5.3 Ute Mountain Ute Tribe

5.3.1 Introduction

The Ute Mountain Ute Tribe's (UMUT or Tribe) Reservation (Reservation) of approximately 900 square miles (600,000 acres) lies in southwest Colorado, southeast Utah and northwest New Mexico. Towaoc, Colorado is the main tribal population center and the location of the tribal headquarters. The Tribe's Reservation in Utah consists of several trust land parcels, known as White Mesa, totaling approximately 20 square miles (15,000 acres). Additional tribal and individual tribal member-owned trust allotment lands are located along Allen Canyon, Utah. The Tribe also owns lands outside the Colorado and New Mexico Reservation and Utah Reservation, referred to as Tribal Ranches or Tribal fee lands, in both Colorado and Utah.

The Tribe's current enrollment is approximately 2,100 members. The current population on the Colorado portion of the Reservation is approximately 1,700 residents, most of whom are enrolled members of the Tribe (U.S. Census Bureau, 2011). Approximately 350 tribal members reside on the Utah Reservation in the community of White Mesa.

Figure 5.3-A presents a general location map with Reservation boundaries, communities, and other important features.

5.3.2 Physical Setting

The portion of the Reservation in Colorado and New Mexico is located on the Colorado Plateau and is characterized by open arid lands with increasingly deep canyons and mesas to the east and south. The elevation of this portion of the Reservation ranges from 5,000 feet near the San Juan River in the Four Corners region to almost 10,000 feet at the top of Sleeping Ute Mountain, located in the northwest portion of the Reservation.

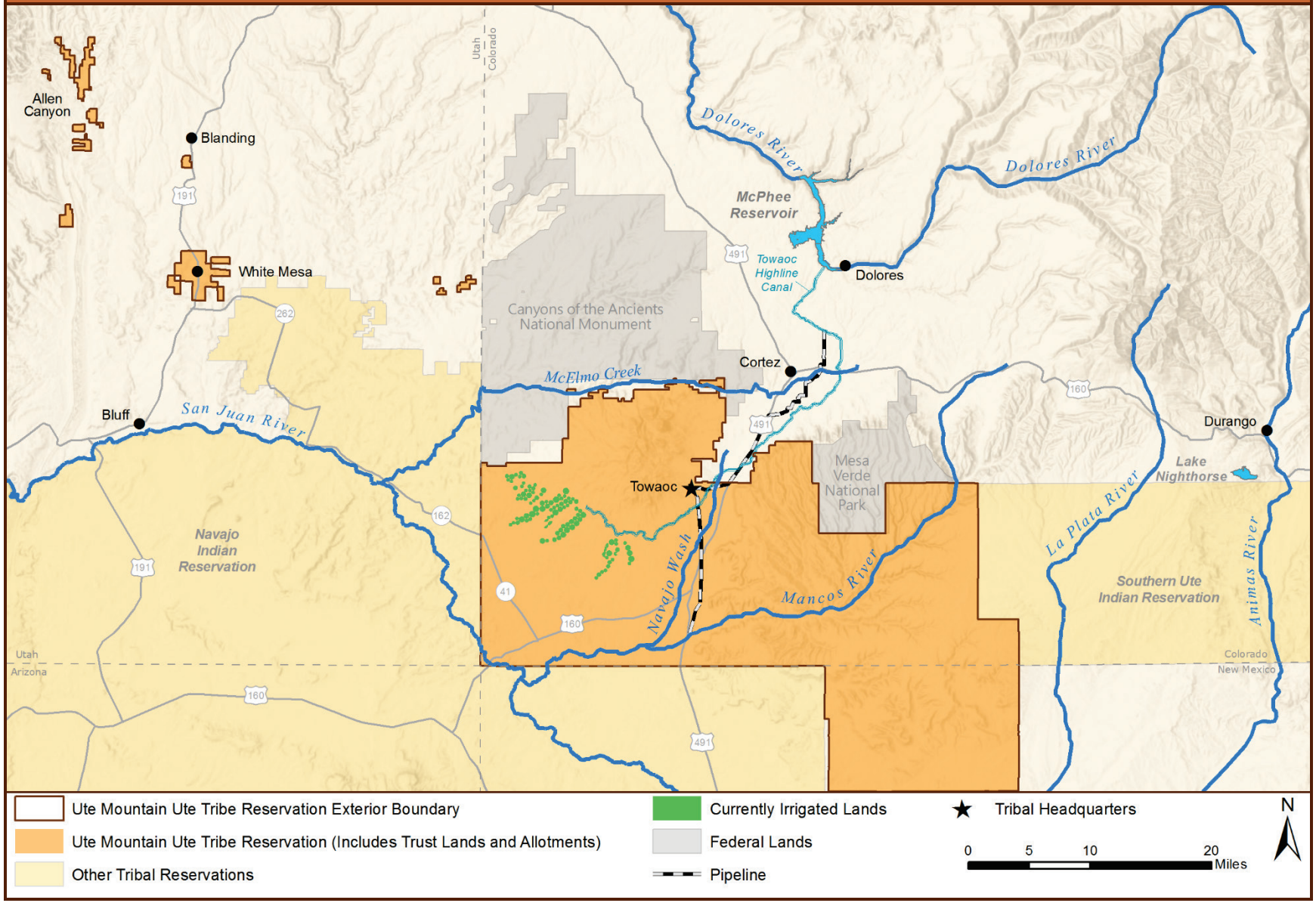
Sleeping Ute Mountain and Chimney Rock
Source: Ute Mountain Ute Tribe

The Utah portion of the Reservation lies at an elevation of approximately 5,300 feet and consists of arid flat lands interspersed with arroyos and canyons that are tributaries to the San Juan River.

5.3.2.1 Watersheds

The Colorado portion of the Reservation is located in the Upper San Juan Basin and includes portions of the Mancos River, La Plata River, McElmo Creek, and Navajo Wash sub-basins. The UMUT stores water in the Animas La Plata (A-LP) Project, which is supplied from the Animas River, also part of the Upper San Juan Basin. The Tribe's Dolores Project allocation provides water to the Tribe from the Dolores River Basin, part of the Upper Colorado River watershed.

FIGURE 5.3-A
Ute Mountain Ute Tribe Reservation Map



See the Disclaimer and Introduction to Chapter 5.0.

5.3.2.2 Hydrogeology

San Juan River near the Four Corners
Source: Ute Mountain Ute Tribe

The Dakota Aquifer associated with the Dakota Sandstone Formation is the primary regional aquifer for the Reservation. The Dakota Sandstone, exposed on the surface along the western boundary of the Reservation and in the area surrounding the Ute Mountain intrusion, is approximately 100-200 feet thick. Both of the adjacent units, the Morrison Formation and the Mancos Shale, are relatively non-permeable layers that provide an upper and lower seal for the Dakota Aquifer and create confined aquifer conditions when present. The Dakota Aquifer is recharged by precipitation occurring at the outcrop on Sleeping Ute Mountain, which receives approximately 20-25 inches of precipitation annually. From this mountainous recharge area of approximately 7,000 feet in elevation, the groundwater flows slowly through the confined Dakota Aquifer, generally south-southwest, to the San Juan River where small seeps drain any residual water from the formation.

