

Supporting Document E-2

Presentation of Candidate Alternatives

Middle Rio Grande Regional Water Plan
Alternatives Work Group

Forty-four Alternatives



presented by Leslie R. Kryder
September, 2002



Alternative Actions

- Started with **271** Alternative Actions
 - **169** from Public Participation Meetings
 - **102** from Constituency Groups and Alts Working Group
- Combined Duplicates and Closely Related Actions into **44** Alternative Actions



Alternative Actions Groups

- Increase Water Supply
- Decrease or Regulate Water Demand
- Change Water Uses to Increase Supply or Decrease Demand
- Water Rights Regulation
- Water Quality Protection
- Implementation of Plan and Management of Water Resources
- Funding

1. Increase Water Supply





Increase Water Supply

A-69

- Acquire additional water rights without condemnation from various sources from within or outside the water-planning region, and import water from other basins where possible.



Increase Water Supply

A-39

- Utilize technological advances for treating deep saline and brackish water for potable or non-potable use in the region.



Increase Water Supply

A-44

- Encourage on-site rainwater harvesting.





Increase Water Supply A-42

- Conduct research on innovative water supply enhancement techniques such as weather modification.



Increase Water Supply A-46

- Inject water treated to drinking water standards for aquifer storage and recovery (ASR) in appropriate locations throughout the water planning region.



Increase Water Supply

A-24

- Promote, through incentives, on-site residential and commercial greywater reuse and recycling.



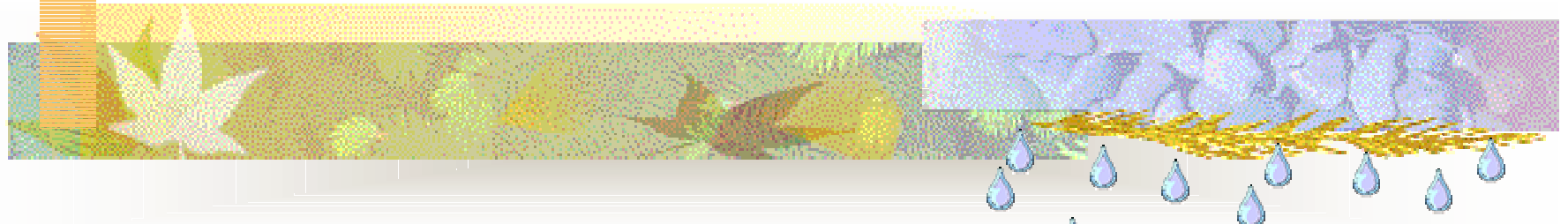


Increase Water Supply

A-27

- Reuse treated wastewater for non-potable uses.

Increase Water Supply



We're half way through these!





Increase Water Supply A-38

- Increase monitoring and modeling of surface water system to improve water management at the watershed level, and retain excess water flow from Elephant Butte Reservoir during wet cycles.



Increase Water Supply A-45

- Reduce open water evaporation in storage reservoirs, e.g. by retaining water at higher elevations or latitudes, or by reducing surface areas.





Increase Water Supply A-40

- Continue evapotranspiration studies and apply findings to vegetation management programs in the water planning region.





Increase Water Supply

A-1 & A-2

- Restore Bosque habitat and manage vegetation in the Bosque to reduce evapotranspiration by selectively removing vegetation and promoting native plants. (A-1)
- Develop the economic potential of non-native species removal, harvesting, and output of products by local industries. (A-2)





Increase Water Supply

A-66

- Implement local and regional watershed management plans through all land and water agencies in the planning area.



Reduce evaporative loss/ Watershed
Management



Increase Water Supply A-33

- Establish erosion prevention measures and use soil and vegetation management techniques to reduce runoff and increase infiltration throughout the watershed, including forested mountains and uplands.



Increase Water Supply A-34

- Enhance and expand local government storm water plans and programs to control runoff using swales, terraces, and retention structures to minimize erosion, enhance infiltration and recharge, and prevent pollution of surface and ground water.



Increase Water Supply A-36

- Create constructed wetlands for groundwater recharge, water harvesting, and habitat improvement, and hydrological management of the Rio Grande.



