

JOHNSTON COUNTY AREA TRANSIT SYSTEM (JCATS) 2011 COMMUNITY TRANSPORTATION SERVICE PLAN (CTSP)

Prepared for:

North Carolina Department of Transportation Public Transit Division and
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2011 JOHNSTON COUNTY AREA TRANSIT SYSTEM COMMUNITY TRANSPORTATION SERVICE PLAN

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1. EXECUTIVE SUMMARY

The purpose of the Community Transportation Service Plan (CTSP) is to provide guidance for the Johnston County Area Transit System (JCATS) to continue to serve transit-dependent populations, to provide affordable transportation, to remove barriers to transportation service, and to identify transportation needs in Johnston County and provide accommodations.

This study reviewed all aspects of service and organization for Johnston County Area Transit System (JCATS) including operations, capital programming, marketing strategies, planning, facilities, and staffing. This plan further explores transit demand in the Study Area, rider needs, and potential future service options. The Community Transportation Service Plan (CTSP) creates an implementation plan for how to optimize service in the future to maximize benefits, efficiency, effectiveness, and resource allocation. The strategic recommendations for JCATS respond to the projected mobility needs of residents and targeted populations in Johnston County.

This study afforded the leaders and transportation providers in Johnston County, North Carolina (the Study Area) an opportunity to take an in-depth look at the public transit conditions and options in the County, identify the optimal manner in which transit can meet the public's needs, and decide where to allocate transit resources over the next five years.

DEMOGRAPHIC CHARACTERISTICS

Johnston County's total population in 2008 was 163,428. The population is expected to reach 281,023 by 2030, representing a 72% percent increase over 2008 levels. Of the total population, approximately 6.8% are youth, 13.6% are seniors, 20.0% are mobility impaired, and 12.6% are below-poverty. About 7% of households have no access to a motor vehicle, while 29% only own one vehicle. As total population increases, the populations of these groups can also be expected to increase demonstrating that the need for mobility by these groups will likely increase.

EXISTING TRANSIT SERVICES

Demand-Responsive Service

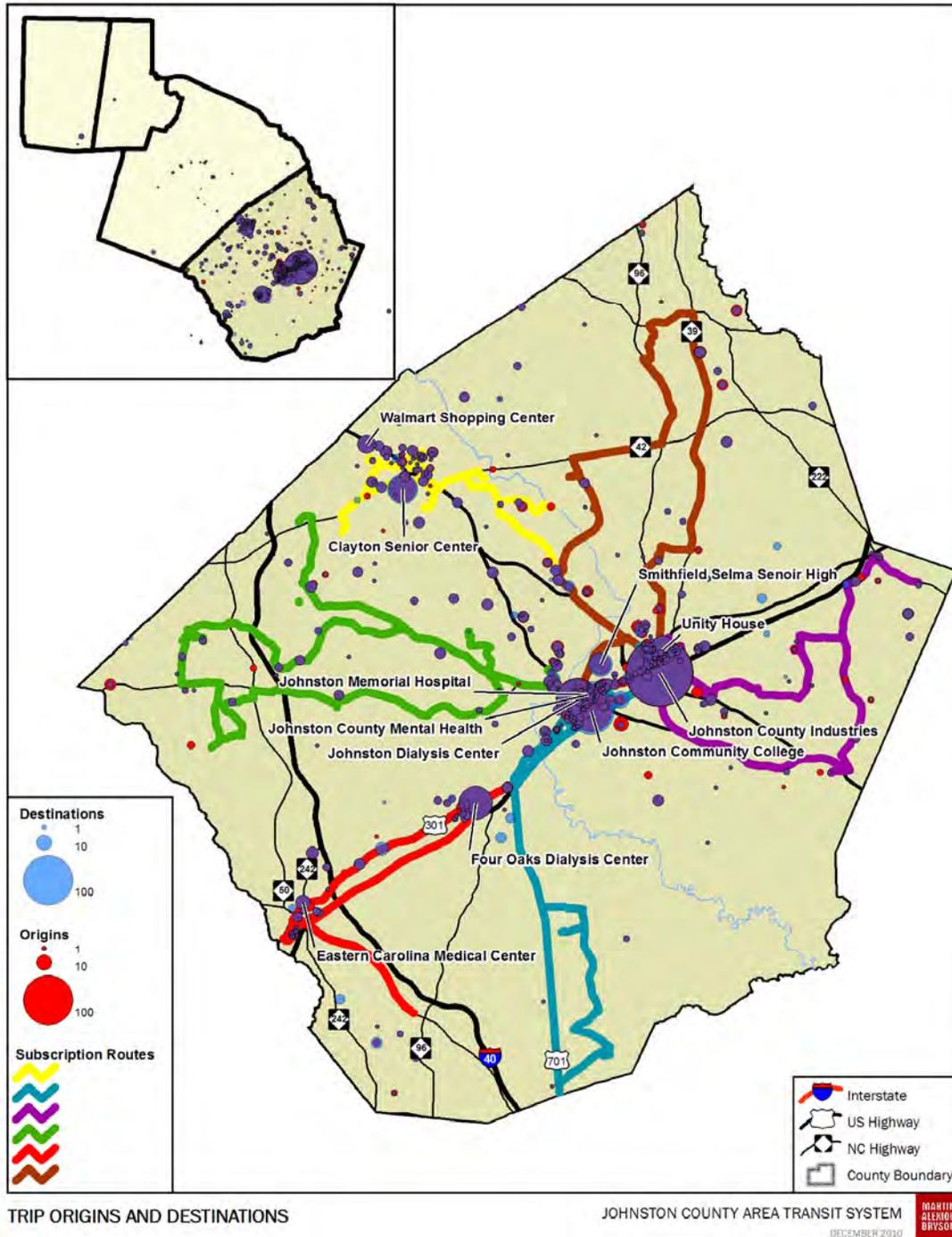
JCATS demand-responsive, curb-to-curb service is offered to any resident of Johnston County Monday through Friday, excluding holidays, from 6am to 5pm with some limited services available on nights and weekends. Saturday service is currently primarily aimed at Johnston County residents with dialysis needs and some employment service. For general public riders, the service operates on a reservation basis; those needing rides can call to schedule one anytime before noon on the business day before the desired ride. Rides are also commonly scheduled by human service agencies for trips on behalf of an agency.

JCATS primarily focuses on serving locations within Johnston County, but rides can be scheduled to out of county destinations for certain services as well. Often agencies cover the cost of rides, but general public rides cost \$2.00 in county and \$15.00 out of county. Subscription and demand-response trip fares billed through human service agencies are on a per-mile basis which is specific to trip type or agency. This is the same rate for in-County and out-of-County. The per-mile rate is derived from an estimate of revenue miles and non-reimbursed expenses. The agencies are charged an average fare for a trip based on the number of passengers and total miles traveled on that trip.

Subscription routes

Although JCATS does not operate any fixed-route service, which would run on a designated schedule and path, JCATS does operate subscription routes, which are loops for recurring scheduled trips. Figure 1.1 shows the regular subscription routes and common origins and destinations.

Figure 1.1: Subscription Routes and Trip Origins and Destinations



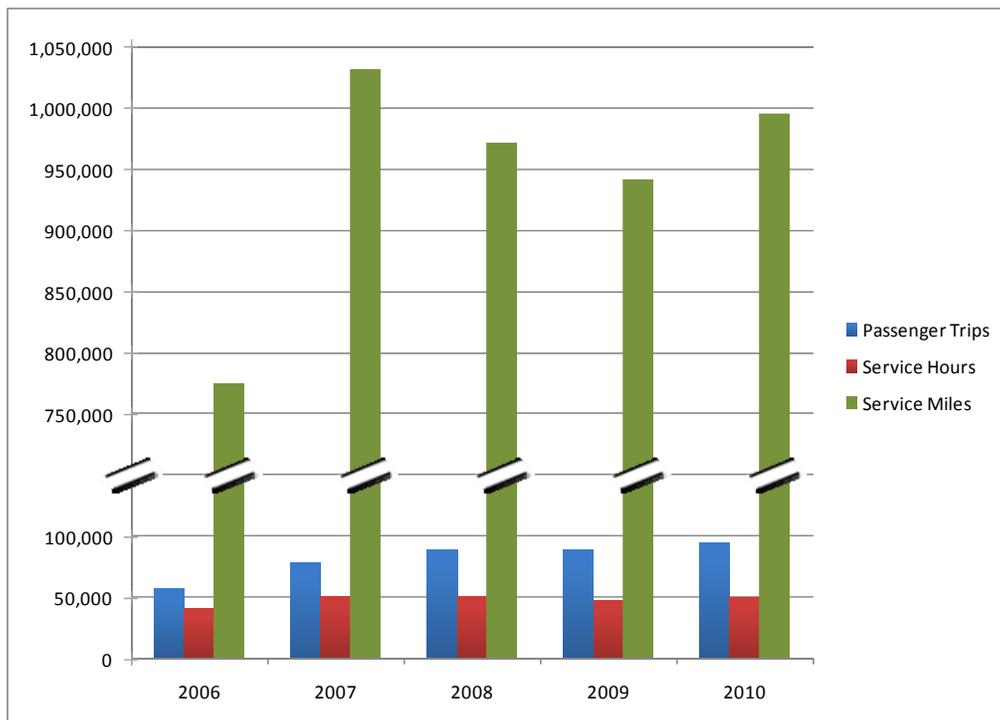
Historic Ridership and Service Levels

JCATS provides over 300 rides per day. Ridership, vehicle service miles, and vehicle service hours have all increased over the past five years. The recent trend has largely been encouraging for JCATS; over the last three years ridership has been increasing, vehicle service hours and vehicle service miles have moderated a bit. Table 1.1 presents ridership and service information for the last five years.

Table 1.1: Ridership and Service Trends

| Fiscal Year | Passenger trips | % Change | Service hours | % Change | Service miles | % Change |
|------------------------------|-----------------|------------|---------------|------------|----------------|------------|
| 2006 | 57,680 | | 41,068 | | 774,198 | |
| 2007 | 78,722 | 36% | 51,341 | 25% | 1,031,180 | 33% |
| 2008 | 88,142 | 12% | 51,028 | -1% | 971,477 | -6% |
| 2009 | 88,141 | 0% | 46,669 | -9% | 941,110 | -3% |
| 2010 | 94,699 | 7% | 49,480 | 6% | 995,261 | 6% |
| Total Change | 37,019 | 64% | 8,412 | 20% | 221,063 | 29% |
| Average Annual Change | 7,404 | 13% | 1,682 | 4% | 44,213 | 6% |

Figure 1.2: Ridership and Service Trends



FINANCIAL CHARACTERISTICS

Cost Allocation Model

A cost allocation model examines JCATS’ actual expenses and assigns groups of expenses to specific service units for longitudinal analysis and peer comparison. This cost allocation model examines operating and administrative costs for a year, not capital costs. The cost allocation model also is used for financial analysis and projection. By determining the total cost per hour of service it is possible to model future service changes and enhancements. The cost allocation model is shown in Table 1.2.

Expenses for Fiscal Year 2010 totaled \$1,713,191. The specific operating cost line items were allocated to a quantity of service (vehicle service hours, vehicle service miles, or fixed cost) for the purposes of constructing a cost allocation model. The total hourly cost is calculated by dividing the total expenses by the annual vehicle service hours operated, which yields \$34.62. The cost equation and total hourly cost, scaled to account for inflation, can be used to estimate costs associated with service changes, such as changes in the hours of service.

Table 1.2: FY 2010 Cost Allocation Model

| Line Item | Expenses | Fixed | Service Hour | Service Mile |
|---------------------------------------|------------------------|------------------|------------------|------------------|
| ADMINISTRATIVE | | | | |
| Admin Salaries and Fringes | \$152,964 | \$152,964 | | |
| Advertising and Promotion | \$8,785 | \$8,785 | | |
| Employee Development | \$4,853 | | \$4,853 | |
| Vehicle Insurance Premiums | \$28,100 | \$28,100 | | |
| Indirect Services | \$27,000 | \$27,000 | | |
| Admin Expenses | \$59,872 | \$59,872 | | |
| COA Admin | \$56,500 | \$56,500 | | |
| Other Admin | \$4,274 | \$4,274 | | |
| OPERATING | | | | |
| Driver Salaries & Fringes | \$652,594 | | \$652,594 | |
| Fuel | \$180,477 | | | \$180,477 |
| Oil | \$9,459 | | | \$9,459 |
| Vehicle Tubes and Tires | \$25,032 | | | \$25,032 |
| Vehicle Maintenance | \$48,585 | | | \$48,585 |
| Purchased Transportation | \$417,645 | | | \$417,645 |
| Insurance Deductibles | \$637 | | | \$637 |
| Operating - Other | \$8,931 | \$8,931 | | |
| Reserves | \$27,484 | \$27,484 | | |
| Total | \$1,713,191 | \$373,910 | \$657,447 | \$681,834 |
| | <i>Unit Quantities</i> | N/A | 49,480 | 995,261 |
| | <i>Cost per Unit</i> | \$373,910 | \$13.29 | \$0.69 |
| Total Cost per Hour of Service | | \$34.62 | | |
| Source: 2010 JCATS OPSTATS | | | | |

Revenue Sources

Operating

In FY 2010, JCATS received revenues from four sources to subsidize its operating costs, as shown in Table 1.3. The costs of operating JCATS' service were funded primarily by contracts and farebox revenue (74 percent), followed by federal assistance (12 percent), and state assistance (11 percent). Local match accounted for around 3 percent of the overall operating and administrative funding. The local match is critical for demonstrating local commitment to JCATS, but also shows how local dollars can be significantly leveraged to access other funds. Revenue from agency contracts refers to amounts paid by human service agencies for trips taken on behalf of the agency. Each agency is charged based on the average distance each passenger traveled for a trip and a per mile rate based on the average cost per mile of service which was \$2.03 in 2010.

Table 1.3: Revenue Sources: Operating Costs (FY 2010)

| Revenue Source | Revenue | % of Revenue |
|--|--------------------|--------------|
| Federal (S. 5311) | \$225,136 | 12% |
| State - ROAP and CTP | \$202,971 | 11% |
| Local Match | \$48,711 | 3% |
| Farebox | \$25,085 | 1% |
| Agency Contracts | \$1,399,346 | 73% |
| Other (Advertising, Interest, etc.) | \$28,426 | 1% |
| | | |
| Total Revenue | \$1,927,845 | 100% |
| Source: 2010 JCATS OPSTATS | | |

Capital

In FY 2010, JCATS received revenues from four sources to subsidize its capital costs, as shown in Table 1.4. Federal and state assistance combined comprised 88 percent of funding of JCATS' capital costs in FY 2010. Local assistance accounted for 10 percent of the total, and other sources of revenue were at about 2 percent.

Table 1.4: Revenue Sources: Capital Costs (FY 2010)

| Source | Revenue | % of Revenue |
|---------------------------------|------------------|---------------|
| Federal/State assistance | \$185,902 | 88.0% |
| Vehicles and others | \$150,703 | |
| Facility | \$35,199 | |
| Local assistance | \$20,656 | 9.8% |
| Farebox/Contracts/Other | \$4,813 | 2.3% |
| | | |
| Total Assistance | \$211,370 | 100.0% |
| Source: 2010 JCATS OPSTATS | | |

SERVICE RECOMMENDATIONS

The service alternatives that have been developed were selected for their ability to address identified needs of Johnston County residents. These needs were identified through technical analysis, demographic analysis, public input (two public workshops and a rider survey), Steering Committee guidance, and previous studies of the area. A discussion of the service recommendations and a cost estimate follows.

Gradual Expansion of Service Hours

JCATS can gradually begin to expand their service hours beyond 6:00 am to 5:00 pm. This expansion could be done incrementally over the course of the five year plan as ridership, capacity, and funding allows. Additional evening service was one of the most common requested service types from the rider survey, and added hours can be particularly beneficial to employment travelers whose work hours may make utilizing JCATS during the current service hours difficult. This service can be ramped up and expanded slowly so as not to tax existing administrative or capital resources. Vehicles could also be added incrementally depending on demand and ridership levels. The cost of providing one additional hour of off-peak service (assuming 6 vehicles) is \$56,000 for the first year (FY 2012); however, this added cost could be offset significantly by new revenue from additional riders. Administrative funding could come through S. 5311 funds. Operating cost assistance could come through Rural Operating Assistance Program (ROAP) funds.

Mobility Management

Mobility Management is a package of ideas that could include a mobility manager staff position and user subsidies like vouchers. A mobility manager could help JCATS provide service to existing customers and broker trips to expand the customer base to new users and user types. JCATS is doing a good job of providing service to its core customers, particularly the agencies. A mobility manager would be able to make contacts and build new connections in the community to find new customers who would benefit from JCATS' services. Additionally, a mobility manager could help determine which trips are ones that JCATS can efficiently provide service to and which trips are perhaps better sent to another agency or vendor. In this way, a mobility manager can help grow the rider base and improve the efficiency of JCATS to keep costs down. Included in the mobility management package would be \$8,000 for user subsidies. Mobility management could be funded through a Seniors and Persons with Disabilities (S. 5310) grant as a capital expense. This position could also be set up as a shared position under the reorganized COA with several duties relating to the broader mission of the COA in addition to JCATS.

Saturday Service

This service option would expand on the recently added Saturday demand-responsive service. JCATS began providing Saturday service in the fall of 2010, which runs three buses from 5:00 A.M. until 5:00 P.M. At present, there is no administrative staff present on Saturdays, with current service used primarily for dialysis trips. This service option would promote and advertise existing Saturday service to target retail and manufacturing workers who may have Saturday hours. In the future to attract other types of riders beyond dialysis trips, service would be expanded by two vehicles with some administrative staffing added, at an annual operating cost of \$34,000 in the first year of implementation (FY 2012), with negligible additional capital costs since this service can be provided with existing vehicles. Additional Saturday service could be funded through Job Access and Reverse

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Commute funds (S. 5316) to target individuals who need rides to weekend jobs, particularly retail and manufacturing jobs in the Clayton, Smithfield, Selma area.

Park and Ride Service

This service option would provide a feeder connection to the park-and-ride in Clayton that will serve the Triangle Transit expanded Route 102, with service to downtown Raleigh. The Route 102 service expansion to Clayton will likely occur in late 2011 or early 2012 with seven daily express buses to the park-and-ride lot in Clayton (three morning and four afternoon) with one hour headways. The JCATS feeder service to the park-and-ride would be implemented in FY2013. The service would operate as a deviated fixed-route system, with three morning routes and four afternoon routes to mirror the Express shuttle service. The additional administrative costs would be minimal, as the feeder routes would occur during normal business hours. The total annual operating cost in the first year of implementation (FY2013) would be \$91,000. This service would require the purchase of two additional vehicles since the service would occur at peak times when other JCATS buses are currently in use. Job Access and Reverse Commute (S. 5316) funds could be targeted to help pay for this service. This service could be expanded in the future to provide all-day, fixed-route service between Selma, Smithfield, and Clayton.

Sunday Service

JCATS does not currently offer Sunday service and indeed their core medical services transportation does not need to operate on Sunday, usually. However, JCATS could offer service with the aim of attracting more RGP, leisure, shopping, recreation, and work commute riders. This service could potentially be offered cheaper on a vehicle-hour basis than weekday service since there would be no need for the same level of administrative oversight as during the week. However, there would likely need to be increased advertising to attract riders to the service. A skeletal, 2-vehicle service could be operated for 8-hours (9:00 am to 6:00 pm, for instance) for \$25,000 for the first year of service (FY 2013). There would be negligible capital costs since existing vehicles could be used. Sunday service could be funded through New Freedom funds (S. 5317) to target individuals who might be homebound otherwise, allowing them to participate in employment or social activities.

Administrative Facilities Upgrade

JCATS is currently housed in a double-wide trailer on the lot where vehicles are stored. This has been adequate to date, but a larger, more permanent administrative facility is necessary for future needs as the current facility is at capacity. The costs of this would not be insignificant. There are land acquisition, planning, design, and engineering costs in addition to construction and relocation costs. A very rough budget would be \$1,000,000 for the planning, design, engineering, land acquisition, and construction costs. However, this is heavily dependent on the final building specifications that are selected. The funding could come from the Rural Capital Program which has a 10% local match with 90% of the costs being paid by the federal and state governments. This recommendation could be implemented sooner than planned if funding allows and necessity dictates.

Scheduling Software

JCATS is in the process of upgrading their current scheduling software (CTS) which will help improve the efficiency of scheduling. The cost of the upgrade is \$12,000 with additional

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maintenance costs each year of \$4,000; this upgrade is already funded. However, these additional costs can be easily offset by small efficiency gains. A 0.5% reduction in service miles and hours resulting from improved scheduling efficiency offsets the price of the software upgrade. Any larger gains in efficiency will result in net cost savings.

Table 1.5 summarizes the cost elements of these new services.

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Table 1.5: Service Recommendations

| Description | Assumptions | | Service Changes | | | | | Added Costs | | New Revenue / Efficiency Improvement | Funding Sources | |
|-----------------------------------|--|---|-----------------|-------|------------|-------------|-------------|------------------|---------------|--------------------------------------|-----------------|----------|
| | Operating | Capital | Vehicles | Hours | Days /Year | Hours /Year | Hourly Rate | Annual Operating | Capital Costs | | Operating | Capital |
| Added Hour of Service (Admin) | Adding an additional hour of service to a day at off-peak times | Existing | N/A | 1 | 255 | 255 | \$5.80 | \$1,480 | 0 | N/A | S. 5311 | None |
| Added Hour of Service (Operating) | Adding an additional hour of service to a day at off-peak times | Existing | 6 | 1 | 255 | 1530 | \$29.48 | \$45,101 | 0 | \$36,668 | ROAP | None |
| Mobility Management | None | Staff member, user subsidies, broker activities | N/A | N/A | N/A | N/A | N/A | \$60,000 | 0 | \$29,084 | None | S. 5310 |
| Expanded Saturday | Year two and on, assume 1/4 admin staff to operate service. Two buses to provide RGP service | Existing | 2 | 10 | 50 | 1000 | \$31.48 | \$31,480 | 0 | \$3,800 | S. 5316 | None |
| Park and Ride Shuttle | Feeder service for Triangle Transit express shuttles between Clayton and Raleigh | Five existing and two new vehicles | 7 | 1.5 | 255 | 2678 | \$35.32 | \$94,560 | \$130,000 | \$10,581 | S. 5316 | S. 5316 |
| Weekend - New Freedom | Partial Day. Targeting elderly, disabled, low-income who have limited options. No admin staff necessary. | Existing | 2 | 8 | 50 | 800 | \$29.48 | \$23,582 | 0 | \$3,040 | S. 5317 | None |
| Scheduling Software | | Upgrade CTS Software (Already underway) | N/A | N/A | N/A | N/A | N/A | \$4,000 | \$12,000 | \$29,084 | Existing | Existing |

IMPLEMENTATION PLAN

Today (FY 2011)

- Service from 6am to 5pm on weekdays
- Some Saturday Service for dialysis and employment
- 25 vehicles
- S. 5310 Funding Application

Year 1 (FY 2012)

- Add hour of weekday service
- Mobility Management
- 26 Vehicles (scheduled expansion by one vehicle)
- S. 5316 Funding Application

Year 2 (FY 2013)

- Expanded Saturday Service
- Park and Ride Feeder Shuttle (Two new vehicles)
- 28 Vehicles

Year 3 (FY 2014)

- Add extra hour of weekday service
- 28 Vehicles
- S. 5317 Funding Application

Year 4 (FY 2015)

- Sunday Service
- 28 Vehicles
- Rural Capital Program Funding Application

Year 5 (FY 2016)

- New Administrative Facility
- 28 Vehicles

Table 1.6: Plan Phasing

| Service Alternative | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|--------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Scheduling Software | ■ | ■ | ■ | ■ | ■ | ■ |
| Gradual Service Hour Addition | | ■ | ■ | ■ | ■ | ■ |
| Mobility Manager | | ■ | ■ | ■ | ■ | ■ |
| Expanded Saturday Service | | ■ | ■ | ■ | ■ | ■ |
| Park and Ride Shuttles | | | ■ | ■ | ■ | ■ |
| Expanded Weekend Service | | | ■ | ■ | ■ | ■ |
| Administrative Facility | | | | | ■ | ■ |
| When the service comes online: | ■ | | | | | |

FUNDING

By completing the Community Transportation Service Plan, JCATS becomes more competitive in targeted assistance federal grant programs which can help cover the costs of new services. Typically these federal programs pay 80% of capital costs and 50% of operating costs. JCATS currently does not receive funding through any of these programs. Right now, JCATS receives operating assistance from S. 5311 formula funds, Rural Operating Assistance Program (ROAP) funds, and County local match. This five-year plan proposes that JCATS seeks out new funding from:

- S. 5310 – Elderly and Persons with Disabilities Program
- S. 5316 – Job Access and Reverse Commute Program (JARC)
- S. 5317 – New Freedoms Program

These programs target certain populations and types of service, but overall the goals of the programs align with the goals of JCATS’ service expansion. The programs all require a local match, but JCATS has several options for this: Johnston County general funds, a reallocation of ROAP funds (which count as local match for federal grants), or alternative sources like local employers who partially fund an employment shuttle.

FINANCIAL OPERATING PLAN

The service recommendations in this plan are compared to a base case scenario which assumes no changes to JCATS’ operations and only factors in monetary inflation. The new costs, revenues, and grant funds that are discussed would be in addition to the base case of continuing operations. Table 1.7 highlights the local funding required to implement the service recommendations. As noted above, this does not all have to be general fund contributions from the County. Additionally, the recommendations in this plan would not increase the rate charged to agencies. The additional local dollars required by this plan would be roughly \$337,000 over five years for operating and administrative costs. Table 1.8 summarizes the financial plan. Costs, revenues, and operating assistance are shown for each service alternative.

The costs of implementing these new service ideas are high, but there are real benefits attached to those dollars spent. The ridership gains from implementing the service alternatives would eventually be a 13% increase over the base case scenario by the end of the five-year window of this plan. These local dollars would be leveraged to attract significant outside funding as well. On the operating side, the total additional local dollars for implementing these service recommendations is \$337,000 over five years; however, this will bring into Johnston County an estimated \$616,000 in new federal and state funding. These new dollars and ridership gains are in addition to the more intangible and harder to quantify benefits to residents of Johnston County of more mobility and better access to services, jobs, and community social life.

Table 1.7: Local Assistance for Operating and Administrative Costs

| | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|------------------------------------|-----------------|-----------------|------------------|------------------|------------------|------------------|
| Base Case Local Assistance | \$ 49,685 | \$50,679 | \$51,693 | \$52,726 | \$53,781 | \$54,856 |
| Additional Local Assistance | \$0 | \$10,981 | \$71,437 | \$75,227 | \$88,854 | \$90,240 |
| Total Plan Local Assistance | \$49,685 | \$61,660 | \$123,129 | \$127,953 | \$142,635 | \$145,096 |

2011 JOHNSTON COUNTY AREA TRANSIT SYSTEM COMMUNITY TRANSPORTATION SERVICE PLAN

Table 1.8: Financial Plan Summary

| JCATS Financial Plan | Actual FY 2010 | Estimated FY 2011 | Year 1 FY 2012 | Year 2 FY 2013 | Year 3 FY 2014 | Year 4 FY 2015 | Year 5 FY 2016 |
|--|-------------------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Base Case: | | | | | | | |
| Total Operating/Administrative Expenses | \$ 1,713,191 | \$ 1,747,455 | \$ 1,782,404 | \$ 1,818,052 | \$ 1,854,413 | \$ 1,891,501 | \$ 1,929,331 |
| Total Operating Subsidy Requirements | \$ 260,334 | \$ 265,541 | \$ 270,852 | \$ 276,269 | \$ 281,794 | \$ 287,430 | \$ 293,178 |
| Federal Assistance | \$ 237,377 | \$ 242,125 | \$ 246,967 | \$ 251,907 | \$ 256,945 | \$ 262,084 | \$ 267,325 |
| State Assistance | \$ 188,900 | \$ 192,678 | \$ 196,532 | \$ 200,462 | \$ 204,471 | \$ 208,561 | \$ 212,732 |
| Local Assistance | \$ 48,711 | \$ 49,685 | \$ 50,679 | \$ 51,693 | \$ 52,726 | \$ 53,781 | \$ 54,856 |
| Total Operating Assistance | \$ 474,988 | \$ 484,488 | \$ 494,178 | \$ 504,061 | \$ 514,142 | \$ 524,425 | \$ 534,914 |
| Local Share of Operating Assistance | 10.3% | 10.3% | 10.3% | 10.3% | 10.3% | 10.3% | 10.3% |
| Gradual Service Addition (Admin) - S. 5311 | | | \$1,539 | \$1,601 | \$1,665 | \$1,731 | \$1,731 |
| Federal Assistance (80%) | | | \$1,231 | \$1,281 | \$1,332 | \$1,385 | \$1,385 |
| State Assistance (5%) | | | \$77 | \$80 | \$83 | \$87 | \$87 |
| Local Assistance Required (15%) | | | \$231 | \$240 | \$250 | \$260 | \$260 |
| Gradual Service Addition (Operating) - ROAP | | | \$46,905 | \$48,780 | \$76,102 | \$79,146 | \$105,528 |
| Revenue | | | \$38,135 | \$41,210 | \$66,373 | \$71,753 | \$95,364 |
| Federal Assistance (50%) | | | \$4,385 | \$3,785 | \$4,864 | \$3,697 | \$5,082 |
| Local Assistance Required (50%) | | | \$4,385 | \$3,785 | \$4,864 | \$3,697 | \$5,082 |
| Mobility Manager - S.5310 | | | \$63,648 | \$66,192 | \$68,844 | \$71,598 | \$71,598 |
| Federal Assistance (80%) | | | \$50,918 | \$52,954 | \$55,075 | \$57,278 | \$57,278 |
| State Assistance (10%) | | | \$6,365 | \$6,619 | \$6,884 | \$7,160 | \$7,160 |
| Local Assistance Required (10%) | | | \$6,365 | \$6,619 | \$6,884 | \$7,160 | \$7,160 |
| Expanded Saturday Service - S. 5316 | | | | \$34,729 | \$36,120 | \$37,565 | \$37,565 |
| Revenue | | | | \$4,192 | \$4,360 | \$4,535 | \$4,535 |
| Federal Assistance (50%) | | | | \$15,268 | \$15,880 | \$16,515 | \$16,515 |
| Local Assistance Required (50%) | | | | \$15,268 | \$15,880 | \$16,515 | \$16,515 |
| Park and Ride Service - S.5316 | | | | \$102,273 | \$106,370 | \$110,625 | \$110,625 |
| Revenue | | | | \$11,225 | \$11,674 | \$12,141 | \$12,141 |
| Federal Assistance (50%) | | | | \$45,524 | \$47,348 | \$49,242 | \$49,242 |
| Local Assistance Required (50%) | | | | \$45,524 | \$47,348 | \$49,242 | \$49,242 |
| Sunday Service - S. 5317 | | | | | | \$27,589 | \$27,589 |
| Revenue | | | | | | \$3,628 | \$3,628 |
| Federal Assistance (50%) | | | | | | \$11,981 | \$11,981 |
| Local Assistance Required (50%) | | | | | | \$11,981 | \$11,981 |
| Added Costs - All Plan Ideas | | | \$112,093 | \$253,574 | \$289,101 | \$328,255 | \$354,637 |
| Added Revenues - All Plan Ideas | | | \$38,135 | \$56,627 | \$82,407 | \$92,056 | \$115,667 |
| Total Operating Assistance Required | | | \$73,958 | \$196,947 | \$206,694 | \$236,199 | \$238,970 |
| Federal Assistance | | \$0 | \$56,535 | \$118,812 | \$124,500 | \$140,098 | \$141,484 |
| State Assistance | | \$0 | \$6,442 | \$6,699 | \$6,968 | \$7,246 | \$7,246 |
| Local Assistance | | \$0 | \$10,981 | \$71,437 | \$75,227 | \$88,854 | \$90,240 |
| Local Share of Operating Assistance w/Plan | 10.3% | 10.3% | 10.9% | 17.6% | 17.8% | 18.8% | 18.7% |

CAPITAL PLAN

The capital plan for JCATS consists of two new vehicles to provide extra capacity for the Park-and-Ride feeder shuttle service, and a new, larger administrative facility. A new administrative facility would greatly expand the capacity for JCATS to provide new service. The current facility does not have additional room if any new staff were brought in. The two new vehicles would be through the JARC application with 80% federal funding, a 10% state match, and a 10% local match. This local amount is estimated to be \$11,400. The administrative facility could be funded under the Rural Capital Program which requires a 10% local match. The costs of the new facility would be high (likely in the \$1,000,000 range) but the local match would return a good ‘bang for the buck’ by bringing in \$900,000 of federal and state money for a \$100,000 local contribution. Table 1.9 shows the capital plan; Table 1.10 shows the local assistance requirements for the capital plan.

The replacement cost of the current JCATS fleet of vehicles is also shown as part of the capital plan. This is based on the expected year of replacement and an estimated 2011 cost of \$40,000 for a van, \$52,000 for a light-transit vehicle, and \$30,000 for a minivan. Funding would likely come from either the State or S. 5311. The total cost for replacement vehicles is expected to be about \$1,278,000 with a local match of \$128,000. It is important to note that most of the vehicles in JCATS’ fleet are scheduled to be replaced in the next three years, and depending on wear and tear, some of these could perhaps be left in service longer. The cost of replacement vehicles also includes a currently planned expansion from 25 to 26 vehicles in FY 2012 as a base operating fleet. The cost of replacement vehicles constitutes the base case capital plan because it represents the capital costs necessary to continue operations as they exist today.

As with the operating side, these new capital expenditures have a significant local cost (\$239,000), but will be leveraged to attract a large amount of outside funding – over \$2,150,000 in new federal and state dollars. Plus, there are the benefits of a more robust transportation system and providing JCATS with the physical office space needed to effectively run and grow JCATS to meet the future mobility needs of Johnston County residents.

Table 1.9: Capital Plan

| Capital Plan | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Funding Source | Federal Match % | State Amount | State Match % | Local Amount | Local Match % |
|----------------------------|------------------|------------------|------------------|------------------|--------------------|----------------|-----------------|--------------------|---------------|------------------|------------------|
| Capital Project | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 | | | | | | |
| Park and Ride Shuttle | | \$114,733 | | | | S. 5316 | 80% | \$91,786 | 10% | \$11,473 | 10% |
| Facilities Upgrade | | | | | \$1,000,000 | Rural Capital | 90% | \$900,000 | | \$0 | 10% |
| Replacement Vehicles | \$420,077 | \$313,309 | \$357,989 | \$124,103 | \$62,052 | S. 5311 | 80% | \$1,022,023 | 10% | \$127,753 | 10% |
| Total Capital Costs | \$420,077 | \$428,042 | \$357,989 | \$124,103 | \$1,062,052 | | | \$2,013,810 | | \$139,226 | \$239,226 |

Table 1.10: Local Assistance for Capital Costs

| | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|------------------------------------|-----------------|-----------------|-----------------|-----------------|------------------|
| Base Case Local Assistance | \$42,008 | \$31,331 | \$35,799 | \$12,410 | \$6,205 |
| Additional Local Assistance | \$0 | \$11,473 | \$0 | \$0 | \$100,000 |
| Total Plan Local Assistance | \$42,008 | \$42,804 | \$35,799 | \$12,410 | \$106,205 |

2. INTRODUCTION

PURPOSE OF STUDY

This study afforded the leaders and transportation providers in Johnston County, North Carolina (the Study Area) an opportunity to take an in-depth look at the public transit conditions and options in the County, identify the optimal manner in which transit can meet the public's needs, and decide where to allocate transit resources over the next five years.

This study includes a review of all aspects of service and organization for Johnston County Area Transit System (JCATS) including operations, capital programming, marketing strategies, planning, facilities, and staffing.. This plan further explores transit demand in the Study Area, rider needs, and potential future service options. The Community Transportation Service Plan (CTSP) creates an implementation plan for how to optimize service in the future to maximize benefits, efficiency, effectiveness, and resource allocation. The strategic recommendations for JCATS respond to the projected mobility needs of residents and targeted populations in Johnston County. The CTSP includes interviews with stakeholders, public outreach, technical analysis, and reviews of existing agency, local, and regional plans and policies.

STUDY VISION STATEMENT

The purpose of the Community Transportation Service Plan (CTSP) is to provide guidance for the Johnston County Area Transit System (JCATS) to continue to serve transit-dependent populations, to provide affordable transportation, to remove barriers to transportation service, and to identify transportation needs in Johnston County and provide accommodations.

STUDY GOALS

The goals of the Community Transportation Service Plan (CTSP) will fulfill the vision for the organization. The CTSP will

1. Supply the tools needed to remove barriers to providing service for JCATS and create easier access to transit for residents of Johnston County.
2. Create the institutional framework necessary to provide adequate commuter service.
3. Provide guidance on and target new transit markets in Johnston County.
4. Realize quality of life benefits for all residents of Johnston County through improved transit service.
5. Locate areas ready for the provision of new services, without degrading the current services.
6. Utilize funding sources to their maximum benefit.
7. Clarify the organizational structure of the Board of Directors for JCATS.

NCDOT COMMUNITY TRANSPORTATION SERVICE PLANS

The North Carolina Department of Transportation (NCDOT) has recognized the value of Community Transportation Service Plans (CTSPs). In NCDOT's *CTSP and Regional Feasibility Study 2009 Program Packet*, the agency acknowledged that:

2011 JOHNSTON COUNTY AREA TRANSIT SYSTEM COMMUNITY TRANSPORTATION SERVICE PLAN

'CTSPs are crucial to ensuring that North Carolina community transportation systems are making a strategically planned response to the projected mobility needs of the general public and targeted populations in their service area. Plans review the current performance and organizational direction of the transit system and recommend alternative strategies of operating or managing that increase mobility options for passengers and improve the efficiency and effectiveness of the organization and transportation services.

The goals of the planning process are to identify, evaluate, develop, recommend and implement strategies that provide planning elements for meaningful mobility options for the general public and targeted populations by allowing passengers to travel where and when they want and need to go. This community transportation plan must be developed through a public education and involvement process that includes the general public, private and non-profit transportation providers, human service providers and targeted populations that include individuals with low incomes and limited English proficiency (LEP). The result of this planning effort should produce an overall goal that the community can support.'

This CTSP will be the principle road map in accomplishing the following:

- Development and promotion of transit options that provide meaningful alternatives to citizens and connectivity of transportation services throughout the state
- Development and promotion of the full integration of the community transportation system's programs with other federal and state programs supporting public and human service transportation
- Support and promote the coordination of public transportation services across geographies, jurisdictions, and program areas for the development of a seamless transportation network.
- Improve the efficiency and effectiveness of federal/state funded transportation programs
- Support the provision of dependable mobility transportation options to the general public, low income individuals, elderly persons, and/or persons with disabilities within the guidelines and funding levels provided by NCDOT and FTA
- Support and encourage defensible, results-based budget requests and submissions from systems to NCDOT for funding

STUDY LEADERSHIP

This study was directed by a Steering Committee that included representatives from: NCDOT Public Transportation Division, JCATS leadership, Council on Aging leadership, Johnston County Department of Social Services, Johnston County Public Health Department, Johnston County Mental Health Department, Johnston County Industries, Jannie's Ride, Clayton Chamber of Commerce, Talecris, Biotherapeutics, Johnston Memorial Hospital, Johnston County Migrant Education Program, and CAMPO.

3. Study Area Background Information

STUDY AREA

Johnston County is approximately 800 square miles in combined area. The county is located in the eastern coastal plain area of North Carolina near Raleigh, Goldsboro, Fayetteville, and Wilson. Regional vehicle access to the County is provided along Interstate 95 (north/south), Interstate 40 (east/west), which intersect outside Benson. Smithfield is the County Seat of Johnston County, while Clayton is the county’s largest municipality. The municipalities located within Johnston County are shown in Table 3.1. Kenly is also in Johnston County, but according to U.S. Census geographic definitions, a portion of Kenly extends into Wilson County. Therefore, Kenly was not treated as a separate jurisdiction for demographic analysis purposes, but the town is included in County-level analysis.

Table 3.1: Johnston County Jurisdictions

| |
|----------------|
| Benson |
| Clayton |
| Four Oaks |
| Micro |
| Pine Level |
| Princeton |
| Selma |
| Smithfield |
| Wilson's Mills |

REGIONAL CONTEXT

Based on U.S. Bureau of the Census 2000 Statistics, there were 121,965 people, 46,595 households, and 33,692 families residing in Johnston County. The vast majority of Johnston County is located within the limits of the Upper Coastal Plain Rural Planning Organization (RPO) consisting of Johnston, as well as Edgecombe, Nash, and Wilson counties. The Town of Clayton is located within the Capital Area Metropolitan Planning organization (MPO), which consists of all of Wake County and portions of Johnston, Franklin, Granville, and Harnett counties. Figure 3.3 shows the planning jurisdiction context of Johnston County.

A more recent July, 2008 estimate of population by the US census was 163,428 residents. The study area has experienced an overall high level of growth in the past decades, around 50.0% from 1990 to 2000 and 34.0% from 2000 to 2008 (see Table 3.2).

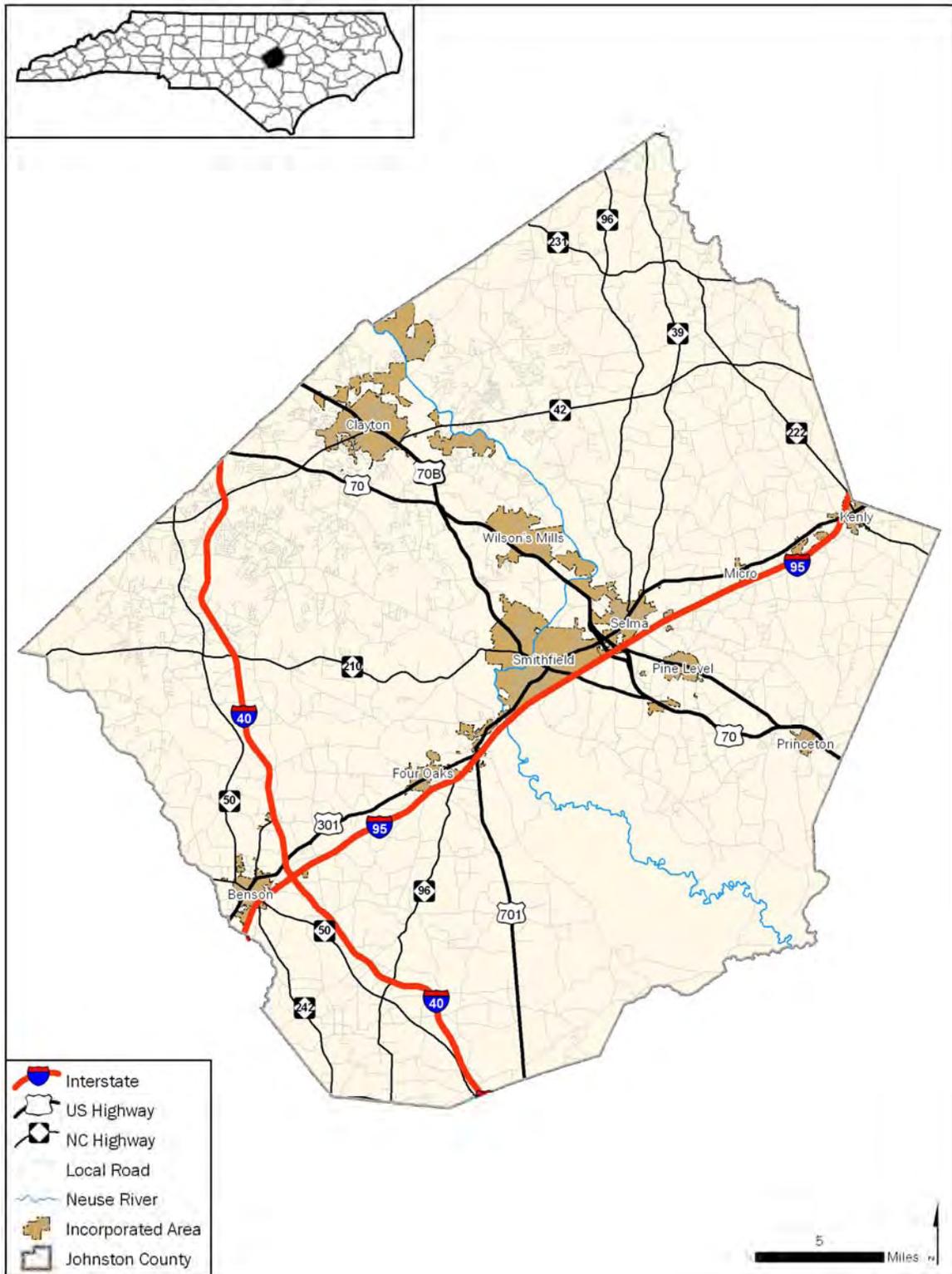
Table 3.2: Study Area Population Data

| Location | 1980 | 1990 | Change+/- 1980-1990 | 2000 | Change+/- 1990-2000 | 2008 (July) | Change+/- 2000-2008 |
|----------|------|------|------------------------|------|------------------------|----------------|------------------------|
|----------|------|------|------------------------|------|------------------------|----------------|------------------------|

2011 JOHNSTON COUNTY AREA TRANSIT SYSTEM COMMUNITY TRANSPORTATION SERVICE PLAN

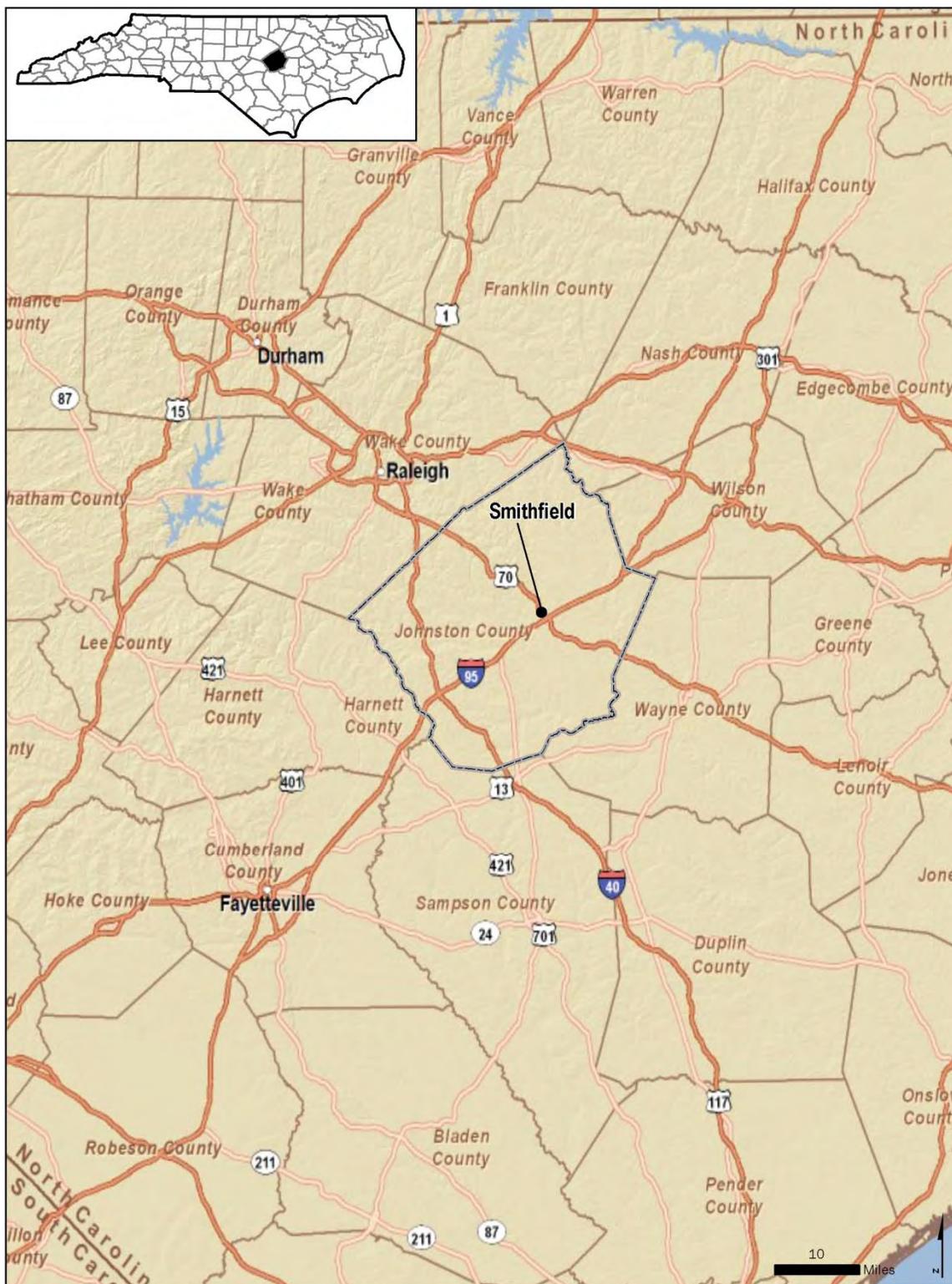
| | | | | | | | |
|--|--------|--------|-------|---------|-----|---------|-----|
| Johnston County | 70,599 | 81,306 | 15.2% | 121,965 | 50% | 163,428 | 34% |
| Source: U.S. Census Bureau; NC Office of State Budget and Management | | | | | | | |

Figure 3.1: Study Area



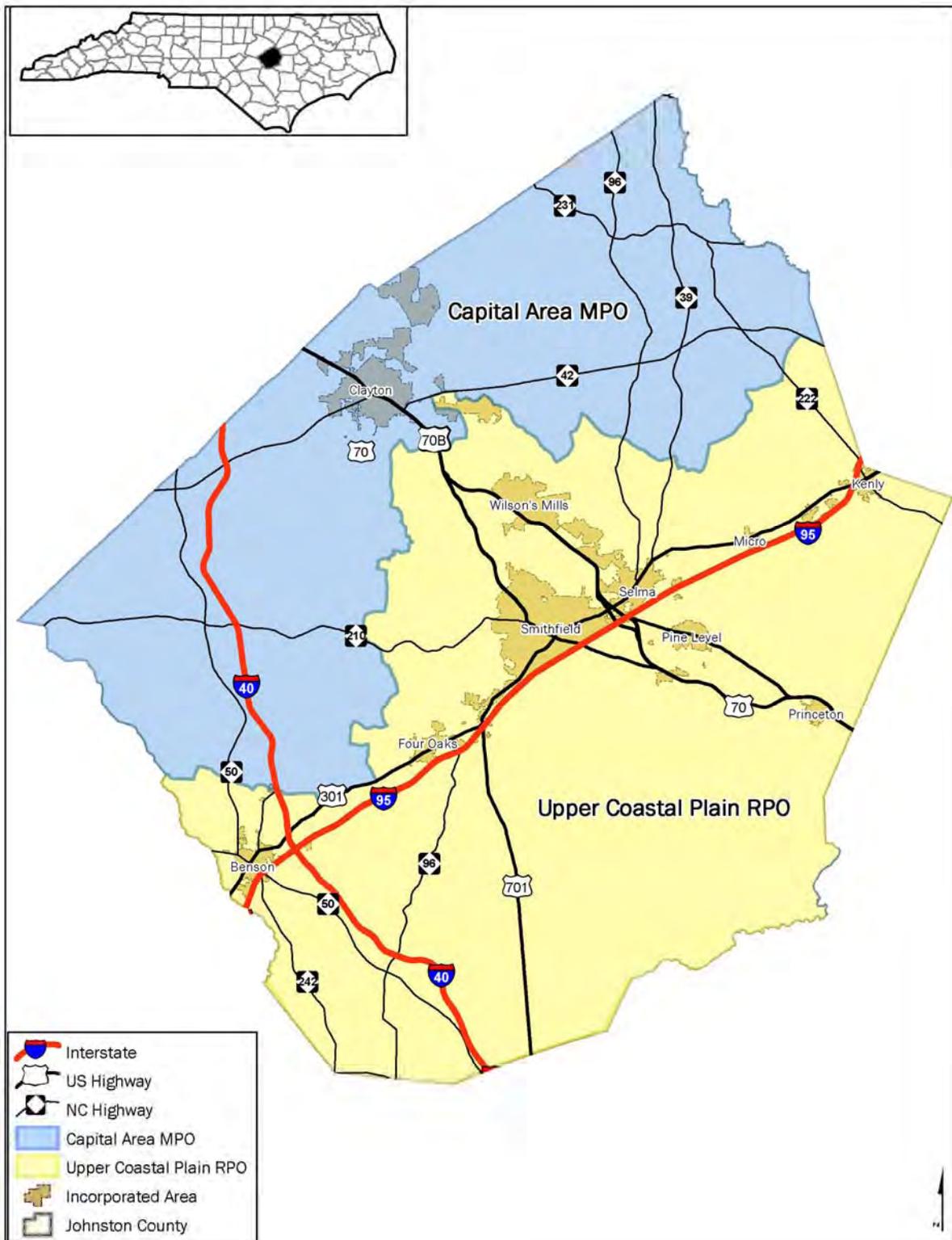
2011 JOHNSTON COUNTY AREA TRANSIT SYSTEM COMMUNITY TRANSPORTATION SERVICE PLAN

Figure 3.2: Regional Context



2011 JOHNSTON COUNTY AREA TRANSIT SYSTEM COMMUNITY TRANSPORTATION SERVICE PLAN

Figure 3.3: Regional Planning Organization Context



HISTORICAL CONTEXT

Johnston County was established in 1746, created from a portion of Craven County. The County was named after Gabriel Johnston, North Carolina’s royal governor at the time of the county’s founding. Smithfield, the county’s first incorporated area, was established in 1777 and began to flourish in the 1800’s with the construction of the North Carolina Railroad from New Bern to Charlotte. The railroad (and the later construction of the Atlantic Line) gave rise to towns such as Selma, Benson, Princeton, and Four Oaks. Johnston County is still a predominantly rural and agricultural county, with the most farms in North Carolina as well as the state’s highest total farm income.

