

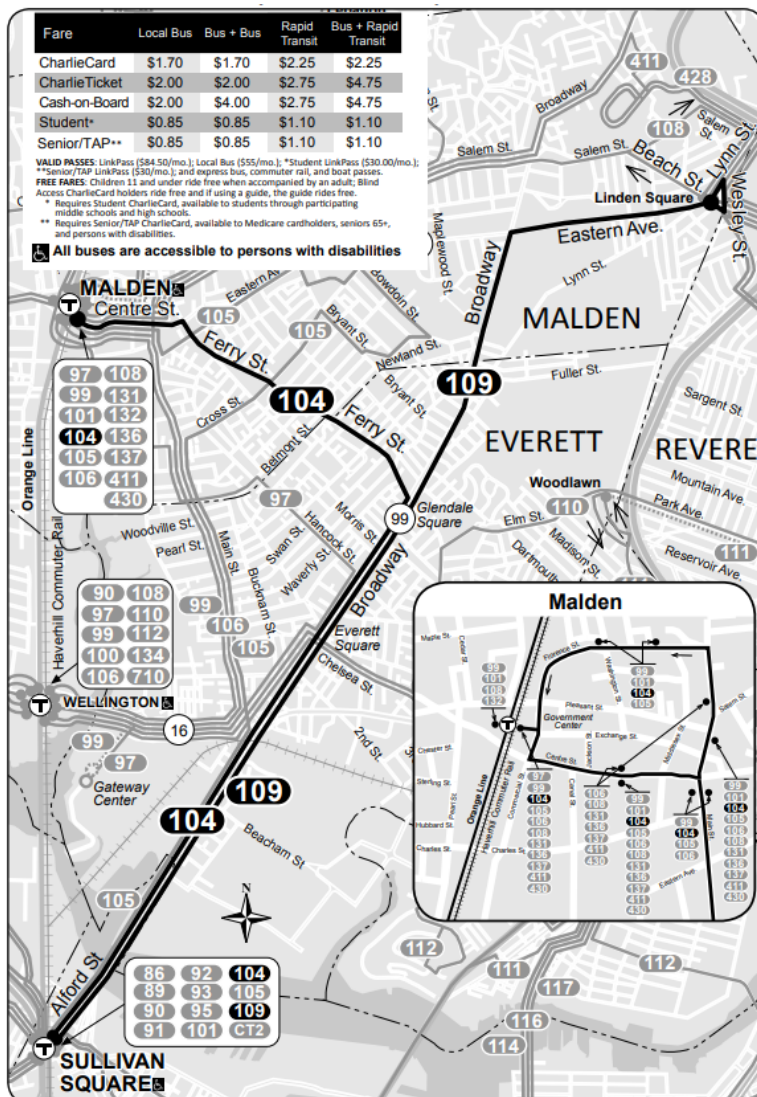
Route 104

Malden Center Station - Sullivan Square Station

Route Overview

Route 104 is a local route that operates between Malden Center Station and Sullivan Square Station. It operates largely along Ferry Street in Malden and Everett and Broadway in Everett (see Figure 1). Between Glendale Square and Sullivan Square Station (along Broadway), it operates along the same alignment as Route 109 Linden Square-Sullivan Square Station.

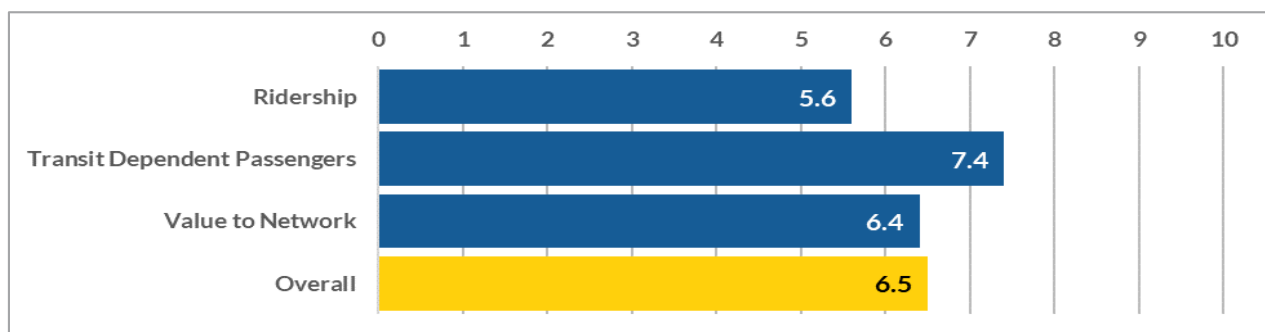
Figure 1 | Service Map



Network Importance

Route 104 is a moderately important route within the bus network. On a relative scale of 0 to 10, the route rates 5.6 in terms of ridership, 7.4 in terms of transit dependent ridership, and 6.4 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 destination, 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 6.5. Its score would be higher without the duplication with Route 109 Linden Square-Sullivan Square Station.

