

LOGICAL TERMINI  
AND  
INDEPENDENT  
UTILITY

STIP Project:  
I-4400/I-4700

WIDENING OF I-26  
FROM NC 225 TO I-40

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Buncombe and  
Henderson Counties,  
North Carolina

PREPARED FOR:

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## 1.0 INTRODUCTION

This memorandum summarizes the consideration of logical termini for the North Carolina Department of Transportation (NCDOT) I-26 Improvements project. The proposed action includes improvements to the approximate 22.2-mile segment of the I-26 corridor from US 25 in Henderson County north to I-40 in Buncombe County. The proposed action is included in the NCDOT *2013-2023 State Transportation Improvement Plan (STIP)* as project number I-4400/I-4700 and has also been identified in the French Broad River Metropolitan Planning Organization (FBRMPO) *Metropolitan Transportation Improvement Program for FY 2011-2020*.

The discussion of logical termini is very important in the development of purpose and need statements as it defines the project limits for environmental documents. The purpose and need of a proposed project/action establishes and justifies logical termini. Code of Federal Regulations for 23 CFR 771.111(f) and its policy titled, "The Development of Logical Project Termini," are used to provide the framework for highway projects and the development of logical project termini. "Logical termini" is defined as (1) Rational end points for a transportation improvement, and (2) Rational end points for a review of the environmental impacts.

Federal Highway Administration (FHWA) uses three general principles included in regulation and policy to ensure meaningful evaluation of alternatives and to avoid commitments to transportation improvements before they are fully evaluated in an environmental impact statement (EIS) or a finding of no significant impact (FONSI). These three principles are listed below:

- 1) Connect logical termini and be of sufficient length to address environmental matters on a broad scope;
- 2) Have independent utility or independent significance, *i.e.*, be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made; and
- 3) Not restrict consideration of alternatives for other reasonably-foreseeable transportation improvements.

## 2.0 HISTORICAL CONTEXT

An Environmental Assessment was completed for STIP I-4400 (the 13.6 mile segment between US 25 and NC 280) in May 2001. A Finding of No Significant Impact was completed in January 2002 and, subsequently, the project was advertised as a Design-Build project by NCDOT. A lawsuit and resulting judgment in 2003 found that NCDOT should conduct a broader analysis of the cumulative impacts and logical termini of the overall expansion of the I-26 corridor. The project was subsequently placed on hold due to financial constraints. However, the growing need for improvements to the I-26 corridor was recognized and the project was reinitiated and included in the NCDOT 2013-2023 STIP. In order to address the 2003 judgment, the NCDOT has combined the analysis of STIP I-4400 with STIP I-4700 (the 8.6-mile segment between NC 280 and I-40) into one comprehensive Environmental Impact Statement (EIS). The EIS will address logical termini and cumulative effects in accordance with NEPA.

## 3.0 PURPOSE AND NEED

The purpose of STIP I-4400/I-4700 is to reduce congestion, with a goal of achieving an overall LOS D in the design year (2040), and improve the pavement structure. Two major components contribute to the transportation-related issues in the I-26 Improvements study area and form the basis for the purpose and need:

- **Roadway Capacity Deficiencies**— currently, I-26 in the study area is a four-lane facility with eleven existing grade-separated crossings and eight existing interchanges. Congestion is high, with sections of I-26 in the project study area currently operating at an unacceptable Level of Service (LOS) F. As projected traffic volumes increase, more sections of I-26 within the project study area are projected to degrade to LOS F.
- **Insufficient Pavement Structure and Deteriorating Road Surface Conditions** – the existing roadway surface has undergone major rehabilitation twice, including diamond grinding the concrete, with the latest being in 2011. In addition, during past rehabilitation efforts, Divisions 13 and 14 replaced slabs and

repaired joints. With the current load and volume of traffic, the facility is again showing signs of deterioration. Additional rehabilitation will not suffice for providing a quality facility because of the lack of depth of remaining concrete. Reconstruction of I-26 in the project study area will provide full depth pavement and the quality needed for high-speed, safe, and efficient travel.

