

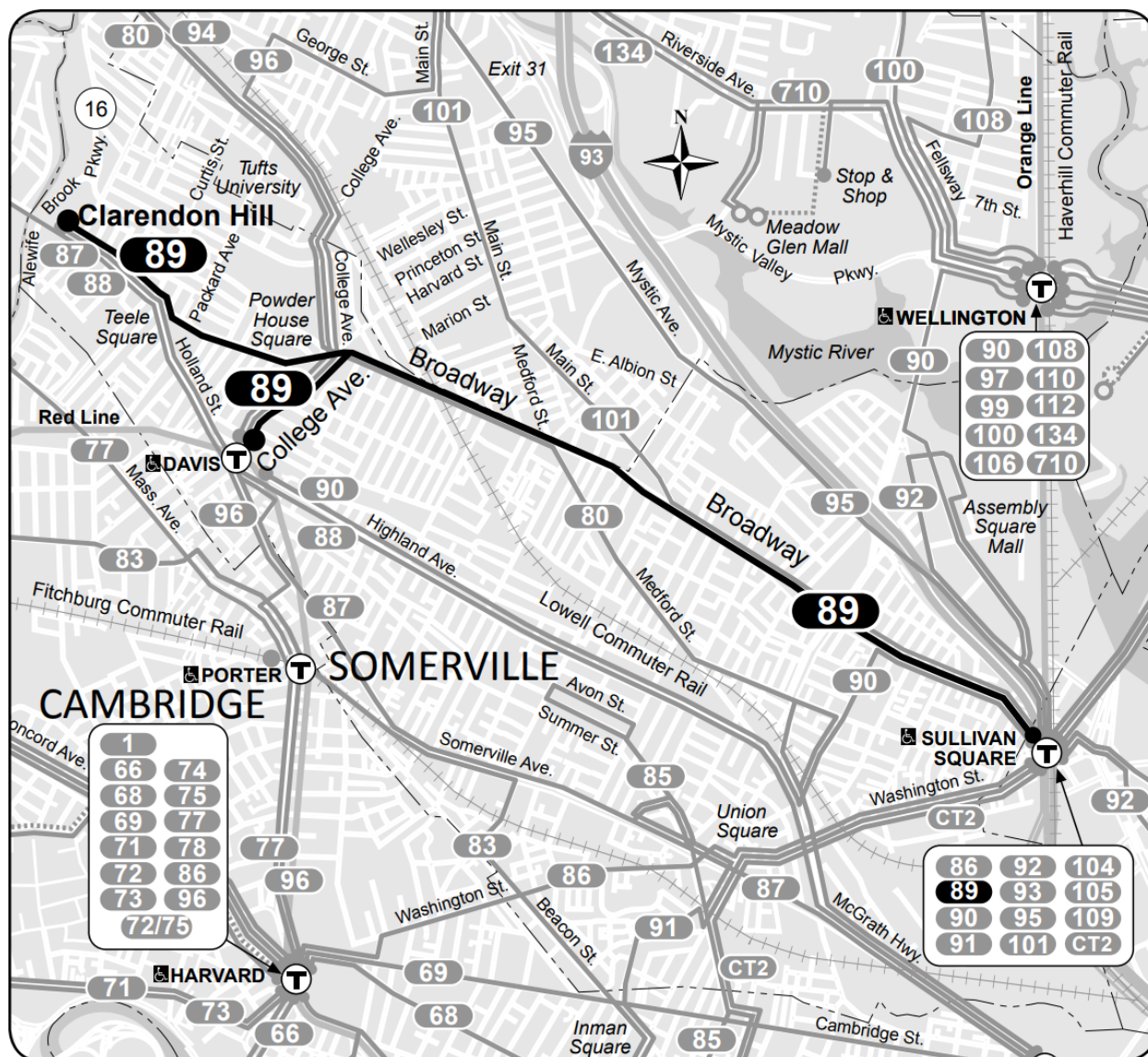
Route 89

Clarendon Hill or Davis Square – Sullivan Square Station

Route Overview

Route 89 Clarendon Hill or Davis Square – Sullivan Square Station is a Local route that operates between Clarendon Hill or Davis Square and Sullivan Square Station (see Figure 1). Most weekday and Saturday trips alternate between the two outer terminals at Clarendon Hill and Davis Square. All Sunday service operates to and from Clarendon Hill.

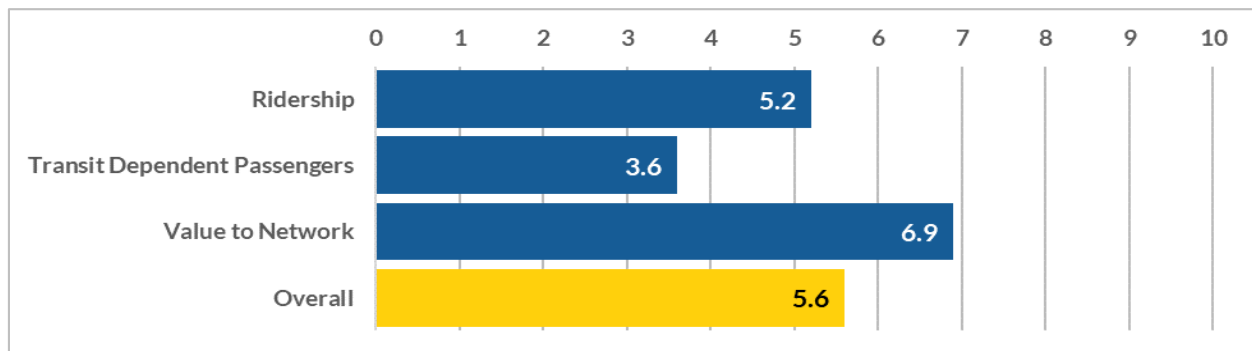
Figure 1 | Service Map



Network Importance

Route 89 is a moderately important route within the MBTA network (see Figure 2). On a relative scale of 0 to 10, the route rates 5.2 in terms of ridership, 3.6 in terms of transit dependent ridership, and 6.9 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 5.6.

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



Service Overview

Schedule

On weekdays, Route 89 operates from 4:33 AM to 1:20 AM. Along its trunk between the intersection of Broadway at College Avenue and Sullivan Square Station, it provides frequent to moderately frequent service during the day and into the early evening, and every 60 minutes at night (see Table 1). Service to the two branches (Clarendon Hill and Davis Square) is moderately frequent during peak periods and the shoulders of the peaks and infrequent during the middle of the day. In more detail:

- Inbound service between 4:33 AM and 5:40 AM is all from Clarendon Hill and, with the exception of the first trip, operates every 20 minutes.
- Inbound service from 6:00 AM to 8:50 AM operates every 20 minutes from each branch and every eight to 12 minutes along the trunk.
- Outbound service from the start of service at 5:20 AM to 9:19 AM averages every 20 minutes to each branch and every 10 minutes on the trunk, although headways are irregular.
- During the middle of the day through 3:45 PM inbound and 12:15 PM outbound, with the exception of one scheduled trip, service operates every 60 minutes to and from the branches and averages every 30 minutes on the trunk. Headways on the trunk are irregular in both directions.

