

FEASIBILITY STUDY

Towns of Matthews and Stallings

**John Street/Old Monroe Road (SR 1009) from
Trade Street (SR 3448/SR 3474) to
Wesley Chapel-Stouts Road (SR 1377)**

Mecklenburg/Union Counties

Division 10

FS-0110 B



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

A handwritten signature in black ink that reads "Nicole M. Hackler".

Nicole M. Hackler
Feasibility Studies Engineer

A handwritten signature in black ink that reads "Derrick W. Lewis".

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

12/9/02
Date

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Trade Street (SR 3448/SR 3474) to
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I. General Description

This feasibility study describes the widening of John Street/Old Monroe Road (SR 1009) from Trade Street (SR 3448/SR 3474) to Wesley Chapel-Stouts Road (SR 1377), a distance of approximately 6.5 miles. The project location is shown on Figure 1. As part of this study, two different cross-sections were investigated. The details of each are as follows:

- ◆ **ALTERNATIVE #1:** Four-lane divided curb and gutter section on 100-feet of right of way.
- ◆ **ALTERNATIVE #2:** Six-lane divided curb and gutter section on 130-feet of right of way.

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 increase the traffic carrying capacity and safety of John Street/Old Monroe Road (SR 1009), as well as provide improved multilane access to both the towns of Matthews and Stallings. This project was requested by the Mecklenburg-Union Metropolitan Planning Organization (MUMPO).

John Street/Old Monroe Road is designated as a major thoroughfare in the Mecklenburg-Union Thoroughfare Plan, and as a minor arterial in the North Carolina Statewide Functional Classification System. John Street/Old Monroe Road is currently a combination of two-lane shoulder sections and three-lane curb and gutter sections. The development along this road is a combination of residential, commercial and undeveloped land.

There are five existing traffic signals within the project limits. They are located at Wesley Chapel-Stouts Road (SR 1377); Waxhaw-Indian Trail Road (SR 1008); Stallings Road (SR 1365)/Potter Road (SR 1357); I-485 east bound ramp junction; and Trade Street (SR 3448/SR 3474).

Multi-lane improvements on Stallings Road (SR 1365) from John Street/Old Monroe Road to US 74 are proposed under TIP Project U-3825. Multi-lane improvements are also proposed on Waxhaw-Indian Trail Road (SR 1008) from John Street/Old Monroe Road to US 74 under TIP Project U-3809. Finally, the extension of McKee Road from Campus Ridge Road (SR 3457) to Pleasant Plains Road (SR 3448) is proposed under FS-0110C. This extension would cross John Street/Old Monroe Road.

The current year Average Daily Traffic (ADT) along John Street/Old Monroe Road within the project limits ranges from 15,000 vehicles per day (vpd) at the south end of the project to 22,700 vpd at the north end. For the design year 2025, the estimated traffic volumes on John Street/Old Monroe Road will range from 22,000 vehicles per day (vpd) at the south end of the project to 56,900 vpd at the north end. Truck traffic is estimated to make up approximately six percent of the daily traffic at the south end of the project, and three percent of the daily traffic at the north end.

Currently, the majority of intersections along John Street/Old Monroe Road are operating at a Level of Service (LOS) "F". The exceptions are the intersections at I-485 and Wesley Chapel-Stouts Road, which are operating at a Level of Service of "C" or better. If no improvements are made to John Street/Old Monroe Road, all intersections will be operating at a LOS "F" in design year 2025, with the exception of the intersection at I-485, which would operate at a LOS "E". With the proposed six-lane widening of John Street/Old Monroe Road, the intersections along this corridor are anticipated to operate at a Level of Service (LOS) "D" or better in the design year 2025, with the exception of the intersections at Trade Street (SR 3448) and Stallings Road (SR 1365).

During the three year period from January 1998 to December of 2000, there were 250 accidents reported within the project limits. There were 89 injuries and 1 fatality as a result of these incidents. The accident rate for the 2.3 mile portion of roadway in Mecklenburg County (northern end of project) is 113.55 accidents per 100 million vehicle miles of travel (acc/100mvm), which is substantially lower than the 1999-2001 statewide rate of 217.03 accidents/100mvm for undivided two-lane primary routes. The accident rate for the 4.2 mile portion of roadway in Union County (southern end of project) is 380.95 accidents/100mvm, which is considerably higher than the 1999-2001 statewide rate listed above.

III. Description of Project

It is proposed to widen John Street/Old Monroe Road (SR 1009) from Trade Street (SR 3448/SR 3474) to Wesley Chapel-Stouts Road (SR 1377), a distance of approximately 6.5 miles. The project location is shown on Figure 1. Two cross-sections were studied for this project and are as follows:

ALTERNATIVE #1: Four-lane divided curb and gutter section with an 18-foot raised grass median, 70-foot wide face to face of curbs, with 10-foot berms on 100-feet of right of way. In order to support these modifications to John Street/Old Monroe Road, it was also necessary to make improvements to the intersecting roadways of Wesley Chapel-Stouts Road, Waxhaw-Indian Trail Road, Williams Rescue, Stallings Road and Trade Street. The costs for these additional Y-Line improvements have been included below.

