Appendix C2
Colorado Water Demand
Scenario Quantification

Appendix C2 ─ Colorado Water Demand Scenario Quantification

1.0 Introduction

This appendix summarizes the data sources used in scenario quantification for Colorado River demand[3] for the state of Colorado and presents the results of quantification. As presented in figure C2-1, Colorado is divided into a number of planning areas that align with river basins including the Colorado River and its tributaries (Yampa, White, Gunnison, Dolores, and San Juan Rivers) as well as the South Platte and Arkansas basins 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 Colorado Study Area summary, followed by Colorado River demand by geography and finally by category.

2.0 Background

The Colorado Water Conservation Board (CWCB) is responsible for state-level water resource planning in Colorado. The CWCB has led numerous planning studies under the *Statewide Water Supply Initiative* (SWSI; CWCB, 2010a), leading to a number of available water supply planning reports. The SWSI process includes significant public and agency input for Colorado's water resource planning.

The CWCB coordinated Colorado's efforts to provide information for scenario quantification. These efforts largely relied on information previously generated through the SWSI. However, new assumptions and/or data development were required where the assumptions of the Colorado River Basin Water Supply and Demand Study (Study) deviated from the SWSI process.

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.

- Agricultural Demand: Irrigated acreage estimates were derived from SWSI table 4-10 (CWCB, 2010a). The SWSI contemplated significant future transfers of agricultural lands and water rights to meet future demands. However, for the purposes of the Study, it was assumed that agricultural to municipal and industrial (M&I) transfers were only associated with physical land transfers due to urbanization, and not associated with additional dry-up outside urban corridors. This would allow increased M&I transfers to be considered as an option and strategy to meet supply and demand imbalances.

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[3] Colorado River demand is consumptive use by Study Area demand minus other upper users.

FIGURE C2-1
Colorado River Hydrologic Basin and Export Service Areas in Colorado
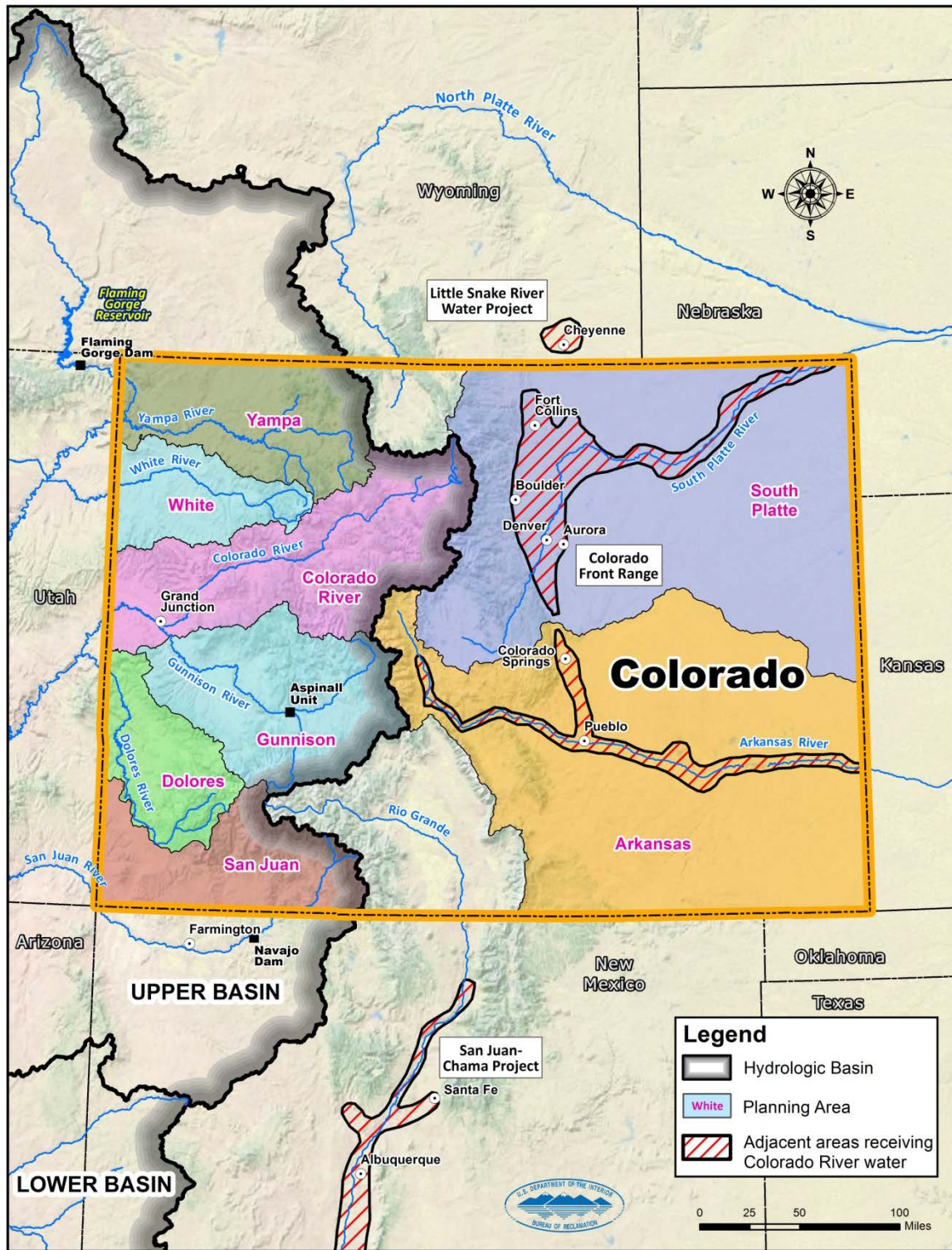
- **M&I:** Population and per capita water use values were derived from the SWSI process. Population projection values for the Study scenarios were derived from the "low," "medium," and "high" values associated with the SWSI (table 4-1) and were interpolated or projected as necessary to reflect the dates reported in the Study (for example, SWSI data from 2035 and 2050 were interpolated to arrive at 2060 data for the Study). Per capita water use values were derived from "passive" and currently planned "active" conservation. Representatives from the Colorado River Water Conservation District and the Front Range Water Council reviewed the SWSI "passive" numbers in detail and concluded that the values include active measures. SWSI gallons per capita per day numbers were not used directly; the values used were provided through personal communication with the referenced entities and CWCB (CWCB, 2012).

- **Energy:** Energy demands were derived from SWSI table 4-8, with additional demands from Appendix F of the CWCB report, *2050 M&I Water User Projections* (CWCB, 2010b).

- **Minerals:** Demand for mineral production was derived from Upper Colorado River Commission Schedule of Colorado River demands from 2007. Water demand for mineral production was inadvertently excluded from the 2010 SWSI process.

- **Fish, Wildlife, and Recreation:** No water demands were noted for fish, wildlife, and recreation.

- **Tribal:** For Colorado, at the request of Ute Mountain Ute and Southern Ute Indian Tribes, tribal demands were not considered separately from the demand categories noted above. As such, tribal agricultural acreage, tribal populations, etc., are included in the other category estimates.

3.0   Results of Water Demand Scenario Quantification

This section summarizes Colorado'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 Arkansas or South Platte rivers. To develop estimates of the Colorado River water 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 in Colorado, the Colorado River demand for the state and individual planning areas across the six scenarios, and the 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 parameters and demands quantified for each of the scenarios. Table C2-1 presents summary results for the demand scenarios considered in the Study. The table presents agricultural and M&I demand parameters for Colorado's Study Area, distinguishing the scenarios and the resulting Colorado River demands by category.

Colorado estimates that slightly fewer than 6 million people will be in Colorado's Study Area by 2015. This number is expected to increase to about 9 to 11 million by 2060. The greatest population growth is associated with the Rapid Growth (C1 and C2) scenarios and Enhanced Environment (D2). The Slow Growth (B) scenario has the lowest population growth of the scenarios (9.4 million by 2060), but still represents a growth of nearly 66 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, considering passive and active, or existing conservation levels, is expected to be 9 to 22 percent less in 2060 than in 2015. Although usage rates vary across Colorado's planning areas, per capita reductions are assumed to be consistent across the planning areas.

Irrigated acreage is projected to continue to decrease through 2060 under all scenarios. Under the Rapid Growth (C1 and C2) scenarios, projected irrigated acreage is reduced by about 420,000 acres. Irrigated acreage is reduced by 150,000 acres in the Enhanced Environment (D1) scenario, with reductions of about 40,000 acres for the Current Projected (A), Slow Growth (B), and Enhanced Environment (D2) scenarios. These reductions in irrigated acreage are offset to some extent by increases in water delivery per acre as a result of more intense cultivation or full irrigation of remaining acreage, resulting in moderate decreases in demand for all scenarios but the Enhanced Environment (D2) scenario, in which demand increases by about 4 percent.

Water demands for energy and mineral categories are projected to increase under all scenarios. The growing need for energy sources (coal, solar, and oil shale) is projected to increase water demands. The largest increases in water demand for energy are anticipated in the Colorado River and White basins. Water needs for mineral extraction are projected to increase similarly in all planning areas except for the Front Range planning areas (South Platte and Arkansas), where water demands for mineral extraction are not identified, and the Dolores basin, where demands are small.

For Colorado, tribal demands are embedded in other categories and not represented under the tribal category.

Figure C2-2 presents demands across the scenarios in three panels as follows: 1) Study Area demand with other supplies and Colorado River demand[4] identified, 2) Colorado River demand, and 3) change in Colorado River demand by demand category.

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[4] Nquugu'f ug''q't gugtxqkt''gxcr qtcvkqp''ctg''pqv'r ctv'qh'vj ku''qvcn'

TABLE C2-1
Summary Results of Colorado 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)	5.7	9.9	9.4	11.1	11.1	9.9	11.1
Change in per capita water usage (%), from 2015	—	-9%	-9%	-9%	-20%	-22%	-20%
Irrigated acreage (millions of acres)	2.17	2.13	2.13	1.75	1.75	2.02	2.13
Change in per acre water delivery (%), from 2015	—	+0%	+0%	+2%	+12%	-1%	+8%
Study Area Demand (thousand acre-feet [kaf])							
	2015[1]	**2060 Scenario Demands**					
		A	**B**	**C1**	**C2**	**D1**	**D2**
Ag demand	6,132	5,991	5,991	4,775	5,252	5,767	6,367
M&I demand	1,139	1,701	1,630	1,891	1,637	1,429	1,637
Energy demand	76	195	135	255	135	128	135
Minerals demand	32	60	60	66	54	54	54
FWR demand	0	0	0	0	0	0	0
Tribal demand[2]	0	0	0	0	0	0	0
Total Study Area Demand[3]	**7,379**	**7,947**	**7,816**	**6,987**	**7,079**	**7,378**	**8,193**
Colorado River Demand (kaf)							
	2015[1]	**2060 Scenario Demands**					
		A	**B**	**C1**	**C2**	**D1**	**D2**
Ag demand	1,875	1,875	1,875	1,728	1,867	1,711	2,029
M&I demand	455	732	661	1,007	931	711	890
Energy demand	30	118	58	178	58	58	58
Minerals demand	32	60	60	66	54	54	54
FWR demand	0	0	0	0	0	0	0
Tribal demand[2]	0	0	0	0	0	0	0
Total Colorado River Demand[3]	**2,391**	**2,784**	**2,653**	**2,979**	**2,910**	**2,534**	**3,030**

[1] If range across scenarios is less than 10 percent, Current Projected (A) is presented. Otherwise, range (min – max) is presented.
[2] Tribal demands are included in other demand categories.
[3] Excludes potential losses (reservoir evaporation, phreatophytes, and/or operational inefficiencies) that may be charged to state.

