

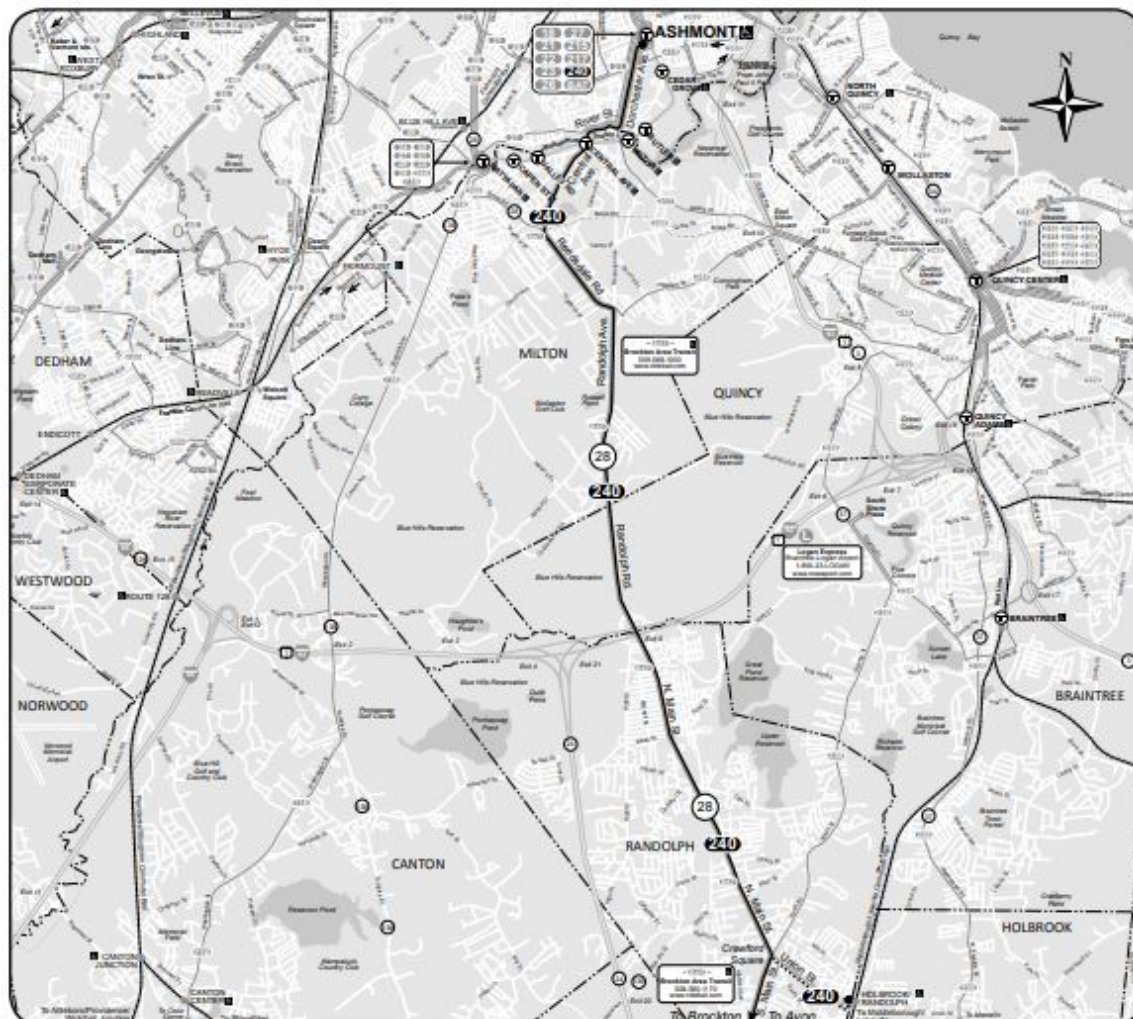
Route 240

Avon Square – Ashmont

Route Overview

Route 240 Avon Square – Ashmont is a Local route connecting the Boston neighborhoods of Ashmont and Mattapan to Milton, Quincy, Randolph, Holbrook, and Avon. The route operates seven days a week through municipalities generally served by Commuter Rail. This route offers a more affordable, though slower, traveling option between the rapid transit network and residential areas in municipalities south of the urban core.

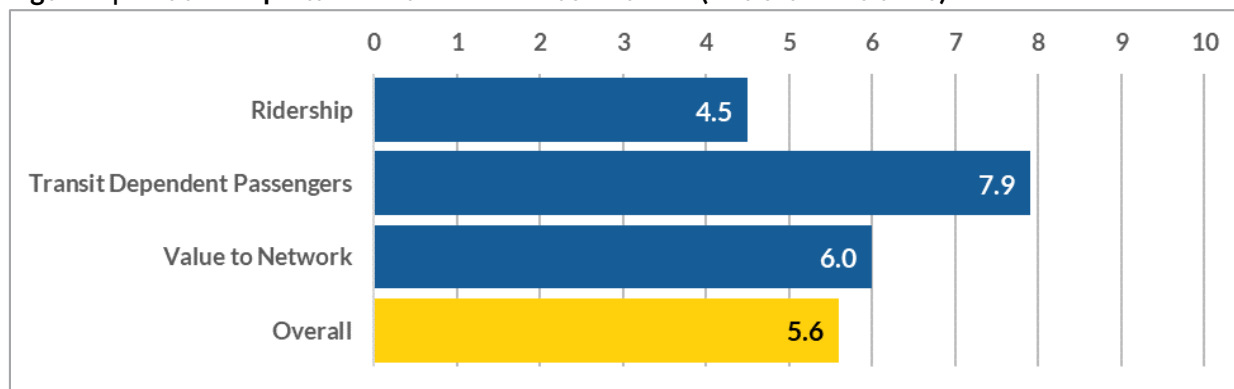
Figure 1 | Route 240 Service Map



Network Importance

Route 240 is significantly important to the overall network (see Figure 2). On a relative scale of 0 to 10, the route rates 4.5 in terms of ridership, 7.9 in terms of transit dependent ridership, and 6.0 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% weighting 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 240 operates from 5:00 AM to 1:13 AM with the following frequencies (see Table 1):

- Every 1 to 30 minutes from the beginning of service until 9:00 AM, but mostly every 13 minutes between 5:00 AM and 7:00 AM, and every 17 minutes between 7:00 AM and 9:00 AM.
- Every 15 to 75 minutes between 9:00 AM and 1:30 PM, but mostly every 38 minutes.
- Every 16 to 45 minutes between 1:30 PM and 4:00 PM, but mostly every 26 minutes.
- Every 5 to 30 minutes during the PM peak period, but mostly every 15 minutes.
- Every 5 to 75 minutes between 6:30 PM and 10:00 PM, but mostly every 33 minutes.
- Every 70 minutes after 10:00 PM.

