

**FEASIBILITY STUDY**

**City of Fayetteville**

**Improvements to NC 210 (Murchison Road)  
from Rowan Street to the proposed  
Fayetteville Outer Loop (U-2519DA)**

**Cumberland County**

**Division 6**

**FS -0306A**



**Prepared by the  
Program Development Branch  
N. C. Department of Transportation**

**R. N. Prince  
Feasibility Studies Engineer**

**Derrick W. Lewis, P.E.  
Feasibility Studies Unit Head**

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Date**

## City of Fayetteville

### Improvements to NC 210 (Murchison Road) from Rowan Street to the proposed Fayetteville Outer Loop (U2519DA), Cumberland County

FS-0306A

#### I. General Description

This feasibility study describes potential improvements to traffic and safety operations of NC-210 (Murchison Road) from Rowan Street to the proposed Fayetteville Outer Loop (U-2519DA), a distance of approximately 4.9 miles. The project location is shown on Figure 1. As part of the study, two (2) alternatives were considered, the details of which are as follows:

◆ **ALTERNATIVE 1:** Four-lane divided curb and gutter section, 79' wide face-to-face of curbs with a 23' raised grass median on 120' of right-of-way. The alignment will be symmetrical about the centerline throughout the entire project.

◆ **ALTERNATIVE 2:** Four-lane divided curb and gutter section, 79' wide face-to-face of curbs with a 23' raised grass median on 120' of right-of-way from Rowan Street to approximately 197' north of Henderson Avenue and six-lane divided curb and gutter section, 103' wide face-to-face of curbs with a 23' raised grass median on 150' of right-of-way from approximately 197' north of Henderson Avenue to the end of the project.

This is the initial step in the planning and design process for this project and is not the product of exhaustive environmental or design investigations. The purpose of this study is to describe the proposed project including cost, and to identify potential problems that may require consideration in the planning and design phases.

#### II. Background

The purpose of this project is to improve the traffic carrying capacity and mobility of Murchison Road from Rowan Street to the proposed Fayetteville Outer Loop, as well as promote a safer environment for motorists, bicyclists and pedestrians.

NC 210 (Murchison Road) is designated as a Major Thoroughfare in both the Fayetteville Area Thoroughfare Plan and the State Functional Classification System.

The Fayetteville City Council and the Fayetteville Metropolitan Planning Organization (MPO) support this project.

Fort Bragg has included NC-210 (Murchison Road) in its physical master plan for widening to six or more lanes. Plans to restrict traffic along Bragg Blvd. through Fort Bragg at the Fayetteville and Spring Lake boundaries are also in Fort Bragg's physical master plan.

NC-210 (Murchison Road) is currently a four-lane section on 44' of pavement with 10' lanes from Rowan Street to the US-401 Bypass and a five-lane section on 64' of pavement with 12' lanes from the US-401 Bypass to the end of the roadway, with sidewalks sporadically on both sides.

The development along NC-210 (Murchison Road) is primarily residential with some commercial and institutional properties including Fayetteville State University, eight (8) religious facilities, and one cemetery (Mile Branch Cemetery).

There is one existing bridge and two culverts within the project corridor.

- Bridge No. 51 is located 0.2 miles north of the NC-210 and NC-24/87 junction. This six-lane bridge, carrying US-401 Business over Murchison Road is approximately 139' long and 109.5' wide, with a sufficiency rating of 79.7 out of a possible 100 points.
- Culvert No. C250 is located 20' east of the US-401 Business and NC-210 junction. This culvert is a triple 12' x 9' RCBC, 97.58' along centerline, with a sufficiency rating of 73.5 out of a possible 100 points.
- Culvert No. C9 is southwest of US-401 Business bridge. This Culvert is a triple 12' x 12' RCBC, 215.25' along centerline, with a sufficiency rating of 62.7 out of a possible 100 points.

