5.7 Chemehuevi Indian Tribe

5.7.1 Introduction

Established in 1907, the Chemehuevi Indian Reservation (Reservation) is located approximately 40 miles south of Needles, California on the California shore of Lake Havasu, across the reservoir from Lake Havasu City, Arizona. The Reservation is comprised of approximately 32,000 acres of trust land that includes thirty miles of Colorado River frontage.

The Reservation is divided into two segments, one directly north of Havasu Landing and one directly to the south. An improved road cuts through the northern segment from Havasu Landing with unsurfaced roads branching off of it. The northern section also has a private, unimproved air strip. The southern section has much rougher terrain and only one surfaced road entering into the southeast corner serving the Roads End Trading Post.

The Chemehuevi Indian Tribe (Tribe) has an enrollment of 1,145 members, with approximately 250 living on the Reservation. Approximately 350 tribal members live near the Reservation area and access and use Tribal water resources.

Figure 5.8-A presents a general location map with Reservation boundaries, communities, and other important features.

5.7.2 Physical Setting

The topography in the northern half of the Reservation is distinctly different from that of the southern portion. The north is primarily an outwash area from hills to the west with an average slope of three percent or less leading towards Lake Havasu. Elevation for this area averages around 870 feet at its high point, down to about 500 feet.

The southern half of the reservation is more rugged and comprised largely of the Whipple Mountains. Rocky outcrops, canyons, and deep washes are typical; however, the shoreline areas are relatively flat. Elevation for this area averages 1050 feet down to 500 feet.

5.7.2.1 Watersheds

The Colorado River forms the eastern border of the Reservation. Flows in this reach of the river are regulated by Davis and Parker Dams.

The Reservation gets an annual average of approximately 4 in of precipitation on the approximately 32,000 acres of Tribal lands. Some of this precipitation comes from monsoonal storms that generate stormwater runoff, which flows towards the Colorado River.

5.7.2.2 Hydrogeology

The Reservation is located on part of the floodplain of the Colorado River in an area of undifferentiated alluvial sediments and sedimentary rocks of Quaternary age that include floodplain deposits and fanglomeratic deposits derived from the surrounding mountains. Colorado River water is supplied to the Reservation by numerous domestic and irrigation wells.

FIGURE 5.7-A
Chemehuevi Indian Tribe Reservation Map

See the Disclaimer and Introduction to Chapter 5.0.

5.7.2.3 Climate

The reservation is in the Sonoran Desert. Wintertime highs are generally in the upper 60s to lower 70s (°F). Lows during the winter are between 40 °F and 50 °F. Highs in June, July, August, and September remain in the 100 °F to 110 °F range, and days over 115 °F or even +120 °F are not rare.

The average annual precipitation is approximately four inches, with winter rains forming about 50 percent of the annual total precipitation. Winter rains are generally gentle, prolonged and occur over a wide area. Sporadic, intense summer rains occur from July – September.

5.7.3 Chemehuevi Indian Tribe Water Supply

The Tribe holds present perfected federal Indian reserved water rights from the Colorado River mainstream pursuant to the decree in *Arizona v. California* ,547 U.S. 150 (2006) (commonly referred to as the 2006 Consolidated Decree). The amounts, including added lands, priority dates, and states where the water rights are perfected are presented in Table 5.7-A.

TABLE 5.7-A
Chemehuevi Indian Tribe Colorado River Decreed Diversion Right

Reservation	State	Diversion Water Right (AFY)[1]	Net Acres	Priority Within State	Priority Date
Chemehuevi Reservation	California	11,340	1,900	PPR	Feb. 2, 1907
Totals		**11,340**	**1,900**		

[1] Source: Consolidated Decree of March 27, 2006. The quantity of water in each instance is measured by (i) diversions or (ii) consumptive use required for irrigation of the respective acreage and for satisfaction of related uses, whichever of (i) or (ii) is less.

