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**ADMINISTRATIVE ACTION
DRAFT ENVIRONMENTAL IMPACT STATEMENT
AND DRAFT SECTION 4(F) EVALUATION**

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**

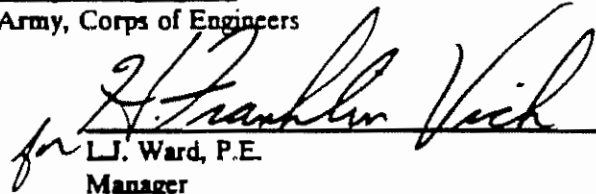
Greensboro Western Urban Loop, from Lawndale Drive
near Cottage Place to I-85 South near Holden Road,
approximately 14 miles, in Guilford County, North Carolina

State Proj. No. 6.498001T
Guilford County U-2524

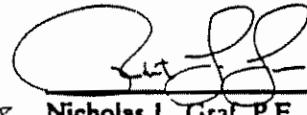
Submitted Pursuant to the National Environmental
Policy Act 42 U.S.C. 4332(2)(C) and 49 U.S.C. 303

Cooperating Agency
U.S. Army, Corps of Engineers

6/4/91
Date


for L.J. Ward, P.E.
Manager
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6-4-91
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for Nicholas L. Graf, P.E.
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This report documents the need for transportation improvements in western Greensboro and also the planning process leading to the selection of viable alternative corridor locations. Existing and projected conditions in the study area are described and alternatives are evaluated in terms of environmental consequences, socioeconomic impacts, compatibility with local planning goals, and public opinion.

Comments on this draft EIS are due by 6-21-91 and should be sent to Mr. L.J. Ward at the above address.

**GREENSBORO WESTERN URBAN LOOP
GUILFORD COUNTY**

**from
Lawndale Drive near Cottage Place
to
I-85 South near Holden Road**

**TIP No. U-2524
State Project 6.498001T**

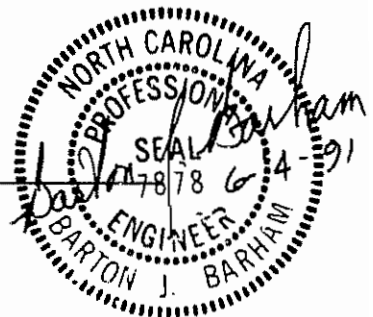
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June 1991

**Documentation Prepared By:
KIMLEY-HORN AND ASSOCIATES, INC.**

6/4/91
Date

Barton J. Barham
Barton J. Barham, P.E.
Project Manager



listed. A new multi-lane facility, Bryan Boulevard Extension, is planned to extend from Airport Parkway to existing Benjamin Parkway (SR 2176). Existing High Point Road (US 29A/70A) is planned to be widened to multi-lanes and also to be extended on new location. US 220 is planned to be extended from Vandalia Road north of I-85 through I-40 to Willmore Street. Both West Market Street and Wendover Avenue are planned to be widened in the vicinity of this project.

5. SUMMARY OF MAJOR ALTERNATIVES

The major alternatives considered in this study area:

- 1) No-Build Alternative
- 2) Transportation System Management (TSM)
- 3) Multi-Modal System Alternatives
- 4) Construction Alternative
 - Widen existing roads
 - New location (freeway)
 - Reduced facility

These alternatives are discussed in detail in Chapter II and briefly summarized as follows:

The No-Build Alternative assumes that the total Urban Loop is not in place, but that other elements of the 1989 Greensboro Urban Area Thoroughfare Plan have been implemented.

Transportation System Management (TSM) alternatives consist of improvements to existing highways to allow traffic to flow smoothly and efficiently. TSM consists of improving signals and signal progression, installing a computerized signal system, adding high occupancy vehicle lanes, adding turning lanes, and making other similar improvements.

Multi-modal system alternatives consist of expanding transit service and ride-sharing to serve transportation demand in the study area.

Construction alternatives investigated include widening existing highways and a wide range of alignments on new location. These were subsequently refined to include three reasonable and viable freeway construction alternatives. The concept of a reduced facility, without full control of access, was also evaluated. The three freeway construction alternatives analyzed in detail are described briefly below:

The Eastern Alternative basically follows the 1989 Greensboro Urban Area Thoroughfare Plan alignment, crossing I-40 between Wendover Avenue (SR 1541) and NC 6 (Patterson Street), and extending northward to West Market Street (US 421) and Friendly Avenue (SR 2147). From Friendly Avenue, the Eastern Alternative generally parallels Jefferson Road and New Garden Road. The Eastern Alternative joins the Western and Middle Alternatives west of US 220 (Battleground Avenue) and extends to Lawndale Drive. The Eastern Alternative is 11.4 miles in length.

The Middle Alternative begins at Campground Road, crosses I-40 near Guilford College Road, crosses West Market Street near Swing Road, crosses Friendly Avenue near Meadowcreek Lane, and joins the Western Alternative just south of Fleming Road. The Western and Middle Alternatives are the same from Fleming Road to Lawndale Drive. The Middle Alternative is 13.6 miles in length.

The Western Alternative begins at Campground Road and I-85, extends northwest to cross I-40 near Chimney Rock Road, crosses West Market Street and Friendly Avenue near Stagecoach Trail, continues north to Fleming Road, and turns east to cross Lawndale Drive just north of Cottage Place. This alternative is 14.5 miles in length and is similar to the "Red Line" proposed by GREAT, a citizens group.

Three crossovers which shift between the alternatives at key locations have also been studied. These crossovers will enable portions of different alternatives to be combined.

Analyses of year 2010 traffic assignments with the Western Urban Loop freeway alternatives versus "No-Build" indicate that total vehicle-miles travelled in the Greensboro Urban area will be reduced by about 75,000 to 105,000 miles per day and that vehicle-hours travelled will be reduced by about 14,000 hours per day. Accidents would be reduced by 400 per year in the study area, with a reduction in accident cost of \$2 million (1990) per year. These decreases will result in reduced fuel consumption, air pollution, and user cost throughout the region, particularly because of reduced congestion and safer and more efficient operating conditions.

This report addresses the feasibility and potential environmental impacts of each of the alternatives studied. In addition, this report addresses the potential for mitigation of adverse impacts associated with the proposed action.

6. SUMMARY OF BENEFICIAL AND ADVERSE ENVIRONMENTAL EFFECTS

The consequences of "no-build," multi-modal, transportation system management, widening existing highways, and the reduced facility alternatives have been evaluated, and it has been determined that these alternatives would not adequately serve projected traffic volumes. They would not accomplish the transportation goals of the Greensboro Urban Area Thoroughfare Plan, nor would they serve the continued economic growth of the region.

Construction of the proposed action will help meet traffic needs and fulfill the goals of the 1989 Greensboro Urban Area Thoroughfare Plan. The Thoroughfare Plan, which includes this project, received considerable public review before its adoption by the City of Greensboro and Guilford County. The Western Urban Loop will connect existing and planned thoroughfares, will connect to other portions of the planned urban loop, and will improve access to Piedmont Triad International Airport. It will reduce total travel in the region by about 75,000 to 105,000 vehicle miles per day, thus contributing to air quality goals while reducing user costs and fuel consumption by 4.4 million gallons annually. It will provide a safe facility for north-south and bypass travel, and is projected to reduce accidents by an estimated 400 per year, compared with the No-Build option. The road will contribute to Greensboro's economic development by providing adequate transportation and improved accessibility for residential, commercial, and industrial development. Because of these factors, the proposed action will improve the overall quality of life in Greensboro.

Adverse impacts of the construction freeway alternatives include the displacement of 545 to 950 residences and 7 to 28 businesses. An increase in the noise levels is also anticipated in some areas next to the project. An estimated 22 to 57 acres of wetlands and 54 to 81 acres of floodplain will be affected by the proposed project. An estimated 50 to 130 acres of prime farmland will be taken for highway right-of-way. Temporary adverse impacts during construction will consist of potential erosion, siltation, construction noise, and public inconvenience.

With minor exceptions, the Eastern Alternative follows the conceptual location shown on the approved 1989 Greensboro Urban Area Thoroughfare Plan (Figure I-4). The Western and Middle Alternatives include shifts from the alignment on the Thoroughfare Plan.

Although all three freeway construction alternatives would impact existing and proposed residential development, the greatest impact on single-family neighborhoods would be felt by the urbanized communities near the Eastern Alternative. More public opposition has been voiced by the residents along that alternative than along the other two, although the Middle Alternative displaces more homes than the Eastern Alternative (950 vs 686). The Eastern Alternative also would be involved with potential contaminated land near Worth Chemical Company.

The Middle Alternative would also divide Oaks West and other communities between Groometown Road and Hilltop Road. This alternative would also take homes in multi-family developments between I-40 and Friendly Avenue, resulting in higher right-of-way costs as well as disruption of families and communities (see Tables S-1 and S-2). In addition, the Middle Alternative would require the reconstruction of both the Guilford College Road/I-40 interchange and one entrance ramp on the the recently rebuilt Wendover Avenue/I-40 interchange.

The Western Alternative would have the least impact on communities and residential displacements. It would involve a complex interchange at I-40 that would take commercial and industrial property near Chimney Rock Road and involvement with potential hazardous materials at Chimney Rock Road and West Market Street, where a major fuel oil spill has been reported.

All three freeway construction alternatives would provide improved traffic service in comparison with the no-build alternative. They would divert traffic from existing arterial and collector streets in the study area, enabling those streets to operate with less congestion than without the project. The Eastern Alternative would serve the highest traffic volumes, up to 73,000 vehicles per day near I-40. It also would provide the most relief to the existing street system since more traffic would be diverted from the existing congested highway system. All three alternatives would function as an I-40 Bypass between I-85 South and I-40 West, along with the I-85 Bypass proposed south of Greensboro. The Western Alternative would provide a more direct connection for the I-40 Bypass traffic and would serve this traffic desire better than the Eastern and Middle Alternatives.

The area closest to the airport is primarily zoned for commercial and industrial uses. The Western Alternative is compatible with these land uses and would minimize impacts to residential areas. It offers noise abatement by avoiding residential communities. However, the Western Alternative would conflict with a site proposed for airport expansion.

Another major consideration is the involvement with historical structures found throughout the project area. The alignments of the three freeway alternatives have been adjusted to minimize the impact on historical structures as much as possible. Seventeen structures in the project area have been identified as potentially eligible for the National Register for Historic Places (see Figure III-4). Two sites are affected by each of the alternatives. The Eastern Alternative requires property from Guilford College and the Kimrey-Haworth House. The Middle and Western Alternatives each require property from Sedgefield Stables, while affecting Celia Phelps Church by their proximity to it. The taking of property from any eligible historic site or district requires additional analyses, as indicated in Chapter V of this report.

Following the selection of a corridor alternative, several archaeological sites will need to be investigated further to determine their National Register eligibility. Selection of the Eastern Alternative would involve two sites; the Middle Alternative, one site; and the Western Alternative, three sites.

Tables S-1 and S-2 summarize the impacts of the freeway construction alternatives.

**TABLE S-1
ENVIRONMENTAL COMPARISON OF THE FREEWAY CONSTRUCTION ALTERNATIVES**

	Alternative					
	Eastern	Middle	Western	Crossover		
				C-1	C-2	C-3
Length (miles)	11.4	13.6	14.5	0.8	0.5	1.0
Displacements						
Residences (minority)	686 (154)	950 (200)	545 (125)	34(7)	10(3)	14(3)
Businesses	28	7	11	0	0	1
Other	1	2	4	0	0	1
Acreage Required						
Field	69.5	91.6	127.3	5.5	0.0	0.0
Forest	260.4	305.8	244.0	8.0	0.0	32.4
Urban	104.0	112.0	159.3	13.8	10.0	5.5
Total (includes open water)	491.2	541.1	553.0	27.3	10.0	38.1
Acres of Prime Farmland	50	130	90	0	0	18
Acres of Wetland	57.3	31.7	22.4	0	0	0.2
Acres of Floodplain	81.3	55.0	54.7	0	0	0
Stream Crossings	17	23	22	0	0	1
Receptors Exceeding Noise Abatement Criteria Or with Substantial Increase	267	154	171	0	0	24
Eligible Historic Sites Affected	2	2	2	0	0	0
Potential Hazardous Material Sites In or Near Corridors	4	1	6	0	0	1

**TABLE S-2
ENGINEERING COMPARISON OF THE FREEWAY CONSTRUCTION ALTERNATIVES**

	Alternative					
	Eastern	Middle	Western	Crossover		
				C-1	C-2	C-3
Length (miles)	11.4	13.6	14.5	0.8	0.5	1.0
Interchanges (No.)	7	8	8	0	0	0
Other Structures						
Railroad	2	2	2	0	0	0
Drainage	6	3	7	0	0	0
Grade Separation	11	10	10	1	1	1
Traffic (High/Low)	73,000/17,800	69,000/16,100	64,900/17,900	N/A	N/A	N/A
Level-of-Service	C/D	C	C	C	C	C
Construction Cost (millions, 1990)	\$100.4	\$108.3	\$100.8	\$5.0	\$6.1	\$6.0
Right-of-Way Cost (millions, 1990)	\$ 95.1	\$ 83.0	\$ 77.9	\$4.9	\$3.4	\$2.8
Total Cost (millions, 1990)	\$195.5	\$191.3	\$178.7	\$9.9	\$9.5	\$8.8

7. AREAS OF CONTROVERSY

The alternatives have been presented to the public and to other public agencies and officials during the A-95 (intergovernmental review) process. Controversial issues have mainly involved impact on communities and businesses, particularly relocations; impact on wetlands and floodplains at Horsepen Creek; and use of land from and impact on historic sites (Section 4(f) and Section 106, respectively), particularly the Guilford College property.

8. OTHER FEDERAL ACTIONS REQUIRED

A permit from the U.S. Army Corps of Engineers is anticipated to be required for this project under the provisions of Section 404 of the Federal Water Pollution Control Act Amendments of 1972. Section 404 requires the application for and approval of a permit before wetlands or other waters can be dredged or filled. The Clean Water Act requires public notice and review of Section 404 permits as well as U.S. Fish and Wildlife Service review. Stream relocations also will be coordinated with the U.S. Fish and Wildlife Service. Encroachment into floodways will be coordinated with the Federal Emergency Management Agency (FEMA). Involvement with historic properties will be

coordinated with the State Historic Preservation Office and with the Advisory Council on Historic Preservation. This project will be developed in conformity with provisions of the Clean Air Act, as amended.

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CHAPTER I
PURPOSE AND NEED FOR ACTION

A. GENERAL

This report documents the need for constructing the 14-mile project (Greensboro Western Urban Loop) from I-85 to Lawndale Drive (SR 2303) (see Figures I-1 and I-2). Current and projected traffic is evaluated in relation to the existing and proposed transportation system in the western area of Greensboro. Alternatives are developed to respond to the social, economic, and environmental consequences. In order to respond adequately to the environmental, engineering, and planning issues associated with the Greensboro Western Urban Loop, this draft environmental impact statement has been prepared.

B. PROJECT SETTING

Guilford County is the second most populous county in North Carolina and provides a large employment base for nearby counties. The City of Greensboro in Guilford County is an area experiencing considerable growth, with an estimated 25.6 percent increase in population between 1980 and 1989. Although much of the City's growth reflects annexation, Guilford County's population grew 9.7 percent between 1980 and 1990. The existing network of highways is being called upon to handle increasingly heavy traffic demands. More detailed information on population, employment, and traffic appears in Chapter III of this report. Existing highways and 1989 average daily traffic volumes within the project area are shown on Figure I-3.

C. PROJECT STATUS

The Western Urban Loop is designated in the North Carolina Department of Transportation's 1991-1997 Transportation Improvement Program (TIP) as U-2524. According to the TIP, right-of-way acquisition is scheduled to begin in fiscal year 1993 and construction is scheduled to begin in fiscal year 1996.

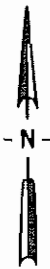
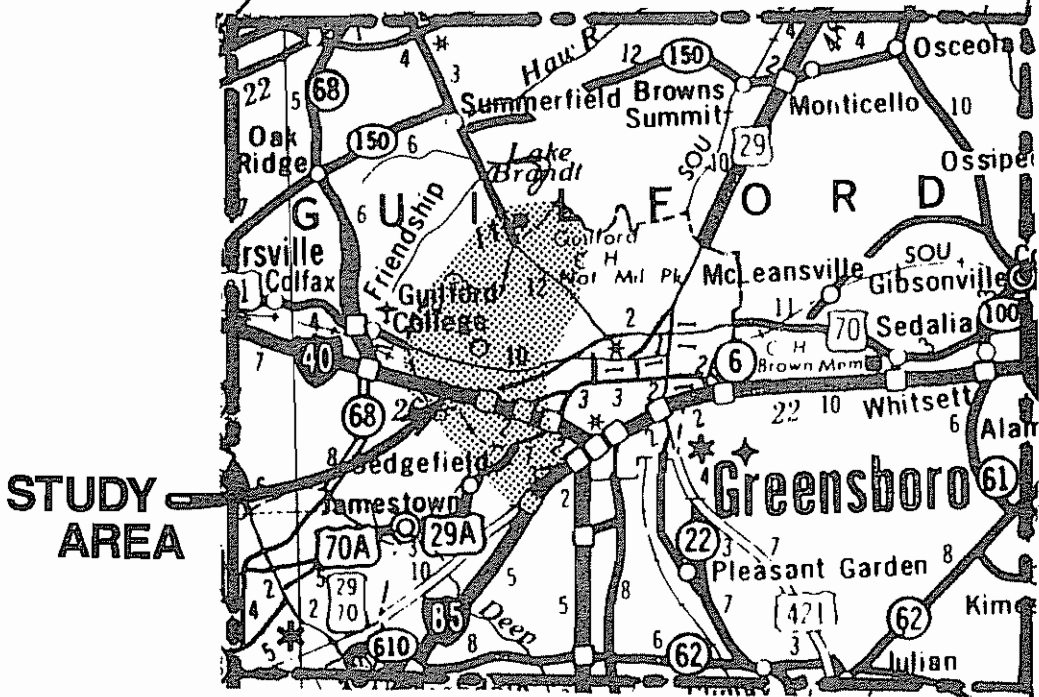
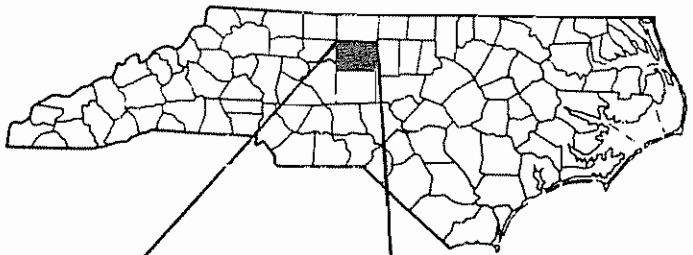
The concept of an Urban Loop around the City of Greensboro is included in the Greensboro Thoroughfare Plan (see Figure I-4). The thoroughfare plan was recently revised and updated, with considerable public participation in the process. The updated thoroughfare plan was adopted by the City of Greensboro and by Guilford County on September 5, 1989 and by the North Carolina Department of Transportation on November 3, 1989.

Greensboro's first thoroughfare plan was prepared in 1954. An urban loop shown on that plan was later developed as Holden Road and Cone Boulevard. The 1960 update showed a western loop in about the same location as the proposed Eastern Alternative, tying into Hilltop Road on the south. A 1964 update showed the loop in the same location as a four-lane divided arterial road. The expressway/freeway (controlled access) concept emerged in the 1967 update, which became part of the NCDOT planning process. The plan was modified slightly in 1973 and 1977. The most recent update of the Thoroughfare Plan occurred in 1989, as described earlier. A chronology of significant events leading to the preparation of the Draft Environmental Impact Statement for the Greensboro Western Urban Loop is shown in Table I-1.

**TABLE I-1
CHRONOLOGY OF SIGNIFICANT EVENTS
FOR
GREENSBORO WESTERN URBAN LOOP**

<u>Date</u>	<u>Event</u>
1967	Urban Loop included in the City of Greensboro Transportation Plan
June 1977	Thoroughfare Plan (including the Urban Loop) adopted by the City of Greensboro, Guilford County, and the NC Board of Transportation
November 1988	Alternative analyses conducted as part of Thoroughfare Plan update
July 1989	N.C. Highway Trust Fund Law enacted, which provides a trust fund for designated urban loops
July 1989	Planning and environmental impact studies on the Western Urban Loop began
September 1989	Updated Thoroughfare Plan adopted by City of Greensboro and Guilford County

With the adoption of the 1989 Thoroughfare Plan, the Transportation Advisory Committee for the Greensboro Urban Area (including representatives of Greensboro, Guilford County, and other municipalities) also adopted goals and objectives. The adopted purpose and goals of the Thoroughfare Plan are listed in Table I-2.



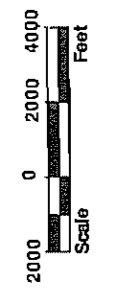
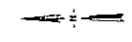
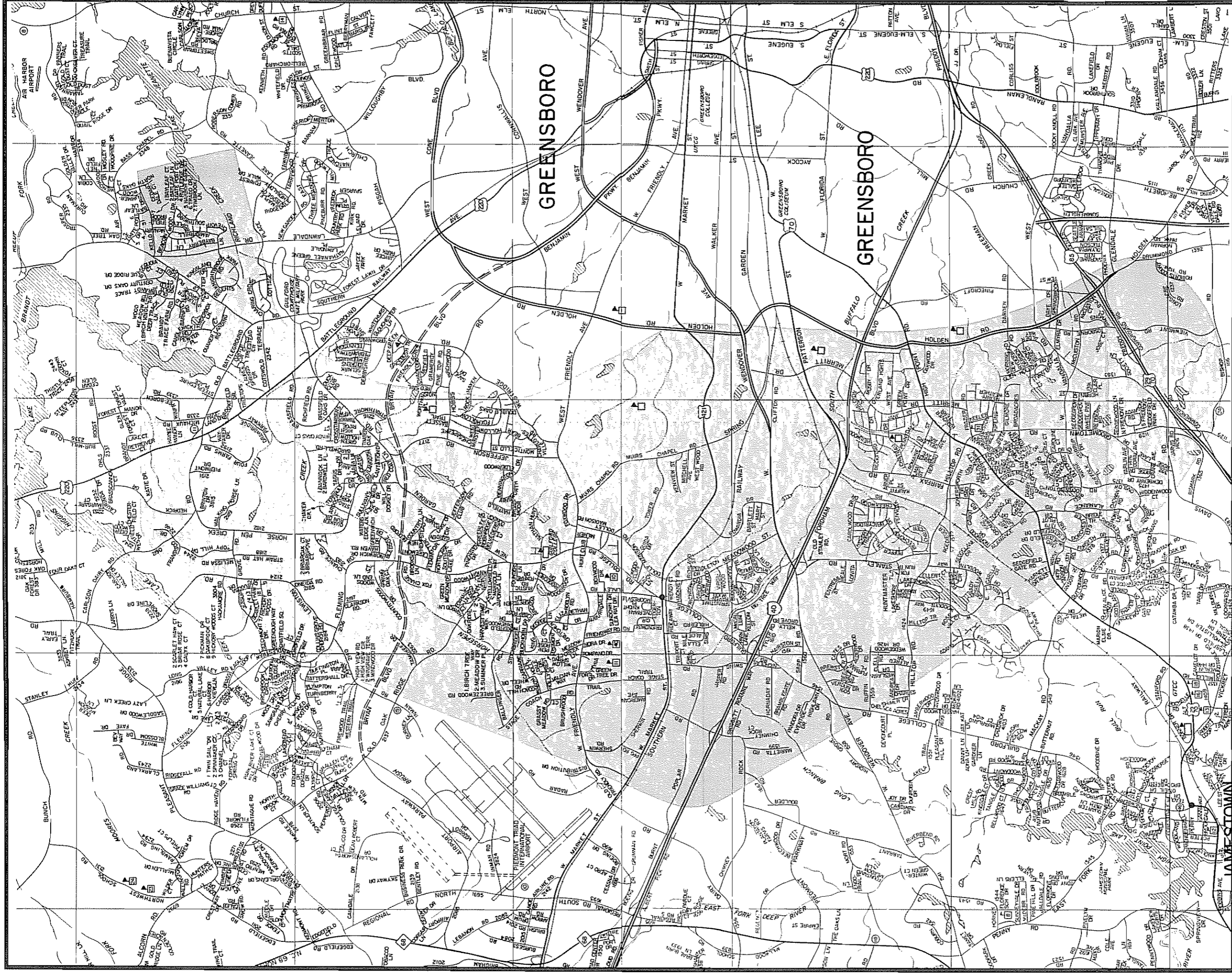
NOT TO SCALE

Map Source: NCDOT

**GREENSBORO WESTERN
URBAN LOOP**

VICINITY MAP

**FIGURE
I-1**



GREENSBORO WESTERN URBAN LOOP

PROJECT STUDY AREA

Figure
1-2



Map Source: NCDOT

LEGEND

EXISTING		PROPOSED		EXISTING		PROPOSED	
—	—	-----	-----	●	○	●	○
MAJOR THOROUGHFARES				MINOR THOROUGHFARES			
FREEWAYS				INTERCHANGE			
OTHER				GRADE SEPARATION			

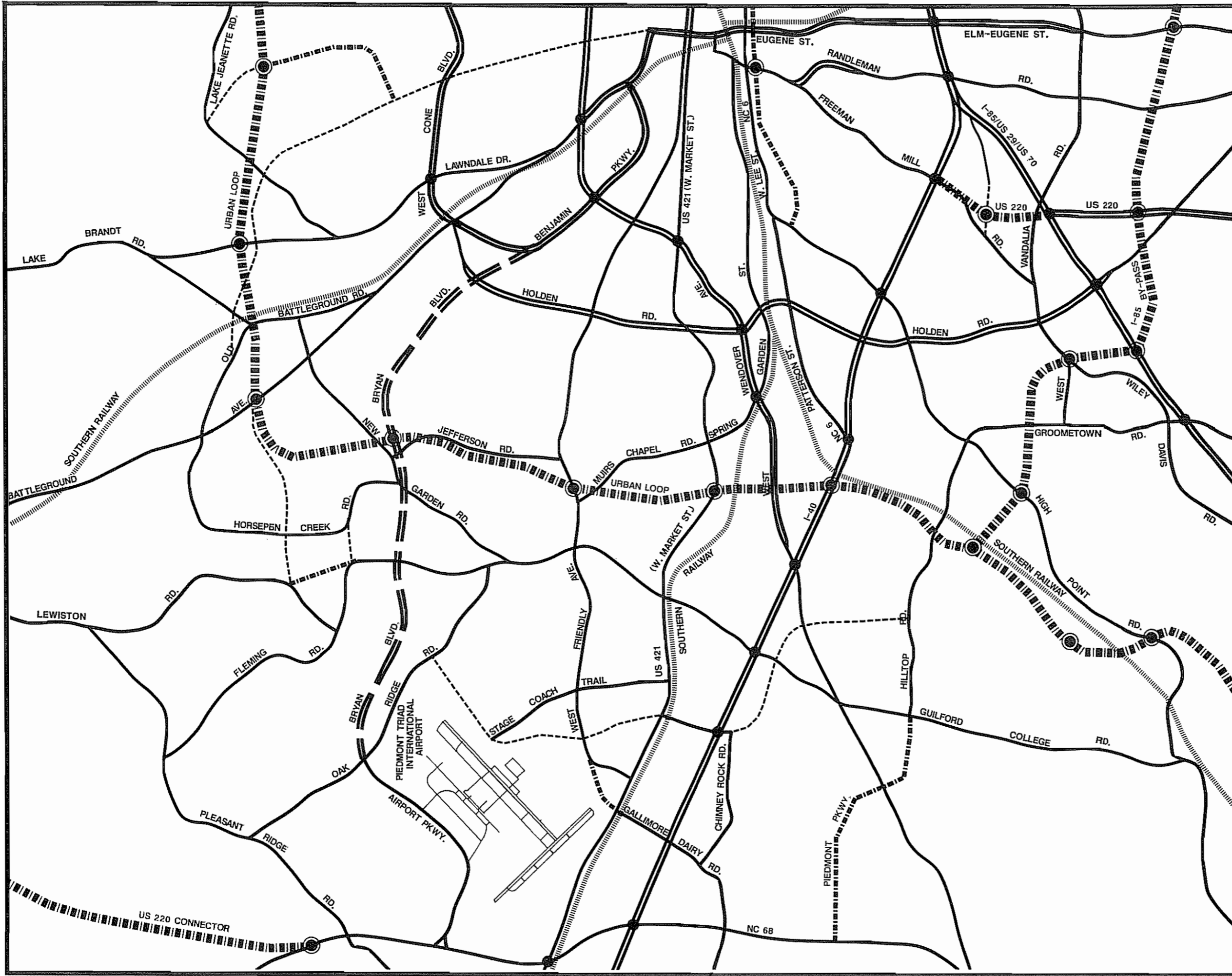
3000 0 3000 6000
Scale Feet



GREENSBORO WESTERN URBAN LOOP

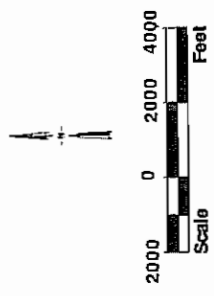
1989 GREENSBORO URBAN AREA THOROUGHFARE PLAN

Figure 1-4



LEGEND

- Existing ——— Proposed
- MAJOR THOROUGHFARES ———
- FREEWAYS ———
- OTHER ———
- MINOR THOROUGHFARES - - - - -
- INTERCHANGES ●



**GREENSBORO URBAN AREA 1989
THOROUGHFARE PLAN IN STUDY AREA**

GREENSBORO WESTERN URBAN LOOP

TABLE I-2
GREENSBORO THOROUGHFARE PLAN
PURPOSE AND GOALS

Purpose

The purpose of the Greensboro Thoroughfare Plan is to be a guide to meet the future transportation needs of the Greensboro Urban Area. The plan should be used to assist the public, decision-makers, and transportation professionals in identifying and meeting those needs. The plan is not intended to be a long statement of lofty goals and objectives but to reflect the overall commitment to the continued high quality of life of the entire area. As the urban area changes so must its Thoroughfare Plan. The process that will identify and help meet the future transportation needs of the citizens must begin here.

Goal 1

Provide an adequate highway and street system to serve the current and long-term needs of the community.

Goal 2

Provide for and encourage the use of other modes of transportation. Planning activities should include activities that increase the use of other modes which will more effectively utilize the existing transportation network.

Goal 3

Design transportation projects so as to improve, or at least minimize negative impacts on: neighborhoods, noise levels, air quality, energy usage, etc.

Goal 4

Develop, maintain, update, and follow a long-range comprehensive plan for transportation.

Goal 5

To adopt a transportation plan that reflects the needs and desires of the community while recognizing that there will be disagreements.

The most recent planning for the Urban Loop began during preparation of the 1989 Thoroughfare Plan. Studies were performed by three separate engineering consulting firms retained by the City of Greensboro as part of the thoroughfare planning process. The scope of the studies was to define feasible preliminary alignment alternatives and identify possible impacts on communities, businesses, and the environment. With the completion of the Thoroughfare Plan and the inclusion of the project in the North Carolina Highway Trust Fund, an engineering firm was retained in July 1989 to complete the planning and environmental impact study for the Western Urban Loop.

The City of Greensboro has encouraged the protection of the location as shown on the proposed Thoroughfare Plan, which is generally the Eastern Alternative alignment. The City's zoning map showing the Thoroughfare Plan alignment has been available to the public since 1986. The City's jurisdictional authority for zoning is limited to within the corporate limits. Areas outside the corporate limits are subject to zoning regulations by Guilford County. The Thoroughfare Plan location is not included in the Guilford County Zoning Map and no right-of-way has been specifically designated for the proposed thoroughfare for the portions outside the corporate limits (see Chapter III.2, Land Use Planning). Although most of the Thoroughfare Plan alignment is located within the corporate limits, two areas outside the corporate limits where significant development has been allowed within the Thoroughfare Plan alignment are King's Pond subdivision off Groometown Road and Draw Bridge located at US 220.

D. SYSTEM LINKAGE

The Greater Greensboro Urban Area is served by two major Interstate highways (see Figures I-1 and I-4). I-85 provides connection to the Charlotte-Mecklenburg area to the south, the I-85/I-40 section provides connection to the Research Triangle area (Raleigh, Durham, Chapel Hill) to the east, and I-40 links Greensboro to Asheville through Winston-Salem in the west. The Interstate System also provides important transportation linkage within the Piedmont Triad Area (Greensboro, Winston-Salem, High Point). Major U.S. routes serving Greensboro include US 29 (and 29A), US 70 (and 70A), US 220, and US 421. Each of these are major thoroughfares which run radially into Greensboro. These routes, together with other major thoroughfares, provide Greensboro with a well-developed radial system. The existing street system is, however, deficient in providing a continuous, high-capacity, circumferential roadway. The need for such a facility increases as suburbanization and growth continues and daily trip origins and destinations become more dispersed throughout Greensboro. The Urban Loop eliminates this deficiency by encircling Greensboro, connecting the radials, and providing the cross-town or circumferential connection that is a major component of the adopted Thoroughfare Plan.

The Greensboro Urban Loop has been divided into three sections for three separate environmental impact studies. These three sections are: the Western Urban Loop, the I-85 Bypass, and the Eastern/Northern Urban Loop. Each of these segments have logical termini at Interstate highways or major arterial routes. Funding for the entire Urban Loop was included in the 1989 State Highway Trust Fund Bill.

A 14-mile portion of the loop, referred to as the I-85 Bypass, extends from I-85/I-40 east of Greensboro to I-85 west of Greensboro. Designated as I-2402 in the TIP, an Environmental Impact Statement (EIS) is being prepared to determine the route location. The 1991-1997 State TIP has

scheduled right-of-way acquisition to begin in fiscal year 1994 and construction to begin in fiscal year 1997.

The Eastern/Northern Environmental Impact Statement addresses two portions. It includes a 9.3-mile portion of the loop, referred to as the Eastern Loop, which extends northeasterly from I-85/I-40 east of Greensboro to US 29 North. Designated as U-2525 in the 1991-1997 TIP, it is scheduled for right-of-way acquisition to begin in fiscal year 1993 and construction to begin in fiscal year 1994. A 7.4-mile portion of the loop, referred to as the Northern Loop, extends from US 29 North to US 220 North. Designated as U-2526 in the 1991-1997 State TIP, it is scheduled for right-of-way acquisition to begin in fiscal year 1999 and construction to begin in fiscal year 2001. The section from Lawndale Drive to US 220 North has been combined with this Western Loop environmental study to identify and preserve a corridor in a rapidly-developing portion of Greensboro.

In addition to serving as part of the Greensboro Urban Loop, the portion of this project between I-40 West and I-85 South may be designated as I-40, to serve as a section of an I-40 bypass with the I-85 bypass. The bypass route between I-40 West and I-85 North/I-40 East will relieve traffic on existing I-85/I-40, enabling east-west through traffic to avoid central Greensboro and to travel on a modern freeway with better operating conditions.

As indicated previously, a great deal of time, effort, and cost has been expended in developing the Urban Loop with the ultimate goal of completely encircling the City of Greensboro with a freeway facility. Therefore, any of the above loop portions, if not completed, would result in a missing link or gap in an outer loop around the city. Although each individual segment will serve an important function, and have independent utility, the Greensboro area would not receive the extent of economic and road-user benefits associated with an improved transportation system if such a gap were allowed to occur.

E. TRAFFIC CAPACITY AND LEVEL-OF-SERVICE

The operating conditions within a traffic stream are qualitatively referred to by levels-of-service. These conditions are generally described in terms of speed, travel time, maneuverability, traffic interruptions, comfort, convenience, and safety.

The Transportation Research Board (TRB) has defined levels-of-service (LOS) in categories from A to F. LOS A represents ideal, free-flow conditions, while LOS F represents forced or breakdown flow with stop and go conditions. Generally, LOS D is considered the lowest limit at which traffic flow is acceptable during peak periods in urban areas. Traffic flow on roadway links at LOS D is considered stable, but becoming susceptible to congestion and unstable flow. Therefore, any

roadway links with traffic volumes that exceed LOS D (E or F) are considered to be exceeding the capacity at which they can operate safely and satisfactorily. Definitions of level-of-service from the Highway Capacity Manual are included in the Glossary of Technical Terms, Appendix E.

Capacity analyses were performed on the affected major arterials in the project study area. The results are summarized in Table I-3. The Table is shown on four pages, each including the same list of roadways with road names and limits of each section analyzed. The first page shows, for each road section, the following information:

- number of existing travel lanes (not including turn lanes)
- 1989 average daily traffic volume
- existing daily roadway capacity, at level-of-service D
- 1989 volume-to-capacity ratio; a ratio higher than 1.0 indicates congested conditions
- 1989 level-of-service (LOS), based on the volume-to-capacity ratio
- number of travel lanes proposed for year 2010, based on the 1989 Greensboro Urban Area Thoroughfare Plan
- projected 2010 daily roadway capacity, based on number of travel lanes

The second, third, and fourth pages of Table I-3 compare traffic conditions under the No-Build Alternative with traffic conditions under the Eastern, Middle, and Western Alternatives, respectively. All alternatives (including No-Build) assume completion of the 1989 Greensboro Urban Area Thoroughfare Plan road improvements, with the exception of the Greensboro Urban Loop. The I-85 Bypass is assumed to be completed. The following information is provided for each road section:

- 2010 average daily traffic volume for No-Build Alternative
- 2010 volume-to-capacity ratio (No-Build)
- 2010 level-of-service (No-Build)
- 2010 average daily traffic volume for Eastern, Middle, or Western Alternative
- 2010 volume-to-capacity ratio (Eastern, Middle, or Western Alternative)
- 2010 level-of-service (Easter, Middle, or Western Alternative)
- Reduction in 2010 average daily traffic with Western Urban Loop in place, as compared with No-Build (negative number indicates an increase)
- Percent reduction in 2010 average daily traffic with Western Urban Loop in place, as compared with No-Build (negative number indicates increase)

Under present conditions (1989 Average Daily Traffic), a poor level-of-service (E or F) is provided on many roads (one-third of those in Table I-3), both radial and circumferential. I-40, Guilford College Road, and portions of US 220 are LOS E or worse. The existing transportation system does

not accommodate existing traffic at acceptable levels of service, and the situation becomes worse with projected traffic volumes. The level-of-service was computed for segments for both a no-build (including TSM improvements) and the three build freeway alternatives for the proposed Greensboro Western Urban Loop using projected 2010 traffic volumes. Based on this analysis, 89 percent of the affected major arterial segments will have an improved level-of-service while only 11 percent of the segments would have a reduced level-of-service with the proposed facility in place. The following routes are projected to operate at LOS E or F in the year 2010 with the No-Build Alternative:

- o Bryan Boulevard between Westridge Road and New Garden Road
- o Guilford College Road between Wendover Avenue and Friendly Avenue
- o High Point Road between Alamance Road and Holden Road
- o I-40 between NC 68 and Patterson Street
- o Jefferson Road between Friendly Avenue and New Garden Road
- o Lake Brandt Road between Old Battleground Road and Lawndale Drive
- o Meadowood Street between Wendover Avenue and US 421
- o New Garden Road between Friendly Avenue and Jefferson Road
- o New Garden Road between Bryan Boulevard and US 220
- o Old Battleground Road between US 220 and Lake Brandt Road
- o Old Oak Ridge Road between Fleming Road and Inman Road
- o Stanley Road between I-40 and Hilltop Road
- o US 220 between Westridge Road and New Garden Road
- o US 421 between Guilford College Road and Spring Garden Street
- o Wendover Avenue between I-40 and Holden Road
- o Westridge Road between Friendly Avenue and Bryan Boulevard

Among the radial arterial routes that are projected to operate at LOS E or F in the no-build alternative in 2010 are:

- o High Point Road
- o I-40
- o US 220 (Battleground Avenue)
- o Wendover Avenue

The following north-south circumferential arterial routes are projected to operate at LOS E or F in the no-build alternative in 2010:

- o Guilford College Road
- o Holden Road
- o Jefferson Road
- o New Garden Road
- o Westridge Road

Analyses of year 2010 traffic assignments with and without the western urban loop indicate that total vehicle-miles travelled in the Greensboro Urban area will be reduced by about 75,000 to 105,000 miles per day and that vehicle-hours travelled will be reduced by about 14,000 hours per day. These

decreases will result in reduced fuel consumption, air pollution, and user cost throughout the region, particularly because of reduced congestion and more efficient operating conditions.

F. INTER-MODAL RELATIONSHIP

Available modes of transportation in Greensboro and Guilford County include the private automobile, bus and rideshare service, rail service, and air service.

Bus service, currently provided by Duke Power Transit, extends into the study area. Service is primarily peak hour oriented. Routes in the study area include Battleground, Friendly Center, Walker Avenue, and Pomona-Bessemer. These routes are radial and therefore would not serve the circumferential traffic that this project would serve. The City of Greensboro is in the process of acquiring the bus system.

The City of Greensboro and the City of High Point operate a ride-sharing program, called Muncipool. A major goal of this program is to increase auto occupancy and thus conserve fuel and reduce the need for new roadway and parking facilities. Because this route would serve circumferential travel in a suburban area, it serves a different purpose from the ride-sharing program, which would serve radially-oriented work trips.

Two railroad lines owned by Southern Railway cross the study area as shown in Figure I-2. The east-west line is parallel to and south of US 421, while the other runs to the southwest, roughly parallel to High Point Road. A third railroad line from Guilford Courthouse National Military Battleground north has been abandoned. All active railroad crossings would be grade-separated.

The Piedmont Triad International Airport is just west of the proposed study area. The Airport Master Plan now being prepared calls for extension of the airport on the western side of its current facilities. A new runway is planned parallel to and west of existing Runway 5-23, along with extensive related development to the south and east of Runway 5-23, in an area identified for airport expansion. A privately-operated shuttle service operates between the City and the airport. A master plan is currently being developed for the airport and is anticipated to be completed in 1991. No plans are currently available from that document. This project would enhance access to the airport from I-85 and from northwest Greensboro by providing a good connection to I-40 and to Bryan Boulevard.

TABLE I-3 TRAFFIC AND CAPACITY ANALYSIS OF MAJOR ARTERIALS IN THE PROJECT AREA

ROAD	BETWEEN	THROUGH LANES	1989 ADT	EXISTING CAPACITY	V/C	LOS	THROUGH LANES	PROJECTED 2010 CAPACITY
BRYAN BLVD.	HOLDEN RD. & WESTRIDGE RD.	N/A	N/A	N/A	N/A	N/A	4	51500
BRYAN BLVD.	WESTRIDGE RD. & NEW GARDEN RD.	N/A	N/A	N/A	N/A	N/A	4	51500
DOLLY MADISON RD.	US 421 & FRIENDLY AVE.	2	8200	9500	0.86	D	2	9500
FLEMING RD.	NEW GARDEN RD. & CHANCE RD.	2	6500	9500	0.68	D	4	35400
FRIENDLY AVE.	HOLDEN RD. & WESTRIDGE RD.	4	22700	35400	0.64	C	4	35400
GROOMETOWN RD.	I-85 & HIGH POINT RD.	2	8300	9500	0.87	D	4	35400
GUILFORD COLLEGE RD.	WENDOVER & I-40	2	17500	9500	1.84	E	4	35400
GUILFORD COLLEGE RD.	I-40 & US 421	2	17300	9500	1.82	E	4	35400
GUILFORD COLLEGE RD.	US 421 & FRIENDLY AVE.	2	15700	9500	1.65	E	4	35400
HIGH POINT RD.	GROOMETOWN RD. & HOLDEN RD.	6	31100	53160	0.59	C	6	53160
HIGH POINT RD.	ALAMANCE RD. & GROOMETOWN RD.	2	13600	9500	1.43	E	4	35400
HILLTOP RD.	GUILFORD COLLEGE RD. & STANLEY RD.	2	5200	9500	0.55	C	4	35400
HOLDEN RD.	WEST MARKET ST. & FRIENDLY AVE.	4	16400	35400	0.46	B	4	35400
HOLDEN RD.	HIGH POINT RD. & WENDOVER AVE.	4	34000	35400	0.96	D	4	35400
HOLDEN RD.	I-85 & HIGH POINT RD.	4	24800	35400	0.70	C	4	35400
HOLDEN RD.	FRIENDLY AVE. & BRYAN BLVD.	4	16400	35400	0.46	B	4	35400
I-40	NC 68 & CHIMNEY ROCK RD.	4	69800	51500	1.36	F	6	77250
I-40	CHIMNEY ROCK RD. & GUILFORD COLLEGE RD.	4	78100	51500	1.52	F	6	77250
I-40	GUILFORD COLLEGE RD. & WENDOVER AVE.	4	82500	51500	1.60	F	6	77250
I-40	WENDOVER AVE. & PATTERSON ST.	4	78400	51500	1.52	F	6	77250
JEFFERSON RD.	FRIENDLY AVE. & NEW GARDEN RD.	2	4700	9500	0.49	C	2	9500
LAKE BRANDT RD.	OLD BATTLEGROUND RD. & LAUNDALE DR.	2	5000	9500	0.53	C	2	9500
LAUNDALE DR.	PISGAH CHURCH RD. & LAKE JEANETTE RD.	2	23200	9500	2.44	F	4	35400
MEADOWOOD ST.	WENDOVER AVE. & US 421	2	8500	9500	0.89	D	2	9500
HERRITT DR.	HIGH POINT RD. & PATTERSON ST.	2	N/A	9500	0.00	N/A	4	35400
MUIRS CHAPEL RD.	US 421 & FRIENDLY AVE.	4	9000	35400	0.25	A	4	35400
NEW GARDEN RD.	FRIENDLY AVE. & FLEMING RD.	4	21550	35400	0.61	B	4	35400
NEW GARDEN RD.	BRYAN BLVD. & US 220	2	8900	9500	0.94	D	4	35400
NEW GARDEN RD.	FLEMING RD. & JEFFERSON RD.	2	9050	9500	0.95	D	2	9500
OLD BATTLEGROUND RD.	US 220 & LAKE BRANDT RD.	2	6500	9500	0.68	D	2	9500
OLD OAK RIDGE RD.	FLEMING RD. & INMAN RD.	2	9050	9500	0.95	E	2	9500
STANLEY RD.	I-40 & HILLTOP RD.	2	5300	9500	0.56	C	2	9500
US 220	WESTRIDGE RD. & NEW GARDEN RD.	4	23000	39880	0.58	B	4	39880
US 220	OLD BATTLEGROUND RD. & NEW GARDEN RD.	2	14500	9500	1.53	E	4	35400
US 421	NC 68 & GALLIMORE DAIRY RD	2	15700	9500	1.65	E	4	35400
US 421	GALLIMORE DAIRY RD & CHIMNEY ROCK RD	2	20000	9500	2.11	F	4	35400
US 421	CHIMNEY ROCK RD & GUILFORD COLLEGE RD	2	14400	9500	1.52	E	4	35400
US 421	GUILFORD COLLEGE RD & SPRING GARDEN ST	4	18000	35400	0.51	B	4	35400
VANDALIA RD	GROOMETOWN RD & WESTERN URBAN LOOP	2	5000	9500	0.53	C	4	35400
VANDALIA RD	WESTERN URBAN LOOP & HOLDEN RD	2	5500	9500	0.58	C	4	35400
WENDOVER AVE.	I-40 & SPRING GARDEN ST.	4	39900	39880	1.00	D	6	53160
WENDOVER AVE.	SPRING GARDEN ST. & HOLDEN RD.	4	33000	39880	0.83	D	4	39880
WESTRIDGE RD.	FRIENDLY AVE. & BRYAN BLVD.	2	N/A	9500	0.00	N/A	2	9500

SOURCE: EXISTING ADT FROM NCDOT, TRAFFIC PROJECTIONS BY KIMLEY-HORN AND ASSOCIATES, CAPACITIES AND LEVELS OF SERVICE BASED ON THE 1985 HIGHWAY CAPACITY MANUAL
 ADT = AVERAGE DAILY TRAFFIC V/C = VOLUME/CAPACITY LOS = LEVEL OF SERVICE

TABLE 1-3 TRAFFIC AND CAPACITY ANALYSIS OF MAJOR ARTERIALS IN THE PROJECT AREA

ROAD	BETWEEN	ADT	NO BUILO V/C	LOS	ADT	EASTERN ALGN. V/C	LOS	CHANGE IN ADT FROM NO-BUILD	PERCENT DECREASE
BRYAN BLVD.	HOLDEN RD. & WESTRIDGE RD.	34500	0.67	C	31100	0.60	C	3400	9.9
BRYAN BLVD.	WESTRIDGE RD. & NEW GARDEN RD.	52650	1.02	E	55200	1.07	E	-2550	-4.8
DOLLY MADISON RD.	US 421 & FRIENDLY AVE.	8250	0.87	D	8150	0.86	D	100	1.2
FLEHING RD.	NEW GARDEN RD. & CHANCE RD.	21700	0.61	B	17350	0.49	B	4350	20.0
FRIENDLY AVE.	HOLDEN RD. & WESTRIDGE RD.	29000	0.82	D	27650	0.78	C	1350	4.7
GROOMETOWN RD.	I-85 & HIGH POINT RD.	23850	0.67	C	12100	0.34	A	11750	49.3
GUILFORD COLLEGE RD.	WENDOVER & I-40	44900	1.27	F	39100	1.10	E	5800	12.9
GUILFORD COLLEGE RD.	I-40 & US 421	36250	1.02	E	20700	0.58	B	15550	42.9
GUILFORD COLLEGE RD.	US 421 & FRIENDLY AVE.	38650	1.09	E	28700	0.81	D	9950	25.7
HIGH POINT RD.	GROOMETOWN RD. & HOLDEN RD.	57850	1.09	E	40600	0.76	C	17250	29.8
HIGH POINT RD.	ALAMANCE RD. & GROOMETOWN RD.	47450	1.34	F	36950	1.04	E	10500	22.1
HILLTOP RD.	GUILFORD COLLEGE RD. & STANLEY RD.	32300	0.91	D	22300	0.63	C	10000	31.0
HOLDEN RD.	WEST MARKET ST. & FRIENDLY AVE.	32250	0.91	D	24750	0.70	C	7500	23.3
HOLDEN RD.	HIGH POINT RD. & WENDOVER AVE.	55150	1.56	F	37400	1.06	E	17750	32.2
HOLDEN RD.	I-85 & HIGH POINT RD.	34050	0.96	D	23500	0.66	C	10550	31.0
HOLDEN RD.	FRIENDLY AVE. & BRYAN BLVD.	20000	0.56	B	16350	0.46	B	3650	18.3
I-40	NC 68 & CHIMNEY ROCK RD.	72000	0.93	D	78200	1.01	E	-6200	-8.6
I-40	CHIMNEY ROCK RD. & GUILFORD COLLEGE RD.	78600	1.02	E	115200	1.49	F	-36600	-46.6
I-40	GUILFORD COLLEGE RD. & WENDOVER AVE.	116700	1.51	F	113200	1.47	F	3500	3.0
I-40	WENDOVER AVE. & PATTERSON ST.	102400	1.33	F	98700	1.28	F	3700	3.6
JEFFERSON RD.	FRIENDLY AVE. & NEW GARDEN RD.	10300	1.08	E	7450	0.78	D	2850	27.7
LAKE BRANDT RD.	OLD BATTLEGROUND RD. & LANSDALE DR.	10400	1.09	E	5550	0.58	C	4850	46.6
LANSDALE DR.	PISGAH CHURCH RD. & LAKE JEANNETTE RD.	30250	0.85	D	22550	0.64	C	7700	25.5
MEADOWOOD ST.	WENDOVER AVE. & US 421	15700	1.65	E	14550	1.53	E	1150	7.3
MERRITT DR.	HIGH POINT RD. & PATTERSON ST.	20350	0.57	B	15100	0.43	B	5250	25.8
MUIRS CHAPEL RD.	US 421 & FRIENDLY AVE.	29900	0.84	D	18700	0.53	B	11200	37.5
NEW GARDEN RD.	FRIENDLY AVE. & FLEHING RD.	49150	1.39	F	35850	1.01	E	13300	27.1
NEW GARDEN RD.	BRYAN BLVD. & US 220	28850	0.81	D	26350	0.74	C	2500	8.7
NEW GARDEN RD.	FLEHING RD. & JEFFERSON RD.	23200	2.44	F	17400	1.83	E	5800	25.0
NEW GARDEN RD.	US 220 & LAKE BRANDT RD.	10900	1.15	E	9250	0.97	D	1650	15.1
OLD BATTLEGROUND RD.	FLEHING RD. & INMAN RD.	11500	1.21	E	14800	1.56	E	-3300	-28.7
OLD OAK RIDGE RD.	I-40 & HILLTOP RD.	17900	1.88	E	9850	1.04	E	8050	45.0
STANLEY RD.									
US 220	WESTRIDGE RD. & NEW GARDEN RD.	56400	1.41	F	51500	1.29	F	4900	8.7
US 220	OLD BATTLEGROUND RD. & NEW GARDEN RD.	30300	0.86	D	28000	0.79	C	2300	7.6
US 421	NC 68 & GALLIMORE DAIRY RD	17100	0.48	B	15400	0.44	B	1700	9.9
US 421	GALLIMORE DAIRY RD & CHIMNEY ROCK RD	20800	0.59	B	18100	0.51	B	2700	13.0
US 421	CHIMNEY ROCK RD & GUILFORD COLLEGE RD	26700	0.75	C	27500	0.78	C	-800	-3.0
US 421	GUILFORD COLLEGE RD & SPRING GARDEN ST	36200	1.02	E	37000	1.05	E	-800	-2.2
VANDALIA RD	GROOMETOWN RD & WESTERN URBAN LOOP	20900	0.59	B	5100	0.14	A	15800	75.6
VANDALIA RD	WESTERN URBAN LOOP & HOLDEN RD	17500	0.49	B	18200	0.51	B	-700	-4.0
WENDOVER AVE.	I-40 & SPRING GARDEN ST.	90100	1.69	F	84480	1.59	F	5620	6.2
WENDOVER AVE.	SPRING GARDEN ST. & HOLDEN RD.	49300	1.24	E	44800	1.12	E	4500	9.1
WESTRIDGE RD.	FRIENDLY AVE. & BRYAN BLVD.	16200	1.71	E	15250	1.61	E	950	5.9

SOURCE: EXISTING ADT FROM NCDOT, TRAFFIC PROJECTIONS BY KIMLEY-HORN AND ASSOCIATES, CAPACITIES AND LEVELS OF SERVICE BASED ON THE 1985 HIGHWAY CAPACITY MANUAL
 ADT = AVERAGE DAILY TRAFFIC V/C = VOLUME/CAPACITY LOS = LEVEL OF SERVICE

TABLE 1-3 TRAFFIC AND CAPACITY ANALYSIS OF MAJOR ARTERIALS IN THE PROJECT AREA

ROAD	BETWEEN	YEAR 2010			YEAR 2010			CHANGE IN			PERCENT DECREASE
		ADT	V/C	LOS	ADT	V/C	LOS	ADT FROM NO-BUILD			
BRYAN BLVD.	HOLDEN RD. & WESTRIDGE RD.	34500	0.67	C	31000	0.60	C	3500	10.1		
BRYAN BLVD.	WESTRIDGE RD. & NEW GARDEN RD.	52650	1.02	E	48000	0.93	D	4650	8.8		
DOLLY MADISON RD.	US 421 & FRIENDLY AVE.	8250	0.87	D	7300	0.77	D	950	11.5		
FLEMING RD.	NEW GARDEN RD. & CHANCE RD.	21700	0.61	B	16475	0.47	B	5225	24.1		
FRIENDLY AVE.	HOLDEN RD. & WESTRIDGE RD.	29000	0.82	D	25250	0.71	C	3750	12.9		
GROOMETOWN RD.	I-85 & HIGH POINT RD.	23850	0.67	C	12580	0.36	A	11270	47.3		
GUILFORD COLLEGE RD.	WENDOVER & I-40	44900	1.27	F	39800	1.12	E	5100	11.4		
GUILFORD COLLEGE RD.	I-40 & US 421	36250	1.02	E	14250	0.40	A	22000	60.7		
GUILFORD COLLEGE RD.	US 421 & FRIENDLY AVE.	38650	1.09	E	22000	0.62	B	16650	43.1		
HIGH POINT RD.	GROOMETOWN RD. & HOLDEN RD.	57850	1.09	E	48300	0.91	D	9550	16.5		
HIGH POINT RD.	ALANANCE RD. & GROOMETOWN RD.	47450	1.34	F	46550	1.31	F	900	1.9		
HILLTOP RD.	GUILFORD COLLEGE RD. & STANLEY RD.	32300	0.91	D	22000	0.62	B	10300	31.9		
HOLDEN RD.	WEST MARKET ST. & FRIENDLY AVE.	32250	0.91	D	29100	0.82	D	3150	9.8		
HOLDEN RD.	HIGH POINT RD. & WENDOVER AVE.	55150	1.56	F	44650	1.26	F	10500	19.0		
HOLDEN RD.	I-85 & HIGH POINT RD.	34050	0.96	D	26950	0.76	C	7100	20.9		
HOLDEN RD.	FRIENDLY AVE. & BRYAN BLVD.	20000	0.56	B	18400	0.52	B	1600	8.0		
I-40	NC 68 & CHIMNEY ROCK RD.	72000	0.93	D	82900	1.07	E	-10900	-15.1		
I-40	CHIMNEY ROCK RD. & GUILFORD COLLEGE RD.	78600	1.02	F	84800	1.10	F	-6200	-7.9		
I-40	GUILFORD COLLEGE RD. & WENDOVER AVE.	116700	1.51	F	95300	1.23	F	21400	18.3		
I-40	WENDOVER AVE. & PATTERSON ST.	102400	1.33	F	73900	0.96	D	28500	27.8		
JEFFERSON RD.	FRIENDLY AVE. & NEW GARDEN RD.	10300	1.08	E	7800	0.82	D	2500	24.3		
LAKE BRANDT RD.	OLD BATTLEGROUND RD. & LAWDALE DR.	10400	1.09	E	6000	0.63	C	4400	42.3		
LAWDALE DR.	PISGAM CHURCH RD. & LAKE JEANNETTE RD.	30250	0.85	D	26800	0.76	C	3450	11.4		
MEADOWOOD ST.	WENDOVER AVE. & US 421	15700	1.65	E	11900	1.25	E	3800	24.2		
MERRITT DR.	HIGH POINT RD. & PATTERSON ST.	20350	0.57	B	14950	0.42	B	5400	26.5		
MUIRS CHAPEL RD.	US 421 & FRIENDLY AVE.	29900	0.84	D	24600	0.69	C	5300	17.7		
NEW GARDEN RD.	FRIENDLY AVE. & FLEMING RD.	49150	1.39	F	30100	0.85	D	19050	38.8		
NEW GARDEN RD.	BRYAN BLVD. & US 220	28850	0.81	D	14800	0.42	B	14050	48.7		
NEW GARDEN RD.	FLEMING RD. & JEFFERSON RD.	23200	2.44	F	13100	1.38	E	10100	43.5		
NEW GARDEN RD.	US 220 & LAKE BRANDT RD.	10900	1.15	E	9750	1.03	E	1150	10.6		
OLD BATTLEGROUND RD.	FLEMING RD. & INMAN RD.	11500	1.21	E	9200	0.97	D	2300	20.0		
OLD OAK RIDGE RD.	I-40 & HILLTOP RD.	17900	1.88	E	12800	1.35	E	5100	28.5		
STANLEY RD.											
US 220	WESTRIDGE RD. & NEW GARDEN RD.	56400	1.41	F	56600	1.42	F	-200	-0.4		
US 220	OLD BATTLEGROUND RD. & NEW GARDEN RD.	30300	0.86	D	35750	1.01	E	-5450	-18.0		
US 421	NC 68 & GALLIMORE DAIRY RD	17100	0.48	B	15600	0.44	B	1500	8.8		
US 421	GALLIMORE DAIRY RD & CHIMNEY ROCK RD	20800	0.59	B	20300	0.57	B	500	2.4		
US 421	CHIMNEY ROCK RD & GUILFORD COLLEGE RD	26700	0.75	C	36300	1.03	E	-9600	-36.0		
US 421	GUILFORD COLLEGE RD & SPRING GARDEN ST	36200	1.02	E	30600	0.86	D	5600	15.5		
VANDALIA RD	GROOMETOWN RD & WESTERN URBAN LOOP	20900	0.59	B	6000	0.17	A	14900	71.3		
VANDALIA RD	WESTERN URBAN LOOP & HOLDEN RD	17500	0.49	B	18400	0.52	B	-900	-5.1		
WENDOVER AVE.	I-40 & SPRING GARDEN ST.	90100	1.69	F	83340	1.57	F	6760	7.5		
WENDOVER AVE.	SPRING GARDEN ST. & HOLDEN RD.	49300	1.24	E	44200	1.11	E	5100	10.3		
WESTRIDGE RD.	FRIENDLY AVE. & BRYAN BLVD.	16200	1.71	E	13350	1.41	E	2850	17.6		

SOURCE: EXISTING ADT FROM NCDOT, TRAFFIC PROJECTIONS BY KIMLEY-HORN AND ASSOCIATES, CAPACITIES AND LEVELS OF SERVICE BASED ON THE 1985 HIGHWAY CAPACITY MANUAL
 ADT = AVERAGE DAILY TRAFFIC V/C = VOLUME/CAPACITY LOS = LEVEL OF SERVICE

TABLE 1-3 TRAFFIC AND CAPACITY ANALYSIS OF MAJOR ARTERIALS IN THE PROJECT AREA

ROAD	BETWEEN	YEAR 2010		YEAR 2010		LOS	ADT	V/C	WESTERN ALGN. V/C	LOS	ADT FROM NO-BUILD	CHANGE IN	PERCENT DECREASE
		** NO BUILD	** LOS	** ADT	** LOS								
BRYAN BLVD.	HOLDEN RD. & WESTRIDGE RD.	34500	C	0.67	C		38600	0.75	C		-4100	-11.9	
BRYAN BLVD.	WESTRIDGE RD. & NEW GARDEN RD.	52650	E	1.02	E		43750	0.85	D		8900	16.9	
DOLLY MADISON RD.	US 421 & FRIENDLY AVE.	8250	D	0.87	D		7000	0.74	D		1250	15.2	
FLEMING RD.	NEW GARDEN RD. & CHANCE RD.	21700	B	0.61	B		14000	0.40	A		7700	35.5	
FRIENDLY AVE.	HOLDEN RD. & WESTRIDGE RD.	29000	D	0.82	D		23450	0.66	C		5550	19.1	
GROOMETOWN RD.	I-85 & HIGH POINT RD.	23850	C	0.67	C		13350	0.38	A		10500	44.0	
GUILFORD COLLEGE RD.	WENDOVER & I-40	44900	F	1.27	F		9300	0.26	A		35600	79.3	
GUILFORD COLLEGE RD.	I-40 & US 421	36250	E	1.02	E		13100	0.37	A		23150	63.9	
GUILFORD COLLEGE RD.	US 421 & FRIENDLY AVE.	38650	E	1.09	E		22900	0.65	C		15750	40.8	
HIGH POINT RD.	GROOMETOWN RD. & HOLDEN RD.	57850	E	1.09	E		54650	1.03	E		3200	5.5	
HIGH POINT RD.	ALAMANCE RD. & GROOMETOWN RD.	47450	F	1.34	F		47350	1.34	F		100	0.2	
HILLTOP RD.	GUILFORD COLLEGE RD. & STANLEY RD.	32300	D	0.91	D		34750	0.98	D		-2450	-7.6	
HOLDEN RD.	WEST MARKET ST. & FRIENDLY AVE.	32250	D	0.91	D		31700	0.90	D		550	1.7	
HOLDEN RD.	HIGH POINT RD. & WENDOVER AVE.	55150	F	1.56	F		28100	1.37	F		6750	12.2	
HOLDEN RD.	I-85 & HIGH POINT RD.	34050	D	0.96	D		28100	0.79	C		5950	17.5	
HOLDEN RD.	FRIENDLY AVE. & BRYAN BLVD.	20000	B	0.56	B		20450	0.58	B		-450	-2.3	
I-40	NC 68 & CHIMNEY ROCK RD.	72000	D	0.93	D		98800	1.28	F		-26800	-37.2	
I-40	CHIMNEY ROCK RD. & GUILFORD COLLEGE RD.	78600	E	1.02	E		69900	0.90	D		8700	11.1	
I-40	GUILFORD COLLEGE RD. & WENDOVER AVE.	116700	F	1.51	F		74200	0.96	D		42500	36.4	
I-40	WENDOVER AVE. & PATTERSON ST.	102400	F	1.33	F		47300	0.61	C		55100	53.8	
JEFFERSON RD.	FRIENDLY AVE. & NEW GARDEN RD.	10300	E	1.08	E		8350	0.88	D		1950	18.9	
LAKE BRANDT RD.	OLD BATTLEGROUND RD. & LAUNDALE DR.	10400	E	1.09	E		6250	0.66	C		4150	39.9	
LAUNDALE DR.	PISGAH CHURCH RD. & LAKE JEANETTE RD.	30250	D	0.85	D		28950	0.82	D		1300	4.3	
MEADOWOOD ST.	WENDOVER AVE. & US 421	15700	E	1.65	E		14400	1.52	E		1300	8.3	
MERRITT DR.	HIGH POINT RD. & PATTERSON ST.	20350	B	0.57	B		16900	0.48	B		3450	17.0	
MUIRS CHAPEL RD.	US 421 & FRIENDLY AVE.	29900	D	0.84	D		25750	0.73	C		4150	13.9	
NEW GARDEN RD.	FRIENDLY AVE. & FLEMING RD.	49150	F	1.39	F		30150	0.85	D		19000	38.7	
NEW GARDEN RD.	BRYAN BLVD. & US 220	28850	D	0.81	D		13350	0.38	A		15500	53.7	
NEW GARDEN RD.	FLEMING RD. & JEFFERSON RD.	23200	F	2.44	F		16800	1.77	E		6400	27.6	
OLD BATTLEGROUND RD.	US 220 & LAKE BRANDT RD.	10900	E	1.15	E		10400	1.09	E		500	4.6	
OLD OAK RIDGE RD.	FLEMING RD. & INMAN RD.	11500	E	1.21	E		6100	0.64	C		5400	47.0	
STANLEY RD.	I-40 & HILLTOP RD.	17900	E	1.88	E		23500	2.47	F		-5600	-31.3	
US 220	WESTRIDGE RD. & NEW GARDEN RD.	56400	F	1.41	F		63800	1.60	F		-7400	-13.1	
US 220	OLD BATTLEGROUND RD. & NEW GARDEN RD.	30300	D	0.86	D		31900	0.90	D		-1600	-5.3	
US 421	NC 68 & GALLIMORE DAIRY RD	17100	B	0.48	B		10800	0.31	A		6300	36.8	
US 421	GALLIMORE DAIRY RD & CHIMNEY ROCK RD	20800	B	0.59	B		16800	0.47	B		4000	19.2	
US 421	CHIMNEY ROCK RD & GUILFORD COLLEGE RD	26700	C	0.75	C		37600	1.06	E		-10900	-40.8	
US 421	GUILFORD COLLEGE RD & SPRING GARDEN ST	36200	E	1.02	E		28700	0.81	C		7500	20.7	
VANDALIA RD	GROOMETOWN RD & WESTERN URBAN LOOP	20900	B	0.59	B		6800	0.19	A		14100	67.5	
VANDALIA RD	WESTERN URBAN LOOP & HOLDEN RD	17500	B	0.49	B		18100	0.51	B		-600	-3.4	
WENDOVER AVE.	I-40 & SPRING GARDEN ST.	90100	F	1.69	F		78300	1.47	F		11800	13.1	
WENDOVER AVE.	SPRING GARDEN ST. & HOLDEN RD.	49300	E	1.24	E		42700	1.07	E		6600	13.4	
WESTRIDGE RD.	FRIENDLY AVE. & BRYAN BLVD.	16200	E	1.71	E		12900	1.36	E		3300	20.4	

SOURCE: EXISTING ADT FROM NCDOT, TRAFFIC PROJECTIONS BY KIMLEY-HORN AND ASSOCIATES, CAPACITIES AND LEVELS OF SERVICE BASED ON THE 1985 HIGHWAY CAPACITY MANUAL
 ADT = AVERAGE DAILY TRAFFIC V/C = VOLUME/CAPACITY LOS = LEVEL OF SERVICE

G. ACCIDENT DATA AND SAFETY

A traffic accident rate analysis was prepared for various selected travel routes which will be affected by this project. The analysis, shown in Table I-4, covers the period from 1986 through 1989, and represents a statistical overview of actual accident rates on the selected routes compared with the average statewide accident rates for similar roadway facilities.

It can be seen that most of the accident rates on roads in the study area shown in Table I-4 either equal or exceed the statewide averages. This indicates that routes in the study area experience a significant number of accidents when compared to other similar statewide routes. As traffic increases in the study area and roads become more congested, the accident rates are expected to increase further if no improvements are made.

Statewide average rates for urban freeways are lower than for other types of highway facilities. With the addition of a newly-designed, multi-lane freeway in this portion of Greensboro and Guilford County, many motorists are projected to use this facility, thereby alleviating traffic congestion in the area. This should reduce the existing and future accident potential on existing routes. Furthermore, traffic on the new controlled-access road would operate under safer conditions and thus have fewer accidents than if it were travelling on existing roads.

**TABLE I-4
ACCIDENT RATE COMPARISON**

<u>Roadway Classification</u>	<u>Facility</u>	<u>Between</u>	<u>Accident Rate Per 100 Million Vehicle Miles</u>		
			<u>Total Accident</u>	<u>Fatal Accident</u>	<u>Non-Fatal Injury Accident</u>
Urban Interstate	Interstate I-85	Groometown Road and Holden Road	64.31	1.29	32.15
	Interstate I-40	Guilford College Road and Patterson Street	207.69	1.14	78.96
	(Statewide Average)		(165.2)	(0.9)	(67.2)
Urban U.S. Route (4-lane undivided)	US 29A/70A (High Pt. Rd.)	Alamance Road and Hilltop Road	446.51	4.65	213.95
	(Statewide Average)		(421.9)	(0.9)	(161.3)
Urban U.S. Route (2 Lane)	US 421 (West Market St.)	Chimney Rock Road and Guilford College Road	407.07	3.34	176.84
	US 220	Horsepen Creek Road and New Garden Road	160.67	0.0	87.99
	(Statewide Average)		(280.8)	(1.1)	(107.5)
Urban Secondary Routes	Wendover Avenue (SR 1541)	Guilford College Road and I-40	625.00	0.0	241.67
	(Statewide Average)		(373.3)	(1.2)	(143.7)

Source: NC Department of Transportation, Traffic Engineering Branch.

The number of accidents and accident costs were projected for the Build and No-Build options for the year 2010. The projected number of accidents were based on 2010 traffic projections and current North Carolina accident rates by facility type. Accident costs were based on accident costs from the National Safety Council. Based on these data, building this road would reduce accidents by about 400 per year, and provide a savings of \$2 million per year compared with No-Build. These projections are shown in Table I-5.

