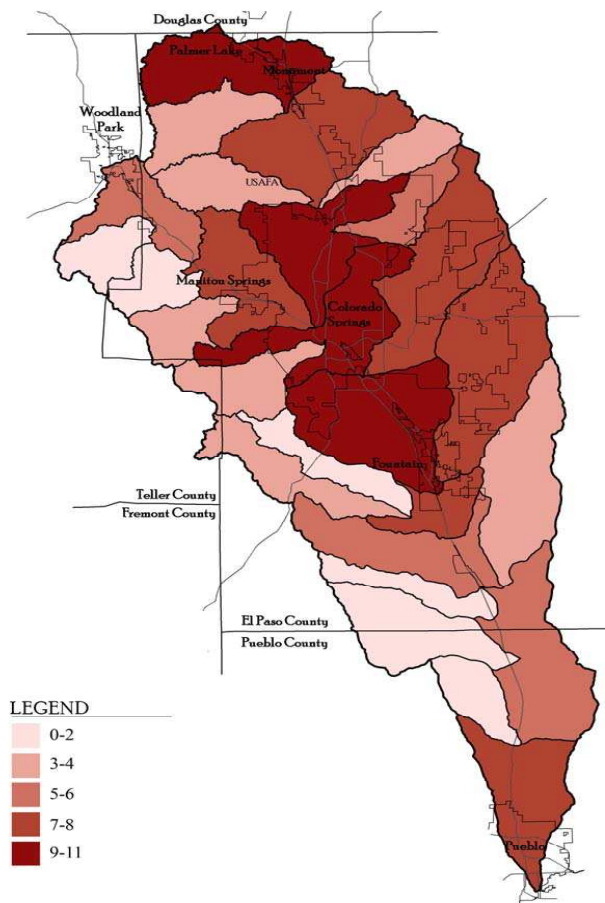
Non-Consumptive Needs Assessment:

HUC Methodology



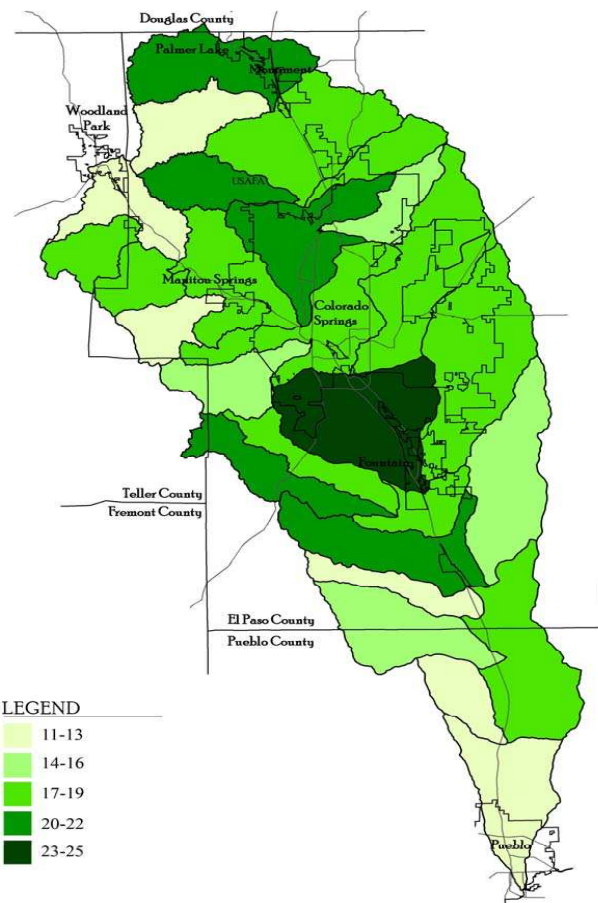
Environmental Prioritization





“THREAT ATTRIBUTE MAP”

WATERSHED IMPACT FACTORS



“POSITIVE ATTRIBUTE MAP”

ENVIRONMENTAL / REC FACTORS

SWSI Update: Consumptive Use Needs Assessment

- ✧ By contractor: Applegate Group working with CDM for the IBCC
- ✧ Adopted at the June, 2008 meeting
- ✧ Our IPP's total three projects:
 - ✧ Southern Delivery
 - ✧ Preferred Storage Option Plan
 - ✧ Arkansas Valley Conduit

OBJECTIVES

Arkansas Basin Consumptive Use Water Needs Assessment

□ **Update** SWSI findings

to reflect information available as of May, 2008

□ Specifically,

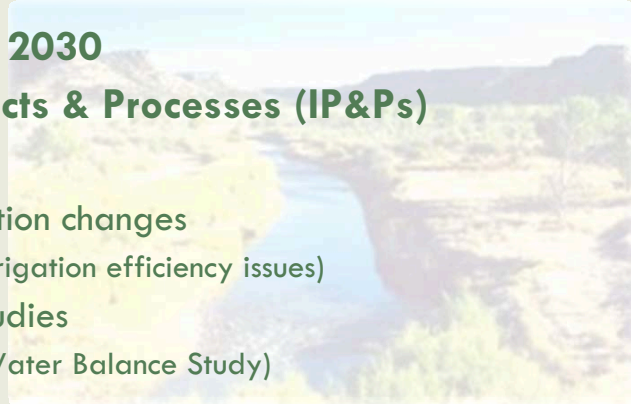
■ Projected Gross Gap for 2030

■ Status of **Identified Projects & Processes (IP&Ps)**

■ Additional Investigations

- Arkansas River administration changes
(e.g. Compact litigation and irrigation efficiency issues)
- On-going groundwater studies
(e.g. Upper Big Sandy DGB Water Balance Study)

□ Investigations did **not** include agricultural consumptive use



INVESTIGATION

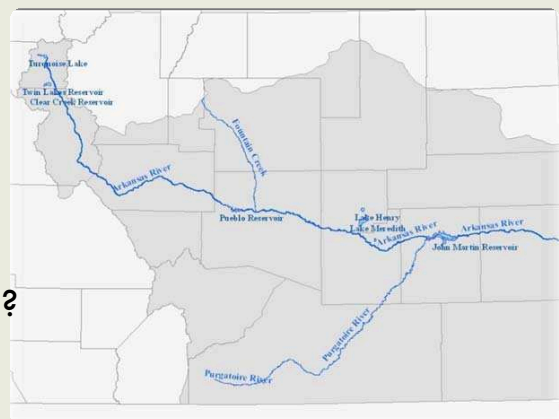
Arkansas Basin Consumptive Use Water Needs Assessment

□ Contacted major water providers

- Inquired about potential water supply shortfalls for 2030
 - What IP&Ps are being considered?
 - What might the gap be **without** some of the IP&Ps?

