

CHAPTER 1

INTRODUCTION

BACKGROUND

Transportation has played a vital role in the growth and development of the Greenville Urban Area and Pitt County. Railroads helped transport the area's agricultural products (ex: cotton and tobacco) to distant markets in the late 1800s. Since World War II, most of the efforts in transportation planning have concentrated on the development of major roads, expressways and freeways to provide for the ever-increasing use of the automobile. Thoroughfare plans, designed to guide the development of the overall street and highway system, were initially developed via a mutually adopted sketch plan in Greenville in 1959 and there have been several updates since then. Winterville, Ayden, and Pitt County (including Simpson) have also adopted thoroughfare plans over the years.

The Greenville Urban Area Thoroughfare Plan combines the thoroughfare plans of Greenville, Winterville, Ayden, and the urban portions of Pitt County (including Simpson) into one metropolitan area plan and updates the thoroughfare planning horizon to the year 2025. Map 1 shows the Greenville Urbanized Area and MPO Boundary, based on the 2000 Census. The MPO Boundary (also known as the MPO Planning Area) is the study area for this Thoroughfare Plan.

Typically, the urban street system occupies up to 30 percent of the total developed land in an urban area. Since the system is permanent and expensive to build and maintain, care and foresight are needed in its development. Thoroughfare planning is the process public officials use to assure the development of a street system that will accomplish the goals of the *Horizons: Community Plan* for Greenville, *Building On Our Heritage: A Comprehensive Plan* for Ayden, and the land use plans for Winterville and Pitt County, and meet existing and future multi-modal travel desires within the urban area. The primary aim of a thoroughfare plan is to guide the development of the urban street system in a manner consistent with managing traffic demands. Through proper planning, many costly errors and much needless expense can be averted. A thoroughfare plan will enable street improvements to be made as traffic demands increase, and help eliminate unnecessary improvements. By developing the urban street system to keep pace with increasing traffic demands, a maximum utilization of the system can be attained that will require a minimum amount of land for street purposes.

In addition to providing for traffic needs the thoroughfare plan should embody those details of good urban planning necessary to present a pleasing and efficient urban community. The location of present and future population, commercial, and industrial enterprises affects major street and highway locations. Conversely, the location of major streets and highways within the urban area will influence the urban development pattern.

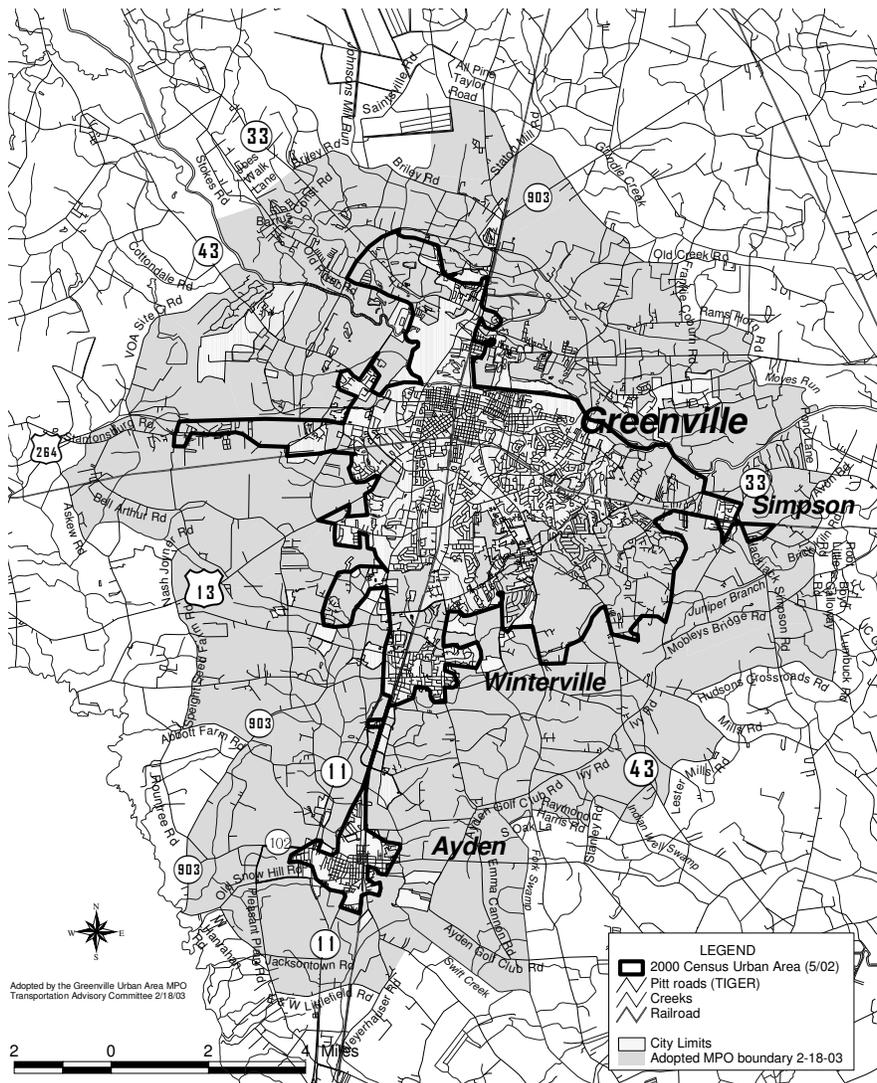
Other objectives of a thoroughfare plan include:

- To provide for the orderly development of an adequate major street system as land development occurs;
- To reduce travel and transportation costs;

- To reduce the cost of major street improvements to the public through the coordination of the street system with private action;
- To enable private interests to plan their actions, improvements, and development with full knowledge of public intent;
- To minimize disruption and displacement of people and businesses through long range advance planning for major street improvements;
- To reduce environmental impacts, such as air pollution, resulting from transportation;
- To increase travel safety;
- To provide opportunities for bicycles and pedestrians to safely share the right-of-way.

Map 1: Greenville Urban Area MPO Thoroughfare Plan Study Area

CENSUS 2000
GREENVILLE URBANIZED AREA
AND MPO BOUNDARY



Thoroughfare planning objectives are achieved through both:

- (1) Improving the operational efficiency of thoroughfares; and
- (2) Improving the system efficiency through system coordination and layout.

OPERATIONAL EFFICIENCY

A street's operational efficiency is improved by increasing the capability of the street to carry traffic and people. In terms of vehicular traffic, a street's capacity is defined as the maximum number of vehicles which can pass a given point on a road during a given time period under prevailing road and traffic conditions. Capacity is affected by the physical features of the road, nature of traffic and weather.

Physical ways to improve vehicular capacity include street widening, intersection improvements, improving vertical and horizontal alignment, access management, and eliminating roadside obstacles. For example, widening of a street from two to four travel lanes more than doubles the capacity of the street by providing additional maneuverability for traffic. Impedances to traffic flow caused by slow moving or turning vehicles and adverse effects of horizontal and vertical alignments are thus reduced.

