

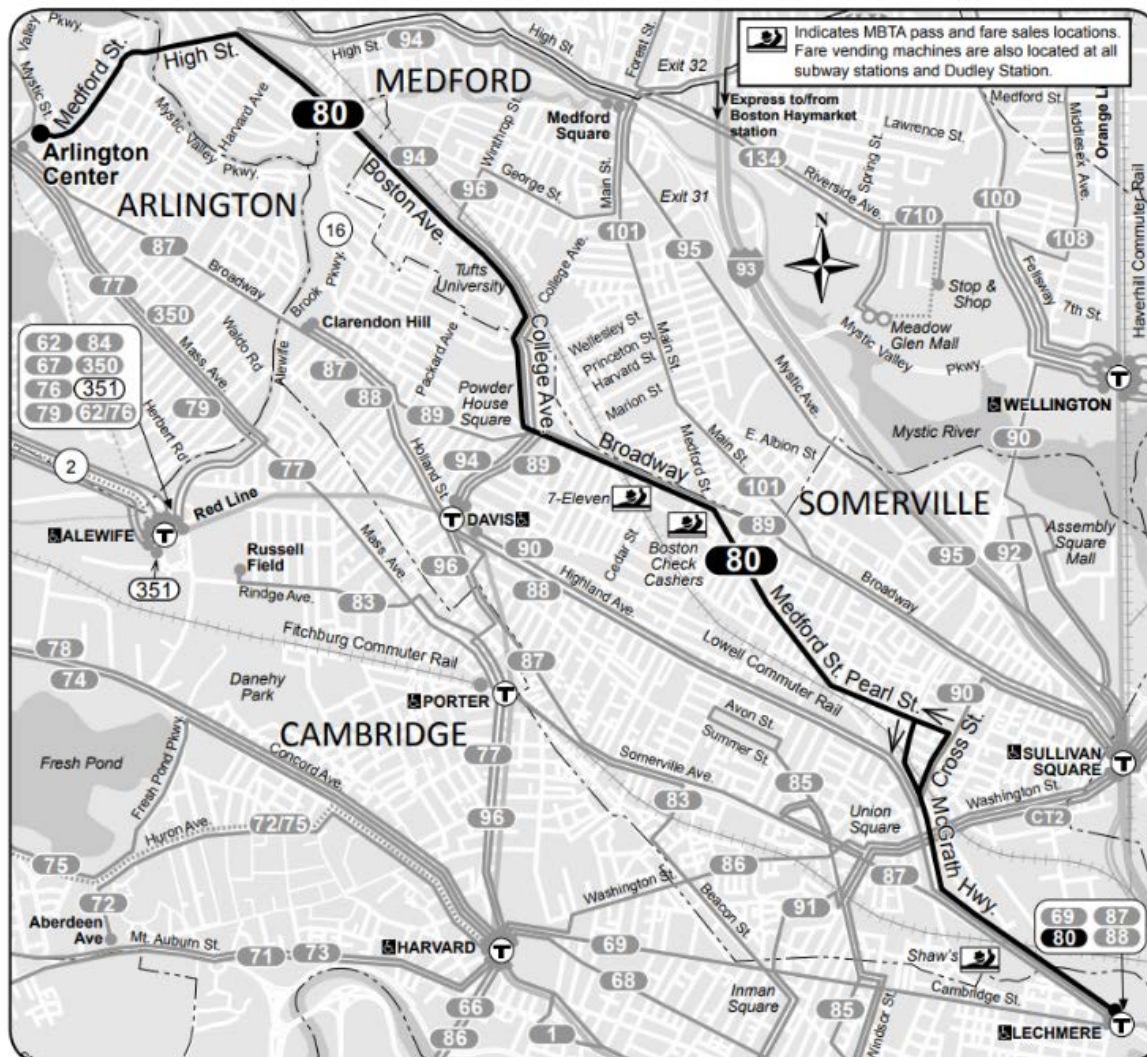
# Route 80

## Arlington Center - Lechmere Station

### Route Overview

Route 80 Arlington Center - Lechmere Station is a Local MBTA bus route connecting Arlington Center with the Green Line at Lechmere Station via West Medford, West Somerville, Powder House Square, Magoun Square, Winter Hill, and East Somerville. South of Tufts University, Route 80 runs primarily along what will become the Green Line Extension alignment.

Figure 1 | Service Map



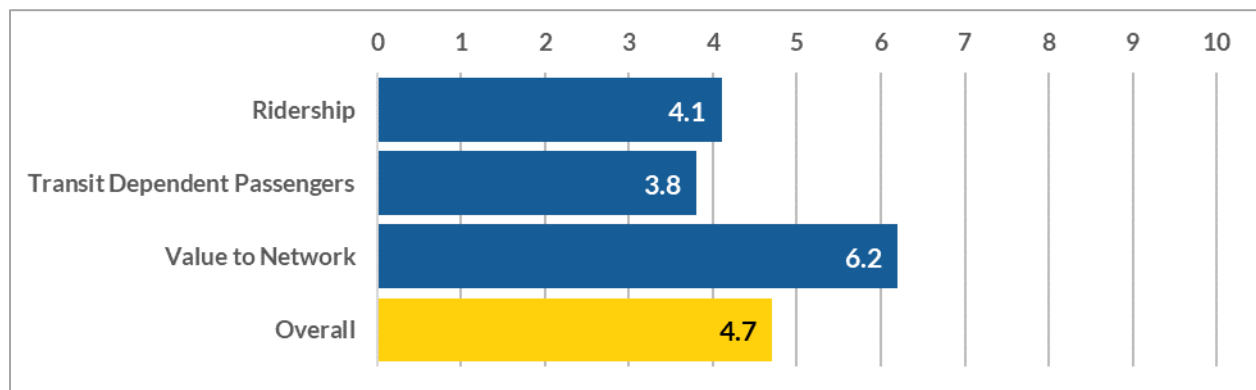
Route 80 shares an alignment with:

- Route 94 Medford Square – Davis Station between West Medford and Powder House Square
- Route 96 Medford Square – Harvard Station on Boston Avenue and College Avenue in Medford
- Route 89 Clarendon Hill or Davis Station – Sullivan Square Station on Broadway between Powder House Square and Magoun Square
- Route 88 Clarendon Hill – Lechmere Station via Highland Avenue between Prospect Hill and Lechmere Station
- Route 87 Clarendon Hill or Arlington Center – Lechmere Station via Somerville Avenue on O’Brien Highway near Lechmere Station

## Network Importance

Route 80 is moderately important within the MBTA bus network (see Figure 2). On a relative scale of 0 to 10, the route rates 4.1 in terms of ridership, 3.8 in terms of transit dependent ridership, and 6.2 in terms of its value to the network. Its overall score, which gives a 70% weighting to overall ridership and a 15% weight to both other measures, is 4.7.

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



## Service Patterns

### Schedule

On weekdays, Route 80 provides moderately frequent service during the morning, midday, and into the PM peak, and then infrequent service until the end of the service day (see Table 1). On weekends, it provides infrequent service all day. Route 80 meets the minimum span of service and frequency standards, except on Sundays.

In more detail, on weekdays, Route 80 operates from 5:00 AM to 1:22 AM with the following frequencies:

- Every 22 to 25 minutes from the beginning of service until 6:20 AM.
- Every 15 to 30 minutes from 6:20 AM until 6:30 PM, but mostly every 20 minutes before noon and every 25 minutes in the afternoon.
- The 7:10 PM trip is 40 minutes later, followed by a 7:30 PM trip 20 minutes later.
- Every 40 to 60 minutes until the end of service at 1:22 AM.

Route 80 operates with a similar span of service on Saturdays, from 5:05 AM until 12:22 AM.

- Service operates every 30 minutes from 6:00 AM until 10:00 AM after the first trip of the day.
- From 10:00 AM until 5:35 PM, trips run every 35 minutes.
- Trips run every 27 to 30 minutes between 5:35 PM and 6:32 PM, and then hourly until the end of the service day.

On Sundays, the route operates from 6:30 AM to 12:21 AM, with service generally running hourly between 6:30 AM and 9:30 AM and then every 70 minutes for the rest of the day.

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.

Table 1 | Schedule Statistics

SERVICE DAY	SPAN OF SERVICE	FREQUENCY (RANGE)	FREQUENCY (AVERAGE)	DAILY TRIPS (INBOUND/OUTBOUND)
<b>Monday-Friday</b>	<b>5:00 AM to 1:22 AM</b>			<b>43/42</b>
Sunrise	5:00 AM to 5:59 AM	23 – 32	27	3/2
Early AM	6:00 AM to 6:59 AM	15 – 23	18	3/2
AM Peak	7:00 AM to 8:59 AM	20 – 30	24	5/5
Midday Base	9:00 AM to 1:29 PM	20 – 30	25	11/10
Midday School	1:30 PM to 3:59 PM	15 – 30	22	6/7
PM Peak	4:00 PM to 6:29 PM	15 – 40	25	6/6
Evening	6:30 PM to 9:59 PM	20 – 50	40	6/6
Late Evening	10:00 PM to 11:59 PM	45 – 60	60	2/2
Night	12:00 AM to 1:22 AM	60	–	1/2
<b>Saturday</b>	<b>5:05 AM to 1:22 AM</b>	<b>27 – 60</b>	<b>38</b>	<b>31/30</b>
<b>Sunday</b>	<b>6:30 AM to 12:21 AM</b>	<b>60 – 70</b>	<b>63</b>	<b>16/16</b>

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

## Service Patterns

Route 80 operates only one service pattern on all days of the week (see Table 2).

Table 2 | Service Patterns

PATTERN	ORIGIN	DESTINATION	UNIQUE FEATURE	TRIPS PER WKD	TRIPS PER SAT	TRIPS PER SUN
<b>INBOUND</b>				<b>43</b>	<b>31</b>	<b>16</b>
80.0	Medford Street at Massachusetts Avenue	Lechmere Station	Primary service pattern	43	31	16
<b>OUTBOUND</b>				<b>42</b>	<b>30</b>	<b>16</b>
80.0	Lechmere Station	Medford Street at Massachusetts Avenue	Primary service pattern	42	30	16

## Ridership

Route 80 carries 2,126 passengers per weekday, 1,143 passengers per Saturday, but only 577 passengers per Sunday. On weekdays and Sundays, Route 80 carries roughly 15% more passenger inbound than it does outbound, suggesting riders find alternatives in the evening. On Saturday, this imbalance increases to 28%.

### Ridership by Stop

Route 80 generates the majority of its ridership between Powder House Square and Lechmere Station, particularly on Broadway and Medford Street in Somerville.

