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SLIDES: Lower Arkansas Valley Super Ditch Company, Inc.: Water Leasing Program

Peter Nichols

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Lower Arkansas Valley Super Ditch Company, Inc.

Water Leasing Program

Evolving Regional Frameworks for
Ag-to-Urban Water Transfers
CU School of Law

Peter Nichols, Esq.
Trout Raley Montano Witwer & Freeman PC
December 11, 2008

Historical Buy and Dry-up

■ Colorado Springs

- \$\$\$\$\$\$
- Share Holder
- Share Holder
- Share Holder

■ Aurora

- \$\$\$\$\$\$
- Share Holder
- Share Holder
- Share Holder
- Share Holder

■ Others

- PBWW
- Pueblo West
- Fountain
- Etc.

■ Colorado Canal

- Share Holder
- Share Holder
- Share Holder
- Share Holder
- Share Holder

■ Rocky Ford Canal

- Share Holder
- Share Holder
- Share Holder
- Share Holder
- Share Holder

■ Others

- Las Animas
- Highline
- Holsom

Historical Buy and Dry-up

- One time deal
 - Shareholders are paid off and water is transferred to municipal use
- Land permanently dried up
 - No more irrigation
 - Limited/no further agricultural productivity
 - Weed and erosion problems occur despite revegetation statute
- Cities (purchasers) realize the appreciating value of the water

Water Leasing

■ Colorado Springs

- \$\$\$\$\$\$
- H₂O

■ PPRWA

- \$\$\$\$\$\$
- H₂O

■ CDOW/Parks

- \$\$\$\$\$\$
- H₂O

■ Other/Ag

- \$\$\$\$\$\$
- H₂O

■ Ft. Lyon

- Share Holder
- Share Holder
- Share Holder

■ Rocky Ford Highline

- Share Holder
- Share Holder
- Share Holder

■ Catlin Canal

- Share Holder
- Share Holder
- Share Holder



Super Ditch - Water Leasing

- Creates new crop - water
 - Additional source of revenue for farmers and ranchers
- Annual, multi-year short and long-term leases
- Land not permanently dried up
 - Agricultural productivity continues
 - Community/economic activity continues
 - Most water remains in irrigation use every year
- Shareholders realize the appreciating value of the water

What Super Ditch Company must do to succeed

- Maximize the short- and long-term value of irrigation water to the Lower Valley
 - For cities, provide a reliable, cost-competitive alternative source of water
 - For irrigators, provide an economically attractive alternative to farming or selling

"Super Ditch Company"

- Mechanism to lease water from irrigators who are willing to forgo irrigation to municipalities and other users
- Created, Controlled and Owned by participating irrigators
 - Managed by Board of Directors elected by participating irrigators
 - Collective negotiation levels playing field with municipal users
 - Irrigators may participate to extent they wish
 - All irrigators treated equally
 - % non-irrigated, lease revenue / ac-ft
- Responsible for leasing water, obtaining water court approval, and 1041 permits
- Determine which lands will not be irrigated each year based on supply, lease demand, and hydrology

Lower Arkansas Valley Super Ditch Company, Inc.

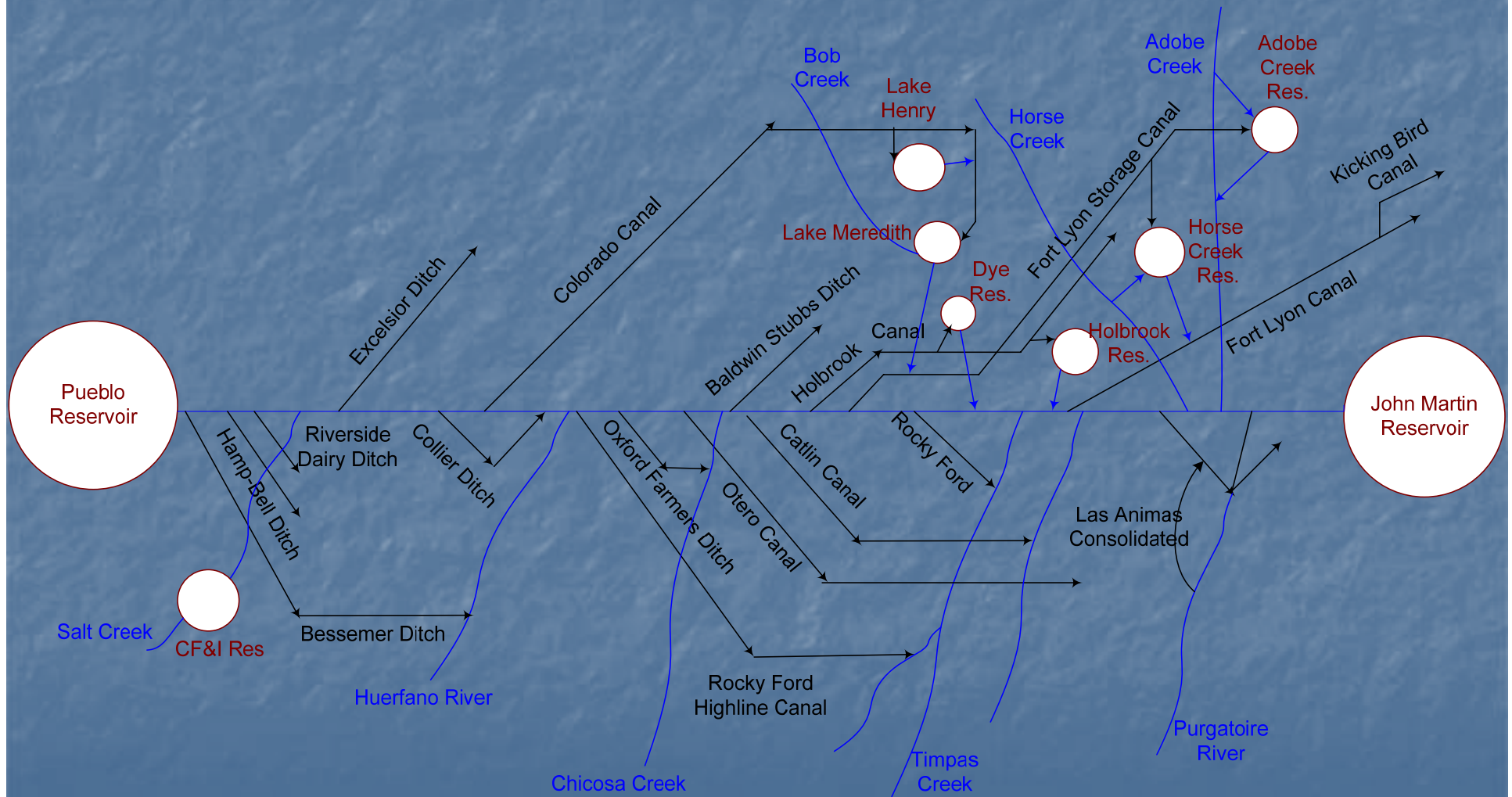
- Incorporated May 7, 2008
- Shareholders from 6 of 7 primary ditches
- Invited potential lessees to get acquainted meetings in June and July
- Negotiating with 2 potential lessees
 - One formal offer
 - Negotiations proceeding
- Operating with support of LAVWCD
 - Formal contract re: support, independence

