

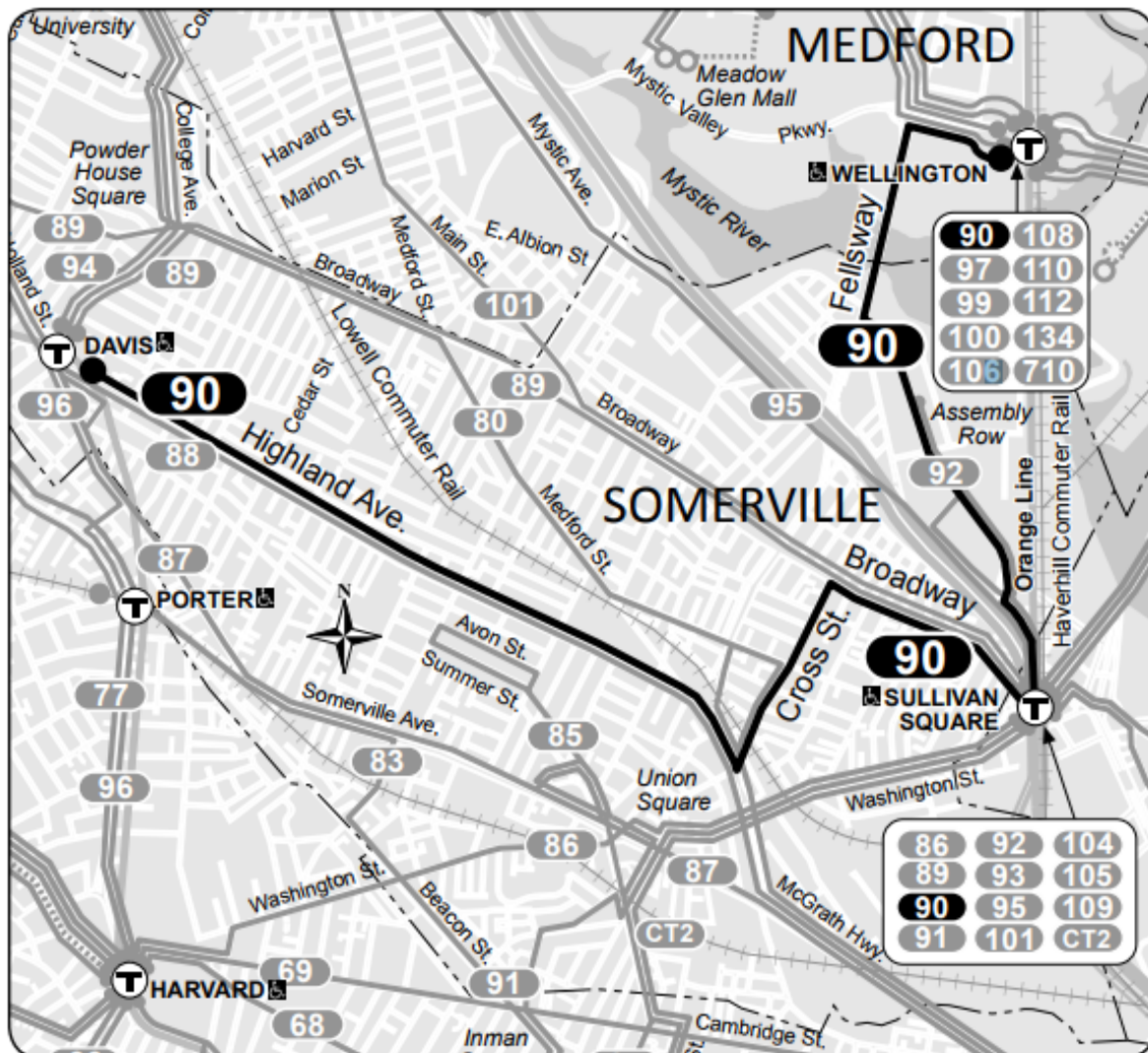
Route 90

Davis Square – Wellington Station

Route Overview

Route 90 Davis Square – Wellington Station is a Local route that provides service between Davis Square in Somerville and Wellington Station in Medford via Sullivan Square and Assembly Row (see Figure 1). Service operates primarily via Highland Avenue, Cross Street, Broadway, Grand Union Boulevard, and Fellsway. The route operates seven days per week.

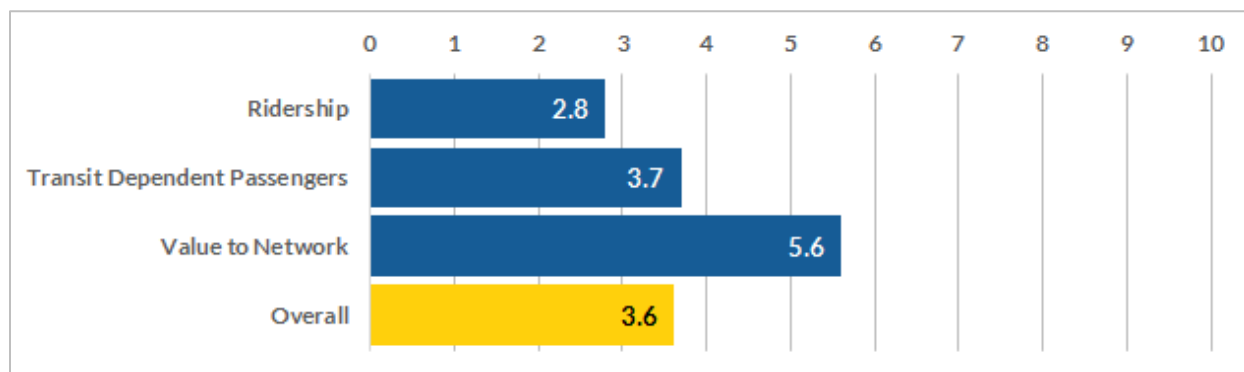
Figure 1 | Service Map



Network Importance

Route 90 is a moderately important route within the MBTA bus network (see Figure 2). On a relative scale of 0 to 10, the route rates 2.8 in terms of ridership, 3.7 in terms of transit dependent ridership, and 5.6 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 3.6.