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



Service Overview

Schedule

On weekdays, Route 104 generally provides frequent service during peak periods and the shoulders of the peaks, and infrequent service during other periods (see Table 1). On weekends, it provides infrequent service.

In more detail, on weekdays, service operates from 5:11 AM to 12:15 AM with the following service frequencies:

- Every 15 to 20 minutes from the beginning of service through 6:00 AM.
- Every 15 to 20 minutes in the early AM and AM peak periods, predominantly every 15 minutes.
- Every 20 to 40 minutes in them midday base and school periods, with more frequent service before 10:30 AM, then mostly every 40 minutes between 10:30 AM and approximately 2:30 PM, and then every 30 minutes.
- Every 12 to 23 minutes in the PM peak period, with most service running every 14 to 15 minutes.
- Every 15 to 60 minutes in the evening, late evening, and night periods, with the most frequent service until approximately 8:00 PM and 60 minute service thereafter.

Table 1 | Schedule Statistics

SERVICE DAY	SPAN OF SERVICE	FREQUENCY (RANGE)	FREQUENCY (AVERAGE)	DAILY TRIPS (INBOUND/OUTBOUND)
Monday-Friday	5:11 AM to 12:15 AM			47/44
Sunrise	5:11 AM to 5:59 AM	17 - 20	18	3/2
Early AM	6:00 AM to 6:59 AM	15 - 17	15	4/4
AM Peak	7:00 AM to 8:59 AM	15 - 20	16	8/8
Midday Base	9:00 AM to 1:29 PM	20 - 40	36	8/8
Midday School	1:30 PM to 3:59 PM	20 - 40	24	5/5
PM Peak	4:00 PM to 6:29 PM	12 - 23	16	10/9
Evening	6:30 PM to 9:59 PM	15 - 60	41	6/5
Late Evening	10:00 PM to 11:59 PM	56 - 60	58	2/2
Night	12:00 AM to 12:15 AM	56	36	1/1
Saturday	5:00 AM to 12:10 AM	25 - 45	36	33/33
Sunday	6:35 AM to 12:15 AM	50 - 60	51	21/21

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

On Saturdays, service operates from 5:00 AM to 12:10 AM. Service operates every 25 to 45 minutes throughout the day. Most service operates approximately every 30 minutes in the AM and every 40 minutes in the PM. On Sundays, service operates from 6:35 AM to 12:15 AM, every 50 to 60 minutes throughout the day, but mostly every 55 minutes.

As stated above, Route 104 operates along the same alignment as Route 109 for most of its length. Serving only one rapid transit station, Route 109 carries fewer total riders, however it provides more frequent service and generates a higher turnover in ridership along its alignment. The schedules of the two routes are not coordinated.

Route 104 meets the MBTA's span of service and frequency standards for Local Bus routes during all service days and periods.

Service Patterns

All Route 104 operates consistently along the alignment shown in Figure 1 (See Table 2).

Table 2 | Service Patterns

PATTERN	ORIGIN	DESTINATION	UNIQUE FEATURE	TRIPS PER WKD	TRIPS PER SAT	TRIPS PER SUN
INBOUND				47	33	21
104.0	Malden Center East Busway	Sullivan Station	Via Centre Street, Ferry Street, Broadway, and Alford Street	47	33	21
OUTBOUND				44	3	21
104.0	Sullivan Station	Malden Center East Busway	Via Alford Street, Broadway, Ferry Street, and Centre Street	44	33	21

Ridership

Route 104 carries over 4,090 passengers per weekday, 2,270 passengers per Saturday, and 1,380 passengers per Sunday. It is the MBTA's 31st highest ridership route on weekdays, 22nd highest on Saturdays, and 30th highest on Sundays.

Ridership by Stop

Route 104 primarily acts as a feeder to the Orange Line, with large numbers of transfers made at both ends of the route. In general, people traveling to and from locations along Ferry Street connect with the Orange Line at Malden Center Station and those along Broadway connect with it at Sullivan Square Station. On weekday inbound trips (see Figure 3):

- 570 passengers, or 28% of all inbound riders, board at Malden Center Station.
- A total of 170 passengers board and 40 alight at the next two stops in Malden Center.
- Ridership is moderate at the remaining 10 stops along Ferry Street before Broadway, with a total of 380 boardings and 480 alightings.
- 140 passengers board and 110 alight on Ferry Street at Broadway in Glendale Square.
- A total of 410 passengers board and 130 alight at the seven stops on Broadway before Everett Square.

Figure 3 | Weekday Inbound Ridership by Stop Map



- 160 passengers board and 70 alight on Broadway at Norwood Street in Everett Square.
- A total of 240 passengers board and 100 alight at the 10 stops on Broadway and Alford Street between Everett Square and Sullivan Square Station.
- 1,150 passengers, or 56% of all riders, alight at Sullivan Square Station.

