

5.2 Southern Ute Indian Tribe

5.2.1 Introduction

The original Southern Ute Indian Reservation (Reservation) was carved out of the historical Ute homelands in 1868. The present Reservation boundary, encompassing approximately 1,067 square miles, is located in the southwest portion of Colorado and shares a border with the Ute Mountain Ute Reservation to the west, the State of New Mexico to the south, and the Jicarilla Apache Nation Reservation to the southeast. The Reservation boundary is roughly 75 miles long and 15 miles wide, in which approximately 499 square miles are Tribal land, 472 square miles are private fee simple, and the remaining 96 square miles are federal lands (SUIT, 2012).



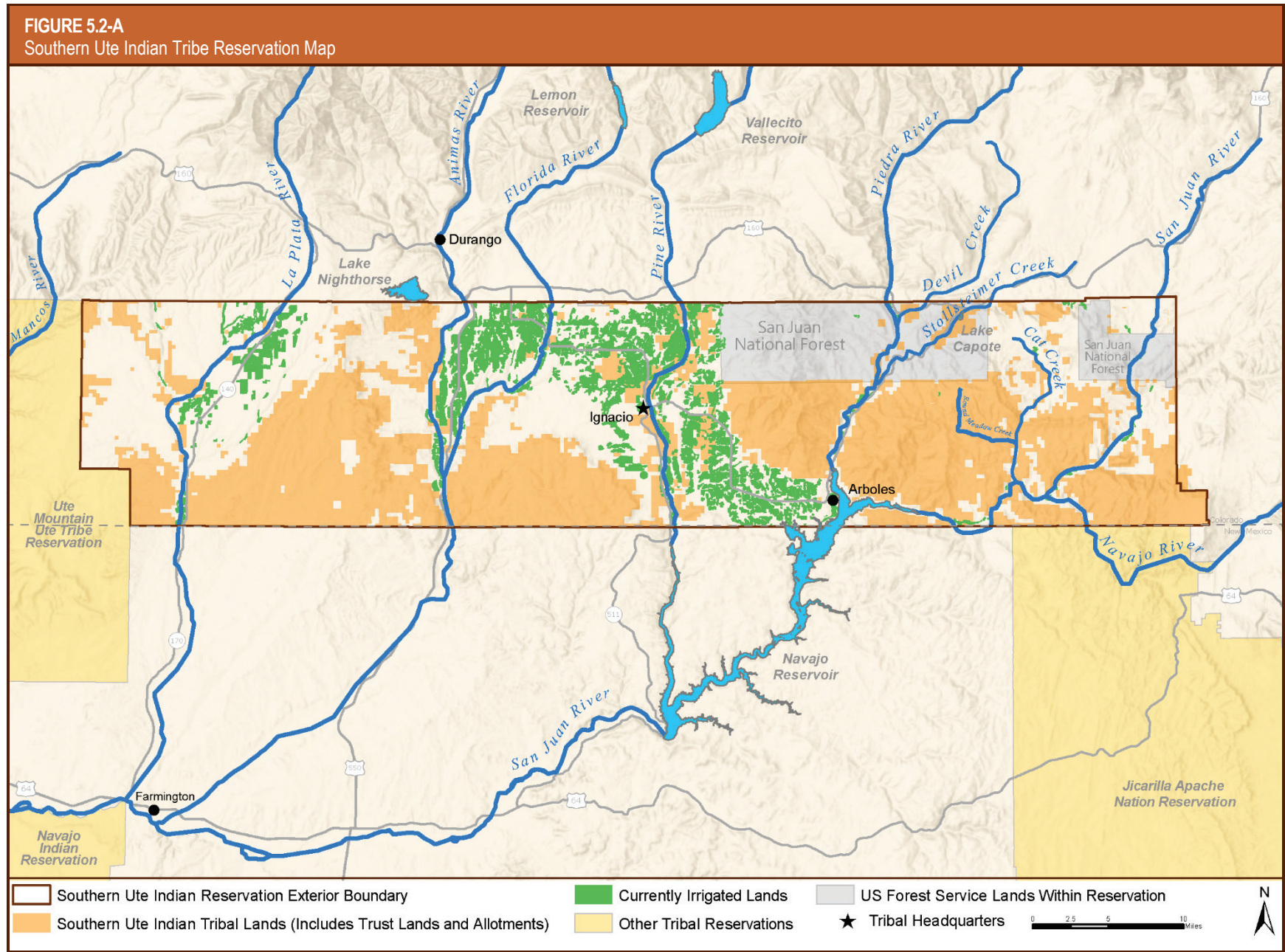
Southern Ute Tribal Museum
Photo courtesy of Southern Ute Indian Tribe

The Southern Ute Indian Tribe's (SUIT or Tribe) current enrollment is a little over 1,500 members. Approximately 1,000 Tribal members live within the exterior boundaries of the Reservation, on both Tribal and private land, with the majority living along the Pine River corridor. Due to the checkerboard nature of land ownership within the Reservation boundaries, Tribal water use and other water use are closely intertwined, especially in regard to water delivery and return flows (SUIT, 2015).

Ignacio, Colorado, with a population of about 700, is the largest town on the Reservation, and site of the BIA Southern Ute Agency. Durango, Colorado with a population of about 17,500, is about five miles north of the Reservation and Farmington, New Mexico, with a population of about 45,000, lies about 29 miles south of the Reservation boundary.

Figure 5.2-A presents a general location map with Reservation boundaries, communities, and other important features.





5.2.2 Physical Setting

The topography of the SUIT Reservation is generally rugged, with several river valleys and a few major ridges dividing it into distinct regions. The western and central portions both consist of rolling mesas broken up by small canyons and arroyos. Due to the lack of water availability for both domestic and agricultural uses, the western third of the Reservation is locally referred to as the “Dry Side.” The majority of the irrigated lands, along with the highest population numbers, are found in the central region. Eastward, the ridges and peaks dominate the landscape as they become larger and more timber covered. Elevations range from about 6,000 feet along the La Plata River near the southwest corner of the Reservation and along the San Juan River near Arboles, Colorado, to over 9,200 feet on Archuleta Mesa in the southeast corner of the Reservation.



The agricultural landscape of the Pine River Valley with the San Juan and HD Mountains in the background.
Photo courtesy of Southern Ute Indian Tribe

From an ecological standpoint, the Reservation occupies a transition zone between the desert regions of the Four Corners and the subalpine zones of the San Juan Mountains. Eastern portions of the Reservation contain Ponderosa pine, mixed conifer and aspen stands; however, most of the Reservation consists of sagebrush savanna, pinyon-juniper woodland, and cleared agricultural land.



Pinyon-juniper woodlands and sagebrush dominate much of the uncleared portions of the lower elevation landscape on the Southern Ute Indian Reservation.

Photo courtesy of Southern Ute Indian Tribe

1963. Although the Tribe does not have any rights to water in Navajo Reservoir, the Reservoir’s role in managing flow levels for the San Juan River Basin Recovery Implementation Program (SJRBRIP) means that it is crucial to ensuring that the Tribe can utilize its reserved water rights given that all rivers on the Reservation are tributary to the San Juan. See Table 5.2-B for more information regarding water reliability in each river basin.

5.2.2.1 Watersheds

The SUIT Reservation lies within the San Juan River drainage system. The San Juan River drains the eastern one-third of the Reservation, flowing to the southwest. In the western two-thirds of the Reservation, drainage is mostly to the south via the Piedra, Los Pinos (locally referred to as the Pine River), Florida, Animas, and La Plata Rivers, all tributaries to the San Juan River. Navajo Reservoir, formed by Navajo Dam in New Mexico, forms a significant body of water on the San Juan River that extends into the southeastern part of the Reservation. Navajo Dam and Reservoir were authorized in 1956 as a part of the Colorado River Storage Project, and were completed in



The Animas River south of Durango.
 Photo courtesy of Southern Ute Indian Tribe

5.2.2.2 Hydrogeology

The complex sedimentary geology underlying the SUIT Reservation means that groundwater exists in both alluvial and bedrock aquifers. The alluvial formations consist of both terrace and river deposits and tend to have the highest yields with the best water quality. Their size and thickness vary in the different basins, but they are usually shallow and recharge quickly. The bedrock formations are primarily sandstone with confining layers of shale between them.