Studies Completed

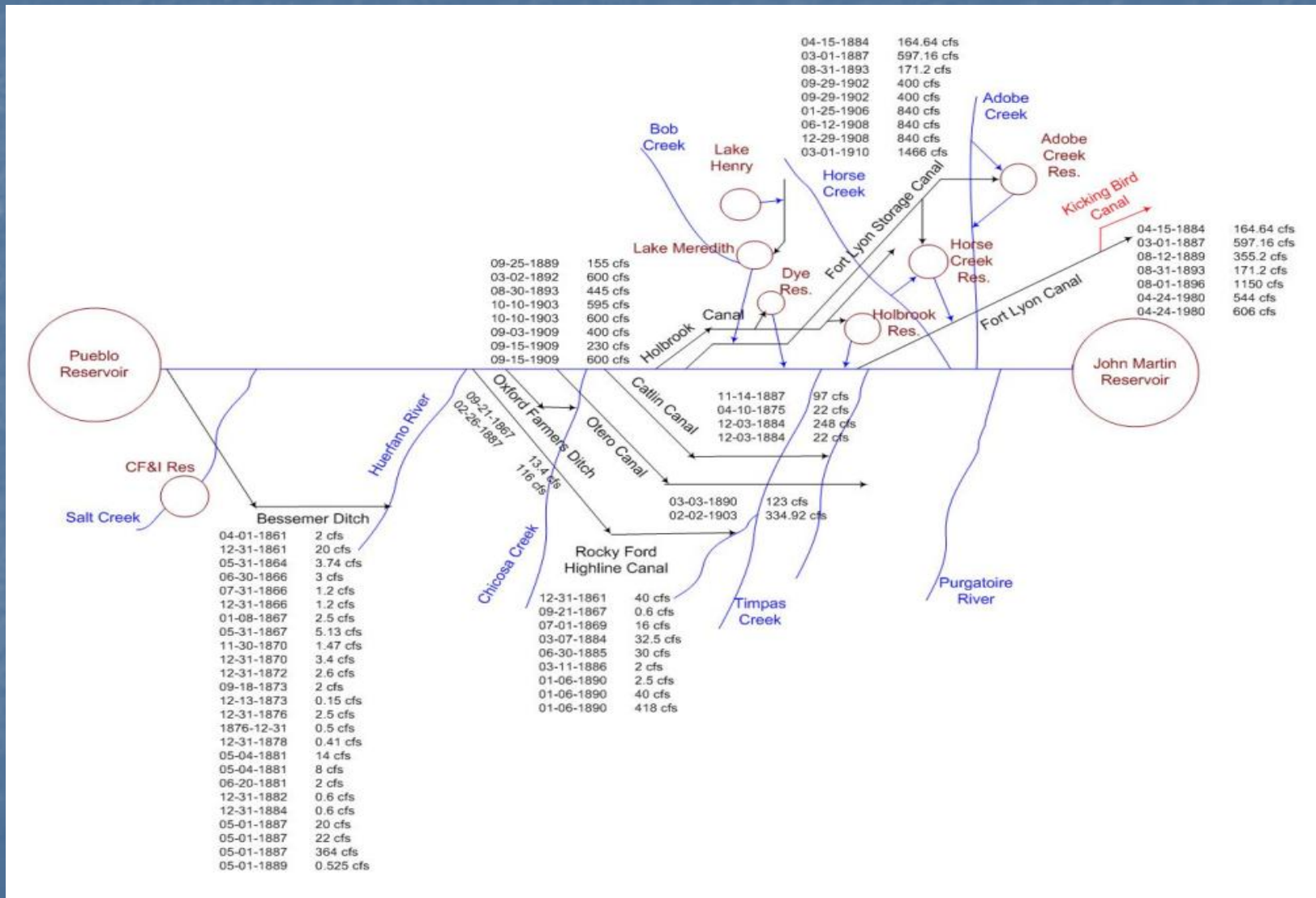
- Potential supply of irrigation water for lease
- Demand for water leasing (lease market)
- Existing and needed storage and conveyance
- Water quality
- Farm and regional economics
- Alternative legal structures for Super Ditch Co.
- "1041" permitting requirements
- Ditch company restrictions on participation
- Anti-trust issues
- Taxation of lease revenues

