

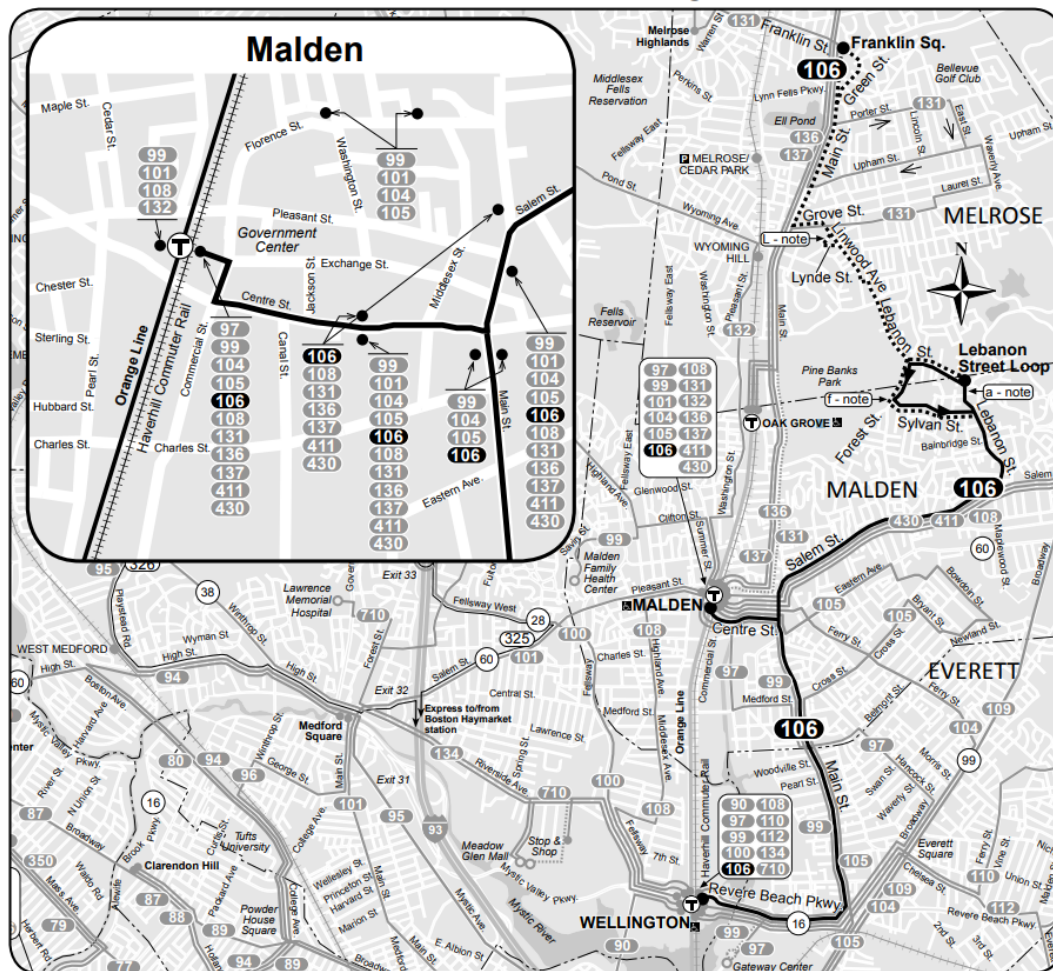
# Route 106

## Lebanon Street, Malden - Wellington Station

### Route Overview

Route 106 Lebanon Street, Malden - Wellington Station is a Local bus route providing service to Malden and Everett, with select service to Melrose. It offers connectivity to two Orange Line stations, Malden and Wellington, as well as the commercial corridors on Main Street and Salem Street in Everett and Malden. Route 106 overlaps with several routes that serve Malden and Everett with similar alignments and provide connectivity to the Orange Line.

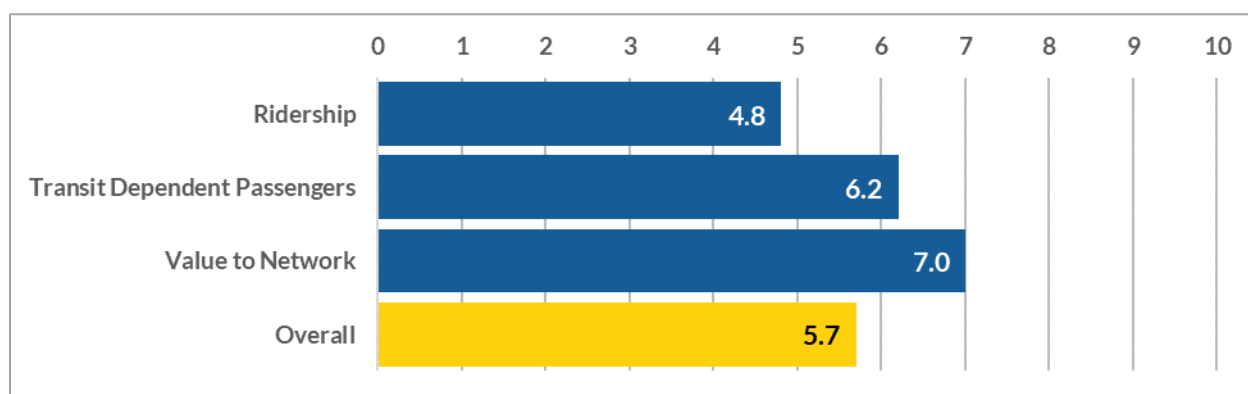
Figure 1 | Service Map



## Network Importance

Route 106 is important to the overall MBTA network (see Figure 2). On a relative scale of 0 to 10, the route rates 4.8 in terms of ridership, 6.2 in terms of transit dependent ridership, and 7.0 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 measure, is 5.7.

