

Meeting Santa Fe's (and New Mexico's) Future Water Needs

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City of Santa Fe Water Division

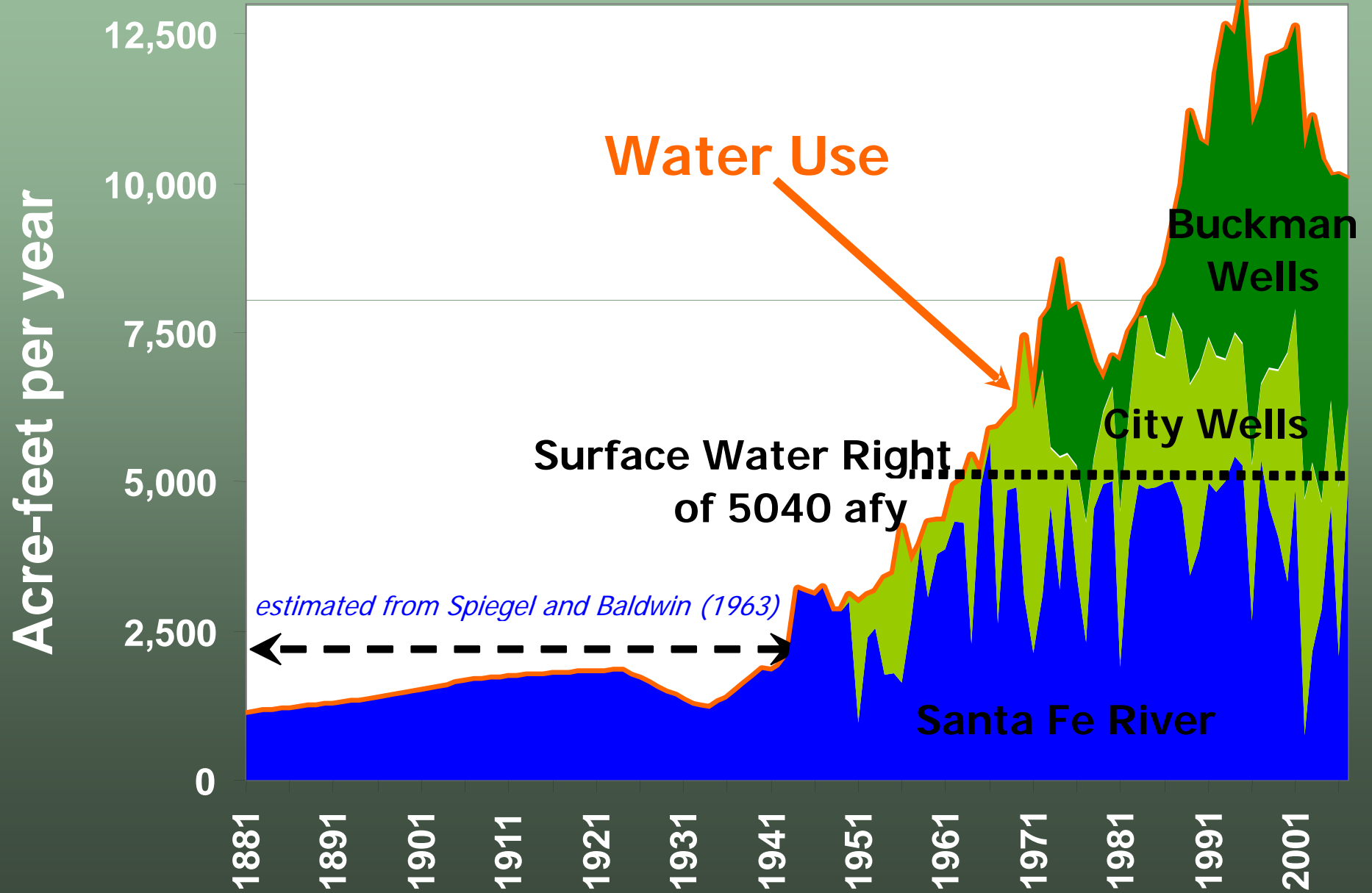
55th Annual New Mexico Water Conference

