

## Peer Analysis

A peer analysis was conducted in order to compare DATA's existing transit service statistics to similar transit agencies in the region. The data source used for this analysis was the National Transit Database (NTD). All agencies that accept Federal funds are required to report service statistics to NTD, which allows for a consistent comparison of data across various agencies. NTD data from 2009, the latest year available, was used for this analysis.

A total of seven peer transit agencies were selected for comparison to DATA. These seven are similar in both size of the service area population and the amount of service operated by the agency. They are also all located in the southeast US. A mix of both directly operated and purchased transportation agencies were used for comparison.

Agencies for comparison include:

- WSTA in Winston-Salem, NC
- GTA in Greensboro, NC
- KVRTA in Charleston, WV
- CAT in Savannah, GA
- CARTA in Chattanooga, TN
- KAT in Knoxville, TN
- CMRTA in Columbia, SC

Operation statistics for fixed route bus service for DATA, the seven peer agencies, and the peer mean, are shown in Table 1.

The peer comparison was conducted for nine categories. The first four categories are basic measures of an agency, and may be thought of as classification measures, used to determine the relative size of the operation: the number of passenger trips, passenger miles, revenue hours, and revenue miles that the agency operates. The next two categories are measure of the agency's service efficiency: passenger trips per revenue hour and passenger trips per revenue mile. The final three measures are of financial efficiency: operating cost per passenger trip, operating cost per revenue hour, and farebox recovery. Together these measures provide a picture of some of DATA's strengths and weaknesses as an agency.

**Table 1: 2009 NTD Fixed Route Service Statistics**

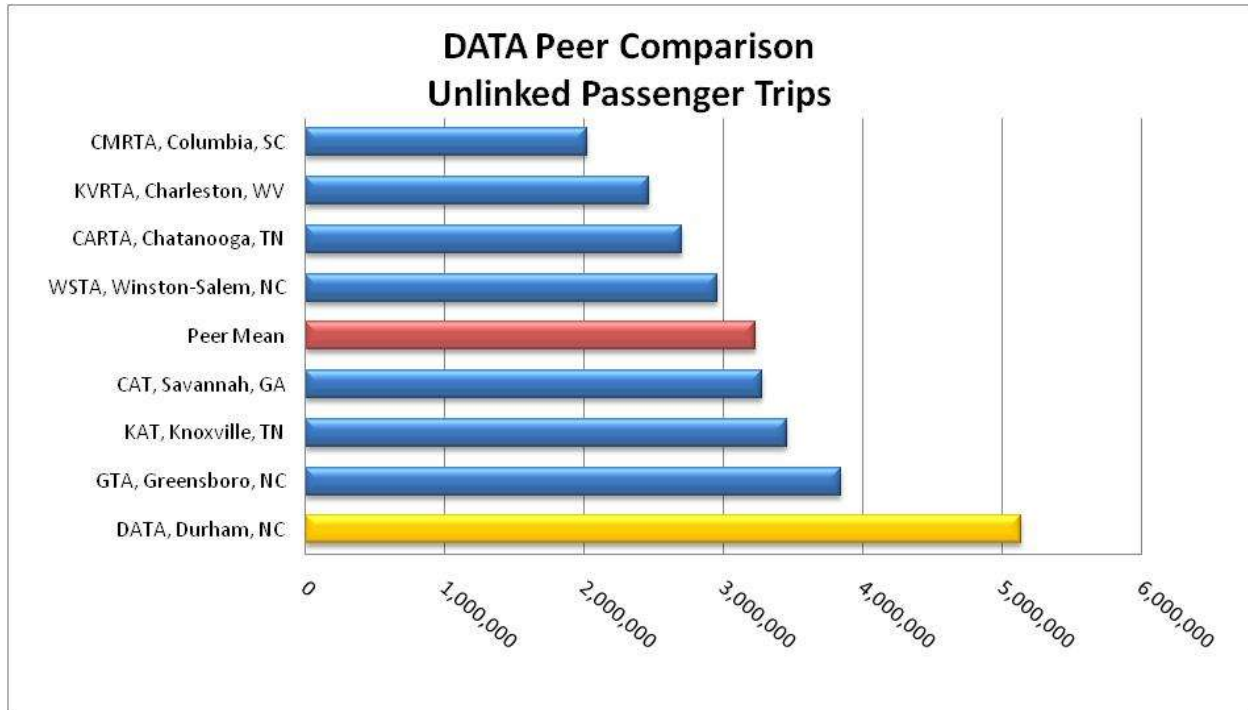
Agency	DATA	WSTA	GTA	KVRTA	CAT	CARTA	KAT	CMRTA	
City	Durham, NC	Winston-Salem, NC	Greensboro, NC	Charleston, WV	Savannah, GA	Chattanooga, TN	Knoxville, TN	Columbia, SC	<i>Peer Mean</i>
NTD Number	4087	4012	4093	3001	4025	4001	4002	4053	
Type of Service	Purchased	Directly Operated	Purchased	Directly Operated	Directly Operated	Directly Operated	Directly Operated	Purchased	
Service Area Population	287,796	299,290	267,884	182,991	208,886	343,509	419,830	420,537	
Unlinked Passenger Trips	5,130,756	2,957,172	3,839,008	2,462,650	3,277,504	2,698,366	3,454,995	2,019,912	3,230,045
Passenger Miles Traveled	20,017,877	6,255,072	14,703,400	14,938,694	12,049,917	9,779,836	13,750,880	10,587,257	12,760,367
Average Passenger Trip Length	3.9	2.1	3.8	6.1	3.7	3.6	4.0	5.2	4.1
Vehicle Revenue Hours	173,784	130,144	153,777	141,696	200,794	150,766	217,085	107,712	159,470
Vehicle Revenue Miles	2,631,476	1,465,897	2,139,386	2,380,503	2,509,438	2,066,529	2,598,296	1,540,757	2,166,535
Passenger Trips Per Revenue Hour	29.5	22.7	25.0	17.4	16.3	17.9	15.9	18.8	20.4
Passenger Trips Per Revenue Mile	1.9	2.0	1.8	1.0	1.3	1.3	1.3	1.3	1.5
Operating Costs Per Passenger Trip	\$3.06	\$3.12	\$3.21	\$4.00	\$4.11	\$4.81	\$4.04	\$4.34	\$3.84
Operating Costs Per Revenue Hour	\$90.33	\$70.81	\$80.21	\$69.51	\$67.07	\$86.18	\$64.31	\$81.31	\$76.21
Operating Expenses	\$15,697,670	\$9,215,638	\$12,334,455	\$9,849,851	\$13,466,879	\$12,992,319	\$13,959,934	\$8,757,587	\$12,034,292
Fare Revenues	\$2,716,568	\$1,705,139	\$1,907,523	\$1,955,012	\$3,019,355	\$1,619,350	\$1,306,783	\$1,808,479	\$2,004,776
Farebox Recovery	17.3%	18.5%	15.5%	19.8%	22.4%	12.5%	9.4%	20.7%	16.7%

### Unlinked Passenger Trips

Unlinked passenger trips is a simple measure of how many passengers the agency is carrying in a particular year. DATA, with 5.1 million passenger trips in 2009, ranks first out of the eight agencies considered. The closest agencies to DATA are GTA in Greensboro (3.8 million) and KAT in Knoxville (3.5 million). CMRTA in Columbia has the lowest number of unlinked passenger trips at 2.0 million.

Table 2 displays unlinked passenger trips for the eight agencies and the peer mean.

**Table 2: Unlinked Passenger Trip Peer Comparison**



### Passenger Miles Traveled

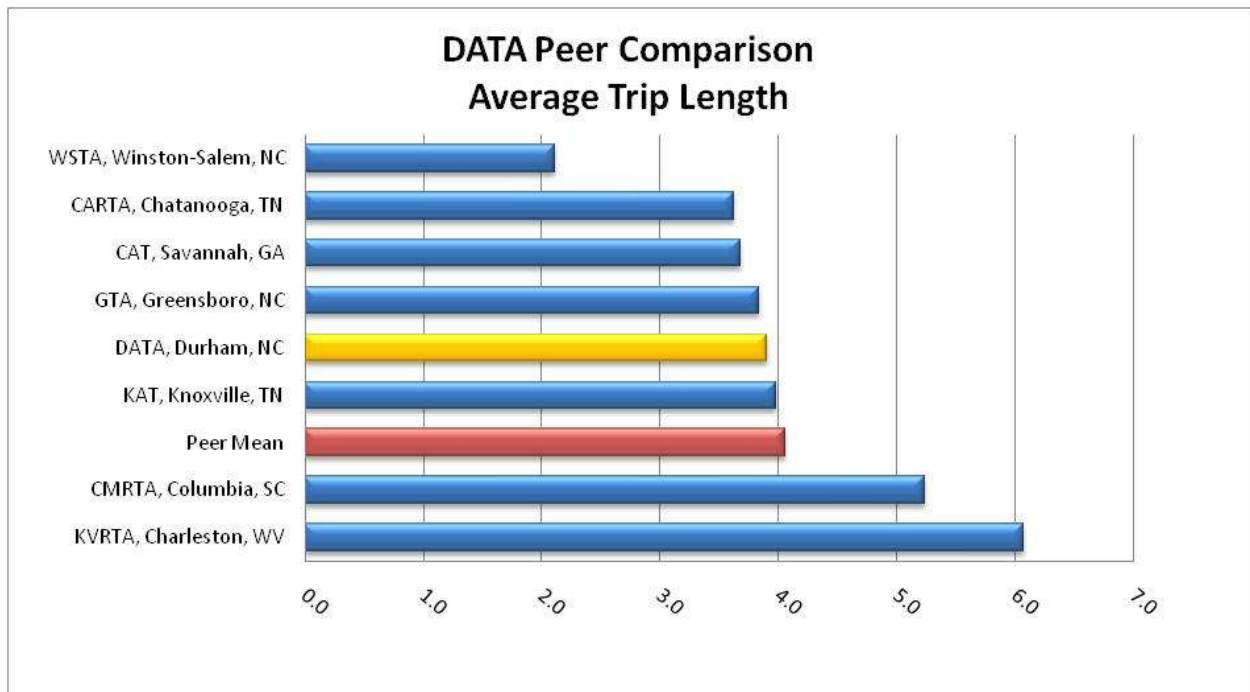
Passenger miles traveled, similar to unlinked passenger trips, is a simple quantification of the amount of service an agency provides. However, passenger miles traveled is a function of two variables – total passenger trips and passenger trip length. Obviously, the more trips carried by an agency, the more total passenger miles. DATA again ranks first out of the eight agencies considered with 20.0 million passenger miles. However, DATA has the fourth highest average trip length of the peer agencies, 3.9 miles per trip, which means DATA is providing shorter trips than some of its peers. The agencies with longer average trip lengths than DATA provide either regional service (CMRTA and KVRTA) or express commuter bus services (KAT). In Durham these services are provided by Triangle Transit, while DATA provides service for people making shorter trips within Durham.