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



Service Patterns

Schedule

Route 90 provides very infrequent service at all times (see Table 1). Route 90 and Route 88 Clarendon Hill – Lechmere Station via Highland Avenue combine to provide frequent service on Highland Avenue between Davis Square and Cross Street, near Union Square in Somerville. On weekdays, Route 90 runs from 6:30 AM to 10:41 PM, at the following frequencies:

- Every 40 minutes before 8:30 AM.
- Every 45-50 minutes from about 8:30 AM to 8:00 PM.
- The final inbound trips are at 8:35 PM and 9:40 PM, and the final outbound trips are at 8:05 PM, 9:10 PM, and 10:15 PM.

On Saturdays, Route 90 operates every 70 minutes from 7:30 AM to 10:24 PM. On Sunday, service operates every 70 minutes from 10:30 AM to 6:24 PM.

Route 90 does not comply with several MBTA span of service and frequency guidelines:

- On weekdays, trips after 9:00 PM run less often than every 60 minutes
- On Saturdays, trips operate less often than every 60 minutes throughout service

- On Sunday, the first inbound trip begins after 10:00 AM and the last trip ends before 6:30 PM. Trips also operate less often than every 60 minutes throughout the day.

Table 1 | Schedule Statistics

SERVICE DAY	SPAN OF SERVICE	FREQUENCY (RANGE)	FREQUENCY (AVERAGE)	DAILY TRIPS (INBOUND/OUTBOUND)
Monday-Friday	6:30 AM to 10:41 PM			20/20
Sunrise	-	-	-	-
Early AM	6:30 AM to 6:59 AM	1 Trip	1 Trip	1/-
AM Peak	7:00 AM to 8:59 AM	40 – 50	44	3/3
Midday Base	9:00 AM to 1:29 PM	45 – 50	50	5/5
Midday School	1:30 PM to 3:59 PM	45 – 45	46	4/4
PM Peak	4:00 PM to 6:29 PM	45 – 50	46	3/3
Evening	6:30 PM to 9:59 PM	60 – 75	51	4/4
Late Evening	10:00 PM to 10:41 PM	1 Trip	1 Trip	-/1
Night	-	-	-	-
Saturday	7:30 AM to 10:24 PM	65 – 70	70	13/13
Sunday	10:30 AM to 6:24 PM	65 – 70	70	7/7

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

Service Patterns

All Route 90 trips operate using the same service pattern, operating along Highland Avenue, Cross Street, and Broadway to Sullivan Square Station and then Grand Union Boulevard, Fellsway, and Revere Beach Parkway into Wellington Station (Pattern 90.0).

Table 2 | Service Patterns

PATTERN	ORIGIN	DESTINATION	UNIQUE FEATURE	TRIPS PER WKD	TRIPS PER SAT	TRIPS PER SUN
INBOUND				20	13	7
90.0	Davis Square Busway	Wellington Station Busway	Via Sullivan Square	20	13	7
OUTBOUND				20	13	7
90.0	Wellington Station Busway	Davis Square Busway	Via Sullivan Square	20	13	7

Ridership

Route 90 serves an average of 977 riders on weekdays, 414 riders on Saturdays, and 252 riders on Sundays.