■ Researched changes to the status of IP&Ps identified in SWSI

- Did **not** develop an independent approach to estimate demand and supply for each entity



KEY FINDINGS

Arkansas Basin Consumptive Use Water Needs Assessment



□ **Total Gross Gap:**

31,700 – 31,900 AF

□ **Counties with largest gap:**

■ **El Paso (unincorporated): 22,600 AF**

- Increased demand: 9,250 AF
- Loss of existing groundwater supplies: 13,350 AF

■ **Lake: 5,000 AF**

- Increased demand- Climax Mine, unincorporated areas, etc

Additional Challenges to Meeting Demand in 2030

(i.e. need for major IP&Ps)

I. Technological, Operational, Regulatory Needs

- Need for structures (e.g. SDS, Arkansas Valley Conduit)
- **Water quality issues**
 - Drinking water standards
(affects wells w/ radionuclides)
 - Surface water quality standards
(affects RO brine disposal)
- Need for additional water rights

Total Need:
Approximately 45,200 AF



Additional Challenges to Meeting Demand in 2030

(i.e. need for major IP&Ps)

II. Storage Needs

(i.e. need for enlargement at Pueblo Reservoir, or elsewhere, and long-term excess capacity contracts):



Pueblo Reservoir



- **Firm storage :**
70,700 AF
- **Long-term excess capacity contracts**
21,500 – 25,500 AF

Arkansas Basin Roundtable

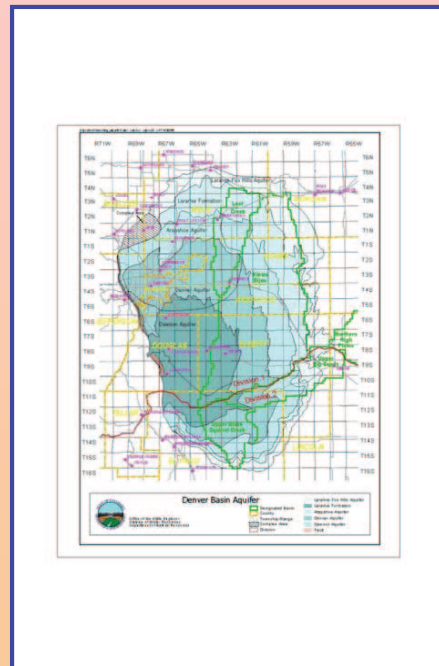
Extract from the Conclusion

Reliance upon major IP&Ps such as the PSOP, SDS, AVC, or acquisition of additional water supplies may significantly affect the overall supply gap in the event these do not come to fruition. Development of the SDS, AVC, or acquisition of supplies would create a physical access to supplies and possible utilization of up to approximately 45,000 acre-feet. Without these alternatives, the physical supply available for use may be significantly reduced.

Groundwater Dependence

✧ The Denver Basin Aquifers

- ✧ Rate of depletion
- ✧ Future sources of supply?



The Denver Basin

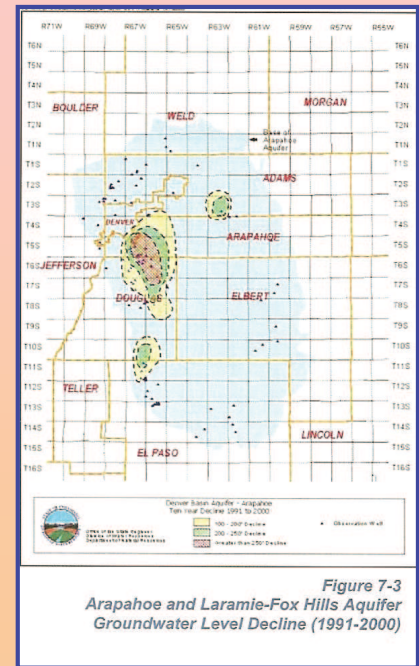


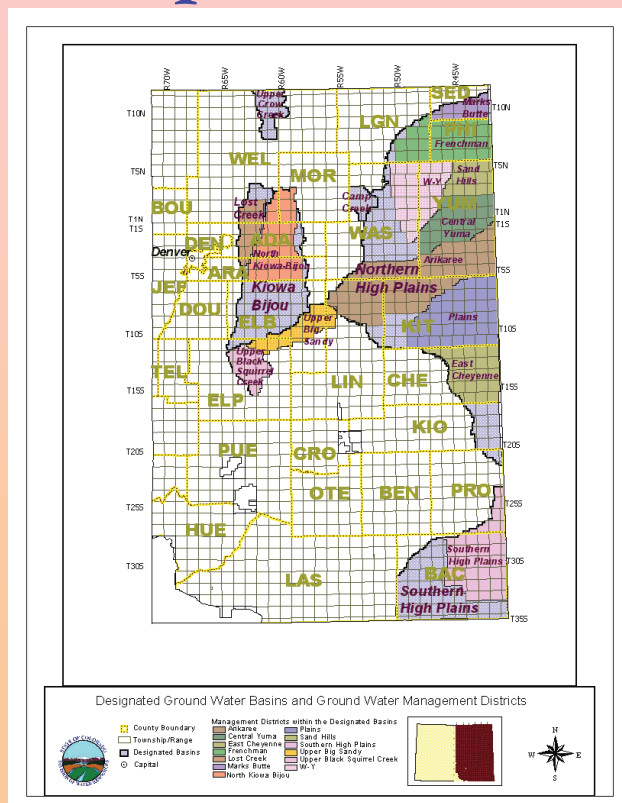
Figure 7-3
Arapahoe and Laramie-Fox Hills Aquifer
Groundwater Level Decline (1991-2000)

USGS Study: 2008

Groundwater Dependence

✧ Designated Basins

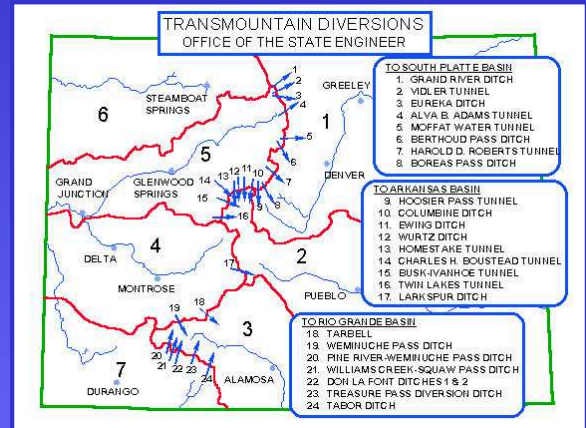
- ✧ A Modified Prior Appropriation Doctrine (Groundwater Act of 1965)
- ✧ Management Districts



