

2021 Regional Water Plans/2022 State Water Plan Population and Water Demand Projections Frequently Asked Questions

Acronyms

- GPCD: Gallons Per Capita Daily
- RWP: Regional Water Plan
- RWPG: Regional Water Planning Groups
- SWP: State Water Plan
- WUG: Water User Group
- WUS: Water Use Survey

Population and municipal demand

1. What is the definition of municipal Water User Groups (WUGs)?

Municipal WUGs in the 2021 Regional Water Plans (RWPGs) are defined as:

- a) Privately-owned utilities that provide an average of more than 100 acre-feet per year for municipal use for all owned water systems;
- b) Public water systems serving institutions or facilities owned by the state or federal government that provide more than 100 acre-feet per year for municipal use;
- c) All other retail public water utilities not covered in paragraphs (a) and (b) that provide more than 100 acre-feet per year for municipal use;
- d) Collective Reporting Units, or groups of retail public Utilities that have a common association and are requested for inclusion by the Regional Water Planning Groups (RWPGs); and
- e) Municipal and domestic water use, referred to as County-Other, not included in paragraphs (a)-(d) of this subsection

2. What happened to the cities that were included in the 2017 State Water Plan (SWP) but are not in the 2022 SWP?

The 2017 SWP is aligned with political boundaries, such as city limits, rather than water utility service areas. TWDB rule revisions now define WUG planning as being utility-based for the 2022 SWP. Cities without their own water systems no longer meet the WUG definition for the 2022 SWP and their populations are represented through:

- a) Utility WUGs who provide water for them and meet the new WUG definition, or
- b) County-Other WUGs as aggregated rural population.

3. Some utilities have multiple systems and large service areas covering multiple counties and planning regions, so why aren't we planning for systems rather than utilities?

TWDB has limited resources to develop projections so a reasonable threshold of average utility water use of 100 acre-feet for all water systems owned by each utility was established with stakeholder input and public comments during rule-making. For large service areas that cross counties or regional water planning areas, there will be WUG-splits in the planning data. If there is a system of particular significance to the RWPGs within the utility that does not meet the criteria, the RWPG could represent this system as a "sub-WUG" in their data and the planning database.

4. What is a collective reporting unit (CRU) and how does that work/why would you use it?

A CRU is a grouping of utilities that have close and highly aligned relationships, such as being served by common wholesale water providers, having common sources, or other key associations. Some RWPGs have utilized this provision more than others due to the significant number of utilities in their planning area which, collectively, are also member districts of regional water authorities (e.g. Region H) and that all share in the same water management strategies.

5. Why is the county population held constant over the planning horizon, when census estimates show annual fluctuations?

If county projections are held constant after 2020, it is because the Texas Demographic Center's model projected the population to decrease somewhat due to anticipated demographic changes. Those counties' populations were held at its projected population point prior to the decline as a simplification. The entities' projections within those counties were developed by allocating growth from the county projections, which are following a county level population growth trend. Populations were also held constant for entities with known build-out information due to being physically constrained by surrounding services areas or land limits and for stable institutional populations including military bases, universities or prisons.

6. It appears you are using utility service area population and not the city population to calculate Gallon Per Capita Daily (GPCD). If that is the case how did you calculate the utility service area population?

The Water Use Survey (WUS) data is self-reported, and includes utility population and connection data. To capture only permanent population, TWDB used different options to estimate permanent population served depending on the data availability and quality using 1) WUS population reported, 2) utility service area population estimated based on the U.S. Census block group data and utility service area boundaries utilizing Geographic Information System (GIS) data analysis, or 3) [number of connections] x [average household size] of the area based on the U.S. Census household data.

7. Large utilities also provide water for manufacturing industries. What does municipal water demand include?

Municipal water demand projections include residential, commercial and institutional water use. The TWDB's annual WUS collects utility water intake volumes and sales to industrial facilities including manufacturing, steam electric and mining. Any sales to non-municipal uses are included in the relevant non-municipal water demand categories and subtracted from the utilities' municipal net use to avoid any double counting.

8. Why is the year 2011 chosen as a base year for municipal demand projections? Wasn't that year exceptionally dry resulting in unusually high GPCD for planning?

Municipal demand projections are the utility-configured projections from the 2017 SWP, which had a base year of 2011. Regional and state water plans are developed under a drought-of-record planning condition and the drought of 2011 was the most recent representative "dry year". This appears to remain the case for the 2022 SWP projections. Note that if a different dry year, or combination of dry years were approved for use in the 2017 SWP, that value will be carried forward as the default GPCD unless specifically requested otherwise.

9. Why would a WUG have an extremely high GPCD?

The GPCD is calculated based on WUS data reported by the utility, and the permanent population in the area only. Areas with large transient populations (such as military bases, vacation destinations, seasonal workers, or vacation homes) will be expected to have higher GPCDs.