**TABLE I-5
PROJECTED ANNUAL ACCIDENTS IN THE STUDY AREA
Based on Projected Year 2010 Traffic**

	<u>No-Build Alternative</u>	<u>Build Alternatives</u>		
		<u>Eastern</u>	<u>Middle</u>	<u>Western</u>
Accident Cost (millions, 1990)	\$20.5	\$18.3	\$18.2	\$18.1
Total Accidents	2,935	2,546	2,535	2,517
Fatal Accidents	9	9	9	9
Non-Fatal Injury Accidents	1,137	996	991	983

H. ECONOMIC DEVELOPMENT

The City of Greensboro has grown in population nearly 26 percent in the past 10 years, largely due to annexation. The influx of people has resulted in economic growth and development. Population in the project study area has grown rapidly, and is projected to increase from 49,000 in 1985 to 70,000 in the year 2000. The expected future growth of Guilford County and Greensboro will necessitate an improved roadway network to accommodate the increased number of vehicles. The intended facility will serve major employment centers and provide improved access to Piedmont Triad International Airport. The proposed action would reduce travel time for work trips to and from the major employers and also for shopping, school, and other types of trips. The type of development encouraged by the airport and the proposed action will provide improved employment opportunities and significantly reduce travel times and commuting distances to work. In addition, the new development served by this facility would add substantially to both the County and the City's tax base, providing tax revenue for various public purposes.

West and northwest Greensboro and Guilford County also contain rapidly-developing residential areas. These new communities generate traffic demands that cannot be accommodated on the existing street system. The proposed facility is needed to serve this future demand and enhance the economic vitality of this area of the county.

The proposed action will positively affect the region's economy by providing construction employment during construction of the project and by increasing the overall value of land. The construction cost of the project, estimated at approximately \$100 million, is to be paid to contractors and suppliers with most of the funds to be spent in the Greensboro urban area. The proposed action for the construction of the Western Urban Loop will provide the improved transportation system that is needed for the continued economic growth and health of Greensboro and Guilford County.

I. SUMMARY AND NEED FOR ACTION

The need for the proposed action is compatible with the local, regional, and statewide transportation and land use goals established for the Greensboro and Guilford County area, particularly those goals adopted by the City and County with the 1989 Thoroughfare Plan. The Thoroughfare Plan includes the construction of a multi-lane facility that will completely encircle the City of Greensboro. As a 14-mile segment of this facility, the proposed action is a vital and integral part of the overall goals and objectives. The concept of the outer loop in or near this location has been part of the adopted Thoroughfare Plan since 1960.

The proposed segment would also allow for the orderly and planned relief to traffic congestion in the Greensboro area. Based upon capacity analyses, the existing roads experience congestion which will worsen if this road is not built. The project area lacks an efficient circumferential system of existing highways to adequately serve developed and developing areas of the city. Improving existing roads will not provide the capacity needed to serve this growing traffic.

The Western Urban Loop is needed to connect major thoroughfares such as I-85, I-40, High Point Road, West Market Street, and US 220. Without this project, existing north-south thoroughfares will carry increasing volumes, negatively impacting adjacent properties and surrounding communities. This project will also provide a more direct connection to the Piedmont Triad International Airport from the north and south and will complement other portions of the planned urban loop.

The planned freeway will carry traffic much more safely than existing roads. The average accident rate for freeways is less than one-half the rate for multi-lane urban U.S. routes. Traffic diverted to this road would thus be travelling under safer conditions. In addition, since traffic on other roads would decrease with this route in place, safety would be improved on those as well. Improving existing roads would not provide this safety benefit.

This route would serve both existing and future development in western Greensboro by providing a safe, direct route between residences, businesses, and public facilities. Economic development would continue in this growing portion of the urbanized area with adequate transportation to serve it, and would enhance the local tax base. The route would decrease total travel in the region, in terms of both miles and hours spent travelling, allowing time for people to pursue other activities. This economic growth would be stifled as the level of service on major streets worsens or even remains at existing congested levels.

In summary, this route will help to fulfill local, regional, and state transportation goals, will increase safety, will serve and promote existing planned development, and will maintain the quality of life in Greensboro.

CHAPTER II ALTERNATIVES

This document addresses various alternative courses of action and no-action. All alternatives are under consideration, and a decision on which alternative to pursue will be made after the corridor public hearing transcript and comments on the Draft Environmental Impact Statement have been evaluated.

A. NO-BUILD

The No-Build Alternative assumes that the Western Urban Loop is not in place, but that other elements of the 1989 Greensboro Urban Area Thoroughfare Plan have been implemented. No-Build includes the I-85 Bypass, but no other portions of the Urban Loop.

The No-Build Alternative will not complete the proposed Greensboro Urban Loop system and, therefore, does not meet one of the purposes of the proposed action. No-Build would not be compatible with the proposed transportation goals in the 1989 Greensboro Urban Area Thoroughfare Plan to provide a circumferential loop completely encircling the City of Greensboro and serving developing portions of Guilford County. No-Build also will not be compatible with the transportation, land use, and primary planning goals established by the state, region, county, and the city. Traffic generated by growth and development planned for this portion of the study area in the land use plan will have to find alternative existing routes.

The continued economic growth of the region is vitally dependent on an adequate transportation network to serve the traffic demand in the area. Because the transportation goals and objectives are not met with the No-Build Alternative, the area and region will lose its competitive edge in maintaining and attracting new and thriving industries to this region. No-Build would decrease the job opportunities in this region and adversely impact the economy.

The level-of-service (LOS) provided by the No-Build option is unacceptable. As discussed in Chapter I, several important arterial routes will operate at very poor levels-of-service with the No-Build alternative. Among the radial arterial routes that are projected in the year 2010 to operate at LOS E or F in the No-Build alternative are:

- o High Point Road
- o I-40
- o US 220 (Battleground Avenue)
- o Wendover Avenue (east of I-40)

The following north-south circumferential arterial routes are projected in the year 2010 to operate at LOS E or F in the no-build alternative:

- o Guilford College Road
- o Holden Road
- o Jefferson Road
- o New Garden Road
- o Westridge Road

As shown above, with the No-Build Alternative, the important routes in the study area, both radial and circumferential, will operate under extreme congestion. In addition, No-Build does not correct the operating deficiencies at the junction of existing I-40 and I-85. Because of this congestion and the lack of a direct north-south route, there would be 100,000 more vehicle-miles of travel per day and 14,000 vehicle-hours of travel per day in the study area than if the urban loop were built, resulting in increased fuel consumption (4.4 million gallons annually), air pollution, and user cost. More travel would be made on less safe and more congested roads, resulting in more traffic accidents. More of the public's time would be spent in travelling rather than in more productive activities. This increased traffic congestion would increase pressure to widen existing roads, impacting nearby businesses and residents. There would be an overall decline in the quality of life in the Greensboro area if the No-Build Alternative were selected.

No-Build will avoid the adverse impact associated with constructing a freeway facility on new location. The consequences of the proposed action are included in Chapter IV of this report.

B. TRANSPORTATION SYSTEM MANAGEMENT

Transportation System Management (TSM) alternatives consist of improvements to existing highways to allow traffic to flow smoothly and efficiently. TSM consists of improving signals and signal progression, installing a computerized signal system, adding high occupancy vehicle lanes, adding turning lanes, and making other similar improvements.

TSM will not meet the long-term purpose of the proposed action as stated in the Thoroughfare Plan goals in Chapter I. Existing roads would need improvements far beyond the scope of TSM to even approach serving the traffic demand projected for 2010 without the Western Urban Loop in place. The No-Build Alternative actually includes some TSM improvements, such as widening existing roads as called for in the adopted Thoroughfare Plan. While the use of computerized signal equipment and additional turn-lanes would improve capacity somewhat, levels of service would remain unsatisfactory for No-Build. High occupancy vehicle (HOV) lanes are not considered feasible on non-controlled access roads such as those currently serving circumferential movements in the study area, particularly with the existing and projected low transit ridership and low vehicle occupancy rates.

C. MULTI-MODAL SYSTEMS

Transit service is provided within the Greensboro urban area by Duke Power Transit. The City of Greensboro is in the process of acquiring the transit system from Duke Power. The present system is designed to serve radial needs. Transit services for circumferential trips were reviewed as part of the 1989 Greensboro Urban Area Thoroughfare Plan Update and the Greensboro Transit Service Plan. Both studies showed that transit cannot meet current or projected circumferential trip needs. Due to low projected ridership and the resultant high cost per passenger, cross-town or circumferential routes were not included in the Transit Service Plan.

Transit service is available in the eastern section of the study area. Routes (as defined by Duke Transit) in the study area include the Battleground, Friendly Center, Walker Avenue, and Pomona-Bessemer routes. However, these specific routes primarily provide peak-hour service only, except for the Pomona and Four Seasons routes which provide all-day service. Without concentrated trip origins and destinations, transit service cannot be reasonably viewed as a viable alternative to completing this 14-mile Greensboro Western Urban Loop. Additionally, western Greensboro and other areas served by this facility are relatively affluent, with high auto ownership and declining vehicle occupancy. These factors further reduce the feasibility of serving these trips by transit.

Rail transit has been examined as a potential means of an alternative to building new highways. Most successful rail transit systems are radially oriented and serve residential areas with densities of 10 or more dwelling units per acre. Existing and projected residential densities in the corridor fall far short of that density figure and, as was stated above, the Western Urban Loop will serve circumferential rather than radial trips.

The Cities of Greensboro and High Point operate a ride-share program, Muncipool, which offers assistance in matching passengers and in providing vehicles. The objective of this program is to reduce vehicular travel demand by increasing auto occupancy. However, data from the City of Greensboro shows that auto occupancy has decreased in recent years, from 1.25 passengers per vehicle in 1980 to 1.17 in 1988, indicating that ride-sharing will not be effective in reducing travel demand sufficiently to substantially reduce the need for this project. Ride-sharing programs are most effective in areas with limited parking supply or high-cost parking. Greensboro's central business district and the nearby large college campuses (UNC-Greensboro, North Carolina A&T) offer the most potential for ride-sharing based on this criterion. Levels-of-service on circumferential routes in the study area would remain poor, even with an effective ride-sharing program focusing on the central business district.

Ride-sharing, like transit, is most effective in providing a viable alternative for radial commuting trips. While the travel demand for a circumferential facility such as the Western Urban Loop is high, the trips are dispersed to the point that ride-sharing will not satisfy that demand.

D. CONSTRUCTION ALTERNATIVES

1. Widen Existing Highways

Two segments of existing routes could be considered as alternatives to the Greensboro Western Urban Loop. Both of these routes would need extensive improvements to provide safe and efficient movement of traffic in the area.

The most direct route would follow Guilford College Road to New Garden Road, New Garden Road to US 220, US 220 to Cotswold Terrace, and Cotswold Terrace to Lawndale Drive. This route as an alternative to the Greensboro Western Urban Loop is not feasible for the following reasons:

- o Full control of access could not be provided due to heavy development that has access along Guilford College Road, New Garden Road, and Cotswold Terrace. This is a cause of higher accident rates on this type of facility.
- o Six to eight travel lanes would be necessary to handle anticipated traffic volumes -- not a feasible option in most locations due to prohibitive right-of-way costs. Numerous additional turning lanes would be needed at major intersections to provide an acceptable level-of-service and prevent excessive delay.
- o Widening the existing roads would require taking residential and commercial property fronting on the roads.
- o Such a project would be difficult and expensive to construct due to the need to maintain traffic and service to properties on the existing roads.
- o Right-of-way widths necessary to contain needed improvements would affect potential historic structures concentrated along Guilford College Road. It may not be feasible to obtain this right-of-way.
- o Numerous right-angle turns and traffic signals would cause delays and reduced level-of-service along this route not encountered in a more direct, access-controlled facility. The accident rate on such facilities would be at least twice as high as on a controlled-access facility, based on current statewide averages.

A second route which is a variation of the above alternative is to turn to I-40 from Guilford College Road, following NC-68 and then the proposed Bryan Boulevard to New Garden Road. This route is very circuitous, requiring an additional 5.7 miles of travel, and will have adverse effects on traffic demand. This alternative is essentially the same as a no-build alternative, as traffic demand and resultant traffic congestion would occur on the existing routes of New Garden and other routes in the study corridor. Also, Guilford College Road would need to be widened and numerous turning lanes provided at intersections. As discussed previously, it is not feasible to widen Guilford College Road to handle the traffic demand within the study area. This alternative is not compatible with the goals and objectives as set forth in the 1989 Greensboro Urban Area Thoroughfare Plan.

Another route considered for widening is Holden Road. Widening Holden Road is not a viable alternative to construction of the Greensboro Western Urban Loop for the following reasons:

- o Widening Holden Road is not compatible with the goals and objectives of the 1989 Greensboro Urban Area Thoroughfare Plan.
- o Full control of access could not be provided due to heavy development that has driveways to Holden Road. Traffic service would be poor due to the reduced level-of-service, congestion, and low speeds associated with turning traffic at the driveways and at signalized intersections. This is a cause of higher accident rates on this type of facility.
- o Six to eight travel lanes per direction and numerous turn lanes at intersecting highways would need to be provided to handle anticipated traffic volumes. It is not feasible to add the necessary lanes because of prohibitive right-of-way costs and impact to properties.
- o This route would not provide the level-of-service C, safety, and uninterrupted flow conditions afforded by a freeway with control of access and grade-separated interchanges.
- o Because of the lack of access control and existing driveways on Holden Road, the need for driveway traffic to cross additional lanes of traffic would increase the potential for accidents.

Based on the above, widening existing highways is not a viable alternative to building a new facility.

2. Construction Alternatives on New Location

In addition to the alternatives involving improving existing facilities, numerous alternatives for building a Western Urban Loop facility on new alignment have been investigated. The study area

has been examined to identify possible new alignments for locating a freeway within the study area between termini at I-85 and Lawndale Drive. The terminus at I-85 is being coordinated with the I-85 Bypass Study currently underway. At Lawndale Drive, the proposed action will be coordinated with the Greensboro North and East Loop, also currently being studied.

As denoted in Figure I-2, there are major physical constraints to significant shifts of the proposed freeway either in a western or eastern direction. The Piedmont Triad International Airport is located on the west side, and the downtown urban section of Greensboro is located on the east side of this corridor. Accordingly, preliminary study alternatives are situated between the designated termini and within the area between the airport and Holden Road.

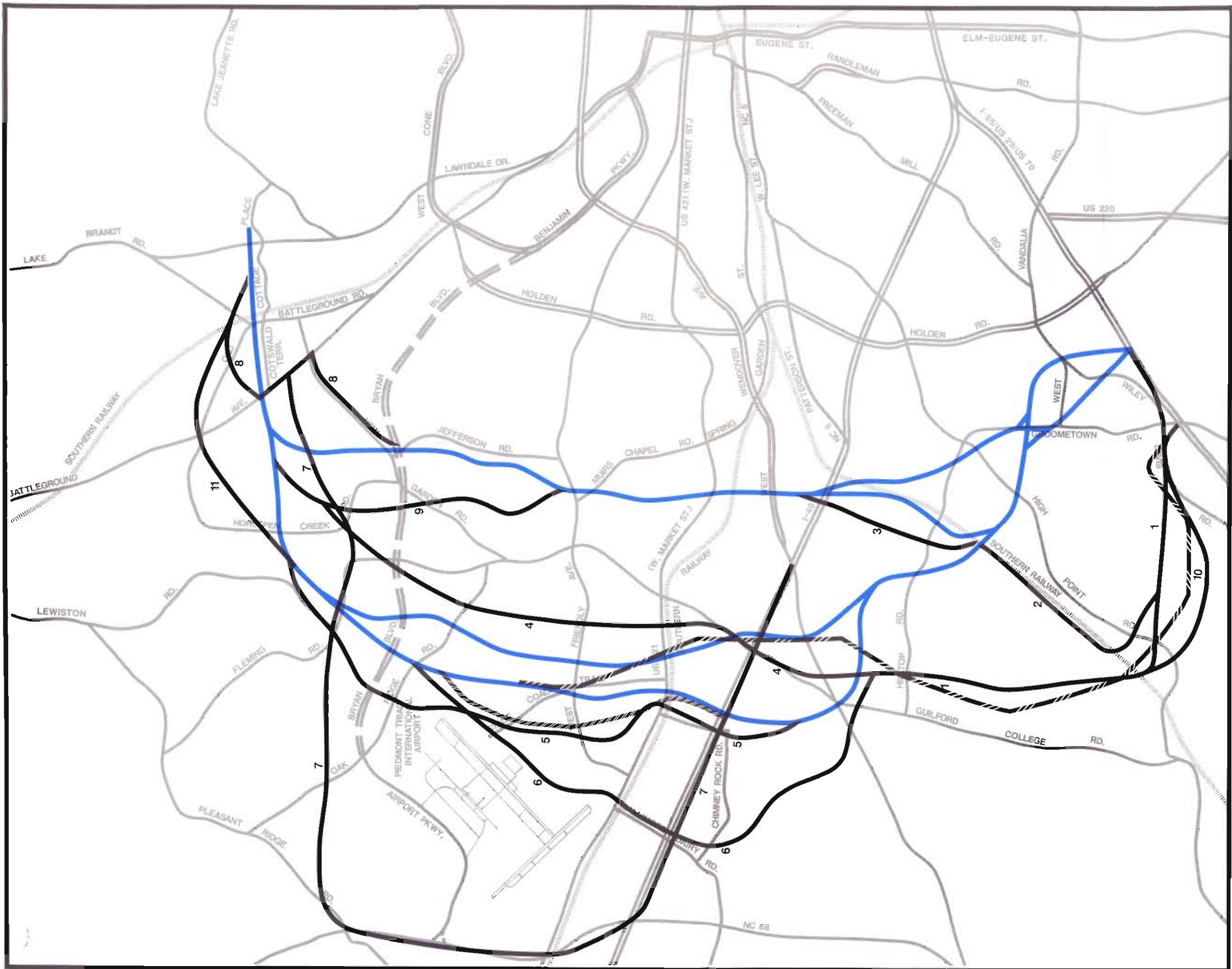
There are also major restraints on the portion of the Greensboro Urban Loop between US 220 and Lawndale Drive. The preliminary study alternatives locate the thoroughfare as shown on the approved thoroughfare plan. Alternative locations to the north are not feasible due to conflicts with Lake Brandt, which is a water supply reservoir for the City of Greensboro. An alternative location to the south will conflict with the Guilford Battleground, which is included on the National Register of Historic Places, and also will result in greater impact on residential development, as shown on Figure II-2.

A new or revised access point must be obtained on I-40. This point is critical due to the existing interchanges and the need to conform to appropriate freeway standards. Because the section between I-85 and I-40 may be designated as I-40, conformance with these design criteria will be necessary.

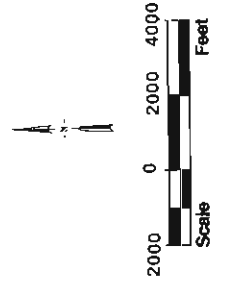
Other major physical features were then identified within the study area to determine alternative locations where a freeway could be located with minimum impacts. Alternative locations (study lines) were strategically located to stay within these areas as much as possible. At the first public meeting, citizens provided alternatives within the study area (see Figure II-1). The feasibility of these alternatives was reviewed on the basis of providing acceptable design, engineering, and geometrics, and minimizing adverse environmental impacts.

More detailed analysis of the preliminary study lines indicated that some were not feasible or practical; those segments were eliminated from further study. The elimination of segments was based on the following general criteria:

- o Adverse impacts on known developments; residential communities; archaeological and historic sites; threatened or endangered species; parks and greenways; and natural systems

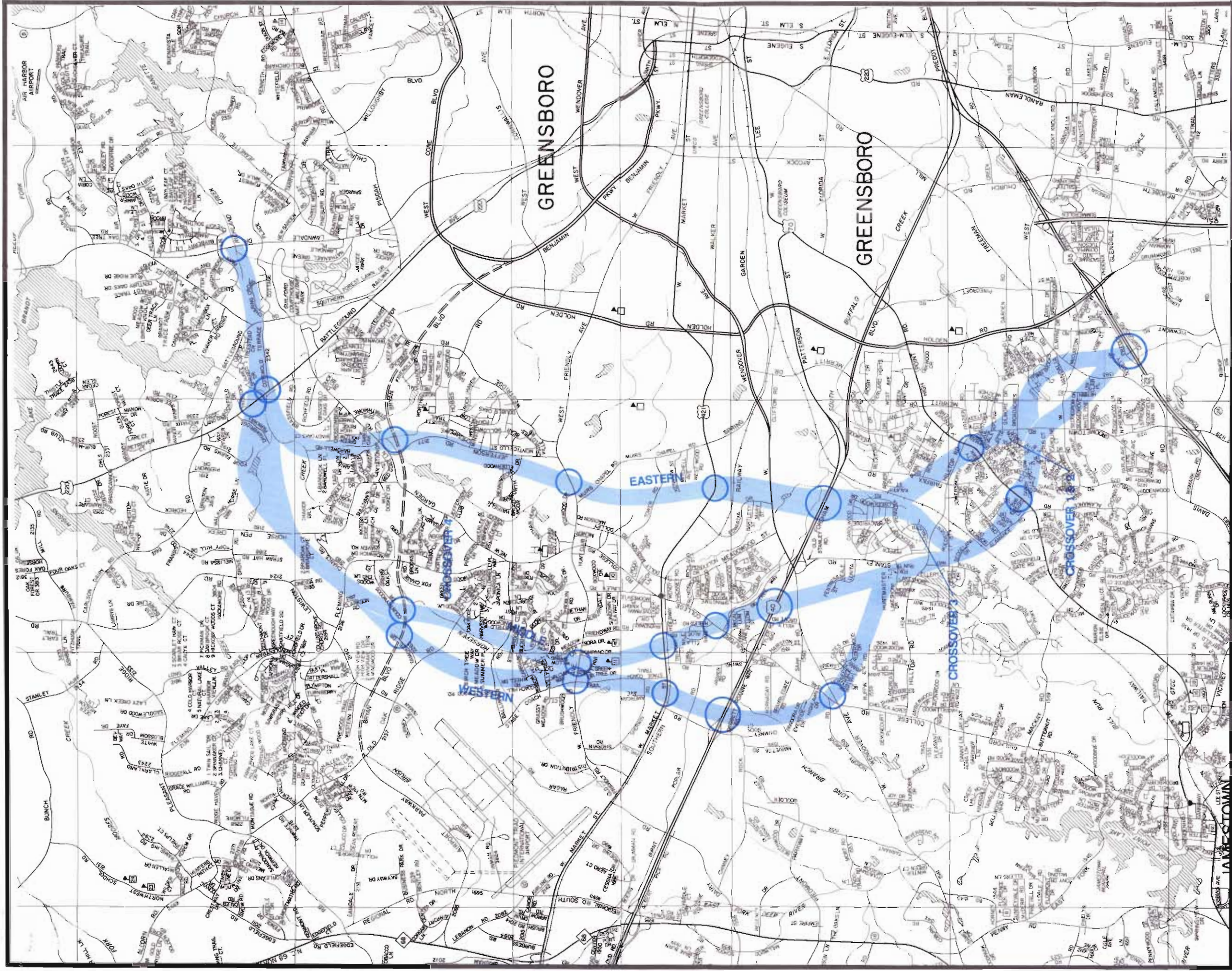


- LEGEND**
- PRELIMINARY STUDY LINES RETAINED
 - PRELIMINARY STUDY LINES ELIMINATED
 - - - BELL/GLAZENER ALTERNATIVE
 - ▨ GREAT ALTERNATIVE



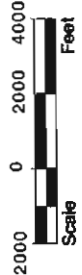
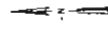
PRELIMINARY STUDY LINES

GREENSBORO WESTERN URBAN LOOP



LEGEND

○ PROPOSED INTERCHANGE



GREENSBORO WESTERN URBAN LOOP

CORRIDOR ALTERNATIVES

Figure
II-2

- o **Adverse economic impacts on businesses due to relocation and loss of accessibility**
- o **Use of Section 4(f) (i.e. publicly owned land of a wildlife refuge, recreation area, or historic site) resources when other prudent and feasible alternatives were available**
- o **Inconsistency with adopted thoroughfare plan or state transportation goals**
- o **Encroachments in protected watershed critical areas**
- o **Recognized geological instability**
- o **Potential hazardous material sites**
- o **Undesirable traffic operational and safety conditions and congestion**
- o **Substantial environmental impacts**
- o **Conflicts with accepted geometric design standards and criteria**

The preliminary study lines (segments) are denoted on Figure II-1. The reasons for eliminating certain segments are summarized in Table II-1 and discussed as follows:

TABLE II-1
PRELIMINARY CONSTRUCTION ALTERNATIVE STUDY LINES (SEGMENTS) ELIMINATED

<u>Segment</u>	<u>Reasons for Elimination</u>
1	<ul style="list-style-type: none"> o Circuitous, additional 2.2 miles of traffic bypassing Greensboro. o Not compatible with the 1989 Greensboro Urban Area Thoroughfare Plan. o Impacts the neighborhoods of Adams Farm, Midway Forest, and Sedgefield Estates with increased displacements, community impact, and right-of-way cost compared with other alternatives. o Undesirable geometrics due to abrupt change in direction south of I-85 to north of I-85 in an interchange. o Re-construction of 2 miles of I-85.
2	<ul style="list-style-type: none"> o Circuitous, additional 2.8 miles of length. o Utilizes a portion of the Jamestown/High Point Bypass and is not compatible with the 1989 Greensboro Urban Area Thoroughfare Plan.
3	<ul style="list-style-type: none"> o More disruptive impact on Oaks West community with no apparent advantages over segment which passes nearer the edge of the community.
4	<ul style="list-style-type: none"> o Disruptive to densely populated residential areas north of Friendly Avenue. o Disruption and loss of moderate income and subsidized housing south of Market Street. o Requires 1.0 miles of re-construction of Guilford College Road. o Eliminates access to businesses and commercial development at Guilford College Road and I-40 interchange. o Impacts Western Guilford High School due to proximity.
5	<ul style="list-style-type: none"> o Violates Federal Aviation Agency clearance standards of the Piedmont Triad International Airport. o Encroaches on airport property and conflicts with planned usages. o Follows 0.8 mile of Chimney Rock Road which is encumbered with adjacent fuel storage tanks just outside a 60-foot right-of-way. o Located within the active portion of the Martin-Marietta Rock Quarry.
6	<ul style="list-style-type: none"> o Violates FAA standards at the Piedmont Triad International Airport.

TABLE II-1, continued
PRELIMINARY CONSTRUCTION ALTERNATIVE STUDY LINES (SEGMENTS) ELIMINATED

<u>Segment</u>	<u>Reasons for Elimination</u>
7	<ul style="list-style-type: none"> o Impacts a large fuel tank farm at I-40. o High risk of encountering properties contaminated with hazardous material. o The portion which utilizes I-40 and NC 68 is essentially a no-build alternative and would not serve the traffic demand in the study area. o Parallels over 4.0 miles of proposed Bryan Boulevard, which would result in unnecessary duplicating of highway facilities. o Not compatible with the 1989 Greensboro Urban Area Thoroughfare Plan. o The intersection at US 220 is not feasible for a freeway-type facility where 90-degree turns would be required.
8	<ul style="list-style-type: none"> o Unacceptable geometrics for a freeway facility due to the 90-degree turns at US 220. o Prohibitive right-of-way costs in converting New Garden Road and US 220 into a freeway-type facility with full control of access. o Located in Tier I of the protected watershed area of Lake Brandt where ordinances prohibit construction activity.
9	<ul style="list-style-type: none"> o Conflicts with proposed Bryan Boulevard by eliminating the proposed interchange at New Garden Road. o Divides the Guilford College campus, which is on the National Register of Historic Places. o Passes in close proximity to the academic structures in the campus.
10	<ul style="list-style-type: none"> o Circuitous, routing additional 3.1 miles of traffic for bypassing Greensboro. o Major re-construction of Groometown Road interchange to a freeway-to-freeway interchange. o Eliminates access from Groometown Road to I-85. o Parallels I-85, which unnecessarily duplicates highway facilities.

TABLE II-1, continued
PRELIMINARY CONSTRUCTION ALTERNATIVE STUDY LINES (SEGMENTS) ELIMINATED

<u>Segment</u>	<u>Reasons for Elimination</u>
GREAT Alternative (Portion not included in Western Alternative)	o Incompatible with the 1989 Greensboro Urban Area Thoroughfare Plan.
	o Impacts fuel storage tanks on Chimney Rock Road.
	o Eliminates proposed US 421 interchange providing poorer traffic service to the local area.
	o Conflicts with planned expansion of the Piedmont Triad International Airport.
	o Less desirable angle crossings of railroad, US 421, Stage Coach Trail, and Ballinger Road.
Bell/Glazener Alternative (Portion not included in the Western Alternative)	o Undesirable geometrics resulting from closely-spaced reverse curves.
	o Not compatible with the western terminus of the proposed I-85 Bypass.
	o Groometown Road interchange at I-85 would be re-constructed to a freeway-to-freeway interchange, eliminating access to Groometown Road.
	o Not compatible with the 1989 Greensboro Urban Area Thoroughfare Plan.
	o Circuitous routing, 1.9 miles of additional travel will be required for the traffic bypassing Greensboro.
	o Impacts the neighborhoods of Midway Forest, Adams Farm, and Sedgefield Estates with increased displacements, community impact, and right-of-way cost compared with other alternatives.
	o Undesirable geometrics and traffic operational characteristics at the abrupt changes in direction at I-85.
	o Overlapping the portion of I-85 between Campground Road and Groometown Road would provide for a lower level of traffic service.
o Impacts the Western Guilford High School due to its proximity.	

Segment 1

This segment begins at I-85 and terminates just north of Hilltop Road and Guilford College Road.

This segment would necessitate major reconstruction of 2.0 miles of the existing I-85 facility from Campground Road to US 29/70 and reconstruction of the interchange at US 29/70 and I-85. This route is circuitous and will have a detrimental effect on traffic demand and travel time, hence greatly reducing the benefit of constructing the facility. This segment is incompatible with the 1989 Greensboro Urban Area Thoroughfare Plan. It also bisects the Midway Forest neighborhood located near the intersection of Guilford College Road and Hilltop Road. It offers no advantages from disruption of residences in the area due to the impact to Adams Farm and Sedgefield Estates, located between High Point Road and Guilford College Road.

Segment 2

This segment begins at Segment 1 just south of High Point Road and extends to the intersection of Segment 2 and Segment 3.

This segment is the same basic corridor as the proposed Jamestown-High Point Bypass. It is considered a separate highway proposal on the updated Greensboro Thoroughfare Plan and is not a viable alternative for the Greensboro Western Urban Loop.

Segment 3

Segment 3 begins at Segment 2 near the Southern Railroad and terminates at I-40.

This segment is only a slight variation of the Eastern Alternative. However, it is more disruptive to the Oaks West community since it passes through the middle of the subdivision rather than along the edge and offers no apparent advantages. Therefore, Segment 3 is considered to be a non-viable alternative.

Segment 4

Segment 4 begins north of Hilltop Road and terminates just north of Horsepen Creek Road.

Segment 4 runs through a densely populated and developed area just north of Friendly Avenue and would be very disruptive to established residential areas. Because it follows the Guilford College Road alignment near I-40, existing Guilford College Road would have to be realigned or terminated with resulting impact on developed properties. Also, the proposed interchange at I-40 at existing Guilford College Road would result in substantial disruption to businesses and commercial development. This proposed interchange at I-40 would convert the existing I-40 interchange, which provides access to Guilford College Road, to a freeway-to-freeway interchange with no access to

Guilford College Road. Segment 4 would also take a redevelopment housing project (with minority residents) located on Guilford College Road just north of I-40. This segment would also be located close to Western Guilford High School, and pose traffic operational problems in accessing the school from the east toward Greensboro.

Segment 5

Segment 5 begins north of Guilford College Road and terminates south of Horsepen Creek Road.

This segment encroaches on the Piedmont Triad International Airport property. It would also violate FAA clearance standards for Runway 6-23. It also follows a portion of Chimney Rock Road which has a 60-foot-wide right-of-way and is heavily encumbered with adjacent fuel storage tanks. Widening to a freeway along existing Chimney Rock Road would require the taking of fuel oil storage tanks with the attendant risk of encountering properties contaminated with hazardous material. Major disruption would be caused to existing industrial development with the proposed alignment and the freeway-to-freeway interchange at I-40 and existing Chimney Rock Road. The Martin-Marietta Rock Quarry is located just south of I-40 at Chimney Rock Road. This segment would be located within the active portion of the quarry property.

Segment 6

Segment 6 begins near Guilford College Road and Hilltop Road and terminates at Old Oak Ridge Road.

This segment would obstruct the clear zone of Runway 14-32 of the Piedmont Triad International Airport. A tank farm south of US 421 and also one south of I-40 would have to be relocated in order to construct a freeway-to-freeway interchange at I-40.

Segment 7

Segment 7 begins at I-40 and Wendover Avenue and terminates at US 220.

Segment 7 follows existing I-40 from Wendover Avenue to NC 68 west of the Piedmont Triad International Airport. Segment 7 then follows existing NC 68 to the intersection of Pleasant Ridge Road and NC 68. Segment 7 then is on new location generally paralleling Bryan Boulevard to the north and intersecting with US 220 between Cotswold Terrace and New Garden Road. The portions which follow existing I-40 and NC 68 are essentially part of a no-build alternative as the traffic demand would not be served in the study area. The portion on new location from NC 68 to US 220

generally parallels Bryan Boulevard and would unnecessarily duplicate existing and proposed highways in the study area. Segment 7 is not compatible with the 1989 Greensboro Urban Area Thoroughfare Plan.

Segment 8

Segment 8 begins at Bryan Boulevard and terminates near Lake Brandt Road.

This segment follows New Garden Road from Jefferson Road to Battleground Avenue and then Battleground Avenue to near Cotswold Terrace, where it loops north of the studied alternative alignment. This segment requires a 90-degree turn on Battleground Avenue (US 220) and another 90-degree turn to continue towards Lawndale Drive. Such geometric features are not feasible on freeway facilities. By realigning the alternate to a smoother curve, it closely follows the Eastern Alternative. This segment also follows portions of existing highway where control of access would be prohibitive in cost. It also locates this segment, north of Cotswold Terrace, in the most critical watershed area of Lake Brandt (Tier 1).

Segment 9

Segment 9 begins at Friendly Road and terminates west of Horsepen Creek Road.

This segment is an alternative to the Eastern Alternative between Friendly Avenue and the Middle/Western Alternative. This segment would eliminate the proposed Bryan Boulevard interchange with New Garden Road. It would also divide the Guilford College campus, which is on the National Register of Historic Places. It would not provide any advantages to the Eastern Alternative.

Segment 10

Segment 10 begins at US 29-70 and terminates just north of High Point Road.

This segment requires major reconstruction of the existing Groometown Road interchange to provide a proposed freeway-to-freeway interchange. Access would be eliminated from Groometown Road. It generally parallels existing I-85 which unnecessarily duplicates highway facilities. The routing is circuitous and will require additional road user costs and travel time, particularly for the interstate traffic. It is the most incompatible segment with updated thoroughfare plan and would provide the poorest traffic service in the study area.

Other Alternatives Considered

Red Line Proposed by GREAT

A citizens group has been extensively involved in the public involvement process for the Greensboro Western Urban Loop. The citizens group is referred to as GREAT (Greensboro Residents Encouraging Alternative Thoroughfares). GREAT was organized in early 1989 and has been involved with the Greensboro Western Urban Loop since that time. Representatives from GREAT have attended the public meetings held on the project and also sponsored other meetings including a public forum. The public forum was used to address concerns of GREAT as to the impacts that will be caused by the proposed Greensboro Western Urban Loop to the urban area of Greensboro. The results of GREAT's studies are documented in their report¹ dated April 1990 and revised in May 1990.

GREAT's study includes a segment referred to as the "Red Line." The Red Line follows existing Chimney Rock Road at I-40 and then extends on new location, curving sharply back to the west from the Market Street and Chimney Rock Road intersection, follows a railroad spur for several thousand feet, and then generally parallels and joins the Western Alternative near Ballinger Road. The Red Line uses the remainder of the Western Alternative to US 220. The reasons that the variation of the Red Line from the Western Alternative is not viable are as follows:

- 1) Several fuel storage tanks on Chimney Rock Road will be relocated with the attendant risks of liabilities stemming from contaminated properties.
- 2) Extension of the Red Line south will impact a large quarry operation.
- 3) The "freeway-to-freeway" interchange required at I-40 and the Greensboro Western Urban Loop will eliminate the existing interchange at Chimney Rock Road and the access provided to the commercial and industrial development served by Chimney Rock Road.
- 4) The proposed interchange at US 421 would be located in a sharp curve on the Red Line. Since the railroad parallels US 421 along the south side, this interchange would need to be constructed all on the north side of US 421 (a half-clover). This interchange would not be geometrically feasible with the Red Line.
- 5) The Red Line is not compatible with the pending Master Plan of the airport.
- 6) The Greensboro Western Urban Loop is anticipated to require a right-of-way width of 300 feet exclusive of interchanges to construct in this area. Existing Chimney Rock Road has a maintained width of less than 60 feet and would offer little or no benefit.

¹"Impacts in the Study Corridors for the Western Leg of Painter Boulevard, Focus on the Northwest from I-40 to US 220 North," prepared by members of the Steering Committee of GREAT, revised May 1990.

In June 1990, GREAT proposed modifying the Red Line to use the Western Alternative corridor between I-40 and US 421. While this modification eliminates some of the earlier drawbacks, the plan would still have some major concerns:

- 1) The revised Red Line still impacts fuel tanks on Chimney Rock Road.
- 2) Elimination of the interchange at US 421 would provide poorer overall traffic service to the local areas and would overload the Friendly Avenue and Chimney Rock Road interchange.
- 3) The revised Red Line encroaches on property owned by the Piedmont Triad International Airport and the planned future expansion of the airport facilities.
- 4) The revised Red Line creates three closely-spaced reverse curves. These curves are undesirable, particularly considering the location of the complex interchange at I-40 and Chimney Rock Road. It is not anticipated that the Red Line can be designed to meet the design criteria as shown on Table II-2.

Alternatives Proposed by Bell-Glazener Design Group

The Bell/Glazener Design Group, a land planning firm, was retained by a number of Greensboro clients to monitor and provide input for the identification of alternative alignments for the Greensboro Western Urban Loop. This input has resulted in the submittal of several proposals by Bell/Glazener as to where the Greensboro Western Urban Loop should be relocated.

Consideration has been given to the various proposals that were submitted in correspondence dated May 16, 1989, October 31, 1989, January 4, 1990, and April 23, 1990. Bell/Glazener Design Group, in their May 16, 1989 letter, recommended a proposal which is essentially the same corridor location as the Middle Alternative.

Subsequent to this, and as documented in the October 31, 1989 correspondence from Bell/Glazener, they revised this proposal to address concerns of additional clients with special development interests. "Bell/Glazener Design Group's corridor described to you on May 16, 1989 has been modified from I-40 south. The corridor now proceeds south to Hilltop Road, then passes by Adams Farm to High Point Road, then passes east, intersecting I-85 at the Groometown Road interchange or the former Painter Boulevard interchange... on the north,... shifts further west and intersects Battleground Avenue (US 220) at or above Grove Road and then proceeds east to Lawndale Drive."

The October 31, 1989 letter included significant changes in their original proposed corridor. One of the shifts is essentially the same as Segment 1 and the reasons that it is not a viable alternative have been discussed previously. The shift in their original proposal at US 220 placed their recommended corridor within the most critical watershed area I (Tier 1) and immediately adjacent to Lake Brandt, which is a major water supply reservoir for the City of Greensboro (see Chapter III.C.3). For the above reasons, the revisions proposed in the October 31, 1989 letter are not considered viable options for the location of the Greensboro Western Urban Loop.

In their January 4, 1990 letter, Bell/Glazener provided an assessment of the Eastern, Middle, and Western Alternatives and also submitted their modified Western Alternative. The modified Western Alternative no longer included a proposed corridor using the most critical watershed area of Lake Brandt. Also, another proposed revision was made in the portion of their proposal south of I-40. The latest revision called for a significant change in the southern terminal from I-85 and Campground Road westward to the existing interchange at Groometown Road. The proposal was also shifted further west and south resulting in the location as shown on Figure II-1.

The latest proposal was considered and determined to be a non-viable alternative for the following reasons:

- 1) The project terminal is shifted south on I-85 approximately 1.0 miles, which will adversely impact the length and cost of the adjacent I-85 Bypass proposal.
- 2) The freeway-to-freeway interchange required will eliminate the access from Groometown Road to I-85 and require the re-construction of the Groometown Road interchange.
- 3) Due to the reduced traffic demand in this area, it will provide less traffic relief to the existing road system in the study area.
- 4) It will add 2.2 miles of travel for I-40 traffic desiring to bypass the City of Greensboro.
- 5) It is anticipated to impact the expanding residential developments in the area.
- 6) It is not compatible with the 1989 Greensboro Urban Area Thoroughfare Plan and NCDOT's Transportation Improvement Program.
- 7) An additional 2.2 miles of freeway is estimated to cost \$15.3 million and require the taking of 80 acres of land.

Construction Alternatives Selected for More Detailed Study

Three construction alternative corridors are recommended for further study and evaluation: an Eastern Alternative, a Middle Alternative, and a Western Alternative. These alternatives, shown on Figure II-2, are described below:

Eastern Alternative

The Eastern Alternative starts at the I-85 and Campground Road interchange between Groometown Road and Holden Road. It proceeds north, crossing approximately 800 feet east of the Wiley Davis Road and McCuiston Road intersection, and then crosses Vandalia Road. It travels northwest to High Point Road east of Groometown Road. The alternative heads north from High Point Road, crossing I-40 and US 421 (West Market Street) near the Walnut Circle-US 421 intersection. The alternative extends further north to Friendly Avenue near Muirs Chapel Road. From this point, it generally parallels Jefferson Road to the northeast, crosses New Garden Road, and interchanges with proposed Bryan Boulevard near the intersection of Jefferson Road/New Garden Road intersection. The Eastern Alternative then proceeds north, joins the Western and Middle alternatives near Battleground Avenue, and continues eastward to Lawndale Drive. Interchanges are proposed at I-85, High Point Road, I-40, US 421, Friendly Avenue, Bryan Boulevard, Battleground Avenue (US 220), and Lawndale Drive. The Eastern Alternative is 11.4 miles in length.

Middle Alternative

The Middle Alternative begins at the same I-85 interchange as the Eastern Alternative (Campground Road). This alternative proceeds northwest, crosses Groometown Road near Vandalia Road, and interchanges with High Point Road before crossing Hilltop Road, Wendover Avenue near Sapp Road, and I-40 just east of the Guilford College Road interchange. It continues northward to cross US 421 east of Swing Road, Friendly Avenue east of Stage Coach Trail, and Ballinger Road. After crossing Old Oak Ridge Road, it ties back into the Western Alternative between proposed Bryan Boulevard and Fleming Road, where it continues along this route to Lawndale Drive. Interchanges are included at the crossings of I-85, High Point Road, I-40, US 421 (West Market Street), Friendly Avenue, proposed Bryan Boulevard, US 220 North (Battleground Avenue), and Lawndale Drive. The Middle Alternative is 13.6 miles in length.

Western Alternative

The Western Alternative begins at the I-85 and Campground Road interchange between Groometown Road and Holden Road. This alternative proceeds northwest, crosses Groometown Road near Vandalia Road, and interchanges with High Point Road between Alamance Road and Roland Drive. The alternative curves west to Woodlyn Way, veers north again, crosses Hilltop Road, and then crosses Wendover Avenue. It then crosses I-40 and US 421 (West Market Street) near Chimney Rock Road and proceeds north along the eastern edge of the Piedmont Triad International Airport, crossing Old Oak Ridge Road, Bryan Boulevard, Fleming Road between Lewiston Road and Chance Road, US 220 (Battleground Road) north of New Garden Road, and

Old Battleground Road before ending at Lawndale Drive between Cottage Place and Lake Brandt Road. Interchanges are proposed at the Western Alternative's crossings of I-85, High Point Road, Guilford College Road/Wendover Avenue, I-40, US 421, (West Market Street), Friendly Avenue, proposed Bryan Boulevard, US 220 North (Battleground Road), and Lawndale Drive. The Western Alternative is 14.5 miles in length.

Crossovers

As shown on Figure II-2, three crossovers are included in the routes to be studied to provide for changes between corridors. They provide transition between the Western and Eastern or Middle Alternatives and are referred to as C-1, C-2, and C-3.

Crossover C-1 - Provides a transition from the Eastern Alternative to the Middle and Western Alternatives. This crossover follows the thoroughfare alignment, beginning at a point on the Eastern Alternative near Oka Hester Park and extending west, crossing Groometown Road just north of the Groometown/Vandalia Road intersection. This crossover ends at a point on the Western and Middle Alternatives located just west of Groometown Road. The total length of Crossover C-1 is approximately 0.8 mile.

Crossover C-2 - Provides a transition from the Middle and Western Alternatives which runs generally parallel to Groometown Road just north of the Vandalia Road/Groometown Road intersection for a total length of approximately 0.6 mile.

Crossover C-3 - Provides a transition from the Middle and Western Alternatives generally paralleling the Southern Railroad near Oak Park Subdivision and following the thoroughfare alignment for a total length of 1.0 miles.

Design Criteria for Construction Alternatives on New Location

Estimated traffic projections based on existing and anticipated land use and socioeconomic data were made for the design year (year 2010) to assist in determining the type of facility and number of traffic lanes. Based upon the projected traffic demand on the existing and proposed highway network, a four-lane freeway, with some six- and eight-lane sections, is needed to provide an acceptable level-of-service for the design year (see Chapter II.D.5). This freeway will be compatible with the other two sections of the Greensboro Urban Loop and overall lane balance. Those two sections are proposed multi-lane freeway facilities as well.

The proposed construction alternatives are based upon the following criteria. Typical cross-sections are shown in Figure II-3.

- a. Type of Facility - freeway
- b. Access Control - full
- c. Right-of-Way - full control of access, adequate right-of-way width to contain the recommended cross-section (typically 300 feet)
- d. Intersecting Road Treatment - all intersecting roads are to be either interchanged, grade separated with no contact, terminated, or closure roads provided
- e. Roadway Design Criteria (see Table II-2)
- f. Railroad Crossings - all intersecting railroad crossings are to be grade separated.

**TABLE II-2
ROADWAY DESIGN CRITERIA
GREENSBORO WESTERN URBAN LOOP**

<u>DESIGN ELEMENTS</u>	<u>RECOMMENDED STANDARDS</u>
Design Speeds	<ul style="list-style-type: none"> - Freeway - 60 mph desirable - Ramps - 50 mph desirable/45 mph minimum - Loops - 25 - 30 mph minimum - Cross-streets - 40-50 mph
Horizontal Alignment	<ul style="list-style-type: none"> - Degree of curve: Freeway - 5°-00' maximum (60 mph) Ramps - 7°-30' maximum (50 mph), 3°-6° desirable Loops - 200' minimum radius (25-30 mph) - Minimum length of curve - 500' - Tangents midlength between reversed curves should be adequate to facilitate superelevation transition and will include spirals - Ramp terminal design - 1984 AASHTO Standards or NCDOT Roadway Standards
Vertical Alignment	<ul style="list-style-type: none"> - Rates of grade: Freeway - 4% desirable Ramps - 5% - Stopping sight distance: Freeway - 850' minimum Ramps - 475' minimum

TABLE II-2 (Continued)
ROADWAY DESIGN CRITERIA
GREENSBORO WESTERN URBAN LOOP

DESIGN ELEMENTS

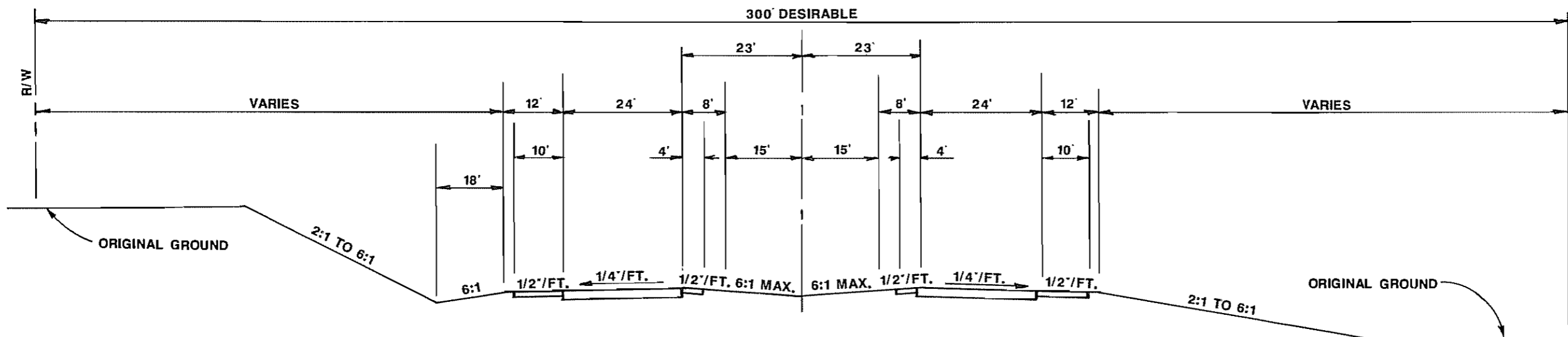
RECOMMENDED STANDARDS

- Length of crest vertical curves $k = 190$ to 310 (for 60 mph)
 - Length of sag vertical curves $k = 120$ to 160 (for 60 mph)
- Pavement Widths**
- Freeway - 12' standard lane width
 - Ramps - single lane 14' minimum
 - Cross streets - 12' standard lane width desirable, 11' minimum
- Shoulder Widths**
- Freeway roadway section - 12' outside (10' paved), 8' inside (4' paved), 15' with guardrail
 - Bridge section - 10' outside, 6' inside
 - Ramps - 12' left (4' paved), 12' right (4' paved), 14' with guardrail
- Median Widths**
- Freeway roadway section - 46' desirable, 22' minimum with median barrier
- Cross Slopes - Tangent**
- Freeway and ramps - $1/4''/ft$. The inside through lane may need to be sloped toward the median for pavement widths greater than 36' and not as shown on Figure II-3
 - Embankment slopes - NCDOT Roadway Standards Freeway/Expressway
 - Median slopes: 46' median - 6:1 maximum slope
- Vertical Clearance**
- Local and collector streets 15'0" to 15'6"; Arterials and freeway 16'6" to 17'0"
 - Railroads 23'0" to 23'6"
 - Stream crossings 2'0" above design high water level

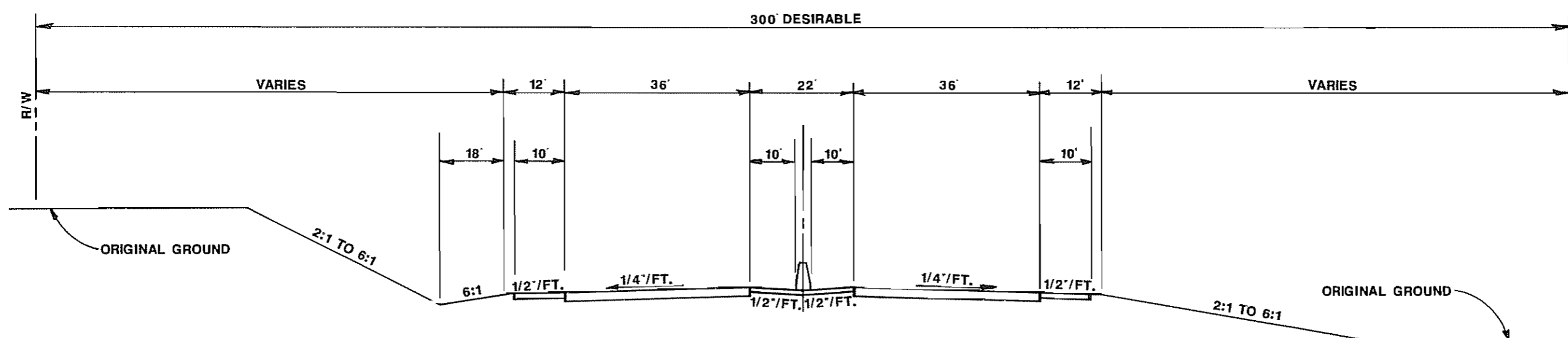
Sources: "A Policy on Design of Highways and Streets," AASHTO, 1990 and North Carolina Department of Transportation Roadway Design Manual.

Reduced Facility Concept

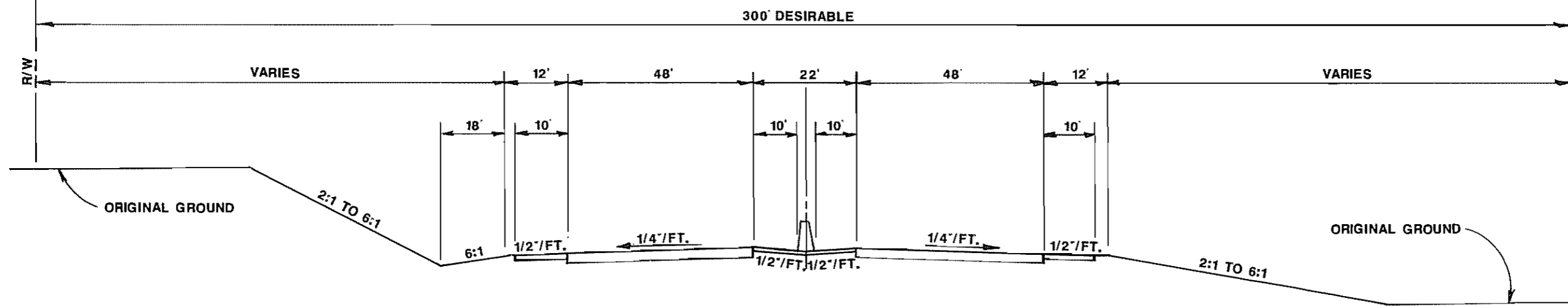
A reduced facility (one without full control of access) was considered but eliminated from further study. Based on the heavy traffic demand (see Figures II-4A through II-4C), a facility without full control of access (arterial rather than freeway) and with at-grade intersections could not carry projected traffic volumes at an acceptable (D or better) level-of-service. Traffic signals, intersecting streets, and driveways all reduce the capacity, operating speed, and safety of a road, making such a facility undesirable for high traffic volumes and long trips. The capacity of a suburban arterial street is less than one-half the capacity of a freeway with the same number of lanes. A six-lane arterial with traffic signals at quarter-mile intervals can carry only about 40,000 vehicles per day, less than two-thirds of the projected volume for this project.



FOUR LANES WITH 46 FT. MEDIAN

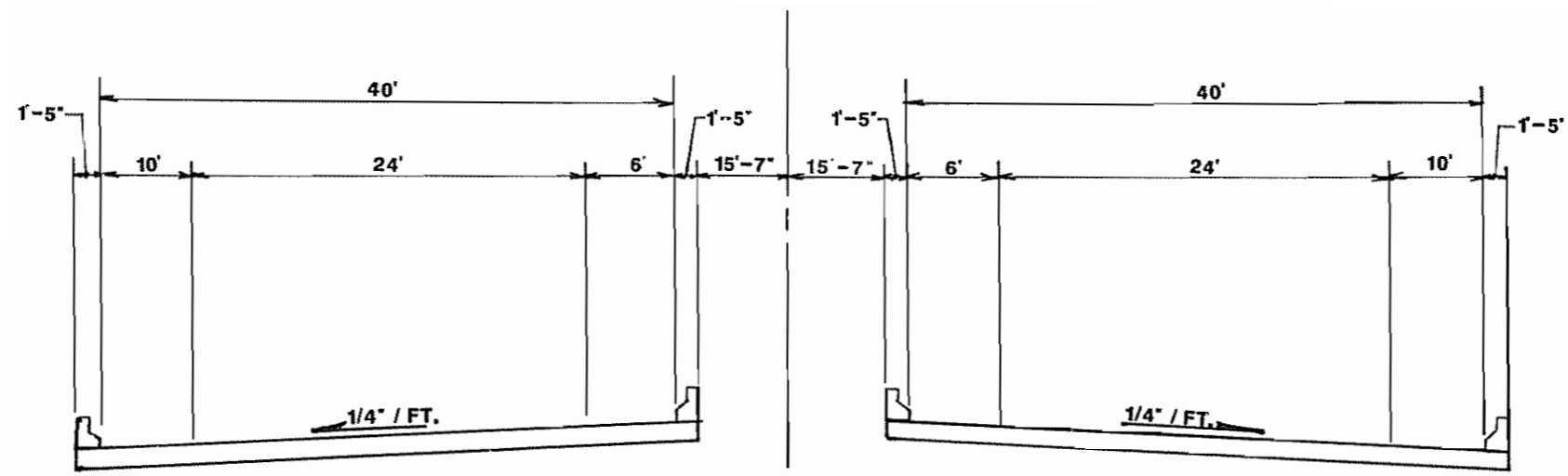


SIX LANES WITH MEDIAN BARRIER

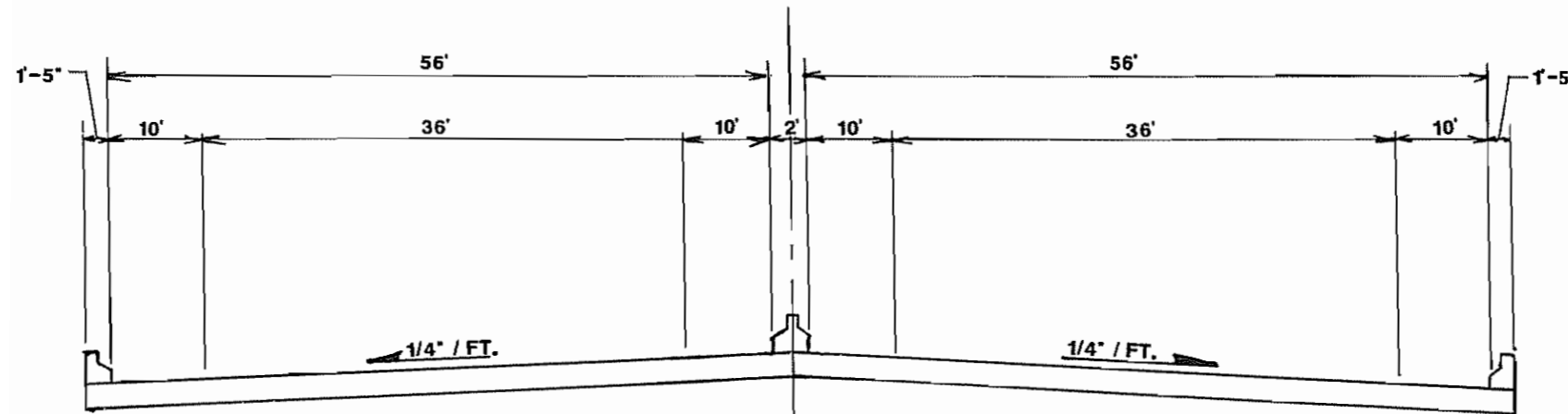


EIGHT LANES WITH MEDIAN BARRIER

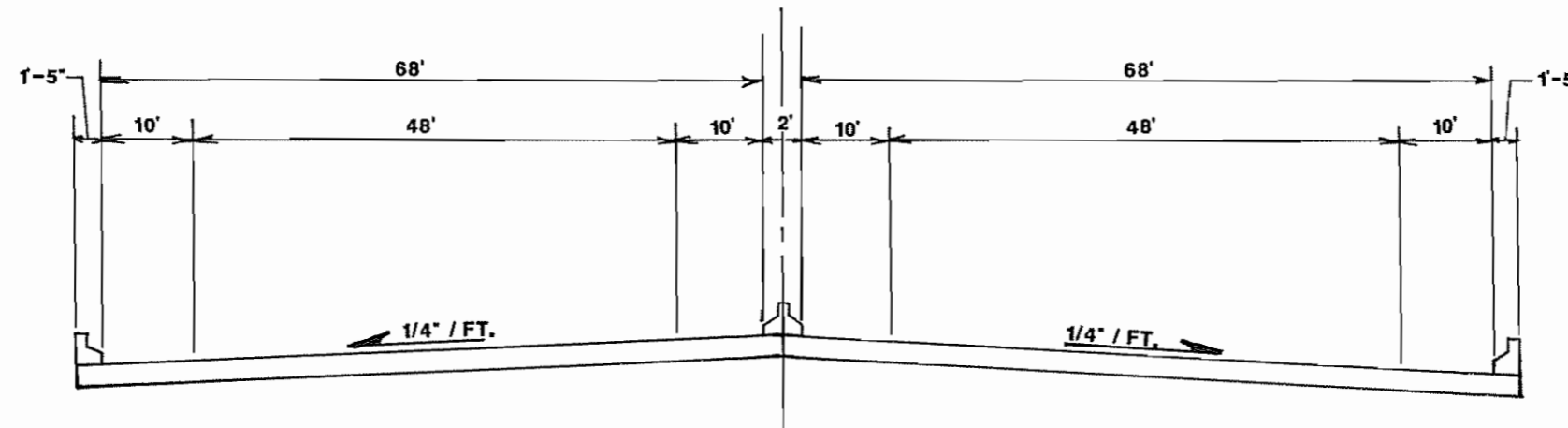
TYPICAL SECTIONS-ROADWAY



FOUR LANES WITH 46' MEDIAN

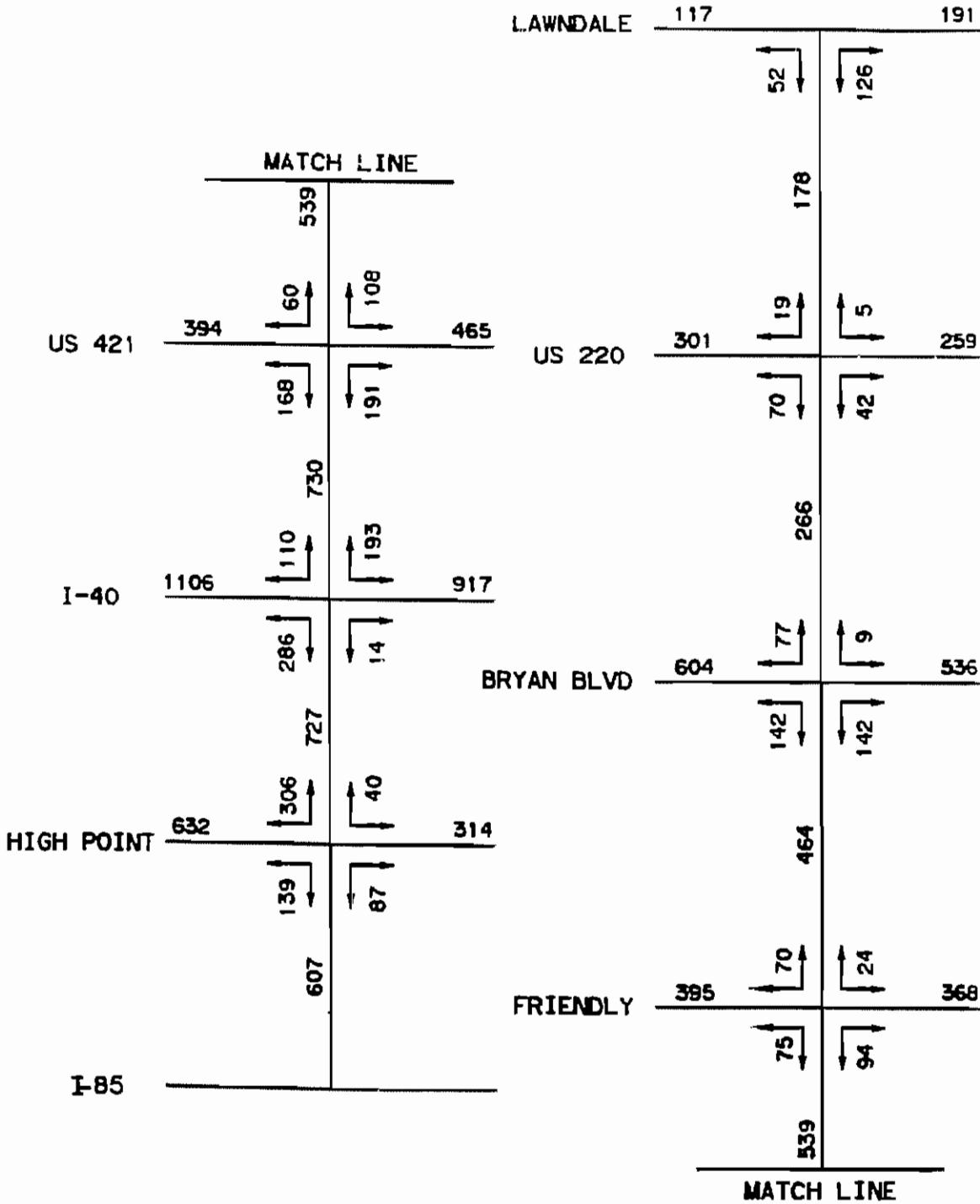


SIX LANES WITH MEDIAN BARRIER



EIGHT LANES WITH MEDIAN BARRIER

TYPICAL SECTIONS - BRIDGES

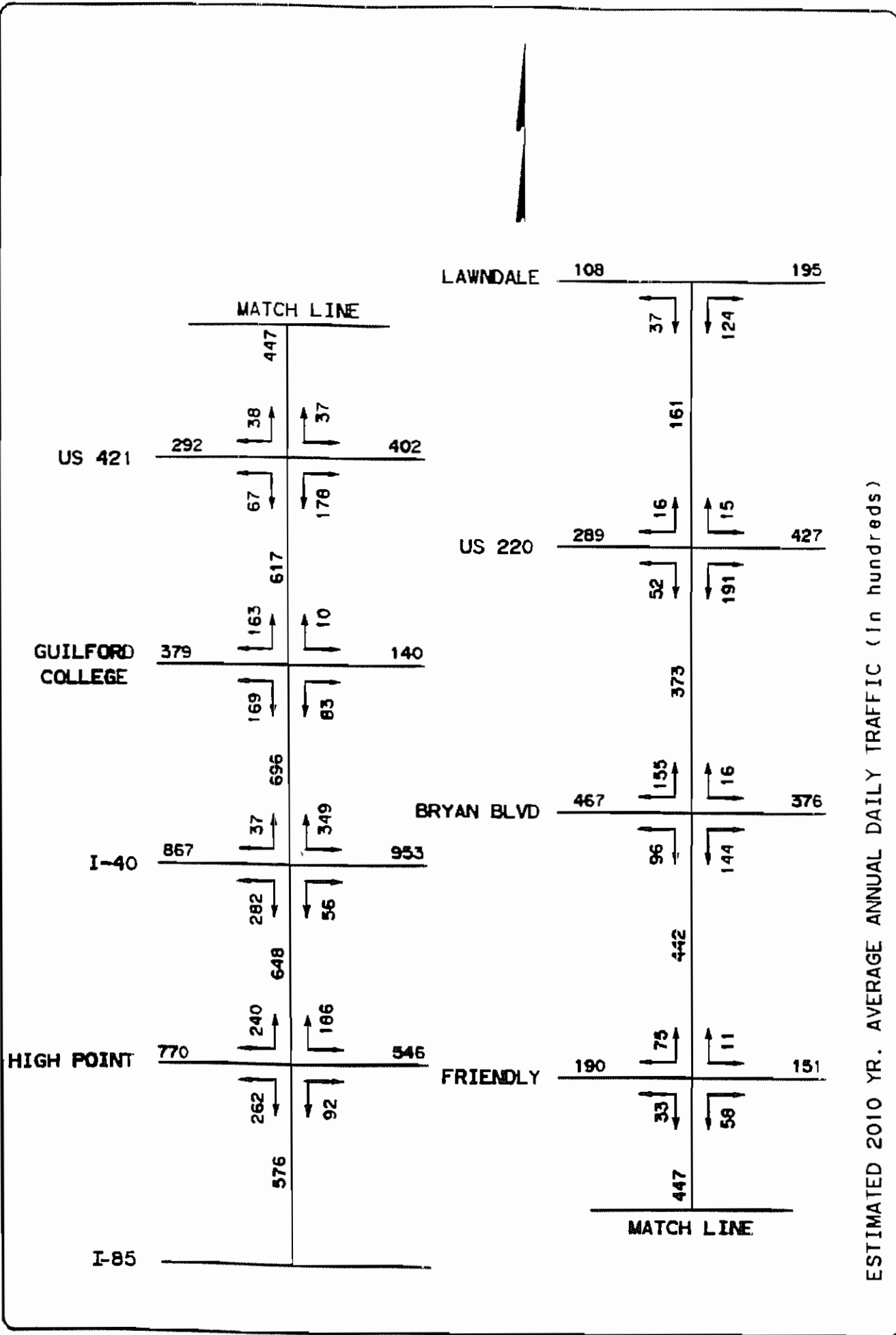


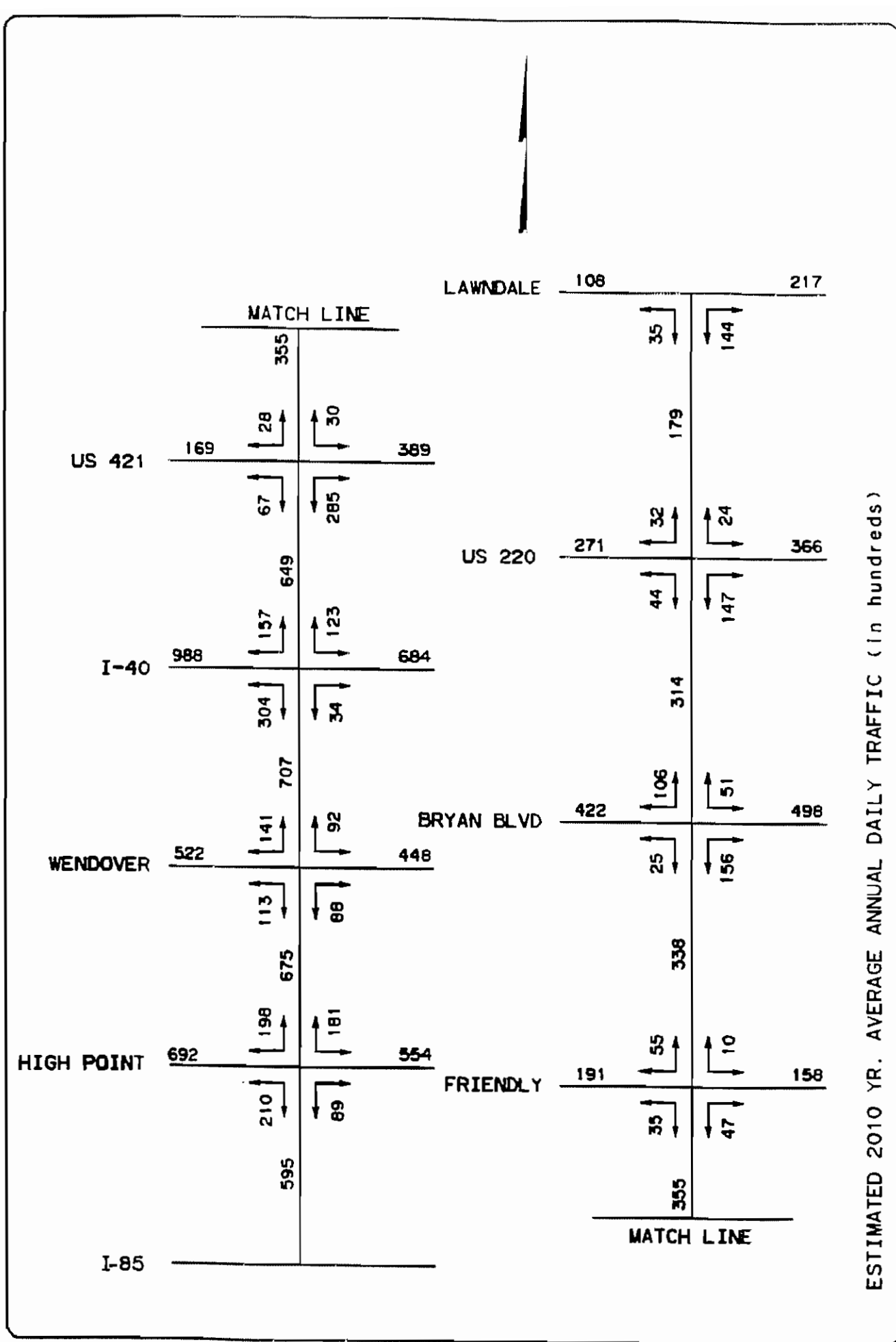
ESTIMATED 2010 YR. AVERAGE ANNUAL DAILY TRAFFIC (In hundreds)

GREENSBORO WESTERN URBAN LOOP

PROJECTED YEAR 2010 TRAFFIC VOLUMES
EASTERN ALTERNATIVE

FIGURE
11-4A





ESTIMATED 2010 YR. AVERAGE ANNUAL DAILY TRAFFIC (in hundreds)

FIGURE 11-4C

PROJECTED YEAR 2010 TRAFFIC VOLUMES
WESTERN ALTERNATIVE

GREENSBORO WESTERN URBAN LOOP

Also, a portion of the Urban Loop facility from I-85 to I-40 may be designated as an I-40 Bypass. This section would have to conform to interstate design and capacity standards which could not be accommodated with a reduced level-of-service facility.