With the exception of the Animas Formation, bedrock aquifers generally have lower yields and their output is more likely to have water quality issues, limiting its potability.

With the exception of the Animas Formation,

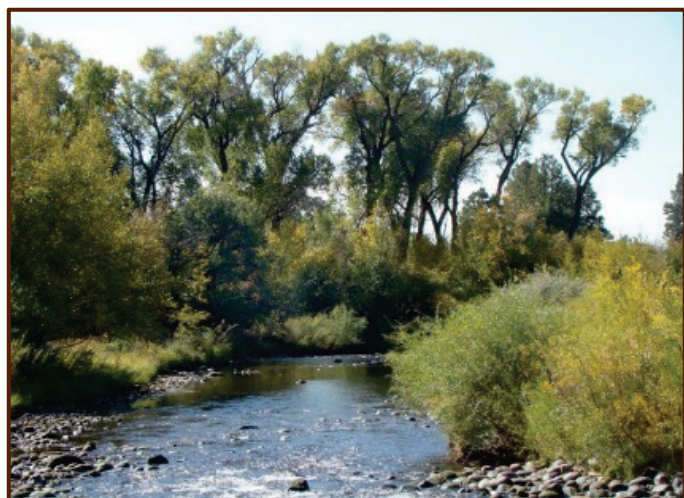
5.2.2.3 Climate

Annual precipitation on the SUIT Reservation ranges from 8 to 20 inches. Precipitation occurs primarily in the winter and the late summer when a strong monsoonal cycle typically develops. Due to topography and the nature of monsoonal thunderstorms, precipitation patterns often are localized and precipitation events can be brief but dramatic. Temperature extremes can range from highs near 100 °F to lows of around -20 °F but year-round averages are in the 40°s to 60°s with abundant sunshine.

5.2.3 Historical Use and Cultural Importance of Water

Prior to government interference, the Ute people were hunters and gatherers, moving in small bands in the summer months while hunting and collecting food to preserve for the winter (Jefferson et al., 1972). Groups would camp along the rivers to take advantage of the game drawn to the water, the fish in the river, and to utilize the abundant cottonwoods and willows for shelter and shade. According to a Tribal Elder, water has always been a provider. However, the government’s focus on trying to make Utes into farmers brought a new aspect to their relationship with water (Quintana, 2004). Water was still to be a provider, but it now would be manipulated and controlled.

The signing of the 1868 Treaty (Treaty with the Ute Indians, 15 Stat. 619) created a reservation that encompassed roughly the western third of present day Colorado, including the vast watersheds of the Western Slope. But the discovery of gold and silver in the San Juan Mountains and the accompanying influx of miners led to the forcible relinquishment of the



Cottonwood galleries and willow stands line much of the Pine River as it crosses the Southern Ute Indian Reservation.
 Photo courtesy of Southern Ute Indian Tribe

San Juan area and its mountainous headwaters under the Brunot Agreement of 1873 (Agreement of Sept. 13, 1873, ratified by Act of April 29, 1874, ch. 136.). Subsequent agreements and events in the 1870s and 1880s further reduced the Ute lands in Colorado, resulting in the relocation of the Northern Ute Bands to Utah and the Southern Ute Bands to a narrow strip along the New Mexico border in the southwestern portion of Colorado.¹ The implementation of the allotment policy under the Hunter Act of 1895 (28 Stat. 677, signed February 11, 1895, ch. 113) ultimately led to the Ute Strip being divided into two reservations, with the eastern allotted portion becoming the current Southern Ute Reservation and the western un-allotted portion becoming the current Ute Mountain Ute Reservation (Jefferson et al., 1972).

Beginning with the Brunot Agreement, the government sought to discourage the hunting economy of the Southern Utes by transitioning them to farming (Schurz, 1877). Because of this policy, water, and access to it, have played a large role in shaping and defining the settlement and development patterns on the Southern Ute Reservation. As early as 1880, as the concept of allotment was being debated, Indian Agent Henry Page pointed out in his annual report that, “land on the Southern Ute Reservation could not be cultivated without the use of irrigation ditches.” (Quintana, 2004) The first irrigation ditches to serve Southern Ute lands were built around 1885 and by 1888 almost 600 acres were reported to be in cultivation along the Pine River.

With the enactment of allotment on the SUIT Reservation, the construction of irrigation ditches took on a new priority. The majority of allotments were taken along the Pine River, but even with tracts laid out in long, narrow strips to maximize access to the riparian corridor, many Tribal members ended up with little access to irrigation water. In late 1896, the Indian Service (the predecessor to the BIA) began work on the Spring Creek Ditch to serve the majority of allotments east of the Pine River. Around the same time, the Animas Ditch was constructed to serve allotments along the Animas River.



A tribal diversion on the Pine River circa 1927. This same diversion structure is still in use, despite its antiquated condition.

Source: *Irrigation Reports, 1907-1946. Phoenix Area Office. Branch of Irrigation. Records of the Bureau of Indian Affairs (RG 75). National Archives at Riverside, Perris, CA.*

In 1899, lands not already allotted on the SUIT Reservation were opened to homesteading and settlers quickly moved in to claim land and water (Quintana, 2004). Settlers and developers, under Colorado water law statute, enlarged some of the existing government ditches and claimed rights in them. The water situation was rapidly becoming complicated and contentious. Local Indian Agents pressed officials in Washington, D.C. to act quickly to secure the necessary water rights for all Tribal allotments, but as Easterners, the officials did not appreciate the value of water in the West and the need for urgent action.

¹ More information available at: www.southernute-nsn.gov/history

By 1914, Tribal and other water claims on the Pine River, many of which were speculative, totaled more than ten times the natural flow rate of the river (BIA Irrigation Report, H. F. Robinson, 1914). Under the *Winters Doctrine*,² the Tribe had first water rights on the Pine River, based upon the 1868 Reservation establishment date, but the amount of water the Tribe was entitled to was not yet determined. This was ultimately decided on the Pine River in the 1930 case *United States v. Morrison Consolidated Ditch Co.*³ But the question of reserved rights on other rivers across the Reservation remained and would not be fully answered for another 56 years.

The need for reservoirs, both to control seasonal flooding and to ensure a steady supply of irrigation water throughout the growing season, was recognized early in the settlement of the SUIT Reservation, but authorization of funding would not come for several decades. Vallecito Dam was the first to be authorized in 1937, and completed in 1941. Lemon Reservoir, on the Florida River, was also contemplated at this time, but World War II and other political priorities delayed its construction authorization until 1960.

The question of the Tribe's reserved water rights were finally settled in 1986 with the Colorado Ute Indian Water Rights Final Settlement Agreement ("1986 Settlement Agreement"). A significant portion of the settlement, both for the Southern Ute and Ute Mountain Ute Tribes (referred to collectively as the 'Colorado Utes'), was the final authorization of the Animas-La Plata Project (A-LP). Initially authorized in 1968, the final scaled-down version of the project was not completed until 2013.

The following was developed by current SUIT Members as a description of water's cultural significance:

Since before it was the state of Colorado the Utes have always been here, and we have always stayed where the water was. We depend on our water sources for our very existence and we gave thanks to the Creator that we have water for our use. In the early days we traveled to the heated springs at Pagosa Springs. This was the healing place for us. This was a very good place to go and bathe in or drink the mineral water. At one time, the Navajos and the Utes fought over the use of the hot springs, which happened around 1867. The Utes won the fight. At our homes we took care of the water and did not waste it. We used water in our everyday needs. We stored water in jugs lined with pitch to store and use later. In the early years, the rivers and streams were clean fresh water and we took water from them. We did not have to worry about what was in the water.

