

ADMINISTRATIVE ACTION  
FINAL ENVIRONMENTAL IMPACT STATEMENT

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 15 miles, in Guilford County, North Carolina

State Project No. 6.498001T  
Guilford County U-2524

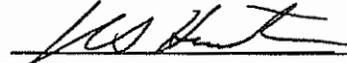
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Cooperating Agency  
U.S. Army, Corps of Engineers

7/25/94  
Date

  
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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 the preferred alternative corridor location. 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.

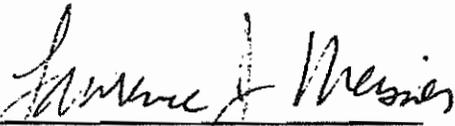
GREENSBORO WESTERN URBAN LOOP  
GUILFORD COUNTY

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Lawndale Drive near Cottage Place  
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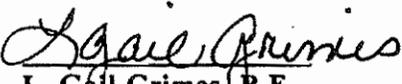
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## SUMMARY

### 1. FEDERAL HIGHWAY ADMINISTRATION

Administrative Action Environmental Statement

Draft  Final

Section 4(f) Statement attached

### 2. CONTACTS

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### 3. BRIEF DESCRIPTION OF THE PROPOSED ACTION

The proposed action is the construction of a four- to eight-lane freeway on new location, for the Greensboro Western Urban Loop, from I-85 to Lawndale Drive (SR 2303), a distance of approximately 15 miles. The project is located in Guilford County from a proposed interchange with I-85 in the south to Lawndale Drive (SR 2303) between Regents Park Lane and Cottage Place in the north. The southern point is the western terminus of the proposed I-85 Greensboro Bypass, while the northern point is the northern terminus of the proposed Greensboro Eastern/Northern Urban Loop. The Greensboro Western Urban Loop, the I-85 Greensboro Bypass, and the Greensboro Eastern/Northern Urban Loop complete the proposed loop system encircling the City of Greensboro (see Figure 1).

#### 4. ACTION PROPOSED BY OTHERS

Several actions are proposed by others. Planning and environmental studies for the proposed I-85 Greensboro Bypass and the proposed Greensboro Eastern/Northern Urban Loop are currently being prepared. The Western Urban Loop will connect with the proposed I-85 Greensboro Bypass and Northern/Eastern Urban Loop. Several other related construction projects are listed in the North Carolina Department of Transportation's Transportation Improvement Program (TIP) for 1995 to 2001: (1) the widening of I-40 from east of Kernersville to I-85; (2) the construction of a new multi-lane facility, Bryan Boulevard Extension, from Airport Parkway to existing Benjamin Parkway (SR 2176); (3) the widening of existing High Point Road (US 29A/70A); (4) the extension of High Point Road on new location; (5) the extension of US 220 from Vandalia Road north of I-85 through I-40 to Willmore Street; (6) the widening of West Market Street; and (7) the widening of Wendover Avenue.

**Other actions proposed in the vicinity of the project include the expansion of Piedmont Triad International Airport as identified in the Airport Master Plan. Additionally, residential and business developments are planned in the area, including Landmark Center (business), Wellspring Retirement Center, Kings Pond (residential), and Adams Farm (residential and commercial).**

#### 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 Alternatives
  - 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 the Greensboro 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 turn 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 several preliminary corridors on new location. These were subsequently refined to the three most reasonable and feasible freeway 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 (refer also to Figure 2):

The Eastern Alternative basically follows the 1989 Greensboro Urban Area Thoroughfare Plan alignment. It begins at I-85 at Campground Road, crosses I-40 between Wendover Avenue (SR 1541) and NC 6 (Patterson Street), and extends 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) north of Cottswold Terrace (SR 2342) and south of Drawbridge Parkway, and ends at Lawndale Drive just north of Cottage Place. The Eastern Alternative is 11.4 miles in length.

The Middle Alternative begins at I-85 at Campground Road, crosses I-40 near Guilford College Road, West Market Street near Swing Road and Friendly Avenue near Meadowcreek Lane, and joins the Western Alternative just south

of Fleming Road (SR 2136). The Middle Alternative then extends northeastward from Fleming Road, crosses Horse Pen Creek Road (SR 2182) where it turns eastward, joins the Eastern Alternative west of US 220 (Battleground Avenue) and ends at Lawndale Drive just north of Cottage Place. The Middle Alternative is 13.6 miles in length.

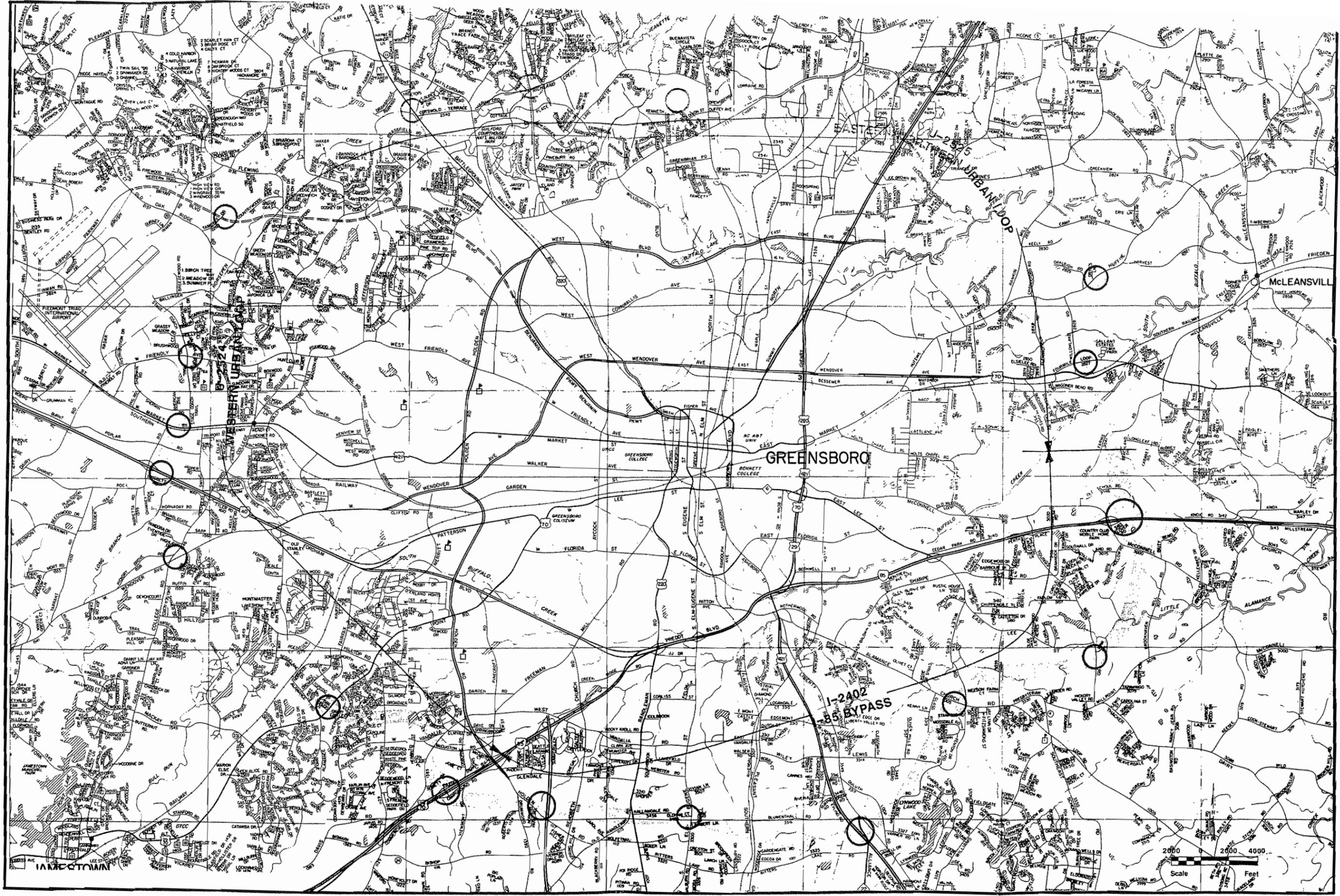
The Western Alternative begins at I-85 at Campground Road, extends northwest to cross I-40 near Chimney Rock Road, crosses West Market Street and Friendly Avenue near Stagecoach Trail, and continues north to join the Middle Alternative just south of Fleming Road (SR 2136). The Western Alternative then extends northeastward from Fleming Road, crosses Horse Pen Creek Road (SR 2182) where it turns eastward, joins the Eastern Alternative west of US 220 (Battleground Avenue) and ends at 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 also were studied. These crossovers enabled portions of different alternatives to be combined.

## **6. PREFERRED ALTERNATIVE**

The Preferred Alternative is a combination of the Eastern and Western Alternatives, using Crossover 1. The Preferred Alternative begins at I-85 at Campground Road and extends northward to just south of Broadacres Drive (Eastern Alternate), where it turns westward and extends to just west of Groometown Road (Crossover 1). Continuing west and northwest to cross I-40 near Chimney Rock Road, the Preferred Alternative then crosses West Market and Friendly Avenue near Stagecoach Trail, continues north to Fleming Road and turns east to end at Lawndale Drive north of Cottage Place (Western Alternative). This alternative is 14.9 miles in length.

Preliminary alternatives were eliminated based on social and environmental impacts and/or alignment constraints. As detailed in Chapter II (p. II-31), the Western Alternative was selected over the Eastern Alternative based on public and agency input and analysis of the impacts. The southern portion of the Eastern Alternative was selected to avoid historic and Section 4(f) impacts.

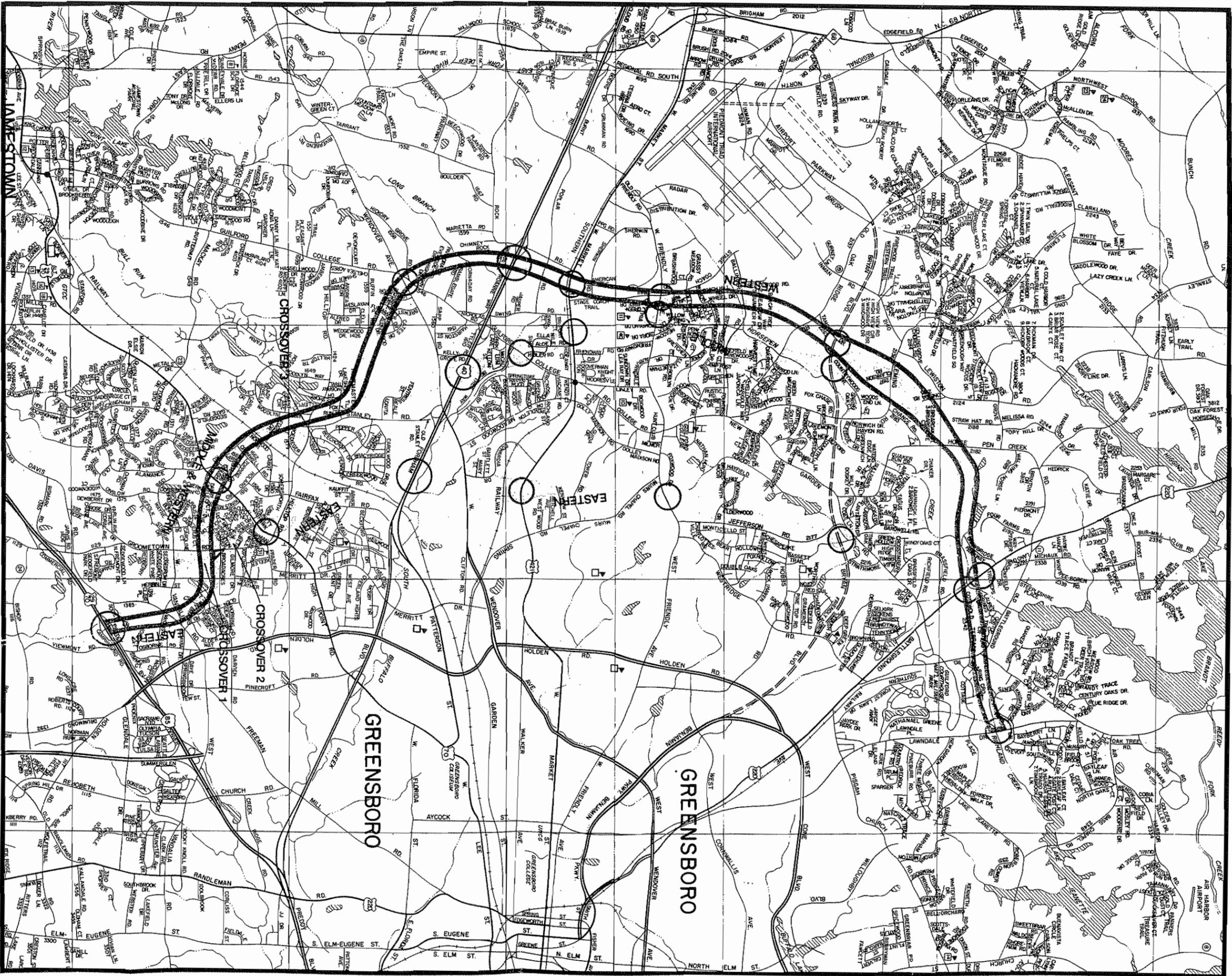


JAMESTOWN

**GREENSBORO URBAN LOOP**

**PREFERRED ALTERNATIVE**

Figure 1



- LEGEND**
- STUDY CORRIDOR
  - INTERCHANGES
  - PREFERRED ALTERNATIVE

**GREENSBORO WESTERN URBAN LOOP**

**CORRIDOR ALTERNATIVES**

This Final Environmental Impact Statement (FEIS) addresses the feasibility and potential environmental impacts of the Preferred Alternative and each of the alternatives studied in detail. In addition, this FEIS addresses the potential for mitigation of adverse impacts associated with the proposed action.

## 7. 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 Preferred Alternative 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 14,000 hours per day and 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 with a reduction in accident costs of \$2 million (1990) 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 Preferred Alternative include the displacement of 336 residences and 16 businesses. An increase in the noise levels is also anticipated in some areas next to the project. An estimated 20.4 acres of wetlands, 44.4 acres of floodplain, and 247.6 acres of forest will be affected by the proposed project. An estimated 90 acres of prime and unique farmland will be taken for highway right-of-way. Temporary adverse

impacts during construction will consist of potential soil erosion, dust, 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 Preferred, Western, and Middle Alternatives include shifts from the alignment on the Thoroughfare Plan.

Although any of the 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 was voiced by the residents along that alternative, although the Middle Alternative displaces more homes (950) than the Eastern Alternative (686). The Eastern Alternative also would be involved with potential contaminated land near Worth Chemical Company.

The Middle Alternative would divide Kings Pond 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 recently rebuilt Wendover Avenue/I-40 interchange.

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

All of the 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. 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. The freeway 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 Preferred and Western Alternatives 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 Preferred and Western Alternatives 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 freeway alternatives have been adjusted to minimize the impact on historical structures as much as possible. Seventeen structures in the project were determined eligible for the National Register of Historic Places (see Figure III-4). The Eastern Alternative requires property from Guilford College and the Kimrey-Haworth House. The Middle and Western Alternatives each require property from Sedgfield Stables, while affecting Celia Phelps Church by their proximity to it. The Preferred Alternative has no effect on any National Register-eligible historic structure.

In addition to study of historic structures, two archaeological field investigations were undertaken. The first study, conducted in 1989, consisted of surveys of the three proposed corridors and resulted in discovery of 36 archaeological sites and a revisit to a previously identified site. All sites were assessed based on National Register criteria. Seven sites required additional study to assess their eligibility. Two sites are within the Eastern Alternative, while one site is within the Middle Alternative, and three sites are within the Western Alternative.

At the request of the State Historic Preservation Office (SHPO), NCDOT staff and SHPO archaeological staff reviewed the Preferred Alternative on March 30, 1993. Based on this consultation with the SHPO, the second archaeological study was conducted within the Preferred Alternative near Horsepen Creek. This archaeological work included survey of changes to the Preferred Alternative and additional fieldwork at prehistoric site 31GF242.

Based on these investigations of the Preferred Alternative, no potentially eligible archaeological properties will be impacted by the project. The SHPO concurred with these site assessments (see Appendix). No additional archaeological research is proposed for the Preferred Alternative as currently planned.

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

#### **8. AREAS OF CONTROVERSY**

The alternatives have been presented to the public and to public agencies and local officials during 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 effect on properties protected by Section 4(f) of the Department of Transportation (DOT) Act of 1966 and Section 106 of the National Historic Preservation Act of 1966, particularly the Guilford College property.

#### **9. OTHER FEDERAL ACTIONS REQUIRED**

A permit from the U.S. Army Corps of Engineers will 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 of the United States 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 was coordinated with the State Historic Preservation Office and with the Advisory Council on Historic Preservation. This project is being developed in conformity with provisions of the Clean Air Act, as amended. Agency comments on the DEIS are included in Appendix B.

#### **10. MEASURES TO AVOID OR MINIMIZE ADVERSE IMPACTS**

The Preferred Alternative will be designed and constructed to minimize impacts to the natural and human environment to the fullest extent practicable. NCDOT's "Best Management Practices for Protection of Surface Waters" will be implemented, as applicable, to control erosion and to minimize impact to resources.

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

	Alternative			
	Eastern	Middle	Western	Preferred
Length (miles)	11.9	13.6	14.5	14.9
<b>Displacements</b>				
Residences (minority)	704 (155)	965 (202)	560 (127)	336 (43)
Businesses	36	9	13	16
Other	1	2	4	1
<b>Acreage Required</b>				
Field	69.5	91.6	127.3	133.8
Forest	260.4	305.8	244.0	247.6
Urban	104.0	112.0	159.3	159.4
Total	433.9	509.4	530.6	540.8
Acres of Prime Farmland	50	130	90	90
Acres of Wetland Habitat	42.9	21.8	14.8	20.4
<b>Acres of Water Resources</b>				
Open Water	3.4	0	0	4.9
Bank-to-Bank	10.9	9.9	7.6	8.3
Stream Relocation length (Feet)	3,700	1,600	1,600	850
Acres of Floodplain	81.3	55.0	54.7	44.4
Stream Crossings	21	28	24	24
<b>Receptors Exceeding Noise Abatement Criteria Or with Substantial Increase</b>				
Historic Architectural Properties Affected	2	2	2	0
4(f) Involvement-Historic Sites	2	1	1	0
Archaeological Sites Requiring Additional Testing	2	1	3	0
Potential Hazardous Material Site In or Near Corridors	4	1	6	0

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

	Alternative			
	Eastern	Middle	Western	Preferred
Length (miles)	11.4	13.6	14.5	14.9
Interchanges (No.)	7	8	8	8
Other Structures				
Railroad	2	2	2	2
Drainage	6	3	7	7
Grade Separation	11	10	10	10
2010 Traffic (High/Low)	73,000/17,800	69,000/16,100	64,900/17,900	64,900/17,900
Level-of-Service	C/D	C	C	C
Construction Cost (millions, 1990)	\$100.4	\$108.3	\$100.8	\$143.5*
Right-of-Way Cost (millions, 1990)	\$ 95.1	\$ 83.0	\$ 77.9	\$ 87.5*
Total Cost (millions, 1990)	\$195.5	\$191.3	\$178.7	\$231.0*

\*The cost estimates for the Preferred Alternative are based on 1993 unit prices and revised quantities.

## 11. MAJOR METROPOLITAN TRANSPORTATION INVESTMENT PROJECT

This project is considered a major metropolitan transportation investment as defined in 23 CFR 450.318, which became effective on November 27, 1993. The regulation requires that major investment studies be performed on all reasonable transportation alternatives meeting certain criteria. However, the regulation also allows flexibility in its application to major transportation improvements where the environmental process is already underway.

At the time this regulation became effective, the FEIS for the proposed action was nearing completion. A preferred alternative had been identified as a result of a cooperative process involving extensive public input. The Federal Highway Administration (FHWA), in coordination with the Federal Transit Administration (FTA), has determined that the alternatives analysis contained in Chapter II of this FEIS provides a comprehensive discussion and evaluation of all reasonable transportation alternatives to satisfy the purpose and need of the proposed action and as required of a major investment study.

12. ENVIRONMENTAL COMMITMENTS

Environmental commitments for the proposed action include the following:

- A. Noise abatement measures which will continue to be considered throughout the design process include berms, alignment shifts and noise barriers. A detailed noise barrier evaluation will be performed during final design to determine the type and location of cost-effective noise abatement measures.
- B. The design of any necessary drainage structures at greenways will be coordinated with the County Parks and Recreation Department.
- C. Any underground storage tanks discovered during construction will be reported to the North Carolina Division of Environmental Management.
- D. 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.
- E. The project will be developed in conformance with federal and state floodplain regulations.
- F. The NCDOT "Best Management Practices for Protection of Surface Waters" will be implemented where practicable to control highway runoff and minimize wetland impacts.
- G. A final mitigation plan will be submitted to the U.S. Army Corps of Engineers as part of the permit application.
- H. Geodetic survey control monuments will be located during design, and the U.S. Coastal and Geodetic Survey and North Carolina Geodetic Survey will be notified of their location.
- I. Bridges will be considered during the design phase at the Horsepen Creek floodplain and wetland crossings.

- J. Issues related to dam relocation or possible stream restoration for Oka T. Hester Park will be coordinated with the City of Greensboro.**
  
- K. The maintenance of existing and proposed bicycle routes by grade separation and route modification will be coordinated with the City of Greensboro Department of Transportation during project design.**
  
- L. The North Carolina Department of Transportation will work with the Airport Authority during project design to minimize impact on the Piedmont Triad Airport's access and planned expansion to the east.**
  
- M. During design, consideration will be given to planting trees as landscaping within the right-of-way, particularly at interchanges.**

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CHAPTER I  
PURPOSE AND NEED FOR ACTION

A. GENERAL

This report documents the need for constructing the 15-mile Greensboro Western Urban Loop) from I-85 to Lawndale Drive (SR 2303) (see Figures I-1 and I-2). Current and projected traffic volumes for the existing and proposed transportation systems in the western area of Greensboro were evaluated. Alternatives were 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 Preferred Alternative for the Greensboro Western Urban Loop and to evaluate the impacts of the Preferred Alternative, this Final Environmental Impact Statement was prepared.

B. PROJECT SETTING

Guilford County is the third 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 has to handle increasingly heavy traffic demands. More detailed information on population, employment, and traffic appears in Chapter III of this report. Existing highways and 1991 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 1995-2001 Transportation Improvement Program (TIP) as U-2524. According to the TIP, right-of-way acquisition is scheduled to begin in fiscal year 1994 and construction is scheduled to begin in fiscal year 1996.

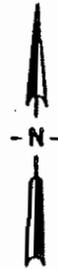
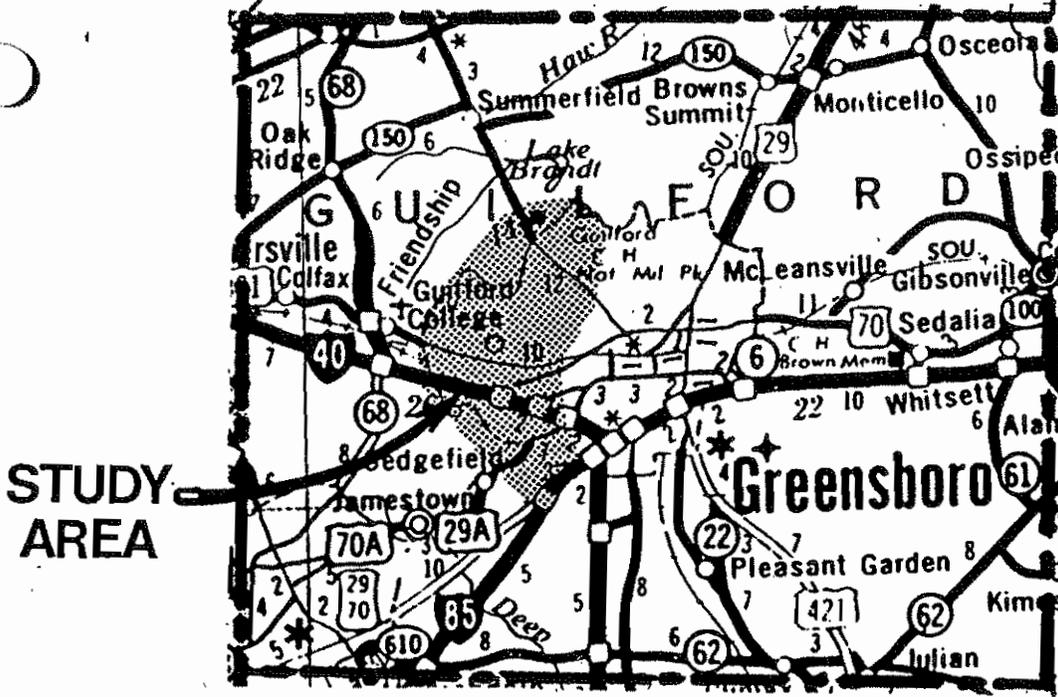
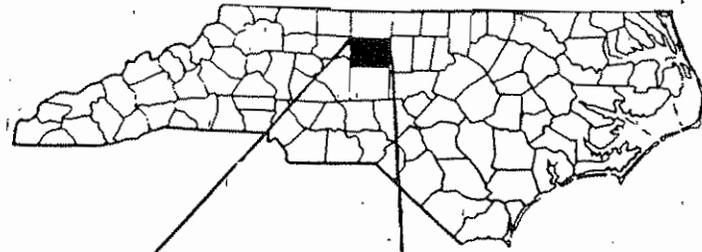
The concept of an Urban Loop around the City of Greensboro is included in the Greensboro Thoroughfare Plan (see Figures I-4). The thoroughfare plan was approved by the City of Greensboro, and the North Carolina Department of Transportation on November 3, 1989 with considerable public participation in the process. A chronology of significant events leading

to the preparation of the Final 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
June 1991	Draft Environmental Impact Statement approved by North Carolina Department of Transportation and Federal Highway Administration
July 1991	Corridor Public Hearing held
March 1992	Preferred Alternative identified

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.



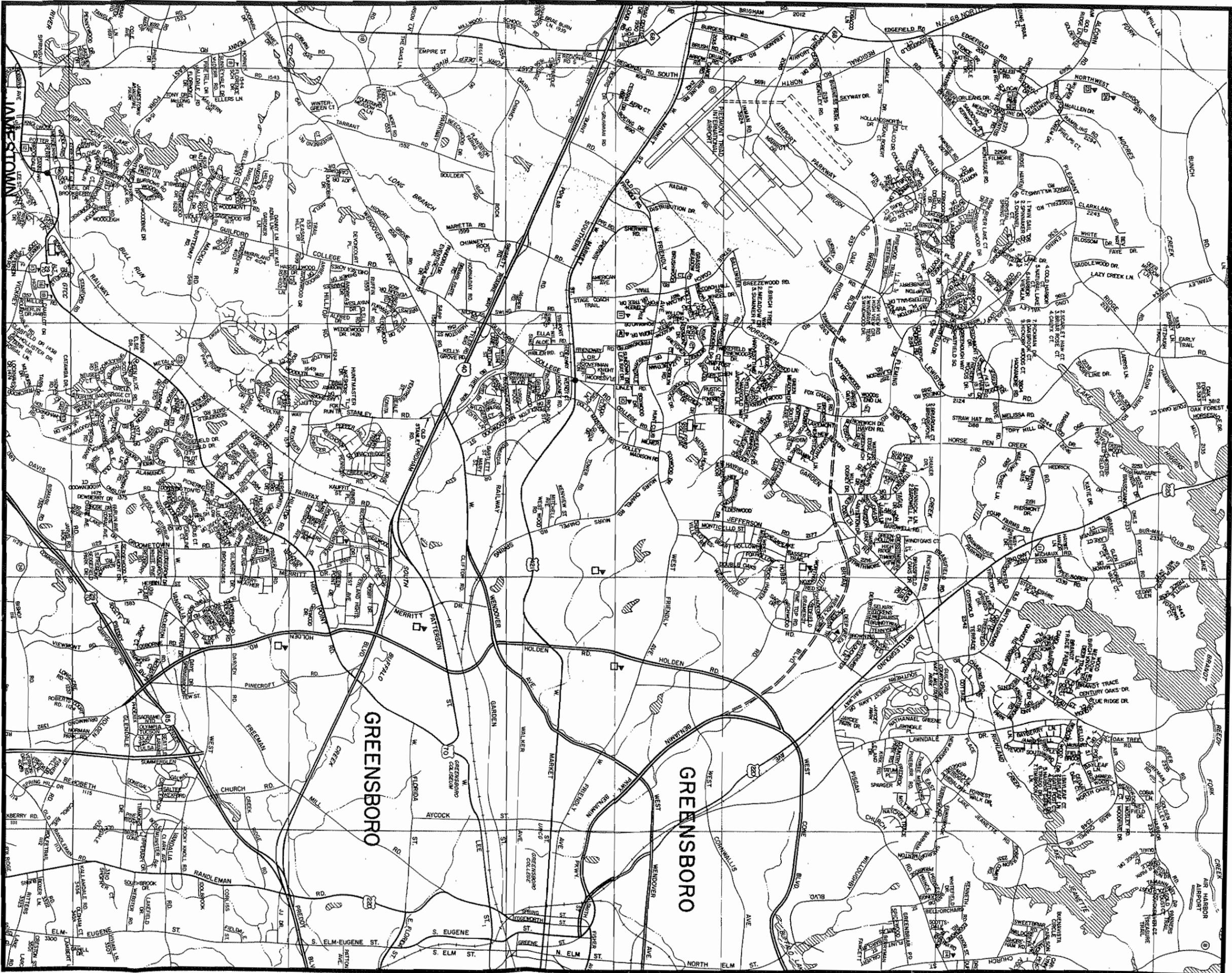
Map Source: NCDOT

NOT TO SCALE

GREENSBORO WESTERN URBAN LOOP

VICINITY MAP

FIGURE I-1



GREENSBORO WESTERN URBAN LOOP

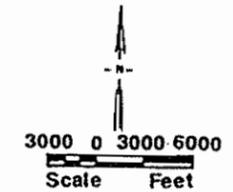
PROJECT STUDY AREA

Figure  
1-2





Map Source: NCDOT



EXISTING		PROPOSED		EXISTING		PROPOSED	
MAJOR THOROUGHFARES FREEWAYS OTHER				MINOR THOROUGHFARES INTERCHANGE GRADE SEPARATION			

GREENSBORO WESTERN URBAN LOOP

1989 GREENSBORO URBAN AREA THOROUGHFARE PLAN

Figure 1-4

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 1-2.

**TABLE 1-2**  
**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.

#### 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 US 29A), US 70 (and US 70A), US 220, and US 421. Each of 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 continue 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 was 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. Because the termini of each segment are located on major arterials or highways, each segment serves an independent transportation need. The Western Urban Loop provides a crosstown connection in a rapidly developing suburban setting. The I-85 Bypass acts as a bypass around Greensboro for I-85 traffic and also serves local traffic in southeastern Guilford County. The Eastern/Northern Urban Loop serves as a cross town connection around the northeast portion of the county. The Eastern/Northern Urban Loop also encourages and supports economic development in that portion of the county. Funding for the Greensboro Urban Loop was included in the 1989 State Highway Trust Fund Bill. In addition to the Western Urban Loop Preferred Alternative addressed in this Final Environmental Impact Statement, preferred alternatives were selected for the other Urban Loop segments and are described below and shown in Figure 1 in the summary.

A 14-mile portion of the loop, referred to as the I-85 Greensboro Bypass, extends from I-85/I-40 east of Greensboro to I-85 west of Greensboro. Designated as I-2402 in the TIP, a Preferred Alternative was selected as part of the Environmental Impact Statement (EIS) process. The 1995-2001 TIP has scheduled right-of-way acquisition to begin in fiscal year 1994 and construction to begin in fiscal year 1997. The Preferred Alternative for the I-85

Greensboro Bypass begins at the I-85 and Campground Road interchange and proceeds eastward to cross US 220 and Rehobeth Church Road north of Holden Road (SR 1117). Continuing east, it crosses Randleman Road (SR 1007) at Old Randleman Road (SR 1104) and South Elm-Eugene Street (SR 330) and Pleasant Garden Road (SR 3505) between Ritters Lake Road (SR 3325) and Vandalia Road. The Preferred Alternative turns northeastward as it crosses US 421, Liberty Road (SR 3549), and Duluth Loop (SR 3317) south of Wiley-Lewis Road before continuing northeast to cross Wiley-Lewis Road (SR 3314). At Alamance Church Road (SR 1005), the I-85 Greensboro Bypass Preferred Alternative then turns eastward, recrossing Wiley Davis Road and crossing Youngs Mill Road south of East Lee Street. It then turns northeastward between McConnell Road (SR 3000) and Mt. Hope Church Road (SR 3045), and ends approximately 3,000 feet north of I-85.

The Greensboro Eastern/Northern Urban Loop Environmental Impact Statement addresses a 13.4-mile portion of the loop, extending northeasterly from north of I-85/I-40 east of Greensboro to Lawndale Drive. Designated as U-2525 in the 1995-2001 TIP, it is scheduled for right-of-way acquisition to begin in fiscal year 1995 and construction to begin in fiscal year 1996. The Preferred Alternative for the Greensboro Eastern/Northern Urban Loop begins north of I-85 east of the I-85/McConnell Road interchange. This beginning point ties to the terminus of the I-85 Greensboro Bypass Preferred Alternative. The Greensboro Eastern/Northern Urban Loop Preferred Alternative proceeds to the north-northwest, crossing Clapp Farms Road (SR 3041) west of Mount Hope Church Road (SR 3045). It then crosses South Buffalo Creek, US 70, and the Southern Railway east of the railroad underpass before crossing Fourmile Loop (SR 2827) east of Willowlake Road (SR 2828). The Preferred Alternative turns northward and then northwestward to cross Huffine Mill Road (SR 2720) west of Harvest Road (SR 2821), Camp Burton Road (SR 2825) just west of the prison, North Buffalo Creek, and Rankin Mill Road (SR 2832) before turning west-northwestward to cross Hines Chapel Road (SR 2732) west of Rankin Mill Road. Continuing west-northwestward, it crosses McKnight Mill Road (SR 2835) at the intersection of Briarmeade Road (SR 2834), US 29 north of Oakwood Forest Mobile Home Park, and Summit Avenue (SR 2526) north of Brightwood School Road (SR 2613) before turning westward and crossing Lee's Chapel Road (SR 2539) north of the Rankin Fire Station and the Southern Railway at Hillcroft Road (SR 2531). It then turns west-southwestward crossing Yanceyville Road (SR 2523) and Church Street (SR 1001) north of Lee's Chapel Road. The Greensboro Eastern/Northern Urban Loop Preferred Alternative then turns westward crossing Lake Jeanette Road (SR 2352) north of Cottage Place before ending at Lawndale Drive (SR 2503) south of Richard Creek.

In addition to serving as part of the Greensboro Urban Loop, the portion of this project between I-40 west of Greensboro and I-85 south of the city and the I-85 Bypass project will be designated as I-40 and I-40/I-85, respectively. The proposed projects will relieve traffic on existing routes between I-40 west of Greensboro and I-85/I-40 east of Greensboro, enabling east-west through traffic to avoid central Greensboro and to travel on a modern freeway with better operating conditions.

The Urban Loop is proposed to encircle the City of Greensboro with a freeway facility. If any of the above loop portions are not completed, a missing link or gap in an outer loop around the city would result. Although each 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) will be considered as 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:

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

ROADWAY LINK	BETWEEN	LANES	1991 ADT	EXISTING CAPACITY	V/C	LOS	LANES	YEAR 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	9900	9500	1.04	E	2	9500
FLEHING RD.	NEW GARDEN RD. & CHANGE RD.	2	6900	9500	0.73	D	4	35400
FRIENDLY AVE.	HOLDEN RD. & WESTRIDGE RD.	4	23900	35400	0.68	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	11800	9500	1.24	E	4	35400
GUILFORD COLLEGE RD.	I-40 & US 421	2	15900	9500	1.67	E	4	35400
GUILFORD COLLEGE RD.	US 421 & FRIENDLY AVE.	2	14430	9500	1.52	E	4	35400
HIGH POINT RD.	GROOMETOWN RD. & HOLDEN RD.	6	35300	53160	0.66	C	6	53160
HIGH POINT RD.	ALAHANCE RD. & GROOMETOWN RD.	2	14100	9500	1.48	E	4	35400
HILLTOP RD.	GUILFORD COLLEGE RD. & STANLEY RD.	2	5700	9500	0.60	C	4	35400
HOLDEN RD.	WEST MARKET ST. & FRIENDLY AVE.	4	21900	35400	0.62	B	4	35400
HOLDEN RD.	HIGH POINT RD. & WENDOVER AVE.	4	43000	35400	1.21	E	4	35400
HOLDEN RD.	I-85 & HIGH POINT RD.	4	24900	35400	0.70	C	4	35400
HOLDEN RD.	FRIENDLY AVE. & BRYAN BLVD.	4	19800	35400	0.56	B	4	35400
I-40	NC 68 & CHIMNEY ROCK RD.	4	65600	51500	1.27	F	6	77250
I-40	CHIMNEY ROCK RD. & GUILFORD COLLEGE RD.	4	72700	51500	1.41	F	6	77250
I-40	GUILFORD COLLEGE RD. & WENDOVER AVE.	4	77000	51500	1.50	F	6	77250
I-40	WENDOVER AVE. & PATTERSON ST.	4	70700	51500	1.37	F	6	77250
JEFFERSON RD.	FRIENDLY AVE. & NEW GARDEN RD.	2	6000	9500	0.63	C	2	9500
LAKE BRANDT RD.	OLD BATTLEGROUND RD. & LAVINDALE DR.	2	5400	9500	0.57	C	2	9500
LAVINDALE DR.	PIGSAN CHURCH RD. & LAKE JEANETTE RD.	2	19700	9500	2.07	F	4	35400
HEADWOOD ST.	WENDOVER AVE. & US 421	2	8400	9500	0.88	D	2	9500
MERRITT DR.	HIGH POINT RD. & PATTERSON ST.	2	N/A	9500	0.00	N/A	4	35400
MUIRS CHAPEL RD.	US 421 & FRIENDLY AVE.	4	10100	35400	0.29	A	4	35400
NEW GARDEN RD.	FRIENDLY AVE. & FLEHING RD.	4	25800	35400	0.73	C	4	35400
NEW GARDEN RD.	BRYAN BLVD. & US 220	2	10200	9500	1.07	E	4	35400
NEW GARDEN RD.	FLEHING RD. & JEFFERSON RD.	2	10700	9500	1.13	E	2	9500
OLD BATTLEGROUND RD.	US 220 & LAKE BRANDT RD.	2	7100	9500	0.75	D	2	9500
OLD OAK RIDGE RD.	FLEHING RD. & INMAN RD.	2	11800	9500	1.24	E	2	9500
STANLEY RD.	I-40 & HILLTOP RD.	2	7200	9500	0.76	D	2	9500
US 220	WESTRIDGE RD. & NEW GARDEN RD.	4	24300	39880	0.61	B	4	39880
US 220	OLD BATTLEGROUND RD. & NEW GARDEN RD.	2	15900	9500	1.67	E	4	35400
US 421	NC 68 & GALLIMORE DAIRY RD	2	16900	9500	1.78	E	4	35400
US 421	GALLIMORE DAIRY RD & CHIMNEY ROCK RD	2	20100	9500	2.12	F	4	35400
US 421	CHIMNEY ROCK RD & GUILFORD COLLEGE RD	2	15900	9500	1.67	E	4	35400
US 421	GUILFORD COLLEGE RD & SPRING GARDEN ST	4	19900	35400	0.56	B	4	35400
VANDALIA RD	GROOMETOWN RD & WESTERN URBAN LOOP	2	5500	9500	0.58	C	4	35400
VANDALIA RD	WESTERN URBAN LOOP & HOLDEN RD	2	6000	9500	0.63	C	4	35400
WENDOVER AVE.	I-40 & SPRING GARDEN ST.	4	38400	39880	0.96	D	6	53160
WENDOVER AVE.	SPRING GARDEN ST. & HOLDEN RD.	4	36800	39880	0.92	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 1985 HIGHWAY CAPACITY MANUAL  
 ADT = AVERAGE DAILY TRAFFIC V/C = VOLUME/CAPACITY LOS = LEVEL OF SERVICE

TABLE I-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	ADT	V/C	ADT FROM NO-BUILD	*****		
BRYAN BLVD.	HOLDEN RD. & WESTRIDGE RD.	34500	0.67	C	36600	0.75	C	-4100	-11.9
BRYAN BLVD.	WESTRIDGE RD. & NEW GARDEN RD.	52650	1.02	E	43750	0.85	D	8900	16.9
DOLLY MADISON RD.	US 421 & FRIENDLY AVE.	8250	0.87	D	7000	0.74	O	1250	15.2
FLEMING RD.	NEW GARDEN RD. & CHANGE RD.	21700	0.61	B	14000	0.40	A	7700	35.5
FRIENDLY AVE.	HOLDEN RD. & WESTRIDGE RD.	29000	0.82	D	23450	0.66	C	5550	19.1
GROOMTOWN RD.	I-85 & HIGH POINT RD.	23850	0.67	C	13350	0.38	A	10500	44.0
GUILFORD COLLEGE RD.	WENDOVER & I-40	44900	1.27	F	9300	0.26	A	35600	79.3
GUILFORD COLLEGE RD.	I-40 & US 421	36250	1.02	E	13100	0.37	A	23150	63.9
GUILFORD COLLEGE RD.	US 421 & FRIENDLY AVE.	36650	1.09	E	22900	0.65	C	15750	40.8
HIGH POINT RD.	GROOMTOWN RD. & HOLDEN RD.	57850	1.09	E	54650	1.03	E	3200	5.5
HIGH POINT RD.	ALAMANCE RD. & GROOMTOWN RD.	47450	1.34	F	47350	1.34	F	100	0.2
HILLTOP RD.	GUILFORD COLLEGE RD. & STANLEY RD.	32300	0.91	D	34750	0.98	O	-2450	-7.6
HOLDEN RD.	WEST MARKET ST. & FRIENDLY AVE.	32250	0.91	D	31700	0.90	D	550	1.7
HOLDEN RD.	HIGH POINT RD. & WENDOVER AVE.	55150	1.56	F	48400	1.37	F	6750	12.2
HOLDEN RD.	I-85 & HIGH POINT RD.	34050	0.96	D	28100	0.79	C	5950	17.5
HOLDEN RD.	FRIENDLY AVE. & BRYAN BLVD.	20000	0.56	B	20450	0.58	B	-450	-2.3
I-40	NC 68 & CHIMNEY ROCK RD.	72000	0.93	D	98800	1.28	F	-26800	-37.2
I-40	CHIMNEY ROCK RD. & GUILFORD COLLEGE RD.	78500	1.02	E	69900	0.90	D	8700	11.1
I-40	GUILFORD COLLEGE RD. & WENDOVER AVE.	116700	1.51	F	74200	0.96	D	42500	36.4
I-40	WENDOVER AVE. & PATTERSON ST.	102400	1.33	F	47300	0.61	C	55100	53.8
JEFFERSON RD.	FRIENDLY AVE. & NEW GARDEN RD.	10300	1.08	E	8350	0.88	D	1950	18.9
LAKE BRANDT RD.	OLD BATTLEGROUND RD. & LAWNDALE DR.	10400	1.09	E	6250	0.66	C	4150	39.9
LAWNDALE DR.	PISGAH CHURCH RD. & LAKE JEANETTE RD.	30250	0.85	D	28950	0.82	D	1300	4.3
MEADOWOOD ST.	WENDOVER AVE. & US 421	15700	1.65	E	14400	1.52	E	1300	8.3
HERRITT DR.	HIGH POINT RD. & PATTERSON ST.	20350	0.57	B	16900	0.48	B	3450	17.0
MUIRS CHAPEL RD.	US 421 & FRIENDLY AVE.	29900	0.84	D	25750	0.73	C	4150	13.9
NEW GARDEN RD.	FRIENDLY AVE. & FLEMING RD.	49150	1.39	F	30150	0.85	D	19000	38.7
NEW GARDEN RD.	BRYAN BLVD. & US 220	28850	0.81	D	13350	0.38	A	15500	53.7
NEW GARDEN RD.	FLEMING RD. & JEFFERSON RD.	23200	2.44	F	16800	1.77	E	6400	27.6
OLD BATTLEGROUND RD.	US 220 & LAKE BRANDT RD.	10900	1.15	E	10400	1.09	E	500	4.6
OLD OAK RIDGE RD.	FLEMING RD. & INMAN RD.	11500	1.21	E	6100	0.64	C	5400	47.0
STANLEY RD.	I-40 & HILLTOP RD.	17900	1.88	E	23500	2.47	F	-5600	-31.3
US 220	WESTRIDGE RD. & NEW GARDEN RD.	56400	1.41	F	63800	1.60	F	-7400	-13.1
US 220	OLD BATTLEGROUND RD. & NEW GARDEN RD.	30300	0.86	D	31900	0.90	D	-1600	-5.3
US 421	NC 68 & GALLIMORE DAIRY RD	17100	0.48	B	10800	0.31	A	6300	36.8
US 421	GALLIMORE DAIRY RD & CHIMNEY ROCK RD	20800	0.59	B	16800	0.47	B	4000	19.2
US 421	CHIMNEY ROCK RD & GUILFORD COLLEGE RD	26700	0.75	C	37600	1.06	E	-10900	-40.8
US 421	GUILFORD COLLEGE RD & SPRING GARDEN ST	36200	1.02	E	28700	0.81	C	7500	20.7
VANDALIA RD	GROOMTOWN RD & WESTERN URBAN LOOP	20900	0.59	B	6800	0.19	A	14100	67.5
VANDALIA RD	WESTERN URBAN LOOP & HOLDEN RD	17500	0.49	B	18100	0.51	B	-600	-3.4
WENDOVER AVE.	I-40 & SPRING GARDEN ST.	90100	1.69	F	78300	1.47	F	11800	13.1
WENDOVER AVE.	SPRING GARDEN ST. & HOLDEN RD.	49300	1.24	E	42700	1.07	E	6600	13.4
WESTRIDGE RD.	FRIENDLY AVE. & BRYAN BLVD.	16200	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 1985 HIGHWAY CAPACITY MANUAL  
 ADT = AVERAGE DAILY TRAFFIC V/C = VOLUME/CAPACITY LOS = LEVEL OF SERVICE

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

ROAD	BETWEEN	YEAR 2010		YEAR 2010		CHANGE IN		PERCENT DECREASE	
		** NO BUILD	** V/C	** ADT	** V/C	** ADT FROM NO-BUILD	** PERCENT DECREASE		
BRYAN BLVD.	HOLDEN RD. & WESTRIDGE RD.	34500	0.67	C	0.60	31100	B	3400	9.9
BRYAN BLVD.	WESTRIDGE RD. & NEW GARDEN RD.	52650	1.02	E	1.07	55200	E	-2550	-4.8
DOLLY MADISON RD.	US 421 & FRIENDLY AVE.	8250	0.87	D	0.86	8150	D	100	1.2
FLEMING RD.	NEW GARDEN RD. & CHANCE RD.	21700	0.61	B	0.49	17350	B	4350	20.0
FLEMING RD.	HOLDEN RD. & WESTRIDGE RD.	29000	0.82	D	0.78	27650	C	1350	4.7
GROOMTOWN RD.	I-85 & HIGH POINT RD.	23850	0.67	C	0.34	12100	A	11750	49.3
GUILFORD COLLEGE RD.	WENDOVER & I-40	44900	1.27	F	1.10	39100	E	5800	12.9
GUILFORD COLLEGE RD.	I-40 & US 421	36250	1.02	E	0.58	20700	B	15550	42.9
GUILFORD COLLEGE RD.	US 421 & FRIENDLY AVE.	38650	1.09	E	0.81	28700	D	9950	25.7
HIGH POINT RD.	GROOMTOWN RD. & HOLDEN RD.	57850	1.09	E	0.76	40600	C	17250	29.8
HIGH POINT RD.	ALAMANCE RD. & GROOMTOWN RD.	47450	1.34	F	1.04	36950	E	10500	22.1
HILLTOP RD.	GUILFORD COLLEGE RD. & STANLEY RD.	32300	0.91	D	0.63	22300	C	10000	31.0
HOLDEN RD.	WEST MARKET ST. & FRIENDLY AVE.	32250	0.91	D	0.70	24750	C	7500	23.3
HOLDEN RD.	HIGH POINT RD. & WENDOVER AVE.	55150	1.56	F	1.06	37400	E	17750	32.2
HOLDEN RD.	I-85 & HIGH POINT RD.	34050	0.96	D	0.66	23500	C	10550	31.0
HOLDEN RD.	FRIENDLY AVE. & BRYAN BLVD.	20000	0.56	B	0.46	16350	B	3650	18.3
I-40	NC 68 & CHIMNEY ROCK RD.	72000	0.93	D	1.01	78200	E	-6200	-8.6
I-40	CHIMNEY ROCK RD. & GUILFORD COLLEGE RD.	78600	1.02	E	1.49	115200	F	-36600	-46.6
I-40	GUILFORD COLLEGE RD. & WENDOVER AVE.	116700	1.51	F	1.47	113200	F	3500	3.0
I-40	WENDOVER AVE. & PATTERSON ST.	102400	1.33	F	1.28	98700	F	3700	3.6
JEFFERSON RD.	FRIENDLY AVE. & NEW GARDEN RD.	10300	1.08	E	0.78	7450	D	2850	27.7
LAKE BRANDT RD.	OLD BATTLEGROUND RD. & LANDALE DR.	10400	1.09	E	0.58	5550	C	4850	46.6
LANDALE DR.	PISGAR CHURCH RD. & LAKE JEANETTE RD.	30250	0.85	D	0.64	22550	C	7700	25.5
MEADOWOOD ST.	WENDOVER AVE. & US 421	15700	1.65	E	1.53	14550	E	1150	7.3
MERRITT DR.	HIGH POINT RD. & PATTERSON ST.	20350	0.57	B	0.43	15100	B	5250	25.8
MUIRS CHAPEL RD.	US 421 & FRIENDLY AVE.	29900	0.84	D	0.53	18700	B	11200	37.5
NEW GARDEN RD.	FRIENDLY AVE. & FLEMING RD.	49150	1.39	F	1.01	35850	E	13300	27.1
NEW GARDEN RD.	BRYAN BLVD. & US 220	28850	0.81	D	0.74	26350	C	2500	8.7
NEW GARDEN RD.	FLEMING RD. & JEFFERSON RD.	23200	2.44	F	1.83	17400	E	5800	25.0
OLD BATTLEGROUND RD.	US 220 & LAKE BRANDT RD.	10900	1.15	E	0.97	9250	D	1650	15.1
OLD OAK RIDGE RD.	FLEMING RD. & INMAN RD.	11500	1.21	E	1.56	14800	E	-3300	-28.7
STANLEY RD.	I-40 & HILLTOP RD.	17900	1.88	E	1.04	9850	E	8050	45.0
US 220	WESTRIDGE RD. & NEW GARDEN RD.	56400	1.41	F	1.29	51500	F	4900	8.7
US 220	OLD BATTLEGROUND RD. & NEW GARDEN RD.	30300	0.86	D	0.79	28000	C	2300	7.6
US 421	NC 68 & GALLIMORE DAIRY RD	17100	0.48	B	0.44	15400	B	1700	9.9
US 421	GALLIMORE DAIRY RD & CHIMNEY ROCK RD	20800	0.59	B	0.51	18100	B	2700	13.0
US 421	CHIMNEY ROCK RD & GUILFORD COLLEGE RD	26700	0.75	C	0.78	27500	C	-800	-3.0
US 421	GUILFORD COLLEGE RD & SPRING GARDEN ST	36200	1.02	E	1.05	37000	E	-800	-2.2
VANDALIA RD	GROOMTOWN RD & WESTERN URBAN LOOP	20900	0.59	B	0.14	5100	A	15800	75.6
VANDALIA RD	WESTERN URBAN LOOP & HOLDEN RD	17500	0.49	B	0.51	18200	B	-700	-4.0
WENDOVER AVE.	I-40 & SPRING GARDEN ST.	90100	1.69	F	1.59	84480	F	5620	6.2
WENDOVER AVE.	SPRING GARDEN ST. & HOLDEN RD.	49300	1.24	E	1.12	44800	E	4500	9.1
WESTRIDGE RD.	FRIENDLY AVE. & BRYAN BLVD.	16200	1.71	E	1.61	15250	E	950	5.9

SOURCE: EXISTING ADT FROM MCDOT, TRAFFIC PROJECTIONS BY KIMLEY-HORN AND ASSOCIATES, CAPACITIES AND LEVELS OF SERVICE BASED ON 1985 HIGHWAY CAPACITY MANUAL  
 \*\* ADJUSTED 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	ADT	V/C	ADT FROM	NO-BUILD	
*****	*****	*****	*****	*****	*****	*****	*****	*****
BRYAN BLVD.	HOLDEN RD. & WESTRIDGE RD.	34500	0.67	38600	0.75	C	-4100	-11.9
BRYAN BLVD.	WESTRIDGE RD. & NEW GARDEN RD.	52650	1.02	43750	0.85	D	8900	16.9
DOLLY MADISON RD.	US 421 & FRIENDLY AVE.	8250	0.87	7000	0.74	D	1250	15.2
FLEMING RD.	NEW GARDEN RD. & CHANCE RD.	21700	0.61	14000	0.40	A	7700	35.5
FRIENDLY AVE.	HOLDEN RD. & WESTRIDGE RD.	29000	0.82	23450	0.66	C	5550	19.1
GROOMETOWN RD.	I-85 & HIGH POINT RD.	23850	0.57	13350	0.38	A	10500	44.0
GUILFORD COLLEGE RD.	WENDOVER & I-40	44900	1.27	9300	0.26	A	35600	79.3
GUILFORD COLLEGE RD.	I-40 & US 421	36250	1.02	13100	0.37	A	23150	63.9
GUILFORD COLLEGE RD.	US 421 & FRIENDLY AVE.	38650	1.09	22900	0.65	C	15750	40.8
HIGH POINT RD.	GROOMETOWN RD. & HOLDEN RD.	57850	1.09	54650	1.03	E	3200	5.5
HIGH POINT RD.	ALAMANCE RD. & GROOMETOWN RD.	47450	1.34	47350	1.34	F	100	0.2
HILLTOP RD.	GUILFORD COLLEGE RD. & STANLEY RD.	32300	0.91	34750	0.98	D	-2450	-7.6
HOLDEN RD.	WEST MARKET ST. & FRIENDLY AVE.	32250	0.91	31700	0.90	D	550	1.7
HOLDEN RD.	HIGH POINT RD. & WENDOVER AVE.	55150	1.56	48400	1.37	F	6750	12.2
HOLDEN RD.	I-85 & HIGH POINT RD.	34050	0.96	28100	0.79	C	5950	17.5
HOLDEN RD.	FRIENDLY AVE. & BRYAN BLVD.	20000	0.56	20450	0.58	B	-450	-2.3
I-40	NC 68 & CHIMNEY ROCK RD.	72000	0.93	98800	1.28	F	-26800	-37.2
I-40	CHIMNEY ROCK RD. & GUILFORD COLLEGE RD.	78600	1.02	69900	0.90	D	8700	11.1
I-40	GUILFORD COLLEGE RD. & WENDOVER AVE.	116700	1.51	74200	0.96	D	42500	36.4
I-40	WENDOVER AVE. & PATTERSON ST.	102400	1.33	47300	0.61	C	55100	53.8
JEFFERSON RD.	FRIENDLY AVE. & NEW GARDEN RD.	10300	1.08	8350	0.88	D	1950	18.9
LAKE BRANDT RD.	OLD BATTLEGROUND RD. & LANSDALE DR.	10400	1.09	6250	0.66	C	4150	39.9
LANSDALE DR.	PISGAH CHURCH RD. & LAKE JEANNETTE RD.	30250	0.85	28950	0.82	D	1300	4.3
MEADOWOOD ST.	WENDOVER AVE. & US 421	15700	1.65	14400	1.52	E	1300	8.3
HERRITT DR.	HIGH POINT RD. & PATTERSON ST.	20350	0.57	16900	0.48	B	3450	17.0
HUIRS CHAPEL RD.	US 421 & FRIENDLY AVE.	29900	0.84	25750	0.73	C	4150	13.9
NEW GARDEN RD.	FRIENDLY AVE. & FLEMING RD.	49150	1.39	30150	0.85	D	19000	38.7
NEW GARDEN RD.	BRYAN BLVD. & US 220	28850	0.81	13350	0.38	A	15500	53.7
NEW GARDEN RD.	FLEMING RD. & JEFFERSON RD.	23200	2.44	16800	1.77	E	6400	27.6
OLD BATTLEGROUND RD.	US 220 & LAKE BRANDT RD.	10900	1.15	10400	1.09	E	500	4.6
OLD OAK RIDGE RD.	FLEMING RD. & INMAN RD.	11500	1.21	6100	0.64	C	5400	47.0
STANLEY RD.	I-40 & HILLTOP RD.	17900	1.88	23500	2.47	F	-5600	-31.3
US 220	WESTRIDGE RD. & NEW GARDEN RD.	56400	1.41	63800	1.60	F	-7400	-13.1
US 220	OLD BATTLEGROUND RD. & NEW GARDEN RD.	30300	0.86	31900	0.90	D	-1600	-5.3
US 421	NC 68 & GALLIMORE DAIRY RD	17100	0.48	10800	0.31	A	6300	36.8
US 421	GALLIMORE DAIRY RD & CHIMNEY ROCK RD	20800	0.59	16800	0.47	B	4000	19.2
US 421	CHIMNEY ROCK RD & GUILFORD COLLEGE RD	26700	0.75	37600	1.06	E	-10900	-40.8
US 421	GUILFORD COLLEGE RD & SPRING GARDEN ST	36200	1.02	28700	0.81	C	7500	20.7
VANDALIA RD	GROOMETOWN RD & WESTERN URBAN LOOP	20900	0.59	6800	0.19	A	14100	67.5
VANDALIA RD	WESTERN URBAN LOOP & HOLDEN RD	17500	0.49	18100	0.51	B	-600	-3.4
WENDOVER AVE.	I-40 & SPRING GARDEN ST.	90100	1.69	78300	1.47	F	11800	13.1
WENDOVER AVE.	SPRING GARDEN ST. & HOLDEN RD.	49300	1.24	42700	1.07	E	6600	13.4
WESTRIDGE RD.	FRIENDLY AVE. & BRYAN BLVD.	16200	1.71	12900	1.36	E	3300	20.4

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

- number of existing travel lanes (not including turn lanes)
- 1991 average daily traffic volume
- existing daily roadway capacity, at level-of-service D
- 1991 volume-to-capacity ratio; a ratio higher than 1.0 indicates congested conditions
- 1991 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, including the I-85 Greensboro Bypass but not the rest of the Greensboro Urban Loop. 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 (Eastern, 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 (1991 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:

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

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

- Guilford College Road
- Holden Road
- Jefferson Road
- New Garden Road
- 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 with the construction of the project. 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, owned and operated by the Greensboro Transit Authority, extends into the study area. Service is a mix of peak hour, off peak, and all day. Routes in the study area include Battleground, Friendly Avenue, Walker Avenue, Pomona, High Point Road/GTCC, and Four Seasons. These routes are radial and therefore would not serve the circumferential traffic that this project would serve.

