

FEASIBILITY STUDY

NC 24
From 2.8 miles East of Interstate 95 Near Fayetteville
To Interstate 40 Near Warsaw
Cumberland, Sampson, and Duplin Counties
Transportation Improvement Program Project R-2303

Prepared by the
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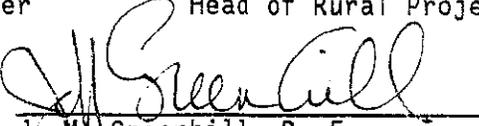


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NC 24
From 2.8 Miles East of Interstate 95 Near Fayetteville
To Interstate 40 Near Warsaw
Cumberland, Sampson, and Duplin Counties
Transportation Improvement Program Project R-2303

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 options. The project is not currently funded. The location of the project is shown on Figure 1.

The North Carolina Department of Transportation (NCDOT) has determined that it is feasible to provide a multi-lane NC 24 facility from approximately 2.8 miles east of Interstate 95 near Fayetteville to Interstate 40 near Warsaw. It is desirable to construct a freeway-type facility on new location, generally parallel to existing NC 24.

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. This project is a part of a long range goal of the North Carolina Department of Transportation to upgrade NC 24 between Fayetteville and Morehead City. This portion of NC 24 links several of the largest military bases in the nation, the Strategic Corridors of Interstates 40 and 95, and many cities, towns, and communities.

I. NEED FOR THE PROPOSED PROJECT

A. LOCATION AND TYPE OF FACILITY

The section of NC 24 covered in this study begins approximately 2.8 miles east of Interstate 95 near Fayetteville, and ends at Interstate 40 near Warsaw. This section of NC 24 is approximately 39.1 miles in length and it traverses the counties of Cumberland, Sampson, and Duplin (see Figure 1).

NC 24 is classified as a principle arterial route in the North Carolina Functional Classification System. In addition, NC 24 is a part of the Federal-Aid Primary System, designated FAP 8-2 (from the beginning of the project to the Sampson/Duplin County Line) and FAP 8-3 (from the Sampson/Duplin County Line to Interstate 40).

B. HISTORICAL BACKGROUND

NC 24 extends across southern North Carolina from Charlotte to Morehead City in a west to east direction. In the studied area, NC 24 connects the Cities/Towns of Stedman, Autryville, Roseboro, Clinton, Turkey, and Warsaw. Additionally, this section of NC 24 passes through the communities of Hayne, Concord, Moltonville, and Elliott. The majority of the subject section of NC 24 was constructed during the 1920's, and it was upgraded to the then prevailing two-lane standards during the 1950's. The route was widened to multi-lanes in the vicinity of Clinton between 1968 and 1972. With the exception of minor widening and re-surfacing, no other major improvements have occurred along this route since that time.

C. CHARACTERISTICS OF THE EXISTING FACILITY

1. Cross-Section Description

Along the rural portions of the project, NC 24 consists of two lanes with 22 to 24 feet of pavement and 6 to 10-foot grassed shoulders (some sections include 2-foot paved shoulders). The following is a summary of the cross-sections that exist within the various cities/towns located along the subject segment:

- a) Within Stedman: NC 24 consists of approximately 0.5 mile of four-lane, curb and gutter (44 feet face-to-face of curbs). The rest of the segment within Stedman is two-lanes, undivided.
- b) Within Autryville: NC 24 consists of two lanes, curb and gutter with 10-foot parking lanes on each side of the roadway.
- c) Within Roseboro: NC 24 consists of a three-lane shoulder section throughout the city. The pavement width varies from 24 to 28 feet, and the center lane is devoted to turning movements.
- d) Within Clinton: From the west city limits of Clinton and extending approximately 0.7 mile east, the NC 24 facility consists of a 2-lane, undivided roadway. From this point to the Faircloth Freeway Interchange, a distance of approximately 1.2 miles; NC 24 (Sunset Avenue) is a five-lane, curb and gutter (68 feet face-to-face of curbs) facility. Along the Faircloth Freeway (1.1 miles), the cross-section consists of four lanes (2 in each direction), divided by a 22-foot grassed median. From the Faircloth Freeway to the junction of US 701 (0.9 mile), NC 24 (South Blvd.) becomes a two-lane, undivided facility again. Along US 701/NC 24 (Southeast Blvd., distance = 0.4 mile), the cross-section consists of six lanes, curb and gutter (80 feet face-to-face of curbs). From US 701 to approximately 0.1 mile west of the east city limits of Clinton (0.8 mile), NC 24 is a four-lane, curb and gutter facility (48 feet face-to-face of curbs). The remaining portion of NC 24 within Clinton is a two-lane, undivided facility.
- e) Within Turkey: NC 24 is a two-lane, undivided facility.

2. Right-of-Way

The right-of-way widths along this section of NC 24 are as shown in Table 1 shown on the next page.

TABLE 1EXISTING RIGHT-OF-WAY WIDTHS ALONG NC 24

<u>SECTION</u>	<u>WIDTH</u>
From the Beginning of the Project to SR 1851	150 feet
From SR 1851 to SR 1410	60 feet
From SR 1410 to SR 1250 (Roseboro City Limit)	100 feet
From SR 1250 to the East City Limit of Roseboro	60 feet
From the East City Limit of Roseboro to the West City Limit of Clinton	100 feet
Within Clinton	60-280 feet
From the West City Limit of Clinton to SR 1918	60 feet
From SR 1918 to the West Town Limit of Turkey	100 feet
From the West Town Limit of Turkey to Interstate 40	60 feet

3. Horizontal and Vertical Alignment

Level terrain exists along the subject section of NC 24. The existing vertical alignment is judged to be excellent with no significant grades along this portion of NC 24. The existing horizontal alignment consists of 7 curves ranging from 3 to 6-degrees. Approximately 75-percent of the two-lane portions of the subject section affords adequate passing sight distances of 1500 feet or more (Figures 2-A through 2-H offer Photos of the Existing Conditions along NC 24).

4. Speed Limits

The posted speed limit along the majority of the project is 55 mph. Within the Town of Stedman, the posted speed limit varies from 35 to 45 mph. Within Autryville, the speed limit is posted as 35 mph. Within the city/town limits of Roseboro and Turkey, the posted speed limit is 45 mph; and within Clinton, the posted speed limit varies from 45 to 55 mph.

5. Degree of Roadside Development and Abutting Properties

Table 2, shown on the following page, contains a summary of the degree of roadside development found throughout the project:

TABLE 2DEGREE OF ROADSIDE DEVELOPMENT ALONG NC 24

<u>SECTION</u>	<u>DEGREE OF DEVELOPMENT</u>	<u>NATURE OF DEVELOPMENT</u>
From The Beginning Of The Project To Stedman	Light	Rural Residential
Within Stedman	Heavy	Urban Commercial
From Stedman To Autryville	Very Light	Rural Farm And Non-Farm Homes
Within Autryville	Heavy	Urban Commercial
From Autryville To Roseboro	Light To Moderate	Rural Residential
Within Roseboro	Heavy	Urban Commercial
From Roseboro To Clinton	Moderate To Heavy	Rural Residential/Commercial
Within Clinton	Very Heavy	Urban Residential/Commercial
From Clinton To Turkey	Light	Rural Residential
Within Turkey	Moderate To Heavy	Rural Residential/Commercial
From Turkey To Interstate 40	Light	Rural Residential

Table 3, shown on the following page, provides a summary of the total number of properties that either front and/or have driveway connections to the NC 24 facility.

6. Public Facilities

The following is a summary of the existing public facilities located within the study area adjacent to the NC 24 roadway:

From the Beginning of the Project to Stedman: None

Within Stedman: Cokesbury United Methodist Church, First Baptist Church of Stedman, Stedman Baptist Church, Stedman Fire Department, Stedman Junior High School, U. S. Post Office

Between Stedman and Autryville: None

Within Autryville: Autryville Baptist Church and Cemetery, U. S. Post Office

Between Autryville and Roseboro: Faith Chapel Church of God

TABLE 3

NUMBER OF ABUTTING PROPERTIES ALONG NC 24

SECTION	DIRECTION	NUMBER OF RESIDENCES	NUMBER OF BUSINESSES	RESIDENTIAL DENSITY (HOMES/MILE)	BUSINESS DENSITY (BUSINESSES/MILE)
FROM THE BEGINNING OF THE PROJECT TO STEDMAN	EASTBOUND	33	5	11.38	1.72
	WESTBOUND	25	9	8.62	3.10
WITHIN STEDMAN	EASTBOUND	9	8	6.92	6.15
	WESTBOUND	14	13	10.77	10.00
FROM STEDMAN TO AUTRYVILLE	EASTBOUND	33	1	13.20	0.40
	WESTBOUND	36	3	14.40	1.20
WITHIN AUTRYVILLE	EASTBOUND	5	6	7.14	8.57
	WESTBOUND	3	11	4.29	15.71
FROM AUTRYVILLE TO ROSEBORO	EASTBOUND	25	16	3.42	2.19
	WESTBOUND	30	13	4.11	1.78
WITHIN ROSEBORO	EASTBOUND	4	10	4.00	10.00
	WESTBOUND	3	9	3.00	9.00
FROM ROSEBORO TO CLINTON	EASTBOUND	56	21	6.67	2.50
	WESTBOUND	62	14	7.38	1.67
WITHIN CLINTON	EASTBOUND	32	40	6.15	7.69
	WESTBOUND	40	41	7.69	7.88
FROM CLINTON TO TURKEY	EASTBOUND	8	6	1.27	0.95
	WESTBOUND	40	7	6.35	1.11
WITHIN TURKEY	EASTBOUND	16	7	16.00	7.00
	WESTBOUND	6	1	6.00	1.00
FROM TURKEY TO INTERSTATE 40	EASTBOUND	14	3	5.60	1.20
	WESTBOUND	4	2	1.60	0.80

Within Roseboro: N. C. National Guard Armory-Company B, Roseboro Rescue Squad

Between Roseboro and Clinton: Hillcrest Memorial Gardens Cemetery, Kingdom Hall of the Jehovah's Witness, The Church of God of Prophecy

Within Clinton: Immanuel Baptist Church, Pentecostal Holiness Church, Sampson Community College, Union Star Freewill Baptist Church

Between Clinton and Turkey: Matthis Cemetery, St. Paul Church of Christ

Within Turkey: Turkey Volunteer Fire Department

Between Turkey and Interstate 40: Turkey First Baptist Church

7. Access Control

Except the Faircloth Freeway, no control of access exists along the subject project. The Faircloth Freeway (US 701/US 421/NC 24) is a fully controlled access facility.

8. Intersecting Roads

Along the subject section, the majority of the existing roads intersect NC 24 at-grade with stop sign control except for the following signalized intersections:

<u>LOCATION</u>	<u>TYPE OF SIGNAL</u>
SR 1006 near Beginning of Project	Full Cycle
SR 1850 in Stedman	Flashing Yellow *
SR 1814 in Autryville	Flashing Yellow *
NC 242 in Roseboro	Full Cycle
SR 1231 in Clinton	Full Cycle
US 701 Bus. in Clinton	Full Cycle
US 701 Bus. - NC 24 and East Railroad St. (SR 1232) in Clinton	Full Cycle
US 701 Bus. in Clinton	Full Cycle
Faircloth Freeway West-Bound Off-Ramp in Clinton	Full Cycle
Shield St. in Clinton	Full Cycle
SR 1227 in Clinton	Flashing Yellow *
SR 1911 in Turkey	Flashing Yellow *

* In addition to the signals, stop signs are located on the side streets at these locations.

9. Structures

(a). Drainage

There is one major drainage structure located along the subject project. Six Runs Creek flows underneath NC 24 through a 9' x 12',

quadruple barrel, reinforced concrete box culvert. This structure is 38 feet long; was constructed in 1956; and has an estimated remaining life of 20 years. The structure is located about 3.5 miles east of Clinton.

(b). Bridge

There are 11 bridges located within the project limits. The characteristics of these structures are shown in Table 4 on page 8.

D. Project Terminals

Western Terminal: The subject project begins approximately 2.8 miles east of Interstate 95 in Cumberland County (see Figure 1). From this point, the NC 24 facility extends westward towards I-95 and Fayetteville with a roadway consisting of four, 12-foot lanes of travel (2 in each direction) and 14-foot shoulders (4 feet paved). The east and west-bound lanes are separated by a 68-foot grassed median. Access along this portion of NC 24 is fully controlled and the right-of-way width is shown as 350 feet. It is important to note that this section, along with the full-clover/collector-distributor interchange at Interstate 95, was constructed to freeway standards predicated upon the eventual extension of a freeway-type NC 24 facility to the vicinity of Kenansville.

