R-2320

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November 23, 1988

MEMORANDUM TO: Messrs. Jim Garrison; Seddon Goode, Jr.; James E. Nance; Larry Goode, P. E.; J. T. Peacock, P. E.; J. M. Lynch, P. E.; J. P. Rumley; D. R. Morton, P. E.; Calvin Leggett, P. E.; Al Avant; J. D. Goins

FROM: J. M. Greenhill, P. E.
Manager of Planning and Research

SUBJECT: FEASIBILITY STUDY, US 52, From US 74 in Wadesboro to NC 24-27 in Albemarle, Anson and Stanly Counties, Transportation Improvement Program Project R-2320

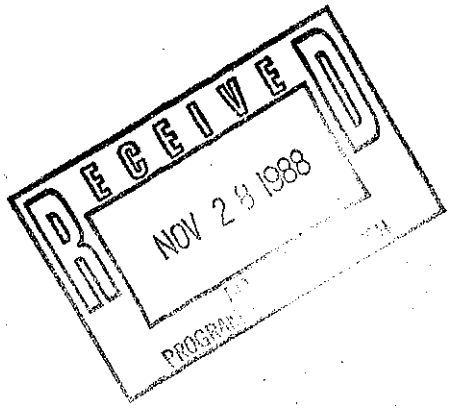
Our staff has completed a feasibility study for the subject proposed project. This brief analysis suggests improvements that would be logical if the project were to be funded.

A copy of our report is attached for your information. Any comments that you have would be appreciated.

EFL/plr

Attachment

cc: Mr. George Wells, P. E.
Mr. William G. Marley, P. E.



FEASIBILITY STUDY

US 52
From US 74 in Wadesboro to NC 24-27 in Albemarle
Anson and Stanly Counties
Transportation Improvement Program Project R-2320

Prepared by the
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US 52
From US 74 in Wadesboro to NC 24-27 in Albemarle
Anson and Stanly Counties
Transportation Improvement Program Project R-2320

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

The primary purpose of the study is to evaluate the provision of a multi-lane facility from Wadesboro to Albemarle. The North Carolina Department of Transportation (NCDOT) has determined that it is feasible to provide a multi-lane US 52 facility from US 74 in Wadesboro to NC 24-27 in Albemarle commensurate with the principal arterial route designation of this facility. In order to better provide such a facility, some segments of the existing US 52 facility would have to be relocated. A full discussion of the proposed improvements is contained in later sections of this report. The project, as proposed, is approximately 27.5 miles in length.

The multi-lane improvements are desirable to improve traffic flow and safety. Furthermore, the improvements are warranted to provide additional capacity for increasing volumes of traffic. The proposed improvements are consistent with recommendations made in a previous Feasibility Study completed in 1977.

I. NEED FOR THE PROPOSED PROJECT

A. LOCATION AND TYPE OF FACILITY

The section of US 52 covered in this study begins at US 74 in Wadesboro and ends at NC 24-27 in Albemarle. This section of US 52 is about 27.7 miles in length and traverses Anson and Stanly Counties (see Figure 1).

US 52 is classified as a principle arterial route in the North Carolina Functional Classification System. In addition, US 52 is a part of the Federal-Aid Primary System, designated FAP 41-1.

B. HISTORICAL BACKGROUND

US 52 extends across central North Carolina from Winston-Salem southward to Wadesboro. In the studied area, US 52 connects the Cities of Wadesboro, Ansonville, Norwood, and Albemarle. The subject section of US 52 was constructed between 1919 and 1920 as an 18-foot soil road. In 1954, a short section of US 52 was constructed on new location as a 24-foot bituminous road. During the 1930's, the remainder of this segment of US 52 was paved and widened to 20 feet. During the 1950's,

this same section was widened to 24 feet of pavement; some sections were constructed on new location. Since the 1950's, the only major improvements to the route have been periodic resurfacing.

C. CHARACTERISTICS OF THE EXISTING FACILITY

1. Cross-Section Description

The subject section of US 52 consists primarily of two lanes with 24 feet of pavement and 6 to 8-foot grassed shoulders. However, where the subject section of US 52 lies within the cities, the pavement width varies from 22 to 44 feet (some sections have 6-foot shoulders, others have curb and gutter). Additionally, the US 52 pavement was recently widened from 20 feet to 26 feet (including 2 feet paved shoulders), and to 28 feet in curves from NC 24-27 in Albemarle to the north city limits of Albemarle (T.I.P. Project R-508).

2. Right-of-Way

Generally, the right-of-way width along this project is claimed as 60 feet. However, from just south of the Winston-Salem Southbound Railroad to near SR 1636 in Anson County, the right-of-way width is shown as 100 feet. Also, the right-of-way width along US 52 from the Cedar Hill community to just inside the south corporate limits of Norwood is shown as 150 feet. These right-of-way widths are measured symmetrically about the center-line of the roadway.

3. Horizontal and Vertical Alignment

Level to gently rolling terrain exists along the subject section of US 52. The existing vertical and horizontal alignments are judged to be good with no curves greater than 6-degrees, and grades ranging from -6% to +7%. About 43% of the subject segment affords adequate passing sight distances of 1500 feet or more (Figures 2-A through 2-F offer Photos of the Existing Conditions along the subject section of US 52).

4. Speed Limit

The posted speed limit along the majority of the subject section of US 52 is 55 mph. However, near and within the various urban areas along the project, the posted speed limits vary from 20 mph to 45 mph.

5. Degree of Roadside Development and Abutting Properties

Roadside development is primarily light and rural residential in nature. However, development is heavy in and near the urban areas along the subject section of US 52 with substantial residential and commercial development evident. Table 1, shown on the following page, provides a summary of the total number of properties that either front and/or have driveway connections to the US 52 facility.

TABLE 1

NUMBER OF ABUTTING PROPERTIES ALONG US 52

LOCATION	DIRECTION	NUMBER OF RESIDENCES	NUMBER OF BUSINESSES	RESIDENTIAL DENSITY (HOMES/MILE)	BUSINESS DENSITY (BUSINESSES/ MILE
US 74 TO ANSONVILLE (8.5 MILES)	NORTH-BOUND	54	10	6.35	1.18
	SOUTH-BOUND	53	4	6.24	0.47
INSIDE ANSONVILLE (1.5 MILES)	NORTH-BOUND	10	7	6.67	4.67
	SOUTH-BOUND	17	7	11.33	4.67
ANSONVILLE TO NORWOOD (7.1 MILES)	NORTH-BOUND	11	4	1.55	0.56
	SOUTH-BOUND	19	7	2.68	0.99
INSIDE NORWOOD (1.3 MILES)	NORTH-BOUND	21	32	16.15	24.62
	SOUTH-BOUND	12	26	9.23	20.00
NORWOOD TO NC 24-27 (9.3 MILES)	NORTH-BOUND	62	23	6.67	2.47
	SOUTH-BOUND	85	21	9.14	2.26

6. Public Facilities

The following is a summary of the existing public facilities located within the study area adjacent to the US 52 roadway:

Between Wadesboro and Ansonville:
- Ramsey Chapel Holiness Church
- Anson Senior High School
- Bowen Chapel Holiness Church
- Free Rock Church
- Salem United Methodist Church and Cemetery
- Pee Dee National Wildlife Refuge

Within Ansonville:
- All Soul's Episcopal Church
- Ansonville United Methodist Church
- Anson Technical College
- Ansonville Area Medical Center
- Ansonville Town Hall

Between Ansonville and Norwood:
- Ansonville Fire and Rescue Dept.

Within Norwood:
- Norwood Elementary School
- Community Freewill Baptist Church

Between Norwood and Albemarle:	Ambulance Service of Stanly County Calvary Baptist Church The Church of Jesus Christ of Latter-Day Saints Porter Baptist Church and Cemetery Union Chapel United Methodist Church North Carolina Lutheran Homes, Albemarle Unit Church of Christ South Albemarle Baptist Church Rock Creek Park First Presbyterian Church

7. Access Control

No control of access exists along the subject section of US 52.

8. Intersecting Roads

Within the study area, all existing roads intersect US 52 at-grade with stop sign control except within the urban boundaries where several are controlled by traffic signals.

9. Structures

(a). Drainage

There are three major drainage structures located along the subject project of US 52. The following is a brief description of these structures:

(1) The Grindstone Branch flows underneath US 52 through a triple barrel, 7' X 9' reinforced concrete box culvert. The structure is 43 feet long; built in 1953; and has an estimated remaining life of 19 years. The structure is located approximately 2.3 miles north of US 74.

(2) Buffalo Creek flows underneath US 52 through a triple barrel, 9' X 8' reinforced concrete box culvert. The structure is 39 feet long; built in 1931; rebuilt in 1953; and has an estimated remaining life of 28 years. The structure is located approximately 0.5 mile north of SR 1631.

(3) Jacob's Creek flows underneath US 52 through a triple barrel, 7' X 9' reinforced concrete box culvert. The structure is 44 feet long; built in 1976; and has an estimated remaining life of 41 years. The structure is located approximately one mile south of SR 1908.

All other drainage structures located along the project consist of corrugated metal pipes used for cross-drainage.

(b). Bridge

There are six bridges located within the project limits. The characteristics of these structures are shown in Table 2 below.

TABLE 2

CHARACTERISTICS OF THE EXISTING STRUCTURES ALONG US 52

LOCATION	BRIDGE NO.	YEAR CONSTRUCTED	SUFFICIENCY RATING	ESTIMATED REMAINING LIFE	STRUCTURE LENGTH	CLEAR ROADWAY WIDTH
Seaboard Coastline Railroad, 0.4 mile north of US 74	38 *	1929	unknown	5 years	30 feet	N/A
Winston-Salem Southbound Railroad, 4.8 miles north of NC 742	56 **	1953	42.7	18 years	194 feet	28.2 feet
Brown Creek, 1.5 miles north of SR 1649	66 ***	1929 rebuilt 1953	39.1	16 years	260 feet	28.0 feet
Rocky River, 16.1 miles north of NC 742	70	1923 rebuilt 1953	75.9	18 years	525 feet	26.3 feet
Norfolk-Southern Railroad, 0.9 Miles north of NC 731	10	1956	78.5	20 years	121 feet	28.1 feet
NC 24-27 (End of Project)	49	1957	79.0	21 years	133 feet	28.1 feet

* Scheduled to be replaced under T.I.P. Project R-2013
** Scheduled to be replaced under T.I.P. Project B-1019
*** Scheduled to be replaced under T.I.P. Project B-1016

D. Project Terminals

Southern Terminal: The subject project begins at US 74 in Wadesboro in Anson County. From this point, US 52 and US 74 extend commonly in a south-easterly direction for a distance of approximately 2 miles. The cross-section along this portion of US 74/US 52 consists primarily of five-lanes, curb and gutter (widths vary from 60 to 82 feet face-to-face of curbs). The east and west-bound lanes are separated by the center turn-lane. Access along this portion of US 74/US 52 is not controlled, and the right-of-way width varies from 100 to 120 feet. It should be noted that US 74 was selected as a Strategic Corridor in the 1988-1996 N. C. Transportation Improvement Program.

