

Water System Plan Demands Metadata

The water system plan requires Tacoma Water to examine demands of municipalities and territories within out service area ([WAC 246-290-100.4.D.iii](#)) which states:

“The purveyor shall, at a minimum, address the following elements in the water system plan: For systems serving one thousand or more total connections, a description of the seasonal variations in consumption patterns of each customer class defined by the purveyor. Designated land use, zoning, population, and water demand within the water system's service area for the plan approval period, and at least a twenty-year planning period.”

The water system plan also states, in addition to forecasting these particular parts, that Tacoma Water must include elements of local plans and regulations ([WAC 246-290-108.1](#)):

“Municipal water suppliers must include a consistency review and supporting documentation in its planning or engineering document describing how it has considered consistency with local plans and regulations. This review must include elements of local plans and regulations, as they reasonably relate to water service to be provided by a municipal water supplier for any new connection, including: Land use and zoning within the service area; Growth projections used in the demand forecast; Utility service extension ordinances of a city or town when water service is provided by the water utility of the city or town; Provisions of water service for new service connections; and Other relevant elements related to water supply planning as determined by the department.”

To meet the water system plan scope Tacoma Water reached out to the following locations:

- City of Ruston
- City of Lakewood
- City of University Place
- City of Fircrest
- Pierce County (Unincorporated Pierce)
- City of Federal Way
- City of Tacoma

We received several responses and each location utilized the [Puget Sound Regional Council VISION 2040 plan](#). The VISION 2040 plan forecasted the following in the table below:

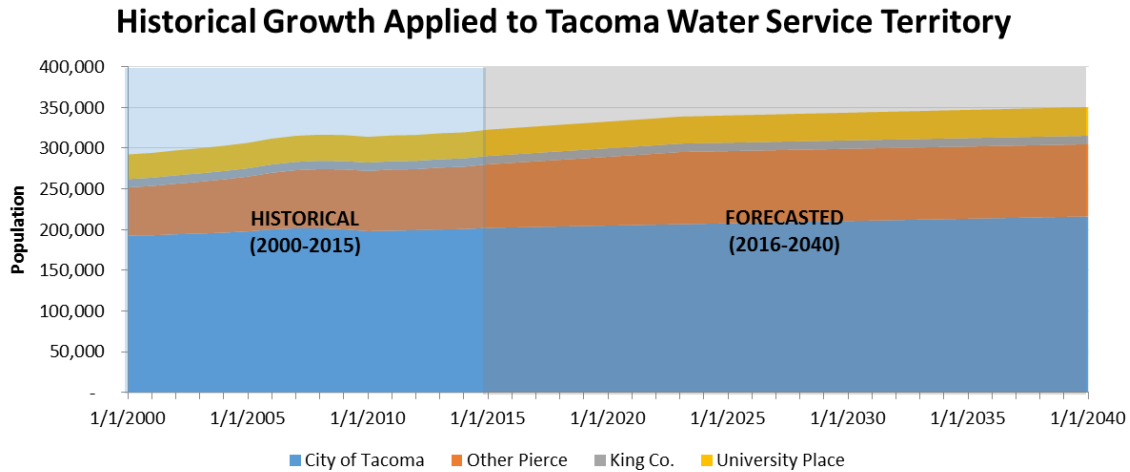
City	Current 2010	Projected 2040	Total Growth	% Growth YoY
Ruston	749	1,796	139.79%	3.71%
Lakewood	58,157	94,965	63.29%	2.06%
University Place	31,226	53,990	72.90%	2.31%
Fircrest	6,415	7,986	24.49%	0.92%
Puyallup	37,022	68,736	85.66%	2.61%
Unincorporated Pierce County	207,943	247,240	18.90%	0.73%
Federal Way	89,304	104,477	16.99%	0.66%
Tacoma	198,364	324,797	63.74%	2.08%

The “% Growth YoY” (Percentage Growth Year over Year) was used in the demand forecast to meet the water system plan requirements. It should be noted that these estimated growth rates were not used in the original forecast. Tacoma Water did not use PSRC VISION 2040 growth rates in the original forecast because we have not seen this level growth historically. However, in the spirit of the Water System Plan we will apply these population growth rates to the forecast and examine the results.

