STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

1534 MAIL SERVICE CENTER, RALEIGH, N.C. 27699-1534

W. LYNDO TIPPETT
SECRETARY

March 7, 2006

MEMORANDUM TO: Mr. G. R. Kindley, Member, Board of Transportation
Mr. Tim Johnson, P.E., Division Engineer, Division 8
Mr. David King
Mr. Calvin Leggett, P.E.
Mr. Kevin Lacy, P.E. (3) Attention: Jim Dunlop, P.E.
Mr. John Williamson
Dr. Gregory Thorpe (2)
Ms. Deborah Barbour, P.E.
Mr. Jay Bennett, P.E.
Mr. Mike Bruff, P.E.
Mr. Art McMillan, P.E.
Mr. Len Sanderson, P.E.
Mr. A. L. Avant
Mr. Mike Stanley, P.E.
Mr. Doug Lane

FROM: Ms. Lynnise M. Hawes
Feasibility Studies Unit

SUBJECT: Feasibility Study U-3818 (FS-0408D); Proposed new connector from SR 1903 (Mill Road) to SR 1426 (Aberdeen Road) in Rockingham; Richmond County

Our staff has completed a feasibility study for the proposed project referenced above. This brief analysis suggests improvements that would be logical if the project were to be funded. A copy of our report is attached for your information.

LMH/lmh

Attachment

PHONE 919-733-2039 FAX 919-733-3585

FEASIBILITY STUDY

City of Rockingham

Proposed New Connector
from SR 1903 (Mill Road) to SR 1426 (Aberdeen Road)

Richmond County

Division 8

U-3818 (FS–0408D)

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

Lynnise M. Hawes

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Feasibility Studies Engineer

Derrick W. Lewis

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Feasibility Studies Unit Head

3/6/06
Date

City of Rockingham
Proposed New Connector
from SR 1903 (Mill Road) to SR 1426 (Aberdeen Road)

Richmond County
U-3818 (FS-0408D)

I. General Description

This feasibility study describes the proposed new connector from SR 1903 (Mill Road) to SR 1426 (Aberdeen Road) utilizing sections of existing SR 1923 (Broad Street), SR 1641 (Clemmer Road), and SR 1645 (Mt. Olive Church Road), with the remainder on new location, a distance of approximately 4.1 miles. The project location is shown on Figure 1. As part of the study, combinations of several different cross-sections were investigated, the details of which are as follows:

- Two-lane shoulder section on 150′ of right-of-way.
- Two-lane curb and gutter section on 110′ of right-of-way.
- Four-lane divided shoulder section on 150′ of right-of-way.
- Four-lane divided curb and gutter section on 110' of right-of-way.
- Five-lane shoulder section on 150' of right-of-way.
- Five-lane curb and gutter section on 110' of right-of-way.

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 provide a new connector between SR 1903 (Mill Road) and SR 1426 (Aberdeen Road) as an alternative to the multi-lane widening of SR 1646 (Long Drive). This project will also promote a safer environment as well as provide an alternate thoroughfare between US 74 Business and US 1 in a major residential and commercial area of Rockingham. The City of Rockingham, Richmond County and the Lumber River Rural Planning Organization support this project.

SR 1903 (Mill Road) is designated as a minor arterial in the North Carolina Statewide Functional Classification System and as a major thoroughfare in the 1996 Rockingham-Hamlet Thoroughfare Plan. SR 1903 is currently a two-lane shoulder section with a pavement width of 24 feet from edge of pavement to edge of pavement. The development along SR 1903 is predominantly rural residential.

SR 1923 (Broad Street) does not have a designation in the North Carolina Statewide Functional Classification System nor the 1996 Rockingham-Hamlet Thoroughfare Plan. SR 1923 is currently a two-lane shoulder section with a pavement width of 20 feet from edge of pavement to edge of pavement. The development along SR 1923 is rural residential.

SR 1641 (Clemmer Road) is not designated in the North Carolina Statewide Functional Classification System and is designated as a major thoroughfare in the 1996 Rockingham-Hamlet Thoroughfare Plan. SR 1641 is currently a two-lane shoulder section with a pavement width of 27 feet from edge of pavement to edge of pavement. However, the east side of SR 1641 has curb and gutter at the intersection of SR 1641 and US 74 Business. The development along SR 1641 is predominantly rural residential.