FIGURE C2-2
Study Area Demand, Colorado River Demand, and Change in Colorado River Demand
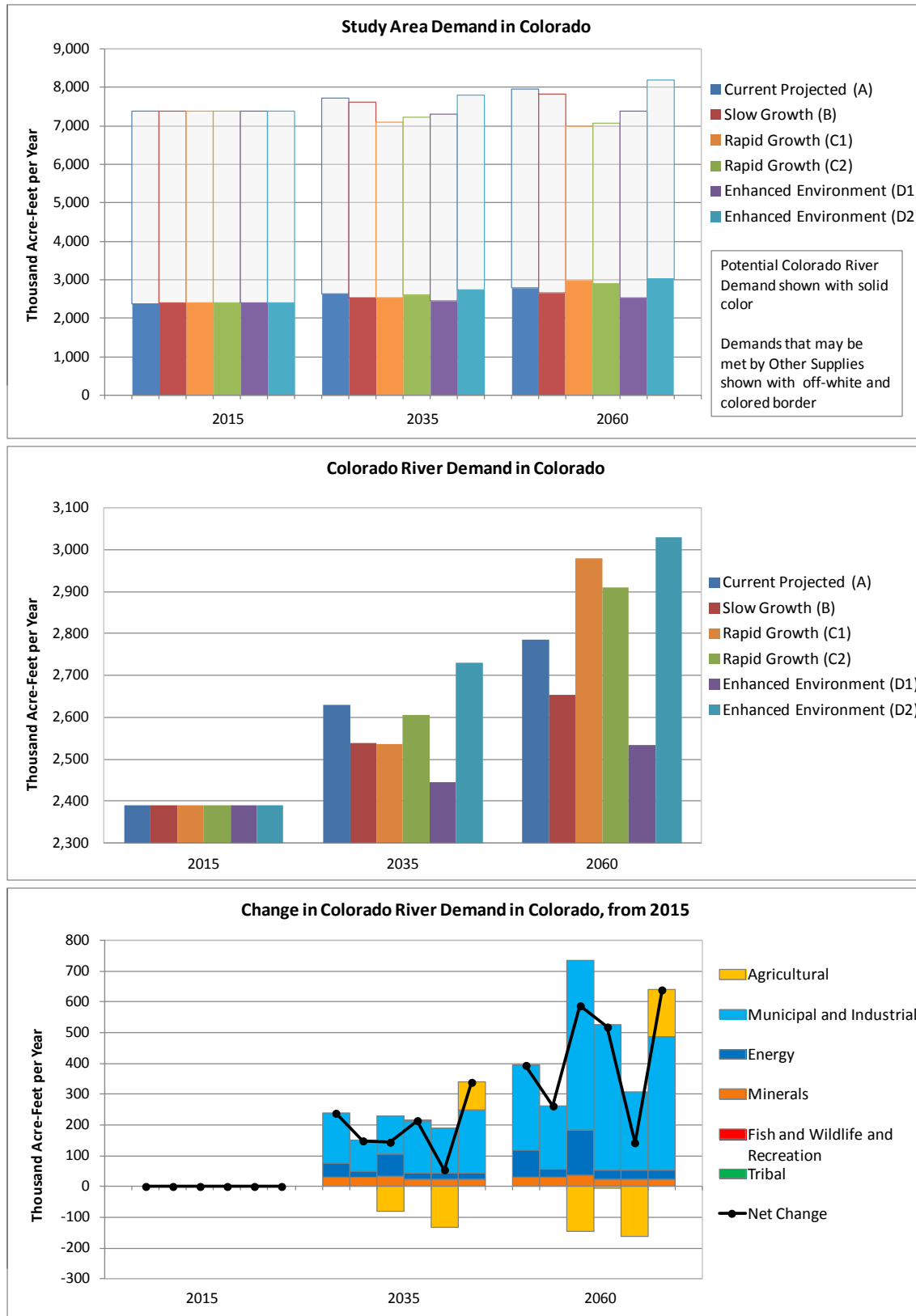
From panel one it can be seen that Study Area demand increases from about 7 million acre-feet (maf) in 2015 to up to 8.2 maf by 2060. The demand change across scenarios in 2060 is projected to be as low as a reduction of 0.4 maf or as high as an increase of 0.8 maf. The growth in Colorado River demand from 2015 to 2060 is projected to be as much as 0.6 maf with the Front Range, and in particular the South Platte planning area, growing by about 60 percent. About 60 percent 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. Colorado River demand increases from about 2.4 maf in 2015 to between 2.5 and 3.0 maf in 2060 (or 6 to 27 percent) depending on the scenario. This difference results in a Colorado River demand range of about 0.5 maf across the scenarios in 2060, or about 20 percentage points.

Panel three shows how specific categories affect the projected change in Colorado River demand by scenario. Although the single largest component of demand is agricultural (~70 percent), most of the growth in demand is driven by increases in M&I demand and more specifically by increases in population. Of the growing categories of Colorado River demand, between 70 and 90 percent of the growth is contributed by the M&I demand category. Some portion of this increase is generally offset by decreases in agricultural demand, except under the Current Projected (A) and Slow Growth (B) scenarios, in which agricultural demand is constant, and under the Enhanced Environment (D2) scenario, in which agricultural demand increases significantly due to greater water delivery per acre. Water for energy and mineral demand make up the remaining increases in demand, with a significant increase in energy demand under the Rapid Growth (C1) scenario due to increased demand for oil shale production.

Figure C2-3 ties historical water use to the range of Colorado River demand in the quantified scenarios. The 0.5 maf range across scenarios in 2060 is easily discernible, with a relatively even spread over the range across the scenarios. In addition, it appears that the quantified scenarios track well with the peaks in historical uses that likely represent the least supply-limited conditions or actual demand.

3.2   Colorado River Water Demand by Geography

Colorado River water demand for areas served by the Colorado River is presented in figures C2-4, C2-5, and C2-6. These figures show two geographic levels: Study Area in Colorado, 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.

The change in both magnitude and percentage of Colorado River demand[5] varies considerably across the planning areas. The South Platte planning area shows the greatest magnitude and rate of overall growth in Colorado River demand from 2015 to 2060 across the scenarios, with between about 0.1 and 0.4 maf making up between 40 and 100 percent of the total growth in Colorado. This growth is primarily due to population growth, with between 70 and 90 percent of the increase in the growing sectors occurring in M&I demand. Demands for the Arkansas planning area are projected to grow by about 0.04 to about 0.14 maf, due to population growth. Demand in the Yampa planning area is projected to grow by between 0.02 and 0.04 maf, due

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[5] Rqvgpvkcn"Eqnqtcfq"Tkxgt"fgo cpf"ku"dcugf"qp"ej cpi gu"kp"r ctco gvgtu"uwej "cu"r qr wncvkqp"cpf "hqt"yj g"r wtr qug"qh"yj g"Uwf{ "ku"
"""""""""""""pqv"ko kvgf"d{"crr qtvkqpo gpv0"

primarily to growth in water demand for energy. The other planning areas consistently make up the remaining growth, with greater relative contributions (more than 20 percent of total growth) from the Colorado River and White planning areas under the Current Projected (A) and Rapid Growth (C1) scenarios, respectively, due primarily to growth in demand for energy.

When demands by category are examined in figure C2-5, the mix of demand categories varies between the hydrologic basin and adjacent areas, with agricultural demand dominating the hydrologic basin and M&I demand at 50 percent or greater in the two adjacent planning areas.
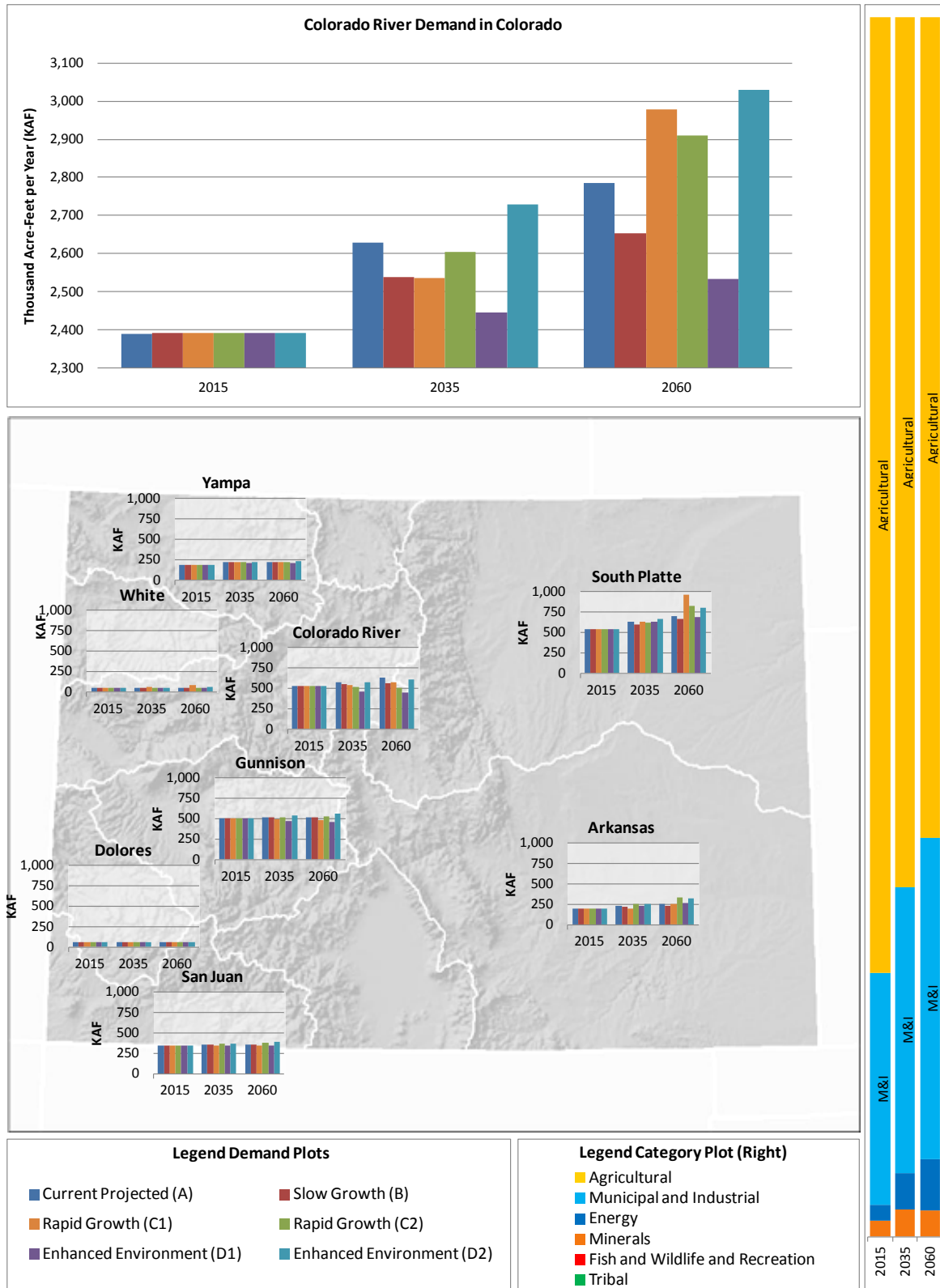
Figure C2-6 shows the change in Colorado River demand by category from 2015 across the scenarios. The mix of demand categories across the planning areas varies considerably, with change in demand in the South Platte and Arkansas dominated by M&I and a range of increases and significant decreases in agricultural demand varying by basin and scenario.

FIGURE C2-3
Historical Use and Future Projected Demand Excluding Reservoir Evaporation[1]
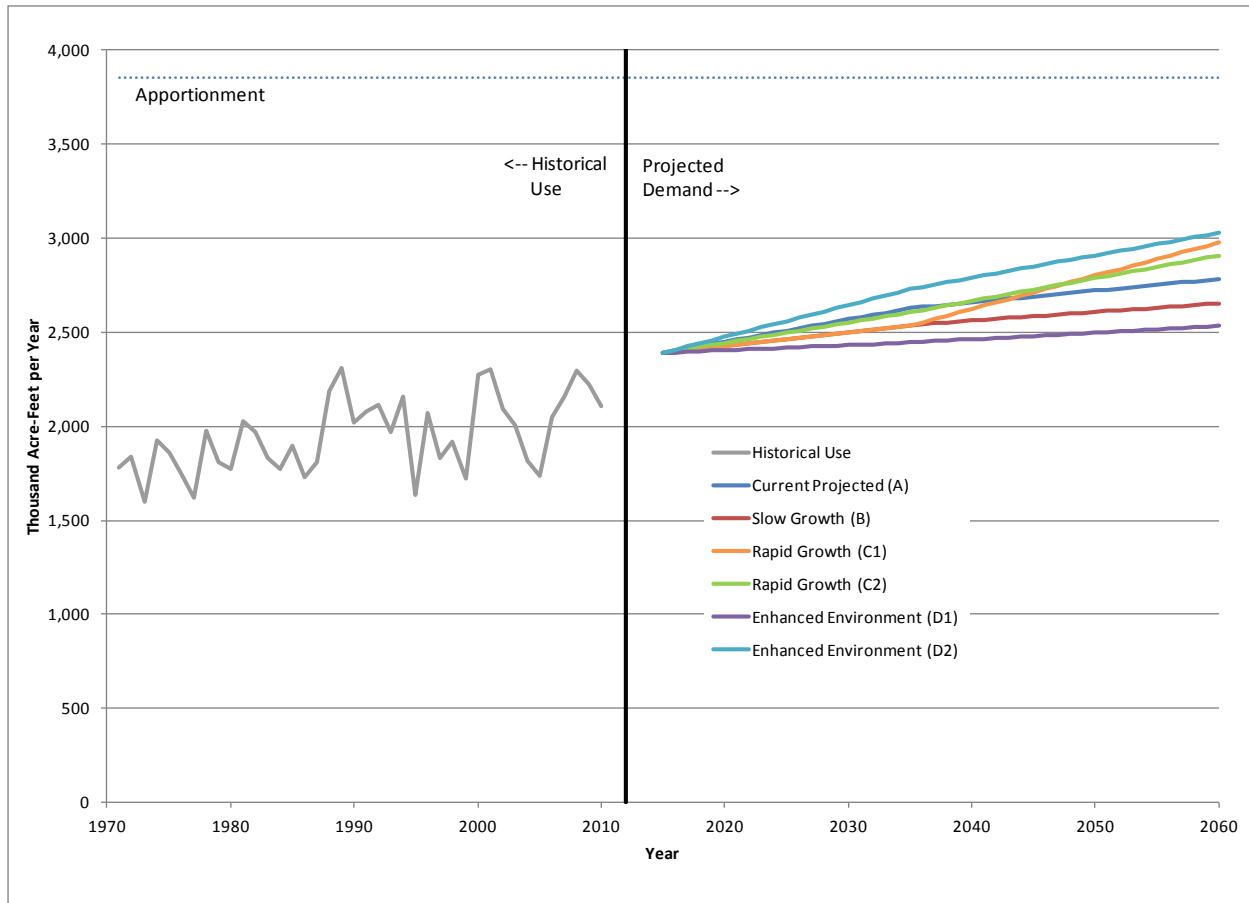
[1]Reservoir evaporation on the order of 430 thousand acre-feet is not included in this plot.