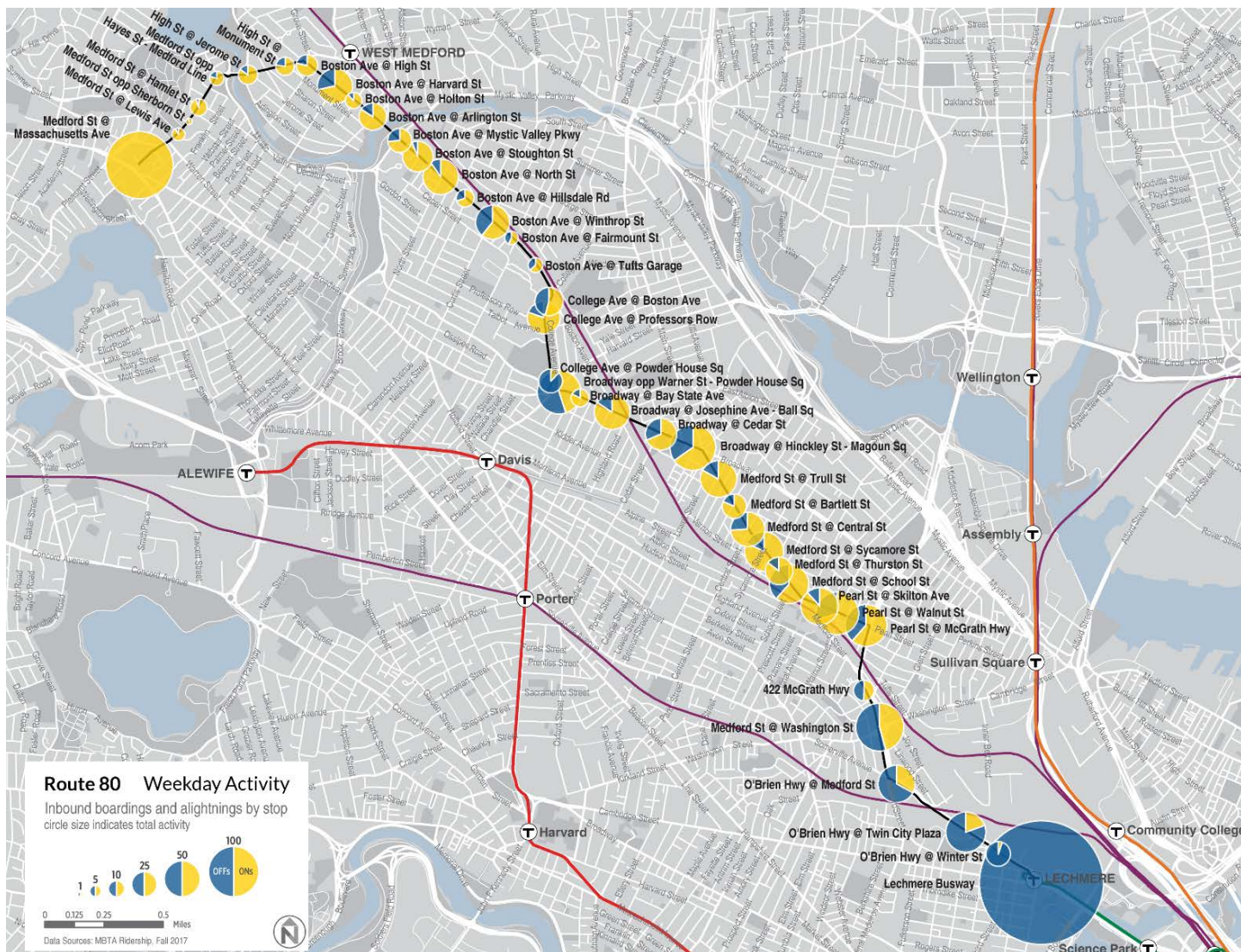
On weekdays inbound from Arlington Center (see Figure 3):

- 182 passengers board at Arlington Center.
- 48 passengers board and eight passengers alight along Medford Street and High Street, before the route turns south onto Boston Avenue.
- 246 passengers board and 90 alight along Boston Avenue. High ridership stops along Boston Avenue include:
  - Boston Avenue at Harvard Street, with 35 boardings and 14 alightings.
  - Boston Avenue at North Street near the Elizabeth Grady School, with 45 boardings and 5 alightings.
- 37 passengers board and 62 alight at the two stops serving Powder House Square. Many of these passengers are likely walking to Davis Square to access the Red Line or to transfer to Route 89 Clarendon Hill or Davis Square – Sullivan Square Station.

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- 80 passengers board and 22 alight along Broadway between Powder House Square and Magoun Square.
  - 100 passengers board and 39 alight at the two stops near Magoun Square.
  - Stops along Medford Street and Pearl Street generate 360 boardings and 121 alightings, with most stops generating 40 or more daily boardings.
  - Just eight passengers board and eight alight at 422 McGrath Highway.
  - 43 passengers board and 51 alight at Medford Street at Washington Street.
  - 18 passengers board and 37 alight at O'Brien Highway at Medford Street.
  - 13 passengers board and 52 alight at O'Brien Highway at Twin City Plaza.
  - 618 passengers alight at Lechmere Station, more than half of all inbound riders.

Outbound ridership is lower in Powder House Square and West Medford, resulting in less overall activity along the outbound route. Weekend ridership patterns are similar to weekday patterns, with lower passenger volumes.

Figure 3 | Weekday Inbound Ridership by Stop Map



## Ridership by Trip

Route 80 ridership reflects typical commute patterns, with high ridership inbound during the AM peak and outbound during the PM peak. Route 80 trips have modest turnover along most of the route, as many passengers ride to and from Arlington Center or Lechmere Station.