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



## Service Patterns

### Schedule

Route 106 offers weekday service from 5:00 AM to 1:05 AM with relatively frequent service during the peak periods and infrequent service during other times. On weekdays:

- From 5:00 AM to 6:30 AM, the route operates every 20 to 30 minutes, primarily every 30 minutes.
- From 6:30 AM to 9:00 AM, the route operates about every 15 minutes.
- From 9:00 AM to 4:10 PM the route operates every 20 to 50 minutes, primarily every 30 minutes.
- During the PM peak (4:10 PM to 6:35 PM) the route operates about every 19 minutes.
- After 6:35 PM the route operates about every 40 minutes until 8:00 PM when the route operates hourly.

Saturday service from 5:00 AM to 1:12 AM, with service every 60 minutes and Sunday service from 7:00 AM to 1:12 AM, with service every 60 minutes.

These spans and frequencies meet the guidelines established in the MBTA Service Delivery Policy.

**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 1:05 AM</b>			<b>42/40</b>
Sunrise	5:00 AM to 5:59 AM	20 - 30	23	3/1
Early AM	6:00 AM to 6:59 AM	10 - 20	15	4/4
AM Peak	7:00 AM to 8:59 AM	7 - 35	15	8/6
Midday Base	9:00 AM to 1:29 PM	20 - 50	41	7/5
Midday School	1:30 PM to 3:59 PM	25 - 50	30	4/6
PM Peak	4:00 PM to 6:29 PM	15 - 25	19	8/10
Evening	6:30 PM to 9:59 PM	22 - 60	41	5/4
Late Evening	10:00 PM to 11:59 PM	60 - 60	60	2/2
Night	12:00 AM to 1:05 AM	60 - 60	60	1/2
<b>Saturday</b>	<b>5:00 AM to 1:12 AM</b>	<b>20 - 60</b>	<b>34</b>	<b>35/34</b>
<b>Sunday</b>	<b>7:00 AM to 1:12 AM</b>	<b>59 - 63</b>	<b>63</b>	<b>19/20</b>

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

### Service Patterns

Service pattern 106.3 is Route 106’s primary inbound service pattern, originating at Lebanon Street Loop in a residential neighborhood of Malden. It travels west on Lebanon Street, before turning south onto Forest Street and Sylvan Street and then rejoining Lebanon Street, continuing south. The route turns west to serve Malden Station via Salem Street and Centre Street in downtown Malden. It then backtracks to Main Street, Malden, where it continues south through Everett to reach Revere Beach Parkway and Wellington Station. This pattern serves multiple residential neighborhoods in Malden and Everett with connectivity to the Orange Line and key local commercial corridors. Other service patterns include:

- Service pattern 106.0, similar to 106.3 but bypassing Forest Street and Sylvan Street to continue directly south on Lebanon Street from Lebanon Street Loop instead. This service pattern provides service similar to service pattern 106.3, while avoiding the residential streets during nighttime hours.
- Service pattern 106.4 mirrors 106.0 but terminates at Malden Station.
- Service pattern 106.5 originates at Linwood Avenue at Lynde Street, a residential node off of Lebanon Street in Melrose, before continuing south on Lebanon Street to terminate at Malden Station. This offers Orange Line connectivity to passengers in parts of Melrose to the north of service pattern 106.3. This pattern occurs infrequently during peak morning commute hours and offers an extended service area to Melrose commuters.

- Service pattern 106.7 originates at Franklin Square, a commercial node in downtown Melrose, and travels south along Main Street, Melrose, to Lebanon Street Loop, where it mirrors the alignment of the service pattern 106.3. This offers Orange Line connectivity for users located near Downtown Melrose in addition to Malden and Everett during midday hours from 9:00 AM to 3:00 PM and provides direct access to Melrose-Wakefield Hospital from Salem Street and Lebanon Street in Malden.

Table 2 | Service Patterns

PATTERN	ORIGIN	DESTINATION	UNIQUE FEATURE	TRIPS per WKD	TRIPS per SAT	TRIPS per SUN
<b>INBOUND</b>				<b>42</b>	<b>35</b>	<b>19</b>
106.0	Lebanon Street Loop	Wellington Station	Skips Forest Street, Sylvan Street, and Malden Station	7	-	-
106.3	Lebanon Street Loop	Wellington Station	Via Forest Street, Sylvan Street, and Malden Station	19	30	14
106.4	Lebanon Street Loop	Malden Station	Skips Forest Street and Sylvan Street	1	5	5
106.5	Linwood Avenue at Lynde Street	Malden Station	Skips Forest Street and Sylvan Street	4	-	-
106.7	Franklin Square	Wellington Station	Via Forest Street, Sylvan Street, and Malden Station	11	-	-
<b>OUTBOUND</b>				<b>40</b>	<b>34</b>	<b>20</b>
106.0	Wellington Station	Lebanon Street Loop	Via Malden Station	24	29	15
106.1	Malden Station	Franklin Square	Via Lebanon Street Loop	1	-	-
106.4	Malden Station	Lebanon Street Loop		1	5	5
106.5	Malden Station	Linwood Avenue at Lynde Street	Via Lebanon Street Loop	3	-	-
106.6	Wellington Station	Linwood Avenue at Lynde Street	Via Malden Station	1	-	-
106.7	Wellington Station	Franklin Square	Via Malden Station and Forest Street and Sylvan Street	10	-	-

## Ridership

Route 106 features an average of 35.5 passengers per trip on weekdays, with 5.8 passengers per mile and 2,913 daily riders. On Saturdays it features 22.1 passengers per

trip and 4.1 passengers per mile, placing it in the top half of Saturday services. On Sunday, the 106 features 25 passengers per trip and 5 passengers per mile.