Primary Ditch Systems within Area of Interest

Arkansas River Ditch System Schematic



Water Rights Investigated



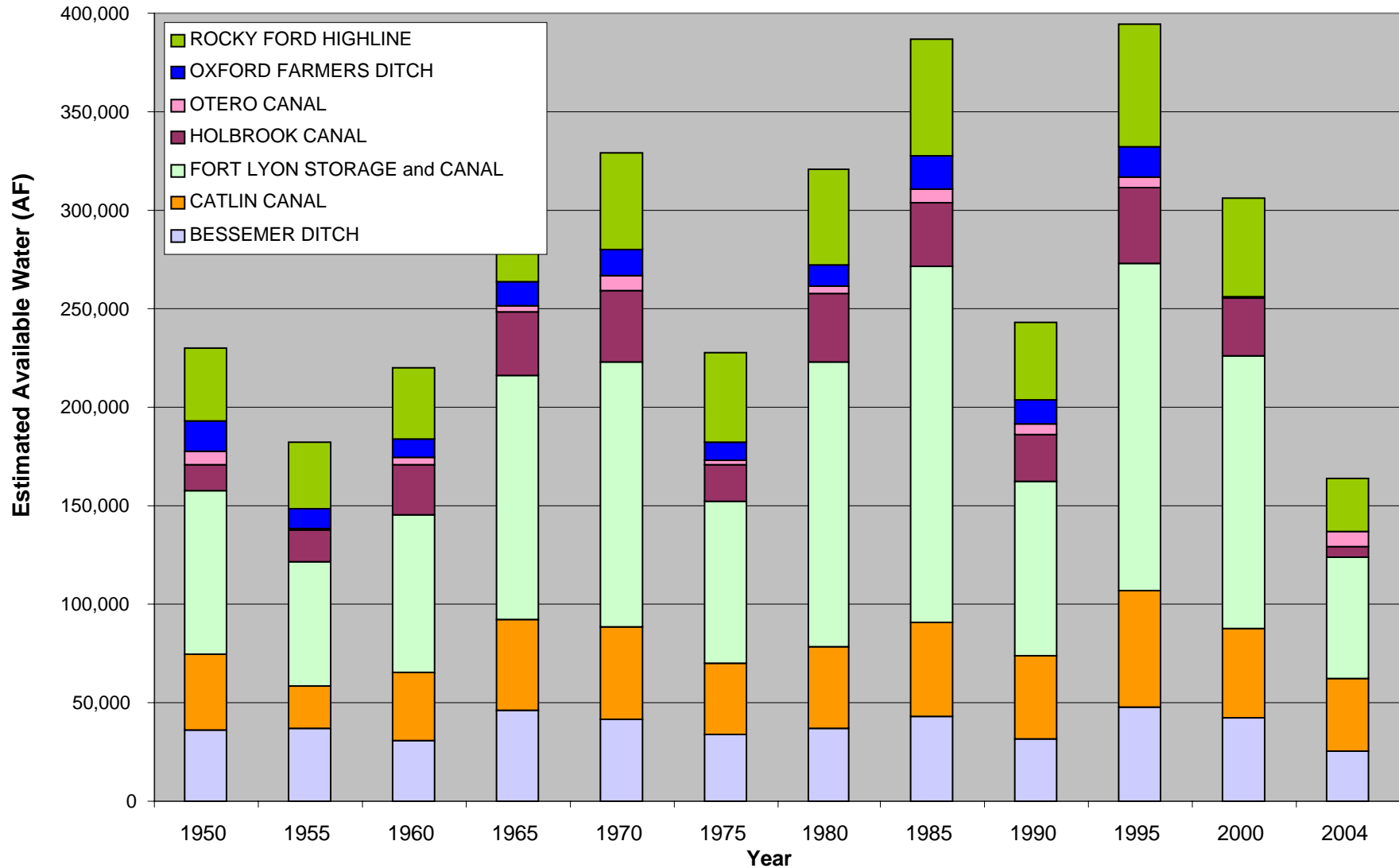
Consumptive Use Factors

- CU factors from the H-I model used in the most recent *Kansas vs. Colorado* litigation
- CU Factor was multiplied by the diversion amount to obtain the consumptive use for each irrigation system