SR 1645 (Mt. Olive Church Road) is not designated in the North Carolina Statewide Functional Classification System and is designated as a major thoroughfare in the 1996 Rockingham-Hamlet Thoroughfare Plan. SR 1645 is currently a two-lane shoulder section with a pavement width of 20 feet from edge of pavement to edge of pavement. The development along SR 1645 is rural residential.

SR 1426 (Aberdeen Road) is designated as a collector in the North Carolina Statewide Functional Classification System and as a major thoroughfare in the 1996 Rockingham-Hamlet Thoroughfare Plan. SR 1426 is currently a two-lane shoulder section with a pavement width of 20 feet from edge of pavement to edge of pavement. The land use along SR 1426 is predominantly rural residential and undeveloped.

Transportation Improvement Program (TIP) project U-3456 intersects with the proposed new connector. This project entails the widening of US 1 to multi-lanes from SR 1424 (Richmond Road) to SR 1640 (Wiregrass Road)/SR 1422 (Ledbetter Road). U-3456 is currently scheduled for right-of-way acquisition, with construction scheduled for fiscal year 2007.

TIP project U-3807 runs parallel with a portion of the proposed new connector. This project entails the construction of a new connector from SR 1909 (Hylan Avenue) to US 74 Business. Currently, U-3807 is an unfunded project.

It is anticipated that the proposed new connector from Mill Road to Aberdeen Road will have railroad impacts, since it will intersect the CSX 'SF' line. At this location there is one track that carries approximately 40 freight trains per day at speeds averaging 40 miles per hour. Based on the Policies and Procedures manual, the exposure index for

design year 2030 at this location would be 256,000, which greatly surpasses the rural warrants of 15,000 for a grade separation at this location.

III. Traffic and Safety

An existing traffic signal is located at the intersection of US 74 Business and SR 1641 (Clemmer Road).

The estimated current year Average Daily Traffic (ADT) along the proposed new connector ranges from 3,200 to 8,500 vehicles per day (vpd). For the design year 2030, the traffic volume along the proposed new connector is estimated to range between 6,400 and 16,800 vpd. Truck traffic is estimated to make up approximately 3 to 4 percent of the daily traffic. In the design year of 2030, the recommended new connector configuration is projected to operate at Level Of Service (LOS) D or better.

Between 2001 and 2004, 16 total crashes were reported within the project limits. 12 occurred on SR 1641 (Clemmer Road) and 4 occurred on SR 1645 (Mt. Olive Church Road). The crash rates for SR 1641 and SR 1645 are 608.96 and 744.80 crashes per 100 million vehicle miles (crashes/100MVM) traveled, respectively. Both rates are higher than the statewide rate of 422.44 crashes/100MVM for two-lane undivided urban secondary routes. There were 7 injury crashes, 8 property damage only crashes, and 1 fatal crash. The most prevalent types of crashes were Angle (25%) and Rear End (25%).

IV. Description of Alternatives

It is proposed to construct a new connector from SR 1903 (Mill Road) to SR 1426 (Aberdeen Road) utilizing sections of existing SR 1923 (Broad Street), SR 1641 (Clemmer Road), and SR 1645 (Mt. Olive Church Road), with the remainder on new location, a distance of approximately 4.1 miles. The project location is shown on Figure 2. For evaluation purposes the project was divided into several segments, and different cross-sections for each segment were studied. The details of each are below:

SECTION A1: This segment along the proposed new connector is from SR 1903 (Mill Road) to US 74 Business, a distance of approximately 0.9 miles. This segment is entirely on new location. All options under Section A1 include a railroad grade separation, the costs of which are included in all options below.

Option 1: Two-lane section, 32' from edge of pavement to edge of pavement, with 8' shoulders (4' of which are paved) constructed asymmetrically on 150' of right-of-way. Should the ultimate section be desired in the future (a four-lane divided shoulder section with a raised grass median), the asymmetrical placement of the proposed two-lane section will allow for ease in retrofitting.
With this proposed cross-section, it is anticipated that there will be three (3) residences and zero (0) businesses relocated along this section. The total cost

of this alternative, including construction and right-of-way, is estimated to be $9,700,000.