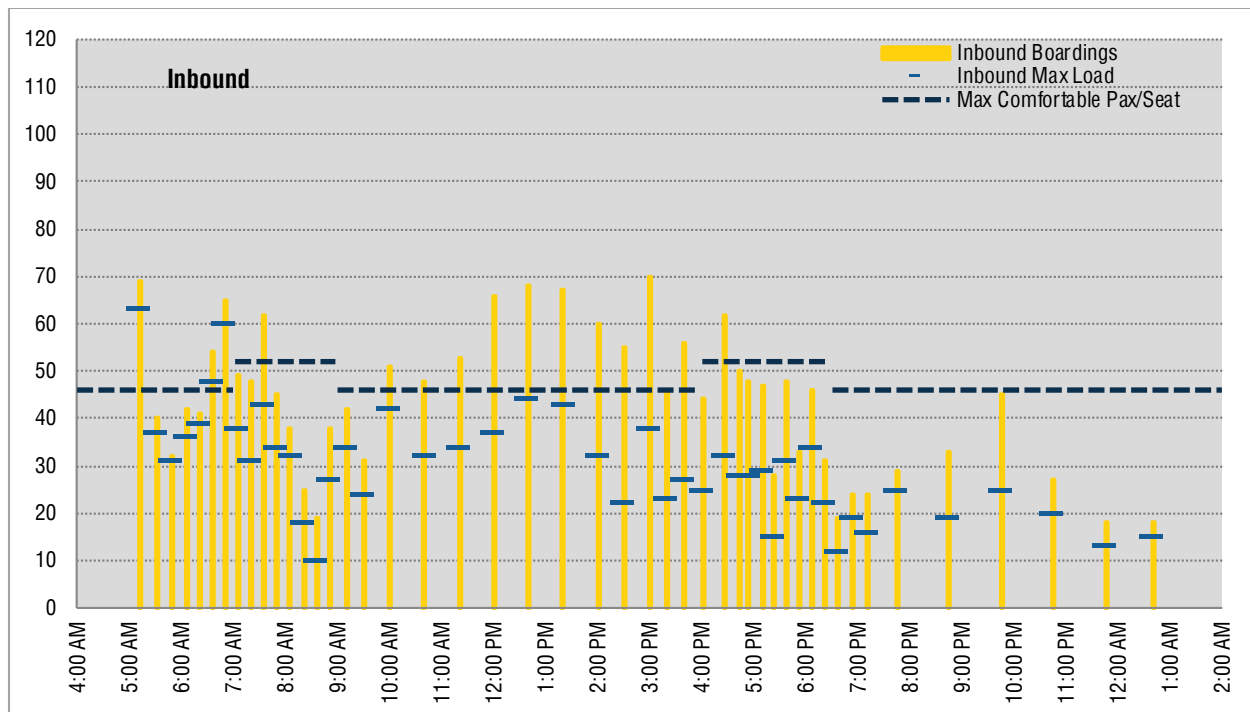
Outbound ridership is roughly the reverse of inbound ridership on weekdays. Weekend ridership patterns are similar, but with lower volumes.

Ridership by Trip

On weekdays, Route 104 has high ridership per trip throughout most of the day. On inbound trips (see Figure 4):

- The first trip at 5:11 AM carries 69 total passengers and is extremely overcrowded (the maximum load is 64). This indicates a need for earlier service. The MBTA has added a 4:40 AM trip to meet this demand.
- Ridership between the first trip and before 6:30 AM ranges from 25 to nearly 40 passengers.
- Ridership then increases to 50 to over 60 passengers between 6:30 AM and 8:00 AM. Two trips are overcrowded.
- Ridership then declines significantly to a valley of only 20 passengers on the 8:35 AM trip but then quickly rebounds to over 40 by 9:30 AM.