Eastern Terminal: The subject project is proposed to end at Interstate 40 (presently under construction) in Duplin County. From this point, NC 24 extends eastward toward Warsaw with a roadway consisting of two, 11-foot lanes of travel and 6-foot grassed shoulders. Access along this portion of NC 24 is not controlled and the right-of-way width is shown as 60 feet. However, another feasibility study is currently underway to investigate the possibility of constructing a controlled access facility east of I-40, bypassing the Cities of Kenansville and Warsaw.

Please note, that both the western and eastern terminals for the subject are essentially freeway facilities.

E. Traffic Data and Capacity Analysis

Current average daily traffic (ADT) volumes within the project limits vary from a low of 3,500 vehicles per day between Stedman and Autryville to a high of 19,800 vehicles per day within Clinton. Truck traffic accounts for between 5 and 10-percent of the overall ADT. Additionally, military traffic traveling between Camp Lejeune Marine Base near Jacksonville, and Fort Bragg Army/Pope Air Force Bases near Fayetteville, account for an average of 4-percent of the overall average daily traffic along NC 24. The existing traffic volumes as well as the 2008 projected volumes for the subject section of NC 24 are shown on Figure 3-A.

For capacity analysis purposes, the subject section of NC 24 was divided into eleven segments. Table 5 gives a summary of the findings of the capacity analysis performed for these eleven segments of the existing NC 24 roadway (see pages 9 and 10).

TABLE 4
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CHARACTERISTICS OF THE EXISTING BRIDGES
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LOCATION =====	BRIDGE NUMBER =====	YEAR BUILT =====	SUFFICIENCY RATING =====	ESTIMATED REMAINING LIFE (YEARS) =====	STRUCTURE LENGTH (FT) =====	CLEAR ROADWAY WIDTH (FT) =====
SOUTH RIVER	144	1947	50.2	15	271	26.0
BIG SWAMP CREEK	11	1949	68.3	20	90	25.8
LITTLE COHARIE CREEK	25	1949	66.9	25	150	25.9
BEARSKIN CREEK	33	1949	62.4	20	75	25.9
GREAT COHARIE CREEK	42	1949	70.2	20	143	25.8
GREAT COHARIE CREEK OVERFLOW	51	1949	57.0	15	90	28.0
FAIRCLOTH FREEWAY (OVER NC 24)	39	1967	91.7	30	134	40.1
FAIRCLOTH FREEWAY (OVER NC 24)	40	1967	86.5	30	131	40.0
FAIRCLOTH FREEWAY (US 701\US 421\NC 24)	53	1967	58.8	35	296	28.1
NC 24 (OVER NBL OF FAIRCLOTH FREEWAY)	54	1967	71.7	30	152	28.0
SIX RUNS CREEK	56	1956	73.2	20	210	28.0

TABLE 5

CAPACITY ANALYSIS

	YEAR	AVERAGE PEAK HOUR VOLUME*	COMPUTED LEVEL OF SERVICE
SEGMENT 1: FROM THE BEGINNING OF THE PROJECT TO STEDMAN	1988	680	C
	2008	1298	D
SEGMENT 2: WITHIN STEDMAN	1988	680	B **
	2008	1298	C **
SEGMENT 3: FROM STEDMAN TO ATRYVILLE	1988	680	C
	2008	1220	D
SEGMENT 4: WITHIN ATRYVILLE	1988	515	C
	2008	925	D
SEGMENT 5: FROM ATRYVILLE TO ROSEBORO	1988	350	B
	2008	630	C
SEGMENT 6: WITHIN ROSEBORO	1988	465	C
	2008	835	D
SEGMENT 7: FROM ROSEBORO TO CLINTON	1988	580	C
	2008	1040	D

* MEASURED IN Vehicles Per Hour (VPH); TOTAL, BOTH DIRECTIONS

** FOR 1988: LOS=A ON MULTILANE PORTION, LOS=C ON 2-LANE PORTION
FOR 2008: LOS=A ON MULTILANE PORTION, LOS=D ON 2-LANE PORTION

TABLE 5, CONTINUED

CAPACITY ANALYSIS

	YEAR	AVERAGE PEAK HOUR VOLUME*	COMPUTED LEVEL OF SERVICE
SEGMENT 8: WITHIN CLINTON	1988	1980	C ***
	2008	3560	E ***
SEGMENT 9: FROM CLINTON TO TURKEY	1988	650	C
	2008	1170	D
SEGMENT 10: WITHIN TURKEY	1988	575	C
	2008	1035	D
SEGMENT 11: FROM TURKEY TO INTERSTATE 40	1988	500	C
	2008	900	D

* MEASURED IN Vehicles Per Hour (VPH); TOTAL, BOTH DIRECTIONS

*** FOR 1988: LOS=A ON MULTILANE PORTION, LOS=E ON 2-LANE PORTION
FOR 2008: LOS=C ON MULTILANE PORTION, LOS=F ON 2-LANE PORTION

F. Accident Analysis

An accident study of the subject section of NC 24 was conducted by the Traffic Studies Section of the NCDOT Traffic Engineering Branch for the period from January 1, 1984 to November 30, 1987. The results of the study are summarized in Table 6 (see page 12).

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 NC 24. The suggested improvements could help to reduce the number of these types of accidents as well as improve the overall safety of the highway.

Further review of the accident data reveals that a relatively large number of these accidents (6 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:

<u>INTERSECTION</u>	<u>NUMBER OF ACCIDENTS OCCURRING</u>
SR 1006 near beginning	7
SR 2018 in Stedman	6
SR 1256 beyond Autryville	8
SR 1257 beyond Autryville	7
SR 1400 near Roseboro	14
SR 1252 near Roseboro	9
NC 242 in Roseboro	15
SR 1300 in Roseboro	7
SR 1274 in Roseboro	7
SR 1233 near Clinton	8
Shield Street in Clinton	22
SR 1277 in Clinton	13
NC 24 onto Faircloth Freeway	9
Faircloth Freeway onto South Blvd.	10
SR 1227 in Clinton	8
SR 1231 in Clinton	6
SR 1918 beyond Clinton	7
SR 1913 near Turkey	6
SR 1911 in Turkey	<u>13</u>
Total	182
Percent of Overall Total	31%

TABLE 6
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ACCIDENT DATA
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RURAL SEGMENTS OF NC 24
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	BEGINNING OF PROJECT TO STEDMAN		STEDMAN TO ATRYVILLE		ATRYVILLE TO ROSEBORO		ROSEBORO TO CLINTON		CLINTON TO TURKEY		TURKEY TO INTERSTATE 40		STATEWIDE AVERAGES FOR SIMILAR RURAL NC ROUTES (1984-1987)	
	40	1	20	3	107	2	148	81	10	0	10	0	N/A	N/A
TOTAL ACCIDENTS	18	0	15	0	36	1	19	N/A	89	2	89	2	N/A	N/A
FATAL ACCIDENTS	0	0	0	0	1	0	0	N/A	2	0	2	0	N/A	N/A
NON-FATAL INJURY ACCIDENTS	5	5	8	8	17	17	9	N/A	43	43	43	43	N/A	N/A
TOTAL ACCIDENT RATE *	159.95	159.95	348.28	348.28	617.62	617.62	308.84	332.63	278.20	278.20	278.20	278.20	346.14	346.14
FATAL ACCIDENT RATE *	0.00	0.00	0.00	0.00	16.25	16.25	0.00	1.65	6.25	6.25	6.25	6.25	1.11	1.11
NON-FATAL INJURY ACCIDENT RATE *	44.43	44.43	185.75	185.75	276.30	276.30	146.29	130.39	134.41	134.41	134.41	134.41	136.90	136.90

URBAN SEGMENTS OF NC 24
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	BEGINNING OF PROJECT TO STEDMAN		STEDMAN TO ATRYVILLE		ATRYVILLE TO ROSEBORO		ROSEBORO TO CLINTON		CLINTON TO TURKEY		TURKEY TO INTERSTATE 40		STATEWIDE AVERAGES FOR SIMILAR URBAN NC ROUTES (1984-1987)	
	40	1	20	3	107	2	148	81	10	0	10	0	N/A	N/A
TOTAL ACCIDENTS	18	0	15	0	36	1	19	N/A	89	2	89	2	N/A	N/A
FATAL ACCIDENTS	0	0	0	0	1	0	0	N/A	2	0	2	0	N/A	N/A
NON-FATAL INJURY ACCIDENTS	5	5	8	8	17	17	9	N/A	43	43	43	43	N/A	N/A
TOTAL ACCIDENT RATE *	159.95	159.95	348.28	348.28	617.62	617.62	308.84	332.63	278.20	278.20	278.20	278.20	346.14	346.14
FATAL ACCIDENT RATE *	0.00	0.00	0.00	0.00	16.25	16.25	0.00	1.65	6.25	6.25	6.25	6.25	1.11	1.11
NON-FATAL INJURY ACCIDENT RATE *	44.43	44.43	185.75	185.75	276.30	276.30	146.29	130.39	134.41	134.41	134.41	134.41	136.90	136.90

* MEASURED IN ACCIDENTS/100 MILLION VEHICLE MILES

II. ALTERNATIVES CONSIDERED

A. Improvement of the Existing Facility

Alternative 1-A: Utilizing this alternative, NC 24 improvements would be accomplished along the majority of the project length by widening the existing pavement to 28 feet, resurfacing the pavement, and then constructing a new 28-foot pavement parallel to the existing highway. The east and west-bound lanes would be separated by a 30-foot grass median. Access to the facility would be partially controlled (except the Clinton Bypass). Due to the present and predicted congestion on NC 24 within the City of Clinton, the construction of a fully-controlled access bypass to the south of the city is desirable in order to improve traffic flow and safety conditions. The construction of the new lanes along the existing corridor would shift from north to south of the existing highway in order to minimize right-of-way damages and the number of displacements. All necessary interchange and intersection revisions and re-alignments would be included as a part of the proposed improvements. The total length of this alternative is approximately 38.7 miles. The location of the suggested improvements are shown on Figure 1. The total estimated cost of this alternative is \$112,238,000 (\$33,538,000 for right-of-way, \$78,700,000 for construction).

Alternative 1-B: This alternative is the same as Alternative 1-A except that short bypasses of Stedman, Autryville, Roseboro, and Turkey would be built rather than widening existing NC 24 through these areas. The bypass routes that were investigated are shown on Figure 1. Each of these relocated segments would be four-lane, divided, fully controlled access facilities (12-foot lanes, 10-foot usable shoulders, 46-foot grassed median). The total estimated cost of this alternative is \$135,506,000 (\$32,406,000 for right-of-way and \$103,100,000 for construction). The total length of this alternative is approximately 42.4 miles.

B. Corridor on New Location

Alternative 2-A: The provision of a fully controlled access NC 24 facility on new location between Interstate 95 and approximately three miles east of Warsaw was investigated and recommended during the early 1970's. During the course of the subject feasibility study, this same route was investigated with the exception that the eastern terminal was changed to Interstate 40. This facility would be approximately 37.8 miles long, and consist of four, 12-foot lanes of travel (2 in each direction) with 10-foot usable shoulders (2 feet paved). A 46-foot grassed median would separate the east and west-bound lanes, and the minimum right-of-way width would be 250 feet. Interchanges would be located at SR 1006, SR 1850, SR 1414, NC 242, existing NC 24, US 701, US 421, SR 1004, and I-40. Grade separations would be located at SR 1843, SR 1851, SR 1853, SR 1233, SR 1420, SR 1406, SR 1405, SR 1401, SR 1305, SR 1233, SR 1214, SR 1222, SR 1932, SR 1926, SR 1911/SR 1927. The location of this route is shown on Figure 1. The estimated cost of such a facility, based on 1988 dollars, is \$137,853,000 (\$13,253,000 for right-of-way, \$124,600,000 for construction).

Alternative 2-B: This alternative is identical to Alternative 2-A except that initially only 2 of the ultimate 4 lanes would be constructed. The 250 feet of right-of-way would be offset to allow for the future widening of the

facility to four lanes, separated by a 46-foot median. Access to the facility would be fully controlled and limited to designated at-grade intersections and four interchanges. Under this alternative, interchanges would be constructed at existing NC 24, US 421, US 701, and I-40. The estimated cost of such a facility, based on 1988 dollars, is \$67,253,000 (\$13,253,000 for right-of-way, \$54,000,000 for construction).

Please note, 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.

C. Traffic Data and Capacity Analysis

The year 2008 projected average daily traffic (ADT) volumes for each design alternative are given on Figures 3A-3C.

A capacity analysis was performed for the four design alternatives under consideration in order to determine the future level of service that could be provided by the NC 24 facility. This analysis was based on the proposed roadway dimensions for each alternative and the projected year 2008 traffic volumes. The results of this analysis are given in Tables 7 (1-A), 7 (1-B), 7 (2-A), and 7 (2-B) [see pages 15 through 20].

