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FEASIBILITY STUDY

US 276 (Greenville Highway)
From the South Carolina State Line
to US 64 in Brevard
Transylvania County
Transportation Improvement Program Project R-2311

Prepared by the
Planning and Research Branch
Division of Highways
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US 276 (Greenville Highway)
From the South Carolina State Line
to US 64 in Brevard
Transylvania County
Transportation Improvement Program Project R-2311

The subject project is included in the 1988-1996 Transportation Improvement Program for feasibility study and/or right-of-way protection. This report provides a brief initial analysis of possible improvements. Presently, this project is not funded. The location of the project is shown on Figure 1.

The primary emphasis of the study was to evaluate the need for widening the existing pavement and improving the horizontal and vertical alignments on US 276. In order to enhance the safety of this facility, it is proposed to widen the existing road to modern two-lane standards from the South Carolina State Line to Brevard. Within Brevard, it is proposed to widen the existing facility to four-lanes. Other proposed improvements are listed in Section III under DESCRIPTION OF THE STUDIED IMPROVEMENTS on page 7. The total length of this project, as proposed, is approximately 12.5 miles.

The recommended improvements are desirable to improve safety and traffic flow. US 276 is the only direct route between Brevard, the largest city and the county seat of Transylvania County, and Greenville, one of the largest cities in South Carolina. Due to the significance of this route to the local citizens and the local economy, improving the subject section of US 276 is deemed of utmost importance.

The total estimated cost of the subject project is $21,338,000.

I. NEED FOR THE PROPOSED PROJECT

A. Location and Type of Facility

The section of US 276 covered in this study begins at the South Carolina State Line and terminates at the US 276\US 64 junction in Brevard. The project is located entirely within Transylvania County (see Figure 1). The existing facility is primarily a two-lane, 18-foot wide road with 2 to 5-foot grassed shoulders. Within the city limits of Brevard, there exists a combination of two, three, and four-lane sections, with pavement widths varying from 24 to 50 feet. The total length of the studied section of US 276 is approximately 12.5 miles.

B. Historical Background

The subject section of US 276 was constructed in the late 1920's and, with the exception of resurfacing, no major improvements have occurred since that time. US 276 is classified as a minor arterial route in the North Carolina Functional Classification System. In addition, US 276 is a part of the Federal-Aid Primary System, designated FAP 33-1.

C. Characteristics of the Existing Facility

1. Cross-section Description

The rural portions of the subject facility consist of two lanes with 18 feet of pavement and 2 to 5-foot grassed shoulders. Within the city limits of Brevard, the following cross-sections exist (see Figure 3 for street locations):

a. Beginning at the southern city limits of Brevard and extending approximately 0.1 mile northward, there is a three-lane, 24-foot section (lanes are 8 feet in width) providing a turn lane into the Brevard Elementary School.

b. From the Park View Drive\Elm Bend Street intersection to the Franklin Street intersection (0.4 mile), US 276 consists of a 30-foot wide section with curb and gutter.

c. From Franklin Street to the end of the project (0.5 mile), US 276 consists of a 50-foot wide, curb and gutter section (four 9-foot lanes of travel, 6-foot parking lanes on both sides, and 1-foot gutters).

2. Right-of-Way

The right-of-way width along this section of US 276 is shown as 60 feet.

3. Horizontal and Vertical Alignment

Mountainous terrain exists along the subject section of US 276. The existing vertical and horizontal alignments are judged to be poor. The grades along this segment of US 276 range from -6% to +5%. The existing horizontal alignment consists of 42 curves in excess of 6-degrees. Approximately 16-percent of the two-lane portion of the subject section affords adequate passing sight distances of 1500 feet or more (Figures 2-A through 2-E offer Photos of the Existing Conditions along US 276).

4. Speed Limits

The posted speed limit along the majority of the project is 55 mph. Within the Town of Cedar Mountain, the posted speed limit is 45 mph. Within the City of Brevard, the posted speed limits range from 20 to 35 mph.

5. Degree of Roadside Development

Roadside development is moderate to heavy throughout the area with numerous residential driveways as well as local streets intersecting US 276.

6. Public Facilities

A summary of the existing public facilities located within the study area adjacent to the US 276 roadway can be found below.

Within Cedar Mountain:	Cedar Mountain Baptist Church Faith Assembly of God Church Brevard Elementary School Carr's Hill Baptist Church Cedar Mountain Community Center U. S. Post Office in Cedar Mountain Rocky Hill Baptist Church Cedar Mountain Volunteer Fire Department
Within Connestee:	Victory Faith Praise and Worship Center Hap Simpson Riverfront Park (City of Brevard) Silvermont Park (City of Brevard) St. Philip's Episcopal Church
Within Brevard:	Davidson River Presbyterian Church Transylvania County Courthouse and Administration Building

7. Access Control

No control of access exists along the subject project.

8. Intersecting roads

Along the subject section, the majority of the existing roads intersect US 276 at-grade with stop sign control except for the following signalized intersections:

LOCATION	TYPE OF SIGNAL
Entrance to Brevard Elementary School	Flashing Yellow
Park View\Elm Bend\US 276 intersection	Full Cycle
Johnson Street and US 276 (East Main Street)	Full Cycle
Gaston Street and US 276 (East Main Street)	Full Cycle
US 276\US 64 junction	Full Cycle

9. Structures

(a). Bridges

There is one bridge structure located along the studied segment of US 276. The characteristics of this structure are as shown on the following page.

Location:	French Broad River
Bridge Number:	39
Year Built:	1927
Remaining Life (years):	10
Sufficiency Rating:	45.6
Vertical Clearance (ft.):	N/A
Clear Roadway Width (ft.):	20.0
Structure Length (ft.):	185.0

(b). Drainage

There are four major drainage structures located along the subject project of US 276. The following is a brief description of these structures:

(1) The Little River flows underneath US 276 through a triple 10' X 8' reinforced concrete box culvert. The structure is 32 feet long; built in 1930; and has an estimated remaining life of 25 years. The structure is located approximately 1.6 miles north of the South Carolina State Line.

(2) The north branch of Carson Creek flows underneath US 276 through a double 10' X 5' reinforced concrete box culvert. The structure is 21 feet long; built in 1930; and has an estimated remaining life of 20 years. The structure is located approximately 4.7 miles north of the South Carolina State Line.

(3) The French Broad River branch flows underneath US 276 through a double 8' X 6' reinforced concrete box culvert. The structure is 22 feet long; built in 1930; and has an estimated remaining life of 20 years. The structure is located approximately 8.7 miles northwest of the South Carolina State Line.

(4) The south branch of the French Broad River flows underneath US 276 through a double 10' X 6' reinforced concrete box culvert. The structure is 21 feet long; built in 1930; and has an estimated remaining life of 20 years. The structure is located approximately 10.3 miles north of the South Carolina State Line.

