

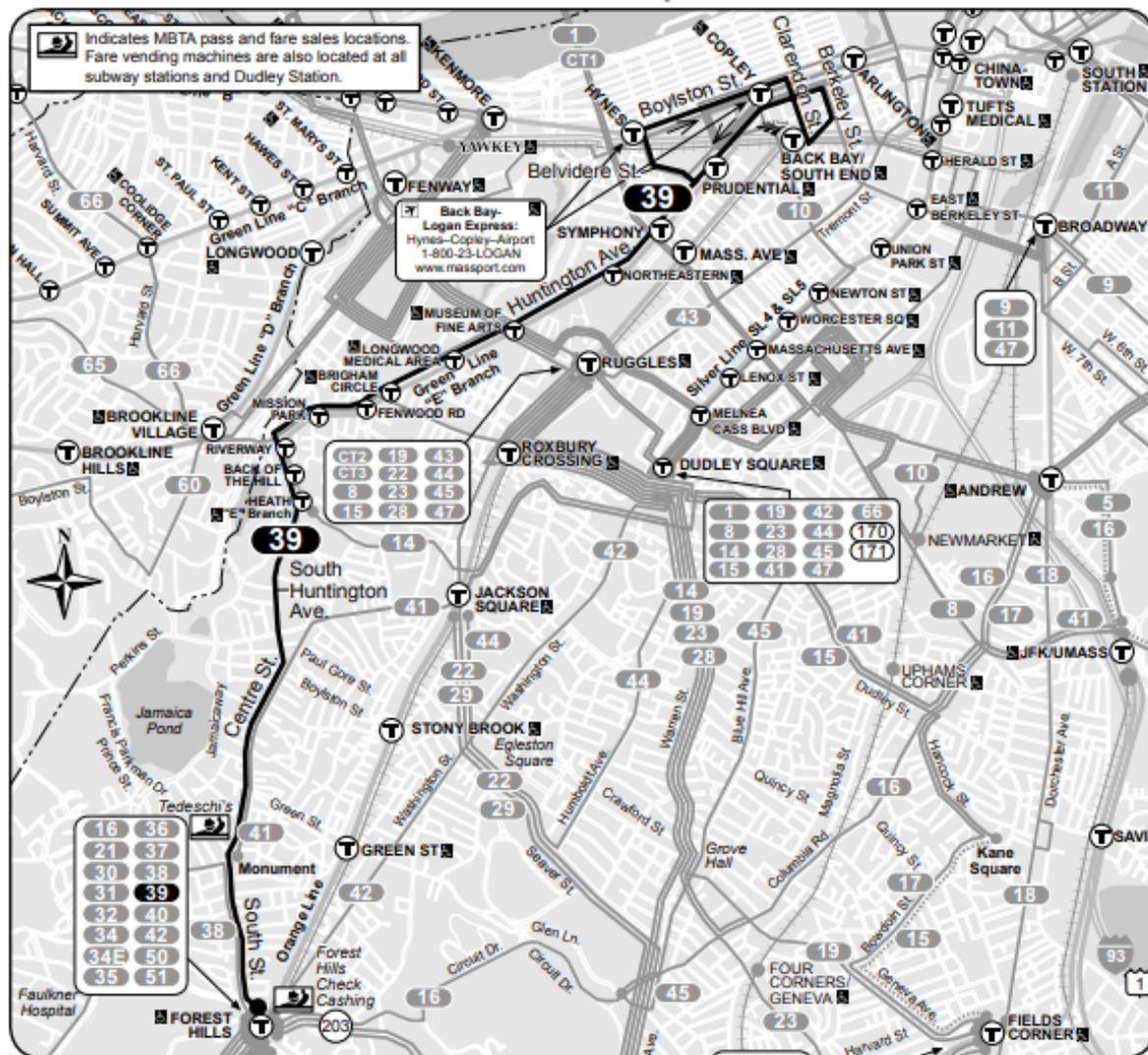
Route 39

Forest Hills Station – Back Bay Station

Route Overview

Route 39 Forest Hills Station – Back Bay Station is a Key Bus route that connects Forest Hills Station with Back Bay Station via Centre Street and Huntington Avenue (see Figure 1). Between these termini, Route 39 serves the Jamaica Plain VA Medical Center, Northeastern University, the Longwood Medical Area, the Prudential Center, and Copley Square. Route 39 has the sixth highest overall weekday ridership of any MBTA bus route.

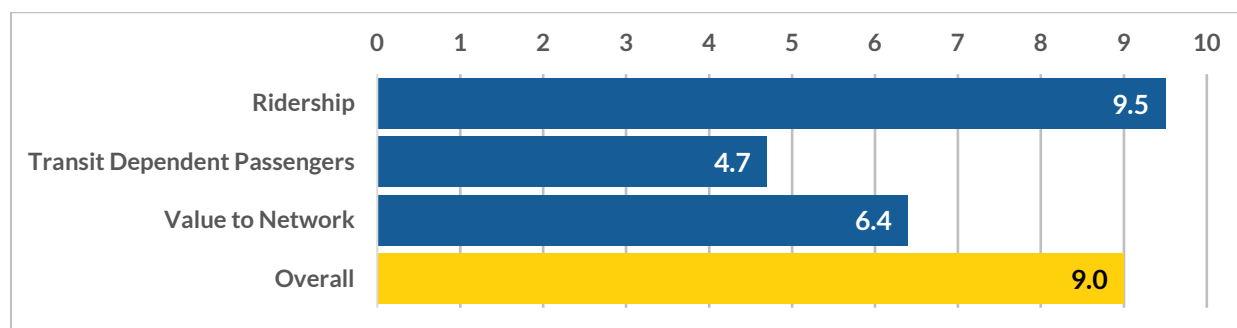
Figure 1 | Service Map



Network Importance

Route 39 is a very important route to the MBTA network (see Figure 2). On a relative scale of 0 to 10, the route rates 9.5 in terms of ridership, 4.7 in terms of transit dependent ridership, and 6.4 in terms of its value to the network (which reflects the number of people who are uniquely served, the number of jobs and other important destinations, and the number of transferring passengers). Its overall score, which gives a 70% weight to overall ridership and a 15% weight to both other measures, is 9.0.