The results given in Tables 7 (1-A) through 7 (2-B) show that, with the exception of Alternative 2-B, each of the investigated design alternatives would allow for operating conditions in the level-of-service A/B 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 is excellent.

The level-of-service B is in the range of stable flow, but the presence of other motorists in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, however, there is a slight decline in the freedom to maneuver within the traffic stream from LOS A. The level of comfort and convenience provided is somewhat less than at LOS A because the presence of others in the traffic stream begins to affect the road user.

D. Summary of Cost Estimates

	<u>CONSTRUCTION</u>	<u>RIGHT-OF-WAY</u>	<u>TOTAL</u>
ALTERNATIVE 1-A:	\$ 78,700,000	\$33,538,000	\$112,238,000
ALTERNATIVE 1-B:	\$103,100,000	\$32,406,000	\$135,506,000
ALTERNATIVE 2-A:	\$124,600,000	\$13,253,000	\$137,853,000
ALTERNATIVE 2-B:	\$ 54,000,000	\$13,253,000	\$ 67,253,000

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

TABLE 7 (1-A)

CAPACITY ANALYSIS (BASED ON ALTERNATIVE 1-A)

	YEAR	DIRECTION	AVERAGE PEAK HOUR VOLUME*	COMPUTED LEVEL OF SERVICE
SEGMENT 1: FROM THE BEGINNING OF THE PROJECT TO STEDMAN	2008	WESTBOUND	732	A
		EASTBOUND	488	A
SEGMENT 2: WITHIN STEDMAN	2008	WESTBOUND	732	A
		EASTBOUND	488	A
SEGMENT 3: FROM STEDMAN TO AUTRYVILLE	2008	WESTBOUND	732	A
		EASTBOUND	488	A
SEGMENT 4: WITHIN AUTRYVILLE	2008	WESTBOUND	555	A
		EASTBOUND	370	A F5
SEGMENT 5: FROM AUTRYVILLE TO ROSEBORO	2008	WESTBOUND	378	A
		EASTBOUND	252	A
SEGMENT 6: WITHIN ROSEBORO	2008	WESTBOUND	501	A
		EASTBOUND	334	A
SEGMENT 7: FROM ROSEBORO TO CLINTON	2008	WESTBOUND	624	A
		EASTBOUND	416	A

* MEASURED IN Vehicles Per Hour (VPH)

** 60/40 TRAFFIC SPLIT ASSUMED

TABLE 7 (1-A), CONTINUED

CAPACITY ANALYSIS (BASED ON ALTERNATIVE 1-A)

	YEAR	DIRECTION	AVERAGE PEAK HOUR VOLUME*	COMPUTED LEVEL OF SERVICE
SEGMENT 8: CLINTON BYPASS	2008	WESTBOUND	1709	B ***
		EASTBOUND	1139	A ***
SEGMENT 9: FROM CLINTON TO TURKEY	2008	WESTBOUND	763	A
		EASTBOUND	509	A
SEGMENT 10: WITHIN TURKEY	2008	WESTBOUND	654	A
		EASTBOUND	436	A
SEGMENT 11: FROM TURKEY TO INTERSTATE 40	2008	WESTBOUND	600	A
		EASTBOUND	400	A

* MEASURED IN Vehicles Per Hour (VPH)

** 60/40 TRAFFIC SPLIT ASSUMED

*** Based on the assumption that the Clinton Bypass will take 80% of the through-traffic that would have used existing NC 24. The other 20% would continue to use NC 24 through Clinton.

TABLE 7 (1-B)

CAPACITY ANALYSIS (BASED ON ALTERNATIVE 1-B)

	YEAR	DIRECTION	AVERAGE PEAK HOUR VOLUME*	COMPUTED LEVEL OF SERVICE
SEGMENT 1: FROM THE BEGINNING OF THE PROJECT TO STEDMAN	2008	WESTBOUND	732	A
		EASTBOUND	488	A
SEGMENT 2: STEDMAN BYPASS	2008	WESTBOUND	586	A ***
		EASTBOUND	390	A ***
SEGMENT 3: FROM STEDMAN TO AUTRYVILLE	2008	WESTBOUND	732	A
		EASTBOUND	488	A
SEGMENT 4: AUTRYVILLE BYPASS	2008	WESTBOUND	444	A ***
		EASTBOUND	296	A ***
SEGMENT 5: FROM AUTRYVILLE TO ROSEBORO	2008	WESTBOUND	378	A
		EASTBOUND	252	A
SEGMENT 6: ROSEBORO BYPASS	2008	WESTBOUND	401	A
		EASTBOUND	267	A
SEGMENT 7: FROM ROSEBORO TO CLINTON	2008	WESTBOUND	624	A
		EASTBOUND	416	A

* MEASURED IN Vehicles Per Hour (VPH)

** 60/40 TRAFFIC SPLIT ASSUMED

*** Based on the assumption that these bypasses will take 80% of the through-traffic that would have used existing NC 24. The other 20% would continue to use "old" NC 24.

TABLE 7 (1-B), CONTINUED

CAPACITY ANALYSIS (BASED ON ALTERNATIVE 1-B)

SEGMENT	YEAR	DIRECTION	AVERAGE PEAK HOUR VOLUME*	COMPUTED LEVEL OF SERVICE
SEGMENT 8: CLINTON BYPASS	2008	WESTBOUND	1709	B ***
		EASTBOUND	1139	A ***
SEGMENT 9: FROM CLINTON TO TURKEY	2008	WESTBOUND	763	A
		EASTBOUND	509	A
SEGMENT 10: TURKEY BYPASS	2008	WESTBOUND	534	A ***
		EASTBOUND	356	A ***
SEGMENT 11: FROM TURKEY TO INTERSTATE 40	2008	WESTBOUND	600	A
		EASTBOUND	400	A

* MEASURED IN Vehicles Per Hour (VPH)

** 60/40 TRAFFIC SPLIT ASSUMED

*** Based on the assumption that these bypasses will take 80% of the through-traffic that would have used existing NC 24. The other 20% would continue to use "old" NC 24.

TABLE 7 (2-A)

CAPACITY ANALYSIS (BASED ON ALTERNATIVE 2-A) ***

	YEAR	DIRECTION	AVERAGE PEAK HOUR VOLUME*	COMPUTED LEVEL OF SERVICE
SEGMENT 1: FROM THE BEGINNING OF THE PROJECT TO SR 1414	2008	WESTBOUND	588	A
		EASTBOUND	392	A
SEGMENT 2: FROM SR 1414 TO NC 242	2008	WESTBOUND	300	A
		EASTBOUND	200	A
SEGMENT 3: FROM NC 242 TO US 421	2008	WESTBOUND	1,819	B
		EASTBOUND	1,213	A
SEGMENT 4: FROM US 421 TO I-40	2008	WESTBOUND	541	A
		EASTBOUND	361	A

* MEASURED IN Vehicles Per Hour (VPH)

** 60/40 TRAFFIC SPLIT ASSUMED

*** Based on the assumption that the new route will take at least 80% of the through-traffic that would have used existing NC 24. The other 20% would continue to use "old" NC 24.

TABLE 7 (2-B)

CAPACITY ANALYSIS (BASED ON ALTERNATIVE 2-B) ***

SEGMENT	YEAR	AVERAGE PEAK HOUR VOLUME*	COMPUTED LEVEL OF SERVICE
SEGMENT 1: FROM THE BEGINNING OF THE PROJECT TO SR 1414	2008	610	C
SEGMENT 2: FROM SR 1414 TO NC 242	2008	315	B
SEGMENT 3: FROM NC 242 TO US 421	2008	1780	E
SEGMENT 4: FROM US 421 TO I-40	2008	518	C

* MEASURED IN Vehicles Per Hour (VPH); TOTAL BOTH DIRECTIONS

** 60/40 TRAFFIC SPLIT ASSUMED

*** Based on the assumption that the new route will take at least
50% of the through-traffic that would have used existing NC 24.
The other 20% would continue to use "old" NC 24.

E. Recommended Action

After a careful and thoughtful evaluation of all the alternatives, the NCDOT has determined that Alternative 2-A offers the best solution for providing a multi-lane facility between the Strategic Corridors of Interstate 95 and Interstate 40. Once constructed, a facility of this type would serve as a major transportation corridor in Cumberland, Sampson, and Duplin Counties; potentially boosting local economies. The recommended alignment would be consistent with the major investment already made at the I-95/NC 24 interchange and the existing NC 24 freeway section immediately east of I-95. Additionally, Alternative 2-A offers an attractive link with the existing Faircloth Freeway in Clinton.

Alternative 2-A would potentially provide the safest and most efficient transportation system between I-95 and I-40. Motorists would be able to avoid the numerous at-grade intersections, traffic signals, and reduced posted speed limits associated with the existing NC 24 facility. Furthermore, motorists using the new facility would be able to avoid conflicts with local traffic, military convoys, and school buses using existing NC 24. In fact, military traffic traveling between Fort Bragg Army/Pope Air Force Bases and Camp Lejeune would be able to flow more smoothly and efficiently on the new freeway, thus greatly reducing the travel time between the installations (it is important to note that the NC 24 facility, from Fayetteville to Jacksonville, is a part of the U. S. Government's "Strategic Defense Corridor").

F. Staged Construction

As previously mentioned, the estimated cost of Alternative 2-A is \$137,853,000 (\$124,600,000 for construction, \$13,253,000 for right-of-way). It may be determined that staging the proposed improvements to NC 24 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 improvements associated with Alternative 2-B (see page 13). This essentially consists of constructing a two-lane facility on four-lane right-of-way, with design provisions made to accommodate future widening and interchanges. The estimated cost of the Stage 1 improvements is \$67,253,000 (\$54,000,000 for construction, \$13,253,000 for right-of-way).
- Stage 2) Construct the remaining improvements associated with Alternative 2-A (Recommended). This would consist of adding the remaining two lanes, the 46-foot grassed, and all remaining interchanges and grade separations. The estimated cost of constructing the Stage 2 improvements is \$70,600,000 (all necessary right-of-way purchased under Stage 1).

III. DESCRIPTION OF THE STUDIED IMPROVEMENTS

A. General Description

The North Carolina Department of Transportation recommends providing a

multi-lane NC 24 facility from approximately 2.8 miles east of Interstate 95 in Cumberland County to Interstate 40 in Duplin County.

The recommended improvements are proposed to be accomplished by constructing an entirely new freeway-type facility, generally parallel to existing NC 24. The location of the proposed alignment is shown on Figure 1. A discussion of the the various alternatives that were investigated can be found on page 13 under Alternatives Considered.

B. Summary of the Studied Improvements

1. Length of the Subject Project

The total length of the project, as proposed, is 37.8 miles.

2. Cross-Section Description

The following is a description of the various cross-section options (corresponding to the various design alternatives) that were investigated. They are shown in detail on Figures 4 and 5.

A). Alternative 1-A Cross-Section: This option consists of four, 12-foot lanes of travel (2 in each direction) with 10-foot usable shoulders (2 feet paved). The east and west-bound lanes would be separated by a 30-foot grass median. Within the urban boundaries of Stedman, Autryville, Roseboro, and Turkey, the existing roadways would be widened to five-lane, curb and gutter (64 feet face-to-face of curbs) facilities. Also, a four-lane, divided, fully controlled access bypass facility would be located on the south-side of Clinton (12-foot lanes, 10-foot usable shoulders, 46-foot median). Details of this cross-section option are given in Figure 4.

B). Alternative 1-B Cross-Section: This option consists of providing four, 12 foot-lanes of travel (2 in each direction) with 10-foot usable shoulders (2 feet paved) along the existing alignment. The east and west-bound lanes would be separated by a 30-foot grass median.

Around the urban areas of Stedman, Autryville, Roseboro, Clinton, and Turkey, four-lane, divided, fully controlled access bypasses would be constructed. These facilities would consist of four, 12-foot lanes of travel with 10-foot usable shoulders (2 feet paved). The east and west-bound lanes would be separated by a 46-foot grassed median. Details of this cross-section option are given in Figure 4.

Where construction along the existing alignment is required, the work would be done 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 north or south of the existing roadway.

C). Alternative 2-A (Recommended) Cross-Section : This cross-section option consists of four, 12-foot lanes of travel (2 in each direction) with 10-foot usable shoulders (2 feet paved). The east and west-bound lanes would be separated by a 46-foot grassed median (see Figure 5).

D). Alternative 2-B Cross-Section: This cross-section option consists of two, 12-foot lanes of travel, undivided, with 10-foot usable shoulders (2 feet paved) [see Figure 5].

