

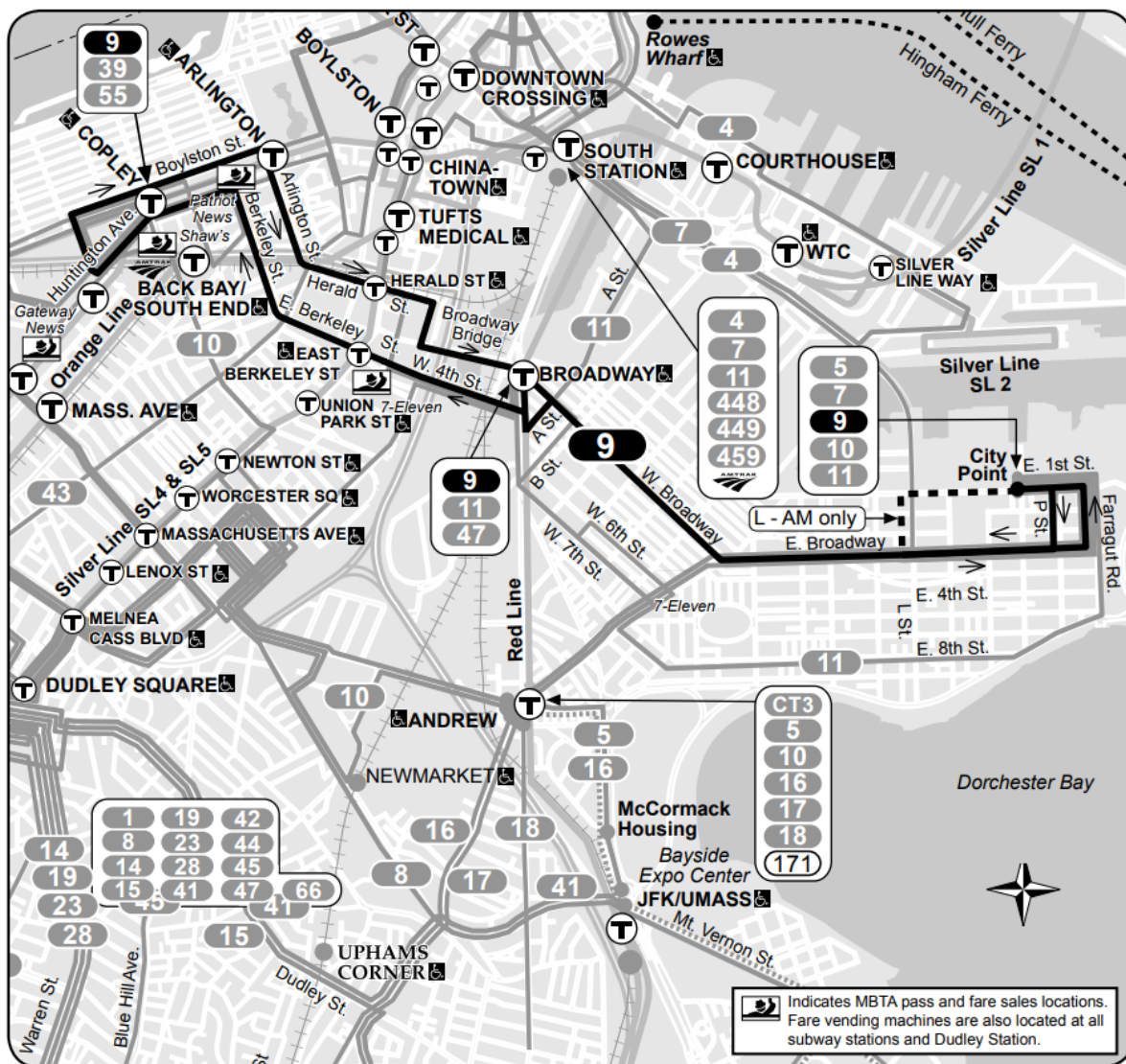
Route 9

City Point – Copley Square

Route Overview

Route 9 City Point – Copley Square is a Local route that connects City Point in South Boston with the South End and Back Bay neighborhoods of Boston (Figure 1) via Broadway Station. The route provides connections to the Red Line, Silver Line Route SL4 and Route SL5, the Orange Line, and the Green Line.

