

U-4748



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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GOVERNOR

W. LYNDO TIPPETT
SECRETARY

February 26, 2004

MEMORANDUM TO: Mr. Jay Swain, Jr., P.E., Division Engineer, Division 13
Mr. David King
Mr. Calvin Leggett, P.E.
Mr. Troy Peoples, P.E. (3) Attention: Jim Dunlop, P.E.
Mr. John Williamson
Mr. Gregory J. Thorpe, PhD (2)
Mr. Art McMillan, P.E.
Mr. Jay Bennett, P.E.
Mr. Mike Bruff, P.E.
Mr. A. L. Avant
Mr. Van Argabright, P.E.
Mr. Doug Lane
Mr. Omar S. Sultan

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FROM: Mr. Derrick W. Lewis, P.E.
Feasibility Studies Unit

SUBJECT: Feasibility Study FS-9913A; New Connector from I-40 to SR 3556 (Amboy Road), Asheville, Buncombe 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.

DWL/dl

Attachment

cc: Mr. Len Sanderson, P.E.
Ms. Deborah Barbour, P.E.

FEASIBILITY STUDY

Asheville

**New Connector
From Interstate 40 to SR 3556 (Amboy Rd.)
Buncombe County**

Division 13

FS-9913A



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


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

Asheville
New Connector
From Interstate 40 to SR 3556 (Amboy Rd.)
Buncombe County
FS-9913A

I. General Description

This feasibility study describes constructing a new connector from I-40 to SR 3556 (Amboy Rd.), a distance of 0.7 miles. The project location is shown on Figure 1. The recommended cross-section is a four-lane divided curb and gutter section; 70 feet wide from face-to-face of curbs, with an 18-foot raised grass median and 10-foot berms. The recommended right of way width is 100 feet with partial control of access. It is anticipated that there will be no residences or businesses relocated due to this project. The total cost of the project, including construction and right-of-way, is estimated to be \$17,000,000.

It should be noted that I-40 would need to be widened to accommodate the 2025 design year traffic projections regardless of whether or not the proposed new connector is constructed. Based on our analysis, a six-lane section is sufficient to accommodate the 2025 design year traffic without this proposed connector. However, with the new connector in place, the ultimate section on I-40 in this area would need to be increased to eight-lanes. The cost associated with widening I-40 in this area is not included in this study since it is well beyond the project scope. However, a detailed interchange justification study should be performed during later planning and design studies if this project is seriously considered for funding in the Transportation Improvement Program (TIP).

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 traffic flow in the Biltmore Village area and the US 25 corridor by providing an alternate access to South Asheville. This project is supported by the City of Asheville.

This connector proposes to cross a portion of the Biltmore Estate between Interstate 40 and the Swannanoa River. Development on the property in the

vicinity of the project is primarily farmland. The Biltmore Estate has recently constructed a 224-room hotel, which is located on their property near the existing Biltmore Winery (see Figure 1). North of the Swannanoa River, Norfolk Southern Corporation maintains a rail yard and roundhouse.

Interstate 40 is designated as a freeway and Meadow Road is designated as a major thoroughfare in the Asheville Urban Area Thoroughfare Plan. Interstate 40 is classified as an interstate and Meadow Road is classified as a minor arterial in the North Carolina Statewide Functional Classification System.

Interstate 40 is currently a four-lane divided highway with 12-foot travel lanes, paved shoulders, and a 44-foot grassy median on approximately 280 feet of right-of-way. Meadow Road is a two-lane roadway, 22 feet wide with grassy shoulders on 60 feet of right-of-way. There is an existing signal at the intersection with Amboy Road.

No funded TIP Projects are in the immediate vicinity of the project. However, as of this writing, NCDOT has recently completed a feasibility study investigating the potential widening of SR 3556 (Meadow Rd. / Amboy Rd.) in a feasibility study under TIP Project FS-9913D.

The estimated 2004 Average Daily Traffic (ADT) on the proposed new connector will be 17,000 vehicles per day (vpd). For the design year 2025, the estimated traffic volumes on the proposed new connector will be 24,000 vpd. Truck traffic is estimated to make up three percent of daily traffic.