5.3.2.3 Climate

In Colorado, the Reservation's annual precipitation ranges from 25 inches per year at the highest elevation (top of Sleeping Ute Mountain) to approximately 8 inches per year at the lowest point on the Reservation near the Four Corners. Similarly, evaporation is lowest at less than 55 inches per year at Sleeping Ute Mountain and highest at a rate of over 60 inches per year near the Four Corners.

In Utah, based on the town of Blanding's climate station data, the Reservation receives approximately 13 inches of precipitation per year and temperatures average between 37 $^{\circ}$F and 64 $^{\circ}$F on an annual basis.

5.3.3 Historical Use and Cultural Importance of Water

The UMUT, comprised of the Weenuche band of Utes, historically occupied the La Plata and San Miguel mountain regions along the various northern tributaries of the San Juan River. The Weenuche were a hunter-gatherer society that moved with the seasons. In the spring and summer months, the Weenuche would follow wild game and seek additional water sources in the mountains. In the fall, they would travel from the higher mountain elevations to the warmer regions of southwest Colorado, northwestern New Mexico, and southeastern Utah for the duration of winter.

Through various treaties with the federal government in the late nineteenth century, the Tribe yielded much of its ancestral Colorado homeland. Federal Indian policy at the time sought to assimilate Indian tribes into yeoman farmers by breaking their communal landholdings into individual assigned allotment tracts, typically consisting of 160-acre parcels. The Tribe initially rejected the allotment policy and the accompanying agricultural lifestyle. Instead the Tribe opted to settle on arid communal lands in the far southwestern corner of Colorado, where water was scarce and the lands not as conducive to farming.

West of the Colorado portion of the Reservation, a separate group of the Tribe settled in Montezuma Creek, Allen Canyon, and other drainages of the Abajo Mountains in southeastern Utah. These smaller bands intermarried with Paiute Indians and some eventually took up farming on individual and tribal allotments. Like their Colorado counterpart, without adequate irrigation, these Utah lands were not well-suited for cultivation. Today, most of those tribal members have settled in the community of White Mesa, Utah.

With the challenges posed by scarce water resources and non-fertile lands, many of the tribal members in each state largely took up ranching and stock raising of sheep, cattle and horses. Seasonal movements of the Tribe were then dictated by the need to find suitable grazing land in the high mesas and water, usually in canyons and nearby springs, washes or wells. The UMUT and individual tribal members still continue to raise livestock, including bison, within the rugged terrain of their Reservation and their off-Reservation Ranches.

Water also plays a central role in the cultural practices of the Tribe and its relationship to the natural world. Water brings life, sustenance, and is a tool of blessing and prayer for the Tribe. Each year in the spring the Tribe hosts the Bear Dance in Towaoc, and in the White Mesa community during the summer. The Bear Dance is a social gathering and a personal endurance milestone of individuals of the Tribe, including their friends and relatives from the Southern Ute Indian Tribe and the Ute Indian Tribe. Over the course of several days, a significant amount of water is used to wet the grounds for the ceremonial dance and to refresh the people in attendance.

Water also has an important role in the Tribe's Sun Dance ceremony and Sweat Lodge Ceremony. Participants of the Sun Dance fast for several days. At the conclusion of the ceremony, water from mountain springs is used to rejuvenate and purify the participants. Similarly, the Sweat Ceremony is centered around water as the primary natural element that provides renewal, restoring balance and spiritual sustenance to the participants. Because water is held in reverence and is critical to these traditional ceremonies, water quality is also highly important to the cultural practices of the Tribe. Therefore, it is necessary for the water to be of pristine quality in order for healing and sustenance to occur and to provide the participants with the necessary mindset in practicing their traditions.

5.3.4 Ute Mountain Ute Tribe Water Supply

The UMUT has litigated and settled its surface water and tributary groundwater rights for Reservation lands located in the State of Colorado. See Colorado Ute Indian Water Rights Settlement Agreement (Dec. 10, 1986) (Colorado Settlement Agreement); Colorado Ute Indian Water Settlement Act, Pub. L. No. 100-585, 102 Stat. 2973 (Nov. 3, 1988), subsequently amended, Colorado Ute Settlement Act Amendments of 2000, Pub. L. No. 106-554, 114 Stat 2763 (Dec. 21, 2000) (2000 Amendments) (with minor amendments in P.L. 110-161 [Dec. 26, 2007]).

The Tribe's settlement-based water rights in Colorado are decreed by river basin or watershed, and include direct diversion surface water rights, Reservation-based storage rights, tributary groundwater rights, and allocations in two federal reservoir projects. The Colorado Settlement Agreement, as implemented by the federal legislation and by Colorado State Court consent decrees, contains important provisions that address, among other things, the nature of the Tribe's reserved water rights, administration of the Tribe's water rights, and changes of water rights.

The Tribe is currently litigating its federal Indian reserved water rights associated with the portion of their Reservation located in the State of New Mexico. The Tribe has not yet litigated or settled its federal reserved water rights for the portion of the Reservation in the State of Utah. The following description of the Tribe's quantified settlement water rights is limited to its Colorado settlement-based water rights and does not include unresolved claims in Utah and New Mexico.

5.3.4.1 Federal Project Water Allocations

The UMUT's settlement-based water rights include allocations from both the Dolores Project and from the A-LP Project (Table 5.3-A).

Dolores Project

The Dolores Project, which reached final completion in September 1998, is located in the Dolores and San Juan River Basins in southwestern Colorado and uses the Dolores River to provide water for multiple uses in southwest Colorado. The water is stored in McPhee Reservoir on the Dolores River and is delivered trans-basin to lands in the San Juan Basin. The Tribe's allocation in the Dolores Project totals 25,100 acre-feet per year (AFY) and includes 23,300 AFY of agricultural irrigation water, 1,000 AFY of municipal and industrial water, and 800 AFY of fish and wildlife development water.

McPhee Reservoir
Source: Ute Mountain Ute Tribe

The UMUT's demand for irrigation water for its Farm and Ranch Enterprise (FRE) can exceed its settlement-based water supply (depending on the given crop plan each year). The Tribe currently leases additional available water from other Dolores Project users, including the Dolores Water Conservancy District (DWCD) and the Montezuma Valley Irrigation Company (MVIC). Total lease amounts range between 4,000 to 6,000 AFY in non-shortage years when the Tribe receives its full Dolores Project supply, and are significantly higher in years when the Tribe shares shortages in the Dolores Project. These leases are short-term and are not available in all years. The Tribe is working to find a more reliable, long-term additional supply from the Dolores Project to allow the Tribe flexibility in determining future annual crop plans for the FRE.