3. Right-of-Way

Alternatives 1-A and 1-B: Along the existing alignment, it is anticipated that a total of 200-230 feet of right-of-way width would be required in order to contain the proposed four-lane, divided improvements, and a total of 80-90 feet to contain the proposed five-lane, curb and gutter improvements. For any alignment on new location, a minimum of 250 feet of right-of-way would be needed.

Alternatives 2-A (Recommended) and 2-B: A minimum of 250 feet of right-of-way width would be required for either of these design alternatives.

4. Access Control

Alternatives 1-A and 1-B: Along the existing alignment, the acquisition of partial control of access is recommended for the rural sections of this project. For this particular project, the partial control of access would involve full control of abutting properties with designated at-grade intersections. No control of access would be maintained within the urban areas of Stedman, Autryville, Roseboro, and Turkey. For any segments to be located on new location, the acquisition of full control of access is recommended. Access to the relocated segments would be limited to interchange areas.

Alternatives 2-A (Recommended) and 2-B: The acquisition of full control of access is recommended for these alternatives. Access to the facility would be limited to the proposed interchange areas and/or designated at-grade intersections (see Figure 1).

5. Intersection Treatment

Alternatives 1-A and 1-B: All roads intersecting with NC 24 would remain at-grade with either stop sign or traffic signal control. The exception to this condition would be found along any of the bypasses, where access to these facilities would be limited to the interchange areas. All other intersecting roads along the bypasses would be grade-separated.

Alternatives 2-A (Recommended) and 2-B: All existing roads intersecting at-grade with the proposed NC 24 facility would either be grade-separated or have their access removed. A listing of the proposed interchanges and grade-separations can be found on page 13 under Section II., Alternatives Considered, B. Corridor on New Location.

6. Terminal Treatment

Western Terminal: The subject project begins approximately 2.8 miles east of Interstate 95 in Cumberland County (see Figure 1). From this point, the NC 24 facility extends westward towards I-95 and Fayetteville. Presently, there are no major improvements programmed for this section of

NC 24. Additionally, the subject project would not result in the need for any improvements along this section of NC 24.

Eastern Terminal: The subject project is proposed to end at Interstate 40 in Duplin County. The 1988-1996 North Carolina Transportation Improvement Program contains a project (R-2211) which proposes to improve NC 24 to a multi-lane facility from Interstate 40, eastward, to the City of Beulaville. In conjunction with this project, another feasibility study is currently underway to investigate the possibility of constructing a controlled access facility east of I-40, bypassing the Cities of Kenansville and Warsaw. This facility would be included as a part of the proposed improvements for Project R-2211. Construction on Project R-2211 is scheduled to begin during federal fiscal year 1992.

7. Design Speed

Alternatives 1-A and 1-B: Along the existing alignment, the utilization of a 65 mph design speed on the four-lane, divided sections, and a minimum 50 mph design speed on the five-lane, curb and gutter sections would be utilized. On any relocated segments, the incorporation of a 70 mph design speed is recommended.

Alternatives 2-A (Recommended) and 2-B: The utilization of a minimum 70 mph design speed is recommended under these alternatives.

The proposed design speeds reflect the geometric design of the roadway, and they provide a margin of safety for safe vehicular operation. They should not be confused with the posted speed limits or vehicular running speeds.

8. New Structures Required

(a). Alternatives 1-A and 1-B:

Drainage Structures

The only major drainage structure located along the subject project is found at Six Runs Creek approximately 3.5 miles east of Clinton (see Section I.C.9., Structures, on page 6). This culvert would require extension in order to accommodate the proposed cross-section.

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.

Bridge Structures

The majority of the existing bridge structures located along the subject section of NC 24 were built in the late 1940's (see Table 4 on page 8). Except for the structures located along the Faircloth Freeway, all existing structures would have to be reconstructed or

replaced to provide a 38-foot clear roadway width. New, 38-foot structures would then have to be constructed parallel to the existing bridges in order to accommodate the proposed four-lane, divided cross-sections. The South River Bridge near Autryville would be rebuilt and widened to a 72-foot clear roadway width.

New structures would be required at interchange locations along any of the relocated segments.

(b). Alternatives 2-A (Recommended) and 2-B:

Drainage Structures

If needed, the placement of any major drainage structures; such as culverts, and minor drainage structures; such as pipes would be included as an integral part of the project construction.

Bridge Structures

For Alternative 2-A (Recommended), new structures would be required at the proposed interchange locations: SR 1006, SR 1850, SR 1414, NC 242, existing NC 24, US 701, US 421, SR 1004, and Interstate 40; and at the proposed grade separations: SR 1843, SR 1851, SR 1853, SR 1233, SR 1420, SR 1406, SR 1405, SR 1401, SR 1305, SR 1233, SR 1214, SR 1222, SR 1932, SR 1926, and SR 1911/SR 1927.

For Alternative 2-B, new structures would only be required at the proposed initial interchange locations: Existing NC 24, US 701, US 421, and Interstate 40. Right-of-way and full control of access would be acquired to allow for the future construction of all the proposed interchanges and grade separations given for Alternative 2-A (Recommended).

C. Other Programmed NC 24 Projects

There are several other projects within the subject study area that are listed in the 1988-1996 N. C. Transportation Improvement Program. The projects and their proposed improvements are as follows:

- R-961 and R-962: NC 24, from SR 1006 to the Sampson County Line (distance = 5.8 miles). These projects involve adding 2-foot paved shoulders to the existing roadway, installing approach guardrail and triple corrugated guardrail across the South River bridge, and installing guardrail and pipe extensions where needed. These improvements will be conducted by the 6th Division via contract re-treatment, and they are scheduled to be completed during fiscal year 1988.
- R-971 and R-972: NC 24, from Warsaw to Clinton (distance = 10.7 miles). These projects involve milling, selective concrete rehabilitation, minor widening, and resurfacing. These improvements will be conducted by the 3rd Division via contract re-treatment, and they are scheduled to be completed during fiscal year 1988.

In addition to the above referenced programmed projects, the 3rd Division Engineer has advised that his office will conduct a preliminary design investigation into widening NC 24 to five-lanes through Roseboro. The primary purpose of the investigation is to determine the precise location of existing property lines. The Division Engineer anticipates having this study completed by the end of 1988, and the results will be used to assess how much new right-of-way would be required for such a facility.

The property line surveys were requested by the Mayor of Roseboro and other local officials. These officials are now investigating the feasibility of having the city donate (to the NCDOT) the additional right-of-way that would be required to widen NC 24 to five-lanes with curb and gutter through their city.

IV. POTENTIAL SOCIAL AND ENVIRONMENTAL IMPACTS

A. Social Impacts

The major positive social impact of the project 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. The project should also provide a boost to local economies since it would serve as an excellent connection between the Strategic Corridors of I-95 and I-40.

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 business and residential displaces. 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 implementation of the project. It is important to note, however, that relocating NC 24, as opposed to widening the existing facility, would offer a greater opportunity to adjust and fine-tune the alignment in order to avoid displacing existing homes, farms, and businesses. Thus, property damages should be less than what they would be if the existing facility was widened.

It is anticipated that objections, probably on economic grounds, to the proposed relocation of NC 24 would be voiced by some of the cities, towns, and communities that would be bypassed. Although it is believed that the short and long-term social and economic benefits to be derived from a freeway-type facility would far outweigh any resulting adverse consequences, nonetheless, the NCDOT would pay close attention to the potential economic impact of the project during the planning/environmental documentation stage of the project.

B. Environmental Impacts

The major potential environmental consequence of constructing the subject project would be its impact upon the area's wetlands. The proposed NC 24 alignment would cross 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 area are shown below:

<u>WATERCOURSE</u>	<u>CLASSIFICATION</u>
Rowan Branch (Creek)	C Sw
Six Runs Creek	C Sw
Turkey Creek	C Sw
Hicks Branch	C Sw
Dollar Branch	C Sw
Great Coharie Creek	C Sw
Moccasin Branch	C Sw
Bearskin Swamp	C Sw
Little Coharie Creek	C Sw
Big Swamp	C Sw
South River	C Sw
Sandy Creek	C Sw

Class C Sw waters are defined as waters which are topographically located to have low velocities and certain other characteristics which are different from adjacent streams. These watercourses are suitable for fishing and fish propagation, and other usages requiring water of lower quality.

The project would infringe upon wetlands classified as bottomland hardwood, swamp, and/or pocosin.

Additionally, the project is located within the known geographical ranges of the red cockaded woodpecker (Picoides borealis), American alligator (Alligator mississippiensis), pondberry (Lindera melissifolia), and the rough-leaf-loosestrife (Lysimachia asperulaefolia). The red cockaded woodpecker and the American alligator are listed as threatened and/or endangered species by the U. S. Fish and Wildlife Service (USFWS). The pondberry and the rough-leaf-loosestrife are proposed to be added to the USFWS's endangered species list.

Since the project, as it is proposed, potentially involves a substantial amount of wetland impact, and, because of the large amount of new right-of-way needed, a general disruption of the natural environment is anticipated. The project's potential impact upon the surrounding environment will have to be documented in a Draft and Final Environmental Impact Statement (DEIS, FEIS) prior to the implementation of the project. Additionally, Section 404 (of the Clean Water Act) permits would be required in order to initiate activity around the wetlands.

V. BASIS FOR FINDINGS

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

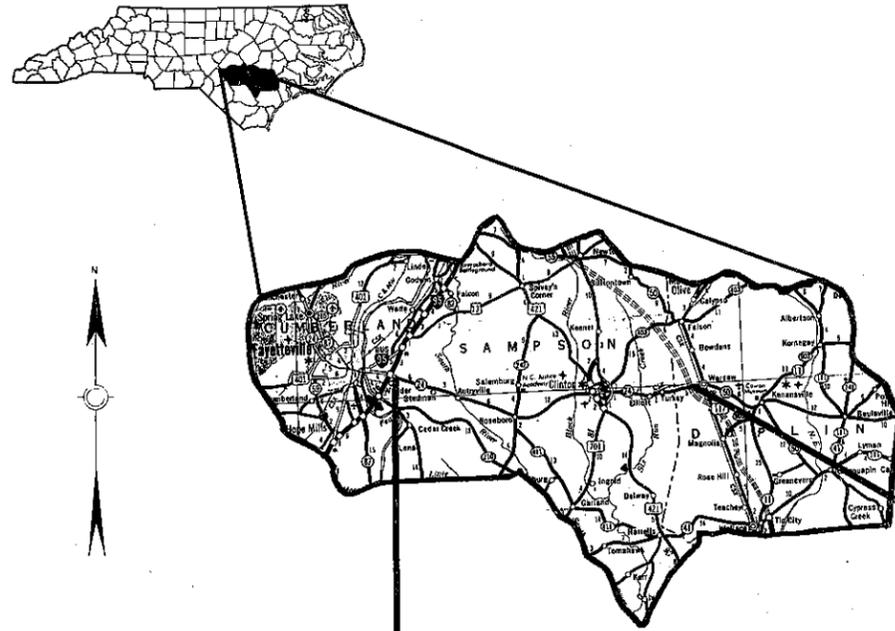
1. Field Investigations
2. Correspondences with the Board of Transportation Members
3. Correspondences with the Division Engineers
4. Previous Reports (NC 24 Corridor Study-Fayetteville to Warsaw) approved by Planning Board on 11-16-70)
5. Aerial Mosaics dated July, 1988

6. 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.