### Ridership by Stop

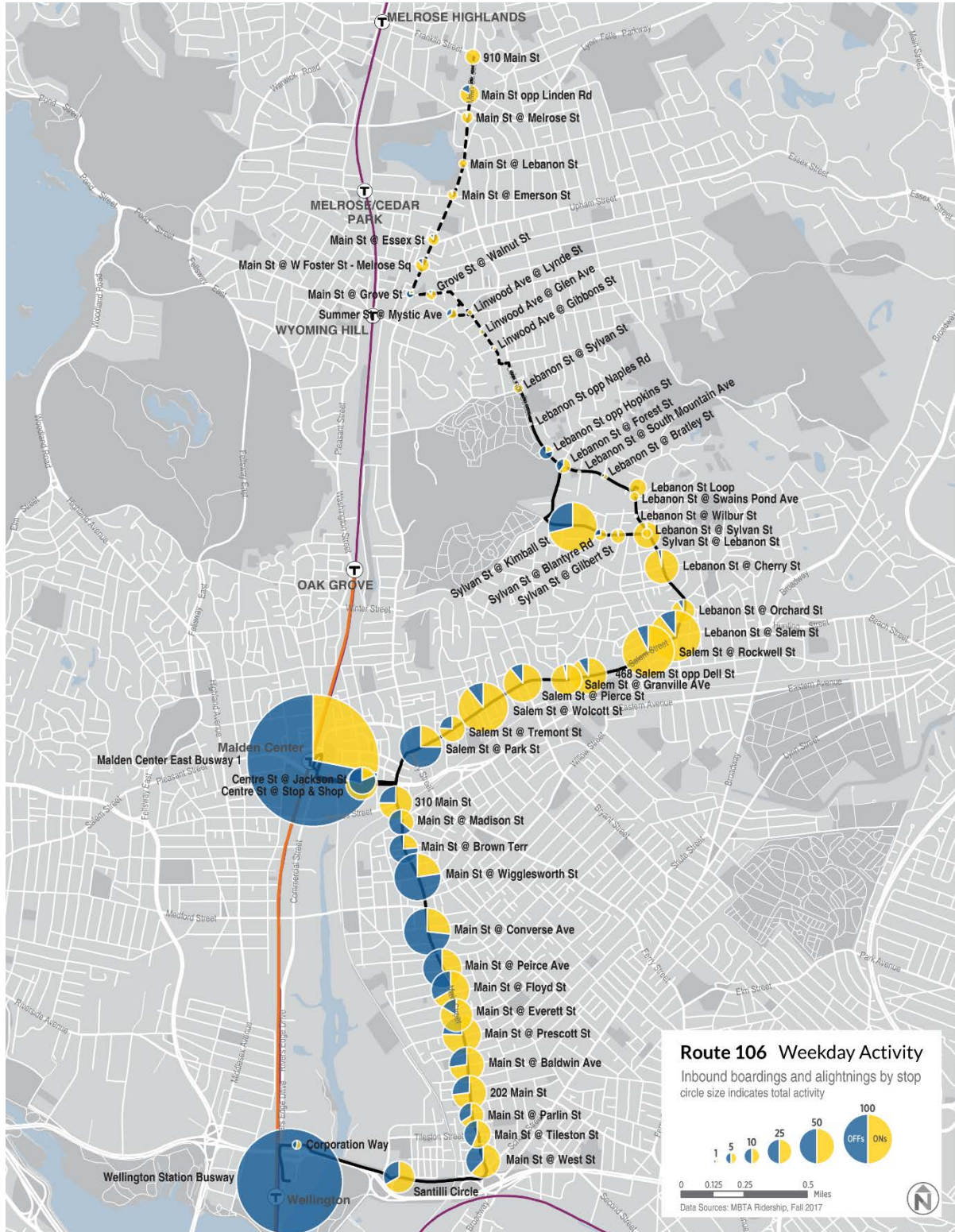
Route 106 generates moderate weekday ridership activity at stops between Lebanon Street Loop and Wellington Station. Stops north of Lebanon Street Loop generates significantly less ridership, due in part to the fact that these areas are served only by some service patterns.

- On the select trips beginning at Franklin Square in Melrose (pattern 106.7), the 106 generates 86 boardings at its first twenty-three stops.
  - From Franklin Square to Grove Street 51 passengers board and 7 alight.
  - Ridership on Linwood Avenue is very low, with only 6 boardings and 2 alightings.
  - Prior to the Lebanon Street Loop, where the primary service pattern begins there are 10 boardings and 6 alightings.
- At the start of the primary alignment (the Lebanon Street Loop), there are 12 boardings and 0 alightings.
- Through the loop on Forest Street and Sylvan Street, there are 91 boardings and 35 alightings.
  - 72 of those boardings and 29 of the alightings occur at Sylvan Street at Kimball Street. These are students riding to Forestdale School and the Community Center.
- As the route ends the Lebanon Street Loop and 28 passengers board at Sylvan Street and Lebanon Street.
- Along the remaining portion of Lebanon Street, the route generates 171 boardings and 14 alightings.
- The serves Salem Street where 386 passengers board and 96 alight.
  - All stops generate 20 or more boardings. The two most active stops are – The Malden Housing Authority, generating 106 boardings and 8 alightings and the commercial corner of Salem Street at Wolcott Street, generating 93 boardings and 11 alightings.
- At Malden Center Station 205 passengers board and 526 alight.
- Continuing to Wellington Station along Main Street, 393 passengers board and 348 alight. Along this segment, most stops generate over 30 boardings each.
- At Wellington Station 475 passengers alight.