POPULATION DATA

Historic Population

The study area’s total population in 2008 was 163,428. Table 3.3 shows 2008 population data for each consolidated place in Johnston County, along with their trends since the 1990 and 2000 Census.

Table 3.3: Study Area Jurisdiction Population Change

| Jurisdiction | Population | | | Change in Population | |
|--|---------------|----------------|----------------|----------------------|--------------|
| | 1990 | 2000 | 2008 | 1990-2000 | 2000-2008 |
| Benson, North Carolina | 2,810 | 2,923 | 3,495 | 4.0% | 19.6% |
| Clayton, North Carolina | 4,756 | 6,973 | 15,841 | 46.6% | 127.2% |
| Four Oaks, North Carolina | 1,308 | 1,424 | 2,053 | 8.9% | 44.2% |
| Micro, North Carolina | 417 | 454 | 537 | 8.9% | 18.3% |
| Pine Level, North Carolina | 1,217 | 1,313 | 1,774 | 7.9% | 35.1% |
| Princeton, North Carolina | 1,181 | 1,066 | 1,287 | -9.7% | 20.7% |
| Selma, North Carolina | 4,600 | 5,914 | 6,948 | 28.6% | 17.5% |
| Smithfield, North Carolina | 7,540 | 11,510 | 12,965 | 52.7% | 12.6% |
| Wilson's Mills, North Carolina | n/a | 1,291 | 1,598 | n/a | 23.8% |
| Subtotal - Incorporated Areas | 23,829 | 32,868 | 46,498 | 37.9% | 41.5% |
| Subtotal - Unincorporated Areas | 57,477 | 89,097 | 116,930 | 55.0% | 31.2% |
| Total - Johnston County | 81,306 | 121,965 | 163,428 | 50.0% | 34.0% |
| Sources: 1 - 1990 U.S. Census Data 2 - 2000 U.S. Census Data 3 - U.S. Census Data: Population Estimates Program Data 2008 | | | | | |

As shown in the table, the town of Clayton has the largest population in the county, followed by Smithfield, the county seat. The county’s population grew by approximately 50 percent between 1990 and 2000 and by 34% between 2000 and 2008.

Future Projected Growth

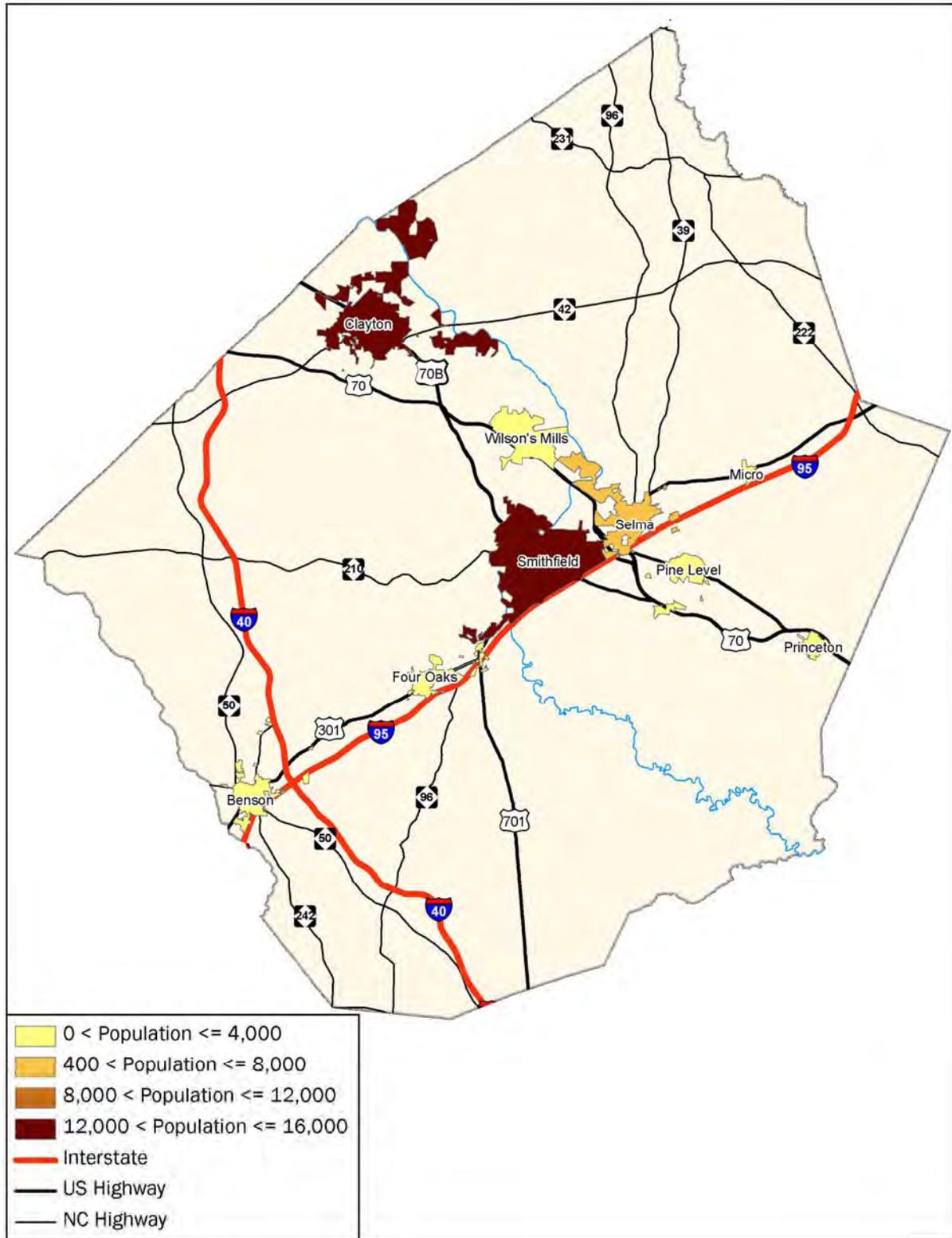
The entire study area population forecasts for 2010, 2020, and 2030 are shown in Table 3.4. The population is expected to reach 281,023 by 2030, representing almost a 250% percent increase over 1990 levels. Annual population growth rate, which was 5.0% between 1990 and 2000, is expected to decrease over time to 2.36% between 2020 and 2030. This means the County will still continue to see considerable growth in the future, but at a slower rate than in the past few decades.

Table 3.4: Forecast Study Area Population Growth

| Year | Population | Growth in Decade | % Growth in Decade | Growth since 1990 | % Growth since 1990 |
|------|------------|------------------|--------------------|-------------------|---------------------|
| 1990 | 81,306 | | | | |
| 2000 | 121,965 | 40,659 | 50.0% | 40,659 | 50.0% |
| 2010 | 173,669 | 51,704 | 42.4% | 92,363 | 113.6% |
| 2020 | 227,347 | 53,678 | 30.9% | 146,041 | 179.6% |
| 2030 | 281,023 | 53,676 | 23.6% | 199,717 | 245.6% |

Source: North Carolina Office of State Budget and Management, County Projected Annual Populations 2000-2030

Figure 3.4: Johnston County Jurisdiction Population



TRANSIT DEPENDENT POPULATIONS

Transit system ridership is drawn largely from various groups of persons that make up a population that is often called “transit dependent.” This category represents members of a community that have very few or no private transportation options available, due to age, disability, economic status, etc. There is often considerable overlap between the groups that make up the transit dependent population, which include youths, seniors, mobility impaired persons, persons with limited English proficiency, persons who live below the poverty line, and persons residing in zero- or single-vehicle households. The figures showing the spatial distribution of these groups are grouped together at the conclusion of this section.

Based on data from the 2000 Census (which represents the most recent, reliable data set available for the area), information about the number and location of transit dependent persons was evaluated at the Census block group level. The Census block groups in Johnston County are shown in Figure 3.5

Total Population

As indicated in Table 3.3, the total population of the study area was estimated at 122,000 in 2000. This translates to a population density of approximately 155 persons per square mile. The Study Area’s population density is close to the statewide average of 165 persons per square mile. In general, the areas with the highest population density in the study area are located in and around Selma and Princeton.

Table 3.5 and Figure 3.7 show the average household size by block group in the study area, an alternative means of measuring population density. The average household size in the study area is about 2.58, which is slightly higher than the state average of 2.49. In terms of the average number of households per square mile, Selma and Princeton have much higher household densities than the county overall and North Carolina.

Table 3.5: Average Household Size in the Study Area

| Geography | Average household size | Total Number of Households | Area in Sq. Miles | Average Households per Sq. Mile |
|-----------------|------------------------|----------------------------|-------------------|---------------------------------|
| Benson | 2.38 | 1,230 | 2.13 | 577.5 |
| Clayton | 2.52 | 2,768 | 5.4 | 512.6 |
| Four Oaks | 2.32 | 614 | 1.07 | 573.8 |
| Micro | 2.15 | 211 | 0.41 | 514.6 |
| Pine Level | 2.22 | 592 | 1.06 | 558.5 |
| Princeton | 2.26 | 471 | 0.68 | 692.6 |
| Selma | 2.61 | 2,254 | 3.23 | 697.8 |
| Smithfield | 2.30 | 4,417 | 11.44 | 386.1 |
| Wilson's Mills | 2.78 | 465 | 3.67 | 126.7 |
| Johnston County | 2.58 | 46,595 | 795.79 | 58.6 |
| North Carolina | 2.49 | 3,132,013 | 48,710.88 | 64.3 |

Source: 2000 U.S. Census Data

Youth

As indicated in Table 3.6, the total youth population (persons aged 10-14) in the entire study area is 8,294 (6.8 percent of the total population), or a population density of 10.4 persons per square mile (see Figure 3.8). This group typically has a strong propensity to use fixed-route public transportation services, as they are old enough to travel independently but too young to drive a private automobile. In general, the areas with the highest density of youths are in the towns of Selma and Princeton.

Table 3.6: Youth Population in the Study Area

| Jurisdiction | Ages 10-14 | Total Population | Area in sq. miles | Average Youth Density per Sq. Mile | Youth % of population |
|-----------------|------------|------------------|-------------------|------------------------------------|-----------------------|
| Benson | 198 | 2,923 | 2.13 | 93.0 | 6.8% |
| Clayton | 464 | 6,973 | 5.4 | 85.9 | 6.7% |
| Four Oaks | 96 | 1,424 | 1.07 | 89.7 | 6.7% |
| Micro | 34 | 454 | 0.41 | 82.9 | 7.5% |
| Pine Level | 82 | 1,313 | 1.06 | 77.4 | 6.2% |
| Princeton | 70 | 1,066 | 0.68 | 102.9 | 6.6% |
| Selma | 421 | 5,914 | 3.23 | 130.3 | 7.1% |
| Smithfield | 658 | 11,510 | 11.44 | 57.5 | 5.7% |
| Wilson's Mills | 115 | 1,291 | 3.67 | 31.3 | 8.9% |
| Johnston County | 8,294 | 121,965 | 795.79 | 10.4 | 6.8% |
| North Carolina | 551367 | 8,049,313 | 48,710.88 | 11.3 | 6.8% |

Source: 2000 U.S. Census Data

Seniors

As indicated in Table 3.7, the total senior population (persons age 60 and over) in the entire study area is 16,638 (13.6 percent of the total population), or a population density of 20.9 persons per square mile (See Figure 3.9). This group typically has a strong propensity to use both fixed-route and demand-responsive public transportation services, as many have economic, medical, or other issues that limit independent travel by private automobile. In general, the areas with the highest density of seniors are in the Towns of Princeton, Pine Level, and Selma.

Table 3.7: Senior Population in the Study Area

| Location | Seniors (Age 60+) | Total Population | Area in Sq. Miles | Average Senior Density per Sq. Mile | Senior % of Population |
|------------|-------------------|------------------|-------------------|-------------------------------------|------------------------|
| Benson | 554 | 2,923 | 2.1 | 260.1 | 19.0% |
| Clayton | 938 | 6,973 | 5.4 | 173.7 | 13.5% |
| Four Oaks | 275 | 1,424 | 1.1 | 257.0 | 19.3% |
| Micro | 122 | 454 | 0.4 | 297.6 | 26.9% |
| Pine Level | 304 | 1,313 | 1.1 | 286.8 | 23.2% |
| Princeton | 256 | 1,066 | 0.7 | 376.5 | 24.0% |

2011 JOHNSTON COUNTY AREA TRANSIT SYSTEM COMMUNITY TRANSPORTATION SERVICE PLAN

| | | | | | |
|-------------------------------|-----------|-----------|----------|-------|-------|
| Selma | 898 | 5,914 | 3.2 | 278.0 | 15.2% |
| Smithfield | 2690 | 11,510 | 11.4 | 235.1 | 23.4% |
| Wilson's Mills | 118 | 1,291 | 3.7 | 32.2 | 9.1% |
| Johnston County | 16,638 | 121,965 | 795.8 | 20.9 | 13.6% |
| North Carolina | 1,292,553 | 8,049,313 | 48,710.9 | 26.5 | 16.1% |
| Source: 2000 U.S. Census Data | | | | | |

Mobility-Impaired Persons

As indicated in Table 3.8, the total mobility-impaired population in the study area (persons having a health condition lasting more than six months that makes it difficult to go outside the home alone) is 24,361 (20.0 percent of the total population), or a population density of 30.6 persons per square mile (Figure 3.10). This group typically has a strong propensity to use both fixed-route and demand-responsive public transportation services, though mobility-impaired persons typically favor the use of the demand-responsive service.

Table 3.8: Mobility-Impaired Population in the Study Area

| Location | Mobility-Impaired Population | Total Population | Area in Sq. miles | Mobility-Impaired Persons Density per Sq. mile | Mobility-Impaired % of Population |
|-------------------------------|------------------------------|------------------|-------------------|--|-----------------------------------|
| Johnston County | 24,361 | 121,965 | 795.8 | 30.6 | 20.0% |
| North Carolina | 1,540,365 | 8,049,313 | 49,353.3 | 31.2 | 19.1% |
| Source: 2000 U.S. Census Data | | | | | |

Limited English

As indicated in Table 3.9 and Figure 3.11, the total limited-English population in the study area (persons who do not primarily speak English at home) is 12,190 (10.0 percent of the total population), or a population density of 15.3 persons per square mile. This group typically has a strong propensity to use both fixed-route and demand-responsive public transportation services, as they may not be able to qualify for a driver's license due to language barriers. Limited English persons tend to use fixed-route service, often because of the increased difficulty of communicating during the scheduling of demand-responsive service. Additionally, foreign-born persons, especially from Central and South America, have typically used public transportation in their home country.

Table 3.9: Limited English Population in the Study Area

| Location | Limited English Population | Total Population | Area in Sq. miles | Limited English Persons Density per Sq. mile | Limited English- % of Population |
|-------------------------------|----------------------------|------------------|-------------------|--|----------------------------------|
| Johnston County | 12,190 | 121,965 | 795.8 | 15.3 | 10.0% |
| North Carolina | 587,756 | 8,049,313 | 49,353.3 | 11.9 | 7.3% |
| Source: 2000 U.S. Census Data | | | | | |

Poverty

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As indicated in Table 3.10, the total persons who live below the poverty line population in the study area is 15,399 (12.6 percent of the total population), or a population density of 19.4 persons per square mile. This group typically has a strong propensity to use both fixed-route and demand-responsive public transportation services, since many are unable to afford to buy and maintain a private automobile. In general, the areas with the highest density of mobility-impaired persons are in the Town of Selma, but also in Princeton and Benson (see Figure 3.12).

Table 3.10: Below Poverty Population in the Study Area

| Location | Below-Poverty Population | Total Population | Area in Sq. Miles | Below-Poverty Population Density per Sq. Mile | Below-Poverty % of Population |
|-----------------|--------------------------|------------------|-------------------|---|-------------------------------|
| Benson | 750 | 2,923 | 2.13 | 352.1 | 25.7% |
| Clayton | 779 | 6,973 | 5.4 | 144.3 | 11.2% |
| Four Oaks | 250 | 1,424 | 1.07 | 233.6 | 17.6% |
| Micro | 41 | 454 | 0.41 | 100.0 | 9.0% |
| Pine Level | 170 | 1,313 | 1.06 | 160.4 | 12.9% |
| Princeton | 252 | 1,066 | 0.68 | 370.6 | 23.6% |
| Selma | 1,748 | 5,914 | 3.23 | 541.2 | 29.6% |
| Smithfield | 2,092 | 11,510 | 11.44 | 182.9 | 18.2% |
| Wilson's Mills | 128 | 1,291 | 3.67 | 34.9 | 9.9% |
| Johnston County | 15,399 | 121,965 | 795.79 | 19.4 | 12.6% |
| North Carolina | 958,667 | 8,049,313 | 48,710.88 | 19.7 | 11.9% |

Source: 2000 U.S. Census Data

Zero-Vehicle Households

As shown in Table 3.11 and Figure 3.13, the total number of households without access to a personal vehicle in the study area is 3,239 (7 percent of the total households), or a density of 4.1 households per square mile. The percentage of zero-vehicle households is more than twice as high in the City of Selma (19.4 percent) than it is in the State of North Carolina overall (7.5 percent). This group typically has a strong propensity to use both fixed-route and demand-responsive public transportation services, since they do not have access to an operable private automobile. In general, the areas with the highest density of households without access to a personal vehicle are in the City of Selma, particularly areas around downtown.

Table 3.11: Zero-Vehicle Households in the Study Area

| Location | Zero Car Households | Total Households | Area in Sq. Miles | Zero-Car Households Density per Sq. Mile | Zero-Car Households-% of all Households |
|------------|---------------------|------------------|-------------------|--|---|
| Benson | 184 | 1,230 | 2.13 | 86.4 | 15.0% |
| Clayton | 288 | 2,768 | 5.4 | 53.3 | 10.4% |
| Four Oaks | 74 | 614 | 1.07 | 69.2 | 12.1% |
| Micro | 32 | 211 | 0.41 | 78.0 | 15.2% |
| Pine Level | 53 | 592 | 1.06 | 50.0 | 9.0% |

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| | | | | | |
|-------------------------------|---------|-----------|-----------|-------|-------|
| Princeton | 63 | 471 | 0.68 | 92.6 | 13.4% |
| Selma | 437 | 2,254 | 3.23 | 135.3 | 19.4% |
| Smithfield | 678 | 4,417 | 11.44 | 59.3 | 15.3% |
| Wilson's Mills | 26 | 465 | 3.67 | 7.1 | 5.6% |
| Johnston County | 3,239 | 46,595 | 795.79 | 4.1 | 7.0% |
| North Carolina | 235,339 | 3,132,013 | 48,710.88 | 4.8 | 7.5% |
| Source: 2000 U.S. Census Data | | | | | |

One-Vehicle Households

As indicated in Table 3.12 and Figure 3.14, the total households with access to only one personal vehicle in the study area is 13,391 (28.7 percent of the total households), or a density of 16.8 households per square mile. This group typically has a strong propensity to use both fixed-route and demand-responsive public transportation services, since the household private automobile is shared, particularly if a household member uses the sole vehicle during the day to travel to and from work. In general, the areas with the highest density of households with access to only one personal vehicle are in the City of Selma as well as in the City of Princeton.

Table 3.12: One-Vehicle Households in the Study Area

| Geography | One Car | Total Number of Households | Area in Sq. Miles | One-Car Household Density per Sq. Mile | One Car Household -% of all Households |
|-------------------------------|-----------|----------------------------|-------------------|--|--|
| Benson | 496 | 1,230 | 2.13 | 232.9 | 40.3% |
| Clayton | 890 | 2,768 | 5.4 | 164.8 | 32.2% |
| Four Oaks | 239 | 614 | 1.07 | 223.4 | 38.9% |
| Micro | 88 | 211 | 0.41 | 214.6 | 41.7% |
| Pine Level | 250 | 592 | 1.06 | 235.8 | 42.2% |
| Princeton | 191 | 471 | 0.68 | 280.9 | 40.6% |
| Selma | 891 | 2,254 | 3.23 | 275.9 | 39.5% |
| Smithfield | 1,718 | 4,417 | 11.44 | 150.2 | 38.9% |
| Wilson's Mills | 124 | 465 | 3.67 | 33.8 | 26.7% |
| Johnston County | 13,391 | 46,595 | 795.79 | 16.8 | 28.7% |
| North Carolina | 1,010,563 | 3,132,013 | 48,710.88 | 20.7 | 32.3% |
| Source: 2000 U.S. Census Data | | | | | |

Figure 3.5: U.S. Census Block Groups in the Study Area

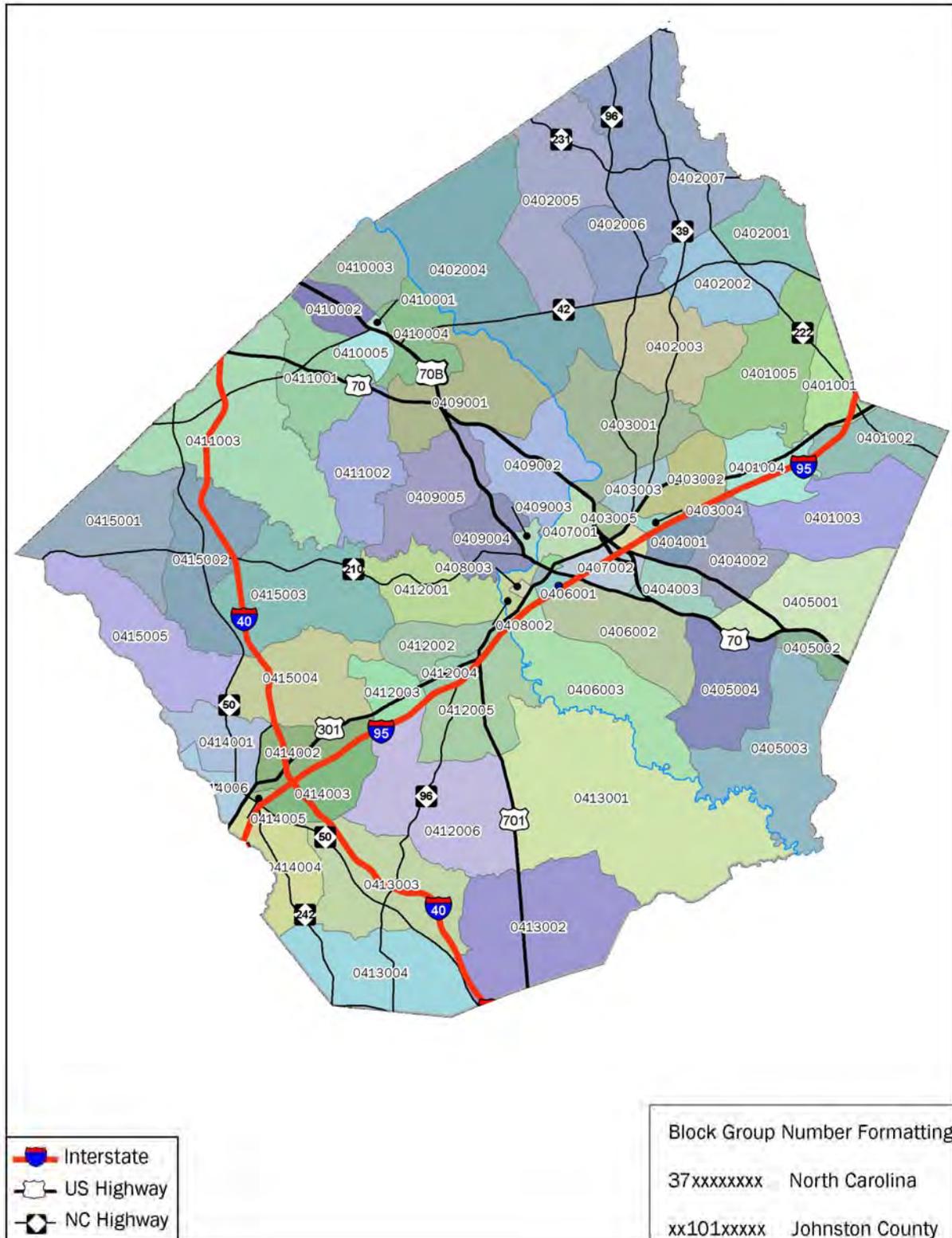


Figure 3.6: Johnston County Population Density

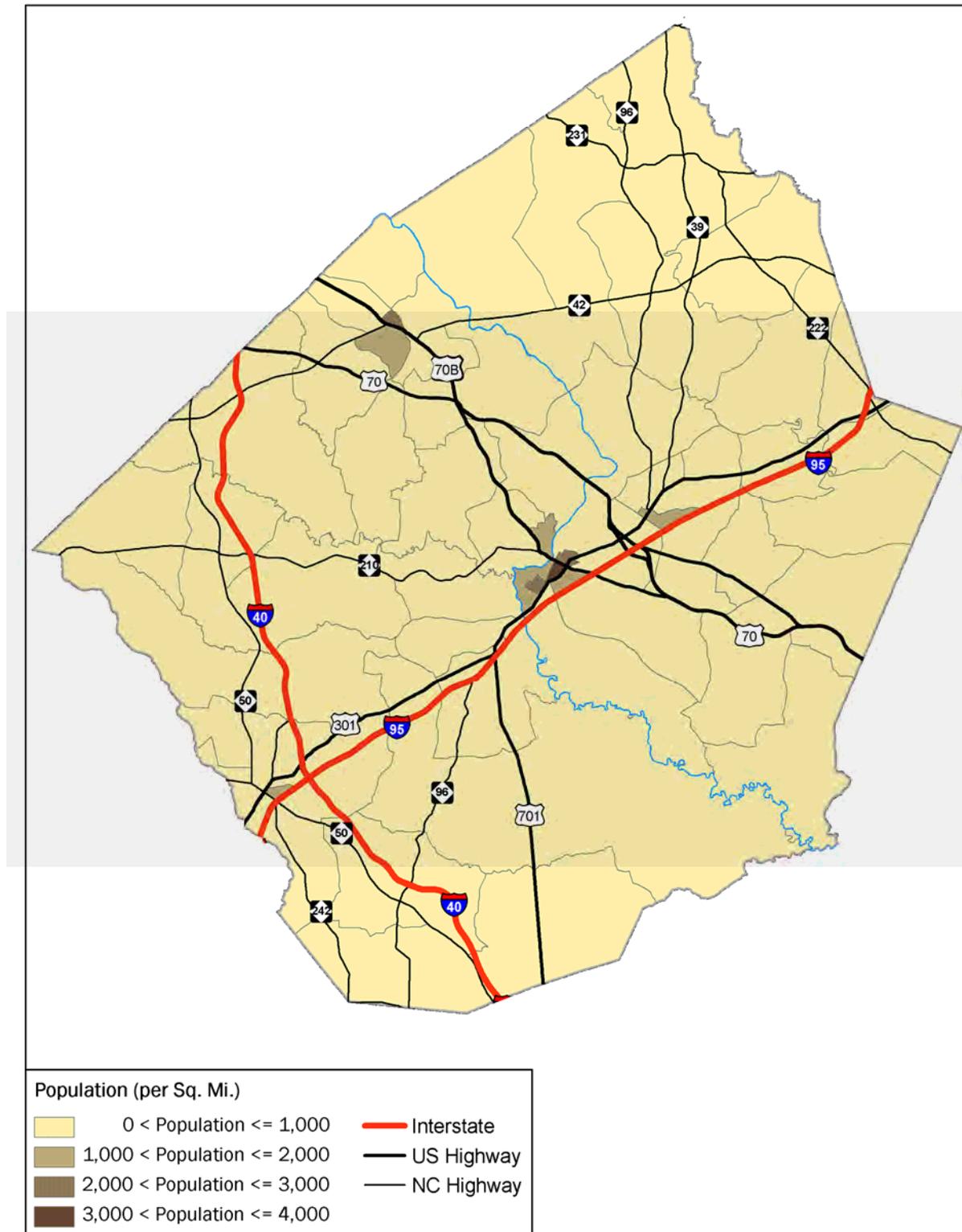


Figure 3.7: Johnston County Average Household Size

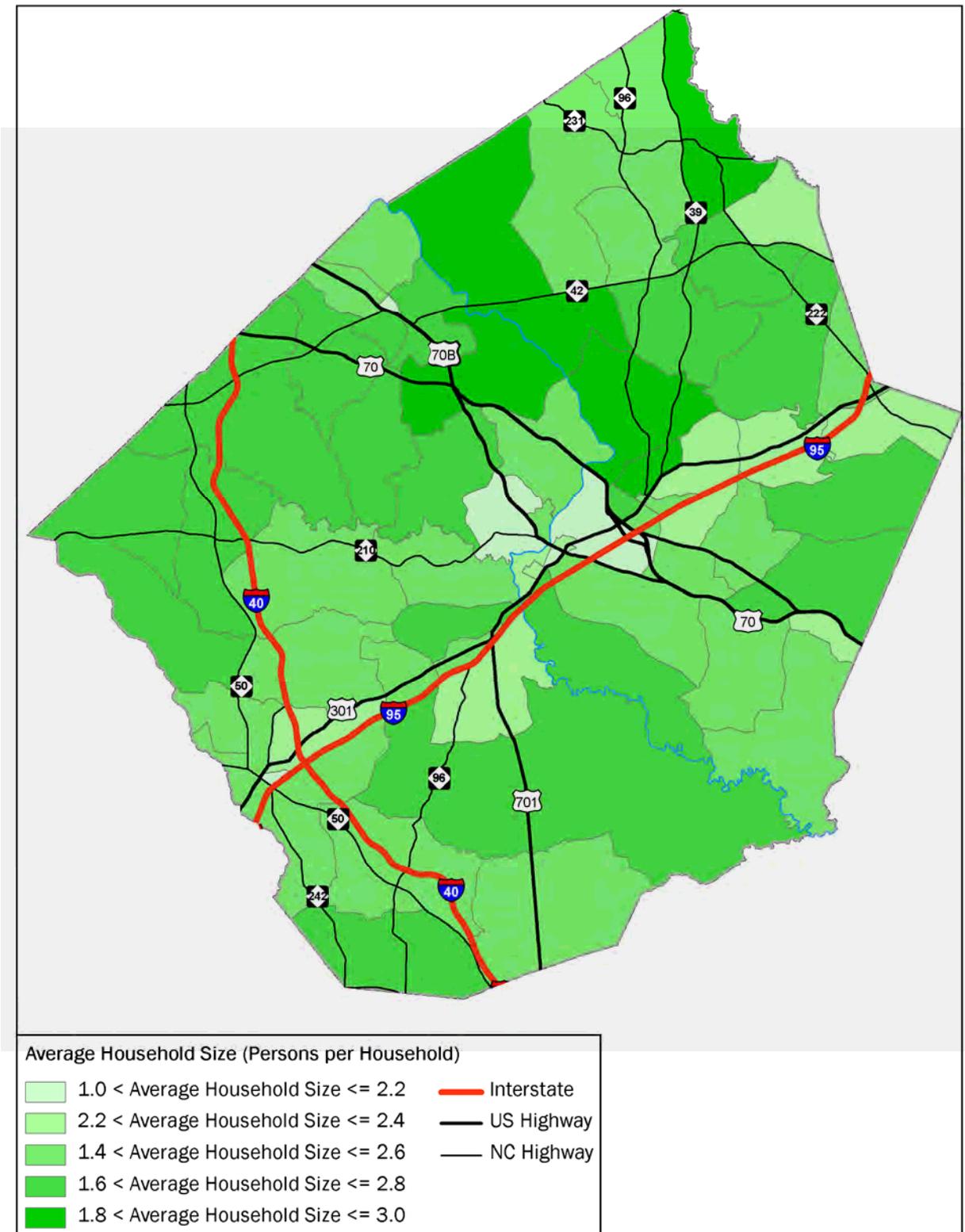


Figure 3.8: Johnston County Youth Population Density

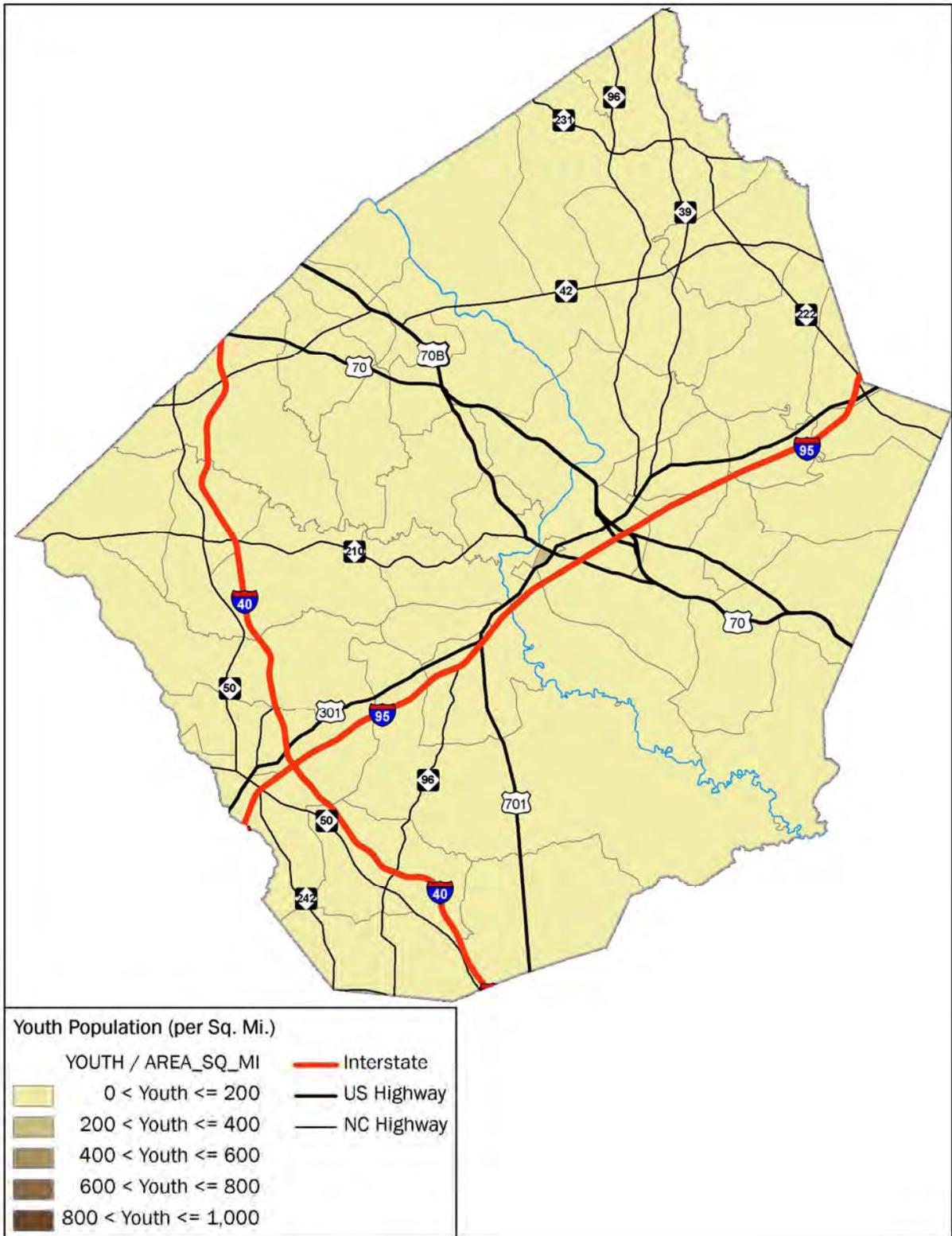


Figure 3.9: Johnston County Senior Population Density

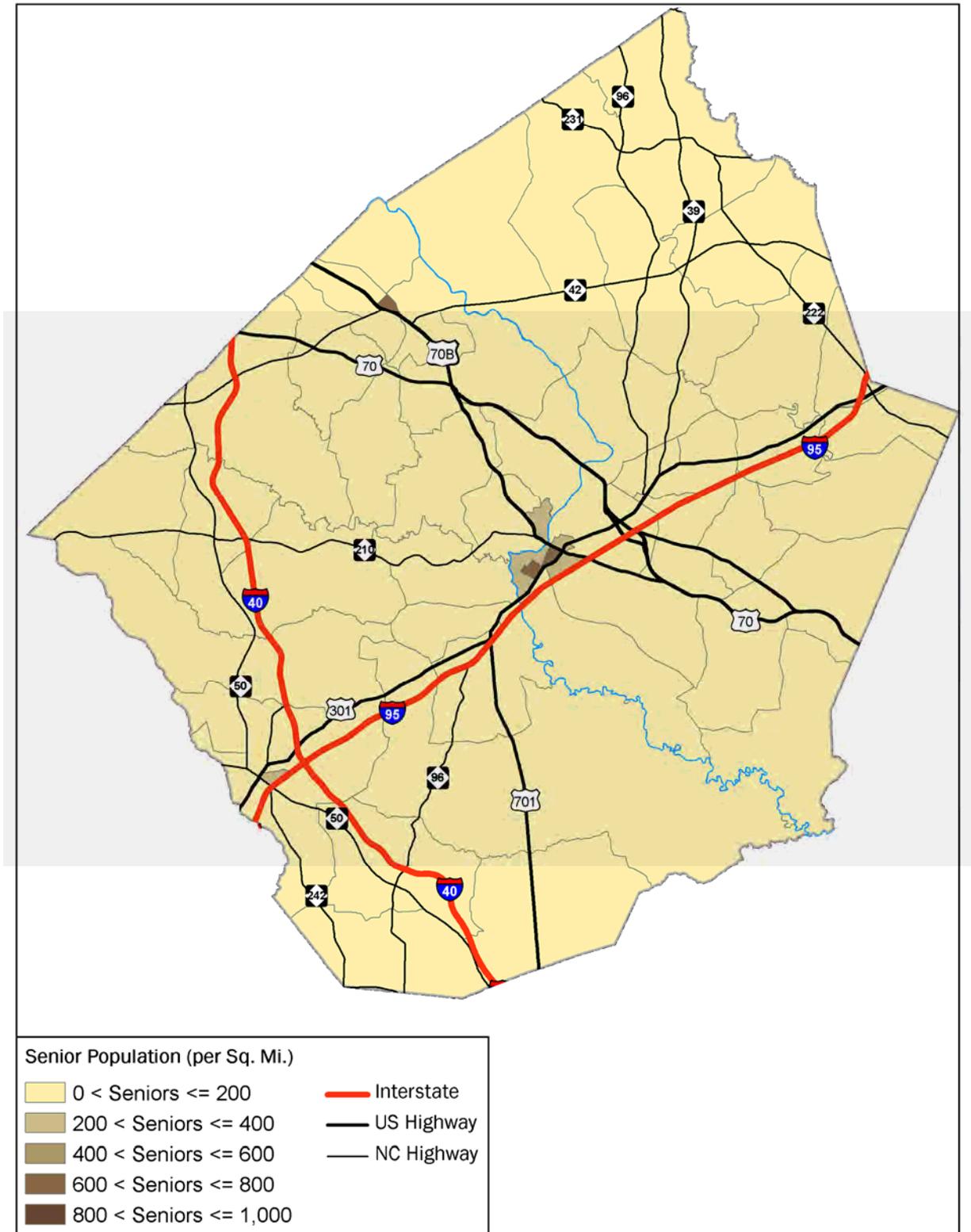


Figure 3.10: Johnston County Mobility-Impaired Population Density



Figure 3.11 Johnston County Limited-English Population Density

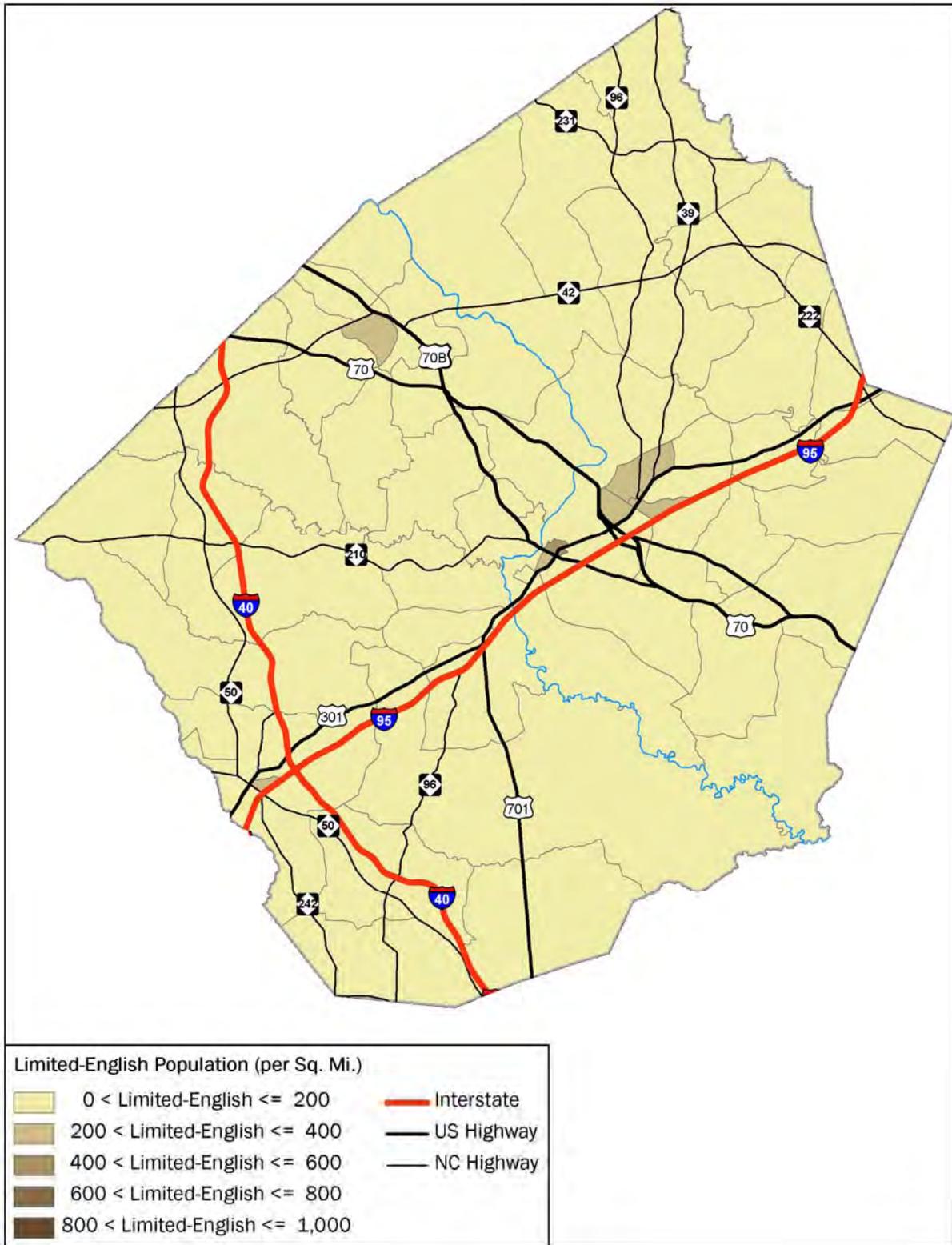


Figure 3.12 Johnston County Below-Poverty Population Density

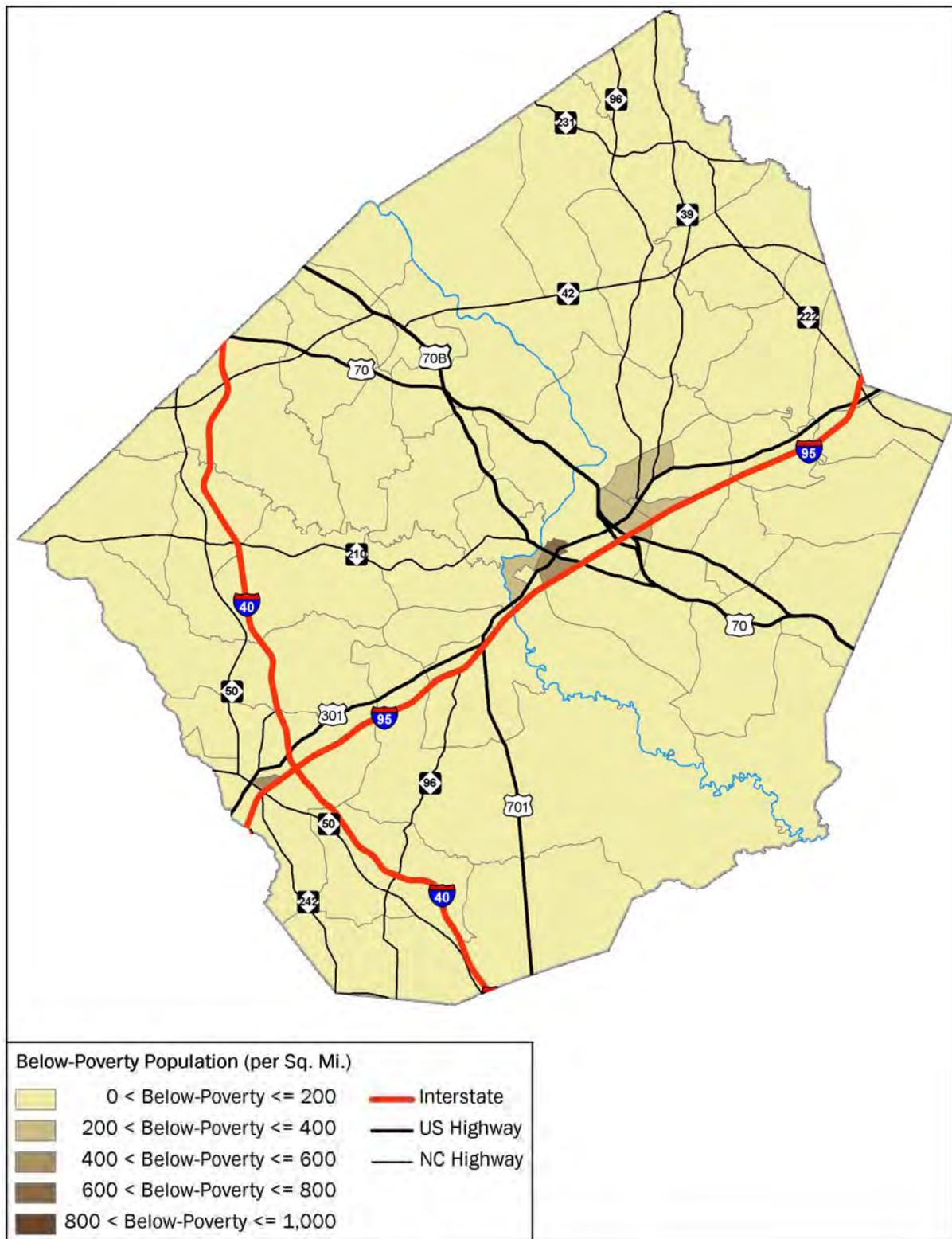


Figure 3.13 Johnston County Zero-vehicle Household Density



Figure 3.14 Johnston County One-vehicle Household Density

EMPLOYMENT DATA

Historically, the economy in the Study Area is based on agriculture, and that remains true today. Table 3.13 presents the labor force data for Johnston County. As shown, the Study Area’s unemployment rate in 2000 (2.6 percent) was lower than the statewide unemployment rate (3.4 percent). However, unemployment has risen substantially in recent years; according to November, 2010, data from the Bureau of Labor Statistics, unemployment in Johnston County is currently 9.3% which is still slightly less than the statewide rate of 9.7%. Additionally, 33.1 percent of the study area’s population aged 16 and over was *not* in the labor force in 2000 reflecting in part the high proportion of retired residents.

