

Appendix C3
New Mexico Water Demand
Scenario Quantification

Appendix C3 — New Mexico Water Demand Scenario Quantification

1.0 Introduction

This appendix summarizes the data sources used in scenario quantification for Colorado River demand¹ for the state of New Mexico and presents the results of quantification. As presented in figure C3-1, New Mexico is divided into a number of planning areas that align with Colorado River Basin (Basin) tributaries (San Juan, Northwest [Little Colorado tributaries], and Southwest [Gila tributaries]), and Adjacent Areas that are served by Colorado River water. Data collection and development were completed at the planning area level.

The following sections present background information that summarizes the state's planning areas, as well as data sources used to quantify demand scenarios by category. Following the background section, results of demand scenario quantification are presented. The results section is broken out into a New Mexico Study Area summary, followed by Colorado River demand by geography, and finally by category.

2.0 Background

The New Mexico Office of the State Engineer and the New Mexico Interstate Stream Commission (NMISC) are responsible for regional and state-level water resource planning in New Mexico. As part of New Mexico's state water planning process, regional plans were developed by a number of regional planning entities. The NMISC coordinated these efforts, and once they were final, adopted the resulting regional plans.

The NMISC also coordinated the efforts to provide information for scenario quantification. These efforts largely relied on information previously generated through regional plans and demographic studies. However, new assumptions and/or data development were required where the assumptions of the Colorado River Basin Water Supply and Demand Study (Study) required information not developed as part of the regional planning effort.

2.1 Data Sources for Quantification

This section discusses data sources for demand quantification by use category. Some category projections were based on relevant parameter data, while other category projections were developed directly as water demand. Sources include state, regional, and national agency reports.

¹ Colorado River demand as computed by Study Area demand minus other supplies.

FIGURE C3-1
Colorado River Hydrologic Basin and Export Service Areas in New Mexico



- **Agricultural Demand:** Irrigated acreage, agricultural applied water use, and agricultural demand estimates were derived from the *San Juan Regional Water Plan* (San Juan Water Commission, 2003), the *Southwest New Mexico Regional Water Plan* (Daniel B. Stephens & Associates [DBSA], 2005), *Taos Regional Water Plan* (DBSA, 2008), *Middle Rio Grande Water Supply Study* (S.S. Papadopoulos and Associates, 2000), and additional information was provided by the NMISC.
- **Municipal and Industrial (M&I):** Population and per capita water use values for the San Juan, Southwest, and Taos planning areas were derived from the same regional plans as agricultural parameters, and additional information was provided by the NMISC. Additional information for Adjacent Areas was derived based on the City of Albuquerque’s reported efficiency and Albuquerque population estimates prepared by the Bureau of Business and Economic Research.
- **Energy:** Energy demands were derived from personal communication with the NMISC (2011) for the San Juan planning area. Some additional energy use in the Taos and Southwest planning areas was derived from the regional plans.
- **Minerals:** Minerals demands were derived from personal communication with the NMISC (2011) for the San Juan planning area.
- **Fish, Wildlife, and Recreation:** Water demands for fish, wildlife, and recreation were derived from contracted amounts based on the San Juan Chama contract.
- **Tribal:** Tribal demands were derived from personal communication with the NMISC (2011), input from the Jicarilla Apache Nation and Navajo Nation, and San Juan Chama contract amounts.

3.0 Results of Water Demand Scenario Quantification

This section summarizes New Mexico’s Colorado River water demand trends by category across the scenarios. The purpose of this section is to describe changes in demands, both temporally and geographically, parameters that influence changes in demands, and how the parameters and demands differ among scenarios.

Demands were first developed for areas that may be potentially served by Colorado River water (Study Area demands), independent of the source of supply. However, for areas outside of the hydrologic basin, a portion of the Study Area demand is satisfied from other supplies, such as the Rio Grande water and local groundwater. The communities within the Basin, including the Southwest and Northwest planning areas, also rely on non-tributary groundwater for a portion of their supply. To develop estimates of the Colorado River demand, the Study Area demand was reduced by estimates of available supply from other sources. This appendix focuses on Colorado River demands, but includes discussion of the Study Area parameters that led to these demands.

The following sections summarize the results of demand scenario quantification, presenting Study Area demand and Colorado River water demand, Colorado River demand for the state and individual planning areas across the six scenarios, and Colorado River water demand by category across the six scenarios. Parameters and demands for all categories and all scenarios, along with references for data sources, are included.

3.1 Summary Results of Scenario Quantification

Values were developed for Study Area parameters to quantify Study Area demand for each of the scenarios. Colorado River demand was calculated as Study Area demand minus other supplies. Table C3-1 presents summary results for the demand scenarios considered in the Study. The table presents agricultural and M&I demand parameters for the entire Study Area that distinguish the scenarios, the resulting Study Area demands, and finally the Colorado River demands by category. Because other supplies may vary among scenarios, trends observed in the parameters and Study Area demands may not be reflected identically in Colorado River demand trends.

New Mexico estimates that about 1.5 million people will be in New Mexico's Study Area by 2015. This number is expected to increase to about 2 to 3 million by 2060. The greatest population growth is associated with the Rapid Growth (C1 and C2) and Enhanced Environment (D2) scenarios. The Slow Growth (B) scenario has the lowest population growth of the scenarios (2 million by 2060) but still represents a growth of 37 percent over 2015 estimates.

The growing municipal population, however, will continue to be more efficient in its per capita water use than today. Per capita water use, based solely on passive or existing conservation targets, is expected to be 11 to 24 percent less in 2060 than in 2015. While usage rates vary across New Mexico's planning areas, per capita reductions are assumed to be consistent across the planning areas.

Irrigated acreage is projected to decrease slightly (2 percent or 3,000 acres) through 2060 under all scenarios. Water delivery per acre does not change in the Current Projected (A), Rapid Growth (C1), and Enhanced Environment (D1) scenarios; increases slightly (4 percent) in the Slow Growth (B) scenario; and decreases by about 15 percent in the Rapid Growth (C2) and Enhanced Environment (D2) scenarios.

Study Area demand for energy is projected to increase slightly under all scenarios due to the growing need for energy sources (coal and solar). The greatest increases in Study Area demand for energy are anticipated in the San Juan planning area, with an increase of about 1,500 acre-feet per year (afy) (4 percent).

Study Area demand for minerals is projected to remain constant through time and across all scenarios.

TABLE C3-1
Summary Results of New Mexico Water Demand Scenario Quantification by 2060

Key Study Area Demand Scenario Parameters							
	2015 ¹	2060 Scenario Parameters					
		A	B	C1	C2	D1	D2
Population (millions)	1.5	2.6	2.0	3.0	3.0	2.6	3.0
Change in per capita water usage (%), from 2015	–	-11%	-11%	-11%	-15%	-24%	-22%
Irrigated acreage (millions of acres)	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Change in per acre water delivery (%), from 2015	–	+0%	+4%	+0%	-15%	+0%	-15%
Study Area Demand (thousand acre-feet [kaf])							
	2015 ¹	2060 Scenario Demands					
		A	B	C1	C2	D1	D2
Ag demand	723	718	748	718	592	718	592
M&I demand	249–252	414	322	477	453	346	407
Energy demand	40.7	42.2	42.2	42.2	42.2	38.0	42.2
Minerals demand	6.2	6.2	6.2	6.2	6.2	6.2	6.2
FWR demand	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Tribal demand	303–309	367	367	529	529	367	529
Total Study Area Demand²	1328–1337	1,551	1,490	1,777	1,627	1,480	1,581
Colorado River Demand (kaf)							
	2015 ¹	2060 Scenario Demands					
		A	B	C1	C2	D1	D2
Ag demand	111	111	111	111	106	111	106
M&I demand	138–141	230	169	293	149	163	102
Energy demand	40.0	41.5	41.5	41.5	41.5	37.4	41.5
Minerals demand	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FWR demand	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Tribal demand	303–309	367	367	529	529	367	529
Total Colorado River Demand²	598–606	754	693	979	831	683	785

¹ Range across scenarios.

² Excludes potential losses (reservoir evaporation, phreatophytes, and/or operational inefficiencies) that may be charged to state.

Study Area demand for tribal use is projected to increase across all scenarios between about 20 and 75 percent. The larger increases occur in the Rapid Growth (C1 and C2) and Enhanced Environment (D2) scenarios.

Figure C3-2 presents demands across the scenarios in three panels as follows: 1) Study Area demand with other supplies and Colorado River demand identified, 2) Colorado River demand, and 3) change in Colorado River demand by demand category.

From panel one it can be seen that Study Area demand increases from about 1.3 million acre-feet (maf) in 2015 to between 1.5 and 1.8 maf in 2060. The Study Area demand growth across scenarios in 2060, however, is projected to be as low as 159 kaf or as high as 440 kaf. About half of the Study Area demand is expected to be met by other supplies.

Panel two provides a view of the range across scenarios of Colorado River demand. This demand increases from about 600 kaf in 2015 to between 683 and 980 kaf in 2060 (or 14 to 62 percent), depending on the scenario. This difference results in a Colorado River demand range of 297 kaf across the scenarios in 2060, or about 40 percent.

Panel three shows how specific categories affect the projected change in Colorado River demand by scenario. Growth in tribal demand across all scenarios results in the greatest increase in demand (between 41 and 100 percent), followed closely by M&I demand (between 3 and 60 percent).

Figure C3-3 ties historical water use to the range of Colorado River demand in the quantified scenarios. The nearly 300 kaf range across scenarios in 2060 is easily discernible, with a relatively even spread over the range across the scenarios.