The City of Greensboro and the City of High Point operate a ride-sharing program, called Municipool. 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. Ridesharing programs primarily serve radially-oriented work trips and work trips to concentrated employment centers outside of the central business district. Commuter participation in such programs has historically been low.

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 is abandoned. All active railroad crossings would be grade-separated.

The Piedmont Triad International Airport is just west of the proposed study area. The current Airport Master Plan calls for extension of the airport on the western side of its current facilities. A new runway is planned parallel to and west of the existing main runway, Runway 5-23, along with extensive related development to the south and east of Runway 5-23. A privately-operated shuttle service operates between the City and the airport. Master plan development began in early fall 1993 and will take approximately one year to complete. The Greensboro Western Urban Loop will enhance access to the airport from I-85 and from northwest Greensboro by providing a good connection to I-40 and to Bryan Boulevard.

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.

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 if no improvements are made.

Statewide average rates are lower for urban freeways than other types of highway facilities. Many motorists are projected to use the proposed freeway facility, thereby reducing traffic congestion in the area. This will reduce the existing and future accident potential on existing routes. Furthermore, traffic on the new controlled-access road would operate under safer conditions, creating fewer accidents than those on existing roads.

**TABLE I-4**  
**ACCIDENT RATE COMPARISON**  
Accident Rate Per 100 Million Vehicle Miles

<u>Roadway Classification</u>	<u>Facility</u>	<u>Between</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 1-5.

**TABLE 1-5  
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>	<u>Preferred</u>
Accident Cost (millions, 1990)	\$20.5	\$18.3	\$18.2	\$18.1	\$18.1
Total Accidents	2,935	2,546	2,535	2,517	2,517
Fatal Accidents	9	9	9	9	9
Non-Fatal Injury Accidents	1,137	996	991	983	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 and commuting distances 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 proposed action will provide improved employment opportunities. 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 and most of the funds will be spent in the Greensboro urban area. Construction of the Greensboro 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 OF NEED FOR ACTION**

The proposed Greensboro Western Urban Loop 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 15-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 Greensboro Western Urban Loop would 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 Greensboro 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 and the major employers in the

western section of the City 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 will 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 the local tax base would be enhanced. This economic growth would be stifled if the level-of-service on major streets worsens or remains at the existing congestion levels. This 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.

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

## CHAPTER II ALTERNATIVES

The Final Environmental Impact Statement addresses various alternative courses of action and no-action, including the Preferred Alternative and the reasons for its selection. All alternatives were considered, and the decision on which alternative to implement was made after the corridor public hearing and review of comments on the Draft Environmental Impact Statement.

### 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 loop freeway encircling the City of Greensboro and serve developing portions of Guilford County. No-Build also will not be compatible with the land use and primary planning goals established by the 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 by the No-Build Alternative, the area and region will lose its competitive edge in maintaining and attracting new and thriving industries. No-Build would decrease the job opportunities in this region and adversely impact the economy.

The limited capacity provided by the No-Build option is unacceptable and results in heavy congestion. 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 to operate at LOS E or F in the year 2010 with the No-Build Alternative are:

- High Point Road
- I-40

- US 220 (Battleground Avenue)
- Wendover Avenue (east of I-40)

The following north-south circumferential arterial routes are projected to operate at LOS E or F in the year 2010 with the No-Build Alternative:

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

As shown above with the No-Build Alternative, the important arterial routes in the study area would operate under extreme congestion. In addition, the No-Build Alternative 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 travelling rather than on 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.

The No-Build Alternative would, however, 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 in specific locations, levels of service would remain unsatisfactory for the TSM Alternative. 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 the Greensboro Transit Authority. The system is designed primarily 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 throughout the study area. Routes (as defined by the Greensboro Transit Authority) in the study area include the Battleground Avenue, Friendly Avenue, Walker Avenue, Pomona, High Point Road/GTCC, and Four Seasons routes. 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 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 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, Municipal, 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 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 these criteria. 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 commuter trips with concentrated origins and destinations. While the travel demand is high for a circumferential facility such as the Western Urban Loop, the trips are dispersed to the point that ride-sharing will not satisfy that demand.

#### **D. CONSTRUCTION ALTERNATIVES**

##### **1. Widen Existing Highways**

Two routes along existing roadways 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 is not feasible as an alternative to the Greensboro Western Urban Loop for the following reasons:

- Full control of access could not be provided due to heavy development along Guilford College Road, New Garden Road, and Cotswold Terrace. The frequent driveway and street entrances would result in congestion, reduced levels-of-service, and accident rates at least twice as high as on a controlled-access facility based on statewide averages.

- 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.
- Widening the existing roads would require taking residential and commercial property fronting on the roads.
- 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.
- Right-of-way widths necessary to contain needed improvements would affect potential historic structures concentrated along Guilford College Road.

A variation of the above alternative is to use I-40 from Guilford College Road to NC-68 and follow NC 68 and the proposed Bryan Boulevard to New Garden Road. This route is very circuitous, requiring an additional 5.7 miles of travel and, therefore, would not have the desired effect of relieving congestion on the urban arterials. This alternative is essentially the same as a No-Build Alternative, and increased volumes and resultant traffic congestion would occur on New Garden and other existing routes in the study area. 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:

- Widening Holden Road is not compatible with the goals and objectives of the 1989 Greensboro Urban Area Thoroughfare Plan.
- Full control of access could not be provided because of the heavy development along Holden Road. Traffic service would be poor due to reduced levels-of-service,

congestion and low speeds associated with turning traffic at the driveways and at signalized intersections.

- 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.
- 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.
- 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.

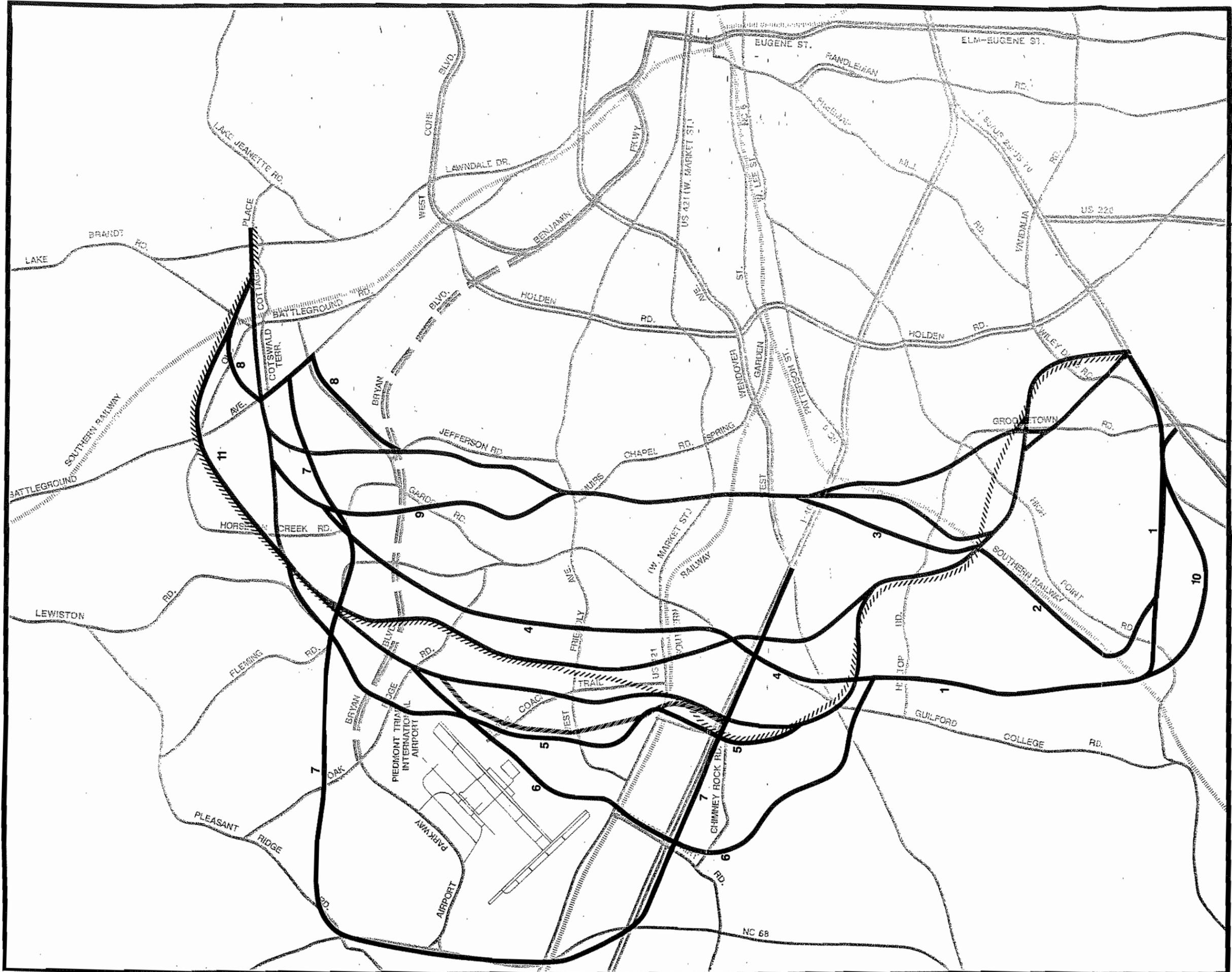
Based on the above, widening existing highways is not a viable alternative to building a new facility.

## 2. Construction Alternatives on New Location

Numerous alternatives for building a Western Urban Loop facility on new alignment investigated. The study area was 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 was coordinated with the I-85 Bypass study. At Lawndale Drive, the proposed action was coordinated with the Greensboro Eastern/Northern Loop.

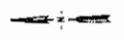
As denoted in Figure II-1, there are major physical constraints to shifting the proposed study area either in a western or eastern direction. The Piedmont Triad International Airport is located on the west side, and the highly developed urban section of Greensboro is located on the east side. Accordingly, preliminary study alternatives are situated between the designated termini and within the area between the airport and Holden Road.

There are also major locational constraints on the portion of the Greensboro Urban Loop between US 220 and Lawndale Drive. The preliminary study alternatives are located as shown in Figure II-1. 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



LEGEND

-  PRELIMINARY STUDY SEGMENTS RETAINED
-  PRELIMINARY STUDY SEGMENTS ELIMINATED
-  BELL/GLAZENER ALTERNATIVE
-  GREAT ALTERNATIVE



GREENSBORO WESTERN URBAN LOOP

PRELIMINARY STUDY SEGMENTS

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.

A new or revised access point will be located 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 will be designated as I-40, conformance with these design criteria will be necessary.

The major physical features were identified within the study area to determine areas where a freeway could be located while avoiding and minimizing impacts to the area. The feasibility of the preliminary study alternatives was reviewed on the basis of providing acceptable design, engineering, and geometrics, and minimizing adverse environmental impacts.

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

- Adverse impacts on known developments; residential communities; archaeological and historic sites; threatened or endangered species; parks and greenways; and natural systems, including wetlands, creeks, and habitat areas.
- Adverse economic impacts on businesses due to relocation and loss of accessibility
- Use of resources protected under Section 4(f) of the Department of Transportation Act (i.e. publicly owned land of a wildlife refuge, recreation area, or historic site) when other prudent and feasible alternatives were available
- Inconsistency with adopted thoroughfare plan or state transportation goals
- Encroachments in protected watershed critical areas
- Recognized geological instability
- Potential hazardous material sites
- Undesirable traffic operational and safety conditions and congestion

- Substantial environmental impacts
- Conflicts with accepted geometric design standards and criteria

The preliminary study segments are denoted on Figure II-1. The reasons for eliminating certain segments are summarized in Table II-1 and discussed following the table:

**TABLE II-1  
PRELIMINARY STUDY SEGMENTS ELIMINATED**

<u>Segment</u>	<u>Reasons for Elimination</u>
1	<ul style="list-style-type: none"> <li>• Circuitous, additional 2.2 miles of traffic bypassing Greensboro.</li> <li>• Not compatible with the 1989 Greensboro Urban Area Thoroughfare Plan.</li> <li>• 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.</li> <li>• Undesirable geometrics due to abrupt change in direction south of I-85 to north of I-85 in an interchange.</li> <li>• Re-construction of 2 miles of I-85.</li> </ul>
2	<ul style="list-style-type: none"> <li>• Circuitous, additional 2.8 miles of length.</li> <li>• Utilizes a portion of the Jamestown/High Point Bypass and is not compatible with the 1989 Greensboro Urban Area Thoroughfare Plan.</li> </ul>
3	<ul style="list-style-type: none"> <li>• More disruptive impact on Oaks West community with no apparent advantages over segment which passes nearer the edge of the community.</li> </ul>
4	<ul style="list-style-type: none"> <li>• Disruptive to densely populated residential areas north of Friendly Avenue.</li> </ul>

TABLE II-1, continued  
PRELIMINARY STUDY SEGMENTS ELIMINATED

<u>Segment</u>	<u>Reasons for Elimination</u>
	<ul style="list-style-type: none"> <li>● Disruption and loss of moderate income and subsidized housing south of Market Street.</li> <li>● Requires 1.0 miles of reconstruction of Guilford College Road.</li> <li>● Eliminates access to businesses and commercial development at Guilford College Road and I-40 interchange.</li> <li>● Impacts Western Guilford High School due to proximity.</li> </ul>
5	<ul style="list-style-type: none"> <li>● Violates Federal Aviation Agency clearance standards of the Piedmont Triad International Airport.</li> <li>● Encroaches on airport property and conflicts with planned usages.</li> <li>● Follows 0.8 mile of Chimney Rock Road which is encumbered with adjacent fuel storage tanks just outside a 60-foot right-of-way.</li> <li>● Located within the active portion of the Martin-Marietta Rock Quarry.</li> </ul>
6	<ul style="list-style-type: none"> <li>● Violates FAA standards at the Piedmont Triad International Airport.</li> <li>● Impacts a large fuel tank farm at I-40.</li> <li>● High risk of encountering properties contaminated with hazardous material.</li> </ul>
7	<ul style="list-style-type: none"> <li>● 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.</li> <li>● Parallels over 4.0 miles of proposed Bryan Boulevard, which would result in unnecessary duplicating of highway facilities.</li> <li>● Not compatible with the 1989 Greensboro Urban Area Thoroughfare Plan.</li> <li>● The intersection at US 220 is not feasible for a freeway-type facility where 90-degree turns would be required.</li> </ul>
8	<ul style="list-style-type: none"> <li>● Unacceptable geometrics for a freeway facility due to the 90-degree turns at US 220.</li> </ul>

TABLE II-1, continued.  
 PRELIMINARY STUDY SEGMENTS ELIMINATED

<u>Segment</u>	<u>Reasons for Elimination</u>
9	<ul style="list-style-type: none"> <li>• Prohibitive right-of-way costs in converting New Garden Road and US 220 into a freeway-type facility with full control of access.</li> <li>• Located in Tier I of the protected watershed area of Lake Brandt where ordinances prohibit construction activity.</li> <li>• Conflicts with proposed Bryan Boulevard by eliminating the proposed interchange at New Garden Road.</li> <li>• Divides the Guilford College campus, which is on the National Register of Historic Places.</li> <li>• Passes in close proximity to the academic structures in the campus.</li> </ul>
10	<ul style="list-style-type: none"> <li>• Circuitous, routing additional 3.1 miles of traffic for bypassing Greensboro.</li> <li>• Major reconstruction of Groometown Road interchange to a freeway-to-freeway interchange.</li> <li>• Eliminates access from Groometown Road to I-85.</li> <li>• Parallels I-85, which unnecessarily duplicates highway facilities.</li> <li>• Incompatible with the 1989 Greensboro Urban Area Thoroughfare Plan.</li> </ul>
11	<ul style="list-style-type: none"> <li>• Encroachment onto Tier 1 and Tier 2 watershed critical area (Lake Brandt).</li> <li>• Requires relocation of Old Battleground Road, cutting access to single-family residences, apartments, a nursing home, and other properties.</li> </ul>
<b>GREAT Alternative          (From I-40 to Oak Ridge Road)</b>	<ul style="list-style-type: none"> <li>• Impacts fuel storage tanks on Chimney Rock Road.</li> <li>• Eliminates proposed US 421 interchange providing poorer traffic service to the local area.</li> <li>• Conflicts with planned expansion of the Piedmont Triad International Airport.</li> <li>• Less desirable angle crossings of railroad, US 421, Stage Coach Trail, and Ballinger Road.</li> </ul>

TABLE II-1, continued  
PRELIMINARY STUDY SEGMENTS ELIMINATED

- |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Bell/Glazener Alternative<br/>(From I-85 to Southern<br/>Railway and I-40 to Old Oak<br/>Ridge Road)</b> | <ul style="list-style-type: none"><li>• Undesirable geometrics resulting from closely-spaced reverse curves.</li><li>• Impact on historic Jamison Ward House, impact on AMP, Inc. plant, undesirable geometry at High Point Road.</li><li>• Undesirable geometry at I-40 interchange.</li><li>• Encroachment into Tier I water critical area.</li></ul> |
|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(Based on the final version of the alternative dated July 4, 1991.)

Segment 1

This segment begins at I-85 and terminates just north of Hilltop Road and east of 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 travel distance 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 bisects the Midway Forest neighborhood located near the intersection of Guilford College Road and Hilltop Road. It would cause disruption of residences in Adams Farm and Sedgeland Estates, located between High Point and Guilford College Roads, and offers no advantages.

Segment 2

This segment branches from Segment 1 just south and east of High Point Road and extends to the intersection with Segment 3 just west of the Southern Railway and south of Hilltop Road near Sedgeland Drive.

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 just west of the Southern Railway and south of Hilltop Road near Sedgelane Drive 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 and involve potentially contaminated property. 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 another located south of I-40 would have to be relocated 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, and 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 to near Cotswold Terrace. The segment includes a sharp curve between Battleground Avenue and Lawndale Drive. 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. This segment is located 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 incompatible with the thoroughfare plan and would provide poor traffic service.

#### Segment 11

Segment 11 begins west of Horsepen Creek Road and terminates west of Lawndale Drive.

This segment bypasses the Four Farms Road area, but extends into the Tier 1 and Tier 2 watershed critical areas. It also adds 0.5 mile to the project's length and places an interchange at the existing intersection of US 220 with Old Battleground Road and Horsepen Creek Road. Therefore, this segment is not reasonable and feasible.

## Other Alternatives Considered

### Red Line Proposed by GREAT

The citizens group, referred to as GREAT (Greensboro Residents Encouraging Alternative Thoroughfares), has been extensively involved in the public involvement process for the Western Urban Loop. GREAT was organized in early 1989 and has been involved with the Greensboro Western Urban Loop since that time. Representatives from GREAT attended the citizen information workshops held on the project and sponsored other meetings, including a public forum. The public forum addressed 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 report<sup>1</sup> dated April 1990 and revised in May 1990.

GREAT's study includes a segment referred to as the "Red Line" (not shown on Figure II-1). The Red Line follows existing Chimney Rock Road at I-40 and curves sharply back to the west on new location from the Market Street and Chimney Rock Road intersection. It follows a railroad spur for several thousand feet, and then generally parallels and joins the Western Alternative near Ballinger Road, south of Oak Ridge Road. Following the Western Alternative, the Red Line extends northeastward on new alignment to US 220 and then southeastward to Lawndale Drive. The reasons that the Red Line 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.

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<sup>1</sup>"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.

- 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.

In June 1990, GREAT proposed modifying the Red Line to use the Western Alternative corridor between I-40 and US 421 by shifting it to the east of Chimney Rock Road (not shown on Figure II-1). While this modification eliminates some of the earlier drawbacks, the plan raises 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.

#### 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 resulted in the submittal of several proposals by Bell/Glazener.

Consideration was 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 was essentially the same corridor location as the Middle Alternative (as described on Page II-19).

As documented in the October 31, 1989 correspondence from Bell/Glazener, the original proposal was revised 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."

One of the shifts extends westward across High Point Road, turns northward to cross the Southern Railway, then continues to terminate just north of Hilltop Road and east of Guilford College Road. The reasons it is not a viable alternative include circuitous routing, incompatibility with the Thoroughfare Plan, and impacts on the Midway Forest, Adams Farm, and Sedgefield Estates communities. The shift from the original proposal at US 220 placed the corridor within the most critical watershed area I (Tier 1) and immediately adjacent to Lake Brandt, 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 were 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 a modified Western Alternative. The modified Western Alternative removed the corridor from within the most critical watershed area of Lake Brandt. Also, another proposed revision was made in the southern terminal from I-85 and Campground Road westward to the existing interchange at Groometown Road. The alternative was shifted further west and south resulting in the use of Segment 10 between I-85 and High Point Road (begins at I-85/Groometown Road interchange, and ends west of High Point Road), Segment 1 between High Point Road and Hilltop Road (begins north of Hilltop Road, joins Guilford College Road and follows Guilford College Road to I-40), and Segment 4 between Hilltop Road and I-40 (begins west of High Point Road and turns northward to terminate north of Hilltop Road).

That proposal was considered and determined to be a non-viable alternative for the same reasons as Segments 1, 4, and 10, and as described below:

- 1) The project terminus is shifted south on I-85 approximately one mile, 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 reconstruction 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.

**Bell/Glazener continued to modify its proposal to eliminate or revise those features deemed not feasible by NCDOT. Proposals were submitted to NCDOT throughout the corridor evaluation process.**

**The most recent submittal by Bell/Glazener, dated July 4, 1991 and shown in Figure II-1, is substantially similar to the Preferred Alternative. The reasons for rejecting that alternative, in the areas that it differs from the Preferred Alternative, include the following:**

- 1) **The portion between Oka Hester Park and Hilltop Road would take a portion of the Jamison-Ward House site, would take a large electronics plant (AMP, Inc.) with 150 employees, and would create an undesirable interchange configuration at High Point Road.**
- 2) **The portion concurrent with Segment 5 would create undesirable geometry at the critical I-40 interchange.**
- 3) **The portion concurrent with Segment 11 would extend into Tier 1 water critical areas and would create an undesirable interchange at US 220.**

## Preliminary Construction Alternatives Selected for More Detailed Study

Three construction alternative corridors were determined to be reasonable and feasible and were retained 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 Wiley Davis Road approximately 800 feet east of the Wiley Davis Road and McCuiston Road intersection, before crossing Vandalia Road. It continues northwest to High Point Road east of Groometown Road then turns north crossing I-40 and US 421 (West Market Street) near the Walnut Circle-US 421 intersection. Continuing north to Friendly Avenue near Muirs Chapel Road, the Eastern Alternative 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. The Eastern Alternative joins the Western and Middle alternatives near Battleground Avenue north of Cotswold Terrace 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 I-85 and Campground Road interchange, proceeds northwest across 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 into the Western Alternative between proposed Bryan Boulevard and Fleming Road, where it turns eastward crossing Horsepen Creek Road, Battleground Avenue and Old Battleground Road before ending at Lawndale Drive. Interchanges are included at the crossings of I-85, High Point Road, I-40, Guilford College Land, 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.

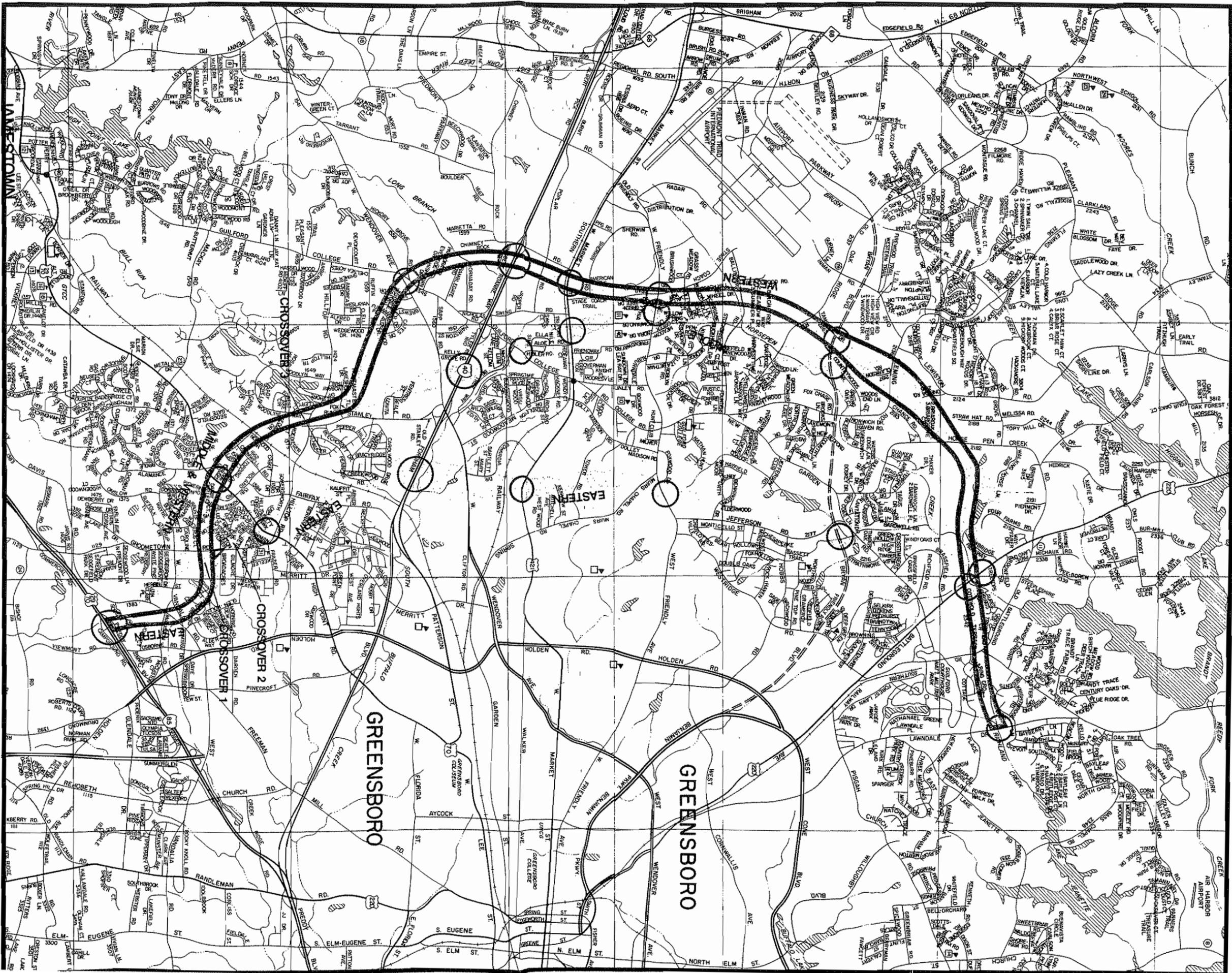
### Western Alternative

The Western Alternative begins at the I-85 and Campground Road interchange between Groometown Road and Holden Road. The alternative proceeds northwest across 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 cross Hilltop Road and then crosses Wendover Avenue. It 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 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.

### Preferred Alternative

The Preferred Alternative begins at the I-85 and Campground Road Interchange between Groometown Road and Holden Road. It proceeds north across Wiley Davis Road and McCuiston Road approximately 800 feet east of the intersection of these roads, crosses Vandalia Road and then turns westward to cross Groometown Road north of Vandalia Road. The Preferred Alternative turns northwestward to cross High Point Road and the Southern Railway and then turns northward to cross 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. The Preferred Alternative continues northeast to cross 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 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 Preferred Alternative is 14.9 miles in length.

Except near Fleming Road, the Preferred Alternative is identical to the Western Alternative from Crossover C-1 to Lawndale Drive. In order to avoid the Fleming Road community, the



**LEGEND**

○ STUDY CORRIDOR

○ INTERCHANGES

○ PREFERRED ALTERNATIVE

**GREENSBORO WESTERN URBAN LOOP**

**DETAIL STUDY CORRIDOR**

Figure

II-2

corridor widens to the west of the original Western Alternative as it crosses Fleming Road. The shift was endorsed by the local community and will result in the displacement of three fewer houses.

The Preferred Alternative is composed of the Eastern Alternative to Crossover C-1, Crossover C-1 to the Western Alternative, and the Western Alternative to the project terminus.

### Crossovers

As shown on Figure II-2, three crossovers were included in the routes studied to provide for transition 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, which is part of the original thoroughfare plan alignment (see Figure I-4), begins at a point on the Eastern Alternative near Oka Hester Park and extends 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 to the Eastern Alternative and 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 to the Eastern Alternative and generally parallels the Southern Railroad near the Oak Park Subdivision for a total length of 1.0 miles. This crossover is part of the original thoroughfare plan alignment (see Figure I-4).

### 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).

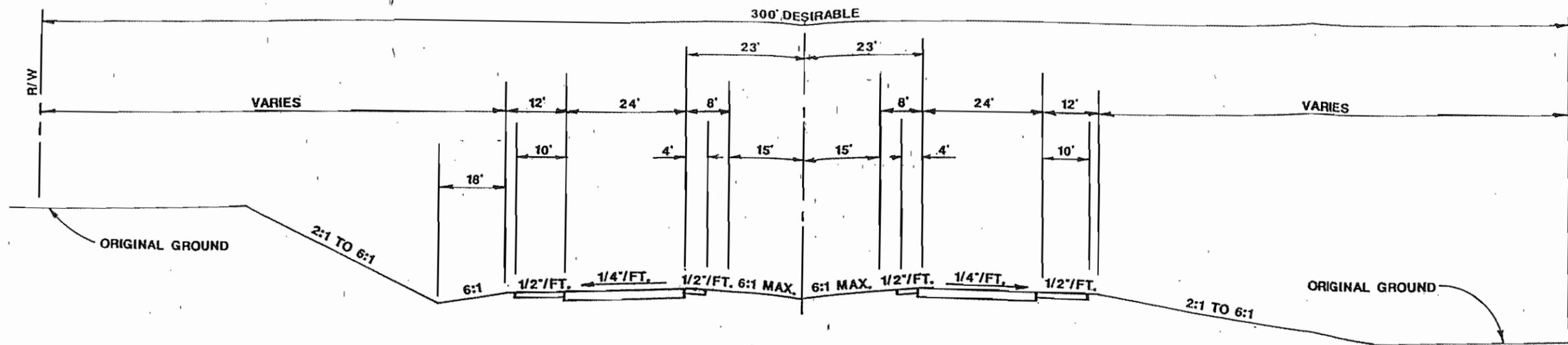
This freeway will be compatible with the other two sections of the Greensboro Urban Loop and overall lane balance. Those two sections are proposed multi-lane freeway facilities as well.

The proposed construction alternatives are based upon the following criteria. Typical cross-sections are shown in Figures II-3A and II-3B.

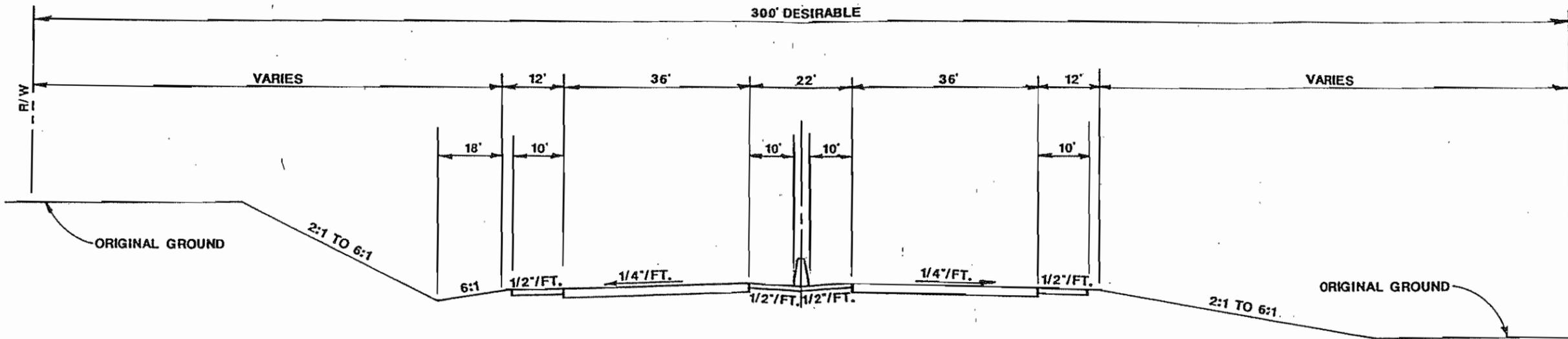
- a. Type of Facility - freeway
- b. Access Control - full
- c. Right-of-Way - adequate right-of-way width to contain the recommended cross-section (typically 300 feet) will be provided.
- d. Intersecting Road Treatment - all intersecting roads will be either interchanged, grade separated with no access,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

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

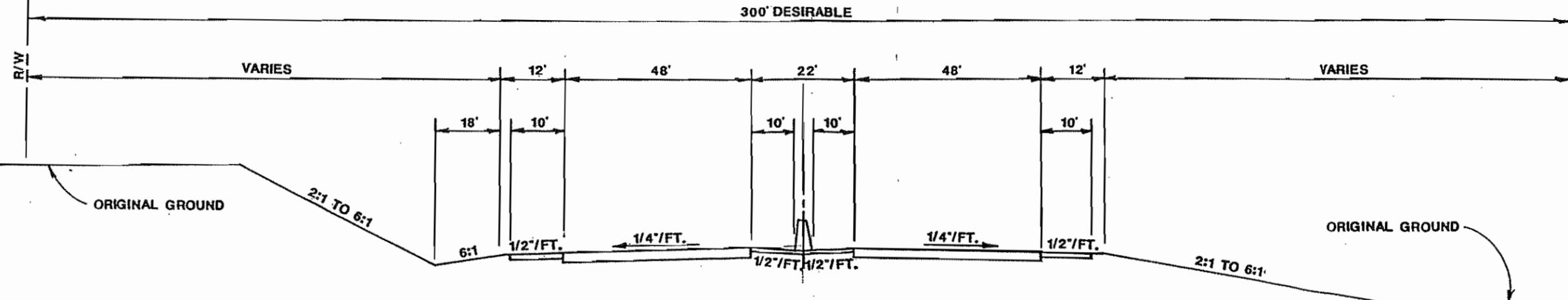
<u>DESIGN ELEMENTS</u>	<u>RECOMMENDED STANDARDS</u>
Design Speeds	<ul style="list-style-type: none"> <li>- Freeway - 60 mph desirable</li> <li>- Ramps - 50 mph desirable/45 mph minimum</li> <li>- Loops - 25 - 30 mph minimum</li> <li>- Cross-streets - 40-50 mph</li> </ul>
Horizontal Alignment	<ul style="list-style-type: none"> <li>- 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)</li> <li>- Minimum length of curve - 500'</li> <li>- Tangents midlength between reversed curves should be adequate to facilitate superelevation transition and will include spirals</li> <li>- Ramp terminal design - 1990 AASHTO Standards or NCDOT Roadway Standards</li> </ul>



FOUR LANES WITH 46 FT. MEDIAN

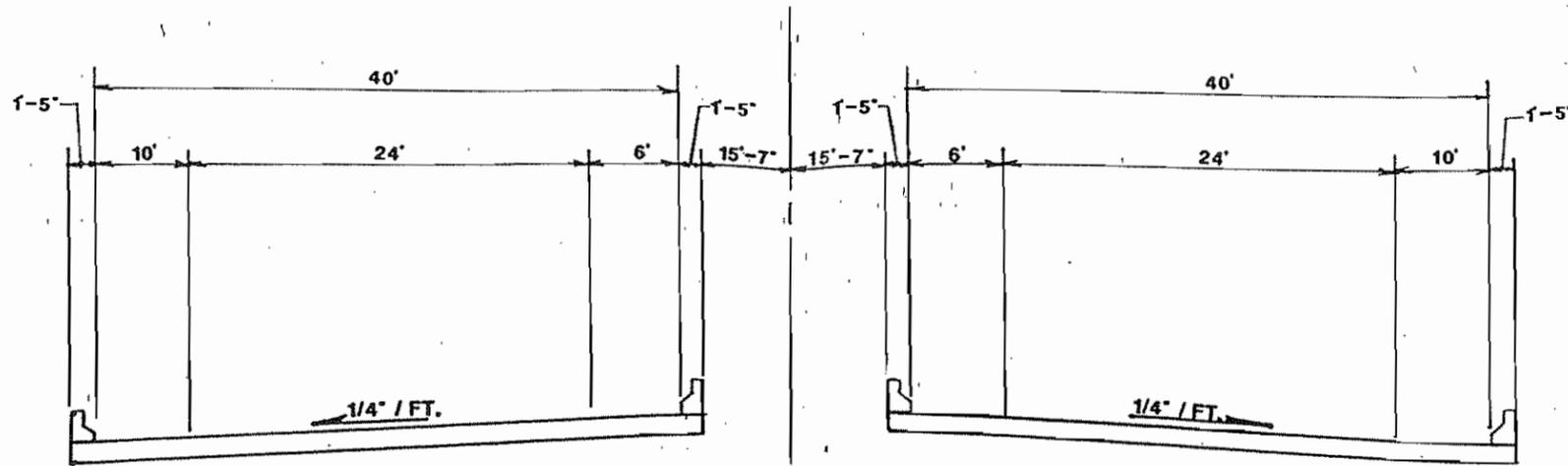


SIX LANES WITH MEDIAN BARRIER

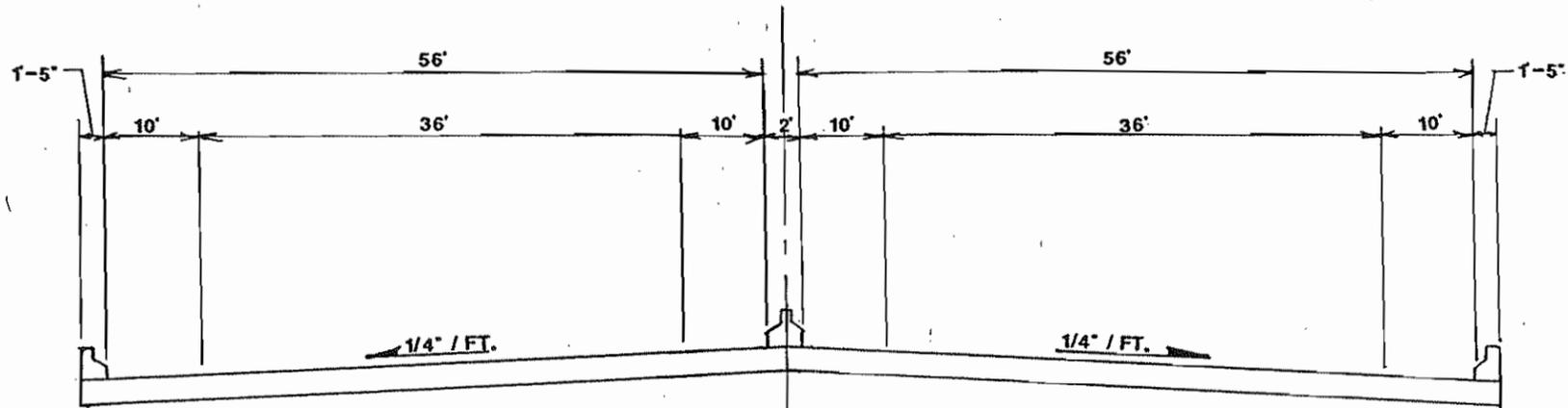


EIGHT LANES WITH MEDIAN BARRIER

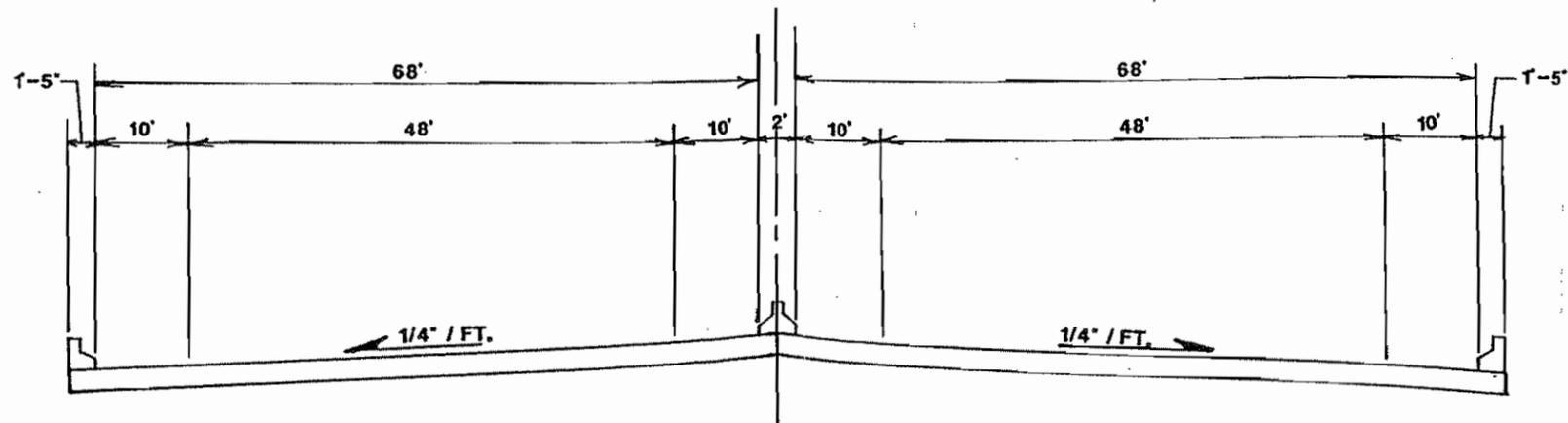
TYPICAL SECTIONS-ROADWAY



FOUR LANES WITH 46' MEDIAN



SIX LANES WITH MEDIAN BARRIER



EIGHT LANES WITH MEDIAN BARRIER

TYPICAL SECTIONS - BRIDGES

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

<u>DESIGN ELEMENTS</u>	<u>RECOMMENDED STANDARDS</u>
Vertical Alignment	<ul style="list-style-type: none"> <li>- Rates of grade: Freeway - 4% desirable Ramps - 5%</li> <li>- Stopping sight distance: Freeway - 850' minimum Ramps - 475' minimum</li> <li>- Length of crest vertical curves <math>k = 190</math> to <math>310</math> (for 60 mph)</li> <li>- Length of sag vertical curves <math>k = 120</math> to <math>160</math> (for 60 mph)</li> </ul>
Pavement Widths	<ul style="list-style-type: none"> <li>- Freeway - 12' standard lane width</li> <li>- Ramps - single lane 14' minimum</li> <li>- Cross streets - 12' standard lane width desirable, 11' minimum</li> </ul>
Shoulder Widths	<ul style="list-style-type: none"> <li>- Freeway roadway section - 12' outside (10' paved), 8' inside (4' paved), 15' with guardrail</li> <li>- Bridge section - 10' outside, 6' inside</li> <li>- Ramps - 12' left (4' paved), 12' right (4' paved), 14' with guardrail</li> </ul>
Median Widths	<ul style="list-style-type: none"> <li>- Freeway roadway section - 46' desirable, 22' minimum with median barrier</li> </ul>
Cross Slopes - Tangent	<ul style="list-style-type: none"> <li>- 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</li> <li>- Embankment slopes - NCDOT Roadway Standards Freeway/Expressway</li> <li>- Median slopes: 46' median - 6:1 maximum slope</li> </ul>
Vertical Clearance	<ul style="list-style-type: none"> <li>- Local and collector streets 15'0" to 15'6"; Arterials and freeway 16'6" to 17'0"</li> <li>- Railroads 23'0" to 23'6"</li> <li>- Stream crossings 2'0" above design high water level</li> </ul>

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-4D), 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. Also, a portion of the Urban Loop facility from I-85 to I-40 is to be designated as I-40. This section would have to conform to interstate design and capacity standards which could not be accommodated with a reduced level-of-service facility.

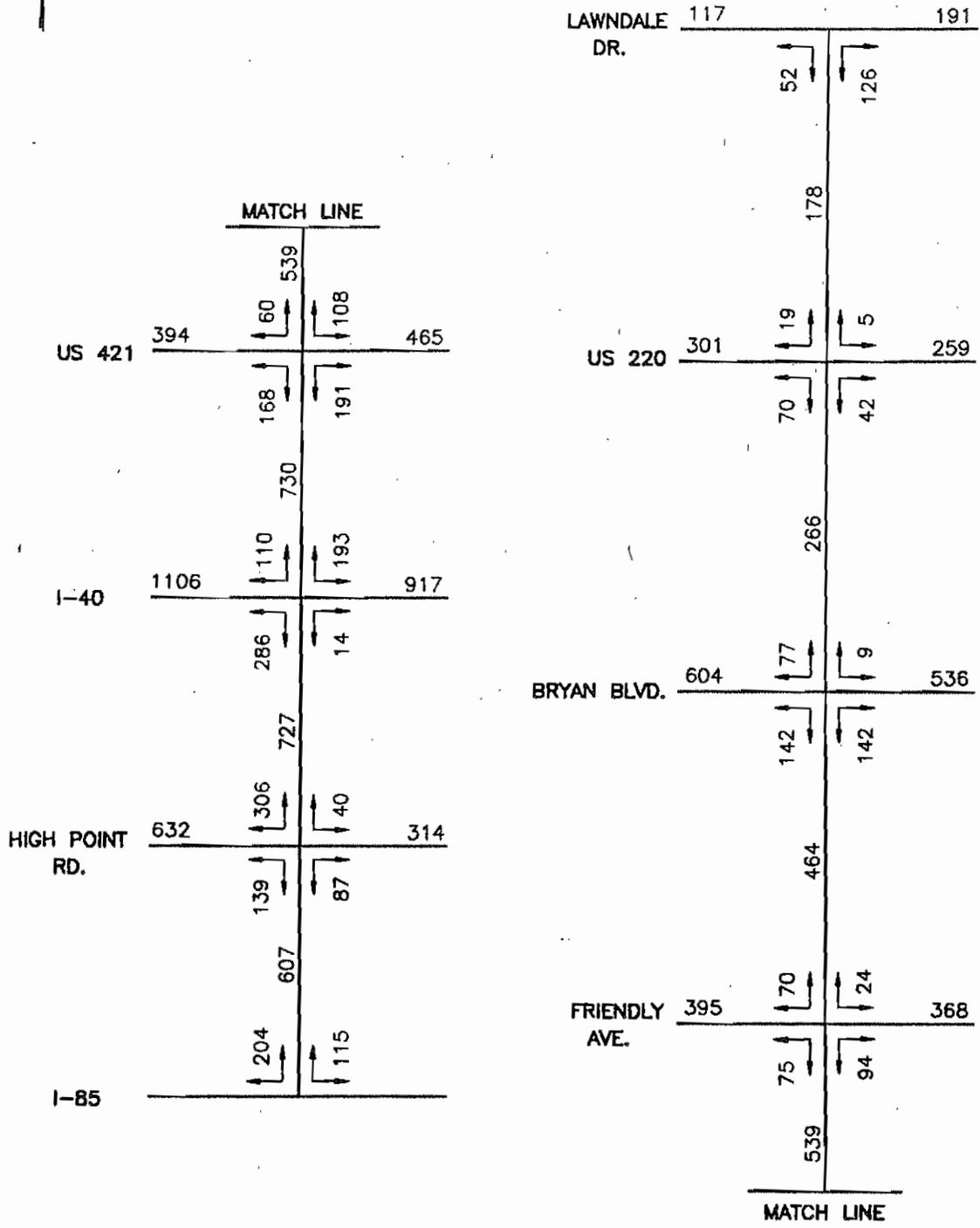
### 3. Traffic Operations and Level-of-Service

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. Traffic and capacity analyses were then performed for the Preferred Alternative based on projected volumes for the year 2015.

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 of 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, and 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. Projected 2015 traffic volumes for the Preferred Alternative range from a low of 40,500 VPD north of US 220 to a high of 92,800 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.



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

FIGURE  
II-4A

PROJECTED YEAR 2010 TRAFFIC VOLUMES  
EASTERN ALTERNATIVE

GREENSBORO WESTERN URBAN LOOP

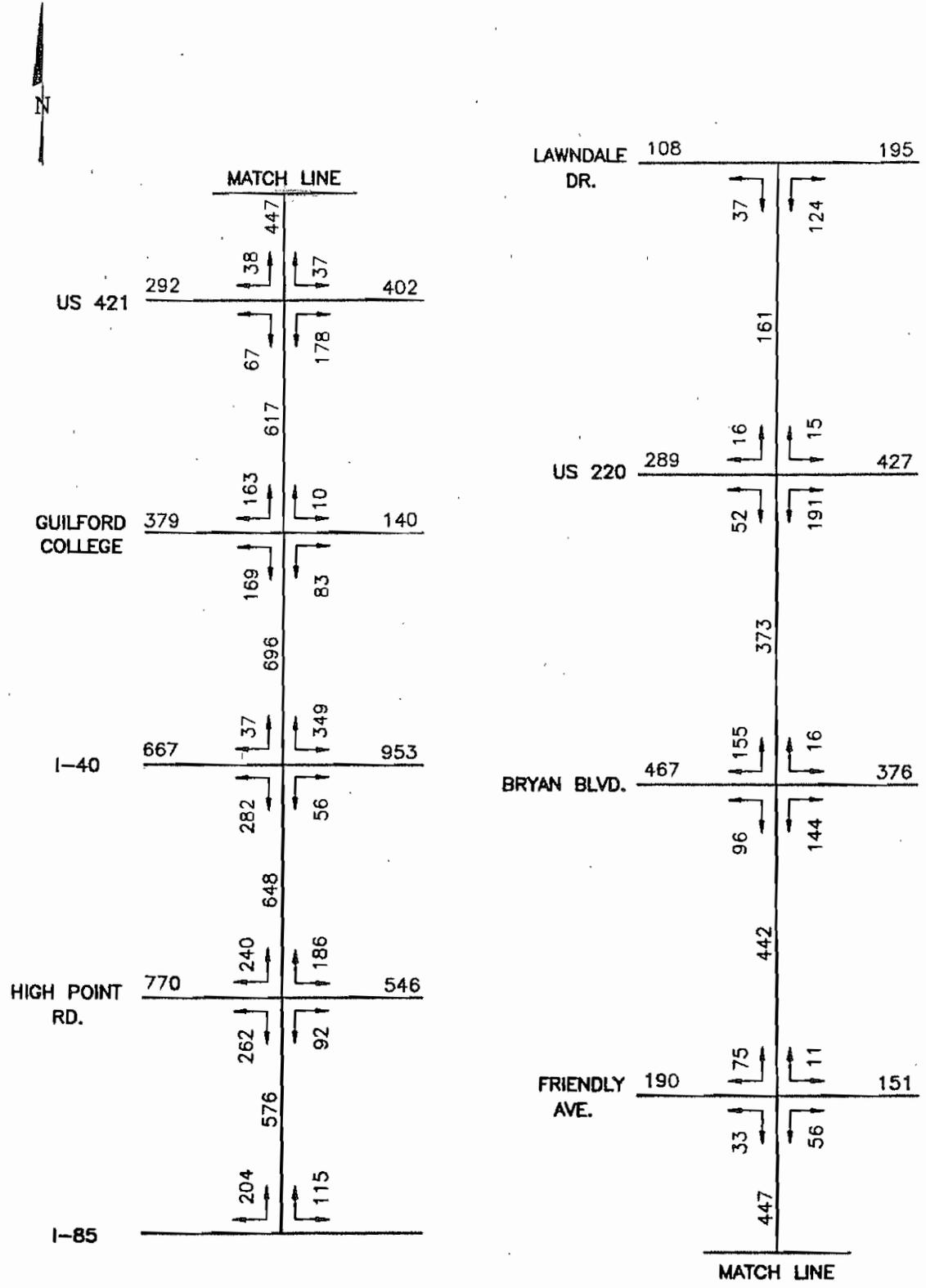


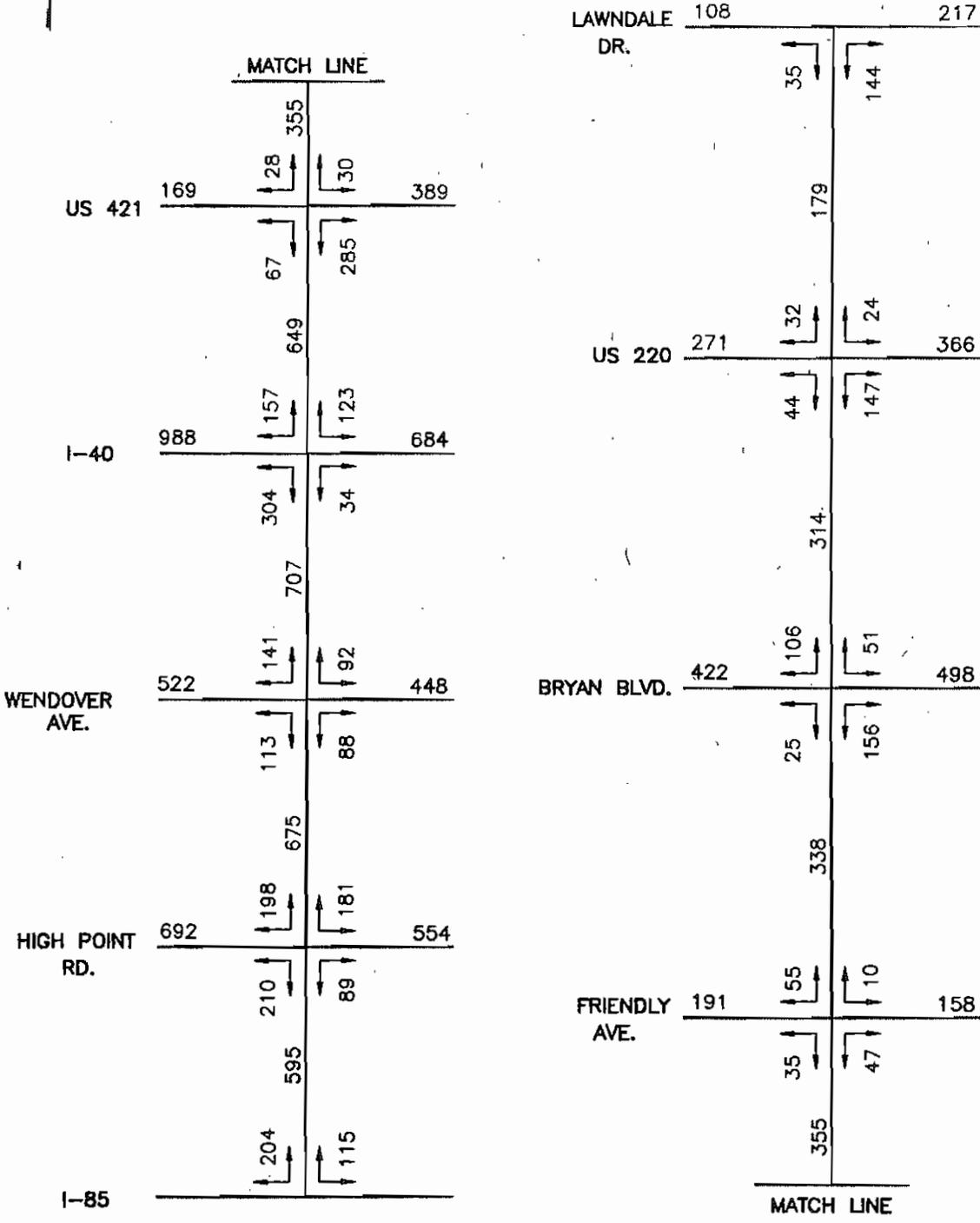
PROJECTED YEAR 2010 TRAFFIC VOLUMES  
MIDDLE ALTERNATIVE

GREENSBORO WESTERN URBAN LOOP



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





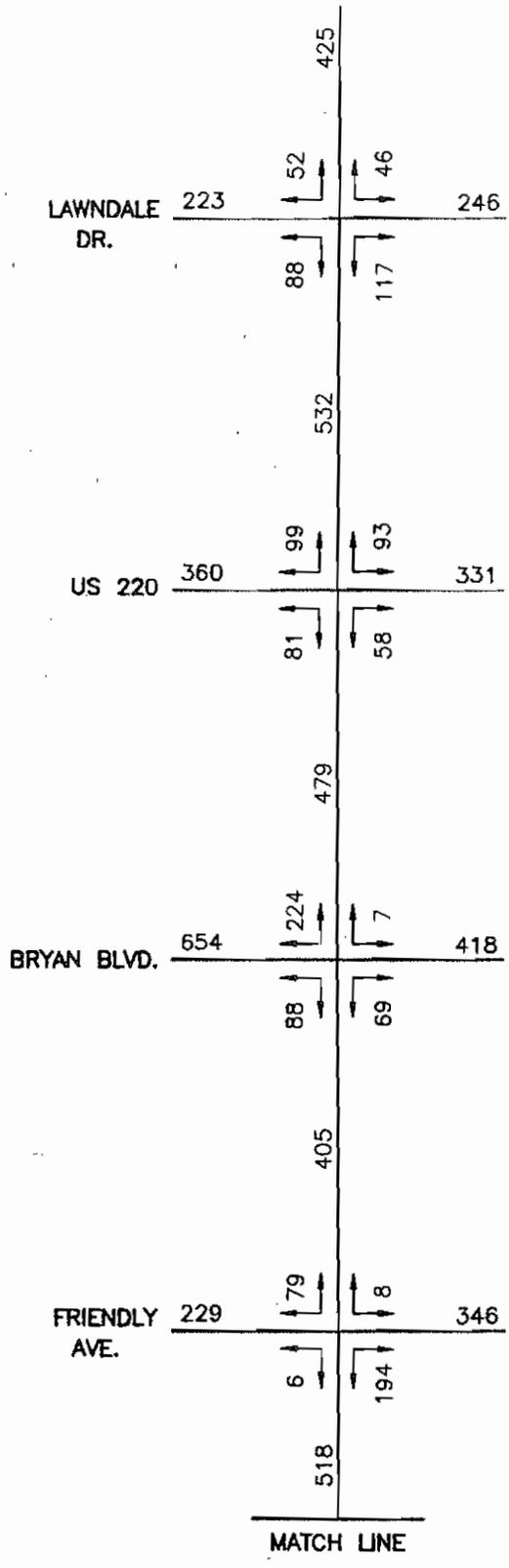
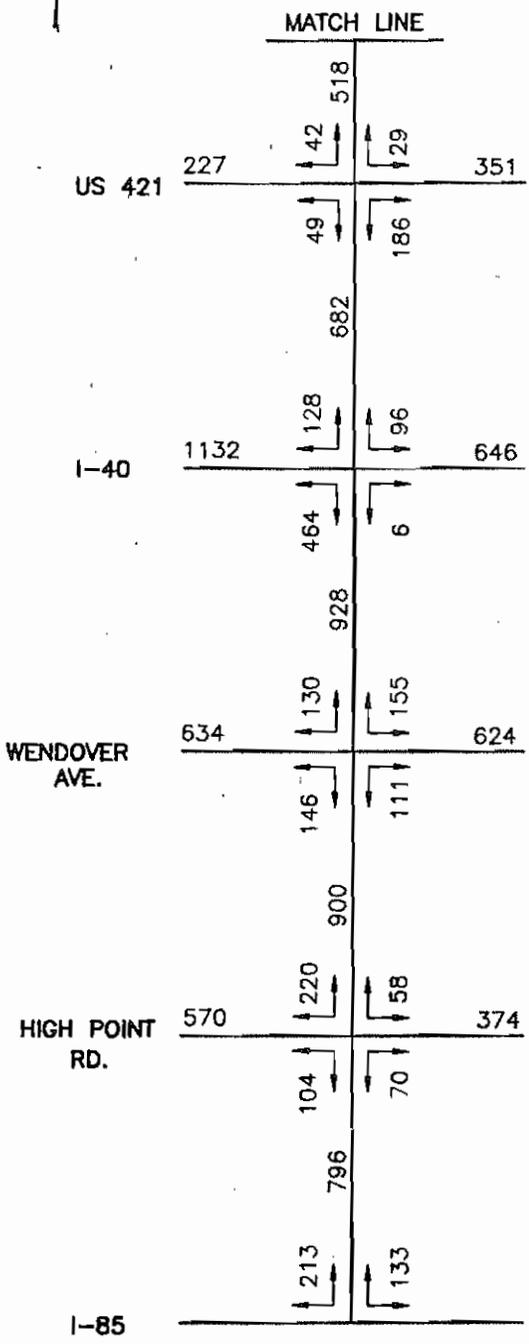
ESTIMATED 2010 YR. AVERAGE ANNUAL DAILY TRAFFIC (in hundreds)

FIGURE II-4C

PROJECTED YEAR 2010 TRAFFIC VOLUMES WESTERN ALTERNATIVE

GREENSBORO WESTERN URBAN LOOP





ESTIMATED 2015 YR. AVERAGE ANNUAL DAILY TRAFFIC (in hundreds)



GREENSBORO WESTERN URBAN LOOP

PROJECTED YEAR 2015 TRAFFIC VOLUMES  
PREFERRED ALTERNATIVE

FIGURE  
II-4D

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. Analysis of the Preferred Alternative for design year 2015 indicates the need for a eight-lane basic freeway section between West Market Street and I-85.

