

Analysis of Transit Systems and Consolidation Stages

Final Report

(Includes Review of Services, Functions, Positions and Personnel for Task 4.1)

Triangle Region Transit Consolidation/Implementation Plan

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I. REPORT INTRODUCTION

This report is the first in a series of reports prepared as interim work products for the Triangle Region Transit Consolidation/Implementation Plan. These reports are meant to provide detailed information and analysis that will become the building blocks for the final consolidation/implementation plan. As such, the data in this report should not be interpreted as the final conclusions and analysis for the plan. Revisions and modifications will be made and incorporated into the final plan.

The six transit systems considering consolidation include:

- Capital Area Transit – CAT (City of Raleigh)
- Chapel Hill Transit – CHT (Town of Chapel Hill)
- C-Tran (Town of Cary)
- Durham Area Transit Authority – DATA (City of Durham)
- Triangle Transit Authority – TTA
- Wolfline – NCSU (North Carolina State University)

Other transit systems exist in the region, but are not detailed in this report. These include Duke University Transit, Orange Public Transportation in Orange County, Wake Coordinated Transportation Services in Wake County, Amtrak and Carolina Trailways/Greyhound. These systems will be referenced where relevant, but not discussed in detail.

This particular report is concerned with detailing staffing, functions and services as they currently exist for each transit system (Section II), followed by a discussion of the challenges and benefits of achieving consolidation in each area (Section III). The final section describes three potential levels of consolidation that are presented to begin to formulate the possibilities for the consolidation plan (Section IV).

The purpose of this report is to provide detail on both the existing systems and the ways those systems would change under consolidation. Three consolidation stages are provided in an attempt to provide an idea of the phases of consolidation, and in order to help policy-makers narrow the consolidation plan to the one alternative that is most preferred in the region. The final project report, and many of the interim work products, will be based on the one selected alternative.

II. DESCRIPTION OF EXISTING TRANSIT SYSTEMS

A. GENERAL OVERVIEW OF EXISTING TRANSIT SYSTEM ATTRIBUTES

A number of attributes distinguish the six transit systems from each other. These attributes will be generally discussed in this section, with more detail provided in Section II.B. For purposes of this report the transit system attributes are broken down into the following general categories:

1. Service Attributes

Service attributes are broadly defined as the characteristics of each transit system as seen from the passenger's perspective. The description of the systems is organized as follows:

- **General Service Characteristics** – Each system has its own unique service characteristics, providing varying levels of local and regional service. Most systems other than TTA provide their service primarily within town or city limits. Some provide shuttle services or park and ride services. Most provide demand-response service, with the exception of North Carolina State University.
- **Demand-Response Characteristics** – The conditions and regulations of the demand-response service vary significantly across the region, with some systems only providing the basic complementary service required by Americans with Disabilities Act (ADA) regulations, and others being significantly broader in the provision of service. The method of providing service also varies. Most systems use special vehicles for provision of demand-response service, while CAT utilizes taxi vehicles operated under contract.
- **Route Numbering Characteristics** – Current route numbering characteristics and policies will be laid out, with indications of overlap between transit systems identified.

2. Operations and Labor Attributes

- **Operations and Maintenance Staffing** – Contains a discussion of the various functions provided in the operating and maintenance areas, as well as a description of the various levels of staffing. Where non-transit system employees are utilized in an operation, this will be noted.
- **Characteristics of Maintenance Services** – This section focuses on the staff used to clean the buses, as well as the fleet maintenance capabilities of the maintenance facilities.
- **Operations and Maintenance Policies** – This section includes discussion of differences in operating policies, driver training/education, and vehicle maintenance policies.
- **Employee Wages, Benefits, and Work Rules** – Discussion of wages and benefits, as well as the nature of labor contracts (if any).
- **Use of Management and Service Contracts** – Some systems directly employ their operators and maintenance workers, while others use management and/or service contracts to oversee their operating and maintenance functions and to enter collective bargaining agreements with operators and maintenance workers.

- **Union Representation** – Some systems use unionized employees, while others do not. Not all systems with unionized employees have collective bargaining.

3. **Administrative Attributes**

- **Scope of Administrative and Management Services** – Discussion of the differences between systems in their provision of finance, accounting, purchasing, risk management, insurance, grants administration, legal, government affairs, route and schedule planning, human resources, engineering and long range planning services.
- **Degree of Administrative Support Provided by Non-Transit Agency Employees** – Some systems utilize significant city or town resources and staff in the provision of administration, while other systems do not use these resources at all.
- **Marketing Efforts** – Differences in a number of marketing areas will be discussed, including the provision of telephone information services, maps, customer timetables and other forms of passenger information, route designation (naming, numbering, and color or graphic designation) pass sales, system nomenclature, livery and graphics, and web sites.
- **Sale of Advertising** – Distinguished from Marketing by its focus on earning revenue through providing spaces for advertising. Differences in approaches to advertising will be highlighted.
- **Security** – Differences in the provision of security and relevant security policies will be discussed.
- **Use of Information Technology** – Differences between systems in the use of information technology resources will be discussed.
- **Use of Professional Service Contracts** – Major differences between approaches towards provision of drug/alcohol testing, physicals and uniforms, and other professional service contracts will be discussed. A more detailed discussion will be reserved for the report on Task 4.6.

4. **Governance Attributes**

- **Number and Role of Policy Advisory Boards** – This section will discuss the general differences in the governance structure of each organization with respect to their policy advisory board(s). Greater detail will be provided in a future report on governance and funding provided for Task 4.4.

5. **Capital Facilities and Equipment Attributes**

- **Real Estate and Facilities** – Major differences between systems will be discussed in the areas of real estate and various facilities required for administration, operations, maintenance and transfers. Detailed discussion will be provided in the report on Task 4.7.
- **Vehicles and Communications Systems** – We will discuss major differences in vehicles, and communication equipment, with a more detailed discussion of these areas provided in the report on Task 4.7.
- **Park and Ride Lots** – The characteristics and differences between park and ride lots will be provided, with a more detailed discussion provided in the report on Task 4.7.
- **Bus Stops, Signage and Shelters** – A description of the major differences between the systems will be provided.

These organizational attributes are presented in detail for the existing systems in the next section of this report.

B. DETAILED DESCRIPTION OF TRANIST SYSTEMS BY ATTRIBUTE

1. *Description of Service Attributes*

General Service Characteristics

Table II-B-1a indicates the service characteristics of each transit system. It primarily focuses on the fixed route service provided by each system.

There are substantial differences between the systems with respect to the start and end point of service, and only Durham provides significant levels of Sunday service. The peak frequencies are not uniform across routes and transit systems, although most routes operate on intervals of 30 minutes or less during peak periods. The average speeds are similar for all the fixed route systems other than TTA. TTA is substantially faster due to the regional nature of its service.

All systems except NCSU provide demand-response service. Service to park and ride lots is a feature of the CAT, TTA, NCSU and Chapel Hill Transit systems; a large number of NCSU and CHT passengers use these lots, as is expected in a university transit context.

Finally, the CHT and NCSU systems stand out for the free nature of their systems. Other systems, such as CAT and DATA have low fares by transit industry standards.

Table II-B-1a General Service Characteristics

| | CAT | CHT | DATA | TTA | NCSU | C-Tran |
|---------------------------|------------|------------|-------------|------------|-------------|---------------|
| Service Start Time | 4:30 am | 5:45 am | 5:30 am | 5:30 am | 7:00 am | 6:00 am |

| | | | | | | |
|--|--------------------|--|---|---|--|----------|
| (weekday) | | | | | | |
| Service End Time (weekday) | 12:00 am | 1:30 am | 12:30 am | 11:00 pm | 2:00 am (3am Thu/Fri) | 7:00 pm |
| Weekend Service | Sun: None | Shared ride to non-fixed route areas; Sat: Limited fixed route; Sun: 2 UNC routes only | Yes | Sat: Limited, Sun: None | Night-time only on weekend | Sat only |
| Service Area (Square Miles) | 125 | 25 | 93 | 1,525 | 5 | 44 |
| Peak Frequency of Service (# of routes: peak frequency) | 30 min | 3: 10 min. 4: 15 min. 5: 20 min. 5: 30 min. 1: 40 min. 1: 45 min. 1: 60 min. | 1: 15 min. 11: 30 min. 4: 60 min. | 4: 20 min. 7: 30 min. 1: 40 min. 4: 60 min | 3: 10 min 5: 15 min 1: 20 min 1: 25 min | N/A |
| Average Speed of Buses (mph) | 13.4 | 12.6 | 14.5 | 23.1 | 11.9 | N/A |
| Number of Peak Bus Routes | 26 | 20 | 16 | 16 excluding shuttles | 10 daytime | N/A |
| Number of Peak Express Routes | 0 | 5 | 0 | 4 | 1 | N/A |
| Full Adult Fare | \$0.75 | Free | \$0.75 | \$1.50 | Free | \$2.00 |
| Demand-Response Service | Yes | Yes | Yes | Yes | No | Yes |
| FY2002 Annual Bus Ridership | 4.1 million | 3.5 million | 4.6 million | 0.9 million | 1.8 million | N/A |
| FY2002 Average Weekday Ridership | 14,400 | 15,600 | 15,200 | 3,600 | 10,000 | N/A |
| Park & Ride Service (# of spaces) | 5 lots (50 spaces) | 9 lots (4333 spaces) | None | 11 lots (250 spaces) | 3 lots (1025 spaces) | N/A |

Demand Response Service Characteristics

Demand-response service in the region takes a number of forms, as is illustrated in Table II-B-1b. Two systems – Chapel Hill Transit and C-Tran – provide extensive service to the general public with no eligibility restrictions other than geographic and time of service constraints. TTA provides van-equipped paratransit service to passengers who adhere to ADA-eligibility criteria. It also provides a pre-arranged shuttle service to assist those who take the regular buses to Research Triangle Park to reach their final destination. Raleigh’s Accessible Regional Transit serves passengers in two tiers – the first using taxi cabs subsidized 52% by the city (for those with a medically recognized disability), and a second tier using lift-equipped

taxis for those meeting ADA-eligibility criteria. NCSU's Wolfline service is not included in Table II-B-1b since it does not provide specific demand-response service.

Today's demand response service crosses service area boundaries in only limited instances. For example, TTA may choose to carry a passenger from RDU Airport to their destination in North Raleigh, even in instances where the final destination is not within the required distance from a TTA route. However, it is more common for systems to attempt connections with each other at the boundaries of their service areas. These efforts to provide connections result in a significant staff and dispatcher effort, and the connections have proven difficult to time effectively.

