

**Route 7: Fayetteville Rd./Southpoint Mall**

Route 7 connects downtown and south Durham with Southpoint Mall and other shopping destinations south of I-40. The route has a two hour cycle time, but is operated on a 30-minute headway, making it the most expensive route to operate in the DATA system.

Operators identified several problems with route 7, including overcrowding, traffic congestion, and time periods with low ridership. Overcrowding is said to occur arriving to and departing from Southpoint Mall, near Hillside High School, and along the Cook Road-Fayetteville Road-Cornwallis Road inbound segment. Operators encounter traffic congestion leaving Southpoint Mall and at the intersection of Fayetteville Rd. and Herdon Road. Finally, the operators noted that there is very little ridership on Saturday mornings along the Weaver St-Lawson St.-Enterprise St. segment of the route.

*Ridership*

Route 7 had an annual ridership of 522,675 in FY 2011. It carried an average of 25.98 passengers per revenue hour and 1.61 passengers per revenue mile on weekdays. The route ranked fourth in weekday ridership, but because it has a two-hour cycle time and is operated on a 30-minute headway, its passenger per revenue hour measure is the second lowest among DATA’s 30-minute headway routes. Saturday and Sunday productivity measures were 23.01 and 20.33 passengers per revenue hour, respectively.

Table 55 shows average daily ridership by time of day for route 7. The midday time period carries the most riders on all days, but ridership is steady across all time periods. Saturday ridership is only 11% less than on weekdays. The route performs especially well on Saturday evenings; the 431 average daily riders that use the route on Saturday evenings exceeds the ridership for the weekday AM Peak, midday and PM peak time periods. Sunday ridership is markedly lower, with 67% fewer riders than on weekdays.

**Table 55: Route 7 Average Daily Ridership**

	<b>Weekday</b>	<b>Saturday</b>	<b>Sunday</b>	<b>Holiday</b>
<b>Early AM</b>	24	10	-	-
<b>AM Peak</b>	254	116	71	75
<b>Midday</b>	652	519	254	286
<b>PM Peak</b>	402	374	161	180
<b>Evening</b>	306	431	47	45
<b>Total</b>	<b>1,637</b>	<b>1,449</b>	<b>533</b>	<b>586</b>

*Trip Generators*

Figures 61 and 62 show stops with 25 or more average daily boardings or alightings for outbound and inbound routes. Major trip generators on the outbound route include Southpoint Crossing Shopping Center, Renaissance Center Shopping Center, and Southpoint Mall. There are also a number of outbound alightings at Enterprise St. and Scout Dr. For the inbound trip, Durham Station is the only stop with more than 25 daily boardings or alightings. Inbound boardings and alightings are not concentrated at a few locations, but distributed at many points along the inbound route.



Figure 61: Route 7 – Top Boarding and Alighting Stops – Outbound

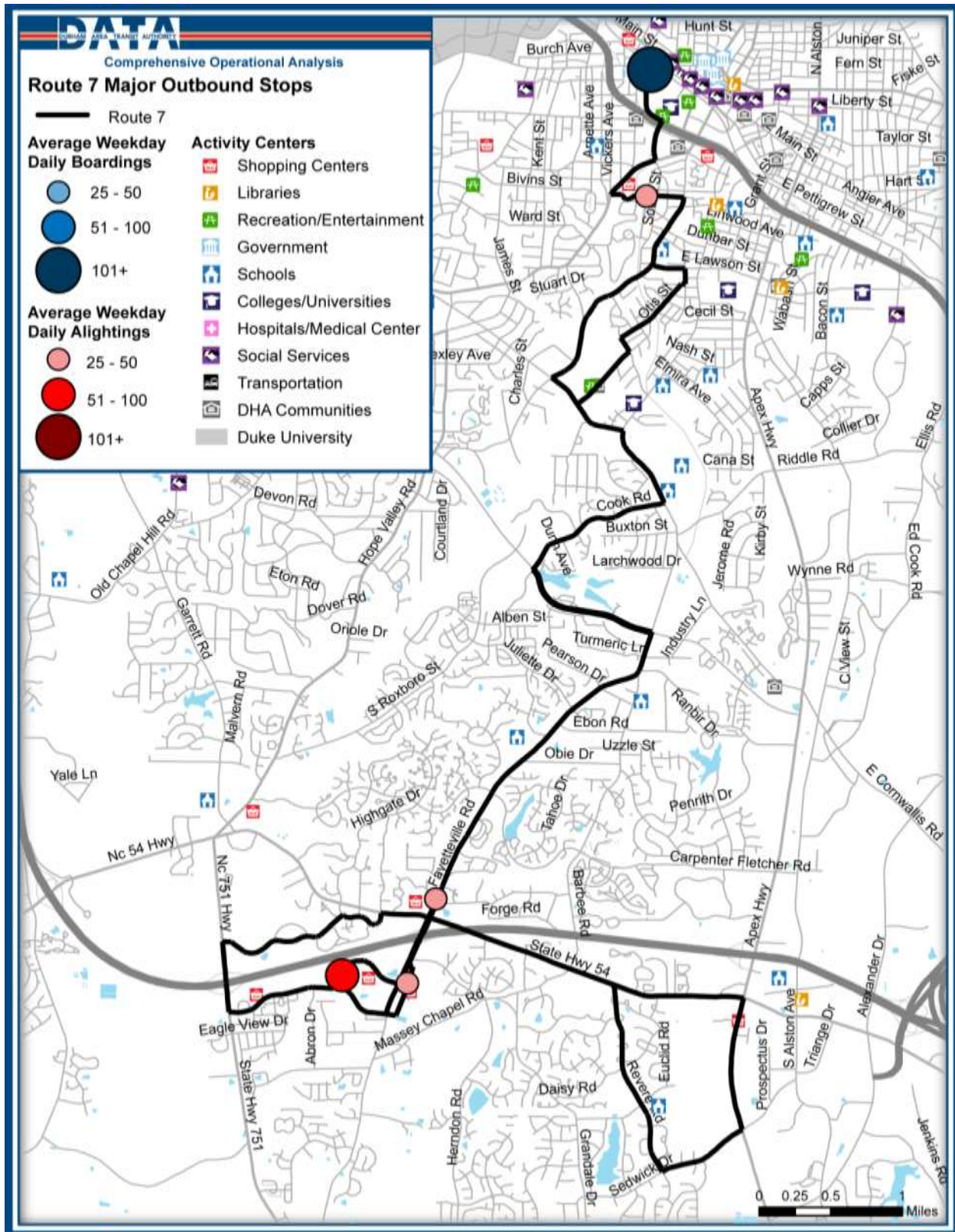
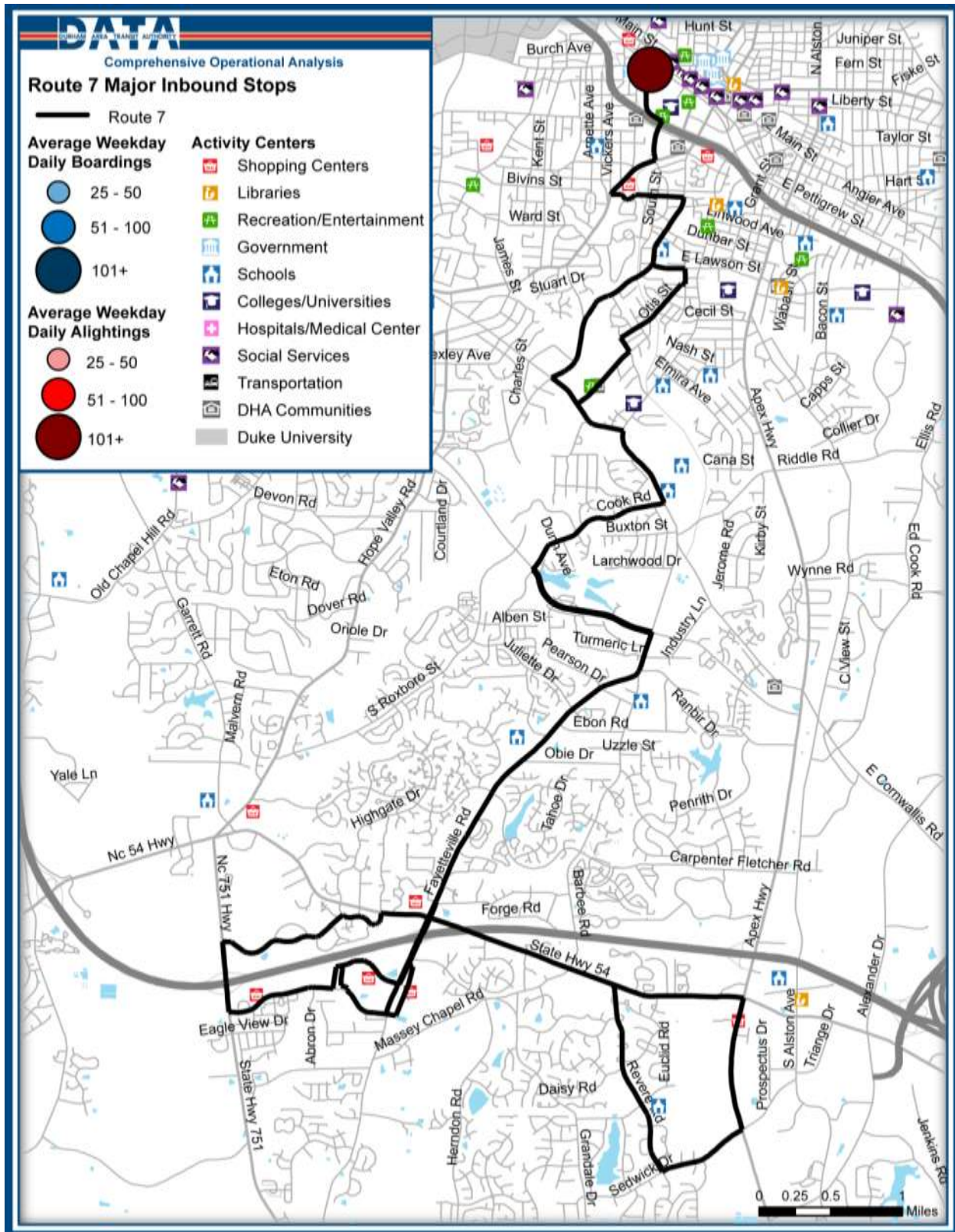