Operational ways to improve street capacity include:

- (1) Control of access - A roadway with complete access control can often carry three times the traffic handled by a non-controlled access street with identical lane width and number.
- (2) Parking removal - Increases capacity by providing additional street width for traffic flow and reducing friction to flow caused by parking and unparking vehicles.
- (3) One-way operation - The capacity of a street can sometimes be increased 20-50%, depending upon turning movements and overall street width, by initiating one-way traffic operations. One-way streets can also improve traffic flow by decreasing potential traffic conflicts and simplifying traffic signal coordination.
- (4) Reversible lanes - Reversible traffic lanes may be used to increase street capacity in situations where heavy directional flows occur during peak periods.
- (5) Signal phasing and coordination - Uncoordinated signals and poor signal phasing restrict traffic flow by creating excessive stop-and-go operation.

Altering travel demand is a third way to improve the efficiency of existing streets. Travel demand can be reduced or altered in the following ways:

- (1) Encourage people to form carpools and vanpools for journeys to work and other trip purposes. This reduces the number of vehicles on the roadway and raises the people carrying capability of the street system.
- (2) Encourage the use of transit and bicycles.
- (3) Encourage industries, businesses, and institutions to stagger work hours or establish variable work hours for employees. This will reduce travel demand at peak periods and spread peak travel over a longer time period.
- (4) Plan and encourage land use development or redevelopment in a more travel efficient manner.

SYSTEM EFFICIENCY

Another means for altering travel demand is the development of a more efficient system of streets that will better serve travel desires. A more efficient system can reduce travel distances, time, and cost. Improvements in system efficiency can be achieved through the concept of functional classification of streets and development of a coordinated major street system.

Functional Classification

Streets perform two primary functions--traffic service and land service, which when combined, are basically incompatible. The conflict is not serious if both traffic and land service demands are low. However, when traffic volumes are high, conflicts created by uncontrolled and intensely used abutting property lead to intolerable traffic flow friction and congestion.

The underlying concept of the thoroughfare plan is that it provides a functional system of streets which permits travel from origins to destinations with directness, ease, and safety. Different streets in the system are designed and called on to perform specific functions, thus minimizing the traffic and land service conflict. Streets are categorized as to function as local access streets, minor thoroughfares, major thoroughfares, or freeways/expressways.

Local Access Streets provide access to abutting property. They are not intended to carry heavy volumes of traffic and should be located such that only traffic with origins and destinations on the streets would be served. Local streets may be further classified as either residential, commercial, and/or industrial depending upon the type of land use which they serve.

Minor Thoroughfares are more important streets in the urban system. They collect traffic from local access streets and carry it to the major thoroughfare system. They may, in some instances supplement the major thoroughfare system by facilitating minor through traffic movements. A third function which may be performed is that of providing access to abutting property. They should be designed to serve limited areas so that their development as major thoroughfares will be prevented.

Major Thoroughfares are the primary traffic arteries of the urban area. Their function is to move intra-urban and intercity traffic. The streets which comprise the major thoroughfare system may also serve abutting property, however, **their major function is to carry traffic**. They should not be bordered by uncontrolled strip development because such development significantly lowers the capacity of the thoroughfare to carry traffic and each driveway is a danger and an impediment to traffic flow. Major thoroughfares may range from a two-lane street carrying minor traffic volumes to major arterials with four or more traffic lanes. Parking normally should not be permitted on major thoroughfares.

Freeways/Expressways are usually controlled access facilities with four or more lanes that provide fast and efficient movement of large volumes of traffic. Its function ranges from serving as a bypass for through traffic and facilitating movement of traffic from outlying areas and suburban communities to the central area, to carrying traffic between outlying areas and radial

arterials. Properly located freeways and expressways relieve traffic congestion on other types of major facilities and decreases overall travel time.

THOROUGHFARE PLAN DEVELOPMENT PRINCIPLES

A set of principles was used in developing the Thoroughfare Plan:

- ❑ **Existing thoroughfare plans are the starting point**

This thoroughfare plan is an update to the existing thoroughfare plans as adopted by the City of Greenville (1990) Town of Winterville (1992), Town of Ayden (1992), and Pitt County (1993). When we reviewed the existing thoroughfare plans and compared them to the projections, we found that the recommendations for most thoroughfares in these existing plans, if constructed, would be adequate to handle future traffic. Most of the proposed changes and new thoroughfares are intended to accommodate the growth that is occurring outward from the already developed area.
- ❑ **Identify current and future needs**

The most recent traffic counts by NCDOT were obtained. NCDOT estimated traffic volumes for the 2025 Thoroughfare Plan Year using the Tranplan travel model software for most of the study area; other traffic projection methods were used for the rest of the study area.
- ❑ **Incorporate citizen input**

Five “draft” Thoroughfare Plan public forums were held in various locations throughout the urban area. The “draft plan map and recommendations were placed on the City’s web page. The final Thoroughfare Plan map and report was also reviewed by the public, the local governing boards, the Greenville Urban Area MPO, and NCDOT.
- ❑ **Look at the thoroughfares from auto, truck, bicycle, pedestrian, and public transportation perspectives**

The Greenville Urban Area has an adopted bicycle plan and transit plan; the City adopted a greenways plan, and we have nearly completed a sidewalk plan. The Thoroughfare Plan is developed with these plans in mind.
- ❑ **Meet present and future travel needs**

Projects included on the draft map and the **Street Inventory and Recommendations** table are intended to meet those needs
- ❑ **Be compatible with the environment, community character and vision**

The local comprehensive plans and land use plans were consulted to ensure that the recommendations are compatible with the local visions. Thoroughfares are part of our community and our environment.
- ❑ **Provide safe roads**

Safety is a major goal in this effort.

CHAPTER 2

REVIEW OF EXISTING CONDITIONS AND GENERAL TRENDS

INTRODUCTION

The thoroughfare plans within the Greenville Metropolitan Planning Area adopted in the early 1990s recognized the major factors influencing the transportation needs of the area, which are population, economy, and land use. They were 20-year plans, so most of the projections of future growth and needs were based on the year 2010 or 2015.

This chapter of the *Greenville Urban Area Thoroughfare Plan* includes descriptions of existing conditions regarding population, economic trends, land use, overall traffic trends codes, and codes and regulations. The Greenville Urban Area MPO and its member agencies have been active in enacting policies and procedures to foster good, common sense growth.

POPULATION

The total number of trips generated in a planning area is generally a function of the population of the area. The traffic volume on any street is generally a function of the population it serves.

The 2000 Census conducted by the US Census Bureau estimated the number of households for the MPO planning area to be 33,920 and the population to be 102,051.

The 2000 Census (revised) states the 2000 City of Greenville population was 61,209, Town of Winterville was 4,794, Town of Ayden was 4,622, Village of Simpson was 464, and the Pitt County total population was 133,798.

