

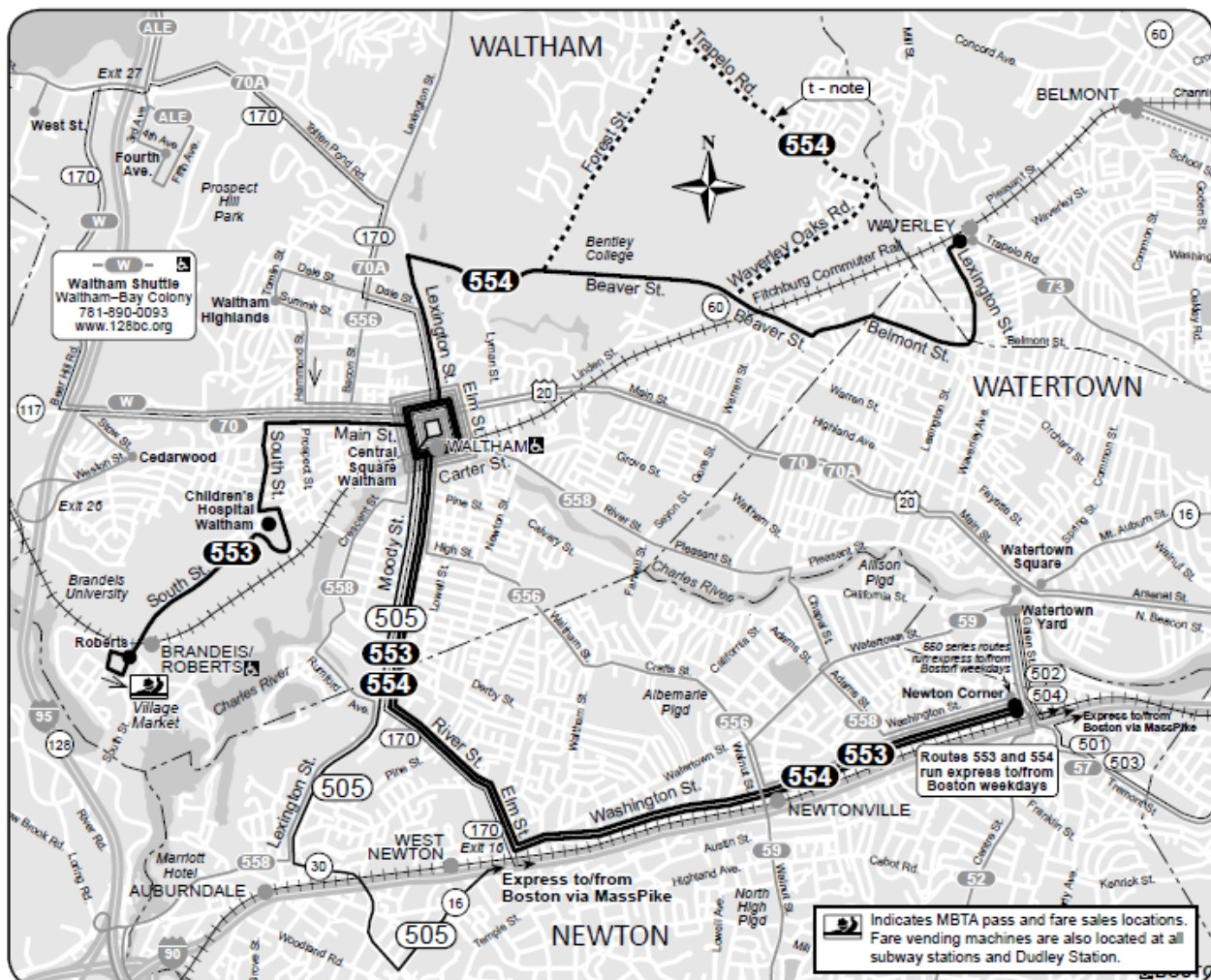
Route 505

Express Bus—Central Square, Waltham – Downtown Boston

Route Overview

Route 505 Central Square, Waltham – Downtown Boston is a Commuter route that operates between Central Square in Waltham and Downtown Boston via Moody Street, Lexington Street, and the Massachusetts Turnpike (see Figure 1).