FIGURE C3-2
Study Area, Colorado River, and Change in Colorado River Demand

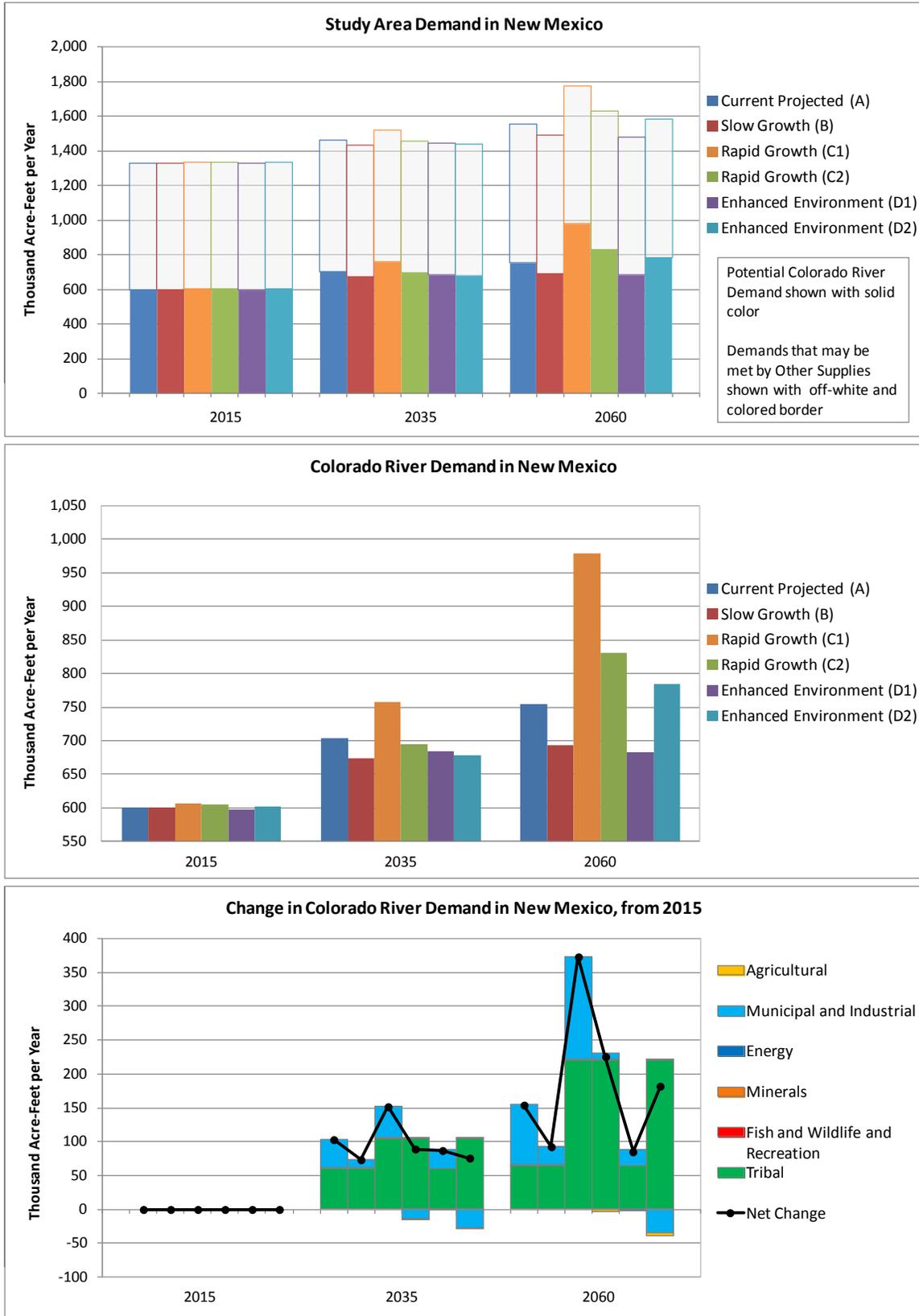
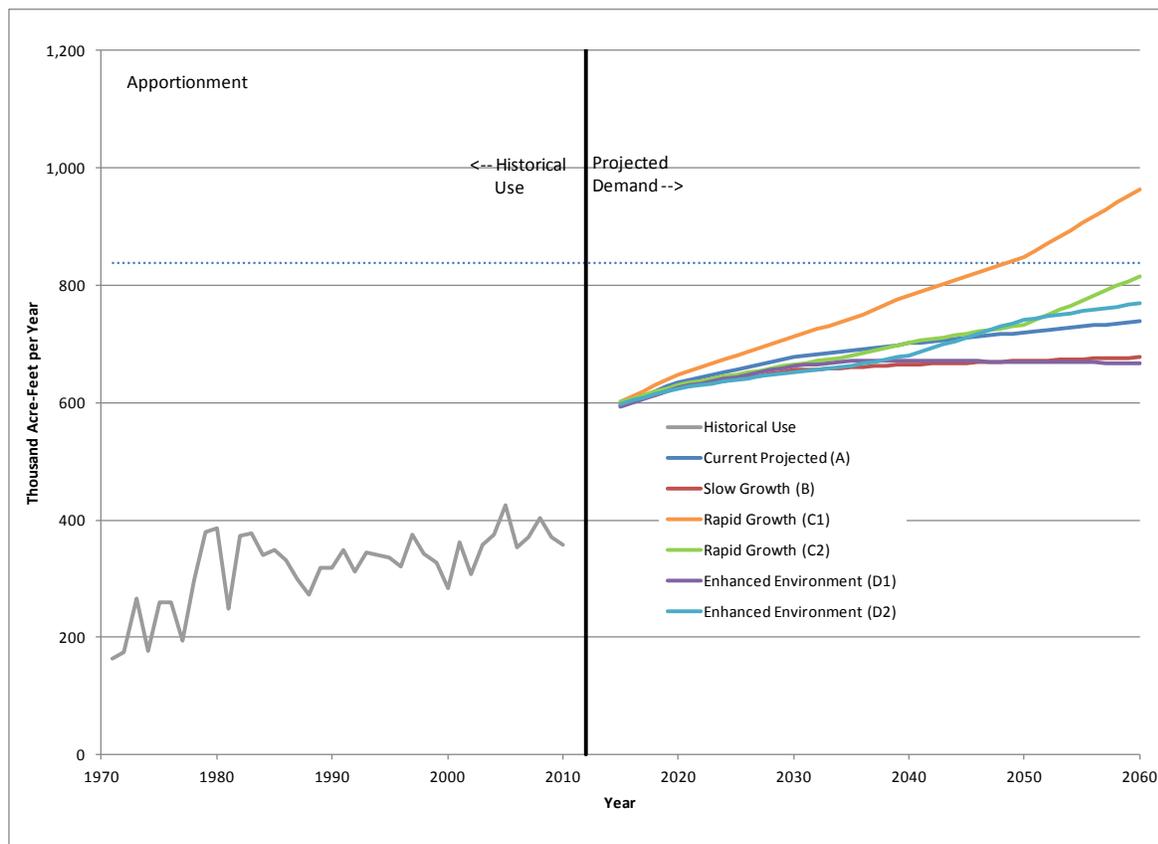


FIGURE C3-3
 Historical Use and Future Projected Demand Excluding Reservoir Evaporation¹



¹Reservoir evaporation on the order of 70 kaf is not included in this plot.

3.2 Colorado River Water Demand by Geography

Colorado River water demand for areas served by the Colorado River is presented in figures C3-4 and C3-5. These figures show two geographic levels: Study Area in New Mexico, and individual planning areas. Demands at each geographic level are shown across the scenarios. The columns to the right show the Colorado River demand at a point in time (2015, 2035, or 2060) by relative contribution of the categories.

Colorado River demand² in New Mexico is primarily in the San Juan and Adjacent Areas planning areas. The San Juan planning area has the greatest magnitude of Colorado River demand, with tribal demands making up the majority of those demands, along with some energy and agricultural demands. The primary demand category in the Adjacent Areas planning is M&I, with a small amount of agricultural demand.

Figure C3-6 shows the change in Colorado River demand by category from 2015 across the scenarios. Change in Colorado River demand is roughly similar in magnitude on both the San Juan and Adjacent Areas planning areas, with tribal demand making up the vast majority of change in San Juan, and M&I making up all of the change in Adjacent Areas.

² Potential Colorado River demand is based on changes in parameters such as population and for the purpose of the Study is not limited by apportionment.