10. Has anticipated conservation been considered in the municipal water demand projections?

The municipal water demand projections utilize the population projections and a unique GPCD volume for each WUG. The incremental water efficiency savings anticipated due to natural adoption of water-efficient fixtures and appliances required by law were subtracted from the baseline GPCD for each decade. As a result, the base GPCD is reduced overtime. However, any additional conservation efforts to be made by utilities for future conservation are considered active savings and will be presented on the "supply side" as water management strategies (as demand reduction).

11. What is the projected state average GPCD in 2020 and 2070 for the 2021 RWPs and 2022 SWP?

From the Board adopted projections on 4/16/2018, a state average municipal GPCD is projected to be approximately 157 in 2020 and 148 in 2070. This reduction in GPCD is due to the incremental water efficiency savings due to natural adoption of water-efficient fixtures and appliances. However, this is without implementing any recommended conservation strategies that would further lower than projected GPCD.

Non-Municipal

12. Why is the highest recent historical use utilized as a baseline rather than an average historical use for manufacturing and steam electric water demand projections?

The highest historical use is being utilized to capture the most recent actual water use volume reported. Using the highest use year in this time period for a county ensures we are planning a high enough demand for the sector since it will be held constant over the planning horizon and because demand is not related to hydrological conditions.

13. Are baseline water demands determined from diverted or consumed amounts?

For manufacturing, mining, irrigation and livestock demands, the baseline is the intake amount (how much is diverted from a river or reservoir, how much was pumped out of an aquifer, or how much was purchased from a wholesalers). For steam-electric power, the baseline is the consumptive use that is reported or calculated (approximately, 2% of the reported diverted water amount) based on annual water use survey data.

14. Why are the manufacturing water demand projections held constant from 2030 to 2070?

The long-term trend of manufacturing water use in Texas has been decreasing while output has been increasing. The statewide manufacturing water use has shown a downward trend between 2005 and 2014 as manufacturing facilities in the state have become more and more efficient with water use. It is expected that manufacturing firms to continue to increase their efficient use of water in the various processes. While the historical trend for manufacturing water use appears to be decreasing, projecting water demands at a recent historical level, while updating the projections in each planning cycle, is considered as a conservative and reasonable approach to ensure that sufficient water is planned for manufacturing use.

15. How does the constant manufacturing water demand projection relate to the state of manufacturing in Texas?

TWDB projects water use, not manufacturing output. The water demand projections for the state water plan assume significant and continued manufacturing growth in Texas over the planning horizon. The manufacturing sector has continued to become more efficient in its water use while increasing its economic output and these projections reflect that further expectation.

16. Why is there a significant reduction in manufacturing demands from the 2017 SWP?

The methodology for manufacturing water demands does not explicitly include projected conservation savings similar to the conservation savings included in the municipal water demand projections as the result of increasingly efficient fixtures and appliances. There is a great range in manufacturing facilities and processes and there are a variety of factors that lead to declining manufacturing water use beyond legally required manufacturing measures undertaken to save water. For such reasons, the constant demand projection after 2030 is considered a reasonable approach for projections considering historical

trends, but there is no intended implication that future manufacturing conservation savings are already included in the water demand projections.

17. Why is there a significant reduction in steam electric demands from the 2017 SWP?

The reduction is due to a new methodology applied to the demand projections. The new methodology relies on adjusting the near-term projections using historical use data and information on anticipated new power plant capacity and holds it constant through the 50 year-planning horizon. These projections also reflect the recent industry's increasing trends of using more water efficient technology and the growing share of renewable energy that requires very little water to generate power in combination with increasing energy efficiency of customers.

18. Why is the average recent historical use utilized as a baseline rather than the recent highest use for irrigation water demand projections?

Unlike water uses for industrial facilities where the environment does not directly impact demands or directly to economic output, irrigation water demands are much more sensitive to many factors that influence the amount of water applied for irrigation. These factors include changes in weather and governmental policies and commodity prices (market trend), which result in significant fluctuation in annual water use data. To avoid incorporating any unusual outliers in demand projections, the average of the recent 5-year water use data was used as a representative baseline.

19. Why is the 2022 SWP projected irrigation demand decreasing over time?

Anticipated increases in efficiencies in irrigation systems, reduced groundwater supplies, the economic difficulty of pumping water from increasingly greater depths, and the transfer of water rights from agricultural to municipal uses all contributed to decreased projected demand.

20. Why is the constrained availability method applied only to irrigation demand but not to municipal demand or other demand categories?

Much of the projected irrigation demands of the state are supplied by groundwater sources that are projected to decline significantly over 50 years due primarily to agriculture use, which has resulted in large volumes of water needs and unmet water needs in the regional and state water plans. In areas with declining water availability, the options of irrigators to fund feasible water management strategies beyond conservation are limited. For these reasons, the irrigation water demand projections in some locations represent an acknowledgement of anticipated significant groundwater availability declines.

21. Why does the overall water demand projection decrease compared to demand projections in the previous water plans?

These water demand projections better reflect 1) at least a portion of conservation already achieved since the previous water plan, as captured by more recent reported water use, 2) industry trends, such as shifts to wind and solar power and increasing water efficiency and 3) greater acknowledgement of the impact of declining groundwater availability on future demands.