On weekday inbound trips (see Figure 4):

- The first two trips of the day before 6:00 AM serve 21 boardings and 16 boardings, with maximum loads under 15 passengers.
- Ridership is highest during the AM peak period, when trips carry over 40 riders per trip and most exceed 50 riders per trip. Ridership peaks at the beginning of this period on the 6:55 AM trip, with 72 total boardings and a maximum load of 56 passengers, surpassing the MBTA's crowding threshold.
- From 9:00 AM to 7:00 PM, ridership ranges between 15 and 36 boardings per trip. The 2:40 PM and 3:45 PM trips are the only ones with more than 30 boardings.
- After 7:00 PM, ridership declines to fewer than 15 passengers per trip, and trips after 10:00 PM carry fewer than 10 passengers.

Outbound ridership largely mirrors inbound patterns (see Figure 5). Morning trips generally have fewer than 20 passengers, with the exception of some trips between 6:30 AM and 8:00 AM that have between 21 and 33 passengers. Ridership is much higher on PM peak trips, with 40 to 50 boardings per trip and a maximum load over 35 riders on all trips between 5:00 PM and 6:30 PM. Ridership during all other time periods is moderate, with almost all trips attracting fewer than 30 passengers. No outbound trips exceed the MBTA's maximum load standard.

On Saturdays and Sundays, inbound and outbound ridership is fairly consistent throughout the day, with inbound ridership highest during the midday and outbound ridership highest later in the afternoon (see Figure 6 through Figure 9). The highest ridership inbound trip on Saturdays is at 12:20 PM (49 boardings and 30 passengers at maximum load) and on Sundays at 12:55 PM (34 boardings and 24 passengers at maximum load). The highest ridership outbound trip on Saturdays is at 4:25 PM (32 boardings and 26 passengers at maximum load) and on Sundays at 6:10 PM (29 boardings and 22 passengers at maximum load). No weekend trip experiences crowding problems.

