

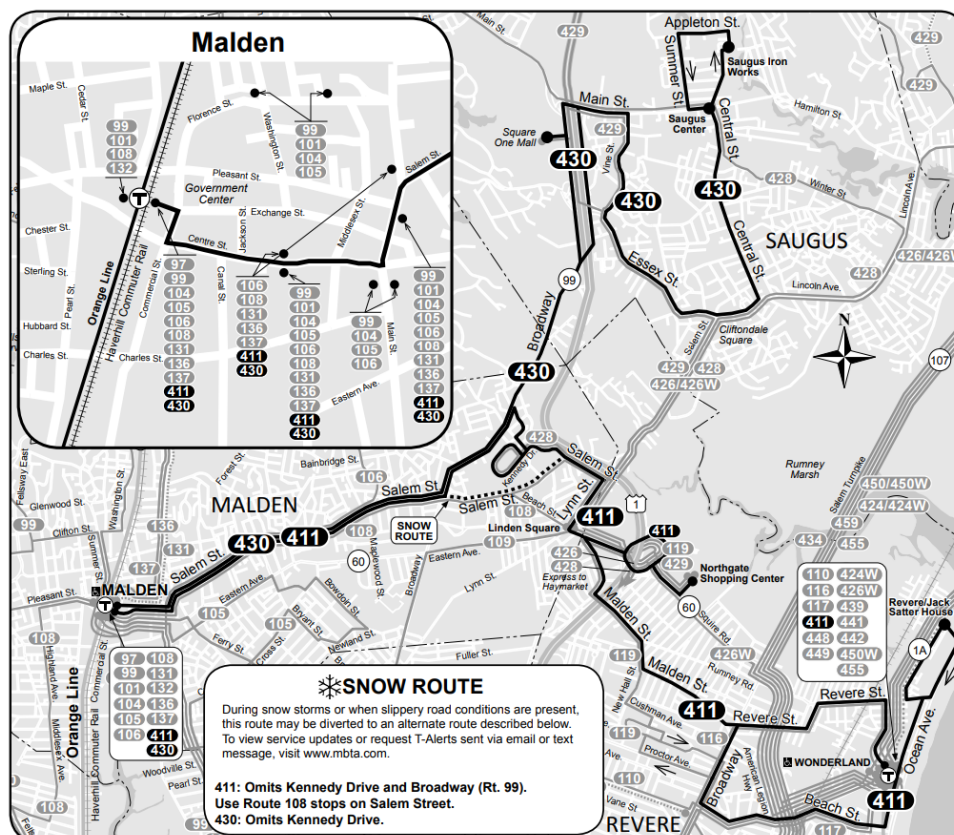
# Route 411

## Malden Center – Revere/Jack Satter House

### Route Overview

Route 411 Malden Center – Revere/Jack Satter House is a Local route that connects the Orange Line’s Malden Center Station with the City of Revere. Route 411 operates via the Salem Street corridor, which is shared with Route 106 Lebanon Street, Malden - Wellington, Route 108 Linden Square - Wellington, and Route 430 Saugus Center - Malden Center. In Revere, Route 411 provides transit coverage on the Malden Street corridor, shared with Route 119 Northgate Shopping Center - Beachmont, the Revere Street corridor (in the outbound direction only, with Route 116 Wonderland - Maverick via Revere), and the Beach Street corridor (in the inbound direction only, with Route 110 Wonderland - Wellington and Route 117 Wonderland - Maverick via Beach Street). Route 411 provides a cross connection between the major transit hub of the Orange Line’s Malden Center Station and the Blue Line’s Wonderland station.

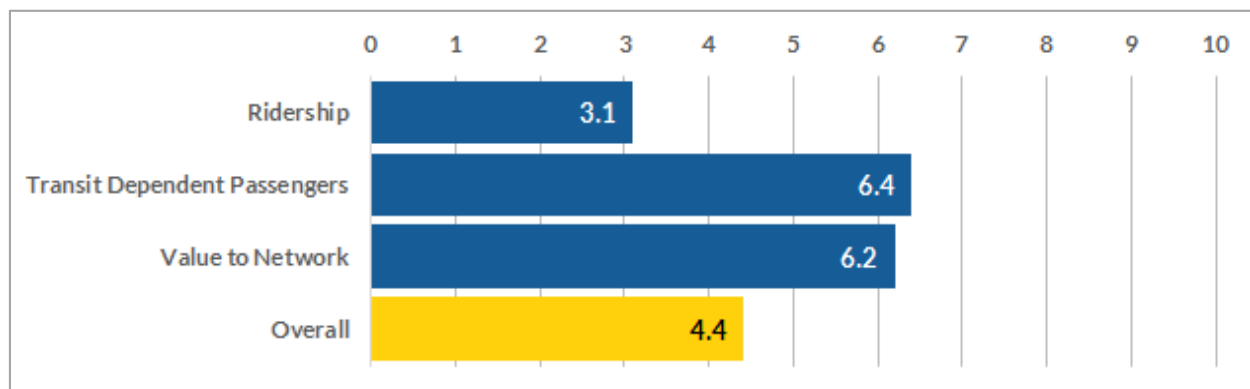
Figure 1 | Service Map



## Network Importance

Route 411 is a relatively low-importance, lower ridership route that serves an above average proportion of transit dependent riders (see Figure 2). On a relative scale of 0 to 10, Route 411 rates 3.1 in terms of ridership, 6.4 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 4.4.

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



## Service Patterns

### Schedule

On weekdays and on Saturdays, Route 411 generally provides infrequent service (see Table 1). In more detail, on weekdays service operates from 6:30 AM to 8:31 PM with the following service frequencies:

- Every 35 minutes from the start of service through 7:00 AM.
- Every 10 to 60 minutes during the AM peak, but predominantly every 48 minutes.
- Every 60 to 70 minutes between 9:00 AM and 4:00 PM, but mostly every 70 minutes.
- Every 15 to 70 minutes during the PM peak, but predominantly every 40 minutes.
- Every 15 to 40 minutes from 6:30 PM until the end of service, but mostly every 35 minutes.

