

**SR 1542 (Airport Road) from US 301 Bypass (Wesleyan
Boulevard) to SR 1401 (Tanner Road)
Nash and Edgecombe County
FS-0204B**

I. General Description

This feasibility study describes improvement of SR 1542 (Airport Road) from US 301 Bypass (Wesleyan Boulevard) to SR 1401 (Tanner Road), a distance of 1.5 miles. The project location is shown on Figure 1. As part of this study, two different alternates were investigated, each with bridge replacement over CSX Railroad and the extension of a double barrel box culvert. The details of each alternative are as follows:

- * **ALTERNATIVE 1:** Four-lane divided; curb and gutter with a 23-foot grass median on 130 feet right-of-way. Add dual left for turning onto NC 97 and Tanner Road. This improvement is symmetrical about Airport Road center line for most of the project length. Project is approximately 1.5 miles. See attached figure #1.

- * **ALTERNATIVE 2:** Five-lane curb and gutter section on 130 feet right-of-way. Add dual left for turning onto NC 97 and Tanner Road. This improvement is symmetrical about Airport Road center line for most of the project length. Project is approximately 1.5 miles. See attached figure #1.

II. Background

The study proposes to upgrade SR 1542 (Airport Road) a two-lane road to a multi-lane facility.

The proposed improvement for Airport Road does have a string support from various local governments. The Rocky mount TAC has supported the widening of Airport Road since 1996 and the project remains an approved improvement of the Rocky Mount MPO Transportation Plan 2025. Adequately, the proposed improvement will increase the traffic carrying capacity and safety, as well as provide improved multi-lane access from both US 301 Bypass and US 301 Business to and from the Airport and surrounding businesses.

Airport Road is designated as a major thoroughfare in the Rocky Mount Thoroughfare Plan and as a minor arterial in the North Carolina Statewide Functional Classification System.

This section of Airport Road is mostly two twelve foot lanes with two-foot shoulders on each side, a total pavement width of 28-foot (8.5-m). Additional widening at intersection of Airport Road and US 301 Bypass as well as at intersection of Airport Road and US 301 Business are created in order to accommodate left turn movement(s).

The land immediately surrounding the project area is best described as having substantial commercial and industrial development. Few companies located along SR 1542 (Airport Road) are evenly distributed within the vast undeveloped land.

Airport Road intersects with US 301 Bypass and US 301 Business within one mile radius. The Rocky Mount Regional Airport and the new Rocky Mount sports complex currently under construction are inclusive. This project should spur substantial commercial developments

There are two structures located along the project route which are described as follows:

1. Structure #81 is located approximately 350 feet west of intersection of Airport Road and Tanner Road and carries Airport Road over Hornbeam Branch. The structure has a clear roadway width of 18 feet (5.5 m) and is 30 feet (9.15 m) wide. It was constructed in 1993 and has a sufficiency rating of 99.9 points (out of a possible 100.0 points).

2. Bridge #277 is located approximately 800 feet east of intersection of Airport Road and US 301 business and carries Airport Road over CSX Railroad. The structure has a clear roadway width of ?? feet (?.? m) and is ?? feet (?.?? m) wide. It was constructed in 19?? and has a sufficiency rating of ???.? points (out of a possible 100.0 points).

Airport Road is one of only two grade-separated crossings of the CSX Railroad in the Rocky Mount urban area capable of serving large freight trucks. Access between Edgecombe and Nash Counties would improve if the capacity of Airport Road were increased.

III. Traffic and Safety

There are three existing signals within the project limits. They are located at Airport Road and US 301 Bypass, Airport Road and US 301 Business, and Airport Road and Atlantic Avenue.

The current year (2005) Average Daily Traffic (ADT) along Airport Road within the project limits ranges from 8,010 vehicles per day (vpd) at the west end of the project to 12,891 vpd at the east end. For the design year 2025, the estimated traffic volumes within the project limits ranges from 10,100 vehicles per day (vpd) at the west end of the project to 20,800 vpd at the east end of the project.

