

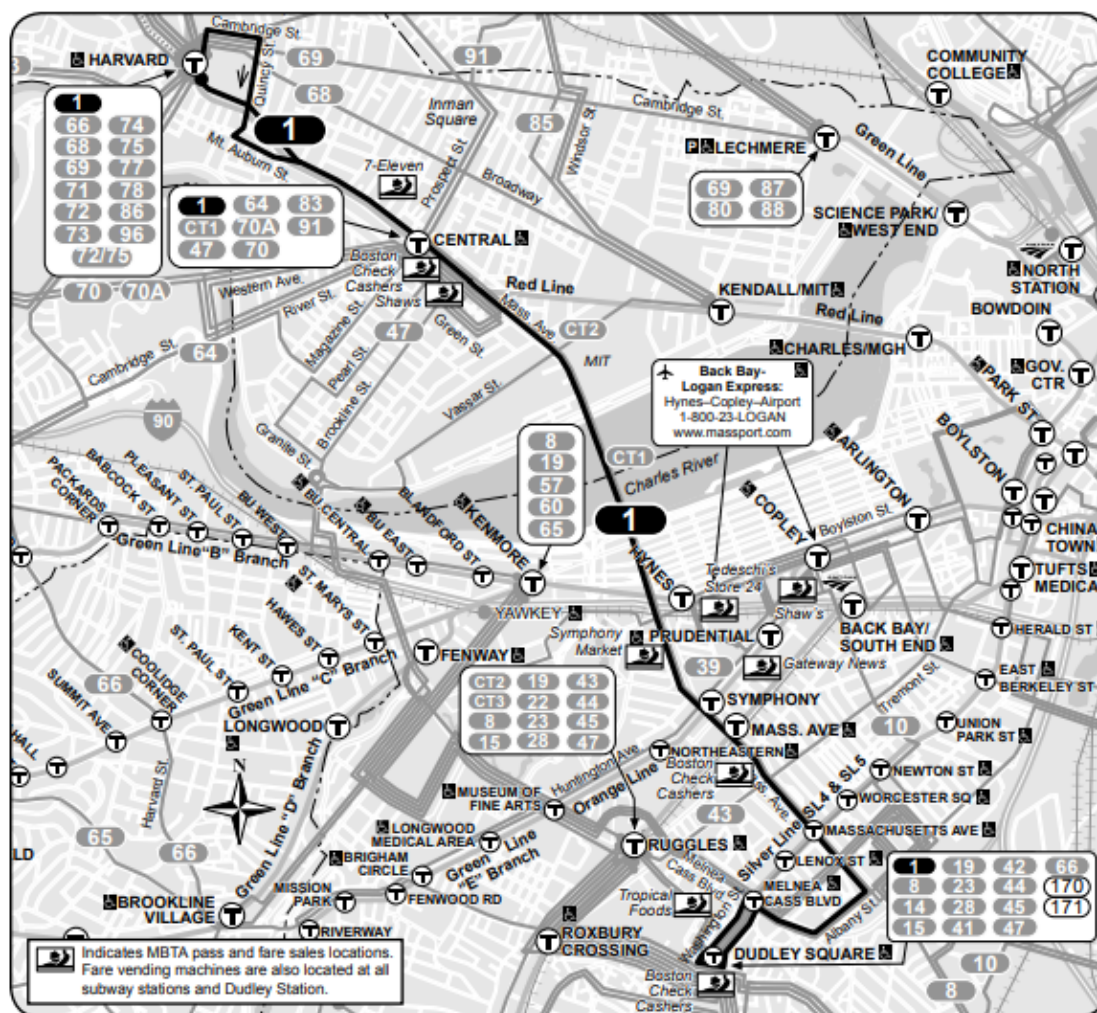
Route CT1

Central Square Cambridge – BU Medical Campus/Boston Medical Center

Route Overview

Route CT1 is a Local bus route that connects Central Square in Cambridge to Boston University Medical Campus and Boston Medical Center via Massachusetts Avenue. Route CT1 operates limited stop crosstown service along Massachusetts Avenue, which is also served by the more frequent Route 1 Harvard/Holyoke Street – Dudley Station. Route CT1 primarily serves a crosstown market between Cambridge and Boston, but is largely overlapped by Route 1.