From the US 74/US 52 junction, US 52 extends southward towards South Carolina with a cross-section consisting of two, 12-foot lanes of travel and 5-to 10-foot grassed shoulders. Access along this portion of US 52 is not controlled, and the right-of-way width varies from 60 to 100 feet.

Northern Terminal: The subject project is proposed to end at NC 24-27 in Albemarle in Stanly County. US 52 extends northward from NC 24-27 towards the Town of New London with a cross-section consisting of five-lanes, curb and gutter (68 feet face-to-face of curbs). Access along this portion of US 52 is not controlled, and the right-of-way width varies from 100 to 150 feet.

E. Traffic Data and Capacity Analysis

Current average daily traffic (ADT) volumes within the project limits vary from a low of 3,400 vehicles per day near SR 1627 in Anson County, to a high of 9,800 vehicles per day just inside the northwestern corporate limit of Norwood. Truck traffic accounts for 11-percent of the overall ADT. The year 2008 traffic volumes are anticipated to range from 5,700 to 16,400 vehicles per day. The existing traffic volumes as well as the 2008 projected volumes for the subject section of US 52 are shown on Figure 4.

For capacity analysis purposes, the subject section of US 52 was divided into the following five segments:

SEGMENT 1:	FROM US 74 TO ANSONVILLE	(two lanes, 24-foot pavement)
SEGMENT 2:	WITHIN ANSONVILLE	(two lanes, 22-foot pavement)
SEGMENT 3:	FROM ANSONVILLE TO NORWOOD	(two lanes, 24-foot pavement)
SEGMENT 4:	WITHIN NORWOOD	(four lanes, curb and gutter, 40 to 46-foot pavement)
SEGMENT 5:	FROM NORWOOD TO NC 24-27	(two lanes, 26-foot pavement)

Beginning on the next page, Table 3 provides a summary of the findings of the capacity analysis performed for these five segments of the existing US 52 roadway (NB = north-bound, SB = south-bound).

TABLE 3

CAPACITY ANALYSIS

	YEAR	AVERAGE PEAK HOUR VOLUME*	COMPUTED LEVEL OF SERVICE
SEGMENT 1:	1988	956	E
US 74 TO ANSONVILLE	2008	1645	F
SEGMENT 2:	1988	657	D
WITHIN ANSONVILLE	2008	1099	E
SEGMENT 3:	1988	793	D
ANSONVILLE TO NORWOOD	2008	1326	E
SEGMENT 4:	1988	725 NB/484 SB	B/A
WITHIN NORWOOD	2008	1213 NB/809 SB	C/B
SEGMENT 5:	1988	1179	E
NORWOOD TO ALBEMARLE	2008	2024	F

*MEASURED IN VEHICLES PER HOUR (VPH); TOTAL, BOTH DIRECTIONS (EXCEPT SEGMENT 4 WHICH IS MULTI-LANE, AND THEREFORE A 60/40 TRAFFIC SPLIT WAS ASSUMED FOR THIS LOCATION)

The concept of levels-of-service is defined as a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. A level-of-service definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. Six levels-of-service are defined for each type of facility for which analysis procedures are available. They are given letter designations, from A to F, with level-of-service A representing the best operating conditions and level-of-service F the worst.

F. Accident Analysis

An accident study of the subject project was conducted by the Traffic Studies Section of the NCDOT Traffic Engineering Branch for the period from January 1, 1984 to December 31, 1987. During this time period, a total of 428 accidents occurred along the subject section of US 52 (including 5 fatal accidents). A summary of the accident data is given in Table 4.

TABLE 4

ACCIDENT DATA

Summarized Accident Statistics
For Rural Portions of US 52

	US 74 in Wadesboro to Ansonville	Statewide Averages for Similar Rural US Routes (1984-1987)
Total Accidents	144	N/A
Fatal Accidents	2	N/A
Non-Fatal Injury Accidents	63	N/A
Total Accident Rate*	295.45	200.13
Fatal Accident Rate*	4.10	3.85
Non-Fatal Injury Accident Rate*	129.26	92.75

	From Ansonville to Norwood	Statewide Averages for Similar Rural US Routes 1984-1987)
Total Accidents	41	N/A
Fatal Accidents	0	N/A
Non-Fatal Injury Accidents	16	N/A
Total Accident Rate*	144.26	200.13
Fatal Accident Rate*	0.00	3.85
Non-Fatal Injury Accident Rate*	56.30	92.75

	From Norwood to NC 24-27 (Albemarle)	Statewide Averages for Similar Rural US Routes (1984-1987)
Total Accidents	172	N/A
Fatal Accidents	2	N/A
Non-Fatal Injury Accidents	85	N/A
Total Accident Rate*	203.05	200.13
Fatal Accident Rate*	2.36	3.85
Non-Fatal Injury Accident Rate*	100.34	92.75

* Rates are in terms of Accidents per 100 Million Vehicle Miles.

TABLE 4, CONTINUED

ACCIDENT DATA

Summarized Accident Statistics
For Rural Portions of US 52

	Inside Ansonville	Statewide Averages for Similar Rural US Routes (1984-1987)
Total Accidents	17	N/A
Fatal Accidents	1	N/A
Non-Fatal Injury Accidents	6	N/A
Total Accident Rate	280.99	379.05
Fatal Accident Rate	16.53	1.25
Non-Fatal Injury Accident Rate	99.17	144.47

	Inside Norwood	Statewide Averages for Similar Rural US Routes (1984-1987)
Total Accidents	54	N/A
Fatal Accidents	0	N/A
Non-Fatal Injury Accidents	21	N/A
Total Accident Rate	295.73	379.05
Fatal Accident Rate	0.00	1.25
Non-Fatal Injury Accident Rate	115.01	144.47

A review of the data reveals that accidents involving vehicles running-off-the-road and rear-end collisions constitute the largest percentages of the overall total amount of accidents occurring along the subject section of US 52. The suggested improvements could help to reduce the number of these types of accidents as well as improve the overall safety of the highway.

ACCIDENTS OCCURRING ALONG US 52
FROM US 74 IN WADESBORO
TO NC 24-27 IN ALBEMARLE
(January 1, 1984 to December 31, 1987)

Ran-off-Road	31%
Rear-Ends	30%
Angle	13%
Turning Vehicles	12%
Sideswipes	5%
Animal	3%
Head On	1%
All Other	5%

Further review of the accident data reveals that a relatively large number of these accidents (7 or more) occurred at several intersections throughout the project. The following is a summary of the location and number of accidents occurring in the vicinity (i.e., within 0.1 mile) of these intersections within the time frame of the accident study:

TABLE 4-A

HIGH ACCIDENT LOCATIONS

INTERSECTION	NUMBER OF ACCIDENTS OCCURRING
US 74 in Wadesboro	52
Just north of SR 1425	12
Near SR 1668 and SR 1664	16
SR 1641	10
SR 1634	7
SR 1934	8
NC 731	9
College Street in Norwood	11
Bennett Street in Norwood	17
Andrew Street in Norwood	10
Doody Street_Collins Street in Norwood	13
SR 2028	10
SR 1751 and SR 1750	18
SR 1748	8
SR 1745	7
SR 1720	16
SR 1906	14
Just south of SR 1735	7
NC 24-27 in Albemarle	15
Total	260
Percent of Overall Total	61%

II. DESCRIPTION OF SUGGESTED IMPROVEMENTS

A. General Description

The North Carolina Department of Transportation recommends improving US 52 to a multi-lane highway from US 74 in Wadesboro in Anson County to NC 24-27 in Albemarle in Stanly County. The project, as proposed, is about 27.5 miles in length and it traverses Anson and Stanly Counties.

The recommended improvements are proposed to be accomplished on the majority of the project by (1) widening the existing facility to 28 feet, (2) resurfacing the existing facility, and (3) constructing a new 28-foot pavement parallel to the existing highway. The north and south-bound lanes would be separated by a 30-foot grassed median. In order to provide a multi-lane facility that is compatible with the principle

arterial route designation of US 52, portions of the highway at Wadesboro, Ansonville, Norwood, and Albemarle are recommended to be relocated. The proposed relocations around Ansonville and Norwood would consist of four, 12-foot lanes with a 46-foot grassed median.

In addition to the improvements described above, a short segment (0.1 mile) of NC 138 is proposed to be widened to five lanes with curb and gutter (64 feet face-to-face of curbs) in order to accommodate the proposed relocation of US 52 at Albemarle. Also, a five-lane, curb and gutter section is proposed for US 52 near Wadesboro, from SR 1660 to the proposed intersection of US 74 and US 52; a distance of approximately 1.7 miles. The locations of the suggested improvements are shown in detail on Figure 3.

B. Summary of the Recommended Action

1. Length of the Subject Project

The total length of the project, as it is proposed, is approximately 27.5 miles.

2. Cross-Section Description

A four-lane, divided facility with 10-foot usable shoulders (2 feet paved) and a 30-foot grassed median is proposed for the majority of the subject section of US 52. Some segments of the improved US 52 facility would consist of five lanes with curb and gutter (64 feet face-to-face of curbs). Along the proposed bypasses of Ansonville and Norwood, the cross-section would consist of four, 12-foot lanes of travel with 10-foot usable shoulders (2 feet paved) and a 46-foot grassed median. Details of the proposed cross-sections are shown in Figure 6.

The four-lane divided sections are recommended to be constructed along the existing roadway in such a manner as to avoid any unnecessary displacements or right-of-way costs. This would be achieved by shifting the construction of the additional 28-foot pavement east or west of the existing roadway.

3. Relocated Segments

It is proposed to relocate portions of US 52 at Wadesboro, Ansonville, Norwood, and Albemarle. The locations of the proposed relocations are shown on Figure 3. The proposed bypasses of Ansonville and Norwood would be partially controlled access facilities, and they would be approximately 1.5 and 2.7 miles in length, respectively.

4. Right-of-Way

It is anticipated that a total of 200 feet of right-of-way width would be required in order to contain the proposed four-lane, divided improvements along the existing highway, a total width of 230 feet along the proposed Ansonville and Norwood Bypasses, and a total of 80-90 feet to contain the proposed five-lane, curb and gutter improvements.

5. Access Control

With the exception of the proposed Ansonville and Norwood Bypasses, no control of access is recommended for the subject project. The acquisition of partial control of access is recommended for the proposed bypasses. For this particular project, the partial control of access would involve full control of abutting properties with designated at-grade intersections.

