

## Executive Summary

This executive summary presents material on the following topics:

- What is Regional Water Planning?
- Why Plan?
- The Region
- What the Planners Learned and Accomplished
- Developing the Water Plan

### What is Regional Water Planning?

The regional water plan should answer five questions:

- What is the water supply available to the region?
- What is the region's current and projected water demand?
- What alternatives are available to meet the projected demand with available supplies, including management alternatives to increase supply and reduce demand via conservation or other measures?
- What are the relative advantages and disadvantages of each alternative?
- What is the selected set of alternatives that comprise the plan and how will those alternatives be implemented?

### Why Plan?

- To reduce or eliminate ground water depletions.
- To protect regional water interests.
- To retain local control of the region's water future.
- To balance different demands for water with the supply.
- To achieve balance with neither big winners nor big losers.
- To ensure water for future generations.

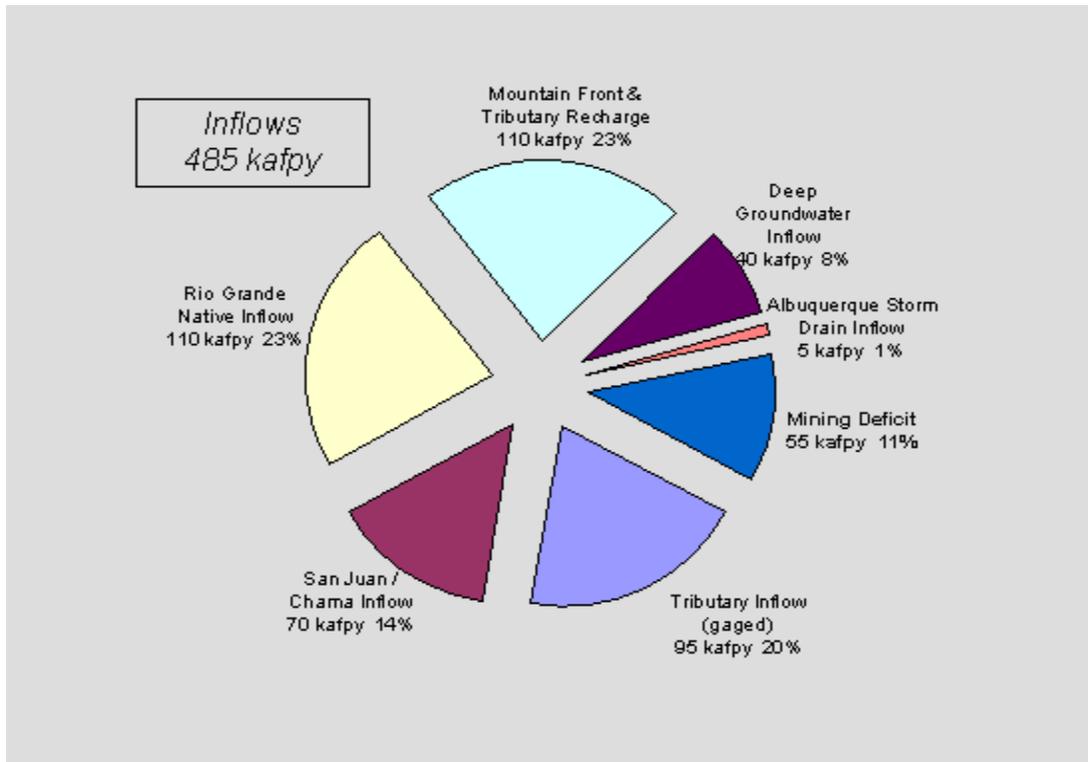
### The Region

The Middle Rio Grande Region (MRG Region) is one of 16 water-planning regions in New Mexico. It comprises Sandoval, Bernalillo and Valencia counties—an area covering more than 5,000 square miles. More than half of New Mexico's population lives here, making the region the largest urban water user in the state.

