Engineering a Multi-Modal Experience

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As a transportation engineer that serves a variety of roadway agencies, I am often called upon to design state roadways that move large numbers of vehicles for high future traffic volumes. On occasion, I have had the opportunity to design roads that also complement the existing community fabric. For the Buford Highway project in Suwanee, our team was encouraged by the City of Suwanee to go above and beyond, and design a better road that we believe will effectively serve both the community and drivers for years to come. As a Professional Engineer (PE), my highest calling is to design a facility that improves the safety of the roadway users, including motorized and non-motorized users.

In large part, roadways have been designed and built to serve vehicle-based traffic, with less consideration given for other modes of transportation. In addition, the expansion of the highway network over the years has also resulted in certain challenges in regards to traditional downtowns. The goal of providing a high-capacity roadway often resulted in a negative impact on the community. Recognizing the benefits that an enhanced Buford Highway would provide, the City of Suwanee is working to build a better Buford Highway with proven approaches, balancing the need to serve vehicles and the overall community.

The Better Buford Highway road project is included in the City's comprehensive transportation study, which was developed by transportation experts in 2010. The planning effort is largely based on a downtown development framework with a 20 year horizon, and was developed in partnership the Atlanta Regional Commission and their Livable Centers Initiative. Through many public and stakeholder meetings, the vision emerged to create a vibrant multi-modal corridor with three distinct character areas. Part of this vision was a transportation facility with separated pathways and bike facilities, on-street parking, lighting, hardscape, landscape improvements, and a roundabout.

One of the main concerns expressed by stakeholders was that Buford Highway was unsafe to cross by pedestrians. Vehicle speed is a primary component of pedestrian safety. *The Pedestrian Facilities User Guide Providing Safety and Mobility* (Federal Highway Administration) notes:

"Speeding has serious consequences when a pedestrian is involved. A pedestrian hit at 40 mph has an 85 percent chance of being killed; at 30 mph, the likelihood goes down to 45 percent, while at 20 mph, the fatality rate is only five percent. Faster speeds increase the likelihood of a pedestrian being hit. At higher speeds, motorists are less likely to see a pedestrian, and are even less likely to be able to stop in time to avoid hitting one."

The new roadway's typical section includes features such as curb and gutter, painted bike lanes, landscaped buffers between the sidewalk and roadway with vertical elements which will significantly improve driver recognition of pedestrians near the roadway. A speed study is suggested after the implementation of the project to measure the project effectiveness on achieving an 85th percentile speed of 35 mph on Buford Highway. According to the planning study, at 45 mph, travel times between McGinnis Ferry Road and George Pierce Park (1.7 miles) are currently two minutes and 20 seconds. With the Buford Highway enhancements, travel times will only be increased by approximately 30 seconds at a speed of 35 mph.

At the Russell Street and Buford Highway intersection, the proposed roundabout will accommodate large trucks, and the roundabout capacity will address existing and future estimated traffic conditions. An operational analysis of the intersection indicated that a roundabout would result in less congestion than a traffic signal.

Additionally, converting the conventional intersection to a roundabout configuration will significantly will improve the vehicular safety of the intersection. As cited in *Synthesis of Highway Practice 264: Modern Roundabout Practice in the United States*, the percent change in average annual vehicle crash reduction at intersections converted to roundabouts was 37 percent in total crashes, 51 percent in injury crashes, and 29 percent in property damage only crashes.

Over the years, the plans for Buford Highway have been studied and validated by numerous transportation agencies, including Georgia DOT. Based on proven engineering and transportation principles, the design is intended to convey vehicles, cyclists, and pedestrians safely, which will ultimately promote economic development along Buford Highway. The design will support a functional and aesthetically pleasing Town Center for future generations.

Once the project is constructed, the City Suwanee will experience a transformation of the Buford Highway corridor and benefit from a more sustainable transportation system. This once automobile-dominated roadway will be primed to become a street full of life for all users due to the diligence, patience and perseverance of the community and professionals, including city staff, engineers, landscape architects, historians, ecologists, archaeologists, planners, and GDOT staff. The Better Buford Highway project is an excellent example of how persistence and partnerships has resulted in turning a great vision a reality.