#	Ditch/Canal	Consumptive Use Factor
1	Bessemer	0.5916
2	Rocky Ford Highline	0.5553
3	Oxford Farmers	0.4728
4	Otero	0.5675
5	Catlin Canal	0.4634
6	Holbrook	0.5771
7	Fort Lyon Storage Canal	0.5094
8	Fort Lyon Canal	0.5094

Yield Estimate at Headgate by Ditch by Year

Estimated Available Water for Lower Arkansas River Ditches of Interest



Summary of Annual Yields at Headgate

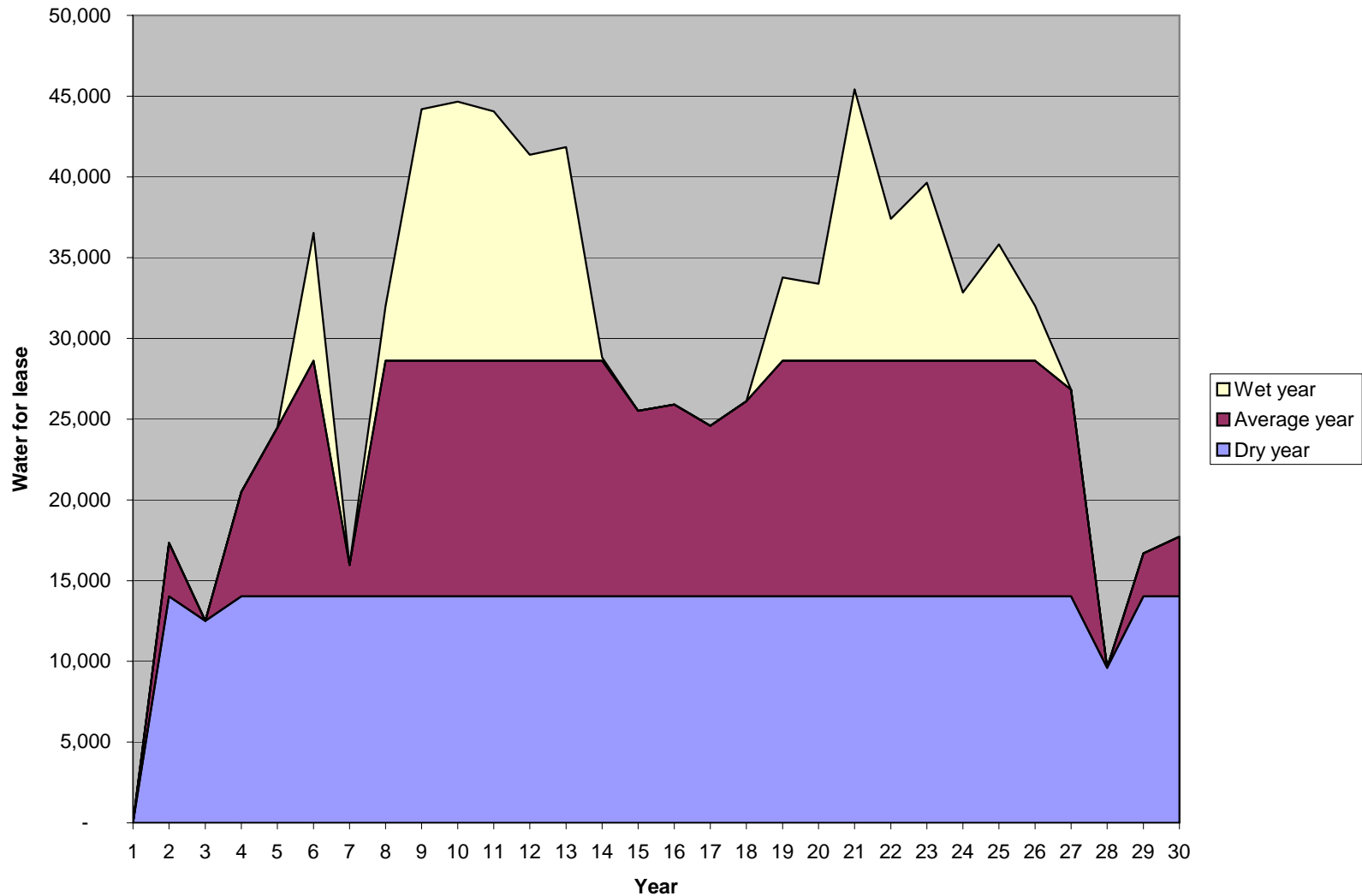
Condition	AF/Yr
Wet Year	329,000
Average Year	255,000
Dry Year	192,000
Extreme Dry Year (2002)	93,000

Potential water volumes (65 % participation)

