

FEASIBILITY STUDY

**Safety Improvements along US 19-64-74-129
From End of Four-lane Divided Section
to SR 1556/US 19 Business (Hiwassee Street)**

Cherokee County

Division 14

FS-0514A



**Prepared by the
Program Development Branch
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I. General Description

This feasibility study describes the proposed safety improvements along US 19-64-74-129 from end of four-lane divided section to SR 1556/US 19 Business (Hiwassee Street), a distance of approximately 1.2 miles. The project location is shown on Figure 1. As part of the study, several different cross-sections were investigated, the details of which are as follows:

- ◆ Four-lane divided curb and gutter section on 130 feet of right of way.
- ◆ Five-lane curb and gutter section on 120 feet 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 improve the traffic safety and operations along US 19-64-74-129.

US 19-64-74-129 is designated as a principal arterial in the North Carolina Statewide Functional Classification System and as a major thoroughfare in the March 1979 Murphy Thoroughfare Plan. US 19-64-74-129 is a five-lane curb and gutter section with a pavement width of 52 feet from face to face of curb. US 19-64-74-129 is also part of the Chattanooga, Tennessee to Asheville and the Atlanta, Georgia to Cherokee Strategic Highway Corridors. On the 2008 Strategic Highway Corridor Plan, US 19-64-74-129 is designated as an expressway facility. The development along US 19-64-74-129 is predominantly commercial.

III. Traffic and Safety

An existing traffic signal is located at the intersection of US 19-64-74-129 and SR 1556/US 19 Business (Hiwassee Street).

The current year Average Daily Traffic (ADT) along US 19-64-74-129 is estimated to range from 17,900 vehicles per day (vpd) to 21,700 vpd. For the design year 2035, the traffic volume along US 19-64-74-129 is estimated to range between 25,700 vpd to 27,600 vpd. Truck traffic is estimated to be up to 7 percent of the daily traffic.

The existing segment of US 19-64-74-129 operates at a level of service (LOS) D under current traffic volumes. If no improvements are made in the 2035 design year, it is projected that US 19-64-74-129 will continue to operate at a LOS D. With the proposed improvements, US 19-64-74-129 is projected to operate at a LOS D or better.

Between 2006 and 2009, 37 crashes were reported along US 19-64-74-129. The crash rate for US 19-64-74-129 is 139.79 crashes per 100 million vehicle miles (crashes/100MVM) traveled. This rate is lower than the statewide rate of 174.64 crashes/100MVM for a four-lane undivided with continuous left turn lane rural United States route. There were 19 non-fatal injury crashes, 17 property damage only crashes, and 1 fatal crash. The most prevalent types of crashes were Left Turn (24%), Angle (22%), Rear End (16%), and Sideswipe (14%). These kinds of crashes are indicative of an undivided narrow roadway. With the proposed lane width widening and a raised median, the likelihood of these types of crashes should be significantly reduced.

IV. Description of Alternatives

It is proposed to widen US 19-64-74-129 from end of four-lane divided section to SR 1556/US 19 Business (Hiwassee Street), a distance of approximately 1.2 miles. The project location is shown on Figure 1.

ALTERNATIVE 1: Four-lane divided curb and gutter section, 79 feet from face to face of curb, with 12-foot inside travel lanes, 14-foot outside travel lanes, a 23-foot raised grass median, 10-foot berms, and 5-foot sidewalks on 130 feet of right of way.

With this proposed cross-section, it is anticipated that there will be zero (0) residences and three (3) businesses relocated due to this project. The total cost of this alternative, including right of way, utility relocation, construction, and Intelligent Transportation Systems (ITS) deployment, is estimated to be \$12,200,000.

Right of way.....	\$3,400,000
Utility Relocation.....	\$400,000
Construction.....	\$8,200,000
ITS Deployment.....	\$200,000
<u>Total Cost (Alternative 1).....</u>	<u>\$12,200,000</u>

During late planning and design phases, it may be determined that the use of a narrow 17.5 foot raised grass median is appropriate at this location. Using the 17.5-foot median will decrease the total estimated cost by \$1,100,000.

ALTERNATIVE 2: Five-lane curb and gutter section, 68 feet from face to face of curb, with 12-foot inside travel lanes, 14-foot outside travel lanes, 10-foot berms, and 5-foot sidewalks on 120 feet of right of way.

With this proposed cross-section, it is anticipated that there will be zero (0) residences and three (3) businesses relocated due to this project. The total cost of this alternative, including right of way, utility relocation, construction, and ITS deployment, is estimated to be \$9,800,000.

Right of way.....	\$2,900,000
Utility Relocation.....	\$300,000
Construction.....	\$6,400,000
ITS Deployment.....	\$200,000
<u>Total Cost (Alternative 2).....</u>	<u>\$9,800,000</u>

According to the AASHTO standard, the outside lanes in a curb and gutter section shall be 14 feet to accommodate bicycles. Both alternative cross-sections include the appropriate bicycle accommodations.

In addition to the widening of US 19-64-74-129, the following intersection improvements are recommended and included in the costs shown above:

- US 19-64-74-129 and SR 1556/US 19 Business (Hiwassee Street)
 - addition of eastbound left turn lane on US 19-64-74-129
 - addition of eastbound right turn lane on US 19-64-74-129

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.

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 study lists exist within the proposed project corridor. No properties within the project study area were found to be potentially historic properties.