Table 3.13: Johnston County Employment Data

| Location | Population over 16 in Labor Force (%) | Population over 16 not in Labor Force (%) | Unemployed (%) |
|-----------------|---------------------------------------|---|----------------|
| Benson | 61.8% | 38.2% | 4.2% |
| Clayton | 73.7% | 26.3% | 2.6% |
| Four Oaks | 62.5% | 37.5% | 3.6% |
| Micro | 65.3% | 34.7% | 3.4% |
| Pine Level | 56.0% | 44.0% | 3.8% |
| Princeton | 57.6% | 42.4% | 3.6% |
| Selma | 54.2% | 45.8% | 2.9% |
| Smithfield | 48.2% | 51.8% | 2.8% |
| Wilson's Mills | 71.8% | 28.2% | 2.0% |
| Johnston County | 66.9% | 33.1% | 2.6% |
| North Carolina | 65.7% | 34.3% | 3.4% |

Source: 2000 U.S. Census Data, 2008 U.S. Census Data, U.S. Bureau of Labor Statistics

Table 3.14 shows major employers in Johnston County, based on data collected by the Employment Security Commission of North Carolina in 2009. Manufacturing and retail/service based sectors along with educational, health and social services, account for most of the large employers in the study area. The area does not include any military bases, major universities, or major tourist destinations. According to the Employment Security Commission of North Carolina, the largest employer in the study area is the Johnston County Schools system). Other employers with more than 1,000 employees include Talecris Biotherapeutics and Johnston Memorial Hospital Authority. Figure 3.15 shows employment concentration in Johnston County.

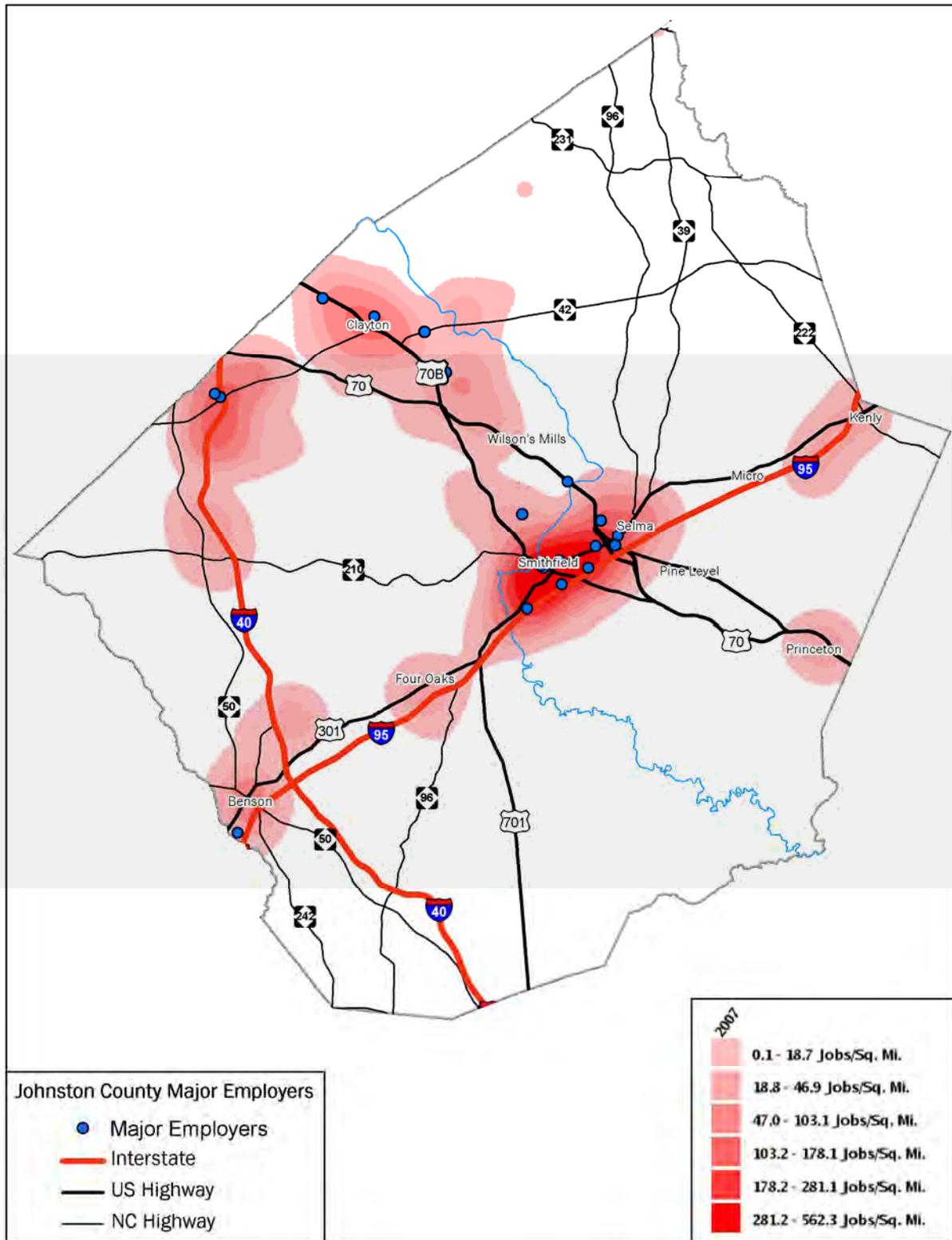
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Table 3.14: Major Employers in Johnston County

| Company Name | Employment Range | Industry |
|--------------------------------------|-------------------------|------------------------------------|
| Johnston County Schools | 1,000+ | Education & Health Services |
| Talecris Biotherapeutics Inc | 1,000+ | Manufacturing |
| Johnston Memorial Hospital Authority | 1,000+ | Education & Health Services |
| County Of Johnston | 500-999 | Public Administration |
| Wal-Mart Associates Inc | 500-999 | Trade, Transportation, & Utilities |
| Asplundh Tree Expert Co | 500-999 | Professional & Business Services |
| Bayer | 500-999 | Manufacturing |
| Johnston Technical Institute | 500-999 | Education & Health Services |
| Flanders Airpure N. C. Division | 500-999 | Manufacturing |
| 9.99 Stockroom | 500-999 | Trade, Transportation, & Utilities |
| Food Lion Llc | 250-499 | Trade, Transportation, & Utilities |
| Novo Nordisk Pharmaceutical | 250-499 | Manufacturing |
| Caterpillar Inc | 250-499 | Manufacturing |
| Sysco Raleigh Llc | 250-499 | Trade, Transportation, & Utilities |
| Town Of Smithfield | 250-499 | Public Administration |
| State Of Nc Dept Of Correction | 250-499 | Public Administration |
| Chicopee Inc T/A Polymer Group Inc | 250-499 | Manufacturing |
| Statesville Auto Auction | 250-499 | Trade, Transportation, & Utilities |
| Lowes Home Centers Inc | 250-499 | Trade, Transportation, & Utilities |
| F & D Huebner Llc T/A Mcdonalds | 250-499 | Leisure & Hospitality |
| Town Of Clayton | 100-249 | Public Administration |
| Tri-Arc Food Systems Inc. | 100-249 | Leisure & Hospitality |
| Corestaff Services Lp | 100-249 | Professional & Business Services |
| Britthaven Inc | 100-249 | Education & Health Services |
| Preferred Home Care Inc | 100-249 | Education & Health Services |

Source: Employment Security Commission of North Carolina (third quarter 2009 data)

Figure 3.15 Johnston County Major Employers



MAJOR ACTIVITY CENTERS

Quality transportation services should be provided to major activity centers within the Study Area. These major activity centers include the following:

- Medical:
 - Johnston Medical Center – Clayton
 - Johnston Medical Center - Smithfield
 - Medical Clinics
 - Doctor/Dental/Vision Offices
 - County Public Health Services
 - Drug & Alcohol Services
 - Pregnancy Support
- Government:
 - City Halls
 - County government offices
 - Post Office
 - Courthouse
- Social Services
- Recreational/Social:
 - Religious Facilities
 - Parks
 - Library
 - Boys & Girls Clubs
- Educational:
 - Johnston Community College
- Retail:
 - Downtown shopping areas
 - Shopping malls:
 - Wal-mart
 - Drug Stores
 - Grocery Stores
 - Retail Outlet Centers

REGIONAL TRAVEL PATTERNS

Table 3.15 shows in which county Johnston County residents work. Table 3.16 shows what the home county is for Johnston County workers.

Table 3.15: Johnston County Residents by Workplace County

| Workplace | Employees | Percent of Residents |
|---|------------------|-----------------------------|
| Johnston County | 26,971 | 46.0% |
| Wake County | 23,628 | 40.3% |
| Durham County | 1,645 | 2.8% |
| Harnett County | 1,399 | 2.4% |
| Wayne County | 1,142 | 1.9% |
| Wilson County | 1,051 | 1.8% |
| Cumberland County | 422 | 0.7% |
| Nash County | 307 | 0.5% |
| Orange County | 246 | 0.4% |
| Sampson County | 200 | 0.3% |
| Lee County | 187 | 0.3% |
| Chatham County | 124 | 0.2% |
| Granville County | 107 | 0.2% |
| All Other Locations | 1,246 | 2.1% |
| Total | 58,675 | 100.0% |
| Source: 2000 U.S. Census Data: County-to-County Worker Flow Files | | |

Table 3.16: Johnston County Workers by Residence County

| Residence | Employees | Percent of Workers |
|---|---------------|--------------------|
| Johnston County | 26,971 | 69.8% |
| Wake County | 4,050 | 10.5% |
| Wayne County | 2,007 | 5.2% |
| Harnett County | 1,521 | 3.9% |
| Sampson County | 851 | 2.2% |
| Wilson County | 749 | 1.9% |
| Durham County | 409 | 1.1% |
| Cumberland County | 352 | 0.9% |
| Franklin County | 282 | 0.7% |
| Nash County | 210 | 0.5% |
| Orange County | 105 | 0.3% |
| Pitt County | 103 | 0.3% |
| All Other Locations | 1,021 | 2.6% |
| Total | 38,631 | 100.0% |
| Source: 2000 U.S. Census Data: County-to-County Worker Flow Files | | |

Figure 3.16 shows the concentration of employment for the region around Johnston County. As expected, Raleigh and its first ring suburbs have a high concentration of jobs per square mile. However, the Smithfield / Selma area also has a high density of jobs. Other areas with higher concentrations of jobs include Wilson and Goldsboro.

Figure 3.17 shows the combined Johnston County journey-to-work flows. These data show that less than 50% of Johnston County residents remain in the county to work, with approximately 40% commuting to Wake County. There is much more out-commuting (to work outside Johnston County) than in-commuting (to work inside Johnston county), largely due to the area’s proximity to Raleigh and the Research Triangle.

Figure 3.16 Employment Locations of Johnston County Residents

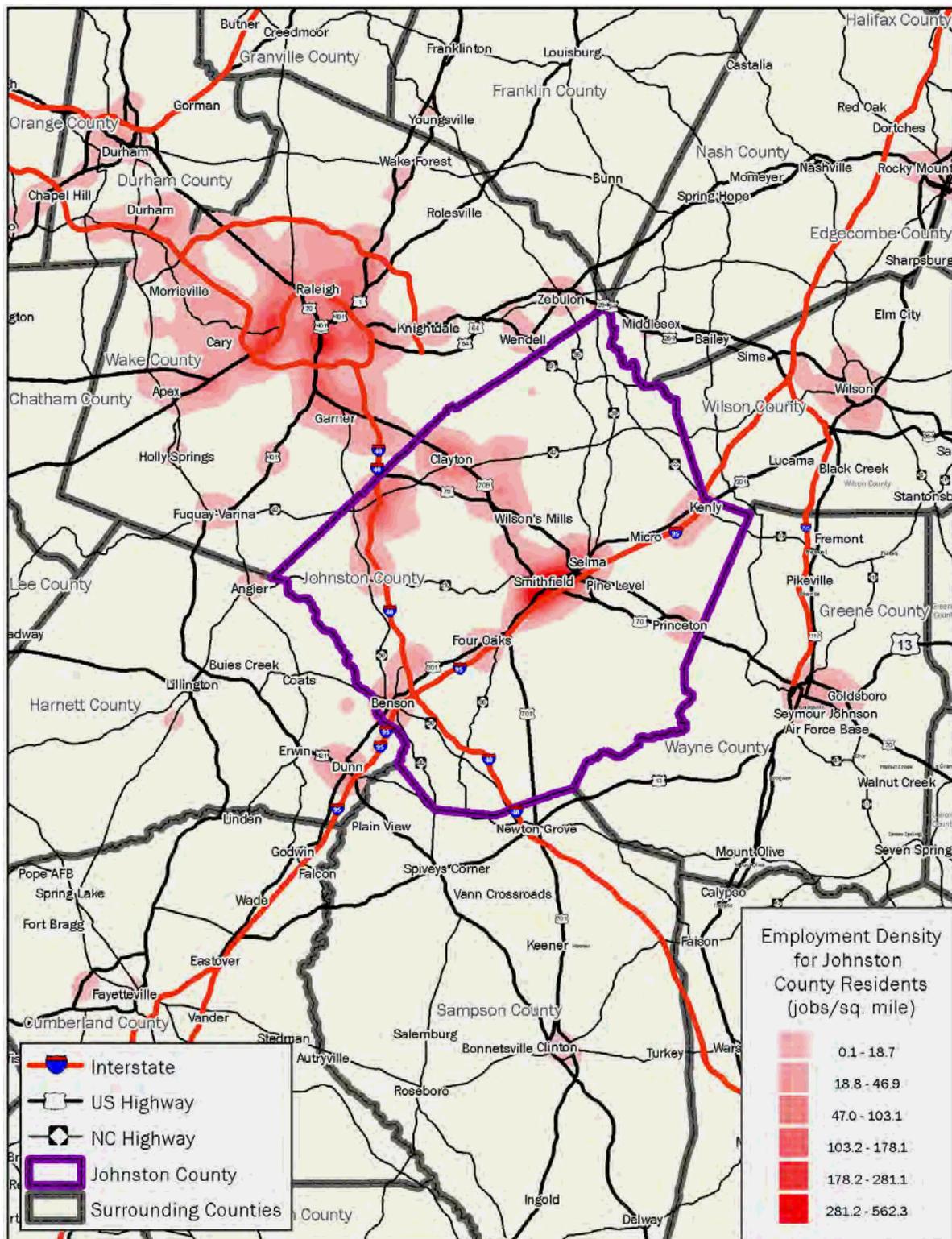
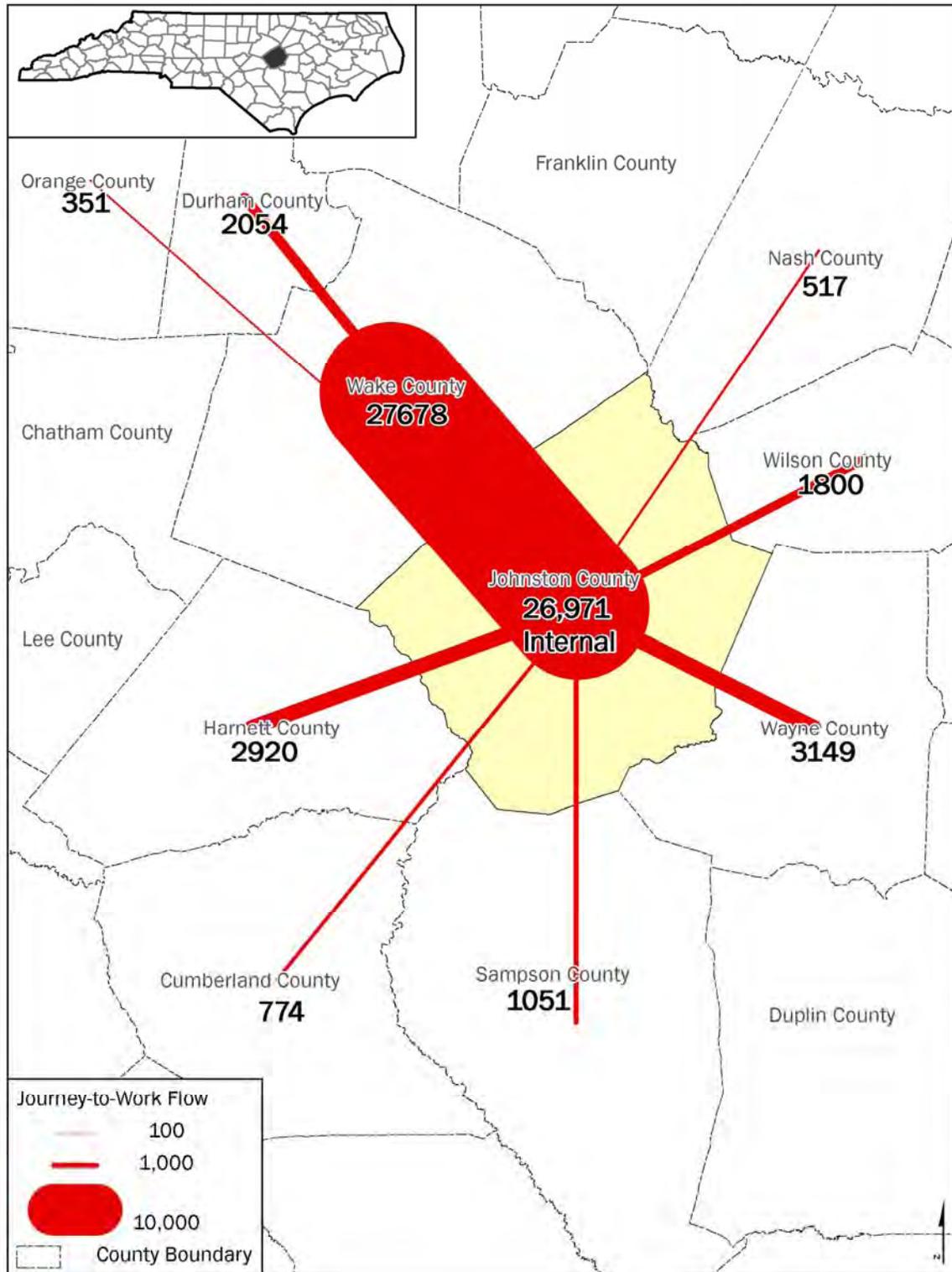


Figure 3.17 Study Area Journey-to-Work Flows



MEANS OF TRAVEL TO WORK

Table 3.17 presents the means of transportation to work for employed Johnston County residents based on the 2000 U.S. Census. The overwhelming majority of employed residents in the Study Area (79.9 percent) drove alone, while 15.8 percent carpooled. Of the other means of transportation to work in Johnston County, 0.9 percent walked, 0.1 bicycled, 0.6 percent reported “other means”, 2.3 percent worked at home, and 0.4 percent used public transportation. Johnston County’s travel to work on public transportation rate (0.4 percent) was much lower than the statewide average (0.9 percent).

Table 3.17: Johnston County Primary Transportation Mode to Work

| Jurisdiction | Primary Transportation Mode to Work by Percentage | | | | | | | |
|-----------------|---|-----------|----------------|-------------|---------|--------|-------------|----------------|
| | Drove alone | Carpooled | Public Transit | Motorcycled | Bicycle | Walked | Other Means | Worked at Home |
| Benson | 68.4% | 22.5% | 0.3% | 0.0% | 0.6% | 3.1% | 1.4% | 3.6% |
| Clayton | 85.9% | 10.7% | 0.2% | 0.0% | 0.0% | 1.3% | 0.4% | 1.7% |
| Four Oaks | 82.3% | 14.7% | 0.0% | 0.0% | 0.6% | 0.6% | 1.3% | 0.5% |
| Micro | 79.4% | 19.3% | 0.0% | 0.0% | 0.0% | 0.4% | 0.0% | 0.9% |
| Pine Level | 87.9% | 8.3% | 0.9% | 0.0% | 0.0% | 0.9% | 0.9% | 0.9% |
| Princeton | 84.6% | 12.1% | 0.4% | 0.0% | 0.0% | 0.4% | 0.9% | 1.5% |
| Selma | 69.8% | 24.0% | 2.6% | 0.0% | 0.0% | 1.4% | 1.3% | 0.9% |
| Smithfield | 77.8% | 15.7% | 1.3% | 0.7% | 0.4% | 1.5% | 0.5% | 2.2% |
| Wilson's Mills | 80.1% | 15.0% | 0.0% | 0.3% | 0.0% | 2.4% | 0.5% | 1.8% |
| Johnston County | 79.9% | 15.8% | 0.4% | 0.2% | 0.1% | 0.9% | 0.6% | 2.3% |
| North Carolina | 79.4% | 14.0% | 0.9% | 0.1% | 0.2% | 1.9% | 0.8% | 2.7% |

Source: 2000 U.S. Census Data: SF3 Table: P3

4. EXISTING AND FUTURE PLANS, POLICIES, AND PROGRAMS

Before developing the Community Transportation Service Plan, available and relevant reports, studies, and policies were reviewed to evaluate previously identified needs and issues that may need to be reexamined. These studies, as they relate to transit in the Study Area, are summarized below.

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION (CAMPO) COMPREHENSIVE TRANSPORTATION PLAN – DRAFT (2006)

The CAMPO planning jurisdiction includes the City of Raleigh and several of the outlying areas, some of which are more suburban and rural in nature like parts of Johnston County. The Plan included a transit element for the City of Clayton with a map showing one recommended bus route in Clayton, essentially a loop service around town. The Plan recommended that transit operational strategies along US-70 from Wake County to Clayton undergo improvements in the future. The map also showed proposed fixed-guideway rail service that would run west of Clayton along Old US Highway 70 West towards Garner/Wake County and east of Clayton along US-70 towards Selma. The proposed commuter rail service would include a stop in downtown Clayton. Lastly, the Plan also envisioned a Park and Ride lot that could be used by Johnston County residents, located across the county line in Garner, off of US-70.

CAMPO AND THE CITY OF RALEIGH COORDINATED PUBLIC TRANSPORTATION – HUMAN SERVICES TRANSPORTATION PLAN (2008)

The purpose of the Plan was to help improve transportation services to all would-be transit users in the CAMPO area, particularly disabled, low-income individuals, and seniors by providing a guideline for future strategies to improve the transportation system. The underlying goal of the Plan was to fulfill the requirement of having a locally-developed, coordinated public-transit – human services transportation plan that would enable the area’s public transportation agencies, human service agencies, and private entities to request Job Access and Reverse Commute (JARC, Section 5316) and New Freedom (Section 5317) funding.

CAMPO and the City of Raleigh conducted a series of public meetings with participants representing urban public transportation providers, community transportation systems, social service agencies, and advocates for persons with disabilities in order to assess the existing and future human transportation needs in the area and recommend prioritized transportation improvements.

In terms of the needs assessment, the participants agreed that there are some aspects of the existing transportation service with only limited need of improvement, notably positive ‘momentum,’ good assessment of technology options, adequate data collection, and high-quality marketing; however, some other transportation service areas were identified as needing improvements. Interestingly, when it comes to identifying improvements, a divide was evident between the workshop held in Raleigh and those held outside of Raleigh. Participants in Raleigh called for improvements to the existing transit network to make it more efficient, reliable, and convenient, while the participants outside of Raleigh asked that basic transit service be provided to and within their area. Overall, the identified transportation system improvements included the following:

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- Collecting data that would show benefits of coordination between transit providers.
- Ensuring that travel training and consumer education is available on an ongoing basis.
- Ensuring that a seamless payment system exists.
- Providing arrangements among transportation providers to offer flexible services that are seamless to customers
- Coordinating support services to lower costs and ease management burdens
- The stakeholders identified the following priorities that should be considered for funding through the JARC and New Freedom grant solicitation process (listed from highest priority to lowest):
- Daily services expanded to many areas outside of Raleigh, including surrounding counties.
- Improved access to employment centers and adult education within county and to outlying counties should be improved.
- Single customer information call center for all transportation options.
- Demand response service (public or private) in outlying areas.
- Services providing access to childcare facilities for low-income workers.
- Evenings, late-night, weekend, and holiday service.
- Emergency ride home services to riders of all system.
- Shortened travel time on transit if possible.
- Consistent travel training across the area.
- Incentives for ridesharing and transit use.
- Discounted passes for fixed-route services to non-profits serving target populations.

The Plan's Appendix included an explanation of JARC and New Freedom funding opportunities as well as the 'Self-Assessment Tool for Communities' that included a questionnaire designed to identify and improve those core community elements that help create a fully coordinated transportation system. The five main elements were:

- Making things happen by working together.
- Taking stock of community needs and moving forward.
- Putting customers first.
- Adapting funding for greater mobility.
- Moving people efficiently.

Finally, the Plan included an inventory of human service transportation and public transportation providers in the CAMPO area, including a description of JCATS' services. In addition, an overview of available technologies aimed at improving coordination of transit services was provided as well. Notably, JCATS was listed as the sole transit provider in the CAMPO area utilizing CTS dispatching software, with other providers using either Route Match or Trapeze software.

CAMPO AND DURHAM-CHAPEL HILL-CARRBORO METROPOLITAN PLANNING ORGANIZATION
(DCHC MPO) 2035 LONG RANGE TRANSPORTATION PLAN (2009)

Long Range Transportation Plans are the guiding documents for future investments in roads, transit services, bicycle and pedestrian facilities, and related transportation activities and services to accommodate the growth expected in the Research Triangle Region.

The plan anticipates that the region will begin to increase its commitment to high-quality transit service. The report envisions significantly expanded transit in the region with higher ridership, regionally-coordinated services, and a regional park and ride system. The plan emphasizes three critical components:

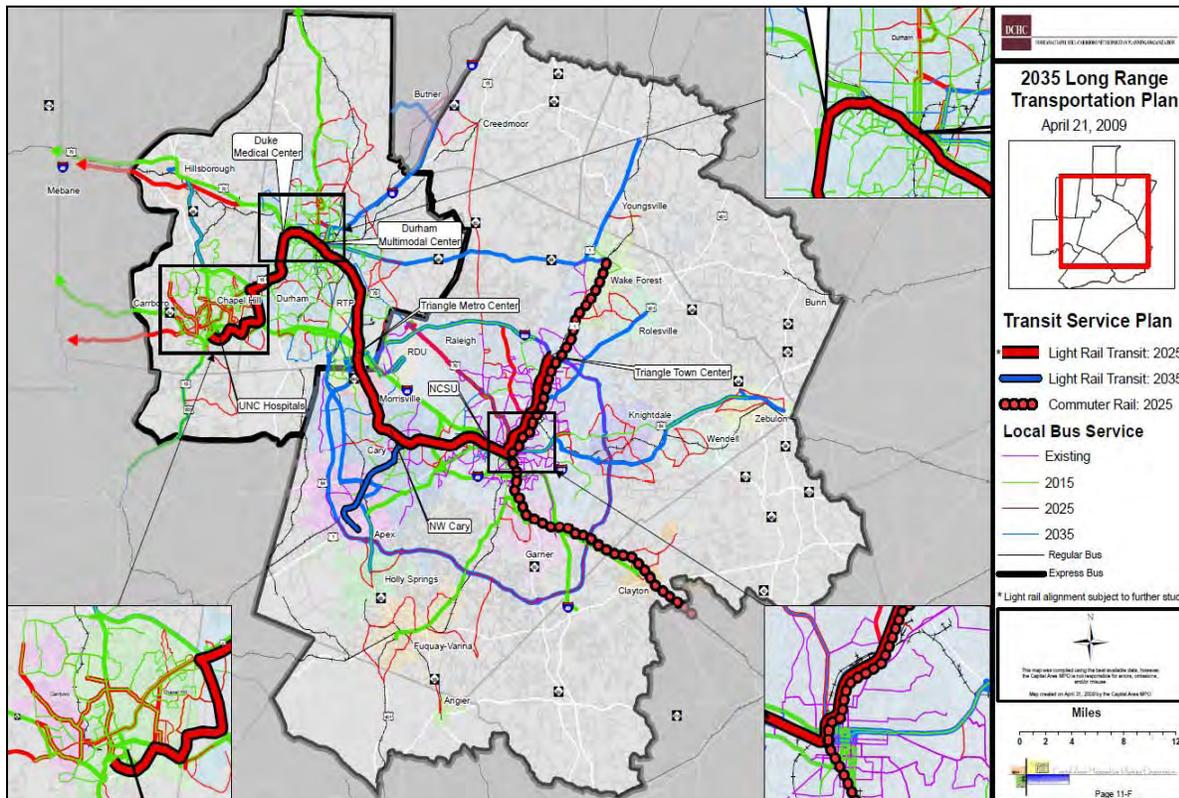
BUS: Greatly expanded local and regional bus service to provide service in and between communities throughout the region. New routes would be added to communities presently without service, and improvements would be made to headways on existing routes;

RAIL: Fifty-six miles of seamless electric light-rail transit service to link our regional centers to one another and commuter rail service to connect Raleigh with towns to the east and north; and

CIRCULATORS: Frequent (every 10-minutes), high quality transit circulator service linking major activity centers to regional and intercity rail services.

These three main components were the result of a May 2008 report by the Special Transit Advisory Commission (STAC), a group of 29 citizens convened by the two MPOs to develop a Regional Transit Vision Plan. A map of the proposed 2035 network of transit in the region is included in Figure 4.1. For Johnston County, the 2035 Long Range Plan envisions expanded bus service (by 2015) and eventually commuter rail service.

Figure 4.1: 2035 Proposed Transit Service Plan



Source: 2035 Long Range Transportation Plans

The STAC recommended a rapidly expanding bus network in the first years of any transit plan to demonstrate quick results to citizens and link all the municipalities in the Triangle with transit. This bus service expansion would include express service into Johnston County (a potential service schedule is shown below in Table 4.1) connecting to downtown Raleigh or Triangle Metro Center (TMC). The STAC developed the circulator concept to form the vital links binding together local and regional transit, major activity centers such as universities, downtowns, hospitals, the Research Triangle Park, and RDU Airport. Circulator services will arrive so frequently that schedules will not be needed.

Table 4.1: Proposed Express Bus Service Schedule

| Route Name | Service Type | Begin Year | Service Pattern | Peak Headway (min) | Off-Peak Headway (min) |
|------------------------|--------------|------------|-----------------|--------------------|------------------------|
| Johnston County-TMC EB | Express Bus | 2012 | Daylight | 30 | 30 |
| Johnston County-TMC WB | Express Bus | 2012 | Daylight | 30 | 30 |
| Raleigh-Zebulon EB | Express Bus | 2035 | Daylight | 10 | 10 |
| Raleigh-Zebulon WB | Express Bus | 2035 | Daylight | 10 | 10 |

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| | | | | | |
|--|-------------|------|----------|----|----|
| TT Clayton-Raleigh IB | Express Bus | 2011 | Commuter | 15 | 15 |
| TT Clayton-Raleigh OB | Express Bus | 2011 | Commuter | 15 | 15 |
| Source: 2035 Long Range Transportation Plans | | | | | |

STAC members noted that rail service will provide the opportunity to shape regional growth in the Triangle in the same manner as Charlotte, which has experienced almost \$2 billion in private sector development along the South Light-Rail Corridor while also carrying several thousand monthly riders than projected. Light-rail transit is a departure from past long range plans that focused on passenger rail using Diesel Mobile Units (DMU) technology which could not operate outside existing rail corridors because of safety issues. Light-rail transit provides the opportunity for the passenger rail service to depart from rail corridors and operate closer to transit oriented development along roadways.

Commuter rail service has different operating characteristics from light-rail transit. It tends to operate at relatively higher speeds in mainline rail corridors, serves stations that are further apart than light-rail transit, and only provides service during the peak and noon hours. The 2035 Long Range Plan anticipates Clayton to Raleigh commuter rail service by 2035. The possible locations receiving service could include Zebulon, Knightdale, Wendell, Rolesville, Fuquay-Varina, and Holly Springs.

The Plan anticipates new revenue sources to pay for these improvements that the MPO has a reasonable expectation to realize including:

- In April 2009, the North Carolina House passed the Congestion Relief and Intermodal 21st Century Transportation Fund (House Bill 148). The legislation permits a local voter referendum to increase the sales tax to raise revenues for transit systems. The half-cent sales tax increase permitted in Wake, Durham and Orange counties by this legislation is used to calculate new revenue sources for transit in the 2035 LRTP.
- The Triangle Region has a rental car tax that produces approximately \$7 million annually to fund Triangle Transit services and studies;
- Several municipalities, such as the City of Durham and Town of Chapel Hill, have pushed for and received increases in the vehicle registration fee; and,
- The North Carolina Turnpike Authority (NCTA) was created in 2004 and is currently working to build the Triangle Expressway.

Our most recent information on the Clayton Park and Ride lot is that it should begin service in late 2011 or early 2012. The headways will likely be one hour with three morning express buses and four afternoon express buses. Although a specific site has not been chosen for the Park and Ride lot, it will likely be on or near US-70 on the western side of Clayton.

CAMPO 2009-2015 METROPOLITAN TRANSPORTATION IMPROVEMENT PROGRAM (2008)

This document listed all 2009-2015 Metropolitan Transportation Improvement Program (MTIP) projects in the CAMPO area, including the proposed priority transit projects. While most of the listed transit projects were in Wake County, they would still have some influence on the Study Area,

particularly if CAMPO's 2035 Long Range Transportation Plan express bus service to Johnston County is operational improving access to Wake County and Raleigh from Johnston County. Some of the transit projects listed in the MTIP are unfunded, specifically the commuter buses needed to operate the proposed commuter service to Wake County. Lastly, the notes in the MTIP point out that Johnston County was not a member of the Capital Area MPO at the time of completion of the 2030 LRTP, which suggests that Johnston County has been a relatively new addition to the transit planning efforts in the Triangle area and should have a more prominent role in the future.

UPPER COASTAL PLAIN RURAL PLANNING ORGANIZATION (UCPRPO) - UPPER COASTAL PLAIN REGIONAL TRANSIT PLAN (2009)

Rural Planning Organizations like UCPRPO work cooperatively with NCDOT to plan rural transportation systems and to advise the department on rural transportation policy. In 2009, UCPRPO coordinated with the NCDOT Public Transportation Division (NCDOT PTD) to develop the Upper Coastal Plain Regional Transit Plan (UCPRTP). It should be noted that the Upper Coastal Plain region consists of not only most of Johnston County, but Edgecombe, Nash and Wilson counties as well. The Plan's background section described the existing transit services in the four-county area.

As part of the planning effort, the UCPRPO developed a survey to better assess the unmet transportation needs and potential for transit coordination within the Upper Coastal Plain study area. The information gathered from the survey is grouped into four categories and shown below:

- **Improvements**
 - Coordination between City and County
 - Readily Available Transit (Not Taxis, Cabs, etc.)
 - Increased Number of Routes on Fixed-Route Systems
 - Expanded Operation Hours
 - Increased Services Available in Rural Areas

- **Service Not Provided**
 - More Rural General Public
 - Commuter Rail
 - Bus or Van
 - Handicap Accessible Vehicles
 - Services to Recreational Areas, Parks, YMCA, etc...
 - Services from Rural Areas to County Seat
 - Public Transit

- **Potential Users of Services**
 - General Public
 - Elderly
 - Disabled
 - Youth
 - Individuals Accessing Health Dept. and/or Social Services
 - Workers
 - Shoppers
 - Students
 - Clients of Vocational Rehabilitation

- **Destinations**
 - Municipalities
 - Locations within the Municipality
 - Medical Offices
 - Grocery Stores
 - Pharmacies
 - Hospitals
 - Treatment Centers
 - Banks
 - Home
 - Place of Employment
 - Shopping Centers
 - Social Services
 - Community Colleges

The Upper Coastal Plain RPO also organized the UCP RTP workshop in January 2009. Throughout the workshop, stakeholders helped identify the needs and gaps within the current transportation service through workshop exercises. Unmet needs were identified and programs were prioritized during the exercises. The data gathered from the UCP RTP workshop acted as the foundation for UCP RTP. One of the exercises consisted of using maps to identify gaps in services and areas with potential for increased future transit service. The results for Johnston County are shown in Figure 4.2. As shown, the participants appeared to be most concerned with anticipated growth within Johnston County, and connections to points within Johnston County from the perceived geographic center in Selma/Smithfield, but also new areas of growth in Clayton and connection from Clayton to Wake County.

Another exercise consisted of using a matrix describing several possible goals of a coordinated transit system and several strategies to accomplish them. The matrices were compiled to create a collective analysis of the following goals, strategies, and coordinated transit needs for the region:

1. **Increase service to fill gaps - implies some inter-county fixed route or highway service corridors**
Strategy: *Evenings, Weekends, Increased Visibility*
2. **Better inter-connections and/or coordinated service**
Strategy: *Broker Trips*
3. **Broadcast user-friendly info/education – i.e. internet, public forums, etc.**
Strategy: *Increased Visibility, Agency Operated*

Provide stops with transit amenities – i.e. lighting, benches, audible signs, and sidewalks.

Strategy: Fixed Route Evenings, Weekends

4. **Increase all types of service to new user groups, especially veterans and door-to-door elderly**
Strategy: *Broker Trips, Door to Door*
5. **Provide travel training for inexperienced/hesitant transit riders, i.e. for elderly, disabled, limited English, etc.**
Strategy: *Fixed Rout, Increased Visibility*

6. **Trips need to service employment, centers, and commuters**
Strategy: *Fixed Route, Evenings, Weekends, Vouchers, Vanpools, Park & Ride*
7. **Strengthen the Transportation Advisory Board**
Strategy: *Increased Visibility*
8. **Customer Service Improvements**
Strategy: *Vanpool, Big Vehicle*
9. **Different expectations across county lines**
Strategy: *Increased Visibility Transit Pass*
10. **Language Barriers**
Strategy: *Fixed Route*
11. **Make land use and transit work together**
Strategy: *Increased Visibility*
12. **Remove barriers for mobility impaired**
Strategy: *Door to Door*

Additional space was provided to identify items the participants felt were important although not already identified:

13. **Signs with bus schedules at the bus stops**
Strategy: *Increased Visibility*
14. **Ensure each housing development has designated bus stops**
Strategy: *Increased Visibility*

Lastly, the participants were invited to rank the strategies they individually found most appropriate for their clients or the interest they represented by allocating a hypothetical \$100 spread over the strategies they had recommended. The results of are shown in Table 4.2. The highest priority categories chosen were Fixed Route service (\$330) and Door to Door service (\$285), followed by Weekend Service (\$142) and Evening Service (\$107).

By taking all the recommendations into consideration, the UCP RTP proposed the following transit improvements:

Improvements made to fixed route services by either increasing services offered within existing fixed route systems or initiating routes for systems that have not previously offered services would improve transportation mobility for seniors, mobility-impaired, and low-income individuals.

Expanding and/or initiating Door to Door services would enhance mobility of captive transit riders. The expansion of operating transit hours should be reviewed and considered as a serious strategy for transit system improvements.

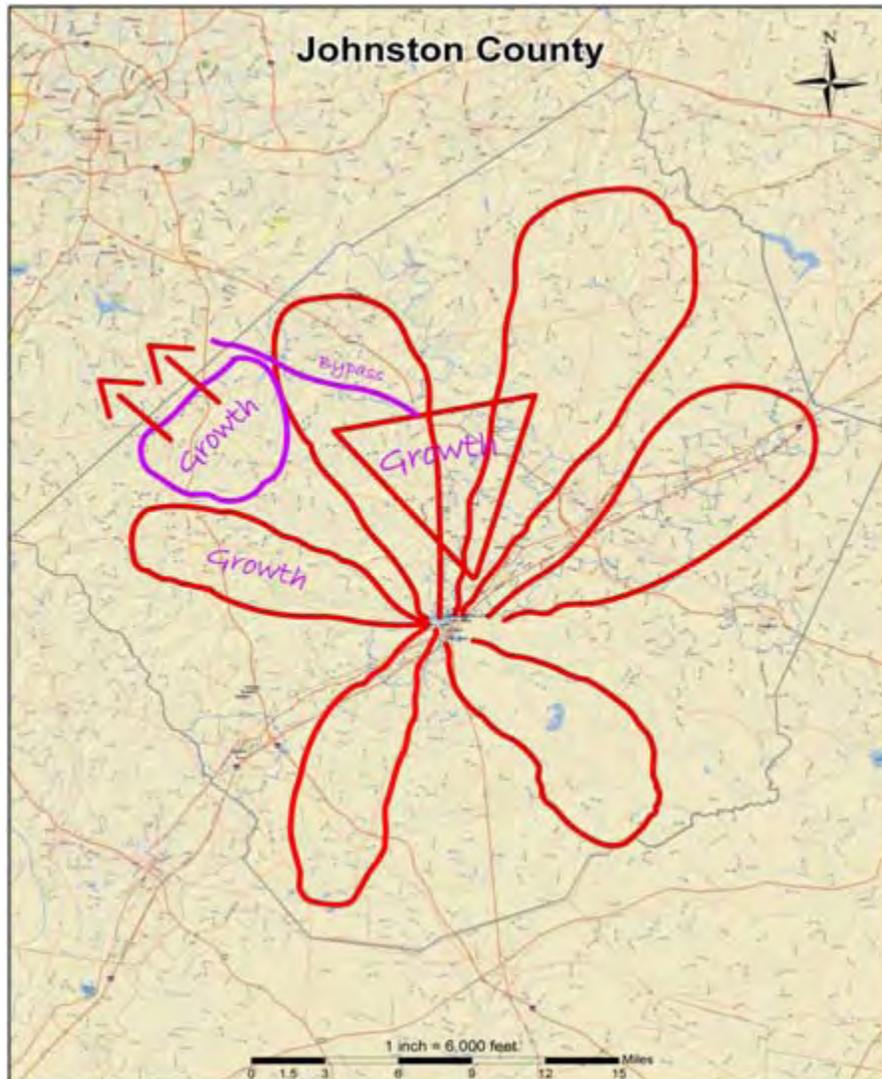
Exploring the possibility and feasibility of providing additional services should not be dismissed.

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Table 4.2: The UCP RTP Workshop: Proposed Service Improvements

| Shopping List | Total Dollars Spent | Average Dollars Spent |
|--|---------------------|-----------------------|
| Fixed Routes | \$330 | \$23.57 |
| Evening Service | \$107 | \$7.64 |
| Weekend Service | \$142 | \$10.14 |
| Voucher Program | \$87 | \$6.21 |
| Volunteer Drivers Program | \$20 | \$1.43 |
| Broker Trips to Others | \$15 | \$1.07 |
| Increased Visibility of Existing Program | \$65 | \$4.64 |
| Express Service | \$35 | \$2.50 |
| Transit Pass Program | \$17 | \$1.21 |
| Agency Operates Own Van | \$0 | \$0.00 |
| Vanpools Program | \$7 | \$0.50 |
| Bigger or Unique Vehicles | \$80 | \$5.71 |
| Park & Ride Program | \$29 | \$2.07 |
| Door to Door Service | \$285 | \$20.36 |
| County Planning Zoning (Added) | \$40 | \$2.86 |
| Emergency Evacuation (Added) | \$10 | \$0.71 |
| Older Adult Rider Aid Programs (Added) | \$30 | \$2.14 |
| Total - 13 Workshop Participants | \$1,299.00 | |

Figure 4.2: UCP RTP Workshop Participant Map



INSTITUTE FOR TRANSPORTATION RESEARCH AND EDUCATION (ITRE) PERFORMANCE PLAN AND ANALYSIS (2009)

The service provided by JCATS was studied in a “Performance Plan and Analysis” (PPA) conducted ITRE in March of 2009. The PPA was part of a coordinated effort by ITRE and NCDOT to assist transit agencies in achieving higher performance measures and improved business practices. The report analyzed the current level of service and generated a variety of performance recommendations, mostly aimed at short-term enhancements to current practices that could lead to higher performance effectiveness and efficiency.

The PPA noted that JCATS’ strongest area was its steady improvement over the last three years in ridership and performance measures. The report does highlight several areas of improvement,

mostly aimed at changing administrative and business practices. Those areas noted to need improvement are:

Improved performance measures. JCATS serves a similar number of passengers as the peer group that the PPA compared the agency to, but JCATS has 20-30% more revenue and service miles and hours. This lowers the efficiency of JCATS, and the agency should strive to improve their performance measures.

Accuracy of reporting and recording manifest information. JCATS is currently not correctly recording some service information (miles, service hours, and break times). The PPA recommends staff training on the importance of accurately recording manifest information and the appropriate distinctions between manifests and driver time sheets. JCATS also needs to put in place policies to deal with inaccurate manifests and conduct spot checks to confirm accuracy. The goal of a change in manifest policy should be to have no more than 10% difference between service hours and pay hours for each driver.