On Saturdays, the route runs an all-day average frequency of about one bus every 34 minutes and operates between 5:50 AM and 1:14 AM. On Sundays, this all-day average

frequency drops to one bus every 68 minutes with service running between 7:00 AM and 1:06 AM.

Table 1 | Schedule Statistics

| SERVICEDAY | SPAN OF SERVICE | FREQUENCY (RANGE) | FREQUENCY (AVERAGE) | DAILY TRIPS (INBOUND/OUTBOUND) |
|----------------------|---------------------------|-------------------|---------------------|--------------------------------|
| Monday-Friday | 5:00 AM to 1:13 AM | | | 52/44 |
| Sunrise | 5:00 AM to 5:59 AM | 2 - 22 | 12 | 6/1 |
| Early AM | 6:00 AM to 6:59 AM | 1 - 29 | 13 | 4/5 |
| AM Peak | 7:00 AM to 8:59 AM | 8 - 30 | 17 | 7/7 |
| Midday Base | 9:00 AM to 1:29 PM | 15 - 75 | 38 | 7/7 |
| Midday School | 1:30 PM to 3:59 PM | 16 - 45 | 26 | 6/5 |
| PM Peak | 4:00 PM to 6:29 PM | 5 - 30 | 15 | 10/10 |
| Evening | 6:30 PM to 9:59 PM | 5 - 75 | 33 | 10/6 |
| Late Evening | 10:00 PM to 11:59 PM | 70 - 75 | 70 | 1/2 |
| Night | 12:00 AM to 1:13 AM | 70 | 70 | 1/1 |
| Saturday | 5:50 AM to 1:14 AM | 10 - 71 | 34 | 32/32 |
| Sunday | 7:00 AM to 1:06 AM | 73 - 80 | 68 | 15/15 |

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

Route 240 meets the Span of Service for Local bus routes on weekdays, Saturdays, and Sundays. Route 240 fails, however, to meet the Frequency Standard minimum of one bus every 60 minutes during all non-peak periods on weekdays and all-day on Sundays.

Service Patterns

On weekdays, in both directions, trips generally alternate between operating pattern 240.1 and pattern 240.9:

- Pattern 240.1 is the primary service pattern, and runs between Avon Square and Ashmont (see Figure 1).
- Pattern 240.9 runs between Holbrook-Randolph Commuter Rail Station and Ashmont, providing service along Union Street, where the Route 238 Quincy Center Station – Holbrook/Randolph Commuter Rail Station operates.

In addition to these two service patterns:

- Pattern 240.0, runs between Crawford Square, servicing Milton Hospital and Randolph High School and Ashmont. These trips are focused on commute times and generally concentrated in the morning in the inbound direction and evening in the outbound direction.
- Pattern 240.2 runs between Crawford Square and Quincy Center, operating three weekday PM inbound trips, these are trips are returning to the bus garage.

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- Pattern 240.3 runs between Holbrook-Randolph Commuter Rail Station and Quincy Center, operating three weekday PM inbound trips and one AM trip, these are trips retuning to the bus garage.
 - Pattern 240.7 runs between Avon Square and Quincy Center, operating one AM outbound and one PM inbound trip on weekdays only, these are trips retuning to the bus garage.
 - Pattern 240.8 runs outbound only between Holbrook-Randolph Commuter Rail Station and Avon Square, where the bus converts to at Route 238 and begins inbound service.
 - Pattern 240.9 runs between Holbrook-Randolph Commuter Rail Station and Ashmont at 2:30 PM, providing additional service to Randolph High School on school days.

On Saturdays, trips before 7:00 PM alternate every other trip between pattern 240.0 and pattern 240.1. The only exceptions to this are the 3:33 PM inbound trip and the 7:17 AM outbound trip which both run pattern 240.2. After 7:00 PM, all trips operate along pattern 240.1 with the exception of the final outbound trip of the day which runs pattern 240.0.

On Sundays, in the inbound direction, the first trip runs pattern 240.0, while all other morning trips run pattern 240.1. The first afternoon trips runs pattern 240.1, while all other afternoon and evening trips run pattern 240.0. In the outbound direction, all trips before 3:00 PM and the 12:40 AM trip run pattern 240.0. All others run pattern 240.1.