FIGURE C3-4
Colorado River Demand in New Mexico

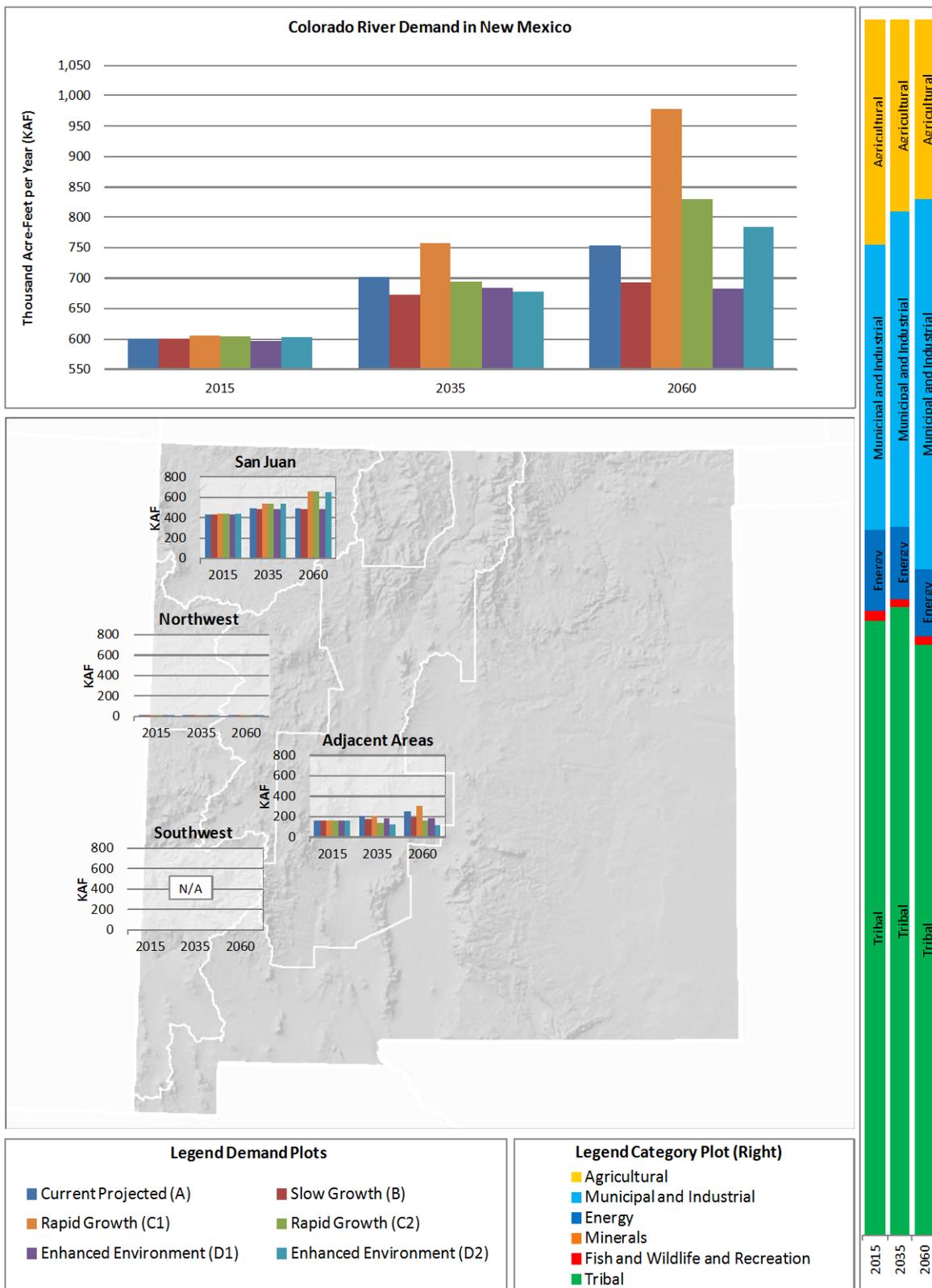


FIGURE C3-5
Colorado River Demand by Category

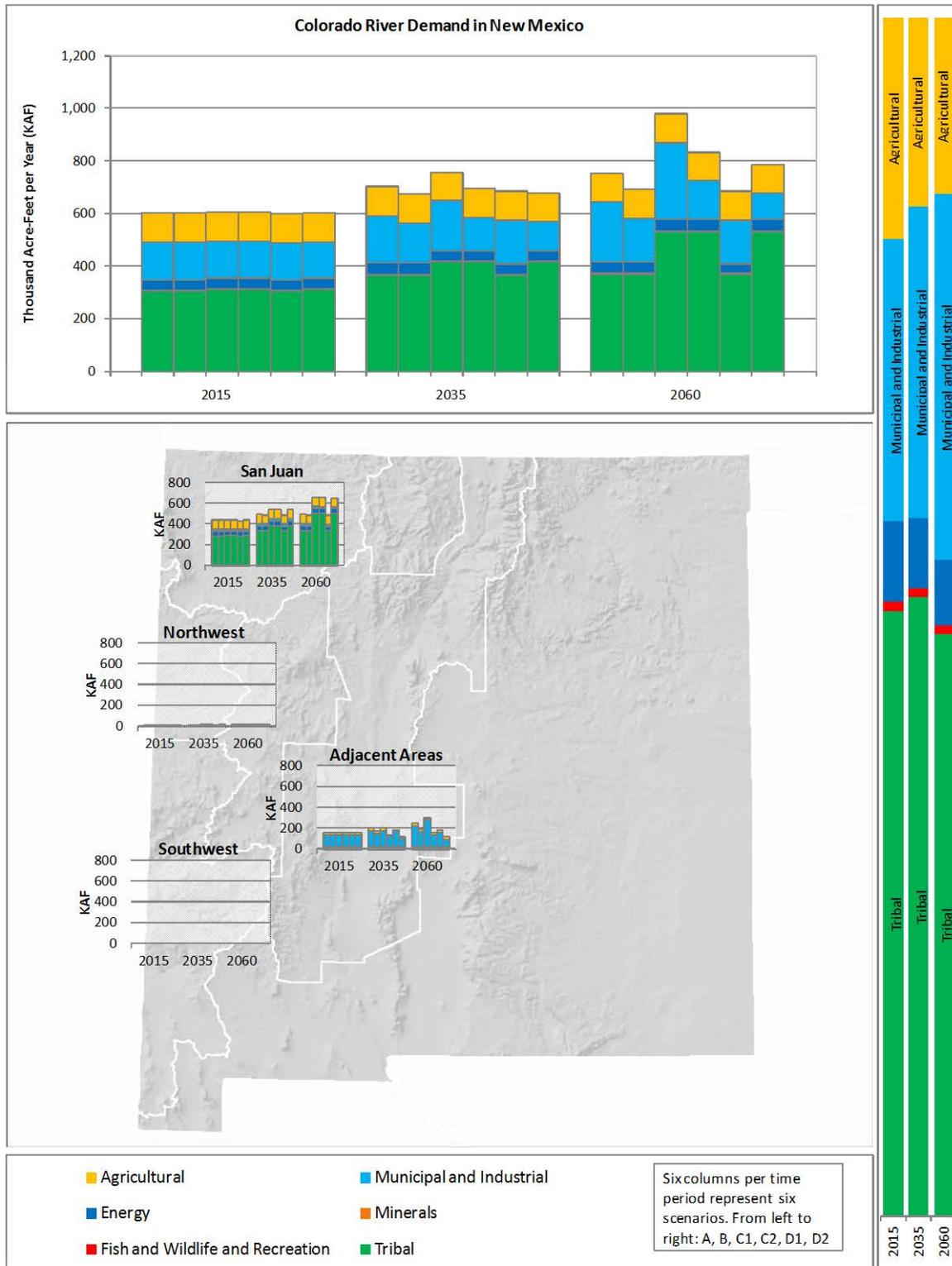
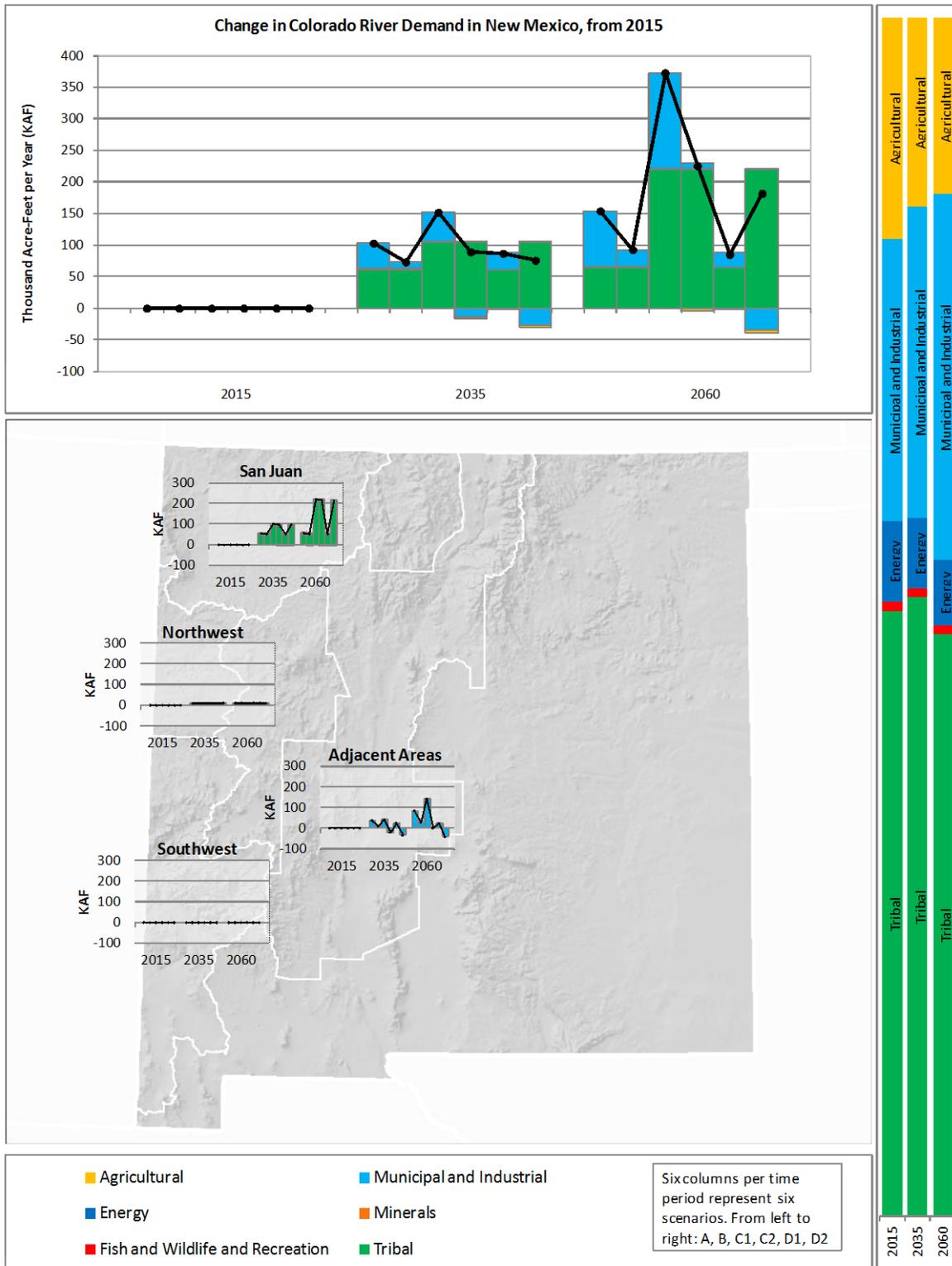


FIGURE C3-6
Change in Colorado River Demand in New Mexico from 2015 by Category



3.3 Colorado River Demand by Category

3.3.1 Agricultural

Agricultural water demand is driven by irrigated acreage and water delivery per acre. Water delivery per acre is the amount of water diverted per irrigated acre. Components of this use include transmission and delivery losses (surface evaporation, riparian demand, and seepage) and on-farm losses that are made up of evaporation, crop irrigation requirements, and tail water (return). Each of these factors will vary by location (precipitation, growing season, etc.), irrigation method, and crop type.

Figure C3-7 presents the following by scenario in 2015, 2035, and 2060:

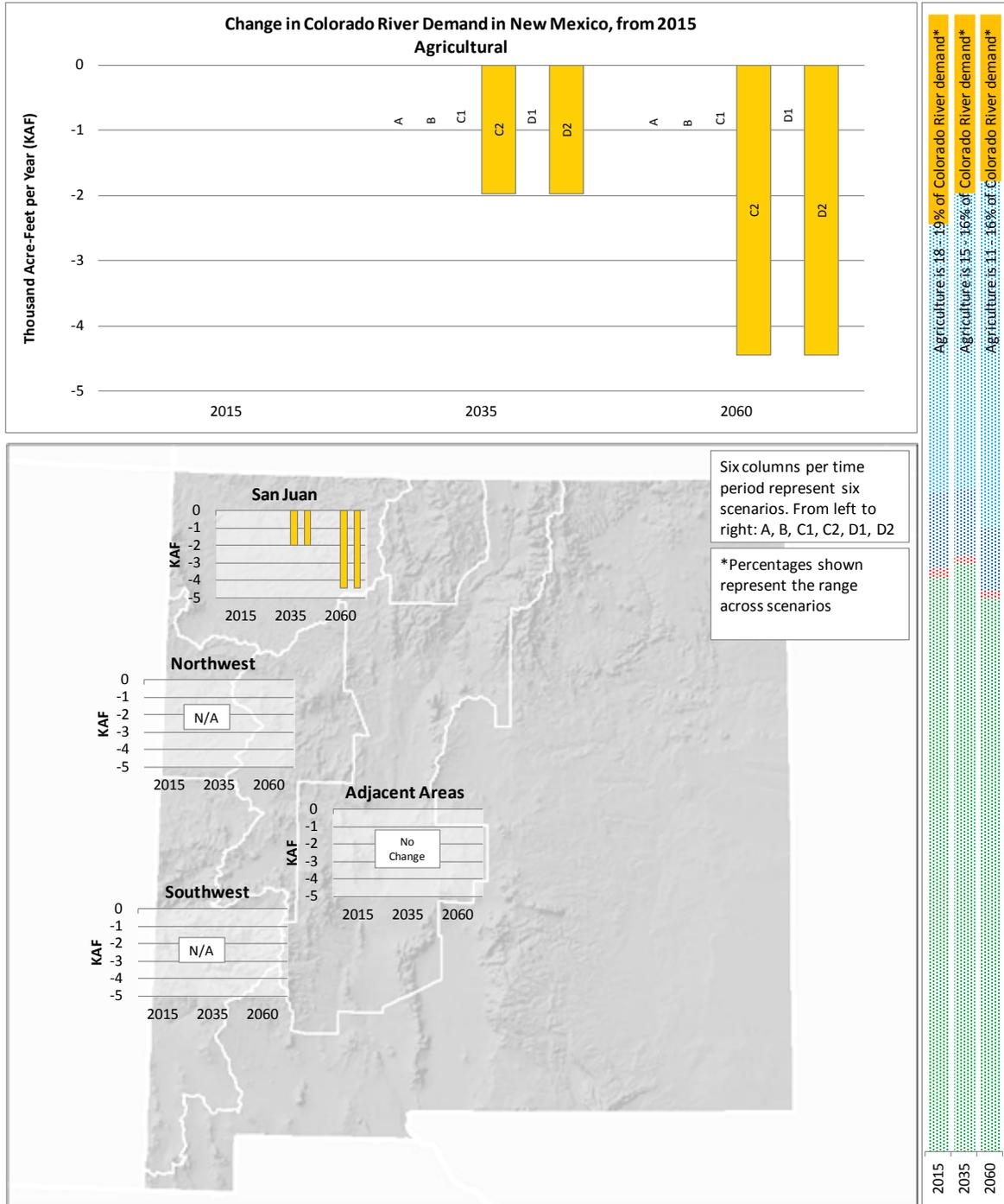
- Change in agricultural demand for Colorado River water
- Change in agricultural demand for Colorado River water by planning area
- Agricultural demand as a portion of Colorado River water demand (right hand side of graph)

As can be seen from figure C3-7, agricultural water demand³ makes up 19 percent of Colorado River demand in New Mexico in 2015, and drops to between 11 and 16 percent of demand in 2060. This drop results from both a decrease in agricultural water demand and an increase in other categories of demand. The majority of Colorado River demand for agriculture is located in the San Juan planning area.