Source: Division of Water Resources

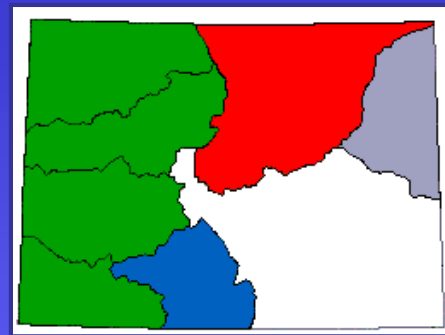
The Arkansas Basin: Challenges

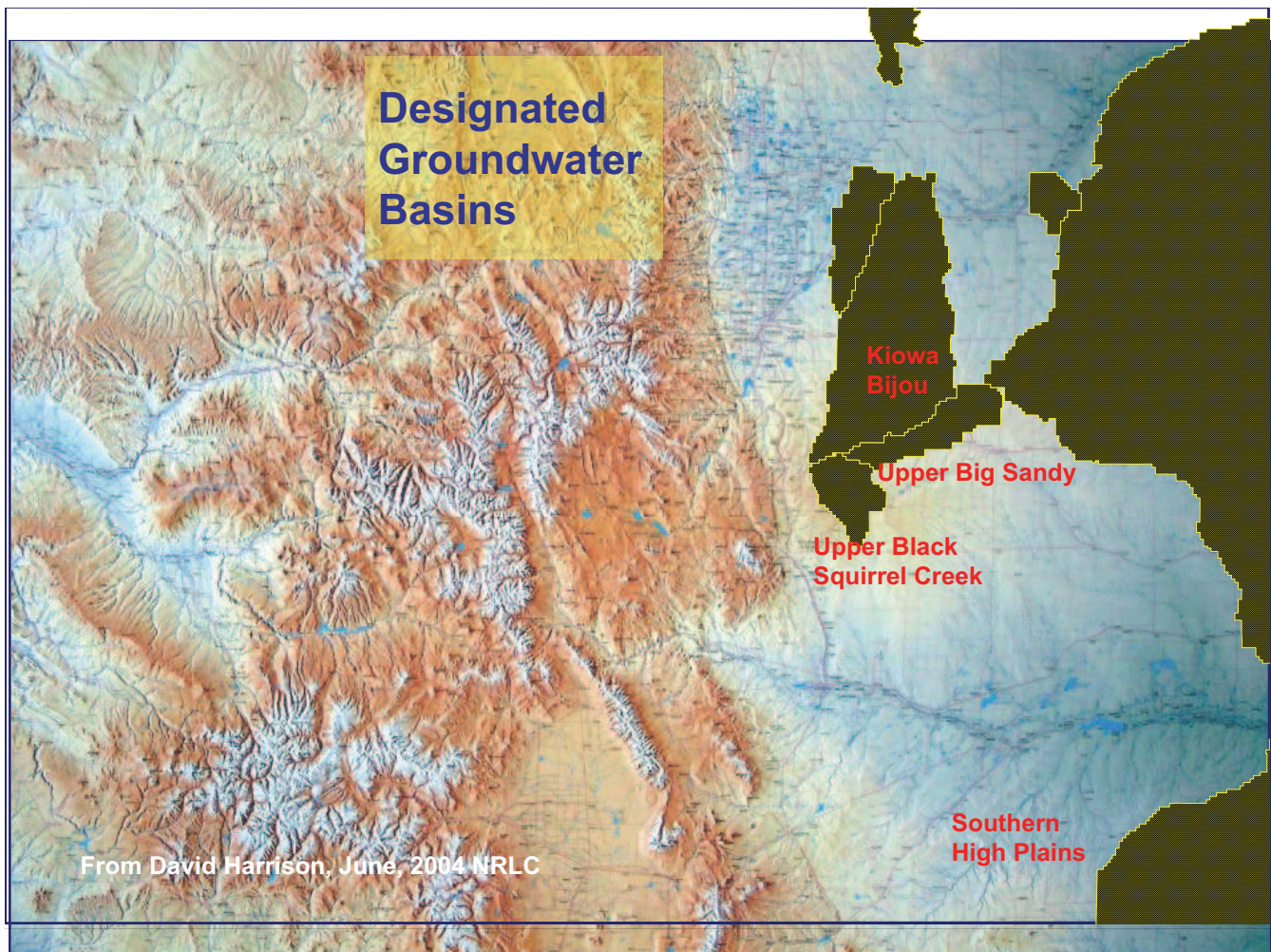
- ✧ Interstate Compact 1948
- ✧ Designated Groundwater Basins
- ✧ Water Quality is an issue downstream of Pueblo Dam
- ✧ We are an importing and exporting basin
 - ✧ Colorado River imports relatively junior
 - ✧ Loss of Ag to Denver Metro area



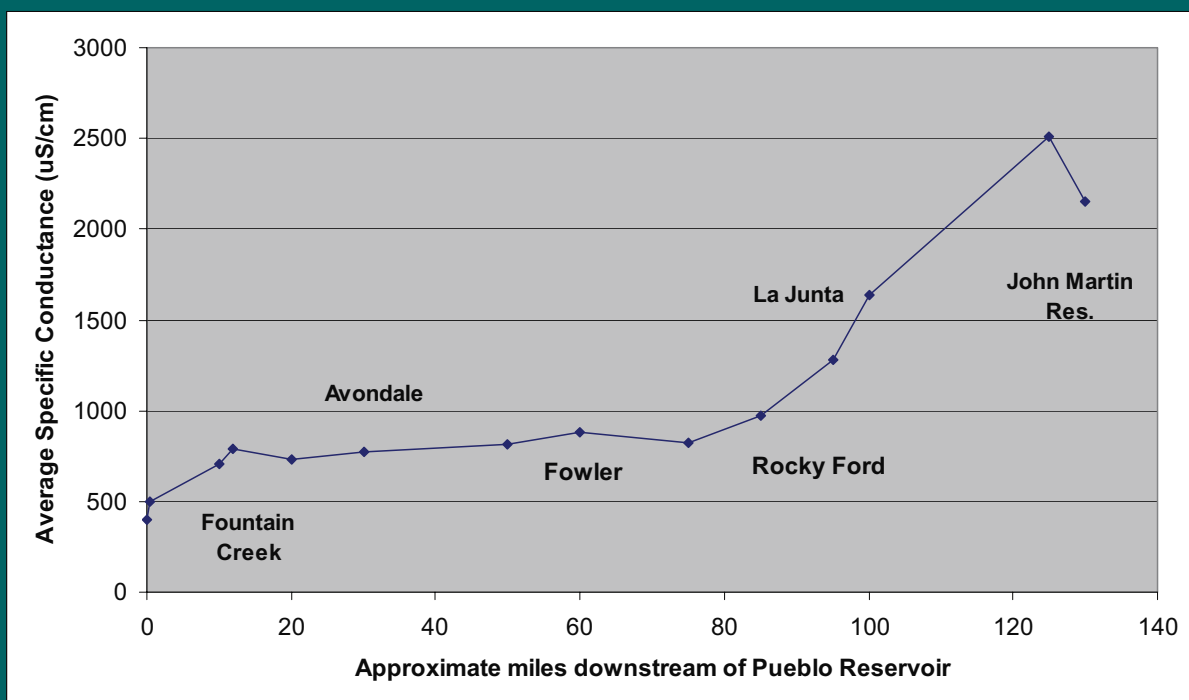
Interstate Compact

- ✧ No Decision Support System (yet)
 - ✧ Must comport with HI Model
 - ✧ Water Quality is a factor
- ✧ Arkansas Compact Committee has four (4) directors, two from each state