2. Decrease or Regulate Water Demand





Decrease or Regulate Water Demand

A-56

- Establish region-wide educational programs, including public and private school curricula, to encourage voluntary conservation of water.





Decrease or Regulate Water Demand

A-18

- Adopt and implement local water conservation plans and programs in all municipal and county jurisdictions, including drought contingency plans.





Decrease or Regulate Water Demand

A-22

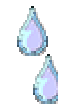
- Provide local programs that offer incentives for adoption of water efficient technologies and utilization of water saving devices.





Decrease or Regulate Water Demand A-21

- Examine a variety of water pricing mechanisms and adopt those that are most effective at conserving water.



Conservation



Decrease or Regulate Water Demand

A-8

- Meter all water supply wells, including domestic wells, throughout the water-planning region.



Well Management



Decrease or Regulate Water Demand

A-61

- Reduce the allowed pumping from domestic wells and restrict drilling of domestic wells where surface waters or the aquifer could be impaired.



Well Management

2. Decrease or Regulate Water Demand



More than half way through
category 2!





Decrease or Regulate Water Demand A-60

- Fund irrigation organizations to develop and implement water conservation programs.



Decrease or Regulate Water Demand

A-7

- Meter and manage surface water distribution flows through all irrigation systems to conserve water.





Decrease or Regulate Water Demand A-10

- Develop and employ alternatives to maximize irrigation efficiency on all irrigated land in the region.



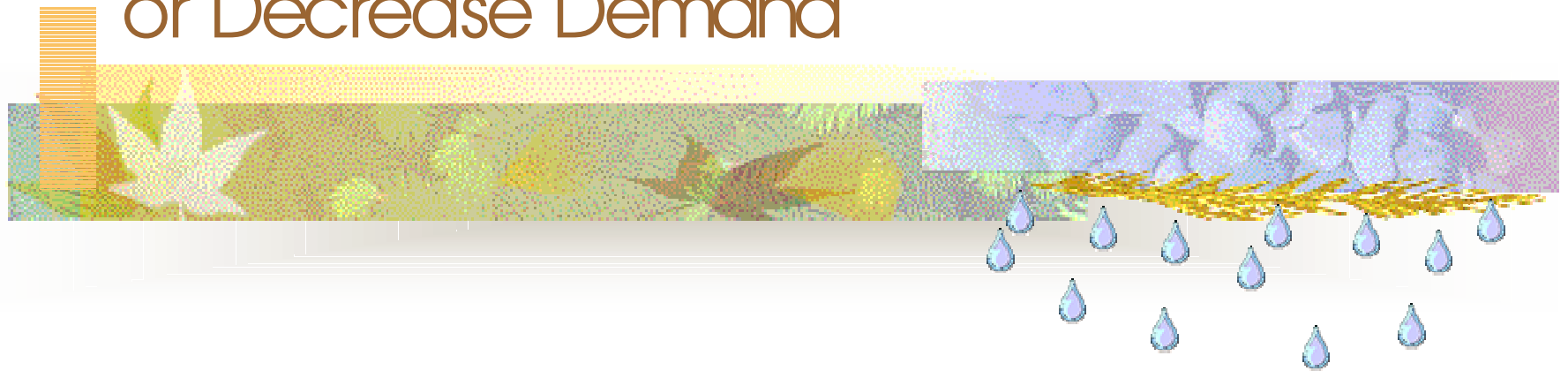


Decrease or Regulate Water Demand

A-9

- Develop conveyance alternatives for water transportation in agricultural irrigation systems.

3. Change Water Uses to Increase Supply or Decrease Demand





Change Water Uses to Increase Supply or Decrease Demand A-11

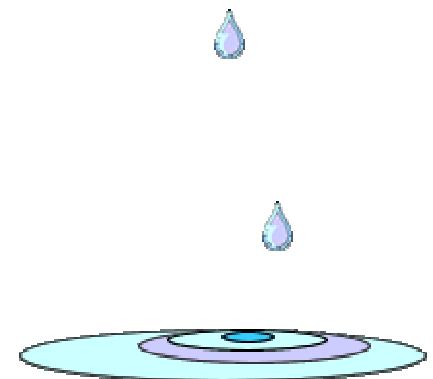
- Develop markets for locally-grown produce, and low-water alternative crops.