3. Traffic Operations and Level-of-Service

Traffic operations, including level-of-service, were evaluated for the three alternatives based upon 2010 traffic projections developed from the Greensboro urban area transportation model. Analyses included level-of-service for basic lane sections; merge, diverge, and weave analyses for freeway ramps; and planning capacity analyses for ramp termini at interchanges. Assumptions included balanced daily traffic flow by direction, peak-hour factor, $\theta = 0.9$, level terrain, and an equivalent truck factor of 3.0. For autos, assumptions also include 10 percent peak-hour/average daily traffic, and 60/40 peak-hour directional split. For trucks, assumptions include 4.2 percent peak-hour/average daily traffic, 50/50 peak-hour directional split. This is equivalent to 3.7% trucks on the mainline and the ramps. These assumptions are conservative to provide a design that allows for future growth. A summary of the capacity analysis is shown in Table II-3.

Traffic volumes on the Eastern Alternative range from about 18,000 VPD north of US 220 to about 73,000 VPD south of US 421. Traffic volumes on the Middle Alternative range from about 16,000 VPD north of US 220 to about 70,000 VPD south of US 421. Traffic volumes on the Western Alternative range from about 18,000 VPD north of US 220 to about 71,000 VPD south of I-40.

Levels-of-service, as defined by the Transportation Research Board, were used for qualitative evaluation of the alternatives. Levels of service range from A to F, with A being the least congested and F the most congested. Levels-of-service A through C are considered desirable. Level-of-service D is acceptable at some locations during peak periods, but is not desirable. A level-of-service exceeding D (E or F) is considered prone to congestion, unstable, and unacceptable.

Capacity analyses were performed for mainline freeway sections, ramp merges and diverges, and weaving sections. The lane requirements shown in Table II-3 reflect the results of these analyses and the need to maintain lane balance. In some cases, lane requirements were dictated by ramp movements rather than mainline volumes alone.

For the Middle and Eastern Alternatives, six lanes are needed between I-85 and I-40 and eight lanes are needed between I-40 and US 421. The Eastern Alternative requires six lanes between US 421 and Bryan Boulevard, with four lanes for the remainder of the route. The Middle Alternative

requires four lanes between US 421 and Lawndale Drive. The Western Alternative requires six lanes between I-85 and Wendover Avenue, eight lanes between Wendover and Friendly Avenue, and four lanes between Friendly Avenue and Lawndale Drive.

A capacity analysis was conducted at proposed interchanges and used to determine laneage on ramps and intersections with surface arterials. Based on this capacity analysis, all interchanges will operate at LOS D or better in accordance with the proposed geometric design, laneage restrictions on the intersecting surface arterials, and implementation of planned facilities on the Thoroughfare Plan.

Figures II-4A, II-4B, and II-4C show projected 2010 traffic volumes for the Eastern, Middle, and Western Alternatives, respectively.

**TABLE II-3
CAPACITY ANALYSIS SUMMARY**

	<u>No. of Lanes</u>	<u>Level-of-Service (LOS)</u>
<u>Eastern Alternative</u>		
I-85 to High Point	6	C
High Point to I-40	6	D
I-40 to US 421	8	C
US 421 to Friendly	6	C
Friendly to Bryan	6	C
Bryan to US 220	4	B
US 220 to Lawndale	4	A
<u>Middle Alternative</u>		
I-85 to High Point	6	C
High Point to I-40	6	D
I-40 to Guilford College	8	C
Guilford College to US 421	8	C
US 421 to Friendly	4	C
Friendly to Bryan	4	C
Bryan to US 220	4	C
US 220 to Lawndale	4	A
<u>Western Alternative</u>		
I-85 to High Point	6	C
High Point to Wendover	6	C
Wendover to I-40	8	C
I-40 to US 421	8	C
US 421 to Friendly	8	B
Friendly to Bryan	4	C
Bryan to US 220	4	B
US 220 to Lawndale	4	A

In addition to the freeway mainline and interchanges, other roadway segments in the study area were analyzed, comparing projected traffic volumes and levels-of-service with each of the three build alternatives, as was shown on Table I-3.

The Eastern Alternative would improve the level-of-service for the following roadways:

- o Guilford College Road (F to D, E to B)
- o High Point Road (E to C)
- o Jefferson Road (E to D)
- o Lake Brandt Road (E to C)
- o Old Battleground Road (E to D)
- o Friendly Avenue (D to C)
- o Groometown Road (C to A)
- o Hilltop Road (D to C)
- o Holden Road (D to C, F to E)
- o Lawndale Drive (D to C)
- o Muirs Chapel Road (D to B)
- o New Garden Road (F to E, D to C)

The Middle Alternative would improve the level-of-service from unacceptable (E or F) to acceptable (D or better) for the following roadways:

- o Bryan Boulevard (E to D)
- o Guilford College Road (E to B)
- o High Point Road (E to D)
- o Jefferson Road (E to D)
- o Lake Brandt Road (E to C)
- o New Garden Road (F to D, D to B)
- o Old Oak Ridge Road (E to D)
- o Friendly Avenue (D to C)
- o Groometown Road (C to A)
- o Hilltop Road (D to B)
- o Holden Road (D to C)
- o Lawndale Drive (D to C)
- o Muirs Chapel Road (D to C)

The Western Alternative would improve the level-of-service from unacceptable (E or F) to acceptable (D or better) for the following roadways:

- o Bryan Boulevard (E to D)
- o Guilford College Road (F to A, E to C)
- o I-40 (E, F to D, C)
- o Jefferson Road (E to D)
- o Lake Brandt Road (E to C)
- o New Garden Road (F to D, D to A)
- o Old Oak Ridge Road (E to C)
- o Fleming Road (B to A)
- o Friendly Avenue (D to C)
- o Groometown Road (C to A)
- o Holden Road (D to C)
- o Muirs Chapel Road (D to C)

4. Construction and Right-of-Way Cost Estimate

Construction costs (based on 1990 unit costs) were estimated for each of the alternatives based on functional plans. These plans include horizontal and vertical alignment of the highway and were

developed using the design criteria and typical sections described earlier. Construction costs estimated included the following elements:

- o Mobilization
- o Clearing and grubbing
- o Earthwork (excavation and embankment)
- o Drainage
- o Stabilization and Pavement
- o Structures
- o Guardrail
- o Erosion Control
- o Traffic Control
- o Signing and Marking
- o Widening Cross-Streets at Interchanges
- o Engineering and Contingencies

Estimated construction costs for the three alternatives are \$100.4 million for the Eastern Alternative, \$108.3 million for the Middle Alternative, and \$100.8 million for the Western Alternative. Construction costs were developed for crossovers and individual segments.

Right-of-way cost estimates were prepared based on the following elements:

- o value of the land and improvements that would be acquired
- o damage to parcels
- o relocated homes and businesses
- o utility relocations
- o acquisition costs

Estimated right-of-way costs were prepared for each segment, including crossovers. These costs totaled \$95.1 million for the Eastern Alternative, \$83.0 million for the Middle Alternative, and \$77.9 million for the Western Alternative. Most of these costs were due to acquisition of developed land.

By combining the construction and right-of-way costs, the estimated total costs are obtained. The costs for each of the three alternatives are \$195.5 million for the Eastern Alternative, \$191.3 million for the Middle Alternative, and \$178.7 million for the Western Alternative. The 1991-1997 TIP estimates the total cost of the Western Loop (excluding the portion of the Northern Loop) will be \$112.5 million. Costs for each alternative are summarized in Table II-4.

**TABLE II-4
ESTIMATED COSTS
Alternative**

	<u>Eastern</u>	<u>Middle</u>	<u>Western</u>	<u>Crossover</u>		
				<u>C-1</u>	<u>C-2</u>	<u>C-3</u>
Construction Cost (millions, 1990)	\$100.4	\$108.3	\$100.8	\$5.0	\$6.1	\$6.0
Right-of-Way Cost (millions, 1990)	\$ 95.1	\$ 83.0	\$ 77.9	\$4.9	\$3.4	\$2.8
Total Cost (millions, 1990)	\$195.5	\$191.3	\$178.7	\$9.9	\$9.5	\$8.8

5. Cost-Effectiveness Analysis

A cost-effectiveness analysis (CEA) was conducted for the proposed Greensboro Western Urban Loop to determine which alignment, if any, would be an economically sound investment. The Eastern, Middle, and Western Alignments were studied.

The basis for this analysis is contained in the 1977 publication of the American Association of State Highway and Transportation Officials (AASHTO) entitled A Manual on User Benefit Analysis of Highway and Bus-Transit Improvements. A computer program developed by the Florida Department of Transportation, which incorporated the methodology outlined in the Manual, was used to conduct the analysis for the Greensboro Western Urban Loop project.

This method compares the estimated costs of implementing and maintaining each alternative project for the period of analysis against the economic benefits that are expected to be realized from it over the same period. The estimated costs consist of engineering, right-of-way, construction, and maintenance costs. Maintenance costs are incurred annually over the analysis period for activities such as pavement patching, landscaping, drainage cleanouts, and repairs.

Periodic maintenance costs for pavement milling and overlays are incurred at ten-year intervals. The non-freeways require both activities each time. Freeways require the overlay at year 10 and both activities at year 20. The values used for these maintenance costs were based on historic maintenance data obtained from NCDOT. The annual maintenance cost (excluding pavements) was \$4,100 per lane-mile. A 2.5-inch pavement overlay requires \$25,420 per lane-mile, while the milling costs \$7,040 per lane-mile.

The economic benefits realized from the proposed project are any reduction in road user costs predicted to occur as a result of drivers operating their vehicles on a safer, more efficient, and less

congested transportation facility. Such benefits are determined by comparing the differences in the total road user costs with and without the project for each alternative. If road user costs are reduced, this is considered an economic benefit for that project alternative.

Total road user costs for any given condition include the following: owning and operating costs (fuel, motor oil, tire wear, auto maintenance, repairs, and depreciation), travel time costs (cumulative dollar value of the vehicle occupants' time), vehicle accident costs (based on historic average accident costs for various types of highway facilities), discomfort and inconvenience costs (a dollar value of discomfort and inconvenience suffered on a congested road by the occupants), and the additional operating costs incurred due to speed changes. The AASHTO Manual prescribes the procedures for calculating such costs and updating them using the consumer price indices for the year of the data and 1988 (the latest available). The values of travel time updated to 1988 were \$6.45 per vehicle-hour for autos, \$13.20 per vehicle-hour for medium trucks, and \$15.20 per vehicle-hour for heavy trucks.

Table II-5 summarizes the results of the CEA for the discount rates of 4% and 7%. A 10% interest rate was also considered. Costs and benefits estimated for future years were discounted to 1989 monetary values by using discount rates. From the table, it can be determined that the Eastern Alternative would be the most cost-effective investment since it provides the highest benefit/cost ratio.

The financial viability of a project is determined by the benefit/cost (B/C) ratio. An investment is desirable if the B/C ratio is greater than 1.00. B/C ratios were greater than 1.00 for all three alternatives indicating a good investment of public funds. Though the Eastern Alternative has a slightly higher B/C value, these values are very close for all three alignments.

**TABLE II-5
BENEFIT/COST RATIOS
(Compared with No-Build)**

<u>Alternate</u>	<u>Interest Rate</u>	
	<u>4%</u>	<u>7%</u>
Eastern	3.9	2.3
Middle	3.4	2.0
Western	3.7	2.2

**CHAPTER III
AFFECTED ENVIRONMENT**

This chapter provides a description of the existing social, economic, and natural environmental setting for the Greensboro Western Urban Loop study area. Evaluation of these parameters is necessary to assess the environmental consequences of the proposed project contained in Chapter IV.

A. SOCIAL ENVIRONMENT

1. Population and Housing

Guilford County is among the fastest growing counties in North Carolina. Population estimates for Guilford County and North Carolina are shown in Table III-1. As shown in Table III-2, the projected growth rate for Guilford County is somewhat lower than that for the state as a whole between the years 1990 and 2000. In contrast, the study area population is projected to grow at a much higher rate. The year 1985 population of 49,000 is expected to increase to 70,000 by the year 2000. This is approximately three times the Guilford County population growth rate.

**TABLE III-1
POPULATION ESTIMATES (THOUSANDS)
1960 - 1990**

	<u>1960</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>
City of Greensboro	119.6	144.1	155.6	183.5
Guilford Co.	246.5	288.6	317.2	348.0
North Carolina	4,556.2	5,084.4	5,881.7	6,492.8

Source: North Carolina State Government Statistical Abstract, Fifth Edition, 1984, U.S. Department of Commerce, Bureau of the Census
Office of State Budget and Management, Research and Planning Services

**TABLE III-2
POPULATION PROJECTIONS (THOUSANDS)
2000 - 2010**

	<u>2000</u>	<u>2010</u>	<u>Percent Increase 2000-2010</u>
City of Greensboro	202.4	222.2	9.8%
Guilford Co.	369.0	387.0	4.9%
North Carolina	7,005.4	N/A	N/A

Source: Guilford County Planning Department, 1989
North Carolina Office of State Budget and Management, 1989
City of Greensboro Planning Office, 1991

As the population level is growing, characteristics of the population are correspondingly changing. In generalized terms, the population of Guilford County is becoming older and more educated. The median age in Guilford County in 1960 was 27 years. In 1980 the median age was 30.1 years. Similarly, the number of college graduates in Guilford rose from 12.8% in 1970 to 19.7% in 1980. (Source: Comprehensive Plan, Guilford County, North Carolina, 1986)

In Guilford County, the number of households increased 25.2 percent between 1960 and 1970, and 32.1 percent between 1970 and 1980. The average statewide increase during these periods was 25.3 percent and 35.4 percent, respectively. The number of households in Guilford County and in North Carolina is shown in Table III-3.

**TABLE III-3
NUMBER OF HOUSEHOLDS AND PERSONS PER HOUSEHOLD
1960, 1970, 1980**

	<u>North Carolina</u>		<u>Guilford County</u>		<u>City of Greensboro</u>	
	<u>Number of Households</u>	<u>Persons per Household</u>	<u>Number of Households</u>	<u>Persons per Household</u>	<u>Number of Households</u>	<u>Persons per Household</u>
1960	1,204,715	3.66	69,128	3.45	33,923	3.35
1970	1,509,564	3.24	87,827	3.16	43,696	3.09
1980	2,043,291	2.78	114,084	2.67	56,702	2.57

Source: North Carolina State Government Statistical Abstract, Fifth Edition, 1984.

2. Land Use Planning

Existing Land Use

Existing land use in the study area is primarily suburban residential, with industrial and commercial land use along major traffic arteries and rural land use in the northwest.

The area between I-85 and High Point Road is low to medium density residential, with scattered apartments and vacant parcels. The High Point Road corridor is developed primarily with small commercial establishments, with the notable exception of the Jefferson-Pilot complex. Industrial development occurs east of the Southern Railway tracks between Hilltop Road and I-40, between West Market Street and I-40 east of Meadowood Street, west of Guilford College Road, along I-40, and in the vicinity of the airport. Commercial development occurs along Guilford College Road, West Market Street, Friendly Avenue, Battleground Avenue, and Lawndale Drive. Most of the remaining area is largely developed as single family subdivisions or multi-family apartments or condominiums. Much of the multi-family development occurs in the western portion of the study area, which also has the most land in rural or agricultural uses. Major areas of open space (see Figure III-1) include portions of the Guilford College campus, Jefferson Pilot property north of Guilford College, and the floodplain area generally bounded by New Garden Road, Battleground Avenue, and Horsepen Creek Road. The area between Horsepen Creek Road and Fleming Road is also largely undeveloped.

Land Use Planning

The City of Greensboro does not have a current comprehensive land use plan. The City has small area studies and the existing zoning map, and it is currently working with Guilford County on several area plans. Within the study area, the City and County have worked together to complete the Southwest Area Plan and the Airport Area Plan (see Chapter IV.A.1). These plans recognize the Greensboro Western Urban Loop as part of the long-range transportation system. Land use decisions within the City are determined by two boards, the City Zoning Board and the Planning Board, with appeal to the Greensboro City Council. Both of these boards serve by appointment of the City Council.

The Comprehensive Plan for Guilford County was adopted in 1986. Because most of the study area is developed, the land use plan shown in that document, reproduced as Figure III-1, largely reflects existing land use patterns. All land in the study area is shown as developed. Industrial development is to occur between Guilford College Road and the airport, consistent with past trends, as well as along I-85 and in existing industrial concentrations. Mixed uses are shown along High Point Road, West Wendover, West

Market Street, West Friendly Avenue at Guilford College Road, Battleground Avenue, and Lawndale Avenue, with potential mixed use within the airport runway noise contour. Major open space areas are shown at Sedgefield, Jefferson Pilot Headquarters, Oka T. Hester Park, Guilford College, Jefferson Standard property, and the area between Old Battleground Avenue and Lawndale Drive, including the Guilford Courthouse National Military Park, Greensboro County Park and Zoo, and Forest Lawn Cemetery. The planned land use within the study area was used to project traffic in the study area.

3. Transportation

The Greater Greensboro Urban Area is served by two major interstate highways (see Figures I-1 and I-4). I-85 provides connection to the Charlotte-Mecklenburg area to the south, the I-85/I-40 section provides connection to the Research Triangle area (Raleigh, Durham, Chapel Hill) to the east, and I-40 links Greensboro to Asheville through Winston-Salem in the west. The interstate system also provides transportation linkage within the Piedmont Triad Area (Greensboro, Winston-Salem, High Point). Major U.S. routes serving Greensboro include US 29 (and 29A), US 70 (and 70A), US 220, and US 421. Each of these are major thoroughfares which run radially into Greensboro. These routes, together with other major thoroughfares, provide Greensboro with a well-developed radial system. The Urban Loop will encircle Greensboro, connecting all these radials, thereby providing the cross-town or circumferential connection that is a major component of the adopted Thoroughfare Plan.

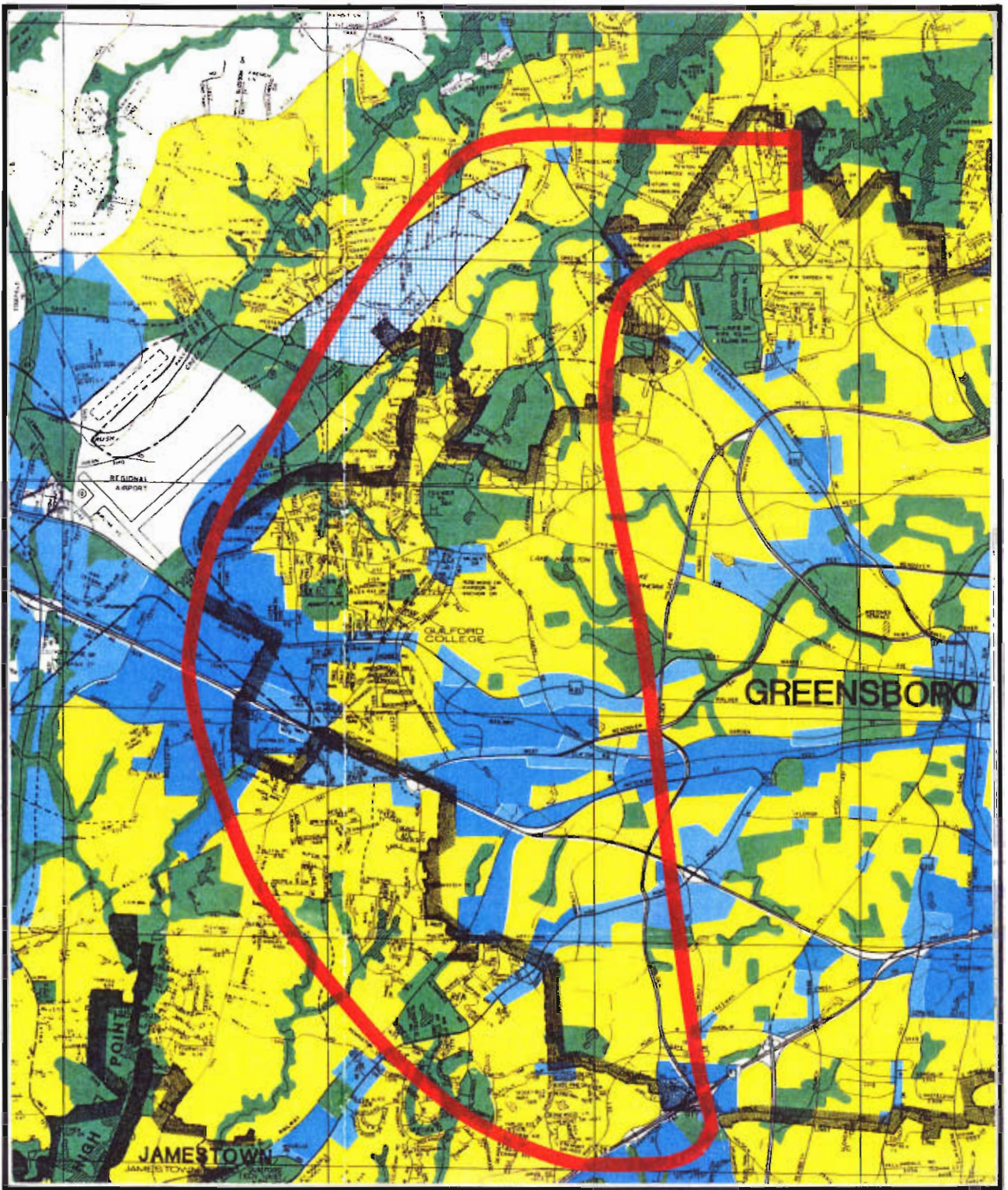
Thoroughfares in the study area, as designated in the Greensboro Urban Area Thoroughfare Plan (see Figure I-4) include the following:

Freeways

I-85
I-40
Bryan Boulevard (proposed)
West Urban Loop (proposed)

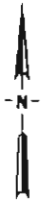
Major Thoroughfares

Hilltop Road
Spring Garden Street
Groometown Road
Vandalia Road
Holden Road
Patterson Street



LAND USE

- AGRICULTURE & LOW DENSITY RESIDENTIAL
- RESIDENTIAL
- MIXED USE: COMMERCIAL, OFFICE, LIGHT INDUSTRIAL, MULTI-FAMILY RESIDENTIAL USE
- POTENTIAL MIXED USE
- INDUSTRIAL
- OPEN SPACE: FLOODPLAINS, RECREATION AREAS, PUBLIC LANDS, MAJOR INSTITUTIONS
- STUDY AREA.



SCALE IN MILES

Source: Comprehensive Plan,
Gulford County, NC, 1986

**GREENSBORO WESTERN
URBAN LOOP**

LAND USE PLAN

**Figure
III-1**

Old Oak Ridge Road
Westridge Road
High Point Road (US 29A/US 70A)
Wendover Avenue (US 70A)
West Market Street (US 421)
Friendly Avenue
Battleground Avenue (US 220N)
Lawndale Drive

Minor Thoroughfares

Fleming Road
Old Battleground Road
Muir's Chapel Road
New Garden Road
Horsepen Creek Road
Merritt Drive

The continuing, comprehensive, and cooperative planning process (3-C Process) is conducted in the Greensboro Urban Area in accordance with Title 23 of the Code of Federal Register, Part 450, Subpart C. The Metropolitan Planning Organization (MPO) is a forum for transportation planning policy. Projects are submitted to the State as priorities set by the MPO, an effort required by Federal statutes. The Metropolitan Planning Organization is composed of two committees: (1) the Technical Coordinating Committee, composed of professional transportation staff members from the City and County Planning Departments, the Council of Governments, representatives of transportation providers such as Duke Transit and Greensboro Agency Transit Express (GATE)¹, NC A&T University, City and County Planning Boards, and Federal and State officials; and, (2) the Transportation Advisory Committee, composed of elected officials from the jurisdictions included in the planning district and the State Transportation Board member.

The Technical Coordinating Committee recommends projects to the Advisory Committee, which then includes them in the area's transportation plan (the Greater Greensboro Urban Area Transportation Improvement Program). These priorities, in turn, are considered by the State Department of Transportation for possible inclusion in the Transportation Improvement Program.

Projects with North Carolina Department of Transportation's Transportation Improvement Program (TIP) for 1991 to 1997 include the following major construction projects in the Greensboro area.

¹GATE provides general service to the elderly, handicapped, and other special groups.

- I-2201 -- Widen I-40 from east of Kernersville to I-85
- I-2402 -- Greensboro Bypass, I-85 south of Greensboro to I-40/I-85 east of Greensboro
- R-2309 -- Widen existing US 220 north of Greensboro to NC 68, to multi-lane facility
- U-60 -- US 220 on new location from Vandalia Road north of I-85 through I-40 to Willmore Street
- U-510 -- Bryan Boulevard Extension, multi-lane facility from New Garden Road to SR 2176
- U-608 -- Bryan Boulevard Extension, Airport to New Garden Road
- U-800 -- Widen West Market Street from NC 68 to Jamestown Road, to multi-lane facility
- U-2012 -- NC 68 Interchange with SR 2085
- U-2412 -- High Point Road, widen existing roadway to multi-lanes and construct multi-lanes on new location
- U-2413 -- Widen Wendover Avenue from Penny Road to Landmark Center Drive

In the study area, the major mode of transportation is the automobile. All day bus services are available on the Four Seasons Mall and Pomona routes. Only peak-hour services are available on the Walker Avenue, Friendly Avenue, and Battleground Avenue routes. The majority of the study area is not served by public transportation.

The City of Greensboro has a functioning and extensive bicycle plan. None of the alternatives cross any signed bicycle routes in the study area. The Battleground Loop is the only signed bicycle route in the study area and is close to the common (northern) portion of the Eastern, Middle, and Western Alternatives.

The Piedmont Triad International Airport lies just west of the study area. The airport currently has two active runways. Though the airport is not a major hub, air traffic is increasing and a 7,000-foot runway is planned parallel to and west of the existing runway 6-23. The Airport Master Plan calls for airport-related development to the south and east of runway 5-23. In addition, a major aircraft maintenance facility may be located in this area and could extend well to the east. The master plan has not been completed. The airport staff discussed general planning highlights but did not provide a map.

4. Parks, Recreational Facilities, and Greenways

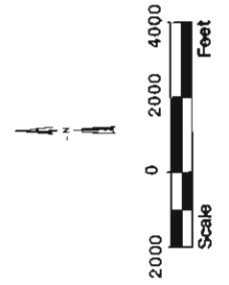
Table III-3A shows a matrix for potentially-affected, publicly-owned lands that are close to the selected alternatives. The locations of the properties are shown on Figure III-2.



LEGEND

- PARKS
- FUTURE OPEN SPACE
- DEDICATED OPEN SPACE

Note: Open space may be used for flood protection, greenway, bike trail or thoroughfare.



GREENSBORO WESTERN URBAN LOOP

PARKS AND OPEN SPACE

The publicly-owned lands which are located within the study corridors are as follows:

- o Oka T. Hester Park (excluding reserved corridor)
- o Mitchell
- o Woods of Guilford (portion designated as park)
- o Western Greensboro Community Center

Mitchell Park is located within the Eastern Alternative, the portion of Woods of Guilford that is designated as a park is located within the Middle Alternative, and the Western Greensboro Community Center is located within the Western Alternative.

The following properties are designated open-spaces, floodplains, and thoroughfare by City Ordinance.

- o Drawbridge/US 220
- o North Hills
- o Friendswood
- o Old Oak Ridge Road (all three)
- o Woods of Guilford (portion not designated as park)
- o Coronado

The Oka T. Hester Municipal Park contains various facilities including softball, baseball, and soccer fields, tennis courts, a lake with paddle boats and fishing opportunities, and gym sets for younger children. The Eastern Alternative passes through the park but is located in right-of-way reserved through the park for a future highway. Construction within this reserved right-of-way would require the removal of a dam in the right-of-way.

Several private recreational facilities are also located in the study area. Among these are Sedgefield Golf Course, Longview Golf Course, and Pilot Life Insurance Country Club.

**TABLE III-3A
PUBLICLY-OWNED LANDS IN ALTERNATIVE CORRIDORS**

<u>Name</u>	<u>Ownership</u>	<u>Function¹</u>	<u>Approx. Acreage</u>	<u>Reference to Thoroughfare Plan</u>	<u>Joint Use</u>	<u>Method of Acquisition</u>	<u>Playground Equipment</u>	<u>Alternative Corridor</u>
Oka Hester	City	Park	84	Yes	Yes	Deed	Yes	Eastern
Oaks West	City	O.S. and f.p.	1.9	No	No	Plat	Yes	Eastern
Mitchell	City	Park and O.S.	3.2	No	No	Deed	Yes	Eastern
Coronado	City	O.S. and f.p.	0.3	No	Yes	Plat	Yes	Eastern
Drawbridge/ US 220	City	O.S. and f.p.	2.7 ±	No	Yes	Plat	No	Eastern Middle Western
North Hills	City	O.S. and f.p.	2.2 ±	Yes	Yes	Plat	No	Eastern Middle Western
Friendswood	City	O.S. and f.p.	1.8	No	No	Plat	No	Middle
Woods of Gulford	City	O.S. and f.p. and park	17.5	No	No	Deed	No	Middle
Old Oak Ridge Road	City	O.S. and f.p.	8.2	No	No	Plat	No	Middle
Old Oak Ridge Road	City	O.S. and f.p.	9.0	No	No	Plat	No	Middle
Old Oak Ridge Road	City	O.S., f.p. and P.G.	0.9	No	No	Plat	No	Middle
Community Center Property	City	Park	20.6	No	No	Deed	No	Middle Western

¹ O.S. = Open Space; f.p. = floodplain/drainage; P.G. = Proposed Greenway

The City and County acquire floodplain and open space property that may be used as greenways through subdivision dedication. In a few instances, property has been dedicated by subdivision plat or deed specifically as a greenway. Two such properties in the study area, shown as dedicated open space in Figure III-2, are recorded as greenway. One 0.9-acre property is adjacent to Old Oak Ridge Road at Horsepen Creek (see Table III-3A); while it is in the corridor, there is sufficient width so that no greenway property will be taken. The other is located on Horsepen Creek north of Horsepen Creek Road; it is not in a study corridor. No greenway facilities have been developed within the study area.

5. Neighborhood and Community Facilities

The study area includes developed suburban and urban land, as well as rural land on the fringe of development.

Most of the study area is developed as single-family residential neighborhoods, served by schools within the neighborhoods and commercial areas along major corridors. Neighborhoods are generally defined by common subdivision, major barriers (freeways, creeks, railroads), and similarity of housing type. The areas affected by each alternative are summarized in Chapter IV.A.2. The neighborhoods in the study area are largely homogeneous residential subdivisions comprised almost entirely of single-family homes. Over twenty neighborhoods in the study area have active neighborhood organizations.

The study area also contains scattered clusters of multi-family units, both rental and owner-occupied. These are concentrated near I-40, between Guilford College Road and Muirs Chapel Road, along Old Oak Ridge Road, and along Battleground Avenue. Most of these developments are less than 10 years old. In unincorporated areas, fire protection is provided by volunteer fire departments, and in the incorporated portions, fire protection is provided by the City of Greensboro. The fire departments at Meadowood, Guilford College, Friendly Avenue, Ballinger Road, Old Oak Ridge Road, and Lake Brandt Road lie in or close to the study area. The fire stations are shown on Figure III-3 and are listed below.

<u>Map Designation</u>	<u>Fire Station</u>	<u>Address</u>
A	Guilford County #24	Bishop Road
B	Guilford County #23	MacKay Road
C	Greensboro #15	1400 W. Vandalia Road
D	Deep River Volunteer	NC 68
E	Greensboro #10	4208 High Point Road
F	Greensboro #8	2201 South Chapman Street
G	Greensboro #16	1000 Meadowood Drive
H	Guilford County #17	Guilford College

**Map
Designation**

Fire Station

Address

J	Greensboro #5	1618 W. Friendly Avenue
K	Greensboro #20	8404 W. Market Street
L	Airport Fire and Rescue	6415 Airport Parkway
M	Greensboro #19	7109 W. Friendly Avenue
N	Greensboro #18	5903 Ballinger Road
O	Greensboro #9	4302 W. Friendly Avenue
P	Greensboro #6	1401 Westover Terrace
Q	Guilford College #19	6001 Old Oak Ridge Road
R	Greensboro #12	1805 Pisgah Church Road
S	Greensboro #17	4614 Lake Brandt Road

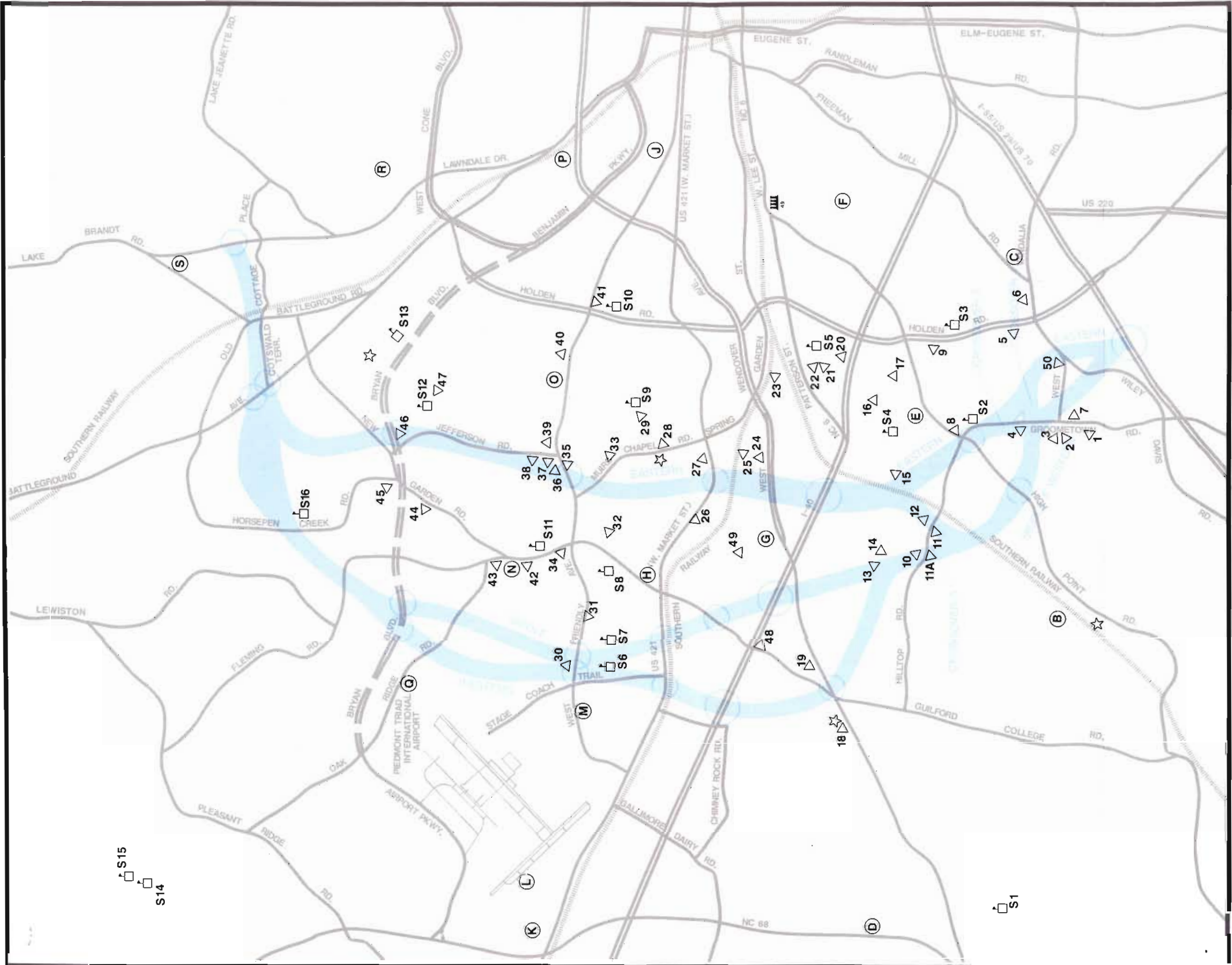
Police protection is provided by the City of Greensboro or the Guilford County Sheriff's Department in the study area.

a. Schools

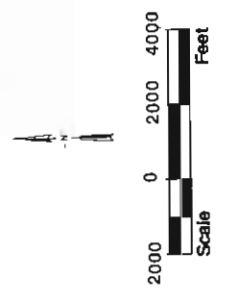
There are three school districts in Guilford County including the Greensboro district, the High Point district, and the Guilford County district.

The following schools are located in the study area, as shown on Figure III-3. No future schools are planned in the study area.

<u>Map Designation</u>	<u>School</u>
S1	Florence Elementary
S2	Sedgefield Elementary
S3	B.L. Smith High
S4	Alderman Elementary
S5	Hunter Elementary
S6	Guilford Primary
S7	Western Guilford High
S8	Guilford Elementary
S9	Morehead Elementary
S10	Sternberger Elementary
S11	Guilford College
S12	Claxton Elementary
S13	Westminister Garden Elementary
S14	Northwest Senior High
S15	Northwest Junior High
S16	Montessori School



- LEGEND**
- SCHOOLS
 - △ CHURCHES
 - ☆ CEMETERIES
 - Ⓐ FIRE STATIONS



GREENSBORO WESTERN URBAN LOOP

SCHOOLS, CHURCHES, CEMETERIES AND COMMUNITY FACILITIES

b. Churches and Cemeteries

The location of churches and cemeteries in the study area is shown in Figure III-3.

Churches in the area include the following:

<u>Map Designation</u>	<u>Churches</u>
1	Pleasant Grove Baptist
2	All Saints Episcopal
3	Sedgefield Presbyterian
4	Lutheran Church of Our Father
5	Faith Baptist
6	Pincroft Baptist
7	Celia Phelps United Methodist
8	Hinshaw Memorial United Methodist
9	Christ Wesleyan
10	Jim Greene Memorial
11	Piedmont Christian
11A	Korean Methodist Church
12	Greensboro Mennonite Fellowship
13	Stanley Road Baptist
14	Christ Fellowship
15	Grace Baptist
16	Merritt Drive Church of God
17	Mt. Calvary
18	Hickory Grove United Methodist
19	Shining Light Baptist
20	Hunter Hills Baptist
21	St. Johns United Methodist
22	Hunter Hills Friends
23	Clifton Road Baptist
24	Cedar Grove Baptist
25	Swift Street AME Zion
26	AHAM - Association of Happiness for All Mankind
27	Guilford Wesleyan
28	Muir's Chapel United Methodist
29	Tower Drive Baptist
30	Lutheran Church of the Resurrection
31	Faith Presbyterian
32	Persimmon Grove AME
33	First Church of God Anderson
34	New Garden Friends Meeting
35	Church of Christ
36	Trinity Church
37	Westside Chapel
38	Calvary Assembly of God
39	Friendly Avenue Baptist
40	Westminster Presbyterian
41	Christ United Methodist
42	Friendship Friends Meeting
43	Guilford College United Methodist

<u>Map Designation</u>	<u>Churches</u>
44	Cross of Christ Lutheran
45	St. Paul the Apostle
46	St. Barnabas Episcopal
47	Church of Jesus Christ of Latter Day Saints
48	Raleigh Cross Roads United Methodist
49	Victory Baptist
50	Ebenezer Baptist

6. Cultural Resources

Cultural resources in the study area include historical sites and archaeological resources.

a. Historic Structures

The City of Greensboro, east of the study area, was surveyed in 1976 and a publication prepared. That survey extended only as far west as the city limits at that time, and reached only the eastern outskirts of this project's study area. During the years 1975 to 1977, a systematic survey of Guilford County was conducted in a joint project of the N.C. State Historic Preservation Office, the Guilford Bicentennial Commission, and the city and county planning departments. That project resulted in the publication of an inventory in 1979. This inventory was updated in 1990.

An historic architectural survey was conducted in November 1989 and March and April 1990 to identify and evaluate historic and architectural resources in the project's area of potential effect. Primary and secondary sources were studied and oral interviews conducted. Using USGS maps, the entire study area was surveyed. Every road and structure within that area was inspected. This study was coordinated with the State Historic Preservation Office (SHPO) in accordance with the procedures for compliance with Section 106 of the National Historic Preservation Act of 1966, the Advisory Council on Historic Preservation's regulations for compliance with Section 106 codified as 36 CFR Part 800, and Section 4(f) of the U.S. Department of Transportation Act.

As a result of the survey, approximately 300 properties were mapped and photographed and survey data was gathered on 47. There are currently three properties in the study area listed in the National Register. In addition to the three properties listed in the National Register 14 properties are considered eligible for

the Register. Twenty-five other properties were recorded for this survey but are not considered to meet National Register eligibility criteria.

The 17 listed and eligible properties in the study area (listed below) include one eighteenth and nineteenth century college, one eighteenth and nineteenth century cemetery, one eighteenth century site of military battle, three log houses from the eighteenth and nineteenth centuries, log outbuildings, three nineteenth century houses, nine early twentieth century houses, one twentieth century black church, one twentieth century stable, one twentieth century residential and office historic district. The locations of these properties are shown on Figure III-4 and keyed on the list below, which also indicates properties listed or nominated to the National Register (NR) or Study List (SL). The State Historic Preservation Officer (SHPO) has concurred that the 14 properties not listed on the National Register are eligible for the National Register.

<u>Map Designation</u>	<u>Property</u>
P281	John Hampton Adams House (Adamsleigh)
P267	Arcadia (Lewis Lyndon Hobbs House) (SL)
P279	Chamblee House
P148	Thomas Cook Farm (SL)
P207	Roy Edgerton House
P246	Guilford College (NR)
P272	Guilford Courthouse Military Park (NR and NHL)
P88	Samuel H. Hodgkin House
P271	Hoskins Farmstead Historic District (NR)
P275	Jamison-Ward House
P178-9	Jeffers Complex
P218	Kimrey-Haworth House (SL)
P89	Era Lasley House
P266	New Garden Friends Cemetery
P231	Celia Phelps Methodist Episcopal Church
P135	Pilot Life/Sedgefield Historic District
P232	Sedgefield Stables

These and the other 27 properties recorded during the study are described in Historic and Architectural Resources in the Area of Potential Impact of the Proposed Construction of the Greensboro Western Urban Loop, Guilford County, February 1991.

b. Archaeological Resources

A sample survey has been undertaken to assess the presence of archaeological resources within the survey area, and to determine if any resources appear to

contain significant information which will require additional investigations. The sample survey involved the investigation of a 300-foot-wide corridor located within the 1,000-foot-wide eastern, middle, and western alternative corridors. The survey was conducted on October 9-13, December 11-15, and December 27-30, 1989 by Coastal Carolina Research, Inc., Tarboro, North Carolina. Once the preferred corridor is approved, a comprehensive archaeological survey of the desired facility within the corridor will be conducted. The scope of that survey will be developed in consultation with the North Carolina State Historic Preservation Office.

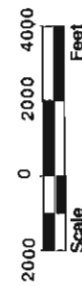
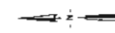
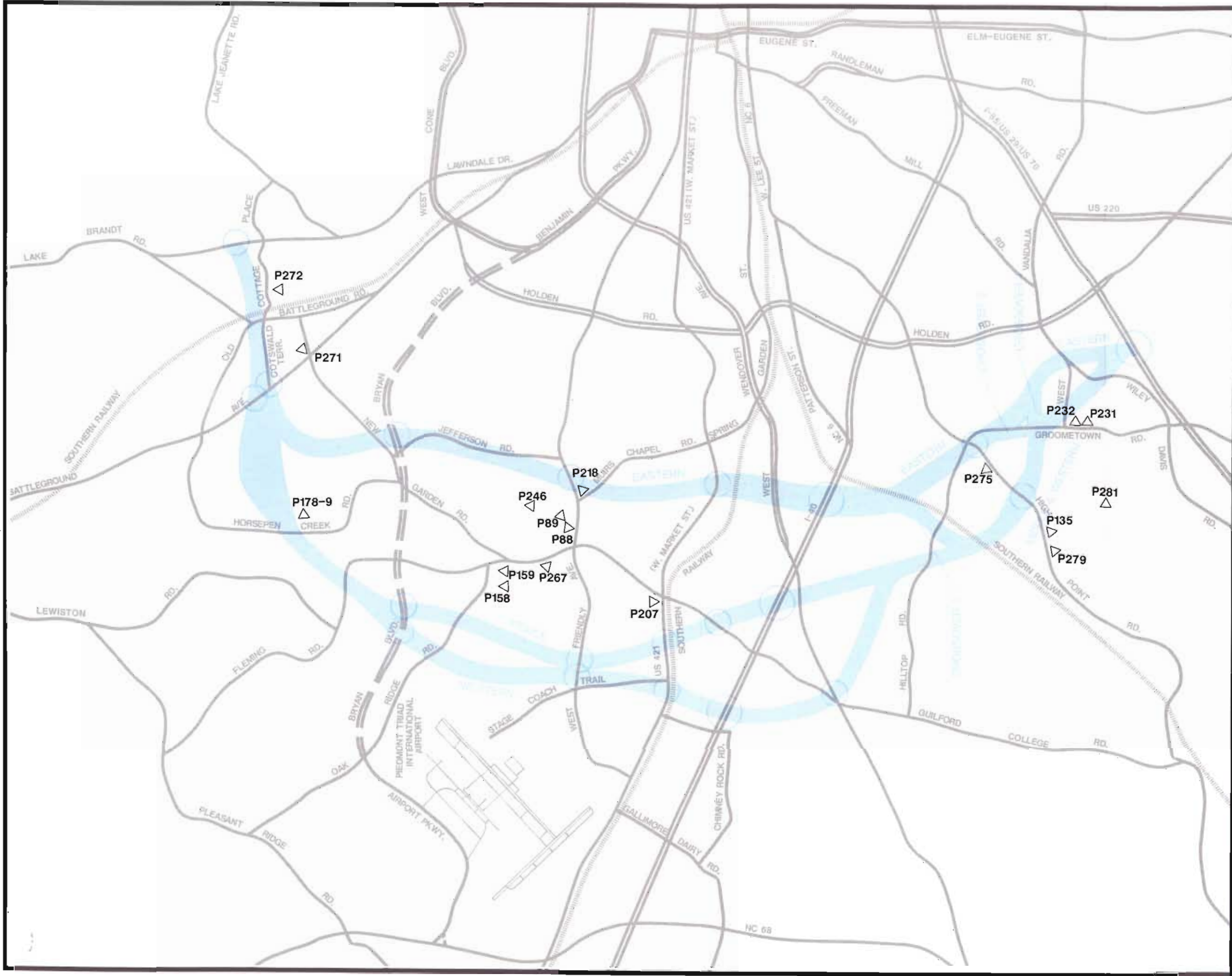
This study was coordinated with the State Historic Preservation Office (SHPO) in accordance with the procedures for compliance with Section 106 of the National Historic Preservation Act of 1966, the Advisory Council on Historic Preservation's regulations for compliance with Section 106 codified as 36 CFR Part 800, and Section 4(f) of the U.S. Department of Transportation Act.

Approximately 50 percent of the area surveyed was developed or otherwise disturbed, 40 percent was located in woodlands or otherwise had no surface visibility, and only about 10 percent of the area provided sufficient visibility for surface inspection.

During the survey, 37 archaeological sites were recorded. Of these, 30 do not appear to contain important information, and no additional work is required for these sites. The SHPO has determined that seven sites will require additional investigation to determine if they are eligible for inclusion in the National Register of Historic Places. The additional testing will be required only if the sites are impacted by the proposed action. (Source: Technical Memorandum, Coastal Carolina Research, Inc., March 1990)

B. ECONOMIC ENVIRONMENT

The economic environment of Guilford County has traditionally found its strength in tobacco, furniture, apparel, and textiles. Lately, however, Guilford County has attracted the corporate offices of several facilities which manufacture electronic components. While these new corporate offices will create new jobs, the declining markets for domestic textiles, apparel, and furniture is expected to hold the unemployment rate in the 7.0 percent range until at least 1992. (Source: Guilford County Comprehensive Plan.)



GREENSBORO WESTERN URBAN LOOP

ELIGIBLE HISTORIC STRUCTURES

1. Employment and Labor Force

The relocation of corporate offices and high-tech firms to Guilford County partly offsets the decline of employment from the shrinking manufacturing businesses. Within the project study area, the major employment centers are located along the I-40 corridor, around the Piedmont Triad International Airport, and along the eastern boundary of the study area. Some of the major employment centers within the study area include CIBA-GEIGY, Volvo-White, Jefferson-Pilot, Richardson Vicks, US Air, Gilbarco, and Burlington Industries.

2. Income

In 1981, the total personal income in Guilford County was \$3,507.7 million. This income was the second highest for any county in North Carolina. The per capita personal income has been the second highest in each year studied between 1969 and 1981 (see Table III-4).

**TABLE III-4
PER CAPITA PERSONAL INCOME**

<u>Year</u>	<u>North Carolina</u>	<u>Guilford County</u>
1969	\$ 2,999	\$ 3,864
1970	3,220	4,154
1971	3,410	4,444
1972	3,789	4,920
1973	4,241	5,381
1974	4,587	5,890
1975	4,860	6,179
1976	5,350	6,708
1977	5,777	7,274
1978	6,475	8,204
1979	7,125	9,045
1980	7,780	9,913
1981	8,656	10,943
1982	9,150	11,099
1983	9,829	11,974
1984	10,999	13,201
1985	11,676	14,707
1986	12,438	15,733

Source: North Carolina State Government Statistical Abstract, U.S. Department of Commerce, Bureau of Economic Analysis, April 1988, p. 294

U.S. Department of Commerce, Bureau of Economic Analysis, 1982-87

3. Labor Force

Characteristics of the civilian labor force by race in Guilford County are shown in Table III-5.

**TABLE III-5
CIVILIAN LABOR FORCE BY RACE
Guilford County
1986**

Sex and Race	Civilian Labor Force			Percent Distribution			Unemployment Rate
	Civilian Labor Force	Employed	Unemployed	Civilian Labor Force	Employed	Unemployed	
Male & Female (Total)	164,199	156,335	7,864	100.0	100.0	100.0	3.9
White	124,916	120,820	4,096	76.1	77.3	52.0	2.7
Black	37,118	33,560	3,558	22.6	21.5	46.4	7.5
Native American	492	439	53	0.3	0.3	0.4	3.9
Other	573	521	52	0.3	0.3	1.1	6.5
Hispanic ¹	1,100	995	105	0.7	0.6	1.2	5.2
Total Minority ²	39,283	35,515	3,768	23.9	22.7	49.1	7.3

¹ Persons of Hispanic origin may be of any race.

² Sum of Black, Native American, Other, and Hispanic

Source: Employment Security Commission of North Carolina, Labor Market Information Division

4. Greensboro Visions

In 1986 a private/public partnership in strategic planning was formed and called Greensboro Visions. Greensboro Visions was sponsored by the Greensboro Area Chamber of Commerce, the Greensboro Development Corporation, the Guilford County Commissioners, and the Greensboro City Council with its goal to plan for the community in the year 2000. Five critical issues that the Visions task force focused on were economic development, education, housing, land use planning, and transportation.

The transportation objectives identified by the Visions task force include the following:

- o Develop a formal system of transportation planning, first at the city and county level and then at the regional level.
- o Increase spending for road maintenance and major roadway improvements, consistent with planning.
- o Improve public transportation to meet the needs of current users and attract new users.

Specific transportation projects were not addressed in the Greensboro Visions Action Plan; however, construction of the Greensboro Western Urban Loop is consistent with the identified objectives.

Greensboro Visions has not resulted in an adopted land use plan; however, it has proposed policies that the City and County can use to guide growth.

(Source: Creating Our Future: A Plan to Move Us Forward, June 1988.)

5. Utilities and Services

Electrical service to the study area is provided by Duke Power Company. Major power transmission lines are shown in Figure III-5. Telephone service is provided by Southern Bell, and natural gas service is furnished by Piedmont Natural Gas. Cable television is available from Cablevision of Greensboro and by Alert Cable TV. Guilford County maintains a revolving trust fund to be used in conjunction with city and private funds to extend water and sewer services to areas outside of the city limits. Areas not served by the city or county water and sewer systems maintain private wells and septic systems.

The locations of water and wastewater facilities (existing and proposed) are shown on Figure III-6. Most of the study area is served by public water and sewer including waste treatment facilities. The water intake plant and pump station are located at Lake Brandt, at the Lake Brandt Road crossing. Those areas not served are indicated by the Comprehensive Plan to be served with future expansions.

Several natural gas pipeline corridors traverse the study area, as indicated in Figure III-5. Plantation and Colonial pipelines traverse the area from southwest to northeast, while Transco has two east-west pipelines, one terminating at the tank farm near Chimney Rock Road and the other traversing the northern portion of the study area.

6. Potential Hazardous Material Sites

Potential hazardous material sites include generators, treaters, and disposers of hazardous wastes, landfills, sewage treatment facilities, garbage dumps, abandoned service stations with underground storage tanks, fuel oil and gasoline storage tanks, and lagoons. A survey of potential hazardous materials sites has been conducted within the Greensboro Western Urban Loop study area. Sites are identified for potential hazardous material involving their

use, storage, or disposal. The survey consisted of contacting the following agencies responsible for controlling hazardous waste material:

- City of Greensboro
- Guilford County
- Environmental Protection Agency, NC CERCCA
- N.C. Department of Environmental, Health, and Natural Resources

The following sources have been reviewed to ascertain if any potential hazardous material sites are located within the project area:

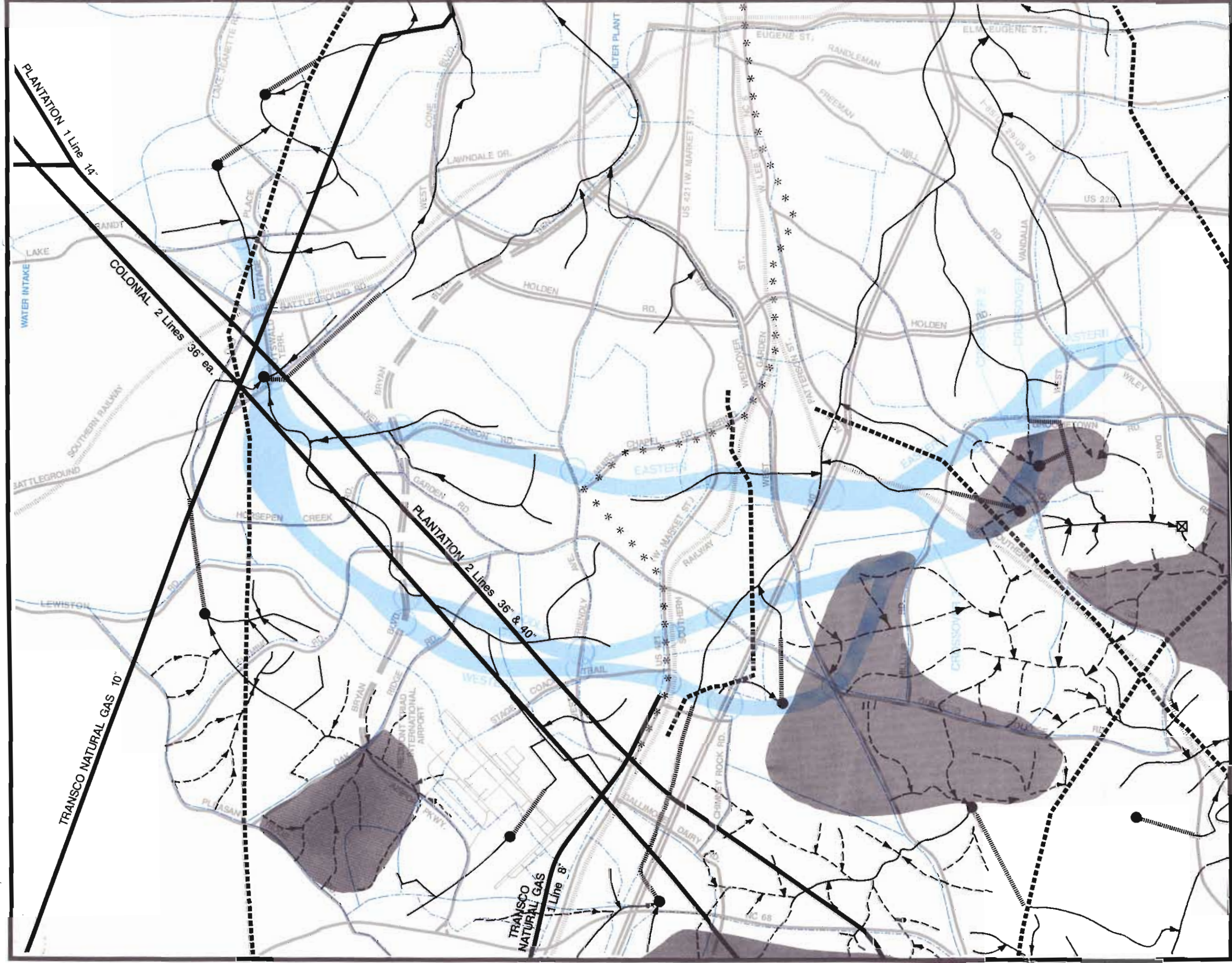
- Wasteland Preremedial Report 20
- North Carolina Hazardous Waste (Generation, Storage, Treatment, Disposal) 1988 Annual Report
- EPA Wasteland (CERCLIS-ERRIS) Sites

The following is a detailed list (Table III-6) of potential hazardous material sites compiled during the environmental planning process for the Greensboro Western Urban Loop Study Area; their locations are shown on Figure III-6.

TABLE III-6

IDENTIFIED POTENTIAL HAZARDOUS MATERIAL SITES

Map Designation	Name	Address
12001	Amoco Foam Products	
12008	Gilbarco	7300 W. Friendly Avenue
12009	GMLOCKETTE	800 Radar Road
12010	Burlington Industries H.Q.	3330 W. Friendly Avenue
12011	Harris Teeter, K-Mart	200 Distribution Drive
12014	Piedmont Airlines	815 Radar Road
12016	Wesley Long Community Hospital	510 N. Elam Avenue
1	Allen Displays, Inc.	6434 Burnt Poplar Road
2	American Petrofina Marketing	7115 West Market Street
3	Amerada Hess Corporation	6907-B West Market Street
4	Amoco Oil Company	7109 West Market Street
5	Amp Inc.	219 American Avenue
6	AOAC Asphalt Plt. #1	1124 South Holden Road
7	APAC Asphalt Plt. #10	5730 Riverdale Drive
8	APAC Chimney Rock	830 Marietta Road
9	APAC TAP-CO	1124 South Holden Road

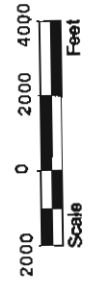


LEGEND

SEWER SYSTEM

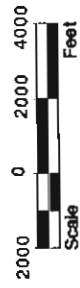
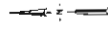
- Existing Proposed
- FORCEMAIN
- OUTFALL
- LIFT STATION
- WATER LINES
- TREATMENT PLANT BOUNDARY
- SERVICE AVAILABLE/PROBABLE
- POSSIBLE FUTURE EXPANSION
- WASTEWATER TREATMENT PLANT
- MAJOR POWER LINES
- PIPELINES

Source: Guilford County Comprehensive Plan



GREENSBORO WESTERN URBAN LOOP

UTILITIES AND SERVICES



Based on information prepared for Guilford County EMS by Greensboro Planning Department and Guilford County Planning Department.

GREENSBORO WESTERN URBAN LOOP

POTENTIAL HAZARDOUS MATERIALS AND LANDFILL SITES

Figure

III-6

<u>Map Designation</u>	<u>Name</u>	<u>Address</u>
10	Ashland Chemical Company	2802 Patterson Street
11	AT&T	4000 Frazier Road
12	AT&T	100 South Eugene Street
13	Brin-Mont Chemical	3921 Spring Garden Street
14	Burlington Industries	6008-A High Point Road
15	Burlington Industries	6080 High Point Road
16	Carolina By-Products	2410 Randolph Street
17	Carolina Quality Block Company	1100 South Elm Street
18	Creative Circuits	124 Wade Street
19	Desoto Inc.	1025 Howard Street
20	Dow Corning Chemical	2914 Patterson Street
21	Egoflo Inc.	2750 Patterson Street
22	Exxon Co., Inc.	607 West Market Street
23	Four Seasons Ind.	207 Robbins Street
24	Chemical Leaman Tank Lines	6600 West Market Street
25	Chemicals & Solvents, Inc.	2804 Patterson Avenue
26	Chemcol Inc.	2410 Randolph Avenue
27	Ciba Geigy	410 Swing Road
28	Colonial Pipeline Company	Gallimore Dairy Road
29	Covington Diesel Inc.	6536 West Market Street
30	Conoco Inc.	115 Chimney Rock Road
31	Covington Diesel Inc.	6200 Swiggett Road
32	Gate City Lincoln Mercury	3000 North Church Street
33	Greensboro News and Record	200 East Market Street
34	Guilford County Animal Shelter	4525 West Wendover Avenue
35	Guilford County Emergency Services	1002 Meadowood Drive
36	Guilford County Information Services	201 South Eugene Street
37	Guilford County Planning and Dev.	201 South Eugene Street
38	Guilford County Sheriff's Department	401 West Sycamore
39	Guilford County Social Services	315 West Lindsay
40	Guilford Mills Ind.	6001 West Market Street
41	Guilford Mills Lynch Building	5201 West Market Street
42	Guilford Mills Oakridge	4201 West Wendover Avenue
43	Guilford Mills West Market	4925 West Market Street
44	GNC Energy Corp.	100 South Chimney Rock Road
45	Greensboro City Hall	300 West Washington Street

**Map
Designation**

	<u>Name</u>	<u>Address</u>
46	Greensboro Trade Coatings	311 Edwardia Drive
47	Hilemn Laboratories	3125 Spring Garden Street
48	Ice Delivery Company	401 East Market Street
49	Mayrand, Inc.	4 Dundas Circle
50	Morflex Chemical Company	2110 High Point Road
51	Mother Murphys Labs	2826 South Elm-Eugene Street
52	Phillips Pipeline (Outside Quad 3)	Gallimore Dairy Road
53	Plantation Pipeline	6907-A West Market Street
54	Precision Fabrics	6012 High Point Road
55	Rexham Corporation	2600 Phoenix Drive
56	Richardson-Vicks	100 Swing Road
57	Seaboard Chemical Company	5899 Riverdale Drive
58	Shamrock Gravure Products, Inc.	206 Bruce Street
59	Shell Oil Company	6811 West Market Street
60	Sherwin-Williams	112 Stagecoach Trail
61	Southern Facilities	115 Chimney Rock Road
62	Southern States GSD	910 South Elm Street
63	Steveo Knit Fabrics	2602 South Elm Street
64	Sun Refining and Marketing	6900 West Market Street
65	Texaco USA	Hwy 421 & Chimney Rock Road
66	Triad Terminal Company	6376 North Burnt Poplar Road
67	Union Oil Company	6801 West Market Street
68	Van Waters & Rogers	3600 West Wendover Avenue
69	Wikel Manufacturing Company Inc.	308 Village Green Drive
70	Worth Chemical Corporation	2 Segal Boulevard
71	Ashland Petroleum Company	6311 Burnt Poplar Road
72	Hamlet Associates	1047 Tarrant Road

(Source: North Carolina Department of Human Resources, North Carolina Hazardous Waste 1987 Annual Report.)

It should be noted that two sites have known contamination: Worth Chemical Company and the tank farm area at West Market Street and Chimney Rock Road. These sites are discussed in further detail in Chapter IV.

Of 2.8 billion pounds of hazardous wastes generated in North Carolina in 1988, 18.1 million pounds were generated in Guilford County. In 1988 there were 63 hazardous waste generators in Guilford County and six treatment, storage, and disposal facilities (TSD's) which handled 7.8 million pounds of hazardous waste. No sites in Guilford County are included on the North Carolina National Priorities List. A list of the potential hazardous material sites identified to be potentially involved by the proposed action is included in Chapter IV.B.8 along with a more detailed discussion of each involved site.

7. Mines and Quarries

A large rock quarry operated by the Martin-Marietta Corporation is located in the western portion of the study area. The quarry is located 3,200 feet south of the Chimney Rock Road and I-40 interchange. The major access to the quarry is provided by this interchange. The Western Alternative corridor is located adjacent to the quarry south of I-40 and Chimney Rock Road. The Western Alternative corridor is sufficient in width to allow the proposed highway to avoid the quarry operation and to be located within the buffer zone of the quarry and adjacent development.

C. **NATURAL ENVIRONMENT**

1. Topography

Located in the eastern Piedmont Physiographic Province, Guilford County is characteristic of the region with generally rolling hills, broad flat ridges, and moderately steep slopes along the drainage ways. Elevations range from 750 feet to 950 feet within the project area.

2. Geology, Soils, and Mineral Resources

Deep residual red clays over highly weathered basic and acidic rocks are typical of the Cecil-Madison soil association and are found in the project area from I-40 to about 1 mile north of Friendly Avenue. Very little rock or rock blasting is expected on this portion.

Pennsylvanian to Permian aged granites of the Charlotte Belt underlie the northern-most two miles of the project, from New Garden Road north. Occasional boulders and rock road cuts are found in the area to the north of Battleground Avenue. These rocks are dated at 265 to 325 million years. Residual soils derived from the granites typically have deep residual red clay caps over shallow to moderately deep weathered rock. Granitic outcrops in the Horsepen Creek area suggest that some rock blasting is to be expected.

In the project area, two distinct soil associations are formed from the Enon-Mecklenburg and Cecil-Madison rocks. From I-85 northward to near I-40 and from 1 mile north of Friendly Avenue to Battleground Avenue, thin to moderately deep yellowish residual clays over weathered basic igneous rock are found. These highly plastic clay soils have low permeabilities and are typical of Enon-Mecklenburg soils. Very little if any hard rock is expected.

The contact between the Charlotte Belt and the Slate Belt is under deep residual and/or alluvial soil somewhere between New Garden Road and Old Battleground Road. The nature of the contact is obscure at this location, but further south it is a broad shear zone.

Alluvial soils, soils formed from sand and clay deposited by moving water, are found in significant quantities along the corridor from Wendover Avenue to just north of Market Street. These soils are generally lenses of silts, sands, and clays of variable thickness. They are usually resting on hard rock and are from five to fifteen feet deep.

Granitic, gabbroic and dioritic rocks of the Slate Belt Terrain underlie the majority of the project. These intrusive rocks are late Cambrian to late Proterozoic in age and are dated at 520 to 650 million years. Weathered rock exposed in a borrow pit off of Wiley Davis Road appears to be quartzdiorite. The olive brown weathered rock is coarse-grained and it crushes to silty sand. The depth of weathered rock here is greater than 20 feet. It was the only exposure of rock observed south of Battleground Avenue. Five gold mines worked from the mid-1850's to the early 1920's are located within 2 miles southwest and southeast of the southern boundary of the project area. Gold and copper were found in quartz veins in the metamorphosed intrusive igneous rock of the Slate Belt. No known deposits of gold or copper are located in any of the project corridors. Source: N.C. Department of Transportation, Geological Environmental Assessment Report, March 1990.

3. Surface Water

The study area is in the Cape Fear River Basin. Surface drainage is divided by a ridgeline that separates the tributaries of the Deep and Haw Rivers. This ridgeline runs in a northwest to southeast direction through the study area from approximately the project termini at I-85 to the Guilford College Road and I-40 interchange area. Land to the north and east of this line feed the tributaries of the Haw River, while land to the south and west feed the Deep River tributaries. Approximately 20 percent of the project area is drained by creeks flowing into the Deep River. The remainder is drained by tributaries of the Haw River, which include South Buffalo Creek, Horsepen Creek, and Richland Creek. Major

tributaries in this drainage system are shown in Table III-7, along with the use classifications assigned by the North Carolina Department of Environment, Health, and Natural Resources.

The N.C. Division of Environmental Management (DEM) currently classifies all waters of the state based on "existing or contemplated best usage." Class C uses are defined as propagation of aquatic life, fishing, wildlife habitat, secondary recreation (limited body contact), and agriculture. Class B waters are those used for primary recreation (swimming). Municipal water supplies (previously Class A) are classified WS-I, WS-II, or WS-III, depending on the amount of development and characteristics of discharges in the basin. Class WS-III refers to segments used for municipal water supply with no categorical restriction on watershed development or discharges. Class WS-II applies to sparsely or moderately developed watersheds with only domestic and industrial non-process wastewater discharges. Class WS-I is reserved for nearly undeveloped watersheds. Local land management plans to control non-point source pollution are required in WS-I and WS-II watersheds. Best uses of Classes WS-I, WS-II, WS-III, and B also include all Class C uses.

Nutrient-sensitive watershed (NSW) is a supplementary water quality classification assigned to waters of the state in which nuisance algal blooms are a potential problem. The B. Everett Jordan Reservoir basin, including the Haw River, Horsepen, Richland, and Buffalo Creeks and all tributaries, is designated NSW. The Deep River and its tributaries are not. Stringent phosphorus and nitrogen limits are imposed on NPDES permits in NSW watersheds.

TABLE III-7

WATER RESOURCES AND CLASSIFICATION

Cape Fear River

Haw River (C-NSW)

- Reedy Fork Creek (WS-III)
 - Buffalo Creek (C-NSW)
 - South Buffalo Creek (C-NSW)
 - North Buffalo Creek (C-NSW)
 - Horsepen Creek (WS-III NSW)
 - Brush Creek (WS-III NSW)
 - Richland Creek (WS-III NSW)

Deep River (WS-III)

- Reddicks Creek (C)
- Long Branch (WS-III)
- Bull Run (C)

Fresh Water Classification

- Class WS-I - Waters protected as water supplies which are natural and uninhabited or predominantly undeveloped (not urbanized) watersheds; no point source discharges are permitted and local land management programs to control non-point source pollution are required; suitable for all Class C uses.
- Class WS-II - Waters protected as water supplies which are low to moderately developed (urbanized) watersheds, discharges are restricted to primarily domestic wastewater or industrial non-processed waters specifically approved by the commission, local land management programs to control non-point source pollution are required, suitable for all Class C uses.
- Class WS-III - Water supply segment with no categorical restrictions on watershed development or discharges, suitable for all Class C uses.
- Class B - Suitable for swimming, primary recreation, and all Class C uses.
- Class C - Suitable for secondary recreation and fish propagation.
- NSW - Nutrient-sensitive watershed

The Haw and Deep Rivers originate in the Greensboro/High Point area and provide municipal water supplies, recreation, and waste disposal for downstream cities and towns.