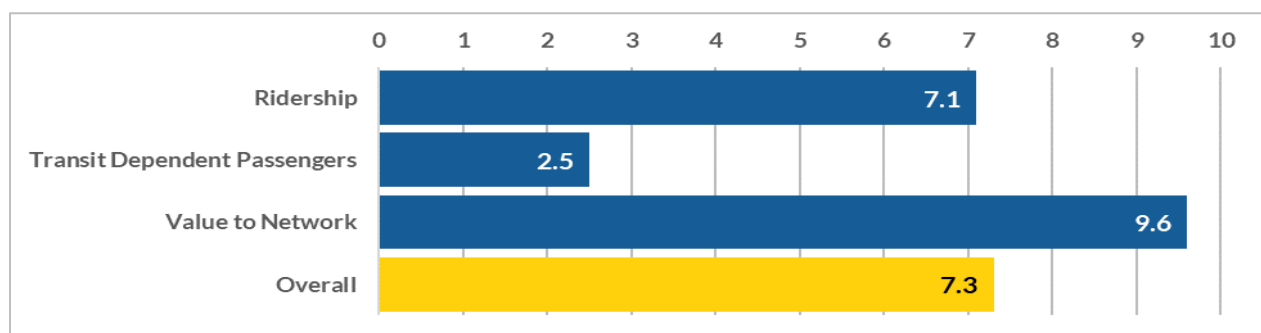
Figure 1 | Service Map



Network Importance

Route 9 has a high importance within the overall system (see Figure 2). On a scale of 0 to 10, the route rates 7.1 in terms of ridership, 2.5 in terms of transit dependent ridership, and 9.6 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 measure, is 7.3.

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



Service Overview

Schedule

Route 9 provides frequent service for most of the day on weekdays, fairly frequent service on Saturdays, and service every 30 minutes on Sundays (see Table 1). On weekdays, it operates from 5:13 AM to 1:13 AM:

- In the AM peak, inbound service operates every five to eight minutes. Between 7:30 and 8:10 AM, two buses depart at the same time, with one traveling inbound via 1st Street and L Street and the other operating via Broadway. The two alignments join together at Broadway and L Street, and those buses then travel one minute apart between there and Broadway, and then with a gap of seven minutes until the next two buses. Trips running via 1st Street and L Street were originally intended to decrease the likelihood that passengers boarding west of L Street would be passed up by a full bus.
- During the midday, service operates every seven to 25 minutes. Much of the midday service operates every 15 minutes, but much also operates irregularly.
- During the PM peak, most outbound service operates every 10 minutes, with some off-pattern trips.
- In the evening and night, service operates with irregular headways before approximately 9:30 PM, when service operates every 25 minutes until nearly the end of service, and then with the last trips spaced 30 minutes apart.

Table 1 | Schedule Statistics

SERVICE DAY	SPAN OF SERVICE	FREQUENCY (RANGE)	FREQUENCY (AVERAGE)	DAILY TRIPS (INBOUND/OUTBOUND)
Monday-Friday	5:13 AM to 1:13 AM			100/97
Sunrise	5:13 AM to 5:59 AM	13 - 22	19	3/1
Early AM	6:00 AM to 6:59 AM	5 - 13	8	6/5
AM Peak	7:00 AM to 8:59 AM	5 - 10	5	26/15
Midday Base	9:00 AM to 1:29 PM	9 - 25	18	15/17
Midday School	1:30 PM to 3:59 PM	7 - 15	14	11/11
PM Peak	4:00 PM to 6:29 PM	5 - 15	9	17/21
Evening	6:30 PM to 9:59 PM	4 - 34	15	15/20
Late Evening	10:00 PM to 11:59 PM	25 - 25	25	4/4
Night	12:00 AM to 1:13 AM	25 - 30	30	2/3
Saturday	5:10 AM to 1:14 AM	20 - 30	22	52/51
Sunday	6:00 AM to 1:12 AM	25 - 35	30	38/38

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

Route 9 operates with a similar span of service on Saturday, with most service running every 20-30 minutes. Sunday service operates from 6:00 AM and 1:12 AM, with mostly consistent 30 minute headways.

