

FEASIBILITY STUDY RE-EVALUATION

Village of Clemmons

Improvements to
SR 1103 (Lewisville-Clemmons Road)
From US 158 (Clemmons Road)
To SR 1891 (Peace Haven Road)

Forsyth County

Division 9

**U-5121
(FS-0309B)**



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

A handwritten signature in black ink, appearing to read "R. N. Prince".

R. N. Prince
Feasibility Studies Engineer

A handwritten signature in black ink, appearing to read "Derrick W. Lewis".

Derrick W. Lewis P.E.
Head of Feasibility Studies

11/16/2009

Date

Village of Clemmons

Improvements to SR 1103 (Lewisville-Clemmons Road) From US 158 (Clemmons Road) To SR 1891 (Peace Haven Road) Forsyth County Division 9

U-5121 (FS - 0309B)

I. General Description

This feasibility study re-evaluation describes the operational and safety improvements for SR 1103 (Clemmons-Lewisville Road) from US 158 (Clemmons Road) to SR 1891 (Peace Haven Road), a distance of approximately 1.6 miles. The project location is shown on the location map. This re-evaluation supersedes the previous version issued on October 3, 2008 because revised traffic projections which take into account the latest Piedmont-Triad Regional Model, (Version 2) significantly reduced the scope of the recommended improvements. As part of this re-evaluated feasibility study, the number of alternatives/cross sections considered is now two different cross-sections with three alternatives, the details of which are as follows:

- **ALTERNATIVE 1:** Four-lane curb and gutter section with 30' divided raised grass median and 15-foot berms, 86 feet wide face to face of curbs, with 12-foot travel lanes, 14-foot wide outside lines to accommodate bicycles and 5-foot sidewalks on both sides within a 120-foot right-of-way. This alternative also includes auxiliary turn lanes and some y-line upgrades but will retain the current I-40 interchange.
- **ALTERNATIVE 2:** Four-lane curb and gutter section with 30' divided raised grass median and 15-foot berms, 86 feet wide face to face of curbs, with 12-foot travel lanes, 14-foot wide outside lines to accommodate bicycles and 5-foot sidewalks on both sides within a 120-foot right-of-way. This alternative also includes upgrading the I-40 interchange to a Single Point Urban Interchange (SPUI), auxiliary turn lanes and some y-line upgrades.
- **ALTERNATIVE 3:** Six-lane curb and gutter section with 30' divided raised grass median and 15-foot berms, 110 feet wide face to face of curbs, with 12-foot travel lanes, 14-foot wide outside lines to accommodate bicycles and 5-foot sidewalks on both sides within a 150-foot right-of-way. This alternative also includes upgrading the I-40 interchange to a Single Point Urban Interchange (SPUI), auxiliary turn lanes and some y-line upgrades.

This study 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 costs, 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 safety and operations on this section of Lewisville-Clemmons Road by addressing the indiscriminate left turn movements and traffic safety and operational deficiencies associated with the existing five-lane curb and gutter section and intersection configurations along this facility.

The Village of Clemmons, Forsyth County and the Winston-Salem Metropolitan Planning Organization support this study.

SR 1103 (Lewisville-Clemmons Road) is designed as a minor thoroughfare in the Winston-Salem Urban Area Thoroughfare Plan and a minor arterial in the North Carolina 2006 Urban Functional Classification.

Lewisville-Clemmons Road in our project area is currently a five-lane curb and gutter section, 49 foot to 59 foot face to face of curbs, with sidewalks sporadically throughout. There is currently 60' right-of-way from US 158 to Old Glory Road and 90' right-of-way from Town Center Drive/Allegacy Way to Peace Haven Road.

The development along SR 1103 is primarily commercial strip development.

III. Traffic and Safety

There are six existing traffic signals within the project limits along Lewisville Clemmons Road (SR 1103). They are located at the intersections with US 158, Stadium Drive, Westwood Village Drive, I-40 Ramp A, Ramp D, and Peace Haven Road.

The Average Annual Daily Traffic (AADT) along SR 1103 within the project limits is projected to be up to 41,200 vehicles per day (vpd) in the current year and up to 48,200 vpd in the Design Year (DY) 2035. Truck traffic is estimated to make up approximately 3 percent of the daily traffic. This section of Lewisville-Clemmons Road is currently operating at an unacceptable F Level of Service (LOS) with no improvements. Based on our capacity analysis utilizing the information available, we anticipate that the alternatives will operate as indicated below:

- A 4-lane divided raised grass median with auxiliary turn lanes at major intersections but is anticipated to operate at an unacceptable "F" Level of Service (LOS) in the current year and design year.
- A 4-lane divided raised grass median with upgrade to I-40 interchange to accommodate a single point urban interchange and additional auxiliary turn lanes at major intersections but is anticipated to operate at an unacceptable "F" Level of Service (LOS) in both the current year and design year.
- A 6-lane divided raised grass median with upgrade to I-40 interchange to accommodate a single point urban interchange and sufficient additional auxiliary turn lanes will accommodate the 2035 design year traffic at an acceptable LOS "D" or better.

Although a Single-Point Urban Interchange (SPUI) is recommended at for the I-40 interchange, it might not be the most efficient design because the projected traffic volumes of the unbalanced turning movements. However, it was still recommended because of the need to

minimize impacts on surrounding development and improve intersection spacing. We recommend that the additional interchange configurations be considered during later planning and design.

