Environmental Screening

Introduction

Historically, analysis of the impacts of transportation projects on communities and the natural environment occurred during individual project planning and design. This approach is reasonable, since many impacts cannot be accurately determined until specific design decisions have been made. However, there are several important reasons for conducting an earlier, system-planning level environmental screening of proposed LRTP projects.

First, a preliminary environmental impact screening can identify potentially serious impacts that could end up stopping a project. Recognizing such issues at the earliest possible stage of the planning process provides the opportunity to avoid or mitigate undesirable impacts, through modification (or even elimination) of the project. Early "fatal flaw" analysis of this type helps reduce the possibility that subsequent, more detailed analyses will uncover unexpectedly serious environmental impacts. This approach helps reduce the risks inherent in an uncertain planning process, and helps ensure that time and resources are not expended unnecessarily.

Second, a systems-level environmental screening allows consideration of the interactions among various projects. Rarely does a project stand completely alone, independent of other projects. The combined impacts of a several projects can vary substantially from the summation of individual project impacts. Furthermore, the modification or elimination of one project due to environmental considerations can significantly alter the performance or impacts of other projects. It is important, therefore, to be able to assess project impacts in the context of the entire LRTP.

Finally, although system-level environmental screening does not substitute for detailed, project-specific review, this assessment can identify and highlight issues warranting further analysis. This knowledge not only reduces the likelihood of unexpected environmental impacts; it permits future environmental studies to focus on critical issues. The result is a transportation plan that not only minimizes negative impacts on the natural and man-made environments, but one that is ultimately more efficient, timely, and cost-effective.

This environmental screening process and its results reflect the reality that the overwhelming majority of the Recommended LRTP's environmental impacts are associated with roadway projects. This is understandable, given the potential disruption

caused by the construction of more than 200 lane-miles of permanent infrastructure. Once a few critical decisions have been made, constraints on roadway cross-sections and alignments (due to safety factors and design criteria) limit opportunities to avoid or reduce these negative impacts.

Sidewalks and bicycle facilities are much more limited in the magnitude of their environmental and community impacts, due to smaller cross-sections and greater flexibility in design. Furthermore, pedestrian and bicycle facilities are most often built in conjunction with roadway facilities, and have only marginal environmental impacts, if any, beyond those of the roadway itself. In addition, bicycle and pedestrian travel is inherently less disruptive to the environment than travel by automobile, especially with respect to air pollution, noise, and energy consumption.

Most of the transit elements in the LRTP are associated with bus route and service expansions, which typically involve no new construction, and have minimal negative impacts on either natural or man-made environments. In general, transit impacts tend to be positive, in that increased service tends to reduce VMT and typically improves accessibility in disadvantaged neighborhoods. The proposed PART regional rail and bus rapid transit systems are the only transit elements that could generate significant environmental and community impacts associated with new construction. It is difficult to identify environmental impacts for these facilities in the context of this LRTP update, however, due to the specialized nature of these facilities, and given that they are still in the early planning stages. Specific studies (some of which are already underway) will be needed to assess the impacts of these transit systems.

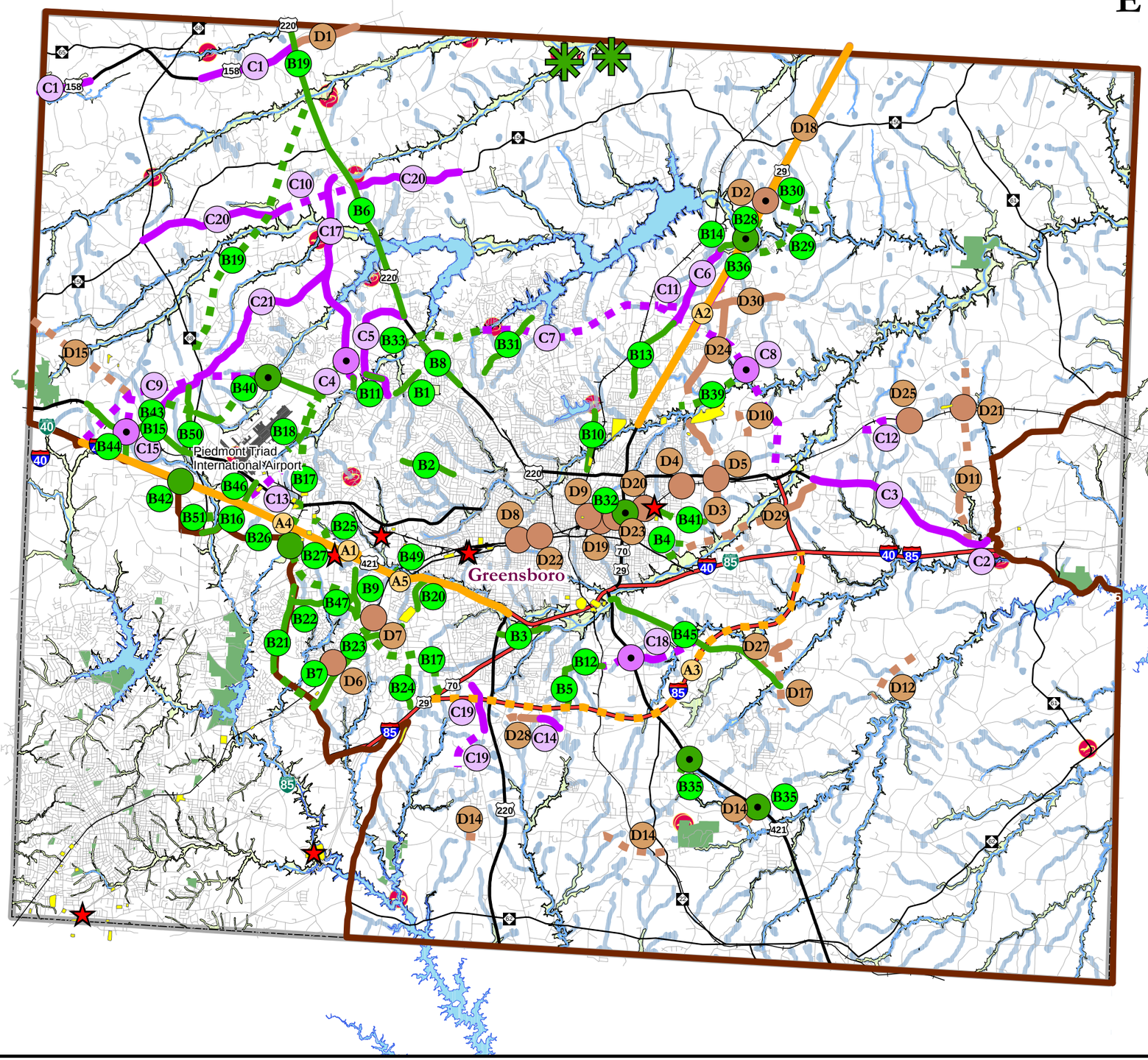
The following discussion of the Recommended LRTP's environmental screening process is divided into two parts. The first focuses on overall impacts to the natural and cultural environments. The second section addresses specific issues related to environmental justice.

Environmental Impacts

A qualitative screening was performed to assess the potential environmental impacts of the roadway projects recommended for inclusion in the Greensboro Urban Area 2030 LRTP. This analysis consisted of overlaying project alignments/locations onto a series of maps depicting sensitive natural and community resources — **Maps 4.1 and 4.2**. Any proposed project determined to encroach on a sensitive area was identified. The nature and degree of conflict determines the level of impact assessed. For example, a roadway alignment across a stream is generally

Greensboro Urban Area Long-Range Transportation Plan

Environmental Features Map 4.1



Legend

- Threatened Species
- Planned State Park
- Hazardous Waste Site/Facility
- Superfund Sites
- A## 2004 Project Reference
- B## 2014 Project Reference
- C## 2020 Project Reference
- D## 2030 Project Reference
- Metropolitan Area Boundary

2004 Horizon Year Projects
- Widening
- New Location

2014 Horizon Year Projects
- Widening
- New Location

2020 Horizon Year Projects
- Widening
- New Location

2030 Horizon Year Projects
- Widening
- New Location
- 2014 Interchange
- 2014 Grade Separation
- 2020 Interchange
- 2030 Interchange
- 2030 Grade Separation
- Interstates
- US Highways
- State Highways
- Rivers and Streams
- Railroads
- Bodies of Water
- River/Stream Buffer
- Parks
- Floodplain
- County Line