**TABLE II-3  
CAPACITY ANALYSIS SUMMARY  
Year 2010 (2015)**

	<u>No. of Lanes</u>	<u>Level-of-Service (LOS)</u>
<b><u>Eastern Alternative</u></b>		
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
<b><u>Middle Alternative</u></b>		
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
<b><u>Western Alternative</u></b>		
I-85 to High Point	6	C
High Point to Wendover	6	C

TABLE II-3  
CAPACITY ANALYSIS SUMMARY (Continued)  
Year 2010 (2015)

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

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. Figure II-4D shows projected 2015 traffic volumes for the Preferred Alternative.

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:

- Guilford College Road (F to D, E to B)
- High Point Road (E to C)
- Jefferson Road (E to D)
- Lake Brandt Road (E to C)
- Old Battleground Road (E to D)
- Friendly Avenue (D to C)
- Groometown Road (C to A)

- Hilltop Road (D to C)
- Holden Road (D to C, F to E)
- Lawndale Drive (D to C)
- Muirs Chapel Road (D to B)
- 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:

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

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

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

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

- Groometown Road (C to A)
- Holden Road (D to C)
- 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 alternative based on functional plans. These plans include horizontal and vertical alignments of the highway which were developed using design criteria and typical sections described earlier. Estimated construction costs include the following elements:

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

Estimated construction costs for the build alternatives are \$100.4 million for the Eastern Alternative, \$108.3 million for the Middle Alternative, \$100.8 million for the Western Alternative, and \$143.5 million for the Preferred Alternative (based on 1993 unit prices and revised quantities). Construction costs were developed for crossovers and individual segments.

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

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

Estimated right-of-way costs were prepared for each alternative, including crossovers. These costs totaled \$95.1 million for the Eastern Alternative, \$83.0 million for the Middle Alternative, \$77.9 million for the Western Alternative, and \$87.5 million for the Preferred 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 the build alternatives are \$195.5 million for the Eastern Alternative, \$191.3 million for the Middle Alternative, \$178.7 million for the Western Alternative, and \$231 million for the Preferred Alternative. The 1995-2001 TIP estimate of the total cost of the Western Urban Loop is \$184 million. Costs for each alternative are summarized in Table II-4.

**TABLE II-4  
ESTIMATED COSTS  
Alternative**

	<u>Eastern</u> (1990 \$)	<u>Middle</u> (1990 \$)	<u>Western</u> (1990\$)	<u>Preferred</u> (1993 \$)
Construction Cost (millions)	\$100.4	\$108.3	\$100.8	\$143.5
Right-of-Way Cost (millions)	\$ 95.1	\$ 83.0	\$77.9	\$ 87.5
Total Cost (millions)	\$195.5	\$191.3	\$178.7	\$231.0

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 1990 publication of the American Association of State Highway and Transportation Officials (AASHTO) titled 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 economic benefits expected during 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 10-year intervals. 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 from the proposed project include 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 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%. 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. The B/C ratios are greater than 1.00 for all the 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. The B/C value for the Preferred Alternative is the same for the Western Alternative since they are essentially the same alignment with the same benefit and cost values.

**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
Preferred	3.7	2.2

**E. SELECTION OF THE PREFERRED ALTERNATIVE**

NCDOT distributed the Greensboro Western Urban Loop DEIS in July 1991. The DEIS documented the corridor impact evaluation process for the three alternatives selected for detailed study.

Two pre-hearing workshops were held to present the study alternatives to the public. The first workshop was held July 16, 1991 at B.L. Smith High School. The second workshop was held on July 18, 1991 at Western Guilford High School. Approximately 800 people attended the two workshops. The Corridor Public Hearing was held on July 23, 1991 at B.L. Smlth High School to receive public comment on the DEIS and to assist NCDOT in the selection of a preferred alternative. Approximately 1,500 people attended, and 85 persons made comments. During the public comment period following the hearing, more than 2,100 letters were received. Reports on the proposed action were submitted by two local citizens groups: GREAT and the Southwest Neighborhood Association. (A summary of the public comments is included in Appendix D.)

The Technical Steering Committee, formed at the initiation of the project study to provide guidance and assistance to NCDOT, met regularly between September 1991 and March 1992 to discuss issues and weigh the advantages and disadvantages of the various alternatives.

Representatives from Guilford County Planning Department, Greensboro Department of Transportation, Greensboro Planning Department, NCDOT, and the Federal Highway Administration were included on the committee.

The Guilford College and Kimrey-Haworth House avoidance alternative was eliminated because of (1) an additional right-of-way cost of \$10 million; (2) 50 additional residential relocations including 175 additional owner-occupied units and 125 fewer rental units; and (3) 150 additional residential noise impacts. Additionally, this alternative splits portions of the Hamilton and Hamilton Lakes neighborhoods.

The Sedgefield Stables avoidance alternative was eliminated because of (1) an additional \$4.2 million in right-of-way and construction cost; (2) undesirable alignment; (3) splitting the Sedgefield community; and (4) additional noise impact.

The Middle Alternative between Hilltop Road and West Friendly Avenue was rejected because of (1) the impact to developed property, including splitting the remainder of the Landmark development; (2) an undesirable interchange configuration at I-40, including elimination of the Guilford College Road/I-40 interchange; (3) the required construction of a new interchange on Guilford College Road; and (5) the extensive residential relocations required, including a low income, largely minority apartment complex.

The portion of the Middle Alternative between West Friendly Avenue and Bryan Boulevard was eliminated because of (1) 12 more residential displacements; (2) \$3.5 million in additional cost; (3) 11.6 additional acres of wetland impacts; (4) 6.6 additional acres of floodplains impacts; (5) 1,200 feet of additional floodway impact; and (6) impacts to an archaeological site that would require further investigation.

The southern portion of the Western and Middle Alternatives was eliminated because of (1) adverse effect on two National Register-eligible historic properties, Sedgefield Stables and Celia Phelps Church; and (2) Section 4(f) involvement with Sedgefield Stables.

Crossover C-2 was eliminated because it connected with the eliminated southern portion of the Western and Middle Alternatives. Crossover C-3 was eliminated because the Eastern Alternative without Crossover 3 (1) takes five fewer homes and two fewer businesses; (2) costs \$3.8 million less; (3) is 0.8 mile shorter; (4) has fewer community impacts; and (5) allows a better design.

The Eastern and Western Alternatives remained under consideration. In March 1992, NCDOT selected the Eastern Alternative from I-85 to just east of Groometown Road and the Western Alternative from Groometown Road to Lawndale Drive as the Preferred Alternative. In reaching this decision, the professional staff from the Division of Highways fully evaluated the documentation in the DEIS and results of the involvement of the public and local government.

NCDOT determined that the Western Alternative between Horsepen Creek Road and Battleground Road should be built in the southern portion of the broad corridor. While locating the alignment in that area would increase floodplain encroachment and wetland impact, it would reduce residential displacements by approximately 117 dwellings and also reduce the taking of developed commercial property, thus saving \$4.6 million in right-of-way costs.

The advantages of the Preferred Alternative corridor over the Eastern Alternative are highlighted below, followed by details about each:

- provides better service for I-40 traffic
- provides better interchange design at I-40
- requires the relocation of fewer homes
- requires the relocation of fewer businesses
- has less noise impact on residential areas
- has no effect on National Register listed or eligible properties
- does not require the taking of any Section 4(f) resources
- impacts less wetlands
- requires less stream rechanneling
- has less involvement with contaminated properties

#### I-40 Traffic

The Preferred Alternative provides a shorter, more direct path for I-40 traffic, which would be diverted from existing I-40 between the eastern terminus of the proposed I-85 Bypass to the interchange of the Western Urban Loop with I-40. Additionally, the Preferred Alternative bypasses more of existing I-40, reducing the length of I-40 that would require widening to eight lanes.

### I-40 Interchange Design

The western location of the Preferred Alternative provides a better design and fewer conflicts with existing I-40 traffic.

### Residential Relocations

The Preferred Alternative involves fewer residential relocations (336) than the Eastern Alternative (704).

### Business Relocations

The Preferred Alternative involves fewer business relocations (16) than the Eastern Alternative (36).

### Noise

The Preferred Alternative has less noise impact on residential areas (198 dwellings) than the Eastern Alternative (251 dwellings) based on the 2010 noise analysis.

### Cultural Resources

The Preferred Alternative does not involve any properties eligible for the National Register of Historic Places. The Eastern Alternative Corridor has an adverse affect on the Guilford College historic property and the historic Kimrey-Haworth House. Under Section 4(f) of the Department of Transportation Act, these sites must be avoided if a prudent and feasible alternative exists.

### Wetlands

The Preferred Alternative involves fewer acres of forested wetlands and fewer acres of high quality wetlands than the Eastern Alternative (20.4 acres vs. 42.9 acres total wetlands, 17.3 acres vs. 39.9 acres of high quality wetlands).

### Stream Channelization and Floodway Encroachment

The Preferred Alternative requires 850 feet of stream relocation and has no longitudinal floodway encroachment, versus 3,700 feet of relocation and 9,800 feet of longitudinal encroachment for the Eastern Alternative.

### Contaminated Properties

The Preferred Alternative involves no known sites of hazardous contamination within the anticipated right-of-way, based on preliminary design of the freeway to date. The Eastern Alternative involves Worth Chemical Company, a site with known serious hazardous material contamination.

As with any major highway project, even the best alternative raises some concerns. The Preferred Alternative has identified areas that will require additional study and coordination. These include the following:

#### **Thoroughfare Plan**

- The Preferred Alternative does not conform to the location of a highway facility as shown on the adopted Greensboro Urban Area Thoroughfare Plan.

*The Thoroughfare Plan is updated periodically. A future update will show the Preferred Alternative Corridor. Adjustments to network traffic projections and resulting thoroughfare needs will be addressed accordingly.*

#### **Eastern Corridor Traffic Needs**

- Selection of the Preferred Alternative Corridor may require consideration of a lower-type facility improvement in the area of the Eastern Alternative Corridor to serve local traffic needs.

*The North Carolina Department of Transportation will continue to work with the City staff, should Greensboro pursue a project to develop this type of facility to resolve local traffic congestion. Possible solutions that could be provided by a future project include street widening, intersection improvements, and improved traffic control.*

## Cemetery

- The Preferred Alternative will involve the Persimmon Grove Church Cemetery.

*Impacts to the cemetery will be minimized and, if necessary, grave relocation will comply with NCGS 65-13.*

## Recreation Facilities

- The Preferred Alternative will likely involve right-of-way acquisition at the planned Western Greensboro Community Center.

*The Community Center is in the planning stage, and only indoor activities are contemplated. The highway will be planned to minimize impacts on this Center.*

## Business Relocation

- The Preferred Alternative displaces a number of businesses with large employment.

*The North Carolina Department of Transportation will make every effort to locate suitable sites for relocation of businesses and industries involved.*

## Airport

- The Preferred Alternative will take some land belonging to the Piedmont Triad Airport Authority.

*The North Carolina Department of Transportation will work with the Airport Authority during project design to minimize impact on the airport's access and planned expansion to the east.*

The Preferred Alternative for the Western Urban Loop does not conform to the corridor that has been shown for many years on the Greensboro Urban Area Thoroughfare Plan. Development occurring over time in this part of Greensboro and other factors outlined in the environmental document have closed out the Thoroughfare Plan corridor to the extent that building the Greensboro Western Urban Loop in this location is not reasonable and feasible. Other concerns include the locally supported nomination of the Guilford College Historic District to the National Register in

1990, and existence of the Kimrey-Haworth House historic property, both of which are in the Eastern Alternative corridor. Additionally, a portion of the Western Alternative corridor would impact the Sedgefield Stables and Celia Phelps Church historic properties. Section 4(f) of the U.S. Department of Transportation Act prohibits the U.S. Secretary of Transportation and Federal Highway Administration from approving a project for federal funding which uses a historic property if there is a feasible and prudent alternative. The Preferred Alternative is a feasible and prudent alternative to the Eastern Alternative corridor north of I-40 and to the Western Alternative south and east of Groometown Road.

This Final Environmental Impact Statement is based upon the Preferred Alternative corridor. The exact location of the Greensboro Western Urban Loop within this corridor will be designed in a manner that will minimize negative impacts associated with the corridor. NCDOT will continue to coordinate with the City of Greensboro as the City plans for measures that will help meet future traffic needs in the vicinity of the Eastern Alternative Corridor. (The Greensboro Department of Transportation has advocated the need for improving or constructing two facilities in the City's western area - a high-type facility, and a lower-type "at-grade" facility. With selection of the Preferred Alternative Corridor for the Urban Loop freeway, it may be necessary for the City to consider an at-grade facility in the eastern corridor area.)

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 has been among the fastest growing counties in North Carolina. Historic population trends for Greensboro, 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 of the entire state between the years 1990 and 2000.

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)  
1990 - 2010

	<u>1990</u>	<u>2000</u>	<u>2010</u>	<u>Percent Increase 1990-2000</u>	<u>Percent Increase 2000-2010</u>
City of Greensboro	183.5	202.4	222.2	10.3%	9.8%
Guilford Co.	348.0	369.0	387.0	6.0%	4.9%
North Carolina	6,492.8	7,005.4	N/A	7.9%	N/A

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

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.

As the population level increases, 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). Approximately 22% of the population in the corridors is non-white (based on data from the 1991 Statistical Abstract of North Carolina and the relocation reports for the project.)

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, and 1985 (estimate)

	<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
1985	2,294,000	2.64	125,300	2.52	N/A	N/A

Source: North Carolina State Government Statistical Abstract, Fifth Edition, 1984.  
 Statistical Abstract of North Carolina Counties, Sixth Edition, 1991

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.

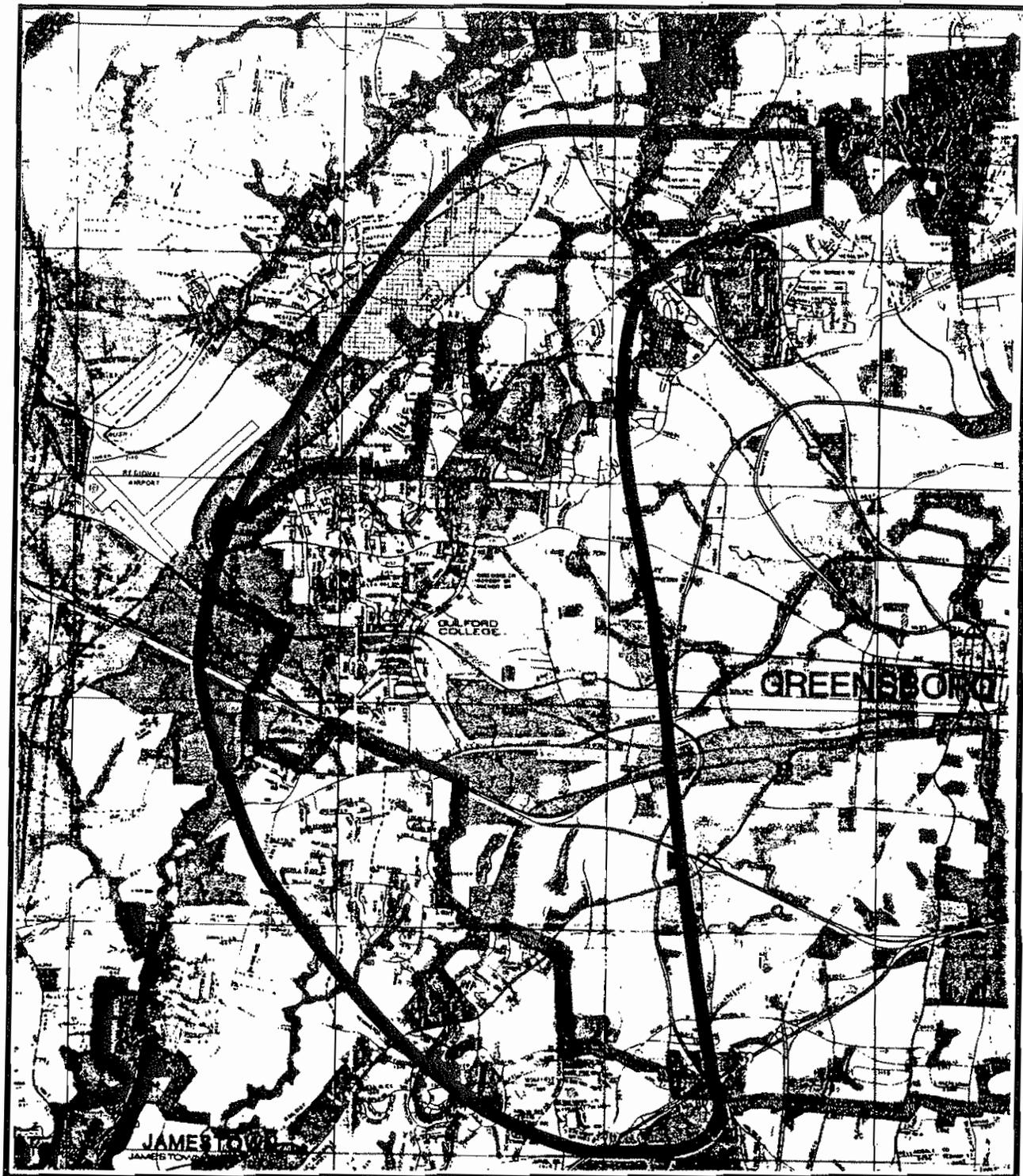
### Land Use Planning

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 Sedgfield, 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.

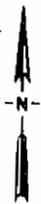
### 3. Transportation

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, I-85/I-40 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 US 29A), US 70 (and US 70A), US 220, and US 421. Each of these are major thoroughfares which run radially into



**LAND USE**

- AGRICULTURE & LOW DENSITY RESIDENTIAL
- RESIDENTIAL
- MIXED USE : COMMERCIAL, OFFICE, LIGHT INDUSTRIAL, MULTI-FAMILY RESIDENTIAL USES
- 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**

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)

Western Urban Loop (proposed)

Major Thoroughfares

Hilltop Road

Spring Garden Street

Groometown Road

Vandalia Road

Holden Road

Patterson Street

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 220)

Lawndale Drive

Guilford College Road

Ballinger Road

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 Regulations, Part 450, Subpart C. The Metropolitan Planning Organization (MPO) is a forum for transportation planning policy. Projects are submitted to the North Carolina Department of Transportation (NCDOT) as priorities set by the MPO, as required by Federal statutes. The Metropolitan Planning Organization is composed of two committees: (1) the Technical Coordinating Committee, composed of professional transportation staff from City and County Planning Departments, the Council of Governments, representatives of transportation providers such as the Greensboro Transit Authority, 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 jurisdictions included in the planning district and a member of the State Transportation Board.

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

Projects with North Carolina Department of Transportation Transportation Improvement Program (TIP) for 1995 to 2001 include the following major construction projects in the Greensboro area.

- 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
- U-2525 -- Greensboro East Loop, I-85 Bypass to Lawndale 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. Most of the study area is not served by public transportation.

The City of Greensboro has a functioning and extensive bicycle plan. Three signed bicycle routes are in the study area. The Oka T. Hester Park Route is crossed by the Eastern and Preferred Alternatives near Darden Road. The Battleground Loop is close to the Eastern Alternative near the interchange with West Friendly Avenue. The Battleground Loop and the Country Park Route are close to the common (northern) portion of the Eastern, Middle, Western, and Preferred 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 5-23. The current Airport Master Plan calls for airport-related development to the south and east of runway 5-23. An update to the master plan was begun in the fall of 1993 and will take approximately one year to complete.

#### 4. Parks, Recreational Facilities, and Greenways

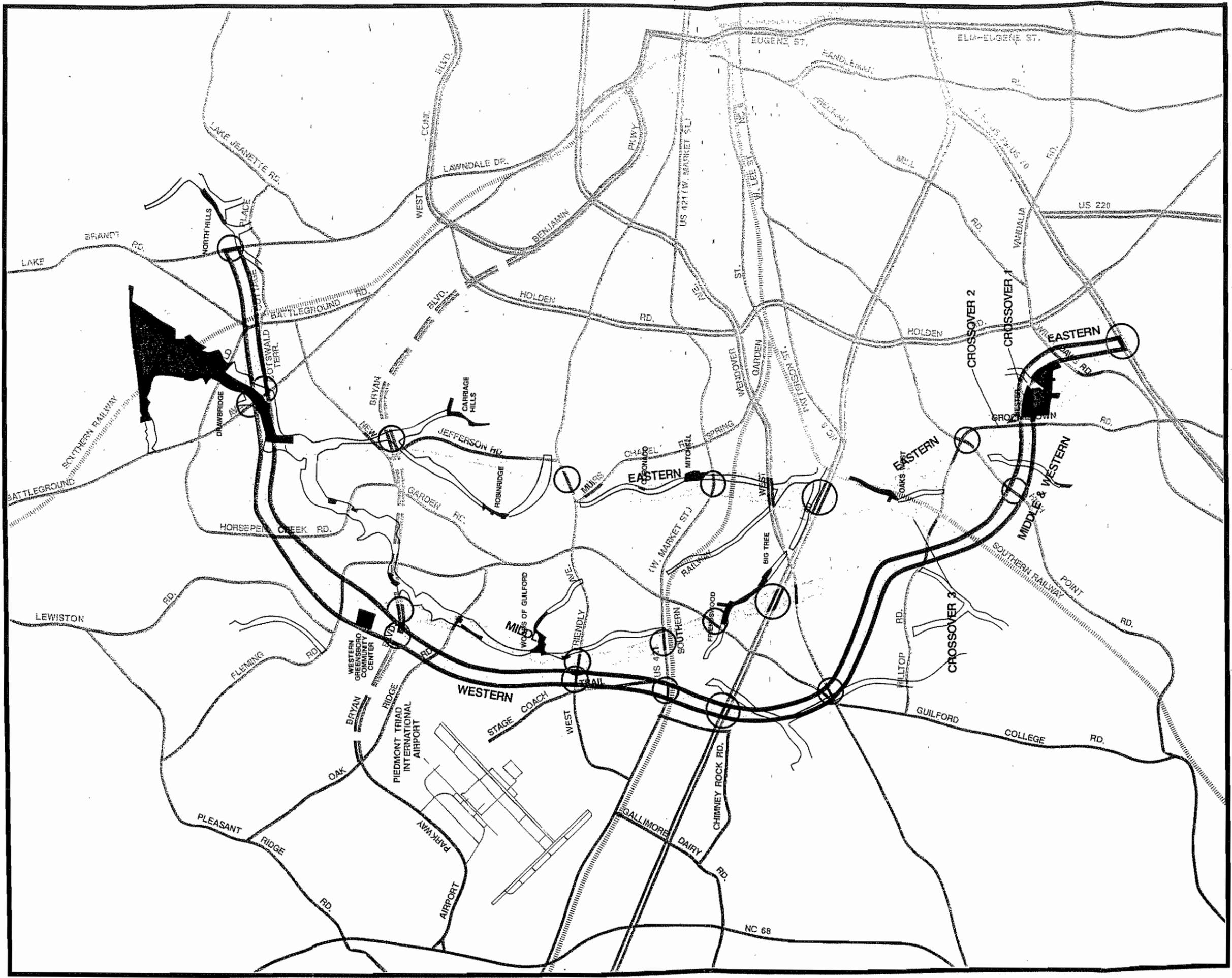
Table III-3A shows a matrix for potentially-affected, publicly-owned lands that are close to the detail study alternatives. The locations of the properties are shown on Figure III-2. The publicly-owned lands located within the study corridors include:

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

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

<u>Name</u>	<u>Ownership</u>	<u>Function<sup>1</sup></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 Western Preferred
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 Preferred
North Hills	City	O.S. and f.p.	2.2 ±	Yes	Yes	Plat	No	Eastern Middle Western Preferred
Friendswood	City	O.S. and f.p.	1.8	No	No	Plat	No	Middle
Woods of Guilford	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 Preferred

<sup>1</sup> O.S. = Open Space; f.p. = floodplain/drainage; P.G. = Proposed Greenway  
\* Uses reserved corridor adjacent to park.



LEGEND

- STUDY CORRIDOR
- INTERCHANGES
- PREFERRED ALTERNATIVE
- 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

Mitchell Park is located within the Eastern Alternative corridor, the portion of Woods of Guilford designated as a park is located within the Middle Alternative corridor, and the Western Greensboro Community Center is located partially within the Western and Preferred Alternative corridors. The following properties are designated open-spaces, floodplains, and thoroughfare by City Ordinance.

- Drawbridge/US 220
- North Hills
- Friendswood
- Old Oak Ridge Road (all three)
- Oaks West
- Woods of Guilford (portion not designated as park)
- 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 Preferred and Eastern Alternatives pass through the park but are located in right-of-way reserved for a future highway. Construction within this reserved right-of-way would require the removal of a dam.

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.

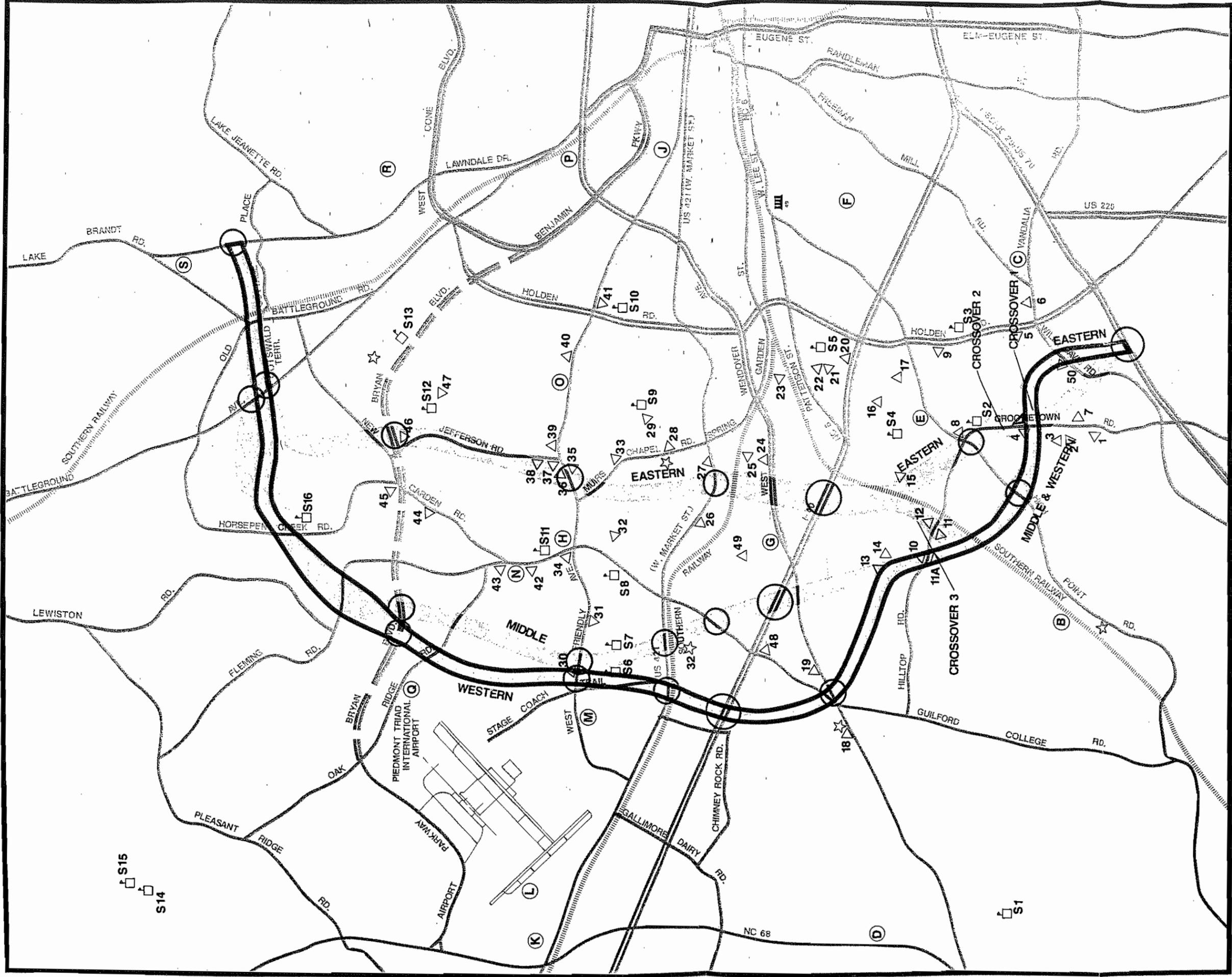
The City and County acquire floodplain and open space property that may be used as greenways through subdivision dedication. In a few instances, property has been dedicated by subdivision plat or deed specifically as a greenway. Two such properties in the study area, shown as dedicated open space in 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 similar 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 20 neighborhoods in the study area have active neighborhood organizations.

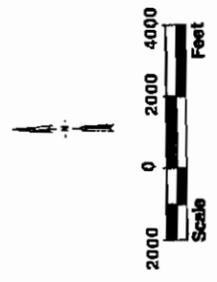
The study area also contains scattered clusters of multi-family units, both rental and owner-occupied. These are concentrated near I-40, between Guilford College Road and Muirs Chapel Road, along Old Oak Ridge Road and Battleground Avenue. Most of these developments are less than 10 years old. In unincorporated 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 Road
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



LEGEND

- STUDY CORRIDOR
- INTERCHANGES
- PREFERRED ALTERNATIVE
- SCHOOLS
- CHURCHES
- CEMETERIES
- FIRE STATIONS



GREENSBORO WESTERN URBAN LOOP

SCHOOLS, CHURCHES, CEMETERIES AND COMMUNITY FACILITIES

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

a. Schools

The three school districts in Guilford County are Greensboro, High Point and Guilford County.

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

<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

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	Pineroft Baptist
7	Celia Phelps United Methodist
8	Hinshaw Memorial United Methodist
9	Christ Wesleyan

<u>Map Designation</u>	<u>Churches</u>
10	Jim Greene Memorial
11	Piedmont Christian
11A	Korean United 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
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

\* Church and Cemetery at Different Locations

6. Cultural Resources

Cultural resources in the study area include historic architectural properties and archaeological sites.

a. Historic Structures

The City of Greensboro, east of the study area, was surveyed in 1976 and a publication was 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 with the N.C. State Historic Preservation Office, the Guilford Bicentennial Commission, and city and county planning departments. That project resulted in the publication of an inventory in 1979, which 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 of Historic Places. In addition to those three properties, 14 properties are considered eligible for the Register. Twenty-five other properties were recorded for this survey but do not 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 site of an eighteenth-century 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 State 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 (refer to SHPO letter dated September 28, 1993 in Appendix).

<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)
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**

An archaeological survey was undertaken to assess archaeological sites located within the three corridors, based on National Register criteria (*Technical Memorandum*, Coastal Carolina Research, Inc., March 1989). The survey

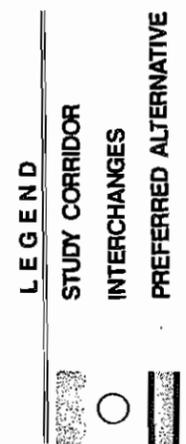
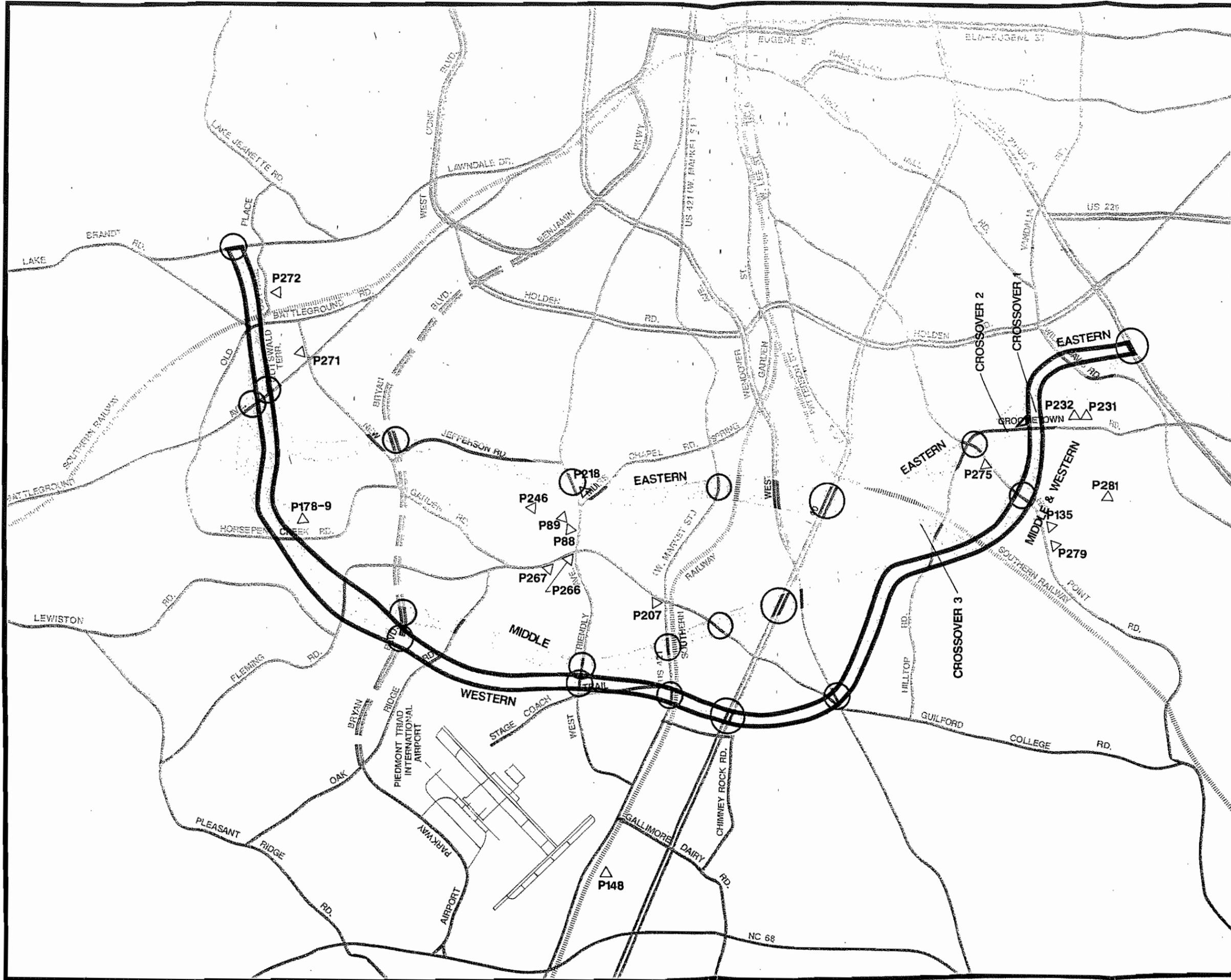


Figure III-4

**ELIGIBLE HISTORIC STRUCTURES**

**GREENSBORO WESTERN URBAN LOOP**



included the investigation of a 300-foot-wide corridor located within the 1,000-foot-wide eastern, middle, and western alternative corridors. The study was conducted October 9-13, December 11-15, and December 27-30, 1989.

This archaeological research 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 corridors surveyed were developed or otherwise disturbed, and 40 percent were located in woodlands or otherwise had no surface visibility. Only about 10 percent of the area provided sufficient visibility for surface inspection.

During the survey, 36 archaeological sites were discovered and one previously identified site was revisited; these included 19 prehistoric and 18 historic sites. Of these, 30 sites were determined not potentially significant. In consultation with the SHPO (refer to letter dated May 24, 1994 in Appendix), a decision was made to survey part of the preferred corridor and conduct additional review of site 31GF242. Based on this additional research, it was determined site 31GF242 does not extend into the Preferred Alternative.

## **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 electronic component manufacturers. While these new corporate offices will create new jobs, the declining markets for domestic textiles, apparel, and furniture are expected to hold the unemployment rate in the 7.0 percent range. (Source: Guilford County Comprehensive Plan.)

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 1988, the total personal income in Guilford County was \$6,102.3 million. This income was the third highest for any county in North Carolina. The per capita personal income has been the fourth highest in each year studied between 1980 and 1988 (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
1987	13,333	16,751
1988	14,297	18,117

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  
 Statistical Abstract of North Carolina Counties,  
 Office of State Budget and Management, May, 1991

### 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  
 1990

Unemployment Rate	Civilian Labor Race	Force	Employed	Percent Distribution				
				Civilian Labor Unemployed	Force	Employed	Unemployed	
	Total	164,199	156,335	7,864	100.0	100.0	100.0	4.8
	White	124,916	120,820	4,096	76.1	77.3	52.0	3.3
	Black	37,118	33,560	3,558	22.6	21.5	46.4	9.8
	Native American	492	439	53	0.3	0.3	0.4	6.3
	Other	573	521	52	0.3	0.3	1.1	15.6
	Hispanic <sup>1</sup>	1,100	995	105	0.7	0.6	1.2	9.1
	Total Minority <sup>2</sup>	39,283	35,515	3,768	23.9	22.7	49.1	9.8

<sup>1</sup> Persons of Hispanic origin may be of any race.

<sup>2</sup> 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 a 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:

- Develop a formal system of transportation planning, first at the city and county level and then at the regional level.
- Increase spending for road maintenance and major roadway improvements, consistent with planning.
- 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.

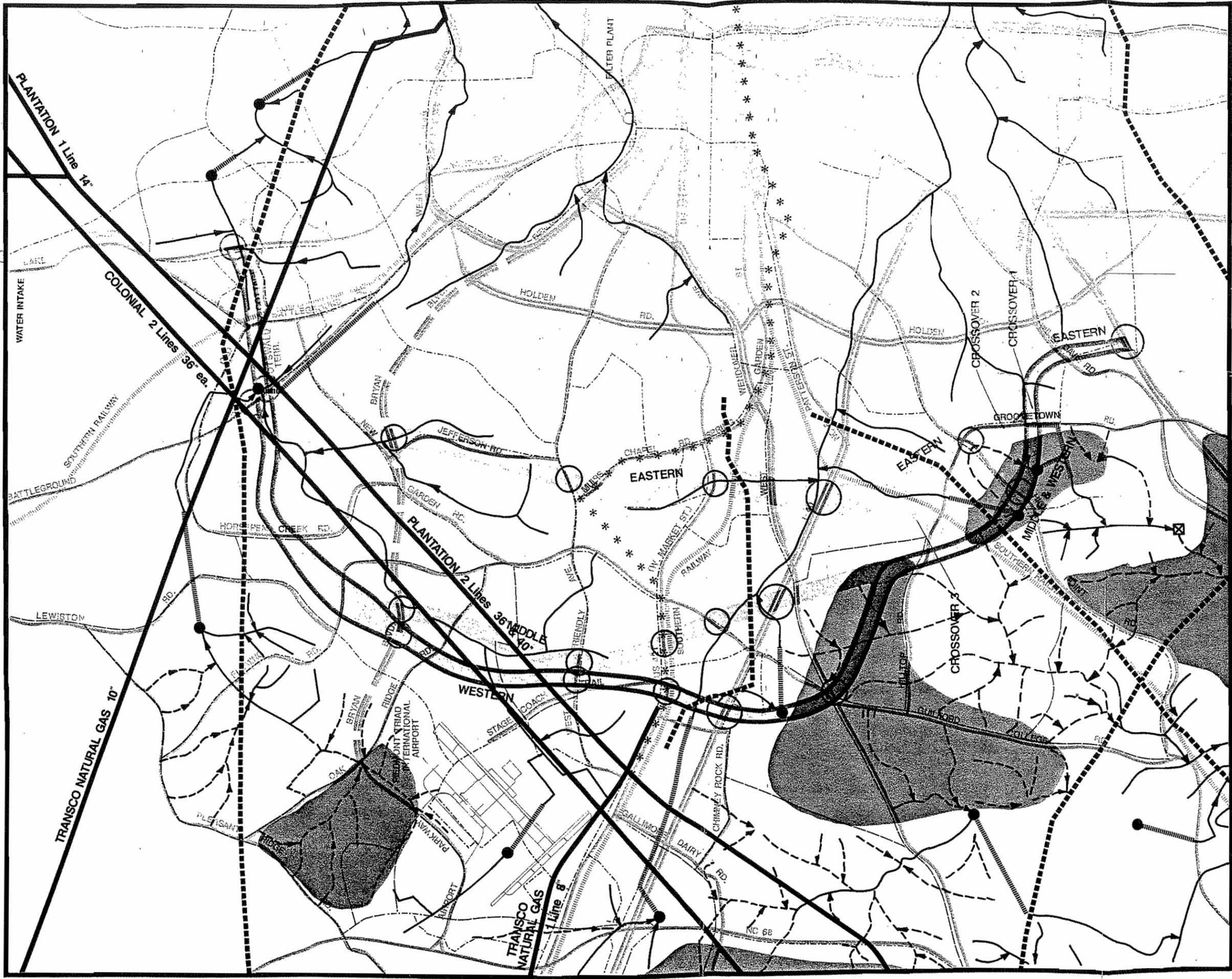
Greensboro Visions has not resulted in an adopted land use plan; however, it has proposed policies that the City and County can use to guide growth.

(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-5. 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.



**LEGEND**

- |  |                                   |  |                                   |
|--|-----------------------------------|--|-----------------------------------|
|  | <b>STUDY CORRIDOR</b>             |  | <b>SEWER SYSTEM</b>               |
|  | <b>INTERCHANGES</b>               |  | <b>Proposed</b>                   |
|  | <b>PREFERRED ALTERNATIVE</b>      |  | <b>WASTEWATER TREATMENT PLANT</b> |
|  | <b>SERVICE AVAILABLE/PROBABLE</b> |  | <b>MAJOR POWER LINES</b>          |
|  | <b>POSSIBLE FUTURE EXPANSION</b>  |  | <b>WATER LINES</b>                |
|  | <b>FORCE MAIN</b>                 |  | <b>LIFT STATION</b>               |
|  | <b>OUTFALL</b>                    |  | <b>TREATMENT PLANT BOUNDARY</b>   |
|  | <b>WATER INTAKE</b>               |  | <b>SERVICE AVAILABLE/PROBABLE</b> |



Source: Guilford County Comprehensive Plan

**GREENSBORO WESTERN URBAN LOOP**

**UTILITIES AND SERVICES**

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 and Underground Storage Tanks

Potential hazardous material sites include generators, treaters, and disposers of hazardous wastes; landfills; sewage treatment facilities; garbage dumps; and lagoons. Underground storage tanks (USTs) for fuel oil and gasoline products have the potential for petroleum leaks and spills. A survey of potential hazardous material sites and USTs was conducted within the Greensboro Western Urban Loop study area. Sites were 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 were 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) 1990 Annual Report
- EPA Wasteland (CERCLIS-ERRIS) Sites

Table III-6 is a detailed list of potential hazardous material sites and USTs 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  
POTENTIAL HAZARDOUS MATERIAL SITES

<u>Map Designation</u>	<u>Name</u>	<u>Address</u>
12001	Amoco Foam Products	Radar Road
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
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

TABLE III-6 - CONTINUED

<u>Map Designation</u>	<u>Name</u>	<u>Address</u>
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 Service	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
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

TABLE III-6 - CONTINUED

<u>Map Designation</u>	<u>Name</u>	<u>Address</u>
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	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

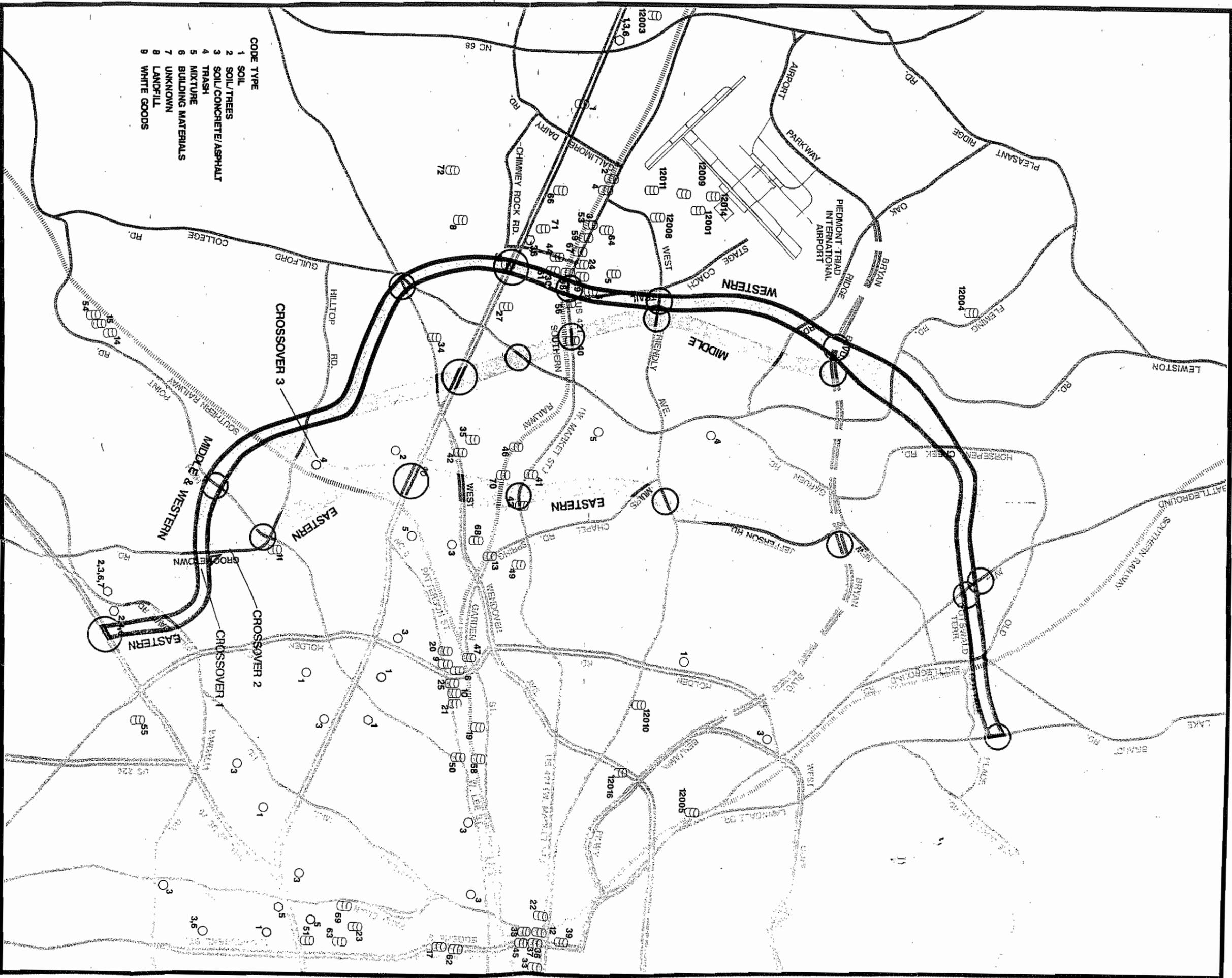
(Source: North Carolina Department of Human Resources, North Carolina Hazardous Waste 1987 Annual Report.)

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

Of 224 million pounds of hazardous wastes generated in North Carolina in 1990, 10.7 million pounds were generated in Guilford County. In 1990 there were 55 hazardous waste generators in Guilford County. 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 site.

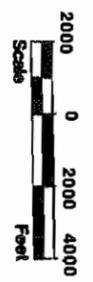
#### 7. Mines and Quarries

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



- CODE TYPE**
- 1 SOIL
  - 2 SOIL/TREES
  - 3 SOIL/CONCRETE/ASPHALT
  - 4 TRASH
  - 5 MIXTURE
  - 6 BUILDING MATERIALS
  - 7 UNKNOWN
  - 8 LANDFILL
  - 9 WHITE GOODS

- LEGEND**
- STUDY CORRIDOR
  - INTERCHANGES
  - PREFERRED ALTERNATIVE
  - POTENTIAL HAZARDOUS MATERIALS SITE
  - GUILFORD COUNTY LANDFILL SITES
  - CITYWIDE LANDFILL SITES



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**

is provided by this interchange. The Preferred Alternative corridor is located adjacent to the quarry, south of I-40 and Chimney Rock Road. The proposed highway will avoid the quarry operation and be located within the buffer zone between 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 one mile north of Friendly Avenue. Very little rock or rock blasting is expected on this portion.

Pennsylvanian to Permian age 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 one 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 usually rest on hard rock and are 5 to 15 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 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. A working granite quarry is located south of the existing Chimney Rock Road interchange at I-40. Five gold mines worked from the mid-1850's to the early 1920's are located within two 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, Division of Environmental Management.

TABLE III-7  
WATER RESOURCES AND CLASSIFICATION

Cape Fear River (WS-III)

Haw River (C NSW)

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

Deep River (WS-IV CA)

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

Fresh Water Classification

Class WS-III -	Waters protected as water supplies which are generally in low to moderately developed watersheds; point source discharges of treated wastewater are permitted pursuant to Rules .0104 and .0211 of this Subchapter; local programs to control nonpoint source and stormwater discharge of pollution are required; suitable for all Class C uses;
Class WS-IV -	Waters protected as water supplies which are generally in moderately to highly developed watersheds; point source discharges of treated wastewater are permitted pursuant to Rules .0104 and .0211 of this Subchapter; local programs to control nonpoint source and stormwater discharge of pollution are required; suitable for all Class C uses;
Class C -	Aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture.
NSW -	Nutrient-sensitive watershed
CA -	Critical area. The area adjacent to a water supply intake or reservoir where risk associated with pollution is greater than from the remaining portions of the watershed.

The 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, WS-III, WS-IV, or WS-V, depending on the amount of development and characteristics of discharges in the basin. Class WS-V refers to waters with no categorical restrictions on watershed development or discharges. Class WS-IV waters are generally in moderately to highly developed watershed. Permits for point source discharges and local programs to control nonpoint source and stormwater discharges are required in WS-IV waters. WS-III waters are located in low to moderately developed watersheds. WS-II waters are in predominantly undeveloped watersheds while WS-I waters are undeveloped and natural watersheds. These three classifications, like WS-IV, require permitting for point source discharges and local programs to control stormwater and nonpoint source discharges.

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.

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 NSW CA by the N.C. 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 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. Additionally, the N.C. Water Supply Watershed Protection Act regulations require NCDOT to incorporate best management practices (BMPs) into design and construction of highway projects within water supply watersheds. The most stringent application of BMPs is required in WS critical areas.