Table 3 displays passenger miles traveled for the eight agencies and the peer mean. Table 4 displays average passenger length for the eight agencies and the peer mean.

**Table 3: Passenger Miles Traveled Peer Comparison**



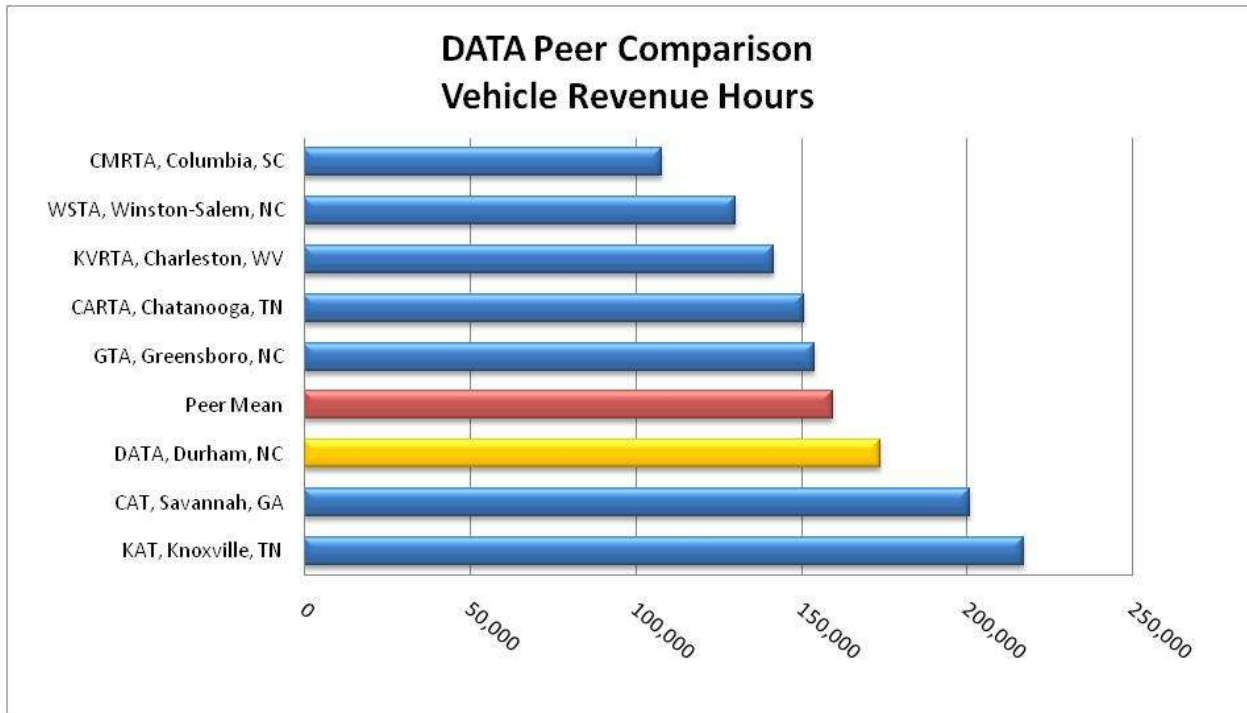
**Table 4: Average Trip Length**



### Vehicle Revenue Hours

Vehicle revenue hours are a measure of the amount of service the agency provides in terms of hours of service. DATA, operating 173,000 vehicle revenue hours, ranks third out of the eight agencies. Table 5 displays vehicle revenue hours for the eight agencies and the peer mean. The table shows a gap between the top three agencies (DATA, CAT in Savannah, and KAT in Knoxville) and the remaining five. There is a correlation between revenue hours and unlinked trips, as the top three agencies here are ranked in the top four for unlinked passenger trips.

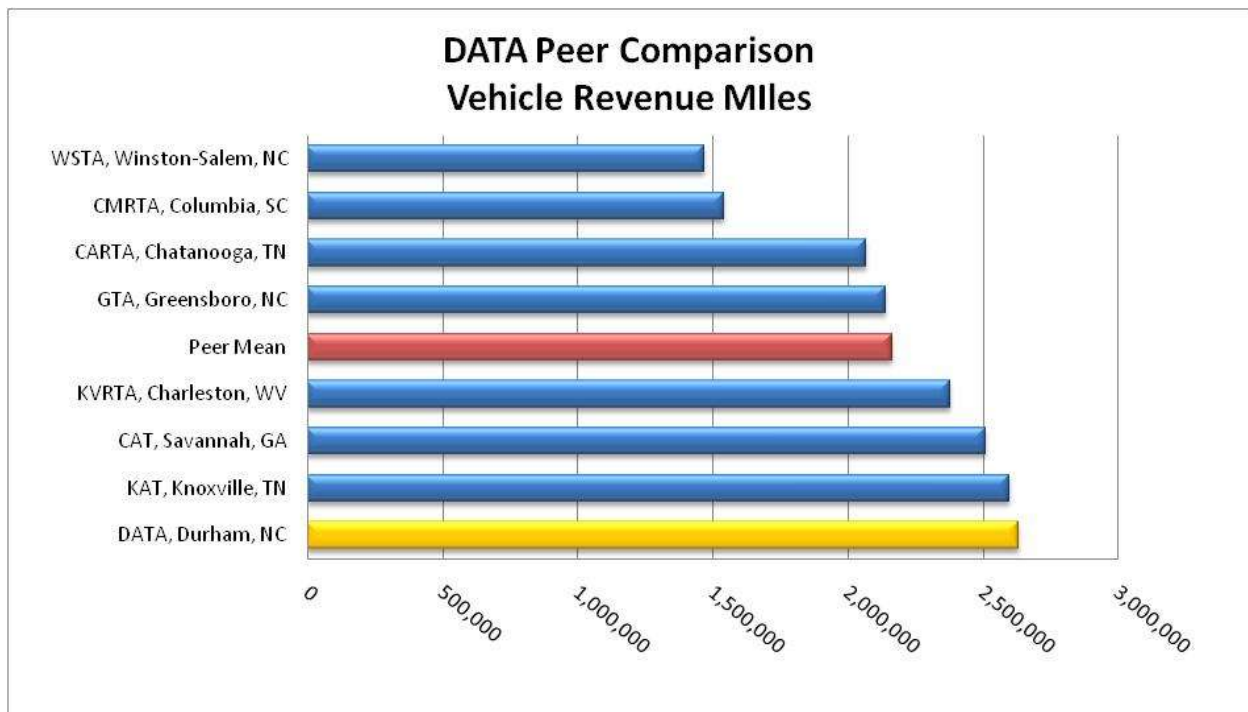
**Table 5: Vehicle Revenue Hour Peer Comparison**



## Vehicle Revenue Miles

Vehicle revenue miles are another measure of service levels for a transit agency. Interestingly, DATA is ranked first out of the eight agencies for revenue miles, but third in revenue hours. Thus, the agency is operating more revenue miles relative to revenue hours than its peers. This could indicate that DATA is providing more service to the peripheral areas of the city than its peers, but using fewer revenue hours to do so because travel speeds are faster than in the core. Table 6 displays vehicle revenue miles for the eight agencies and the peer mean.