0 0.5 1 2 3 4 5 Miles

N W E S

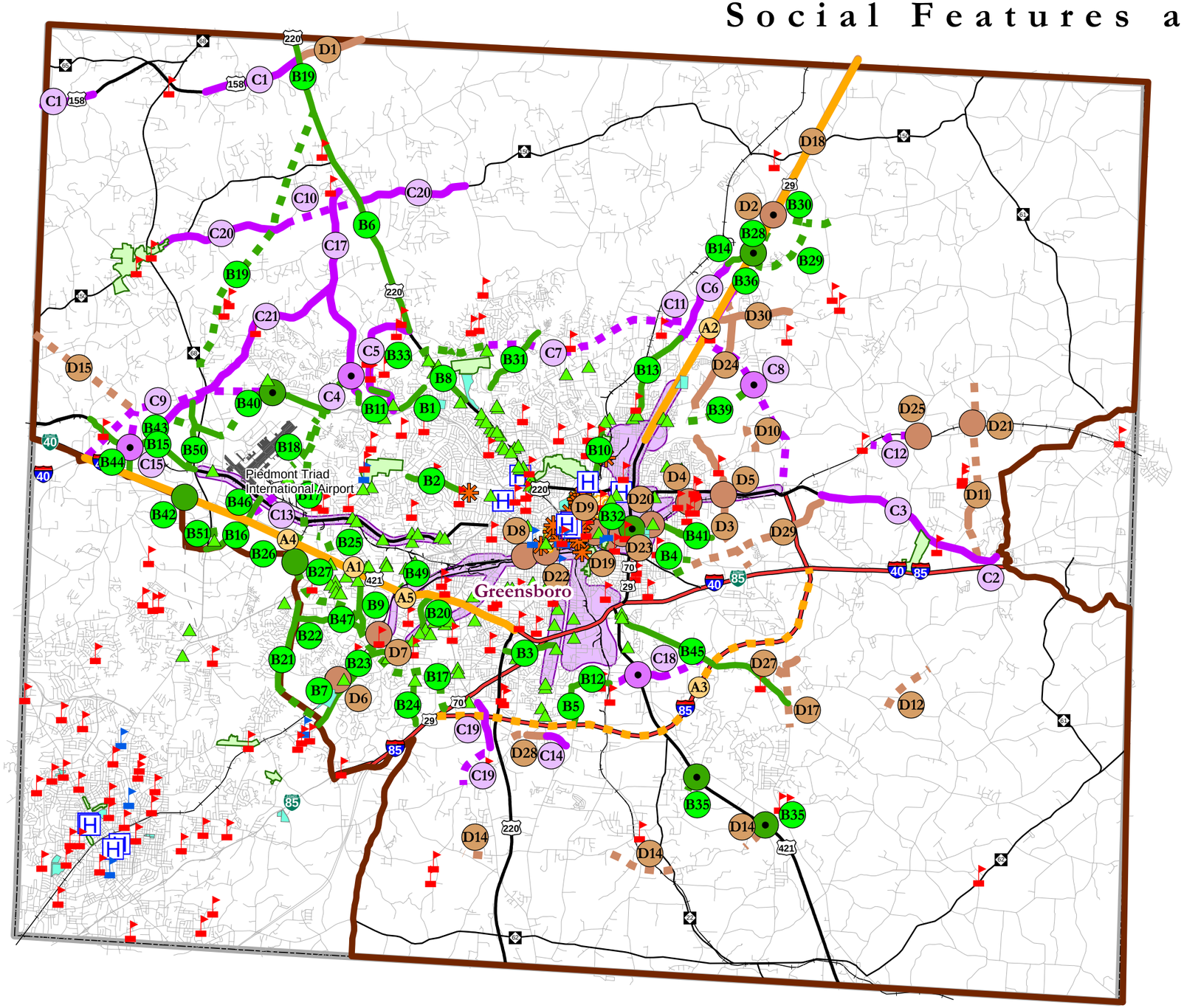
August 26, 2004

Mapping prepared by Kimley-Horn and Associates, Inc. for the Greensboro Urban Area Long-Range Transportation Plan
Data Sources: Guilford County, the City of Greensboro, FEMA, the U.S. Census Bureau, KHA, and NCDOT

Greensboro Urban Area Long-Range Transportation Plan

Social Features and Historic Districts

Map 4.2



Legend

- Schools
- Colleges
- Shopping Center
- Hospitals
- Historic Property
- Historic District (Local)
- Historic District (National Register)
- Cemetery
- Future Reinvestment Areas
- A## 2004 Project Reference
- B## 2014 Project Reference
- C## 2020 Project Reference
- D## 2030 Project Reference

2004 Horizon Year Projects
- Widening
- New Location

2014 Horizon Year Projects
- Widening
- New Location

2020 Horizon Year Projects
- Widening
- New Location

2030 Horizon Year Projects
- Widening
- New Location

- 2014 Interchange
- 2014 Grade Separation
- 2020 Interchange
- 2030 Interchange
- 2030 Grade Separation
- Metropolitan Area Boundary
- County Line
- Interstates
- US Highways
- State Highways
- Railroads

0 0.5 1 2 3 4 5 Miles

N W E S

August 26, 2004

Mapping prepared by Kimley-Horn and Associates, Inc. for the Greensboro Urban Area Long-Range Transportation Plan
Data Sources: Guilford County, the City of Greensboro, FEMA, the U.S. Census Bureau, KHA, and NCDOT

considered less to have less severe impacts than one running along the course of the stream. Other relevant factors include the number of crossings, amount of traffic, roadway cross-section, and stream size and quality. As another example, a road widening is typically assumed to be less disruptive to the natural environment than a comparable project on new alignment. On the other hand, widening may be more disruptive than a new facility in terms of community impacts, depending on available right-of-way, alignment, type of development, and other factors.

Since this is a system-wide, planning-level screening, no formal field investigation was conducted, and screening could only be performed on those features for which GIS coverage was available. However, local staff reviewed and refined these GIS-based assessments, based on their familiarity with the areas and projects in question. As project plans are further refined, more precise environmental assessments may be necessary. For some of the projects in the Recommended LRTP, NEPA/SEPA studies are already underway or completed. Results are summarized in a series of evaluation matrices for the 2014, 2020, and 2030 horizon years — **Tables 4.1, 4.2, and 4.3**.

Each matrix rates the impacts of every project completed in that time period. Impacts in the following categories are assessed, based on mapping provided by the City of Greensboro:

Environmental
- Hydrological
  — Bodies of water
  — Floodplains/buffers
- Threatened species
- Parks/Army Corps of Engineers properties
- Hazardous materials
  — Hazardous waste sites
  — Superfund sites

Community
- Schools
- Shopping centers
- Hospitals
- Churches/cemeteries
- Historic resources
- Reinvestment areas

Potential project impacts (if any) are classified as “Minor,” “Moderate,” or “Major” for each of the above categories. This determination is based on a combination of objective and subjective criteria. For example, impacts are generally considered less severe if the project involves widening or other improvements along an existing roadway, as opposed to construction on new

alignment. The following guidelines were used to rate project impacts in this screening process:

Minor Impacts
- Road widening with single small creek crossing
- Road widening near sensitive area

Moderate Impacts
- Road widening with multiple creek crossings
- Road widening through sensitive area
- New alignment with single small creek crossing
- New alignment near sensitive area

Major Impacts
- New alignment along stream
- New alignment with multiple stream crossings
- New alignment through sensitive area
- Road widening or new alignment with numerous impacts

This analysis was used to eliminate any candidate projects with "fatal" flaws, or environmental impacts that were considered potentially too severe to justify the project. In addition, the information obtained from this analysis allowed proposed roadway alignments to be adjusted or refined to minimize possible environmental impacts. Finally, this screening process allows early identification of likely impacts and areas of uncertainty that will need to be investigated more fully as a particular project moves forward through more detailed planning and design.

Table 4.1 — Roadway Projects, 2014 Horizon Year

IMPACT MATRIX				ENVIRONMENTAL						COMMUNITY						ENVIRONMENTAL JUSTICE		
ID	**Facility**	**TIP Number**	**Description / Extents**	**Bodies of Water**	**Floodplains / Buffers**	**Threatened Species**	**Parks / ACOE Properties**	**Hazardous Waste Sites**	**Superfund Sites**	**Schools**	**Shopping Centers**	**Hospitals**	**Churches / Cemeteries**	**Historic Resources**	**Reinvestment Areas**	**Minority †**	**Hispanic †**	**Low Income †**
B1	New Garden Road		Jefferson Rd. to Brassfield Rd.	**			*				*			*				
B2	Friendly Avenue		Westridge Rd. to Holden Rd., add medians & left turn lanes							*			*	*				
B3	Creek Ridge Road		Randleman Rd. to US 220		*						*				**	*		
B4	Franklin Blvd/Florida St Connector		McConnell Rd. to Lee St.	*	*					*					*	Yes **		Yes **
B5	Elm-Eugene Street		Vandalia Rd. to Southern Urban Loop (I-85 Bypass)	*	*						*		*			Yes **		
B6	US 220	R-2309	Horse Pen Creek Rd. to US 220 - NC 68 Connector	***	***	*	***			**	**		**	*				
B7	Mackay Road		High Point Rd. to Adams Farm Pkwy.								**		*					
B8	Battleground Avenue		Cotswold Ave. to Westridge Rd.	*	*		**				**		**	**				
B9	Stanley Road		Koger Blvd. to Hilltop Rd.	*	*						**		*					
B10	Church Street		Cone Blvd. to Northwood St.	**	**	*			**	**	**	**		**	**			
B11	Horse Pen Creek - Fleming Connector		Horse Pen Creek Rd. to Fleming Rd. (includes extending existing cross-sections)	*	*													
B12	Vandalia Road		Elm-Eugene St. to Pleasant Garden Rd.	*	*					**			*		*	Yes **		
B13	Summit Avenue		McKnight Mill Rd. to Brightwood School Rd.	*	*					*	**		*		*	*		
B14	Summit Avenue		Bryan Park to Eckerson Rd.	*	*										*			
B15	West Market Street	R-2611	NC 68 to Bunker Hill Rd. in Colfax	*	*			*		**			*		*			
B16	Gallimore Dairy Road	U-4015 (part)	NC 68 to I-40	*	*			*	*		*							
B17	Western Urban Loop	U-2524	I-85 to Lawndale Dr.	***	***	**	***		***	***	***			**	***			
B18	Chimney Rock Rd. Extension	U-2524 (part)	Existing facility to Old Oak Ridge Rd	**	**													
B19	NC 68 / US 220 Connector	R-2413	Pleasant Ridge Rd. to US 220 + widening into Rockingham Co.	***	***					**								
B20	Merritt Drive		I-40 to High Point Rd.						**		*				**		Yes *	
B21	Guilford College Road	U-2913 (part)	Widening (from Ruffin Rd to new alignment)								*		*					
			New alignment (from widening to High Point Rd.)	***	***				**	**								
B22	Hilltop Road	U-3612	Guilford College Rd. to Adams Farm Pkwy.	**	**								*					
B23	High Point Road	U-2412	Hilltop Rd. to Proposed US 311 Bypass (portion in High Point)	*					*	*	**		**		**			
B24	Groometown Road	U-3313	Wiley Davis Rd. to Wayne Rd.	*							*		**	**				
B25	Bridford Parkway Extension	U-4006	Wendover Ave. at Hornaday Rd. to Burnt Poplar Rd. at Swing Rd.	***	***			**	***		***							
B26	Hornaday Road / Chimney Rock Road Connector		Hornaday Rd. to Chimney Rock Rd.					**	**									
B27	Hornaday Road / Chimney Rock Road Connector	U-2524 (part)	Bridge over Outer Loop	***	***													
B28	Reedy Fork Service Rd.		Turner-Smith Rd Ext to Reedy Fork Parkway	***	***													
B29	Reedy Fork Parkway		Turner-Smith Rd Ext to Eckerson Rd.	***	***													