TVS/pr

NORTH CAROLINA



LEGEND

- PROPOSED INTERCHANGES
- ▬ PROPOSED GRADE SEPARATIONS

ALTERNATIVE 1-A

- ▬▬▬▬▬ PROPOSED 4-LANE (2 @ 28 FEET), DIVIDED ROADWAY
- ▬▬▬▬▬▬▬ PROPOSED 5-LANE (64 FEET, FACE-TO-FACE), CURB AND GUTTER ROADWAY

ALTERNATIVE 1-B

- ▬▬▬▬▬ PROPOSED 4-LANE (2 @ 28 FEET), DIVIDED ROADWAY

ALTERNATIVE 2-A

- ▬▬▬▬▬▬▬ PROPOSED 4-LANE (2 @ 28 FEET), DIVIDED ROADWAY ON NEW LOCATION

ALTERNATIVE 2-B

- ▬▬▬▬▬▬▬ PROPOSED 2-LANE FACILITY ON 4-LANE RIGHT-OF WAY; NEW LOCATION



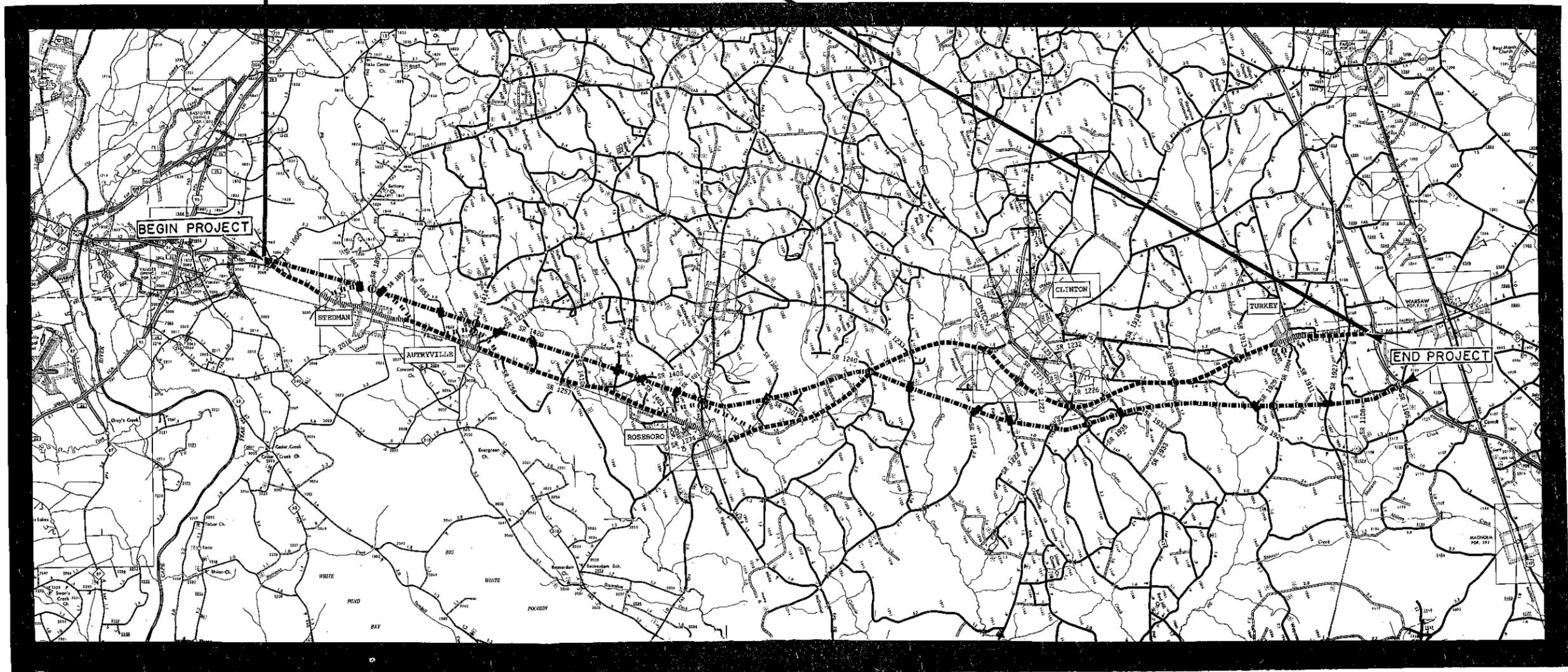
NORTH CAROLINA DEPARTMENT OF
TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

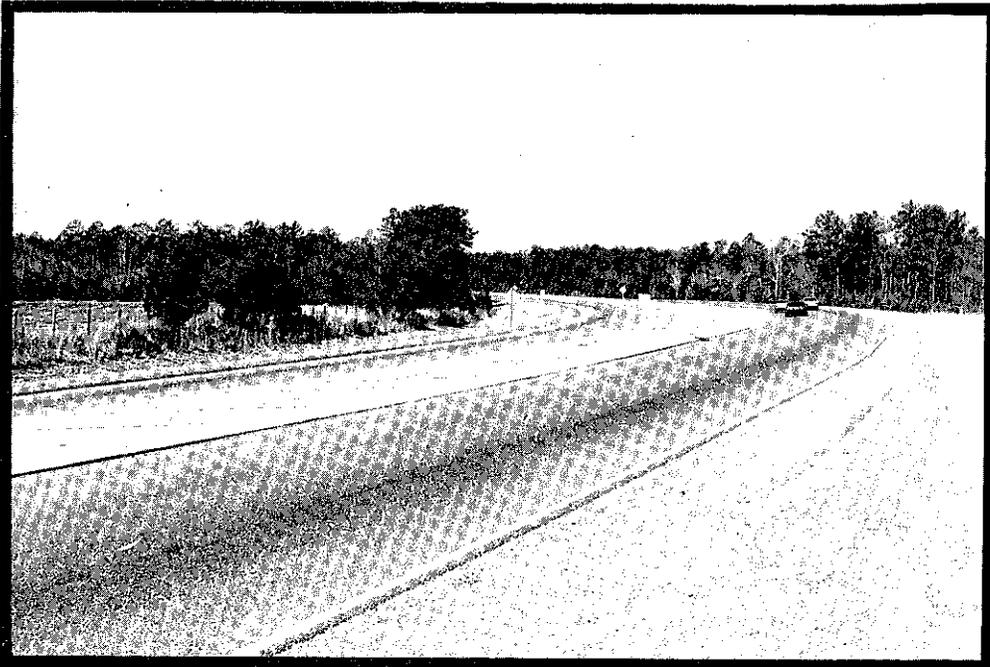
NC 24
From 2.8 miles East of Interstate 95 Near Fayetteville
To Interstate 40 Near Warsaw
Cumberland, Sampson, and Duplin Counties

Feasibility Study
T.I.P. Project R-2303

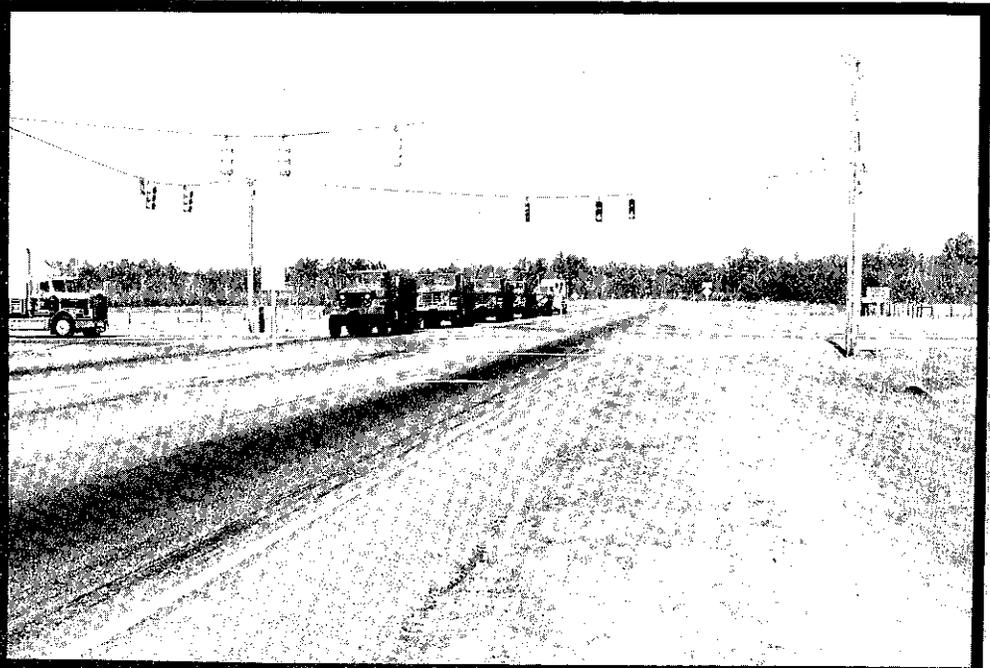
8/88 AES

FIGURE 1

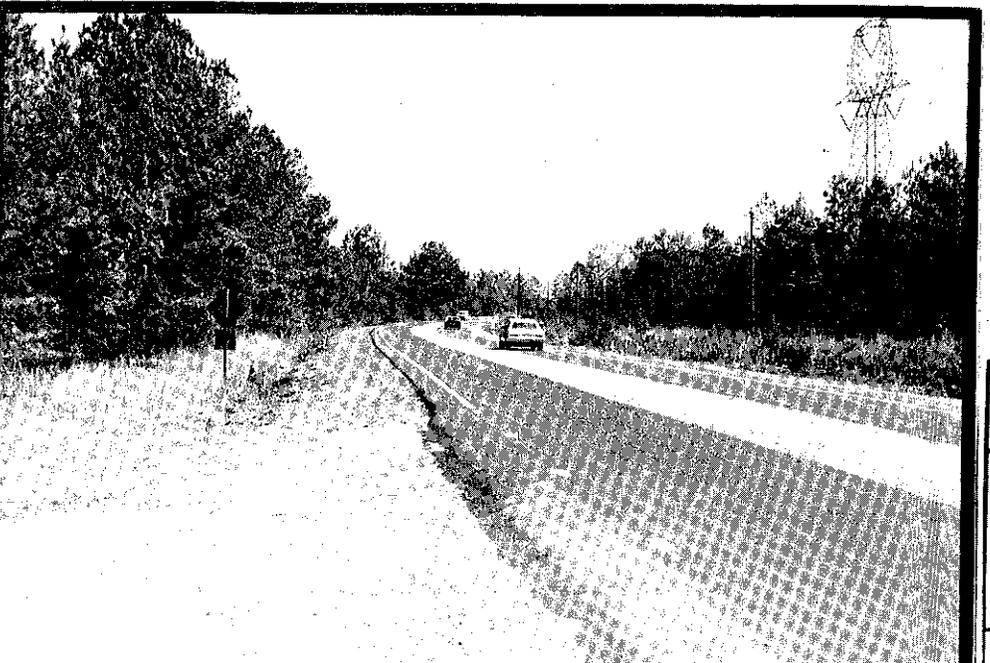




LOOKING WEST NEAR
BEGINNING OF PROJECT



LOOKING WEST NEAR SR 1006



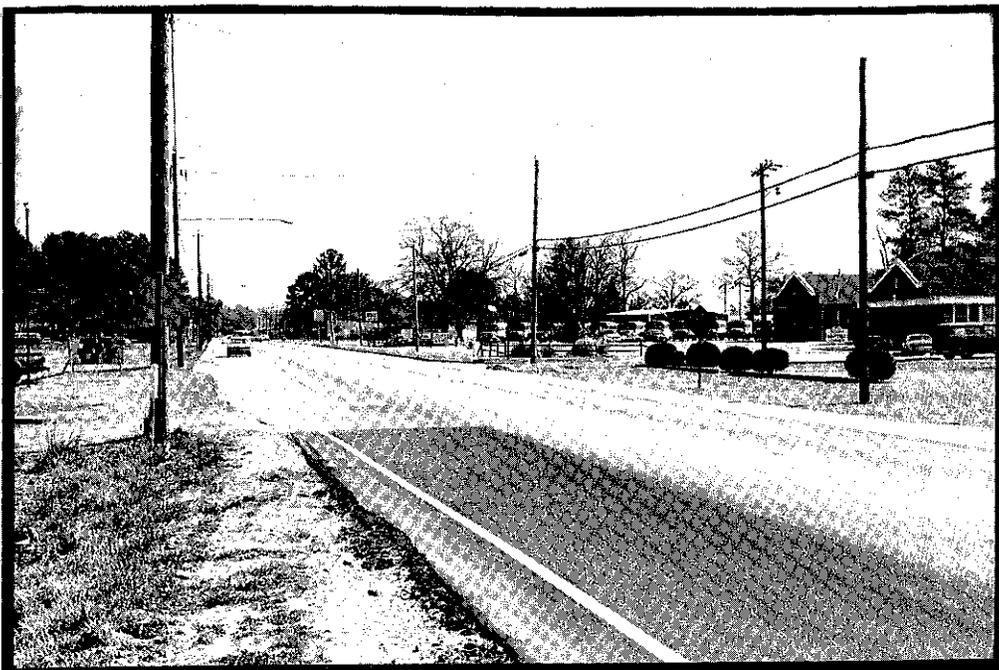
LOOKING EAST NEAR SR 1842
WEST OF STEDMAN



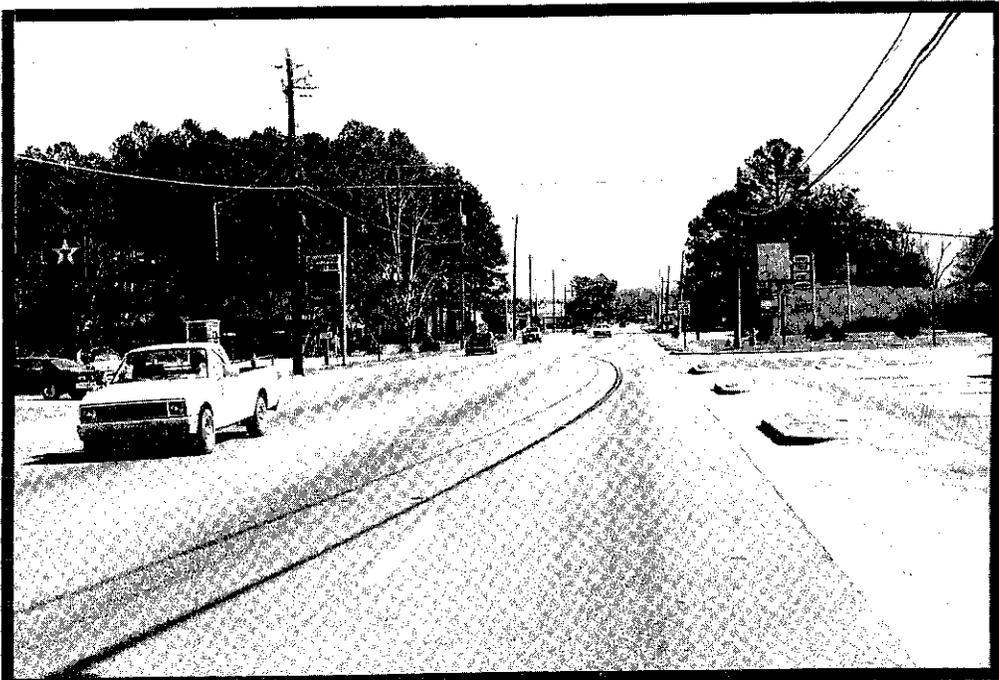
NORTH CAROLINA DEPARTMENT OF
TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