In the San Juan planning area, Colorado River demand for agriculture decreases in the Rapid Growth (C2) and Enhanced Environment (D2) scenarios, by about 4.5 kaf (5 percent of Colorado River demand). The decrease is due entirely to reduced water delivery per acre; irrigated acreage is forecast to remain constant in the San Juan planning area across all scenarios. Colorado River demand for agriculture in all other planning areas is forecast to remain constant through time across all scenarios.

³ Tribal demand currently includes a significant quantity of agriculture demand that is included in the tribal category and not represented here. Agricultural use in the tribal category continues to grow as settlements are implemented.

FIGURE C3-7
Change in Colorado River Demand in New Mexico from 2015 for Agriculture



3.3.2 Municipal and Industrial

M&I water demand can be estimated from population and M&I per capita water use, with the addition of self-served industrial (SSI) demand. M&I per capita water use is a measure of the amount of water produced or diverted per person in a given municipality. Because this measure examines all water produced by a given municipality, it often includes industrial, commercial, and institutional demand as well as residential demand. A number of factors may influence the M&I per capita water use of a given community, including the amount of industrial demand, climate, number of institutional facilities, and number of visitors.

SSI are industries located in a given area that have their own water supply systems and are therefore not directly related to local measures of population and M&I per capita water use.

Figure C3-8 presents the following by scenario in 2015, 2035, and 2060:

- Change in M&I demand for Colorado River water in the Study Area
- Change in M&I demand for Colorado River water in individual planning areas
- M&I demand as a portion of Colorado River water demand (right hand side of graph)

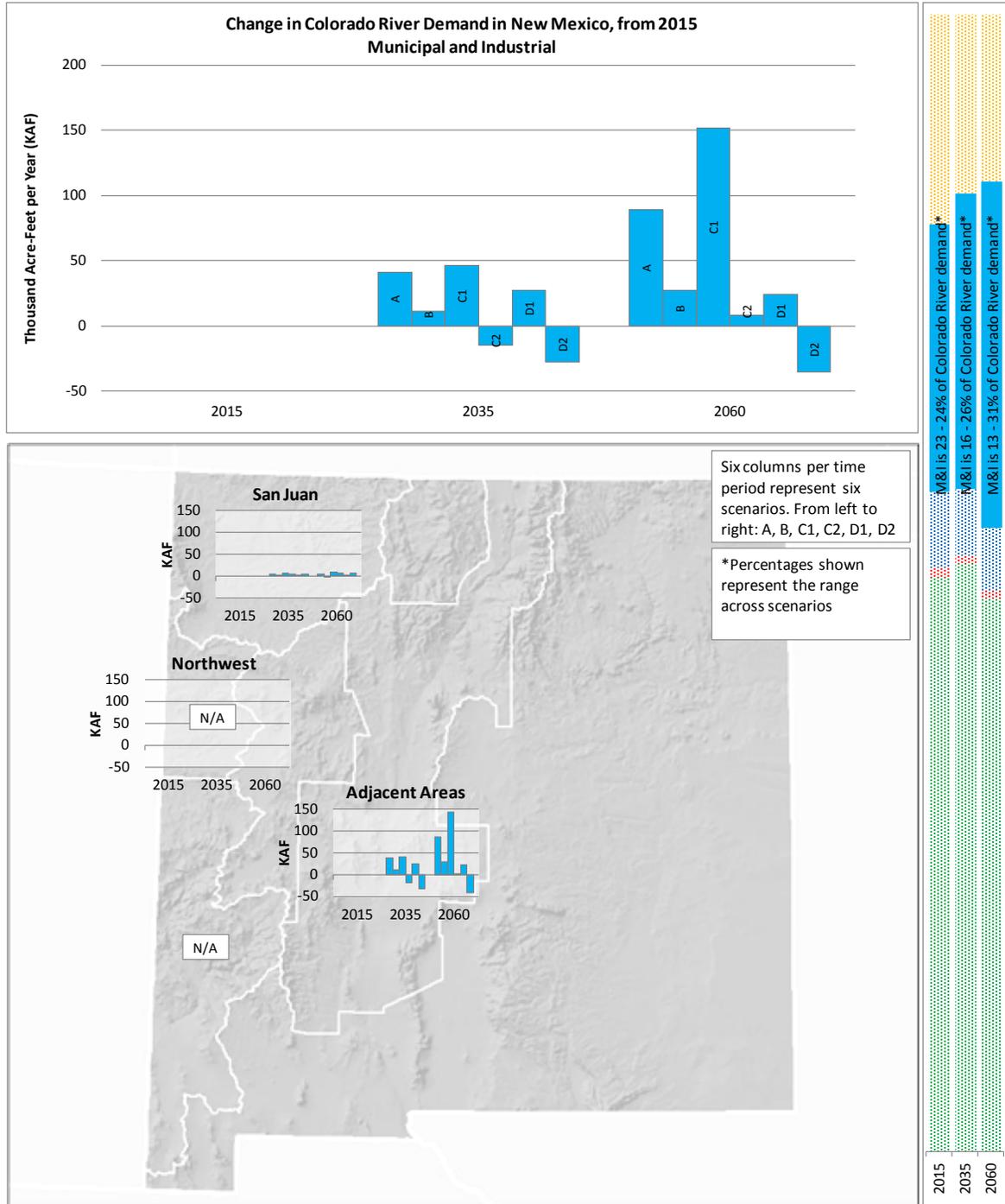
As can be seen from figure C3-8, M&I water demand is the second-largest component of Colorado River demand, changing from 24 percent in 2015 to between 13 and 31 percent of Colorado River demand in 2060, depending on which scenario is considered.

Colorado River demand for M&I use increases over time from 2015 to 2060 in the Current Projected (A), Slow Growth (B), Rapid Growth (C1), and Enhanced Environment (D1) scenarios. This increase is primarily due to population increase, as M&I per capita water use decreases over time across all scenarios and SSI demand nominally increases. Decrease in the M&I demand in the Rapid Growth (C2) and Enhanced Environment (D2) scenarios is due to decrease in per capita water use.

In examining the planning areas, nearly all of the increase in M&I demand for Colorado River water from 2015 to 2060 over time is due to population increase in the Adjacent Areas across all scenarios. The remaining increase in demand is primarily from M&I demand in the San Juan planning area.

Increases in population are somewhat tempered by decreases in M&I per capita water use. Per capita water use decreases in all scenarios with reductions ranging from 11 to 24 percent by 2060.

FIGURE C3-8
Change in Colorado River Demand in New Mexico from 2015 for M&I



3.3.3 Energy

Water demand for energy can be estimated through known plans for new power plants or through applying a per capita energy water use factor. Power facilities often serve areas remote from their locations and therefore potentially represent exports or imports of water from the Study Area to meet these distributed needs.

Figure C3-9 presents the following by scenario in 2015, 2035, and 2060:

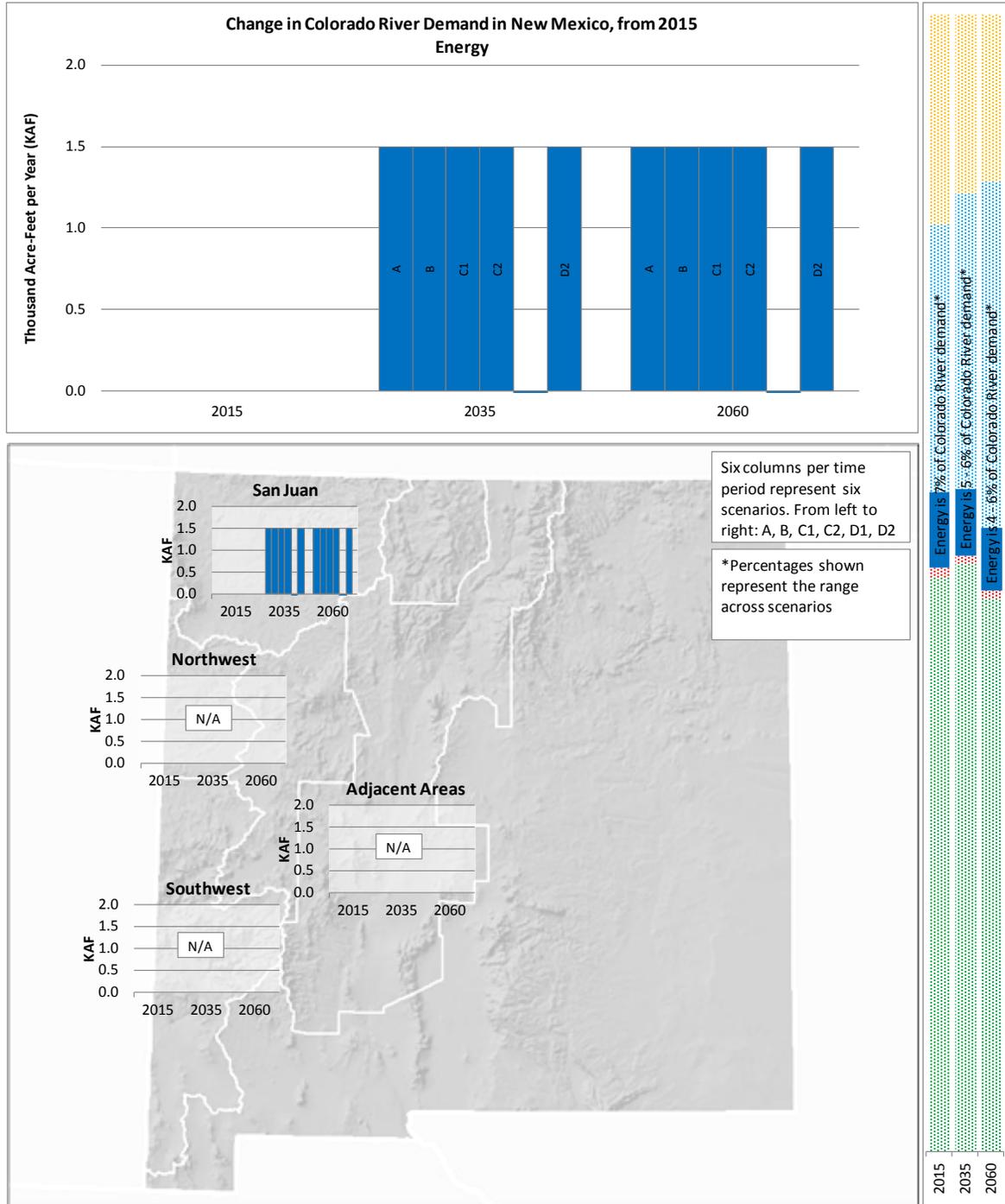
- Change in energy demand for Colorado River water
- Change in energy demand for Colorado River water in individual planning areas
- Energy demand as a portion of Colorado River water demand (right hand side of graph)

As can be seen from figure C3-9, energy water demand is a relatively small fraction of Colorado River demand, decreasing from 7 percent of in 2015 to between 4 and 6 percent of demand in 2060, depending on which scenario is considered. The decreasing percentage is due to demands in other categories increasing at a faster rate than energy demands increase.

Energy demand for Colorado River water increases over time from 2015 to 2060 across all scenarios, with notable increases for the Current Projected (A) and Rapid Growth (C1) scenarios.

Energy demands are shown only in the San Juan planning areas. Consistent increases occur in the San Juan planning area across all scenarios, with an increase of 1.5 kaf to a total of 41.5 kaf.

