

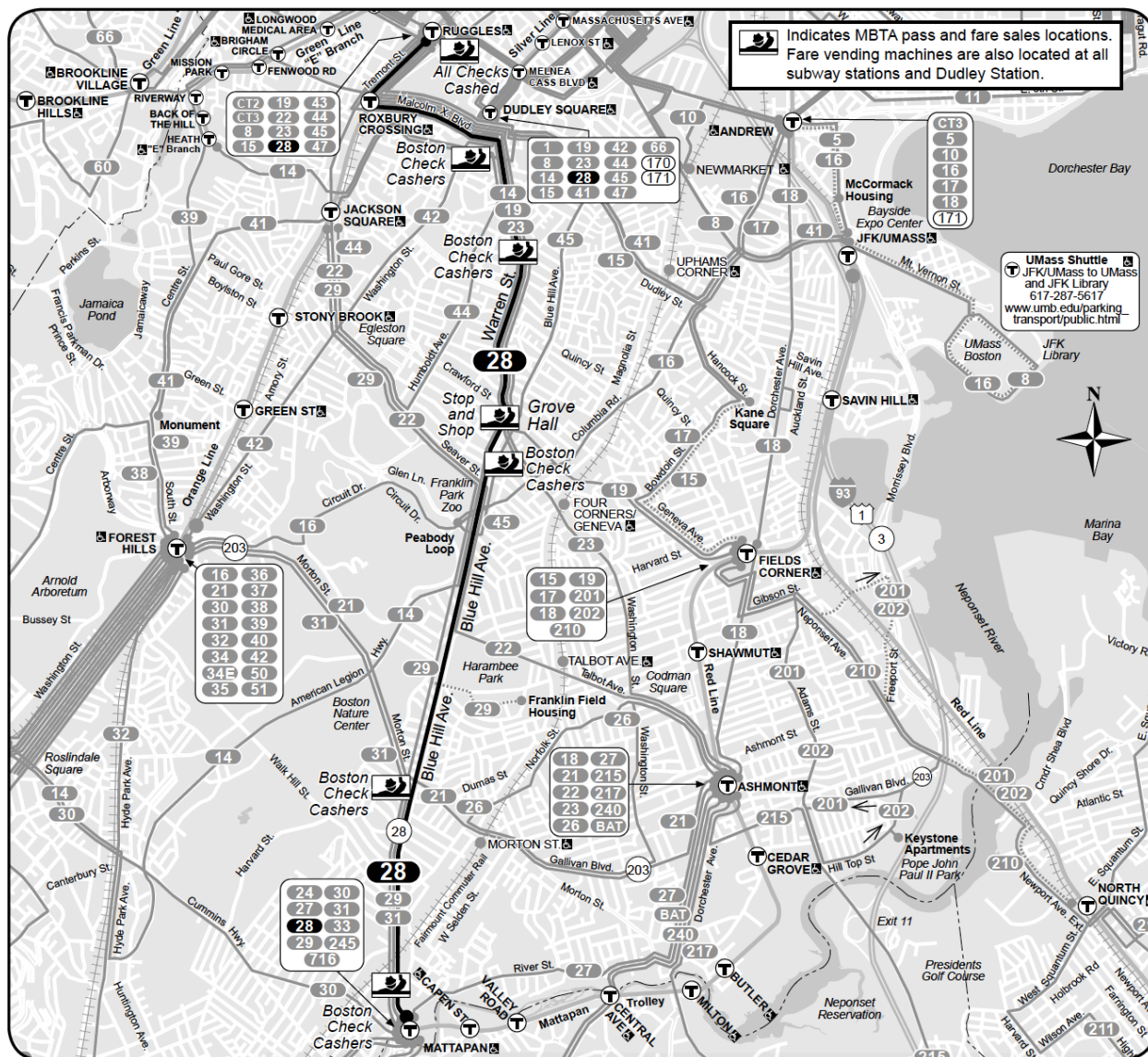
Route 28

Mattapan Station – Ruggles Station

Route Overview

Route 28 Mattapan Station – Ruggles Station is a Key Bus route that operates between Mattapan Station and Ruggles Station (see Figure 1). It operates via Blue Hill Avenue, and Dudley and Roxbury Crossing Stations.

Figure 1 | Service Map



Route 28 operates parallel to several other routes on different parts of Warren Street and Blue Hill Avenue, including:

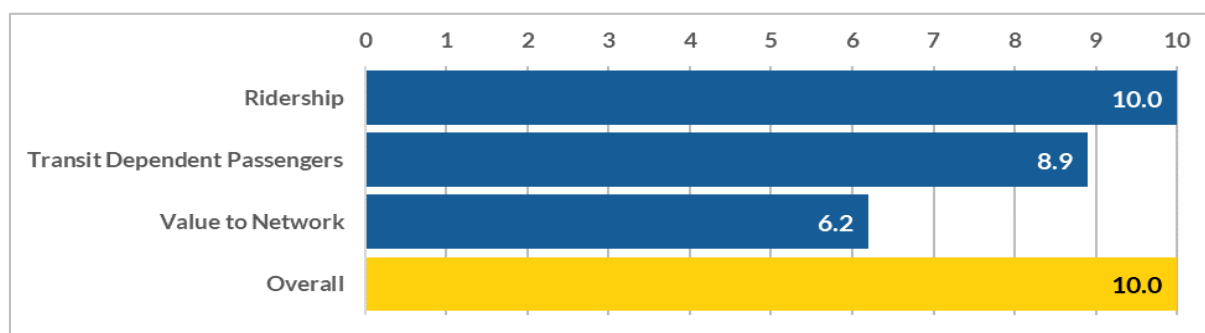
- Route 14 Roslindale Square – Heath Street Station
- Route 19 Fields Corner Station – Kenmore Station
- Route 22 Ashmont Station – Ruggles Station
- Route 29 Mattapan Station – Jackson Square Station
- Route 31 Ashmont Station – Ruggles Station
- Route 45 Franklin Park Zoo – Ruggles Station

Together, these routes provide very high frequency service on one of the highest ridership corridors in Greater Boston.