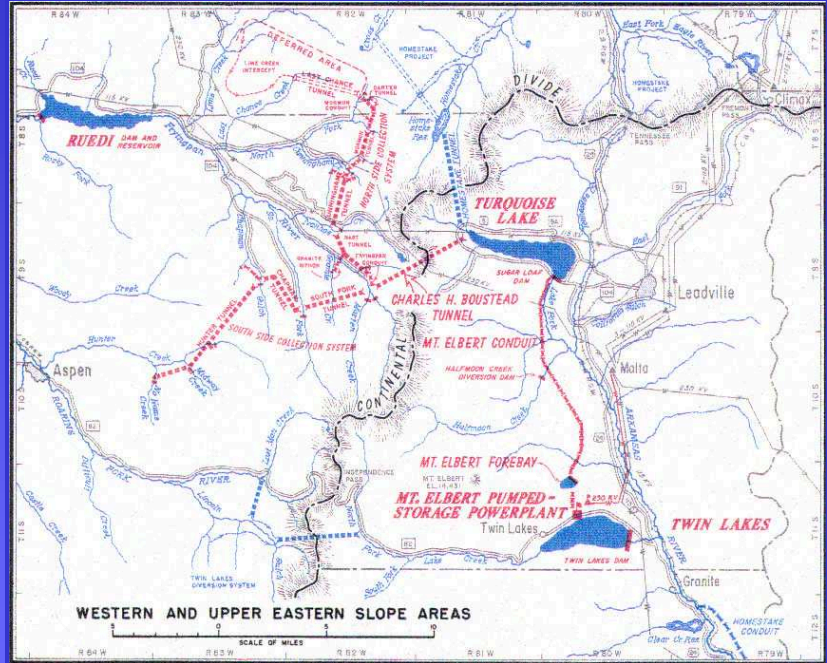
Water Quality Diminishes Downstream



From Superditch presentation August, 2007

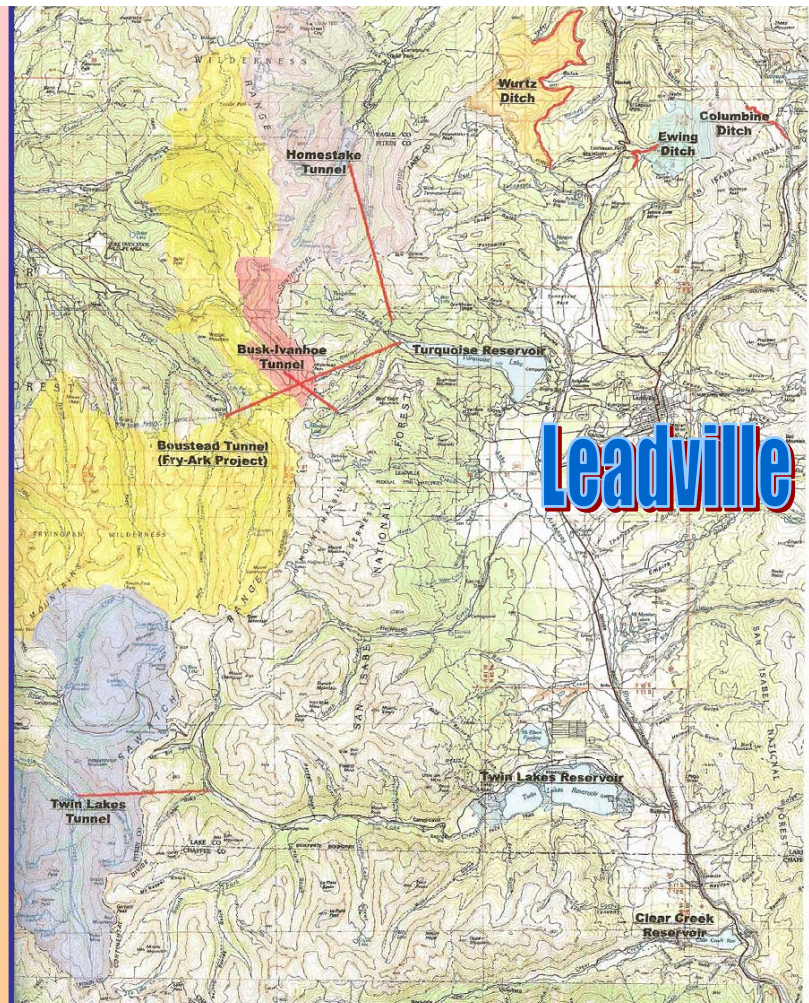
Imports & Exports

- ✧ Bureau of Reclamation: Frying Pan-Arkansas Project (SECWCD)
- ✧ Stakeholders in the Colorado River
 - ✧ Species Recovery Program
 - ✧ Lower Basin Compact call?



Imports & Exports

- ✧ Historic Diversions
 - ✧ Twin Lakes
 - ✧ Homestake
 - ✧ Columbine
- ✧ Are future imports even possible?

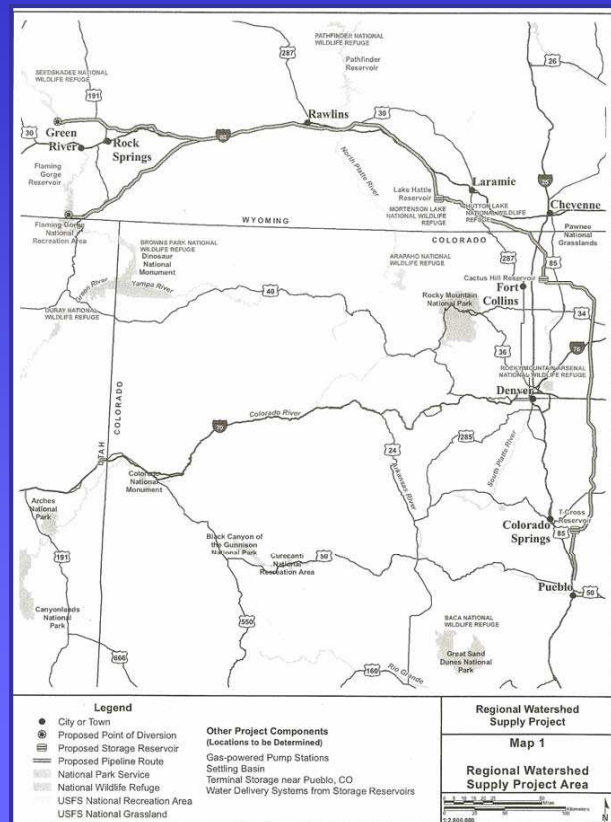


Transbasin Diversions: The Last Straw?