FIGURE C3-9
Change in Colorado River Demand in New Mexico from 2015 for Energy



3.3.4 Minerals Extraction

Although there is some demand for minerals in the Southwest (about 900 afy in Current Projected [A] scenario) and the Adjacent Areas (about 5,300 afy in Current Projected [A] scenario), these demands are met by other supplies. There is no reported Colorado River demand for minerals extraction under the scenarios analyzed for the Study.

3.3.5 Fish, Wildlife, and Recreation

There are no reported consumptive fish, wildlife, and recreation demands on Colorado River water in New Mexico.

3.3.6 Tribal

Tribal water demands were provided by the Jicarilla Apache Nation and the Navajo Nation in cooperation with the State of New Mexico. The projected Navajo Nation demands were provided by the Navajo Nation Department of Water Resources and modified to fit the storyline narratives regarding tribal use under each scenario.

Figure C3-10 presents the following by scenario in 2015, 2035, and 2060:

- Change in tribal demand for Colorado River water
- Change in tribal demand for Colorado River water in individual planning area
- Tribal demand as a portion of Colorado River demand (right hand side of graph)

As can be seen from figure C3-10, tribal water demand is the largest component of Colorado River demand in New Mexico, decreasing from about 50 percent in 2015 to between 49 and 67 percent of Colorado River demand in 2060, depending on which scenario is considered. The decreasing percentage is due to demands in other categories increasing at a faster rate than tribal demands increase.

Colorado River tribal demand increases over time from 2015 to 2060 across all scenarios. These increases are primarily due to development of demands under water rights settlements. Increases occur mostly in the San Juan planning area, but there is also some increase in the Northwest planning area. The rate of increase is similar across all scenarios.

For additional information on tribal water demands, see appendix C9.

3.4 Summary Tables of Parameters and Demands by Category

Tables C3-2 to C3-7 present the specific parameter data collected by planning area. Each table is a complete set of data for a given scenario. These data were used to develop Study Area demands and subsequently Colorado River demands once other supplies were considered. These tables provide the specific information used in the creation of the summary and category plots previously discussed and provide reference information for the data provided.

FIGURE C3-10
Change in Colorado River Demand in New Mexico from 2015 for Tribal

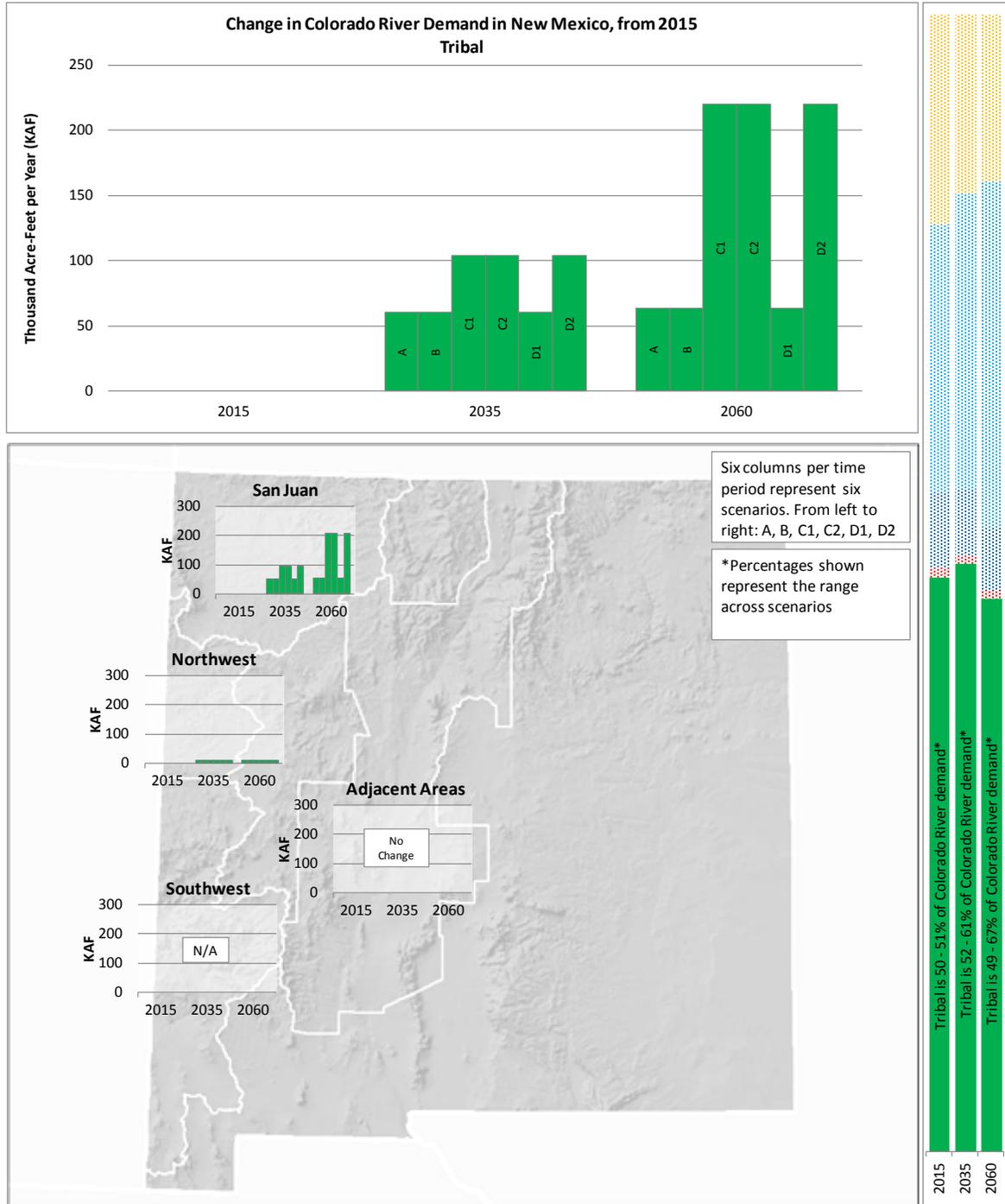


TABLE C3-2
Total Demand within Study Area under Current Projected (A) Scenario

NEW MEXICO		LEGEND:									999 From State Plans			999 From Study Team			
<i>Units are thousand acre-feet per year, unless otherwise noted</i>		999 From States			999 Calculated			999 From State Plans			999 From Study Team						
Hydrologic Basin	Planning Area	San Juan			Southwest			Northwest			Adjacent Areas			STATE TOTAL			Notes
	Year	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	
Agricultural	Irrigated Acreage [thousands]	34	34	34	17	15	14	0	0	0				51	50	48	1
	Per-Acre Water Delivery (Diversion) [af/ac/yr]	5.08	5.08	5.08	5.89	5.89	5.89	0.00	0.00	0.00				5.34	5.33	5.31	1b
	Consumptive factor [%]	51%	51%	51%	33%	33%	33%	0%	0%	0%				45%	45%	45%	2, 2b
	Demand (Consumptive)	89	89	89	33	30	27	0	0	0				122	119	116	3, 3b
Municipal and Industrial (M&I)	Population [thousands]	186	214	267	10	10	10	0	0	0				196	224	276	4, 4b
	M&I Per Capita Use (Diversion) [gpcd]	200	181	146	193	192	193	0	0	0				200	181	148	5
	Consumptive factor [%]	44%	50%	50%	50%	50%	50%	0%	0%	0%				45%	50%	50%	6
	M&I Demand (Consumptive)	18	22	22	1	1	1	0	0	0				20	23	23	7, 7b
	Self Served Industrial Demand (Consumptive)	0.10	0.10	0.10	0	0	0	0	0	0				0.10	0.10	0.10	8
	Demand (Consumptive)	19	22	22	1	1	1	0	0	0				20	23	23	
Energy	Demand (Consumptive)	40	42	42	0.6	0.6	0.6	0	0	0				41	42	42	9, 9b
Minerals	Demand (Consumptive)	0	0	0	0.9	0.9	0.9	0	0	0				0.9	0.9	0.9	10, 10b
Fish, Wildlife, and Recreation	Demand (Consumptive)	0	0	0	0	0	0	0	0	0				0	0	0	11
Tribal	Demand (Consumptive)	288	339	341	0	0	0	4	14	15				292	352	356	12, 12b
Total Hydrologic Basin	Demand (Consumptive)	435	491	493	36	33	30	4	14	15	0	0	0	475	537	538	
Adjacent Areas																	
Agricultural	Irrigated Acreage [acres]										93	93	93	93	93	93	13
	Per-Acre Water Delivery (Diversion) [af/ac/yr]										6.45	6.45	6.45	6.45	6.45	6.45	14
	Consumptive factor [%]										33%	33%	33%	33%	33%	33%	
	Demand (Diversion)										601	601	601	601	601	601	
	Demand (Consumptive)										196	196	196	196	196	196	15
Municipal and Industrial (M&I)	Population [thousands]										1,277	1,802	2,326	1,277	1,802	2,326	16
	M&I Per Capita Use (Diversion)[gpcd]										163	150	150	163	150	150	17
	Consumptive factor [%]										40%	40%	40%	40%	40%	40%	18
	M&I Demand (Diversion)										233	303	391	233	303	391	
	Self Served Industrial Demand (Diversion)										0.02	0.02	0.03	0.02	0.02	0.03	19
	Demand (Diversion)									233	303	391	233	303	391		
	Demand (Consumptive)									93	121	156	93	121	156		
Energy	Demand (Diversion)									0.02	0.02	0.03	0.02	0.02	0.03		20
Minerals	Demand (Diversion)									5	5	5	5	5	5		21
Fish, Wildlife, and Recreation	Demand (Diversion)									5	5	5	5	5	5		22
Tribal	Demand (Diversion)									11	11	11	11	11	11		23
Total Adjacent Areas	Demand (Diversion)	0	0	0	0	0	0	0	0	0	855	925	1,014	855	925	1,014	
Total Demand in the Study Area		435	491	493	36	33	30	4	14	15	855	925	1,014	1,330	1,463	1,551	24
Demand that may be met by Other Supplies		0	0	0	36	33	30	0	0	0	694	727	767	730	760	797	
Potential Colorado River Demand		435	491	493	0	0	0	4	14	15	161	199	246	600	703	754	25, 12b
Agricultural	Colorado River Demand	89	89	89	0	0	0	0	0	0	22	22	22	111	111	111	26
Municipal and Industrial	Colorado River Demand	19	22	22	0	0	0	0	0	0	123	161	208	141	183	230	
Energy	Colorado River Demand	40	42	42	0	0	0	0	0	0	0	0	0	40	42	42	
Minerals	Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Fish, Wildlife, and Recreation	Colorado River Demand	0	0	0	0	0	0	0	0	0	5	5	5	5	5	5	
Tribal	Colorado River Demand	288	339	341	0	0	0	4	14	15	11	11	11	303	363	367	

