



1. Introduction

The Taos Water Planning Region (Taos Region) is one of 16 planning regions in the State of New Mexico (Figure 1-1). Regional water planning was initiated in New Mexico in 1987, with the purpose of protecting New Mexico water resources while ensuring that each region is prepared to meet future water demands. Regional water planning activities are funded through and overseen by the New Mexico Interstate Stream Commission (ISC).

The Taos Region includes Taos County, as well as the portion of the Embudo watershed within northeastern Rio Arriba County. For the purposes of this plan, the Taos Region has been divided into four subregions based on watershed boundaries: North, Central, South, and West (Figure 1-2).

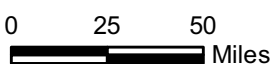
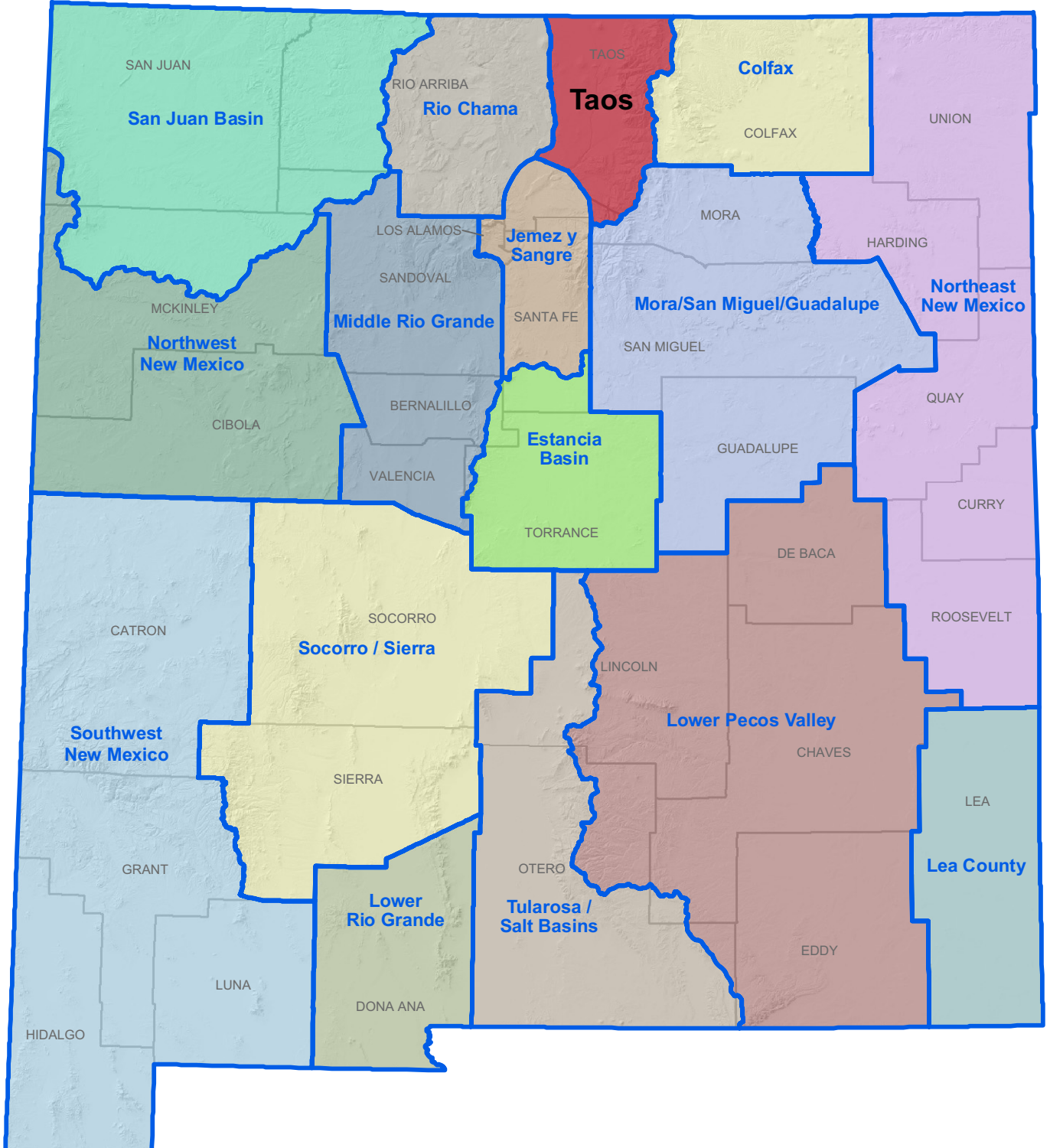
The designated fiscal agent for the Taos Region is Taos County. The County retained the team of Daniel B. Stephens & Associates, Inc. (DBS&A), Rosemary Romero, Southwest Planning and Marketing, Sheehan, Sheehan and Stelzner, P.A., and Amy C. Lewis to complete this regional water plan, and regional water planning activities to develop the plan were initiated by DBS&A in 2005. All of these regional water planning activities have been overseen by a steering committee consisting of representatives of Taos County, municipalities, acéquias, state and federal agencies, and others with water interests in the region. Additional information on the steering committee members is provided in Section 2.