In the Haw River basin, Horsepen Creek and Richland Creek are major tributaries of Reedy Fork Creek within the northern portion of the project area. Lakes Brandt, Jeanette (Richland), and Townsend to the north side of Greensboro are fed by these creeks. Brush Creek and its impoundment, Lake Higgins, lie northwest of the project area. Upper Reedy Fork Creek and its tributaries are classified WS-III by the NC Department of Health,

Environment, and Natural Resources because they serve as municipal raw water supplies, suitable for drinking following appropriate treatment.

North and South Buffalo Creeks and their tributaries drain the eastern and southern portions of the study area. These streams receive effluent from Greensboro's two municipal wastewater treatment plants (WWTP), several small private discharges, and urban runoff from most of the city before Buffalo Creek enters Reedy Fork Creek downstream of the reservoirs.

In the Deep River basin, Bull Run, Reddicks (Registers) Creek, and Hickory Creek drain the southwestern portion of the project area, entering the Deep River downstream of High Point's and Jamestown's public water supplies. Long Branch drains the westernmost portion of the project area and flows into High Point Lake, a municipal raw water supply.

The City of Greensboro's Watershed Critical Area (WCA) Protection Ordinance is intended to reduce urban runoff and pollution (sediment, nutrients, toxics) into water supply reservoirs. Lakes Higgins, Brandt, and Townsend have defined WCAs that extend to the ridgelines defining each reservoir's basin, or to the nearest road or travel easement crossing each feeder stream one-half mile or more upstream (Figure III-7). Within each WCA are four concentric tiers with different restrictions on types and density of development (Greensboro, 1988). Lake Jeanette is privately owned and is not protected by the ordinance.

Tier 1 consists of land within 200 feet of normal pool elevation, all land within one-half mile of Lake Brandt's water intake, and land within one mile of Lake Townsend's water intake. According to the recently-revised zoning ordinance, Tier 1 land is intended for public ownership and should remain undisturbed. Tier 2, also intended for public ownership, consists of land extending from the Tier 1 boundary to a line 750 feet from normal pool elevation. Tier 3 consists of those lands lying within an area bounded by Tier 2 and a line parallel to 3,000 feet in distance from the normal pool elevation, but not to exceed the WCA boundary. Tier 4 consists of land beyond the Tier 3 boundary but within the WCA boundary. (Source: City of Greensboro Ordinance for Protection of Watershed Critical Area Protection Act.)

All three of the build alternatives will pass through a portion of the WCA, which is designated as Tier 3. Any development within the WCA boundary must meet the requirements of Article VII, Division 2, of the City of Greensboro Code of Ordinances. The restrictions from this recently revised code of ordinances are intended to minimize runoff, minimize land disturbing activities, reduce risk of spills, and manage stormwater.

New highway construction, such as this project, is permitted provided that erosion and stormwater control provisions are met.

Guilford County is a participant in the National Flood Insurance Program. Boundaries of the 100-year floodplain are shown in Figure III-7, as determined from the Federal Emergency Management Agency Flood Insurance Rate Maps.

Surface Water Quality

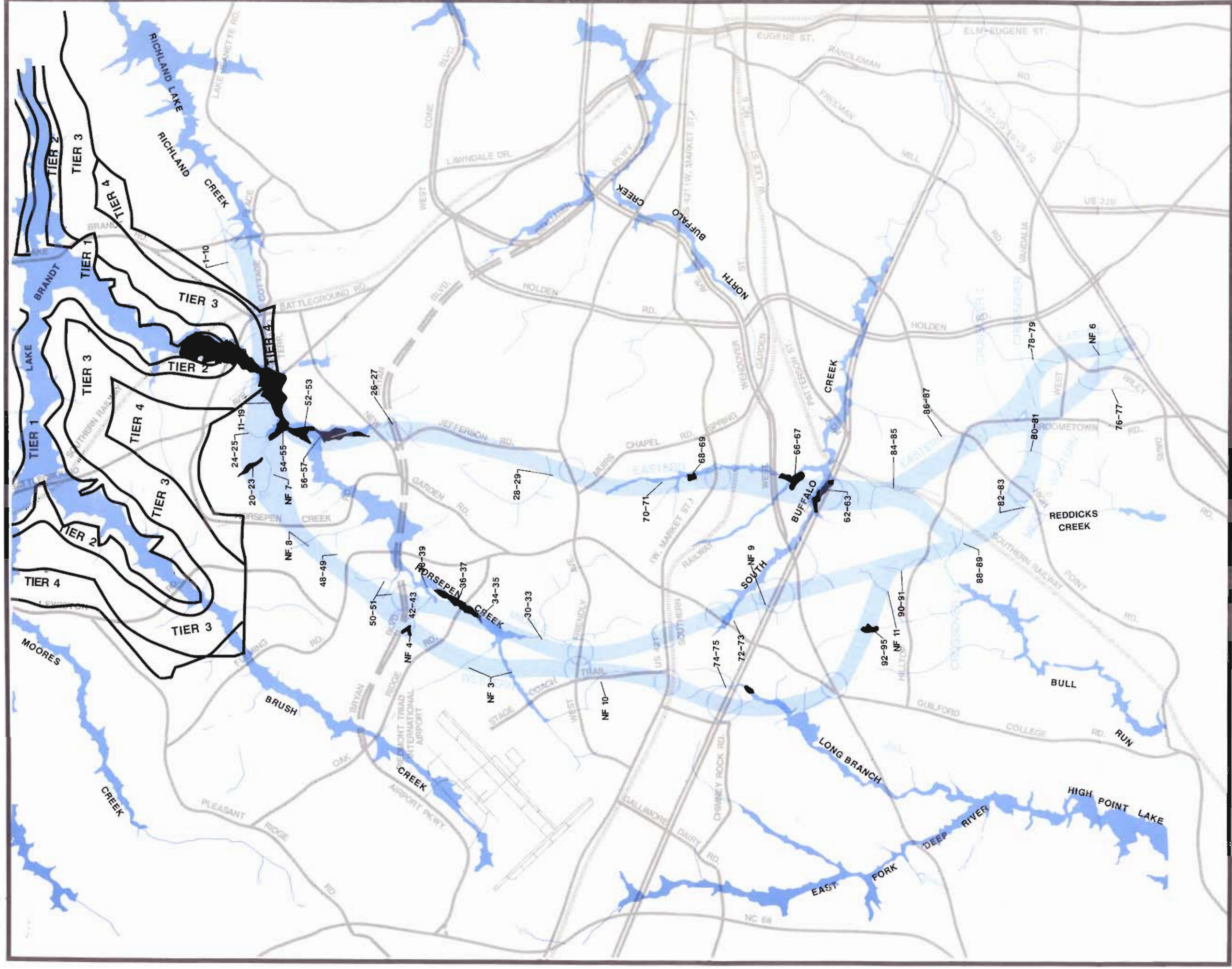
A survey of surface water quality in the study area was conducted. The results of the survey are summarized in this section and shown in detail in the Technical Memorandum on Natural Resources (Robert J. Goldstein and Associates, Inc. dated May 1990). This report is available at NCDOT and is appended by reference.

The study area is mostly urban and some agricultural. Most streams in the area receive non-point source pollution from surface runoff, resulting in variable water quality in those streams not receiving treated effluents.

The earliest available water quality assessments are from an N.C. Wildlife Resources Commission (WRC) fish survey during the summers of 1962-63 (Carnes et al., 1964). Sewage treatment was primitive at this time, and the streams downstream of Greensboro were severely degraded. Buffalo Creek below the confluence of the north and south prongs was described as "a thoroughly offensive stream; the odor and color of the water resembled those of sewage" and the dissolved oxygen (DO) concentration was 3.6 mg/l, uninhabitable for fish. The water of Reedy Fork Creek downstream of its confluence with Buffalo Creek, "had a grey color and much surface foam was present;" DO was 5.0 mg/l. Only four fishes of three species were collected from a 325-foot reach sampled with rotenone; all were pollution tolerant species. Reedy Fork Creek upstream of its confluence with Buffalo Creek yielded fifteen fish species from a similar sample area, including good numbers of relatively pollution-sensitive species (shiners, darters, madtoms). DO at this site was 7.0 mg/l, normal for Piedmont streams in the summer.

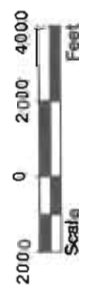
The North Carolina Division of Environmental Management evaluates water quality using benthic invertebrate communities in streams. These communities indicate long-term trends rather than instantaneous water quality.

The most recent North Carolina Division of Environmental Management (DEM) data for Reedy Fork Creek and Horsepen Creek upstream of Lake Brandt showed good habitat



LEGEND

- STREAMS
- LAKES
- FLOODPLAINS
- WATERSHED CRITICAL AREAS
- WETLANDS BEYOND BANKS
- SITE NUMBERS (include streams) 72-73
- TIER 0



**GREENSBORO WESTERN URBAN LOOP
STREAMS, LAKES, FLOODPLAINS,
WETLANDS AND WATERSHED
CRITICAL AREAS**

quality. Three sites in the Buffalo Creek drainage area are severely degraded based on their benthic communities. Two of the sites are below wastewater outfalls, but the third one is degraded primarily by urban runoff. Reedy Fork Creek just above its mouth showed slightly better conditions than Buffalo Creek. Buffalo Creek supplies 40% of Reedy Creek's flow.

The Haw River's quality declines from a biological ranking of 3 (1 is worst, 5 is best) upstream of Reedy Fork Creek to a ranking of 2 downstream. It recovers slightly to a value of 3 just upstream of Jordan Lake, a future raw water supply.

The Deep River below Jamestown has improved in the three years since the Jamestown wastewater treatment plant (WWTP) was closed. Because of the High Point WWTP on Richland Creek, Deep River near the Guilford/Randolph County line has not improved in the past three years. Although several smaller WWTP effluents entered between Randleman and Ramseur, partial recovery occurs 25 miles downstream near Coleridge. Complete recovery was noted in Moore County, 15 miles farther downstream.

Samples were taken at six stream locations within the study area as a part of this study. Measurements were taken of water temperature, pH, conductivity, and benthic invertebrates. Richland Creek, Horsepen Creek, and Bull Run showed good biological quality, while South Buffaloe Creek and Long Branch contained certain biological communities indicative of severely degraded conditions.

U.S. Geological Survey collected chemical water quality data from the Reedy Fork/Buffalo Creek system from April 1986 through September 1987 to assess surface water supplies and downstream impacts in the rapidly urbanizing Haw River basin (Davenport, 1989). Samples were taken during eight surveys from seven sites within Greensboro's water supply watershed, two sites downstream on Reedy Fork Creek, six sites in the Buffalo Creek drainage, two treated drinking water supplies, and two wastewater effluents. Some samples from the raw water supply watershed exceeded standards or criteria for several EPA priority pollutants, including arsenic, lead, cyanide, mercury, chloroform, chlorophenol, and various halomethanes. Finished drinking water supplies were in compliance with state and federal standards or criteria for all inorganic compounds measured. Benzene, trichloromethane, and trihalomethanes exceeded standards or criteria in several samples.

4. Groundwater

Groundwater depths on ridge tops are expected to be approximately 10 feet in seasonally wet times and 15 to 25 feet deep in drier periods. A perched water table is expected to be

held by the clay horizon of Wilkes-Mecklenburg soils. This water table is usually found from three feet to seven feet below the ground surface during times of even moderate rainfall.

Few water wells were observed in the project area. Nearly all of the homes and businesses are served with municipal water. The entire study area is planned to be served by public water in the future.

5. Meteorology and Climatology

Guilford County is located in the eastern Piedmont climatic region. Summers are generally hot and humid and winters cold but relatively short since the mountains to the west protect the county against most cold waves. The average summer temperature is 76° F and the average winter temperature is 40° F.

Prevailing winds in the area are from the southwest with a mean annual wind speed of 9 miles per hour.

Average annual rainfall is 22 inches and average seasonal snowfall is 11 inches. The average number of days per year with 0.10 or more inches of precipitation is 82.

6. Vegetation and Wildlife

A survey of biotic resources was conducted. The results of the survey are summarized in this section and shown in detail in the Technical Memorandum on Biotic Resources (Robert J. Goldstein and Associates, Inc. dated May 1991). The document is available for review at NCDOT and is appended by reference. Selected tables from the memo are included in the Appendix.

Fish and Aquatic Habitats

Most streams in the study area have sandy substrates and low gradients; riffle habitat is sparse. The fish community is dominated by minnows and sunfishes, with smaller numbers of catfish, darters, and other species. Because the region is heavily urbanized, some streams have been channelized and piped through culverts and storm sewers, altering their natural channel morphology and hydrology and eliminating much of the habitat structure important to aquatic life. Other streams have been impounded to form ponds and lakes, which favor a fish community different from that in streams, including many non-native species. Fish

species likely to occur in streams and ponds in the study area listed in Table 3 of Appendix A.

Intermittent streams without permanent fish populations are important to downstream fish communities for their contributions to water quality, temperature, flow control, and food production. Several salamanders (Eurycea and Desmoqnathus species) only maintain viable populations in small streams with few or no fishes. Deciduous leaf litter provides the base of the food web in small streams; maintenance of a forested canopy is critical to these habitats for nutrients and for temperature and erosion control.

Most of the streams in the study area are too small or have insufficient cover to be of direct sport fishing significance, but they flow into ponds and reservoirs providing public and private fishing.

Medium to large streams (drainage basin area 50 square miles or greater) in the Piedmont support the greatest fish diversity, including important game fish species. Both leaf litter and instream primary production (algae and aquatic plants) contribute to the food base in these habitats. Frog, water snake, and aquatic turtle species use them, as do wood ducks, herons, wetland-dwelling songbirds, beaver, river otter, and other mammals. Horsepen Creek and South Buffalo Creek are considered medium-sized streams.

Ponds and lakes in the region are man-made. Fishery resources in impoundments are dominated by mosquitofish, largemouth bass, and several sunfish and catfish species.

Vernal pools occur naturally, and provide essential amphibian habitat. Forested vernal pools supporting breeding amphibians (Ambystoma, Hyla, Pseudacris, and Rana) were found along the floodplains of Horsepen Creek and South Buffalo Creek.

Terrestrial Plant and Animal Habitats

The Greensboro Western Urban Loop project area is predominantly urban and agricultural, with patches of old fields and young forests, and scattered remnants of older forests occurring in small blocks and along streams. The original forests of the Piedmont were dominated by oaks and hickories, but little of this forest type remains. Lists of amphibian, reptile, bird, and mammal species with habitat associations are presented in Tables 4 through 7 of Appendix A.

Urban and residential areas contain large expanses of short grass, widely-spaced trees, small patches of brush, buildings, and abundant domestic predators and introduced species. Reptile and amphibian species are usually limited to a few small, secretive snakes, ground skunks, and occasional toads and treefrogs. Predominant urban birds include the house sparrow, starling, rock dove (pigeon), cardinal, robin, chimney swift, white throated sparrow, and mockingbird. Gray squirrel, house mouse, Norway rat, raccoon, opossum, and bats are typical urban mammals.

Abandoned agricultural fields are colonized by various grasses and annual weeds, and become dominated by broomsedge and young loblolly pines in a few years. Old fields provide habitat for a distinct community of animals that exploit areas of early successional-stage vegetation. Old fields support numerous snakes, six-lined racerunner, and a few frog and toad species in marshy areas. Old field birds include bobwhite, meadowlark, killdeer, bluebird, mourning dove, American kestrel, and hawks. Typical old field mammals include mouse, rat, and vole species, eastern cottontail, and red fox. White tailed deer and bobcat frequent old fields bordered by forests. Old field habitats are abundant in the Piedmont and are replaceable in a few years.

Pine forests support a sparse community of animals because of low plant species diversity and the low nutritional value and decomposition rate of pine needles. characteristic amphibians and reptiles are Fowlers toad, eastern box turtle, and many of the same snake species as are found in old fields. Birds of pine forests include hawks, woodpeckers, kinglets, warblers, finches, and sparrows. Pine forest mammals include opossum, raccoon, bats, gray squirrel, chipmunk, and other rodents. Pine forests recolonize old fields quickly and grow more rapidly than hardwoods. They are abundant in the Piedmont and are replaceable.

Hardwood forests are of two types: upland, often mixed with pine; and bottomland, generally without pines and often on hydric soils. Understory shrubs, vines, and herbaceous plant species are more diverse and numerous in hardwood forests than in pine forests. Hardwood forests offer more diversity of habitat and food resources, and support many more animal and plant species than pine forests. Decaying leaf litter provides a food base for insects and worms upon which many carnivores depend, and the living vegetation serves as food for many herbivores. Hardwood forests are slow growing and require half a century or more to achieve steady production of acorns, nuts, fruits, and seeds that support many forest animals, from small birds to deer.

Upland hardwood forests are dominated by oaks, hickories, beech, dogwood, sourwood, and other trees, and support rich animal communities. The reptiles and amphibians of upland hardwood forests include terrestrial salamanders, arboreal frogs, toads, box turtles, and all of the Piedmont's lizard and non-aquatic snake species. Upland hardwood birds and mammals include virtually all of the Piedmont species except those requiring aquatic habitats. Many reptiles, birds, and mammals require edge habitats (ecotones) between the forest and adjacent fields.

Bottomland hardwood forests occur in low wet areas adjacent to streams, and contain mostly red maple, hornbeam, sweet gum, tulip poplar, and green ash. If the soils remain wet for sufficient time, they become hydric, and wetland trees predominate, including river birch, black gum, sycamore, alders, and willows. Bottomland hardwoods, especially wetland forests, are by far the richest and most productive habitats. Amphibian larvae requiring fish-free vernal pools usually occur in bottomlands. Several rare snake species also frequent bottomlands. Many game species such as wood duck, woodcock, and turkey depend on bottomlands. Bottomland mammals include most of the upland species plus gray fox, beaver, and deer.

Many bottomland forests in the urbanized Piedmont have been destroyed by impoundments or conversion to agriculture and silviculture. The remaining stands are mostly along streams, where they serve as migration corridors and urban sanctuaries for many birds and mammals. Fragmentation of bottomland forests reduces their habitat value, especially for animals requiring large home ranges. Bottomland forests are extremely slow and difficult to re-establish. If the hydrology is altered, then they may never return. Bottomland forests not qualifying for wetland status receive no legal protection and are rapidly being lost in North Carolina.

7. Wetlands

Besides their value as habitat for plant and animal species, wetlands also control floodwaters, replenish groundwater, filter contaminants and excess nutrients from runoff, and protect municipal water supplies. The Army Corps of Engineers (COE) enforces water and wetland protection as legislated under Section 404 of the Federal Clean Water Act, in cooperation with the Environmental Protection Agency (EPA), Fish and Wildlife Service (FWS), and WRC. Executive Order 11990 requires that new construction in wetlands be avoided to the extent possible, and that all practical measures be taken to minimize or mitigate impacts to wetlands.

Jurisdictional wetlands protected by the Clean Water Act are defined by three parameters: hydrology, hydric soils, and hydrophytic vegetation. The Federal Interagency Committee for Wetland Delineation has developed methods for recognizing each of these parameters. Areas that are saturated with sufficient frequency and duration (generally for a week or more during the growing season) to produce anaerobic (hydric) soil conditions will normally support wetland plants tolerant of low oxygen around their roots. Because wetlands altered or created by man may not meet all three criteria, guidelines in the federal manual also define atypical wetlands.

USGS topographic maps, SCS soil maps, aerial photos, and field delineation of probable wetland sites (Federal Interagency Method) were used to identify the wetlands within the study corridors (see Figure III-7). National Wetland Inventory (NWI) maps are not available for the project area. All perennial and many intermittent streams were examined, and floodplains were searched for isolated wetlands. A precise wetland delineation will be performed on the final preferred alternative.

The wetlands shown on Figure III-7 are described in the Technical Memorandum by their document vegetation class: forested, sapling-shrub, marsh, or bank-to-bank. In terms of species diversity, wildlife habitat value, and ecological importance to piedmont natural communities, mature forested wetlands are the most important. Bank-to-bank wetlands offer little more than aquatic habitat, although the surrounding non-wetland forest may be important habitat. Marshes and shrub wetlands in the piedmont usually occur as early successional stages in clearcut or newly-created wetlands.

Numerous streams and intermittent tributaries traverse the study area. Narrow wetland corridors exist along most streams, but floodplains are extensive only in a few areas along larger streams. Some impoundments have marshy or forested fringe wetlands. An extensive old growth forested wetland containing swamp chestnut oak and shagbark hickory in addition to the bottomland trees previously listed, and a diverse herbaceous layer including skunk cabbage (rare in the Piedmont) occurs along Horsepen Creek on both sides of Battleground Avenue (sites 11-19). Sizable wetland forests with vernal pools occur northwest of Crosstimbers Drive (sites 52-53) and along South Buffalo Creek between Wendover Avenue and the proposed Eastern Alternative (sites 62-63). An extensive marsh and shrub/sapling wetland, apparently created by sewerline construction within the past decade, lies east of Horsepen Creek on both sides of Old Oak Ridge Road (sites 36-41, 44-45). Small areas of various wetland types were found throughout the project area.

8. Threatened and Endangered Species

U.S. Fish and Wildlife Service has no record of Federally-listed or proposed endangered or threatened plant or animal species within the project area. (See correspondence dated November 27, 1989 in Appendix B.) One plant species occurring in Guilford County, Nestronia umbellula, is under Federal status review and is state-listed as threatened, but has no legal protection at this time. It is an upland shrub associated with hardwood forests. It was not observed during the field review.

Areas of appropriate habitat for nestronia could not be quantified from the aerial photos available, but forested acreage is greatest in the Middle Alternative and least in the Western Alternative. The most recent natural areas inventory of Guilford County did not report any populations of this species.

Two species of rare fishes occur in the upper Cape Fear River basin: the Cape Fear shiner, federally- and state-listed as endangered; and the Carolina darter, state listed as special concern. The Carolina darter has been collected in backwaters of very small headwater streams of Reedy Fork Creek. Because the Carolina darter occurs in small streams or in backwaters of larger streams, it could occur in these habitat types in the project area; however, it is unlikely in Long Branch or South Buffalo Creek due to habitat degradation. The Carolina darter was not found among six fish collections during the field reconnaissance, despite sampling in shallow backwater areas.

The Cape Fear shiner occurs in the Deep River near the Randolph/Moore County line, about 50 miles downstream of the study area. The only stream large enough to support the Cape Fear Shiner is Horsepen Creek; however, appropriate structural habitat does not exist there. An extensive survey for this species was performed in the Haw, Deep, and Upper Cape Fear River basin during 1984-1986, and yielded no Cape Fear shiners in the Haw River basin. It is unlikely to occur any closer to the project study area than southern Randolph County.

Natural areas are state-recognized as localities of unusual geology or supporting unusually diverse plant and animal communities, often including rare species or disjunct populations. N.C. Natural Heritage Program (NHP) provided a list of 14 rare animal species and 39 plant species known from or possible occurring in Guilford County. The list, shown in Table III-8, includes species federally listed, state listed, and under status review. Rare habitat types and associated soils likely to support rare species were also reviewed, but no documented sites were within the project area. A Guilford County Natural Areas Survey is

in progress, but to date little of the project area has been examined and no significant sites have been found. Potential important sites located during the field reconnaissance in March were reported to the Survey coordinator for further evaluation.

TABLE III-8

STATE-LISTED PLANT AND ANIMAL SPECIES

<u>Species Name</u>	<u>Status</u>
Vascular Plants	
Bog asphodel (<u>Nestronia umbellula</u>)	T
Lewis' heart leaf (<u>Hexastylis lewisii</u>)	C
False poison sumac (<u>Rhus michauxii</u>)	E*
Smooth coneflower (<u>Echinacea laevigata</u>)	E
Narrowleaf willowherb (<u>epilobium leptophyllum</u>)	C
Invertebrate Animals	
<u>Insects</u>	
Leonard's skipper (<u>Hesperia leonardus</u>)	UN**
<u>Crustaceans</u>	
Greensboro burrowing crayfish	T**
Vertebrate Animals	
<u>Fish</u>	
Carolina darter (<u>Etheostoma collis</u>)	PSC
<u>Amphibians</u>	
Four-toed salamander (<u>Hemidactylum scatatum</u>)	PSC
<u>Birds</u>	
Little blue heron (<u>Florida caerulea</u>)	PSC
Snowy egret (<u>Egretta thula</u>)	PSC
Tricolored heron (<u>Hydranassa tricolor</u>)	PSC
Black vulture (<u>Coragyps atratus</u>)	PSC
Cooper's hawk (<u>Accipiter cooperi</u>)	PSC
Southeastern bald eagle (<u>Haliaeetus leucocephalus</u>)	E*
Arctic peregrine falcon (<u>Falco peregrinus tundrius</u>)	T*
Golden-crowned kinglet (<u>Regulus satrapa</u>)	PSC
Loggerhead shrike (<u>Lanius ludovicianus</u>)	PSC

E = Endangered T = Threatened
 SC = Special Concern C = Candidate
 UN = Undetermined P (prefix) = Proposed
 * = Classified as endangered or threatened by Federal government
 ** = Designated by N.C. Natural Heritage Program
 Others designated by N.C. Wildlife Resources Commission

9. Prime and Important Farmlands

Farmland can be described as either prime farmland, state and locally important farmland, or other lands. The United States Department of Agriculture, Soil Conservation Service describes these three categories as follows:

a. Prime Farmland

These soils are best suited for producing food, feed, fiber, forage, and oilseed crops. They have good qualities, favorable growing season, and receive the available moisture needed to produce high yields on an average of 8 out of every 10 years.

b. State and Locally Important Farmland

These soils have either seasonal wetness, erosion, or droughtiness that limits their suitability for some crops. Crops that are adapted to wet or draughty conditions, or if erosion is controlled, produce moderate to high yields if treated and managed according to modern farming methods.

c. Other Lands

These soils are generally not suited to crop production without applying extensive management. Some of these lands are in urban and built-up areas.

According to the USDA, Soil Conservation Service, the eastern half of the study area is in an urbanized area and will have little affect on farmland as defined by the Farmland Protection Policy Act. (See letters dated November 13, 1989 and January 29, 1990.)

In the western half of the study area, approximately 35 percent of the open areas consist of soils that qualify for prime or state important farmland. Most of this prime farmland soil type is in the Horsepen Creek area in the northern portion of the study area, with smaller sections south of I-40. Because all of the study area is planned for urban development, the provisions of the Farmland Protection Act do not apply.

Table III-9 displays farm statistics for Guilford County and for North Carolina.

TABLE III-9
FARM STATISTICS
NORTH CAROLINA AND GUILFORD COUNTY

	<u>1974</u>	<u>1978</u>	<u>1982</u>	<u>1987</u>
<u>Number of Farms</u>				
North Carolina	91,300	81,700	72,800	59,284
Guilford County	1,607	1,144	1,354	1,141
<u>Average Farm Size</u>				
North Carolina	123	135	142	159
Guilford County	102	98	100	111
<u>Land in Farms</u>				
North Carolina	11,244,000	10,999,000	10,321,000	9,447,705
Guilford County	164,200	142,000	136,000	126,369
<u>Harvested Cropland</u>				
North Carolina	4,075,000	4,467,000	4,659,000	3,779,164
Guilford County	42,800	43,000	43,500	40,827
<u>Woodland on Farms</u>				
North Carolina	4,037,000	3,869,000	3,327,000	2,753,255
Guilford County	51,800	45,000	41,000	32,500

<u>Farms by Size - 1987</u>	<u>State</u>		<u>Guilford</u>	
	<u>%</u>	<u>Acres</u>	<u>%</u>	<u>Acres</u>
Less than 10 acres	8.9	5,253	7.4	85
10-49 acres	30.5	18,088	39.4	450
50-179 acres	38.3	22,680	37.1	423
180-499 acres	15.7	9,337	12.4	142
500-1,000 acres	4.5	2,676	2.6	30
More than 1,000 acres	2.1	1,250	1.0	11
		-----		-----
		59,284		1,141

Source: U.S. Census of Agriculture, 1989

Note: Census Bureau definition of a farm is any place from which \$1,000 or more of agricultural products are sold each year.

10. Ambient Air Quality

The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six pollutants: particulate matter (PM-10), carbon monoxide (CO), ozone (O₃), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and lead (Pb). Monitoring of these pollutants, except Pb, is performed statewide by the North Carolina

Division of Environmental Management (NCDEM) and four local agencies. Table III-10 is a summary of the EPA and NCDEM air quality standards. Primary standards were established allowing an adequate margin of safety for protection of public health. Secondary standards were established with an adequate margin of safety to protect the public welfare from adverse effects associated with pollutants in the ambient air. When these standards are exceeded as outlined, an area is labeled as non-attainment for that pollutant. During 1988, eight exceedances of the O₃ standard were recorded within Guilford County; as a result, the county has been designated non-attainment for this pollutant in the future. Guilford County is classified as attainment for SO₂, PM-10, NO₂, and Pb. The counties for the Greensboro/Winston-Salem/High Point area have also been designated as non-attainment for CO with two exceedances of the standard in 1989.

The 1990 Clean Air Act will place certain requirements on urban areas that have been designated as non-attainment. Federal guidelines implementing this Act have not been published. (Source: Technical Memorandum: Air Quality Analysis, Kimley-Horn and Associates, Inc., May 1990)

**TABLE III-10
SUMMARY OF EPA AND NCDEM
AMBIENT AIR QUALITY STANDARDS**

<u>Pollutant</u>	<u>Averaging Time</u>	<u>EPA Primary Standard</u>	<u>EPA Secondary Standard</u>	<u>NCDEM Standard</u>
TSP ^a	Annual Geometric Mean 24 hr ^b	75 ug/m ³ 260 ug/m ³	None 150 ug/m ³	75 ug/m ³ 150 ug/m ³
PM-10 ^a	Annual Arithmetic Mean 24 hr ^c	50 ug/m ³ 150 ug/m ³	Same as primary Same as primary	50 ug/m ³ 150 ug/m ³
SO ₂	Annual Arithmetic Mean 24 hr ^b 3 hour ^b	80 ug/m ³ 365 ug/m ³ None	None None 1,300 ug/m ³	80 ug/m ³ 365 ug/m ³ 1,300 ug/m ³
NO ₂	Annual Arithmetic Mean	100 ug/m ³	Same as primary	100 ug/m ³
CO	8 hour ^b 1 hour ^b	9 ppm 35 ppm	None None	9 ppm 35 ppm
O ₃	1 hour ^c	0.12 ppm	Same as primary	0.12 ppm
Pb	Quarterly Arithmetic Mean ^b	1.5 ug/m ³	Same as primary	1.5 ug/m ³

a. TSP standards were replaced by PM-10 standards on 7-31-87 by the EPA. The North Carolina adoption of the PM-10 standard was effective July 1, 1988.

b. Not to be exceeded more than once per year.

c. Not to be exceeded more than one day per year averaged over a three-year period.

ug/m³ - Micrograms per cubic meter of air

mg/m³ - Milligrams per cubic meter of air

ppm - Parts per million

Microgram - one millionth of a gram, where 454 grams = 1 pound

Source: Ambient Air Quality, 1988, North Carolina Division of Environmental Management, Air Quality Section.

CHAPTER IV ENVIRONMENTAL CONSEQUENCES

This chapter presents the probable social, economic, and environmental effects of the proposed action for the alternatives selected for more detailed study. Direct and indirect (secondary) environmental consequences of these alternatives are presented. The impacts described in this chapter have been divided into two broad categories: Urban and Community Impacts, which include land use and transportation planning, social impacts, economic impacts, relocation impacts, and visual impacts; and Physical Impacts, which include primarily impacts on the natural environment.

A. URBAN AND COMMUNITY IMPACTS

The proposed action would provide improved transportation service to the study area and is compatible with the proposed land uses for this area. The proposed highway would reduce travel time, particularly for work trips to and from this area. Travel time through the urban area would also be reduced, particularly travel between I-85 west and Lawndale Drive (SR 2303). The type of development encouraged by the airport and the proposed highway would provide improved employment opportunities and significantly reduce travel times and commuting distances to work.

1. Land Use and Transportation Planning

The 1986 Guilford County Comprehensive Plan was discussed in Chapter III, with the future land use shown as Figure III-1. All of the area served by the Western Urban Loop is expected to contain urban land uses. The Western Urban Loop was not shown in the Comprehensive Plan because the thoroughfare plan was being updated at the time and the location of the route was not clearly defined.

The Southwest Area Plan, adopted in July 1989 by Guilford County, shows a portion of the Western Urban Loop and discusses it in some detail:

An "outer belt" for the City of Greensboro has been proposed for the past twenty years. This outer belt or loop is a proposed multi-lane freeway around the city. The outer beltway is to be built in phases and is proposed to start in the areas south and west of the city limits of Greensboro. Environmental Impact Studies (EIS) are going to be performed by the State of North Carolina and the City of Greensboro. The beltway would affect the Plan by going east-west through a new northern community of Sedgefield called King's Pond and King's Mill at Sedgefield. From this point it turns north and parallels the Southern Railroad line going north. According to the City of Greensboro, Painter Boulevard will

alleviate traffic on I-85 through Greensboro and north-south movement in the western urban area.

The Western Urban Loop has been shown in the Greensboro Urban Area Thoroughfare Plan since 1977. The alignment is very similar to the Eastern Corridor described in this document, with the exception of the portion between I-85 and Vandalia Road, where the thoroughfare plan uses crossover C-1, the Western and Middle Alternatives from High Point Road to just past the Southern Railway tracks, and crossover C-3. This alignment was not changed from the 1977 Thoroughfare Plan to the 1989 Thoroughfare Plan because this study was underway during the 1989 update.

Portions of the Eastern Alternative corridor have been reserved for highway use, although the reserved sections are generally too narrow to accommodate the planned facility.

This project was also specifically included in the 1989 State Highway Bill (HB 399) and is in the most recent North Carolina Transportation Improvement Program (TIP), as discussed in Chapter I.

Because the area to be served by this facility is planned to be urbanized, future land use changes resulting from the construction of this highway should be compatible with the comprehensive plan. Utilities are in place or planned to serve this increased development. Local government will be responsible to ensure that any future development encouraged by this facility is compatible with the comprehensive plan.

As described in Chapters II and III, the Piedmont Triad International Airport plans to expand into an area east of the airport, with a major aircraft maintenance facility as a possibility. The Western Alternative conflicts with those plans, while the Eastern and Middle Alternatives are compatible with them.

There are several signed bicycle routes along existing roads in the study area. The "build" alternative will tend to have a beneficial impact on bicycle traffic by diverting major traffic volumes, including most trucks, from existing surface arterials and collectors to the Urban Loop facility.

2. Social Impacts

Because much of the area through which the alternatives pass is urbanized, numerous neighborhoods and communities will be impacted, even though the corridors were developed to minimize community impacts by utilizing existing undeveloped land and skirting the borders of developed areas wherever feasible. Relocation impacts of each of the alternatives are described in Table IV-1, Section A.4. The Eastern Alternative would displace 686 residences and 28 businesses, the Middle Alternative would displace 950 residences and 7 businesses, and the Western Alternative would displace 545 residences and 11 businesses.

The Eastern Alternative would impact the western edge of the Glenhollow area just north of Vandalia Road and would take houses in the eastern portion of Oaks West, south of I-40. The route would skirt just west of Hamilton Hills and Hamilton Lakes, and cross between Coldspring and Battle Forest, just west of Lawndale Drive. The most severe impact on community cohesion would occur in Oaks West, where the route cannot skirt the edge of the community due to constraints imposed by the railroad and the I-40 interchange location, and therefore would divide the community. Bent Tree Apartments would be largely taken by the proposed route. Most homes taken are at the edge of neighborhoods where the route uses open space corridors that are not sufficiently wide to accommodate the right-of-way. The Eastern Alternative would also separate Sedgefield School and the Sedgefield Branch Library from the neighborhood to the south; however, High Point Road would still provide access across the freeway.

The Middle Alternative would have less impact than the Eastern Alternative on single-family neighborhoods, but would substantially impact several multi-family communities between I-40 and Friendly Avenue. Of the estimated 508 relocations in that area, 489 would be tenants of apartments. The single-family communities would be most affected at their edges, with some communities separated from others by the route. Guilford Primary School, Western Guilford School, and Guilford Elementary School would be separated from communities to the west. Friendly Avenue would remain open across the freeway.

The community cohesion impacts of the Western Alternative would be similar to those of the Middle Corridor with relatively low impact on single-family neighborhoods, although fewer apartments and condominiums would be taken. The Western Alternative would split the Cates Drive/Verdun Drive subdivision but would have less impact on schools.

Communities affected by each alternative are summarized below.

The Eastern Alternative would affect portions of Holden Village, Beechcroft, Oaks West, Pinehurst condominiums, Kings Pond, Hamilton Woods, Hamilton Village, Guilford Woods, Carriage Hills, Jefferson Gardens, Brassfield Oaks, Woodland Hills, Ravenridge, Treehouse Apartments, Laurel Townhomes, Woodland Village, Cardinal Retirement Home (under construction), Brandt Village, Battle Forest Village Townhomes, the Hedges Apartments, Regents, and other scattered residential developments.

The Middle Alternative would affect portions of King's Pond, Sedgefield, Sedgefield Lakes, Hunter's Chase Apartments, River Oaks Apartments, West View Valley Apartments, Westlo-Willow Road Apartments, Hidden Lakes, Quaker Acres, Stagecoach Village, Carriage Crossing, Drawbridge Courts (under construction), Treehouse Apartments, Laurel Townhomes, Woodland Village, Cardinal Retirement Home (under construction), Brandt Village, Battle Forest Village Townhouses, the Hedges Apartments, Regents, and other scattered residential development.

The Western Alternative would affect portions of King's Pond, Sedgefield, Sedgefield Lakes, Charlestowne Square, Drawbridge (under construction), Treehouse Apartments, Laurel Townhomes, Woodland Village, Cardinal Retirement Home (under construction), Brandt Village, Battle Forest Village townhomes, the Hedges Apartments, Regents, and other scattered residential development.

All three alternates would improve accessibility throughout western Greensboro and Guilford County, with the greatest benefit from the Eastern Alternative due to the greater travel demand. Sufficient grade separations and interchanges would be provided to minimize disruption of travel patterns, although some change in travel routes is inevitable with any limited access facility.

No particular social or ethnic group will be unduly affected by any of the alternatives. More renters will be displaced than homeowners, due to selection of routes to avoid established communities wherever possible. The Eastern Alternative would have the greatest impact on business establishments. Twenty-eight businesses would be displaced by the Eastern Alternative, while the Middle and Western Alternatives would displace seven and eleven, respectively.

No libraries, fire stations, hospitals, or cemeteries will be impacted by the proposed corridors. As indicated in Figure III-3, a number of churches are located in proximity to the selected alternatives. It is anticipated that the Middle and Western Alternative will take the Lutheran Church of the Resurrection, and the Eastern Alternative will impact St. Barnabas

Episcopal Church. It is also anticipated that the selection of Crossover 1 will be in proximity to the Lutheran Church of Our Father.

No specifically signed bicycle routes in western Greensboro will be affected by the proposed alternatives.

The study area contains nine public schools and Guilford College. The school system officials have been given an opportunity to review the alternatives and no objections to the project have been expressed. The construction alternatives were developed to avoid any major disruptions to the school system. Although no school will be relocated, the Western Alternative passes close to the Guilford Primary School and the Middle Alternative passes close to the Western Guilford High School. Some land from Guilford College would be required for the Eastern Alternative. Because Guilford College is on the National Register of Historic Places, this is addressed in Chapter V.

The Western Alternative would affect the private recreational facilities of Pilot Life Insurance Country Club and Longview Golf Course. The Middle Alternative would also affect the privately-owned Longview Golf Course. A site owned by the City which is planned as a community center (see Figure III-2) is located in the Middle and Western Alternatives north of Bryan Boulevard; however, the alignments will not require any of this property for right-of-way and will not affect the intended use of the parcel.

The Eastern Alternative would affect Jefferson Country Club and Gardens, also a private facility. The Eastern Alternative is located on the eastern edge of the property, generally paralleling Jefferson Road. This should minimize any major impacts. No existing facility or structure is anticipated to be affected by the Eastern Alternative.

Parks that are potentially affected by the freeway alternatives are the following:

- a. Oka T. Hester Park (excluding reserved corridor)
- b. Mitchell Park
- c. Woods of Guilford (portion designated as park)
- d. Western Greensboro Community Center

A portion of the Eastern Alternative in the section involving Oka T. Hester Park is located in right-of-way reserved for a future highway. Construction of the road through this area would require the removal of an existing dam. This dam could possibly be reconstructed upstream of the road to continue to provide a lake in the park, although the lake's size

would be reduced from about 8 acres to about 3.5 acres. As an alternative, the stream could be restored within the park and the area now occupied by the lake used for other recreational uses. These questions and related cost issues will be resolved in coordination with the City of Greensboro if this alternative is selected.

While the other three parks are partly or wholly within the study corridors for the Eastern, Middle, and Western Alternatives, respectively, the actual rights-of-way for the road will not require any use of park land. Noise levels will increase, but this will not preclude the use of the parks for active and passive recreation.

All three alternatives require land that is publicly-owned open space or designated as future open space, as shown on Figure III-2. It has been determined that this land can be used for multiple purposes, including thoroughfares, and therefore is not subject to the provisions of Section 4(f).

3. Economic Impacts

This project will affect the region's economy by providing construction employment during the construction of the project, by removing some land from property tax rolls, and by changing the value of other land. On a longer-term basis, the project will further encourage economic development in western Guilford County by increasing access, providing a direct, high-speed route for through and local traffic, and relieving congestion on existing streets.

The 1990 construction cost of the project is estimated to be approximately \$100 million. These funds would be paid to contractors and suppliers engaged to build the project, with most of the funds to be spent in the Greensboro area.

Land that is currently in private ownership and taxable would be converted to highway use, thus removing the land from tax roles. Owners would be compensated for the land and improvements, which payment would likely be used to purchase another home or business in Guilford County (See Chapter IV.A.4. Relocation).

Some homes near the freeway could lose value or, more likely, not appreciate at the rate they would have otherwise. Conversely, commercial property would tend to increase in value, particularly near interchanges. Some short-term economic impacts could result from changes in access or noise during construction.

4. Relocation

The studied construction alternatives will require the relocation of residences and businesses and other land uses within their respective right-of-way limits. The study area is experiencing urbanization and deferring the proposed action will only result in additional relocation impacts.

In order to compare the relative impact of the studied alternatives, an evaluation was made of the number and type of displacements, and other demographic data for each alternative. This information is included in Appendix C and is summarized in Table IV-1 for each construction alternative.

**TABLE IV-1
NUMBER OF DISPLACEMENTS FOR
THE CONSTRUCTION ALTERNATIVES**

	<u>Residences</u>			<u>Businesses</u>			<u>Other</u>		
	E	M	W	E	M	W	E	M	W
I-85 to High Point Rd.	39 (10)	48 (10)	48 (10)	9	0	0			
High Point Rd. to Wendover Ave.	61 (18)	15 (2)	72 (14)	4	0	0		1	1
Wendover Ave. to Friendly Ave.	191 (40)	508(100)	58 (20)	13	7	10			1
Friendly Ave. to Bryan Blvd.	83 (15)	89 (22)	77 (15)	2	0	1		1	2
Bryan Blvd. to Battleground Ave.	54 (11)	32 (6)	32 (6)	0	0	0	1		
Battleground Ave. to Lawndale Dr.	258 (60)	258 (60)	258 (60)	0	0	0			
Total	686(154)	950(200)	545(125)	28	7	11	1	2	4

Notes: Segment limits are approximate
() = minority (included in total)

Crossovers

C1	34(7)		0		0
C2	10(3)		0		0
C3	14(3)		1		1

The involuntary relocation of families and businesses causes disruption and inconveniences that cannot be avoided. The North Carolina Department of Transportation has a relocation assistance program which does as much as possible to eliminate any undue hardships on those who must relocate. The relocation program will be conducted in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Public Law 91-646-49-CFR Part 25) and the North Carolina Relocation Assistance Act (GS-133-5 through 133-17). The program is designed to provide assistance to displaced persons in finding replacement property in which to live or to do business.

A minimum of one relocation officer is assigned to each highway project for this purpose. The relocation officer will determine the needs of displaced families, individuals, businesses, non-profit organizations, and farm operations for relocation assistance advisory services, without regard to race, color, religion, sex, or national origin. The relocation officer will contact the person(s), with ample time prior to displacement, to allow negotiations for and possession of replacement housing which meets decent, safe, and sanitary standards and is adequate in size.

Relocation of displaced persons will be offered in areas at least as desirable in regard to public utilities and commercial facilities.

Rent and sale prices of replacement housing offered will be within the financial means of the families and individuals displaced and be reasonably accessible to their places of employment.

All displaced tenants and owner-occupants will receive an explanation of eligibility requirements regarding all options available to them, such as (1) replacement housing payments for owner-occupants, (2) rent supplements, or (3) relocating existing owner-occupant housing. All of those displaced will receive an explanation of the moving and related expense payments program which is designed to: (a) compensate the relocatee for the costs of moving from homes, businesses, and farm operations acquired for a highway project; (b) provide incidental purchase payments for replacement dwellings such as attorney fees, surveys, appraisal fees, and other closing costs; and (c) make payment to owner-occupants for any increased interest expenses for replacement dwellings. In addition, the relocation officer will supply information concerning other State or Federal programs offering assistance to displaced persons and will provide other advisory services as needed in order to minimize hardships to displaced persons in adjusting to a new location.

This program provides that three types of assistance are available as follows:

- o Relocation assistance
- o Relocation moving costs, and incidental payments
- o Relocation replacement housing payment or rent supplement

With the Relocation Assistance Program, experienced NCDOT staff will be available to assist displacees with information such as availability and prices of homes, apartments, or businesses for sale or rent, also financing or other housing programs. The Relocation Moving Payments Program, in general, provides for payment of actual moving expenses encountered in relocation. Where displacement will force an owner or tenant to purchase or rent property of higher cost or to lose a favorable financing arrangement (in cases of ownership), the Relocation Assistance Program will compensate owners who are eligible and qualify up to \$22,500 and tenants who are eligible and qualify up to \$5,250. Where families cannot be relocated within their financial means, and/or cost of replacement housing falls out of the above limits, the law provides for Last Resort Housing.

Last Resort Housing is a program used when comparable replacement housing is not available or when it is unavailable within the displacee's financial means, and the replacement payment exceeds the Federal and State legal limitation. The purpose of the program is to allow broad latitudes in methods of implementation by the State so that decent, safe, and sanitary replacement housing can be provided.

The relocation officer will also assist owners of displaced businesses, nonprofit organizations, and farm operations in obtaining and moving to replacement property. The eligibility of displaced businesses, farms, or nonprofit organizations will be determined for payment of actual reasonable moving expenses, actual direct losses of tangible personal property and actual reasonable expenses, within limitations, in searching for replacement locations. Displaced businesses, non-profit organizations, or farms, under certain conditions, may be eligible for a payment between \$1,000 and \$20,000 maximum in lieu of moving payments.

In addition to the payments already mentioned, a small business (having not more than 400 employees), farm, or non-profit organization may be eligible to receive a payment not to exceed \$10,000 for reasonable and necessary expenses actually incurred in relocating and reestablishing such small business, farm, or non-profit organization at a replacement site.

It is a policy of the State that no person will be displaced by the North Carolina Department of Transportation's Federally-assisted construction projects unless and until adequate

replacement housing has been offered to or provided for each relocatee within a reasonable period of time prior to displacement. No relocation payment received will be considered as income for the purposes of determining eligibility or the extent of eligibility of any person for assistance under the Social Security Act or any other Federal law.

An investigation has been made into the availability of substitute housing in the project area. Local realtors and builders were contacted and currently there are ample amounts of sale and rental housing available in the Greensboro area. In addition, no problem is seen in relocating affected businesses to suitable sites.

The replacement housing payment program will be available to assist in offsetting any difference in housing costs that the displaced persons may experience, whether owner or tenant.

According to information available from local multiple listing services, contacts with local officials, social agencies, housing officials, and community groups, none of the studied alternatives should cause a housing shortage. Last-resort housing or special housing programs are not anticipated on this project. If the need for Last-resort housing develops, it will be implemented in accordance with State law.

A copy of the relocation report for each alternative corridor is included in Appendix C.

Two small businesses, Greensboro Child Care and Cecil's Realty, would be impacted by the Eastern Alternative near its interchange with High Point Road. The Duke Power Company Distribution Center, a power substation, and Barringer Beer Distribution would be potentially affected by the Eastern Alternative. Several auto dealerships would be involved at the proposed crossing of Wendover Avenue. The Bulk Mailing Center is located in close proximity but is not anticipated to be impacted by the Eastern Alternative. The Eastern Alternative at the Market Street interchange would affect 11 small businesses and pass close to Worth Chemical Corporation (50 employees) and Guilford Mills (100+ employees).

The Eastern Alternative would also affect several commercial developments at the proposed interchange with US 220 including Drawbridge, which is under construction.

The Middle Alternative would affect three small businesses between I-85 and I-40 (Sedgefield Stables, Oriental Shrine Club Greensboro, and Landmark Center Real Estate). It is anticipated to significantly affect the Landmark development located on Wendover Avenue. Removal of access from I-40 to Guilford College Road and providing access via

the new interchange on the urban loop and Guilford College Road would change accessibility to the businesses located in this area. The Middle Alternative requires modification of the recently-completed Wendover/I-40 interchange and would take a portion of the planned Landmark commercial development located near this interchange. The Middle Alternative would affect five businesses at its proposed interchange at West Market Street. Guilford Mills is nearby but is not anticipated to be taken. The Middle Alternative would affect the commercial development currently under construction located at the interchange at US 220.

The Western Alternative would affect six businesses between I-85 and I-40. It passes through a portion of the Landmark development but its impact is less than the Middle Alternative. The Western Alternative would impact the industrial and commercial development surrounding the Chimney Rock/I-40 interchange, including CIBA-GEIGY, located east of the proposed I-40 interchange. Several industries between Market Street and Friendly Avenue will be affected including changes in rail access to other businesses. The Western Alternative would also affect the commercial development currently under construction, located at its crossing at US 220, and have a major impact on industrial development near Piedmont-Triad International Airport, particularly at the proposed aircraft maintenance facility. Should the aircraft maintenance facility not be constructed, the Western Alternative would still impact the site designated for development planned by the airport in that area.

5. Visual

Portions of the study area will be impacted by the introduction of a construction alternative. The Western Alternative would be more visually compatible with the existing and anticipated commercial and industrial land uses, particularly near the airport. Therefore, the Western Alternative would be less of a visual obstruction into the study area.

All of the construction alternatives will offer several opportunities for creating excellent views from the highway. Visually pleasing aspects of the highway and views from the highway will be explored in the design phases upon the selection of an alternative for construction.

Probable visual effects are evaluated by alternative below.

Eastern Alternative - The Eastern Alternative creates a new roadway corridor in a generally urban landscape. Due to its urban setting, the view of the road by a relatively large number of residents would have an adverse effect. Beneficial effects that would offset this impact to

some extent would result from landscape planting and providing a smooth flowing curvilinear alignment of horizontal and vertical curves designed to blend with the landscape.

Middle Alternative - The impacts associated with this alternative are similar to the Eastern Alternative. The setting is more industrial and commercial than the previous option particularly in the vicinity of the Piedmont Triad International Airport. Appropriate mitigation through proper design would result in minimizing adverse impacts on visual resources.

Western Alternative - The Middle and Western Alternatives traverse the same urban setting and their impact on visual resources are identical.

Mitigation - The aesthetic quality of the adversely affected areas will be improved by:

- o curvilinear design to blend with landscape
- o landscape planting and natural revegetation of the cut and fill slopes
- o structural design (drainage structures, bridges, guardrail, etc.) consideration to enhance visual appearance, such as the use of smooth lines and curves, visually appealing and unobtrusive materials, and visually-sensitive design.

6. Utilities and Service

COMPARISON OF ALTERNATIVES

	<u>East</u>	<u>Middle</u>	<u>West</u>
Powerline crossings	2	2	2
Pipeline crossings	2	4	4
Railroad crossings	3	3	3

Electric Transmission Lines

Figure III-5 shows the major power transmission lines located within the affected study area. The effects of crossing these lines have been considered to minimize their involvement and have been included in the economic comparison of the construction alternatives. The construction alternatives are not anticipated to adversely affect any electric transmission facilities. The Eastern Alternative does pass close to a Duke Power substation on Fairfax Road, but is not expected to interfere with its operation.

Railroads

Railroad crossings are involved with each of the construction alternatives. There are no differences among the alternatives in regard to their number or involvement with the crossings.

The Southern Railroad track parallel to West Market Street provides 4 train movements per day. The tracks parallel to Holden Road are Southern Railroad's mainline and provide 20 freight train and 2 passenger train movements per day. The Eastern Alternative is parallel to this mainline. An abandoned railroad is parallel to Old Battleground Road in the northwest portion of the study area.

The railroad crossings will be grade-separated with structures. No interruption in rail service is anticipated. The structures will span the railroads, thus minimizing the potential impacts on rail service facilities.

Sewer and Water Service

The location of existing major sanitary sewer and water lines has been considered in an effort to avoid any major disruption to utilities. The City of Greensboro and Guilford County have an agreement to encourage the extension of public utilities to developing areas just outside of Greensboro. Approximately 75 percent of Guilford County residents reside in areas where public water and sewer is available. With development both existing and occurring in the study area, public utilities are available in the majority of the area.

B. PHYSICAL IMPACTS

1. Air Quality

Urban air pollution results from industrial emissions, internal combustion engine emissions, and other sources. The impacts resulting from highway construction or improvement can range from aggravating existing air pollution problems to improving air quality. Carbon monoxide (CO), hydrocarbons (HC), and nitrogen oxides (NO_x) are produced by the combustion of fuel in diesel and gasoline engines. Small amounts of Pb, SO_x, and PM-10 are also emitted by motor vehicles.

The most prevalent air emission from motor vehicles is CO. High ambient CO concentrations are known to occur immediately adjacent to heavily traveled freeway routes under certain conditions. Excessive concentrations of CO can have severe health effects. Because CO is a non-reactive pollutant, it is easily modeled on a microscale basis, as

required by the Federal Highway Administration. HC emissions originate from fuel tanks and as a byproduct of internal combustion engines. The action of sunlight on atmospheric emissions of HC and NO_x may lead to the formation of photochemical oxidants such as O₃.

The effect of the proposed project on ambient air quality was estimated using the CALINE3 air dispersion computer model and emission factors computed from the MOBILE3 computer model. MOBILE3 considers such factors as forecast year, vehicle mix, vehicle speed, inspection/maintenance programs, ambient temperature, and percent hot and cold starts to project emission factors in grams per mile for various roadway segments. These emission factors are then put into the CALINE3 program, which considers traffic volume, roadway geometry, and atmospheric conditions to project concentrations of CO on a microscale basis.

MOBILE3 input parameters included:

Region: Low Altitude (500 feet)
Inspection/Maintenance Program, beginning 1993 covering light duty gasoline vehicles
Model years (vehicles): 1997-2010
Ambient temperature: 29°F (mean temperature of coldest month)
Vehicle speed: Based on operating level of service
Vehicle mix (MOBILE3 default)
 60.4% autos (gasoline)
 9.0% light trucks (gasoline)
 9.0% medium trucks (gasoline)
 4.1% heavy trucks (gasoline)
 7.8% autos (diesel)
 4.6% medium trucks (diesel)
 4.4% heavy trucks (diesel)
 0.7% motorcycles

CALINE3 input parameters included:

Stability class = F
Wind speed = 1 meter/second
Wind direction = 10° increments
Settling velocity = 0 centimeters/second
Deposition velocity = 0 centimeters/second
Surface roughness = 0.75 centimeters
Averaging time = 60 minutes
Receptor height = 1.8 meters
Traffic speed = Based on operating level of service
Traffic volumes = design hour volumes, year 2010

This procedure was applied to year 2010 projected traffic volumes at three interchanges with I-40 (east, middle, and west alignments). These locations were judged to be worst-case locations due to heavy traffic volumes at I-40 and nearby residential use. Worst-case

conditions were classified as Type F atmospheric stability, one mile per hour wind speed with wind orientation parallel to the road (tested at 10° increments), 29°F temperature (mean temperature of coldest month), and operating speed based on the level of service on the Western Urban Loop. Several receptors were selected in each interchange quadrant for a total of 59 receptors. The receptors used were the closest structures to the roadway to each quadrant of the interchange. One-hour concentrations for each receptor are summarized in Table IV-2, which came from the Technical Memorandum on Air Analysis (Kimley-Horn and Associates, Inc., May 1990).

The maximum one-hour CO concentration, based on the above conditions, is 8.9 ppm for receptor E13 as shown in Table IV-2. A copy of the output for this receptor is included in the appendix. Comparison of the predicted CO concentrations with the NAAQS (maximum 1 hour = 35 ppm) indicates no violation of this standard. Because the maximum one-hour concentration does not exceed the eight-hour standard of 9.0 ppm, no eight-hour analysis was required.

The project is located within an area administered by the Winston-Salem regional office of NCDEM. Because this project is located in an area where the State Implementation Plan (SIP) does not currently contain any transportation control measures, the conformity procedures of 23 CFR 770 do not apply. The recent passage of the Clean Air Act and Guilford County's non-attainment of the CO and O₃ standards will necessitate some form of air quality control measures in the future.

Because of reduced vehicle-miles and vehicle-hours of travel, increased operating speed, and reduced congestion, the Build Alternatives will provide higher overall air quality in the region than the No-Build Alternative, including reduced concentrations of CO and O₃ at "hot spot" intersections in the study area.

Air quality impact mitigation during construction is described under Construction Impacts (IV.E.).

**TABLE IV-2
AIR QUALITY ANALYSIS
CO CONCENTRATION
YEAR 2010**

<u>Location</u>	<u>Receptor Number</u>	<u>Maximum 1 Hour CO Concentration (Parts Per Million)</u>
Western Urban Loop at I-40 (Eastern Alternative)	E1	3.8
	E2	3.5
	E3	4.3
	E4	3.6

<u>Location</u>	<u>Receptor Number</u>	<u>Maximum 1 Hour CO Concentration (Parts Per Million)</u>
	E5	3.8
	E6	3.7
	E7	4.2
	E8	3.7
	E9	5.5
	E10	7.7
	E11	5.0
	E12	4.2
	E13	8.9*
	E14	5.4
	E15	5.8
	E16	4.4
	E17	7.1
	E18	6.4
	E19	5.2
	E20	5.7
Western Urban Loop at I-40 (Middle Alternative)	M1	3.7
	M2	5.8
	M3	4.4
	M4	3.6
	M5	3.6
	M6	3.9
	M7	4.3
	M8	5.5
	M9	3.7
	M10	4.2
	M11	3.7
	M12	5.2
	M13	3.9
	M14	4.5
	M15	3.2
Western Urban Loop at I-40 (Western Alternative)	M16	2.9
	M17	3.0
	M18	3.8
	M19	3.6
	M20	3.2
	W1	4.3
	W2	4.4
	W3	3.8
	W4	3.1
	W5	3.4
	W6	3.0
	W7	3.1
	W8	3.6
	W9	3.4
	W10	3.7
W11	4.3	
W12	4.3	
W13	4.3	
W14	4.4	
W15	3.8	

<u>Location</u>	<u>Receptor Number</u>	<u>Maximum 1 Hour CO Concentration (Parts Per Million)</u>
	W16	4.1
	W17	3.3
	W18	2.8
	W19	2.8

* Maximum concentration

2. Noise

An evaluation of the probable traffic noise impacts associated with this project was made in accordance with the procedures and provisions of Title 23, Code of Federal Regulations (VFR), Part 722, U.S. Department of Transportation, Federal Highway Administration (FHWA), Procedures for Abatement of Highway Traffic Noise and Construction Noise. As a part of this evaluation, the existing noise levels were measured along the project and predictions were made of the design year (2010) peak-hour traffic noise levels expected by receptors in the vicinity of the proposed project, based on projected traffic volume.

Hourly volumes used in the analysis ranged from 1,516 to 4,367 vehicles on four-lane sections and 4,994 to 6,250 on six-lane sections.

Sound Levels

Equivalent Sound Levels (Leq) were computed using the Federal Highway Administration (FHWA) Noise Barrier Cost Reduction Procedure (STAMINA 2.0/OPTIMA). By definition, the Leq is the level of constant sound which, in a given situation and time period, has the same energy as does time varying sound. In other words, the fluctuating sound levels of traffic noise are represented in terms of a steady noise level with the same energy content.

Typical sound levels for common indoor and outdoor activities are shown in Table IV-3. Illustrated sound levels range from the threshold of hearing at 5 dBA to a noisy rock concert at 110 dBA. Typical urban sound levels range from 50 dBA to 80 dBA.

**TABLE IV-3
TYPICAL SOUND LEVELS**

<u>Source</u>	<u>Distance</u>	<u>Sound Level (dBA)</u>
Noisy Rock Concert	-----	110
Gas Lawnmower	3 ft.	94
Diesel Truck	50 ft.	88
Noisy Urban Daytime	-----	80
Gas Lawnmower	100 ft.	72
Heavy Traffic	300 ft.	60
Vacuum Cleaner	10 ft.	68
Normal Speech	3 ft.	64
Quiet Urban Daytime	-----	50
Quiet Urban Nighttime	-----	40
Threshold of Hearing	-----	5

Noise Abatement Criteria

The FHWA has established noise abatement criteria based on land use or activity category. These noise abatement criteria are listed in Table IV-4, Noise Abatement Criteria, and are considered to be the absolute levels where abatement must be considered. The Category A criterion applies to tracts of land for which the preservation of serenity and quiet are of paramount importance. The Category B criterion is an exterior condition applied to schools, churches, residences, parks, and in some cases to institutional land uses. The Category C criterion is also an exterior condition applied to commercial and industrial activities. The Category E criterion is an interior condition which applies to noise sensitive activities such as in schools, churches, and hospitals.

**TABLE IV-4
NOISE ABATEMENT CRITERIA
Hourly A-Weighted Sound Level – Decibels (dBA)**

<u>Category</u>	<u>Leq(h)</u>	<u>Description of Activity Category</u>
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, auditoriums.

Ambient Noise Levels

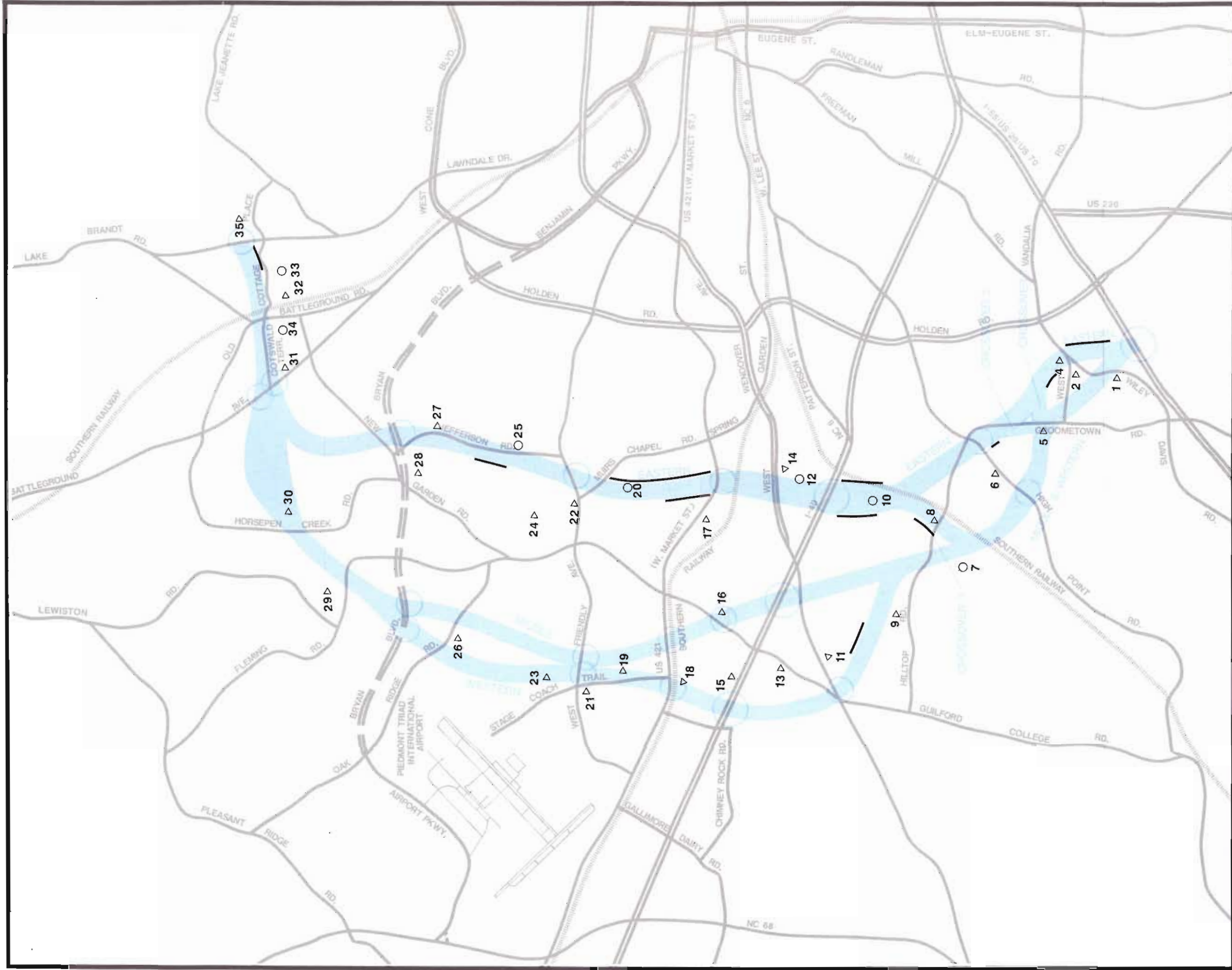
Field measurements were made at 35 locations (see Figure IV-1) using a CEL 493 precision integrating impulse sound level meter to determine ambient noise levels at receptors along the project. Ambient noise is the noise resulting from natural and mechanical sources and human activity considered to be usually present in a particular area. The purpose of this information is to quantify the existing acoustic environment, thus providing a base for assessing the impact of noise levels for residences, churches, businesses, and other noise-sensitive receptors. For the purpose of impact assessment, a baseline ambient sound level of 47 dBA was established. This level is applicable to the quietest areas of the study corridor where no influence from traffic occurs. The ambient noise measurement locations and noise levels are listed in Table IV-5. (Source: Technical Memorandum, Noise Analysis, Kimley-Horn and Associates, Inc., June 1990)

**TABLE IV-5
SUMMARY OF AMBIENT NOISE LEVELS
GREENSBORO WESTERN URBAN LOOP**

<u>Number</u>	<u>Location</u>	<u>Existing Leq dBA</u>
1	East of <u>Wiley Davis Road</u> approximately 1200' south of Clair Place	64
2	In triangle formed by McCuiston, Wiley Davis and Vandalia; west of <u>Wiley Davis</u> (approximately 200' north of McCuiston)	64
3	North of <u>Wayne Road</u> approximately 1000' east of Groometown Road	56
4	North of <u>Vandalia Road</u> 200' northeast of Vandalia/Wiley Davis intersection	57
5	East of <u>Groometown Road</u> , 1500' north of Wayne Road west	66
6	South of <u>High Point Road</u> 500' west of Forbes Drive	68
7	East of <u>East Woodlyn Way</u> 250' south of Sedgelane Drive	48
8	North of <u>Hilltop Road</u> opposite Roediger Court	63
9	North of <u>Hilltop Road</u> 500' east of Hilltop Trail	61

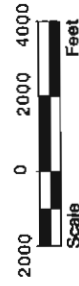
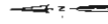
**TABLE IV-5
SUMMARY OF AMBIENT NOISE LEVELS
GREENSBORO WESTERN URBAN LOOP
Continued**

<u>Number</u>	<u>Location</u>	<u>Existing Leq dBA</u>
10	West of <u>Pennoak Drive</u> 800' south of Creekwood/Pennoak intersection	47
11	South of <u>Wendover Avenue</u> 600' east of Brewster Drive	60
12	West of <u>Alliance Drive</u> 500' north of Boren/Alliance intersection	52
13	East of <u>Guilford College Road</u> opposite Bramble Gate Road intersection	68
14	South of <u>Wendover Avenue</u> opposite Tri-City Boulevard	68
15	North of <u>I-40</u> 1200' west of Swing Road	75
16	East of <u>Guilford College Road</u> 600' north of Big Tree Way	66
17	South of <u>US 421 (Market Street)</u> between Longale Street and Edwardia Drive	71
18	South of <u>US 421 (Market Street)</u> 500' west of Stage Coach Trail	67
19	East of <u>Stage Coach Trail</u> in front of Guilford Primary School	62
20	West of <u>Coronado Drive</u> , opposite Pleasant Drive	48
21	South of <u>Friendly Avenue</u> , opposite Brushwood Road	68
22	North of <u>West Friendly Avenue</u> 750' east of Dolly Madison Road	66
23	East of <u>Stage Coach Trail</u> between Holly Crest Court and Wagon Wheel Drive	62
24	On eastern end of <u>Nathan Hunt Road</u> , close to Lake. Objective is to measure at any structure or property of Guilford College closest to eastern alignment.	51
25	North of <u>Bennington Drive</u> opposite Waterford Lane.	55



LEGEND

- △ REGULAR RECEPTOR MEASUREMENT
- BACKGROUND MEASUREMENT
- COST-FEASIBLE NOISE BARRIER LOCATION



GREENSBORO WESTERN URBAN LOOP

NOISE MONITORING LOCATIONS AND POTENTIAL BARRIER LOCATIONS

Figure

IV-1

**TABLE IV-5
SUMMARY OF AMBIENT NOISE LEVELS
GREENSBORO WESTERN URBAN LOOP
Continued**

<u>Number</u>	<u>Location</u>	<u>Existing Leq dBA</u>
26	South of <u>Old Oak Ridge</u> 4000' (or 3/4 mile) east of Tamokee Drive	54
27	West of <u>Jefferson Road</u> , 2000' north of Hobb	59
28	West of <u>New Garden Road</u> , 0.8 miles north of Garden Lake Drive	61
29	North of <u>Fleming Road</u> , opposite Clarkson Road	62
30	East of <u>Horsepen Creek Road</u> , 2 miles north of Terrault Drive	61
31	East of <u>US 220 North</u> , 600' north of Brassfield Road	65
32	East of <u>Battleground Road</u> , 1500' north of New Garden Road	58
33	South of <u>Cottage Place</u> , 1000' east of Cotswald/Cottage intersection	55
34	South of <u>Cotswald Terrace</u> , 0.8 miles east of US 220 North	52
35	East of <u>Lawndale Drive</u> , 1/2 mile north of Cottage Place	63

A representative sample of the noise readings were used to validate the noise model. Since the differences between the field values and the model values were distributed within ± 2 dB(A), no adjustments of the model were necessary.

Future Noise Levels and Noise Impact

Future highway noise levels were estimated using the FHWA computer program STAMINA 2.0. Input parameters for STAMINA include alignment, grade, vehicle mix and speed, and topography data to determine noise impact at various distances from the highway. Assumptions included the following:

- o projected 2010 ADT volumes
- o 6% heavy trucks, 4% medium trucks (% of total ADT) - south of I-40
- o 9% heavy trucks, 6% medium trucks (% of total ADT) - north of I-40

- o Peak hour (60/40 directional split) = 10% of auto ADT
- o Peak hour (50/50 directional split) = 4.2% of truck ADT
- o all traffic in outer lane for each direction
- o high traffic volume on receptor side
- o level, straight section on freeway
- o soft surface attenuation

Highway noise analysis is undertaken using the peak-hour or one-hour equivalent (L_{eq}) noise level. The highway peak/design hour was given as described above. In accordance with NCDOT procedures, if the design hour volume exceeded the volume for level-of-service C, the level-of-service C volume was used for noise analysis, except in the case of truck volumes, where full design volumes were used.