Water has also been a part of the traditional ways. This would be the Bear Dance, Sundance, Native American Church, and Sweat ceremonies. Each of these use sacred water in the ceremony.

The Southern Ute Bear Dance takes place in the spring, when we gather to celebrate the awaking of the bear. Bear dance songs are sung and we welcome the bear from its winter sleep.

² *Winters v. United States*, 207 U.S. 564 (1908).

³ *United States v. Morrison Consolidated Ditch Co.*, No. 7736 (D. Colo. Oct. 25, 1930).

Sundance takes place in the summer for four days. Each sundancer dances and prays for four days without food or water. Sacred water is brought in for the dancers on the last day.

The sweat ceremony is one traditional way of praying for many native people. Sacred water is used to put on heated rocks. Buckets of water are brought inside the ceremony and prayers are spoken to the Creator for the use of water. Prayer is spoken that the water that flows upon Mother Earth will remain clean and to feed all living beings, from the smallest to the largest. Water is put on the rocks and the healing steam comes forth to all people inside the lodge. Water is taken by all persons after offering the water to Mother Earth.

The Native American Church also uses water as an important part of their ceremony.

Clearly, water is an integral part of the Tribe's life and plays a great part in its cultural ways.



Utes crossing the Pine River (1899).

Source: Denver Public Library, Western History Collection, H.S. Poley, photographer, P-51

5.2.4 Southern Ute Indian Tribe Water Supply

Since the Colorado Utes' reserved water rights under the *Winters Doctrine* were senior to all other rights in the San Juan and Dolores Basins in Colorado, the resolution of these reserved water rights claims was critical to all water users in both basins in Colorado. The 1986 Settlement Agreement, signed on December 10, 1986, quantified the SUIIT's water rights on several rivers and projects, including both direct diversion and storage rights with priorities ranging from 1868 to 1976⁴ (Table 5.2-A). Congress implemented portions of the 1986 Agreement when it enacted the Colorado Ute Indian Water Rights Settlement Act of 1988, Pub. L. No. 100-585, 102 Stat. 2973 (1988 Settlement Act). That legislation was amended by the Colorado Ute Settlement Act Amendments of 2000, enacted as Title III of Pub. L. 106-554, 114 Stat. 2763, 2763A-258 to 266 (codified as a note to 22 U.S.C. § 2452) (Dec. 21, 2000) (2000 Amendments) (with minor amendments in Pub. L. 110-161, Section 130 (Dec. 26, 2007)).

⁴ Additional state adjudicated rights held by the Tribe have priorities later than 1976.

5.2.4.1 Colorado Consent Decrees

SUIT's settlement-based reserved water rights are decreed by river basin or watershed, and include direct diversion and depletion-based surface water rights, Reservation-based storage rights, tributary groundwater rights, and allocations in three federal reservoir projects. The 1986 Settlement Agreement, as implemented by the 1988 Settlement Act and as amended by the 2000 Amendments and the 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.

General Diversion and Depletion Rights

The 1986 Settlement Agreement also quantified existing and future use water rights, including direct diversion surface water rights and storage rights, as well as a water right to support development for oil and gas and road work on the Reservation. The 2000 Amendments altered the A-LP facilities to be built to settle the Tribal claims on the Animas and La Plata Rivers. The 2000 Amendments also altered the amount of water allocated to the Tribe with respect to A-LP.



The Ute municipal diversion on the Pine River.
Photo courtesy of Southern Ute Indian Tribe

Pursuant to the various Consent Decrees, the Tribe's direct diversion water rights, depletion rights and Reservation-based storage rights include, but are not limited to:

- (1) On the Pine River, the Tribe retained its reserved water right with an 1868 priority date for 181.7 cubic feet per second (cfs), as set forth in the 1930 federal decree and 1934 state decree, and was allocated its proportionate share of a 1/6th interest in Vallecito Reservoir.
- (2) On the Florida River, the Tribe was allocated 563 acre-feet per year (AFY) of Florida Project water and 1,090 AFY of non-project reserved water rights.
- (3) On Stollsteimer Creek, the Tribe received a reserved water right with an 1868 priority date for storage of 1,850 AFY in Pargin Reservoir (commonly referred to as Lake Capote), a reserved water right with a 1986 priority date for one refill in Lake Capote in the amount of 1,850 acre-feet (AF), and two reserved water rights for a total of 5.5 cfs from Stollsteimer Creek.
- (4) On the Piedra River, the Tribe received a reserved water right with an 1868 priority date for direct flow diversions of 1,595 AFY.
- (5) On Devil Creek, the Tribe received a reserved water right with an 1868 priority date subordinated to all rights with an adjudication date prior to 1976 for direct flow diversions of 183 AFY.
- (6) On the San Juan River, the Tribe received a reserved water right with an 1868 priority date for direct flow diversions of 1,530 AFY.
- (7) On Round Meadow Creek, the Tribe received a reserved water right with an 1868 priority date for direct flow diversions of 975 AFY.

(8) On Cat Creek, the Tribe received a reserved water right with an 1868 priority date for direct flow diversions of 1,372 AFY.

(9) On the Animas River, the Tribe received a water right for present and future municipal and industrial uses with an average annual depletion not to exceed 16,525 AFY.

(10) Reservation-wide, in all drainages, the Tribe received a reserved water right for oil and gas associated diversions in the amount of 117.5 AFY and a water right for road construction and maintenance purposes in the amount of 12.05 AFY. Both rights have a March 2, 1868 priority date.

On-Reservation Groundwater Rights

SUIT received tributary groundwater rights for domestic and livestock wells with a March 2, 1868, priority date in the amount of 2,000 AFY.

TABLE 5.2-A					
Southern Ute Indian Tribe Reserved and Adjudicated Water Rights					
<i>(Annual diversion rights are approximate and may not account for specific timing and volumetric limitations associated with some rights)</i>					
River Basin	Type	Annual Diversion Right (AFY)	Depletion Right (AFY)	Net Acres (approx.)	Priority Dates
Animas River	River Direct Diversion	2,334	-	551	1868
	Ponds, Springs, Wells, etc.	34	-	Domestic, Livestock, Wildlife, etc.	1868
	Animas-La Plata Project	44,662	16,525	DCMI Only	1868/1938 ¹
Florida River	River Direct Diversion	1,090	-	545	1868 subordinated to 1976
	Ponds, Springs, Wells, etc.	13	-	Domestic, Livestock, Wildlife, etc.	1868
	Florida Project	2,563	-	1,054	various
La Plata River	River Direct Diversion	657	-	155	1868
	Ponds, Springs, Wells, etc.	142	-	Domestic, Livestock, Wildlife, etc.	1868
Piedra River	River Direct Diversion	1,595	-	535	1868
	Stollsteimer Creek Direct Diversion	1,800	-	600	1912 subordinated to 1986; 1928
	Devil Creek Direct Diversion	183	-	61	1868 subordinated to 1986
	Ponds, Springs, Wells, etc.	22	-	Domestic, Livestock, Wildlife, etc.	1868
	Lake Capote (supplemental storage)	1,850	-	Used to supplement direct diversion irrigation when water is unavailable or out of priority	1868
1,850 (refill)		-	1986		

TABLE 5.2-A

Southern Ute Indian Tribe Reserved and Adjudicated Water Rights

(Annual diversion rights are approximate and may not account for specific timing and volumetric limitations associated with some rights)

River Basin	Type	Annual Diversion Right (AFY)	Depletion Right (AFY)	Net Acres (approx.)	Priority Dates
Pine River	River Direct Diversion	65,852	-	15,973 ²	1868
	Ponds, Springs, Wells, etc.	246	-	Domestic, Livestock, Wildlife, etc.	1868
	Ute Municipal Direct Diversion	1,571	-	DCMI Only	1868 subordinated to 1976
	Vallecito Reservoir (supplemental storage)	21,613	-	Used to supplement direct diversion irrigation and Ute Municipal right when water is unavailable or out of priority	various
San Juan River	River Direct Diversion	1,530	-	510	1868
	Cat Creek Direct Diversion	1,372	-	482	1868
	Round Meadow Direct Diversion	975	-	325	1868
	Ponds, Springs, Wells, etc.	149	-	Domestic, Livestock, Wildlife, etc.	1868
Mancos River	Stock Ponds Only	1	-	Livestock, Wildlife	1868
Navajo River	Springs, Ponds	19	-	Livestock, Wildlife	1868
Reservation-Wide All Basins	Miscellaneous (future wells, road maintenance, oil and gas)	2,130	2,130	DCMI, Livestock	1868
Total Diversion Right (does not include supplemental storage volumes)		128,939			

¹ Like most of the rights included in the Colorado Ute Indian Water Settlement Act of 1988, Southern Ute's A-LP right has an 1868 priority date based upon the establishment of the reservation, but it also shares in the A-LP adjudication date of 1966, and an appropriation date of 1938.