Figure 4 | Weekday Ridership by Trip: Inbound

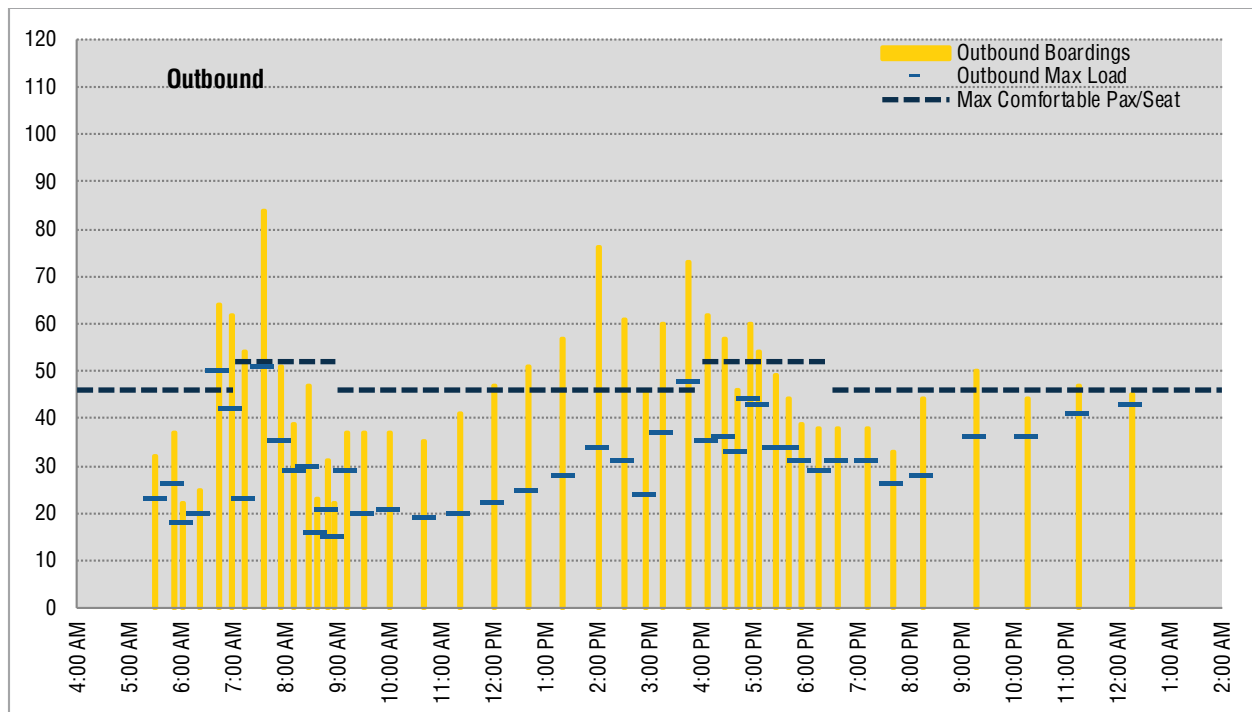


- From 9:30 AM to 4:30 PM, ridership per trip is generally between 40 and 70 passengers. This is very high ridership considering that most service during this time operates only every 30 minutes.
- From 4:30 PM to 6:30 PM, ridership is generally close to 50 passengers per trip.
- After 6:30 PM, ridership per trip is generally 20 to 30 passengers, but with one trip (at 9:45 PM) carrying 46 passengers.

On weekday outbound trips (see Figure 5):

- Ridership per trip begins at over 30 passengers and then builds to over 60 passengers by 6:30 AM. It then ranges from nearly 50 to over 80 until 8:30 AM. One trip has loads that exceed capacity and a second is very close.
- After a dip to 20 passengers per trip around 9:30 AM, ridership steadily increases to over 50 passengers by 1:30 PM.
- Ridership then ranges from 50 passengers per trip to over 70 until 6:30 PM.
- Ridership after 6:30 PM through the end of service ranges from nearly 30 passengers to nearly 50. This is very high ridership per trip considering the very infrequent service that is provided (mostly every 60 minutes). The last trip at 12:15 AM carries 46 passengers.

Figure 5 | Weekday Ridership by Trip: Outbound



On Saturdays, inbound ridership is highest from the beginning of service until 3:00 PM, when most trips carry 30 to over 40 passengers (see Figure 6). Outbound ridership is highest in the afternoon and early evening, when most trips carry over 30 to nearly 60 passengers (see Figure 7). A number of trips operate near, at, or over capacity. This is unusual for Saturday service and indicates that more frequent service is needed.