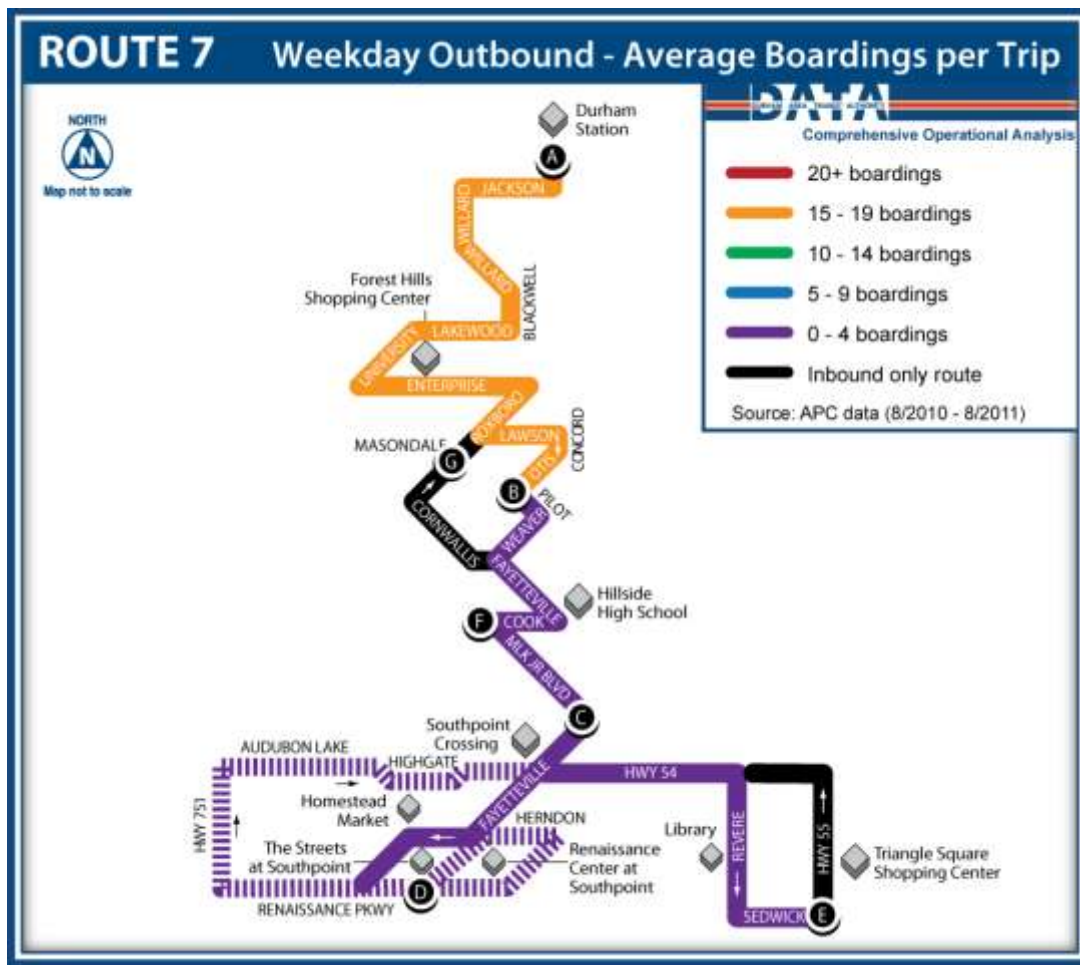
Figure 62: Route 7 – Top Boarding and Alighting Stops – Inbound



*Segment Analysis*

Figure 63 shows weekday average boardings per outbound trip by segment. Table 56 shows weekday average boardings per outbound trip by segment and time of day. Boardings are highest on the first segment of the outbound trip, between Durham Station and Otis and Pilot Street. During the PM peak, there is an average of 22 boardings per trip on this segment. On the remainder of the route, the average number of boardings per trip is quite low, varying between 1 and 3 boardings per trip on each segment.

**Figure 63: Route 7 Weekday Average Boardings per Trip – Outbound**

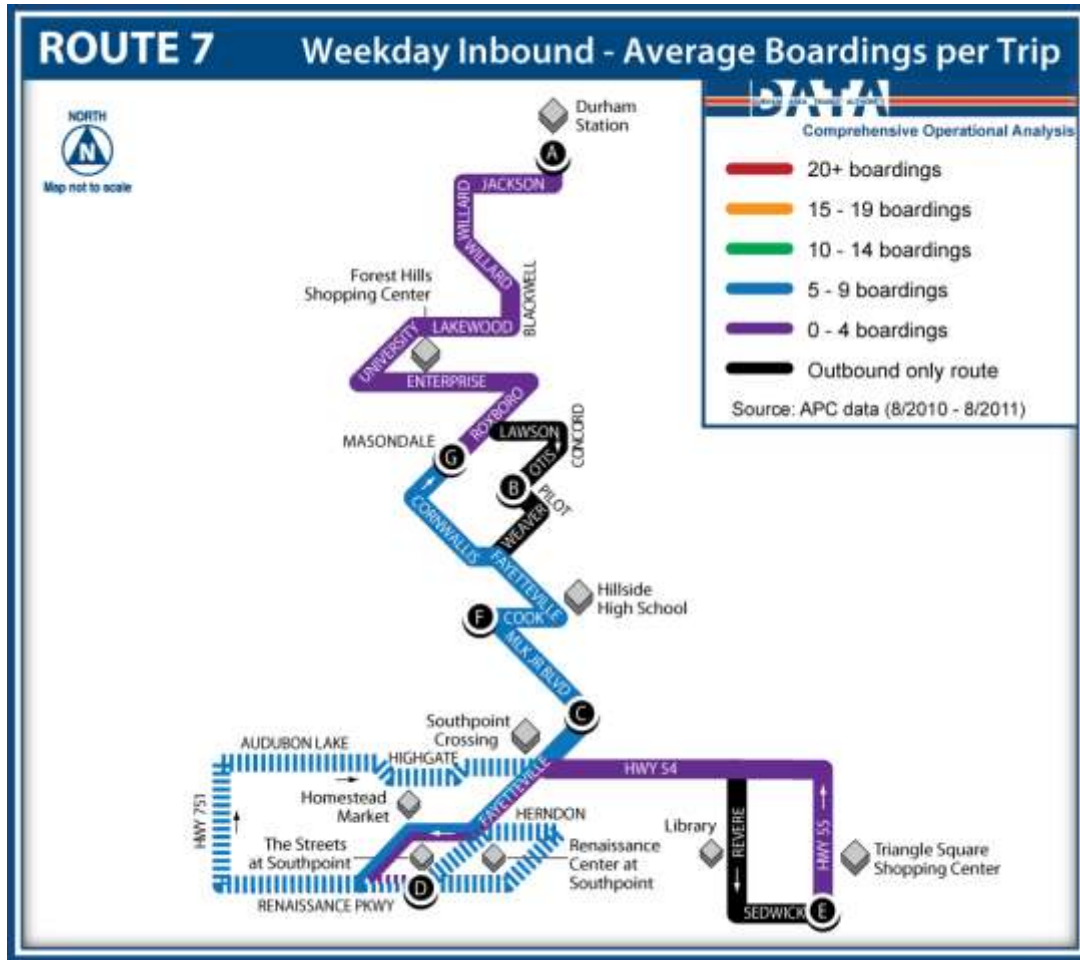


**Table 56: Route 7 Weekday Average Boardings per Trip – Outbound**

	Early AM	AM Peak	Midday	PM Peak	Evening
Durham Station to Otis St. & Pilot St.	-	13	17	22	11
Otis & Pilot St. to MLK Pkwy. & Fayetteville St.	-	2	2	2	1
MLK Pkwy. & Fayetteville St. to Southpoint Mall	-	1	1	1	0
Southpoint Mall to NC-55 & Sedwick Dr.	-	2	3	3	2

Figure 64 shows weekday inbound average boardings per inbound trip by segment. Table 57 shows weekday average boardings per inbound trip by segment and time of day. As previously mentioned, boardings are not concentrated in a single location or segment of the inbound route. Similarly, boardings are also not concentrated in a single time period; the average number of boardings per trip is nearly constant for each segment and time period.

**Figure 64: Route 7 Weekday Average Boardings per Trip – Inbound**



**Table 57: Route 7 Weekday Average Boardings per Trip – Inbound**

	Early AM	AM Peak	Midday	PM Peak	Evening
NC-55 & Sedwick Dr. to Southpoint Mall	-	2	3	4	-
Southpoint Mall to Cook Rd. & MLK Pkwy.	6	7	7	8	-
Cook & MLK Pkwy. to Roxboro & Masondale Ave.	3	5	5	5	-
Roxboro St. & Masondale Ave. to Durham Station	5	4	4	3	-

Figures 65 and 66 show weekday average maximum passenger loads for outbound and inbound trips. The highest loads occur on outbound trips between Durham Station and Otis and Pilot Street. It is possible that overcrowding may occur on this segment for some trips in the PM peak period.



