



**Date:** May 13, 2014

**To:** Thomas J. Bonfield, City Manager  
**Through:** Keith Chadwell, Deputy City Manager  
**From:** Mark D. Ahrendsen, Director of Transportation  
**Subject:** Agenda Item - Fayetteville/Riddle/Buxton Intersection Improvement Project

### **Executive Summary**

At the April 24, 2014 Work Session on a matter concerning right-of-way acquisition, City Council raised questions about the cost and justification for the proposed Fayetteville/Riddle/Buxton intersection improvement project. The intersection project is the first phase of improvements associated with the City's Capital Improvement Program (CIP) project to widen Fayetteville Road from Riddle Road south to Woodcroft Parkway. The purpose of this report is to provide the City Council with a brief history of this CIP project, including a summary of prior studies and recommendations that led to the selection and funding of the project in the CIP.

### **Recommendation**

The administration recommends that the City Council receive an update report and presentation on the Fayetteville/Riddle/Buxton intersection improvement project.

### **Background**

In October 1998 the Parsons Transportation Group, Inc. completed the "Durham Southwest Area Transportation Study" report and recommendations for the City of Durham. The purpose of the study was to develop a transportation improvement strategy to cope with the traffic growth anticipated in Southwest Durham due to impending development. Southwest Durham was defined as the area west of NC 55, south of Pickett and Cornwallis Roads, and extending south and west to the Wake, Chatham and Orange County lines. The study was prepared to identify roadway deficiencies through 2005 and recommend transportation improvement priorities. The study was prepared in anticipation of major new developments in Southwest Durham, including Southpoint Mall which was subsequently approved by the City Council on January 19, 1999.

The study recommended these subsequently completed projects: 1) widening I-40 to six lanes; 2) widening US 15-501 from four to six lanes; 3) widening NC 55 from Cornwallis Road to the Wake County line from two to four lanes; 4) reconstruction of the I-40 Fayetteville Road and NC 751 interchanges; 5) completion of Martin Luther King, Jr. Parkway; 6) widening Fayetteville Road to four lanes from Renaissance Parkway to Woodcroft Parkway; and other road, bike and transit improvements.

The most notable projects recommended in the study that have not been completed are: the widening of NC 751 from S. Roxboro Street south to I-40; the widening of Fayetteville Road to four through lanes from Woodcroft Parkway north to Juliette Drive; and the widening of Fayetteville Road to three lanes from Juliette Drive north to Riddle Road with the realignment of the Fayetteville/Riddle/Buxton intersection. Since the study projected traffic demand only through 2005, the traffic volumes have since exceeded 2005 projections and the three-lane section will no longer provide adequate capacity. The implementation status of the recommended improvement projects is shown in Attachment 1.

The traffic volumes available at the time of the study (1997) are provided with the most recently available (2011) traffic volumes in Attachment 2. The capacity of the two-lane sections of Fayetteville Road, with turn lanes, is 14,000 vehicles per day (vpd). The capacity of the recommended four-lane divided section is 30,400 vpd. In 2011, two-lane sections were carrying 17,000 vpd, or 121% of capacity. The study also concluded, “[T]he intersection of Fayetteville and Riddle Roads needs to be reworked before undertaking major improvements to either of these facilities.”

Following the Parsons’ Study, in August 2000 Kimley-Horn and Associates prepared the “Fayetteville Road Widening Durham, NC Traffic Technical Memorandum” for the City. The report was part of the consultant’s scope of work in preparing construction plans for the widening of Fayetteville Road between NC 54 and Barbee Road. The City of Durham subsequently completed the construction of Fayetteville Road widening from NC 54 to Woodcroft Parkway.

In November 2007, Kimley-Horn and Associates prepared the “Fayetteville Road Widening – Phase 2 Durham, NC Traffic Technical Memorandum.” The technical report was prepared as part of the scope of work with the City of Durham for the preparation of construction plans for the widening of Fayetteville Road from Woodcroft Parkway north to Riddle Road. The purpose of the study was to update the traffic analysis for the uncompleted section of Fayetteville Road (Woodcroft to Barbee) and to prepare the traffic capacity analysis for the design phase from Barbee Road to Riddle Road (referred to as Fayetteville Road Phase 2).

The realignment of the Riddle Road and Buxton intersection was included in the widening project design to improve the alignment of the intersection and to increase the separation from the existing traffic signal at Cornwallis Road. The design included widening of Riddle Road to provide exclusive left, through and right-turn lanes and an eastbound left-turn lane on Buxton. The study also recommended the provision of a northbound right-turn lane at this intersection. The existing southbound left-turn lane is inadequate with approximately 60 feet of vehicle storage. The study recommended 300 feet of storage for this left-turn lane. With these improvements, the study concluded that the intersection would have a 2030 design year level of service (LOS) D to meet the City’s adopted LOS standards.