6. Intersection Treatment

Throughout the entire length of the project, all roads intersecting with US 52 would contact it at-grade with either stop sign or traffic signal control.

7. Terminal Treatment

Southern Terminal: The subject project is proposed to begin at US 74 in Wadesboro in Anson County. From this point, US 52 and US 74 extend commonly in a southeasterly direction for a distance of approximately 2 miles. Presently, there are no major improvements programmed for this section of US 74/US 52. However, it is important to note that US 74, from Charlotte to Wilmington, was selected as a Strategic Corridor in the 1988-1996 North Carolina Transportation Improvement Program.

Northern Terminal: The subject project is proposed to end at NC 24-27 in Albemarle in Stanly County. US 52 extends northward from NC 24-27 towards the Town of New London. A landscaping project (L-2230) is scheduled to be conducted along Carolina Avenue from NC 24-27 to Old Charlotte Road in Albemarle. This project is scheduled to be constructed during federal fiscal year 1988. There are no other major improvements programmed for this section of US 52.

8. Design Speed

Along most of the subject the project, the utilization of a 60 mph design speed on the four-lane, divided sections, and a 50 mph design speed on the five-lane, curb and gutter sections is recommended for this project.

It is anticipated that the proposed facility would have a 55 mph posted speed limit on the four-lane, divided sections, and a 45 mph posted speed limit on the curb and gutter sections.

9. New Structures Required

(a). Drainage Structures

All existing major drainage structures would require extensions in order to accommodate the proposed cross-sections. A description of the existing drainage structures can be found on page 4, Section I.C.9., Structures.

It is anticipated that all other drainage structures used for cross-drainage can 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

It is anticipated that the majority of the existing structures would have to be reconstructed (and widened) or replaced to provide a 38-foot wide clear roadway width. New, 38-foot wide structures would be constructed parallel to the existing structures in order to accommodate the proposed four-lane, divided cross-sections.

No bridge structures would be required along the proposed Ansonville Bypass. For the proposed Norwood Bypass, structures would be required at the Cedar Creek crossing (see Figure 3).

For the proposed relocation of US 52 near Wadesboro, a structure would be required over the Seaboard Coastline Railroad. Also, for the proposed relocation of US 52 in Albemarle, structures would be necessary over the Winston-Salem Southbound Railroad (see Figure 3).

C. Traffic Data and Capacity Analysis

By the year 2008, average daily traffic (ADT) volumes, based upon the proposed improvements, are projected to vary from a low of 5,700 vehicles per day near Cedar Hill to a high of 16,400 vehicles per day just north of Norwood (see Figure 5). Along the improved route, truck traffic semi-trailer (TTST) traffic is projected to account for 6-percent of the overall ADT along the subject section of US 52 in 2008. Additionally, dual-tired trucks (DTT) will account for an average of 5-percent of the overall ADT.

A capacity analysis was performed in order to determine the future level of service that could be provided by the US 52 facility, based on the proposed roadway dimensions and the projected traffic volumes. For this analysis, the subject section of US 52 was divided into the same segments shown on pages 6 and 7 of this document except for Segments 2 and 4, which for this analysis will be the Ansonville and Norwood Bypasses, respectively. The cross-sections for each segment are as described below:

SEGMENT 1: 1.7 MILE OF FIVE-LANE, CURB & GUTTER; THE REST WOULD BE FOUR-LANE, DIVIDED, 10-FOOT USABLE SHOULDERS, 30-FOOT GRASSED MEDIAN.

SEGMENT 2: FOUR-LANE, DIVIDED, 10-FOOT USABLE SHOULDERS, 46-FOOT GRASSED MEDIAN.

SEGMENT 3: FOUR-LANE, DIVIDED, 10-FOOT USABLE SHOULDERS, 30-FOOT GRASSED MEDIAN.

SEGMENT 4: FOUR-LANE, DIVIDED, 10-FOOT USABLE SHOULDERS, 46-FOOT GRASSED MEDIAN.

SEGMENT 5: 0.1 MILE OF FIVE-LANE, CURB AND GUTTER; THE REST WOULD BE FOUR-LANE, DIVIDED, 10-FOOT USABLE SHOULDERS, 30-FOOT GRASSED MEDIAN.

The results of this analysis are given in Table 5.

TABLE 5

CAPACITY ANALYSIS, BASED UPON THE PROPOSED IMPROVEMENTS

	YEAR	DIRECTION	AVERAGE PEAK HOUR VOLUME*	COMPUTED LEVEL OF SERVICE
SEGMENT 1: US 74 TO ANSONVILLE	2008	SOUTH-BOUND	987	A
		NORTH-BOUND	658	A
SEGMENT 2: ANSONVILLE BYPASS	2008	SOUTH-BOUND	527	A
		NORTH-BOUND	352	A
SEGMENT 3: ANSONVILLE TO NORWOOD	2008	SOUTH-BOUND	445	A
		NORTH-BOUND	296	A
SEGMENT 4: NORWOOD BYPASS	2008	SOUTH-BOUND	917	A
	2008	NORTH-BOUND	612	A
SEGMENT 5: NORWOOD TO NC 24-27	2008	SOUTH-BOUND	1130	B
		NORTH-BOUND	753	A

* MEASURED IN VEHICLES PER HOUR (VPH); 60/40 TRAFFIC SPLIT WAS ASSUMED

The results given in Table 5 show that the recommended improvements would allow for operating conditions along the majority of the subject section of US 52 in the level-of-service A range for the year 2008. The level-of-service A (LOS A) is defined as free flow operation. Motorists are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to maneuver within the traffic stream is extremely high. The general level of comfort and convenience provided to the motorist and passenger is excellent.

D. Other Programmed US 52 Projects

In addition to the subject project, the following projects are contained in the 1988-1996 N. C. Transportation Improvement Program for the subject section of US 52:

1). R-2013, Seaboard System Railroad Underpass. Replace railroad bridge Number 38, north of Wadesboro, Anson County. Construction scheduled to begin during federal fiscal year 1991.

2). B-1016, Brown Creek, Anson County. Replace Bridge Number 66. Construction scheduled to begin during federal fiscal year 1995.

3). B-1019, Winston-Salem Southbound Railway, Replace Bridge Number 56. Construction scheduled to begin during federal fiscal year 1996.

4). R-508, NC 24-27 in Albemarle to the north city limits of Norwood (9.5 miles). Widen the majority of the existing road to 26 feet (including two feet paved shoulders), 28 feet in curves, and resurface pavement. Construction has already been completed.

E. Cost Estimates

The total estimated cost for the suggested improvements is as follows:

Construction:	$39,600,000
Right-of-Way:	$19,659,000
Total:	$59,259,000

F. Staged Improvements

It may be determined that staging the proposed improvements to US 52 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:

Stage 1) Construct the suggested improvements from the south-end of the proposed bypass of Norwood (just south of the Norfolk-Southern Railroad) up to NC 24-27 (11.4 miles). The estimated cost of the Stage 1 improvements is $30,946,000 ($14,246,000 for right-of-way and $16,700,000 for construction).

Stage 2) Construct the remaining improvements from US 74 in Wadesboro up to the south-end of the Norwood Bypass (16.1 miles). The estimated cost of constructing the Stage 2 improvements is $28,313,000 ($5,413,000 for right-of-way, $22,900,000 for construction).

III. ALTERNATIVES CONSIDERED

At this particular time, improving the majority of the existing highway corridor offers the most viable and cost effective recommendation. However, the concept of relocating all of the subject section of US 52 was given consideration during the course of this study. It was determined that, in light of the the current non-freeway designs of the adjoining sections of US 52, the moderate amount of existing development, and the anticipated amount of impact on the surrounding natural environment, constructing US 52 partially on new location was the most appropriate measure at this time. If the project is approved for funding, the concept of relocating most or all of US 52 should be studied in detail during the planning/environmental documentation stage before a final decision is made regarding improvements in the subject area. This decision should be based on safety, desirable traffic service, development, land values, local environment, and the overall statewide planning concept for the US 52 facility.

Two alternatives for improving the subject section of US 52 were investigated. The following is a description of each one:

Alternative 1

This alternative involves improving the existing US 52 facility to a multi-lane facility. Along the rural portions of the highway, the existing pavement would be widened to 28 feet and resurfaced, and then a new 28-foot pavement would be constructed parallel to the existing highway. The usable shoulder width would be 10 feet (including 2 feet paved). The north and south-bound lanes would be separated by a 30-foot grassed median. No control of access would be maintained and the right-of-way width along these sections would be 200 feet (see Figure 3).

Within the urban portions (Ansonville, Norwood, and Albemarle) of the highway, it would be proposed to construct 59-foot, curb and gutter sections (five, 11-foot lanes, 2-foot curbs). Although the construction of 64-foot, curb and gutter sections would be desirable at these locations, the existing heavy roadside development, with its attendant costly right-of-way, prohibits such a measure. The right-of-way width in the urban areas would be 80 feet. Access to the facility would not be controlled.

Additionally, under this alternative, the existing US 52/NC 24-27 interchange in Albemarle would be redesigned in order to provide additional capacity and safety. The redesigning of the interchange would consist of widening NC 24-27 facility to four lanes in the vicinity of the interchange, moving the ramp located in the southwest quadrant further south, and lengthening the ramp. This measure would require the acquisition of land from Albemarle's Rock Creek Park which is located adjacent to the US 52/NC 24-27 interchange.

The total estimated cost of Alternative 1 is $58,435,000 ($25,035,000 for right-of-way, $33,400,000 for construction).

Alternative 2

This alternative involves relocating portions of US 52 at Wadesboro, Ansonville, Norwood, and Albemarle (see Figure 3). The cross-section along the majority of the facility would consist of four, 12-foot lanes with 10-foot usable shoulders (2 feet paved). The north and south-bound lanes would be separated by a 30-foot grassed median. The right-of-way width would be 200 feet, and access to the facility would not be controlled. However, for the segments proposed to be relocated around Ansonville and Norwood, the north and south-bound lanes would be separated by a 46-foot grassed median, and the right-of-way width would be 250 feet. Access to the two bypasses would be partially controlled.

A re-alignment of US 52 in Wadesboro would allow for the elimination of the present connection between US 52 and US 74. The existing intersection is located within a curve, provides limited sight distance, and has been the site of numerous accidents over the last three years (see Table 4-A, HIGH ACCIDENT LOCATIONS, on page 10). A relocation, as shown on Figure 3, would provide a smoother and safer connection between these two major routes. The proposed relocation has the support of the local Board of Transportation Member, the 10th Division Engineer, the City of Wadesboro, and several neighborhood groups.