Change Water Uses to Increase Supply or Decrease Demand A-28

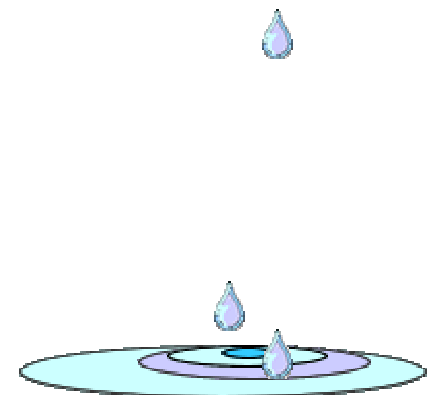
- Increase building densities (as compared to typical suburban density) and infill development through adoption of local government land use policies and regulations.





Change Water Uses to Increase Supply or Decrease Demand A-30

- Adopt policies to integrate land use planning and water resource management in all government jurisdictions in the Middle Rio Grande water planning region.



4. Water Rights Regulation



Water Rights Regulation

A-71

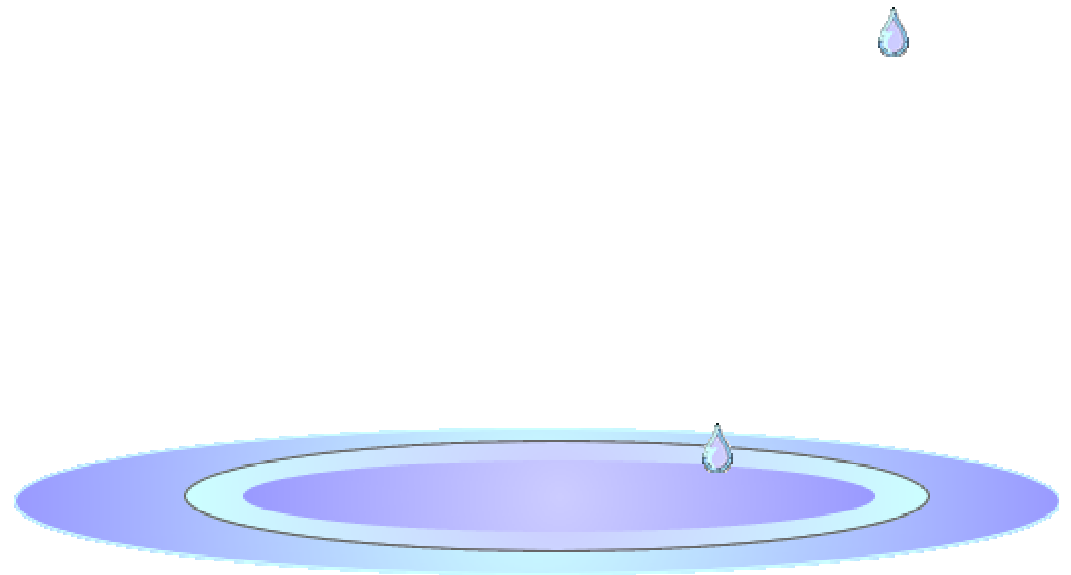
- Identify, quantify, and adjudicate all water rights and the order of wet water utilization in the water-planning region.





Water Rights Regulation A-51

- Establish more equitable accounting for evaporative losses in Rio Grande Compact water.





Water Rights Regulation A-63

- Change state water law to include in-stream flow as a beneficial use.