Transbasin Diversions

- ✳ Public Meeting
April 22, 2009 in
Pueblo, CO
- ✳ Competing
project
proponents

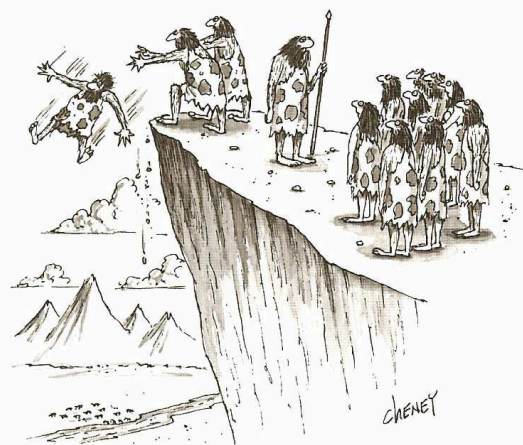


Where we are now: Facing the next Challenge



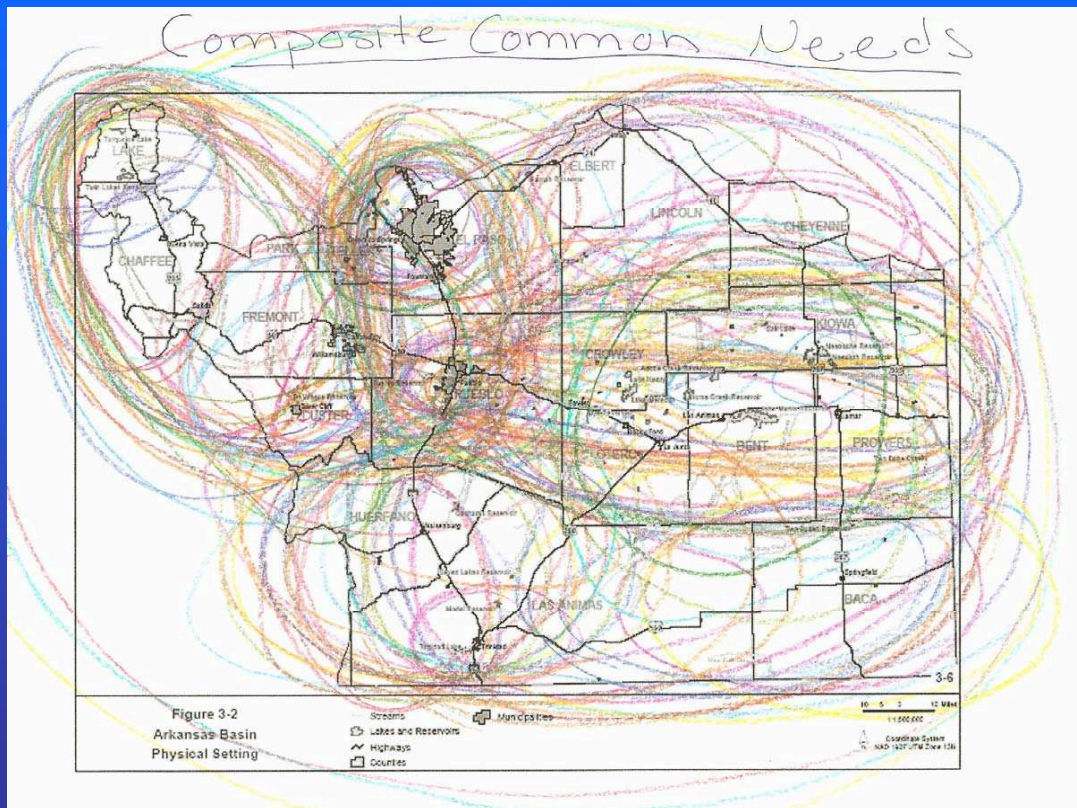
The “Water for the 21st Century” Act

✧ “*Basin Roundtables shall actively seek input and advice in establishing its needs assessment, and shall propose projects or methods for meeting those needs.*”

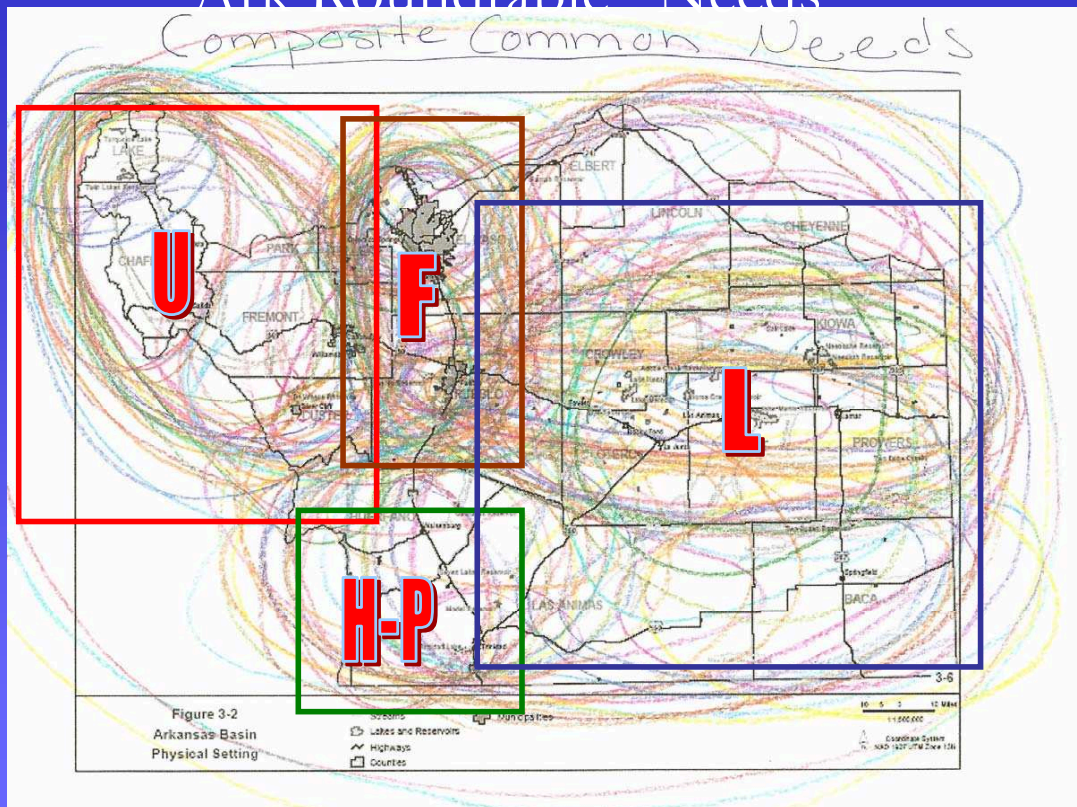


“So, does anyone else feel their needs aren't being met?”