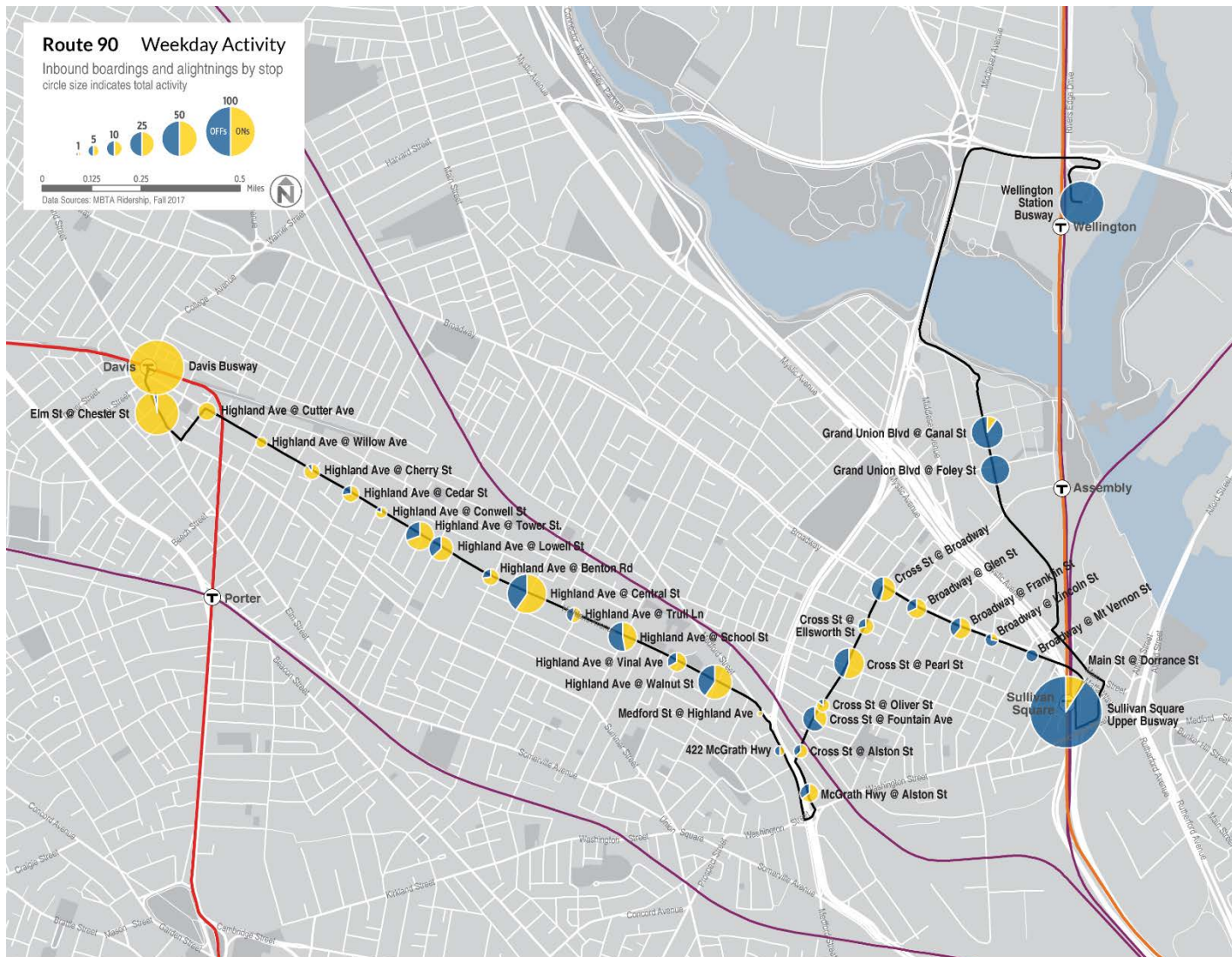
Ridership by Stop

Route 90 has low ridership overall, and most stops have relatively few boardings. On weekday inbound trips (see Figure 3):

- 195 passengers board at Davis Station and at Elm Street at Chester Street, which also serves Davis Square.
- 199 passengers board and 122 passengers alight at the 16 stops on Highland Avenue and McGrath Highway, which are all also served by Route 88.
- 53 passengers board and 41 passengers alight at the five stops on Cross Street, which are uniquely served by Route 90.
- 37 passengers board and 40 passengers alight at the five stops on Broadway, which are also served by Route 89 Clarendon Hill or Davis Square – Sullivan Square Station and Route 101 Malden Center Station – Sullivan Square Station.
- 19 passengers board and 187 passengers alight at Sullivan Square Station. About one-third of passengers already on board ride through and continue on to Assembly Square or Wellington Station.
- Seven passengers board and 71 passengers alight at the two stops at Assembly Square.
- 80 passengers alight at Wellington Station.

Outbound ridership is lower overall but generally mirrors inbound ridership. Weekend ridership patterns are similar but with lower volumes.

Figure 3 | Weekday Inbound Ridership by Stop Map



Ridership by Trip

On weekdays, Route 90 has high ridership during peak periods and on the shoulders of the peaks, and moderate or low ridership at other times. On weekday inbound trips (see Figure 4):

- Ridership increases over the first three trips, from 30 passengers on the first trip at 6:30 AM to 41 passengers on the third trip at 7:50 AM.
- Ridership declines to 21 passengers on the 9:25 AM trip.
- Ridership ranges between 15 and 25 passengers from 9:25 AM to 2:15 PM, with most trips carrying approximately 20 passengers.
- Ridership increases to 37 passengers on the 6:05 PM trip.
- From 6:05 PM to the end of service at 9:40 PM, ridership declines to nine passengers per trip, although the 7:35 PM trip exhibits somewhat high ridership with 23 passengers.

On weekday outbound trips (see Figure 5):

- The first two trips of the day at 7:10 AM and 7:50 AM have the highest ridership, at 51 and 47 passengers respectively.
- Ridership ranges between 11 and 21 passengers per trip from 8:30 AM to 12:40 PM, with most trips carrying fewer than 15 passengers.
- Ridership is higher over the course of the afternoon and early evening. Trips from 1:30 PM to 6:05 PM carry between 25 and 35 passengers, with most trips carrying approximately 28 passengers.
- From 6:50 PM to the end of service, trips carry between four and 17 passengers.

On Saturdays, inbound ridership is low to moderate throughout the day, with slightly higher ridership on three trips between 2:00 PM and 5:00 PM of between 20 and 25 passengers (see Figure 6). Outbound ridership is more consistent, with between 10 and 20 passengers throughout the day (see Figure 7).

On Sundays, inbound ridership is moderate throughout the day with most trips carrying between 13 and 26 passengers (see Figure 8). Outbound ridership is similarly moderate, with between 11 and 22 passengers per trip (see Figure 9).