### **III. Traffic and Safety**

There are presently eight existing traffic signals within the project limits, located at the following NC-210 (Murchison Road) intersections:

- 1.) Rowan Street. (NC-87/NC-210/NC-24)
- 2.) Cumberland Street
- 3.) Filter Plant Drive
- 4.) Langdon Street
- 5.) Pennsylvania Avenue/Jasper Street
- 6.) Pamalee Drive/Country Club Drive (US-401 Bypass)
- 7.) Shaw Mill Road (SR 1614)
- 8.) Shaw Road (SR 1437)

The current year (2006) Average Daily Traffic (ADT) along NC-210 (Murchison Road) within the project limits, ranges from 13,300 vehicles per day (vpd) at the south end of the project to 26,800 vpd at the north end of the project. These volumes are projected to be between 29,300 vpd at the south end of the project to 51,200 vpd at the north end of the project in the Design Year (DY) 2035. Truck traffic is estimated to make up approximately 11 percent of the daily traffic.

NC-210 (Murchison Road) is currently operating at Level of Service (LOS) D or higher with the exception of the following intersections which fail to operate at an acceptable LOS:

- US-401 Bypass (Pamalee Drive/Country Club Drive).
- SR 1614 (Shaw Mill Road)/(Hogan Road).

If no improvements are made, it is projected that a majority of the remaining intersections on Murchison Road will operate at a LOS F by the Design Year 2035.

If only the four-lane divided improvements are made it is projected that the LOS will not be at an acceptable level for the north end of the project in the Design Year (DY) 2035.

If the four-lane, and six-lane divided widening alternative with the appropriate auxiliary turn-lanes are provided, it is projected that the LOS will be at an acceptable level in the design year 2035, with the exception of the intersection of Murchison Road (NC-210) and US-401 Bypass (Pamalee Drive/Country Club Drive). However, the necessary improvements to accommodate the traffic projections at this intersection are considered well beyond the scope of this project.

Between 2000 and 2003, 483 accidents occurred within the project limits. There were 272 property damage only accidents, 207 injury accidents, 4 of which were fatal. The total accident rate for this 4.9-mile portion of roadway is 470.77 accidents per 100 million vehicle miles of travel (acc/100mvm). The 2001-2003 statewide rate is 502.41 accidents/100mvm for four-lane undivided North Carolina routes. Fatal accidents are 45% higher than the statewide fatal crash rate from 2001-2003.

Eighty-one (81) of the total 483 accidents occurred at the intersection of US-401 Bypass and NC-210. Twenty-nine (29) consisted of rear end accidents, 16 angles accidents, 10 sideswipes, 11 left-turns and 15 others. With the proposed improvements it is anticipated the number and severity of these types of accidents will be reduced at this location as well as the entire corridor.

#### **IV. Description of Alternatives**

It is proposed to widen Murchison Road (NC-210) from Rowan Street to the proposed Fayetteville Outer Loop (U-2519DA), a distance of approximately 4.9 miles. The project location is shown on Figure 1. The cost estimates below include sidewalks on both sides of the roadway. The estimated cost for sidewalks is \$630,000 dollars per side.

The details of the proposed sections are as followed:

**ALTERNATIVE #1:** Four-lane divided curb and gutter section, 79' wide face-to-face of curbs, with a 23' raised grass median with 15' berms, on 120' of right-of-way.

Under the Alternative #1 proposal, it is anticipated there will be sixty (60) residential and thirty-five (35) business relocated. The total cost of this alternative is estimated to be \$53,100,000.

Construction	23,600,000
Right-of-Way	29,500,000
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Estimated Project Cost	53,100,000

**ALTERNATIVE 2: Section A;** Four-lane divided curb and gutter section with a 23' raised grass median, 79' wide face-to-face of curbs, and 15' berms, on 120' of right-of-way, from Rowan Street to approximately 197' north of Henderson Avenue. **Section B;** six-lane divided curb and gutter section with a 23' raised grass median, 103' wide face-to-face of curbs, and 15' berms, on 150' of right-of-way from approximately 197' north of Henderson Avenue to the end of the project.

Under the Alternative #2 proposal, it is anticipated there will be 60 (sixty) residential and 35 (thirty five) business relocated. The total cost of this alternative is estimated to be \$58,900,000.

