

FEASIBILITY STUDY

City of Fayetteville

**SR 1149 (Boone Trail Road) widening
From SR 1141 (Cumberland Road) to
SR 1007 (Owen Drive)**

Cumberland County

Division 6

FS -0206C



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

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from SR 1141 (Cumberland Road) to
SR 1007 (Owen Drive),
Cumberland County

I. General Description

This feasibility study describes the widening of SR 1149 (Boone Trail Road) from SR 1141 (Cumberland Road) to SR 1007 (Owen Drive), a distance of approximately 1.1 miles. The project location is shown on Figure 1. As part of the study, two different cross-sections were considered, the details of which are as follows:

- ◆ **ALTERNATIVE 1:** Four-lane divided curb and gutter section, 75 feet wide face-to-face of curbs with a 23' raised grass median on 110' of right-of-way. The alignment will be asymmetrical east of the existing western right-of-way line from Cumberland Road (SR 1141) to Piedmont Ave. (SR 1145) intersection and symmetrically about the centerline throughout the remainder of the project.

- ◆ **ALTERNATIVE 2:** Five-lane curb and gutter section, 64 feet wide face-to-face of curbs on 100' of right of way. The alignment will be asymmetrical east of the existing western right-of-way line from Cumberland Road (SR 1141) to Piedmont Ave. (SR 1145) intersection and symmetrically about the centerline throughout the remainder of the project.

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 carrying capacity and promote a safer environment as well as provide improved multi-lane access from Cumberland Road (SR 1141) to Owen Drive (SR 1007), a major commercial area.

The City of Fayetteville, Division Construction Engineer, and the Fayetteville Metropolitan Planning Organization (FMPO) support this project.

The North Carolina Moving Ahead Program for Division 6 has included Boone Trail (SR 1149) from Owen Drive (SR 1007) to intersection of Cumberland Road (SR 1141) in its 2005 project list for widening to a three-lane section.

Boone Trail (SR 1149) is designated as a Minor Thoroughfare in the Fayetteville area MPO State Thoroughfare Plan and as an Urban Local in the State Functional Classification.

Boone Trail (SR 1149) is currently a two-lane shoulder facility with 29' of pavement along most of the project.

There is currently a shared through/left-lane, a through-lane, and exclusive right turn-lane at the Cumberland Road (SR 1141) intersection.

The intersection of Roxie Avenue (SR 1248)/Carlos Street (SR 1147) and Boone Trail (SR 1149) is currently a two-lane facility.

Both Roxie Avenue (SR 1248) and Carlos Street (SR 1147) have an exclusive left turn-lane with a shared through/right lane.

Owen Drive (SR 1007) at Boone Trail is a six-lane facility with an exclusive right turn-lane and an exclusive left turn-lane.

The development along Boone Trail (SR 1149) is primarily residential along the 1.1-mile project with exception of some commercial development at the Owen Drive (SR 1007) intersection.

III. Traffic and Safety

There are presently two existing traffic signals within the project limits one at Cumberland Road (SR 1141) and the other located at Owen Drive (SR 1007).

The current year Average Daily Traffic (ADT) along Boone Trail (SR 1149) within the project limits, ranges from 8000 to 9400 vehicles per day (vpd) in 2004 and is projected to be between 10500 to 15000 vpd in the Design Year (DY) 2030. Truck traffic is estimated to make up approximately 3 percent of the daily traffic.

Currently Boone Trail (SR 1149) is operating at Level of Service (LOS) C or higher for the entire project limit. If no improvements are made, it is projected that Cumberland Road and Boone Trail intersection will operate at a LOS F and the remainder at a LOS E in DY 2030. With the recommended improvements this facility will accommodate a LOS C level or better through the year 2030.

Between 2000 and 2003, 95 accidents occurred within the project limits. There were 38 injury accidents, 57 property damage accidents and no fatalities as a result of these incidents. The accident rate for this 1.1-mile portion of roadway is 971.75 accidents per 100 million vehicle miles of travel (acc/100mvm), which is 43.47% higher than the 2000-2002 statewide rate of 422.44 accidents/100mvm for two-lane undivided secondary routes.