A re-alignment of US 52 with NC 138 in Albemarle would allow for a direct connection with existing US 52 in Albemarle (see Figure 3). This measure would allow motorists to avoid the frequently congested US 52/ NC 24-27 interchange which is also the site of many accidents (see Table 4-A on page 9). This measure also has the support of the Board of Transportation Member and the 10th Division Engineer.

The total estimated cost of Alternative 2 is $59,259,000 ($19,659,000 for right-of-way, $39,600,000 for construction).

Recommended Action

After careful evaluation of the two alternatives, the NCDOT has determined that, at this particular time, Alternative 2 offers the most viable solution for providing a multi-lane facility between US 74 in Wadesboro in Anson County and NC 24-27 in Albemarle in Stanly County. US 52 serves as the only direct connection between Wadesboro (the largest city in Anson County), and Albemarle (the largest city in Stanly County), and once it is improved, it would become a major transportation corridor in Anson and Stanly Counties; potentially boosting local economies.

Alternative 2 would potentially provide a safer and more efficient transportation system between US 74 and NC 24-27. The proposed bypasses of Ansonville and Norwood would provide motorists the opportunity to avoid the numerous at-grade intersections, traffic signals, and reduced posted speed limits associated with the existing US 52 facility in these cities. Additionally, the proposed re-alignments in Wadesboro and Albemarle would provide for safer and smoother traffic flow.

It should be noted that if the project is to be implemented at a future date, all viable alternatives, and their associated impacts, will have to be evaluated in a planning/environmental document. Then, a final decision will be made about the most appropriate improvements.

One alternative that would have to be investigated in the future is the concept of relocating US 74 and US 52 around Wadesboro, either to the south or to the north. The existing multi-lane US 74/US 52 facility in Wadesboro becomes very congested during peak travel periods. This situation may be deemed intolerable in the future, especially given the Strategic Corridor status of US 74. A relocation of these routes would allow through traffic to avoid traveling through the business district of Wadesboro, and it would provide better route continuity for US 52. If the subject project is implemented in the future, then this alternative should be given full consideration during the planning/environmental documentation stage of the project.

As previously discussed, roadside development in some areas of the project is heavy. If the existing road is widened, especially between Norwood and Albemarle, substantial disruption to residences and businesses is anticipated. Acquiring right-of-way in these areas will be quite costly. Therefore, if this project is funded in the future, it is recommended that detailed cost analyses be performed to compare the cost of widening the existing road to the cost of constructing US 52 on new location. Furthermore, it is recommended that additional statewide planning studies be conducted for Albemarle and Wadesboro to determine the ultimate proposals for US 52 in these urban areas. These termini, if determined to be freeway facilities, would have a major impact on the decisions regarding the most desirable improvements to US 52 between these cities.

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 addition, the project would have a positive effect on accessibility to schools, major cities, employment centers, churches, shopping areas, hospitals and community services. Benefits in improved accessibility and mobility would be realized by residents both within and outside the project area.

Some negative social impacts would result from the subject project, however. The primary potential adverse social consequence of constructing the project would be the resulting relatively high number of business and residential displacees. Roadside development, as mentioned earlier, is heavy in some areas of the subject US 52 corridor, and thus many families and businesses may have to be moved if the subject project is to be carried out. The relocation assistance program of the Division of Highways includes provisions to reduce the adverse effects of relocation. These provisions would be described in detail in a planning/environmental document before the project is constructed.

B. Environmental Impacts

One of the potential adverse environmental consequences of constructing the subject project would be its impact upon the area's wetlands. The subject section of US 52 crosses several watercourses, and each one could be impacted to some degree if the project is implemented. The current water quality classifications for the streams in the study areas are shown below:

WATERCOURSE	CLASSIFICATION
Jacob's Creek	C
Cedar Creek	C
Buffalo Creek	C
Rocky River	C
Palmetto Branch	C
Brown Creek	C
Grindstone Branch	C

A Class C water quality rating indicates the water is suitable for fishing and fish propagation, and other usages requiring water of lower quality.

The project would infringe upon wetlands classified as bottomland and riparian hardwood.

No known threatened and/or endangered species reside in the area of this project.

Considering that the proposed improvements would include the construction of two, partially controlled access bypasses as well as two other new sections, and based upon current Federal and State environmental regulations, it is anticipated that the preparation of an Environmental Impact Statement (EIS) would be required, in order to document the potential social and environmental consequences of implementing this project.

Also, if the project is implemented, some land would have to be acquired from the Pee Dee Wildlife National Refuge (see Figure 1 and Figure 2-E). This action would necessitate the processing of a Section 4(f) Evaluation during the environmental documentation stage of the project.

V. BASIS FOR FINDINGS

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

1. Field Investigations
2. Correspondences with the Board of Transportation Member
3. Correspondences with the Division Engineer
4. Aerial Mosaic dated July, 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 viable alternatives, and their associated impacts, will have to be evaluated in a planning/environmental document. Then, a final decision will be made about the most appropriate improvements.

TVS/plr

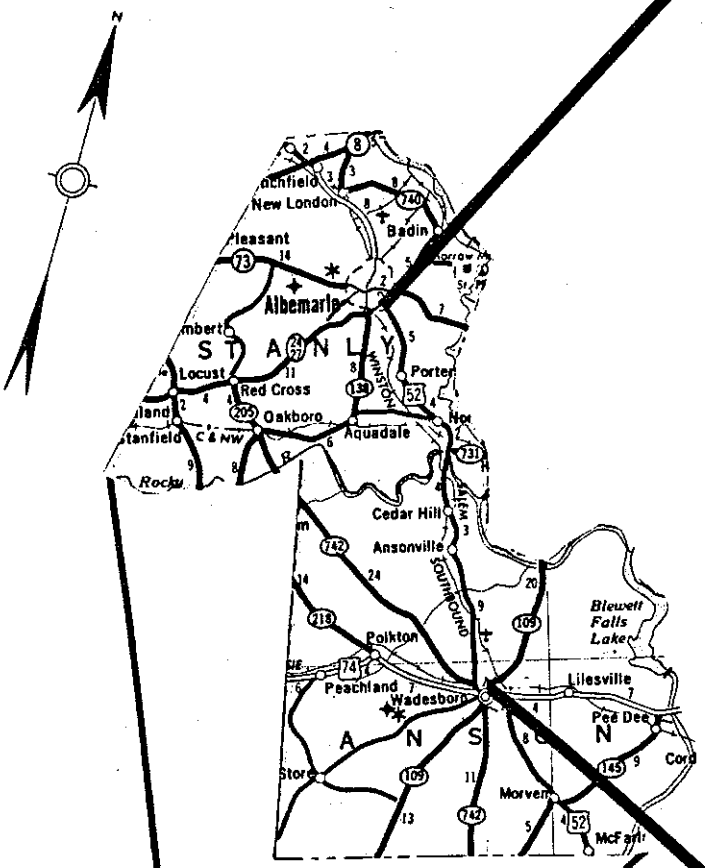
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

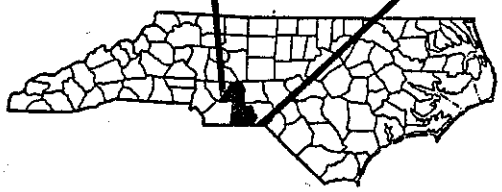
US 52
FROM US 74 IN WADESBORO TO NC 24-27 IN ALBEMARLE, ANSON AND STANLY COUNTIES