Table 2 | Service Patterns

| PATTERN | ORIGIN | DESTINATION | UNIQUE FEATURE | TRIPS per WKD | TRIPS per SAT | TRIPS per SUN |
|-----------------|---|---|--|---------------|---------------|---------------|
| INBOUND | | | | 52 | 32 | 15 |
| 240.0 | N Main Street opposite Memorial Parkway | Ashmont Station | Randolph Center to Ashmont | 8 | 13 | 10 |
| 240.1 | E Main Street at High Street | Ashmont Station | Avon Square to Ashmont | 23 | 18 | 5 |
| 240.2 | N Main Street opposite Memorial Parkway | Burgin Parkway at Quincy Center | Randolph Center to Quincy Center | 3 | 1 | - |
| 240.3 | Holbrook/Randolph Station | Burgin Parkway at Quincy Center | Commuter Rail station to Quincy Center | 3 | - | - |
| 240.7 | E Main Street at High Street | Burgin Parkway at Quincy Center | Avon Square to Quincy Center | 1 | - | - |
| 240.9 | Holbrook/Randolph Station | Ashmont Station | Commuter Rail station to Ashmont | 14 | - | - |
| 204.16 | E Main Street at High Street | Ashmont Station | Only operated on school days | 1 | - | - |
| OUTBOUND | | | | 44 | 32 | 15 |
| 240.0 | Ashmont Station | N Main Street opposite Short Street | Ashmont to Randolph Center | 6 | 13 | 7 |
| 240.1 | Ashmont Station | E Main Street at W Main Street | Ashmont to Avon Square | 19 | 18 | 8 |
| 240.2 | Burgin Parkway at Quincy Center | N Main Street opposite Memorial Parkway | Leaves from North Randolph | - | 1 | - |
| 240.3 | N Main Street at Soren Street | Holbrook/Randolph Station | Commuter Rail station | 1 | - | - |
| 240.7 | N Main Street at Scanlon Drive | E Main Street at W Main Street | North Randolph to Avon Square | 1 | - | - |
| 240.8 | Holbrook/Randolph Station | E Main Street at W Main Street | Commuter Rail station to Avon Square | 1 | - | - |
| 240.9 | Ashmont Station | Holbrook/Randolph Station | Ashmont to Commuter Rail station | 16 | - | - |

Ridership

Route 240 carries about 2500 riders on weekdays, 1250 riders on Saturdays, and 725 riders on Sundays.

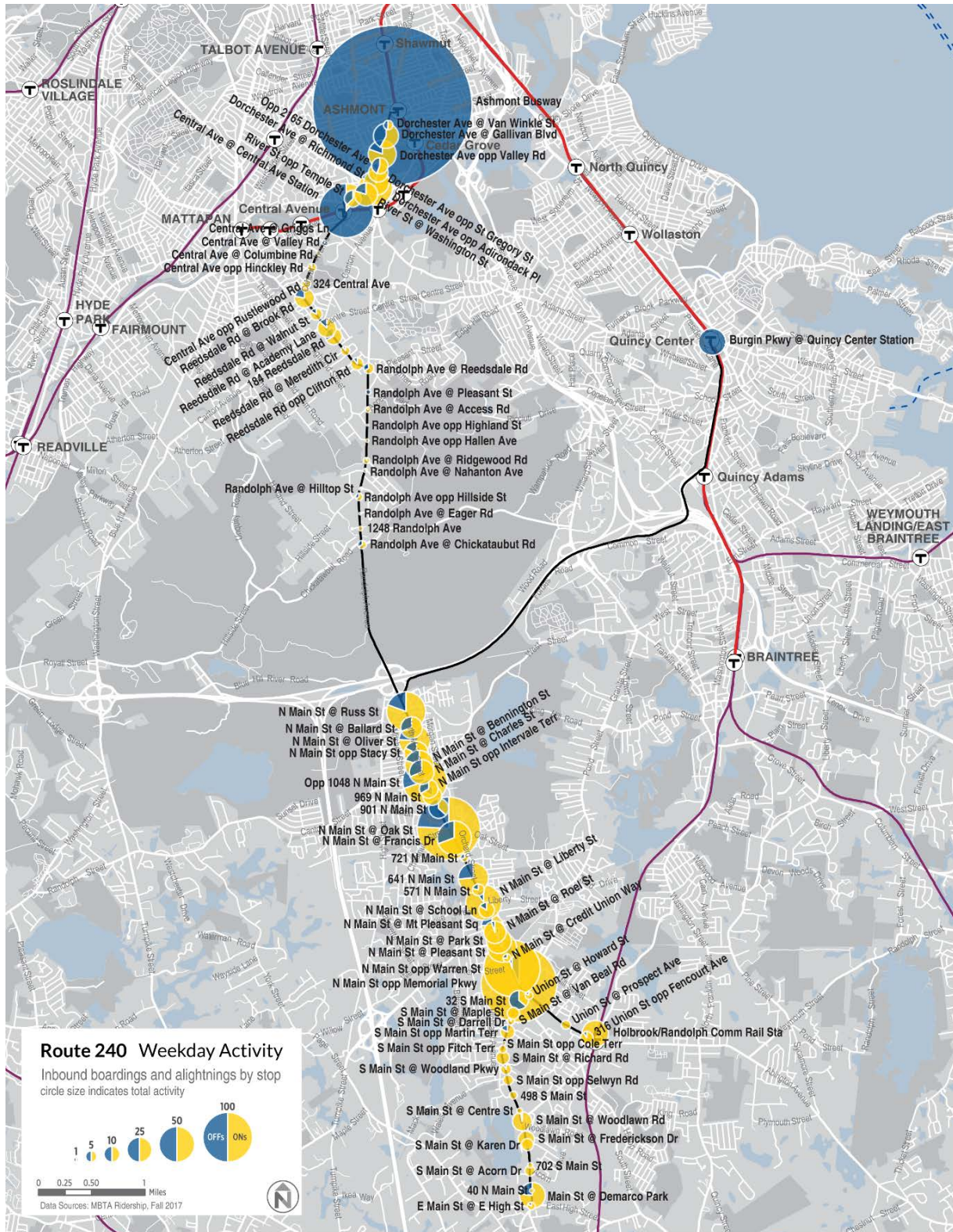
Ridership by Stop

Ridership on the southern half of where Interstate 93 bisects Route 240 is significantly higher than ridership on the northern half. On weekday inbound trips (see Figure 3):