Between 2004 and 2007, 294 accidents occurred within the project limits. There were 83 injury crashes, 211 property damage only crashes and no fatalities as a result of these accidents. The accident rate for this 1.6-mile portion of roadway is 541.78 accidents per 100million vehicles miles of travel (acc/100mvm), which is lower than the 2003-2005 statewide rate of 588.084 acc/100mvm for four-lane undivided with a continuous two way left turn-lane urban secondary route. It should be noted that 46% of the total accidents, consist of left turn crashes. The divided raised grass median upgrade would reduce the likelihood of this type of accident occurring in the future. In addition, safety and operations would be improved by providing pedestrian accommodations with signalized intersections and a divided raised grass median refuge. The 2003-2005 statewide rate for a multilane divided urban secondary route is 394.32 acc/100mvm and is significantly less than the existing crash rates of this section of Lewisville-Clemmons Road.

IV. Description of Alternatives

It is proposed to upgrade SR 1103 (Lewisville-Clemmons Road) to a multilane divided raised grass median urban cross-section capable of minimizing potential points of conflict created by the existing five-lane curb and gutter corridor from US 158 to SR 1891, a distance of approximately 1.6 miles.

This study evaluated two different multilane cross sections, a four-lane divided and a six-lane divided raised grass median curb and gutter facility. In addition to the proposed widening, all alternatives to this study also include the cost and impacts associated with the following y-lines, auxiliary-lanes and intersection improvements:

- Cook Street re-alignment across from Glory Road.
- A multi-lane extension/ widening of Rollingwood Drive from Willowood Drive to Lewisville-Clemmons Road (SR 1103).
- Sessions Court extension from existing Sessions Court to Rollingwood Drive/Willowood Drive intersection.
- New service road to Ramada Drive using portion of Brookland Drive with the remainder on new alignment.
- Additional y-line improvements at the SR 1103 intersections with Stoney Drive, Stadium Drive/Rollingwood Drive, Glory Road/re-aligned Cook Street, US 158 and Peace Haven Road. Improvements may include but are not limited to left and right auxiliary turn-lanes as needed based on the projected traffic volumes and if necessary receiving lanes to accommodate proposed auxiliary turn lanes.

The individual details of the alternatives for this feasibility study are as follows:

Alternative #1: Four (4) lane divided raised grass median curb and gutter section, 86 feet wide face to face of curbs with 30-foot raised grass median, 15-foot berms and 5-foot sidewalks, and includes 14-foot wide outside lanes to accommodate bicycles within 120 feet of symmetrical right-of-way. This alternative also includes some auxiliary turn-lanes and Y-line improvements at

major intersections but retains the current I-40 interchange configuration. Under the Alternative #1, it is anticipated there will be fifteen (15) residential and fifteen (15) businesses relocated. The total cost of this alternative is estimated to be \$65,700,000.

Right-of-Way (120')	41,600,000
Construction	19,600,000
Utility Relocation	4,500,000
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Estimated Project Cost (Alternative 1)	65,700,000

Alternative #2: Four (4) lane divided raised grass median curb and gutter section, 86 feet wide face to face of curbs with 30-foot raised grass median, 15-foot berms and 5-foot sidewalks, and includes 14-foot wide outside lanes to accommodate bicycles within 120 feet of symmetrical right-of-way. This alternative also includes upgrading the I-40 interchange to a Single Point Urban Interchange (SPUI) configuration, auxiliary turn-lanes and Y-line improvements at major intersections. Under this alternative, it is anticipated there will be fifteen (15) residential and nineteen (19) businesses relocated. The total cost of this alternative is estimated to be \$94,600,000.

Right-of-Way (120')	49,600,000
Construction	40,500,000
Utility Relocation	4,500,000
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Estimated Project Cost (Alternative 3)	94,600,000

Alternative #3: Six (6) lane divided raised grass median curb and gutter section, 110 feet wide face to face of curbs with 30-foot raised grass median, 15-foot berms and 5-foot sidewalks, and includes 14-foot wide outside lanes to accommodate bicycles within 150 feet of symmetrical right-of-way. This alternative also includes upgrading the I-40 interchange to a Single Point Urban Interchange (SPUI) configuration, auxiliary turn-lanes and Y-line improvements at major intersections. Under the Alternative #5, it is anticipated there will be sixteen (16) residential and thirty-two (32) businesses relocated. The total cost of this alternative is estimated to be \$129,900,000.

Right-of-Way (150')	79,200,000
Construction	46,200,000
Utility Relocation	4,500,000
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Estimated Project Cost (Alternative 5)	129,900,000

V. Community Issues

A detailed investigation was not conducted for this feasibility study; however no impacts to schools, parks, recreation areas, or community facilities are anticipated with this project. However, Clemmons Elementary is approximately 0.4 mile, West Forsyth High is approximately 1.5 miles and Southwest Elementary is within approximately 1.5 miles of the project vicinity.

VI. Natural and Environmental Issues

A detailed environmental study was not conducted as part of this feasibility study. However, existing information available for this project area has been screened for environmental and historic concerns.

No impacts to historic properties are anticipated; however, Clemmons Methodist Church a 1920 one-story brick house (HSDSLDPT ID: 227) located on Peace Haven Road is in the project proximity.

The project is located in the Yadkin River Water Supply Watershed and J. A. Heard & Associates (GWIU ID: 2618) showed Soil Contamination.

There is no indication of threatened or endangered species impacting the area based on maps developed by the Department of Environmental, Health & Resources and Natural Heritage Section.

VI. Recommendations

Alternative 1 and 2 fail to provide acceptable levels of service (LOS) through the 2035 design year and Alternative 3 provides acceptable operations through the 2035 design year if sufficient auxiliary turn lanes are provided. Therefore the six lane widening of Lewisville Clemmons Road with a Single Point Urban Interchange at I-40 recommended in Alternative 3 is the preferred alternative. The total cost of the recommended alternative is \$129,900,000, including \$79,200,000 in right of way, \$46,200,000 in construction, and \$4,500,000 in utility relocation.

FS - 0309B

Location Map

Clemmons / Forsyth County