Notes

- 1) San Juan: NMISC, personal communication, 2011.
- 1b) Southwest New Mexico Regional Water Plan, 2005, tables 6-8 through 6-12. Total diversion / total acres (for Catron, Grant, and 90 percent of Hidalgo Counties; Luna County excluded). Average of 1990, 1995, 2000.
- 2) San Juan Regional Water Plan, 2003, consumptive factor of 51 percent based on agricultural diversion as twice the depletion plus 10 percent for incidental losses.
- 2b) Southwest New Mexico Regional Water Plan, 2005, tables 6-8 through 6-12. Weighted average (based on acreage for Catron, Grant, and 90 percent of Hidalgo Counties; Luna County excluded) of depletion/diversion, average of 1990, 1995, 2000.
- 3) San Juan: NMISC, personal communication, 2011. Current and forecast = 90,500 afy, minus 4,000 afy stockpond evaporation and use.
- 3b) Southwest New Mexico Regional Water Plan, 2005. Based on appendix E5 (assume Catron, Grant, and 90 percent of Hidalgo Counties), average of low and high scenarios (diversion), multiplied by consumptive factor. Extrapolate to 2060.
- 4) San Juan: San Juan Regional Water Plan, 2003.
- 4b) Southwest New Mexico Regional Water Plan, 2005, appendix E5; Sum of Catron and Hidalgo Counties. Average of low and high estimates; extrapolated to 2060.
- 5) San Juan Regional Water Plan, 2003 – weighted average of year 2000 calculated M&I efficiency by planning area for year 2011. 2015 based on 2011 to 2035 interpolation. NMISC, personal communication, 2011 provided 2035 and 2060 values.
- 6) San Juan: Consumptive factor calculated from demand and M&I water use efficiency for 2015 (within reported range). This value moves to 50 percent by 2035 per NMISC, 2011.
- 7) San Juan: NMISC, personal communication, 2011; 100 afy moved to reservoir evaporation.
- 7b) Southwest New Mexico Regional Water Plan, 2005. Sum of Public (table 6-15), Commercial, Industrial, and Domestic (appendix E5) (Catron and Hidalgo Counties only), multiplied by consumptive use factor to get consumptive demand. Extrapolated for 2060.
- 8) San Juan: NMISC, personal communication, 2011.
- 9) San Juan: NMISC, personal communication, 2011.
- 9b) Southwest New Mexico Regional Water Plan, 2005, appendix E5, Grant, Hidalgo, and Catron Counties. Average of low and high scenario. Assume 2060 remains same as 2020–2040.
- 10) San Juan: NMISC, personal communication, 2011.
- 10b) Southwest New Mexico Regional Water Plan, 2005, appendix E5 (Hidalgo and Catron Counties only). Average of low and high scenario. Assume 2060 remains same as 2020–2040.
- 11) San Juan: NMISC, personal communication, 2011; 100 afy moved to reservoir evaporation.
- 12) San Juan: NMISC, personal communication, 2011; 1,000 moved to reservoir evaporation.
- 12b) Northwest: Build-out of Navajo-Gallup pipeline.
- 13) 63,551 from Middle Rio Grande Regional Water Supply Study, S.S. Papadopoulos & Associates (SSPA, 2000). + 29,750 from Taos Regional Water Plan (DBSA, 2008)
- 14) New Water Use by Categories 2005, Pg. 92. Applied water rate 7.8 estimated from Middle Rio Grande Conservancy District total diversion 39,403 divided by 5,004 acres, and applied to 63,551 acres. 3.55 afy/acre calculated for Taos based on 105,693 afy divided by 29,750 acres (Taos Regional Water Plan). Weighted average calculated.
- 15) Calculated based on consumptive water use of 2.10 af/ac/yr from NMISC, personal communication, 2011.
- 16) Middle Rio Grande: BBER Regional Water Planning Areas, Middle Rio Grande Area, (SSPA, 2000) + Taos: Taos Regional Plan table 6-20 (DBSA, 2008) interpolated for 2015/2035 and extrapolated past 2050 for 2060.
- 17) Taken from current Albuquerque reported M&I efficiency and planning. Assumed population of Albuquerque heavily influences overall average.
- 18) 40 percent assumed, based on Albuquerque's current use. Assumed population of Albuquerque heavily influences overall average.
- 19) Taos Regional Water Plan table 6-25 (DBSA, 2008) interpolated for 2015/2035 and extrapolated past 2050 for 2060.
- 20) Taos Regional Water Plan table 6-26 (DBSA, 2008) interpolated for 2015/2035 and extrapolated past 2050 for 2060.
- 21) Taos Regional Water Plan table 6-27 (DBSA, 2008) interpolated for 2015/2035 and extrapolated past 2050 for 2060.
- 22) Contracted amount from San Juan Chama contracts.
- 23) Contracted amount from San Juan Chama contracts for 2015.
- 24) Calculated from the sum of Hydrologic Basin (Consumptive) Demand and Adjacent Areas (Diversion) Demand.
- 25) Adjacent areas: Potential Colorado River Demand is San Juan Chama Contract plus unsustainable portion of supply from Middle Rio Grande Regional Water Plan, 2004.
- 26) For Adjacent Area, 25,000 afy of Colorado River Demand is agricultural, per contracts. Assume full tribal is met by Colorado River. Remaining Colorado River demand is all M&I.

TABLE C3-3
Total Demand within Study Area under Slow Growth (B) Scenario

NEW MEXICO		LEGEND: 999 From Current Projected Data Sheet 999 Computed 999 Input Parameter									STATE TOTAL			Notes			
Planning Area	Year	San Juan			Southwest			Northwest			Adjacent Areas						
Hydrologic Basin	Year	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060				
Agricultural	Irrigated Acreage [thousands]	34	34	34	17	15	14	0	0	0				51	50	48	1
	Per-Acre Water Delivery (Diversion) [af/ac/yr]	5.08	5.08	5.08	5.89	5.89	5.89	0.00	0.00	0.00				5.34	5.33	5.31	2
	Consumptive factor [%]	51%	51%	51%	33%	33%	33%	0%	0%	0%				45%	45%	45%	
	Demand (Consumptive)	89	89	89	33	30	27	0	0	0				122	119	116	
Municipal and Industrial (M&I)	Population [thousands]	186	189	200	10	9	7	0	0	0				196	198	207	3
	M&I Per Capita Use (Diversion) [gpcd]	200	181	146	193	192	193	0	0	0				200	181	148	4
	Consumptive factor [%]	44%	50%	50%	50%	50%	50%	0%	0%	0%				45%	50%	50%	
	M&I Demand (Consumptive)	18	19	16	1	1	1	0	0	0				20	20	17	
	Self Served Industrial Demand (Consumptive)	0	0	0	0	0	0	0	0	0				0.1	0.1	0.1	5
Demand (Consumptive)	19	19	16	1	1	1	0	0	0				20	20	17		
Energy	Demand (Consumptive)	40	42	42	1	1	1	0	0	0				41	42	42	6
Minerals	Demand (Consumptive)	0	0	0	1	1	1	0	0	0				1	1	1	7
Fish, Wildlife, and Recreation	Demand (Consumptive)	0	0	0	0	0	0	0	0	0				0	0	0	8
Tribal	Demand (Consumptive)	288	339	341	0	0	0	4	14	15				292	352	356	9
Total Hydrologic Basin	Demand (Consumptive)	435	488	487	36	33	30	4	14	15	0	0	0	475	535	532	
Adjacent Areas																	
Agricultural	Irrigated Acreage [acres]										93	93	93	93	93	93	10
	Per-Acre Water Delivery (Diversion) [af/ac/yr]										6.45	6.59	6.77	6.45	6.59	6.77	11
	Consumptive factor [%]										33%	33%	33%	33%	33%	33%	
	Demand (Diversion)										601	615	631	601	615	631	
Demand (Consumptive)										196	200	206	196	200	206		
Municipal and Industrial (M&I)	Population [thousands]										1,277	1,562	1,814	1,277	1,562	1,814	12
	M&I Per Capita Use (Diversion)[gpcd]										163	150	150	163	150	150	13
	Consumptive factor [%]										40%	40%	40%	40%	40%	40%	
	M&I Demand (Diversion)										233	262	305	233	262	305	
	Self Served Industrial Demand (Diversion)										0.02	0.02	0.03	0.02	0.02	0.03	14
Demand (Diversion)										233	262	305	233	262	305		
Demand (Consumptive)										93	105	122	93	105	122		
Energy	Demand (Diversion)										0.02	0.02	0.03	0.02	0.02	0.03	15
Minerals	Demand (Diversion)										5	5	5	5	5	5	16
Fish, Wildlife, and Recreation	Demand (Diversion)										5	5	5	5	5	5	17
Tribal	Demand (Diversion)										11	11	11	11	11	11	18
Total Adjacent Areas	Demand (Diversion)	0	0	0	0	0	0	0	0	0	855	898	957	855	898	957	
Total Demand in the Study Area		435	488	487	36	33	30	4	14	15	855	898	957	1,330	1,433	1,490	
Demand that may be met by Other Supplies		0	0	0	36	33	30	0	0	0	694	727	767	730	760	797	19
Potential Colorado River Demand		435	488	487	0	0	0	4	14	15	161	172	190	600	673	693	
Agricultural	Colorado River Demand	89	89	89	0	0	0	0	0	0	22	22	22	111	111	111	20
Municipal and Industrial	Colorado River Demand	19	19	16	0	0	0	0	0	0	123	134	152	141	153	169	
Energy	Colorado River Demand	40	42	42	0	0	0	0	0	0	0	0	0	40	42	42	
Minerals	Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Fish, Wildlife, and Recreation	Colorado River Demand	0	0	0	0	0	0	0	0	0	5	5	5	5	5	5	
Tribal	Colorado River Demand	288	339	341	0	0	0	4	14	15	11	11	11	303	363	367	

Notes

- 1) No changes from Current Projected.
- 2) No changes from Current Projected.
- 3) Based on regional trends, assume 2060 population is 25 percent less than that of Current Projected.
- 4) No changes from Current Projected.
- 5) No changes from Current Projected.
- 6) No changes from Current Projected.
- 7) No changes from Current Projected.
- 8) No changes from Current Projected.
- 9) Assumed 2035 demand from Current Projected is the new 2060 demand and interpolated for the 2035 demand.
- 10) No changes from Current Projected.
- 11) Used 5 percent increase from Current Projected in 2060, no changes from Current Projected in 2015, and interpolated for 2035.
- 12) Bureau of Business and Economic Research (BBER). 1993 (BBER, 2008).
- 13) No changes from Current Projected.
- 14) No changes from Current Projected.
- 15) No changes from Current Projected.
- 16) No changes from Current Projected.
- 17) No changes from Current Projected.
- 18) San Juan Chama at full contract amount.
- 19) No changes from Current Projected.
- 20) For Adjacent Area, 25,000 afy of Colorado River Demand is agricultural, per contracts. Assume full tribal is met by Colorado River. Remaining Colorado River demand is all M&I.