December 2, 2010

Presentation Outline

- Accomplishments
- Plans for the next decade
- Institutional evolution

Historical Water Use



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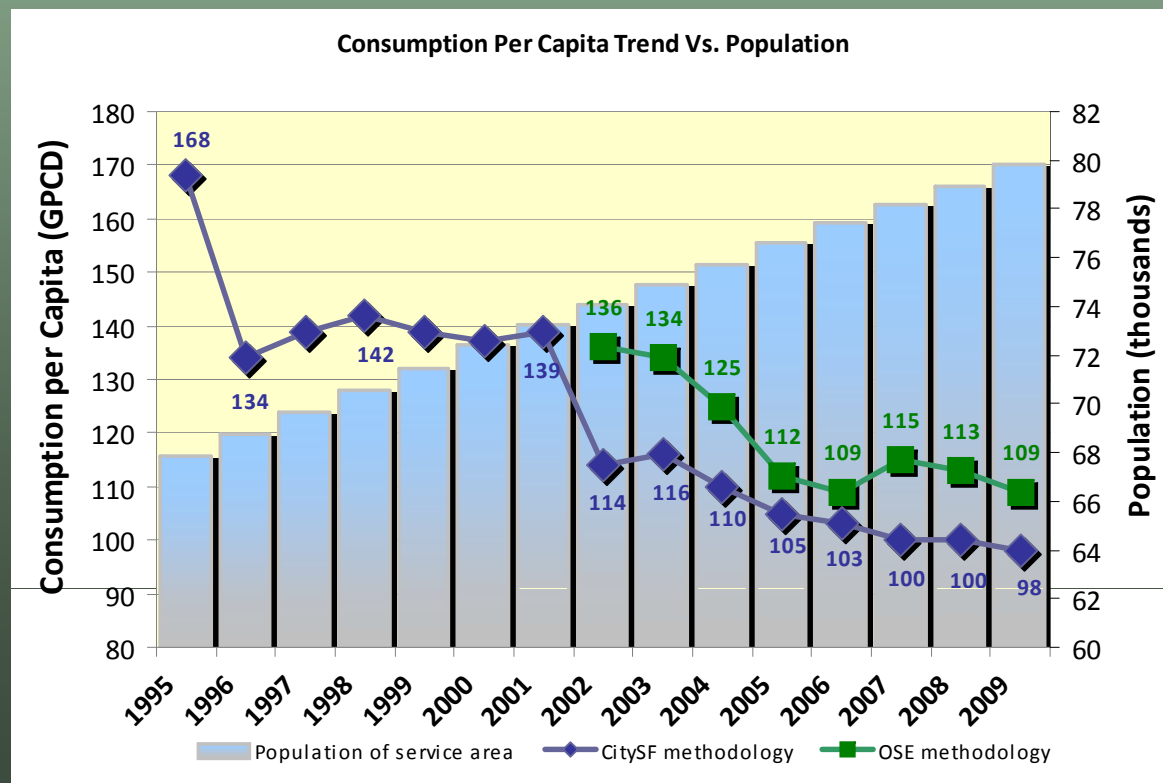