Ark Roundtable “Needs”

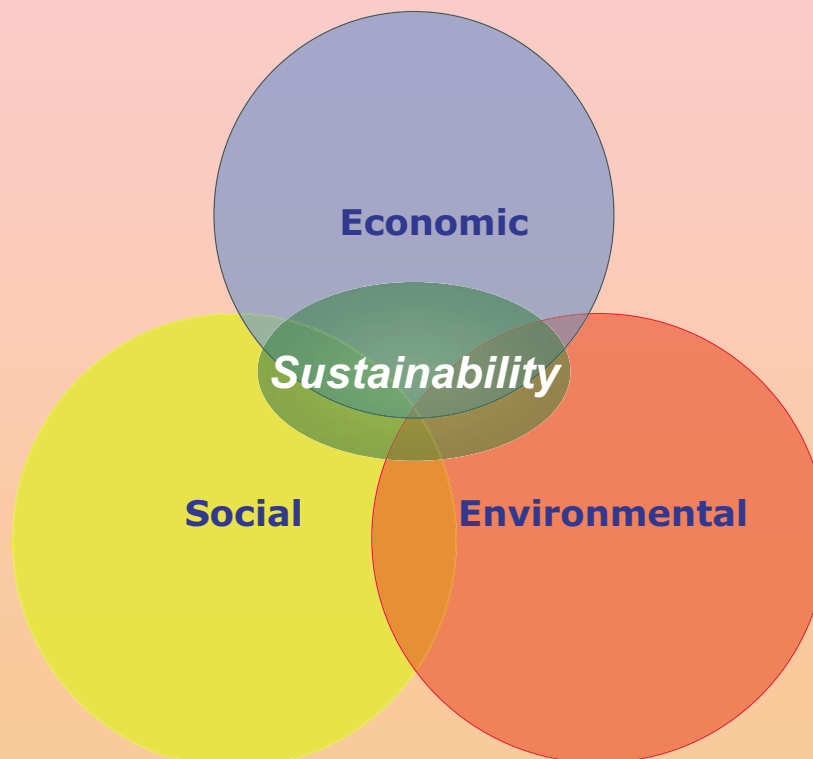


Ark Roundtable “Needs”

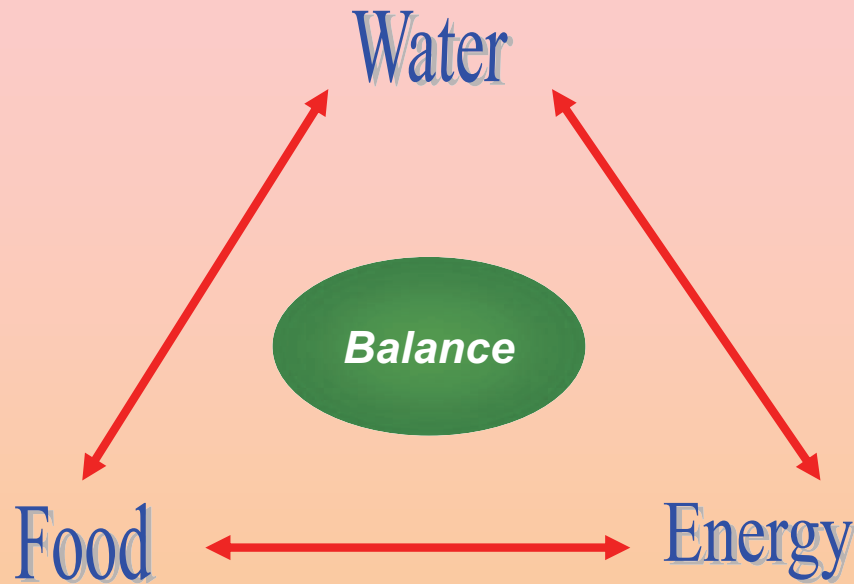


Identified Plans and Projects (IPP's)	Type	Sub-basin	Federal nexus?	Gap	Econ-omic	Environ-mental	Social
Arkansas Valley Conduit	C	L	Y	multi			
Preferred Storage Option Plan	C	A	Y	multi			
Southern Delivery System	C	F	Y	El Paso			
Tamrisk Removal	C, NC	A	Y	multi			
Upper Black Squirrel Recharge	C, NC	A	Y	multi			
Ground Water Recharge in Upper Ark Basin	C, NC	U	?	multi			
Fountain Creek Flood Control and Mitigation	C, NC	F,L	Y	multi			
Round Mountain Water District well installation	C	U	N	Custer			
Bedload/Sediment Removal and Collection System	C	A	N	multi			
Lake County Water Quality Improvements	NC	U	?	multi			
Arkansas Headwaters Diversion Improvements	NC	U	Y	multi			
City of Las Animas	C	L	N?	Bent			
State Parks Zebra Mussel Response	C, NC	A	Y	multi			
Colo. State University Basin wide investigation (DSS?)	C, NC	A	Y	multi			
Zero Liquid Discharge (La Junta R.O. Brine)	C, NC	A	Y	multi			
Upper Ark Conservancy Water Monitoring Devices	C, NC	U	Y	multi			
Aurora Box Creek Reservoir	C	Platte	Y	Platte			
Statewide Projects							
Yampa River Import							
Flaming Gorge Import							
Green Mtn Pumpback (Colorado River)							
Abbreviations							
A: All basins; F: Fountain Creek; L: Lower; P: Purgatorie; U: Upper C: Consumptive; NC: Non-Consumptive							
Rank Economic, Environmental and Social factors on a scale of 1-5, with 5 highest							