Construction	26,800,000
Right-of-Way	32,100,000
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Estimated Project Cost	58,900,000

Under all alternatives, there are auxiliary turn-lanes proposed at most of the intersections including but not limited to the following:

- Dual right turn-lane from NC-210 southbound onto Rowan Street
- Dual right turn-lane from Rowan Street westbound onto NC-210 north.
- Dual left turn-lane from NC-210 southbound onto Cumberland Street east.
- Dual left turn-lane from NC-210 southbound onto Jasper Street east.
- Dual right turn-lane from NC-210 southbound onto Pamalee Drive.
- Multiple receiving lanes from NC-210 traveling east on Cumberland Street.

Due to horizontal restraints under the existing US-401 Business (Martin Luther King Jr.) highway bridge, both Alternatives 1 and 2 transition down from a 23' raised grass median to a 4' concrete median in the bridge area. If this bridge were to be replaced in order to provide the horizontal clearance to widen Murchison Road to the desirable four-lane divided cross-section with 23 foot raised grass median, the total cost, both for Alternative 1 and 2 would increase by approximately \$17,600,000 (\$10,800,000 for right-of-way and \$6,800,000 for construction).

## V. Community Issues

A detailed investigation was not conducted for this feasibility study. However impacts to parks, recreation areas, and community facilities are anticipated with this project.

Community Issues of concern are as follows:

- Elmwood Cemetery is located at the Cumberland Street and NC-210 intersection.
- There is a significant student population that uses the Murchison Road corridor due to Fayetteville State University and its housing facilities.
- There are three elementary schools and one high school in close proximity of NC-210 project corridor.
- Dr. Martin Luther King Jr. Memorial Park is located off Blue Street.
- Mount Sinai Baptist Church is located across from Fayetteville State University.
- Parks Chapel Free Will Baptist Church is located north of Temple Road.
- There are potential environmental justice issues because of anticipated impacts to the minority community adjacent to this corridor.
- Fort Bragg has developed a physical security plan, which involves restricting access on NC-87/24 (Bragg Blvd) at the Fayetteville and Spring Lake boundaries that will affect the traffic flow on NC-210.

## VI. Natural and Environmental Issues

A detailed environmental study was not conducted for this feasibility study, however, there is no indication of threatened or endangered species being impacted in the area.

## VII. Recommendations

**ALTERNATIVE No.1:** After analyzing the available information, it was determined that a four-lane divided curb and gutter section would not accommodate the projected 2035 traffic volumes for the northern portion of the project beginning just south of US-401 Bypass (Pamalee Drive/Country Club Drive) to the Fayetteville Outer Loop (U-2519DA). Therefore this alternative is not the preferred alternative.

**ALTERNATIVE No.2:** Analyzing all the information available for the four and six-lane divided curb and gutter section, it was concluded the improvements would accommodate the design year 2035 volumes with an acceptable Level of Service (LOS) with the exception of the US-401 Bypass (Pamalee Drive/Country Club Drive) intersection, which will require an interchange to achieve an acceptable LOS. An interchange at this location is considered well beyond the scope of this project and it is not included in the recommendations for this study. However, the recommended improvements will improve motorist and pedestrian safety, and reduce traffic congestion by increasing the road capacity while providing positive control of left turn access. **Therefore, Alternative 2 is the preferred alternative for the proposed widening of Murchison Road.**

### **VIII. Additional Comments**

The plans to curtail traffic along Bragg Blvd. through Fort Bragg may dramatically impact traffic patterns between downtown Fayetteville, Fort Bragg Military Base and Spring Lake. Also Marion Gardens, a proposed housing development of 21 single-family units is one of several future housing developments proposed for the corridor. Bronco Square Plaza is one of the recently developed business areas. A feasibility study (FS-0206B) is being conducted to provide improved connectivity along Shaw Road (SR 1437), Shaw Mill Road (SR 1614) and Rosehill Road/Stacey Weaver Road (SR 1615).

Bicycle accommodations are included in this project.

**FIGURE 1**  
**FS - 0306A**  
**Fayetteville / Cumberland County**

**LEGEND**

-  Rivers
-  City Boundaries
-  Airports
- Roads**
-  I
-  NC
-  SR
-  US
-  Water Bodies
-  Major Water Bodies
-  dotroads selection

