



## **3. Background**

This section provides a general overview of the Mora-San Miguel-Guadalupe Water Planning Region. Maps illustrating the land use and general features of the region were prepared by WRRRI and are provided in Appendix B. In accordance with the regional water planning template (NM ISC, 1994), this section provides a general description of the planning region and its climate, water resources, and water use. Additional detail on the climate, water resources, and demographics of the region is provided in Sections 5 and 6.

### **3.1 General Description of the Planning Region**

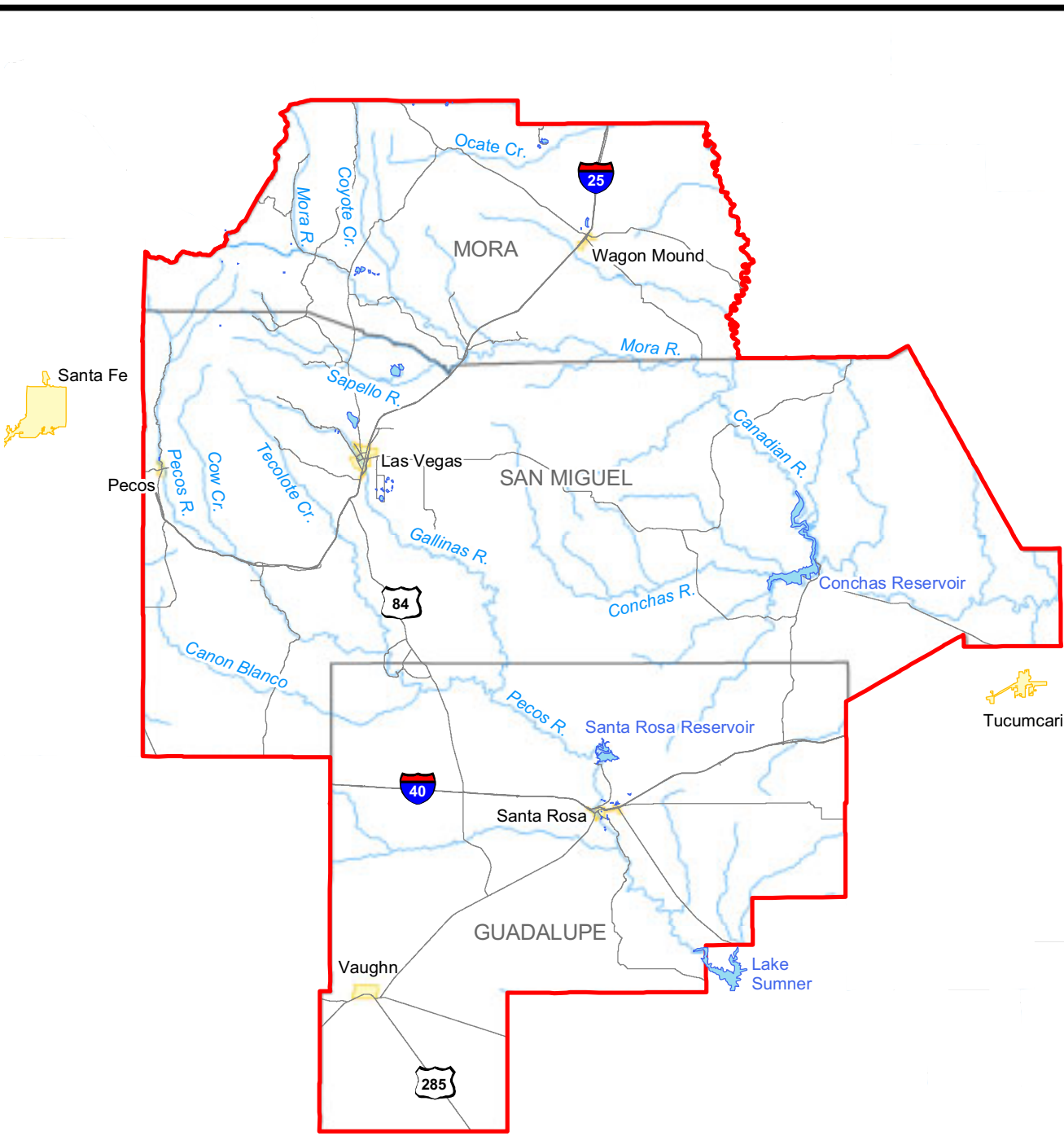
The Mora-San Miguel-Guadalupe Water Planning Region is located in north-central New Mexico. The region is bounded on the north by Colfax County, on the west by Santa Fe County and Torrance Counties and small portions of Rio Arriba and Taos Counties, on the south by Lincoln and DeBaca Counties, and on the east by Harding and Quay Counties (Figure 3-1). The total area of the planning region is approximately 9,700 square miles. The planning region encompasses varied terrain, from the Sangre de Cristo Mountains in the west, with elevations over 13,000 feet above mean sea level (ft msl), to the eastern plains with elevations of about 3,800 ft msl. Vegetation in the planning region is greatly influenced by elevation differences, and ranges from the spruce, fir, pine, and aspen forests of the mountains through a transition of piñon-juniper to the grasslands of the eastern plains.

### **3.2 Climate**

The varied terrain of the planning region results in significant climate variations. For example, temperatures range from lows that are well below 0 degrees Fahrenheit (°F) in the mountains to highs of more than 100°F on the plains. The average annual temperatures in the region range between about 44°F in the higher elevations and 59°F near Conchas Dam on the plains.