Table 4.1 — Roadway Projects, 2014 Horizon Year (continued)

IMPACT MATRIX				ENVIRONMENTAL						COMMUNITY						ENVIRONMENTAL JUSTICE		
ID	Facility	TIP Number	Description / Extents	Bodies of Water	Floodplains / Buffers	Threatened Species	Parks / ACOE Properties	Hazardous Waste Sites	Superfund Sites	Schools	Shopping Centers	Hospitals	Churches / Cemeteries	Historic Resources	Reinvestment Areas	Minority †	Hispanic †	Low Income †
B30	Turner Smith Road extension		Connect Brown Summit Rd. to Turner Smith Rd.	***	***													
B31	Lake Jeanette Road		Lawndale Ave. to N Elm St. / Bass Chapel Rd.															
B32	East Market Street		Streetscape and Traffic Management						*	**	**			*	***	Yes **		Yes **
B33	Lake Brandt / Cotswold Connector	U-2524 (part)	Lake Brandt Rd. to Cotswold Rd.															
B35	US 421	R-2612	Williams Dairy / Neelley & Woody Mill / Company Mill interchanges	**	**													
B36	US 29	R-4707	Eckerson Rd. / US 29 Interchange + 1 mile of freeway upgrade	*	*				*	*								
B37	Greensboro Signal / ITS System	U-4711																
B39	East Cone Boulevard Extension		Nealtown Rd. to Hines Chapel Rd.	***	***				**				*		***	Yes ***		
B40	Bryan Boulevard	U-2815 C	Inman Rd. to NC 68 (relocate roadway)	***	***													
B41	Holts Chapel Road Upgrade		Alignment & cross-section improvements, E. Market St. to Ward Rd.	**				**			*				**	Yes **		Yes **
B42	Pegg / Thatcher Connector		Gallimore Dairy Rd. to W. Market St.	*	*										***			
B43	Bryan Boulevard Extension		NC 68 to Pleasant Ridge Rd.	*														
B44	Sandy Ridge Road		I-40 to W. Market St.											*	*			
B45	Alamance Church Road		US 421 to Southeast School Rd.	**	**				**	**	**		**	*	*	Yes **		
B46	Gallimore Dairy Road	U-4015 (part)	I-40 to W. Market St.	*	*				***						*			
B47	Hilltop Road		Widen from Adams Farm Pkwy. to Stanley Rd.	**	**								*					
B49	Norwalk St. Connector		Boston Rd. over railroad to existing		*										*			
B50	Brigham Rd. Widening		W. Market St. to Pleasant Ridge Rd.	*	*													
B51	Regional Rd. Extension		Gallimore Dairy Rd. to north of Hickory Ridge Rd. (part existing)		*										*			

General Notes:
(1) Qualitative screening only. Observations were made by overlaying potential alignments on map with environmental and community resource information.
(2) Impacts considered less severe if following an existing alignment rather than on new alignment.

Environmental Justice Notes:
(1) Not intended to determine impacts, only to identify those communities in proximity to various projects in the long range plan. A much more detailed analysis, including a field survey, will need to be undertaken to determine specific community impacts on a project-by-project basis when individual project studies are begun.
† "**YES**" if census data indicate that 51% or more of the population is of the selected demographic. If "**YES**" these communities will need to be included in an environmental justice assessment when individual project studies are undertaken.

KEY			
	*	**Minor**	Widening; single small creek crossing; near sensitive area.
	**	**Moderate**	Widening: multiple small creek crossing; cross or near edge of sensitive area. New Location: single small creek crossing or near sensitive area.
	***	**Major**	New alignment: along stream; multiple impacts; through middle of sensitive area.

Table 4.2 — Roadway Projects, 2020 Horizon Year

IMPACT MATRIX				ENVIRONMENTAL						COMMUNITY						ENVIRONMENTAL JUSTICE		
ID	**Facility**	**TIP Number**	**Description / Extents**	**Bodies of Water**	**Floodplains / Buffers**	**Threatened Species**	**Parks / ACOE Properties**	**Hazardous Waste Sites**	**Superfund Sites**	**Schools**	**Shopping Centers**	**Hospitals**	**Churches / Cemeteries**	**Historic Resources**	**Reinvestment Areas**	**Minority †**	**Hispanic ‡**	**Low Income †**
C1	US 158	R-2577	Forsyth Co Line - US-220 (includes Stokesdale Bypass) (remainder of the project lies in Forsyth Co.)	**	**										*			
C2	US 70	R-2910	Rock Creek Dairy Rd. to Alamance County Line (.3 to MAB) (remainder of the project lies in Alamance Co.)	*	*									**				
C3	US 70	U-2581	Mt Hope Church Rd. to Rock Creek Dairy Rd.	**	**		*		**	*			**	*	*	Yes***		
C4	Fleming Road / Lewiston Road		Fleming Rd. to Lewiston Rd. connection and interchange at Urban Loop	*	*													
C5	Horsepen Creek Road		New Garden Rd. to Battleground Ave.	*	*					**	**							
C6	Summit Avenue		Brightwood School Rd. to Bryan Park	*														
C7	Eastern Urban Loop	U-2525	Lawndale Dr. to US 70 - New Location	***	***	***	*			*	*		*		***	Yes **		
C8	E. Cone Blvd. / Urban Loop Interchange		Interchange with East Cone Blvd. and Urban Loop															
C9	I-40 / NC 68 / I-73 Connector		Old Oakridge Rd. to I-40,	***	***					**	*							
C10	NC 150 Realignment		New location, from Brookbank Road to US 220 (see C20 for remainder)	***	**									*				
C11	Hicone Road Extension		Lee's Chapel Rd. to Summit Ave.	***	***													
C12	Carmon / McLeansville Road Connector		Knox Rd. to McLeansville Rd.	**	**													
C13	Gallimore Dairy Road / Friendly Avenue		Realign for continuity	*	*				***						***			
C14	Ritters Lake Road Realignment		Connect with Wolftrail at Ranldleman Rd.															
C15	Sandy Ridge Road Extension		Market St. to I-40 / NC 68 / I-73 Connector and Interchange at Market St.	**	**								*					
C17	Lewiston / Pleasant Ridge Roads		Urban Loop to Realigned NC 150	***	***	*												
C18	Vandalia Road Extension		Pleasant Garden Rd. to Alamance Church Rd. + US 421 interchange	***	***											Yes ***		
C19	South Holden Road		South of Bus. I-85 to Kivett Dr. (part on new location)	**	**					*								
C20	NC 150 Realignment / Widening		On existing Brookbank Road and existing Auburn Road from NC 68 Lake Brandt Road (see C10 for remainder)	**	**					**	**		**	***				
C21	Pleasant Ridge Road		W. Market St. to Lewiston Rd.							**			**	*				

General Notes:
(1) Qualitative screening only. Observations were made by overlaying potential alignments on map with environmental and community resource information.
(2) Impacts considered less severe if following an existing alignment rather than on new alignment.

Environmental Justice Notes:
(1) Not intended to determine impacts, only to identify those communities in proximity to various projects in the long range plan. A much more detailed analysis, including a field survey, will need to be undertaken to determine specific community impacts on a project-by-project basis when individual project studies are begun.
‡ "**YES**" if census data indicate that 51% or more of the population is of the selected demographic. If "**YES**" these communities will need to be included in an environmental justice assessment when individual project studies are undertaken.

KEY			
	*	**Minor**	Widening; single small creek crossing; near sensitive area.
	**	**Moderate**	Widening: multiple small creek crossing; cross or near edge of sensitive area. New Location: single small creek crossing or near sensitive area.
	***	**Major**	New alignment: along stream; multiple impacts; through middle of sensitive area.