Photos of Existing Conditions
Along NC 24

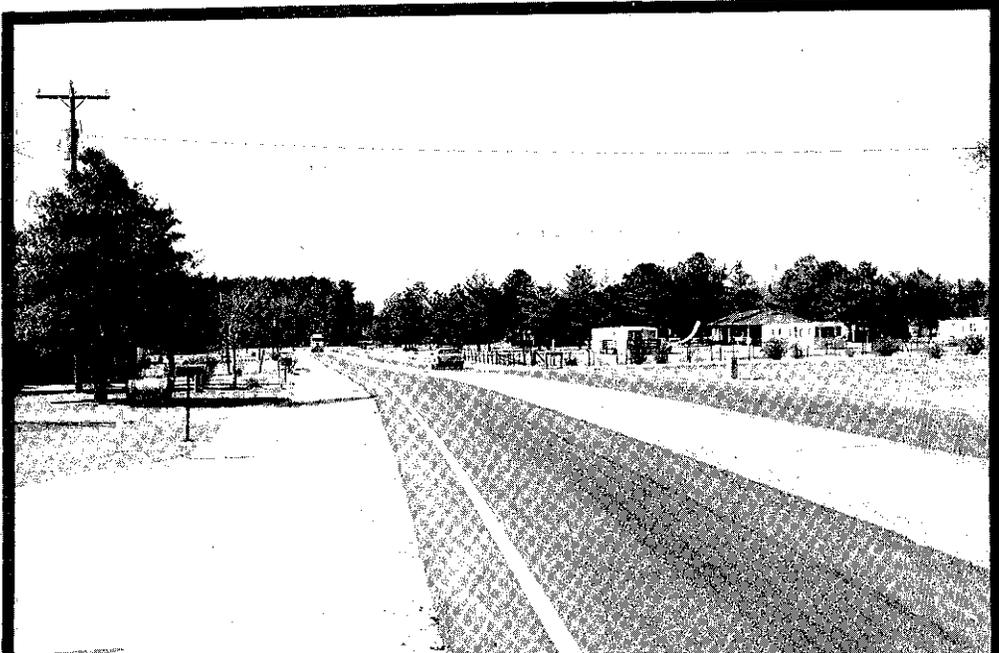
Project R-2303
Feasibility Study



LOOKING EAST ON NC 24
WITHIN STEDMAN



LOOKING EAST INSIDE STEDMAN
NEAR SR 1850



LOOKING WEST ALONG NC 24
BETWEEN STEDMAN AND
AUTRYVILLE



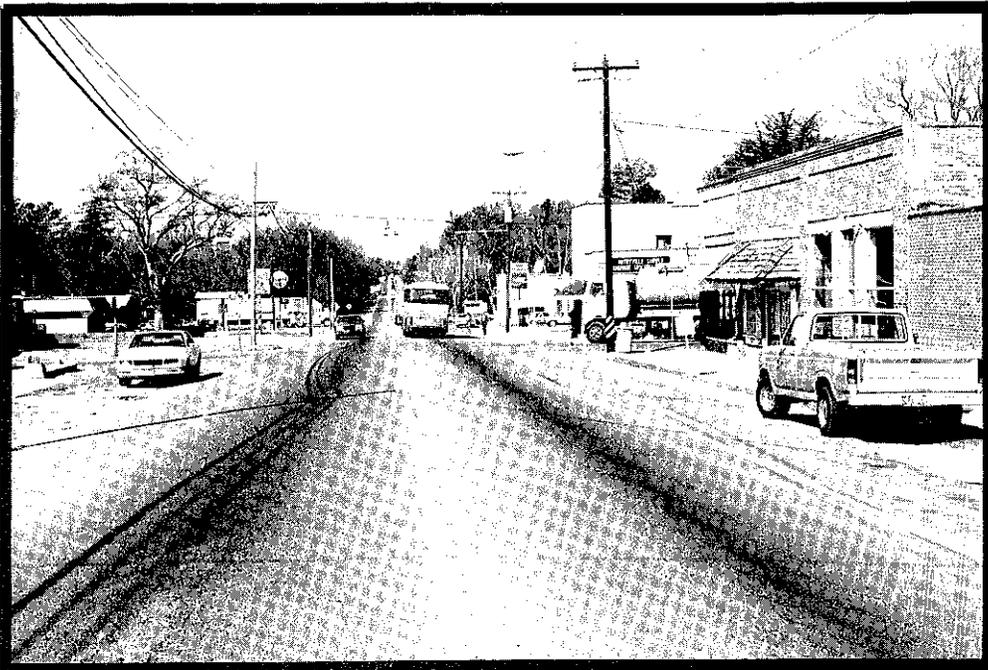
NORTH CAROLINA DEPARTMENT OF
TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