FIGURE C2-4
Colorado River Demand in Colorado

FIGURE C2-5
Colorado River Demand by Category
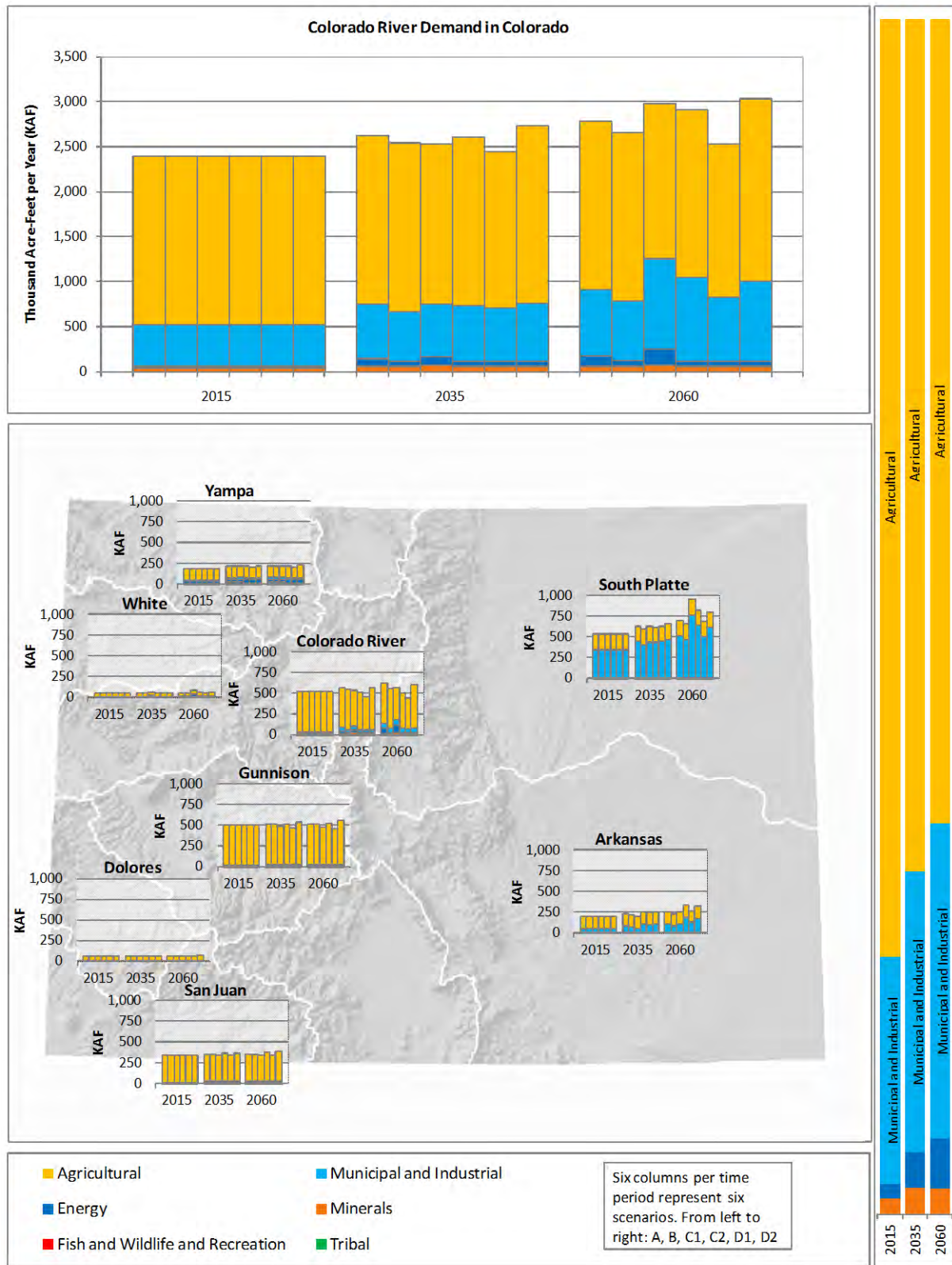
FIGURE C2-6
Change in Colorado River Demand in Colorado from 2015 by Category

Legend:
- Agricultural
- Municipal and Industrial
- Energy
- Minerals
- Fish and Wildlife and Recreation
- Tribal

Six columns per time period represent six scenarios. From left to right: A, B, C1, C2, D1, D2
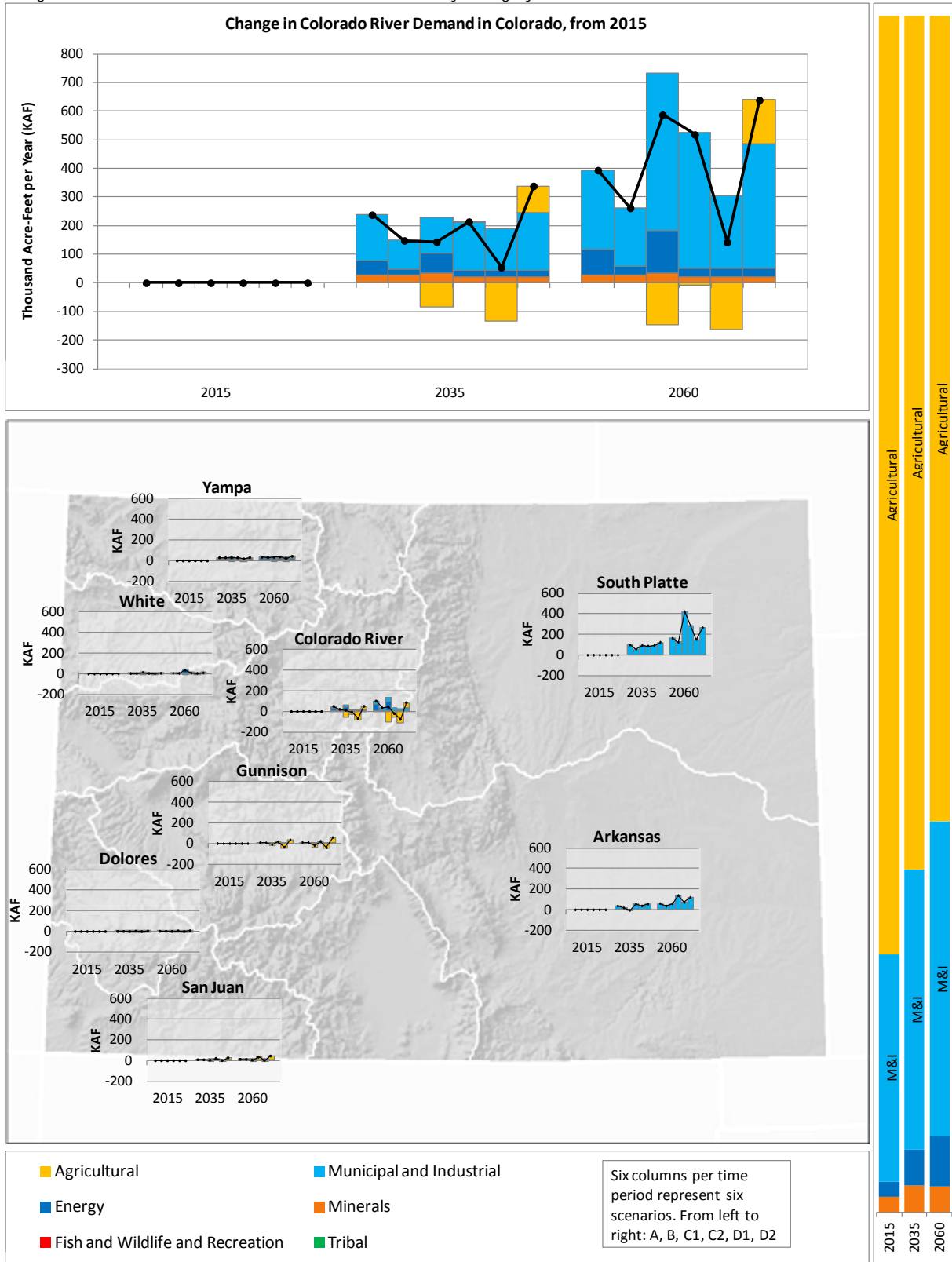
3.3 Colorado River Demand by Category

3.3.1 Agriculture

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.

Colorado River Simulation System (CRSS) does not represent smaller tributaries in Colorado. Inflow nodes are only included for the Mainstem Colorado, Gunnison, Yampa, San Juan, and White Rivers. Demands upstream of these inflow nodes are aggregated and represented at those same locations. A significant portion of the aggregated irrigation demands divert from the smaller tributaries and are unable to receive a full water supply during the irrigation seasons, due to either physical flow limitations or the need to bypass water to satisfy downstream senior demands. Because of CRSS limitations, Colorado demands represent supply-limited conditions instead of full irrigation demands.

Figure C2-7 presents the following by scenario in 2015, 2035, and 2060:

- Agricultural demand for Colorado River water

- 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 C2-7, agricultural water demand is the largest component of Colorado River demand in Colorado, dropping from about 78 percent in 2015 to between 58 and 71 percent of Colorado River demand in 2060, depending on which scenario is considered. This drop results from both a decrease in agricultural water demand and an increase in other categories of demand.

Colorado River demand for agricultural use decreases over time from 2015 to 2060 in the Rapid Growth (C1 and C2) and Enhanced Environment (D1) scenarios and increases in the Enhanced Environment (D2) scenario. The decreases are entirely due to a loss of irrigated acreage. The increase in demand in the Enhanced Environment (D2) scenario because decreases in irrigated acreage are overcome by increases in water delivery per acre due to more intensive agricultural production on these lands.

In examining the planning areas, agricultural demand consistently decreases in the Rapid Growth (C1) and Enhanced Environment (D1) scenarios and increases in the Enhanced Environment (D2) scenario, with variability from planning area to planning area in Rapid Growth (C2) scenario. The largest decrease in demand occurs in the Colorado River planning area.

A strong driver for loss of agricultural acreage is urbanization, leading to physical loss of acreage and market pressure for transfer of water rights. Increases in water delivery per acre are due to better delivery mechanisms or storage, allowing for more use of water on the same acreage in a given growing season.

FIGURE C2-7

Change in Colorado River Demand in Colorado from 2015 for Agriculture
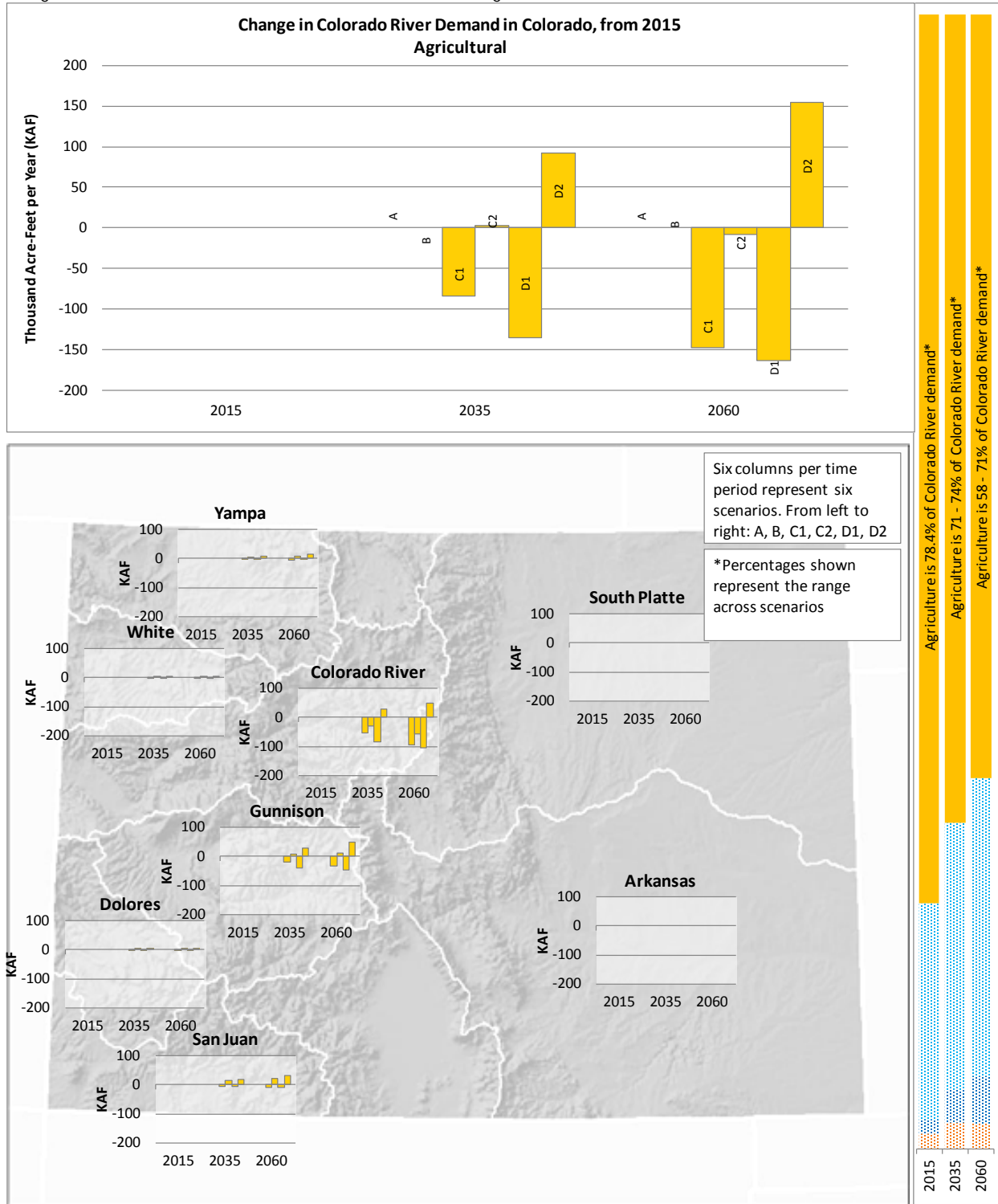
Municipal and Industrial