Figure 2 | Relative Importance within MBTA Bus Network (on a scale of 0 to 10)



Service Overview

Schedule

Route 39 provides frequent service from early morning until after midnight seven days a week (see Table 1). On weekdays, it operates from 5:01 AM to 1:05 AM, at an average of every five to eight minutes during the day and every 11 to 13 minutes at night.

Table 1 | Schedule Statistics

SERVICE DAY	SPAN OF SERVICE	FREQUENCY (RANGE)	FREQUENCY (AVERAGE)	DAILY TRIPS (INBOUND/OUTBOUND)
Monday-Friday	5:01 AM to 1:05 AM			130/130
Sunrise	5:01 AM to 5:59 AM	8	8	8/5
Early AM	6:00 AM to 6:59 AM	3 - 8	6	10/7
AM Peak	7:00 AM to 8:59 AM	1 - 6	5	23/20
Midday Base	9:00 AM to 1:29 PM	6 - 15	12	23/20
Midday School	1:30 PM to 3:59 PM	11 - 13	11	13/23
PM Peak	4:00 PM to 6:29 PM	7 - 11	8	20/19
Evening	6:30 PM to 9:59 PM	8 - 12	11	19/20
Late Evening	10:00 PM to 11:59 PM	12	12	10/10
Night	12:00 AM to 1:05 AM	12 - 16	13	4/6
Saturday	5:01 AM to 1:05 AM	10 - 15	11	104/104
Sunday	5:45 AM to 1:00 AM	11 - 15	13	89/88

Note: Span of service reflects the time the first bus begins service until the time the last bus finishes service.

Route 39 operates with a similar span of service on Saturdays, with service running every 11 minutes on average. On Sundays, the first trip departs at 5:45 AM, with slightly less frequent service than on Saturdays.

Route 39 meets the span of service and service frequency standards for Key Bus Routes during all service days and periods.

Service Patterns

Most Route 39 service operates as shown in Figure 1. Exceptions are (see Table 2):

- Pattern 192.0 operates between Hyde Park and Haymarket Station via Hyde Park Avenue and Forest Hills Station. This pattern operates the first round trip of the day on weekdays to provide service to downtown Boston before the Orange Line begins service.
- Patterns 39.7 and 39.3 provide school trips between Forest Hills Station and Boston Latin High School on five AM inbound and six outbound PM trips.
- Pattern 39.9 operates on one PM outbound trip, operating between Huntington Avenue at Longwood Avenue and Boston Latin High School.

It should be noted that as of Fall 2018, Pattern 39.9 and four of five trips on Pattern 39.7 were discontinued. That service was replaced by various other routes.

Table 2 | Service Patterns

PATTERN	ORIGIN	DESTINATION	UNIQUE FEATURE	TRIPS PER WKD	TRIPS PER SAT	TRIPS PER SUN
INBOUND				131	104	89
39.3	Forest Hills Station	Back Bay Station	Primary pattern	125	104	89
192.0	Hyde Park Avenue at Oak Street	Haymarket Station	First inbound trip before Orange Line opens	1	-	-
39.7	Forest Hills Station	Boston Latin High School	School trips	5	-	-
OUTBOUND				131	104	88
39.3	Back Bay Station	Forest Hills Station	Primary pattern	123	104	88
192.0	Haymarket Station	Forest Hills Station	Return of first inbound trip to Haymarket Station	1	-	-
39.7	Huntington Avenue at Longwood Avenue	Forest Hills Station	Primarily an additional Boston Latin school trip	1	-	-
39.9	Boston Latin High School	Forest Hills Station	School trips	6	-	-

Ridership

Route 39 carries 11,600 passengers per weekday, 6,700 riders per Saturday, and 5,300 riders per Sunday. It is the sixth highest ridership route in the system on weekdays, Saturdays, and Sundays.