On Saturdays, Route 411 provides service between 8:55 AM and 6:51 PM with service typically every 60 minutes throughout the day. Route 411 does not operate on Sundays.

Route 411 meets the MBTA's Span of Service standards for weekdays. Route 411 also meets the frequency standards of 30 minutes for weekday AM peak service and 60 minutes for Saturday service. On Saturdays, however, Route 411 fails to meet the MBTA's

Span of Service standards, which require Local routes to operate from 8:00 AM to 6:30 PM.

Route 411 also fails to meet the MBTA’s Frequency Standards during the weekday PM peak, with typical frequencies of 45 to 60 minutes. The MBTA’s Frequency Standard for AM and PM peaks is 30 minutes. Route 411 also fails to meet the MBTA’s Frequency Standard for midday base and midday school period service, operating service at 65-minute frequencies, respectively. The MBTA’s Frequency Standards recommend 60-minute headways during weekday periods besides the AM and PM peaks.

**Table 1 | Schedule Statistics**

SERVICEDAY	SPAN OF SERVICE	FREQUENCY (RANGE)	FREQUENCY (AVERAGE)	DAILY TRIPS (INBOUND/OUTBOUND)
<b>Monday-Friday</b>	<b>6:30 AM to 8:31 PM</b>			<b>19/17</b>
Sunrise	-	-	-	-
Early AM	6:30 AM to 6:59 AM	35	35	1/2
AM Peak	7:00 AM to 8:59 AM	10 – 60	48	6/2
Midday Base	9:00 AM to 1:29 PM	60 – 70	66	4/5
Midday School	1:30 PM to 3:59 PM	70	70	2/2
PM Peak	4:00 PM to 6:29 PM	15 – 70	40	3/3
Evening	6:30 PM to 8:31 PM	15 – 40	35	3/3
Late Evening	-	-	-	-
Night	-	-	-	-
<b>Saturday</b>	<b>8:55 AM to 6:51 PM</b>	<b>60 – 70</b>	<b>60</b>	<b>9/8</b>
<b>Sunday</b>	-	-	-	-

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

### Service Patterns

Pattern 411.8, the primary service pattern, originates in the inbound direction from Jack Satter House, at Revere Beach, serves the Northgate Shopping Center, and ends at Malden Center Station, via Beach Street and Salem Street. In the outbound direction, Pattern 411.8 travels from Malden Center Station via Salem Street, stops at Northgate Shopping Center, and ends at Jack Satter House via Revere Street. The majority of Route 411’s weekday trips (12 out of 19 daily inbound trips, 11 out of 17 daily outbound trips) and all Saturday trips travel along this pattern (see Table 2)

Pattern 411.1 is a short-turn pattern that operates largely during the AM and PM peaks to provide additional commuter-oriented service frequency to the Altitudes Apartment community, where many transit-dependent customers live. This pattern connects the Altitudes Apartment community on Kennedy Drive with Malden Center Station but does not continue to Revere. This pattern operates seven inbound and six outbound trips per weekday but does not operate on Saturdays.

Table 2 | Service Patterns

PATTERN	ORIGIN	DESTINATION	UNIQUE FEATURE	TRIPS PER WKD	TRIPS PER SAT	TRIPS PER SUN
<b>INBOUND</b>				<b>19</b>	<b>9</b>	<b>-</b>
411.1	Kennedy Drive – Main Stop	Malden Center Station	Via Salem Street	7	-	-
411.8	Jack Satter House at Revere Beach	Malden Center Station	Primary pattern, via Beach Street	12	9	-
<b>OUTBOUND</b>				<b>17</b>	<b>8</b>	<b>-</b>
411.1	Malden Center Station	Kennedy Drive – Main Stop	Via Salem Street	6	-	-
411.8	Malden Center Station	Jack Satter House at Revere Beach	Primary pattern, via Revere Street	11	8	-

## Ridership

Route 411 serves 1,240 riders per weekday and about 540 riders on Saturdays. Relatively low when compared to other MBTA Local routes.

### Ridership by Stop

Route 411’s highest- ridership corridor is the Salem Street corridor, between Malden Center and Broadway, where many stops serve at least 50 riders per weekday. On weekday inbound trips (to Malden Center):