Table II-B-1b Demand Response Service Characteristics

| | Raleigh ART | Chapel Hill Shared Ride/EZ Rider | DATA ACCESS | TTA Accessible Services | C-Tran |
|---|--|---|---|--|--|
| Service Area | Tier I = anywhere in city limits Tier II = within 3/4 mile of bus route | Shared Ride Feeder serves designated neighborhoods without regular bus service. EZ Rider available anywhere in Chapel Hill or Carrboro. | Anywhere within city limits | Limited within 3/4 mile of bus route | limits. Cary residents that meet age and disability requirement may travel outside town limits for work and special medical needs. |
| Reservations | Tier I = as quick as calling cab, Tier II at least 1 day in advance | at least 2 hours in advance | at least 1 day in advance | at least 1 day in advance | at least 1 day in advance |
| Accommodation of late reservations | No late reservations for Tier II, but some exceptions | yes | yes | Depends on the availability of the drivers. May accommodate if schedule allows. Could depend on the severity of the need--decision made by paratransit dispatcher. | yes |
| Fares | Tier I = Scrip tickets pay \$12 for \$25 worth of taxi service, Tier II = \$1.50 per trip | Free for weekday service, \$14.25 for 20 weekend or evening trips | \$1.50 | \$3.00 | \$2 in town, \$4 out-of-town |
| Hours and Days of Service | Tier I = Anytime, Tier II same as fixed route service. No Sunday service. | 8:30 am-7:00 pm Saturdays, Shared ride service 9:30 am-11:30 pm during full service. 9:30 am-6:00 pm during | Same as Fixed route service. | Based on scheduled pick-ups. Window for pickups anytime after 5:00 a.m. | 6:00am-7:00pm everyday except Sunday (discounted disabled service available 10am - 3pm, \$1 for in-town trips) |
| Eligibility | Tier I = requires no driver license strictly and proof of disability, Tier II = strictly adherent to ADA regulations. Requires home or work review eligibility plus review of particular trip. | Individuals with mobility limitations that prevent them from using regular bus service. More generous than the ADA requirements. | Adheres to ADA requirements | Strictly adhere to ADA requirements | Anyone that has trip need that begins and ends within Town limits (limited to elderly and disabled for out-of-town trips) |
| Use of Conditional Eligibility | Tier II-Trip to trip basis | NO | NO | NO | NO |
| Visitors use of system | yes (only under the tier II program, tier I is for city resident only. | yes | yes | yes | yes |
| Vehicles | Private taxicabs. Lift vans are also available. | 6 lift equipped vehicles | All vehicle accessible | Entire fleet is wheel chair lift equipped and available for use. | wheelchair equipped vehicles |
| Mode of delivery | Provide by pre-certified independent, taxi-like providers | Directly operated | Contracted to Laidlaw Transit | Directly operated | Contracted to First Transit |
| Reservation Process | Tier I call cab providers directly. Tier II reservations made through ART representative. | Call reservation center. | Call reservation center. | Call reservation center. | Call reservation center. |
| Computer assisted dispatch | None | None | contractor uses their own proprietary | Computerized scheduling | None |
| Door to door vs. curb to curb | Door to Door | Door to door | ADA passengers are curb to curb | Curb to Curb | Door to Door |
| Fare Media | Scrip tickets | Cash | Cash and pre- | Cash | Cash |
| No-show policy penalties | yes | yes | yes | yes | yes |
| Cancellation policies | at least 1 hour before scheduled trip | No formal policy at this time | At least 1 hour before scheduled | 2 hours in advanced | as soon as possible but may incur future penalties |
| No Show Policy | May end up losing service for period of time. | No Formal Policy at this time | than one hour is considered no show. No show will cause cancellation of any | Cancellation less than 2 hours before pickup time may leads to possible suspension of service. | A point system. After certain level you get suspended |
| Transfer of passengers to another van for long trips | No | No | Maximum allowable ride of 80 minutes | No | No |
| Subscription Service | Yes | No | Yes, about 50% | Yes, about 40% | Yes |
| Capacity Limitation | no | Vehicle capacity | 10 people | 11 people | 11 people |
| Pick-up window | ± 30 minutes | No policy | ± 15 minutes | ± 30 minutes | ± 15 minutes |
| Are all requests served? | yes | Yes | Yes, but some negotiation | Yes | Limits to capacity |

Route Numbering Characteristics

Differences in route numbering and description are significant across the region. In the case of those systems that rely on numbers to describe their routes, CAT, DATA and NCSU's Wolfline use numbering schemes that rely on some overlapping route numbers (all use a numerical sequence starting with 1). Information provided to a customer desiring to ride more than one system thus requires clear specification of the transit system operating each route.

In addition, most but not all systems employ a supplemental naming scheme for each route. This varies amongst systems from a descriptive name for the route to the start and/or end points of the route. DATA uses only its numbering scheme. These differences may be confusing to a first-time user of particular agency's buses.

Table II-B-1c Route Numbering Characteristics

| Approach | CAT | CHT | DATA | TTA | NCSU | C-Tran |
|-------------------------|------------|------------|-------------|------------|-------------|---------------|
| Number | X | | X | X | X | N/A |
| Letter | | X | | | | N/A |
| Color | | | | | | N/A |
| Start/End Point | | X | | | | N/A |
| Descriptive Name | X | | | X | X | |

2. *Description of Operations and Labor Attributes*

Operations and Maintenance Staffing

There are few significant differences between systems in the basic approach to staffing the operations and maintenance functions. Each system has a single operating base. However, some drivers relieve others at transfer stations or other locations away from the operating base. In addition, all maintenance personnel are based in a central maintenance facility for each transit system. Cary is the only system that contracts its maintenance out separately from its transportation functions.

The operator and maintenance categories include full and part-time positions. Operators listed in Table II-B-2a reflect only the drivers involved in operating the transit system. The maintenance category reflects all employees directly associated with maintenance, including mechanics, building and grounds workers, supervisors and managerial staff.

The transit operations category covers a broad range of support services for operations. These functions range from management of operations, and supervision of the operators, to safety and training work. It also includes the dispatch of demand-response service.

Table II-B-2a Operations & Maintenance Staffing

| Operations & Maintenance Staffing | | Transit Operations | Road Supervisor | Operators | Maintenance | Total |
|-----------------------------------|------------------------|--------------------|-----------------|-----------|-------------|-------|
| Durham | DATA (Coach USA) | 12 | 0 | 95.5 | 22 | 129.5 |
| | Laid Law (Paratransit) | 11 | 1 | 34 | 4 | 50 |
| Chapel Hill | Chapel Hill Transit | 10 | 5 | 87.5 | 20 | 122.5 |
| | Town of Chapel Hill | 0 | 0 | 0 | 0 | 0 |
| Raleigh (CAT) | CAT | 17 | 0 | 109 | 38 | 164 |
| TTA | TTA Fixed Route | 9 | 0 | 78.5 | 17 | 104.5 |
| | TTA Paratransit | 2 | 0 | 1 | 0 | 3 |
| NCSU | Wolfline | 3 | 4 | 35.5 | 8 | 50.5 |
| | NCSU Employee | 0 | 0 | 0 | 0.04 | 0.04 |
| Cary | C-Tran | 2 | 1 | 15 | 0 | 18 |
| | Town Employee | 0.05 | 0 | 0 | 0 | 0.05 |

Note: The table above reflects full-time equivalents. Part-time positions are estimated at 0.5 FTE per position. Certain employees who spend time on many work responsibilities other than transit are counted in the table as less than 1 FTE as appropriate.

The operating day of each agency varies slightly, with most garages operating two full shifts. Only DATA operates a third shift. In addition, the DATA garage is open seven days per week. CAT, CHT, and TTA are open six days; NCSU, five. In each case, the first bus departs the depot between 5:00 and 6:15 a.m., except for CAT, whose first bus departs at 4:15 a.m. Every agency sees its last bus return to the depot after midnight, except for C-Tran, which ends service at 7:00 p.m. The in-service hours of each agency and the duration of maintenance shifts are shown in Table II-B-2b.

Table II-B-2b Agency First Bus Out/Last In and Weekday Maintenance Shifts

| | AM | | | | | | | | | | | PM | | | | | | | | | | | AM | | |
|--------|-------------------|---|---|---|---|---|---|----|----|----|---|------------------|---|---|---|---|---|---|---|----|----|----|----------------------------------|---|--|
| | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | |
| CAT | OUT: 4:15 | | | | | | | | | | | | | | | | | | | | | | IN: 11:15 | | |
| | Early First Shift | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | Late First Shift | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | Early Second Shift | | |
| CHT | OUT: 5:15 | | | | | | | | | | | | | | | | | | | | | | IN: 1:30 | | |
| | First Shift | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | Second Shift | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| DATA | OUT: 5:15 | | | | | | | | | | | | | | | | | | | | | | IN: 12:30 | | |
| | Early First Shift | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | Late First Shift | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | Second Shift | | |
| TTA | OUT: 5:00 | | | | | | | | | | | | | | | | | | | | | | IN: 12:30 | | |
| | Early First Shift | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | Late First Shift | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | Second Shift | | |
| NCSU | OUT: 6:15 | | | | | | | | | | | | | | | | | | | | | | IN: 2:30 | | |
| | First Shift | | | | | | | | | | | | | | | | | | | | | | | | |
| C-Tran | OUT: 5:45 | | | | | | | | | | | | | | | | | | | | | | IN: 7:00 | | |
| | | | | | | | | | | | | | | | | | | | | | | | Maintenance Contracted to Penske | | |

Characteristics of Maintenance Services

Maintenance services are sub-divided into two categories – those associated with cleaning the buses to ready them for service, and those associated with regular fleet maintenance.

With respect to cleaning of the buses, CAT and CHT both use their maintenance personnel to carry out all cleaning – interior sweeping and cleaning, and the exterior washing. DATA, NCSU and C-Tran all hire contractors to provide the full range of cleaning services. TTA is the most unique of the systems – utilizing its drivers for the interior sweeping, contractors for the interior cleaning, and maintenance personnel for the exterior washing.

For the most part, shops have similar capabilities. Some shops are more capable than others--electronics repairs may be performed in-house at CHT or TTA, while CAT has the Triangle's only transit vehicle paint and body shop. Chapel Hill Transit is capable of performing engine and transmission overhauls in-house, but rarely does. Most major overhauls are performed by outside contractors; however, repairs are usually handled internally with the exception of specialized work.

Table II-B-2c Characteristics of Maintenance Services

| | CAT | CHT | DATA | TTA | NCSU | C-Tran |
|--|-------------|-------------|-------------|-------------|-------------|--|
| <i>Cleaning Responsibility</i> | | | | | | |
| Interior Sweeping | Maintenance | Maintenance | Contractors | Drivers | Contractors | Contractors |
| Interior Cleaning | Maintenance | Maintenance | Contractors | Contractors | Contractors | Contractors |
| Exterior Washing | Maintenance | Maintenance | Contractors | Maintenance | Contractors | Contractors |
| <i>Maintenance Capabilities</i> | | | | | | |
| Preventative Maintenance | X | X | X | X | X | Penske Contract - maintenance provided as needed |
| Major Repairs | X | X | X | X | X | |
| Brake Repairs | X | X | X | X | X | |
| Electronics Repairs | | X | | X | | |
| Engine Overhaul | | X | | | | |
| Transmission Overhaul | | X | | | | |
| Paint and Body Repairs | X | | | | | |

Operations and Maintenance Policies

A few of the operating and maintenance policies are highlighted in Table II-B-2d, including the preventative maintenance policies, and the normal cleaning intervals. At present, the standards used across the region are significantly different from each other, and the customer most likely observes very different standards of bus cleanliness.