Network Importance

Route 28 ranks the highest among all routes in the MBTA bus network in terms of network importance (see Figure 2). On a relative scale of 0 to 10, as the MBTA’s highest ridership route, it rates 10.0 in terms of ridership, 8.9 in terms of transit dependent ridership, and 6.2 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% weight to overall ridership and a 15% weight to both other measures, is 10.0.

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



Service Overview

Schedule

Route 28 provides frequent service for most of the day seven days a week (see Table 1). On weekdays, it operates from 3:20 AM to 1:37 AM with the following service frequencies:

Table 1 | Schedule Statistics

SERVICEDAY	SPAN OF SERVICE	FREQUENCY (RANGE)	FREQUENCY (AVERAGE)	DAILY TRIPS (INBOUND/OUTBOUND)
Monday-Friday	3:20 AM to 1:37 AM			119/114
Sunrise	3:20 AM to 5:59 AM	18 - 41	27	6/1
Early AM	6:00 AM to 6:59 AM	7 - 18	12	9/4
AM Peak	7:00 AM to 8:59 AM	6 - 11	7	17/17
Midday Base	9:00 AM to 1:29 PM	6 - 12	10	2/29
Midday School	1:30 PM to 3:59 PM	1 - 9	9	18/20
PM Peak	4:00 PM to 6:29 PM	7 - 9	9	17/18
Evening	6:30 PM to 9:59 PM	8 - 20	14	15/15
Late Evening	10:00 PM to 11:59 PM	20	20	6/6
Night	12:00 AM to 1:37 AM	20 - 37	23	4/4
Saturday	3:20 AM to 1:40 AM	10 - 46	13	97/95
Sunday	3:20 AM to 1:25 AM	13 - 54	16	80/76

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

- Every 18 to 41 minutes from the beginning of inbound service at 3:20 AM through 6:00 AM. The trips that are spaced farther apart are the very early morning trips. Outbound service does not begin until 5:43 AM.
- Every seven to 18 minutes from 6:00 AM to 6:59 AM.
- Every three to 12 minutes from 7:00 AM to 6:29 PM.
- Every eight to 20 minutes between 6:30 PM and 11:59 PM.
- Every 10 to 37 minutes from 10:00 PM to the end of service at 1:17 AM.

On Saturdays, service operates from 3:20 AM to 1:40 AM:

- Inbound service from 3:20 AM until about 4:45 AM is similar to weekdays. Outbound service does not begin until 4:45 AM.
- Service from about 4:45 AM to 8:00 PM operates every 11 to 15 minutes.
- Service from about 8:00 PM until the end of service mostly operates every 17 minutes (which is more frequent than on weekdays during this time).

On Sundays, service operates from 3:20 AM to 1:25 AM:

- Inbound service from 3:20 AM until about 4:45 AM is similar as on weekdays and Saturdays. Outbound service does not begin until 6:10 AM.
- Service from about 4:45 AM to 8:00 PM operates every 14 to 15 minutes.
- Service from about 8:00 PM until the end of service mostly operates every 17 minutes (which is more frequent than on weekdays during this time).

Route 28 exceeds the MBTA span of service and frequency standards for Key Bus routes on all days.

Service Patterns

On weekdays, all but four inbound trips and all but three outbound trips operate Pattern 28.0, which serves the full length of Route 28’s alignment between Mattapan Station and Ruggles Station (see Table 2). Trips that differ from the regular pattern are:

- Pattern 28.2 operates on the first three inbound trips, operating a short turn between Mattapan Station and Dudley Station.
- Pattern 28.5 operates on one inbound midday trip between Boston Latin Academy and Ruggles Station via Dudley Station and Roxbury Crossing Station.
- Pattern 28.3 operates one outbound midday trip between Boston Latin Academy and Mattapan Station.
- Pattern 28.6 operates on one outbound midday trip between Madison Park High School on Malcolm X Boulevard and Mattapan Station.
- Pattern 28.9 operates on one outbound midday trip between Boston Latin School and Mattapan Station.

On Saturdays and Sundays, as on weekdays, the first three inbound trips are short-turns between Mattapan Station and Dudley Station. All other service operates the primary service pattern serving the full length of the route.

Table 2 | Service Patterns

PATTERN	ORIGIN	DESTINATION	UNIQUE FEATURE	TRIPS PER WKD	TRIPS PER SAT	TRIPS PER SUN
INBOUND				119	97	80
28.0	Mattapan Station	Ruggles Station	Primary pattern	115	94	77
28.2	Mattapan Station	Dudley Station	AM Short-turns	3	3	3
28.5	Boston Latin Academy	Ruggles Station	PM school trip	1	-	-
OUTBOUND				114	95	76
28.0	Ruggles Station	Mattapan Station	Primary pattern	111	95	76
28.3	Boston Latin Academy	Mattapan Station	PM school trip	1	-	-
28.6	Madison Park High School	Mattapan Station	PM school trip	1	-	-
28.9	Boston Latin School	Mattapan Station	PM school trip	1	-	-