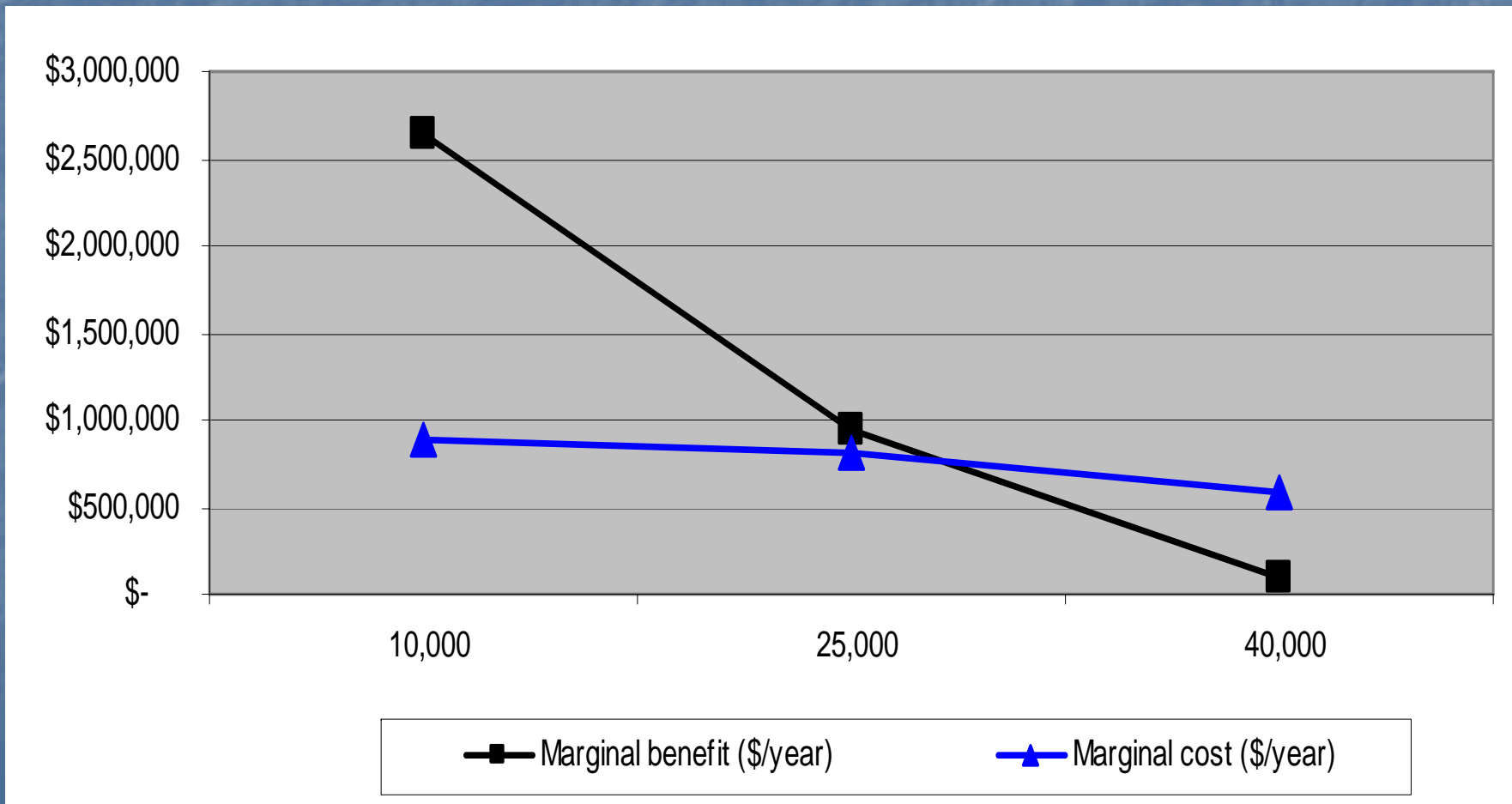
- Assumed participation rate: 65%
 - Can be different for each ditch
- Assumed following rate: 25%
 - Can be different for each ditch
- Assuming no additional storage and 65% participation:

Market	Tier Volume	Total Volume Available	Reliability
Dry Year	14,020 AF	14,020 AF	Very Reliable
Average Year	14,609 AF	28,629 AF	Full delivery in 16 of 29 years; deliveries made in 27 of 29 years
Wet Year	16,787 AF	45,417 AF	Inconsistent, but deliveries will occur

Water available for lease, based on 65% participation rate, frequency, exchange factors, and no additional storage



Marginal analysis of additional storage (for illustration only)



