

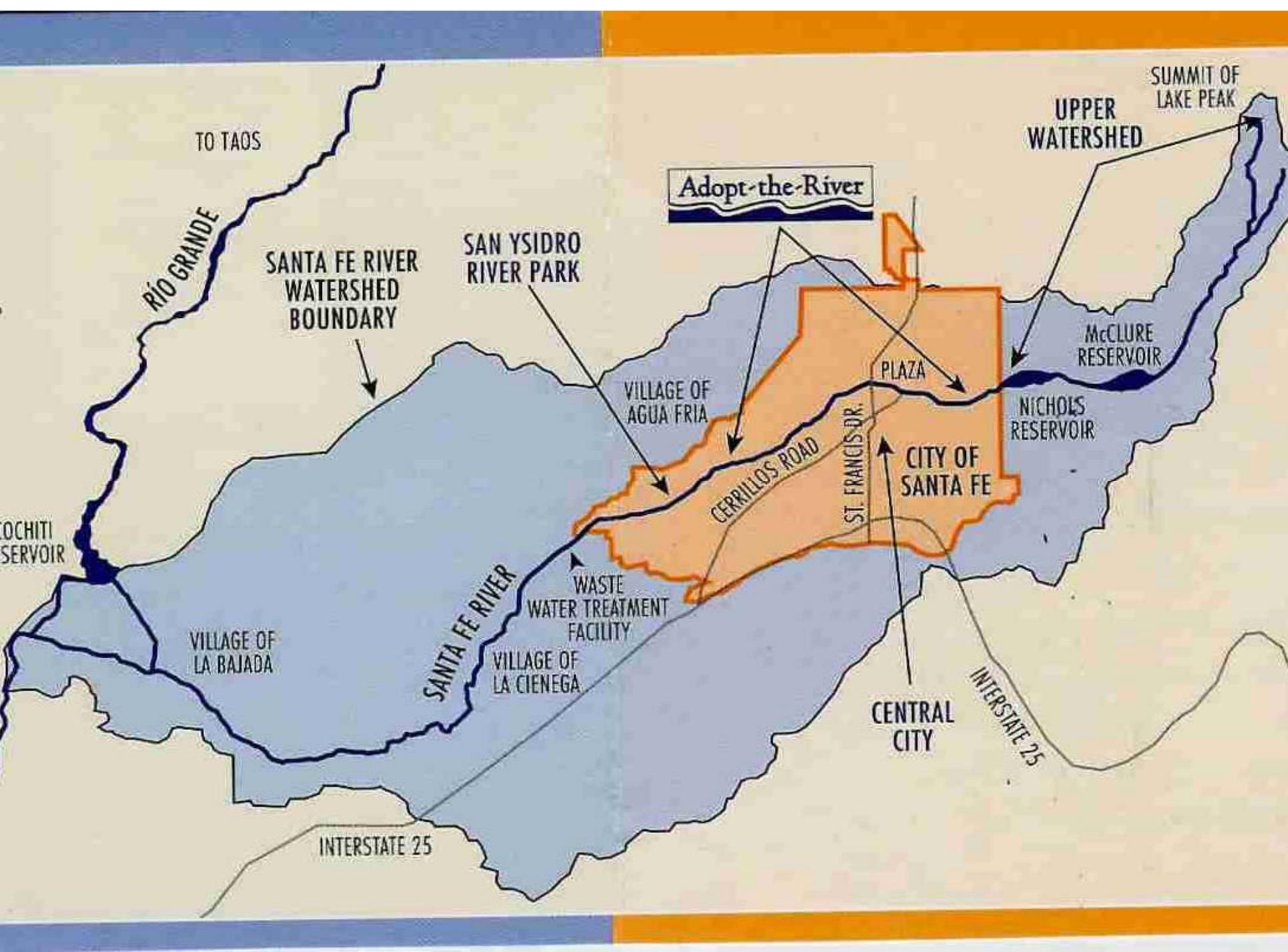
Healthy Rivers and Water Security

David Groenfeldt

Santa Fe Watershed Association

www.santafewatershed.org

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TO TAOS

RÍO GRANDE

SANTA FE RIVER
WATERSHED
BOUNDARY

SAN YSIDRO
RIVER PARK

Adopt-the-River

UPPER
WATERSHED

SUMMIT OF
LAKE PEAK

McCLURE
RESERVOIR

NICHOLS
RESERVOIR

PLAZA

CITY OF
SANTA FE

CERRILLOS ROAD

ST. FRANCIS DR.