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Weekend ridership activity mirrors weekday ridership activity. As no service patterns exist which serve areas north of Lebanon Street Loop on Saturday and Sunday, no weekend ridership exists for this portion of the route.

Figure 3 | Weekday Inbound Ridership by Stop Map



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## Ridership by Trip

The 106 experiences its highest ridership weekday inbound trips in the early morning hours between 5:00 AM and 9:00 AM, with the first trip of the day at 5:00 AM showing the greatest total boardings at 75.

- Inbound boardings per trip remain between 40 and 75 between 5:00 AM and 9:00 AM
- Boardings per trip drop to between 20 and 40 between 9:00 AM and 1:00 PM
- Boardings per trip climb to between 55 and 65 between 1:00 PM and 3:30 PM
- Boardings per trip drop to between 15 and 30 between 3:30 PM and 5:00 PM
- Boardings per trip climb to between 20 and 40 between 5:00 PM and 7:00 PM
- Late night boardings drop as low as 8:00 at 12:00 AM

Outbound weekday ridership is flatter throughout the day. Boardings are greatest during the early morning and the afternoon peak, with a large number of busy trips during the afternoon.

- Boardings remain between 15 and 40 per trip from 5:00 AM to 7:00 AM
- The greatest number of boardings, 70, takes place during the 7:00 AM trip.
- Boardings per trip remain between 25 and 50 from 7:30 AM to 2:30 PM
- Boardings per trip climb to 66 for the 3:00 PM trip
- Boardings per trip remain between 20 and 40 from 3:30 PM to 5:00 PM
- Boardings per trip climb to between 30 and 60 from 5:00 PM to 7:00 PM
- Boardings per trip remain high, between 30 and 60, from 7:00 PM to 11:30 PM
- Late night boardings per trip drop as low as 10

Weekend ridership is somewhat more regular, with inbound ridership greatest during morning peak and outbound ridership greatest during the afternoon peak.