Figure 65: Route 7 Weekday Average Max Passenger Load – Outbound

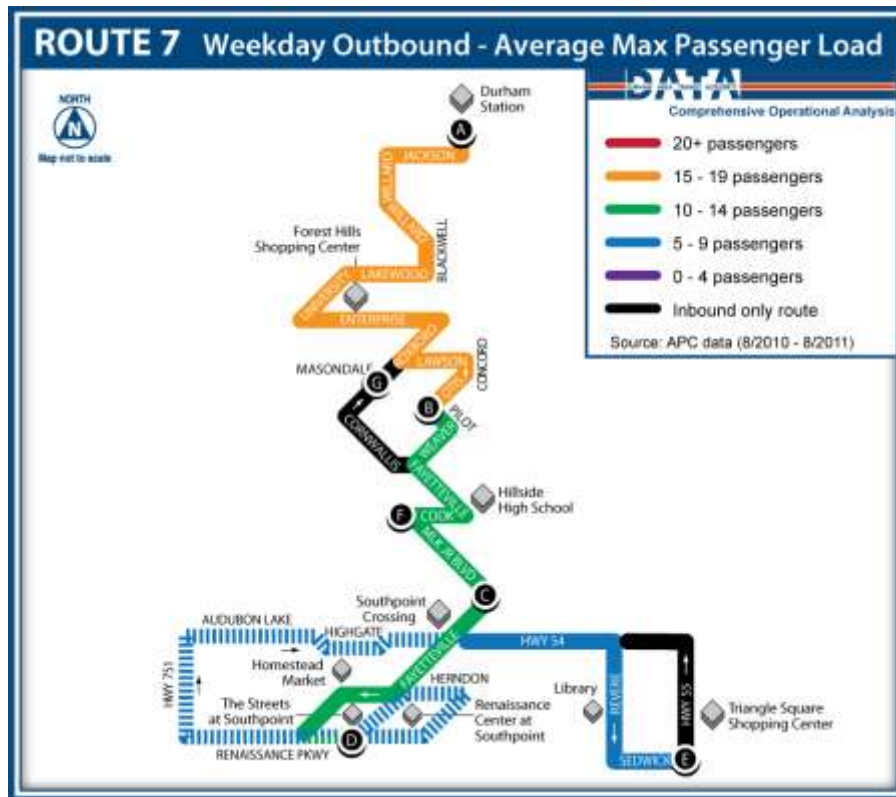
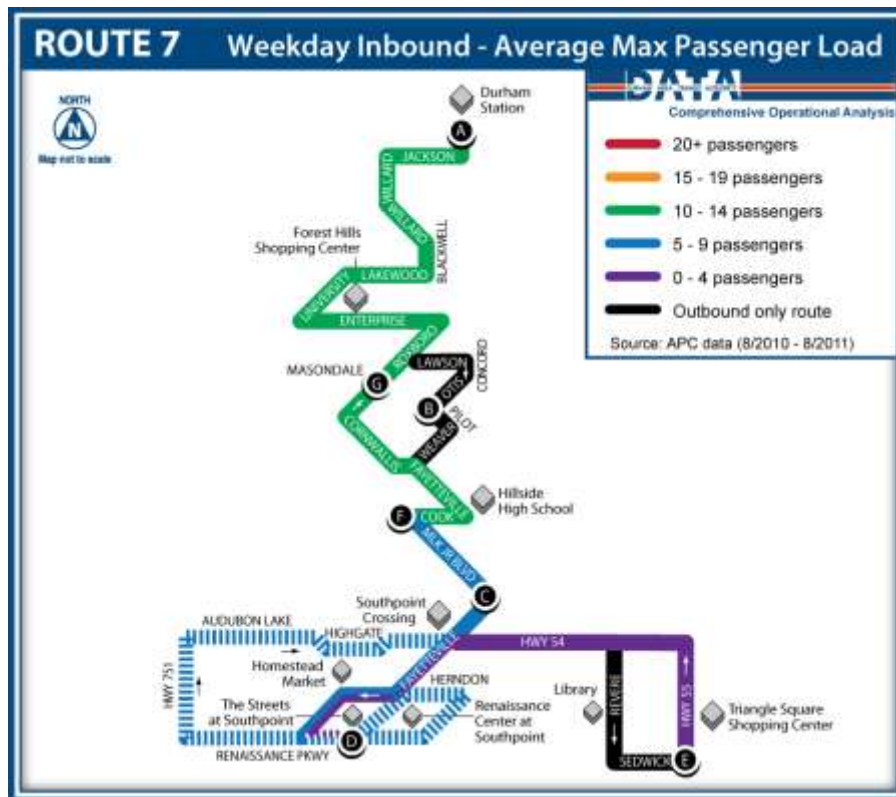


Figure 66: Route 7 Weekday Average Max Passenger Load – Inbound



### Run Time and On-time Performance

Weekday on-time performance by time period is shown in Table 58 below. Overall weekday on-time performance for route 7 is 61.5%. The route's on-time performance is consistent throughout the day, with a greater percentage of late timepoints occurring in the early AM and PM peak periods.

**Table 58: Route 7 Weekday On-time Performance**

	EARLY AM	AM PEAK	MIDDAY	PM PEAK	EVENING	TOTAL
<b>EARLY</b>	11.1%	10.5%	7.9%	7.0%	16.0%	<b>8.7%</b>
<b>ON-TIME</b>	44.4%	61.0%	62.9%	59.4%	61.7%	<b>61.5%</b>
<b>LATE</b>	44.4%	28.5%	29.2%	33.7%	22.2%	<b>29.8%</b>

Average weekday run times are shown by segment and time of day for outbound and inbound trips in Tables 59 and 60. Run times are fairly consistent throughout most of the day, with less than 1 minute variation in average total run times during the AM peak, midday, and PM peak time periods. The PM peak period has slightly longer average run times than the other time periods.

**Table 59: Route 7 Weekday Average Run Time – Outbound**

	Early AM	AM Peak	Midday	PM Peak	Evening
Durham Station to Otis St. & Pilot St.	-	13.6	13.9	14.6	13.1
Otis & Pilot St. to MLK Pkwy. & Fayetteville St.	-	12	11.1	11.2	10.1
MLK Pkwy. & Fayetteville St. to Southpoint Mall	-	14.2	13.9	14.3	12.9
Southpoint Mall to NC-55 & Sedwick Dr.	-	19.8	20.8	20.2	19.3
<b>Total</b>	-	<b>59.6</b>	<b>59.7</b>	<b>60.3</b>	<b>55.4</b>

**Table 60: Route 7 Weekday Average Run Time – Inbound**

	Early AM	AM Peak	Midday	PM Peak	Evening
NC-55 & Sedwick Dr. to Southpoint Mall	-	11.2	12.4	13.4	-
Southpoint Mall to Cook Rd. & MLK Pkwy.	14.3	16.1	15.7	16.4	-
Cook & MLK Pkwy. to Roxboro & Masondale Ave.	9.9	10.4	10.2	9.7	-
Roxboro & Masondale Ave. to Durham Station	9.2	9.7	10.1	9.1	-
<b>Total</b>		<b>47.4</b>	<b>48.4</b>	<b>48.6</b>	

**Route 8: McDougald Terrace/Durham Tech**

Route 8 serves south Durham, including the Heritage Square Shopping Center, NCCU, McDougald Terrace, and Durham Technical Community College. The southernmost part of the route is a one-way loop that is operated in the clockwise direction during the AM period and the counterclockwise direction during the PM and on Sundays and holidays.

The problems that operators identified for route 8 include overcrowding on trips traveling inbound from Durham Tech, traffic congestion at the intersection of Lawson Street and Alston Avenue, and very few boardings on the one-way loop to the south of Lawson Street.

*Ridership*

Route 8 had an annual ridership of 367,142 in FY 2011 and carried an average of 38.94 passengers per revenue hour and 3.94 passengers per revenue mile on weekdays. The route ranked 7<sup>th</sup> in weekday ridership, 5<sup>th</sup> in weekday passengers per revenue hour, and 1st in weekday passengers per revenue mile. The high passenger per revenue mile ranking may be indicative of passengers making very short distance trips.

Table 61 shows average daily ridership by time of day for route 8. The midday period carries the greatest number of riders on all days, although ridership is steady throughout the day. In general, the route exhibits greater demand for PM peak and evening service than for service in the AM peak. The route is not well utilized on weekend mornings. Saturday ridership is 47% less than the average weekday ridership, and Sunday ridership is 80% less.

**Table 61: Route 8 Average Daily Ridership**

	Weekday	Saturday	Sunday	Holiday
<b>Early AM</b>	13	7	-	-
<b>AM Peak</b>	190	79	31	35
<b>Midday</b>	533	297	122	135
<b>PM Peak</b>	298	138	74	74
<b>Evening</b>	211	150	23	28
<b>Total</b>	<b>1,246</b>	<b>670</b>	<b>251</b>	<b>272</b>

*Trip Generators*

Figures 67 and 68 show stops with 25 or more average daily boardings or alightings for the outbound and inbound routes. Major trip generators for route 8 include Durham Technical Community College, McDougald Terrace (a DHA community), and the Durham County Library – McDougald Terrace branch. There are also a large number of alightings on the outbound trip at Lawson St. and Bacon, near a small convenience store.