R-2320
FEASIBILITY STUDY

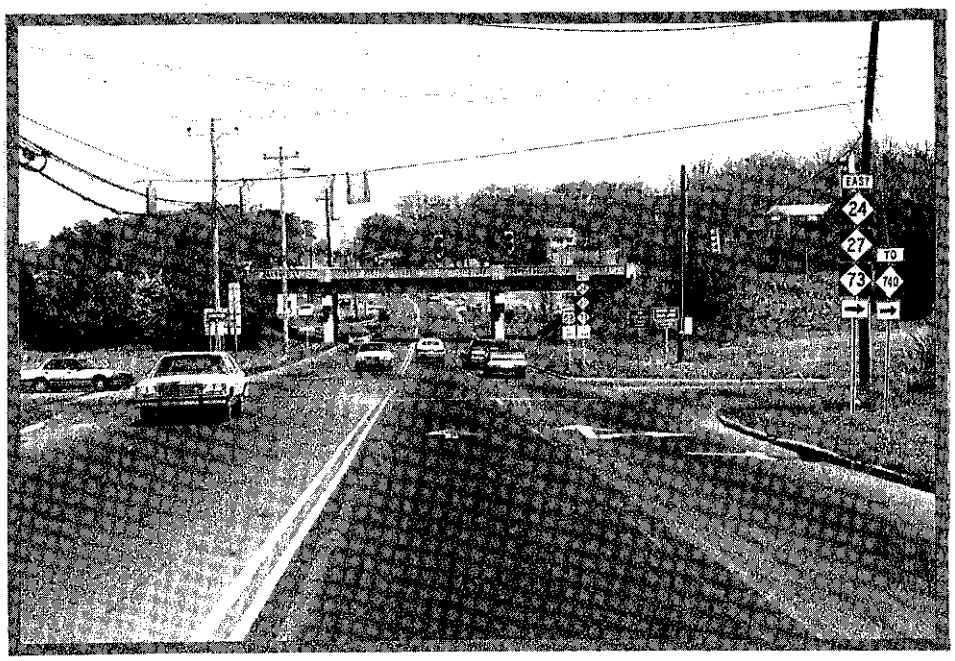
8/88 AES

FIGURE 1

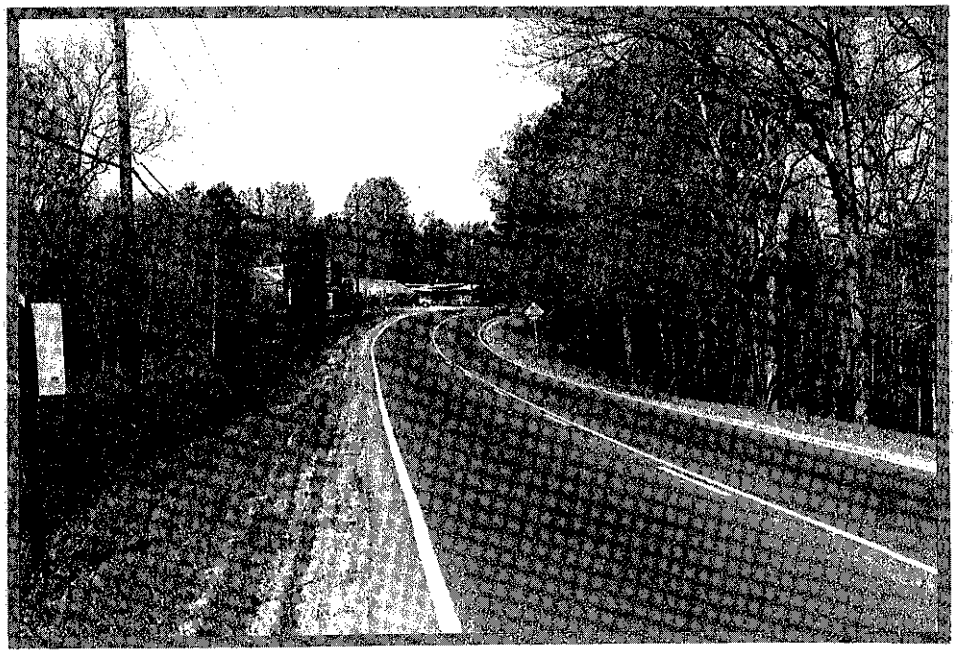




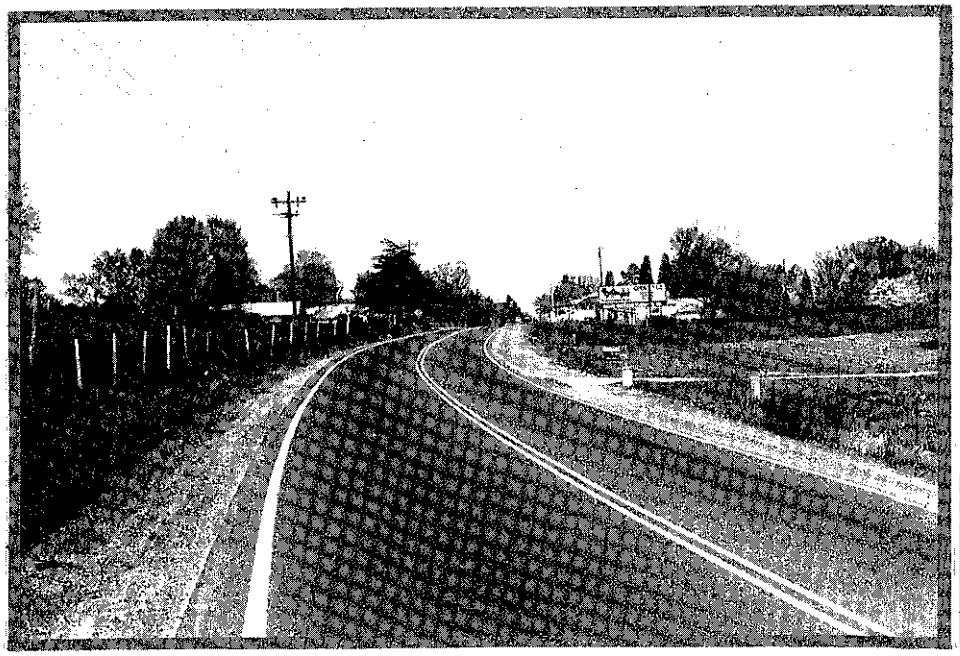
NORTH CAROLINA



LOOKING NORTH ON US 52 TOWARDS THE BEGINNING OF PROJECT (US 52\NC 24-27\NC 73 INTERCHANGE)



LOOKING NORTH ALONG US 52, SOUTH OF ALBEMARLE



LOOKING NORTH NEAR SR 1906

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

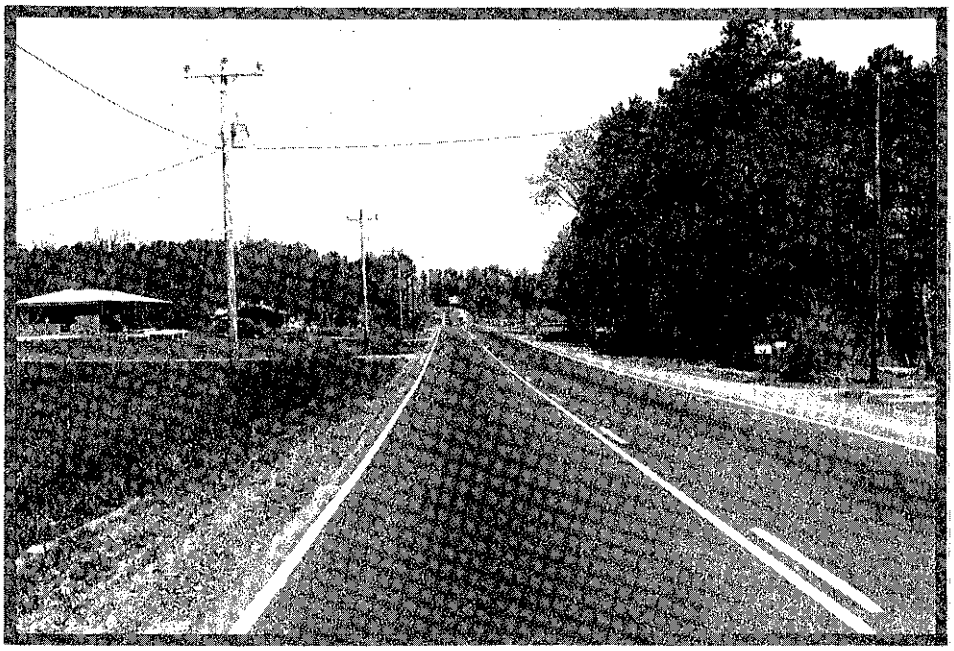
Photos of Existing Conditions
Along US 52