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 users 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 C2-8 presents the following by scenario in 2015, 2035, and 2060:

- M&I demand for Colorado River water in the Study Area

- 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 C2-8, M&I water demand is the second largest component of Colorado River demand, increasing from about 19 percent in 2015 to between 25 and 34 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 across all scenarios. The 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 or decreases.

In examining the planning areas, between 60 and 75 percent of the increase in M&I demand for Colorado River water from 2015 to 2060 over time is due to population increase in the South Platte across all scenarios. The remaining increase in demand is primarily from M&I demand in the Arkansas, with some increase in the Colorado River 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 9 to 22 percent by 2060.

3.3.2 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 energy and water from the Study Area to meet these distributed needs.

Figure C2-9 presents the following by scenario in 2015, 2035, and 2060:

- Energy demand for Colorado River water

- Energy demand for Colorado River water by planning area

- Energy demand as a portion of total Colorado River water demand (right hand side of graph)

As can be seen from figure C2-9, energy water demand is a small fraction of Colorado River demand, increasing from about 1.3 percent of in 2015 to between 2 and 6 percent of Colorado River demand in 2060, depending on which scenario is considered.

FIGURE C2-8
Change in Colorado River Demand in Colorado from 2015 for M&I

Change in Colorado River Demand in Colorado, from 2015
Municipal and Industrial

Six columns per time period represent six scenarios. From left to right: A, B, C1, C2, D1, D2

*Percentages shown represent the range across scenarios

M&I is 19% of Colorado River demand*

M&I is 22 - 25% of Colorado River demand*

M&I is 25 - 34% of Colorado River demand*

FIGURE C2-9
Change in Colorado River Demand in Colorado from 2015 for Energy

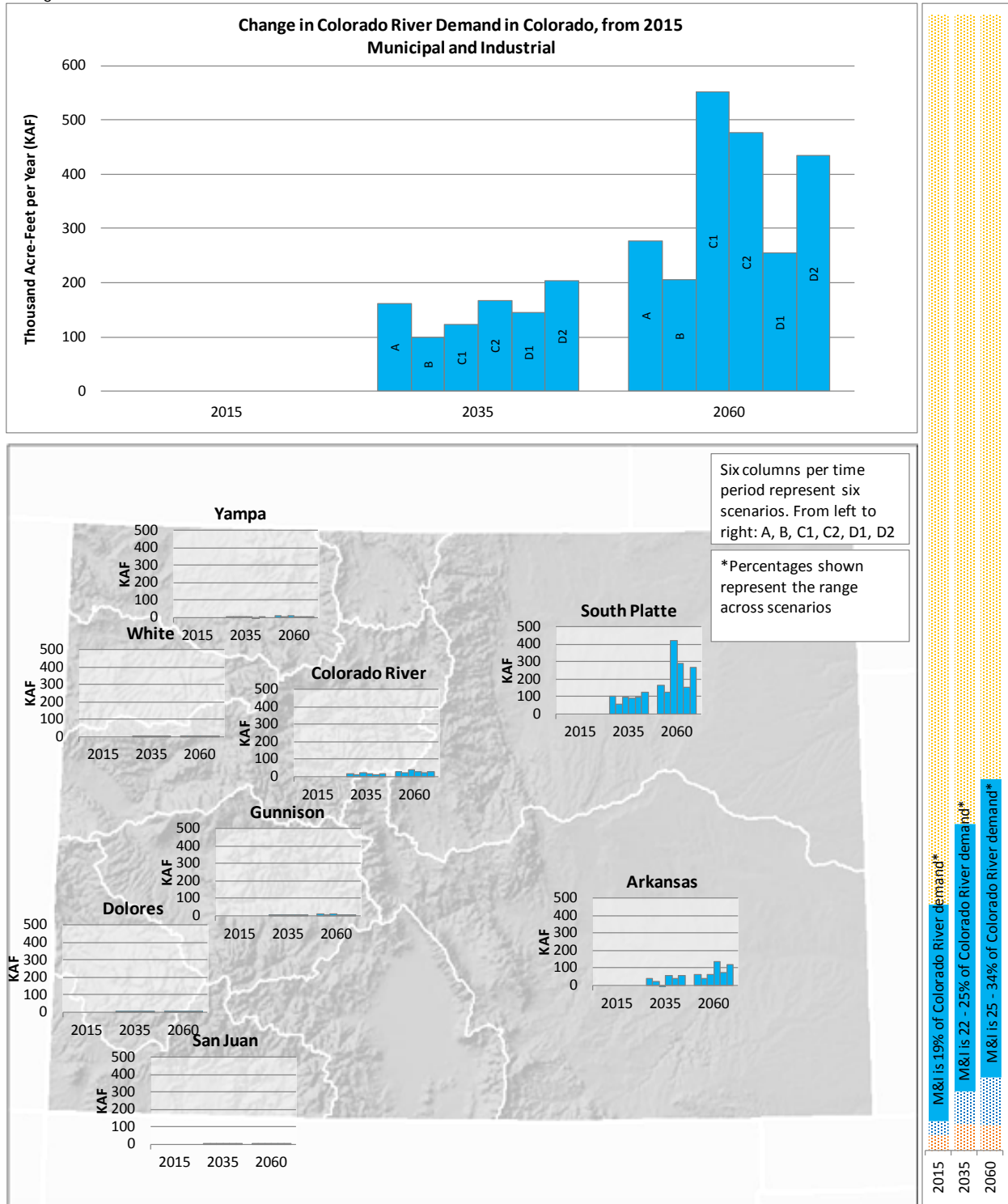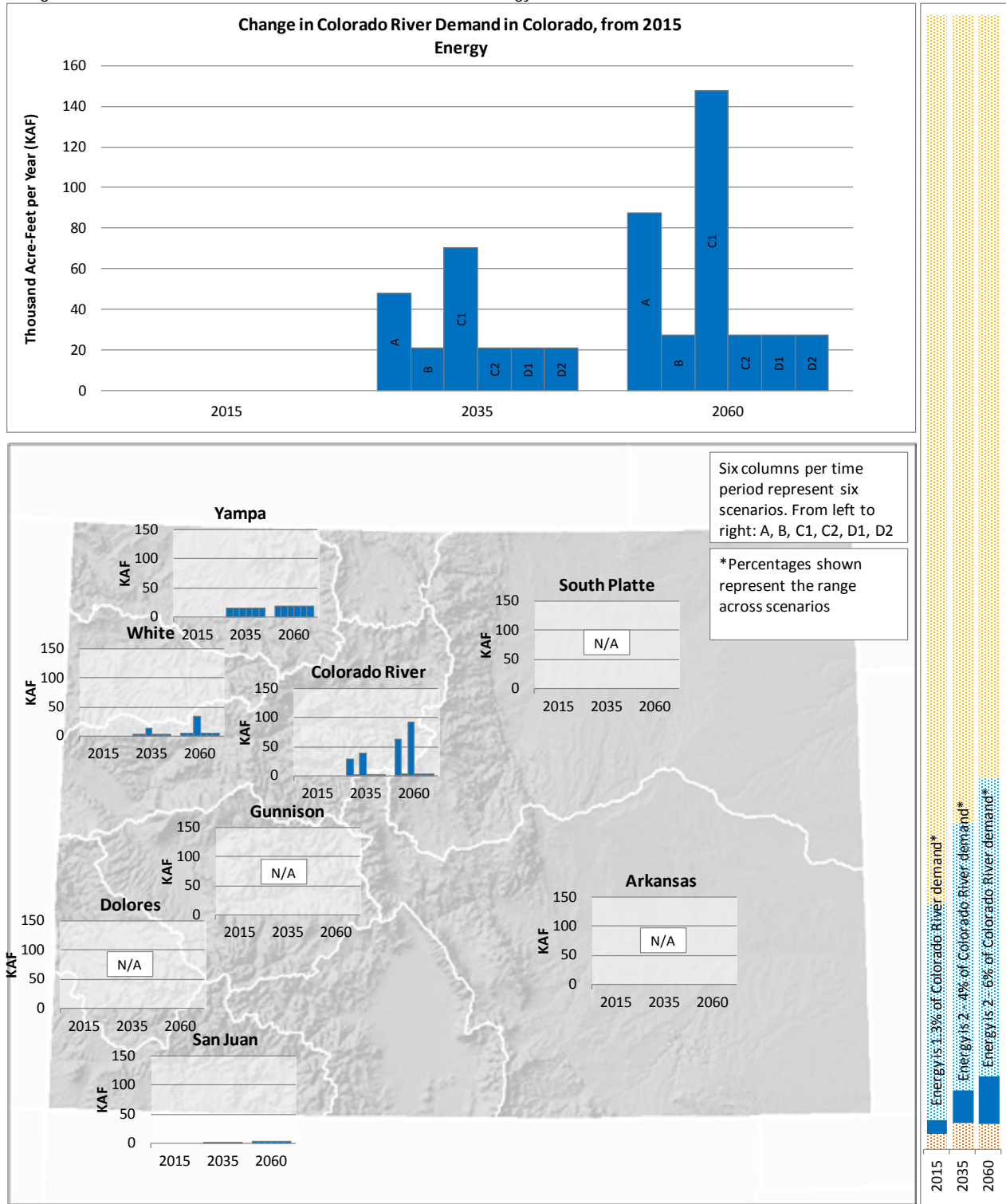**Change in Colorado River Demand in Colorado, from 2015**
Energy

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 primarily due to oil shale production.

Energy demands are shown in the Yampa, White, San Juan, and Colorado River planning areas. Consistent increases occur in the Yampa planning area across all scenarios. The White planning area shows significant increases in energy demand in the Rapid Growth (C1) scenario, with nominal increases in the remaining scenarios. The San Juan planning area shows a consistent increase in energy demand across the scenarios. The Colorado River planning area shows significant increases in energy demand in the Current Projected (A) and Rapid Growth (C1) scenarios, with nominal increases in the remaining scenarios.

3.3.3 Minerals Extraction

Water demand for mineral production can be estimated through existing uses and known plans for extraction in the Study Area. Water demand for mineral production can vary significantly based on market prices for a given product.

Figure C2-10 presents the following by scenario in 2015, 2035, and 2060:

- Mineral production demand for Colorado River water

- Individual planning area mineral production demand for Colorado River water

- Minerals demand as a portion of Colorado River demand (right hand side of graph)

As can be seen from figure C2-10, minerals water demand is a small fraction of Colorado River demand, increasing from about 1.3 percent in 2015 to about 2 percent of Colorado River demand in 2060, depending on which scenario is considered.

Minerals demand for Colorado River water increases over time from 2015 to 2060 across all scenarios.

Demand for Colorado River water for minerals production is present in all of the planning areas in the hydrologic basin to varying degrees. The Yampa and Colorado River planning areas make up about 33 percent of the increase in demand each, with the Gunnison and San Juan planning areas making up about 16 percent of the increase each. Demand in the Dolores planning area is small and constant.

3.3.4 Fish, Wildlife, and Recreation

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

3.3.5 Tribal

Tribal demands are represented as components of the other categories previously presented. The tribal reserved water rights are the senior rights in the San Juan basin in Colorado; therefore, in times when full basin demands cannot be met, the first water diverted in the basin is essentially for tribal water right diversions. The category totals in tables C2-2 to C2-5 include Southern Ute Indian Tribe and Ute Mountain Ute Indian Tribe demands.