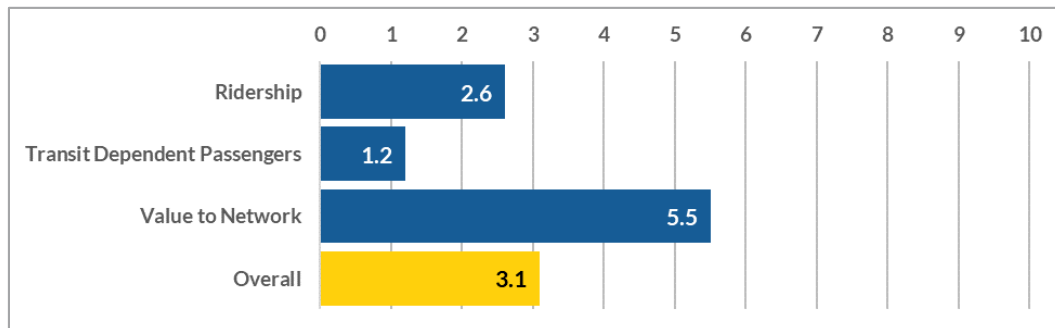
Figure 1 | Service Map



Network Importance

Route 505 is of low importance within the MBTA network overall (see Figure 2). On a relative scale of 0 to 10, the route rates 2.6 in terms of ridership, 1.2 in terms of transit dependent ridership, and 5.5 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 3.1.

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



Service Overview

Schedule

Route 505 operates on weekdays and during peak periods and the shoulders of the peaks, from 5:55 AM to 10:49 AM and from 3:10 PM to 7:56 PM (see Table 1):

- AM inbound service operates every 11 to 15 minutes until approximately 8:30 AM and every 17 to 29 minutes after that time.
- PM outbound service operates every 15 minutes during the core of the PM peak and every 20 to 30 minutes earlier and later.

Route 505 exceeds the MBTA span of service and frequency standards for Commuter routes that there be at least three AM inbound and three PM outbound trips.

Table 1 | Schedule Statistics

SERVICEDAY	SPAN OF SERVICE	FREQUENCY (RANGE)	FREQUENCY (AVERAGE)	DAILY TRIPS (INBOUND/OUTBOUND)
Monday-Friday	5:55 AM to 10:49 PM 3:10 PM to 7:56 PM			27/26
Sunrise	5:55 AM to 5:59 AM	1 trip	-	1/0
Early AM	6:00 AM to 6:59 AM	12 - 15	14	4/3
AM Peak	7:00 AM to 8:59 AM	11 - 18	13	9/6
Midday Base	9:00 AM to 10:15 AM	18 - 21	20	4/2
Midday School	3:57 PM to 3:59 PM	33	33	1/2
PM Peak	4:00 PM to 6:29 PM	13 - 33	18	7/10
Evening	6:30 PM to 7:56 PM	13	13	2/3
Late Evening	-	-	-	-
Night	-	-	-	-
Saturday	-	-	-	-
Sunday	-	-	-	-

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

Service Patterns

Route 505 has two service patterns that differ only in their layover locations:

- During the AM, inbound service lays over on Moody Street at Main Street, looping around School Street before serving commuter rail.
- During the PM, inbound lays over at the Waltham Commuter Rail Station on Carter Street, having served the School Street loop outbound.

The logic of the layover locations is to ensure that passengers in the peak direction do not have to sit through the layover.

Table 2 | Service Patterns

PATTERN	ORIGIN	DESTINATION	UNIQUE FEATURE	TRIPS per WKD	TRIPS per SAT	TRIPS per SUN
INBOUND				28	-	-
505.0	Moody Street at Main Street	Downtown Boston	Layover before School Street loop (AM trips)	18	-	-
505.1	Waltham Commuter Rail	Downtown Boston	Layover after School Street Loop (PM trips)	10	-	-
OUTBOUND				26	-	-
505.0	Downtown Boston	Moody Street at Main Street	Layover before School Street loop (AM trips)	11	-	-
505.1	Downtown Boston	Waltham Commuter Rail	Layover after School Street loop (PM trips)	15	-	-

Ridership

Route 505 carries 890 passengers per weekday.

Ridership by Stop

All passengers ride to and from Downtown Boston. On inbound trips (see Figure 3):

- 90 passengers board at the four stops located along the routes terminal loop in Waltham Center.
- 120 passengers board at the six stops along Moody Street.
- 60 passengers board at the five stops along Lexington Street.
- 60 passengers board at Commonwealth Avenue and Lexington Street, a neighborhood commercial center.
- 140 passengers board along Commonwealth Avenue and Washington Street between Lexington Street and the Massachusetts Turnpike.
- All passengers alight in Downtown Boston.

