

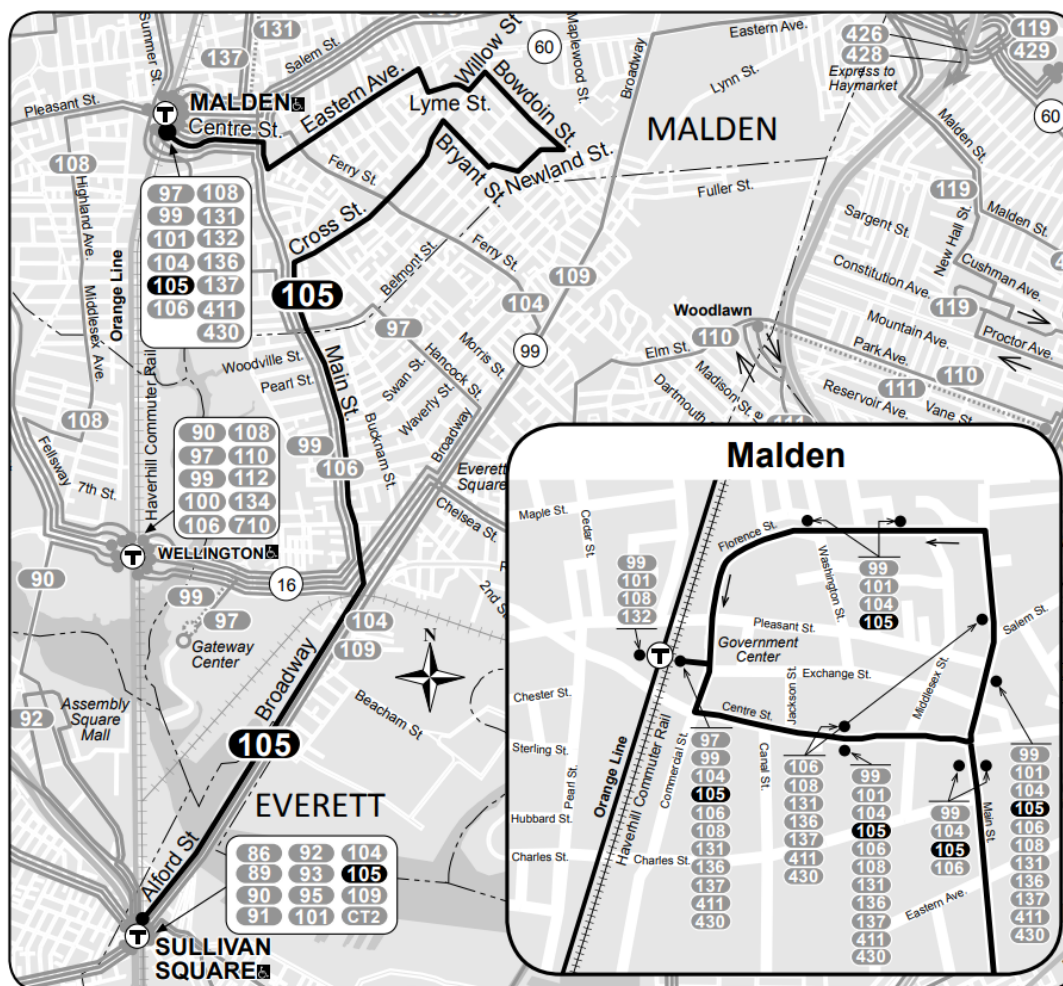
Route 105

Malden Center Station – Sullivan Square Station

Route Overview

Route 105 Malden Center Station – Sullivan Square Station is a Local route connecting the residential neighborhoods in eastern Malden to the Orange Line at both Malden Center and Sullivan Square, as well as retail, office, and restaurant locations along Main Street and Broadway in Everett. Route 105 share an alignment with Route 99 Boston Region Medical Center – Wellington Station and Route 106 Franklin Square or Lebanon Street Loop – Wellington Station on Main Street and Route 104 Malden Center - Sullivan and 109 Linden Square – Sullivan along Broadway.

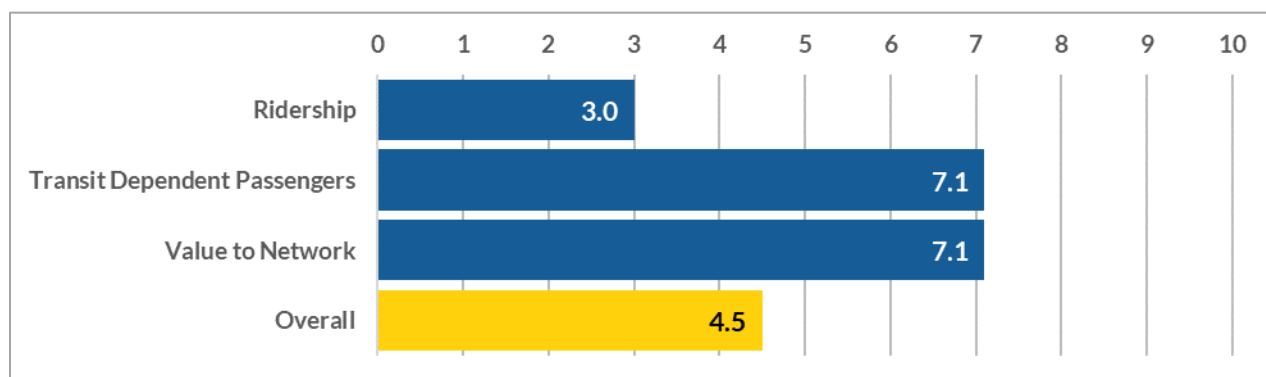
Figure 1 | Service Map



Network Importance

Route 105 is less important to the overall MBTA network, although it serves a high proportion of transit dependent passengers (see Figure 2). On a relative scale of 0 to 10, the route rates 3.0 in terms of ridership, 7.1 in terms of transit dependent ridership, and 7.1 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 4.5.