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 and Wetlands

The proposed project study area is located in the Hiwassee River Basin. There are no stream or wetland impacts in the project corridor.

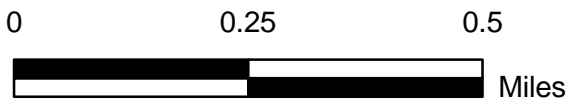
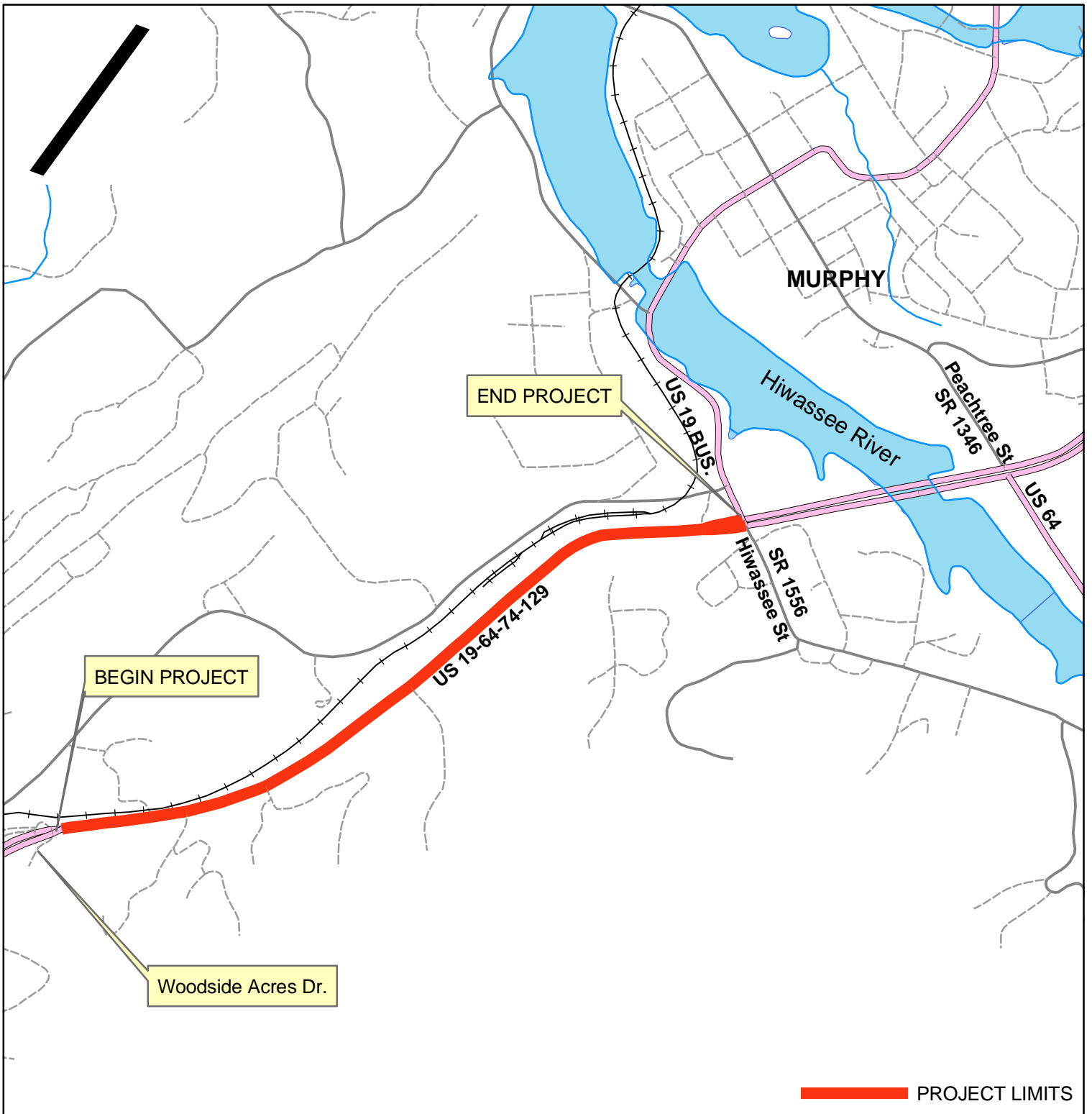
Threatened and Endangered Species

No threatened and endangered species were identified within the project study area.

VII. Recommendation

Alternatives 1 & 2: It was found that the four-lane divided curb and gutter section and the five-lane curb and gutter section would be able to accommodate the projected 2035 design year traffic volumes at an acceptable level of service. However, five-lane sections tend to promote indiscriminate left turn movements, while four-lane divided sections prevent indiscriminate left turn movements and allow pedestrian refuge if needed. Because of these factors, **Alternative 1 would be the preferred alternative.**

The total estimated cost for the preferred Alternative 1, a four-lane divided curb and gutter section, with 12-foot inside travel lanes, 14-foot outside travel lanes, a 23-foot raised grass median, 10-foot berms, and 5-foot sidewalks on 130 feet of right of way and the recommended intersection improvements is \$12,200,000.



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROGRAM DEVELOPMENT BRANCH

FS-0514A

US 19-64-74-129

FROM END OF FOUR-LANE DIVIDED SECTION
TO SR 1556/US 19 BUSINESS

CHEROKEE COUNTY

DIVISION 14

FIGURE 1