Ridership

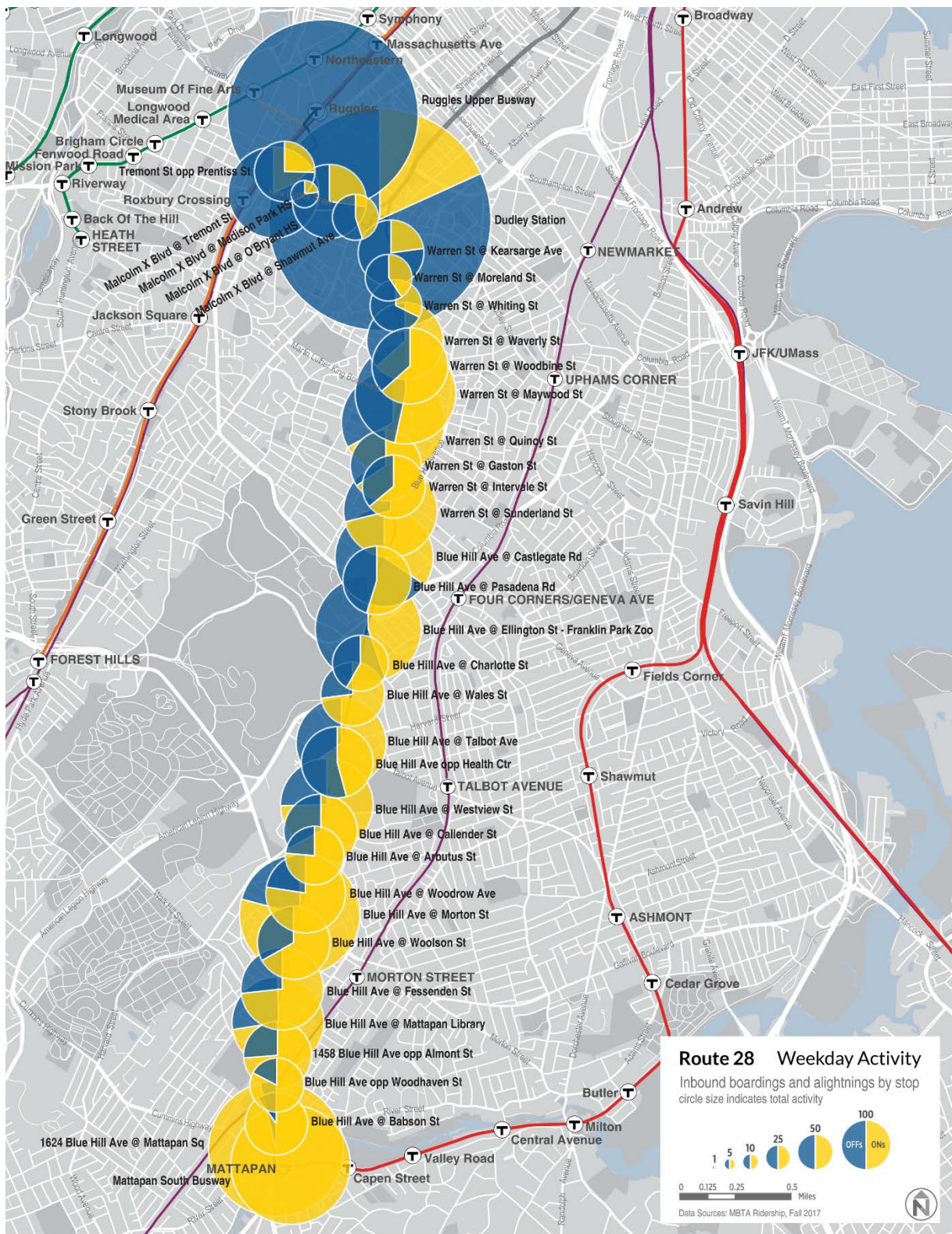
Route 28 carries approximately 12,880 passengers on weekdays, 9,380 on Saturdays, and 7,610 on Sundays. It is the MBTA's highest ridership bus route on weekdays, the second highest on Saturdays, and the highest on Sundays.

Ridership by Stop

Ridership on Route 28 is high along the entire route, with the largest passenger volumes Dudley Station and Ruggles Station. On weekday inbound trips (see Figure 3):

- 580 passengers board at Mattapan Station.
- 710 passengers board and 30 alight at the first stop on Blue Hill Avenue in Mattapan Square.
- 980 passengers board and 330 alight at the six stops on Blue Hill Avenue between Mattapan Square and Woolson Street.
- 470 passengers board and 12 alight at Blue Hill Avenue at Morton Street, where passengers can transfer to Route 21 Ashmont Station-Forest Hills Station.
- 810 passengers board and 360 alight at the five stops along Blue Hill Avenue between Morton Street and the Health Center at Harvard Street.
- 220 passengers board and 120 passengers alight at Blue Hill Avenue at Talbot Avenue, which is the first transfer point with Route 22 Ashmont Station-Ruggles Station.
- 200 passengers board and 100 alight at the two stops on Blue Hill Avenue between Talbot Avenue and Ellington Street, which is the stop closest to Seaver Street.
- 200 passengers board and 250 passengers alight at Blue Hill Avenue at Ellington Street, which is the last transfer point with Route 22 Ashmont Station-Ruggles Station.
- 240 passengers board and 340 alight at the last two stops on Blue Hill Avenue.
- 1,420 passengers board and 1,000 passengers alight at the nine stops on Warren Street.
- 260 passengers board and 1,640 passengers alight at Dudley Station, which is the highest ridership stop on the route.
- 100 passengers board and 230 passengers alight along Malcolm X Boulevard between Dudley Station and Madison Park High School.
- 60 passengers board and 270 passengers alight at Malcolm X Boulevard at Tremont Street, which is the closest stop to Roxbury Crossing Station.

Figure 3 | Weekday Inbound Ridership by Stop Map



- 40 passengers board and 110 alight at Tremont Street opposite Prentiss Street.
- 1,500 passengers alight at Ruggles Station, which is the second highest ridership stop on the route.

Outbound ridership patterns are essentially the inverse of inbound patterns. Weekend patterns are also similar but with significantly lower passenger volumes.

