3. PITT COUNTY CHARACTERISTICS

INTRODUCTION

An important first step in evaluating the market demand and potential for expanded transit service with Pitt County is the preparation of a detailed demographic profile. The purpose of this profile is to gain a better understanding of the existing demographic condition and characteristics of the county. Familiarity with the transit market and its change over time is useful to continue providing an attractive transportation alternative.

Historical population figures are important to establish a trend, which is useful in projecting future needs. For instance, expansion of fixed-route transit into declining rural areas is not economically feasible considering projected decreases in population and, thus, ridership. In comparison, extending transit services into developing areas where the residents have the characteristics associated with transit usage has a much higher potential for successful transit.

TRENDS IN POPULATION

The study area for the *Regional Transit Feasibility Study* is Pitt County, North Carolina. Ten municipalities are within Pitt County, the largest of which is Greenville, the county seat. **Exhibit 3-1** shows the growth in population for the county and its municipalities from 1980 to 2000.

Exhibit 3-1
Population Change 1980 – 2000

Location	1980	1990	2000	% Change	
				1990-2000	1980-2000
Ayden	4,361	4,740	4,622	-2.5%	6.0%
Bethel	1,825	1,842	1,681	-8.7%	-7.9%
Falkland	118	108	112	3.7%	-5.1%
Farmville	4,707	4,392	4,302	-2.0%	-8.6%
Fountain	424	445	533	19.8%	25.7%
Greenville	35,740	44,972	60,476	34.5%	69.2%
Grifton	1,840	2,393	2,073	-13.4%	12.7%
Grimesland	453	469	440	-6.2%	-2.9%
Simpson	407	410	464	13.2%	14.0%
Winterville	2,052	2,816	4,791	70.1%	133.5%
Unincorporated Areas	38,219	45,337	54,304	19.8%	42.1%
Pitt County	90,146	107,924	133,798	24.0%	48.4%

Source: *US Census*

Pitt County has shown a healthy growth of 25,874 persons, or 24 percent from 1990 to 2000 and 43,653 persons or 48 percent from 1980 to 2000. As a comparison, the state of North Carolina's population grew by 21 percent over the last 10 years and 37 percent over the last 20 years.

In absolute terms, the greatest growth from 1990-2000 of 15,504 persons was in the city of Greenville. The city of Winterville grew by 1,975 persons in the last 10 years and by 2,739 in the last 20 years. The only other location with a sizable population growth was the unincorporated portions of the county, which grew 8,967 in absolute terms in the last 10 years, and 16,085 in the last 20 years.

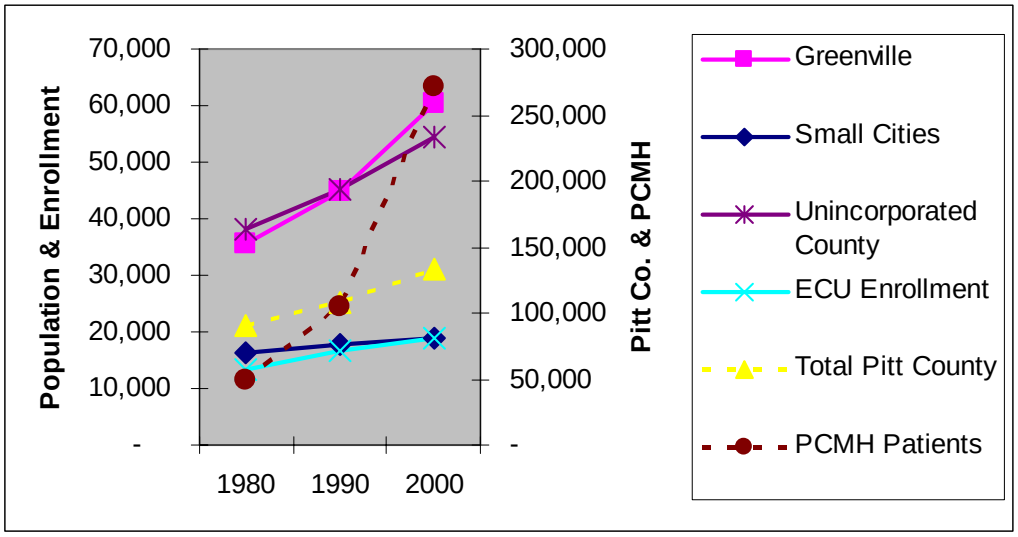
The remaining towns either grew by less than 300 persons or actually lost population. The biggest population loss over the last 10 years in absolute and percentage terms was in Grifton, which lost 320 persons, or a 13.4 percent decline. Over the last 20 years, the biggest population loss in absolute and percentage terms was in Farmville, which has lost 405 persons, or almost 9 percent of the population.

