## WATER USE TABLE

Comparison of indoor and outdoor water (irrigation) use can reveal whether a PWS can benefit from a water conservation program. Indoor water use is typically characterized by water use between November and March, since irrigation is usually not a significant demand during this period. Comparing this to summer irrigation water use (usually June through September) enables the PWS to identify how much water is used for irrigation. The example water use table can be used as a guide.

| MONTH | WATER USE (GALLONS) | | |
|---|---|---|---|
| | INDOOR | OUTDOOR | TOTAL |
| January | | | |
| February | | | |
| March | | | |
| April | Estimate Based on Winter Total Use | | |
| May | | | |
| June | | | |
| July | | | |
| August | | | |
| September | | | |
| October | | | |
| November | | | |
| December | | | |
| **TOTALS** | | | |

## HISTORICAL WATER DEMAND CHARACTERIZATION

Here is a general, step-by-step approach to develop water demand projections based on historical water usage to determine future water demands for a water system.

1. Calculate average annual demand, average monthly demands and maximum day demand.
   - Ideally, calculate these demands based on a minimum of three years of data, to decrease the impacts of very dry or wet water years.

2. Estimate population, and population growth rates based on available tools:
   - Local growth policy / planning documents (City, County)
   - U.S. Census data
   - Historical population growth - use recent trends to project forward

3. Multiply your estimated average annual growth rate by the current population to project population for future years. Typically, this is done for twenty- or thirty-year planning windows.

4. Determine the annual per capita water use for each year that you have good demand and population data. Estimate per capita used based on an average of the most recent years to dampen out weather variability. A table below is provided in to assist with this exercise.

| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| YEAR | TOTAL PRODUCTION | AVERAGE DAILY DEMAND (ADD) | MAXIMUM MONTH (MMD) | MAXIMUM DAY (MDD) | POPULATION ESTIMATE | AVERAGE ANNUAL GPCD | PEAK GPCD |
| 2013 | From Date Collection and Historical Records | | | | | =CxF | =ExF |
| 2014 | | | | | | | |
| 2015 | | | | | | | |
| 2016 | | | | | | | |
| 2017 | | | | | | | |
| 2018 | | | | | | | |
| 2019 | | | | | | | |
| **AVERAGE** | | | | | | | |

## FUTURE WATER DEMAND PROJECTIONS

Future water demand projections can be calculated based on the recent water demand and population data. However, any future projections should incorporate a range of potential changes in population and demand to avoid under- or overestimating future demand. This is generally referred to as scenario planning:

1. Multiply the projected populations in future years by the per capita water usage developed previously.

2. Develop a range of water use possibilities and growth possibilities over various planning horizons. For example:
   - Bracket current per capital water usage by +/- 20%. If your current PWS water usage is 100 gpcd, assess future demand at 80 to 120 gpcd.
   - Bracket recent population growth by +/- 1% growth. If your recent population growth has been 3%, evaluate future water demand at 2 to 4% growth.

| A | B | C | D |
|---|---|---|---|
| YEAR | POPULATION ESTIMATE | MAX DAY DEMAND GPCD | MAXIMUM DAY (MDD) |
| 2020 | = 2019 population + (2019 population x Average Growth Rate) | =Average per capita water usage | =BxC |
| 2021 | | | |
| 2022 | | | |
| 2023 | | | |
| 2024 | | | |
| 2025 | | | |
| 2026 | | | |