Figure 4 | Weekday Ridership by Trip: Inbound

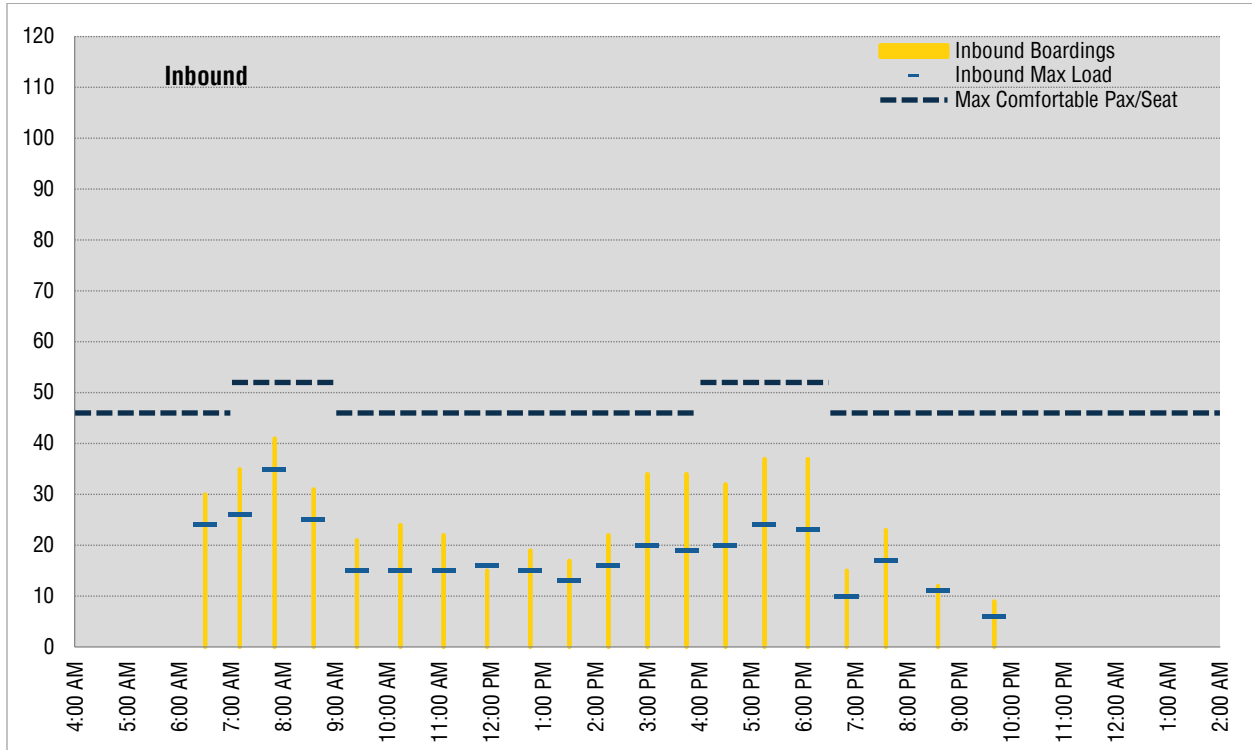


Figure 5 | Weekday Ridership by Trip: Outbound

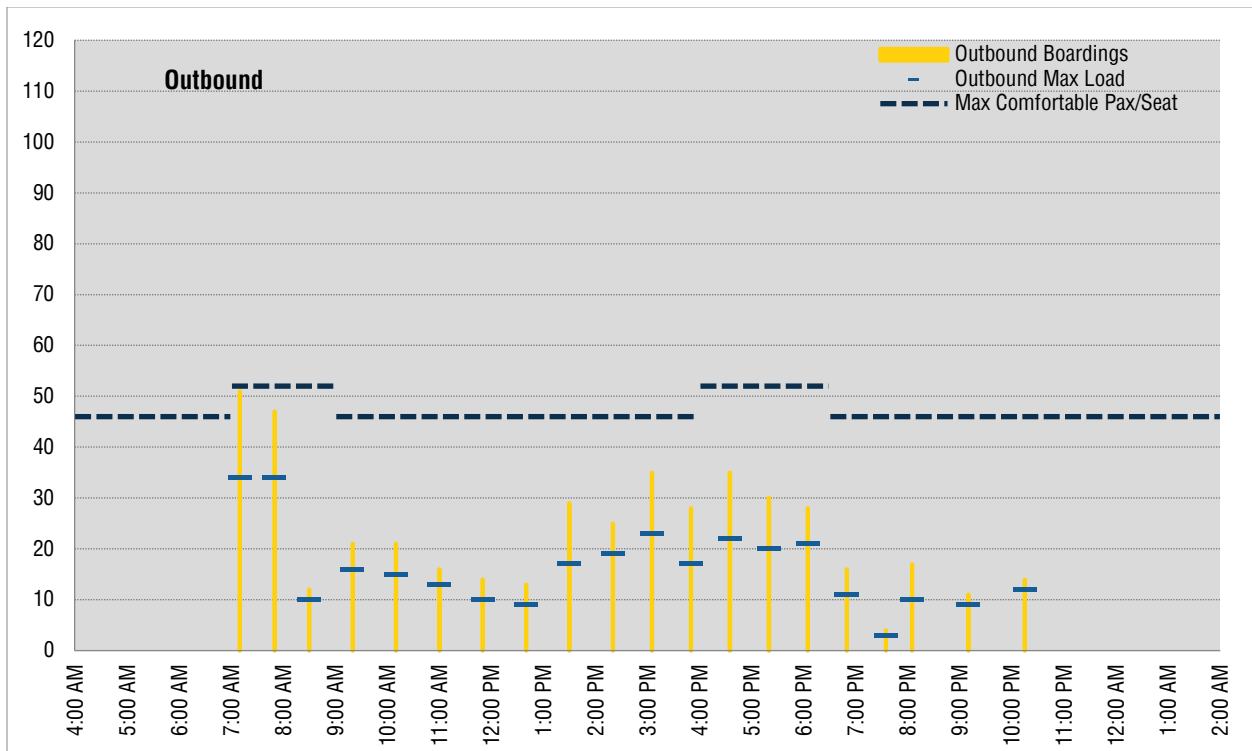