With this proposed cross-section, it is anticipated there will be 29 residences and 34 businesses relocated due to this project. The total cost of this alternative, including construction and right-of-way, is estimated to be \$ 67,600,000.

Construction.	. \$ 29,600,000
Right-of-Way	. \$ 38,000,000
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Total Project Cost (Alternative 1)	.\$ 67,600,000

ALTERNATIVE #2: Six-lane divided curb and gutter section with an 18-foot raised grass median, 94-foot wide face to face of curbs with 10-foot berms, on 130-feet of right of way. In order to support these modifications to John Street/Old Monroe Road, it was also necessary to make improvements to the intersecting roadways of Wesley Chapel-Stouts Road, Waxhaw-Indian Trail Road, Williams Rescue, Stallings Road and Trade Street. The costs for these additional Y-Line improvements have been included below.

With this proposed cross-section, it is anticipated there will be 61 residences and 38 businesses relocated due to this project. The total cost of this alternative, including construction and right-of way, is estimated to be \$ 87,000,000.

Construction.	\$ 38,500,000
Right-of-Way.	\$ 48,500,000
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Total Project Cost (Alternative 2)	\$ 87,000,000

The construction of two feet of additional pavement on each side of the road for the length of the project was also investigated. This pavement would accommodate a "Share the Road" bicycle alternative, and would add an additional \$ 1,800,000 to the project cost.

A separate cost was also provided for the installation of a five-foot sidewalk, to be installed on one side of the roadway, and to run approximately 3.5 miles. This option would add an additional \$ 400,000 to the project cost.

IV. Other Alternatives Considered

When capacity analyses were run for design year 2025 with the alternatives listed above, the John Street/Old Monroe Road corridor still failed at two locations: Trade Street and Stallings Road.

When additional improvements to Trade Street were further investigated, it was found that serious right of way impacts to the Matthews' Historical District, the Matthew's Commercial District, CSX Railroad and areas outside of the project limits would result. Due to the associated high costs of an interchange at this location, coupled with the severe impacts to surrounding areas (including, but not limited to, the Central Business District and the historical section of Matthews), this option fell greatly outside the scope of this project and therefore was not addressed in this study. If an interchange were to be considered at this location, a separate feasibility study to address these issues would need to be prepared to adequately evaluate the impacts to this area.

Since the intersection at Stallings Road fell within the project limits, a single point interchange was investigated during this study. This modification allowed the intersection of John Street/Old Monroe Road and Stallings Road to operate at a Level of Service of D in design year 2025. The details of this alternative are listed below.

ALTERNATIVE #3: Alternative #3 is for the single-point interchange option at Stallings Road. This alternative includes relocating Stallings Road approximately 400' to the south to improve interchange alignment, and also includes full control of access for 1200' both north and south of the proposed ramp connector. This option takes into account the previously estimated costs of Y-Line improvements to Stallings Road so that the sum below can simply be added to the other options if an interchange is desired with either alternative above.

With this option, it is anticipated there will be an additional 29 residences and 20 businesses relocated due to this project. The total cost of this alternative, including construction and right-of-way, is estimated to be \$ 34,500,000.

Construction.	\$ 11,000,000
Right-of-Way.	\$ 23,500,000
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Total Project Cost (Alternative 3)	\$ 34,500,000

V. Recommendations

ALTERNATIVE #1: The analysis for the four-lane divided curb and gutter section showed it would not be able to accommodate the projected 2025 design year volumes with an acceptable level of service. For this reason, Alternative #1 was not selected as the recommended option.

ALTERNATIVE #2: It was found that the six-lane divided curb and gutter section would be able to accommodate all projected volumes until 2025, with the exception of the two intersections at Trade Street and Stallings Road. These two intersections were anticipated to fully accommodate projected traffic volumes through year 2015 and decline in the level of service provided after that time. Because the six-lane divided curb and gutter section will still provide enhanced traffic safety and capacity on the facility, as compared to the four-lane divided curb and gutter option above, Alternative #2 is the recommended alternative for this project.

ALTERNATIVE #3: The analysis for the interchange at Stallings Road indicated that this option would accommodate projected 2025 volumes. However, the serious right of way impacts on surrounding residences and businesses coupled with the extremely high cost of an interchange at this location may make this alternative undesirable.