D. Project Terminals

Southern Terminal: The subject project begins at the the South Carolina State Line (see Figure 1). From this point, the US 276 facility extends southward towards Greenville, South Carolina with a roadway consisting of two 9-foot lanes of travel and 2 to 5-foot shoulders. Access along this portion of US 276 is not controlled, and the right-of-way width is claimed as 60 feet.

Northern Terminal: The subject project is proposed to terminate at the US 276\US 64 junction in Brevard (see Figures 1 and 3). From this point, US 276 and US 64 extend commonly in a northeastern direction for a distance of approximately 5 miles. The cross-section along this portion of US 276 consists primarily of four, 12-foot wide lanes of travel (2 in each direction) with 10-foot grassed shoulders. The east and west-bound lanes are separated by a 30-

foot grassed median. Access along this portion of US 64\US 276 is not controlled, and the right-of-way width varies from 100 to 150 feet.

From the US 64\US 276\NC 280 junction, US 276 extends northward towards the Blue Ridge Parkway which is located along the Transylvania\Haywood County lines. This segment of the US 276 roadway consists of a two-lane section with two, 10-foot lanes of travel and 4-foot shoulders. Access along this portion of US 276 is not controlled, and the right-of-way width is shown as 130 feet.

E. Traffic Data And Capacity Analysis

Current average daily traffic (ADT) volumes within the project limits vary from a low of 2000 vehicles per day between Connestee and the southern city limits of Brevard to a high of 6100 vehicles per day within Brevard. Truck traffic semi-trailer (TTST) traffic accounts for 1% of the overall ADT. Additionally, dual-tired trucks (DTT) account for an average of 4% of the overall ADT along US 276. The existing traffic volumes as well as the 2008 projected volumes for the subject section of US 276 are shown on Figure 4.

For capacity analysis purposes, the subject section of US 276 was divided into the following four segments:

SEGMENT 1: From the South Carolina State Line to Connestee (2-lane, 18-foot pavement)
SEGMENT 2: From Connestee to the southern city limits of Brevard (2-lane, 18-foot pavement)
SEGMENT 3: From the southern city limits of Brevard to Franklin Street (2 and 3-lanes, 18 to 24-foot pavement)
SEGMENT 4: From Franklin Street to the US 64/US 276 junction (4-lane, 50-foot, curb and gutter)

Table 1 provides a summary of the findings of the capacity analysis performed for these four segments of the existing US 276 roadway.

TABLE 1

CAPACITY ANALYSIS

	YEAR	AVERAGE PEAK HOUR VOLUME*	COMPUTED LEVEL OF SERVICE
SEGMENT 1:	1988	240	C
	2008	420	D
SEGMENT 2:	1988	492	E
	2008	864	E
SEGMENT 3:	1988	732	E
	2008	1284	F
SEGMENT 4:	1988	439/293**	B
	2008	770/514**	B

*Measured in Vehicles Per Hour (VPH); Total, Both Directions
**At peak hour, these numbers represent a directional distribution of 60/40 for the four-lane segments.

F. Accident Analysis

An accident study of the subject segments of US 276 was conducted by the Traffic Engineering Branch of the Division of Highways for the period from January 1, 1984 to November 30, 1987. Summarized accident statistics are shown below.

TABLE 2

ACCIDENT DATA

Summarized Accident Statistics
For Rural Portion of US 276

	Project R-2311 SC State Line to Brevard	Statewide Average for Similar RURAL US Routes (1984-1987)
Total Accidents	93	N/A
Fatal Accidents	1	N/A
Non-Fatal Injury Accidents	43	N/A
Total Accident Rate*	146.30	199.97
Fatal Accident Rate*	1.57	3.90
Non-Fatal Injury Accident Rate*	67.64	93.97

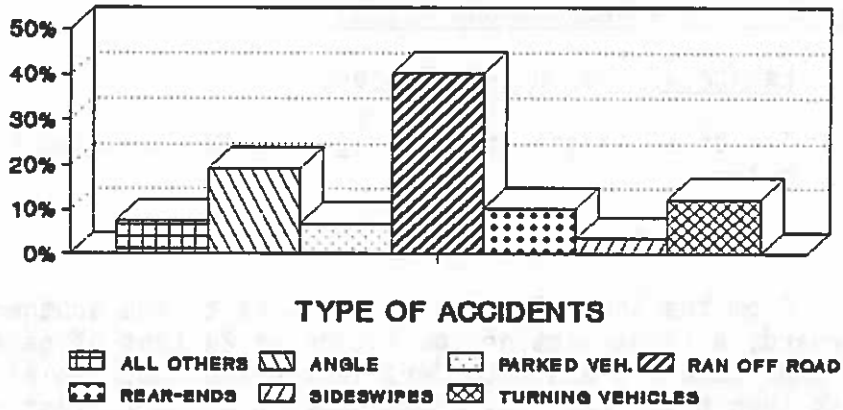
Summarized Accident Statistics
For Urban Portion of US 276

	Project R-2311 Within Brevard	Statewide Average for Similar URBAN US Routes (1984-1987)
Total Accidents	53	N/A
Fatal Accidents	0	N/A
Non-Fatal Injury Accidents	18	N/A
Total Accident Rate*	1074.61	379.05
Fatal Accident Rate*	0.00	1.25
Non-Fatal Injury Accident Rate*	364.96	144.47

* Rates are in terms of accidents per 100 million vehicle miles.

A review of this data reveals that vehicles involved with running-off-the-road, and vehicles striking each other at angles comprised the highest percentages of the total amount of accidents occurring along the subject segments of US 276. A summary of the types of accidents occurring along this section of US 276 is graphically illustrated on the following page.

ACCIDENTS OCCURRING ALONG US 276
FROM THE SOUTH CAROLINA STATE LINE TO US 64 IN BREVARD



FROM JANUARY 1, 1984
TO NOVEMBER 30, 1987

Further review of the accident data reveals that the total amount of accidents at the Johnson Street intersection (7 accidents) and the US 64\ US 276 junction (18 accidents) account for nearly 50% of all the accidents occurring within Brevard.

II. DESCRIPTION OF THE STUDIED IMPROVEMENTS

A. General Description

The scope of this study was to investigate the feasibility of upgrading the subject section of US 276 to modern two-lane standards. The following is a brief summary of the recommended improvements for the subject section of US 276:

1) Along the majority of the subject section, the existing pavement is proposed to be widened to a modern two-lane, 24-foot wide pavement with 6-foot minimum usable shoulders in cut and fill sections.

2) In areas where curves are less than 6-degrees, the pavement is recommended to be widened to 28 feet in order to provide a safer cross-section and alignment. Additionally, where feasible, all curves of 6-degrees or greater should be eliminated.

3) From the southern city limits of Brevard to Franklin Street, it is proposed to widen US 276 to a four-lane, 52-foot wide curb and gutter facility. From Franklin Street to the end of the project, it is proposed to rehabilitate and resurface the existing 50-foot curb and gutter section. New lane lines should be painted to provide for four, 12-foot wide lanes of travel. Parking should not be allowed along US 276 within Brevard.