Photos of Existing Conditions
Along NC 24

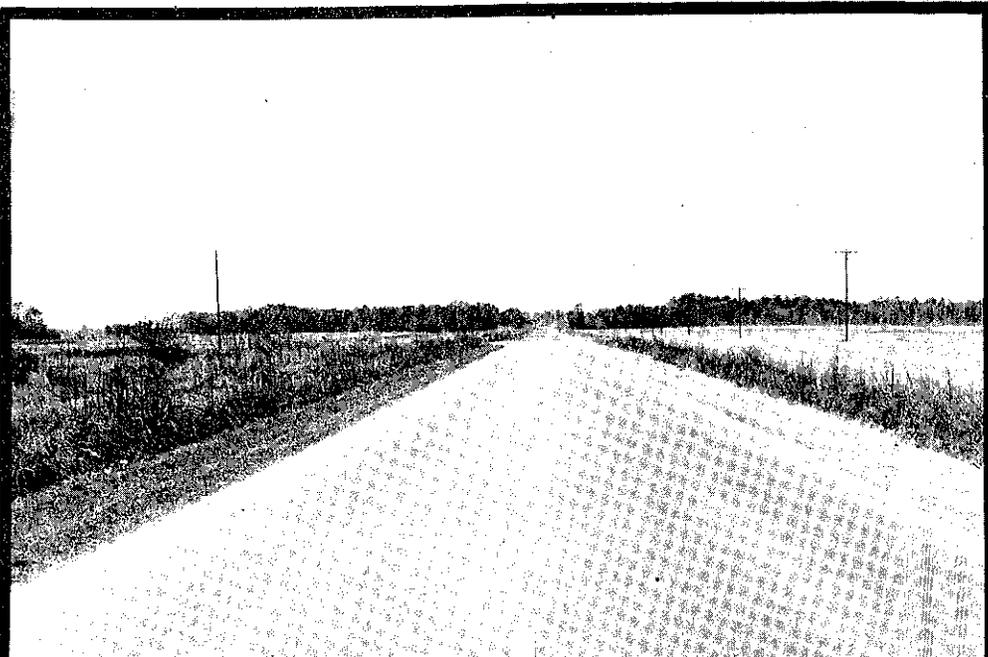
Project R-2303
Feasibility Study



SOUTH RIVIER BRIDGE
NEAR WEST TOWN LIMITS
OF AUTRYVILLE



LOOKING WEST IN AUTRYVILLE
NEAR SR 1414



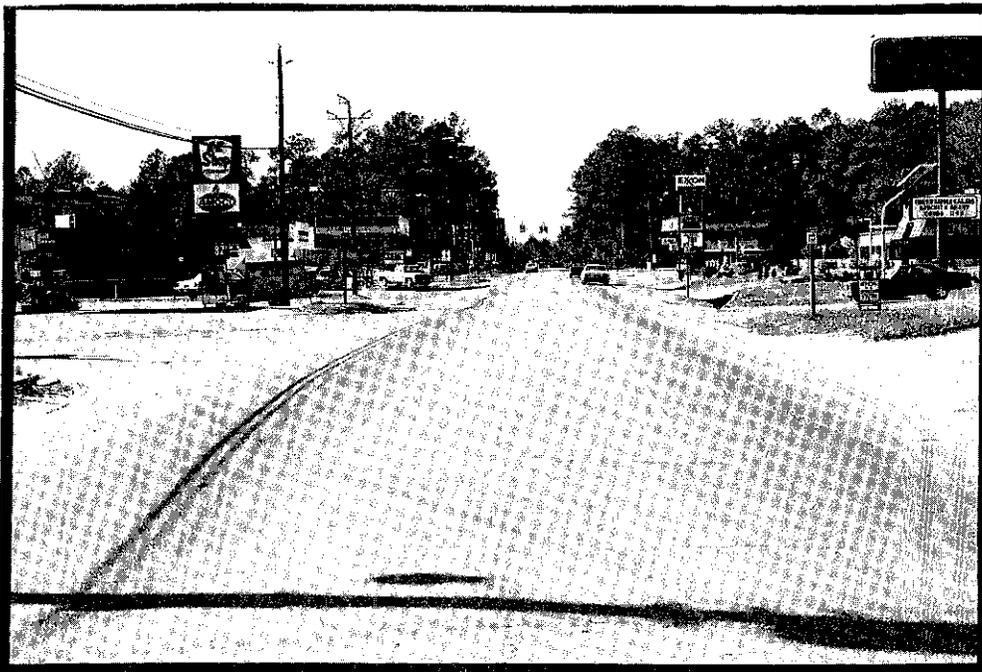
LOOKING WEST, NEAR 1420,
BETWEEN AUTRYVILLE AND
ROSEBORO



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

Photos of Existing Conditions
Along NC 24

Project R-2303
Feasibility Study



LOOKING WEST, INSIDE
ROSEBORO, TOWARD NC 242
INTERSECTION



LOOKING WEST ALONG
NC 24 BETWEEN ROSEBORO
AND CLINTON



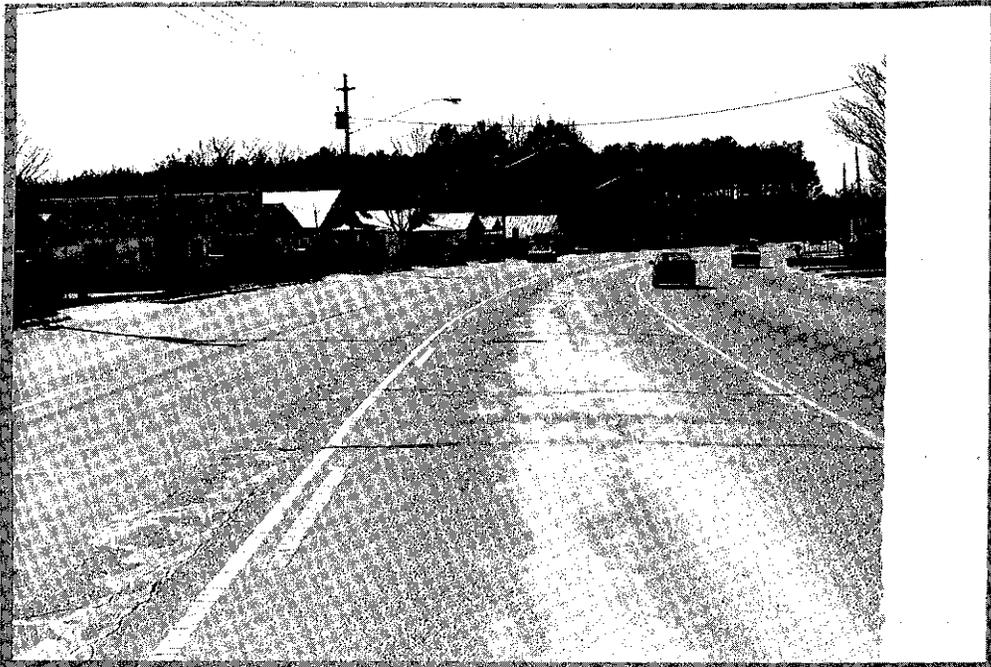
LOOKING EAST, WITHIN
CLINTON, NEAR SR 1262



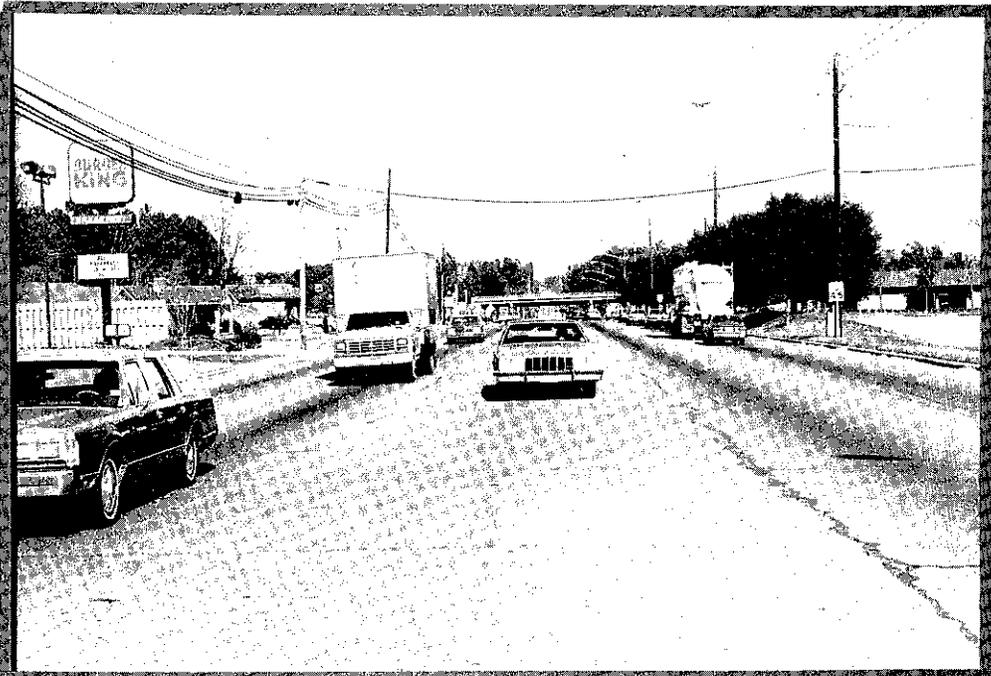
NORTH CAROLINA DEPARTMENT OF
TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

Photos of Existing Conditions
Along NC 24

Project R-2303
Feasibility Study



LOOKING WEST ON NC 24
(SUNSET AVE.) IN CLINTON



VIEW ON NC 24, IN
CLINTON, NEAR SR 1314
(SHIELD ST.)



LOOKING SOUTH ON FAIRCLOTH
FREEWAY INSIDE CLINTON



NORTH CAROLINA DEPARTMENT OF
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DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

Photos of Existing Conditions
Along NC 24

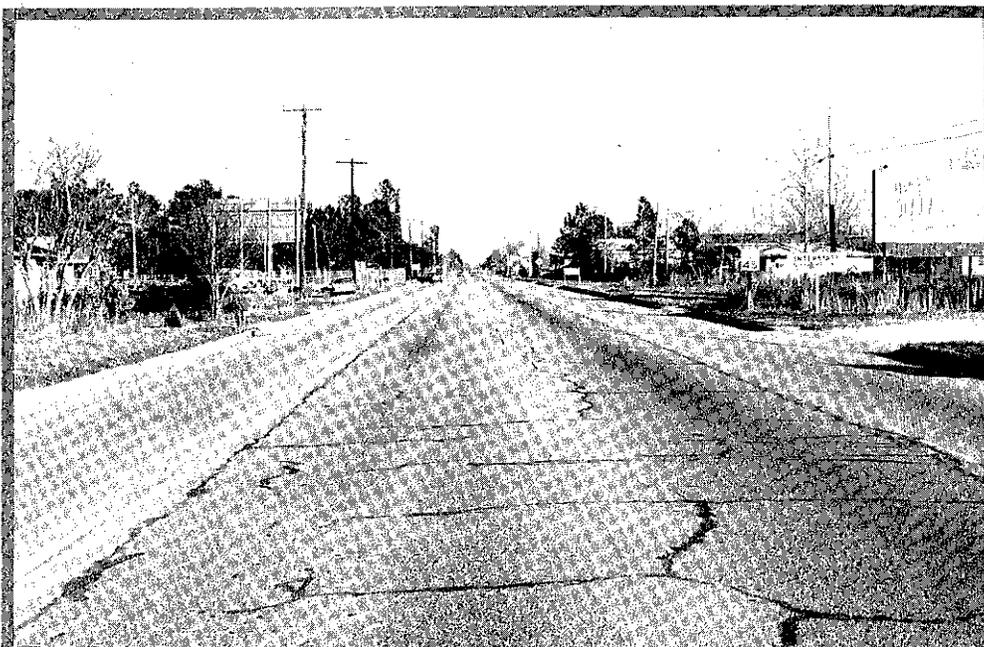
Project R-2303
Feasibility Study



LOOKING EAST ON SOUTH
BLVD. (NC 24), NEAR
SR 1227, IN CLINTON



LOOKING NORTH ON SOUTHEAST
BLVD. (US 701 BUS. - NC 24),
NEAR SR 1232



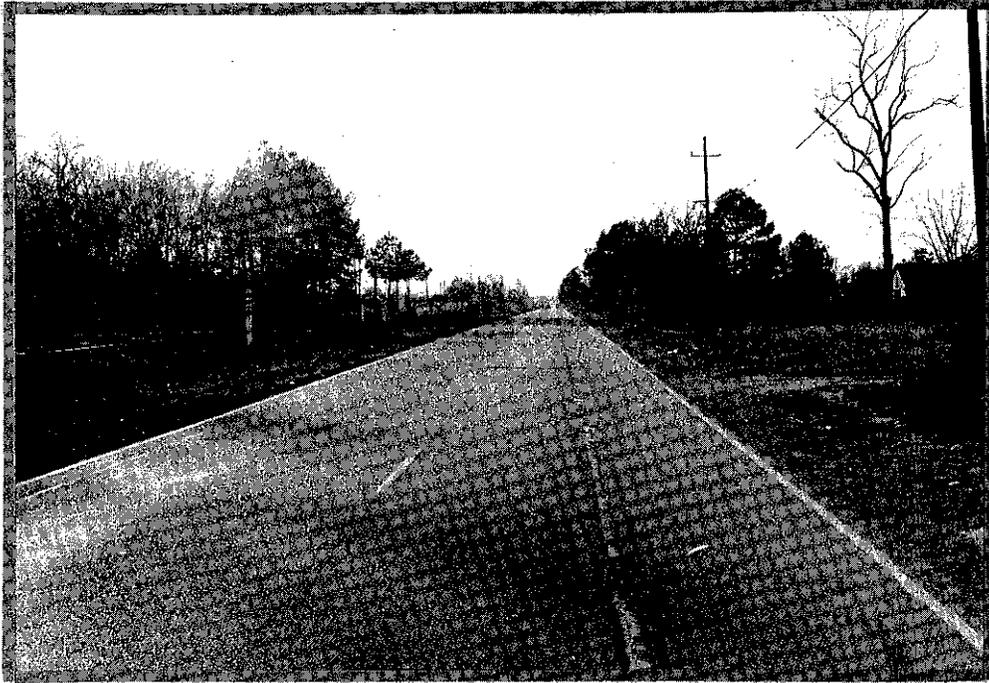
LOOKING EAST ON NC 24
IN CLINTON, NEAR SR 1931



NORTH CAROLINA DEPARTMENT OF
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PLANNING AND RESEARCH BRANCH

Photos of Existing Conditions
Along NC 24

Project R-2303
Feasibility Study



LOOKING WEST ON NC 24
BETWEEN CLINTON AND
TURKEY

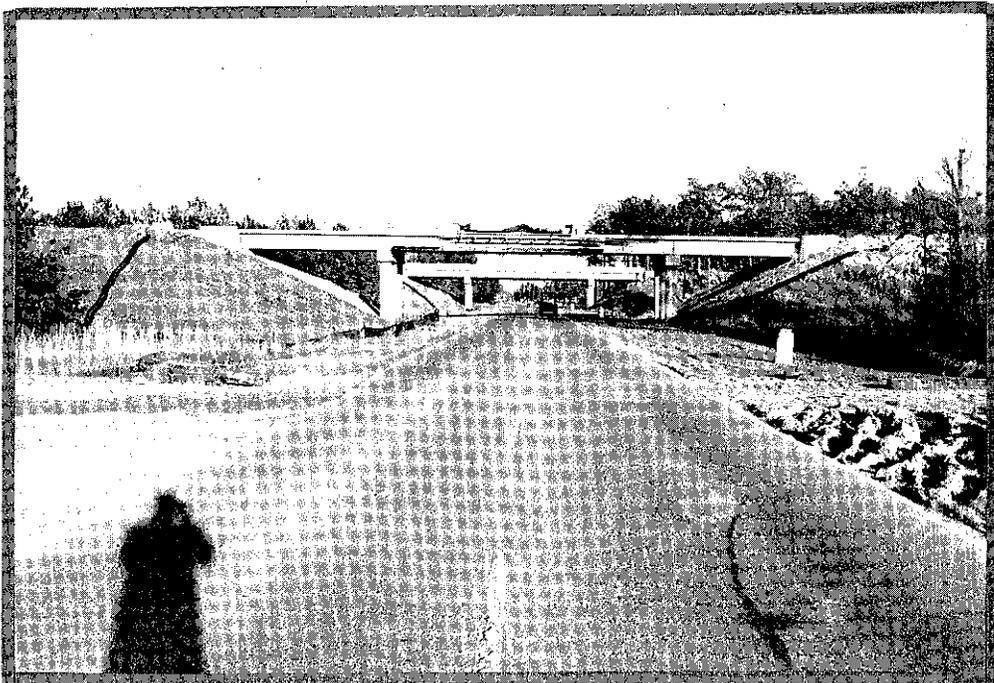


LOOKING EAST ON NC 24
IN TURKEY, NEAR SR 1911

	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PLANNING AND RESEARCH BRANCH
Photos of Existing Conditions Along NC 24	
Project R-2303 Feasibility Study	
7/88 AES	Fig. 2-6