Figure 67: Route 8 – Top Boarding and Alighting Stops – Outbound

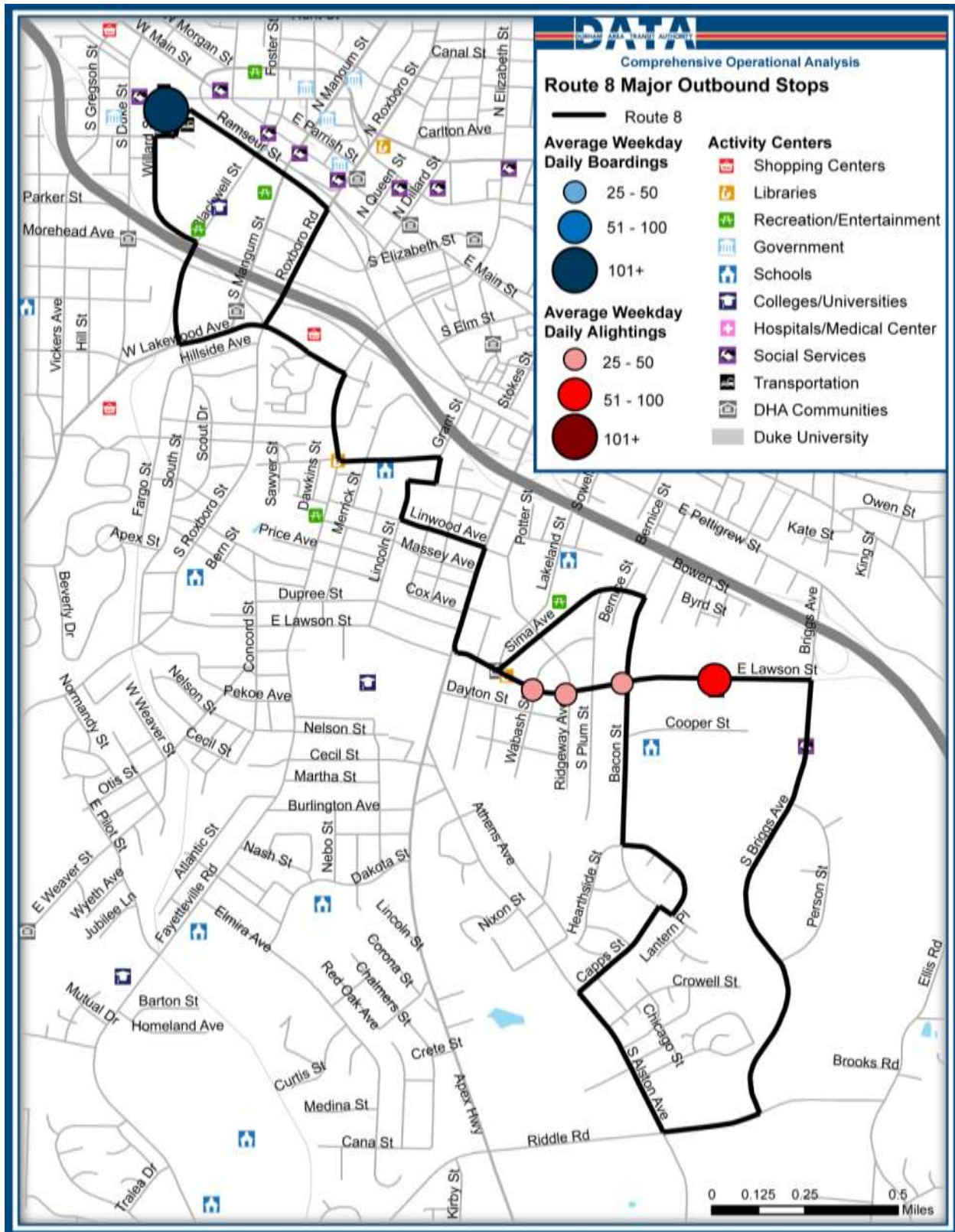
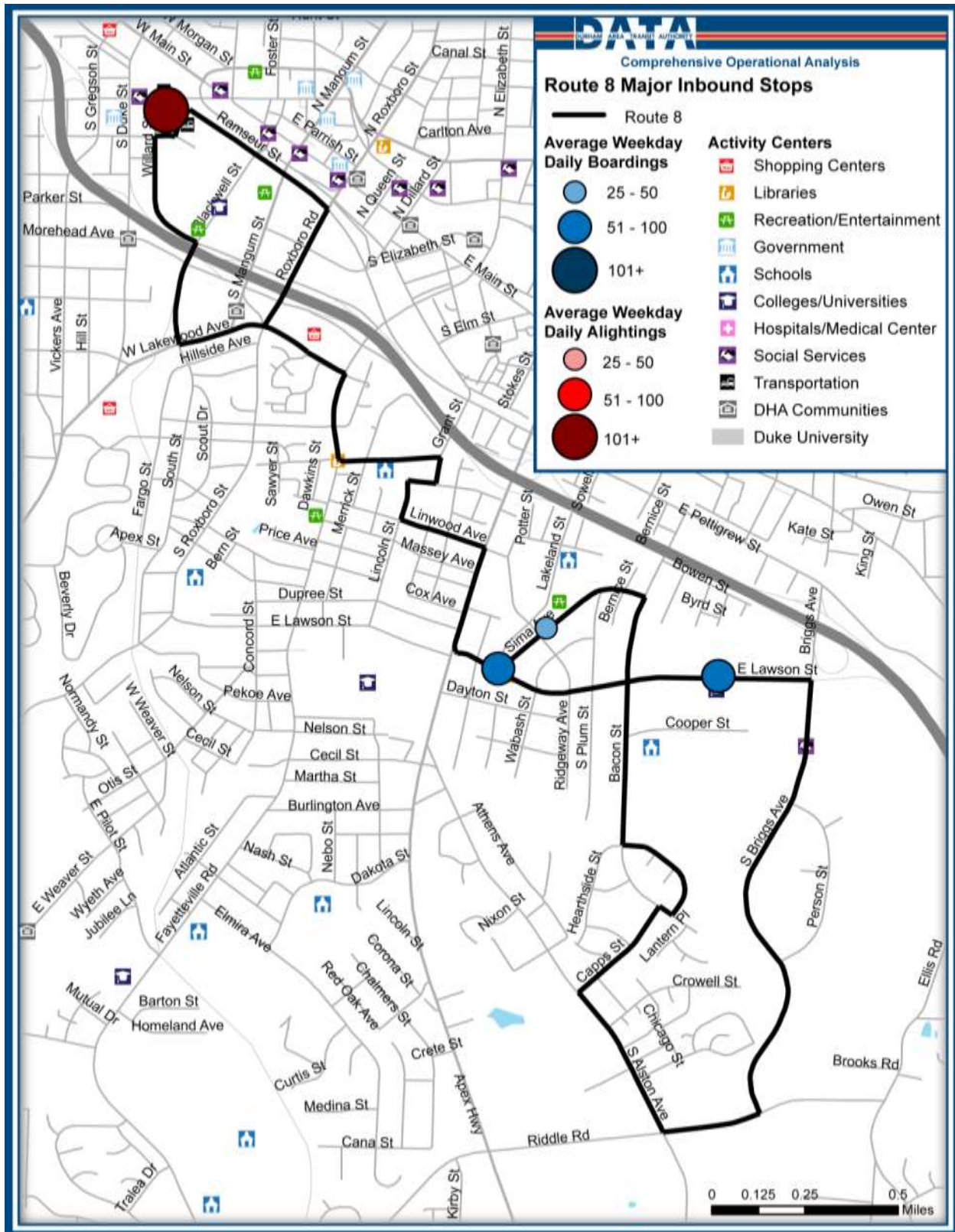




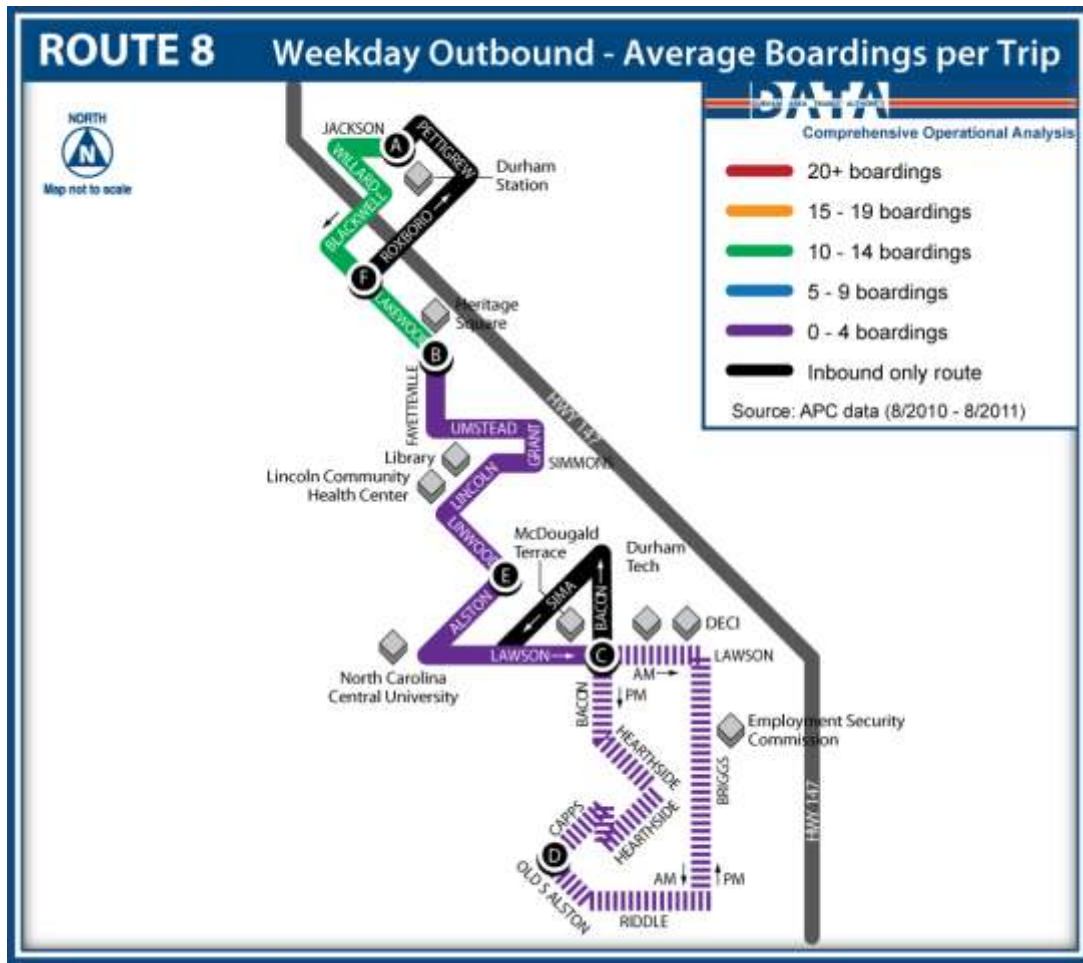
Figure 68: Route 8 – Top Boarding and Alighting Stops – Inbound



*Segment Analysis*

Figure 69 shows weekday average boardings per outbound trip by segment. Table 62 shows weekday average boarding per outbound trip by segment and time period. The first segment of the outbound route, between Durham Station and Fayetteville Street, has the greatest number of boardings per trip. During the midday and PM peak period, this segment has an average of 15-16 boardings per trip. Beyond Lakewood Avenue and Fayetteville Street, average boardings per trip are low for the remainder of the outbound trip.