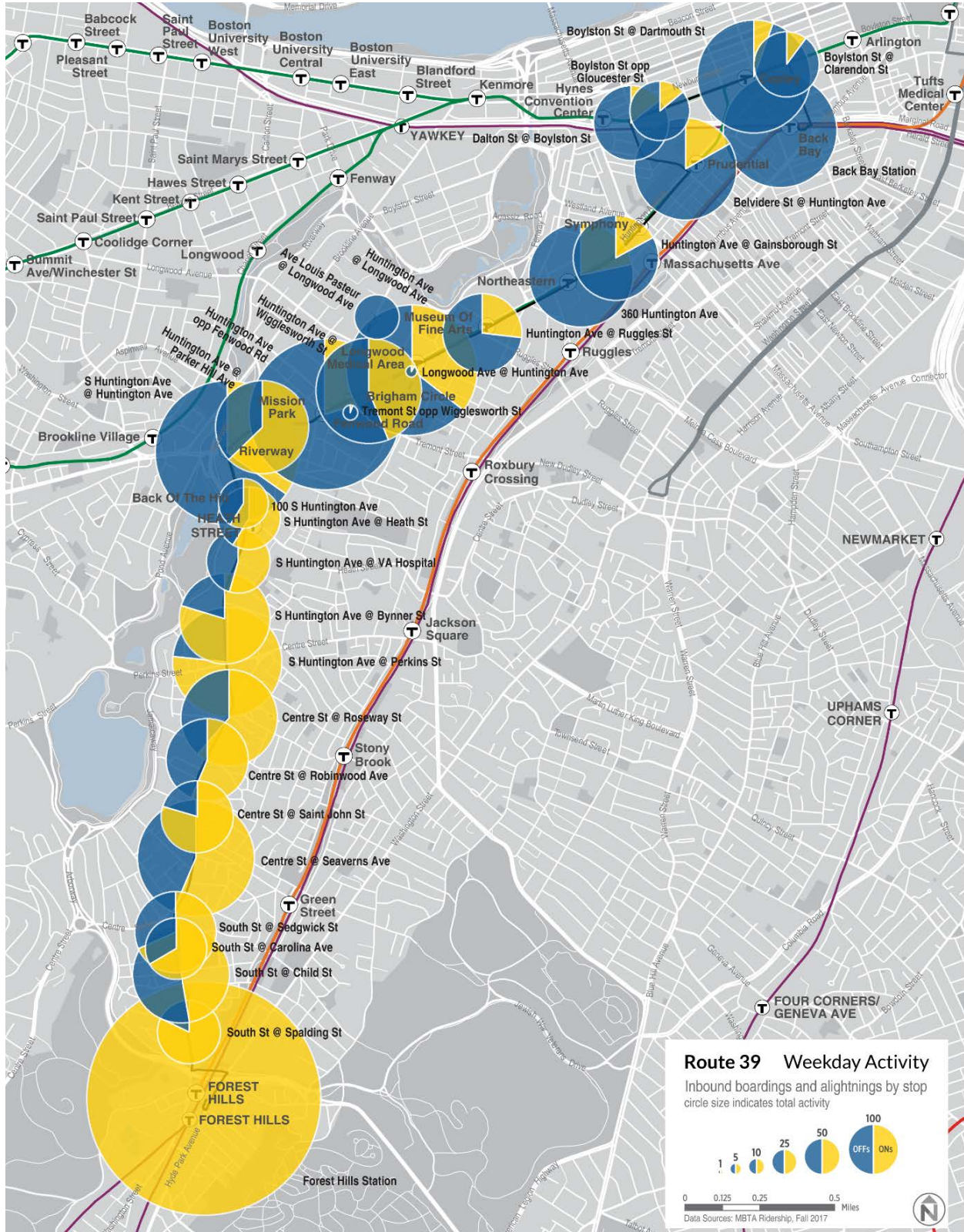
Ridership by Stop

Route 39 has high ridership along its entire length. On weekdays inbound from Forest Hills Station (see Figure 3):

- Just over one third of all Route 39 inbound riders (2,180) board at Forest Hills Station. This is by far the highest boarding stop on the route (no other stop reaches 400 daily boardings).
- Both boardings and alightings are very high along South Street and Centre Street, with a total of 1,440 boardings and 900 alightings.
- A total of 870 passengers board and 360 alight along South Huntington Avenue. The VA Hospital stop along this section is one of Route 39's lowest ridership stops.
- Ridership activity increases along Huntington Avenue. The two stops before the Longwood Medical area serve 510 boardings and 670 alightings.
- The three stops that serve the Longwood Medical Area serve a total of 620 boardings and 1,420 alightings. The highest ridership stop is Huntington Avenue at Fenwood Avenue, which is the stop closest to the Brigham and Women's Hospital complex off of Francis Street (190 boardings and 730 alightings).
- A total of 210 passengers board and 760 alight at the remaining three stops on Huntington Avenue, two of which serve Northeastern University.
- A total of 70 passengers board and 350 alight on the jog over to Boylston Street via Belvidere Street and Dalton Street.
- A total of 52 passengers board and 310 alight at the two stops on Boylston Street before Copley Station.
- 30 passengers board and 480 alight at Boylston Street at Dartmouth Street, which is the stop closest to Copley Station.
- 510 passengers alight at the final stop at Back Bay Station.

As described above, there are five inbound school trips to Boston Latin School. In total, these trips transport 80 students to the school. In the other direction, six outbound trips carry 110 students. Both figures indicate that more service is provided than is needed.

Figure 3 | Weekday Inbound Ridership by Stop Map



Ridership by Trip

On weekdays, inbound ridership by trip is very high from the beginning of service until about 7:00 PM and outbound ridership is very high from 6:30 AM through the evening:

- Inbound ridership starts high and is highest from 6:00 AM to 9:00 AM, with most trips exceeding 60 boardings and some trips with over 90 boardings (see Figure 4). Midday ridership generally ranges from 45 to over 80 passengers. PM peak ridership per trip is generally 60 to 70 passengers. Ridership then drops off rapidly beginning at about 7:00 PM, declining from 30 passengers per trip to around 5 passengers per trip towards the end of service.
- Outbound ridership starts with lower volumes, increasing to 30 to 40 passengers during the AM peak (see Figure 5). From 11:00 AM to the beginning of the PM peak it grows from around 40 passengers per trip to over 60. PM peak ridership is then extremely high with most trips carrying more than 80 passengers and one trip carrying more than 110 passengers. Evening ridership declines from around 50 to 70 passengers at 7:00 PM to fewer than 20 around midnight.

AM peak inbound trips carry loads that are often about 50 passengers and as high as 60 passengers. PM outbound crowding is significantly more severe, with many trips carrying over 60 passengers and one trip averaging 75 passengers. Although ridership per trip is very high, service is provided with 60-foot articulated coaches that have enough capacity to accommodate high loads. On average, most trips have loads that are within the MBTA's loading standards. Several outbound trips before 4:00 PM have loads greater than 125% of seating capacity for an articulated bus.

On Saturdays, ridership is significantly lower than on weekdays but still high (see Figure 6 and Figure 7). Most inbound trips between 6:30 AM and 7:00 PM carry over 40 passengers, and most outbound trips between noon and 10:00 PM carry over 40 passengers.

Sunday ridership patterns are similar to those on Saturdays, but with slightly lower ridership per trip (see Figure 8 and Figure 9).

