



**Date:** September 4, 2018

**To:** Wendell M. Davis, County Manager  
**Through:** Jay Gibson, General Manager  
**From:** Patrick O. Young, AICP, Planning Director  
**Subject:** NC 98 Corridor Study Report

### **Executive Summary**

The Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO) and the Capital Area Metropolitan Planning Organization (CAMPO) conducted a study, starting in late 2016, regarding the NC 98 Corridor in Durham, Wake, and Franklin Counties. The study involved evaluation of safety and mobility along 27 miles of the existing NC 98 corridor, and recommendations for short and long-term improvements to intersections, lane widening, and pedestrian and bicycle infrastructure. In June, they produced a full draft report on the corridor, which was approved for 30-day public comment period on August 8<sup>th</sup> by the DCHC MPO Board. This public comment period includes opportunity for comments from the respective boards which represent the areas along the corridor. The report will go to the DCHC MPO Board for final approval at their September 12<sup>th</sup> meeting, and to the CAMPO Board the subsequent week.

The full draft report, including information about the areas of the project not in Durham County, is available at <http://www.nc98corridor.com/> underneath the Document Library Tab.

### **Recommendation**

This report is provided for information only. Staff recommends that the Board of Commissioners receive the NC 98 Corridor Study Report and presentation, and provide any comments and questions regarding the project. No further action is required.

### **Background**

CAMPO and DCHC MPO, in conjunction with the North Carolina Department of Transportation (NCDOT), commissioned a study on the NC 98 Corridor, spanning from US 70 in Durham County, through Wake County, to US 401 in Franklin County. This 27-mile corridor is an important regional transportation corridor connecting the City of Durham to northern Wake County, including the Towns of Wake Forest and Rolesville. It is the only east-west connection across northern Wake County and southern Franklin County other than Interstate 540 (about five miles to the south). A large portion of this corridor is a two-lane undivided roadway which has already been subject to traffic backups and congestion, especially at select intersections in the corridor. The Triangle Regional Model (a regional travel demand model utilized by NCDOT and other planning agencies to forecast future traffic volumes) indicates that this corridor is approaching or already over capacity. With an absence of improvements, currently projected population and commercial growth in the areas surrounding the corridor would indicate that most of the facility will be *well* over capacity by the year 2040.

This study was completed to evaluate safety and mobility, planned and existing roads, bicycle and pedestrian facilities, and transit uses along NC 98, and recommends future improvements in the corridor to better accommodate the growth in the area and along the corridor. WSP was hired as the consultant for this 18-month study, which started in December of 2016 and ended earlier this summer in July. A Core Technical Team (CTT) oversaw the study, which was composed of staff from the municipalities and counties along the corridor, along with staff from NCDOT, CAMPO, and DCHC. Additionally, a Study Oversight Team (SOT), composed of elected officials, advisory board members, community members, and other relevant stakeholders, were used to provide oversight and feedback to the project team, through three meetings during the study period (March 2017, August 2017, March 2018). Notable SOT representatives from Durham include Joe C Harris Jr and Jackie Jones from Durham Public Schools, Gwyn Silver from Durham Partners Against Crime, and County Commissioner Heidi Carter.

Moreover, public outreach was crucial to this project's success in defining community vision and corridor deficiencies and opportunities. The Study Team conducted numerous online engagement methods to effectively reach the wide range of audiences impacted by this corridor, including media and press releases, project website announcements, community "e-blasts", and social media (utilizing the communication accounts of DCHC MPO and CAMPO). Other in-person outreach included informational flyers, project business card distribution to businesses and community organizations, yard signs, community pop-up events, and public workshops. Notable attendees include Anne and Ian Conlon from Bike Durham, Lakirsta Williams from Live in Community, Eteban Bortiri from Durham BPAC, Dale McKeel from the City of Durham, Sherry Smith from the Grove Park HOA, and Mike and Marilyn Poole from DMBC.

Factors analyzed across all segments included existing demographics, commercial development areas, institutional facilities (such as schools, libraries, and churches), emergency services, culture and historic sites, transit, natural resources, parks, greenways and trails, real estate market conditions and projections, current and projected traffic volumes across the corridor, and pedestrian and bicycle safety. Other existing land use and transportation plans taken into consideration for this project include the Durham Trails and Greenways Master Plan, Durham Bike+Walk Implementation Plan, and the DCHC 2040 Comprehensive Transportation Plan (CTP) and Metropolitan Transportation Plan (MTP), among others for Wake and Franklin Counties.

### **Issues and Analysis**

At the beginning of the study, the corridor was divided into three segments (west, central, and east) because each section varied greatly and required improvements that were sensitive to the unique characteristics of those segments. For instance, it was apparent that the more urban area of Durham would differ from the environmentally sensitive area of Falls Lake, from the suburban character of Wake Forest, and from the more rural character near US 401. Two of the three corridor segments are in Durham County. The West Segment runs along NC 98 from US 70 to Sherron Road, and the Durham County portion of the Central Segment runs from Sherron Road to the Durham County line near Falls Lake. Both segments run through the Falls Lake Protected water supply watershed, with a 2.3 mile span from about Southview Road to the Durham County line falling within the Critical watershed (along with a Natural Heritage site around Falls Lake).

The West Segment is mainly suburban residential, comprised of single-family housing and apartment complexes, low density commercial at major crossroads, and numerous community

resources located along the corridor. This segment is currently a four-lane undivided street with limited access management due to a large number of driveways along the road, limited pedestrian facilities, and no bicycle facilities. Major community amenities and businesses with traffic impacts include two Food Lions (Hoover Road and Sherron Road), Reaching All Minds Academy (Adams Road), Oak Grove Elementary School (Mineral Springs Road), The Crossings Golf Club (Lick Creek Lane), Durham County East Regional Library (Lick Creek Lane), and other various churches, shops, restaurants, and automotive uses. A significant percentage of households below poverty level and minority households are located in the western half of this Segment.