**Table 6: Vehicle Revenue Mile Peer Comparison**

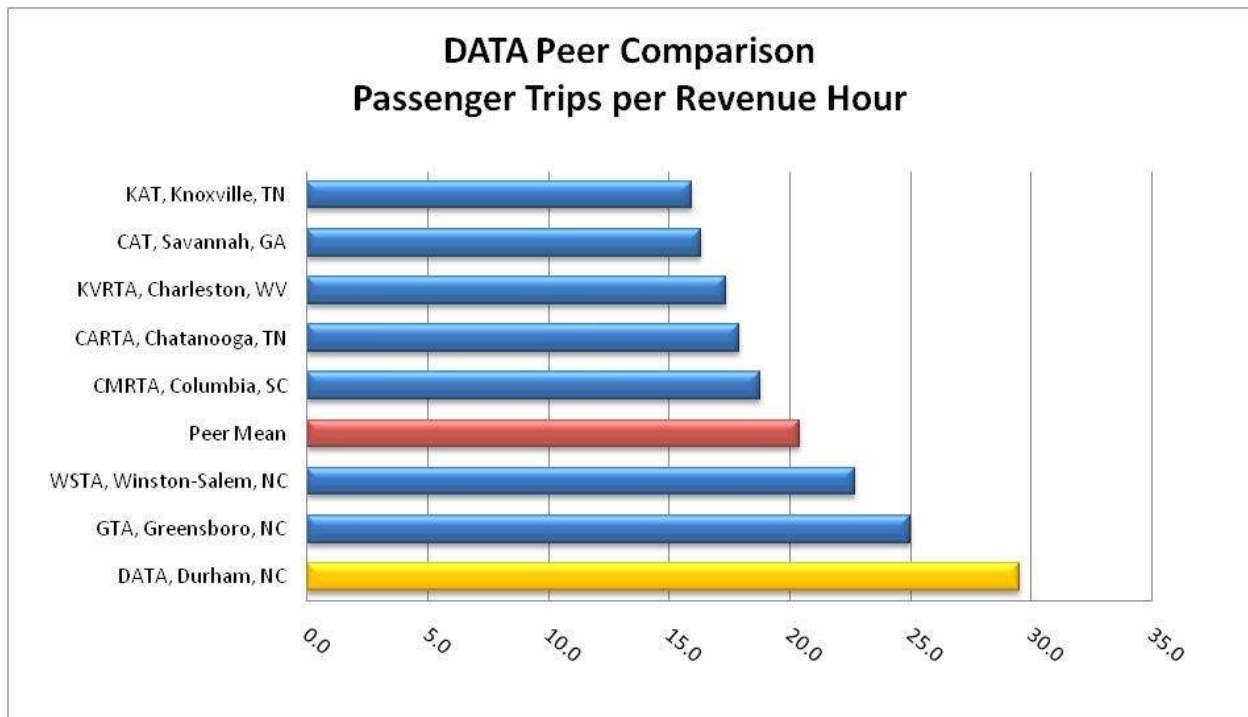


### Passenger Trips per Revenue Hour

Passenger trips per revenue hour is a measure of service efficiency. It is the number of trips the agency has relative to the hours of service operated. If an agency is operating short routes in a small, dense urban core, passenger trips will be high relative to the hours it takes to serve that area. Conversely, an agency that operates routes in a suburban or exurban area will have fewer trips which require more revenue hours.

DATA, with an average of almost 30 passengers per revenue hour, performs better than all of the other peer agencies on this measure. This is a favorable indicator meaning DATA's is serving areas in Durham where they are likely to pick up the most riders. Table 7 displays passenger trips per revenue hour for the eight agencies and the peer mean.

**Table 7: Passenger Trips per Revenue Hour Peer Comparison**

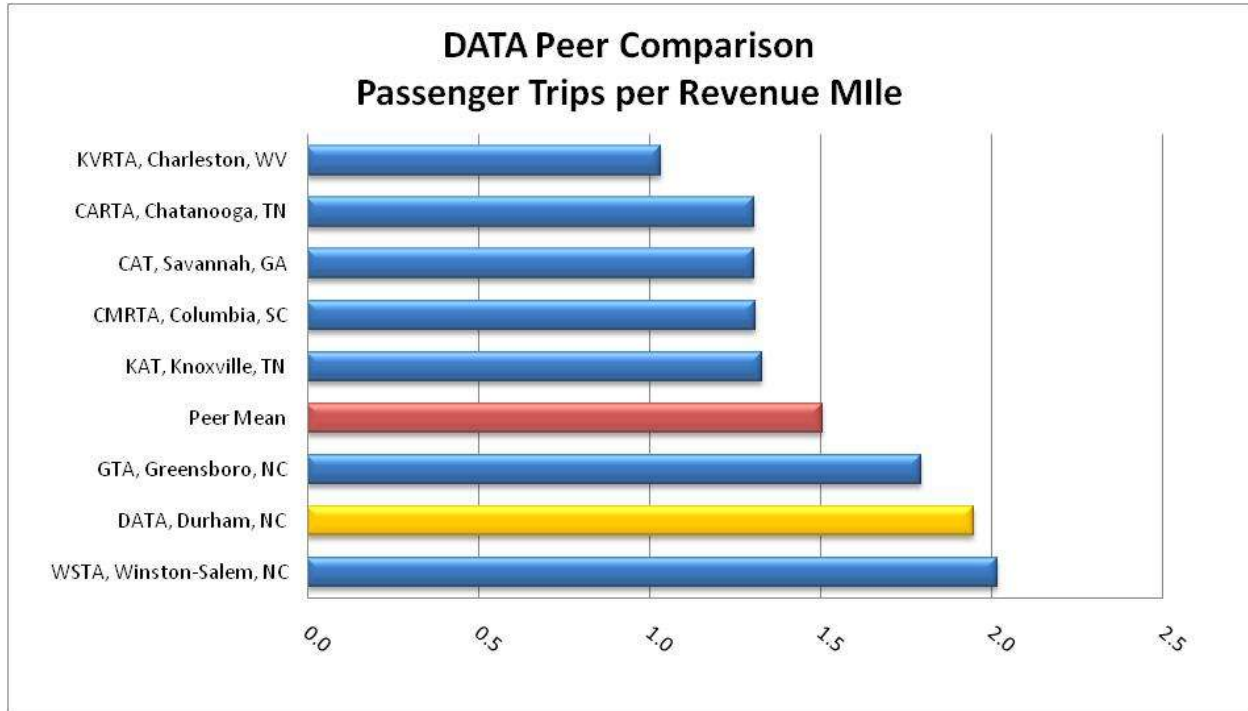


### **Passenger Trips per Revenue Mile**

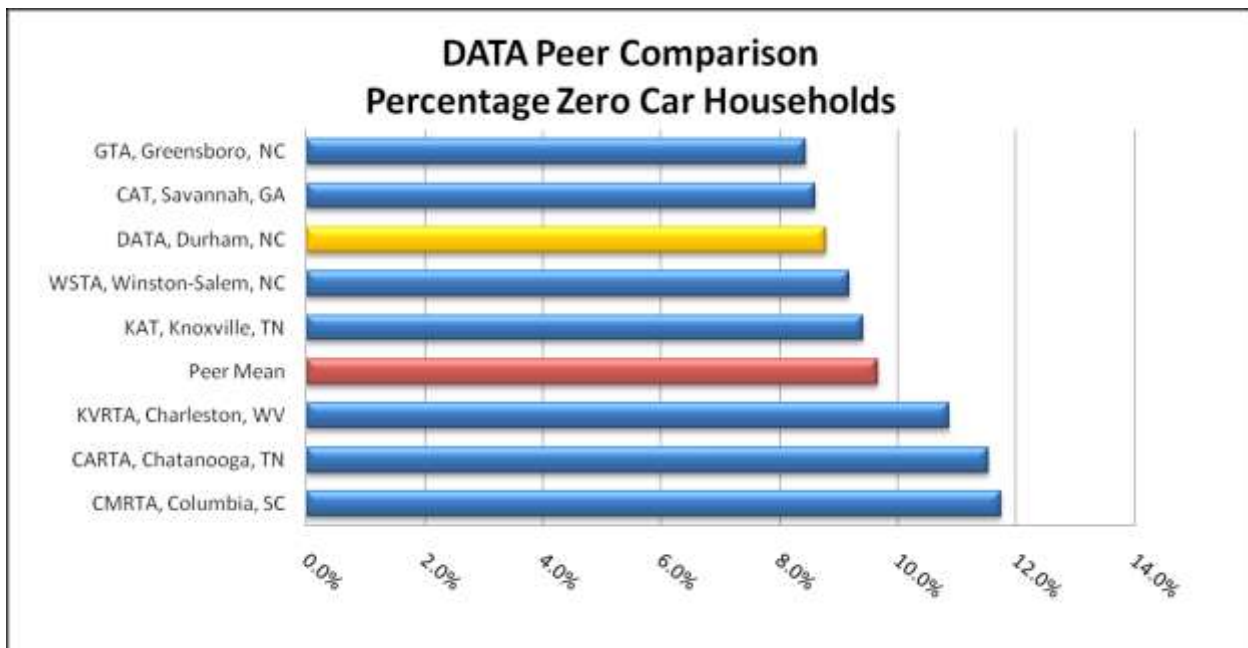
Passenger trips per revenue mile is a similar measure of efficiency, but considers the number of miles of service that the agency is operating relative to number of passengers being picked up. It can be considered a measure of the density of an agency's service area, but this discounts the fact that differences in the population served, in terms of income level and other factors, could make the number of passenger trips per revenue mile increase or decrease, irrespective of the density level. An agency with a large, sprawling service area could have a large number of passenger trips, but would also be operating many revenue miles to serve those passengers.

In 2009 DATA averaged 1.9 passenger trips per revenue mile, the second best among the peer agencies. It should be noted that GTA in Greensboro was ranked third and WSTA in Winston-Salem ranked first in this category. A comparison of the percentage of zero vehicle households within each agency's service area shows that the three North Carolina communities, in addition to Savannah GA, also have relatively fewer residents without access to a private automobile than the other peers. Thus, it appears the three North Carolina agencies in the comparison have a denser service area than some of the other agencies in the analysis Table 8 displays passenger trips per revenue mile for the eight agencies and the peer mean. Table 9 displays percentage of zero vehicle households for the eight agencies and the peer mean.