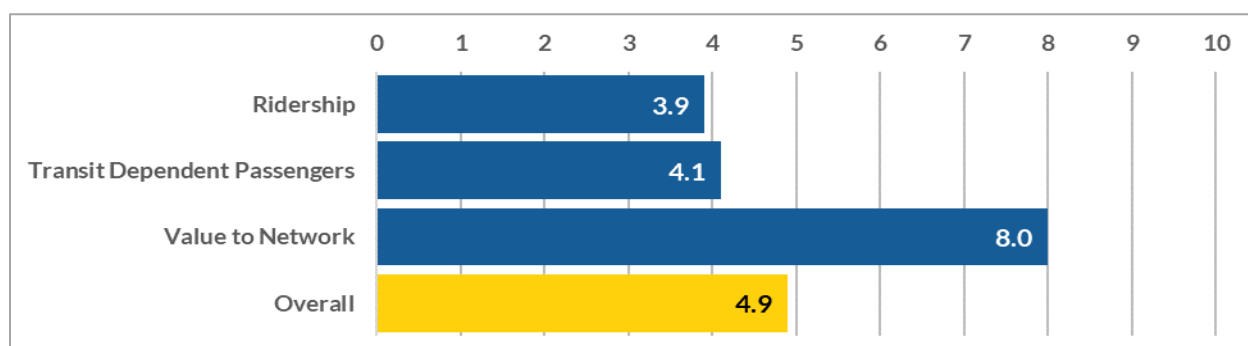
Figure 1 | Service Map



Network Importance

Route CT1 is of moderate importance within the overall network (see Figure 2). On a scale of 0 to 10, the route rates 3.9 in terms of ridership, 4.1 in terms of transit dependent ridership, and 8.0 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% weight to overall ridership and a 15% weight to both other measures, is 4.9.

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



Service Patterns

Schedule

Route CT1 operates on weekdays only, from 6:30 AM to 7:41 PM. Service operates every 20 to 23 minutes during peak periods and every 20 to 35 minutes at other times.

Table 1 | Schedule Statistics

SERVICE DAY	SPAN OF SERVICE	FREQUENCY (RANGE)	FREQUENCY (AVERAGE)	DAILY TRIPS (INBOUND/OUTBOUND)
Monday-Friday	6:30 AM to 7:41 PM			32/33
Sunrise	-	-	-	-
Early AM	6:30 AM to 6:59 AM	20	20	2/3
AM Peak	7:00 AM to 8:59 AM	20	20	6/6
Midday Base	9:00 AM to 1:29 PM	20 - 35	29	9/10
Midday School	1:30 PM to 3:59 PM	20 - 35	25	5/6
PM Peak	4:00 PM to 6:29 PM	20 - 23	22	7/7
Evening	6:30 PM to 7:41 PM	23	23	3/1
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.

Since the completion of this document, the MBTA has made minor adjustments to the Route CT1 schedule.

Service Patterns

Route CT1 operates two service patterns. The primary service pattern (CT1.0) operates between Central Square and Boston University Medical Campus and Boston Medical Center via Massachusetts Avenue. The last three trips on the route do not complete the full loop around Boston Medical Center, and instead terminate at Harrison Avenue (CT1.1).