Most systems have reduced the number of weekly exterior bus washings in order to conserve limited water resources. With drought conditions in the region easing, some may expand the frequency of washings in the near future.

Table II-B-2d Operations and Maintenance Policies

| | CAT | CHT | DATA | TTA | NCSU | C-Tran |
|--|---------|--------|--------|----------|--------|--------|
| <i>Preventative Maintenance Interval (miles)</i> | | | | | | |
| Buses | 5,000 | 6,000 | 6,000 | 8,000 | 3,000 | 3,000 |
| Vans | N/A | 3,000 | 3,000 | 3,000 | N/A | 3,000 |
| <i>Cleaning Interval</i> | | | | | | |
| Interior Sweeping | Daily | Daily | Daily | Daily | 3/week | Daily |
| Interior Cleaning | 1/month | 5/year | 2/week | Biweekly | 3/week | Daily |
| Exterior Wash | Daily | 2/week | 4/week | 3/week | 3/week | 2/week |

Additional operational policies include the approach taken with respect to training and educating drivers. Most systems work in conjunction with human resources in providing a substantial training course to its new drivers.

Employee Wages, Benefits and Work Rules

Transit labor costs are greater than capital costs, materials, or any other cost category. Labor costs are affected by the operating conditions (e.g., speed or peak-to-base ratio), by productivity (e.g., attendance rates and mechanics per vehicle), and by the terms of compensation, whether in labor contracts or compensation policies.

The easiest cost comparison is for the transportation function (vehicle operators and their supervision). Table II-B-2e shows the transportation labor costs for the four major motor bus systems. NCSU's competitively bid contract renders the labor cost data proprietary, so it is not included.

The "pay to platform" ratio is the ratio of total equivalent pay hours for which operators are paid (including ½ hour of overtime premium for each hour worked at time-and-one-half) to the productive hours (vehicle hours or platform hours). This ratio is determined largely by the work rules such as those that determine how much a driver is paid to make ready for the run, under what conditions the driver is paid overtime premium ("excess length premium") or compensated for a long spread in a split shift ("spread premium"). This ratio is also affected by peak-to-base ratios, dispatching effectiveness, and schedule-making effectiveness.

The second row in the table sets out the average wage rate for operators. This is a function not only of the contractual or policy wage tables, but also of the seniority of the operators. All four systems pay a wage progression that compensates senior operators more highly than newly hired operators.

The transportation supervisory labor burden represents the ratio of salaries and wages for transportation (i.e., not including maintenance or general administration) supervision and support to driver wages.

The fourth row shows the ratio for fringe benefits (including pay-time fringes such as vacation and holiday) to salaries and wages for the system.

The last row contains all operator costs contained in the previous rows, plus all other expenses related to motor bus operations, including fuel, maintenance and administration. The only costs that are excluded are capital costs. These costs are used to develop an operating cost per hour for each system.

Table II-B-2e FY2002 Motor Bus Transportation Department Labor Expense

| Ratio Factors | | CAT | | Chapel Hill | | DATA | | TTA | |
|--|---------------------------------|-----------|----------|-------------|----------|-----------|----------|-----------|----------|
| | | NTD Entry | Ratio | NTD Entry | Ratio | NTD Entry | Ratio | NTD Entry | Ratio |
| Pay to platform ratio | Driver pay hours | 171,299 | | 182,579 | | 193,830 | | 124,956 | |
| | Platform hours (=vehicle hours) | 145,568 | 1.18 | 137,623 | 1.33 | 165,437 | 1.17 | 101,199 | 1.23 |
| Wage Rate | Driver salaries & wages | 2,712,901 | | 3,284,999 | | 3,045,983 | | 1,673,395 | |
| | Driver pay hours | 171,299 | \$15.84 | 182,579 | \$17.99 | 193,830 | \$15.71 | 124,956 | \$13.39 |
| Transportation Supervisory Labor Burden | Supervisor Salary/Wages | 450,972 | | 290,786 | | 287,141 | | 399,552 | |
| | Driver salaries & wages | 2,712,901 | 0.17 | 3,284,999 | 0.09 | 3,045,983 | 0.09 | 1,673,395 | 0.24 |
| Fringe to salary/wage ratio | Driver Fringes | 1,209,014 | | 941,434 | | 1,044,426 | | 363,109 | |
| | Driver salaries & wages | 2,712,901 | \$ 0.45 | 3,284,999 | \$ 0.29 | 3,045,983 | \$ 0.34 | 1,673,395 | \$ 0.22 |
| | Supervisory Fringes | 191,274 | \$ 0.42 | 83,335 | \$ 0.29 | 91,311 | \$ 0.32 | 106,210 | \$ 0.27 |
| | Supervisory salaries & wages | 450,972 | | 290,786 | | 287,141 | | 399,552 | |
| | Maintenance Fringes | 424,227 | | 153,409 | | 158,313 | | 130,278 | |
| | Maintenance salaries & wages | 959,647 | \$ 0.44 | 445,001 | \$ 0.34 | 635,356 | \$ 0.25 | 483,748 | \$ 0.27 |
| | General Admin Fringes | 102,282 | | 44,585 | | 102,564 | | 104,024 | |
| | General Admin salaries & wages | 328,471 | \$ 0.31 | 110,658 | \$ 0.40 | 322,528 | \$ 0.32 | 422,108 | \$ 0.25 |
| Total Operating Cost Per Hour | Operating Cost | 8,677,079 | | 6,987,745 | | 8,267,022 | | 6,325,733 | |
| | Platform hours (=vehicle hours) | 145,568 | \$ 59.61 | 137,623 | \$ 50.77 | 165,437 | \$ 49.97 | 101,199 | \$ 62.51 |

Use of Management and Service Contracts

As Figure II-B-2f indicates, nearly all management and operational contracts expire before the summer of 2004. The cities of Durham and Raleigh enter into management contracts in order to facilitate the provision of service by unionized employees. NCSU and Cary have chosen service providers in lieu of managing and operating the service on their own. Only TTA and CHT are managed and operated directly. The Town of Chapel Hill annually negotiates contracts with the town of Carrboro and UNC for provision of service by CHT to these communities.

Figure II-B-2f Management and Service Contracts

| Agency | Contract | 2003 | | | | | | | | | | | | 2004 | | | | | | | | | | | |
|--------|---|-------------------|---|---|---|---|---|---|---|---|---|---|---|------|---|---|---|---|---|---|---|---|---|---|---|
| | | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D |
| CAT | ATC/VANCOM (Transit Management Contract) | Expires 6/30/2004 | | | | | | | | | | | | | | | | | | | | | | | |
| CHT | No Contracts | | | | | | | | | | | | | | | | | | | | | | | | |
| DATA | Coach USA (Fixed Route Contract) | Expires 7/1/2004 | | | | | | | | | | | | | | | | | | | | | | | |
| | Laidlaw (Demand-Response Contract) | Expires 2/1/2004 | | | | | | | | | | | | | | | | | | | | | | | |
| TTA | No Contracts | | | | | | | | | | | | | | | | | | | | | | | | |
| NCSU | Connex (Fixed Route Contract) | Expires 6/30/2004 | | | | | | | | | | | | | | | | | | | | | | | |
| C-Tran | First Transit (Demand-Response Contract) | Expires 8/1/2004 | | | | | | | | | | | | | | | | | | | | | | | |

Union Representation

Public agencies in North Carolina are prohibited by state statute from entering into collective bargaining contracts with employees. This contrasts with the long history of collective bargaining in the transit industry that preceded the decline of profitability in the 1950’s and the public takeovers of the systems in the 1960’s. Consequently, Raleigh and Durham have established arrangements for private contractors, whose management is staffed by national transit management companies, to employ and bargain collectively with the motor bus vehicle operators and mechanics in the CAT and DATA systems. Chapel Hill and TTA, on the other hand, employ their operators and mechanics directly and they do not enjoy a collective bargaining relationship. The Amalgamated Transit Union reports a local unit representing Chapel Hill Transit employees, and TTA’s labor protective policy (“13(c) Agreement”) recognizes that union along with Raleigh’s and Durham’s, but Chapel Hill management does not bargain with the union, nor does it meet and confer concerning wages, benefits, or working conditions with the union.

3. *Description of Administrative Attributes*

Administrative Staffing

The administrative functions of transit are divided between the contractors where contractors deliver services and the owner (municipal or university) staff. Table II-B-3a lists the number of positions identified by each system for transit services.

Table II-B-3a Administrative Staffing

| Administrative Staffing | | General Management | Finance | Service Planning | Marketing/Custom er information | Legal | Total |
|-------------------------|------------------------|--------------------|---------|------------------|---------------------------------|-------|-------|
| Durham | DATA (Coach USA) | 3 | 1 | 0 | 7 | 0 | 11 |
| | Laid Law (Paratransit) | 3 | 0 | 0 | 0 | 0 | 3 |
| | City Employee | 1.25 | 1 | 3 | 0 | 0 | 5.25 |
| Chapel Hill | Chapel Hill Transit | 3 | 1 | 0 | 1 | 0 | 5 |
| | Town of Chapel Hill | 0 | 0 | 0.5 | 0 | 0 | 0.5 |
| Raleigh (CAT) | CAT | 2 | 3 | 0 | 4 | 0 | 9 |
| | City Employee | 1.65 | 0.5 | 3 | 3 | 0 | 8.15 |
| TTA | TTA Fixed Route | 8 | 4 | 2 | 0 | 3 | 17 |
| | TTA Paratransit | 0 | 0 | 0 | 8.5 | 0 | 8.5 |
| NCSU | Wolfline | 2 | 0 | 2 | 0 | 0 | 4 |
| | NCSU Employee | 2.05 | 0.05 | 0 | 0 | 0 | 2.11 |
| Cary | C-Tran | 1 | 0 | 0 | 0 | 0 | 1 |
| | Town Employee | 0 | 1.65 | 2.1 | 0.25 | 0.05 | 4.05 |

Note: The table above reflects full-time equivalents. Part-time positions are estimated at 0.5 FTE per position. Certain employees who spend time on many work responsibilities other than transit are counted in the table as less than 1 FTE as appropriate.

A number of functions for which only a small fraction of person is identified in Table II-B-3a or where no positions could be identified, are provided in small amounts by municipal staff. These could include functions such as finance, accounting, purchasing, risk management, insurance, grants administration, legal, government affairs, route and schedule planning, human resources, engineering and long range planning. Table II-B-3b shows the responsibility for each such function, and, in addition to the functions with staffing listed above, identifies functions performed by the municipalities for transit.