**Table 8: Passenger Trips per Revenue Mile Peer Comparison**



**Table 9: Zero Vehicle Households Peer Comparison**



Source: ACS 2005-2009

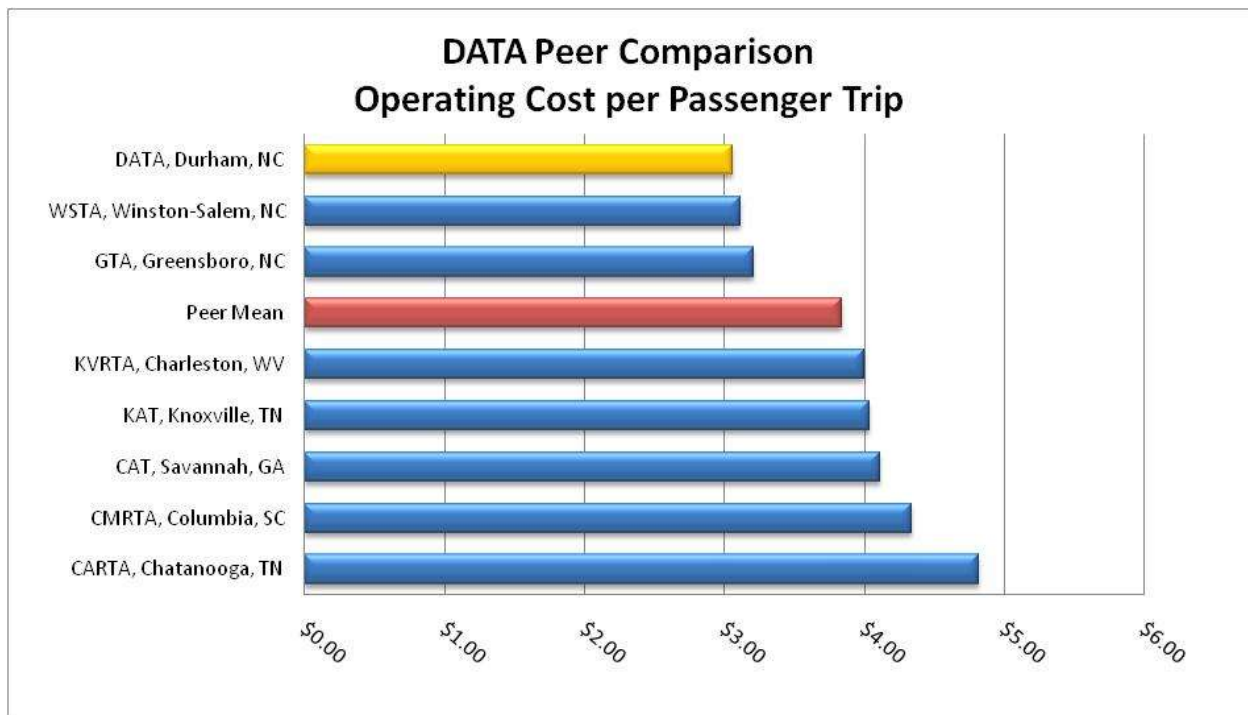
### Operating Cost per Passenger Trip

The operating cost per passenger trip reflects the how much an agency is spending relative to the riders using the system. DATA, with a calculated cost of \$3.06 per passenger trip, has the lowest cost per passenger trip of the eight considered agencies. This means that relative to its peers, DATA is spending less and generating more ridership than other comparable agencies.

The cost per passenger trip comparison is where the differences between purchased transportation (PT) and directly operated (DO) transportation should be noted. Traditionally, costs are higher for DO agencies than PT agencies. This is usually related to the cost for labor, which is the biggest driver of overall cost. DATA purchases its fixed route transportation, and its operating cost per trip indicates that the agency is getting a very good return on its transit dollars spent by providing service to a large number of passenger trips.

Table 10 displays operating cost per passenger trip for the eight agencies and the peer mean.

**Table 10: Operating Cost per Passenger Trip Peer Comparison**

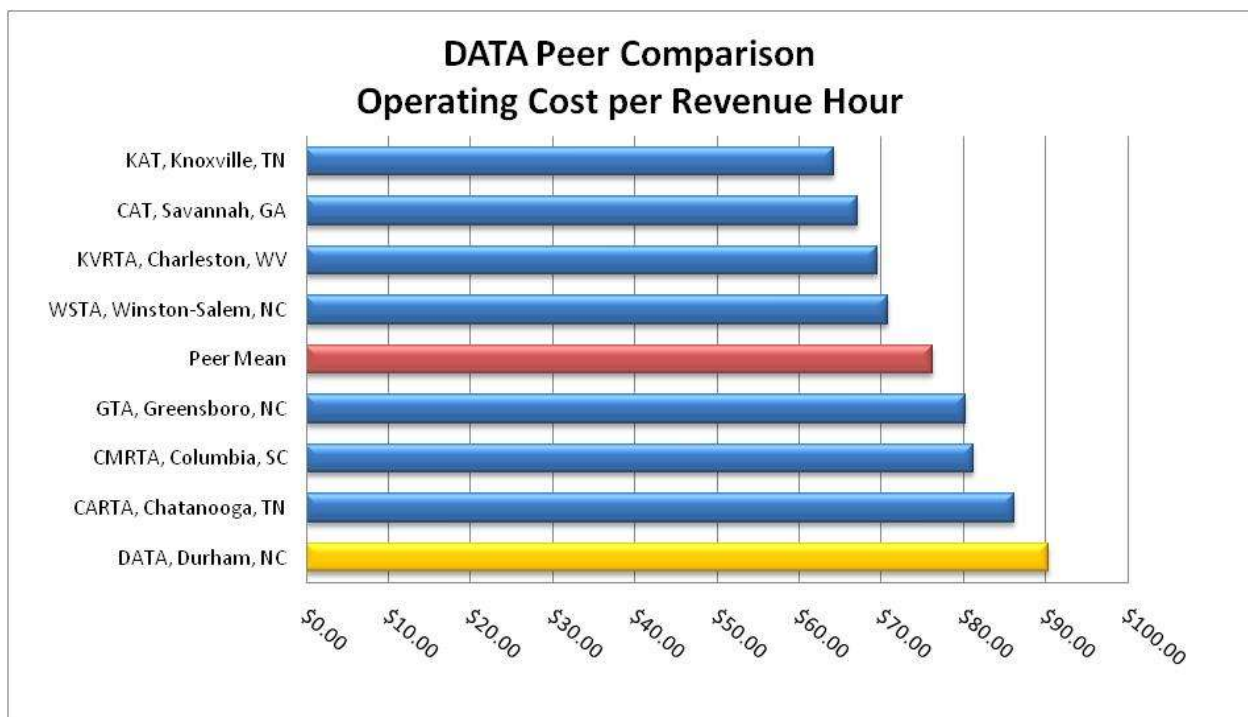


### Operating Cost per Revenue Hour

The operating cost per revenue hour is a calculation of cost relative to the amount of service hours an agency is operating. Because operated revenue hours is the denominator, this measure is related to the cost of labor required to operate the service. DATA, with a calculated cost of \$90.33 per revenue hour, has the highest cost of the eight considered agencies. DATA's cost is 4.8 percent higher than the second highest cost agency in this category, CARTA in Chattanooga.

DATA's rank here is a bit surprising considering its ranks in other categories indicate a very efficient agency. However, these costs may be tied to its service contract. Table 10 displays operating cost per revenue hour for the eight agencies and the peer mean.

**Table 10: Operating Cost per Revenue Hour Peer Comparison**



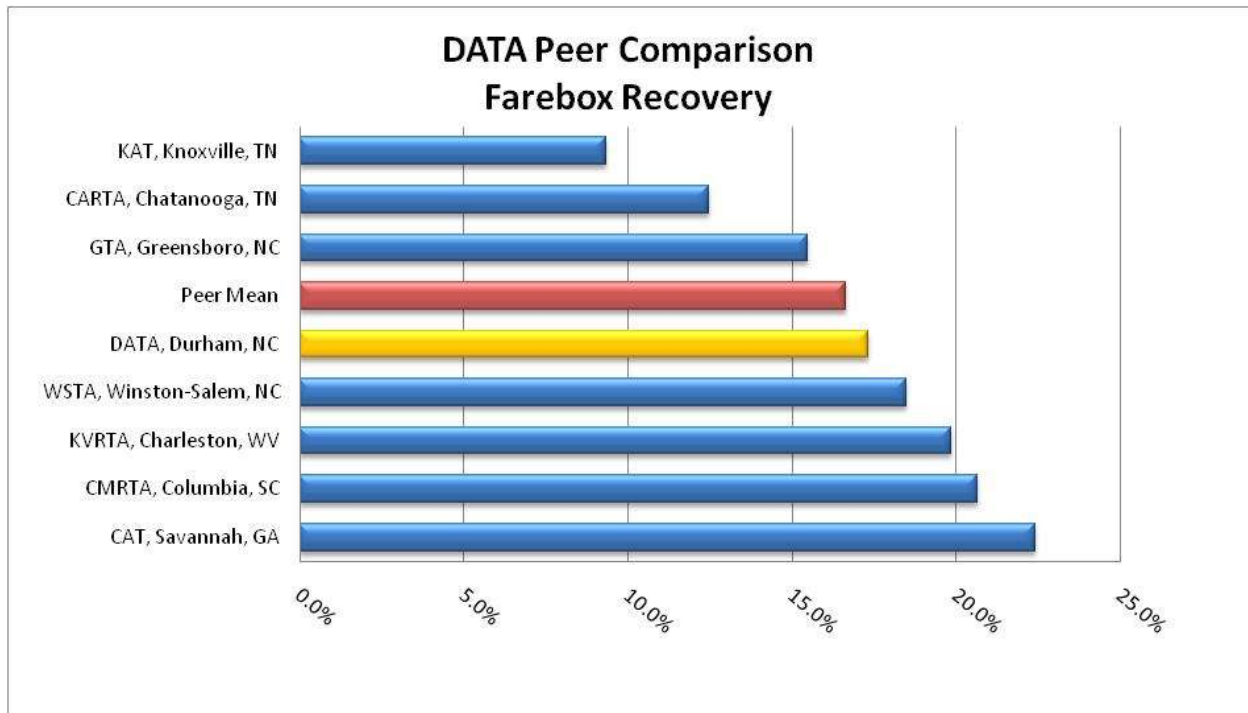
### Farebox Recovery

Farebox recovery is the percentage of the total operating cost covered by fare revenues. It is directly related to the number of paying passengers and the operating costs of the agency. Thus, an agency that has low operating costs and many paying passengers would have a high farebox recovery.