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



Service Patterns

Schedule

Route 105 generally provides infrequent service on weekdays, Saturdays, and Sundays throughout the service span. On weekdays, it operates on weekdays from 5:00 AM to 7:15 PM, with the following frequencies (see Table 1):

- Every 30 minutes from 5:00 AM until 6:30 AM
- Every 40 minutes from 6:30 AM until 8:20 AM
- Every 50 to 55 minutes from 8:20 AM until 3:10 PM
- Every 35 minutes from 3:10 PM until the last trip at 6:40 PM

Route 105 begins operation later on Saturdays at 6:15 AM with 60 minute headways until 9:15 AM. From 9:15 AM until 5:25 PM, it operates with 70 minute frequencies. The last inbound trip of the day runs at 6:40 PM.

On Sundays, the route begins operation at 9:15 AM, running a trip every hour on the quarter-hour until 7:15 PM.

Route 105 does not meet the frequency standards for a local bus in the peak and off-peak periods on any service day. On weekdays, Saturdays, and Sundays, the route meets the span of service guidelines.

Table 1 | Schedule Statistics

SERVICE DAY	SPAN OF SERVICE	FREQUENCY (RANGE)	FREQUENCY (AVERAGE)	DAILY TRIPS (INBOUND/OUTBOUND)
Monday-Friday	5:00 AM to 7:15 PM			18/18
Sunrise	5:00 AM to 5:59 AM	60	60	1/1
Early AM	6:00 AM to 6:59 AM	30 – 60	35	2/1
AM Peak	7:00 AM to 8:59 AM	30 – 65	45	3/3
Midday Base	9:00 AM to 1:29 PM	65 – 70	69	4/3
Midday School	1:30 PM to 3:59 PM	35 – 70	47	3/4
PM Peak	4:00 PM to 6:29 PM	35	35	4/4
Evening	6:30 PM to 7:15 PM	35	35	1/2
Late Evening	-	-	-	-
Night	-	-	-	-
Saturday	6:15 AM to 7:10 PM	60 – 75	62	12/12
Sunday	9:15 AM to 6:45 PM	60	60	11/11

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

Service Patterns

Route 105 operates one service pattern for inbound and outbound trips on each service day. Inbound buses leave from Malden Center Station and operate along Centre Street, Eastern Avenue, Lyme Street, Willow Street, Bowdoin Street, Newland Street, Bryant Street, Cross Street, Main Street, Broadway, and Alford Street.

Table 2 | Service Patterns

PATTERN	ORIGIN	DESTINATION	UNIQUE FEATURE	TRIPS per WKD	TRIPS per SAT	TRIPS per SUN
INBOUND				18	12	11
105.1	Malden Center Station	Sullivan Station	-	18	12	11
OUTBOUND				18	12	11
105.1	Sullivan Station	Malden Center Station	-	18	12	11

Ridership

Route 105 attracts 1,155 boardings per weekday, 614 boardings per Saturday, and 481 boardings per Sunday, making it a relatively low ridership by comparison to other MBTA local routes.

Ridership by Stop

Ridership on Route 105 is low at all but the terminal stops at Orange Line stations; no other stops attract more than 40 total boardings and alightings per day. On weekday inbound trips to Sullivan Station (see Figure 3):

- At the first stop on the route, Malden Center Station, 29% of all boardings occur (169 boardings per day).
- The next bus stop at the Stop and Shop generates 31 boardings and 5 alightings.
- Between Malden Center Station and Route 105's return to Main Street, 39% of boardings occur (198 boardings and 209 alightings), with only one stop (Newland Street at Alden Street – near the Broadway Plaza shopping center – with 22 boardings) attracting more than 20 boardings daily.
 - This segment also features 37% of all route alighting, indicating passengers ride inbound to destinations in eastern Malden from Malden Center Station. Passengers ride outbound buses in the morning to reach Malden Center Station and transfer opportunities to other buses and the Orange Line.
- Inbound stops on Main Street and Broadway attract mostly boardings for passengers destined for Sullivan Station, with the exception of Main Street at West Street, the last transfer opportunity for buses heading to Wellington Station.
 - On Main Street north of Route 16, there are 134 boardings and 32 alightings (23% of boardings) occur. Boardings are relatively evenly distributed throughout the ten stops on Main Street, with boardings ranging between 7 and 21 boardings, but most close to 15 daily boardings.
 - On Broadway south of Route 16, only 8% of boardings and 2% of alightings occur (48 boardings and 10 alightings).
- At Sullivan Square, 324 passengers, or 56% of the total, alight to transfer to other bus routes, the Orange Line, or walk to the final destination.