Ambient noise levels for all receptors were based on the noise levels at the monitored locations, adjusted based on distance from the roadway. A 4.5 dB decrease in noise with each doubling of distance was assumed.

Future noise was projected for 749 receptor locations, including residences, businesses, churches, schools, and a park (Hester Park). Ambient and projected noise levels at these receptors are summarized in Table IV-6 and shown in detail in the Technical Memorandum on Noise Analysis (Kimley-Horn and Associates, Inc., June 1990). Locations approaching or exceeding the noise abatement criteria (Table IV-4) included all residences with a predicted noise level of 65 dBA or more. Locations with substantial impact included all receptors with an increase over the ambient noise level of 15 dB(A) or more.

**TABLE IV-6
SUMMARY OF NOISE IMPACT**

	<u>Alternative</u>			
	<u>Eastern</u>	<u>Middle</u>	<u>Western</u>	<u>C3</u>
Locations Approaching or Exceeding Noise Abatement Criteria⁽¹⁾				
Residence	156	107	124	16
Business	2	0	0	0
Locations With Substantial Impact⁽²⁾				
Residence	240	135	155	20
Business	16	1	1	0
Locations Exceeding Either Criteria⁽³⁾				
Residence	251	153	170	23
Business	16	1	1	1

⁽¹⁾ Predicted noise level of 65 dB(A) or more for residences, 72 dB(A) or more for businesses; not including locations within proposed right-of-way.

⁽²⁾ 15 dB(A) increase or more; not including locations within proposed right-of-way.

⁽³⁾ Number of locations for (1) and (2) added together does not equal (3) due to double counting.

The middle alignment would have the least noise impact, while the eastern alignment would have the greatest impact. The No-Build Alternative would also have increased traffic noise impact along existing roads in the study area due to increased traffic volumes and congestions with stop-and-go traffic. The Build Alternatives would reduce noise impact in those areas by diverting traffic, particularly truck traffic. Traffic noise abatement was considered for those areas in which 1) noise abatement criteria were exceeded for receptors, or 2) a substantial increase in noise level (15 dBA) would be caused by this project.

Barrier Analysis

Concrete noise barrier walls were considered for 45 different locations along the project. These were assumed to be located 150 feet from the centerline, at the edge of the project right-of-way. Walls ranging from 10 to 20 feet in height were evaluated.

Noise reduction goals were developed for the barrier evaluation based on NCDOT guidelines. In order for a barrier to have been recommended, it must have provided a minimum insertion loss of 6 dBA for the most impacted receivers it was designed to protect. Noise levels at receivers exceeding the noise abatement criteria should be reduced by 4 dBA

or more with the barrier in order for those receivers to be considered benefitted by the barrier. Barriers were considered to be cost-feasible if the cost per benefitted receptor (4dB(A) or greater reduction) was \$25,000 or less.

Forty-five barriers were examined for the three alternative corridors. The evaluation addressed existing noise conditions, predicted noise levels without the barrier, dBA increases over ambient levels, noise levels with the barrier, and the dBA reduction (insertion loss) with the barrier. The approximate location of each barrier, the number of impacted receptors benefitted, barrier dimension, estimate of cost, and cost per receptor was also determined. Details of the barrier analysis are included in the previously referenced Technical Memorandum.

Because of the low population density in portions of the study area, most barriers of suitable height and length to provide significant noise reduction have a relatively high cost per dwelling unit. Of the 45 barriers evaluated, the cost per impacted dwelling unit ranged from \$3,054 to nearly \$500,000. Eleven barrier locations were estimated to provide substantial noise reduction for less than \$25,000 per dwelling unit (see Figure IV-1). The four cost-feasible Western Alternative barriers would cost \$1,245,000 and would abate noise at 62 receptor locations. The three cost-feasible Middle Alternative barriers would cost \$806,000 and would abate noise at 40 receptor locations. The eight cost-feasible Eastern Alternative barriers would cost \$2,309,000 and would abate noise at 150 receptor locations. (The barriers for each alternate do not total 11 due to overlap of alternatives.)

While Guilford Primary School would receive noise impact due to its proximity to the Middle Alternative (500 feet from the right-of-way), noise abatement criteria would not be exceeded and barrier abatement is not considered to be reasonable.

These preliminary indications of likely barrier abatement measures are based on preliminary studies and cost data. Additional studies will be made after a corridor has been selected. A final decision on the installation of abatement measure(s) will be made upon completion of the project design.

Other Noise Abatement Measures

When the noise levels of a proposed federal roadway project approach or exceed Noise Abatement Criteria, the FHWA requires that various noise abatement measures be considered. The following discussion addresses the applicability of these measures to the proposed project.

Alignment selection involves the horizontal or vertical orientation of the proposed improvements in such a way as to minimize impacts and costs. For noise abatement, alignment selection is primarily a matter of siting the roadway at a sufficient distance from noise sensitive areas. Changes in the vertical alignment of the proposed improvements were not considered applicable. Since sensitive areas are found on both sides of the proposed roadway, shifting the horizontal alignment is not considered to be a viable alternative.

Traffic system management measures which limit vehicle type, speed, volume, and time of operations are not considered appropriate for noise abatement due to their effect on the capacity and level-of-service on the proposed roadway. It was determined that a reduction in speed limit of 10 mph would result in a noise level reduction of approximately 1 to 2 dBA. Because most people cannot detect a noise reduction of up to 3 dBA and because reducing the speed limit would reduce roadway capacity and increase user cost, it is not considered a viable noise abatement measure.

The use of vegetation for noise barriers is not considered to be effective in the actual reduction of noise levels for this project. This is due to the substantial amount of right-of-way necessary to make vegetative barriers effective. FHWA research has shown that vegetative barriers should be composed of closely-spaced, densely foliated trees and shrubs, and should be approximately 100 feet wide in order to provide a 3 dBA reduction in noise levels. In order to provide a 5 dBA reduction, substantial amounts of additional right-of-way would be required. The cost to acquire the right-of-way and to plant the vegetation is estimated to exceed the \$25,000/unit cost-effectiveness requirement. While vegetation alone is not effective as a sound barrier, visual screening may be provided as appropriate.

The acquisition of property in order to provide buffer zones to minimize noise impacts is not considered to be a feasible noise abatement measure for this project. The cost to acquire impacted residences for buffer zones would exceed the NCDOT's abatement threshold of \$25,000 per residential unit. The use of buffer zones to minimize impacts to future sensitive areas is not recommended because this could be accomplished through land use controls.

One of the most effective noise abatement measures is the proper use of land use controls to minimize future impacts. Local jurisdictions with zoning control should use the information contained in the final noise evaluation to develop policies to limit the growth of noise-sensitive land uses adjacent to the freeway. These policies could include setback requirements, building codes, and zoning.

A detailed barrier evaluation performed after the selection of the recommended alignment may provide for the design and development of more cost-effective barriers. Earthen berms may be effective in some areas, especially where parallel barriers may be necessary to protect impacted areas on both sides of the proposed freeway. While earthen berm generally proved more cost-effective noise attenuation than other barrier materials, they are limited by right-of-way and other engineering considerations (e.g. drainage, access, future development). They are not likely to be feasible in most areas of this project, where right-of-way is extremely constricted.

Construction Noise Impact

Noise impacts during project construction are of short duration. The high noise levels of combustion engine-powered equipment, usually diesel, are expected to be the main contributor to the sound levels from highway construction equipment activity. Peak noise levels from highway construction equipment as measured at a distance of 50 feet may vary from 70 dBA to 100 dBA. This includes earth moving equipment and vibration equipment. It is anticipated that the major sources of construction noise will be from earth removal, hauling, grading, pile driving, and paving.

Although specific impacts from construction noise are difficult to determine, the following general steps should be performed:

- o Identify land-use of activities which may be affected by noise from construction;
- o Determine appropriate minimizing measures to eliminate adverse construction impacts to the community; and
- o Incorporate the needed abatement measures in the contract plans and specifications.

No areas in the study area where extreme quiet is required (i.e. hospitals) should be impacted by construction noise. Also, limiting the permitted days and/or hours of operation of certain construction activities can minimize adverse effects of construction noise. Temporary work areas and material storage areas should be located away from noise-sensitive receptors. Moreover, contract specifications should require that construction operations be performed in such a manner that specific maximum construction noise levels are not exceeded. Neither the City of Greensboro nor Guilford County have noise ordinance that applies to road construction.

3. Water Quality

Design measures to protect water quality that have been incorporated into the freeway construction alternatives include avoiding public water supplies (Watershed Critical Area) and high quality aquatic habitats, minimizing the number of stream crossings, minimizing segments where roads lie closely parallel to streams, and maximizing the distance from roads to streams to allow for stormwater infiltration and deposition of pollutants associated with road runoff. If a build alternative is selected, then construction practices will include protection of stream bottom habitat from siltation by sedimentation control measures and retention of riparian vegetation.

After re-establishment of vegetation, long-term erosion and sedimentation will be minimal provided that maintenance and future construction activities do not expose bare soil. Long-term direct impacts to streams include increased contamination associated with road surface runoff (Davenport, 1989), and changes in flow, nutrient, and thermal regimes associated with changes in hydrology and riparian vegetation.

Increased impervious surface area from new road surfaces and other urban development decreases rainwater infiltration to the soil, leading to increased peak stormflow in streams. Flood damage, soil erosion, streambank destabilization, and reduced pollutant retention by soil may result. The reduced soil water capacity creates lower low-flow conditions, and perennial streams may become intermittent (Hewlett, 1982).

Instream water temperature may fluctuate over a wider range than at present, due to increased sun and wind exposure from canopy removal or from stream relocations (channel changes). Reduced leaf litter input and increased sunlight to the stream may shift the stream's food chain from a detritus (leaf litter) base to an instream production (algae) base, with a corresponding change in invertebrate and fish communities.

According to research performed for FHWA and documented in Effects of Highway Runoff on Receiving Waters (FHWA, 1985), highway runoff in urban areas contributes only a small fraction of overall stormwater pollutant loadings to surface waters, due primarily to the relatively small surface area of highway right-of-way compared with total urban watershed area. While highway projects may be seen as contributing to increased runoff in rapidly urbanizing areas, the project itself has little effect on runoff impact. In addition, studies do not support a major impact of highway projects on dissolved oxygen (DO) content of streams nor of nutrient loadings. While some metallic runoff occurs, the incidence of lead has decreased notably with the phasing out of leaded gasoline as an automotive fuel. Other metallic runoff usually occurs as sediment, which sinks to the bottom of receiving waters.

This sediment can be reduced through various means as simple as vegetated ditches. Metal concentrations are proportional to traffic volumes; since construction of this project will result in an overall reduction in vehicle miles travelled in the urban area, it can be concluded that there would be an overall reduction in the impact of certain pollutants on water quality. Few data are available regarding the toxicity of petroleum products on freshwater species.

This project will be subject to the National Pollutant Discharge Elimination System (NPDES) stormwater regulations, since it involves construction resulting in the disturbance of five acres or more. A permit will be required from the North Carolina Division of Environmental Management 90 days prior to commencement of construction. Water pollution control measures will be described in the permit application.

All three freeway construction alternatives pass through 0.9 mile of Greensboro's watershed critical area east of Battleground Avenue. This watershed critical area is classified as Tier 3 by the City of Greensboro Watershed Critical Area (WCA) Protection Ordinance (see Chapter III.C.3). The northern halves of the Middle and Western Alternatives and the northern third of the Eastern Alternative lie within the Lake Brandt watershed (Horsepen Creek). Long Branch, a tributary of High Point Lake, may be affected by the western route, but the affected area is more than three miles upstream from the lake. Vegetated buffers and stormwater catchment basins in these areas will provide adequate water supply protection.

The length of each alternative within the watershed areas provides a measure of the relative amount of additional runoff that would occur with the alternatives. The length within the watershed critical area is also a measure of the degree of risk of water supply contamination by highway runoff or chemical spills. (Response to spills is addressed later in this section.) A comparison of length in watershed protection areas and stream crossings by water quality classification is shown below:

	<u>Eastern</u>	<u>Alternative Middle</u>	<u>Western</u>
Length within Watershed Critical Area (mi.)	0.9	0.9	0.9
Length within Lake Brandt Watershed (mi.)	4.5	6.9	6.9
Stream Crossings			
Class WS-III	5	14	10
Class C	16	14	14
Total	<u>21</u>	<u>28</u>	<u>24</u>

Mitigation measures for adverse water quality impact due to highway runoff should consider the characteristics of highway runoff. First, more frequent minor storms should be considered rather than the infrequent major storms that are the focus of flood management. Second, the critical period for highway runoff is the "first-flush" stage, which produces relatively high concentrations of pollutants during the initial stages of storm runoff. Thirdly, the loadings of heavy metals and other particulates are of greater concern than loadings of nutrients and organic material.

Management measures that best take advantage of the above characteristics are described below:

- Elimination of curbs reduces accumulation of pollutants between storms and allows them to disperse without producing heavy loadings. This project is planned to be constructed without curb and gutter, as shown in the typical sections, Figure II-3A.
- Litter control will limit potential pollutant sources, as well as providing aesthetic and safety benefits. North Carolina's Adopt-a-Highway program has proven successful in reducing litter along roadsides.
- Management of the use of de-icing chemicals and pesticides/herbicides reduces the total load of these pollutants that can affect water quality.
- Avoidance of direct discharge of highway runoff into receiving waters can be attained through routing stormwater to such management measures as vegetative controls (grassed channels or overland flow); detention basins, which retain stormwater for sedimentation of particulates away from receiving waters and also store a portion of the peak flow from stormwater to infiltrate into the ground and to be filtered through percolation into the soil; and wetlands, which are often effective at removing selected pollutants from stormwater runoff.
- Reduction of runoff velocity reduces the ability of the runoff to carry particulates to receiving waters. Management measures that can reduce runoff velocity include reducing gradients of runoff channels, installing velocity reduction devices such as drop structures and baffles, and using grassed rather than paved waterways.

- Establishment and maintenance of vegetation provides filtration, sedimentation, and infiltration. Measures that will enhance the runoff treatment of vegetation include establishing dense grass cover wherever practicable, minimizing the number of grass cuttings to increase grass height, and leaving grass cuttings on the ground as additional filter material.

Surface water impacts will not be substantially different among the build alternatives. The Eastern Alternative intercepts more wetland and has more parallel stream involvement (Tables IV-7A, IV-10), but the Middle and Western Alternatives are longer and require more stream crossings (see above).

Additional development in the study area will result in more impervious surface area, reduced rainwater infiltration, and greater potential for contamination, stream habitat alteration, and flooding. Good stormwater design and management practices can ameliorate these negative impacts. Both the City of Greensboro and Guilford County have zoning ordinances that regulate stormwater design and management in new developments.

The City of Greensboro and Guilford County have procedures for responding to chemical spills on highways and at other locations. If a spill occurs in the City, the City Department of Transportation crews provide a first-response of containing the spill. A local contractor removes spilled material. If the spill occurs outside the city limits, it is reported to the County Hazardous Materials Coordinator, who inspects the spill. The County Health Department is responsible for the clean-up. The County Office of Emergency Management maintains records of spills and provides coordination with state agencies.

4. Hydrology and Floodplain Management

Direct impacts to surface waters will result from the filling of wetlands, floodplains, and stream banks during construction of the proposed section. Filling of the floodplains, unless compensatory storage is provided, will result in an incremental loss of flood storage during high intensity storm conditions and potentially result in increase of flood heights.

Guilford County is a participant in the regular program of the National Flood Insurance Program. Therefore, particular care will be taken to comply with the program and its limitations. Where a detailed flood study has been made, the discharge and frequency information will be used in the design of hydraulic structures.

The studied alternatives will cross major creeks, and there is no practical way to totally avoid these crossings. An analysis has been made of the impact on hydrological and

hydraulic features of these crossings. Hydrologic impacts were assessed in terms of acres of potential floodplain encroachment, since new construction would alter the natural hydrologic conditions of the study. Table IV-7 summarizes the results of the hydrological analysis of the major stream crossings for the studied alternatives. The 100-year floodplain is based on the Flood Insurance Rate Maps and is shown on Figure III-7.

**TABLE IV-7
STREAM AND FLOODPLAIN CROSSINGS**

<u>Alternate</u>	<u>Pipe/Culvert Length</u>	<u>Type</u>	<u>Stream</u>	<u>Acres of Floodplain Crossing</u>
East	250'	C	S. Buffalo Creek	10.5
	240'	P	S. Buffalo Creek Tributary	
	240'	C	S. Buffalo Creek Tributary	1.7
	230'	P	S. Buffalo Creek Tributary	
	240'	C	S. Buffalo Creek	15.8
	250'	C	S. Buffalo Creek Tributary	2.4
	240'	P	S. Buffalo Creek Tributary	
	300'	P	S. Buffalo Creek Tributary	
	250'	C	Horsepen Creek Tributary	3.1
	300'	C	Horsepen Creek	
	250'	C	Horsepen Creek Tributary	1.5
	300'	C	Horsepen Creek Tributary	
	280'	C	Horsepen Creek	25.8
	280'	C	Richland Creek	20.5
Middle	230'	C	Reddicks Creek Tributary	
	220'	P	Reddicks Creek Tributary	
	300'	P	Bull Run Tributary	
	230'	P	S. Buffalo Creek Tributary	
	220'	P	S. Buffalo Creek Tributary	
	260'	C	S. Buffalo Creek	12.4
	300'	C	Horsepen Creek Tributary	10.9
	240'	C	Horsepen Creek	11.2
280'	C	Richland Creek	20.5	
West	230'	C	Reddicks Creek Tributary	
	220'	P	Reddicks Creek Tributary	
	300'	C	Bull Run Tributary	6.0
	230'	C	Long Branch	12.1
	300'	C	Long Branch Tributary	
	280'	C	Long Branch Tributary	1.3
	220'	P	Horsepen Creek Tributary	
	220'	C	Horsepen Creek	4.3
	230'	P	Horsepen Creek Tributary	
	240'	C	Horsepen Creek Tributary	
	230'	P	Horsepen Creek Tributary	
	220'	P	Horsepen Creek Tributary	
	250'	C	Horsepen Creek	10.5
	280'	C	Richland Creek	20.5

<u>Alternate</u>	<u>Pipe/Culvert Length</u>	<u>Type</u>	<u>Stream</u>	<u>Acres of Floodplain Crossing</u>
Crossover 3	240'	P	Bull Run Tributary	
	<u>Alternative</u>		<u>Acres</u>	
	Total East		81.3	
	Total Middle		55.0	
	Total West		54.7	

C = Culvert P = Pipe

Note: Acreages of floodplain are not proportional to length of pipe or culvert due to interchanges, wide floodplains, or longitudinal encroachments.

The proposed action will be designed such that the floodway will carry the 100-year flood without increasing the flood water elevation more than one foot at any given point. The dimensions of the drainage structures and the roadway grades will be adjusted and designed to avoid increasing the flood hazard in the project area. Therefore, the project will not constitute a significant encroachment. The final designs will be coordinated with appropriate state and local officials and the Federal Emergency Management Agency (FEMA) to assure compliance with FEMA, state, and local floodway regulations.

All three alternatives cross regulated floodways:

Horsepen Creek (all alternatives)
 Horsepen Creek Tributary (Easter and Middle Alternatives)
 South Buffalo Creek and Tributary (Eastern and Middle Alternatives)
 Long Branch (Western Alternative)

These floodway crossings were evaluated in the preliminary hydraulic analysis. The alternatives were evaluated to determine potential longitudinal encroachment into floodways. Because of the project's location in a largely developed area, the north-south orientation of several large streams, and the alignment of the thoroughfare plan along streams, there are several longitudinal encroachments into floodways. In addition, several areas of stream relocations would be required. These would all require detailed flood studies during design, and coordination with FEMA and appropriate state and local agencies during review of the draft EIS and during design. The Final EIS will discuss consistency of the preferred alternative with the regulatory floodways, and will include letters from FEMA and other agencies indicating the acceptability of those floodway revisions.

Table IV-7A indicates lengths of longitudinal encroachment into floodways and length of stream relocations.

**TABLE IV-7A
FLOODWAY ENCROACHMENT AND RELOCATION**

<u>Alternative</u>	<u>Stream</u>	<u>Length of Longitudinal Floodway Encroachment</u>	<u>Length of Relocation</u>
Eastern	Horsepen Creek	600' east of US 220 2300' west of US 220	1600'
	Horsepen Creek Trib.	600' 2000' near New Garden Rd. 400'	600'
	South Buffalo Creek Tributary	2300' near Wendover Ave. 300'	
Middle	South Buffalo Creek	1600' north of I-40	1200'
	Horsepen Creek	600' east of US 220 1700' west of US 220 600' 400' south of Bryan Blvd. 800' near Old Oak Ridge Rd.	1600'
Western	Horsepen Creek	600' east of US 220 1700' west of US 220	1600'

The objectives of Executive Order 11988, "Floodplain Management," and DOT Order 5650.2, "Floodplain Management and Protection," are to avoid adverse impacts due to occupancy and alteration of the 100-year floodplain unless that location is the only practical alternative. In such circumstances, it is required that every effort be made to minimize the potential risks to human safety and to property and to minimize negative effects on natural and beneficial floodplain value. The proposed project will be developed to comply with these orders.

On stream segments where channel modification or relocation is necessary, coordination is required with the Fish and Wildlife Service and the Water Resources Commission, in accordance with the Fish and Wildlife Coordination Act of 1958. Design measures to protect water quality include avoiding public water supplies and high quality aquatic habitats, minimizing the number of stream crossings, minimizing segments where roads lie closely parallel to streams, and maximizing the distance from roads to streams to allow for stormwater infiltration and deposition of pollutants associated with road runoff. Mitigation includes restoration of linear feet of stream bottom habitat taken by construction, and replacement of riparian vegetation.

An alignment shift that would reduce floodplain involvement in the Horsepen Creek area just west of US 220 was investigated. By shifting the eastern alignment to the north, floodplain acreage could be reduced from 27.5 acres to about 5 acres. However, this shift would require relocating an additional 117 families, and would add \$4.6 million to the estimated right-of-way costs. Therefore, this shift is not considered to be a practicable alternative to the floodplain encroachment.

Methods to minimize harm and preserve the floodplains could include minimizing fill and grading requirements, preserving the free natural drainage whenever possible, maintaining vegetation buffers, controlling urban run-off, and minimizing erosion and sedimentation during construction.

The proposed action will be based on the standards established within Federal Aid Highway Program Manual, Volume 6, Chapter 7, Section 3, Subsection 2 (FHPM 6-7-3-2).

5. Natural Systems/Endangered Species

Impacts of the build alternatives on stream habitats, and strategies for minimizing them, are the same as described for water quality. Horsepen Creek, Richland Creek, and Bull Run have moderate to good biological communities. Impact of urban runoff and sediment could degrade their quality. Buffalo Creek and Long Branch are already degraded by urban impacts, and runoff from the project would have little additional impact on the communities in those streams.

Impacts on vernal pools are greatest for the Eastern Alternative, which passes through extensive forested floodplains along Horsepen and South Buffalo Creeks. The Middle Alternative intercepts the extensive shrub and cattail marsh by Old Oak Ridge Road. The Western Alternative would affect the fewest vernal pools.

Wetlands have the highest ecological habitat value, followed by hardwood forests, pine forests, fields, and urban areas.

Terrestrial habitats (forests, fields, and urban areas) were measured as distance along the centerlines of each build alternative as depicted on recent aerial photography and as verified in the field, and converted to acreages based on 300-foot construction corridors. Acreages of various habitat types impacted by each alternative are shown in Table IV-8.

TABLE IV-8

HABITAT ACREAGE AFFECTED

<u>Habitat</u>	<u>Eastern</u>	<u>Middle</u>	<u>Western</u>	<u>C-1</u>	<u>C-2</u>	<u>C-3</u>
Field	69.5	91.6	127.3	5.5	0.0	0.0
Forest	260.4	305.8	244.0	8.0	0.0	32.4
Urban	104.0	112.0	159.3	13.8	10.0	5.5

The Middle Alternative affects the most forest and the Western Alternative affects the least. The Western Alternative affects the most fields and the Eastern Alternative affects the least (agricultural vs. fallow were not separable on aerial photography). The Western Alternative affects the most acreage of land classified as urban, 159.3 acres, and the Eastern Alternative affects the least, 104.0 acres. (Urban land includes developed residential, commercial, and industrial lands.) Species affected by each alternative would be those associated with the various habitats, as described in Chapter III. Wetland impacts and acreages are discussed in IV.B.7.

No impacts upon protected species are expected from this project. Known populations of Nestronia, Cape Fear shiners, and Carolina darters are beyond the range of direct impacts of the project. Potential impacts on nestronia, if it is present, are proportional to the forest acreage in each alternative, as shown in Table IV-8. Correspondence from the U.S. Department of the Interior, Fish and Wildlife Services, states "there are no federally-listed or proposed endangered or threatened plant or animal species in the impact area of the project" (see Appendix B).

6. Farmland

The study area contains both prime farmlands and farmlands of local and statewide importance. Although a small portion of the area is undeveloped, most of the study area is urbanized and increased urbanization is anticipated. Any of the construction alternatives will include involvement with both prime farmland and farmland of local and statewide importance within the proposed right-of-way. Table IV-9 gives the estimated acres for prime and important farmland for the studied alternatives. This is based on soil types in the area and does not consider that many areas are developed.

**TABLE IV-9
FARMLAND INVOLVEMENT
(Including Developed Areas)**

<u>Alternative</u>	<u>Acres of Unique or Important Farmland</u>	<u>Acres of Prime Farmland</u>
Eastern	25	50
Middle	60	130
Western	60	90
Crossover		
C1	0	0
C2	0	0
C3	0	5

This project has been coordinated with the Soil Conservation Service (SCS) as required by the Farmland Protection Policy Act. Although the SCS has stated some of the land may be covered by the Farmland Protection Policy Act, the 1986 Comprehensive Plan for the county indicates that these areas are not planned for agricultural use. Farmland which is already in or planned for urban development is not subject to the Farmland Protection Policy Act. In accordance with SCS Regulation 7-CFR 658.4(a), the Farmland Protection Policy Act does not apply to this project. Form AD 1006 is included in Appendix B.

7. Wetlands

Wetland dimensions were approximated as shown in Figure III-8, and acreages were estimated within the 300-foot construction corridors plus the area required for interchanges. The results of this tabulation are shown in Table IV-10.

**TABLE IV-10
SUMMARY OF WETLAND INVOLVEMENT**

<u>Sites</u>	<u>Wetland</u>	<u>Type</u>	<u>Acres Affected by Alternative</u>		
			<u>East</u>	<u>Middle</u>	<u>West</u>
1-10	Richland Creek	B	1.5	1.7	1.7
11-19	Horsepen Creek	F	30.3	12.6	12.6
11-12	Horsepen Creek	F		0.2	0.2
18-19	Horsepen Creek	F	6.9		
24-25	Horsepen Creek, UT	B		0.1	0.1
20-23	Horsepen Creek, UT	M,S		0.9	0.9
20-23	Horsepen Creek, UT	F		0.1	0.1
NF 7	Horsepen Creek, UT	B		0.1	0.1
NF 8	Horsepen Creek, UT	B		0.1	0.1
26, 27	Horsepen Creek, UT	B	2.7		
28, 29	Horsepen Creek, UT	B	0.1		
30-33	Horsepen Creek, UT	B		2.3	

TABLE IV-10, continued

SUMMARY OF WETLAND INVOLVEMENT

Sites	Wetland	Type	Acres Affected by Alternative		
			East	Middle	West
NF 3	Horsepen Creek	B			0.5
36-37	Horsepen Creek	M,S		7.3	
38-39	Horsepen Creek	B		2.8	
42-43	Horsepen Creek, UT	B		0.1	
NF 4	Horsepen Creek, UT	B			0.3
NF 4	Horsepen Creek, UT	M			0.1
48-49	Horsepen Creek, UT	M,S		0.7	0.7
50, 51	Horsepen Creek, UT	B		0.3	0.3
52, 53	Horsepen Creek, UT	F	0.9		
54, 55	Horsepen Creek, UT	M	0.2		
56, 57	Horsepen Creek, UT	B	0.9		
56, 57	Horsepen Creek, UT	F	0.5		
62-63	S. Buffalo Creek	F	1.0		
62, 63	S. Buffalo Creek	F	0.1		
66, 67	S. Buffalo Creek, UT	M,S	2.7		
68, 69	S. Buffalo Creek, UT	F	0.2		
70, 71	S. Buffalo Creek, UT	B	3.9		
72, 73	S. Buffalo Creek	B		0.2	
NF 9	S. Buffalo Creek, UT	B		0.1	
74, 75	Long Branch	B			1.9
74, 75	Long Branch	F			0.1
NF 10	Horsepen Creek, UT	B			0.4
76, 77	Hickory Creek	B		0.1	0.1
NF 6	Hickory Creek, UT	B	1.2	1.0	1.0
78, 79	S. Buffalo Creek, UT	L	3.4		
78, 79	S. Buffalo Creek, UT	B	0.1		
80, 81	Riddicks Creek	B		0.1	0.1
82, 83	Riddicks Creek, UT	B		0.1	0.1
84, 85	S. Buffalo Creek, UT	B	0.4		
86, 87	S. Buffalo Creek, UT	B	0.1		
86, 87	S. Buffalo Creek, UT	S	0.1		
88, 89	Bull Run, UT	B		0.1	0.1
90, 91	Bull Run, UT	B		0.7	0.6
NF 11	Bull Run, UT	B			0.1
92, 93	Bull Run, UT	B			0.1
94, 95	Bull Run, UT	F			0.1
Subtotal	F		39.9	12.9	13.1
	M, S		3.0	8.9	1.7
	B		10.9	9.9	7.6
	L		3.4	--	--
Total			<u>57.2</u>	<u>31.7</u>	<u>22.4</u>

Wetland Vegetation Codes

F = Mature hardwood wetland forest, highest quality
 S = Sapling and shrub-dominated wetland
 M = Marsh, dominated by herbaceous plants
 B = Bank to bank wetland, with canopy of upland vegetation
 L = Lakes and ponds

UT = Unnamed tributary

The Western Alternative impacts less total wetland acreage than either of the other build alternatives. The Middle Alternative affects about 40 percent more wetland than the Western Alternative, and the Eastern Alternative affects the greatest total acreage of wetland, as well as the greatest acreage of mature hardwood wetland forest, the most important wetland resource. Major wetland impacts to mature hardwood wetland forest areas occur at Horsepen Creek west of US 220 (all three alternatives), Horsepen Creek north of New Garden Road (Eastern Alternative), and South Buffalo Creek north of I-40 (Eastern Alternative).

The most important wetland is in the floodplain of Horsepen Creek east and west of Battleground Avenue, already disrupted by a petroleum pipeline. The Eastern Alternative affects nearly all of this wetland. The Middle and Western Alternatives affect about a third as much. Crossing Battleground Avenue north of the overhead powerline or south of Horsepen Creek would greatly reduce impacts to this wetland, but would acquire more displacements of residents and higher right-of-way costs (see IV.B.4.).

Wetlands impacts will be avoided to the extent possible, in accordance with Executive Order 11990. Mitigation or a lessening of impacts will be considered as a possible means for compensating for wetland losses. Mitigation is limited to reasonable expenditures and practical consideration related to highway operation. The guiding principal involving wetlands is that they will be mitigated. Potential mitigation options include avoiding the impact through evaluating alternative designs, minimizing impacts by crossing wetlands at their narrowest point, rectifying impacts by improving the habitat values of adjacent altered wetlands, the acquisition of adjacent wetland for the purpose of protection, and the creation of in-kind habitat from adjacent upland areas. The most likely sites for replacing wetlands will be close to the areas impacted; i.e., at major stream crossings. The Horsepen Creek crossing west of Battleground Avenue appears to be the most feasible location and the one which would add to important wetlands. The exact method used to create wetlands will probably vary from site to site, but as a general rule each site will be graded to about the same elevation as existing, adjacent wetlands or surface water, and then planted with wetland vegetation. Topsoil might be added, and some natural colonization by wetland plants may also occur.

Impacts on bank-to-bank wetlands throughout the project area have been minimized by crossing streams at right angles, where feasible. Section 404 permits are likely to be

required at several locations: Richland Creek, Horsepen Creek (several locations), South Buffalo Creek and its tributaries (Eastern and Middle Alternatives), and at Long Branch (Western Alternative).

8. Potential Hazardous Material Sites

State regulatory agencies have been consulted and lists of known potential hazardous material sites scheduled for cleanup by EPA and the regulatory agencies have been reviewed. This includes a review of EPA's National Priorities List (NPL) of heavily contaminated sites and the sites scheduled for priority cleanup with Superfund money. No hazardous material sites in Guilford County are listed on the National Priorities List. Also, the lists of known lesser sites or potential sites maintained by the State regulatory agencies along with sites provided by the City of Greensboro and Guilford County have been reviewed. Sites which are known or suggested as potential hazardous materials sites are shown on Figure III-6 and in Table III-6. A description of each site follows:

Site No. 70 - Worth Chemical Company

Worth Chemical Company is located at 2 Segal Boulevard. The site is located just south of Market Street and adjacent to the railroad and South Buffalo Creek. This facility was built in 1969 and has been owned and operated by Worth Chemical since that time. Worth Chemical Company is a distributor of industrial chemicals for many companies. Many kinds of chemicals, including acids, bases, solvents, oils, and bleach are bought in bulk and repackaged for sale. Empty containers are either sent off-site to be reconditioned or are steam-cleaned and rinsed on-site for reuse. Off-spec products that cannot be reused have always been disposed of off-site by Abco Industries in South Carolina. Waste oil is collected in an underground tank, dewatered, and sold. Wastes are stored in drums inside a building on a concrete floor.

A lagoon (about 1/3 acre in size) was built in 1969 and is used for containment of drainage from the drum wash bay and tankard loading, unloading, and storage area. The City of Greensboro agreed in 1980 to periodically pump down the lagoon and treat the effluent at the city sewage treatment plant. In September 1980, NRCD's regional office in Winston-Salem inspected the lagoon in response to a complaint received by the Greensboro Health Department. The lagoon was leaking and analysis of the water revealed the presence of 18 metals, 16 identifiable organics, and 31 unidentified organics. A hole (about 11 feet deep) was bored about 40 feet downslope from the lagoon. Water began to seep into the hole, and a sample was taken. A chemical odor was detected, but lab results only reported one unidentified organic compound. In August of 1980 a fish kill was reported in a stream

which receives run-off from the site. In addition, a 1984 spill from a tank of muriatic acid was reported. The spill was neutralized and cleaned up after notifying EPA, OSHA, and appropriate state and local agencies. Worth Chemical conducted litmus tests of soil pH after the clean-up. The groundwater is contaminated in this area, and Worth Chemical is currently involved in a corrective process, which is being monitored by the N.C. Waste Management Office. The corrective process includes extraction wells, numerous monitoring wells, and an air-stripper operation to remove contaminants to acceptable levels. This site is located within the Eastern Alternative and cannot be avoided without causing major impact on surrounding commercial and industrial development.

Site 71 -- Ashland Petroleum

Site 30 -- Conoco, Inc.

Site 65 -- Texaco USA

Site 61 -- Southern Facilities

The above sites consist of fuel oil storage facilities located in the fuel storage tank farm in the area of Market Street, east of the airport. A large leak of fuel oil, estimated at about 50,000 gallons, has been discovered at the tank farm which includes the above sites. The ground water is contaminated but the area of contamination has not been defined at this time. The North Carolina Division of Environmental Management has ordered that a study be conducted to determine the origin of the spill. Clean-up will begin following that study. (See correspondence dated March 15, 1990 in Appendix B.)

Sherwin-Williams -- Site No. 60

The Sherwin-Williams facility is located at 113 Stagecoach Trail, just north of Market Street. This facility manufactures coatings for furniture finishes: enamels, lacquers, and vinyls. Approximately 3.4 million gallons of these coatings are distributed each year from this location. The 5,000 gallons of waste generated each month at this site is sent to M&J Solvents in Atlanta, Georgia or Oldover Corporation in Aquadale, North Carolina. There is no evidence of underground storage tanks, disposal, or releases at this site.

Covington Diesel, Inc. -- Site No. 31

This facility is located at 6200 Swiggert Road, near I-40 and Chimney Rock Road. Covington Diesel, classified by the EPA as a small generator of hazardous wastes, specializes in rebuilding diesel engines and transmissions. The principal waste produced by

this operation is the liquid corrosive cleaning solvent NA1760. Less than 20,000 lbs. of hazardous waste is generated each year at this site.

A large, old, underground fuel oil storage tank (2,000-5,000 gallons) exists on the property. The extent of any contamination is unknown. It is anticipated that this facility would be taken by the Western Alternative.

AT&T -- Site No. 11

The AT&T facility located at 3801 Boren Drive has been recently classified (February 1990) by the EPA as a large generator of hazardous wastes. During the course of its operation, this site handles primarily commercial chemical products such as beryllium dust, sodium cyanide, methanol, and 1, 2-dichlorethylene.

Guilford Mills -- Site No. 40

This facility is located at 5201 West Market Street. No contamination is known to exist.

Guilford Mills -- Site No. 42

This facility is located at 4201 West Wendover Avenue. No contamination is known to exist.

CIBA-GEIGY -- Site No. 27

This site is located at 410 Swing Road just north of I-40 between Chimney Rock Road and Guilford College Road. CIBA-GEIGY is a research and development facility for the formulation and development of agricultural and chemical dye-stuffs. The CIBA-GEIGY facility is classified by the EPA as a storer of hazardous wastes. The hazardous wastes generated at this site are mainly flammable solvents, corrosives, reactives, pesticides, and herbicides.

A tanker truck had a spill of No. 2 fuel oil near this site in 1985. Also that year, a pipe burst in an underground storage tank containing fuel oil. The extent of contamination is unknown. Some undeveloped property may be involved on the eastern edge near Chimney Rock Road and along I-40. The Western Alternative appears to be well beyond the developed area of the property where the spill occurred.

Table IV-11 summarizes sites in or near the corridors. The Western Alternative is potentially involved with six sites, the Eastern Alternative with four, and the Middle Alternative with one. In addition, the C-3 crossover crosses a trash landfill site.

**TABLE IV-11
POTENTIAL HAZARDOUS MATERIAL SITE INVOLVEMENT**

<u>Site</u>	<u>Alternative Involved</u>
Worth Chemical	Eastern
AT&T	Eastern
Guilford Mills Lynch Building	Eastern
Guilford Mills West Market	Eastern
Guilford Mills Industries	Middle
Covington Diesel	Western
Ashland Petroleum Company (Chimney Rock Road)	Western
Conoco, Inc.	Western
Southern Facilities	Western
Texaco USA	Western
Sherwin Williams	Western

The project area is highly urbanized and the potential for encountering a property contaminated with hazardous material is very high. Further investigation and testing will most likely be required at any questionable location. It is very important as the proposed project is located and refined in later design phases that continued surveillance of hazardous materials sites be done.

9. Mineral Resources

The "build" alternatives are not anticipated to impact mineral resources in the study area. A large quantity of mineral resources, specifically crushed stone, will be required to construct this project. Quarries in close proximity to the project are expected to provide an adequate supply of aggregate. The Western Alternative passes in close proximity to the Martin Marietta quarry located off Chimney Rock Road. It is not anticipated that the quarry operation will be adversely affected by the Western Alternative as it will be located in the buffer area between the quarry and adjacent development.

C. SECTION 4(F) AND SECTION 106 IMPACTS

Federal law, commonly referred to as "Section 4(f)," requires that land may be taken from public parks, recreation areas, refuges, or historic sites only if it can be shown that there is no feasible and prudent alternative to using that land. Section 106 of the National Historic Preservation Act requires

that a review process be undertaken to ensure that historic properties are considered during Federal project planning and execution.

1. Parks and Recreation

The Eastern Alternative will cross a portion of Oka T. Hester Park. However, when the park was developed, right-of-way for the roadway project was set aside along the edge of the park. The Eastern Alternative stays within this reserved right-of-way and thus does not constitute 4(f) involvement. The Eastern Alternative is also near a portion of Mitchell Park, but does not require right-of-way from the park. The portion of Woods of Guilford designated as a park is near the Middle Alternative, but no right-of-way is required. The land for the proposed Western Greensboro Community Center is near the Western Alternative, but no right-of-way will be taken from that parcel. The parks will continue to operate with their current uses. Therefore, there will be no 4(f) involvement with parks.

All alternatives affect portions of planned greenways, some of which are designated as open space. No existing greenways will be affected. Coordination has been maintained with the City Recreation Department regarding these locations.

2. Historic Structures

Fourteen properties are eligible for the National Register of Historic Places, and three that have already been listed on the Register. The effect on these properties has been assessed for each alignment under consideration.

Twelve of the properties will not be affected by any of the alternatives. These include the following, listed by name and field survey number:

J.H. Adams House (Adamsleigh) (P281). No effect due to location over 3,000 feet from project.

Arcadia (P267). No effect due to location over 4,000 feet from project.

Chamblee House (P279). No effect due to location 2,000 feet from project.

Thomas Cook Farm (P148). No effect due to location 1.5 miles from project.

Roy Edgerton House (P207). No effect due to built environment intervening between property and proposed interchange for Middle Alternative. No effect due to distance of over 4,000 feet from Western and Eastern Alternatives.

Guilford Courthouse Military Park (P272). No effect due to distance of 1,000 feet from project and intervening built environment (residential subdivision).

Samuel Hodgkin House (P88). No effect due to distance of 1,500 feet and intervening built environment (Guilford College).

Hoskins Farmstead (P271). No effect due to distance of 3,000 feet and intervening built environment.

Jamison-Ward House (P275). No effect due to distance of 800 feet and intervening built environment from the Eastern Alternative and distance of 2,000 feet and intervening built environment from the Middle and Western Alternatives.

Jeffers Complex (P178-179). No effect due to distance of 1,000 feet and intervening built environment.

Era Lasley House (P89). No effect due to distance of 1,500 feet and intervening built environment and/or vegetation.

New Garden Friends Cemetery (P266). No effect due to distance of over 3,000 feet and intervening built environment from the Eastern Alternative, and distance of over one mile and intervening built environment from the Middle and Western Alternatives.

The other five properties are affected by one or more alternatives. The effects on these properties are described below:

Guilford College (P246). Adverse effect and Section 4(f) involvement due to use of property by Eastern Alternative. No effect for Middle and Western Alternative due to distance of one mile. The avoidance alternative will have no adverse effect due to minimal noise impact. There would not be an adverse visual impact (by avoidance alternative) since the existing view along Jefferson Road is of modern residences would be replaced by vegetative screening between Jefferson Road and the new freeway.

Kimrey-Haworth House (P218). Adverse effect and Section 4(f) involvement by Eastern Alternative; property would be taken and house destroyed or moved. No effect by Middle and Western Alternatives, which are over 1.5 miles away. The 4(f) avoidance alternative would have no effect due to a distance of 2,000 feet and intervening urban uses between the ramp and the property.

Celia Phelps Church (P231). The Western and Middle Alternatives would have adverse effect on the property, due to proximity and conversion of the adjacent Sedgefield Stables to highway right-of-way. The effect is based on the historical as well as visual links between Sedgefield Stables and the church, noise impact, and altering of the view from the property. The Eastern Alternative would have no effect, based on a distance of 2,000 feet and intervening uses and vegetation. The 4(f) avoidance alternative (avoiding Sedgefield Stables) would have no effect due to intervening built environment.

Pilot Life/Sedgefield Historic District (P135). The Western and Middle Alternatives would have an effect on the property, but the effect would not be adverse (no adverse effect). While the highway would be close to the Pilot Life headquarters building, it would not affect the primary view from the building, which is primarily toward the southeast, toward High Point Road and Sedgefield. A modern building that houses Pilot Life's computer center is located just east of the historic district, between the headquarters building and the interchange. Large unlandscaped parking lots are located between the freeway north of the interchange and the headquarters building, further diminishing the existing view from the building. The Eastern Alternative is located almost 5,000 feet away from the District and thus would have no effect. The Sedgefield Stables 4(f) avoidance alternative crosses High Point Road at the same location as the Western and Middle Alternatives and thus would also have no adverse affect.

Sedgefield Stables (P232). The Middle and Western Alternatives would take property from the stables, including the new barn, the corral, and the shed stalls along Vandalia Road, constituting adverse effect and 4(f) involvement. The 4(f) avoidance alternative would have no effect due to the intervening built environment. The Eastern Alternative would have no effect due to a distance of almost 2,000 feet and intervening built environment. The C1 crossover also would have no effect, for the same reason.

There will be continued coordination with the State Historic Preservation Office and with the Advisory Council on Historic Preservation as required by 36 CFR 800. This coordination will involve a) those properties that will be affected, but where the effect will

not be adverse; and b) those properties that will be adversely affected by the proposed project.

TABLE IV-12

POTENTIAL EFFECTS OF THE ALTERNATIVES ON IMPORTANT PROPERTIES

	<u>Eastern</u>	<u>Alternatives Middle</u>	<u>Western</u>
J.H. Adams House (P281)	N	N	N
Arcadia (P267)	N	N	N
Chamblee House (P279)	N	N	N
Thomas Cook Farm (P148)	N	N	N
Roy Edgerton House (P207)	N	N	N
Guilford College (P246)	4(f)	N	N
Guilford Courthouse (P272)	N	N	N
Samuel Hodgkin House (P88)	N	N	N
Hoskins Farmstead (P271)	N	N	N
Jamison-Ward House (P275)	N	N	N
Jeffers Complex	N	N	N
Kimrey-Haworth House (P218)	4(f)	N	N
Era Lasley House (P89)	N	N	N
New Garden Friends Cemetery (P266)	N	N	N
Celia Phelps Church (P231)	N	A	A
Pilot Life/Sedgefield District (P135)	N	NA	NA
Sedgefield Stables (P232)	N	4(f)	4(f)

N = No Effect

NA - Effect, not Adverse

A = Adverse Effect

4(f) = Section 4(f) involvement, adverse effect

Note: No crossovers affect historic properties

3. Archaeological Sites

The archaeological sites were recorded within three main corridors and one alternative segment of a corridor. From those sites which are recommended for additional testing, only those sites which will be impacted by the actual alignment will require the additional work.

The SHPO has determined that several sites will require additional testing to determine whether or not they are potentially eligible for the National Register. Two sites are located within the Eastern Alternative, 31Gf223 and 31Gf198. The Middle Alternative may affect site 31Gf249. The Western Alternative may affect sites 31G221, 31Gf230, and 31Gf242. The sites on the Western Alternative could also be impacted by the Middle Alternative. Site 31G224 requires additional testing if impacted; however, it is not located in a corridor being considered for this project.

The value of these sites is in terms of their potential to contribute important information in history and prehistory, and this value can be substantially preserved through data recovery. Therefore, it is anticipated that these sites will not require preservation in place.

D. ENERGY IMPACTS

The construction alternatives will require initially expending additional energy sources to complete the facility; however, this energy will be more than recovered over the life of the project by this more efficient transportation system. Energy savings will be realized because there will be fewer travel delays and a more direct route for travel. The construction alternatives included interchanges and grade separations to ease the "stop-and-go" traffic operation on the existing highway system. The construction alternatives also provide decreased energy consumption by diverting traffic to the freeway system that now has to travel the less efficient and more congested highways within the Greensboro urbanized area.

Specifically, the beneficial impacts of the completed facility could be assessed in several categories:

- o Decreased vehicle-hours travelled: 323,000 VHT per day for the No-Build Alternative compared to an averaged 309,000 VHT per day for the Build Alternatives.
- o Decrease in vehicle delays and attraction from a less efficient roadway system: the Build Alternatives, compared to the No-Build, improves level-of-service (traffic flow). (See Chapter I.E. for a more detailed analysis.)
- o Reduced fuel consumption: approximately 4.4 million gallons of fuel will be saved each year due to lower VMT and VHT and increased operating speeds.

E. CONSTRUCTION IMPACTS

The construction of the proposed alternative has the potential of impacting the environment; however, potential impacts can be minimized by careful adherence to established construction methods. Included are the following measures:

- a. Waste and debris will be disposed of in areas outside of the right-of-way and provided by the contractor, unless otherwise required by the plans or special provisions or unless disposal within the right-of-way is permitted by the engineer. Disposal of waste or debris in active public waste or disposal areas will not be permitted without prior approval by the engineer. Such approval will not be permitted when, in the opinion of the engineer, it will

result in excessive siltation or pollution. In addition, a large amount of waste would decrease the anticipated life of a municipal or county landfill. Appropriate permits as detailed by the North Carolina Department of Environment, Health, and Natural Resources and other agencies will be obtained for all disposal.

- b. During construction of the proposed project, all material resulting from clearing and grubbing, demolition or other operations will be removed from the project, and disposed of safely by the contractor. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520.
- c. Borrow pits and all ditches will be drained insofar as possible to alleviate breeding areas for mosquitoes.
- d. An extensive rodent control program will be established where structures are to be removed or demolished.
- e. Care will be taken not to block existing drainage ditches.
- f. There will be strict adherence to the erosion plan by the contractor, including limiting areas and duration of exposed earth and the stabilization of exposed areas as quickly as possible. Careful attention to erosion control will be concentrated at the numerous stream crossings required by the Greensboro Western Urban Loop.
- g. Measures will be taken to alleviate the dust generated by construction when the control of dust is necessary for the protection, safety, and comfort of motorists and nearby residents.

F. RELATIONSHIP BETWEEN SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Short-term impacts to the human environment include the taking of right-of-way and other structures, and the relocating of a number of families and businesses. The Division of Highways' relocation and financial assistance program will minimize this inconvenience.

During the construction phase of the project, some short-term impacts such as erosion and siltation of local creeks and streams are likely to occur; however, with current erosion control measures, this siltation is not anticipated to be significant enough to adversely affect the environment.

The proposed construction will provide a substantial portion of the circumferential loop system for the Greensboro urban area. The proposed loop system can certainly be classified as a long-term productive facility. This project will provide for a safer and more efficient highway system and is designed to serve both the existing and future needs for this area. The long term benefits offered by this project, including reduced vehicular operating costs, savings in travel time, reduced potential for accidents, and the enhancement of the general economy of the area, should more than offset the short-term inconveniences and adverse effects on the human environment.

G. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The acquisition of additional land for the construction of the proposed project is for all practical purposes an irreversible commitment. The additional land acquired for the project will no longer serve the natural environmental, and therefore an irretreivable commitment of approximately 387 to 429 acres of wildlife habitat will be made.

The proposed project will remove approximately 50 to 130 acres of prime farmland (some already urbanized) from production or the possibility of ever being in production. It may also accelerate changes in land use patterns adjacent to the facility.

The physical elements or material used for construction and the energy consumed during construction, along with the manhours required are considered to be both irreversible and irretreivable. Construction of the proposed project will also commit the state to provide operating, maintenance, and repair costs throughout the life of the facility.

H. SUMMARY OF ALTERNATIVES

Tables IV-13 and IV-14 summarize the quantifiable engineering and environmental impacts of the alternatives.

**TABLE IV-13
ENVIRONMENTAL COMPARISON OF ALTERNATIVES**

	Alternative					
	Eastern	Middle	Western	Crossover		
				C-1	C-2	C-3
Length (miles)	11.4	13.6	14.5	0.8	0.5	1.0
Displacements						
Residences (minority)	686 (154)	950 (200)	545 (125)	34(7)	10(3)	14(3)
Businesses	28	7	11	0	0	1
Other	1	2	4	0	0	1
Acreage Required						
Field	69.5	91.6	127.3	5.5	0.0	0.0
Forest	260.4	305.8	244.0	8.0	0.0	32.4
Urban	104.0	112.0	159.3	13.8	10.0	5.5
Total (includes open water)	491.2	541.1	553.0	27.3	10.0	38.1
Acres of Prime Farmland (includes developed areas)	50	130	90	0	0	18
Acres of Wetland	57.3	31.7	22.4	0	0	0.2
Mature Hardwood Wetland Forest Sapling or Shrub-Dominated Wetland/Marsh	39.9	12.9	13.1	--	--	--
Bank to Bank	3.0	8.9	1.7	--	--	--
Lakes and Ponds	10.9	9.9	7.6	--	--	--
	3.4	--	--	--	--	--
Acres of Floodplain	81.3	55.0	54.7	0	0	0
Stream Crossings	17	23	22	0	0	1
Receptors Exceeding Noise Abatement Criteria Or with Substantial Increase	267	154	171	0	0	24
Adverse Effect - Historic Sites	2	2	2	0	0	0
4(f) Involvement - Historic Sites	2	1	1	0	0	0
Archaeological Sites Requiring Additional Testing	2	1	3	0	0	0
Potential Hazardous Waste Sites In or Near Corridors	4	1	6	0	0	1

**TABLE IV-14
ENGINEERING COMPARISON OF ALTERNATIVES**

	Alternative					
	Eastern	Middle	Western	Crossover		
				C-1	C-2	C-3
Length (miles)	11.4	13.6	14.5	0.8	0.5	1.0
Interchanges (No.)	7	8	8	0	0	0
Other Structures						
Railroad	2	2	2	0	0	0
Drainage	6	3	7	0	0	0
Grade Separation	11	10	10	1	1	1
Noise Barriers (number, line ft.)	8 (11,275)	1 (2,300)	2 (5,000)	0	0	1 (1,300)
Traffic (High/Low)	73,000/17,800	69,000/16,100	64,900/17,900	N/A	N/A	N/A
Level of Service	C/D	C	C	C	C	C
Vehicle miles travelled/day (VMT)	10,937,150	10,941,829	10,968,402	N/A	N/A	N/A
Vehicle hours travelled/day (VHT)	309,420	308,905	309,574	N/A	N/A	N/A
Construction Cost (millions, 1990)	\$100.4	\$108.3	\$100.8	\$5.0	\$6.1	\$ 6.0
Right-of-Way Cost (millions, 1990)	\$ 95.1	\$ 83.0	\$ 77.9	\$4.9	\$3.4	\$2.8
Total Cost (millions, 1990)	\$195.5	\$191.3	\$178.7	\$9.9	\$9.5	\$8.8

CHAPTER V

DRAFT SECTION 4(F) EVALUATION

A. GUILFORD COLLEGE (NATIONAL REGISTER)

1. Description of Property

The 300-acre Guilford College campus is a picturesque, generally rectangular tract of land located north of West Friendly Avenue and bounded on the west by New Garden Road and on the east by Jefferson Road. It is surrounded by increasingly intense development in the City of Greensboro. The College evolved from the New Garden Boarding School, set on a 100-acre farm that was founded by members of the Religious Society of Friends, commonly known as Quakers, in the community of New Garden. By the early years of the nineteenth century, New Garden was the premier Quaker community in North Carolina, and the residents were settled enough to concern themselves with the provision of educational opportunities rooted in Quaker precepts. The school opened in 1837. During the nineteenth century, additional acreage was added to the farm and tenants were employed to operate it in order to provide sustenance for the school.

In 1888 Guilford College was chartered after five years of developing careful plans to establish a four-year, degree-granting Quaker college. Also in that year, a building program that established the present character of the school was started.

Quaker ideals dating to the seventeenth century, as well as events that have affected North Carolina's Quaker community throughout its existence, have molded the school's design, appearance, curriculum, and historical character. During the early nineteenth century, its parent school, the New Garden Boarding School, was the only one in the South to practice such tenets of the Quaker faith as the promotion of equality for women, opposition to slavery, the alleviation of brutal conditions in prisons and insane asylums, pacifism, and the development of a land ethic. These revolutionary, and, to some early nineteenth century citizens, seditious ideas were the framework upon which the Quakers of North Carolina built their lives, tilled their land, established their boarding school, and developed their college.

The college is the Quaker version of the academic Arcadia free from the corrupting influences of city life that first was envisioned by Thomas Jefferson at the University of Virginia in 1817 and was later adopted by numerous nineteenth and early twentieth century boarding schools and colleges in the United States.

The core of the approximately 80-acre developed portion of the campus is a wooded quadrangle established in the early twentieth century and surrounded by two-story Neo-Classical and Colonial wood or stone details. One building dates from 1885, seven were constructed between 1897 and 1912, and faculty housing was constructed to the northeast and southeast of the quadrangle in the 1930's. The school's buildings were integrated into the landscape and were secondary in importance to the overall open, rural setting of the school. The pastoral, sylvan character of the undeveloped section of the campus is reflected in the romantically landscaped wooded quadrangle that features sweeping lawns planted with many ornamental species of shrubs and flowering trees, all sheltered under a canopy of mature hardwoods of various species.

Approximately 220 acres is rolling land covered with a mature piedmont forest and known, historically and today, as the Guilford College Woods. Used by Guilford College as a farm until 1943 and a forest retreat through the history of the college, the Guilford College Woods present a picturesque tract within an increasingly dense urban setting that is a rare reminder of the agrarian landscape that once dominated the piedmont section of North Carolina. Some ancient trees, including what is said to be the largest poplar tree in North Carolina, remain on the land and pre-date the Quaker settlement of the region.

Among the sites of historical value in the Guilford College Woods are the remains of earthen caves in the banks of Horsepen Creek that are said to have been stations to shelter fugitive slaves along the Underground Railroad. These caves presently appear as depressions in the banks of the creek and are hidden from the casual observer, thus giving evidence of the value of their original purpose to hide slaves determined to escape from the antebellum South. Also present are the remains of an eighteenth century wagon road that presently appear as parallel deep-cut depressions surrounded by forest growth. It is known that many skirmishes took place in and near the Woods as British troops marched to the Battle of Guilford Courthouse in 1781, and that troops from both American and British forces used the wagon road.

Today the Woods are used for outdoor activities. There is a loop exercise trail beginning on the northwest shore of the college lake and continuing along the northern boundary to the eastern boundary. The Woods are also used by the College for numerous activities such as field classes in geology, botany, and biology, and social outreach activities such as drug rehabilitation programs. None of these activities affects the tranquil atmosphere of the Guilford College Woods, and the college administration plans to continue to maintain the tract in its natural state.

The undeveloped portion of the campus was advertised in the nineteenth and early twentieth centuries as a pastoral setting that was conducive to the promotion of the goals of moral behavior, good health, and respect for nature. This historical setting has allowed Guilford College to retain its nineteenth century rural ambience in the face of encroaching modern development and, in an unusual continuity of purpose, is still used to promote the school's historical moral and physical goals through continued use. The setting of Guilford College has deep and abiding historical and cultural associations for the North Carolina Quaker community that persist into the present time and is a monument to early Quakers who envisioned an earthly Garden of Eden that would contribute to the spiritual and physical well-being of all Quakers and their neighbors.

Guilford College fulfills Register criteria A in the area of education and religion on a statewide level of significance because it is the only four-year institution of higher learning in North Carolina that has evolved from a school established by the Religious Society of Friends, commonly known as Quakers. It is also significant for its overall campus as it relates to design principals (criterion C) and the Quaker land ethic (criterion A). (This entry was excerpted from Edmisten's 1990 National Register nomination of Guilford College.)

2. Impact

Construction of the Eastern Alternative would require the acquisition of 16.1 acres from the college campus (see Figure V-1). It would also sever 23.9 acres between the proposed Urban Loop and Jefferson Road from the rest of the campus. The land that would be affected is heavily wooded and undeveloped. The right-of-way would be 1,800 feet from the nearest college building and would not have a substantial noise impact at that location. The alignment would have a visual effect on the campus, which could be mitigated by screening with additional vegetation.

3. Avoidance Alternatives

Federal law requires that land may be taken from public parks, recreation areas, refuges, or historic sites only if it can be shown that there is no feasible and prudent alternative to using that land. Therefore, a Section 4(f) evaluation must address location alternatives and design shifts that avoid the Section 4(f) land. These alternatives and shifts are referred to as "avoidance alternatives."

Middle or Western Alternative

Use of the Middle or Western Alternative would constitute an avoidance alternative and would not affect this property.

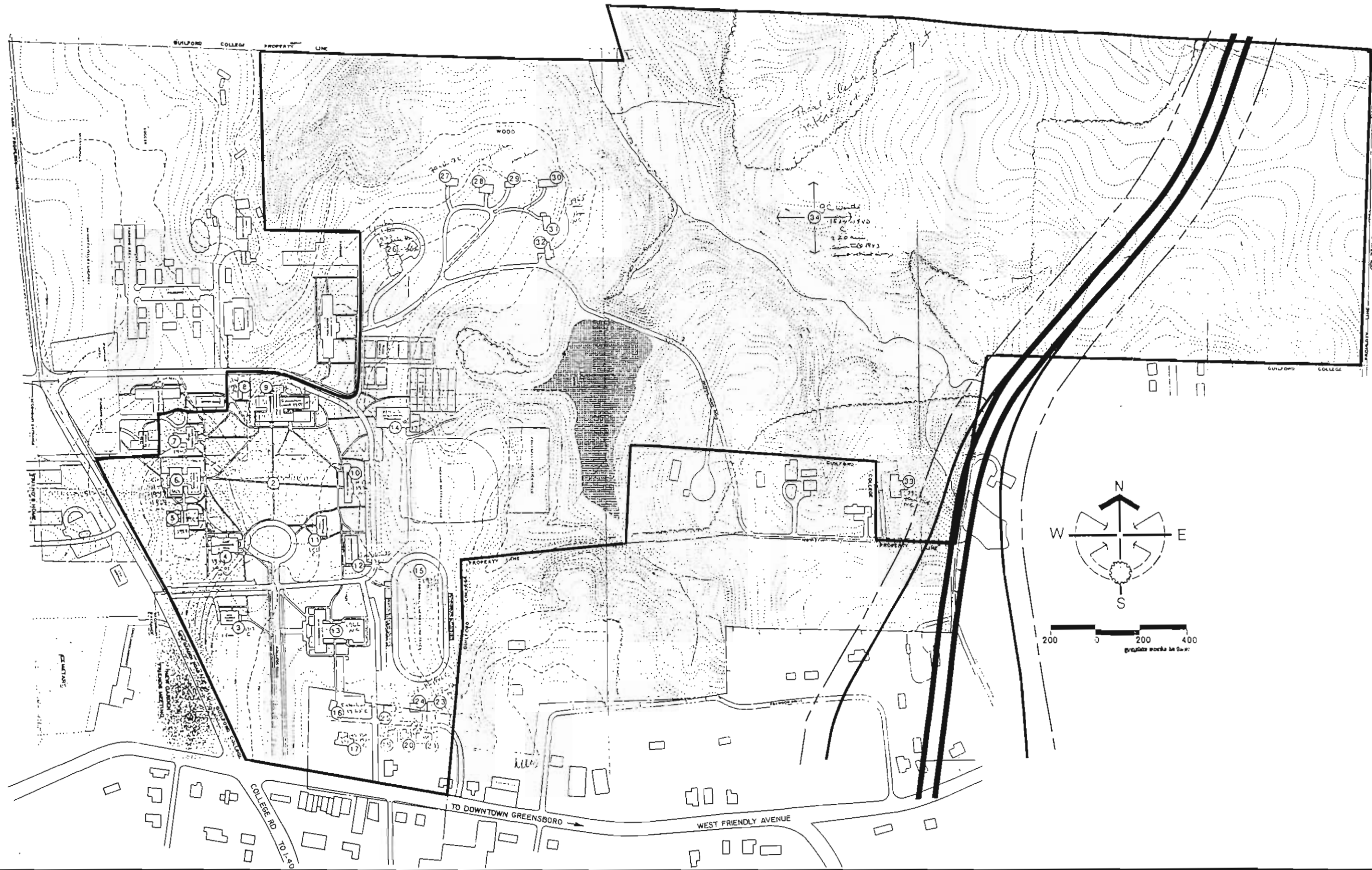
Eastern Alternative Design Shift

Adjacent to the Eastern Alternative, shifts to the east and west of the property were investigated. A shift to the west that would avoid this property would essentially become the Middle Corridor. A shift to the east (the "Eastern Alternative Design Shift") was investigated in detail and an avoidance alternative was developed (see Figure V-2).

Starting at the north, the alignment would shift to the east, crossing existing Jefferson Road about 2,400 feet north of the north property line of Guilford College. The interchange with Friendly Avenue would be between Jefferson Road and Westridge Road, with all ramps to be located south of Friendly Avenue in a half-cloverleaf configuration. The avoidance alternative would tie into the original alternative north of the West Market Street interchange.

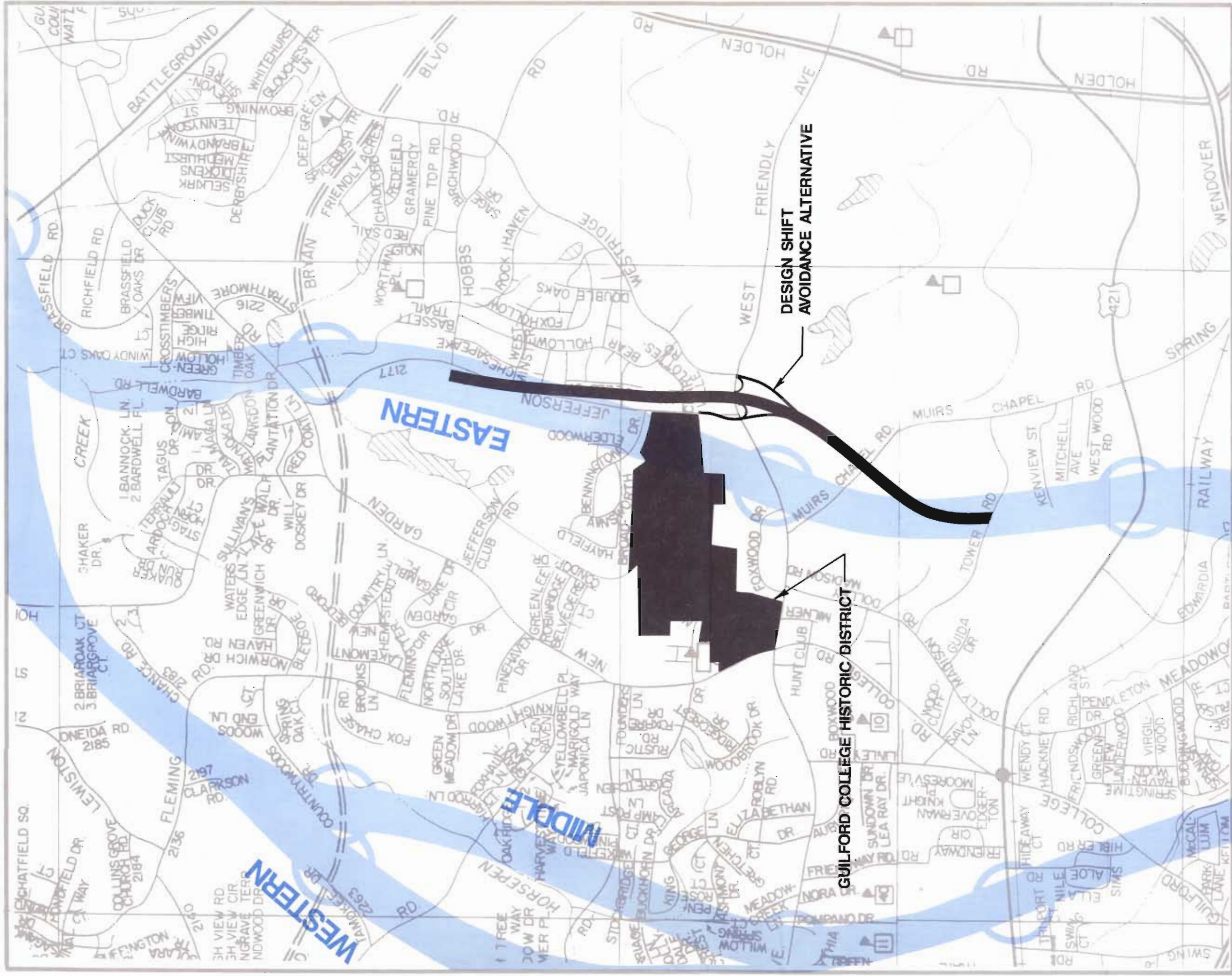
The avoidance alternative would have major impacts on the Hamilton Hills, Hamilton Lakes, and Hamilton Forest communities, taking 324 residences, 252 of them owner-occupied, and splitting portions of the communities. The avoidance alternative would have noise impact at 239 residences, as compared with 134 residences for corresponding portions of the Eastern Alternative. The avoidance alternative would also have a noise impact on the portion of Guilford College Historic District along Jefferson Road. Five noise barriers were found to be cost-feasible, with a total barrier cost of \$2.7 million. (The barrier cost for the corresponding portion of the Eastern Alternative is \$0.9 million.)

The avoidance alternative represents an increase of \$10 million in right-of-way costs and \$12 million in total cost. The construction cost without noise barriers would be the same as for the original corridor. The required relocation of Jefferson Road would divert traffic to Hobbs Road, Bear Hollow Road, and other residential streets further impacting Hamilton Forest.



IMPACT ON GUILFORD COLLEGE

GREENSBORO WESTERN URBAN LOOP



LEGEND

-  PROPOSED INTERCHANGE
-  CORRIDOR



GREENSBORO WESTERN URBAN LOOP

GUILFORD COLLEGE
AVOIDANCE ALTERNATIVE

Figure
V-2

**TABLE V-1
Impacts of Guilford College Avoidance Alternatives
(Wendover Avenue to Jefferson Road)**

	Build Scenario <u>Eastern Alt.</u>	Avoidance Alternative		
		<u>Eastern w/Design Shift</u>	<u>Middle</u>	<u>Western</u>
Length (miles)	3.8	3.9	3.5	3.5
Displacements				
Residences (minority)	274 (55)	324 (30)	584 (120)	120 (32)
Owners	77	252	95	118
Tenants	197	72	489	2
Businesses	15 (1)	14 (1)	7	10
Other	0	2	1	2
Receptors Exceeding Noise Abatement Criteria or With Substantial Increase	134	239	51	79
1990 Construction Cost* (millions)	\$69.6	\$71.4	\$46.8	\$50.0
1990 Right-of-Way Cost (millions)	\$44.3	\$54.3	\$40.8	\$26.1

*I-40 to US 220

4. Measures to Minimize Harm

If the Eastern corridor is selected, all measures to minimize the impact on Guilford College will be considered. The Final Environmental Impact Statement and Section 4(f) Statement would include a determination regarding whether the avoidance alternatives are feasible and prudent alternatives to using the Section 4(f) land. If the avoidance alternatives are not considered to be prudent and feasible, other measures can be taken to minimize impact on Guilford College. Measures that would be considered include:

- o Shift in alignment to minimize property affected.
- o Change in vertical alignment to minimize visual and noise impact.
- o Additional plantings to reduce visual impact.
- o Noise barriers to reduce noise impact.
- o Reduce median width to minimize property affected.
- o Pedestrian bridge to provide access to severed property.

5. Coordination

Appropriate Federal, State, and local agencies were contacted early in the planning process through distribution of the project scoping letter. The project planning has been conducted in close coordination with the Department of Cultural Resources and the State Historic Preservation Office (SHPO). Preliminary results of the historic structures survey were reviewed with SHPO staff, where discussion included survey procedures, potential eligibility of various properties, and the corridor alternatives. Possible impacts of these alternatives were discussed in general terms. Discussions were held with representatives of Guilford College regarding alternatives for this route.

The historic structures survey report was completed and transmitted to SHPO after these meetings and completion of the studies. The findings of the report and the DEIS were discussed with SHPO staff following their review.