Figure 4 | Weekday Ridership by Trip: Inbound

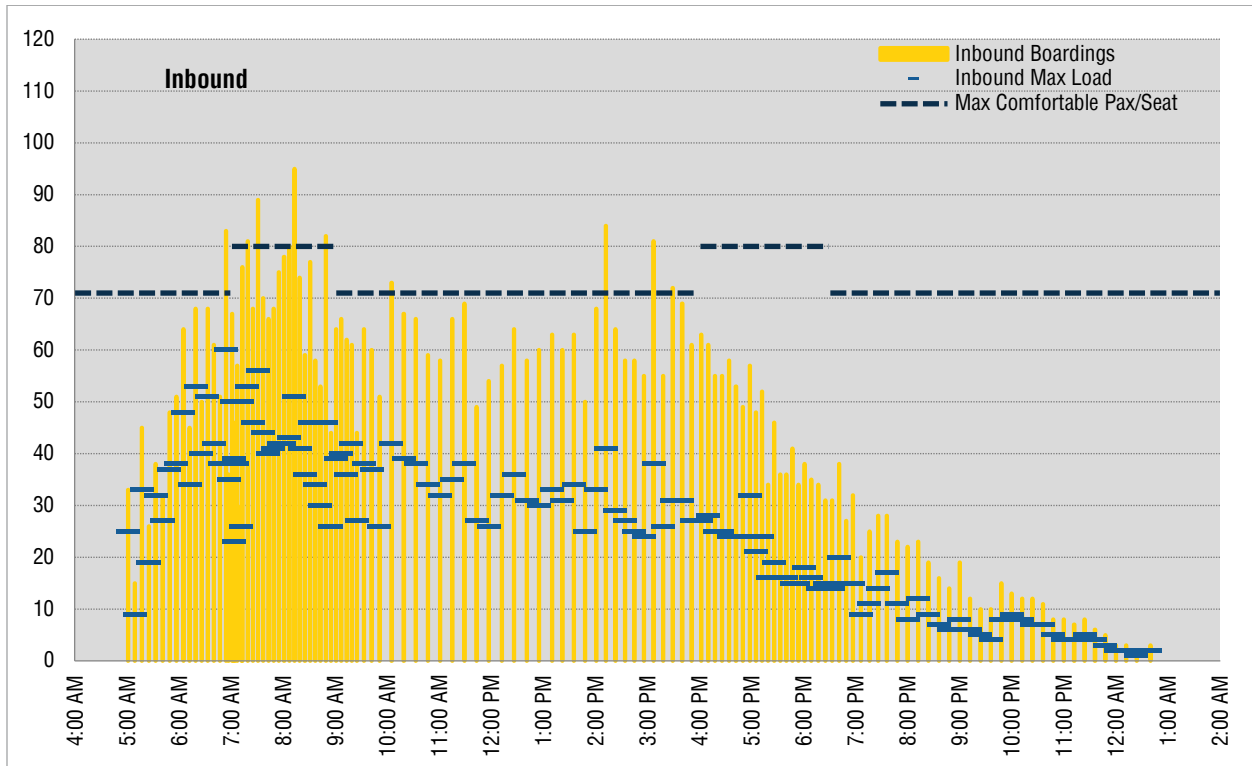


Figure 5 | Weekday Ridership by Trip: Outbound

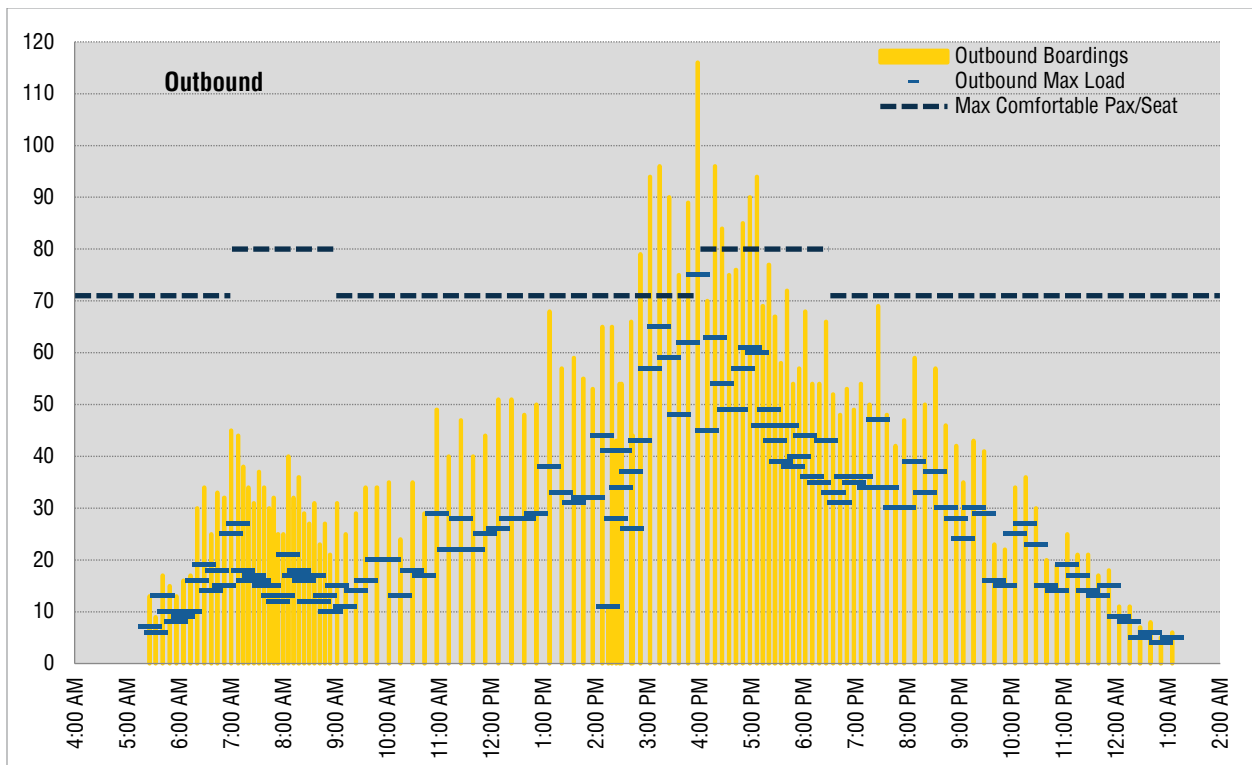