Table 2 | Service Patterns

PATTERN	ORIGIN	DESTINATION	UNIQUE FEATURE	TRIPS PER WKD	TRIPS PER SAT	TRIPS PER SUN
INBOUND				32	-	-
CT1.0	Magazine Street at Green Street	88 East Newton Street	Primary service pattern	29	-	-
CT1.1	Magazine Street at Green Street	Albany Street opposite Randolph Street	Does not complete Boston Medical Center loop	3	-	-
OUTBOUND				33	-	-
CT1.0	88 East Newton Street	Magazine Street at Green Street	Primary service pattern	33	-	-

Ridership

Route CT1 generates 1,994 daily riders on average. Daily ridership is higher than that of half of the MBTA's weekday routes.

Ridership by Stop

Route CT1 has moderate ridership along most of the route, with the highest ridership at connections to MBTA rapid transit stations and at the University Medical Campus and Boston Medical Center (see Figure 3). On inbound trips:

- The stops at Central Station and Massachusetts Avenue Station, which are both rapid transit connections and have numerous bus connections, each generate over 230 daily boardings.
- The stop at Massachusetts Avenue at Newbury Street, near Hynes Convention Center Station and serving the Back Bay, generates 116 daily boardings.
- The highest ridership stop is at University Medical Campus and Boston Medical Center (Massachusetts Avenue at Harrison Avenue), which has over 300 daily alightings.

Ridership by Trip

Route CT1 ridership generally follows typical commuting patterns, with high ridership during the AM peak and PM peak. Due to the location of employment centers and connections to other services along the entire route, there is not a predominant direction of travel during each peak:

- During AM and PM peak trips, the majority of trips carry more than 30 total passengers. Many passengers are riding the entire route, however, the route does experience a significant turnover in ridership at Hynes Convention Center Station.
- Ridership remains moderate in the midday, when trips in both directions carry 20 to 30 passengers.
- In the evening, inbound ridership decrease to fewer than 15 passengers per trip, while outbound ridership remains above 20 passengers per trip.

Due to high ridership turnover at Hynes Convention Center Station, no trips exceed the MBTA's peak period comfort standard. However, maximum loads on many trips come close, and so when there are service issues, individual trips can become overcrowded according to the MBTA's loading standards of 140% of seated capacity during high volumes periods, and 125% during low volume periods.