Table 4.3 — Roadway Projects, 2030 Horizon Year

IMPACT MATRIX				ENVIRONMENTAL						COMMUNITY						ENVIRONMENTAL JUSTICE		
ID	Facility	TIP Number	Description / Extents	Bodies of Water	Floodplains / Buffers	Threatened Species	Parks / ACOE Properties	Hazardous Waste Sites	Superfund Sites	Schools	Shopping Centers	Hospitals	Churches / Cemeteries	Historic Resources	Reinvestment Areas	Minority †	Hispanic †	Low Income ‡
D1	US 158	R-2580	US 220 - Rockingham Co. Line (remaining portion is in Rockingham Co.)	*	*													
D2	US 29		New single point interchange at Brown Summit/Turner Smith Connector).															
D3	Penry / Ward / Youngs Mill Connector		McConnell Rd. to Huffine Mill Rd. (realign & improve existing)	***	***				**	*					*	Yes ***		
D4	Franklin Road		Railroad grade separation													Yes ***		
D5	Ward Road		Railroad grade separation						**									
D6	Mackay Road		Railroad grade separation															
D7	Hilltop Road		Railroad grade separation						**									
D8	Aycock Street		Railroad underpass replacement (in conjunction with PART)							*								
D9	East Market Street		Railroad underpass replacement (in conjunction with PART)											*		Yes ***		
D10	Rankin Mill / Flemingfield Connector		South of Keeley Rd. Huffine Mill Rd.	*												Yes **		
D11	High Rock Road Extension		US 70 to Frieden Church Rd. (connect existing facilities)						*	*	**					Yes*		
D12	Wades Store Road Extension		Mt. Hope Church Rd. to Alamance Church Rd.	***	***													
D14	Burnetts Chapel / Steeple Chase / Hagen Stone Park / Company Mill Connectors		Burnetts Chapel Rd. to Company Mill Rd., new & existing	***	***		*											
D15	Airport Connector		Sandy Ridge Rd Ext (at I-73 Connector) to Forsyth Co. (continues to Winston-Salem Urban Loop / I-74)	***	***				**									
D17	Youngs Mill / Southeast School Connector		Millpoint Rd. to Southeast School Rd.	**	**													
D18	US 29		Widen & upgrade to interstate, north of Urban Loop to Rockingham Co. line	**	**													
D19	South Dudley Street		Railroad grade separation							*			*		*	Yes ***		
D20	South English Street		Railroad grade separation							*	*				*	Yes ***		
D21	Colony Road		Railroad grade separation															
D22	Tate Street		Railroad grade separation							*				*				
D23	Benbow Road		Railroad grade separation						*	*						Yes ***		
D24	Nealtown Rd. / McKnight Mill Rd. Connector and Extension		Huffine Mill Rd. to Eckerson Rd. (connect & improve existing facilities)	***	***				***	***					***	Yes ***		
D25	Knox Road Extension		Carmon to Frieden Church Rd., with railroad grade separation															
D27	Williams Dairy / Millpoint Road Connector		Millpoint Rd. to Williams Dairy Rd.	*	*													
D28	Bishops Road - Ritters Lake Road Connector		S. Holden Road to Wolftrail Road (Old Randleman Rd.)	***	***													

Roadway Projects, 2030 Horizon Year (continued)

IMPACT MATRIX				ENVIRONMENTAL						COMMUNITY						ENVIRONMENTAL JUSTICE		
ID	Facility	TIP Number	Description / Extents	Bodies of Water	Floodplains / Buffers	Threatened Species	Parks / ACOE Properties	Hazardous Waste Sites	Superfund Sites	Schools	Shopping Centers	Hospitals	Churches / Cemeteries	Historic Resources	Reinvestment Areas	Minority ǂ	Hispanic ǂ	Low Income ǂ
D29	Florida St. Extension		Franklin Blvd. Extension to Mt. Hope Church Rd (new & improve existing)	***	***								**		***	Yes **		Yes **
D30	Hicone Rd. Widening		US 29 to Hines Chapel Rd.															

General Notes:
(1) Qualitative screening only. Observations were made by overlaying potential alignments on map with environmental and community resource information.
(2) Impacts considered less severe if following an existing alignment rather than on new alignment.

Environmental Justice Notes:
(1) Not intended to determine impacts, only to identify those communities in proximity to various projects in the long range plan. A much more detailed analysis, including a field survey, will need to be undertaken to determine specific community impacts on a project-by-project basis when individual project studies are begun.
ǂ "**YES**" if census data indicate that 51% or more of the population is of the selected demographic. If "**YES**" these communities will need to be included in an environmental justice assessment when individual project studies are undertaken.

KEY			
	*	**Minor**	Widening; single small creek crossing; near sensitive area.
	**	**Moderate**	Widening: multiple small creek crossing; cross or near edge of sensitive area. New Location: single small creek crossing or near sensitive area.
	***	**Major**	New alignment: along stream; multiple impacts; through middle of sensitive area.

Environmental Justice

Environmental Justice is a concept intended to avoid the use of federal funds for projects, programs, or other activities that generate disproportionate or discriminatory adverse impacts on minority or low-income populations. This effort is consistent with Title IV of the 1964 Civil Rights Act, and is promoted by the U.S. Department of Transportation (USDOT) as an integral part of the long-range transportation planning process, as well as individual project planning and design. The environmental justice assessment incorporated in this LRTP update was based on three basic principles, derived from guidance issued by the USDOT:

- The planning process should minimize, mitigate, or avoid environmental impacts (including economic, social, and human health impacts) that affect minority and low-income populations with disproportionate severity.
- The benefits intended to result from the transportation planning process should not be delayed, reduced, or denied to minority and low-income populations.
- Any community potentially affected by outcomes of the transportation planning process should be provided with the opportunity for complete and equitable participation in decision-making.

As part of this LRTP update, the Greensboro MPO identified the geographic distribution of low-income and minority populations, so that the positive and negative effects of various transportation investments in the transportation plan could be assessed. This assessment effort is the focus of this discussion. The MPO also endeavored to develop and carry out a public involvement process that not only reduced obstacles to participation by minority and low-income communities, but also actively sought out meaningful input. This effort is detailed in Chapter 1 of this report.

It must be stressed that the environmental justice screening conducted for this study is not intended to quantify specific impacts. As described above, it is intended to guide the development of a plan that is equitable in terms of both costs and benefits. In addition, a critical purpose of this screening is the identification of projects in the transportation plan that, due to proximity, have the potential to affect communities of special interest. When individual studies are begun as part of project implementation, more detailed analyses, including field surveys, will be needed to identify and minimize specific community impacts on a project-by-project basis.

Methodology and Findings

For the purposes of this study, the following methodology was used to identify communities subject to environmental justice screening. Census information from the year 2000 was analyzed at the block group level. The distributions of populations of interest (African-American, Hispanic, and low income) within each block group were calculated. If individuals from any one of these three categories comprised more than 50% of the population in a particular block group, that block group was flagged for analysis for that population category. Using these definitions, there were no "Hispanic" block groups in the study area, and except for a small area in the northern CBD, the "low income" block groups were a subset of the "African-American" block groups.

Thematic maps were then prepared, graphically depicting concentrations of minority, Hispanic, and low-income populations by block group. Block groups were shaded to represent concentrations of populations of interest, by quartile. When overlaid with proposed roadway projects, these maps provided a useful tool for analyzing and communicating impacts. These maps are included as **Maps 4.3, 4.4, and 4.5**.

If a roadway project was proposed in or near one of the identified block groups, a qualitative assessment was made of the project's potential impacts on the communities of interest. Those results are broadly summarized in **Tables 4.1, 4.2, and 4.3**, and are described below in more detail, on a project-by-project basis. Since projects are grouped by horizon year it is also possible to review the relative timeliness of project implementation in minority and low-income communities.