For additional information on tribal demands, see appendix C9.

FIGURE C2-10
Change in Colorado River Demand in Colorado from 2015 for Minerals
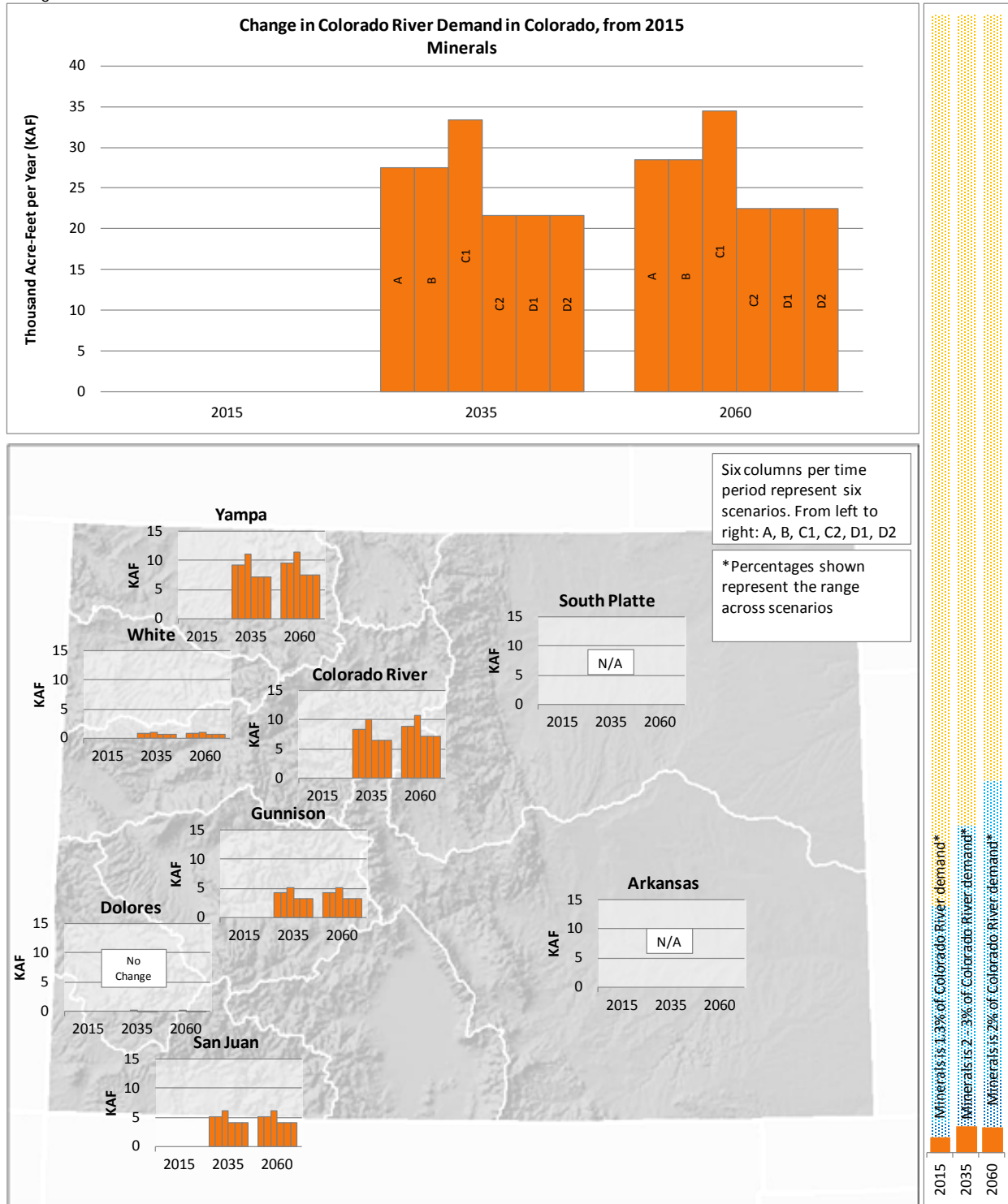
3.4   Summary Tables of Parameters and Demands by Category

Tables C2-2 to C2-7 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.

4.0   References

Colorado Water Conservation Board (CWCB). 2010a. *Statewide Water Supply Initiative*.

Colorado Water Conservation Board (CWCB). 2010b. *2050 M&I Water User Projections. Appendix F*.

Colorado Water Conservation Board (CWCB). 2012. Personal communication with Reclamation.

TABLE C2-2
Total Demand within Study Area under Current Projected (A) Scenario

Units are thousand acre-feet per year, unless otherwise noted

LEGEND:
999 From States   999 From State Plans
999 Calculated   999 From Study Team

Planning Area		Colorado River			Gunnison			Yampa			White			San Juan			Dolores			FRONT RANGE South Platte			FRONT RANGE Arkansas			STATE TOTAL			Notes
Hydrologic Basin Year		2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	
Agricultural	Irrigated Acreage [thousands]	270	270	270	269	269	269	93	93	93	27	27	27	220	220	220	40	40	40							918	918	918	1
	Per-Acre Water Delivery (Diversion) [af/ac/yr]	6.85	6.85	6.85	6.89	6.89	6.89	4.44	4.44	4.44	10.25	10.25	10.25	3.52	3.52	3.52	3.70	3.70	3.70							5.79	5.79	5.79	2
	Consumptive factor [%]	26%	26%	26%	26%	26%	26%	34%	34%	34%	15%	15%	15%	43%	43%	43%	37%	37%	37%							29%	29%	29%	3
	Demand (Consumptive)	485	485	485	490	490	490	140	140	140	41	41	41	330	330	330	54	54	54							1,539	1,539	1,539	
Municipal and Industrial (M&I)	Population [thousands]	357	558	836	121	184	244	42	65	113	10	16	28	85	130	175	36	56	75							651	1,008	1,471	5
	M&I Per Capita Use (Diversion) [gpcd]	181	173	164	173	166	157	228	219	208	228	219	208	182	174	165	182	174	165							183	176	167	6
	Consumptive factor [%]	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%							35%	35%	35%	7
	M&I Demand (Consumptive)	25	38	54	8	12	15	4	6	9	1	1	2	6	9	11	3	4	5							47	69	96	
	Self Served Industrial Demand (Consumptive)	3	5	5	0	1	1	7	10	10	0	0	0	0.4	0.4	0.4	0	0	0							11	16	16	8
	Demand (Consumptive)	29	43	58	9	13	16	11	16	19	1	1	2	6	9	12	3	4	5							58	85	112	
Energy	Demand (Consumptive)	2	30	65	0	0	0	25	40	42	1	4	6	2	4	5	0	0	0							30	78	118	9
Minerals	Demand (Consumptive)	10	18	19	5	9	9	10	20	20	1	2	2	5	10	10	1	1	1							32	59	60	10
Fish, Wildlife, and Recreation	Demand (Consumptive)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	
Tribal	Demand (Consumptive)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	11
Total Hydrologic Basin	Demand (Consumptive)	525	575	626	503	512	515	186	215	221	44	48	51	343	352	356	58	59	60	0	0	0	0	0	0	1,659	1,762	1,829	
Adjacent Areas																													
Agricultural	Irrigated Acreage [thousands]																			828	810	789	428	427	426	1,255	1,237	1,215	12
	Per-Acre Water Delivery (Diversion) [af/ac/yr]																			3.50	3.50	3.50	3.97	3.97	3.97	3.66	3.66	3.66	2
	Consumptive factor [%]																			38%	38%	38%	32%	32%	32%	36%	36%	36%	3
	Demand (Diversion)																			2,893	2,832	2,758	1,700	1,697	1,693	4,593	4,529	4,451	4, 20
	Demand (Consumptive)																			1,112	1,089	1,061	543	542	541	1,656	1,631	1,602	
Municipal and Industrial (M&I)	Population [thousands]																			3,945	5,244	6,581	1,079	1,451	1,846	5,024	6,695	8,427	13
	M&I Per Capita Use (Diversion) [gpcd]																			170	164	154	184	176	167	173	167	157	6
	Consumptive factor [%]																			35%	35%	35%	35%	35%	35%	35%	35%	35%	7
	M&I Demand (Diversion)																			751	963	1,135	222	286	345	973	1,249	1,481	8
	Self Served Industrial Demand (Diversion)																			59	59	59	49	49	49	108	108	108	14
	Demand (Diversion)																			810	1,022	1,194	271	335	395	1,081	1,358	1,589	
	Demand (Consumptive)																			322	396	456	127	150	170	449	546	627	
Energy	Demand (Diversion)																			36	47	59	10	15	18	46	62	78	15
Minerals	Demand (Diversion)																			0	0	0	0	0	0	0	0	0	16
Fish, Wildlife, and Recreation	Demand (Diversion)																			0	0	0	0	0	0	0	0	0	16
Tribal	Demand (Diversion)																			0	0	0	0	0	0	0	0	0	16
Total Adjacent Areas	Demand (Diversion)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,739	3,901	4,012	1,982	2,047	2,106	5,720	5,949	6,118	17
Total Demand in the Study Area		525	575	626	503	512	515	186	215	221	44	48	51	343	352	356	58	59	60	3,739	3,901	4,012	1,982	2,047	2,106	7,379	7,710	7,947	18
Demand that may be met by Other Supplies		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,204	3,268	3,315	1,784	1,813	1,848	4,988	5,082	5,163	
Potential Colorado River Demand		525	575	626	503	512	515	186	215	221	44	48	51	343	352	356	58	59	60	534	633	697	198	234	258	2,391	2,629	2,784	19, 21
Agricultural	Colorado River Demand	485	485	485	490	490	490	140	140	140	41	41	41	330	330	330	54	54	54	187	187	187	148	148	148	1,875	1,875	1,875	22
Municipal and Industrial	Colorado River Demand	29	43	58	9	13	16	11	16	19	1	1	2	6	9	12	3	4	5	347	446	510	49	86	110	455	617	732	
Energy	Colorado River Demand	2	30	65	0	0	0	25	40	42	1	4	6	2	4	5	0	0	0	0	0	0	0	0	0	30	78	118	
Minerals	Colorado River Demand	10	18	19	5	9	9	10	20	20	1	2	2	5	10	10	1	1	1	0	0	0	0	0	0	32	59	60	
Fish, Wildlife, and Recreation	Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tribal	Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Notes:

1) Based on Colorado Decision Support System estimates, also used in SWSI. Irrigated acreage in the Colorado River basin-estimated to remain constant (SWSI table 4-10).

2) Calculated from SWSI as headgate diversion to irrigation divided by acreage. See supporting table below.

3) System efficiency = supply-limited consumptive use divided by headgate diversions. See supporting table below.

4) Diversions in the South Platte and Arkansas include both surface water and alluvial ground water sources.

5) Population for 2015 interpolated between SWSI 2008 and SWSI 2035 estimates. Population for 2035 from SWSI. Population for 2060 extrapolated based SWSI increases between 2035 and 2050 medium estimates (SWSI table 4-1).

6) Per capita water withdrawal demands based on SWSI 2010 estimates, reduced by 10 percent in 2060 based on description in current trend analysis (table 4-3).

7) Consumptive use efficiency factor from CWCB CU&L Report.

8) Industrial based on SWSI table 4-8. Includes "Large Industry" and "Snowmaking" categories. Assumed to be 100 percent consumptive.

9) Energy demands based on SWSI table 4-8. Includes "Energy Development" and Thermoelectric" categories through 2050. An additional 60,000 acre-feet (af) is estimated to occur in the Colorado River basin based on the CWCB 2050 M&I Water User Projections July 2010 Report, Appendix F Medium projection. Assumed to be 100 percent consumptive.

10) Mineral uses were not included in SWSI. Uses are from the UCRS Schedule.

11) Tribal demands are included in the San Juan basin demands under the specific demand category. Their demands are estimated using the same parameters for Ag and M&I.

12) Per the Current Trend Storyline, agricultural use in the Arkansas and South Platte basins stay relatively constant. 2060 numbers reflect reduction based on table 4-11 low "decrease in acreage due to Urbanization". 2035 represents 1/2 of the low decrease in acreage due to urbanization value.

13) See 5) Population estimates for the entire Arkansas Basin; and the South Platte and Metro estimates combined from SWSI. Note that the entire South Platte and Arkansas basin cannot receive Colorado River basin water.

14) Industry demands based on SWSI Large Industry demands. Note that this is appropriate because there is no mining included in the South Platte and Arkansas estimates. 2008 estimates are used for 2011. There is no change shown between 2035 and 2050, therefore 2050 estimates are used for 2060. (SWSI table 4-4). Assumed 100 percent consumptive.

15) Energy demands for the Arkansas and the South Platte represent SWSI Thermoelectric Power demands. 2008 values were used for 2011, 2050 medium level was used to estimate 2060. (SWSI table 4-6)

16) Based on SWSI estimates – no mineral, fish and wildlife, or tribal use in the Arkansas and South Platte.