Table 1 | Schedule Statistics

SERVICE DAY	SPAN OF SERVICE	FREQUENCY (RANGE)	FREQUENCY (AVERAGE)	DAILY TRIPS (INBOUND/OUTBOUND)
Monday-Friday	4:33 AM to 1:20 AM			61/59
Sunrise	4:33 AM to 5:59 AM	20	20	3/2
Early AM	6:00 AM to 6:59 AM	10 – 20	12	6/5
AM Peak	7:00 AM to 8:59 AM	10 – 35	12	12/11
Midday Base	9:00 AM to 1:29 PM	20 – 35	29	9/11
Midday School	1:30 PM to 3:59 PM	10 – 35	25	6/5
PM Peak	4:00 PM to 6:29 PM	5 – 30	10	13/12
Evening	6:30 PM to 9:59 PM	10 – 60	26	9/9
Late Evening	10:00 PM to 11:59 PM	60	60	2/2
Night	12:00 AM to 1:20 AM	60	60	1/2
Saturday	4:33 AM to 1:29 AM	23 – 50	36	32/32
Sunday	5:15 AM to 1:11 AM	60 – 70	69	17/17

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

- From 3:45 PM to 4:40 PM inbound and 12:15 PM to 4:45 PM outbound, service to each branch generally operates every 30 minutes and every 15 minutes on the trunk.
- From 4:40 PM to 7:00 PM, inbound service operates every 20 minutes from each branch and every eight to 12 minutes on the trunk. Outbound service is more irregular and ranges from 13 to 21 minutes to each branch and two to 15 minutes on the trunk.
- All service after 7:30 PM operates to Davis Square and most service operates every 60 minutes.

On Saturdays, the first three inbound trips operate from Clarendon Hill. After those trips, service alternates between Clarendon Hill and Davis Square. The first three inbound trips operate 23 to 24 minutes apart, and headways from each branch then lengthen to 70 minutes through approximately 7:30 PM. After that time, all service operates to and from Clarendon Hill, and headways improve to mostly every 50 minutes.

On Sundays, all service operates to and from Clarendon Hill. Most service before 10:00 PM operates every 70 minutes and service after 10:00 PM operates every 60 minutes.

Route 89 does not meet the MBTA’s service frequency standards during a number of periods:

- To and from the branches for most of the day on Saturdays, when service operates every 70 minutes versus the service standard of at least every 60 minutes. Although branches are often excepted from the service standards due to much lower ridership levels, Davis Square, which is at the end of one branch, is Route 89’s second highest ridership stop.

- On Sundays, when most service also operates every 70 minutes.

Since this document was developed, Route 80 service has been modified to accommodate Green Line Extension construction and the planned long-term closure of Broadway bridge near Ball Square.

Service Patterns

Route 89 is a branched route with outer terminals at Clarendon Hill and Davis Square. On weekdays, inbound service before 6:00 AM and all service after 7:30 PM operate to and from Clarendon Hill. Between those times, trips alternate between Clarendon Hill and Davis Square. Exceptions to this pattern include (see Table 2):

- One weekday inbound school trip at 2:30 PM that departs from Broadway at Weston Avenue to serve Matignon High School.
- The last outbound trip on weekdays and Saturdays that operates to Davis Square and then continues on to Clarendon Hill.

Historically, all Route 89 trips ran to Clarendon Hill. In 2005, the MBTA began running some trips to Davis Square to provide a new connection to the Red Line and better serve a requested local connection within Somerville. Additional trips were switched from Clarendon Hill to Davis Square in 2009, resulting in the current pattern.

Table 2 | Service Patterns

PATTERN	ORIGIN	DESTINATION	UNIQUE FEATURE	TRIPS per WKD	TRIPS per SAT	TRIPS per SUN
INBOUND				61	32	17
89.0	Clarendon Hill	Sullivan Station	From Clarendon Hill	29	13	17
89.1	Broadway at Weston Ave	Sullivan Station	PM school trip that serves Matignon High School	1	-	-
89.2	Davis Station	Sullivan Station	From Davis Station	31	19	-
OUTBOUND				59	32	17
89.0	Sullivan Station	Clarendon Hill	To Clarendon Hill	27	12	17
89.2	Sullivan Station	Davis Station	To Davis Station	31	19	-
89.4	Sullivan Station	Clarendon Hill	Last trip of the day, operates via Davis Square	1	1	-

Ridership

Route 89 carries 3,370 passengers on weekdays 1,460 passengers on Saturdays, and 610 passengers on Sundays.