In comparison to the overall population growth, the enrollment at ECU grew over this time period from 13,165 in 1980, to 16,500 in 1990, to 18,750 in 2000, according to the 2001 ECU Factbook. This growth rate of 42 percent in 20 years is the same growth rate as the unincorporated portions of the county, but slightly less than the 48 percent growth rate for the county as a whole.

Growth at Pitt County Memorial Hospital (PCMH) was significantly higher than the growth rate in population or ECU enrollment. According to estimates supplied by PCMH, inpatient visits grew 117 percent from 16,500 in 1980 to 35,819 in 2000. Outpatient visits exploded during this time, growing from an estimated 32,000 in 1980 to 235,390 in 2000, a 636 percent increase. Overall patient visits grew 459 percent, from 48,500 to 271,209.

Exhibit 3-2 graphically shows the growth change in these categories. The graphic shows the cities' population growth and ECU enrollment changes on the left side, and the total county population growth and PCMH patient growth on the right side.

Exhibit 3-2
Growth Trends



AIR QUALITY TRENDS

Air quality in Pitt County meets the current federal standards for air pollution. The federal Environmental Protection Agency has proposed two new standards that could be a concern for Pitt County if they are implemented as proposed. The first change is a revision in the Ozone standard from one that considers the concentration in a one-hour period to one that considers an eight-hour period.

The new standard considers a three-year average for the ozone levels to determine if a county is in violation. According to the NC Department of Environment and Natural Resources, for the previous seven analysis periods, Pitt County violated the standard four times. The most recent three-year period, 2000-2002, Pitt County was below the standard, with a value of 0.83, just below the 0.85 standard. It was as high as 0.93 in the 1997-1999 time period. **Exhibit 3-3** shows the history of the eight-hour ozone standard.

The other proposed standard affects the allowable size and amount of "particulate matter" (PM), or soot, in the air. The EPA has proposed regulating smaller sized particles, 2.5 microns in size. Only one three-year period of data is available from DENR for this measure. During the 1999-2001 period, Pitt County was below the standard, scoring 13.7 versus the 15.0 micrograms per cubic meter standard. DENR does not consider this as significantly different from the standard. **Exhibit 3-4** compares the Pitt County measurement with the EPA-proposed standard.