Consideration should be given to redesigning the US 276\Main Street intersection within Brevard in order to provide a safer alignment. The scope of the improvements should include re-alignment, additional signing, and signalization. However, further study will be needed to determine the exact improvements to be made at this location.

4) Finally, the pavement should be widened to three lanes at the entrance to Connestee Falls in order to provide turning lanes into the scenic park.

B. Summary of the Recommended Action

1. Length of the Subject Project

The total length of the suggested improvements is approximately 12.5 miles.

2. Cross-Section Description

From the South Carolina State Line to the southern city limits of Brevard, a cross-section consisting of 24 feet of pavement with 6-foot minimum usable grass shoulders is recommended. In areas where curves are less than 6-degrees, the cross-section would consist of 28 feet of pavement with 6-foot minimum usable shoulders. As previously mentioned, all curves of 6-degrees or greater should be eliminated, where feasible. Within the city limits of Brevard, a four-lane, curb and gutter (50 to 52 feet face-to-face of curbs) cross-section is proposed. Finally, a cross-section consisting of three 12-foot lanes with 6-foot shoulders is proposed for the Connestee Falls entrance in order to provide turning lanes into the scenic park. The proposed cross-sections are graphically illustrated on Figure 5.

3. Right-of-Way

In general, it is anticipated that a total of 80 feet of right-of-way width would be required to contain the proposed four-lane, curb and gutter improvements; and a total of 100 to 200 feet to contain the proposed two-lane improvements. Right-of-way widths would vary throughout the length of the project due to slope requirements.

4. Access Control

No control of access is proposed.

5. Intersection Treatment

All roads intersecting US 276 would remain at-grade with either stop sign or traffic signal control.

6. Terminal Treatment

Southern Terminal: The subject project begins at the South Carolina State Line in Transylvania County (see Figure 1). From this point, the US 276 facility extends southward towards Greenville, South Carolina. As previously mentioned, this portion of US 276 consists of two 9-foot lanes of travel and 2 to 5-foot shoulders. Access along this portion of US 276 is not controlled and the right-of-way width is shown as 60 feet. The South Carolina Department of Transportation currently has plans to widen US 276 to four lanes in the vicinity of Greenville. From this point to the North Carolina State Line, their plans include only resurfacing the existing pavement.

US 276 serves as the only major connection between Greenville, South Carolina and Brevard, and it is used quite extensively by local citizens as well as tourists traveling to the Pisgah National Forest and the Blue Ridge Parkway. The North Carolina Department of Transportation should strongly urge the State of South Carolina to consider upgrading their portion of US 276 to at least modern two-lane standards in order to make this vital link a safer facility.

Northern Terminal: The subject project is proposed to terminate at the US 276\US 64 junction in Brevard (see Figures 1 and 3). From this point, US 276 and US 64 extend in a common northeastern direction towards the community of Pisgah Forest. Presently, there are no major improvements programmed for this section of US 276.

7. Design Speed

The utilization of a 45 mph design speed throughout the length of the subject project is proposed. However, if a majority of this section of US 276 is to continue having a posted speed limit of 55 mph, then an exception to Federal guidelines would have to be granted by the Federal Highway Administration (FHWA) to the NCDOT prior to the implementation of this project.

8. New Structures Required

(a). Drainage Structures

There are four major drainage structures located along the subject project of US 276. These culverts may require extension in order to accommodate the proposed widening of the existing highway.

It is anticipated that all other drainage structures used for cross-drainage could be extended to accommodate the proposed widening of the existing highway. Where new roadway construction is required, all necessary drainage features and structures would be included as an integral part of the construction.

(b). Bridge Structures

The French Broad River bridge is the only bridge structure located along the studied segment of US 276. It is proposed to replace this structure with a new structure that would provide a minimum clear roadway width of 44 feet.

C. Traffic Data and Capacity Analysis

Average daily traffic (ADT) volumes within the project limits are projected to vary from a low of 3500 vehicles per day between the South Carolina State Line and Connestee to a high of 10,700 vehicles per day within Brevard by the year 2008 (see Figure 4).

A capacity analysis was performed in order to determine the future level of service that could be provided by the US 276 facility, based on the proposed roadway dimensions and the projected traffic volumes. For the purpose of this analysis, the subject section of US 276 was divided into the following three segments:

SEGMENT 1: From the South Carolina State Line to Connestee (2-lanes, 24 to 28 feet of pavement)
SEGMENT 2: From Connestee to the southern city limits of Brevard (2-lanes, 24 to 28 feet of pavement)
SEGMENT 3: From the southern city limits of Brevard to the US 64/US 276 junction (4-lanes, 50 to 52-foot, curb and gutter)

The results of this analysis are shown below in Table 3.

TABLE 3

CAPACITY ANALYSIS
(BASED ON RECOMMENDED IMPROVEMENTS)

	YEAR	AVERAGE PEAK HOUR VOLUME*	COMPUTED LEVEL OF SERVICE
SEGMENT 1:	2008	420	D
SEGMENT 2:	2008	864	E
SEGMENT 3:	2008	770/514**	B

* Measured in Vehicles Per Hour (VPH); Total, Both Directions
** At peak hour, these numbers represent a directional distribution of 60/40 for the proposed four-lane segment within Brevard.

The results shown in Table 3 indicate that the recommended improvements would allow for operating conditions in the level-of-service B to E range within the year 2008.

D. Other Programmed US 276 Projects

There are no other programmed projects listed in the North Carolina Transportation Improvement Program for this subject area of US 276. However, the 14th Division recently performed improvements to the US 276 pavement from SR 1103 in Connestee to Brevard. Along this segment, the pavement was widened on each side by approximately 1 foot. Additionally, the Division 14 office has plans to resurface US 276 from the South Carolina State Line to Brevard during the Summer of 1988. At that time, additional warning signs will be placed along this section of US 276.

E. Cost Estimates

The estimated costs of the proposed improvements are as shown on the following page:

1). 2-Lane Improvements - From the South Carolina State Line to SR 1103 in Connestee (8.3 miles):

Construction:	$ 8,700,000
Right-of-Way:	$ 5,173,000
Total:	$13,873,000

2). 2-Lane Improvements - From SR 1103 in Connestee to the south city limits of Brevard (3.2 miles):

Construction:	$ 3,800,000
Right-of-Way:	$ 2,012,000
Total:	$ 5,812,000

3). 4-Lane Improvements - From the south city limits of Brevard to US 64 (1.0 mile):

Construction:	$ 900,000
Right-of-Way:	$ 753,000
Total:	$ 1,653,000

4). Overall Project:

Construction:	$13,400,000
Right-of-Way:	$ 7,938,000
Total:	$21,338,000

The right-of-way estimates are based on residential and business relocation costs, cost of land and damages, utility costs, and acquisition costs.

F. Staged Improvements

It may be determined that staging improvements to US 276 is the best course of action due to an accelerated construction schedule and/or funding considerations. Should staging be selected, it is recommended that the improvements be made with the following priority:

1). Construct the four-lane improvements from the south city limits of Brevard to US 64 (1.0 mile, $1,653,000).