Figure 4 | Weekday Ridership by Trip: Inbound

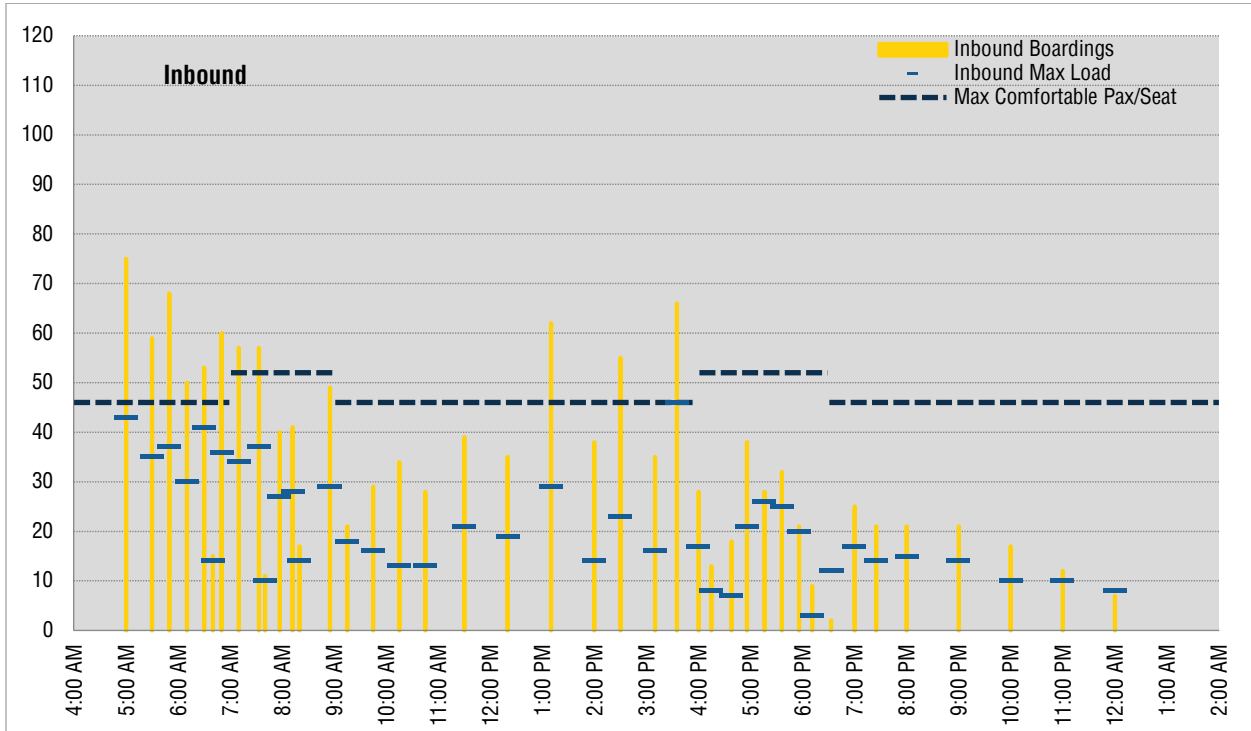


Figure 5 | Weekday Ridership by Trip: Outbound

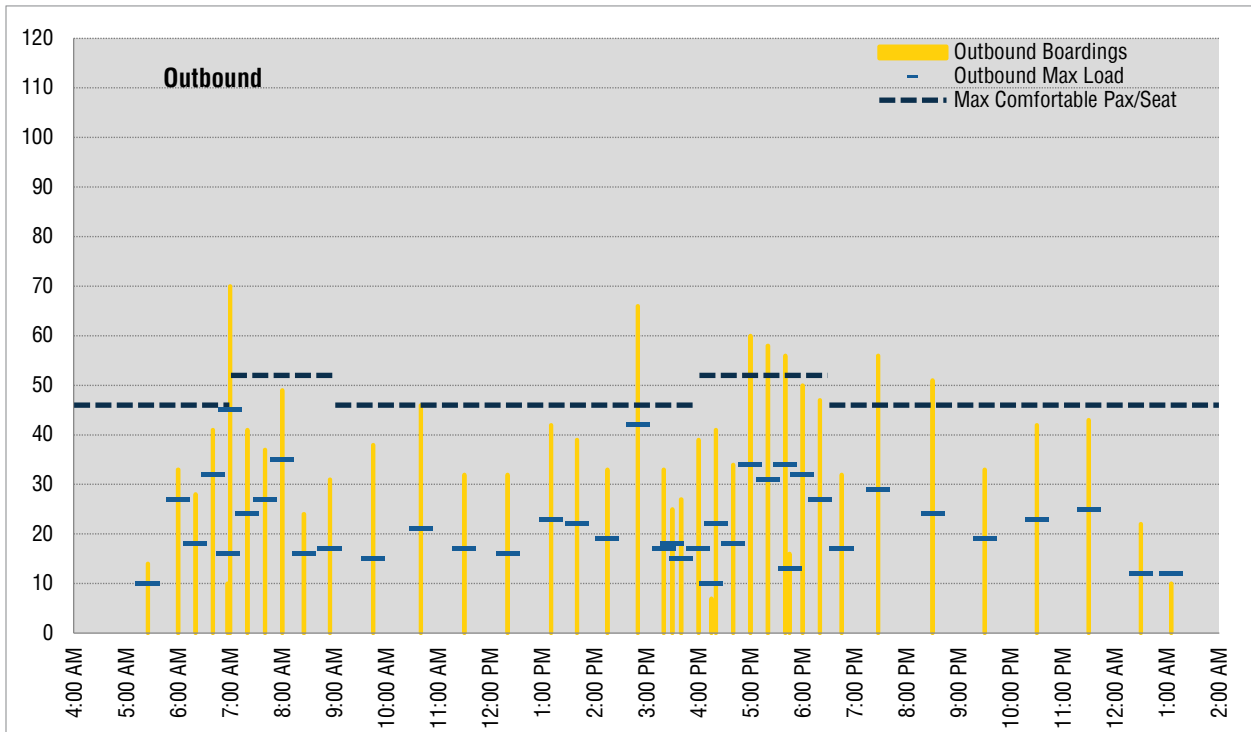


Figure 6 | Saturday Ridership by Trip: Inbound

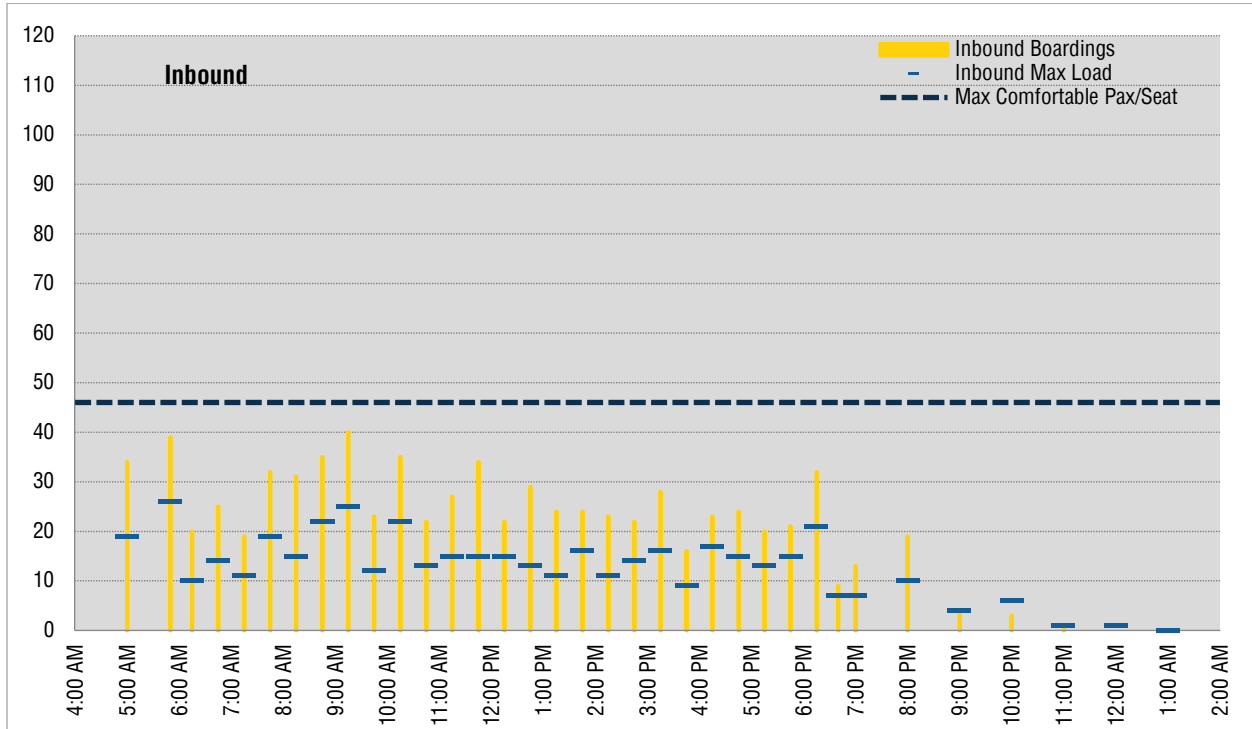


Figure 7 | Saturday Ridership by Trip: Outbound

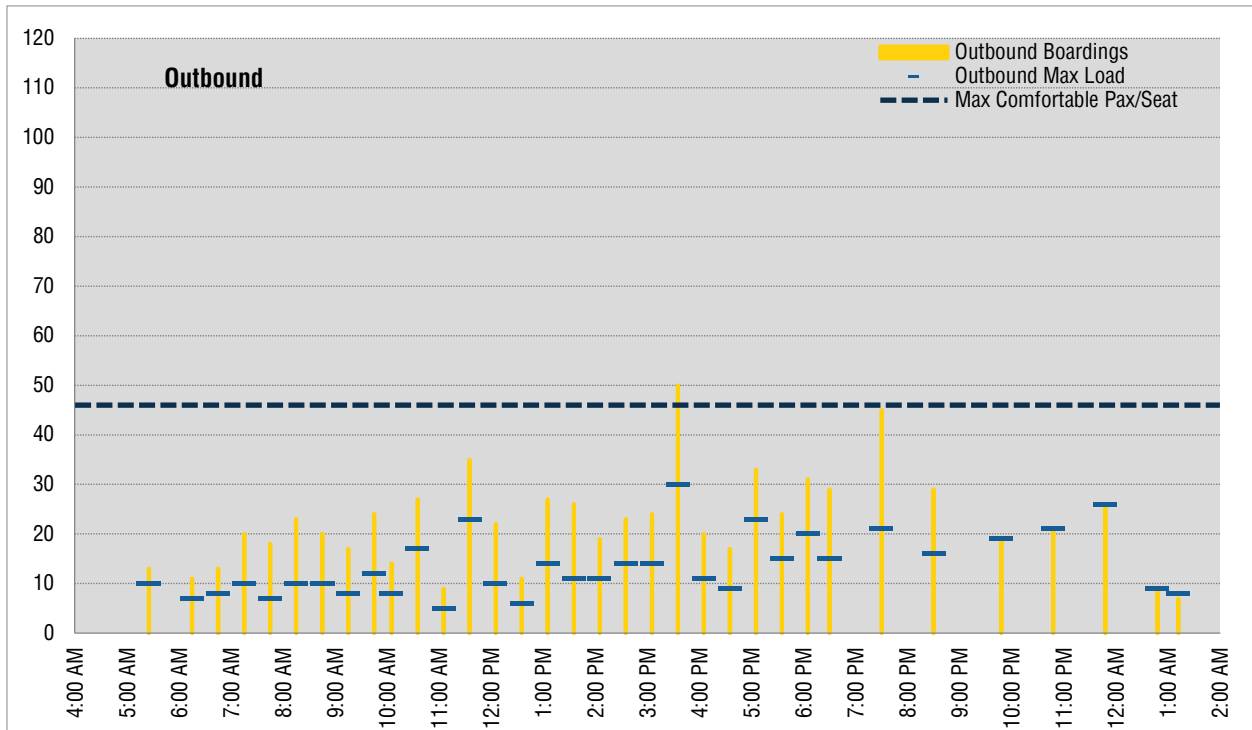


Figure 8 | Sunday Ridership by Trip: Inbound

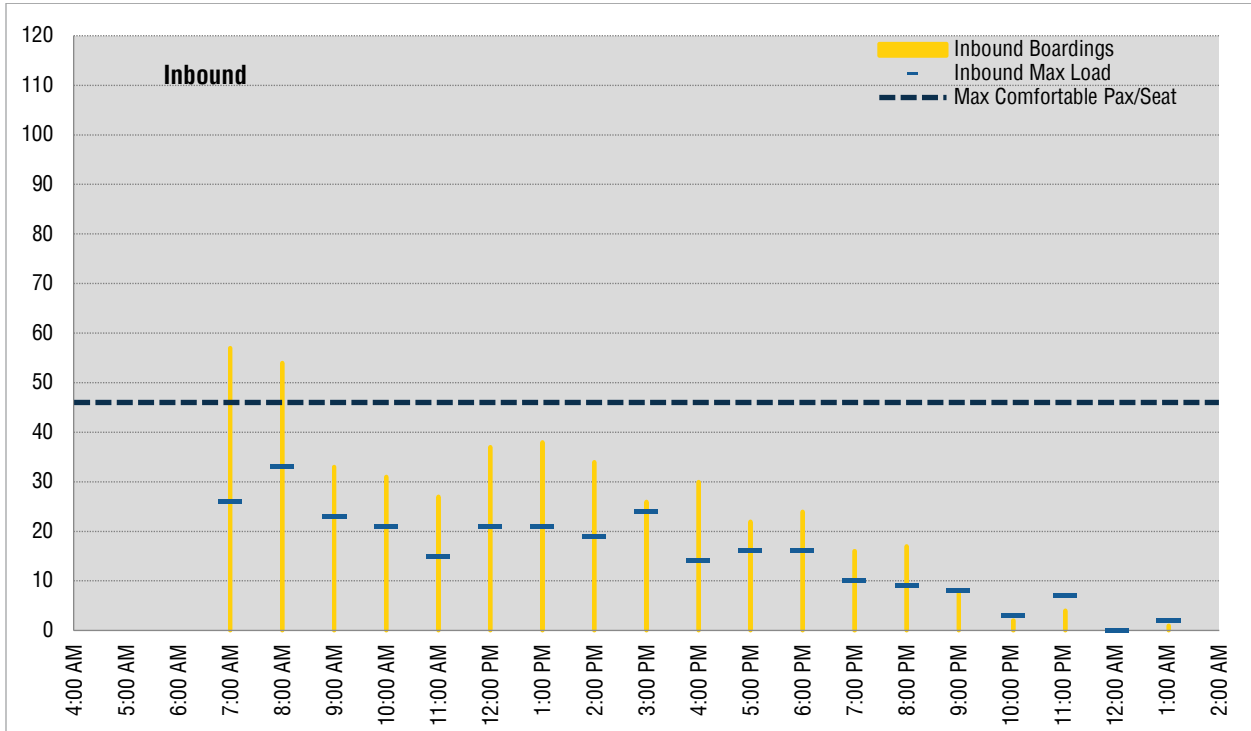
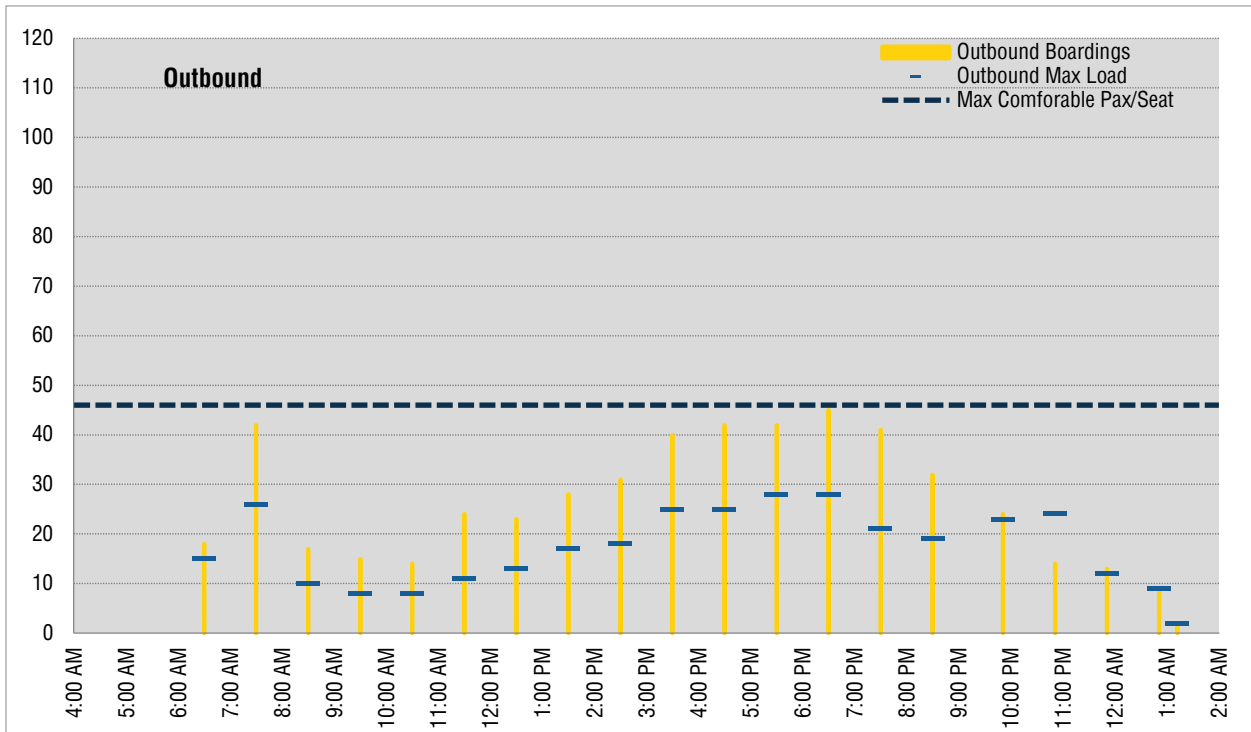


Figure 9 | Sunday Ridership by Trip: Outbound



## 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 106, 99% of passenger minutes are in comfortable