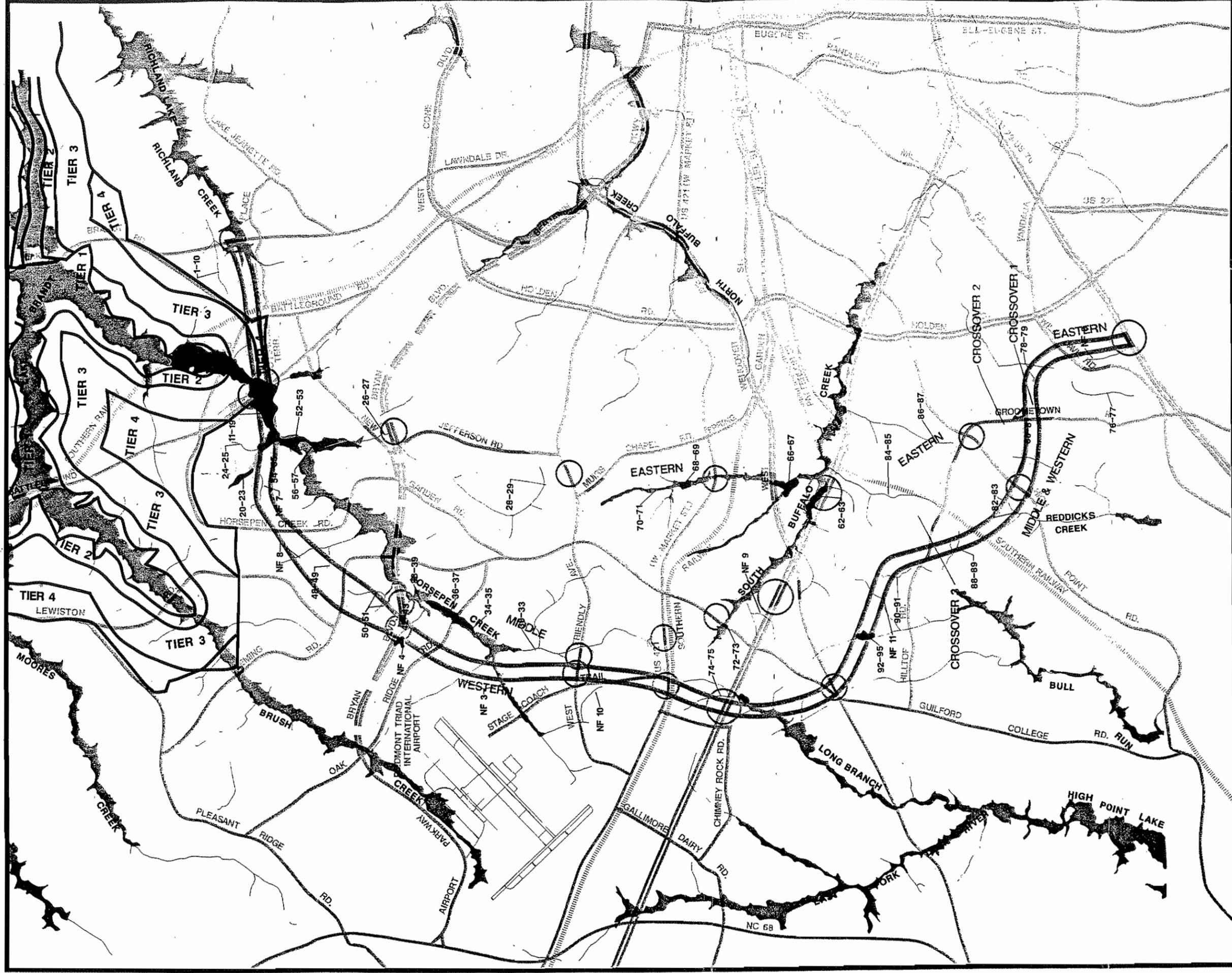
Guilford County is a participant in the National Flood Insurance Program. Boundaries of the 100-year floodplain are shown in Figure III-7, as determined from the Federal Emergency Management Agency Flood Insurance Rate Maps.

#### Surface Water Quality

A survey of surface water quality was conducted in the study area. 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 with some agricultural uses. Most streams in the area receive nonpoint 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 made 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



**LEGEND**

- STUDY CORRIDOR
- INTERCHANGES
- PREFERRED ALTERNATIVE
- SITE NOT FLAGGED
- NF
- STREAMS
- LAKES
- FLOODPLAINS
- WATERSHED CRITICAL AREAS
- WETLANDS BEYOND BANKS
- SITE NUMBERS (Include streams)



**GREENSBORO WESTERN URBAN LOOP**

**STREAMS, LAKES, FLOODPLAINS, WETLANDS AND WATERSHED CRITICAL AREAS**

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 15 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 DEM evaluates water quality using benthic invertebrate communities in streams. These communities indicate long-term trends rather than instantaneous water quality.

The most recent DEM data for Reedy Fork Creek and Horsepen Creek upstream of Lake Brandt showed good habitat 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 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. Measurements were taken of water temperature, pH, conductivity, and benthic invertebrates. Richland Creek, Horsepen Creek, and Bull Run showed good biological quality,

while South Buffalo Creek and Long Branch contained certain biological communities indicative of severely degraded conditions.

U.S. Geological Survey staff 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 the winters are 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 nine 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. Biotic Communities

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 are 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 Desmognathus 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 significance for sport fishing 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 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 North Carolina Wildlife Resources Commission (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.

U.S. Geological Survey (USGS) topographic maps, Soil Conservation Service (SCS) soil maps, aerial photos, and field surveys 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 Preferred Alternative prior to construction.

The wetlands shown on Figure III-7 are described in the Technical Memorandum by their dominant vegetation class: forested, sapling-shrub, or marsh. In terms of species diversity, wildlife habitat value, and ecological importance to Piedmont natural communities, mature forested wetlands are the most important. 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. Rare and Protected Species

a. Federal Species

Concern for the survival of species threatened with extinction led to the development of a number of classification systems including Federal and State documents reflecting the severity of the threat and the protection needed.

U.S. Fish and Wildlife Service has no record of Federally-listed or proposed endangered or threatened plant or animal species within Guilford County (listing revised July 1994.)

Nestronia

One plant species, Nestronia (Nestronia umbellula), was previously under Federal status review as a Category 2 candidate species (C2), but was recently classified to a status of 3C. A Category 3C candidate species is a species "that has proven to be more abundant or widespread than previously believed and/or those that are not subject to an identifiable threat." Nestronia 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 Preferred and Western Alternatives. The most recent natural areas inventory of Guilford County did not report any populations of this species.

Greensboro Burrowing Crayfish

One crustacean species occurring in Guilford County, Greensboro burrowing crayfish (Cambarus catagius), is under Federal status review as a Category 2 candidate species (C2). Category 2 candidate species are those "for which there is some evidence of vulnerability, but for which there are not enough data to support listing as endangered or threatened at this time."

As Federal candidate species neither *Nestronia* nor the Greensboro burrowing crayfish have legally protected status under the federal Endangered Species Act of 1973.

b. State Species

The status of state listed rare and protected species for Guilford County was obtained from official lists prepared by the N.C. Wildlife Resource Commission, the N.C. Plant Conservation Program, and the N.C. Natural Heritage Program. This information is presented in Table III-8. The identified species are the *Nestronia* and Greensboro burrowing crayfish, both discussed above. The state status for these two species is Significantly Rare. "Significantly Rare" denotes any species "which has not been determined as an Endangered, Threatened, or Special Concern species, but which exists in the state in small numbers and has been determined to need monitoring." Significantly Rare species are not legally protected status under the State's Endangered Species Act or Plant Protection Act.

TABLE III-8  
STATE-LISTED PLANT AND ANIMAL SPECIES  
POTENTIALLY OCCURRING IN THE PROJECT AREA

<u>Species Name</u>	<u>Status</u>
<b>Vascular Plants</b>	
<i>Nestronia</i> ( <u><i>Nestronia umbellula</i></u> )	Significantly Rare
<b>Invertebrate Animals</b>	
<u>Crustaceans</u>	
Greensboro burrowing crayfish ( <u><i>Cambarus catagius</i></u> )	Significantly Rare

9. Prime and Important Farmlands

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

a. **Prime and Unique Farmland**

Prime farmlands have soils that are best suited for producing food, feed, fiber, forage, and oilseed crops. The farmlands have soils with a good quality, favorable growing season, and receive the available moisture to produce high yields on an average of eight out of every 10 years. Unique farmlands have soils used for production of specific high value food and fiber crops. They have a special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming methods.

b. **Statewide and Local Important Farmland**

These soils have either seasonal wetness, erosion, or droughts that limit 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 and unique or statewide and local 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>
<b><u>Number of Farms</u></b>				
North Carolina	91,300	81,700	72,800	59,284
Guilford County	1,607	1,144	1,354	1,141
<b><u>Average Farm Size</u></b>				
North Carolina	123	135	142	159
Guilford County	102	98	100	111
<b><u>Land in Farms</u></b>				
North Carolina	11,244,000	10,999,000	10,321,000	9,447,705
Guilford County	164,200	142,000	136,000	126,369
<b><u>Harvested Cropland</u></b>				
North Carolina	4,075,000	4,467,000	4,659,000	3,779,164
Guilford County	42,800	43,000	43,500	40,827
<b><u>Woodland on Farms</u></b>				
North Carolina	4,037,000	3,869,000	3,327,000	2,753,255
Guilford County	51,800	45,000	41,000	32,500

**Farms by Size - 1987**

	<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 (O<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), 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 O<sub>3</sub> standard were recorded within Guilford County; as a result, the county was designated moderate non-attainment for this pollutant. There were no exceedances of the O<sub>3</sub> standard in 1991 and 1992. Guilford County is classified as attainment for CO, SO<sub>2</sub>, PM-10, NO<sub>2</sub>, and Pb.

The 1990 Clean Air Act places certain requirements on urban areas that are designated as non-attainment. In general, the requirements of the 1990 Clean Air Act mandate increased coordination in developing transportation plans, TIPs, and environmental documents. To comply with Conformity Guidelines, the proposed project cannot be significantly different in scope or design from the TIP or Thoroughfare Plan for which conformity has been demonstrated. The Preferred Alternative generally follows the Thoroughfare Plan alignment and therefore warrants a determination of conformity.

**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 <sup>a</sup>	Annual Geometric Mean 24 hr <sup>b</sup>	75 ug/m <sup>3</sup> 260 ug/m <sup>3</sup>	None 150 ug/m <sup>3</sup>	75 ug/m <sup>3</sup> 150 ug/m <sup>3</sup>
PM-10 <sup>a</sup>	Annual Arithmetic Mean 24 hr <sup>c</sup>	50 ug/m <sup>3</sup> 150 ug/m <sup>3</sup>	Same as primary Same as primary	50 ug/m <sup>3</sup> 150 ug/m <sup>3</sup>
SO <sub>2</sub>	Annual Arithmetic Mean 24 hr <sup>b</sup> 3 hour <sup>b</sup>	80 ug/m <sup>3</sup> 365 ug/m <sup>3</sup> None	None None 1,300 ug/m <sup>3</sup>	80 ug/m <sup>3</sup> 365 ug/m <sup>3</sup> 1,300 ug/m <sup>3</sup>
NO <sub>2</sub>	Annual Arithmetic Mean	100 ug/m <sup>3</sup>	Same as primary	100 ug/m <sup>3</sup>
CO	8 hour <sup>b</sup> 1 hour <sup>b</sup>	9 ppm 35 ppm	None None	9 ppm 35 ppm
O <sub>3</sub>	1 hour <sup>c</sup>	0.12 ppm	Same as primary	0.12 ppm
Pb	Quarterly Arithmetic Mean <sup>b</sup>	1.5 ug/m <sup>3</sup>	Same as primary	1.5 ug/m <sup>3</sup>

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.

mg/m<sup>3</sup> - Micrograms per cubic meter of air

mg/m<sup>3</sup> - 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, 1989, 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 Preferred Alternative and other reasonable and feasible alternatives selected for more detailed study. Direct and indirect (secondary) environmental consequences of these alternatives are presented along with measures proposed to minimize and mitigate adverse impacts. The impacts described in this chapter were 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 of Greensboro 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.

#### I. Land Use and Transportation Planning

According to the 1986 Guilford County Comprehensive Plan, 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. While its proposed alignment is very similar to the Eastern Corridor described in this document, the thoroughfare plan differs between I-85 and Vandalia Road. This proposed segment follows crossover C-1, the Western and Middle Alternatives from High Point Road to just past the Southern Railway tracks, and crossover C-3 back to the Eastern Corridor. 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 were reserved for highway use, although the reserved sections are generally too narrow to accommodate the planned facility.

This project was 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 has plans to expand into an area east of the airport.

The airport master plan update begun in fall 1993 will coordinate planned development with the Preferred Alternative, which passes through airport property. The Preferred Alternative was aligned within airport property, in consultation with the Airport Authority, to minimize impact on the airport.

There are three signed and several proposed bicycle routes along existing roads in the study area. The "build" alternatives, including the Preferred 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.

The Eastern Alternative crosses the signed Oka T. Hester Park Route near Darden Road and proposed bicycle routes along McCuiston Road, West Market Street, Tower Road, Muirs Chapel Road, Jefferson Road, New Garden Road, and Old Battleground Road.

The Middle and Western Alternatives cross proposed bicycle routes along Fleming Road, Horsepen Creek Road, and Old Battleground Road.

The Preferred Alternative crosses the signed Oka T. Hester Park Route near Darden Road and proposed bicycle routes along McCuiston Road, Fleming Road, Horsepen Creek Road, and Old Battleground Road. Grade separations will be provided at all crossings, except the Oka T. Hester Park Route and the proposed McCuiston Road route. However, these routes can be maintained with route modifications that use the Wiley Davis Road overpass. For the Oka T. Hester Park Route, bicycle traffic can use Glen Hollow Road to travel from Darden Road to Wiley Davis Road, turn right on Wiley Davis Road, travel over the Greensboro Western Urban Loop, turn right on McCuiston Road, and right again on Vandalia Road to access the park. For the McCuiston Road route, bicycle traffic can turn right on Osborne Road from McCuiston Road, turn left on Elmyra Drive, turn left on Wiley Davis Road, travel over the Greensboro Western Urban Loop, turn right on McCuiston Road, and right again on Vandalia Road to access the Park. The maintenance of existing and proposed bicycle routes by grade separation and route modification will be coordinated with the City of Greensboro Department of Transportation during project design.

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 704 residences and 36 businesses, the Middle Alternative would displace 965 residences and 9 businesses, the Western Alternative would displace 560 residences and 13 businesses and the Preferred Alternative would displace 336 residences and 16 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 Preferred and Western Alternatives would be similar to those of the Middle Corridor but with lesser impact on single-family neighborhoods, apartments, and condominiums. The Preferred and Western Alternatives 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, King's 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, Wellspring Retirement Center, 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, Treehouse Apartments, Laurel Townhomes, Woodland Village, Cardinal Retirement Home (under construction), Brandt Village, Battle Forest Village Townhouses, the Hedges Apartments, Regents, Four Farms, Wellspring Retirement Center, and other scattered residential development.

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

The Preferred Alternative would affect portions of Holden Village, King's Pond, Sedgefield, Sedgefield Lakes, Charlestowne Square, Drawbridge, Treehouse Apartments, Laurel Townhomes, Woodland Village, Cardinal Retirement Home, Brandt Village, Battle Forest Village townhomes, the Hedges Apartments,

Regents, Four Farms, Wellspring Retirement Center, and other scattered residential development.

All the build alternatives, including the Preferred Alternative, 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. Thirty-six businesses would be displaced by the Eastern Alternative, while the Middle Alternative would displace seven. The Western and Preferred Alternatives would displace 13 and 15 businesses, 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 build alternatives. It is anticipated that the Middle, Western, and Preferred Alternatives would take the Lutheran Church of the Resurrection, and the Eastern Alternative would impact St. Barnabas Episcopal Church. It is also anticipated that the selection of Crossover 1 would be close to the Lutheran Church of Our Father. The Persimmon Grove A.M.E. Church Cemetery is located in the Western and Preferred Alternative corridors. The cemetery property will be avoided, but one marked grave and possibly some unmarked graves would require relocation. State guidelines and regulations will be followed in relocating graves.

The study area contains nine public schools and Guilford College. The school system officials were given an opportunity to review the alternatives and expressed no objections to the project. The construction alternatives were developed to avoid any major disruptions to the school system. Although no school will be relocated, the Western and Preferred Alternatives pass 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.

The Western Greensboro Community Center is planned to accommodate primarily indoor uses, which would not be impacted by highway noise. A site plan has not yet been developed for the community center. Assuming the center is at least 400 feet from the projects centerline, the future (2015) noise level will be 64 dBA or less. The interior noise level will be 44 dBA or less. The project will not adversely impact access to the center and will improve access via Bryan Boulevard from the south and northeast.

The Western and Preferred Alternatives 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 Preferred, 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 Preferred, Western, and Eastern Alternatives 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 eight acres to about six 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.

While the other three parks are partly or wholly within the study corridors for the build alternatives, 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.

The Preferred Alternative and the other 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 1993 construction cost of the Preferred Alternative is estimated to be approximately \$143.5 million. These funds would be paid to contractors and suppliers engaged to build the project, with a portion 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.

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 build 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. In addition, a more detailed evaluation of displacements by the Preferred Alternative was completed in March 1994. This information is included in Appendix C and is summarized in Table IV-1.

It is the policy of the NCDOT to ensure that comparable replacement housing will be available prior to construction of state and federally-assisted projects. Furthermore, the North Carolina Board of Transportation has the following three programs to minimize the inconvenience of relocation:

- Relocation Assistance,
- Relocation Moving Payments, and
- Relocation Replacement Housing Payments 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 and 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 Replacement Housing Payments or Rent Supplement Program will compensate up to \$22,500 to owners who are eligible and qualify and up to \$5,250 to tenants who are eligible and qualify.

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

	Residences			Businesses			Other		
	Eastern	Middle	Western Preferred	Eastern	Middle	Western Preferred	Eastern	Middle	Western Preferred
I-85 to High Point Road	57(11)	63(12)	63(12)	17	2	2	0	0	0
I-85 to I-40			144(15)						0
High Point Road to Wendover Avenue	61(18)	15(2)	72(14)	4	0	0	0	1	1
Wendover Avenue to Friendly Avenue	191(40)	508(100)	58(20)	13	7	10	0	0	1
I-40 to Bryan Boulevard			43						1(1)
Friendly Avenue to Bryan Boulevard	83(15)	89(22)	77(15)	2	0	1	0	1	2
Bryan Boulevard to Old Battleground Ave.			27(4)						0
Bryan Boulevard to Battleground Avenue	32(6)	32(6)	32(6)	0	0	0	1	0	0
Old Battleground Ave. to Lawndale Drive			122(24)						0
Battleground Avenue to Lawndale Drive	258(60)	258(60)	258(60)	0	0	0	0	0	0
<b>Total</b>	<b>704(155)</b>	<b>965(202)</b>	<b>560(127)</b>	<b>36</b>	<b>9</b>	<b>13</b>	<b>1</b>	<b>2</b>	<b>4</b>
			<b>336(43)</b>			<b>16</b>			<b>1(1)</b>

Notes: Segment limits are approximate  
 Segments for Preferred Alternative do not match other alternatives  
 () = minority (included in total)

The relocation program for the proposed action will be conducted in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646), and the North Carolina Relocation Assistance Act (GS-133-5 through 133-18). The program is designed to provide assistance to displaced persons in relocating to a replacement site in which to live or do business. At least one relocation officer is assigned to each highway 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 NCDOT will schedule its work to allow ample time, prior to displacement, for negotiations and possession of replacement housing which meets decent, safe, and sanitary standards. The displacees are given at least a 90-day written notice after NCDOT purchases the property.

Relocation of displaced persons will be offered in areas not generally less desirable in regard to public utilities and commercial facilities. Rent and sale prices of replacement property will be within the financial means of the families and individuals displaced, and will be reasonably accessible to their places of employment. The relocation officer will also assist owners of displaced businesses, non-profit organizations, and farm operations in searching for and moving to replacement property.

All tenant and owner residential occupants who may be displaced will receive an explanation regarding all available options, such as (1) purchase of replacement housing, (2) rental of replacement housing, either private or public, or (3) moving existing owner-occupant housing to another site (if possible). The relocation officer will also 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.

The Moving Expense Payments Program is designed to compensate the displacee for the costs of moving personal property from homes, businesses, non-profit organizations, and farm operations acquired for a highway project. Under the Replacement Program for Owners, NCDOT will participate in reasonable incidental purchase payments for replacement dwellings such as attorney's fees, surveys,

appraisals, and other closing costs and, if applicable, make a payment for any increased interest expenses for replacement dwellings. Reimbursement to owner-occupants for replacement housing payments, increased interest payments, and incidental purchase expenses may not exceed \$22,500 (combined total), except under the Last Resort Housing provision.

A displaced tenant may be eligible to receive a payment, not to exceed \$5,250, to rent a replacement dwelling or to make a down payment, including incidental expenses, on the purchase of a replacement dwelling. The down payment is based upon what the state determines is required when the rent supplement exceeds \$5,250.

It is a policy of the state that no person will be displaced by the NCDOT's state or federally-assisted construction projects unless and until comparable replacement housing has been offered or provided for each displacee within a reasonable period of time prior to displacement. No relocation payment received will be considered as income for the purposes of the Internal Revenue Code of 1954 or 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.

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/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 program is not anticipated to be necessary for this project, since there appear to be adequate opportunities for relocation within the area. However, Last Report Housing will be implemented if necessary.

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.

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 would 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 located at the interchange at US 220.

The Western and the Preferred Alternative would affect six businesses between I-85 and I-40. They pass through a portion of the Landmark development but their impact is less than the Middle Alternative. The Western and Preferred Alternatives 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 and Preferred Alternatives would also affect the commercial development located at its crossing at US 220, and would impact an industrial development area on Piedmont-Triad International Airport property. The airport master plan update begun in Fall 1993 will coordinate future plans with the Preferred Alternative Corridor.

Some businesses may not choose to relocate in the area. For those businesses that do relocate, local commercial and industrial property managers anticipate no problems in relocating businesses.

5. Visual

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

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.

Preferred, Western, and Middle Alternatives - The impacts associated with these alternatives are similar to the Eastern Alternative. Their setting, however, is more industrial and commercial than the Eastern Alternative, particularly in the vicinity of the Piedmont Triad International Airport. Appropriate mitigation through proper design would result in minimizing adverse impacts on visual resources.

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

- curvilinear design to blend with landscape
- landscape planting and natural revegetation of the cut and fill slopes
- bridge rails and noise walls designed with consideration to enhance visual appearance.

6. Utilities and Service

Conflicts with utilities are considered to be high for this project.

**COMPARISON OF ALTERNATIVES**

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

Electric Transmission Lines

Figure III-5 shows the major power transmission lines located within the affected study area. The costs of crossing these lines were evaluated and the results 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 would not interfere with its operation. No disruption to service is anticipated.

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. A spur line near Chimney Rock Road will be relocated to avoid conflict with the I-40 interchange.

### Sewer and Water Service

The location of existing major sanitary sewer and water lines was considered 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**

### **I. 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<sub>x</sub>) are produced by the combustion of fuel in diesel and gasoline engines. Small amounts of Pb, SO<sub>x</sub>, 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<sub>x</sub> may lead to the formation of photochemical oxidants such as O<sub>3</sub>.

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, and the traffic volumes for Year 2010. The effect of the Preferred Alternative on air quality was estimated using MOBILE4.1, CALINE3, and traffic volumes for Year 2015. MOBILE3 and MOBILE4.1 consider 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

**MOBILE4.1 input parameters included:**

**Region:** Low Altitude (500 feet)  
**Inspection/Maintenance Program,** beginning 1993 covering light duty gasoline vehicles  
**Model years (vehicles):** 1997-2015  
**Ambient temperature:** 45°F (mean temperature of coldest month)  
**Vehicle speed:** Based on operating level of service  
**Vehicle mix: (MOBILE4.1 default)**  
54.7% autos (gasoline)  
21.2% light trucks (gasoline)  
8.1% medium trucks (gasoline)  
3.7% heavy trucks (gasoline)  
0.2% autos (diesel)  
0.4% medium trucks (diesel)  
11.2% heavy trucks (diesel)  
0.5% 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; for Preferred Alternative Year 2015**

This procedure was applied to year 2010 projected traffic volumes at interchanges with I-40 (Eastern, Middle, and Western alignments) and to year 2015 projected traffic at one interchange with I-40 (Preferred). 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 Greensboro 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, (Technical Memorandum on Air Analysis Kimley-Horn and Associates, Inc., May 1990) and Table IV-2A, Addendum to the Memorandum on Air Analysis (Kimley-Horn and Associates, Inc., December 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. 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 the jurisdiction of the Winston-Salem regional office of the North Carolina Department of Environment, Health, and Natural Resources. Effective November 8, 1993 Guilford County was redesignated from nonattainment for ozone to a maintenance area. The FY 1994 TIP was found to conform by the Metropolitan Planning Organization on September 13, 1993, and by the US DOT on December 15, 1993. The State Implementation Plan (SIP) does not contain any transportation control measures (TCM) for Guilford County. The Greensboro Urbanized Area Transportation Plan (TP) and the Transportation Improvement Program (TIP) were determined to be in conformity to the 1990 Clean Air Act Amendments and the Interim Conformity Guidance dated June 7, 1991 on November 15, 1991 and December 5, 1993, respectively. There have been no significant changes in the project's design concept and scope, since the conformity analysis. This evaluation completes the assessment requirements for air quality analysis of the 1990 Clean Air Act Amendments and the NEPA Process. No additional reports are required.

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 O<sub>3</sub> 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
	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

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

<u>Location</u>	<u>Receptor Number</u>	<u>Maximum 1 Hour CO Concentration (Parts Per Million)</u>
	M10	4.2
	M11	3.7
	M12	5.2
	M13	3.9
	M14	4.5
	M15	3.2
	M16	2.9
	M17	3.0
	M18	3.8
	M19	3.6
	M20	3.2
Western Urban Loop at I-40 (Western Alternative)	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
	W14	3.8
	W16	4.1
	W17	3.3
	W18	2.8
	W19	2.8

\* Maximum concentration

**TABLE IV-2A  
AIR QUALITY ANALYSIS  
CO CONCENTRATION  
YEAR 2015**

<u>Location</u>	<u>Receptor Number</u>	<u>Maximum 1 Hour CO Concentration (Parts Per Million)</u>
Western Urban Loop at I-40 (Preferred Alternative)	P1	4.1*
	P2	3.4
	P3	3.5
	P4	3.7
	P5	3.8
	P6	3.8
	P7	3.6
	P8	4.0
	P9	3.8
	P10	3.7
	P11	3.7
	P12	2.9
	P13	2.9
	P14	2.9
	P15	3.6
	P16	3.6

\* 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 Eastern Middle, and Western Alternative based on projected traffic volume. Additionally, a traffic noise impact evaluation was made for the Preferred Alternative using 2015 peak-hour traffic projections.

For the 2010 peak-hour conditions, hourly volumes used in the analysis ranged from 1,516 to 4,367 vehicles on four-lane sections and from 4,994 to 6,250 vehicles on six-lane sections. The 2015 peak-hour volumes ranged from 4,050 to 5,320 vehicles on six-lane sections and from 5,100 to 9,280 on eight-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)

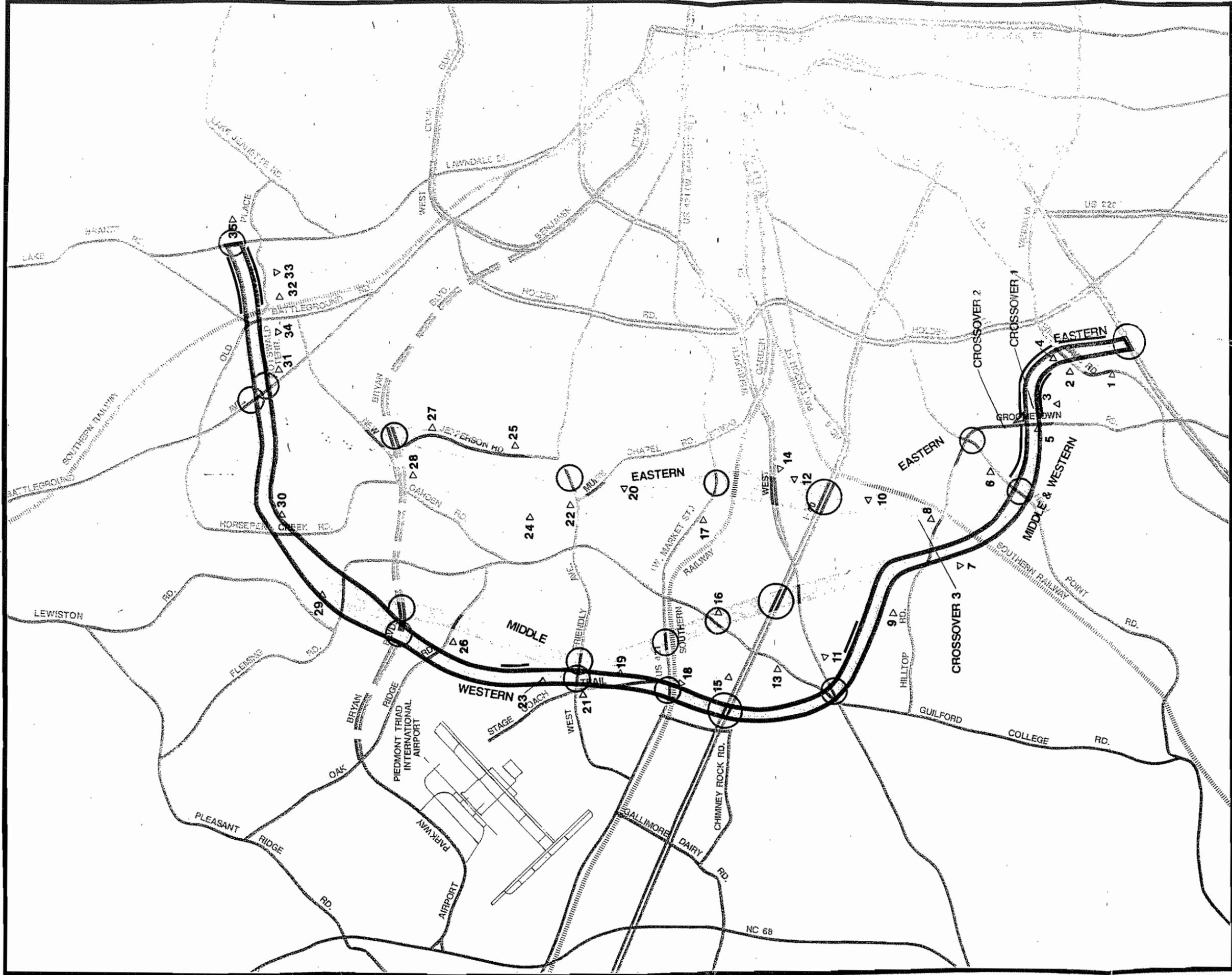
<u>Category</u>	<u>Leq(h)</u>	<u>Description of Activity Category</u>
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
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).

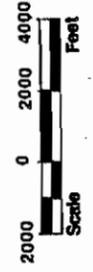
TABLE IV-5  
SUMMARY OF AMBIENT NOISE LEVELS  
GREENSBORO WESTERN URBAN LOOP

<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
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



LEGEND

- STUDY CORRIDOR
- INTERCHANGES
- PREFERRED ALTERNATIVE
- △ AMBIENT NOISE MEASUREMENT LOCATION
- COST-FEASIBLE NOISE BARRIER LOCATION FOR PREFERRED ALTERNATIVE



GREENSBORO WESTERN URBAN LOOP

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>
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
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

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

<u>Number</u>	<u>Location</u>	<u>Existing Leq dBA</u>
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  $\pm 2$  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:

- projected 2015 ADT volumes for Preferred Alternative
- projected 2010 ADT volumes for Eastern, Middle, and Western Alternatives
- 6% heavy trucks, 4% medium trucks (% of total ADT) - south of I-40
- 9% heavy trucks, 6% medium trucks (% of total ADT) - north of I-40
- Peak hour (60/40 directional split) = 10% of auto ADT
- Peak hour (50/50 directional split) = 4.2% of truck ADT
- all traffic in outer lane for each direction
- high traffic volume on receptor side
- level, straight section on freeway
- soft surface attenuation

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.

For the 2010 noise analysis of the Eastern, Middle, and Western Alternatives, future noise was projected for 749 receptor locations, including residences, businesses, churches, schools, and Oka 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 (available for review at NCDOT). Table IV-6 also indicates the results of the 2015 noise analysis for the Preferred Alternative. Receptors 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 if the ambient noise level was less than or equal to 50 dB(A). If the existing noise level was greater than 50 dB(A), a substantial impact was a 10 dB(A) increase.

**TABLE IV-6  
SUMMARY OF NOISE IMPACT  
YEAR 2010**

	Alternative			
	Eastern	Middle	Western	Preferred
<b>Locations Approaching or Exceeding Noise Abatement Criteria<sup>(1)</sup></b>				
Residence	156	107	124	145
Business	2	0	0	0
<b>Locations With Substantial Impact<sup>(2)</sup></b>				
Residence	240	135	155	188
Business	16	1	1	1

Locations Exceeding Either Criteria<sup>(3)</sup>

Residence	251	153	170	198
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; if ambient < or = 50 dB(A); 10dB(A) increase if ambient > 50dB(A).
- (3) Number of locations for (1) and (2) added together does not equal (3) due to double counting.

For the 2015 noise analysis of the Preferred Alternative, future noise was projected for 543 receptor locations. Ambient and projected noise levels of these receptors are summarized in Table IV-6A and shown in detail in the Addendum to the Memorandum on Noise Analysis (available for review at NCDOT).

**TABLE IV-6A  
SUMMARY OF NOISE IMPACT  
YEAR 2015**

	<u>Preferred Alternative</u>
<b>Locations Approaching or Exceeding Noise Abatement Criteria<sup>(1)</sup></b>	
Residence	349
Business	2
<b>Locations With Substantial Impact<sup>(2)</sup></b>	
Residence	481
Business	5
<b>Locations Exceeding Either Criteria<sup>(3)</sup></b>	
Residence	513
Business	6

- (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 when existing noise level is ≤50 dB(A), 10 dB(A) increase or more when existing noise level is >50 dB(A); 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.

In 2010, the Middle Alternative would have the least noise impact, while the Eastern Alternative 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 would be caused by this project.

### Barrier Analysis

Noise barrier walls were considered for 45 different locations along the Eastern, Middle, and Western Alternatives. 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 receptors with the greatest impact. 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 benefit by the barrier. Barriers were considered to be cost-feasible if the cost per benefitted receptor (4dBA or greater reduction) was \$25,000 or less.

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 were 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 that provide significant noise reduction have a 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 Western Alternative barriers would cost \$1,245,000 and would abate noise at 62 receptor locations. The three Middle Alternative barriers would cost \$806,000 and would abate noise at 40

receptor locations. The eight Eastern Alternative barriers would cost \$2,309,000 and would abate noise at 150 receptor locations.

While Guilford Primary School would experience a noise increase due to its proximity to the Middle Alternative (500 feet from the right-of-way), the noise abatement criteria would not be exceeded. Therefore, abatement was not considered.

**For the Preferred Alternative, 17 barrier locations were examined. Of the possible 17 barrier locations evaluated, eight were determined to be feasible. Based on preliminary analysis, Barriers 1,2,3,4,5,11,15, and 16 were estimated to provide substantial noise reduction for less than \$25,000 per dwelling unit. The estimated cost for these eight barriers is \$3,218,200. Details of the barrier analysis are included in the Addendum to the Memorandum on Noise Analysis.**

These preliminary indications of likely barrier abatement measures are based on preliminary studies and cost data. 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 during final design 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:

- Identify land-use of activities which may be affected by noise from construction;
- Determine appropriate minimizing measures to eliminate adverse construction impacts to the community; and
- 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) will be impacted by construction noise. 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 Resources

A quantitative comparison of acreage impacts for lakes, ponds, and streams is shown in Table IV-7.

TABLE IV-7

SUMMARY OF WATER RESOURCES INVOLVEMENT

Acres Affected by Alternative

Sites	Wetland	Type	East	Middle	Western	Preferred
1-10	Richland Creek	B	1.5	1.7	1.7	1.3
11-19	Horsepen Creek	B				0.6
24-25	Horsepen Creek, UT	B		0.1	0.1	0.6
NF 7	Horsepen Creek, UT	B		0.1	0.1	0.4
NF 8	Horsepen Creek, UT	B		0.1	0.1	0.2
26, 27	Horsepen Creek, UT	B	2.7			
28, 29	Horsepen Creek, UT	B	0.1			
30-33	Horsepen Creek, UT	B		2.3		
NF 3	Horsepen Creek	B			0.5	0.2
38-39	Horsepen Creek	B		2.8		
42-43	Horsepen Creek, UT	B		0.1		
NF 4	Horsepen Creek, UT	B			0.3	0.7
50, 51	Horsepen Creek, UT	L				2.7
50, 51	Horsepen Creek, UT	B		0.3	0.3	
56, 57	Horsepen Creek, UT	B	0.9			
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	0.9
74, 75	Long Branch	L				0.5
NF 10	Horsepen Creek, UT	B			0.4	0.9
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			0.7
78, 79	S. Buffalo Creek, UT	B	0.1			0.1
80, 81	Riddicks Creek	B		0.1	0.1	0.5
82, 83	Riddicks Creek, UT	B		0.1	0.1	0.2
84, 85	S. Buffalo Creek, UT	B	0.4			
86, 87	S. Buffalo Creek, UT	B	0.1			
88, 89	Bull Run, UT	B		0.1	0.1	
90, 91	Bull Run, UT	B		0.7	0.6	0.7
90, 91	Bull Run, UT	L				1.0

TABLE IV-7

**SUMMARY OF WATER RESOURCES INVOLVEMENT  
(Continued)**

<u>Sites</u>	<u>Wetland</u>	<u>Type</u>	<u>Acres Affected by Alternative</u>			
			<u>East</u>	<u>Middle</u>	<u>Western</u>	<u>Preferred</u>
NF 11	Bull Run, UT	B		0.1		0.6
92, 93	Bull Run, UT	B		0.1		0.4
Subtotal	B		10.9	9.9	7.6	8.3
	L		3.4	--	--	4.9
Total			14.3	9.9	7.6	13.2

Water Resources Codes

UT = Unnamed tributary

B = Bank to bank waters of the U.S., with canopy of upland vegetation

L = Lakes and ponds

Design measures to protect water quality incorporated into the freeway construction alternatives include minimizing unavoidable impacts to public water supplies (Watershed Critical Area) and high quality aquatic habitats, minimizing the number of stream crossings, minimizing segments where roads closely parallel streams, and maximizing the distance from roads to streams to allow for stormwater infiltration and deposition of pollutants associated with road runoff. 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

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.

**The NCDOT "Best Management Practices for Protection of Surface Waters" will be implemented as practicable to control highway runoff.**

This project is 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 freeway construction alternatives, including the Preferred Alternative, pass through 0.9 miles 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, Western, and Preferred 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 and Preferred Alternatives route, but the affected area is more than three miles upstream from the lake. Vegetated buffers, stormwater catchment basins, and other Best Management Practices 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:

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

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-7B, IV-10), but the Middle, Western, and Preferred 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 reduce

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 for containing the spill. A local contractor removes spilled material. Spill outside the city limits are 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

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.

Direct impacts to surface waters will result from the filling of floodplains 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-7A summarizes the results of the hydrological analysis of the major stream crossings for the studied alternatives. The 100-year floodplain shown in Figure III-7 is based on the Flood Insurance Rate Maps.

TABLE IV-7A  
STREAM AND FLOODPLAIN CROSSINGS

<u>Alternative</u>	<u>Pipe/Culvert Length</u>	<u>Type</u>	<u>Stream</u>	<u>Acres of Floodplain Crossing</u>
Eastern	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
Western	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

**TABLE IV-7A  
STREAM AND FLOODPLAIN CROSSINGS  
(Continued)**

<u>Alternative</u>	<u>Pipe/Culvert Length</u>	<u>Type</u>	<u>Stream</u>	<u>Acres of Floodplain Crossing</u>
Preferred	320'	P	S. Buffalo Cr. Trib.	
	400'	P	Reddicks Creek Trib.	
	280'	C	Reddicks Creek Trib.	
	250'	P	Bull Run Trib.	
	250'	C	Bull Run Trib.	
	350'	C	Long Branch	8.7
	350'	C	Horsepen Creek	5.6
	280'	C	Horsepen Creek	
	400'	C	Horsepen Creek Trib.	
	470'	C	Horsepen Creek Trib.	
	340'	C	Horsepen Creek Trib.	
	250'	P	Horsepen Creek Trib.	
	200'	C	Horsepen Creek Trib.	
	250'	C	Horsepen Creek Trib.	
	250'	C	Horsepen Creek Trib.	
	275'	C	Horsepen Creek Trib.	
	300'	C	Horsepen Creek Trib.	
	400'	Bridge	Horsepen Creek Trib.	26.9
	300'	P	Richland Creek Trib.	
	220'	P	Richland Creek Trib.	
	1400'	P	Richland Creek Trib.	3.2
	230'	P	Richland Creek Trib.	
	184'	C	Richland Creek Trib.	
	370'	C	Richland Creek Trib.	
	200'	C	Richland Creek Trib.	
	164'	P	Richland Creek Trib.	
				44.4
			Total East	81.3
			Total Middle	55.0
			Total Western	54.7
			<b>Total Preferred</b>	<b>44.4</b>

C = Culvert    P = Pipe

**Note:** Total floodplain impacts by Preferred Alternative are based on more detailed analysis and preliminary design. Acres 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 the alternatives cross regulated floodways:

Horsepen Creek (all alternatives)

Horsepen Creek Tributary (Eastern and Middle Alternatives)

South Buffalo Creek and Tributary (Eastern and Middle Alternatives)

Long Branch (Preferred and Western Alternatives)

The floodway crossings were evaluated in the preliminary hydraulic analysis. The alternatives were evaluated to determine potential longitudinal encroachment into floodways. Table IV-7B indicates lengths of longitudinal encroachment into floodways and length of stream relocations.

**TABLE IV-7B  
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 Tributary	600' 2000' near New Garden Rd. 400'	600'
	South Buffalo Creek Tributary	2300' near Wendover Ave.	300'
	South Buffalo Creek	1600' north of I-40	1200'
Middle	Horsepen Creek	600' east of US 220 1700' west of US 220 400' 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'
Preferred	None		850'

Because the Preferred Alternative is located in a largely developed area and because of the north-south orientation of several large streams, the floodplain impacts (44.4 acres) include several longitudinal encroachments. However, longitudinal impacts to the floodway are avoided. In addition, 850 feet of stream relocations will be required. Detailed flood studies

will be completed during design. The Preferred Alternative will be designed such that the floodways will carry the 100-year flood without increasing the flood water elevation more than one foot at any given point. The dimension of the drainage structures and the roadway grades will be adjusted and designed to avoid increasing the flood hazard in the project area. The project 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.

#### Only Practicable Alternative Finding

The Preferred Alternative's impact to floodplain (44.4 acres) and stream relocations (850 feet) have been minimized to the extent practicable during planning and preliminary design. An alignment shift that would reduce floodplain involvement in the Horsepen Creek area just west of US 220 was investigated. By shifting the Eastern Alternative 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. Shifting the Preferred, Western, and Middle Alternatives in this area would also reduce floodplain involvement. However, the reduction in floodplain impacts is smaller in each case than for the Eastern Alternative while the additional relocations and right-of-way cost would be the same.

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 to the extent possible, 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.

Methods to minimize harm and preserve the floodplains will 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 23 CFR Part 650, Sub-Part A.

5. Natural Systems/Protected 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 and Preferred Alternatives 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 habitat 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>Preferred</u>
Field	69.5	91.6	127.3	133.8
Forest	260.4	305.8	244.0	247.6
Urban	104.0	112.0	159.3	159.4

The impacted forest areas are comprised of approximately 45% mixed pine/hardwood, 33% hardwoods, and 22% pine forest. The Middle Alternative affects the most forest and the Western and Preferred Alternatives affect the least. The Western and Preferred Alternatives affect the most fields and the Eastern Alternative affects the least (agricultural vs. fallow were not separable on aerial photography). The Western and Preferred Alternatives affect the most

acreage of land classified as urban, 159.3 acres and 159.4 acres, and the Eastern Alternative affects the least, 104.0 acres. (Urban land includes developed residential, commercial, and industrial lands.) Species affected 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. U.S. Department of the Interior, Fish and Wildlife Services records indicate there are no federally-listed or proposed endangered or threatened plant or animal species in Guilford County (list updated July 1994). Additionally, no state-listed or proposed protected species are found in Guilford County.

6. Farmland

The study area contains both prime and unique 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 Statewide and Local Important Farmland</u>	<u>Acres of Prime/Unique Farmland</u>
Eastern	0	50
Middle	0	130
Western	40	90
<b>Preferred</b>	<b>40</b>	<b>90</b>

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-7, 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**

Sites	Wetland	Type	Acres Affected by Alternative			
			East	Middle	Western	Preferred
11-19	Horsepen Creek	F	30.3	12.6	12.6	15.2
11-19	Horsepen Creek	M,S				1.4
11-12	Horsepen Creek	F		0.2	0.2	
18-19	Horsepen Creek	F	6.9			
20-23	Horsepen Creek, UT	M,S		0.9	0.9	
20-23	Horsepen Creek, UT	F		0.1	0.1	
36-37	Horsepen Creek	M,S		7.3		
NF 4	Horsepen Creek, UT	M		0.1		
48-49	Horsepen Creek, UT	M,S		0.7	0.2	
50, 51	Horsepen Creek, UT	F		0.2		
52, 53	Horsepen Creek, UT	F	0.9			
54, 55	Horsepen Creek, UT	M	0.2			
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			
74, 75	Long Branch	M,S				1.5
74, 75	Long Branch	F			0.1	0.3
86, 87	S. Buffalo Creek, UT	S	0.1			
88, 89	Bull Run, UT	F				1.5
94, 95	Bull Run, UT	F			0.1	0.1
Subtotal	F		39.9	12.9	13.1	17.3
	M, S		<u>3.0</u>	<u>8.9</u>	<u>1.7</u>	<u>3.1</u>
Total			42.9	21.8	14.8	20.4

Wetland Vegetation Codes

F = Mature hardwood wetland forest, highest quality

UT = Unnamed tributary

S = Sapling and shrub-dominated wetland

M = Marsh, dominated by herbaceous plants

As detailed in Chapter II, the Middle Alternative was eliminated early in the study. It would have impacted 21.8 acres of wetlands. The Western Alternative would have far less impact on wetlands (14.8 acres) compared to the Eastern Alternative (42.9 acres). The Preferred Alternative follows the Western alignment except from I-85 to just west of Groometown Road, where it follows the Eastern alignment to avoid two National Register-eligible historic sites. Based on more detailed wetland analysis and preliminary design, the Preferred Alternative impacts 20.4 acres of wetlands. Major wetland impacts to mature hardwood wetland forest areas occur at Horsepen Creek west of US 220 (all alternatives), Horsepen Creek north of New Garden Road (Eastern Alternative), and South Buffalo Creek north of I-40 (Eastern Alternative).

#### Only Practicable Alternative Finding

In accordance with Executive Order 11990, impacts to wetlands will be avoided and minimized to the fullest extent practicable. Unavoidable wetland losses will be mitigated.

The Preferred Alternative was determined the most reasonable and practicable alternative for the proposed action. The wetland impact in the floodplain of Horsepen Creek is the most important, made up of mature hardwood wetland forest. While the Preferred Alternative between Horsepen Creek Road and Battleground Road impacts four more acres of wetlands than the Western Alternative, it reduces residential replacements by 117 dwellings and saves \$4.6 million in right-of-way costs.

Approximately 80% of wetland impacts occur at this location. To minimize wetland impacts in this area, several alternative interchange designs were evaluated. These designs include a half-clover leaf, with two ramps and two loops on the west side of Battleground Avenue; a standard diamond interchange, with ramps on both sides of Battleground Avenue; a compressed diamond interchange, with ramps located close to the roadway; and an urban interchange, with the ramps meeting at a single point. Studies were conducted to determine the wetland impacts of the interchange designs. Table IV-10A compares the impact of the alternative interchange configurations. The urban interchange was selected as the preferred interchange type.

TABLE IV-10A  
 COMPARISON OF ALTERNATIVE INTERCHANGES  
 AT HORSEPEN CREEK/BATTLEGROUND AVENUE

<u>Interchange Type</u>	<u>Wetland Impact (acres)</u>	
Half Cloverleaf	19.8 (F)	3.0 (M)
Diamond	16.3 (F)	1.3 (M)
Compressed Diamond	16.5 (F)	1.9 (M)
Urban Interchange	15.2 (F)	1.4 (M)

F = Mature hardwood wetland forest, highest quality  
 M = Marsh, dominated by herbaceous plants

The above quantities do not consider the portions of wetland habitat that would be fragmented by the first two interchange types.

Mitigation of unavoidable impacts will be implemented as a means for compensating for wetland losses. Impacts on streams and wetlands throughout the project area will be 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 (Preferred Alternative).

Potential mitigation options include exchanging or improving the habitat values of adjacent altered wetland 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 one which would add to existing important wetlands.

Based on the above discussion, no practicable alternative exists to the proposed construction in wetlands. The proposed action includes all practicable measures to mitigate potential wetland impacts.

8. Potential Hazardous Material Sites

State regulatory agencies were consulted and lists were reviewed of known potential hazardous material sites scheduled for cleanup by EPA and the regulatory agencies. 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 were reviewed 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.

Sites known or suggested as potential hazardous materials sites are shown on Figure III-6 and in Table III-6. Descriptions of the sites potentially affected by the build alternatives, including the Preferred Alternative, follow:

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. Waste materials that cannot be reused have always been disposed 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 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 are sent to M&J Solvents in Atlanta, Georgia or Oldover Corporation in Aquadale, North Carolina. There is no evidence of underground storage tanks or contamination at this site. On November 2, 1992, the facility reported the accidental release of 250 gallons of toluene. One hundred seventy gallons were recovered and disposed of as hazardous waste, and the remainder of the spill was naturally remediated. No follow-up action was taken or required.

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. No contamination is known to exist. This facility would be taken by the Western Alternative, but the Preferred Alternative was refined during preliminary design to avoid this site.

AT&T -- Site No. 11

This facility is located at 4000 Frazier Road. No contamination is known to exist.

Guilford Mills -- Site No. 40

This facility is located at 6001 West Market Street. No contamination is known to exist.

Guilford Mills -- Site No. 41

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 Preferred and Western Alternatives are 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 seven sites, the Eastern Alternative with four, and the Middle Alternative with one. In addition, the C-3 crossover crosses a trash landfill site. The Preferred Alternative avoids any known hazardous materials sites.

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 (Burnt Poplar Road)	Western
Conoco, Inc.	Western
Southern Facilities	Western
Texaco USA	Western
Sherwin Williams	Western
Ciba-Geigy	Western

Preliminary investigations have determined that the Preferred Alternative does not impact any known contaminated areas.

9. Secondary Impacts

Secondary impacts are defined as indirect impacts which occur not as a direct result of the project, but which occur peripheral to the project. The Preferred Alternative passes through a relatively developed residential and commercial urban area.

The land use plans adopted by the City of Greensboro and Guilford County recognize the Western Urban Loop as an appropriate facility to serve the transportation and development needs of the area. Most of the land in the area around the Preferred Alternative is identified as industrial, residential, or commercial. Therefore, construction of the Preferred Alternative will not induce development activity which is inconsistent with existing or planned land uses.

11. 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 Preferred and Western Alternatives pass 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 Preferred and Western Alternatives as it will be located in the buffer area between the quarry and adjacent development.

## C. CULTURAL RESOURCES

Section 4(f) of the U.S. Department of Transportation Act of 1966 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 architectural properties and archaeological sites listed in or eligible for listing in the National Register of Historic Places are considered during Federal project planning and execution.

### 1. Parks and Recreation

The Preferred and Eastern Alternatives 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 Preferred and Eastern Alternatives stay within this reserved right-of-way and thus do not constitute Section 4(f) involvement. The land for the proposed Western Greensboro Community Center is near the Preferred and Western Alternatives, but the Preferred Alternative will not impact this facility. The Community Center is planned for primarily indoor uses, which will not be impacted by highway noise. The future (2015) highway noise is estimated to be 64 dBA or less. The project will not adversely impact access to the center; instead, it will provide improved access via Bryan Boulevard from the south and northeast. The Eastern Alternative is 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 parks will continue to operate with their current uses. Therefore, there will be no Section 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 eligible for the National Register of Historic Places and three listed on the Register occur within the areas of potential effect for the build alternatives. 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 Preferred, 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 Hodgin 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, Western, and Preferred 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, Western, and Preferred Alternatives.

The other properties are affected by one or more alternatives as described below:

Guilford College (P246). Adverse effect and Section 4(f) involvement due to use of property by Eastern Alternative. No effect for Middle, Western, and Preferred Alternatives due to the distance of one mile between Guilford College and the alternatives and to minimal noise impact.

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, Western, and Preferred Alternatives.

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 Preferred and Eastern Alternatives would have no effect, based on a distance of 2,000 feet and intervening development and vegetative screening.

Pilot Life/Sedgefield Historic District (P135). The Preferred, Western, and Middle Alternatives would have no effect on the property. While the highway would be close to the Pilot Life headquarters building, it would not affect the view from the building, which is primarily 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.

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 Preferred Alternative would have no effect due to a distance of almost 2,000 feet and intervening built environment.

As shown in Table IV-12, the Preferred Alternative has no effect on any National Register listed or eligible property. SHPO concurs with this determination of effect (see correspondence dated September 28, 1993 and May 24, 1994 in Appendix B.

**TABLE IV-12  
POTENTIAL EFFECTS OF THE ALTERNATIVES  
ON LISTED OR ELIGIBLE PROPERTIES**

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

N = No Effect

NA = Effect, not Adverse

A = Adverse Effect

Note: No crossovers affect historic properties

3. Archaeological Sites

Thirty-seven archaeological sites were recorded within the three main corridors and one alternative segment of a corridor during the initial survey. In February 1991, the SHPO requested additional information on seven of the sites to determine their eligibility for listing in the National Register. These seven sites are 31GF242, 31GF221\*\*, 31GF223\*\*, 31GF224\*\*, 31GF230\*\*, 31GF249\*\*, and 31GF198\*\*. Only those potentially eligible sites located within the construction limits of and impacted by the Preferred Alternative will require additional archaeological investigation.

Of the seven sites requiring additional information, two are located within the corridor of the Eastern Alternative: 31GF223\*\* and 31GF198\*\*. The Middle Alternative affects site 31GF249\*\*. The Western Alternative affects sites 31GF221\*\*, 31GF230\*\*, and 31GF242\*\*. Because of the proximity of the Preferred Alternative to site 31GF242, additional field work was conducted. The site was determined not to extend into the Preferred Alternative. Based on the preliminary design of the Preferred Alternative archaeological sites 31GF221\*\*, 31GF230\*\*, and 31GF242 will not be impacted although located within the corridor for the alternatives. The SHPO concurs that no potentially eligible sites will be impacted by the Preferred Alternatives as currently proposed. Correspondence from the SHPO is included in Appendix B.

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, preservation in place is not anticipated.

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:

- 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.
- 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.)
- 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 as detailed in the **NCDOT Standard Specifications for Roads and Structures**. Such measures include:

- 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 or construction debris 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 acquisition of right-of-way and other structures, and the relocation 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 substantial.

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, will 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 Preferred Alternative 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 irretrievable commitment of approximately 405 acres of wildlife habitat will be made, including 247.6 acres of forest.

The proposed project will remove approximately 130 acres of prime, unique, and statewide and local important 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 irretrievable. 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 THE FREEWAY CONSTRUCTION ALTERNATIVES**

	Alternative			
	Eastern	Middle	Western	Preferred
Length (miles)	11.9	13.6	14.5	14.9
<b>Displacements</b>				
Residences (minority)	704 (155)	965 (202)	560 (127)	336 (43)
Businesses	36	9	13	16
Other	1	2	4	1
<b>Acreage Required</b>				
Field	69.5	91.6	127.3	133.8
Forest	260.4	305.8	244.0	247.6
Urban	104.0	112.0	159.3	159.4
Total (includes open water)	433.9	509.4	530.6	540.8
Acres of Prime Farmland	50	130	90	90
Acres of Wetland Habitat	42.9	21.8	14.8	20.4
<b>Impacts of Water Resources</b>				
In Water	3.4	0	0	4.9
Bank-to-Bank	10.9	9.9	7.6	8.3
Stream Relocation length (Feet)	3,700	1,600	1,600	850
Acres of Floodplain	81.3	55.0	54.7	44.4
Stream Crossings	21	28	24	24
Receptors Exceeding Noise Abatement Criteria Or with Substantial Increase	267	154	171	199
Historic Architectural Properties Affected	2	2	2	0
4(f) Involvement- Historic Sites	2	1	1	0
Archaeological Sites Requiring Additional Testing	2	1	3	0
Potential Hazardous Material In or Near Corridors	4	1	6	0

**TABLE IV-14**  
**ENGINEERING COMPARISON OF THE FREEWAY CONSTRUCTION ALTERNATIVES**

	Alternative			
	Eastern	Middle	Western	Preferred
Length (miles)	11.4	13.6	14.5	14.9
Interchanges (No.)	7	8	8	8
Other Structures				
Railroad	2	2	2	2
Drainage	6	3	7	7
Grade Separation	11	10	10	10
2010 Traffic (High/Low)	73,000/17,800	69,000/16,100	64,900/17,900	64,900/17,900
Level-of-Service	C/D	C	C	C
Construction Cost (millions, 1990)	\$100.4	\$108.3	\$100.8	\$143.5*
Right-of-Way Cost (millions, 1990)	\$ 95.1	\$ 83.0	\$ 77.9	\$87.5*
Total Cost (millions, 1990)	\$195.5	\$191.3	\$178.7	\$231.2*

\*The cost estimates for the Preferred Alternative are based on 1993 unit prices and revised quantities.

**CHAPTER V**  
**LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS**  
**TO WHOM COPIES OF THE STATEMENTS ARE SENT**

Federal Agencies

Environmental Protection Agency  
Department of Transportation  
Department of the Interior  
Department of Commerce  
Department of Agriculture  
Department of Energy  
Federal Railroad Administration  
Federal Emergency Management Agency  
Interstate Commerce Commission  
Federal Aviation Administration  
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 Environment, Health, and Natural Resources  
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  
Guilford County Planning Department  
Greensboro Department of Transportation

Local Agencies

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

CHAPTER VI  
COMMENTS TO DEIS AND RESPONSES

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.