DATA ranks fourth out of the eight considered agencies, with a calculated farebox recovery ratio of 17.3%. The farebox recovery rank is logical considering DATA’s high cost per revenue hour and high number of passenger trips. In other words, DATA has higher costs than its peers, but is providing enough trips to improve its farebox recovery rank in comparison with its peers.

Two of the three top peers in this category (Charleston WV and Columbia SC) are amongst the lowest in overall revenue hours operated. There is a correlation between low revenue hours and high farebox recovery for these peers because low revenue hours and high farebox recovery indicate the agency is operating at a very low frequency and serving mostly captive riders. The potential for a low farebox recovery is greater when more revenue hours are operated.

**Table 11: Farebox Recovery Peer Comparison**



## **Peer Analysis Conclusions**

This peer analysis indicates DATA performs better than most peers for many of the selected performance measures. DATA ranked at or near the top in terms of passenger trips, passenger miles, revenue miles, trips per hour and cost per passenger trip. The indication is that DATA transports a high number of passengers relative to the cost and amount of service provided.

The only category in which DATA performs poorly compared to its peers is in cost per revenue hour. However, as discussed earlier in this section, DATA's relatively higher costs in this category may be related to its purchased transportation contract.

DATA's strong performance is especially significant when considering that it has a smaller service area population than most of the peers, because a larger service area population means there are more potential riders. The fact that DATA provides more passenger trips and is generally more efficient with its service signifies that it is outperforming larger regions in system performance.

In the future DATA should continue to monitor these peers to ensure the agency is performing at a high level. DATA should also identify one or more aspiration peer agencies that perform better than DATA as a target for future performance improvements. A possible aspiration peer agency might be LexTran in Lexington, KY, which has a smaller service area population but provided more than 6 million trips in 2009. LexTran also operates more revenue hours but has a higher passenger trips per revenue hour performance statistic than DATA and a lower operating cost per passenger trip and per revenue hour.

## Durham Area Transit Network

The city of Durham is one of three vertices that, together with the city of Raleigh and the town of Chapel Hill, form the region known as The Triangle. DATA's fixed route service is largely confined to the City of Durham, with a few routes extending beyond the city's boundary to serve nearby destinations or to facilitate regional connections. However, a number of other transit operators provide transit service within The Triangle region in addition to DATA. Triangle Transit and Duke Transit provide service within the city of Durham, while Capital Area Transit (CAT) and Chapel Hill Transit (CHT) serve their respective communities within the region.

Figure 21 depicts the regional transit network within the city of Durham. Table 12 indicates locations on each of DATA's routes that provide opportunities to transfer to other regional transit operators. The services provided by Duke Transit, Triangle Transit, CAT and CHT are described below.

### Duke Transit

Duke Transit provides free fare transit service to students, faculty and staff of the university. During the academic year, Duke Transit operates more than 30 buses connecting the East, West, Central and Medical Center campuses. The Robertson Scholars route provides an express connection between Duke and UNC-Chapel Hill for members of both universities. Additional routes connect the Duke campus to the surrounding community. Hospital routes, which are operated year round, connect parking lots and garages to the North and South hospitals and administrative buildings on the Medical Campus.

### Triangle Transit

Triangle Transit is a regional entity that was formed with the express purpose of providing regional transit service to the Raleigh-Durham-Chapel Hill area. Triangle Transit provides regional fixed route, express, and paratransit services, as well as a shuttle system serving Research Triangle Park. The agency also facilitates an extensive vanpool service and emergency ride home program for commuters.

Triangle Transit routes that serve the city of Durham or provide connections with DATA routes include:

#### Route 400: Durham-New Hope Commons-Chapel Hill

This route is operated Monday-Saturday between Durham Station and UNC-Chapel Hill, and serves Duke University, the Duke and VA Hospitals, South Square Shopping Center, New Hope Commons, and the UNC Hospitals.

#### Route 405: Durham-Chapel Hill

The route is operated Monday-Friday between Durham Station and UNC-Chapel Hill. It serves Duke University and the Duke/VA Hospitals, but provides a more direct trip between Durham and Chapel Hill than Route 400.

#### Route 700: Durham-RTC

This route is operated Monday-Saturday between Durham Station and Triangle Transit's Regional Transit Center via the Durham Freeway. The route serves North Carolina Central University (NCCU), Durham Technical Community College, and Research Triangle Park.

#### Route 800: Chapel Hill-Southpoint Mall-RTC

This routes is operated Monday-Saturday between UNC-Chapel Hill and the Regional Transit Center at Research Triangle Park. A transfer to DATA Route 7 is possible at Southpoint Mall.

Route 805: Chapel Hill-Woodcroft-RTC

This route operates Monday-Friday between UNC-Chapel Hill and the Regional Transit Center at Research Triangle Park. It is possible to transfer to DATA Routes 10 and 12 at Woodcroft Shopping Center and Fayetteville Rd/Highway 55.

DRX: Durham-Raleigh Express

This express route is operated Monday-Friday between downtown Raleigh and Duke University via Durham Freeway. The route serves the Duke/VA Hospitals, Durham Station and NC State University.

Triangle Transit also maintains a number of park and ride lots throughout the region, as shown in Figure 10. Triangle Transit park and ride lots within the city of Durham include the Regional Transit Center adjacent to Research Triangle Park, the American Tobacco North Parking Deck next to Durham Station, Patterson Place, and Southpoint Mall. There is no charge for use of these park and ride facilities, but a gate card must be obtained from Triangle Transit to park at the American Tobacco North Parking Deck.

**Capital Area Transit**

Capital Area Transit (CAT) provides transit service to the city of Raleigh. DATA riders can connect to CAT services (Route 70e) Monday through Saturday at the Brier Creek Shopping Center and Alexander Promenade Walmart.

**Chapel Hill Transit**

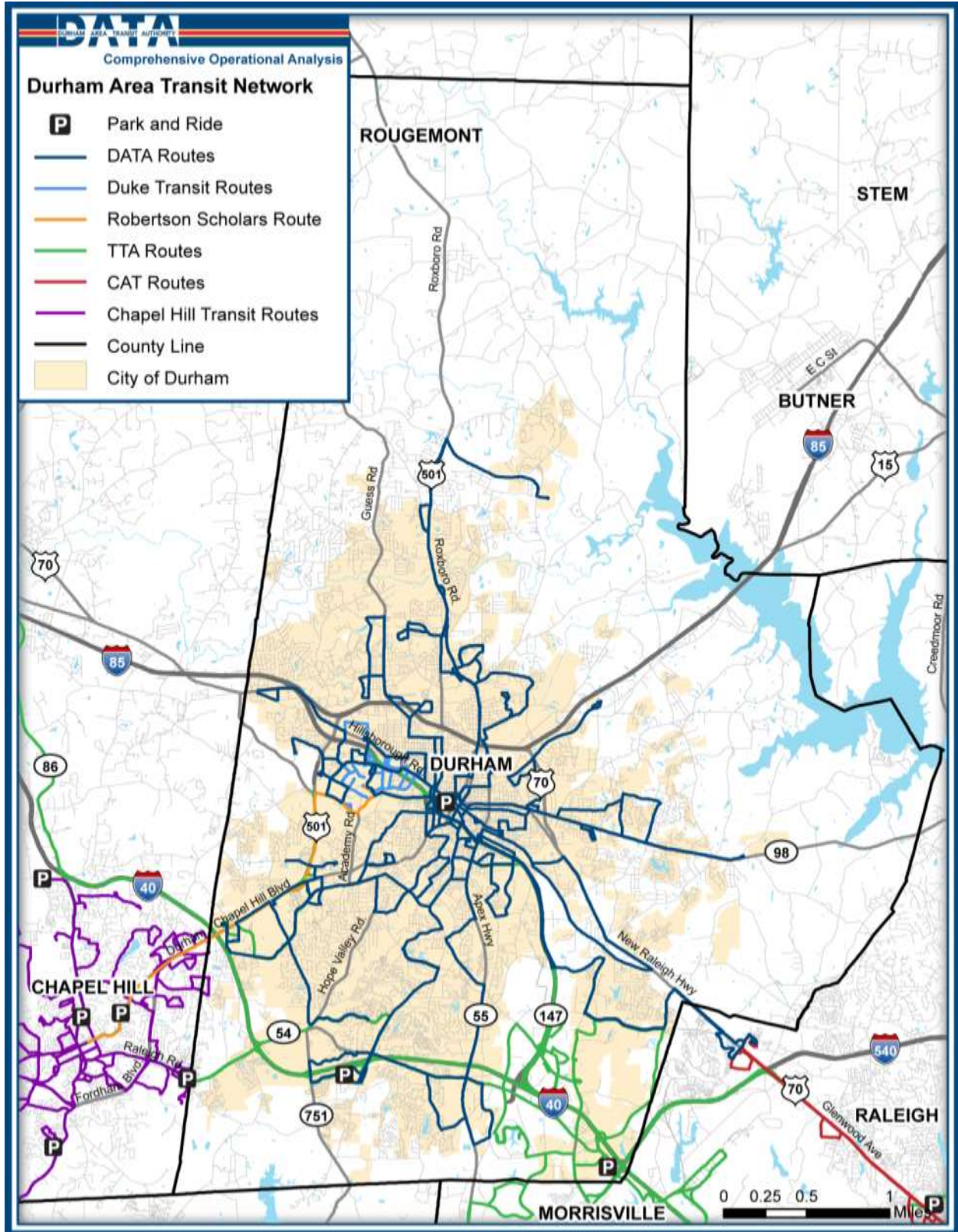
Chapel Hill provides fare free fixed route transit service to Chapel Hill, Carrboro and the University of North Carolina. There are no opportunities for transfers between DATA and Chapel Hill Transit systems.