Exhibit 3-3
Eight-Hour Ozone Measurements

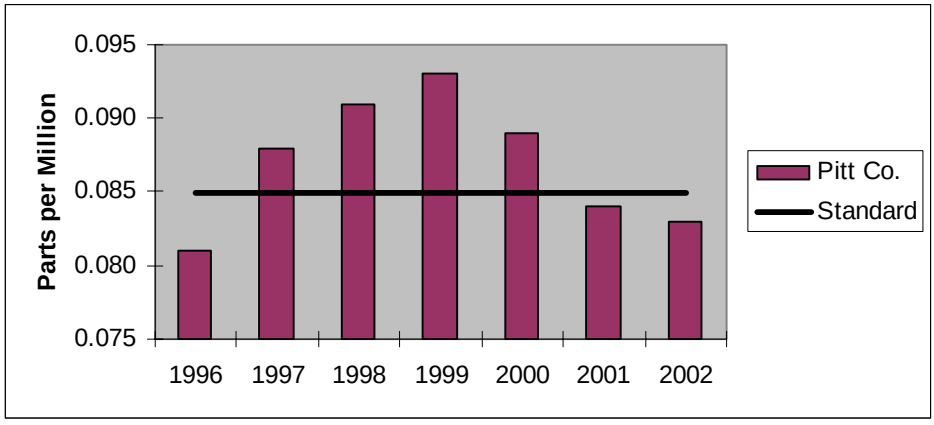
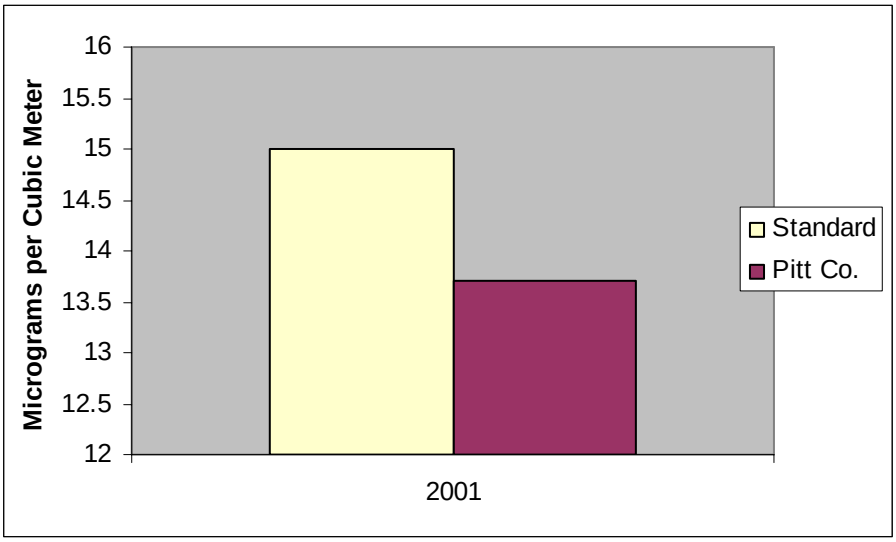


Exhibit 3-4
PM 2.5 Measurement



ANALYSIS OF DEMOGRAPHICS

The Census data can be used to identify locations that are most likely to need and to use transit service, based upon the demographic characteristics of the residents.

For this examination, Wilbur Smith Associates examined the 1990 Census data on a Census Block Group level basis to identify those areas that had the characteristics most likely to support transit service. The Block Group level is the smallest area for which the Census Bureau reports the demographic data used in the analysis.

In Pitt County, there are 83 Block Groups ranging in size from 0.090 square miles in Block Group 2, Census Tract 1 (east-central Greenville) to 46.42 square miles in Block Group 5, Census Tract 20 (between Belvoir and Bethel in northwest Pitt County).

Two separate calculations were made from the data. One calculated the propensity of the Block Group's population to use transit. This calculation determined the relative percentage of the population that would be likely to use transit at a given level of service, in other words the need for service. The second calculation looked at the theoretical ridership levels in each Block Group, or the demand for service. The two calculations give a more complete picture of ridership potential and complement one another.

Identification of Transit Propensity

Transit Propensity is the concept that measures the inclination or likelihood of using public transit. Propensity is an economic term used to measure consumer behavior. A higher propensity toward an action means a greater likelihood to do the action. Propensity can be

quantified such that someone with a propensity of 2 is twice as likely to do something, such as take transit, as someone with a propensity value of 1.

To identify the transit propensity for each of the 83 Block Groups, eight demographic factors were considered. These factors were carefully selected based upon industry research regarding the potential users of transit. The majority of the background analysis is contained in TCRP Report 28: *Transit Markets of the Future, The Challenge of Change*.

The specific factors examined were:

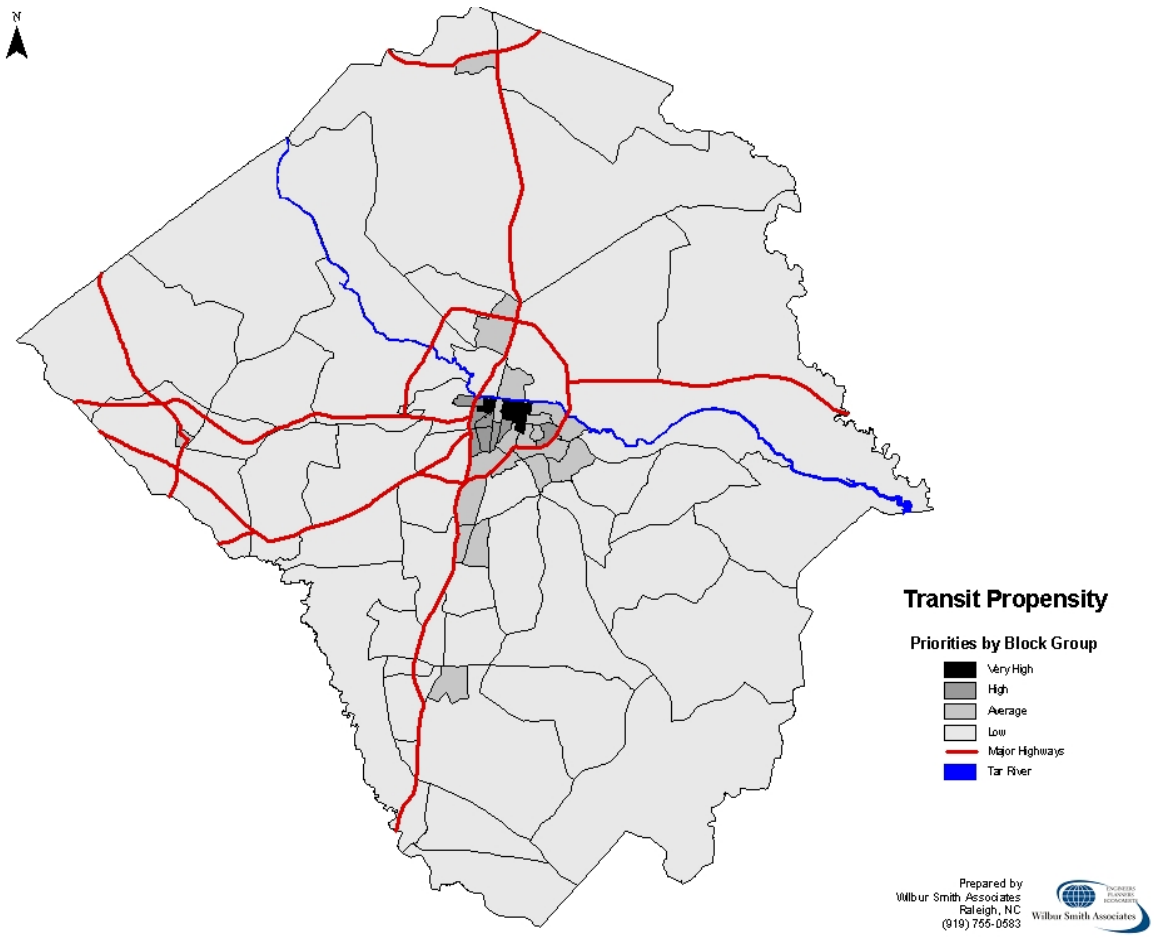
- Population density
- Percentage of households without cars
- Percentage of persons with mobility limitations
- Percentage of persons with work disabilities
- Percentage of persons who were not White, non-Hispanic
- Percentage of low-income households
- Percentage of female persons
- Percentage of persons in the workforce age 65 or older

An index for each of these factors was developed that determined the relative rank of the Block Group compared with the county as a whole. These indexes were then weighted based upon industry research, to develop a Composite Score for each Block Group. The detailed scores are given in the **Appendix**.

The Composite Scores were then statistically grouped into five categories, from "Very Low" to "Very High" based upon their relationship to the scores of the other Block Groups. The results indicate that the residents of a "High" Block Group are 50 percent more likely to use transit than residents of an "Average" Block Group. "Very High" Block Groups are approximately 1.5 times as likely to use transit as are residents in an "Average" Block Group.

Exhibit 3-5 shows the relative ranking of the Block Groups for Pitt County for transit propensity. No Block Group was ranked "Very Low," but eight Block Groups (10 percent) were considered to have "Very High" propensity compared with all other Block Groups in Pitt County.

Exhibit 3-5
Transit Propensity



Ridership Index

Using the same industry research used for the propensity calculation, it is possible to calculate a ridership index for each Block Group. This calculation is based upon the relative percentage of each demographic group that uses transit in similar locales around the country. Inherent in the calculation is the assumption that a similar level of transit service is provided for each Block Group in Pitt County as for the "average" similar locale in the rest of the country.