**Figure 69: Route 8 Weekday Average Boardings per Trip – Outbound**

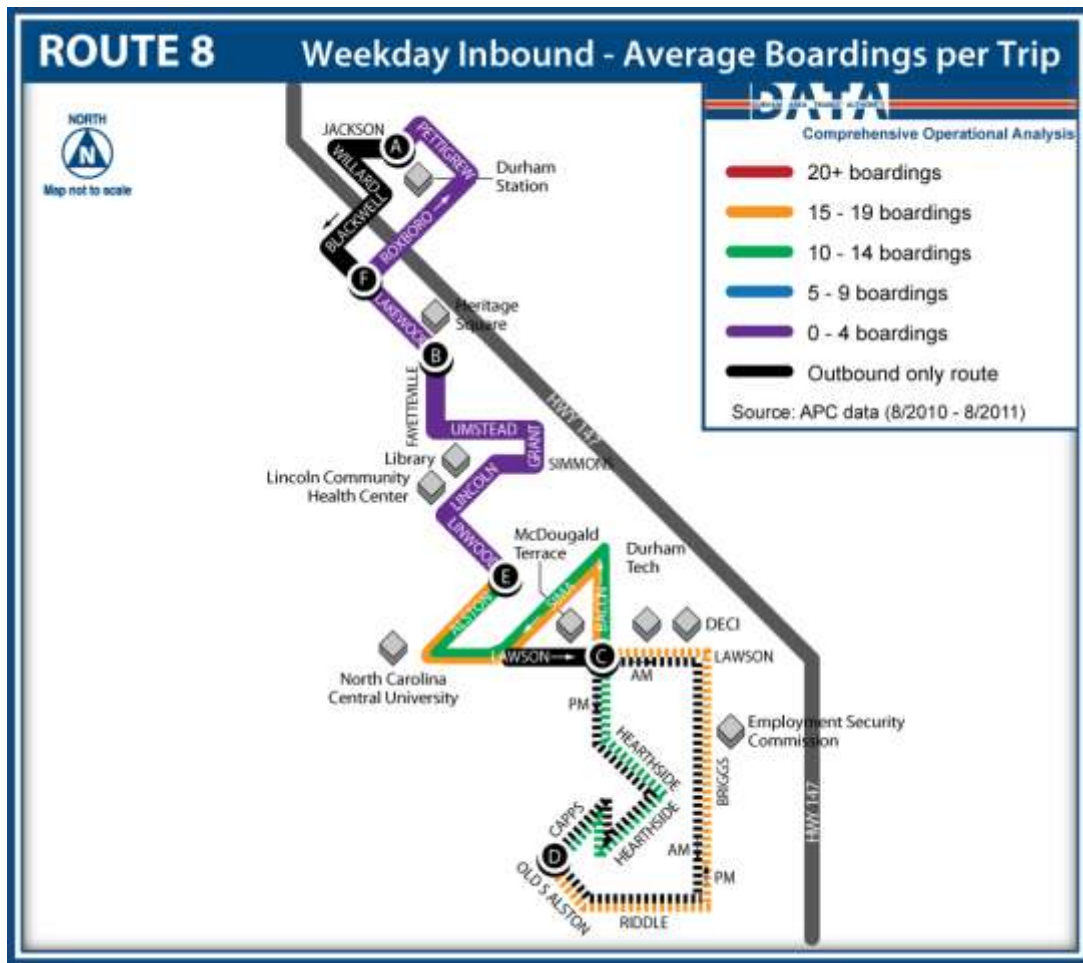


**Table 62: Route 8 Weekday Average Boardings per Trip – Outbound**

	Early AM	AM Peak	Midday	PM Peak	Evening
Durham Station to Lakewood Ave. & Fayetteville St.	-	10	15	16	11
Lakewood & Fayetteville St. to Lawson St. & Bacon St.	-	1	2	3	1
Lawson. & Bacon St. to Capps. & Alston Ave. (AM)	-	1	5	-	-
Lawson & Bacon St. to Capps. & Alston Ave. (PM)	-	-	2	1	0

Figure 70 shows weekday average boardings per inbound trip by segment. Table 63 shows weekday average boardings per inbound trip by segment and time period. The segment that operates in PM, running counterclockwise from Capps and Alston Ave. to Linwood and Alston Ave., has the greatest number of boardings per trip in the inbound direction. During the midday and PM peak periods, this segment has an average of 18-20 boardings per trip. The segment that operates in the clockwise direction during the AM has roughly half the number of boarding per trip as the PM segment. From Linwood Ave. and Alston Ave. to Durham Station, there are few additional boardings on the inbound trip. Notably, there are no boardings between Lakewood Ave. and Roxboro St. and Durham Station.

**Figure 70: Route 8 Weekday Average Boardings per Trip – Inbound**



**Table 63: Route 8 Weekday Average Boardings per Trip – Inbound**

	Early AM	AM Peak	Midday	PM Peak	Evening
Capps & Alston Ave. to Linwood & Alston Ave. (AM)	4	9	8	-	-
Capps & Alston Ave. to Linwood & Alston Ave. (PM)	-	-	20	18	7
Linwood & Alston Ave. to Lakewood Ave. & Roxboro	1	2	4	4	5
Lakewood Ave. & Roxboro to Durham Station	0	0	0	0	0

Figures 71 and 72 show weekday average maximum passenger loads for outbound and inbound trips. Average maximum passenger loads range between 10 and 16 passengers for all segments, except for sections of the one-way loop at the southernmost part of the route. The nearly constant passenger loads are another indicator that this route is providing many short distance trips, with passengers boarding and alighting at many locations along the route.



Figure 71: Route 8 Weekday Average Max Passenger Load – Outbound

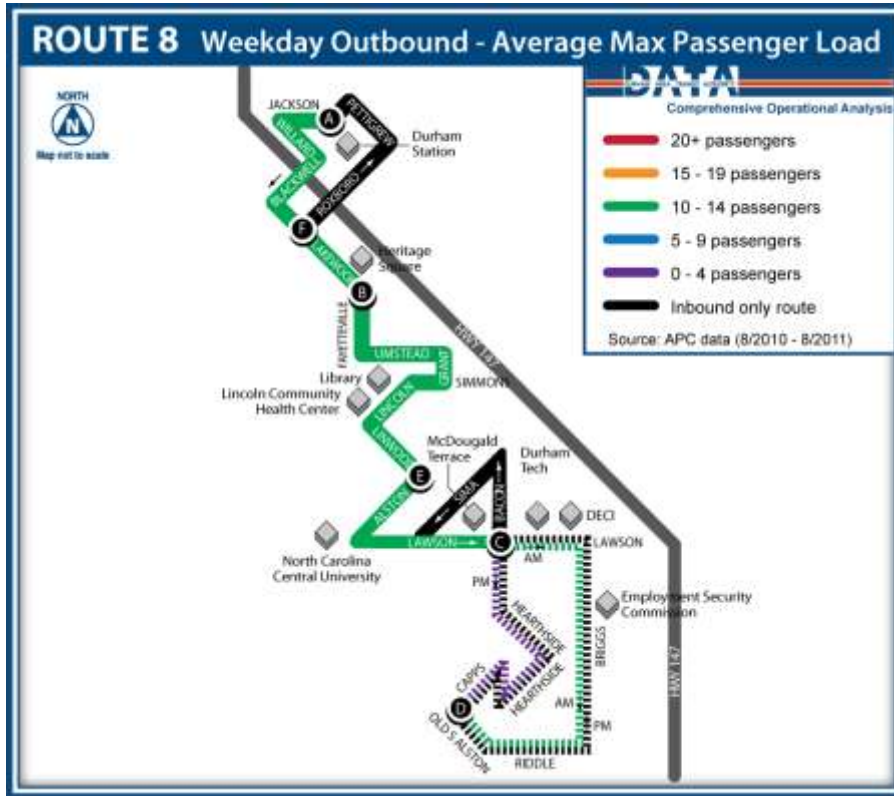
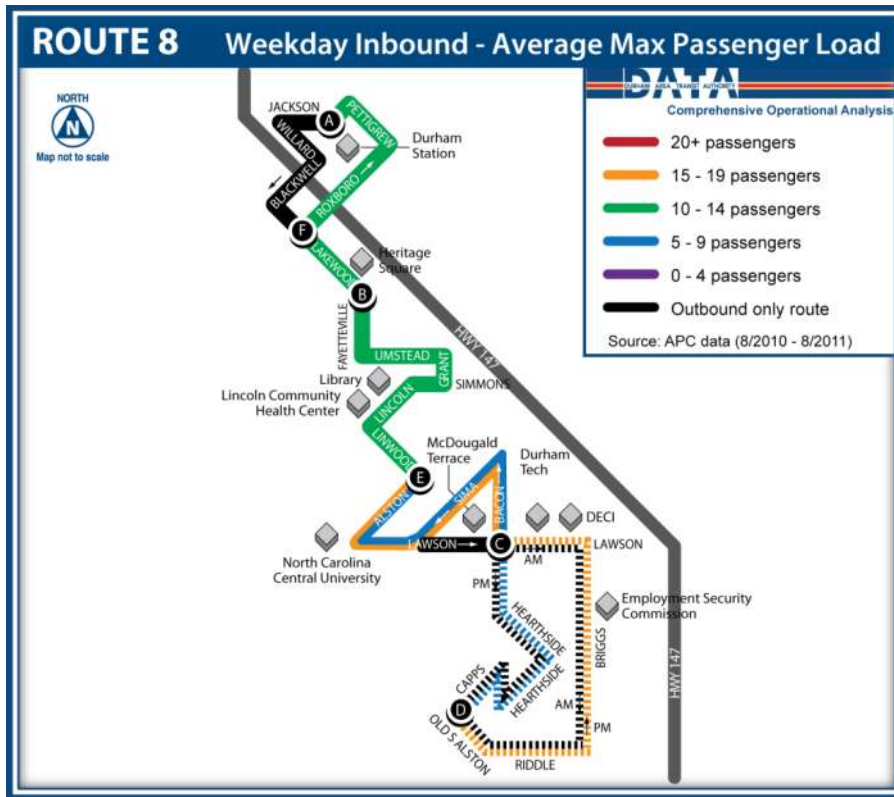


Figure 72: Route 8 Weekday Average Max Passenger Load – Inbound



*Run Time and On-time Performance*

Weekday on-time performance by time period is shown in Table 64 below. Overall weekday on-time performance for route 8 is 65.1%, which is better than the system average. The route’s on-time performance is fairly consistent throughout the day, although the early AM time period has a high percentage of late timepoints (43.8%).