Sustainability Values



Defining Sustainability



Where we are headed

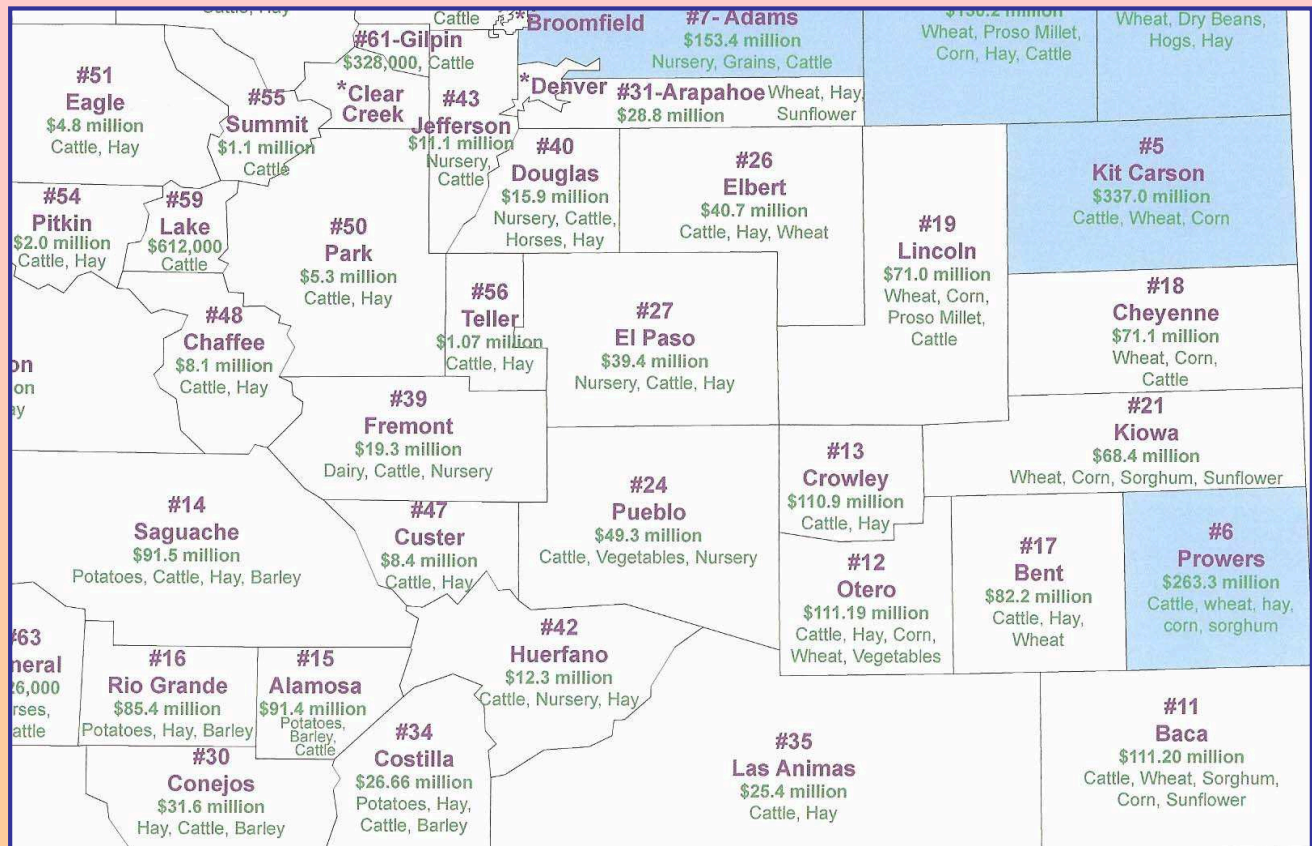
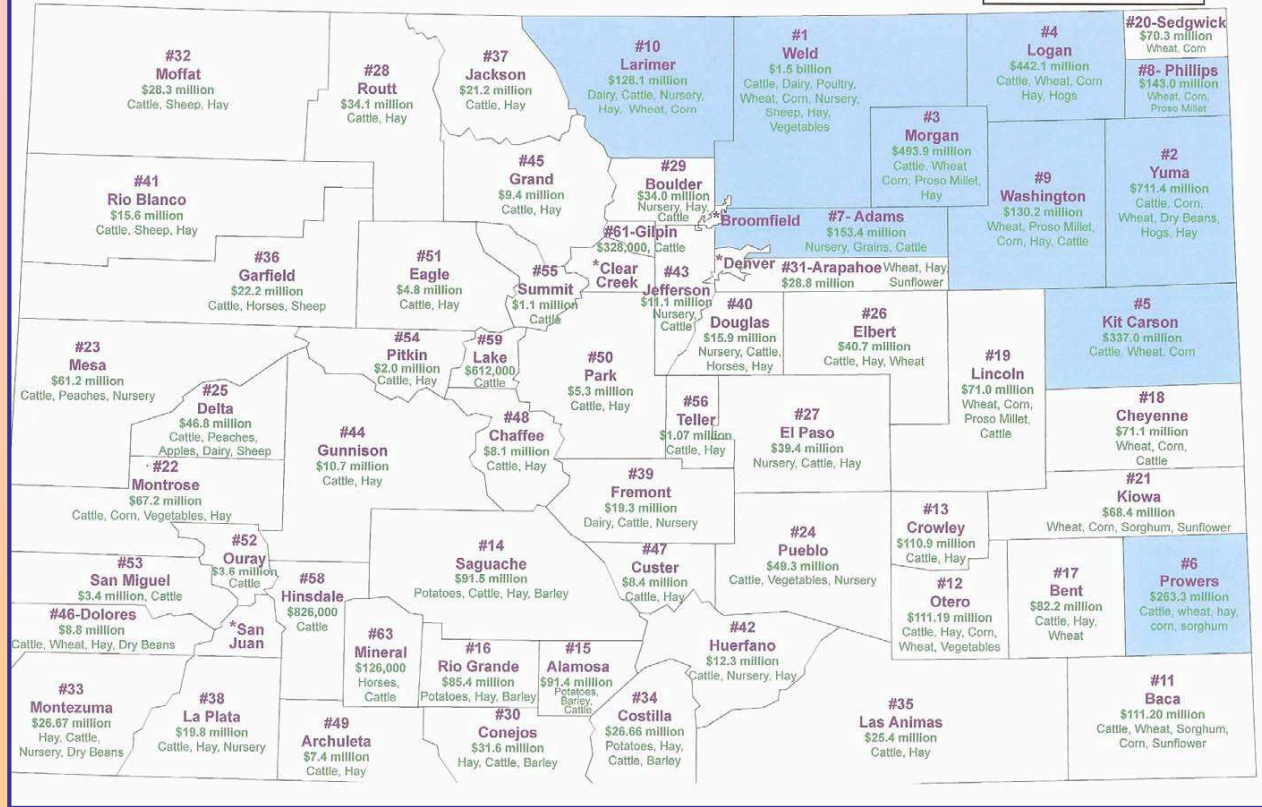
- * Attempt to “preserve” agriculture
 - * Strong property rights advocacy on the roundtable
 - * An emotional issue
 - * The cause and effect dilemma
 - * Ag to Urban Guidelines Committee report
 - * No loss of water in Rio Grande, but....Ag losing?
- * Underground storage of water
 - * Physical challenges
 - * Public Policy challenges
- * Turning in our homework

Colorado Agriculture

Value of Agricultural Products Sold by County

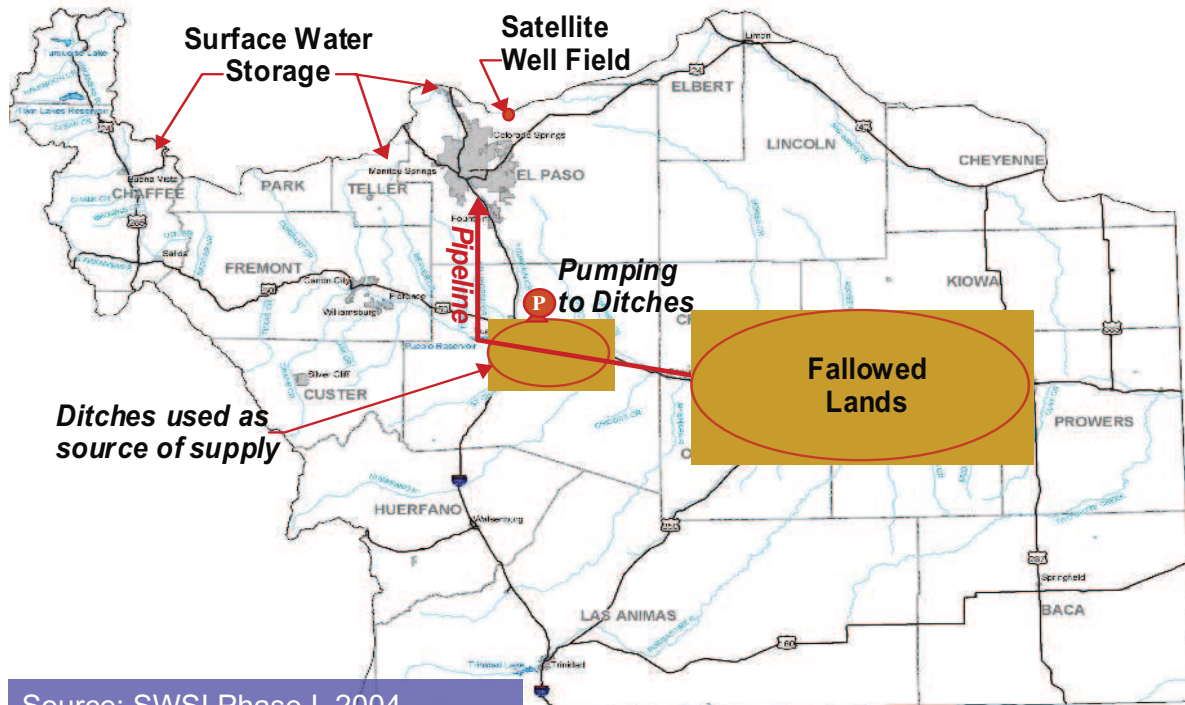
Data from 2007 Census of Agriculture, USDA