The following agencies were contacted during the scoping process or during the course of the study. Specific agencies and organizations responding to the EIS are indicated with (\*).

- \* 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
  - General Services Administration
  - Federal Emergency Management Administration
  - U.S. Department of Health and Human Services
- \* Federal Aviation Administration
  - Advisory Council on Historic Preservation
  
- North Carolina Department of Human Resources
- North Carolina State Clearinghouse
- \* North Carolina Department of Cultural Resources
- \* North Carolina Department of Public Instruction
- \* North Carolina Department of Environment, Health and Natural Resources
- North Carolina Department of Transportation
- \* North Carolina Department of Crime Control and Public Safety
- North Carolina State Conservationist
- \* North Carolina Wildlife Resources Commission
- North Carolina Geological Survey
- Department of Commerce - Ecology and Conservation
  
- Piedmont-Triad Council of Governments
- Mayor of Greensboro
- Chairman, Guilford County Commissioners
- Greensboro-Guilford County Schools
- Greensboro City Schools
- \* 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 received from agencies commenting on the Draft Environmental Impact Statement are summarized below with appropriate responses. The letters are reproduced in full in Appendix B. Each response follows the comment and is printed in italics.

United States Environmental Protection Agency

Date of Letter: August 29, 1991

General Comments:

Every effort should be made to minimize the loss of forested areas, especially those with mature hardwood trees. Offsetting losses by planting hardwood trees in the right-of-way or other areas to the extent possible should be considered. The Final EIS should include a breakdown of forest type and acreage.

*Response: Clearing of trees within the right-of-way will be limited to the extent required for highway construction, including provision of clear areas for safety. During design, consideration will be given to planting trees as landscaping within the right-of-way, particularly at interchanges. No reforestation is planned as mitigation. Tables have been modified to show acreage by type of forest. The Preferred Alternative is the least damaging to this resource.*

The western alternative appears to be the least damaging to this resource and would also require the least stream channel relocation.

*Response: The Western Alternative from just west of Groometown Road to Lawndale Drive was selected as the Preferred Alternative.*

Because of their importance, forested wetlands, especially mature stands, should be avoided to the maximum extent possible. All wetlands should be crossed at their narrowest point.

*Response: Wetlands are avoided to the maximum extent possible and crossed at their narrowest point, other than where constraints such as existing development and design criteria do not allow such minimization.*

The Final EIS should contain detailed information as available on impact reduction including specific mitigation sites and extent of mitigation activities. Specifics of mitigation for stream channel relocation should also be included.

**Response:** *Additional information on wetland mitigation (including stream channel relocation) is provided in Section IV.B.7.*

If noise barriers do not prove to be cost effective, consideration should be given to sound proofing residences and/or installing air conditioners to help mitigate highway related noise impacts.

**Response:** *NCDOT's policies on noise abatement do not include provision for air conditioning or soundproofing. Other measures, such as berms, land use control, and alignment shifts within the corridors, will be considered in the design noise study.*

We note that the MOBILE3.0 source emissions model was used in the air quality analysis instead of a more recent version. MOBILE4.0 should be used in preparing the Final EIS or the most recent version, MOBILE4.1, if available.

**Response:** *The air quality analysis for the Preferred Alternative was performed using MOBILE4.1.*

Based on the information provided in the document, we believe the western alignment poses the least threat to the natural environment in the project area.

**Response:** *The Western Alternative from just west of Groometown Road to Lawndale Drive was identified as the Preferred Alternative.*

### Specific Comments

#### Section III.C Natural Environment - Ambient Air Quality

1. The last paragraph in this section needs to be clarified. The 1990 Clean Air Act Amendments (CAAA) were signed into public law by the President on November 15, 1990. The CAAA detailed planning requirements for areas in nonattainment of the national Ambient Air Quality

Standards (NAAQS) for the six various pollutants. Guidance for various parts of the CAAA have been issued by EPA.

**Response:** *This paragraph was revised to be consistent with the 1990 CAAA and states the project is in conformity with the approved State Implementation Plan (SIP).*

2. The proposed classification of Guilford County's nonattainment status should be stated as well as their attainment deadline.

3. A paragraph should be devoted to the carbon monoxide (CO) nonattainment status of the Greensboro/Winston-Salem/High Point area. Their proposed classification as well as their attainment deadline should be stated. Projects which are located in CO nonattainment areas must also be accompanied by an analysis showing they eliminate or reduce the number and severity of CO NAAQS violations in the area substantially affected by the project.

**Response:** *These items are included in the air quality discussion (see IV.B.2). Because this project is included in the Greensboro Urban Area Thoroughfare Plan and in the Transportation Improvement Program, it was determined to be in conformance with the State Implementation Program (SIP).*

4. A statement on conformity should be included. Any federally funded transportation project must conform with and give priority to the implementation measures contained in the SIP/TIP. According to the EPA/DOT Interim Conformity Guidance issued on June 1991, if a federally funded transportation project is located in a nonattainment area, it has to comply with the conformity requirements. Paragraph 3 on page IV-15 appears to state otherwise.

**Response:** *See response to 3. above.*

#### Section IV-B Physical Impacts - Air Quality

5. A more recent version of the EPA mobile source emissions model should have been used instead of MOBILE3.0. MOBILE4.0, released to the public in March 1989, or MOBILE4.1, if available, should be used in preparing the FEIS.

**Response:** *See response to general comment on air quality (p.IV-3).*

6. (Page IV-14) The stated input for "model years" in the MOBILE model is incorrect. There first model year refers to the oldest model year vehicle which is always included in the inspection program. The last model year refers to the youngest (newest) model year vehicle which is always subject to the inspection program.

**Response:** *The input was correct, based on NCDEM guidance that assumes a thirteen-year vehicle life. Since the design year is 2015, no vehicles older than 2002 are assumed to be in operation,*

7. The second paragraph on page IV-15 states that a copy of the output for a receptor is included in the appendix. Our copy of the document does not contain an appendix with air quality information. Please send us a copy of the appendix and a copy of the Technical Memorandum on Air Analysis.

**Response:** *The air quality information was not included in the appendix. A copy of the Technical Memorandum on Air Analysis was provided to EPA. An addendum to that document, based on evaluation of the Preferred Alternative with Mobile4.1 and 2015 traffic, is provided to EPA with the FEIS.*

#### Section IV.E. Construction Impacts

8. The measures described in (a) should state if on-site burning of waste construction materials and containers will conform with state air pollution control regulations.

**Response:** *Paragraph (b) states that all burning will be done in accordance with state air quality regulations.*

9. In paragraph (g), the types of measures which may be used to mitigate fugitive dust impacts during construction should be included. In addition, what standards will be used to determine when the control of dust is necessary for the protection, safety, and comfort of motorists and nearby residents?

**Response:** *Periodic watering in accordance with NCDOT Standard Specification for Roads and Structures will be used to control dust during construction, as determined by the Resident Engineer.*

United States Department of Transportation, Office of the Secretary

Date of Letter: September 16, 1991

Comment: We have no comments.

Response: *No response required.*

Department of the Army, Wilmington District, Corps of Engineers

Date of Letter: July 11, 1991

The hydrologic and hydraulic analysis should assure that there will be no significant increase in flood stages and that floodway surcharge will be within the 1.0 foot allowable.

Response: *The highway will be designed such that the floodways will carry the 100-year flood without increasing the flood water elevation more than one foot at any given time. The project will comply with FEMA, state, and local floodway regulations.*

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 or fill material in waters of the United States or any adjacent and/or isolated wetlands in conjunction with this project, including disposal of construction debris. Under our mitigation policy, impacts to wetlands should first be avoided or minimized. We will then consider compensation or mitigation for unavoidable impacts.

Response: *Unavoidable wetland impacts and proposed mitigation measures will be coordinated with Corps of Engineers during application.*

Federal Aviation Administration

Date of Letter: July 2, 1991

Our review of the "Draft Environmental Impact Statement for Greensboro Western Urban Loop" indicates that the most westerly route under consideration will infringe upon property owned by the Piedmont Triad International Airport.

Airport property is obligated by the Federal government to be used for airport development. Any use of this property for other than an aeronautical activity will require the consent of the Federal government; therefore, if the most westerly route is chosen as the build alternative, the

Piedmont Triad Airport Authority will have to have the consent of this office to release the property necessary for the right-of-way for the road.

We appreciate the opportunity to comment and request notification if the western route is chosen for the build alternative.

*Response: Evaluation of the alternatives included coordination with Mr. Edward A. Johnson of the Piedmont Triad Airport Authority. While some airport property will be required with the Preferred Alternative, an alignment was developed that is acceptable to the Airport Authority. Coordination with the FAA and the Piedmont Triad Airport Authority will continue during the project design phase.*

United States Department of the Interior

Date of Letter: September 11, 1991

Section 4(F) Statement Comments

Cultural Resources

The statement indicates that there is a feasible and prudent alternative to avoid Section 4(f) involvements with Guilford College and the Sedgfield Stables. In this regard, we note that these Section 4(f) involvements, as well as impacts on other historic properties in the study area, can be avoided by starting at the northern end of the project and combining portions of the Eastern Alternative, the Western Alternative, the Middle Alternative and Crossover Number 1.

*Response: The Preferred Alternative does not use on any Section 4(f) property.*

It is particularly disturbing that the avoidance alternative for Guilford College also requires land from the college which constitutes a Section 4(f) involvement.

*Response: See response to Comment 1.*

In addition to the two above-mentioned Section 4(f) involvements with historic properties, it also appears that Section 4(f) would be applicable to the adverse impacts of noise and visual intrusion from the Middle and Western Alternative on the Celia Phelps Church.

*Response: See response to Comment 1.*

Avoidance Alternative Number 2 interchange near the Kimrey-Haworth House will accelerate development and result in an adverse impact and Section (f) involvement with the Kimrey-Haworth House.

**Response:** *The Preferred Alternative has no effect on the Kimrey-Haworth House and does not use Section 4(f) property.*

A number of archaeological sites will be impacted and Section 4(f) may be applicable to these sites.

**Response:** *The Preferred Alternative does not impact any potentially eligible archaeological sites.*

#### Park and Recreational Resources

The statement indicates that a portion of Oka T. Hester Park will be required by a portion of the Eastern Alternative and there is a reserved right-of-way for the highway through the park. The statement needs to provide the stipulations of the reserved right-of-way. We are concerned that impacts to the lake may significantly affect recreation in the park. Should significant direct or indirect impacts occur outside of the reserved right-of-way, Section 4(f) would be applicable.

**Response:** *The City of Greensboro reserved the highway right-of-way with the intention of jointly developing the Oka T. Hester Park and the highway project. Therefore, the requirements of Section 4(f) including constructive use do not apply to subsequent highway construction on the reserved right-of-way.*

All alternatives cross publicly owned open space and it is stated that Section 4(f) does not apply to these areas since they are for multi-use purposes (page IV-6). It is our understanding that these areas are managed by the Greensboro Parks and Recreation Department and are intended for recreation and conservation purposes. It is not clear why Section 4(f) would not be applicable to convert these publicly own lands to highway use. We recommend that the Federal Highway Administration reevaluate the application of Section 4(f) to these lands....

It is our understanding that the recreational area known as Oaks West, while an "open space area," is actually used for recreation and contains recreation equipment. Construction of alternatives will require this equipment to be moved and the land taken for highway use. We believe Section 4(f) is applicable to this area.

**Response:** *FHWA has determined that the open space areas crossed by the alternatives, including Oaks West, Drawbridge, Friendswood, Coronado, Lawndale/Richlands, and Woods of Guilford (with the exception of one parcel designated as park land) are not subject to Section 4(f) because they are designated for multiple use. The Preferred Alternative would take open space land only from Drawbridge (See Figure III-2).*

While the statement indicates that land will not be required from the Western Greensboro Community Center, the statement needs to evaluate projected noise levels and impacts on access to the proposed center for Section 4(f) purposes.

**Response:** *No site plan has been developed for the proposed Western Greensboro Community Center. The site is planned to accommodate primarily indoor uses, which would not be affected by highway noise. The future (2015) noise level at the center will be 64 dBA or less, while the future interior noise level will be 44 dBA or less. The site could be accessed via Clarkson Road or Spring Oak Drive; the project would not adversely impact access to the center and would improve access by providing access to Bryan Boulevard from the south and the northeast. The FHWA has determined that there is no constructive use of this property.*

The statement indicates on page IV that Mitchell Park could potentially be impacted and Figure III-2 shows the park is located within one of the alternative corridors. It would appear that Section 4(f) may be applicable to this park.

**Response:** *The Preferred Alternative is located over two miles from Mitchell Park.*

## Environmental Statement Comments

Guilford Courthouse National Military Park is located in close proximity to this project. The National Park Service (NPS) has expressed concern in past coordination with both the city of Greensboro and the North Carolina Department of Transportation for the impacts on the park of through traffic on both Old Battleground Road and New Garden Road which are located in the park. Heavy traffic on these roads would adversely impact both the park's resources and visitor's experience. Comprehensive transportation planning for the area needs to recognize this serious problem and take action to resolve the heavy use of these roads within the park. The environmental impact statement (EIS) needs to evaluate these impacts as related to the proposed Western Urban Loop and steps which are planned to resolve this problem.

**Response:** *Guilford Courthouse National Military Park is located approximately 1,200 feet south of the corridor common to all alternatives between Battleground Road (US 220) and Lawndale Drive. (The following responses address the general concerns first stated above.)*

Representations of average daily volumes on Old Battleground Road and New Garden Road appear to be understated. Figure 1-3 shows 1989 traffic totals on Old Battleground Road just north of the park boundary as 2,600 vehicles a day. The National Park Service figures derived from traffic counters indicate that Old Battleground Road actually carries almost 9,000 vehicles a day. The disparity of these numbers calls into question the EIS projections of future traffic volumes on this highway.... Data suggests that this busy thoroughfare already carries 90 percent of the daily traffic volume projected for the year 2010. In either case, the level of service (LOS) for Old Battleground Road is rated "E", (direct quote from agency, normally not correct placement of comma) reflecting an unacceptable traffic volume as defined by the Transportation Resources Board. Clearly, it is essential to examine alternative routes to relieve this congestion and restore park values. It would appear appropriate to examine this problem in conjunction with this project in this EIS.

**Response:** *The traffic estimate on Old Battleground was for the segment of Old Battleground north of Lake Brandt Road; the volume south of Lake Brandt is 6,500 vehicles per day (VPD), closer to the 9,000 VPD estimated by the National Park Service. No interchange is proposed at Old Battleground, so traffic on that road will not be impacted by the project. Further improvements may be needed to provide a better level of service on Old Battleground Road; however, it is not within the scope of this project to solve traffic problems on Old Battleground Road.*

The section of New Garden Road that runs through the park is owned and controlled by the NPS and is the primary vehicular entrance to the park and visitor center. Figure I-3 sets 1989 traffic total on this portion of New Garden Road at 3,200 vehicles per day. The park's most recent traffic counts indicate that 4,700 vehicles per day actually travel this roadway. Further, the average speed of these vehicles is higher than the posted speed limit. This is a significant concern....

Unfortunately, the Traffic Capacity Analysis does not provide estimates of future traffic volume on this critical segment of New Garden Road. If the segment of New Garden Road east of US 220 (which includes the park) experiences a similar increase, the park can expect 5,875 vehicles per day (based on the park's 1991 traffic averages) on this road.

**Response:** *Traffic counts were updated to 1991 in the FEIS. New Garden Road can accommodate 5,875 vehicles per day at an acceptable level of service. The enforcement of speed limits on New Garden Road is not under the jurisdiction of the NCDOT Division of Highways. Table I-3 shows that this project will reduce projected traffic volumes on New Garden Road, compared with No-Build.*

Current and projected changes in air quality were made north of the Interstate 40 interchanges, at the closest points about five miles south of the park (page IV-14). This would seem a serious oversight given the essentially fragile nature of the park's twenty-eight historic structures, and the fact the park will be bracketed by major interchanges on Lawndale Drive and US 220, both within a mile of the park's northern boundary.

**Response:** *The air quality analysis was conducted for interchanges with substantially more traffic than projected near the park, and for receptors much closer than the park to the road. Because projected concentrations at those locations were well below Federal air quality standards, it can be concluded that there would be no adverse air quality impact on the park. Based on the Interim Conformity Guidelines established by EPA and FHWA, the project conforms with the approved State Implementation Plan (SIP). The Preferred Alternative does not cause or contribute to any violations of air quality standards, increase the frequency of any existing violation, or delay attainment for any standard.*

The closest noise reading to the park is site Number 32, east of Old Battleground Road 1,500 feet north of New Garden Road, where the ambient noise level is dBN 58. We note that the ambient noise level exceeds Federal Highway Administration noise guidelines for "land for which the

preservation of serenity and quiet are of permanent importance." Given the proposed facility's close proximity to the park, the EIS needs to provide projected noise levels for the park.

*Response: The park is also located well beyond the area of potential noise impact. A fully-developed residential subdivision lies between the proposed highway and the park, and noise barriers are proposed to mitigate noise impacts on the subdivision.*

The EIS concludes there would be "no (archaeological) effect due to distance of 1,000 feet from project and intervening built environment." (page IV-44) It should be noted that all three American battle lines extended through the area in question as did the Reedy Fork Road used by the Americans in the retreat. Battle related graves have been discovered in this area, and local metal detector users (outside the park) report recent findings of artifacts along the 18th century roadway. There are a few tracts of undeveloped battlefield land in this zone. The EIS needs to address this and steps which will be implemented to protect these resources.

*Response: Archaeological studies did not reveal any important findings in the corridor near the park, which was characterized as heavily disturbed. After consultation with SHPO, additional archaeological studies were conducted for the Preferred Alternative. No new sites were discovered.*

#### Fish and Wildlife Coordination Comments

Federal permits may be required for this project.

*Response: Permits are discussed in the Summary and in IV-B.7 of the FEIS.*

Based on information provided in the statement, the Western Alternative is preferred by the US Fish and Wildlife Service (FWS) because it would result in the least impact to wetlands and other important wildlife habitat.

*Response: The Preferred Alternative is the Western Alternative with use of a portion of the Eastern Alternative from the interchange of I-85 and Campground Road to Groometown Road and with use of Crossover 1.*

The FWS is particularly concerned about minimizing impacts to the forested floodplain and wetland at the crossing of Horsepen Creek near Battleground Avenue (US 220). Specifically, it appears that an alignment which crosses at a narrowing of the floodplain occurs within the proposed corridor which would minimize impacts to the area.

**Response:** *Wetland and floodplain impacts were first avoided and then minimized to the fullest extent practical. (See discussion in IV.B.4 and IV.B.7.)*

It is unlikely that FWS will object to the proposed action, provided all unavoidable wetland impacts will be mitigated fully in accordance with the FWS Mitigation Policy (Federal Register 46 (15) : 7644-7663, January 23, 1981).

**Response:** *Mitigation measures are discussed in IV.B.7. Detailed mitigation plans and procedures will be developed during the permitting process.*

#### Endangered Species Act Comments

The FWS concurs that there are no federally listed or proposed endangered or threatened plant or animal species in the project impact area. Therefore, the requirements of Section 7 of the Endangered Species 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.

**Response:** *The USFWS will be consulted prior to the right-of-way and construction phases if a new species is listed or critical habitat is identified that may be impacted by the proposed project.*

#### Summary Comments

The draft environmental/Section 4(f) statement is deficient because it did not fully identify the Section 4(f) areas which may be impacted, evaluate feasible and prudent alternatives to avoid cultural and recreational areas, and evaluate means to minimize harm. The Department of the Interior objects to approval of this project until adequate evaluation has been made concerning the applicability of Section 4(f) to cultural and recreational resources and appropriate feasible and prudent alternatives are evaluated, as required by the first provision of Section 4 (f).

**Response:** *The Preferred Alternative does not use Section 4(f) land.*

North Carolina Department of Cultural Resources

Letter dated: August 21, 1991

As noted in the DEIS, a number of archaeological sites may be affected, depending upon which alternate or combination of alternates is selected. Please contact our office as soon as a corridor is selected so we may consult concerning the type and amount of additional archaeological investigations necessary.

*Response: After the Preferred Alternative was selected, the SHPO was consulted to coordinate additional investigations. No additional sites were discovered.*

Please note that the "Eligible Historic Structures" map (Figure III-4) in the DEIS is not entirely correct. The map includes the Jonathan Ballinger Farm (P158) and the Dealus M. Ballinger Farm (P159) which we previously concurred were not eligible for listing in the national Register of Historic Places. The map omits two National Register-eligible properties, the Thomas Cook Farm (P148) and the New Garden Friends Cemetery (P266).

*Response: This map is corrected in the FEIS.*

Jamison-Ward House (P275)

We cannot comment on the effects of the project upon Jamison-Ward House (P275) until we receive more information concerning the Eastern Alternative interchange as it crosses High Point Road. It is foreseeable that this project must be designed to function with the Greensboro High Point Road project, designated in the TIP as U-2412. We need to know how these two roadways will tie in with each other before offering a final effect for this undertaking.

*Response: The Preferred Alternative will be designed in coordination with the High Point Road Improvement Project (U-2412). The location of the High Point Road/Preferred Alternative interchange will be provided after selection of the High Point Road improvement (U-2412) Preferred Alternative. The SHPO will be notified of the interchange location.*

Pilot Life/Sedgefield Historical District (P135)

We concur that the Eastern Alternative will have no effect upon this property. We also concur that the Middle, Western, and Avoidance Alternate No. 1 will have no effect on the property. However, according to the functionals submitted, Avoidance Alternative No. 1 does not cross High Point Road at the same location as the Middle and Eastern Alternative as is stated in the DEIS.

**Response:** *The Preferred Alternative has no effect on this property.*

Celia Phelps Church (P231)

We concur that the Eastern Alternative and Avoidance Alternative No. 1 will have no effect upon this property.

We also concur that the Middle and Western Alternatives will have an adverse effect upon this property. These alternatives will introduce visual and audible adverse effects which we believe constitute a constructive use of the historic property and require Section 4(f) compliance.

**Response:** *The impact of the Middle and Western Alternatives was determined not to constitute constructive use of this property, as discussed in the response to the U.S. Department of the Interior. The Preferred Alternative has no effect on this property, as it follows the Eastern alignment along this segment.*

Sedgefield Stables (P232)

We concur that the Eastern Alternative, the C-1 crossover, and the 4(f) avoidance alternative will have no effect upon this property.

We concur that the Middle and Western Alternatives will have an adverse effect upon this property and also constitute Section 4(f) involvement.

**Response:** *The Preferred Alternative has no effect on this property, as it follows the Eastern alignment and Crossover 1.*

Kimrey-Haworth House (P218)

We concur that the Middle and Western Alternatives will have no effect upon this property.

Although the area surrounding the Kimrey-Haworth House is developing, it is foreseeable that the Avoidance Alternative No. 2 interchange at this location will accelerate development and result in an adverse effect upon this property.

We concur that the Eastern Alternative will have an adverse effect upon this property and also constitute Section 4(f) involvement.

*Response: The Preferred Alternative avoids this property by following the Western alignment.*

Guilford College (P246)

We concur that the Middle and Western Alternatives will have no effect upon this property, and that the Eastern Alternative will have an Adverse Effect and constitute 4(f) involvement.

According to the functionals submitted, it appears that the 4(f) avoidance also take property from Guilford College and, therefore, will have an adverse effect upon this property and will also constitute Section 4(f) involvement. If Avoidance Alternative No. 2 at this location was misrepresented on the functionals and no property would be taken either for the roadway or right-of-way, then we feel that Avoidance Alternative No. 2 will have an adverse effect which may be avoided through appropriate landscaping.

*Response: The Preferred has no effect on this property as it follows the Western Alternative.*

In terms of historic resources, we feel that all adverse effects on historic properties and Section 4(f) involvement can be avoided by (starting at the northern end of the project) combining portions of the Eastern Alternative, the Western Alternative, the Middle Alternative, and Crossover No. 1. Additionally, we feel that the 4(f) avoidance alternatives shown for Guilford College and Sedgfield Stables are unnecessarily disruptive and divisive when the above combination of feasible and prudent alternatives could be selected.

*Response: The Preferred Alternative includes a combination of alternatives and thus avoids all Section 4(f) property.*

North Carolina Wildlife Resources Commission

Date of Letter: July 24, 1991

The draft EIS is very well written and generally addresses fisheries and wildlife concerns, including wetland impacts. The project area has already suffered severe impacts from the Bryan Boulevard construction and large developments for both housing and businesses. However, it appears that this project will eliminate much of the remaining habitat. The no-build alternative or the western alternative would result in considerably less impact on fish and wildlife.

*Response: The Western Alternative from just west of Groometown Road to Lawndale Drive was selected as the Preferred Alternative.*

In order to protect fish and wildlife habitat remaining in the general area, we recommend that mitigation lands be designated for habitat conservation purposes. Future development of these lands should be prohibited. Mitigation lands should be provided at a 2:1 ratio, under resource agency jurisdiction, and buffered by city owned lands that cannot be developed. The alternative to providing mitigation lands will be continued loss of fish and wildlife habitat as well as declines in overall environmental quality.

*Response: Detailed mitigation measures will be developed during the final design and permit application stage of the project.*

North Carolina Department of Environment, Health, and Natural Resources, Division of Environmental Management

Letter dated: July 19, 1991

This EIS is one of three which will address the environmental impacts of the Greensboro Urban Loop. The entire project should be included in one EIS. Failure to include the entire project in one EIS may result in the elimination of certain alternatives during evaluation of subsequent phases of the project.

*Response: The Greensboro Urban Loop was divided into three segments, each of which has utility and provides a function independent of the rest of the Loop's completion.*

The EIS indicates that the western alternative impacts the least amount of wetland and therefore should be the preferred alternative provided that the final EIS establishes that there are no practicable alternatives to the wetland impacts.

**Response:** *No practicable alternative would totally avoid wetland impacts. The Western Alternative from just west of Groometown Road to Lawndale Drive was selected as the Preferred Alternative.*

Consideration should be given to bridging the wetlands associated with Horsepen Creek.

**Response:** *Bridging of wetlands at Horsepen Creek will be considered during final design.*

A detailed mitigation proposal should be included in the final EIS outlining the types of mitigation, acreage associated with each type, success criteria, and a monitoring plan.

**Response:** *The detail regarding types of mitigation, acreage, success criteria, and monitoring will be included in the permit application(s).*

Endorsement of the EIS by DEM does not preclude the denial of a 401 Certification upon application if wetland impacts have not been avoided and minimized to the maximum extent practicable.

**Response:** *Noted.*

North Carolina Department of Environment, Health, and Natural Resources, Division of Forest Resources

Letter dated: July 3, 1991

The third paragraph under item #6 (Summary of Beneficial and Adverse Environmental Effects) on page IV does not indicate that a major effect will occur to woodland, where a major taking of woodland acres will eventually take place. Page VI indicates that between 244 plus to 306 plus woodland acres will be taken.

**Response:** *The FEIS text has been revised to include the impacts of the Preferred Alternative on forest acreage.*

Table IV-8 Habitat Acreage affected on page IV-35 does not give an acreage breakdown by timber types for each forest acre by alternative. We would like to see this breakdown by types or present condition classes.

**Response:** *The text related to habitat acreage impacts has been revised to include approximate percentages of forest types.*

Item E. Construction Impacts and Item G. Irreversible and Irretrievable Commitments of Resources, pages IV-47 to IV-49 do not indicate that the contractor will make all efforts possible to salvage pulpwood and sawtimber size trees that have to be cut to permit construction. Also the contractor needs to protect standing trees left outside of construction limits from construction damage.

**Response:** *All timber cut during construction will become the property of the contractor who will dispose of the timber in accordance with NCDOT Standard Specification for Roads and Bridges, Section 200-5.*

*NCDOT Standard Specification for Roads and Bridges, Section 200-3 requires the contractor to "conduct his operations in a manner to prevent limb, bark, or root injuries to trees, shrubs, or other types of vegetation that are to remain growing and also to prevent damage to adjacent property."*

North Carolina Department of Crime Control and Public Safety

Memorandum dated: July 1, 1991

On July 24, 1990, Governor Martin signed Executive Order 123, a Uniform Floodplain Management Policy, which must be followed for development on any site.

**Response:** *The project will be designed in accordance with federal, state, and local floodplain regulations.*

A coordination meeting was held on April 15, 1993 between NCDOT and the Army Corps of Engineers to discuss corridor selection, project status, wetland impact and mitigation, and watershed issues.

Appendix D contains a discussion of comments received at the Public Hearing.

**CHAPTER VII  
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## CHAPTER X

### 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 COMMENTS ON THE DRAFT EIS

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**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 leptocephalus</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 szepticus</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):

Pomoxis nigromaculatus	Black crappie	R,I
Etheostoma collis	Carolina darter	S
Etheostoma olmstedii	Tessellated darter*	S,R
Percina crassa	Piedmont darter	R
Perca flavescens	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 cryoscelis/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.

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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.

Podilymbus podiceps		Pied-billed grebe	L
Ardea herodias	*	Great blue heron	L
Butorides striatus		Green heron	L
Anas platyrhynchos	*	Mallard	L
Aix sponsa	*	Wood duck	W,L
Cathartes aura	*	Turkey vulture	P,H,M,F,W
Accipiter striatus		Sharp-shinned hawk	P,H,M,W
Buteo jamaicensis	*	Red-tailed hawk	P,H,M
Haliaeetus leucocephalus		Bald eagle	L
Falco sparverius		American kestrel	M,F
Colinus virginianus	*	Bobwhite	H,F
Charadrius vociferus	*	Killdeer	F
Scolopax minor		American woodcock	H,W
Gallinago gallinago		Common snipe	F,W
Actitis macularia		Spotted sandpiper	W,L
Tringa solitaria		Solitary sandpiper	L
Zenaida macroura	*	Mourning dove	F
Coccyzus americanus		Yellow-billed cuckoo	H,W
Otis asio		Screech owl	P,M
Bubo virginianus		Great horned owl	P,H,M
Strix varia		Barred owl	H,W
Caprimulgus vociferus		Whip-poor-will	P,H,M
Chordeiles minor		Common nighthawk	F,W
Chaetura pelagica	*	Chimney swift	F
Archilochus colubris		Ruby-throated hummingbird	H,M,W
Megaceryle alcyon		Belted kingfisher	W,L
Colaptes auratus	*	Common flicker	P,H,M
Dryocopus pileatus	*	Pileated woodpecker	H,M,W
Melanerpes carolinus	*	Red-bellied woodpecker	P,H,M,W
Sphyrapicus varius	*	Yellow-bellied sapsucker	P,H,M,W
Picoides villosus		Hairy woodpecker	P,H,M,W
Picoides pubescens	*	Downy woodpecker	P,H,M,W
Tyrannus tyrannus		Eastern kingbird	F
Myiarchus crinitus		Great-crested flycatcher	P,H,M
Sayornis phoebe		Eastern phoebe	P,H,M,F,W,L
Empidonax virescens		Acadian flycatcher	W
Contopus virens		Eastern wood peewee	M,F
Stelgidopteryx ruficollis		Rough-winged swallow	H,M,W
Hirundo rustica		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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W = bottomland hardwoods and wetlands.

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**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Distribute to: REGION IV

- Poole \_\_\_\_\_
- Dudeck \_\_\_\_\_
- Newman \_\_\_\_\_
- Norwood \_\_\_\_\_
- Medlin \_\_\_\_\_
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- Vick \_\_\_\_\_
- Prevatt \_\_\_\_\_
- Davis \_\_\_\_\_
- Elliott \_\_\_\_\_
- Webb \_\_\_\_\_
- Elmore \_\_\_\_\_
- Grimes \_\_\_\_\_
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- Nedwidek \_\_\_\_\_
- Springer \_\_\_\_\_

325 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

AML/

AUG 29 1991



Nicholas L. Graf, P.E.  
Federal Highway Administration  
Post Office Box 26806  
Raleigh, North Carolina 27611

L.J. Ward, P.E., Manager  
Planning and Environmental Branch  
N.C. Division of Highways  
P.O. Box 25201  
Raleigh, North Carolina 27611

SUBJECT: Greensboro Western Loop, Lawndale Drive to I-85,  
Guilford County, North Carolina Draft Environmental  
Impact Statement; FHWA-NC-EIS-91-01-D.

Dear Mr. Ward:

Pursuant to Section 309 of the Clean Air Act and Section 102(2)(C) of the National Environmental Policy Act the U.S. Environmental Protection Agency has reviewed the above referenced document concerning a proposal to construct 14 miles of four to eight lane freeway on the western side of the City of Greensboro, South Carolina. The project is one of three segments of the Greensboro Urban Loop that will encircle the city and connect with Interstates 40 and 85. The Loop will provide service to the suburban areas of the Greensboro metropolitan area whose existing street system is insufficient to handle the projected traffic generated by suburban growth.

Three construction alternatives for the proposed roadway were examined with lengths ranging from 11.4 to 14.5 miles. All will have major impacts on the human environment. Existing land use in the project area is primarily suburban residential, with industrial and commercial development along major traffic arteries.

Between 244 and 305 acres of forest habitat will be impacted by the various alternatives. This would be a major loss of habitat in an area that has already been heavily impacted by development. Habitat and biodiversity loss in the southeast is a major environmental problem. The loss of forest lands also contributes to the greenhouse effect, the alteration of the earth's climate by human activities. Every effort should be made to minimize the loss of forested areas, especially those with mature hardwood trees. Offsetting losses by planting hardwood trees in the right-of-way or other areas to the extent possible should be considered. The Final EIS should include a breakdown of forest type and acreage.

Wetland acreage was approximated within each of the 300-foot wide construction corridors. Between 22 and 57 acres could be affected. The western alternative appears to be the least damaging to this resource and would also require the least stream channel relocation. Because of their importance, forested wetlands, especially mature stands, should be avoided to the maximum extent possible. All wetlands should be crossed at their narrowest point.

A number of options were presented for mitigating wetland impacts including creation of in-kind wetlands in uplands adjacent to offset losses. The Final EIS should contain detailed information as available on impact reduction including specific mitigation sites and extent of mitigation activities. The preferred alternative should be known by then and additional analysis should be performed. Specifics of mitigation for stream channel relocation should also be included. Any questions on this issue should be addressed to Lee Pelej of our Wetlands Regulatory Unit at 404/347-2126.

A large number of residences (153 to 251) will be impacted by substantial noise level increases or by noise levels that exceed criteria. Noise barrier evaluation indicates that barriers may not be cost effective (less than \$25,000 per residence), although detailed barrier analysis will not be done until after final alignment selection. If barriers do not prove to be cost effective, consideration should be given to sound proofing residences and/or installing air conditioners to help mitigate highway related noise impacts. These options would afford affected residences some relief from highway noise at a cost much less than \$25,000 per residence.

We note that the MOBILE3.0 source emissions model was used in the air quality analysis instead of a more recent version. MOBILE4.0 should be used in preparing the Final EIS or the most recent version, MOBILE4.1, if available. A number of additional comments and questions on air quality are attached.

Based on the information provided in the document, we believe the western alignment poses the least threat to the natural environment in the project area. However, potential impacts to the environment along all alignments are major. We rate this document EC-2; that is, the DEIS has identified environmental impacts that should be avoided in order to fully protect the environment. Additional information on impacts and on mitigation is needed to fully assess overall project impacts.

We appreciate the opportunity to comment on this document. If you any questions concerning our comments, contact Allen Lucas or Diane Guthrie at 404/347-7292.

Sincerely,



Heinz Mueller, Chief  
Environmental Policy Section  
Federal Activities Branch

## Additional Comments

### Section III.C. Natural Environment - Ambient Air Quality

1. The last paragraph in this section needs to be clarified. The 1990 Clean Air Act Amendments (CAAA) were signed into public law by the President on November 15, 1990. The CAAA detailed planning requirements for areas in nonattainment of the National Ambient Air Quality Standards (NAAQS) for the six various pollutants. Guidance for various parts of the CAAA have been issued by EPA.

2. The proposed classification of Guilford County's nonattainment status should be stated as well as their attainment deadline.

3. A paragraph should be devoted to the carbon monoxide (CO) nonattainment status of the Greensboro/Winston-Salem/High Point area. Their proposed classification as well as their attainment deadline should be stated. Projects which are located in CO nonattainment areas must also be accompanied by an analysis showing they eliminate or reduce the number and severity of CO NAAQS violations in the area substantially affected by the project.

4. A statement on conformity should be included. Any federally funded transportation project must conform with and give priority to the implementation measures contained in the SIP/TIP. According to the EPA/DOT Interim Conformity Guidance issued on June 1991, if a federally funded transportation project is located in a nonattainment area, it has to comply with the conformity requirements. Paragraph 3 on page IV-15 appears to state otherwise.

### Section IV.B. Physical Impacts - Air Quality

5. A more recent version of the EPA mobile source emissions model should have been used, instead of MOBILE3.0. MOBILE4.0, released to the public in March 1989, or MOBILE4.1, if available, should be used in preparing the FEIS.

6. (Page IV-14) The stated input for "model years" in the MOBILE model is incorrect. The first model year refers to the oldest model year vehicle which is always included in the inspection program. The last model year refers to the youngest (newest) model year vehicle which is always subject to the inspection program.

7. The second paragraph on page IV-15 states that a copy of the output for a receptor is included in the appendix. Our copy of the document does not contain an appendix with air quality information. Please send us a copy of the appendix and a copy of the Technical Memorandum on Air Analysis.

#### Section IV.E. Construction Impacts

8. The measures described in (a) should state if on-site burning of waste construction materials and containers will conform with state air pollution control regulations.

9. In paragraph (g), the types of measures which may be used to mitigate fugitive dust impacts during construction should be included. In addition, what standards will be used to determine when the control of dust is necessary for the protection, safety, and comfort of motorists and nearby residents?



U.S. Department of  
Transportation  
Office of the Secretary  
of Transportation

# Memorandum

Subject: Draft Environmental Impact Statement  
Greensboro Western Urban Loop  
Guilford County, North Carolina  
FHWA-NC-EIS-91-01-D

Date: SEP 16 1991

From: Eugene L. Lehr  
Chief, Environmental Division

Reply to  
Attn. of:

To: Eugene W. Cleckley *Eugene L. Lehr*  
Chief, Project Development Branch, HEP-31

We appreciate the opportunity to review the subject draft  
environmental impact statement. We have no comments.



DEPARTMENT OF THE ARMY  
WILMINGTON DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 1890  
WILMINGTON, NORTH CAROLINA 28402-1890  
July 11, 1991



IN REPLY REFER TO

Planning Division

Mr. L. J. Ward, P.E., Manager  
Planning and Environmental Branch  
Division of Highways  
North Carolina Department  
of Transportation  
Post Office Box 25201  
Raleigh, North Carolina 27611-5201

Dear Mr. Ward:

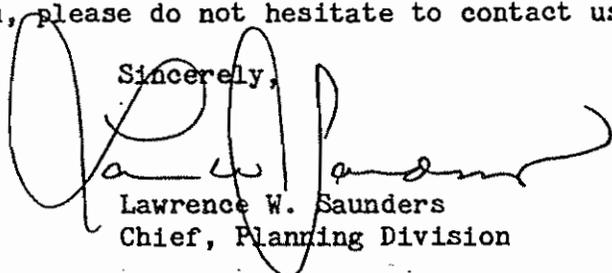
As requested in your letter of June 18, 1991, we have reviewed the "Draft Environmental Impact Statement for Greensboro Western Urban Loop, from Lawndale Drive near Cottage Place to I-85 South near Holden Road, approximately 14 miles, in Guilford County, State Project No. 6.498001T, U-2524" and offer the following comments.

The hydrologic and hydraulic analysis should assure that there will be no significant increase in flood stages and that the floodway surcharge will be within the 1.0 foot allowable.

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 or fill material in waters of the United States or any adjacent and/or isolated wetlands in conjunction with this project, including disposal of construction debris. Under our mitigation policy, impacts to wetlands should first be avoided or minimized. We will then consider compensation or mitigation for unavoidable impacts. When final plans are completed, including the extent and location of any work within waters of the United States and wetlands, our 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. John Thomas of our Regulatory Branch, Raleigh, North Carolina, at (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



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Atlanta Airports District Office  
1680 Phoenix Parkway, Suite 101  
Atlanta, Georgia 30349-5421

JUL 02 1991



Mr. L. J. Ward, P.E., Manager  
Planning and Environmental Branch  
N. C. Division of Highways  
P.O. Box 25201  
Raleigh, NC 27611

Dear Mr. Ward:

Our review of the "Draft Environmental Impact Statement for Greensboro Western Urban Loop" indicates that the most westerly route under consideration will infringe upon property owned by the Piedmont Triad International Airport.

Airport property is obligated by the Federal government to be used for airport development. Any use of this property for other than an aeronautical activity will require the consent of the Federal government; therefore, if the most westerly route is chosen as the build alternative, the Piedmont Triad Airport Authority will have to have the consent of this office to release the property necessary for the right-of-way for the road.

We appreciate the opportunity to comment and request notification if the western route is chosen for the build alternative.

Sincerely,

  
Thomas M. Roberts  
Program Manager

cc:

Mr. Edward A. Johnson, Director of Development, Piedmont Triad Airport  
Authority



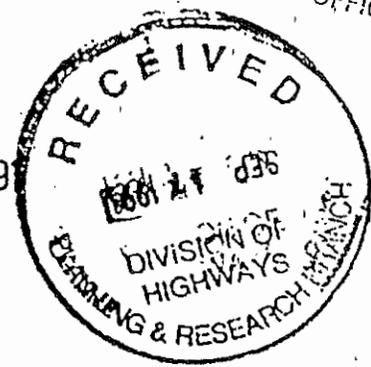
United States Department of the Interior

OFFICE OF THE SECRETARY  
WASHINGTON, D.C. 20240

L76(774)  
ER-91/0624

RECEIVED  
SEP 19 1991  
WILLIAMS-PORIN  
PTO OFFICE

SEP 11 1991



Mr. Nicholas L. Graf  
Division Administrator  
Federal Highway Administration  
Post Office Box 26806  
Raleigh, North Carolina 27611

Dear Mr. Graf:

This responds to the request for the Department of the Interior to review the draft environmental/Section 4(f) statement for the Greensboro Western Urban Loop, Guilford County, North Carolina.

SECTION 4(f) STATEMENT COMMENTS

Cultural Resources

The statement indicates that there is a feasible and prudent alternative to avoid Section 4(f) involvements with Guilford College and the Sedgefield Stables. In this regard, we note that these Section 4(f) involvements, as well as impacts on other historic properties in the study area, can be avoided by starting at the northern end of the project and combining portions of the Eastern Alternative, the Western Alternative, the Middle Alternative and Crossover Number 1. The discussion of Section 4(f) avoidance alternatives for these sites appears unnecessarily disruptive and divisive when the above combination of feasible and prudent alternatives are selected. It is particularly disturbing that the avoidance alternative for Guilford College also requires land from the college which constitutes a Section 4(f) involvement.

In addition to the two above mentioned Section 4(f) involvements with historic properties, it also appears that Section 4(f) would be applicable to the adverse impacts of noise and visual intrusion from the Middle and Western Alternative on the Celia Phelps Church. Avoidance Alternative Number 2 interchange near the Kimrey-Haworth House will accelerate development and result in an adverse impact and Section 4(f) involvement with the Kimrey-Haworth House. Also, a number of archeological sites will be impacted and Section 4(f) may be applicable to these sites.

### Park and Recreational Resources

The statement indicates that a portion of Oka T. Hester Park will be required by a portion of the Eastern Alternative and there is a reserved right-of-way for the highway through the park. The statement needs to provide the stipulations of the reserved right-of-way. We are concerned that impacts to the lake may significantly affect recreation in the park. Should significant direct or indirect impacts occur outside of the reserved right-of-way, Section 4(f) would be applicable.

All alternatives cross publicly owned open space and it is stated that Section 4(f) does not apply to these areas since they are for multiuse purposes (page IV-6). It is our understanding that these areas are managed by the Greensboro Parks and Recreation Department and are intended for recreation and conservation purposes. It is not clear why Section 4(f) would not be applicable to convert these publicly own lands to highway use. We recommend that the Federal Highway Administration reevaluate the application of Section 4(f) to these lands.

While the statement indicates that land will not be required from the Western Greensboro Community Center, the statement needs to evaluate projected noise levels and impacts on access to the proposed center for Section 4(f) purposes.

The statement indicates on page IV that Mitchell Park could potentially be impacted and Figure III-2 shows the park is located within one of the alternative corridors. It would appear that Section 4(f) may be applicable to this park.

It is our understanding that the recreational area known a Oaks West, while an "open space area", is actually used for recreation and contains recreation equipment. Construction of alternatives will require this equipment to be moved and the land taken for highway use. We believe Section 4(f) is applicable to this area.

### ENVIRONMENTAL STATEMENT COMMENTS

Guilford Courthouse National Military Park is located in close proximity to this project. The National Park Service (NPS) has expressed concern in past coordination with both the city of Greensboro and the North Carolina Department of Transportation for the impacts on the park of through traffic on both Old Battleground Road and New Garden Road which are located in the park. Heavy traffic on these roads would adversely impact both the park's resources and visitor's experience. Comprehensive transportation planning for the area needs to recognize this serious problem and take action to resolve the heavy use of these roads within the park. The environmental impact statement (EIS) needs to evaluate these impacts as related to the proposed Western Urban Loop and steps which are planned to resolve this problem.

Representations of average daily volumes on Old Battleground Road and New Garden Road appear to be understated. Figure 1-3 shows 1989 traffic totals on Old Battleground Road just north of the park boundary as 2,600 vehicles a day. The National Park Service figures derived from traffic counters indicate that Old Battleground Road actually carries almost 9,000 vehicles a day. The disparity of these numbers calls into question the EIS projections of future traffic volumes on this highway. For instance, Table 1-3 Traffic Capacity Analysis of Major Arterials in the Project Area (page I-12) indicates that if the urban loop is not built in the year 2010, Old Battleground Road will carry 10,900 vehicles a day and 10,400 a day if the loop is completed. Data suggests that this busy thoroughfare which bisects the park on a north-south line already carries 90 percent of the daily traffic volume projected for the year 2010. In either case, the level of service (LOS) for Old Battleground Road is rated "E," reflecting an unacceptable traffic volume as defined by the Transportation Resources Board. As the EIS states "Generally LOS 'D' is considered the lowest limit at which traffic flow is acceptable during peak periods in urban areas...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." (page I-5) Clearly, it is essential to examine alternative routes to relieve this congestion and restore park values. It would appear appropriate to examine this problem in conjunction with this project in this EIS.

The section of New Garden Road that runs through the park is 941 feet long and 20 feet wide, with a posted 25 mile-per-hour speed limit. This segment is owned and controlled by the NPS and is the primary vehicular entrance to the park and visitor center. Figure I-3 sets 1989 traffic total on this portion of New Garden Road at 3,200 vehicles per day. The park's most recent traffic counts indicate that 4,700 vehicles per day actually travel this roadway. Further, the average speed of these vehicles is 37 miles per hour, 48 percent higher than the posted speed limit. This is a significant concern given the narrow, winding nature of the road at this point, and also the fact that there is considerable park related pedestrian traffic visiting monuments on either side of the roadway.

Unfortunately, the Traffic Capacity Analysis does not provide estimates of future traffic volume on this critical segment of New Garden Road. The closest segment for which there are estimates is New Garden Road between Bryan Boulevard and U.S. 220, which would experience an increase of 25 percent in daily traffic volume by the year 2000 (Table I-3, page I-12). If the segment of New Garden Road east of U.S. 220 (which includes the park) experiences a similar increase, the park can expect 5,875 vehicles per day (based on the park's 1991 traffic averages) on this road.

Current and projected changes in air quality were made north of the Interstate 40 interchanges, at the closest points about 5 miles south of the park (page IV-14). This would seem a serious oversight given the essentially fragile nature of the park's 28 historic structures, and the fact the park will be bracketed by major interchanges on Lawndale Drive and U.S. 220, both within 1 mile of the park's northern boundary.

The closest noise reading to the park is site Number 32, east of Old Battleground Road 1,500 feet north of New Garden Road, where the ambient noise level is dBN 58. We note that the ambient noise level exceeds Federal Highway Administration noise guidelines for "land for which the preservation of serenity and quiet are of permanent importance." Given the proposed facility's close proximity to the park, the EIS needs to provide projected noise levels for the park.

The EIS concludes there would be "no (archeological effect) due to distance of 1,000 feet from project and intervening built environment." (page IV-44) It should be noted that all three American battle lines extended through the area in question as did the Reedy fork Road used by the Americans in the retreat. Battle related graves have been discovered in this area, and local metal detector users (outside the park) report recent findings of artifacts along the 18th century roadway. There are a few tracts of undeveloped battlefield land in this zone. The EIS needs to address this and steps which will be implemented to protect these resources.

#### FISH AND WILDLIFE COORDINATION COMMENTS

Federal permits may be required for this project. Based on information provided in the statement, the Western Alternative is preferred by the U.S. Fish and Wildlife Service (FWS) because it would result in the least impact to wetlands and other important wildlife habitat. The FWS is particularly concerned about minimizing impacts to the forested, floodplain and wetland at the crossing of Horsepen Creek near Battleground Avenue (U.S. 220). Specifically, it appears that an alignment which crosses at a narrowing of the floodplain occurs within the proposed corridor which would minimize impacts to the area. It is unlikely that FWS will object to the proposed action, provided all unavoidable wetland impacts will be mitigated fully in accordance with the FWS Mitigation Policy (Federal Register 46 (15): 7644-7663, January 23, 1981).

#### ENDANGERED SPECIES ACT COMMENTS

The FWS concurs that there are no federally listed or proposed endangered or threatened plant or animal species in the project impact area. Therefore, the requirements of Section 7 of the Endangered Species 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.

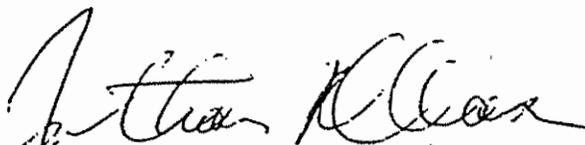
#### SUMMARY COMMENTS

The draft environmental/Section 4(f) statement is deficient because it did not fully identify the Section 4(f) areas which may be impacted, evaluate feasible and prudent alternatives to avoid cultural and recreational areas, and evaluate means to minimize harm. The Department of the Interior objects to approval of this project until adequate evaluation has been made concerning the applicability of Section 4(f) to cultural and recreational resources and appropriate feasible and prudent alternatives are evaluated, as required by the first provision of Section 4(f).

We will be willing to provide technical assistance on this matter. Please contact the Regional Director, Southeast Regional Office, National Park Service, 75 Spring Street, Atlanta, Georgia 30303, telephone (404) 331-5835 or FTS 841-5835.

We appreciate the opportunity to provide these comments.

Sincerely,



Jonathan P. Deason  
Director  
Office Environmental Affairs

cc:

~~Mr. J. Ward~~ Manager

Planning and Environmental Branch  
North Carolina Department of Transportation  
P. O. Box 25201  
Raleigh, North Carolina 27611-5201

William S. Price, Director  
Division of Archives and History  
North Carolina Department of Cultural Resources  
109 East Jones Street  
Raleigh, North Carolina 27611

Susan Kidd, Director  
Southeast Regional Office  
National Trust for Historic Preservation  
1785 Massachusetts Avenue, N.W.  
Washington, D.C. 20036



United States  
Department of  
Agriculture

Soil  
Conservation  
Service

CONFIDENTIAL

*Ward*

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,

*Cecil W. Dettle, Acting*  
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

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,

*Cecil W. Smith, Acting*  
Bobbye 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)**

Name Of Project: Greensboro Western Urban Loop U-2524  
 Proposed Land Use: HIGHWAY

Date Of Land Evaluation Request: 12/19/89  
 Federal Agency Involved: FHWA  
 County And State: GUILFORD COUNTY, N.C.  
 Date Request Received By SCS: \_\_\_\_\_

**PART II (To be completed by SCS)**

Does this site contain prime, unique, statewide or local important farmland?  Yes  No  
 (If no, the FPPA does not apply - do not complete additional parts of this form.)  
 Action Indicated: \_\_\_\_\_ Average Farm Size: \_\_\_\_\_  
 Major Cropland: \_\_\_\_\_ Farmable Land in Govt. Jurisdiction: \_\_\_\_\_ Acres: \_\_\_\_\_  
 Amount Of Farmland As Defined in FPPA: \_\_\_\_\_ Acres: \_\_\_\_\_  
 Name Of Land Evaluation System Used: \_\_\_\_\_ Name Of Local Site Assessment System: \_\_\_\_\_  
 Date Land Evaluation Returned By SCS: \_\_\_\_\_

**PART III (To be completed by Federal Agency)**

A. Total Acres To Be Converted Directly  
 B. Total Acres To Be Converted Indirectly  
 C. Total Acres In Site

EAST		ALTERNATIVE SITE RATING WEST			CROSSOVER
Site A	Site B	Site C	Site D	Site D	
433	525	557	22		

**PART IV (To be completed by SCS) Land Evaluation Information**

A. Total Acres Prime And Unique Farmland  
 B. Total Acres Statewide And Local Important Farmland  
 C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted  
 D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value

50	130	90	18
.0004	.001	.001	.0004

**PART V (To be completed by SCS) Land Evaluation Criterion**

Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)

60	60	50	60
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**PART VI (To be completed by Federal Agency)**

Site Assessment Criteria (These criteria are explained in 7 CFR 658.816)

1. Area - Nonurban Use  
 2. Perimeter In Nonurban Use  
 3. Percent Of Site Being Farmed  
 4. Protection Provided By State And Local Government  
 5. Distance From Urban Builtup Area  
 6. Distance To Urban Support Services  
 7. Size Of Present Farm Unit Compared To Average  
 8. Creation Of Nonfarmable Farmland  
 9. Availability Of Farm Support Services  
 10. On-Farm Investments  
 11. Effects Of Conversion On Farm Support Services  
 12. Compatibility With Existing Agricultural Use

Maximum Points	Site A	Site B	Site C	Site D
15	10	10	8	10
10	7	7	6	7
20	10	10	10	10
20	0	0	0	0
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
10	5	5	5	5
25	20	20	20	20
5	5	5	5	5
20	15	15	15	15
25	18	18	15	18
10	4	4	4	4
<b>TOTAL SITE ASSESSMENT POINTS</b>	<b>94</b>	<b>94</b>	<b>88</b>	<b>94</b>

**PART VII (To be completed by Federal Agency)**

Relative Value Of Farmland (From Part V)  
 Total Site Assessment (From Part VI above or a local site assessment)  
 TOTAL POINTS (Total of above 2 lines)

100	60	60	50	60
180	94	94	88	94
260	154	154	138	154

Site Selected  
 Reason For Selection

Date Of Selection

Was A Local Site Assessment Used?  
 Yes  No



North Carolina Department of Cultural Resources

James C. Martin, Governor  
Patric Dorsey, Secretary

Division of Archives and History  
William S. Price, Jr., Director

August 21, 1991

Nicholas L. Graf  
Division Administrator  
Federal Highway Administration  
Department of Transportation  
P.O. Box 26806  
Raleigh, N.C. 27611



Re: Greensboro Western Urban Loop, Guilford  
County, U-2524, CH 91-E-4220-0936, 6.498001T,  
ER 92-7122

Dear Mr. Graf:

We have received the Draft Environmental Impact Statement (DEIS) from the State Clearinghouse concerning the above project, as well as the effect documentation materials submitted along with your letter of July 30, 1991.

As noted in the DEIS, a number of archaeological sites may be affected, depending upon which alternate or combination of alternates is selected. Please contact our office as soon as a corridor is selected so we may consult concerning the type and amount of additional archaeological investigations necessary.

Please note that the "Eligible Historic Structures" map (Figure III-4) in the DEIS is not entirely correct. The map includes the Jonathan Ballinger Farm (P158) and the Dealus M. Ballinger Farm (P159) which we previously concurred were not eligible for listing in the National Register of Historic Places. The map omits two National Register-eligible properties, the Thomas Cook Farm (P148) and the New Garden Friends Cemetery (P266).

Below is a list of the National Register-listed and National Register-eligible properties in the area of potential effect and our determinations of effect for each property.

We concur that the proposed project will have no effect upon the following eleven properties under any of the alternatives:

John Hampton Adams House (Adamsleigh) (P281)

Arcadia (P267)

Chamblee (P279)

Thomas Cook Farm (P148)  
Roy Edgerton House (P207)  
Guilford Courthouse Military Park (P272)  
Samuel Hodgkin House (P88)  
Hoskins Farmstead (P271)  
Jeffers Complex (P178-P179)  
Era Lasley House (P89)  
New Garden Friends Cemetery (P266)

For the remaining six properties, we have individual comments:

Jamison-Ward House (P275)

We cannot comment on the effects of the project upon this property until we receive more information concerning the Eastern Alternative interchange as it crosses High Point Road. It is foreseeable that this project must be designed to function with the Greensboro High Point Road project, U-2412. We need to know how these two roadways will tie in with each other before offering a final effect for this undertaking.

Pilot Life/Sedgefield Historic District (P135)

We concur that the Eastern Alternative will have no effect upon this property. We also concur that the Middle Western, and Avoidance Alternate No. 1 will have no effect on the property. However, according to the functionals submitted, Avoidance Alternative No. 1 does not cross High Point Road at the same location as the Middle and Eastern Alternatives as is stated in the DEIS.

Celia Phelps Church (P231)

We concur that the Eastern Alternative and Avoidance Alternative No. 1 will have no effect upon this property.