Figure 6 | Saturday Ridership by Trip: Inbound

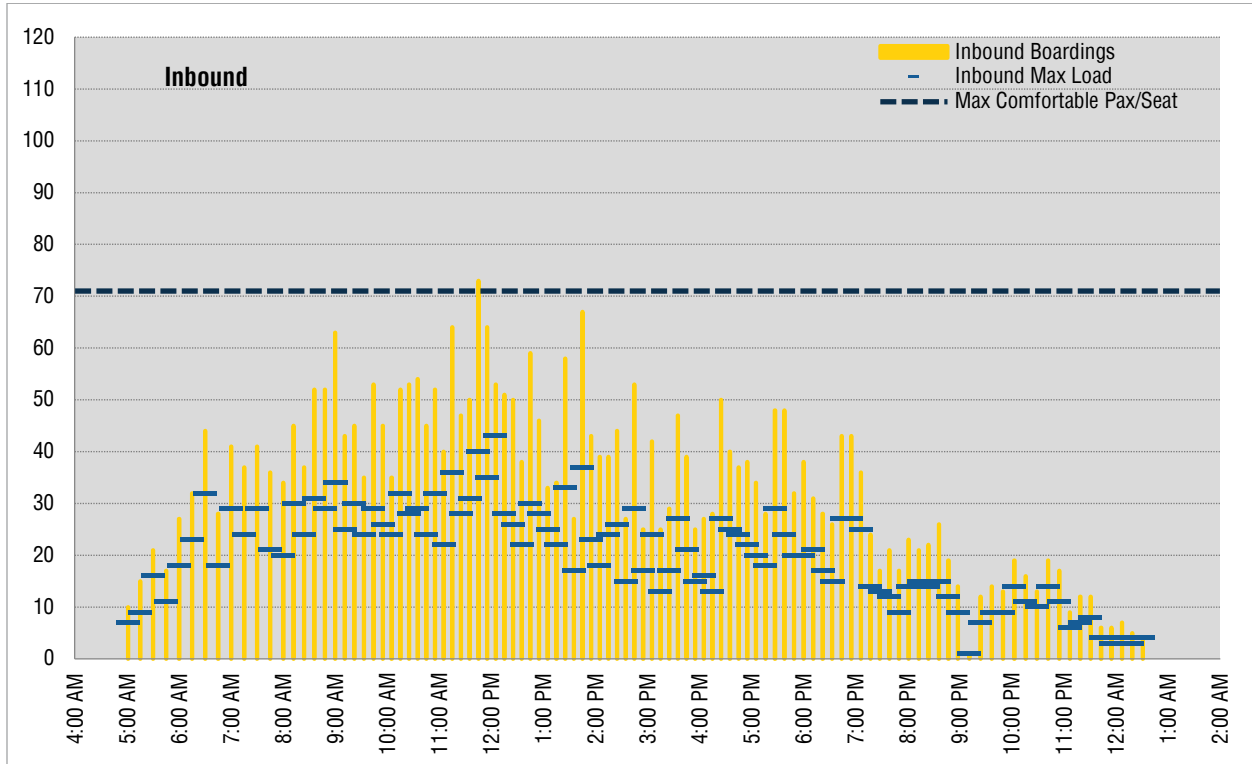


Figure 7 | Saturday Ridership by Trip: Outbound