Out of county wait time. Currently, some drivers on out of county runs have extended wait times for which the system is not compensated. JCATS should work with clients to try to determine approximate appointment lengths and, if possible, reassign drivers to return to the service area for other work. In the long-term, funding sources that generate long wait times should be identified and potentially charged for the costs of waiting.

Ordered manifests. JCATS should pursue a new manifest report that allows schedulers to order pick-ups and drop-offs separately. Currently, drivers sometimes use routes other than those set by schedulers, but these routes are often more efficient. Drivers and schedulers should work together to set the most efficient routes. Drivers should also review manifests before conducting the route and notify the scheduler of any changes before starting the route. The routes, especially subscription routes, should be reviewed to ensure they are still accurate and efficient.

Cancellation/no show policy. The current policy does not effectively differentiate between cancellations and no shows leading to some unnecessary trips. Also, cancellations can be made very late, often when the vehicle is already en-route to the pick-up point. The current policy should be reviewed, both cancellations and no shows should be tracked, and if late cancellations continue to be a problem, then the policy should be rewritten to extend the cut-off time for no shows.

Billing methods. JCATS has in place a practice of billing different rates (based on revenue miles) for subscription trips and demand response trips. JCATS should pursue a flat-rate or zone-based billing system that does not take into account trip type. JCATS should also use a rate setting model to determine the fully allocated rate per passenger trip.

Community transportation. JCATS should end the policy of placing human service trips at a higher priority than general public trips which will align the service with the defined goals of a NCDOT Community Transportation system. These goals demand that the funding source not be a factor taken into account when scheduling rides.

JOHNSTON COUNTY LOCALLY COORDINATED HUMAN SERVICE – PUBLIC TRANSPORTATION PLAN (2009)

The purpose of this plan was “to provide a viable and effective public transportation service network in the Triangle Area that complies with the current federal regulatory requirements pertaining to human service public transportation coordination.” During the planning process, stakeholders and human service groups were surveyed, service was assessed, a set of strategies and actions aimed at improvement were developed, and a short-term (three-year) plan was created. After a background survey generated ideas and workshop participants created a matrix of suggested improvements, participants were given a hypothetical \$100 each to allocate to services or improvements that they would like to see. Participants could allocate as much or as little money to potential improvements. This resulted in a ranking of desired improvements which is shown in Table 4.3.

Table 4.3: Shopping List Hypothetical Dollar Allocation

| RANK | SHOPPING LIST | TOTAL |
|-------------|--|--------------|
| 1 | Fixed Routes | \$180 |
| 2 | Evenings service | \$100 |
| 3 | Increased visibility of existing program | \$95 |
| 4 | Land use incentives | \$94 |
| 5 | Amenities at the bus stops | \$90 |
| 6 | Vouchers program | \$63 |
| 7 | Weekends service | \$63 |
| 8 | Mobility Manager | \$59 |
| 9 | Express service | \$50 |
| 10 | Park & Ride program | \$49 |
| 11 | Transit Pass program | \$47 |
| 12 | Childcare | \$40 |
| 13 | Vanpools program | \$34 |
| 14 | Broker trips to others | \$30 |
| 15 | Agency operates own vans | \$28 |
| 16 | Evacuation Planning | \$27 |
| 17 | Door to Door | \$25 |
| 18 | Expanded Local - circulator | \$20 |
| 19 | Non-medical | \$6 |
| | 11 participants = | \$1,100 |

Fixed-route service was clearly the most desired service and the Plan suggested looking into the feasibility of this type of service. Other popular options were increased evening service and better information and marketing regarding the services offered by JCATS. Workshop participants also

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suggested that JCATS work with regional partners to strategically select Park and Ride locations and to potentially improve county-to-county transfers which could keep JCATS vehicles in the County for more trips.

The Plan also notes that with a long list of project needs, projects should be selected that will “address current needs, that will likely produce favorable impacts, and that will tackle core issues with broad service implications.” The Plan recommended four criteria when evaluating, selecting, and prioritizing projects:

Maintaining a healthy balance between operating assistance projects with capital projects. Operating assistance projects should be maximized based on match funds from locally available resources to meet the greatest number of needs and to provide the greatest degree of service flexibility. Capital projects may be advantageous in the near-term along travel corridors and in areas where the service demands are greatest and will help build service capacities in later years. Projects that support and optimize schedule adherence for fixed route deviated and demand response services will enhance benefit-cost for the agency and will support further expansion of services.

Projects that will serve districts that are being developed based on smart growth and mixed-use principles will provide favorable returns and will actually provide a wider array of services to adjoining areas. The application of smart growth principles in land use will adequately serve much employment and medical travel needs.

The Triangle Region will continue to need enhanced, expanded and reliable employment travel services to major urban centers like Goldsboro, Raleigh, Durham and the Research Triangle Park. In some instances, it may be advantageous to consider the pooling of funds and resources to initiate these services until satisfactory ridership levels are established along specific travel corridors.

NCDOT STATE TRANSPORTATION IMPROVEMENT PROGRAM, DIVISION 4 (2008)

This document listed all 2009-2015 State Transportation Improvement Program (STIP) projects in NCDOT’s Division 4 area, which is Edgecombe, Halifax, Johnston, Nash, Wayne, and Wilson counties. In terms of transit-related projects in Johnston County programmed as part of the STIP, they are basically the same as the ones listed in the MTIP described above. The STIP does contain operating assistance for transit in Johnston County.

TRIANGLE TRANSIT SHORT-RANGE TRANSIT PLAN (2008)

The Triangle Transit Short-Range Transit Plan (SRTP) was a five-year transit operating plan and capital program for public transportation and ridesharing services. It provided an overview of the status of regional services in the three-county (Wake/Durham/Orange) service area and provides a guide for improvements in current services and expansion of services to new locations from Fiscal Year 2009 through 2013. Notably, its service improvement plan recommended service improvements that are relevant to Johnston County and JCATS service area:

Eastern Wake Express - Implement weekday hourly peak-period service from Zebulon, Wendell, and Knightdale to downtown Raleigh (FY 2010).

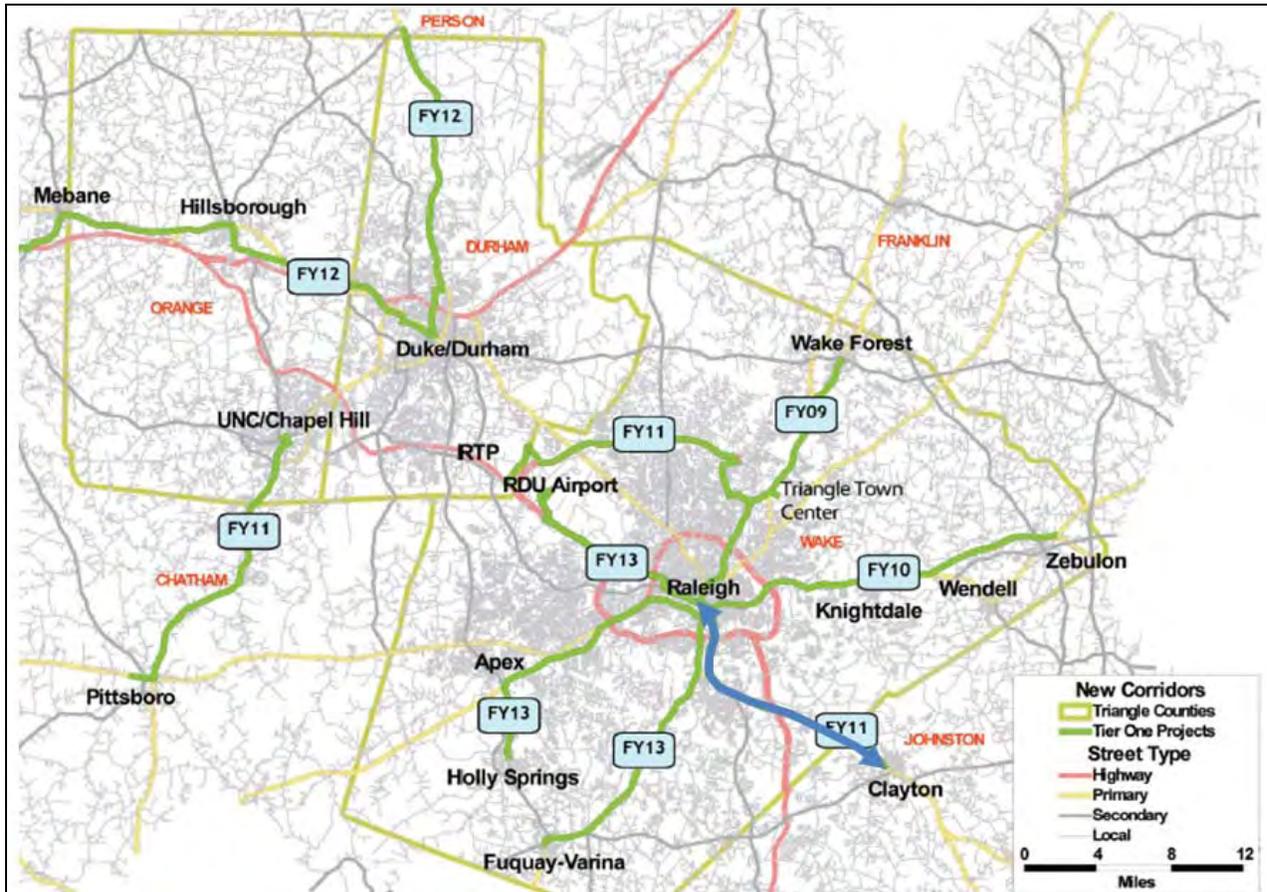
Clayton - Garner - Raleigh Express - Extend Route 102 (Raleigh-Garner) to provide weekday hourly peak period service from Clayton and Garner to downtown Raleigh, with a potential extension to NC State University. This route will include construction of 2 park-and-ride lots for Clayton service (FY 2011).

Increase frequency of Clayton - Garner - Raleigh Express - Given adequate demand, increase frequency during weekday peak periods from hourly to 30-minute headways (FY 2013).

The SRTP also included a public participation component (online and paper surveys) which indicated that adding 1-2 new Commuter Express routes per year for the next five years was ranked in the top 2 priorities for both riders and non-riders. Finally, to address customer preferences for faster, more reliable services, Triangle Transit stated as a goal transforming the regional bus system to focus on long-distance, limited stop routes serving major employment centers with transit-supportive conditions in place. Access to the regional routes will be provided through better coordinated local bus routes and park-and-ride lots. Improved reliability will be built into the routing and schedule changes. Figure 4.3 shows new corridors that will receive service including the Raleigh to Clayton express bus (the blue arrow).

Our most recent information on the Clayton Park and Ride lot is that it should begin service in late 2011 or early 2012. The headways will likely be one hour with three morning express buses and four afternoon express buses. Although a specific site has not been chosen for the Park and Ride lot, it will likely be on or near US-70 on the western side of Clayton.

Figure 4.3: New Corridors for Future Transit Service



JOHNSTON COUNTY COMPREHENSIVE PLAN (2009)

The Johnston County Comprehensive Plan which was completed in March, 2009, envisions seven broad themes for the future of Johnston County, which are:

- Managing Growth and Infrastructure
- Expanding Economic Opportunities
- Providing Housing and Protecting Neighborhoods
- Preserving Farmland / Rural Character
- Protecting Environment / Cultural Sites
- Enhancing Mobility
- Intergovernmental Coordination

Of these, obviously, enhancing mobility is pertinent to JCATS, but several others are as well, particularly parts of the Comprehensive Plan that pertain to future growth and development in the County.

The language used to define Theme 6: Enhanced Mobility explicitly notes that transit will be an important component in creating an efficient, safe, and well-coordinated transportation system for the county. Despite this recognition, the Comprehensive Plan does not include any goals or

objectives specifically pertaining to the operation, future vision, or service characteristics of JCATS or any regional transit agency.

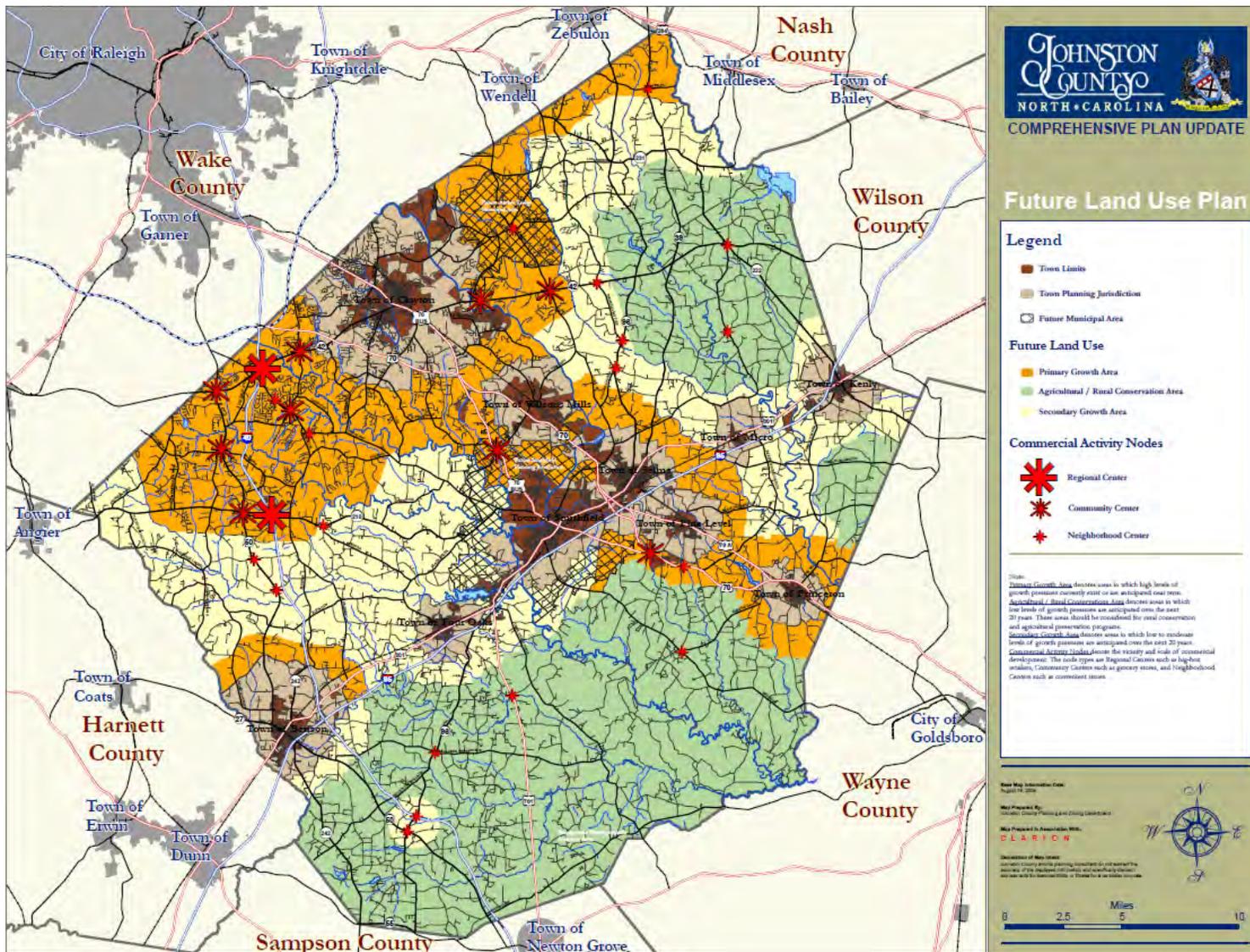
The Comprehensive Plan does contain a lot of information on future growth plans, areas to receive the most growth, and vision for the future of Johnston County land use. These future nodes of activity and growth are important to consider when planning future service and the future role for JCATS. There are three types of nodes included in the Comprehensive Plan which are as follows:

Regional Centers – major commercial and retail centers with a large-scale regional draw;
Community Centers – Retail and employment sites with a wide variety of business, office, and mixed uses with a focus on coordination of uses and quality and character of development; and
Neighborhood Centers – shopping centers emphasizing convenience goods (food, pharmacy, supplies, post office, dining, sundries) and personal services aimed at the day-to-day living needs of nearby neighborhoods in pedestrian-friendly areas.

These various types of existing and future activity nodes are shown in the Future Land Use Plan map shown below in Figure 4.4. The Future Land Use Plan map also shows areas targeted for primary growth, secondary growth, and rural/agricultural conservation.

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Figure 4.4: Johnston County Future Land Use Map



5. JCATS STRUCTURE, MANAGEMENT, AND POLICIES

JCATS MISSION AND GOALS

Mission Statement: Johnson County Area Transit System strives to be the premier provider of transportation services for Johnston County Residents.

Goals:

1. Acquire the type and number of vehicles necessary and appropriate to meet the needs of the faculty and staff to perform their duties.
2. Manage the fleet in a manner that insures the lowest possible operational cost while maintaining consistently high mechanical reliability.
3. Organize a staff and maintain a facility which provides superior service, repair, reservation and dispatch, and administrative support to the customer.
4. Maintain, repair, and dispose of the vehicles in a manner that brings the highest possible return on money spent.
5. Establish policies and procedures that reflect the best way to operate the fleet with the customer in mind.

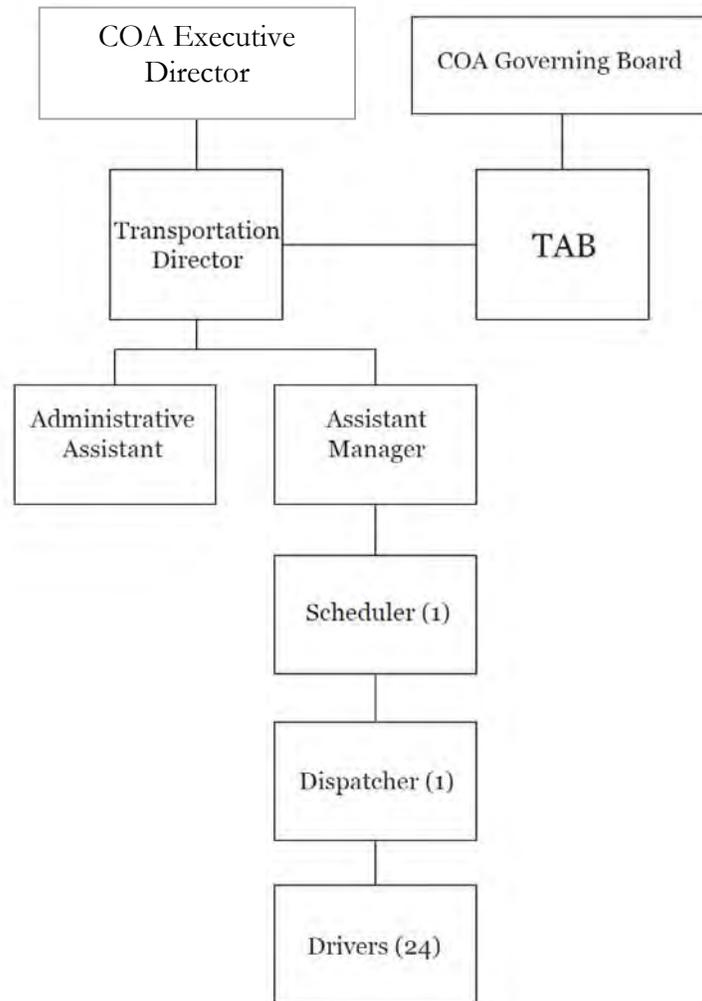
OPERATIONAL AND MANAGEMENT STRUCTURE

JCATS is currently housed within the Johnston County Council on Aging. JCATS is governed by two boards, the Council on Aging Governing Board and the Coordinated Transportation System Advisory Board.

The Coordinated Transportation System Advisory Board (CTSAB) is subordinate to the Council on Aging Governing Board in Johnston County. While the CTSAB is responsible for the administration of the JCATS service, the Council on Aging Governing Board has the ultimate fiduciary responsibility for the organization. The organizational and management structure is shown in Figure 5.1. It is important to note that the Council on Aging is currently undergoing a restructuring and rebranding process, in part to formally recognize that the Council on Aging's roles and responsibilities have expanded beyond only senior care to include housing and transportation. The organization chart, therefore, is subject to possible revision in the short term; however this reorganization is not finalized at this time.

JCATS also has an agreement in place with a local, private transportation provider in Johnston County, Jannie's Ride, to provide some transportation services when JCATS is not operating or when JCATS is too busy to handle the additional rides. These trips that are vendored out to Jannie's Ride are performed on behalf of JCATS pursuant to a contract between Jannie's Ride and JCATS.

Figure 5.1: Current Council on Aging Existing Organizational Structure



EMPLOYEES

JCATS currently employs 5 full time administrative staff, as well as an Account Tech at 3/4 time as shown in Table 5.1.

Table 5.1: JCATS Employees

| Position | Full/Part Time | Duties |
|--------------------------|----------------|---|
| Transportation Director | Full | Performs supervisory and administrative duties in the managing and directing of JCATS |
| Assistant Manager | Full | Assists Transportation Manager in performing supervisory and administrative duties in the managing and directing of JCATS |
| Administrative Assistant | Full | Performs a variety of administrative and secretarial duties for JCATS and the Transportation Manager |

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| | | |
|------------------|------|---|
| Scheduler | Full | Performs a variety of administrative duties in scheduling routes and service requests for the transportation program |
| Office Assistant | Full | Performs a variety of clerical and administrative support duties for JCATS in the processing of information provided to the public and other agencies |
| Account Tech | 3/4 | Preparation of monthly and quarterly financial statements and analysis for JCATS. This includes but isn't limited to ability to effectively communicate with the Finance Manager (COA), JCATS management and staff, processing of all necessary journal entries, and reconciliations that aren't in violation of internal controls. |

In addition, JCATS employs 21 operational staff to operate vehicles. This includes one Lead Driver and twenty Transportation Drivers. A description of the positions is provided in Table 5.2.

Table 5.2: JCATS Driver Description

| Position | Full/Part Time | Duties |
|---------------------------|----------------|---|
| Lead Driver | Full | Performs lead function in all aspects of vehicle preventative maintenance and repairs. Provides transportation services to human service agencies and the general public by operating vehicles requiring the use of an active commercial driver's license with passenger endorsement and Department of Transportation Medical Certification |
| Transportation Driver III | Full/Part | Provides transportation services to human service agencies and the general public by operating vehicles that require the use of an active commercial driver's license with passenger endorsement and Department of Transportation Medical Certification |

SAFETY/TRAINING

The JCATS System Safety Program Plan (3-4-2010 Draft) addresses:

- Driver/Employee Selection (fair hiring practices)
- Driver/Employee Training (annual, documented training in Defensive Driving, Americans with Disabilities Act, Bloodborne Pathogens and Emergency Procedures for Vehicle Operators)
- Safety Data Acquisition Analysis (reduce collisions/injuries)
- Drug, Alcohol and Abuse Program (provide safe, healthy, and productive environment)
- Vehicle Maintenance (maximize service life)
- Security (protect vehicles and people)

Specific safety and personnel practices/procedures are outlined in Table 5.3.

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Table 5.3: JCATS Safety Procedures / Practices

| Practice/Procedure | Policies | Present/Effective |
|-----------------------------|--|--|
| Personnel Policies | Equal Opportunity ADA Civil Rights Harassment Discrimination Complaints <i>Recruitment and Selection</i> General/Probationary Employee Classifications New Hire, Rehire Job Descriptions <i>Employment and Records</i> Privacy Drug and Alcohol Testing Workday and Payday Meal and Rest Period Accounting of Time Performance Review Corrective Counseling Terminations Grievance <i>Attendance and Time Off</i> Holiday Leave Vacation Sick Leave Compensatory/Over-Time Family and Medical Leave Jury Duty Military Leave Inclement Weather | Yes/Yes Yes/Yes Yes/Yes Yes/Yes No/No (Title VI Compliance) Yes/Yes Yes/Yes Yes/Yes Yes/No (ITRE Review) Yes/Yes Yes/Yes Yes/No (COA Limitations) Yes/No (ITRE Review) Yes/No (ITRE Review) Yes/No (ITRE Review) Yes/No (ITRE Review) / / Yes/No (COA Limitations) / / Yes/No (COA Limitations) / / / Yes/Yes |
| Employee Conduct | Code of Conduct Public Relations Passenger Assistance Guidelines Client Confidentiality Vehicle Use Conflict of Interest Eating/Drinking/Smoking Political Activity Professional Memberships Travel Policy Uniforms | Yes/Yes Yes/No (COA Limitations) Yes/Yes Yes/Yes Yes/Yes Yes/Yes Yes/Yes Yes/Yes / / / / |
| Normal Operating Procedures | Passenger Behavior Vehicle Inspections Vehicle Fueling/Serviceing Scheduling Driver Manifests Reports/Paperwork Cancellation/No Shows | Yes/Yes Yes/Yes Yes/Yes Yes/No (ITRE Review) Yes/No (ITRE Review) Yes/No (ITRE Review) Yes/No (ITRE Review) |

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| | | |
|---|--|--|
| | Lost and Found Radio Procedures Seatbelt/Wheelchair Wheelchair Securement/Lift Passenger Safety Vehicle Securement Parking Backing Procedures | / Yes/Yes Yes/Yes Yes/Yes Yes/Yes Yes/Yes Yes/Yes Yes/Yes |
| Unusual and Emergency Operating Procedures | Employee Absences Inclement Weather Driving Lights on for Safety Crossing Railroad Tracks Incident Reports Brake Failures Tire Blowouts Collision Procedures Fire Procedures Vehicle Evacuation First Aid Guidelines Exposure to Blood/Fluids | / Yes/Yes / Yes/Yes Yes/Yes Yes/Yes / Yes/Yes Yes/Yes Yes/Yes / Yes/Yes |

JCATS POLICY REVIEW

No-Show Policy

The policy for dealing with “no-shows” is included as part of the service agreement with the agency using JCATS’ service. The policy, outlined in the contractual agreement with the paying agency, states that “[t]he Agency shall agree to pay the rates outlined in Attachment A of this agreement for passengers who are shown as no-shows. Three consecutive no-shows and/or 5 no-shows in a thirty day period will result in termination of service for said passengers and Agency must re-certify passenger in writing before transportation services will be resumed.” No-shows from the Rural General Public (RGP) must pay before they can ride again. The other contracted agencies are billed for no-shows with the exception of the Department of Social Services. The contracted agencies have separate policies regarding multiple cancelations and no-shows. JCATS contacts the agencies and they will notify their clients.

This policy seems reasonable, but has not been approved by the JCATS Board of Directors. The normal course of action for a JCATS driver in the event of a no-show is either to continue with the scheduled route to pick up other passengers or to change the route to pick up other passengers more efficiently. However, the ITRE Performance Review recommends that ordered manifests be followed exactly, allowing the scheduler and dispatcher to reschedule and dispatch more easily.

Cancellation Policy

The Cancellation Policy states that passengers must call in two or more hours before the scheduled pick-up time to cancel their appointment with JCATS, otherwise the person will be considered a no-show.

Creating a standardized protocol for no shows and cancelations across all agencies will eliminate confusion and streamline the process for drivers and paying agencies. Both no-shows and cancelations are low for JCATS.

Denial Policy

As stated under the No-Show Policy, three consecutive no-shows or five no-shows in a thirty day period will result in a ban from JCATS service until the paying agency recertifies the passenger in writing. Members of the RGP must pay before riding on the JCATS service again. This policy is very reasonable.

Pick-Up Window Policy

According to the JCATS Web site, “[w]ait times will vary. JCATS strives to provide not only cost efficient transportation, but quality customer service and care. JCATS will be able to provide you with approximate wait times depending on the time you need to be there and your specific destination.”

The use of community transportation advanced technology by JCATS provides a basis for very low waiting times as a result of scheduling efficiencies. Any change in advanced technology should maintain low waiting times.

Reservation Policy

Reservations must be made prior to 12:00 on the day before the scheduled trip. This policy is helpful in allowing time for accurate scheduling.

Waiting List Policies

There are no waiting list policies found for JCATS.

Other JCATS Policies

The JCATS policies, including the Equal Opportunity Employer Policy, the Title VI of the Civil Rights Act Policy, and the Drug & Alcohol Testing Policy, seem to be in accordance with Federal law and have little to no effect on customer service. In addition, the policy guidelines on holding public meetings and the Limited English Proficiency plan are comprehensive.

Inclement Weather Policy

The inclement weather policy states that JCATS will not operate when Johnston County Schools are closed. In the event of a delay, JCATS will operate along the same schedule as the school system. Dialysis patients using JCATS will need to arrange for alternate transportation. The JCATS policy indicates that patients can inform nurses, who can arrange other means of transportation as necessary. This policy reflects poorly on the reliability of the JCATS system and should be reconsidered.

6. EXISTING PUBLIC TRANSIT SERVICES

DEMAND-RESPONSIVE SERVICE

JCATS demand-responsive service is offered to any resident of Johnston County Monday through Friday, excluding holidays, from 6am to 5pm with some limited services available on nights and weekends. Saturday service is currently primarily aimed at Johnston County residents with dialysis needs. The service operates on a reservation basis; those needing rides can call to schedule one anytime before noon on the business day before the desired ride. The service provides curb-to-curb transportation which fulfills several functions:

Human Services Transportation which consists of trips through agencies for purposes such as medical, job training, school, work, child care, social services, public hearings, and senior centers. Rural General Public service which consists of all other trips requested by individual riders (also known as RGP service).

JCATS primarily focuses on serving locations within Johnston County, but rides can be scheduled to out of county destinations for certain services as well. Often agencies cover the cost of rides, but general public rides cost \$2.00 in county and \$15.00 out of county. Subscription and demand-response trip fares billed through human service agencies are on a per-mile basis which is specific to trip type or agency. This is the same rate for in-County and out-of-County. The per-mile rate is derived from an estimate of revenue miles and non-reimbursed expenses. The agencies are charged an average fare for a trip which is an average per passenger rate calculated based on the number of passengers and total miles traveled on that trip.

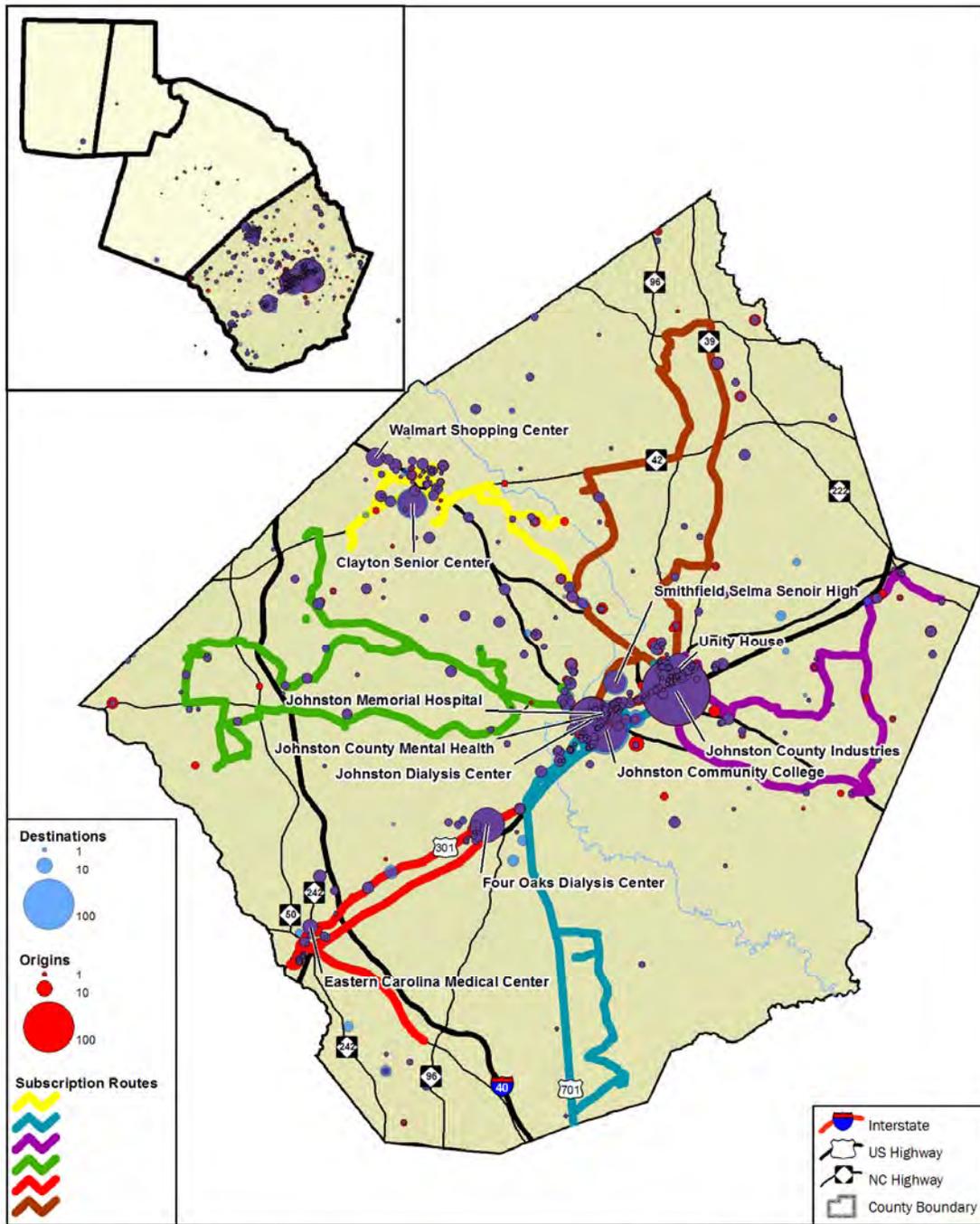
JCATS does not currently have any policies or plans in place that coordinate service with surrounding service providers. JCATS does not currently work with other agencies on consistent service plans, compatible fares, or coordinating the reservation system. This could change as other services operate more in Johnston County. For example, Triangle Transit plans to begin operating express service to downtown Raleigh from Park and Ride lots in Clayton in the near future, which may be an opportunity to coordinate some services with Triangle Transit.

Dispatching is currently done via radio and the protocols to follow for dispatching are included in the job description for dispatchers. JCATS has an alarm system and security cameras on premises to provide security to the building and fleet of vehicles.

SUBSCRIPTION ROUTES

Although JCATS does not operate any fixed-route service, which would run on a designated schedule and path, Figure 6.1 provides a map of subscription route loops, which are common trips that JCATS makes, as well as trip origins and destinations.

Figure 6.1: JCATS Subscription Routes and Trip Origins and Destinations



TRIP ORIGINS AND DESTINATIONS

JOHNSTON COUNTY AREA TRANSIT SYSTEM

DECEMBER 2010



HISTORIC RIDERSHIP AND SERVICE LEVELS

Ridership, vehicle service miles, and vehicle service hours have all increased over the past five years. The recent trend has largely been encouraging for JCATS; over the last three years ridership has

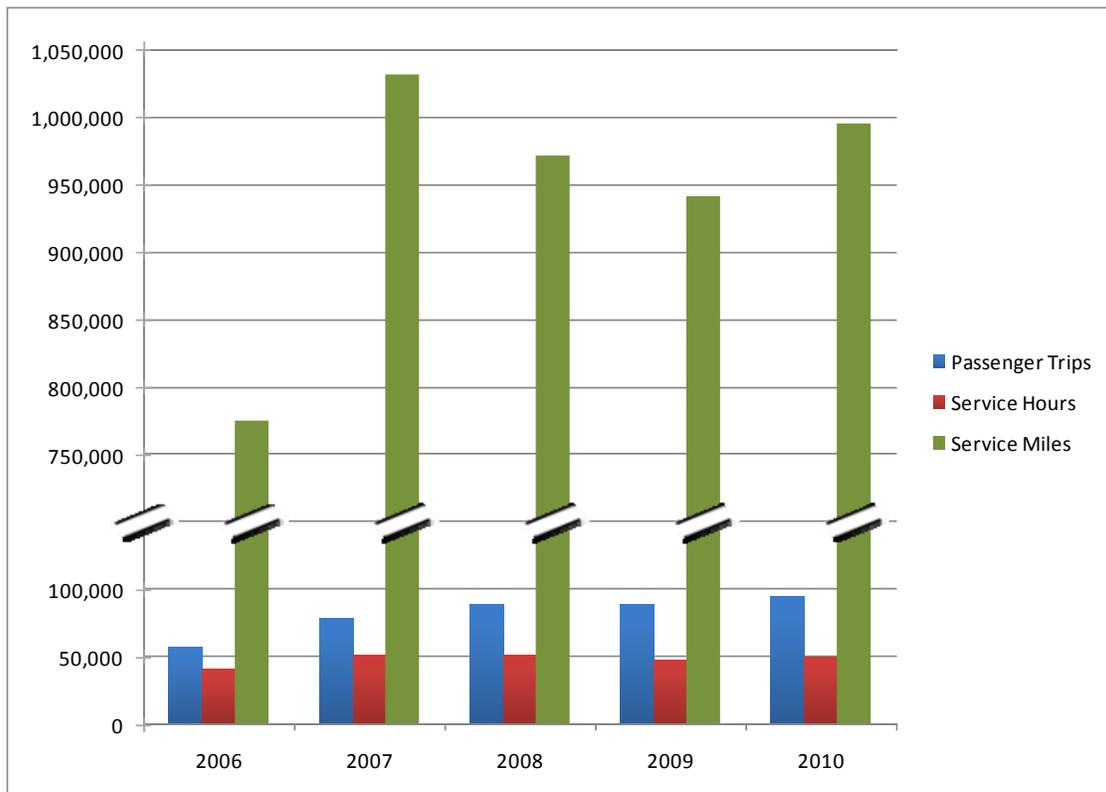
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been increasing, vehicle service hours have moderated a bit, but vehicle service miles are up. JCATS provides over 300 rides per day. Table 6.1 and Figure 6.2 present ridership and service information for the last five years.

Table 6.1: Ridership and Service Trends

| Fiscal Year | Passenger trips | % Change | Service hours | % Change | Service miles | % Change |
|------------------------------|-----------------|------------|---------------|------------|----------------|------------|
| 2006 | 57,680 | | 41,068 | | 774,198 | |
| 2007 | 78,722 | 36% | 51,341 | 25% | 1,031,180 | 33% |
| 2008 | 88,142 | 12% | 51,028 | -1% | 971,477 | -6% |
| 2009 | 88,141 | 0% | 46,669 | -9% | 941,110 | -3% |
| 2010 | 94,699 | 7% | 49,480 | 6% | 995,261 | 6% |
| Total Change | 37,019 | 64% | 8,412 | 20% | 221,063 | 29% |
| Average Annual Change | 7,404 | 13% | 1,682 | 4% | 44,213 | 6% |

Figure 6.2: Ridership and Service Trends



OTHER TRANSIT OPTIONS IN THE STUDY AREA

Taxi Companies

There are an adequate number of taxicab companies that operate in Johnston County, including Clayton Taxi in Clayton, Yellow & Checker Cab in Smithfield, TELETAXI in Selma, Benson Cab Co. in Benson, and McLamb Taxi in Four Oaks. These companies provide demand responsive service in Johnston County with standard fees based on mileage, waiting time, and number of stop locations.

Jannie's Ride

JCATS is not the only provider of public transportation services that operates in Johnston County. Jannie's Ride, a for-profit transportation provider also operates vehicles. Some JCATS trips are contracted out to Jannie's Ride, particularly on nights and weekends when JCATS is not operating or when demand exceeds JCATS' capacity. In FY 2009, Jannie's Ride operated 7,824 vehicle service hours and 218,564 vehicle service miles while carrying 9,804 passengers. This represents about 17% of the vehicle service hours, 23% of the vehicle service miles, and 11% of the passengers that JCATS provided in FY 2009. These trips are operated on behalf of and coordinated through JCATS.

Greyhound Bus Service

Greyhound Lines, Inc. is the only provider of scheduled inter-city bus service within Johnston County. The only Greyhound stop in the Study Area is in Smithfield at 600 Brightleaf Boulevard. Because Greyhound serves local and national locations, it provides an opportunity for linkages to JCATS to expand mobility options for Johnston County residents. Greyhound serves many locations directly from Smithfield, including the following daily non-stop departures and arrivals:

Raleigh: 3 daily departures and arrivals, 40 minutes trip duration

Goldsboro: 3 daily departures and arrivals, 30 minutes trip duration

Kinston: 2 daily departures and arrivals, average 1 hour 25 minutes trip duration

New Bern: 2 daily departures and arrivals, 2 hours trip duration

A wide range of other regional destinations can be reached via transferring to another Greyhound bus at a different destination (most notably Raleigh). Other major destinations such as Charlotte, Atlanta, Richmond, and Washington D.C. can be reached from Smithfield by making transfers, most typically in Raleigh.

Passenger Rail Service

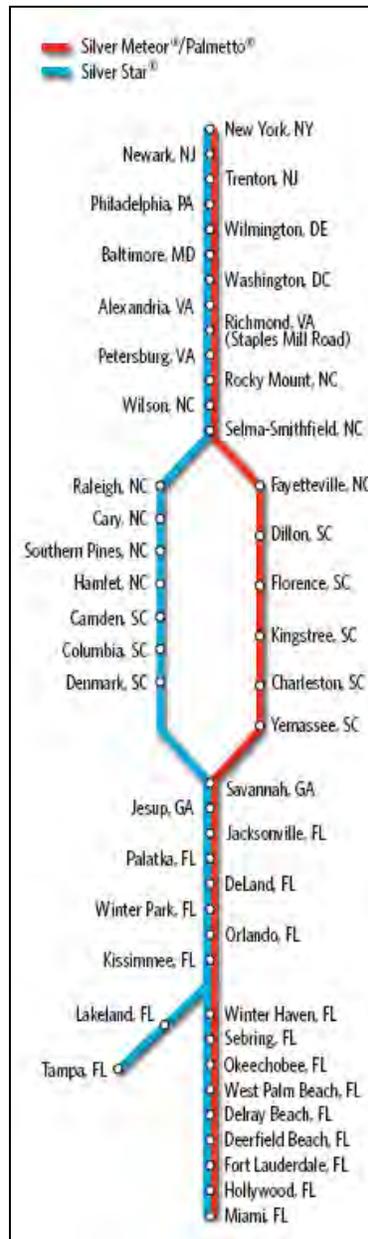
The only AMTRAK Train Station located within the Study Area is located at 401 East Railroad Street in downtown Selma. The train station is housed in a building previously known as the Selma Union Depot that was opened back in 1924 by the Atlantic Coast Line and Southern Railroads. The train station was added to the National Register of Historic Places in 1982 and had undergone revitalization in 2002. Selma is currently served by eight Amtrak trains each day (see Figure 6.3):

- The Palmetto (train 89 southbound and 90 northbound), between New York, NY, and Savannah, GA.

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- The Carolinian (train 79 southbound and 80 northbound), between New York, NY, and Charlotte. This is a state-supported service and provides links to North Carolina destinations including Raleigh, Durham, and Greensboro.
- Silver Star (train 91 southbound and 92 northbound), between New York, NY, and Jacksonville, FL.
- Silver Meteor (train 97 southbound and 98 northbound), between New York, NY, and Jacksonville, FL.

Figure 6.3: Amtrak Silver Star / Silver Meteor Routes



Source: AMTRAK website

The scheduled times are based on the demands of the main long-distance markets the trains serve. Currently, all departures at the Selma train station are in the afternoon or evening southbound, and early morning and afternoon northbound, thus offering convenient daytime service to many nearby regional destinations as well as overnight long-distance travel opportunities (see Figure 6.4).

Figure 6.4: Amtrak Regional Routes



Source: AMTRAK website

Air Travel

The small regional airport serving the Study Area is the Johnston County Airport (JNX) located on Highway 97 just 5 miles northwest of downtown Smithfield. JNX is a general aviation facility with a 5,500 foot, paved and lighted runway. Smaller corporate planes doing business in Johnston County frequently use that facility.

The main airport serving the Study Area is Raleigh-Durham International Airport (RDU). RDU, the nation's 36th largest airport is located in Raleigh, approximately half an hour from Clayton and about an hour from both Smithfield and Selma. RDU offers 400 daily departures by several major airlines and regional carriers that provide direct non-stop flights to over 40 U.S. destinations, the Caribbean, Canada and Europe. In nearby counties, Fayetteville Regional Airport currently offers service to Charlotte and to Atlanta. Pitt Greenville Airport currently offers service to Charlotte. Kinston Regional Jetport no longer has scheduled service.

7. FINANCIAL CHARACTERISTICS

COST ALLOCATION MODEL

A cost allocation model examines JCATS' actual expenses and assigns groups of expenses to specific service units for longitudinal analysis and peer comparison. The cost allocation model also is used for financial analysis and projection. By determining the total cost per hour of service it is possible to model future service changes and enhancements. The cost allocation model is shown in Table 7.1.

Expenses for Fiscal Year 2010 totaled \$1,713,191. The specific operating cost line items were allocated to a quantity of service (vehicle service hours, vehicle service miles, or fixed cost) for the purposes of constructing a cost allocation model. The total hourly cost is calculated by dividing the total expenses by the annual vehicle service hours operated, which yields \$34.62. The cost equation and total hourly cost, scaled to account for inflation, can be used to estimate costs associated with service changes, such as changes in the hours of service.

Table 7.1: Cost Allocation Model

| Line Item | Expenses | Fixed | Service Hour | Service Mile |
|---|------------------------|------------------|------------------|------------------|
| ADMINISTRATIVE | | | | |
| Admin Salaries and Fringes | \$152,964 | \$152,964 | | |
| Advertising and Promotion | \$8,785 | \$8,785 | | |
| Employee Development | \$4,853 | | \$4,853 | |
| Vehicle Insurance Premiums | \$28,100 | \$28,100 | | |
| Indirect Services | \$27,000 | \$27,000 | | |
| Admin Expenses | \$59,872 | \$59,872 | | |
| COA Admin | \$56,500 | \$56,500 | | |
| Other Admin | \$4,274 | \$4,274 | | |
| OPERATING | | | | |
| Driver Salaries & Fringes | \$652,594 | | \$652,594 | |
| Fuel | \$180,477 | | | \$180,477 |
| Oil | \$9,459 | | | \$9,459 |
| Vehicle Tubes and Tires | \$25,032 | | | \$25,032 |
| Vehicle Maintenance | \$48,585 | | | \$48,585 |
| Purchased Transportation | \$417,645 | | | \$417,645 |
| Insurance Deductibles | \$637 | | | \$637 |
| Operating - Other | \$8,931 | \$8,931 | | |
| Reserves | \$27,484 | \$27,484 | | |
| Total | \$1,713,191 | \$373,910 | \$657,447 | \$681,834 |
| | <i>Unit Quantities</i> | <i>N/A</i> | <i>49,480</i> | <i>995,261</i> |
| | <i>Cost per Unit</i> | <i>\$373,910</i> | <i>\$13.29</i> | <i>\$0.69</i> |
| Fully Allocated Cost per Hour of Service | | \$34.62 | | |
| Source: 2010 JCATS OPSTATS | | | | |

REVENUE SOURCES

Operating

In FY 2010, JCATS received revenues from four sources to subsidize its operating costs, as shown in Table 7.2. The costs of operating JCATS' service were funded primarily by contracts and farebox revenue (74 percent), followed by federal assistance (12 percent), and state assistance (11 percent). Local match accounted for around 3 percent of the overall funding.

Table 7.2: Revenue Sources: Operating Costs (FY 2010)

| Revenue Source | Revenue | % of Revenue |
|-------------------------------------|--------------------|--------------|
| Federal (S. 5311) | \$225,136 | 12% |
| State - ROAP and CTP | \$202,971 | 11% |
| Local Match | \$48,711 | 3% |
| Farebox | \$25,085 | 1% |
| Agency Contracts | \$1,399,346 | 73% |
| Other (Advertising, Interest, etc.) | \$28,426 | 1% |
| | | |
| Total Revenue | \$1,927,845 | 100% |

Source: 2010 JCATS OPSTATS

Capital

In FY 2010, JCATS received revenues from four sources to subsidize its capital costs, as shown in Table 7.3. Federal and state assistance combined comprised 88 percent of funding of JCATS' capital costs in FY 2010. Local assistance accounted for 10 percent of the total, and other sources of revenue were at about 2 percent.