² Pine River Irrigated Acreage includes all Tribal Tract A, Tract B, and Tract C lands as listed in the Vallecito Reservoir 1940 MOU between BIA, Reclamation, and SUIT.

The reliability of SUIT's surface water supplies varies greatly depending on the river basin and the year. Table 5.2-B describes the general reliability of the surface water supplies.

TABLE 5.2-B Surface Water Reliability		
River	Reliability	Description
Animas River	Good	Large watershed; reliable flows; Tribe has storage rights under A-LP and some direct diversion rights; shortages currently uncommon.
Florida River	Fair	Small watershed; large number of users; Lemon Reservoir, the only storage in this drainage, often fails to fill, resulting in a diminished supply to all irrigators; shortages are not uncommon.
La Plata River	Poor	Small watershed; over-allocated; Tribe has limited rights; shortages are very common. Water availability is further restricted because of the La Plata River Compact with New Mexico.
Piedra River	Excellent	Small number of Tribal water users; reliable flows; Tribe has direct diversion and some storage rights; shortages very uncommon.
Pine River	Excellent	Tribal direct diversion rights are the most senior on the river; primary source of water for the majority of Tribal irrigators; good reservoir storage; shortages very uncommon.
San Juan River	Good	Large watershed; reliable flows; small number of Tribal users; Tribe has some direct diversion rights and undeveloped storage rights; shortages uncommon.

5.2.4.2 Federal Project Water Allocations

SUIT's settlement-based water rights, as described above, include allocations from the following federal reservoir projects:

Animas-La Plata Project

The A-LP Project was a key component of the 1988 Settlement Act. The primary objective of the A-LP at that time was to supply irrigation, municipal and industrial water to the Ute Mountain Ute and Southern Ute Tribes. However, due to concerns over the potential adverse effect of the Project on two endangered fish, the 1988 Settlement Act provisions were amended in 2000 and provided for the completion and



The A-LP Project's Ridges Basin Dam and Reservoir, Lake Nighthorse, near Durango, Colorado.

Photo courtesy of Southern Ute Indian Tribe

implementation of a downsized Project and elimination of the irrigation component. Approval to begin construction was granted in October 2001, initial site work began in April 2002, and the work was completed in 2013. The A-LP Project off-channel reservoir, Lake Nighthorse, which filled in 2011, stores water diverted from the Animas River. SUIT's allocation in the A-LP Project is 38,108.5 AF of storage with a depletion right of 16,525 AFY for municipal and industrial use. Due to a lack of infrastructure, the Tribe is limited in how it can currently utilize its A-LP storage allocation, but efforts are being made to address this issue.

Florida Project

The Florida Project, operated by the Florida Water Conservation District, delivers storage water from Lemon Reservoir to 1,054 irrigable acres of SUIT lands in the Florida drainage. Lemon Dam and Reservoir, located on the Florida River, was completed in 1963 by Reclamation as a key part of the Florida Project. The Reservoir has a capacity of 40,146 AF to provide irrigation water and flood control and, of the full capacity, 2,563 AF is allocated for Tribal parcels. The Reservoir is operated based on shared shortage and often fails to fill, resulting in a diminished supply to all irrigators.



Rehabilitation of a Tribal canal in the Pine River valley using a dragline – circa 1964.

Photo courtesy of Southern Ute Indian Tribe

Pine River Indian Irrigation Project

This BIA-operated project serves both Tribal and other irrigators across 16,966 acres of irrigable land. Most of the irrigated lands receive direct diversions through approximately 175 miles of project ditches and laterals. Vallecito Dam and Reservoir was completed in 1940 by Reclamation primarily to provide storage water for irrigation purposes along with some other uses. One sixth of the 129,700 AF Reservoir capacity belongs to SUIT; the other 5/6ths belong to the Pine River Irrigation District, which operates the Reservoir.

5.2.5 Current Water Use and Operations

The majority of SUIT's current water use is for agricultural irrigation, although a small percentage (approximately three percent) is used for domestic, commercial, municipal and industrial (DCMI) purposes.

5.2.5.1 Irrigated Agriculture and Livestock Water Use Category

Most agricultural production on the SUIT Reservation is focused on hay production and maintaining irrigated pasture for livestock. Historically, grain and tree fruit crops were grown in the area, but this has diminished as regional food production patterns have changed.

A short growing season (120-150 days) and temperature extremes have precluded the production of many other crops in the area. Some residents keep small vegetable gardens and backyard orchards, but this use is relatively small in the scope of this study.



A network of telemetry linked gages provide real-time ditch flow measurement on portions of the Pine River Indian Irrigation Project.

Photo courtesy of Southern Ute Indian Tribe

The majority of the Tribe’s irrigated lands is held by individual Tribal members as allotments or assignments ranging in size from 20 to 200 acres, making them suitable only for producing supplemental income from agriculture. Even among other irrigators in the area, single-income, full-time farm operations are the exception.

The Tribe does not currently have any commercial farm operations, but it does maintain a small buffalo herd of around 30 head for Tribal member consumption and cultural uses.



Hay production is the focus of most irrigators on the Southern Ute Indian Reservation.

Photo courtesy of Southern Ute Indian Tribe

Of the Tribe’s 22,000 acres of potentially irrigable land, only 7,500 acres or so are currently in production and actively managed. Much of this disparity is due either to a lack of water delivery infrastructure or the poor condition of existing infrastructure. The Pine River Indian Irrigation Project (PRIIP), which serves the majority of Tribal irrigators, suffers from a large maintenance backlog, a lack of funding, and staffing shortages.

Whether it is the Florida Project, the PRIIP, or smaller private ditches, all water delivery to Tribal lands is by means of unlined canals and ditches. Many of the diversions and other ditch structures are between 50 and 90 years

old and flood irrigation is still the primary form of irrigation among Tribal water users. With grant and technical assistance from Reclamation, the Tribe has installed a network of remote gage stations to monitor diversions on portions of the PRIIP; this has been recently expanded to include two automated ditch headings. The Florida Water Conservancy District has also installed a few automated headgates and started lining a portion of its primary canals, but the majority of the irrigation systems, both on and off the Reservation, are still manually operated.

In addition to irrigated lands, approximately 70,000 acres of grazing lands are currently available by permit to Tribal members raising livestock. These range units are managed by the Tribe’s Range Division and are scattered across the Reservation. Water sources on the range units consist of a mix of wells, livestock ponds, springs, and catchments and are utilized by wildlife as well as livestock. These sources are generally reliable, but drought conditions over the past decade have affected the availability of both water and forage. Diversion totals for Tribal irrigation for the period from 2009 through 2013 are presented in Table 5.2-C.

TABLE 5.2-C SUIT Irrigation Diversions (2009 – 2013) ¹					
Irrigation Diversions	Year (AF)				
	2009	2010	2011	2012	2013
Surface Water	31,450	31,500	31,600	31,500	31,500
Groundwater	minor	minor	minor	minor	minor
Storage	2,865	2,725	2,670	2,875	2,800
Total	34,315	34,225	34,270	34,375	34,300

¹ Annual volumes depict major diversions and are not comprehensive.