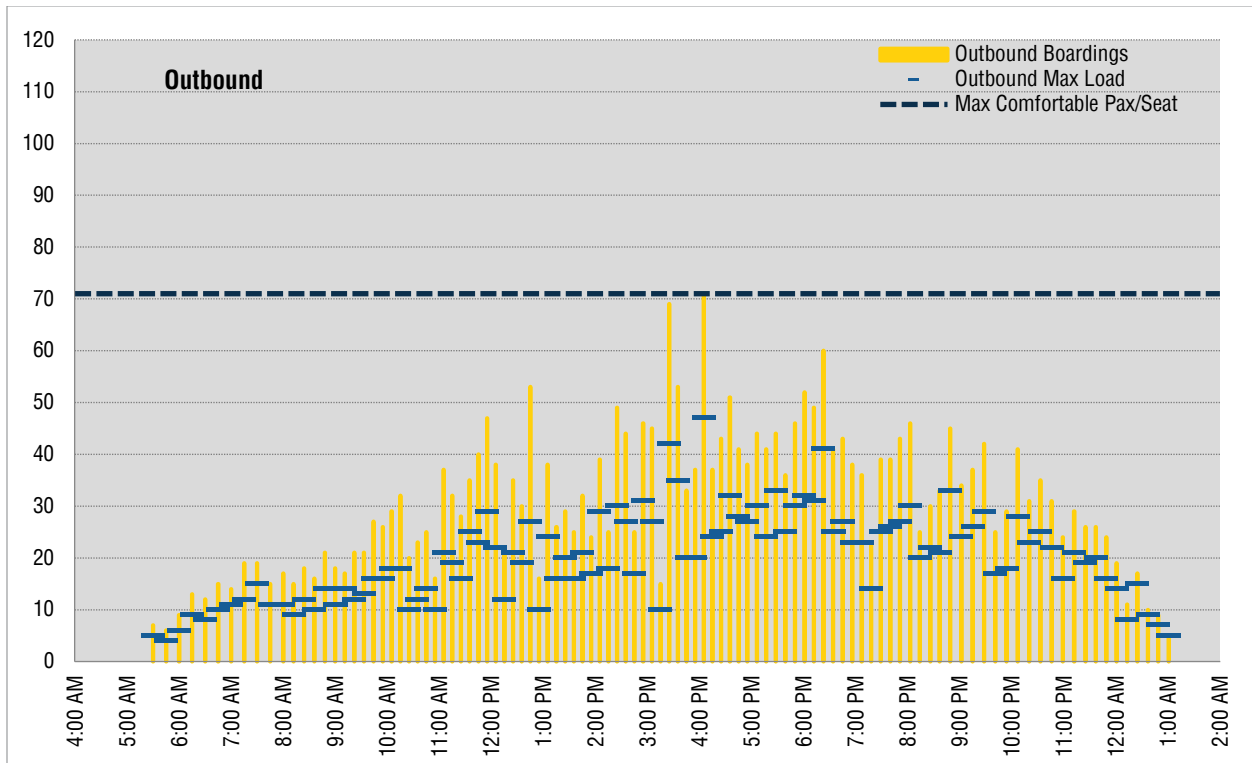


Figure 8 | Sunday Ridership by Trip: Inbound

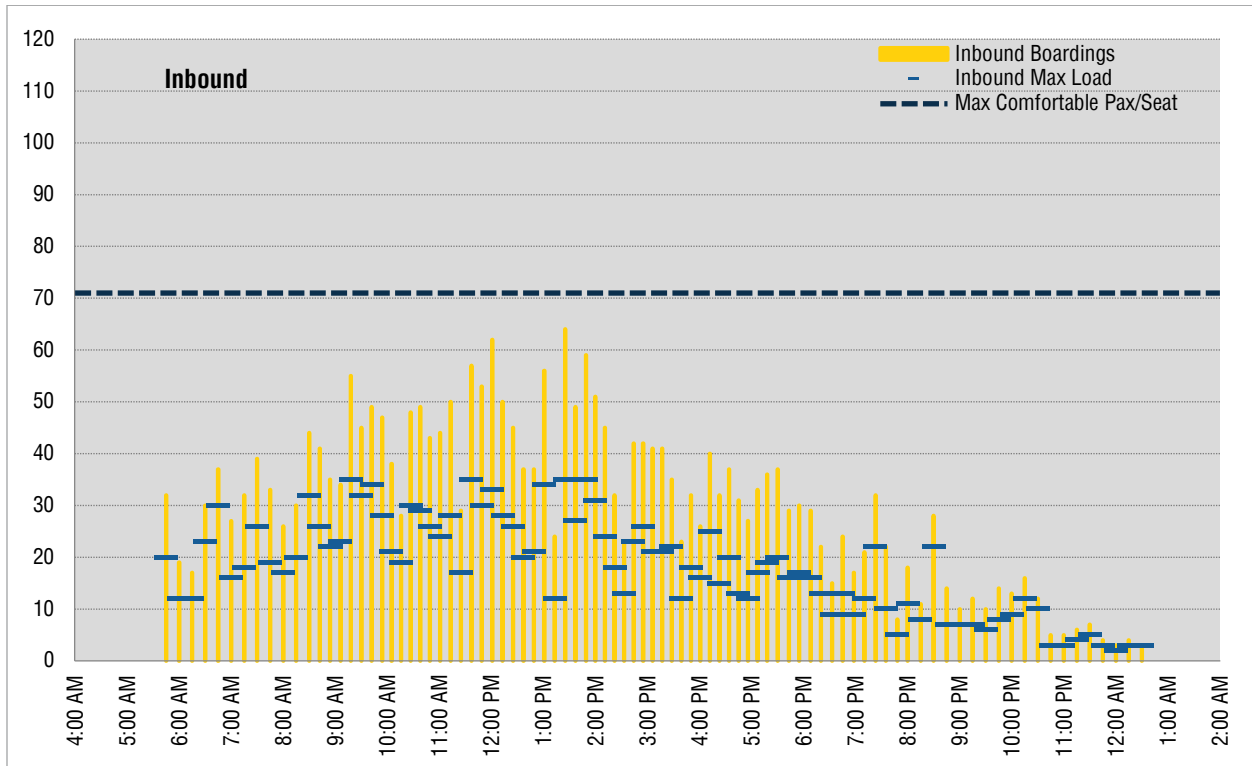
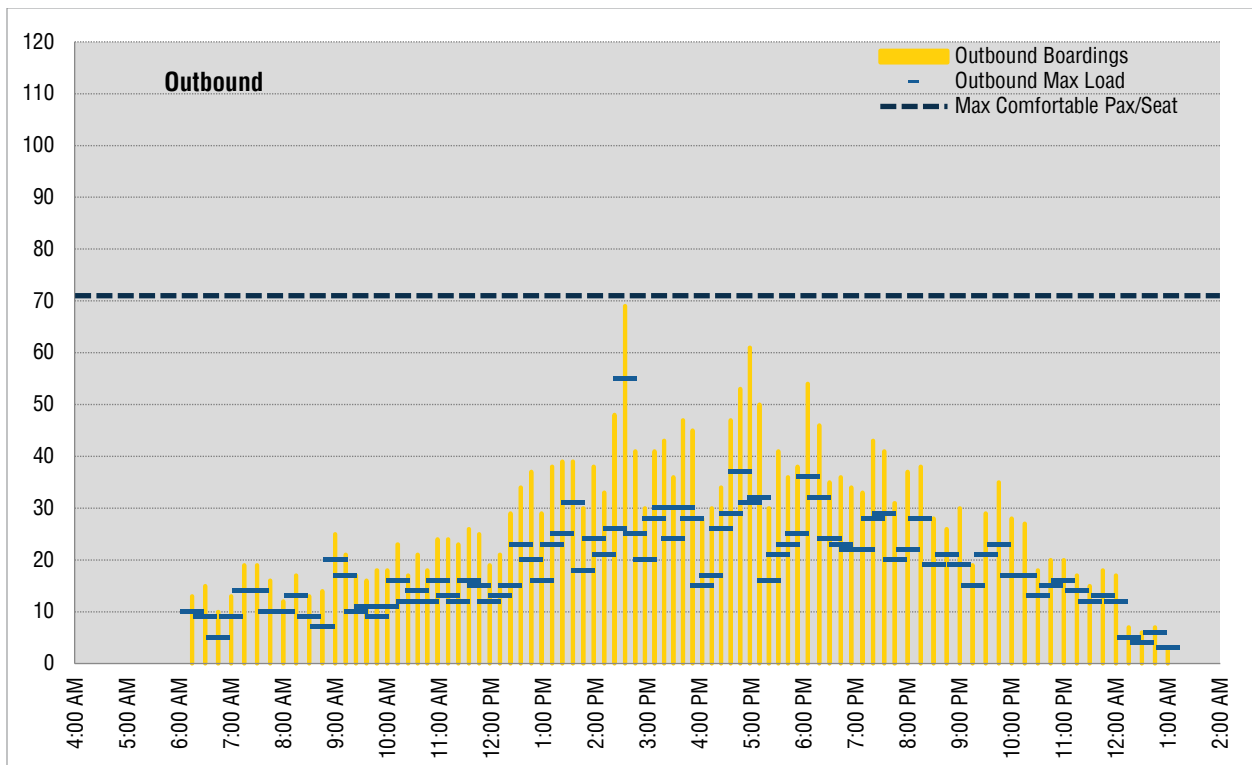