Table II-B-3b Administrative Responsibility

| | Durham (DATA) | Chapel Hill | Raleigh (CAT) | TTA |
|---|------------------------------------|-------------------------------------|--|------------|
| Risk management | Management Company | City Employee | Management Company | TTA |
| Insurance | Management Company | City Employee | Management Company | TTA |
| Grants administration | City Employee | City Transportation | City Transportation | TTA |
| Legal | Management Company & City Employee | City Employee | Management Company & City Employee | TTA |
| Government affairs | City Transportation | NONE | City Employee | TTA |
| Route and schedule planning | City Transportation | City Transportation | City Transportation | TTA |
| Human resources | Management Company, City Employee | City Employee | Management Company | TTA |
| Engineering and long range planning services | City Employee | City Employee | Both City Transportation & City Employee | TTA |
| Provision of telephone information services | Management Company | City Transportation | Management Company | TTA |
| Passenger Information Fix Route Vs. Demand Response | Management Company | City Transportation | City Transportation & Management Company | TTA |
| Logos | 2 Logos, DATA & Access | one logo | one logo. | one logo |
| Website | City Employee | City Employee | City Employee | TTA |
| Provision of securities and security policies | City Police | Town Police | City Police, Bus Panic Button, Radio frequency | |
| Advertising revenue | NONE | yes, only interior on the buses. | yes. wrap exterior | None |
| Professional service contracts | Management Company | Town Employee & Town Transportation | City Employee & City Transportation | TTA |
| Marketing | NONE | NONE | Management Company | TTA |

NOTE: City Transportation = employees included in personnel summary
City Employee = **Not** reflected in personnel summary
Management = management employees

Marketing Characteristics

The key elements that are defined here as part of a transit marketing program are (1) the establishment of the system's identity and image through naming and graphics standards, (2) the provision of customer information through signage, print material, telephone, and internet (3) sales for the system through pass distribution and other service revenue contracting efforts (4) the promotion of the system through advertising, joint promotions and other outreach programs. All of the systems have some visual identity maintained through general administrative efforts. All of the systems provide telephone information through a combination of operations and administrative personnel. CAT and DATA provide this function and a sales function through a contract position at their downtown terminals. All of these systems provide some print materials, and CAT has the most formal program for providing more than the utilitarian timetables and maps. CAT and TTA have the most formal marketing programs. The others meet customer information and pass sales requirements by assigning these duties to operations and administrative personnel.

Sale of Advertising Space Characteristics

Few of the systems make extensive use of advertising opportunities, with most of the municipalities in which the transit systems operate prohibiting advertising on bus shelters or benches. As the table below illustrates, a number of systems allow interior advertising, and both CAT and DATA are involved in wrapping at least a portion of their fleet.

Table II-B-3c Advertising Approach

| Approach | CAT | CHT | DATA | TTA | NCSU | C-Tran |
|---------------------------|------------|------------|-------------|------------|-------------|---------------|
| Interior | No | Yes | New | No | No | No |
| Exterior (Posters) | No | No | New | No | No | No |
| Wraps | Yes | No | New | No | No | No |
| Shelters | No* | No* | No* | No* | No* | N/A |
| Benches | No* | No* | No* | No* | No* | N/A |
| Terminals | No | N/A | No | No | N/A | N/A |

* Outdoor advertising prohibitive by municipal signage ordinances

Security Characteristics

None of the transit systems currently utilize cameras on-board the buses, but all systems have access to the police in each municipality through which they operate. This link is provided through the vehicle communication systems, which is discussed further in Section II-B-5 below. Some systems provide direct access to emergency services for its drivers; others provide it through the dispatcher.

DATA is scheduled to receive 31 new buses in May 2003. Each bus will have 6 cameras -- four inside and two outside. With increasing number of violent incidents

on their buses, the city has asked Coach USA to investigate and hire a security firm to provide personnel to randomly ride the bus and monitor activities. The security budget is for 162 hours per week.

All operating and maintenance facilities provide security through cameras and/or alarm systems.

Information Technology Characteristics

Specialized information technology is most apparent in the fleet maintenance area, and in this area, every system uses a different software package. The details are provided in the table below. Outside of the area of fleet maintenance, there are few specialized software packages in use

Table II-B-3d Fleet Maintenance Software Packages

| | |
|---------------|--|
| CAT | Foster, a City of Raleigh government-wide maintenance package |
| CHT | TRANSMAN by TMT Software |
| DATA | RTA (Ron Turley & Associates) |
| TTA | DPSI Fleet Maintenance |
| NCSU | None. Superintendent tracks maintenance records using Excel spreadsheet. |
| C-Tran | Penske performs all fleet maintenance for C-Tran fleet at regular intervals. |

Professional Service Contract Characteristics

A variety of professional service contracts are in place across the region. The most important ones will be analyzed in depth in the report for Task 4.6.

4. ***Description of Governance Attributes***

The governing bodies of the existing systems include the four city or town councils, the University Board of Trustees and Governors, and the TTA Board. The student Senate advises NC State on transit, particularly on the use of student fees. Chapel Hill has set up a transit advisory board that advises the Town Council on transit matters. Durham, and Raleigh each have an authority board that acts on transit policy; although the transit authority boards have legislated authority, they are appointed by and on most matters could ultimately be overruled by the respective

City Councils. Additional detail will be provided in the report on the Governance and Funding Task.

5. *Description of Capital Facilities and Equipment*

The capital facilities in the Triangle region are summarized in the table below:

Table II-B-5a Capital Facilities

| | CAT | CHT | DATA | TTA | NCSU | C-Tran |
|--|------------|-----------------|-------------|------------|-------------|---------------|
| Maintenance Facilities | 1 | 1 | 1 | 1 | 1 | 0 |
| Administrative Facilities | | | | | | |
| Stand-Alone | | | | X | | X |
| Shared with Maintenance | X | X | X | | X | |
| Transfer Centers | X | | X | X | | |
| Park & Ride Lots Served | 5 | 9 | 0 | 11 | 3 | 0 |
| Park & Ride Lots Owned | 0 | 5 | 0 | 0 | 0 | 0 |
| Park & Ride Lots Maintained | 0 | CH public works | 0 | 0 | 0 | 0 |

Service-Related Facilities

Significant differences exist between the systems with respect to the facilities the passengers have access to. The table presented at the beginning of this section illustrates that a number of systems do not have central transfer centers (although both NCSU and CHT have at-street transfer locations). Nearly all systems make use of park and ride lots. However, only Chapel Hill Transit owns and maintains (through the town public works department) the lots.

Another significant area visible to the passenger is the area of bus stops and related facilities. The ownership and maintenance responsibility is provided in the table below:

Table II-B-5b Passenger Facilities

| | |
|---------------|--|
| CAT | Signage, benches, and shelters are installed by the City of Raleigh sign shop. Cleaning of benches and shelters is contracted out to a DBE. |
| CHT | CHT purchases and maintains all signs, which are installed by the town public works department. CHT purchases and pays for contractors to install shelters inside Chapel Hill. CHT shelters are maintained by public works department, and cleaned monthly by a contractor. Carboro and UNC are responsible for shelters and benches within their jurisdictions. |
| DATA | Signage, benches, and shelters are purchased by the City and installed by contractors. Facilities are maintained and cleaned by Coach USA. Major repairs are completed by contractors. |
| TTA | TTA purchases, installs and maintains all its signage. TTA will purchase and install its first shelters in 2003. Contractors will install them, and CAT and DATA have agreed to clean and maintain these facilities. |
| NCSU | NCSU's Transportation Dept. purchases, cleans, and maintains NCSU Construction Dept. installs |
| C-Tran | N/A |

Administration and Maintenance-Related Facilities

Nearly all systems have one major facility complex that provides both administrative offices and maintenance facilities. TTA is an exception to this, and C-Tran is a special case, since it contracts its maintenance out.

Equipment

There are a variety of bus sizes employed by these systems. A majority of the buses in the CAT, CHT, and DATA fleets are between 30 and 35 feet in length. NCSU also operates some 35-foot buses. Most of the buses operated by TTA and NCSU are 40 feet or greater in length. All systems except NSU operate several buses less than 30 feet in length, with buses of this size representing a significant portion of DATA and TTA fleets and the entirety of the C-Tran bus fleet. In addition to buses, CHT, DATA, TTA, and C-Tran own and operate vans for their paratransit services. The average age of vehicles varies between 1.5 and 7.8 years.

In most cases, vehicles are directly owned by the transit agency. Exceptions are NCSU and C-Tran, whose vehicles are owned by contractors Connex and First Transit, respectively.

Most buses operated in the region feature similar baseline amenities: Wheelchair lifts, bicycle racks, and rear entrances. C-Tran vehicles, however, do not feature bike racks or rear entrances.

The chart provided below gives a snapshot of the current fleet of the various systems:

Table II-B-5c Fleet Attributes

| | CAT | CHT | DATA | TTA | NCSU | C-Tran |
|--------------------------------|------|------|------|-----|--------|---------------|
| Buses | 60 | 83 | 62 | 67 | 26 | 6 |
| <i>Less than 30'</i> | 1 | 3 | 0 | 20 | 0 | 6 |
| <i>30' to 35'</i> | 40 | 80 | 31 | 0 | 5 | 0 |
| <i>40' or Greater</i> | 19 | 0 | 31 | 47 | 21 | 0 |
| Vans | 0 | 16 | 39 | 5 | 0 | 3 |
| Vehicle Ownership | City | Town | City | TTA | Connex | First Transit |
| Typical Bus Amenities | | | | | | |
| Wheelchair Lift | X | X | X | X | X | X |
| Bicycle Rack | X | X | X | X | X | |
| Rear Entrance | X | X | X | X | X | |
| Average Age of Vehicles | 7.8 | 6.1 | 4.4 | 3.1 | 5.4 | 1.5 |

In addition to the buses and vans used for service, there also is a significant role for communications equipment. As the table below indicates, there are significant differences between the systems with respect to the type, frequency and capabilities of the communications systems:

Table II-B-5d Radio Communications Attributes

| | CAT | CHT | DATA | TTA | NCSU | C-Tran |
|---|---------|------------------|---------|------------------|------------|------------|
| Radio System | Two-Way | Two-Way | Two-Way | Two-Way | One-Way | Nextel |
| Frequency | 400 MHz | 400 MHz | 800 MHz | 800 MHz | 400 MHz | 800 MHz |
| Ability to Communicate with Other Transit Agencies | No | No | No | No | No | No |
| Ability to Communicate with Emergency Services | Yes | Through Dispatch | Yes | Through Dispatch | No | Via 911 |
| Maintenance of Radios | City | Town | City | TTA | Contractor | Contractor |
| Maintenance of Communication Tower/Systems | City | Town | City | Highway Patrol | Contractor | Contractor |