Water shortage allocations for the Dolores Project are governed by the Colorado Settlement Agreement as well as associated agreements and laws. Generally, the Dolores Project prioritizes meeting municipal and industrial uses first, then shortages are shared among irrigation users and the fish and wildlife pool. The Dolores Project fish and wildlife pool (a designated amount of water available in storage for release downstream) has been modified since the original approval of the Dolores Project and is managed by the Biology Committee in coordination with Reclamation under the Operating Agreement that was enacted in 2000. The reserved water rights for the Dolores Project are subject to curtailment by non-project senior water rights and subject to agreements between MVIC and the DWCD.

Animas River
Source: Ute Mountain Ute Tribe

Animas-La Plata Project

The A-LP Project, located in La Plata and Montezuma Counties in southwestern Colorado and San Juan County in northwestern New Mexico, was authorized by the Colorado River Basin Project Act of September 30, 1968 (Public Law 84-485). The 2000 Amendments provide for implementation and completion of the project. Construction approval was granted in October 2001 and initial site work began in April 2002.

Filled in 2011, the A-LP Project reservoir, named Lake Nighthorse, is an off-channel reservoir that stores water diverted from the Animas River. The UMUT's allocation in the A-LP Project is 16,525 AFY of average depletions of municipal and industrial water. At this time the Tribe cannot deliver its water supply from the A-LP Project to the Reservation, as a significant water delivery infrastructure must be constructed to access its allocation. While the A-LP Project has a total allocation of average annual depletion of 57,100 AFY, policies concerning shortage sharing are in the process of being developed.

TABLE 5.3-A
Federal Project Water Allocations in the Colorado Consent Decrees

Project	Colorado Case Number	Priority Date	Volume (AFY)	Notes
Dolores Project	W-1603-76H	This water shall have an 1868 priority date, shall for all time be subordinated to all water rights decreed and senior to the Dolores Project, and shall share for all time on a pro rata basis the priority of the Dolores Project, which has an adjudication date of March 22, 1963, and an appropriation date of September 10, 1940.	25,100 of diversions	Diversion of 23,300 AF for Irrigation, 1,000 AFY for Municipal, 800 AFY for fish/wildlife.
Animas-La Plata Project	W-1603-76F	This water shall have an March 2, 1868 priority date, shall be subordinated to all water rights decreed and senior to the A-LP Project, and shall share on a pro rata basis the priority of the A-LP Project, which has an adjudication date of March 21, 1966 and an appropriation date of September 2, 1938.	16,525 of depletions[1]	Value shown is average annual depletions which can be used for M&I uses only. Diversion amount basis may vary.

[1] For the purposes of the Tribal Water Study, the Ute Mountain Ute Tribe's Animas La-Plata depletion right of 16,525 AFY was converted into a diversion right by applying a 37 percent efficiency for a total of 44,662 AFY.

5.3.4.2 Surface Water, Storage, and Groundwater Rights

The UMUT's on-Reservation direct diversion surface water rights and storage rights include rights to the Mancos River, Navajo Wash and the San Juan River, as well as a water right to support development for oil and gas and road work on the Colorado portion of the Reservation. The Mancos River (including Navajo Wash) is the most significant on-Reservation surface water resource. Upstream of the Reservation boundary, other water development significantly depleted flows prior to the Colorado Settlement Agreement. Settlement allocations in the Colorado Settlement Agreement for the Mancos River and Navajo Wash are largely subordinated to rights adjudicated prior to 1985.

The Tribe's settlement-based water rights included water rights for future on-Reservation uses in Colorado as follows: two AFY for oil and gas development, and one AFY for road construction and maintenance (Table 5.3-B).

The Tribe's tributary groundwater rights for domestic and livestock wells include an allocation that can be developed in McElmo Basin and an overall limit for development across the Colorado portion of the Reservation for a total of 259 gallons per minute (gpm) for domestic and livestock wells (Table 5.3-C). The Tribe also has a water right for future domestic and tributary groundwater for a total of 1,850 AFY per year (Table 5.3-D). The Colorado Settlement Agreement contains specific provisions governing how the Tribe and the State of Colorado issue well permits for the development of the Tribe's settlement-based allocation of tributary groundwater for domestic or livestock purposes. In 2013, the Tribe and the State developed the first set of new permits under this joint permitting program (Table 5.3-C).

Mancos River
Source: Ute Mountain Ute Tribe

TABLE 5.3-B
Direct Flow and Storage Reserved Water Rights of the Ute Mountain Ute Tribe

Stream	Colorado Case Number	Priority Date	Rate (cfs)	Volume (AFY)	Decreed Uses
Mancos River	W-1603-76G	A reserved water right with a March 2, 1868 priority date, subordinated to all rights with an adjudication date prior to 1985		21,000 AFY	For irrigation of 7,200 acres within the Reservation
Navajo Wash	W-1603-76G	A reserved water right from the Navajo Wash drainage with a March 2, 1868 priority date, subordinated to all rights with an adjudication date prior to 1985	15 cfs	4,800 AFY	For irrigation of 1,200 acres of tribal lands within Navajo Wash. See also Case No. 81CW126 stipulation
San Juan River	W-1603-76B	A reserved water right with a July 25, 1868 priority date	10 cfs	1,600 AFY	For irrigation of 640 acres of Tribal lands within the San Juan mainstem drainage
McElmo Creek	W-1603-76 I	A reserved water right with a February 8, 1904 priority date	1.04 cfs	752.93 AFY	For irrigation of 26 acres of land by the Wilson Ditch
Additional Diversions - All Drainages within Reservation	W-1603-76 B, G, I, J	A reserved water right with a March 2, 1868 priority date		2 AFY	Oil and Gas Development, maximum of 6,000 barrels per site
Additional Diversions - All Drainages within Reservation	W-1603-76 B, G, I, J	A reserved water right with a March 2, 1868 priority date		1 AFY	Road Construction and Maintenance

cfs – cubic feet per second

TABLE 5.3-C
Groundwater Basins and the Colorado Consent Decrees

Basin	Colorado Case Number	Priority Date	Domestic Wells[1]			Livestock Wells[2]		
			Number	gpm	AFY	Number	gpm	AFY
San Juan	W-1603-76B	March 2, 1868 or May 10, 1911	0	0.00	0.00	20	85.50	137.91
Mancos	W-1603-76G	March 2, 1868 or May 10, 1911	1	5.00	8.05	19	138.00	222.60
Dolores	W-1603-76H	No Existing Use Structures	0	0.00	0.00	0	0.00	0.00
McElmo	W-1603-76I	March 2, 1868 or May 10, 1911	2	10.00	16.10	2	10.00	16.13
La Plata	W-1603-76J	March 2, 1868	0	0.00	0.00	2	10.00	16.13
Total			**3**	**15**	**24.15**	**43**	**243.5**	**392.77**

[1] There is no AFY amount given in the Colorado Consent Decrees for Domestic Wells. These values were calculated by multiplying the value for gpm by 525,600 minutes in one year and then dividing that value by 325,851 gallons in one AFY.

[2] There is no AFY amount given in the Colorado Consent Decrees for Livestock Wells. These values were calculated by multiplying the value for gpm by 525,600 minutes in one year and then dividing that value by 325,851 gallons in one AFY.