Figure 3 | Weekday Inbound Ridership by Stop Map

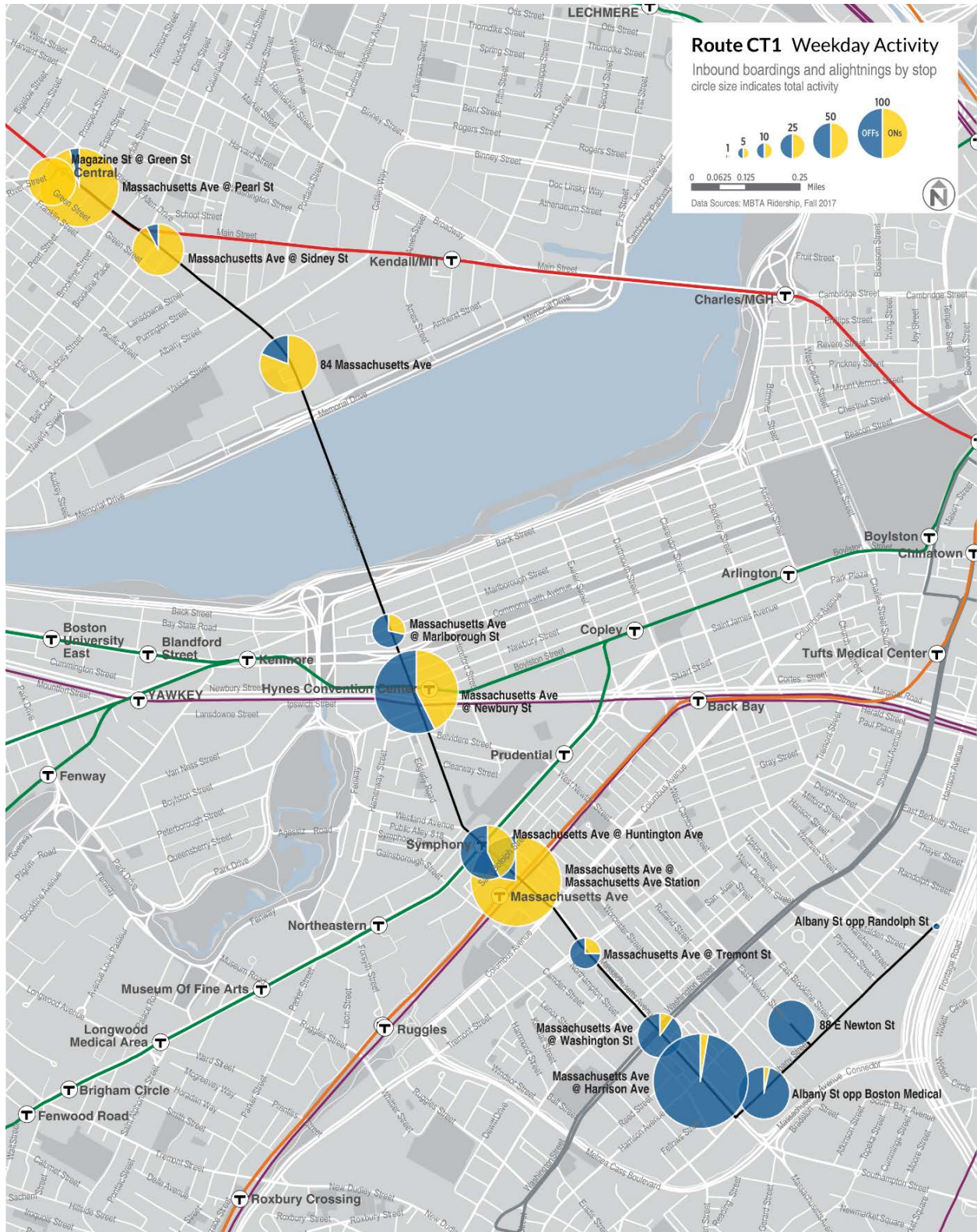


Figure 4 | Weekday