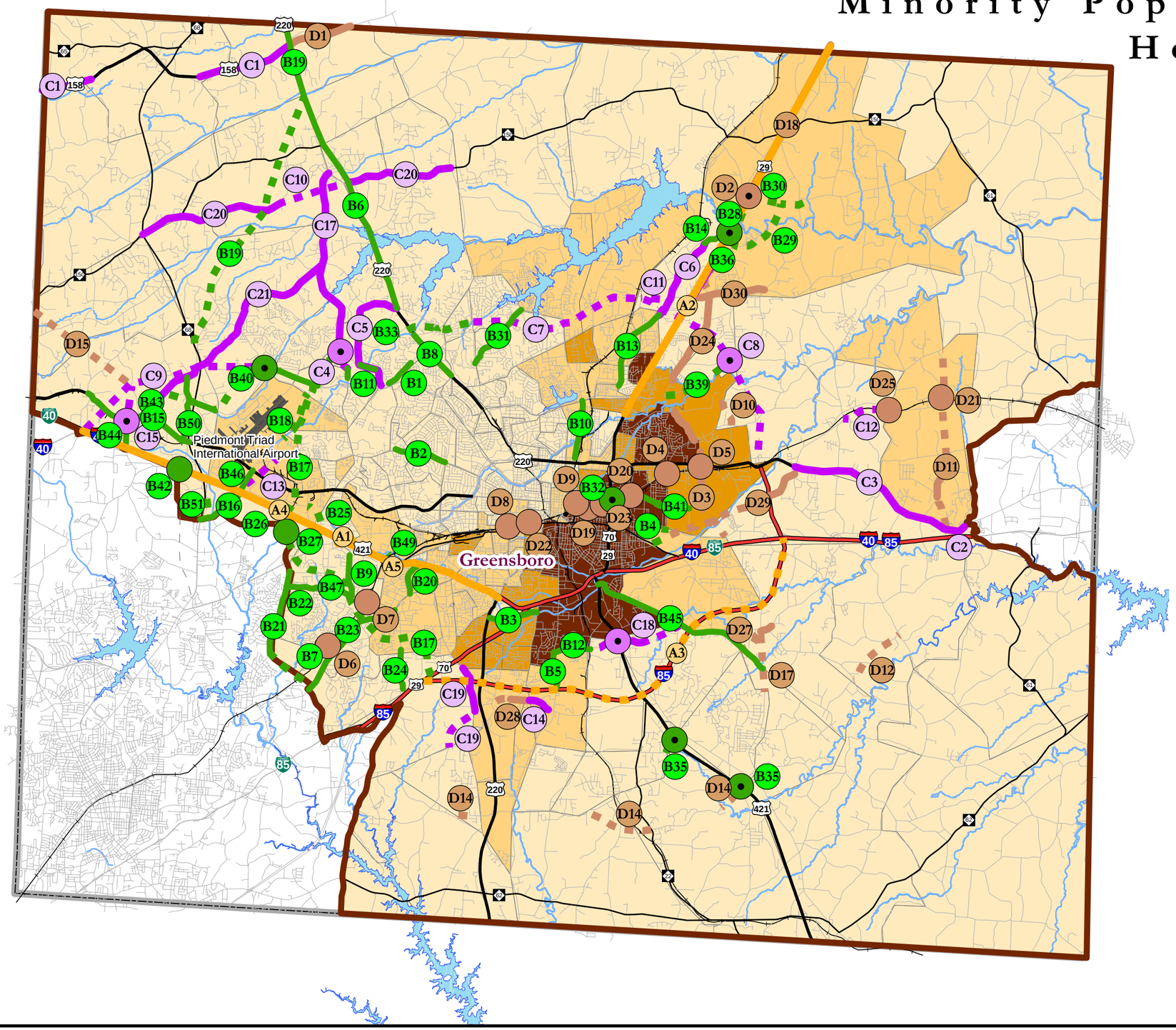
Roadway Projects — 2014 Horizon Year

Franklin Boulevard/Florida Street Connector (B4)

- Connection on new location: McConnell Road to Lee Street.
- The end of the new location portion of the project affects minority and low-income communities in the College Forest and Franklin Boulevard/Shirley Lane neighborhood areas.
- This project should improve access to the community, provide alternative travel routes, and increase investment opportunities, but could have negative impacts on specific properties.

Greensboro Urban Area Long-Range Transportation Plan

Minority Population Distribution
Horizon Year Projects
Map 4.3



Legend

Percent Minority

- 0.00 - 25.00 %
- 25.01 - 50.00 %
- 50.01 - 75.00 %
- 75.01 - 100.00 %
- A## 2004 Project Reference
- B## 2014 Project Reference
- C## 2020 Project Reference
- D## 2030 Project Reference
- Metropolitan Area Boundary

2004 Horizon Year Projects

- Widening
- New Location

2014 Horizon Year Projects

- Widening
- New Location

2020 Horizon Year Projects

- Widening
- New Location

2030 Horizon Year Projects

- Widening
- New Location

- 2014 Interchange
- 2014 Grade Separation
- 2020 Interchange
- 2030 Interchange
- 2030 Grade Separation
- County Line
- Interstates
- US Highways
- State Highways
- Railroads

0 0.5 1 2 3 4 5 Miles

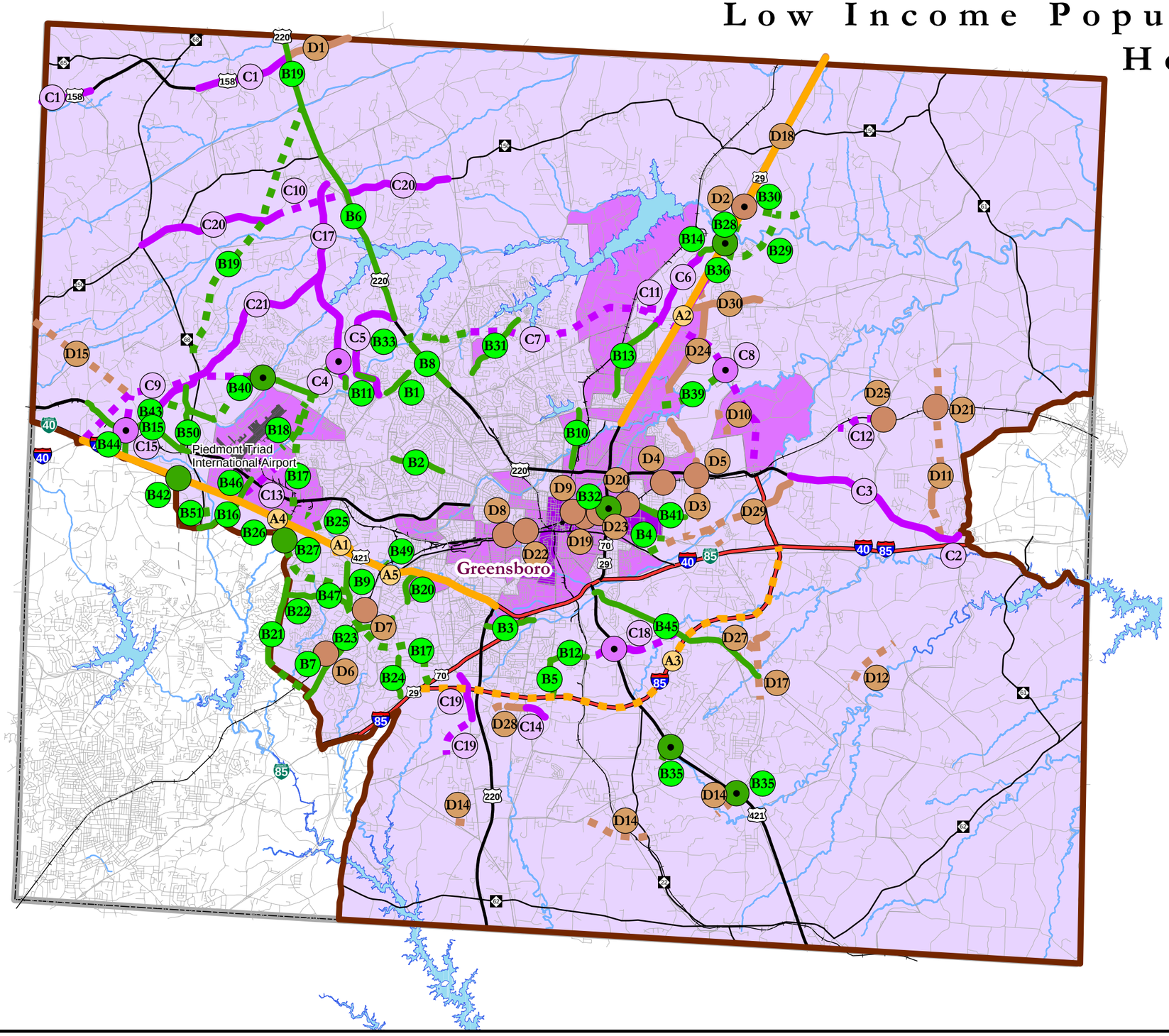
N W E S

August 26, 2004

Mapping prepared by Kimley-Horn and Associates, Inc. for the Greensboro Urban Area Long-Range Transportation Plan
Data Sources: Guilford County, the City of Greensboro, FEMA, the U.S. Census Bureau, KHA, and NCDOT

Greensboro Urban Area Long-Range Transportation Plan

Low Income Population Distributions
Horizon Year Projects
Map 4.4



Legend

Income Below $20,000

- 0.00 - 25.00 %
- 25.01 - 50.00 %
- 50.01 - 75.00 %
- 75.01 - 100.00 %
- A## 2004 Project Reference
- B## 2014 Project Reference
- C## 2020 Project Reference
- D## 2030 Project Reference
- Metropolitan Area Boundary

2004 Horizon Year Projects

- Widening
- New Location

2014 Horizon Year Projects

- Widening
- New Location

2020 Horizon Year Projects

- Widening
- New Location

2030 Horizon Year Projects

- Widening
- New Location

- 2014 Interchange
- 2014 Grade Separation
- 2020 Interchange
- 2030 Interchange
- 2030 Grade Separation
- County Line
- Interstates
- US Highways
- State Highways
- Railroads