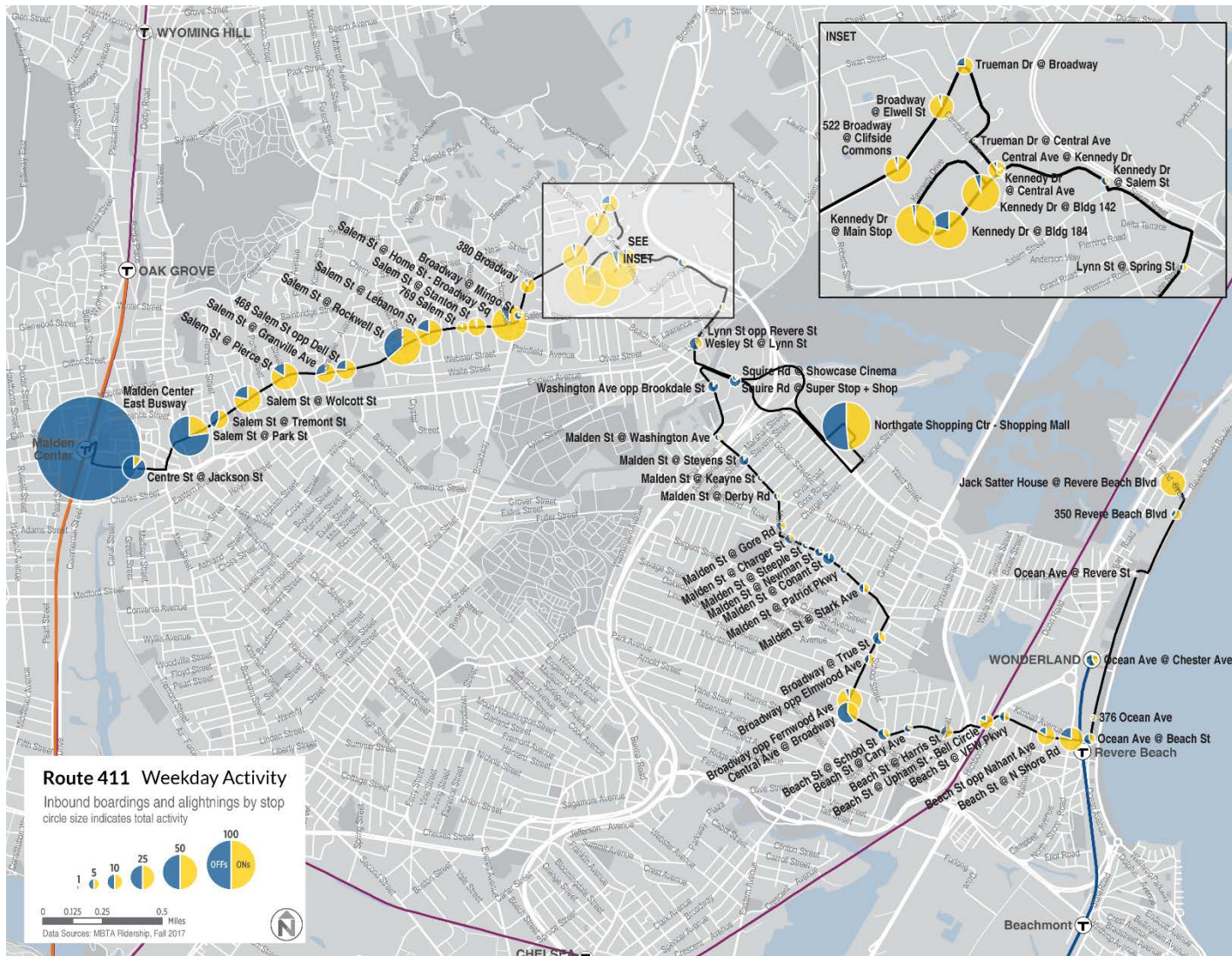
- Jack Satter House serves relatively few riders, with just 27 daily boardings. The primary trip generator is the senior housing community.
- Ridership activity remains low between Jack Satter House and the Northgate Shopping Center, along the Beach Street, Broadway, and Malden Street corridors. These corridors serve 104 daily boardings and 83 daily alightings on 29 stops. Notably, very few riders board or alight at the inbound stop nearest Wonderland Station, at Ocean Avenue & Chester Avenue, with just three daily boardings and four daily alightings on average.
- Northgate Shopping Center is one of Route 411’s more important destinations, serving 47 daily boardings and 50 daily alightings.
- Ridership is low between Northgate Shopping Center and the Altitudes Apartment Community on Kennedy Drive, with just eight daily boardings and nine daily alightings on this segment.

- 
- At the Altitudes apartment community on Kennedy Drive, Route 411 generates a major share of its ridership, 26 percent of its daily inbound boardings. Among the four stops, the community generates 176 daily boardings and 19 daily alightings.
  - Ridership is low between Kennedy Drive and Salem Street, along the Broadway corridor, with 69 daily boardings and nine daily alightings on the six stops of this segment.
  - The Salem Street corridor, between Broadway and Malden Center, generates 35 percent of Route 411's daily inbound boardings. This corridor serves 226 daily boarding and 131 daily alightings, with ridership evenly distributed among its 12 stops.
  - Malden Center is Route 411's most important rider destination, with 450 daily alightings, or 60 percent of daily total inbound alightings.

Outbound ridership is roughly the reverse of inbound ridership on weekdays, with two notable differences. Wonderland Station is served in the outbound and generates 37 daily boardings and 57 daily alightings. On outbound trips, Route 411 operates on Revere Street instead of Beach Street, between Broadway and Wonderland Station. As with the Beach Street corridor on inbound trips, outbound ridership on the Revere Street corridor is low, serving 21 daily boardings and 17 daily alightings on this corridor's six stops. Saturday ridership patterns are similar, but with lower volumes.



Figure 3 | Weekday Inbound Ridership by Stop Map



## Ridership by Trip

On weekdays, Route 411 ridership generally follows typical commute-oriented travel patterns, with the AM peak in the inbound direction and the PM peak in the outbound direction. However, Route 411 also generates notable ridership on midday trips, which are likely used for shopping purposes. With the exception of a few peak trips, Route 411 generally does not experience passenger crowding above the MBTA comfort standard, with maximum loads rarely exceeding 40 passengers. Route 411 has significant turnover, as the maximum number of passengers on the bus during each trip is typically well below the total number of passengers that board during that trip. On inbound trips (see Figure 4):

- The first inbound trip at 6:30 AM has an unusually high passenger load of 47, indicating that there may be significant unmet rider demand for the early morning period.
- Route 411's passenger loads are highest during the inbound AM peak trips between 6:30 AM and 8:30 AM. Maximum loads on several of these trips (7:05 AM and 8:00 AM) reach 55 passengers, indicating that some crowding occurs during the AM peak.
- Between 9:00 AM and 4:00 PM, typical loads decline to 20 to 35 passengers per trip on most trips.
- During the PM peak, with loads of 10 to 25 passengers per trip.
- Service is limited after the PM peak. The three remaining inbound trips serve five to 11 passengers per trip.