Project R-2320
Feasibility Study

7/88 AES		Figure 2-A

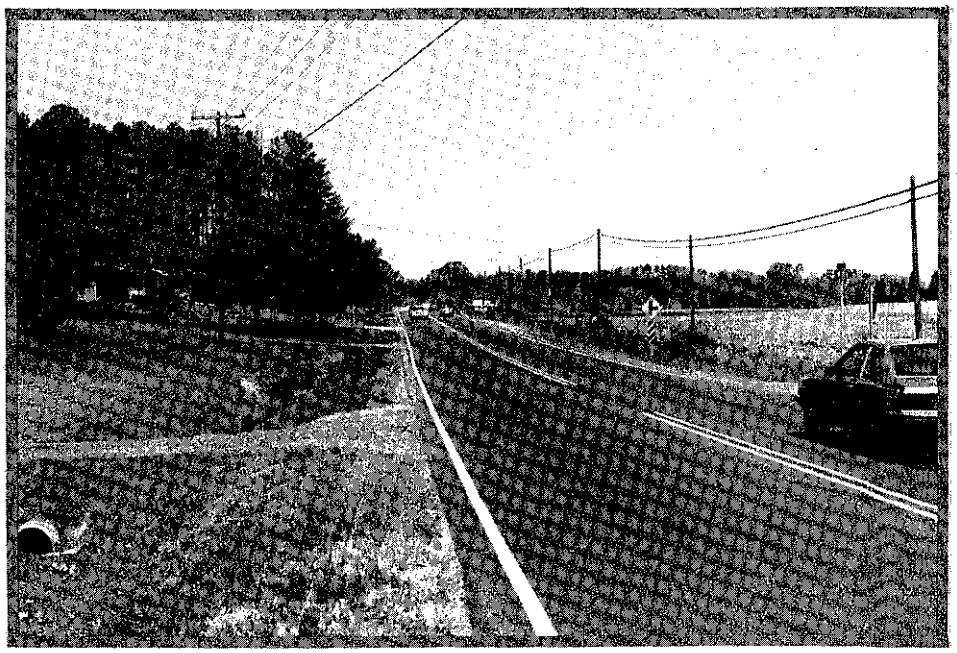
LOOKING SOUTH TOWARDS

US 52\SR 1720 SPLIT



LOOKING NORTH NEAR

SR 1821



LOOKING NORTH NEAR

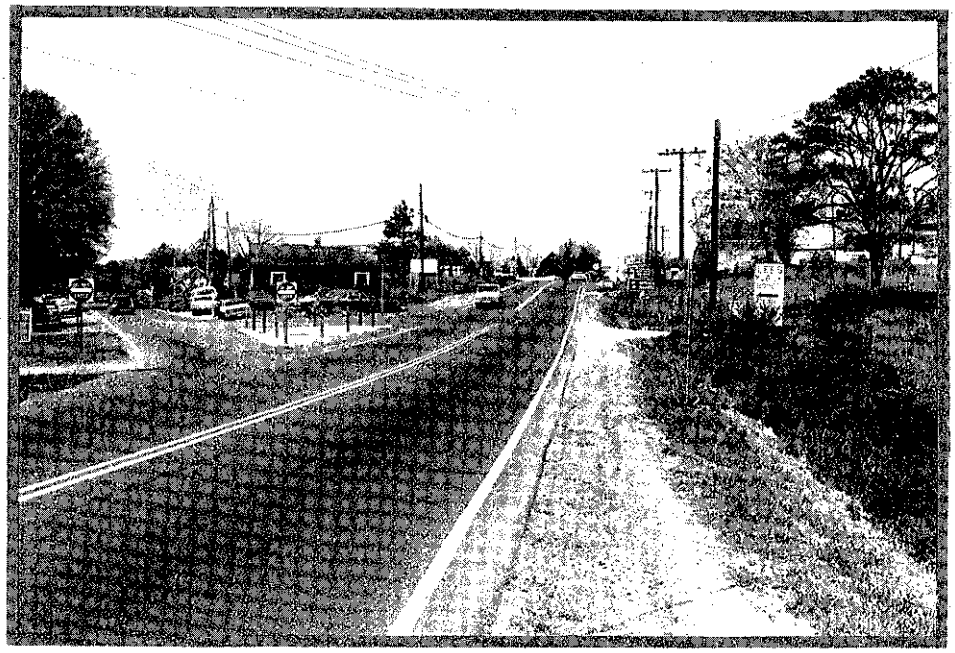
SR 1748

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

Photos of Existing Conditions
Along US 52

Project R-2320
Feasibility Study

7/88 AES		Figure 2-8



LOOKING NORTH TOWARDS US 52\SR 1923 INTERSECTION

LOOKING NORTH NEAR DOODY STREET IN NORWOOD

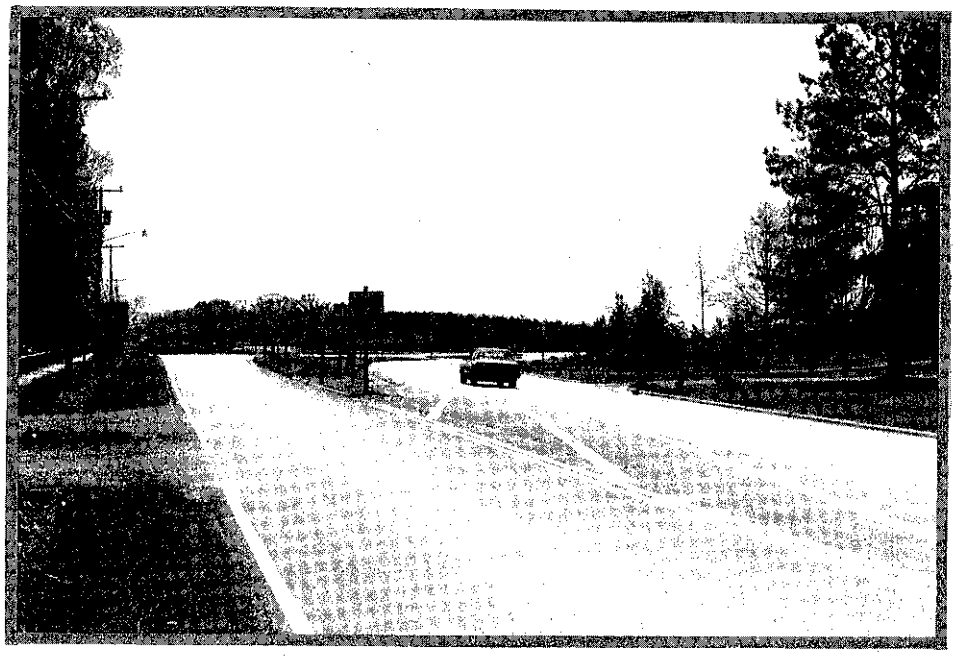
LOOKING NORTH NEAR WHITLEY STREET IN NORWOOD

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

Photos of Existing Conditions
Along US 52

Project R-2320
Feasibility Study

7/88 AES | Figure 2-C

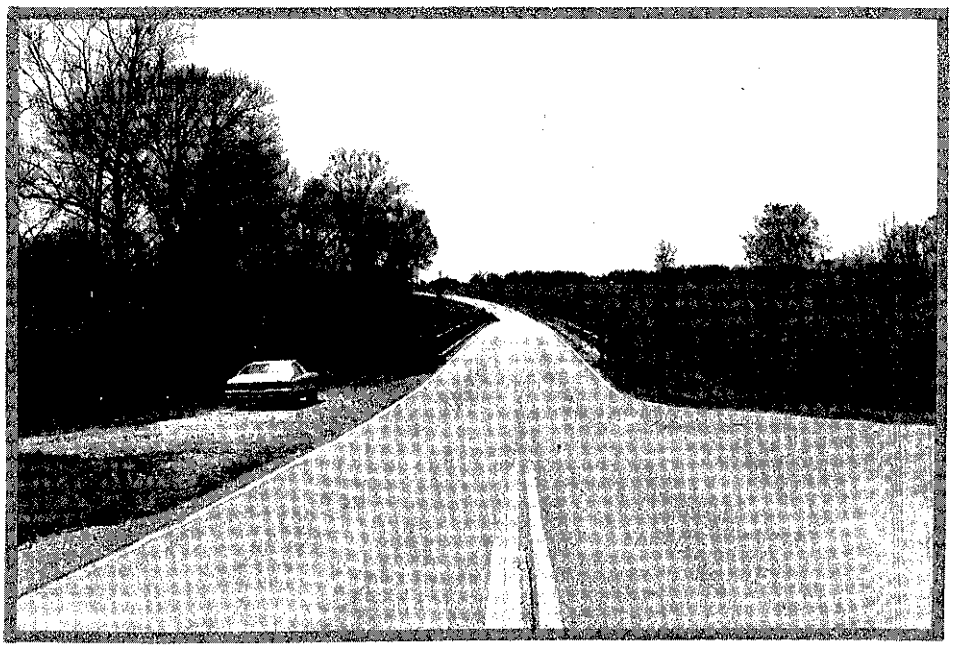


LOOKING SOUTH TOWARDS

US 52\SR 1766 (FORK RD.)

LOOKING SOUTH TOWARDS

US 52\NC 731 JUNCTION



LOOKING SOUTH TOWARDS

ROCKY RIVER BRIDGE

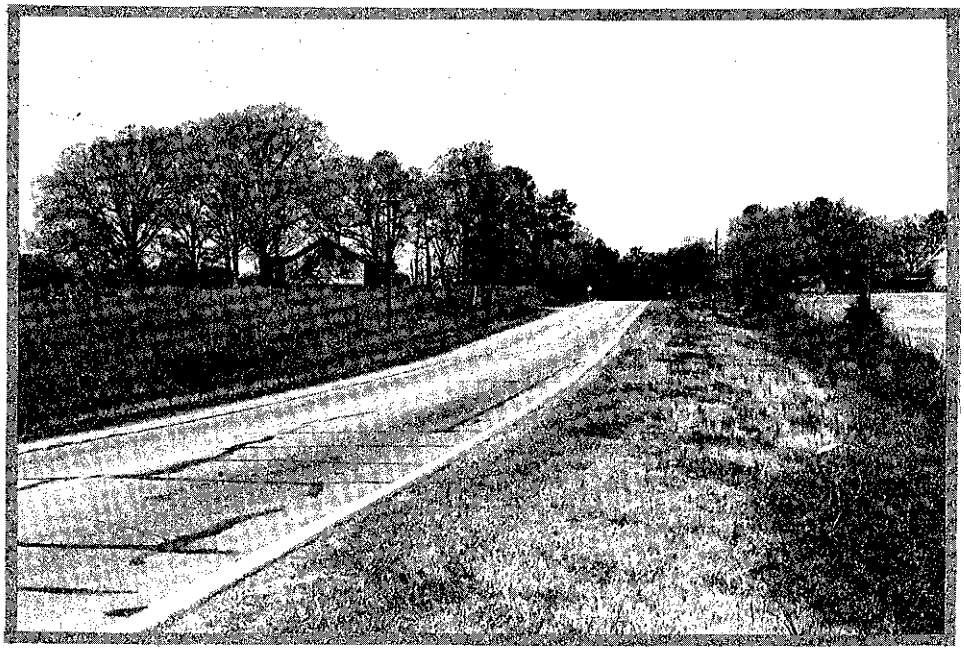
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