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

Domestic Use

Approximately 600-800 AFY of water is delivered through the Southern Ute municipal water system to serve Tribal homes, offices, and facilities, as well as other households, retail businesses, and light industrial operations around Ignacio. Tribal households not served by the municipal system rely upon wells or water hauling to obtain their domestic water. Much of the water used for large-scale outdoor landscaping around Ignacio (parks, athletic fields, etc.) comes from area irrigation ditches or is pumped from the Pine River under a state adjudicated right.

Domestic water sales to the Town of Ignacio system account for roughly 15 percent of the current Ute municipal water treatment plant output. The estimated average water use per day and year is described in Table 5.2-D. Table 5.2-E presents additional information on daily water use. The DCMI water use for the period from 2009 through 2013 is presented in Table 5.2-F. Use in 2010 and 2011 is high because of pipeline leaks.



The treatment plant for the Ute municipal system that serves the Southern Ute Indian Tribe campus, the Town of Ignacio, and close to 350 residences via 19 miles of pipeline.

Photo courtesy of Southern Ute Indian Tribe

TABLE 5.2-D Domestic, Commercial, Municipal, and Industrial Use under the Ute Municipal Diversion for 2013		
Water Use	Volume (average gallons per day)	Volume (AFY)
Water Sold to Town of Ignacio system	71,430	80
Tribal Household Use - On Pipeline	37,485	42
Tribal Household Use - Contract Haul	6,873	8
Tribal Casino Use	84,917	95
Tribal Sun Ute Recreation Center Use	8,180	9
Other Household Use - On Pipeline	15,575	17
Other Uses (Includes, commercial water dock sales, Tribal campus use, fire hydrants, etc.)	225,827	253
Total Water Treatment Plant Output	450,287	504¹

¹ Treatment Plant annual output amounts may differ from annual diversion amounts due to settling pond evaporation and seepage, raw water used for back flushing operations, etc.

TABLE 5.2-E Daily Water Use per Customer Type on Ute Municipal System			
Customer Type	Number of Accounts	Average Use per Account (gallons per day)	Total Average Use per day (gallons)
Tribal Households on Pipeline	255	147	37,485
Tribal Households on Contract Haul	56	122	6,873
Other Households on Pipeline	89	175	15,575
Accounts in Ignacio System (includes household and commercial accounts)	413	173	71,430

TABLE 5.2-F Domestic, Commercial, Municipal, and Industrial Surface Diversions (2009 – 2013) ¹					
DCMI Surface Diversions	Year (AF)				
	2009	2010	2011	2012	2013
Ute Municipal System	978	1,009	1,012	870	632

¹ Annual volumes depict major diversions and are not comprehensive.

Commercial and Industrial Use

Despite extensive oil and gas development on the SUIT Reservation, current commercial and industrial uses of Tribal water are somewhat limited. Based on anecdotal observations, a large portion of the water purchases at the commercial water dock on the Ute Municipal system are by oil and gas contractors hauling water for construction and maintenance operations, but these uses are not tracked. In Colorado Water Division 7, water is broadly available, legally and physically, for oil and gas development activities so operators have not had to rely on decreed sources, with the exception of coalbed methane wells that intercept tributary groundwater in water critical areas. In these cases, operators are required to augment any potential depletions to prevent injury to senior users. The Tribe has agreements in place to provide 30 AFY of exchange water for these augmentation purposes. Other recent industrial uses have included a gravel pit and concrete batch plant operated as a Tribal enterprise. These operations have relied upon state-adjudicated well rights for their water supplies.

SUIT's Consent Decrees include 117.5 AFY of reserved water rights for uses associated with oil and gas development and 12.05 AFY for uses associated with road construction and maintenance. These uses have not historically been quantified or recorded.

5.2.5.3 Environmental, Cultural, and Recreational Water Use Category⁵

SUIT places a high value on water quality because of its importance to aquatic life, wildlife, and human life. The Tribe has monitored water quality on the Reservation for over 20 years with support from the U.S. Environmental Protection Agency (EPA) under the Clean Water Act Section 106 Program. The Tribe has recently applied for Regulatory Authority from the EPA to implement its own Tribal Water Quality Standards on the Reservation.

⁵ These uses are non-consumptive.



Pine River north of Ignacio. In many ways the rivers are the heart of the Southern Ute Indian Reservation.
Photo courtesy of Southern Ute Indian Tribe

Historically, water quality concerns on the reservation focused on the Animas River and the potential heavy metal contamination from the Silverton mining district, located about 45 miles upstream of the SUIT Reservation border. However, sampling has shown that while the metals are found in significant quantities in the Silverton area, they do not appear to be of significant concern downstream on the portion of the Animas that crosses the Reservation.

Today, the primary water quality concerns on the Reservation center on elevated nutrient concentrations in several of the rivers. Discharges from waste water treatment plants, leaky septic systems, and runoff from agricultural production all lead to increased concentrations of nitrogen and phosphorus. These nutrient levels can cause high variations in water chemistry which can be stressful to aquatic life and manifest itself in reproductive and behavioral problems.

Other parameters of concern on the Reservation are concentrations of *E. coli*, a bacterial pollutant from livestock. Heavy livestock grazing in river bottoms has reduced riparian vegetation that impacts stream stability, water temperature, and sediment load to the river. Low flow conditions from decreased snowpack runoff and demands from irrigation can also yield higher temperatures and decreased habitat for aquatic life. In response, the Tribe has started excluding riparian zones from agricultural assignments. Local cost-share programs are also available to assist with riparian exclusion fencing projects.

SUIT is a participant in the SJRBRIP, the reasonable and prudent alternative which ultimately allowed construction of A-LP to move forward. Concerns over the potential impacts on endangered fish species led to the downsizing of the A-LP in 2000 as well as the incorporation of an environmental bypass flow requirement. The SJRBRIP has two goals: (1) to conserve populations of Colorado pikeminnow and razorback sucker in the San Juan Basin, consistent with the recovery goals established under the Endangered Species Act; and (2) to proceed with water development in the Basin in compliance with federal and state laws, interstate compacts,

court decrees, and federal trust responsibilities to the SUIT, UMUT, and the Jicarilla Apache and Navajo Nations.

Among other things, the SJRBRIP established flow recommendations to protect the endangered fish populations in the San Juan River which also directly benefit the health of riparian plant communities. Riparian areas and many of their plant species are culturally significant to the Tribe. The use of Tribal reserved water rights for maintaining environmental flows on the Pine River is currently pending. Decreed flows may potentially range from five to 360 cfs.

Of SUIT’s water resources, only Lake Capote is operated specifically for recreational purposes, including fishing, boating and aesthetic/camping purposes. Vallecito Reservoir, Lemon Reservoir, and Lake Nighthorse are all operated for storage purposes, with fishing, boating, and camping as additional benefits. Lake Nighthorse recently opened to recreation.

All Tribal water rights in area rivers contribute to recreation opportunities. Tribal fishing permits, available to the general public, allow fishing access to SUIT lands on the Animas, Pine, Piedra, and San Juan Rivers. Rafting, both commercial and private, takes place on the Animas, Piedra, and San Juan Rivers.



Lake Capote with Chimney Rock National Monument in the background.

Photo courtesy of Southern Ute Indian Tribe

5.2.5.4 Reservoirs

As described earlier, SUIT has storage allocations in several federal reservoirs: Vallecito Reservoir on the Pine River, Lemon Reservoir on the Florida River, and Lake Nighthorse off-channel from the Animas River. In addition, the Tribe owns Pargin Reservoir, better known as Lake Capote, located on Stollsteimer Creek, a tributary of the Piedra River. Lake Capote is currently operated for recreational and fishery purposes as it serves a small camping facility operated by the Tribe, but it is also decreed for irrigation, domestic, stock, and augmentation use. Lake Capote is decreed for 1,850 AF of storage rights plus one refill, but the facility currently has capacity for only 654 AF.