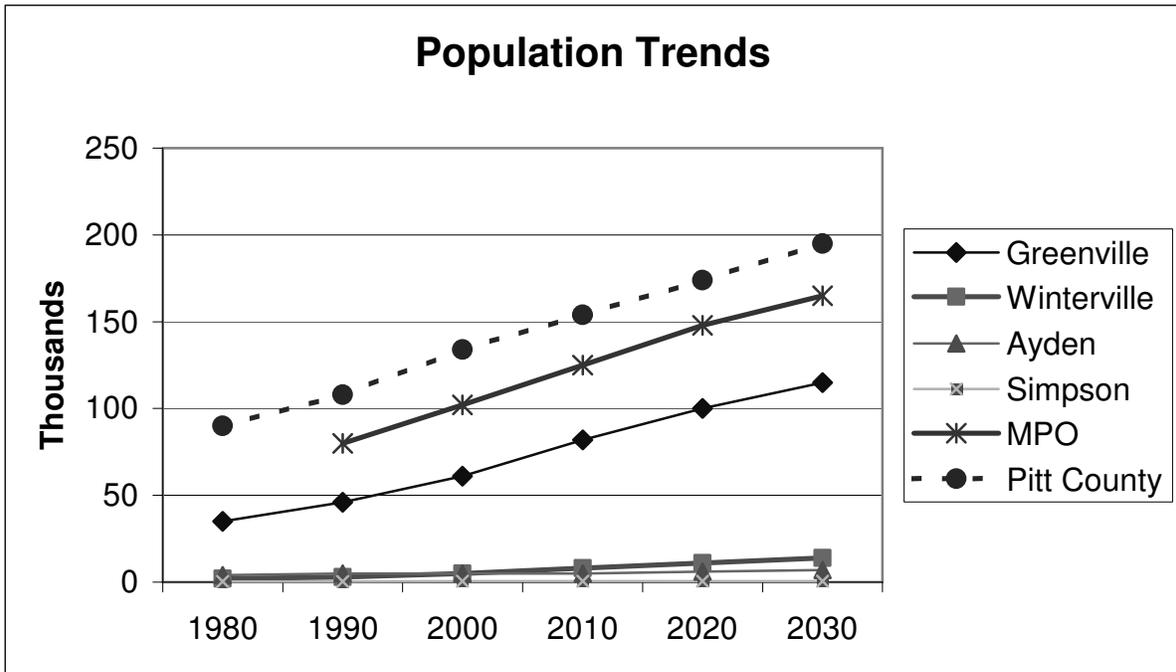
The North Carolina Office of State Budget and Management's official estimates for 2002 show the City of Greenville population at 63,444, Town of Winterville at 5,289, Town of Ayden at 4,622, Village of Simpson at 464, and the Pitt County total population at 137,901.

The *2004-2030 Long-Range Transportation Plan* projected the population for the year 2030 at 115,000 for the City of Greenville, 13,800 for the Town of Winterville, 7,100 for the Town of Ayden, 165,000 for the MPO area, and 194,696 for the total of Pitt County. These year 2030 estimates are based upon the population projections published by the North Carolina Office of State Budget and Management and other sources.

The Greenville Metropolitan Planning Area from 1990 to the year 2030 is expected to grow at a steady growth rate of approximately 2 percent per year. The Greenville Metropolitan Planning Area is expected to receive a majority of the expected population growth in Pitt County. The Greenville Metropolitan Planning Area includes both urban populations and rural populations residing in areas that are expected to become urban in nature.

Figure 1: Population Trends

City/Area	1980	1990	2000	2010	2020	2030
Greenville ¹	35,740	46,213	61,209	82,000	100,000	115,000
Winterville ²	2,052	3,069	4,794	7,800	10,800	13,800
Ayden ³	4,361	4,883	4,622	5,400	6,100	7,100
Simpson	407	432	464	500	550	600
MPO ⁴ (est.)	N/A	80,000	102,051	125,000	148,000	165,000
Pitt County ⁵	90,146	108,480	133,798	153,571	174,375	194,696



¹ Greenville Planning & Community Development Office, using average growth rate of all decennial censuses and dividing by 10 to determine the annual growth rate for the City

² US Census, 1980, 1990, 2000, and Winterville Hazard Mitigation Plan.

³ Assumes 5% increase in households over each time period and multiplying the number of units by the average household size

⁴ “Socioeconomic Study” (1996); and Socioeconomic Projections Committee; Greenville Urban Area MPO (4/99); 2000, 2010, 2020, and 2030 estimates are “straight line” from 1996 to 2030. The MPO boundary changed due to the 2000 Census

⁵ “County Population Growth”, NC Office of State Planning Web Page (6/04 update)

A 1996 socioeconomic survey conducted by the Greenville Urban Area MPO estimated the number of households in the Tranplan model area to be 30,900. A working team consisting of local planning staffs reviewed the overall population trends as predicted by the Office of State Planning to establish estimates for the 2025 Tranplan model year. Using a 2 percent annual growth rate for population and assuming approximately 2.3 persons per household in the growing areas of the Tranplan model area, an estimated 64,500 households would reside in the Tranplan model area in 2025.

ECONOMIC TRENDS

The economic base of the area is an important factor to consider in the estimating of future traffic growth. The Greenville Metropolitan Planning Area has a broad and strong economy, including manufacturing, service, East Carolina University, and a regional medical complex.

A 1996 socioeconomic survey conducted by the Greenville Urban Area MPO estimated the employment for the Tranplan model area to be 41,500, and the 2025 employment to be 92,000. For residents of Pitt County, the North Carolina State Employment Security Commission estimates there were 62,480 persons employed in 1996; 63,884 in 1998; 69,142 in 2000; 68,195 in 2002; and 68,094 residents employed in 2003. The ECU Regional Development Institute's East Book ranked the Greenville Metropolitan Area the strongest hub in eastern North Carolina in the number of retail and medical customers and in the ability to draw customers from outside the Area.

LAND USE

The generation of traffic on a particular street is very closely related to the land use of the adjacent property. The City of Greenville adopted a Land Use Plan in 1998 and updated its *Horizons Plan* (including the land use plan) in 2004. The Town of Winterville updated its land use plan in 2004 to include more residential categories. The Town of Ayden adopted *Building on Our Heritage: A Comprehensive Plan* in 1996. Pitt County adopted a land use plan (which included the Village of Simpson) in 2002. Greenville, Winterville, Ayden, and Simpson have some control over land outside their corporate boundary through extraterritorial jurisdiction (ETJ) granted by the legislature.

Most of the Greenville Metropolitan Planning Area remains zoned residential. The ratio of residential to commercial has not increased during the past ten years. The Planning staffs of the City and Towns do not expect this to change during the next ten years. The land use plans were developed to conform to the current thoroughfare plans, and this Thoroughfare Plan is consistent with the land use plans.