Figure 6 | Saturday Ridership by Trip: Inbound

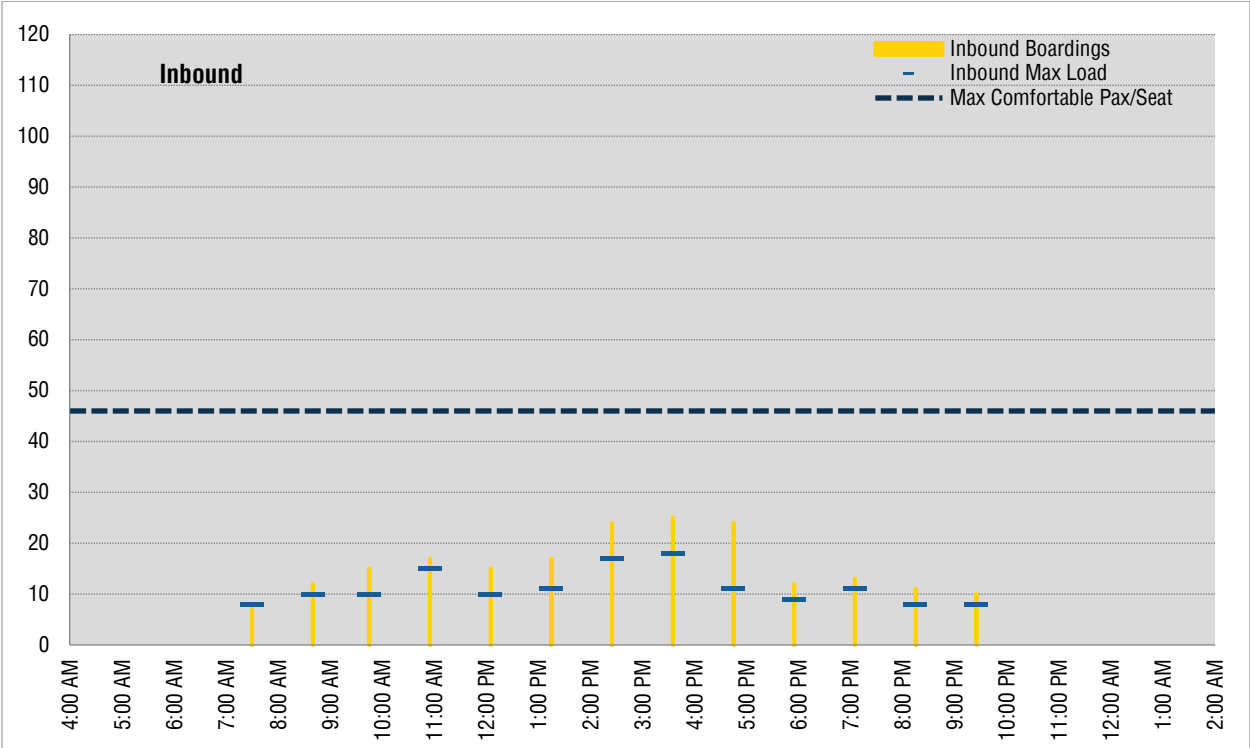


Figure 7 | Saturday Ridership by Trip: Outbound