17) Note that Arkansas and South Platte estimates do not include losses due to Reservoir Evaporation, estimated to be as high a as 500,000 af.

18) Calculated from the sum of Hydrologic Basin (Consumptive) Demand and Adjacent Areas (Diversion) Demand.

19) Current trans-Basin diversions based on recent averages and SWSI estimates split between basins based on average annual diversion over the 2000 to 2010 period. Future exports consider reuse of trans-Basin water. Note that essentially 100 percent of current trans-Basin water is reused within the service area – not necessarily by the original user (i.e., return flows from municipal exports may be reused by agricultural users).

20) Agricultural transfers reduce the diversion demand only by the consumptive use portion—under Colorado Water Law, the return flows must be left in the river for the downstream diverters who have historically re-diverted them.

21) As new Colorado River water is brought to the front range for municipal use, it will move towards 100 percent consumptive by the importing entity (100 percent reuse).

22) Colorado River demand in adjacent areas is distributed amongst categories according to current estimated distribution of trans-Basin diversions.

Colorado River Basin
Water Supply and Demand Study

TABLE C2-3
Total Demand within Study Area under Slow Growth (B) Scenario

COLORADO
Units are thousand acre-feet per year, unless otherwise noted

LEGEND: 999 From Current Projected Data Sheet · 999 Computed · 999 Input Parameter

Planning Area		Colorado River			Gunnison			Yampa			White			San Juan			Dolores			South Platte			Arkansas			STATE TOTAL			Notes
Year		2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	
Hydrologic Basin																													
Agricultural	Irrigated Acreage [thousands]	270	270	270	269	269	269	93	93	93	27	27	27	220	220	220	40	40	40							918	918	918	1
	Per-Acre Water Delivery (Diversion) [af/ac/yr]	6.85	6.85	6.85	6.89	6.89	6.89	4.44	4.44	4.44	10.25	10.25	10.25	3.52	3.52	3.52	3.70	3.70	3.70							5.79	5.79	5.79	2
	Consumptive factor [%]	26%	26%	26%	26%	26%	26%	34%	34%	34%	15%	15%	15%	43%	43%	43%	37%	37%	37%							29%	29%	29%	
	Demand (Consumptive)	485	485	485	490	490	490	140	140	140	41	41	41	330	330	330	54	54	54							1,539	1,539	1,539	
Municipal and Industrial (M&I)	Population [thousands]	357	531	748	121	169	230	42	61	86	10	15	20	85	118	159	36	51	68							651	945	1,312	3
	M&I Per Capita Use (Diversion) [gpcd]	181	173	164	173	166	157	228	219	208	228	219	208	182	174	165	182	174	165							183	176	166	4
	Consumptive factor [%]	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%							35%	35%	35%	
	M&I Demand (Consumptive)	25	36	48	8	11	14	4	5	7	0.9	1	2	6	8	10	3	3	4							47	65	86	
	Self Served Industrial Demand (Consumptive)	3	5	5	0.3	0.7	0.7	7	10	10	0	0	0	0.4	0.4	0.4	0	0	0							11	16	16	5
	Demand (Consumptive)	29	41	53	9	12	15	11	15	17	0.9	1	2	6	8	11	3	3	4							58	81	102	
Energy	**Demand (Consumptive)**	2	3	5	0	0	0	25	40	42	1	4	6	2	4	5	0	0	0							30	51	58	6
Minerals	**Demand (Consumptive)**	10	18	19	5	9	9	10	20	20	1	2	2	5	10	10	1	1	1							32	59	60	7
Fish, Wildlife, and Recreation	**Demand (Consumptive)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	8
Tribal	**Demand (Consumptive)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	9
Total Hydrologic Basin	**Demand (Consumptive)**	525	547	561	503	511	514	186	215	219	44	48	50	343	352	355	58	59	60	0	0	0	0	0	0	1,659	1,731	1,758	
Adjacent Areas																													
Agricultural	Irrigated Acreage [thousands]																			828	810	789	428	427	426	1,255	1,237	1,215	10
	Per-Acre Water Delivery (Diversion) [af/ac/yr]																			3.50	3.50	3.50	3.97	3.97	3.97	3.66	3.66	3.66	11
	Consumptive factor [%]																			38%	38%	38%	32%	32%	32%	36%	36%	36%	
	Demand (Diversion)																			2,893	2,832	2,758	1,700	1,697	1,693	4,593	4,529	4,451	
	Demand (Consumptive)																			1,112	1,089	1,061	543	542	541	1,656	1,631	1,602	
Municipal and Industrial (M&I)	Population [thousands]																			3,945	5,020	6,364	1,079	1,366	1,724	5,024	6,386	8,088	12
	M&I Per Capita Use (Diversion) [gpcd]																			170	164	154	184	176	167	173	167	157	13
	Consumptive factor [%]																			35%	35%	35%	35%	35%	35%	35%	35%	35%	
	M&I Demand (Diversion)																			751	922	1,098	222	269	323	974	1,191	1,420	
	Self Served Industrial Demand (Diversion)																			59	59	59	49	49	49	108	108	108	14
	Demand (Diversion)																			810	981	1,157	272	319	372	1,082	1,300	1,529	
	Demand (Consumptive)																			284	343	405	95	112	130	379	455	535	
Energy	**Demand (Diversion)**																			36	47	59	10	15	18	46	62	78	15
Minerals	**Demand (Diversion)**																			0	0	0	0	0	0	0	0	0	16
Fish, Wildlife, and Recreation	**Demand (Diversion)**																			0	0	0	0	0	0	0	0	0	17
Tribal	**Demand (Diversion)**																			0	0	0	0	0	0	0	0	0	18
Total Adjacent Areas	Demand (Diversion)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,739	3,860	3,974	1,982	2,030	2,083	5,721	5,891	6,058	
Total Demand in the Study Area		525	547	561	503	511	514	186	215	219	44	48	50	343	352	355	58	59	60	3,739	3,860	3,974	1,982	2,030	2,083	7,380	7,621	7,816	
Demand that may be met by Other Supplies		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,204	3,268	3,315	1,784	1,813	1,848	4,988	5,082	5,163	19
Potential Colorado River Demand		525	547	561	503	511	514	186	215	219	44	48	50	343	352	355	58	59	60	534	592	660	198	217	235	2,391	2,540	2,653	20
Agricultural	Colorado River Demand	485	485	485	490	490	490	140	140	140	41	41	41	330	330	330	54	54	54	187	187	187	148	148	148	1,875	1,875	1,875	21
Municipal and Industrial	Colorado River Demand	29	41	53	9	12	15	11	15	17	0.9	1	2	6	8	11	3	3	4	347	405	473	50	69	87	455	555	661	
Energy	Colorado River Demand	2	3	5	0	0	0	25	40	42	1	4	6	2	4	5	0	0	0	0	0	0	0	0	0	30	51	58	
Minerals	Colorado River Demand	10	18	19	5	9	9	10	20	20	1	2	2	5	10	10	1	1	1	0	0	0	0	0	0	32	59	60	
Fish, Wildlife, and Recreation	Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tribal	Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Notes:

1) No changes from Current Projected.

2) No changes from Current Projected.

3) Used low population estimates from the SWSI table 4-1 for all basins. 2035 and 2060 interpolated from 2015 estimates and 2050 low estimates.

4) No changes from Current Projected.

5) No changes from Current Projected.

6) Energy demands based on SWSI table 4-8. Includes Energy Development" and Thermoelectric categories through 2050. Assumed to be 100 percent consumptive.

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) Used low population estimates from the SWSI table 4-1 for all basins. 2035 and 2060 interpolated from 2015 estimates and 2050 low estimates.

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) No changes from Current Projected.

19) Set to Current Trend estimates based on same trends to increase use of existing projects and non-tributary groundwater.

20) Total Adjacent Area demand less Demand that may be met by Other Supplies.

21) Agricultural Use is estimated to be same as Current Projected for Adjacent Areas. Remaining Adjacent Area use is estimated to be M&I.

Colorado River Basin
Water Supply and Demand Study

TABLE C2-4
Total Demand within Study Area under Rapid Growth (C1) Scenario

COLORADO
Units are thousand acre-feet per year, unless otherwise noted

LEGEND: 999 From Current Projected Data Sheet 999 Computed 999 Input Parameter

Planning Area		Colorado River			Gunnison			Yampa			White			San Juan			Dolores			South Platte			Arkansas			STATE TOTAL			Notes
Year		2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	2015	2035	2060	
Hydrologic Basin																													
Agricultural	Irrigated Acreage [thousands]	270	240	217	269	259	251	93	91	89	27	26	26	220	216	213	40	39	39							918	871	835	1
	Per-Acre Water Delivery (Diversion) [af/ac/yr]	6.85	6.85	6.85	6.89	6.89	6.89	4.44	4.44	4.44	10.25	10.25	10.25	3.52	3.52	3.52	3.70	3.70	3.70							5.79	5.75	5.71	2
	Consumptive factor [%]	26%	26%	26%	26%	26%	26%	34%	34%	34%	15%	15%	15%	43%	43%	43%	37%	37%	37%							29%	29%	29%	
	Demand (Consumptive)	485	430	389	490	471	457	140	137	134	41	40	39	330	324	320	54	53	53							1,539	1,455	1,392	
Municipal and Industrial (M&I)	Population [thousands]	357	628	968	121	189	274	42	88	146	10	21	36	85	136	200	36	58	86							651	1,121	1,709	3
	M&I Per Capita Use (Diversion) [gpcd]	181	173	164	173	166	157	228	219	208	228	219	208	182	174	165	182	174	165							183	176	168	4
	Consumptive factor [%]	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%							35%	35%	35%	
	M&I Demand (Consumptive)	25	43	62	8	12	17	4	8	12	0.9	2	3	6	9	13	3	4	6							47	78	112	
	Self Served Industrial Demand (Consumptive)	3	5	5	0.3	0.7	0.7	7	10	10	0	0	0	0.4	0.4	0.4	0	0	0							11	16	16	5
	Demand (Consumptive)	29	47	67	9	13	18	11	18	22	0.9	2	3	6	10	13	3	4	6							58	93	128	
Energy	**Demand (Consumptive)**	2	41	95	0	0	0	25	40	42	1	15	36	2	4	5	0	0	0							30	101	178	6
Minerals	**Demand (Consumptive)**	10	20	20	5	10	10	10	21	22	1	2	2	5	11	11	1	1	1							32	65	66	7
Fish, Wildlife, and Recreation	**Demand (Consumptive)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	8
Tribal	**Demand (Consumptive)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	9
Total Hydrologic Basin	**Demand (Consumptive)**	525	538	571	503	494	485	186	216	220	44	59	80	343	348	349	58	58	59	0	0	0	0	0	0	1,659	1,715	1,764	
		2	30	65																									
Adjacent Areas																													
Agricultural	Irrigated Acreage [thousands]																			828	677	564	428	386	355	1,255	1,063	919	10
	Per-Acre Water Delivery (Diversion) [af/ac/yr]																			3.50	3.50	3.50	3.97	3.97	3.97	3.66	3.67	3.68	11
	Consumptive factor [%]																			38%	38%	38%	32%	32%	32%	36%	36%	36%	
	Demand (Diversion)																			2,893	2,366	1,972	1,700	1,535	1,411	4,593	3,901	3,383	
	Demand (Consumptive)																			1,112	910	758	543	490	451	1,656	1,400	1,209	
Municipal and Industrial (M&I)	Population [thousands]																			3,945	5,461	7,357	1,079	1,515	2,059	5,024	6,976	9,416	12
	M&I Per Capita Use (Diversion) [gpcd]																			170	164	154	184	176	167	173	167	157	13
	Consumptive factor [%]																			35%	35%	35%	35%	35%	35%	35%	35%	35%	
	M&I Demand (Diversion)																			751	1,003	1,269	222	299	385	974	1,302	1,654	
	Self Served Industrial Demand (Diversion)																			59	59	59	49	49	49	108	108	108	14
	Demand (Diversion)																			810	1,062	1,328	272	348	434	1,082	1,410	1,763	
	Demand (Consumptive)																			284	372	465	95	122	152	379	494	617	
Energy	**Demand (Diversion)**																			36	47	59	10	15	18	46	62	78	15
Minerals	**Demand (Diversion)**																			0	0	0	0	0	0	0	0	0	16
Fish, Wildlife, and Recreation	**Demand (Diversion)**																			0	0	0	0	0	0	0	0	0	17
Tribal	**Demand (Diversion)**																			0	0	0	0	0	0	0	0	0	18
Total Adjacent Areas	Demand (Diversion)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,739	3,476	3,359	1,982	1,898	1,864	5,721	5,374	5,223	
Total Demand in the Study Area		525	538	571	503	494	485	186	216	220	44	59	80	343	348	349	58	58	59	3,739	3,476	3,359	1,982	1,898	1,864	7,380	7,088	6,987	
Demand that may be met by Other Supplies		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,204	2,848	2,403	1,784	1,705	1,605	4,988	4,553	4,009	19
Potential Colorado River Demand		525	538	571	503	494	485	186	216	220	44	59	80	343	348	349	58	58	59	534	628	956	198	193	258	2,391	2,535	2,979	20
Agricultural	Colorado River Demand	485	430	389	490	471	457	140	137	134	41	40	39	330	324	320	54	53	53	187	187	187	148	148	148	1,875	1,791	1,728	21
Municipal and Industrial	Colorado River Demand	29	47	67	9	13	18	11	18	22	0.9	2	3	6	10	13	3	4	6	347	441	769	50	45	110	455	579	1,007	
Energy	Colorado River Demand	2	41	95	0	0	0	25	40	42	1	15	36	2	4	5	0	0	0	0	0	0	0	0	0	30	101	178	
Minerals	Colorado River Demand	10	20	20	5	10	10	10	21	22	1	2	2	5	11	11	1	1	1	0	0	0	0	0	0	32	65	66	
Fish, Wildlife, and Recreation	Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tribal	Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Notes:

1) Used estimated 2050 High irrigated acreage from SWSI table 4-11 for 2060, linearly interpolated to estimate 2035.