COCHITI
SERVOIR

VILLAGE OF
LA BAJADA

SANTA FE RIVER

WASTE
WATER TREATMENT
FACILITY

VILLAGE OF
LA CIENEGA

CENTRAL
CITY

INTERSTATE 25

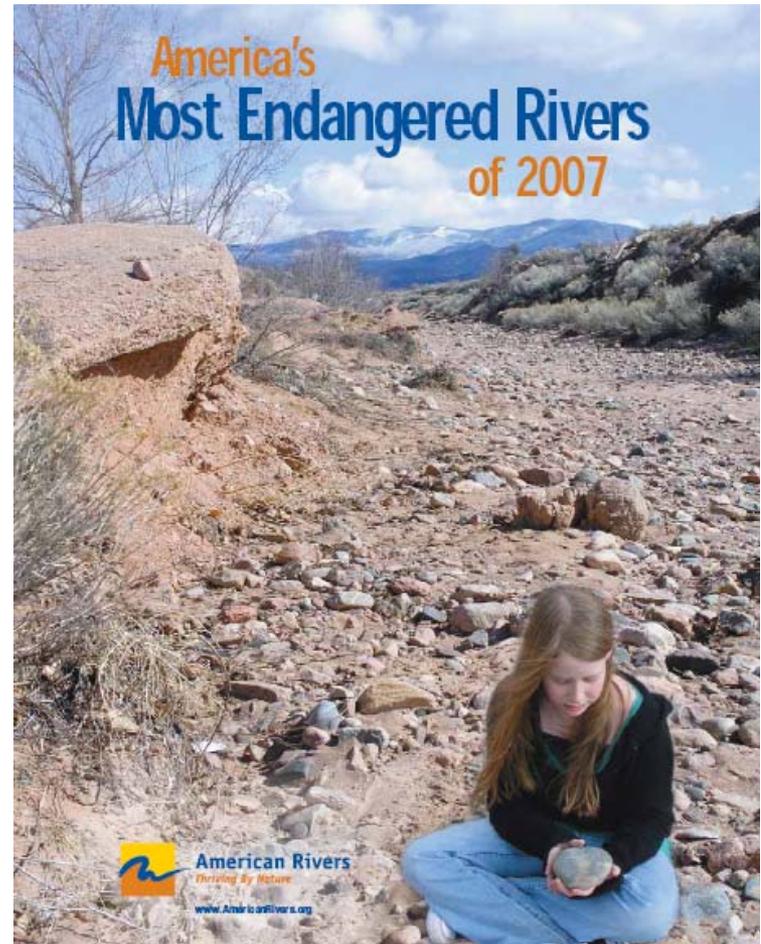
INTERSTATE 25

Santa Fe's Current Strategy for Water Security

- Protect upper watershed that feed municipal reservoirs
- Maximize stored water use
 - Impound 100% of flow
 - Use stored water first (40% of total supply)
- Tap aquifers along river (30% of total)
- Tap aquifers near Buckman (30%)
- Construct Rio Grande diversion (future)

What Happened to Our River?

- Acequia diversions by Spanish
- Dams built by Americans
- Entire flow used by growing city
- “Rights of Nature” not a concept
- Most Endangered River for 2007



Evolution of Water Policies

1. Ancestral Pueblo – *minimal use*
2. Spanish Colonial – *acequia diversions*
3. American – *dam construction*
4. Future ??