Prior to the current regional water planning efforts conducted by the DBS&A team, the Taos Region initiated planning efforts in 2003. Due to unforeseen complications, that effort did not result in a published work product, but the initial information compiled as part of the earlier planning effort was submitted to DBS&A for review and inclusion as appropriate in this plan.

Regional water planning in New Mexico is guided by the template outlined in the ISC *Regional Water Planning Handbook* (NM ISC, 1994), which defines the scope and content of regional water plans. According to the template, a regional water plan must address five key questions:

1. What is the water supply available to the region?

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- Explanation**
-  Water planning region
 -  County

TAOS REGIONAL WATER PLAN
**Location of Taos
 Water Planning Region**



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Figure 1-1



2. What is the region's current and projected future demand for water?
3. What are the region's alternatives for using available supplies to meet projected water demands?
4. What are the advantages and disadvantages of each alternative with respect to local values and criteria?
5. What are the best water supply alternatives, and how will they be implemented?

This regional water plan is organized to be consistent with the regional water planning template (NM ISC, 1994) and to address these five water planning questions:

- Background information regarding the process used to develop the plan and the characteristics of the Taos Region are provided in Sections 2 and 3, respectively.
- To address the first question, this water plan discusses both the water rights and legal constraints that affect the availability of water (Section 4) and the physical availability of surface water and groundwater, as well as water quality constraints (Section 5).
- To address the second question, historical and current regional water demand was evaluated, projected population and economic growth were analyzed, and projections of future water demand were developed, as presented in Section 6.
- A discussion of the ability of the water supply to meet projected demand (the water budget) is included in Section 7.
- To address questions 3 through 5, the ISC handbook (NM ISC, 1994) specifies that the plan include an analysis of possible alternatives for closing the gap, if any exists, between supply and demand and a list of recommendations for further action. This information is included in Section 8 of this regional water plan.



1.1 Regional Water Planning Issues

The Taos Region faces some key water planning issues:

- *Rio Grande Compact and availability of water rights.* The Rio Grande is the main river in the planning region. The majority of the groundwater in the region is within the Rio Grande Groundwater Basin and is considered to be stream-connected. The Rio Grande is considered to be fully appropriated, and the Rio Grande Compact limits any new appropriations; therefore, any new diversion of surface water or groundwater requires the transfer of a valid water right or application for a new domestic or livestock well. The availability of water rights may thus be a limiting factor in meeting the future water needs of the region.
- *Drought vulnerability.* The agricultural sector in the planning region relies mostly on surface water supplies, which are highly variable and vulnerable to drought conditions. Developing drought contingency plans and shortage sharing agreements is thus important for this sector. Most public and domestic supplies rely on groundwater and are therefore not as vulnerable to short-term drought conditions.
- *Infrastructure needs.* Upgrades to address aging infrastructure are needed in communities throughout the region. The planning region includes 48 small (serving a population under 1,000) water systems such as mutual domestic water consumer associations (MDWCAs), mobile home parks, and other small systems. These small systems have difficulty obtaining financing for infrastructure and accomplishing operational needs such as Clean Water Act compliance. Achieving optimal efficiency in water system operation and infrastructure upgrades, through cooperative associations or other means, is an important objective for the region.
- *Water quality.* Stakeholders have expressed considerable interest in protecting water quality. Key water quality concerns identified include mining and natural mineral impacts to the Red River area and septic system impacts to shallow groundwater throughout the region. The implementation of source water protection programs is important for ensuring good water quality for the many small public systems that rely on groundwater.