0 0.5 1 2 3 4 5 Miles

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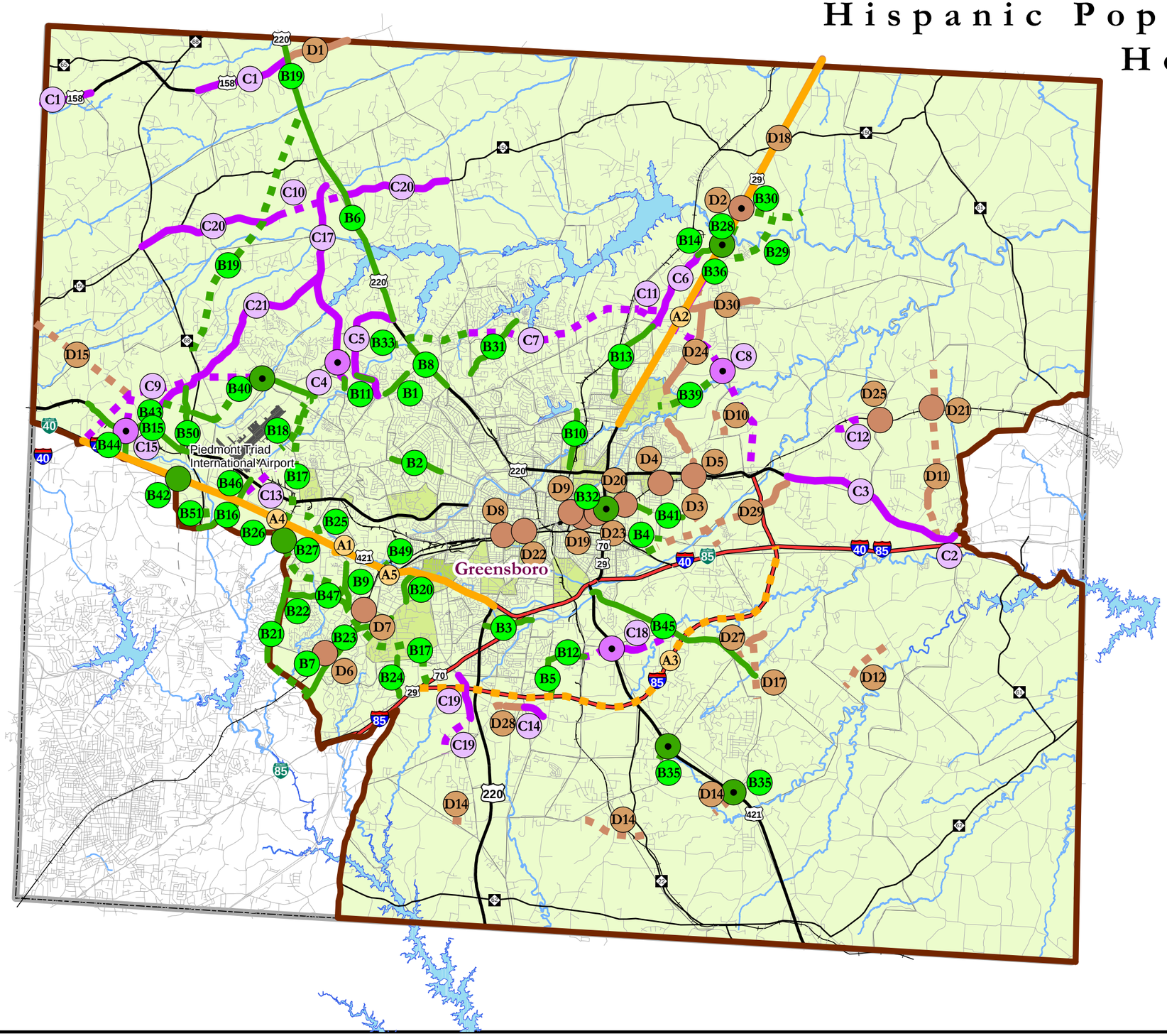
Greensboro Urban Area Long-Range Transportation Plan

Hispanic Population Distribution
Horizon Year Projects
Map 4.5



Legend

Percent Hispanic

- 0.00 - 10.00 %
- 10.01 - 25.00 %
- 25.01 - 50.00 %
- 50.01 - 100.00 %
- A## 2004 Project Reference
- B## 2014 Project Reference
- C## 2020 Project Reference
- D## 2030 Project Reference
- Metropolitan Area Boundary

2004 Horizon Year Projects

- Widening
- New Location

2014 Horizon Year Projects

- Widening
- New Location

2020 Horizon Year Projects

- Widening
- New Location

2030 Horizon Year Projects

- Widening
- New Location
- 2014 Interchange
- 2014 Grade Separation
- 2020 Interchange
- 2030 Interchange
- 2030 Grade Separation
- County Line
- Interstates
- US Highways
- State Highways
- Railroads

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- The new alignment construction should not directly affect existing communities. The most likely negative impacts will be associated with increased traffic (and possibly speeds) through existing neighborhoods along Franklin Boulevard and Florida Street.

Elm-Eugene Street (B5)

- Widening: Vandalia Road to Southern Urban Loop (I-85 Bypass).
- Widening of Elm-Eugene Street could encroach on properties in the minority community in the Wynnmere neighborhood and surrounding area. Traffic speeds and volumes could increase.

Vandalia Road (B12)

- Widening: Elm-Eugene St. to Pleasant Garden Rd.
- The widening of Vandalia Road through a minority community in the vicinity of the Woodlea Lakes neighborhood could affect driveways and front yards, and increase traffic volumes and speeds.

East Market Street (B32)

- Widening, streetscape, and traffic management.
- East Market Street passes through minority and low-income communities in the East Market Street and Cumberland neighborhood vicinities. There is a possibility for encroachment issues in these communities.
- This project should have significant aesthetic benefits, and will improve the safety and attractiveness of walking, biking, and transit use.

East Cone Boulevard Extension (B39)

- Extension on new location: Nealtown Road to Hines Chapel Road.
- The extension between 16th Street and Brame Road could affect minority communities in this vicinity. Being on new, relatively open alignment minimizes or eliminates most impacts due to encroachment or relocation.
- The project will provide better access and alternative travel routes, and should increase investment opportunities.

- Construction could have negative impacts on specific properties.

Holts Chapel Road Upgrade (B41)

- Alignment and cross-section improvements: East Market Street to Ward Road.
- Widening/realignment on Holts Chapel Road passes through minority and low-income communities in the vicinity of the Heath, Hope Valley, Sharing Trace, and Franklin Blvd./Shirley Lane neighborhoods.
- A short segment on new location between Lowdermilk Street and Franklin Boulevard passes through a minority/low-income community, with associated encroachment impacts possible.
- Overall, project should improve accessibility and safety, with some increase in traffic volumes (and possibly, speeds).

Alamance Church Road (B45)

- Widening: US 421 to southeast of Southeast School Road.
- The widening between Cyrus Road and Rotherwood Road passes through the Rotherwood and Wilpar Estates neighborhoods. Encroachment impacts are likely in these communities.
- Overall, this project should improve accessibility and safety, accompanied by some increase in traffic volumes (and possibly, speeds).

Roadway Projects — 2020 Horizon Year

Eastern Urban Loop (C7)

- Freeway on new location.
- The alignment between Burlington Road and Hines Chapel Road passes close to minority communities in the area. Both construction and traffic noise could be disruptive.
- This project will significantly improve accessibility.

Vandalia Road Extension (C18)

- Primarily on new location: Pleasant Garden Road to Alamance Church Road, with interchange at US 421.

- The road extension between Riverdale Road and Alamance Church Road passes near minority communities in this area. A portion of the necessary right-of-way has been acquired.

- The project should improve accessibility for the community, but construction and higher traffic volumes will affect specific properties. Traffic speeds could possibly increase, as well.

Roadway Projects — 2030 Horizon Year

Penry/Ward/Youngs Mill Connector (D3)

- Widening, realignment, and connector on new location, plus new railroad grade separation, and possible interchange at US 70: McConnell Road to Huffine Mill Road.

- This project potentially affects minority communities in the Callum area, although the portions on new alignment run through relatively undeveloped land. Specific structures, driveways, front yards, etc. could be affected. Traffic volumes will increase on existing roads along the proposed route.

- The project will improve safety and provide better access and alternative travel routes, and should increase investment opportunities.

- Since this project includes both widening and new construction, impacts can vary significantly, depending on the type of work being done in proximity to the area in question. For new construction, impacts are highly dependent on the final alignment and design.

Rankin Mill/Flemingfield Connector (D10)

- Realignment and extension on new location: South of Keeley Road to Huffine Mill Road.

- The relocation could impact minority and low-income communities along Flemingfield Road, and possibly Rankin Mill Road. Construction-related impacts are possible, but are highly dependent on the final alignment and design.

- This project will provide better access and alternative travel routes.

Nealtown Rd/McKnight Mill Road Connector and Extension (D24)

- Extension/connection on new location: Huffine Mill Road to Eckerson Road.

- This project could have impacts on minority communities in the vicinity of the Callum, Glendale Mills, and Nealtown Farms neighborhoods.

- The project should improve accessibility and provide alternative travel routes, but specific properties could be affected by construction and by increased traffic volumes.

- Since the project includes both widening and construction on new alignment, impacts could vary significantly, depending on the type of work being done in proximity to the area in question. For new construction, impacts are highly dependent on the final alignment and design.

Florida Street Extension (D29)

- Extension on new location: Franklin Boulevard Extension to McLeansville Road.

- The Florida Street extension passes through areas containing minority communities, and is near a low-income community. However, the proposed corridor is relatively free from development, except in the vicinity of McConnell Road.