The region averages nine inches of rain per year, and relies on both surface and ground water to support the region's industry, agriculture, environment and people. Surface-water sources include the Rio Grande, the Rio Jemez, the Rio Puerco and the San Juan-Chama Project. Limited ground-water resources currently supply all of the region's municipal and drinking water needs. These resources are not as extensive as once believed. The region must take steps now to protect and conserve available water resources.

Water use is constrained by physical and legal factors. The arid climate is quite variable. Extraction of groundwater cannot continue indefinitely without consequences. Downstream neighbors are entitled to their share.

**Figure ES-1 Water Budget External Inflows – Where Does it Come From?**  
Data relative to the three-county region; averages for last quarter of the twentieth century. Water delivered to Elephant Butte Reservoir has been excluded from both inflows and outflows. (Source: The Middle Rio Grande Water Assembly)



### What was Learned and Accomplished

During the planning process, the various parties gathered and analyzed water data, posed alternatives, and developed recommendations. The essentials are summarized below.

### How Is the Region’s Water Administered?

Two agencies, the Office of the State Engineer (OSE) and the Interstate Stream Commission (ISC), have the primary responsibility for administering water throughout the state. The New Mexico Environment Department (NMED) has lead supervision over water quality.

To administer water, OSE issues a permit for the right to use a certain amount. These permits, or “water rights,” are assigned a date, the priority of which governs administration. Pueblo water rights, which are not managed by OSE, are paramount (have the most seniority). They have not been quantified, nor have the future needs or uses been quantified for tribal entities. Water rights throughout the region have not been adjudicated, with the exception of the Jemez, which is partially completed. OSE issues domestic well permits. Water rights to all of the surface water have been issued, so new users have to acquire permits from existing users.

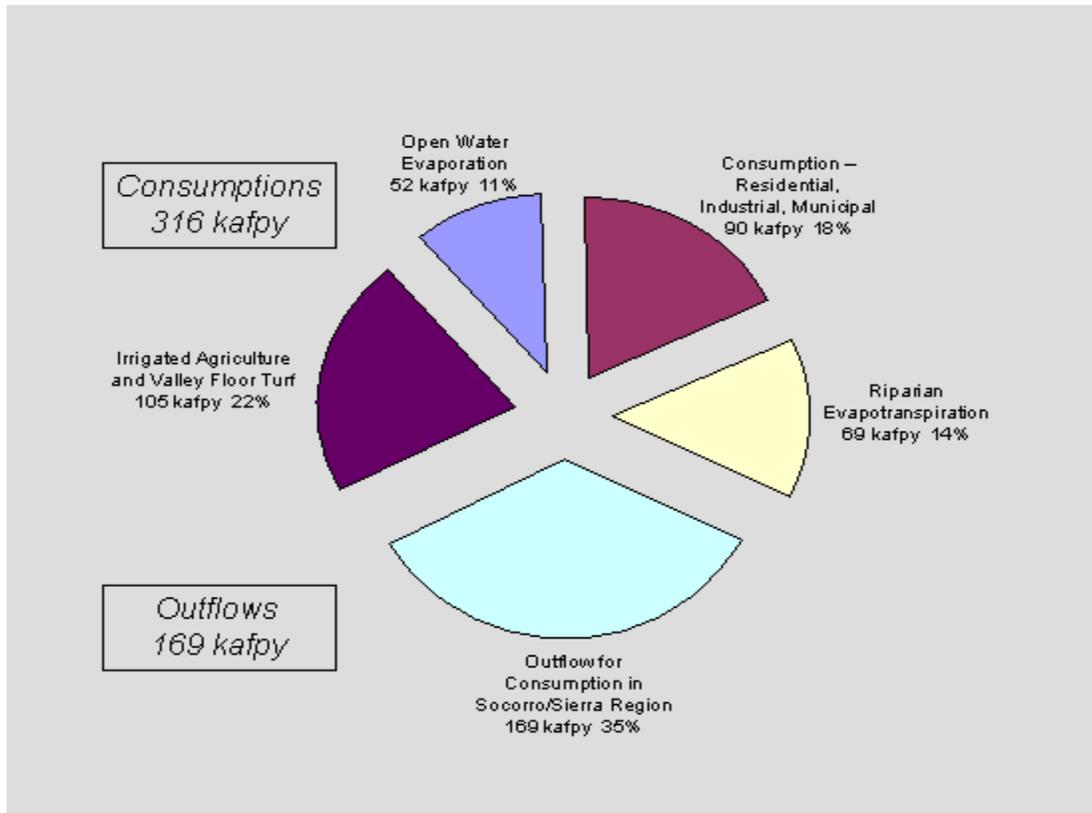
The Rio Grande Compact helps to ensure that water is shared by three states. The MRG Region’s share is governed by this agreement, which ISC administers on behalf of New Mexico.