The calculation of the ridership index complements the calculation of transit propensity. It is possible for a Block Group to rank high in one calculation and low in another. For example, if most residents of a Block Group are likely to use transit, it will have a high propensity, but if there is such a small population base, the overall ridership index will be low.

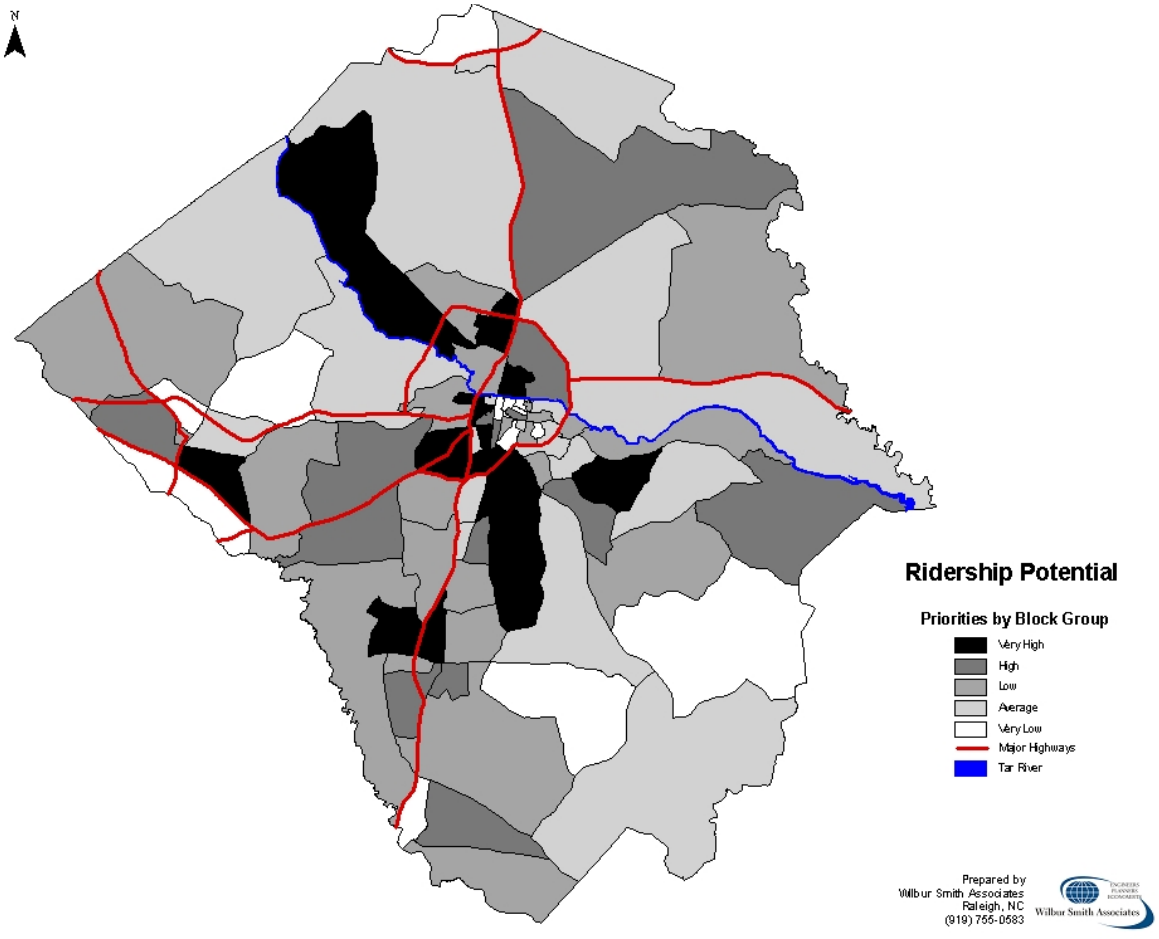
Using the average capture rate (percentage of the population who uses transit) for low-density, low-population areas for each of the demographic categories, a ridership index was calculated. The ridership index is the sum of the estimated riders for each category. To account for residents

who are in more than one category, the resulting sum is divided by the overall population weights.

The resulting ridership index is the number of individuals who could be expected to use transit on the typical day, assuming an equivalent level of service was provided to the average county in the US. It is not the same as the average daily ridership on transit, which is expressed in terms of "unlinked trips" or boardings.