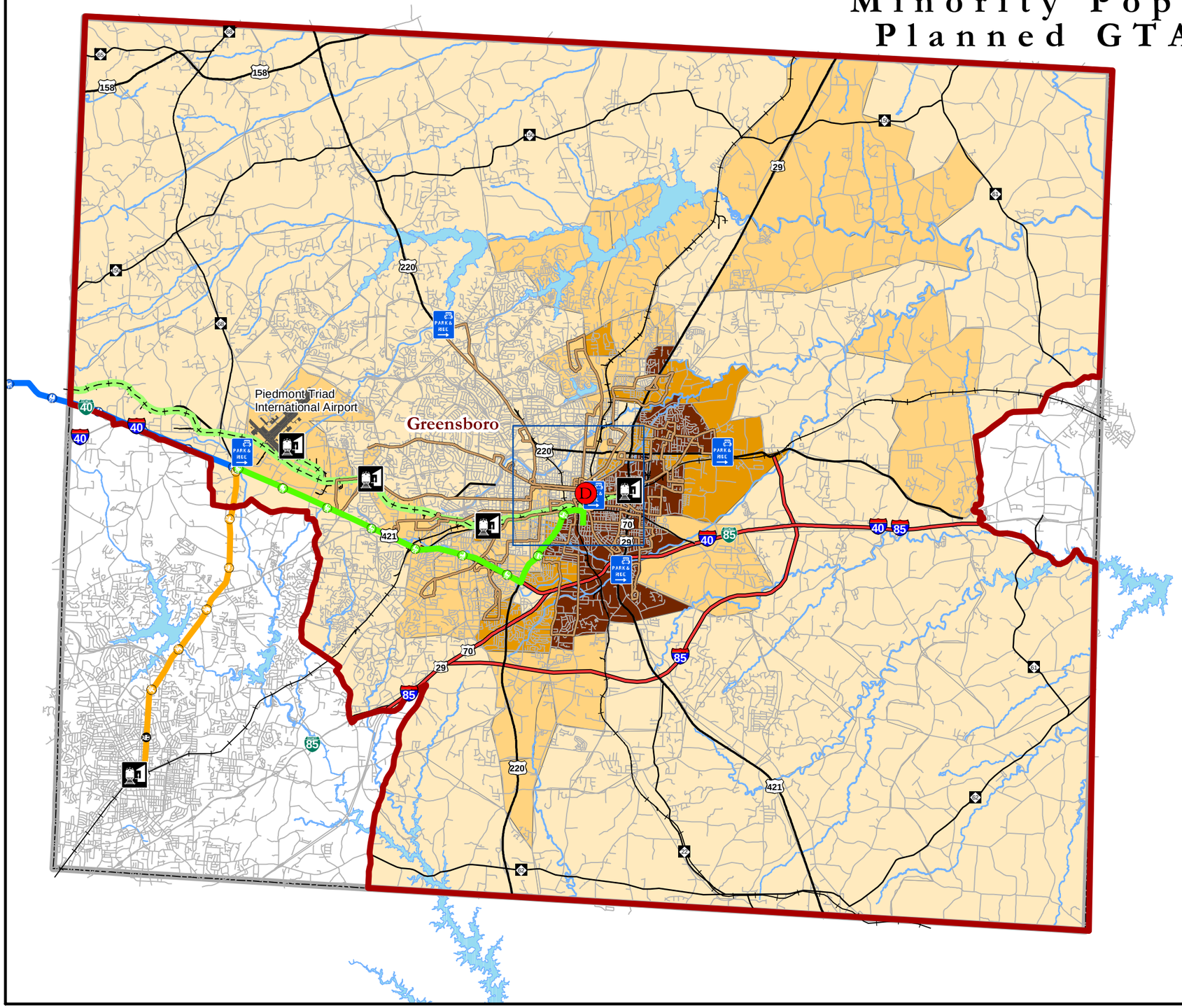
- The project will provide better access and alternative travel routes, and should enhance investment opportunities, but could have negative impacts (associated with construction and increased traffic) on specific properties. Impacts are highly dependent on the final alignment and design.

Transit Projects

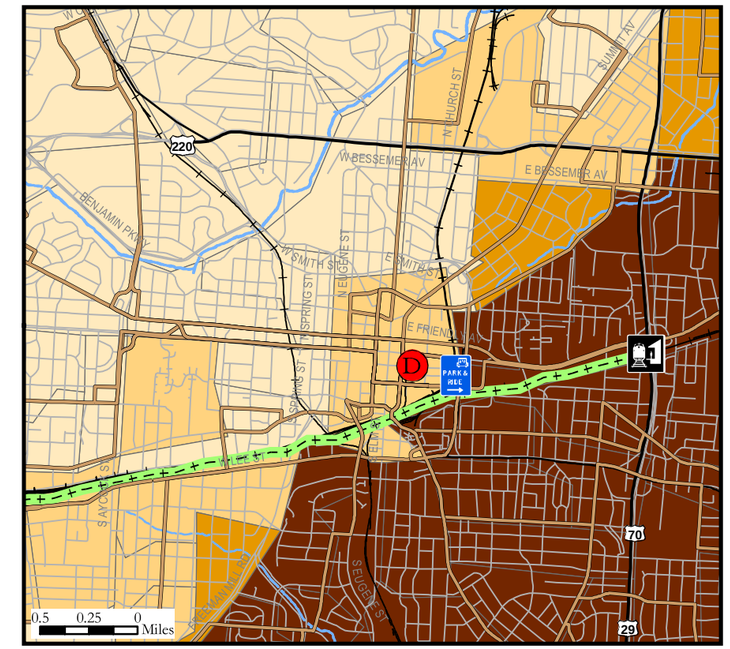
The transit element of the transportation plan has special relevance with regard to environmental justice. Minority and low-income populations often depend heavily on modes other than the automobile for access to jobs, goods, and services. Therefore, roadway improvements alone cannot be assumed to correlate with improved transportation. The maintenance and enhancement of transit service in minority and low-income communities is an important aspect of environmental justice.

Maps 4.6, 4.7, and 4.8 superimpose transit service expansions and improvements on the same minority and low-income population distribution maps used earlier for assessing roadway projects. Service enhancements of particular benefit to minority and low-income communities are listed below.

Minority Population Distribution Planned GTA and PART Services Map 4.6



Inset: Greensboro CBD



Legend

Percent Minority by Block Group

- 0.00 - 25.00 %
- 25.01 - 50.00 %
- 50.01 - 75.00 %
- 75.01 - 100.00 %
- Interstates
- US Highways
- State Highways
- Metropolitan Area Boundary
- Depot
- Park-and-Ride
- Train Station
- Railroad
- Proposed Commuter Rail

PART Express

- Greensboro Express
- Winston-Salem Express
- High Point Express
- Existing GTA Route
- Future Connectors
- Existing Connectors
- Existing Connectors

N W E S

0 0.5 1 2 3 4 5 Miles

August 26, 2004

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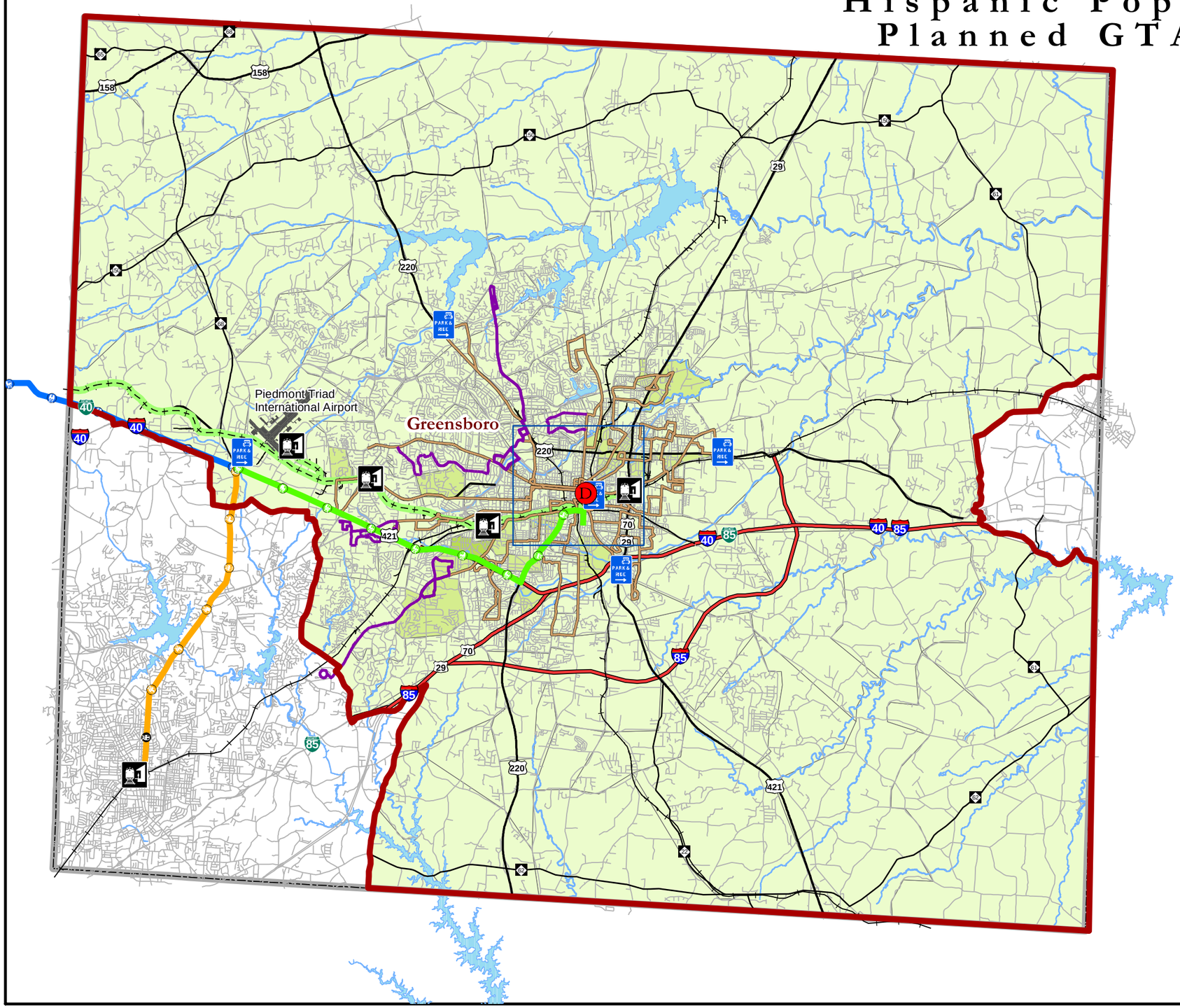
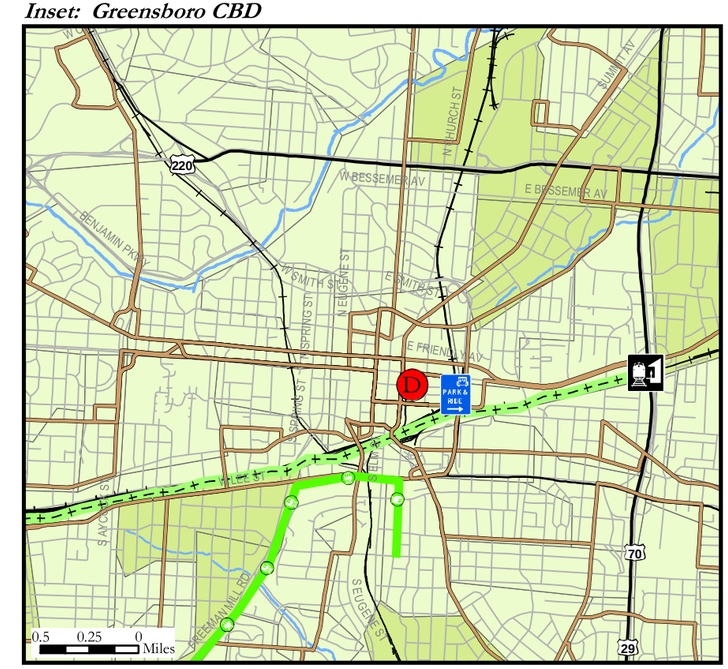
Hispanic Population Distribution
Planned GTA and PART Services
Map 4.7