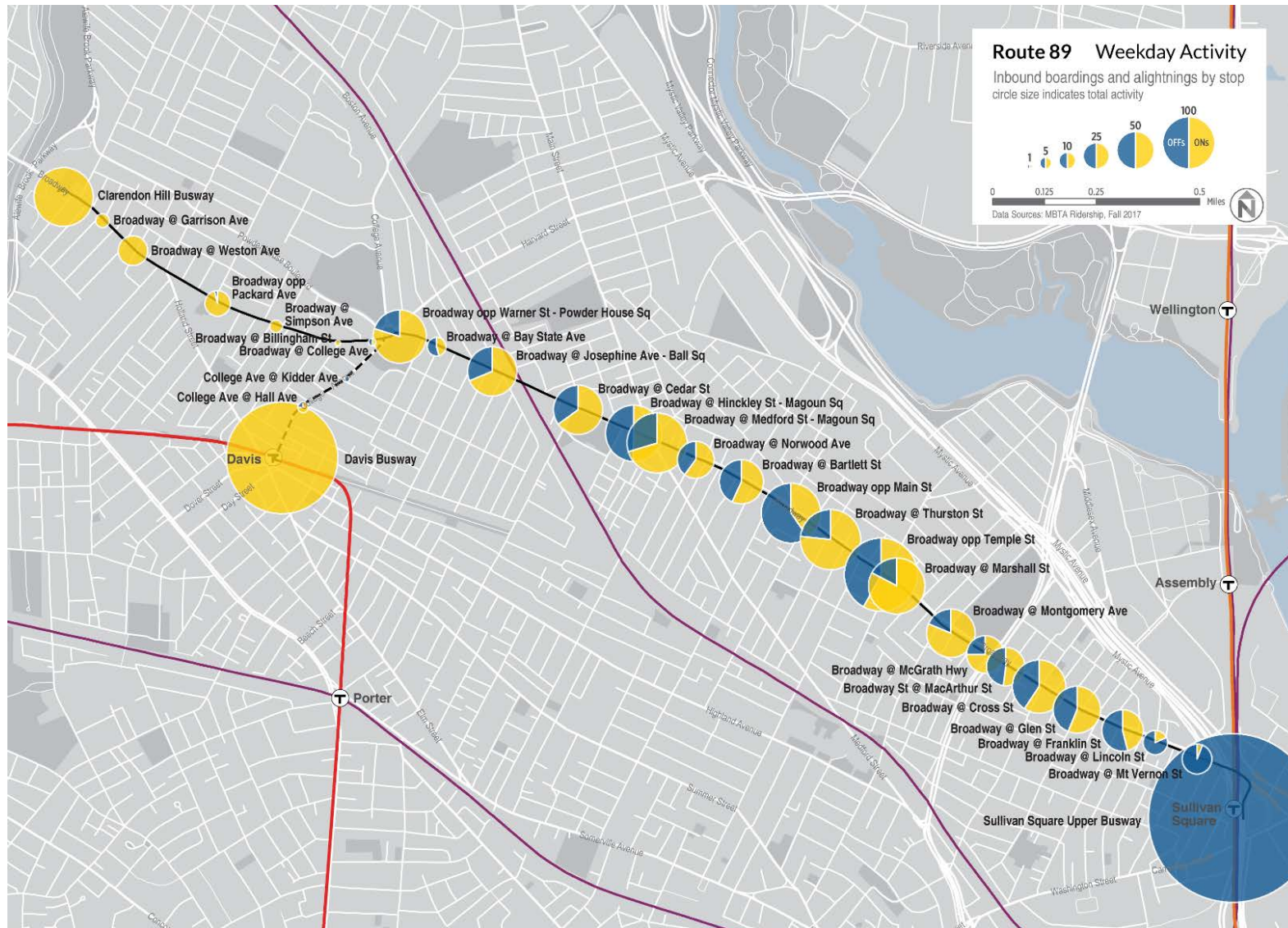
Ridership by Stop

Most riders use Route 89 to travel to and from Sullivan Square Station and Davis Station in Davis Square. However, there is also a large amount of ridership turnover at intermediate stops. On weekday inbound trips (see Figure 3):

- 460 passengers board and fewer five alight at the two stops serving Davis Square branch. Nearly all of the boardings are at Davis Station.
- 290 passengers board and fewer than 10 alight at the six stops on the Clarendon Hill branch. 130 of these boardings, or 45%, are at the Clarendon Hill busway.
- 360 passengers board and 190 alight on Broadway between Powder House Square and Magoun Square.
- 740 passengers board and 490 alight between Magoun Square and Sullivan Square Station. The highest activity is in Winter Hill, including Broadway at Temple Street, which is the closest stop to the Somerville Housing Authority's Mystic View development, with 110 boardings and 80 alightings.
- 1,070 passengers, or 61% of all inbound passengers, alight at Sullivan Square Station.

Outbound patterns are similar, but in the reverse. Saturday patterns are also similar. However, Sunday patterns are similar between Sullivan Square Station and Clarendon Hill, and service does not operate to Davis Square on Sundays.

Figure 3 | Weekday Inbound Ridership by Stop Map



Ridership by Trip

Route 89's ridership is peak oriented and bi-directional as large numbers of passengers travel to both Sullivan Square Station and Davis Station. On weekday inbound trips (see Figure 4):

- Ridership on the first trip at 5:00 AM is 32 passengers. Trips from 5:00 AM to 7:00 AM carry 17 to 29 passengers.
- Between 7:00 AM and 8:30 AM, ridership increases to 40 to 60 passengers per trip. Some of these trips have maximum loads that are close to the maximum load standard of 52 passengers.
- From 8:30 AM to 3:00 PM, ridership per trip generally ranges from 20 to 30 passengers. The 2:30 PM school trip from Matignon High School carries 21 passengers, approximately half of whom are students, and has a maximum load of 14 passengers. The following inbound trip at 2:45 PM carries 26 total passengers with a maximum load of 17 passengers.
- From 3:20 PM until nearly 7:00 PM, ridership increases to over 30 passengers per trip and exceeds 50 or more on some trips.
- After 7:00 PM, ridership is around 25 to 30 passengers per trip until the last two trips at 11:30 PM and 12:30 AM, which carry fewer than 20 passengers.

On outbound trips (see Figure 5):

- Ridership is generally below 20 passengers per trip through 7:15 AM.
- Between 7:15 AM and 8:30 AM, most trips carry 40 or more passengers, although a few carry under 20.
- Between 8:30 AM and 2:30 PM, most trips carry 20 to 30 passengers.
- From 2:30 PM until 6:10 PM, nearly all trips carry over 30 passengers and many carry over 40. Two trips carry over 50 passengers.
- From 6:10 PM to 10:00 PM, most trips carry 20 to 30 passengers except for a dip between 6:30 PM and 7:00 PM, when trips carry fewer than 20 passengers.
- The last two trips at 12:00 AM and 1:05 AM carry 15 and 10 passengers.

On Saturdays, most inbound trips carry just over 20 passengers, although a few exceed 40 (see Figure 6). Outbound ridership is similar to inbound ridership before 10:00 AM and after 6:30 PM, but higher between those times at closer to 30 passengers per trip (see Figure 7).

On Sundays, inbound ridership is earliest in the morning, when most trips carry over 20 passengers (see Figure 8). In the PM, most trips carry 15 or fewer passengers. Outbound ridership is more consistent, with most trips carrying close to 20 riders (see Figure 9).