Right-of-way	$1,000,000
Construction	$8,700,000
Total Cost (Section A1, Option 1)	$9,700,000

Option 2: Four-lane divided section, 79' from edge of pavement to edge of pavement, with 8' shoulders (4' of which are paved) and a 23' raised grass median on 150' of right-of-way.

With this proposed cross-section, it is anticipated that there will be three (3) residences and zero (0) businesses relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $15,100,000.

Right-of-way	$1,000,000
Construction	$14,100,000
Total Cost (Section A1, Option 2)	$15,100,000

Option 3: Five-lane section, 68' from edge of pavement to edge of pavement, with 8' shoulders (4' of which are paved) on 150' of right-of-way.

With this proposed cross-section, it is anticipated that there will be three (3) residences and zero (0) businesses relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $15,900,000.

Right-of-way	$1,000,000
Construction	$14,900,000
Total Cost (Section A1, Option 3)	$15,900,000

SECTION A2: This segment along the proposed new connector is from SR 1903 (Mill Road) to US 74 Business, a distance of approximately 1.0 mile. This segment utilizes a portion of SR 1923 (Broad Street). All options under Section A2 include a railroad grade separation, the costs of which are included in all options below.

Option 1: Two-lane section, 32' from edge of pavement to edge of pavement, with 8' shoulders (4' of which are paved) constructed asymmetrically on 150' of right-of-way. Should the ultimate section be desired in the future (a four-lane divided shoulder section with a raised grass median), the asymmetrical placement of the proposed two-lane section will allow for ease in retrofitting.

With this proposed cross-section, it is anticipated that there will be four (4) residences and zero (0) businesses relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $9,500,000.

Right-of-way.....$1,200,000
Construction.....$8,300,000
Total Cost (Section A2, Option 1).....$9,500,000

Option 2: Four-lane divided section, 79' from edge of pavement to edge of pavement, with 8' shoulders (4' of which are paved) and a 23' raised grass median on 150' of right-of-way.

With this proposed cross-section, it is anticipated that there will be four (4) residences and zero (0) businesses relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $14,500,000.

Right-of-way.....$1,200,000
Construction.....$13,300,000
Total Cost (Section A2, Option 2).....$14,500,000

Option 3: Five-lane section, 68' from edge of pavement to edge of pavement, with 8' shoulders (4' of which are paved) on 150' of right-of-way.

With this proposed cross-section, it is anticipated that there will be four (4) residences and zero (0) businesses relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $15,200,000.

Right-of-way.....$1,200,000
Construction.....$14,000,000
Total Cost (Section A2, Option 3).....$15,200,000

SECTION B: This segment along the proposed new connector is from US 74 Business to SR 1624 (County Home Road), a distance of approximately 0.6 miles. This segment utilizes SR 1641 (Clemmer Road).

Option 1: Two-lane section, 32' from edge of pavement to edge of pavement, with 8' shoulders (4' of which are paved) constructed asymmetrically on 150' of right-of-way. Should the ultimate section be desired in the future (a four-lane divided shoulder section with a raised grass median), the asymmetrical placement of the proposed two-lane section will allow for ease in retrofitting.
With this proposed cross-section, it is anticipated that there will be four (4) residences and one (1) business relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $2,600,000.

Right-of-way.....$1,300,000
Construction.....$1,300,000
Total Cost (Section B, Option 1).....$2,600,000

Option 2: Four-lane divided section, 79' from edge of pavement to edge of pavement, with 8' shoulders (4' of which are paved) and a 23' raised grass median on 150' of right-of-way.

With this proposed cross-section, it is anticipated that there will be four (4) residences and one (1) business relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $3,700,000.

Right-of-way.....$1,300,000
Construction.....$2,400,000
Total Cost (Section B, Option 2).....$3,700,000

Option 3: Five-lane section, 68' from edge of pavement to edge of pavement, with 8' shoulders (4' of which are paved) on 150' of right-of-way.

With this proposed cross-section, it is anticipated that there will be four (4) residences and one (1) business relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $3,500,000.