Ridership by Trip

Ridership is overwhelmingly inbound in the AM and outbound in the PM (see Figure 4 and Figure 5). On AM inbound service:

- Trips before 7:00 AM generally carry 20 to 30 passengers.
- Trips between 7:00 AM and just after 8:00 AM carry 30 to 40 passengers.
- Trips after that time generally carry 10 to 20 passengers.

On PM outbound service:

- Trips between 3:00 PM and 5:00 PM carry 10 to 20 passengers.
- Trips between 5:00 PM and just before 6:00 PM carry 30 to 40 passengers.
- Trips after that time generally carry between 20 and 30 passengers.

Figure 3 | Weekday Inbound Ridership by Stop Map

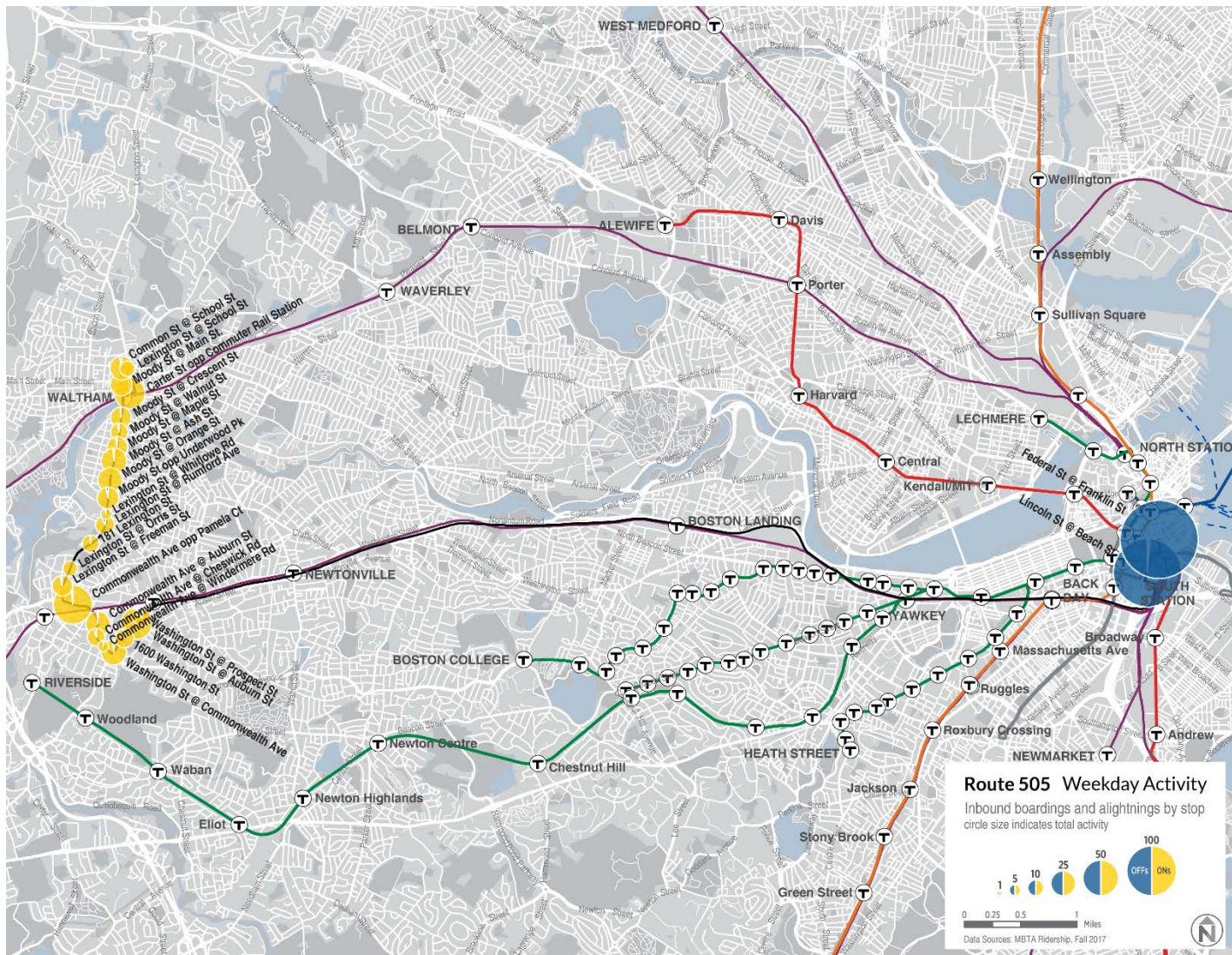


Figure 4 | Weekday Ridership by Trip: Inbound

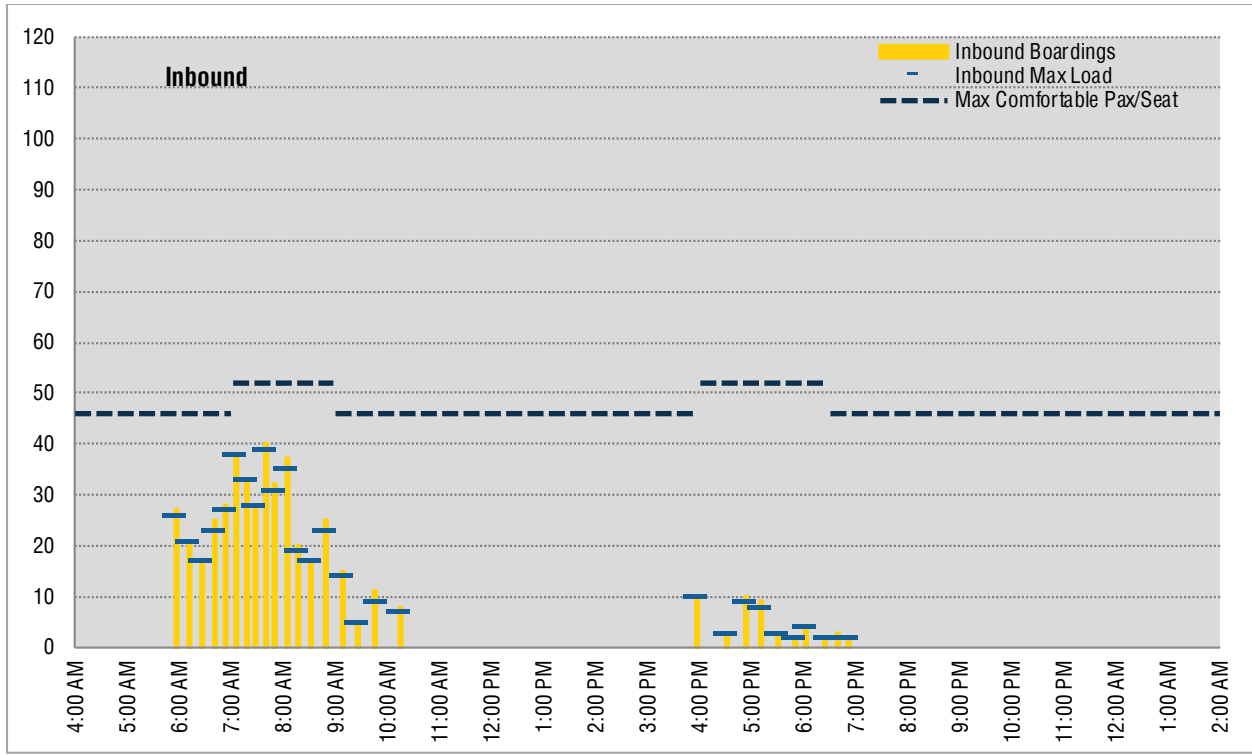
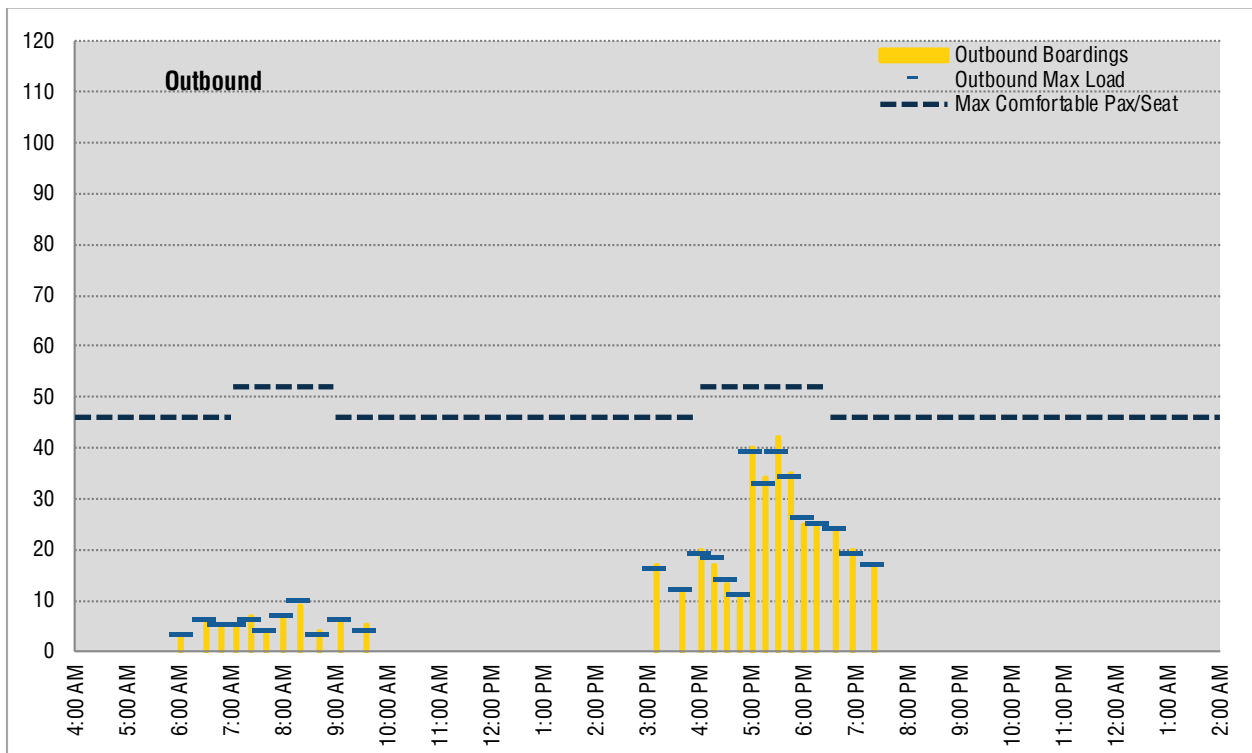