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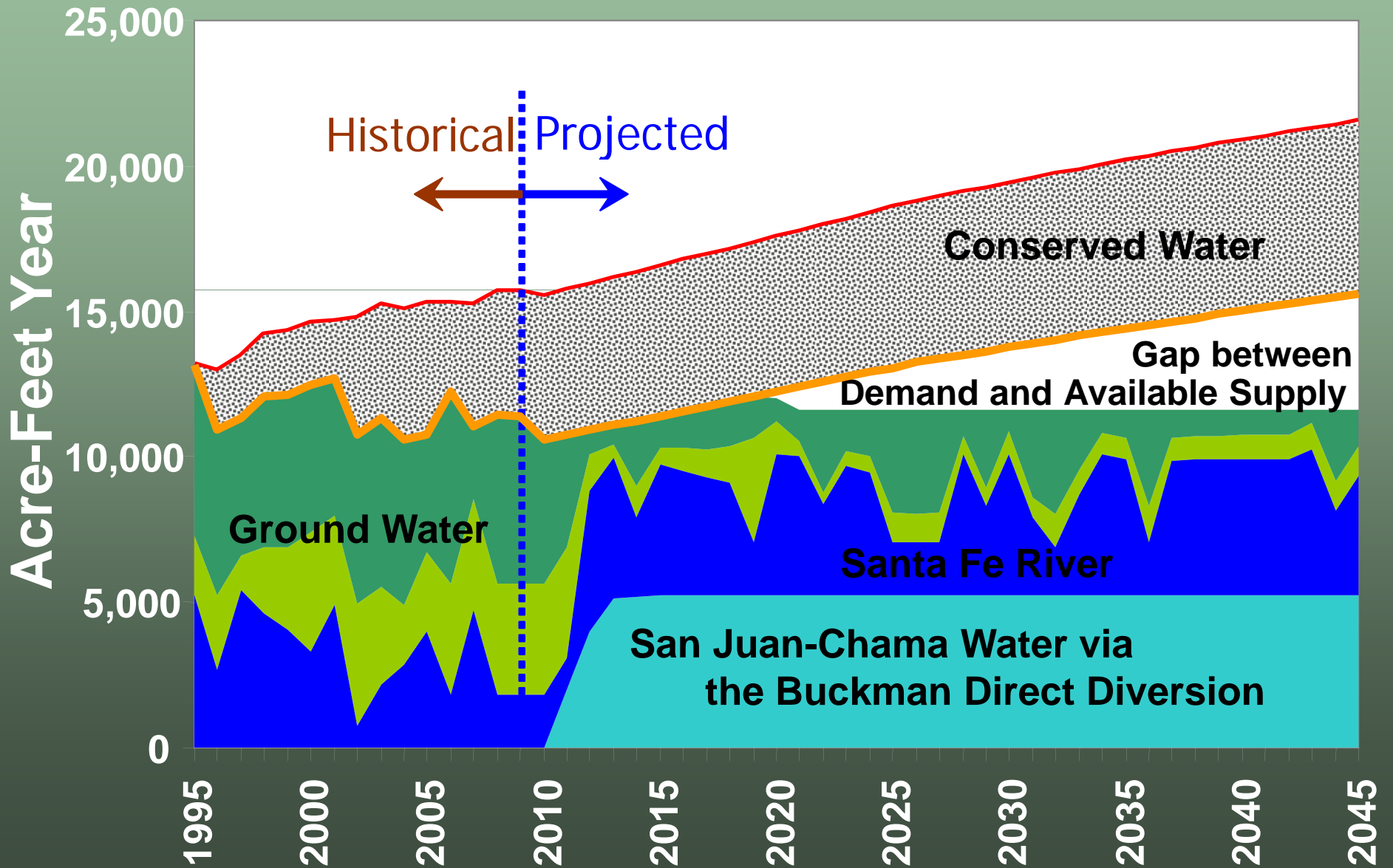
- Significant progress from collective efforts within and outside the institutional framework of the City of Santa Fe (additional listing of accomplishments available as handouts)

Reduced Demand

- 40% reduction in gallons per capita day (GPCD) since 1995, from 168 to 100
- GPCD is 109 per OSE method
- Producing same quantity (about 10,000 acre-feet) as 1995
- New system demand (growth) derived from conserved water in City's water bank
- Water bank deposits derived from voluntary participation in rebate program for appliance replacement



Water Supply Planning



Full Use of the Santa Fe's San Juan-Chama Project Water via Buckman Direct Diversion Project

- Online April 2011
- Facility testing to begin January 2011
- Will allow Santa Fe to use 5,230 acre-feet of San Juan-Chama Project water
- When 'average' annual precipitation, City will go 45% to 90% renewable surface water use