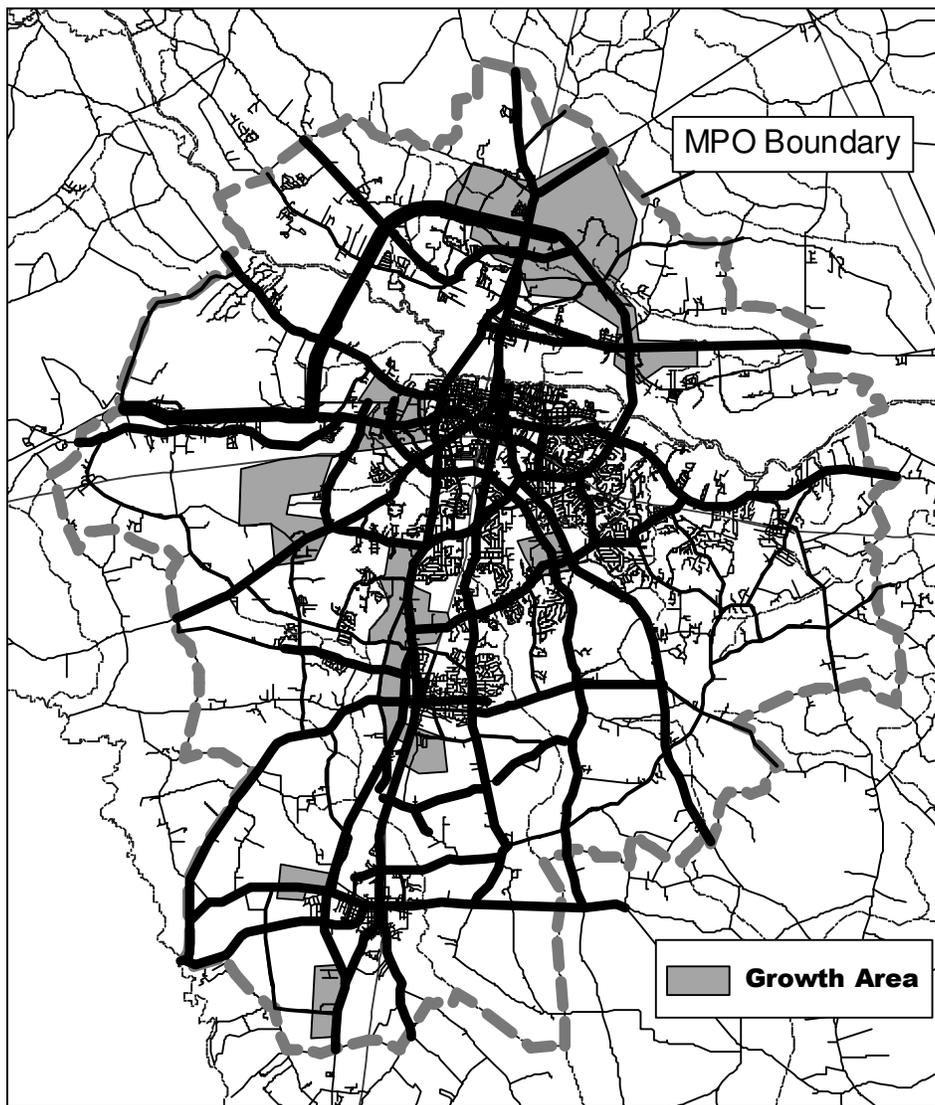
A working team of NCDOT and local planning staffs reviewed the socioeconomic information gathered as part of the model development. The employment characteristics (by sector) of the Greenville Urban Area were also compared to other growing urban areas, to assess trends by sector. These expected employment increases were then allocated to the zones expected to grow according to the local land use plans. The expected residential growth was also allocated to the zones expected to experience residential growth in the local land use plans and expectations by

local planning staffs. Map 2 shows the expected employment growth areas of the Thoroughfare Plan planning area, and Map 3 shows the expected residential growth areas of the Thoroughfare Plan planning area.

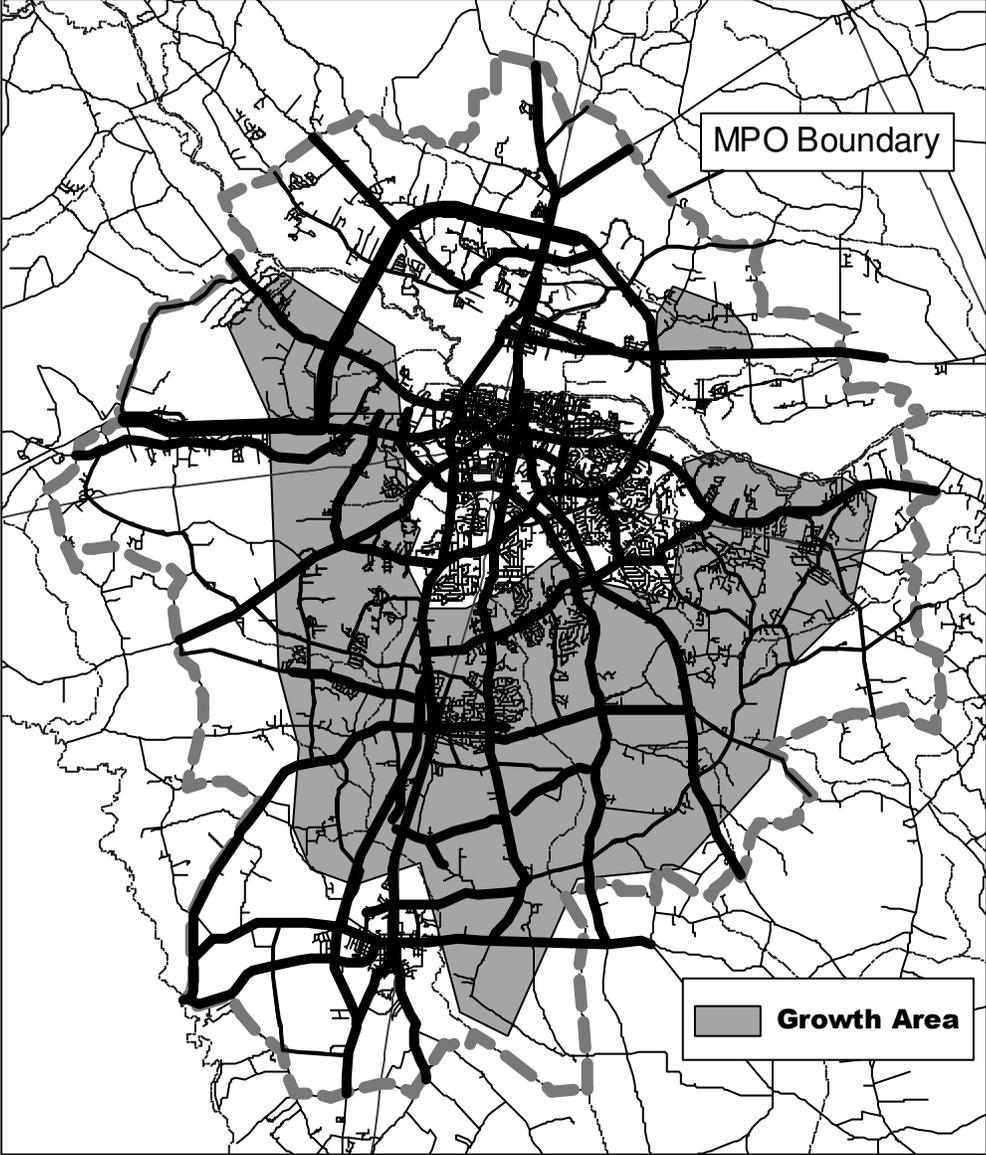
TRAFFIC TRENDS

With the above described growth in population and employment, traffic is growing rapidly in our urban area. In Greenville and Winterville alone, NCDOT estimated (via the TRANPLAN model) that there were approximately 480,000 daily trips in 1996, and projected an increase to over 1 million daily trips by 2025. This high growth necessitated a review of the already adopted recommended improvements in the inner core (i.e., primarily Greenville and Winterville) to see if these recommended improvements will address the future needs to the year 2025, and to recommend improvements which will accommodate the growth outward from the inner core.