Exchange Potential

Percent of Consumptive Use realized in Pueblo Reservoir

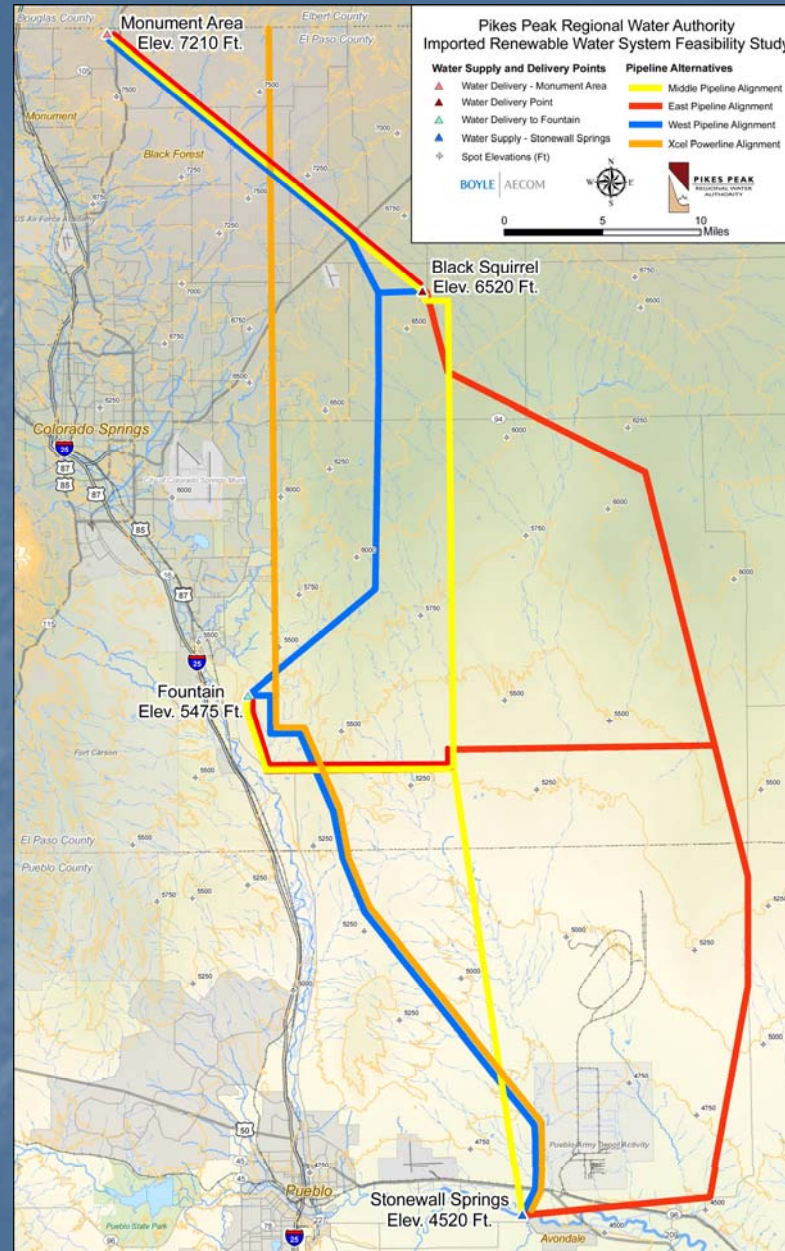
Exchange Potentials

	Reach 1	Reach 12	Reach 13	Reach 14	Reach 16	Reach 17	Reach 19
	Below Pueblo Reservoir (Bessemer)	Below Rocky Ford Highline Canal	Below Oxford Farmers Canal	Below Otero Canal	Below Catlin Canal	Below Holbrook Canal	Below Fort Lyon
Average (1979)	1.00	0.77	0.74	0.71	0.62	0.52	0.52
Wet (1980)	1.00	0.82	0.80	0.77	0.71	0.67	0.58
Dry (1981)	1.00	0.68	0.65	0.62	0.46	0.42	0.41