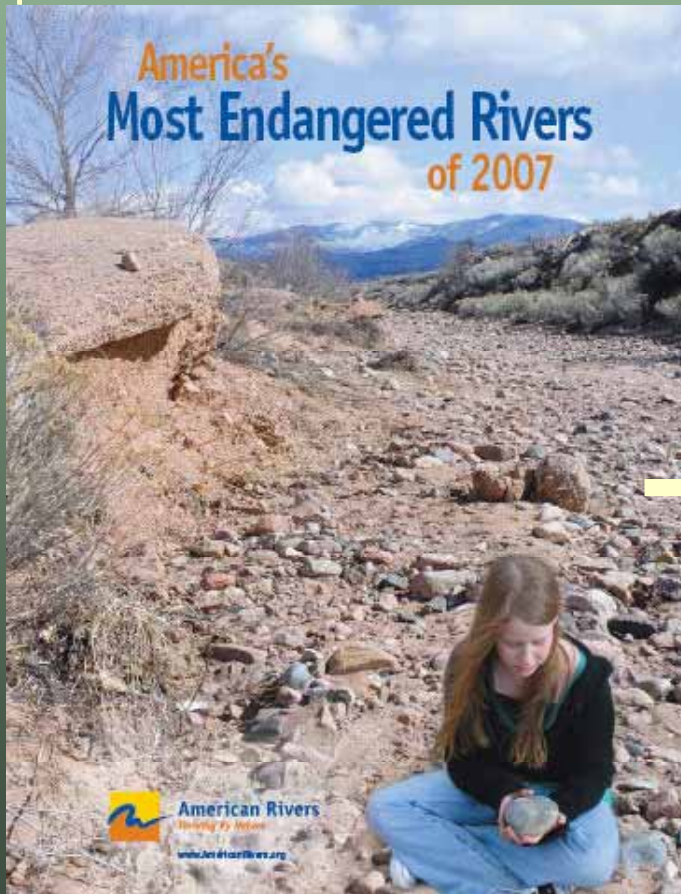
Upper Watershed Management

- Mechanically and hand treated 6000+ acres; conducting '2nd entries'
- Tree-ring based study to determine 700+ year fire history in the wilderness
- Adopted 20-year Upper Watershed Management Plan
- Received \$1.3 M dollars from Water Trust Board to implement the Plan over next 3-5 years
- Considering 'Ecosystem Services' as way to pay for continued watershed maintenance



Santa Fe River Stewardship

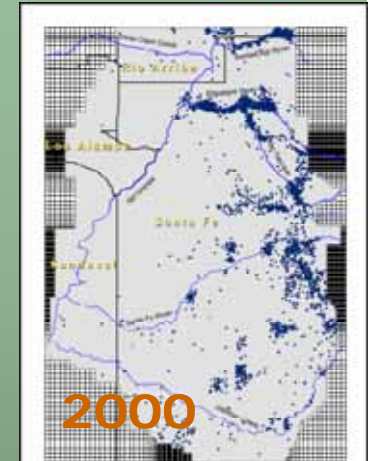
- Bypassed between 200-800 acre-feet from water supply over past 3 years
- Currently drafting an ordinance to make commitment more permanent and with clear priorities