5. Water Quality Protection

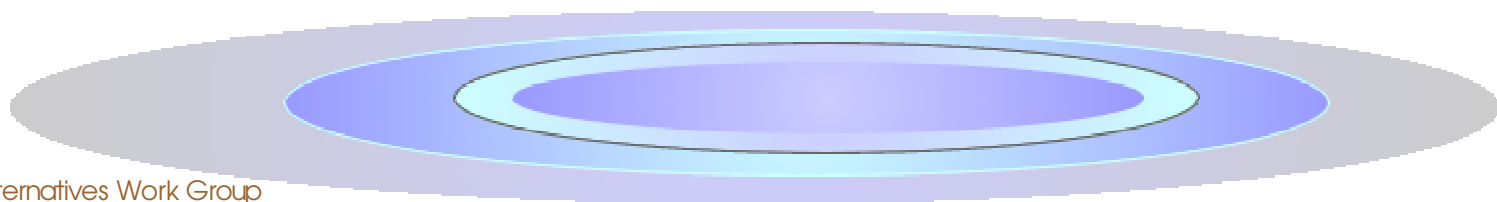




Water Quality Protection

A-47

- Identify, protect and monitor areas vulnerable to contamination (quality issue) and restrict groundwater supply wells in sensitive areas.

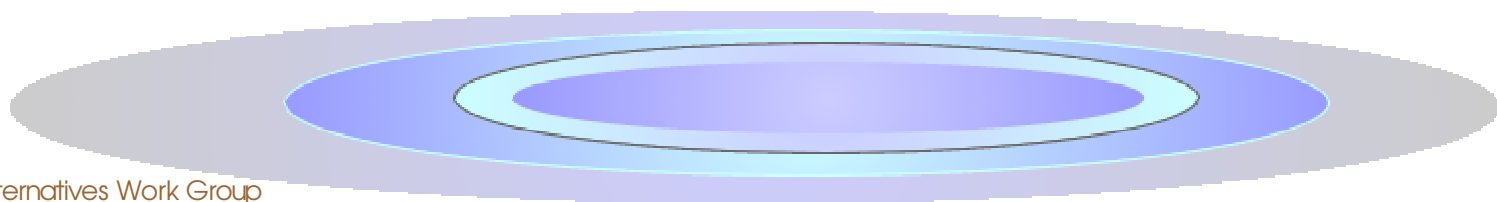




Water Quality Protection

A-26

- Expand use of centralized wastewater collection and treatment systems into all areas of urban and suburban development within the water planning region.

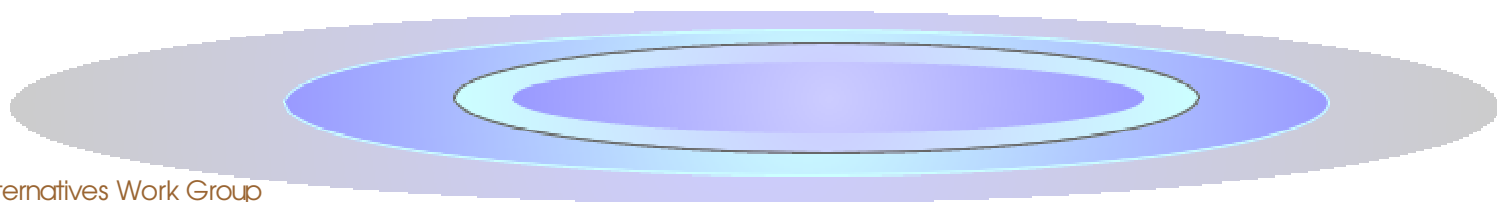




Water Quality Protection

A-50

- Enforce wellhead protection programs on all public water supply wells within local government jurisdictions.



6. Implementation of Plan and Management of Water resources





Implementation of Plan and Management of Water Resources A-143

- Encourage active water resource management by the State Engineer (OSE/ISC).





Implementation of Plan and Management of Water Resources A-67

- Establish a regional water management authority to provide professional water resource management and to administer or assist in a water banking program.





Implementation of Plan and Management of Water Resources A-52

- Develop a sustainable and coordinated growth management plan for adoption and implementation by local governments in the middle Rio Grande region.





Implementation of Plan and Management of Water Resources A-144

- Address groundwater/surface water interactions in the statutes for administering water rights.





Implementation of Plan and Management of Water Resources A-15

- Preserve, but continue to draw, deep-well water for drinking purposes only.





Implementation of Plan and Management of Water Resources A-53

- Through open and inclusive processes, ensure public involvement in water planning by continuing regular public information/ dissemination programs and public relations campaigns, and citizen planning committees. Keep the public engaged in this process.



Implementation of Plan and Management of Water Resources A-73

- Establish and integrate a regional Geographical Information System (GIS) database of publicly accessible information on water resources and photo imagery covering the water planning region.