Ridership by Trip

On weekdays in both directions, ridership is high for most of the day (see Figure 4 and Figure 5):

- On inbound trips, ridership starts high and grows to over 80 passengers per trip around 6:30 AM. It then declines to approximately 40 passengers at 8:30 AM and then increases to over 60 around 9:00 AM. Ridership stays mostly between 60 and 80 passengers per trip until around 4:30 PM, but with some school trips carrying close to 100 passengers. After 4:30, ridership gradually declines to fewer than 10 passengers per trip after 12:30 AM.
- On outbound trips, ridership is over 70 passengers per trip between 6:00 AM and 7:00 AM. It then declines to 30 to 40 passengers per trip between approximately 8:00 AM and 10:00 AM. It then increases rapidly to over 80 passengers per trip by 12:30 PM and to over 90 passengers per trip by 2:30 PM. Ridership stays above 80 passengers until nearly 6:00 PM, and then steadily declines to 17 passengers on the last outbound trip at 1:00 AM.

Although ridership per trip is very high, service is provided with 60-foot articulated coaches that have enough capacity to accommodate high loads. On average, no trips have loads that exceed the MBTA's loading standards.

On Saturdays, inbound trips generally carry 40 to 70 passengers per trip and outbound trips generally carry about the same (see Figure 6 and Figure 7). However, a significant number of individual inbound trips carry over 70 to nearly 100 passengers. Ridership is lower early and late. As on weekdays, all trips have sufficient capacity to accommodate demand.

On Sundays, inbound trips carry 40 to 80 passengers between 6:30 AM and 8:30 PM, and fewer before and after those times (see Figure 8 and Figure 9). Outbound trips carry similar numbers between 9:30 AM and 9:30 PM, and fewer earlier and later. As on weekdays and Saturdays, all trips have sufficient capacity to accommodate demand.