Figure 4 | Weekday Ridership by Trip: Inbound

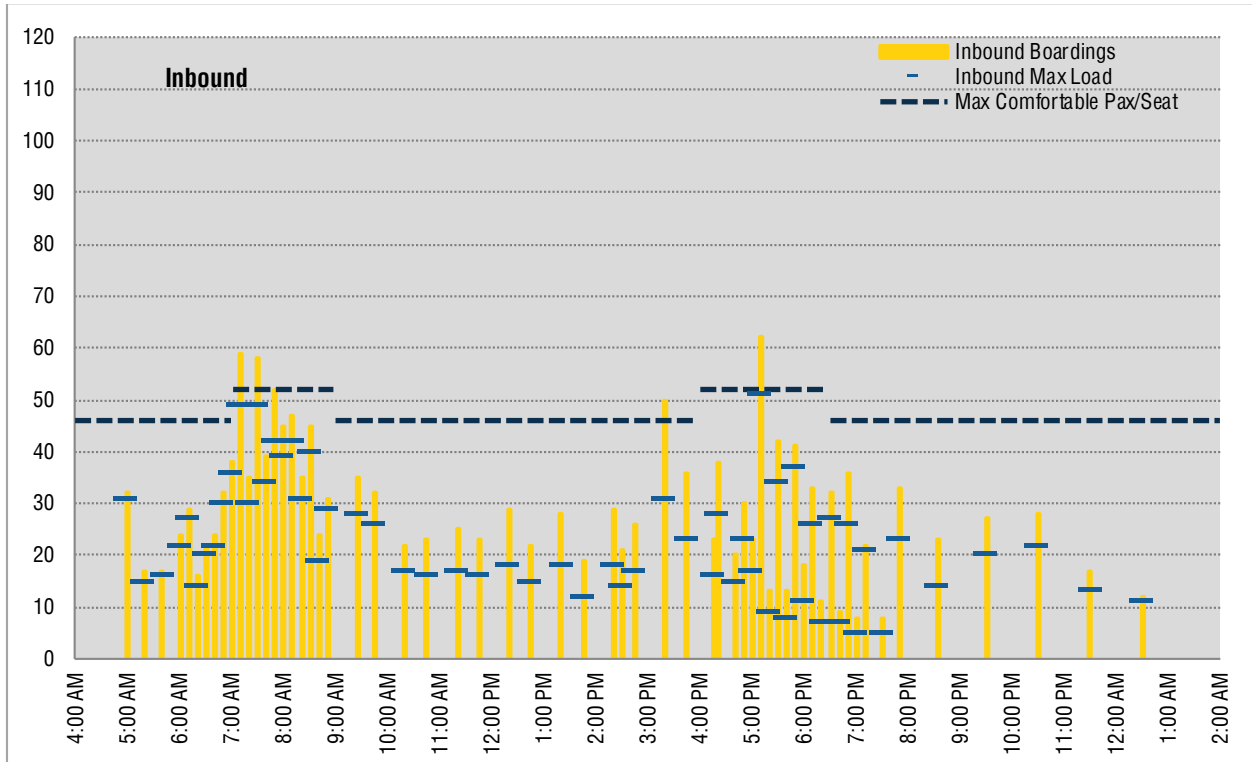


Figure 5 | Weekday Ridership by Trip: Outbound

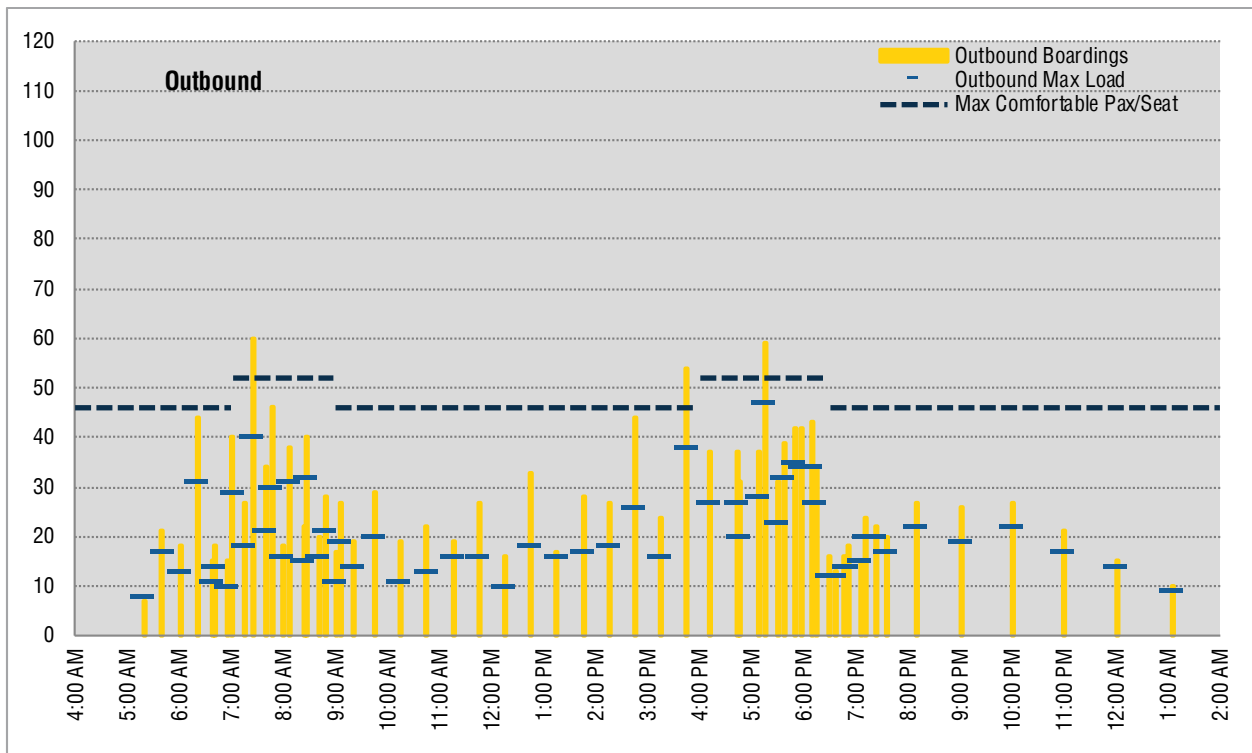


Figure 6 | Saturday Ridership by Trip: Inbound

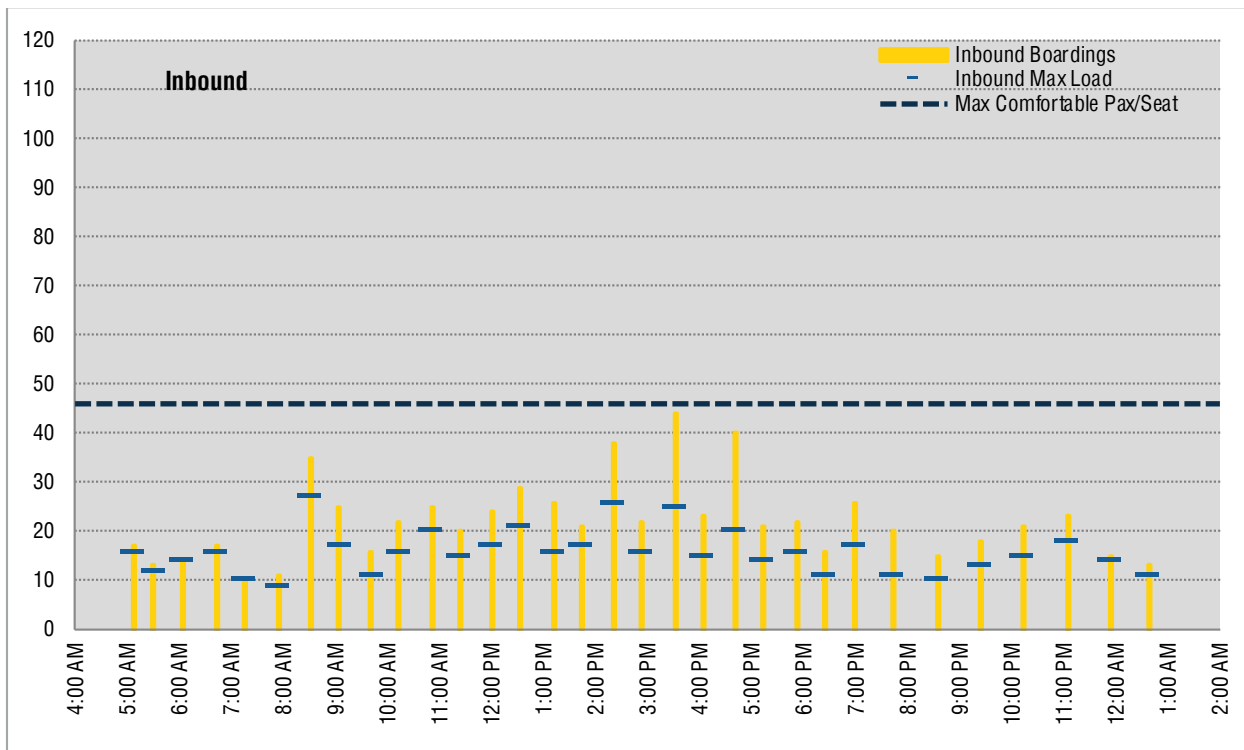


Figure 7 | Saturday Ridership by Trip: Outbound

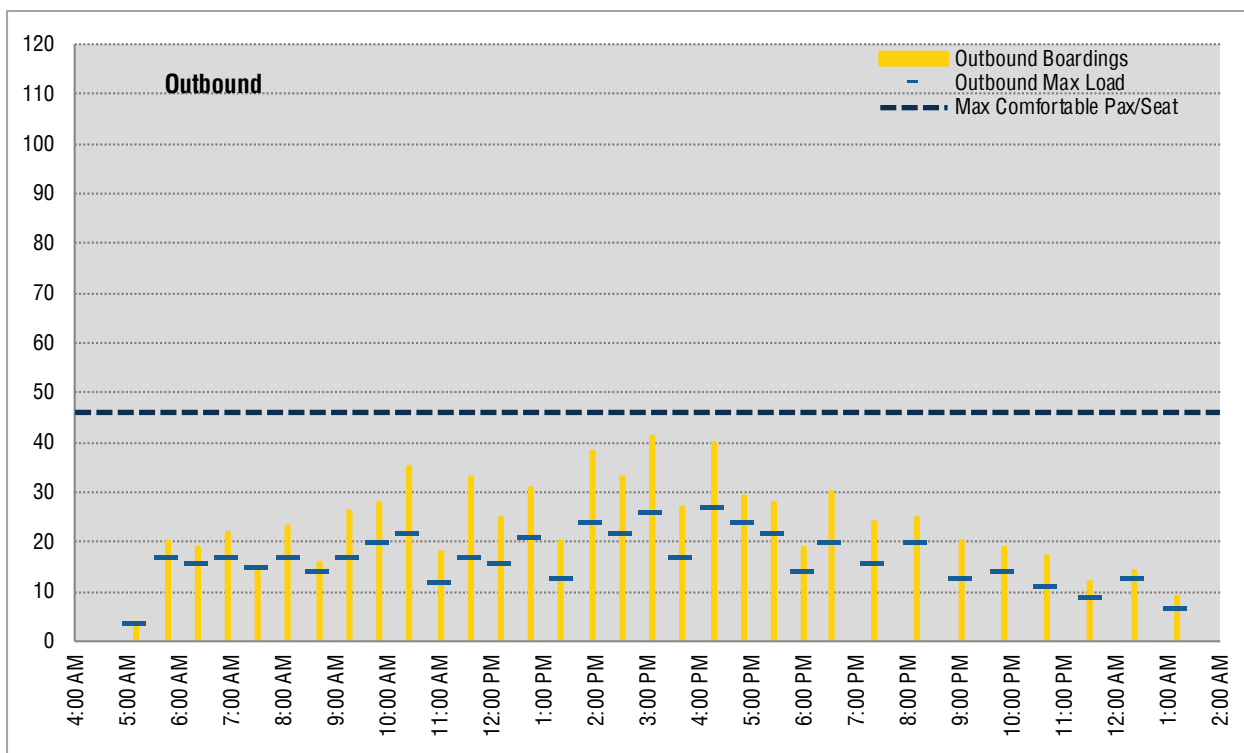


Figure 8 | Sunday Ridership by Trip: Inbound

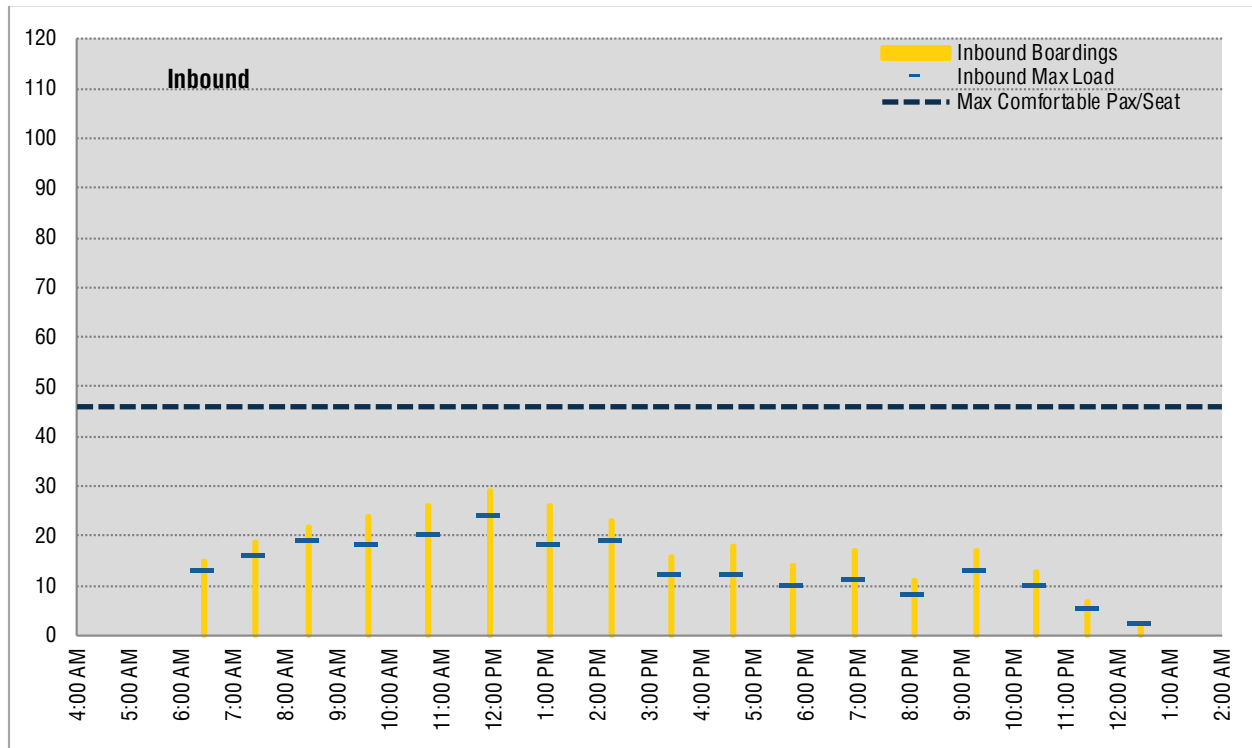
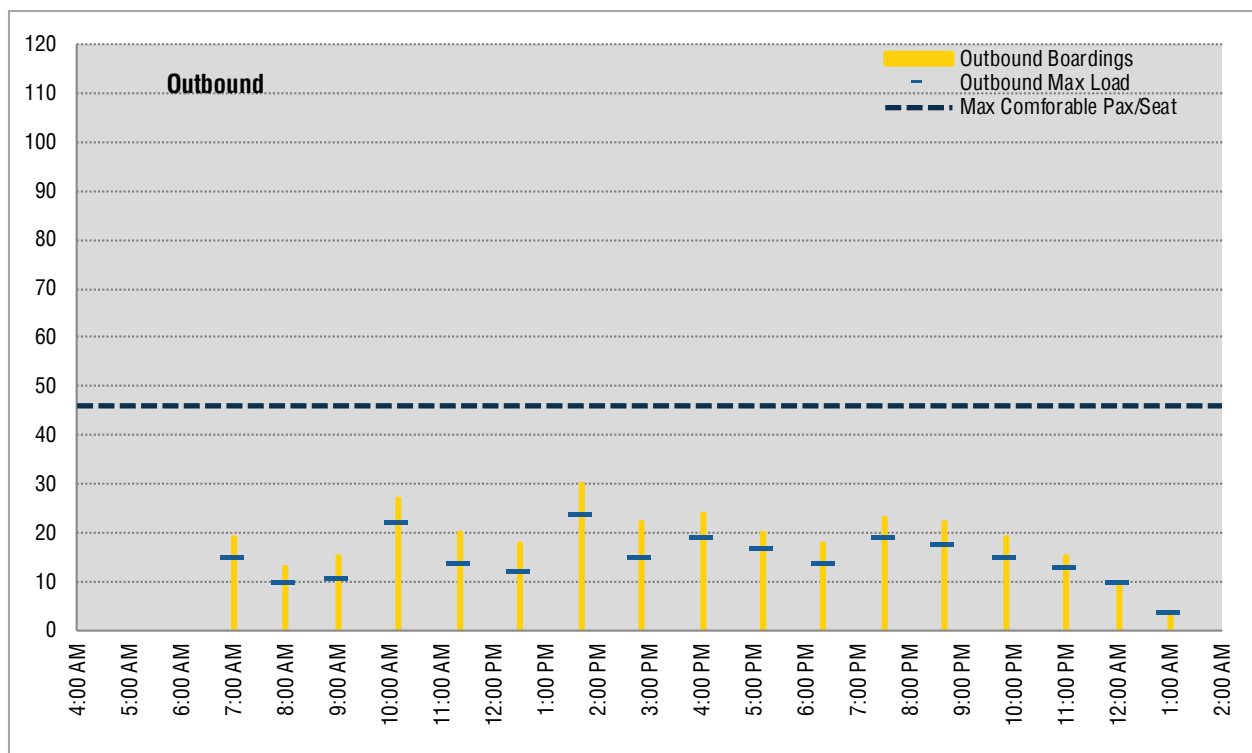


Figure 9 | Sunday Ridership by Trip: Outbound



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 Route 89, 93.5% of passenger minutes are in comfortable conditions. This meets the minimum standard of 92% but is below the target of 96%.