Map 2: Employment Growth Areas



Map 3: Residential Growth Areas



CHAPTER 3

THOROUGHFARE PLAN DEVELOPMENT PROCESS

INTRODUCTION

As noted in Chapter 1, the *Greenville Urban Area MPO Thoroughfare Plan* combines the thoroughfare plans of Greenville, Winterville, Ayden, and the urban portions of Pitt County (including Simpson) into one metropolitan area plan.

As noted in Chapter 2, a working team from the City of Greenville, Town of Winterville, Town of Ayden, Village of Simpson, Pitt County, and North Carolina DOT took the overall projections of residential and employment growth and allocated them to the zones expected to grow according to the land use plans.

The MPO Planning Area as existed before the 2000 Census was modeled by NCDOT to the year 2025 using TRANPLAN traffic modeling software (see Appendices A and B). The traffic projections for the area outside the modeled area (to the year 2025) were performed by examining existing traffic counts and traffic volume trends; reviewing the land use plans; reviewing population projections from the NC Office of State Planning (Demographics Unit) and staff from Greenville, Winterville, Ayden, Simpson, and Pitt County; and applying traditional traffic projection methods.

REVIEW OF LOCAL GOALS AND OBJECTIVES

The Pitt County, Ayden, and Winterville Thoroughfare Plans did not have formal Goals and Objectives surveys, except for the NCDOT-required public hearing requirements in the development of the plans themselves. The City of Greenville had a survey performed as part of its 1990 Thoroughfare Plan.

At the City of Greenville's *Horizons: Community Plan* Town Meeting, held June 11, 2002, at the Greenville Convention Center, the following "Top Twenty Priorities" were identified (many of which involve transportation, noted with an asterisk):

1. Follow the adopted land use plan
2. Reduce crime and drug issues
3. Encourage more green space, park and access to recreation
4. Further expand greenways*
5. Continue adding sidewalks, encourage a walkable community*
6. Improve/expand mass transit, consolidate GREAT, PAT, ECU and other local services*
7. Stop letting big money developers rule what happens to zoning and development
8. Require new developments to have more green space, include connection to trails*
9. Provide better regional air service, including a regional airport*
10. Stop developing multifamily housing next to single family housing
11. Relieve the congestion of Greenville Boulevard and other high traffic areas in the city*
12. Improve movement and management of traffic around town*
13. Improve public education

14. Plant and preserve large trees
15. Continue automating traffic signals to help traffic flow*
16. Change the use of the town common to include restaurants and a river walk
17. Maintain present levels of police, fire and bus services*
18. Stop subsidizing sprawl with infrastructure, and encourage in-fill consistent with neighborhood values
19. Expand bike/walking paths including bike lanes along major roads*
20. Revitalize West Greenville

PUBLIC INVOLVEMENT

An extensive public involvement program was performed for the “draft” Thoroughfare Plan, including:

- Briefings of the local boards for all local governments in March and April 2004
- A series of five public forums around the urban area in April and May 2004
- PowerPoint slide shows about the Thoroughfare Plan on GTV and Pitt-TV
- An aggressive advertising program (including minority publications)
- A web page which includes the draft map and recommendations on the City of Greenville’s web page.

The color-coded “draft” Thoroughfare Plan map (created by the Lead Planning Agency using ArcView computerized mapping software) was reviewed by residents in the public involvement period. The “draft” **Street Inventory and Recommendations** Booklet was also reviewed by the public . This Booklet was an improvement to previous thoroughfare plan efforts in that it gave more detailed information in a “draft” form “up front” regarding each thoroughfare segment (ex: ownership, number of travel lanes, modes using the thoroughfare). These two products were given to persons who attended the forums and by request.

Approximately 125 persons attended the five public forums, and 26 written comments were received. The comments were then evaluated to see if a change to the “draft” may need further review or changes. A summary of the comments and questions at the public forums and via email or mail are included in Appendix C.

The Thoroughfare Plan Map and Report were presented to the planning boards and governing boards of the City of Greenville, Town of Winterville, Town of Ayden, Village of Simpson, and Pitt County prior to approval by the Greenville Urban Area Metropolitan Planning Organization and adoption by the North Carolina Board of Transportation.

Chapter 4 is a list with brief descriptions of the proposed thoroughfare improvements for our urban area.

CHAPTER 4 RECOMMENDED THOROUGHFARE IMPROVEMENTS

MAJOR THOROUGHFARES

The following is a description of the streets that compose the major thoroughfare system in the urban area recommended for large-scale improvements (i.e. addition of travel lanes or new facilities). The remaining major thoroughfares are adequate from a travel lane basis but may need other improvements such as sidewalks, bicycle facilities, wider travel lanes, turn lanes, shoulders, and intersection improvements. The complete list of the thoroughfares and recommendations is contained in *Appendix D: Street Inventory and Recommendations*.

Allen Road Extension – this would be a new connection between McGregor Downs Road and NC-43 North. This roadway is recommended to provide safer and more rapid traffic flow.

Allen Road Widening – this is becoming a suburban corridor as the Greenville Urban Area continues to grow. The current capacity is 12,000 vehicles per day. By the year 2025, traffic volumes will be 20,000 vehicles per day. The recommended cross section is a four-lane roadway with a raised median. An upgrade of the shoulder, lane widths, adding a third lane, and drainage is included in the *NC: Moving Ahead!* program for 2005.

Arlington Boulevard Extension – this multi-lane roadway extends Arlington Boulevard to NC-43 North/West Fifth Street. This extension will aid in lowering congestion in the medical district primarily for the emergency/trauma units that access Arlington Boulevard. This project was recently added to the TIP.

Arlington Boulevard Widening – this is a major commuter route to the Regional Medical Center. Although other projects recommended in this thoroughfare plan will improve access to the Regional Medical Center, it may become necessary to add travel lanes to Arlington Boulevard from Stantonsburg Road to Greenville Blvd.

County Home Road Widening – this is becoming a suburban corridor as the Greenville Urban Area continues to grow. The current capacity is 12,000 vehicles per day. By the year 2025, traffic volumes will increase to over 20,000 vehicles per day. The recommended cross section is a four lane roadway with a raised median.

East Fire Tower Road Widening – traffic is projected to increase to over 16,000 vehicles per day by 2025. This road will be widened to four travel lanes to ease traffic flow, and provide a smoother corridor between NC-33 East and NC-43 South.

Evans Street and Old Tar Road – this route connects the fast-growing residential areas to Greenville and Winterville. By the year 2025, traffic volumes will increase to 25,000-35,000 vehicles per day. The recommended cross section is a four-lane roadway with a raised median.

Fire Tower Road Widening – this project relieves traffic on a major thoroughfare that provides major east-west connections. This project is funded in the TIP (ID No. U-3613).

