

**Assessment of the Population Projections Used in the Environmental Impact Statement for  
the Proposed Western Wake County Water Treatment Facilities**

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The Final Environmental Impact State asserts that the western Wake county population “will increase from approximately 164,800 in 2005 to approximately 220,150 in 2010 and approximately 432,250 in 2030.” (Page 1-4, Section 1.3 *Purpose and Need for Action*). The assertion that the Western Wake County area’s population will almost double in size between 2010 and 2030 is unsupported using scientifically accepted demographic methods for population projections. Further, this unsupported “projection” is central to the claim of need for the proposed waste water treatment facility.

The need for the proposed action is to provide wastewater treatment capacity for the projected population growth and the associated increase in land development in western Wake County. The population of the wastewater service area of the Towns of Apex, Cary, Morrisville, and Holly Springs would be approximately 432,250 in 2030. (Executive Summary)

The population projection method, described with sparse detail in Appendix C, combines Traffic Analysis Zone (TAZ) data from Cary on current and projected population *densities* with estimate potential population based on an assume time to build out of projects. Much of the TAZ data on population *density* are based on projections, not counts, and the method used in these TAZ projections is not presented. The assumed potential population is then combined with the projected TAZ data and then adjusted. As shown in my earlier report, this engineering method to project the population needed to justify the need for the project is methodologically and conceptually flawed.

This engineering approach to determine the future population has no correspondence with any population projection method used in demography, the scientific study of population dynamics and composition. You can find no mention of this engineering approach at the U.S. Census bureau's web site ([www.census.gov](http://www.census.gov)), nor in any of their publications. You can find no mention of this approach in the many books and articles on population projections. Further, this approach of layering projections made with an unspecified method over projections based on assumed build out is not described in sufficient detail to understand exactly how they were calculated.

As noted in my initial report, the Corps of Engineers projections significantly exceed the projections made by the planning departments of the municipalities that comprise the Western Wake Partners. The planning departments of these towns projected a population of 382,706, and this projection is likely to be high. Cary simply assumes an annual growth rate of 3% through 2025, yet—as noted in the earlier report—they acknowledged that population growth had slowed greatly and will result in a smaller future population. I spoke again with Will Hartke, Cary Planning Department. Based on Certificates of Occupancy, he thinks Cary is still growing, but growth is at about half of the previous rate. He awaits the census to confirm the growth.

This assumed continued high rate of growth by Cary's planning staff and by the Corps of Engineers is the central conceptual problem. The ongoing recession has slowed growth significantly. From this smaller baseline population, all future populations will be smaller.

Evidence of the slowdown in population growth is direct—estimates from local governments—and indirect—measures of residential constructions. For example, the Town of Apex estimates that between 2007 and 2008 their population grew from 34,766 to 35,054, a rate of only 0.9%, and this is before the recession's impact on housing reached its peak

([http://www.apexnc.org/docs/plan/dev\\_stats.pdf](http://www.apexnc.org/docs/plan/dev_stats.pdf) ). In addition, the net increase in students enrolled in Wake County Schools dropped from 7,568 in 2006-2007 to 3,336 in 2009-2010 (<http://www.wakegov.com/NR/rdonlyres/C9320165-219B-4620-AD18-F6E67A83EF8F/0/TrendsAndOutlook2009.pdf> ).

Residential construction is central in the Corps of Engineers' projection, and the recession has significantly slowed construction. In Apex, building permits dropped from 1,001 in 2007 to 579 in 2008. Just under 90% of the 2008 permits were for residential construction, and almost two-third were for additions, not new construction. In Cary, building permits dropped from 3,540 in 2007 to 2,625 in 2008. Over half of the residential permits were for additions, not new construction. Building permits in Holly Springs declined from 796 to 604. In Morrisville, building permits did increase from 316 to 386. No data are available for 2009 yet, but it is likely that building permits declined further in the recession. Foreclosures increased from just over 1,200 in 2007 to almost 1,700 in 2008, increasing the available housing on the market. (<http://www.wakegov.com/NR/rdonlyres/C9320165-219B-4620-AD18-F6E67A83EF8F/0/TrendsAndOutlook2009.pdf> ). All evidence points to a much slower rate of population growth if growth is occurring at all. This significant change in the environment has not been taken into account by the Corps of Engineers.

Population projections begin with a detailed base population, the counting of men and women at every age. Known and expected birth, death and migration rates are then applied to this base population to project the population changes. Changes in circumstances affect these rates, especially migration rates, so projections have to be regularly and systematically updated. The Army Corps of Engineers did not follow standard and scientifically accepted demographic techniques for population projection, and they did not update the information after the recession

changed the circumstances. They simply assume a very high rate of population growth will continue for the next quarter century, ignoring the new estimates from the planning departments of the municipalities in western Wake County.

The next decennial census occurs on April 1, 2010. This census will provide detailed information on the population of the proposed service area that can be the basis for a professional population projection. Without a professional population projection, the need for this project cannot be determined.