Data for * Counties
 #57- Broomfield \$958,000
 #60-Denver \$561,000
 #62-Clear Creek \$127,000
 #64- San Juan No Data Available



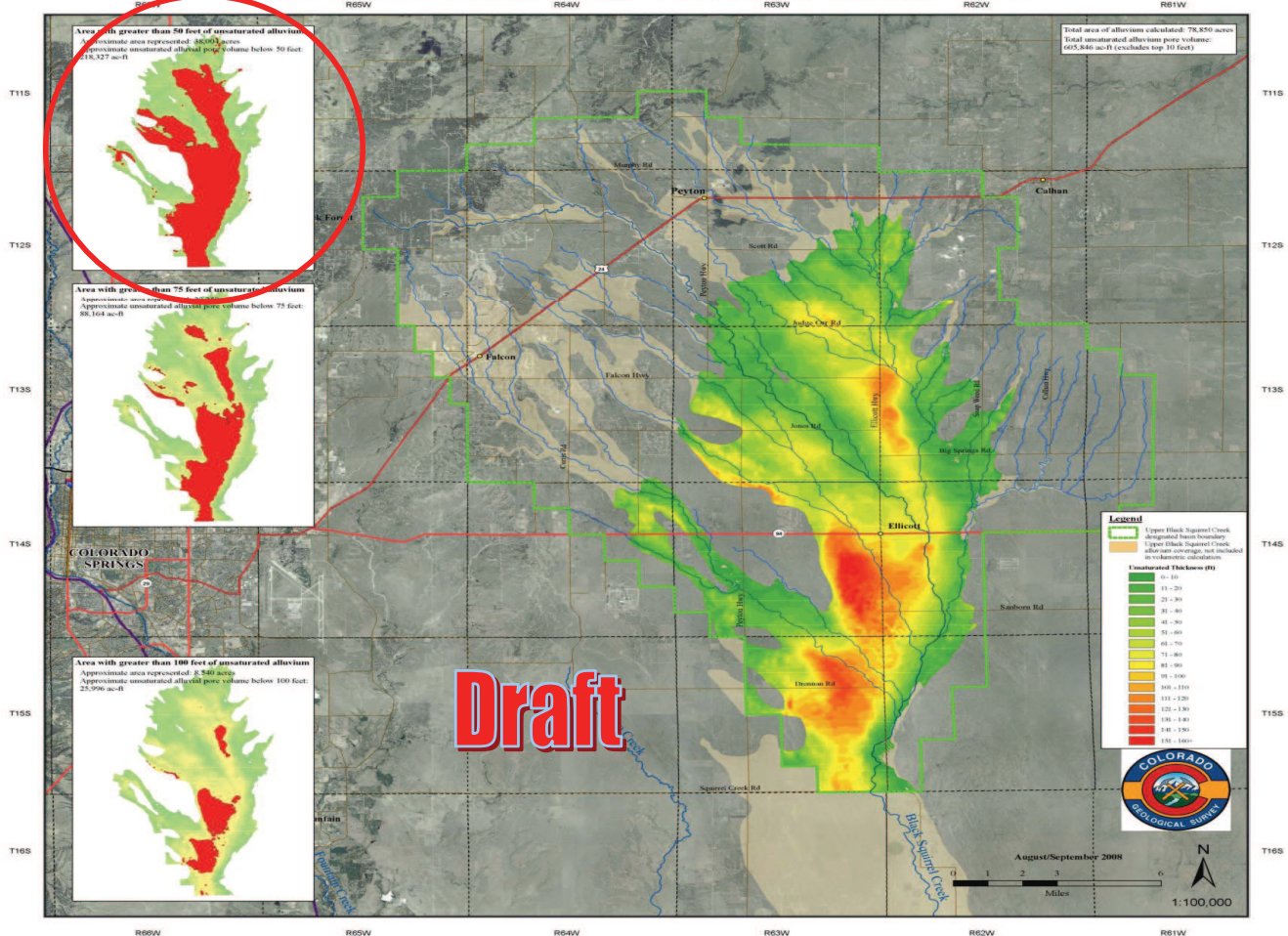
The Super Ditch Company

**Alternatives
Development**



Source: SWSI Phase I, 2004

Unsaturated Thickness Map in the Upper Black Squirrel Creek Basin, January 2008



Designated Groundwater

Upper Black Squirrel Creek Basin Alluvium Storage Calculations

* Using a storage coefficient of 0.18

Description	Total Area (acres)	Total Storage Capacity (ac-ft)
Total Saturated Primary Alluvium	78,850	474,643
Total Unsaturated Primary Alluvium	78,850	605,865
- Unsaturated Alluvium (50ft-water table)	38,000	218,327
- Unsaturated Alluvium (75ft-water table)	20,250	88,164
- Unsaturated Alluvium (100ft-water table)	8,540	25,996

Draft

Schedule

- ✧ May 13th: Three Roundtable meeting
 - ✧ Discuss infrastructure needs
 - ✧ Review Statewide projects and Front Range Gap
- ✧ June 10th: Meet in Salida
 - ✧ Non-consumptive Needs Assessment
 - ✧ Flat Water Recreation
 - ✧ Methods portion of “projects and methods”
 - ✧ Conservation
 - ✧ Efficiency of use
 - ✧ Alternatives to Ag Transfers (Super Ditch Company)

Schedule

✧ Skip July 8th

✧ August 12th: Pueblo

✧ Consensus discussion on final report

✧ Feedback from Public

✧ September 9th: La Junta?

✧ Final Approval of Meeting our Gap Report

✧ October 14th: Pueblo

✧ Annual Meeting

✧ What type of discussion should we have?

✧ How should we involve the public?

✧ How will other roundtables/IBCC respond?