TABLE 5.3-D
Future Domestic and Tributary Groundwater Uses

Basin	AFY
McElmo	350
All other Basins within Ute Mountain Ute Reservation	1500
Total	1,850

5.3.4.3 Colorado Off-Reservation Water Rights

In addition to the UMUT's Colorado-based settlement rights, the Tribe holds additional water rights associated with off-Reservation Tribally-owned Ranches located in Colorado and Utah. Management and protection of the tribal ranch water supplies are critical to Tribal enterprise and Tribal member cattle operations and horse herds (which rotate grazing between the Ranches and the Reservation), tribal hay production, and environmental and wildlife purposes. This off-Reservation water supply in turn affects other related management plans, such as the implementation of the Tribe's new species management plan for the Gunnison Sage Grouse on the Pinecrest Ranch near Gunnison, Colorado.

Additionally, the Tribe recently acquired rights to storage space in the new Long Hollow Reservoir Project in Colorado. This storage space may facilitate the protection, movement, development, and use of existing Tribal water supplies both on and off the Reservation.

5.3.4.4 Unresolved Indian Water Rights Claims in New Mexico and Utah

In New Mexico, the UMUT is currently participating in the San Juan River general stream adjudication to quantify its reserved water rights on the portion of the Tribe's Reservation located within the State of New Mexico. To support this process, the Tribe is currently preparing information for the quantification of its reserved water rights.

In Utah, the Tribe has unresolved claims associated with its trust lands and water right permits in Utah; however, the State of Utah does not have a process underway for quantifying the Tribe's federal Indian reserved water rights.

The portion of the Reservation in Utah is served by a groundwater supply that is treated and distributed to users on the Reservation. Future work to address water quality concerns and system reliability and redundancy are in the planning phases.

5.3.5 Current Water Use and Operations

The Reservation lands are semi-arid with significant water supply needs for irrigation, energy, economic development and domestic purposes.

5.3.5.1 Irrigated Agriculture and Livestock Water Use Category

The UMUT's FRE is a tribally-run agriculture and cattle operation on the Reservation in Colorado. The Tribe also has approximately 375 acres of other irrigated lands on the Reservation in Colorado (associated with its Demonstration Farm and its Mancos Creek Farm) that are not included in the diversion records (Table 5.3-E).

Farm and Ranch Headquarters below Sleeping Ute Mountain
Source: Ute Mountain Ute Tribe

Farm and Ranch Enterprise

The Tribe's agricultural supply on the Colorado portion of the Reservation for its FRE is from the Dolores Project, via the Towaoc-Highline Canal. The Tribe's allocation from the Dolores Project for agricultural use is not adequate for the FRE current demands, as discussed previously. The Farm and Ranch lands range from approximately 7,500 to 7,800 irrigable acres which grow a range of crops. Currently, crops include alfalfa, several varieties of corn, pasture grass, winter wheat, and triticale.

TABLE 5.3-E
Annual Agricultural Water Diversion from the Towaoc Highline Canal for the Farm and Ranch Enterprise (2009 – 2013) [1,2,3,4]

	Surface Water Diversions				
	2009	**2010**	**2011**	**2012**	**2013**
Dolores Project Allocation (AF)	28,467	28,520	27,623	28,213	9,119
Total Irrigated Area (acres)	7,520	7,366	7,500	7,534	2,892
AF per Acre	3.8	3.9	3.7	3.7	3.2

Source: DWCD

[1] Includes leased water that is delivered to Farm and Ranch Enterprise (FRE), which is not part of the Tribe's diversion allocation of 23,300 AF. The Tribe has water demands greater than its allocation which it currently partially meets using leased water, as available.

[2] Data is measured at the Energy Dissipation Structure on the Towaoc-Highline Canal which is close to the point of delivery on to the Reservation and approximately 11.5 miles above the point of use by FRE. The data, which comes from DWCD and is used in Dolores Project accounting and cost allocations, includes a five percent increase to the amount measured at the Energy Dissipation Structure to account for losses, according to the DWCD. Therefore, the water actually received by FRE at the Energy Dissipation Structure is approximately five percent less than the values shown here.

[3] Data shown in Water Years (begin in November).

[4] Water is delivered to the Demonstration Farm via the Rocky Ford Lateral by MVIC and is not included in this table. FRE staff report that there are typically no shortages of supply.

The Farm and Ranch lands receive water from the Dolores Project via the Towaoc-Highline Canal. The canal is approximately 41 miles long and lined with various materials including geotextile fabrics. The water delivery system has adequate elevation head to allow for gravity-fed center pivot and sprinkler irrigation on all the Farm and Ranch fields.

The yield of the Dolores Project varies by year and therefore requires adaptability on the part of the FRE. The current crop distribution includes approximately 3,625 acres of alfalfa, 600 acres of pasture grass, 200 acres of grass alfalfa mix, 2,900 acres of various types of corn, and 320 acres of winter wheat or triticale.

Pivot irrigation on Farm and Ranch lands
Source: Ute Mountain Ute Tribe

Towaoc Highline Canal
Source: Ute Mountain Ute Tribe

The total consumptive use requirement for FRE for the 2009 through 2014 period ranges from 8,307 AFY to 17,671 AFY. It is important to note that the lower consumptive use is due to FRE fallowing fields due to lack of water supply and should not be taken as an indication of the planned consumptive use for FRE at full production.

The UMUT's FRE pays its pro-rata amount of the operations and maintenance costs of the Dolores Project and shared facilities based on the amount of water received from the project, pursuant to the DWCD and Tribe's Repayment Contracts with Reclamation. These costs vary by year and are calculated annually by the DWCD. Based on the Charge Notices for 2006-2009, the Tribe pays a rate of between $1.93 and $2.81 per acre-foot (AF) to the Dolores Project. The Tribe's FRE also pays a pro-rata amount of costs for the Towaoc-Highline Canal pursuant to the Repayment Contract between DWCD, MVIC, the Tribe, and Reclamation (Contract No. 9-07-40-R0730). The annual rate is determined by the Towaoc-Highline Canal Committee and in 2008 and 2009 the amount was $15.91 per AF.

Demonstration Farm

The Demonstration Farm currently grows 100 acres of alfalfa and 25 acres of pasture grass. The consumptive use requirement for the Demonstration Farm is approximately 355 AFY, based on the values for alfalfa and pasture grass. The water supply for the Demonstration Farm is from MVIC, which is also a participant in the Dolores Project and owns water rights in the Dolores River senior to the Dolores Project. The Tribe owns 200 MVIC shares, which is equal to 2.5 cfs, according to the Consent Decree. This water is delivered via the MVIC infrastructure to the Tribe's point of diversion for the Demonstration Farm.

Mancos Creek Farm

The Mancos Creek Farm is undergoing improvements to bring it back into production using reserved water rights from the Mancos River; therefore, no current water use data is available. The Tribe is exploring development of additional water resources including permitting of several monitoring wells and use of wells for livestock water supply in the Mancos River Canyon area.