**Table 64: Route 8 Weekday On-time Performance**

	EARLY AM	AM PEAK	MIDDAY	PM PEAK	EVENING	TOTAL
<b>EARLY</b>	0%	17.4%	13.3%	12.6%	9.8%	<b>14.0%</b>
<b>ON-TIME</b>	56.3%	69.0%	66.6%	57.0%	65.0%	<b>65.1%</b>
<b>LATE</b>	43.8%	13.6%	20.1%	30.4%	25.2%	<b>20.9%</b>

Average weekday run times are shown by segment and time of day for outbound and inbound trips in Tables 65 and 66. Considering the outbound and inbound total average run times in combination, it is apparent that this route is less likely to have on-time performance issues than many other routes within the DATA system. Average run times are fairly consistent through the day, with the exception of the inbound segments of the one-way loop. The segment from Capps St. and Alston to Linwood Ave. has a longer run time during the AM peak period when the loop is operated clockwise, and a longer run time in the midday and PM peak periods when the loop is operated counterclockwise.

**Table 65: Route 8 Weekday Average Run Time - Outbound**

	Early AM	AM Peak	Midday	PM Peak	Evening
Durham Station to Lakewood Ave. & Fayetteville St.	-	6.4	6.4	6.3	6.6
Lakewood Ave. & Fayetteville St. to Lawson St. & Bacon St.	-	7.5	8.8	10	8.5
Lawson St. & Bacon St. to Capps St. & Alston Ave. (AM)	-	11.8	10.3	-	-
Lawson St. & Bacon St. to Capps St. & Alston Ave. (PM)	-	-	5.4	5.4	4.2
<b>Total</b>	-	<b>25.7</b>	-	<b>21.7</b>	<b>19.3</b>

**Table 66: Route 8 Weekday Average Run Time – Inbound**

	Early AM	AM Peak	Midday	PM Peak	Evening
Capps St. & Alston Ave. to Linwood Ave. & Alston Ave. (AM)	10	13.5	12.2		
Capps St. & Alston Ave. to Linwood Ave. & Alston Ave. (PM)	-	-	16.2	15.2	12.5
Linwood Ave. & Alston Ave. to Lakewood Ave. & Roxboro	5	5.6	6.3	5.8	5.9
Lakewood Ave. & Roxboro St. to Durham Station	5	5.4	5.2	4.9	6.2
<b>Total</b>	<b>20</b>	<b>24.5</b>	-	<b>25.9</b>	<b>24.6</b>

Route 9: Dearborn Dr./Durham Regional Hospital

Route 9 serves northeast Durham, connecting areas to the northeast of downtown with the Oxford Commons Shopping Center, Durham Regional Hospital, and medical offices along Ben Franklin Blvd. The route deviates to serve Glenbrook Dr. on select trips, and does not serve Ben Franklin Blvd. in the evening or on Sundays.

Operators identified low ridership in the evenings and on Saturdays before 11 AM as the primary problems with route 9. Operating the route is potentially dangerous at night due to low visibility, and the route is usually only serving 1-2 passengers per trip during this time.

*Ridership*

Route 9 had an annual ridership of 362,011 in FY 2011 and carried an average of 25.91 passengers per revenue hour and 2.05 passengers per revenue mile on weekdays. The route ranked 8<sup>th</sup> in weekday ridership, 13<sup>th</sup> in weekday passengers per revenue hour, and 11<sup>th</sup> in weekday passengers per revenue mile in FY 2011. Route 9 carried fewer passengers relative to the amount of service provided by the route in comparison with other routes in the DATA system. Saturday and Sunday productivity measures were 19.38 and 25.93 passengers per revenue hour, respectively.

Average daily ridership is shown for route 9 by time of day in Table 67. As with most routes in the DATA system, the midday period carries the greatest number of passengers on all days of the week. In general, the route exhibits stronger demand for service during the PM peak and evening periods than during the AM peak period. Saturday ridership is 25% less than weekday ridership, and Sunday ridership is 72% less than weekday ridership.

**Table 67: Route 9 Average Daily Ridership**

	Weekday	Saturday	Sunday	Holiday
<b>Early AM</b>	21	13	-	-
<b>AM Peak</b>	186	93	45	55
<b>Midday</b>	478	369	154	203
<b>PM Peak</b>	269	198	105	109
<b>Evening</b>	212	199	33	25
<b>Total</b>	<b>1,166</b>	<b>872</b>	<b>337</b>	<b>392</b>

*Trip Generators*

Figures 73 and 74 show stops with 25 or more average daily boarding or alightings for outbound and inbound trips. The major trip generators for this route are the Compare Foods Supermarket on Foushee St., Preiss Steele Place on Meriweather Drive (low income housing for the elderly), and a number of destinations along Dearborn Dr. including a VFW, Oxford Manor (a DHA community), and Oxford Commons. There are also a number of boardings at Dowd St. and Alston Ave. in the inbound direction. Notably, Durham Regional Hospital has fewer than 25 boardings or alightings in either route direction. This suggests that most passengers traveling to and from Durham Regional Hospital pass through downtown and utilize the more direct trip offered by route 4 to the hospital.

Figures 73 and 74 do reflect boarding and alighting activity along Ben Franklin Blvd. and Carver St. subsequent to the August 2011 service changes. Prior to the service changes, Ben Franklin Blvd. was served by route 4, and segments of Carver St. were served by routes 4 and 9. Please refer to the route 4 profile for identification of major trip generators on these segments.



**Figure 73: Route 9 – Top Boarding and Alighting Stops – Outbound**

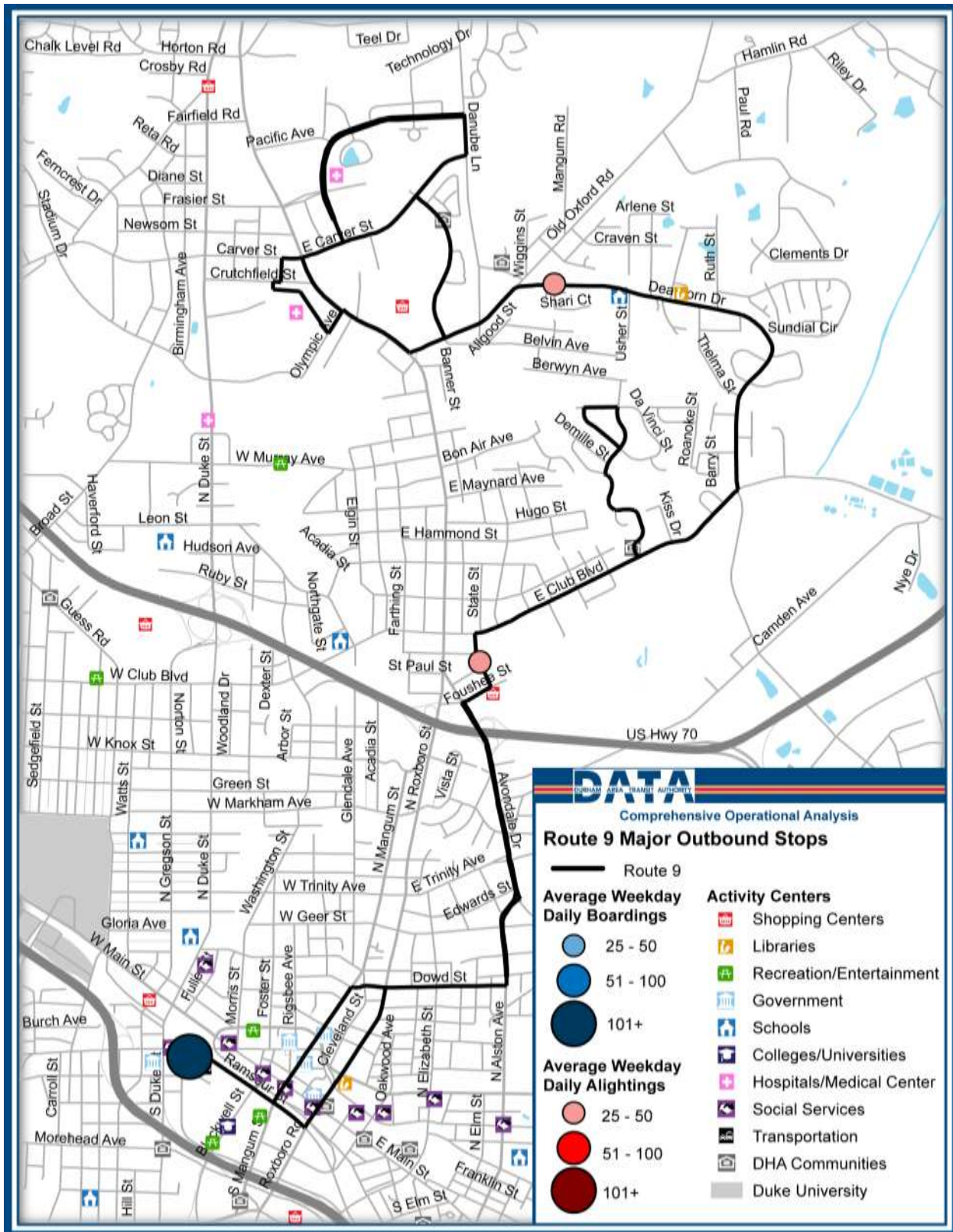
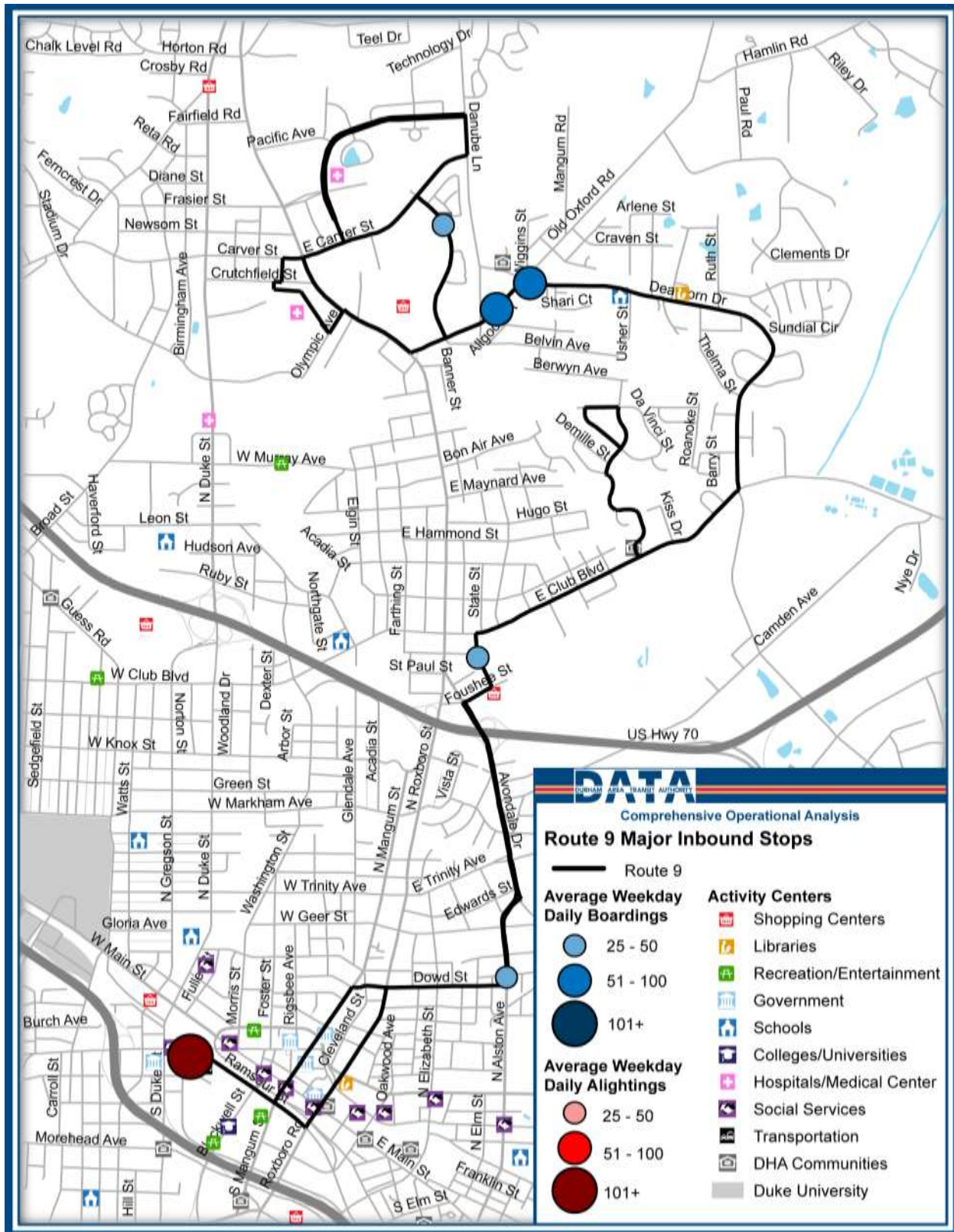