Figure 6 | Saturday Ridership by Trip: Inbound

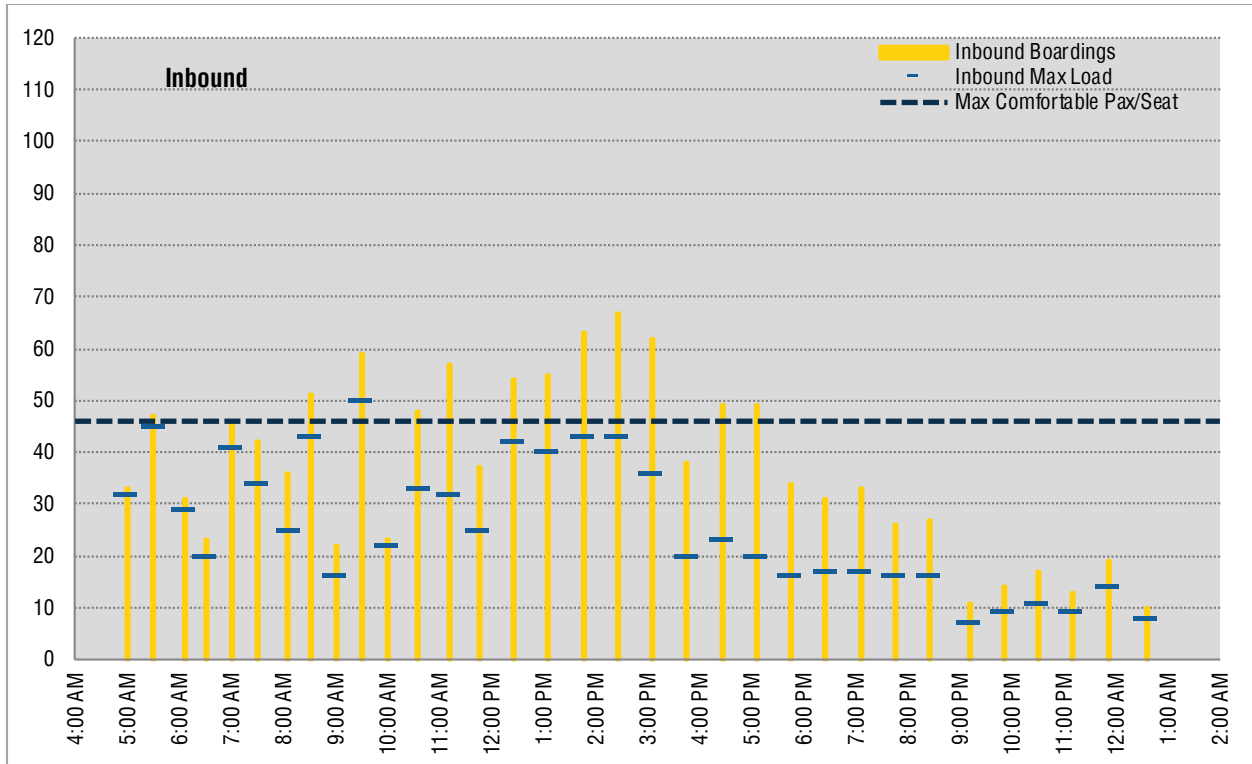
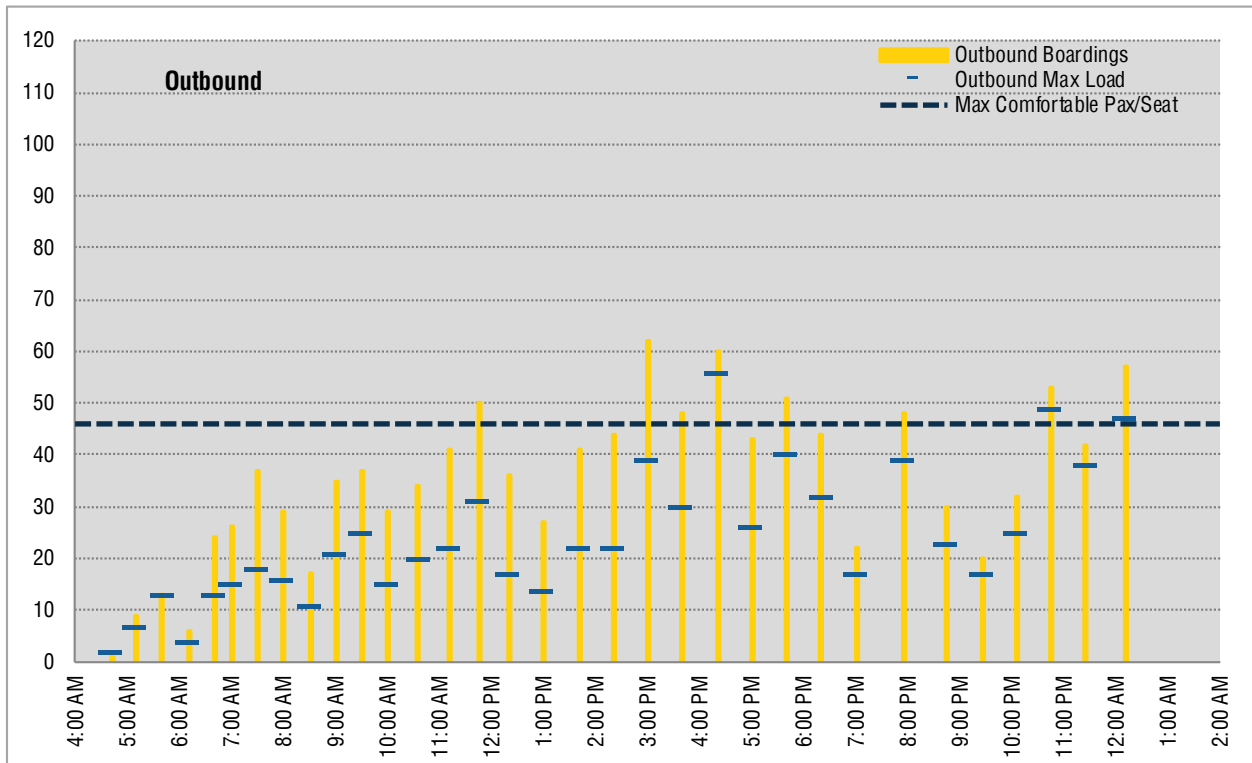