The logical termini support the need for a project by establishing limits in the evaluation of alternatives. The logical termini are driven by the purpose and need for the extent of the proposed I-26 widening, and allow the I-26 widening alternatives to be integrated into other regional transportation elements that have been previously adopted in the FBRMPO Long Range Transportation Plan (LRTP). Listed below are five elements that were evaluated and considered in developing the above purpose and need:

- **Existing Roadway Conditions** - The majority of I-26 currently operates at LOS D or worse, with the entire facility operating at LOS F in the future (2040). The adopted LRTP for the FBRMPO anticipates the I-26 corridor south of I-40 in Buncombe and Henderson Counties to have significant capacity deficiencies in the year 2030.
- **Crash Data** - With I-26 currently carrying a substantial traffic volume, and projected to carry higher traffic volumes, the number of crashes is expected to grow. Current crash rates exceed the statewide crash rates in the fatal category.
- **System Linkage** - I-26 interchanges with US 25, which serves the region as a north-south connection between Asheville, NC and Greenville, SC, and US 64, which serves the region as an east-west connection between I-77 in Statesville, NC, and I-75 near Chattanooga, TN. The intersecting of I-26 and I-40 in Buncombe County form the center of the region's transportation system. These two important freeways interconnect the region and carry the highest percentage of trips passing through the area, while their locations in proximity to populated areas, commercial areas, and the Asheville Regional Airport also serve a significant portion of the local travel demands.
- **Social and Economic Conditions** - Both Henderson and Buncombe Counties have experienced moderate growth from 2000 to 2010. The annual population growth rate in Buncombe and Henderson Counties is expected to slightly decrease over the next 20 years, but will continue to grow between 2012 and 2032 (1.3 percent in Buncombe County and 1.4 percent in Henderson County) at a higher annual rate than the State (0.96 percent). Buncombe County gained jobs at an annual rate of 0.5 percent between 2001 and 2011, while Henderson County lost jobs at an annual rate of 0.4 percent during the same time frame. A 0.9 percent annual increase in jobs between 2008 and 2018 is projected for the area (Buncombe County, Henderson County, Madison County, and Transylvania County). Most jobs are located in either Asheville or Hendersonville, and the I-26 corridor in the area provides the main link for commuting patterns. The FBRMPO 2035 LRTP anticipates continued residential and commercial growth in Asheville and along the I-26 corridor south of Asheville.
- **Land Development Plan** - With a variety of mixed land uses along its corridor and concentrations of retail and commercial land uses at interchange locations that are anticipated to increase in density, I-26 serves as a critical connector for these adjacent retail and commercial land uses. Local jurisdictions attempt to regulate their land development while noting these interests and their associated traffic demand. Buncombe County's land use plan considers the future widening of the I-26 corridor. Henderson County's Comprehensive Plan anticipates additional commercial land uses at I-26 interchanges with growth in adjacent residential uses.

## **4.0 EVALUATION OF PROPOSED LOGICAL TERMINI**

Proposed termini for the combined I-26 Improvements study (I-4400 and I-4700) include a western terminus just south of the I-40/I-240 interchange and a eastern terminus at the US 25 interchange. These termini establish the general location limits of alternatives that will be given detailed consideration in the Environmental Impact Statement (EIS). This discussion will first consider the western terminus and then the eastern terminus. **Figure 1** illustrates the two selected logical termini locations and project corridor.

### **4.1 WESTERN TERMINUS – I-26 JUST SOUTH OF I-40/I-240 INTERCHANGE**

The western terminus for the I-4400/I-4700 project is proposed just south of the I-40/I-240 interchange. This location was designated as the western terminus due to the I-26 Asheville Connector (STIP I-2513) project including within its scope the analysis and reconfiguration of the I-40/I-240/I-26 interchange. Therefore, it was concluded that the western terminus of the I-4400/I-4700 project not include the I-40/I-240 interchange. The area near the Brevard Road interchange is currently primarily commercial land uses, with the southeast quadrant of the interchange bordered by the Biltmore Estate. Widening I-26 would provide an improved facility to accommodate existing and future traffic volumes that join the facility from Mills River, Fletcher, and Asheville Regional Airport and continue north along I-240 or diverge to I-40 to travel east or west. Conversely, widening I-26 to the east beginning at the I-40/I-240 interchange would provide additional capacity for existing and projected traffic traveling south from I-240 and traffic merging onto I-26 from I-40 to the east and west.

### **4.2 EASTERN TERMINUS – I-26 AT US 25**

The eastern terminus for the I-4400/I-4700 project is proposed at the interchange of I-26 with US 25, just south of Hendersonville. The existing land use near the proposed eastern terminus is low-density residential, agricultural, and light industrial. The improvements to I-26 beginning at the proposed eastern terminus would allow existing and projected traffic traveling north on US 25 the ability to merge with existing traffic traveling west on I-26 onto a more free-flowing facility. Conversely, the improvements to I-26 are proposed to end at the US 25 interchange due to a portion of traffic that will diverge from I-26 and continue traveling on US 25.

From a project development and environmental analysis standpoint, the project termini represent rational end points for a transportation improvement given the identified project needs, and the study area is sufficient for an evaluation of environmental impacts for a widening and new location project.