Right-of-way.....$1,300,000
Construction.....$2,200,000
Total Cost (Section B, Option 3).....$3,500,000

Option 4: Two-lane shoulder and curb and gutter section, 30' from face of curb to edge of pavement, with a 15' berm, a 5' sidewalk, and an 8' shoulder (4' of which is paved) on 110' of right-of-way. Should the ultimate section be desired in the future (a four-lane divided shoulder section with a raised grass median), the asymmetrical placement of the proposed two-lane section will allow for ease in retrofitting.

The estimated construction cost for the sidewalk on the eastside of the roadway is $92,000. This cost is included in the estimated construction cost below.

With this proposed cross-section, it is anticipated that there will be zero (0) residences and zero (0) businesses relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $2,100,000.

Right-of-way.....$700,000
Construction.....$1,400,000
Total Cost (Section B, Option 4).....$2,100,000

Option 5: Four-lane divided curb and gutter section, 75' from face of curb to face of curb, with an 23' raised grass median, 15' berms, and 5' sidewalks on 110' of right-of-way.

The estimated construction cost for sidewalks on both sides of the roadway is $200,000. This cost is included in the estimated construction cost below.

With this proposed cross-section, it is anticipated that there will be zero (0) residences and zero (0) businesses relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $3,400,000.

Right-of-way.....$700,000
Construction.....$2,700,000
Total Cost (Section B, Option 5).....$3,400,000

Option 6: Five-lane curb and gutter section, 64' from face of curb to face of curb, with 15' berms, and 5' sidewalks on 110' of right-of-way.

The estimated construction cost for sidewalks on both sides of the roadway is $200,000. This cost is included in the estimated construction cost below.

With this proposed cross-section, it is anticipated that there will be zero (0) residences and zero (0) businesses relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $3,400,000.

Right-of-way.....$700,000
Construction.....$2,700,000
Total Cost (Section B, Option 6).....$3,400,000

SECTION C: This segment along the proposed new connector is from SR 1624 (County Home Road) to US 1, a distance of approximately 2.1 miles. This segment utilizes portions of SR 1645 (Mt. Olive Church Road), with the remainder on new location. All options under Section C include the construction of a bridge structure over Falling Creek, the costs of which are included in all options below.

Option 1: Two-lane section, 32' from edge of pavement to edge of pavement, with 8' shoulders (4' of which are paved) constructed asymmetrically on 150' of right-of-way. Should the ultimate section be desired in the future (a four-lane divided shoulder section with a raised grass median), the asymmetrical placement of the proposed two-lane section will allow for ease in retrofitting.

With this proposed cross-section, it is anticipated that there will be six (6) residences and one (1) business relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $9,600,000.

Right-of-way.....$1,600,000
Construction.....$8,000,000
Total Cost (Section C, Option 1).....$9,600,000

Option 2: Four-lane divided section, 79' from edge of pavement to edge of pavement, with 8' shoulders (4' of which are paved) and a 23' raised grass median on 150' of right-of-way.

With this proposed cross-section, it is anticipated that there will be six (6) residences and one (1) business relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $14,500,000.

Right-of-way.....$1,600,000
Construction.....$12,900,000
Total Cost (Section C, Option 2).....$14,500,000

Option 3: Five-lane section, 68' from edge of pavement to edge of pavement, with 8' shoulders (4' of which are paved) on 150' of right-of-way.

With this proposed cross-section, it is anticipated that there will be six (6) residences and one (1) business relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $14,400,000.

Right-of-way.....$1,600,000
Construction.....$12,800,000
Total Cost (Section C, Option 3).....$14,400,000

SECTION D: This segment along the proposed new connector is from US 1 to SR 1426 (Aberdeen Road), a distance of approximately 0.4 miles. This segment is entirely on new location.

Option 1: Two-lane section, 32' from edge of pavement to edge of pavement, with 8' shoulders (4' of which are paved) constructed asymmetrically on 150' of right-of-way. Should the ultimate section be desired in the future (a four-lane divided shoulder section with a raised grass median), the asymmetrical placement of the proposed two-lane section will allow for ease in retrofitting.

With this proposed cross-section, it is anticipated that there will be four (4) residences and zero (0) businesses relocated along this section. The total cost if this alternative, including construction and right-of-way, is estimated to be $2,100,000.