Figure 7 | Saturday Ridership by Trip: Outbound



On Sundays, inbound ridership is highest from the beginning of service until 3:00 PM, when most trips carry close to 30 to over 40 passengers (see Figure 8). In the afternoon and early evening, when most trips carry over 40 passengers (see Figure 9). These

Figure 8 | Sunday Ridership by Trip: Inbound

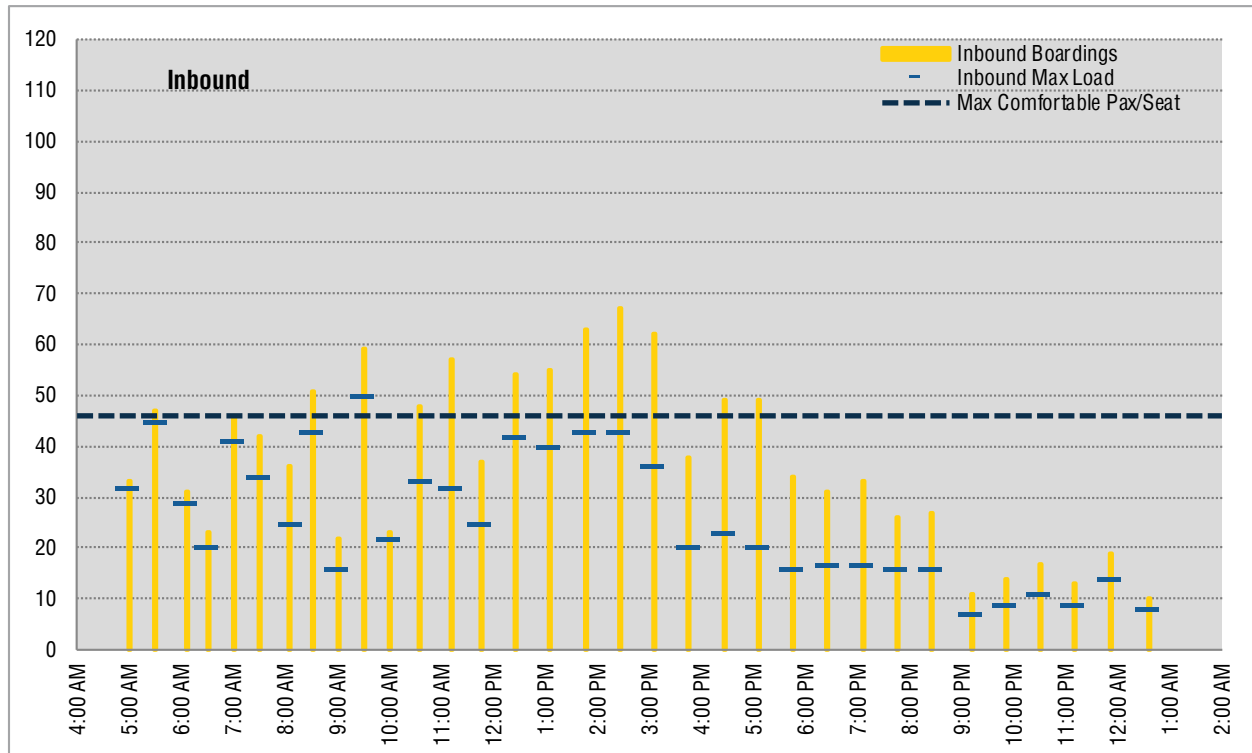
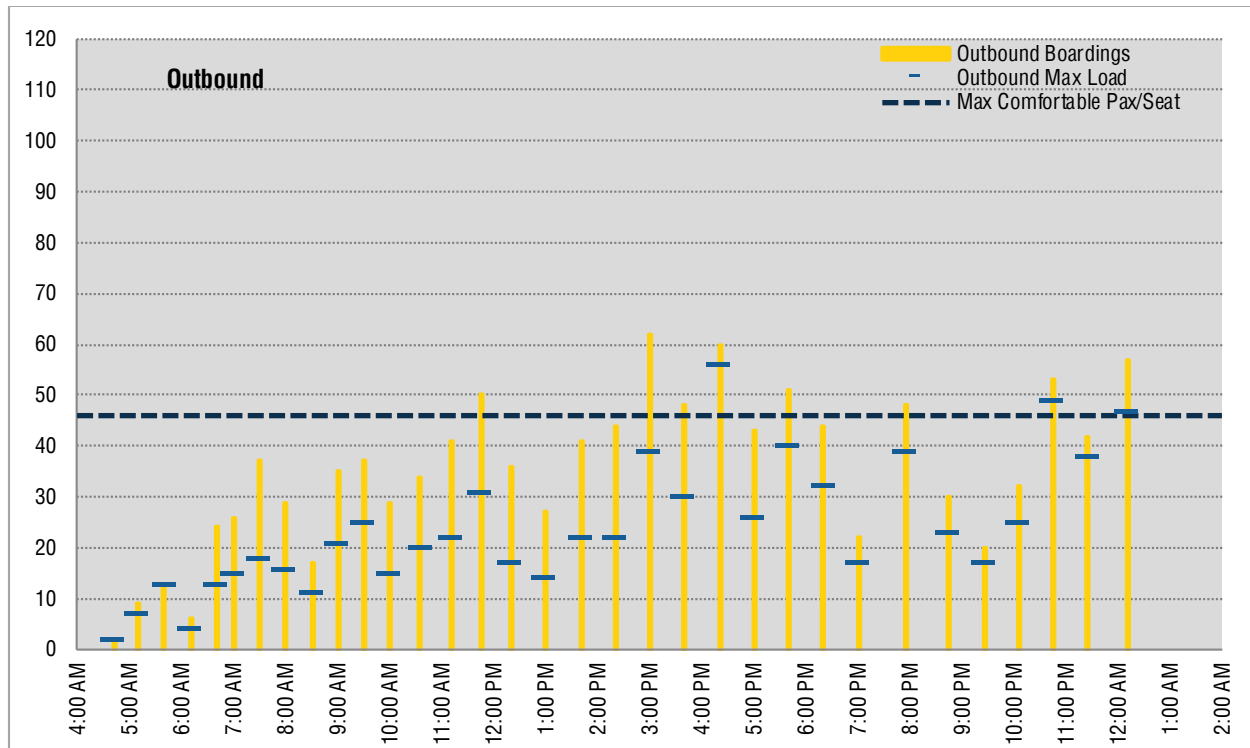