It should be noted that 74 of the total 95 accidents occurred at the intersection of Boone Trail (SR1149) and Owen Drive (SR1007).

IV. Description of Alternatives

It is proposed to widen Boone Trail (SR 1149) from Cumberland Road (SR 1141) to Owen Drive (SR 1007) to a multilane facility, a distance of approximately 1.1 miles. The project location is shown on Figure 1. Two cross-sections were studied. The cost estimates below include sidewalks on both sides of the roadway. The estimated cost for sidewalks is 100,000 dollars per side.

The details of both proposed sections are as followed:

ALTERNATIVE #1: Four-lane divided curb and gutter section with a 23 foot raised grass median, 75 feet wide face-to-face of curbs, and 15 foot berms, on 110 feet of right-of-way.

- Under the alternative #1 proposal, it is anticipated there will be 0 (zero) residential and 0 (zero) business relocated. The total cost of this alternative is estimated to be \$7,800,000.

Description of Alternatives (continued)

Construction*	\$ 5,700,000
Right-of-Way (110')	\$ 1,900,000
Sidewalks (Both sides) entire length of project	\$ 200,000
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Estimated Project Cost (Alternative 1)	\$ 7,800,000

ALTERNATIVE 2: Five-lane curb and gutter section with a 64 foot wide from face-to-face of curbs and 15 foot berms, on 100 foot of right-of-way.

- Under the alternative #2 proposal, it is anticipated there will be 0 (zero) residential and 0 (zero) business relocated. The total cost of this alternative is estimated to be \$6,300,000.

Construction*	\$ 4,500,000
Right-of-Way (100')	\$ 1,600,000
Sidewalks (Both sides) entire length of project	\$ 200,000
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Estimated Project Cost (Alternative 2)	\$ 6,300,000

***These alternatives also include an intersection re-alignment of Roxie Avenue (SR 1248) as well as the addition of a dedicated left turn-lane from Boone Trail (SR 1149) onto Cumberland Road (SR 1141).**

V. Community Issues

A detailed investigation was not conducted for this feasibility study, however no impacts to schools, parks, recreation areas, community facilities, historic or archaeological sites are anticipated with this project.

VI. Natural and Environmental Issues

A detailed environmental study was not conducted for this feasibility study. However, existing information available for this project area has been screened for environmental and historic concerns and no impacts to historic properties or wetlands are anticipated.

There is no indication of threatened or endangered species impacting the area based on maps developed by the Department of Environmental, Health & Resources and Natural Heritage Section.

VII. Recommendations

ALTERNATIVE No.1: After analyzing all the information available for the four-lane divided curb and gutter section it was concluded the improvements would accommodate the design year 2030 volumes with an acceptable Level of Service (LOS). The improvements will improve motorist and pedestrian safety, and reduce traffic congestion by increasing the road capacity and providing positive control of left turn access. The median would also provide a refuge area for pedestrians. **Because of these factors, Alternative No. 1 would be the preferred option for the proposed of SR 1149 (Boone Trail Road) widening.**

ALTERNATIVE No.2/2A: Analyzing the information available for the five-lane divided curb and gutter section it was concluded the improvements would also accommodate the design year 2030 volumes with an acceptable Level of Service (LOS). The improvements would offer direct access from both directions into adjacent properties; it may also save on the construction cost and reduce traffic congestion by increasing the road capacity and preserve the character of the community. However, the center two way left turn-lane has been known to add additional safety concerns because it promotes strip development, permits indiscriminate left turn movements and does not provide a pedestrian refuge as the four-lane divided section does.

VIII. Additional Comments

No special bicycle accommodations were investigated for this project.