2) No changes from Current Projected.

3) Used high population estimates from the SWSI table 4-1 for all basins. 2035 and 2060 interpolated from 2015 estimates and 2050 high estimates.

4) No changes from Current Projected.

5) No changes from Current Projected.

6) Energy demands based on SWSI table 4-8. Includes Energy Development and Thermoelectric categories through 2050. An additional 120,000 af is estimated to occur in the Colorado River Basin (30,000) and the White River Basin (30,000) based on the CWCB *2050 M&I Water User Projections* July 2010 report, appendix F, table 13, High Projection. Assumed to be 100 percent consumptive.

7) Mineral use not included in SWSI, assume 10 percent decrease from Current Projected in 2035 and in 2060.

8) No changes from Current Projected.

9) No changes from Current Projected.

10) Used estimated 2050 Low irrigated acreage from SWSI table 4-11 for 2060, linearly interpolated to estimate 2035.

11) No changes from Current Projected.

12) Used high population estimates from the SWSI table 4-1 for all basins. 2035 and 2060 interpolated from 2015 estimates and 2050 high estimates.

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) No changes from Current Projected.

19) Demand that may be met from Other Supplies decreases based on full development of current water rights, expanded reuse of both trans-Basin and in-Basin sources, and decreases yield from agricultural transfers estimated to decrease 25 percent from current levels by 2060 in the South Platte; and 10 percent from current levels in the Arkansas.

20) Total Adjacent Area demand less Demand that may be met by Other Supplies.

21) Agricultural Use is estimated to be same as Current Projected for Adjacent Areas. Remaining Adjacent Area use is estimated to be M&I.

Colorado River Basin
Water Supply and Demand Study

TABLE C2-5
Total Demand within Study Area under Rapid Growth (C2) Scenario

COLORADO
Units are thousand acre-feet per year, unless otherwise noted

LEGEND: 999 From Current Projected Data Sheet | 999 Computed | 999 Input Parameter

Planning Area		Colorado River 2015	2035	2060	Gunnison 2015	2035	2060	Yampa 2015	2035	2060	White 2015	2035	2060	San Juan 2015	2035	2060	Dolores 2015	2035	2060	South Platte 2015	2035	2060	Arkansas 2015	2035	2060	STATE TOTAL 2015	2035	2060	Notes
Hydrologic Basin																													
Agricultural	Irrigated Acreage [thousands]	270	240	217	269	259	251	93	91	89	27	26	26	220	216	213	40	39	39							918	871	835	1
	Per-Acre Water Delivery (Diversion) [af/ac/yr]	6.85	7.26	7.53	6.89	7.31	7.58	4.44	4.71	4.89	10.25	10.86	11.27	3.52	3.73	3.87	3.70	3.92	4.07							5.79	6.09	6.28	2
	Consumptive factor [%]	26%	26%	26%	26%	26%	26%	34%	34%	34%	15%	15%	15%	43%	43%	43%	37%	37%	37%							29%	29%	29%	
	Demand (Consumptive)	485	456	427	490	500	503	140	145	148	41	42	43	330	344	352	54	57	58							1,539	1,543	1,532	
Municipal and Industrial (M&I)	Population [thousands]	357	628	968	121	189	274	42	88	146	10	21	36	85	136	200	36	58	86							651	1,121	1,709	3
	M&I Per Capita Use (Diversion) [gpcd]	181	165	145	173	158	138	228	208	182	228	208	182	182	166	146	182	166	146							183	168	148	4
	Consumptive factor [%]	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%							35%	35%	35%	
	M&I Demand (Consumptive)	25	41	55	8	12	15	4	7	10	0.9	2	3	6	9	11	3	4	5							47	74	99	
	Self Served Industrial Demand (Consumptive)	3	2	2	0.3	0.2	0.2	7	5	5	0	0	0	0.4	0.3	0.3	0	0	0							11	7	7	5
	Demand (Consumptive)	29	43	57	9	12	15	11	12	15	0.9	2	3	6	9	12	3	4	5							58	81	106	
Energy	**Demand (Consumptive)**	2	3	5	0	0	0	25	40	42	1	4	6	2	4	5	0	0	0							30	51	58	6
Minerals	**Demand (Consumptive)**	10	16	17	5	8	8	10	18	18	1	2	2	5	9	9	1	0.9	0.9							32	53	54	7
Fish, Wildlife, and Recreation	**Demand (Consumptive)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	8
Tribal	**Demand (Consumptive)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	9
Total Hydrologic Basin	**Demand (Consumptive)**	525	518	506	503	520	526	186	215	223	44	50	53	343	365	377	58	61	64	0	0	0	0	0	0	1,659	1,728	1,750	
Adjacent Areas																													
Agricultural	Irrigated Acreage [thousands]																			828	677	564	428	386	355	1,255	1,063	919	10
	Per-Acre Water Delivery (Diversion) [af/ac/yr]																			3.50	3.71	3.85	3.97	4.21	4.37	3.66	3.89	4.05	11
	Consumptive factor [%]																			38%	38%	38%	32%	32%	32%	36%	36%	36%	
	Demand (Diversion)																			2,893	2,508	2,169	1,700	1,627	1,552	4,593	4,135	3,721	
	Demand (Consumptive)																			1,112	964	834	543	520	496	1,656	1,484	1,330	
Municipal and Industrial (M&I)	Population [thousands]																			3,945	5,461	7,357	1,079	1,515	2,059	5,024	6,976	9,416	12
	M&I Per Capita Use (Diversion) [gpcd]																			170	155	136	184	168	147	173	158	138	13
	Consumptive factor [%]																			35%	35%	35%	35%	35%	35%	35%	35%	35%	
	M&I Demand (Diversion)																			751	948	1,121	222	285	339	974	1,233	1,460	
	Self Served Industrial Demand (Diversion)																			59	38	38	49	32	32	108	70	70	14
	Demand (Diversion)																			810	987	1,159	272	317	371	1,082	1,304	1,530	
	Demand (Consumptive)																			284	345	406	95	111	130	379	456	536	
Energy	**Demand (Diversion)**																			36	47	59	10	15	18	46	62	78	15
Minerals	**Demand (Diversion)**																			0	0	0	0	0	0	0	0	0	16
Fish, Wildlife, and Recreation	**Demand (Diversion)**																			0	0	0	0	0	0	0	0	0	17
Tribal	**Demand (Diversion)**																			0	0	0	0	0	0	0	0	0	18
Total Adjacent Areas	Demand (Diversion)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,739	3,542	3,387	1,982	1,959	1,941	5,721	5,501	5,329	
Total Demand in the Study Area		525	518	506	503	520	526	186	215	223	44	50	53	343	365	377	58	61	64	3,739	3,542	3,387	1,982	1,959	1,941	7,380	7,229	7,079	
Demand that may be met by Other Supplies		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,204	2,920	2,563	1,784	1,705	1,605	4,988	4,624	4,169	19
Potential Colorado River Demand		525	518	506	503	520	526	186	215	223	44	50	53	343	365	377	58	61	64	534	623	824	198	254	336	2,391	2,605	2,910	20
Agricultural	Colorado River Demand	485	456	427	490	500	503	140	145	148	41	42	43	330	344	352	54	57	58	187	187	187	148	148	148	1,875	1,878	1,867	21
Municipal and Industrial	Colorado River Demand	29	43	57	9	12	15	11	12	15	0.9	2	3	6	9	12	3	4	5	347	436	637	50	106	188	455	623	931	
Energy	Colorado River Demand	2	3	5	0	0	0	25	40	42	1	4	6	2	4	5	0	0	0	0	0	0	0	0	0	30	51	58	
Minerals	Colorado River Demand	10	16	17	5	8	8	10	18	18	1	2	2	5	9	9	1	0.9	0.9	0	0	0	0	0	0	32	53	54	
Fish, Wildlife, and Recreation	Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tribal	Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Notes:

1) Used estimated 2050 High irrigated acreage from SWSI table 4-11 for 2060, linearly interpolated to estimate 2035.

2) No estimates for increased in agricultural efficiency in SWSI – used 10 percent increase by 2060.

3) Used high population estimates from the SWSI table 4-1 for all basins. 2035 and 2060 interpolated from 2015 estimates and 2050 high estimates.

4) Per capita use decreases 25 percent by 2060 based on SWSI table 7-4 passive plus medium active conservation.

5) Assume 35 percent decrease from Current Projected based on technological efficiencies.

6) Energy demands based on SWSI table 4-8. Includes "Energy Development" and Thermoelectric" categories through 2050. Assumed to be 100 percent consumptive.

7) Mineral use not included in SWSI, assume 10 percent decrease from Current Projected in 2035 and in 2060.

8) No changes from Current Projected.

9) No changes from Current Projected.

10) Used estimated 2050 Low irrigated acreage from SWSI table 4-11 for 2060, linearly interpolated to estimate 2035.

11) No estimates for increased in agricultural efficiency in SWSI – used 10 percent increase by 2060.

12) Used high population estimates from the SWSI table 4-1 for all basins. 2035 and 2060 interpolated from 2015 estimates and 2050 high estimates.

13) Per capita use decreases 25 percent by 2060 based on SWSI table 7-4 passive plus medium active conservation.

14) Assume 35 percent decrease from Current Projected based on technological efficiencies.

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) Demand that may be met from Other Supplies decreases based on full development of current water rights, expanded reuse of both trans-Basin and in-Basin sources, and decreases yield from agricultural transfers estimated to decrease 20 percent from current levels by 2060 in the South Platte; and 10 percent from current levels in the Arkansas.

20) Total Adjacent Area demand less Demand that may be met by Other Supplies.

21) Agricultural Use is estimated to be same as Current Projected for Adjacent Areas. Remaining Adjacent Area use is estimated to be M&I.

TABLE C2-6
Total Demand within Study Area under Enhanced Environment (D1) Scenario

COLORADO

LEGEND: 999 From Current Projected Data Sheet | 999 Computed | 999 Input Parameter