The Central Segment is primarily two-lane undivided, low-density rural residential environment, with environmentally-sensitive features, and with access to key recreational areas near Falls Lake. Despite being frequently used by bicyclists and as a connection to the Mountains-to-Sea Trail, there are no bicycle or pedestrian facilities in the area. There are very few commercial areas in this segment, but a few amenities with traffic impacts include Neal Middle School (Baptist Road), Falls Village Golf Club (Falls Village Drive), a few churches, and an access point to the Mountains-to-Sea Trail near Falls Lake.

A key concern in the Durham portion of the corridor is the extraordinary crash rate for motorists. Between 2012 and 2016, 23% of all crashes within the entire NC 98 Corridor occurred within just a 2.5 mile stretch between US 70 and Mineral Springs Road (in the West Segment). Three of the eight fatal crashes are in this same span, two of which involve pedestrian collisions. A majority of the motorist collisions are rear-end crashes, which typically happen when the front car has stopped in the process of turning from a main lane, and the rear car has not dropped its speed. The safety concerns, combined with limited pedestrian infrastructure, provide deficiencies and potential alleviations for this section that are unlike the remainder of the NC 98 Corridor.

The short-term improvements recommended can help alleviate current issues along NC 98 before the long-term improvements are able to be implemented. Within the Durham County portion of the corridor, short-term improvements (generally within a one to three year time frame) include three new traffic signals (Adams Street, Nichols Farm Road, and Olive Branch Road intersections), and right-turn lanes at all approaches at Mineral Springs Road. The long-term recommendations for the Corridor provide design improvements such as medians and turn lanes to improve safety concerns, while still aiming to increase capacity to accommodate current and future volumes. Within the Document Library on the NC 98 website, Corridor Improvement Scroll Maps 1 through 3 cover the area of the corridor within Durham County, displaying the improvements made to NC 98 and potential impacts to surrounding properties.

For the Durham County section of the corridor, two separate cross-sections are suggested. The West Segment (US 70 to Sherron Road) is recommended as an access management improvement, known as "Priority 1A". This includes a typical urban four-lane road, with a twelve-foot divided median and turn lanes, separated five-foot bike lanes to the right of vehicular traffic, and significant pedestrian infrastructure separated from the road by a four-foot grass strip. While initially designed as a road diet (using only existing right-of-way to minimize property impacts by creating a two-lane divided road with bike lanes), public input favored maintaining four vehicular lanes. Additional analysis deemed that projected traffic volumes could not be sustained in a road diet design without widening other streets in the area to "absorb" excess traffic, like Mineral Springs Road, Sherron Road, and the eventual construction of the Northern Durham Parkway. Additionally, the right-of-way impacts were determined to be only marginally larger for maintaining four lanes with the other access management changes.

The Central Segment (Sherron Road to the Durham County line) is recommended as a “4-Lane widening”, known as “Priority 1”. This is the primary recommendation throughout most of the remainder of the corridor, similar to the access management section, but with a wider median at 17 feet, 6 inches, and no bike lanes. Despite being a low-density residential area, there are numerous driveways along this section of NC 98. With access management being a concern, the cross section in this section of the corridor also involves more median U-turns at cross streets, in addition to the wider median, to limit left turns.

Alternative intersection designs were also considered in this section of the corridor. While the major priority was safety in the Durham County portion of the study area, mobility was also a priority throughout. Looking at alternative intersection designs involved determining the efficiency of various designs for each intersection along the corridor using capacity analyses. Each intersection option was presented to the public as a conceptual design, allowing them to visualize what a treatment would look like if it was included in the widening. After the second round of public meetings, a Continuous Flow Intersection (CFI) design was being considered for the intersection at Sherron Road. But a closer look at bicycle and pedestrian activity in this section of the Corridor indicated that the CFI might not be best for accommodating these modes. The quadrant intersection design was selected instead. Traffic modeling showed that left-bound turns from NC 98 onto Sherron Road was a significant movement through the intersection, and would only increase in the future once Northern Durham Parkway is built. This design also addresses concerns about the proximity of Stallings Road to the intersection, and by creating a cul-de-sac along Stallings Road, redirects traffic into the quadrant rather than the intersection.

The high volume of vehicular crashes and concern for pedestrian safety in this section of the corridor led the design to especially prioritize bicycle and pedestrian infrastructure, driven by principles of connectivity and improving user comfort and safety. Along the four-lane divided roadway from US 70 to Sherron, sidewalks are included to serve pedestrians in the area. Additionally a multiuse path is recommended spanning from Sherron Road to Falls Village Drive. This shared use path is recommended along the north side of the NC 98 corridor to increase safety and connectivity for recreational riders, visitors of Falls Lake State Recreation Area, or travelers along the NC State Bicycle Routes. The path would be only in the Suburban Tier, and while built by NCDOT, would need to be maintained by the City.

The study team identified six major sources of funding for the short- and long-term projects identified by the study, including NCDOT’s Transportation Improvement Program, DCHC MPO Local Project Funds, Durham Municipal Funds, developer contribution, and other transportation grants.

### **Alternatives**

The Board of Commissioners could choose not to provide input on the NC 98 Corridor Study.

### **Staff Contact**

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### **Attachments**

**Attachment 1:** NC 98 Corridor Study Report Presentation