Table 7.3: Revenue Sources: Capital Costs (FY 2010)

| Source | Revenue | % of Revenue |
|---------------------------------|------------------|---------------|
| Federal/State assistance | \$185,902 | 88.0% |
| Vehicles and others | \$150,703 | |
| Facility | \$35,199 | |
| Local assistance | \$20,656 | 9.8% |
| Farebox/Contracts/Other | \$4,813 | 2.3% |
| | | |
| Total Assistance | \$211,370 | 100.0% |

Source: 2010 JCATS OPSTATS

PERFORMANCE ANALYSIS

As part of this study, an analysis of ridership and operating data on a service category basis was conducted in order to gain further insight into the efficiency and effectiveness of JCATS services. The most recent available Fiscal Year 2010 data was reviewed to identify passenger activity levels, marginal costs, allocated costs, allocated subsidy, farebox recovery ratio, and average fares. The results of this performance analysis are shown below in Table 7.4.

Service effectiveness is perhaps best measured by “productivity,” which is defined as the number of one-way passenger trips provided per each service hour. JCATS’ productivity was at 1.9 one-way passenger trips per vehicle service hour in FY 2009. Another measure of transit’s effectiveness is the number of one-way passenger trips provided per vehicle service mile. JCATS stood at 0.09 one-way passenger trips per vehicle service mile in FY 2009.

The financial efficiency of a given transit system can be measured by the operating cost per one-way passenger trip which for JCATS’ was \$18.09 in FY 2010. As expected, JCATS has subsidized each passenger trip – subtracting farebox revenue from the total cost and dividing it by the number of one-way passenger trips yields the subsidy required per one-way passenger trip. The operating subsidy per passenger is an important measure of a transit system performance particularly because it directly compares the most significant public input (public subsidy funding) with the most significant output (one-way passenger trips). JCATS required a subsidy of \$17.83 per one-way passenger trip in Fiscal Year 2010. It is important to note here, however, that contract revenue from agencies that purchase transportation from JCATS covers a significant portion of this subsidy, so it is not a measure of a direct cost to JCATS. Contract revenue accounts for \$14.78 per trip which is 82% of the total \$18.09 per trip cost. Historically, contract revenue from human service agencies has covered 75% of JCATS’ costs.

Lastly, one measure of a transit system’s cost-effectiveness is the farebox recovery ratio. The measure is particularly useful in finding out whether the mandated minimums required for obtaining state funding were met. JCATS’ farebox recovery ratio in Fiscal Year 2010 was at 1.5 percent.

Table 7.4: Performance Analysis (FY 2010)

| Line Item | Demand-responsive /Subscription service |
|---|---|
| One-way Passenger Trips | 94,699 |
| Operating Expenses | 1,713,191 |
| Passenger Fares | 25,085 |
| Vehicle Service Hours | 49,480 |
| Vehicle Service Miles | 995,261 |
| Passenger Trips / Vehicle Service Hours | 1.9 |
| Passenger Trips / Vehicle Service Miles | 0.10 |
| Operating Cost per Passenger - Trip | \$18.09 |
| Operating Subsidy per Passenger - Trip | \$17.83 |
| Farebox Recovery Ratio | 1.46% |
| Fare per passenger trip | \$0.26 |
| Source: 2010 JCATS OPSTATS | |

CAPITAL ASSETS

Administrative Facilities

JCATS current administrative facilities are well located but do not provide adequate space for growing administrative needs.

Figure 7.1: JCATS Administrative Facility



Adjacent to the current JCATS site is an open parcel of land that could be used to expand JCATS administrative, maintenance, and storage facilities.

Figure 7.2: JCATS Lot



Vehicle Storage Facilities

JCATS currently utilizes an open-air vehicle storage facility. This facility is protected by steel fencing, barbed wire, and night-lighting. It is currently large enough to store JCATS fleet of vehicles. It is centrally located so as to provide access to JCATS primary service routes, and to minimize dead-head hours.

Figure 7.3: JCATS Vehicle Storage Facility



Maintenance Facilities

The in-house maintenance facilities at JCATS are adequate for some basic service (such as checking tire pressure) and cleaning of vehicles. They are inadequate to provide for vehicle repairs and in-depth service. JCATS has no in-house maintenance or cleaning employees, and paid a total of \$107,009 in FY2009 for these services.

Figure 7.4: JCATS Maintenance Facility



Vehicle Fleet

JCATS has a fleet of 24 vehicles used to operate its demand-responsive and subscription-based service in Johnston County (data as of October 2009):

- 10 Ford 25 ft. LTVs (Light Transit Vehicles)
- 2 Ford 22 ft. LTVs (Light Transit Vehicles)
- 8 Ford Lift-Equipped Vans
- 3 Ford Conversion Vans
- 1 Chrysler minivan

Nearly all vehicles are ADA-accessible, with the exception of Ford conversion vans and a Chrysler minivan. Table 7.5 presents more details about JCATS' vehicle fleet in 2009 along with a projected replacement schedule based on industry standards. JCATS in FY 2011 expanded to 25 vehicles and has a scheduled increase in the base vehicle fleet to 26 in FY 2012.

Vehicle Utilization

In terms of vehicle utilization, JCATS typically uses the majority of the available vans with a reasonable spare ratio to provide consistent service throughout the service day.

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Table 7.5: JCATS Vehicle Fleet (FY 2009)

| YEAR | MODEL | VEHICLE TYPE | SEATING CAPACITY | # WHEELCHAIR TIEDOWNS | ODOMETER READING (Oct 2008) | YEAR OF PLANNED REPLACEMENT |
|------|----------|-------------------|------------------|-----------------------|-----------------------------|-----------------------------|
| 2006 | Ford | Conversion Van | 12 | 0 | 131,200 | 2011 |
| 2006 | Ford | Lift Equipped Van | 9 | 2 | 142,375 | 2011 |
| 2007 | Ford | 25 ft. LTV | 18 | 2 | 116,688 | 2012 |
| 2007 | Ford | Lift Equipped Van | 9 | 2 | 108,315 | 2012 |
| 2008 | Ford | 25 ft. LTV | 18 | 2 | 102,126 | 2012 |
| 2008 | Ford | Lift Equipped Van | 8 | 2 | 100,338 | 2012 |
| 2008 | Ford | Lift Equipped Van | 8 | 2 | 103,413 | 2012 |
| 2008 | Ford | Lift Equipped Van | 8 | 2 | 103,922 | 2012 |
| 2006 | Ford | Conversion Van | 12 | 0 | 99,029 | 2013 |
| 2006 | Chrysler | Minivan | 7 | 0 | 89,421 | 2013 |
| 2008 | Ford | 25 ft. LTV | 18 | 2 | 90,397 | 2013 |
| 2008 | Ford | Lift Equipped Van | 8 | 2 | 90,500 | 2013 |
| 2008 | Ford | Lift Equipped Van | 8 | 2 | 77,301 | 2013 |
| 2008 | Ford | Lift Equipped Van | 8 | 2 | 75,380 | 2013 |
| 2004 | Chevy | 15 Passenger Van | 15 | 0 | 68,026 | 2013 |
| 2009 | Ford | 25 ft. LTV | 18 | 2 | 49,746 | 2014 |
| 2009 | Ford | 25 ft. LTV | 18 | 2 | 58,253 | 2014 |
| 2009 | Ford | 25 ft. LTV | 18 | 2 | 68,119 | 2014 |
| 2009 | Ford | 25 ft. LTV | 18 | 4 | 57,962 | 2014 |
| 2009 | Ford | 25 ft. LTV | 18 | 2 | 46,765 | 2014 |
| 2009 | Ford | 25 ft. LTV | 18 | 2 | 57,567 | 2014 |
| 2010 | Ford | 22 ft. LTV | 14 | 2 | 21,189 | 2015 |
| 2010 | Ford | 22 ft. LTV | 14 | 2 | 20,174 | 2015 |
| 2010 | Ford | 22 ft. LTV | 14 | 2 | 7,480 | 2016 |

Source: JCATS data as of March 2011

8. URBAN TRANSIT DEMAND ANALYSIS

One of the key steps in developing and evaluating public transportation plans is an analysis of the mobility needs of population segments and their potential transit usage. Transit demand analysis refers to demand for public transportation in a project area. Not all factors affecting transit demand can be forecasted, but several methods have been developed to help estimate it. The analysis makes extensive use of the demographic data and trends discussed in Section 3 of this report.

Transit demand in Johnston County is analyzed in order to help identify and evaluate transit service alternatives. Johnston County is divided into urban and rural areas based on population density. Three different methods were used to estimate the maximum transit trip *need* and feasible *demand* for existing services in Johnston County. Due to much higher population density, transit demand analysis in the following towns within Johnston County was based on existing methodologies focusing on estimating *urban* transit demand:

- Town of Clayton
- Township of Cleveland (unincorporated)
- Town of Selma
- Town of Smithfield

The three methods used to estimate demand are shown below. The first method is for the urban areas of the county (the towns listed above), and the other two methods are for the remaining parts of the County which are more rural in character. Rural Transit Demand Analysis is discussed in Chapter 9.

- Urban Transit Demand Model (urban)
- Rural Transit Demand Estimation Model (rural)
- Greatest Transit Needs Index Model (rural)

All methods and findings are described in detail in the following sections.

METHODOLOGY

Urban demand is estimated using a few different methods derived from relevant national models and research on demand estimation methodologies. The first step was divided demand into two groups:

1. Non-Commuter Demand
2. Commuter Demand

For these groups, commuters are defined narrowly as workers whose place of employment is outside of their residence Township; two examples would be a worker who lives in Selma but works in Smithfield, or one who lives in Clayton and works in Raleigh. Non-commuter demand is derived by an average of two different methods:

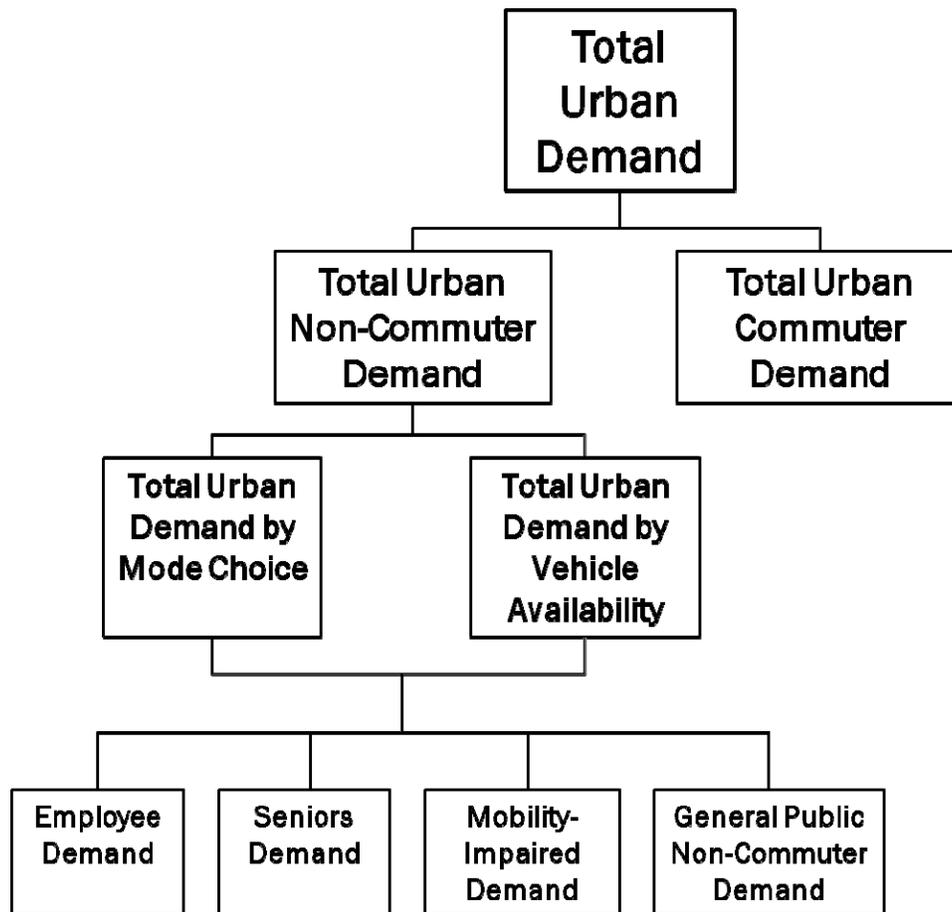
1. Total Non-Commuter Demand by Mode Choice
2. Total Non-Commuter Demand by Vehicle Availability

For illustrative purposes, Non-Commuter Demand is also broken down into ridership segments to show how different demographic groups contribute to the total demand. These ridership segments are:

1. Employee Demand
2. Demand by Seniors
3. Demand by Mobility-Impaired Persons
4. General Public Non-Work Demand

Importantly, Employee Demand is distinct from Commuter Demand based on a definition of where the place of work and residence is. Commuter Demand is for individuals whose place of work is distinct from their residence Township. Employee Demand, however, measures those individuals who work in the same Township of their residence. Both methods do not count workers who work from home. Conceptually, Total Demand and the components that are used to derive it are shown in Figure 8.1.

Figure 8.1: Total Demand Conceptualization



It should be noted that the methods described above yield estimates of potential transit demand for an idealized transit service in an area with a very high level of transit service. In reality, no transit

agency would be able to meet 100 percent of the estimated potential demand. Additionally, the data used for the demand analysis is based on the 2000 U.S. Census. While this data may be considered quite dated compared to the current analysis year, it is the most reliable source of information available at the block group demographic level, which is required to disaggregate the Study Area for the purpose of this analysis.

Lastly, it should be noted that the actual towns' limits differ slightly from how U.S. Census set up limits for its tracts and block groups. An effort was made to align the borders of the towns with appropriate block groups as closely as possible. In the end, the resulting census groups used to estimate urban transit demand were populated by 45,014 residents, which is very close to the 43,940 estimated by the respective townships in 2007 and 2008 (Table 8.1).

| Township | Population | | |
|--------------|------------------|----------------------------------|------------------------------|
| | U.S. Census 2000 | 2007 and 2008 Township Estimates | Urban Block Group Population |
| Clayton | 6,973 | 13,842 | 14,218 |
| Cleveland | n/a | 10,125 | 11,536 |
| Selma | 5,914 | 7,008 | 6,875 |
| Smithfield | 11,510 | 12,965 | 12,385 |
| Total | | 43,940 | 45,014 |

Source: US Census 2000, Townships of Clayton, Cleveland, Selma, and Smithfield

TOTAL URBAN NON-COMMUTER DEMAND

Total Urban Non-Commuter Demand is calculated based on an average of two estimates. Later, this demand is also broken into ridership segments to illustrate which demographic groups are contributing to the total demand for transit. Finally, the Total Urban Non-Commuter Demand is added to the Total Urban Commuter Demand (discussed later in this chapter) to derive the Total Urban Demand for Johnston County.

Total Demand by Transit Modal Split

The analysis of total demand by modal split relies on the national percentage of all trips (not just employee work trips) made via transit. Nationwide, between 0.5 (for new service) and 1.2 percent of all trips are made on transit where it is available, and each person makes 3.5 one-way trips per day on average. Once the demographic characteristics of Johnston County are taken into consideration, the optimal transit modal split for its urban portion is estimated to be around 1.0 percent. The 2000 U.S. Census population data for the census tracts and census blocks comprising the urbanized areas in Johnston County is shown in Table 8.2.

The general population demand by modal split for the urban area defined as urban Johnston County can be estimated at around 401,761 annual one-way transit trips, calculated as follows:

1.
 $45,014 \times 255 \text{ days/year} \times 3.5 \text{ trips per day} = 40,174,995 \text{ person-trips per year}$

- 2.
40,174,995 person-trips per year \times 1.0% = **401,761 annual one-way transit trips**

Of the estimated total urban demand, the largest segments are located in the Clayton and Cleveland areas, especially areas immediately adjacent to Wake County in the northwestern part of Johnston County. Just the two census block tracts, 371010411001 and 371010411003, located in the border area of Clayton and Cleveland, account for nearly 33 percent of the total urban transit demand in Johnston County.

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| Table 8.2: Annual Transit Trip Demand Estimation by Modal Split (Urban) | | | | | |
|---|--------------|-------------|-----------------|-----------------------------|--------------|
| Township | Census | | 2000 Population | One-Way Transit Trip Demand | |
| | Tract | Block Group | | Number | Percent |
| Clayton | 371010410001 | 1 | 862 | 7,694 | 1.9% |
| Clayton | 371010410002 | 2 | 2,999 | 26,767 | 6.7% |
| Clayton | 371010410003 | 3 | 2,451 | 21,876 | 5.4% |
| Clayton | 371010410005 | 5 | 2,954 | 26,365 | 6.6% |
| Clayton | 371010411001 | 1 | 4,952 | 44,197 | 11.0% |
| Clayton subtotal | | | 14,218 | 126,899 | 31.6% |
| Cleveland | 371010411003 | 3 | 9,691 | 86,493 | 21.5% |
| Cleveland | 371010411002 | 2 | 1,845 | 16,467 | 4.1% |
| Cleveland subtotal | | | 11,536 | 102,960 | 25.6% |
| Selma | 371010403002 | 2 | 1,632 | 14,566 | 3.6% |
| Selma | 371010403003 | 3 | 2,054 | 18,332 | 4.6% |
| Selma | 371010403004 | 4 | ,423 | 12,701 | 3.2% |
| Selma | 371010403005 | 5 | 1,024 | 9,140 | 2.3% |
| Selma | 371010403006 | 6 | 742 | 6,623 | 1.6% |
| Selma subtotal | | | 6,875 | 61,362 | 15.3% |
| Smithfield | 371010406001 | 1 | 1,284 | 11,460 | 2.9% |
| Smithfield | 371010407001 | 1 | 1,890 | 16,869 | 4.2% |
| Smithfield | 371010407002 | 2 | 682 | 6,087 | 1.5% |
| Smithfield | 371010407003 | 3 | 830 | 7,408 | 1.8% |
| Smithfield | 371010408001 | 1 | 1,310 | 11,692 | 2.9% |
| Smithfield | 371010408002 | 2 | 1,438 | 12,835 | 3.2% |

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| | | | | | |
|----------------------------|--------------|---|---------------|----------------|---------------|
| Smithfield | 371010408003 | 3 | 708 | 6,319 | 1.6% |
| Smithfield | 371010409003 | 3 | 1,021 | 9,113 | 2.3% |
| Smithfield | 371010409004 | 4 | 1,921 | 17,145 | 4.3% |
| Smithfield | 371010412004 | 4 | 1,301 | 11,612 | 2.9% |
| Smithfield subtotal | | | 12,385 | 110,540 | 27.5% |
| | | | | | |
| Total | | | 45,014 | 401,761 | 100.0% |

Total Demand by Vehicle Availability

Another methodology aimed at estimating urban transit demand was presented in Transportation Research Record # 730, *Demand Estimating Model for Transit Route and System Planning in Small Urban Areas* (1979). The methodology relies on the single most statistically significant indicator of transit need, the availability of a motor vehicle, in estimating transit demand. Those residents of households with no access to vehicle at all have a transit demand rate of 0.4 trips per day, while that rate drops to 0.1 for residents of households with one vehicle.

Using those transit demand rates, the total potential urban transit in Johnston County can be estimated as:

-(0.4 × number of residents of zero-vehicle households + 0.1 × number of residents of one-vehicle households) × 255 days/year = **285,882 annual one-way transit trips**

A more reasonable single estimate for the total urban area can be derived by averaging the two estimates (mode split and vehicle availability). As shown in Table 8.7, that average for urban Johnston County would be **343,822 annual one-way transit trips**. Table 8.3 shows total urban demand by vehicle availability for Johnston County.

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| Table 8.3: Annual Transit Trip Demand Estimation by Vehicle Availability (Urban) | | | | | | |
|--|--------------|-------------|-------------------------|------------------------|-----------------------------|---------|
| | Census | | Residents | | One-Way Transit Trip Demand | |
| Township | Tract | Block Group | Zero Vehicle Households | One Vehicle Households | Number | Percent |
| Clayton | 371010410001 | 1 | 60 | 132 | 9,486 | 3.3% |
| Clayton | 371010410002 | 2 | 17 | 393 | 11,756 | 4.1% |
| Clayton | 371010410003 | 3 | 15 | 239 | 7,625 | 2.7% |
| Clayton | 371010410005 | 5 | 59 | 399 | 16,193 | 5.7% |
| Clayton | 371010411001 | 1 | 20 | 490 | 14,535 | 5.1% |
| Clayton subtotal | | | 171 | 1,653 | 59,594 | 20.8% |
| | | | | | | |
| Cleveland | 371010411003 | 3 | 36 | 782 | 23,613 | 8.3% |
| Cleveland | 371010411002 | 2 | 18 | 147 | 5,585 | 2.0% |
| Cleveland subtotal | | | 54 | 929 | 29,198 | 10.2% |
| | | | | | | |
| Selma | 371010403002 | 2 | 110 | 245 | 17,468 | 6.1% |
| Selma | 371010403003 | 3 | 111 | 306 | 19,125 | 6.7% |
| Selma | 371010403004 | 4 | 112 | 270 | 18,309 | 6.4% |
| Selma | 371010403005 | 5 | 62 | 116 | 9,282 | 3.2% |
| Selma | 371010403006 | 6 | 78 | 96 | 10,404 | 3.6% |
| Selma subtotal | | | 473 | 1,033 | 74,588 | 26.1% |
| | | | | | | |
| Smithfield | 371010406001 | 1 | 206 | 164 | 25,194 | 8.8% |
| Smithfield | 371010407001 | 1 | 45 | 326 | 12,903 | 4.5% |
| Smithfield | 371010407002 | 2 | 42 | 151 | 8,135 | 2.8% |
| Smithfield | 371010407003 | 3 | 87 | 120 | 11,934 | 4.2% |
| Smithfield | 371010408001 | 1 | 122 | 238 | 18,513 | 6.5% |
| Smithfield | 371010408002 | 2 | 49 | 219 | 10,583 | 3.7% |
| Smithfield | 371010408003 | 3 | 5 | 88 | 2,754 | 1.0% |
| Smithfield | 371010409003 | 3 | 16 | 133 | 5,024 | 1.8% |
| Smithfield | 371010409004 | 4 | 94 | 273 | 16,550 | 5.8% |
| Smithfield | 371010412004 | 4 | 57 | 200 | 10,914 | 3.8% |
| Smithfield subtotal | | | 723 | 1,912 | 122,502 | 42.9% |
| | | | | | | |
| Total | | | 1,421 | 5,527 | 285,882 | 100.0% |

TOTAL DEMAND BY RIDERSHIP SEGMENT

Employee Transit Demand

According to American Public Transit Association and Federal Transit Administration, nationwide, approximately 1.8 to 2.5 percent of employees use transit if it is available. When considering the fact there is a mismatch between jobs and places of residence and that places of employment are generally dispersed across Johnston County, the expected work transit mode split in urbanized Johnston County could be reasonably set at 2.0 percent. Typically, each worker makes two trips 250 times per year. As shown in Table 8.4, based on 2,450 Johnston County residents living in urban parts of the county and *employed outside the home in their respective townships*, the employee transit demand is calculated as:

| | |
|---|---|
| 1..... | 2,450 |
| $\times 2 \times 250 =$ | 1,225,000 total annual one-way person trips |
| 2..... | 1,225,000 |
| $00 \text{ annual one-way person trips} \times 2.0\% =$ | 24,500 annual one-way transit trips |

It should be noted that this data assumes no employee transit demand in the part of Johnston County known as Cleveland. This stems from the fact that the data is quite dated and Cleveland has grown dramatically in population since 2000. In addition, Cleveland is very residential in nature and does not offer many places of employment for local residents. In fact, most of the townships in Johnston County offer relatively few employment opportunities, with the exception of Smithfield. This speaks to the more suburban residential nature of the bulk of the northwestern part of Johnston County, where the workers' outflow (rather than inflow or a mix of outflow and inflow) is the norm, mostly to points in Wake County and other locations in the Triangle Region.

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| Table 8.4: Estimated Employee Transit Demand (Urban) | | | | | | |
|--|--------------|-------------|--------------------|------------------------------|------------------------------------|---------------|
| Township | Census | | Residents employed | | Annual One-Way Transit Trip Demand | |
| | Tract | Block Group | Outside the home | Outside the home in Township | Total | Transit |
| Clayton | 371010410001 | 1 | 373 | 75 | 37,500 | 750 |
| Clayton | 371010410002 | 2 | 1,860 | 89 | 44,500 | 890 |
| Clayton | 371010410003 | 3 | 1,238 | 64 | 32,000 | 640 |
| Clayton | 371010410005 | 5 | 1,498 | 83 | 41,500 | 830 |
| Clayton | 371010411001 | 1 | 2,487 | 0 | - | 0 |
| Clayton subtotal | | | 7,456 | 311 | 155,500 | 3,110 |
| Cleveland | 371010411003 | 3 | 5,336 | 0 | - | 0 |
| Cleveland | 371010411002 | 2 | 866 | 0 | - | 0 |
| Cleveland subtotal | | | 6,202 | 0 | 0 | 0 |
| Selma | 371010403002 | 2 | 689 | 84 | 42,000 | 840 |
| Selma | 371010403003 | 3 | 750 | 82 | 41,000 | 820 |
| Selma | 371010403004 | 4 | 599 | 111 | 55,500 | 1,110 |
| Selma | 371010403005 | 5 | 287 | 26 | 13,000 | 260 |
| Selma | 371010403006 | 6 | 260 | 35 | 17,500 | 350 |
| Selma subtotal | | | 2,585 | 338 | 169,000 | 3,380 |
| Smithfield | 371010406001 | 1 | 321 | 146 | 73,000 | 1,460 |
| Smithfield | 371010407001 | 1 | 796 | 322 | 161,000 | 3,220 |
| Smithfield | 371010407002 | 2 | 219 | 12 | 6,000 | 120 |
| Smithfield | 371010407003 | 3 | 258 | 128 | 64,000 | 1,280 |
| Smithfield | 371010408001 | 1 | 484 | 260 | 130,000 | 2,600 |
| Smithfield | 371010408002 | 2 | 586 | 324 | 162,000 | 3,240 |
| Smithfield | 371010408003 | 3 | 336 | 172 | 86,000 | 1,720 |
| Smithfield | 371010409003 | 3 | 467 | 211 | 105,500 | 2,110 |
| Smithfield | 371010409004 | 4 | 617 | 190 | 95,000 | 1,900 |
| Smithfield | 371010412004 | 4 | 503 | 36 | 18,000 | 360 |
| Smithfield subtotal | | | 4,587 | 1,801 | 900,500 | 18,010 |
| Total | | | 20,830 | 2,450 | 1,225,000 | 24,500 |

Seniors and Mobility-Impaired Persons Transit Demand

Peat, Marwick, Mitchell & Company developed the most thorough analysis of transit demand among the elderly and mobility-impaired persons in *Description of the Transportation Handicapped Population* (1975). Their methodology derives the elderly and mobility-impaired Transit demand as:

- Seniors & Mobility-Impaired Trips per year =
Seniors & Mobility-Impaired Population × ((25 percent Mobility-Limited × 5.2 trips per week) + (5 percent Homebound × 1.4 trips per week)) × 25 percent by Transit mode × 51 weeks per year

Applying the U.S Census Bureau 2000 total population estimates of 6,179 seniors and 8,236 mobility-impaired persons residing within the urbanized portion of Johnston County, the formula yields a total transit demand of 251,805 one-way trips per year made together by that segment of Johnston County's population, as shown in Table 8.5.

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| Table 8.5: Annual Transit Demand for Elderly and Mobility-Impaired (Urban) | | | | | | |
|--|--------------|-------------|--------------------|-------------------|---------------|-----------------------------|
| | Census | | Residents | | | One-Way Transit Trip Demand |
| Township | Tract | Block Group | Seniors (60+ over) | Mobility-Impaired | Total Persons | Number |
| Clayton | 371010410001 | 1 | 276 | 185 | 461 | 8,053 |
| Clayton | 371010410002 | 2 | 264 | 459 | 723 | 12,630 |
| Clayton | 371010410003 | 3 | 296 | 426 | 722 | 12,612 |
| Clayton | 371010410005 | 5 | 384 | 458 | 842 | 14,708 |
| Clayton | 371010411001 | 1 | 362 | 734 | 1,096 | 19,145 |
| Clayton subtotal | | | 1,582 | 2,262 | 3,844 | 67,148 |
| | | | | | | |
| Cleveland | 371010411003 | 3 | 557 | 1,404 | 1,961 | 34,254 |
| Cleveland | 371010411002 | 2 | 153 | 360 | 513 | 8,961 |
| Cleveland subtotal | | | 710 | 1,764 | 2,474 | 43,215 |
| | | | | | | |
| Selma | 371010403002 | 2 | 340 | 443 | 783 | 13,678 |
| Selma | 371010403003 | 3 | 272 | 433 | 705 | 12,315 |
| Selma | 371010403004 | 4 | 211 | 261 | 472 | 8,245 |
| Selma | 371010403005 | 5 | 165 | 191 | 356 | 6,219 |
| Selma | 371010403006 | 6 | 100 | 141 | 241 | 4,210 |
| Selma subtotal | | | 1,088 | 1,469 | 2,557 | 44,667 |
| | | | | | | |
| Smithfield | 371010406001 | 1 | 232 | 312 | 544 | 9,503 |
| Smithfield | 371010407001 | 1 | 538 | 391 | 929 | 16,228 |
| Smithfield | 371010407002 | 2 | 197 | 279 | 476 | 8,315 |
| Smithfield | 371010407003 | 3 | 154 | 258 | 412 | 7,197 |
| Smithfield | 371010408001 | 1 | 232 | 295 | 527 | 9,206 |
| Smithfield | 371010408002 | 2 | 320 | 229 | 549 | 9,590 |
| Smithfield | 371010408003 | 3 | 237 | 114 | 351 | 6,132 |
| Smithfield | 371010409003 | 3 | 263 | 157 | 420 | 7,337 |
| Smithfield | 371010409004 | 4 | 361 | 317 | 678 | 11,843 |
| Smithfield | 371010412004 | 4 | 265 | 389 | 654 | 11,424 |
| Smithfield subtotal | | | 2,799 | 2,741 | 5,540 | 96,775 |
| | | | | | | |
| Total | | | 6,179 | 8,236 | 14,415 | 251,805 |

General Public Non-Work Transit Demand

General public non-work demand is the last segment of non-commuter transit demand. It is comprised of those non-seniors and individuals without any mobility impairments who utilize transit for activities other than work. These activities could include shopping and recreation. Subtracting the employee and seniors/mobility-impaired person transit demand from the average total non-commuter transit demand, results in an estimated general public non-work transit demand of 67,517 annual one-way transit trips in urban Johnston County. The general public non-work transit demand in Johnston County is shown in the summary of urban transit demand in Table 8.7.

COMMUTER TRANSIT DEMAND

The last element of the total urban transit demand in Johnston County is commuter services, which, unlike employee demand, includes only those who work outside of their respective township. In the area, major commuting arteries include I-40, I-95, US 70, US 301 and NC 42. The data on which employee transit demand can be estimated is provided by the U.S. Census Bureau: place of work for workers 16 years and older. According to this data from 2000, the total number of residents working outside their respective township of residence was 12,935. The relatively low density of the overall study area and, as a result of that, dispersed employment (and more employment opportunities in the surrounding counties) has an impact on the feasibility of transit services in the city. If there are a lot of commuters who travel long distances to and from places of employment located along major arteries outside of main urban centers of Clayton, Smithfield and Selma, the potential for commuter transit services that best serve longer trips is increased. Strong concentrations of employment options in more centralized areas (i.e. downtown Smithfield or along US 70 near Clayton) increase viability and effectiveness of a transit system, while also reducing costs. Where employment centers are more dispersed, the commuter market might be best served by a private automobile. Johnston County’s proximity to the Triangle and Raleigh in particular must be accounted for when it comes to commuter demand.

Due to these concerns, and considering observed transit commuter mode split in similar areas, a maximum feasible transit mode share of 3.0 percent of all commuters seems to be most appropriate for urban Johnston County. Typically, each commuter makes two trips per day, approximately 250 days per year. Therefore, an estimated 9,783 commuters in urban Johnston county would have made a total of about 4.9 million commuter trips annually in the year 2000. The U.S. Census reported Cleveland as a ‘non-place’ in 2000 and therefore it had no commuters. For the purpose of this exercise, the number of existing commuters in Cleveland was estimated by taking the number of existing workers in the Cleveland block groups and multiplying it by a 0.5 ratio. Applying the average 3.0 percent mode split results in 146,895 one-way commuter transit trips per year. The calculations are shown below:

- $9,783 \times 2 \times 250 = 4,896,500$ total annual one-way person trips
- $4,896,500 \times 3.0\% = \mathbf{146,895}$ annual one-way trips

The commuter transit demand in Johnston County is shown in Table 8.6.

| Table 8.6: Estimated Commuter Transit Demand (Urban) | | |
|--|---|------------------------------------|
| Census | Urban Johnston County employed outside of | Annual One-Way Transit Trip Demand |
| | | |

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| Township | Tract | Block Group | their Townships | Total | Transit |
|----------------------------|--------------|-------------|-----------------|------------------|----------------|
| Clayton | 371010410001 | 1 | 298 | 149,000 | 4,470 |
| Clayton | 371010410002 | 2 | 988 | 494,000 | 14,820 |
| Clayton | 371010410003 | 3 | 203 | 101,500 | 3,045 |
| Clayton | 371010410005 | 5 | 819 | 409,500 | 12,285 |
| Clayton | 371010411001 | 1 | 78 | 39,000 | 1,170 |
| Clayton subtotal | | | 2,386 | 1,193,000 | 35,790 |
| | | | | | |
| Cleveland | 371010411003 | 3 | 2,709 | 1,354,500 | 40,635 |
| Cleveland | 371010411002 | 2 | 433 | 216,500 | 6,495 |
| Cleveland subtotal | | | 3,142 | 1,571,000 | 47,130 |
| | | | | | |
| Selma | 371010403002 | 2 | 316 | 158,000 | 4,740 |
| Selma | 371010403003 | 3 | 567 | 283,500 | 8,505 |
| Selma | 371010403004 | 4 | 492 | 246,000 | 7,380 |
| Selma | 371010403005 | 5 | 250 | 125,000 | 3,750 |
| Selma | 371010403006 | 6 | 214 | 107,000 | 3,210 |
| Selma subtotal | | | 1,839 | 919,500 | 27,585 |
| | | | | | |
| Smithfield | 371010406001 | 1 | 183 | 91,500 | 2,745 |
| Smithfield | 371010407001 | 1 | 413 | 206,500 | 6,195 |
| Smithfield | 371010407002 | 2 | 120 | 60,000 | 1,800 |
| Smithfield | 371010407003 | 3 | 145 | 72,500 | 2,175 |
| Smithfield | 371010408001 | 1 | 246 | 123,000 | 3,690 |
| Smithfield | 371010408002 | 2 | 282 | 141,000 | 4,230 |
| Smithfield | 371010408003 | 3 | 172 | 86,000 | 2,580 |
| Smithfield | 371010409003 | 3 | 267 | 133,500 | 4,005 |
| Smithfield | 371010409004 | 4 | 353 | 176,500 | 5,295 |
| Smithfield | 371010412004 | 4 | 245 | 122,500 | 3,675 |
| Smithfield subtotal | | | 2,426 | 1,213,000 | 36,390 |
| | | | | | |
| Total | | | 9,793 | 4,896,500 | 146,895 |

URBAN TRANSIT DEMAND SUMMARY

Transit demand analysis in the urban part of Johnston County results in estimates of the total potential transit demand separated by market segments: employee demand, seniors and mobility-impaired persons demand, general public non-work demand, and commuter demand. In terms of approximate numbers, the total annual potential demand for one-way transit passenger trips in urban Johnston County is estimated at 490,717 (see Table 8.7). The seniors and mobility-impaired

persons comprise the largest group in terms of transit demand – alone, they account for 51 percent of the total urban demand (see Figure 8.2). Commuters account for 30 percent of the total transit demand.

These finding suggests that a very large proportion of residents in Johnston County are captive riders who depend on transit in their daily lives. Those residents are already served very well by existing JCATS subscription routes but would benefit from service expansion in the future. Commuters, on the other hand, could be enticed to use transit more in Johnston County, particularly if there was a convenient connection made available from Johnston County's northwestern areas of Clayton and Cleveland to Wake County and other locations in the Triangle Region. Since Johnston County is mostly residential in nature, the expected employee transit demand (in-County flow) is low compared to commuter transit demand (out-of-County flow); however, older townships with established businesses - Smithfield and Selma - still experience significant employee transit demand that needs to be addressed.

It should be noted that the calculated demand represents a maximum potential under optimal conditions suitable for transit. In reality, although the estimates are a useful indicator of transit demand, the level of transit service in Johnston County cannot reach these levels, as it would be cost prohibitive to provide such a transit level of service. Table 8.7 and Figure 8.2 summarize urban transit demand in Johnston County.

It is interesting to note that the existing JCATS subscription routes already cover the areas with the highest estimated urban transit demand fairly well. However, as shown in Figure 8.2, the areas with the most pronounced urban transit demand are located in high-growth residential areas in Cleveland and Clayton, followed by higher density older established urban areas of Smithfield and Selma. The increasing challenge in Johnston County in the future will be finding feasible ways of serving the existing high demand transit demand areas while extending service to areas near the Wake county line that have experienced a remarkable population boom in recent years.

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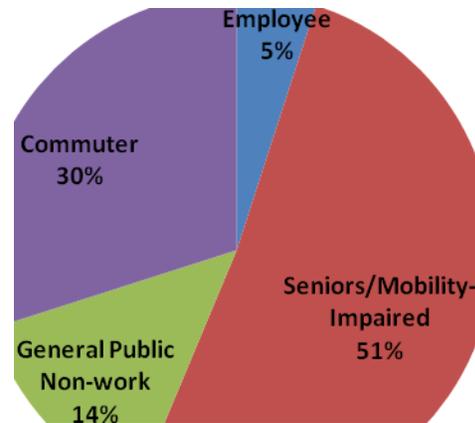
Table 8.7: Transit Demand Summary (Urban)

| Table 8.7: Transit Demand Summary (Urban) | | | | | | | | | | |
|---|--------------|-------------|---------------------------|----------------------|---------------|--|-------------------------------|-------------------------|---------------|----------------|
| | Census | | Total Non-Commuter Demand | | | Average Non-Commuter Demand by Segment | | | Commuter | Total |
| Township | Tract | Block Group | Transit Mode Split | Vehicle Availability | Average | Employee | Seniors and Mobility-Impaired | General Public Non-work | | |
| Clayton | 371010410001 | 1 | 7,694 | 9,486 | 8,590 | 750 | 8,053 | -213 | 4,470 | 13,060 |
| Clayton | 371010410002 | 2 | 26,767 | 11,756 | 19,262 | 890 | 12,630 | 5,742 | 14,820 | 34,082 |
| Clayton | 371010410003 | 3 | 21,876 | 7,625 | 14,751 | 640 | 12,612 | 1,499 | 3,045 | 17,796 |
| Clayton | 371010410005 | 5 | 26,365 | 16,193 | 21,279 | 830 | 14,708 | 5,741 | 12,285 | 33,564 |
| Clayton | 371010411001 | 1 | 44,197 | 14,535 | 29,366 | 0 | 19,145 | 10,221 | 1,170 | 30,536 |
| Clayton subtotal | | | 126,899 | 59,594 | 93,247 | 3,110 | 67,148 | 22,989 | 35,790 | 129,037 |
| Cleveland | 371010411003 | 3 | 86,493 | 23,613 | 55,053 | 0 | 34,254 | 20,799 | 40,635 | 95,688 |
| Cleveland | 371010411002 | 2 | 16,467 | 5,585 | 11,026 | 0 | 8,961 | 2,065 | 6,495 | 17,521 |
| Cleveland subtotal | | | 102,960 | 29,198 | 66,079 | 0 | 43,215 | 22,864 | 47,130 | 113,209 |
| Selma | 371010403002 | 2 | 14,566 | 17,468 | 16,017 | 840 | 13,678 | 1,499 | 4,740 | 20,757 |
| Selma | 371010403003 | 3 | 18,332 | 19,125 | 18,729 | 820 | 12,315 | 5,594 | 8,505 | 27,234 |
| Selma | 371010403004 | 4 | 12,701 | 18,309 | 15,505 | 1,110 | 8,245 | 6,150 | 7,380 | 22,885 |
| Selma | 371010403005 | 5 | 9,140 | 9,282 | 9,211 | 260 | 6,219 | 2,732 | 3,750 | 12,961 |
| Selma | 371010403006 | 6 | 6,623 | 10,404 | 8,514 | 350 | 4,210 | 3,954 | 3,210 | 11,724 |
| Selma subtotal | | | 61,362 | 74,588 | 67,975 | 3,380 | 44,667 | 19,928 | 27,585 | 95,560 |
| Smithfield | 371010406001 | 1 | 11,460 | 25,194 | 18,327 | 1,460 | 9,503 | 7,364 | 2,745 | 21,072 |
| Smithfield | 371010407001 | 1 | 16,869 | 12,903 | 14,886 | 3,220 | 16,228 | -4,562 | 6,195 | 21,081 |
| Smithfield | 371010407002 | 2 | 6,087 | 8,135 | 7,111 | 120 | 8,315 | -1,324 | 1,800 | 8,911 |
| Smithfield | 371010407003 | 3 | 7,408 | 11,934 | 9,671 | 1,280 | 7,197 | 1,194 | 2,175 | 11,846 |

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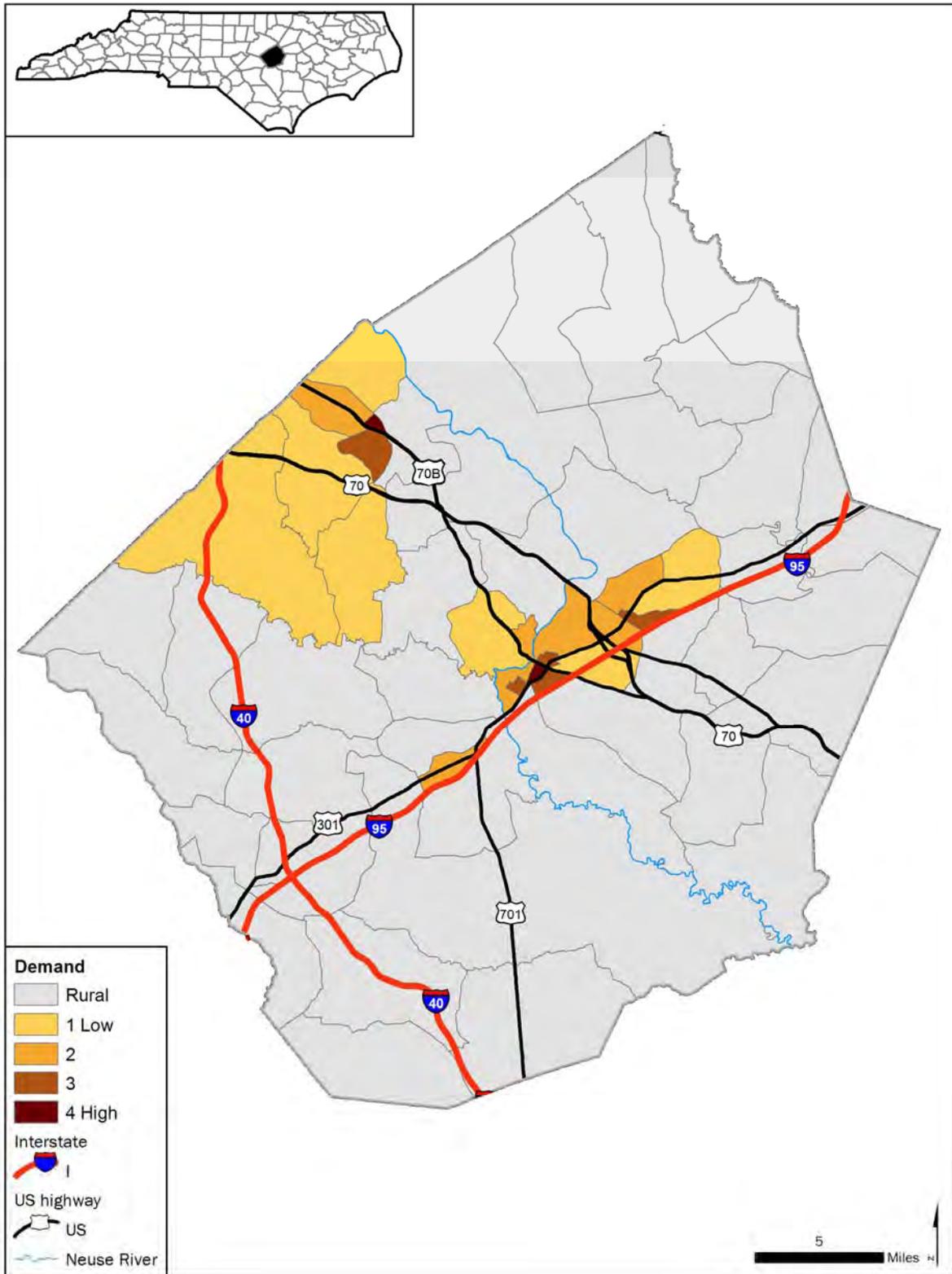
| | | | | | | | | | | |
|---------------------|--------------|---|---------|---------|---------|--------|---------|--------|---------|---------|
| Smithfield | 371010408001 | 1 | 11,692 | 18,513 | 15,103 | 2,600 | 9,206 | 3,297 | 3,690 | 18,793 |
| Smithfield | 371010408002 | 2 | 12,835 | 10,583 | 11,709 | 3,240 | 9,590 | -1,121 | 4,230 | 15,939 |
| Smithfield | 371010408003 | 3 | 6,319 | 2,754 | 4,537 | 1,720 | 6,132 | -3,316 | 2,580 | 7,117 |
| Smithfield | 371010409003 | 3 | 9,113 | 5,024 | 7,069 | 2,110 | 7,337 | -2,379 | 4,005 | 11,074 |
| Smithfield | 371010409004 | 4 | 17,145 | 16,550 | 16,848 | 1,900 | 11,843 | 3,105 | 5,295 | 22,143 |
| Smithfield | 371010412004 | 4 | 11,612 | 10,914 | 11,263 | 360 | 11,424 | -521 | 3,675 | 14,938 |
| Smithfield subtotal | | | 110,540 | 122,502 | 116,521 | 18,010 | 96,775 | 1,736 | 36,390 | 152,911 |
| Total | | | 401,761 | 285,882 | 343,822 | 24,500 | 251,805 | 67,517 | 146,895 | 490,717 |

Figure 8.2: Estimated Annual Urban Transit Trip Demand Summary



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Figure 8.3: Estimated Annual Urban Transit Trip Demand



9. RURAL TRANSIT DEMAND ANALYSIS

The overall purpose of calculating rural transit demand in the Study Area is to determine whether the current level of rural demand responsive JCATS service is adequate. Two existing methods were used in order to estimate the potential rural transit demand:

- Rural Transit Demand Estimation Model
- Greatest Transit Needs Index Model

Two methods were used in order to confirm the results of each – while the methodology varies, the expected results should be fairly similar.

RURAL TRANSIT DEMAND ESTIMATION MODEL

Methodology

The Rural Transit Demand Estimation Model was first proposed in the *Transit Cooperative Research Program (TCRP) Project A-3: Rural Transit Demand Estimation Techniques*. This study represents the first substantial research into demand for transit service in rural areas and small communities since the early 1980s (this methodology was updated in 1995). The TCRP study documents present a series of formulas relating the number of participants in various types of programs, such as Medicaid, in 185 transit agencies across the country. This analytical technique uses a logit model approach to the estimation of transit demand, and incorporates an exponential equation that relates the quantity of service to the demographics of the area. Rural transit need estimates presented here are based upon demographics presented in Section 3 of this Plan.

This analysis procedure considers transit demand in two major categories:

- *Program demand* generated by transit ridership to and from specific social service programs, and
- *Non-program demand* generated by other mobility needs of elderly persons, persons with disabilities, and the low-income population. Examples of non-program trips may include shopping, employment, and medical trips.

This report focuses on the non-program demand for JCATS services in Johnston County. The recommended methodology for estimating annual non-program related rural passenger transportation demand is estimated as a function of the following:

- The size of the three population groups most likely to use a rural passenger transportation service:
 - Elderly (persons aged 60 and over),
 - Persons with disabilities (persons aged 16 to 64 with mobility limitations; however, because of limitations in Census data the age group 5-64 is used), and
 - Below poverty population (persons aged 64 or under, residing in households having incomes below the poverty level).
- The size of the service area.

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- The amount of service (measured in annual vehicle-miles) available to each of the population groups.

The Study Area is the service area unit for which these relationships were developed. In this case, it includes all of Johnston County except the townships of Clayton, Cleveland, Selma, and Smithfield; the demand for transit in these townships was covered in the preceding section on urban transit demand. To the extent the individuals not belonging to one of the above population segments made trips on services analyzed in developing these methodologies, the trip rates used for these market segments are slightly higher than they would be otherwise. As a result, the non-program estimates include 'general public' demand. It should be noted that Medicaid trips are considered to be non-program related since the time of travel and destination are at the rider's discretion.