AFY – Acre-feet per year

5.7.4 Current Water Use and Operations

Most of the water use on the Reservation is municipal and industrial. Because of poor quality soils, little farming occurs on the Reservation. However, the Lake Havasu area experiences extremely high levels of visitors during the spring and summer and many holidays.

5.7.4.1 Irrigated Agriculture and Livestock Water Use Category

Agricultural water use on the Reservation has focused on providing native plants for cultural purposes and localized fruit and vegetable production for the community. Efforts have been drastically impacted by the lack of funding and the unreliability of an existing surface water pumping station. The Tribal farm has been making a tremendous effort to make its current 80-acre parcel productive. Efforts to amend the soil has caused an increase in water use and additional irrigation needs. Irrigation water is conveyed mostly by approximately 15 miles of pipelines pumping directly from the Colorado River and a few miles of ditches and unlined canals to direct and store flood water.

Table 5.7-B describes well production for the period from 2010 to 2014. Table 5.7-C describes the acreage irrigated and the water application system.

TABLE 5.7-B
Chemehuevi Irrigated Agriculture and Livestock Water Diversions (2010 – 2014)

Diversions	Year (AF)				
	2010	2011	2012	2013	2014
Surface Water Delivered	25	21.2	21.2	39.84	63.2

AF – Acre-feet

TABLE 5.7-C
Chemehuevi Current Agricultural Water Use Application

Crop	Total Acreage	Acreage Irrigated by Application	
		Flood	Sprinkler
Field Crop	40	30	10
Fruit and Tree Nuts	10	10	0
Vegetables	10	10	0
Other	20	20	0

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

Colorado River water is diverted for domestic and municipal use from wells located on the Reservation in the River's floodplain. The East and West Wells pumping stations feed the public water supply system for the Chemehuevi Indian community, the Havasu Landing Resort & Casino entities, and Vista De Lago, a gated community located off Tribal lands but a user of water transferred from the Tribe. Section 36, a community surrounded by the Reservation, currently pumps surface water from the Colorado River, but is interested in obtaining water from the Tribe due to its better quality.

Table 5.7-D describes well production for the period from 2010 to 2014. Table 5.7-E describes municipal and industrial use for the same time frame.

TABLE 5.7-D
Colorado River Water Obtained Via Wells (2010 – 2014)

Diversions	Year (AF)				
	2010	2011	2012	2013	2014
Domestic Wells	116	118	119	185	117
Airport Well (no meter)	5	5	5	0	0
Havasu Ventures Domestic Wells	10	10	10	10	10
Totals	131	133	134	195	127

TABLE 5.7-E
Chemehuevi Domestic, Commercial, Municipal, and Industrial Water Diversions (2010 – 2014)

Diversions	Year (AF)				
	2010	2011	2012	2013	2014
Residential - Tribal	32	29	31	31	32
Residential - Resort	36	41	43	43	40
Commercial, Industrial, and Institutional - Tribal	8	3	6	7	8
Commercial, Industrial, and Institutional - Resort	40	44	39	46	38
Outdoor Landscaping (e.g. parks, golf courses)	1	1	1	1	17
Residential - Tribal	117	118	120	128	135
Totals	32	29	31	31	32

5.7.4.3 Environmental, Cultural, and Recreational Water Use Category

Annually, the Tribal Environmental Department completes projects to expand native vegetation habitats in riparian zones. Areas infested with non-native salt cedar (tamarisk) are being re-vegetated with native cottonwood, willow and mesquite. This restoration effort used five acre feet per year (AFY) between 2010 and 2014.