2). Construct the two-lane improvements from SR 1103 in Connestee to the south city limits of Brevard (3.2 miles, $5,812,000).

3). Construct the remainder of the two-lane improvements from the South Carolina State Line to SR 1103 in Connestee (8.3 miles, $13,873,000).

III. ALTERNATIVES CONSIDERED

Improving the existing highway corridor offers the most feasible and cost effective recommendation. The concept of relocating US 276 was considered; however, it was determined that the general area of the subject project does not afford a corridor that would be deemed conducive for relocating US 276. Thus, this measure was not given further consideration.

If the project is to be implemented at a future date, all possible alternatives, and their associated impacts, will have to be evaluated in a planning/environmental document prior to that time. Then, a final decision can be made as to the most appropriate improvements.

IV. POTENTIAL SOCIAL AND ENVIRONMENTAL IMPACTS

A. Social Impacts

The major positive social impact of the recommended action would be the potential for safer vehicular operations in the area. In addition, the project would have a positive effect upon the accessibility to local schools; the two major cities in the area, Brevard and Greenville; and employment centers like the DuPont Corporation, located near Cedar Mountain. DuPont is one of the largest employers in the area. Other locations to benefit from the project include churches, shopping areas, hospitals, and other community services. Benefits in improved accessibility and mobility would be realized by residents both within and outside the project area.

Any negative social impacts on the area should be minimal since the proposed improvements would generally follow the existing highway corridor.

B. Environmental Impacts

The major potential environmental consequence of constructing the subject project would be its impact upon the surrounding wetlands. The French Broad River and its tributaries straddle the southeast side of US 276 throughout the majority of the project. Widening US 276 would likely induce sedimentation into the wetlands, a condition which would have to be mitigated. Therefore, it is anticipated that Section 404 Permits would have to be obtained from the U. S. Army Corps of Engineers prior to the initiation of any construction on the project.

The current water quality classifications for the streams in the study area are as follows:

WATERCOURSE	CLASSIFICATION
French Broad River	C Tr
Johnson Branch	C
Dunn's Creek	C Tr
Carson Creek	B Tr
Long Branch	B Tr
Steel Creek	C Tr

Ibby Creek	C
Little River	C
Clear Creek	C Tr
Walker Creek	C Tr

*Class C waters are classified as waters which are suitable for fishing, fish and wildlife propagation, recreation, and other uses requiring waters of lower quality.

*Class B waters are classified as waters which are primarily recreational; other uses are characteristic of Class C waters.
*Tr indicates trout waters.

Additionally, the project is located within the known geographical range of the bunched arrowhead (Sagittaria fasciculata), the small whorled pogonia (Isotria medeoloides), and a number of status review species not protected under the federal law. The bunched arrowhead and the small whorled pogonia are listed as threatened and/or endangered species by the U. S. Fish and Wildlife Service (USFWS).

Another environmental issue of concern would be the need to obtain small amounts of public park land from Connestee Falls, Hap Simpson Park, and Silvermont Park for highway right-of-way purposes. Even though the amount of land needed from these public parks would be minor, Section 4(f) and/or 6(f) Evaluations would need to be processed. It is important to note that Silvermont Park is listed on the National Register of Historical Places, and consequently, is protected by Federal and State laws.

V. BASIS FOR FINDINGS

The recommendations contained in this report were based on the following:

1. Field Investigations
2. Correspondences with the Division Engineer
3. Correspondences with representatives of the South Carolina Department of Transportation
4. Aerial Mosaics dated June, 1988
5. Cost estimates provided by the Right-of-Way Branch and Design Services Unit

As previously mentioned, if the project is to be implemented at a future date, all possible alternatives, and their associated impacts, will have to be evaluated in a planning/environmental document. Then, a final decision can be made as to the most appropriate improvements.

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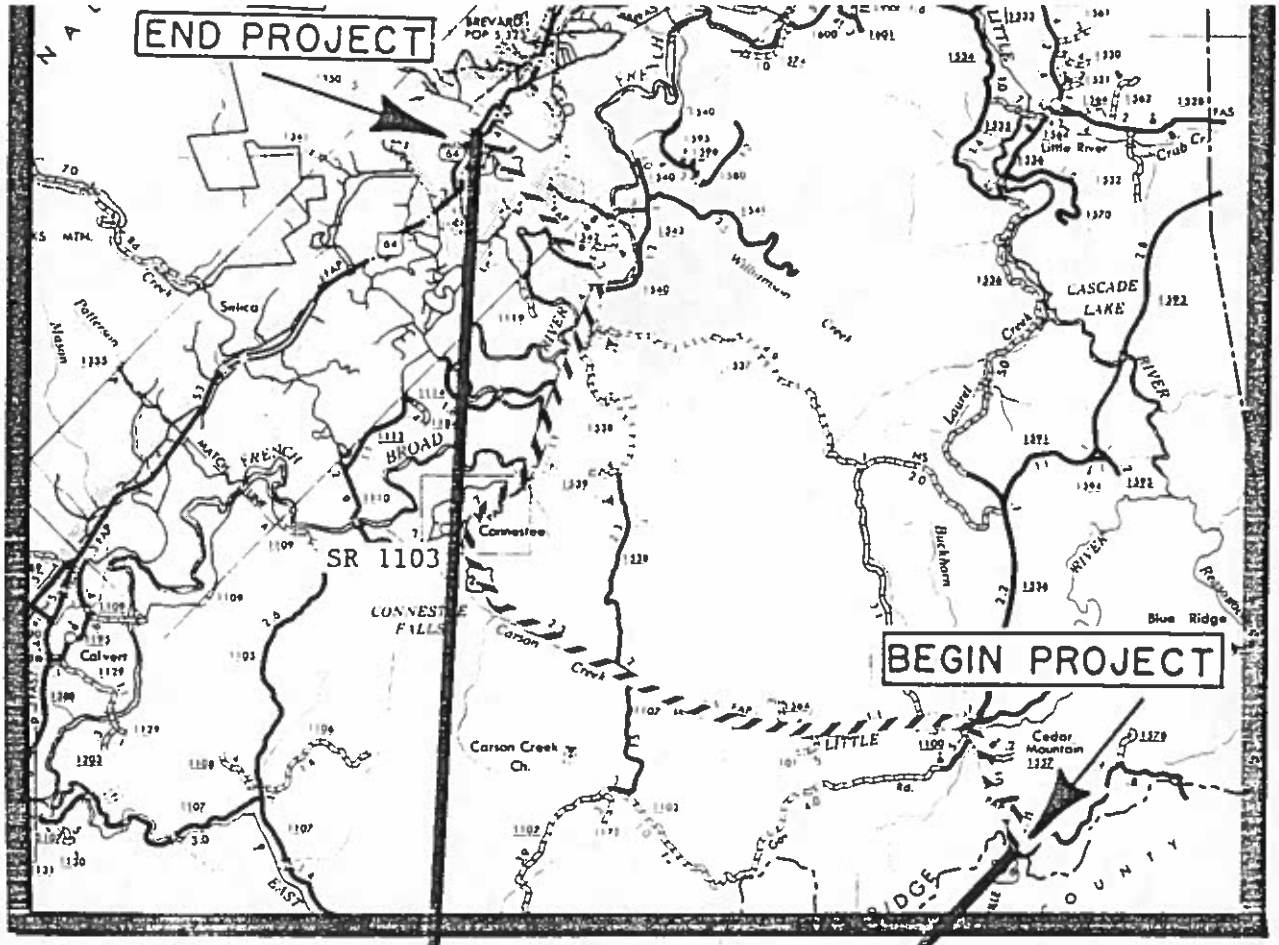