If the proposed new connector is constructed as a four-lane curb and gutter section, the facility will operate at LOS B in the current year and at LOS E in the design year 2025. Capacity for this arterial is limited by the two-lane approaches from Amboy Road, Lyman Avenue, and Meadow Road. These two-lane approaches limit the number of turn lanes and through lanes that may be added to allow these intersections to operate more efficiently. However, if Meadow Road and Lyman Avenue are widened to multilane facilities as proposed under FS-9913D, the capacity of the new connector will improve to LOS C in the design year.

This new connector proposes to construct a new interchange on I-40 in between US 25 and NC 191. If this proposed connector is provided, the estimated ADT on I-40 is expected to be 56,700 vpd in 2004 and 79,900 vpd in the design year 2025. However, the estimated ADT on I-40 in this area is 47,100 vpd in 2004 and 65,500 vpd in the design year 2025, without the new connector. Truck traffic is estimated to make up fourteen percent of daily traffic on I-40.

Based on our analysis, it is anticipated the existing four-lane freeway on I-40 will operate at a LOS D in the current year and at a LOS F in the 2025 design year without the new connector. Without this connector in place, I-40

needs to be widened to a basic six-lane freeway to accommodate the 2025 design year traffic volumes. If the new connector is provided, it is anticipated that operations on the existing four-lane freeway section on I-40 would degrade to a LOS E during the current year. Therefore, I-40 would ultimately need to be widened to an eight-lane freeway to accommodate the increased design year 2025 traffic volumes associated with this new connector.

III. Description of Project

This study evaluates the construction of a new connector from I-40 to SR 3556 (Amboy Rd.), a distance of 0.7 miles. The project location is shown on Figure 1. The recommended cross-section is a four-lane divided curb and gutter section, 70 feet wide from face-to-face of curbs, with an 18-foot raised grass median and 10-foot berms, on 100 feet of right-of-way.

This project will require a new interchange at I-40, as shown on Figure 1. This interchange will require dual structures to carry I-40 over the proposed new connector. A loop in the southeast quadrant of the proposed interchange is based on topographical considerations, since there is a large hill in the southwest quadrant of the interchange. The distance to the adjacent interchanges is approximately 1.5 miles (east) to the US 25 interchange and 2.2 miles (west) to the NC 191 interchange. In addition, a new bridge will also be required to cross the Swannanoa River.

It is anticipated that no residences or businesses will be relocated due to the project. The total cost of the project, excluding the widening of I-40, is as follows:

Right-of-way	\$ 500,000
Construction	\$ 16,500,000
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Total Cost	\$ 17,000,000

IV. Additional Comments

A screening of existing information was conducted for this study. Based on our analysis, no impacts to wetlands are anticipated.

The Biltmore Estate is identified as a Historic Landmark on the National Register. The house is considered to be one of the best examples of French Chateau architecture in the United States. This project will have a substantial impact upon undeveloped portions of this property. The Biltmore Estate also maintains an



Biltmore Estate Guest House

historic guesthouse near the proposed new connector (see Figure 1). This project will require a 4(f) statement and the concurrence of the Biltmore Estate in order to be constructed.

Additionally, this project will affect the existing internal traffic patterns for the Biltmore Estate. The Estate currently uses a series of one-way and two-way roads to circulate traffic throughout the property and control access to the Biltmore House. Winery Road currently runs parallel to the Swannanoa River and is one of two exits from the property for Biltmore Estate visitors. The Estate generates as much as 5,000 vpd during peak tourist periods. Since the Biltmore Estate has recently constructed a visitor center and is controlling access from an internal guard gate, allowing entry to the estate from this new connector would not constitute unauthorized access to the Biltmore House. However, even if Winery Road is realigned further away from the proposed intersection with Meadow Road, any such entrance to or exit from the Biltmore Estate property along this new connector will significantly hamper traffic operations at the proposed Meadow Road intersection. Considering the issues and impacts associated with the Biltmore Estate, we anticipate this project will present significant challenges during later planning stages of project development.

This project was identified as Alternate R in the Asheville Urban Area Phase I Environmental Analysis. Alternate R was not selected as a preferred corridor in that study.

Based on information from Department of Environment, Health & Natural Resources - Natural Heritage Section, no threatened or endangered species were identified in the project corridor. This section of the Swannanoa River within the project corridor is a Class C stream and is part of the French Broad River Basin.