Is There Another Path to Water Security?

- River Corridor Master Plan – 1995
 - River trails
 - Channel and bank restoration
 - Water in the river
- City's Long Range Water Plan
 - 1000 acre feet for the river
- Mayor Coss
- River Commission
- Santa Fe Watershed Association

An Emerging Paradigm Shift

from...

- Water in the river is wasteful
- Wet rivers aren't practical in dry areas
- A flowing river is a management luxury
- Command and control

to...

- Water in the river is an investment
- Wet rivers provide critical habitat in dry areas
- A flowing river is a best management practice
- Accommodation and management

Why Restore Flow to the River?

- Ethics
- Habitat
- Quality of Life
- Aquifer recharge and Sustainability
- Incentive for water conservation
- Recreation
- Tourism and business climate

Concept of “Environmental Flow”

- Keep enough water in our river to maintain environmental health of the ecosystem
 - Support vegetation and wildlife habitat
 - Infiltration to groundwater aquifers
 - Consistent surface flows to support aquatic life
- Nature will be better off and so will we
 - Groundwater recharge
 - Aesthetic enjoyment

Proposed Flow Policy

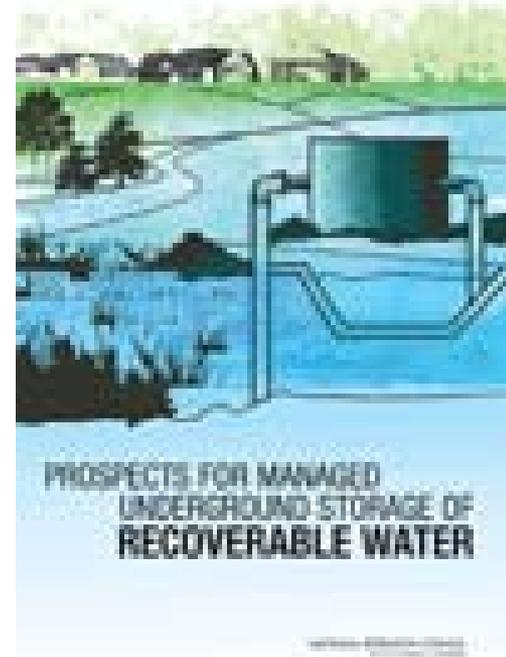
- Release 1000 ac ft during normal years
 - 10% of total annual water use
 - Mimic natural hydrograph ($av=1.5$ cusecs)
- Promote water-saving technologies to match volume released
 - Landscape irrigation improvements
 - Household plumbing and appliances
- Encourage rooftop catchment as new source of supply

From Sustainability to Security

1. Flowing river provides aquifer recharge
2. Community appreciation of the river provides a new incentive for conservation
3. New culture of frugal water use enhances system resilience for meeting future droughts

1. Aquifer Recharge

- Modeling so far inconclusive but theory is robust (cf. NRC 2008)
 - Empirical data needed from actual flows
- Subsurface storage has much greater potential than reservoirs.
- Evaporation losses minimized
- New wells needed to tap shallow aquifer;
- Water quality risks increase.



2. Incentive for Conservation

- Current policies reward developers for conservation gains by community.
 - Toilet retrofit program
- Popularity of flowing river proven in Mayor Coss campaign, and community meetings.
- “Willingness to Conserve” will be enhanced through the shared value of keeping the river flowing (plus a bit of marketing).

3. A Frugal Water Culture

- System resilience depends on internal behavior as much as external conditions;
 - Behavior is a function of culture;
 - Culture is based on values
- Frugal water use would be rewarded and stimulated by a flowing river;
- Drought would stop the river, but would only enhance frugal water behavior.

Conclusions

- Santa Fe's water security would be enhanced by releasing water for river flow, through:
 - Aquifer recharge
 - incentives to conserve
 - A robust culture of water frugality

For more information or to join the
Santa Fe Watershed Association:

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