NORTH CAROLINA

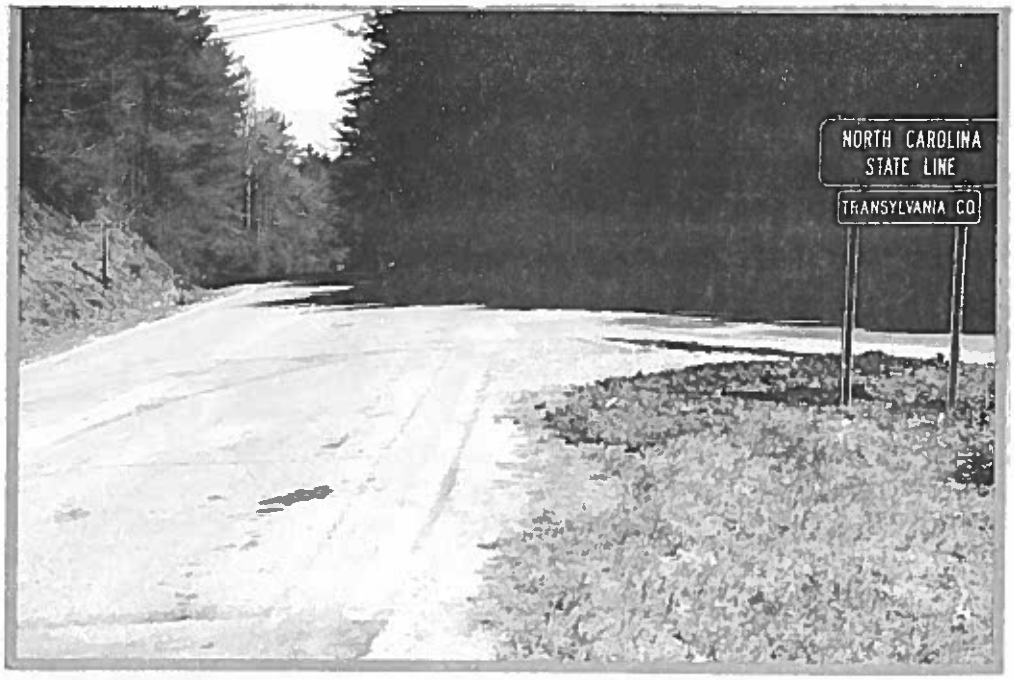
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

US 276
FROM US 64 IN BREVARD
TO THE SOUTH CAROLINA STATE LINE
TRANSYLVANIA COUNTY

R-2311
FEASIBILITY STUDY

6/88 AES

FIGURE 1



LOOKING NORTH TOWARDS THE BEGINNING OF THE PROJECT

LOOKING NORTH NEAR THE BEGINNING OF THE PROJECT

LOOKING SOUTH NEAR THE BEGINNING OF THE PROJECT

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

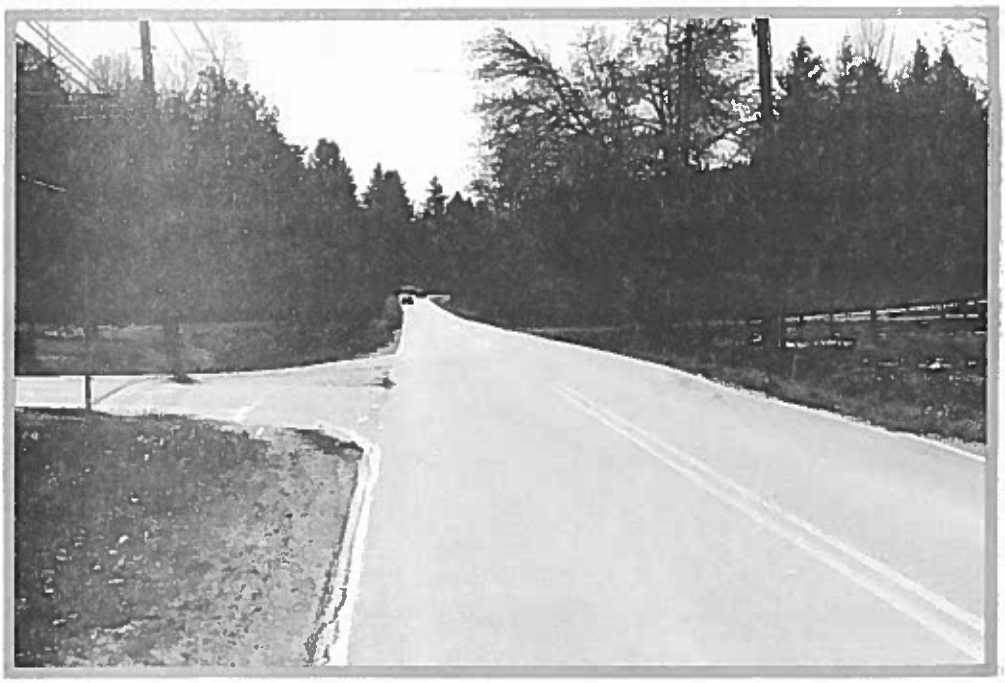
Photos of Existing Conditions
Along US 276

Project R-2311
Feasibility Study

7/88 AES Figure 2-A

LOOKING SOUTH TOWARDS THE SR 1560 INTERSECTION

TYPICAL VIEW NORTH OF CEDAR MOUNTAIN



LOOKING SOUTH NEAR SEE OFF COMMUNITY (SR 1538 INTERSECTION)