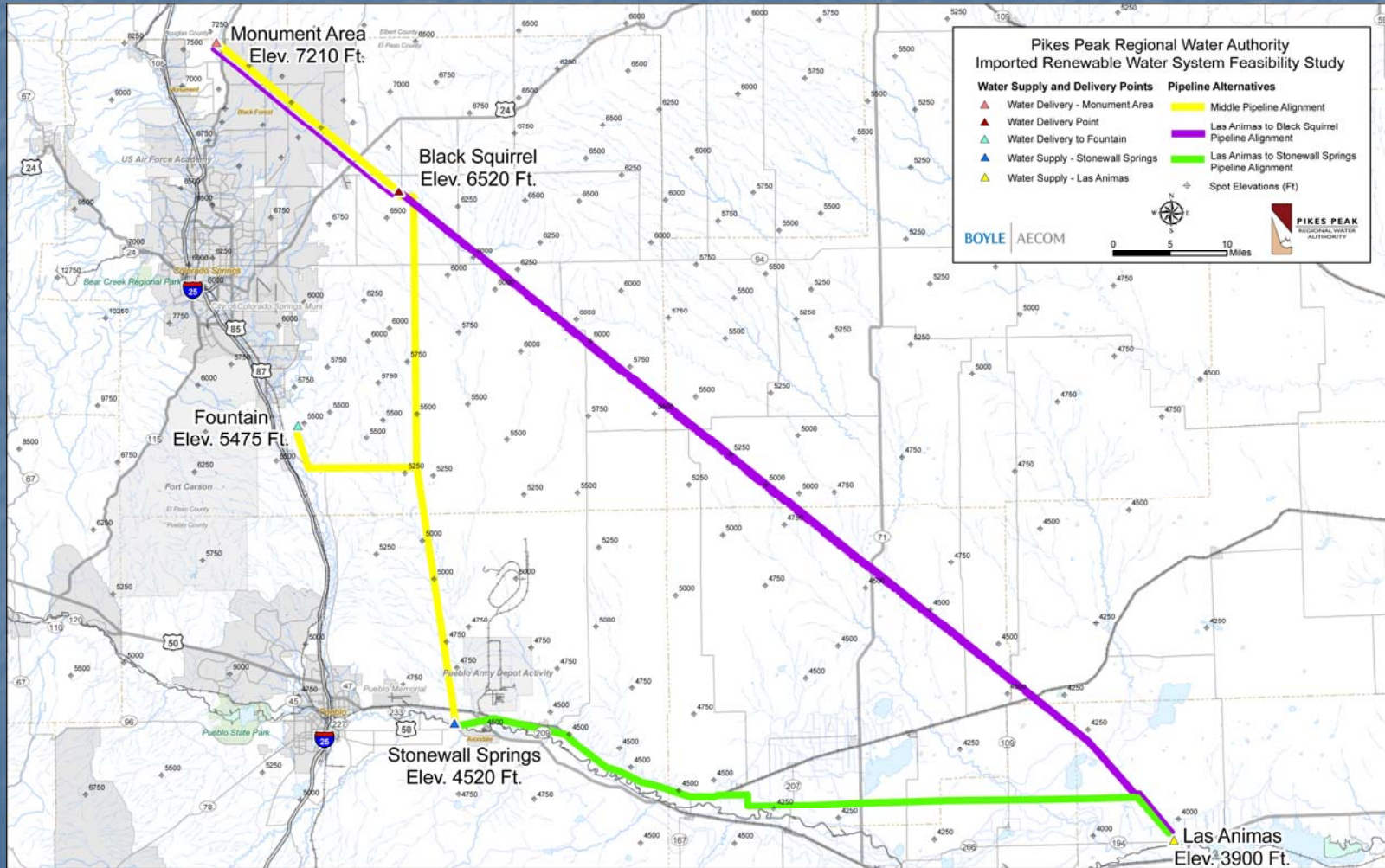
Pipeline Feasibility Study

- Based on delivery to point in Northeastern El Paso County for PPRWA *et al.*
 - Diversion near Boone
 - Diversion at Ft Lyon headgate
 - Pipeline to Boone, then North
 - Diversion fr Timber Lake on Ft Lyon
 - Pipeline to headgate, then West to Boone

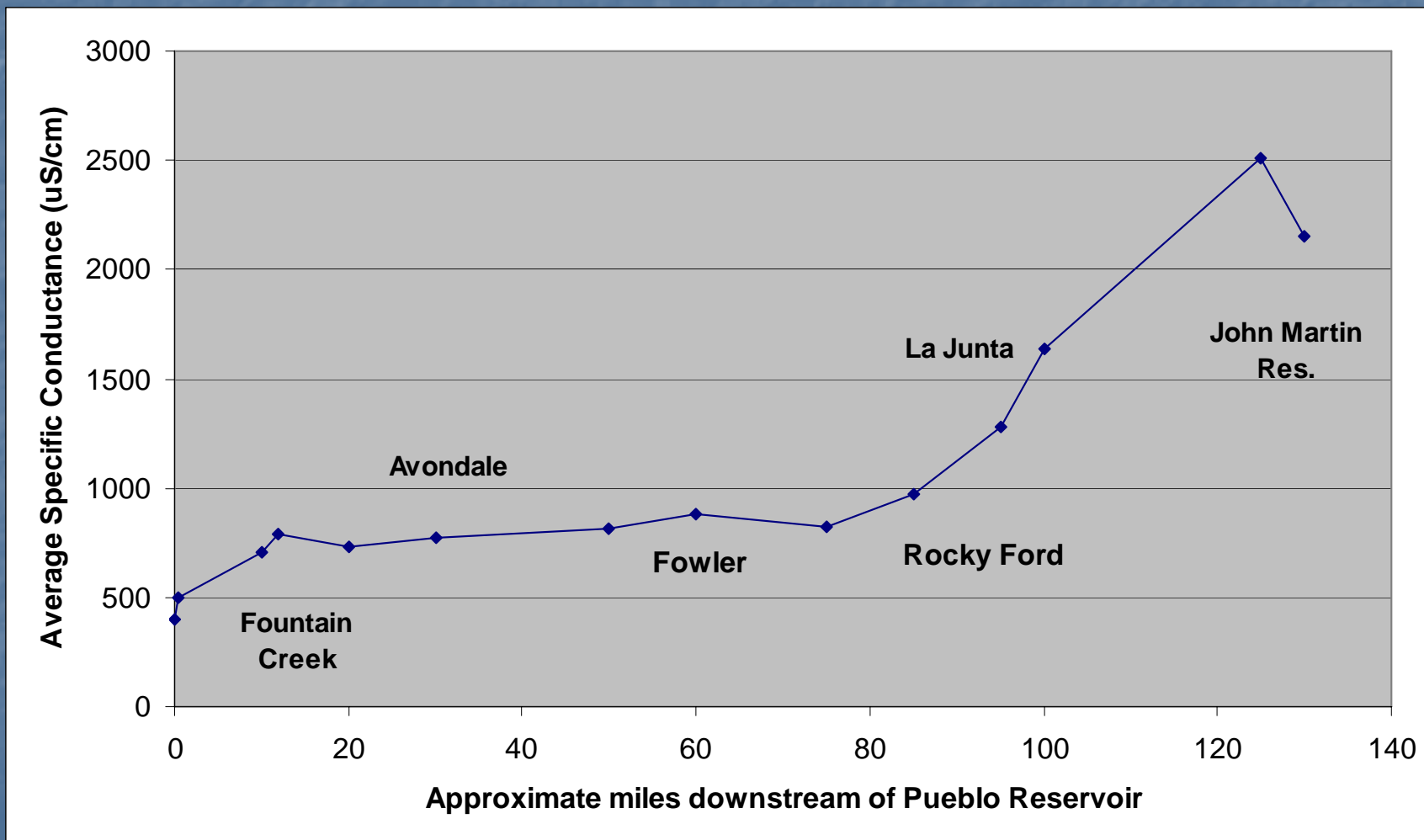
Pipeline Alternatives



Lower River Pipeline Alternatives



Water Quality Diminishes Downstream



What's lease water worth?