The procedure to estimate non-program rural transit demand in Johnston County is described below:

1. Determine the number of persons in the planning area in each of the three population groups (utilizing available U.S. Census data from 2000):
 - a. Seniors: 10,459,
 - b. Persons with disabilities: 12,540,
 - c. Below poverty population: 7,789.
2. Determine the size of the service area in square miles (utilizing available U.S. Census data from 2000) – 684.92 sq. miles.
3. Calculate the annual vehicle-miles of service available to persons in each population group. Based on most recent data from JCATS, 941,110 service miles were available to persons in each population group; this number represents the actual rural demand response vehicle service in the Study Area in FY2009, which is higher than the average rural demand service miles operated by JCATS in the last five Fiscal Years 2005-09 (712,709). The "availability" of service to a population group does not necessarily imply that the service is restricted to members of that group. In some cases, the service may be restricted to a specific group, though public transportation is generally available to all population groups.
4. Estimate a "service factor" for each group based on the annual vehicle-miles of service per square mile available to each group:
 - a. Calculate vehicle service miles available per square mile in the Study Area: available service miles/service area. $941,110 \text{ service miles} / 684.92 \text{ sq. miles} = 1,374 \text{ vehicle service miles per square mile}$.
 - b. Apply predetermined factors (from the TCRP study) to determine specific service factors for each population group based on available Vehicle-Miles of service: Vehicle service miles per square mile multiplied by the general population factor:
 1. Seniors service factor: $[(1,374 * 2.682) + 376] / 1,000,000 = 0.004061$,
 2. Mobility-impaired service factor: $[(1,374 * 1.570) + 1010] / 1,000,000 = 0.003167$,
 3. Below poverty population service factor: $[(1,374 * 2.45) + 525] / 1,000,000 = 0.003891$.

5. Multiply the population in each group by the appropriate trip factor (provided by TCRP, based on the Study Area's population characteristics) and service factors (from Step 4b above). This final step yields the transit demand estimate for each group. The formula used to estimate this demand is shown in Figure 9.1. $\text{Group rural transit demand} = 1,200 * (\text{the population group specific service factor}) * (\text{the specific population})$. The following computations were used for the three population segments:
 - a. Seniors rural transit demand = $1,200 * 0.004061 * 10,459$;
 - b. Mobility-impaired rural transit demand: $1,200 * 0.003167 * 12,540$;
 - c. Below poverty population transit demand: $1,200 * 0.003891 * 7,789$.

The product of these calculations is an estimate of the annual transit demand for each of the three populations: 50,971 trips by seniors, 47,661 trips by mobility-impaired individuals, and 36,372 trips by low-income individuals. The total rural transit demand in the Study Area excluding the urban areas is approximately 135,004 annual one-way transit trips (or 529 one-way transit trips per day, assuming 255 service days per year). Table 9.1 summarizes rural transit demand input data and results. Seniors comprise 38% of the demand; the mobility impaired account for 35% of total demand; and low-income individuals make up 27% of the total demand.

The total estimated rural transit demand is about 53 percent higher than the most recent available number of rural demand responsive transit trips provided by JCATS (88,141) in FY2009. Thus, there exists an opportunity for service expansion today. As shown in Figure 9.2, the areas with the most demand for transit services in the Study Area are along major highways, including I-95, I-40, and US 70 in or near the towns of Benson, Four Oaks, Kenly, Princeton, Clayton/Cleveland, and Wilsons Mills.

Figure 9.1: Methodology for Estimating Annual Non-program Related Rural Transit Demand

$$D = R_e E \left(\frac{1}{1 + k_e e^{-U_e}} \right) + R_m M \left(\frac{1}{1 + k_m e^{-U_m}} \right) + R_p P \left(\frac{1}{1 + k_p e^{-U_p}} \right)$$

where:

D = annual demand for Non-Program Related passenger transportation.
(One-Way Trips per Year)

R_e = 1,200

R_m = 1,200

R_p = 1,200

E = number of persons age sixty or over.

M = number of mobility limited persons age sixteen to sixty-four.

P = number of persons, age sixty-four or less, in families with incomes below the poverty level.
The definition of the poverty level is that used for the 1990 U.S. Census.

k_e = e^{6.38}

k_m = e^{6.41}

k_p = e^{6.63}

U_e = 0.000510 x $\frac{\text{Annual Vehicle-Miles Available to Elderly Market}}{\text{Area of the County}}$

U_m = 0.000400 x $\frac{\text{Annual Vehicle-Miles Available to Mobility Limited Market}}{\text{Area of the County}}$

U_p = 0.000490 x $\frac{\text{Annual Vehicle-Miles Available to Low-Income Market}}{\text{Area of the County}}$

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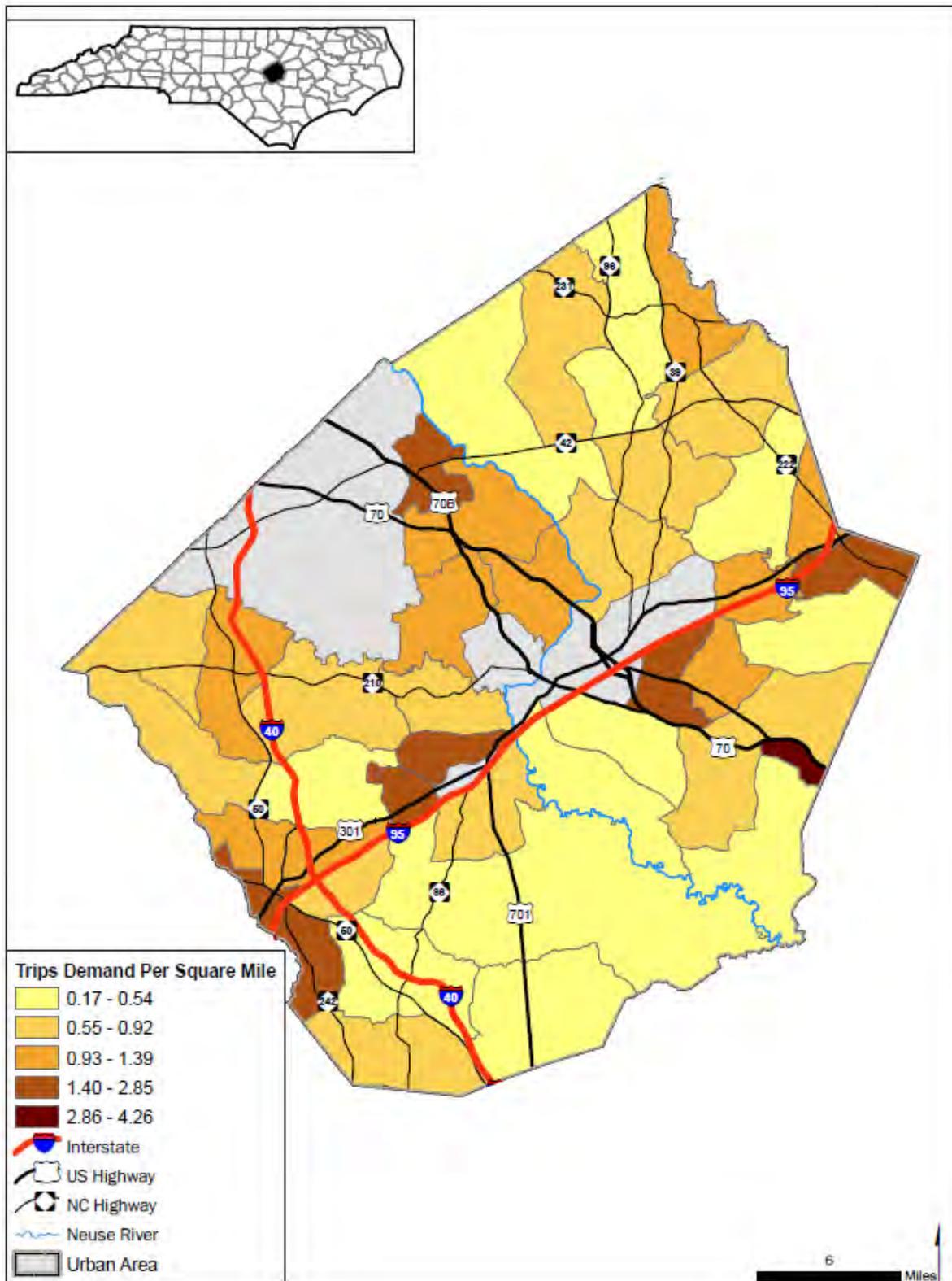
TABLE 9.1: Population Characteristics for Johnston County

| Census Tract | Block Group | Population | Land Area (sq. mi.) | Seniors 60+ | Mobility Impaired (age 5-64) | Below Poverty Population (64 or under) | Total Annual Demand | Daily Demand | Daily Demand Density (Trips/sq. mi.) |
|--------------|-------------|------------|---------------------|-------------|------------------------------|--|---------------------|--------------|--------------------------------------|
| 371010401 | 1 | 990 | 6.93 | 173 | 161 | 190 | 2342 | 9.2 | 1.3 |
| 371010401 | 2 | 1785 | 9.82 | 334 | 372 | 249 | 4204 | 16.5 | 1.7 |
| 371010401 | 3 | 1358 | 17.36 | 226 | 212 | 28 | 2038 | 8.0 | 0.5 |
| 371010401 | 4 | 1050 | 8.60 | 216 | 245 | 210 | 2964 | 11.6 | 1.4 |
| 371010401 | 5 | 1260 | 18.66 | 188 | 203 | 160 | 2435 | 9.5 | 0.5 |
| 371010402 | 1 | 765 | 8.66 | 163 | 129 | 103 | 1766 | 6.9 | 0.8 |
| 371010402 | 2 | 1326 | 12.10 | 226 | 279 | 142 | 2825 | 11.1 | 0.9 |
| 371010402 | 3 | 1321 | 15.68 | 229 | 303 | 61 | 2552 | 10.0 | 0.6 |
| 371010402 | 4 | 4669 | 35.89 | 343 | 527 | 223 | 4716 | 18.5 | 0.5 |
| 371010402 | 5 | 3588 | 23.60 | 355 | 455 | 346 | 5075 | 19.9 | 0.8 |
| 371010402 | 6 | 1660 | 26.23 | 248 | 292 | 182 | 3168 | 12.4 | 0.5 |
| 371010402 | 7 | 2145 | 14.81 | 205 | 311 | 465 | 4352 | 17.1 | 1.2 |
| 371010403 | 1 | 2342 | 16.91 | 262 | 388 | 120 | 3312 | 13.0 | 0.8 |
| 371010404 | 1 | 734 | 4.06 | 161 | 211 | 119 | 2142 | 8.4 | 2.1 |
| 371010404 | 2 | 1366 | 8.92 | 214 | 239 | 113 | 2479 | 9.7 | 1.1 |
| 371010404 | 3 | 1431 | 4.70 | 219 | 263 | 185 | 2931 | 11.5 | 2.4 |
| 371010405 | 1 | 1761 | 16.74 | 244 | 282 | 83 | 2648 | 10.4 | 0.6 |
| 371010405 | 2 | 1178 | 2.69 | 288 | 150 | 203 | 2922 | 11.5 | 4.3 |
| 371010405 | 3 | 679 | 22.33 | 112 | 150 | 56 | 1377 | 5.4 | 0.2 |
| 371010405 | 4 | 1867 | 14.35 | 233 | 219 | 52 | 2211 | 8.7 | 0.6 |
| 371010406 | 2 | 1016 | 14.67 | 179 | 140 | 85 | 1801 | 7.1 | 0.5 |
| 371010406 | 3 | 908 | 19.05 | 122 | 292 | 162 | 2461 | 9.7 | 0.5 |
| 371010409 | 1 | 4498 | 17.25 | 339 | 675 | 106 | 4713 | 18.5 | 1.1 |
| 371010409 | 2 | 1570 | 13.00 | 376 | 297 | 101 | 3433 | 13.5 | 1.0 |
| 371010409 | 5 | 1963 | 14.25 | 182 | 462 | 516 | 5052 | 19.8 | 1.4 |

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| Census Tract | Block Group | Population | Land Area (sq. mi.) | Seniors 60+ | Mobility Impaired (age 5-64) | Below Poverty Population (64 or under) | Total Annual Demand | Daily Demand | Daily Demand Density (Trips/sq. mi.) |
|---------------|-------------|--------------|---------------------|--------------|------------------------------|--|---------------------|--------------|--------------------------------------|
| 371010410 | 4 | 2268 | 8.28 | 302 | 408 | 222 | 4059 | 15.9 | 1.9 |
| 371010412 | 1 | 1089 | 11.69 | 184 | 178 | 71 | 1905 | 7.5 | 0.6 |
| 371010412 | 2 | 1400 | 6.64 | 243 | 266 | 200 | 3129 | 12.3 | 1.8 |
| 371010412 | 3 | 917 | 5.00 | 150 | 173 | 211 | 2374 | 9.3 | 1.9 |
| 371010412 | 5 | 1275 | 13.94 | 210 | 177 | 126 | 2285 | 9.0 | 0.6 |
| 371010412 | 6 | 1691 | 25.04 | 251 | 278 | 154 | 2999 | 11.8 | 0.5 |
| 371010413 | 1 | 1261 | 50.40 | 182 | 189 | 134 | 2231 | 8.7 | 0.2 |
| 371010413 | 2 | 1319 | 27.86 | 196 | 381 | 79 | 2772 | 10.9 | 0.4 |
| 371010413 | 3 | 1353 | 21.52 | 239 | 210 | 209 | 2939 | 11.5 | 0.5 |
| 371010413 | 4 | 1414 | 18.72 | 171 | 227 | 251 | 2868 | 11.2 | 0.6 |
| 371010414 | 1 | 1150 | 7.92 | 208 | 100 | 138 | 2038 | 8.0 | 1.0 |
| 371010414 | 2 | 1116 | 7.12 | 188 | 197 | 104 | 2151 | 8.4 | 1.2 |
| 371010414 | 3 | 813 | 7.80 | 117 | 176 | 50 | 1473 | 5.8 | 0.7 |
| 371010414 | 4 | 1684 | 9.80 | 291 | 304 | 489 | 4857 | 19.0 | 1.9 |
| 371010414 | 5 | 684 | 0.41 | 145 | 159 | 124 | 1890 | 7.4 | 18.1 |
| 371010414 | 6 | 817 | 2.72 | 179 | 154 | 111 | 1976 | 7.7 | 2.8 |
| 371010415 | 1 | 3506 | 17.58 | 280 | 363 | 110 | 3258 | 12.8 | 0.7 |
| 371010415 | 2 | 3912 | 17.21 | 338 | 414 | 310 | 4668 | 18.3 | 1.1 |
| 371010415 | 3 | 2271 | 22.76 | 269 | 388 | 173 | 3593 | 14.1 | 0.6 |
| 371010415 | 4 | 1299 | 16.81 | 179 | 266 | 63 | 2178 | 8.5 | 0.5 |
| 371010415 | 5 | 2482 | 18.44 | 300 | 275 | 200 | 3441 | 13.5 | 0.7 |
| Total: | | 76951 | 684.92 | 10459 | 12540 | 7789 | 135004 | 529 | 0.8 |

Figure 9.2: Estimated Daily Non-program Related Rural Transit Demand



GREATEST TRANSIT NEEDS INDEX MODEL

Methodology

The second methodology used to estimate rural transit demand in the Study Area is the ‘Greatest Transit Need’ (GTN). It was used to compare, contrast, and augment transit demand results estimated by using the previously described Rural Demand Estimation Model. Notably, the GTN was utilized in previous studies including the NE Mississippi Coordinated Transit Service study prepared by The Community Transportation Association of America (CTAA), Three Rivers Planning and Development District, and the Mississippi Department of Transportation contracted with LSC Transportation Consultants, Inc. The demographics data included in Section 3 were used to calculate the GTN. The Greatest Transit Need can be defined as those areas within the Study Area with the highest density of the following groups:

- Zero-vehicle households
- Seniors
- Mobility-impaired population
- Below-poverty population

Using these categories, a “transit needs index” is created to determine the areas with the greatest transit need. The procedure that was utilized to estimate the GTN in the Study Area is as follows:

1. Calculate population density of US Census block groups within each user group (zero-vehicle households, seniors, mobility-impaired and below-poverty).
2. Rank the results in numerical order from lowest to highest and divide into six segments. Six segments were chosen in order to reflect a reasonable range that warranted equal representation.
3. Assign numerical scores to each of the six segments. The lowest densities and therefore the lowest transit need were given a score of 1. The block groups in the segment with the next lowest densities were given a score of 2, and so on. The block groups in the segment with the highest densities and therefore highest transit need were given a score of 6. This scoring was completed for each of the categories (zero-vehicle households, seniors, mobility-impaired population, and below-poverty population).
4. After each block group is scored from 1 to 6 for the four categories, add all four scores together in order to calculate an overall score.

Results

Table 9.2 presents the ranked scores for each US Census block group in the Study Area. The scores ranged from 4 (lowest need for transit) to 24 (highest need for transit) and shows the calculated GTN for each US Census block group in the Study Area ranked from the block groups with the greatest transit needs to block groups with the lowest transit needs (ranked 1 to 6).

Figure 9.3 presents the Study Area’s greatest transit need index spatially. Eighteen block groups were determined to have the greatest transit needs based on the zero-vehicle households, seniors, mobility-impaired population, and below poverty population. The results obtained when estimating

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rural transit demand using the GTN method closely match those obtained using the first method of estimating rural transit demand described in the previous section above. As shown in Figure 9.3, the greatest transit need in the Study Area is concentrated in the areas along major highways, including I-95, I-40, and US 70 in or near the towns of Benson, Four Oaks, Kenly, Princeton, Clayton/Cleveland, and Wilsons Mills.

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TABLE 9.2 ESTIMATED GREATEST TRANSIT NEEDS INDEX RURAL TRANSIT DEMAND

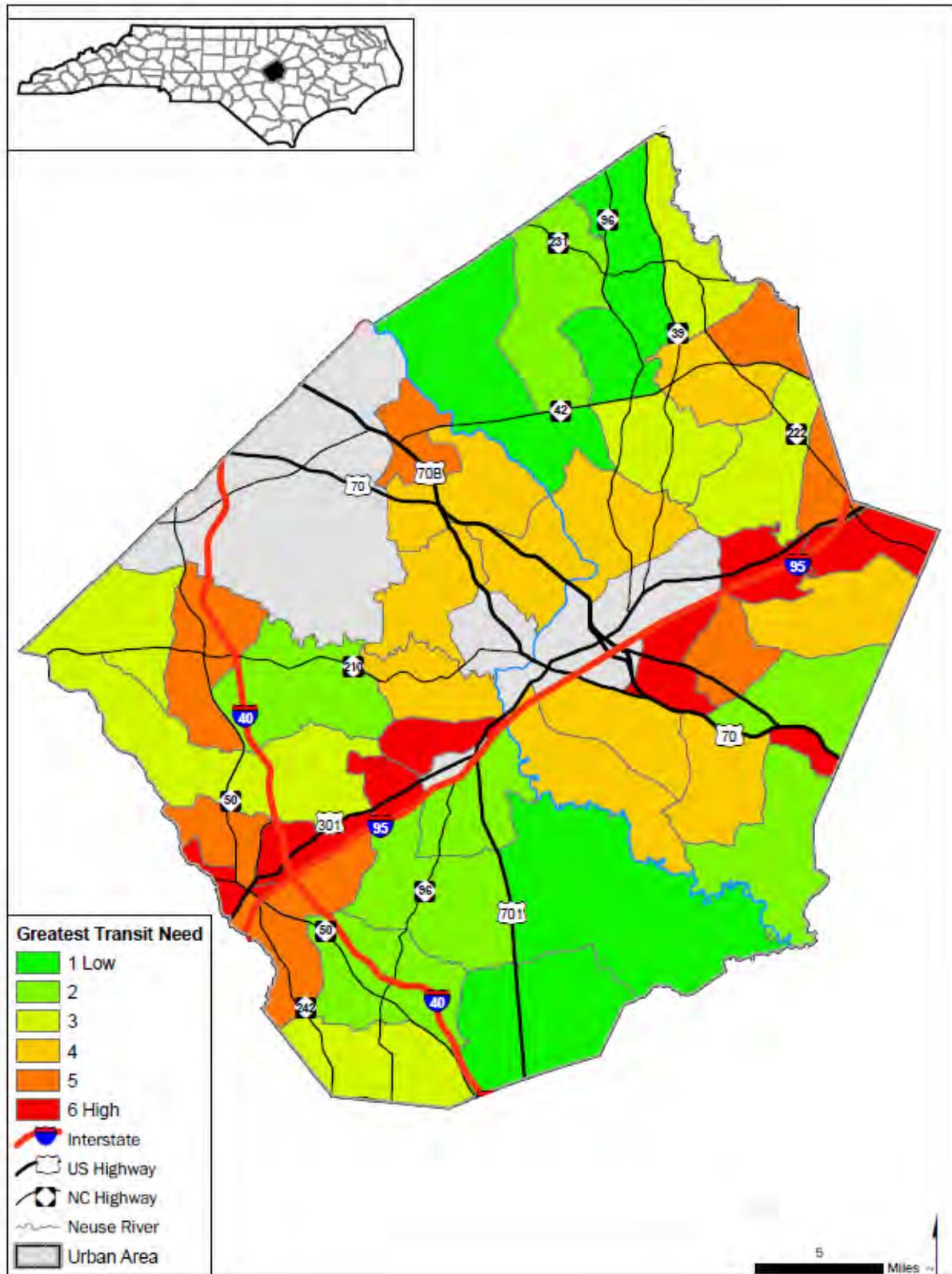
| Census Tract (3706502XXXX) | Block Group | Land Area (sq. mi.) | Zero Car Households | | | Seniors (60 and over) | | | Mobility-Impaired (age 5 to 64) | | | Below Poverty Population Density | | | Overall Score (4-24) | GTN Score (1-6) |
|-------------------------------|-------------|---------------------|---------------------|--------------------|------|-----------------------|------------------------|------|---------------------------------|-------------------------|------|----------------------------------|-------------------------|------|----------------------|-----------------|
| | | | # | Density (hh/sq. m) | Rank | # | Density (person /sq.m) | Rank | # | Density (persons /sq.m) | Rank | # | Density (person s/sq.m) | Rank | | |
| 401 | 1 | 6.93 | 173 | 24.96 | 5 | 189 | 27.27 | 5 | 134 | 19.34 | 5 | 22 | 3.17 | 4 | 19 | 5 |
| 401 | 2 | 9.82 | 334 | 34.01 | 6 | 304 | 30.96 | 5 | 251 | 25.56 | 6 | 64 | 6.52 | 6 | 23 | 6 |
| 401 | 3 | 17.36 | 226 | 13.02 | 3 | 239 | 13.77 | 3 | 185 | 10.66 | 4 | 27 | 1.56 | 3 | 13 | 4 |
| 401 | 4 | 8.60 | 216 | 25.12 | 5 | 381 | 44.30 | 6 | 124 | 14.42 | 5 | 58 | 6.74 | 6 | 22 | 6 |
| 401 | 5 | 18.66 | 188 | 10.08 | 2 | 527 | 28.24 | 5 | 79 | 4.23 | 1 | 62 | 3.32 | 4 | 12 | 3 |
| 402 | 1 | 8.66 | 163 | 18.82 | 4 | 266 | 30.72 | 5 | 209 | 24.13 | 6 | 12 | 1.39 | 3 | 18 | 5 |
| 402 | 2 | 12.10 | 226 | 18.68 | 4 | 178 | 14.71 | 3 | 83 | 6.86 | 3 | 41 | 3.39 | 4 | 14 | 4 |
| 402 | 3 | 15.68 | 229 | 14.60 | 3 | 150 | 9.57 | 1 | 142 | 9.06 | 3 | 63 | 4.02 | 5 | 12 | 3 |
| 402 | 4 | 35.89 | 343 | 9.56 | 1 | 279 | 7.77 | 1 | 210 | 5.85 | 3 | 39 | 1.09 | 2 | 7 | 2 |
| 402 | 5 | 23.60 | 355 | 15.04 | 3 | 219 | 9.28 | 1 | 103 | 4.36 | 2 | 46 | 1.95 | 3 | 9 | 3 |
| 402 | 6 | 26.23 | 248 | 9.45 | 1 | 129 | 4.92 | 1 | 249 | 9.49 | 3 | 11 | 0.42 | 1 | 6 | 2 |
| 402 | 7 | 14.81 | 205 | 13.84 | 3 | 263 | 17.76 | 4 | 106 | 7.16 | 3 | 9 | 0.61 | 1 | 11 | 3 |
| 403 | 1 | 16.91 | 262 | 15.49 | 4 | 292 | 17.27 | 4 | 162 | 9.58 | 4 | 18 | 1.06 | 2 | 14 | 4 |
| 404 | 1 | 4.06 | 161 | 39.66 | 6 | 363 | 89.41 | 6 | 310 | 76.35 | 6 | 84 | 20.69 | 6 | 24 | 6 |
| 404 | 2 | 8.92 | 214 | 23.99 | 5 | 278 | 31.17 | 6 | 138 | 15.47 | 5 | 13 | 1.46 | 3 | 19 | 5 |
| 404 | 3 | 4.70 | 219 | 46.60 | 6 | 414 | 88.09 | 6 | 110 | 23.40 | 6 | 41 | 8.72 | 6 | 24 | 6 |
| 405 | 1 | 16.74 | 244 | 14.58 | 3 | 282 | 16.85 | 3 | 52 | 3.11 | 1 | 20 | 1.19 | 2 | 9 | 3 |
| 405 | 2 | 2.69 | 288 | 107.06 | 6 | 266 | 98.88 | 6 | 173 | 64.31 | 6 | 12 | 4.46 | 5 | 23 | 6 |
| 405 | 3 | 22.33 | 112 | 5.02 | 1 | 372 | 16.66 | 3 | 56 | 2.51 | 1 | 110 | 4.93 | 5 | 10 | 3 |
| 405 | 4 | 14.35 | 233 | 16.24 | 4 | 462 | 32.20 | 6 | 50 | 3.48 | 1 | 49 | 3.41 | 4 | 15 | 4 |
| 406 | 2 | 14.67 | 179 | 12.20 | 2 | 388 | 26.45 | 5 | 211 | 14.38 | 4 | 24 | 1.64 | 3 | 14 | 4 |
| 406 | 3 | 19.05 | 122 | 6.40 | 1 | 212 | 11.13 | 2 | 465 | 24.41 | 6 | 100 | 5.25 | 6 | 15 | 4 |
| 409 | 1 | 17.25 | 339 | 19.65 | 5 | 177 | 10.26 | 2 | 346 | 20.06 | 5 | 13 | 0.75 | 1 | 13 | 4 |
| 409 | 2 | 13.00 | 376 | 28.92 | 6 | 100 | 7.69 | 1 | 28 | 2.15 | 1 | 64 | 4.92 | 5 | 13 | 4 |

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| Census Tract (3706502XXX) | Block Group | Land Area (sq. mi.) | Zero Car Households | | | Seniors (60 and over) | | | Mobility-Impaired (age 5 to 64) | | | Below Poverty Population Density | | | Overall Score (4-24) | GTN Score (1-6) |
|------------------------------|-------------|---------------------|---------------------|--------------------|------|-----------------------|------------------------|------|---------------------------------|-------------------------|------|----------------------------------|-------------------------|------|----------------------|-----------------|
| | | | # | Density (hh/sq. m) | Rank | # | Density (person /sq.m) | Rank | # | Density (persons /sq.m) | Rank | # | Density (person s/sq.m) | Rank | | |
| 409 | 5 | 14.25 | 182 | 12.77 | 2 | 211 | 14.81 | 3 | 203 | 14.25 | 4 | 64 | 4.49 | 5 | 14 | 4 |
| 410 | 4 | 8.28 | 302 | 36.47 | 6 | 159 | 19.20 | 4 | 101 | 12.20 | 4 | 52 | 6.28 | 6 | 20 | 5 |
| 412 | 1 | 11.69 | 184 | 15.74 | 4 | 675 | 57.74 | 6 | 111 | 9.50 | 3 | 9 | 0.77 | 1 | 14 | 4 |
| 412 | 2 | 6.64 | 243 | 36.60 | 6 | 154 | 23.19 | 4 | 200 | 30.12 | 6 | 38 | 5.72 | 6 | 22 | 6 |
| 412 | 3 | 5.00 | 150 | 30.00 | 6 | 176 | 35.20 | 6 | 489 | 97.80 | 6 | 17 | 3.40 | 4 | 22 | 6 |
| 412 | 5 | 13.94 | 210 | 15.06 | 3 | 140 | 10.04 | 2 | 61 | 4.38 | 2 | 10 | 0.72 | 1 | 8 | 2 |
| 412 | 6 | 25.04 | 251 | 10.02 | 2 | 303 | 12.10 | 2 | 120 | 4.79 | 2 | 36 | 1.44 | 3 | 9 | 3 |
| 413 | 1 | 50.40 | 182 | 3.61 | 1 | 161 | 3.19 | 1 | 190 | 3.77 | 1 | 17 | 0.34 | 1 | 4 | 1 |
| 413 | 2 | 27.86 | 196 | 7.04 | 1 | 245 | 8.79 | 1 | 160 | 5.74 | 2 | 27 | 0.97 | 2 | 6 | 2 |
| 413 | 3 | 21.52 | 239 | 11.11 | 2 | 292 | 13.57 | 2 | 119 | 5.53 | 2 | 25 | 1.16 | 2 | 8 | 2 |
| 413 | 4 | 18.72 | 171 | 9.13 | 1 | 203 | 10.84 | 2 | 182 | 9.72 | 4 | 44 | 2.35 | 4 | 11 | 3 |
| 414 | 1 | 7.92 | 208 | 26.26 | 5 | 210 | 26.52 | 5 | 126 | 15.91 | 5 | 35 | 4.42 | 5 | 20 | 5 |
| 414 | 2 | 7.12 | 188 | 26.40 | 5 | 227 | 31.88 | 6 | 104 | 14.61 | 5 | 33 | 4.63 | 5 | 21 | 6 |
| 414 | 3 | 7.80 | 117 | 15.00 | 3 | 150 | 19.23 | 4 | 516 | 66.15 | 6 | 78 | 10.00 | 6 | 19 | 5 |
| 414 | 4 | 9.80 | 291 | 29.69 | 6 | 197 | 20.10 | 4 | 222 | 22.65 | 5 | 35 | 3.57 | 4 | 19 | 5 |
| 414 | 5 | 0.41 | 145 | 353.66 | 6 | 275 | 670.73 | 6 | 200 | 487.80 | 6 | 18 | 43.90 | 6 | 24 | 6 |
| 414 | 6 | 2.72 | 179 | 65.81 | 6 | 388 | 142.65 | 6 | 63 | 23.16 | 6 | 23 | 8.46 | 6 | 24 | 6 |
| 415 | 1 | 17.58 | 280 | 15.93 | 4 | 297 | 16.89 | 3 | 85 | 4.84 | 2 | 34 | 1.93 | 3 | 12 | 3 |
| 415 | 2 | 17.21 | 338 | 19.64 | 5 | 173 | 10.05 | 2 | 223 | 12.96 | 4 | 160 | 9.30 | 6 | 17 | 5 |
| 415 | 3 | 22.76 | 269 | 11.82 | 2 | 311 | 13.66 | 3 | 113 | 4.96 | 2 | 22 | 0.97 | 1 | 8 | 2 |
| 415 | 4 | 16.81 | 179 | 10.65 | 2 | 455 | 27.07 | 5 | 154 | 9.16 | 3 | 20 | 1.19 | 2 | 12 | 3 |
| 415 | 5 | 18.44 | 300 | 16.27 | 4 | 408 | 22.13 | 4 | 71 | 3.85 | 1 | 19 | 1.03 | 2 | 11 | 3 |
| Total: | | 684.92 | 10459 | 15.27 | | 12540 | 18.31 | | 7789 | 11.37 | | 1818 | 2.65 | | | |

Source: US Census 2000

Figure 9.3: Estimated Greatest Transit Needs Index Rural Transit Demand



10. PUBLIC OUTREACH

PUBLIC WORKSHOPS

M/A/B facilitated two public workshops with the general public during the study in order to solicit general information, comments, and ideas about existing and future transit services and needs.

Public Workshop #1

Introduction

The first public information session was held on Saturday October 2, 2010 at the 35th annual Selma Railroad Days Festival. JCATS and consultant staff manned a booth at this well-attended annual event, that included a display of maps and other materials that explained JCATS mission and operations and the purpose of the Community Transportation Service Plan study, and solicited input via marking up maps or completing a questionnaire or a comment sheet (available in English and Spanish). The booth was open from approximately 9 AM to 5 PM. A JCATS bus was parked adjacent to the booth to enhance its visibility.

The overall purpose of the event was to:

- Introduce the transit plan study to the public
- Explain the process, schedule and study elements
- Inform the public about the existing services
- Obtain public comments, concerns, and ideas

Close to 40 individuals or families visited the booth and a total of 17 forms were completed. Attendees were also asked to note where they lived and places they frequently traveled to on a series of maps. The questionnaire asked how people traveled around, their familiarity with public transit services in the County, why they have or have not used JCATS, the reasons they would use the service, and what improvements would motivate them to use the service.

Summary of Results

The aim of the event was not only to seek public input on the issues that the plan should address, but also to disseminate information about JCATS services. A number of people visiting the booth were existing users of JCATS, and spoke highly of the service and the drivers. Of those who were not familiar with the service, several were very interested because they had relatives or friends that



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they thought would benefit from the service. Overall, most people were interested in learning about current JCATS services rather than future plans.

The most common destinations people needed to travel to were the larger towns, i.e., Smithfield, Selma and Clayton. In addition many people needed to travel to the Research Triangle area. The primary purpose for these trips is to access medical services. Many attendees who did not use JCATS were surprised to learn that the service was available to anyone in the community and not just the elderly or those in need of medical services. Some comments included:

- There are many Hispanics in need of transportation, or that are not aware of the service.
- Young people without a car have difficulty traveling to job interviews or getting to work.
- There may be a need for commuter service for residents to travel from Johnson County to Knightdale for work.

The following section lists responses and comments received. Key findings were:

- The community likes JCATS service.
- Many residents are not aware of JCATS service.
- Residents desire more flexibility, more places served and longer service hours.
- There is a need for regional coordination to provide access to jobs – participants mostly live/work in Selma, Smithfield, and Clayton, but also work in Raleigh, Benson, Goldsboro, and Wilson.
- Younger residents without cars have difficulty getting to jobs.

The survey results further confirmed the comments received from people at Railroad Days. Only about 45% of respondents were at all familiar with JCATS services; however, about 30% of respondents had heard of the service but weren't familiar with it. Three-quarters of respondents had never used JCATS services. Of those who were familiar, almost all of them had a good or excellent opinion of the service. Most people were willing to try the service, but seemed to view it more as a service for those with disabilities or limited mobility rather than for the general public. The most common reasons listed for why someone might take JCATS in the future were disability, limited mobility, and convenience.

Public Workshop #2

Introduction

The second public information session was held on Tuesday, February 15, 2011 from 8:00 am to 10:00 am at the Johnston County Workforce Development Center in Clayton, North Carolina. Consultant staff provided a short presentation, followed by a group question and answer session and a one-on-one question and answer session. There were displayed maps and materials that showed potential future service options for JCATS. Attendees were also invited to complete a questionnaire/comment sheet (available in English and Spanish).

The overall purpose of the event was to:

- Discuss mobility needs within Johnston County
- Discuss potential future service options that address these needs
- Discuss additional markets for service and ridership
- Inform the public of potential funding sources
- Obtain public comments, concerns, and ideas

| Service Alternative | Needs Addressed by Alternative |
|---|--|
| Feeder service to Triangle Transit park-and-ride in Clayton (could be expanded in future to provide all-day fixed-route service between Selma, Smithfield, and Clayton) | <ul style="list-style-type: none"> •Coordination of transit services •Connection from Selma/Smithfield to Clayton and Wake County •Initiate fixed-route service |
| Update to scheduling software | <ul style="list-style-type: none"> •Improve efficiency |
| Extended Weekday Service Hours | <ul style="list-style-type: none"> •More Rural General Public service •Expanded Operation Hours |
| Saturday Service | <ul style="list-style-type: none"> •More Rural General Public service •Expanded Operation Hours |
| Sunday Service | <ul style="list-style-type: none"> •More Rural General Public service •Expanded Operation Hours |
| Increased advertising and promotion associated with service expansions | <ul style="list-style-type: none"> •More Rural General Public service •Expanded Operation Hours |
| Administrative Facilities Upgrade | <ul style="list-style-type: none"> •Increase visibility and strengthen the Transportation Advisory Board •More Rural General Public service |
| Zone-based billing | <ul style="list-style-type: none"> •Expanded Operation Hours •More Rural General Public service •Increase visibility and strengthen the Transportation Advisory Board •Cease to consider funding source when scheduling •Improve Efficiency |
| Hire mobility manager | <ul style="list-style-type: none"> •Mobility manager •More Rural General Public Service •Increase visibility and strengthen the Transportation Advisory Board |

Roughly 15 individuals were in attendance and 6 comment forms were completed.

Summary of Results

In general, comments suggested that those in attendance were pleased with the proposed service alternatives. Some comments included:

- The extended hours are great. My new agency will require transportation for “after hours”
- I am so thankful for the proposed services. The population I serve is in total need of the longer weekday, weekend, and Saturday services. It will be a plus for our evening services (6-9 pm)
- The proposed service alternatives would greatly help our community. There are certain groups of the community that would need services on the weekends that is currently not being provided.

Some in attendance expressed that elderly and medical appointments should remain the focus of service as future service was expanded. Some additional recommendations included service to Raleigh and more services tailored to local industries, such as Talecirs, Hospira, Natvar, Turkington, Northeast Foods, and Novo. Out of county trips were repeatedly mentioned as desirable for shopping and leisure. It was suggested that private industry employee vanpools/shuttles should be a focus for future service and funding.

ONBOARD JCATS RIDER SURVEY

Introduction and Methodology

M/A/B conducted an on-board survey of JCATS riders to determine rider characteristics, trip characteristics, perceptions of service, and areas for improvement. Riders completed 124 total surveys.

Summary of Significant Issues

The main findings of the rider surveys were:

- Overall, respondents were satisfied with the JCATS service; in particular, the drivers were consistently and highly commended for their courtesy and service.
- Most users are captive users, meaning they depend on JCATS service and do not have an adequate alternative option for travel.
- Most riders use the JCATS service for medical appointments, work, or school; less than a quarter of the trips taken by respondents were for other purposes such as shopping, recreation, or personal business.
- JCATS users did not rely on other forms of public transportation much. Over 60% of respondents did not use any other public transit service at all. Of those who did use other services, only a few used them with a high frequency.
- Despite the overall satisfaction with JCATS, respondents listed information materials and telephone reservation system as areas to improve (although, as with the rest of the service, most respondents were pleased with these aspects).
- Some respondents did express a desire to see expanded service times, primarily later weekday evening service and Saturday service.
- Although there were not many specific recommendations on additional locations to serve, some respondents expressed a desire for more access to urban areas, county services, grocery stores, and shopping.

11. TRANSIT SERVICE CONCEPTS

The sections below describe the potential service expansion options that could realistically be implemented within the five year planning horizon, the funding sources that could be used to help pay for the potential service changes, and a financial plan showing how it could all work. The service options focus mainly on riders' requests for more service and possible alternative billing methods, but also look at some potential funding sources aimed at certain markets that could realistically be accessed. The components of the plan can be enacted at different times (earlier, later, or not at all) depending on funding availability, but each option provides some guidance as to the anticipated costs and effects of different service ideas.

SERVICE CONCEPTS

The service alternatives that have been developed were selected for their ability to address previously and currently identified needs. Some of these needs have been identified in previous studies. Table 11.1 shows needs that were identified, the study the need was identified in, and which of the service alternatives address that need.

This five year plan has also studied the populations and transportation needs of Johnston County; these needs have been documented in the rider surveys and Technical Memorandum #1. Geographically, there is need and demand for transportation along two main axes – north and south along I-95 and east and west along Highway 70. This study has also identified expanding service beyond medical and human service agency trips as an important goal, especially providing more rural general public and employment trips. The service alternatives specifically seek to expand JCATS' services to these employment and general public riders while focusing on the core geographic areas of need. The funding sources sought match the goals of this expansion.

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Table 11.1: Previously Identified Needs

| Service Alternatives | Needs Addressed by Alternative | Plans Where Identified |
|---|--|--|
| Feeder service to Triangle Transit park-and-ride in Clayton (could be expanded in future to provide all-day fixed-route service between Selma, Smithfield, and Clayton) | <ul style="list-style-type: none"> •Coordination of transit services •Connection from Selma/Smithfield to Clayton and Wake County •Initiate fixed-route service | <ul style="list-style-type: none"> •CAMPO/COR Human Services Transportation Plan (2008) •Triangle Transit Short-Range Transit Plan (2008) •Upper Coastal Plain RPO Survey (2009) •JC Public Transportation Plan (2009) |
| Update to scheduling software | <ul style="list-style-type: none"> •Improve efficiency | <ul style="list-style-type: none"> •CAMPO/COR Human Services Transportation Plan (2008) •ITRE Performance Plan and Analysis (2009) |
| Extended Weekday Service Hours | <ul style="list-style-type: none"> •More Rural General Public service •Expanded Operation Hours | <ul style="list-style-type: none"> •Upper Coastal Plain RPO Survey (2009) •JC Public Transportation Plan (2009) |
| Saturday Service | <ul style="list-style-type: none"> •More Rural General Public service •Expanded Operation Hours | <ul style="list-style-type: none"> •Upper Coastal Plain RPO Survey (2009) •JC Public Transportation Plan (2009) |
| Sunday Service | <ul style="list-style-type: none"> •More Rural General Public service •Expanded Operation Hours | <ul style="list-style-type: none"> •Upper Coastal Plain RPO Survey (2009) •JC Public Transportation Plan (2009) |
| Increased advertising and promotion associated with service expansions | <ul style="list-style-type: none"> •Increase visibility and strengthen the Transportation Advisory Board •More Rural General Public service | <ul style="list-style-type: none"> •Upper Coastal Plain RPO Survey (2009) •JC Public Transportation Plan (2009) |
| Administrative Facilities Upgrade | <ul style="list-style-type: none"> •Expanded Operation Hours •More Rural General Public service •Increase visibility and strengthen the Transportation Advisory Board | <ul style="list-style-type: none"> •Upper Coastal Plain RPO Survey (2009) •JC Public Transportation Plan (2009) |
| Zone-based billing | <ul style="list-style-type: none"> •Cease to consider funding source when scheduling •Improve Efficiency | <ul style="list-style-type: none"> •ITRE Performance Plan and Analysis (2009) |
| Mobility Management | <ul style="list-style-type: none"> •Mobility manager •More Rural General Public Service •Increase visibility and strengthen the Transportation Advisory Board | <ul style="list-style-type: none"> •JC Public Transportation Plan (2009) •Upper Coastal Plain RPO Survey (2009) |

Gradual Expansion of Service Hours

JCATS can gradually begin to expand their service hours beyond 6:00 am to 5:00 pm. This expansion could be done incrementally over the course of the five year plan as ridership, capacity, and funding allows. Additional evening service was one of the most common requested service types from the rider survey, and added hours can be particularly beneficial to employment travelers whose work hours may make utilizing JCATS during the current service hours difficult. This service can be ramped up and expanded slowly so as not to tax existing administrative or capital resources. Vehicles could also be added incrementally depending on demand and ridership levels. The cost of providing one additional hour of off-peak service (assuming 6 vehicles) is \$56,000 for the first year (FY 2012); however, this added cost could be offset significantly by new revenue from additional riders. Administrative funding could come through S. 5311 funds; operating funding could come through the Rural Operating Assistance Program (ROAP).

Mobility Management

Mobility Management is a package of ideas that could include a mobility manager staff position and user subsidies like vouchers. A mobility manager could help JCATS provide service to existing customers and broker trips to expand the customer base to new users and user types. JCATS is doing a good job of providing service to its core customers, particularly the agencies. A mobility manager would be able to make contacts and build new connections in the community to find new customers who would benefit from JCATS' services. Additionally, a mobility manager could help determine which trips are ones that JCATS can efficiently provide service to and which trips are perhaps better sent to another agency or vendor. In this way, a mobility manager can help grow the rider base and improve the efficiency of JCATS to keep costs down. A mobility manager could assist with additional tasks such as setting up and managing routes funded through grants. Mobility management could be funded, as a capital expense, through a Seniors and Persons with Disabilities Program (S. 5310) grant. This position could also be set up as a shared position under the reorganized COA with several duties relating to the broader mission of the COA in addition to JCATS.

Saturday Service

This service option would expand on the recently added Saturday demand-responsive service. JCATS began providing Saturday service in the fall of 2010, which runs three buses from 5:00 A.M until 5:00 P.M. At present, there is no administrative staff present on Saturdays, with current service used primarily for dialysis trips. This service option would promote and advertise existing Saturday service to target retail and manufacturing workers who may have Saturday hours. In the future to attract other types of riders beyond dialysis trips, service would be expanded by two vehicles with some administrative staffing added, at an annual operating cost of \$34,000 in the first year of implementation (FY 2012), with negligible additional capital costs since this service can be provided with existing vehicles. Additional Saturday service could be funded through Job Access and Reverse Commute funds (S. 5316) to target individuals who need rides to weekend jobs, particularly retail and manufacturing jobs in the Clayton, Smithfield, Selma area.

Park and Ride Service

This service option would provide a feeder connection to the park-and-ride in Clayton that will serve the Triangle Transit expanded Route 102, with service to downtown Raleigh. The Route 102 service expansion to Clayton will likely occur in late 2011 or early 2012 with seven daily express

buses to the park-and-ride lot in Clayton (three morning and four afternoon), likely with one hour headways. The JCATS feeder service to the park-and-ride would be implemented in FY2013. The service would operate as a deviated fixed-route system, with three morning routes and four afternoon routes to mirror the Express shuttle service. The additional administrative costs would be minimal, as the feeder routes would occur during normal business hours. The total annual operating cost in the first year of implementation (FY2013) would be \$91,000. This service would require the purchase of two additional vehicles since the service would occur at peak times when other JCATS buses are currently in use. Job Access and Reverse Commute (S. 5316) funds could be targeted to help pay for this service. This service could be expanded in the future to provide all-day, fixed-route service between Selma, Smithfield, and Clayton. As this service is providing connections to a Triangle Transit service, the specific characteristics of this feeder shuttle service will depend somewhat on the final characteristics of the Triangle Transit express service.

Sunday Service

JCATS does not currently offer Sunday service and indeed their core medical services transportation does not need to operate on Sunday, usually. However, JCATS could offer service with the aim of attracting more RGP, leisure, shopping, recreation, and work commute riders. This service could potentially be offered cheaper on a vehicle-hour basis than weekday service since there would be no need for the same level of administrative oversight as during the week. However, there would likely need to be increased advertising to attract riders to the service. A skeletal, 2-vehicle service could be operated for 8-hours (9:00 am to 6:00 pm, for instance) for \$25,000 for the first year of service (FY 2013). There would be negligible capital costs since existing vehicles could be used. Sunday service could be funded through New Freedom funds (S. 5317) to target individuals who might be homebound otherwise, allowing them to participate in employment or social activities.

Administrative Facilities Upgrade

JCATS is currently housed in a double-wide trailer on the lot where vehicles are stored. This has been adequate to date, but a larger, more permanent administrative facility is necessary for future needs as the current facility is at capacity. The costs of this would not be insignificant. There are land acquisition, planning, design, and engineering costs in addition to construction and relocation costs. A very rough budget would be \$1,000,000 for the planning, design, engineering, land acquisition, and construction costs. However, this is heavily dependent on the final building specifications that are selected. The funding could come from the Rural Capital Program which has a 10% local match with 90% of the costs being paid by the federal and state governments.

Scheduling Software

JCATS is in the process of upgrading their current scheduling software (CTS) which will help improve the efficiency of scheduling. The cost of the upgrade is \$12,000 with additional maintenance costs each year of \$4,000; this upgrade is already funded. However, these additional costs can be easily offset by small efficiency gains. A 0.5% reduction in service miles and hours resulting from improved scheduling efficiency offsets the price of the software upgrade. Any larger gains in efficiency will result in net cost savings.

Table 11.2 summarizes the cost elements of these new services.