B. KIMREY-HAWORTH HOUSE (ELIGIBLE FOR NATIONAL REGISTER)

1. Description of Property

The Kimrey-Haworth House is located at 5307 West Friendly Avenue, between Holden Road and Muirs Chapel Road.

Although the Study List information classifies it as Mission Revival, the Kimrey-Haworth House is actually an uncommon example of the Italian Renaissance style in the study area. It is a two-story house, five bays wide, with low pitched hip roof and projecting hip-roof one-story side wings. The house has the red concrete tile roof common to the Mission style, but with widely overhanging boxed eaves and cornice-line brackets.

On a large tree-shaded lot just under an acre, the house has little decorative detailing, with the emphasis of the symmetrical facade on the central entrance. A small entrance porch is formed by slender classical columns and pilasters supporting a portico with elliptical arch and hip roof. The six-panel door is flanked by an Adamesque fanlight and sidelights. Above, a balustrade balcony rests on the entrance roof beneath a triple grouping of six-over-six windows. The cornice brackets of the main roof are found beneath the entry roof as well as on the roofs of the side wings.

Windows are six-over-six, with a soldier course of brick serving as the window lintels. The soldier course continues, creating a belt course on the main five-bay block, and a single course between the windows and cornice line of the side wings.

The house has been little altered. The western side wing, formerly open, has been enclosed. The interior retains its woodwork and plaster walls. West of the house is a two-car, hipped-roof, brick garage contemporary to the house. It is of the same buff brick as the house, with exposed rafters and glazed stable-type doors as decorative features.

Italian Renaissance often resembles the Colonial Revival style because both early Georgian and Italian styles shared Renaissance roots. The Italian Renaissance was first used primarily in architect-designed houses before World War I. The change in technology after that war facilitated the change in popular architecture. In the early 1920's the perfection of masonry veneering techniques made inexpensive brick veneer more broadly available. The Italian Renaissance thus became more widely popular in the early 1920's.

The house was built for and first occupied by Benson Kimrey, who was associated with Guilford Hardware. It is said he lost all of the proceeds when banks failed. The depression closed Guilford Hardware.

The property was sold just prior to the depression to Samuel L. Haworth and Evelyn M. Haworth. Mr. Haworth was a distinguished professor of religion at Guilford College from 1924 to 1939. Through his teaching at the College and his ministry with the Society of Friends, he became a key figure in the development and history of the Guilford College community.

Haworth received his Master's Degree from Brown University. He was then minister for eleven Friends' meetings in succession: in Iowa, Nebraska, New England, Wilmington, and North Carolina Yearly Meetings. Haworth was distinguished in his field nationally and internationally. He was a delegate to six quinquennial sessions of the Five Years Meeting (1902, 1907, 1917, 1935, 1940), member of the Business Committee of the Five Years Meeting, contributing editor of "The American Friends." He was a member of the executive committee of the Federal Council of Churches for eight years, and was commissioned by the Council to visit churches in Europe in 1923 as an ambassador of Good Will. For 14 years, from 1928 to 1941, he was Presiding Clerk of North Carolina Yearly Meeting. A member of the World Congress of Faiths, in 1936 he was a delegate to the Conference of the Universal Christian Council for Life and Work held at Chamby, Switzerland. His long interest in peace education drew him into the World Alliance for International Friendship.

The third owner, also prominent, was Donald Badgley (1919-1988), a Greensboro resident from 1958-67. He was a member of the North Carolina House of Representatives from 1963-65. He was elected in 1962 in a never-before sweep of Republicans into all county legislative seats and local offices. In 1964, he was the GOP nomination for Governor, forcing the first Republican gubernatorial primary in the state's history. He ran for President of the United States in 1980 and 1984.

The Kimrey-Haworth House is listed on the Study List. Significant as an excellent and uncommon example of the Italian Renaissance style as well as for its association with Samuel L. Haworth, the house and its 0.8 acre meet Register criteria B and C.

2. Impacts

Construction of the Eastern Alternative would require the acquisition of the entire parcel and destruction or relocation of the house (see Figure V-3).

3. Avoidance Alternatives

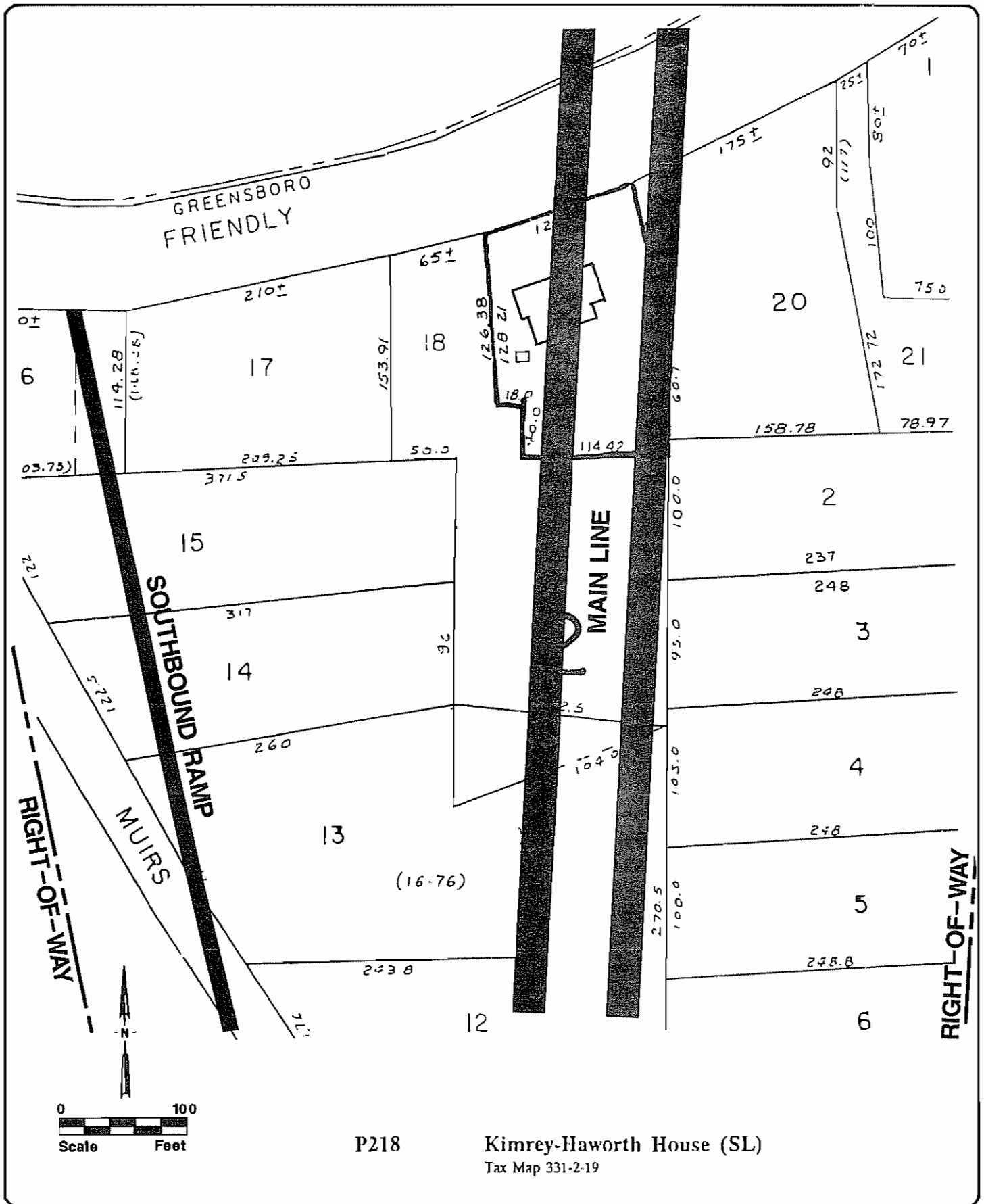
Federal law requires that land may be taken from public parks, recreation areas, refuges, or historic sites only if it can be shown that there is no feasible and prudent alternative to using that land. Therefore, a Section 4(f) evaluation must address location alternatives and design shifts that avoid the Section 4(f) land. These alternatives and shifts are referred to as "avoidance alternatives."

Middle or Western Alternative

Use of the Middle or West Alternative would constitute an avoidance alternative and would not affect this property.

Eastern Alternative Design Shift

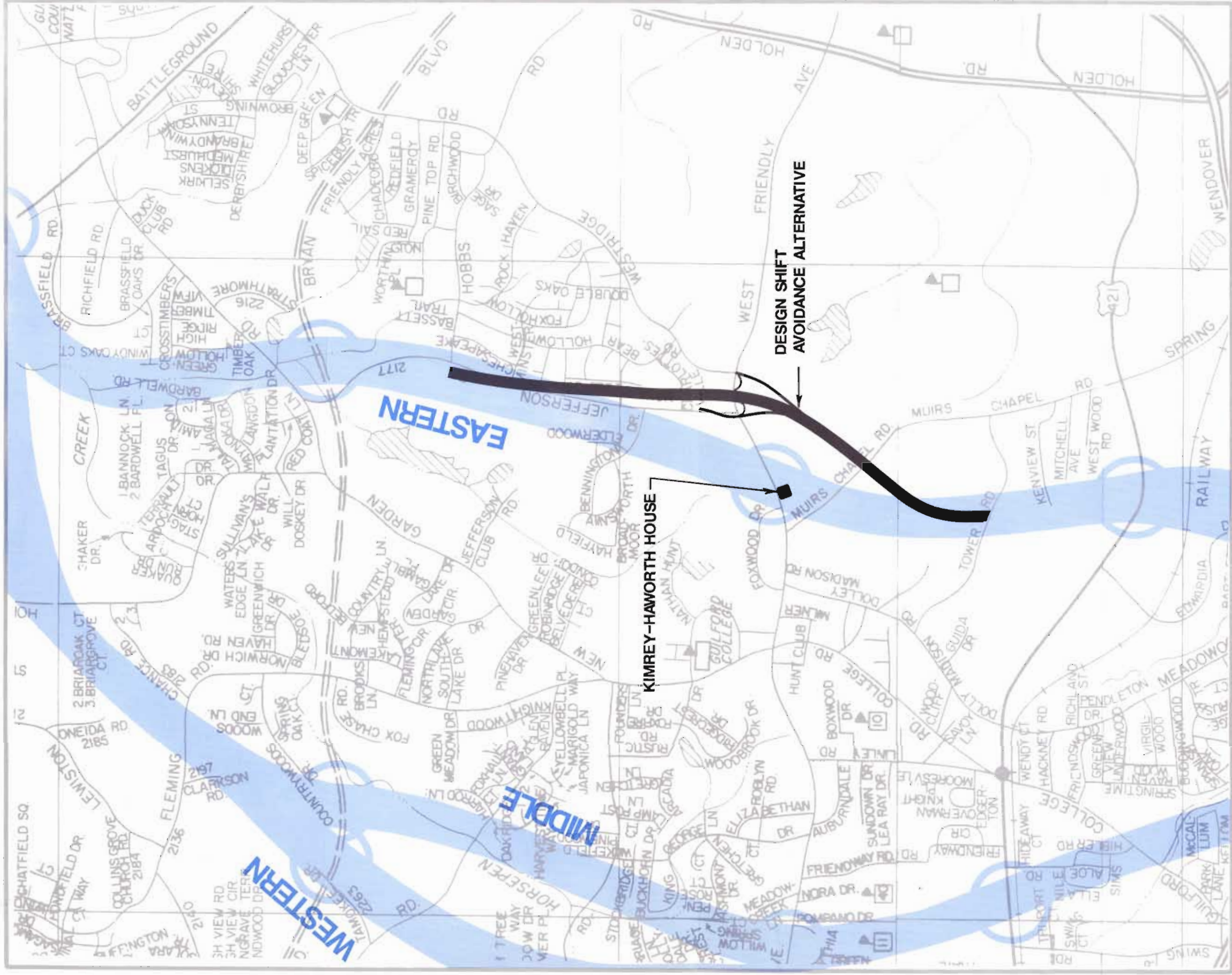
Adjacent to the Eastern Alternative corridor, shifts to the east and west of the property were investigated. A shift to the west that would avoid this property would essentially become the Middle Corridor. A shift to the east (the "Eastern Alternative Design Shift") was investigated in detail and an avoidance alternative was developed (see Figure V-4).



**GREENSBORO WESTERN
URBAN LOOP**

**IMPACT ON
KIMREY-HAWORTH HOUSE**

**FIGURE
V-3**



LEGEND

-  PROPOSED INTERCHANGE
-  CORRIDOR



GREENSBORO WESTERN URBAN LOOP

KIMREY-HAWORTH HOUSE
AVOIDANCE ALTERNATIVE

Figure
V-4

Starting at the north, the alignment would shift to the east, crossing existing Jefferson Road about 2,400 feet north of the north property line of Guilford College. The interchange with Friendly Avenue would be between Jefferson Road and Westridge Road, with all ramps to be located south of Friendly Avenue in a half-cloverleaf configuration. The avoidance alternative would tie into the original alternative north of the West Market Street interchange.

The avoidance alternative would have major impacts on the Hamilton Hills, Hamilton Lakes, and Hamilton Forest communities, taking 324 residences, 252 of them owner-occupied, and splitting portions of the communities. The avoidance alternative would have noise impact at 239 residences, as compared with 134 residences for corresponding portions of the Eastern Alternative. Five noise barriers were found to be cost-feasible, with a total barrier cost of \$2.7 million. (The barrier cost for the corresponding portion of the Eastern Alternative is \$0.9 million.)

The avoidance alternative represents an increase of \$10 million in right-of-way costs and \$12 million in total cost. The required relocation of Jefferson Road would divert traffic to Hobbs Road, Bear Hollow Road, and other residential streets, further impacting Hamilton Forest.

TABLE V-2
Impacts of Kimrey-Haworth House Avoidance Alternatives
(Wendover Avenue to Jefferson Road)

	Build Scenario <u>Eastern Alt.</u>	<u>Avoidance Alternative</u>		
		<u>Eastern w/Design Shift</u>	<u>Middle</u>	<u>Western</u>
Length (miles)	3.8	3.9	3.5	3.5
Displacements				
Residences (minority)	274 (55)	324 (30)	584 (120)	120 (32)
Owners	77	252	95	118
Tenants	197	72	489	2
Businesses	15 (1)	14 (1)	7	10
Other	0	2	1	2
Receptors Exceeding Noise Abatement Criteria or With Substantial Increase	134	239	51	79
1990 Construction Cost* (millions)	\$69.6	\$71.4	\$46.8	\$50.0
1990 Right-of-Way Cost (millions)	\$44.3	\$54.3	\$40.8	\$26.1

*I-40 to US 220

4. Measures to Minimize Harm

If the Eastern corridor is selected, all measures to minimize the impact on the Kimrey-Haworth House will be considered. The Final Environmental Impact Statement and Section 4(f) Statement would include a determination regarding whether the avoidance alternatives are prudent and feasible alternatives to using the Section 4(f) land. If the avoidance alternatives are not found to be prudent and feasible, moving of the house and/or recordation will be considered as mitigation for effect on this property.

5. Coordination

Appropriate Federal, State, and local agencies were contacted early in the planning process through distribution of the project scoping letter. The project planning has been conducted in close coordination with the Department of Cultural Resources and the State Historic Preservation Office (SHPO). Preliminary results of the historic structures survey were reviewed with SHPO staff where discussion included survey procedures, potential eligibility of various properties, and the corridor alternatives. Possible impacts of these alternatives were discussed in general terms.

The historic structures survey report was completed and transmitted to SHPO after these meetings and completion of the studies. The findings of the report were discussed with SHPO staff following their review.

C. **SEDGEFIELD STABLES (ELIGIBLE FOR NATIONAL REGISTER)**

1. Description of Property

Sedgefield Stables is located at the southeast quadrant of the intersection of Groometown Road and West Vandalia Road. It was created with the development of Sedgefield, which promoted its golf course and stables as part of the country and sporting living it proffered. It remains active today as a boarding, training, and show stable.

The first stable was a shed below the Sedgefield Inn, managed by Charlie Hendricks. This was immediately inadequate. Accordingly, the Sedgefield Horse Show Association, Inc., soon bought eight or ten acres at a cost of \$3,000 from Pilot Life's vast holdings and in 1927 built what is called the "old barn." This is a long rectangular frame stable with gable roof covering three stories and deep shed roof on each side covering wide two-story extensions which run the length of the building. Construction is of large green oak beams providing

structural stability unlike that possible with lumber available today. Well-designed and well-built, the barn has had little alteration. (Contrary to a local account, the barn is not a converted cattle barn -- it was designed and built for horses.)

In 1939 the Association bought more acreage, about ten acres including a large field, and the following year built what is still known today as the "new barn." The Association raised the \$4,000 needed to build the new barn by selling stock at \$50 a share. Nathan Ayers had come to Sedgefield several years earlier and was involved with the Association. His brother Richard Ayers, an architect in Baltimore who designed several Social Security buildings for the federal government as well as buildings at MIT, agreed to design the new stable. There was disagreement over its design; Ayers' design called for a club room on the west end which blocked the alley. The stable manager argued that the alley should be open for circulation and, more important, for ventilation in the hot months. Ayers prevailed; the club room remains today. The only alteration to the building is an enlargement of the original tack room.

The property has seen little alteration. In 1940 when the new barn was built, the Association also built a show ring and a long row of shed stalls for use as temporary stabling during horse shows. Some of these remain and have been joined by more recent shed row stalls for the same purpose.

The Sedgefield Stable developed into a nationally recognized barn, but only after the Association rotated managers for several years. Upon its incorporation, the Association approached George W. Bryson, Sr., who was then in Asheville. "Sarge" Bryson got his name in the calvary in El Paso and as a machine gunner in Europe in World War I. He was working with the National Guard Calvary in Asheville, and was a well-known horseman in the area. Bryson refused the offer, and Charlie Hendricks became the first manager. After a short time two other managers, Johnnie Thomas and Ed Lambeth, had come and gone. Then, in 1936, the Association again asked Sarge Bryson; he took over Sedgefield, t stay until the late 1950's when his son, George W. Bryson, Jr. carried on as manager for another 15 years.

Sedgefield Stables, both before and especially under both Brysons, was acknowledged as one of the principal hunter barns in the country. During this time four or five of the top trainers in the country were in the piedmont of North Carolina. One of these was Bryson. Another was Goode Watkins, whose barn was across Groometown Road from Sedgefield Stables. That barn (owned by Stark Dillard, owner of Dillard Paper Company in Greensboro) was another nationally-recognized show barn, but for saddlehorses. (This was primarily a

saddlehorse area until it shifted gradually after World War II to hunters, although the Sedgefield Stables had always been chiefly a hunter barn.)

Although there is no formal association between the Sedgefield Stables and the Sedgefield Hunt, the hunt had its kennels on the Stables property, George Bryson whipped for the hunt, and hunts left from the Stables. Lands used by the Hunt included Sedgefield (when there was little traffic on Groometown Road and Sedgefield was largely unpaved and undeveloped) and the Adams Farm. Due to rapid development in the 1970s and 1980s, the hunt, still active today, no longer hunts on nearby lands.

The Association's annual horse show included roadsters, saddlehorses, and hunters. Sedgefield's current hunter show, A-rated by the American Horse Show Association, is held annually the first weekend in May and is heavily attended.

Immediately south of the old barn is the cemetery of Ebenezer Baptist Church, which stood where the old barn is today. The cemetery is now within the pasture and has undergone severe damage from horses. The Sedgefield Stables and the cemetery are currently threatened by the proposed widening of Groometown Road (not part of this project).

The Sedgefield Stables is significant for the superior construction of its old barn, for its architect-designed new barn, and for its integral association with the development of Sedgefield. The barns and its nearly 19 acres, including the show ring and shed stalls, meet Register criteria A and C. The Ebenezer Church cemetery is included in this acreage for its association with the Stables.

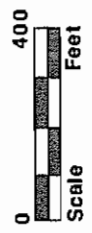
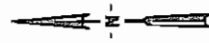
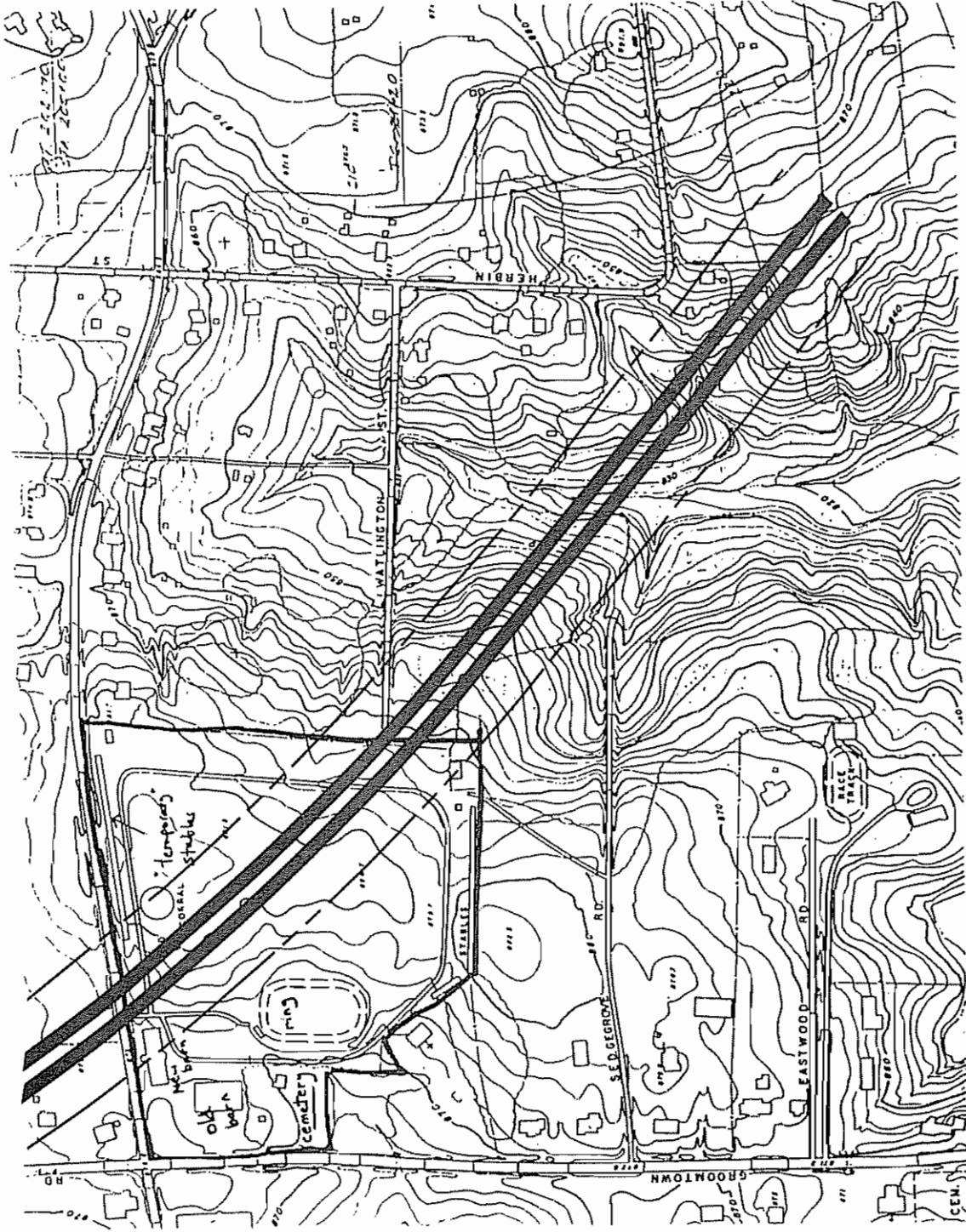
2. Impact

Construction of the Middle or Western Corridors would require the acquisition of 6.2 acres of property from Sedgefield Stables and would sever an additional 2.9 acres from the remainder of the parcel (see Figure V-5). Neither the new barn, the old barn, the remains of the Ebenezer Church Cemetery, nor the riding ring would be taken, but the corral and the shed stalls along Vandalia Road would be taken. Noise levels from the highway may affect the use of the property remaining for horse training and shows. The highway would also have a visual impact on the property remaining.

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Sedgefield Stables and Ebenezer Church Cemetery

Tax Map ACL-3-183



GREENSBORO WESTERN URBAN LOOP

IMPACT ON SEDGEFIELD STABLES

FIGURE V-5

3. Avoidance Alternatives

Federal law requires that land may be taken from public parks, recreation areas, refuges, or historic sites only if it can be shown that there is no feasible and prudent alternative to using that land. Therefore, a Section 4(f) evaluation must address location alternatives and design shifts that avoid the Section 4(f) land. These alternatives and shifts are referred to as "avoidance alternatives."

Eastern Alternative or C-1 Crossover

Use of the Eastern Alternative or the C-1 crossover (between the Eastern Alternative to the south and the Middle or Western Alternative to the north) would constitute an avoidance alternative and would not adversely affect this property.

Western Alternative Design Shift

Adjacent to the Middle and West Alternatives corridor, shifts to the east and west of the property were investigated. A shift to the east that would avoid this property would impact City park land and would constitute Section 4(f) involvement. A shift to the west was investigated in detail (the "Western Alternative Design Shift") and an avoidance alternative was developed (see Figure V-6).

The avoidance alternative would take 32 residences and no businesses. It would add \$1.4 million to the construction cost and \$3.4 million to the right-of-way cost for the Middle and Western Alternatives, for a total increase of \$5.0 million or 17 percent. It would have noise impact on an additional 13 receptors. Two barriers would be cost-feasible, at a cost of about \$630,000. No barriers are cost-feasible for the corresponding portion of the Middle and Western Alternatives. Table V-3 compares impacts of the Middle and Western Alternatives with and without the avoidance alternatives. In addition to the impacts shown on the table, the avoidance alternative would have an undesirable alignment, with curves near the interchanges of I-85 and High Point Road.

TABLE V-3

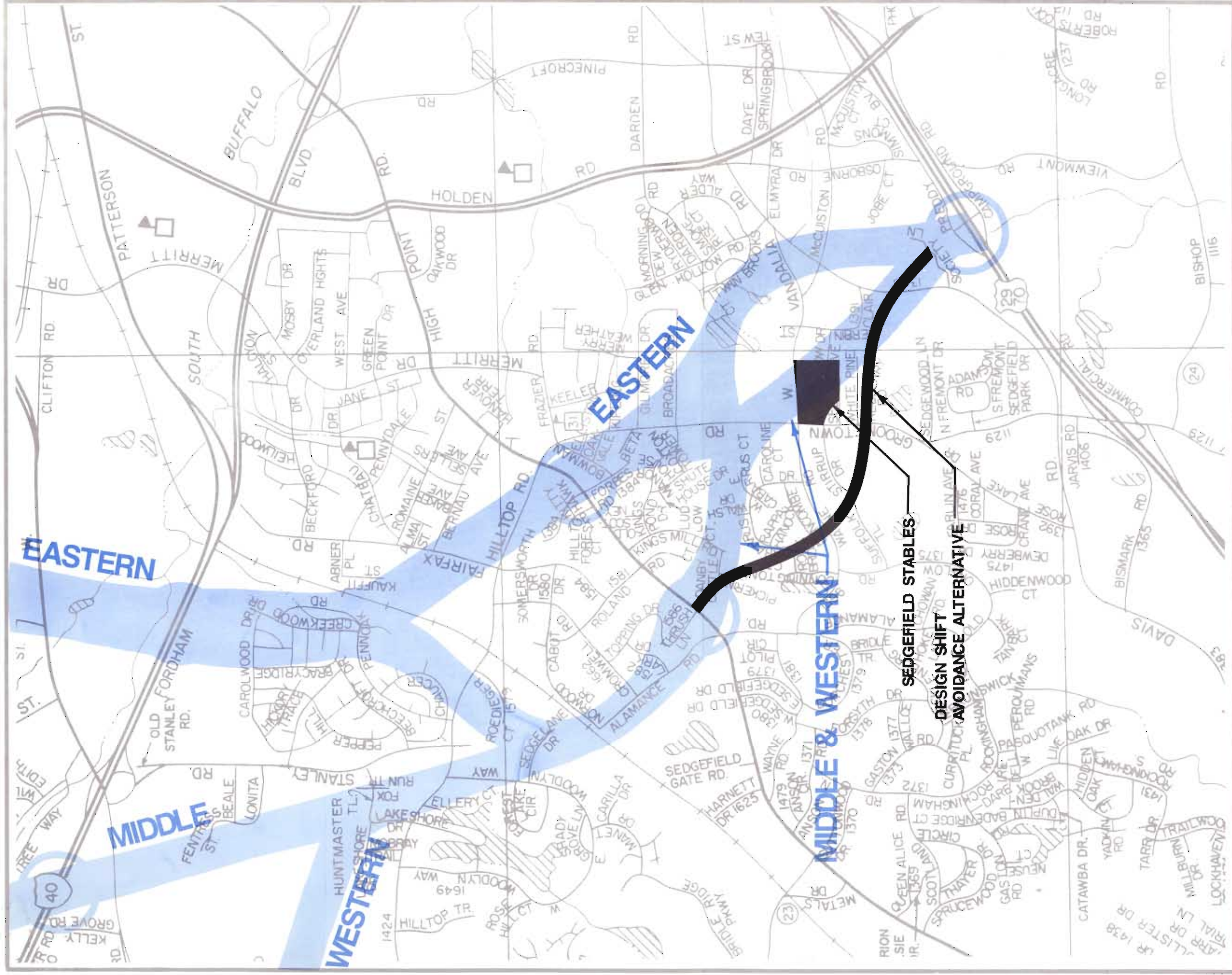
**Impacts of Sedgefield Stables Avoidance Alternatives
(Southern Terminus to Southern Railway)**

	BUILD SCENARIO	AVOIDANCE ALTERNATIVES	
	<u>Middle or Western Alternative</u>	<u>Western Alt. Design Shift</u>	<u>Eastern Alt. w/C1 Crossover to Western</u>
Length (miles)	2.5	2.8	2.9
Displacements			
Residences (minority)	48 (10)	32 (1)	52 (10)
Businesses	1	0	1
Receptors Exceeding Noise Abatement Criteria Or With Substantial Increase	42	55	70
1990 Construction Cost	\$18.6 million	\$19.4 million	\$18.4 million
1990 Right-of-Way Cost	\$11.1 million	\$14.5 million	\$11.4 million
Total Cost	\$29.7 million	\$33.9 million	\$29.8 million
Geometrics	Good	Poor	Poor


4. Measures to Minimize Harm

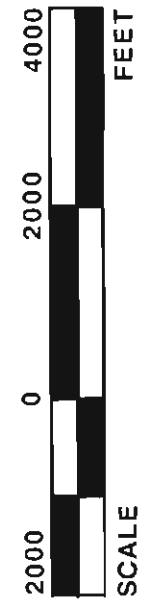
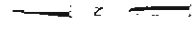
If the Middle or Western Alternative is selected, all measures to minimize the impact on Sedgefield Stables will be considered. The Final Environmental Impact Statement and Section 4(f) Statement would include a determination regarding whether the alternatives are prudent and feasible alternatives to using Section 4(f) property. If the avoidance alternatives are not considered prudent and feasible, the following items will be considered as mitigation:

- o Shift in alignment to minimize property affected.
- o Change in vertical alignment to minimize visual and noise impact.
- o Additional plantings to reduce visual impact.
- o Noise barriers to reduce noise impact.
- o Reduce median width to minimize property affected.
- o Moving affected structures to other parts of the property or other sites.
- o Recordation



LEGEND

-  **PROPOSED INTERCHANGE**
-  **CORRIDOR**



GREENSBORO WESTERN URBAN LOOP

**SEDGEFIELD STABLES
AVOIDANCE ALTERNATIVE**

Figure
V-6

5. Coordination

Appropriate Federal, State, and local agencies were contacted early in the planning process through distribution of the project scoping letter. The project planning has been conducted in close coordination with the Department of Cultural Resources and the State Historic Preservation Office (SHPO). Preliminary results of the historic structures survey were reviewed with SHPO staff where discussion included survey procedures, potential eligibility of various properties, and the corridor alternatives. Possible impacts of these alternatives were discussed in general terms.

The historic structures survey report was completed and transmitted to SHPO after these meetings and completion of the studies. The findings of the report were discussed with SHPO staff following their review.

CHAPTER VI
LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS
TO WHOM COPIES OF THE STATEMENT ARE SENT

Federal Agencies

Environmental Protection Agency
Department of Transportation
Department of the Interior
Department of Commerce
Department of Agriculture
Department of Energy
Advisory Council on Historic Preservation
Federal Railroad Administration
Federal Emergency Management Agency
Office of Management and Budget
Interstate Commerce Commission
Federal Aviation Administration

Regional Offices

Regional Representative of the Secretary of Transportation
Environmental Protection Agency
Department of Housing and Urban Development
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
Federal Emergency Management Agency
General Services Administration

State Agencies

North Carolina Department of Human Resources
North Carolina Department of Natural Resources and Community Development
North Carolina Wildlife Resources Commission
North Carolina Department of Cultural Resources
North Carolina Department of Public Instruction
State Clearinghouse

Local Governments

Piedmont-Triad Council of Governments
Chairman, County Commissioners
Mayor of Greensboro

Local Agencies

Piedmont-Triad International Airport
Guilford County Planning Department
Greensboro-Guilford County Schools
Greater Greensboro Chamber of Commerce
Greensboro Police Department
Greensboro Fire Department
Greensboro Department of Transportation
City of Greensboro Public Libraries

**CHAPTER VII
COORDINATION AND PUBLIC INVOLVEMENT**

The Draft Environmental Impact Statement was coordinated with Federal, State, and Local agencies and organizations, as well as with the public through an extensive public involvement plan. A Notice of Intent to prepare an environmental document was published on October 30, 1989 in the Federal Register.

A. AGENCIES AND ORGANIZATIONS

A scoping letter soliciting comments was distributed during the early stages of the project. The following agencies were contacted:

U.S. Environmental Protection Agency
U.S. Department of Agriculture
U.S. Army Corps of Engineers
U.S. Department of the Interior
U.S. Department of Housing and Urban Development
U.S. Forest Service
U.S. Department of the Interior - Outdoor Recreation
U.S. Department of the Interior - Fish and Wildlife Service

North Carolina Department of Human Resources
Advisory Council on Historic Preservation
North Carolina State Clearinghouse
North Carolina Department of Cultural Resources
North Carolina Department of Public Instruction
North Carolina Department of Natural Resources and Community Development
North Carolina Department of Transportation
North Carolina State Conservationist

Piedmont-Triad Council of Governments
Mayor of Greensboro
Chairman, Guilford County Commissioners
Greensboro-Guilford County Schools
Greensboro City Schools

Specific agencies and organizations otherwise contacted during the study process are as follows:

General Services Administration
Federal Emergency Management Administration
U.S. Department of Health and Human Services
Federal Aviation Administration

North Carolina Wildlife Resources Commission
North Carolina Geological Survey
Department of Commerce - Ecology and Conservation

Piedmont-Triad International Airport
Guilford County Engineering Department

Guilford County Fire Marshall
Guilford County Police Department
Guilford County Board of Education
Guilford County Social Services
Guilford County Parks and Recreation Department
City of Greensboro Fire Department
City of Greensboro Police Department
City of Greensboro Housing Authority
Public Library of Greensboro and Guilford County
Greensboro Department of Transportation
Guilford County Department of Environmental Health
Greater Greensboro Chamber of Commerce

Written responses that were received are included in Appendix B.

B. UTILITIES

The following utilities were also contacted to provide locations of their lines and facilities:

Duke Power Company
AT&T
Southern Bell Telephone
Piedmont Natural Gas Company
Cablevision of Greensboro
Vision Cable of Greensboro
Greensboro Utility Department
Southern Net
CSX Railroad
Norfolk Southern Railway

C. STEERING COMMITTEE

A steering committee of technical personnel was formed at the initiation of the project study to provide assistance and ensure coordination. Representatives from the following organizations attended steering committee meetings:

Guilford County Planning Department
Greensboro Department of Transportation
Greensboro Planning Department
North Carolina Department of Transportation
Greiner Engineering, Inc.
Federal Highway Administration
Kimley-Horn and Associates, Inc.

D. PUBLIC INVOLVEMENT PLAN

A public involvement plan was developed at the initiation of the study process with the following primary objectives:

- To educate and inform the public on a timely basis regarding the study scope, schedule, findings, and recommendations.
- To obtain public comments regarding the study process, data, conclusions, and recommendations.

The public involvement plan included use of several communications media as well as meetings scheduled at various points during the study. These communications media and meetings are described in the following sections.

1. Newsletters and Mailing List

Three newsletters have been distributed to interested citizens, groups, and officials throughout the study. A database of citizen names was compiled, including persons attending meetings related to the study, persons requesting information, and neighborhood groups as provided by the City of Greensboro. This list was updated and expanded throughout the study period and now includes approximately 1,500 names and addresses of interested citizens.

2. Telephone Contact

A telephone number for Kimley-Horn's office was distributed through the newsletter and at public meetings. This number was answered during regular office hours with an engineer available to answer questions and provide information regarding the study progress and results. If a question could not be answered immediately, the caller's telephone number or address was recorded and a response made within two business days. Approximately 1,500-2,000 calls were received from the public, mostly seeking information about the project.

3. Mail Contact

A mailing address for Kimley-Horn was distributed through the newsletters and at public meetings. All incoming mail was responded to by mail (or by telephone, if requested) within two days. Approximately 50 letters were received from groups or individuals. Most of these letters opposed the thoroughfare plan alignment.

4. Public Meetings

A public meeting was held early in the study. The meeting was informal, with one-on-one interaction between project staff and the public. Brief presentations were also made by consultant staff during the meeting with neighborhood groups.

The first public meeting was held at the Guilford Middle School Gymnasium on August 31, 1989. The workshop meeting lasted from 4:00 PM until 8:00 PM. Approximately 250 citizens attended the meeting (186 signed the register). Representatives from NCDOT, the City of Greensboro, Guilford County, and the Federal Highway Administration were also present. Exhibits for the workshop included maps of the alignments that showed potential hazardous waste sites, mines and quarries, streams and floodways, historic and archaeological sites, land use, schools, churches, and proposed parks and greenways. An aerial photo base map with the previous alternatives displayed on an overlay was made available. Another aerial photo base map with a blank overlay was provided for citizens to indicate preferred routes or to make other comments. Citizens also had the opportunity to be added to the mailing list or to make comments on forms that were provided. A handout was provided which included printed maps of the study area.

The second public meeting was held at the Guilford Middle School Cafeteria on January 11, 1990. The workshop meeting lasted from 4:00 PM until after 8:00 PM. Approximately 500 citizens attended the meeting (430 signed the register). Representatives from NCDOT, the City of Greensboro, Guilford County, and the Federal Highway Administration were also present. Exhibits for the workshop included maps of the Eastern, Middle, and Western Alternatives. An aerial photo base map with an overlay was used to display the alternatives.

5. Small Group Meetings

Civic groups and neighborhood organizations were contacted by mail early in the study process to inform them that consultant staff were available to meet with them during the course of the study for informal presentations and to answer questions. These meetings are listed below.

SMALL GROUP MEETINGS

<u>Date</u>	<u>Group</u>	<u># Attending</u>
August 31, 1989	Hamilton Woods	20-25
	GREAT	20-25
	Jefferson Gardens	20-25
	Battle Forest/Cotswold Village	20-25
September 23, 1989	Southwest Neighborhood Association	17
November 15, 1989	Four Seasons Civitan Club	50
December 1, 1989	League of Women Voters	--
December 14, 1989	Citizens	3
January 25, 1990	GREAT	150
February 14, 1990	King's Pond Homeowners Association	35
February 20, 1990	Watershed Committee	35
March 28, 1990	Woodland Hills and Brassfield	75
April 4, 1990	Duke Power	3
April 16, 1990	Citizens	300
May 3, 1990	Greater Greensboro Board of Realtors	100

6. Public Hearing

A corridor public meeting will be conducted by NCDOT after approval of the Draft Environmental Impact Statement (DEIS) by NCDOT and FHWA. The purpose of the public hearing will be to receive comments from the public in a formal setting, so that these comments can be considered in recommending a corridor for the Greensboro Western Urban Loop. The recommended corridor will be addressed in the final environmental impact statement.

CHAPTER VIII
LIST OF PREPARERS

This report was prepared by Kimley-Horn and Associates, Inc. in cooperation with the U.S. Department of Transportation, Federal Highway Administration; North Carolina Department of Transportation, Division of Highways; City of Greensboro; and the County of Guilford.

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CHAPTER IX

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CHAPTER XI

APPENDICES

APPENDIX A - BIOTIC COMMUNITIES

1. **Animal species likely to occur in the Greensboro (Guilford County) project area, with habitat association (Tables 3-7).**
2. **Wetland plants encountered in the Greensboro (Guilford County) study area, with habitat association (Table 9).**

APPENDIX B - AGENCY RESPONSES

APPENDIX C - RELOCATION STUDY REPORTS

APPENDIX D - PUBLIC INVOLVEMENT

1. **Newsletters**
2. **Meetings with Public**

APPENDIX E - GLOSSARY OF TECHNICAL TERMS

**APPENDIX A
BIOTIC COMMUNITIES**

- A-1 Animal species likely to occur in the Greensboro (Guilford County) area, with habitat association (Tables 3-7).

- A-2 Wetland plants encountered in the Greensboro (Guilford County) study area, with habitat association (Table 9).

Table 3. Fishes likely to occur in the Greensboro (Guilford County) project area, with habitat associations.

<i>Dorosoma cepedianum</i>	Gizzard shad	R,I
<i>Esox americanus</i>	Redfin pickerel	S,I
<i>Esox niger</i>	Chain pickerel	S,I
<i>Clinostomus funduloides</i>	Rosyside dace*	S,R
<i>Cyprinus carpio</i>	Carp	R,I
<i>Hybognathus regius</i>	Eastern silvery minnow	R
<i>Nocomis leptcephalus</i>	Bluehead chub*	S,R
<i>Notemigonus crysoleucas</i>	Golden shiner*	R,I
<i>Notropis albeolus</i>	White shiner	S,R
<i>Notropis alborus</i>	Whitemouth shiner	S
<i>Notropis altipinnis</i>	Highfin shiner	S,R
<i>Notropis amoenus</i>	Comely shiner	R
<i>Notropis analostanus</i>	Satinfin shiner*	S,R
<i>Notropis cerasinus</i>	Crescent shiner	S,R
<i>Notropis hudsonius</i>	Spottail shiner	R
<i>Notropis niveus</i>	Whitefin shiner	R
<i>Notropis procne</i>	Swallowtail shiner	S,R
<i>Notropis scepticus</i>	Sandbar shiner	R
<i>Semotilus atromaculatus</i>	Creek chub*	S
<i>Catostomus commersoni</i>	White sucker	R,I
<i>Erimyzon oblongus</i>	Creek chubsucker	S,R,I
<i>Moxostoma anisurum</i>	Silver redhorse	R
<i>Moxostoma papillosum</i>	V-lip redhorse	R
<i>Moxostoma robustum</i>	Smallfin redhorse	R
<i>Ictalurus brunneus</i>	Snail bullhead	R
<i>Ictalurus catus</i>	White catfish	R,I
<i>Ictalurus nebulosus</i>	Brown bullhead	R,I
<i>Ictalurus platycephalus</i>	Flat bullhead	R
<i>Ictalurus punctatus</i>	Channel catfish	R,I
<i>Noturus insignis</i>	Margined madtom	S,R
<i>Aphredodorus sayanus</i>	Pirate perch	S,I
<i>Fundulus rathbuni</i>	Speckled killifish*	S,R
<i>Gambusia affinis</i>	Mosquitofish*	I
<i>Lepomis auritus</i>	Redbreast sunfish*	S,R
<i>Lepomis cyanellus</i>	Green sunfish	S,R,I
<i>Lepomis gibbosus</i>	Pumpkinseed	I
<i>Lepomis gulosus</i>	Warmouth	I
<i>Lepomis macrochirus</i>	Bluegill*	S,R,I
<i>Micropterus salmoides</i>	Largemouth bass	R,I

Table 3. Fishes likely to occur in the Greensboro (Guilford County) project area, with habitat associations (continued).

<i>Pomoxis nigromaculatus</i>	Black crappie	R,I
<i>Etheostoma collis</i>	Carolina darter	S
<i>Etheostoma olmstedi</i>	Tesselated darter*	S,R
<i>Percina crassa</i>	Piedmont darter	R
<i>Perca flavescens</i>	Yellow perch	R,I

S = small streams.

R = rivers and large streams.

I = impoundments.

* = observed on site by field crew.

Table 4. Native amphibians likely to occur in the Greensboro (Guilford County) project area, with habitat associations.

<i>Notophthalmus viridescens</i>	Eastern newt	H,M,W
<i>Ambystoma maculatum</i>	Spotted salamander*	H,W
<i>Ambystoma opacum</i>	Marbled salamander*	H,W
<i>Desmognathus fuscus</i>	Northern dusky salamander*	W,L
<i>Eurycea bislineata</i>	Two-lined salamander*	L,H,W
<i>Eurycea guttolineata</i>	Three-lined salamander	W
<i>Plethodon glutinosus</i>	Slimy salamander	P,H,M
<i>Pseudotriton montanus</i>	Mud salamander	W
<i>Pseudotriton ruber</i>	Red salamander	H,W
<i>Bufo americanus</i>	American toad*	H,M,F,W
<i>Bufo woodhousei</i>	Fowler's toad	P,H,M,W
<i>Acris crepitans</i>	Northern cricket frog*	F,W
<i>Hyla crucifer</i>	Spring peeper*	H,W
<i>Hyla crysoscelis/versicolor</i>	Gray tree frog	H,W
<i>Hyla squirrella</i>	Squirrel tree frog	W,F,H
<i>Pseudacris triseriata</i>	Upland chorus frog*	F,W
<i>Rana catesbiana</i>	Bullfrog*	L,W
<i>Rana clamitans</i>	Green frog	L,W
<i>Rana palustris</i>	Pickerel frog	L,W
<i>Rana sphenoccephala</i>	Southern leopard frog*	L,W

P = pine forest.

H = upland hardwood forest.

M = mixed pine-hardwood forest.

F = fields, pastures, and disturbed areas.

W = bottomland hardwoods and wetlands.

L = aquatic habitats.

* = observed or heard on site by field crew.

Table 5. Native reptiles likely to occur in the Greensboro (Guilford County) project area, with habitat associations.

<i>Chelydra serpentina</i>	Snapping turtle	L
<i>Kinosternon subrubrum</i>	Eastern mud turtle	L
<i>Sternotherus odoratus</i>	Musk turtle	L
<i>Chrysemys concinna</i>	River cooter	L
<i>Chrysemys picta</i>	Painted turtle	L
<i>Chrysemys scripta</i>	Yellowbelly slider	L
<i>Terrapene carolina</i>	Eastern box turtle	P,H,M
<i>Anolis carolinensis</i>	Carolina anole	P,H,M,F
<i>Sceloporus undulatus</i>	Northern fence lizard	M,F
<i>Eumeces fasciatus</i>	Five-lined skink	M,H
<i>Eumeces inexpectatus</i>	Southeastern five-lined skink	M,F,H
<i>Eumeces laticeps</i>	Broad-headed skink	H
<i>Scincella lateralis</i>	Ground skink	P,H,M
<i>Cnemidophorus sexlineatus</i>	Six-lined race runner	F
<i>Carphophis amoenus</i>	Worm snake	P,H,M,F
<i>Coluber constrictor</i>	Black racer	P,H,M,F
<i>Diadophis punctatus</i>	Ringneck snake	P,H,M
<i>Elaphe guttata</i>	Corn snake	P,H,M,F
<i>Elaphe obsoleta</i>	Rat snake	P,H,M,F
<i>Heterodon platyrhinos</i>	Eastern hognose snake	P,H,M,F
<i>Lampropeltis calligaster</i>	Mole king snake	P,H,M,F
<i>Lampropeltis getulus</i>	Eastern king snake	P,H,M,F
<i>Lampropeltis triangulum</i>	Eastern milk snake	P,H,M
<i>Nerodia sipedon</i>	Northern water snake	L
<i>Opheodrys aestivus</i>	Rough green snake	P,H,M,W
<i>Regina septemvittata</i>	Queen snake	L
<i>Storeria dekayi</i>	Brown snake	H,M,W
<i>Storeria occipitomaculata</i>	Redbelly snake	P,H,M
<i>Tantilla coronata</i>	Southeastern crowned snake	P,H,M
<i>Thamnophis sauritus</i>	Eastern ribbon snake	W
<i>Thamnophis sirtalis</i>	Eastern garter snake	H,F,W
<i>Virginia striatula</i>	Rough earth snake	P,M,F
<i>Virginia valeriae</i>	Smooth earth snake	P,H,M
<i>Agkistrodon contortix</i>	Copperhead	P,H,M,F
<i>Crotalus horridus</i>	Timber rattlesnake	P,H,M,W

P = pine forest.

H = upland hardwood forest.

M = mixed pine-hardwood forest.

F = fields, pastures, and disturbed areas.

W = bottomland hardwoods and wetlands.

L = aquatic habitats.

(none observed by field crew)

Table 6. Native birds likely to occur in the Greensboro (Guilford County) project area, with habitat associations.

<i>Podilymbus podiceps</i>		Pied-billed grebe	L
<i>Ardea herodias</i>	*	Great blue heron	L
<i>Butorides striatus</i>		Green heron	L
<i>Anas platyrhynchos</i>	*	Mallard	L
<i>Aix sponsa</i>	*	Wood duck	W,L
<i>Cathartes aura</i>	*	Turkey vulture	P,H,M,F,W
<i>Accipiter striatus</i>		Sharp-shinned hawk	P,H,M,W
<i>Buteo jamaicensis</i>	*	Red-tailed hawk	P,H,M
<i>Haliaeetus leucocephalus</i>		Bald eagle	L
<i>Falco sparverius</i>		American kestrel	M,F
<i>Colinus virginianus</i>	*	Bobwhite	H,F
<i>Charadrius vociferus</i>	*	Killdeer	F
<i>Scolopax minor</i>		American woodcock	H,W
<i>Gallinago gallinago</i>		Common snipe	F,W
<i>Actitis macularia</i>		Spotted sandpiper	W,L
<i>Tringa solitaria</i>		Solitary sandpiper	L
<i>Zenaida macroura</i>	*	Mourning dove	F
<i>Coccyzus americanus</i>		Yellow-billed cuckoo	H,W
<i>Otis asio</i>		Screech owl	P,M
<i>Bubo virginianus</i>		Great horned owl	P,H,M
<i>Strix varia</i>		Barred owl	H,W
<i>Caprimulgus vociferus</i>		Whip-poor-will	P,H,M
<i>Chordeiles minor</i>		Common nighthawk	F,W
<i>Chaetura pelagica</i>	*	Chimney swift	F
<i>Archilochus colubris</i>		Ruby-throated hummingbird	H,M,W
<i>Megaceryle alcyon</i>		Belted kingfisher	W,L
<i>Colaptes auratus</i>	*	Common flicker	P,H,M
<i>Dryocopus pileatus</i>	*	Pileated woodpecker	H,M,W
<i>Melanerpes carolinus</i>	*	Red-bellied woodpecker	P,H,M,W
<i>Sphyrapicus varius</i>	*	Yellow-bellied sapsucker	P,H,M,W
<i>Picoides villosus</i>		Hairy woodpecker	P,H,M,W
<i>Picoides pubescens</i>	*	Downy woodpecker	P,H,M,W
<i>Tyrannus tyrannus</i>		Eastern kingbird	F
<i>Myiarchus crinitus</i>		Great-crested flycatcher	P,H,M
<i>Sayornis phoebe</i>		Eastern phoebe	P,H,M,F,W,L
<i>Empidonax virescens</i>		Acadian flycatcher	W
<i>Contopus virens</i>		Eastern wood peewee	M,F
<i>Stelgidopteryx ruficollis</i>		Rough-winged swallow	H,M,W
<i>Hirundo rustica</i>		Barn swallow	M,F,W

Table 6. Native birds likely to occur in the Greensboro (Guilford County) project area, with habitat associations (continued).

Progne subis		Purple martin	M,F,W
Cyanocitta cristata	*	Blue jay	P,H,M,W
Corvus brachyrhynchos	*	Common crow	P,H,M
Corvus ossifragus		Fish crow	P,H,M,F
Parus carolinensis	*	Carolina chickadee	P,H,M,W
Parus bicolor	*	Tufted titmouse	P,H,M,W
Sitta carolinensis		White-breasted nuthatch	H,W
Sitta canadensis		Red-breasted nuthatch	P
Sitta pusilla		Brown-headed nuthatch	P
Certhia familiaris		Brown creeper	P
Troglodytes aedon		House wren	P,H,M
Thryothorus ludovicianus	*	Carolina wren	H,M,W
Mimus polyglottos	*	Mockingbird	P,H,M,F
Dumetella carolinensis		Gray catbird	F
Toxostoma rufum	*	Brown thrasher	P,H,M,F
Turdus migratorius	*	American robin	P,H,M,F,W
Catharus guttatus		Hermit thrush	H,M
Catharus ustulatus		Swainson's thrush	H
Hylocichla mustelina		Wood thrush	H,W
Sialia sialis	*	Eastern bluebird	F
Poliophtila caerulea		Blue-gray gnatcatcher	W
Regulus satrapa		Golden-crowned kinglet	P,M
Regulus calendula		Ruby-crowned kinglet	P,M
Bombycilla cedrorum		Cedar waxwing	P,M
Vireo griseus		White-eyed vireo	W
Vireo flavifrons		Yellow-throated vireo	H,M
Vireo olivaceus		Red-eyed vireo	H,M,W
Prothonotaria citrea		Prothonotary warbler	W
Mniotilta varia		Black-and-white warbler	H,W
Parula americana		Northern parula	W
Dendroica coronata	*	Yellow-rumped warbler	M,F,W
Dendroica dominica		Yellow-throated warbler	P
Dendroica striata		Blackpoll warbler	W
Dendroica pinus		Pine warbler	P
Dendroica discolor		Prairie warbler	M,F
Seiurus aurocapillus		Ovenbird	P,H,M
Seiurus motacilla		Louisiana waterthrush	H,W
Oporornis formosus		Kentucky warbler	W
Geothlypis trichas		Common yellowthroat	F,W

Table 6. Native birds likely to occur in the Greensboro (Guilford County) project area, with habitat associations (continued).

<i>Icteria virens</i>		Yellow-breasted chat	H,W
<i>Wilsonia citrina</i>		Hooded warbler	H
<i>Setophaga ruticilla</i>		American redstart	W
<i>Sturnella magna</i>	*	Eastern meadowlark	F
<i>Agelaius phoeniceus</i>	*	Red-winged blackbird	W,L
<i>Icterus spurius</i>		Orchard oriole	H,M,F
<i>Euphagus carolinus</i>		Rusty blackbird	W,L
<i>Quiscalus quiscula</i>	*	Common grackle	P,M
<i>Molothrus ater</i>		Brown-headed cowbird	F
<i>Piranga olivacea</i>		Scarlet tanager	H
<i>Piranga rubra</i>		Summer tanager	H,M
<i>Cardinalis cardinalis</i>	*	Cardinal	P,H,M,W
<i>Guiraca caerulea</i>		Blue grosbeak	F
<i>Hesperiphona vespertina</i>		Evening grosbeak	P
<i>Passerina cyanea</i>		Indigo bunting	M,F
<i>Carpodacus purpureus</i>		Purple finch	H,W
<i>Carpodacus mexicanus</i>	*	House finch	M,F
<i>Carduelis pinus</i>		Pine siskin	P
<i>Carduelis tristis</i>	*	American goldfinch	P,H,M,W
<i>Pipilo erythrophthalmus</i>	*	Rufous-sided towhee	M,F
<i>Passerculus sandwichensis</i>		Savannah sparrow	F
<i>Junco hyemalis</i>		Dark-eyed junco	P,H,M
<i>Spizella passerina</i>		Chipping sparrow	P,M,F
<i>Spizella pusilla</i>		Field sparrow	F
<i>Zonotrichia albicollis</i>	*	White-throated sparrow	P,H,M,F,W
<i>Melospiza georgiana</i>		Swamp sparrow	F,W,L
<i>Melospiza melodia</i>	*	Song sparrow	M,F,W,L

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L = aquatic habitats.

* = observed by field crew.

Table 7. Native mammals likely to occur in the Greensboro (Guilford County) project area, with habitat associations.

<i>Didelphis virginiana</i>	*	Opossum	P,H,M,F,W
<i>Blarina carolinensis</i>		Short-tailed shrew	P,H,M
<i>Scalopus aquaticus</i>		Eastern mole	P,H,M,F,W
<i>Lasionycterus noctivagans</i>		Silver-haired bat	H,F,W
<i>Pipistrellus subflavus</i>		Eastern pipistrelle	P,H,M,F,W
<i>Eptesicus fuscus</i>		Big brown bat	F
<i>Lasiurus borealis</i>		Red bat	M
<i>Nycticeius humeralis</i>		Evening bat	P,H,M,F
<i>Sylvilagus floridanus</i>	*	Eastern cottontail	M,F
<i>Tamias striatus</i>		Eastern chipmunk	P,H,M,F
<i>Marmota monax</i>		Woodchuck	M,F
<i>Sciurus carolinensis</i>	*	Gray squirrel	H,M,W
<i>Sciurus niger</i>		Fox squirrel	P
<i>Glaucomys volans</i>		Southern flying squirrel	H,M
<i>Castor canadensis</i>		Beaver	L
<i>Peromyscus leucopus</i>		White-footed mouse	F
<i>Sigmodon hispidus</i>		Hispid cotton rat	F
<i>Microtus pennsylvanicus</i>		Meadow vole	F
<i>Microtus pinetorum</i>		Woodland vole	P,H,M,F
<i>Ondatra zibethicus</i>		Muskrat	W,L
<i>Vulpes fulva</i>		Red fox	F
<i>Urocyon cinereoargenteus</i>		Gray fox	H,W
<i>Procyon lotor</i>	*	Raccoon	F,W
<i>Mustela vison</i>		Mink	W,L
<i>Odocoileus virginianus</i>	*	White-tailed deer	M,F,W

P = pine forest.

H = upland hardwood forest.

M = mixed pine-hardwood forest.

F = fields, pastures, and disturbed areas.

W = bottomland hardwoods and wetlands.

L = aquatic habitats.

* = observed by field crew.

Table 9. List of wetland plants encountered on the Greensboro Western Urban Loop project site.

<i>Acer negundo</i>	<i>Osmunda cinnamomea</i>
<i>Acer rubrum</i>	<i>Osmunda regalis</i>
<i>Acer saccharum</i>	<i>Parthenocissus quinquefolia</i>
<i>Ailanthus altissima</i>	<i>Peltandra virginica</i>
<i>Alisma subcordatum</i>	<i>Pinus taeda</i>
<i>Allium</i> spp.	<i>Platanus occidentalis</i>
<i>Alnus serrulata</i>	<i>Podophyllum peltatum</i>
<i>Arisaema triphyllum</i>	<i>Polygonum</i> spp.
<i>Arundinaria gigantea</i>	<i>Polystichum acrostichoides</i>
<i>Asimina triloba</i>	<i>Prunus serotina</i>
<i>Athyrium</i> spp.	<i>Quercus alba</i>
<i>Betula nigra</i>	<i>Quercus falcata</i>
<i>Botrychium dissectum</i>	<i>Quercus michauxii</i>
<i>Campsis radicans</i>	<i>Quercus nigra</i>
<i>Carex</i> spp.	<i>Quercus phellos</i>
<i>Carpinus caroliniana</i>	<i>Quercus rubra</i>
<i>Carya ovata</i>	<i>Quercus shumardii</i>
<i>Carya</i> spp.	<i>Ranunculus</i> spp.
<i>Cornus florida</i>	<i>Rosa palustris</i>
<i>Elaeagnus angustifolia</i>	<i>Rosa carolina</i>
<i>Eleocharis</i> spp.	<i>Rubus</i> spp.
<i>Euonymus americanus</i>	<i>Sagittaria latifolia</i>
<i>Fraxinus pennsylvanicus</i>	<i>Salix nigra</i>
<i>Geum canadense</i>	<i>Salix sericea</i>
<i>Geranium maculatum</i>	<i>Sambucus canadensis</i>
<i>Gratiola</i> spp.	<i>Saururus cernuus</i>
<i>Ilex opaca</i>	<i>Scirpus cyperinus</i>
<i>Impatiens capensis</i>	<i>Smilax</i> spp.
<i>Juglans nigra</i>	<i>Symplocarpus foetidus</i>
<i>Juncus effusus</i>	<i>Toxicodendron radicans</i>
<i>Ligustrum sinense</i>	<i>Typha latifolia</i>
<i>Lindera benzoin</i>	<i>Ulmus</i> spp.
<i>Liquidambar styraciflua</i>	<i>Uvularia sessilis</i>
<i>Liriodendron tulipifera</i>	<i>Viburnum dentatum</i>
<i>Lobelia</i> spp.	<i>Viburnum prunifolium</i>
<i>Lonicera japonica</i>	<i>Viola rotundifolia</i>
<i>Ludwigia</i> spp.	<i>Viola</i> spp.
<i>Morus rubra</i>	<i>Vitis rotundifolia</i>
<i>Nasturtium officinale</i>	<i>Woodwardia areolata</i>
<i>Nyssa sylvatica</i>	
<i>Ophioglossum vulgatum</i>	

APPENDIX B
AGENCY RESPONSES



CITY OF GREENSBORO

NORTH CAROLINA

DRAWER W-2
GREENSBORO, N.C. 27402

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NOV 21 1989

J. E. GREENER COMPANY

November 8, 1989

Mr. L. J. Ward, P. E.
 Manager of Planning and Research
 N.C.D.O.T.
 P.O. Box 25201
 Raleigh, N. C. 27611-5201

Dear Mr. Ward:

SUBJECT: Environmental Impact of the Proposed
 Greensboro Western Urban Loop (U-252A)

On behalf of the City of Greensboro thank you for the opportunity to comment on this project. The City of Greensboro has been a supporter and will continue to be an active participant in this important process.

Concerning your request for comments I would like to review some of the comments that our staff received as a part of the 1989 Thoroughfare Plan public presentations.

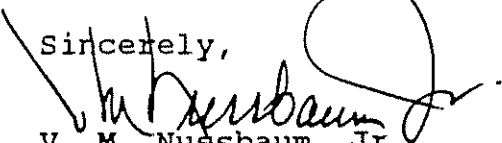
- 1) The impact that the proposed Urban Loop would have on water quality in the Greensboro area.
- 2) Minimize the neighborhood and business disruptions and relocations that this facility may cause.
- 3) Concerns for the impacts to open space and environmentally sensitive areas of our community.
- 4) Historical and archaeological sites which are listed on, or eligible for nomination to the National Register must be avoided when feasible.

These are some of the issues that our citizens have voiced over the last several years. I raise these concerns as their elected representative in order that they may be addressed in a proactive manner rather than a reactive manner. Our citizens need to know that their concerns are being addressed.

page 2

I look forward to working with the Department as this process evolves. We as a community are also ready to work together with the Department to find solutions to our transportation needs.

Sincerely,


V. M. Nussbaum, Jr.
Mayor



United States
Department of
Agriculture

Soil
Conservation
Service

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Jick 1310

NOV 16 1989

Federal Building, Rm. 535
310 New Bern Avenue
Raleigh, NC 27601
Telephone: (919) 790-2905

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NOV 21 1989

J E GREINER COMPANY

November 13, 1989

L. J. Ward, P.E.
Manager of Planning and Research
N.C. Dept. of Transportation
P. O. Box 25201
Raleigh, NC 27611-5201

Re: Environmental Impact of the Proposed Greensboro Western Urban Loop, Greensboro, Guilford County. T.I.P. Number U-2524.

Dear Mr. Ward:

This is in response to your request for Important Farmland Information for the U-2524 project. Through the use of the Guilford County Soil Survey Report we have identified the soils along the route of this project. Our findings:

1. The eastern half of the proposed loop is located essentially in an urban setting, thus, soils along this part of the loop will have little affect on farmland as defined by the Farmland Protection Policy Act.
2. The western half of the proposed loop transects both urbanized areas and open areas. We estimate that 35 percent of the open areas consist of soils that meet the criteria for either prime or state important farmland. The location of these soils can be plotted, if required and a suitable base map is provided.

If we can be of further assistance, please let us know.

Sincerely,

Bobbye J. Jones
Bobbye J. Jones
State Conservationist

cc: John W. Andrews



The Soil Conservation Service
is an agency of the
Department of Agriculture



United States
Department of
Agriculture

Soil
Conservation
Service

1461.01
USDA-Soil Conservation Service
4405 Bland Road, Suite 205
Raleigh, NC 27609
Telephone: (919) 790-2905

January 29, 1990

Mr. Nathan B. Benson, P.E.
Senior Transportation Engineer
Kimley-Horn and Associates, Inc.
P. O. Box Box 33068
Raleigh, NC 27636-3068

Re: Environmental Impact of the Proposed Greensboro Western Urban
Loop, Guilford County, T.I.P. No. U-2524

Dear Mr. Benson:

This is in response to your request for Important Farmland Information for the U-2524 project. Based on the Soil Survey Report of Guilford County, we have identified the important farmland soil areas. These areas are located by color code on the attached base map that you provided.

Please note that farmland which is already in, or committed to urban development, is by definition farmland not subject to the Farmland Protection Policy Act. This probably applies to most or all of this project area. We do not have information in our files to make this determination. The color coded soil areas shown on the attached base map will meet the soil criteria for important farmland, providing urban setting definition does not apply.

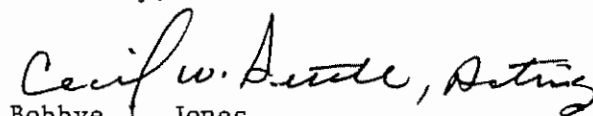
Color code definitions are:

- P1: Color Code Green-All soil areas meet the soil criteria for Prime Farmland.
- P2: Color Code Blue-Only drained areas, areas that are protected from flooding, areas not frequently flooded during the growing season or any combination of these are Prime Farmland.
- S1: Color Code Orange-All areas meet the soil criteria for State Important Farmland.

The unmarked soil areas do not qualify for important farmlands, mostly because of their urban setting.

Form AD-1006 is enclosed as requested.

Sincerely,


Bobby J. Jones
State Conservationist

cc: John W. Andrews
The Soil Conservation Service
is an agency of the
Department of Agriculture



FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request 12/19/89
Name Of Project Greensboro Western Urban Loop U-2524	Federal Agency Involved FHWA	
Proposed Land Use HIGHWAY	County And State GUILFORD COUNTY, N.C.	
PART II (To be completed by SCS)		Date Request Received By SCS

Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply - do not complete additional parts of this form.)		Yes <input type="checkbox"/>	No <input type="checkbox"/>	Acres Affected	Average Farm Size
Major Crops	Farmable Land In Govt. Jurisdiction Acres: %	Amount Of Farmland As Defined In FPPA Acres: %		Date Land Evaluation Returned By SCS	
Name Of Land Evaluation System Used	Name Of Local Site Assessment System				

PART III (To be completed by Federal Agency)	EAST		ALTERNATIVE SITE RATING WEST		CROSSOVER
	Site A	Site B	Site C	Site D	
A. Total Acres To Be Converted Directly					
B. Total Acres To Be Converted Indirectly					
C. Total Acres In Site	433	525	557	22	

PART IV (To be completed by SCS) Land Evaluation Information	EAST	ALTERNATIVE SITE RATING WEST	CROSSOVER
A. Total Acres Prime And Unique Farmland	50	130	18
B. Total Acres Statewide And Local Important Farmland		40	
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	.0004	.001	.0001
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Priority Value			

PART V (To be completed by SCS) Land Evaluation Criterion	EAST	ALTERNATIVE SITE RATING WEST	CROSSOVER
Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)	60	60	60

PART VI (To be completed by Federal Agency)	Maximum Points	EAST	ALTERNATIVE SITE RATING WEST	CROSSOVER
Site Assessment Criteria (These criteria are explained in 7 CFR 658.816)				
1. Area - Nonurban Use	15	10	10	10
2. Perimeter In Nonurban Use	10	7	7	7
3. Percent Of Site Being Farmed	20	10	10	10
4. Protection Provided By State And Local Government	20	0	0	0
5. Distance From Urban Builtup Area	N/A	N/A	N/A	N/A
6. Distance To Urban Support Services	N/A	N/A	N/A	N/A
7. Size Of Present Farm Unit Compared To Average	10	5	5	5
8. Creation Of Nonfarmable Farmland	25	20	20	20
9. Availability Of Farm Support Services	5	5	5	5
10. On-Farm Investments	20	15	15	15
11. Effects Of Conversion On Farm Support Services	25	18	15	18
12. Compatibility With Existing Agricultural Use	10	4	4	4
TOTAL SITE ASSESSMENT POINTS	180	94	88	94

PART VII (To be completed by Federal Agency)	Maximum Points	EAST	ALTERNATIVE SITE RATING WEST	CROSSOVER
Relative Value Of Farmland (From Part V)	100	60	60	60
Total Site Assessment (From Part VI above or a local site assessment)	180	94	88	94
TOTAL POINTS (Total of above 2 lines)	280	154	138	154

Site Selected	Date Of Selection	Was A Local Site Assessment Used?
Reason For Selection		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

C2193.14 3.10
Vicki
Pam



United States
Department of
Agriculture

Forest
Service

National Forests
in North Carolina

Post Office Building
Post and Otis Sts.
P.O. Box 2750
Asheville, NC 28802

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NOV 21 1989

J. E. GREINER COMPANY

Reply to: 1950

Date: November 14, 1989

Mr. L. J. Ward, P.E.
Manager of Planning & Research
State of North Carolina - DOT
P. O. Box 25201
Raleigh, N. C. 27611-5201



Dear Mr. Ward:

The U.S. Forest Service has no comments on the Environmental Impact of the Proposed Greensboro Western Urban Loop, Greensboro, Guilford County. TIP. No. U-2524 dated October 20, 1989, since there are no National Forest land affected.

Sincerely,

George H Cook

GEORGE H. COOK, Director
Planning & Environmental Coordination





DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT CORPS OF ENGINEERS
P O BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

November 20, 1989

IN REPLY REFER TO

Planning Division

NOV 22 1989

Mr. L. J. Ward, P.E., Manager
Planning and Research Branch
Division of Highways
North Carolina Department
of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Ward:

We have reviewed your letter of October 20, 1989, requesting information on the "Environmental Impact of the Proposed Greensboro Western Urban Loop, Greensboro, Guilford County. T.I.P. Number U-2524" and offer the following comments.

Both Guilford County and the city of Greensboro have had detailed flood insurance studies done on many of their streams. Any adverse effects of this proposal on either the flood plains or the floodways should be evaluated, minimized and mitigated, or eliminated once the alignment and structural requirements are set.

The proposed project may involve the discharge of fill material into waters of the United States and wetlands. As listed in the October 20, 1989, letter, construction of bridges, culverts, or channelization may be required for the following streams and their tributaries: Jenny Branch, Reddicks Creek, South Buffalo Creek, North Buffalo Creek, Horsepen Creek, Richland Creek, and Hickory Creek.

Department of the Army permit authorization, pursuant to Section 404 of the Clean Water Act of 1977, as amended, will be required for the discharge of excavated and/or fill material in waters of the United States or any adjacent and/or isolated wetlands in conjunction with this project. Specific permit requirements will depend on the final project design, extent of fill work within streams and wetland areas (dimensions, fill amounts, etc.), construction methods, and other factors. When final plans are completed, including the extent and location of development within waters of the United States and wetlands, our

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Regulatory Branch would appreciate the opportunity to review these plans for a project-specific determination of Department of the Army permit requirements. Should you have any questions, please contact Mr. David Lekson at the Raleigh Field Office, telephone (919) 846-0648.