- The full route begins at Avon Square where 2 passengers board daily.
- Between Avon Square and Crawford Square, 19 stops generate 105 boardings and 19 alightings. However, only three of these stops generate more than 8 boardings per day: Demarco Park with 22 boardings, Main Street at Frederickson Drive with 11 boardings, and Main Street at Center Street with 15 boardings
- Select trips that serve the Holbrook-Randolph Commuter Rail Station generate 41 boardings, 30 of which are at the rail station and 1 alighting.
- At Crawford Square 223 passengers board and 14 alight.
- Main Street opposite Warren Street generates 125 boardings and 6 alightings.
- The route continues along Main Street and generates 215 boardings and 44 alightings along the 11 stops prior to Main Street at Oak Street.
- At Main Street at Oak Street 123 passengers board and 39 alight, near the Francis Crossing Apartments.
- North of Oak Street, the route continues north on Main street to the I-93 interchange, generating 246 and 90 alightings over the next 10 stops.
- North of the I-93 interchange the street becomes Randolph Avenue as the route passes along the Blue Hills Reservation. This segment has very low density and as a result, generates only 11 boardings and 5 alightings.
- The 6 stops on Reedsdale Road generate 46 boardings and 11 alightings.
- The route then serves Central Avenue and River Street, where 46 passengers board and 120 alight. The Central Avenue Station, served by the Mattapan Trolley generates 109 of these total alightings.
- The route continues to Ashmont Station along Dorchester Avenue, generating 130 boardings and 34 alightings.
- 1,055 alightings - 72% of all inbound alightings occur at Ashmont Station.
- Select inbound garage bound trips that serve Quincy Center Commuter Rail Station generate 30 alightings.

Outbound ridership is roughly the reverse of inbound ridership on weekdays. Weekend ridership patterns are similar, but with lower volumes.

Figure 3 | Weekday Inbound Ridership by Stop Map



Ridership by Trip

Weekday ridership during each direction's respective peak period is relatively high. In greater detail, inbound ridership by trip patterns are as follows (see Figure 4):

- Trips between the start of service at 5:00 AM and 7:15 AM carry between 30 and 50 riders each.
- After this period of high ridership, ridership decreases slightly ranging between 25 and 46 riders per trip between 7:30 AM and 12:15 PM.
- Ridership is highest on the 12:30 PM trip carrying 52 riders. This is the only trip on which seating capacity is exceeded.
- Immediately following this spike, ridership drops ranging from 30 to 38 riders per trip between 12:45 PM and 3:15 PM.
- Between 3:30 PM and the last trip of the day at 12:15 AM trips carry between 5 and 25 riders.

In the outbound direction (see Figure 5):

- Trips between the start of service at 5:50 AM and 11:00 AM carry between 2 and 34 riders. During this period, ridership is highest on the 8:50 AM trip.
- At 11:50 AM, similar to inbound travel around this time of day, ridership spikes reaching 46 riders on this single trip.
- Between 12:00 PM and 3:30 PM, trips carry between 14 and 34 riders.
- With the exception of the last trip of the day, ridership remains relatively high after 3:30 PM with trips carrying between 30 and 50 riders.
- The final trip of the day, at 12:50 AM, carries 22 riders.
- Seating capacity is exceeded on the 3:45 PM trip.

Inbound Saturday ridership ranges between 5 and 32 riders per trip with the highest ridership volumes occurring around 9:15 PM and the lowest volumes occurring around 12:15 AM (see Figure 6). Outbound ridership ranges between 11 and 44 riders per trip with the highest ridership volume occurring around 8:50 PM and the lowest volumes occurring around 10:30 AM (see Figure 7).

Inbound Sunday ridership ranges between 4 and 48 riders per trip. Ridership is highest around 1:10 PM. On this trip, seating capacity is exceeded. Ridership volumes are lowest after 11:00 PM. Outbound ridership ranges between 12 and 32 riders per trip with the highest volumes occurring around 9:00 PM and the lowest volumes occurring on the final trip of the day around 12:50 AM.