Exhibit 3-6 maps the Block Groups by the ridership index. Compared with Exhibit 3-2, the more populous Block Groups rank higher in this calculation than they would on a propensity basis. Unlike the propensity calculation, 13 Block Groups ranked "Very Low," but 14 Block Groups were ranked as "Very High," only one of which were also "Very High" on the propensity scale. While the absolute ridership numbers should be used with caution, the index provides a good indicator of the relative ridership levels that could be expected. As with the propensity scale, Block Groups ranked "Very High" are projected to have more than twice as many riders as the "Average" Block Group. The ranking for all Block Groups is shown in the **Appendix**.

Exhibit 3-6
Theoretical Ridership Potential

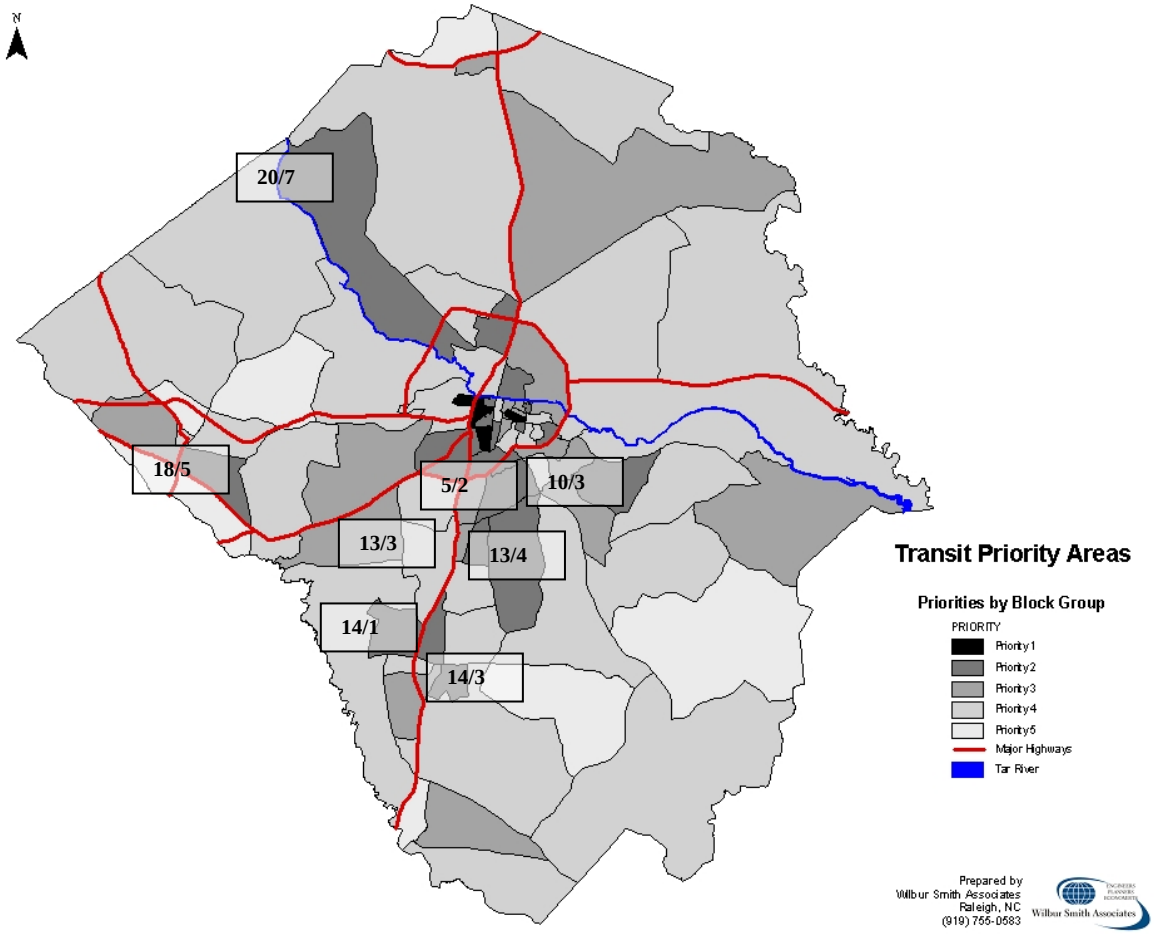


Transit Priority Locations

The rankings above can be used to identify those Block Groups where the need and demand for transit is the greatest. An "opportunity weight" was developed for each Block Group based upon the ranking received for the propensity and ridership examination. A "Very High" score in propensity or ridership was given a weight of five, while a "Very Low" score was given a weight of one. These weights were summed to derive the Priority Score.