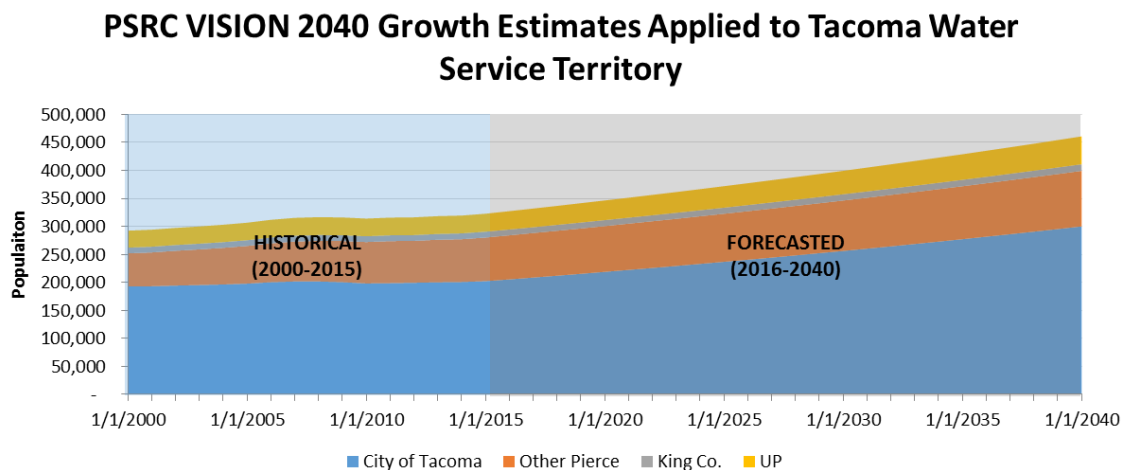
Our methodology was simple. Where the locations in the above chart matched locations in our current forecast we simply applied the new growth projections (Tacoma, and University Place). However, the populations which did not directly correspond with a matching territory in our forecast were summed and matched with the closest territory as shown in the figure below:

VISION 2040	Forecast
Ruston	Other Pierce
Lakewood	Other Pierce
University Place	University Place
Fircrest	Other Pierce
Puyallup	Other Pierce
Unincorporated Pierce County	Other Pierce
Federal Way	King County
Tacoma	Tacoma

The figures below highlight the change in population estimates for our service territory:

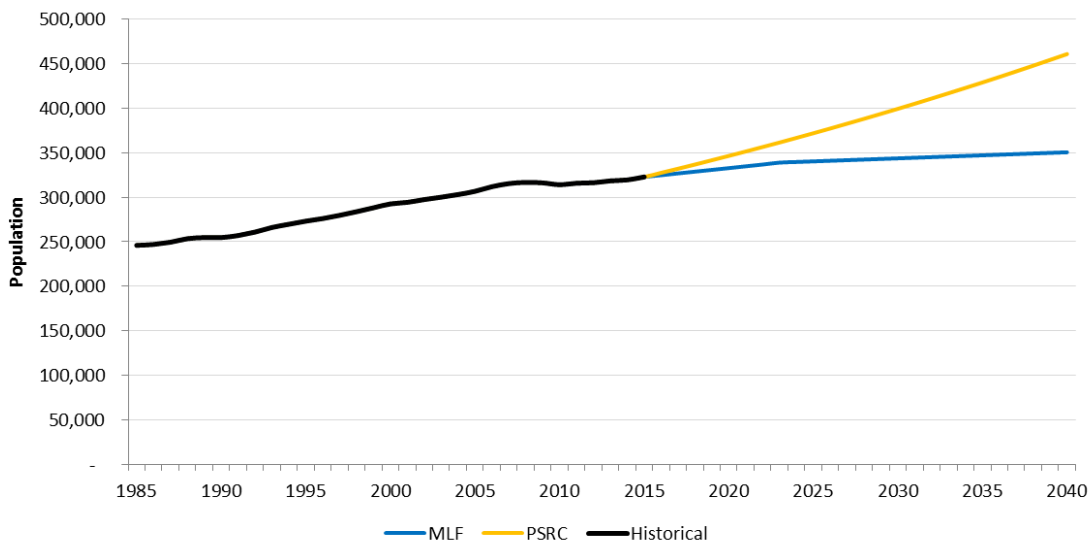


The MLF forecast matches the overall historical population growth we have seen (0.6% per year or 15% overall). This is a reasonable expectation for population growth in our service area. The shifts seen in the graphic above are because of housing buildout expectations derived from the 2001 Pierce County Coordinated Water System Plan. The PSRC VISION 2040 population forecast, however is vastly different with a growth of 41% overall and 1.4% per year as seen in the graphic below:



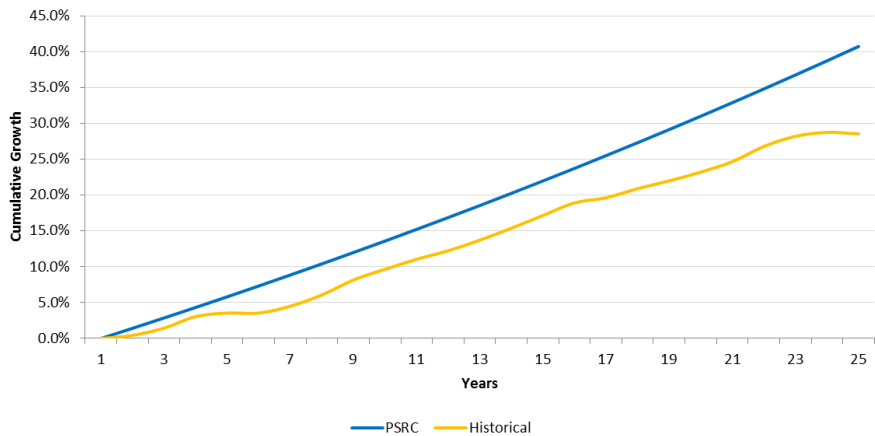
The PSRC VISION 2040 predicts substantial population growth in the next 23 years. To highlight the differences in the population forecast we have shown in the figure below the two population forecast totals:

Total Population Growth 1985-2040



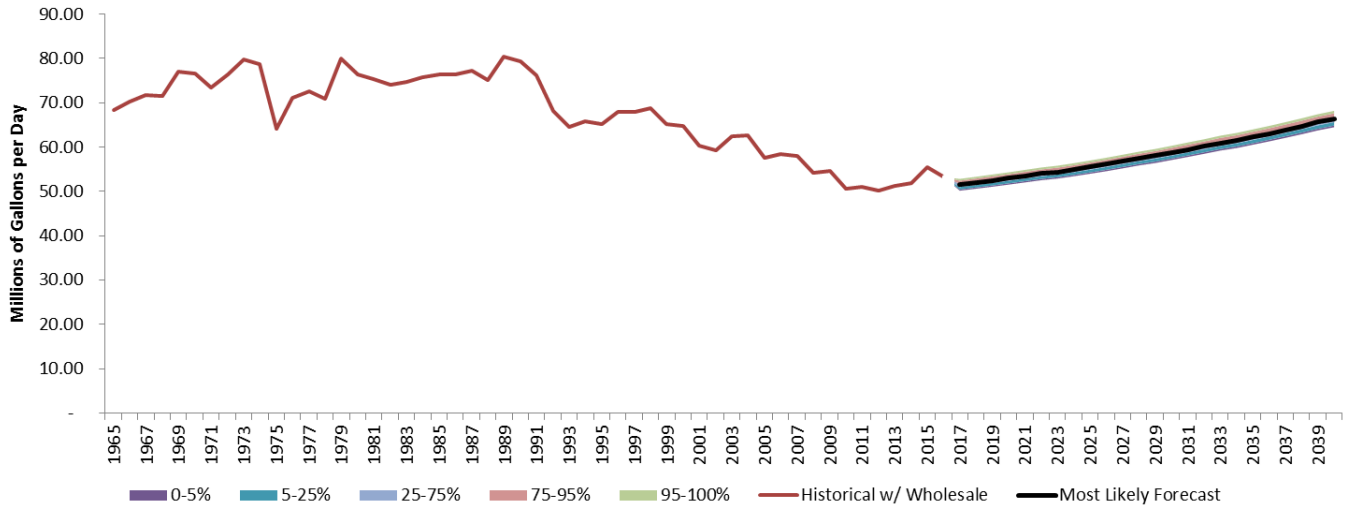
The level growth projected in the PSRC is higher than Tacoma Water’s historical growth which includes several major one-time event acquisitions.