Mancos Creek Farm Ditch
Source: Ute Mountain Ute Tribe

Livestock

The cattle enterprise, named the Bow and Arrow herd, has 500 to 600 cows. The cattle graze the Farm and Ranch lands in the non-irrigation season and are managed on the Tribe's range units on the Colorado portion of the Reservation and on Tribal Ranches or off-Reservation leased rangelands during the irrigation season. The current non-irrigation season water demand for 600 head of cattle is approximately five AF, based on a rate of 15 gallons of water per cow per day.

Resource Water Drinker
Source: Ute Mountain Ute Tribe

Individual tribal members also raise livestock on range units on the portion of the Reservation in Colorado that are managed by the Tribe's Department of Natural Resources (DNR). The water supply available on the range units is inadequate to meet all livestock and wildlife demand. The DNR has deepened most of the livestock wells to approximately 400 feet. However, DNR does not currently have the capacity to maintain and repair the infrastructure as needed to procure adequate groundwater across range units particularly during recent drought conditions. There are approximately 1,000 cow-calf pairs, 50 bulls, and three buffalo on range units each year that are actively managed. These stock have an annual water demand of approximately 9 AFY. In addition, there are approximately 300 feral cattle, 200 feral horses, and hundreds of elk that use approximately 11 AFY, including livestock watering supplies on the Reservation in Colorado. The water supply for livestock grazed on the Reservation is primarily from stock reservoirs.

5.3.5.2 Domestic, Commercial, Municipal, and Industrial Water Use Category

The population on the portion of the UMUT Reservation in Colorado is approximately 1,666 people in 529 households based on Indian Health Service data and U.S. Census data. The water supply for this municipal use is from the Dolores Project, and it is delivered from McPhee Reservoir via the Dolores Tunnel to the Cortez Water Treatment Plant. After treatment, Cortez delivers water throughn a 21-mile pipeline to the tribal community of Towaoc.

The calculated current water residential use is approximately 275 gallons per capita per day (Indian Health Service, 2013). The municipal water supply also serves the Tribe's government offices, and provides water to the Ute Mountain Casino, Hotel and Resort and the Weeminuche Construction Authority offices. These government and commercial uses are metered separately and were not included in the calculation of per capita residential use. Also, irrigation of ball fields and a cemetery are not currently metered and may affect the estimated residential demands. The rate of water use per capita may change in the future as system efficiencies improve and the level of income and development on the Reservation increases.

Based on limited historical data from Cortez during the period of 2010 through 2013, the peak municipal and industrial system demands occur during the summer, which corresponds with high residential and park irrigation demands (Table 5.3-F). Peak month water use in July ranged from 74.5 AF to 91.1 AF, though the single highest monthly demand was 101.2 AF in June of 2011.

On average, the lowest month of usage is November, which ranges from 28.0 AF to 44.1 AF, and the single lowest monthly demand was 25.8 AF in January of 2012. Note that the historical data may not be accurate due to poor meter calibration. Additionally, the repair of major leaks reduced the total water consumption in 2010. Only commercial and industrial uses which are supplied by the Tribe's water supply system are included in this summary. There are water uses for road maintenance and gravel production that come from surface water sources when they are legally and physically available. Industrial uses for oil and gas development on the Reservation are not included as most of the water supply currently comes from off-Reservation sources.

TABLE 5.3-F
Municipal and Industrial Water Use on Ute Mountain Ute Reservation in Colorado

Month	Year (AF)				
	2009	2010	2011	2012	2013
January	48.4	38.9	89.4	25.8	38.7
February	43.4	31.7	73.5	27.1	38.2
March	55.9	35.3	74.9	30.5	35.7
April	52.1	37.4	76.9	41.3	36.8
May	82.6	51.5	90.7	68.0	57.2
June	86.3	74.7	110.6	84.9	79.4
July	116.4	81.4	99.7	88.5	84.7
August	112.2	66.6	88.5	89.2	65.9
September	85.9	75.9	66.2	74.0	47.5
October	60.1	60.1	56.1	46.1	36.0
November	38.4	44.1	31.4	32.2	28.0
December	46.3	68.0	34.9	35.4	28.5
Total DWCD Annual Data	**828**	**665.6**	**892.9**	**643**	**576.6**

Source: DWCD does not provide monthly time step data. Wright Water Engineers calculated the monthly values based on the percent delivered each month from the Cortez Meter Data and applied to the total DWCD annual data.

The UMUT's municipal water supply system delivers water to residents, government buildings, and commercial users via a pipeline that has a 12-inch diameter section 6.3 miles long and a 14-inch diameter section 14.4 miles long. At Towaoc, the system also includes three storage tanks and several valves and other necessary infrastructure. Commercial, industrial, and government users of the system pay for water usage based on meter data. The Tribe's Public Works Department oversees operations and management of the system on the Reservation as well as the conveyance line from the City of Cortez.

The Public Works Department charges a water rate, based on the metered water use, to commercial, industrial, and governmental entities that are supplied by the Tribe's municipal system. Tribal members living on the Reservation in Colorado do not pay for their residential

water service individually; costs are paid from the Tribe's general fund. The Tribe pays its pro-rata portion of the operation and maintenance fees for use of municipal and industrial water from the Dolores Project, pursuant to the Repayment Contract between the DWCD and Reclamation (Contract No. 7-07-40-W0470). This cost varies annually and is managed by the DWCD. In 2006, the rate was $1.93 per acre-foot (AF) based on the notice provided by the DWCD.

Based on the sanitary survey conducted by the Indian Health Service in White Mesa, Utah, the average daily water use on the White Mesa water supply system was 0.038 AF in 2014. The system relies on two wells, one with a maximum pumping rate of 80 gpm and the other with a maximum pumping rate of 98 gpm. However, water quality concerns and the need for improved water quality treatment may affect the yield and reliability of the system. To address some of those concerns, the UMUT is presently constructing the White Mesa Water Infrastructure Improvement Project, which is slated to be complete in January of 2019.

5.3.5.3 Environmental, Cultural, and Recreational Water Use Category

The UMUT values maintaining river system health and riparian species as well as wildlife on the Reservation. The Tribe uses some riparian species, such as willow and cottonwood, for traditional purposes. In 2011, the Tribe adopted Water Quality Standards for Surface Waters of the Reservation. These standards aim to protect the quality of waters for designated uses including fish, aquatic life, recreation, and tribal cultural uses. The Tribe's Environmental Programs Department oversees the water quality regulations as well as efforts to protect riparian habitats and wetlands. Currently, the Tribe is managing water on the Reservation to irrigate wetlands in the Mancos River basin. Due to the complications of measuring "diversions" to a wetland, the Tribe has not recorded or reported the consumptive use and non-consumptive uses of the wetland irrigation. In the future, the Tribe may document the wetland irrigation use as part of its reserved water rights.

Mancos River at Weber Canyon
Source: Ute Mountain Ute Tribe

Currently, the Tribe does not have reserved water rights or water demands for protecting use by fish, wildlife, or for cultural values. The Consent Decree allocates 800 AFY from the Dolores Project for tribal wildlife use. This water is accounted for under the FRE diversions as it provides a supply for lands that are used by wildlife for forage particularly during the winter.