The current TTST and Dual percentages have been estimated to be 4% and 5% respectively.

All major intersections along Airport Road are currently operating at a Level of Service (LOS) "F", except the intersection at Airport Road and US 301 Business, which is operating at a LOS "C". If no improvements are made to Airport Road as well as the intersecting -y- lines, then all major intersections along this strip of road will still be operating at a LOS "F" in the design year 2025. However, with the proposed widening of Airport Road, the facility is anticipated to operate at a LOS "C" and better in design year (DY) 2025, with the exception of the intersection at Airport Road and

US 301 Bypass. This intersection is expected to operate at a LOS “F”, unless additional improvements to Airport Road and US 301 bypass are provided.

The additional improvements needed to upgrade the Level of Service (LOS) at Airport Road and US 301 Bypass intersection is well beyond the scope of this project. However, if improvements are made under another project, this intersection should function at a LOS “D” or better in the design year

Airport Road runs east-west, from Nash county to Edgecombe county. The crash analysis report for this strip of road therefore, represents combined information gathered in both counties.

During the three year period from January 2000 to December 2002, there were 36 accidents reported within the project limits (21 accidents in Nash County and 15 accidents in Edgecombe County). There were a combined total of 37 injury accidents and no fatalities as a result of these incidents. (28 Injury in Nash County and 9 injury in Edgecombe County).

The accident rate for the Nash county 1.2 mile portion of roadway is 237.55 accidents per 100 million vehicle miles of travel (acc/100mvm), which is within the 2000-2002 statewide rate of 239.00 accidents/100mvm for urban primary route in Division 4.

The most prevalent accident type was FIXED OBJECT and REAR END accidents, a combined total of 52.38%. Widened travel lanes as well as upgrading the facility from two-lane, two-way to a multi-lanes facility should provide for a reduction in these types of accidents.

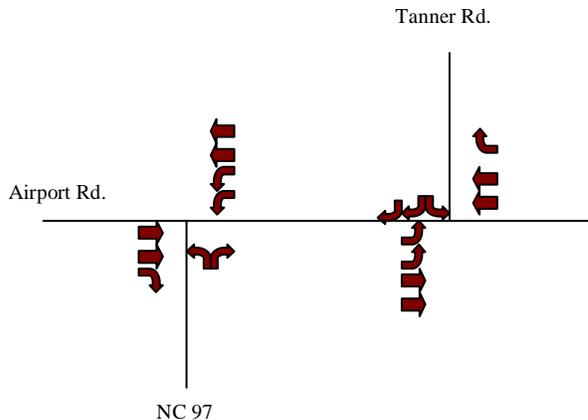
The accident rate for the Edgecombe county 0.3 mile portion of roadway is 594.02 accidents per 100 million vehicle miles of travel (acc/100mvm), which is much higher than the 2000-2002 statewide rate of 239.00 accidents/100mvm for urban primary route in Division 4.

The most prevalent accident type was FIXED OBJECT and REAR END accidents, a combined total of 33.33% each. Widened travel lanes as well as upgrading the facility from two-lane, two-way to a multi-lanes facility should provide for a reduction in these types of accidents.

IV. Description of Alternatives

* **ALTERNATIVE 1:** Four-lane divided; curb and gutter section with a 23-foot raised grass median, 75 feet wide face to face of curbs with 15-foot berms, 130 feet of right-of-way. All lanes are standard 12 feet wide. The proposed widening is symmetrical along existing Airport Road for majority of the project length and asymmetrical to the right between US 301 Business and Rocky Mount water tower. Under this alternative, a bridge over CSX railroad and the extension of a double barrel box culvert on Horn Beam Swamp are anticipated. The length of this alternative is approximately 1.5 miles.

In this option, the addition of dual left at Airport Road and NC 97 intersection and at Airport Road and Tanner Road intersection is imperative, in order to achieve a Level of Service (LOS) of “C” or better in the design year 2025. Moreover, a dual right from Tanner Road, turning on to Airport Road shall also be necessary. See detail-#1 below.