Figure 5 | Weekday Ridership by Trip: Outbound



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 505, 98.8% of passenger minutes are in comfortable conditions, which is above the 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	98.8%	-	-

Reliability and Speed

Reliability

Route 505's overall reliability is 66%, which is below the MBTA's minimum standard of 70% (see Table 4). Dropped trips are also an issue, with 0.8% of trips dropped in the Fall of 2017.

Table 4 | Reliability

SERVICEDAY	ORIGIN/MID-ROUTE ON-TIME PERFORMANCE	DESTINATION ON-TIME PERFORMANCE	OVERALL RELIABILITY	DROPPED TRIPS
Monday-Friday	66%	68%	66%	0.8%
Saturday	-	-	-	-
Sunday	-	-	-	-

Running Times

Inbound service runs on-time until 7:30 AM, when congestion slows service in Newton and on the Turnpike. After 7:30 AM, inbound peak period trips take one to six minutes longer than schedule. During the PM Peak, outbound trips take up to 15 minutes longer than scheduled at 3:30 PM and up to 10 minutes longer at 5:30 PM.

Figure 6 | Scheduled & Median Travel Time by Trip: Route 505 Inbound

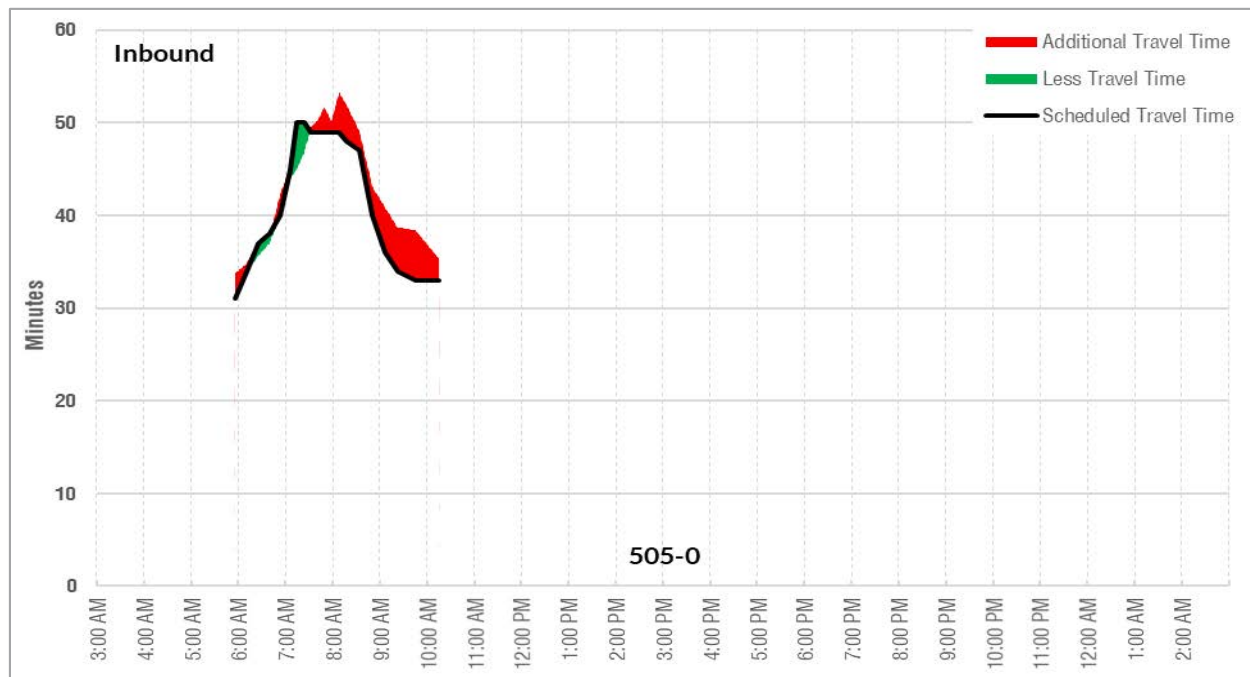
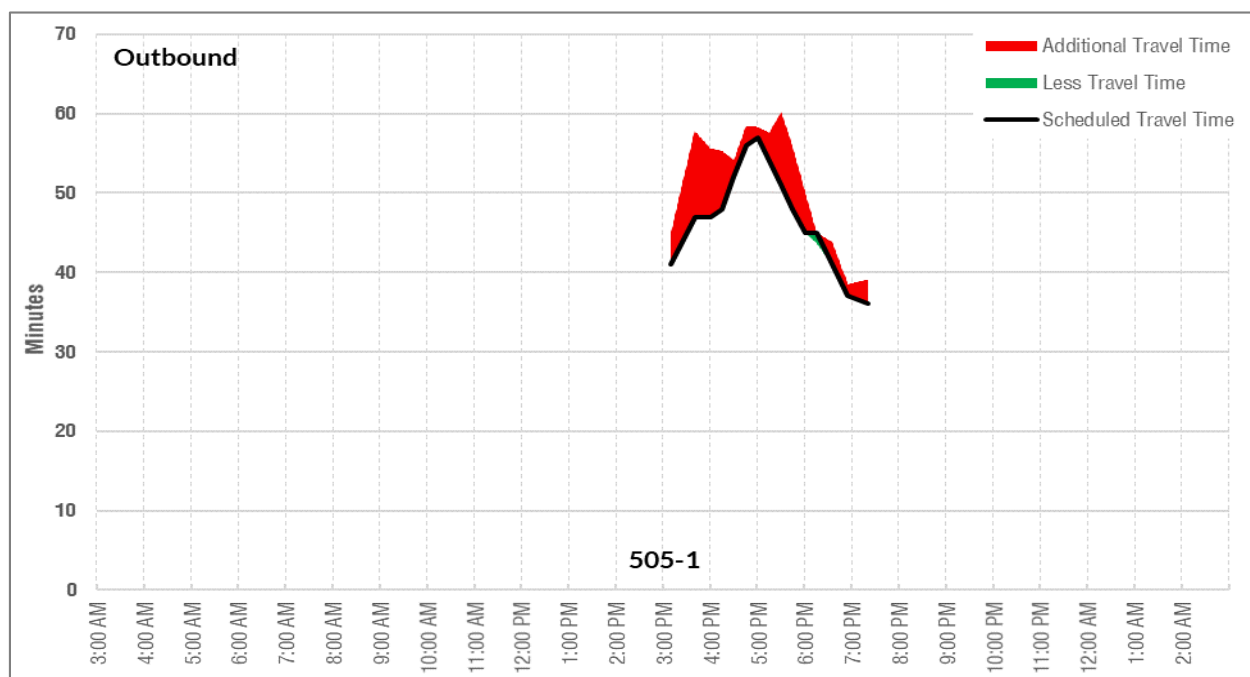


Figure 7 | Scheduled & Median Travel Time by Trip: Route 505 Outbound



Stop Spacing

Route 505 has very close stop spacing between Waltham Center and the Mass Pike. In this area, stop consolidation could improve speeds and reliability.

Summary

Route 505 is a Commuter route that provides 18 AM inbound trips and 15 PM outbound trips. Issues include:

- Stops are too close together between Waltham Center and the Mass Pike.
- On-time performance is below the MBTA's minimum standard.