On weekday outbound trips (see Figure 5):

- Maximum passenger loads are generally fewer than five before 7:00 AM.
- During the two outbound AM peak trips at 7:30 AM and 8:10 AM, Route 411 serves typical loads of 15 and eight passengers, respectively.
- Between 9:00 AM and 2:00 PM, typical outbound loads range from 10 to 25 passengers per trip.
- Typical passenger loads range between 30 and 43 passengers per trip between 2:00 PM and the end of service, with the peak load of 43 occurring during the 5:45 PM outbound trip. However, no trip exceeds the MBTA's comfort standard.

On Saturdays, typical passenger loads range from 10 to 30 passengers per trip throughout the day on inbound trips and 10 to 25 passengers per trip on outbound trips. Crowding is unlikely to occur on any Saturday trip.

Figure 4 | Weekday Ridership by Trip: Route 411 | Inbound

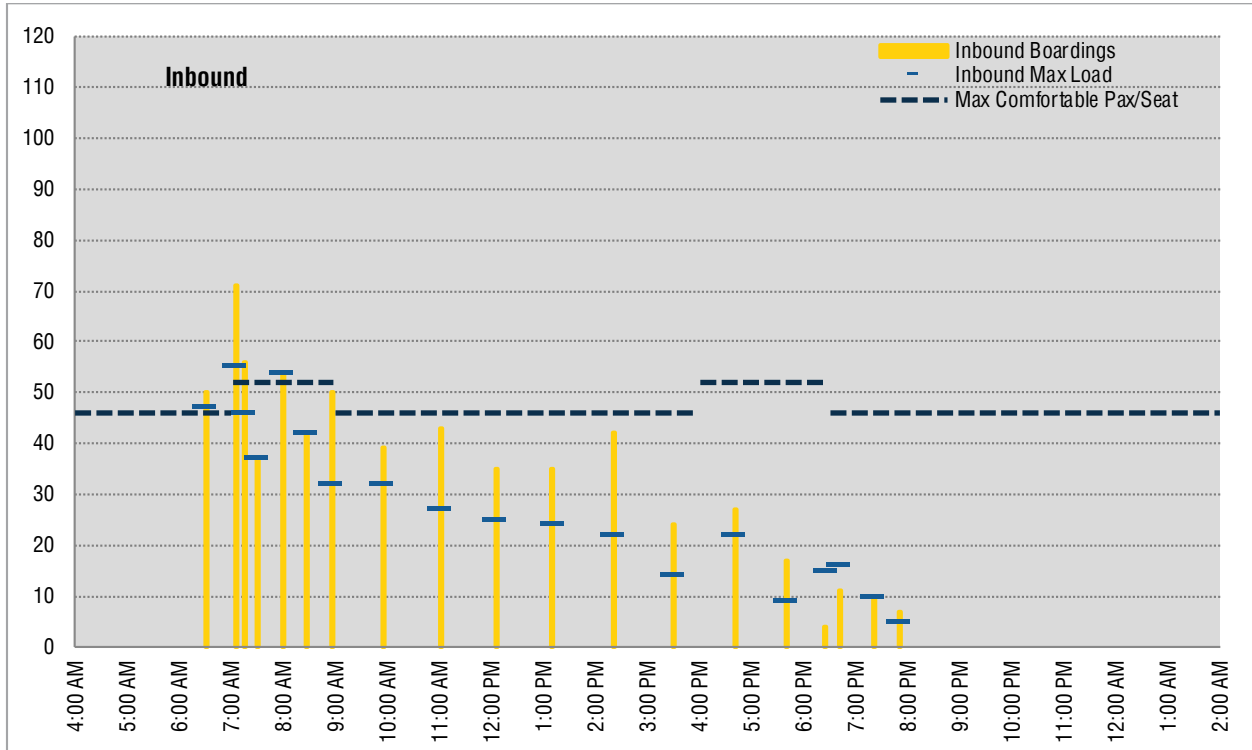


Figure 5 | Weekday Ridership by Trip: Route 411 | Outbound

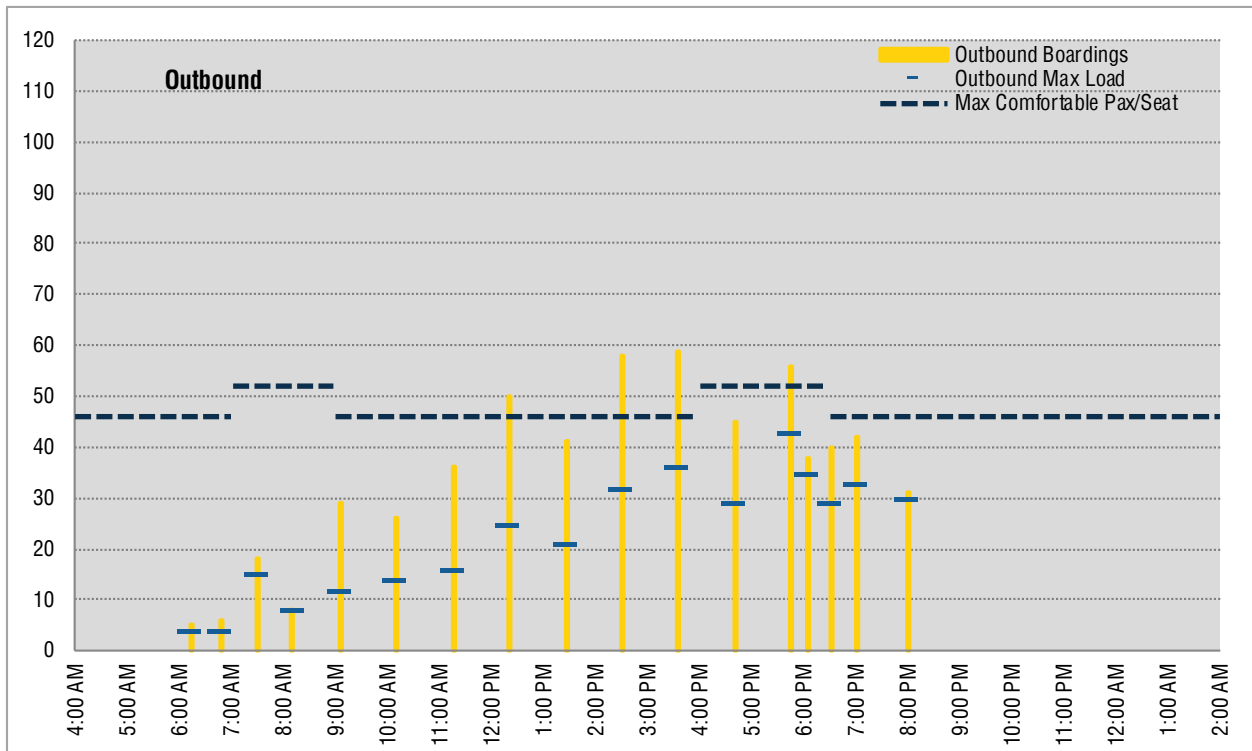




Figure 6 | Saturday Ridership by Trip: Route 411 | Inbound

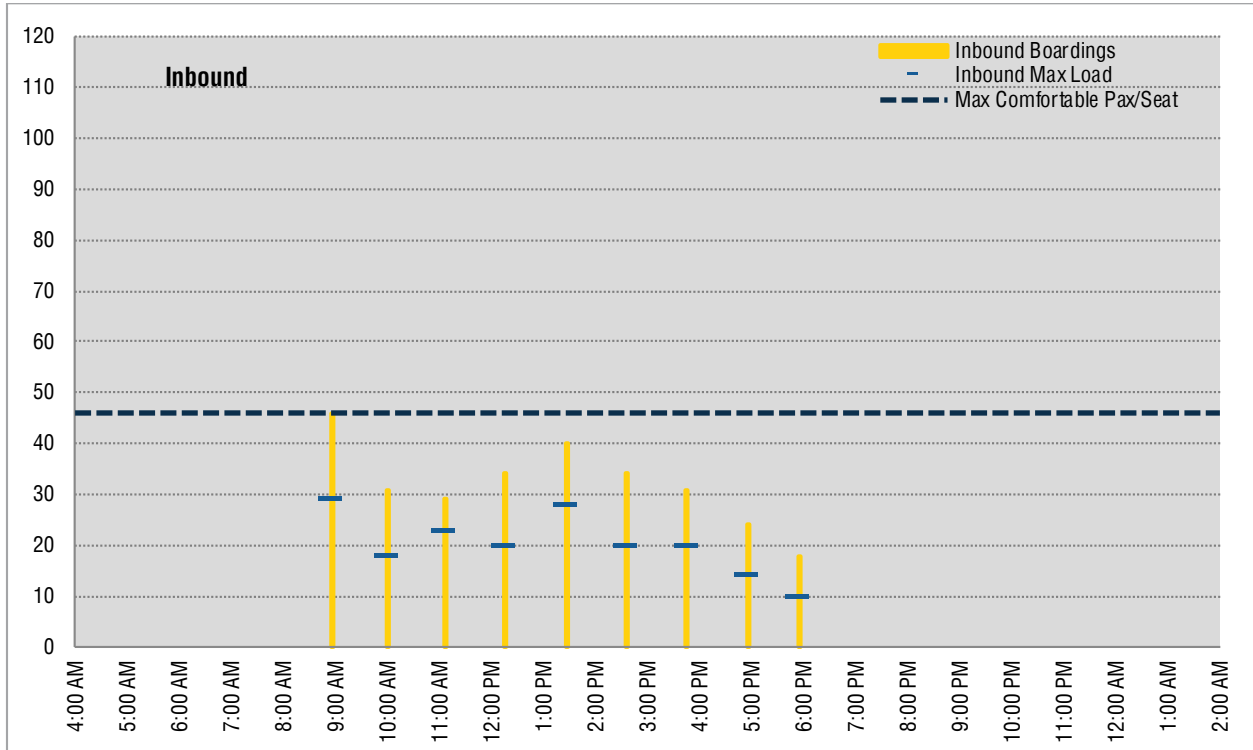
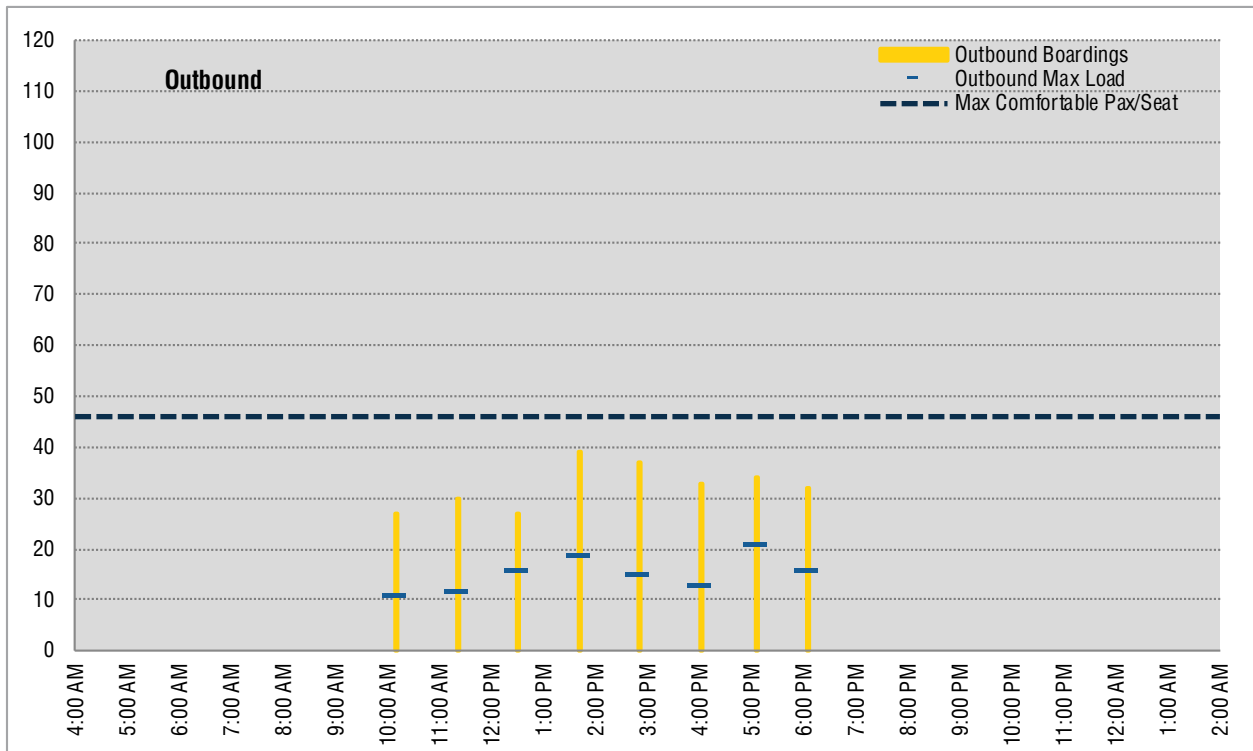