Ridership by Trip: Inbound

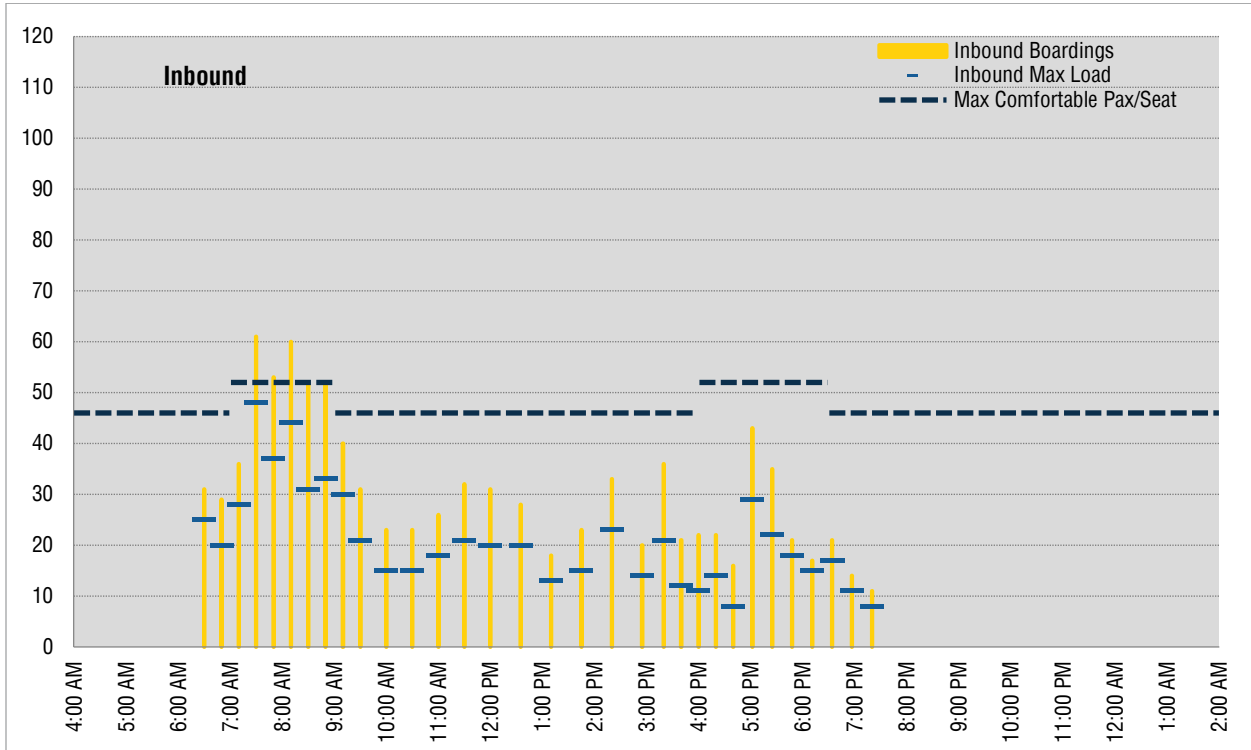
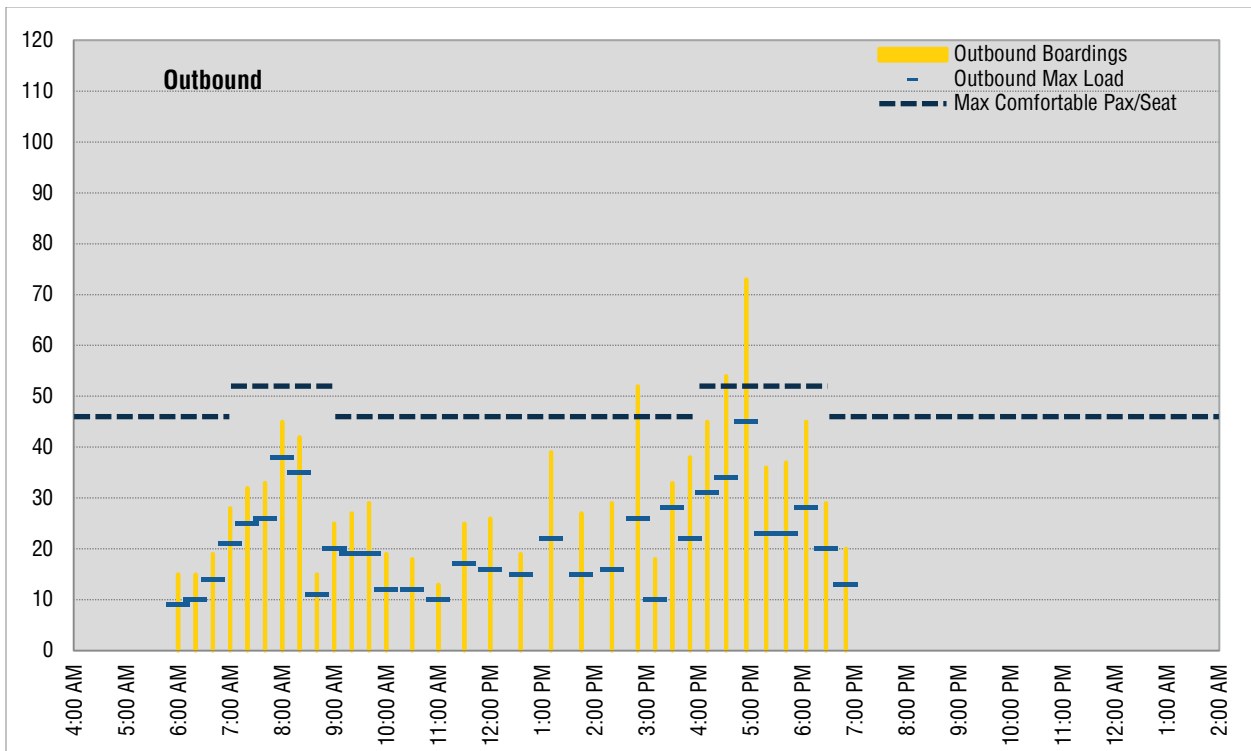


