

CHAPTER 6
REGIONAL WATER PLAN IMPACTS
AND CONSISTENCY WITH
PROTECTION OF WATER,
AGRICULTURAL AND NATURAL
RESOURCES

This page intentionally left blank.

6 REGIONAL WATER PLAN IMPACTS AND CONSISTENCY WITH PROTECTION OF WATER, AGRICULTURAL AND NATURAL RESOURCES

Chapter 6 describes how this ~~2021~~2026 *Plan* is consistent with the long-term protection of water resources, agricultural resources, and natural resources that are important to the Plateau Region. All planning analyses applied, and recommendations made in the development of this *Plan* honor all existing water rights, contracts, and option agreements; and have no impact on navigation on any of the Region's surface water streams and rivers. Third-party social and economic impacts resulting from voluntary redistributions of water, including impacts of moving water from rural and agricultural areas were considered; however, no strategies were recommended that resulted in moving water from such areas.

The socioeconomic impact of not meeting water supply needs within the Region is discussed in an analysis report prepared by the Texas Water Development Board and presented in Appendix 6A at the end of this chapter. Based on projected water demands and existing water supplies, the Region identified water needs (potential shortages) that could occur under a repeat of the drought of record for ~~five-six~~ water use categories (~~county-other~~, irrigation, livestock, manufacturing, mining and municipal). The TWDB then estimated the annual socioeconomic impacts of those needs—if they are not met—for each water use category and as an aggregate for the Region.

The report describes that the Plateau Region generated more than \$X billion in gross domestic product (~~2018-2023~~ dollars) and supported roughly X jobs in ~~2016~~ 2023. It is estimated that not meeting the identified water needs in the Plateau Region would result in an annually combined lost income impact of approximately \$X million in ~~2020~~2030, increasing to \$X million in ~~2070~~2080. In ~~2020~~2030, the Region would lose approximately X jobs, and by ~~2070~~ 2080 job losses would increase to approximately X if anticipated needs are not mitigated.

6.1 PROTECTION OF WATER RESOURCES

Water resources in the Plateau Region as described in Chapter 3 include groundwater in numerous aquifers and surface water occurring in five rivers and their tributaries. The numerous springs, which represent an inter-relational transition point between groundwater and surface water, are also recognized in Chapter 1, Section 1.4.3 and Chapter 3, Section 3.3 for their major importance.

The first step in achieving long-term water resources protection was in the process of estimating each source's availability. Surface water estimates are developed through a water availability model process (WAM) and are based on the quantity of surface water available to meet existing water rights during a drought-of-record.

Groundwater availability estimates are based on the Modeled Available Groundwater (MAG) volumes that may be produced on an average annual basis to achieve a Desired Future Condition (DFC) as adopted by Groundwater Management Areas (GMAs). Establishing conservative levels of water source availability, thus results in less potential of over exploiting the supply.

The next step in establishing the long-term protection of water resources occurs in the water management strategies developed in Chapter 5 to meet potential water-supply shortages. Each strategy was evaluated for potential threats to water resources in terms of source depletion (reliability), quality degradation, and impact to environmental habitat.

Key parameters of water quality are discussed in Chapter 1 Section 1.4.5. The potential for surface water contamination resulting from urban runoff in rapidly growing population centers is of concern in the Plateau Region. Groundwater contamination most often results from old, poorly constructed, or new improperly constructed water wells. In both surface water and groundwater concerns, this *Plan* attempts to (1) provide the reader with information pertaining to best practices to prevent water contamination, (2) recognize local organizational (river authorities, ground water districts, etc.) practices and programs intended to prevent water contamination, and (3) present recommended water management strategies that do not result in potential contamination issues. It is the specific intent of the PWPG that Utilities and WUGs use all necessary precautions and follow all mandated guidelines in the construction of recommended water management strategies. In the analysis of potential water quality impact, no recommended strategies were determined to result in an anticipated water quality degradation.

Water conservation strategies are also recommended for each entity with a supply deficit. Conservation reduces the impact on water supplies by reducing the actual water demand for the supply. Table 5-2 and 5-4 in Chapter 5 provides an overview of these impact evaluations.

Chapters 5 and 7 contain information and recommendations pertaining to water conservation and drought management practices. When enacted, the conservation practices will diminish water demand, the drought management practices will extend supplies over the stress period, and the land management practices will potentially increase aquifer recharge.

6.2 PROTECTION OF AGRICULTURAL RESOURCES

Agriculture in the Plateau Region, as described in Chapter 1, Sections 1.2.8 and 1.3.3, and Chapter 3, Section 3.1.10 includes the raising of crops and livestock, as well as a multitude of businesses that support this industry. Many of the communities in the Region depend on various forms of the agricultural industry for a significant portion of their economy. It is thus important to the economic health and way of life in these communities to protect water resources that have historically been used in the support of agricultural activities.

TWDB’s socio-economic analysis (Appendix 6A) reports that a projected water shortages in the irrigated agriculture water use category for one or more decades within the water planning horizon (Chapter 4, Table 4-1) ~~only~~ occurs in Bandera, Edwards, and Kerr Counties, ~~County~~. Per the TWDB’s socio-economic analysis, a negative tax impact was surmised, primarily due to past subsidies from the Federal government.

Portions of three of the six counties in the Region (Bandera, Edwards and Kerr, ~~and Kinney~~) are projected to experience water shortages in the livestock water use category for one or more decades within the water planning horizon (Chapter 4, Table 4-1). Income loss is estimated to be approximately \$X million, which includes approximately X job losses per decade (Table 6-1).

The ~~2021~~2026 Plateau Region Water Plan provides irrigation strategy recommendations for minor projected shortages in parts of Bandera, Edwards, and Kerr Counties, ~~County~~ in Chapter 5 and Appendix 5A and 5B. Also, non-agricultural strategies provided in Chapter 5 include an analysis of potential impact to agricultural interests.