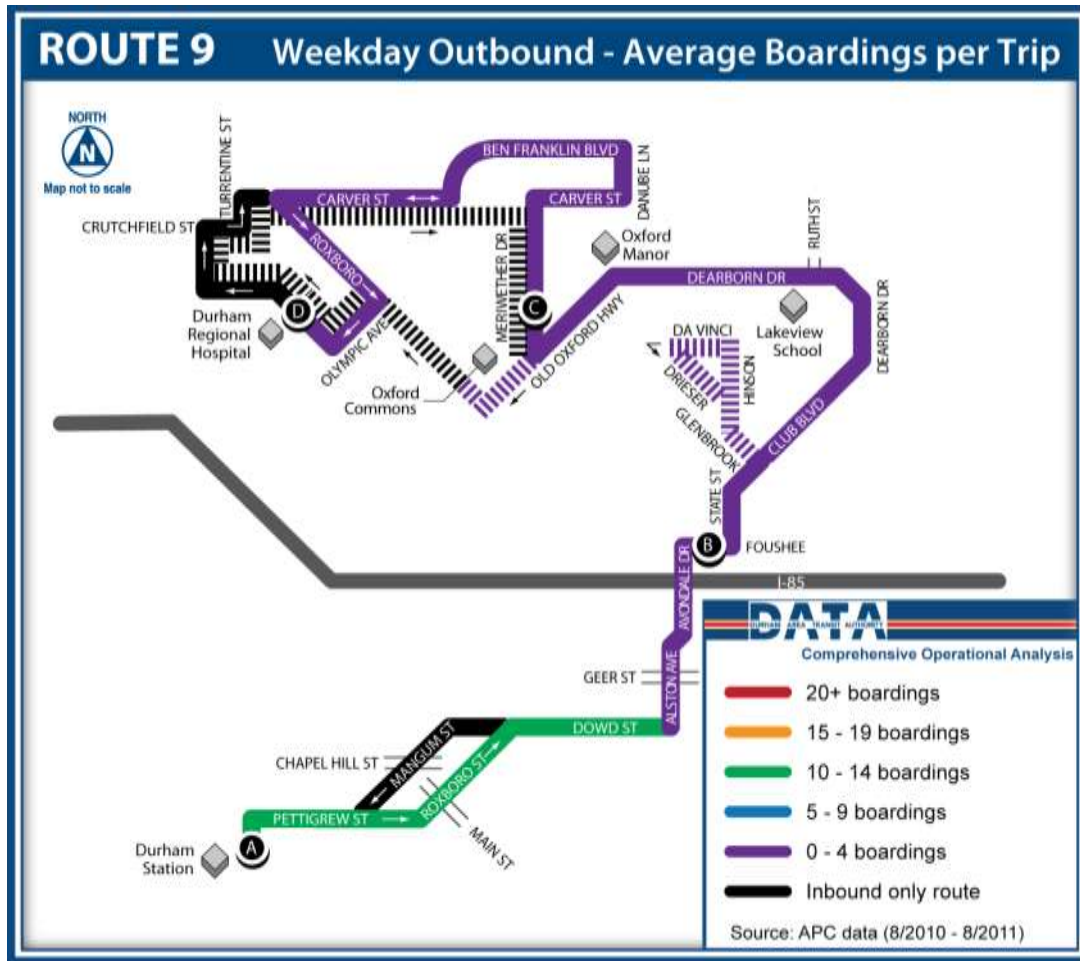
Figure 74: Route 9 – Top Boarding and Alighting Stops – Inbound



*Segment Analysis*

Figure 75 shows weekday average boardings per outbound trip by segment. Table 68 shows weekday average boardings per outbound trip by segment and time of day. The first segment of the outbound trip, from Durham Station to Alston Avenue, has the highest number of boardings per trip. During the PM peak period, there is an average of 17 boardings per trip on this segment. Beyond the intersection at Alston Avenue and Dowd Street, the number of boardings per trip varies between zero and two for each of the subsequent outbound segments. Notably, the Glenbrook deviation averages only one boarding per trip in the evening.

**Figure 75: Route 9 Weekday Average Boardings per Trip – Outbound**

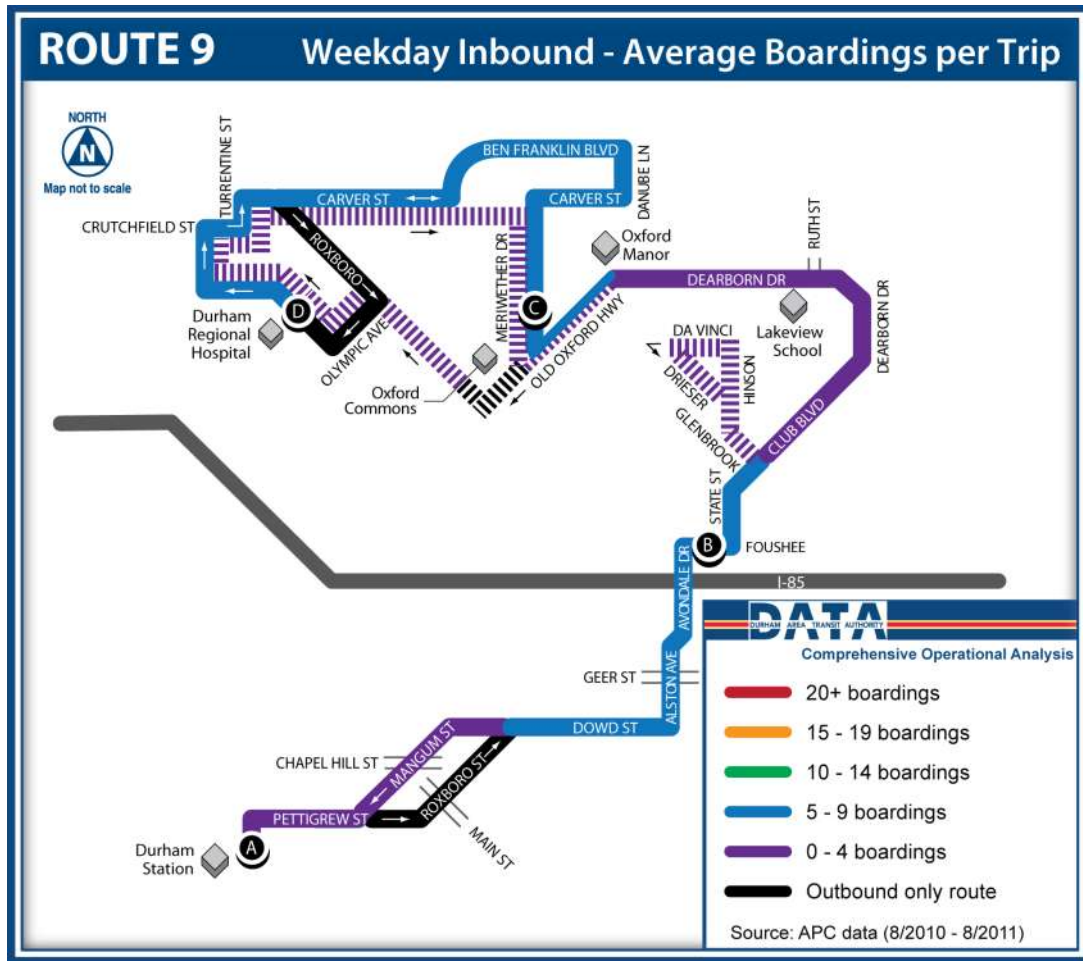


**Table 68: Route 9 Weekday Average Boardings per Trip – Outbound**

	Early AM	AM Peak	Midday	PM Peak	Evening
Durham Station to Dowd St./Alston Ave.	-	5	11	17	11
Dowd St./Alston Ave. to Club Blvd./Glenbrook	-	1	2	2	2
Club Blvd./Glenbrook to Meriwether/Carver St.	-	0	1	1	0
Club Blvd./Glenbrook to Oxford Commons	-	-	-	-	1
Meriwether/Carver St. to Durham Regional Hospital	-	0	0	0	0