Figure 4 | Weekday Ridership by Trip: Inbound

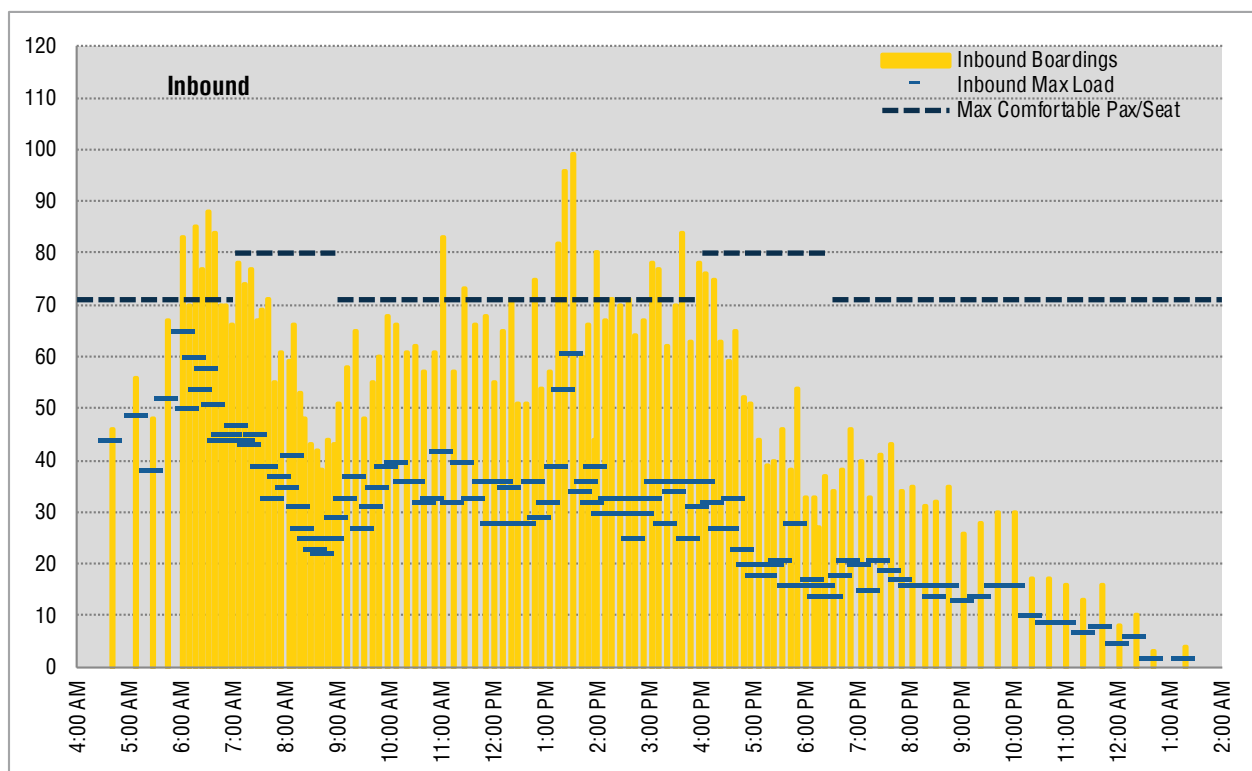


Figure 5 | Weekday Ridership by Trip: Outbound

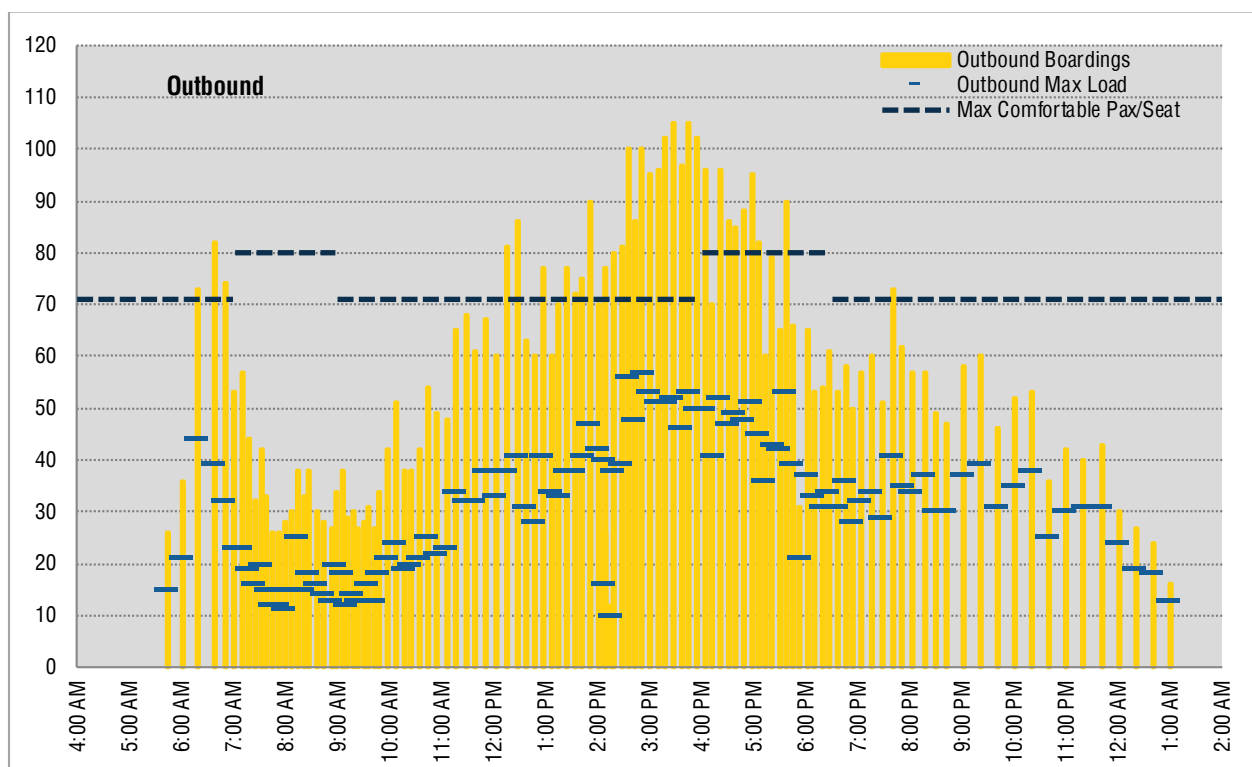


Figure 6 | Saturday Ridership by Trip: Inbound

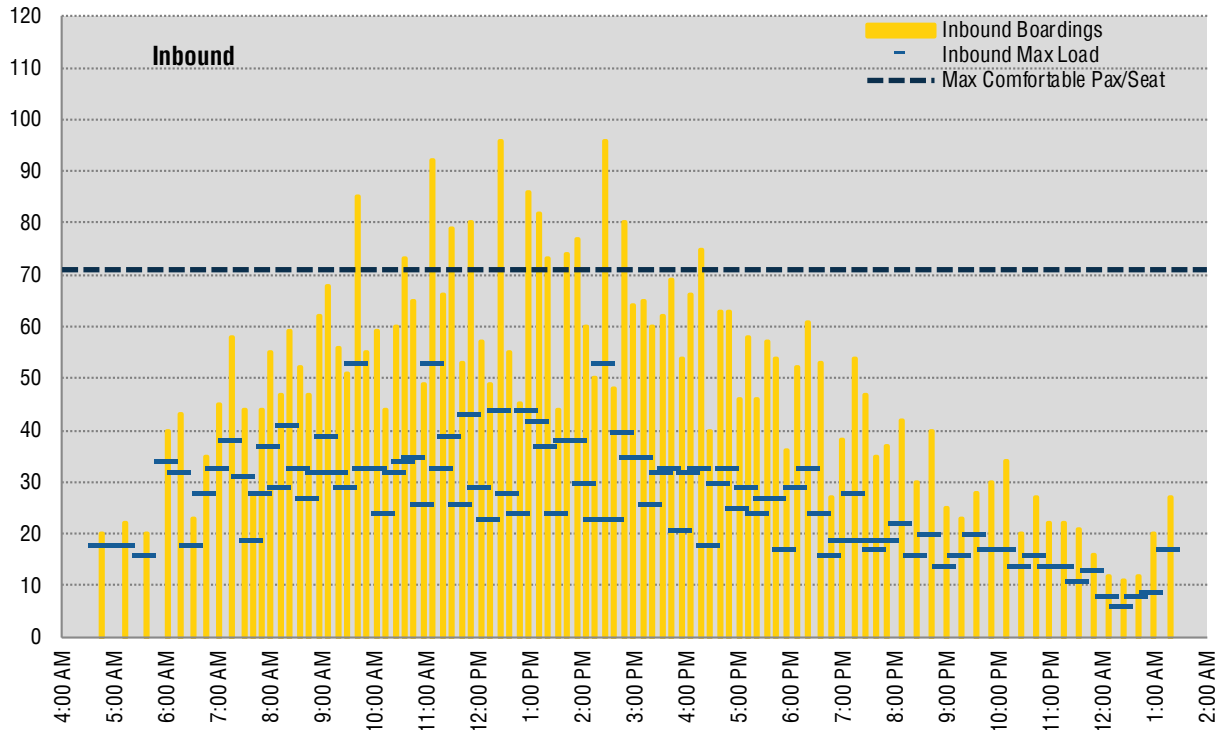


Figure 7 | Saturday Ridership by Trip: Outbound

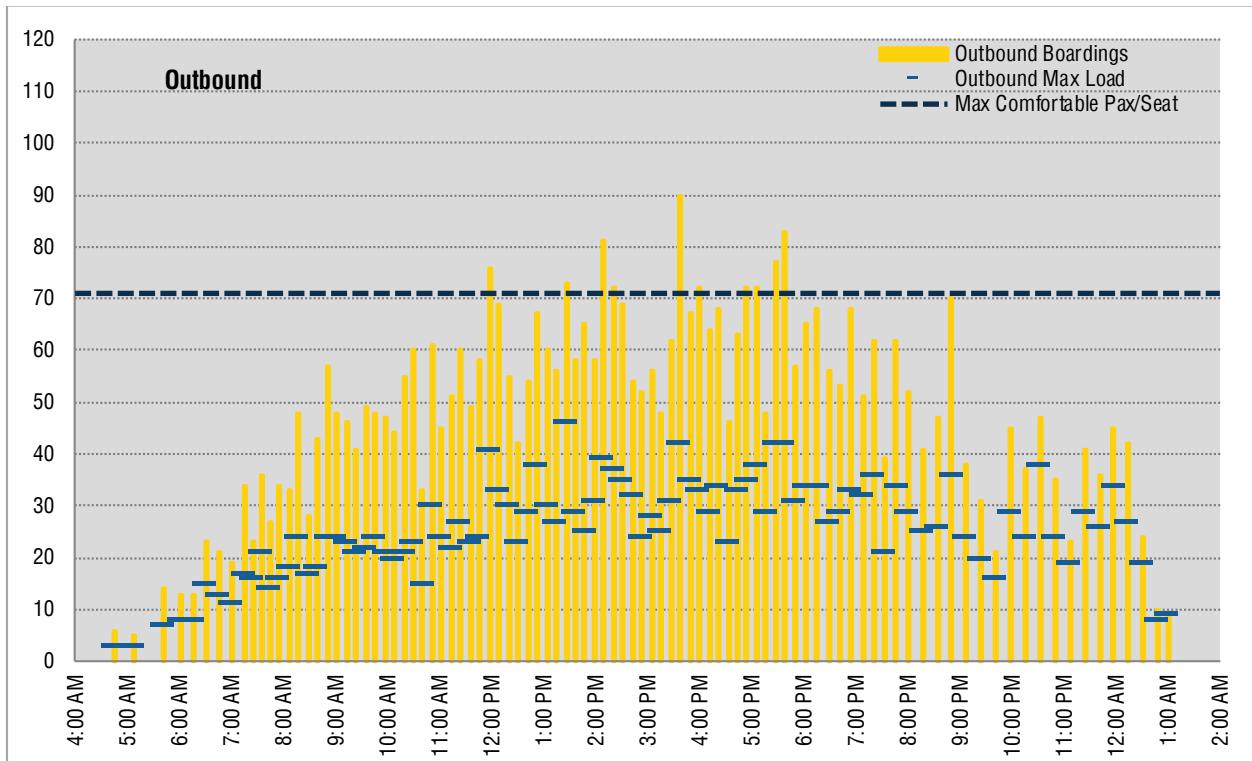


Figure 8 | Sunday Ridership by Trip: Inbound

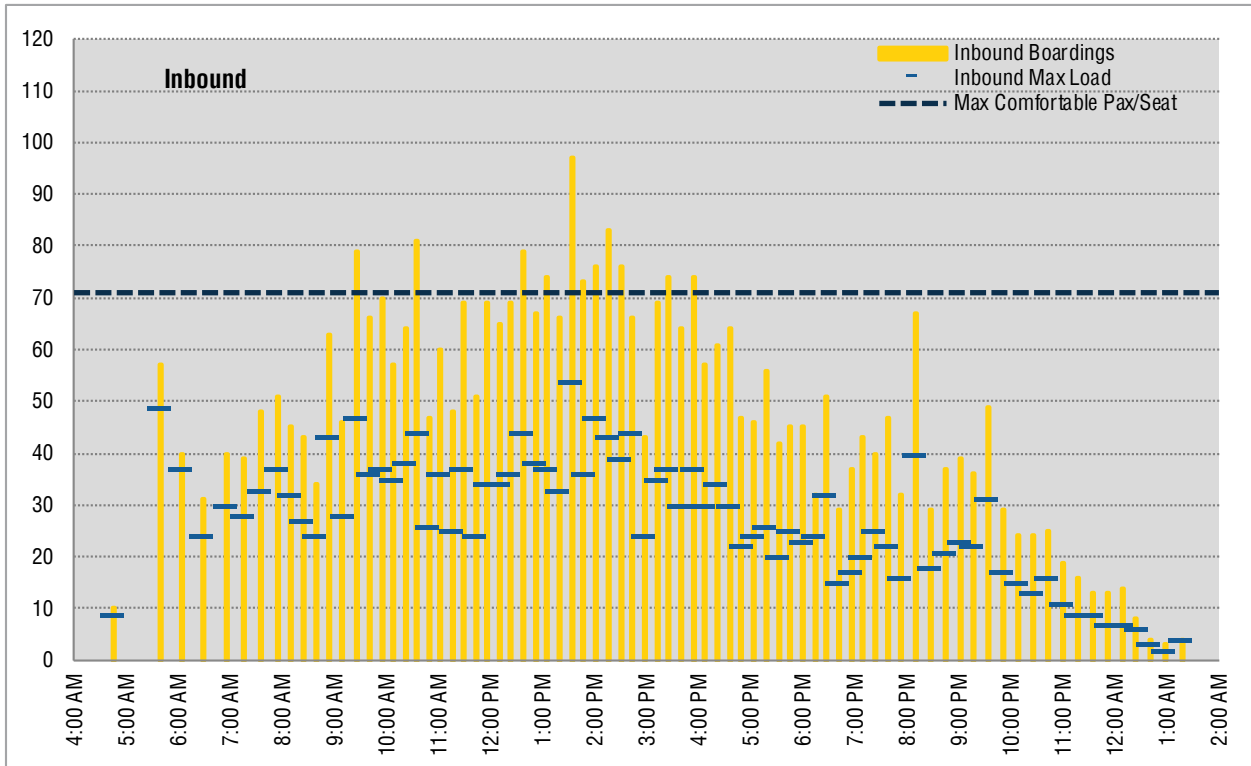
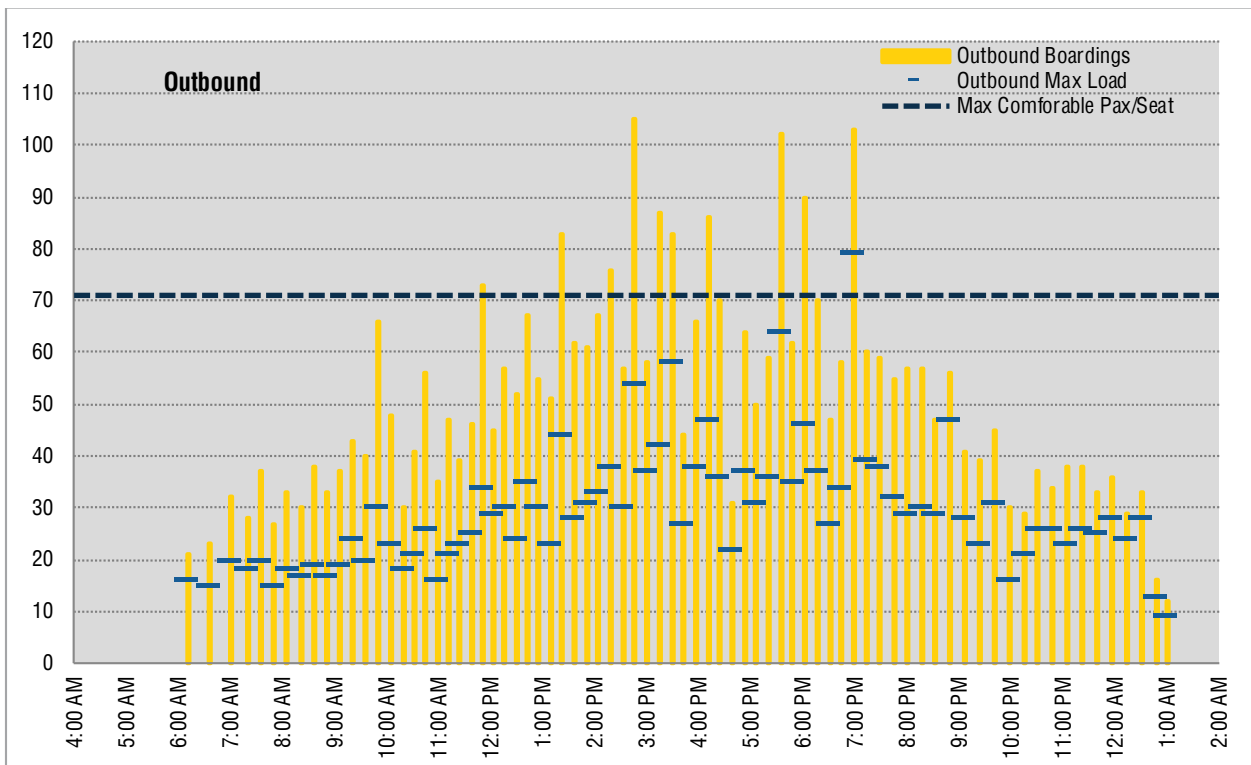


Figure 9 | Sunday Ridership by Trip: Outbound



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 28, 94.6% of passenger minutes on weekdays are in comfortable conditions, which is above the minimum standard of 92% but below the target of 96% (see Table 3). Saturday and Sunday comfort levels exceed the target level.

Table 3 | Passenger Time Spent Traveling in Comfortable Conditions

	WEEKDAYS	SATURDAYS	SUNDAYS
Minimum Standard	92%	92%	92%
Target	96%	96%	96%
Actual	94.6%	99.4%	99.1%

Reliability and Speed

Reliability

Route 28's overall reliability is 73% on all days (see Table 4). This is slightly below the minimum standard of 75% for Key Bus routes and below the target of 80%. Dropped trips are a problem, with 2.9% 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
Monday-Friday	73%	77%	73%	2.9%
Saturday	73%	74%	73%	-
Sunday	73%	74%	73%	-

Running Times

For most of the day, Route 28's actual running times are five to 10 minutes longer than its scheduled times (see Figure 10). The only times when inbound service is nearly on time are before 6:00 AM, between 11:00 AM and 1:00 PM, and after midnight. Outbound service performance is even more severe, with actual running times longer than scheduled throughout the day (Figure 11). The most significant delays are between 3:00 PM and 6:00 PM, when running times are up to 15 to 20 minutes longer than scheduled.