NMED, along with the U.S. Environmental Protection Agency, monitors water quality for various users and uses. Water may be managed to benefit species listed as endangered due to human actions.

The OSE recently issued a report for New Mexico, declaring:

**The key fact about our water—demand exceeds supply.**

**Figure ES-2 Water Budget External Consumptions and Outflows – Where it Goes**  
**Data relative to the three-county region; averages for last quarter of the twentieth century. Water delivered to Elephant Butte Reservoir has been excluded from both inflows and outflows. (Source: The Middle Rio Grande Water Assembly)**



### A Water Budget

A water budget is the correlation (or difference) between how much water enters a region and how much leaves. Today’s supply and usage situations are presented in Figures ES-1 and ES-2.

### Overspending the Water Budget

On average the region has been “overspending” its water budget, creating a “mining deficit” of about 55,000 acre-feet of water per year above what is renewable from various water sources. Increases in uses, such as population increases, may further impact the regional water deficit, unless the region’s stakeholders take appropriate steps.

### Consequences of Overspending and Constraints

Everyone knows that there are side effects to overspending—satisfying the present comes with delayed costs. Nor can constraints limiting available solutions be ignored.

- Physical indicators include the lowering water table—160 feet in some places under Albuquerque. Continued lowering may result in land subsidence or water quality degradation, and may affect senior water-rights holders and the health of the river. Costs to extract water will increase.
- Variability of precipitation means that the surface-water supply will differ from year to year.
- OSE has declared the Rio Grande to be a fully appropriated basin, meaning there have been more water-use permits issued than there is actual wet water. In times of shortage, administration of this

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system with ambiguous ownership may lead to junior water right holders being shut down, or improperly taking water from senior holders.

- Rivers, which are not water-right holders, provide water to the shallow aquifer, bosque habitat and downstream users.
- Not adhering to the Rio Grande Compact can, and most likely will, result in enforcement action being taken to ensure the delivery of water. The overuse of the Pecos River provides an example not to follow.
- Drought—New Mexico had about 15% to 18% more average rainfall during the last 25 years than in the last two thousand years. Recent tree-ring studies indicate that New Mexico has had a series of “wet” years and National Weather Service studies on the Pacific Decadal Oscillation suggest that the state may be returning to its normal, drier climate (Grissino-Mayer 1996; Liles 2003).
- Water Quality—Continual draw from the aquifer can have an adverse effect on water quality. Utilizing surface water will increase costs.
- The Middle Rio Grande Water Supply Study states:
- In summary, the water supply of the Middle Rio Grande is marked by limitation and variability. The successful water planning process will operate in recognition of these concepts (S. S. Papadopoulos & Associates 2000).

## **Future Trends**

If the region continues to use water as it does now, and continues growing according to historic population trends, the prediction is that demand will increase by 95,000 acre-feet per year to support projected 50-year growth.

The population has grown by 21% since 1993 and is forecasted to continue to grow at an average rate of 1.5% per year. These population increases have caused dramatic increases in ground-water withdrawals from the aquifer system, resulting in large ground-water level declines. Because the Rio Grande is hydraulically connected to the aquifer system, these ground-water withdrawals have also decreased flow in the Rio Grande (McAda and Barroll 2002).