Exhibit 3-7 shows the location of the Block Groups by their Priority Score. Block Groups outside of US 264 with a priority "2" have been labeled with the Tract and Block Group number. The details for all Block Groups are listed in the **Appendix**.

Exhibit 3-7
Transit Priority Areas



Based upon the above analysis, the priority areas for transit in Pitt County are, not surprisingly, the area of central Greenville inside US 264. The exception to this area is the generally sparsely populated area either side of the Tar River east of Memorial and a sparsely populated area in the southeast.

Outside of the central portion of the county, eight Block Groups should be considered as priority areas for any service expansion. **Exhibit 3-8** lists the block groups that are in the Priority "2" category.

Exhibit 3-8
Transit Priority "2" Areas Outside US 264

Census Tract	Block Group	Location	Propensity	Ridership	Rider Index
5	2	Southeast Greenville	Low	Very High	51
10	3	Simpson	Low	Very High	50
13	3	Winterville-east of RR	Average	High	40
13	4	East Winterville	Low	Very High	44
14	1	North Ayden	Low	Very High	43
14	3	Southeast Ayden	Average	High	43
18	5	Southeast Farmville	Low	Very High	44
20	7	Belvoir	Low	Very High	69

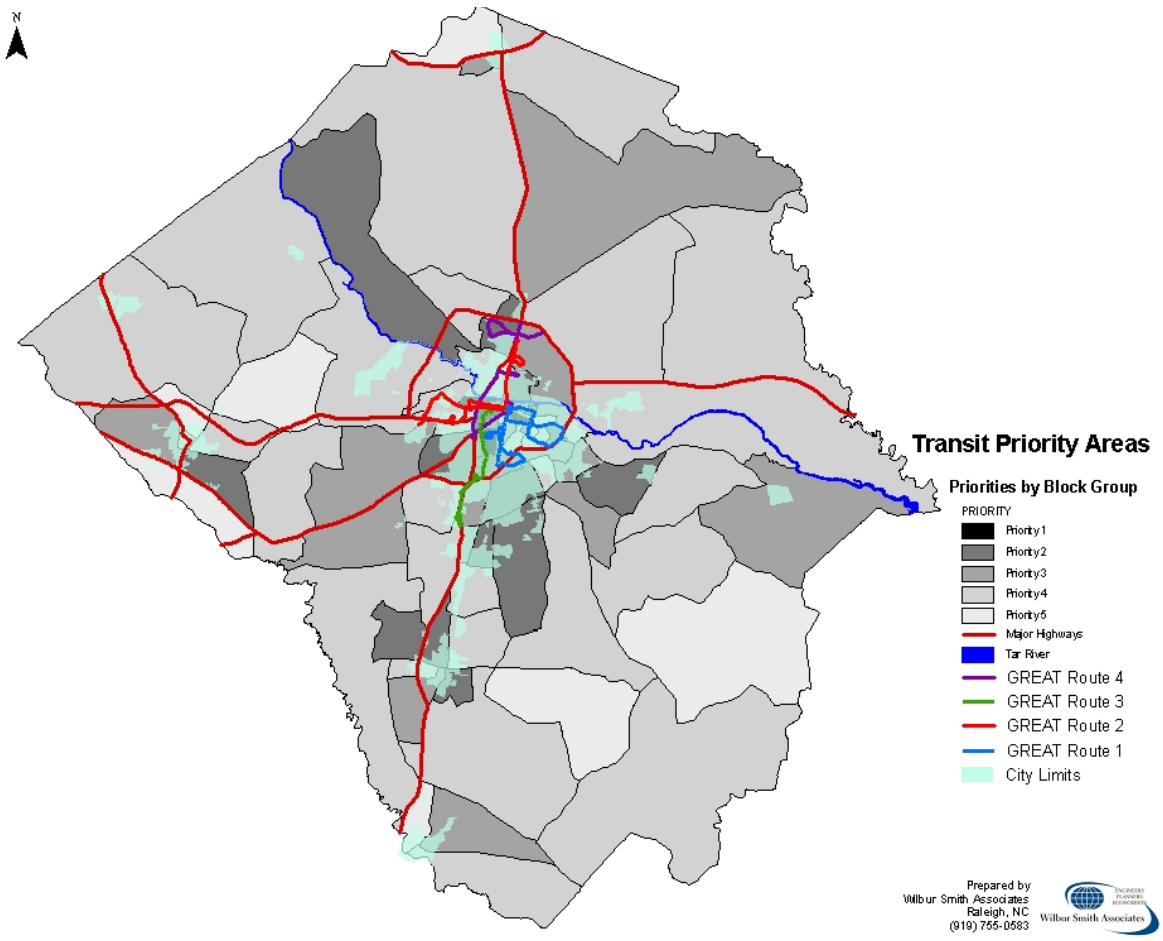
All of these Block Groups are served by the Pitt Area Transit System (PATS), and a portion of Tract 5, Block Group 2 is served by GREAT. Other than this one block group, the remainder do not have any fixed route services since they are outside of GREAT's jurisdiction. **Exhibit 3-9** shows the GREAT routes compared with the priority locations and the city boundaries.