Figure 9 | Sunday Ridership by Trip: Outbound



Passenger Comfort

The MBTA desires that passengers travel in relatively comfortable conditions. At the same time, the MBTA's definition of comfort reflects the very high volume environment in which the MBTA operates, and that some passengers may have to stand for a portion of their trip. More specifically, at least 92% of passengers' travel times should be in comfortable conditions, and ideally, at least 96% of travel times should be in comfortable conditions. Comfortable conditions are considered to be 140% or less of seated capacity during high volume periods and 125% or less during other periods.

On weekdays, 94.7% of passenger minutes on Route 39 are in comfortable conditions. This is above the minimum standard, but below the target standard (see Table 3). As described in the next section, nearly 3% of weekday trips are missed, which increases loads beyond the averages. Crowding on many peak period, peak direction trips combined with a high number of missed trips and other operational problems mean that many passengers, in absolute terms, do experience overcrowding.

On Saturdays and Sundays, 97% and 99.7% of passenger minutes are spent in comfortable conditions. Both of these figures are well above the minimum and target standards.

Table 3 | Passenger Time Spent Traveling in Comfortable Conditions

	WEEKDAYS	SATURDAYS	SUNDAYS
Minimum Standard	92%	92%	92%
Target	96%	96%	96%
Actual	94.7%	97%	99.7%

Reliability and Speed

Reliability

Route 39 is more reliable than other local MBTA routes. On weekdays, 75% of trips depart on time and 71% of trips arrive on time (departures zero to three minutes late and arrivals within five minutes of scheduled times). This meets the MBTA's Key Bus route standard of 75%. However, because peak period schedule is scheduled with little or no extra capacity, this off-schedule performance often creates overcrowding. Dropped trips are also a significant issue, with 2.8% of trips not operated in Fall 2017. This also creates and exacerbates overcrowding.

On weekends, only 68% of trips are completed on time and 66% of Sunday trips are completed on time.