Lemon Reservoir on the Florida River provides irrigation water to Tribal and other irrigators on the central portion of the Southern Ute Reservation.

Photo courtesy of Southern Ute Indian Tribe

The reservoir capacities are listed in Table 5.2-G.

TABLE 5.2-G Southern Ute Indian Tribe System Reservoirs		
Reservoir Name	Reservoir Capacity (AF)	Southern Ute Indian Tribe Portion (AF)
Vallecito Reservoir	129,700	21,617 AFY Allocation primarily for irrigation purposes
Lake Nighthorse	123,500	38,108.5 AF of storage capacity for municipal and industrial uses
Lemon Reservoir	40,146	2,563 AF capacity for irrigation and flood control
Lake Capote	654 ¹	1,850 AF decreed storage + 1,850 AFY refill right
Total	294,000	65,988.5

¹ Lake Capote’s current capacity is less than the full decreed amount.

5.2.5.5 Water Use Efficiency and Conservation

SUIT’s Agriculture Division is currently undertaking an agricultural lands rehabilitation project. The goal of the project is to restore the condition and productivity of Tribal irrigated lands by installing new center pivot and side-roll sprinkler systems on tracts of land that are currently unmanaged or neglected. It is hoped that these installations can exhibit the value of modern efficient irrigation methods, help demonstrate different crop types and their relative characteristics, and provide a high-quality, low cost hay source for Tribal members while helping reduce the amount of noxious weeds and erosion on Reservation lands.

Cost-share opportunities to improve irrigation efficiency and reduce nonpoint source pollution from return flows are also available to individual Tribal irrigators through both the Natural Resources Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP) and EPA section 319 grants. The EPA grants are administered through the Tribe’s Environmental Programs Division and the NRCS has a representative based in Ignacio. Over the past decade, the Tribe has worked with 38 area irrigators, 27 of which are Tribal, through its section 319 program.

In addition, the Tribe is in the process of developing several water management guidance documents. The Tribe recently completed Phase I of its Water Resources Inventory Planning Document. In addition, a draft conservation/efficiency plan for its Florida Project lands has been completed, and a similar plan for its Pine River irrigated lands is contemplated.

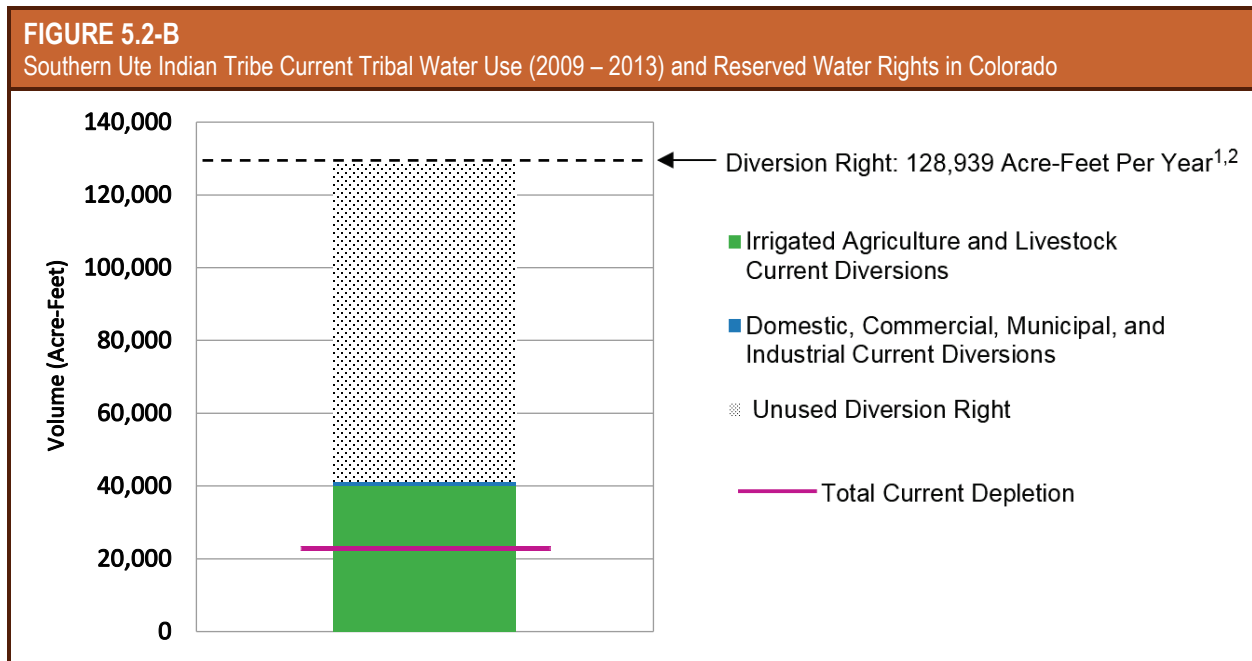


Gated pipe provided by cost-share programs help improve irrigation efficiency on the Southern Ute Indian Reservation as well as helping to reduce erosion and sediment load in area rivers.

Photo courtesy of Southern Ute Indian Tribe

5.2.5.6 Summary of Current Water Use

Current annual water use for SUIT’s reserved water rights is presented below in Figure 5.2-B and Table 5.2-H. Irrigation diversion records do not always separate out Tribal and other use. Therefore Tribal irrigation diversions were calculated based upon current irrigated acreage, water supply characteristics such as 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.



¹ Source: Total diversion right calculated based on water right amounts and volumetric limitations specified in the State of Colorado and the Colorado Ute Indian Water Rights Settlement Act of 1988, Pub. L. No. 100-585, 102 Stat. 2973 (1988), further amended in 2000 and 2007. Consent Decrees entered December 19, 1991, under case W-1603-76A-K; the Consent Decrees for the Animas and La Plata River were amended in 2006.

² Includes Southern Ute Indian Tribes's Animas La-Plata depletion right of 16,525 AFY converted into a diversion right by applying a 37 percent efficiency for a diversion right of 44,662 AFY.

TABLE 5.2-HSouthern Ute Indian Tribe Current Annual Water Use by Basin in Colorado (2009 – 2013)¹

Source	Water Use Category	Diversion (AFY)	Estimated Current Depletion (AFY)
Animas River	AG	2,363.70	1,313.30
	DCMI	4.69	1.74
San Juan River	AG	519.14	435.39
	DCMI	4.69	1.41
Pine River	AG	34,431.22	18,979.19
	DCMI	1,152.21	345.75
Piedra River	AG	13.65	13.65
	DCMI	8.05	2.42
Florida River	AG	2,007.37	1,107.37
	DCMI	5.36	1.61
La Plata River	AG	796.68	501.19
	DCMI	2.01	0.74
Mancos River	AG	0.81	0.81
Navajo River	AG	19.14	19.14
Misc. (future wells, road maintenance, oil and gas)	DCMI	-	-
Subtotals	AG	40,151.71	22,370.04
	DCMI	1,177.01	353.66
Total		41,328.72	22,723.70

¹ The period 2009 through 2013 was used to guide the development of current annual water use, but additional information was provided for the purposes of the Tribal Water Study.

AG – Irrigated Agriculture and Livestock

DCMI – Domestic, Commercial, Municipal, and Industrial

5.2.6 Tribal Water Use Challenges

5.2.6.1 Supply Challenges

When considering the challenges SUIIT faces in using their water, the logical starting point is water supply. The Tribe is fortunate in that its Reservation and corresponding reserved water rights span several San Juan River tributary basins. Being located higher up in the watershed generally means that both water supply and water quality are good. The drawback is that the supply is more reliant on natural streamflow levels fed directly by snowpack and rainfall, and therefore is more likely to be impacted by localized drought patterns. Although the construction

of reservoirs in the area has aided in providing a more reliable annual water supply, some of the smaller watersheds, like the Florida and La Plata Rivers, are still prone to shortages. At present, little to no infrastructure exists to move water between any of the basins. Prolonged regional drought and shifting climate patterns pose a much greater supply challenge because of their impacts across all watersheds in the region. There has historically been, and will likely be in the future, supply and demand challenges due to large-scale regional drought. Historic drought conditions have impacted the water supply, even within the reservoir structures. Lack of adequate precipitation to fill the reservoirs coupled with high temperatures can lead to water shortages, especially in the later summer months.