Figure 4 | Weekday Ridership by Trip: Inbound

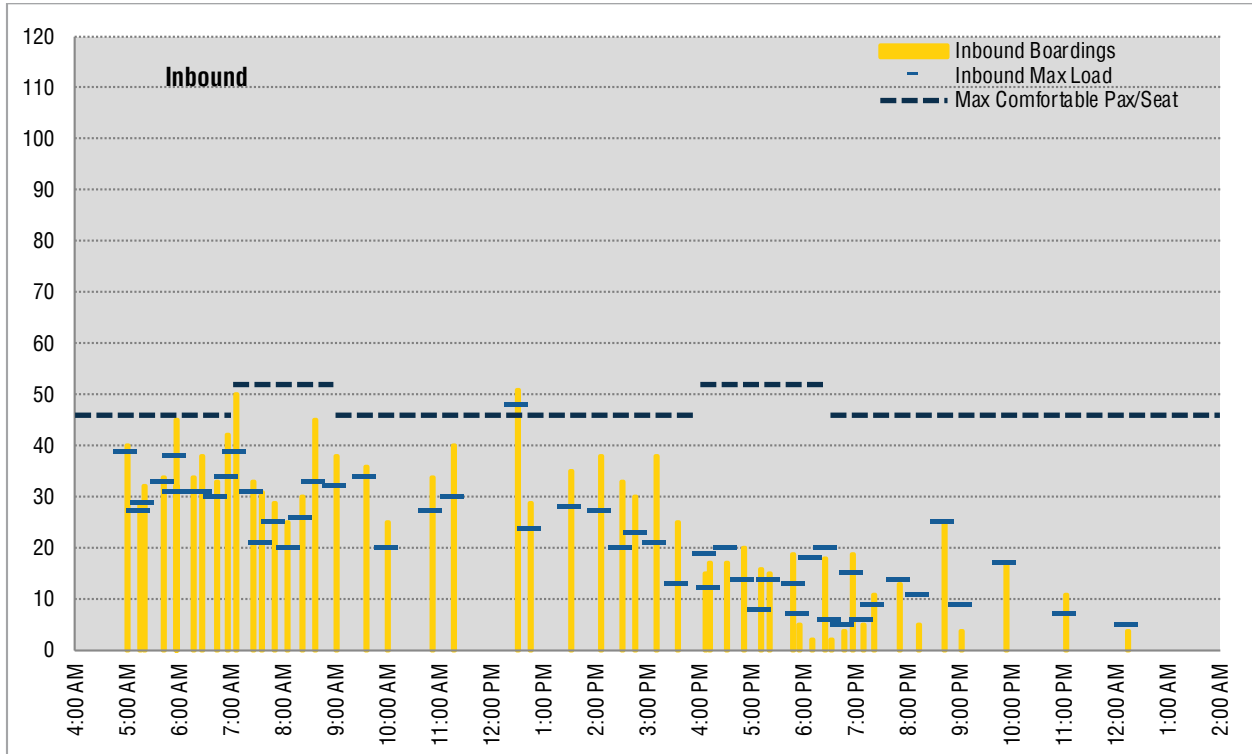


Figure 5 | Weekday Ridership by Trip: Outbound

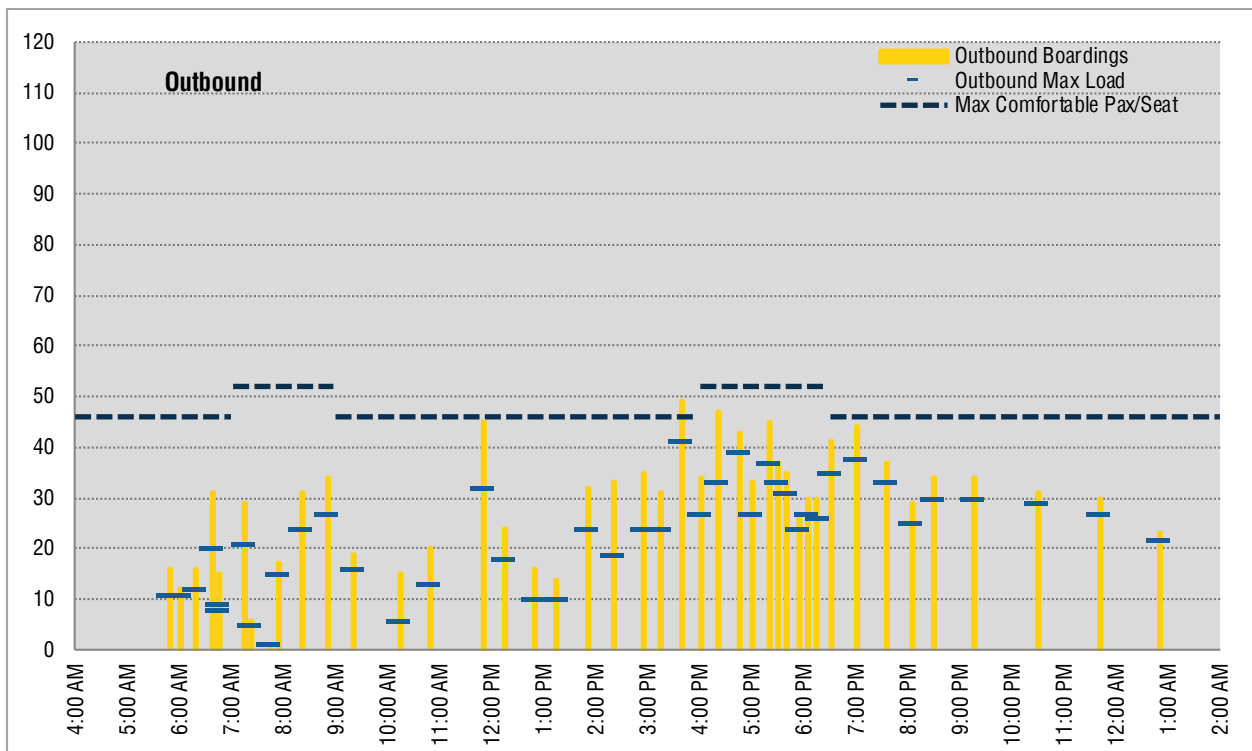


Figure 6 | Saturday Ridership by Trip: Inbound

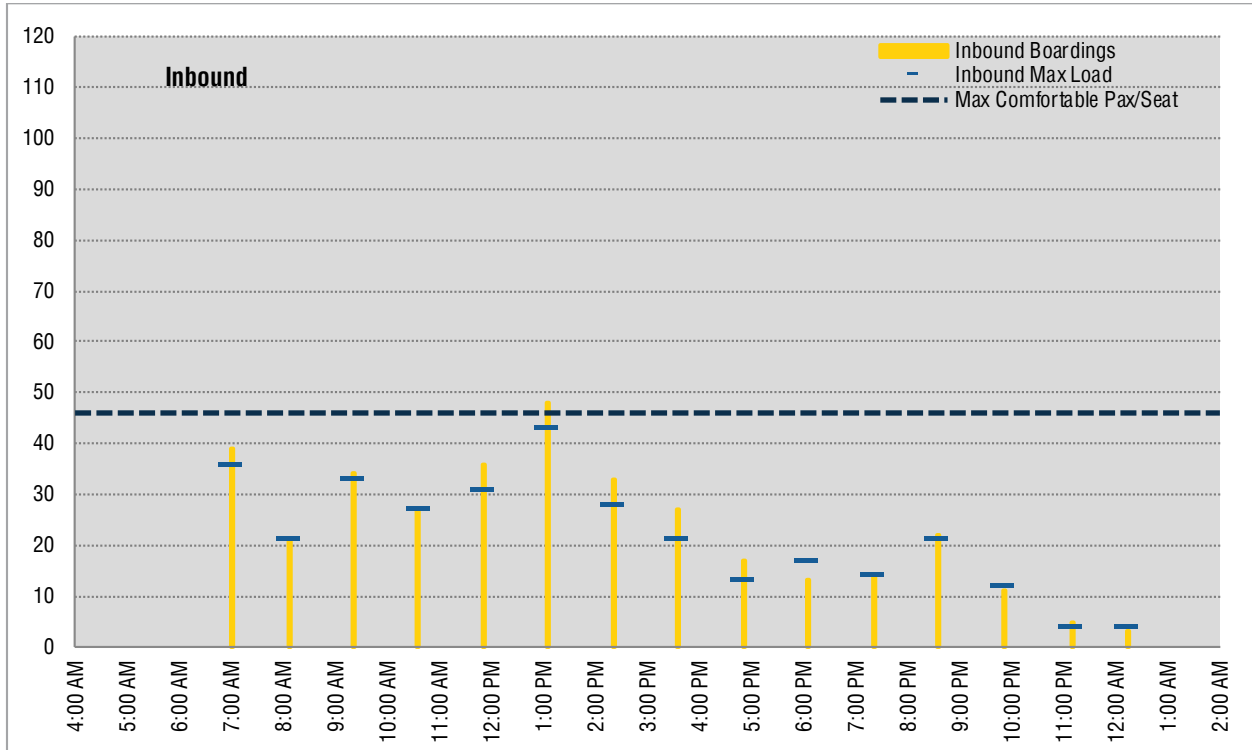


Figure 7 | Saturday Ridership by Trip: Outbound

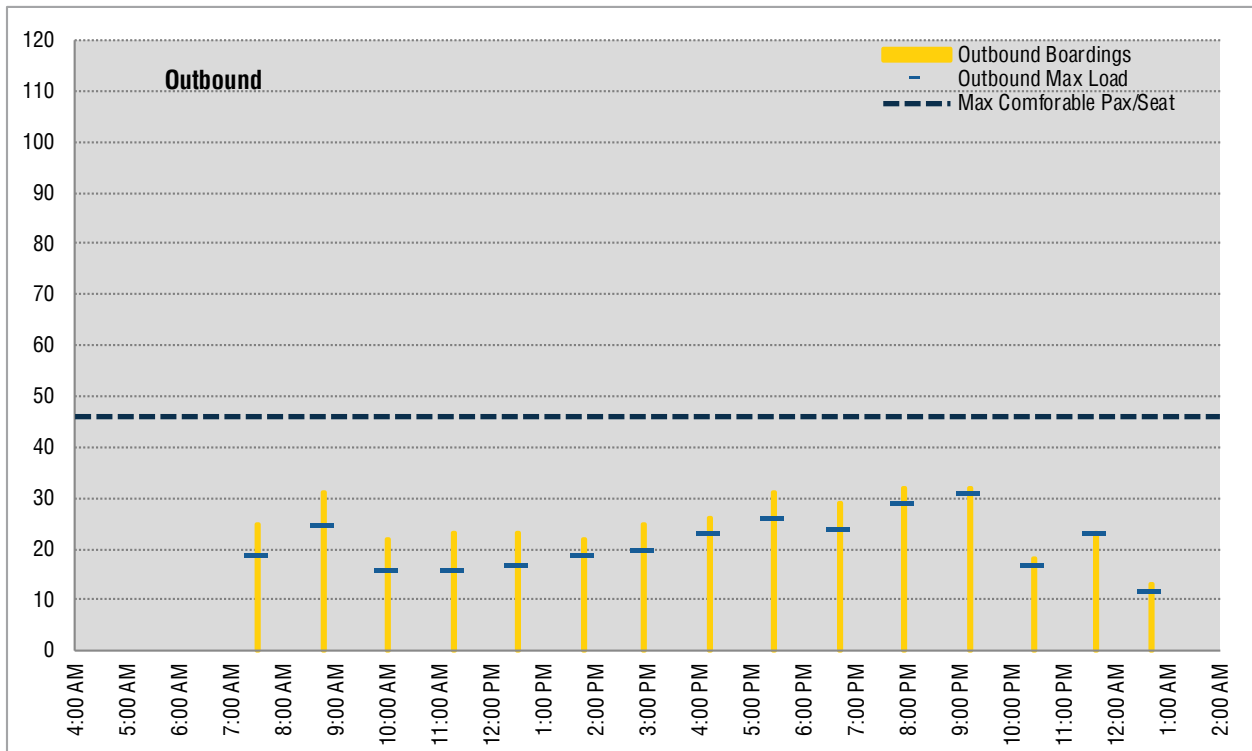


Figure 8 | Sunday Ridership by Trip: Inbound

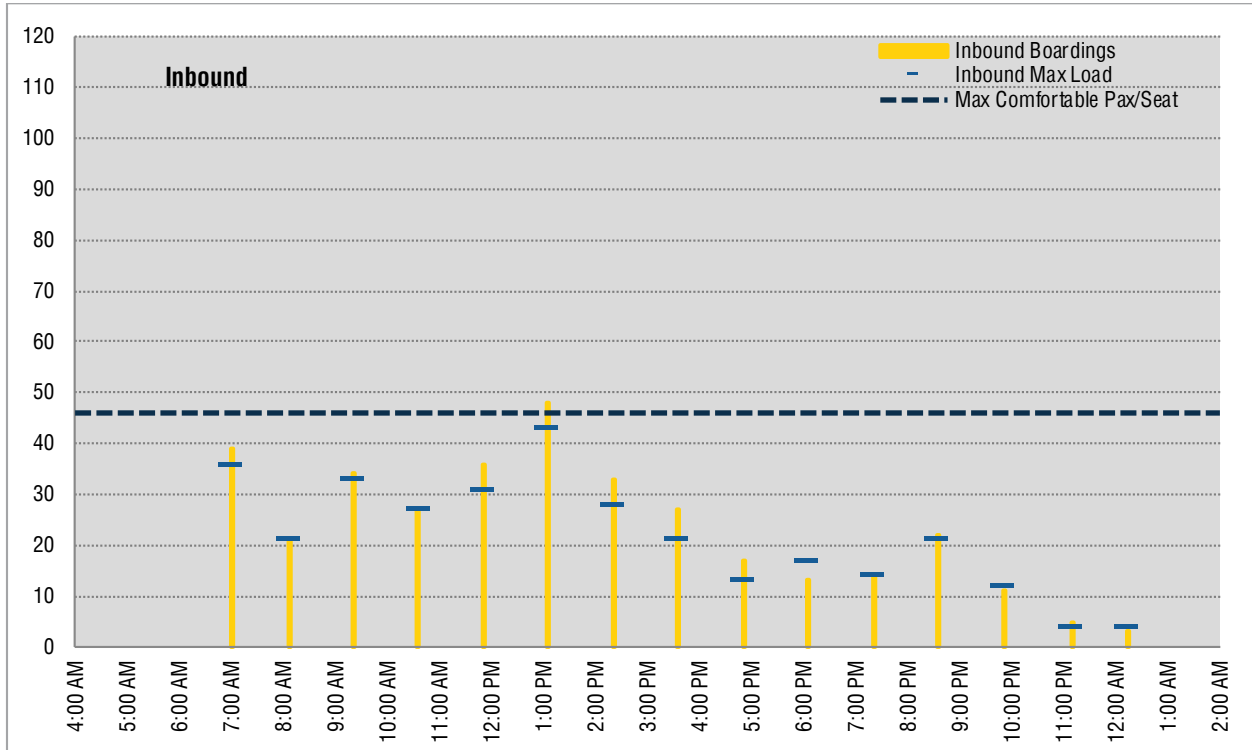
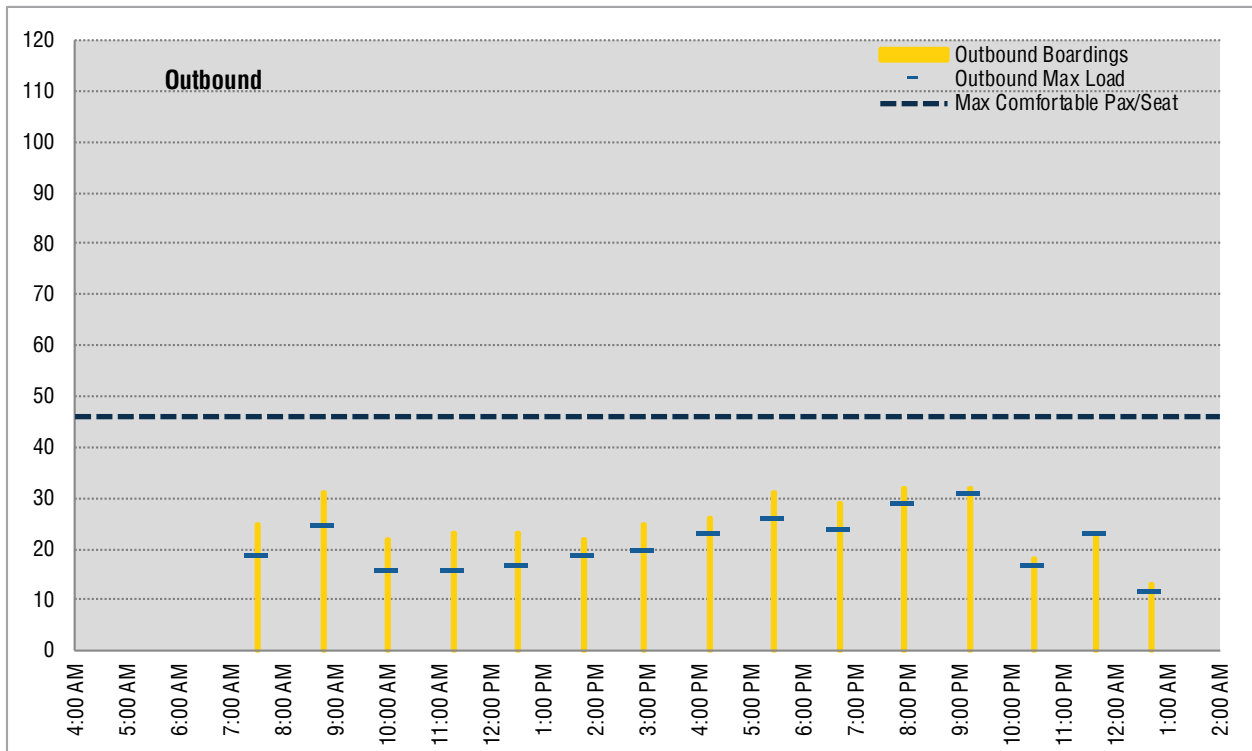


Figure 9 | Sunday Ridership by Trip: Outbound



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 240, 97% of weekday passenger minutes are in comfortable conditions, which is above both the minimum standard or 92% and target or 96% (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 | 97% | 100% | 100% |

Reliability and Speed

Reliability

Route 240 features an overall weekday reliability of 54%. This is a particularly poorly performing route. This poor performance remains true of weekend days as well with Saturday reliability scoring 57% and Sunday 53%. These performance scores fail to meet the MBTA’s minimum standard of 70% for Local bus routes on all days of service.

Table 4 | Reliability

| SERVICEDAY | ORIGIN/MID-ROUTE ON-TIME PERFORMANCE | DESTINATION ON-TIME PERFORMANCE | OVERALL RELIABILITY | DROPPED TRIPS |
|----------------------|--------------------------------------|---------------------------------|---------------------|---------------|
| Monday-Friday | 53% | 61% | 54% | 0.7% |
| Saturday | 57% | 60% | 57% | - |
| Sunday | 52% | 63% | 53% | - |

Running Times

During inbound travel, trips before 7:30 AM run with less than their scheduled travel times by up to as many as 11 minutes. After 7:30 AM, all trips run in excess of their scheduled travel time by up to as many as 10 minutes; particularly during the midday school period. Outbound travel times remain closer to schedule with some trips running in excess of 1 to 3 minutes, and others running 1 to 3 minutes faster than scheduled.