TABLE C3-4
Total Demand within Study Area under Rapid Growth (C1) Scenario

NEW MEXICO		LEGEND: 999 From Current Projected Data Sheet 999 Computed 999 Input Parameter									STATE TOTAL			Notes			
Units are thousand acre-feet per year, unless otherwise noted		San Juan			Southwest			Northwest			Adjacent Areas				2015	2035	2060
Hydrologic Basin	Planning Area	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	
Agricultural	Irrigated Acreage [thousands]	34	34	34	17	15	14	0	0	0				51	50	48	1
	Per-Acre Water Delivery (Diversion) [af/ac/yr]	5.08	5.08	5.08	5.89	5.89	5.89	0.00	0.00	0.00				5.34	5.33	5.31	2
	Consumptive factor [%]	51%	51%	51%	33%	33%	33%	0%	0%	0%				45%	45%	45%	
	Demand (Consumptive)	89	89	89	33	30	27	0	0	0				122	119	116	
Municipal and Industrial (M&I)	Population [thousands]	186	240	333	10	11	12	0	0	0				196	251	345	3
	M&I Per Capita Use (Diversion) [gpcd]	200	181	146	193	192	193	0	0	0				200	181	148	4
	Consumptive factor [%]	44%	50%	50%	50%	50%	50%	0%	0%	0%				45%	50%	50%	
	M&I Demand (Consumptive)	18	24	27	1	1	1	0	0	0				20	26	29	
	Self Served Industrial Demand (Consumptive)	0.10	0.10	0.10	0	0	0	0	0	0				0.10	0.10	0.10	5
	Demand (Consumptive)	19	24	27	1	1	1	0	0	0				20	26	29	
Energy	Demand (Consumptive)	40	42	42	0.6	0.6	0.6	0	0	0				41	42	42	6
Minerals	Demand (Consumptive)	0	0	0	0.9	0.9	0.9	0	0	0				0.9	0.9	0.9	7
Fish, Wildlife, and Recreation	Demand (Consumptive)	0	0	0	0	0	0	0	0	0				0	0	0	8
Tribal	Demand (Consumptive)	294	387	503	0	0	0	4	15	15				298	402	518	9
Total Hydrologic Basin	Demand (Consumptive)	441	542	661	36	33	30	4	15	15	0	0	0	481	590	706	
Adjacent Areas																	
Agricultural	Irrigated Acreage [acres]										93	93	93	93	93	93	10
	Per-Acre Water Delivery (Diversion) [af/ac/yr]										6.45	6.45	6.45	6.45	6.45	6.45	11
	Consumptive factor [%]										33%	33%	33%	33%	33%	33%	
	Demand (Diversion)										601	601	601	601	601	601	
	Demand (Consumptive)										196	196	196	196	196	196	
Municipal and Industrial (M&I)	Population [thousands]										1,277	1,816	2,666	1,277	1,816	2,666	12
	M&I Per Capita Use (Diversion)[gpcd]										163	150	150	163	150	150	13
	Consumptive factor [%]										40%	40%	40%	40%	40%	40%	
	M&I Demand (Diversion)										233	305	448	233	305	448	
	Self Served Industrial Demand (Diversion)										0.02	0.02	0.03	0.02	0.02	0.03	14
	Demand (Diversion)									233	305	448	233	305	448		
	Demand (Consumptive)									93	122	179	93	122	179		
Energy	Demand (Diversion)									0.02	0.02	0.03	0.02	0.02	0.03	15	
Minerals	Demand (Diversion)									5	5	5	5	5	5	16	
Fish, Wildlife, and Recreation	Demand (Diversion)									5	5	5	5	5	5	17	
Tribal	Demand (Diversion)									11	11	11	11	11	11	18	
Total Adjacent Areas	Demand (Diversion)	0	0	0	0	0	0	0	0	0	855	928	1,071	855	928	1,071	
Total Demand in the Study Area		441	542	661	36	33	30	4	15	15	855	928	1,071	1,337	1,518	1,777	
Demand that may be met by Other Supplies		0	0	0	36	33	30	0	0	0	694	727	767	730	760	798	19
Potential Colorado River Demand		441	542	661	0	0	0	4	15	15	161	201	303	606	758	979	
Agricultural	Colorado River Demand	89	89	89	0	0	0	0	0	0	22	22	22	111	111	111	20
Municipal and Industrial	Colorado River Demand	19	24	27	0	0	0	0	0	0	123	163	265	141	187	293	
Energy	Colorado River Demand	40	42	42	0	0	0	0	0	0	0	0	0	40	42	42	
Minerals	Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Fish, Wildlife, and Recreation	Colorado River Demand	0	0	0	0	0	0	0	0	0	5	5	5	5	5	5	
Tribal	Colorado River Demand	294	387	503	0	0	0	4	15	15	11	11	11	309	413	529	

Notes

- 1) No changes from Current Projected.
- 2) No changes from Current Projected.
- 3) Based on regional trends, assume 2060 population is 25 percent greater than that of Current Projected.
- 4) No changes from Current Projected.
- 5) No changes from Current Projected.
- 6) No changes from Current Projected.
- 7) No changes from Current Projected.
- 8) No changes from Current Projected.
- 9) Northwest: Assumed 2060 demand from Current Projected would be reached in 2035 demand and that no new claims are filed (San Juan: Personal communication, Navajo Nation, April 16, 2012.)
- 10) No changes from Current Projected.
- 11) No changes from Current Projected.
- 12) (BBER, 1993) (BBER, 2008).
- 13) No changes from Current Projected.
- 14) No changes from Current Projected.
- 15) No changes from Current Projected.
- 16) No changes from Current Projected.
- 17) No changes from Current Projected.
- 18) San Juan Chama at full contract amount.
- 19) No changes from Current Projected.
- 20) For Adjacent Area, 25,000 afy of Colorado River Demand is agricultural, per contracts. Assume full tribal is met by Colorado River. Remaining Colorado River demand is all M&I.

TABLE C3-5
Total Demand Within Study Area Under Rapid Growth (C2) Scenario

NEW MEXICO		LEGEND: 999 From Current Projected Data Sheet 999 Computed 999 Input Parameter									STATE TOTAL			Notes			
Hydrologic Basin	Planning Area Year	San Juan			Southwest			Northwest			Adjacent Areas				2015	2035	2060
Agricultural	Irrigated Acreage [thousands]	34	34	34	17	15	14	0	0	0				51	50	48	1
	Per-Acre Water Delivery (Diversion) [af/ac/yr]	5.08	4.96	4.82	5.89	5.76	5.60	0.00	0.00	0.00				5.34	5.21	5.05	2
	Consumptive factor [%]	51%	51%	51%	33%	33%	33%	0%	0%	0%				45%	45%	45%	
	Demand (Consumptive)	89	87	84	33	30	26	0	0	0				122	117	110	
Municipal and Industrial (M&I)	Population [thousands]	186	240	333	10	11	12	0	0	0				196	251	345	3
	M&I Per Capita Use (Diversion) [gpcd]	199	176	139	192	187	183	0	0	0				199	177	140	4
	Consumptive factor [%]	44%	50%	50%	50%	50%	50%	0%	0%	0%				45%	50%	50%	
	M&I Demand (Consumptive)	18	24	26	1	1	1	0	0	0				19	25	27	
	Self Served Industrial Demand (Consumptive)	0.10	0.10	0.10	0	0	0	0	0	0				0.10	0.10	0.10	5a, 5b
	Demand (Consumptive)	18	24	26	1	1	1	0	0	0				20	25	27	
Energy	Demand (Consumptive)	40	42	42	0.6	0.6	0.6	0	0	0				41	42	42	6
Minerals	Demand (Consumptive)	0	0	0	0.9	0.9	0.9	0	0	0				0.9	0.9	0.9	7
Fish, Wildlife, and Recreation	Demand (Consumptive)	0	0	0	0	0	0	0	0	0				0	0	0	8
Tribal	Demand (Consumptive)	294	387	503	0	0	0	4	15	15				298	402	518	9
Total Hydrologic Basin	Demand (Consumptive)	441	539	655	36	33	29	4	15	15	0	0	0	481	587	699	
Adjacent Areas																	
Agricultural	Irrigated Acreage [acres]										93	93	93	93	93	93	10
	Per-Acre Water Delivery (Diversion) [af/ac/yr]										6.45	5.87	5.16	6.45	5.87	5.16	11
	Consumptive factor [%]										33%	33%	33%	33%	33%	33%	
	Demand (Diversion)										601	548	481	601	548	481	
	Demand (Consumptive)										196	178	157	196	178	157	
Municipal and Industrial (M&I)	Population [thousands]										1,277	1,816	2,666	1,277	1,816	2,666	12
	M&I Per Capita Use (Diversion)[gpcd]										162	146	143	162	146	143	13
	Consumptive factor [%]										40%	40%	40%	40%	40%	40%	
	M&I Demand (Diversion)										231	298	426	231	298	426	
	Self Served Industrial Demand (Diversion)										0.02	0.02	0.03	0.02	0.02	0.03	14
	Demand (Diversion)										231	298	426	231	298	426	
	Demand (Consumptive)										93	119	170	93	119	170	
Energy	Demand (Diversion)										0.02	0.02	0.03	0.02	0.02	0.03	15
Minerals	Demand (Diversion)										5	5	5	5	5	5	16
Fish, Wildlife, and Recreation	Demand (Diversion)										5	5	5	5	5	5	17
Tribal	Demand (Diversion)										11	11	11	11	11	11	18
Total Adjacent Areas	Demand (Diversion)	0	0	0	0	0	0	0	0	0	854	867	928	854	867	928	
Total Demand in the Study Area		441	539	655	36	33	29	4	15	15	854	867	928	1,335	1,454	1,627	
Demand that may be met by Other Supplies		0	0	0	36	33	29	0	0	0	694	727	767	730	759	796	19
Potential Colorado River Demand		441	539	655	0	0	0	4	15	15	160	140	161	605	694	831	
Agricultural	Colorado River Demand	89	87	84	0	0	0	0	0	0	22	22	22	111	109	106	20
Municipal and Industrial	Colorado River Demand	18	24	26	0	0	0	0	0	0	122	102	123	140	126	149	
Energy	Colorado River Demand	40	42	42	0	0	0	0	0	0	0	0	0	40	42	42	
Minerals	Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Fish, Wildlife, and Recreation	Colorado River Demand	0	0	0	0	0	0	0	0	0	5	5	5	5	5	5	
Tribal	Colorado River Demand	294	387	503	0	0	0	4	15	15	11	11	11	309	413	529	

Notes

- 1) No changes from Current Projected.
- 2) Used 5 percent growth from Current Projected in 2060, no change from Current Projected in 2015, and interpolated for 2035.
- 3) Based on regional trends, assume 2060 population is 25 percent greater than that of Current Projected.
- 4) Assume 1 percent reduction per decade relative to Current Projected.
- 5a) Used same percentage change as GPCD section for San Juan Area.
- 5b) Assumed no increase from Current Projected in Southwest Area.
- 6) No changes from Current Projected.
- 7) No changes from Current Projected.
- 8) No changes from Current Projected.
- 9) Northwest: Assumed 2060 demand from Current Projected would be reached in 2035 demand and that no new claims are filed (San Juan: Personal communication, Navajo Nation, April 16, 2012.)
- 10) No changes from Current Projected.
- 11) Used 20 percent growth from Current Projected in 2060, no change from Current Projected in 2015, and interpolated for 2035.
- 12) (BBER, 1993) (BBER, 2008)
- 13) Assume 1 percent reduction per decade relative to Current Projected.
- 14) No changes from Current Projected.
- 15) No changes from Current Projected.
- 16) No changes from Current Projected.
- 17) No changes from Current Projected.
- 18) San Juan Chama at full contract amount.
- 19) No changes from Current Projected.
- 20) For Adjacent Area, 25,000 afy of Colorado River Demand is agricultural, per contracts. Assume full tribal is met by Colorado River. Remaining Colorado River demand is all M&I.