Detail-#1

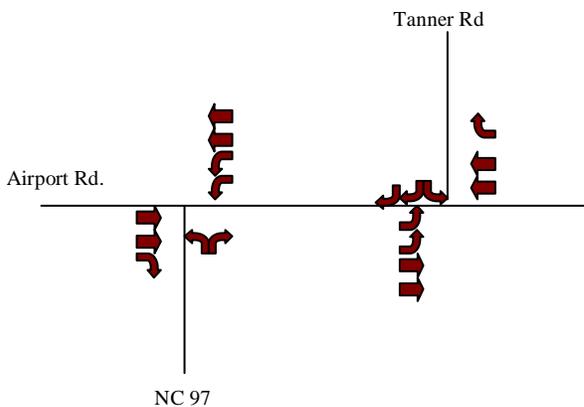
A separate cost was also provided for the installation of a five-foot sidewalk, to be installed on one side of the roadway from US 301 Bypass through US 301 Business. This option would add an additional \$110,000 to the project cost.

Alternative #1 Cost Estimates		
# of Re-location	Business =0	Residence =0
Prop. Length of project	1.5 Miles	
Construction Cost	\$11,200,000	
Right-Of-way Cost	\$6,758,000	
Cost for prop. 5-foot sidewalk	\$110,000	
Total Project Cost	\$18,068,000	

The total cost of this alternative, including construction, right-of-way and 5-foot sidewalk is estimated to be \$18,068,000.

* **ALTERNATIVE 2:** Five-lane; curb and gutter section, 75 feet wide face to face of curbs with 15-foot berms, 130 feet of right-of-way. All lanes are standard 12 feet wide. The proposed widening is symmetrical along existing Airport Road for majority of the project length and asymmetrical to the right between US 301 Business and Rocky Mount water tower. Under this alternative, a bridge over CSX railroad and the extension of a double barrel box culvert on Horn Beam Swamp are anticipated. The length of this alternative is approximately 1.5 miles.

In this option, the addition of dual left movement at Airport Road and NC 97 intersection and at Airport Road and Tanner Road intersection is imperative, in order to achieve a Level of Service (LOS) of “C” or better in the design year 2025. Moreover, a dual right movement from Tanner Road, turning on to Airport Road is also included with this alternative. See detail-#2 below.



Detail-#2

A separate cost was also provided for the installation of a five-foot sidewalk, to be installed on one side of the roadway from US 301 Bypass through US 301 Business. This option would add an additional \$110,000 to the project cost.

Alternative #2 Cost Estimates		
# of Re-location	Business =0	Residence =3
Prop. Length of project	1.5 Miles	
Construction Cost	\$8,700,000	
Right-Of-way Cost	\$6,804,000	
Cost for prop. 5-foot sidewalk	\$110,000	
Total Project Cost	\$15,614,000	

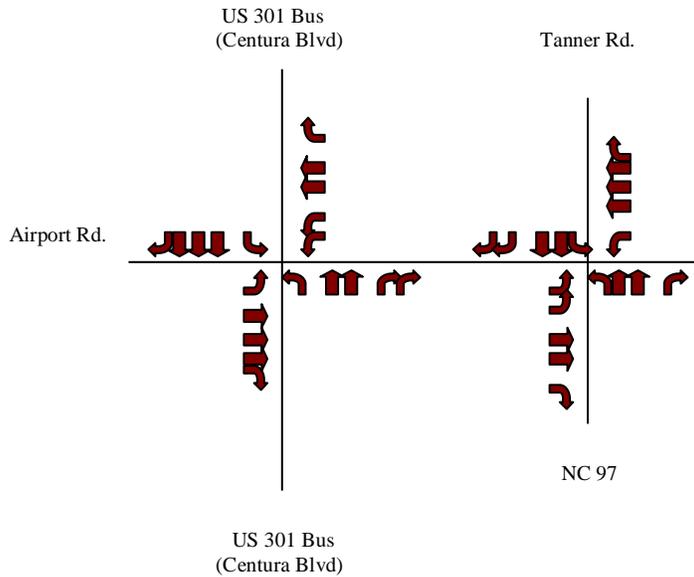
The total cost of this alternative, including construction, right-of-way and 5-foot sidewalk is estimated to be \$15,614,000.