Figure 10 | Scheduled & Median Travel Time by Trip: Route 240 Inbound

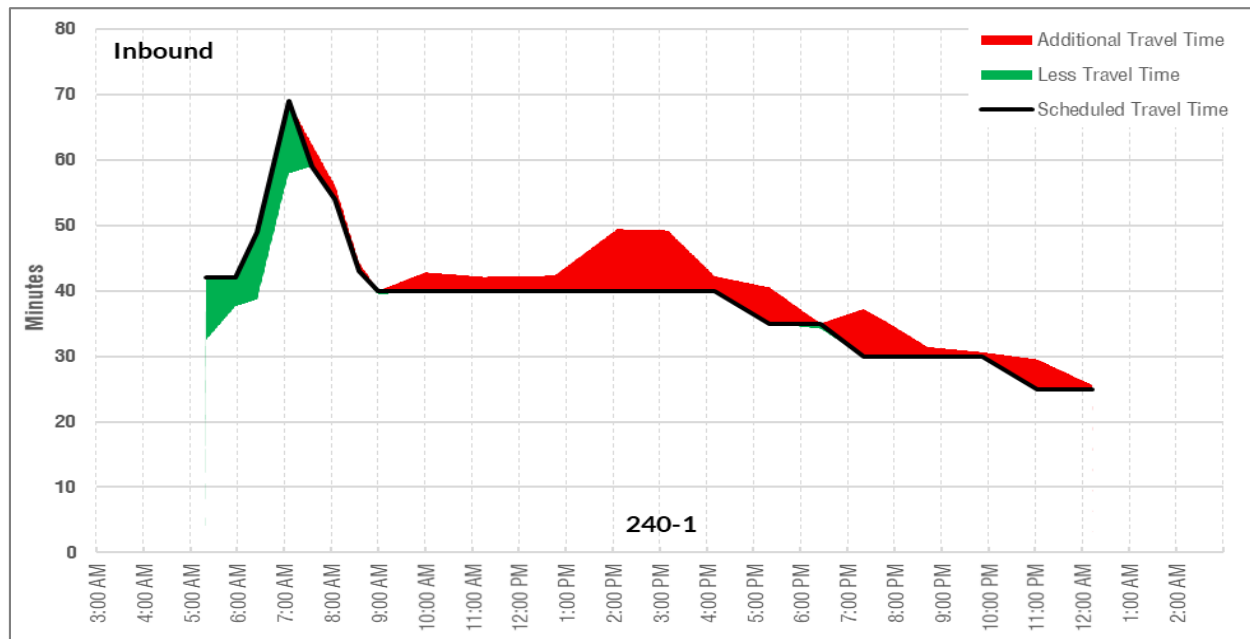
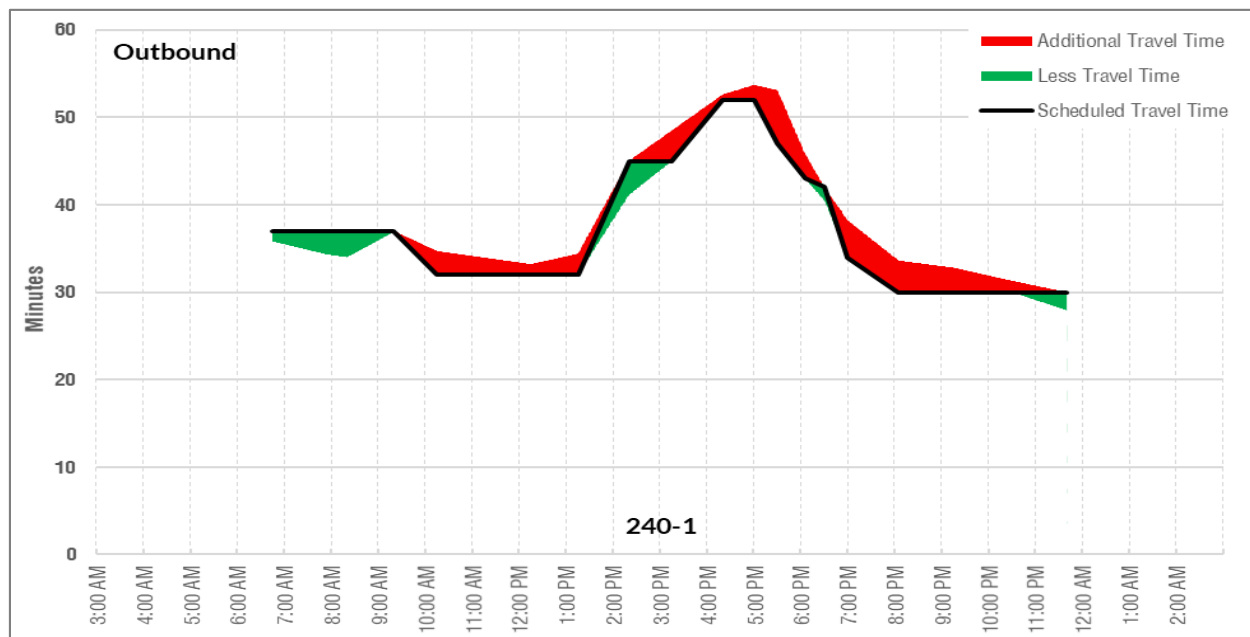


Figure 11 | Scheduled & Median Travel Time by Trip: Route 240 Outbound



Stop Spacing

Stop spacing along Route 240 is generally one stop every 800 feet. This translates into 6.6 stops per mile. For urban, non-CBD areas, it is recommended that routes feature four to seven stops per mile. For suburban areas, this recommendation changes to four to five

stops per mile. Route 240 serves both urban and suburban areas. With its average spacing of 6.6 stops per mile, Route 240 has appropriate spacing in the urban areas that it serves, however, it has too many stops per mile within the suburban areas that it serves. One area in particular that would benefit from stop consolidation is the segment of Route 240 that travels along N Main St in Randolph where average stop spacing is 600 feet.

Summary

Route 240 is a particularly long route that runs between Ashmont Station and Avon Square with select service to Quincy Center Commuter Rail Station and Holbrook/Randolph Commuter Rail Station. Route 240 services an area of growing ridership demand in Randolph and provides a higher-level of service and a more affordable option to the nearby commuter rail service. Parts of the route are overlap with Route 238 Quincy Center Station – Holbrook/Randolph Station, Route 245 Quincy Center - Mattapan via Quarry Street & Edge Hill Road, the Red Line, and Brockton Area Transit (which does not service passengers in the MBTA service area). Route 240 is challenged by its long distance, and as a result suffers from poor reliability and on-time performance, as most of its trips run in excess of their scheduled travel time. Additionally, early inbound AM trips have fairly high ridership indicating there may be a demand for earlier service along the route.