- *Public education.* Ensuring that the region is able to meet its water supply needs in the future requires the support and participation of the region's residents. Educating individual water users about water-related issues is key to obtaining their support and helping them to use water wisely. The region supports comprehensive public education efforts and the development of a central clearinghouse that will make water-related information easily accessible to the public and to decision-makers.
- *Protection of agriculture.* More than 300 acéquias are present in the region, and the pueblos have practiced agriculture in the region for centuries. Today's economic environment creates many pressures to transfer water rights away from the agriculture sector. The steering committee recognizes that individual pueblos, acéquias, and parciantes have the authority to make decisions regarding potential transfers. However, to protect the region overall, the steering committee supports efforts to preserve a continuing viable agricultural sector in the region.
- *Protection of water rights.* While water rights in the northern part of the planning region (Costilla Creek and Red River) have been adjudicated, and an agreement upon a settlement of Taos Pueblo water rights (Draft Abeyta Settlement Agreement) has been reached in the Town of Taos area, the remainder of the planning region (South and West subregions) has not been adjudicated. The resulting uncertainties regarding water rights ownership create complexities in the planning process. Efforts to protect water rights and to ensure that water rights remain within the Taos Region were identified as key planning priorities.
- *Planning for growth.* The region is pursuing economic development opportunities, including tourism, recreation, and residential and commercial development. Ensuring that long-term water supplies are adequate to support the growth and vitality of all areas within the region is a key concern. Measures to help achieve that goal include implementing water conservation measures for optimal water use efficiency and ensuring that sufficient water rights are available within the region to support growth.



- *Watershed Protection.* Because the majority of the water supply for the Taos Region comes from surface water, protecting the watersheds that are the source for most of that surface water is a key planning issue. Approximately 60 percent of the region is either state or federal public land (39 percent national forest, 17 percent Bureau of Land Management [BLM] land, and 4 percent New Mexico State land). An additional 8 percent of the land in the region is pueblo, and the remaining 32 percent is privately held. The large percentage of national forest and BLM land in the region indicates the importance of working with federal agencies on watershed management issues. Many community watershed restoration efforts have already been initiated, and implementing recommendations from those are an important part of this plan.
- *Data gaps.* Although numerous studies related to water resources in the Taos Region have been conducted, quantitative data on recharge, water depletions, the extent of water resources, and other factors are sparse, causing uncertainty in water planning efforts. Ongoing data collection efforts are therefore recommended for optimal water resource management in the region.

1.2 Data Sources

ISC criteria require that regional water plans rely on existing data, rather than conducting field studies to collect new data. The surface water and groundwater resources of the Taos Region have been previously investigated as part of numerous studies, which provided valuable information for this water plan. These materials are cited throughout this report and are included in the bibliography provided in Appendix A.

In addition to these published sources, much of the information used in DBS&A's water supply and water quality assessment was derived from climate and hydrologic records available electronically from state and federal agencies:

- Climate data were obtained from the Western Regional Climate Center web site (<<http://www.wrcc.dri.edu/summary/mapnm.html>>).



- Streamflow and depth to water well data were obtained from the U.S. Geological Survey (USGS) web site (<<http://waterdata.usgs.gov/nm/nwis>>; <<http://nwis.waterdata.usgs.gov/nm/nwis/gwlevels>>).
- Water quality data were obtained from the New Mexico Environment Department (NMED) web site (<http://www.nmenv.state.nm.us/swqb/PSRS/NPDES_Permits/psrlist.pdf>; <<http://www.nmenv.state.nm.us/ust/leakcity.html>>; <<http://www.nmenv.state.nm.us/wqcc/303d-305b/2004/index.html>>).
- Information on water rights and wells was obtained from the New Mexico Office of the State Engineer (OSE) Water Administration Technical Engineering Resource System (WATERS) database (<http://www.ose.state.nm.us/waters_db_index.html>).
- Monthly Palmer Drought Severity Index (PDSI) data from 1900 through 2005 were obtained from the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center (NCDC) web site (<<http://www.ncdc.noaa.gov/oa/climate/research/monitoring.html#uspdi>>).

In addition to the above electronic information, other unpublished information obtained for this water planning effort included the following:

- Land use, geology, and other reference maps were provided by the New Mexico Water Resources Research Institute (WRRI) (Appendix B) and by DBS&A geographic information system (GIS) staff.
- Information on water rights and administrative decrees was provided by OSE staff and Sheehan, Sheehan, and Stelzner, P.A., who prepared parts of Section 4 of this water plan.
- Although information on historical water use was obtained primarily from OSE water use reports (Sorensen, 1977; Sorensen, 1982; Wilson, 1986; Wilson, 1992; Wilson and Lucero, 1997; Wilson et al., 2003), some records regarding municipal water use were



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obtained directly from the municipalities, and records regarding agricultural and livestock water use were obtained from the New Mexico Department of Agriculture (NMDA), U.S. Department of Agriculture (USDA), and New Mexico Agricultural Statistics Service (NMASS).

Additional information on the sources of data and information used in this plan is included in Sections 4 through 8.