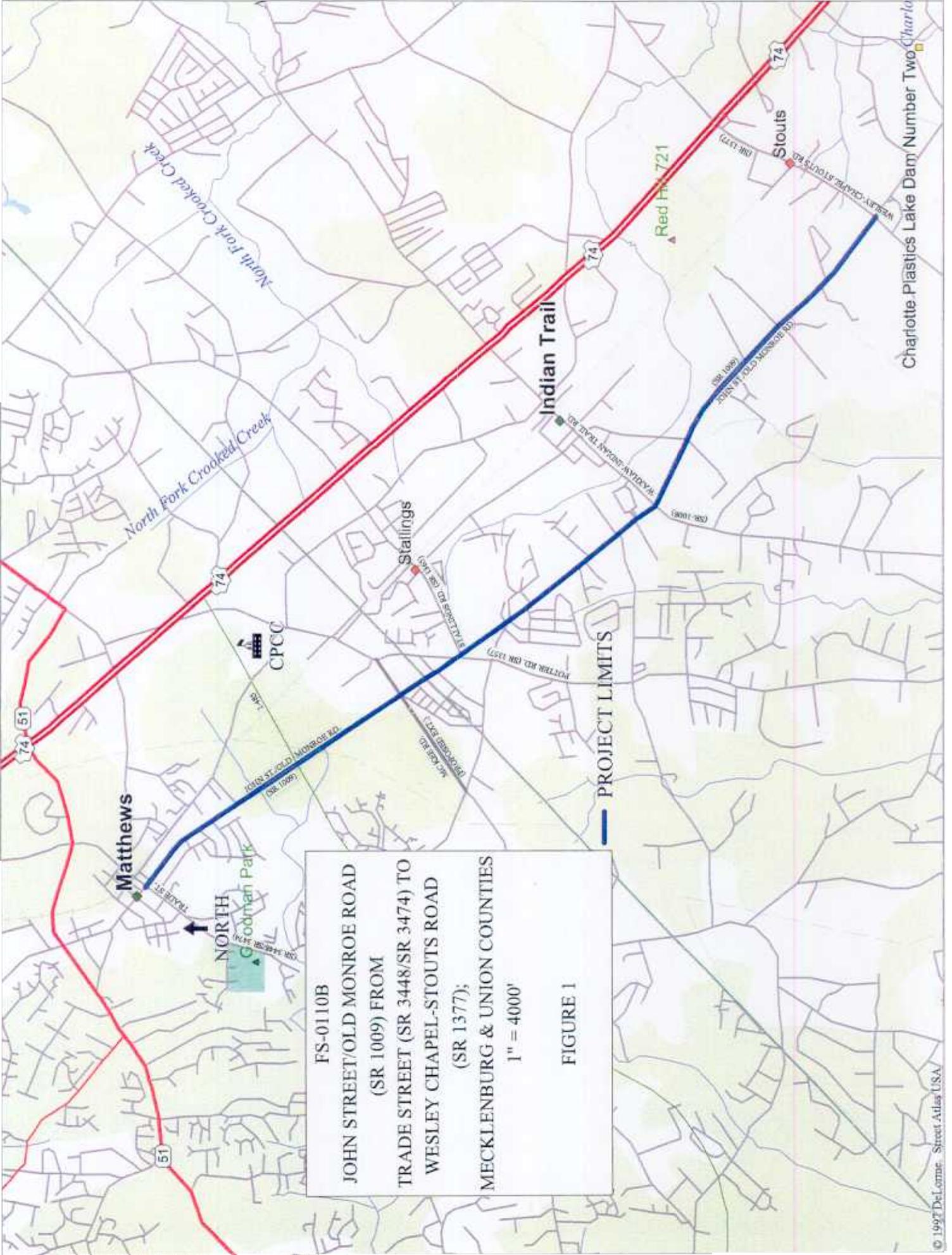
The total project cost including the recommended six-lane widening on John Street/Old Monroe Road from Trade Street to Wesley Chapel-Stouts Road, a two-foot "Share the Road" bicycle facility and a five-foot sidewalk on one side is \$ 89,200,000. Should an interchange at Stallings Road be desired, this would raise the total cost of the project to \$ 123,700,000.

VI. Additional Comments

A detailed environmental study was not conducted for this feasibility study. However, based on maps at the Department of Environment, Health and Natural Resources – National Heritage Section, no threatened or endangered species were identified in the project corridor.

One possible area of concern for historic properties was found at the north end of the project. The Matthews Commercial Historic District, including the

Heath and Reid General Store and the Nancy Reid House, may be affected. Any improvements beyond the recommended widening proposed in this report would greatly affect this Historic District, therefore both the right of way impacts and associated costs with a large-scale project such as an interchange at Trade Street are considered far beyond the scope of this project.



FS-0110B
 JOHN STREET/OLD MONROE ROAD
 (SR 1009) FROM
 TRADE STREET (SR 3448/SR 3474) TO
 WESLEY CHAPEL-STOUTS ROAD
 (SR 1377);
 MECKLENBURG & UNION COUNTIES
 1" = 4000'
 FIGURE 1