We appreciate the opportunity to comment on this project. If we can be of further assistance to you, please do not hesitate to contact us.

Sincerely,


Lawrence W. Saunders
Chief, Planning Division



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET NE
ATLANTA GEORGIA 30365

NOV 27 1989

Handwritten: A. C. ...
Farride

Mr. L.J. Ward, Manager
Dept. of Planning and Research
North Carolina Department of Transportation
P.O. Box 25201
Raleigh, NC 27402

Subject: Proposed Greensboro Western Urban Loop from I-85 to
Lawndale Drive; Guilford County, NC; TIP No.: U-2524

Dear Mr. Ward:

We have reviewed your advanced information for the above referenced project. Because of the limited nature of the information provided, it is difficult to make substantive comments at this time. However, we are able to make some generic comments as well as provide some specific comments.

Enclosed you will find a list of special environmental concerns relating to potential impacts from highway construction projects. As you can see, potential impacts to water quality, wetlands, and air quality due to the construction and use of the proposed facility must be investigated. Noise related impacts must also be thoroughly investigated. These items should be carefully evaluated in your environmental impact document for all project alternatives, including the no-build alternative.

Also, we note in the information provided that streams and freshwater wetlands may be in the project corridor. Disturbance of these areas should be avoided. If, however, alternatives are evaluated that indicate possible disturbance of these areas, a complete plan for mitigation of any damage should be included in the document. Possible impacts upon the aquatic environment should be carefully documented and a plan that demonstrates how unavoidable adverse impacts from any of the alternatives will be mitigated should also be included. Listing of any potential impacts to wildlife and protected or sensitive species of the area should be documented as well.

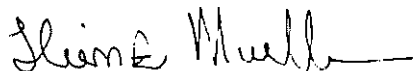
An additional area of concern that needs to be addressed is the issue of non-point source pollution control to prevent pollutants from highway runoff water from entering area waterways both during and

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J. E. GREINER COMPANY

after construction. These methods could include the use of closed bridge drainage systems, retention basins, grassed swales or other techniques. Consideration for the potential impact that the roadway could have on area drinking water sources and the potential for hazardous materials being spilled into the waterways should also be addressed. Finally, the routes must be examined for hazardous materials that may be present in permitted or unpermitted dump sites.

Since overall environmental impacts associated with improvement of the existing roadway corridors can be much less environmentally harmful than constructing a new corridor we encourage you to give serious consideration to an alternative that utilizes the current roadway system. We appreciate the opportunity to provide comments to you early in the NEPA review process. Please forward a copy of your environmental document to us for comment when it is available. If you have any questions regarding our comments please contact David Melgaard of my staff at (404) 347-3776 or (FTS) 257-3776.

Sincerely,



Heinz J. Mueller, Chief
Environmental Policy Section
Federal Activities Branch

Attachment

SPECIAL CONCERNS

The following list is a generalized synopsis of special concerns relevant to generic highway projects.

Wetlands/Water Quality

- ° Protection of wetlands pursuant to the Section 404(b) Guidelines of the Clean Water Act
- ° Avoiding/minimizing wetland activities such as:
 - * channel realignments
 - * dredging and filling
 - * flow alterations causing wetland drainage or flooding
 - * erosion and siltation
 - * habitat loss
 - * disturbance of rare and endangered species
- ° Conformance with Executive Order 11988 ("Floodplain Management") and Executive Order 11990 ("Protection of Wetlands"), if federal funds are involved
- ° Avoidance of environmental impacts and feasible mitigation for unavoidable impacts (e.g., wetland creation and restoration).
- ° Construction impacts (e.g., erosion)
- ° Public complaints concerning construction-related wetland alteration and state mechanisms to properly address them.

Air Quality

- ° Conformance with National Ambient Air Quality Standards (NAAQS) of the Clean Air Act to determine whether a site is located in an attainment, non-attainment, or unclassified area
- ° Conformance with the State Implementation Plan (SIP)
- ° Conformance with the Prevention of Significant Deterioration (PSD) regulations
- ° Conformance with EPA and state modeling guidance
- ° Existing and predicted levels of various relevant air-quality parameters such as carbon monoxide (CO).
- ° Public complaints concerning construction-related fugitive emissions.

Noise

- ° Conformance of on-site existing (ambient) and project predicted noise levels with FHWA Noise Abatement Criteria

(NAC) guidelines for commercial/industrial receptors ($L_{10}=75\text{dBA}$; $\text{Leq}=72\text{dBA}$) and residential/institutional receptors ($L_{10}=70\text{dBA}$; $\text{Leq}=67\text{dBA}$). Preferred descriptors for existing, predicted, and NAC levels are $\text{Leq}(1)$ or L_{10} . The hour (1) of the $\text{Leq}(1)$ descriptor should be defined (e.g., peak rush hour). $\text{Leq}(24)$ values are also helpful in association with $\text{Leq}(1)$ data. Ambient levels should be measured at representative sites rather than estimated.

- Preferably, determinations for predicted noise levels should be made for all noise receptors along the entire highway corridor (as opposed to just specific sites along the corridor) affected by the project and should be compared with existing (ambient) noise levels. The name of the FHWA-approved noise model (e.g., STAMINA) used for predictions should be listed. The number of project-affected noise receptors should be arranged into the following groups:
 - * receptors receiving an increase of 5-9 dBA
 - * receptors receiving an increase of 10-14 dBA
 - * receptors receiving an increase of 15 dBA and greater.

Those receptors receiving a noise increase resulting in a level above their NAC should be indicated. Inclusion of actual ambient vs. predicted noise levels would be beneficial to an evaluation (e.g., 60dBA elevated to 75dBA L_{10} for a given receptor). It would be of particular interest to know how many decibels a predicted level exceeded the NAC for all so-affected receptors.

- Project-related noise level elevations: all project-generated noise increases above the existing site noise level are considered impacts, but particularly if above design levels, if elevated 10 dBA or more, and/or if long termed. An increase of 5-9 dBA is considered important, a 10-14dBA is considered substantial, and a 15 dBA and greater increase is considered severe, even if the resultant elevated noise levels are below the NAC. Feasible mitigation of project-generated increases above the NAC should be accomplished and feasible mitigation for increases of 10 dBA or more (below the NAC) should be considered. Mitigation should at least be at the level of FHPM 7-7-3 guidance.
- Additional helpful information includes the existing and predicted percentage of trucks using the old/new highway.
- Construction impacts (e.g., construction machinery, pile driving, blasting)
- Also of concern are public complaints concerning construction-related noise emissions and state mechanisms to properly address them.



North Carolina Wildlife Resources Commission

512 N Salisbury Street, Raleigh, North Carolina 27611, 919-733-3391
Charles R. Fullwood, Executive Director



MEMORANDUM

TO: Melba McGee
Dept. of Environment, Health and Natural Resources

FROM: Don Baker, Program Manager
Division of Boating and Inland Fisheries

DATE: November 14, 1989

SUBJECT: Environmental Impact of Proposed Greensboro Western Urban Loop,
Greensboro, Guilford County. T.I.P. Number U-2524.

Wildlife Resources Commission Biologists investigated the proposed project area on November 14, 1989. However, the map was not specific as to the exact location of the roadway. Comments are based on what biologists determined as likely sites for roadway construction.

The project will impact a large quantity of both upland and lowland hardwoods and several wetland areas. This habitat supports a variety of wildlife including deer, rabbit, squirrel, songbirds, raptors, quail and numerous furbearers. In some areas, large blocks of land (300+ acres) of hardwoods will be divided by the proposed roadway. Since very little wildlife habitat exists in Guilford County, loss of this habitat will eliminate much of the wildlife species from this currently occupied area.

Aquatic resources in the proposed project area include many small intermittent and headwater streams from the Haw and Deep River watersheds. Many of the identified streams in the project area are too small to be of fishing significance. However, several of these small streams empty into ponds or lakes which provide fishing and/or supply water to the city. Lakes which could be impacted include Lake Brandt and Lake Jeannette, and depending upon actual construction sites Lake Higgins and the High Point City Lake. Construction over or around these streams will lower their quality by increasing runoff and silt and sediment loads. There is also a potential for degradation of fisheries and fisheries habitat in the lakes or ponds into which these streams flow.

This project has the potential to affect a wide variety of wildlife and fisheries habitat. The EIS should include all streams, wetlands and forest areas that will be impacted by this roadway construction. The Commission

would like the opportunity to comment on the EIS once it has been completed. We would also recommend following existing roadways where possible or explore the no build alternative.

Thank you for the opportunity to comment of this proposed project. If we can provide further assistance, let us know.

cc: Roger I. Jones, District 5 Fisheries Biologist
Larry Warlick, District 5 Wildlife Biologist

REVISED SEPTEMBER 11, 1989

Guilford County

There are species which, although not now listed or officially proposed for listing as endangered or threatened, are under status review by the Service. "Status Review" (SR) species are not legally protected under the Act, and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as threatened or endangered. We are providing the below list of status review species which may occur within the project area for the purpose of giving you advance notification. These species may be listed in the future, at which time they will be protected under the Act. In the meantime, we would appreciate anything you might do for them.

Nestronia (Nestronia umbellula) - SR



United States Department of the Interior
FISH AND WILDLIFE SERVICE

Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726



November 27, 1989

Mr. L. J. Ward, Manager
Planning and Research Branch
Division of Highways
N.C. Department of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611-5201

Subject: Scoping Comments for Greensboro Western Urban Loop,
Greensboro, Guilford County, North Carolina; TIP U-2524.

Dear Mr. Ward:

This responds to your letter of October 20, 1989 requesting comments on the proposed project. These comments are provided in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543).

The U.S. Fish and Wildlife Service (Service) is particularly concerned about potential impacts of the proposed project upon stream ecosystems and associated wetlands within the study corridor. At least seven streams and/or wetlands are present in the study corridor. Special care should be exercised in the design and implementation of all stream/wetland crossing structures.

Based on our records, there are no federally-listed or proposed endangered or threatened plant or animal species in the impact area of the project. Therefore, the requirements of Section 7(c) of the Act are fulfilled. However, obligations under Section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner which was not considered in this review; or, (3) a new species is listed or critical habitat determined that may be affected by the identified action.

The attached page identifies species that are candidates for Federal listing which may occur in the proposed project corridor.

The Service's review of any environmental document would be greatly facilitated if it contained the following information:

- 1) A description of the fishery and wildlife resources within existing and required additional right-of-way and any areas, such as borrow areas, which may be affected directly or indirectly by the proposed improvements.

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- 2) Acreage of branches, creeks, streams, rivers or wetlands that will be impacted as a consequence of the proposed highway project. Wetlands affected by the proposed project should be mapped in accordance with the Federal Manual for Identifying and Delineating Jurisdictional Wetlands.
- 3) Linear feet of any water courses relocated.
- 4) Acreage of upland habitats, by cover type, which would be eliminated or altered.
- 5) Techniques which will be employed for designing and constructing any relocated stream channels or for creating replacement wetlands.
- 6) Mitigation measures which will be employed to avoid, eliminate, reduce or compensate for habitat value losses associated with any of the proposed improvements.
- 7) Assessments of the expected secondary and cumulative impacts of the proposed project on fish and wildlife resources, including federally-listed endangered and threatened species.

We appreciate the opportunity to provide these comments to you and encourage your consideration of them. Please continue to advise us of the progress of this project.

Sincerely yours,


L.K. Mike Gantt
Supervisor

Attachment



State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Land Resources
512 North Salisbury Street • Raleigh, North Carolina 27611

James G. Martin, Governor
William W. Cobey, Jr., Secretary

Stephen G. Conrad
Director

MEMORANDUM

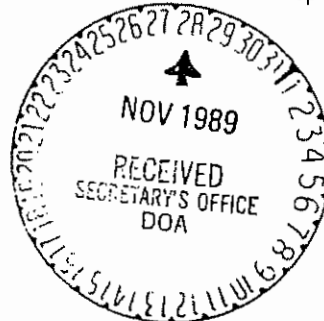
Date: November 7, 1989

To: Melba McGee

From: Randy Cotten *RC*

Thru: Gary Thompson

Subject: Proposed Greensboro Western Urban Loop, Guilford
County, TIP No. U-2524



We have reviewed the above referenced project and find that 49 geodetic survey markers will be impacted.

The N.C. Geodetic Survey should be contacted at P.O. Box 27687, Raleigh, N.C. 27611, (919) 733-9836 prior to construction. Intentional destruction of a geodetic monument is a violation of N.C. General Statute 102-4.

BWT/rj
cc: Joe Creech, NCDOT



State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Soil and Water Conservation
512 North Salisbury Street • Raleigh, North Carolina 27611



David W Sides
Director

James G Martin, Governor
William W Cobey, Jr, Secretary

November 17, 1989

MEMORANDUM

TO: Melba McGee
FROM: Larry Sink *Larry Sink*
SUBJECT: A-95/EIS Review for the Greensboro Western Urban Loop
in Guilford County. Project No. 90-0276

In order to determine the impact this highway project would have on prime or statewide important farmlands, an evaluation would need to be made when the road area is determined. Since this is planned in an area that is mostly urban, I would tentatively say that the impact on prime and statewide important farmlands would be minimal. Wetland areas maybe impacted at various stream crossings and possibly other areas. An investigation should be made in order to determine the areas that would classify as wetlands. The Guilford County Soil Survey Report would be a source to identify the hydric soils. The Division of Soil and Water Conservation recommends that wetland areas be protected as much as possible and the exact route of the highway be chosen so as to impact the least on wetlands and prime or statewide important farmlands.

LS/tl



State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Water Resources
512 North Salisbury Street • Raleigh, North Carolina 27611

James G. Martin, Governor
William W. Cobey, Jr., Secretary

John N. Morris
Director

November 7, 1989



MEMORANDUM

TO: Melba McGee
FROM: John Sutherland *J.S.*
SUBJECT: Review of 90-0276, Greensboro Western Urban Loop

We think the environmental document should address the impact of the proposed project on wetlands, streams, stormwater runoff, and trees. If impacts are present, then mitigation should be included in the project.

Reviewing Office:

Project Number:

Due Date:

90-0276

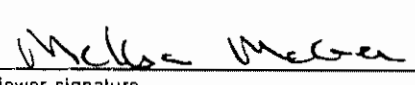
INTERGOVERNMENTAL REVIEW — PROJECT COMMENTS

After review of this project it has been determined that the EHNR permit(s) indicated must be obtained in order for this project to comply with North Carolina Law.

Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form

All applications, information and guidelines relative to these plans and permits are available from the same Regional Office

PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
<input type="checkbox"/> Permit to construct & operate wastewater treatment facilities, sewer system extensions, & sewer systems not discharging into state surface waters	Application 90 days before begin construction or award of construction contracts On-site inspection Post-application technical conference usual	30 days (90 days)
<input type="checkbox"/> NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters	Application 180 days before begin activity On-site inspection Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later	90-120 days (N/A)
<input type="checkbox"/> Water Use Permit	Pre-application technical conference usually necessary	30 days (N/A)
<input type="checkbox"/> Well Construction Permit	N/A	7 days (15 days)
<input checked="" type="checkbox"/> Dredge and Fill Permit	Application copy must be served on each riparian property owner On-site inspection Pre-application conference usual Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
<input type="checkbox"/> Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources	N/A	60 days (90 days)
<input checked="" type="checkbox"/> Any open burning associated with subject proposal must be in compliance with 15 NCAC 2D 0520	N/A	60 days (90 days)
<input type="checkbox"/> Demolition or renovations of structures containing asbestos material must be in compliance with NCAC 2D 0525 which requires notification and removal prior to demolition		
<input type="checkbox"/> Complex Source Permit required under 15 NCAC 2D 0800		
<input checked="" type="checkbox"/> The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity An erosion & sedimentation control plan will be required if one or more acres to be disturbed Plan filed with proper Regional Office (Land Quality Sect) at least 30 days before begin activity		
<input type="checkbox"/> The Sedimentation Pollution Control Act of 1973 must be addressed with respect to the referenced Local Ordinance:		
<input type="checkbox"/> Mining Permit	On-site inspection usual Surety bond filed with EHNR as shown: Any area mined greater than one acre must be permitted. AFFECTED LAND AREA AMOUNT OF BOND Less than 5 acres \$ 2,500 5 but less than 10 acres 5,000 10 but less than 25 acres 12,500 25 or more acres 5,000	30 days (60 days)
<input type="checkbox"/> North Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days	1 day (N/A)
<input type="checkbox"/> Special Ground Clearance Burning Permit - 22 counties in coastal N.C. with organic soils	On-site inspection by N.C. Division Forest Resources required "if more than five acres of ground clearing activities are involved Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
<input type="checkbox"/> Oil Refining Facilities	N/A	90-120 days (N/A)
<input type="checkbox"/> Dam Safety Permit	If permit required, application 60 days before begin construction Applicant must hire N.C. qualified engineer to: prepare plans, inspect construction, certify construction is according to EHNR approved plans. May also require permit under mosquito control program An a 404 permit from Corps of Engineers	30 days (N/A)

PERMITS		SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
<input type="checkbox"/>	Permit to drill exploratory oil or gas well	File surely bond of \$5,000 with EHNR running to State of NC conditional that any well opened by drill operator shall, upon abandonment, be plugged according to EHNR rules and regulations	10 days (N/A)
<input type="checkbox"/>	Geophysical Exploration Permit	Application filed with EHNR at least 10 days prior to issue of permit Application by letter No standard application form	10 days (N/A)
<input type="checkbox"/>	State Lakes Construction Permit	Application fee based on structure size is charged Must include descriptions & drawings of structure & proof of ownership of riparian property	15-20 days (N/A)
<input type="checkbox"/>	401 Water Quality Certification	N/A	60 days (130 days)
<input type="checkbox"/>	CAMA Permit for MAJOR development	\$10 00 fee must accompany application	55 days (180 days)
<input type="checkbox"/>	CAMA Permit for MINOR development	\$10 00 fee must accompany application	22 days (60 days)
<input type="checkbox"/>	Several geodetic monuments are located in or near the project area. If any monuments need to be moved or destroyed, please notify: N C Geodetic Survey, Box 27687, Raleigh, N C 27611		
<input type="checkbox"/>	Abandonment of any wells, if required, must be in accordance with Title 15, Subchapter 2C 0100		
*	Other comments (attach additional pages as necessary, being certain to cite comment authority):		
 reviewer signature		EHNR agency	11/21/89 date

REGIONAL OFFICES

Asheville Regional Office
59 Woodfin Place
Asheville, NC 28801
(704) 251-6208

Mooresville Regional Office
919 North Main Street
Mooresville, NC 28115
(704) 663-1699

Washington Regional Office
1424 Carolina Avenue
Washington, NC 27889
(919) 946-6481

Fayetteville Regional Office
Suite 714 Wachovia Building
Fayetteville, NC 28301
(919) 486-1541

Raleigh Regional Office
Box 27687
Raleigh, NC 27611-7687
(919) 733-2314

Wilmington Regional Office
7225 Wrightsville Avenue
Wilmington, NC 28403
(919) 256-4161

Winston-Salem Regional Office
8003 Silas Creek Parkway Extension
Winston Salem, NC 27106
(919) 761-2351



NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

REVIEW DISTRIBUTION

STATE NUMBER 90-E-4220-0276

F02

DEPT OF ADMINISTRATION

DATE RECEIVED 10 26 89

DEPT OF AGRICULTURE

DEPT OF CULTURAL RESOURCES

DEPT OF HUMAN RESOURCES

DEPT OF NRCO

STATE AGENCY RESPONSE DUE 11 24 89

DEPT OF TRANSPORTATION

DEPT OF CC&PS - NFP

STATE PLANNING REGION G ✓

LOCAL RESPONSE DUE 11 23 89

REVIEW CLOSED 11 26 89

PROJECT

AGENCY NC DOT

CFDA 00002

DESC ENVIRONMENTAL IMPACT OF THE PROPOSED GREENSBORO WESTERN URBAN LOOP,
GREENSBORO, GUILFORD CO, T.I.P. NUMBER U-2524

CROSS-REFERENCE NUMBER

REVIEW THE ATTACHED PROJECT. SUBMIT YOUR RESPONSE BY THE ABOVE INDICATED
DATE. IF ADDITIONAL REVIEW TIME IS NEEDED CONTACT THIS OFFICE.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED

NO COMMENT

COMMENTS ATTACHED

SIGNED BY

Alice Collier Smith

DATE

11/21/89



PIEDMONT TRIAD COUNCIL OF GOVERNMENTS



Intergovernmental Review Process
2216 W. Meadowview Road
Greensboro, North Carolina 27407-3480
Telephone: 919/294-4950

REVIEW & COMMENT FORM

The State Clearinghouse sent us the enclosed information about a proposal which could affect your jurisdiction. Please circulate it to the people you believe need to be informed.

If you need more information about the proposal, please contact the applicant directly. The name and phone number of a contact person are listed on the attached "Notification of Intent."

If you wish to comment on the proposed action, complete this form and return it to the PTCOG office by Nov. 21, 1989. We will send your comments to the State Clearinghouse to be included in a recommendation to the proposed funding agency.

State Application Identifier # 90-E-0276

Commenter's Name & Title Lindsay W. Coy

Representing Piedmont Triad COG (local government) Phone # (919) 294-4950

Mailing Address 2216 W. Meadowview Rd, Greensboro NC 27407

Lindsay W. Coy (signature) Date Signed 11/2/89

Comments: (You may attach additional sheets.)

We have no problem with the planning process outlined in a memo dated 10/20/89 from Mr. F. J. Ward, P.E. NCDOT. The proposed facility is needed & we support it.



CITY OF GREENSBORO

NORTH CAROLINA

DRAWER W-2
GREENSBORO, N.C. 27402

RECEIVED

MAR 19 1990

KIMILEY-HORN
TPTO OFFICE

March 15, 1990

Mr. Nathan Benson
Ms. Lisa Hilliard
Kimley-Horn and Associates, Inc.
Post Office Box 33068
Raleigh, North Carolina 27636-3068

Dear Lisa,

This correspondence will confirm our telephone conversation of March 12, 1990. I received the maps of the the proposed Western Urban Loop and the I-85 Greensboro By-pass and my comments pertain to the routes depicted on the maps.

As I explained to you, I am aware of one groundwater remediation project and one contamination site not currently under remediation which would be affected by the proposed transportation projects:

1. Worth Chemical Corporation on Segal Boulevard off Edwardia Drive has been issued a groundwater discharge permit by my office for the discharge of pretreated contaminated groundwater. The permit includes limits for several organic solvents which have been found in the groundwater. The State Division of Environmental Management is the control authority for this project. My office merely coordinated the disposal of the groundwater after treatment.
2. As part of the Emergency Response Team for Guilford County, my staff has been involved in the investigation of a leak at the petroleum tank farm area on West Market Street. It has been estimated that in excess of 50,000 gallons of petroleum product has been lost and is now floating on top of the "water table". The State Division of Environmental Management has mandated a special study be conducted by the petroleum companies at the tank farm to determine the origin of the leak and/or spill. This report is due to the State in May 1990. Clean-up activities will commence at that time, I assume. I am not sure anyone can provide you with any further information until the study is complete and the results are analysed.

These two sites should certainly be reviewed and included in any Environmental Impact Statement concerning the transportation projects. If I can be of any further assistance, please do not hesitate to contact me at 919-375-4116.

Sincerely,

Martha E. Groome

Martha E. Groome
Industrial Waste Supervisor



North Carolina Department of Cultural Resources

James C. Martin, Governor
Patric Dorsey, Secretary

Division of Archives and History
William S. Price, Jr., Director

April 22, 1991

Nicholas L. Graf
Division Administrator
Federal Highway Administration
Department of Transportation
P.O. Box 28606
Raleigh, N.C. 27611

Re: Historic Structures Survey Report for
Greensboro Western Urban Loop, Guilford
County, ER 91-7981, State Project 6.498001T,
U-2524

Dear Mr. Graf:

Thank you for your letter of March 28, 1991, concerning the above project. We have reviewed the historic structures survey report by Langdon Edmunds Oppermann and offer our comments.

Six of the properties surveyed for the above report were also included in the Greensboro-High Point Road Historic Structures Survey Report (U-2412, ER 91-7588) which we have reviewed. Please reference our letter dated December 28, 1990, in which we concurred that the following properties were eligible for listing in the National Register of Historic Places:

- J. H. Adams House (Adamsleigh)
- Chamblee House (Chamblee-Brannan House)
- Jamison-Ward House
- Celia Phelps Methodist Episcopal Church
- Pilot Life/Sedgefield Historic District
- Sedgefield Stables

In the Greensboro Western Urban Loop report, additional eligibility criteria were presented for two of the properties--J. H. Adams House and Pilot Life/Sedgefield Historic District--with which we concur.

RECEIVED
APR 29 1991
GREINER, INC.

For purposes of compliance with Section 106 of the National Historic Preservation Act, we concur that the following properties (not previously reviewed by our office) are also eligible for listing in the National Register under the criteria cited:

Roy Edgerton House (P207). Criterion C--The Edgerton House is an excellent representation of the mix of Colonial Revival and Craftsman styles.

Samuel H. Hodgkin House (P88). Criterion C--The Hodgkin House is a good example of the combination of Queen Anne and Prairie styles.

Jeffers Complex, including the Hobbs-Korner Cottage and the Dan Jeffers House (P178-179). Criterion C--The Jeffers Complex is a good example of the continuation of vernacular building tradition and a developed example of a fashionable academic architectural style.

Era Lasley House (P89). Criterion A--The Lasley House is significant for its continued association with Guilford College. Criterion C--The Lasley House is a well-executed example of a Craftsman bungalow.

New Garden Friends Cemetery (P266). Criterion A--The cemetery is associated with historic events, including a Revolutionary War skirmish. Criterion B--The cemetery includes the graves of persons pivotal to the development of the future Guilford College and of Guilford County. Criterion C--The cemetery's gravestones are of distinctive designs. Criterion D--The cemetery contains significant archaeological remains from earlier structures and activities.

The following properties were determined not eligible for listing in the National Register of Historic Places.

Armfield-Mills Cemetery (P234). The cemetery does not derive its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events.

Dealus M. Ballinger Farm (P159). The farmhouse is not representative of any significant events, persons, or architectural styles or construction types.

Jonathan Ballinger Farm (P158). The farmhouse has undergone numerous character-altering changes.

Blair-Peele (P264). The house has undergone numerous character-altering changes.

Coble Farm (P209). The farmhouse has undergone numerous character-altering changes.

Couch House (P214). The house has undergone numerous interior changes and has lost its building and setting integrity.

Crutchfield Fertilizer Warehouse (P51). The property has undergone numerous character-altering changes and lacks historical or architectural distinction.

Dr. Franklin Davis House (P251). The house was demolished.

Ada Field Flour Mill (P270). The mill has undergone numerous character-altering changes.

B. C. Fogelman House (P161). The house is not representative of any significant events, persons, or architectural styles or construction types.

Gardner House (P111). The house is not representative of any significant events, persons, or architectural styles or construction types.

Hassell House (P96). The house has undergone numerous character-altering changes.

Hollowell House (P260). The house is not representative of any significant events, persons, or architectural styles or construction types.

Jackson-Anthony House (P75). The house has lost both its building and setting integrity.

Jessup House (P182). The house lacks historic or architectural distinction.

Kimrey-Binford House (P262). The house is not representative of any significant events, persons, or architectural styles or construction types.

Clarence O. Knight Farm (P188). The house has undergone numerous character-altering changes.

Knight-Frazier House (P268). The house has undergone numerous character-altering changes.

Dr. McCracken House (P247). The house is not representative of any significant events, persons, or architectural styles or construction types.

Marshburn House (P210). The house has undergone numerous character-altering changes.

Meris House (P210). The house is not representative of any significant events, persons, or architectural styles or construction types.

In general, the report meets our office's guidelines and those of the Secretary of the Interior. Specific concerns and/or corrections which need to be addressed in the preparation of a final report are attached for the author's use.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act of 1966 and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800.

Nicholas L. Graf
April 22, 1991, Page 4

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,

David Brook
Deputy State Historic Preservation Officer

DB:slw

Attachment

cc: L. J. Ward, NCDOT
B. Church, NCDOT
Kay Simpson, Louis Berger & Associates
Marty Bowers, Louis Berger & Associates
Langdon Edmunds Oppermann

bc: ~~106~~
Southern/Stancil
Brown
County
RF

ATTACHMENT

Historic Structures Survey Report
Greensboro Western Urban Loop, Guilford County
ER 91-7981, State Project 6.498001T, U-2524

Celia Phelps Methodist Episcopal Church (P231). We feel the church is also eligible for listing in the National Register under Criterion A as a reminder of the development of the local black community. (We concurred the church was eligible under Criteria A and C in our review of the Greensboro-High Point Road Historic Structures Survey Report.)



North Carolina Department of Cultural Resources

James C. Martin, Governor
Patric Dorsey, Secretary

Division of Archives and History
William S. Price, Jr., Director

May 2, 1991

Nicholas L. Graf
Division Administrator
Federal Highway Administration
U.S. Department of Transportation
P. O. Box 26806
Raleigh, N.C. 27611

Re: Section 106 Consultation
Archaeological Survey Report, Greensboro
Western Urban Loop, Guilford County, State
Project No. 6.498001T, TIP No. U-2524,
ER 91-7970

Dear Mr. Graf:

Thank you for your letter of March 21, 1991, concerning the above project.

The final archaeological report by Loretta Lautzenheiser of Coastal Carolina Research, Inc., submitted with the above letter incorporates the revisions recommended in our letter of February 13, 1991.

Our recommendations concerning the need for additional archaeological investigations at several archaeological sites (31GF242, 31GF221, 31GF223, 31GF224, 31GF230, 31GF249, and 31GF198) remain unchanged. Please refer to our letter of February 13, 1991, for specific details.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act of 1966 and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800.

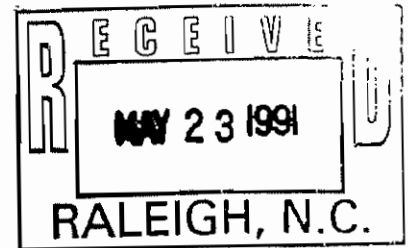
Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,

David Brook
Deputy State Historic Preservation Officer

DB:slw

RECEIVED
MAY 08 1991
GREINER, INC.



North Carolina Department of Cultural Resources

James C. Martin, Governor
Patric Dorsey, Secretary

Division of Archives and History
William S. Price, Jr., Director

May 21, 1991

Nicholas L. Graf
Division Administrator
Federal Highway Administration
Department of Transportation
P.O. Box 26806
Raleigh, N.C. 27611

Re: Historic Structures Survey Report for
Greensboro Urban Loop, Guilford County,
ER 91-7981, State Project No. 6.49001T,
TIP U-2524

Dear Mr. Graf:

The properties listed below were inadvertently omitted from our letter dated April 22, 1991.

The following properties are listed in the National Register of Historic Places:

Guilford College (P246). Guilford College was included in the National Register on June 21, 1990.

Guilford Courthouse Military Park (P272). Guilford Courthouse Military Park was included in the National Register on October 15, 1966.

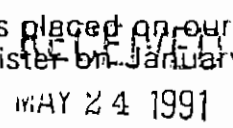
Hoskins Farmstead Historic District (P271). Hoskins Farmstead Historic District was included in the National Register on March 15, 1988.

The following properties are included in our state study list for eventual nomination to the National Register and in effect are considered eligible:

Arcadia (Lewis Lyndon Hobbs House) (P267). Arcadia was placed on our state study list for eventual nomination to the National Register on May 20, 1977.

Thomas Cook Farm (P148). Thomas Cook Farm was placed on our state study list for eventual nomination to the National Register on October 11, 1990.

Kimrey-Haworth House (P218). Kimrey-Haworth House was placed on our state study list for eventual nomination to the National Register on January 17, 1991.



The following properties were determined not eligible for listing in the National Register of Historic Places for the reasons cited:

Gray-Pegram Farm (P164). The farm has undergone numerous character-altering changes.

Smith-Hodgin Dairy Farm (P197). The farm has undergone numerous character-altering changes.

Whippoorwill (Ballinger Stewart House) (P157). The house has undergone numerous character-altering changes.

Woodyside Store and Houses (P31-P34). Woodyside does not retain integrity necessary for listing in the National Register.

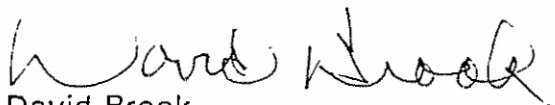
We apologize for any inconvenience this omission may have caused.

With reference to our April 22, 1991, letter, we note that the report was considered final by the highway agencies' reviewers and authors. Given the minor nature of our concern about National Register Criterion A being added to the determination of Celia Phelps Church's eligibility for the National Register of Historic Places, we feel no further revisions are necessary.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act of 1966 and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,



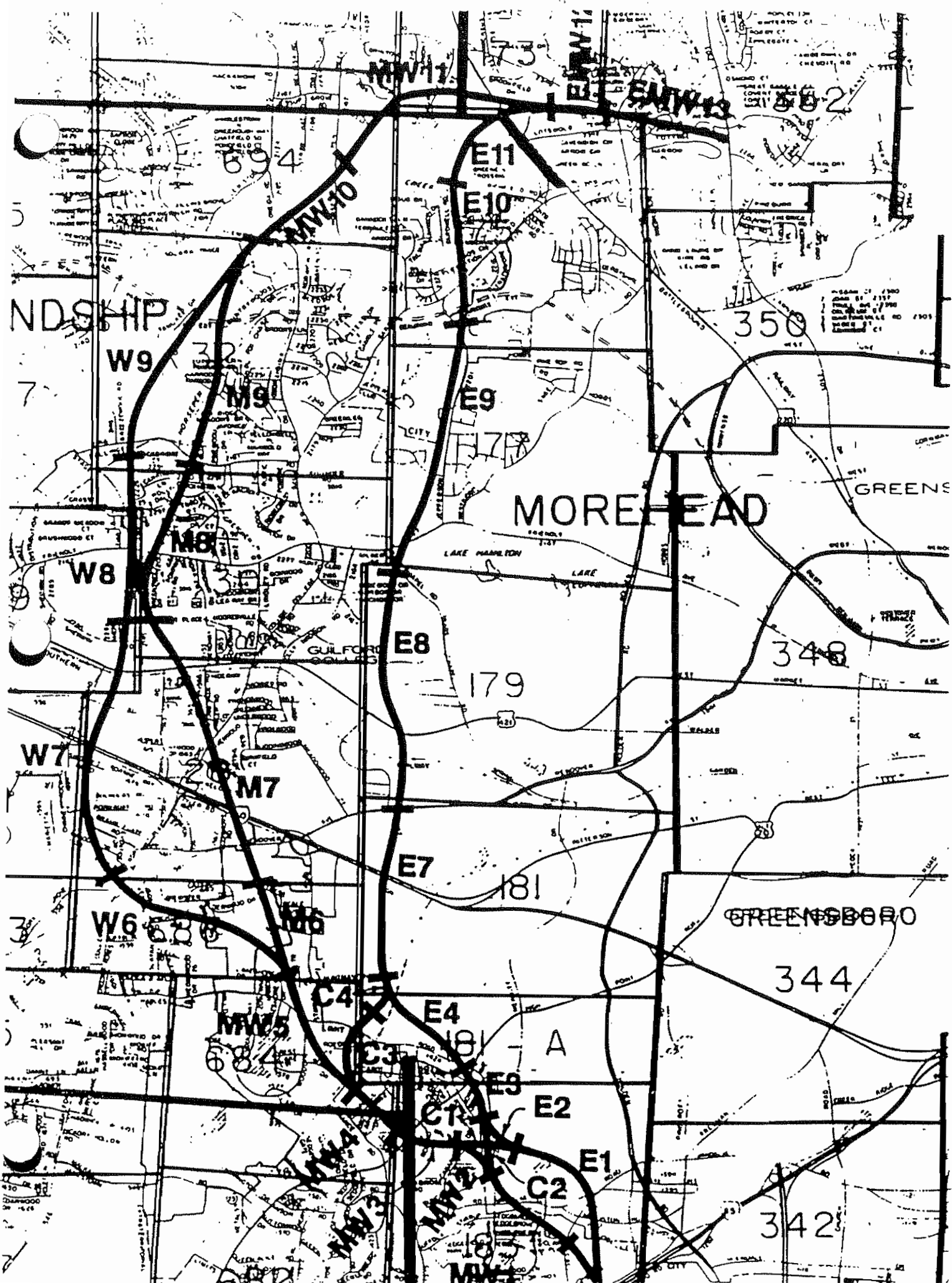
David Brook
Deputy State Historic Preservation Officer

DB:slw

cc: L. J. Ward
B. Church
✓ Kay Simpson
Marty Bowers
Langdon Oppermann

**APPENDIX C
RELOCATION STUDY REPORTS**

See attached key map for definition of segments. In general, E indicates the Eastern Alternative, M indicates the Middle Alternative, W indicates the Western Alternative, C indicates Crossovers, and MW and EMW indicates segments common to two or three alternatives. Lowest numbers are at the southern end of the project and increase toward the northern end.



NDSHIP

W9

W8

W7

W6

NW11

NW10

NW5

E11

E10

E9

E8

E7

E4

E3

E2

E1

C4

C3

C1

C2

350

348

179

181

GREENSBORO

344

342

MOREHEAD

GREENS

LAKE HAMILTON

LAKE

GULFORD

38

A

NW1

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

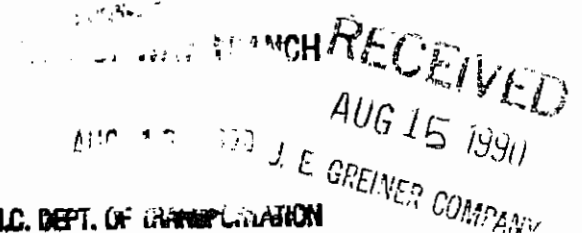
COUNTY: Guilford

Alternate E of 1 Alternate

I.D. NO.: U-2524

F.A. PROJECT: _____

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	4	0	4	0	0	2	2	0	0				
Businesses	1	0	1	0	VALU OF DWELLING				DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners	Tenants	For Sale	For Rent					
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	1	150-250	0	20-40M	22	150-250	11	
					40-70M	2	250-400	0	40-70M	185	250-400	118	
YES	NO	EXPLAIN ALL "YES" ANSWERS			70-100	1	400-600	0	70-100	281	400-600	223	
	X				100 UP	0	600 UP	0	100 UP	570	600 UP	6	
	X	3. Will business services still be available after project			TOTAL	4		0		1058		358	
	X				4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.			REMARKS (Respond by Number)					
	X	5. Will relocation cause a housing shortage						3. There are similar businesses not being affected.					
	X				6. Source for available housing (list)			4. Cheek Auto Parts - business-owner - area junk yard 12 full time employees - not a minority.					
	X	7. Will additional housing programs be needed						6. Personal survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.					
	X				8. Should Last Resort Housing be considered			8. Last Resort Housing program will be used if necessary.					
	X	9. Are there large, disabled, elderly, etc. families						NOTE: Contacted two of Greensboro's leading commercial and industrial property managers. They see no problem in relocating the businesses affected. Also, the local newspapers has an extensive commercial and industrial listing.					
					ANSWER THESE ALSO FOR DESIGN			<div style="text-align: right;">  </div>					
		10. Will public housing be needed for project											
					11. Is public housing available								
		12. Is it felt there will be adequate DDS housing available during relocation period											
					13. Will there be a problem of housing within financial means								
		14. Are suitable business sites available (list source)											
					15. Number months estimated to complete RELOCATION								

F. D. Noell *F D Noell*
Relocation Agent

08-10-90
Date

J B Williams 8/14/90
Approved Date

Original & 1 Copy: State Relocation Agent
2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T COUNTY: Guilford Alternate E of 2 Alternate

I.O. NO.: U-2524 F.A. PROJECT: _____

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	20	1	21	5	0	0	4	14	3				
Businesses	0	0	0	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS YES NO EXPLAIN ALL "YES" ANSWERS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	11	250-400	1	40-70M	185	250-400	118	
					70-100	5	400-600	0	70-100	281	400-600	223	
					100 UP	4	600 UP	0	100 UP	570	600 UP	6	
					TOTAL	20		1		1058		358	
					REMARKS (Respond by Number)								
					6. Personal survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.								
					8. Last Resort Housing program will be used if necessary.								
					ANSWER THESE ALSO FOR DESIGN 10. Will public housing be needed for project 11. Is public housing available 12. Is it felt there will be adequate DDS housing available during relocation period 13. Will there be a problem of housing within financial means 14. Are suitable business sites available (list source) 15. Number months estimated to complete RELOCATION _____								

D. Noell

D. Noell

08-10-90

Date

J.B. Williams Jr.

8/14/90

Approved

Date

Original & 1 Copy: State Relocation Agent
2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate E of 3 Alternate

I.D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawdale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	10	4	14	5	0	3	11	0	0				
Businesses	0	8	8	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	0	150-250	3	20-40M	22	150-250	11	
					40-70M	10	250-400	1	40-70M	185	250-400	118	
YES	NO	EXPLAIN ALL "YES" ANSWERS			70-100	0	400-600	0	70-100	281	400-600	223	
	X				100 UP	0	600 UP	0	100 UP	570	600 UP	6	
	X	ANSWER THESE ALSO FOR DESIGN			TOTAL	10		4		1058		358	
	X				REMARKS (Respond by Number)								
	X	3. There are similar businesses not being affected.											
	X	4. (A) Good-Bodies Athletic Club 5,000 SF, 2 full time 4 part time employees - not a minority.											
	X	(B) Sedgefield Paint Center 4,000 SF, 4 full time employees - not a minority.											
	X	(C) Hancock Fabrics 7,000 SF, 4 full time employees - not a minority.											
	X	(D) Skooter's 1,000 SF, fast food restaurant, 3 full time, 3 part time employees - not a minority.											
	X	(E) Lancaster Gas Service, Inc., retail bottle gas refiller - 700 SF, 3 full time employees - not a minority.											
	X	(F) Ethan Allen Home Interiors 20,000 SF - retail furniture and home decorating - 10 full time employees.											
	X	(G) First Citizen Bank 800 SF, State bank 6 full time employees - not a minority.											
	X	(H) Sedgefield Professional Bldg., 8 units under construction - approximately 1,000 SF each.											
	X	6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.											
	X	8. Last Resort Housing program will be used if necessary.											
	X	NOTE: Contacted two of Greensboro's leading commercial and industrial property managers. They see no problem in relocating the businesses affected. Also, the local newspapers has an extensive commercial and industrial listing.											
	X	10. Will public housing be needed for project											
	X	11. Is public housing available											
	X	12. Is it felt there will be adequate DDS housing available during relocation period											
	X	13. Will there be a problem of housing within financial means											
	X	14. Are suitable business sites available (list source)											
	X	15. Number months estimated to complete RELOCATION											

F. D. Noell *F. D. Noell* 08-10-90 Date *J. B. Williams* 8/14/90 Date
 Relocation Agent Approved
 Form 15.4 Revised 5/90 Original & 1 Copy: State Relocation Agent
 2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T COUNTY: Guilford Alternate E of 4 Alternate

I.D. NO.: U-2524 F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	25	2	27	8	0	1	16	10	0				
Businesses	1	1	2	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	15	250-400	2	40-70M	185	250-400	118	
					70-100	10	400-600	0	70-100	281	400-600	223	
					100 UP	0	600 UP	0	100 UP	570	600 UP	6	
					TOTAL	25	2	2	1058	358			

ANSWER ALL QUESTIONS

YES	NO	EXPLAIN ALL "YES" ANSWERS
	<input checked="" type="checkbox"/>	1. Will special relocation services be necessary
<input checked="" type="checkbox"/>		2. Will schools or churches be affected by displacement
<input checked="" type="checkbox"/>		3. Will business services still be available after project
		4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.
<input checked="" type="checkbox"/>		5. Will relocation cause a housing shortage
<input checked="" type="checkbox"/>		6. Source for available housing (list)
	<input checked="" type="checkbox"/>	7. Will additional housing programs be needed
<input checked="" type="checkbox"/>		8. Should Last Resort Housing be considered
	<input checked="" type="checkbox"/>	9. Are there large, disabled, elderly, etc. families
ANSWER THESE ALSO FOR DESIGN		
		10. Will public housing be needed for project
		11. Is public housing available
		12. Is it felt there will be adequate DDS housing available during relocation period
		13. Will there be a problem of housing within financial means
		14. Are suitable business sites available (list source)
		15. Number months estimated to complete RELOCATION <u> </u>

REMARKS (Respond by Number)

2. Edu-Care - Pre school child care center - 10 full time employees.
3. There are similar businesses not being affected.
4. (A) Edu-Care - see item #2.
(B) Duke Power Co. 5-10 acre outside storage area. Equipment, cable, transformers, ect. 50 full time employees.
6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.
8. Last Resort Housing program will be used if necessary.

NOTE: Contacted two of Greensboro's leading commercial and industrial property managers. They see no problem in relocating the businesses affected. Also, the local newspapers has an extensive commercial and industrial listing.

F. D. Noell *[Signature]*
Relocation Agent
Form 15.4 Revised 5/90

08-10-90
Date

[Signature] 8/14/90
Approved Date
Original & 1 Copy: State Relocation Agent
2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate E of 7 Alternate

I.O. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACES					INCOME LEVEL							
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP			
Individuals	0	0	0	0	0	0	0	0	0			
Families	34	0	34	10	0	0	0	29	5			
Businesses	0	2	2	0	VALUE OF DWELLING			DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners	Tenants	For Sale	For Rent				
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0
ANSWER ALL QUESTIONS YES NO EXPLAIN ALL "YES" ANSWERS					20-40M	0	150-250	0	20-40M	22	150-250	11
					40-70M	0	250-400	0	40-70M	185	250-400	118
	X	1. Will special relocation services be necessary			70-100	20	400-600	0	70-100	281	400-600	223
	X	2. Will schools or churches be affected by displacement			100 UP	14	600 UP	0	100 UP	570	600 UP	6
X		3. Will business services still be available after project			TOTAL	34		0		1058		358
		4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.			REMARKS (Respond by Number)							
X		5. Will relocation cause a housing shortage			3. There are similar businesses not being affected.							
X		6. Source for available housing (list)			4. (A) Consumer Service Center - 7,000 SF, 10 employees - not a minority.							
X		7. Will additional housing programs be needed			(B) American Parcel Service, Inc., 10,000 SF, package delivery service - 5 employees - not a minority.							
X		8. Should Last Resort Housing be considered			6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.							
	X	9. Are there large, disabled, elderly, etc. families			8. Last Resort Housing program will be used if necessary.							
ANSWER THESE ALSO FOR DESIGN					NOTE: Contacted two of Greensboro's leading commercial and industrial property managers. They see no problem in relocating the businesses affected. Also, the local newspapers has an extensive commercial and industrial listing.							
		10. Will public housing be needed for project										
		11. Is public housing available										
		12. Is it felt there will be adequate DSS housing available during relocation period										
		13. Will there be a problem of housing within financial means										
		14. Are suitable business sites available (list source)										
		15. Number months estimated to complete RELOCATION										

F. D. Noell *F D Noell*
 Relocation Agent
 Form 15.4 Revised 5/90

08-10-90
 Date

J B Williams
 Approved
 Date 8/14/90
 Original & 1 Copy: State Relocation Agent
 2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate E of 8 Alternate

I.D. NO.: U-2524

F.A. PROJECT: _____

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

(PAGE 1 OF 2)

ESTIMATED DISPLACEDS					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	47	144	191	40	0	0	51	140	0				
Businesses	13		13	1	VALUE OF DWELLING				ODS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS YES NO EXPLAIN ALL "YES" ANSWERS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	1	250-400	0	40-70M	185	250-400	118	
					70-100	39	400-600	144	70-100	281	400-600	223	
					100 UP	7	600 UP	0	100 UP	570	600 UP	6	
					TOTAL	47		144		1058		358	
ANSWER THESE ALSO FOR DESIGN					REMARKS (Respond by Number)								
					3. There are similar businesses not being affected.								
					4. (A) Worth Chemical Corp., corner of Edwardian and Segal St. Proposed R/W will eliminate most of the firms storage area of 10+ acre, 50 employees, not a minority.								
					(B) Greensboro Auto Auction - 10 + acre, 2 full time employees - not a minority.								
					(C) Help-U-Sell Real Estate - 1,000 SF real estate office, 4 full time employees - not a minority.								
					(D) MacPrint 5,000 SF retail printing-coping firm, 4 full time employees - not a minority.								
					(E) Pizza King 2,500 SF Italian Restaurant, 4 full time and 4 part time employees. Not a minority.								
					(F) Carolina Camera Center 3,000 SF, 4 full time employees - not a minority.								
					(G) Cash Point 150 SF - NC State Employees Credit Union automatic teller - no employees.								
					(H) Peoples Computer Service 3,000 SF computer sales/ services - 3 employees - not a minority.								
					(I) Sentry Hardware 6,000 SF retail sales - 5 employees - not a minority.								
					(J) Wong's Restaurant 4,000 SF Chinese Restaurant - 10 employees - a minority.								
					(K) Alsco 12,000 SF vinyl products warehouse - 7 employees - not a minority.								
					(L) Edwards-Mills, Inc., 10,000 SF heating, cooling, plumbing - 6 employees - not a minority.								

D. Noell *[Signature]*
Relocation Agent

08-10-90
Date

[Signature] 8/14/90
Approved Date

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T COUNTY: Guilford Alternate E of B Alternate

I.D. NO.: U-2524 F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

(PAGE 2 OF 2)

(M) Guilford Mills 25,000 SF +, Adm. offices. 100 + employees not a minority.

6. Personal survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.

8. Last Resort Housing program will be used if necessary.

Comments:

(A) Bent Tree Rental Units - 38 - 2-BR units and 70 - 3-BR units.

(B) Hamilton Village Condo's - 29 - 3-BR units.

(C) Friendly Manor - 24 - 2-BR units and 12 - 3BR units.

NOTE: Contacted two of Greensboro's leading commercial and industrial property managers. They see no problem in relocating the businesses affected. Also, the local newspapers has an extensive commercial and industrial listing.

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate E of 9 Alternate

I.D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	30	53	83	15	0	0	53	16	14				
Businesses	2	0	2	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS YES NO EXPLAIN ALL "YES" ANSWERS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	0	250-400	1	40-70M	185	250-400	118	
					70-100	8	400-600	52	70-100	281	400-600	223	
					100 UP	22	600 UP	0	100 UP	570	600 UP	6	
					TOTAL	30		53		1058		358	
					REMARKS (Respond by Number)								
<input checked="" type="checkbox"/>					2. Greensboro Child Care, Inc., pre school child care center - 7 full time employees - not a minority.								
<input checked="" type="checkbox"/>					3. There are similar businesses not being affected.								
<input checked="" type="checkbox"/>					4. (A) Greensbor Child Care, Inc., see item #2. (B) Cecil's Realty - real estate brokerage, 3 employees - not a minority.								
<input checked="" type="checkbox"/>					6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.								
<input checked="" type="checkbox"/>					8. Last Resort Housing program will be used if necessary.								
					NOTE: Contacted two of Greensboro's leading commercial and industrial property managers. They see no problem relocating the businesses affected. Also, the local newspapers has an extensive commercial and industrial listing.								
					ANSWER THESE ALSO FOR DESIGN								
<input type="checkbox"/>					10. Will public housing be needed for project								
<input type="checkbox"/>					11. Is public housing available								
<input type="checkbox"/>					12. Is it felt there will be adequate DDS housing available during relocation period								
<input type="checkbox"/>					13. Will there be a problem of housing within financial means								
<input type="checkbox"/>					14. Are suitable business sites available (list source)								
<input type="checkbox"/>					15. Number months estimated to complete RELOCATION <u> </u>								

D. Noell *D. Noell*
Relocation Agent
Form 15.4 Revised 5/90

08-10-90
Date

J. Williams
Approved
Date 8/6/90
Original & 1 Copy: State Relocation Agent
2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T COUNTY: Guilford Alternate E of 10 Alternate
 I.D. NO.: U-2524 F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACES					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	24	0	24	5	0	0	0	14	10				
Businesses	0	0	0	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	1	0	1	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					EXPLAIN ALL "YES" ANSWERS					40-70M	0	250-400	0
	X	1. Will special relocation services be necessary			70-100	11	400-600	0	70-100	281	400-600	223	
X		2. Will schools or churches be affected by displacement			100 UP	13	600 UP	0	100 UP	570	600 UP	6	
X		3. Will business services still be available after project			TOTAL	24		0		1058		358	
	X	4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.			REMARKS (Respond by Number)								
	X	5. Will relocation cause a housing shortage			2. St. Barnabas Episcopal Church - 100 members.								
X		6. Source for available housing (list)			3. There are similar businesses not being affected.								
	X	7. Will additional housing programs be needed			6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.								
X		8. Should Last Resort Housing be considered			8. Last Resort Housing program will be used if necessary.								
	X	9. Are there large, disabled, elderly, etc. families											
ANSWER THESE ALSO FOR DESIGN													
		10. Will public housing be needed for project											
		11. Is public housing available											
		12. Is it felt there will be adequate DDS housing available during relocation period											
		13. Will there be a problem of housing within financial means											
		14. Are suitable business sites available (list source)											
		15. Number months estimated to complete RELOCATION _____											

F. D. Noell *F D Noell* 08-10-90 *J W Williams Jr.* 8/14/90
 Relocation Agent Date Approved Date
 Form 15.4 Revised 5/90 Original & 1 Copy: State Relocation Agent
 2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate E of 11 Alternate

I.D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACEES					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	0	30	30	6	0	0	30	0	0				
Businesses	0	0	0	0	VALUE OF DWELLING				ODS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	0	250-400	0	40-70M	185	250-400	118	
<input checked="" type="checkbox"/>	X	1. Will special relocation services be necessary			70-100	0	400-600	30	70-100	281	400-600	223	
<input checked="" type="checkbox"/>	X	2. Will schools or churches be affected by displacement			100 UP	0	600 UP	0	100 UP	570	600 UP	6	
		3. Will business services still be available after project			TOTAL	0		30		1058		358	
		4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.			REMARKS (Respond by Number)								
<input checked="" type="checkbox"/>	X	5. Will relocation cause a housing shortage			3. There are similar businesses not being affected.								
		6. Source for available housing (list)			6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.								
<input checked="" type="checkbox"/>	X	7. Will additional housing programs be needed			8. Last Resort Housing program will be used if necessary.								
		8. Should Last Resort Housing be considered											
<input checked="" type="checkbox"/>	X	9. Are there large, disabled, elderly, etc. families											
ANSWER THESE ALSO FOR DESIGN													
		10. Will public housing be needed for project											
		11. Is public housing available											
		12. Is it felt there will be adequate ODS housing available during relocation period											
		13. Will there be a problem of housing within financial means											
		14. Are suitable business sites available (list source)											
		15. Number months estimated to complete RELOCATION <u> </u>											

F. D. Noell *F D Noell*
 Relocation Agent
 Form 15.4 Revised 5/90

08-10-90
 Date

J. S. Williams, Jr. 8/14/90
 Approved Date
 Original & 1 Copy: State Relocation Agent
 2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate EMJ of 12 Alternate

I.D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	51	0	51	10	0	0	0	50	1				
Businesses	0	0	0	0	VALUE OF DWELLING				DDS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS EXPLAIN ALL "YES" ANSWERS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	0	250-400	0	40-70M	185	250-400	118	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Will special relocation services be necessary			70-100	0	400-600	0	70-100	281	400-600	223	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Will schools or churches be affected by displacement			100 UP	51	600 UP	0	100 UP	570	600 UP	6	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Will business services still be available after project			TOTAL	51		0		1058		358	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.			REMARKS (Respond by Number)								
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Will relocation cause a housing shortage			3. There are similar businesses not being affected.								
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Source for available housing (list)			6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.								
<input type="checkbox"/>	<input checked="" type="checkbox"/>	7. Will additional housing programs be needed			8. Last Resort Housing program will be used if necessary.								
<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. Should Last Resort Housing be considered			Comment: Woodland Village Condos - 50 - 3 BR units. Pool area will be acquired for R/W.								
<input type="checkbox"/>	<input checked="" type="checkbox"/>	9. Are there large, disabled, elderly, etc. families											
ANSWER THESE ALSO FOR DESIGN													
<input type="checkbox"/>	<input type="checkbox"/>	10. Will public housing be needed for project											
<input type="checkbox"/>	<input type="checkbox"/>	11. Is public housing available											
<input type="checkbox"/>	<input type="checkbox"/>	12. Is it felt there will be adequate DDS housing available during relocation period											
<input type="checkbox"/>	<input type="checkbox"/>	13. Will there be a problem of housing within financial means											
<input type="checkbox"/>	<input type="checkbox"/>	14. Are suitable business sites available (list source)											
<input type="checkbox"/>	<input type="checkbox"/>	15. Number months estimated to complete RELOCATION											

F. D. Noell *F D Noell*
 Relocation Agent
 Form 15.4 Revised 5/90

08-10-90
 Date

Williamson 8/14/90
 Approved Date
 Original & 1 Copy: State Relocation Agent
 2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T COUNTY: Guilford Alternate EMJ of 13 Alternate

I.D. NO.: U-2524 F.A. PROJECT: _____

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 LP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	111	96	207	50	0	0	96	111	0				
Businesses	0	0	0	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	0	250-400	0	40-70M	185	250-400	118	
ANSWER ALL "YES" ANSWERS					70-100	111	400-600	96	70-100	281	400-600	223	
					100 LP	0	600 LP	0	100 LP	570	600 LP	6	
					TOTAL	111		96		1058		358	
					REMARKS (Respond by Number)								
<input checked="" type="checkbox"/>					3. There are similar businesses not being affected.								
<input checked="" type="checkbox"/>					6. Personal Survey; local newspapers; Greensboro Area Chamber of Commerce; MLS Directory and the Greater Greensboro Board of Realtors.								
<input checked="" type="checkbox"/>					8. Last Resort Housing program will be used if necessary.								
<input checked="" type="checkbox"/>					9. Are there large, disabled, elderly, etc. families								
					ANSWER THESE ALSO FOR DESIGN								
<input type="checkbox"/>					10. Will public housing be needed for project								
<input type="checkbox"/>					11. Is public housing available								
<input type="checkbox"/>					12. Is it felt there will be adequate DDS housing available during relocation period								
<input type="checkbox"/>					13. Will there be a problem of housing within financial means								
<input type="checkbox"/>					14. Are suitable business sites available (list source)								
<input type="checkbox"/>					15. Number months estimated to complete RELOCATION _____								

F. D. Noell F D Noell 08-10-90 Date
 Relocation Agent
 Form 15.4 Revised 5/90

J. Williams 8/14/90 Date
 Approved
 Original & 1 Copy: State Relocation Agent
 2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate MW of 1 Alternate

I.D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	18	2	20	4	0	0	12	4	4				
Businesses	1	0	1	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	7	250-400	2	40-70M	185	250-400	118	
YES	NO	EXPLAIN ALL "YES" ANSWERS			70-100	10	400-600	0	70-100	281	400-600	223	
	X				100 UP	1	600 UP	0	100 UP	570	600 UP	6	
	X	3. Will business services still be available after project			TOTAL		18	2	1058	358			
	X				4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.			REMARKS (Respond by Number)					
	X	5. Will relocation cause a housing shortage						3. There are similar businesses not being affected.					
	X				6. Source for available housing (list)			4. (A) Sedgefield Stables - riding stable, boarding, training - 4 employees - not a minority.					
	X	7. Will additional housing programs be needed						6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.					
	X				8. Should Last Resort Housing be considered			8. Last Resort Housing program will be used if necessary.					
	X	9. Are there large, disabled, elderly, etc. families						NOTE: Contacted two of Greensboro's leading commercial and industrial property managers. They see no problem in relocating the businesses affected. Also, the local newspapers has an extensive commercial and industrial listing.					
					ANSWER THESE ALSO FOR DESIGN								
		10. Will public housing be needed for project											
					11. Is public housing available								
		12. Is it felt there will be adequate DDS housing available during relocation period											
					13. Will there be a problem of housing within financial means								
		14. Are suitable business sites available (list source)											
					15. Number months estimated to complete RELOCATION								

F. D. Noell *F D Noell* 08-10-90 Date
 Relocation Agent
 Form 15.4 Revised 5/90

J B Williams 8/14/90 Date
 Approved
 Original & 1 Copy: State Relocation Agent
 2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate MW of 2 Alternate

I.D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACEDS					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	14	0	14	3	0	0	7	0	7				
Businesses	0	0	0	0	VALUE OF DWELLING				ODS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	7	250-400	0	40-70M	185	250-400	118	
EXPLAIN ALL "YES" ANSWERS					70-100	0	400-600	0	70-100	281	400-600	223	
					100 UP	7	600 UP	0	100 UP	570	600 UP	6	
					TOTAL	14		0		1058		358	
					REMARKS (Respond by Number)								
					3. There are similar businesses not being affected.								
					6. Personal Survey; local newspapers; Greensboro Area Chamber of Commerce; MLS Directory and the Greater Greensboro Board of Realtors.								
					8. Last Resort Housing program will be used if necessary.								
					ANSWER THESE ALSO FOR DESIGN								
					10. Will public housing be needed for project								
					11. Is public housing available								
					12. Is it felt there will be adequate ODS housing available during relocation period								
					13. Will there be a problem of housing within financial means								
					14. Are suitable business sites available (list source)								
					15. Number months estimated to complete RELOCATION								

f D. Noell *D Noell* 08-10-90
 Relocation Agent Date
 Form 15.4 Revised 5/90

J B Williams 8/14/90
 Approved Date
 Original & 1 Copy: State Relocation Agent
 2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate MJ of 3 Alternate

I.D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	14	0	14	3	0	0	0	5	9				
Businesses	0	0	0	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	5	250-400	0	40-70M	185	250-400	118	
YES	NO	EXPLAIN ALL "YES" ANSWERS			70-100	0	400-600	0	70-100	281	400-600	223	
	X				100 LP	9	600 LP	0	100 LP	570	600 LP	6	
X		3. Will business services still be available after project			TOTAL	14		0		1058		358	
	X				4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.			REMARKS (Respond by Number)					
	X	5. Will relocation cause a housing shortage						3. There are similar businesses not being affected.					
X					6. Source for available housing (list)			6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.					
	X	7. Will additional housing programs be needed						8. Last Resort Housing program will be used if necessary.					
X					8. Should Last Resort Housing be considered								
	X	9. Are there large, disabled, elderly, etc. families											
ANSWER THESE ALSO FOR DESIGN													
		10. Will public housing be needed for project											
					11. Is public housing available								
		12. Is it felt there will be adequate DDS housing available during relocation period											
					13. Will there be a problem of housing within financial means								
		14. Are suitable business sites available (list source)											
					15. Number months estimated to complete RELOCATION								

F. D. Noell *F D Noell* 08-10-90 Date

J B Williams Jr 8/14/90 Date

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate MJ of 4 Alternate

I.D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	5	0	5	1	0	0	0	3	2				
Businesses	0	0	0	0	VALUE OF DWELLING				DDS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	1	0	1	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	0	250-400	0	40-70M	185	250-400	118	
YES	NO	EXPLAIN ALL "YES" ANSWERS			70-100	1	400-600	0	70-100	281	400-600	223	
X					100 UP	4	600 UP	0	100 UP	570	600 UP	6	
		ANSWER THESE ALSO FOR DESIGN			TOTAL	5		0		1058		358	
X					REMARKS (Respond by Number) NOTE: Oriental Shrine Club Greensboro. 500 + members, 10 employees.								
X		3. There are similar businesses not being affected.											
X		6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.											
X		8. Last Resort Housing program will be used if necessary.											
		10. Will public housing be needed for project											
		11. Is public housing available											
		12. Is it felt there will be adequate DDS housing available during relocation period											
		13. Will there be a problem of housing within financial means											
		14. Are suitable business sites available (list source)											
		15. Number months estimated to complete RELOCATION _____											

F. D. Noell *F. D. Noell*
Relocation Agent
Form 15.4 Revised 5/90

08-10-90
Date

J. B. Williamson 8/14/90
Approved Date
Original & 1 Copy: State Relocation Agent
2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate MW of 5 Alternate

I.D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	6	0	6	1	0	0	0	5	1				
Businesses	0	0	0	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS YES NO EXPLAIN ALL "YES" ANSWERS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	0	250-400	0	40-70M	185	250-400	118	
					70-100	5	400-600	0	70-100	281	400-600	223	
					100 UP	1	600 UP	0	100 UP	570	600 UP	6	
					TOTAL	6		0		1058		358	

REMARKS (Respond by Number)

- There are similar businesses not being affected.
- Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.
- Last Resort Housing program will be used if necessary.

	X	1. Will special relocation services be necessary
	X	2. Will schools or churches be affected by displacement
X		3. Will business services still be available after project
	X	4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage
X		6. Source for available housing (list)
	X	7. Will additional housing programs be needed
X		8. Should Last Resort Housing be considered
	X	9. Are there large, disabled, elderly, etc. families

ANSWER THESE ALSO FOR DESIGN

		10. Will public housing be needed for project
		11. Is public housing available
		12. Is it felt there will be adequate DSS housing available during relocation period
		13. Will there be a problem of housing within financial means
		14. Are suitable business sites available (list source)
		15. Number months estimated to complete RELOCATION

F. D. Noell *F D Noell* 08-10-90
 Relocation Agent Date

Ab Williams 8/14/90
 Approved Date

Original & 1 Copy: State Relocation Agent
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RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate MW of 10 Alternate

I.D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACEDS					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	2	0	2	0	0	1	0	0	1				
Businesses	0	0	0	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	1	150-250	0	20-40M	22	150-250	11	
					40-70M	0	250-400	0	40-70M	185	250-400	118	
EXPLAIN ALL "YES" ANSWERS					70-100	0	400-600	0	70-100	281	400-600	223	
					100 UP	1	600 UP	0	100 UP	570	600 UP	6	
					TOTAL	2		0		1058		358	
					REMARKS (Respond by Number)								
X					3. There are similar businesses not being affected.								
X					6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.								
X					B. Last Resort Housing program will be used if necessary.								
X					9. Are there large, disabled, elderly, etc. families								
X					10. Will public housing be needed for project								
X					11. Is public housing available								
X					12. Is it felt there will be adequate DDS housing available during relocation period								
X					13. Will there be a problem of housing within financial means								
X					14. Are suitable business sites available (list source)								
X					15. Number months estimated to complete RELOCATION								

D. Noell *D. Noell*
 Relocation Agent
 Form 15.4 Revised 5/90

08-10-90
 Date

J.B. Williams Jr. *8/14/90*
 Approved Date
 Original & 1 Copy: State Relocation Agent
 2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T COUNTY: Guilford Alternate MW of 11 Alternate I.D. NO.: U-2524 F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL							
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP			
Individuals	0	0	0	0	0	0	0	0	0			
Families	0	30	30	6	0	0	30	0	0			
Businesses	0	0	0	0	VALUE OF DWELLING			DDS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners	Tenants	For Sale	For Rent				
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0
ANSWER ALL QUESTIONS					20-40M	0	150-250	0	20-40M	22	150-250	11
					40-70M	0	250-400	0	40-70M	185	250-400	118
YES	NO	EXPLAIN ALL "YES" ANSWERS			70-100	0	400-600	30	70-100	281	400-600	223
	X				1. Will special relocation services be necessary	100 UP	0	600 UP	0	100 UP	570	600 UP
	X	2. Will schools or churches be affected by displacement	TOTAL									
	X	3. Will business services still be available after project										
	X	4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.	REMARKS (Respond by Number)									
	X	5. Will relocation cause a housing shortage	3. There are similar businesses not being affected.									
	X	6. Source for available housing (list)	6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.									
	X	7. Will additional housing programs be needed	8. Last Resort Housing program will be used if necessary.									
	X	8. Should Last Resort Housing be considered										
	X	9. Are there large, disabled, elderly, etc. families										
ANSWER THESE ALSO FOR DESIGN												
		10. Will public housing be needed for project										
		11. Is public housing available										
		12. Is it felt there will be adequate DDS housing available during relocation period										
		13. Will there be a problem of housing within financial means										
		14. Are suitable business sites available (list source)										
		15. Number months estimated to complete RELOCATION										

F. D. Noell *F D Noell*
 Relocation Agent
 Form 15.4 Revised 5/90

08-10-90
 Date

J W Williams 8/14/90
 Approved Date
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RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate M of 6 Alternate

I.D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACEDS					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	4	0	4	0	0	0	0	3	1				
Businesses	0	0	0	0	VALUE OF DWELLING				ODS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	0	250-400	0	40-70M	185	250-400	118	
YES	NO	EXPLAIN ALL "YES" ANSWERS			70-100	3	400-600	0	70-100	281	400-600	223	
	X				100 UP	1	600 UP	0	100 UP	570	600 UP	6	
		ANSWER THESE ALSO FOR DESIGN			TOTAL	4		0		1058		358	
	X				REMARKS (Respond by Number)								
	X	1. Will special relocation services be necessary			3. There are similar businesses not being affected.								
	X	2. Will schools or churches be affected by displacement			6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.								
		3. Will business services still be available after project			8. Last Resort Housing program will be used if necessary.								
		4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.											
	X	5. Will relocation cause a housing shortage											
		6. Source for available housing (list)											
	X	7. Will additional housing programs be needed											
		8. Should Last Resort Housing be considered											
	X	9. Are there large, disabled, elderly, etc. families											
		10. Will public housing be needed for project											
		11. Is public housing available											
		12. Is it felt there will be adequate ODS housing available during relocation period											
		13. Will there be a problem of housing within financial means											
		14. Are suitable business sites available (list source)											
		15. Number months estimated to complete RELOCATION											

D. Noell *D. Noell*
 Relocation Agent
 Form 15.4 Revised 5/90

08-10-90
 Date

J. B. Williams 8/14/90
 Approved Date
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 2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate M of 7 Alternate

I.D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 LP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	19	489	508	100	0	129	379	0	0				
Businesses	7	0	7	0	VALLE OF DWELLING				DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	1	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	10	150-250	5	20-40M	22	150-250	11	
					40-70M	9	250-400	112	40-70M	185	250-400	118	
YES	NO	EXPLAIN ALL "YES" ANSWERS			70-100	0	400-600	371	70-100	281	400-600	223	
	X				100 LP	0	600 LP	0	100 LP	570	600 LP	6	
	X	ANSWER THESE ALSO FOR DESIGN			TOTAL	19		489		1058		358	
	X				REMARKS (Respond by Number)								
	X	3. There are similar businesses not being affected.											
	X	4. (A) Landmark Center Real Estate Office. 20 employees - not a minority.											
	X	(B) Statham Construction Co., general contractor 6 employees - not a minority.											
	X	(C) Priba Furniture Sales & Interiors, Retail furniture sales and interior decorating 25 employees, not a minority.											
	X	(D) Ace Rent-A-Care - auto rental agency 4 employees, not a minority.											
	X	(E) Circle K Food Store - convenience store. 6 employee not a minority.											
	X	(F) Captain Bill's Seafood - seafood restaurant, 10 employees full and part time - not a minority.											
	X	(G) Custom Industries, Inc., metal work manufacturer. 100 employees - not a minority.											
	X	6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.											
	X	8. Last Resort Housing program will be used if necessary.											
	X	NOTE: Contacted two of Greensboro's leading commercial and industrial property managers. They see no problem in relocating the businesses affected. Also, the local newspapers has an extensive commercial and industrial listing.											