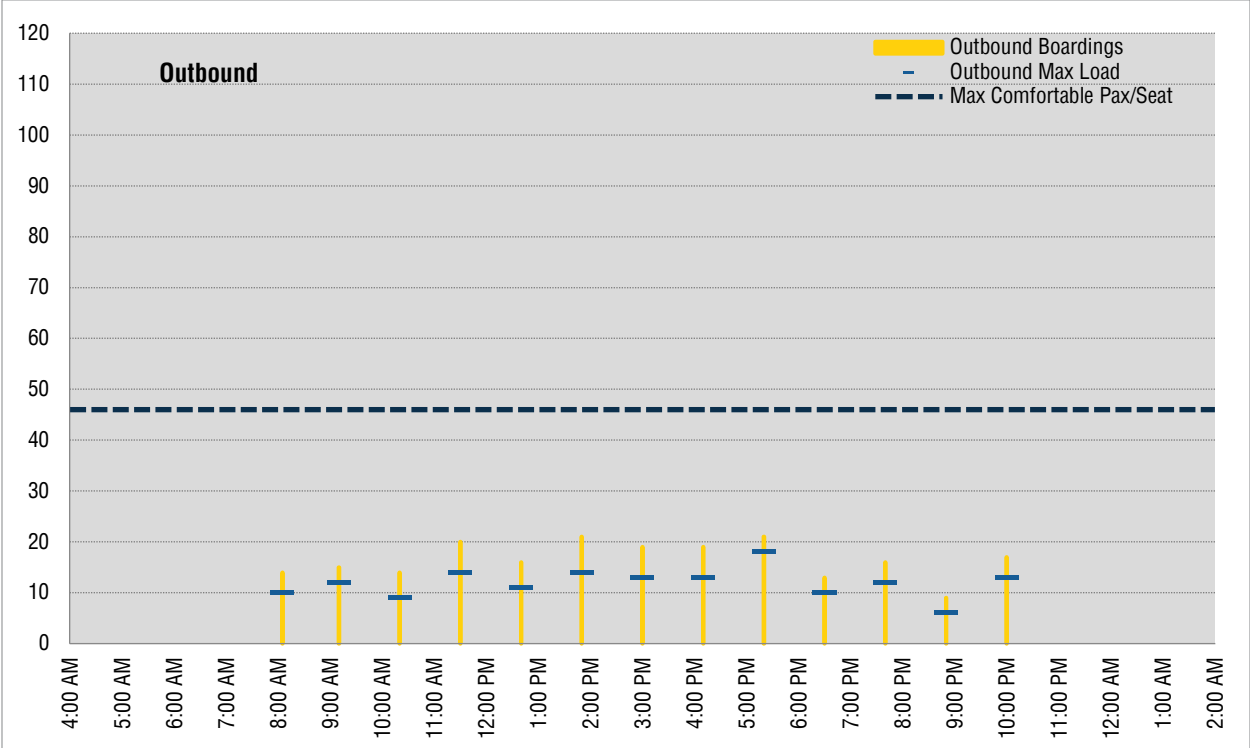


Figure 8 | Sunday Ridership by Trip: Inbound

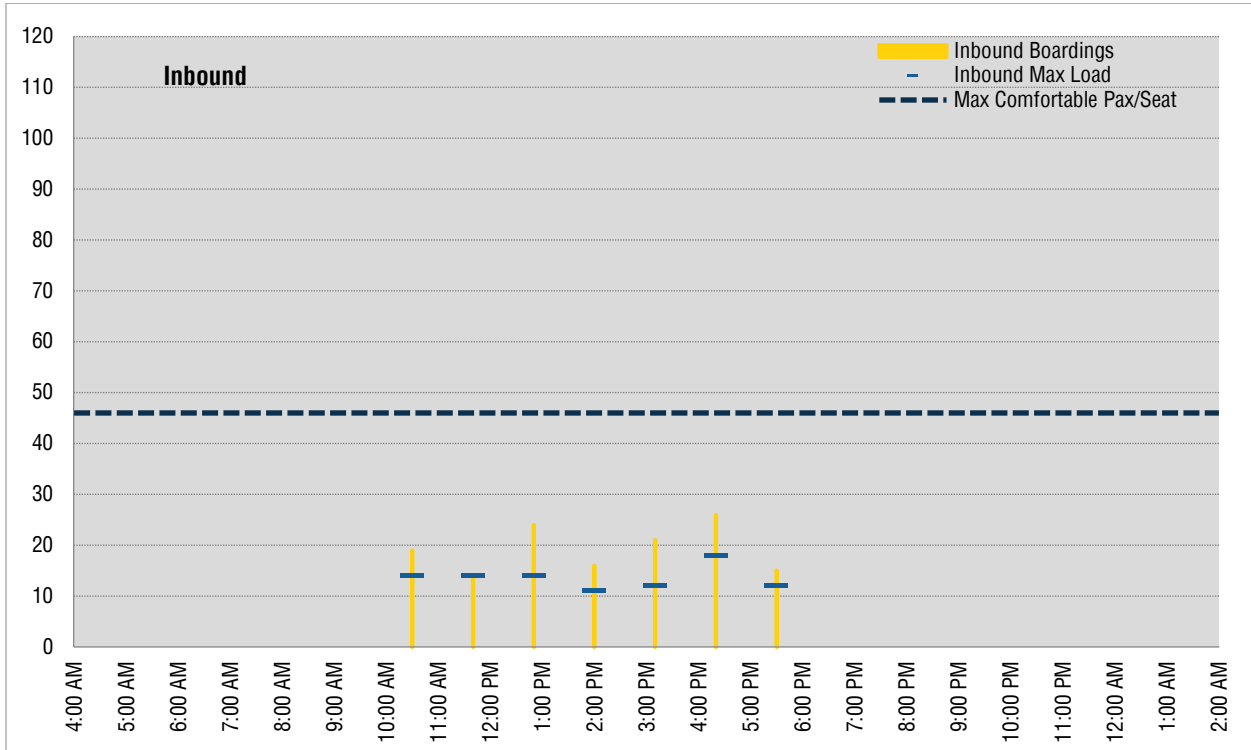
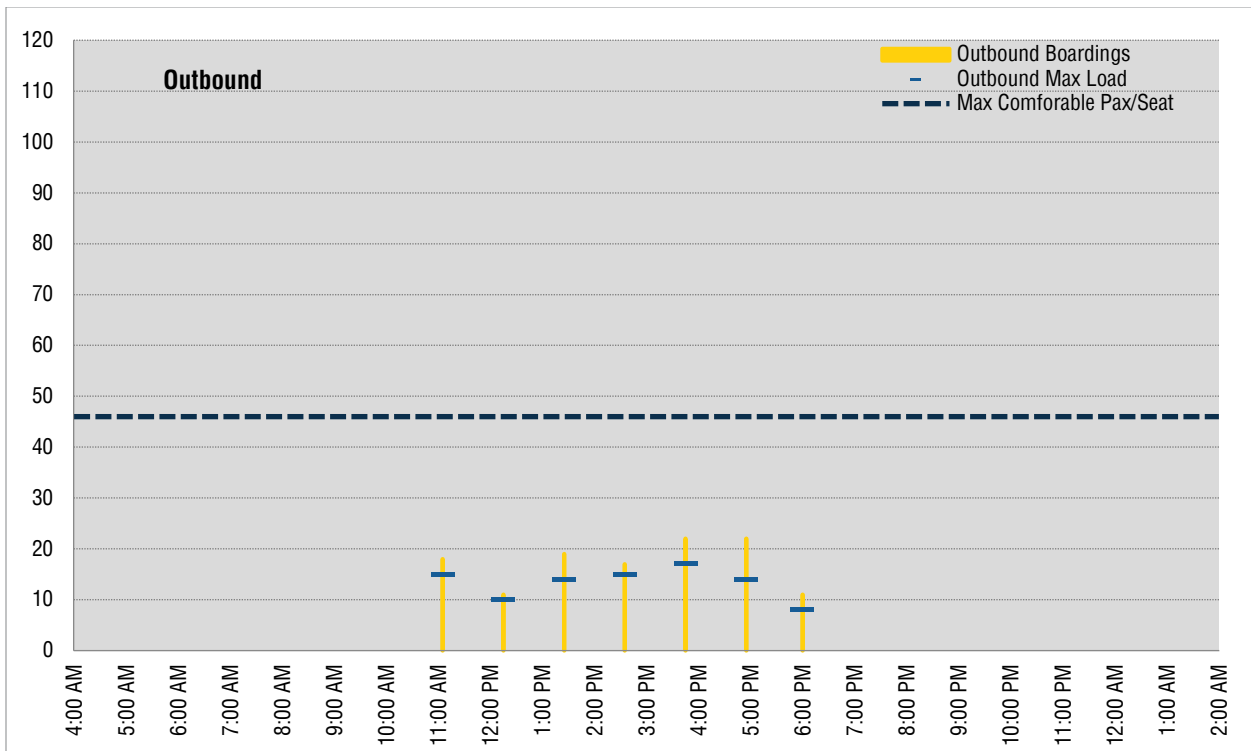