In addition to the study findings and recommendations, there has been an extended history of complaints from residents of the area about the conflicting traffic movements that occur due to the off-set intersections of Riddle Road and Buxton Street. A recurring concern is that a length of roadway in between the offset Riddle Road and Buxton Street intersections is shared by opposing left turning vehicles from Fayetteville Road. This creates driver apprehension that another opposing turning vehicle may enter the other’s path. In response to the continued resident concerns and complaints in the spring of 2000, the administration recommended realigning the Fayetteville/Riddle/Buxton and Fayetteville/Cornwallis Road

intersections to address intersection geometry and to provide greater separation for increased southbound left-turn lane storage at both intersections.

The City and the NCDOT entered into a Municipal Agreement on October 17, 2006 for the purpose of advancing the planning, design and construction of the realignment of Riddle Road at Fayetteville Road. Under the terms of the agreement, NCDOT committed to reimburse the City up to \$300,000.00 for planning, plan preparation and construction costs. The reimbursable expenses excluded the costs of obtaining the necessary rights-of-way or easements. The project construction cost was estimated at \$600,000.00 and was originally expected to be completed within two years.

During the initial project planning and design phase, it was determined that the proposed project would better serve the City by expanding the intersection design to fully reflect the improvements planned for in the City's "Fayetteville Road – Phase II" Capital Improvement Program project. This allowed for a much-improved design with sidewalks, bicycle lanes, and travel lanes required for the Fayetteville Road – Phase II project. The additional planning and design work delayed the original project schedule and the design was presented to the public in a workshop held on March 16, 2010. The total project cost was estimated at \$2.5 million, subject to final engineering estimates, right-of-way and easement costs, and actual bid amounts. The project map presented at the public workshop is provided as Attachment 3.

### **Issues and Analysis**

The "Durham Southwest Area Transportation Study" recommended that the Fayetteville Road improvements be funded by the City. This reflected the absence of any planned or anticipated project funding through the State's Transportation Improvement Program (TIP). The study recognized that TIP funds would be used to complete many of the other area transportation projects (listed above) as well as future funding for NC 54 widening from NC 55 west to I-40. The 5.2 mile NC 54 widening project is partially funded in the current TIP at an estimated total cost of \$116.9 million.

Funding for the Fayetteville Road widening project has been reflected in the City's Capital Improvement Program (CIP) with funding from street impact fees. Impact fees collected in south Durham were used to complete Martin Luther King, Jr. Parkway and available revenues are now earmarked for the Fayetteville Road widening project. The CIP had previously allocated these funds among three projects for south Durham: Fayetteville Road widening; South Roxboro Street Extension (Cornwallis Road to Martin Luther King, Jr. Parkway); and NC 751 widening from S. Roxboro Street to Woodcroft Parkway. Since funds would not be sufficient to complete all three projects, the funds were consolidated into the Fayetteville Road widening project to advance construction, in phases, to provide a near-term public benefit. In addition, the project is designed to include bike lanes, sidewalks, pedestrian signals, and crossing improvements at the American Tobacco Trail crossing with Riddle Road. These incidental improvements address significant sidewalk gaps and interconnectivity to the trail with adjacent neighborhoods, businesses, and Hillside High School.

### **Alternatives**

The City Council could decide not to implement the proposed Fayetteville Road improvements. Unexpended street impact fee funds currently appropriated to the project could be reallocated to other eligible thoroughfare capacity improvement projects in south

Durham. The two candidate projects expected to most benefit the area are the extension of S. Roxboro Street from Cornwallis Road to Martin Luther King, Jr. Parkway and the widening of NC 751 from S. Roxboro Street south to Woodcroft Parkway. Updated cost estimates for these projects would be needed to determine project costs and project when sufficient funds would be available to implement either project. Each project will require detailed project studies and public engagement before final designs could be completed for approval, right-of-way acquisition and construction.

### **Financial Impact**

The estimated design, construction and right-of-way acquisition costs for the Fayetteville Road widening project from Riddle Road south to Barbee Road is \$12 million, inclusive of the intersection realignment at Buxton Street and Riddle Road. The project is funded in the CIP with Street Impact Fee funds.

### **SDBE Summary**

Due to the nature of this item, there is no SDBE review or summary.

### **Attachments**

Attachment 1 – Southwest Durham Transportation Study Project Status

Attachment 2 – Fayetteville Road Capacities

Attachment 3 – Fayetteville/Riddle/Buxton Project Map

Attachment 4 – Presentation for Fayetteville/Riddle/Buxton Intersection Project Status Report