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

Photos of Existing Conditions
Along US 276

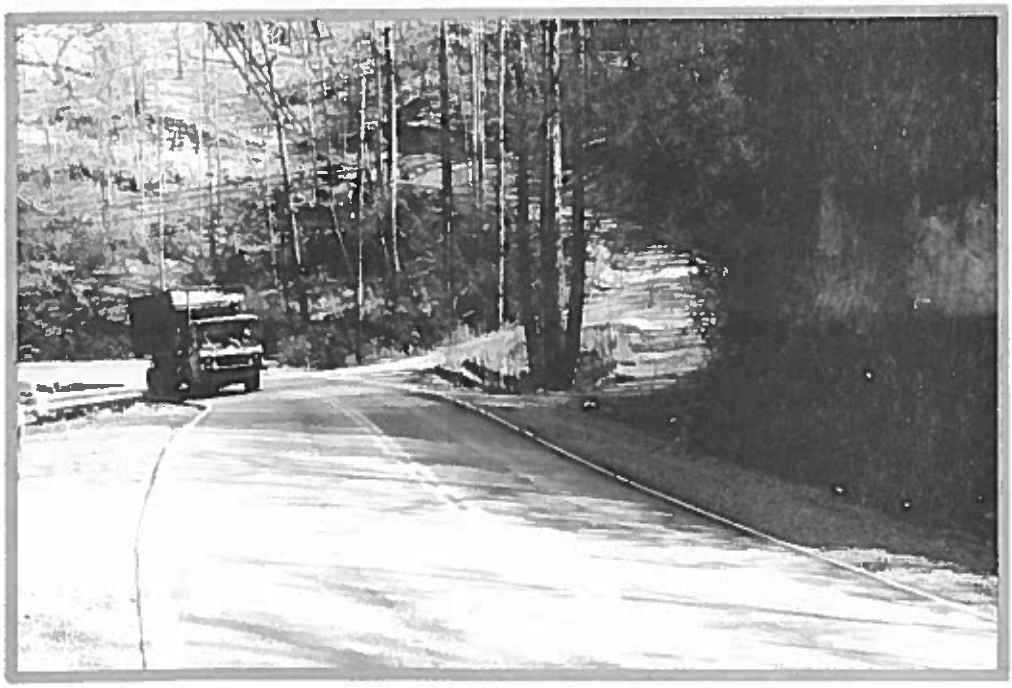
Project R-2311
Feasibility Study

7/88 AES

Figure 2-B

LOOKING SOUTH TOWARDS THE ENTRANCE TO CONNESTEE FALLS

LOOKING SOUTH NEAR SR 1112



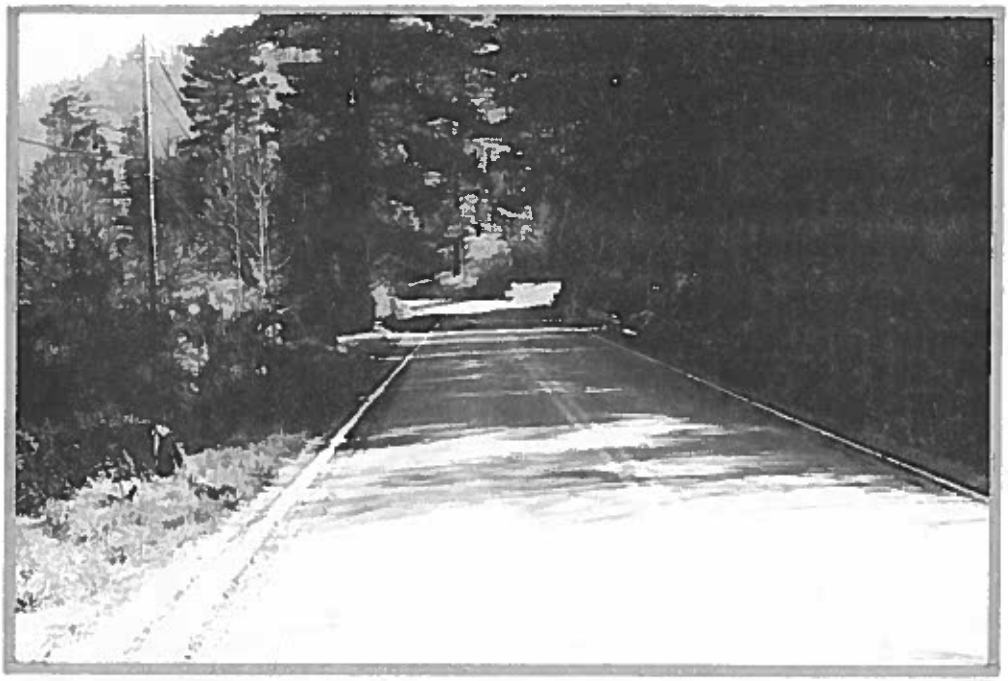
TYPICAL VIEW NORTH OF CONNESTEE FALLS

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

Photos of Existing Conditions
Along US 276

Project R-2311
Feasibility Study

7/88 AES Figure 2-C



LOOKING NORTH TOWARD
THE FRENCH BROAD RIVER
TRIBUTARY CULVERT

LOOKING NORTH TOWARD THE
FRENCH BROAD RIVER BRIDGE

LOOKING NORTH TOWARD
THE SOUTH CITY LIMIT
OF BREVARD

NORTH CAROLINA DEPARTMENT OF
TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

