



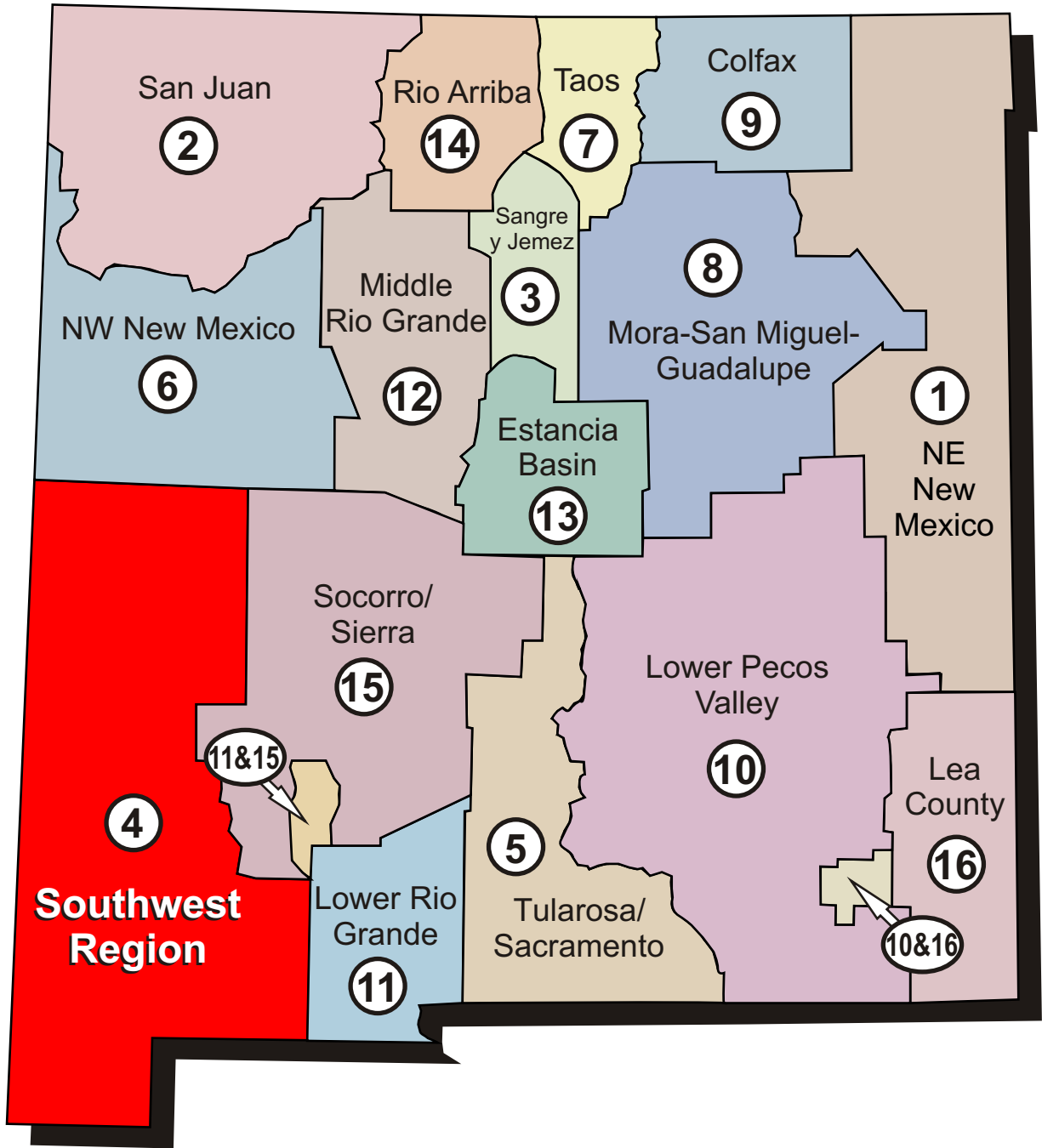
1. Introduction

The Southwest New Mexico Water Planning Region (Southwest Region), which includes Catron, Grant, Hidalgo, and Luna Counties (Figure 1-1), is one of 16 water planning regions in the State of New Mexico that are in the process of developing a regional water plan. The New Mexico Legislature passed the Regional Water Planning Statute in 1987 in response to a lawsuit by the City of El Paso challenging New Mexico's ban on out-of-state appropriation of groundwater (*El Paso v. Reynolds* 563 F. Supp. 379 (D.N.M. 1983) and 597 F. Supp. 694 (D.N.M. 1984)). The Supreme Court determined that water is subject to the Commerce clause in the U. S. Constitution, and that if the transport of water is "not contrary to the conservation of water . . . and (is) not otherwise detrimental to the public welfare of the citizens of New Mexico," it could be transported across state lines. Regional water planning was thus instituted in order to demonstrate an in-state need for water and provide a basis for denying an out-of-state appropriation, thereby protecting water resources for New Mexico citizens. Additionally, regional water planning is intended to ensure that each region is prepared to meet future water demands.

Regional water planning activities have been funded through and overseen by the New Mexico Interstate Stream Commission (ISC). The designated fiscal agent for the Southwest Region is the City of Deming. The City of Deming retained the team of Daniel B. Stephens & Associates, Inc. (DBS&A), Engineers, Inc., and Southwest Planning and Marketing (SWPM) to develop the regional water plan. All of the regional water planning activities have been overseen by a steering committee consisting of representatives of the counties, municipalities, agricultural and mining water users, and others with water interests in the region. Additional information on the steering committee is provided in Section 2.

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?
2. What is the region's current and projected future demand for water?