## **Balancing the Water Budget**

Reducing consumption and increasing supply so as to balance the budget are not as easy as they might appear. It's easier to ask someone else to curtail their usage. Where will the water come from?

According to the [Framework for Public Input to a State Water Plan](#),

Many groundwater users, including municipalities and industries in the Middle Rio Grande, were allowed to begin pumping without securing water rights. Because of return flows of treated wastewater and the delayed impact of groundwater pumping on river depletions, this practice has not resulted in net river flow diminishment. However, the accumulated eventual need for groundwater users to acquire and transfer water rights is very large and exceeds the quantity of currently transferable water rights...Further, the ability of return flows from pumped groundwater to offset river depletions caused by pumping depends on ever increasing groundwater pumping. When pumping levels off, which it must, return flows will no longer be sufficient to offset the depletion of the Rio Grande caused by historic pumping. (OSE/ISC 2002)

## Developing the Water Plan

### Who Planned?

The planning process was guided by the all-volunteer Water Assembly in partnership with the Mid-Region Council of Governments and its Water Resources Board. The Water Assembly included highly diverse subgroups representing a variety of interests in Bernalillo, Valencia and Sandoval Counties. The Water Resources Board is comprised of local government representatives.

### How Did Planning Take Place?

The MRG Regional water planning process emphasized public involvement through an open, inclusive and participatory process. More than 2,000 people contributed time, energy and effort into creating. All parts of the process encouraged public and input and discourse on the contents of the plan.

The Water Assembly sought public input through a series of events, surveys and other means.

- **Annual Assemblies**—Yearly meetings to inform the public on the progress of the plan.
- **Community Conversations**—Six series of public gatherings in the three counties that allowed the public and the planners to interact on a smaller scale.
- **Regional Forums**—Facilitated discussions bringing the entire region together.
- **Public Opinion Surveys**—Two surveys record regional public opinion on water issues.
- **Technical Analysis**—Expert scientific analysis and modeling of supply, demand, and alternative actions.
- **Interaction with Governmental and Non-Governmental Organizations**—Flow of information between the Water Assembly and various organizations on the water planning process.

### The Planning Process

The plan is intended to assist water-rights holders, individuals, businesses, organizations, and governments (local, state and federal) in balancing the water budget.

The Water Assembly followed an eight-step sequence in developing the water plan.

1. Define visions and values
2. Set goals and objectives
3. Balance the budget
4. Assemble alternative actions
5. Choose options
6. Build scenarios
7. Draft the plan
8. Accept and implement the plan

### Vision and Values

The plan is intended to assist water-rights holders, individuals, businesses, organizations, and governments—local, state and federal—in balancing the water budget. The mission and goals as adopted by the Water Assembly and the Water Resources Board reflect regional values and came from an extensive public process.

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### *Preamble*

The development and implementation of the Regional Water Plan is intended to support policies, programs and projects that meet the goals of the plan. Recognizing the limited resource and consistent overuse of the region's water, the following mission and supporting goals are established for the regional water plan.

### *Mission*

Balance Water Use with Renewable Supply

## **Goals**

- Ensure that the Mission is fulfilled through fair, open and inclusive public planning and implementation processes
- Preserve Water for a Healthy Native Rio Grande Ecosystem
- Preserve Water for the Region's Agricultural, Cultural, and Historical Values
- Preserve Water for Economic and Urban Vitality
- Preserve Water for the Qualities of Life Valued by Residents in the Region
- Develop Broad Public and Official Awareness of Water Facts and Issues, Especially the Limited Nature of Water Resources
- Conserve Water
- Promote a System of Water Laws and Processes that Support the Regional Water Plan and its Implementation
- Provide Appropriate Water Quality for Each Use
- Manage Water Demand Consistent with the Stated Mission
- Balance Growth with Renewable Supply (Accepted by the Water Assembly and not by the Water Resources Board)

## **Alternative Actions**

At many public meetings and workshops across the region over the past five years, the general public, technical experts and water managers developed suggestions to balance the region's water budget. The process generated 273 suggestions. Through elimination of duplication, and by combining similar suggestions, a list of 44 candidate alternative actions were developed for evaluation by the public and the assembly. The actions were divided in seven broad categories.