Cumulative Percentage Growth (Historical vs PSRC)



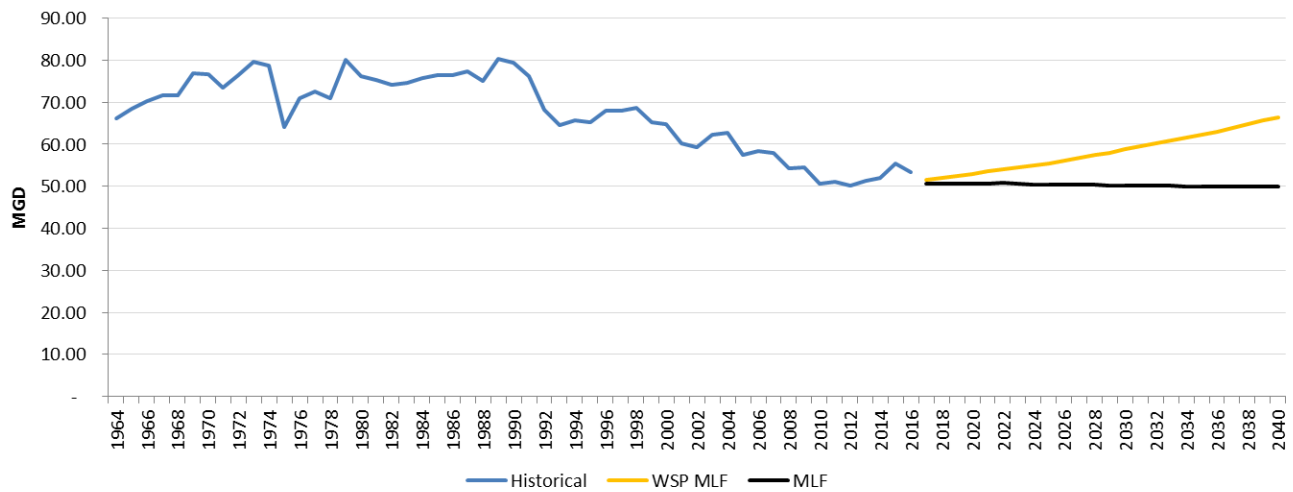
The graph above shows that, historically, after the major acquisitions and the City of Tacoma slowing in growth we see a taper in year over year growth. The higher population growth also changes the outcome of the demand forecast substantially as seen in the figure below:

Historical Demand 1964-2016 & Forecast Demands (2017-2040) MGD



The demands skyrocket and overpower the conservation effect (which we have seen in effect since 1991) returning our demands to 1989 and 1997 average day demands of approximately 65 MGD. This is in comparison to the current most likely forecast results which continue to show declining demands out to 2040 as demands dip below 50 MGD per year (more similar to demands seen in 2010-2012). A comparison of these forecasts is shown in the figure below:

Demand Forecast Comparison (PSRC vs Historical Growth)



It is recommended that if the PSRC VISION 2040 results are used we present them in conjunction with the current MLF forecast and state the differences between the two forecasts and the reason why we do not believe the PSRC population expectations are not what we are planning for – however, if they were to occur we would have enough water to meet those demands.