An interim project was performed in 2010 to evaluate the water use by livestock and game animals in the Plateau Region. This report titled “Water Use by Livestock and Game Animals in the Plateau Regional Water Planning Area” is printed in the [2011 Plateau Water Plan](#).

Table 6-1. Impacts of Water Shortages on Irrigation and Livestock

WUG	2030	2040	2050	2060	2070	2080
Irrigation	\$0	\$0	\$0	\$0	\$0	\$0
Job Losses	0	0	0	0	0	0
Livestock	\$11M	\$11M	\$11M	\$11M	\$11M	\$11M
Job Losses	573	573	573	573	573	573

* Year 2023 dollars rounded.

6.3 PROTECTION OF NATURAL RESOURCES

The Plateau Region Water Planning Group has adopted a stance toward the protection of natural resources. Natural resources are defined in Chapter 1, Sections 1.2.6 and 1.2.8 as including terrestrial and aquatic habitats that support a diverse environmental community as well as provide recreational and economic opportunities. Environmental and recreational water needs are discussed in Chapter 2, Section 2.3.

The protection of natural resources is closely linked with the protection of water resources as discussed in Section 6.1 above. Where possible, the methodology used to assess groundwater source availability is based on not significantly lowering water levels to a point where spring flows might be impacted. Thus, the intention to protect surface flows is directly related to those natural resources that are dependent on surface water sources or spring flows for their existence.

Environmental impacts were evaluated in the consideration of strategies to meet water-supply deficits. Table 5-4 in Chapter 5 provides a comparative analysis of all selected strategies. Of prime consideration was whether a strategy potentially could diminish the quantity of water currently existing in the natural environment and if a strategy could impact water quality to a level that would be detrimental to animals and plants that naturally inhabit the area under consideration.

Although the Planning Group chooses to respect the privacy of private lands by not recommending “Ecologically Unique River and Stream Segments” in this *Plan*, the Group recognizes and applauds the conservation work that is undertaken on a daily basis by the majority of all landowners in the Region.

6.4 PROTECTION OF PUBLIC HEALTH AND SAFETY

Sufficient water management strategy supplies are recommended in this ~~2021~~2026 Plan to meet the identified projected needs of all municipal water user groups (WUGs) in the Region except for:

- ~~• Bandera River Ranch 1 and Lake Medina Shores in Bandera County~~
- ~~• County Other in Val Verde County~~
- ~~• Livestock in Kerr and Kinney Counties~~
- Irrigation in Bandera County
- Livestock in Edwards County
- Manufacturing in Real County

The public health and safety of meeting municipal water-supply needs is of significant concern of the PWPG in preparing this Plan. The unmet needs listed above received attention in terms of considering additional conservation and infrastructure strategies. ~~Insufficient water available to meet the needs of the two entities in Bandera County is the result of GMA limitations placed on groundwater availability. Additional groundwater well strategies can be generated to account for the above needed supplies; however, Bandera River Ranch and Lake Medina Shores must negotiate permit allowances with the Bandera County River Authority and Groundwater Conservation District.~~

~~The County Other category in Val Verde County is experiencing a high growth rate with a population expected to double over the 50-year planning horizon. Water use in these rural communities is generally less than the State average and therefore drought management will likely have only a minor impact. Water loss audit and main line repair strategies are presented in this plan to create demand reductions. An unmet need is not projected for this category until the 2070 decade by which time sufficient transitions in water supplier opportunities will have occurred. The Del Rio Utilities Commission will likely expand its area of service to incorporate a portion of these communities.~~

Livestock use shortages in ~~Edwards County Kerr and Kinney Counties are~~ is likely likewise the result of GMA limitations on groundwater availability. Livestock supply use is considered “Exempt” from permitting but should consult with the local Groundwater Conservation Districts for advice on aquifer supply availability. During drought of record conditions, livestock is typically reduced to a manageable level which would likely eliminate the unmet needs condition. Public health and safety are not at risk because of unmet Livestock supply needs.

Irrigation use shortages in Bandera County is the result of limitations on groundwater availability. In addition, Bandera County has remained in critical drought conditions since the previous 2021 Plateau Water Plan. During significantly dry periods, insufficient water is available to meet the full permitted allotments, and farmers in these areas have generally approached this situation by reducing acreage irrigated, changing types of crops planted, or possibly not planting crops until water becomes available during the following season. More details have been provided in Chapter 5, Section 5.3.6.

Manufacturing use shortages and recommended conservation measures have been outlined in Chapter 5, Section 5.3.7.

~~Conservation was considered and recommended as a strategy to help reduce the unmet municipal needs and protect the human health and safety of the residents of Bandera River Ranch 1 and Lake Medina Shores in Bandera County and County Other in Val Verde County. Additional conservation is anticipated~~

~~to be enacted by each entity as described in their Conservation Plans. Drought management was also considered for both entities but was not considered feasible for meeting long term growth in demands. The Bandera County River Authority and Groundwater Conservation District maintains an active drought management program in which these two entities are monitored and provided the opportunity to learn and experience activities designed to conserve water. Drought management in Valverde County will likely be enacted by the Del Rio Utilities Commission with outreach to County Other entities.~~

The PWPG does not anticipate amending the ~~2024~~ 2026 *Plan* to address these unmet non-municipal needs but is prepared to do so if conditions cause an entity to request such a change. ~~More likely, it is expected that the entity may choose to wait to incorporate any new information (such as modification of the MAGs) in the 2026 Plateau Region Water Plan.~~

This page intentionally left blank.

APPENDIX 6A
SOCIOECONOMIC IMPACT OF
UNMET WATER NEEDS

This page intentionally left blank.