TABLE C3-6
Total Demand within Study Area under Enhanced Environment (D1) Scenario

NEW MEXICO		LEGEND: 999 From Current Projected Data Sheet 999 Computed 999 Input Parameter															
Units are thousand acre-feet per year, unless otherwise noted		San Juan			Southwest			Northwest			Adjacent Areas			STATE TOTAL			Notes
Hydrologic Basin	Planning Area	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	
Agricultural	Irrigated Acreage [thousands]	34	34	34	17	15	14	0	0	0				51	50	48	1
	Per-Acre Water Delivery (Diversion) [af/ac/yr]	5.08	5.08	5.08	5.89	5.89	5.89	0.00	0.00	0.00				5.34	5.33	5.31	2
	Consumptive factor [%]	51%	51%	51%	33%	33%	33%	0%	0%	0%				45%	45%	45%	
	Demand (Consumptive)	89	89	89	33	30	27	0	0	0				122	119	116	
Municipal and Industrial (M&I)	Population [thousands]	186	214	267	10	10	10	0	0	0				196	224	276	3
	M&I Per Capita Use (Diversion) [gpcd]	198	172	131	191	172	148	0	0	0				198	172	132	4
	Consumptive factor [%]	44%	50%	50%	50%	50%	50%	0%	0%	0%				45%	50%	50%	
	M&I Demand (Consumptive)	18	21	20	1	1.0	0.8	0	0	0				19	22	20	
Self Served Industrial Demand (Consumptive)		0.10	0.10	0.09	0.0	0.0	0.0	0	0	0				0.10	0.10	0.09	5a, 5b
	Demand (Consumptive)	18	21	20	1	1.0	0.8	0	0	0				19	22	21	
Energy	Demand (Consumptive)	40	39	37	0.6	0.6	0.6	0	0	0				41	40	38	6
Minerals	Demand (Consumptive)	0	0	0	0.9	0.9	0.9	0	0	0				0.9	0.9	0.9	7
Fish, Wildlife, and Recreation	Demand (Consumptive)	0	0	0	0	0	0	0	0	0				0.0	0	0	8
Tribal	Demand (Consumptive)	288	339	341	0	0	0	4	14	15				292	352	356	9
Total Hydrologic Basin	Demand (Consumptive)	435	487	486	36	33	30	4	14	15	0	0	0	475	534	531	
Adjacent Areas																	
Agricultural	Irrigated Acreage [acres]										93	93	93	93	93	93	10
	Per-Acre Water Delivery (Diversion) [af/ac/yr]										6.45	6.45	6.45	6.45	6.45	6.45	11
	Consumptive factor [%]										33%	33%	33%	33%	33%	33%	
	Demand (Diversion)										601	601	601	601	601	601	
	Demand (Consumptive)										196	196	196	196	196	196	
Municipal and Industrial (M&I)	Population [thousands]										1,277	1,802	2,326	1,277	1,802	2,326	12
	M&I Per Capita Use (Diversion)[gpcd]										161	143	125	161	143	125	13
	Consumptive factor [%]										40%	40%	40%	40%	40%	40%	
	M&I Demand (Diversion)										230	288	326	230	288	326	
Self Served Industrial Demand (Diversion)											0.02	0.02	0.03	0.02	0.02	0.03	14
	Demand (Diversion)										230	288	326	230	288	326	
	Demand (Consumptive)										92	115	130	92	115	130	
Energy	Demand (Diversion)										0.02	0.02	0.03	0.02	0.02	0.03	15
Minerals	Demand (Diversion)										5	5	5	5	5	5	16
Fish, Wildlife, and Recreation	Demand (Diversion)										5	5	5	5	5	5	17
Tribal	Demand (Diversion)										11	11	11	11	11	11	18
Total Adjacent Areas	Demand (Diversion)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	853	910	948	853	910	948	
Total Demand in the Study Area		435	487	486	36	33	30	4	14	15	853	910	948	1,328	1,444	1,480	
Demand that may be met by Other Supplies		0.0	0.0	0.0	36	33	30	0.0	0.0	0.0	694	727	767	730	760	797	19
Potential Colorado River Demand		435	487	486	0.0	0.0	0.0	4	14	15	158	184	181	598	684	683	
Agricultural	Colorado River Demand	89	89	89	0	0	0	0	0	0	22	22	22	111	111	111	20
Municipal and Industrial	Colorado River Demand	18	21	20	0	0	0	0	0	0	120	146	143	139	166	163	
Energy	Colorado River Demand	40	39	37	0	0	0	0	0	0	0	0	0	40	39	37	
Minerals	Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Fish, Wildlife, and Recreation	Colorado River Demand	0	0	0	0	0	0	0	0	0	5	5	5	5	5	5	
Tribal	Colorado River Demand	288	339	341	0	0	0	4	14	15	11	11	11	303	363	367	

Notes

- 1) No changes from Current Projected.
- 2) No changes from Current Projected.
- 3) No changes from Current Projected.
- 4) Assume 2 percent reduction per decade relative to Current Projected.
- 5a) Used same percentage change as GPCD section for San Juan Area.
- 5b) Assumed no increase from Current Projected in Southwest Area.
- 6) No changes from Current Projected.
- 7) No changes from Current Projected.
- 8) No changes from Current Projected.
- 9) No changes from Current Projected.
- 10) No changes from Current Projected.
- 11) No changes from Current Projected.
- 12) (BBER, 1993) (BBER, 2008)
- 13) Assume 2 percent reduction per decade relative to Current Projected.
- 14) No changes from Current Projected.
- 15) No changes from Current Projected.
- 16) No changes from Current Projected.
- 17) No changes from Current Projected.
- 18) No changes from Current Projected.
- 19) No changes from Current Projected.
- 20) For Adjacent Area, 25,000 afy of Colorado River Demand is agricultural, per contracts. Assume full tribal is met by Colorado River. Remaining Colorado River demand is all M&I.

TABLE C3-7
Total Demand within Study Area under Enhanced Environment (D2) Scenario

NEW MEXICO <i>Units are thousand acre-feet per year, unless otherwise noted</i>		LEGEND: 999 From Current Projected Data Sheet 999 Computed 999 Input Parameter									STATE TOTAL			Notes			
		San Juan			Southwest			Northwest			Adjacent Areas				2015	2035	2060
Hydrologic Basin	Planning Area Year	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	
Agricultural	Irrigated Acreage [thousands]	34	34	34	17	15	14	0	0	0				51	50	48	1
	Per-Acre Water Delivery (Diversion) [af/ac/yr]	5.08	4.96	4.82	5.89	5.76	5.60	0.00	0.00	0.00				5.34	5.21	5.05	2
	Consumptive factor [%]	51%	51%	51%	33%	33%	33%	0%	0%	0%				45%	45%	45%	
	Demand (Consumptive)	89	87	84	33	30	26	0	0	0				122	117	110	
Municipal and Industrial (M&I)	Population [thousands]	186	240	333	10	11	12	0	0	0				196	251	345	3
	M&I Per Capita Use (Diversion) [gpcd]	198	172	131	191	182	174	0	0	0				198	172	133	4
	Consumptive factor [%]	44%	50%	50%	50%	50%	50%	0%	0%	0%				45%	50%	50%	
	M&I Demand (Consumptive)	18	23	25	1	1	1	0	0	0				19	24	26	
Self Served Industrial Demand (Consumptive)		0.10	0.10	0.09	0	0	0	0	0	0				0.10	0.10	0.09	5a, 5b
	Demand (Consumptive)	18	23	25	1	1	1	0	0	0				19	24	26	
Energy	Demand (Consumptive)	40	42	42	0.6	0.6	0.6	0	0	0				41	42	42	6
Minerals	Demand (Consumptive)	0	0	0	0.9	0.9	0.9	0	0	0				0.9	0.9	0.9	7
Fish, Wildlife, and Recreation	Demand (Consumptive)	0	0	0	0	0	0	0	0	0				0	0	0	8
Tribal	Demand (Consumptive)	294	387	503	0	0	0	4	15	15				298	402	518	9
Total Hydrologic Basin	Demand (Consumptive)	441	539	654	36	33	29	4	15	15	0	0	0	481	586	698	
Adjacent Areas																	
Agricultural	Irrigated Acreage [acres]										93	93	93	93	93	93	10
	Per-Acre Water Delivery (Diversion) [af/ac/yr]										6.45	5.87	5.16	6.45	5.87	5.16	11
	Consumptive factor [%]										33%	33%	33%	33%	33%	33%	
	Demand (Diversion)										601	548	481	601	548	481	
Demand (Consumptive)										196	178	157	196	178	157		
Municipal and Industrial (M&I)	Population [thousands]										1,277	1,816	2,666	1,277	1,816	2,666	12
	M&I Per Capita Use (Diversion)[gpcd]										160	139	128	160	139	128	13
	Consumptive factor [%]										40%	40%	40%	40%	40%	40%	
	M&I Demand (Diversion)										229	282	381	229	282	381	
Self Served Industrial Demand (Diversion)											0.02	0.02	0.03	0.02	0.02	0.03	14
	Demand (Diversion)										229	282	381	229	282	381	
Demand (Consumptive)											92	113	152	92	113	152	
Energy	Demand (Diversion)										0.02	0.02	0.03	0.02	0.02	0.03	15
Minerals	Demand (Diversion)										5	5	5	5	5	5	16
Fish, Wildlife, and Recreation	Demand (Diversion)										5	5	5	5	5	5	17
Tribal	Demand (Diversion)										11	11	11	11	11	11	18
Total Adjacent Areas	Demand (Diversion)	0	0	0	0	0	0	0	0	0	852	851	883	852	851	883	
Total Demand in the Study Area		441	539	654	36	33	29	4	15	15	852	851	883	1,333	1,438	1,581	
Demand that may be met by Other Supplies		0	0	0	36	33	29	0	0	0	694	727	767	730	759	796	19
Potential Colorado River Demand		441	539	654	0	0	0	4	15	15	157	125	116	603	678	785	
Agricultural	Colorado River Demand	89	87	84	0	0	0	0	0	0	22	22	22	111	109	106	20
Municipal and Industrial	Colorado River Demand	18	23	25	0	0	0	0	0	0	119	87	78	138	110	102	
Energy	Colorado River Demand	40	42	42	0	0	0	0	0	0	0	0	0	40	42	42	
Minerals	Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Fish, Wildlife, and Recreation	Colorado River Demand	0	0	0	0	0	0	0	0	0	5	5	5	5	5	5	
Tribal	Colorado River Demand	294	387	503	0	0	0	4	15	15	11	11	11	309	413	529	

Notes

- 1) No changes from Current Projected.
- 2) Used 5 percent increase from Current Projected in 2060, no change from Current Projected in 2015, and interpolated for 2035.
- 3) Based on regional trends, assume 2060 population is 25 percent greater than that of Current Projected.
- 4) Assume 3 percent reduction per decade relative to Current Projected.
- 5a) Used same percentage change as GPCD section for San Juan Area.
- 5b) Assumed no increase from Current Projected in Southwest Area.
- 6) No changes from Current Projected.
- 7) No changes from Current Projected.
- 8) No changes from Current Projected.
- 9) Northwest: Assumed 2060 demand from Current Projected would be reached in 2035 demand and that no new claims are filed. (San Juan: Personal communication, Navajo Nation, April 16, 2012.)
- 10) No changes from Current Projected.
- 11) Used 20 percent increase from Current Projected in 2060, no change from Current Projected in 2015, and interpolated for 2035.
- 12) (BBER, 1993) (BBER, 2008).
- 13) Assume 3 percent reduction per decade relative to Current Projected.
- 14) No changes from Current Projected.
- 15) No changes from Current Projected.
- 16) No changes from Current Projected.
- 17) No changes from Current Projected.
- 18) San Juan Chama at full contract amount.
- 19) No changes from Current Projected.
- 20) For Adjacent Area, 25,000 afy of Colorado River Demand is agricultural, per contracts. Assume full tribal is met by Colorado River. Remaining Colorado River demand is all M&I.

4.0 References

- Bureau of Business and Economic Research (BBER). 1993. *Population Growth Trends for the Upper Rio Grande and Albuquerque*.
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