**Table 12: DATA Regional Transfer Locations**

Route	Regional Transfer Locations
1	TT at Durham Station
2	TT at Durham Station
3	TT at Durham Station
4	TT at Durham Station
5	TT at Durham Station, South Square Shopping Center
6	TT at Durham Station and Duke/VA Hospital
7	TT at Durham Station, Southpoint Mall
8	TT at Durham Station, NCCU, Durham Tech
9	TT at Durham Station
10	TT at Durham Station , South Square Shopping Center, New Hope Commons, Woodcroft Shopping Center
11	TT at Durham Station and Duke/VA Hospital
12	TT at Durham Station, NCCU, Highway 54/Highway 55
13	TT at NCCU, Durham Tech
15	TT at Durham Station, CAT at Alexander Promenade
16	TT at Durham Station
16B	TT at Durham Station
17	-
BCC	TT at Durham Station



Figure 21: Durham Area Transit Network



## Route Level Analysis

The DATA fixed route system includes 52 buses providing over 15,000 passenger trips daily on 18 bus routes. In addition to its regular fixed routes, DATA provides several tripper services to serve area high schools and employment locations. DATA fixed route services can generally be categorized as follows:

**Higher frequency line-haul:** These routes are operated Monday-Saturday on a 30-minute headway during the day and 60-minute headway during the evening. Sunday service is operated on the same frequency as weekday and Saturday evening service. All higher frequency routes originate at Durham Station, facilitating transfers throughout the system. In general, these routes serve the higher density, closer-in areas of the city.

DATA's higher frequency line-haul routes are the routes numbered 1 through 11.

**Lower frequency line-haul:** These routes are generally operated Monday-Saturday on a 60-minute headway. Sunday service is provided on most lower frequency line-haul routes, including routes 12, 13, 16 and 17. Unlike the higher frequency line-haul routes, not all lower frequency routes originate at Durham Station. In general, these routes provide connections to destinations in the lower density, peripheral areas of the city.

DATA's lower frequency line-haul routes are the routes numbered 12 through 17.

**Bull City Connector:** This fare free route is operated Monday through Saturday between Duke University and downtown Durham. The Bull City Connector operates on a 15-minute headway during the day and a 20-minute headway during the evening and on Saturday.

**Tripper Routes:** These routes provide limited service to schools or employers at select times during the day. Tripper services are generally operated Monday-Friday or on instructional school days.

Service characteristics for DATA's regular fixed routes are shown below in Table 13. Performance statistics for DATA's fixed route system, including annual ridership, passengers per revenue hour and passengers per revenue mile, are shown in Table 14. Tables 15-17 provide rankings of each route by performance statistic and day type. Annual ridership and route productivity measures were calculated from GFI farebox reports and revenue hours and miles for FY 2011. Productivity, as measured by passengers per revenue hour, is shown for weekday, Saturday, and Sunday service in Figures 22-24.

As a whole, the system performs well in terms of productivity. Only two routes, #16B and #12B (which was incorporated with #12 beginning with the August 2011 service period), carried fewer than 10 passengers per boarding hour on weekdays. Routes serving areas to the north and northeast of downtown Durham are generally more productive than those serving the more sprawling areas in southwest and southeast Durham. Throughout the system, routes serving the denser, closer-in areas of the city perform better than those that serve destinations near the city's boundaries. Routes that do not connect with Durham Station, #13 and #17, are among the least productive routes in the system.

**Table 13: DATA Fixed Route Service Statistics**

Route	Weekday/Saturday Service Characteristics						Sunday/Holiday Service Characteristics					
	Revenue Hours	Begin Service	End Service	Service Span	Daytime Headway	Evening Headway	Revenue Hours	Begin Service	End Service	Service Span	Daytime Headway	Evening Headway
<b>1</b>	32	5:30	0:30	19:00	0:30	1:00	13	6:30	19:30	13:00	1:00	1:00
<b>2</b>	32	5:28	0:28	19:00	0:30	1:00	13	6:28	19:28	13:00	1:00	1:00
<b>3</b>	32	5:25	0:25	19:00	0:30	1:00	13	6:25	19:25	13:00	1:00	1:00
<b>4</b>	32	5:30	0:30	19:00	0:30	1:00	13	6:30	19:30	13:00	1:00	1:00
<b>5</b>	44.7	5:35	0:27	18:52	0:30	1:00	13	6:27	19:27	13:00	1:00	1:00
<b>6</b>	32.08	5:25	0:30	19:05	0:30	1:00	13	6:30	19:30	13:00	1:00	1:00
<b>7</b>	63.08	5:29	0:25	18:56	0:30	1:00	26	6:00	20:00	14:00	1:00	1:00
<b>8</b>	31.03	5:29	0:20	18:51	0:30	1:00	12.5	6:25	19:20	12:55	1:00	1:00
<b>9</b>	45	5:20	0:30	19:10	0:30	1:00	13	6:30	19:30	13:00	1:00	1:00
<b>10</b>	50.13	5:17	0:37	19:20	0:30	1:00	25.08	6:31	19:31	13:00	1:00	1:00
<b>11</b>	32	5:25	0:25	19:00	0:30	1:00	13	6:25	19:25	13:00	1:00	1:00
<b>12</b>	22	5:28	0:28	19:00	1:00	1:00	13	6:28	19:28	13:00	1:00	1:00
<b>13</b>	19	5:30	0:30	19:00	1:00	1:00	13	6:30	19:30	13:00	1:00	1:00
<b>15</b>	9	6:15	22:15	16:00	1:00	1:00	-	-	-	-	-	-
<b>16</b>	19	5:30	0:30	19:00	1:00	1:00	13	6:30	19:30	13:00	1:00	1:00
<b>16B*</b>	5.58	7:30	18:25	10:55	1:00	-	-	-	-	-	-	-
<b>17</b>	18.58	5:52	0:27	18:35	1:00	1:00	12.92	6:32	19:27	12:55	1:00	1:00
<b>BCC</b>	46.17	6:23	0:00	17:37	0:15	0:20	-	-	-	-	-	-

\*16B is not operated on Saturdays.

**Table 14: DATA Fixed Route Performance Statistics for FY 2011**

Route	Weekday			Saturday			Sunday			Holiday		
	Annual Ridership	PPH	PPM	Annual Ridership	PPH	PPM	Annual Ridership	PPH	PPM	Annual Ridership	PPH	PPM
1	373,683	45.62	3.16	64,664	40.42	2.80	22,601	33.43	2.33	2,976	38.15	2.66
2	274,600	33.52	2.26	40,023	25.01	1.69	17,705	26.19	1.80	1,350	17.31	1.19
3	439,985	53.71	3.93	73,869	46.17	3.42	31,002	45.86	3.47	3,878	49.72	3.77
4	371,175	45.31	3.68	47,724	29.83	2.42	21,950	32.47	2.64	3,706	47.51	3.86
5	421,269	38.05	3.19	54,805	25.34	2.12	18,286	27.05	2.08	1,885	24.17	1.86
6	296,895	36.24	3.16	33,558	20.97	1.83	21,271	31.47	2.39	2,647	33.94	2.58
7	418,999	25.98	1.61	72,466	23.01	1.43	27,695	20.33	1.27	3,515	22.36	1.39
8	318,967	38.94	3.94	33,503	20.94	2.12	13,040	19.29	1.93	1,632	20.92	2.10
9	298,537	25.91	2.05	43,594	19.38	1.53	17,530	25.93	1.57	2,350	30.13	1.82
10	420,098	32.57	2.11	61,697	24.49	1.59	29,834	20.35	1.48	3,817	22.56	1.65
11	233,572	28.51	1.79	33,948	21.22	1.33	14,495	21.44	1.32	1,633	20.94	1.29
12	155,780	32.03	1.58	23,349	24.58	1.21	13,201	19.53	0.96	1,530	19.62	0.96
13	79,340	16.31	1.07	12,012	12.64	0.83	5,868	8.68	0.57	698	8.95	0.58
15	24,952	10.83	0.38	3,378	7.51	0.26	-	-	0.00	-	-	0.00
16	191,828	39.44	3.11	26,104	27.48	2.17	15,092	22.33	1.76	1,835	23.53	1.86
17	77,926	16.38	0.83	10,555	11.36	0.58	4,994	7.39	0.37	629	8.06	0.41
12B*	5,702	4.61	0.30	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00
16B	5,904	4.01	0.27	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00
18/BCC	250,578	24.67	2.29	26,573	18.02	1.53	-	0.00	0.00	2,199	**	**

\* Route 12B was incorporated with route 12 beginning with the August 16, 2011 service period.

\*\* Revenue hours and miles unavailable for 18/BCC for holiday service.