Figure 4 | Weekday Ridership by Trip: Inbound

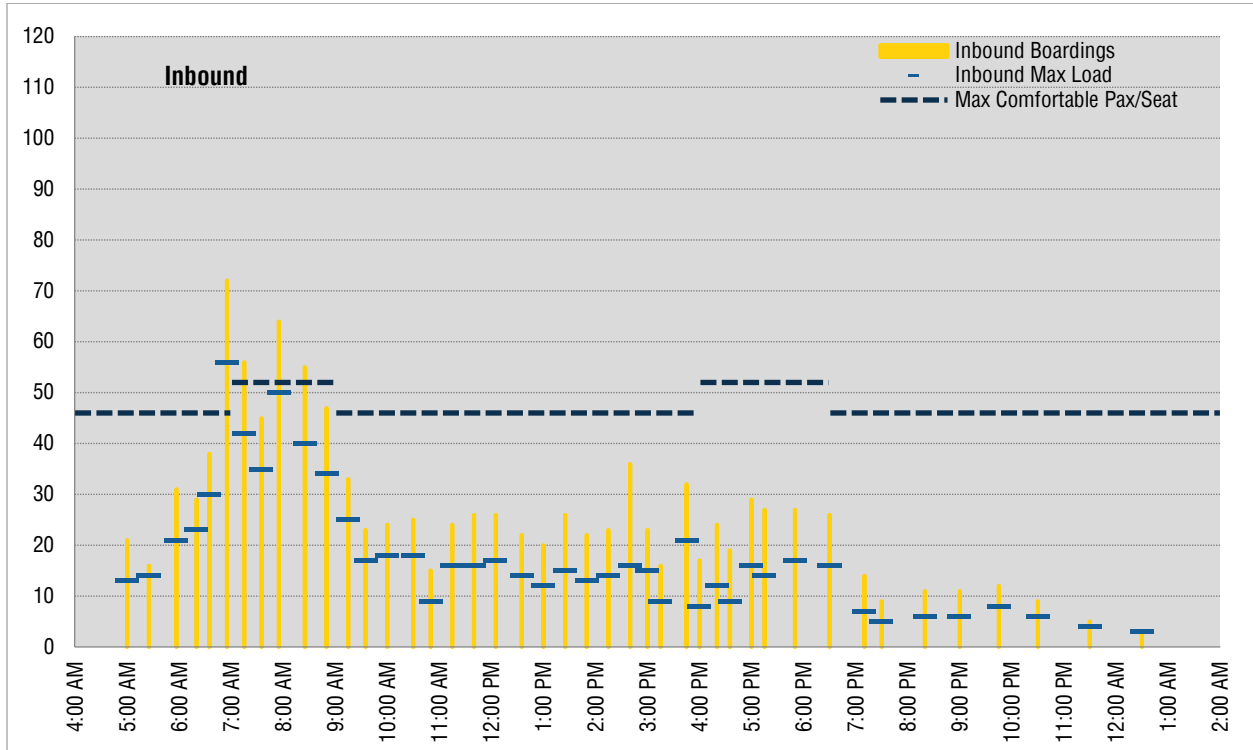


Figure 5 | Weekday Ridership by Trip: Outbound

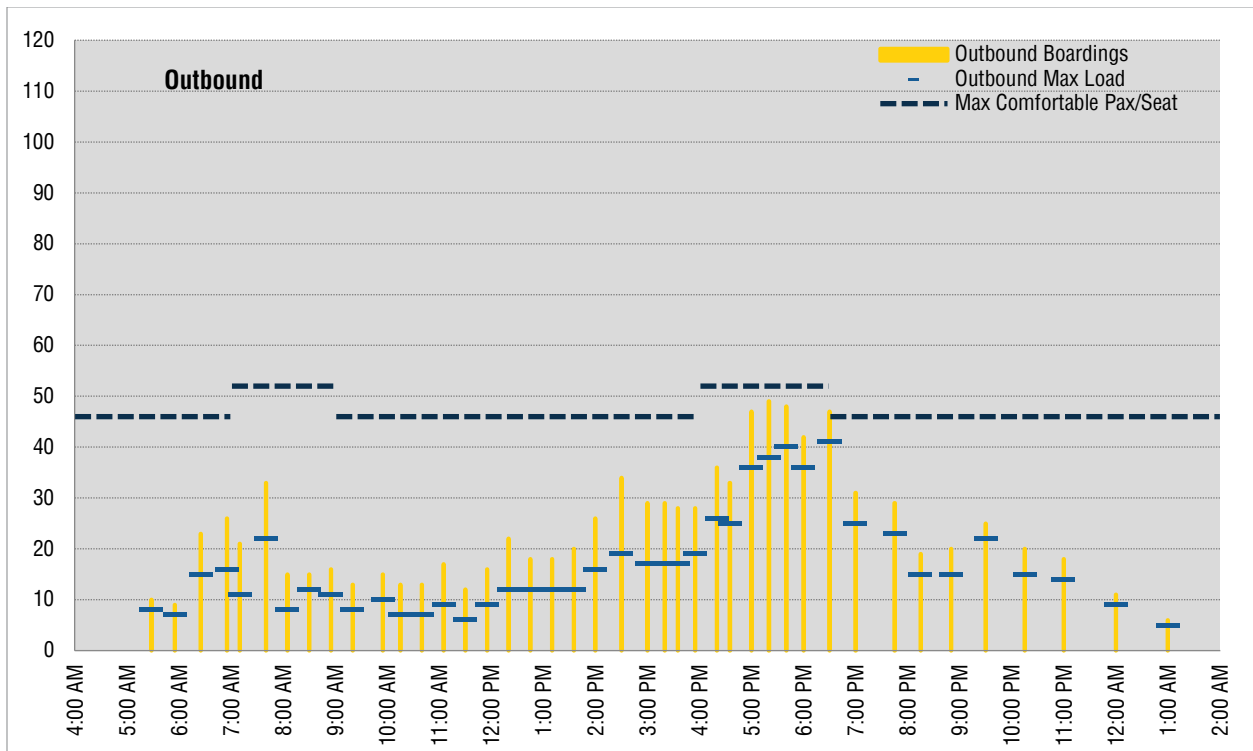




Figure 6 | Saturday Ridership by Trip: Inbound

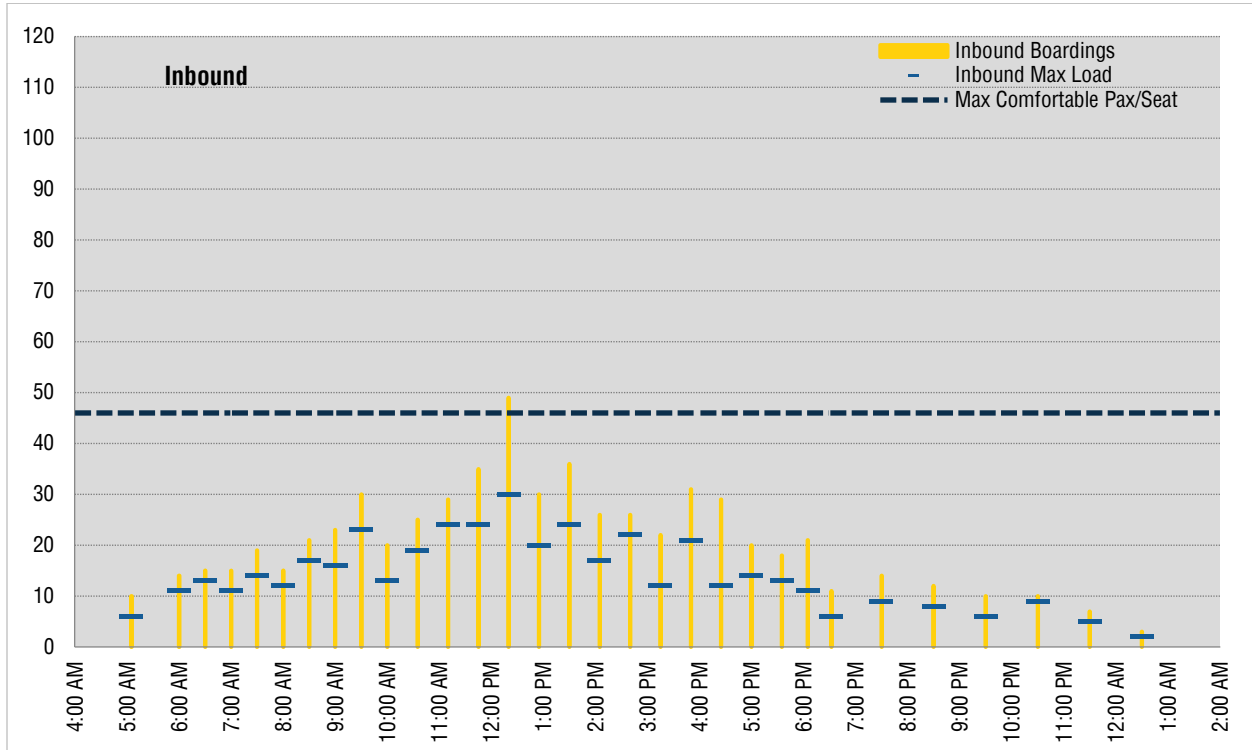


Figure 7 | Saturday Ridership by Trip: Outbound

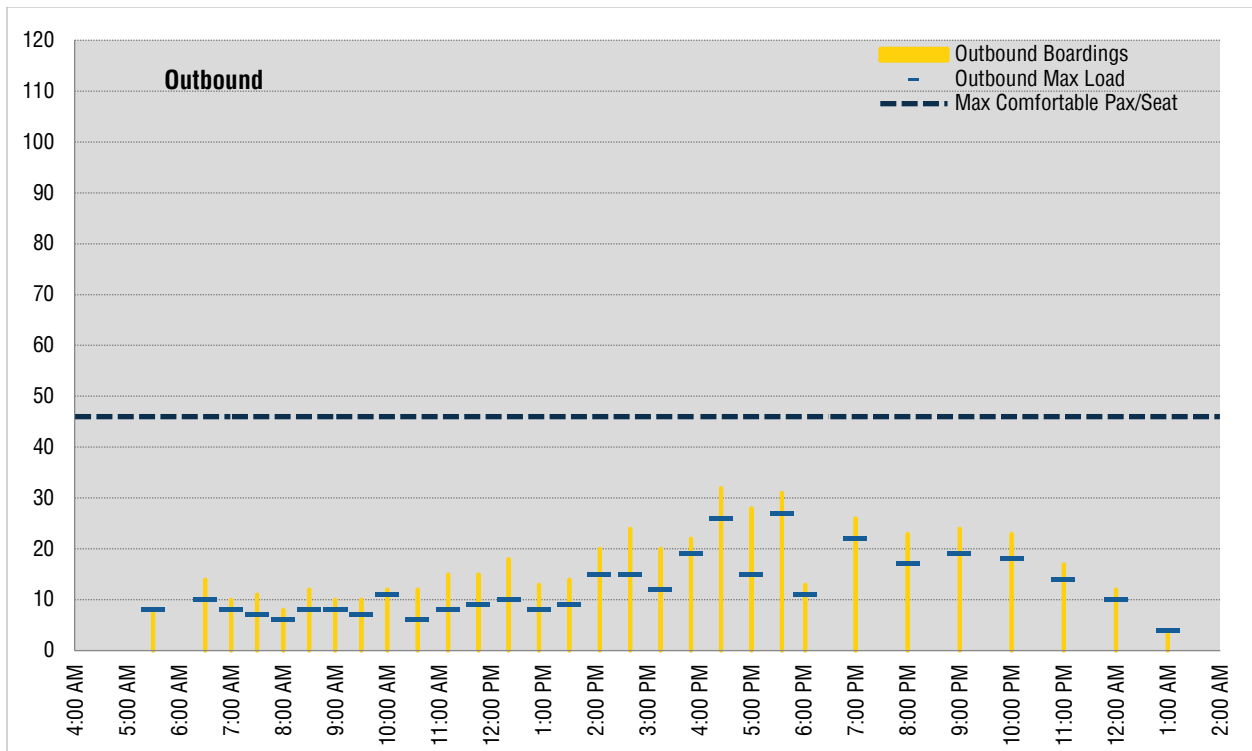


Figure 8 | Sunday Ridership by Trip: Inbound

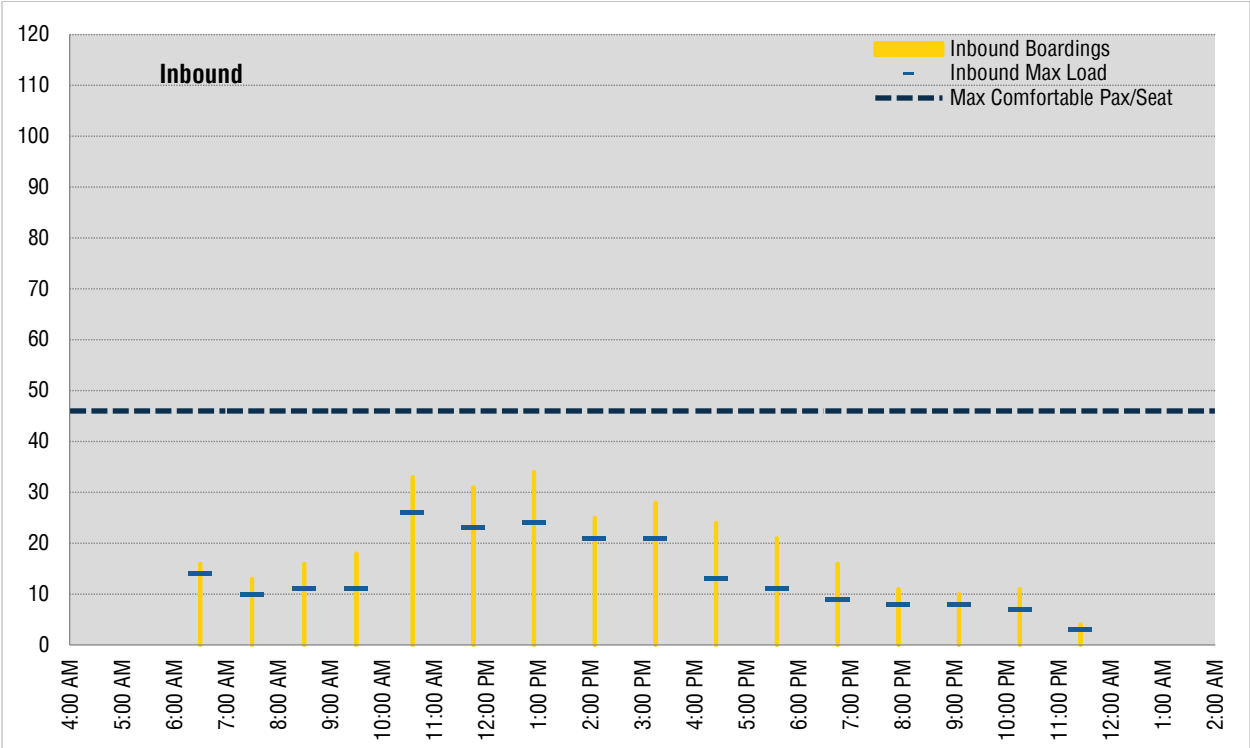
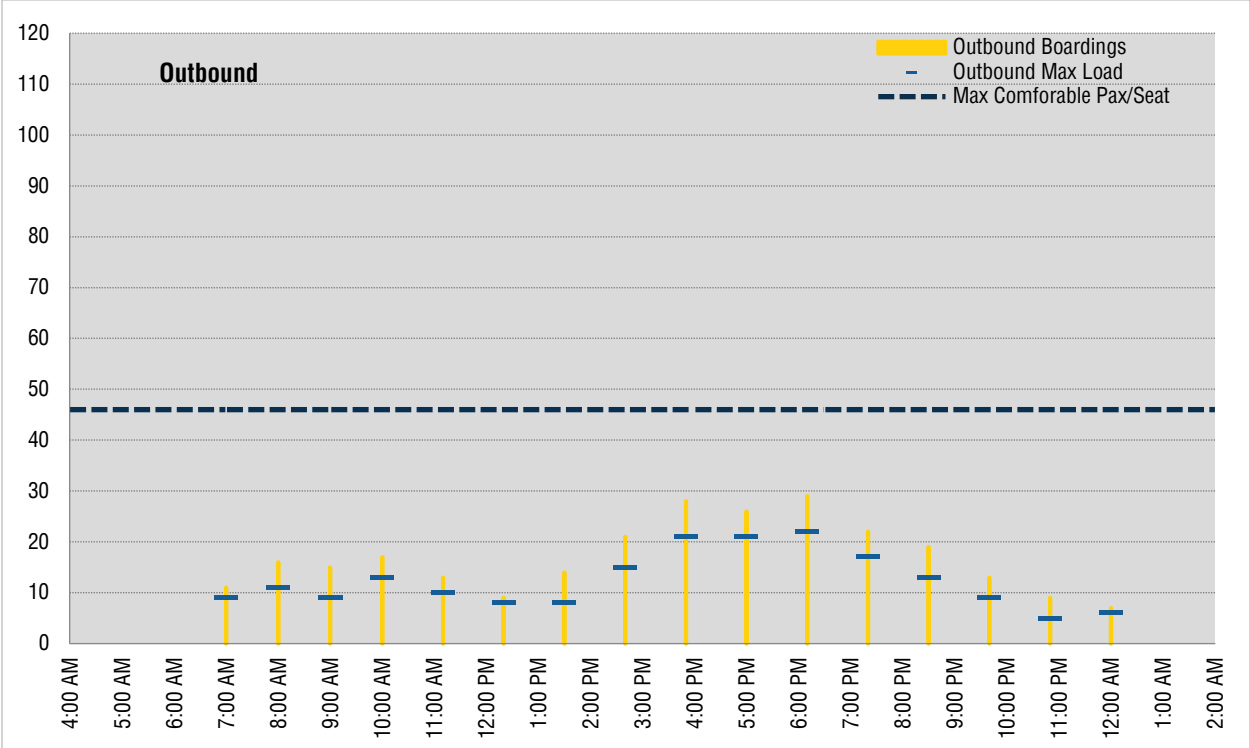


Figure 9 | Sunday Ridership by Trip: Outbound



## 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 80, 92% of passenger minutes are in comfortable conditions, which meets the minimum standard (see Table 3).

Table 3 | Passenger Time Spent Traveling in Comfortable Conditions