conditions, which is above both the minimum and target 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>	98.8%	99.9%	99.8%

## Reliability and Speed

### Reliability

Route 106 has extremely poor reliability, leaving on time 60% of the time and arriving on time 53% of the time on weekdays. At a 59% overall reliability rate, only slightly more than half of trips match their scheduled times. This worsens to 56% on Saturdays and to 37% on Sundays (see Table 4). Dropped trips are a minor issue on Route 106, with 0.4% of trips not operated in Fall 2017.

Table 4 | Reliability

SERVICE DAY	ORIGIN/MID-ROUTE ON-TIME PERFORMANCE	DESTINATION ON-TIME PERFORMANCE	OVERALL RELIABILITY	DROPPED TRIPS
<b>Monday-Friday</b>	60%	53%	59%	0.4%
<b>Saturday</b>	59%	36%	56%	-
<b>Sunday</b>	39%	30%	37%	-

### Running Times

Route 106's observed inbound running times exceed scheduled running times by up to five minutes longer than scheduled running times throughout the day. Trips during the early AM and evening peak early afternoon frequently have less delay. Route 106's observed outbound running times exceed scheduled running times in the early morning,

AM Peak, and PM Peak by up to fifteen minutes longer than scheduled running times. Trips during the Early AM, midday early afternoon, and late evening can be faster.