III. CHALLENGES AND BENEFITS OF CONSOLIDATION BY ATTRIBUTE

The functions and services of the transit operations are largely similar across the six operating systems, but each has individual characteristics. The following discussion is organized in the sequence of functions as the earlier sections of this report. The potential for consolidating each function is discussed, generally in listing the potential benefits and disbenefits of consolidation

the delivery of the respective function or service in a Regional System. The discussion is summarized in the this table:

Table III

Summary of Effects of Consolidation

| <u>Perspective:</u> | Rider | Cost | Em- ployee | Region |
|--|-------|------|---------------|--------|
| <u>A. Service Attributes</u> | | | | |
| General Fixed Route Service | + | ~ | ~ | + |
| Demand-Response Characteristics | + | - | ~ | + |
| Route Numbering & Graphics Characteristics | + | ~ | ~ | + |
| <u>B. Operations and Labor Attributes</u> | | | | |
| Operations and Maintenance Staffing, Services, and Policies | ~ | ~ | ~ | ~ |
| Employee Wages, Benefits, and Work Rules | ~ | - | + | - |
| Use of Management & Service Contracts & Union Representation | ~ | ~ | ~ | ~ |
| <u>C. Administrative Attributes</u> | | | | |
| Government Relations & Funding | + | - | + | + |
| Administrative and Management Services | ~ | + | ~ | + |
| Marketing Efforts | + | ~ | ~ | |
| Sale of Advertising | ~ | + | ~ | |
| Security | ~ | ~ | ~ | |
| Use of Information Technology | ~ | + | ~ | |
| Use of Professional Service Contracts | ~ | + | ~ | |
| <u>D. Governance Attributes - Number and Role of Policy Advisory Boards</u> | | | | |
| | + | - | ~ | ~ |
| <u>E. Capital Facilities and Equipment Attributes</u> | | | | |
| Real Estate and Facilities | ~ | ~ | ~ | ~ |
| Vehicles and Communications | + | ~ | ~ | + |
| Park and Ride Lots | + | ~ | ~ | |
| Bus Stops, Signage and Shelters | + | + | ~ | |

+ advantage ~ mixed - disadvantage

A. Service Attributes

▪ General Service Characteristics –

- **General Fixed Route Service** – The city fixed route services operate within the respective city boundaries. NC State service operates among its campuses but entirely within the City of Raleigh. TTA operates only services that cross city boundaries or are entirely outside city boundaries, largely between RTP and one of the municipalities. With adequate resources, TTA may evolve to delivery of service to any market within the three counties. The following describes the specific service benefits and disbenefits of consolidating the services:
 - i. Service need not be limited by municipal boundaries, but can be routed without regard to those boundaries if markets warrant. For example, routes that currently terminate at a city boundary may be extended across the boundary where the need for transportation continues to developments beyond the current boundaries.
 - ii. Routes connecting employment centers in different municipalities can be implemented, replacing radial route service of the two respective municipalities. These proposed connecting routes would carry commuters in both directions from the residential areas that lie between the two traffic generators.
 - iii. Timing at transfer connections can be more easily optimized, as one schedule-making function would be responsible for changes in both routes.
 - iv. Service on overlapping routes can be coordinated so that duplicate service is not provided and best use is made of turn-backs (for the local services that do not extend across the region) and express services (such as limited stop or non-stop service).

Long Range (20-year) and short range (five year) planning can evolve with constant commitment to a longer-range service and development policy, rather than lurching from proposal to proposal. On the other hand, the Regional System is unlikely ever to be as aware of local conditions and the local service histories as the smaller, local systems. These service planning differences are further discussed under the service planning function, below.

In addition to the improvement in service planning, the region could also benefit from increased levels of funding that would be possible as a result of consolidation. These increases may be in the areas of additional regional revenue, or through greater competitiveness in the competition for federal and state funds (see

government affairs section below). These additional funds could make higher levels of service available.

▪ **Demand-Response Characteristics**

Each of the systems except NCSU operates a complementary demand responsive service for persons who are unable to use the fixed route service; precise eligibility requirements and service parameters vary with each system. The Cary services, Chapel Hill shared ride services and Durham demand responsive services for the county provide additional demand responsive services.

i. Eligibility Determinations

Chapel Hill and Cary use broader eligibility criteria than Durham, Raleigh, or TTA. Consolidation would have the advantage of making the services more seamless for the customers and eliminating the need to establish eligibility in more than one region. A disadvantage of consolidation of eligibility criteria is that it could either disenfranchise some customers or expand the eligibility list of other systems.

ii. Reservations, Dispatching, and Service

The major difference in reservations and dispatching among the systems is that Raleigh uses taxicabs rather than dedicated vans for its service. Where feasible, Raleigh has authorized customers to call the cab service directly to make reservations. In all the other services, reservations are normally required further in advance to permit efficient dispatching of the dedicated vans. Regarding service area, Raleigh and Cary provide service to a larger area than required by the ADA regulations for a portion of its customers; Durham and Chapel Hill provide service throughout their municipal territories (exceeding the requirements of ADA regulations), while TTA provides service only as required by the regulations.

A significant effect of consolidating the demand responsive services would be to create ADA service which connected all points on all systems. It should be noted that this would also result as a legal obligation from consolidating the fixed route services. As in the case of eligibility, the consolidation of the service area standards would either eliminate some trips in the more generous localities or make additional trips available where systems currently provide only the service required by the ADA. These changes would have the advantage of providing better service to the customers (if the service areas were increased to reach parity), but would also increase costs, in that the demand responsive service is more highly subsidized than the fixed route service.

A significant advantage of consolidation related to the cross-region trips referenced above would be to eliminate the complicated interaction between the dispatchers of various systems. As mentioned in the description of the existing systems in Section II-B-1, today's systems sometimes attempt to coordinate connections for riders who want to use multiple systems. This uses significant resources, and the need for this coordination would be eliminated in a fully-consolidated demand response system.

The best mode of delivering the service in a consolidated organization would be to establish uniform eligibility and service area requirements, and then use the mode (dedicated vans or taxicabs) that was more efficient. In many systems, this results in unusual trips (from remote portions of the system or at the earliest or latest hours) and peak trips being provided by taxicab, while base trips in the core of the system are provided by dedicated vans. This could have the advantage of reducing the cost of specific service policy. However, it has been AECOM Consult's experience that customers in Raleigh who were no longer able to use taxicabs would regret the loss of the convenience of this mode of service delivery.

- **Route Numbering Characteristics –**

As further discussed under "Marketing" below (which addresses potential for staff consolidation), the consolidation of route numbering systems, nomenclature for services, graphic standards, and other aspects of customer information standards would have a significant advantage for customers who use more than one portion of the system. Not only could a customer identify what general area or corridor a route served from its number, but the terms for varieties of expresses (alternate stops, designated stops, zone stops, non-stop), demand responsive services, special event services, and other service innovations in each sub-region would also be meaningful throughout the Triangle region. The coloring systems, logos, and signage that accompany these concepts could also be standardized. Although there would be an administrative cost to maintaining these standards, the net benefit would be significant.

B. Operations and Labor Attributes

- **Operations and Maintenance Staffing, Services, and Policies –**

The consolidation of operations and maintenance, as discussed above, does not relate to the physical consolidation of these activities (although this might be possible in some cases), but rather to the organizational consolidation. A threshold issue is whether the activities would continue to be outsourced in those cases where it is currently contracted out, and also whether there would be additional outsourcing under a Regional System. To the extent that contracted operations, such as the NCSU, Raleigh, or Durham fixed route services, continued under separate contracts, there would be little impact of the

consolidation directly on these operations. Similarly, it would be possible for the directly employed operations to retain their separate policies as long as they remained physically decentralized. There would, over time if not immediately, be a tendency to standardize practices. Where this concerns work rules with labor cost impacts (such as travel time payments for remote relief), the effect is included below in the discussion of wages, benefits, and work rules. In other cases, the Regional System could migrate toward the practices of the largest of the consolidating entities or choose the best of the practices.

The greatest concern would be whether the practices migrated to the most cost-effective standard or, without regard to cost-effectiveness, to (a) the standard of the largest of the merging systems or (b) the standard of the system whose manager was selected to lead the merged functions. It is AECOM Consult's experience that the net effect of the consolidation will depend primarily on the quality of the leadership designated to accomplish the consolidation rather than the nature of the practices and policies being merged. While these changes are challenging for many employees to accept in the short run, there would not necessarily be a significant longer-range impact of uniform operations and maintenance practices.

▪ **Employee Wages, Benefits, and Work Rules –**

Consolidation may have its greatest disadvantage in this area. While economies of scale and level of staffing are discussed under each respective service or function, the rate of expenditure for a given staffing level can be increased through consolidation. This is not only because a larger, more influential work force (or collective bargaining unit) can be created, but also because there is a natural tendency for parity in wages, work rules, and benefits. A trend towards parity is likely in the region regardless of whether consolidation happens or not; consolidation might have the effect of accelerating it.

The accompanying table shows an estimate of the increase in cost that could result if all constraints were released and a complete upward parity policy were adopted consisting of (1) granting all operators the highest wage rate, or (2) granting a combination of the highest wage rate and the most generous work rule package, or (3) granting a combination of the highest wage rate, most generous work rule package, and most generous fringe benefit package. The cost would be substantially higher if parity at the most generous level were reached in individual items of pay, work rules, and benefits. The most generous package would involve granting the highest starting rate and most rapid pay progressions; the most generous spread time provision, report time and travel time provisions; and the most generous health insurance, retirement, vacation and holiday programs. Nothing dictates that a Regional System would have to grant any of this parity, but history has shown that some parity is often granted over the course of time when disparate work forces are consolidated.

These cost increases can be controlled by adopting firm policies concerning labor costs, and requiring that any instance of an improvement to achieve parity is offset by countervailing savings or productivity increases.