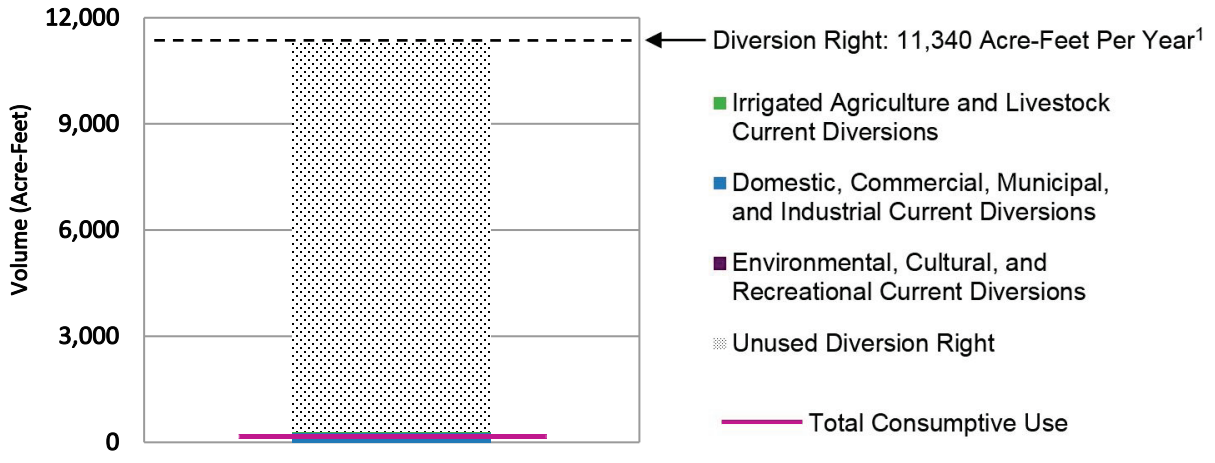
5.7.4.4 Water Use Efficiency and Conservation

All companies and contractors are required to ensure water efficient practices are implemented during the development of projects on Reservation lands.

5.7.4.5 Summary of Current Water Use

The Tribe's average annual water use for the period 2010 through 2014 in California is presented in Figure 5.7-B and Table 5.7-F. The average annual water use for this period is consistent with Reclamation's Colorado River Accounting and Water Use Reports: Arizona, California, and Nevada (Water Accounting Report) (Reclamation, 2017) and was supplemented with water use information provided by the Tribe for the purpose of the Tribal Water Study. Consumptive use was estimated using either efficiency factors in the Water Accounting Report or standard engineering efficiencies.

FIGURE 5.7-B
Chemehuevi Indian Tribe Current Average Annual Water Use in California (2010 – 2014)



[1] Source: Consolidated Decree of March 27, 2006. The quantity of water is measured by (i) annual diversions not to exceed 11,340 acre-feet or (ii) the quantity of mainstream Colorado River water necessary to supply the consumptive use required for the irrigation of 1,900 acres and for the satisfaction of related uses, whichever of (i) or (ii) is less.

TABLE 5.7-F
Chemehuevi Indian Tribe Current Average Annual Water Use in California

State	Water Use Category	Diversion (AFY)	Estimated Current Consumptive Use (AFY)
California	AG	27	14
	DCMI	270	145
	ENV	10	5
Total		**307**	**164**

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

5.7.5 Projected Future Water Development

The Tribe'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.

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):** Decreases 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 Tribe contemplated its future water development through 2060 by reviewing its current water use estimates and reflecting upon how these might change under the four scenarios. During this process, the Tribe considered such elements as the scenario conditions described in the storylines, current or future planned projects, anticipated changes in water use by category, and 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 Tribe extrapolated likely future use if current trends (Scenario A) continued through 2060 and prepared a quantified water development schedule for its reserved water right in California. Subsequently, the Tribe 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 development schedule is presented in the following sections.

5.7.5.1 Future Water Development Schedules

The assumptions used to prepare each water development schedule are described below. The schedules are presented graphically in Figure 5.7-C and numerically in Table 5.7-G.