Outbound ridership patterns match the reverse of inbound ridership, with activity highest at the termini, along Newland Street, and along Bowdoin Street. Weekend ridership follows roughly the same ridership patterns inbound, with fewer but similarly distributed boardings and alightings.

Ridership by Trip

On weekdays, Route 105 averages 32 boardings per trip with slight increases in boardings during the AM and PM peaks in both directions (see Figure 4):

- Ridership on the first trip of the day at 5:00 AM is the highest all day: it reaches 43 boardings and a maximum load of 42 passengers. On this trip, some riders are required to stand, but overcrowding is not an issue on any trip. Still, additional early morning frequency may attract more riders.
- After 6:00 AM, no maximum load surpasses 32 passengers on board. Three trips at 6:30 AM, 7:10 AM, and 8:20 AM attract more than 30 boardings, but between 9:25 AM and 12:55 PM, ridership on all four trips does not surpass 29 boardings.
- Ridership rises again between 2:00 PM and 6:05 PM, with the highest maximum load of 27 passenger on the 6:05 PM trip.

In the outbound direction, Route 105 ridership is higher in the morning between 5:30 AM and 8:50 AM, and on the 3:10 PM and 3:45 PM trips. One trip in the AM peak (7:10 AM) and one trip in the midday afternoon (3:45 PM) attract over 50 boardings and a maximum load close to 40 passengers. Midday ridership is lower, with consistently fewer than 30 boardings per trip.

Weekend ridership is mostly consistent throughout the day with slight peaking during the evenings on Saturday and in the mornings on Sundays. No Saturday or Sunday trips have standing riders. Saturday trips average 26 boardings per trip, with an inbound peak at 4:15 PM with 38 boardings and an outbound peak at 4:45 PM with 41 boardings. Sundays 22 boardings per trip, with an inbound peak at 11:15 AM with 37 boardings and an outbound peak at 10:45 AM with 27 boardings.