Right-of-way.....$600,000
Construction.....$1,500,000
Total Cost (Section D, Option 1).....$2,100,000

Option 2: Four-lane divided section, 79' from edge of pavement to edge of pavement, with 8' shoulders (4' of which are paved) and a 23' raised grass median on 150' of right-of-way.

With this proposed cross-section, it is anticipated that there will be four (4) residences and zero (0) businesses relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $2,800,000.

Right-of-way	$600,000
Construction	$2,200,000
Total Cost (Section D, Option 2)	$2,800,000

Option 3: Five-lane section, 68' from edge of pavement to edge of pavement, with a 23' raised grass median, 15' berms, and 5' sidewalks on 150' of right-of-way.

With this proposed cross-section, it is anticipated that there will be four (4) residences and zero (0) businesses relocated along this section. The total cost of this alternative, including construction and right-of-way, is estimated to be $2,700,000.

Right-of-way	$600,000
Construction	$2,100,000
Total Cost (Section D, Option 3)	$2,700,000

V. Community Issues

A detailed investigation was not conducted for this feasibility, however impacts to an existing church are anticipated. No impacts to schools, parks, recreation areas, or other community facilities are anticipated with this project.

Maps at the Survey and Planning Branch of the North Carolina State Historic Preservation Office were used to determine if any historic properties on the National Register of Historic Places (NRHP) or state lists exist within the proposed project corridor. No properties within the project corridor were found to be either on state lists or on the NRHP.

VI. Natural Environment Issues

The following is a preliminary review of environmental issues that might have a potential impact to the project. The information obtained for the environmental screening is from a Geographic Information System (GIS) database. The purpose of the environmental screening is to identify potential environmental issues early in the process.

Stream Classification

The proposed project corridor is located in the Yadkin River Basin. The project corridor crosses Beaverdam Branch, the South Prong of Falling Creek, and an unnamed tributary to Murphy's and Lee's Ponds, all of which have a stream classification of C. The project also crosses Falling Creek, which has a stream classification of WS-III CA. These water bodies will likely need to be surveyed and have the appropriate coordination with the North Carolina Department of Environment and Natural Resources (NCDENR) and the U.S. Army Corps of Engineers (USACE) during any environmental document study.

Wetlands

The proposed project crosses wetlands associated with Beaverdam Branch, the South Prong of Falling Creek, an unnamed tributary to Murphy's and Lee's Ponds, and Falling Creek. Permitting with the U.S. Army Corps of Engineers (USACE) will likely need to be obtained before construction of the project, and appropriate mitigation measures should be taken if deemed necessary.

Threatened and Endangered Species

There were no threatened and endangered species identified within the project corridor.

VII. Recommendations

SECTION A1 – OPTION 1: It was found that the two-lane shoulder section would be able to accommodate the projected 2030 design year volumes with an acceptable level of service. However, this alternative's project cost was higher than Section A2–Option 1.

SECTION A1 – OPTIONS 2 & 3: It was found that the four-lane divided shoulder section (Option 2) and the five-lane shoulder section (Option 3) would be able to accommodate the projected 2030 design year volumes with an acceptable level of service. However, the projected design year traffic volumes do not support the need for a multi-lane section at this time.

SECTION A2 – OPTION 1: It was found that the two-lane shoulder section would be able to accommodate the projected 2030 design year volumes with an acceptable level of service. The asymmetrical construction of a two-lane section on multi-lane right-of-way should ease future widening to a multi-lane section if it is desired after the 2030 design year. This alternative will utilize an existing road, which contributes to its low total cost. ***Because of these factors, Section A2–Option 1 would be the preferred section for the proposed new connector.***

SECTION A2 – OPTIONS 2 & 3: It was found that the four-lane divided shoulder section (Option 2) and the five-lane shoulder section (Option 3) would be able to accommodate the projected 2030 design year volumes with an acceptable level of service. However, the projected design year traffic volumes do not support the need for a multi-lane section at this time.

SECTION B – OPTIONS 1 & 4: It was found that the two-lane shoulder section (Option 1) and the two-lane shoulder and curb and gutter section (Option 4) would not be able to accommodate the projected 2030 design year volumes with an acceptable level of service.