Figure 9 | Sunday Ridership by Trip: Outbound



numbers are very high considering the infrequent service (generally every 60 minutes). As on Saturdays, a number of trips very close to capacity, which is very unusual for Sunday service.

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 104, 91.8% of weekday passenger minutes are in comfortable conditions, which is below the minimum standard of 92% (see Table 4). This is largely the result of overcrowding on some AM and PM peak trips and off-schedule operations. Saturday and Sunday comfort levels are also below standard. This is due to a combination of infrequent service, heavy loads, and off-schedule operations.

Table 3 | Passenger Time Spent Traveling in Comfortable Conditions

	WEEKDAYS	SATURDAYS	SUNDAYS
Minimum Standard	92%	92%	92%
Target	96%	96%	96%
Actual	91.8%	90.8%	90.7%

Reliability and Speed

Reliability

Route 104’s overall reliability is very poor at only 59% on weekdays, 48% on Saturdays, and 30% on Sundays (see Table 5). These levels are all well below the minimum standard of 70% for local bus routes. Dropped trips are a minor issue, with 1.0% of weekday trips dropped.

Table 4 | Reliability

SERVICE DAY	ORIGIN/MID-ROUTE ON-TIME PERFORMANCE	DESTINATION ON-TIME PERFORMANCE	OVERALL RELIABILITY	DROPPED TRIPS
Monday-Friday	56%	71%	59%	1.0%
Saturday	48%	49%	48%	-
Sunday	30%	30%	30%	-

Running Times

Route 104’s observed running times routinely exceed scheduled running times from 10:00 AM until the end of service. Trips during the early AM and AM peak actually run faster than their scheduled times, sometimes by as much as ten minutes, which reflects improvements resulting from the new AM peak inbound bus lane on Broadway.