Figure 3 | Weekday Inbound Ridership by Stop Map

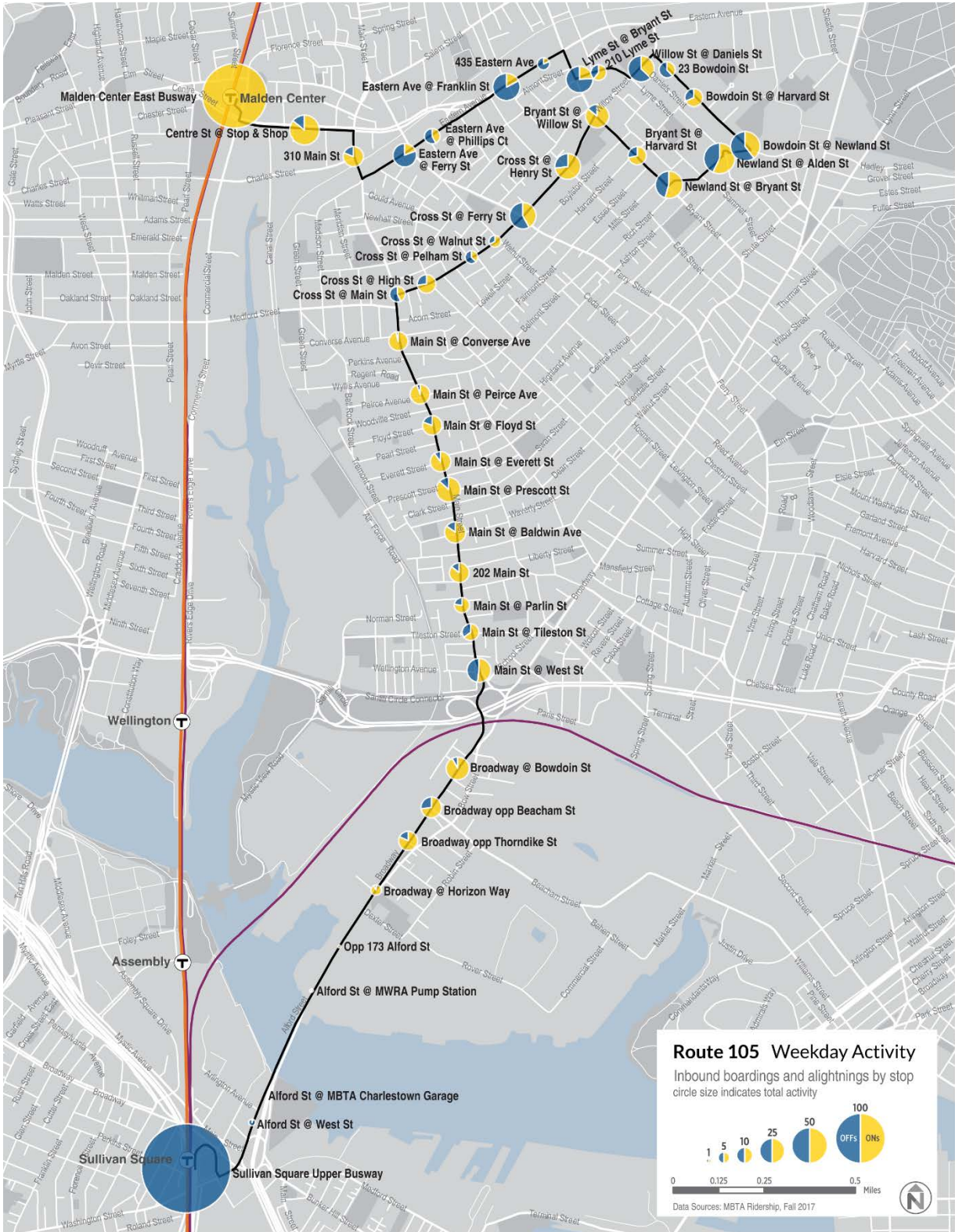


Figure 4 | Weekday Ridership by Trip: Inbound

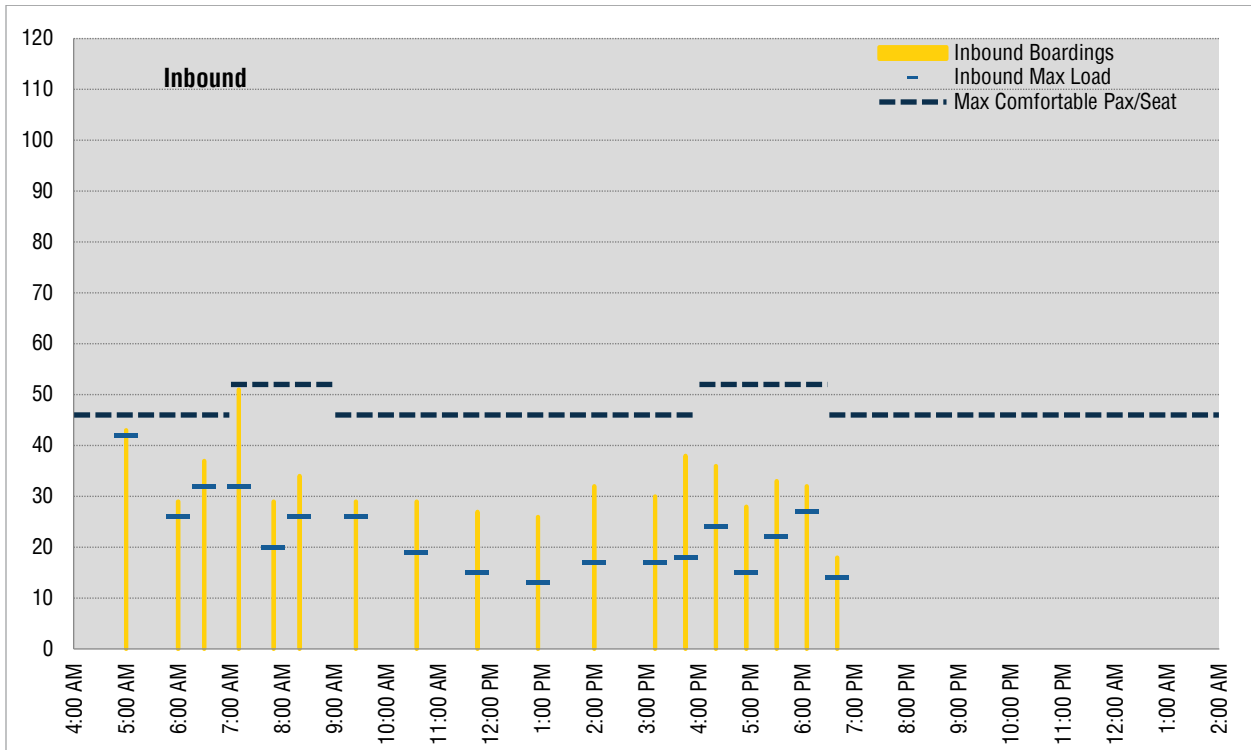


Figure 5 | Weekday Ridership by Trip: Outbound

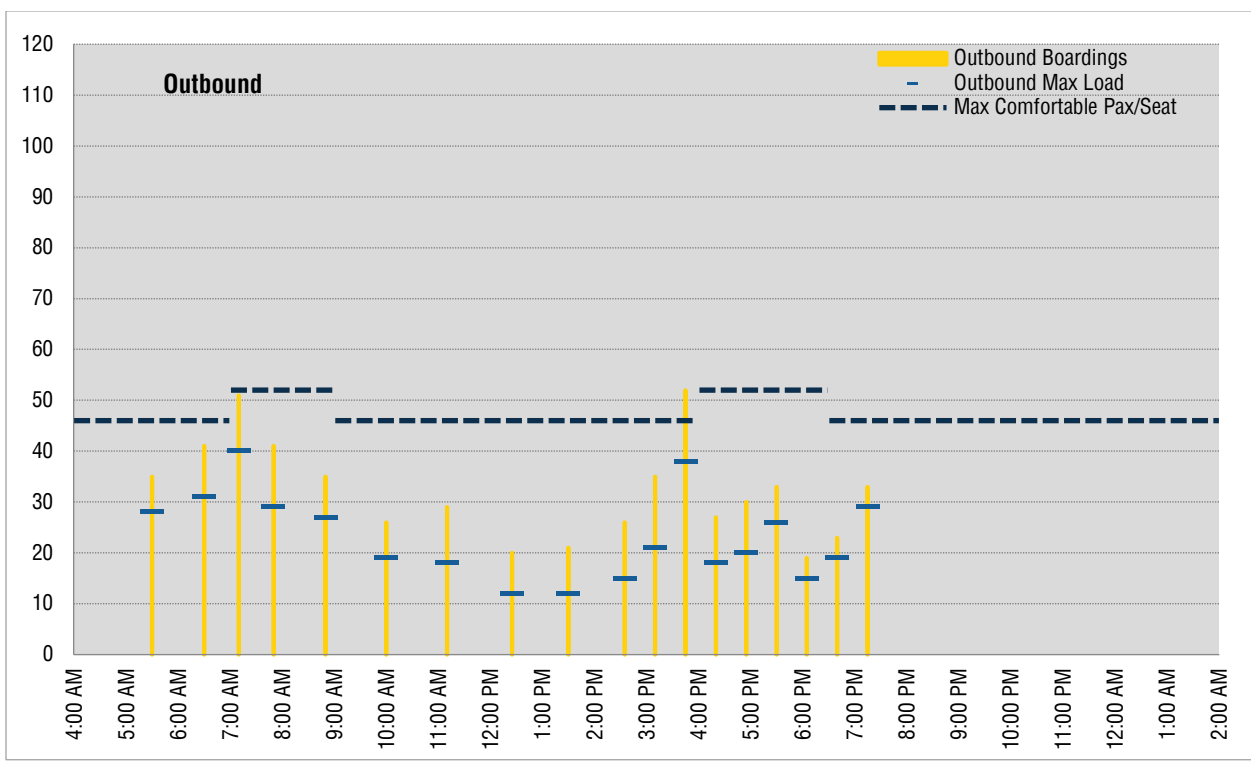


Figure 6 | Saturday Ridership by Trip: Inbound

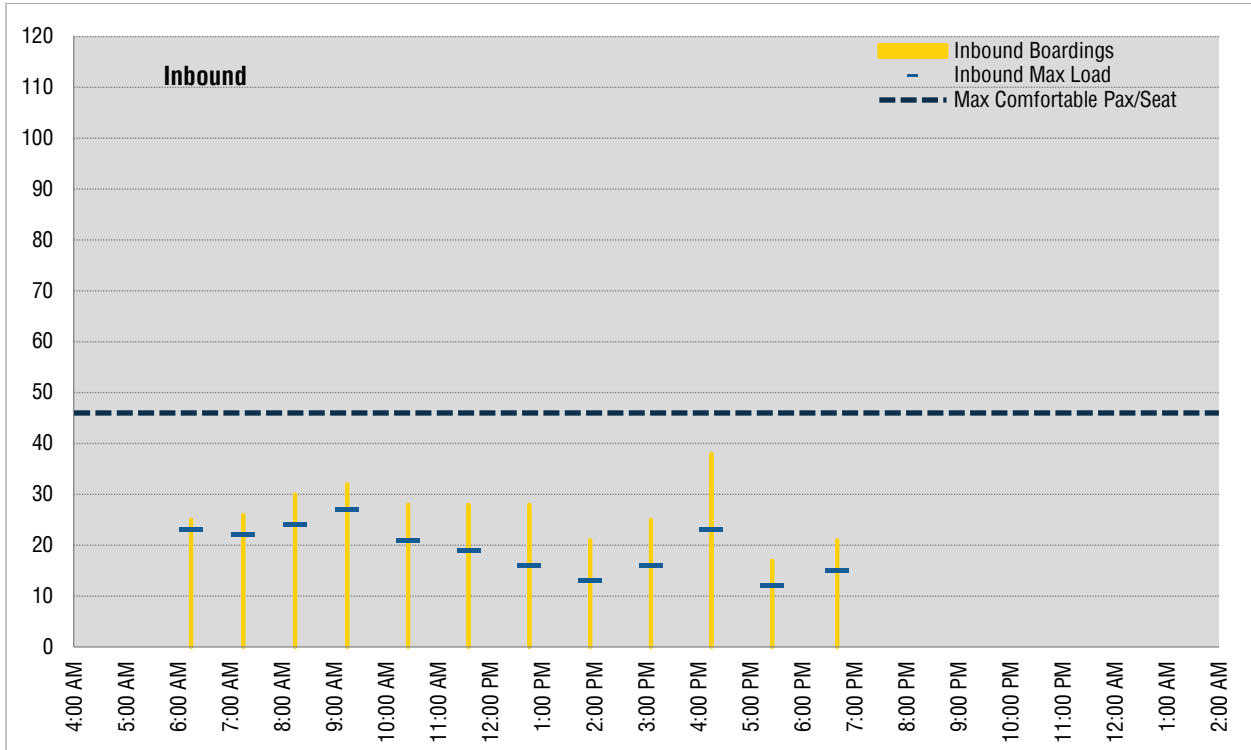


Figure 7 | Saturday Ridership by Trip: Outbound

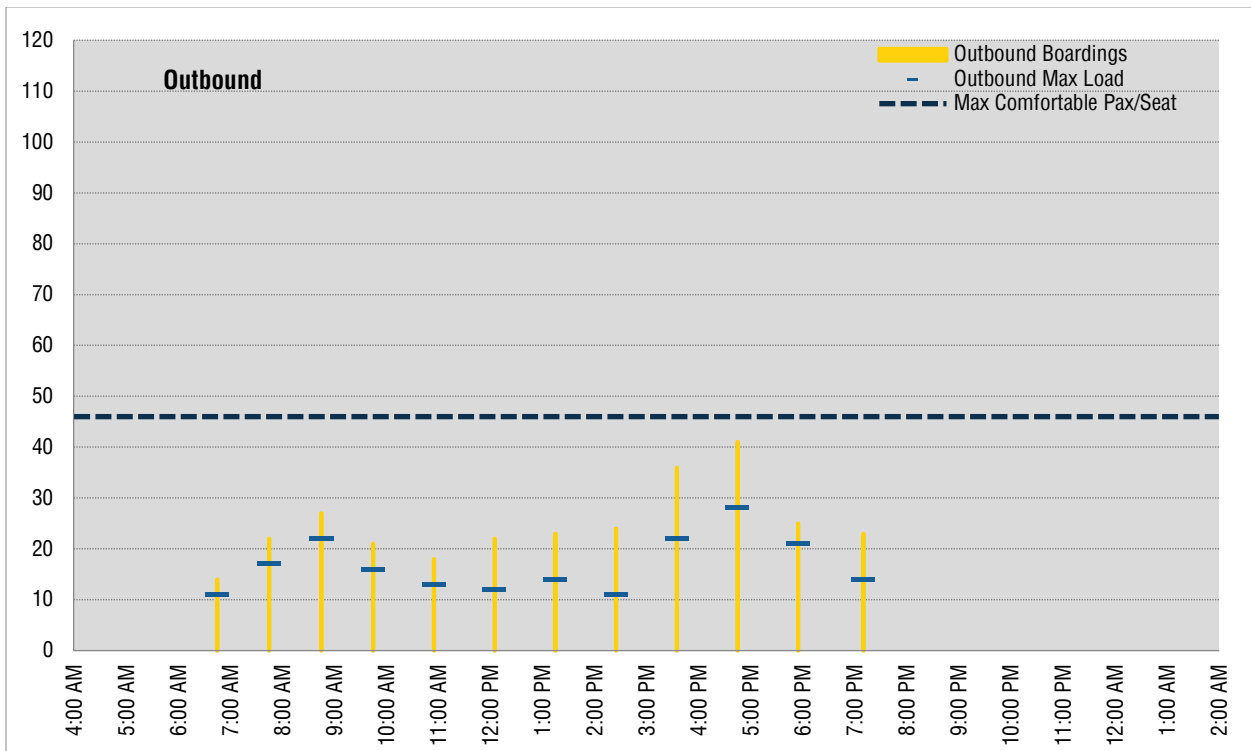