SECTION B – OPTIONS 2, 3, 5, & 6: It was found that the four-lane divided shoulder section (Option 2), the five-lane shoulder section (Option 3), the four-lane divided curb and gutter section (Option 5), and the five-lane curb and gutter section (Option 6) would be able to accommodate the projected 2030 design year volumes with an acceptable level of service. However, five-lane sections tend to promote strip development and indiscriminate left turn movements, while four-lane divided sections minimize strip development, prevent indiscriminate left turn movements, and allow pedestrian refuge if needed. To maintain cross-section continuity throughout the project a right-of way width of 150' is preferred. ***Because of these factors, Option 2 would be the preferred option for Section B.***

SECTION C – OPTION 1: It was found that the two-lane shoulder section would not be able to accommodate the projected 2030 design year volumes with an acceptable level of service.

SECTION C – OPTIONS 2 & 3: It was found that the four-lane divided shoulder section (Option 2) and the five-lane shoulder section (Option 3) would be able to accommodate the projected 2030 design year volumes with an acceptable level of service. ***Option 2 would be the preferred option for Section C.***

SECTION D – OPTION 1: It was found that the two-lane shoulder section would be able to accommodate the projected 2030 design year volumes with an acceptable level of service. The asymmetrical construction of a two-lane section on multi-lane right-of-way should ease future widening to a multi-lane section if it is desired after the 2030 design year. This section also provides a transition area to tie into the existing two-lane section at the northern most terminus of the project. ***Because of these factors, Option 1 would be the preferred option for Section D.***

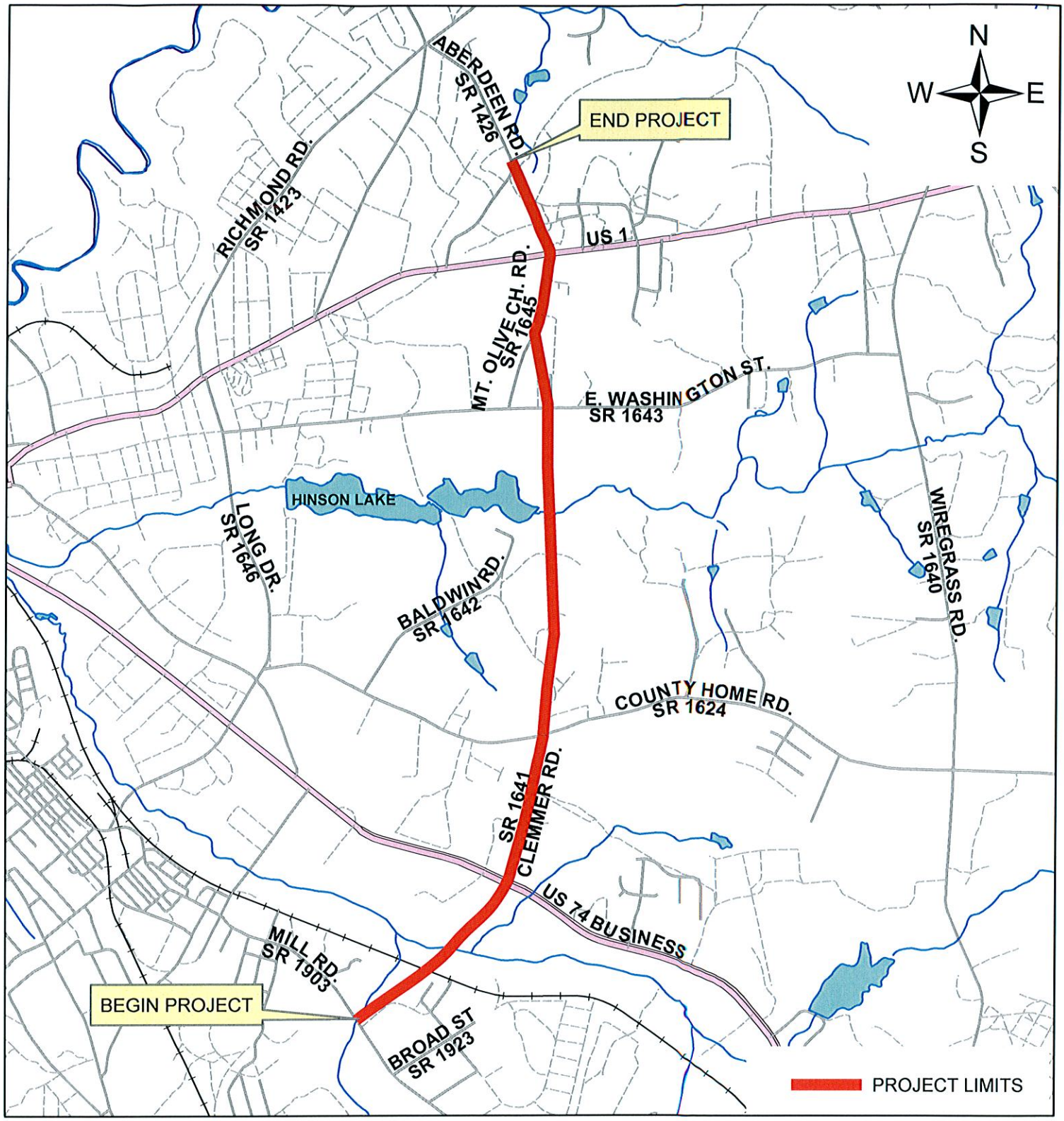
SECTION D – OPTIONS 2 & 3: It was found that the four-lane divided shoulder section (Option 2) and the five-lane shoulder section (Option 3) would be able to accommodate the projected 2030 design year volumes with an acceptable level of service. However, the projected design year traffic volumes do not support the need for a multi-lane section at this time.