No special accommodations for bicycles are recommended on this project.

FS-9913A
New Connector
From I-40 to SR 3556 (Amboy Road)
Asheville, Buncombe County

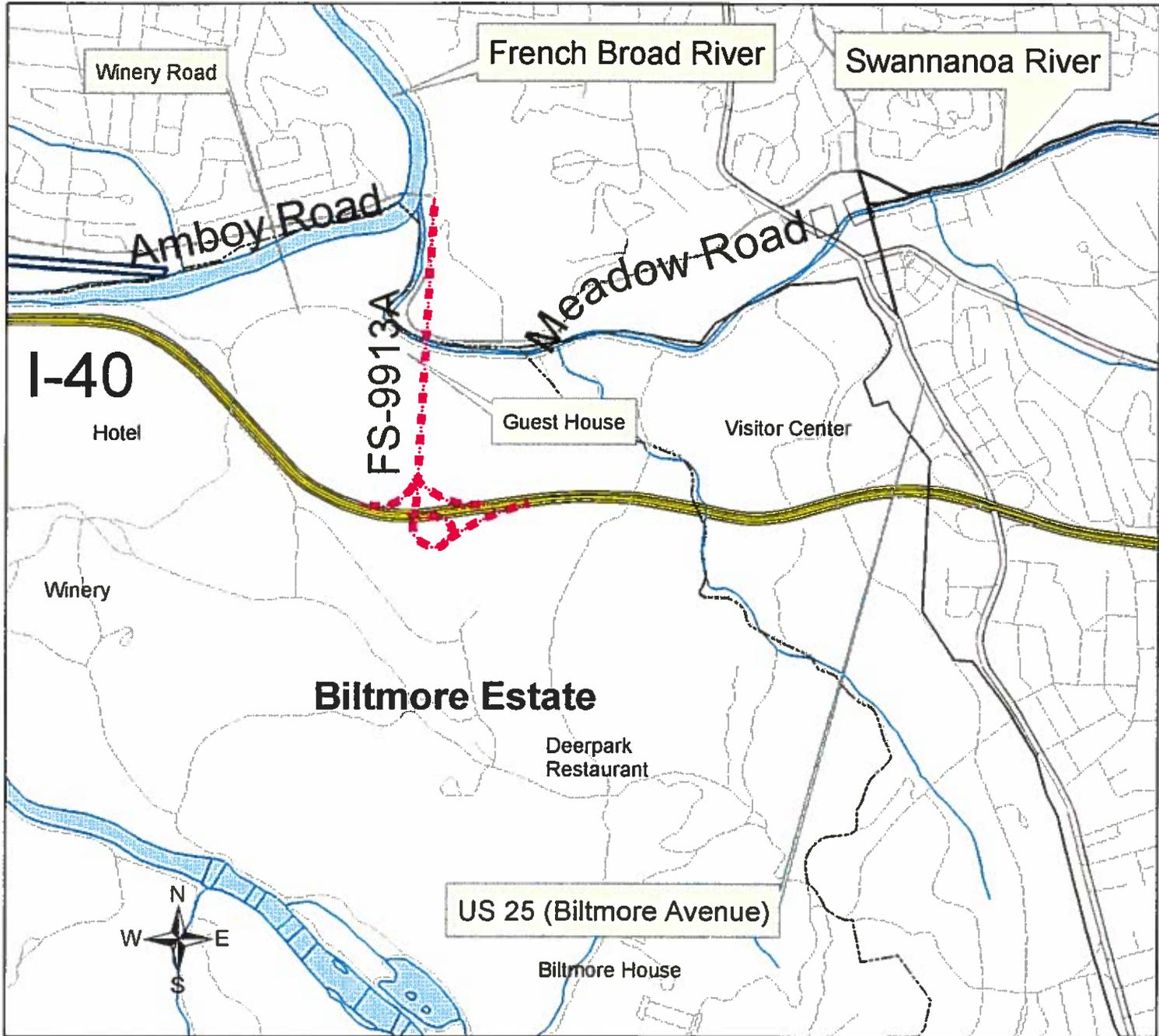


Figure 1