Comparison with 2000 Census Data

Unfortunately, not all of the data needed for this analysis was available for the 2000 Census at the time the analysis was prepared. From the limited data that were available, the trend for the county as a whole is an increase in both the "need" and "demand" for transit services. The overall population increased from 107,924 in 1990 to 133,798 in 2000, a 24% increase in just 10 years. The population groups most likely to use transit also increased or stayed constant in percentage terms – Blacks remained at 33 percent of the population, but Hispanics increased from 0.5 percent to 3.2 percent and Asians increased from 0.6 percent to 1.1 percent.

The majority of the increases occurred in the locations already identified as having a high potential. With its high population growth, Greenville's transit potential is likely to have increased. The growth in Winterville and Simpson is anticipated to have increased their potential as well, but Farmville and Ayden may have less potential than indicated by the above analysis.

Exhibit 3-9
GREAT Service Coverage



POTENTIAL FIXED-ROUTE LOCATIONS

From a potential ridership perspective, a new fixed-route to the south would appear to have the greatest potential. The tracts are relatively contiguous with Greenville, and the extra-territorial jurisdictions of Greenville, Winterville, and Ayden form a continuous urbanized area. Given the high level of development throughout the area, a productive service could be crafted. Expressions of support have also been received for the concept of a fixed route from the Pitt County Commissioners, and the town managers of Winterville and Ayden.

Based upon national averages, a route that served the high priority block groups in Tracts 13 and 14 could serve an estimated 170 individuals, given an attractive frequency and routing. This estimate should be used with a high degree of caution, however. It is based upon national averages and represents individuals, not passenger trips. If a limited frequency of service is offered, or the route is not easy to reach, ridership levels could be substantially lower. Nonetheless, if a fixed-route with a 30- to 60-minute frequency of service was provided, this estimate is reasonable. If a route could be designed that would also serve portions of Tract 5 in southeast Greenville, the ridership potential could be higher.

An extension of service further south to Grifton appears unwarranted given the estimated potential in 1990 and the loss of population since then.

Based upon the initial 2000 Census data, this route has a stronger potential, with the possible exception of Ayden. Winterville's population growth has been strong, implying a higher transit potential.

The second priority for a Pitt County service would be a route to Simpson. The ridership level is "Very High" and Simpson is close to the Greenville urban area. Simpson also added population in the past 10 years. The proximity to Greenville should result in a productive service at a low cost.

The other locations that are in the Priority "2" classification are not as attractive if only one route can be provided in Pitt County. The Belvoir area has a "Very High" ridership estimate, but this Block Group is large, resulting in a dispersed population. It would be difficult to provide a single route to serve this entire area in a productive fashion.

The Farmville area is separated from the Greenville area for some miles, which would result in long distances being traveled with little passenger activity. Such a route would be difficult to operate productively. Farmville has also been losing population since 1980, indicating a declining transit potential.