5.3.5.4 Reservoirs

In addition to the Dolores Project (McPhee Reservoir) and the A-LP Project (Lake Nighthorse), the UMUT has off-Reservation water rights for reservoirs associated with its Tribal Ranches, for use as stock ponds and recreation (Table 5.3-G). Current reservoir use calculations, based on the number of grazed cattle per range unit, show a total demand of 63 AFY from reservoirs. The Tribe's DNR manages the reservoirs which have ongoing maintenance and repair needs. Most reservoirs are filled from wells, while some are filled from surface water, as available.

Ismay Reservoir has a capacity of approximately 120 AF and is currently used as operational storage for irrigation of the Demonstration Farm. At the same time, the reservoir is used for recreational activities (primarily fishing) by tribal members and provides aesthetic values to the Tribe's nearby casino.

Lake Nighthorse
Source: Ute Mountain Ute Tribe

TABLE 5.3-G
Water System Reservoirs in Colorado

Reservoir	Location	Capacity (AF)		UMUT Portion of Reservoir (AF)
		Total	Active	
McPhee Reservoir	Off-Reservation	381,195	229,182	25,100 Allocation; no specific storage allocation
Lake Nighthorse	Off-Reservation	123,541	90,000	38,108.5 of storage capacity
Ismay Reservoir	On-Reservation	120	120	120 capacity
Consent Decree Reservoirs	On-Reservation	508	508	508
Totals		**505,364**	**319,810**	**63,836.5**

Sources: Bureau of Reclamation website for the Dolores Project, Tribal Settlement Agreement, Consent Decrees and Repayment Contracts, Aerial Imagery, diversion records from Tribe for Colorado Division of Water Resources

Canal siphon at the foot of Sleeping Ute Mountain
Source: Ute Mountain Ute Tribe

5.3.5.5 Water Use Efficiency and Conservation

The UMUT's municipal system on the Reservation in Colorado is managed by the Public Works Department which repairs leaks as they are identified. In 2014, the Public Works Department facilitated a leak detection survey on the oldest portion of system's pipelines.

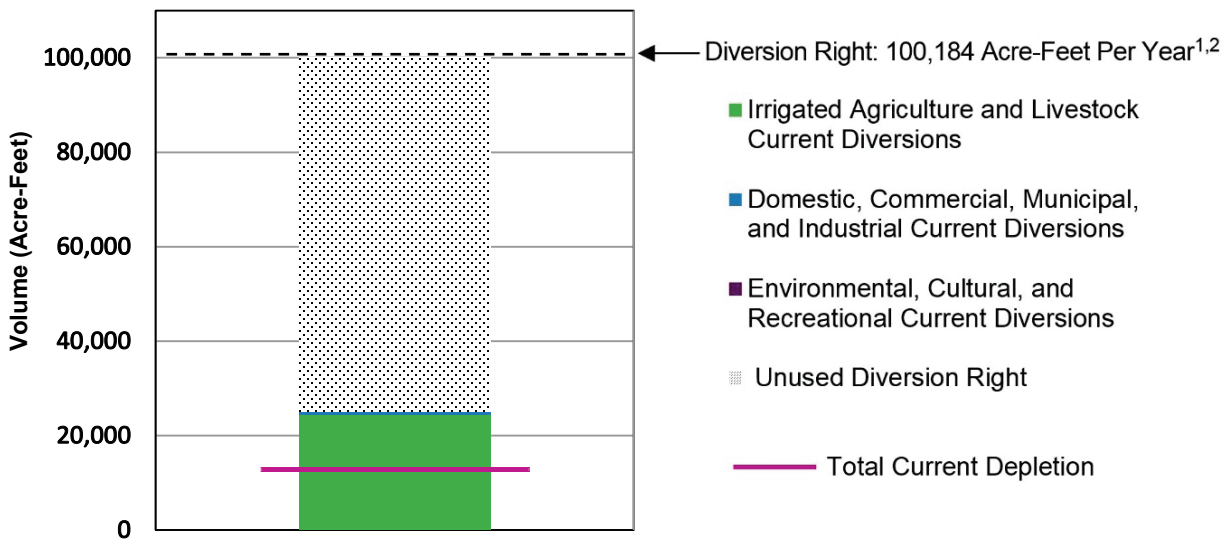
The FRE employs highly efficient irrigation infrastructure to the extent feasible. This includes center pivots that are gravity fed through pipelines from the Towaoc-Highline Canal. The FRE uses two mobile soil moisture monitors that are linked to the irrigation supply management system. Each center pivot is tied into the main system and operates based on data from soil moisture, weather, and water supply. Farm and Ranch staff closely monitor water use and manage the irrigated area and crops to maximize production within the limited water supply. Where feasible in other irrigated areas and on Tribal Ranches, the Tribe uses gated pipe, side-rolls or other efficient means of irrigation.

Nozzle upgrades on Farm and Ranch center pivots
Source: Ute Mountain Ute Tribe

5.3.5.6 Summary of Current Water Use

Current average annual water use for the UMUT reserved water rights is presented below in Figure 5.3-B and Table 5.3-H. Irrigation diversion records do not always separate out Tribal and other water use. Therefore, tribal irrigation diversions were calculated based upon current irrigated acreage, water supply characteristics (i.e. priority of rights, defined duty of water, volumetric limitations, etc.), and crop type. Due to a lack of measurement on many smaller water sources, reasonable standardized assumptions were used to determine their diversion amounts. Where records were available, the period of 2009 through 2013 was used to help guide development of the assumptions. Depletion amounts were then derived from the diversion numbers using standard engineering efficiency estimates accepted by the State of Colorado and assigned based on water use category and structure type.

FIGURE 5.3-B
Ute Mountain Ute Tribe Current Average Annual Water Use (2009 – 2013) and Reserved Water Rights in Colorado



[1] Sources: 1986 Colorado Ute Settlement Agreement; Ute Mountain Ute Reservation Existing Water Use Inventory Sheet per Consent Decree Exhibit; Consent Decrees entered December 19, 1991, under case W-1603-76J.

[2] Includes Ute Mountain Ute Tribes's Animas La-Plata reserved average annual depletion water right of 16,525 AFY converted into a diversion right by applying a 37 percent efficiency for a total of 44,662 AFY.

TABLE 5.3-H
Ute Mountain Ute Tribe Current Average Annual Water Use by Basin in Colorado (2009 – 2013)

Source	Water Use Category	Diversion (AFY)	Estimated Current Depletion (AFY)
Dolores	AG	24,388[1]	12,194
	DCMI	721	648
Animas La-Plata	All Uses	0	0
Mancos River	All Uses	0	0
Navajo Wash	AG	1	1
San Juan River	DCMI	60	54
McElmo Creek	All Uses	0	0
Additional Diversions	DCMI	1	1
Groundwater Basins	AG	6	3
	DCMI	2	2
	ENV	2	1
Future Domestic and Tributary Groundwater	All Uses	0	0
Subtotal	AG	24,395	12,198
	DCMI	784	706
	ENV	2	1
Total		**25,181**	**12,905**

AG – Irrigated Agriculture and Livestock
DCMI – Domestic, Commercial, Municipal, and Industrial
ENV – Environmental, Cultural, and Recreational

[1] Includes additional leased water that is delivered to the Farm and Ranch Enterprise (FRE), which is not part of the Tribe's diversion allocation of 23,300 AF. The Tribe has water demands greater than its allocation which it partially meets using leased water, as available.