Current Water Development Trends (Scenario A)

Scenario A assumes that current trends in on-Reservation water development, governance, funding, and resolution of tribal claims remain the same. The Tribe currently diverts a small portion, approximately 307 AFY, of its 11,340 AFY reserved water right, mostly for DCMI purposes. Under Scenario A, the Tribe assumed that DCMI would continue to be the main water use. DCMI diversions would increase to 5,275 AFY by 2040 to support development in the southern part of the Reservation and increase another 20 percent between 2040 and 2060 for development in the northern part of the Reservation. AG use would double to 54 AFY by 2060, but AG efficiency would remain at 54 percent because of poor quality soils. ENV diversions

would triple from the current 10 AFY to 30 AFY by 2060 because of increased riparian habitat restoration (assumed 25 acres by 2060). There would be no TRAN water use under Scenario A.

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, the Tribe assumed that DCMI diversions would increase by 5,000 AFY through 2060 to support development on the northern and southern portions of the Reservation. AG diversions would increase by 10 percent through 2060. There would be no future ENV diversions and no TRAN water use.

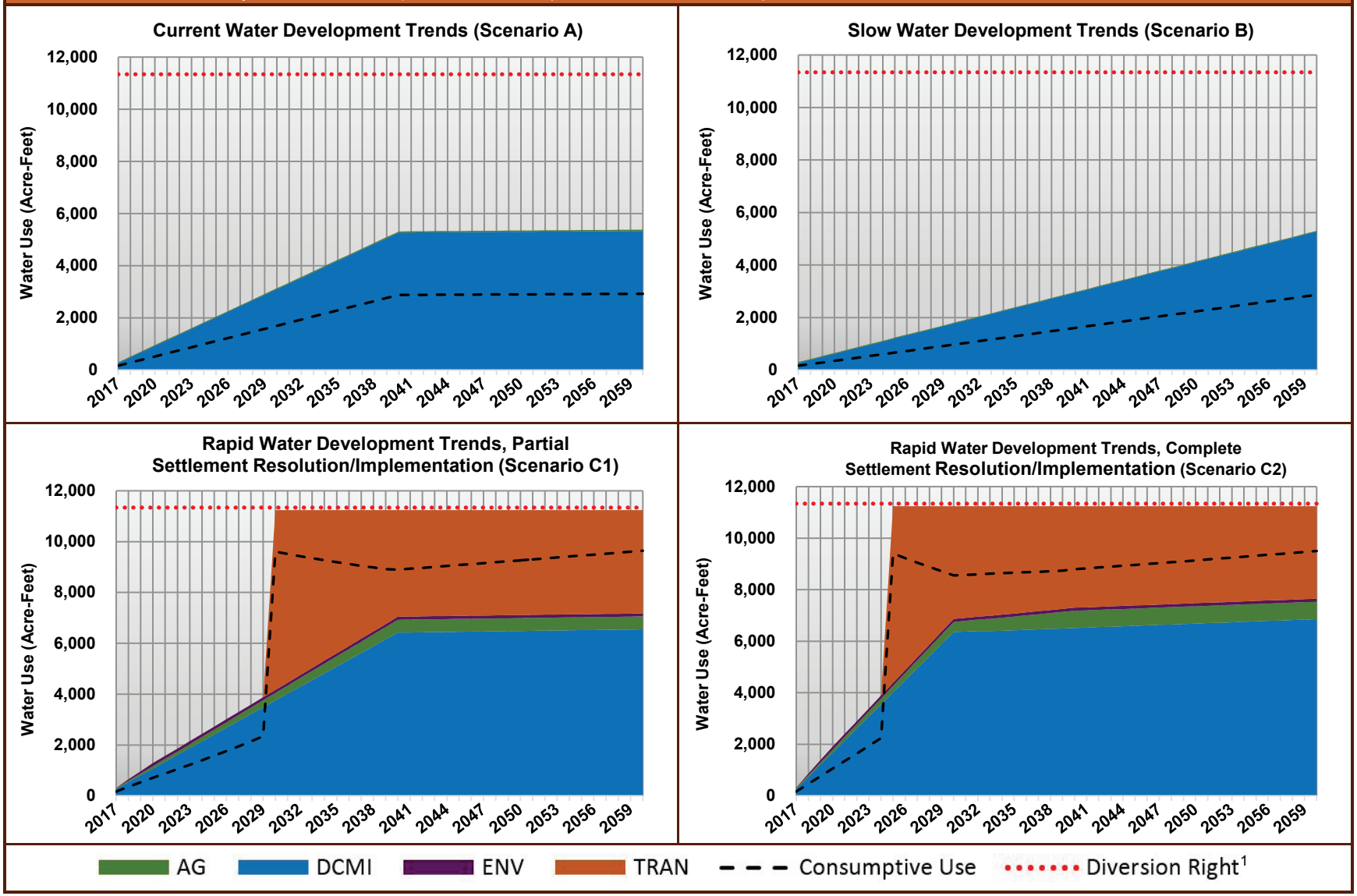
Rapid Water Development Trends, Partial Settlement Resolution/Implementation (Scenario C1)