We also concur that the Middle and Western Alternatives will have an adverse effect upon this property. These alternatives will introduce visual and audible adverse effects which we believe constitute a constructive use of the historic property and require Section 4(f) compliance.

Sedgefield Stables (P232)

We concur that the Eastern Alternative, the C-1 crossover, and the 4(f) avoidance alternative will have no effect upon this property.

We concur that the Middle and Western Alternatives will have an adverse effect upon this property and also constitute Section 4(f) involvement.

Kimrey-Haworth House (P218)

We concur that the Middle and Western Alternatives will have no effect upon this property.

Although the area surrounding the Kimrey-Haworth House is developing, it is foreseeable that the Avoidance Alternative No. 2 interchange at this location will accelerate development and result in an adverse effect upon this property.

We concur that the Eastern Alternative will have an adverse effect upon this property and also constitute Section 4(f) involvement.

Guilford College (P246)

We concur that the Middle and Western Alternatives will have no effect upon this property, and that the Eastern Alternative will have an Adverse Effect and constitute 4(f) involvement.

According to the functionals submitted, it appears that the 4(f) avoidance alternative also takes property from Guilford College and, therefore, will have an adverse effect upon this property and will also constitute Section 4(f) involvement. If Avoidance Alternative No. 2 at this location was misrepresented on the functionals and no property would be taken either for the roadway or right-of-way, then we feel that Avoidance Alternative No. 2 will have an adverse effect which may be avoided through appropriate landscaping.

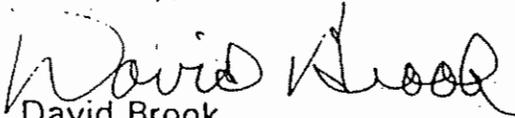
This completes our comments concerning the effects upon individual properties, but we would like to take this opportunity to comment on the project as a whole. In terms of historic resources, we feel that all adverse effects on historic properties and Section 4(f) involvement can be avoided by (starting at the northern end of the project) combining portions of the Eastern Alternative, the Western Alternative, the Middle Alternative, and Crossover No. 1. Additionally, we feel that the 4(f) avoidance alternatives shown for Guilford College and Sedgfield Stables are unnecessarily disruptive and divisive when the above combination of feasible and prudent alternatives could be selected.

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  
August 21, 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,



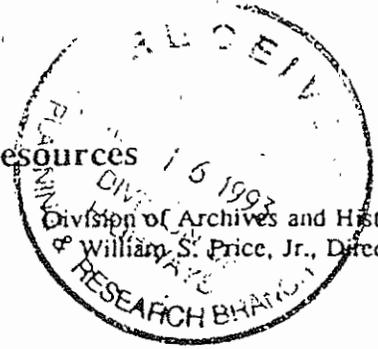
David Brook  
Deputy State Historic Preservation Officer

DB:slw

cc: ✓ State Clearinghouse  
L. J. Ward  
B. Church  
Steve Price, NPS, SERO  
Kay Simpson, Louis Berger & Assoc.



North Carolina Department of Cultural Resources



James B. Hunt, Jr., Governor  
Betty Ray McCain, Secretary

April 13, 1993

MEMORANDUM

TO: Dr. A. L. Novick  
Planning and Environmental Branch  
Division of Highways  
Department of Transportation

FROM: David Brook *David Brook*  
Deputy State Historic Preservation Officer

SUBJECT: Greensboro Western Urban Loop, U-2524, Guilford  
County, ER 93-8514

As a result of your meeting with Stephen Claggett and Dolores Hall on March 30, 1993, concerning the Greensboro Western Urban Loop, the attached map indicates those areas recommended for additional archaeological investigation. Since the presently proposed corridor differs greatly from that previously surveyed, those sections marked in blue should be examined for unrecorded archaeological sites. Any sites located should be tested at a level sufficient to determine their eligibility for inclusion in the National Register of Historic Places. Previously recorded site 31GF242 should be tested to determine its eligibility as it is in close proximity to the presently proposed corridor.

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.

DB:slw

Attachment

cc: Cindy Sharer, P.E., NCDOT



cc: Sharon

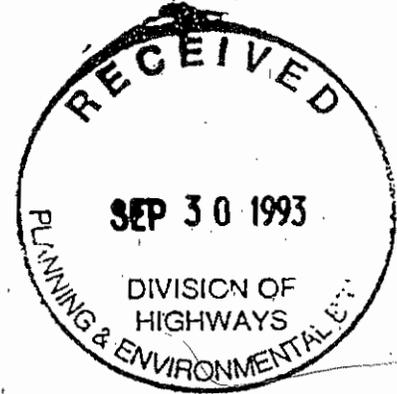


North Carolina Department of Cultural Resources

James B. Huot, Jr., Governor  
Betty Ray McCain, Secretary

Division of Archives and History  
William S. Price, Jr., Director

September 28, 1993



Nicholas L. Graf  
Division Administrator  
Federal Highway Administration  
Department of Transportation  
310 New Bern Avenue  
Raleigh, North Carolina 27601-1442

RE: Greensboro Western Urban Loop, Guilford County,  
U-2524, 6.498001T, ER 94-7450.

Thank you for your letter of September 9, 1993, concerning the above project.

We understand that the preferred alternative for the project has been chosen and is a combination of portions of the eastern, middle and western alternatives. Based upon our review of its location and our previous correspondance with the Federal Highway Administration (FHWA), we believe that the following National Register listed or eligible properties are within the area of potential effect (APE) for the preferred alternative:

- Guilford Courthouse Military Park (P272)
- Hoskins Farmstead (P271)
- Jeffers Complex (P178-179)
- Pilot Life/Sedgefield Historic District (P135)
- Chamblee House (P279)

As indicated in our August 21, 1991, letter to FHWA, we believe that the undertaking will have no effect upon these properties.

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  
September 28, 1993 Page 2

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,

*Robin Stancil*

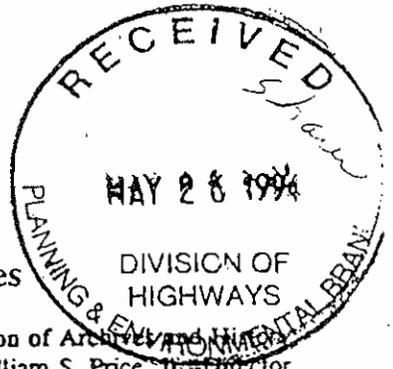
for  
David Brook, Deputy State  
Historic Preservation Officer

DB:slw

cc: *L.J.* Ward  
B. Church



North Carolina Department of Cultural Resources



James B. Hunt, Jr., Governor  
Betty Ray McCain, Secretary

Division of Archaeology and History  
William S. Price, Jr., Director

May 24, 1994

Nicholas L. Graf  
Division Administrator  
Federal Highway Administration  
Department of Transportation  
310 New Bern Avenue  
Raleigh, N.C. 27601-1442

Re: Archaeological survey of part of Greensboro  
Western Urban Loop (U-2524) Preferred Corridor,  
Guilford County, State Project 6.498001T, ER 94-  
8603

Dear Mr. Graf:

Thank you for your letter of March 21, 1994, transmitting the archaeological survey and testing report by Dr. Lee Novick of the North Carolina Department of Transportation concerning the above project. We apologize for the delay in our response.

For purposes of compliance with Section 106 of the National Historic Preservation Act, we concur that the following properties are not eligible for the National Register of Historic Places under Criterion D:

31GF242 and 31GF331\*\*

Neither archaeological site retains integrity nor is likely to yield important information.

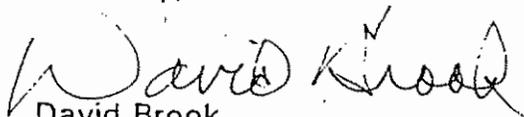
In general the report meets our guidelines and those of the Secretary of the Interior. Given the results of this most recent archaeological investigation for this project, it is our opinion that no additional archaeological investigation is necessary for this project as presently proposed.

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  
May 24, 1994, Page 2

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.

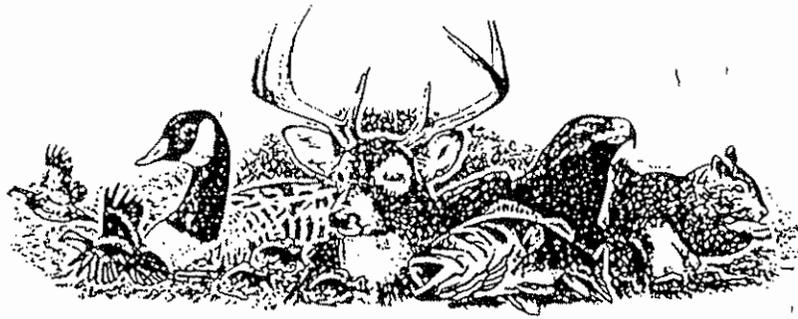
Sincerely,



David Brook  
Deputy State Historic Preservation Officer

DB:slw

cc: State Clearinghouse  
Felix Davila, Federal Highway Administration  
H. F. Vick, North Carolina Department of Transportation  
Lee Novick, North Carolina Department of Transportation



☒ North Carolina Wildlife Resources Commission ☒

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391  
Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Melba McGee, Division of Planning and Assessment  
Dept. of Environment, Health & Natural Resources

FROM: Dennis L. Stewart, Manager *by Fred A. Harter*  
Habitat Conservation Program

DATE: July 24, 1991

SUBJECT: DEIS, Proposed Greensboro Western Loop, Project #91-0936.

Biologists on the Wildlife Resources Commission staff have reviewed the subject document and we are familiar with habitat values of the project area. Our comments are provided in accordance with certain provisions of the N. C. Environmental Policy Act (G.S. 113A-1 through 113A-10; 1 NCAC 25).

The draft EIS is very well written and generally addresses fisheries and wildlife concerns, including wetland impacts. The project area has already suffered severe impacts from the Bryan Boulevard construction and large developments for both housing and businesses. However, it appears that this project will eliminate much of the remaining habitat. The no-build alternative or the western alternative would result in considerably less impact on fish and wildlife.

In order to protect fish and wildlife habitat remaining in the general area, we recommend that mitigation lands be designated for habitat conservation purposes. Future development of these lands should be prohibited. Mitigation lands should be provided at a 2:1 ratio, under resource agency jurisdiction, and buffered by city owned lands that cannot be developed. The alternative to providing mitigation lands will be continued loss of fish and wildlife habitat as well as declines in overall environmental quality.

Thank you for the opportunity to review and comment on this document. If we can provide further assistance, please call on us.

DLS/lp

cc: Shari Bryant, District 5 Fisheries Biologist  
Larry Warlick, District 5 Wildlife Biologist



State of North Carolina  
 Department of Environment, Health, and Natural Resources  
 Division of Environmental Management  
 512 North Salisbury Street • Raleigh, North Carolina 27604

James G. Martin, Governor  
 William W. Cobey, Jr., Secretary

July 19, 1991

George T. Everett, Ph.D.  
 Director



MEMORANDUM

To: Melba McGee

From: Alan Clark *AC*

Subject: Project No. 91-0936; DEIS for the Greensboro Western Loop, State Project No. 6.498001T, Guilford County

The subject document has been reviewed by this office. The Division of Environmental Management is responsible for the issuance of the 401 Water Quality Certification for activities that may impact the waters of the state including wetlands. The following comments are offered concerning this project.

1. This EIS is one of three which will address the environmental impacts of the Greensboro Urban Loop. The entire project should be included in one EIS. Failure to include the entire project in one EIS may result in the elimination of certain alternatives during evaluation of subsequent phases of the project.
2. The EIS indicates that the western alternative impacts the least amount of wetland and therefore should be the preferred alternative provided that the final EIS establishes that there are no practicable alternatives to the wetland impacts.
3. Consideration should be given to bridging the wetlands associated with Horsepen Creek.
4. A detailed mitigation proposal should be included in the final EIS outlining the types of mitigation, acreages associated with each type, success criteria and a monitoring plan.

Regional Offices

Asheville	Fayetteville	Mooreville	Raleigh	Washington	Wilmington	Winston-Salem
704/251-6208	919/486-1541	704/663-1699	919/733-2314	919/946-6481	919/395-3900	919/761-2351

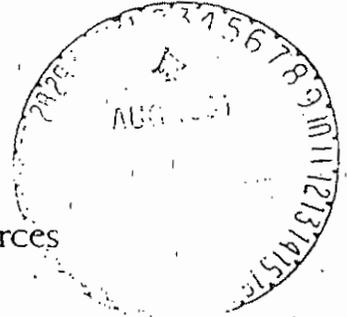
Pollution Prevention Pays

Ms. Melba McGee  
July 19, 1991  
Page 2

5. Endorsement of the EIS by DEM does not preclude the denial of the 401 Certification upon application if wetland impacts have not been avoided and minimized to the maximum extent practicable.

Questions regarding the 401 Certification should be directed to Mr. Ron Ferrell in DEM's Water Quality Planning Branch.

GBORLOOP/REF1  
cc: Ron Ferrell



State of North Carolina  
 Department of Environment, Health, and Natural Resources

Division of Forest Resources  
 512 North Salisbury Street • Raleigh, North Carolina 27611

James C. Martin, Governor  
 William W. Cobey, Jr., Secretary

Griffiths Forestry Center  
 2411 Garner Road  
 Clayton, North Carolina 27520  
 July 3, 1991

Stanford M. Adams  
 Director



MEMORANDUM

TO: ~~Melba McGee~~  
~~Environmental Assessment Unit~~

FROM: Don H. Robbins  
 Staff Forester *DHR*

SUBJECT: DEIS for the Proposed Greensboro Western Urban Loop in Guilford County, North Carolina

PROJECT #91-0936

DUE DATE 7-18-91

We have reviewed the above subject draft document and have the following comments:

1. Appendix B Agency Responses does not contain a copy of our EIS Scoping comments dated November 6, 1989. A copy is attached for your reference.
2. Therefore, the document does not completely address our forestry concerns. Some examples are as follows -
  - a. The third paragraph under item #6 (Summary of Beneficial and Adverse Environmental Effects) on page IV does not indicate that a major effect will occur to woodland, where as a major taking of woodland acres will eventually take place. Page VI, indicates that between 244 plus to 306 plus woodland acres will be taken.
  - b. Table IV-8 Habitat Acreage affected on page IV-35 does not give an acreage break down by timber types for each forest acres by alternative. We would like to see this break down by types or present condition classes.
  - c. Item E. Construction Impacts and Item G. Irreversible and Irretrievable Commitments of Resources, pages IV-47 to IV-49 do not indicate that the contractor will make all efforts possible

Melba McGee  
PROJECT  
Page 2

to salvage pulpwood and sawtimber size trees that have to be cut to permit construction. Also the contractor needs to protect standing trees left outside of construction limits from construction damage.

3. We do not wish to stand in the way of progress and realize that a better transportation system is needed for the area. We would hope that all efforts could be made to reduce the impact to forest resources in that area.

DHR:la

Attachment

pc: Warren Boyette - CO  
David A. Henderson - Guilford County Ranger  
File

Griffiths Forestry Center  
2411 Garner Road  
Clayton, North Carolina 27520  
November 6, 1989



MEMORANDUM

TO: Melba McGee  
Environmental Assessment Unit

FROM: Don H. Robbins *DHR*  
Staff Forester

SUBJECT: EIS of the Proposed Greensboro Western Urban Loop in Guilford  
County, N.C.

PROJECT #90-0276

DUE DATE 11-15-89

To better determine the impact, if any, to forestry in the area of the proposed project, the combined Environmental Impact Statement/Corridor location report should contain the following information concerning the proposed alternative routes for the possible right-of-way purchases for the project:

1. The number of total woodland acres that would be taken out of timber production as a result of new right-of-way purchases.
2. The acres breakdown of this woodland concerning present conditions such as clear-cut areas, young growing timber, and fully stocked stands of very productive timber within the new right-of-way purchases for disturbed and undisturbed portions.
3. The site indexes of the forest soils that would be involved within the proposed right-of-way, so as to be able to determine the productivity of these forest soils in the area.
4. The number of woodland acres that would affect any watersheds in the area, if the woodland was removed.

Alba McGee  
PROJECT #90-0276  
Page 2  
November 6, 1989

5. If woodland is involved, it is hoped that the timber could be merchandised and sold to lessen the need for piling and burning of debris during right-of-way construction.

Provisions should be indicated in the EIS that the contractor will make all efforts to salvage any merchantable timber to permit construction, once the contractor takes charge of the right-of-way.

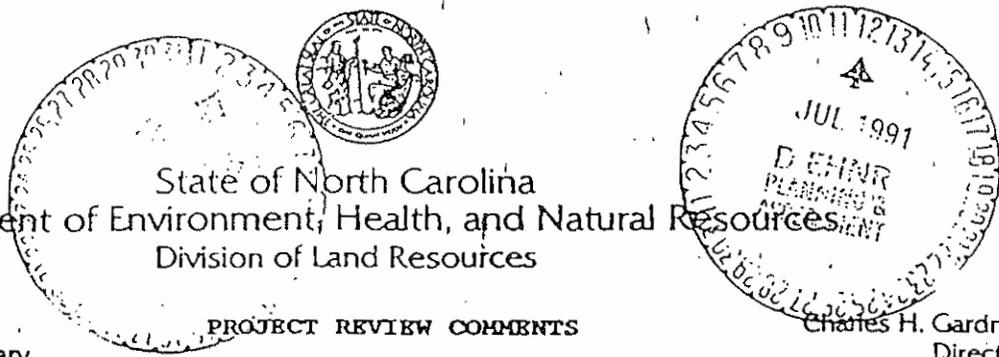
6. The provisions that the contractor will take during the construction phase to prevent erosion, sedimentation and construction damage to the remaining standing trees outside of the right-of-way boundary and construction limits.

We would hope that a route could be chosen, that would have the least impact to forest and related resources in that area.

DHR:la

cc: Fred White  
File

State of North Carolina  
Department of Environment, Health, and Natural Resources  
Division of Land Resources



James G. Martin, Governor  
William W. Cobey, Jr., Secretary

PROJECT REVIEW COMMENTS

Charles H. Gardner  
Director

Project Number: 91-0936 County: Guilford

Project Name: Draft EIS: Greensboro Western Urban Loop, Dept. of Transportation  
State Project No. G-498001T TIP No. U-2524  
Geodetic Survey

       This project will impact        geodetic survey markers. N.C. Geodetic Survey should be contacted prior to construction at P.O. Box 27687, Raleigh, N.C. 27611 (919) 733-3836. Intentional destruction of a geodetic monument is a violation of N.C. General Statute 102-4.

       This project will have no impact on geodetic survey markers.

✓ Other (comments attached) NEW MARKS IN AREA See map . . .

For more information contact the Geodetic Survey office at (919) 733-3836.

Cliff McManus 7-12-91  
Reviewer Date

Erosion and Sedimentation Control

       No comment

       This project will require approval of an erosion and sedimentation control plan prior to beginning any land-disturbing activity if more than one (1) acre will be disturbed.

       If an environmental document is required to satisfy Environmental Policy Act (SEPA) requirements, the document must be submitted as part of the erosion and sedimentation control plan.

✓ If any portion of the project is located within a High Quality Water Zone (HQW), as classified by the Division of Environmental Management, increased design standards for sediment and erosion control will apply.

✓ The erosion and sedimentation control plan required for this project should be prepared by the Department of Transportation under the erosion control program delegation to the Division of Highways from the North Carolina Sedimentation Control Commission.

       Other (comments attached)

For more information contact the Land Quality Section at (919) 733-4574.

A. Craig Deal 7-9-91  
Reviewer Date

INTERGOVERNMENTAL REVIEW — PROJECT COMMENTS

Reviewing Office:

Project Number:

91-0936

Due Date:

7/18/91

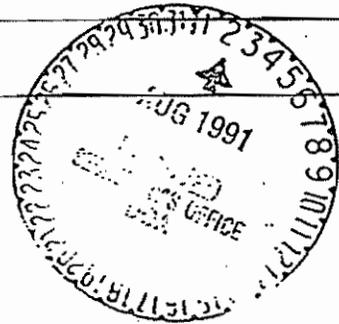
After review of this project it has been determined that the EHNR permit(s) indicated must be obtained in order for this project to comply with North Carolina Law.

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.

Normal Process Time (statutory time limit)

PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
<input checked="" 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.		
<input checked="" 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.	N/A	60 days (90 days)
<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.D. 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 day (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)



COPY  
NCDOT

PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
to drill exploratory oil or gas well	File surety bond of \$5,000 with EHNR running to State of N.C. conditional that any well opened by drill operator shall, upon abandonment, be plugged according to EHNR rules and regulations.	10 days (N/A)
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)
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)
401 Water Quality Certification	N/A	60 days (130 days)
CAMA Permit for MAJOR development	\$10.00 fee must accompany application	55 days (180 days)
CAMA Permit for MINOR development	\$10.00 fee must accompany application	22 days (60 days)

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

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):

see - 6-27-91

Mon 6-27-91

\_\_\_\_\_  
reviewer signature

\_\_\_\_\_  
agency

\_\_\_\_\_  
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) 9-6-6481

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 Sitas Creek Parkway Extension  
Winston-Salem, NC 27106  
(919) 761-2351



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

James G. Martin, Governor  
William W. Cobey, Jr., Secretary

David W. Sides  
Director

July 12, 1991



MEMORANDUM

TO: Melba McGee  
FROM: David E. Harrison *DEH*  
SUBJECT: Greensboro Western Urban Loop. Project No. 91-0936

The proposed construction is in a rapidly urbanizing area. Impacts on unique, prime or statewide important farmlands would be minimal.

On page III-32, under item no. 7 Wetlands, there are two references to Figure III-8. This should be Figure III-7 to be consistent with the rest of the EIS. All means necessary should be taken to have the least impact on the wetlands as possible with as little mitigation required as possible.

DEH



State of North Carolina  
Department of Environment, Health, and Natural Resources  
512 North Salisbury Street • Raleigh, North Carolina 27611

James C. Martin, Governor  
William W. Cobey, Jr., Secretary

Douglas C. Lewis  
Director  
Planning and Assessment

MEMORANDUM



TO: Chrys Baggett  
State Clearinghouse

FROM: Melba McGee *VM*  
Project Review Coordinator

RE: 91-0936; DEIS Greensboro Western Loop, Guilford County

DATE: July 31, 1991

The Department of Environment, Health, and Natural Resources has reviewed the referenced project. The proposed action is the construction of a four to eight-lane freeway on a 300 foot right-of-way, on new location, for the Greensboro Western Urban Loop. Division comments have been attached for consideration.

Generally speaking, our divisions have no objection to the project. There is particular interest in regards to impacts on wetlands and developing a mitigation proposal. An effective mitigation plan will be necessary prior to permit approvals.

Particular attention should be given to the comments of the Division of Forest Resources. They have indicated that the DEIS does not completely address comments they provided in November 1989.

All of the above issues along with others, are continued in the Departmental responses. If additional information is needed, please let me know.



## North Carolina Department of Crime Control and Public Safety

James G. Martin, Governor  
Joseph W. Dean, Secretary

Division of Emergency Management  
116 W. Jones St., Raleigh, N. C. 27603-1335  
(919) 733-3867

July 1, 1991

### MEMORANDUM

To: N.C. State Clearinghouse, Department of Administration  
From: J. Russell Capps, Division of Emergency Management,  
NFIP Section *JRC*

Subject: Intergovernmental Review

---

Re: State # N.C. 91-E-4220-0936

N.C. DOT - Proposed Greensboro Western Urban Loop,  
Greensboro, Guilford County

For information purposes, the Commission is advised that on July 24, 1990, Governor Martin signed Executive Order 123, a Uniform Floodplain Management Policy, which must be followed for development on any site.

## APPENDIX C RELOCATION STUDY REPORTS

See attached key map for definition of segments. The relocation reports for the Preferred Alternative were prepared in March 1994, based on preliminary design. For the other reports, E indicates the Eastern Alternative, M indicates the Middle Alternative, W indicates the Western Alternative, C indicates Crossovers, and MW and EMW indicate segments common to two or three alternatives. Lowest numbers are at the southern end of the project and increase toward the northern end.



**RELOCATION REPORT**

North Carolina Department of Transportation

E.I.S.  CORRIDOR  DESIGN (PAGE 1 OF 2)

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: GUILFORD

Alternate 1 of 1 Alternate

D. NO.: U-2524

F.A. PROJECT: N/A

SEGMENT A

DESCRIPTION OF PROJECT: Greensboro Urban Loop - I-85 South of Greensboro to Lawndale Drive  
From North of I-85 to South of I-40 Including Ramps on Southside I-40

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	138	6	144	15	0	9	6	41	88			
Businesses	4	2	6	0	VALUE OF DWELLING			DSS DWELLINGS AVAILABLE				
Home	0	0	0	0	Owners	Tenants		For Sale	For Rent			
Non-Profit	0	0	0	0	0-20M	11	\$ 0-150	0	0-20M	0	\$ 0-150	0
<b>ANSWER ALL QUESTIONS</b>					20-40M	60	150-250	0	20-40M	4	150-250	0
<b>EXPLAIN ALL "YES" ANSWERS</b>					40-70M	15	250-400	2	40-70M	118	250-400	54
X	1. Will special relocation services be necessary				70-100	48	400-600	4	70-100	209	400-600	225
X	2. Will schools or churches be affected by displacement				100 UP	4	600 LP	0	100 UP	466	600 LP	63
	3. Will business services still be available after project				TOTAL	138		6		797		342
	4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.				<b>REMARKS (Respond by Number)</b>							
X	5. Will relocation cause a housing shortage				3. Although (3) of the businesses are large, there are other smaller similar businesses within the general area of Greensboro.							
	6. Source for available housing (list)				4. (A) "Bob & Tom's Trading Post" - (tenant-occupied) small local retail operation. Employs approx. 2 part time. Not thought to be a minority enterprise.							
X	7. Will additional housing programs be needed				(B) "Cheek's Auto Parts" - (owner-occupied) parts/junk yard. Employs approx. 3-4 full time, 1 part time. Not a minority enterprise.							
	8. Should Last Resort Housing be considered				(C) "Unknown Named Used Car Lot" - (owner-occupied) This is a residential & business combination. Small used car sales lot. Employs approx. 1 full time. Not thought to be a minority enterprise.							
	9. Are there large, disabled, elderly, etc. families				(D) "Image Technology" - (tenant-occupied) printing type company - church bulletins, etc. Employs approx 30-40 full time, 5-10 part time. Not thought to be a minority.							
X	<b>ANSWER THESE ALSO FOR DESIGN</b>				(E) "Poteourri Press" - (owner-occupied) warehouse and possibly sales of gift shop items. Thought to be a distribution center. Employs approx. 30-40 full time, and 5-10 part time. Not thought to be a minority enterprise.							
	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											
X	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											

JAMES F. MEADE  
Relocation Agent  
m 15.4 Revised 5/90

03-07-94  
Date

*D.R. [Signature]*  
Approved  
3-8-94  
Date

Original & 1 Copy: State Relocation Agent  
2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

E.I.S.  CORRIDOR  DESIGN (PAGE 2 OF 2)

RELOCATION ASSISTANCE

PROJECT: 6498001T  
U-2524

COUNTY: GUILFORD  
F.A. PROJECT: N/A

Alternate 1 of 1 Alternate  
SEGMENT A

DESCRIPTION OF PROJECT: Greensboro Urban Loop - I-85 South of Greensboro to Lawndale Drive  
From North of I-85 to South of I-40 Including Ramps on Southside I-40

"Covington-Detroit Diesel Allison" - (owner-occupied) sales, service and parts for diesel engines and trucks. Employs approx. 35-45 full time, and 5 +- part time.

Based on the available housing at present. It is assumed that since this is a segment of a very large project, that relocation will be staged at intervals.

Local Realtors, Multiple Listing Service, newspapers, and visual survey.

Not believed necessary with our Relocation Program of Assistance & Payments.

Will be implemented as necessary.

It is anticipated there will be some large families, some elderly, and a few disabled affected by the project. No large numbers are expected. With our implementation of the Relocation Program, no problems are foreseen.

Greensboro Housing Authority.

It is assumed that project will be staged at intervals to prevent a housing surge due to relocation on this project.

Based on local Realtors, MLS service and local survey.

1 - Twenty-four (24) of the above displacee's occupy townhomes/condominiums. All are dered owner-occupants.

Available housing listed is only a partial listing. It represents primarily housing on the west and southwest side of Greensboro City and County. Total number of units is 1,700 +- rental and 150 +- townhomes/condominiums.

JAMES F. MEADE  
Relocation Agent  
15.4 Revised 5/90

03-07-94  
Date

D. R. V. G.  
Approved  
3-8-94  
Date  
Original & 1 Copy: State Relocation Agent  
2 Copy: Area Relocation File

**RELOCATION REPORT**

North Carolina Department of Transportation

E.I.S. CORRIDOR  DESIGN (PAGE 1 OF 2)

RELOCATION ASSISTANCE

OBJECT: 6.498001T  
D. NO.: U-2524

COUNTY: GUILFORD  
F.A. PROJECT: N/A

Alternate 1 of 1 Alternate  
SEGMENT B

DESCRIPTION OF PROJECT: Greensboro Urban Loop - I-85 South of Greensboro to Lawndale Drive  
From I-40 to South of Bryan Blvd. (Ramps at Bryan Blvd. Not Included)

ESTIMATED DISPLACED					INCOME LEVEL					
Category	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	41	2	43	0	0	1	4	6	32	
Businesses	7	3	10	0	VALUE OF DWELLING			DSS DWELLINGS AVAILABLE		
Losses	0	0	0	0	Owners		Tenants		For Sale	
Non-Profit	1	0	1	1	0-20M	0	\$ 0-150	0	0-20M	0
ANSWER ALL QUESTIONS					20-40M	1	150-250	0	20-40M	4
					40-70M	3	250-400	1	40-70M	118
EXPLAIN ALL "YES" ANSWERS					70-100	18	400-600	1	70-100	209
					100 LP	19	600 LP	0	100 LP	466
					TOTAL	41		2		797

- 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

REMARKS (Respond by Number)

3. There are other similar businesses within the Greensboro area not affected by this project.

4. (A) "John's Plumbing Repair Co." - (tenant-occupied) general plumbing business. Employs approx. 12-15 full time. Not thought to be a minority enterprise.

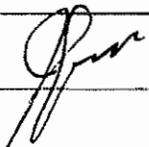
(B) "Speedo's Burgers" - (tenant-occupied) small local drive thru restaurant. Employs approx. 3 full time & 2 part time. Not thought to be a minority.

(C) "Sav-Way" - (owner-occupied) local gas, grocery convenience type store. Employs approx. 4-5 full time & 3 part time. Not a minority enterprise. Not in R/W but counted due to effects of the acquisition.

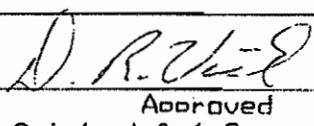
(D) "First Citizens Bank" - (owner-occupied) local branch unit. Employs approx. 5 full time. Not a minority enterprise. Not in R/W but counted due to effects of acquisition.

(E) "Cameron-Barkley" - (owner-occupied) industrial supply sales. Employs approx. 12-15 full time. Not thought to be a minority enterprise.

JAMES F. MEADE  
Relocation Agent  
15.4 Revised 5/90



03-07-94  
Date



3-8-94  
Date

Original & 1 Copy: State Relocation Agent  
2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

X E.I.S. CORRIDOR X DESIGN (PAGE 2 OF 2)

RELOCATION ASSISTANCE

LOT: 6.498001T

COUNTY: GUILFORD

Alternate 1 of 1 Alternate

U-2524

F.A. PROJECT: N/A

SEGMENT B

DESCRIPTION OF PROJECT: Greensboro Urban Loop - I-85 South of Greensboro to Lawndale Drive From I-40 to South of Bryan Blvd. (Ramos at Bryan Blvd. Not Included)

"Qi-Renn" - (owner-occupied) local building supply sales. Employs approx. 12-15 full time. Not thought to be a minority enterprise.

"Chemical Leahman Tank Lines" - (owner-occupied) offices, terminal, and truck cleaning facility. Employs approx. 20-25 full time. Not thought to be a minority enterprise.

"Gate City Glass" - (owner-occupied) local sales and installation of glass to industry. Employs approx. 20-25 full time. Not thought to be a minority enterprise.

"Showplace Consignments & West Market Flea Market" - (tenant-occupied) combination consignment and flea market sales. Employs approx. 4 full time and 2 part time. Not thought to be a minority enterprise.

"Longview Golf Course" - (owner-occupied) local golf course. Employs approx. 6-8 full time and 6 part time. Not thought to be a minority enterprise.

Based on the available housing at present. It is assumed that since this is a segment of a very large project, that relocation will be staged at intervals.

Local Realtors, Multiple Listing Service, newspapers, and visual survey.

Not believed necessary with our Relocation Program of Assistance & Payments.

Will be implemented as necessary.

It is anticipated there will be some large families, some elderly, and a few disabled affected by the project. No large numbers are expected. With our implementation of the Relocation Program, no problems are foreseen.

Greensboro Housing Authority.

It is assumed that project will be staged at intervals to prevent a housing surge due to relocation on this project.

Based on local Realtors, MLS service and local survey.

NT #1 - The non-profit is the "Persimmon Grove A.M.E. Church Cemetery" - It is owner occupied and (1) grave estimated to be within the acquisition, however, access will remain.

NT #2 - Four (4) of the above displacees own and occupy townhomes/condominiums in "Stage Coach Lane"

Available housing listed is only a partial listing. It represents primarily housing on the west and southwest side of Greensboro City and County. Total number of units is 1,700 + rental and 150 + townhomes/condominiums.

JAMES F. MEADE Relocation Agent 15.4 Revised 5/90

[Signature]

03-07-94 Date

[Signature] Approved

3-8-94 Date

Original & 1 Copy: State Relocation Agent 2 Copy: Area Relocation File

**RELOCATION REPORT**

North Carolina Department of Transportation

E.I.S.  CORRIDOR  DESIGN (PAGE 1 OF 2)

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: GUILFORD

Alternate 1 of 1 Alternate

D. NO.: U-2524

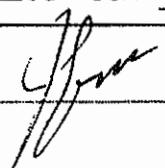
F.A. PROJECT: N/A

SEGMENT C

DESCRIPTION OF PROJECT: Greensboro Urban Loop - I-85 South of Greensboro to Lawndale Drive  
From South of Bryan Blvd. to C/L Old Battleground - Includes Bryan Blvd. Interchange

ESTIMATED DISPLACED					INCOME LEVEL																			
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP	VALUE OF DWELLING				DDS DWELLINGS AVAILABLE										
					Owners		Tenants		For Sale		For Rent													
Individuals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Families	20	7	27	4	0	0	5	11	11															
Businesses	0	0	0	0																				
Farms	0	0	0	0																				
Non-Profit	0	0	0	0																				
<b>ANSWER ALL QUESTIONS</b>					0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0												
<b>EXPLAIN ALL "YES" ANSWERS</b>					20-40M	0	150-250	0	20-40M	4	150-250	0												
S/NO					40-70M	6	250-400	3	40-70M	118	250-400	54												
X	1. Will special relocation services be necessary				70-100	8	400-600	4	70-100	209	400-600	225												
X	2. Will schools or churches be affected by displacement				100 UP	6	600 UP	0	100 UP	466	600 UP	63												
	3. Will business services still be available after project				TOTAL	20		7		797		342												
X	4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.				<b>REMARKS (Respond by Number)</b>																			
	5. Will relocation cause a housing shortage				3. None affected.																			
	6. Source for available housing (list)				5. Based on the available housing at present. It is assumed that since this is a segment of a very large project, that relocation will be staged at intervals.																			
X	7. Will additional housing programs be needed				6. Local Realtors, Multiple Listing Service, newspapers, and visual survey.																			
	8. Should Last Resort Housing be considered				7. Not believed necessary with our Relocation Program of Assistance & Payments.																			
	9. Are there large, disabled, elderly, etc. families				8. Will be implemented as necessary.																			
X	<b>ANSWER THESE ALSO FOR DESIGN</b>				9. It is anticipated there will be some large families, some elderly, and a few disabled affected by the project. No large numbers are expected. With our implementation of the Relocation Program, no problems are foreseen.																			
	10. Will public housing be needed for project				11. Greensboro Housing Authority.																			
	11. Is public housing available																							
	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																							
	14. Are suitable business sites available (list source)																							
	15. Number months estimated to complete RELOCATION																							

JAMES F. MEADE  
Relocation Agent  
Form 15.4 Revised 5/90



03-07-94  
Date

*D. R. ...*  
Approved

3-8-94  
Date

Original & 1 Copy: State Relocation Agent  
2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

E.I.S. CORRIDOR  DESIGN (PAGE 2 OF 2)

RELOCATION ASSISTANCE

JOB NO: 6.498001T  
F.A. PROJECT: U-2524

COUNTY: GUILFORD  
F.A. PROJECT: N/A

Alternate 1 of 1 Alternate  
SEGMENT C

DESCRIPTION OF PROJECT: Greensboro Urban Loop - I-85 South of Greensboro to Lawndale Drive  
From South of Bryan Blvd. to C/L Old Battleground - Includes Bryan Blvd. Interchange

It is assumed that project will be staged at intervals to prevent a housing surge due to relocation on this project.

Based on local Realtors, MLS service and local survey.

Available housing listed is only a partial listing. It represents primarily housing on the west and southwest side of Greensboro City and County. Total number of units is 1,700 +- rental and 150 +- townhomes/condominiums.

JAMES F. MEADE  
Relocation Agent  
15.4 Revised 5/90

03-07-94  
Date

Approved

3-8-94  
Date

Original & 1 Copy: State Relocation Agent  
2 Copy: Area Relocation File

**RELOCATION REPORT**

North Carolina Department of Transportation

X E.I.S.    CORRIDOR X DESIGN (PAGE 1 OF 2)

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: GUILFORD

Alternate 1 of 1 Alternate

PROJECT NO.: U-2524

F.A. PROJECT: N/A

SEGMENT 0

DESCRIPTION OF PROJECT: Greensboro Urban Loop - I-85 South of Greensboro to Lawndale Drive

From C/L of Old Battleground to C/L of Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL							
Category	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	57	65	122	24	0	6	20	67	23			
Businesses	0	0	0	0	VALUE OF DWELLING			DSS DWELLINGS AVAILABLE				
Losses	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									
NO	EXPLAIN ALL "YES" ANSWERS	20-40M	0	150-250	0	20-40M	4	150-250	0
X	1. Will special relocation services be necessary	40-70M	35	250-400	0	40-70M	118	250-400	54
X	2. Will schools or churches be affected by displacement	70-100	20	400-600	40	70-100	209	400-600	225
X	3. Will business services still be available after project	100 LP	2	600 LP	25	100 LP	466	600 LP	63
X	4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.	TOTAL	57		65		797		342

REMARKS (Respond by Number)									
X	5. Will relocation cause a housing shortage	3. None affected.							
X	6. Source for available housing (list)	5. Based on the available housing at present. It is assumed that since this is a segment of a very large project, that relocation will be staged at intervals.							
X	7. Will additional housing programs be needed	6. Local Realtors, Multiple Listing Service, newspapers, and visual survey.							
X	8. Should Last Resort Housing be considered	7. Not believed necessary with our Relocation Program of Assistance & Payments.							
X	9. Are there large, disabled, elderly, etc. families	8. Will be implemented as necessary.							
X	10. Will public housing be needed for project	9. It is anticipated there will be some large families, some elderly, and a few disabled affected by the project. No large numbers are expected. With our implementation of the Relocation Program, no problems are foreseen.							
X	11. Is public housing available	11. Greensboro Housing Authority.							
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								

JAMES F. MEADE  
Relocation Agent  
m 15.4 Revised 5/90

03-07-94  
Date

*D.R. Vick*  
Approved

3-8-94  
Date

Original & 1 Copy: State Relocation Agent  
2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

E.I.S.  CORRIDOR  DESIGN (PAGE 2 OF 2)

RELOCATION ASSISTANCE

PROJECT: 6.49BDD1T

COUNTY: GUILFORD

Alternate 1 of 1 Alternate

NO. : U-2524

F.A. PROJECT: N/A

SEGMENT D

DESCRIPTION OF PROJECT: Greensboro Urban Loop - I-85 South of Greensboro to Lawndale Drive  
From C/L of Old Battleground Avenue to C/L of Lawndale Drive

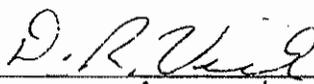
It is assumed that project will be staged at intervals to prevent a housing surge due to relocation on this project.

Based on local Realtors, MLS service and local survey.

NOTE - Of the above 57 owners it is estimated that 22 own and occupy single family dwellings  
35 own and occupy townhomes/condominiums. Of the 65 tenants, it is estimated that 48 rent  
apartments while 17 rent townhomes/condominiums.

NOTE: Available housing listed is only a partial listing. It represents primarily housing on the  
west and southwest side of Greensboro City and County. Total number of units is 1,700 +/-  
apartments and 150 +/- townhomes/condominiums.

JAMES F. MEADE  
Relocation Agent  
15.4 Revised 5/90  
  
03-07-94  
Date

  
Approved  
3-8-94  
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 1 Alternate

NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of	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	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Residential	0	0	0	0	Owners		Tenants		For Sale		For Rent		
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	1	150-250	0	20-40M	22	150-250	11	
					40-70M	2	250-400	0	40-70M	185	250-400	118	
X 1. Will special relocation services be necessary X 2. Will schools or churches be affected by displacement 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. 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.					70-100	1	400-600	0	70-100	281	400-600	223	
					100 UP	0	600 UP	0	100 UP	570	600 UP	6	
					TOTAL	4		0		1058		358	

REMARKS (Respond by Number)

- 3. There are similar businesses not being affected.
- 4. Cheek Auto Parts - business-owner - area junk yard 12 full time 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.

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.

J. Noell  
Relocation Agent  
15.4 Revised 5/90

*J.D. Noell*

08-10-90  
Date

*J.B. Williams*

Approved

8/14/90  
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: 6.4980011 COUNTY: Guilford

Alternate E of 2 Alternate

U-2524 F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of placee	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 LP				
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	VALU OF DWELLING				DSS DWELLINGS AVAILABLE				
Losses	0	0	0	0	Owners		Tenants		For Sale		For Rent		
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	
NO	EXPLAIN ALL "YES" ANSWERS				40-70M	11	250-400	1	40-70M	185	250-400	118	
X	1. Will special relocation services be necessary				70-100	5	400-600	0	70-100	281	400-600	223	
X	2. Will schools or churches be affected by displacement				100 LP	4	600 LP	0	100 LP	570	600 LP	6	
X	3. Will business services still be available after project				TOTAL		20	1		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				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												
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 \_\_\_\_\_

D. Noell *J.D. Noell* 08-10-90  
 Relocation Agent Date

*J.B. Williams G.* 8/14/90  
 Approved Date  
 Original & 1 Copy: State Relocation Agent  
 2 Copy: Area Relocation File

**ELOCATIONATION REPORT**

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

ECT: 6.498001T

COUNTY: Guilford

Alternate E of 3 Alternate

NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of type	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Businesses	10	4	14	5	0	3	11	0	0				
Profits	0	8	8	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
	0	0	0	0	Owners		Tenants		For Sale		For Rent		
	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
					20-40M	0	150-250	3	20-40M	22	150-250	11	
					40-70M	10	250-400	1	40-70M	185	250-400	118	
					70-100	0	400-600	0	70-100	281	400-600	223	
					100 UP	0	600 UP	0	100 UP	570	600 UP	6	
					TOTAL	10		4		1058		358	

**ANSWER ALL QUESTIONS**

**EXPLAIN ALL "YES" ANSWERS**

X 1. Will special relocation services be necessary

X 2. Will schools or churches be affected by displacement

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.

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 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

**REMARKS (Respond by Number)**

3. There are similar businesses not being affected.

4. (A) Good-Bodies Athletic Club 5,000 SF, 2 full time 4 part time employees - not a minority.  
 (B) Sedgefield Paint Center 4,000 SF, 4 full time employees - not a minority.  
 (C) Handcock Fabrics 7,000 SF, 4 full time employees - not a minority.  
 (D) Skooter's 1,000 SF, fast food restaurant. 3 full time, 3 part time employees - not a minority.  
 (E) Lancaster Gas Service, Inc., retail bottle gas refiller - 700 SF. 3 full time employees - not a minority.  
 (F) Ethan Allen Home Interiors 20,000 SF - retail furniture and home decorating - 10 full time employees.  
 (G) First Citizen Bank 800 SF. State bank 6 full time employees - not a minority.  
 (H) Sedgefield Professional Bldg., 8 units under construction - approximately 1,000 SF each.

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.

D. Noell  
Relocation Agent  
15.4 Revised 5/90

08-10-90  
Date

*J. 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 4 Alternate

F.A. PROJECT: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Category	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				
Non-Profit	0	0	0	0	Owners		Tenants		For Sale		For Rent		
	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	
					<b>TOTAL</b>	<b>25</b>		<b>2</b>		<b>1058</b>		<b>358</b>	

- ANSWER ALL QUESTIONS
- NO EXPLAIN ALL "YES" ANSWERS
- 1. Will special relocation services be necessary
  - 2. Will schools or churches be affected by displacement
  - 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.
  - 5. Will relocation cause a housing shortage
  - 6. Source for available housing (list)
  - 7. Will additional housing programs be needed
  - 8. Should Last Resort Housing be considered
  - 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

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 relocating the businesses affected. Also, the local newspapers has an extensive commercial and industrial listing.

D. Noell *[Signature]* 08-10-90  
Relocation Agent 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

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 place	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				
Home	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
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
	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.							
	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.							
	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 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											

D. Noell *[Signature]*  
 Relocation Agent  
 15.4 Revised 5/90

08-10-90  
 Date

*[Signature]*  
 Approved  
 Date 8/14/90  
 Original & 1 Copy: State Relocation Agent  
 2 Copy: Area Relocation File

**ELOCATIONATION REPORT**

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

ECT: 6.498001T COUNTY: Guilford Alternate E of B Alternate

U-2524 F.A. PROJECT:

LOCATION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

(PAGE 1 OF 2)

ESTIMATED DISPLACED					INCOME LEVEL								
of ce	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 LP				
iduals	0	0	0	0	0	0	0	0	0				
ies	47	144	191	40	0	0	51	140	0				
esses	13		13	1	VALUE OF DWELLING				DDS DWELLINGS AVAILABLE				
	0	0	0	0	Owners		Tenants		For Sale		For Rent		
rofit	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	1	250-400	0	40-70M	185	250-400	118	
1. Will special relocation services be necessary 2. Will schools or churches be affected by displacement 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. 5. Will relocation cause a housing shortage 6. Source for available housing (list) 7. Will additional housing programs be needed 8. Should Last Resort Housing be considered 9. Are there large, disabled, elderly, etc. families					70-100	39	400-600	144	70-100	281	400-600	223	
					100 LP	7	600 LP	0	100 LP	570	600 LP	6	
ANSWER THESE ALSO FOR DESIGN					TOTAL	47		144		1058		358	
					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.								
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													

Noell *J.D. Noell*

08-10-90 Date

*J.B. Williams* Approved

8/14/90 Date



**ELOCATIONATION REPORT**

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

ECT: 6.498001T  
U-2524

COUNTY: Guilford  
F.A. PROJECT:

Alternate E of 9 Alternate

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of type	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 UP				
Individuals	0	0	0	0	0	0	0	0	0				
Businesses	30	53	83	15	0	0	53	16	14				
Residences	2	0	2	0	VALUE OF DWELLING				DDS DWELLINGS AVAILABLE				
	0	0	0	0	Owners		Tenants		For Sale		For Rent		
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	
EXPLAIN ALL "YES" ANSWERS					40-70M	0	250-400	1	40-70M	185	250-400	118	
1. Will special relocation services be necessary 2. Will schools or churches be affected by displacement 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. 5. Will relocation cause a housing shortage 6. Source for available housing (list) 7. Will additional housing programs be needed 8. Should Last Resort Housing be considered 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					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)								
2. Greensboro Child Care, Inc., pre school child care center - 7 full time employees - not a minority. 3. There are similar businesses not being affected. 4. (A) Greensbor Child Care, Inc., see item #2. (B) Cecil's Realty - real estate brokerage, 3 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.  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.													

D. Noell  
Relocation Agent  
15.4 Revised 5/90

*D. Noell*

08-10-90  
Date

*J. Williams*  
Approved

8/6/92  
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 10 Alternate

NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL									
of placee	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 LP					
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				DDS DWELLINGS AVAILABLE					
Businesses	0	0	0	0	Owners		Tenants		For Sale		For Rent			
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		
NO	EXPLAIN ALL "YES" ANSWERS				40-70M	0	250-400	0	40-70M	185	250-400	118		
X	1. Will special relocation services be necessary				70-100	11	400-600	0	70-100	281	400-600	223		
	2. Will schools or churches be affected by displacement				100 LP	13	600 LP	0	100 LP	570	600 LP	6		
	3. Will business services still be available after project				TOTAL	24		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				2. St. Barnabas Episcopal Church - 100 members.									
X	6. Source for available housing (list)				3. There are similar businesses not being affected.									
	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.									
	8. Should Last Resort Housing be considered				B. 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													

D. Noell

*D. Noell*

08-10-90

Date

*J. Williams*

Approved

8/14/90

Date

Relocation Agent  
15.4 Revised 5/90

Original & 1 Copy: State Relocation Agent  
2 Copy: Area Relocation File

# ELOCATION REPORT

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

6.498001T COUNTY: Guilford  
 U-2524 F.A. PROJECT:

Alternate E of 11 Alternate

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of type	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 LP				
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				DSS DWELLINGS AVAILABLE				
	0	0	0	0	Owners		Tenants		For Sale		For Rent		
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	
EXPLAIN ALL "YES" ANSWERS					40-70M	0	250-400	0	40-70M	185	250-400	118	
1. Will special relocation services be necessary					70-100	0	400-600	30	70-100	281	400-600	223	
2. Will schools or churches be affected by displacement					100 LP	0	600 LP	0	100 LP	570	600 LP	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)								
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.								
7. Will additional housing programs be needed					8. Last Resort Housing program will be used if necessary.								
8. Should Last Resort Housing be considered													
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													

1. Will special relocation services be necessary
2. Will schools or churches be affected by displacement
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.
5. Will relocation cause a housing shortage
6. Source for available housing (list)
7. Will additional housing programs be needed
8. Should Last Resort Housing be considered
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

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.

Noell *FD Noell* 08-10-90  
 Relocation Agent Date  
 5.4 Revised 5/90

*AS Williams J.* 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 12 Alternate

NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL												
of placee	Owners	Tenants	Total	Minor- ities	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	0	0	0	0	0			
Families	51	0	51	10	0	0	0	50	1	Owners	Tenants	For Sale	For Rent				
Businesses	0	0	0	0	0-20M		0	\$ 0-150	0	0-20M	0	\$ 0-150	0				
Profits	0	0	0	0	20-40M	0	150-250	0	20-40M	22	150-250	11					
ANSWER ALL QUESTIONS					40-70M	0	250-400	0	40-70M	185	250-400	118					
NO	EXPLAIN ALL "YES" ANSWERS				70-100	0	400-600	0	70-100	281	400-600	223					
X	1. Will special relocation services be necessary				100 UP	51	600 UP	0	100 UP	570	600 UP	6					
X	2. Will schools or churches be affected by displacement				TOTAL									51	0	1058	358
	3. Will business services still be available after project				REMARKS (Respond by Number)												
	4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.				3. There are similar businesses not being affected.												
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.												
	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: Woodland Village Condos - 50 - 3 BR units. Pool area will be acquired for R/W.												
	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																

J. Noell *J. Noell*  
 Relocation Agent  
 15.4 Revised 5/90

08-10-90  
 Date

*J. Williams* 8/14/90  
 Approved Date  
 Original & 1 Copy: State Relocation Agent  
 2 Copy: Area Relocation File

**ELOCATION REPORT**

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

ECT: 6.498001T

COUNTY: Guilford

Alternate EMJ of 13 Alternate

F.A. PROJECT: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of face	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 UP				
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				
	0	0	0	0	Owners		Tenants		For Sale		For Rent		
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	
EXPLAIN ALL "YES" ANSWERS					40-70M	0	250-400	0	40-70M	185	250-400	118	
X	1. Will special relocation services be necessary				70-100	111	400-600	96	70-100	281	400-600	223	
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	111		96		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)				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.								
	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												

Noell *J D Noell*  
 Relocation Agent  
 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 MW of 1 Alternate

NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of	Owners	Tenants	Total	Minor-	0-15M	15-25M	25-35M	35-50M	50 UP				
placee				ities	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Individuals					Owners	Tenants	For Sale	For Rent					
Families					0-20M	\$ 0-150	0-20M	\$ 0-150					
Businesses					20-40M	150-250	20-40M	150-250					
Losses					40-70M	250-400	40-70M	250-400					
Profit					70-100	400-600	70-100	400-600					
ANSWER ALL QUESTIONS					100 UP	600 UP	100 UP	600 UP					
NO	EXPLAIN ALL "YES" ANSWERS				TOTAL								
X	1. Will special relocation services be necessary												
X	2. Will schools or churches be affected by displacement												
	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.												
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												
	<b>ANSWER THESE ALSO FOR DESIGN</b>												
	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 _____												

REMARKS (Respond by Number)

- 3. There are similar businesses not being affected.
- 4. (A) Sedgefield Stables - riding stable, boarding, training - 4 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.

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.

D. Noell *J.D. Noell* 08-10-90  
 Relocation Agent Date  
 15.4 Revised 5/90

*J. Williams* 8/14/90  
 Approved Date  
 Original & 1 Copy: State Relocation Agent  
 2 Copy: Area Relocation File

**ELOCATION REPORT**

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

6.498001T

COUNTY: Guilford

Alternate MW of 2 Alternate

U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of face	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 UP				
iduals	0	0	0	0	0	0	0	0	0				
ies	14	0	14	3	0	0	7	0	7				
esses	0	0	0	0	VALUE OF DWELLING				DDS DWELLINGS AVAILABLE				
	0	0	0	0	Owners		Tenants		For Sale		For Rent		
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
1. Will special relocation services be necessary 2. Will schools or churches be affected by displacement 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. 5. Will relocation cause a housing shortage 6. Source for available housing (list) 7. Will additional housing programs be needed 8. Should Last Resort Housing be considered 9. Are there large, disabled, elderly, etc. families					40-70M	7	250-400	0	40-70M	185	250-400	118
					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 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

Noell FO Noell 08-10-90  
 Relocation Agent Date  
 15.4 Revised 5/90

JB 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 MW of 3 Alternate

NO.: U-2524 F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of placee	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 LP				
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				
Businesses	0	0	0	0	Owners		Tenants		For Sale		For Rent		
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	
EXPLAIN ALL "YES" ANSWERS					40-70M	5	250-400	0	40-70M	185	250-400	118	
X	1. Will special relocation services be necessary				70-100	0	400-600	0	70-100	281	400-600	223	
X	2. Will schools or churches be affected by displacement				100 LP	9	600 LP	0	100 LP	570	600 LP	6	
	3. Will business services still be available after project				TOTAL	14		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)				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												

Noell *FD Noell* 08-10-90  
 Relocation Agent Date  
 15.4 Revised 5/90

*J.B. Williams* 8/14/90  
 Approved Date

Original & 1 Copy: State Relocation Agent  
 2 Copy: Area Relocation File

**ELOCATIONATION REPORT**

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

6.498001T  
U-2524

COUNTY: Guilford  
F.A. PROJECT:

Alternate MJ of 4 Alternate

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL									
Category	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					
	0	0	0	0	Owners		Tenants		For Sale		For Rent			
For 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	40-70M	185	250-400	118		
1. Will special relocation services be necessary					70-100	1	400-600	0	70-100	281	400-600	223		
2. Will schools or churches be affected by displacement					100 UP	4	600 UP	0	100 UP	570	600 UP	6		
3. Will business services still be available after project					TOTAL	5		0		1058		358		
4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.					REMARKS (Respond by Number)									
5. Will relocation cause a housing shortage					NOTE: Oriental Shrine Club Greensboro. 500 + members, 10 employees.									
6. Source for available housing (list)					3. There are similar businesses not being affected.									
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.									
8. Should Last Resort Housing be considered					8. Last Resort Housing program will be used if necessary.									
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														

Noell *J.D. Noell*  
Relocation Agent  
5.4 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

**ELOCATION REPORT**

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T COUNTY: Guilford  
 NO.: U-2524 F.A. PROJECT:

Alternate MW of 5 Alternate

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of type	Owners	Tenants	Total	Minor- ities	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				ODS DWELLINGS AVAILABLE				
Non-profit	0	0	0	0	Owners		Tenants		For Sale		For Rent		
	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	
EXPLAIN ALL "YES" ANSWERS					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	
1. Will special relocation services be necessary 2. Will schools or churches be affected by displacement 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. 5. Will relocation cause a housing shortage 6. Source for available housing (list) 7. Will additional housing programs be needed 8. Should Last Resort Housing be considered 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					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.								

Noell *J.D. Noell* 08-10-90 Date *J.B. Williams* Approved 8/14/90 Date  
 Relocation Agent 15.4 Revised 5/90 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 MW of 10 Alternate

F.A. PROJECT: U-2524

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of placee	Owners	Tenants	Total	Minor- ities	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				
Losses	0	0	0	0	Owners		Tenants		For Sale		For Rent		
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	
X	1. Will special relocation services be necessary				70-100	0	400-600	0	70-100	281	400-600	223	
X	2. Will schools or churches be affected by displacement				100 UP	1	600 UP	0	100 UP	570	600 UP	6	
	3. Will business services still be available after project				REMARKS (Respond by Number)								
	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				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.								
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												
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												

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.