Figure 8 | Sunday Ridership by Trip: Inbound

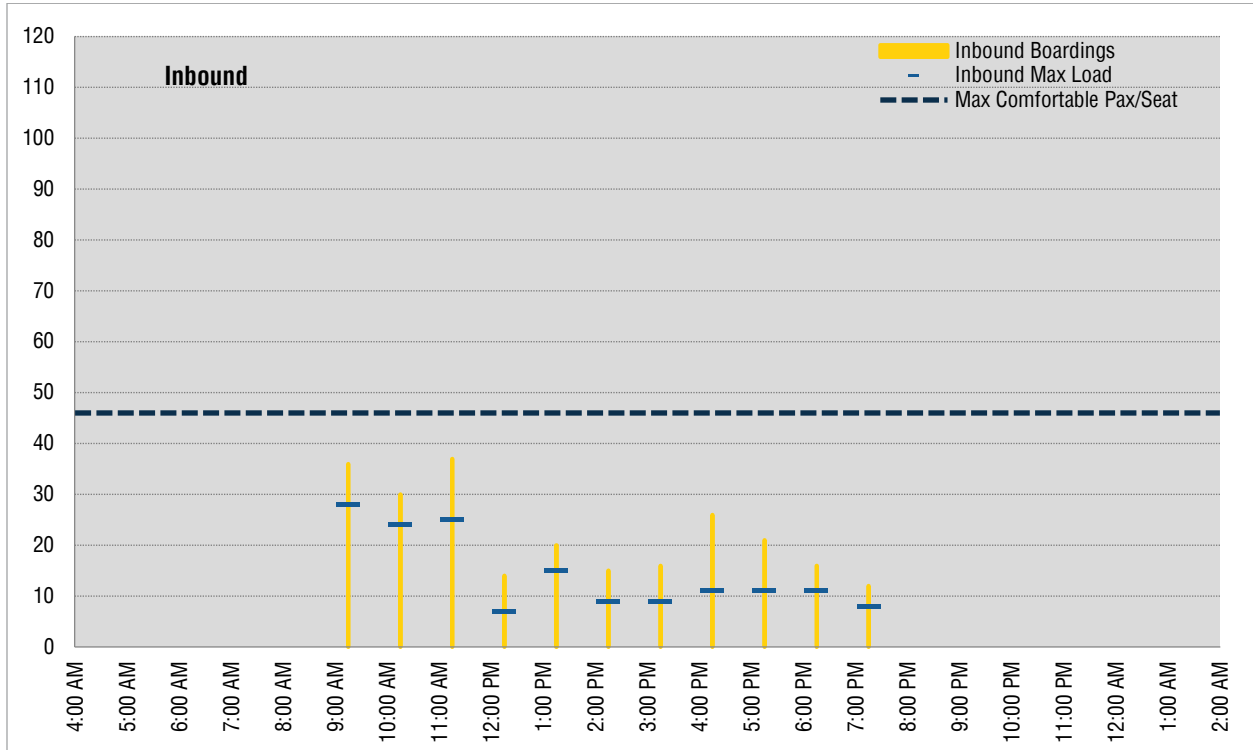
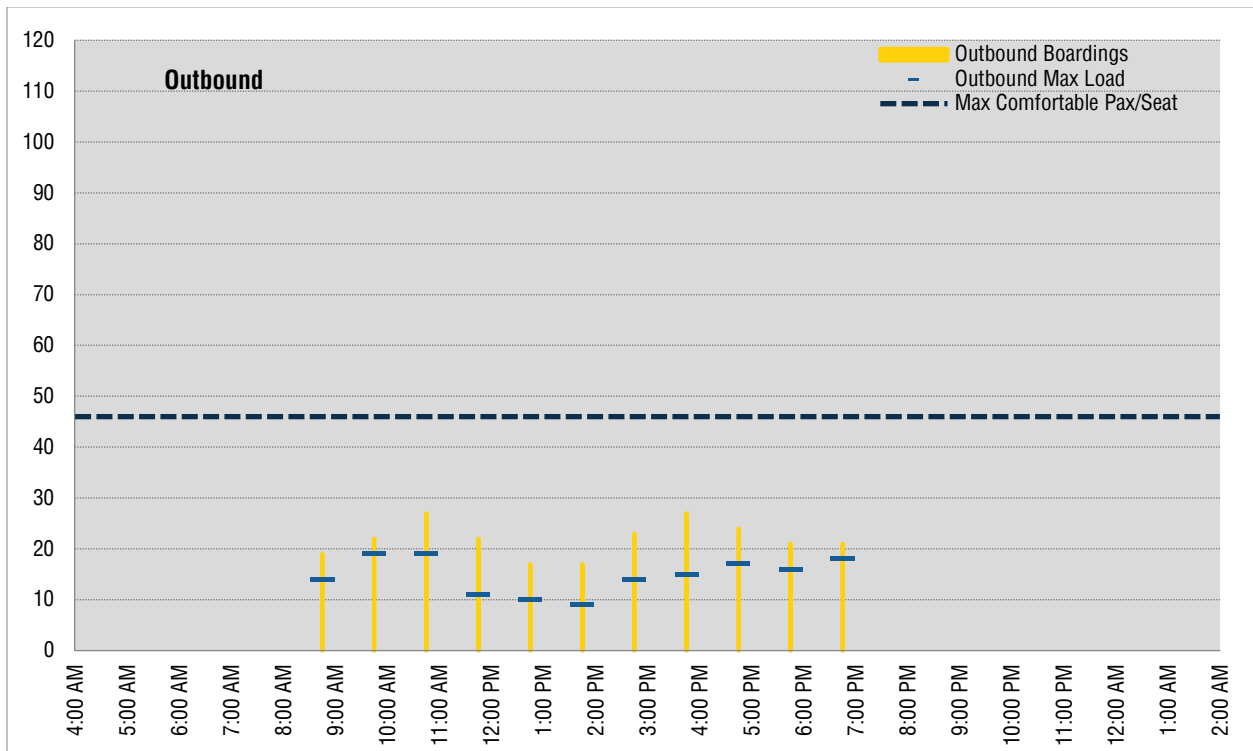


Figure 9 | Sunday Ridership by Trip: Outbound



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 105, 99.2% of passenger minutes are in comfortable conditions, which is above the minimum and target standard (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	99.2%	99.1%	98.4%

Reliability and Speed

Reliability

Route 105 has extremely poor reliability, leaving on time 42% of the time and arriving on time 40% of the time on weekdays. At a 41% overall reliability rate on weekdays and Saturdays, less than half of trips match their scheduled times. This improves to just 52% on Sundays, still well below the MBTA standard (see Table 4).

On weekdays, 0.1% of trips are dropped on a daily basis, resulting in longer headways and more delay for passengers riding Route 105 at slow frequencies.

Table 4 | Reliability

SERVICE DAY	ORIGIN/MID-ROUTE ON-TIME PERFORMANCE	DESTINATION ON-TIME PERFORMANCE	OVERALL RELIABILITY	DROPPED TRIPS
Monday-Friday	42%	40%	41%	0.1%
Saturday	43%	33%	41%	-
Sunday	55%	39%	52%	-

Running Times

Route 105's observed running times exceed scheduled running times in the early morning, midday morning, and evening by up to ten minutes longer than scheduled running times

(see Figure 10 and Figure 11). Inbound trips during the AM peak and early afternoon are faster.