5.3.6 Tribal Water Use Challenges

The UMUT is confronted with a number of challenges in developing their water resources on Reservation lands that span three states and on noncontiguous off-Reservation ranch lands. Coordination of water management and administration among the Tribe, multiple states, and multiple agencies to address the Tribe's water needs is further complicated by downriver administration problems in the Colorado and New Mexico watersheds.

A lack of funding also presents a major hurdle that affects all areas concerning planning, development, management, and maintenance of tribal groundwater and surface water supplies. As noted above, considerable funding is needed to plan and construct water delivery infrastructure from the A-LP Project to the Reservation. At the same time, additional funding is needed for the operation, maintenance, repair, and replacement of aging infrastructure at the Dolores Project and other water delivery and treatment facilities. A consistent source of funding

is also needed to maintain and protect the Tribe's allocated water resources in regional adjudications that may impact the Tribe's water rights. With sufficient funding and coordination, such legal issues could potentially be reduced when coupled with increased tribal capacity for water management and administration, comprehensive Basin-wide planning, and coordination among the various stakeholders.

Water quality is a growing concern to the Tribe due to off-Reservation environmental threats to groundwater and surface water. Historical and present-day mining near Reservation borders are the basis for the Tribe's concerns related to contamination of tribal water resources. As a result, future planning and development of tribal water resources and infrastructure must factor in potential off-Reservation environmental contamination. Detailed protocols are also necessary to address immediate and long term recourse. Again, adequate planning and coordination between governing entities is essential to addressing the various water quality issues.

Finally, planning and protocol development is also needed to address the looming threat of drought and subsequent shortages across the Basin. Drought is expected to trigger critical shortages to range resources and Dolores Project supplies, thus hindering the Tribe's FRE and other uses. Careful administration and shortage sharing among the various water users is therefore essential, in accordance with the Colorado Settlement Agreement.

5.3.7 Projected Future Water Development

The UMUT's future water development was assessed by first examining the location, quantity and type of current water use, and then, by applying the Tribal Water Study's scenario planning process, envisioning a range of future water development. Narrative descriptions of these scenarios (storylines) were created and provided a rational basis for considering a wide range of future tribal water development.

The Tribal Water Study's scenarios and associated themes are listed below. Detailed descriptions of these scenarios (storylines) were created to consider a wide range of possible water development outcomes. For additional information, including the scenario storylines, see *Chapter 4 – Methodology for Assessing Current Tribal Water Use and Projected Future Water Development*.

- **Current Water Development Trends (Scenario A):** Current trends in on-reservation water development, governance, funding, and resolution of tribal claims remain the same.
- **Slow Water Development Trends (Scenario B):** Decreased flexibility in governance of tribal water, levels of funding, and resolution of tribal claims slow tribal economic development. This results in a decline in the standard of living and delays resolution of tribal claims.
- **Rapid Water Development Trends (Scenarios C1 and C2):** Increased flexibility in governance of tribal water allows innovative water development opportunities and increased funding availability leads to tribal economic development. This results in an increase in the standard of living, thereby contributing to the fulfilment of the purpose of the reservation as a homeland and supporting the future needs of tribal communities. Scenario C1 considers partial resolution of claims and/or implementation of decreed or settled rights; and Scenario C2 considers complete resolution of claims and implementation of decreed or settled rights.

The UMUT contemplated its future water development through 2060 by reviewing its current water use estimates and reflecting upon how they might change under each of the four scenarios. During this process, the Tribe considered such elements as the scenario conditions described in the storylines, current or future planned projects, water availability in each of the river basins that cross the Reservation, anticipated changes in water use by category, the extent and condition of existing water infrastructure and the need, as well as the cost, for new infrastructure to support water development. The Tribe contemplated future development in the four water use categories: Irrigated Agriculture and Livestock Water Use (AG); Domestic, Commercial, Municipal, and Industrial Water Use (DCMI); Environmental, Cultural, and Recreational Water Use (ENV); and Transfers, Leases, and Exchanges (TRAN).

From this examination, the UMUT extrapolated likely future use if current trends (Scenario A) continued through 2060 and prepared a quantified water development schedule. Subsequently, the UMUT used this same approach to prepare future water development schedules reflective of how the other scenario storylines (Scenarios B, C1, and C2) could affect its future water development. The documentation for each scenario development schedule is presented in the following section.

5.3.7.1 Future Water Development Schedules

The assumptions for each schedule are described below and the quantified schedules are presented graphically in Figure 5.3-C and numerically in Table 5.3-I.

Current Water Development Trends (Scenario A)

If current trends in on-Reservation water development, governance, funding, and resolution of tribal claims remain the same, by 2060 the total water diversions on the UMUT Reservation will increase by approximately 11 percent due to increased agricultural water use along the Mancos River, Navajo Wash, San Juan River, and McElmo Creek and increased DCMI water use. DCMI used for the A-LP Project is assumed to increase to about 30 percent of the right by 2060 (300 water taps) along with small DCMI water use increases in other basins and from groundwater. The schedule assumes full development (800 AFY) of the Dolores right by 2060 for ENV purposes and a small use on the Mancos River for restoration purposes. No TRAN water use is assumed through 2060.

Slow Water Development Trends (Scenario B)

Decreases in flexibility in governance of tribal water, levels of funding, and the resolution of tribal claims could slow tribal economic development in Scenario B. Under this scenario, UMUT prepared a water development schedule that assumed no changes in current water use.

Rapid Water Development Trends, Partial Settlement Resolution/Implementation (Scenario C1)