Table 3 | Passenger Time Spent Traveling in Comfortable Conditions

	WEEKDAYS	SATURDAYS	SUNDAYS
Minimum Standard	92%	92%	92%
Target	96%	96%	96%
Actual	93.5%	100%	100%

Reliability and Speed

Reliability

Route 89's overall reliability is 63% on weekdays, 56% on Saturdays, and 71% on Sundays (see Table 5). This is below the minimum standard of 70% on weekdays and Saturdays, and slightly above the minimum standard on Sundays.

Table 4 | Reliability

SERVICE DAY	ORIGIN/MID-ROUTE ON-TIME PERFORMANCE	DESTINATION ON-TIME PERFORMANCE	OVERALL RELIABILITY	DROPPED TRIPS
Monday-Friday	63%	65%	63%	0.9%
Saturday	57%	54%	56%	-
Sunday	70%	73%	71%	-

Running Times

Actual running times exceed scheduled running times at many times of the day, but particularly during peak periods. AM peak inbound trips serving Clarendon Hill can run up to six minutes longer than scheduled (see Figure 10). Outbound trip running times exceed scheduled times by four to five minutes (see Figure 11).

On Davis Square trips, inbound trips run two to five minutes longer than scheduled through most of the day, while outbound trips run five to 10 minutes longer, with the most

significant delays from 10:00 AM to 12:00 PM and from 7:00 PM through the end of service (see Figure 12 and Figure 13).