Figure 9 | Sunday Ridership by Trip: Outbound



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 90, 99.6% of weekday passenger minutes are in comfortable conditions, which is above the target (see Table 3).

Table 3 | Passenger Time Spent Traveling in Comfortable Conditions

	WEEKDAYS	SATURDAYS	SUNDAYS
Minimum Standard	92%	92%	92%
Target	96%	96%	96%
Actual	99.6%	100%	100%

Reliability and Speed

Reliability

Route 90’s overall reliability is poor on all service days, with each day’s performance well below the minimum standard of 70% for Local bus routes (see Table 4). Dropped trips are a minor issue. As described in the next section, poor on-time performance is largely due to actual running times that exceed scheduled running times during peak periods.

Table 4 | Reliability

SERVICE DAY	ORIGIN/MID-ROUTE ON-TIME PERFORMANCE	DESTINATION ON-TIME PERFORMANCE	OVERALL RELIABILITY	DROPPED TRIPS
Monday-Friday	58%	63%	59%	0.2%
Saturday	58%	54%	57%	-
Sunday	65%	71%	66%	-

Running Times

Route 90’s observed running times exceed scheduled running times through the morning peak on weekdays, with inbound trips running up to eight minutes longer than scheduled times (see Figure 10 and Figure 11). In the evening peak, observed running times are actually faster than scheduled by up to five minutes.