Photos of Existing Conditions
Along US 52

Project R-2320
Feasibility Study

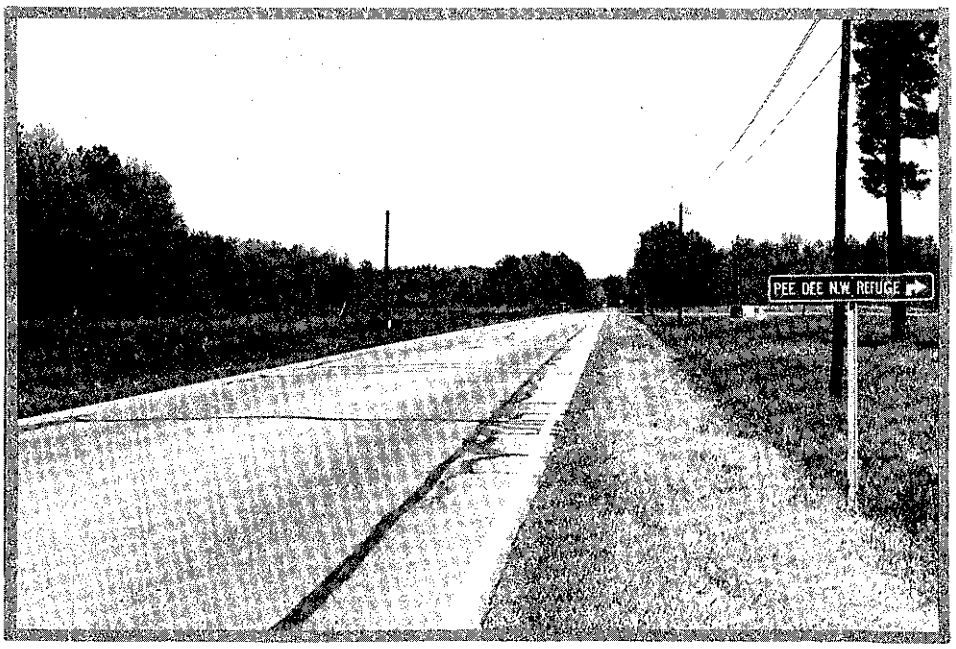
7/88 AES

Figure 2-D



LOOKING NORTH NEAR SR 1631

LOOKING NORTH TOWARDS US 52\SR 1621 (PLANK RD.) SPLIT IN ANSONVILLE



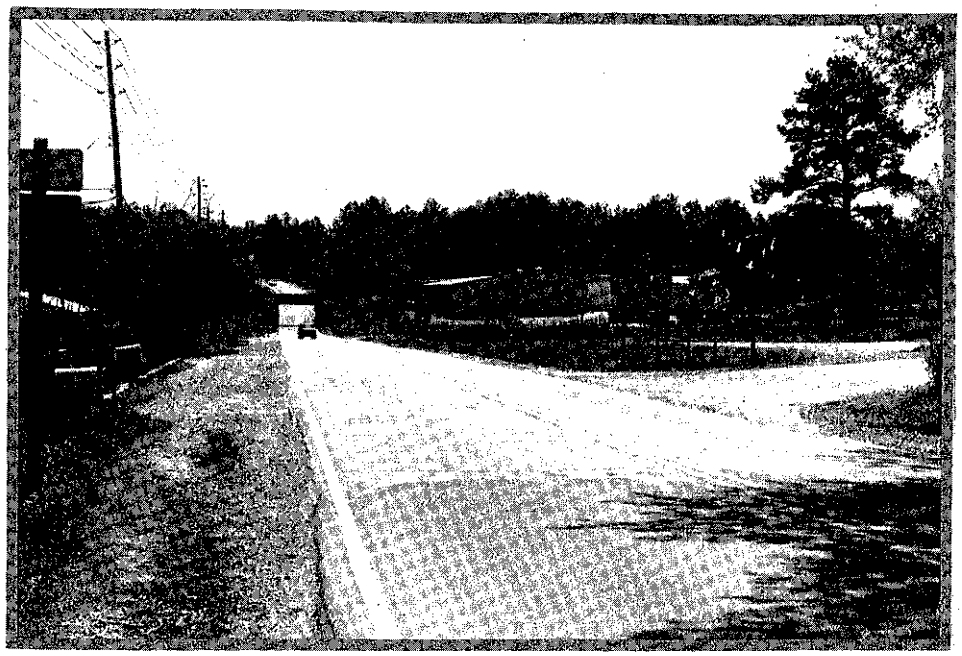
VIEW OF US 52 INSIDE PEE DEE NATIONAL WILDLIFE REFUGE

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

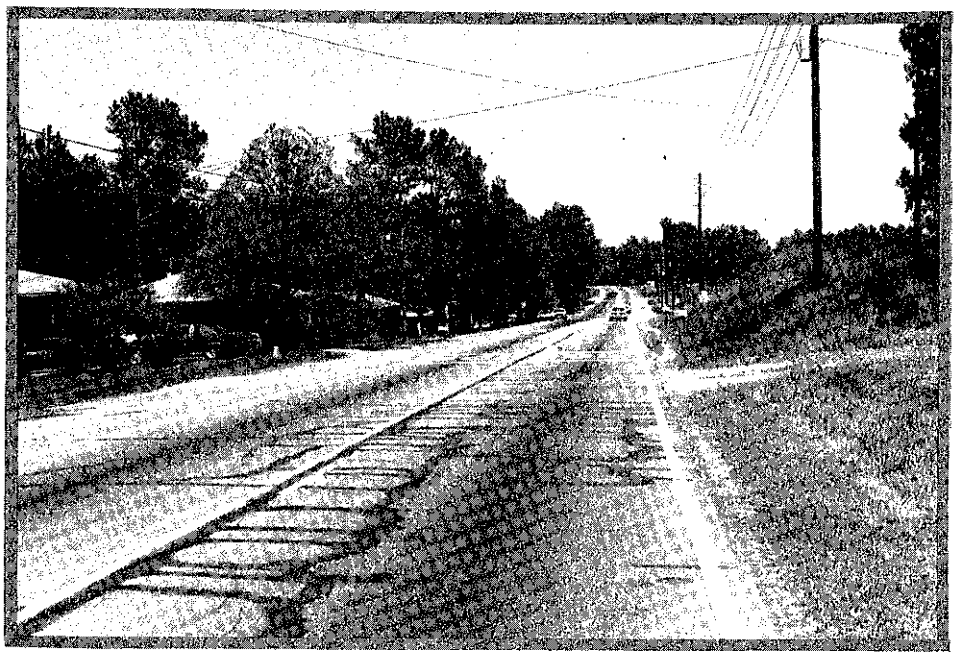
Photos of Existing Conditions
Along US 52

Project R-2320
Feasibility Study

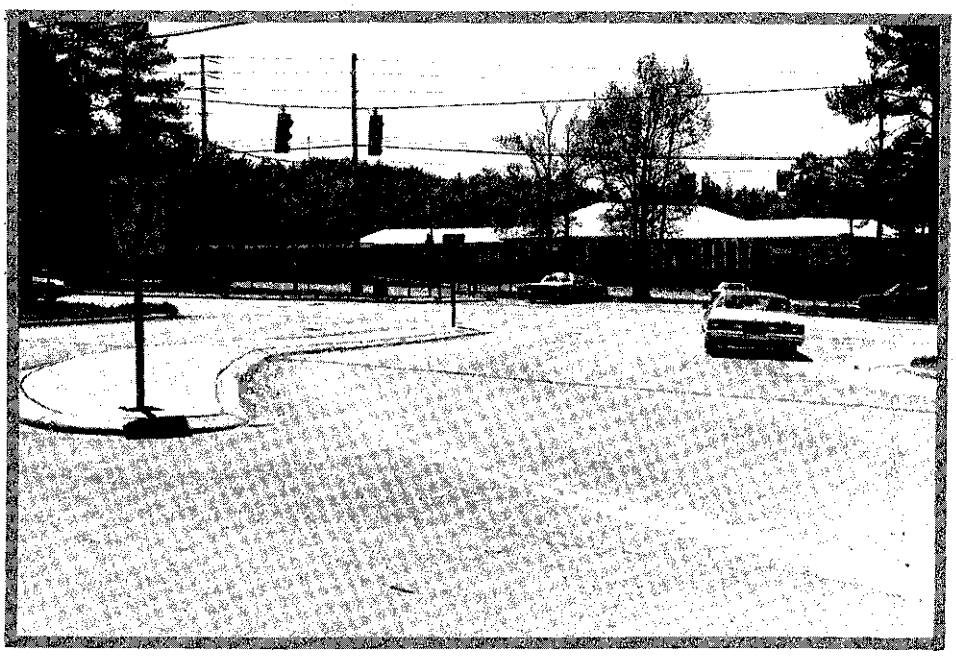
7/88 AES		Figure 2-E



LOOKING SOUTH TOWARDS US 52\NC 742 JUNCTION



LOOKING NORTH WITHIN URBAN BOUNDARY OF WADESBORO



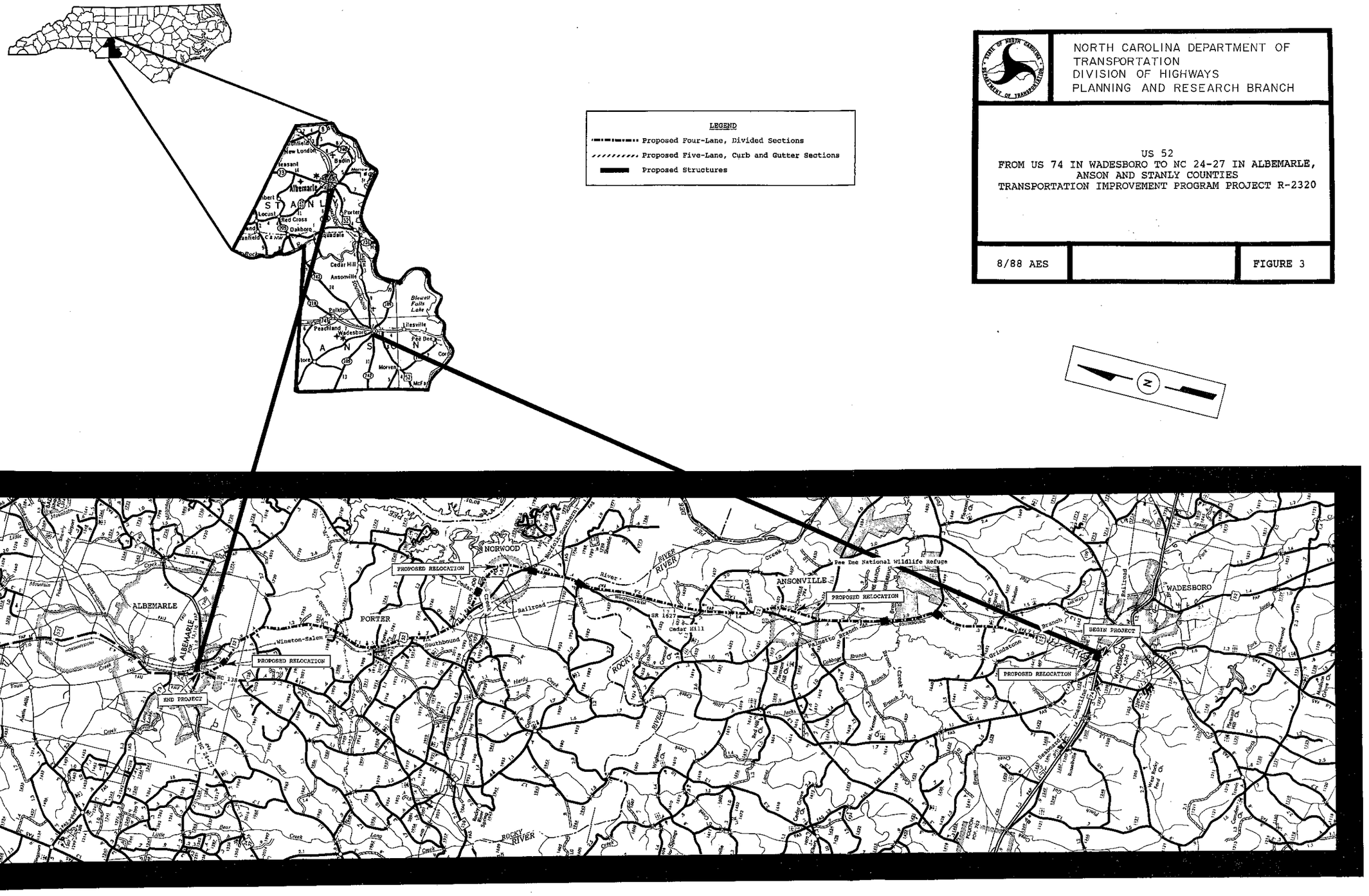
LOOKING SOUTH TOWARDS END OF PROJECT (US 74\ US 52\NC 742 JUNCTION)

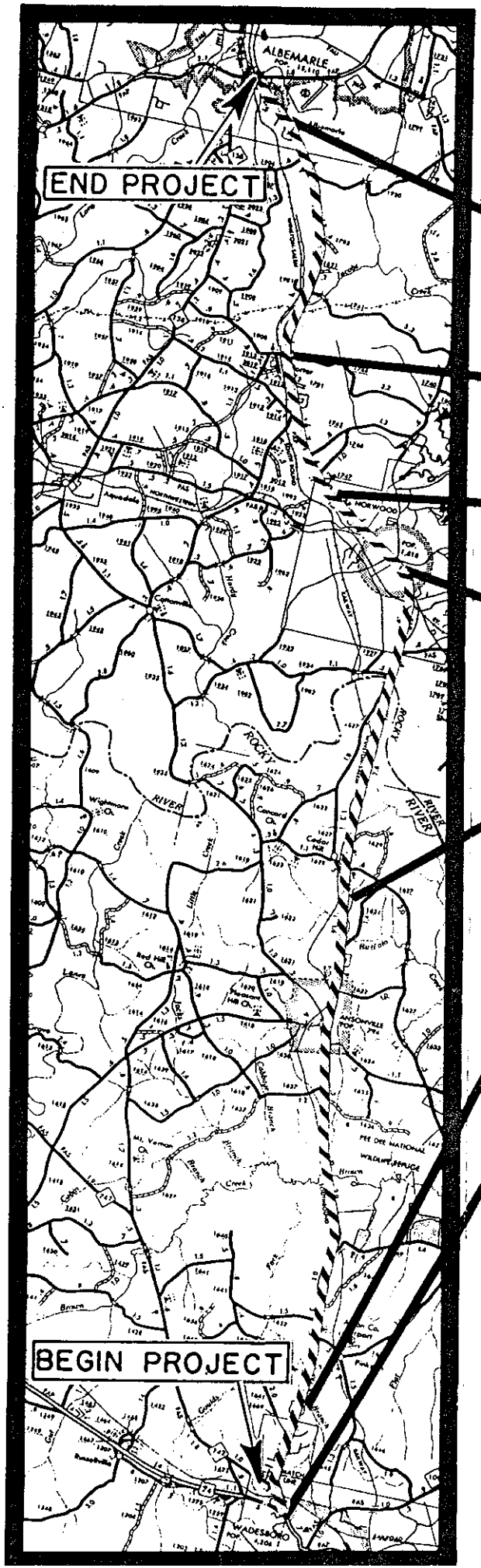
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