Photos of Existing Conditions
Along US 276

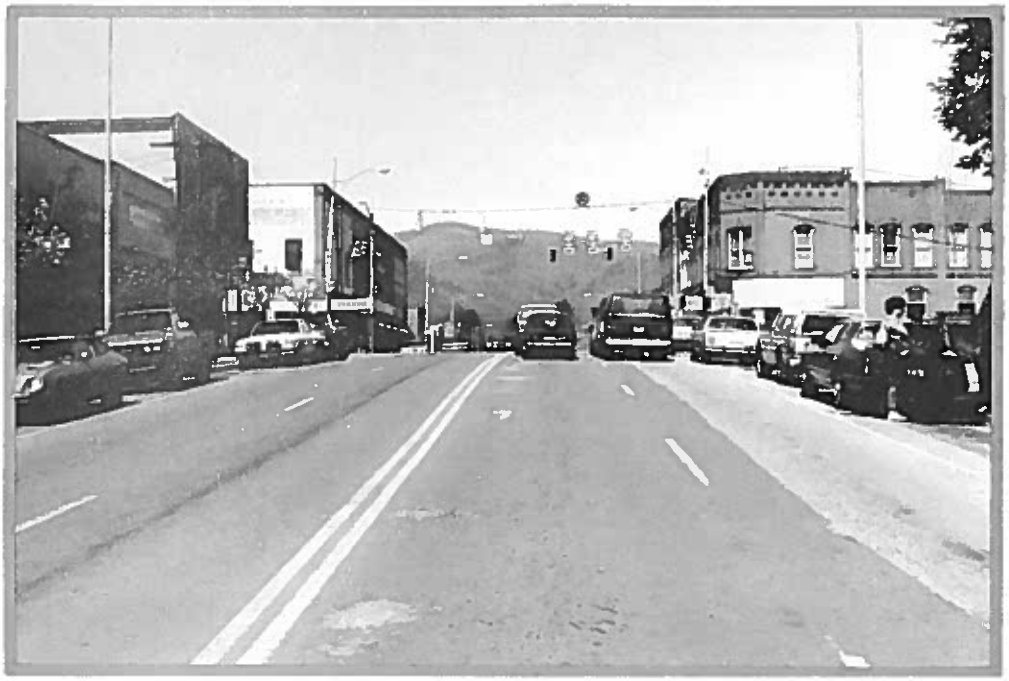
Project R-2311
Feasibility Study

7/88 AES

Figure 2-D

LOOKING SOUTH NEAR BREVARD ELEMENTARY SCHOOL

LOOKING NORTH NEAR FRANKLIN STREET IN BREVARD



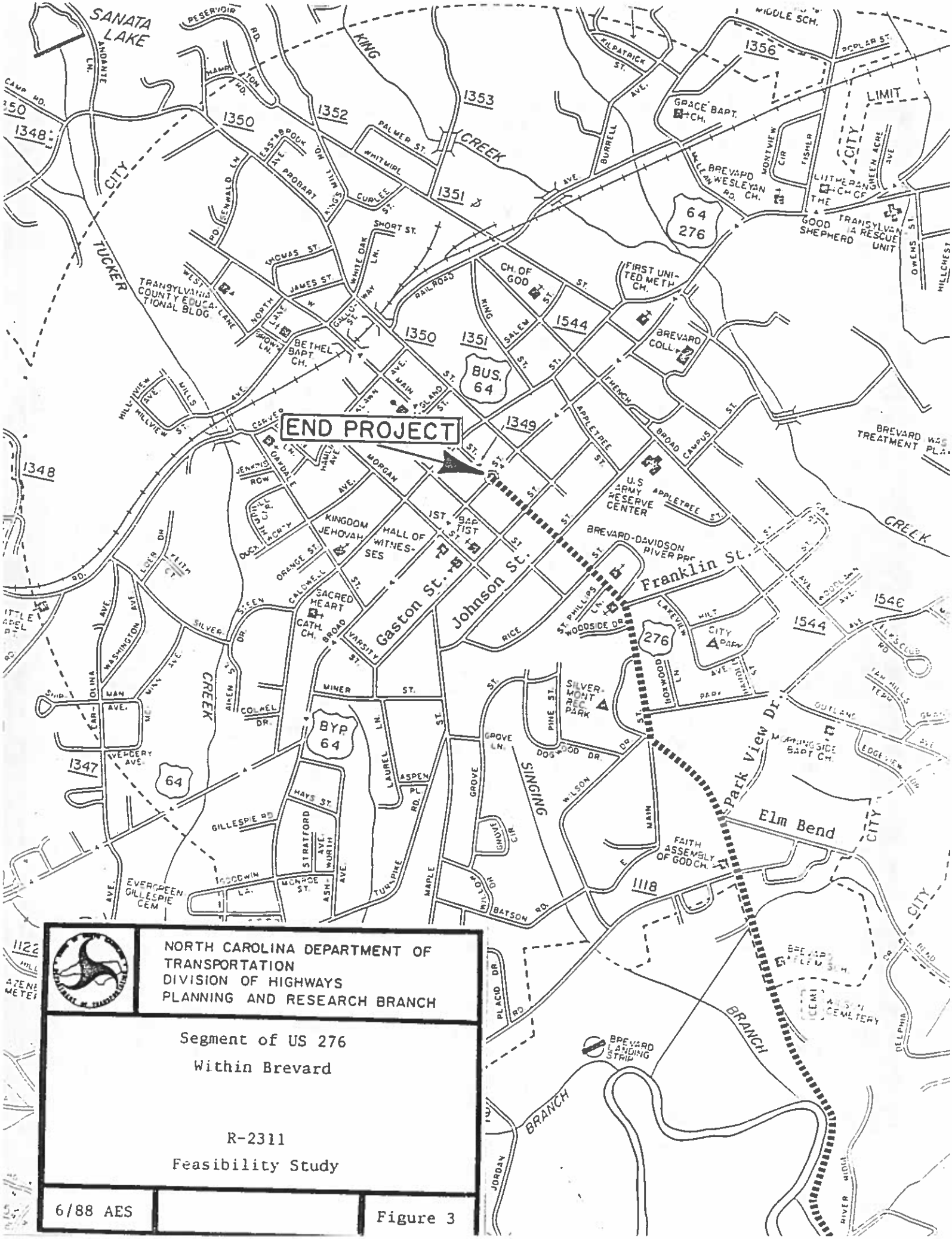
LOOKING NORTH TOWARDS THE END OF THE PROJECT (US 276\US 64 JUNCTION)

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

Photos of Existing Conditions
Along US 276

Project R-2311
Feasibility Study

7/88 AES Figure 2-E



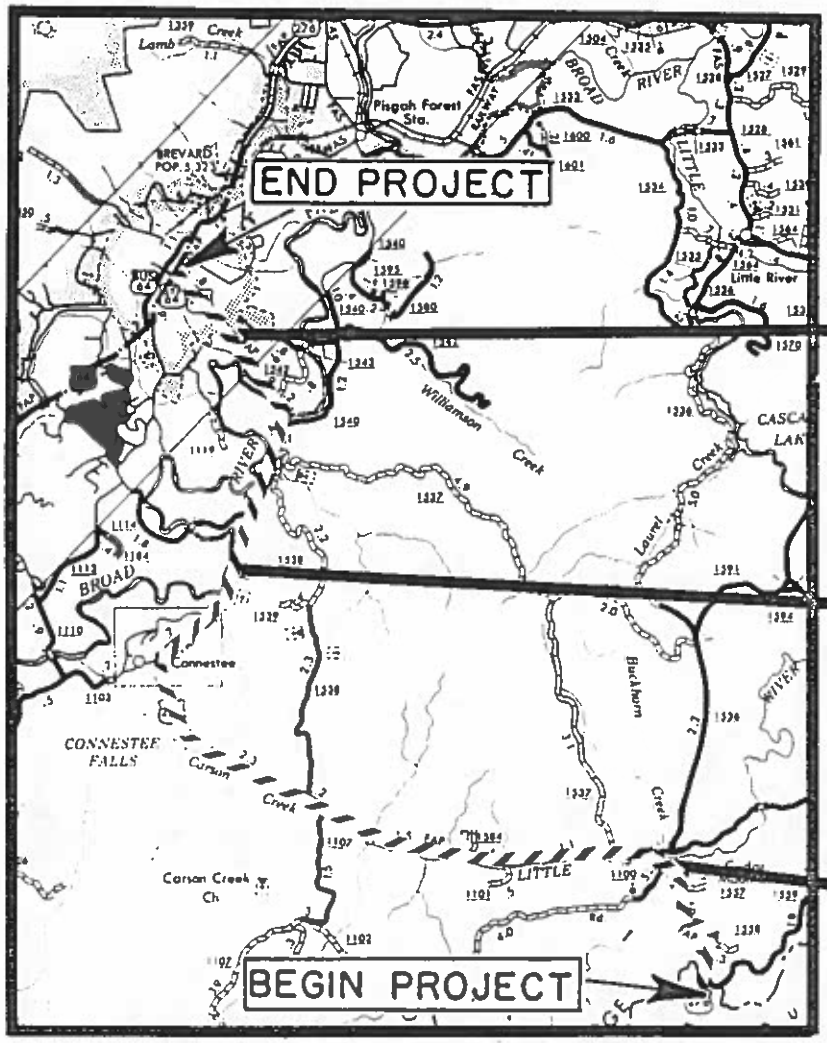
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