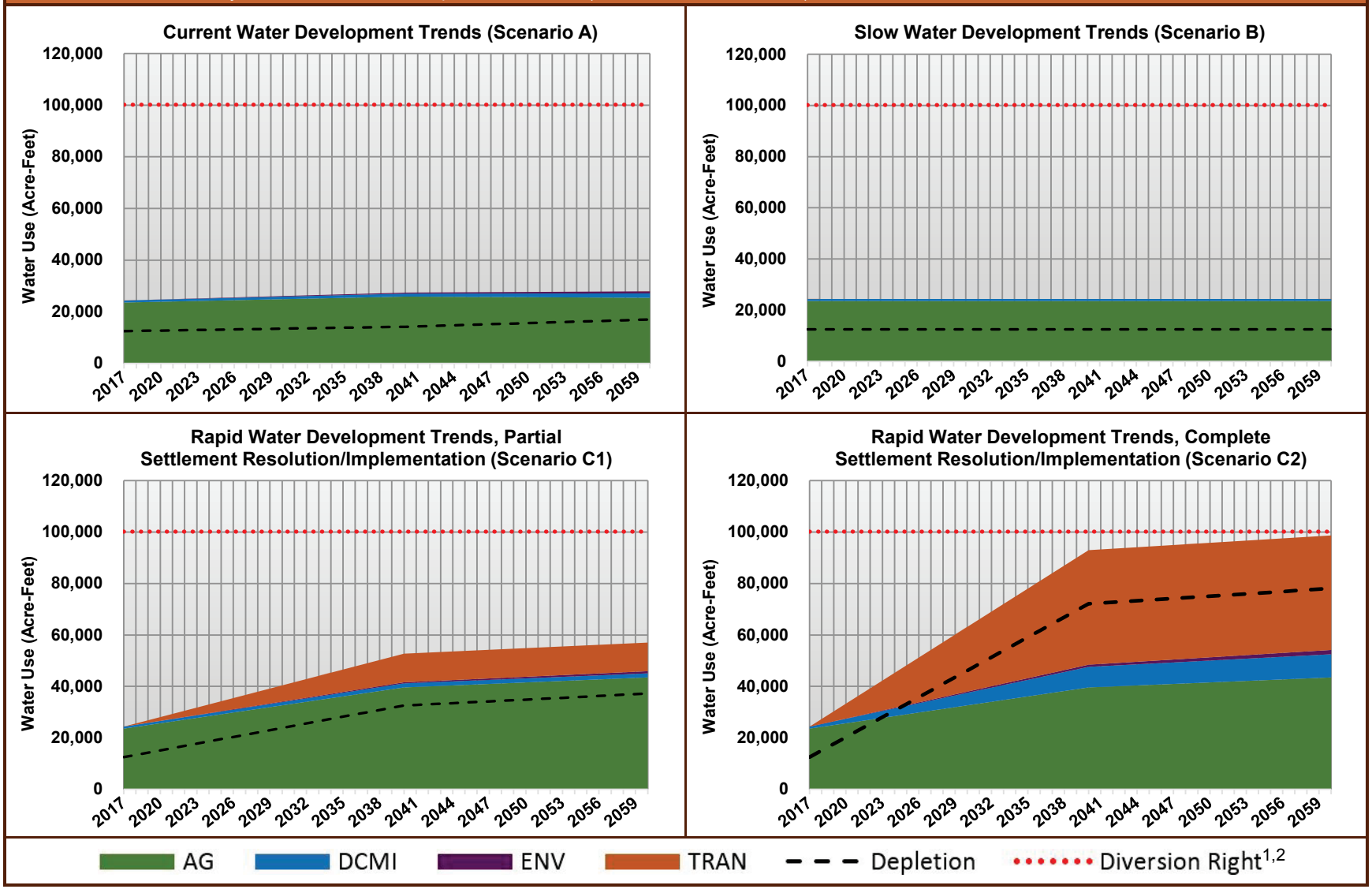
Under Scenario C1, a partial resolution of the claims and/or implementation of decreed or settled rights leads to increased flexibility in governance of tribal water allowing innovative water development opportunities, and increased funding availability leads to tribal economic development. By 2060, total UMUT water diversions double to 50,009 AFY mainly due to increased AG water use along the Mancos River, Navajo Wash, San Juan River, and McElmo Creek and additional water needs for the Farm and Ranch Enterprise. DCMI water used for the A-LP Project is assumed to increase to about 30 percent of the right by 2040 (300 water taps)

along with increased water needs for energy development. The water development schedule assumes a five percent increase in ENV water use for environmental purposes. In addition, it is assumed that 25 percent of the unused A-LP Project water (nearly 5,000 AFY) is leased to surrounding communities.

Rapid Water Development Trends, Complete Settlement Resolution/Implementation (Scenario C2)

Scenario C2 builds on scenario C1 by considering a complete resolution of claims and implementation of decreed or settled rights, which further increases water development opportunities. Under this scenario, UMUT reaches full development of its water right by 2060. AG water use is assumed to be the same as Scenario C1, but DCMI is increased for energy production, ENV water use doubles, and all unused A-LP Project water (16,115.29 AFY) is leased to surrounding communities.

FIGURE 5.3-C
Ute Mountain Ute Tribe Projected Future Water Development in Colorado (Scenarios A, B, C1, and C2)



[1] Ute Mountain Ute Tribe's reserved diversion water right in Colorado is 100,184 AFY.

[2] Includes Ute Mountain Ute Tribe's Animas La-Plata average annual depletion right of 16,525 AFY converted into a diversion right by applying a 37 percent efficiency for a total of 44,662 AFY.

5.3.7.2 Summary of Projected Future Water Development

The UMUT's current water use and projected future water development under the Tribal Water Study's water development scenarios, and modeled for analysis purposes, is presented in Table 5.3-I.

TABLE 5.3-I
Summary of Ute Mountain Ute Tribe Current Water Use and Projected Future Water Development in Colorado[1,2]

Water Use Timeframe and Category		Scenario A (AFY)		Scenario B (AFY)		Scenario C1 (AFY)		Scenario C2 (AFY)	
		Diversion	Depletion	Diversion	Depletion	Diversion	Depletion	Diversion	Depletion
Current Use	*AG*	23,580[3]	11,790	23,580[3]	11,790	23,580[3]	11,790[3]	23,580[3]	11,790
	DCMI	784	706	784	706	784	706	784	706
	ENV	2	1	2	1	2	1	2	1
	TRAN	0	0	0	0	0	0	0	0
	Total	**24,366**	**12,497**	**24,366**	**12,497**	**24,366**	**12,497**	**24,366**	**12,497**
Use at 2040	*AG*	25,879	12,940	23,580	11,790	39,601	19,801	39,601	19,801
	DCMI	1,143	1,056	784	706	1,574	1,456	8,000	7,400
	ENV	404	202	2	1	424	212	848	424
	TRAN	0	0	0	0	11,132	11,132	44,528	44,528
	Total	**27,426**	**14,198**	**24,366**	**12,497**	**52,731**	**32,601**	**92,977**	**72,153**
Use at 2060	*AG*	25,405	14,984	23,580	11,790	43,493	24,201	43,493	24,201
	DCMI	1,709	1,613	784	706	1,574	1,495	8,900	8,455
	ENV	804	402	2	1	844	422	1,688	844
	TRAN	0	0	0	0	11,132	11,132	44,528	44,528
	Total	**27,918**	**16,999**	**24,366**	**12,497**	**57,043**	**37,250**	**98,709**	**78,123**

[1] Ute Mountain Ute Tribe's reserved diversion water right in Colorado is 100,184 AFY.

[2] Includes Ute Mountain Ute Tribe's Animas La-Plata average annual depletion right of 16,525 AFY converted into a diversion right by applying a 37 percent efficiency for a total of 44,662 AFY.

[3] For modeling purposes, current AG use is capped at the Ute Mountain Ute Tribe's Dolores agricultural diversion allocation of 23,300 AFY; therefore, the current use in this table is not the same as the current use listed in Table 5.3-H.