Figure 7 | Saturday Ridership by Trip: Route 411 | Outbound



## 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 411, 95% of passenger minutes are in comfortable conditions, which is above the minimum standard but just below the agency’s target of 96% (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>	95%	100%	-

## Reliability and Speed

### Reliability

Route 411 has very poor overall reliability at all times. Its weekday overall reliability of 41% falls well below the MBTA’s target of 75%. Saturdays’ overall reliability of 39% also falls below this target (see Table 4). As described in the next section, poor on-time performance is largely due to actual running times that exceed scheduled running times.

Table 4 | Reliability

SERVICE DAY	ORIGIN/MID-ROUTE ON-TIME PERFORMANCE	DESTINATION ON-TIME PERFORMANCE	OVERALL RELIABILITY	DROPPED TRIPS
<b>Monday-Friday</b>	42%	37%	41%	0.1 %
<b>Saturday</b>	39%	33%	39%	-
<b>Sunday</b>	-	-	-	-

### Running Times

Route 411’s observed running times routinely exceed scheduled running times on both its primary pattern (Pattern 411.8) and AM peak pattern (Pattern 411.1), as shown in Figure 8 and Figure 9. Route 411’s inbound service typically operates four to six minutes behind schedule during peak periods and the midday school period, but generally runs on time between 9:00 AM and 12:00 PM. On outbound trips, Route 411 typically operates two

and five minutes behind schedule during the between 9:00 AM and 1:00 PM and during the PM peak, but is nearly on time at all other times.