Figure 10 | Scheduled & Median Travel Time by Trip: Route 89.0 Inbound (from Clarendon Hill)

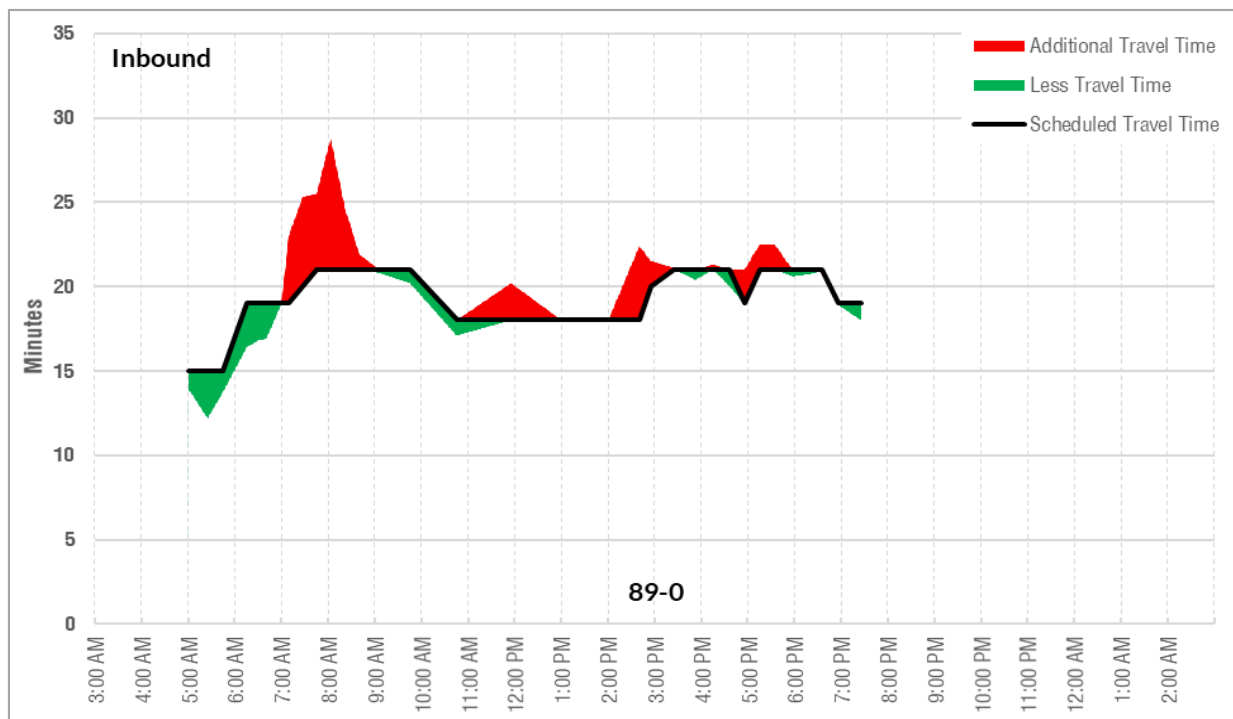


Figure 11 | Scheduled & Median Travel Time by Trip: Route 89.0 Outbound (to Clarendon Hill)

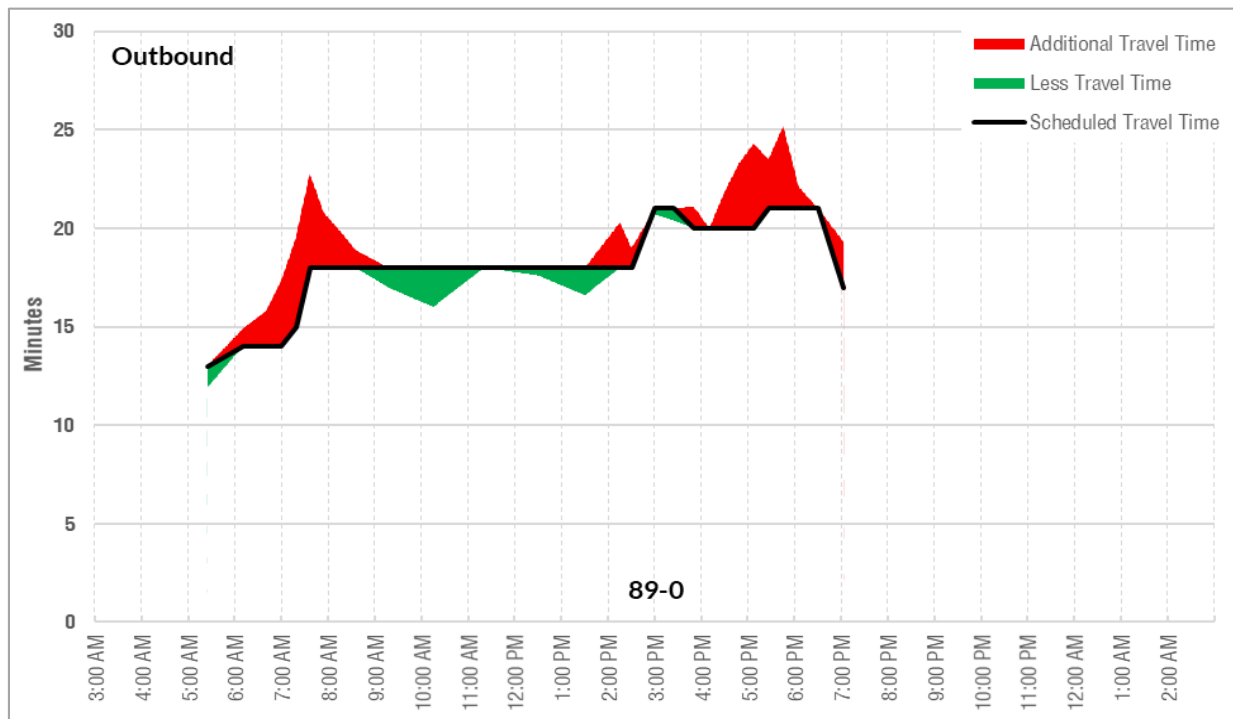


Figure 12 | Scheduled & Median Travel Time by Trip: Route 89.2 Inbound (from Davis Square)