	WEEKDAYS	SATURDAYS	SUNDAYS
<b>Minimum Standard</b>	92%	92%	92%
<b>Target</b>	96%	96%	96%
<b>Actual</b>	92.1%	100%	100%

## Reliability and Speed

### Reliability

Passengers using lower frequency services like Route 80 typically use published schedules to plan their trip. Route 80 leaves on time 67% of the time and arrives on time 65% of the time on weekdays (see Table 4). The route's overall reliability of 67% falls short of the MBTA's minimum standard of 70% for Local routes.

The MBTA does not always run every scheduled trip each day. Trips may be dropped due to severe traffic congestion or when there are not enough vehicles or drivers available to serve the full schedule. On weekdays, only 0.3% of all trips are dropped on a daily basis, resulting in longer headways and more delay for passengers.

Table 4 | Reliability

SERVICE DAY	ORIGIN/MID-ROUTE ON-TIME PERFORMANCE	DESTINATION ON-TIME PERFORMANCE	OVERALL RELIABILITY	DROPPED TRIPS
<b>Monday-Friday</b>	67%	65%	67%	0.3%
<b>Saturday</b>	65%	64%	65%	-
<b>Sunday</b>	81%	71%	80%	-

## Running Times

Route 80's observed running times routinely exceed scheduled running times throughout the service day. Early morning trips generally run with less delay, while midday and PM peak trips can run five minutes longer than scheduled (see Figure 10 and Figure 11).