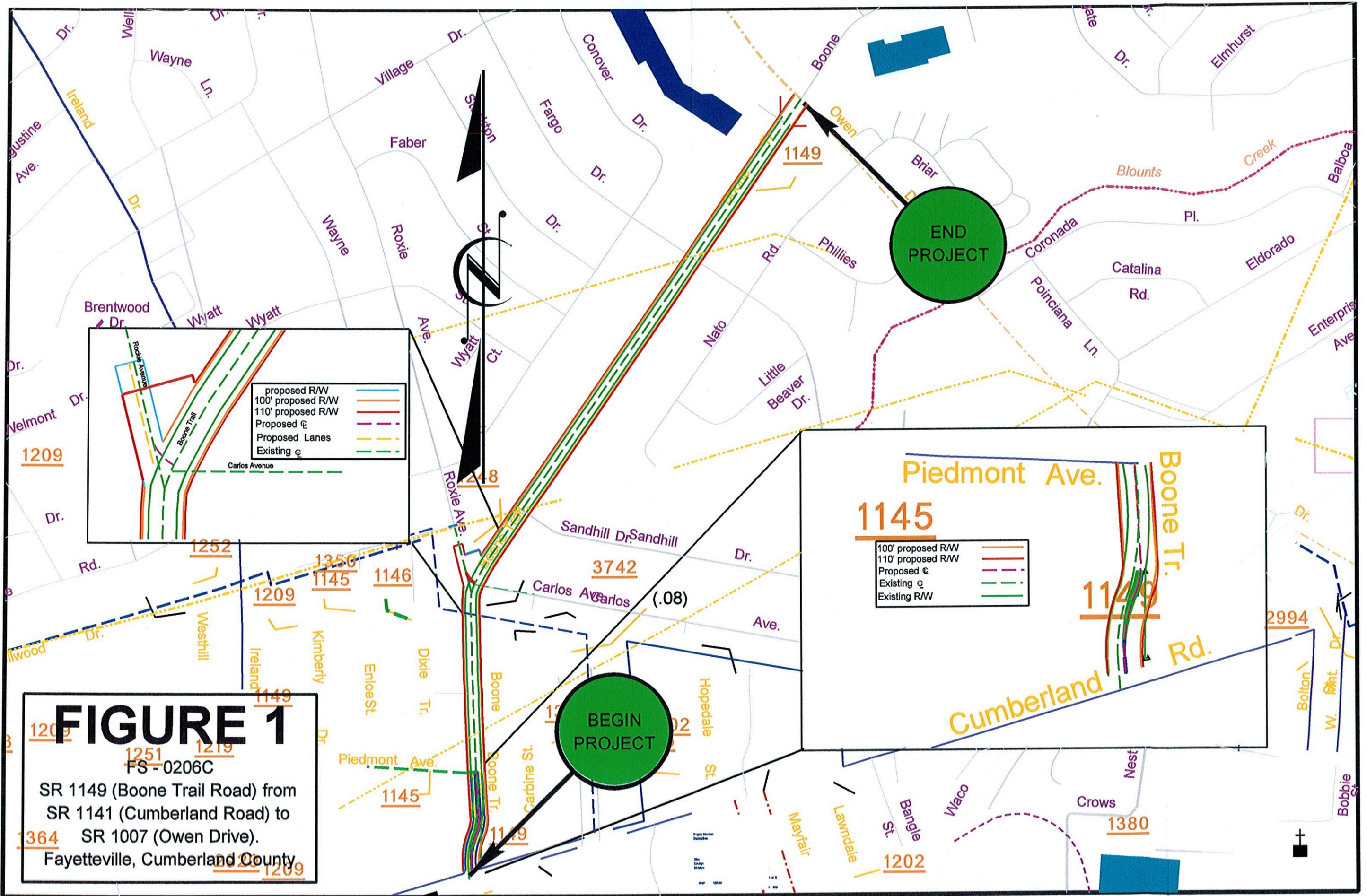


FIGURE 1
 FS - 0206C
 SR 1149 (Boone Trail Road) from
 SR 1141 (Cumberland Road) to
 SR 1007 (Owen Drive).
 Fayetteville, Cumberland County

proposed R/W	
100' proposed R/W	
110' proposed R/W	
Proposed C	
Proposed Lanes	
Existing C	

100' proposed R/W	
110' proposed R/W	
Proposed C	
Existing C	
Existing R/W	