Photos of Existing Conditions
Along US 52

Project R-2320
Feasibility Study

7/88 AES		Figure 2-F


LEGEND
Proposed Four-Lane, Divided Sections
Proposed Five-Lane, Curb and Gutter Sections
Proposed Structures
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH
US 52
FROM US 74 IN WADESBORO TO NC 24-27 IN ALBEMARLE,
ANSON AND STANLY COUNTIES
TRANSPORTATION IMPROVEMENT PROGRAM PROJECT R-2320
8/88 AES
FIGURE 3
N
ALBEMARLE
PORTER
NORWOOD
ANSONVILLE
WADESBORO
PROPOSED RELOCATION
END PROJECT
BEGIN PROJECT
Pee Dee National Wildlife Refuge
Winston-Salem Southbound
SR 1627
Cedar Hill
ROCKY RIVER
PEE DEE RIVER



Current and Projected Average Daily Traffic Volumes

9,400	
16,200	
8,000	
14,100	
9,800	
16,400	
8,800	
14,700	
3,400	
5,700	
6,700	
11,200	
8,000	
14,100	

LEGEND
1988 ADT
2008 ADT

TTST - 6%
DUAL - 5%
DHV - 13%

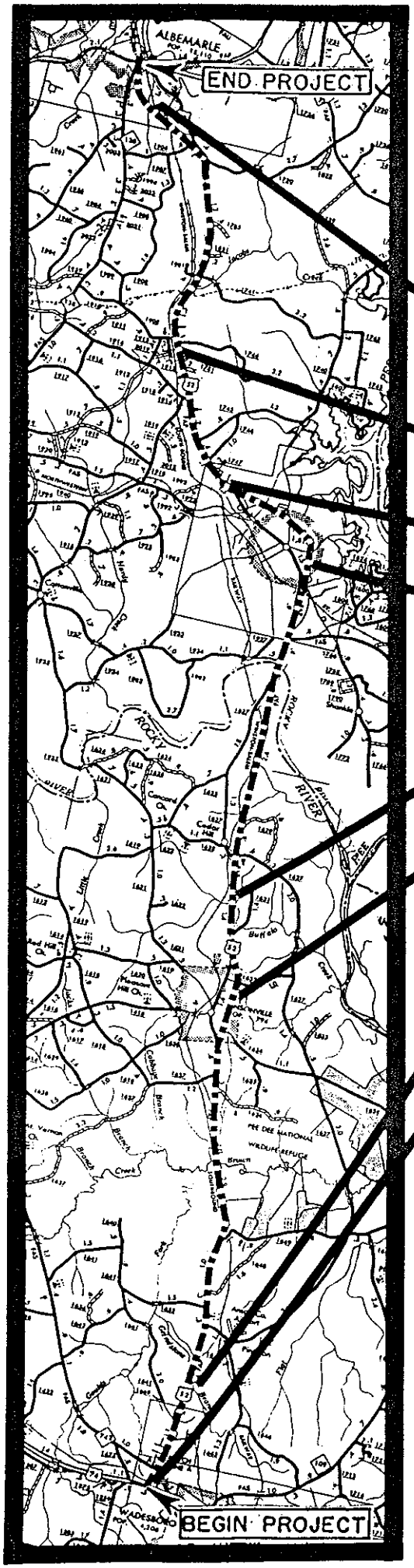
N

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

US 52
FROM US 74 IN WADESBORO TO
NC 24-27 IN ALBEMARLE
ANSON AND STANLY COUNTIES

PROJECT R-2320
FEASIBILITY STUDY

7/88 AES		FIGURE 4



Projected Average Daily Traffic Volumes Based on Proposed Improvements

12,900
14,100
16,400
11,700
5,700
6,700
11,200
14,100

LEGEND
2008 ADT

TTST - 6%
DUAL - 5%
DHV - 13%

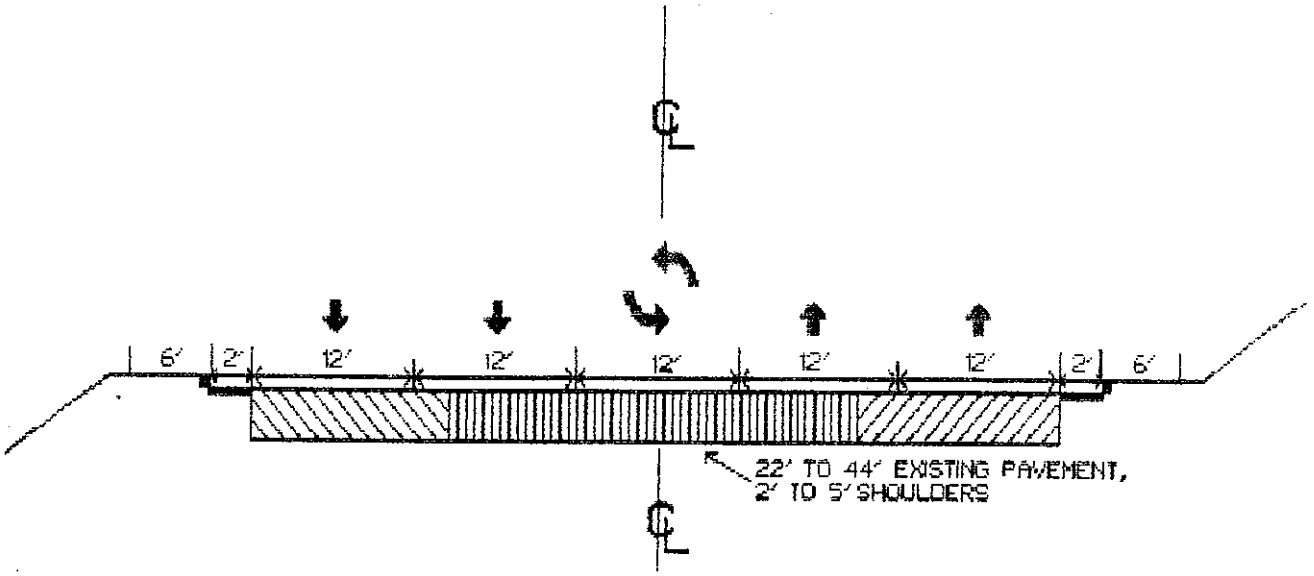
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

US 52
FROM US 74 IN WADESBORO TO
NC 24-27 IN ALBEMARLE
ANSON AND STANLY COUNTIES

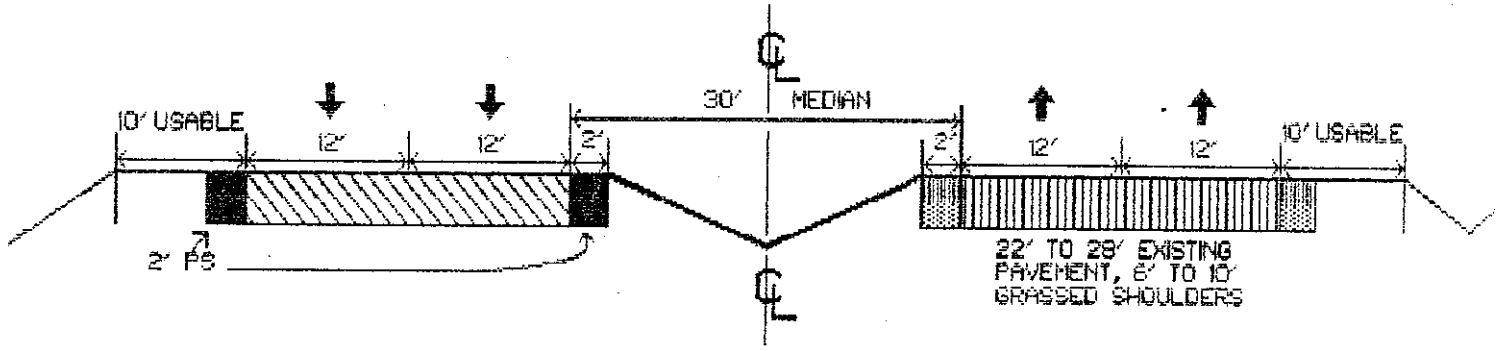
PROJECT R-2320
FEASIBILITY STUDY

8/88 AES		FIGURE 5

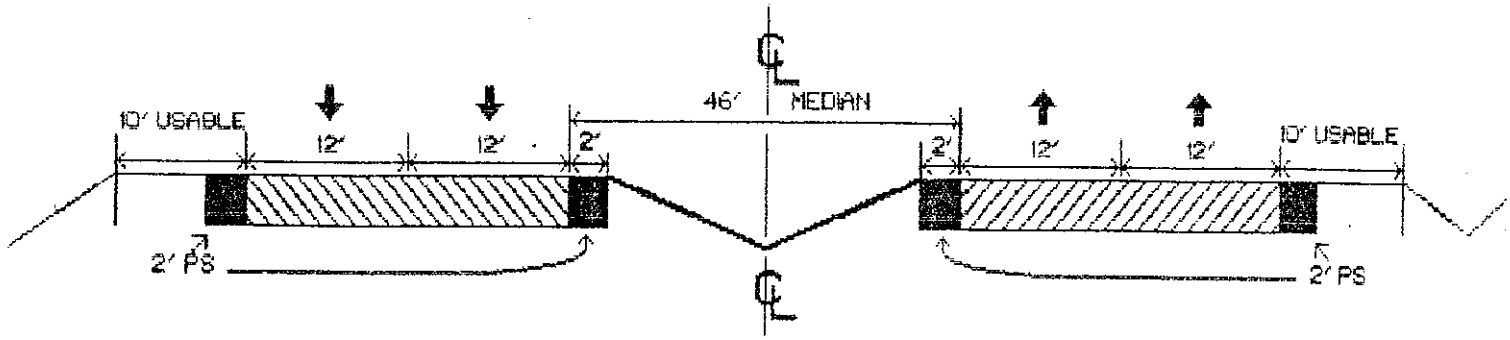
PROPOSED ROADWAY CROSS-SECTIONS
PROJECT R-2320



WIDENING EXISTING TO 64' (FACE-TO-FACE) CURB & GUTTER
TO BE USED NEAR VERY BEGINNING AND END OF PROJECT



ADDING 2 LANES WITH 30' MEDIAN
TO BE USED ALONG MAJORITY OF PROJECT



NEW 4 LANES WITH 46' MEDIAN
FOR ANSONVILLE AND NORWOOD BYPASSES

* FIGURES NOT DRAWN TO SCALE

PLEASE REFER TO FIGURE 3 FOR IMPROVEMENT LOCATIONS

FIGURE 6