LOOKING WEST NEAR
SAMPSON-DUPLIN COUNTY
LINE



LOOKING EAST TOWARD
I-40\NC 24 INTERCHANGE
(UNDER CONSTRUCTION),
END OF PROJECT



NORTH CAROLINA DEPARTMENT OF
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PLANNING AND RESEARCH BRANCH

Photos of Existing Conditions
Along NC 24

Project R-2303
Feasibility Study

PROPOSED ROADWAY CROSS-SECTIONS
PROJECT R-2303

ALTERNATIVES 1-A AND 1-B

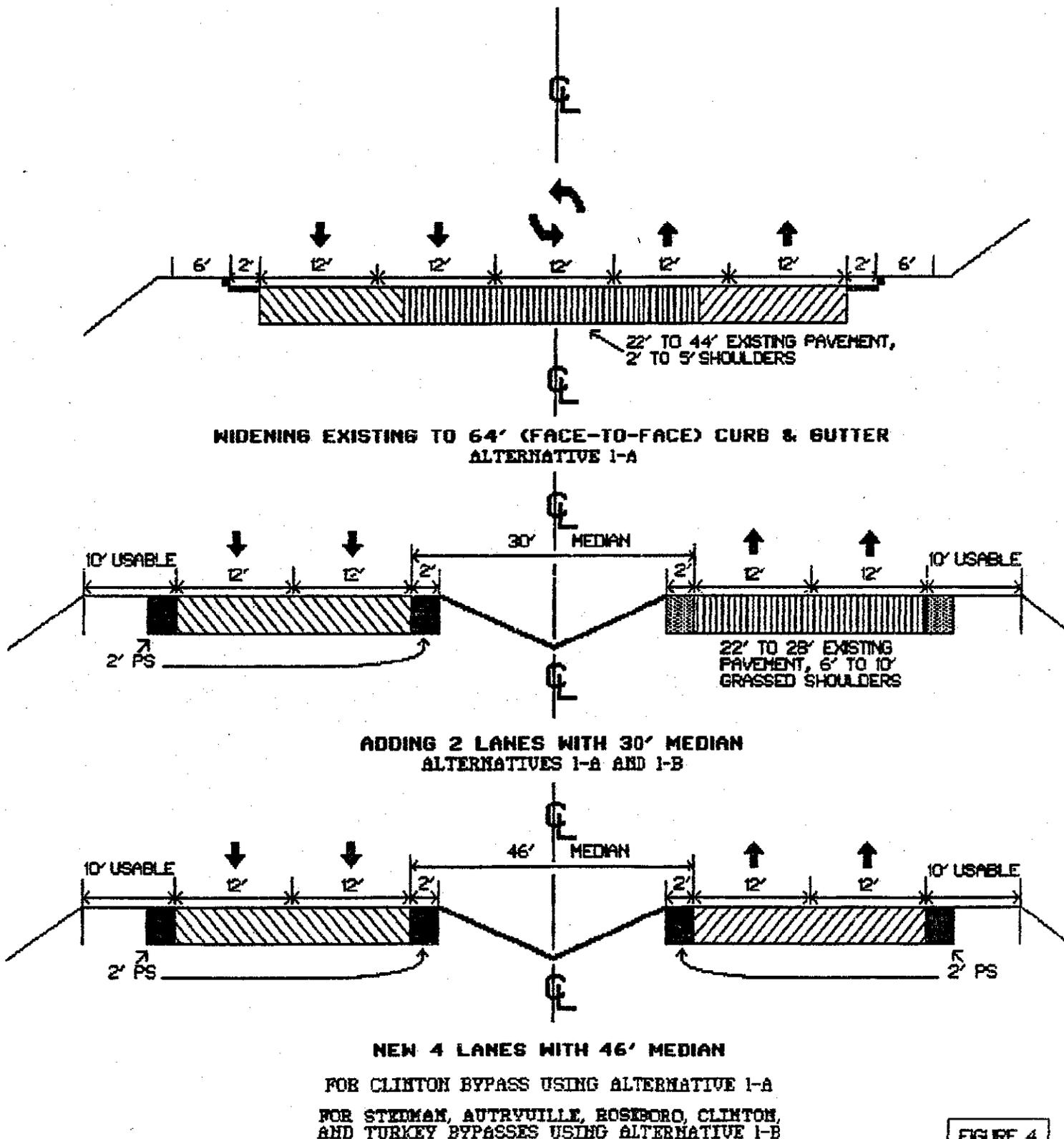
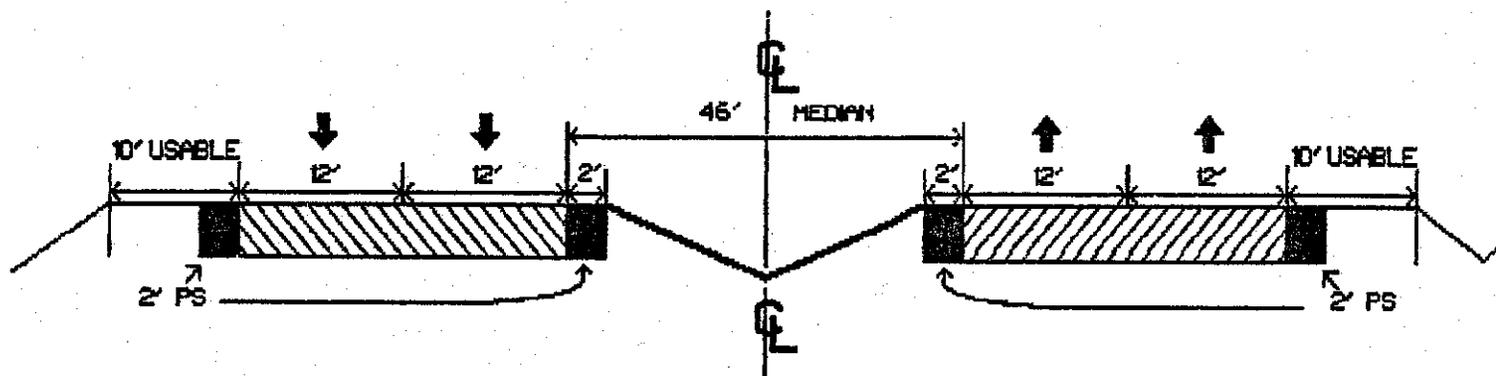


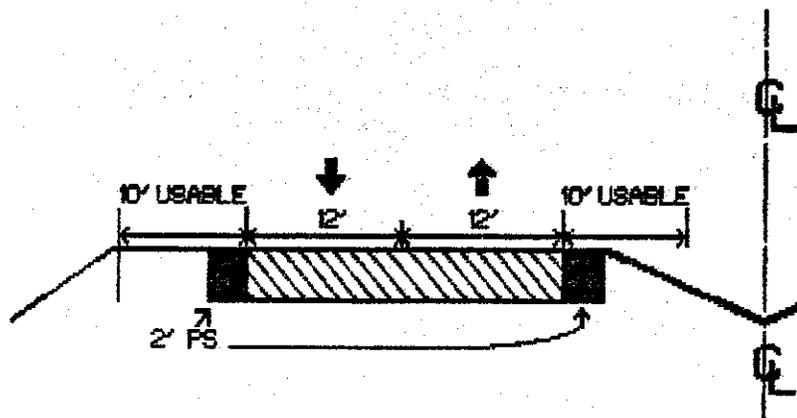
FIGURE 4

* FIGURES NOT DRAWN TO SCALE

*
PROPOSED ROADWAY CROSS-SECTIONS
PROJECT R-2303
ALTERNATIVES 2-A (RECOMMENDED) AND 2-B



NEW 4 LANES WITH 46' MEDIAN
ALTERNATIVE 2-A (RECOMMENDED)



NEW 2 LANES WITH PROVISIONS FOR
ULTIMATE 4-LANE, DIVIDED FREEWAY FACILITY
ALTERNATIVE 2-B

*
 FIGURES NOT DRAWN TO SCALE

Current and Projected
Average Daily Traffic Volumes
For the Existing Facility



NORTH CAROLINA DEPARTMENT OF
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PLANNING AND RESEARCH BRANCH

NC 24
From 2.8 miles East of Interstate 95, Near Fayetteville
To Interstate 40, Near Warsaw
Cumberland, Sampson, and Duplin Counties

Project R-2303
Feasibility Study

7/88 AES

FIGURE 3-A

TTST - 4%
DUAL - 5%
DHV - 10%

LEGEND:

1988 ADT

2008 ADT

TTST - 2%

DUAL - 3%

DHV - 10%

6,800

12,200

3,500

6,300

5,800

10,400

19,800

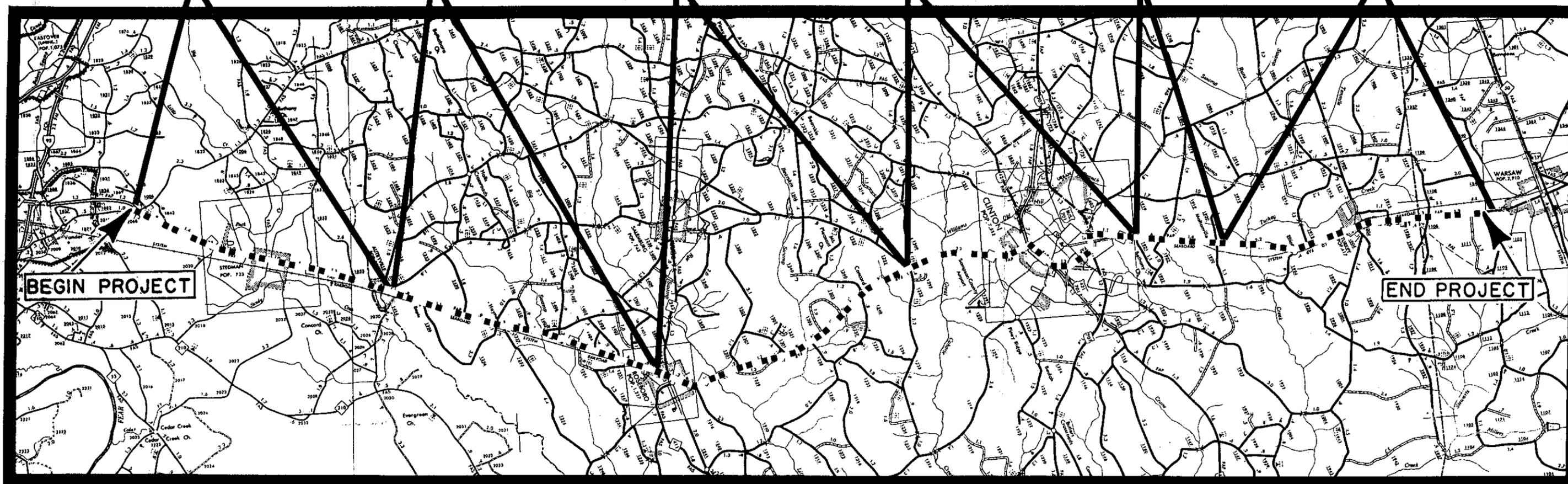
35,600

6,500

11,700

5,000

9,000



BEGIN PROJECT

END PROJECT

2008 Projected Average Daily Traffic Volumes
(Alternatives 1-A and 1-B)



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

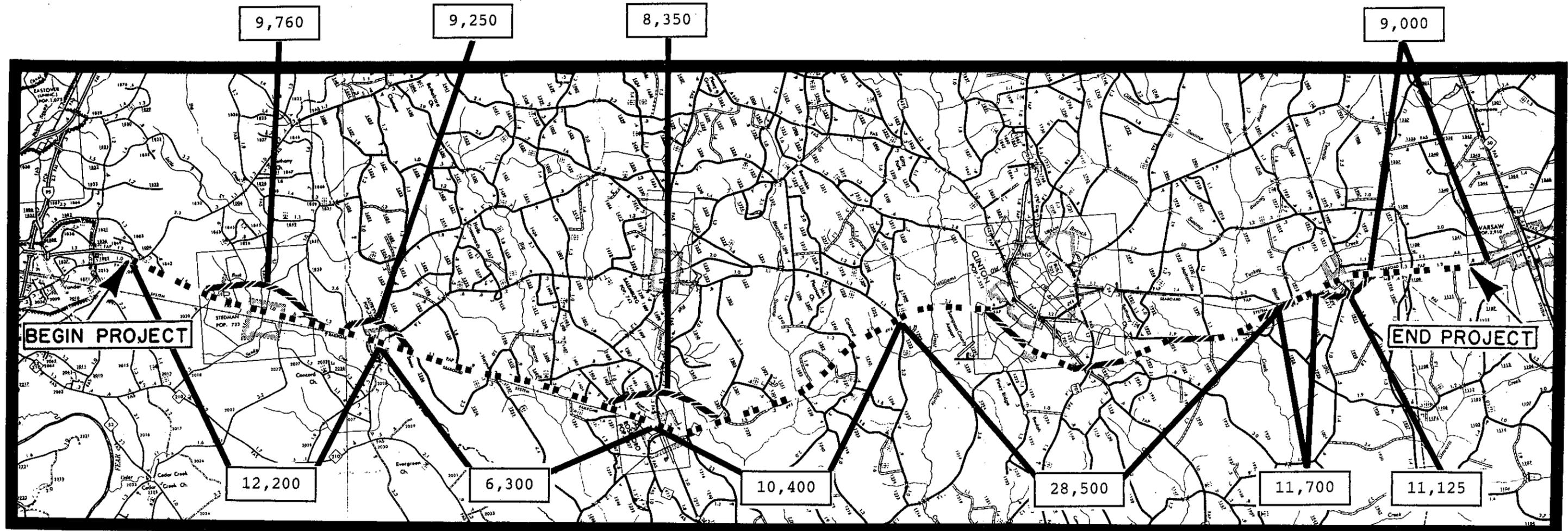
NC 24
From 2.8 miles East of Interstate 95, Near Fayetteville
To Interstate 40, Near Warsaw
Cumberland, Sampson, and Duplin Counties

Project R-2303
Feasibility Study

7/88 AES

FIGURE 3-B

* See Text for Description
of Alternatives



2008 Projected Average Daily Traffic Volumes
(Alternatives 2-A and 2-B)

	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PLANNING AND RESEARCH BRANCH
	NC 24 From 2.8 miles East of Interstate 95, Near Fayetteville To Interstate 40, Near Warsaw Cumberland, Sampson, and Duplin Counties Project R-2303 Feasibility Study
7/88 AES	FIGURE 3-C

LEGEND:

Alternative 2-A
Alternative 2-B

* See Text for Description
of Alternatives



Beginning of
Project to
SR 1414

9,800
6,100

SR 1414
to NC 242

5,000
3,150

NC 242 TO
US 421

30,320
17,800

US 421 to
I-40

9,020
5,180