Units are thousand acre-feet per year, unless otherwise noted

Planning Area	Colorado River 2015	2035	2060	Gunnison 2015	2035	2060	Yampa 2015	2035	2060	White 2015	2035	2060	San Juan 2015	2035	2060	Dolores 2015	2035	2060	South Platte 2015	2035	2060	Arkansas 2015	2035	2060	STATE TOTAL 2015	2035	2060	Notes
Hydrologic Basin																												
Agricultural — Irrigated Acreage [thousands]	270	224	212	269	246	243	93	92	91	27	27	26	220	216	215	40	39	39							918	843	826	1
Per-Acre Water Delivery (Diversion) [af/ac/yr]	6.85	6.85	6.85	6.89	6.89	6.89	4.44	4.44	4.44	10.25	10.25	10.25	3.52	3.52	3.52	3.70	3.70	3.70							5.79	5.71	5.69	2
Consumptive factor [%]	26%	26%	26%	26%	26%	26%	34%	34%	34%	15%	15%	15%	43%	43%	43%	37%	37%	37%							29%	29%	29%	
Demand (Consumptive)	485	401	381	490	449	443	140	138	138	41	40	40	330	323	322	54	53	53							1,539	1,405	1,376	
Municipal and Industrial (M&I) — Population [thousands]	357	558	836	121	184	244	42	65	113	10	16	28	85	130	175	36	56	75							651	1,008	1,471	3
M&I Per Capita Use (Diversion) [gpcd]	181	163	140	173	156	134	228	205	177	228	205	177	182	164	141	182	164	141							183	165	143	4
Consumptive factor [%]	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%							35%	35%	35%	
M&I Demand (Consumptive)	25	36	46	8	11	13	4	5	8	0.9	1	2	6	8	10	3	4	4							47	65	82	
Self Served Industrial Demand (Consumptive)	3	2	2	0.3	0.2	0.2	7	5	5	0	0	0	0.4	0.3	0.3	0	0	0							11	7	7	5
Demand (Consumptive)	29	38	48	9	11	13	11	10	12	0.9	1	2	6	9	10	3	4	4							58	73	90	
Energy — Demand (Consumptive)	2	3	5	0	0	0	25	40	42	1	4	6	2	4	5	0	0	0							30	51	58	6
Minerals — Demand (Consumptive)	10	16	17	5	8	8	10	18	18	1	2	2	5	9	9	1	0.9	0.9							32	53	54	7
Fish, Wildlife, and Recreation — Demand (Consumptive)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	8
Tribal — Demand (Consumptive)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	9
Total Hydrologic Basin — Demand (Consumptive)	525	458	450	503	469	464	186	206	210	44	47	50	343	345	346	58	58	58	0	0	0	0	0	0	1,659	1,582	1,577	
Adjacent Areas																												
Agricultural — Irrigated Acreage [thousands]																			828	781	773	428	426	425	1,255	1,207	1,198	10
Per-Acre Water Delivery (Diversion) [af/ac/yr]																			3.50	3.50	3.50	3.97	3.97	3.97	3.66	3.66	3.67	11
Consumptive factor [%]																			38%	38%	38%	32%	32%	32%	36%	36%	36%	
Demand (Diversion)																			2,893	2,730	2,702	1,700	1,691	1,689	4,593	4,421	4,391	
Demand (Consumptive)																			1,112	1,050	1,039	543	541	540	1,656	1,590	1,579	
Municipal and Industrial (M&I) — Population [thousands]																			3,945	5,244	6,581	1,079	1,451	1,846	5,024	6,695	8,427	12
M&I Per Capita Use (Diversion) [gpcd]																			170	153	132	184	166	143	173	156	134	13
Consumptive factor [%]																			35%	35%	35%	35%	35%	35%	35%	35%	35%	
M&I Demand (Diversion)																			751	899	973	222	270	296	974	1,169	1,269	
Self Served Industrial Demand (Diversion)																			59	38	38	49	32	32	108	70	70	14
Demand (Diversion)																			810	937	1,011	272	302	328	1,082	1,239	1,339	
Demand (Consumptive)																			284	328	354	95	106	115	379	434	469	
Energy — Demand (Diversion)																			36	45	53	10	14	17	46	59	70	15
Minerals — Demand (Diversion)																			0	0	0	0	0	0	0	0	0	16
Fish, Wildlife, and Recreation — Demand (Diversion)																			0	0	0	0	0	0	0	0	0	17
Tribal — Demand (Diversion)																			0	0	0	0	0	0	0	0	0	18
Total Adjacent Areas — Demand (Diversion)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,739	3,712	3,767	1,982	2,007	2,033	5,721	5,719	5,801	
Total Demand in the Study Area	525	458	450	503	469	464	186	206	210	44	47	50	343	345	346	58	58	58	3,739	3,712	3,767	1,982	2,007	2,033	7,380	7,301	7,378	
Demand that may be met by Other Supplies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,204	3,084	3,081	1,784	1,772	1,764	4,988	4,855	4,844	19
Potential Colorado River Demand	525	458	450	503	469	464	186	206	210	44	47	50	343	345	346	58	58	58	534	628	686	198	236	270	2,391	2,446	2,534	20
Agricultural — Colorado River Demand	485	401	381	490	449	443	140	138	138	41	40	40	330	323	322	54	53	53	187	187	187	148	148	148	1,875	1,740	1,711	21
Municipal and Industrial — Colorado River Demand	29	38	48	9	11	13	11	10	12	0.9	1	2	6	9	10	3	4	4	347	441	499	50	87	122	455	601	711	
Energy — Colorado River Demand	2	3	5	0	0	0	25	40	42	1	4	6	2	4	5	0	0	0	0	0	0	0	0	0	30	51	58	
Minerals — Colorado River Demand	10	16	17	5	8	8	10	18	18	1	2	2	5	9	9	1	0.9	0.9	0	0	0	0	0	0	32	53	54	
Fish, Wildlife, and Recreation — Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tribal — Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Notes

1) Calculated medium decrease in acreage due to urbanization using low and high acreage decreased from SWSI table 4-11 and low, high, and medium population projections from SWSI table 4-1.

2) No changes from Current Projected.

3) No changes from Current Projected.

4) Per capita use decreases 0.5 percent per year per conservation organization recommendation.

5) Assume 35 percent decrease from Current Projected based on technological efficiencies.

6) Energy demands based on SWSI table 4-8. Includes "Energy Development" and Thermoelectric" categories through 2050. Assumed to be 100 percent consumptive.

7) Mineral use not included in SWSI, assume 10 percent decrease from Current Projected in 2035 and in 2060.

8) No changes from Current Projected.

9) No changes from Current Projected.

10) Calculated medium decrease in acreage due to urbanization using low and high acreage decreased from SWSI table 4-11 and low, high, and medium population projections from SWSI table 4-1.

11) No changes from Current Projected.

12) Used medium population estimates from the SWSI table 4-1 for all basins.

13) Per capita use decreases 0.5 percent per year per conservation organization recommendation.

14) Assume 35 percent decrease from Current Projected based on technological efficiencies.

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) Demand that may be met from Other Supplies decreases based on expanded reuse of both trans-Basin and in-Basin sources, estimated to decrease 3 percent from current levels by 2060 in the South Platte; and 1 percent from current levels in the Arkansas.

20) Total Adjacent Area demand less Demand that may be met by Other Supplies.

21) Agricultural Use is estimated to be same as Current Projected for Adjacent Areas. Remaining Adjacent Area use is estimated to be M&I.

Colorado River Basin
Water Supply and Demand Study

TABLE C2-7
Total Demand within Study Area under Enhanced Environment (D2) Scenario

COLORADO
Units are thousand acre-feet per year, unless otherwise noted

LEGEND: 999 From Current Projected Data Sheet · 999 Computed · 999 Input Parameter

Planning Area	Colorado River 2015	2035	2060	Gunnison 2015	2035	2060	Yampa 2015	2035	2060	White 2015	2035	2060	San Juan 2015	2035	2060	Dolores 2015	2035	2060	South Platte 2015	2035	2060	Arkansas 2015	2035	2060	STATE TOTAL 2015	2035	2060	Notes
Hydrologic Basin																												
Agricultural — Irrigated Acreage [thousands]	270	270	270	269	269	269	93	93	93	27	27	27	220	220	220	40	40	40							918	918	918	1
Per-Acre Water Delivery (Diversion) [af/ac/yr]	6.85	7.26	7.53	6.89	7.31	7.58	4.44	4.71	4.89	10.25	10.86	11.27	3.52	3.73	3.87	3.70	3.92	4.07							5.79	6.13	6.36	2
Consumptive factor [%]	26%	26%	26%	26%	26%	26%	34%	34%	34%	15%	15%	15%	43%	43%	43%	37%	37%	37%							29%	29%	29%	
Demand (Consumptive)	485	514	533	490	519	539	140	148	154	41	43	45	330	349	362	54	57	60							1,539	1,632	1,693	
Municipal and Industrial (M&I) — Population [thousands]	357	628	968	121	189	274	42	88	146	10	21	36	85	136	200	36	58	86							651	1,121	1,709	3
M&I Per Capita Use (Diversion) [gpcd]	181	165	145	173	158	138	228	208	182	228	208	182	182	166	146	182	166	146							183	168	148	4
Consumptive factor [%]	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%							35%	35%	35%	
M&I Demand (Consumptive)	25	41	55	8	12	15	4	7	10	0.9	2	3	6	9	11	3	4	5							47	74	99	
Self Served Industrial Demand (Consumptive)	3	2	2	0.3	0.2	0.2	7	5	5	0	0	0	0.4	0.3	0.3	0	0	0							11	7	7	5
Demand (Consumptive)	29	43	57	9	12	15	11	12	15	0.9	2	3	6	9	12	3	4	5							58	81	106	
Energy — Demand (Consumptive)	2	3	5	0	0	0	25	40	42	1	4	6	2	4	5	0	0	0							30	51	58	6
Minerals — Demand (Consumptive)	10	16	17	5	8	8	10	18	18	1.0	2	2	5	9	9	1	0.9	0.9							32	53	54	7
Fish, Wildlife, and Recreation — Demand (Consumptive)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	8
Tribal — Demand (Consumptive)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							0	0	0	9
Total Hydrologic Basin — Demand (Consumptive)	525	576	612	503	539	562	186	218	229	44	51	55	343	371	388	58	62	65	0	0	0	0	0	0	1,659	1,817	1,911	
Adjacent Areas																												
Agricultural — Irrigated Acreage [thousands]																			828	810	789	428	427	426	1,255	1,237	1,215	10
Per-Acre Water Delivery (Diversion) [af/ac/yr]																			3.50	3.57	3.67	3.97	4.06	4.17	3.66	3.74	3.85	11
Consumptive factor [%]																			38%	38%	38%	32%	32%	32%	36%	36%	36%	
Demand (Diversion)																			2,893	2,894	2,896	1,700	1,734	1,778	4,593	4,628	4,674	
Demand (Consumptive)																			1,112	1,113	1,114	543	554	568	1,656	1,667	1,682	
Municipal and Industrial (M&I) — Population [thousands]																			3,945	5,461	7,357	1,079	1,515	2,059	5,024	6,976	9,416	12
M&I Per Capita Use (Diversion) [gpcd]																			170	155	136	184	168	147	173	158	138	13
Consumptive factor [%]																			35%	35%	35%	35%	35%	35%	35%	35%	35%	
M&I Demand (Diversion)																			751	948	1,121	222	285	339	974	1,233	1,460	
Self Served Industrial Demand (Diversion)																			59	38	38	49	32	32	108	70	70	14
Demand (Diversion)																			810	987	1,159	272	317	371	1,082	1,304	1,530	
Demand (Consumptive)																			284	345	406	95	111	130	379	456	536	
Energy — Demand (Diversion)																			36	47	59	10	15	18	46	62	78	15
Minerals — Demand (Diversion)																			0	0	0	0	0	0	0	0	0	16
Fish, Wildlife, and Recreation — Demand (Diversion)																			0	0	0	0	0	0	0	0	0	17
Tribal — Demand (Diversion)																			0	0	0	0	0	0	0	0	0	18
Total Adjacent Areas — Demand (Diversion)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,739	3,928	4,115	1,982	2,066	2,167	5,721	5,994	6,282	
Total Demand in the Study Area	525	576	612	503	539	562	186	218	229	44	51	55	343	371	388	58	62	65	3,739	3,928	4,115	1,982	2,066	2,167	7,380	7,811	8,193	
Demand that may be met by Other Supplies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,204	3,268	3,315	1,784	1,813	1,848	4,988	5,082	5,163	19
Potential Colorado River Demand	525	576	612	503	539	562	186	218	229	44	51	55	343	371	388	58	62	65	534	659	800	198	253	319	2,391	2,730	3,030	20
Agricultural — Colorado River Demand	485	514	533	490	519	539	140	148	154	41	43	45	330	349	362	54	57	60	187	187	187	148	148	148	1,875	1,967	2,029	21
Municipal and Industrial — Colorado River Demand	29	43	57	9	12	15	11	12	15	0.9	2	3	6	9	12	3	4	5	347	472	613	50	105	171	455	658	890	
Energy — Colorado River Demand	2	3	5	0	0	0	25	40	42	1	4	6	2	4	5	0	0	0	0	0	0	0	0	0	30	51	58	
Minerals — Colorado River Demand	10	16	17	5	8	8	10	18	18	1	2	2	5	9	9	1	0.9	0.9	0	0	0	0	0	0	32	53	54	
Fish, Wildlife, and Recreation — Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tribal — Colorado River Demand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Notes

1) No changes from Current Projected.

2) No reference. Assume 10 percent increase from Current Projected by 2060.

3) Used high population estimates from the SWSI table 4-1 for all basins. 2035 and 2060 interpolated from 2015 estimates and 2050 high estimates.

4) Per capita use decreases 25 percent by 2060 based on SWSI table 7-4 passive plus medium active conservation.

5) Assume 35 percent decrease from Current Projected based on technological efficiencies.

6) Energy demands based on SWSI table 4-8. Includes "Energy Development" and Thermoelectric" categories through 2050. Assumed to be 100 percent consumptive.

7) Mineral use not included in SWSI, assume 10 percent decrease from Current Projected in 2035 and in 2060.

8) No changes from Current Projected.

9) No changes from Current Projected.

10) No changes from Current Projected.

11) No reference. Assume 5 percent increase from Current Projected by 2060.

12) Used high population estimates from the SWSI table 4-1 for all basins. 2035 and 2060 interpolated from 2015 estimates and 2050 high estimates.

13) Per capita use decreases 25percent by 2060 based on SWSI table 7-4 passive plus medium active conservation.

14) Assume 35 percent decrease from Current Projected based on technological efficiencies.

15) No changes from Current Projected.

16) No reference. Assume 10 percent decrease from Current Projected in 2035 and in 2060.

17) No changes from Current Projected.

18) No changes from Current Projected.

19) No changes from Current Projected.

20) Total Adjacent Area demand less Demand that may be met by Other Supplies.

21) Agricultural Use is estimated to be same as Current Projected for Adjacent Areas. Remaining Adjacent Area use is estimated to be M&I.