Figure 5 | Weekday Ridership by Trip: Outbound



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% 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 1, 94.7% of passenger travel is in comfortable conditions, which is above the minimum standard but below the target (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	94.7%	-	-

Reliability and Speed

Reliability

Route CT1 provides unreliable service (see Table 4). The route falls short of the MBTA's reliability standard of 70%, with just 43% of trips departing on time and 42% of trips arriving on time. Dropped trips are also a significant issue on Route CT1, with approximately 1.3% 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	43%	42%	43%	1.3%
Saturday	-	-	-	-
Sunday	-	-	-	-

Running Times

Trips on the Route CT1 regularly exceed their scheduled running time, especially during AM peak and evening service time periods. AM peak trips typically run about eight minutes behind schedule, while evening trips tend to run about 11 minutes behind schedule. Since the completion of this document, the MBTA has adjusted Route CT1 schedules to better reflect actual running times.

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

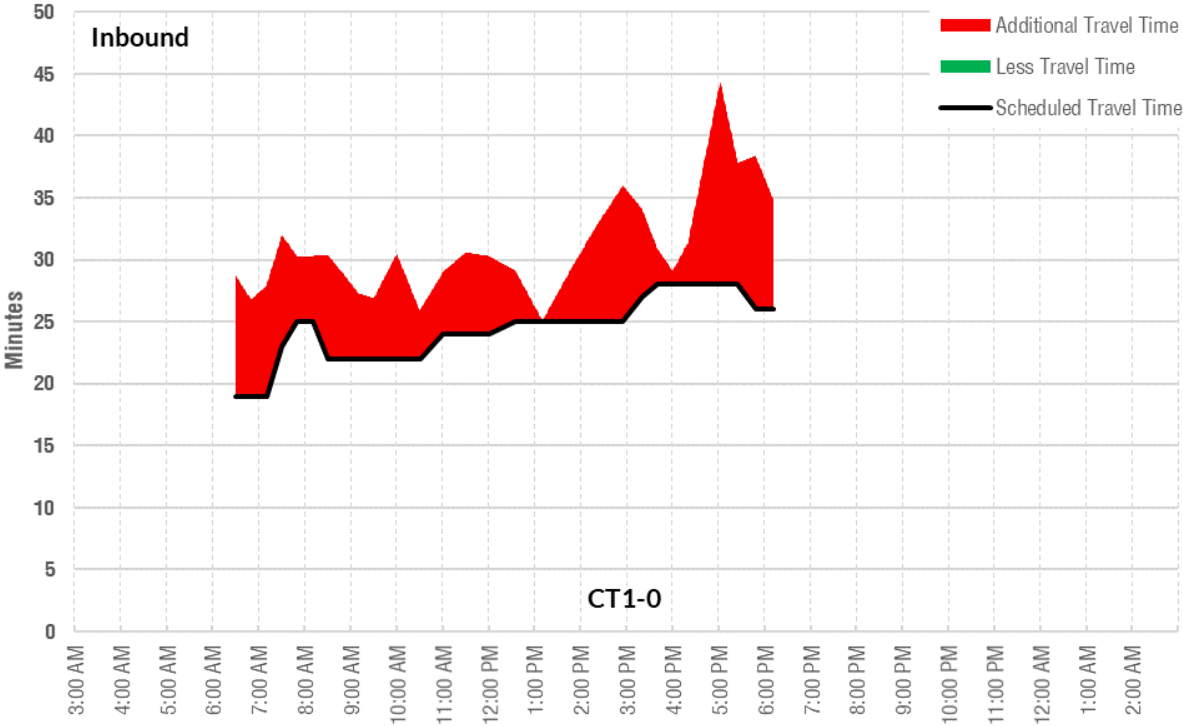
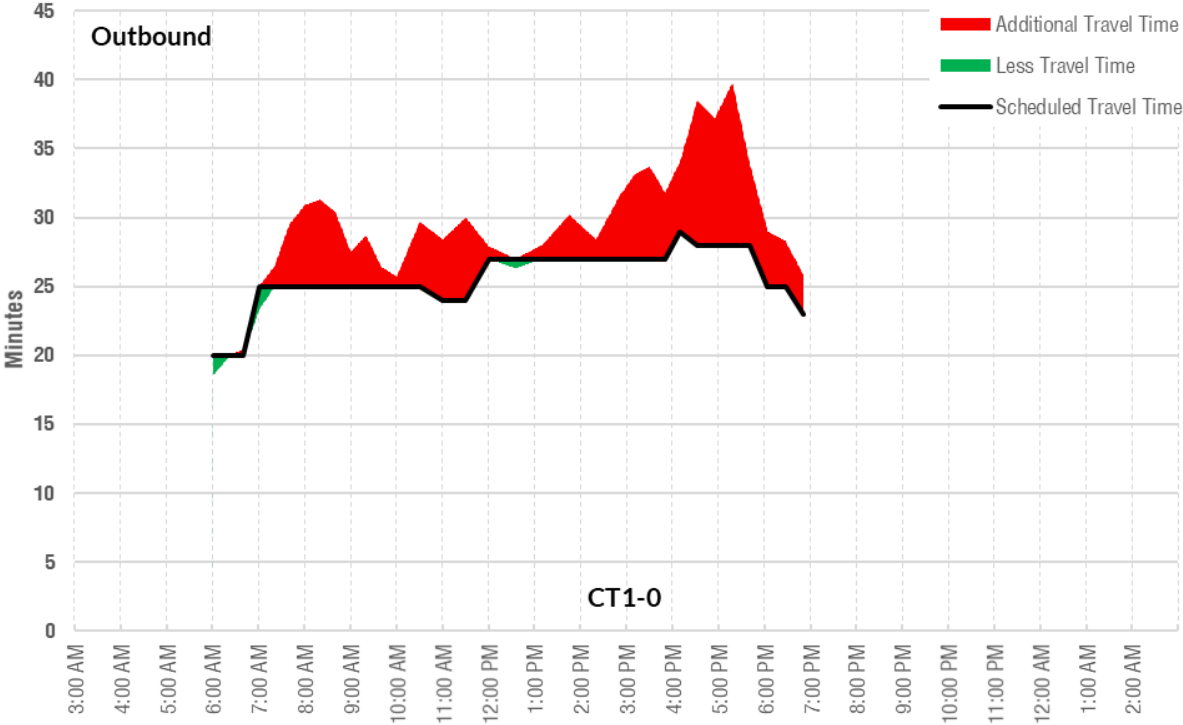


Figure 7 | Scheduled & Median Travel Time by Trip: Outbound



Stop Spacing

Route CT1 has appropriate stop spacing along most of the route in both directions. The route has approximately five stops per mile, which falls within the four to seven stops per mile recommended for urban areas under MBTA guidelines. Customers can walk between stops with this spacing in about three to four minutes. People will typically walk at least five minutes to access local bus service.

Summary

Route CT1 provides service on the high demand Massachusetts Avenue corridor in Cambridge and Boston, providing a key crosstown connection. However, service is relatively infrequent based on the level of demand and is also unreliable. Additionally, all major trip generators along the route are also served by Route 1 Harvard/Holyoke Street - Dudley Station, which runs more frequently and operates seven days a week.