## **5.0 INDEPENDENT UTILITY**

An independent utility analysis focuses on whether a particular project is a “stand alone” project. That is, assuming that no other project is contemplated, the project serves a distinct purpose or function. The Council on Environmental Quality (CEQ) regulations use the term “unconnected single actions” to describe this concept. According to 40 CFR 1508.25(a), if an action i) does not automatically trigger other actions potentially requiring an EIS, ii) is not an interdependent part of larger actions it depends for its justification, and iii) does not require prior or simultaneous actions to be taken for the action to proceed, then the action should be said to demonstrate “independent utility” and the scope of the EIS should be for the direct, indirect, and cumulative impacts of the proposed action only.

The proposed improvements to I-26 in the project area have independent utility for a number of reasons. First, congestion along I-26 is high, with sections in the project study area currently operating at an unacceptable LOS F. As projected traffic volumes between Hendersonville and Asheville increase, more sections of I-26 within the

project study area are projected to degrade to LOS F. In addition, the parallel US 25 is also suffering from congestion and delays. Widening I-26 between the proposed termini would increase capacity on I-26 while reducing congestion on I-26 and surrounding facilities. However, it should be noted that increasing capacity on I-26 will not overburden the facility at the I-26/I-40/I-240 interchange, even with no improvements to this interchange as part of I-4400/I-4700. This is due to the additional lanes being added on I-26 that allow the dispersion of traffic leaving I-26 to travel east or west along I-40. For this reason, widening the study area section of I-26 would not require widening other sections of I-26 or other surrounding facilities.

Second, the existing roadway surface has undergone previous major rehabilitation including pavement grinding and resurfacing. In addition, during past rehabilitation efforts, slabs have been replaced and joints have been repaired. With the current load and volume of traffic, the facility is again showing signs of deterioration. Additional rehabilitation would not provide a quality facility because of the lack of depth of the remaining concrete. Reconstruction of I-26 in the project study area would provide full depth pavement and the quality needed for high-speed, safe, and efficient travel. For this reason, even if I-26 were not widened, reconstruction of the pavement along I-26 in the project study area would be required. Widening this section of I-26 would not necessitate widening or improving other facilities.

These needs are specific to the I-4400/I-4700 project and will be a reasonable expenditure even if no additional transportation improvements are made in the area. The improvements made as part of project I-4400/I-4700 have the ability to function as stand-alone improvements without forcing other improvements which may have impacts.

## 6.0 NOT CONSTRICT CONSIDERATION OF ALTERNATIVES

Reasonably foreseeable projects were considered to be those projects near or adjacent to the I-26 Improvements project that were known to be under construction as of the date of this memorandum, and those included as funded projects in the NCDOT's *2013-2023 State Transportation Improvement Plan* and those identified in the FBRMPO *Metropolitan Transportation Improvement Program for FY 2011-2020*. The projects adjacent to the I-26 Improvements project include:

- I-2513 – The I-26 Asheville Connector is north of the western terminus of the I-4400/I-4700 project. The I-26 Connector) would tie into the western terminus of STIP Project I-4700 in Asheville at the I-26/I-40/I-240 interchange. The I-26 Connector is a proposed widening and new location multilane interstate highway project to connect I-26 from the I-26/I-40/I-240 interchange southwest of Asheville to US 19-23-70 north of Asheville. This new interstate will connect I-26 with I-81 south of Kingsport, Tennessee.
- B-5178 - STIP Project B-5178 is the replacement of Bridge Nos. 235 and 238 on I-26 over Pond Road (SR 3431) and Hominy Creek. This project is located in Buncombe County just south of the I-26 interchange with I-40/I-240.
- I-5501 - STIP Project I-5501 proposes to retrofit the existing I-26/NC 280 interchange in Buncombe County to a diverging diamond interchange configuration.
- I-5504 - STIP Project I-5504 is the proposed modification to the I-26/NC 191 (Brevard Road) interchange in Buncombe County, which includes improvements to the traffic operations and access control along NC 191.

## 7.0 CONCLUSION

The western and eastern termini selected for the I-26 Improvements are shown in **Figure 1**. The project termini represent rational end points for a transportation improvement, and the study area is sufficient for an evaluation

of environmental impacts for a widening project. The needs detailed above are specific to the I-4400/I-4700 project and will be a reasonable expenditure even if no additional transportation improvements are made in the area. The improvements made as part of project I-4400/I-4700 have the ability to function as stand-alone improvements without forcing other improvements which may have impacts. The improvements to other facilities do not restrict consideration of alternatives for the widening of and improvements to I-26 as proposed in the I-4400/I-4700 project.