Figure 8 | Scheduled & Median Travel Time by Trip: Route 411 Inbound

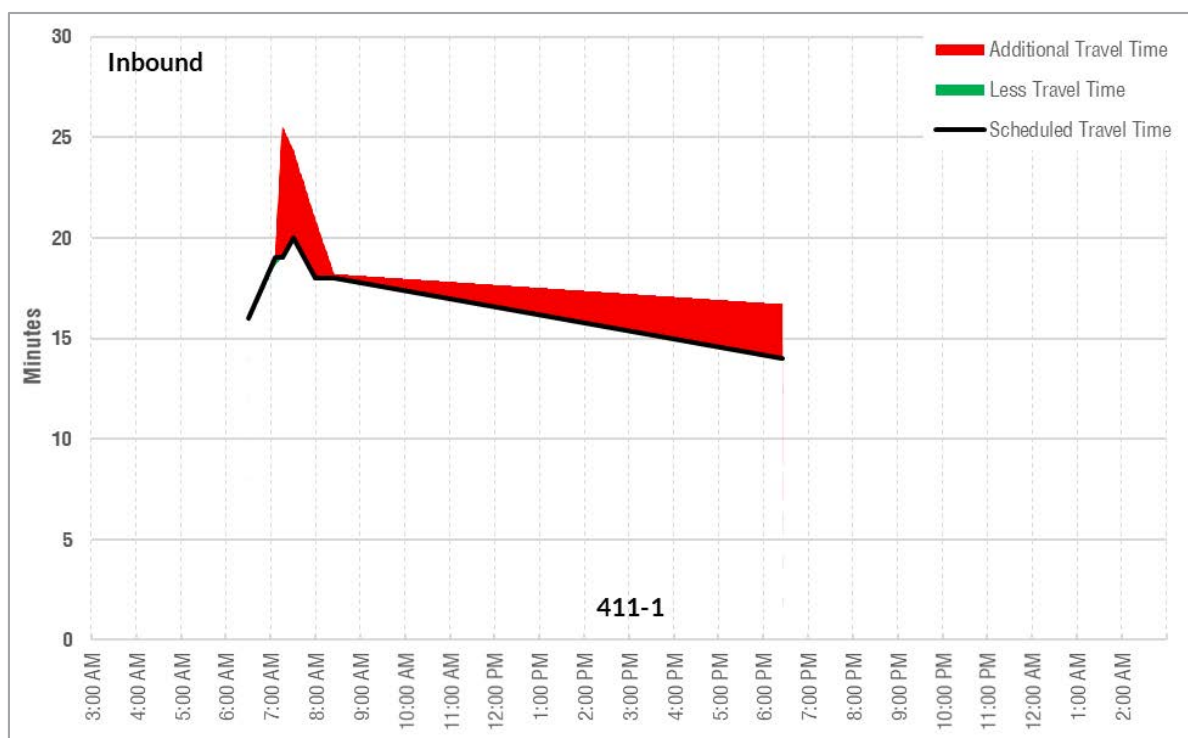
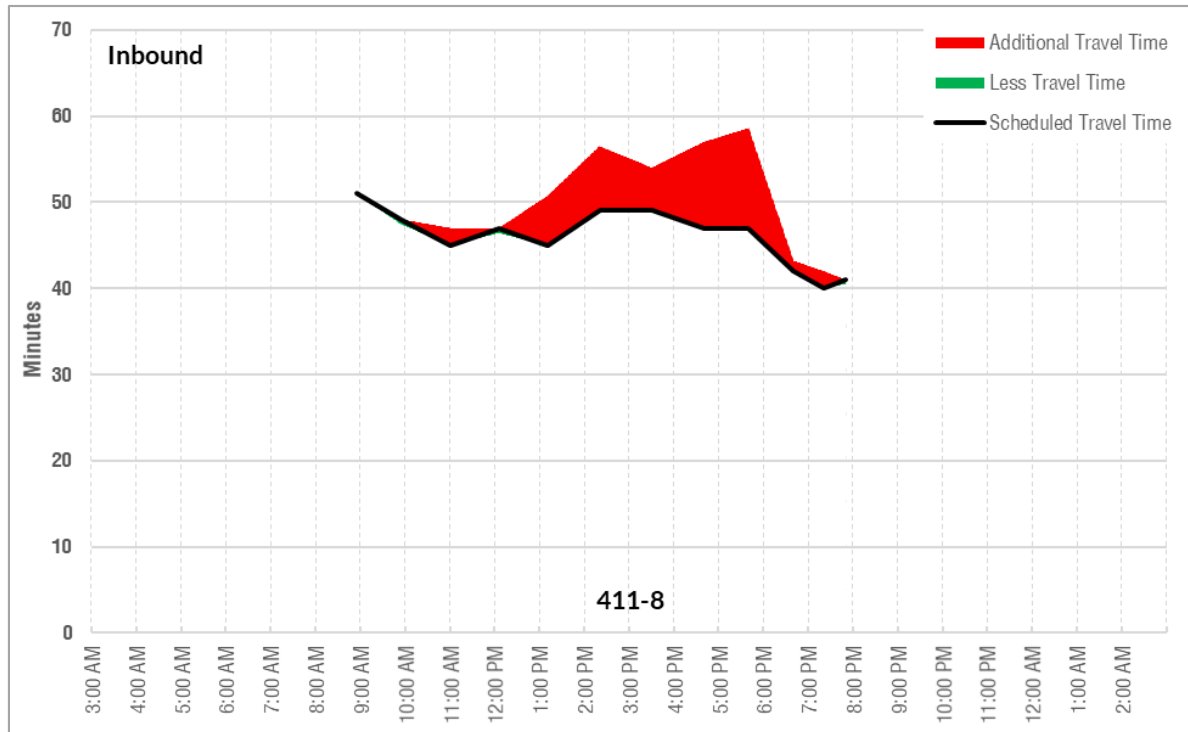
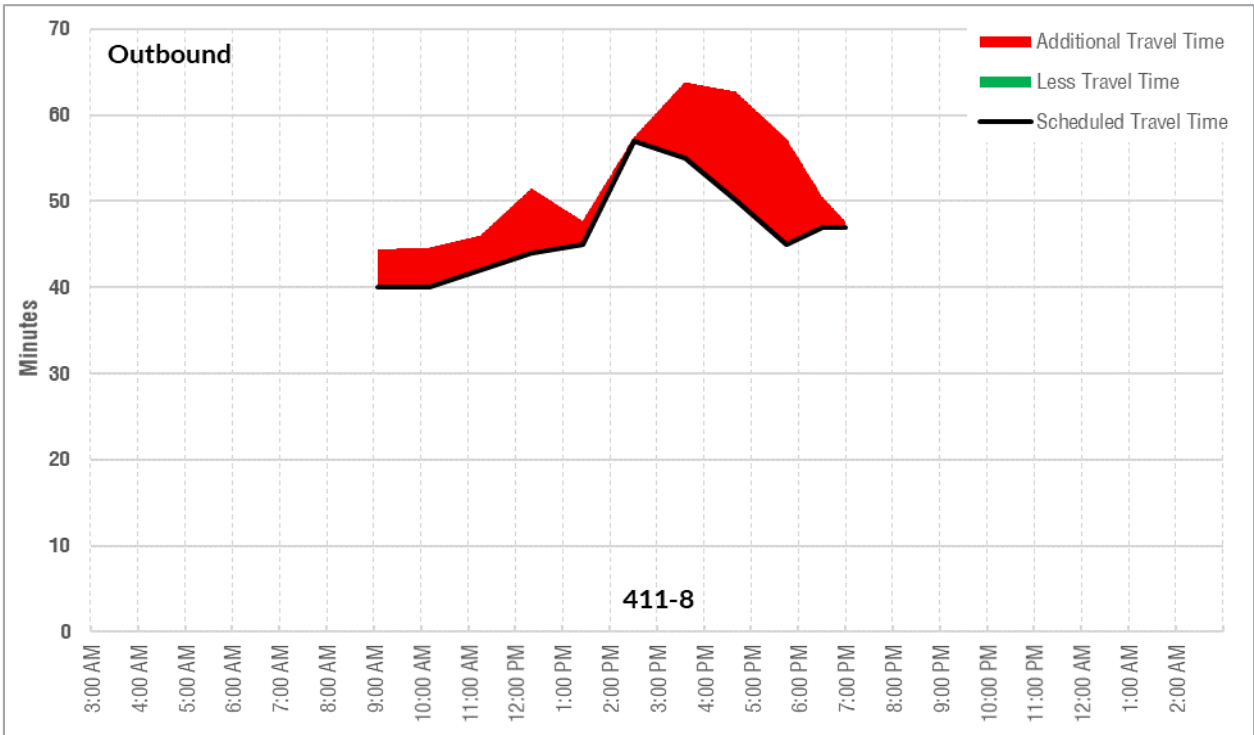
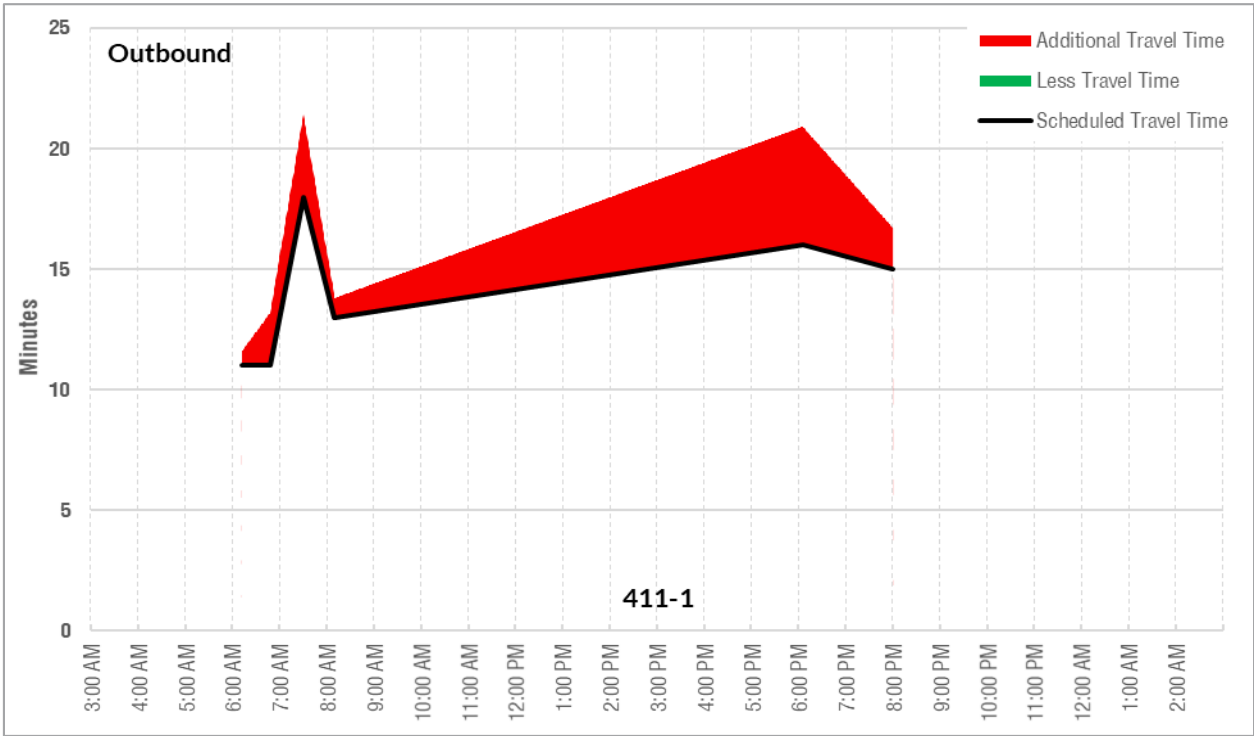