Figure 76 shows weekday average boardings per inbound trip by segment. Table 69 shows weekday average boardings per inbound trip by segment and time of day. Boardings on the inbound trip are far less concentrated than on the outbound trip, and are nearly constant across all time periods. The inbound segment between Club Blvd. and Glenbrook and Dowd St. and Roxboro Road has the greatest number of boardings per trip. The last segment of the inbound route, between Dowd Street/Roxboro Street and Durham Station, has the fewest number of boardings per trip.

**Figure 76: Route 9 Weekday Average Boardings per Trip – Inbound**



**Table 69: Route 9 Weekday Average Boardings per Trip - Inbound**

	Early AM	AM Peak	Midday	PM Peak	Evening
Durham Regional Hospital to Dearborn/Old Oxford	4	4	5	5	4
Oxford Commons to Club Blvd./Dearborn Dr.	-	-	-	-	3
Club Blvd./Dearborn Dr. to Dowd St./Roxboro St.	-	-	-	-	4
Dearborn Dr./Old Oxford to Club Blvd./Glenbrook	3	4	4	3	2
Club Blvd./Glenbrook to Dowd St./Roxboro St.	6	7	7	7	5
Dowd St./Roxboro St. to Durham Station	1	1	1	1	1

Figures 77 and 78 show weekday average maximum passenger loads for outbound and inbound trips. The segments with the highest maximum passenger loads are those closest to downtown Durham. The first segment of the outbound route, from Durham Station to Alston Avenue, has an average maximum load of 10 passengers. The last two segments of the inbound route, from Glenbrook and Club Blvd. to Durham Station, have an average maximum load of 12 passengers. It is unlikely that overcrowding occurs on any segment of this route.



Figure 77: Route 9 Weekday Average Max Passenger Load – Outbound

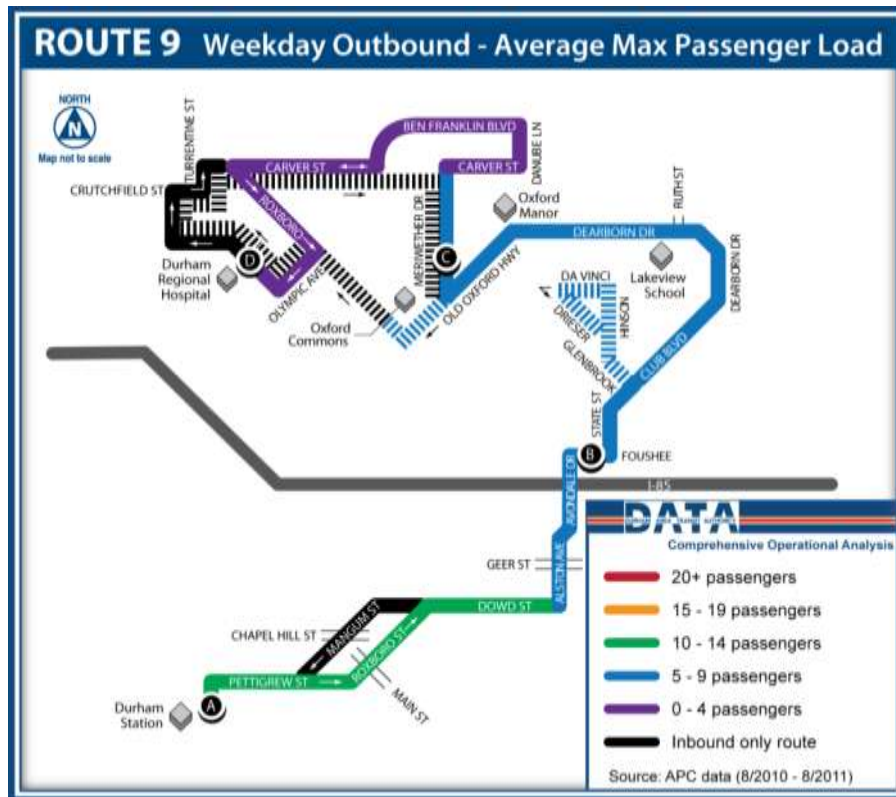
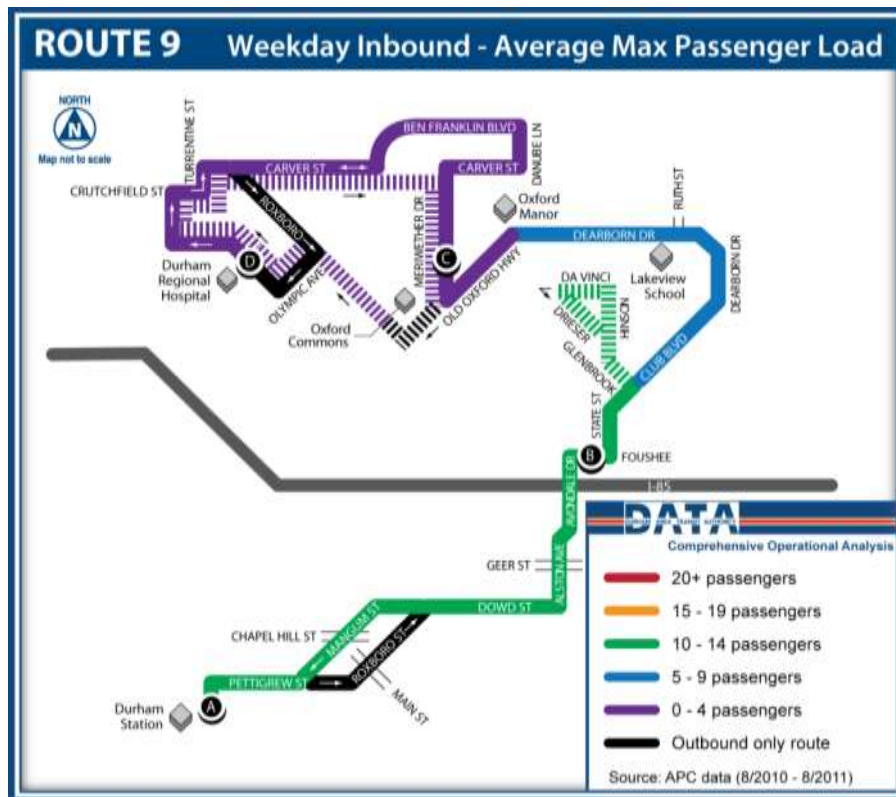


Figure 78: Route 9 Weekday Average Max Passenger Load – Inbound



### Run Time and On-time Performance

Weekday on-time performance by time period is shown in Table 70 below. Overall weekday on-time performance for route 9 is 53.0%. The route's on-time performance declines as the day progresses. The PM peak period experiences the worst on-time performance, with 29.8% of timepoints being early and 31.5% being late. The route has problems running ahead of schedule in all time periods.

**Table 70: Route 9 Weekday On-time Performance**

	EARLY AM	AM PEAK	MIDDAY	PM PEAK	EVENING	TOTAL
<b>EARLY</b>	28.9%	30.2%	31.8%	29.8%	23.3%	<b>30.0%</b>
<b>ON-TIME</b>	66.7%	62.5%	51.7%	38.7%	61.4%	<b>53.0%</b>
<b>LATE</b>	4.4%	7.3%	16.5%	31.5%	15.3%	<b>17.0%</b>

Tables 71 and 72 show weekday average run times by segment and time of day for outbound and inbound trips. In the outbound direction, the average run time is longest during the PM peak period, which is due to a longer average run time between Dowd St./Alston Ave. and Club Blvd./Glenbrook during this time period. In the inbound direction, the average run time is longest during the midday period, which is primarily due to a longer average run time between Durham Regional Hospital and Dearborn/Old Oxford during this time of day.

**Table 71: Route 9 Weekday Average Run Time – Outbound**

	Early AM	AM Peak	Midday	PM Peak	Evening
Durham Station to Dowd St./Alston Ave.	-	7.9	8.1	8.7	7.8
Dowd St./Alston Ave. to Club Blvd./Glenbrook	-	8.9	9.3	10.1	10.6
Club Blvd./Glenbrook to Meriwether/Carver St.	-	8.6	8.8	9.5	8.4
Club Blvd./Glenbrook to Oxford Commons	-	-	-	-	7.5
Meriwether/Carver St. to Durham Regional Hospital	-	2.5	2.5	2.4	2.4

**Table 72: Route 9 Weekday Average Run Time – Inbound**

	Early AM	AM Peak	Midday	PM Peak	Evening
Durham Regional Hospital to Dearborn/Old Oxford	10.1	23.9	25.1	19.9	18.1
Oxford Commons to Club Blvd./Dearborn Dr.	-	-	-	-	12
Club Blvd./Dearborn Dr. to Dowd St./Roxboro St.	-	-	-	-	9.2
Dearborn Dr./Old Oxford to Club Blvd./Glenbrook	5	5.5	5.5	5.2	4.6
Club Blvd./Glenbrook to Dowd St./Roxboro St.	15.5	16.4	16.7	16.7	15.9
Dowd St./Roxboro St. to Durham Station	4.9	5.6	6.1	5.9	5.1