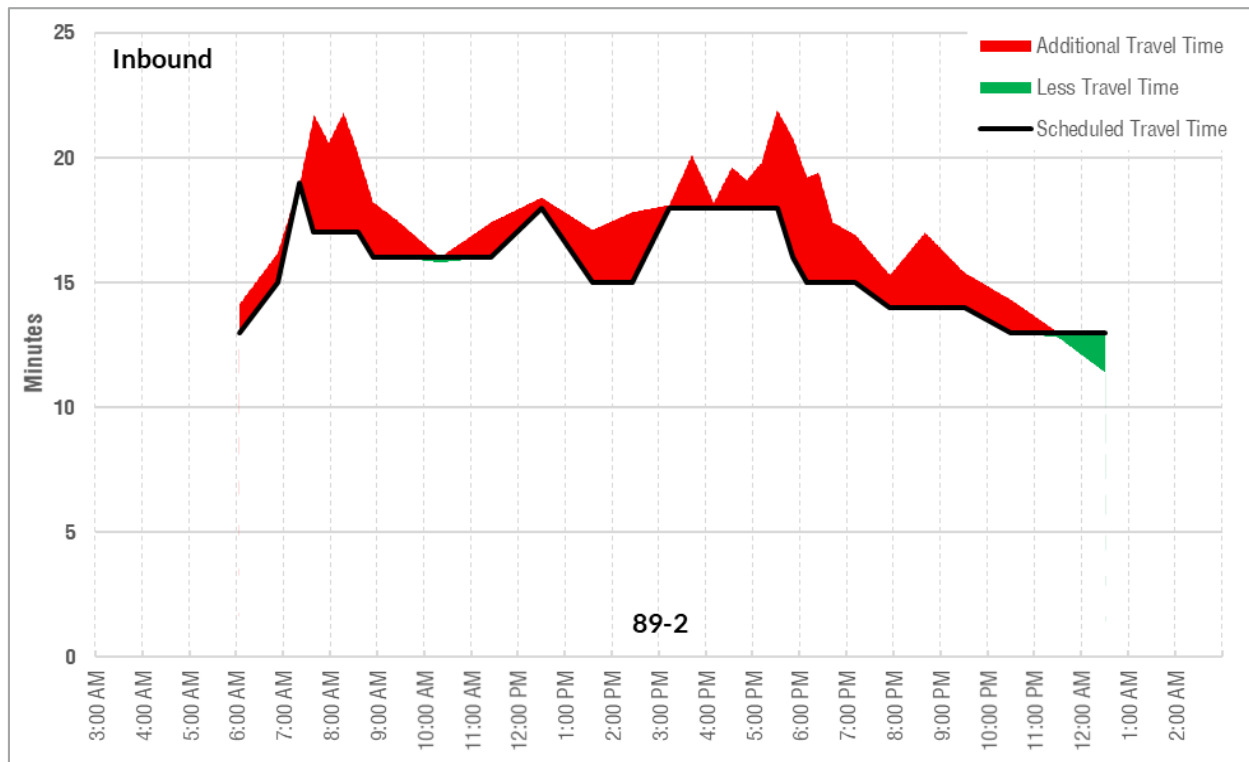
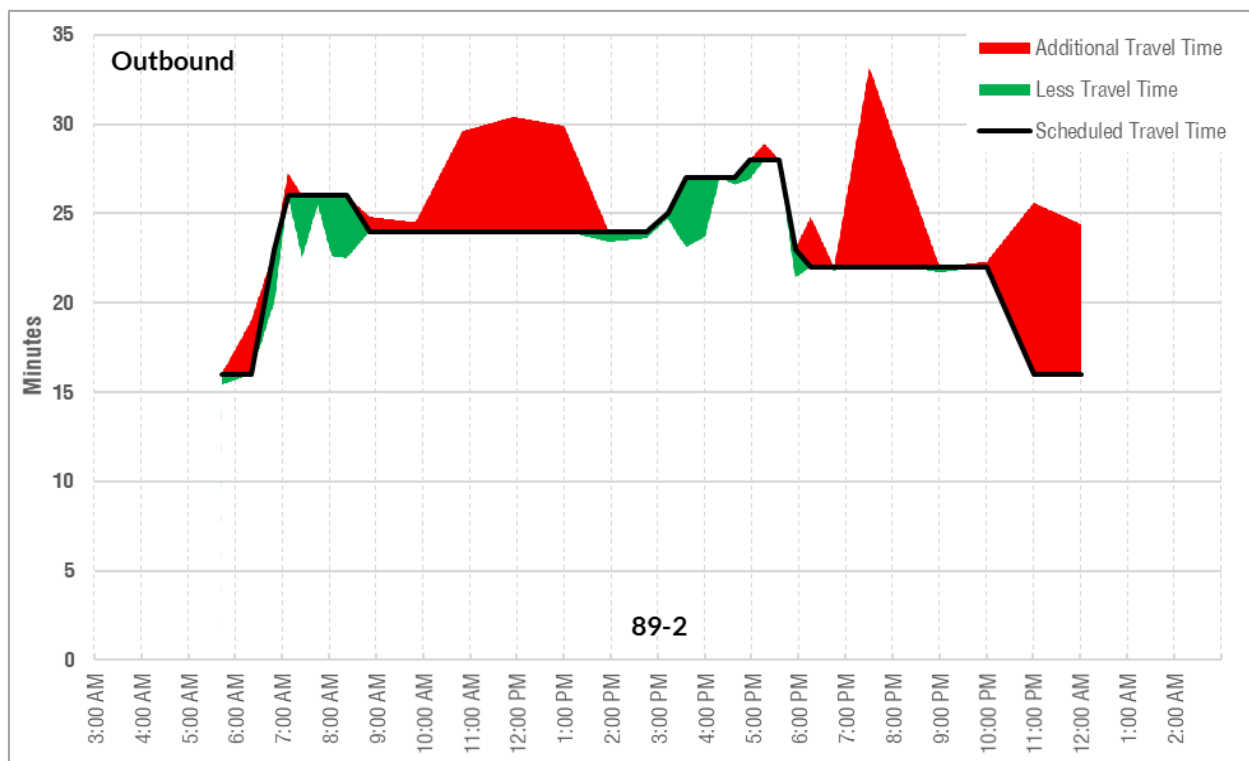


Figure 13 | Scheduled & Median Travel Time by Trip: Route 89.2 Outbound (to Davis Square)



Stop Spacing

Route 89 has an average of eight stops per mile, which is more than the MBTA guideline of four to seven stops per mile. Stops are particularly close together in Winter Hill and near Cross Street, with some stops are as close as 200 feet apart.

Summary

Route 89 provides the most direct service between Davis Square and Sullivan Square Station, with two strong anchors at those locations providing a direct crosstown connection between the Red Line and Orange Line. Sullivan Square Station is the highest ridership stop on the route and Davis Square/Davis Station is the second highest ridership stop. However, because outer end service is split between Davis Square and Clarendon Hill, service to the route's second most important market is limited on weekdays and Saturdays, and no service is provided on Sundays.

Other issues with Route 89 service are its below standard reliability, which is due in large part to actual running times that are longer than scheduled times. The route also does not meet the MBTA's service frequency standards on weekends, when most service operates only every 70 minutes. Finally, several parts of the route have closely spaced stops, which likely negatively affects running times.