Segment of US 276
Within Brevard

R-2311
Feasibility Study

6/88 AES

Figure 3



Current and Projected Average Daily Traffic Volumes

6,100	
10,700	
4,100	
7,200	
2,000	
3,500	

LEGEND
1988 ADT
2008 ADT

TTST - 1%
DUAL - 4%
DHV - 12%

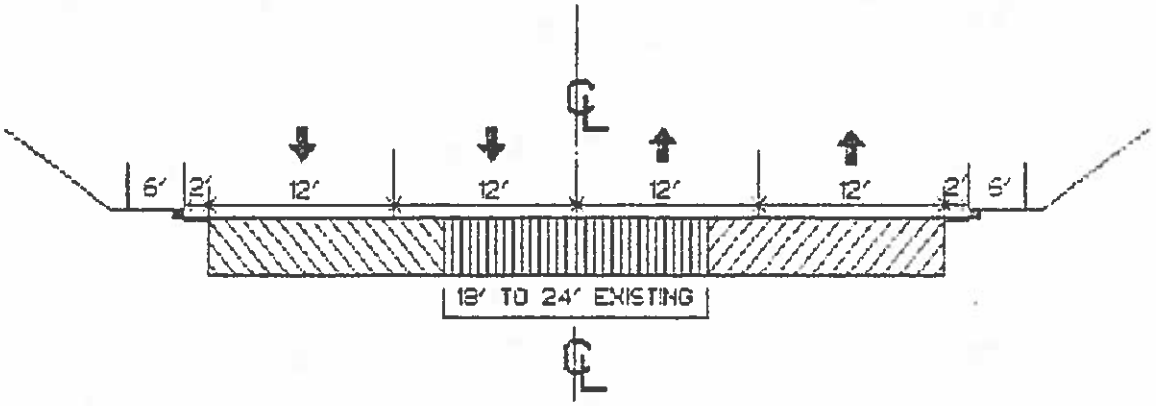
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

US 276
FROM THE SOUTH CAROLINA STATE LINE
TO US 64 IN BREVARD
TRANSYLVANIA COUNTY

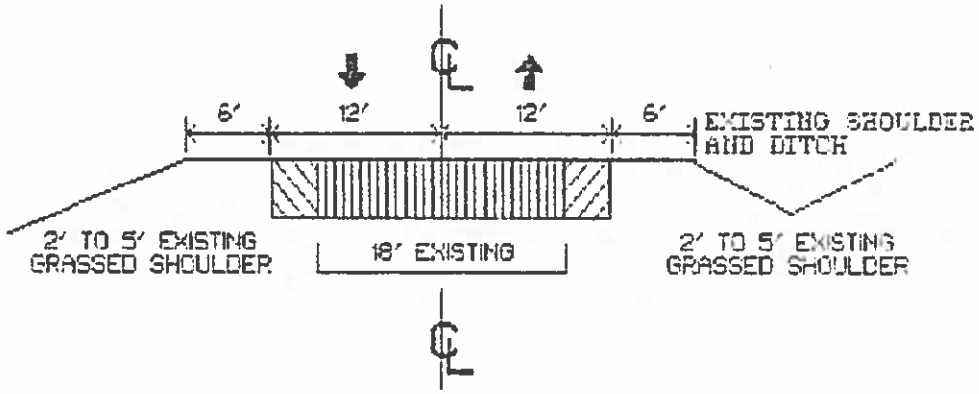
R-2311
FEASIBILITY STUDY

7/88 AES		FIGURE 4

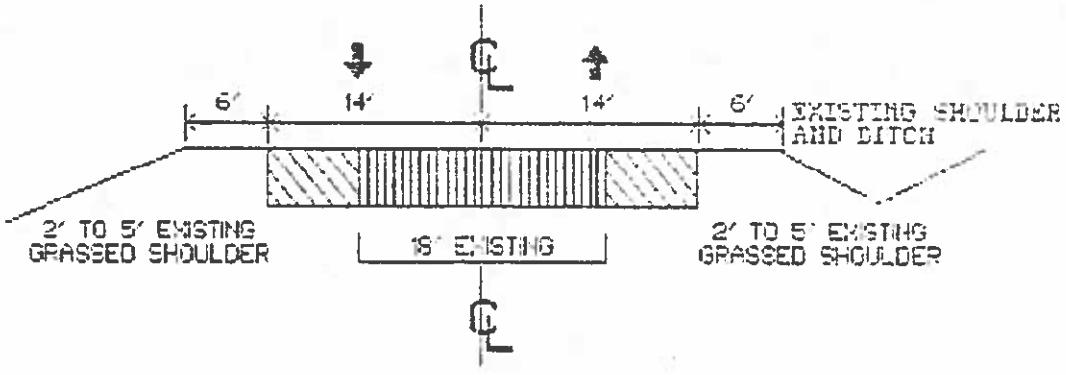
PROPOSED ROADWAY CROSS-SECTIONS
PROJECT R-2311



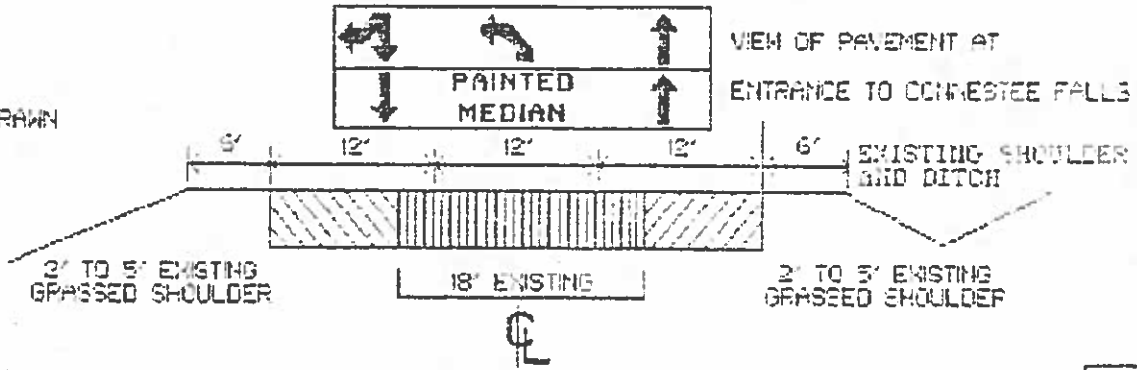
WIDENING EXISTING TO 52' (FACE-TO-FACE) CURB & GUTTER



WIDENING EXISTING TO 24 FEET AND 6' SHOULDERS



WIDENING EXISTING TO 28 FEET AND 6' SHOULDERS IN CURVES



WIDENING EXISTING TO 36 FEET AT CONNESTEE FALLS ENTRANCE

* FIGURES NOT DRAWN TO SCALE

FIGURE