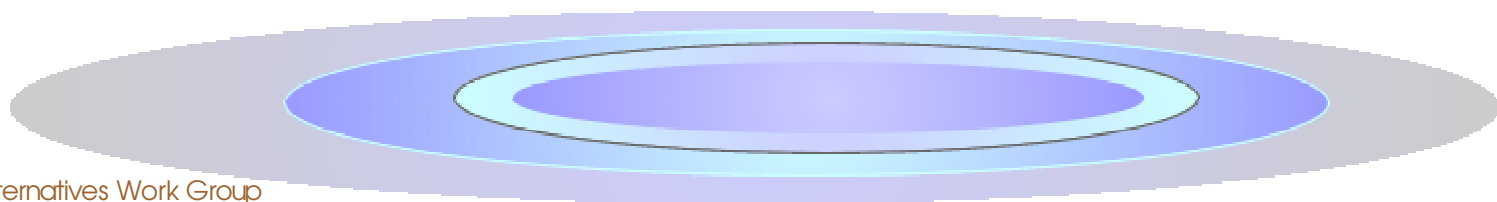
7. Funding – The Bottom Line



Funding – The Bottom Line

A-59

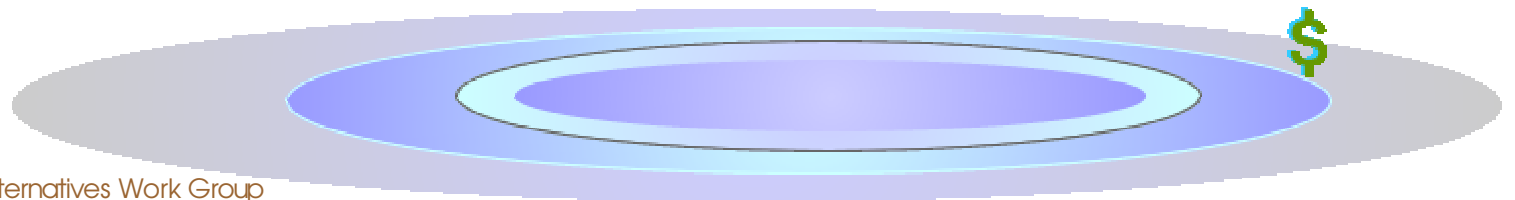
- A-59 Establish a State-based water severance tax for water projects, planning and conservation.



Funding – The Bottom Line

A-58

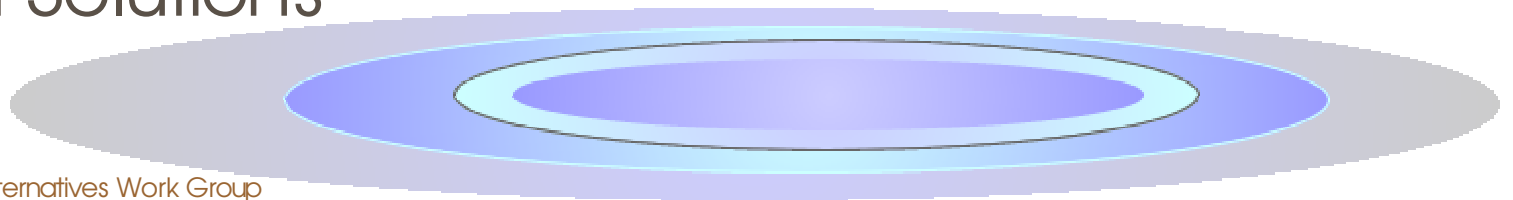
- Water Funding - Establish dedicated and continuing funding for Regional Water Planning as an ongoing process and as a basis for water management at local, regional and state levels.





Criteria for Measurement

- Technical Feasibility
- Physical, Hydrological and Environmental Feasibility
- Policy Analysis
 - Economic Impacts
 - Socio-Cultural Impacts
 - Political Impacts
- Characteristics of Legal Implications, Issues and Solutions





Next Steps

- Evaluate Alternatives Actions
 - Contractor
 - Volunteers
- Perform Feasibility Ratings
- Derive Recommended List

How Will We Balance the Water Budget?