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Table 11.2: Service Alternatives

| Description | Assumptions | | Service Changes | | | | | Added Costs | | New Revenue / Efficiency Improvement | Funding Sources | |
|-----------------------------------|--|---|-----------------|-------|------------|-------------|-------------|------------------|---------------|--------------------------------------|-----------------|----------|
| | Operating | Capital | Vehicles | Hours | Days /Year | Hours /Year | Hourly Rate | Annual Operating | Capital Costs | | Operating | Capital |
| Added Hour of Service (Admin) | Adding an additional hour of service to a day at off-peak times | Existing | N/A | 1 | 255 | 255 | \$5.80 | \$1,480 | 0 | N/A | S. 5311 | None |
| Added Hour of Service (Operating) | Adding an additional hour of service to a day at off-peak times | Existing | 6 | 1 | 255 | 1530 | \$29.48 | \$45,101 | 0 | \$36,668 | ROAP | None |
| Mobility Management | None | Staff member, user subsidies, broker activities | N/A | N/A | N/A | N/A | N/A | \$60,000 | 0 | \$29,084 | None | S. 5310 |
| Expanded Saturday | Year two and on, assume 1/4 admin staff to operate service. Two buses to provide RGP service | Existing | 2 | 10 | 50 | 1000 | \$31.48 | \$31,480 | 0 | \$3,800 | S. 5316 | None |
| Park and Ride Shuttle | Feeder service for Triangle Transit express shuttles between Clayton and Raleigh | Five existing and two new vehicles | 7 | 1.5 | 255 | 2678 | \$35.32 | \$94,560 | \$130,000 | \$10,581 | S. 5316 | S. 5316 |
| Weekend - New Freedom | Partial Day. Targeting elderly, disabled, low-income who have limited options. No admin staff necessary. | Existing | 2 | 8 | 50 | 800 | \$29.48 | \$23,582 | 0 | \$3,040 | S. 5317 | None |
| Scheduling Software | | Upgrade CTS Software (Already underway) | N/A | N/A | N/A | N/A | N/A | \$4,000 | \$12,000 | \$29,084 | Existing | Existing |

ALTERNATIVE BILLING METHODS

JCATS currently bills human service agencies based on average miles traveled for each passenger on a trip. The total miles traveled with passengers for each trip are divided by the total passengers carried on that trip, and the agencies are billed for that amount of miles based on a pre-negotiated mileage rate. This has the advantages of charging human service agencies an amount roughly tied to the amount of service received. The main disadvantage is in transparency – agencies do not know exactly how much a trip will cost until the bill arrives. As part of this study, alternative billing methods were examined and are presented below. At this time, no change to the billing method is being recommended as the current system is working. However, this can be re-evaluated in the future as the service recommendations are implemented.

Flat Rate Billing Scheme

A flat rate per passenger trip attempts to solve the transparency issue by the simplest means possible. Agencies would be billed the same amount for a ride, regardless of distance or the presence of other riders (although, there would likely be a different rate for out of county trips). This has the advantage of being very easy to budget for and anticipate. However, it also means that agencies with lots of short trips or trips that typically have multiple riders would likely end up paying significantly more because on a per mile basis these trips are currently relatively inexpensive. JCATS would bill agencies an amount that is based on the total cost per passenger. Table 11.3 shows the anticipated yearly rates for each passenger trip, which is roughly between \$18 and \$19 per trip. Because this method encourages the transit agency to group trips and put more passengers on each vehicle, there could be efficiencies realized that would lead to cost savings which would hold the rate down.

Table 11.3: Flat Rate Billing

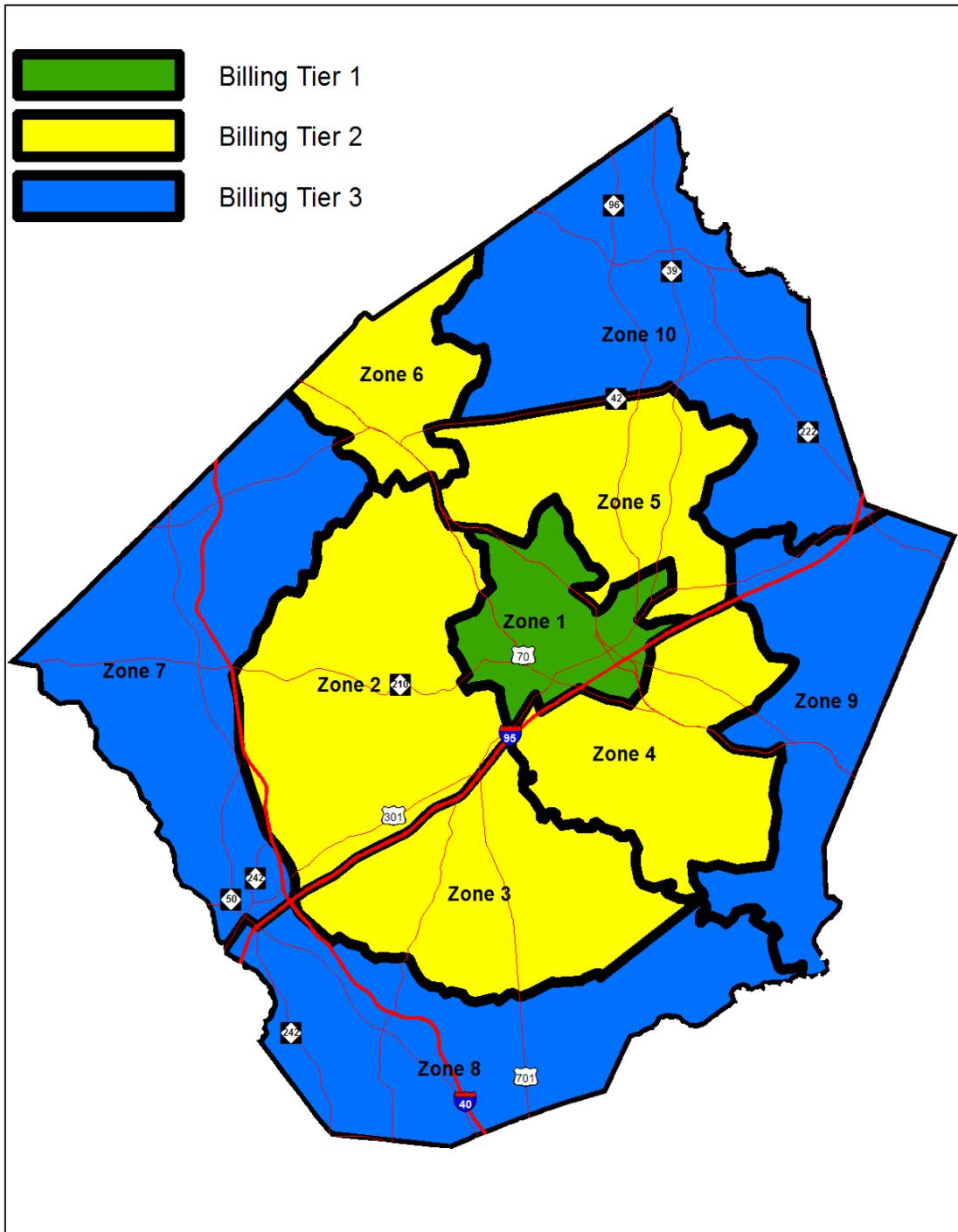
| Billing By Rider | PROJECTION | | | | | | |
|---------------------------|---|----------------|----------------|----------------|----------------|----------------|----------------|
| | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
| Total Costs | \$1,713,190.69 | \$1,747,454.50 | \$1,817,352.68 | \$1,890,046.79 | \$1,965,648.66 | \$2,044,274.61 | \$2,126,045.59 |
| Total Passengers | 94,699 | 97,540 | 100,466 | 103,480 | 106,585 | 109,782 | 113,076 |
| Cost Per Passenger | \$18.09 | \$17.92 | \$18.09 | \$18.26 | \$18.44 | \$18.62 | \$18.80 |
| | Inflation Factor: 4% (2% in FY 2011) | | | | | | |
| | Ridership Growth: 3% | | | | | | |

Zone Based Billing Scheme

This method would be similar to the flat rate billing scheme in that there is one rate charged per trip regardless of how many passengers are traveling together; however, this method adds a component to account for distance traveled. Under a zone-based scheme, Johnston County would be broken down into several zones with different, but transparent, fares for trips in and between zones. The advantage of this approach is that it is more predictable and simpler for agencies to understand, which aids in budgeting, while creating a pricing system that is more equitable than a simple per passenger, flat-rate scheme. However, some human services organizations could see significant increases or decreases in billing, depending on the types of trips taken by their clients. For instance, short trips and/or trips with a large number of passengers traveling together would be billed at a higher per-passenger rate using zone-based billing. Similarly, longer trips and/or trips with fewer passengers traveling together would be billed at a lower per passenger rate using zone-based billing. In this way, there is an incentive for JCATS to improve efficiency by utilizing more effective routing

and grouping of passengers. Figure 11.1 shows a potential zone structure for Johnston County using aggregated Traffic Analysis Zones (TAZs) from the U.S. Census to form each of the ten zones. The three billing tiers could be billed at different rates to account for increased non-revenue (deadhead) miles traveled. In this way, the tiered zoning structure accounts for service miles in addition to revenue miles. An example fare of how this could work would be to charge \$8 per zone (i.e. a trip that stays within its originating zone would be charged \$8, a trip that crosses into an adjacent zone would be \$16, and a trip that travels into a third zone (e.g. Zone 7 to Zone 1) would be \$24).

Figure 11.1: Zone Based Billing



Each billing method has its own pros and cons as discussed above. Table 11.4 summarizes some of the key advantages and disadvantages of the three billing methods considered – revenue miles, flat rate, and zone.

Table 11.4: Billing Method Pros and Cons

| Billing Method | Pros | Cons |
|----------------|---|--|
| Revenue Miles | <ul style="list-style-type: none"> • Currently in use • Rate charged tied closely to true cost of service received | <ul style="list-style-type: none"> • Hard to budget for trips |
| Flat Rate | <ul style="list-style-type: none"> • Easy to use and budget for • Encourages grouping of trips | <ul style="list-style-type: none"> • Rate not necessarily reflective of cost of trip • Short trips will pay more vs. existing billing method |
| Zone | <ul style="list-style-type: none"> • Easy to use and budget for • Encourages grouping of trips • More equitable than flat rate | <ul style="list-style-type: none"> • More complex to set up • Short trips and/or trips with multiple passengers might pay more vs. existing billing method |

12. FUNDING OPTIONS

CURRENT FUNDING

JCATS receives funding from the federal government via the Federal Transportation Administration (FTA), the State of North Carolina via NCDOT, and local sources, in addition to the farebox and human service agency transportation purchases. Federal, State, and local funds are used for both operating and capital costs. In Federal Transit funding, there is a distinction between large urban areas (populations above 200,000), small urban areas (populations from 50,000 to 200,000) and rural areas. All of Johnston County is classified as rural for funding purposes, so JCATS is only eligible for funding for rural programs. A portion of Johnston County is in the jurisdiction of the Capital Area Metropolitan Planning Organization (CAMPO) making JCATS eligible for Congestion Mitigation and Air Quality (CMAQ) funding. The following description of project categories and FTA funding programs is not exhaustive, but augments NCDOT guidance and describes types of projects for which JCATS could pursue funding. A summary table is also provided. This includes funding sources already used by JCATS, as well as others that could be pursued in the future.

In examining funding options it is important to note that nearly all sources of federal and state money require a local match. Because the federal and state contribution to a program can be large (a combined 90% potentially for capital costs under many programs), a relatively small amount of local funding can be leveraged into significant amounts of funding for JCATS. It is important that programs and services are carefully selected to ensure that quality service is being provided and the appropriate funding sources are being accessed.

Table 12.1 summarizes some of the main federal and state funding programs. The table is a simplified summary of the most relevant Federal and State transit funding streams. It does not attempt to include every potential source, nor every detail of each program. Many programs have extensive eligibility requirements.

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Table 12.1: Federal and State Funding Sources Overview

| Program | | Basic Intent | Original source | Who administers? | How allocated? | Who is typically the ultimate recipient? | For operating costs? | For capital costs? | Maximum federal share | NCDOT share | Local share | Flexibility | Other notes |
|--|--|---|--|--------------------|---|--|-------------------------------------|--------------------|--|---|--|--|--|
| Community Transportation Program | \$5311 Rural Formula Funding | Rural transit | Federal taxes | State | To states by formula, then within states by formula | Rural transit agencies | Yes | Yes | 80% for capital and administrative, 50% for operating | 5% for administrative, 10% for capital, nil for operating | 15% for administrative, 10% for capital, 50% for operating | Inherently flexible - this is a general-purpose funding stream | 5311(f) Inter-City Bus Program. See separate details. 15% allocation OR certification that it's not needed. |
| | Rural Capital Program | Capital costs of rural transit | Combination of federal and state taxes | State | | Rural transit agencies | | | 90% combination of federal and state | 90% combination of federal and state | 10% | | |
| | Human Service Transportation Management Program | Administrative costs of human service transportation | State taxes | State | | Rural transit agencies | | | N/A | 85% | 15% | | |
| Rural Operating Assistance Program (ROAP) (these three programs are administered under a single ROAP application package) | Elderly and Disabled Transportation Assistance Program (EDTAP) | Funds of last resort' for trips for elderly and disabled people | State taxes | State, then County | To counties by formula. County then distributes at its discretion | Human service agencies (who can then pay transit agency for trips) | Yes (fully-allocated cost of trips) | No | None | 100% | None | Cannot be transferred | Can be used as local match for federal operating funds |
| | Employment Transportation Assistance Program (ETAP) (also known as EMPL) | Employment trips for low-income people | State taxes | State, then County | To counties by formula. County then distributes at its discretion | Human service agencies (who can then pay transit agency for trips) | Yes (fully-allocated cost of trips) | No | None | 100% | None | Can be transferred to EDTAP or RGP if not needed for EMPL | Can be used as local match for federal operating funds |
| | Rural General Public (RGP) | Anyone not covered by other specific programs | State taxes | State, then County | To counties by formula. County then distributes at its discretion | Transit agency | Yes (fully-allocated cost of trips) | No | None | 90% | 10% (can be combination of fares and subsidy) | Cannot be transferred | Use for riders whose trips are not funded by other means Can be used as local match for federal operating funds |
| Targeted Competitive Programs | \$5310 Elderly & Persons with Disabilities | Improving mobility for elderly and disabled people | Federal taxes | State | To states by formula, then competitively within states | Usually private non-profits, but can be transit agency | See notes | Yes | 80% for capital, 50% for operating | None | Entire non-federal share | | Projects must be in a locally-adopted Coordinated Plan in order to qualify Mainly intended for capital costs. Federal law allowed NC to use 1/3 of these funds for operating costs through 2009 |
| | \$5316 Job Access & Reverse Commute (JARC) | (a) reduce barriers to employment and training for low-income people, and (b) improve access to suburban employment for everyone | Federal taxes | State | To large urban areas or states by formula, then competitively within states to large urban areas, small urban areas, or rural areas | Transit agencies (also nonprofits) | Yes | Yes | 80% for capital, 50% for operating | None | Entire non-federal share | | Projects must be in a locally-adopted Coordinated Plan in order to qualify |
| | \$5317 New Freedom | Reduce barriers to employment and societal activities for disabled people | Federal taxes | State | To large urban areas or states by formula, then competitively within large urban areas or states | Transit agencies (also nonprofits) | Yes | Yes | 80% for capital, 50% for operating | None | Entire non-federal share | | Projects must be in a locally-adopted Coordinated Plan in order to qualify. Project can be funded indefinitely from New Freedom, but NCDOT encourages agencies to look for other permanent funding. |
| Surface Transportation Program | | Transportation (in general) | Federal taxes | FHWA | By formula to states, then by formula to MPOs, then to projects by MPOs | MPOs | | | | | | | Still often considered to be 'highway funds', but in fact can be used for transit too. Statewide prioritization program about to change |
| Congestion Mitigation and Air Quality (CMAQ) | | Strives to reduce transportation-related emissions by providing State DOTs and local governments options to fund different emission reduction strategies. The money must be spent on projects that reduce ozone (O3) precursors | Federal taxes | FHWA & FTA | FHWA to FTA to Direct Recipients usually MPOs | MPOs | Yes | Yes | Typically 80% and available for first 3 years with gradual decrease in federal match | None | Entire non-federal share | | Three broad categories of transit projects or programs that are eligible for funding: service or system expansion; provision of new transit service; and financial incentives to use existing transit services. Routine maintenance and rehabilitation of existing facilities are ineligible for CMAQ funding. Project proposals will be subject to a Minimum cost threshold of \$100,000 in NC. |

ACTIVITIES ELIGIBLE FOR FUNDING

Capital Projects

FTA's definition of a capital project is expansive. It includes not only buildings, vehicles and other major equipment, but also less obvious items such as preventive maintenance, technology purchases and mobility management. Typically, the FTA funds up to 80 percent of the cost of capital projects. NCDOT will often fund up to one-half of the remaining cost, but it depends on the specific program. Certain expenses are eligible for 90 percent federal funding, including improvements to bicycle access to transit and equipment required for either ADA or Clean Air Act Amendment compliance.

Operating Expenses

FTA programs fund up to 50 percent of net operating costs (operating costs minus certain types of revenue like fares) with NCDOT providing additional funding for certain rural services through ROAP. Operating costs include fuel, drivers' and dispatchers' wages and benefits, licenses, vehicle maintenance, and insurance.

Planning Activities

Planning activities include technical studies aimed at improving transit facilities, equipment, or service. The studies may focus on all or part of a transit agency: eligible areas of study include management, such as the efficiency of administrative or operating procedures; operations, including service evaluation and restructuring; and identification of service or capital needs. Alternatively, planning activities may be project-specific, including evaluations of previously funded projects, economic feasibility studies for proposed projects and detailed design work for capital projects, such as preparation of engineering and architectural surveys, plans and specifications. FTA will fund up to 80 percent of the cost of a planning activity; NCDOT will fund up to 10 percent of the cost of studies in urbanized areas and 10 to 20 percent of the cost of studies in rural areas, depending on the scope. Community Transportation Service Plans (CTSPs) are 90% funded by the State.

KEY FUNDING PROGRAMS

State and Federal

Various FTA and NCDOT funding programs support the activities described above, though not all programs support all categories of activity. The most general FTA programs are split by geography, with one (Section 5311) targeted to rural areas. Other programs are confined to particular categories of activity (i.e., capital projects only) or activities targeted toward certain populations. Each FTA program is described in brief below with examples of applicable projects. Applicable or comparable NCDOT programs are described under the FTA program headings. For rural areas, most FTA funding is channeled through NCDOT, which in some cases adds its own funds to programs. For this reason, the FTA and NCDOT funding streams are described together.

Section 5311 – Nonurbanized Area Formula Program

The Section 5311 program funds capital, operating, planning, and administrative expenses for agencies operating in rural areas. NCDOT bundles Section 5311 funds into its Community Transportation Program (CTP), which provides up to 90 percent of capital costs, 85 percent of administrative costs and 50 percent of operating costs. Funding for operating costs is available only in rare cases. JCATS is currently a recipient of CTP funds for administrative expenses; like most county transportation agencies, JCATS does not receive operating funds through S. 5311.

Section 5311 funds are allocated to each state by a formula that considers nonurbanized population and land area relative to those of all states. Certain rapidly growing states are eligible for additional funds. Outside of the general purposes described above, certain percentages of each state's Section 5311 funds must be allocated to training (not described here) and intercity bus service (described separately below).

Section 5311(f) – Intercity Bus Program

The Intercity Bus Program (Section 5311(f)) funds support operation of rural intercity bus services as well as “feeder” services that provide connections to intercity bus stops from surrounding rural areas. NCDOT must either allocate 15 percent of its statewide Section 5311 funding to this program or certify that sufficient rural intercity bus service exists to meet the residents' needs. The funds are intended foremost for private operators, though some North Carolina public transit agencies have implemented rural intercity routes along corridors that private carriers have declined to serve.

Capital projects eligible for Section 5311(f) funding include vehicle purchases for rural intercity or feeder service and depots and transfer centers that will be served jointly by transit and intercity operators. Operationally, intercity bus service (per FTA's definition) connects two distant urban areas, operates on a regular schedule and fixed route with limited stops, has capacity for luggage transport and provides “meaningful” connections with scheduled intercity service to more distant points. Feeder service may take more diverse forms and be as simple as an extension of hours on existing services to provide timed connections with intercity trips.

Section 5310 – Elderly and Persons with Disabilities Program

The Elderly and Persons with Disabilities Program (Section 5310) funds projects and services that improve mobility for senior citizens and people with disabilities. The primary funding recipients are private, non-profit organizations that serve the particular transportation needs of these populations. However, a public transit agency may receive funding under limited circumstances: it must either certify that no private organizations exist to provide specialized service or must be designated by NCDOT and local jurisdictions as the lead coordinator of human-service transportation programs.

Most Section 5310 funds support capital projects. The mobility management strategies are eligible for funding, as are vehicles and related equipment. Projects selected for funding under the Section 5310 program must be derived from a locally developed and coordinated human services transportation plan, which Johnston County has adopted. Section 5310 funds are distributed by formula. Each state receives funding based on its populations of elderly and people with disabilities. However, unlike the 5311 program, Section 5310 funds are allocated competitively within the state.

Section 5316 – Job Access and Reverse Commute Program

The Job Access and Reverse Commute (JARC) Program serves two primary goals: (1) reducing low-income individuals' and welfare recipients' transportation barriers to employment, training and job support services; and (2) increasing transit service for all populations to suburban employment. JARC-funded services may therefore include new shuttle routes that serve worksites directly, expanded demand-response vehicle service in low-density employment areas, extended evening and weekend service hours to serve employees whose shifts do not coincide with typical peak commute times, and new express routes to suburban job concentrations. Typically, JARC funds support the start-up of such services, with a transit agency or other funding partners expected to assume responsibility for operating costs once the grants expire. Purchases of vehicles to operate these services and other capital projects that support the program's goals may be funded.

The JARC program also supports transportation options outside of a transit agency's typical scope of operations. For instance, guaranteed ride home programs that reimburse passengers for alternate transportation home (most commonly taxi rides) in case of personal emergencies may be funded. Voucher programs that enable low-income individuals to purchase rides through human service or taxi providers and loan programs that allow individuals to acquire automobiles for ridesharing purposes are also eligible projects.

Standard FTA funding shares apply for this program: 80 percent for capital projects and planning activities and 50 percent for operating costs. As with Section 5310, projects funded through the JARC program must be derived from a locally developed and coordinated human services transportation plan, and funding is allocated competitively. NCDOT provides up to 10% of funding for capital costs.

Section 5317 – New Freedom Program

The New Freedom Program (Section 5317) aims to reduce transportation barriers for people with disabilities to enter the workforce. The program supports new transit services, accessibility improvements, and employment-related transportation alternatives beyond those required by ADA. New Freedom funds could be applied to enhancements to complementary ADA paratransit service, for instance, such as expansion of service beyond the mandated 3/4-mile fixed-route buffer, extension of service hours, or provision of same-day service. Feeder service to intercity bus or rail stations is also eligible for New Freedom funding, given that intercity services do not carry complementary paratransit requirements. New Freedom funds cannot otherwise be used to expand the coverage, hours or days of general-public service. Eligible capital projects under the New Freedom program include vehicle accessibility improvements, such as the purchase of wheelchair lifts that can accommodate larger or heavier mobility aids than those required by ADA.

Standard FTA funding shares apply for this program: 80 percent for capital projects and planning activities and 50 percent for operating costs. Grants fund three years of service. As with Sections 5310 and 5316, projects funded through the New Freedom program must be derived from a locally developed and coordinated human services transportation plan, and funding is allocated competitively. NCDOT provides up to 10% of funding for capital costs. A project may be funded through the New Freedom program indefinitely (i.e., receive successive New Freedom grants) provided that it remains in the human services transportation plan; however, NCDOT encourages applicants to identify other funding sources that could be applied following expiration of the initial grant.

Congestion Mitigation and Air Quality

The portion of Johnston County around the Clayton and Cleveland area which is a part of the Capital Area Metropolitan Planning Organization (CAMPO) has recently become eligible for Congestion Mitigation and Air Quality (CMAQ) funding. This means that this area has been one of the areas in the U.S. in non-compliance with federal air quality standards. The CMAQ program strives to reduce transportation-related emissions by providing State DOTs and local governments options to fund different emission reduction strategies. The money must be spent on projects that reduce ozone (O3) precursors. Three broad categories of transit projects or programs are eligible for funding: service or system expansion; provision of new transit service; and financial incentives to use existing transit services. Routine maintenance and rehabilitation of existing facilities are ineligible for CMAQ funding. Project proposals in North Carolina are subject to a minimum cost threshold of \$100,000. The CMAQ Program is also a reimbursement program which requires 100% of the local match up front.

Standard FTA funding shares apply for this program: 80 percent for capital projects and planning activities and 50 percent for operating costs. NCDOT provides up to 10% matching funding for capital costs. However, it should be noted that CMAQ funding is only available for the first three years of the implemented given project and there is a gradual decrease in federal match with the passing years.

Rural Operating Assistance Program

JCATS currently receives about 10% of its revenue through Rural Operating Assistance Programs (ROAP), which is really three individual programs that are bundled together: Elderly and Disabled Transportation Assistance Program (EDTAP), Employment Transportation Assistance Program (ETAP or EMPL), and Rural General Public (RGP). ROAP is a state program administered by NCDOT that distributes money to counties for assistance in transporting the elderly (EDTAP), to provide access to employment options (ETAP), and to assist other rural residents in transportation (RGP). These NCDOT funds can be used as a local match for federal programs. The current amount of ROAP funds that JCATS receives from the State in each of the three programs is shown in Table 12.3.

Table 12.2: JCATS ROAP Funding

| Program | Amount (FY 2010) |
|--|-------------------------|
| Employment Transportation Assistance Program (ETAP) (also known as EMPL) | \$2,344 |
| Elderly and Disabled Transportation Program (EDTAP) | \$11,412 |
| Rural General Public (RGP) | \$175,144 |

Local

General Fund Contributions

Numerous cities, counties and states support transit systems in part through general fund contributions. Johnston County currently provides funding to JCATS through general fund appropriations. Increased general fund contributions from local jurisdictions, either through tax or fee increases or budget reallocations, can allow a transit agency to obtain increased state and Federal funds to expand service or undertake capital projects. Because local funds can be leveraged through federal and state programs, small increases in local funding can have large impacts on a transit agency's revenue.

Agency Service Contracts

Currently, the majority of JCATS' revenue comes from service contracts with several human service agencies, such as the Department of Social Services. Having multiple agency contracts leads to economies of scale. Many (but not all) of the agency-funded trips can be combined, with several agency and/or Rural General Public (RGP) riders in a vehicle at any time. Without these economies of scale, agencies would pay more per rider, and JCATS' RGP cost per rider would also increase.

JCATS can expand beyond the traditional human service agency market into service contracts with other key employers or institutions. These partners would pay the fully allocated cost (or a significant share of it) of the service, either through monthly payments for service to JCATS or purchase of a certain number of fares on behalf of employees or clients. The contract would stipulate the amount and conditions of payment to JCATS and the service to be provided in return, which would likely consist of deviated fixed-route service or purchases of general-public demand-response trips (akin to a subscription service). For example:

- A cluster of service or health-sector employers could fund additional evening fixed-route service to provide employees with transit home after work
- Late-evening subscription trips could be arranged with a large employer to provide employees with direct service to dispersed home locations
- Service to a work site in an adjacent county could be developed in collaboration with the employer and the adjacent county's public transportation provider
- Particular human-service needs, such as later-evening or Sunday service, could be addressed through collaboration with social service agencies to obtain a foundation grant

Any contracted services must act as public transportation, rather than as private charters, to conform to federal regulations which restrict transit agencies from using federally-funded assets for charter service. In particular, the services must be open to the public, and cannot be restricted to partners' employees or clients. Revenues from agencies and agency ridership are shown in Table 12.3.

Table 12.3: Agency Transportation Purchases

| CONTRACTING AGENCY | FY 2010 Amount | Riders (FY 2010) |
|-------------------------------|----------------|------------------|
| Council on Aging | \$95,331 | 9,000 |
| Mental Health | \$30,067 | 2,653 |
| Department of Social Services | \$1,124,453 | 45,988 |
| Johnston County Industries | \$137,484 | 19,281 |
| Vocational Rehabilitation | \$10,697 | 986 |
| Health Department | \$44 | 2 |
| Johnston Memorial Hospital | \$1,028 | 27 |
| SSS High School | \$242 | 31 |

Farebox Revenue

Farebox revenue from RGP riders, although a relatively small source of income, is an important one – partly because JCATS has direct control over many elements of the fare structure, and partly because it directly affects riders. JCATS can increase or decrease the basic fare, which will increase or decrease revenue for each trip, but also increase or decrease the number of trips (a cost increase will discourage ridership, a cut will encourage ridership). Overall, at least in the short-term, incrementally raising or lowering fares will raise or lower income, respectively.

Advertising Income

Many transit systems allow advertisements to be placed on their vehicles which then serve as moving billboards throughout the county. Advertisements can also be placed inside vehicles which will be seen by riders. JCATS currently receives a small portion of income through advertisements.

13. POTENTIAL FINANCIAL PLAN

A tentative financial plan is presented here. There is a lot of flexibility to the financial plan depending on which program elements would be implemented and when that implementation would occur. The plan was created and compared to a base case which assumed that operating characteristics (miles, riders, etc.) stayed relatively the same except for 3% growth per year which is in line with the expected population growth in Johnston County over the next five years. The base case and plan also include inflation which was assumed to be 2% in 2011 and 4% each year after that, based on the inflation numbers used by NCDOT TIP Development Unit. This base case provides an example of what JCATS' finances and service might look like in the future if no new services or programs were implemented, and it assumes a continued reliance on S. 5311 funds. The plan alternatives are then added to that base case each year, following the phasing of their implementation, and subtracting from their costs the expected new revenues. It is important to note that the new service recommendations in the plan assume that the per mile rate paid by human-service agencies would stay the same. This is not meant as a guarantee that rates will not change in the future, but is merely to point out that these new services themselves do not increase the rate.

The basic idea of the financial plan is to begin to expand JCATS current service hours and markets while also expanding the capacity to provide future service. While no fixed-route service is planned in the next five years, one goal of these service expansions is to begin to test the viability of some form of fixed-route service in the future, to see if that type of service could be successful. The park-and-ride service in particular, would operate with many characteristics of a fixed-route service. These new services also seek to expand the types of users and trips that JCATS serves, which are currently heavily medical, to include more rural general public and employment trips. This plan is built around four main components:

1. A gradual expansion of weekday service hours
2. A S.5310 grant to fund mobility management activities
3. A JARC grant to expand Saturday service and provide park and ride service (after two years, a second JARC grant will be needed to continue to fund these services and could also add Sunday employment service)
4. A New Freedom grant to fund additional Sunday service
5. Administrative Facility expansion

The mobility manager, scheduling software update, and new administrative facility will help JCATS expand its administrative capacity. The mobility manager and scheduling software can lead to efficiency gains which will help keep costs low, and the new administrative facility will allow the physical space needed for more administrative staff.

Mobility management could be funded through either a JARC application or a S.5310 – Elderly and Persons with Disabilities Program application. The advantage of using S. 5310 is that certain user subsidies (for instance vouchers) could be funded; the alternative shown in this plan programs in \$8,000 in user subsidies. Under either program, mobility management is treated as a capital cost with the federal government covering 80% of expenses.

Expanded Saturday service and park-and-ride service could all be funded in one Job Access and Reverse Commute application. The mobility manager could be brought on first to help build

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connections and riders for the new services, with expanded Saturday service and park-and-ride service coming on in later years. These new services would help to expand the employment transportation services offered by JCATS, and increase the visibility of JCATS.

Additional weekend service would be provided through a New Freedom application that would target Sunday service and populations that otherwise may be home bound on weekends. This service could provide access to shopping, groceries, recreational, and social activities for seniors, low-income individuals, and people with disabilities. Table 13.1 shows the potential plan phasing.

In addition to these specific service recommendations, JCATS should also seek to strengthen partnerships with Johnston County employers and groups who could be targeted for specific services. For example, one type of service that was popular based on public input was an employment shuttle. JCATS could partner with one business or a group of co-located businesses who would fund all or part of the cost of an employment shuttle. JCATS, in turn, would provide morning and evening shuttle service to interested employees residing within a predetermined pick up zone to get to work. An example of how this could work would be to partner with Talecris and other large employers near Clayton who would pay a negotiated fee. JCATS would pick up interested employees from Selma, Smithfield, and Clayton and drop them off at their work site by the start of their shifts. This could perhaps be woven into a Clayton Park and Ride shuttle even, it could be a component of mobility management, or it could be a stand-alone service. The employer contribution to the cost of a shuttle would count as a local match for grant purposes.

Table 13.1: Service Plan

| Service Alternative | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|--------------------------------|---------|---------|---------|---------|---------|---------|
| Scheduling Software | | | | | | |
| Gradual Service Hour Addition | | | | | | |
| Mobility Manager | | | | | | |
| Expanded Saturday Service | | | | | | |
| Park and Ride Shuttles | | | | | | |
| Expanded Weekend Service | | | | | | |
| Administrative Facility | | | | | | |
| When the service comes online: | | | | | | |

CAPITAL PLAN

The capital plan for JCATS consists of two new vehicles to provide extra capacity for the Park-and-Ride feeder shuttle service, and a new, larger administrative facility. A new administrative facility would greatly expand the capacity for JCATS to provide new service. The current facility does not have additional room if any new staff were brought in. The two new vehicles would be through the JARC application with 80% federal funding, 10% state funding, and a 10% local match. This local amount is estimated to be \$11,400. The administrative facility could be funded under the Rural Capital Program which requires a 10% local match. The costs of the new facility would be high (likely in the \$1,000,000 range) but the local match would return a good ‘bang for the buck’ by bringing in \$900,000 of federal and state money for a \$100,000 local contribution. Table 13.2 shows the capital plan. The total new capital costs would be about \$1,100,000, but would only require \$110,000 in local funding.

The replacement cost of the current JCATS fleet of vehicles is also shown as a part of the capital plan. This is based on the expected year of replacement and an estimated 2011 cost of \$40,000 for a

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van, \$52,000 for a light-transit vehicle, and \$30,000 for a minivan. Funding would likely come from either the State or S. 5311. The total cost for replacement vehicles is expected to be about \$1,278,000 with a local match of \$128,000. It is important to note that most of the vehicles in JCATS' fleet are scheduled to be replaced in the next three years, but depending on wear and tear, some of these could perhaps be left in service longer. The cost of replacement vehicles also includes a currently planned expansion from 25 to 26 vehicles in FY 2012 as a base operating fleet. The replacement vehicles comprise the base case capital costs.

Table 13.2: Capital Plan

| Capital Plan | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Funding Source | Federal Match % | State Amount | State Match % | Local Amount | Local Match % |
|----------------------------|------------------|------------------|------------------|------------------|--------------------|----------------|-----------------|--------------------|---------------|------------------|------------------|
| | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 | | | | | | |
| Capital Project | | | | | | | | | | | |
| Park and Ride Shuttle | | \$114,733 | | | | S. 5316 | 80% | \$91,786 | 10% | \$11,473 | 10% |
| Facilities Upgrade | | | | | \$1,000,000 | Rural Capital | 90% | \$900,000 | | \$0 | 10% |
| Replacement Vehicles | \$420,077 | \$313,309 | \$357,989 | \$124,103 | \$62,052 | S. 5311 | 80% | \$1,022,023 | 10% | \$127,753 | 10% |
| Total Capital Costs | \$420,077 | \$428,042 | \$357,989 | \$124,103 | \$1,062,052 | | | \$2,013,810 | | \$139,226 | \$239,226 |

LOCAL FUNDING

The local costs for the financial plan increase with these service alternatives. Depending on how they are phased in, how fully they are implemented, and what revenues are realized from the programs, that local assistance could change. Table 13.3 shows the local assistance needed for the operating and administrative costs, and Table 13.4 shows the local assistance needed for capital costs. The local costs from the service plan operating improvements range from a low of \$11,000 in FY 2012 to a high of \$90,000 in FY 2016. Over the course of the five-year plan, the total expected additional local contribution is roughly \$337,000 for operating and administrative costs. This local money is being leveraged to bring an additional \$616,000 in federal and state funds to JCATS over the course of the five-year plan. JCATS could also realize an estimated \$385,000 in new revenue as a result of these service recommendations. For capital expenses, \$239,000 in local funding will be leveraged to access over \$2,150,000 in federal and state funding.

It is important to note that local funding does not necessarily mean a general fund contribution from Johnston County, although that is a potential funding source and one that JCATS currently uses. Local match could also partially come through a reallocation of ROAP funds which are state dollars that can be used as local match for federal grant programs. As mentioned above, employer payments for service could count as local funding, too.

Table 13.3: Local Assistance for Operating and Administrative Costs

| | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|------------------------------------|-----------------|-----------------|------------------|------------------|------------------|------------------|
| Base Case Local Assistance | \$ 49,685 | \$50,679 | \$51,693 | \$52,726 | \$53,781 | \$54,856 |
| Additional Local Assistance | \$0 | \$10,981 | \$71,437 | \$75,227 | \$88,854 | \$90,240 |
| Total Plan Local Assistance | \$49,685 | \$61,660 | \$123,129 | \$127,953 | \$142,635 | \$145,096 |

Table 13.4: Local Assistance for Capital Costs

| | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|------------------------------------|-----------------|-----------------|-----------------|-----------------|------------------|
| Base Case Local Assistance | \$42,008 | \$31,331 | \$35,799 | \$12,410 | \$6,205 |
| Additional Local Assistance | \$0 | \$11,473 | \$0 | \$0 | \$100,000 |
| Total Plan Local Assistance | \$42,008 | \$42,804 | \$35,799 | \$12,410 | \$106,205 |

PLAN BENEFITS

The costs of implementing these new service ideas are high, but there are real benefits attached to those dollars spent. The ridership gains from implementing the service alternatives would eventually be a 13% increase over the base case scenario by the end of the five-year window of this plan. In addition to this ridership gain, there are harder to quantify direct economic benefits and multiplier effects as well as improvements to peoples’ quality of life given expanded destinations and employment opportunities that become available with increased service. Table 13.5 summarizes the financial plan. Costs, revenues, and operating assistance are shown for each service alternative.

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Table 13.5: Financial Plan

| JCATS Financial Plan | Actual FY 2010 | Estimated FY 2011 | Year 1 FY 2012 | Year 2 FY 2013 | Year 3 FY 2014 | Year 4 FY 2015 | Year 5 FY 2016 |
|--|-------------------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Base Case: | | | | | | | |
| Total Operating/Administrative Expenses | \$ 1,713,191 | \$ 1,747,455 | \$ 1,782,404 | \$ 1,818,052 | \$ 1,854,413 | \$ 1,891,501 | \$ 1,929,331 |
| Total Operating Subsidy Requirements | \$ 260,334 | \$ 265,541 | \$ 270,852 | \$ 276,269 | \$ 281,794 | \$ 287,430 | \$ 293,178 |
| Federal Assistance | \$ 237,377 | \$ 242,125 | \$ 246,967 | \$ 251,907 | \$ 256,945 | \$ 262,084 | \$ 267,325 |
| State Assistance | \$ 188,900 | \$ 192,678 | \$ 196,532 | \$ 200,462 | \$ 204,471 | \$ 208,561 | \$ 212,732 |
| Local Assistance | \$ 48,711 | \$ 49,685 | \$ 50,679 | \$ 51,693 | \$ 52,726 | \$ 53,781 | \$ 54,856 |
| Total Operating Assistance | \$ 474,988 | \$ 484,488 | \$ 494,178 | \$ 504,061 | \$ 514,142 | \$ 524,425 | \$ 534,914 |
| Local Share of Operating Assistance | 10.3% | 10.3% | 10.3% | 10.3% | 10.3% | 10.3% | 10.3% |
| Gradual Service Addition (Admin) - S. 5311 | | | \$1,539 | \$1,601 | \$1,665 | \$1,731 | \$1,731 |
| Federal Assistance (80%) | | | \$1,231 | \$1,281 | \$1,332 | \$1,385 | \$1,385 |
| State Assistance (5%) | | | \$77 | \$80 | \$83 | \$87 | \$87 |
| Local Assistance Required (15%) | | | \$231 | \$240 | \$250 | \$260 | \$260 |
| Gradual Service Addition (Operating) - ROAP | | | \$46,905 | \$48,780 | \$76,102 | \$79,146 | \$105,528 |
| Revenue | | | \$38,135 | \$41,210 | \$66,373 | \$71,753 | \$95,364 |
| Federal Assistance (50%) | | | \$4,385 | \$3,785 | \$4,864 | \$3,697 | \$5,082 |
| Local Assistance Required (50%) | | | \$4,385 | \$3,785 | \$4,864 | \$3,697 | \$5,082 |
| Mobility Manager - S.5310 | | | \$63,648 | \$66,192 | \$68,844 | \$71,598 | \$71,598 |
| Federal Assistance (80%) | | | \$50,918 | \$52,954 | \$55,075 | \$57,278 | \$57,278 |
| State Assistance (10%) | | | \$6,365 | \$6,619 | \$6,884 | \$7,160 | \$7,160 |
| Local Assistance Required (10%) | | | \$6,365 | \$6,619 | \$6,884 | \$7,160 | \$7,160 |
| Expanded Saturday Service - S. 5316 | | | | \$34,729 | \$36,120 | \$37,565 | \$37,565 |
| Revenue | | | | \$4,192 | \$4,360 | \$4,535 | \$4,535 |
| Federal Assistance (50%) | | | | \$15,268 | \$15,880 | \$16,515 | \$16,515 |
| Local Assistance Required (50%) | | | | \$15,268 | \$15,880 | \$16,515 | \$16,515 |
| Park and Ride Service - S.5316 | | | | \$102,273 | \$106,370 | \$110,625 | \$110,625 |
| Revenue | | | | \$11,225 | \$11,674 | \$12,141 | \$12,141 |
| Federal Assistance (50%) | | | | \$45,524 | \$47,348 | \$49,242 | \$49,242 |
| Local Assistance Required (50%) | | | | \$45,524 | \$47,348 | \$49,242 | \$49,242 |
| Sunday Service - S. 5317 | | | | | | \$27,589 | \$27,589 |
| Revenue | | | | | | \$3,628 | \$3,628 |
| Federal Assistance (50%) | | | | | | \$11,981 | \$11,981 |
| Local Assistance Required (50%) | | | | | | \$11,981 | \$11,981 |
| Added Costs - All Plan Ideas | | | \$112,093 | \$253,574 | \$289,101 | \$328,255 | \$354,637 |
| Added Revenues - All Plan Ideas | | | \$38,135 | \$56,627 | \$82,407 | \$92,056 | \$115,667 |
| Total Operating Assistance Required | | | \$73,958 | \$196,947 | \$206,694 | \$236,199 | \$238,970 |
| Federal Assistance | | \$0 | \$56,535 | \$118,812 | \$124,500 | \$140,098 | \$141,484 |
| State Assistance | | \$0 | \$6,442 | \$6,699 | \$6,968 | \$7,246 | \$7,246 |
| Local Assistance | | | \$0 | \$10,981 | \$71,437 | \$75,227 | \$88,854 |
| Local Share of Operating Assistance w/Plan | 10.3% | 10.3% | 10.9% | 17.6% | 17.8% | 18.8% | 18.7% |

A. - APPENDIX: COMMENTS FROM PUBLIC MEETING #2

Johnston County Area Transit System Community Transportation Service Plan Public Workshop #2 Comment Sheet February 15, 2011: 8am to 10am, Clayton, NC

What do you think of the proposed service alternatives (longer weekday hours, more weekend service, park & ride service, etc.)? Do these adequately address the transportation shortcomings for Johnston County?

- I am so thankful for the proposed services. The population I serve is in total need of the longer weekday, weekend, and Saturday services. It will be a plus for our evening services (6-9 pm)
- Yes
- I think with the economy of Johnston County the additional services proposed are great.
- The 5-year plan looks promising
- Yes
- The extended hours are great. My new agency will require transportation for “after hours”
- The proposed service alternatives would greatly help our community. There are certain groups of the community that would need services on the weekends that is currently not being provided.

Are there other service or transportation ideas you would like to see in Johnston County?

- I think the Mobility Manager and new administrative facility is a great idea due to scheduling. Consumers’ concerns are the 2-hour early estimated pick-up times (appointment 8:30 am, pick up 6:30 am. Departure 12:00 pm, pick up sometimes after 1:00 pm)
- Trips to Raleigh
- Trips to Raleigh
- More services tailored to local industry, for example, providing a service to those companies in close geographical location – Natvar, Talecris, Hospira, Turkington, Northeast Bakery, Novo
- Group charter to specific events (consider it)
- Johnston County really needs a general public transportation system. JCATS is a great service and I look forward to the proposed service upgrades.

What do you think of the types of trips targeted for increased service (employment trips, general public trips, shopping and leisure trips)? Should other types of trips be the focus?

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- Great idea; it will better serve the community
- Those types of trips to include out of county
- I think these ideas are great but the focus should be on the elderly and medical appointments
- More employment trips
- From an industry standpoint, yes this should be the focus
- Shopping trips
- Johnston County needs a public transportation system. As the county continues to grow from people moving from Wake County and out of state, time and traffic will become an issue for families. These targeted trips are a good idea.

For what types of trips would you consider using JCATS? Work? School? Shopping? Leisure? Medical? Other?

- Shopping (out of county)
- Leisure (out of county)
- I don't use the services
- Work
- Leisure, medical (out of county)
- I would consider all these trips when this service becomes available.

Do you have any other general comments about JCATS, funding opportunities, or future service plans?

- Need to apply for other funding sources ASAP!
- More focus on industry, as these could provide potential future funding for various programs. Specifically, vanpool to employees.
- Thank you for this opportunity to hear about the 5-year plan. I appreciate the opportunity for the audience to participate in the program. Lynn is a fabulous director for JCATS! I would like to see them move into a new facility before 5 years!

In addition to these responses that were recorded on the comment sheet and the comments received at the workshop, two callers who could not attend the public workshop expressed their views. The first caller recommended shuttle loop from the train station in Selma to shopping destinations (like the Outlet Mall) in Smithfield. The second caller was a higher education student without access to a vehicle. This caller was interested in something approximating fixed-route service – a regular route with pick-up times that can be anticipated for the major cities of Selma, Smithfield, and Clayton. The caller used and appreciated JCATS services but sometimes felt that scheduling pick times for the return trip of an appointment was difficult and led to significant wait times.

B. - APPENDIX: RIDER SURVEY RESULTS

RIDER SURVEY – AN OVERVIEW

M/A/B conducted an on-board survey of demand responsive Johnston County Area Transit System (JCATS) riders to determine rider characteristics, trip origins, trip purposes, perceptions of service, riding habits of the passengers, and opinion of potential improvements.

METHODOLOGY

The on-board survey was administered to riders of the JCATS transit service. The riders completed a total of 124 surveys; with average daily ridership around 350 riders, this means the surveys were taken by about 35% of expected riders for the survey day. The summary is intended as an easily accessible overview of the results and their possible implications for the JCATS service.

Statistical note: In response to some questions, multiple answers were accepted from each respondent. In these cases, the percentages analyzed and discussed actually constitute the proportion of valid responses rather than just the number of respondents that answered the question. The questions where proportions of valid responses were used are questions 2, 3, 4, 6, 7, and 10. For example, Question 3 has eight possible answers. We received 115 surveys with 220 valid responses to this question, which is due to some respondents providing multiple answers to the question.

The summary of the results begins with an identification of the most important findings of the surveys, followed by a more detailed question-by-question analysis.

SUMMARY OF SIGNIFICANT ISSUES

The main findings of the rider surveys are:

- Overall, respondents were very satisfied with the JCATS service; in particular, the drivers were consistently and highly commended for their courtesy and service.
- Most users are captive users, meaning they depend on JCATS service and do not have an adequate other option for travel.
- Most riders use the JCATS service for medical appointments, work, or school; less than a quarter of the trips taken by respondents were for other purposes such as shopping, recreation, or personal business.
- JCATS appears to be the only service in Johnston County that is capable of adequately serving its rider population. Over 60% of respondents did not use any other public transit service at all. Of those who did use other services, only a few used them with a high frequency.
- Despite the overall satisfaction with JCATS, respondents listed information materials and telephone reservation system as areas to improve (although, as with the rest of the service, most respondents were pleased with these aspects).
- Some respondents did express a desire to see expanded service times, primarily later weekday evening service and Saturday service.

- Although there were not many specific recommendations on additional locations to serve, some respondents expressed a desire for more access to urban areas, county services, grocery stores, and shopping.