Table III-B-1 Estimation of Maximum Cost of Parity

| For Drivers & Other Transportation | Actual FY 02 | Wage Parity | Wage & Work Rule Parity | Wage, Work Rule, and Benefit Package Parity |
|------------------------------------|---------------|---------------|-------------------------|---|
| FY 2002 Regional Cost | \$ 16,150,893 | \$ 17,975,535 | \$ 19,356,652 | \$ 20,838,532 |
| Increase from Actual Cost | | \$ 1,824,642 | \$ 3,205,758 | \$ 4,687,638 |
| % Increase | | 11.3% | 19.8% | 29.0% |

Supporting Data For Labor Parity Cost Estimates

| | | Vehicle (Platform) Hours | Driver Pay Hours | Driver Pay | Driver Fringe Benefits | Driver Cost | Regional Driver Cost | Other Transportation Dept Pay | Other Transportation Dept Fringe | Supervisor Cost | Regional Transportation Labor Cost |
|--|------|--------------------------|------------------|--------------|------------------------|-------------|----------------------|-------------------------------|----------------------------------|-----------------|------------------------------------|
| Status Quo | CAT | \$ 145,568 | \$ 171,299 | \$ 2,712,901 | \$ 1,174,128 | \$3,887,029 | \$ 14,250,312 | \$ 450,972 | \$ 191,274 | \$ 642,246 | \$ 1,900,581 |
| | CHT | \$ 137,623 | \$ 182,579 | \$ 3,284,999 | \$ 972,245 | \$4,257,244 | | \$ 290,786 | \$ 83,335 | \$ 374,121 | |
| | DATA | \$ 165,437 | \$ 193,830 | \$ 3,045,983 | \$ 991,390 | \$4,037,373 | | \$ 287,141 | \$ 91,311 | \$ 378,452 | |
| | TTA | \$ 101,199 | \$ 124,956 | \$ 1,673,395 | \$ 395,271 | \$2,068,666 | | \$ 399,552 | \$ 106,210 | \$ 505,762 | |
| Wage Rate Parity | CAT | \$ 145,568 | \$ 171,299 | \$ 3,082,047 | \$ 1,333,893 | \$4,415,940 | \$ 16,074,955 | \$ 450,972 | \$ 191,274 | \$ 642,246 | \$ 1,900,581 |
| | CHT | \$ 137,623 | \$ 182,579 | \$ 3,284,999 | \$ 972,245 | \$4,257,244 | | \$ 290,786 | \$ 83,335 | \$ 374,121 | |
| | DATA | \$ 165,437 | \$ 193,830 | \$ 3,487,422 | \$ 1,135,067 | \$4,622,489 | | \$ 287,141 | \$ 91,311 | \$ 378,452 | |
| | TTA | \$ 101,199 | \$ 124,956 | \$ 2,248,229 | \$ 531,052 | \$2,779,282 | | \$ 399,552 | \$ 106,210 | \$ 505,762 | |
| Wage & Work Rule Parity | CAT | \$ 145,568 | \$ 193,120 | \$ 3,474,655 | \$ 1,503,811 | \$4,978,467 | \$ 17,456,071 | \$ 450,972 | \$ 191,274 | \$ 642,246 | \$ 1,900,581 |
| | CHT | \$ 137,623 | \$ 182,579 | \$ 3,284,999 | \$ 972,245 | \$4,257,244 | | \$ 290,786 | \$ 83,335 | \$ 374,121 | |
| | DATA | \$ 165,437 | \$ 219,480 | \$ 3,948,921 | \$ 1,285,273 | \$5,234,194 | | \$ 287,141 | \$ 91,311 | \$ 378,452 | |
| | TTA | \$ 101,199 | \$ 134,257 | \$ 2,415,583 | \$ 570,583 | \$2,986,166 | | \$ 399,552 | \$ 106,210 | \$ 505,762 | |
| Wage, Work Rule, & Fringe Package Parity | CAT | \$ 145,568 | \$ 193,120 | \$ 3,474,655 | \$ 1,503,811 | \$4,978,467 | \$ 18,804,221 | \$ 450,972 | \$ 191,274 | \$ 642,246 | \$ 2,034,310 |
| | CHT | \$ 137,623 | \$ 182,579 | \$ 3,284,999 | \$ 1,421,729 | \$4,706,728 | | \$ 290,786 | \$ 123,333 | \$ 414,119 | |
| | DATA | \$ 165,437 | \$ 219,480 | \$ 3,948,921 | \$ 1,709,071 | \$5,657,992 | | \$ 287,141 | \$ 121,787 | \$ 408,928 | |
| | TTA | \$ 101,199 | \$ 134,257 | \$ 2,415,583 | \$ 1,045,451 | \$3,461,034 | | \$ 399,552 | \$ 169,465 | \$ 569,017 | |

Use of Management and Service Contracts and Union Representation

As discussed above under wages and benefits, Raleigh and Durham utilize corporations (“Memphis formula” corporations) to protect the collective bargaining rights of their employees. Any consolidation of the employment status of these employees would affect their collective bargaining agreements.

It would be possible for the Regional System to enter into contracts with contract operators similar to the Raleigh and Durham arrangements. These contract operators could enter into collective bargaining agreements with the Raleigh and Durham local unions, thereby protecting the collective bargaining rights of the employees. The advantage of this consolidation would be primarily if the operations had been organizationally consolidated. Eventual contract consolidation would align the contract relationships with organizational relationships, and would eliminate the need to transmit obligations through the cities of Raleigh and Durham as contractual intermediaries.

Like any collective bargaining agreement, this consolidation would require the agreement of the respective local unions. A disadvantage of this consolidation would be increasing the pressure for wage, work, rule, and benefit parity discussed above.

C. Administrative Attributes

▪ Administrative and Management Services –

i. Finance and Accounting –

TTA, as a dedicated transit organization, has a financial function dedicated to transit. The other transit systems receive financial services from the central finance departments of the system's owner (i.e., city or university). These functions are provided in the contract service operations partially by the contractor (for its own operations). We have not identified any instance of a municipal or university financial or accounting position that is dedicated entirely to transit finance and accounting; this work is widely dispersed among a large number of positions.

There will be limited efficiencies in transferring the transit-unique aspects of financial work into one regional system from the municipal financial operations (for example, the preparation of a single National Transit Database submission rather than the five submissions currently required). There will also be some offsetting costs in accounting for the additional contractual relationships between the Regional System and the Municipal and University funding agencies.

ii. Purchasing –

The majority of the purchasing activity in each operation is for bus parts and supplies. Infrequent, but major, purchases are for buses and other transit capital assets. Under scenarios in which the service contractors continue to provide service including purchasing, the consolidation would have no effect on purchasing.

The prices in the service contracts create an incentive for efficient use of parts and supplies. In the case of items for which conservation was not a concern or could be managed (e.g., fuel, or possibly tires), the Regional System (which would have its own transit item purchasing functions, unlike the municipalities or university) could consider supplying those items to the contractor, reducing the contract price and realizing some efficiency of consolidated purchasing and warehousing.

The consolidation of the parts and purchasing operations of the non-contract operations (TTA and Chapel Hill) would offer some economies, particularly over time as bus configurations and parts requirements could be standardized. There would also be some advantage in the major non-contractor transit procurements, primarily of revenue vehicles (vans and buses). A limited

amount of savings is already achieved in the region through joint procurement; consolidation would increase the likelihood of savings.

iii. Risk management and insurance –

Risk management expenses consist primarily of the claims payments for bus accidents, insurance premiums for excess coverage, and the labor and support costs for claims processing and adjusting. These functions are currently provided by the municipalities or university and by TTA. In the case of claims related to contractor operations in Durham, the contractor (currently, Coach USA) assumes risk management and insurance. The hourly cost that the city pays accounts for risk management and insurance. If this arrangement were to change in a consolidated organization, the cost per hour paid to the contractor would decline, and the costs would transfer to the Regional System.

The claims payouts and the total cost of insurance are unlikely to change in a consolidated operation. The comparative advantage of consolidating the insurance or adjusting in a Regional System rather than in the municipal or University system is speculative.

iv. Grants administration –

Grant administration is currently provided by TTA and the municipal staffs, and is somewhat unique to transit operations. The Federal Transit Administration (FTA) and state transit grants all share some commonalities that distinguish them from other grant programs. For example, annual grants for operating or maintenance assistance and periodic draw downs under those grants, triennial reviews, and annual FTA certifications and assurances all would be substantially reduced from the sum of the activities required for the four current grantees (soon to be five when Cary could become a Federal transit grant recipient) to one Regional system.

v. Legal –

Legal services are provided by the Municipal and University legal departments, TTA's counsel, and by the service contractors for their own operations. A significant part of the legal services related to bus accident claims which are services provided by the municipalities in the case of the contract operations. Although there may be some additional expertise gained in transit-unique legal matters (such as legal aspects of fare policy, transit ADA requirements, FTA grant obligations), the claims litigation and bulk of legal activities would not be substantially affected by a transfer from the TTA, municipal, and university operations to a Regional System

vi. Government affairs –

Government affairs consists largely of staff and policy-maker time in researching issues in relations with state and Federal agencies and legislatures, developing positions and programs, and interacting with representatives of other governmental entities. The central government affairs personnel of the municipalities and NCSU currently provide these services. Although there is some advantage in coordinating the transit activities with other municipal issues, the transit issues are distinct. A Regional System could achieve the existing level of effectiveness with less time. Alternatively, the Regional System could render the transit positions and programs substantially more effective than the existing dispersed efforts by expending the combined level of effort of the municipalities and university.

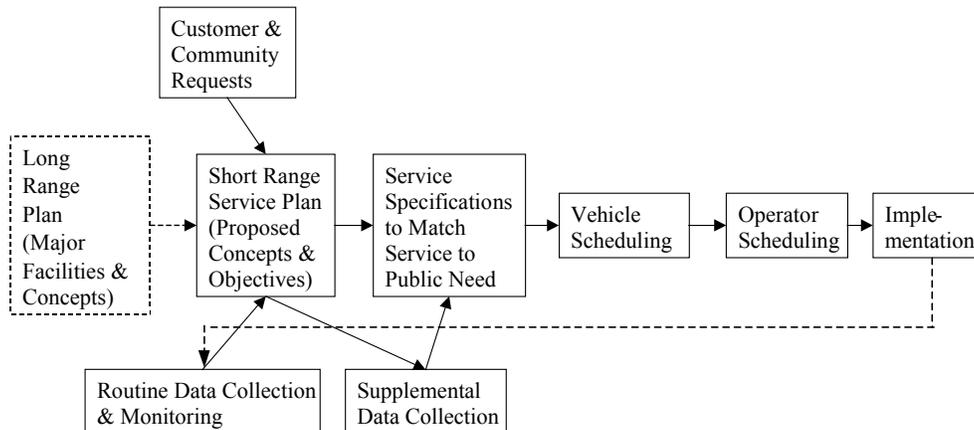
An advantage to consolidation in the area of government affairs is the ability for the region to compete more effectively for various transit-related grants. This could be in the form of transitional aid from state and federal sources, or in the form of the various earmarked funds available in the federal grant process.

The strength of a Regional System in advocating transit interests at the Federal and state levels with one voice is one of the key advantages perceived by other regions in considering consolidation. In the summary table it is indicated as an advantage for riders, because of the resulting service improvements, a disadvantage from a cost perspective because of higher spending levels, and an advantage from an employee perspective because of the potential for additional jobs or improved compensation

vii. Route and schedule planning –

The block diagram below suggests the general outline of typical service planning processes in urban mass transportation. Individual processes differ with regard to the emphasis placed on various phases, approval requirements and community participation, methods and reviews. Although the phases are far less formal in smaller systems, the phases depicted below are generally found in one form or another.

Operational Service Planning Overview



Processes vary most widely with respect to long range planning. Some areas have very formal processes closely linked to land use planning. These processes include publicly adopted long-range forecasts and the associated demographic, transit facilities, transit service levels, and ridership projections. These plans typically cover twenty years or more, and are often developed together with highway plans.