Figure 9 | Scheduled & Median Travel Time by Trip: Route 411 Outbound



---

## Stop Spacing

Route 411 has relatively close stop spacing in both directions. In the inbound direction, the primary service pattern (411.8) has 6.4 stops per mile in each direction, which is at the upper end of four to seven stops per mile recommended by MBTA stop spacing guidelines. Route 411's short-turn pattern (411.1) has slightly closer stop spacing, with seven stops per mile in both directions. Several stops are less than 500 feet apart:

- In the inbound direction, the stops along Ocean Avenue at 376 Ocean Avenue and Beach Street are spaced just 480 feet apart, with each stop serving fewer than five daily riders.
- Stops on Beach Street at VFW Parkway and Bell Circle, are spaced about 450 feet apart, with both stops serving fewer than 10 daily riders.
- The stops at Central Avenue & Broadway and Broadway & Fernwood Avenue are just 330 feet apart. The Fernwood Avenue stop is more popular with 26 daily riders, while the Central Avenue stop serves 18 daily riders.
- Stops along Malden Street at Conant Street and Newman Street are just 250 feet apart, and both stops serve fewer than seven daily riders. Stops within the Altitude Apartments community, along Kennedy Drive at the "Main Stop" and Building 184 are spaced 400 feet apart. In the inbound direction, these stops are about equally popular, with 66 and 68 daily riders respectively. In the outbound direction, however, the Main Stop is about twice as popular, with 46 daily riders compared to Building 184 stop's 26 daily riders.
- Outbound stops on Lynn Street at Salem Street and Lawrence Street are just 390 feet apart; each stop serves about two riders per day. The Malden Street stop pair at Kingman Avenue and South Street is about 340 feet apart; neither stop serves more than four daily riders.



---

## Summary

Route 411 provides a key east/west connection between Malden Center Station and Wonderland Station. The Northgate Shopping Center and Altitudes Apartment Community each generate a major portion of Route 411's total ridership. Route 411 is also anchored by several transit-supportive retail corridors of moderate density, along Salem Street, Revere Street (for outbound trips), and Beach Street (for inbound trips). Route 411 also provides service to the Jack Satter House, which does not generate a large number of boardings, but is the only service to the senior community. Route 411's most significant challenge is the confusing service alignment in Revere, in which inbound and outbound service is split between Beach and Revere Streets, making it difficult for riders to effectively plan round-trips. Another key challenge of Route 411 is its pattern of diverting service to provide coverage over maintaining the most efficient travel path to serve major destinations such as the Northgate Shopping Center and Altitudes Apartment Community.