V. Other Alternatives Considered

* **ALTERNATIVE 3:** Five-lane; curb and gutter section, 64 feet wide face to face of curbs. Transition the five-lane section down to a three-lane section of 40 feet wide face to face of curbs. All lanes are standard 12 feet wide with 10-foot berms on 100 feet of right-of-way. Alternate #3 is the re-alignment of NC 97 with Tanner Road and it is an option that could be added to either Alternative #1 or Alternative #2 accordingly.

The intersection re-design at Tanner Road, NC 97 and Airport Road, will help modify as well as realign NC 97 with Tanner Road for better continuity. With this option, the back to back left turn lanes between NC 97 and Tanner Road will be alleviated.

Also, with this re-alignment, three-lanes will be provided in each direction on Airport Road and a dual left turning onto Tanner Road. In addition, Tanner Road will be upgraded to a six-lane facility in order to receive the dual left turning from Airport Road and dual right turning onto Airport Road. See detail-#3 below.



Detail-#3

It should be noted that based on the analyses performed, and in order to attain a level of service “D” or better at US 301 Business, Tanner Road and NC 97 intersections, the cross section(s) shall resemble that of figure ? above.

A separate cost was also provided for the installation of a five-foot sidewalk, to be installed on one side of the roadway from Airport Road to about 0.4 mile on NC 97. This option would add an additional \$50,000 to the project cost.

Alternative #3 Cost Estimates		
# of Re-location	Business =0	Residence =0
Prop. Length of project	0.4 Miles	
Construction Cost	\$2,300,000	
Right-Of-way Cost	\$213,400	
Cost for prop. 5-foot sidewalk	\$50,000	
Total Project Cost	\$2,563,400	

The total cost of this alternative, including construction, right-of-way and 5-foot sidewalk is estimated to be \$2,563,400.

VI. Recommendations

The analyses for both the four-lane divided curb and gutter section with bridge replacement over CSX railroad and the extension of a double barrel box culvert on Horn Beam Swamp utilizing existing alignment and the five-lane curb and gutter section with bridge replacement over CSX railroad and the extension of a double barrel box culvert on Horn Beam Swamp showed either of these alternatives would accommodate the projected 2025 design year volumes with an acceptable level of service.

Although, cost wise, the five-lane section is considerably less than the four-lane section, about \$2.5 Million less. However, the four-lane divided facility has several advantages. It discourages strip developments along the facility, it reduces in-discriminatory left turn movements and it provides refuge for pedestrian. For these reasons, alternate #1 is the recommended option.

VII. Additional Comments

An exhaustive environmental screening was not conducted for this study. However, the following information summarizes conclusions about the project study area based on existing data.

There are no properties listed on the National Register of Historic Places within the immediate vicinity of the proposed improvements. There are also no known archaeological sites within the project study area.

According to the National Heritage Program GIS database, there are no Threatened or Endangered species anticipated within the project area. The proposed project corridor crosses wetlands associated with Horn Beam Swamp and ground water incidences are known to be prevalent in the area. Permits with the U.S. Army Corps of Engineers may be necessary.

Also, Air Quality Pollution Discharge Point is located 1000 feet north of the project area.

LEGEND

-  Land Fills
-  Air Quality Poll. Disc. Points
-  Nat. Poll. Disch. Elim.
-  Haz. Sub. Disp. Sites, SF
-  Haz. Waste Facilities
-  Haz Sub Disp Site Areas, SF
-  Rivers
-  Secondary Roads
-  City Boundaries
-  Airports
-  Major Rivers
-  dotrailrd
- Primary Routes**
-  I
-  NC
-  US
-  dotuniverse
- Roads**
-  I
-  NC
-  SR
-  US
-  Water Bodies
-  Major Water Bodies

FS-0204B Land / Air Environmental