**Table 15: Ranked Annual Ridership by Day Type**

Rank	Weekday		Saturday		Sunday		Holiday	
	Route	Ridership	Route	Ridership	Route	Ridership	Route	Ridership
<b>1</b>	3	439,985	3	73,869	3	31,002	3	3,878
<b>2</b>	5	421,269	7	72,466	10	29,834	10	3,817
<b>3</b>	10	420,098	1	64,664	7	27,695	4	3,706
<b>4</b>	7	418,999	10	61,697	1	22,601	7	3,515
<b>5</b>	1	373,683	5	54,805	4	21,950	1	2,976
<b>6</b>	4	371,175	4	47,724	6	21,271	6	2,647
<b>7</b>	8	318,967	9	43,594	5	18,286	9	2,350
<b>8</b>	9	298,537	2	40,023	2	17,705	18/BCC	2,199
<b>9</b>	6	296,895	11	33,948	9	17,530	5	1,885
<b>10</b>	2	274,600	6	33,558	16	15,092	16	1,835
<b>11</b>	18/BCC	250,578	8	33,503	11	14,495	11	1,633
<b>12</b>	11	233,572	18/BCC	26,573	12	13,201	8	1,632
<b>13</b>	16	191,828	16	26,104	8	13,040	12	1,530
<b>14</b>	12	155,780	12	23,349	13	5,868	2	1,350
<b>15</b>	13	79,340	13	12,012	17	4,994	13	698
<b>16</b>	17	77,926	17	10,555	15	-	17	629
<b>17</b>	15	24,952	15	3,378	12B*	-	15	-
<b>18</b>	16B	5,904	12B*	-	16B	-	12B*	-
<b>19</b>	12B*	5,702	16B	-	18/BCC	-	16B	-

\* Route 12B was incorporated with route 12 beginning with the August 16, 2011 service period.

**Table 16: Ranked Passengers per Revenue Hour (PPH) by Day Type**

Rank	Weekday		Saturday		Sunday		Holiday	
	Route	PPH	Route	PPH	Route	PPH	Route	PPH
1	3	53.71	3	46.17	3	45.86	3	49.72
2	1	45.62	1	40.42	1	33.43	4	47.51
3	4	45.31	4	29.83	4	32.47	1	38.15
4	16	39.44	16	27.48	6	31.47	6	33.94
5	8	38.94	5	25.34	5	27.05	9	30.13
6	5	38.05	2	25.01	2	26.19	5	24.17
7	6	36.24	12	24.58	9	25.93	16	23.53
8	2	33.52	10	24.49	16	22.33	10	22.56
9	10	32.57	7	23.01	11	21.44	7	22.36
10	12	32.03	11	21.22	10	20.35	11	20.94
11	11	28.51	6	20.97	7	20.33	8	20.92
12	7	25.98	8	20.94	12	19.53	12	19.62
13	9	25.91	9	19.38	8	19.29	2	17.31
14	18/BCC	24.67	18/BCC	18.02	13	8.68	13	8.95
15	17	16.38	13	12.64	17	7.39	17	8.06
16	13	16.31	17	11.36	15	-	15	-
17	15	10.83	15	7.51	12B*	-	12B*	-
18	12B*	4.61	12B*	-	16B	-	16B	-
19	16B	4.01	16B	-	18/BCC	-	18/BCC	**

\* Route 12B was incorporated with route 12 beginning with the August 16, 2011 service period.

\*\* Revenue hours unavailable for 18/BCC for holiday service.

**Table 17: Ranked Passengers per Revenue Mile (PPM) by Day Type**

Rank	Weekday		Saturday		Sunday		Holiday	
	Route	PPM	Route	PPM	Route	PPM	Route	PPM
1	8	3.94	3	3.42	3	3.47	4	3.86
2	3	3.93	1	2.80	4	2.64	3	3.77
3	4	3.68	4	2.42	6	2.39	1	2.66
4	5	3.19	16	2.17	1	2.33	6	2.58
5	1	3.16	5	2.12	5	2.08	8	2.10
6	6	3.16	8	2.12	8	1.93	5	1.86
7	16	3.11	6	1.83	2	1.80	16	1.86
8	18/BCC	2.29	2	1.69	16	1.76	9	1.82
9	2	2.26	10	1.59	9	1.57	10	1.65
10	10	2.11	18/BCC	1.53	10	1.48	7	1.39
11	9	2.05	9	1.53	11	1.32	11	1.29
12	11	1.79	7	1.43	7	1.27	2	1.19
13	7	1.61	11	1.33	12	0.96	12	0.96
14	12	1.58	12	1.21	13	0.57	13	0.58
15	13	1.07	13	0.83	17	0.37	17	0.41
16	17	0.83	17	0.58	15	-	15	-
17	15	0.38	15	0.26	12B*	-	12B*	-
18	12B*	0.30	12B*	-	16B	-	16B	-
19	16B	0.27	16B	-	18/BCC	-	18/BCC	**

\* Route 12B was incorporated with route 12 beginning with the August 16, 2011 service period.

\*\* Revenue miles unavailable for 18/BCC for holiday service.