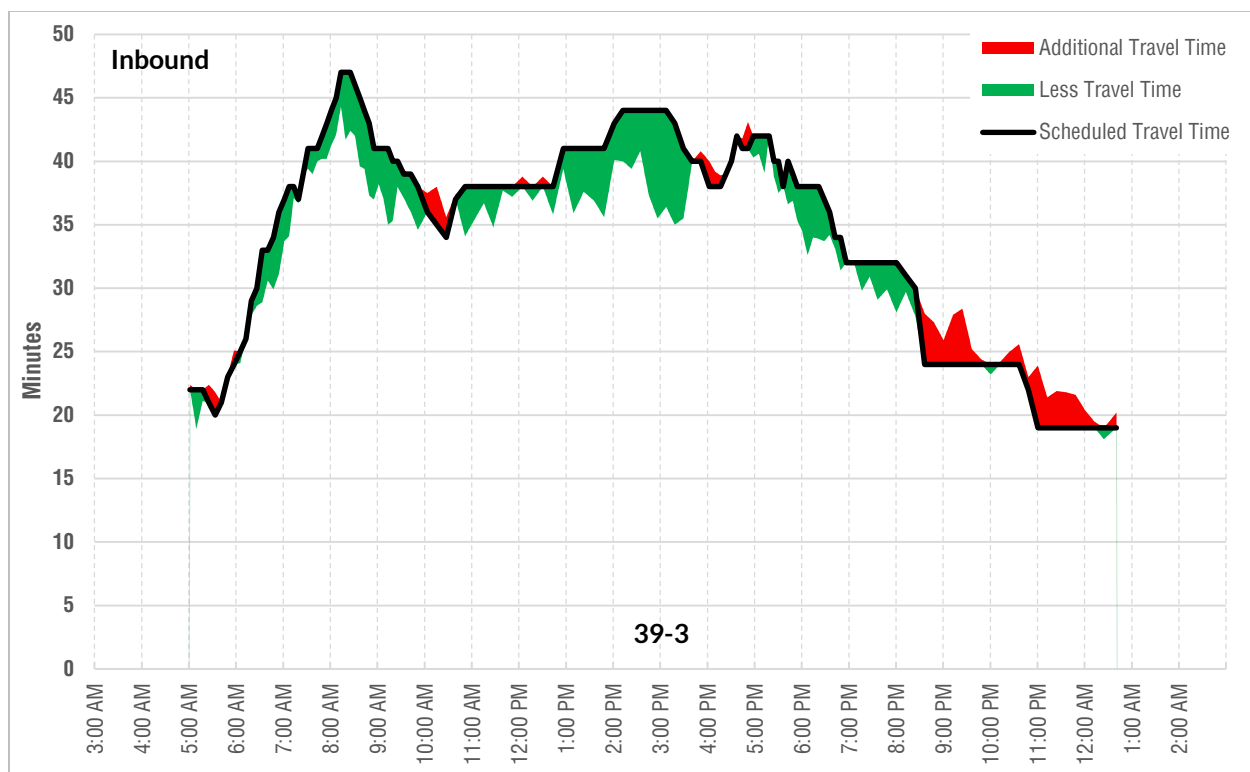
Table 4 | Reliability

SERVICE DAY	ORIGIN/MID-ROUTE ON-TIME PERFORMANCE	DESTINATION ON-TIME PERFORMANCE	OVERALL RELIABILITY	DROPPED TRIPS
Monday-Friday	75%	71%	75%	2.8%
Saturday	74%	68%	73%	-
Sunday	75%	66%	74%	-

Running Times

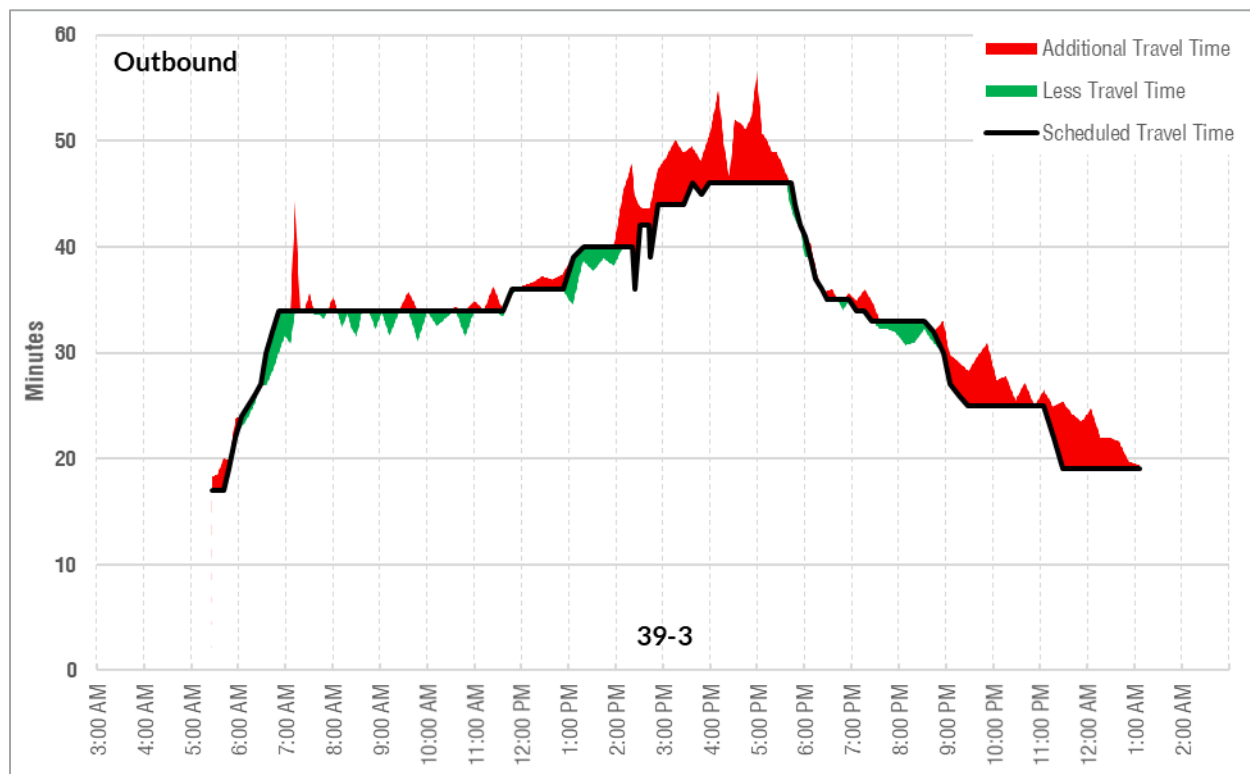
One reason for the relatively good weekday on-time performance is that actual inbound running times are much shorter than scheduled running times for most of the day, and between 1:00 PM and 4:00 PM, are generally five to 10 minutes shorter (see Figure 10). After 9:00 PM, running times are slightly longer than scheduled until the end of service.

Figure 10 | Scheduled & Median Travel Time by Trip: Route 39 Inbound



Actual travel times on outbound trips generally match scheduled travel times for most of the day, but travel times are five to 10 minutes longer than scheduled travel times between 2:00 PM and 5:00 PM in the afternoon, and up to five minutes longer than scheduled travel times from 9:00 PM through the end of service (see Figure 11).

Figure 11 | Scheduled & Median Travel Time by Trip: Route 39 Outbound



Stop Spacing

Along the 2.3-mile long South Street/Centre Street/South Huntington Avenue corridor, there are 15 stops, which translates to an average of 800 feet between stops. This is shorter than the recommended stop spacing of 900 to 1,300 feet. Some stops along this corridor are even closer than 800 feet. For example, the stops at Child Street and Carolina Avenue south of Jamaica Plain Center on South Street are only 460 feet apart. The distance to the next stop from Carolina Avenue, at Sedgwick Avenue, is only 290 feet. Similarly, the distance between the Heath Street and 100 S Huntington Avenue stops along South Huntington Avenue (before Huntington Avenue) is only 330 feet. Stops that are too closely spaced result in inconsistent ridership activity. The stop at Child Street serves 180 boardings and 200 alightings inbound on weekdays, but the next stop at Carolina Avenue only serves 100 boardings and 50 alightings.

Since the development of this document, the MBTA has discontinued the stop at South Street and Carolina Avenue.

Summary

Route 39 is an extremely high ridership route that provides very frequent service for long hours seven days a week.