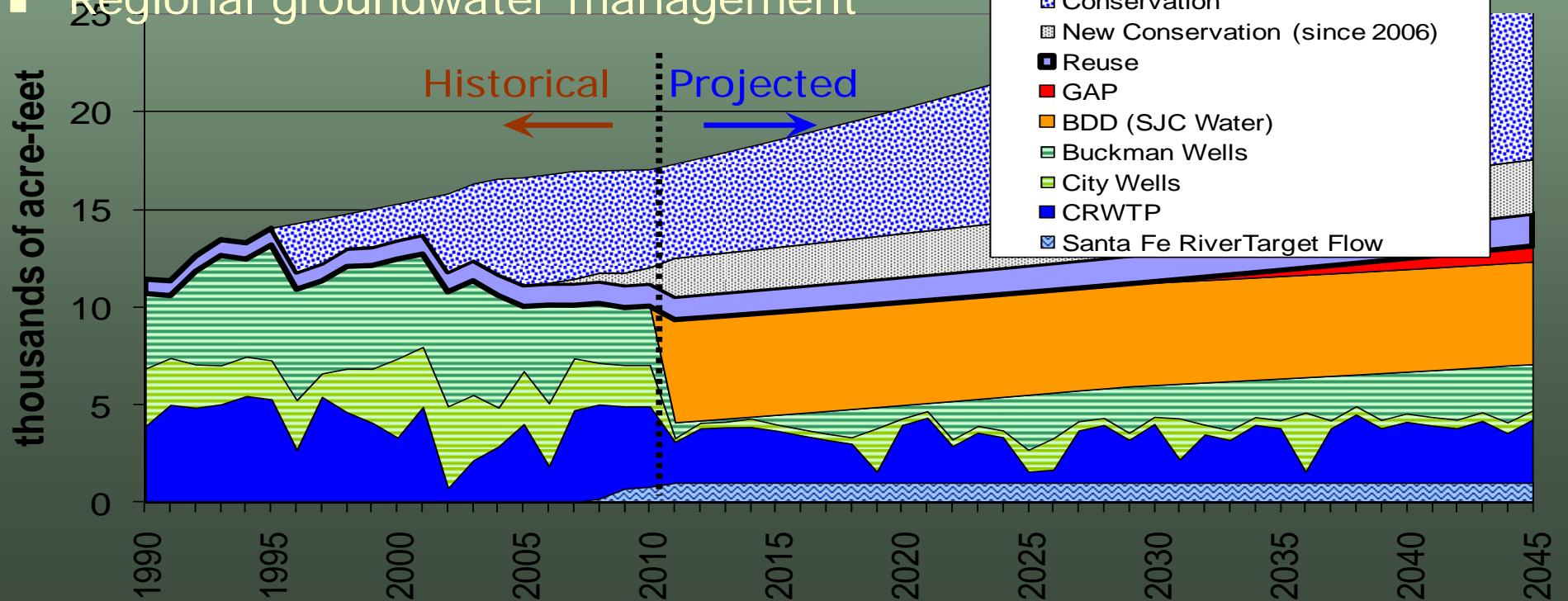
Santa Fe's Plan for the next decade

Water Supply Management

- Conjunctive use; sustainable ground-water use
- Water for the Santa Fe River
- Demand vs supply gap appears in 2030
- Gap solutions: return flow credits from effluent, water acquisition, conservation