The Federal funding process requires that, at a minimum, Federally-funded projects be included in a continuing, comprehensive, and coordinated planning process administered by the Metropolitan Planning Organization. Where this long range planning process is most extensive, the facilities plans (e.g. for rail lines, busways or reserved lanes, or transit terminals) should flow into the operational planning process. This process is also generally driven by routine service monitoring (based on reports of route productivity, on-time performance, crowding and other passenger counts, etc) as well as by community input and passenger requests.

The system generally maintains some program of operational planning projects it intends to undertake in the one-to-five year time frame based on these inputs. This program may be an informal list discussed by the system planners and leadership or a formal short-range service plan. The best operational planning processes rely heavily on detailed data collection and analysis.

The short-range plan generally triggers the collection of additional data (passenger counts, running times, projected traffic, etc). Service specifications are prepared based on these analyses, also with a wide range of formality. In general, the service specifications included a specific route pattern and headways (service frequency) for each time of day affected. At this point many systems transfer responsibility from an operational planning function to

a schedule-making function. The schedule makers convert the service specifications into vehicle schedules ("block making"), and then cut and link the vehicle assignments into cost-effective driver assignments ("run cutting"). The public must be informed of the details of the changes, the work must be assigned to or selected by drivers, and implemented on the effective date of the new schedule. Naturally, the new service is monitored more closely than stable service, and often requires adjustments in the ensuing service planning cycles.

In the Triangle region, route and overall service decisions are the responsibility of TTA, municipal, and university staff. However, the major service contractors carry out the labor-intensive effort of maintaining trip schedules, vehicle schedules (block making), and operator schedules (run cutting). In the case of the directly operated systems, these efforts are conducted by the operations staff. Consolidating these activities in a regional system would provide some limited economies of scale (e.g., rendering information technology maintenance more economical).

The importance of the overall service planning process makes clear that the benefits of service coordination, described above under service attributes, can only be fully achieved through a unified operational planning process. It is not possible for the best service decisions regarding any market that crosses municipal boundaries to be reached unless routine data collection is occurring for the entire market. Service concepts are developed in the context of the complete data, and supplemental data collection is carried out in support of the development of service specifications, routes, blocks, and runs. Coordination of schedules among services that operate along the same streets or that make transfer connections could be substantially facilitated by consolidation of these functions into one regional agency. However, the directness of the links between changing schedule needs (changed running times, detailed routing change requirements, driver staffing and productivity issues) and schedule work would be impaired by physically relocating schedule-making from the operating base.

viii. Human resources –

For the major service contractors, the bulk of the human resources function is provided by the contractor and would continue to be so provided under most consolidation scenarios. The municipalities and university provide human resource support to their staff transit activities and for the directly operated services. These services are largely dependent on the volume of service and number of direct operating employees, so that consolidation in a Regional System would have little impact.

ix. Engineering and long-range planning services –

TTA, municipal and university staff performs these functions, in cooperation with the Metropolitan Planning Organization and other agencies. The level of effort is largely discretionary. However, the ability of a consolidated Regional System to set policy for and act on transit issues affecting multiple jurisdictions is important. The long-range service planning process shares many of the organic characteristics of the operational planning process described above. For a given level of effort, it is AECOM Consult's experience that the combined efforts of the existing systems, a Regional System could provide more effective long range planning than the individual systems. The engineering issues affecting major transit investments can also be more effectively addressed by assembling the transit engineering resources in a consolidated regional staff. To the extent that engineering services are outsourced to design contractors, the consolidation would have less impact on the cost-effectiveness of this function.

▪ **Marketing Efforts –**

i. **Provision of telephone information services –**

TTA, the municipalities, and NCSU currently provide this function. Many of them have already concluded that the function can be cost-effectively consolidated. Detailed knowledge of local destinations and the vicinity of major bus stops are helpful in providing telephone information, and this would be diminished in a consolidated system. However, this disadvantage can be largely offset by assigning specialists in specific corridors, possibly programming a call routing preference based on the callers prefix into call distribution software, and training. Because of the very peaked nature of the demand for this service, and the logistics of scheduling staff work assignments to fulfill the demand, there are significant advantages of consolidating this function. The hours of service that can be cost-effectively provided are longer, and the cost per call can be reduced.

ii. **Maps, customer timetables, web sites, and other forms of passenger information –**

The direct cost of these items is largely a printing cost depending on the volume issued, so there is not significant cost saving in consolidating these functions. However, the effectiveness of information and ease of understanding is substantially improved if it is coordinated throughout the region, so that persons who may have occasion to travel outside their city of residence can easily find and understand the information about service in their destination area. While seamless customer information can be provided without organizationally consolidating the staffs, the quality and cost-effectiveness of the coordination would be improved through consolidation.

**iii. Route designation (naming, numbering, and color or graphic designation)
pass sales, system nomenclature, livery and graphics –**

Like the costumer information, consolidation would not have a major effect on the efficiency of maintenance of the system image and customer information standards, but there would be a significant advantage in a seamless regional system of standards. This seamless regional system would more cost-effectively maintained by a consolidated marketing staff.

▪ **Sale of Advertising –**

Not all systems sell advertising on bus exteriors and interiors, and none of the systems to our knowledge sell advertising on shelters or benches. This function, where performed, is currently contracted for by the city and TTA staff and this contracting activity for a consolidated regional contract would require somewhat less effort than the combined total of the staffs performing this function. Furthermore, there are sales advantages in offering a larger display area and market that could materially improve the yield from a consolidated regional advertising program.

▪ **Security –**

Ongoing security expenditures are made on a case-specific basis (e.g., a temporary need to post police on buses) and prudent security practices in the performance of the businesses. There could be some improvement in the effectiveness of these efforts if the benefits could be extended to a Regional System, but there may also be some loss of responsiveness to local security issues. For example, if a video surveillance system for operating sites was determined to be cost-effective, it could be more efficiently deployed at multiple sites by a Regional System, but the Regional System might not as accurately address the surveillance needs of a specific site.

▪ **Use of Information Technology –**

This function is currently provided by the contract operators for their operations and by TTA, Municipal and university central IT departments for other functions. This function could be more cost-effectively provided for transit information (scheduling, dispatching, fleet maintenance, vehicle monitoring, customer information) by a Regional System, due to the rapid advance of technology, and the economies of scale in system development investments. However, the Municipal or University IT departments provide the major finance, payroll, and human resource functions as cost-effectively as could the Regional System.

The consolidation of the existing IT systems will require a significant one-time investment in integration and standardization.

▪ **Use of Professional Service Contracts –**

There would be some economies of scale in contracting for some transit-unique professional service contracts such as drug and alcohol testing, service planning. Many other professional services can be as cost-effectively shared with the municipal or university functions.

D. Governance Attributes - Number and Role of Policy Advisory Boards

The governing bodies of the existing systems include the four city or town councils, the University Board of Trustees and Governors, and the TTA Board. The student Senate advises NC State on transit, particularly on the use of student fees. Chapel Hill has set up a transit advisory board that advises the Town Council on transit matters. Durham, and Raleigh each have an authority board that acts on transit policy; although the transit authority boards have legislated authority, they are appointed by and on most matters could ultimately be overruled by the respective Municipal Councils.

Consolidation could reduce the direct expense of governance in transit by reducing the direct meeting expense and the cost of preparation by staff and other in supporting governance decisions. However, the basic expense of the university and municipal council governance meetings would continue.

Governance is a complex process with effectiveness determined by the legitimacy of the composition of the boards and process, the charter granted through legislation of enabling actions, as well as the relations among related institutions. In general, the consolidation of the governance process can yield a more rational and equitable transit policy across the region. This can yield ultimately more cost-effective allocation of resources and the accomplishment of transportation goals that would be beyond the power of local governing boards. On the other hand, it is well accepted that local choice and local government can yield decisions that are more carefully adapted to local conditions. Local bodies can take advantage of opportunities of smaller individual scope that may accumulate to greater importance than the larger, over-arching schemes, and can avoid the inefficiencies and waste of over-generalization. Much of the government structure from the Federal to the local level involves a balance of local choice and control on the one hand with equitable policy and unified action on the other.

E. Capital Facilities and Equipment Attributes

The consolidation implementation plan focuses at the first level on organizational consolidation rather than physical consolidation. It is axiomatic that a Regional System may choose not to consolidate real estate and physical facilities, may choose to consolidate facilities, and would, in at least some cases, revise its decision to physically centralize or decentralize functions as its service and structure evolve. However, the ability to make these decisions without institutional constraints is a benefit of organizational consolidation. A very brief review of these issues is presented here and will be further detailed in the report on Facilities and Equipment.

- **Real Estate and Facilities**

- i. **Operating bases** (revenue vehicle storage, shops, and dispatching) – the three largest bases (CHT, DATA. And CAT) would very likely continue to be operated by a regional system unless there was a major restructuring of the service. There is a significant volume of demand in centered in these sub-regions, and therefore substantial deadheading costs would be incurred if any of these three generators did not have a nearby operating base. Indeed, it is likely that if TTA participated in a Regional System, some of the blocks currently operated by TTA could more efficiently be operated from CHT, DATA, or CAT, to reduce the deadheading from the TTA base. Durham is about to break ground on a new facility and UNC has indicated it will not renew the CHT lease that expires in 2006. If the nature of the Cary service and a decision regarding outsourcing the service was conducive to physical centralization, the Cary and TTA bases could be combined at one site.
- ii. **Administrative Offices** – Administrative facilities are currently divided between the operating sites and the owner (City, Town, University, or TTA) offices. It is possible that a Regional System would have generally less expensive real estate than the city office space required for transit support, which is generally in some of the highest priced real estate markets in the region. Significant savings on this area are not foreseen.
- iii. **Other Facilities** – DATA, CAT and TTA each have passenger facilities at their hubs. A Regional System would maintain these facilities unless it determined that there was a more cost-effective allocation of funds.

- **Vehicles and Communications Systems**

Although there is some commonality among the fleet (primarily in the selection of the RTS bus), the fleets are different enough in their configurations that they probably would remain separate. A Regional System would gradually standardize the fleet, particularly regarding major bus subsystems. Consolidation would have the advantage of making a larger fleet easily available for special events.

A regional system would have some advantages over the decentralized system with regard to bus communications. Public radio frequencies are limited, and a Regional System would be able to make better use of the available frequencies by combined use of the frequencies, accomplishing whatever separation was desirable using control software.

- **Park and Ride Lots**

As with service generally, the consolidation of park and ride programs would permit the planning and development of, as well as service to, Park and Ride lots without regard to municipal boundaries or inter-system institutional constraints.