Inset: Greensboro CBD



Legend

Percent Hispanic by Block Group

- 0.00 - 10.00 %
- 10.01 - 25.00 %
- 25.01 - 50.00 %
- 50.01 - 100.00 %
- Interstates
- US Highways
- State Highways
- Metropolitan Area Boundary
- Depot
- Park-and-Ride
- Train Station
- Railroad
- Proposed Commuter Rail

PART Express

- Greensboro Express
- Winston-Salem Express
- High Point Express
- Existing GTA Route
- Future Connectors
- Existing Connectors
- Existing Connectors

N W E S

August 26, 2004

0 0.5 1 2 3 4 5 Miles

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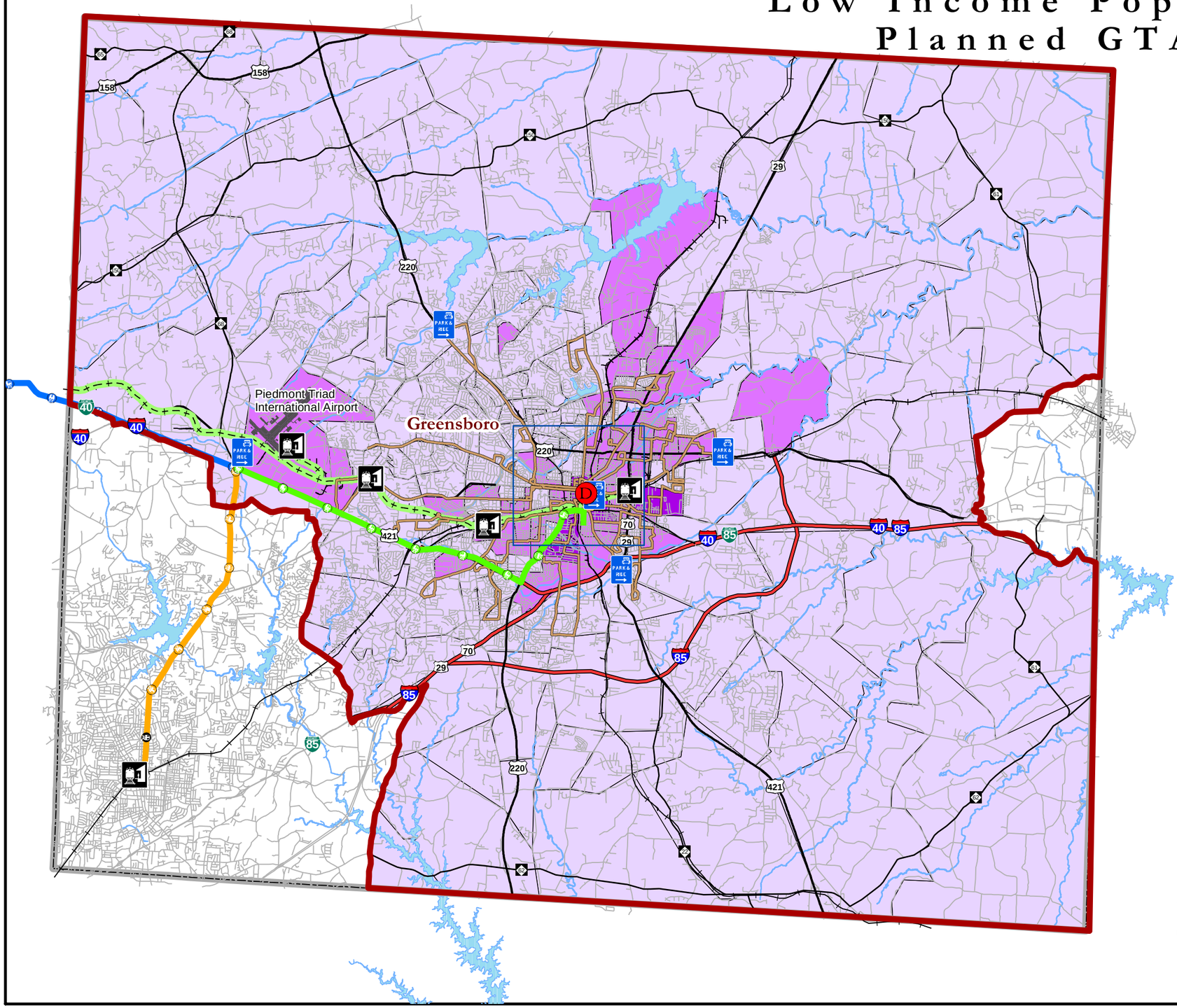
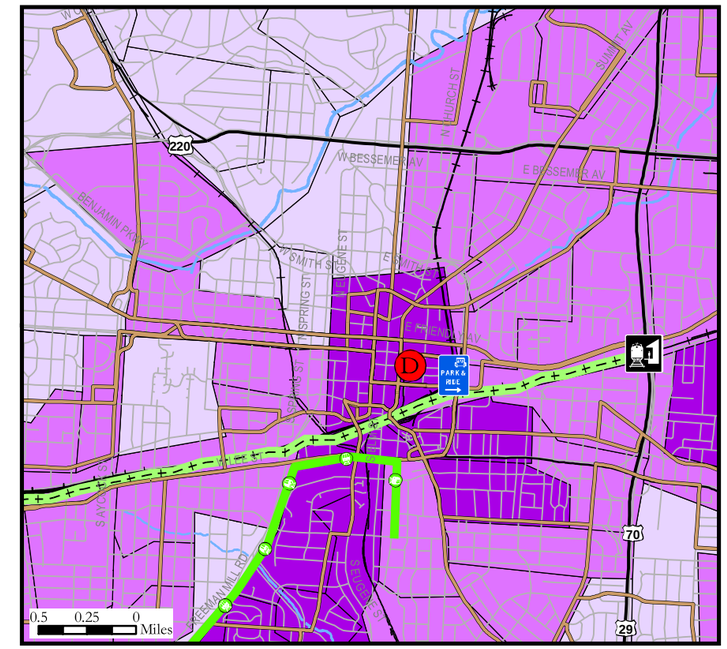
Low Income Population Distribution
Planned GTA and PART Services
Map 4.8



Inset: Greensboro CBD



Legend

Percent Households with Income < $20,000

- 0.00 - 25.00 %
- 25.01 - 50.00 %
- 50.01 - 75.00 %
- 75.01 - 100.00 %
- Interstates
- US Highways
- State Highways
- Metropolitan Area Boundary
- Depot
- Park-and-Ride
- Train Station
- Railroad
- Proposed Commuter Rail

PART Express

- Greensboro Express
- Winston-Salem Express
- High Point Express
- Existing GTA Route
- Future Connectors
- Existing Connectors
- Existing Connectors

N W E S

August 26, 2004

0 0.5 1 2 3 4 5 Miles

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Short-Range Service Plan

- Cross-Town Routes
  — Florida Street
  — Cone Boulevard

- Connectors
  — Vandalia Road
  — GTCC/Penry Road

Long-Range Service Plan

- Cross-Town Routes
  — Vandalia Road
  — Pisgah Church Road

- Connectors
  — Lake Jeannette Road

- Regional Service
  — Rapid bus
  — Regional rail

Other Modes and Projects

- The transportation plan identifies policies and projects designed to enhance the convenience and safety of pedestrians and bicyclists. These elements of the transportation plan will benefit minority and low-income populations by increasing the attractiveness of these non-motorized travel modes, as well as improving and expanding access to transit service.

- The East Market Street streetscape project provides benefits to populations that are primarily minority or low-income.