The termini for this project are logical and have been selected in accordance with FHWA Technical Guidelines for termini development. The proposed termini allow the evaluation of project alternatives that: 1) would function independently of and not force other transportation improvements, 2) would not restrict the consideration of project alternatives that avoid significant environmental resources (such as French Broad River), and 3) would allow for consideration of environmental issues on a broad scope so that segments of the project would not force improvements in areas where environmental issues would be insurmountable. As such, the I-4400/I-4700 project has logical termini and independent utility in accordance with 23 CFR 771.111(f).

## **8.0 SOURCES**

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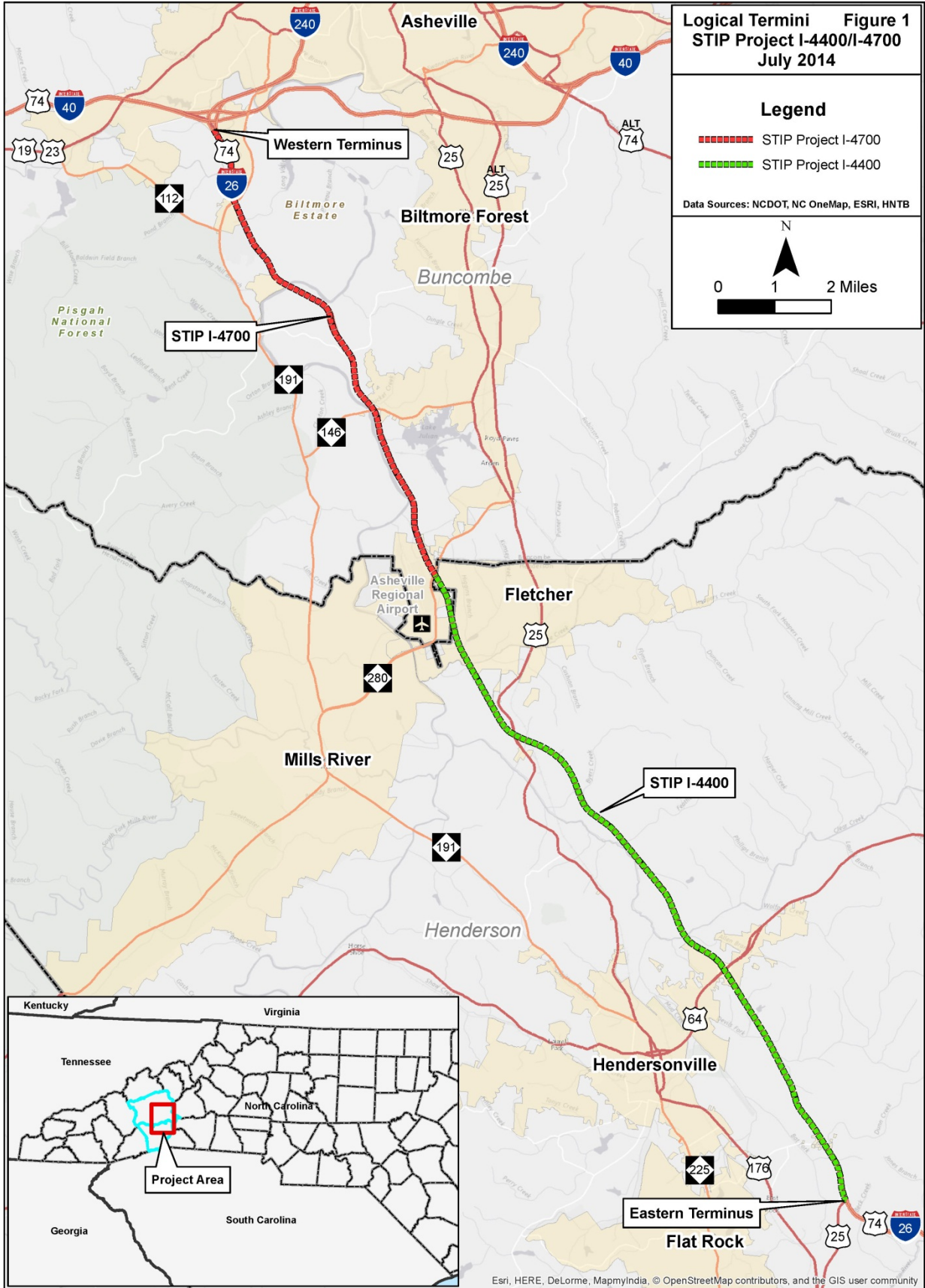
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**Logical Termini** Figure 1  
**STIP Project I-4400/I-4700**  
 July 2014

**Legend**

- STIP Project I-4700
- STIP Project I-4400

Data Sources: NCDOT, NC OneMap, ESRI, HNTB