- Increase Water Supply
- Decrease or Regulate Water Demand
- Change Water Use
- Water Rights Regulation
- Water Quality Protection
- Implementation of Water Plan
- Funding

Detailed analyses of the 44 alternatives were conducted and feasibility studies were conducted on 25 quantifiable alternatives. The public evaluated the alternatives in a series of public meetings called

Community Conversations, and a working team of the Water Assembly then started the process of putting all the alternatives into various combinations or scenarios to provide a framework for recommendations.

## **Scenarios**

Scenario development committees developed draft scenarios that included three overall plan goals:

- Preserve Water for a Healthy Native Rio Grande Ecosystem
- Preserve Water for the Region’s Agricultural, Cultural, and Historical Values
- Preserve Water for Economic and Urban Vitality

The scenarios were presented to the public in a series of Community Conversations and then converged into one draft scenario for review by the Water Assembly, Water Resources Board, and the public.

## **The Recommendations**

The draft scenario was modified and mapped into the draft MRG Regional water plan. No single “silver bullet” solution to this complex problem was found; rather, action is needed across-the-board by all stakeholders.

Highlights of the draft plan recommendations:

- Urban and Rural Conservation Activities
  - Establish a Domestic Well Policy
  - Outdoor Conservation Programs
  - Rainwater Harvesting
  - Conversion to Low Flow Appliances
  - Urban Water Pricing
  - Greywater Reuse
  - Treated Effluent Re-use
  - Growth of Parks and Golf Courses
  - Recognize Urban and Economic Vitality in the Region
- Water Resources Planning and Management
  - Funding Source for Water Activities
  - Elephant Butte Loss Accounting
  - Active Administration
  - Water Resource Database
  - Watershed Management Plans
  - Comprehensive, Integrated, and Continued Water Planning
  - Storm Water Management Plans
  - Cooperative Regional Water Management
  - Water Banking
  - Land Use Management and Planning
- Water Monitoring and Measurement
  - Measure All Water Uses

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- Agriculture
  - Upgrade Agricultural Conveyance Systems
  - Level Irrigated Fields
  - Establish a Local Marketing Infrastructure
  - Acequia Efficiency Programs
  - Recognize Agricultural Traditions in the Region
  
- Water Quality
  - Mitigate Septic Tank Impacts
  - Improved Water Quality Sampling and Testing
  - Protect Water from Contamination
  
- Bosque and Other Riparian Habitat
  - Riparian Habitat Restoration
  - Constructed Wetlands
  - River Restoration
  - Recognize the Importance of Healthy Native Ecosystems of the Rio Grande and its Tributaries
  
- Water Storage to Reduce Evaporative Losses
  - Implement Upstream Surface Water Storage
  - Implement Upstream Aquifer Water Storage
  - Implement Aquifer Storage and Recovery for Drought
  - Water Modeling
  
- Desalination and Transfer of Water
  - Develop New Water Supplies through Desalination
  - Investigate the Potential for Importing Water
  - Undeclared Water
  
- Public Education
  - Develop a Water Education Curriculum for Schools
  - Implement Adult Public Education Programs

## **Implementation Strategy**

The MRG Regional water plan is advisory, not directive. The next steps are acceptance of the plan and implementation of the actions needed to preserve water for the region: this may include increased public awareness and education, incentives, policies, publicity, ordinances, laws, regulations, taxes, water rights purchases, pricing, and other means of managing the consumptive use of water within the region. Additional studies and projects that could enhance water supplies may also be required.

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