The total combined estimated cost for the preferred alternatives in Sections A2 (Option 1), B (Option 2), C (Option 2), and D (Option 1), a railroad grade separation, and a proposed bridge structure over Falling Creek is $29,800,000. It is anticipated that

a total of eighteen (18) residences and two (2) businesses will be relocated along the proposed connector. Please see the table below for a comprehensive breakdown of these alternatives and costs.

Section/Alternative	Construction Cost	Right-of-way Cost	Total Cost	Residences Relocated	Businesses Relocated
Section A1					
Option 1	$8,700,000	$1,000,000	$9,700,000	3	0
Option 2	$14,100,000	$1,000,000	$15,100,000	3	0
Option 3	$14,900,000	$1,000,000	$15,900,000	3	0
Section A2					
Option 1	$8,300,000	$1,200,000	$9,500,000	4	0
Option 2	$13,300,000	$1,200,000	$14,500,000	4	0
Option 3	$14,000,000	$1,200,000	$15,200,000	4	0
Section B					
Option 1	$1,300,000	$1,300,000	$2,600,000	4	1
Option 2	$2,400,000	$1,300,000	$3,700,000	4	1
Option 3	$2,200,000	$1,300,000	$3,500,000	4	1
Option 4	$1,400,000	$700,000	$2,100,000	0	0
Option 5	$2,700,000	$700,000	$3,400,000	0	0
Option 6	$2,700,000	$700,000	$3,400,000	0	0
Section C					
Option 1	$8,000,000	$1,600,000	$9,600,000	6	1
Option 2	$12,900,000	$1,600,000	$14,500,000	6	1
Option 3	$12,800,000	$1,600,000	$14,400,000	6	1
Section D					
Option 1	$1,500,000	$600,000	$2,100,000	4	0
Option 2	$2,200,000	$600,000	$2,800,000	4	0
Option 3	$2,100,000	$600,000	$2,700,000	4	0
Total Project (preferred alternatives) Sect. A2-Opt. 1, Sect. B-Opt. 2, Sect C-Opt. 2, Sect. D-Opt. 1	**$25,100,000**	**$4,700,000**	**$29,800,000**	**18**	**2**