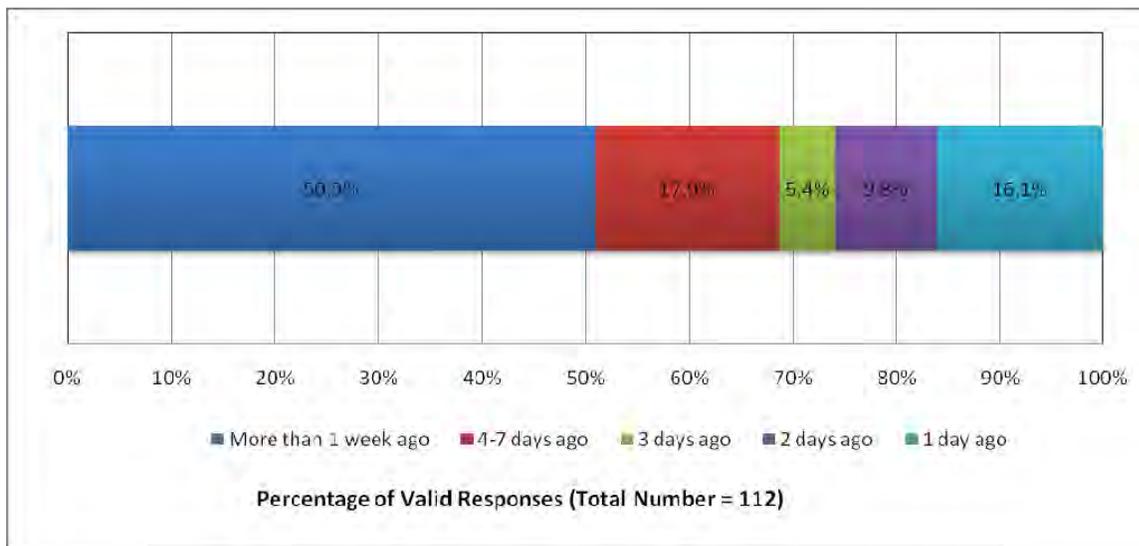
QUESTION-BY-QUESTION ANALYSIS

The on-board rider survey that was given to passengers is shown in Figure B.1. For each question, the following are provided:

- **Purpose** – a brief explanation of why the question was asked
- **Results** – a summary of the main results
- **Significance** – an assessment of what the results mean for JCATS

When did you make the reservation for this trip?

Figure B.1: JCATS On-Board Survey: Question 1



Purpose:

To understand how riders use the reservation system.

Results:

Most respondents made the reservations for their trip well in advance of the time designated for the trip. Half of the respondents booked the trip over one week before the trip took place, and another 18% of respondents booked their trip 4-7 days before the trip. Only 16% of respondents booked their trip the day before they took their trip which is the minimum time allowed.

Significance:

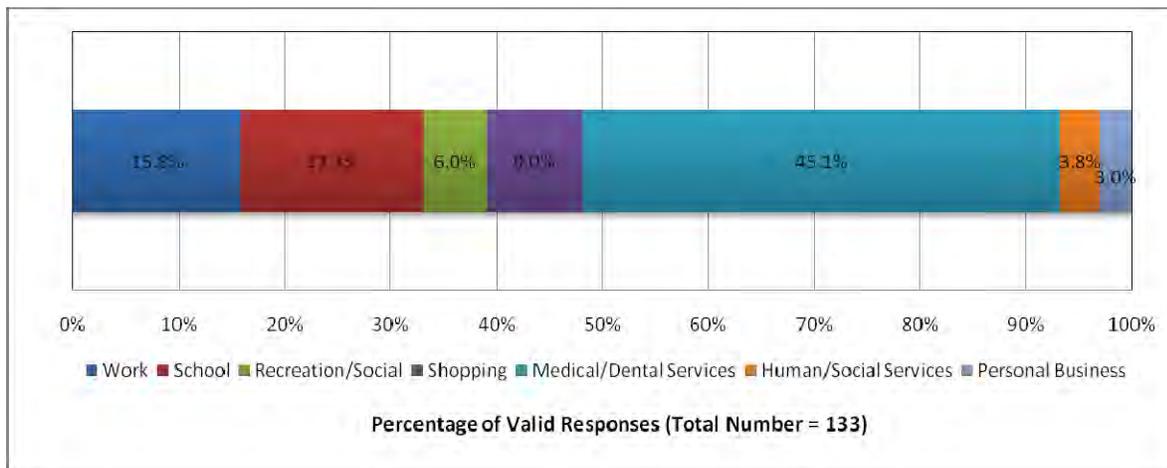
How respondents used the reservation system for rides provides some insight into how riders use the JCATS service; this will be further illuminated by Question 2 which asks respondents the purpose of the trip. Over three-quarters of respondents (78%) used JCATS to get to medical/dental services, work, or school. These types of destinations are the sort that have regular schedules or

where appointments are typically made well in advance of the scheduled time. Riders going to these types of services or destinations can anticipate their ride needs and plan in advance, which is likely reflected in the large number of respondents who made JCATS reservations well in advance of the trip.

That only a quarter of respondents booked their reservation within two days of their trip may indicate how riders perceive the JCATS service or a type of rider that JCATS is not currently reaching. Perhaps JCATS users view the service as available for needs that are anticipated in advance and not as available for needs that may arise unexpectedly or at the last moment. The low number of reservations within one day of the trip may also indicate that JCATS is not reaching variable riders who use JCATS services for personal business, recreation/social reasons, or shopping trips. Those trip purposes accounted for only 18% of total trips taken by respondents indicating that perhaps these types of users whose needs are more difficult to anticipate may be seeking other modes of travel instead of JCATS.

What is the purpose of this trip?

Figure B.2: JCATS On-Board Survey: Question 2



Purpose:

To find out the transit trip purpose(s) and get an idea of the types of trip destinations.

Results:

The greatest proportion of trips, nearly half of all valid responses (45%), was for medical/dental services. The next two highest categories were for school (17%) and for work (16%). Shopping accounted for 9 % of trips and recreation/social accounted for 6%. The two lowest percentage categories were personal business (3% of trips) and human social services (4%).

Significance:

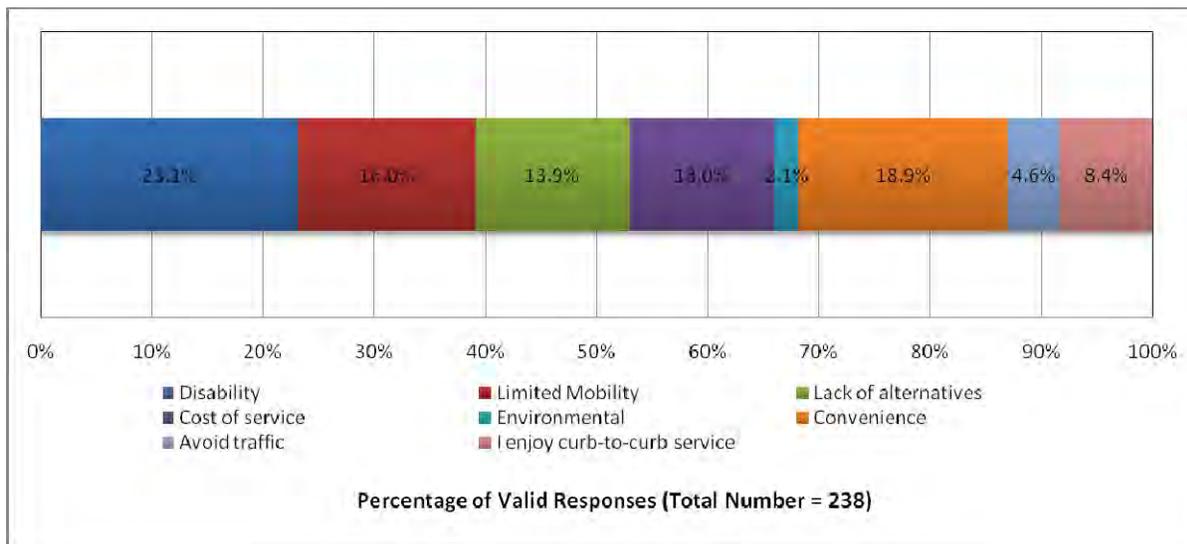
The importance of JCATS service to patients of medical and dental services is very clear from these results. The high number of responses listing medical/dental services as the purpose of the trip also fits well with the findings of Question 1 that most respondents made their reservations well in advance of the trip. Medical appointments are more easily anticipated. The high proportion of

medical/dental trips also says something about the riders who use JCATS, many of whom have a disability or limited mobility. JCATS clearly plays a critical role for people to access needed medical care.

It is also important to note that there were very few trips for purposes that can be considered variable. These types of trips include shopping, recreation/social, and personal business. The riders using these types of services may not be able to plan their trips as effectively as school, work, or medical/dental riders, which means that these types of variable riders may be looking to other services or modes to complete their trips.

Why did you choose to ride the JCATS service for this trip? Mark all that apply.

Figure B.3: JCATS On-Board Survey: Question 3



Purpose:

To understand the reason(s) behind the decision to ride JCATS, and to determine captive riders (transit-dependent) versus choice riders.

Results:

The vast majority of the valid responses were for categories that indicate a captive rider – disability (23%), limited mobility (16%), lack of alternatives (14%), and cost of service (13%). Combined, these categories accounted for roughly two-thirds of the valid responses. The other third of responses may indicate riders who use the service by choice; these riders may prefer JCATS to other options because of the environmental benefits (2%), the convenience (19%), to avoid the frustration of traffic (5%), or for the ease of curbside service (8%).

It is important to note, however, that respondents were allowed to make more than one selection in this category. Therefore, it is possible for a rider to select both disability and convenience as reasons for the trip. Or a rider could select disability, limited mobility, and lack of alternatives. This means that a direct translation of these percentages to assumptions about the percentage of riders who are

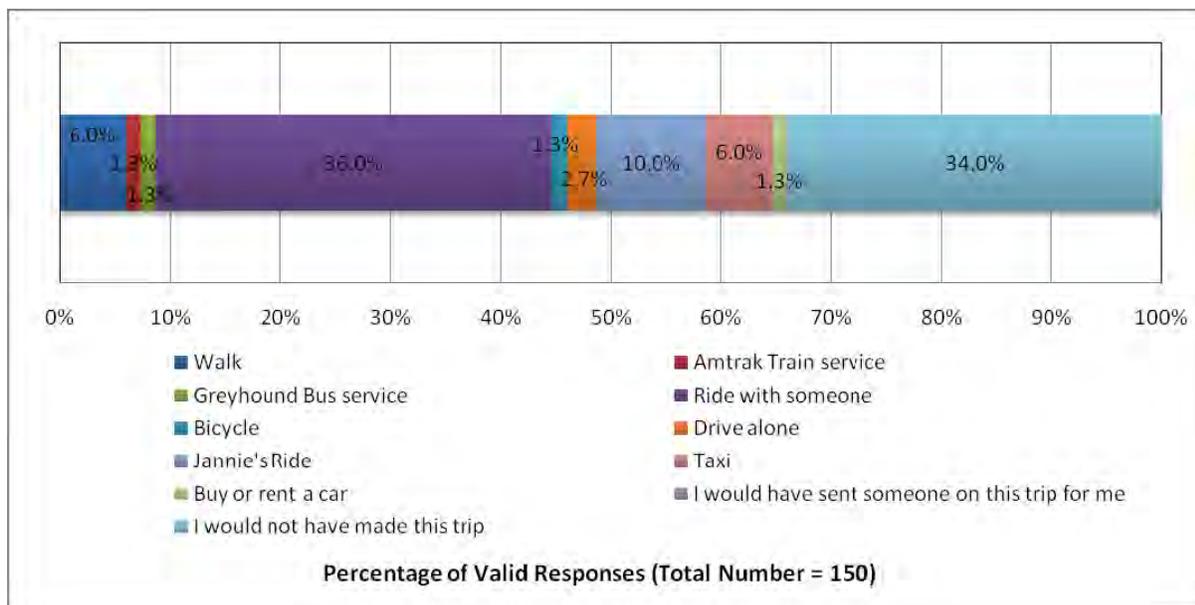
captive may not be accurate. However, it is possible to infer that many riders of JCATS do not have other reliable or affordable options available to them.

Significance:

The high level of captive riders on JCATS is both a good sign for continuing patronage of the service and an indication of the responsibility JCATS has in the community. Many riders depend on JCATS and do not have another option that is as available or accessible. Looking at the results of both Question 2 and Question 3, it is clear that JCATS provides a critical service for people seeking medical care, many of whom do not have a reliable, available, and affordable alternative. JCATS should focus on serving the needs of the captive transit users first, followed by accommodating choice riders who make up the minority of riders.

If the JCATS service did not exist, how would you have made this trip?

Figure B.4: JCATS On-Board Survey: Question 4



Purpose:

To find out how riders would have made this trip if transit services were not available. To further understand the relationship between captive and choice riders. To understand alternative transportation options.

Results:

The two major categories that leap out of the results are “Ride with someone” (36%) and “I would not have made this trip” (34%); together these two responses account for 70% of all valid responses to the question. Other demand-response services account for the next largest proportion of responses with 10% electing to use Jannie’s Ride and 6% choosing taxis in the absence of JCATS service. A very small number of respondents would use Amtrak (1%) or Greyhound bus service (1%). Non-motorized modes were also not very popular with only 6% responding that walking would be their alternative to JCATS and 1% saying that bicycling would be the alternative. A small

number would drive themselves in the absence of JCATS (3% drive alone and 1% buy or rent a car). Finally, no respondents would send someone else to make the trip for them which is likely a confirmation of how riders use JCATS; most riders are going to medical/dental care, work, or school, all of which are person specific and no one else can be substituted to make the trip (like they could for shopping, for example).

Significance:

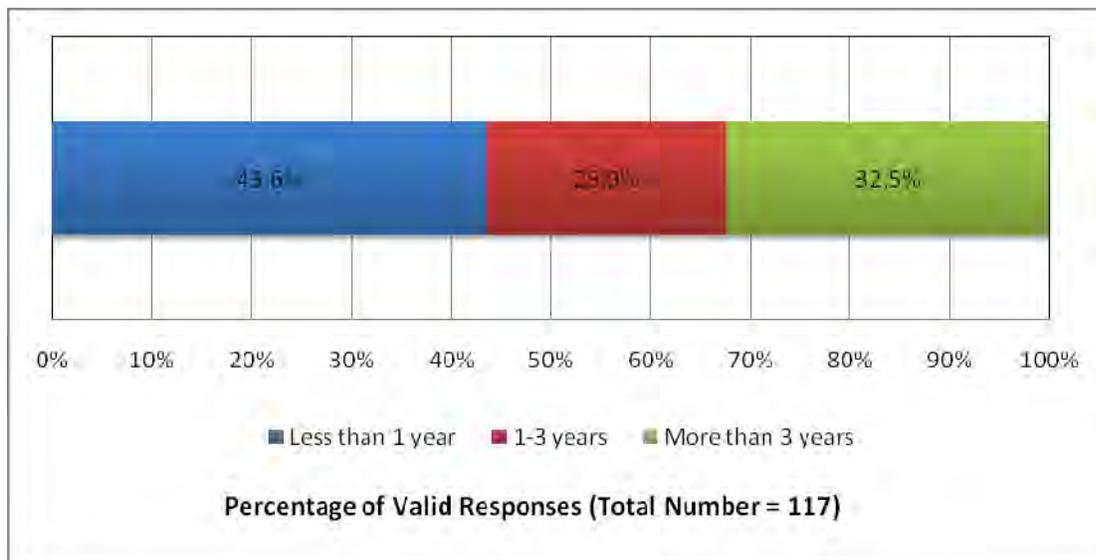
The largest group of respondents, over one-third of all responses, said they would not make the trip in the absence of JCATS service which is a major finding. These users would be unable to reach their needed destination without JCATS service. For these riders JCATS is an essential service and given that most users are going to work, school, or medical/dental services, JCATS likely allows riders to access crucial destinations for health and well-being.

The second largest response was “ride with someone” which indicates that about a third of JCATS riders have at least some access to cars, but the low number (2.8%) who stated they would drive alone shows that car ownership is likely low among JCATS riders. Riding with someone may not always be available at the needed time, and could potentially burden other community members in the absence of JCATS service. Some users could find other services to reach their destination like Jannie’s Ride or a taxi, but these responses are fairly low, which seems to indicate that most users cannot find a service that combines the reliability, availability, and cost of JCATS service.

Few users would choose non-motorized transportation which may reflect the large number of users who have a disability, limited mobility, or are using the service to reach medical/dental services. These types of users may not be physically able to reach destinations without motorized transport. However, this could also indicate that services are disparately spread across the transit service region making bicycling or walking very difficult.

How long have you been riding the JCATS service?

Figure B.5: JCATS On-Board Survey: Question 5



Purpose:

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To find out how long riders have been patrons of the JCATS service and determine if their experiences with service have been satisfactory enough to be retained as loyal riders.

Results:

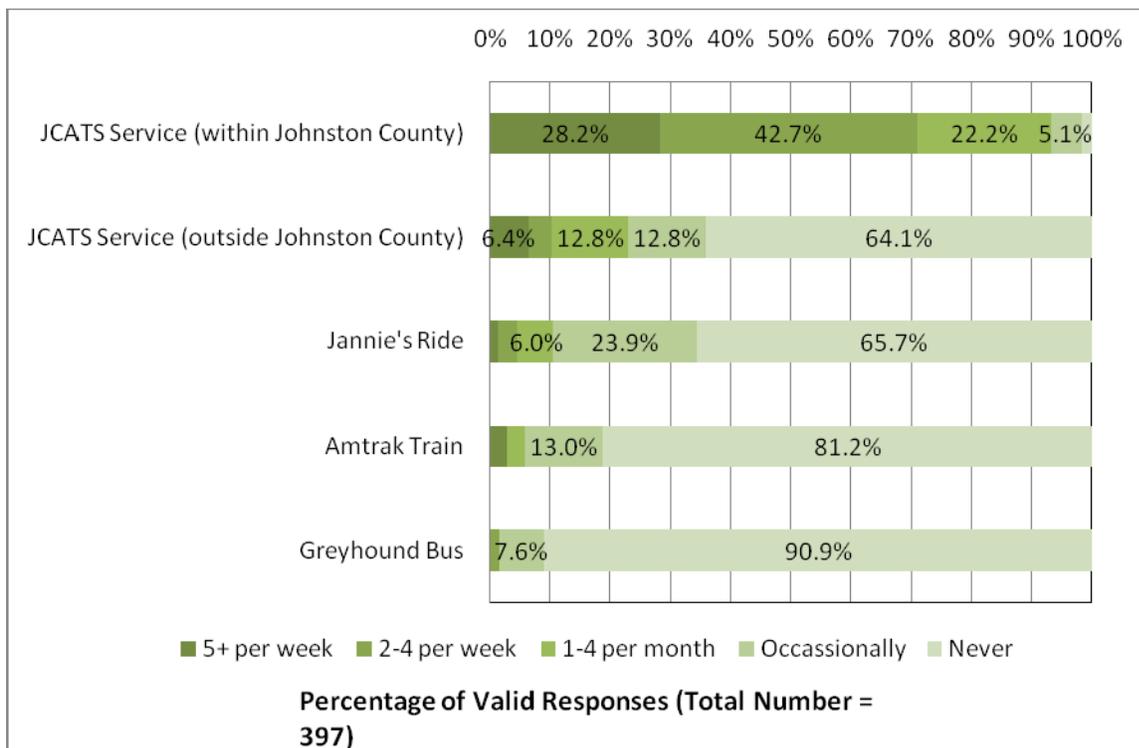
The largest block of respondents were riders for less than one year (44%) and a third were riders for more than three years. A little over half of all riders have been using the service for over a year. This indicates that JCATS has a good base of long-term riders, but also has a large number of riders who have only begun using the service recently.

Significance:

The large number of new riders to the system (riders for less than a year) may indicate either that JCATS is just beginning to generate lots of new riders who will hopefully be retained going forward, or that JCATS is having trouble retaining riders. A higher proportion of riders that are long-term users of the service would indicate that people who use the service are continuing to use it. Regardless, this segment of riders presents an opportunity for JCATS increase the pool of riders who are regular users of the JCATS system by providing these newer riders with good service.

On average, how often do you ride each of the following transit services in Johnston County?

Figure B.6: JCATS On-Board Survey: Question 6



On average, how often do you ride each of the following transit services in Johnston County?

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| | 5+ per week | 2-4 per week | 1-4 per month | Occasionally | Never |
|---|-------------|--------------|---------------|--------------|-------|
| JCATS Service (within Johnston County) | 28.2% | 42.7% | 22.2% | 5.1% | 1.7% |
| JCATS Service (outside Johnston County) | 6.4% | 3.8% | 12.8% | 12.8% | 64.1% |
| Jannie's Ride | 1.5% | 3.0% | 6.0% | 23.9% | 65.7% |
| Amtrak Train | 2.9% | 0.0% | 2.9% | 13.0% | 81.2% |
| Greyhound Bus | 0.0% | 1.5% | 0.0% | 7.6% | 90.9% |

Purpose:

To find out how often riders use JCATS service as well as other existing transportation services in the Study Area.

Results:

JCATS service inside Johnston County is well-used among respondents, and it seems to be a better option than other services in the area. 71% of respondents use the JCATS service multiple times per week indicating that the riders of JCATS are frequent users of the service. This echoes previous findings that would indicate large numbers of captive riders as these captive riders will likely need JCATS for multiple trips and will not have other adequate options.

JCATS service outside Johnston County is utilized some but not at nearly the rate of the service inside the county. The majority of respondents (64%) never use this service, but many of those who do use it, do so multiple times a week (10%) or several times a month (13%).

It is also important to note that no other service in the area has high levels of patronage or frequent use among JCATS riders. Only 5% of riders use Jannie’s Ride multiple times per week and fewer use either Amtrak or Greyhound with that frequency. Over 80% of respondents never use Amtrak and over 90% never use Greyhound indicating that these are not satisfactory replacement service options in Johnston County. Jannie’s Ride clearly has some regular riders, but the fact that nearly two-thirds never use this service indicates that most respondents do not view it as a replacement for JCATS.

Significance:

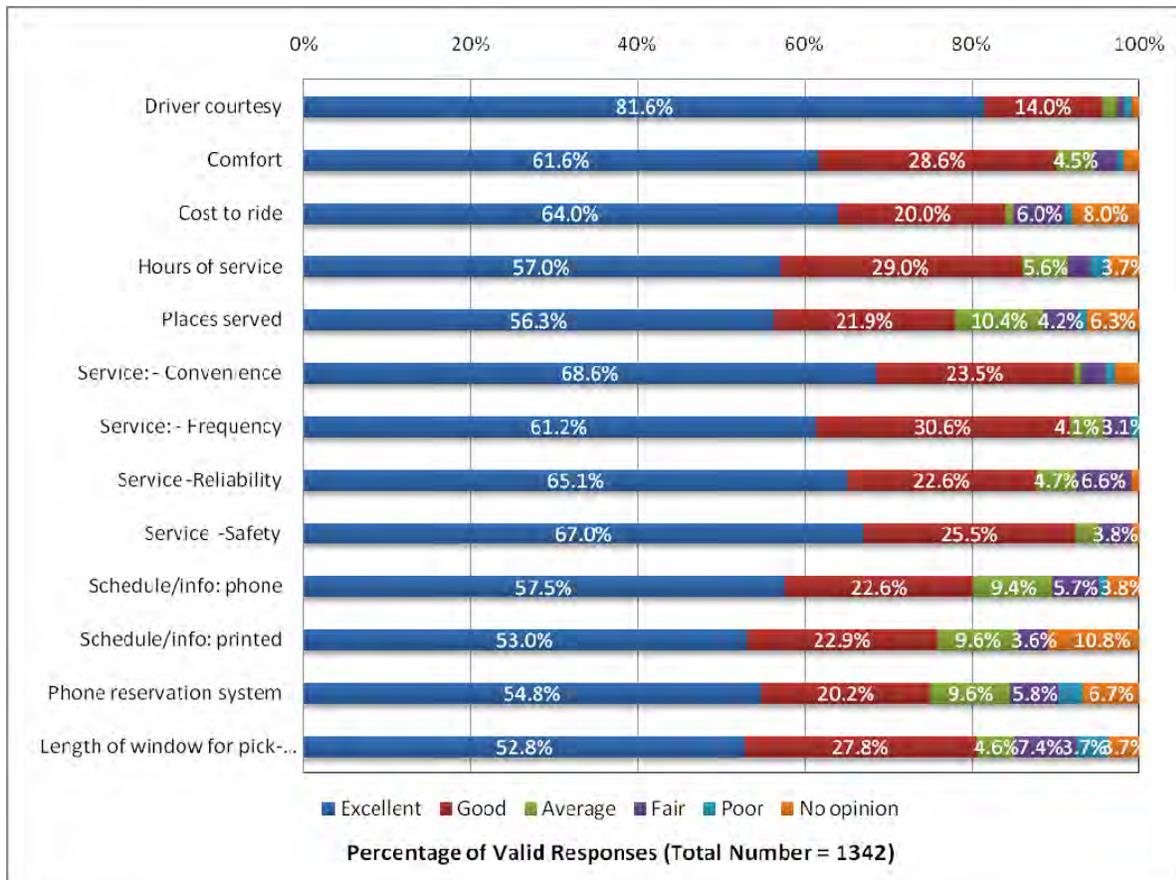
These results show that JCATS is the preferred choice among respondents for travel within Johnston County. No other service had even moderate levels of frequent use suggesting that JCATS is providing the best option for respondents and likely providing a service with a better combination

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of price, reliability, accessibility, and coverage. Although, the JCATS service outside Johnston County does have some regular patronage, a majority of respondents never use this service; this suggests that there is a market for outside the county service but that it may be limited. Given that most riders are captive and their trips are to destinations like work, school, and medical appointments, maintaining this outside the county service is likely very important to JCATS riders.

Please indicate your opinion of the following JCATS service qualities.

Figure B.7: JCATS On-Board Survey: Question 7



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| Please indicate your opinion of the following JCATS service qualities. | | | | | | |
|--|-----------|-------|---------|------|------|------------|
| | Excellent | Good | Average | Fair | Poor | No opinion |
| Driver courtesy | 81.6% | 14.0% | 1.8% | 0.9% | 0.9% | 0.9% |
| Comfort | 61.6% | 28.6% | 4.5% | 2.7% | 0.9% | 1.8% |
| Cost to ride | 64.0% | 20.0% | 1.0% | 6.0% | 1.0% | 8.0% |
| Hours of service | 57.0% | 29.0% | 5.6% | 2.8% | 1.9% | 3.7% |
| Places served | 56.3% | 21.9% | 10.4% | 4.2% | 1.0% | 6.3% |
| Service: - Convenience | 68.6% | 23.5% | 1.0% | 2.9% | 1.0% | 2.9% |
| Service: - Frequency | 61.2% | 30.6% | 4.1% | 3.1% | 1.0% | 0.0% |
| Service -Reliability | 65.1% | 22.6% | 4.7% | 6.6% | 0.0% | 0.9% |
| Service -Safety | 67.0% | 25.5% | 2.8% | 3.8% | 0.0% | 0.9% |
| Schedule/info: phone | 57.5% | 22.6% | 9.4% | 5.7% | 0.9% | 3.8% |
| Schedule/info: printed | 53.0% | 22.9% | 9.6% | 3.6% | 0.0% | 10.8% |
| Phone reservation system | 54.8% | 20.2% | 9.6% | 5.8% | 2.9% | 6.7% |
| Length of window for pick-up | 52.8% | 27.8% | 4.6% | 7.4% | 3.7% | 3.7% |

Purpose:

To understand the respondents' perceptions of the current quality of the JCATS services and to highlight the areas that could be improved.

Results:

Overall, respondents are very pleased with the service that they are getting from JCATS with every surveyed item receiving an 'excellent' rating, the highest possible, from over half the respondents. Additionally, every category received either an 'excellent' or 'good' rating from at least three-quarters of the respondents. This is a great indication of the quality service that JCATS is providing.

The highest rated category, by a large margin, was driver courtesy. Nearly every respondent (96%) rated this category as 'above average' (excellent or good) and fully 82% rated driver courtesy as 'excellent.' The other highest scoring categories were the Service characteristics (Convenience, Frequency, Reliability, and Safety) and Comfort. All of these categories were rated 'excellent' by roughly two-thirds of respondents and above average by roughly 90% of respondents. Safety was the second highest scored category with 93% of respondents rating it as 'above average.'

The lowest scoring categories were hours of service, places serviced, schedule/ information (both telephone and printed), telephone reservation system, and length of window of time for pick-up. These items still received fairly high marks from respondents, but were lower than the other categories. Each of these lower scoring categories had 53-61% of respondents rate the quality as 'excellent' and 75-86% rate it as 'above average.' No item received a 'below average' rating from 11% or more of respondents which indicates that there is not much dissatisfaction among riders. The two items that received the most negative scores were the telephone reservation system (about 9%) and the length of window of time for pick-up (11%).

Significance:

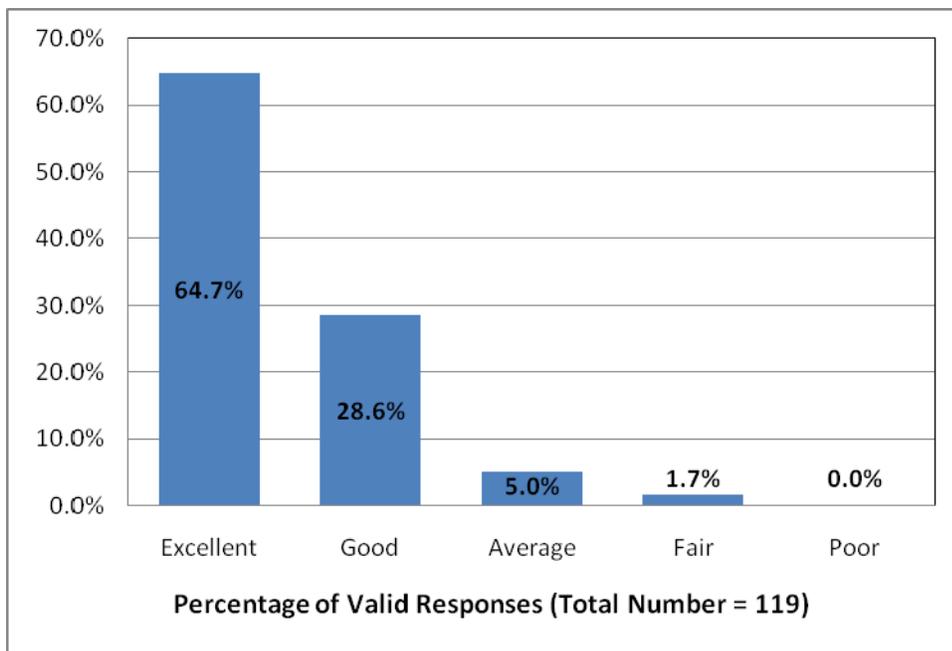
These results are a great sign for JCATS service. Overall, respondents were very pleased with the quality of service they were receiving across a wide variety of measures. JCATS drivers are clearly

very well liked among the riders and many respondents praised specific drivers in the comments section. It seems many passengers have formed good personal relationships with the drivers.

Respondents also are clearly very pleased with the service in general. This is further confirmed by the findings of Question 8, below. JCATS could potentially improve service by expanding hours of service and places served and focusing some attention on the schedule/information provided and the telephone reservation system. Although still rated fairly highly by respondents, these areas were the lowest scorers. Answers to Question 9 provide some ideas for potential new destinations that respondents would like to see and there were several comments that indicated a desire for service later into the evening or possibly on weekends.

Overall, how do you rate the JCATS service?

Figure B.8: JCATS On-Board Survey: Question 8



Purpose:

To understand riders’ overall impression of the current JCATS service.

Results:

Overall, nearly two-thirds of respondents rate the service as ‘excellent’ in general and 94% rate the service as ‘above average’ (meaning excellent or good). There were no respondents who rated the service as ‘poor’ and only 2% of respondents rated the service as merely ‘fair.’ These are excellent results and coupled with the results of Question 7, show that respondents overall were very pleased with the quality of service they were receiving from JCATS.

Significance:

The answers to this question show that overall riders are very pleased with JCATS; however, this question is very general, and the more specific answers to Questions 7 and 10 provide a little more

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detail into the opinions of respondents. These results do, however, mirror the rough percentages seen in the responses to Question 7. A few more people responded more positively when asked generally about the service as opposed to specific questions about individual aspects of the service.

Are there any locations within Johnston County that need JCATS service – if so, which ones? Please provide city and destination name (ex. Courthouse) or major cross streets.

Table 1: JCATS On-Board Survey: Question 9

| |
|---|
| Grocery Stores (4) |
| Smithfield (3) |
| Court House (3) |
| White Oak Shopping Center (3) |
| Selma (2) |
| Clayton (2) |
| Micro |
| Kenly |
| Harnett County |
| Jobs in surrounding areas of Wake & Harnett |
| Johnston County Health Dept. |
| Johnston County Community College |
| Walmarts |
| Chapter Hill |
| Personal Business |
| Work |
| ICATS |
| Tienda |
| Farmacia |
| Eastern Carolina Medical Center |
| Wound Center in Smithfield |

Purpose:

To find out the respondents’ opinion about the areas/places where the JCATS service might be needed.

Results:

Respondents noted a variety of places they would like to see service; however, many of the noted areas appear to already receive service. This may mean that respondents would like to see more frequent or regular service provided to these locations. Most of the locations listed appear to be shopping or services related and are usually the more urban areas in the County. There is not a lot of specificity to the comments, but more access to shopping, grocery stores, and county services (Courthouse, Health Dept., Community College) appear to be priorities. There were a couple comments listing out of county locations as desirable, possibly for the jobs located in neighboring counties.

Significance:

These results seem to indicate that some respondents would like more access to the amenities of urban areas, grocery stores, and shopping. Many of these seem to already be served by JCATS, but the fact that these were listed by respondents may indicate that there is a desire to provide more frequent, regular, or predictable service to these amenities. Looking back at the results to Questions 1 and 2, most riders did not use the JCATS service to access shopping, nor did they book the ride close to the time of the trip. Perhaps riders would like to see more flexibility or regular service to some of the shopping and grocery options in the county as these trips might be hard to anticipate and schedule in advance. However, providing more regular service to these types of places may be hard for a demand-response system like JCATS.

If the following improvements were made, how many more trips would you make on average?

Figure B.9: JCATS On-Board Survey, Question 10, part 1

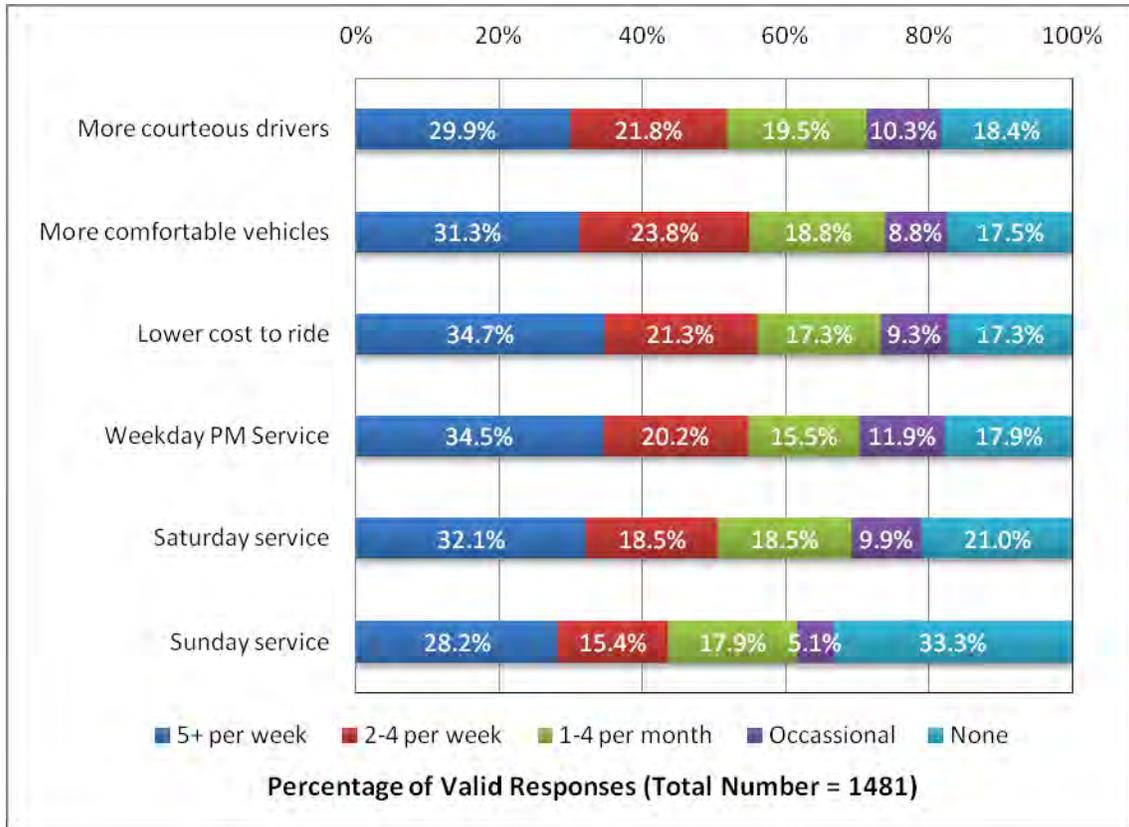


Figure B.10: JCATS On-Board Survey: Question 10, part 2

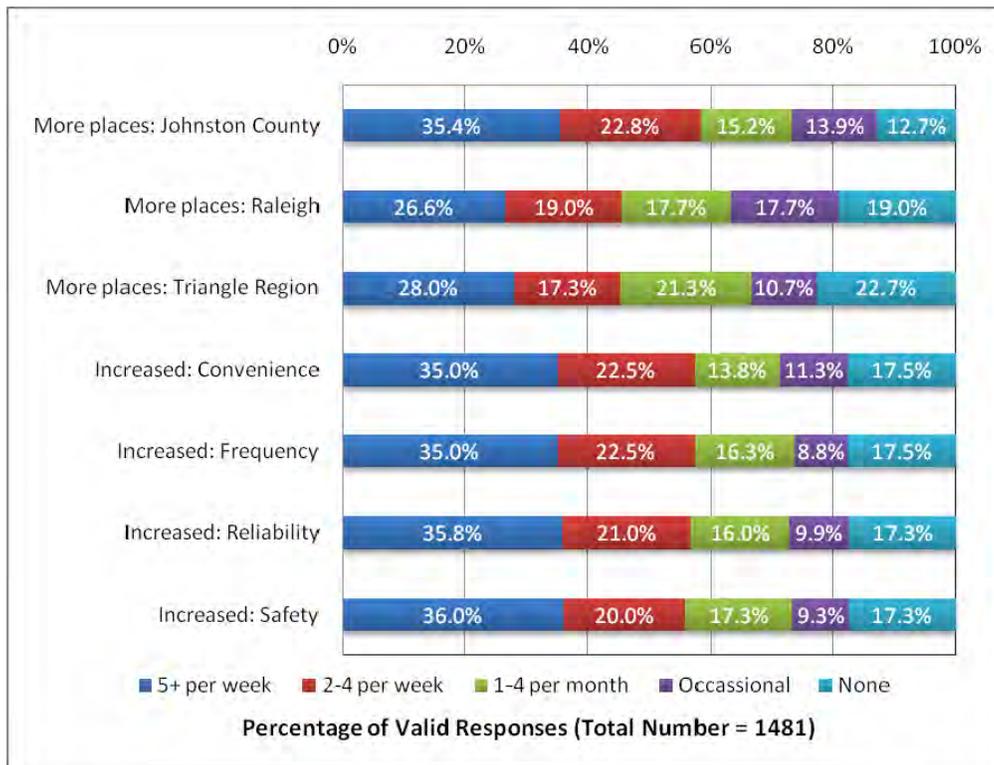
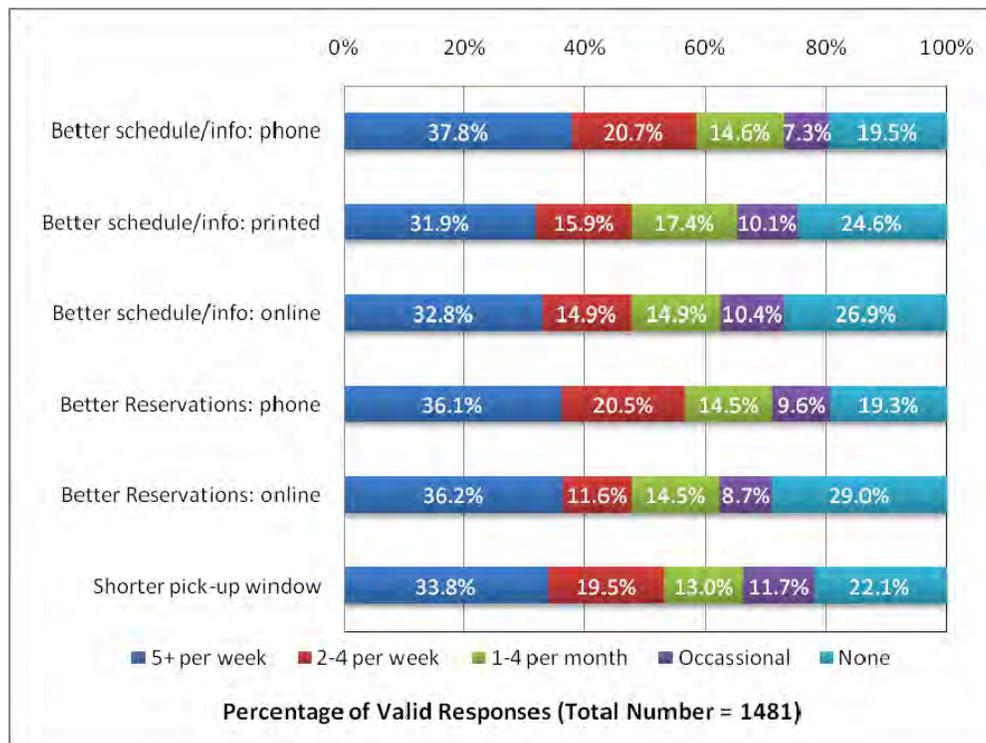


Figure B.11: JCATS On-Board Survey: Question 10, part 3



Purpose:

To find out what types of service improvements could result in increased ridership levels.

Results:

The results of Question 10 are out of line with earlier results. The most likely explanation is that the question was worded in a confusing manner leading to misinterpretation. Many respondents seem to have interpreted it as another question asking for levels of satisfaction with current service. This is not too surprising since Question 10 is more complex than previous questions. Here riders are asked to estimate how many additional hypothetical trips they would make assuming theoretical improvements to the service.

For example, in Question 8, riders expressed overwhelming general satisfaction with JCATS, and in Question 7, riders expressed very high levels of happiness with individual components of that service including 96.3% of riders who rated driver courtesy 'above average.' In response to this question, riders indicated that if improvements were made across a wide variety of areas they would use the service substantially more, which included 54.4% of respondents who stated that if driver courtesy were improved then they would make several more trips per week. This is very much at odds with the broad satisfaction with driver courtesy expressed in Question 7 and Question 8.

Significance:

Unfortunately, the high likelihood of misinterpretation of the question's intent means the results are not useful, and no conclusions should be drawn or relied upon for policy making.

Please provide any other comments or suggestions.

Fifty-five individual comments were given on a variety of aspects of the service. Below, the comments are grouped as best as possible into broad categories of comments about the service. Most comments were positive and many praised individual drivers for their good work (which echoes the strong marks driver courtesy received in Question 7). Names were removed from comments to protect the anonymity of respondents and JCATS employees, but the responses are otherwise verbatim with very minor edits for spelling and grammar in some instances.

Service expansion – hours or destinations:

- More places served.
- I think they should run on a Saturday, if not Sunday but close earlier than usual. Also, close longer on the weekday because 5pm is too early. The price is GREAT!
- I think y'all should stay open until 6:00 cuz people get off work and y'all have good services and never late like the cab people be doing.
- JCATS would be much better if it operated on the weekends and closed at 7 pm. JCATS would profit more. Just a suggestion :)!
- They need more drivers more buses. A lot of people don't have cars and need to go to work, grocery stores and can't afford taxis.
- It would be nice if we could go to the "new" Walmart for shopping. _____, our driver is excellent, very helpful, and always willing to help us.
- Would like more service in Clayton.
- It would be nice if we could go to the new Walmart. _____ is really nice and helpful.

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- Would love to have JCAT service on weekends!
- I suggest more.

Service Characteristics:

- Pick up time sometimes are long waiting periods. Need to schedule times when people don't have to wait for return trips home.
- Maybe a shorter ride and not so early. I'm just glad as a working mother that my son has reliable service to get him where he needs to go.
- Pick up time should be at least 1-hour window.
- I have never dealt with JCATS until my daughter started riding. I know very little about its services and I know nothing about where this transportation goes within our county.
- Overall, I enjoy JCATS services. I only had one issue, well, really it's not an issue, but my daughter was scheduled to go to Goldsboro on Thursday or Friday to have 4 teeth surgically removed, due to the fact that JCATS don't go out of town on Fridays and I was told the only days that go to Goldsboro is on Tuesday, and being that I didn't want my daughter to miss so many days from school. I'm in a bind. She needs those teeth out of her mouth, and due to the fact that I can't afford other means of transportation that far, and she's only 15 years old, I'm having a hard time making other arrangements.
- You should let the price for students be lower!
- That the seats be big enough for two big boys to sit in.
- I just have to be up earlier than expected but its ok.
- It seems to me the receptionists and drivers are never on the same page. There are times I have canceled and the bus still shows up and times where it showed up an hour late because no one told them they needed to get me.
- When two people are riding, a car is sufficient better on gas. JCATS cars would be better. Thank you.
- If we have to stay over at the hospital let the driver know the patient will not return.
- Driver should come out of van on certain situations. Your seats are very uncomfortable with those seat belts on them, especially if you are large person. Seats too small also.
- I like that when I go to dialysis the driver brings me to my house because I feel really bad after the treatment, but I must wait a little over one hour for another passenger and I have to wait that whole time. But he is very friendly.
- Would like to be available to all at a lower rate. If drivers are going to come 45 minutes to an hour earlier than their routine schedule, they need to let the patron know so they will be on the lookout 45 minutes to an hour earlier. Most of the statements above don't really apply to us.

Praise/Appreciation of service:

- I like riding transit cause it's comfortable.
- Great Job. Thank you for your service.
- Thanks for all that you do. I think JCATS is doing an awesome job; they are very hard-working dedicated people. They treat me very well. I am proud to say I ride with them. They are like family to me. Thank you. Hello my fabulous 4 and more.
- If it wasn't for JCATS I can not get back to school.

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- Good.
- Thanks. Nice Services
- Van service prompt; drivers professional and caring; provides excellent service to disabled persons who need "special" opportunities.
- No comments. I enjoy riding JCATS.
- The bus ride is very good; the driver is very good. I'm thankful for the bus services.
- JCATS helps me out a whole lot with transportation.
- Excellent Service.
- How thankful I am to have JCATS take me if dialysis three times a week. I am a widow and my 5 children live in different states and sometimes it's hard to depend on friends. Thank you.
- Wish best of well.
- Keep doing so well.
- Very courteous good ride dependable.
- You are doing a good job.
- JCATS is already doing a great job. Thanks!
- Overall good service.

Praise for drivers:

- _____ is an asset to your company and basically JCATS is a God sent blessing for us to have transportation.
- _____ is my dialysis driver for the 6:00 - He is a great driver. Have no problem with him. Hope he will always be my driver.
- All drivers need a raise.
- _____ is an excellent, safe reliable driver. Very polite and great service. Great conversationalist. Very pleased. Wish there were more like him.
- Keep driver of the JCATS van.
- The driver is very nice when she picks me up and brings me home.
- _____ is a good person. Very good girl.
- _____ is an excellent driver; treats us with kindness, and is always helpful.
- You have nice and safe driver hope you the best.
- _____ is a good driver; I'm happy with him. He does alright by me.
- I think that the driver is a wonderful driver.
- You have one of the best drivers of all.

Significance:

Respondents seem very pleased with the JCATS service overall. Of the 55 comments received 18 (33%) were appreciative of the service and another 12 (22%) were specifically praising the drivers. Several respondents expressed a desire to have service several hours later on weekdays and a few respondents also requested weekend service. Another desire expressed was for more flexibility and certainty for pick-up windows and scheduling. Also, a couple respondents wanted more comfortable seats and vans. However, on the whole, the comments received were very positive.