One measure: avoided costs

\$/AF/year

	<u>Water</u>	<u>Infrastructure</u>	<u>Total</u>
Colorado Springs Utilities, SDS		\$1,200	\$1,200
Pikes Peak Regional Water Authority	\$500		\$500
Aurora	\$300		\$300
Power generation	\$300		\$300
Windy Gap Firming Project	\$500-\$1,100		\$500-\$1,100
Reuter-Hess Reservoir (Parker)		\$800	\$800
Colorado-Big Thompson	\$500		\$500
Northern Integrated Storage Project		\$510	\$510
Denver Moffat System Expansion	\$350		\$350
ECCV/ACWWA/South Metro	\$533	\$750	\$1,283
Aurora Prairie Waters		\$1,200	\$1,200

Issues to work through with potential participating irrigators

- Variation in yield and water value among ditches
 - More reliable, more easily delivered, and/or higher quality water is worth more
- Delivery issues to irrigated land with less water in ditch (laterals)
- What land will be not be irrigated and when
 - Whether irrigator can permanently dry up some poor land, or whether there must be rotational fallowing
- Farmer concern about diminished productivity after fallowing

Example of cooperation leading to increased bargaining power and higher contract prices

	Individual, one-to-one transactions	Rocky Ford Highline and Fort Lyons work	Rocky Ford Highline, Fort Lyons, and Bessemver	The four ditch companies work cooperatively
<i>Total discounted revenues over the hydrologic period 1976-2004 (million)</i>				
Revenue from individual one-to-one transactions with incrementally higher prices:				
Rocky Ford Highline	\$1.10	\$1.20	\$1.26	\$1.35
Fort Lyons	\$2.35	\$2.94	\$3.33	\$3.92
Bessemer	\$0.86	\$0.86	\$0.95	\$1.00
Catlin	\$1.21	\$1.21	\$1.21	\$2.02
Benefit of additional operational efficiencies				
Additional revenues to be allocated among cooperators	\$0.00	\$0.18	\$0.35	\$0.52
Total lease revenues	\$5.53	\$6.39	\$7.10	\$8.81
% revenue increase resulting from cooperation		15.5%	28.3%	59.4%

Municipal Water Supply Considerations

- Increasing resistance to large new water projects and trans-basin projects
- “Buy and dry” increasingly culturally, socially, and politically unacceptable
- Rotational fallowing could become a favored water supply alternative
 - “win-win”
 - Least environmental impact
 - Ag/commercial community benefits
 - Path of least resistance

Hypothetical Purchase vs. Lease

Assumptions

Shares of Bessemer Ditch purchased (51%)	19,000
Average cost per share	\$ 10,000
"Real" rate of return on municipal investment (inflation-free)	3.00%
"Real" discount rate (inflation-free)	3.00%

Results

Case 1: Assuming PBWW only needs additional water in dry years

Net discounted cost of buying shares	\$ 73,811,000
Net discounted cost of leasing water at \$740/AF, reserving at \$100/AF	\$ 36,835,000
<u>Savings from Super Ditch Co. lease 2007-2086</u>	<u>\$ 36,976,000</u>

Case 2: Assuming PBWW needs water in dry and 1000+ AF in avg years

Net discounted cost of buying shares	\$ 61,260,463
Net discounted cost of leasing (\$740 dry yr; \$500 avg; \$100 reservation; \$10 revenue from leasing unused water)	\$ 46,905,724
<u>Savings from Super Ditch Co. lease 2007-2086</u>	<u>\$ 14,354,739</u>

Issues to work through with potential municipal lessees

- Lease terms and conditions
 - Municipal demand(s)/need(s)
 - Delivery schedule(s)
 - Reliability
 - Price
 - Payment terms
 - Length of lease(s)
- Competition from non-participants, e.g., other municipalities who want to buy and dry

Regional Economic Impacts

- Changes in spending by participating irrigators when following
 - (seed, fertilizer sales; farm equipment repairs and sales; on-farm improvements, etc.)
- Impacts to industries and users of Lower Ark irrigated crops. e.g., local feedlots
- Impacts related to how and where water lease proceeds are spent

Economic Impact of Buy and Dry

- “Business as usual” thru 2030 (SWSI)
 - Add'l 22,000 to 72,000 acres dried up in Lower Ark on top of 60,000 acres now dry
- Total economic value of Lower Ark irrigation
 - \$430/ac/year (Thorvaldson *et al.*)
- \$9.5 million to \$31 million / year lost

Legal Issues Analyzed

- Alternative legal structures for company
- Taxation of lease revenues
- Anti-trust issue
- Ditch company restrictions on participation
- County 1041 permitting requirements
- Water court change case
 - Applications structured to allow following-leasing only (not buy and dry) to address “Trojan Horse” concern

Summary

Super Ditch Water Leasing

■ Advantages

- Municipalities/other users get water they need at competitive cost
- Irrigators realize value of water currently
 - Plus realize appreciated value over time
- Supports long-term regional economy

■ Challenges

- Willingness of users to negotiate Fair Market Value water leases
- Cooperation among ditch companies + shareholders
 - End municipal predation + manipulation

Conclusion

- Simple idea, great potential, success depends upon willingness of users to adopt a new paradigm to meet water needs.
- Moving forward to make concept a reality
- Confident that challenges can be met