High elevation snowpack, like that from the San Juan Mountains, plays a significant role in the reliability of water supplies on the Southern Ute Reservation. In the foreground is Dry Creek, a tributary of the Pine River.

Photo courtesy of Southern Ute Indian Tribe

5.2.6.2 Infrastructure Challenges

Probably the greatest challenge SUIT faces in trying to access and utilize its reserved water rights relates to the costs of maintaining existing and developing new water delivery infrastructure for both agricultural and municipal purposes. Agriculture accounts for the vast majority of current Tribal water use. Irrigation use is highly visible and therefore irrigation infrastructure issues are more easily highlighted. Domestic water use may constitute a smaller overall percentage of Tribal water but the importance of being able to easily access safe and clean domestic water cannot be overstated due to its direct impacts on human health and quality of life. For these reasons, the majority of recent Tribal water infrastructure investments have been focused on domestic systems.



Irrigation technology and infrastructure on the Southern Ute Reservation has changed little in the past 60 years.
Photo courtesy of Southern Ute Indian Tribe

5.2.6.3 Agriculture

SUIT farm lands are served by two federal irrigation projects and numerous small, stand-alone ditches. In some instances diversification can be beneficial, but in this case the lack of a large integrated irrigation system leads to numerous inefficiencies and a duplication of efforts. It means that Tribal managers and irrigators have to deal with several entities, varying water delivery policies and schedules, multiple billing systems, and differing levels of system reliability. The lack of remote monitoring and system automation increases the amount of time and labor required to administer water delivery, contributes to the likelihood of conflict between water users, and leads to less efficient utilization of the water itself.



Significantly deteriorated infrastructure hampers irrigation water delivery to portions of the Southern Ute Reservation.
Photo courtesy of Southern Ute Indian Tribe



The broken terrain of the Southern Ute Reservation requires extensive engineering to convey irrigation water. A series of large drop structures on the Dr. Morrison Canal as it appeared in 1927 (above), and its modern configuration upon completion in 1959 (right).

Source: Irrigation Reports, 1907-1946. Phoenix Area Office. Branch of Irrigation. Records of the Bureau of Indian Affairs (RG 75). National Archives at Riverside, Perris, CA.

Currently, maintenance of the PRIIP infrastructure is performed primarily by the BIA Irrigation Division. With more than 175 miles of irrigation canals and laterals, the BIA struggles to maintain a large enough budget and staff to properly address all the infrastructure issues on the PRIIP.

Most of the irrigation systems within the boundaries of the SUI Reservation were constructed over 50 years ago, with some of them considerably older. The majority of Tribal irrigators are served by the BIA's PRIIP. Much of the PRIIP's system infrastructure is over 100 years old and has not seen major project-wide rehabilitation since the 1960s. Roughly one-third of the project's 16,966 designated acres lack any means of water delivery. On those portions with existing delivery systems, the actual delivery of water is often hampered by the poor condition of those systems. Ineffective diversion structures, broken headgates, leaking flumes, eroded drop structures, damaged measurement devices, failed culverts, and vegetation-choked ditches mean that many Tribal irrigators receive only a fraction, if any, of the irrigation water they are entitled to receive and for which they pay non-refundable annual operation and maintenance fees.



Maintenance on other Tribal ditches is handled by the SUIT's Water Resources Division or by the water users themselves. Management, operation, and maintenance expenses increase on an annual basis; however, federal and Tribal budgets are not able to increase at the same rate. This makes it increasingly difficult to maintain, much less improve or expand, the irrigation delivery infrastructure.

The overall topography of the Reservation is extremely variable, making conveyance and application of irrigation water difficult. Canal alignments are often long and sinuous in order to negotiate the broken terrain and maintain grade. It is not uncommon to have canals perched high on steep hillsides and alluvial benches. Area soils can be highly erosive and unstable which makes those canals on steep hillsides vulnerable to seepage, slumps, and complete bank failures.

Irrigable parcels are generally small and irregular in shape. An individual 160-acre allotment may be bisected by several arroyos and small drainages, making the installation of center pivots, side rolls, or even gated pipe challenging. Gently or irregularly sloping pastures can be difficult to properly spread water across, making even flood irrigation practices challenging. A lack of lined or piped canals does not allow for easy sprinkler or gated-pipe configurations and leads to increased seepage and transmission loss.

These topographical challenges, combined with the financial costs associated with sprinkler systems, means most Tribal irrigators continue to rely on flood irrigation.

The physical and financial challenges associated with the Tribe's irrigation infrastructure also present a related set of socio-economic challenges.

The increasing costs and unreliability of irrigation water delivery make agricultural operations an economically daunting prospect for many Tribal members. The

economics of agriculture in the area have always been challenging due a shorter growing season and a lack of good transportation options for moving products to market. Additionally, the Tribe struggles with the same issue that plagues agricultural communities nationwide: a lack of interest by the younger generations and the inability of older generations to sustain the level of effort required to be financially successful. So the challenge ultimately becomes how to provide reliable, efficient delivery of irrigation water without undermining the economic feasibility of Tribal agricultural operations or further discouraging the recruitment of younger Tribal producers.



The topography of the Southern Ute Reservation presents numerous challenges for agricultural producers, including erosive soils, sinuous canal alignments, rolling terrain, and rocky outcrops.

Photo courtesy of Southern Ute Indian Tribe

5.2.6.4 Domestic

There is a definite need in the area for the development of rural water systems to serve both Tribal and other populations. Poor groundwater quality and declining well production rates force many residents to rely on water hauling.

However, the checkerboard nature of landownership on the Reservation, combined with the rural, dispersed settlement pattern of the area's population, makes the development of domestic water systems complicated and expensive. Although the comingled populations do offer some opportunities for Tribal municipal systems to market water to nearby non-tribal residents or for isolated Tribal populations to access domestic water by means of a non-tribal system, these projects require significant cooperation among various land owners and jurisdictions to obtain rights of way, develop inter-governmental agreements, etc. Some local entities are hesitant to partner with the Tribe on projects due to differing regulations, sovereign immunity considerations, and questions regarding taxing authority.

Even without these logistical hurdles, the difficulty of obtaining funding to develop new municipal infrastructure is a huge challenge. Reductions in federal allocations, shrinking local budgets, declining tax revenues due to the drop in oil and gas prices, and, the ever-rising costs of construction materials only continue to add to that challenge.



Rural domestic water systems can require miles of pipeline to serve only a small number of residences, increasing the per user costs for both construction and maintenance.

Photo courtesy of Southern Ute Indian Tribe

5.2.6.5 Legal and Administrative Hurdles and Costs

As previously mentioned, SUIIT's reserved water rights have been quantified and are decreed by river basin or watershed. However, settling the Tribe's water rights is just the first step in the process. Implementation of the Tribe's water rights is an on-going process including, among other things, protection of those rights from infringement, encroachment and injury. Moreover, while there is a demand for water in multiple sectors outside of the Reservation boundaries, the challenges facing the Tribe in accessing those demands includes certain legal limitations.

5.2.7 Projected Future Water Development

SUIT'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.

SUIT 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).

The actual quantification was performed by systematically considering, in light of current conditions and trends, each of the Tribe’s reserved water rights, including:

- The decreed uses,
- The demand for those uses,
- The reliability of the water supply, and
- The infrastructure required to develop or expand the use of that water right.

From this examination, SUIT extrapolated likely future use if current trends (Scenario A) continued through 2060 and prepared a quantified water development schedule. Subsequently, SUIT 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.