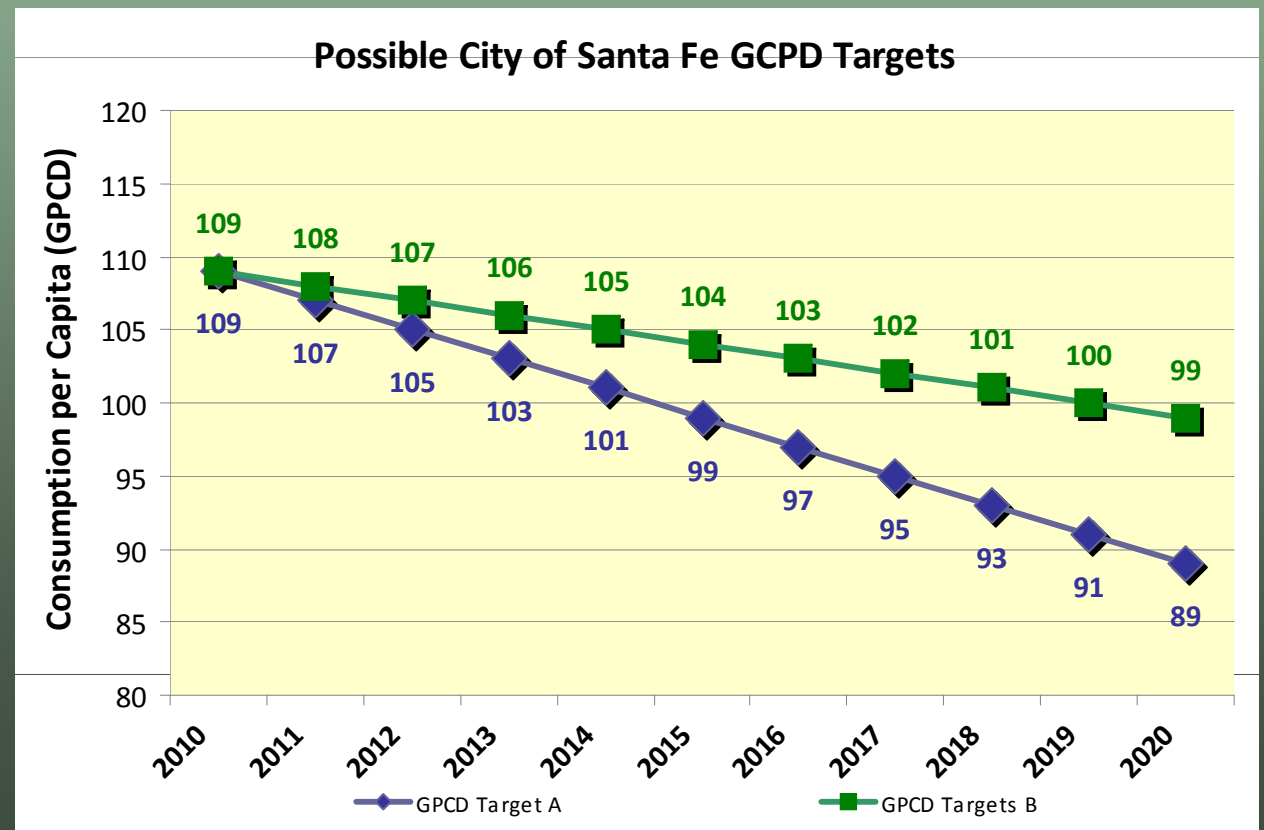


Regional groundwater management



More Conservation

- Set conservation targets
- Analyze effectiveness of additional water conservation programs
- Modify or add water conservation programs, as necessary to reach targets



Integrate Storm Water

- Reconsideration of overland and storm water flow (a la Brad Lancaster)
 - Parque del Rio → storm run off redirected over grass toward river
 - Arroyo stabilization and infiltration
 - Infiltration basins throughout watershed



Secure Water Rights

It's easier to plan AND share if you know how much you have...

- Secure pre-basin groundwater rights (4,865 acre-feet)
- Settlements and Agreements Among Water Users
 - Aamodt
 - Tesuque Pueblo
 - Other Santa Fe River water right holders
 - Regional groundwater users
- Monitor water right transfers
- Adjudication



Provide for the Santa Fe River

- Add Santa Fe River to local demand projections
- Develop ordinance for 1000 acre-feet annually
- Community and stakeholder process to determine flow objectives

Potentially competing objectives:

- *Year round, short distance flows*
- *Larger flows through downtown*
- *Vegetative bimonthly pulses for entire river corridor*
- *Mimic hydrograph*



Climate Change Assessment, Adaptation, and Mitigation

- Evaluate supply vulnerability
 - Incorporate 700+ year stream flow record reconstructed from tree ring data plus predicted stream flow reductions
- Dual supply systems: surface and groundwater
- Reduce emissions:
 - Energy (and cost) efficiency optimization programs for water production
 - Conversion to alternative energy: solar for Buckman Direct Diversion and hydroelectric generator from transmission line at Canyon Road Water treatment plant



Santa Fe's Institutional Evolution

Past

- Acquired control of water decisions through purchase of water utility
- Created local water market through bank
- Linked growth to supply



Future

- Make local decisions in context of the whole ('cradle to grave' concept); consider cost, energy, economics, food production, efficiency, social, cultural, ecosystem, longevity, sustainability
- Increased intra- and inter-agency conversation, coordination, and solutions
- Increased involvement of and responsibility to the community
- Encourage creativity and entrepreneurial opportunities



Conclusions

"How water problems created by generations of confrontations are addressed will depend upon the ability, vision, and compassion of persons given the awesome responsibility of coming up with solutions. But they must be resolved if we wish to live in harmony."

Nelson J. Cordova, Taos Pueblo Tribal Councilor,
2000 New Mexico Water Conference



Thank You!

Questions?

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Water Treatment Processes