J. Noell *J. Noell*  
Relocation Agent  
15.4 Revised 5/90

08-10-90  
Date

*J.B. Williams* *8/14/90*  
Approved Date

Original & 1 Copy: State Relocation Agent  
2 Copy: Area Relocation File

**ELOCATION REPORT**

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

ECT: 6.498001T COUNTY: Guilford

Alternate MJ of 11 Alternate

NO.: U-2524 F.A. PROJECT: \_\_\_\_\_

RIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of ce	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 UP				
iduals	0	0	0	0	0	0	0	0	0				
ies	0	30	30	6	0	0	30	0	0				
esses	0	0	0	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
	0	0	0	0	Owners		Tenants		For Sale		For Rent		
rofit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
<b>ANSWER ALL QUESTIONS</b> <b>EXPLAIN ALL "YES" ANSWERS</b> 1. Will special relocation services be necessary 2. Will schools or churches be affected by displacement 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. 5. Will relocation cause a housing shortage 6. Source for available housing (list) 7. Will additional housing programs be needed 8. Should Last Resort Housing be considered 9. Are there large, disabled, elderly, etc. families <b>ANSWER THESE ALSO FOR DESIGN</b> 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 _____					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	0	400-600	30	70-100	281	400-600	223	
					100 UP	0	600 UP	0	100 UP	570	600 UP	6	
					TOTAL	0		30		1058		358	
					<b>REMARKS (Respond by Number)</b> 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.								

Noell J D Noell 08-10-90  
 Relocation Agent Date  
 15.4 Revised 5/90

J B Williams 8/14/90  
 Approved Date  
 Original & 1 Copy: State Relocation Agent  
 2 Copy: Area Relocation File

**ELOCATIONATION REPORT**

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

6.498001T COUNTY: Guilford  
 U-2524 F.A. PROJECT:

Alternate M of 6 Alternate

RIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL							
of ce	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 UP			
viduals	0	0	0	0	0	0	0	0	0			
lies	4	0	4	0	0	0	0	3	1			
nesses	0	0	0	0	VALUE OF DWELLING				DDS DWELLINGS AVAILABLE			
s	0	0	0	0	Owners		Tenants		For Sale		For Rent	
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
NO	EXPLAIN ALL "YES" ANSWERS				40-70M	0	250-400	0	40-70M	185	250-400	118
X	1. Will special relocation services be necessary				70-100	3	400-600	0	70-100	281	400-600	223
X	2. Will schools or churches be affected by displacement.				100 UP	1	600 UP	0	100 UP	570	600 UP	6
	3. Will business services still be available after project				TOTAL	4		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.							
	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.							
	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											

D. Noell *D. Noell*  
 Relocation Agent

08-10-90  
 Date

*J. B. Williams Jr*  
 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 M of 7 Alternate

U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL					
of placee	Owners	Tenants	Total	Minor- ities	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	VALUE OF DWELLING			DDS DWELLINGS AVAILABLE		
Losses	0	0	0	0	Owners	Tenants	For Sale	For Rent		
Profit	0	0	0	0	0-20M	\$ 0-150	1	0-20M	\$ 0-150	
ANSWER ALL QUESTIONS					20-40M	10	150-250	5	20-40M	22
					40-70M	9	250-400	112	40-70M	185
EXPLAIN ALL "YES" ANSWERS					70-100	0	400-600	371	70-100	281
					100 LP	0	600 LP	0	100 LP	570
X 1. Will special relocation services be necessary					TOTAL	19	489		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. (A) Landmark Center Real Estate Office. 20 employees - not a minority.
X 5. Will relocation cause a housing shortage										(B) Statham Construction Co., general contractor 6 employees - not a minority.
					X 6. Source for available housing (list)					(C) Priba Furniture Sales & Interiors, Retail furniture sales and interior decorating 25 employees, not a minority.
X 7. Will additional housing programs be needed										(D) Ace Rent-A-Care - auto rental agency 4 employees, not a minority.
					X 8. Should Last Resort Housing be considered					(E) Circle K Food Store - convenience store. 6 employees not a minority.
X 9. Are there large, disabled, elderly, etc. families										(F) Captain Bill's Seafood - seafood restaurant, 10 employees full and part time - not a minority.
					ANSWER THESE ALSO FOR DESIGN					(G) Custom Industries, Inc., metal work manufacturer. 100 employees - not a minority.
10. Will public housing be needed for project										6. Personal Survey, local newspapers, Greensboro Area Chamber of Commerce, MLS Directory and the Greater Greensboro Board of Realtors.
					11. Is public housing available					8. Last Resort Housing program will be used if necessary.
12. Is it felt there will be adequate DDS housing available during relocation period										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.
					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 *J.D. Noell*  
Relocation Agent  
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

**ELOCATION REPORT**

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

6.498001T  
U-2524

COUNTY: Guilford  
F.A. PROJECT:

Alternate M of B Alternate

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL							
of ace	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 UP			
iduals	0	0	0	0	0	0	0	0	0			
ies	76	0	76	20	0	0	0	66	10			
esses	0	0	0	0	VALUE OF DWELLING			DDS DWELLINGS AVAILABLE				
	0	0	0	0	Owners	Tenants	For Sale		For Rent			
Profit	1	0	1	0	0-20M	\$ 0-150	0	0-20M	\$ 0-150			
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
EXPLAIN ALL "YES" ANSWERS					70-100	28	400-600	0	70-100	281	400-600	223
					100 UP	48	600 UP	0	100 UP	570	600 UP	6
					TOTAL	76		0		1058		358
ANSWER THESE ALSO FOR DESIGN					REMARKS (Respond by Number)							
					2. Lutheran Church of the Resurrection - 100 +- members.							
ANSWER THESE ALSO FOR DESIGN					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.							
ANSWER THESE ALSO FOR DESIGN					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												

Noell *J.D. Noell* 08-10-90 Date  
Relocation Agent  
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 M of 9 Alternate

NO.: U-2524 F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL												
of type	Owners	Tenants	Total	Minor- ities	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				DSS DWELLINGS AVAILABLE								
	0	0	0	0	Owners		Tenants		For Sale		For Rent						
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	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					
ANSWER THESE ALSO FOR DESIGN					REMARKS (Respond by Number)												
					1. Will special relocation services be necessary					3. There are similar businesses not being affected.							
					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.												
					5. Will relocation cause a housing shortage												
					6. Source for available housing (list)												
					7. Will additional housing programs be needed												
					8. Should Last Resort Housing be considered												
					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																	

Noell *J.D. Noell* 08-10-90  
 Relocation Agent Date  
 15.4 Revised 5/90

*J.B. Williamson, Jr.* 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

6.498001T

COUNTY: Guilford

Alternate W of 6 Alternate

U-2524

F.A. PROJECT:     

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of face	Owners	Tenants	Total	Minor- ities	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				
	0	0	0	0	Owners		Tenants		For Sale		For Rent		
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	
EXPLAIN ALL "YES" ANSWERS					40-70M	6	250-400	3	40-70M	185	250-400	118	
1. Will special relocation services be necessary					70-100	13	400-600	0	70-100	281	400-600	223	
2. Will schools or churches be affected by displacement					100 UP	39	600 UP	0	100 UP	570	600 UP	6	
3. Will business services still be available after project					TOTAL	58		3		1058		358	
4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.					REMARKS (Respond by Number)								
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.								
7. Will additional housing programs be needed					8. Last Resort Housing program will be used if necessary.								
8. Should Last Resort Housing be considered													
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													

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.

Noell J.D. Null  
Relocation Agent  
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

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

6.498001T COUNTY: Guilford  
U-2524 F.A. PROJECT:

Alternate W of 7 Alternate

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

(PAGE 1 OF 2)

ESTIMATED DISPLACEDS					INCOME LEVEL								
of place	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 LP				
Individuals	0	0	0	0	0	0	0	0	0				
Families	56	2	58	20	0	0	58	0	0				
Businesses	10	0	10	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Businesses	0	0	0	0	Owners		Tenants		For Sale		For Rent		
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	
NO	EXPLAIN ALL "YES" ANSWERS				40-70M	0	250-400	2	40-70M	185	250-400	118	
X	1. Will special relocation services be necessary				70-100	56	400-600	0	70-100	281	400-600	223	
X	2. Will schools or churches be affected by displacement				100 LP	0	600 LP	0	100 LP	570	600 LP	6	
	3. Will business services still be available after project				TOTAL	56		2		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.								
	6. Source for available housing (list)				4. (A) Carolina Tractor Corp. Sales and service of heavy construction equipment. 100 full time employees, not a minority.								
X	7. Will additional housing programs be needed				(B) Covington Diesel - sales and service of diesel heavy equipment. 150 full time employees - not a minority. (I-40 Chimney Roach Rd. site).								
	8. Should Last Resort Housing be considered				(C) Potpourri Press Publisher - printer - 100 employees - not a minority.								
X	9. Are there large, disabled, elderly, etc. families				(D) Union 76 Truck Stop/Restaurant. Restaurant, gasoline, auto repairs, lodging, etc., 50 employees, not a minority.								
	ANSWER THESE ALSO FOR DESIGN				(E) First Citizen Bank- NC chartered bank. 4 employees - not a minority.								
	10. Will public housing be needed for project				(F) Cameron Barkley Co. Industrial supplies - 7 employees - not a minority.								
	11. Is public housing available				(G) Tri-City Insulation, Inc. Industrial and residential insulators 12 employees - not a minority.								
	12. Is it felt there will be adequate DDS housing available during relocation period				(H) Sherwin Williams Chemical Coatings Facilities #1 & #2 - 60 employees - not a minority.								
	13. Will there be a problem of housing within financial means				(I) Gate City Glass Co. Inc. Residential, commercial, sales, service and installation - 20 employees - not a minority.								
	14. Are suitable business sites available (list source)				(J) Covington Diesel, Inc. Special services - 20 employees - not a minority - 6504 W. Market St. location								
	15. Number months estimated to complete RELOCATION												

D. Noell *[Signature]*  
Relocation Agent  
m 15.4 Revised 5/90

08-10-90  
Date

*[Signature]*  
Approved  
8/14/92  
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

OBJECT: 6.498001T COUNTY: Guilford

Alternate W of B Alternate

D. NO.: U-2524 F.A. PROJECT: \_\_\_\_\_

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
Category	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	VALU OF DWELLING				DDS DWELLINGS AVAILABLE				
Businesses	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	
EXPLAIN ALL "YES" ANSWERS					70-100	37	400-600	0	70-100	281	400-600	223	
					100 UP	24	600 UP	0	100 UP	570	600 UP	6	
					TOTAL	62		0		1058		358	

- 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

REMARKS (Respond by Number)

2. Lutheran Church Of The Resurrection - 100 members.

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 \_\_\_\_\_

D. Noell *J.D. Noell* 08-10-90 Date

*J.D. Williamson Jr.* 8/14/90 Date

**RELOCATION REPORT**

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T

COUNTY: Guilford

Alternate W of 9 Alternate

U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL							
of Placee	Owners	Tenants	Total	Minor- ities	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			DDS DWELLINGS AVAILABLE				
For Profit	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									
NO	EXPLAIN ALL "YES" ANSWERS								
X	1. Will special relocation services be necessary								
X	2. Will schools or churches be affected by displacement								
	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.								
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 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								

REMARKS (Respond by Number)

3. There are similar businesses not being affected.

4. Longview Golf Course 18 hole public golf course. 6 full time 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.

Comment: Farm relocation - Hodgkin Dairy Farm.

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.

D. Noell *D. Noell*  
Relocation Agent  
m 15.4 Revised 5/90

08-10-90  
Date

*J. Williams* 8/14/90  
Approved Date

Original & 1 Copy: State Relocation Agent  
2 Copy: Area Relocation File

**ELOCATIONATION REPORT**

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

ECT: 6.498001T

COUNTY: Guilford

Alternate C of 1 Alternate

NO.: U-2524

F.A. PROJECT:

RIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of type	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 UP				
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				
	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
<b>ANSWER ALL QUESTIONS</b>					20-40M	0	150-250	0	20-40M	22	150-250	11	
<b>EXPLAIN ALL "YES" ANSWERS</b>					40-70M	2	250-400	0	40-70M	185	250-400	118	
1. Will special relocation services be necessary					70-100	28	400-600	0	70-100	281	400-600	223	
2. Will schools or churches be affected by displacement					100 UP	4	600 UP	0	100 UP	570	600 UP	6	
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.					<b>REMARKS (Respond by Number)</b>								
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.								
7. Will additional housing programs be needed					8. Last Resort Housing program will be used if necessary.								
8. Should Last Resort Housing be considered													
9. Are there large, disabled, elderly, etc. families													
<b>ANSWER THESE ALSO FOR DESIGN</b>													
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													

Noell *J.P. Noell* 08-10-90  
 Relocation Agent Date  
 5.4 Revised 5/90

*J.B. Williamson Jr.* 8/14/90  
 Approved Date  
 Original & 1 Copy: State Relocation Agent  
 2 Copy: Area Relocation File

**ELOCATIONATION REPORT**

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

6.498001T

COUNTY: Guilford

Alternate C of 2 Alternate

U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of face	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 LP				
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				DSS DWELLINGS AVAILABLE				
	0	0	0	0	Owners		Tenants		For Sale		For Rent		
For 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	
EXPLAIN ALL "YES" ANSWERS					40-70M	6	250-400	0	40-70M	185	250-400	118	
1. Will special relocation services be necessary					70-100	1	400-600	0	70-100	281	400-600	223	
2. Will schools or churches be affected by displacement					100 LP	3	600 LP	0	100 LP	570	600 LP	6	
3. Will business services still be available after project					TOTAL	10		0		1058		358	
4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.					REMARKS (Respond by Number)								
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 and the Greensboro MLS Directory.								
7. Will additional housing programs be needed					8. Last Resort Housing program will be used if necessary.								
8. Should Last Resort Housing be considered													
9. Are there large, disabled, elderly, etc. families													
<u>ANSWER THESE ALSO FOR DESIGN</u>													
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													

Noell F D Noell 08-10-90  
 Relocation Agent Date  
 15.4 Revised 5/90

J B Williams 8/14/90  
 Approved Date  
 Original & 1 Copy: State Relocation Agent  
 2 Copy: Area Relocation File

# ELOCATIONATION REPORT

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

ECT: 6.498001T COUNTY: Guilford

Alternate C of 3 Alternate

NO.: U-2524 F.A. PROJECT:

RIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL											
of ce	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 UP							
iduals	0	0	0	0	0	0	0	0	0							
ies	8	0	8	2	0	2	5	1	0							
esses	1	0	1	0	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE							
	1	0	1	0	Owners		Tenants		For Sale		For Rent					
rofit	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	2	150-250	0	20-40M	22	150-250	11				
					40-70M	4	250-400	0	40-70M	185	250-400	118				
1. Will special relocation services be necessary 2. Will schools or churches be affected by displacement 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. 5. Will relocation cause a housing shortage 6. Source for available housing (list) 7. Will additional housing programs be needed 8. Should Last Resort Housing be considered 9. Are there large, disabled, elderly, etc. families					70-100	2	400-600	0	70-100	281	400-600	223				
					100 UP	0	600 UP	0	100 UP	570	600 UP	6				
ANSWER THESE ALSO FOR DESIGN					TOTAL	8		0		1058		358				
					REMARKS (Respond by Number)											
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					3. There are similar businesses not being affected.											
					4. D. W. Griffin Wrecking, Inc.; general salvage, building demolition, ext. 50 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.											
					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.											

Noell *J.D. Null* 08-10-90  
 Relocation Agent Date  
 15.4 Revised 5/90

*J.B. Williams* 8/14/90  
 Approved Date  
 Original & 1 Copy: State Relocation Agent  
 2 Copy: Area Relocation File

# ELOCATION REPORT

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

6.498001T

COUNTY: Guilford

Alternate C of 4 Alternate

U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Greensboro, Western Urban Loop From I-85 to Lawndale Drive

ESTIMATED DISPLACED					INCOME LEVEL								
of type	Owners	Tenants	Total	Minor- ities	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				
	0	0	0	0	Owners		Tenants		For Sale		For Rent		
For 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	
EXPLAIN ALL "YES" ANSWERS					40-70M	0	250-400	0	40-70M	185	250-400	118	
1. Will special relocation services be necessary					70-100	6	400-600	0	70-100	281	400-600	223	
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	6		0		1058		358	
4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.					REMARKS (Respond by Number)								
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.								
7. Will additional housing programs be needed					8. Last Resort Housing program will be used if necessary.								
8. Should Last Resort Housing be considered													
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													

Noell

*F D Noell*

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

X E.I.S. CORRIDOR DESIGN

North Carolina Department of Transportation  
RELOCATION ASSISTANCE

OBJECT: 6.498001T COUNTY: GUILFORD

D. NO.: U-2524 F.A. PROJECT: N/A

Alternate 1 of 4-F Alternate  
DEC 12 1990

DESCRIPTION OF PROJECT: Guilford College 4-F: Begin at Wendover Ave., extend N to W Jefferson with interchange at W. Market St.

ESTIMATED DISPLACES					INCOME LEVEL							
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP			
Individuals	0	60	60	12	10	35	15	0	0			
Families	252	72	324	30	0	53	137	98	36			
Businesses	14	0	0	0	VALUE OF DWELLING			DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners	Tenants	For Sale	For Rent				
Non-Profit	2	0	2	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0

ANSWER ALL QUESTIONS										
S/NO	EXPLAIN ALL "YES" ANSWERS									
X	1.	Will special relocation services be necessary	20-40M	0	150-250	0	20-40M	0	150-250	0
	2.	Will schools or churches be affected by displacement	40-70M	37	250-400	0	40-70M	27	250-400	0
	3.	Will business services still be available after project	70-100	121	400-600	132	70-100	257	400-600	462
	4.	Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.	100 UP	94	600 LP	0	100 LP	485	600 LP	0
	5.	Will relocation cause a housing shortage	TOTAL	252		132		769		462

REMARKS (Respond by Number)

2. (A) Westside Chapel  
(B) Calvary Assembly Church (new)

3. Other businesses similar to affected property will be available in the area.

4. 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.

6. Greater Greensboro Board of Realtors (MLS).  
8. To be implemented as necessary.

COMMENT:  
THERE APPEARS TO BE SUFFICIENT REPLACEMENT BUSINESS PROPERTY AND SITES FOR THOSE PROPOSED TO BE DISPLACED

by Foreman *[Signature]* 12-07-90 Date  
Relocation Agent *[Signature]* Approved *[Signature]* 12-12-90 Date  
Form 15.4 Revised 5/90 Original & 1 Copy: State Relocation Agen  
2 Copy: Area Relocation File

# RELOCATION REPORT

North Carolina Department of Transportation

E.I.S.  CORRIDOR  DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T  
D. NO.: U-2524

COUNTY: GUILFORD  
F.A. PROJECT: N/A

Alternate 1 of 4-F Alternat

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 UP	VALUATION & AVAILABILITY			
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	VALUATION & AVAILABILITY				DSS DWELLINGS AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
ANSWER ALL QUESTIONS					0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
					0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
EXPLAIN ALL "YES" ANSWERS					0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
<input checked="" type="checkbox"/>	1. Will special relocation services be necessary				0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
<input checked="" type="checkbox"/>	2. Will schools or churches be affected by displacement				0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
<input checked="" type="checkbox"/>	3. Will business services still be available after project				0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
<input checked="" type="checkbox"/>	4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.				0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
<input checked="" type="checkbox"/>	5. Will relocation cause a housing shortage				0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
<input type="checkbox"/>	6. Source for available housing (list)				0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
<input checked="" type="checkbox"/>	7. Will additional housing programs be needed				0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
<input type="checkbox"/>	8. Should Last Resort Housing be considered				0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
<input checked="" type="checkbox"/>	9. Are there large, disabled, elderly, etc. families				0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
ANSWER THESE ALSO FOR DESIGN					0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
<input type="checkbox"/>	10. Will public housing be needed for project				0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
<input type="checkbox"/>	11. Is public housing available				0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
<input type="checkbox"/>	12. Is it felt there will be adequate DDS housing available during relocation period				0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
<input type="checkbox"/>	13. Will there be a problem of housing within financial means				0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
<input type="checkbox"/>	14. Are suitable business sites available (list source)				0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP
<input type="checkbox"/>	15. Number months estimated to complete RELOCATION				0-20M	20-40M	40-70M	70-100	100 UP	\$ 0-150	\$ 150-250	\$ 250-400	\$ 400 UP

REMARKS (Respond by Number)

6. Greater Greensboro Board of Realtors (MLS).

8. To be implemented as necessary.

by Foreman  
Relocation Agent  
Form 15.4 Revised 5/90

12-07-90  
Date

*[Signature]*  
Approved

12-12-90  
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 1 Alternate

NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Revised Relocation Report, Greensboro Western Urban Loop

ESTIMATED DISPLACED					INCOME LEVEL																																																																
Category	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	13	1	14	4	0	2	9	2	1																																																												
Businesses	2	0	2	1	<table border="1"> <thead> <tr> <th colspan="3">VALUE OF DWELLING</th> <th colspan="3">DSS DWELLINGS AVAILABLE</th> </tr> <tr> <th>Owners</th> <th>Tenants</th> <th></th> <th>For Sale</th> <th colspan="2">For Rent</th> </tr> </thead> <tbody> <tr> <td>0-20M</td> <td>0</td> <td>\$ 0-150</td> <td>0</td> <td>0-20M</td> <td>0</td> <td>\$ 0-150</td> <td>0</td> </tr> <tr> <td>20-40M</td> <td>0</td> <td>150-250</td> <td>0</td> <td>20-40M</td> <td>115</td> <td>150-250</td> <td>3</td> </tr> <tr> <td>40-70M</td> <td>11</td> <td>250-400</td> <td>1</td> <td>40-70M</td> <td>439</td> <td>250-400</td> <td>35</td> </tr> <tr> <td>70-100</td> <td>1</td> <td>400-600</td> <td>0</td> <td>70-100</td> <td>517</td> <td>400-600</td> <td>47</td> </tr> <tr> <td>100 LP</td> <td>1</td> <td>600 LP</td> <td>0</td> <td>100 LP</td> <td>876</td> <td>600 LP</td> <td>36</td> </tr> <tr> <td><b>TOTAL</b></td> <td><b>13</b></td> <td></td> <td><b>1</b></td> <td></td> <td><b>1947</b></td> <td></td> <td><b>121</b></td> </tr> </tbody> </table>					VALUE OF DWELLING			DSS DWELLINGS AVAILABLE			Owners	Tenants		For Sale	For Rent		0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	20-40M	0	150-250	0	20-40M	115	150-250	3	40-70M	11	250-400	1	40-70M	439	250-400	35	70-100	1	400-600	0	70-100	517	400-600	47	100 LP	1	600 LP	0	100 LP	876	600 LP	36	<b>TOTAL</b>	<b>13</b>		<b>1</b>		<b>1947</b>		<b>121</b>
VALUE OF DWELLING			DSS DWELLINGS AVAILABLE																																																																		
Owners	Tenants		For Sale	For Rent																																																																	
0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0																																																														
20-40M	0	150-250	0	20-40M	115	150-250	3																																																														
40-70M	11	250-400	1	40-70M	439	250-400	35																																																														
70-100	1	400-600	0	70-100	517	400-600	47																																																														
100 LP	1	600 LP	0	100 LP	876	600 LP	36																																																														
<b>TOTAL</b>	<b>13</b>		<b>1</b>		<b>1947</b>		<b>121</b>																																																														
Businesses	0	0	0	0																																																																	
Non-Profit	0	0	0	0																																																																	

- ANSWER ALL QUESTIONS**
- EXPLAIN ALL "YES" ANSWERS**
- X 1. Will special relocation services be necessary
  - X 2. Will schools or churches be affected by displacement
  - 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.
  - 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
  - 9. Are there large, disabled, elderly, etc. families

- ANSWER THESE ALSO FOR DESIGN**
- X 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
  - X 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

**REMARKS (Respond by Number)**

3. There are similar businesses not being affected.

4. (A) Cheek Auto Parts - business-owner - auto salvage yard. 12 full time employees - not a minority.  
 (B) Triad Roofing Co., - business-owner. Residential Industrial Roofing. 4 full time - 2 part time employees. Minority business. This business is operated from the owners residence.

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.

9. There may be a few elderly, possibly disabled and large families. However no problems anticipated with the current program.

11. The Greensboro Housing Authority.

12. All sources referred to in item #6 informs this office that they feel DSS housing will be available.

14. Two of Greensboro's leading commercial and industrial property managers see no problem in relocating the businesses affected. Also, the local newspapers has an extensive commercial and industrial listing.

D. Noell *F. D. Noell* 12-12-91  
 Relocation Agent Date  
 Form 15.4 Revised 5/90

*J. B. Williamson Jr.* DEC 16 1991  
 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 2 Alternate

D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Revised Relocation Report, Greensboro Western Urban Loop

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	3	0	2	7	10	1			
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	\$ 0-150	0	0-20M	\$ 0-150			
ANSWER ALL QUESTIONS EXPLAIN ALL "YES" ANSWERS					20-40M	0	150-250	0	20-40M	115	150-250	3
					40-70M	8	250-400	2	40-70M	439	250-400	35
					70-100	9	400-600	0	70-100	517	400-600	47
					100 UP	1	600 UP	0	100 UP	876	600 UP	36
					TOTAL	18		2		1947		121
ANSWER THESE ALSO FOR DESIGN					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. (A) Matt Marshall Engineering - Industrial equip & service. 5 full time employees. Business is operated from a building at the owners home. Not a minority.									
X	12.	Is it felt there will be adequate DDS 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)	9. There may be a few elderly, possibly disabled and large families. However, no problems anticipated with the current program.									
X	15.	Number months estimated to complete RELOCATION	11. The Greensboro Housing Authority. 12. All sources referred to in item #6 informs this office that they feel DSS housing will be available.									
					14. Two of Greensboro's leading commercial and industrial property managers see no problem in relocating the businesses affected. Also, the local newspapers has an extensive commercial and industrial listing.							

D. Noell *[Signature]* 12-12-91  
 Relocation Agent Date  
 Form 15.4 Revised 5/90

*[Signature]* DEC 16 1991  
 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

6.498001T

COUNTY: Guilford

Alternate E of 3 Alternate

U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Revised Relocation Report, Greensboro Western Urban Loop

(page 1 of 2)

ESTIMATED DISPLACED					INCOME LEVEL								
of Individuals	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	4	23	4	0	3	18	2	0				
Businesses	15	0	15	3	VALUE OF DWELLING				DSS DWELLINGS AVAILABLE				
Businesses	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	0	\$ 0-150	0	
ANSWER ALL QUESTIONS NO EXPLAIN ALL "YES" ANSWERS					20-40M	1	150-250	0	20-40M	115	150-250	3	
					40-70M	16	250-400	4	40-70M	439	250-400	35	
					70-100	2	400-600	0	70-100	517	400-600	47	
					100 LP	0	600 LP	0	100 LP	876	600 LP	36	
					TOTAL	19		4		1947		121	

REMARKS (Respond by Number)

3. There are similar businesses not being affected.

4. (1) Electric Chair Hair Care - 500 s/f beauty shop. 4 full time employees - a minority business.  
 (2) Clyde Roach Clothing Co. 1,000 s/f - men's clothing retailer - 2 full time employees - not a minority business.  
 (3) Sedgefield Barber Shop - 500 s/f - 2 full time employees - a minority business.  
 (4) Pampered Pet - 700 s/f - 3 full time employees. Pet grooming - not a minority.  
 (5) Nationwide Insurance - 800 s/f insurance agency. 4 full time employees - not a minority business.  
 (6) Tarheel Remodeler's - 1,200 s/f - residential construction & remodeling. 10 employees - not a minority.  
 (7) Munchie's - 1,000 s/f fast food restaurant - 12 employees - not a minority.  
 (8) Columbia Forest Products - 600 s/f - forest products broker - 3 full time employees - not a minority.  
 (9) Insurance Outlet - 1,500 s/f residential business & hazard insurance agency. 10 full time employees - not a minority.  
 (10) Hancock Fabrics - 7,000 s/f - soft goods - retailer - 4 full time employees - not a minority.

J. Noell *J. D. Noell* 12-12-91  
 Relocation Agent Date  
 15.4 Revised 5/90

*J. B. Williamson* DEC 16 1991  
 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 MW of 1 Alternate

U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Revised Relocation Report, Greensboro Western Urban Loop

ESTIMATED DISPLACED					INCOME LEVEL				
Category	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	18	0	18	3	0	1	12	5	0
Businesses	2	0	2	0	VALUE OF DWELLING			DSS DWELLINGS AVAILABLE	
For Sale	0	0	0	0	Owners	Tenants	For Sale	For Rent	
Non-Profit	0	0	0	0	0-20M	\$ 0-150	0-20M	0	\$ 0-150
					20-40M	0	150-250	0	20-40M
					40-70M	10	250-400	0	40-70M
					70-100	8	400-600	0	70-100
					100 LP	0	600 LP	0	100 LP
					TOTAL	18		0	1947
									121

ANSWER ALL QUESTIONS

- | NO | EXPLAIN ALL "YES" ANSWERS                                                                                     |
|----|---------------------------------------------------------------------------------------------------------------|
| X  | 1. Will special relocation services be necessary                                                              |
| X  | 2. Will schools or churches be affected by displacement                                                       |
|    | 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. |
| 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                                                                   |
|    | 9. Are there large, disabled, elderly, etc. families                                                          |

20-40M	0	150-250	0	20-40M	115	150-250	3
40-70M	10	250-400	0	40-70M	439	250-400	35
70-100	8	400-600	0	70-100	517	400-600	47
100 LP	0	600 LP	0	100 LP	876	600 LP	36
TOTAL	18		0		1947		121

REMARKS (Respond by Number)

- There are similar businesses not being affected.
- (A) Sedgefield Stables - 25,000 s/f - riding, training & boarding stable - 4 employees - not a minority.  
  
(B) Apex Equipment Co. - 10,000 s/f - auto & heavy equipment rental. 6 employees - not a minority.
- 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.
- There may be few elderly, possibly disabled and large families. However, no problems anticipated with the current program.
- The Greensboro Housing Authority.
- All sources referred to in item #6 informs this office that they feel DSS housing will be available
- Two of Greensboro's leading commercial and industrial property managers see no problem in relocating the businesses affected. Also, the local newspapers has an extensive commercial and industrial listing.

D. Noell *[Signature]* 12-12-91  
Relocation Agent Date

*[Signature]* DEC 16 1991  
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 2 Alternate

D. NO.: U-2524

F.A. PROJECT:                     

DESCRIPTION OF PROJECT: Revised Relocation Report, Greensboro Western Urban Loop

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	16	2	18	3	0	2	13	3	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	\$ 0-150	0-20M	\$ 0-150	0

ANSWER ALL QUESTIONS										
S/NO	EXPLAIN ALL "YES" ANSWERS	20-40M	40-70M	70-100	100 UP	150-250	250-400	400-600	600 LP	TOTAL
X	1. Will special relocation services be necessary	0	6	10	0	0	2	0	0	18
X	2. Will schools or churches be affected by displacement	0	0	0	0	0	0	0	0	0
X	3. Will business services still be available after project	0	0	0	0	0	0	0	0	0
X	4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.	0	0	0	0	0	0	0	0	0
X	5. Will relocation cause a housing shortage	0	0	0	0	0	0	0	0	0
X	6. Source for available housing (list)	0	0	0	0	0	0	0	0	0
X	7. Will additional housing programs be needed	0	0	0	0	0	0	0	0	0
X	8. Should Last Resort Housing be considered	0	0	0	0	0	0	0	0	0
X	9. Are there large, disabled, elderly, etc. families	0	0	0	0	0	0	0	0	0
X	10. Will public housing be needed for project	0	0	0	0	0	0	0	0	0
X	11. Is public housing available	0	0	0	0	0	0	0	0	0
X	12. Is it felt there will be adequate DDS housing available during relocation period	0	0	0	0	0	0	0	0	0
X	13. Will there be a problem of housing within financial means	0	0	0	0	0	0	0	0	0
v/a	14. Are suitable business sites available (list source)	0	0	0	0	0	0	0	0	0
	15. Number months estimated to complete RELOCATION	0	0	0	0	0	0	0	0	0

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.

9. There may be a few elderly, possibly disabled and large families. However no problems anticipated with the current program.

11. The Greensboro Housing Authority.

12. All sources referred to in item #6 informs this office that they feel DSS housing will be available.

F. D. Noell *F D Noell*  
 Relocation Agent  
 Form 15.4 Revised 5/90

12-12-91  
 Date

*J B Williamson Jr.*  
 Approved  
 Date DEC 16  
 Original & 1 Copy: State Relocation Agency  
 2 Copy: Area Relocation File

RELOCATION REPORT

North Carolina Department of Transportation

E.I.S. CORRIDOR DESIGN

RELOCATION ASSISTANCE

PROJECT: 6.498001T  
 COUNTY: Guilford  
 F.A. PROJECT: U-2524

Alternate MW of 3  
 Alternate

DESCRIPTION OF PROJECT: Revised Relocation Report, Greensboro Western Urban Loop

ESTIMATED DISPLACED					INCOME LEVEL							
Category	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	26	1	27	6	0	0	4	9	14			
Businesses	0	0	0	0	VALUE OF DWELLING			DSS DWELLINGS AVAILABLE				
Losses	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												
NO	EXPLAIN ALL "YES" ANSWERS											
X	1.	Will special relocation services be necessary	20-40M	0	150-250	0	20-40M	115	150-250	3		
X	2.	Will schools or churches be affected by displacement	40-70M	5	250-400	0	40-70M	439	250-400	35		
	3.	Will business services still be available after project	70-100	5	400-600	1	70-100	517	400-600	47		
	4.	Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.	120 UP	16	600 UP	0	100 UP	876	600 UP	36		
	5.	Will relocation cause a housing shortage	TOTAL	26		1		1947		121		

REMARKS (Respond by Number)

NOTE: Oriental Shrine Club Greensboro. 500 + members, 10 employees - 20,000 s/f.

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.

9. There may be a few elderly, possibly disabled and large families. However no problems anticipated with the current program.

11. The Greensboro Housing Authority.

12. All sources referred to in item #6 informs this office that they feel DSS housing will be available.

ANSWER THESE ALSO FOR DESIGN

X 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

X 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* 12-12-91  
 Relocation Agent Date  
 Form 15.4 Revised 5/90

*J.B. Williamson Jr.* DEC 16 1991  
 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

OBJECT: 6.498001T

COUNTY: Guilford

Alternate C of 1 Alternate

D. NO.: U-2524

F.A. PROJECT:

DESCRIPTION OF PROJECT: Revised Relocation Report, Greensboro Western Urban Loop

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacee	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 LP	VALU OF DWELLING			
Individuals	0	0	0	0	0	0	0	0	0	Owners		Tenants	
Families	59	0	59	12	0	1	26	30	2	For Sale		For Rent	
Businesses	0	0	0	0	0-20M		\$ 0-150		0-20M		\$ 0-150		
Condoms	0	0	0	0	20-40M	0	150-250	0	20-40M	115	150-250	3	
For-Profit	0	0	0	0	40-70M	3	250-400	0	40-70M	439	250-400	35	
ANSWER ALL QUESTIONS					70-100	56	400-600	0	70-100	517	400-600	47	
					100 UP	0	600 LP	0	100 LP	876	600 LP	36	
EXPLAIN ALL "YES" ANSWERS					TOTAL	59		0		1947		121	
					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.				9. There may be a few elderly, possibly disabled and large families. However no problems anticipated with the current program.								
X	5. Will relocation cause a housing shortage				11. The Greensboro Housing Authority.								
	6. Source for available housing (list)				12. All sources referred to in item #6 informs this office that they feel DSS housing will be available.								
X	7. Will additional housing programs be needed												
	8. Should Last Resort Housing be considered												
	9. Are there large, disabled, elderly, etc. families												
X	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												
X	13. Will there be a problem of housing within financial means												
a	14. Are suitable business sites available (list source)												
	15. Number months estimated to complete RELOCATION												

D. Noell  
Relocation Agent  
m 15.4 Revised 5/90

*F. D. Noell*  
12-12-91  
Date

*J. B. Williamson*  
Approved  
Date: DEC 16 1991  
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

JECT: 6.498001T COUNTY: Guilford Alternate C of 2 Alternate

: U-2524 F.A. PROJECT: \_\_\_\_\_

DESCRIPTION OF PROJECT: Revised Relocation Report, Greensboro Western Urban Loop

ESTIMATED DISPLACED					INCOME LEVEL					
of place	Owners	Tenants	Total	Minor- ities	0-15M	15-25M	25-35M	35-50M	50 LP	
Individuals	0	0	0	0	0	0	0	0	0	
Families	21	3	24	6	0	2	10	10	2	
Businesses	1	0	1	0	VALLE OF DWELLING			DSS DWELLINGS AVAILABLE		
Losses	0	0	0	0	Owners		Tenants		For Sale	
Profit	1	0	1	0	0-20M	20-40M	40-70M	70-100	100 LP	For Rent
					0	0	0	0	0	\$ 0-150
					20-40M	40-70M	70-100	100 LP	100 LP	0
					0	11	10	0	0	0
					150-250	250-400	400-600	600 LP	600 LP	0
					0	1	2	0	0	0
					TOTAL	21	3	3	1947	121

ANSWER ALL QUESTIONS		REMARKS (Respond by Number)	
NO	EXPLAIN ALL "YES" ANSWERS	40-70M	11
X	1. Will special relocation services be necessary	150-250	0
	2. Will schools or churches be affected by displacement	250-400	1
	3. Will business services still be available after project	400-600	2
	4. Will any business be displaced. If so, indicate size type, estimated number of employees, minorities, etc.	70-100	10
	5. Will relocation cause a housing shortage	100 LP	0
	6. Source for available housing (list)	TOTAL	21
X	7. Will additional housing programs be needed		
	8. Should Last Resort Housing be considered		
	9. Are there large, disabled, elderly, etc. families		
X	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		
X	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 *[Signature]* 12-12-91  
Relocation Agent Date  
15.4 Revised 5/90

*[Signature]* DEC 16 1991  
Approved Date  
Original & 1 Copy: State Relocation Agent  
2 Copy: Area Relocation File

**APPENDIX D  
PUBLIC INVOLVEMENT**

**D-1 Newsletters**

**D-2 Meetings with Public**

# GREENSBORO WESTERN URBAN LOOP

First in a  
series of public  
information  
newsletters.

August 1989

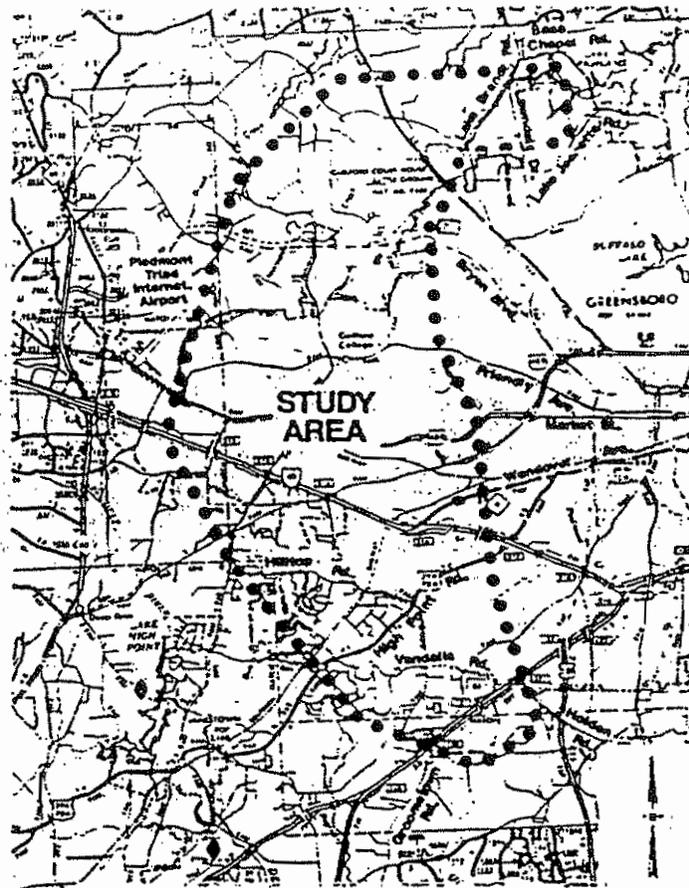
Issue No. 1

## 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.

# 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.

## 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

## 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.

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City of Greensboro  
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Greensboro, NC 27402

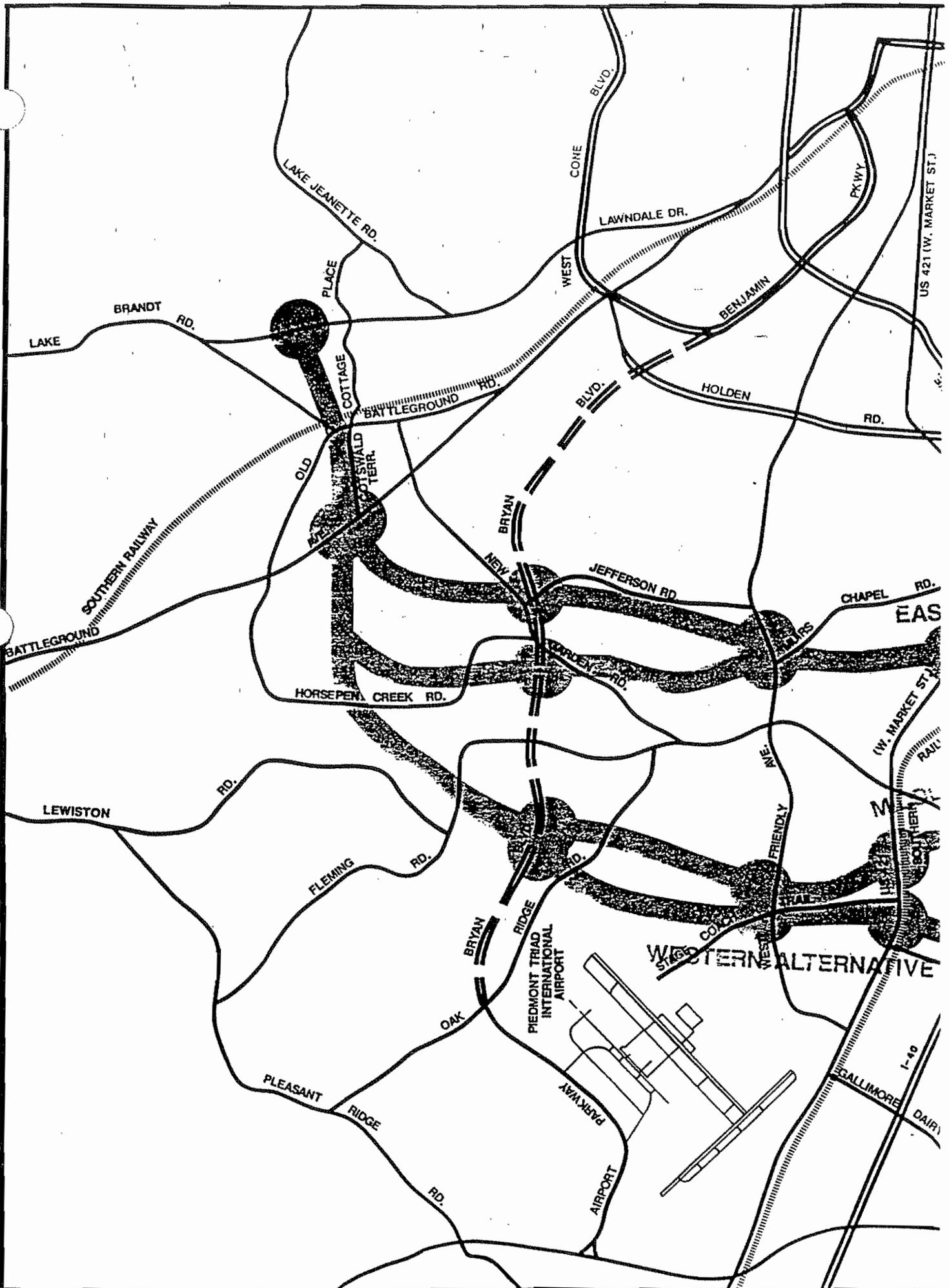
## Key Dates

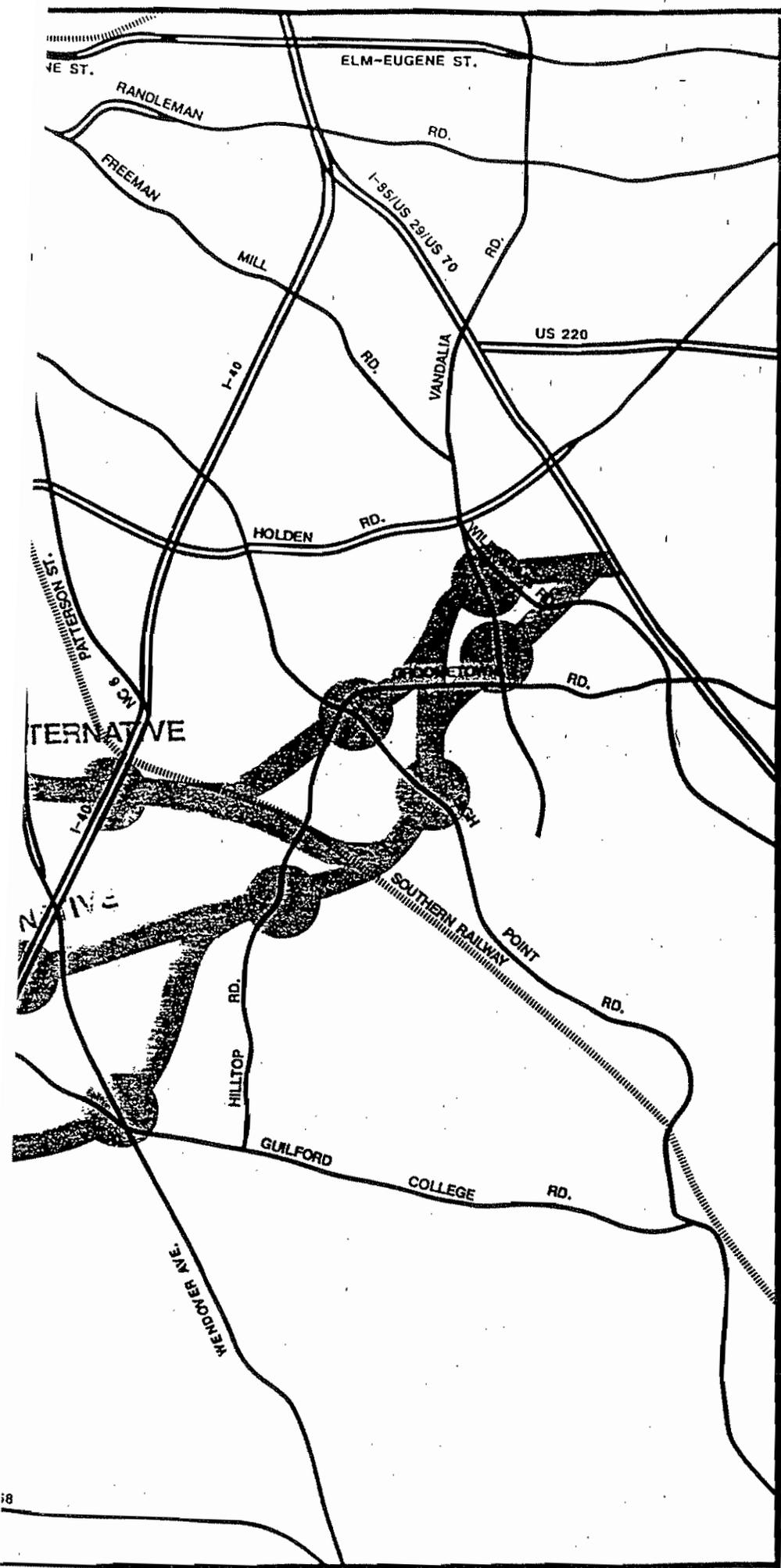
Second Public Meeting	January 11, 1990
Draft EIS Complete	October 1990
Public Workshops	October 1990
Public Hearing	November 1990

## 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

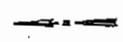
Greensboro Western Urban Loop Study  
Kimley-Horn and Associates, Inc.  
Post Office Box 33068  
Raleigh, NC 27606





**LEGEND**

-  Corridor Alternatives
-  Proposed Interchanges



Figure

CORRIDOR ALTERNATIVES

GREENSBORO WESTERN URBAN LOOP

**Kimley-Horn**

# 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.

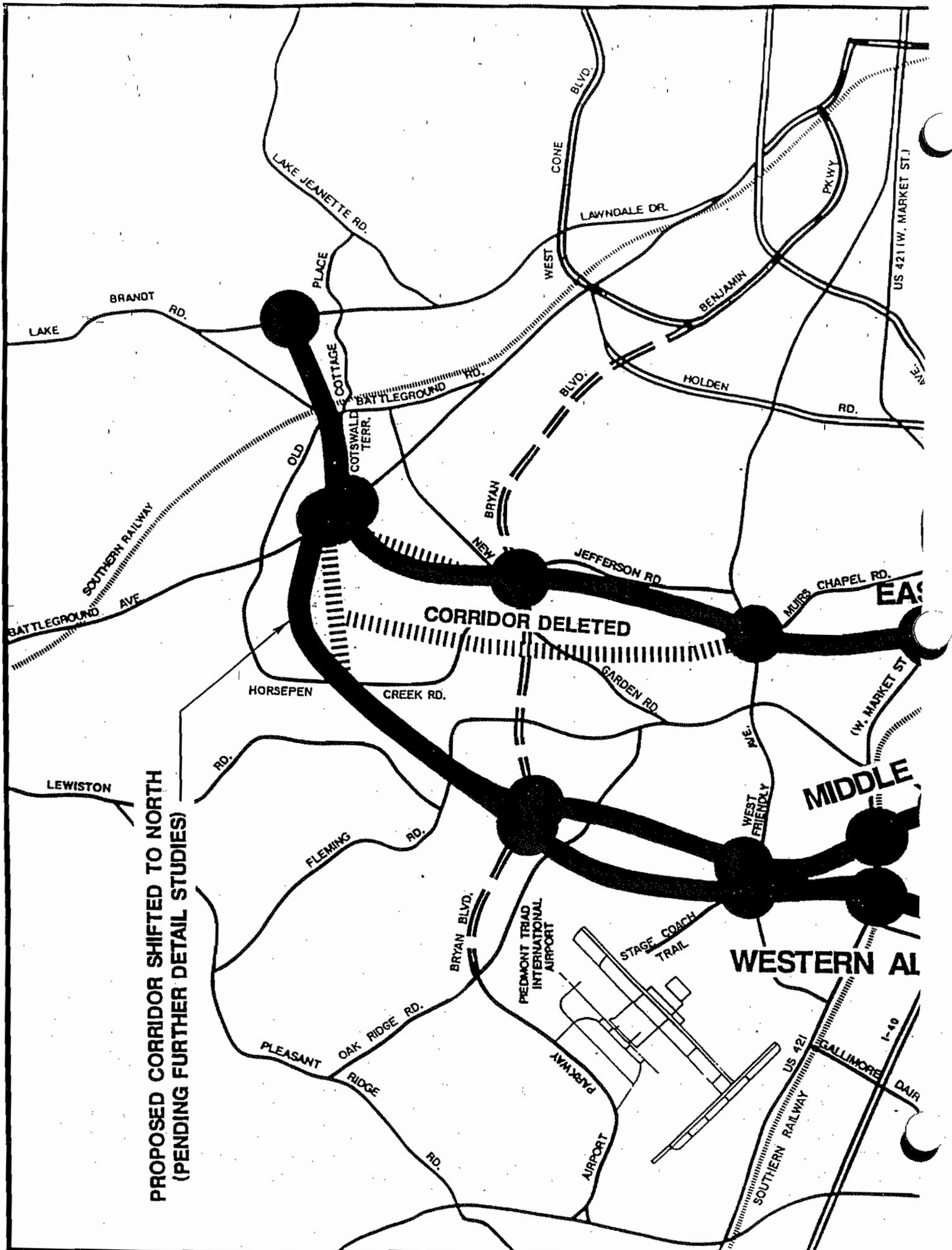
Interchanges previously located at Vandalia Road and Hilltop Road have been eliminated from further study as explained for the western alternative.

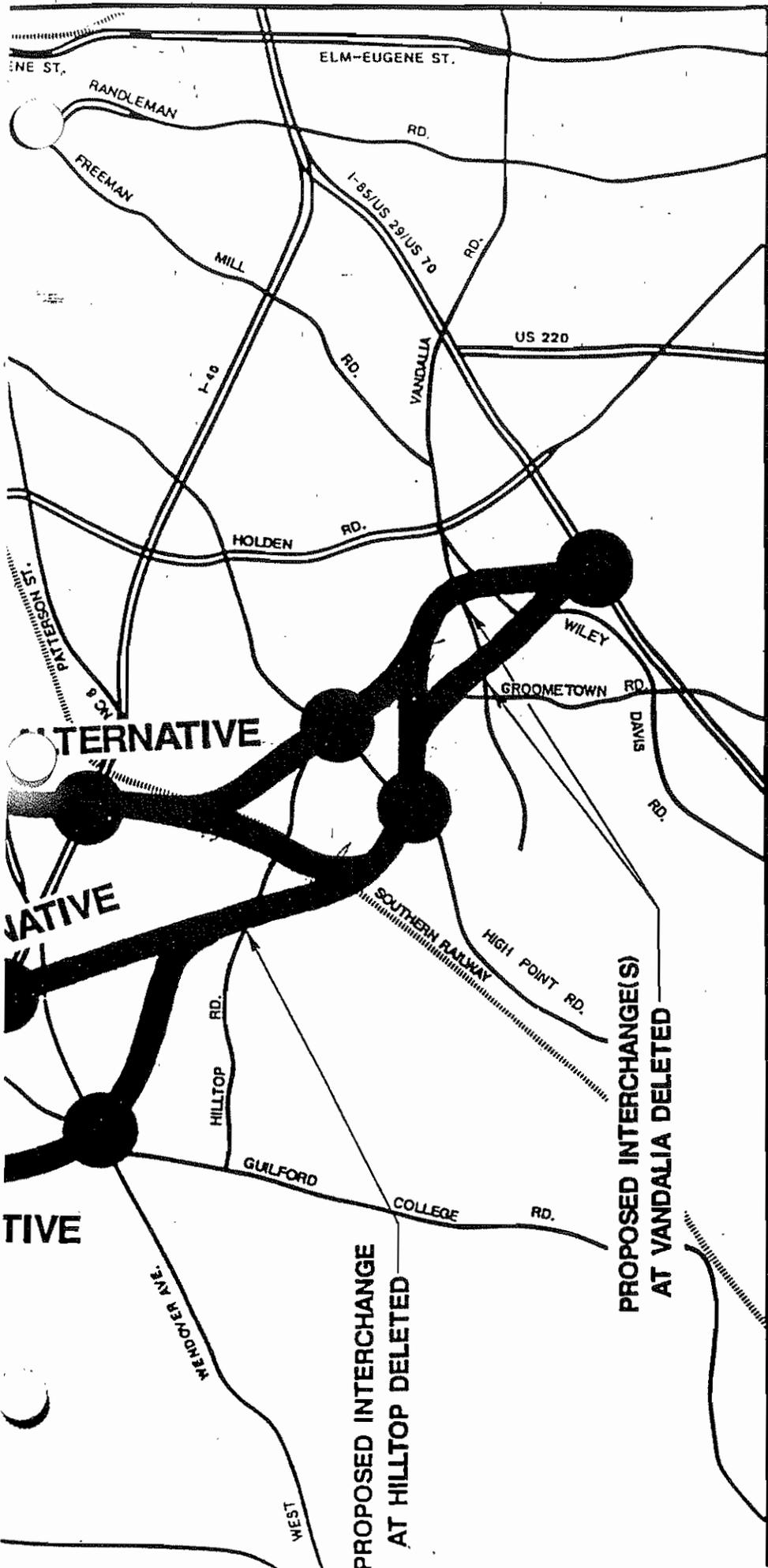
### Eastern Alternative

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

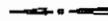
**PROPOSED CORRIDOR SHIFTED TO NORTH  
(PENDING FURTHER DETAIL STUDIES)**





**PRELIMINARY**  
SUBJECT TO CHANGE WITHOUT NOTICE

- LEGEND**
- █ Corridor Alternatives
  - Proposed Interchanges



Figure

**CORRIDOR ALTERNATIVES**  
DATE: MAY 1, 1990

**GREENSBORO WESTERN URBAN LOOP**

**Kimley-Horn**

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?

- 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  
Kimley-Horn and Associates, Inc.  
Post Office Box 33068  
Raleigh, NC 27636-3068

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# GREENSBORO WESTERN URBAN LOOP

Fourth in a  
series of public  
information  
newsletters.

June 1991

Issue No. 4

## Draft EIS Completed

After studying potential impacts of the three principal alternatives for the Greensboro Western Urban Loop, the North Carolina Department of Transportation has completed the Draft Environmental Impact Statement (DEIS). Among the factors considered for the DEIS were traffic, noise, air quality, natural habitat, wetlands, farmland, relocations, archaeology, historic sites, cost, threatened and endangered species, and economic impact. These impacts are summarized below and quantified in the summary comparison table inside this newsletter. A map of the alternatives is also included.