F. O. Noell *F O Noell*
 Relocation Agent

08-10-90
 Date

J B Williams 8/14/90
 Approved Date

RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE

X E.I.S. CORRIDOR DESIGN

PROJECT: 6.498001T

COUNTY: Guilford

Alternate M of 8 Alternate

I.D. NO.: U-2524

F.A. PROJECT: _____

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACES					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 LP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	76	0	76	20	0	0	0	66	10				
Businesses	0	0	0	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Arms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	1	0	1	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS EXPLAIN ALL "YES" ANSWERS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	0	250-400	0	40-70M	185	250-400	118	
<input checked="" type="checkbox"/>	X	1. Will special relocation services be necessary			70-100	28	400-600	0	70-100	281	400-600	223	
<input checked="" type="checkbox"/>	X	2. Will schools or churches be affected by displacement			100 LP	48	600 LP	0	100 LP	570	600 LP	6	
<input checked="" type="checkbox"/>	X	3. Will business services still be available after project			TOTAL 76 0 1058 358								
<input checked="" type="checkbox"/>	X	4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.			REMARKS (Respond by Number)								
<input checked="" type="checkbox"/>	X	5. Will relocation cause a housing shortage			2. Lutheran Church of the Resurrection - 100 +- members.								
<input checked="" type="checkbox"/>	X	6. Source for available housing (list)			3. There are similar businesses not being affected.								
<input checked="" type="checkbox"/>	X	7. Will additional housing programs be needed			6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.								
<input checked="" type="checkbox"/>	X	8. Should Last Resort Housing be considered			8. Last Resort Housing program will be used if necessary.								
<input checked="" type="checkbox"/>	X	9. Are there large, disabled, elderly, etc. families											
ANSWER THESE ALSO FOR DESIGN													
		10. Will public housing be needed for project											
		11. Is public housing available											
		12. Is it felt there will be adequate DDS housing available during relocation period											
		13. Will there be a problem of housing within financial means											
		14. Are suitable business sites available (list source)											
		15. Number months estimated to complete RELOCATION _____											

D. Noell *D Noell* 08-10-90
Relocation Agent Date

J B Williams 8/14/90
Approved Date
Original & 1 Copy: State Relocation Agent
2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T COUNTY: Guilford Alternate M of 9 Alternate

I.D. NO.: U-2524 F.A. PROJECT: _____

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL							
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP			
Individuals	0	0	0	0	0	0	0	0	0			
Families	13	0	13	2	0	3	4	2	4			
Businesses	0	0	0	0	VALUE OF DWELLING			DDS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners	Tenants	For Sale	For Rent				
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0
ANSWER ALL QUESTIONS YES NO EXPLAIN ALL "YES" ANSWERS					20-40M	3	150-250	0	20-40M	22	150-250	11
					40-70M	4	250-400	0	40-70M	185	250-400	118
					70-100	2	400-600	0	70-100	281	400-600	223
					100 UP	4	600 UP	0	100 UP	570	600 UP	6
					TOTAL	13		0		1058		358
					REMARKS (Respond by Number)							
					3. There are similar businesses not being affected.							
					6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.							
					8. Last Resort Housing program will be used if necessary.							
					ANSWER THESE ALSO FOR DESIGN 10. Will public housing be needed for project 11. Is public housing available 12. Is it felt there will be adequate DDS housing available during relocation period 13. Will there be a problem of housing within financial means 14. Are suitable business sites available (list source) 15. Number months estimated to complete RELOCATION _____							

F. D. Noell *F D Noell* 08-10-90
 Relocation Agent Date
 Form 15.4 Revised 5/90

J W Williamson 8/14/90
 Approved Date
 Original & 1 Copy: State Relocation Agent
 2 Copy: Area Relocation File

RELOCATION REPORT North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate W of 6 Alternate

I.D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	58	3	61	12	0	0	29	32	0				
Businesses	0	0	0	0	VALUE OF DWELLING				ODS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS YES NO EXPLAIN ALL "YES" ANSWERS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	6	250-400	3	40-70M	185	250-400	118	
					70-100	13	400-600	0	70-100	281	400-600	223	
					100 UP	39	600 UP	0	100 UP	570	600 UP	6	
					TOTAL	58		3		1058		358	
					REMARKS (Respond by Number)								
X		1. Will special relocation services be necessary			3. There are similar businesses not being affected.								
X		2. Will schools or churches be affected by displacement			6. Personal Survey; local newspapers; Greensboro Area Chamber of Commerce; MLS Directory and the Greater Greensboro Board of Realtors.								
✓		3. Will business services still be available after project			8. Last Resort Housing program will be used if necessary.								
	X	4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.											
	X	5. Will relocation cause a housing shortage											
		6. Source for available housing (list)											
	X	7. Will additional housing programs be needed											
		8. Should Last Resort Housing be considered											
	X	9. Are there large, disabled, elderly, etc. families											
ANSWER THESE ALSO FOR DESIGN													
		10. Will public housing be needed for project											
		11. Is public housing available											
		12. Is it felt there will be adequate ODS housing available during relocation period											
		13. Will there be a problem of housing within financial means											
		14. Are suitable business sites available (list source)											
		15. Number months estimated to complete RELOCATION											

F. D. Noell

F. D. Noell

08-10-90

Date

J. Williams

Approved

8/14/90

Date

Form 15.4 Revised 5/90

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2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate W of 7 Alternate

I.D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

(PAGE 1 OF 2)

ESTIMATED DISPLACED					INCOME LEVEL									
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP	VALUE OF DWELLING			DSS DWELLINGS AVAILABLE	
Individuals	0	0	0	0	0	0	0	0	0	Owners	Tenants	For Sale	For Rent	
Families	56	2	58	20	0	0	58	0	0	0-20M	20-40M	40-70M	70-100	100 UP
Businesses	10	0	10	0	0	0	0	0	0	\$ 0-150	150-250	250-400	400-600	600 UP
Farms	0	0	0	0	0	0	0	0	0	0-20M	20-40M	40-70M	70-100	100 UP
Non-Profit	1	0	1	0	0	0	0	0	0	0-20M	20-40M	40-70M	70-100	100 UP
ANSWER ALL QUESTIONS					20-40M	40-70M	70-100	100 UP	TOTAL	REMARKS (Respond by Number)				
YES	NO	EXPLAIN ALL "YES" ANSWERS			0	0	56	0	56	3. There are similar businesses not being affected.				
	X	1. Will special relocation services be necessary			0	0	0	0	0	4. (A) Carolina Tractor Corp. Sales and service of heavy construction equipment. 100 full time employees, not a minority.				
	X	2. Will schools or churches be affected by displacement			0	0	0	0	0	(B) Covington Diesel - sales and service of diesel heavy equipment. 150 full time employees - not a minority. (I-40 Chimney Roach Rd. site).				
X		3. Will business services still be available after project			0	0	0	0	0	(C) Potpourri Press Publisher - printer - 100 employees - not a minority.				
		4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.			0	0	0	0	0	(D) Union 76 Truck Stop/Restaurant. Restaurant, gasoline, auto repairs, lodging, etc., 50 employees, not a minority.				
X		5. Will relocation cause a housing shortage			0	0	0	0	0	(E) First Citizen Bank- NC chartered bank. 4 employees - not a minority.				
	X	6. Source for available housing (list)			0	0	0	0	0	(F) Cameron Barkley Co. Industrial supplies - 7 employees - not a minority.				
X		7. Will additional housing programs be needed			0	0	0	0	0	(G) Tri-City Insulation, Inc. Industrial and residential insulators 12 employees - not a minority.				
X		8. Should Last Resort Housing be considered			0	0	0	0	0	(H) Sherwin Williams Chemical Coatings Facilities #1 & #2 - 60 employees - not a minority.				
	X	9. Are there large, disabled, elderly, etc. families			0	0	0	0	0	(I) Gate City Glass Co. Inc. Residential, commercial, sales, service and installation - 20 employees - not a minority.				
		ANSWER THESE ALSO FOR DESIGN			0	0	0	0	0	(J) Covington Diesel, Inc. Special services - 20 employees - not a minority - 6504 W. Market St. location.				
		10. Will public housing be needed for project			0	0	0	0	0					
		11. Is public housing available			0	0	0	0	0					
		12. Is it felt there will be adequate DDS housing available during relocation period			0	0	0	0	0					
		13. Will there be a problem of housing within financial means			0	0	0	0	0					
		14. Are suitable business sites available (list source)			0	0	0	0	0					
		15. Number months estimated to complete RELOCATION			0	0	0	0	0					

F. D. Noell *F D Noell*
 Relocation Agent
 Form 15.4 Revised 5/90

08-10-90
 Date

J. Williamson Jr
 Approved
 Date 8/14/90

Original & 1 Copy: State Relocation Agent
 2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T COUNTY: Guilford Alternate W of 7 Alternate

I.D. NO.: U-2524 F.A. PROJECT: _____

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

(PAGE 2 OF 2)

6. Personal survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.

8. Last Resort Housing program will be used if necessary.

Note:

- 1) Chimney Rock Rd. at Burnt Popular Rd. 7 acre, plus building unoccupied. Formerly a Coco-Cola bottler and distributors.
- (2) 6500 W. Market St. A 5 acre, plus unoccupied building formerly used as a warehouse.
- 3) Non-profit displacee. NC State Ports Authority Greensboro Inter Modal Terminal - 3 employees.

NOTE: Contacted two of Greensboro's leading commercial and industrial property managers. They see no problem in relocating the businesses affected. Also, the local newspapers has an extensive commercial and industrial listing.

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T COUNTY: Guilford Alternate W of B Alternate

I.D. NO.: U-2524 F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL							
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP			
Individuals	0	0	0	0	0	0	0	0	0			
Families	62	0	62	12	0	0	0	54	8			
Businesses	0	0	0	0	VALUE OF DWELLING			DDS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners	Tenants	For Sale	For Rent				
Non-Profit	1	0	1	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0
ANSWER ALL QUESTIONS					20-40M	0	150-250	0	20-40M	22	150-250	11
					40-70M	1	250-400	0	40-70M	185	250-400	118
YES	NO	EXPLAIN ALL "YES" ANSWERS			70-100	37	400-600	0	70-100	281	400-600	223
	X				100 UP	24	600 UP	0	100 UP	570	600 UP	6
X		3. Will business services still be available after project			TOTAL	62		0		1058		358
X					4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.			REMARKS (Respond by Number)				
	X	5. Will relocation cause a housing shortage						2. Lutheran Church Of The Resurrection - 100 members.				
	X				6. Source for available housing (list)			3. There are similar businesses not being affected.				
X		7. Will additional housing programs be needed						6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.				
X					8. Should Last Resort Housing be considered			8. Last Resort Housing program will be used if necessary.				
	X	9. Are there large, disabled, elderly, etc. families										
ANSWER THESE ALSO FOR DESIGN												
		10. Will public housing be needed for project										
					11. Is public housing available							
		12. Is it felt there will be adequate DDS housing available during relocation period										
					13. Will there be a problem of housing within financial means							
		14. Are suitable business sites available (list source)										
					15. Number months estimated to complete RELOCATION							

F. D. Noell *F D Noell* 08-10-90 Date *J. Williams Jr.* 8/14/90 Date
 Relocation Agent Approved
 Form 15.4 Revised 5/90 Original & 1 Copy: State Relocation Agent
 2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate W of 9 Alternate

I.D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	15	0	15	3	0	2	5	7	1				
Businesses	1	0	1	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Farms	1	0	1	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	3	150-250	0	20-40M	22	150-250	11	
					40-70M	5	250-400	0	40-70M	185	250-400	118	
YES	NO	EXPLAIN ALL "YES" ANSWERS			70-100	5	400-600	0	70-100	281	400-600	223	
					100 LP	2	600 LP	0	100 LP	570	600 LP	6	
	X	1. Will special relocation services be necessary			TOTAL	15		0		1058		358	
	X				2. Will schools or churches be affected by displacement			REMARKS (Respond by Number)					
	X	3. Will business services still be available after project						3. There are similar businesses not being affected.					
	X				4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.			4. Longview Golf Course 18 hole public golf course. 6 full time employees - not a minority.					
	X	5. Will relocation cause a housing shortage						6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.					
	X				6. Source for available housing (list)			8. Last Resort Housing program will be used if necessary.					
	X	7. Will additional housing programs be needed						Comment: Farm relocation - Hodgins Dairy Farm.					
	X				8. Should Last Resort Housing be considered			NOTE: Contacted two of Greensboro's leading commercial and industrial property managers. They see no problem in relocating the businesses affected. Also, the local newspapers has an extensive commercial and industrial listing.					
	X	9. Are there large, disabled, elderly, etc. families											
					ANSWER THESE ALSO FOR DESIGN								
		10. Will public housing be needed for project											
					11. Is public housing available								
		12. Is it felt there will be adequate DDS housing available during relocation period											
					13. Will there be a problem of housing within financial means								
		14. Are suitable business sites available (list source)											
					15. Number months estimated to complete RELOCATION								

F. D. Noell *F. D. Noell*
 Relocation Agent
 Form 15.4 Revised 5/90

08-10-90
 Date

J. W. Williams 8/14/90
 Approved Date
 Original & 1 Copy: State Relocation Agent
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RELOCATION REPORT

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T COUNTY: Guilford Alternate C of 1 Alternate
 I.D. NO.: U-2524 F.A. PROJECT: _____

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACEDS					INCOME LEVEL							
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 LP			
Individuals	0	0	0	0	0	0	0	0	0			
Families	34	0	34	7	0	0	0	30	4			
Businesses	0	0	0	0	VALUE OF DWELLING			DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners	Tenants	For Sale	For Rent				
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0
ANSWER ALL QUESTIONS					20-40M	0	150-250	0	20-40M	22	150-250	11
					40-70M	2	250-400	0	40-70M	185	250-400	118
ANSWER THESE ALSO FOR DESIGN					70-100	28	400-600	0	70-100	281	400-600	223
					100 LP	4	600 LP	0	100 LP	570	600 LP	6
					TOTAL	34		0		1058		358

YES	NO	EXPLAIN ALL "YES" ANSWERS
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Will special relocation services be necessary
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Will schools or churches be affected by displacement
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Will business services still be available after project
<input type="checkbox"/>	<input type="checkbox"/>	4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. Will relocation cause a housing shortage
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Source for available housing (list)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Will additional housing programs be needed
<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. Should Last Resort Housing be considered
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Are there large, disabled, elderly, etc. families

REMARKS (Respond by Number)

- There are similar businesses not being affected.
- Personal survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.
- Last Resort Housing program will be used if necessary.

F. D. Noell *F D Noell* 08-10-90
 Relocation Agent Date

J B Williamson Jr. 8/14/90
 Approved Date
 Original & 1 Copy: State Relocation Agent
 2 Copy: Area Relocation File

RELOCATION REPORT

X E.I.S. CORRIDOR DESIGN

North Carolina Department of Transportation
RELOCATION ASSISTANCE

PROJECT: 6.498001T COUNTY: Guilford Alternate C of 2 Alternate
I.D. NO.: U-2524 F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	10	0	10	3	0	0	0	7	3				
Businesses	0	0	0	0	VALUE OF DWELLING				DDS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS YES NO EXPLAIN ALL "YES" ANSWERS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	6	250-400	0	40-70M	185	250-400	118	
					70-100	1	400-600	0	70-100	281	400-600	223	
					100 UP	3	600 UP	0	100 UP	570	600 UP	6	
					TOTAL	10		0		1058		358	
					REMARKS (Respond by Number)								
X 1. Will special relocation services be necessary					3. There are similar businesses not being affected.								
X 2. Will schools or churches be affected by displacement					6. Personal Survey, local newspapers and the Greensboro MLS Directory.								
3. Will business services still be available after project					8. Last Resort Housing program will be used if necessary.								
X 4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.													
X 5. Will relocation cause a housing shortage													
6. Source for available housing (list)													
X 7. Will additional housing programs be needed													
X 8. Should Last Resort Housing be considered													
X 9. Are there large, disabled, elderly, etc. families													
ANSWER THESE ALSO FOR DESIGN													
10. Will public housing be needed for project													
11. Is public housing available													
12. Is it felt there will be adequate DDS housing available during relocation period													
13. Will there be a problem of housing within financial means													
14. Are suitable business sites available (list source)													
15. Number months estimated to complete RELOCATION													

F. D. Noell *F D Noell*
Relocation Agent
Form 15.4 Revised 5/90

08-10-90
Date

J B Williamson 8/14/90
Approved Date

Original & 1 Copy: State Relocation Agent
2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. ___ CORRIDOR ___ DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate C of 3 Alternate

I.D. NO.: U-2524

F.A. PROJECT: _____

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	8	0	8	2	0	2	5	1	0				
Businesses	1	0	1	0	VALUE OF DWELLING				ODS DWELLINGS AVAILABLE				
Farms	1	0	1	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	2	150-250	0	20-40M	22	150-250	11	
					40-70M	4	250-400	0	40-70M	185	250-400	118	
YES	NO	EXPLAIN ALL "YES" ANSWERS			70-100	2	400-600	0	70-100	281	400-600	223	
	X				100 UP	0	600 UP	0	100 UP	570	600 UP	6	
	X	ANSWER THESE ALSO FOR DESIGN			TOTAL	8		0		1058		358	
	X				REMARKS (Respond by Number)								
	X	10. Will public housing be needed for project			3. There are similar businesses not being affected.								
	X				11. Is public housing available			4. D. W. Griffin Wrecking, Inc., general salvage, building demolition, ext. 50 employees - not a minority.					
	X	12. Is it felt there will be adequate ODS housing available during relocation period						6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.					
	X				13. Will there be a problem of housing within financial means			8. Last Resort Housing program will be used if necessary.					
	X	14. Are suitable business sites available (list source)						NOTE: Contacted two of Greensboro's leading commercial and industrial property managers. They see no problem in relocating the businesses affected. Also, the local newspapers has an extensive commercial and industrial listing.					
	X				15. Number months estimated to complete RELOCATION _____								

F. D. Noell *F D Noell* 08-10-90
 Relocation Agent Date
 Form 15.4 Revised 5/90

J B Wilkerson 8/14/90
 Approved Date
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RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate C of 4 Alternate

I.D. NO.: L-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	6	0	6	1	0	0	0	6	0				
Businesses	0	0	0	0	VALUE OF DWELLING				DDS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS YES NO EXPLAIN ALL "YES" ANSWERS					20-40M	0	150-250	0	20-40M	22	150-250	11	
					40-70M	0	250-400	0	40-70M	185	250-400	118	
					70-100	6	400-600	0	70-100	281	400-600	223	
					100 UP	0	600 UP	0	100 UP	570	600 UP	6	
					TOTAL	6		0		1058		358	
					REMARKS (Respond by Number)								
					3. There are similar businesses not being affected.								
					6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.								
					8. Last Resort Housing program will be used if necessary.								
					ANSWER THESE ALSO FOR DESIGN								
					10. Will public housing be needed for project								
					11. Is public housing available								
					12. Is it felt there will be adequate DDS housing available during relocation period								
					13. Will there be a problem of housing within financial means								
					14. Are suitable business sites available (list source)								
					15. Number months estimated to complete RELOCATION								

F. D. Noell F D Noell 08-10-90
 Relocation Agent Date
 Form 15.4 Revised 5/90

J B Williamson 8/14/90
 Approved Date
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RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE

X E.I.S. CORRIDOR DESIGN

PROJECT: 6.498001T COUNTY: GUILFORD
I.D. NO.: U-2524 F.A. PROJECT: N/A

Alternate 1 of 4-F Alternate

DESCRIPTION OF PROJECT: Guilford College 4-F: Begin at Wendover Ave., extend N to W Jefferson with interchange at W. Market St.

DEC 12 1990

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP	VALUE OF DWELLING			
Individuals	0	60	60	12	10	35	15	0	0	OWNERS		TENANTS	
Families	252	72	324	30	0	53	137	98	36	FOR SALE		FOR RENT	
Businesses	14	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	0
Farms	0	0	0	0	20-40M	0	150-250	0	20-40M	0	150-250	0	0
Non-Profit	2	0	2	0	40-70M	37	250-400	0	40-70M	27	250-400	0	0
					70-100	121	400-600	132	70-100	257	400-600	462	0
					100 UP	94	600 UP	0	100 UP	485	600 UP	0	0
					TOTAL	252		132		769		462	

ANSWER ALL QUESTIONS		EXPLAIN ALL "YES" ANSWERS
YES	NO	
	X	1. Will special relocation services be necessary
X		2. Will schools or churches be affected by displacement
X		3. Will business services still be available after project
X		4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage
X		6. Source for available housing (list)
	X	7. Will additional housing programs be needed
X		8. Should Last Resort Housing be considered
	X	9. Are there large, disabled, elderly, etc. families
		ANSWER THESE ALSO FOR DESIGN
		10. Will public housing be needed for project
		11. Is public housing available
		12. Is it felt there will be adequate ODS housing available during relocation period
		13. Will there be a problem of housing within financial means
		14. Are suitable business sites available (list source)
		15. Number months estimated to complete RELOCATION <u> </u>

REMARKS (Respond by Number)

- (A) Westside Chapel
- (B) Calvary Assembly Church (new)
- Other businesses similar to affected property will be available in the area.
- The followings businesses are owner occupied, and none are minority owned.
 - (A) Crown Nissan Auto Sale - 75 employees.
 - (B) Daaco, Inc. - 10-15 employees.
 - (C) Western Carolina Forklift - 20 employees.
 - (D) Allstate Ins. - 10 employees.
 - (E) Nation Wide Ins. - 5 employees.
 - (F) O'Henry Income Tax - 5 employees.
 - (G) Guilford Mills - 150 employees.
 - (H) Duron Paints & Wallcovering - 25 employees.
 - (I) Wong's Restaurant - 20 employees.
 - (J) Edward-Mills Heating & Plumbing - 40 employees.
 - (K) Alsco Vinyl Wholesale - 50 employees.
 - (L) Golden Electronic, Inc. - 10 employees.
 - (M) Bill Hatch & Son Custom Built Cabinets 30 - employees.
 - (N) Sentry Ace hardware - 50 employees.
 - (O) Gas station - vacant.
- Greater Greensboro Board of Realtors (MLS).
- To be implemented as necessary.

COMMENT:
THERE APPEARS TO BE SUFFICIENT REPLACEMENT BUSINESS PROPERTY AND SITES FOR THOSE PROPOSED TO BE DISPLACED.

Coby Foreman
Relocation Agent
Form 15.4 Revised 5/90

12-07-90
Date

John Williams
Approved
Original & 1 Copy: State Relocation Agent
2 Copy: Area Relocation File
12-12-90
Date

RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE

X E.I.S. CORRIDOR DESIGN

PROJECT: 6.498001T COUNTY: GUILFORD
I.D. NO.: U-2524 F.A. PROJECT: N/A

Alternate 1 of 4-F Alternate

DESCRIPTION OF PROJECT: Sedgefield Stables: Begin approximately 1,400' N of I-85 at Campground Rd. Proceed W + NW to High Point Rd. Interchange 400' W

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 LP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	32	0	32	1	0	0	10	5	17				
Businesses	0	0	0	0	VALLE OF DWELLING				DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	0	150-250	0	20-40M	0	150-250	0	
					40-70M	8	250-400	0	40-70M	27	250-400	0	
YES	NO	EXPLAIN ALL "YES" ANSWERS			70-100	7	400-600	0	70-100	257	400-600	462	
	X				100 LP	17	600 LP	0	100 LP	485	600 LP	0	
	X	ANSWER THESE ALSO FOR DESIGN			TOTAL	32		0		769		462	
	X				REMARKS (Respond by Number)								
	X	1. Will special relocation services be necessary			6. Greater Greensboro Board of Realtors (MLS).								
	X	2. Will schools or churches be affected by displacement			8. To be implemented as necessary.								
	X	3. Will business services still be available after project											
	X	4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.											
	X	5. Will relocation cause a housing shortage											
	X	6. Source for available housing (list)											
	X	7. Will additional housing programs be needed											
	X	8. Should Last Resort Housing be considered											
	X	9. Are there large, disabled, elderly, etc. families											
		10. Will public housing be needed for project											
		11. Is public housing available											
		12. Is it felt there will be adequate DDS housing available during relocation period											
		13. Will there be a problem of housing within financial means											
		14. Are suitable business sites available (list source)											
		15. Number months estimated to complete RELOCATION											

Coby Foreman
Coby Foreman
Relocation Agent
Form 15.4 Revised 5/90

12-07-90
Date

William J. Williams
Approved
Date 12-12-90
Original & 1 Copy: State Relocation Agent
2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE

E.I.S. CORRIDOR DESIGN

PROJECT: 6.498001T COUNTY: GUILFORD Alternate 1 of E-11 Alternate
I.D. NO.: U-2524 F.A. PROJECT: N/A (Floodplain Avoidance)

DESCRIPTION OF PROJECT: From Drawbridge Parkway to 1,700' East of US 220 with Interchange at US 220

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 LP				
Individuals	0	0	*0	0	0	0	0	0	0				
Families	3	144	147	1	0	78	66	0	3				
Businesses	0	0	0	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS YES NO EXPLAIN ALL "YES" ANSWERS					20-40M	0	150-250	0	20-40M	0	150-250	0	
					40-70M	0	250-400	0	40-70M	27	250-400	0	
					70-100	0	400-600	144	70-100	257	400-600	462	
					100 LP	3	600 LP	0	100 LP	485	600 LP	0	
					TOTAL	3		144		769	462		
ANSWER THESE ALSO FOR DESIGN					REMARKS (Respond by Number)								
					*32 Apartments - Drawbridge Apts.; new underconstruct in 4 months to occupy.								
					6. Greater Greensboro Board of Realtors (MLS).								
					8. To be implemented as necessary								
					10. Will public housing be needed for project								
					11. Is public housing available								
					12. Is it felt there will be adequate DDS housing available during relocation period								
					13. Will there be a problem of housing within financial means								
					14. Are suitable business sites available (list source)								
					15. Number months estimated to complete RELOCATION								

Coby Foreman
Relocation Agent
Form 15.4 Revised 5/90

12-07-90
Date

[Signature]
Approved
Date 12-12-90
Original & 1 Copy: State Relocation Agent
2 Copy: Area Relocation File

**APPENDIX D
PUBLIC INVOLVEMENT**

D-1 Newsletters

D-2 Meetings with Public

D-1 Newsletters

GREENSBORO WESTERN URBAN LOOP

First in a
series of public
information
newsletters.

August 1989

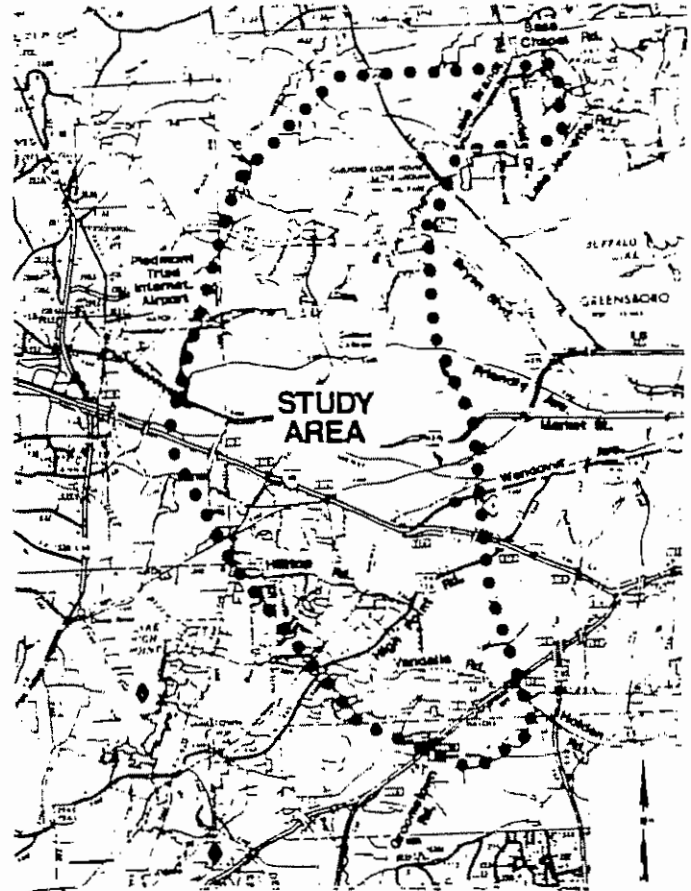
Issue No. 1

Greensboro Western Urban Loop Study Begins

For approximately the next two years, the City of Greensboro, in cooperation with Guilford County, the North Carolina Department of Transportation, and the Federal Highway Administration, will be studying alternative routes for the western section of the Greensboro Urban Loop facility. Formerly referred to locally as Painter Boulevard, the Western Urban Loop will extend between I-85 and Lawndale Drive (see map), a distance of approximately 15 miles. The proposed multi-lane facility joins I-85 in the south between Holden Road and Groometown Road and ends at Lawndale Drive between Lake Jeanette Road and Lake Brandt Road.

Several alternative corridors for the Western Urban Loop are being identified, including a 'do-nothing' (project not built) alternative. These alternatives will be evaluated in the study to determine their environmental, social, economic, and traffic impact on the surrounding area. The study area for the Western Urban Loop is located generally east of the Piedmont Triad International Airport, southeast of Lake Brandt, and west of Holden Road, as shown on the map.

The study will include data collection, public involvement, traffic and environmental analyses, archaeological and historical studies, engineering studies, and coordination with state, local, and federal agencies. A project location planning report/environmental impact statement will be published as part of the study. Ultimately, one alternative will be recommended based on the results of the study.



Kimley-Horn and Associates To Perform Study

Kimley-Horn and Associates, Inc., a consulting engineering, planning, and surveying firm, has been selected by the City of Greensboro to study several possible routes for the proposed Greensboro Western Urban Loop. Kimley-Horn will develop and evaluate alternatives to determine which ones are technically feasible, environmentally sound, and acceptable to the community. Nathan B. Benson is Kimley-Horn's designated project manager. Project coordinator for the City of Greensboro is Terry Bellamy, Manager of Transportation Planning.

Public Involvement Encouraged

An extensive public involvement program is planned to keep citizens aware of progress on the Greensboro Western Urban Loop study. Citizens will have numerous opportunities to attend public meetings, express their concerns and offer suggestions. The following public events are planned:

- **Area-wide public meetings.** There will be a public meeting in the early stages of the Western Urban Loop study, and another after alternatives have been refined and evaluated. At both meetings, engineers and planners will be available to answer questions and address public concerns.
- **Small group meetings.** Throughout the study, Kimley-Horn engineers will be available to meet with local citizen groups to discuss the issues. Concerned groups can arrange a meeting by calling the project hotline. Please allow at least ten days for the meeting to be arranged. Groups will be responsible for providing a meeting place.
- **Public workshop/hearing.** The consultant will publish an environmental impact statement that will discuss the impact that each alternative route would have on the environment, including the "do-nothing" alternative. Following the completion of a draft of this report, a public workshop will be held to discuss in detail the consultant's findings. Public input will be invited at the subsequent public hearing.

Citizens are being strongly encouraged to attend these meetings to share their ideas and offer valuable suggestions about the project.

Dates for these and all other public information events will be published in this newsletter. Citizens can get on the newsletter mailing list by calling the project hotline -- 370-0677

Hotline Offers Speedy Answers

Information is just a phone call away. Citizens can call Kimley-Horn's local "hotline" Monday through Friday, from 8:00 AM to 5:00 PM. An engineer will be available to discuss the project or accept comments. The hotline number is 370-0677.

Letters and written comments can be mailed to:

Mr. Nathan B. Benson, P.E.
Kimley-Horn and Associates, Inc
Post Office Box 33068
Raleigh, NC 27636-3068

or

Mr. Terry Bellamy, Manager
Transportation Planning
City of Greensboro
Drawer W-2
Greensboro, NC 27402

First Public Meeting Set

The first public meeting on this project has been scheduled for August 31, 1989, in the Guilford Middle School Gymnasium located at 401 College Road in Greensboro. The walk-through, workshop-type meeting will be held between 4:00 PM and 8:00 PM.

How Can You Be Involved?

- Call the hotline at 370-0677
- Attend the meetings/workshops and offer your suggestions
- Attend the public hearing
- Get your name on the mailing list to receive the newsletters

Greensboro Western Urban Loop Study
Kimley-Horn and Associates, Inc.
Post Office Box 33068
Raleigh, NC 27636-3068

GREENSBORO WESTERN URBAN LOOP

Second in a
series of public
information
newsletters.

December 1989

Issue No. 2

Alternatives Selected for Detailed Study

After six months of studying possible routes for the Greensboro Western Urban Loop, Kimley-Horn and Associates, Inc. has begun a detailed study of the three principal alternatives as well as a no-build alternative. These alternatives are described below and illustrated on the map inside this newsletter.

Western Alternative

The western corridor begins at the I-85 and Campground Road interchange between Groometown Road and Holden Road. This corridor proceeds northwest, crosses Groometown Road, and High Point Road. The corridor curves west to Hilltop Road, and then crosses Wendover Avenue. This corridor then crosses I-40 and US 421 (West Market Street) near Chimney Rock Road and proceeds northward along the eastern edge of the Piedmont Triad International Airport crossing Old Oak Ridge Road, Bryan Boulevard and then crosses Fleming Road east of Lewiston Road. The corridor crosses US 220 (Battleground Road) north of New Garden Road, crosses Old Battleground Road, and ends at Lawndale Drive between Cottage Place and Lake Brandt Road. Interchanges are included at the western corridors crossings of I-85, Vandalia Road, High Point Road, Hilltop Road, Wendover Avenue, I-40, US 421 (West Market Street), Friendly Avenue, proposed Bryan Boulevard, US 220 North (Battleground Road), and Lawndale Drive.

Middle Alternative

The middle alternative is along the same route as the western alternative from the Campground Road/I-85 interchange to just north of Hilltop Road. This corridor crosses Wendover Avenue and I-40 just east of the Guilford College Road I-40 interchange. It continues northward to cross US 421 and Friendly Avenue, east of Stage Coach Trail. The middle corridor crosses Old Oak Ridge Road and ties back into the Western Corridor between proposed Bryan Boulevard and Fleming Road where it continues along this route to Lawndale Drive. Interchanges are included at the crossings of I-85, Vandalia Road, High Point Road, Hilltop Road,

I-40, Guilford College Road, US 421 (West Market Street), proposed Bryan Boulevard, US 220 North (Battleground Avenue), and Lawndale Drive.

Eastern Alternative

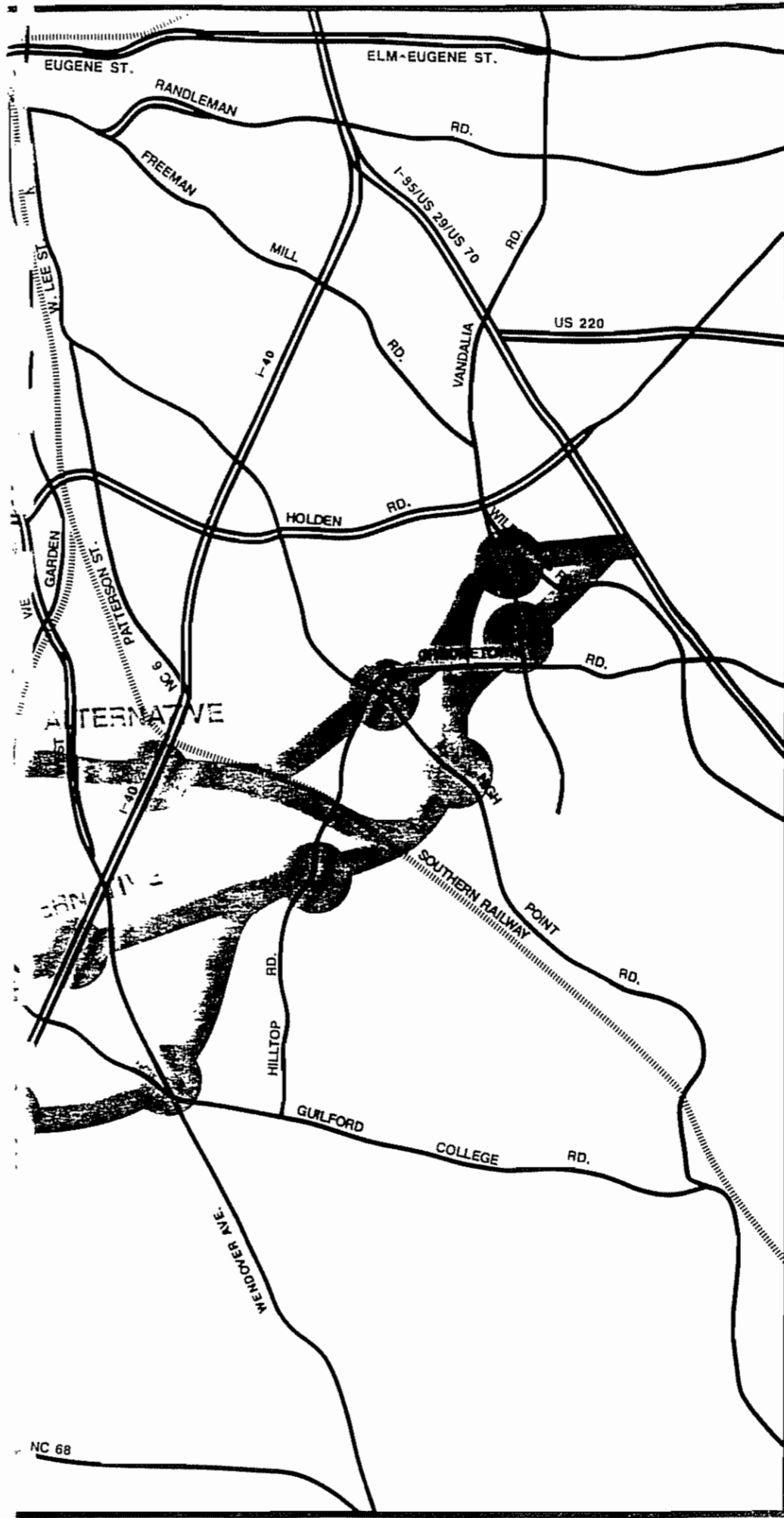
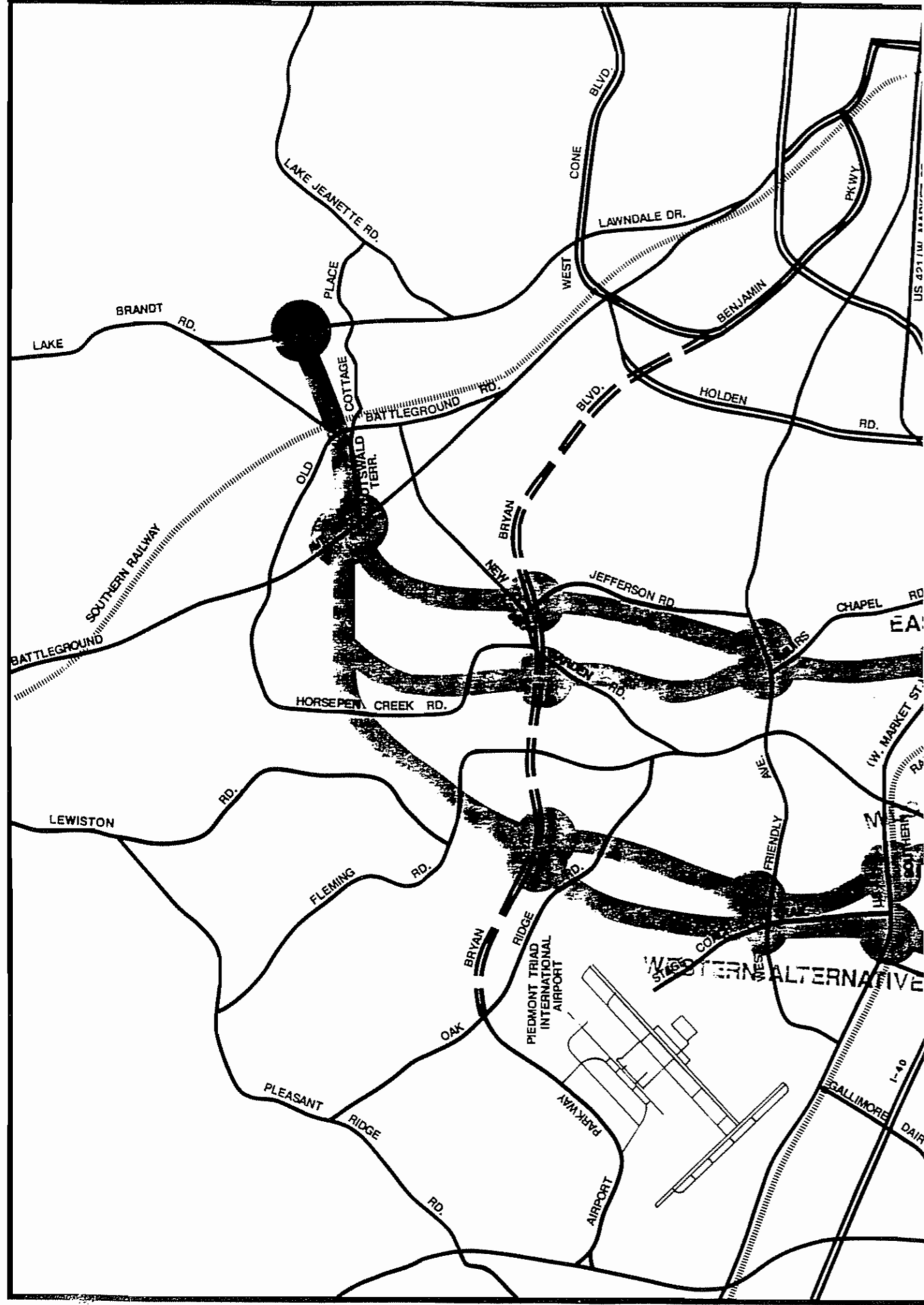
The eastern corridor starts at the same I-85 interchange as the west and middle alternatives (Campground Road). It proceeds north, crosses approximately 800 feet east of the Wiley Davis Road and McCuiston Road intersection, with an interchange at Vandalia Road. It travels northwest interchanging with High Point Road. The corridor heads north from here with interchanges at I-40 and US 421 (West Market Street). The corridor extends further north to interchange with Friendly Road near the current Muir's Chapel Road intersection. From this point, the corridor could loop around Jefferson Gardens, either to the northeast or northwest. Both the routes to interchange with proposed Bryan Boulevard. The Eastern corridors then proceed north join the western and middle corridors near Battleground Road Interchange and then it continues eastward to interchange with Lawndale Drive.

Crossovers

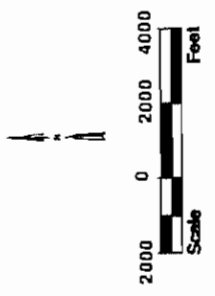
Several crossovers are included in the routes to be studied to provide for changes between corridors. These crossovers are provided for transition between the western and eastern or middle routes.

Further Study

As the next step in this study, Kimley-Horn will analyze in detail the impacts of each of the alternatives on the natural and human environment. Among the factors to be considered are traffic, noise, air quality, wetlands, farmland, relocations, archaeology, historic sites, and economic impact. The draft environmental impact statement (DEIS) will present the analysis of the alternatives studied. Following the corridor public hearing, one alternative will be selected. The final environmental impact statement (FEIS) will discuss the impacts of the selected alternative.



LEGEND
 ■ Corridor Alternatives
 ● Proposed Interchanges



Kimley-Horn

GREENSBORO WESTERN URBAN LOOP

CORRIDOR ALTERNATIVES

Figure

Public Involvement Encouraged

An extensive public information program is planned to keep citizens aware of progress on the Greensboro Western Urban Loop study. Citizens will have numerous opportunities to attend public information meetings and express their concerns and offer suggestions. The following public information events are included:

- **Second public meeting scheduled.** The second public meeting for the Greensboro Western Urban Loop has been scheduled for January 11, 1990. This meeting will be held at the Guilford Middle School cafeteria located at 401 Guilford College Road. The public is invited to drop in between 4:00 PM and 8:00 PM. Engineers, planners, and NCDOT and City representatives will be available to answer questions and address public concerns.
- **Small group meetings.** Throughout the study, Kimley-Horn engineers and planners will be available to meet with groups to discuss the issues. Concerned groups can arrange a meeting by calling the project hotline: 370-0677. Please call at least ten days in advance and provide a meeting place.
- **Public workshop/hearing.** Kimley-Horn will publish an environmental impact statement that will discuss the impact that each alternative route would have on the environment. Following the completion of a draft of this report, a public workshop will be held to discuss in detail the consultant's findings. Public comments will be received at the subsequent public hearing.

Dates for these and all other public information events will be published in future newsletters. Citizens can get on the newsletter mailing list by calling the project hotline -- 370-0677.

Hotline Offers Speedy Answers

Information is just a phone call away. Citizens can call Kimley-Horn's local "hotline" Monday through Friday, from 8:00 AM to 5:00 PM. An engineer will be available to discuss the project or accept comments. The hotline number is 370-0677.

Letters and written comments can be mailed to:

Mr. Nathan B. Benson, P.E.
Kimley-Horn and Associates, Inc.
Post Office Box 33068
Raleigh, NC 27636-3068

or

Mr. Terry Bellamy, Manager
Transportation Planning
City of Greensboro
Drawer W-2
Greensboro, NC 27402

Key Dates

Second Public Meeting	January 11, 1990
Draft EIS Complete	October 1990
Public Workshops	October 1990
Public Hearing	November 1990

How Can You Be Involved?

- Call the hotline at 370-0677
- Attend the meetings/workshops and offer your suggestions
- Attend the public hearing
- Get your name on the mailing list to receive the newsletters

Greensboro Western Urban Loop Study
Kimley-Horn and Associates, Inc.
Post Office Box 33068
Raleigh, NC 27606

GREENSBORO WESTERN URBAN LOOP

Third in a
series of public
information
newsletters.

May 1990

Issue No. 3

Alternatives Selected for Inclusion in Draft Environmental Impact Statement

Three alternative corridors are now being considered for the location of the Greensboro Western Urban Loop. All three alternatives are being given equal consideration at this time as well as a no-build alternative. As a result of intensive data collection, planning studies, and engineering studies, several changes have been made in the alternative corridors since the December 1989 public meeting. These changes are indicated on the map inside this newsletter. It is emphasized that these alternatives shown on the map in this newsletter are subject to change as more detailed information is received. Studies are currently underway to identify significant historical and archaeological features within the selected corridors. Wetland areas are also being delineated. Since all of these aforementioned features are protected by federal regulations, the corridors may have to be changed to satisfy federal procedures for mitigation and avoidance. The results of the studies and changes made to the proposed corridors will be documented in the draft environmental impact statement (DEIS) and discussed at the corridor public hearing. After the corridor public hearing is held and comments from the public are considered, a recommendation will be included in the Final Environmental Impact Statement. The alternatives currently proposed are discussed in the following paragraphs:

Western Alternative

The western corridor begins at I-85 between Groometown Road and Holden Road. This corridor proceeds northwest, crossing Groometown Road and High Point Road. The corridor curves west to Hilltop Road, and then crosses Wendover Avenue. This corridor then crosses I-40 and US 421 (West Market Street) near Chimney Rock Road and proceeds northward along the eastern edge of the Piedmont Triad International Airport crossing Old Oak Ridge Road, Bryan Boulevard and Fleming Road east of Lewiston Road. The corridor crosses Horsepen Creek Road, Four Farms Road, US 220 North (Battleground Avenue) north of New Garden Road, Old Battleground Avenue, and ends at Lawndale Drive between Cottage Place and Lake Brandt Road. Interchanges are included at the western corridor crossing of I-85, High Point Road, Wendover Avenue, I-40, US 421 (West Market Street), Friendly Avenue, proposed Bryan Boulevard, US 220 North (Battleground Avenue), and Lawndale Drive. A portion of the

approximate 1,000-foot-wide corridor for the western corridor located between Horsepen Creek Road and Battleground Road has been shifted and expanded northward about 1,500 feet. This shift was made to avoid the use of wetlands as much as possible. Additional wetland studies are still pending.

Interchanges previously proposed at Vandalia Road and Hilltop Road have been eliminated from further study. The interchange proposed at Vandalia Road would have posed traffic and operational problems with the proposed I-85 Greensboro Bypass and existing I-85 interchange. The interchange at Hilltop Road was dropped because of its marginal need and to reduce disruption to existing development in the immediate area.

Middle Alternative

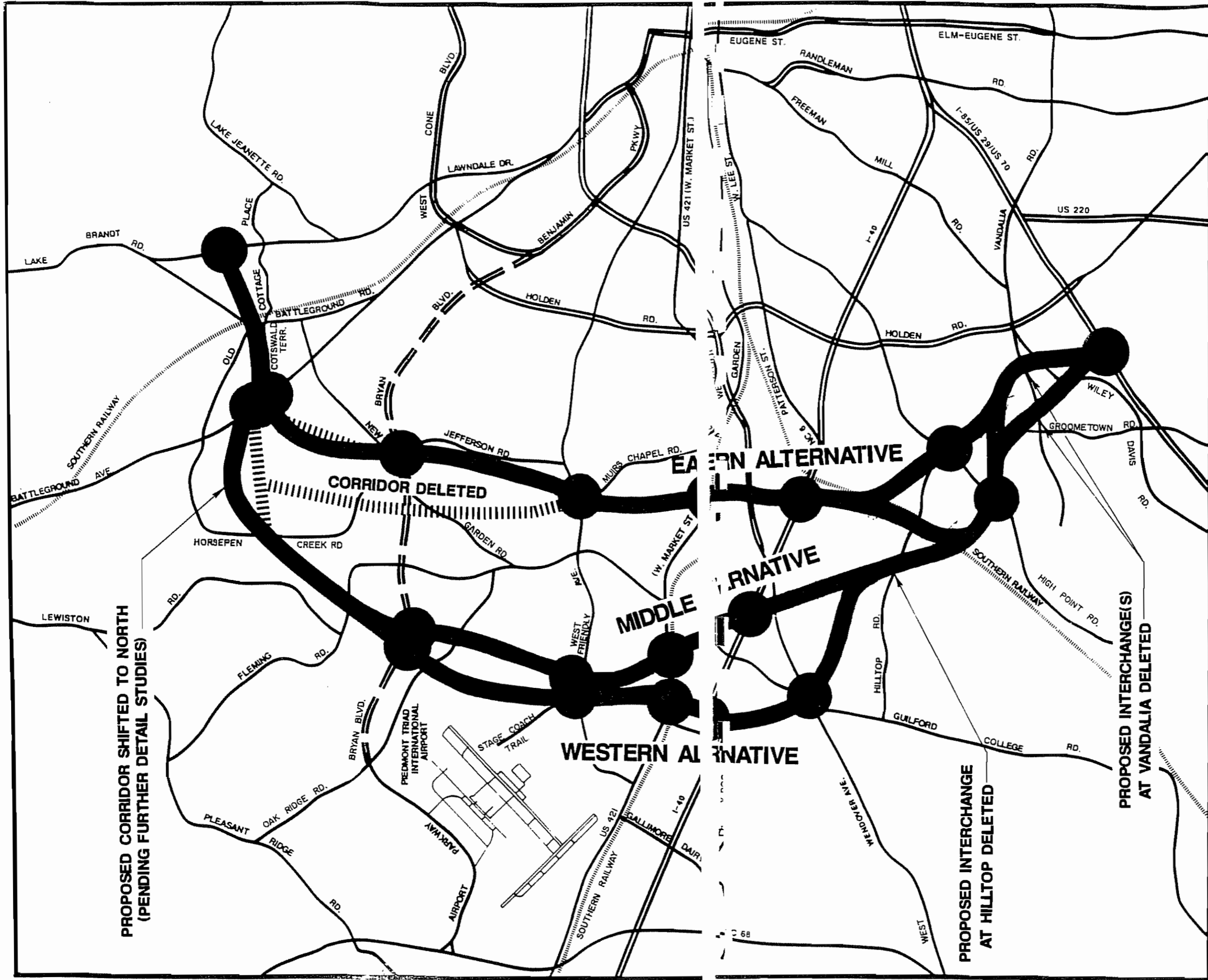
The middle corridor follows the same route as the western alternative from the I-85 interchange to just north of Hilltop Road. This corridor crosses Wendover Avenue and I-40 just east of the Guilford College Road/I-40 interchange. It continues northward to cross US 421 and Friendly Avenue, east of Stage Coach Trail. The middle corridor crosses Old Oak Ridge Road and ties back into the Western Corridor between proposed Bryan Boulevard and Fleming Road where it continues along the western alternative to Lawndale Drive. Interchanges are included at the crossings of I-85, High Point Road, I-40, Guilford College Road, US 421 (West Market Street), Friendly Avenue, proposed Bryan Boulevard, US 220 North (Battleground Avenue), and Lawndale Drive.

Interchanges previously located at Vandalia Road and Hilltop Road have been eliminated from further study as explained for the western alternative.

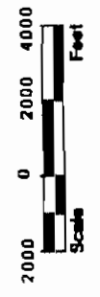
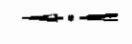
Eastern Alternative

The eastern corridor starts at the same I-85 interchange as the western and middle alternatives. It proceeds northwest interchanging with High Point Road. The corridor then proceeds northward with interchanges at I-40 and US 421 (West Market Street). The corridor extends further north to interchange with Friendly Avenue near the current Muir's Chapel Road intersection. From this point, the corridor proceeds parallel to Jefferson Road, and interchanges with proposed Bryan Boulevard. The eastern corridor then proceeds north to join the western and middle corridors near the US 220 North (Battleground Avenue) interchange, then continues eastward to interchange with Lawndale Drive.

The section of the eastern alternative that looped northwest around the lake at Jefferson Gardens was eliminated from further study. This section would have split the Guilford College property which is in the process of being nominated for inclusion on the National Register of Historic Places. It



PRELIMINARY
SUBJECT TO CHANGE WITHOUT NOTICE



- LEGEND**
- Corridor Alternatives
 - Proposed Interchanges



GREENSBORO WESTERN URBAN LOOP

CORRIDOR ALTERNATIVES
DATE: MAY 1, 1990

Figure

also would have interfered with construction of the interchange at proposed Bryan Boulevard and New Garden Road. The eastern alternative was also shifted about 400 feet west between New Garden Road and Battleground Avenue to include the original thoroughfare alignment and to locate the proposed interchange at Battleground Avenue to avoid wetland where feasible.

Crossovers

Several crossovers are still included in the routes to be studied. These crossovers provide for changes between corridors and allow for possible combinations of parts of the three alternative corridors.

Further Study

Data is continuing to be collected and analyzed concerning biotics, wetlands, historic structures, and costs. As more information becomes available, the corridors are subject to change. No additional changes are anticipated at this time, but if they do, they will be discussed at the October public workshop and at the subsequent corridor public hearing.

Public Involvement Encouraged

An extensive public information program is planned to keep citizens aware of progress on the Greensboro Western Urban Loop study. Citizens will have numerous opportunities to attend public information meetings and express their concerns and offer suggestions. The following public information events are included:

- **Public workshop.** Kimley-Horn will publish an environmental impact statement that will discuss the impact that each alternative route would have on the environment. Following the completion of a draft of this report, a public workshop will be held to discuss in detail the consultant's findings.
- **Corridor public hearing.** After the public workshop is held, public comments will be received at the

corridor public hearing. A decision as to the recommended corridor will be made after the corridor public hearing.

Dates for these and other public information events will be published in future mailings. Citizens can get on the newsletter mailing list by calling the project hotline -- 370-0677.

Hotline Offers Speedy Answers

Information is just a phone call away. Citizens can call Kimley-Horn's local "hotline" Monday through Friday, from 8:00 AM to 5:00 PM. An engineer will be available to discuss the project or accept comments. The hotline number is 370-0677.

Letters and written comments can be mailed to:

Nathan B. Benson, P.E.
Kimley-Horn and Associates, Inc.
Post Office Box 33068
Raleigh, North Carolina 27636-3068

or

L.J. Ward, P.E.
Manager, Planning and Research Branch
North Carolina Department of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611

Key Dates

Draft EIS Complete	August 1990
Public Workshop	October 1990
Corridor Public Hearing	October 1990
Final EIS Complete	April 1991

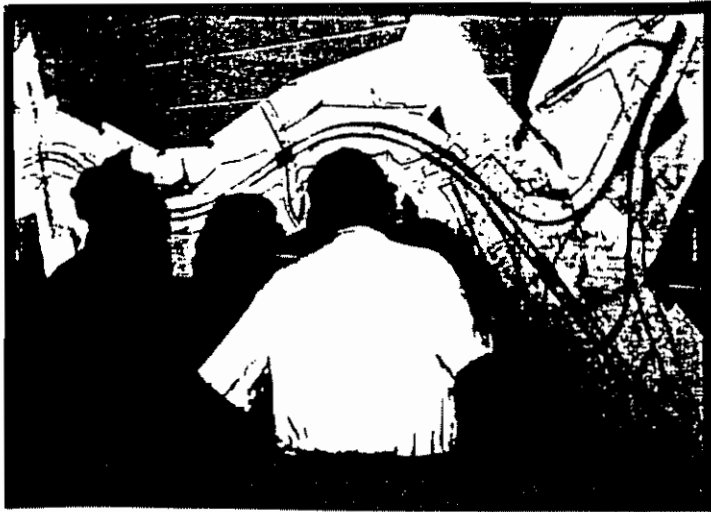
How Can You be Involved?

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- Attend the public hearing
- Get your name on the mailing list to receive the newsletters.

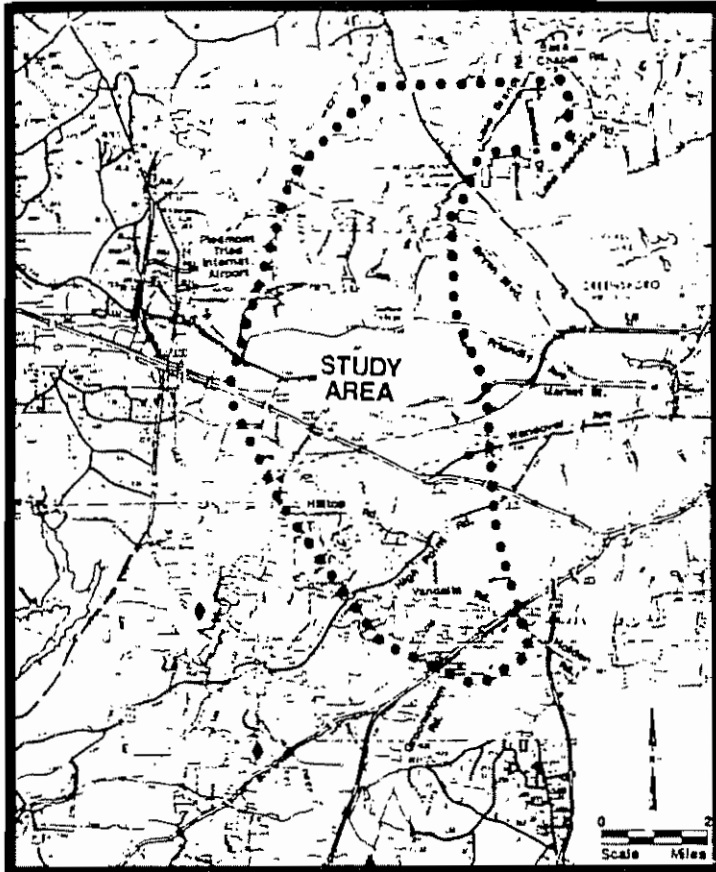
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Kimley-Horn and Associates, Inc.
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Raleigh, NC 27636-3068

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D-2 Meetings with Public



GREENSBORO WESTERN URBAN LOOP



PUBLIC MEETING



*" Involved citizens dedicated to the process of planning and preparing
for tomorrow's transportation needs of the Triad "*

PUBLIC MEETING

August 31, 1989

City of Greensboro
Greensboro Western Urban Loop
From I-85 South to Lawndale Drive (SR 2303)
Guilford County

The consulting firm of Kimley-Horn and Associates, Inc. has been retained by the City of Greensboro, in cooperation with the North Carolina Department of Transportation and the Federal Highway Administration to prepare planning/environmental studies for the Greensboro Western Urban Loop in Guilford County. The study area begins at I-85 between Groometown Road (SR 1129) and Holden Road (SR 1392) and extends to Lawndale Drive (SR 2303) between Lake Brandt Road (SR 2347) and Lake Jeanette Road (SR 2352) as shown on the attached map. An Environmental Impact Statement (EIS) is being prepared to evaluate alternatives and to identify a corridor location for this 15-mile project. A "no-build" alternative is also being considered as part of the Environmental Impact Statement. The Western Urban Loop is a portion of the proposed 42-mile Greensboro Urban Loop. A 14-mile southern portion of the Urban Loop (I-85 Bypass) is being considered for an EIS study and will be coordinated with the Western Urban Loop project. The remaining 13 miles of the loop are at the long-range planning stage and will be studied at a later time.

The purpose of this project is to serve the existing and anticipated (future) traffic demand and to relieve congestion, delay, and inconvenience to users.

This public meeting is being held in order to involve the public early in the planning process. We hope to obtain, from you, suggestions and comments on alternatives that should be considered and to identify special areas of concern. A comment sheet is provided so that the City of Greensboro can keep an accurate summary of your ideas, comments, and suggestions. We encourage you to fill in your name and address on the public comment form so that we may include you in our mailing list for information on this project.

If you wish to have additional information, or if you wish to comment further on this project, please contact the following:

Mr. Terry Bellamy
Manager
Transportation Planning
City of Greensboro
Drawer W-2
Greensboro, North Carolina 27402

Mr. Nathan B. Benson, P.E.
Senior Transportation Engineer
Kimley-Horn and Associates, Inc.
Post Office Box 33068
Raleigh, North Carolina 27636

GREENSBORO WESTERN URBAN LOOP

A General Overview of The Process and How You Can Be Involved

An extensive public involvement plan has been developed to keep citizens involved in the study process. This program consists of public meetings, small group meetings, elected officials meetings, periodic newsletters, and a telephone hotline. A formal public hearing will also be held.

The first public meeting will be held while study lines are being developed. A "draw your own line" map will be available to allow citizens an opportunity to show their own corridor location. At all public meetings, comment sheets will be available for citizens to provide any suggestions, comments, or information. By adding your name and address to the public comment form, you will automatically be added to the newsletter mailing list to receive information on the project. You can also get on the newsletter mailing list by calling the study hotline number at 370-0677.

After the first public meeting, Kimley-Horn engineers will be evaluating the suggested study lines and developing up to three alternatives most feasible and prudent for detailed analysis. A "no-build" alternative will also be studied.

The detailed analysis will consist of evaluation of factors such as location of parks, recreation areas, schools, and churches; community, business, residential, and other displacements; neighborhood cohesion; archaeological and historical resources; wetlands, floodways, floodplains; hazardous materials sites; threatened and endangered species; flora and fauna; water quality, air quality, noise, land use, constructability, traffic service, and cost. A second public meeting (to be announced at a later date) will be held when these analyses are near completion.

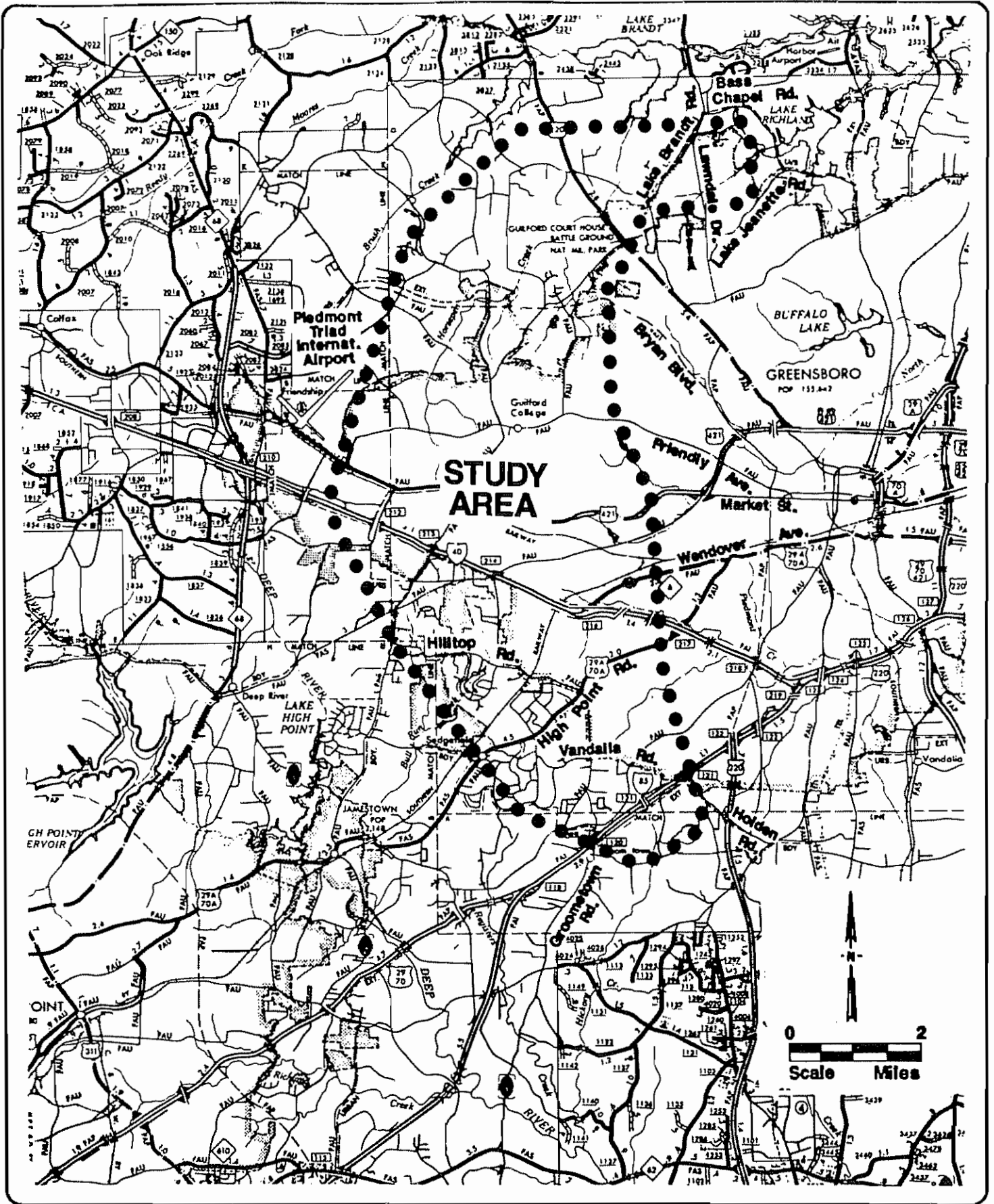
At this second public meeting, citizens will again have a chance to provide comments and ask questions in an informal, workshop atmosphere. Several months after the public meeting, a Draft Environmental Impact Statement (DEIS) will be available for review at various locations. Watch your local newspaper and the newsletter for specific dates, times, and places.

After approval of the DEIS, a corridor public hearing will be held. This will provide an opportunity for citizens to officially comment on the corridors. Approximately one to two weeks before the formal hearing, a public workshop meeting will be held to allow citizens a chance to view the corridor hearing map and ask questions.

The Final Environmental Impact Statement will then be prepared and one recommendation made for the preferred alignment.

Throughout the anticipated two-year study period, Kimley-Horn engineers will be available to make presentations to groups. These groups will need to contact Kimley-Horn at least ten days in advance of the meeting and arrange a location for the group presentations.

A **hotline telephone number** is set up to put you in touch with Kimley-Horn engineers. This number is 370-0677.



GREENSBORO WESTERN URBAN LOOP

PROJECT STUDY AREA

APPENDIX E
GLOSSARY OF TECHNICAL TERMS

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GLOSSARY OF TECHNICAL TERMS

abatement	to lessen negative impacts on noise, air, etc.
access-controlled	allowing vehicles to enter a roadway only at certain interchanges, with no access to adjacent land
adverse impact	negative effect
alignment	a possible road location within a corridor
arterial	major road with some access to adjacent land
circuitous	curvy, indirect
circumferential	bypassing, encircling
confluence	point where two or more streams meet
displacement	process by which a business or residence is relocated because its existing location is needed for a transportation project
effluent	discharge, normally from water/sewage treatment plants
expressway	high-speed, multi-lane road with access partially or fully controlled
floodplain	area that floods an average of once during a 100-year period
freeway	multi-lane road designed for through movement with access limited to interchanges (fully-controlled access)
level-of-service	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.

1. *Level-of-service definitions* - In general, the various levels of service are defined as follows for uninterrupted flow facilities:

Level-of-service A represents free flow. Individual users 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, passenger, or pedestrian is excellent.

Level-of-service B is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but 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 individual behavior.

Level-of-service C is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream. The selection of speed is now affected by the presence of others, and maneuvering within the traffic stream requires substantial vigilance on the part of the user. The general level of comfort and convenience declines noticeably at this level.

Level-of-service D represents high-density, but stable, flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems at this level.

Level-of-service E represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Freedom to maneuver within the traffic stream is extremely difficult, and it is generally accomplished by forcing a vehicle or pedestrian to "give way" to accommodate such maneuvers. Comfort and convenience levels are extremely poor, and driver or pedestrian frustration is generally high. Operations at this level are usually unstable, because small increases in flow or minor perturbations within the traffic stream will cause breakdowns.

Level-of-service F is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations. Operations within the queue are characterized by stop-and-go waves, and they are extremely unstable. Vehicles may progress at reasonable speeds for several hundred feet or more, then be required to stop in a cyclic fashion. Level-of-service F is used to describe the operating conditions within the queue, as well as the point of the breakdown. It should be noted, however, that in many cases operating conditions of vehicles or pedestrians discharged from the queue may be quite good. Nevertheless, it is the point at which arrival flow exceeds discharge flow which causes the queue to form, and level-of-service F is an appropriate designation for such points.

mainline volume	volume of through traffic on a main road
master plan	general long-range plan for growth in a certain area, covering land use, transportation needs, and other elements
merge	to combine two traffic lanes into one
mitigation	measures taken to reduce negative effects of construction and constructed facilities
multi-modal	combination of transportation types such as air, rail, bus, auto, etc.
overlay	a new layer of pavement
pavement milling	process of grinding off the top layer of pavement, treating it, and reapplying it as an alternative to adding new pavement
plat	registration with authorities of a parcel of land designated for development
radial	direct route to and from a central location

ridgeline	highest point between two watersheds where runoff water could head either direction
runoff	rainwater that is not absorbed and runs across the surface, carrying particles with it
Section 4(f)	a section of a Federal law requiring that land may be taken from public parks, recreation areas, refuges, or historic sites only if it can be shown that there is no feasible and prudent alternative to using that land -- such lands are sometimes referred to as "4(f) lands"
siltation	process by which sediment from erosion is deposited and accumulates in a watershed (such as a lake), reducing the volume of water that can be stored
terminus (termini)	end point(s)
thoroughfare plan	a comprehensive system of existing and proposed roads designed to collectively meet the current and future travel demands of an area in a safe and efficient manner
transportation system management (TSM)	system of low-cost techniques to maximize the capacity of existing transportation facilities (such as adding turn lanes or high occupancy vehicle lanes, improvements to signals, etc.)
watershed	the entire area of land that drains runoff into a tributary or stream
weaving	crossing of two or more traffic streams travelling in the same general direction
wetlands	areas saturated with ground or surface water often enough and long enough to maintain certain vegetation which is adapted to saturated soil conditions (such as swamp, marsh, or bog)