Table 1: Project Cost



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROGRAM DEVELOPMENT BRANCH

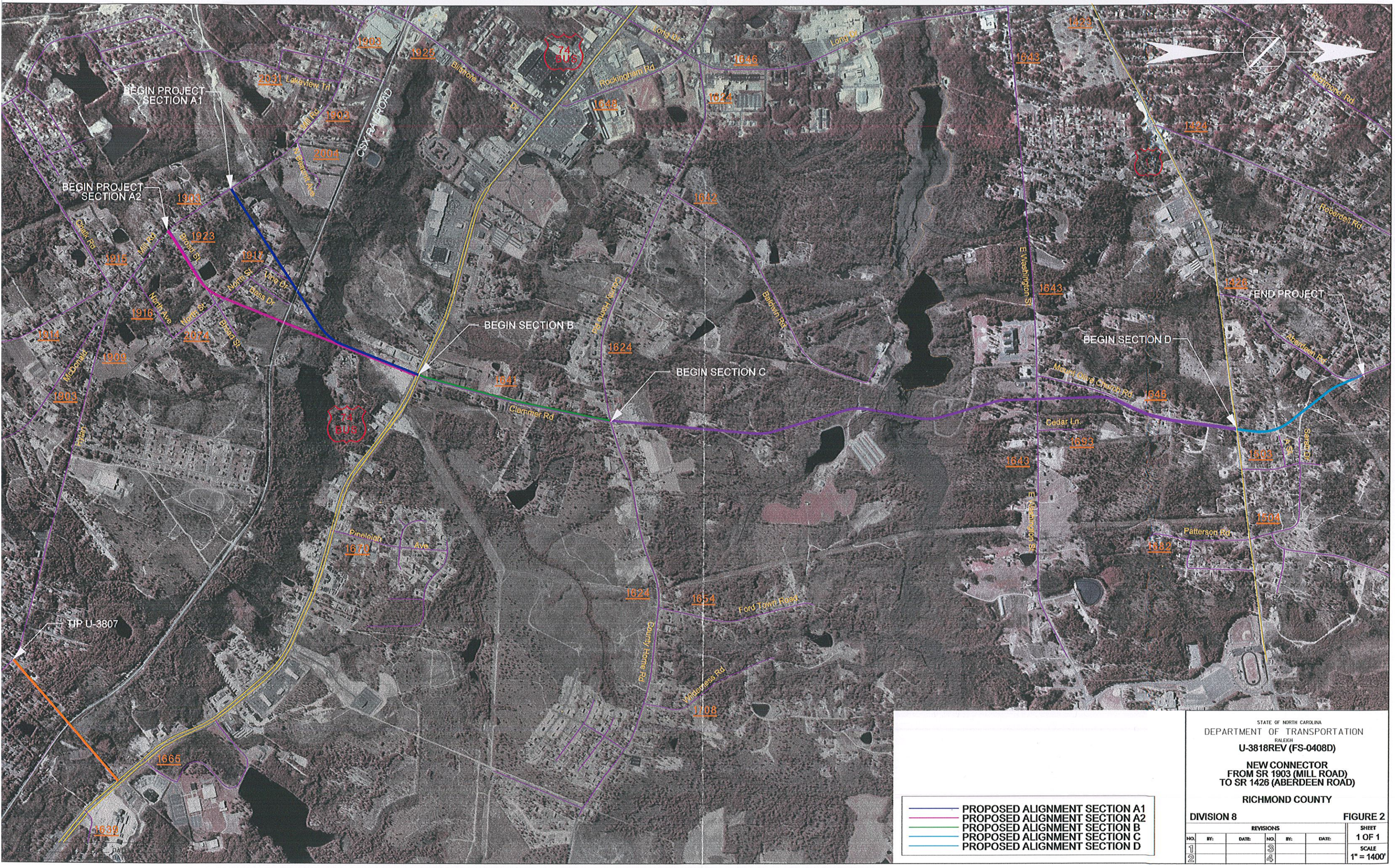
U-3818 (FS-0408D)

NEW CONNECTOR
FROM SR 1903 (MILL ROAD)
TO SR 1426 (ABERDEEN ROAD)

ROCKINGHAM, RICHMOND COUNTY

DIVISION 8

FIGURE 1



PROPOSED ALIGNMENT SECTION A1
PROPOSED ALIGNMENT SECTION A2
PROPOSED ALIGNMENT SECTION B
PROPOSED ALIGNMENT SECTION C
PROPOSED ALIGNMENT SECTION D

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

U-3818REV (FS-0408D)

NEW CONNECTOR
FROM SR 1903 (MILL ROAD)
TO SR 1426 (ABERDEEN ROAD)

RICHMOND COUNTY

DIVISION 8 **FIGURE 2**

REVISIONS						SHEET
NO.	BY:	DATE:	NO.	BY:	DATE:	1 OF 1
1			3			SCALE
2			4			1" = 1400'