## Positive and Negative Environmental Effects

Construction of the proposed highway will help meet traffic needs and fulfill the goals of the 1989 Greensboro Urban Area Thoroughfare Plan.

Positive impacts include connecting existing and planned thoroughfares, providing continuity with other portions of the planned urban loop, and improving access to Piedmont Triad International Airport. The highway will reduce total travel in the region by about 75,000 to 105,000 vehicle miles per day by providing a more direct and efficient route, thus contributing to air quality goals while reducing user costs and fuel consumption by 4.4 million gallons annually. It will provide a safer means of north-south and bypass travel, and is projected to reduce accidents by an estimated 400 per year. The proposed highway 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 highway will improve the overall quality of life in Greensboro.

Negative impacts 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 proposed highway. An estimated 22 to 57 acres of wetlands and 54 to 81 acres of floodplain will be affected by the proposed highway. Temporary negative impacts during construction will include potential erosion, siltation, construction noise, and public inconvenience.

## Selection of an Alternative

The Draft Environmental Impact Statement is distributed to a large number of state, local, and federal agencies for review and comment. Citizens may also comment on the document as well as expressing their views at either public hearing location. All comments on the DEIS are due to NCDOT by August 21, 1991. Public hearing comments may be submitted at or following the public hearing.

After review of all comments on the DEIS and from the public hearing, NCDOT will select a preferred corridor. A Final Environmental Impact Statement (FEIS) will be prepared that will address the reasons for selecting that alternative and will respond to comments made at the public hearing and comments on the DEIS. The FEIS will be circulated to agencies and will be made available for public review. Following circulation of the FEIS, a Record of Decision will be prepared by Federal Highway Administration, formalizing the selection of the alternative and the reasons for its selection.

## Key Dates

Draft EIS Complete	June 4, 1991
Public Workshop	July 16 and 18, 1991
Public Hearing	July 23 and 25, 1991
Comments on DEIS	August 2, 1991
Decision on Alternatives	September 1991*
Final EIS Complete	March 1992*

\* tentative

## HOW CAN YOU BE INVOLVED?

Call the hotline at 370-0677 for additional information

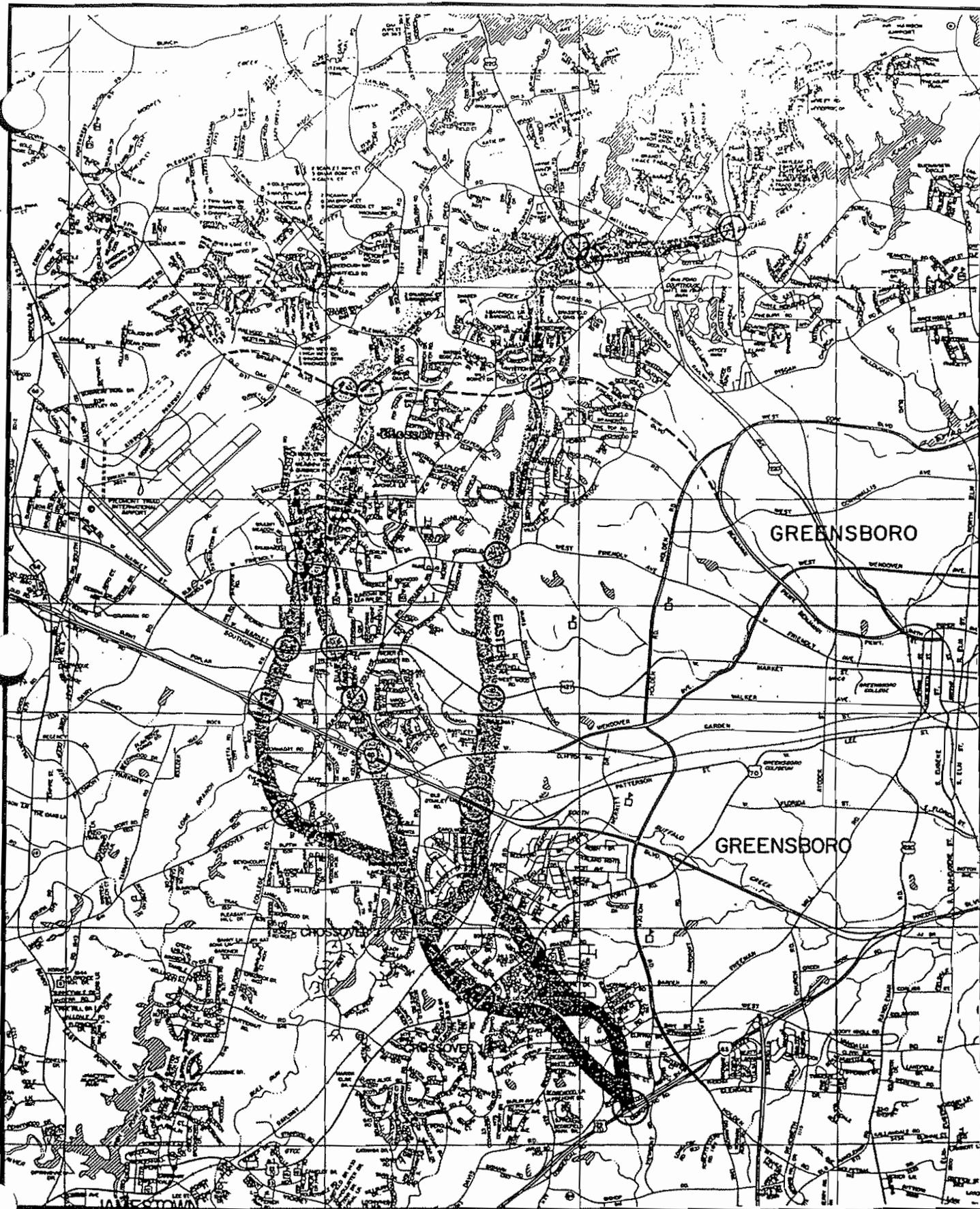
Attend the workshop

Attend the public hearing

Get your name on the mailing list to receive the newsletters

SUMMARY COMPARISON OF ALTERNATIVES

	Alternative					
	Eastern	Middle	Western	C-1	C-2	C-3
- Length (miles)	11.4	13.6	14.5	0.8	0.5	1.0
- Construction Cost (millions)	\$100.4	\$108.3	\$100.8	\$5.0	\$6.1	\$6.0
- Right-of-Way Cost (millions)	\$ 95.1	\$ 83.0	\$ 77.9	\$4.9	\$3.4	\$2.8
- Total Cost (millions)	\$195.5	\$191.3	\$178.7	\$9.9	\$9.5	\$8.8
- 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 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
- Eligible Historic Sites Affected	2	2	2	0	0	0
- Potential Hazardous Material Sites	4	1	6	0	0	1



LEGEND

○ PROPOSED INTERCHANGE



## Public Workshop and Hearing Schedule

NCDOT has published a Draft Environmental Impact Statement that discusses the impact that each alternative route would have on the environment. Copies of this document are available for public review at the following locations:

All City of Greensboro libraries

City Clerk's Office, Room 226  
Melvin Municipal Building  
300 W. Washington Street

Greensboro Department of Transportation  
Room 321  
Melvin Municipal Building  
300 W. Washington Street

NCDOT Division Office  
1584 Yanceyville Street

As part of the decision-making process, public input will be sought. First, a public workshop will be held to discuss the findings in detail. Public comments, along with federal and state agency comments, will then be solicited at the public hearing. Public input will be taken into consideration in selecting an alternative. A newsletter will announce the choice of the preferred alternative. The Final Environmental Impact Statement (FEIS) will discuss the impact of the selected alternative, and the reasons for selecting that alternative.

The two public workshops will be held at B.L. Smith High School on Tuesday, July 16, 1991 between 4:00 and 8:00 PM, and at Western Guilford High School on Thursday, July 18, 1991 4:00 and 8:00 PM. The workshops will be informal, and will provide for discussion with project engineers and planners. Public input will be invited at the subsequent public hearing, which will be held at two locations: B.L. Smith High School on Tuesday, July 23 at 7:30 PM, and at Western Guilford High School on Thursday, July 25 at 7:30 PM. Comments from citizens will be received at the public hearing. Citizens are encouraged to attend the public workshop and hearing at the location closest to them, in order to provide an opportunity for others to participate.

Letters and written comments can be mailed to:

Laurence J. Meisner, P.E.  
Kimley-Horn and Associates, Inc.  
Post Office Box 33068  
Raleigh, North Carolina 27636

or

L.J. Ward, P.E.  
Manager, Planning and Research Branch  
North Carolina Department of Transportation  
Post Office Box 25201  
Raleigh, North Carolina 27611

Greensboro Western Urban Loop  
Kimley-Horn and Associates, Inc.  
Post Office Box 33068  
Raleigh, NC 27636

# Greensboro Western Urban Loop

North Carolina Department of Transportation TIP No. U-2524

April 1992

A news and public information series

Issue No. 5

## Western corridor selected

In March 1992, the North Carolina Department of Transportation identified the Western Corridor as the preferred alternative for the Greensboro Western Urban Loop. The Middle Alternative was eliminated because it is inferior to both the Eastern and Western Alternatives in terms of residential displacements, impact on existing and planned commercial development, and service to traffic at the I-40 interchange. Both avoidance alternatives that had been developed to miss historic sites were rejected because of unacceptable impact on residential communities. The remaining alternatives were the Eastern and Western, with the Western Alternative modified to use a portion of the Eastern Alternative to avoid the Sedgefield Stables historic site.

### Meets Project Objective

The modified Western Alternative meets the objectives and purpose of the Greensboro Urban Loop, including:

- providing for orderly and planned relief to traffic congestion in the Greensboro area
- providing a high-type facility for north-south and east-west bypass travel, connecting major thoroughfares, such as I-85, I-40, High Point Road, US 421, and US 220.
- providing adequate transportation and improved accessibility for residential, commercial, and existing and proposed industrial development in the Greensboro area
- decreasing total travel in terms of mileage and time

- fulfilling local, regional, and state transportation goals

### Cultural Resources

The modified Western Alternative does not involve historic properties that would invoke procedures under Section 4 (f) of the US Department of Transportation Act; whereas, the Eastern Alternative Corridor has an adverse affect on the Gullford College historic property and the historic Kimrey-Haworth House. The southern portion of the original Western Alternative would have an adverse affect on Sedgefield Stables and on the Celia Phelps Church.

### Wetlands

The modified Western Alternative involves fewer acres of forested wetlands and fewer acres of high quality wetlands than the other alternatives.

### Noise

The modified Western Alternative has less noise impact on residential areas and thus requires fewer noise barriers than the other alternatives.

### Hazardous Materials

The modified Western Alternative involves no known sites of hazardous contamination within the anticipated right-of-way. The Eastern Alternative involves Worth Chemical Company, a site with known serious hazardous material contamination.

### Residential Relocations

This modified Western Alternative involves fewer residential relocations than the Eastern.

### Public Impact

The modified Western Alternative has received less public opposition than other alternatives considered.

### Business Relocations

The modified Western Alternative involves fewer business relocations overall.

### Floodplain Involvement

The modified Western Alternative involves less floodplain area than other alternatives.

### Traffic

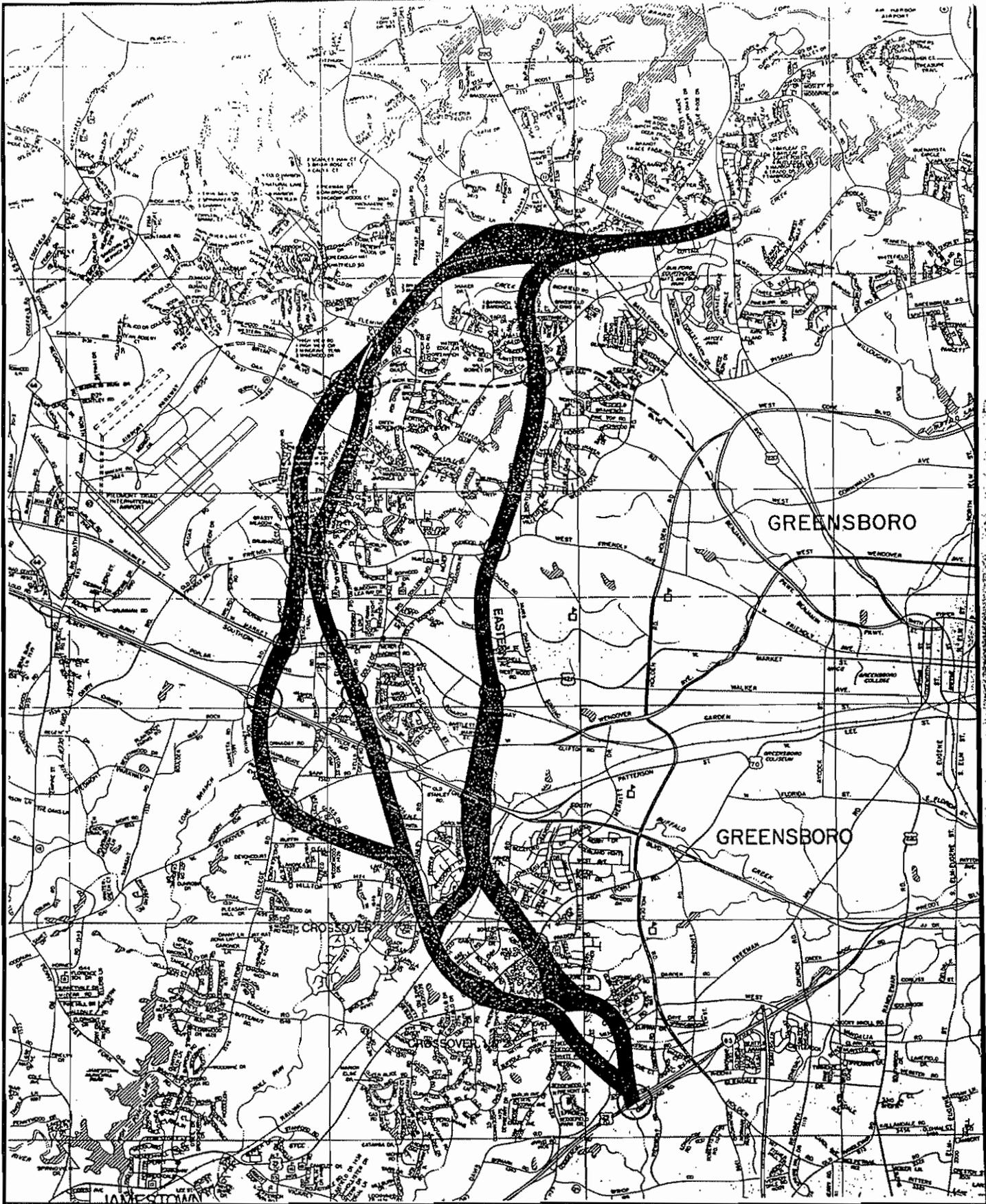
The modified Western Alternative provides the preferred service for I-40 traffic, considering I-40 would be routed along the I-85 Bypass and the southern portion of this project.

## Advanced right-of-way acquisition

The North Carolina Department of Transportation will consider acquisition of properties which will be directly affected by Project U-2524, Greensboro Western Urban Loop from I-85 South of Greensboro to Lawndale Drive North of Greensboro, in advance of the normal acquisition phase presently scheduled to begin in fiscal year 1995. These early or advanced right-of-way acquisitions will be considered on the following criteria:

- documented hardships
- sufficient design information
- available funding
- FHWA concurrence and approval

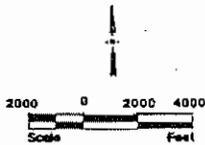
For specific acquisition requirements, contact the Office of the Manager of the Right-of-Way Branch of the Department of Transportation, Post Office Box 27606, Raleigh, North Carolina 27611, (919) 733-7694.



LEGEND

- PROPOSED INTERCHANGE
- ▬ PREFERRED ALTERNATIVE

PREFERRED ALTERNATIVE



## Overcoming difficulties

As with any major highway project, even the best alternative has problem areas. The modified Western Alternative has had such areas identified which will require additional study and coordination. These include the following:

### **Thoroughfare Plan**

The modified Western Alternative does not conform to the location of a highway facility as shown on the adopted Greensboro Urban Area Thoroughfare Plan.

*The Thoroughfare Plan is updated periodically. The next update can show the Western Alternate Corridor. Adjustments to network traffic projections and resulting thoroughfare needs can be addressed accordingly.*

### **Eastern Corridor Traffic Needs**

Selection of the modified Western Alternate Corridor may require consideration of a lower-type facility improvement in the area of the Eastern Alternate Corridor to serve local traffic needs.

*The North Carolina Department of Transportation will continue to work with the City staff, should Greensboro pursue development of this type facility to resolve local traffic congestion. Possible solutions include street widening, intersection improvements, and improved traffic control.*

### **Cemetery**

The modified Western Alternative will likely involve the Persimmon Grove Church Cemetery and may require relocation of one grave.

*Further work will be done on an exact location alignment of the highway within the Western Alternate Corridor, avoiding involvement with the cemetery to the extent possible. If the one grave can't be avoided, state law and department policy will be strictly followed in relocation.*

### **Recreation Facilities**

The modified Western Alternative will likely involve right-of-way acquisition on the privately-owned Longview Golf Course and is close to the planned Western Greensboro Community Center.

*Longview Golf course is privately owned. Department policy and procedures involving acquisition of required right-of-way from property owners will be followed. The owners will be offered compensation based upon fair market value of land and improvements affected. The Community Center is in the planning stage and only indoor activities are contemplated. The highway will be planned to have minimum affect on this Center.*

### **Business Relocation**

The modified Western Alternative displaces a number of businesses with large employment.

*The North Carolina Department of Transportation will make every effort to locate suitable sites for relocation of businesses and industries involved. New sites found will be made ready for operation prior to closure of existing sites, to allow minimum disruption of operations.*

### **Airport**

The modified Western Alternative will take some land belonging to the Piedmont Triad Airport Authority.

*The North Carolina Department of Transportation will work with the Airport Authority during project design to minimize impact on the airport's access and planned expansion to the east.*

## Workshops

The pre-hearing workshops were held at two locations. The first workshop was held on July 16, 1991 at B.L. Smith High School. The second was held on July 18, 1991 at Western Guilford High School. Both workshops were held from 4 PM until 8 PM. Approxi-

mately 800 people attended the two workshops. Representatives from NCDOT, the City of Greensboro, Guilford County, and the Federal Highway Administration attended the workshop. Exhibits included the corridor public hearing map (original plus two reduced copies), other project maps, and boards discussing relocations, Section 4 (f), and comparisons of the alternatives. A narrated slide show was also presented discussing the thoroughfare planning process, the need for this project, and the alternatives being studied. Most of the questions and concerns expressed at the workshop related to effect of the alternatives on specific properties, Section 4 (f) and the avoidance alternatives, the decision-making process, the project schedule, and right-of-way acquisition and relocation procedures.

## Public hearing

The corridor public hearing for this project was held in two meetings, both starting at 7:30 PM. The first was held on July 23, 1991 at B.L. Smith High School Auditorium. The second was held at Western Guilford High School on July 25, 1991. Of the approximately 1,500 people who attended the hearing, 85 made comments. The issues and concerns addressed are summarized below, with responses added.

- Ten speakers supported the "Bell-Glazener alternative," 11 supported the Western Alternative, and four supported the Eastern Alternative.
- Twenty-seven speakers opposed the Eastern Alternative, 14 opposed the Sedgefield Stables Avoidance Alternative, 18 opposed all Freeway alternatives, and five opposed the Western Alternative.

*Public hearing, cont.*

- A spokesman from the Piedmont Triad Airport Authority objected to the Western Alternative.
- Citizens from the Four Farms Road Area objected to the portion of the corridor through their neighborhood, and questioned the reasons for that path.
- Several citizens stated support for historic preservation.
- Some citizens believed that the study area should be expanded.
- Other speakers urged that existing routes be upgraded.
- Speakers from the Sedgefield 6 and 9 communities questioned the Sedgefield Stables Avoidance Alternative and the process used to inform citizens.
- One speaker stated that building a new road will increase traffic.
- A speaker questioned why the loop is partly within the City limits.

## **The rest of the story: Final EIS underway and preliminary design begins**

The Final Environmental Impact Statement is now being prepared. It essentially incorporates the Draft Environmental Impact Statement, along with the following items:

- Identification of the preferred alternative
- Reasons for selecting the preferred alternative
- Discussion on public hearing and public comments
- Agency comments on DEIS and responses, where appropriate
- Mitigation of wetland and historic impacts

The FEIS is scheduled to be completed in October 1992. After approval by the Federal Highway Administration, a Record of Decision will be prepared that will ex-

plain the reasons for the project decision and summarize any mitigation measures that will be incorporated in the project.

Concurrently with this action, the Department of Transportation will prepare detailed plans for the highway that will include actual right-of-way requirements. A design public hearing will be held to allow public input before these plans are finalized. All property owners from whom right-of-way will be acquired will be notified of the design public hearing.

## **Thank you**

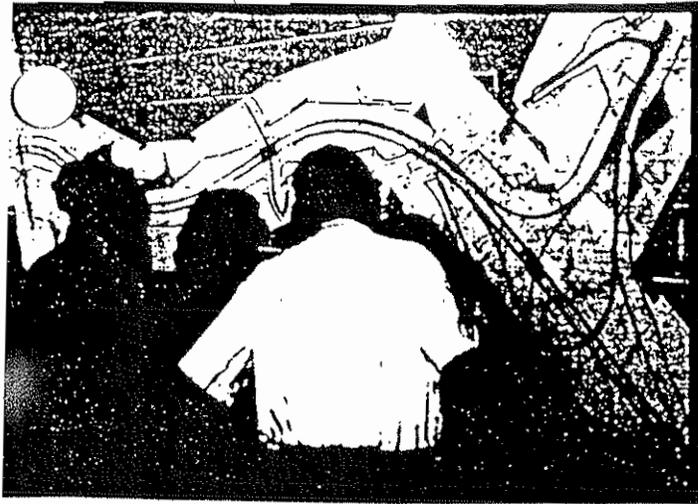
NCDOT and Kimley-Horn and Associates wish to express appreciation to the citizens of Greensboro and Guilford County for their courteous participation in this process. We realize that this study has been very controversial and has taken place over an extended time period. We appreciate your patience and hope that you felt included in the process.

### **Key dates**

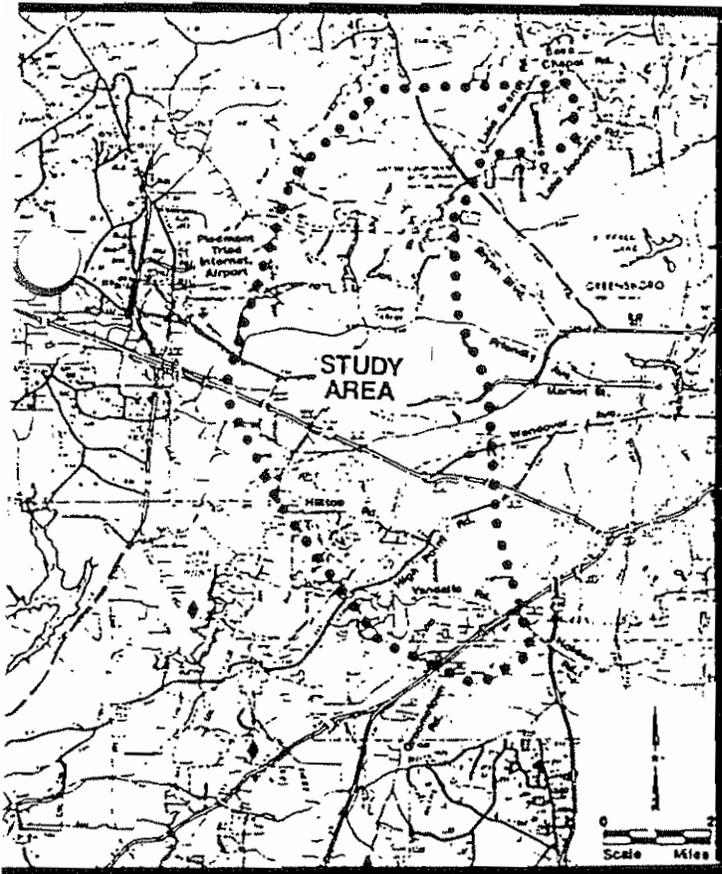
Final EIS	October 1992
Record of Decision	April 1993
Complete Preliminary Design	July 1993
Right-of-Way Acquisition	1995
Construction	1996

Greensboro Western Urban Loop  
Kimley-Horn and Associates, Inc.  
Post Office Box 33068  
Raleigh, North Carolina 27636-3068

D-2 Meetings with Public



# GREENSBORO WESTERN URBAN LOOP



## PUBLIC MEETING

**Kimley-Horn**

*" 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

NBB:dlw

## 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.

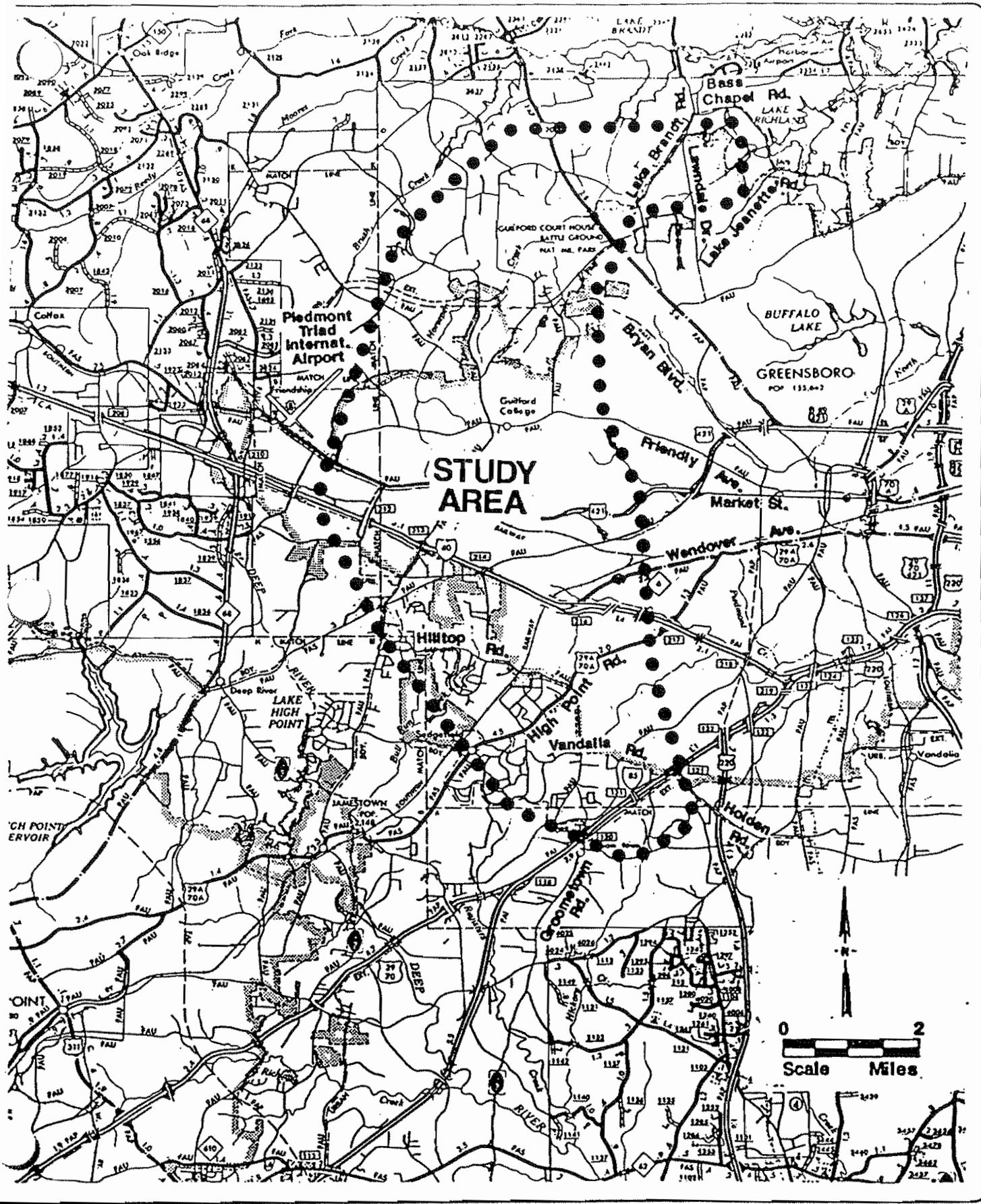
At this second public meeting, citizens will again have a chance to provide comments and ask questions in an informal, workshop atmosphere. Several months after the public meeting, a Draft Environmental Impact Statement (DEIS) will be available for review at various locations. Watch your local newspaper 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 D  
PUBLIC INVOLVEMENT

A. 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  
Federal Highway Administration  
Kimley-Horn and Associates, Inc.

B. PUBLIC INVOLVEMENT

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.

I. Newsletters and Mailing List

Five newsletters were 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. Over 2,100 letters were received from groups or individuals. Most of these letters opposed the thoroughfare plan alignment.

4. Citizens Informational Workshops

The first citizens informational workshop was held at the Guilford Middle School Gymnasium on August 31, 1989. The workshop 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 preliminary 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 citizens informational workshop was held at the Guilford Middle School Cafeteria on January 11, 1990. The workshop lasted from 4:00 PM until after 8:00 PM. Approximately 500 citizens attended the workshop (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.

The pre-hearing workshops were held at two locations. The first workshop was held on July 16, 1991 at B. L. Smith High School. The second was held on July 18, 1991 at Western Guilford High School. Both workshops were held from 4:00 p.m. until 8:00 p.m. Approximately 800 people attended the two workshops. Representatives of the NCDOT, City of Greensboro, Guilford County, and Federal Highway Administration attended the workshops. Exhibits included the corridor public hearing map, other project maps, and boards discussing relocations, Section 4(f), and comparisons of the alternatives. A narrated slide show was also presented discussing the thoroughfare planning process, the need for this project, and the alternatives being studied. Most of the questions and comments expressed at the workshop concerned impact of the alternatives on specific properties, Section 4(f) and the avoidance alternatives, the decision-making process, the project schedule, and right-of-way acquisition and relocation procedures.

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	Four Farms Road group and others	300
May 3, 1990	Greater Greensboro Board of Realtors	100

6. Public Hearing

The corridor public hearings for this project were held at two locations, both starting at 7:30 PM. The first was held on July 23, 1991 at B.L. Smith High School Auditorium. The second was held at Western Guilford High School on July 25, 1991. Of the approximately 1,500 people who attended the hearings, 85 made comments.

The following people spoke at the public hearings:

<u>Name</u>	<u>Organization</u>
Richard Bell	Committee for Sensible Road Planning
William Rogers	Guilford College
James Newland	Guilford College
Stanley Frank	Piedmont Triad Airport Authority
Joe Berry	Four Farms Road Association
Jack Crutchfield	Four Farms Road Association
Ronald Patterson	Homeowner
Linda Harris Edmiston	Architectural Historian
Myrick Howard	Historic Preservation Foundation of North Carolina
Scott Edleman	Southwest Neighborhood Association
Dale Koutsky	GREAT
Grant Matson	Southwest Neighborhood Association
Gerald Benhoffer	Southwest Neighborhood Association
Brenda Parker	Citizen
Steven Atkins	Sedgefield
Thomas Worth	Attorney for Four Farms Road Association
Jack Jezorick	Audobon Society
Sue Gale	Audobon Society
Tom Berry	Citizen

<u>Name</u>	<u>Organization</u>
Vance Arnold	Sierra Club
Ann Beth Webb	Citizen
Michael Bennett	Citizen (Kings Pond)
Gary Price	Citizen (Sedgefield No. 9)
Art Clayton	Citizen (Sedgefield No. 6)
Joseph Allen	Citizen
John McCullen	Citizen (Sedgefield)
Ron Jones	Citizen (Sedgefield No. 6)
Bill Wilcox	Citizen (Sedgefield No. 6)
J. Nelms	Citizen (Sedgefield No. 6)
Robert Moores	Citizen
C. Davis	Citizen
Janice Wilcox-Stern	Citizen (Sedgefield No. 6)
B.J. Craven	Citizen
John	Citizen
George Barrett	Citizen
Rosalyn Powell	GREAT
Dale Koutsky	GREAT
Jennie Pencock	GREAT
Susan Koutsky	GREAT
Robert Koontz	Jefferson-Pilot
Charles Wyles	Wellspring
John Graham	Wellspring
Alex Berry	GREAT
John Renfro	Hamilton Woods Association
Joe Berry	Four Farms Road
Julie Terrell	Jefferson Gardens Association
Lisa Hoffman	Citizen
Arthur Friedman	Citizen
Dale Luebben	Citizen
Elizabeth Place	GREAT
Barry Whitcomb	Ciba-Geigy
Gary Jones	Citizen
Bob and Kathy Hughes	Citizen (Jefferson Gardens)
Melina Bailey	Guilford County Historic Properties Commission
Seth Macon	Guilford College
Mark Haas	Citizen (Jefferson Gardens)
John Mobil, Jr.	Historic Properties Commission, Eastern Music Festival
Robert Cannon	Citizen (Kimrey-Haworth House)
David Grimes	Potpouri Press
Stan Tennant	Four Farms Road Association
Tom Vick	Citizen (Jefferson Gardens)
Bob Beaver	Citizen (Jefferson Gardens)
Tom Berry	Guilford Greens
Reed Ferrell	Citizen (Four Farms Road)
Jim Beardley	Citizen
Betty Turner	Guilford College
Joe Quick	Citizen (Jefferson Gardens)
Kurt Sparks	Citizen (Sedgefield No. 6)
Roger Eckenbaum	Citizen
Steve Adkins	Citizen (Sedgefield No. 6)

<u>Name</u>	<u>Organization</u>
Sam Biffel	Sherwin-Williams
Steve Black	Citizen (Raven Ridge)
George McGuire	Citizen
Ben Wilson	Citizen
Ben Wilson	Citizen
Millie Taylor	Citizen
Arthur Ayrd	Sedgefield Lakes
George Clayton	Citizen (Sedgefield No. 6)
Jim Barlow	Citizen
Darrell Andrews	Citizen
George Campbell	Citizen
Robert Moores	Citizen
David Evans	Citizen
Max Ballinger	Citizen
George Robertson	Citizen (Sedgefield No.6)

Ten speakers supported the "Bell-Glazener Alternative," eleven supported the Western Alternative, and four supported the Eastern Alternative. Twenty-seven speakers opposed the Eastern Alternative, fourteen speakers opposed the portion of the Western Alternative through Sedgefield Stables, five opposed the Western Alternative and eighteen speakers opposed all of the Build Alternatives. The issues and concerns addressed are summarized below, with responses added.

The current Western Alternative has significant negative impact and is unacceptable to the Airport Authority.

*Response: The Preferred Alternative was aligned within airport property in consultation with the Airport Authority. The current design is acceptable to the Airport Authority.*

The corridor near Four Farms Road was moved to suit the purposes of the developers of Wellspring Retirement Center.

*Response: The corridor was widened in that area to allow the study of alternatives to wetland and floodplain encroachment.*

The road should avoid historic sites.

*Response: The Preferred Alternative has no effect on historic sites.*

The study area was too tightly defined, with some choices discarded prematurely. The road should be built beyond the airport.

**Response:** *The NC 68/US 220 connector will provide an improved corridor west of the airport. That corridor, however, would not serve urbanized and urbanizing areas in Greensboro east of the airport. Such a corridor would not be compatible with other portions of the urban loop.*

Existing roads should be upgraded, as a substitute to building a new road.

**Response:** *Upgrading existing roads will not solve the long-term traffic needs of western Greensboro and will not replace the need for a new facility.*

People were not advised about the avoidance alternatives until the public workshop ... due process was not followed.

**Response:** *The avoidance alternatives were shown on the displays at the workshop and the public hearing, were described in the DEIS document which was available at public libraries, and were described in detail in an exhibit at the pre-hearing workshop. While these alternatives were under consideration, they were not part of the three build alternatives that were the primary focus of the DEIS.*

Sedgefield Stables can be moved to avoid Section 4(f).

**Response:** *Moving the stables would destroy much of their historic value and would itself constitute adverse effect and Section 4(f) involvement.*

Building a new road will increase traffic.

**Response:** *This road is planned to serve traffic from existing and projected future development in western Greensboro. Future traffic overall will be lower with the Western Urban Loop than without that facility.*

Why is the loop being built within the City?

**Response:** *The Loop can be built within the City limits of Greensboro and still fulfill the objective of relieving traffic congestion, providing a bypass facility that converts major*

*thoroughfares, improves accessibility, decreases total travel, and fulfills local, regional, and national transportation goals.*

In addition to the comments received at the Public Hearings, over 2,100 letters were received during the public comment period. The comments contained in the letters are tabulated as follows:

	<u>FOR</u>	<u>AGAINST</u>
EAST	157	772
MIDDLE	8	81
WEST	164*	517
SEDGEFIELD AVOIDANCE	0	213
GUILFORD COLLEGE AVOIDANCE	0	170
BELL/GLAZENER ALTERNATIVE	129	4
OTHER (NO BUILD)	80	11
	<hr/>	<hr/>
	538	1768

\* Includes 104 pre-printed postcards supporting.

The questions and concerns addressed in the letters are summarized as follows:

**Comment:** The owners of Sedgefield Stables may not elect to pursue a listing on the National Register of Historic Places. The designation or non-designation of the Stables as an historic site will determine whether the Middle or Western Alternative is chosen.

**Response:** *Section 106 of the National Historic Preservation Act of 1966, as amended, states that "a Federal agency having...jurisdiction...shall prior to the approval of the expenditure of any Federal funds...take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register." The FHWA has determined that Sedgefield Stables is eligible for listing in the National Register and the SHPO has concurred in this finding. Therefore, Sedgefield Stables is protected under Section 106.*

**Comment:** The Western Alternative Design Shift avoids impacting Sedgefield Stables, but it now threatens another potentially historic structure, the Celia Phelps Methodist Episcopal Church.

**Response:** *The Western Alternative design shift, shown in Figure V-6 in the DEIS, avoids Sedgefield Stables and Celia Phelps Methodist Episcopal Church.*

**Comment:** Concern is expressed about the impact the Western Urban Loop will have on air quality, water, noise levels, and neighborhoods.

**Response:** *Detailed analyses on the physical impacts of the construction alternatives are available in Chapter IV, pages IV-13 through IV-30. A discussion of the social impact (neighborhoods) is included in Chapter IV, beginning on page IV-3.*

**Comment:** Very little has been discussed about access roads.

**Response:** *Because wide corridors are used for the environmental study, it is difficult to precisely determine road closures and effects. It is anticipated that Wiley Davis Road and McCuiston Road will be cul-de-saced, dead ended, and realigned into Vandalia Road. Also, several residential streets will be cul-de-saced, and dead ended in the Kings Pond development.*

**Comment:** Executive Order 11990 requires that all practical measures be taken to minimize or mitigate impacts to wetlands. Compliance with this Executive Order is not possible if the wetlands are not comprehensively inventoried prior to selection of the preferred corridor.

**Response:** *United States Geologic Survey topographic maps, Soil Conservation Survey maps, aerial photos, and field delineation of wetland sites using the Federal Interagency Method were used to identify wetland locations within the alternative corridors. Impacts to wetlands in the Preferred Alternative are discussed in Chapter IV, section B.7. A precise wetland delineation of the Preferred Alternative was performed in addition to field review and coordination with the U.S. Army Corps of Engineers.*

**Comment:** There were over 30 possible alternatives to consider yet only three alternatives were studied in detail in the DEIS.

**Response:** *While many preliminary alternatives (study lines) were developed in the early stages of the study process, most were eliminated because they were not reasonable and feasible, or they were similar to other preliminary alternatives. A reasonable number of alternatives covering the full spectrum of the study area was evaluated. For this particular study, three alternatives were studied in detail.*

**Comment:** The listing of churches affected by the Middle and Western Alternatives mentions the Lutheran Church of the Resurrection but does not mention the Korean United Methodist Church on Woodlyn Way.

**Response:** *It is anticipated that the Korean United Methodist Church will not be impacted by either the Middle, Western, or Preferred Alternative.*

**Comment:** The Urban Loop should be around the outside of the city, not through the middle of it.

**Response:** *No response.*

**Comment:** What time period is involved in the design process?

**Response:** *The 1994-2000 Transportation Improvement Program lists the design phase beginning in 1994 and continuing beyond 2000.*

**Comment:** A true mass transportation system was not explored in the Environmental Impact Statement.

**Response:** *Rail and bus transit was examined as a potential alternative to construction of the Greensboro Urban Loop. Most successful rail and bus transit systems are radially oriented and serve residential areas with high densities (10 or more dwelling units per acre). Existing and projected residential densities in the study corridors are less. Contrasted to the purpose of a mass transportation system which is intended to serve radial trips, the purpose of the Urban Loop is to serve circumferential trips.*

**Comment:** If I am displaced, the relocation program will provide a relocation replacement housing payment. Does this mean that if I find another townhome in the same area with the

same square footage, I will be reimbursed for the difference in the appraised value of my home and the cost of the new townhome?

*Response: If you are an owner and have lived in your home for 180 days or more before the first written offer for the purchase of your property by the NCDOT, you may be eligible for a purchase supplement up to \$22,500. This payment when added to the fair market value of your home is intended to meet all reasonable costs necessary to purchase a comparable replacement home. The NCDOT will compute the maximum payment you are eligible to receive.*

**Comment:** Construction of the project will be partially funded by the Federal government. Who is going to be responsible for the balance?

*Response: The City of Greensboro has funded the preparation of the Environmental Impact Statement. No City or County funding is anticipated for construction. It is proposed that the Western Urban Loop will be constructed using Federal and State funds. NCDOT has programmed funding for the Western Urban Loop in the 1994-2000 TIP.*

**Comment:** In the transfer of Average Daily Traffic volumes from Figure I-3 to the statistical Table I-3, the ADT figures change. A major change takes place on the Old Battleground Road ADT. Figure I-3 shows 2600 on Old Battleground Road while Table I-3 shows 6500.

*Response: The volume reported in Table I-3 refers to the portion of Old Battleground Road south of Lake Brandt Road. The volume shown on Figure I-3 refers to Old Battleground Road north of Lake Brandt Road.*

**Comment:** The ADT on West Wendover Avenue at I-40 shows that 2/3 of the traffic enters I-40 and only 1/3 continues to the southwest. Any citizen who passes through this area in the morning or evening would not accept these figures.

*Response: The ADT volumes shown on Figure I-3 are two-way volumes and are consistent with past traffic counts. Travel patterns may differ at various times of the day.*

Also received during the public comment period was a report from the citizen's group GREAT titled: Comments and Questions Concerning the Draft Environmental Impact Statement. Their questions and responses follow:

Social Impacts

What is the weight of the community voice?

*Response: Public input is one of many factors that are considered in selecting a corridor. It is not possible to assign specific weights to these factors.*

Why is not the divisive path through a neighborhood given consideration for negative impacts?

*Response: Community cohesion is one of the factors considered in evaluating alternatives.*

Has the negative social impact of noise been studied? If not, why not?

*Response: The potential noise impacts were evaluated in accordance with Title 23, Code of Federal Regulations Part 772.*

Was weight given the many senior citizens in the Eastern corridor between Market and Bryan?

*Response: The relocation report did not indicate an inordinate number of elderly people living in this area (see census).*

Why are tenants counted as [sic] and then added to families on the relocation sheets?

*Response: Tenants (which may include families) are added to homeowners to obtain total families displaced.*

Should not families of 2.4 persons (Census) be an entity separate from a tenant?

*Response: As stated previously, tenants may include families. Relocations are compared using number of homeowners (rather than number of individuals).*

How are apartment dwellings weighted?

Do apartments receive the same weight as owner homes? If they do, why?

**Response:** *Apartment units are counted as tenant-occupied dwelling units. They are reported as relocations, but considered differently in estimating relocation costs, due to different costs for relocating homeowners and renters.*

Why are the maps (see ex.: fig. II-2) from north of I-40 to Friendly lacking residential and commercial detail?

**Response:** *The maps were adapted from County street base maps, which do not show street detail within the City of Greensboro. Such detail is difficult to reproduce on small-scale maps.*

Does Guilford Mills on Walnut Circle have 100 or 150 employees (see relocation sheets)?

**Response:** *Guilford Mills was shown to have "100+" employees for segment E-B and 150 employees for the Section 4(f) avoidance segment.*

## Costs

How have you factored inflation rate and delays into costs for the project?

**Response:** *All costs for the Eastern, Middle, and Western Alternatives are calculated in constant 1990 dollars. Updated construction and right-of-way costs for the Preferred Alternative will be in 1993 dollars.*

What will Greensboro's share of the costs be?

Who will decide Greensboro's share?

If the Western route is chosen, will Greensboro's share be less?

Will the County share in the costs?

**Response:** *The project is currently proposed to be funded with State and Federal funds. The City of Greensboro has funded the preparation of the Environmental Impact Statement. No City or County funding is currently anticipated for construction of this project.*

What does interest rate have to do with the overall cost of the project?

*Response: The interest rate used in the cost-effectiveness calculations is the time cost of money or discount rate, i.e., money has a greater value at present than in the future, regardless of inflation. This procedure is used to measure long-term benefits against short-term costs. Projects with long-term benefits become less attractive at higher discount rates.*

Where is the 10% figure? Would it lower the benefit/cost beyond the acceptable?

*Response: The benefit/cost ratio was greater than 1.0 even with the 10 percent discount rate. Federal Highway Administration does not typically use discount rates of greater than 7 percent.*

Does the total cost of \$195.5 million for the Eastern route include the noise barriers?

*Response: The cost of noise barriers was not included in the \$195.5 million. The cost with noise barriers is \$198.1 million. The latter figure was used in evaluating and comparing alternatives.*

Are the costs for barriers in the Eastern and Western (IV-24) based on the same kind of corridor baseline?

*Response: Costs for all noise barriers are based on the typical sections shown in Figures II-3A.*

## Environment

Are certain environmentally sensitive areas weighted more than others? How is that determined? Who determines?

*Response: Wetlands are generally considered more valuable than other types of habitat, such as upland wooded areas. There are several federal directives, such as Executive Order 11990, that mandate protection for wetlands.*

How are wetlands weighted? Are there differences from wetlands to wetlands in these alternatives? What are these?

*Response: There is no specific weighting for wetlands. The bottomland hardwood forests are the most valuable wetlands within the studied corridors.*

What is the value of forests?

**Response:** *Forests are valuable as natural habitat and for commercial forestry.*

When will the use of noise barriers be determined?

**Response:** *Preliminary analysis indicates that noise barriers may be necessary in four locations (see Figure IV-1). Final determination on location of noise barriers will be made during the design phase. Neighborhoods affected by highway noise will have the opportunity to comment on proposed barriers.*

Are noise barriers visual pollutants? Is any weight given to this visual impact?

**Response:** *Although noise barriers may have a visual impact, NCDOT tries to make them as attractive as possible and plants shrubs and trees along the barriers. A community for which a barrier is proposed could elect to forego the barrier to avoid the visual impact.*

What will be the effect of increased noise pollution from trucks and additional cars at high speeds?

**Response:** *The noise analysis considered projected highway volumes of both cars and trucks at highway speeds.*

Is there verified contamination in the Western corridor? If so, where is the information to be had concerning this?

**Response:** *There is contamination at the tank farms near Chimney Rock Road in the Western Corridor, as described in IV.B.8. The proposed road would avoid this contamination area. The Sherwin-Williams site, which will be avoided by the Preferred Alternative, reported a spill following selection of the Preferred Alternative.*

Who is responsible for cleanup of contamination?

**Response:** *Responsibility for cleanup is a complex issue. Generally, the owner of the property is the responsible party; however, many cases must be decided in court.*

## Traffic

Over and over again in the DEIS, the language of "encircling the city" is used. What difference does it make that the Eastern alternative is now 5 MILES inside the city limits in the Market-Friendly area?

**Response:** *A purpose of the urban loop is to provide for circumferential movement in suburban areas of Greensboro, enabling suburban cross-town traffic to avoid the congested portions of central Greensboro. The location of the city limits does not affect this purpose.*

Do conclusions about traffic movement from models weight more than anything else? If so, why?

**Response:** *Future traffic in urban areas is usually projected by models that rely on projections of land use and socio-economic data. Since one of the major purposes of the project is to serve traffic and relieve congestion on inner city streets, the traffic-carrying characteristics are very important.*

## Historic Sites, Cultural Events

How many of all historic sites listed are actually in corridors?

**Response:** *The Kimrey-Haworth House, Guilford College, and Sedgefield Stables are in the study corridors.*

If an historic site is not in a corridor, will it have weight? Why?

**Response:** *A historic site not in a corridor would be given consideration if the project is determined by FHWA and the State Historic Preservation Officer to have an effect on the site. The Celia Phelps Church, while not in a corridor, is considered to be adversely affected by the Middle and Western Corridors.*

Is inclusion on the Historic Register given greater weight? If not, why not?

*Response: All properties that are listed in or eligible for listing in the National Register of Historic Places are protected under Section 106 of the Historic Preservation Act of 1966, as amended.*

Will any consideration be given to potential negative impacts on cultural events like Eastern Music Festival?

*Response: Consideration is given to impacts on cultural events, although they do not fall under the protection of Section 106 or Section 4(f).*

### Piedmont Triad Airport

What are the criteria for exclusively avoiding the Piedmont Triad Airport property?

*Response: Because airport property is obligated by the Federal government for airport purposes, the Federal Aviation Administration's consent is needed for any other use, such as highway. While airport property does not necessarily have to be avoided, such required concurrence by a Federal agency must be weighed in considering alternatives.*

Why is this information not more readily available? When will it be?

*Response: The Piedmont Triad Airport Authority contracted with a consultant in October 1993 for preparation of an airport master plan. The master plan will take about one year to complete. Approval of the documents and release to the public is at the discretion of the airport.*

Why does undeveloped property on the airport's perimeter have precedence over established residential and commercial property?

*Response: In addition to the factors discussed above under (1), the airport land, when developed, could provide a substantial boost to Greensboro's economy, particularly if major air cargo or aircraft maintenance facilities are developed.*

Is the PTIAA community-minded? Can they and DOT work out a compromise?  
Can negotiations occur if the Western route proves superior in all other ways?

*Response: Discussions and coordination have taken place between NCDOT, the PTIAA, and the FAA. Encroachment on airport property will be coordinated with the airport and the FAA during the design phase of the Preferred Alternative.*

#### MODIFIED RED ROUTE

Could a State engineer retain the spirit of the Modified Red Route and alleviate the curve(s) objected to?

*Response: The alignment of the highway will be developed and refined during the design process.*

Would a service road of Sherwin-Chimney Rock connector be a viable idea on its own?

*Response: The Sherwin Road-Chimney Rock Road is a viable concept and is included in Greensboro's Thoroughfare Plan.*

Would the State consider modifying the Red Route or the Modified Red Route to its own specs? If not, why not?

*Response: Even if the Red Route were brought up to state standards, there would be problems with extensive business and industrial relocations and unacceptable infringement on airport property.*

Southwest Neighborhood Association also submitted a report and list of questions. Their questions and responses follow:

1. Is the decision on which path the western leg of the Greensboro Urban Loop will take strictly a NCDOT decision? Will the City of Greensboro participate in the decision?

*Response: The North Carolina Department of Transportation selects the Preferred Alternative. The decision is based on consultation and coordination with the City and the Federal Highway Administration (FHWA).*

2. It is now only days until the decision is to be announced and the City of Greensboro has not provided the DOT with an official response on route preference. Why wasn't the City

required to respond during the designated response period like other entities and individuals? If the city did respond, is the response public record, and available for inspection?

**Response:** *The Greensboro City Council discussed the issue on February 17, 1992, but declined to recommend an alternative.*

3. How much weight will be given to the input of the City of Greensboro versus other inputs?

**Response:** *The City's input is one of many factors considered during the selection process. No specific weights are assigned to the different factors in the selection process.*

4. When and how were the middle alternative and other crossover eliminated? Who made the decision? Was the decision based on input from the City? Did the Wal-Mart property or other planned development have an influence on the decision?

**Response:** *Elimination of alternatives was done by NCDOT based on coordination with the City and FHWA. Factors considered included interchange spacing, traffic operations, existing and planned developments, and environmental impacts.*

5. According to some reports, an intersection between Wendover Avenue and the Norfolk and Southern railroad tracks with four-lane I-40 would not meet interstate standards. If the Eastern Alternative is chosen, how does the DOT plan to meet federal construction guidelines for the intersection if I-40 is to be widened to six or eight wide lanes as reported by the *Greensboro News and Record*?

**Response:** *The Eastern Alternative was not selected as the Preferred Alternative.*

6. If the Eastern Alternative is chosen, how does the DOT plan to assure that air quality in the surrounding and low lying areas of the Oaks West, Beechcroft and Hickory Trace subdivision meets EPA and NCDEM standards?

**Response:** *Air quality modeling was performed at the worst-case locations for each alternative. It was determined that all air quality standards would be met in the design year based on design year traffic.*

7. If the Eastern Alternative is chosen, how does the DOT plan to meet Federal guidelines for noise levels (average 47 dBA) in the Oaks West subdivision which had the lowest receptor noise levels of any area of the EIS study sites? How high would the noise abatements have to be for compliance?

*Response: The Eastern Alternative was not selected as the preferred alternative.*

8. If the Eastern Alternative is chosen, how does the NCDOT plan to deal with the possible isolation of homes in the eastern area of Oaks West? Is the DOT aware that this area has one of the highest percentages of minority home owners in Oaks West and the two adjacent subdivisions?

*Response: The Eastern Alternative through Oaks West was not selected as the preferred alternative.*

9. Ciba-Geigy has stated that they have \$54,000,000 invested in their properties. It has been reported that area realtors are estimating a ten to twenty percent reduction in values of homes bordering the chosen route. With a total estimated value of \$59,000,000 for the real property in the Oaks West, Beechcroft and Hickory Trace subdivisions, is the DOT prepared to compensate all owners if property values are reduced because of the eastern route?

*Response: NCDOT has a Relocation Assistance Program that will financially assist homeowners in relocating. NCDOT is prohibited by law from buying property that is not required for highway use.*

10. If the Eastern Alternative is chosen, how does the DOT plan to deal with the flyover at Hilltop Road?

*Response: The Eastern Alternative was not selected as the preferred alternative.*

11. Why was the Eastern Alternative removed from the Duke Power and D.H. Griffin properties?

*Response: The Eastern Alternative was aligned to minimize social, economic, and environmental impacts.*

12. Why is the Eastern Corridor in the draft EIS not the same corridor that is shown on the zoning maps of Greensboro. The people in this area have only had the same time to react to the proposed road as the people in the other identified corridors. Do you maintain that the Eastern Corridor is the same road as proposed in the zoning maps as Painter Boulevard?

*Response: The Eastern Alternative was developed based on freeway design standards, and, therefore, may not be the same alignment as in the zoning maps.*

13. The SouthWest Neighborhood Association (SWNA) submitted a report, dated October 21, 1991, concerning the draft EIS. Is the DOT aware that the EIS stated that the park is "open space" and not a park? In fact, the SWNA and the City of Greensboro are jointly involved in a program to develop the existing park into a model park under a theme entitled "Adopt a Park". The park has been a focal point for both community spirit and unity. The SouthWest Neighborhood residents have invested hundreds of manhours and raised more than \$1,600 for park improvements. The area residents use it for recreation and consider it be a park. The City calls it a park.

*Response: The designation as an "open space" is based on coordination with the City of Greensboro and Federal Highway Administration.*

14. The *Greensboro News and Record* has reported the possibilities of either a downsized road or splitting the roadway north and south of I-40. Is either of these options really being considered?

*Response: The City of Greensboro and NCDOT have considered other alternatives including a downsized roadway. These alternatives were not selected as the Preferred Alternative.*

15. How does the DOT plan to insure the serenity and environmental quality of the Oka T. Hester Park if either the Eastern or Western Alternatives go through the park?

*Response: NCDOT will minimize the visual and noise impact on Oka T. Hester Park to the extent that such mitigation is considered reasonable and feasible.*

16. The Draft EIS indicates that some 61 residences will be displaced if the Eastern Alternative is chosen. Does the DOT realize that these numbers are flawed and that more than 61 residences will be displaced in the Oaks West subdivision alone if a 300-foot wide right-of-way is used?

**Response:** *The relocation reports estimate the number of displacements based on field visits and preliminary mapping. The estimate of relocations is refined during the design process.*

**APPENDIX E**  
**GLOSSARY OF TECHNICAL TERMS**

## APPENDIX E

### 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.

<b>mainline volume</b>	volume of through traffic on a main road
<b>master plan</b>	general long-range plan for growth in a certain area, covering land use, transportation needs, and other elements
<b>merge</b>	to combine two traffic lanes into one
<b>mitigation</b>	measures taken to reduce negative effects of construction and constructed facilities
<b>multi-modal</b>	combination of transportation types such as air, rail, bus, auto, etc.
<b>overlay</b>	a new layer of pavement
<b>pavement milling</b>	process of grinding off the top layer of pavement, treating it, and reapplying it as an alternative to adding new pavement
<b>plat</b>	registration with authorities of a parcel of land designated for development
<b>radial</b>	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)