Figure 10 | Scheduled & Median Travel Time by Trip: Route 90 Inbound

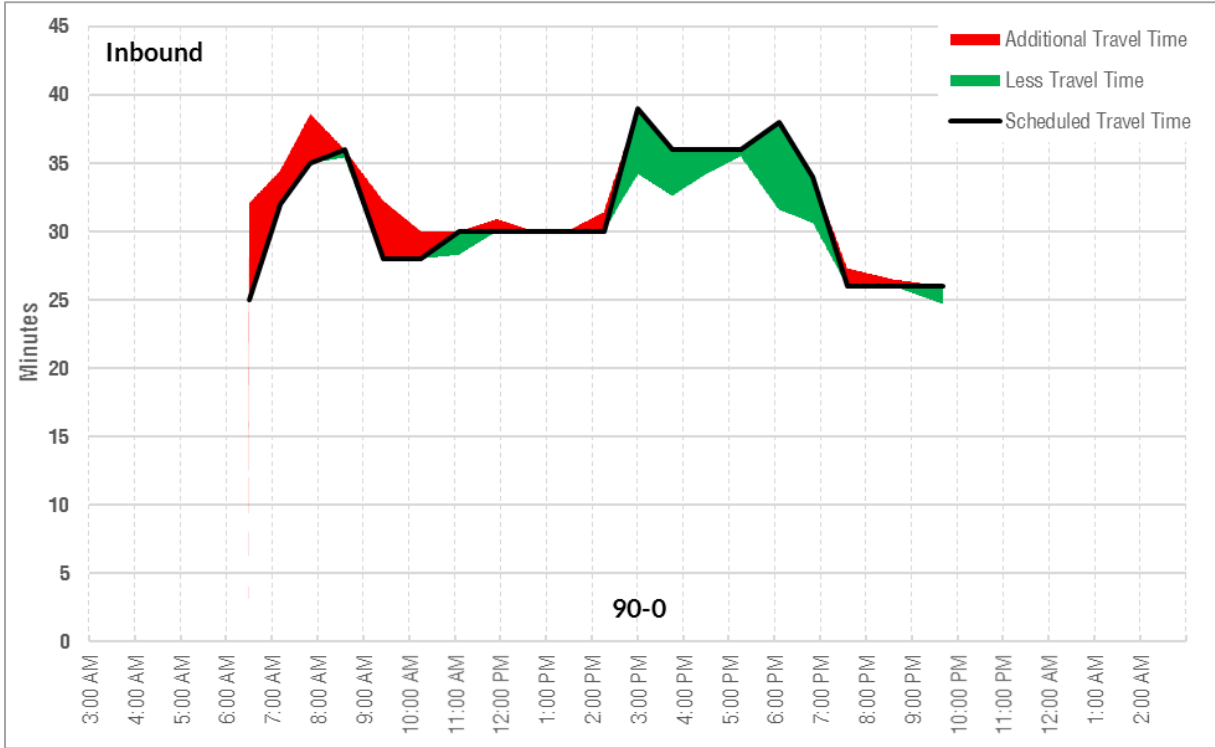
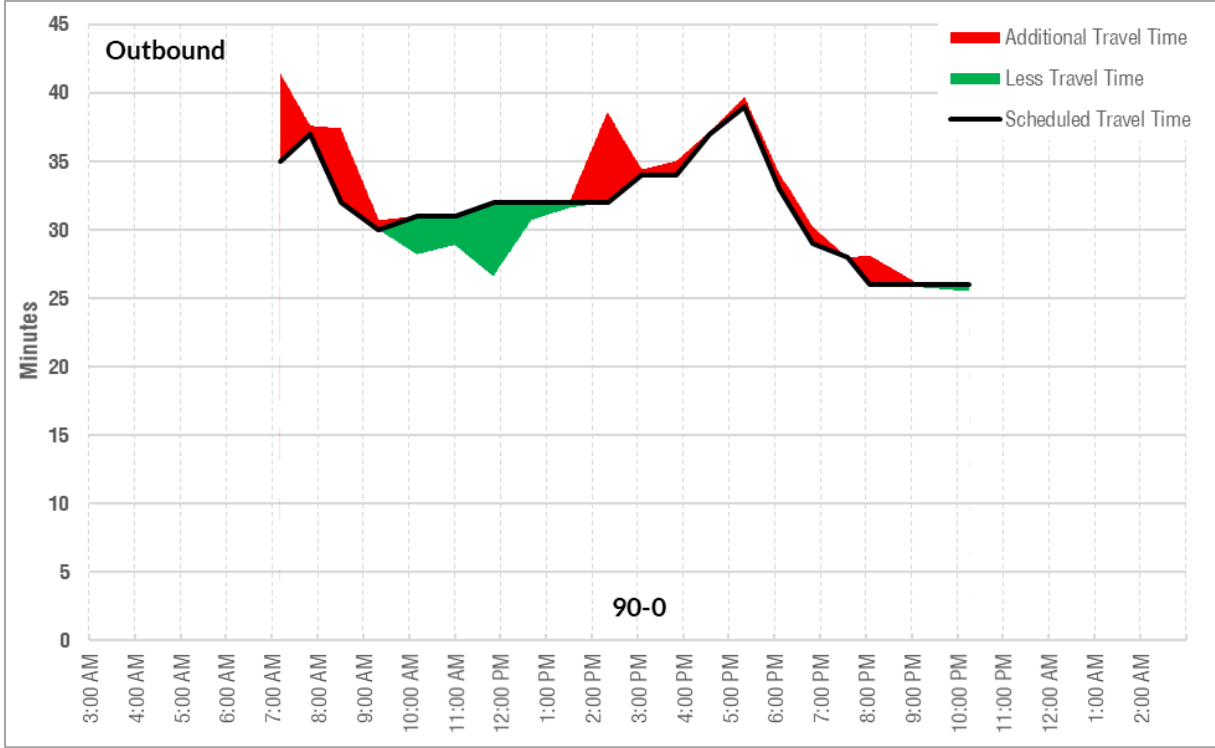


Figure 11 | Scheduled & Median Travel Time by Trip: Route 90 Outbound



Stop Spacing

Discounting stretches without stops before and after Assembly Square, Route 90 has an average of eight stops per mile, in excess of the four to seven stops per mile recommended for urban areas under MBTA guidelines. There are a number of locations where stops are even closer together:

- On Highland Avenue, which has 16 stops along a two-mile stretch, average stop spacing is 8.5 per mile.
- There are 11 stops along 1.2 miles on Cross Street and Broadway, an average of nine stops per mile.
 - Stops at Cross Street at Fountain Avenue and at Cross Street at Oliver Street are less than 250 feet apart.
 - Stops at Highland Avenue at Tower Street and at Highland Avenue at Lowell Street are also less than 250 feet apart.

Summary

Route 90 connects Davis Square to Wellington Station via Highland Avenue, Sullivan Square Station, and Assembly Square. The route provides very infrequent service, and operates almost entirely on streets served by other, much more frequent bus routes. The route however, provides a single-seat “crosstown” service in Somerville that would otherwise require multiple transfers. Congestion between Sullivan Square Station and Wellington Station contributes to Route 90’s poor reliability.