Figure 10 | Scheduled & Median Travel Time by Trip: Route 106 Inbound

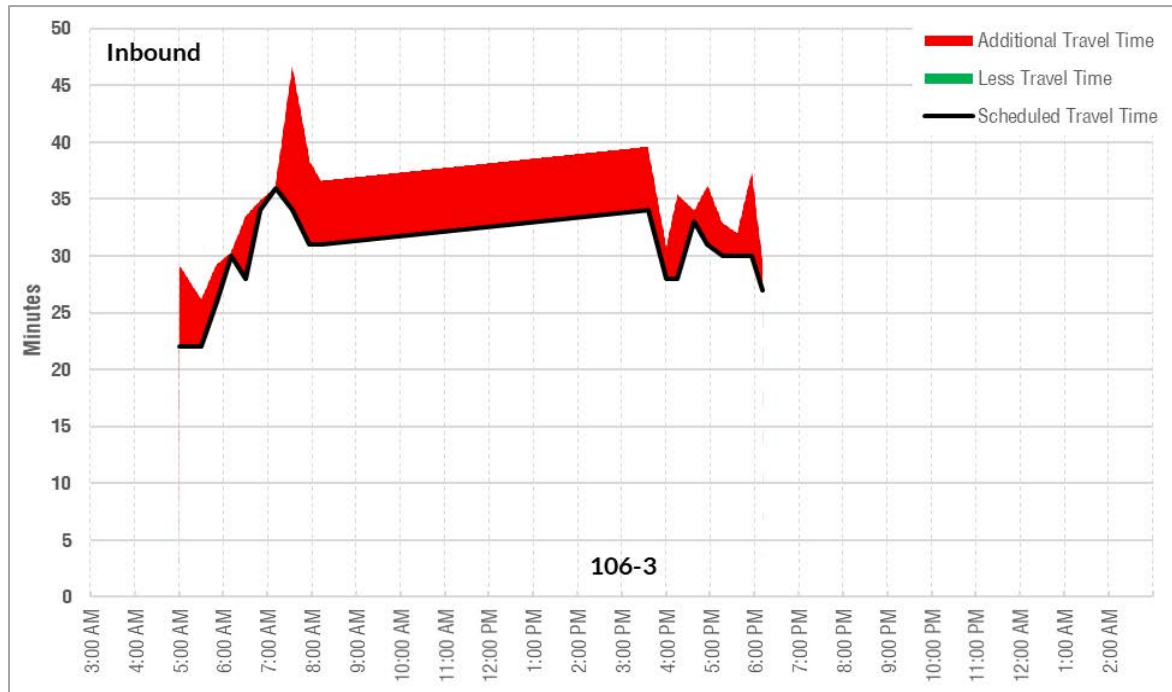
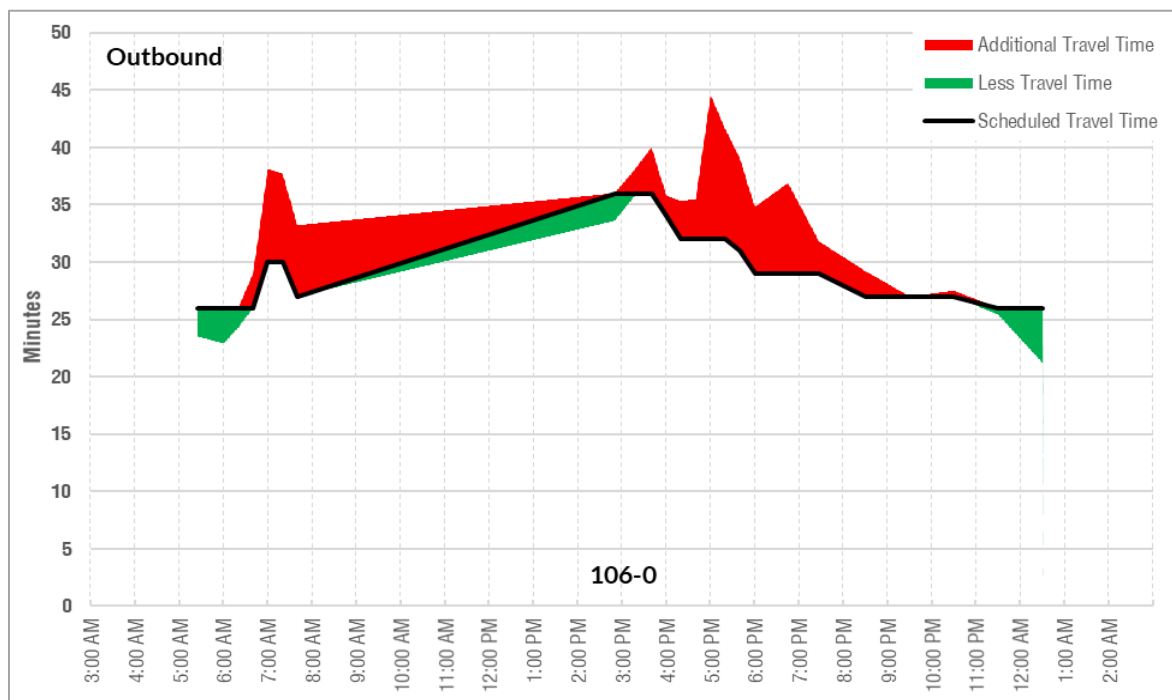


Figure 11 | Scheduled & Median Travel Time by Trip: Route 106 Outbound



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## Stop Spacing

Stops along the 106 are spaced an average of 700 feet apart, closer together than the 800-1200 feet spacing that industry standards recommend. Spacing is fairly consistent throughout the alignment. However, stop spacing compresses along Main Street in Malden and Everett, with some stops spaces as close as 400 feet along this corridor. This close spacing also exists along Lebanon Street and portions of Main Street in Melrose. Areas with low ridership stops placed close together (400 feet) are good candidates for stop consolidation.

## Summary

The Route 106 provides a key connection between dense residential neighborhoods in Malden and Everett and the Orange Line. While the core service is strong, it does overlap with similar routes that duplicate service in Melrose, Malden, and Everett and connect to the Orange Line.

The Route 106's strong core service contrasts with the limited viability of the select service patterns currently in place. By comparison, to the primary service pattern, these select service patterns generate low ridership. Additionally, the route suffers from poor reliability and on-time performance, which could be improved by the reallocation of resources.