Fire Tower Road Extension – this route will take vehicles to the Southwest Bypass by connecting this corridor with Forlines Road via Reedy Branch Road. In doing this, traffic will be relieved on Memorial Drive and portions of Reedy Branch Road with the vehicles using this extension rather than Memorial Drive. Portions of Reedy Branch Road and Forlines Road would also be widened to provide a quality thoroughfare connection to the Southwest Bypass.

Forlines Road Widening – this road is becoming a suburban thoroughfare. In addition, Forlines Road will be the main interchange from the Southwest Bypass to the heart of Winterville. Traffic is projected to increase to over 13,000 vehicles per day by 2025. This road will be widened to four travel lanes to ease traffic flow.

Fourteenth Street Widening – Charles Blvd to Elm Street would be widened from two travel lanes to four travel lanes, primarily due to the growth of East Carolina University. Traffic projections show this section at 22,700 vehicles per day by the year 2025. The section from Red Banks Road to Fire Tower Road will also need to be widened to four travel lanes due to residential growth in this section of the urban area.

Greenville Blvd Widening – this route was initially the US 264 bypass south of Greenville. The 2025 traffic projections indicate there will be from 40,000 to 60,000 vehicles per day on Greenville Blvd. from Memorial Drive to Charles Blvd. and from Fourteenth Street to Tenth Street. The current capacity is 33,500 vehicles per day. It is recommended to widen Greenville Boulevard to six travel lanes allowing the future capacity to increase to at least 45,000 vehicles per day. Other improvements such as the Southeast Bypass, Tenth Street Connector, and Fire Tower Road projects will help prevent Greenville Boulevard from becoming even more congested.

Hines Road Extension – this two travel lane roadway provides an alternative connection from the north side of Ayden to NC-11.

Main Street and Worthington Road Connector – this will create a consistent roadway from NC-11 to Worthington Road, keeping the traffic on a major thoroughfare instead of a minor thoroughfare (Cooper Street). This will also allow vehicles to travel on the same major thoroughfare from NC-43 to the Southwest Bypass. An upgrade and resurfacing of a portion of Main Street was recently added to the TIP.

Mill Street/Old NC-11 Widening – this is a major gateway to Winterville from Greenville and NC-11 north of Winterville. Traffic volumes are projected to be 18,000 vehicles per day by the year 2025. A four travel lane roadway from NC-11 to Blount Street is recommended.

Mobleys Bridge Road Extension – this connects Mobleys Bridge Road to Worthington Road at NC-43 South and will create a consistent roadway from the Southeast Bypass to the Southwest Bypass. A two travel lane roadway is recommended.

NC-43 South Widening – this route heads southeast out of Greenville toward Craven County and the coast. Traffic volumes are currently 13,000 vehicles per day, and are projected to increase to over 20,000 vehicles per day by the year 2025. The current cross section is two-lane

(22 feet). A four travel lane roadway is recommended from Bells Fork to the southeastern edge of the MPO area (Lester Mills Road). An upgrade of the shoulder, lane widths, and drainage is included in the *NC: Moving Ahead!* program and shoulder/drainage work is underway.

NC-33 East Widening - this roadway provides direct access into the City of Greenville from Simpson and points east. Traffic volumes are projected to be 18,000 vehicles per day by the year 2025. A four travel lane roadway from the end of the recent widening project to the Southeast Bypass is recommended.

NC-33 West Widening – the current section is two-lane (22 feet). The projected traffic flow by 2025 will be 20,800 vehicles per day. Widening of this road to four travel lanes will be needed from US 264 to Briley Road (the northwestern MPO boundary).

NC-43 North Widening – this serves as an access route for Tarboro, Rocky Mount, and other municipalities located northwest of Greenville to the Regional Medical Center. The current capacity is 12,000 vehicles per day. Volumes anticipated for the year 2025 are over 13,000 vehicles per day; therefore, a widening from a two-lane road to a four travel lane road is recommended. The upgrading of the shoulder, lane widths, and drainage was recently added to the State’s TIP.

NC-102/3rd Street Widening – this section of this roadway in the vicinity of NC-11 is becoming more commercial in nature, therefore, a widening from a two-lane road to a four travel lane road is recommended.

Northeast Bypass – this new freeway would provide increased mobility for through traffic from the west to the east (and vice versa) and give another access to the industrial park. Greenville Boulevard NE and US 264 East are expected to be overcapacity by the year 2025 without this improvement.

Southeast Bypass – this new freeway would provide easier through travel from the east to the south and across the southern portion of the urban area, and would relieve traffic on Greenville Blvd., Fire Tower Road, and Worthington Road.

Southwest Bypass - this new freeway would provide easier through travel from the south to the north and to the Regional Medical Center, and would relieve traffic on NC-11 and Stantonsburg Road. This project is funded in the TIP (ID No. R-2250).

Tenth Street Connector – this project provides a new east-west connection in the heart of Greenville, and connects East Carolina University and Uptown Greenville to the Regional Medical Center and the Brody School of Medicine. This project is funded in the TIP (ID No. U-3315).

US-13/Dickinson Avenue Widening – this is a radial route from the center of Greenville to the southwest and Goldsboro. The traffic capacity is currently 12,000 vehicles per day in many sections. A four travel lane road is recommended to accommodate the projected 2025 traffic volumes reaching up to 30,000 vehicles per day.

MINOR THOROUGHFARES

The following is a list of the streets that compose the minor thoroughfare system recommended for large-scale improvements (i.e. addition of travel lanes or new facilities). The remaining minor thoroughfares are adequate from a travel lane basis but may need other improvements such as sidewalks, bicycle facilities, wider travel lanes, turn lanes, shoulders, and intersection improvements. The complete list of the thoroughfares and recommendations are contained in *Appendix D: Street Inventory and Recommendations*.

Ayden Southern Loop with Ayden Golf Club Road – this provides a two-lane southern bypass of Ayden.

Brownlea Drive Extension – this completes the alternative route to Elm Street for north-south residential traffic in the eastern section of Greenville. This project is included in the City's Capital Improvement Program (unfunded).

Hunt Hill Road (NC 43/County Home Road Connector) – this provides an alternate route from Bells Fork to Wintergreen Elementary School, Windsor, and other residential developments along County Home Road. A two travel lane roadway is recommended.

Juanita Avenue Extension – this extension will create a bypass of Ayden, terminating at the Ayden Southern Loop. A two travel lane roadway is recommended.

Thomas Langston Road Extension – this would relieve traffic on Greenville Blvd., Fire Tower Road, Memorial Drive, and Evans Street. A four travel lane roadway is recommended.

Tobacco Road Extension – this provides an alternate route from Greenville Blvd. to Thomas Langston Road and Memorial Drive. A two travel lane roadway is recommended.

W. H. Smith Extension – this provides an alternate route to Arlington Boulevard from the Regional Medical Center. A two travel lane roadway is recommended.

