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Is Tennessee infrastructure ready to handle the next decade of growth?

By: Client SME

As Tennessee enters a new decade, it does so while riding the tide of astronomical development and growth. The state's population is growing faster than most others and experts predict the 2020 Census figures will surpass 7 million – up 6.34 million from 2010. Williamson (25.85%), Rutherford (20.25%), Wilson (18.98%), and Montgomery (15.60%) counties top the list with the highest growth rates since 2010. Less populated counties sprinkled across the state are growing quickly as well, such as Bledsoe (14.52%), Marshall (9.78%), Macon (9.12%), and Sevier (8.86%).

Happily welcoming new people—and possibly new businesses—into their communities is a dilemma as older operational and infrastructural resources are staggering under the weight of greater population. While roads and bridges and commute travel times steal headlines, county mayors across Tennessee know their schools, buildings and infrastructure are strained from new home construction, with uncertainty clouding the promise of future growth.

Rising populations create “dire” situations

In its 2016 report card on the condition of America's infrastructure, the American Society of Civil Engineers (ASCE) gave the state of Tennessee a “C” grade – the same given to the state in 2009. While considerable investments have been made across the state in the seven-year span between reports, ASCE determined the investments won't stop our existing infrastructure from aging or help modernize infrastructure to keep pace with dramatic population growth. In fact, to some extent, the problems have compounded across the state. Many officials worry that if operational inefficiencies are not properly addressed – given the steady state-wide population boom—infrastructure problems could deteriorate at a compounding rate.

ASCE graded specific areas of Tennessee's infrastructure including: Schools: C-; Transit: D+, Wastewater: D+, Drinking Water: C; Aviation: B; Bridges: B.

Schools are busting at the seams, with some districts like Clarksville, welcoming up to 600 new students per year. Officials used the words, “urgent” and “dire” to describe the overcrowding

situation. An \$18-wheel-tax increase is earmarked to help pay for long-term buildings however it's not expected to erase the burden, just merely ease it.

In Knox County, school officials are feeling the impact of population growth and report the district is desperate for more space. Since 2006, school attendance is up more than 8,000 students. Said one board of education official, "It is very clear just even to the naked eye that these schools are well beyond their prime and need to be replaced."

The success in fostering education is often deemed by its infrastructure capacity. In fact, ASCE noted recent studies that found a significant relationship between the physical condition of a school and student achievement. In general, students attending schools in newer, better facilities score higher on standardized tests than those attending in substandard buildings.

When deferred maintenance wipes out funds to modernize

For each day infrastructure improvements are delayed, the system isn't just one day older, but increasingly crippled. Deferred maintenance budgets tend to require more and more funding with each passing year. As growing populations strain aging infrastructure, many counties learn that just so many band-aids can be applied before the entire system collapses. Many communities across the country are struggling with the loss of essential functions and services including the disruption of sufficient water volume to fight fires, overflowing sewage threatening clean drinking water, electric pump house disturbances, dam breaks and critical building collapses.

Many school districts and county governments can relate to the problems faced by officials in Bledsoe County. The district had outdated building equipment and technologies but with limited available budget, its list of deferred maintenance projects continued to grow each year.

Energy use was largely uncontrolled due to insufficient funding and aging systems. And the problem isn't confined to schools. Infrastructure affects all areas of our communities, from court houses and libraries to utilities and power supplies.

When growth challenges infrastructure

Available lots for new housing inside the city proper are sparse, spurring the developers' creativity in building multiple units on one lot. Where codes allow duplexes, developers tear down single-family homes and are building multiple houses. Nashville, for example, used to demand a connection or "umbilical cord" between the houses. This is no longer the case, giving way to the trend in "tall and skinny" housing.

Building two or more tall and skinny houses on one lot is straining infrastructure. Sewer and rainwater structures were built with fewer population as optimum capacity. Other services like fire departments are having issues, too. Firefighters are having to train specifically for these houses, as these structures are reported to collapse differently and the thread of fire spreading is real, as neighboring houses are mere feet away.

Neighbors helping neighbors

Schneider Electric has been in Middle Tennessee since the 1970s when its Square D subsidiary opened a manufacturing plant in Smyrna. Today, in addition to the manufacturing plant, the company employs about 900 people in its modern office, training lab, and customer meeting space in Franklin.

While Schneider Electric has been part of the growth in Williamson County, it's also excited to be part of the solution. Many of the company's employees live in Williamson County, so their families attend schools, play in its parks and use the utilities.

Williamson County is currently partnering with Schneider Electric to invest \$18 million to modernize infrastructure as the county prepares for population growth in the next five years. The project concentrates on streamlining operations and improving efficiency in 11 sites across the county, upgrading lighting, safety, security, HVAC systems and other improvements for maximizing energy efficiency.

As a global technology leader, Schneider Electric is guiding the county in selecting and using future-forward innovations to optimize their energy efficiency while continuing to comfortably grow.

These innovations are made possible from energy saving performance contracts (ESPC) that create "win-win" situations, where utility and operational savings are used to fund the improvements. This takes the burden off taxpayers while creating additional opportunities to make modernization upgrades that further reduce operational costs.

Schneider Electric is eager to partner with other communities looking to invest in energy and operational efficiencies, reinvesting the savings to modernize their infrastructure. The company has enjoyed watching communities across the country discover energy savings, rather than tax increases, while revolutionizing their infrastructure.