Figure 22: Weekday Route Productivity

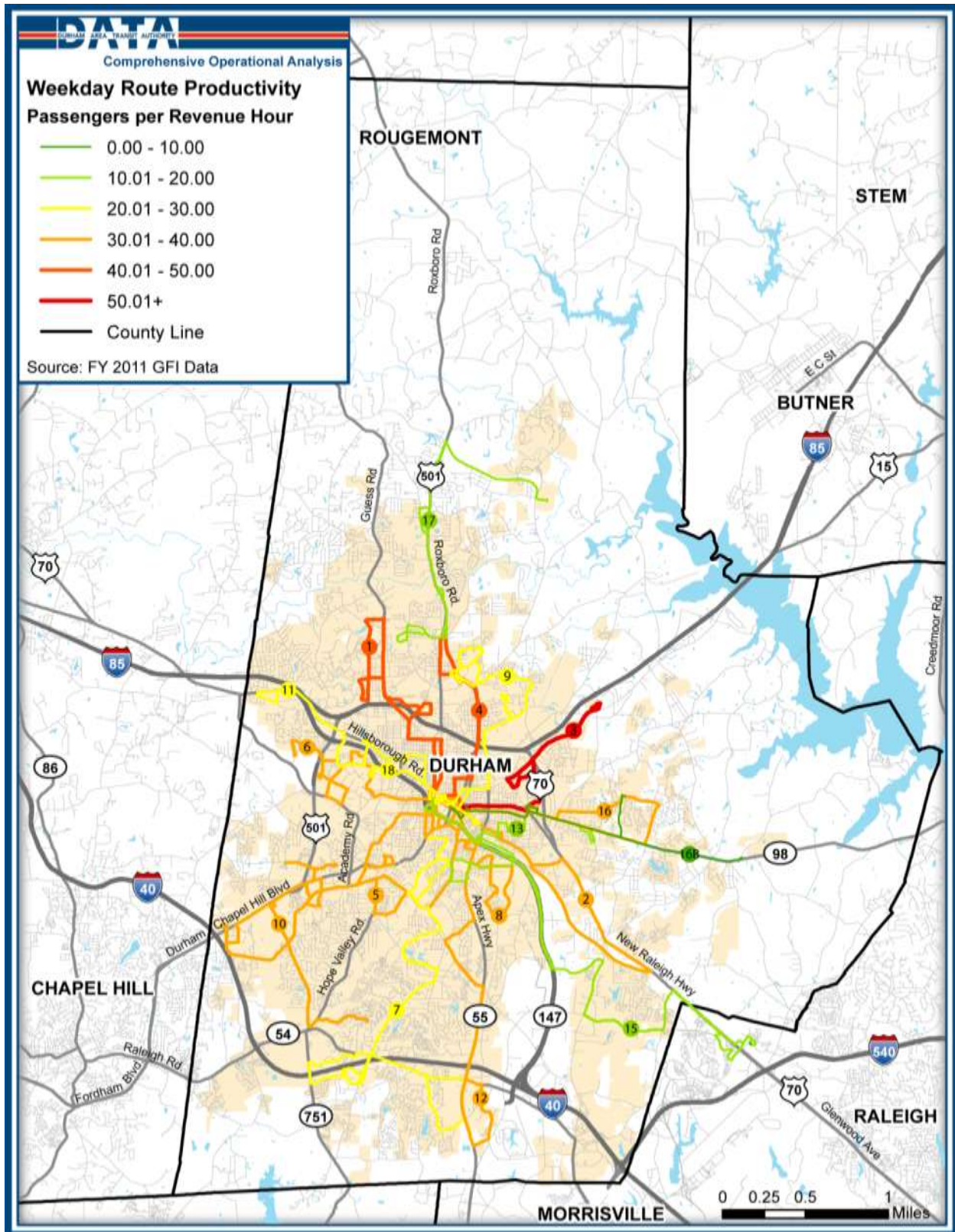




Figure 23: Saturday Route Productivity

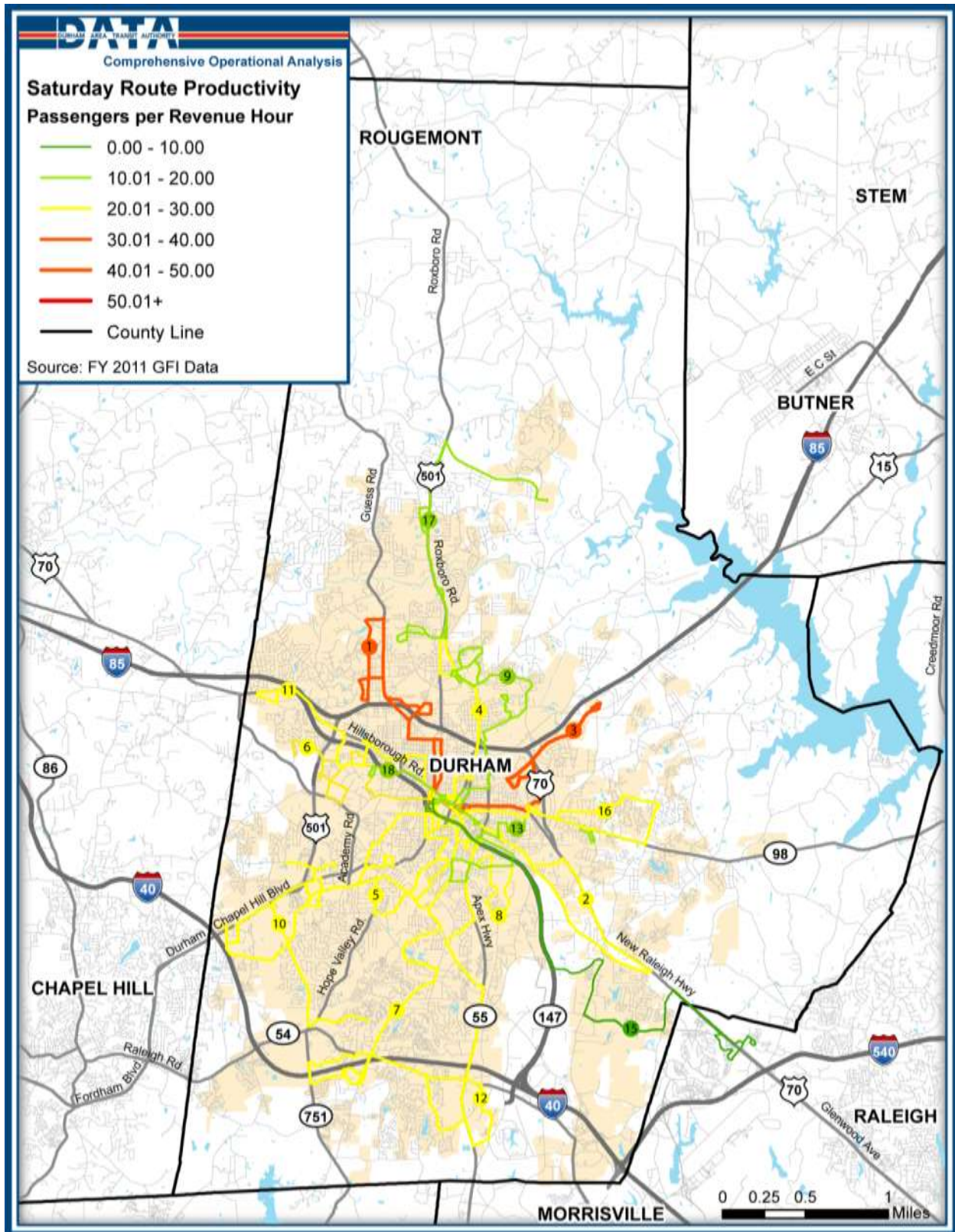
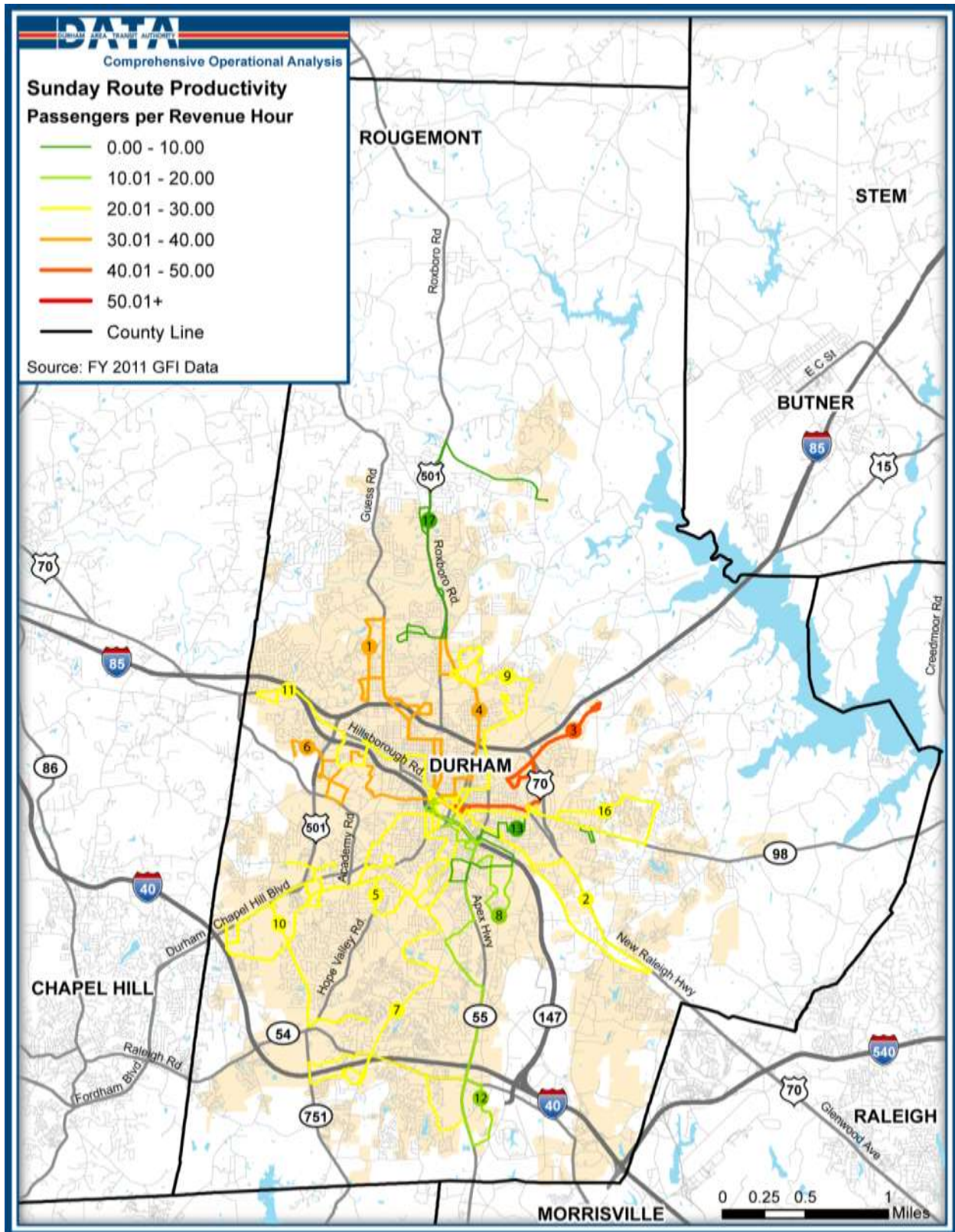




Figure 24: Sunday Route Productivity



## On-Time Performance

On-time performance was derived from the schedule adherence data collected by the system’s automatic passenger counter (APC) units during the service period from August 2010 to August 2011. Changes were made to several routes beginning with the August 2011 service period with the aim of improving on-time performance. The results of these changes are not reflected in the on-time performance data provided in the subsequent summary or route profiles.

A bus is defined as being “on-time” if it departs from a scheduled timepoint no more than one minute before or five minutes after the scheduled time. In other words, trips are considered early if they depart at the timepoint one minute or more before they are scheduled to depart, and are considered late if they depart more than five minutes after they are scheduled to depart. For several routes (12, 12B, 15, 16B, 17 and 18/BCC), there were not a sufficient number of sample trips to draw conclusions from the APC data regarding on-time performance. These routes have been omitted from the on-time performance analysis.

The system experiences significant problems with on-time performance. Table 18 shows the system-wide average on-time performance for all days, divided by time period. The table shows that overall only about 61% of time points are served on time. More than 21% of time points are served late and, more worryingly, nearly 18% of time points are served early. For certain times of day and for weekdays, the situation is even worse. The system-wide average for weekday fixed routes indicates that only 56.8% of timepoints are met on-time. Looking at individual routes, we find that many routes are as likely to be running ahead of schedule as behind. More detailed statistics for on-time performance by time period are provided in the individual route analysis section that follows.

**Table 18: System-Wide On-time Performance, Including Weekdays, Saturdays, Sundays and Holidays**

	EARLY AM	AM PEAK	MIDDAY	PM PEAK	EVENING	TOTAL
<b>EARLY</b>	23.5%	21.5%	15.8%	15.2%	20.6%	17.7%
<b>ON-TIME</b>	65.8%	64.9%	62.9%	53.1%	59.8%	61.0%
<b>LATE</b>	10.7%	13.6%	21.4%	31.7%	19.5%	21.3%

Running ahead of schedule is, of course, a more serious problem for bus operations than running behind schedule. Buses that arrive at stops earlier than expected miss passengers who have not yet arrived at the stop. These passengers experience a long delay, and are justifiably angry that this delay is through no fault of their own. What’s more, these passengers increase the load and wait time on the next bus, causing that bus to be severely delayed and, often, overcrowded. For these reasons, transit agencies generally have severely penalized operators who repeatedly operate ahead of schedule. The cause of early (and late) running can include lax supervision, but inadequate schedule time, either in the entire schedule or in schedule segments, can be the cause of early running, as drivers will try to anticipate delays later in the trips by running early on their timepoints near the beginning of the route.