ADDITIONS TO THE THOROUGHFARE SYSTEM

Due to the growth of the urban area, some roads previously not listed in the earlier thoroughfare plans (Greenville, Winterville, Ayden, Pitt County) are functionally becoming thoroughfares. Roads being added to the Greenville Urban Area Thoroughfare System are listed below:

- Beacon Drive
- Corey Road
- Mobleys Bridge Road
- Old River Road
- Speight Seed Farm Road
- Thomas Langston Road

COORDINATION BETWEEN THE THOROUGHFARE PLAN AND THE 2004-2030 LONG-RANGE TRANSPORTATION PLAN

In order to coordinate the Thoroughfare Plan's 2025 horizon year with the 2030 LRTP horizon, NCDOT and the MPO staff extrapolated the traffic volume projections for each thoroughfare roadway segment to the year 2030. The year 2030 projected traffic volumes were only slightly higher than the year 2025 volumes (i.e., a 1-2% increase). Also, no changes to the recommend improvements noted above were necessary. Therefore, this Thoroughfare Plan adequately addresses the traffic needs to the year 2030.

The map of the Thoroughfare System is on page 19.

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CHAPTER 5 IMPLEMENTATION

Thoroughfare Plans are implemented via two methods: local codes and regulations, and the Transportation Improvement Program/Capital Improvement Program.

CODES AND REGULATIONS

In 1990, the City of Greenville amended its Subdivision Ordinance to reflect the recommendations of the thoroughfare plan. These subdivision ordinances are still in effect today although they have been modified since 1990. The Subdivision Ordinance regulates street construction by requiring the developer to meet right of way standards, width standards and road design standards.

The City also enacted driveway standards which govern the size and spacing of driveways on thoroughfares and proposed thoroughfares in the City. As part of the zoning ordinance, the City requires developers on thoroughfares designated in the City's Thoroughfare Plan to allow a larger setback to their structures than would normally be required for that district. This requirement preserves the right of way for future widening of thoroughfares but still allows the property owner beneficial use of their property. For new location thoroughfares, the developer is required to construct the entire ultimate thoroughfare cross section.

Winterville also has a thoroughfare policy contained in its Subdivision Regulations. For example, for Major Thoroughfares within the subdivision, the subdivider is responsible for grading to a width of sixty (60) feet and the cost of paving and base materials to that required to construct a Minor Thoroughfare (47 feet). The minimum right-of-way width is 90 feet (100 feet in ETJ) for Major Thoroughfares and 70 feet for Minor Thoroughfares. The Town pays for any additional thoroughfare construction.

The existing development regulations will be reviewed once the Thoroughfare Plan is adopted.

TRANSPORTATION IMPROVEMENT PROGRAM

The State of North Carolina and the governments in the Greenville Metropolitan Planning Area have a variety of funding sources at their disposal for the development and maintenance of its transportation system. The vast majority of transportation funds available are from fuel taxes levied by the state and federal governments. Federal funds are collected and distributed to federal highway, railway, and transit programs from which the State of North Carolina receives funds based upon eligible projects and funding formulas dictated by legislation. The State of North Carolina collects fuel taxes and uses them to construct road and highways, and distributes them to eligible cities for maintenance and improvement of state and local roads and for maintenance of the existing road network.

The multi-year *Transportation Improvement Program* identifies projects funded with state and federal funds. This multi-year document is adopted by the State Board of Transportation and the appropriate MPO (in our case, the Greenville Urban Area MPO).

On the local level, funds are collected from local tax levies, business license fees, and similar sources. The most often used sources are ad valorem taxes and Powell Bill funds. Powell Bill funds are monies returned by NCDOT to eligible cities for maintenance of city streets. The amount of Powell Bill funds received is based upon the number of miles of streets to be maintained and the city's population. The source of the Powell Bill fund is the gasoline tax imposed by the State on users of the highway system. Cities and counties have also used grants and developer contributions to make improvements to their transportation systems. The City of Greenville has bonded over the years for smaller scale transportation projects, such as the Hooker Road widening project and Phase 1 of the Computerized Signal System. We expect some level of local funding to continue through the plan period totaling \$13 million. This should help us construct some of the projects in Greenville that could not be paid for with federal or state funds.

COST ESTIMATES

There are 12 different types of road profiles ranging from four-lane divided highways to two-lane rural road sections as shown in Figure 2. The roadway projects shown on the 2004-2030 Transportation Plan Priority List also have roadway profile information included.

The North Carolina Department of Transportation has provided data for cost estimates for various types of roadway cross sections. The cost estimates are used by NCDOT in its planning efforts, so the NCDOT per mile cost was used in this plan to estimate the cost of the various road projects. The Lead Planning Agency of the MPO performed the actual cost estimates with a review by NCDOT. The construction cost estimates included in the MPO Priority List are based upon the length of the road to be improved multiplied by the per mile cost for the roadway cross section. For the cost of additional right of way, the latest cost estimates were increased by a three percent annual rate to 2004 dollars. Real estate costs vary from project to project and are dependent upon a number of factors. In most cases, the property owner is not a willing seller so a premium must be paid for the right of way or easement. Any thoroughfare project already contained in the State Transportation Improvement Program is listed with its TIP-budgeted cost.

The total cost for all thoroughfare projects is estimated to be \$533 million (Figure 3). It is unlikely in the current funding environment that all projects would be funded in the planning horizon period. Some of these projects could be funded a number of different ways including increases in the federal allocation to NCDOT, increases in NCDOT direct revenues, and increase in the revenues available to local government such as taxes and grants. As funding changes, the Transportation Priorities should be re-examined. This Thoroughfare Plan will be used as a guide for the update to the Greenville Urban Area MPOs' 2005-2006 Priorities List when it developed in late 2005.

A factor to also consider is developer contributions. Through diligent planning, earlier project identification by MPO member agencies, regulations, policies, and procedures could be developed to further protect future thoroughfare corridors. To accomplish this goal, it will take the local governments working with NCDOT.

Figure 2

**PRELIMINARY COST ESTIMATES
TYPICAL ROADWAY CROSS SECTIONS**

TYPICAL SECTION	DESCRIPTION	COST PER MILE
NEW LOCATION		
A	4-lane divided w/median - freeway	\$3,300,000
B	7-lane curb & gutter (88' F-F)	\$3,500,000
C	5-lane curb & gutter (64' F-F)	\$2,800,000
D	6-lane curb & gutter w/raised median	\$3,550,000
E	4-lane curb & gutter w/raised median	\$2,900,000
F	4-lane curb & gutter w/blvd grass median	\$2,700,000
G	4-lane curb & gutter (52' F-F)	\$2,400,000
H	3-lane curb & gutter (40' F-F)	\$2,200,000
I	2-lane curb & gutter - parking each side	\$2,400,000
J	2-lane curb & gutter - parking one side	\$2,200,000
K	2-lane shoulder w/2 ft. paved shoulders	\$1,700,000
L	6-lane shoulder section w/median - freeway	\$4,900,000
C-B	5-lane curb & gutter with bike lanes*	\$2,900,000
I-B	2-lane shoulder section w/bike lanes*	\$1,800,000
D-B	4-lane curb & gutter w/raised median plus bike lanes*	\$3,000,000
WIDENING		
Existing 2-lane shoulder section to:		
H	3-lane curb & gutter	\$1,300,000
G	4-lane curb & gutter	\$1,950,000
E	4-lane curb & gutter w/raised median	\$2,400,000
C	5-lane curb & gutter	\$2,200,000
F	4-lane shoulder section w/median (non-freeway)	\$2,300,000
A	4-lane shoulder section w/median (freeway)	\$2,700,000
Existing 18-foot pavement to:		
	24-foot shoulder section	\$800,000
SPECIAL		Cost each
	grade separation	\$1,100,000