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. Under Scenario C1, the Tribe assumed that, by 2040, DCMI diversions would increase by approximately 6,200 AFY for development of 300-500 new homes in the northern part of the Reservation and development of the southern portion of the Reservation. By 2060, DCMI diversion would be approximately 6,550 AFY. AG diversions would increase by 480 AFY by 2040 for the irrigation of an additional 60 acres of land. ENV diversions would increase to 120 AFY by 2040 for riparian habitat restoration. Diversions for TRAN would begin in 2030 allowing the Tribe to develop its full water right

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, DCMI diversions would increase to approximately 6,500 AFY by 2030 for Reservation development. AG diversions would increase slightly over Scenario C1 to 675 AFY by 2060. ENV diversions would be similar to Scenario C1. Diversions for TRAN would begin in 2025 allowing the Tribe to develop its full water right.

FIGURE 5.7-C
Chemehuevi Indian Tribe Projected Future Development in California (Scenarios A, B, C1, and C2)



[1] Chemehuevi Indian Tribe's reserved diversion water right in California is 11,340 AFY.

5.7.5.2 Summary of Projected Future Water Development

The Tribe's current water use and projected future water development under the Study's water development scenarios, and modeled for analysis purposes, is presented in Table 5.7-G.

TABLE 5.7-G
Summary of Chemehuevi Indian Tribe's Current Water Use and Projected Water Development in California [1]

Water Use Timeframe and Category		Scenario A (AFY)		Scenario B (AFY)		Scenario C1 (AFY)		Scenario C2 (AFY)	
		Diversion	Consumptive Use	Diversion	Consumptive Use	Diversion	Consumptive Use	Diversion	Consumptive Use
Current Use	*AG*	27	14	27	14	27	14	27	14
	DCMI	275[2]	148	275[2]	148	275[2]	148	275[2]	148
	ENV	10	5	10	5	10	5	10	5
	TRAN	0	0	0	0	0	0	0	0
	Total	**312**	**167**	**312**	**167**	**312**	**167**	**312**	**167**
Use at 2040	*AG*	41	22	28	15	507	274	669	361
	DCMI	5,275	2,849	2,949	1,593	6,422	4,367	6,513	4,429
	ENV	21	11	0	0	120	65	120	65
	TRAN	0	0	0	0	4,191	4,191	3,938	3,938
	Total	**5,337**	**2,882**	**2,977**	**1,608**	**11,240**	**8,897**	**11,240**	**8,793**
Use at 2060	*AG*	54	29	29	16	507	274	675	365
	DCMI	5,330	2,878	5,275	2,849	6,550	5,240	6,858	5,486
	ENV	30	16	0	0	120	65	120	65
	TRAN	0	0	0	0	4,063	4,063	3,587	3,587
	Total	**5,414**	**2,923**	**5,304**	**2,865**	**11,240**	**9,642**	**11,240**	**9,503**

[1] Chemehuevi Indian Tribe's reserved diversion water right in California is 11,340 AFY.
[2] An additional 5 AFY of DCMI current use was modeled because of a new casino development planned for 2017.