Figure 10 | Scheduled & Median Travel Time by Trip: Route 105 Inbound

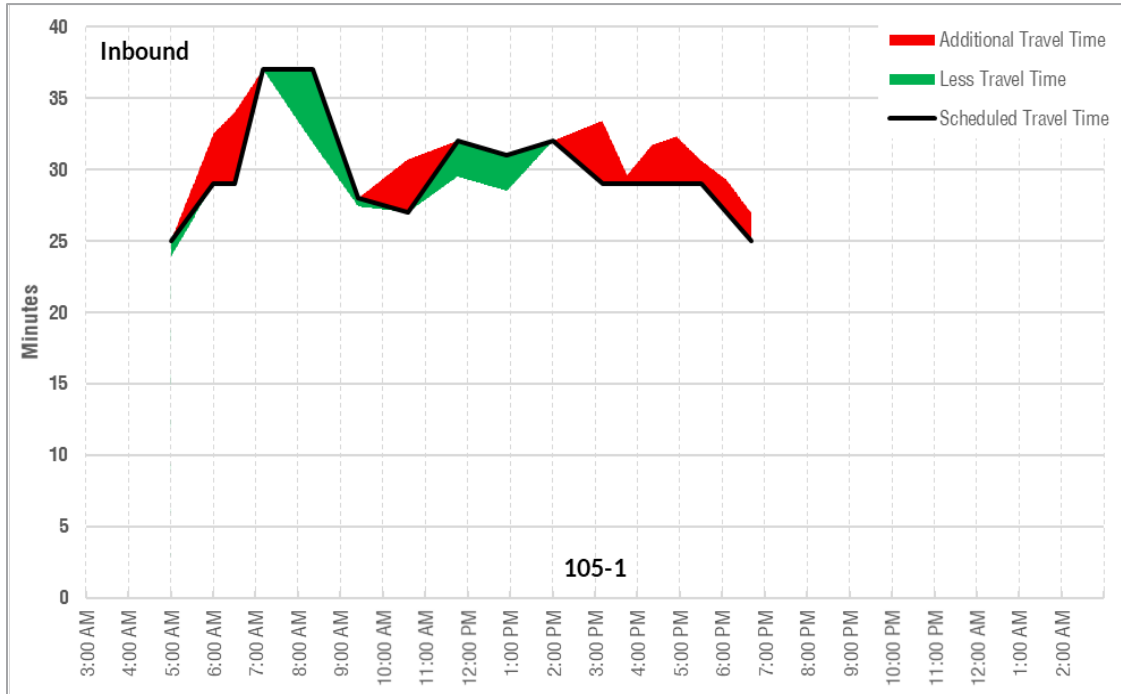
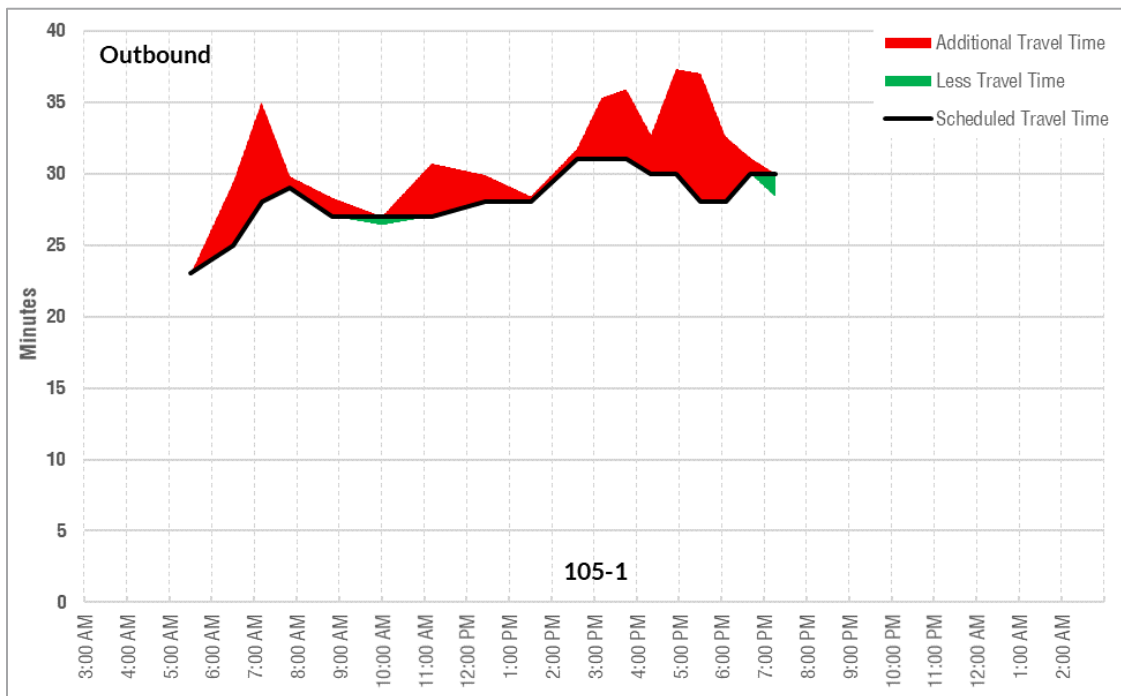


Figure 11 | Scheduled & Median Travel Time by Trip: Route 105 Outbound



Stop Spacing

The overall route on its primary service pattern measures 6.2 miles in length with 42 inbound stops, leaving an average of 6.7 stops per mile, or one stop every 780 feet. This is at the high end of the four to seven stops per mile recommended for urban areas under MBTA guidelines, making service slower and less reliable.

Summary

Route 105 connects passengers from eastern Malden neighborhoods without access to another bus route within a reasonable walking distance to the Orange Line at both Malden Center and Sullivan Stations. However, Route 105 has extremely poor on-time performance, compliments Route 99 Boston Regional Medical Center – Wellington Station and Route 106 Franklin Square or Lebanon Street Loop – Wellington Station on Main Street, and compliments Routes 104 Malden Center - Sullivan and 109 Linden Square – Sullivan along Broadway in Everett as it approaches Sullivan Station. Additionally service does not start early enough based on demand and further hurts the route's potential.