- **Bus Stops, Signage and Shelters**

Bus stops including the signs, benches, and/or shelters are relatively expensive facilities to maintain. Although the investment is not high, the time required to travel to the shelters on a responsive basis, particularly during hours when traffic will not be disrupted by roadside work, together with the exposure of these facilities to vandalism and heavy public use, makes these labor-intensive aspects of the transit facilities program. Currently, the municipal public works departments maintain some of the stop facilities, while TTA maintains its stops with its own forces. The overlap between TTA routes and other system routes requires that two crews travel the same route to maintain adjoining stops. Furthermore, the maintenance of separate signs and furniture leads to uncoordinated decisions to add equipment to the right-of-way, creating additional visual clutter and further increasing the costs of maintenance. Because of the unusual parts inventory required, particularly for shelter components, stock outs would be less frequent and the combined safety stock required could be lower in a consolidated system. A potential disadvantage would be additional deadheading required if the operations were physically consolidated, but the Regional System would weight this physical centralization like other site decisions to arrive at the most cost-effective balance between centralized and control and efficiency on the one hand and minimum deadhead on the other. Although the size of the functions is not large, consolidation of this function would be a net benefit to the region.

The generic benefits and disbenefits of consolidating each function are illustrated in the table at the beginning of this section. Consolidation of some of the functions complements consolidation of others. Thus, for example, some of the benefit of consolidating services and service planning would be lost if marketing and the customer information standards were not also consolidated.

IV. PROPOSED ORGANIZATIONAL LEVELS FOR CONSOLIDATION

Two consolidation stages are defined in this section, with the first stage described in three phases. The goal of this section is to begin the process of helping policy makers see the range of possibilities for the proposed consolidation. It is arranged in order from least amount of consolidation to the greatest level of consolidation. The entire section is presented with the possibility that at least one of the existing systems would not consolidate its functions to the same degree as the others.

This section is subject to change as the consolidation plan is developed in more detail. It should not be considered a final analysis.

The physical consolidation of operations does not necessarily accompany the organizational consolidation. For example, schedule making is organizationally consolidated in Consolidation Stage I, but schedule makers may physically be located at several operating locations.

Also, the organizational alternatives presented below do not presume a particular approach to funding the consolidated organization. While various approaches may be included in the discussion below, where relevant, they are only intended to indicate initial proposals. More detailed analysis of the financial structure of the proposed organization will be provided in Report 4.4.

Finally, the term “Regional System” is used throughout the description of the levels of consolidation. This term is intended to indicate the organization that will manage the functions to be consolidated at each level of consolidation. This report does not indicate the exact organizational structure – whether such a Regional System will be in addition to or a replacement of the current TTA. An exact determination of this organizational structure is not crucial at this phase of the planning, but will be addressed by the end of the project.

A. DESCRIPTION OF ALTERNATIVES

1. *CONSOLIDATION STAGE I: Consolidated Planning, Finance, Administration & Support*

This stage features an eventual consolidation of planning, finance, administration, demand-response and support services. The fixed route transportation and many maintenance functions would remain deconsolidated and provided by the existing systems. A seamless travel experience is included, allowing customers to experience a regional system and not have to deal with multiple transit systems for regional trips.

However, as outlined below, the stage would be carried out in three phases, the first two of which keep each transit system operationally in tact in a form similar to the status quo. The primary change in these first two phases would be increased levels of cooperation in key areas that would benefit the systems that desire to cooperate, and a consolidation of a few functions.

The first phase involves consolidation of marketing, advertising, and maintenance of bus signs, stops and shelters. The second phase is focused on delivering seamless service to the transit customer. While it is possible to accomplish the first phase without the second, current levels of cooperation in the region suggest that the entire alternative is possible for most, if not all, of the transit systems.

The attributes of each phase are presented in the table below, followed by a narrative discussion of the details of each phase of the alternative.

Phase I – Limited Consolidation of Shared Administrative Services

▪ Consolidation of Marketing and Sale of Advertising (Administrative) –

A group of marketing professionals would be employed by a joint venture administered by the Regional System to provide marketing services to multiple operating systems. Services provided by the Regional System would include:

- Overseeing the production and printing of customer timetables,
- System maps and other print pieces,

- Staffing the telephone information center(s) – specialists in each county could be assigned when more than one information operator was working, while hours could be extended more economically with one or two operators covering the entire region,
- Coordinating any storefront or other sales operations, and
- Planning and negotiating promotions and advertising of the services.

The marketing identity and appearance of the systems would remain distinct. Sales of advertising space on the buses would be pooled in order to reduce selling expenses and maximize revenue from advertisers who want region-wide coverage. The first phase of Stage I consolidation would largely depend on staff being managed in one organization, with the passenger experiencing a seamless travel experience after the implementation of phase 2.

- **Consolidated Provision and Maintenance of Bus Stops, Signage and Shelters (Capital Facilities and Equipment) –**

The Regional System would provide and maintain bus stops and shelters. This would reduce current overlap between systems, which sometimes occurs when TTA and other systems service the same or nearby stops. While distinct graphics would be maintained in Stage I, fewer stock-outs would result from inventory of standardized sign and shelter parts. Deadheading would be weighed against central control in deciding whether maintainers should be based at more than one location. In addition, consolidation may lead to opportunities for region-wide advertising revenue that can offset part of the cost of building and maintaining shelters and benches.

- **Coordinated Service Planning and Procurement (Administrative) –**

The region can move towards providing better-coordinated service and more cost-effective use of funds by coordinating service planning and procurement.

Although the central service planning function would remain accountable to the operating and funding system for service decisions, better coordination of route coverage and trip timing can evolve in a consolidated system and will enhance the transit experience for the passenger. The central schedule-making function would acquire knowledge of all the scheduling work rules and work closely with the transportation departments. It would also reinforce the independence and integrity of schedule making in the interest of convenience for the passenger and efficiency.

Joint procurement of buses would lead to standardization of components and increase the advantages of a central parts warehouse, reducing unit costs of buses, parts, and supplies and reducing stock-outs. Some limited residual

procurement authority would be left in the operating systems to remain responsive to operating requirements.

Other than in the areas above, the systems operations, administration and structure would stay largely as they are today. The costs (and, in the case of advertising sales, the revenue) would be shared among the participating systems under a joint venture agreement. The agreement would provide for current payments on an estimated unit cost basis, and might also provide for the allocation of any residual deficit or surplus annually through a “residual deficit” agreement.

Phase II – Customer-Oriented Seamless Service

- **Provision of Coordinated Passes and Fares (Service) –**

Pass sales and fares would be coordinated to allow a passenger to travel seamlessly throughout the region, without having to purchase multiple tickets. Differing fare structures, including free fares where desired, could be maintained, as the funding and service responsibility would remain with the operating systems.

- **Coordination of Service Nomenclature and Livery, and Graphics –**

Route naming and numbering schemes would be changed as needed so that coordinated information would be clearly communicated to riders wanting to travel across the region and a unified system of graphics color schemes would be developed to retain an identification of the sub-regions so that passengers could identify their home routes and territories, but would feel confidence in the seamless nature of the system as they traveled between sub-regions. Operator uniforms, signage and vehicle colors would be standardized across the region, with an appropriate role for the sub-regional identity.

- **Consolidated Paratransit Eligibility Determination –**

Determination of paratransit eligibility would be consolidated, with one position to handle the region-wide effort. Medical reviews would still happen locally.

- **Unified Marketing –**

The Marketing department would develop a unified customer information system that would link the services together through a common telephone information number and web site. A Triangle region identity would be developed through the common logo, but could be augmented by reference to each local operating system. A regional system map, and complete uniformity

of presentation of services regardless of the operating system would be promoted.

This phase would require an initial investment in development of the common system, and agreements would provide for the clearance of revenue from shared fare instruments. The other costs would be shared as in phase 1, most likely with a residual deficit agreement.

Phase III – Consolidated Planning, Demand-Response, Finance, Administration & Support

The key changes are as follows:

- **Consolidation of Administrative and Management Services (excluding Operations and Maintenance) –**

Most aspects of administration and management would be consolidated, including finance, accounting, purchasing, risk management, insurance, grants administration, legal, government affairs, route and schedule planning, human resources, engineering and long range planning services. These functions would be organized in a Regional System for which the legal form is to be decided. The physical assets of the transit systems would be transferred to the Regional System and Federal and state transit funding would flow to the Regional System.

- **Consolidation of Demand-Response Services –**

In addition to the eligibility determination already handled by the Regional System, this phase envisions the Regional System managing and providing the contracts for the demand-response services. This will enable some competitiveness in demand-response contracts. Examples of this include the use of multiple taxi services for portions of the demand response service, as well as the possibility of region-wide contracts that would be more desirable to national paratransit contractors. Region-wide, inter-city demand-response trips will be greatly facilitated by having consolidated demand-response management and operations.

- **Consolidation of Fare Box and Body Shop Maintenance –**

Providing all fare box and body shop maintenance in one location would improve the efficiency of these services for the region as a whole and would be included in the Regional System.

- **Provide and Manage Operations and Maintenance at the Local Level –**

The existing operating and maintenance functions of the current transit systems would largely remain in tact, including the localized supervision currently provided for these functions. The Raleigh and Durham management and service contracts would remain in place, but the rights and obligations would be effectively assigned to the Regional System, and labor forces for operations and maintenance would be managed locally.

Similarly, the operations of the non-represented work forces would remain with the other respective municipalities or TTA, but the shared revenue and costs would be cleared through the new Regional System. I.e., the employers of the operators and maintenance people would be assisted in their labor and other costs through a regional allocation of costs and revenues.

▪ **Local Service Responsiveness –**

The Regional System would establish service advisory bodies in each county that would conduct public meetings, could hear passenger suggestions, and would advise the Regional System on service issues within the county. The initial composition could replicate the transit authority boards from the principal municipalities in each county, with proportionate appointments by the units of general-purpose government in the respective county upon the expiration of the initial terms.

The Regional System would be financially independent, although it could be legally housed at TTA or another new or existing regional organization. Federal, state, and passenger revenues would accrue to the new entity. Until a new source of regional transit funding is provided, it would have a residual cost agreement with the existing systems, similar to the agreements in the earlier phases. The agreement would provide for the allocation of revenue as well as costs. A capital renewal fund would be established with annual funding by the participating systems.

Stage I does not require all systems to participate for it to achieve many of its goals. Systems that do not desire full participation could have a limited relationship with the new organization, but could purchase marketing, planning, administrative, and support services from the new agency in a manner similar to phase 1 of the stage. It would participate in those aspects of the consolidated agency that were deemed beneficial.

2. ***CONSOLIDATION STAGE II:
Consolidated Organization***

This second stage features nearly complete consolidation of most aspects of administrative and support services, as well as operations and maintenance. As in Stage I, it is possible for one or more systems to choose a more limited relationship with the new organization, if desired. The key features are as follows:

- **Consolidation of Administrative and Management Services –**

All aspects of administration and management would be consolidated, with service planning carried out at the central level with the exception of one transit entity.

- **Consolidation of Operations and Maintenance–**

Operations and maintenance would be coordinated and managed centrally, although local bases of operations and maintenance would continue throughout the region in order to maintain efficient provision of service. Management and service contracts would continue to be utilized by the Regional System where appropriate to protect the rights of current work forces.

The Regional System in this case could be a reorganized TTA or a newly created regional agency. Until a new source of regional transit funding was identified for the agency, it would be funded through a residual deficit agreement similar to that in Levels I and II.