Explanation

① ISC Planning Region





3. What are the region's alternatives for using available supplies to meet projected future water demands, including reduction of demand, to the extent needed, to live within available supplies?
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 report is organized to be consistent with the regional water planning template (NM ISC, 1994):

- Background information regarding the public involvement process and the characteristics of the planning area is provided in Sections 2 and 3, respectively.
- To address the first question, this report 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 water demand in the region was evaluated, and projected population and economic growth were analyzed. Based on the results, projections of future water demand were developed and are presented in Section 6. A discussion of the water budget of the region, which links the water supply to the water demand, is included in Section 7.
- The final sections specified in the ISC handbook (1994) are an analysis of possible alternatives for closing the gap between supply and demand and recommendations for further action. Alternatives for meeting future demands and recommendations for implementation are included in Section 8. In accordance with the ISC handbook (1994) the evaluation of alternatives included an analysis of technical and financial feasibility, hydrologic, environmental and social cultural impacts, and political feasibility.



1.1 Previous and Ongoing Regional Water Planning Efforts

An initial Southwest Regional Water Plan was completed in 1991 (RTI, 1991). This effort was overseen by the Southwest New Mexico Council of Governments and the Black Range Resource Conservation and Development Council. The initial planned effort focused largely on characterization of surface water supplies and surface water modeling and also considered projected demands in the area. After the initial plan was developed, the Regional Water Planning Handbook was developed in 1994, requiring that additional analyses and plan updates be completed.

In addition to the current regional planning effort, water planning in relation to use of Central Arizona Project (CAP) water in the Gila-San Francisco Basin is currently being undertaken by the Southwest Water Planning Group. Additional information regarding use of CAP water in the region is discussed in Section 8.

1.2 Issues Specific to the Southwest Region

Key water issues in the Southwest Region include:

- In the central and southern part of the region, water for municipal and agricultural use is supplied almost entirely by groundwater. In areas where heavy pumping is occurring, such as the Animas, Mimbres, and Nutt Hockett Basins, water levels are dropping, raising concerns about the potential for land subsidence to occur and for water supplies to deepen to the point that pumping is no longer economic. Planning should therefore include policies that will support sustainable development.
- In the northern to central part of the region, surface water from the Gila and San Francisco Rivers supplies agricultural demands. These rivers are also used for recreation and for support of endangered species, and there is considerable interest in protecting the rivers' natural environments. Recent legislation has provided a mechanism for allowing greater withdrawals from the Gila and San Francisco Rivers in exchange for use of Central Arizona Project (CAP) water downstream. Determining how



to use the additional water without adverse environmental impacts is a key planning issue.

- A large portion of the Southwest Region consists of National Forest and private forested lands. Watershed management in these areas is important, to guard against catastrophic forest fires, to protect water quality, and potentially to increase yields in key areas.
- The largest water use in the region is irrigated agriculture. Water planning issues associated with the agricultural sector include the potential for agricultural water conservation, as well as mechanisms for short-term leasing of agricultural water rights, such as water banking
- Because the region borders Mexico to the south, issues related to protection of and planning for shared resources are important.

1.3 Data Sources

To answer water planning questions 1 and 2, reference materials pertaining to the water supply, water quality, and water demand in the Southwest Region were compiled and reviewed. Much of the information used in the water supply and water quality assessment was derived from climate and hydrologic records available electronically from state and federal agencies:

- Climatic data were obtained through the National Climatic Data Center (NCDC) web site (www.ncdc.noaa.gov), a subscription service administered by the National Oceanic and Atmospheric Administration (NOAA) that compiles climate data from various sources and provides them electronically. Climate data were also obtained directly from the Western Regional Climate Center (WRCC) web site (<http://www.wrcc.dri.edu/>).
- Monthly Palmer Drought Severity Index (PDSI) data from 1900 through 2002 were obtained from the National Climate Data Center web site (<http://www.ncdc.noaa.gov/paleo/usclient2.html>).



- Streamflow data through water year 2002 were obtained from the United States Geological Survey (USGS) web site (<http://nm.waterdata.usgs.gov/nwis/>). Provisional streamflow data for water year 2003 were also obtained from the USGS web site.
- Water quality data were obtained from the New Mexico Environment Department (NMED) web site (www.nmenv.state.nm.us), the New Mexico Water Quality Control Commission (NMWQCC, 2002), and the USGS.
- 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://seowaters.ose.state.nm.us/awdProd/>) and individual water right owners. Other related well information was obtained from the USGS.
- Information on National Pollutant Discharge Elimination System (NPDES) permits, underground storage tanks (USTs), and total maximum daily loads (TMDLs) was obtained from the NMED web site (<http://www.nmenv.state.nm.us>).
- Land use, geology, and other reference maps were prepared by the New Mexico Water Resources Research Institute (WRRRI) and by DBS&A geographic information system (GIS) technical staff.
- Information on water rights administration and administrative decrees was provided by OSE staff and Sheehan, Sheehan and Stelzner, who prepared the majority of Section 4 of this report. Additional information on water rights was obtained by Engineers, Inc. from individual water rights holders, as discussed in Section 4.6.
- Information on historical water use was obtained from the OSE and directly from water users within the region. Records regarding municipal water use were obtained directly from the municipalities, and records regarding agricultural and livestock water use were obtained from the New Mexico Department of Agriculture (NMDA) (www.nmdaweb.nmsu.edu) and the New Mexico Agricultural Statistics Service (NMASS) (www.nass.usda.gov/nm/nmbulletin).



Daniel B. Stephens & Associates, Inc.

Numerous other sources were used in compiling this report, as cited throughout the report and listed in the References section. Additional information on the sources of data and information used in this report is included in Sections 4, 5, and 6. A complete bibliography of all the documents available to DBS&A in developing this water plan is included in Appendix A1.