Figure 10 | Scheduled & Median Travel Time by Trip: Route 104 Inbound

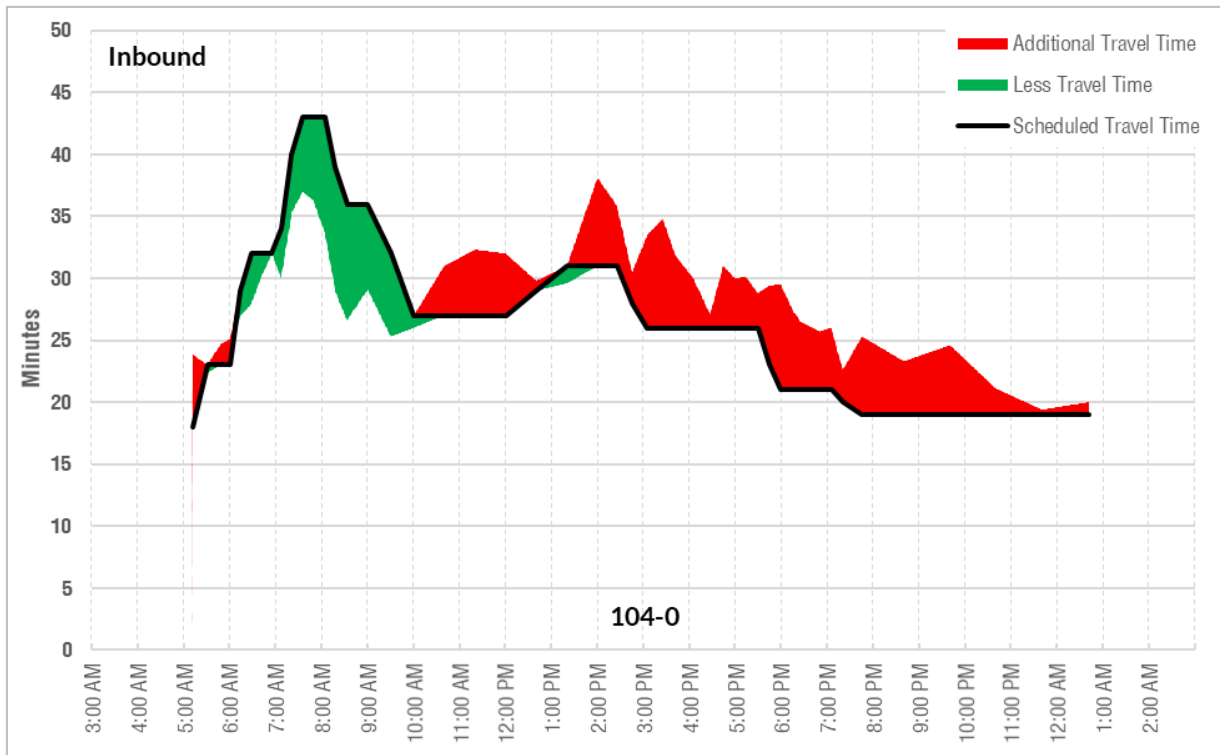
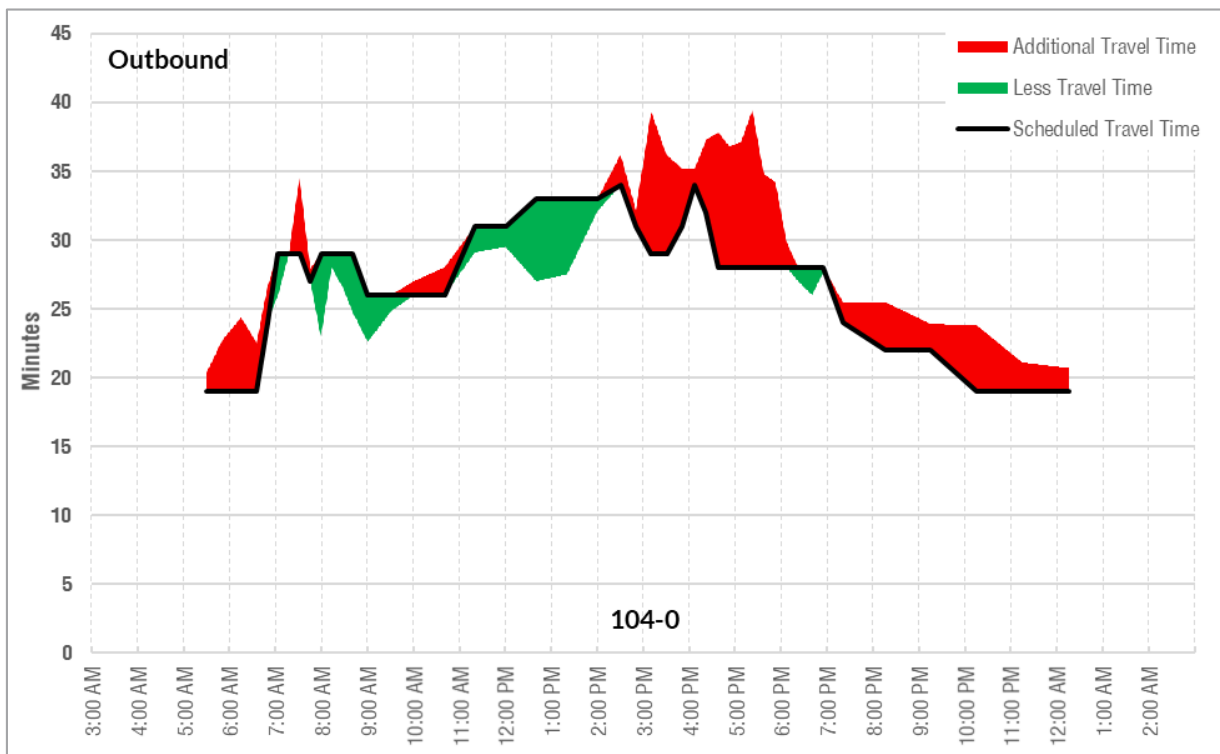


Figure 11 | Scheduled & Median Travel Time by Trip: Route 104 Outbound



Stop Spacing

Route 104 has an average of 6.7 stops per mile, which is at the top end of the four to seven stops per mile recommended for urban areas under MBTA guidelines. Inbound, 20 of 31 stops are closer together than seven stops per mile, and outbound, 21 are. Most of these are along Ferry Street and Broadway south to Revere Beach Parkway.

Summary

Route 104 is a high ridership route that connects parts of Malden and Everett with the Orange Line at Malden Center Station and Sullivan Square Station. Major issues are very poor on-time performance, overcrowding, and infrequent off-peak and weekend service.