

Proposed Alternatives to the West Yost Reports

The City of Willits contracted West Yost Ass. (WYA) to write a series of reports to address a perceived water supply shortage. The reports delivered were crafted to show the worst-case scenario based on maximum projected population growth (thru 2025 according to MCOG), minimal water conservation compliance, and a distorted calculation for current usage levels. The resulting recommendation by WYA was for the city to drill 4 wells into the Little Lake Valley aquifer with a capacity of 2100 acre feed (AF). The 3 documents (see below) that accompany and complement this assessment of the WYA projections are designed to present a comprehensive alternative water supply strategy that is based on the analysis that follows.

The WYA reports conclude a need to provide an additional 1300 AF of water in an extreme drought year. This deficit is arrived at with 3 factors that can easily be challenged. The first of these factors is related to growth projections. The second is the minimal allowance made for water conservation. The third is the manner in which the current water usage level is calculated.

The 2000 census showed a population of 5073 for Willits. Growth projections provided by MCOG and based on state mandates for the years between 2000 and 2010 total 989. For the following decade they project another 988 people. Using this trajectory, WYA assume a population of 7654 in 2025. However, based on the current figures available from the city, only about 175 residential units have been built since 2000 or are currently in planning. This would imply that the city might have grown by approx. 448 people in the last 8 years. At that rate, the city would only reach a population of approx. 6473 by 2025. However, this estimate represents a best-case scenario, based on maximum occupation of these built/planned units. In fact, many of these units have either not been built or are not yet sold and occupied. In addition, these statistics do not take into account units that have been vacated or demolished in that same time frame.¹ In fact, the city's own statistics show that there are now 252 fewer active water connections than in 2000 and there has been a corresponding drop in water usage. These facts would indicate that there has been perhaps no growth in population or even a decrease. Therefore the projection of 6473 people for 2025 is already highly optimistic, even though it is considerably lower than the WYA estimate. We must keep in mind that all of these numbers are estimates and/or projections. The exact numbers are unknown. In any case, depending on the manner in which one arrives at them, the results can vary substantially. Also these estimates do not include municipal water users outside the city boundaries.

WYA include in their report an estimated 108 AF that they expect to be saved through conservation measures for their projected water demand of 1580 AF in 2025. The following table shows an overview of how they arrive at this estimate:

¹ According to the City Planning Dept. there have been a considerable number of units taken out of commission in that time period. This was used as justification for permitting new development.

Category	Potential in Acre Ft.	Assumed Participation	Assumed in Acre Ft.
Household	160	30%	48
Landscape	63	20%	13
Washing Mach.	47	10%	5
Commercial	31 (@12%)	50%	16
Industrial	25 (@15%)	50%	12
Toilets	140	10%	14
Total	466	23%	108
Overall % of 1580AF	29.5%		6.8%

This summary shows that the potential savings they see as possible is fairly significant. However, they only count on an overall participation rate of 23%, which means they do not expect the conservation program to be taken very seriously. The conservation rates presented in our own analysis (see accompanying document) are shown to be 38.8% on the low end and could be as high as 47.5% with respect to current consumption levels. We will suggest that a serious conservation program could target 38% savings at a minimum. This program will need to include extensive education and outreach, a fundamental restructuring of billing rates, and financial support for the required retrofitting of water fixtures.

And finally, we need to take a look at the manner in which WYA arrived at their calculations for current water usage. Here we have to note a serious flaw in their methodology. On page 22 of their 2006 report, they display a table showing the population and water usage over a number of years. The year 2000 shows a population of 5073 and a usage of 954 AF. This was the highest rate of usage in the chart. In comparison, WYA's own report uses an average usage of 886 AF as a basis. Using the more extreme numbers, WYA arrive at 168 gpcd (gallons/capita/day). In the body of their report, they actually round this figure up to 170 gpcd with no clarification and apparently use this factor to estimate "current" usage and future demand projections. (Note: Using 170 gpcd and a population of 7654 you arrive at 1457 AF, essentially the same as their projection of 1458.) But not only is the figure 170 gpcd based on a peculiar year, it also fails to account for the fact that the system delivered that 984 AF to more than just the population of Willits. In contrast to these WYA calculations, we feel that it would be more representative to use their own data for current average usage (886 AF) and the population they say is currently served by the system (6500). Using these numbers, the result is 122 gpcd.

Putting this together, we will use our own population projection, a current usage rate of 122 gpcd, and a targeted conservation rate of 38%. Thus, we arrive at the following calculations:

6473	Population of Willits in 2025
@122	gpcd current usage
885	AF water demand (inside city limits)
+ 197	AF demand from customers outside city limits

1082	AF total projected demand
-411	AF saved at 38% conservation
671	AF reduced demand
+92	AF 12% UAF
763	AF of total system demand
-450	AF available in extreme drought year
313	AF possible deficit

The bottom line compares with the projected deficit of 1300 AF calculated by WYA. At this greatly reduced projected deficit level of 313 AF, alternative options other than drilling deep wells into the valley aquifer become very viable indeed (in contrast to WYA's recent conclusions). Keep in mind that 313AF is, in our opinion, the actual worse-case scenario and could actually be much less with more realistic population projections and higher rates of water conservation.

This analysis shows that the WYA reports were flawed in ways that lead to drastically distorted conclusions. While the alternative analysis we have offered is inevitably erroneous to some extent as well (due to a lack of correct data available and adequate time to carry out a detailed analysis), the WYA report is even more obviously flawed. This shows that an accurate picture is at the very least considerably different than the one arrived at by WYA. In the 3 documents that accompany this overview, we hope to substantiate our claims and make specific proposals that would lead to successfully securing an environmentally responsible, safe and sustainable water supply for Willits. The documents are the following:

Conservation Analysis – This gives extensive documentation in support of the levels of water conservation we feel are achievable with no change in life style or quality of life.

Rate Structure Analysis and Proposal – This document first addresses some of the flaws in the current rate structure and then goes on to make a proposal for a fundamentally different approach to alleviate the current imbalance in the rate structure and give significant support to conservation efforts.

Water Supply Strategy – This proposal suggests alternative supply expansion strategies that could be employed to alleviate shortages that might occur in drought years.

To recap, steps that the city should take to implement our strategies are:

1. The city needs to continue to place a high priority on eliminating all infrastructure deficiencies and devote whatever resources are required to do so as quickly as possible. This includes (but is not limited to) fixing all water-line leaks, add meters as are required to track down unmetered usage, replace and expand all focus area tanks as required, repair the main water tank, and add a 3rd filter to the WTP.
2. Immediately launch a water conservation outreach and education program.
3. Analyze the current water usage and population statistics in detail to derive more accurate data for usage assessment.

4. Implement the LGC's Ahwahnee Water Principles (already adopted by the council) by changing all development-related municipal codes to reflect these principles with respect to low-impact development, as well as creating a mitigation program to offset demand increases – before any further development is considered for approval.
5. Restructure water rates in a fashion that is both fair and supports conservation efforts, ensuring that profligate users pay to cover whatever infrastructure requirements are needed to support their excess usage.
6. Create a team of interested members of the public in cooperation with staff and the appropriate hydrological and geological experts to assess watershed restoration options and to locate appropriate locations for possible holding ponds and/or horizontal wells.