* Includes cost for accommodating bicycles

Spreadsheet updated December, 11, 2003 by NCDOT

Figure 3: Thoroughfare Projects Cost Estimates

Current MPO Priority	Project ID	Project Description	From	To	Length (miles)	Cross Section	Row Width	Const Cost (\$K)	Row Cost (\$K)	Total Cost (\$K)
Current MPO Priority Thoroughfare Projects (adopted November 2003)										
	1	R-2250 Southwest Bypass *	US 264 Northwest Bypass	NC 11 Ayden	7.80	A	250	90,000	25,000	115,000
	2	U-3613 Fire Tower Road Phase 1 (SR 1708)	NC11/903 Memorial Drive	SR 1709 Corey Road	2.42	C & E	90	10,700	4,700	15,400
	3	U-3315 Tenth Street Connector	Memorial Drive	Tenth Street	0.60	C	90	10,500	6,700	17,200
	4	U-2817 Evans Street and Old Tar Road (SR 1700)	US 264A Greenville Blvd	SR 1711 Worthington Rd	3.80	C/D	100	12,900	3,400	16,300
	5	U-4737 Arlington Boulevard Extension	Beasley Drive	NC 43	0.40	G	70	1,500	220	1,720
	6	U-3613 Fire Tower Road Phase II	NC 11	SR 1128 Davenport Farm Road	0.78	C	90	5,100	1,300	6,400
	7	Main Street Widening, Winterville	NC 11	SR 1711 Worthington Rd	1.00	H	70	3,700	20	3,720
	8	U-3430 US 264/NC 33 Connector	US 264	NC 33	2.90	B	200	18,500	1,100	19,600
	9	R-3407 NC-33, Greenville to Tarboro *	US 264 Northwest Bypass	Briley Road (MPO Boundary)	0.50	B	200	2,250	400	2,650
	10	Main Street/Worthington Road Connector	Main Street	Worthington Road	1.00	F-B	60	3,800	120	3,920
	11	Fire Tower Road Phase III	NC 43	Fourteenth St.	0.57	C-B/D-B	100	1,500	80	1,580
	12	Fourteenth Street (SR 1703 and SR 1704)	Red Banks Road	Fire Tower Road	1.44	D-B	100	5,900	200	6,100
	13	Fire Tower Road Phase IV and Portertown Rd	Fourteenth Street	NC-33 East	1.40	D-B	90	3,900	120	4,020
	14	NC 43 South Widening	Bells Fork Plaza	Lester Mills Road (MPO Boundary)	7.94	C-B	90	4,800	260	5,060
	15	Allen Road Improvement	Stantonsburg Road	US 13	2.29	D-B	90	4,900	380	5,280
	16	NC-33 East Widening	Blackjack Simpson Road	Avon Road (MPO Boundary)	2.92	F	250	10,600	340	10,940
	17	State NC 43 North Safety Improvements	B's BBQ Rd	VOA Site C Road (MPO Boundary)	3.42	K	100	1,000	0	1,000
	18	SR 1127 Frog Level Road Safety Improvements	US 13/264A	NC 903	2.30	K	100	2,200	340	2,540
	19	Ivy Road, Tucker Road, Ayden Golf Club Rd	NC-102	Simpson	10.97	K	60	3,000	0	3,000
	20	U-3316 New College Hill Drive	Fourteenth Street	Existing College Hill Drive	0.10	H	60	300	0	300
				Total Priority Projects	54.55			197,050	44,680	241,730
Other Thoroughfare Projects										
		3rd St/NC-102 Widening	NC 11	Verna Street	0.48	C	90	1,900	80	1,980
		Allen Road Extension	US 264	NC 43	0.57	F-B	90	2,700	60	2,760
		Arlington Boulevard Extension	Macgregor Downs	West 5th Street	0.29	C-B	100	1,400	50	1,450
		Arlington Boulevard Widening	Stantonsburg Road	Greenville Blvd	2.50	F-B	100	9,500	380	9,880
		Ayden Southern Loop	Weyerhaeuser Road	Ayden Golf Club Road	1.70	K	60	6,000	120	6,120
		Brownlea Drive Extension	Fifth Street	Tenth Street, Fourteenth Street	1.78	A-B	70	6,800	120	6,920
		Dickenson Avenue Widening	Allen Road	Arlington Blvd	2.18	C-B	100	7,600	430	8,030
		East Fire Tower Road Widening	NC 33	Charles Blvd	1.32	C-B/D-B	100	5,400	200	5,600
		Fire Tower Road Extension	NC 11	Forlines Road	3.97	C-B	90	4,900	140	5,040
		Forlines Road Widening	Southwest Bypass	NC 11	2.50	C-B	90	9,500	330	9,830
		Fourteenth Street Widening	Charles Blvd	Elm Street	1.11	E-B	90	3,000	190	3,190
		Fourteenth Street Widening	Red Banks Road	Fire Tower Road	1.44	D-B	100	5,900	200	6,100
		Greenville Blvd Widening	Memorial Drive	Charles Blvd	2.32	C	110	8,700	410	9,110
		Hunt Hill Road	NC 43	County Home Road	0.81	K	60	1,900	40	1,940
		Juanita Avenue Extension	Snow Hill Road	Ernest Loftin Road	1.55	K	60	5,900	70	5,970
		Laurie Ellis Road/NC-11 Connector	Mill Street	NC 11	0.24	K	70	900	60	960
		Main Street/Worthington Road Connector	Main Street	Worthington Road	1.00	F-B	60	3,800	120	3,920
		NC 43 South Widening	Bells Fork Plaza	Lester Mills Road (MPO Boundary)	7.94	C-B	90	4,800	260	5,060
		NC 43 West Widening	End of the Five Lane	VOA Site C Road (MPO Boundary)	3.42	C-B	100	7,100	370	7,470
		NC-33 West Widening	US 264	Briley Road (MPO Boundary)	2.27	I-B	70	5,100	260	5,360
		Northeast Bypass*	West of NC-11	US 264 East	9.30	A	300	56,800	20,000	76,800
		Old NC 11 Widening	Davenport Farm Road	Worthington Road	1.11	C-B	100	3,800	210	4,010
		Southeast Bypass*	NC 11	NC 33	16.50	A	300	81,700	8,400	90,100
		Thomas Langston Rd Extension	Evans Street	Hwy 11/903	2.51	D-B	90	1,800	300	2,100
		Tobacco Road Extension	Greenville Blvd	Thomas Langston Road	0.40	F-B	70	1,500	70	1,570
		US 13 Widening	Frog Level	Speight Farm Road	2.63	C-B	100	8,700	350	9,050
		W H Smith Extension	Dickinson Avenue	Arlington Blvd	0.34	H	70	1,400	70	1,470
				Total Other Thoroughfares	73.96			258,500	33,290	291,790
Totals										

* Major Project