Figure 10 | Scheduled & Median Travel Time by Trip: Route 28 Inbound

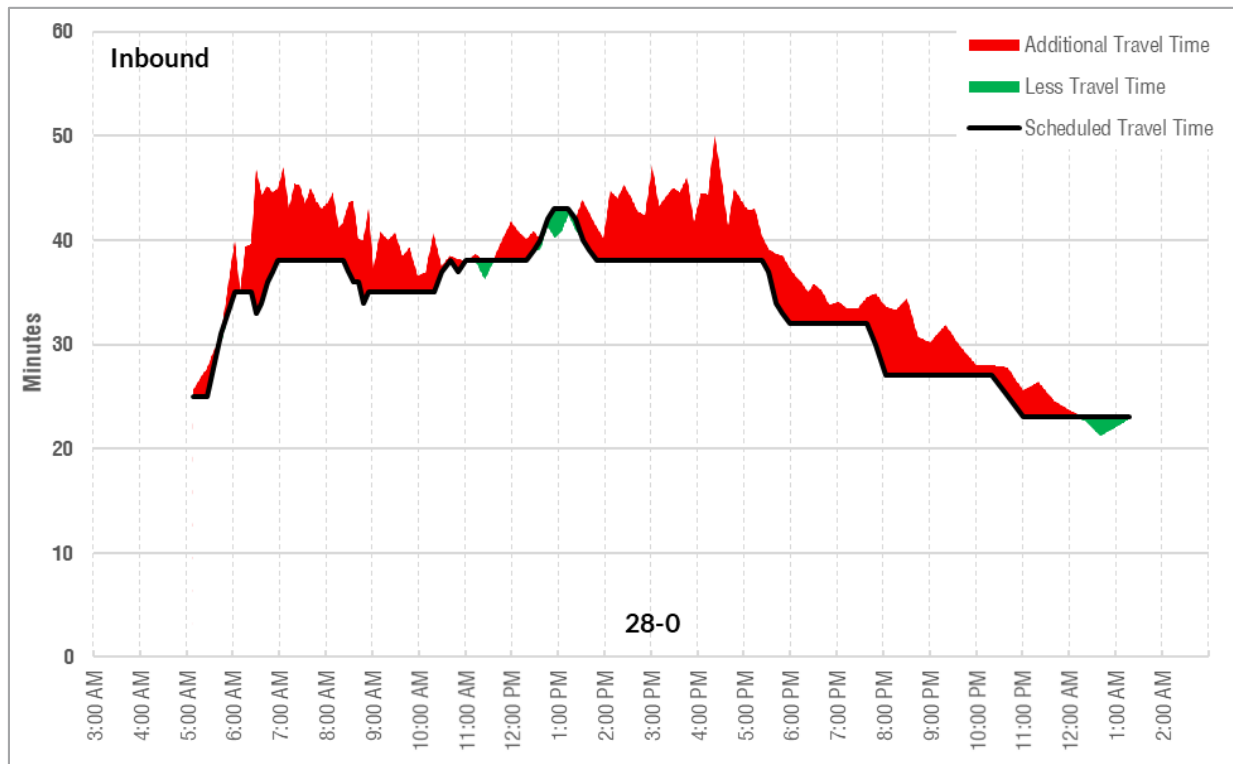
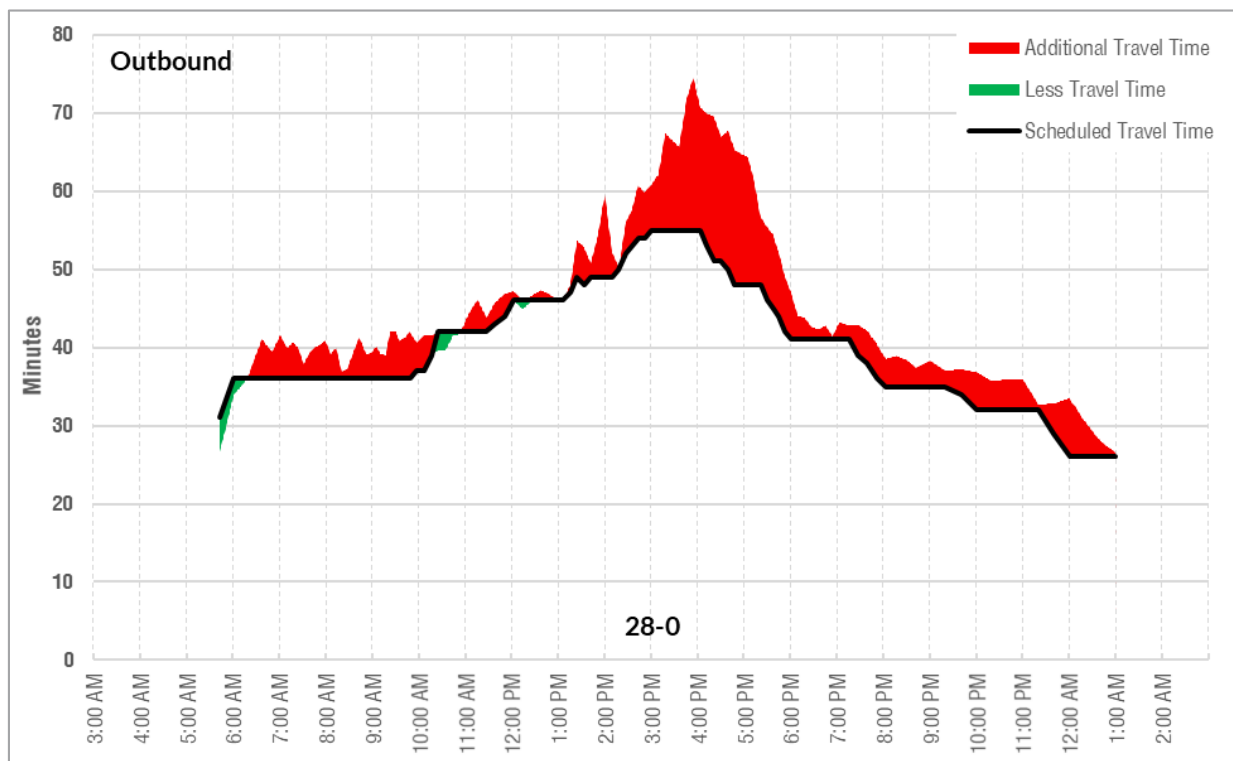


Figure 11 | Scheduled & Median Travel Time by Trip: Route 28 Outbound



Stop Spacing

Route 28 has an average of seven stops per mile, which is at the high end of the MBTA's guideline of four to seven stops per mile for Key Bus routes. Stop consolidation to reduce the number of stops could make service faster while still providing convenient access.

Summary

Route 28 provides very direct service between Mattapan Station and Ruggles Station, with very high ridership activity along the entire route. Overall, it performs well. However, performance could be better as reliability is below the target standard and the route's schedule does not match actual running times.