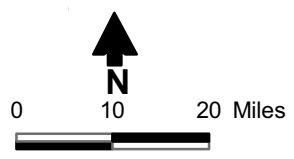
Precipitation is also influenced by location and elevation. Weather systems may enter the region from the west (Pacific), northeast (Arctic air masses from the plains), or southwest (Gulf of Mexico), and each point of origin generates systems with unique sets of temperatures and

S:\PROJECTS\WR02.0036\GIS\MXD\REGIONAL\_MAP.MXD 508260



**Explanation**

- Road
- Stream
- Lake
- City
- County
- Water planning region



MORA-SAN MIGUEL-GUADALUPE  
WATER PLANNING REGION  
**Regional Map**



**Daniel B. Stephens & Associates, Inc.**  
3-15-05 JN WR02.0036

Figure 3-1



moisture. Average precipitation, including both snowmelt and rainfall, ranges from about 12 inches in the lower elevations to about 24 inches in the higher elevations of the Sangre de Cristo Mountains.

As droughts occur on average every 10 years in New Mexico (Sammis, 2005), drought is an important factor in water planning in New Mexico. During the past century, severe droughts have occurred in the early 1900s, the 1950s, and the early 2000s. Conversely, the wet period of the 1980s into the 1990s was just as anomalous as the severe droughts (Gutzler, 2003) and should not be used as a “normal” standard in terms of precipitation expectations.

### **3.3 Major Surface Water and Groundwater Sources**

Approximately 95 percent of the water currently used in the planning region is supplied by surface water, which is primarily used for irrigated agriculture. Surface flows originate primarily in the higher elevations, as snowmelt during the spring and as monsoonal rainfall during the late summer. Flows are highly varied from year to year, and the streams are typically characterized by short-duration high flows, with prolonged durations of low flows. The dominant waterways flowing in the region (Figure 3-1) are the Canadian River and its tributary, the Mora River, and the Pecos River and its tributary, the Gallinas River. The region’s rivers and variability in their supply are discussed in Section 5.2.1; Section 5.2.2 presents information on the lakes and reservoirs within the planning region.

Groundwater in the region supplies the communities of Wagon Mound (from spring flow), Pecos, Vaughn, and Santa Rosa, supplements the Las Vegas water supply, and supplies numerous small mutual domestic water users associations. Numerous stock and domestic wells are also located throughout the region. Groundwater is found primarily in sedimentary rocks and alluvial valleys within the Sangre de Cristo Mountains. The yield and quality of water is variable and in many locations is sufficient only for small domestic or stock wells. The most abundant groundwater resources in the region are located in Guadalupe County. Additional information on groundwater resources of the region is included in Section 5.3.



### **3.4 Demographics, Economic Situation and Land Use**

The current population of Mora, San Miguel, and Guadalupe Counties is 5,205, 29,723, and 4,696, respectively (SSPM, 2003). Current statistics on the economy and land use in each county were compiled from the New Mexico Economic Development web site (NMEDD, 2004) and are summarized in Table 3-1. Additional detail on demographics, economics, and land use within the region is provided in Section 6.

As shown in Table 3-1, from 1990 to 2001 the population increased in all three counties, as did the number of business establishments and per capita income. The economy of Mora and San Miguel Counties has traditionally been driven by the ranching sector, although there is a trend toward the conversion of ranches to vacation, second homes, and retirement properties, and a variety of economic development efforts are ongoing in San Miguel County. Irrigated agriculture, with about 150 acequias in the planning region, is also extremely important in these counties, particularly in terms of water planning. While the economy of Guadalupe County outside of Santa Rosa is also heavily dependent on ranching, the economy of Santa Rosa, which accounts for 55 percent of the county population, is heavily dependent on recreational tourism and Interstate 40 travelers. Although agriculture and ranching are important industries in the planning region (with almost \$32 million in receipts), the largest employment categories across the region are generally government (local, state, and federal), health care/social services, and retail trade. The largest water uses in the region, however, are reservoir evaporation and irrigated agriculture.



**Table 3-1. Summary of Demographic and Economic Statistics for the Mora-San Miguel-Guadalupe Water Planning Region**

County	Population		Average Per Capita Income (\$/yr)		No. of Businesses		Farms / Ranches			Largest Agricultural Commodities	Largest Employment Categories, 2001	
	1990	2000 <sup>a</sup>	1990	2001	1990	2001	No.	Acreage			Industry <sup>b</sup>	No. Employed
								Total	Average			
Mora	4,264	5,205	8,949	13,426	38	54	183	974,759	2,449	Cattle, calves Hay, silage, etc. Horses, ponies All other livestock Fruits, nuts, berries	Government Health/social Retail trade Construction Agriculture	316 244 64 57 54
San Miguel	25,743	29,723	10,564	17,059	405	495	295	2,556,803	3,976	Cattle, calves Hay, silage, etc. Horses, ponies Nursery crops Wheat	Government Health/social Retail trade Hospitality Construction	3,820 1,532 1,021 973 263
Guadalupe	4,156	4,696	10,124	14,185	102	102	236	1,418,966	6,013	Cattle, calves Sheep, lambs, wool Hay, silage, etc. Horses, ponies Vegetables	Government Hospitality Retail trade Construction Health/social	361 329 253 134 66

Source: NMEDD, 2004, unless otherwise noted.

<sup>a</sup> SWPM (2004) estimates

<sup>b</sup> Government = Local, state, and federal government

Health/social = Health care/social services

Agriculture = Agriculture, forestry, fishing & hunting

Hospitality = Accommodations/food service