5.2.7.1 Future Water Development Schedules

The assumptions for each schedule are described below and the quantified schedules are presented graphically in Figure 5.2-C and numerically in Table 5.2-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 SUIT Reservation could increase by approximately 60 percent, mainly due to increased AG water use along the San Juan, Pine, Piedra, and Florida Rivers. DDMI water use could more than double by 2060, mostly due to use along the Pine River. ENV water use could increase to as much as 5,500 AFY along the Pine River. 700 AFY could be diverted for TRAN from the Animas River by 2060.

Slow Water Development Trends (Scenario B)

Decreases in flexibility in the governance of tribal water, levels of funding, and the resolution of tribal claims could slow tribal economic development in Scenario B. Under this scenario, SUIT prepared a water development schedule that projects total water diversions could decrease approximately 15 percent by 2060. Declining levels of funding and a lack of tribal economic development are expected to result in the continued decline of aging irrigation infrastructure and corresponding reductions in AG Water Use. DDMI use would likely stabilize because of slower growth in both Tribal and other demand.

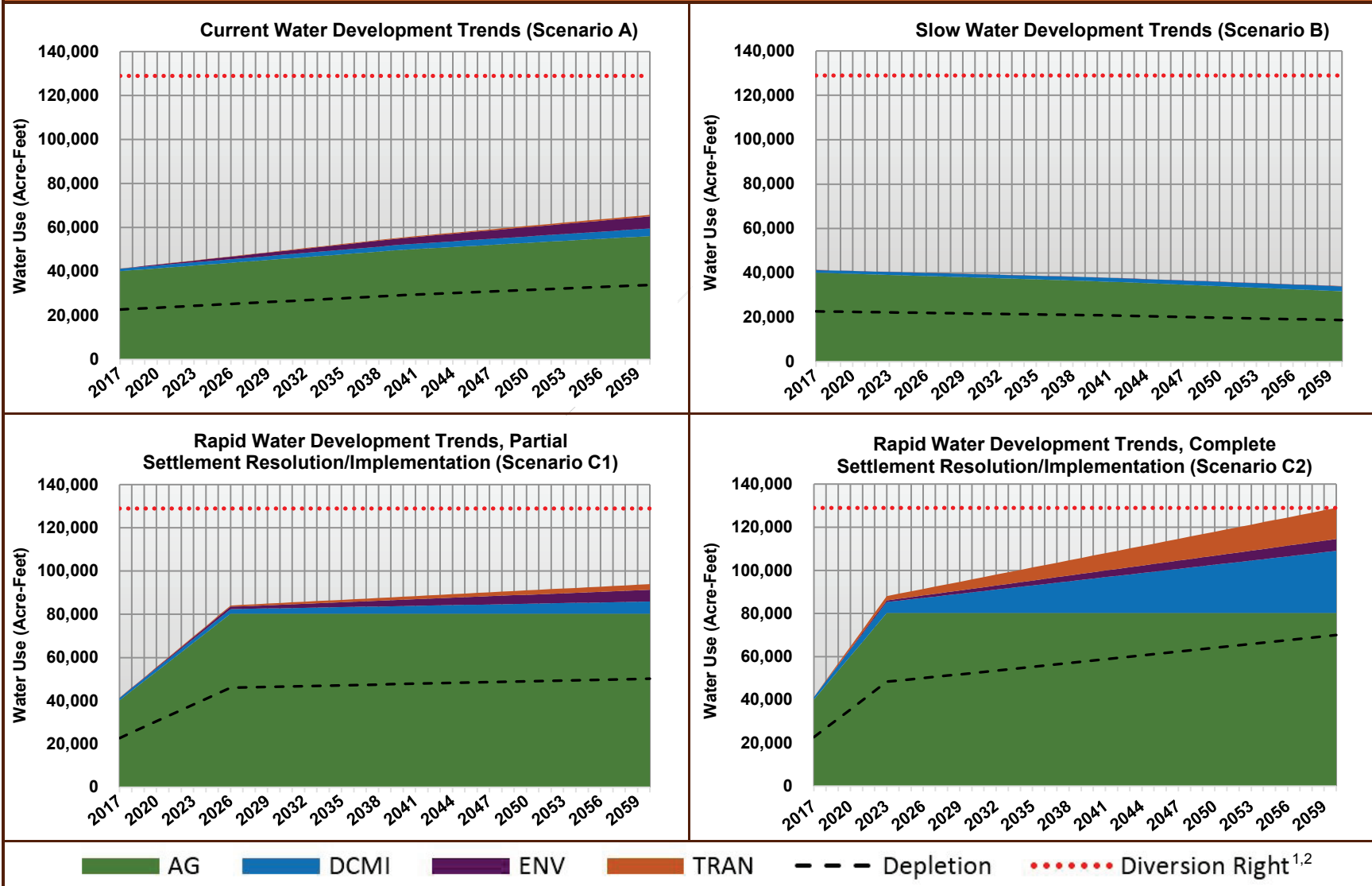
Rapid Water Development Trends, Partial Settlement Resolution/Implementation (Scenario C1)

Under Scenario C1, a partial resolution of tribal water 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 expanded tribal economic development. By 2060, total SUIT water diversions would increase approximately 2.25 times. This is mostly due to a doubling in agricultural water diversions by 2026 to 80,283 AFY because of irrigation infrastructure expansion and improvements. This level of AG water use continued through 2060. DDMI water use could increase five times by 2060 and ENV water use could increase to as much as 5,430 AFY on the Pine River. 2,620 AFY could be diverted for TRAN from the Animas River by 2060.

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 economic and water development opportunities. Under this scenario, SUIT assumed full use of its right by 2060. AG water use was maximized at 80,283 AFY in 2023, so all development after that time is in the DDMI, ENV, and TRAN water use categories. DDMI diversions increase almost 25 times by 2060. Most of the remaining use is due to TRAN, which increase to 14,410 AFY by 2060.

FIGURE 5.2-C
Southern Ute Indian Tribe Projected Future Water Development in Colorado (Scenarios A, B, C1, and C2)



¹ Southern Ute Indian Tribe's total Colorado reserved diversion water right is estimated to be 128,939 AFY.

² Includes Southern Ute Indian Tribe's Animas La-Plata depletion right of 16,525 AFY converted into a diversion right by applying a 37 percent efficiency for a diversion right of 44,662 AFY.

5.2.7.2 Summary of Projected Future Water Development

SUIT'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 5.2-I.

TABLE 5.2-I									
Summary of Southern Ute Indian 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	40,152	22,370	40,152	22,370	40,152	22,370	40,152	22,370
	DCMI	1,177	354	1,177	354	1,177	354	1,177	354
	ENV	0	0	0	0	0	0	0	0
	TRAN	0	0	0	0	0	0	0	0
	Total	41,329	22,724	41,329	22,724	41,329	22,724	41,329	22,724
Use at 2040	AG	49,911	28,066	36,272	20,397	80,283	45,146	80,283	45,146
	DCMI	2,356	790	1,712	543	3,560	1,194	15,923	5,342
	ENV	2,942	59	89	2	2,904	58	2,942	59
	TRAN	374	374	0	0	1,401	1,401	7,708	7,708
	Total	55,583	29,289	38,073	20,942	88,148	47,799	106,856	58,255
Use at 2060	AG	56,127	31,856	31,811	18,055	80,283	45,566	80,283	45,566
	DCMI	3,452	1,196	2,177	724	5,632	1,952	28,746	9,963
	ENV	5,500	110	116	2	5,430	109	5,500	110
	TRAN	700	700	0	0	2,620	2,620	14,410	14,410
	Total	65,779	33,862	34,104	18,781	93,965	50,247	128,939	70,049

¹ Southern Ute Indian Tribe's total Colorado reserved diversion water right is estimated to be 128,939 AFY.

² Includes Southern Ute Indian Tribe's Animas La-Plata depletion right of 16,525 AFY converted into a diversion right by applying a 37 percent efficiency for a diversion right of 44,662 AFY.