Figure 10 | Scheduled & Median Travel Time by Trip: Route 80 Inbound

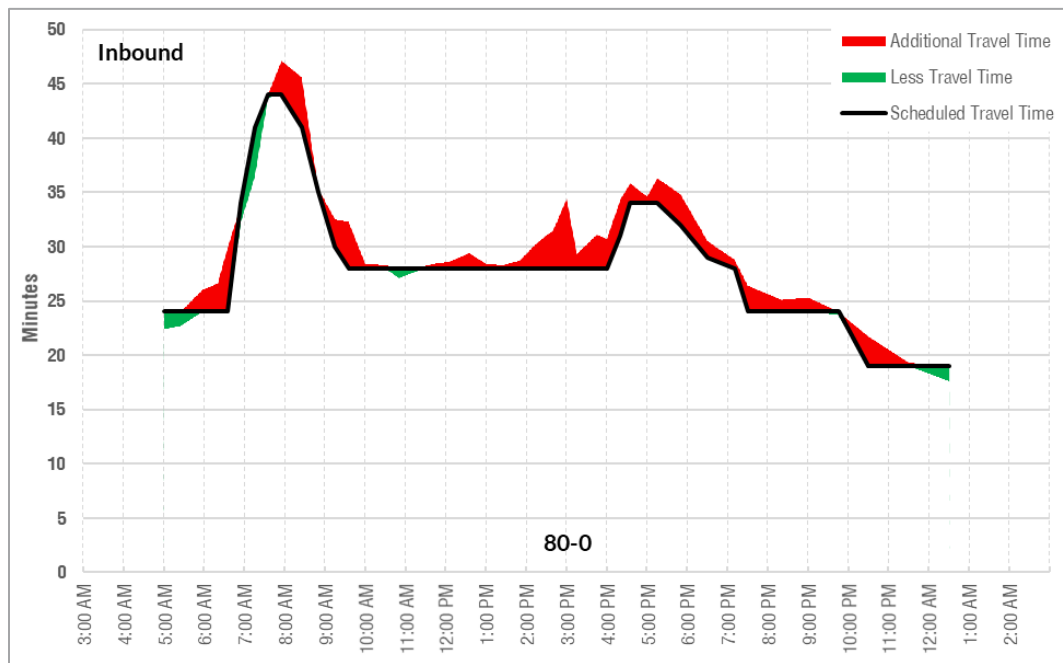
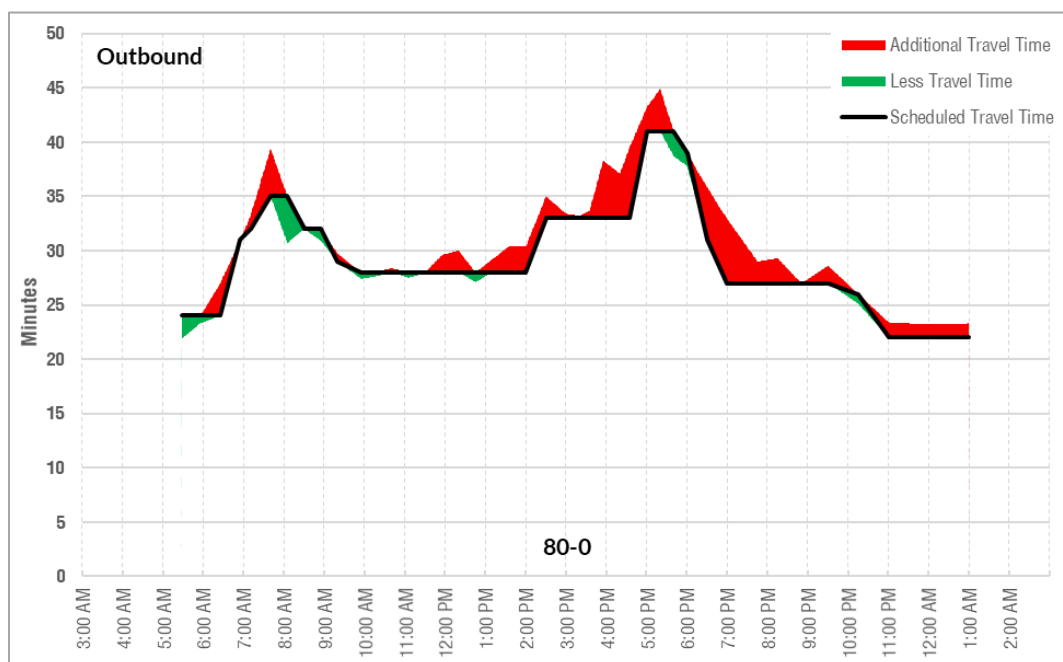


Figure 11 | Scheduled & Median Travel Time by Trip: Route 80 Outbound



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## Stop Spacing

Route 80 has an average of 6.6 stops per mile, or one stop every 800 feet. This is at the high end of the four to seven stops per mile recommended by the MBTA, making service slower and less reliable.

Stops are located extremely close together at several points along the route:

- Stops along College Avenue serving the Tufts University campus, at Boston Avenue and at Professors Row, are only 400 feet apart. Both stops average fewer than 45 boardings or alightings per day.
- Near Magoun Square, stops along Broadway at William Street and at Alfred Street are only 480 feet apart. The Alfred Street stop averages less than half the ridership of the William Street stop, as most passengers destined for this area have already alighted in the middle of Magoun Square

## Summary

Route 80 attracts relatively high ridership despite lower frequencies during the AM and PM peaks than many bus routes. The route's reliability falls short of the MBTA's minimal standard.