Route 9 meets the Span of Service and Service Frequency Standards for Local Bus routes during all service days and periods.

Service Patterns

Most Route 9 trips on weekdays and all trips on weekends run the full route from City Point to Copley Square via Broadway Station as shown in Figure 1 (Pattern 9.0). The different inbound and outbound alignments are due to one-way street patterns. Exceptions to this operation, all of which are on weekdays only, include (see Table 1):

- Pattern 9.1 makes six AM peak trips. Trips originate at City Point, but run along East 1st Street to L Street before rejoining the main alignment at Broadway and L Street. These trips were originally intended to decrease the likelihood that passengers boarding west of L Street would be passed up by a full bus. Outbound service before 8:45 AM operates to City Point via L Street and E 1st Street. This service pattern allows outbound buses to reach the route’s terminus up to five minutes more quickly during early morning, AM Peak and midday.
- Pattern 9.4 makes one early morning trip that operates beyond Copley Square to Kenmore Station to serve school trips.
- Pattern 9.5 makes a midday trip to return students to South Boston at 2:15 PM.

Table 2 | Service Patterns

PATTERN	ORIGIN	DESTINATION	UNIQUE FEATURE	TRIPS per WKD	TRIPS per SAT	TRIPS per SUN
INBOUND				100	52	38
9.0	City Point Bus Terminal	Boylston Street at Dartmouth Street	Primary pattern	92	52	38
9.1	City Point Bus Terminal	Boylston Street at Dartmouth Street	Via L Street	6	-	-
9.4	City Point Bus Terminal	Kenmore Station	Continues to Avenue Louis Pasteur & Kenmore Station as a school trip	1	-	-
OUTBOUND				97	51	38
9.0	Boylston Street at Dartmouth Street	City Point Bus Terminal	Primary pattern	76	51	38
9.1	Boylston Street at Dartmouth Street	City Point Bus Terminal	Via L Street	20	-	-
9.5	Ave Louis Pasteur at Longwood	City Point Bus Terminal	School trip	1	-	-

Ridership

Route 9 carries 6,400 passengers on weekdays, making it the top 15 highest bus routes in the MBTA network. On Saturdays, it carries 2,300 passengers, and on Sundays it carries 1,400 passengers.

Ridership by Stop

Route 9 has high ridership along most of its length. It largely transports South Boston residents to and from Broadway Station and the Back Bay, and from Broadway Station to the Back Bay. On weekday inbound trips from City Point (see Figure 3):

- Stops between the City Point terminals serve 30 to 125 boardings per stop.
- Boardings are high at nearly all nearly all stops on Broadway in South Boston, with most serving over 200 boardings. However, there are very few alightings, indicating that nearly all riders are traveling out of South Boston rather than to other locations in South Boston.
- Approximately 1/3 of the passengers who board in South Boston, or nearly 800, alight at Broadway Station to transfer to the Red Line.
- Nearly 500 passengers board at Broadway Station to travel to destinations in the South End and the Back Bay.

- Stops in the South End serve much lower volumes of passengers, with four stops serving less than 160 boardings and 325 alightings.
- Approximately 40% of all Route 9 riders, or nearly 1,300 passengers, alight at the three stops in the Back Bay.

Weekend ridership patterns on Route 9 are similar to weekday patterns, with fewer but mostly similarly distributed boardings and alightings. The majority of passengers board in South Boston and alight at Broadway Station or Saint James Avenue at Dartmouth Street near Back Bay Commuter Rail Station.

Ridership by Trip

Route 9 ridership reflects typical commute patterns, with high ridership inbound during the AM peak and outbound during the PM peak (see Figure 4 and Figure 5). In addition, there is also a significant amount of reverse peak and midday travel:

- During the AM peak inbound and PM peak outbound, most trips carry more than 60 total passengers. However, because of a large amount of ridership turnover at Broadway Station, maximum loads are significantly lower, and on average are less than 140% of seated capacity, which is the peak period MBTA's loading standard.
- AM peak outbound trips carry 20 to 30 passengers and PM peak inbound trips carry 30 to 40 passengers.
- In both directions, midday trips carry 20 to 30 passengers through approximately 2:30 PM and then 30 to 50 passengers.

Figure 3 | Weekday Inbound Ridership by Stop Map

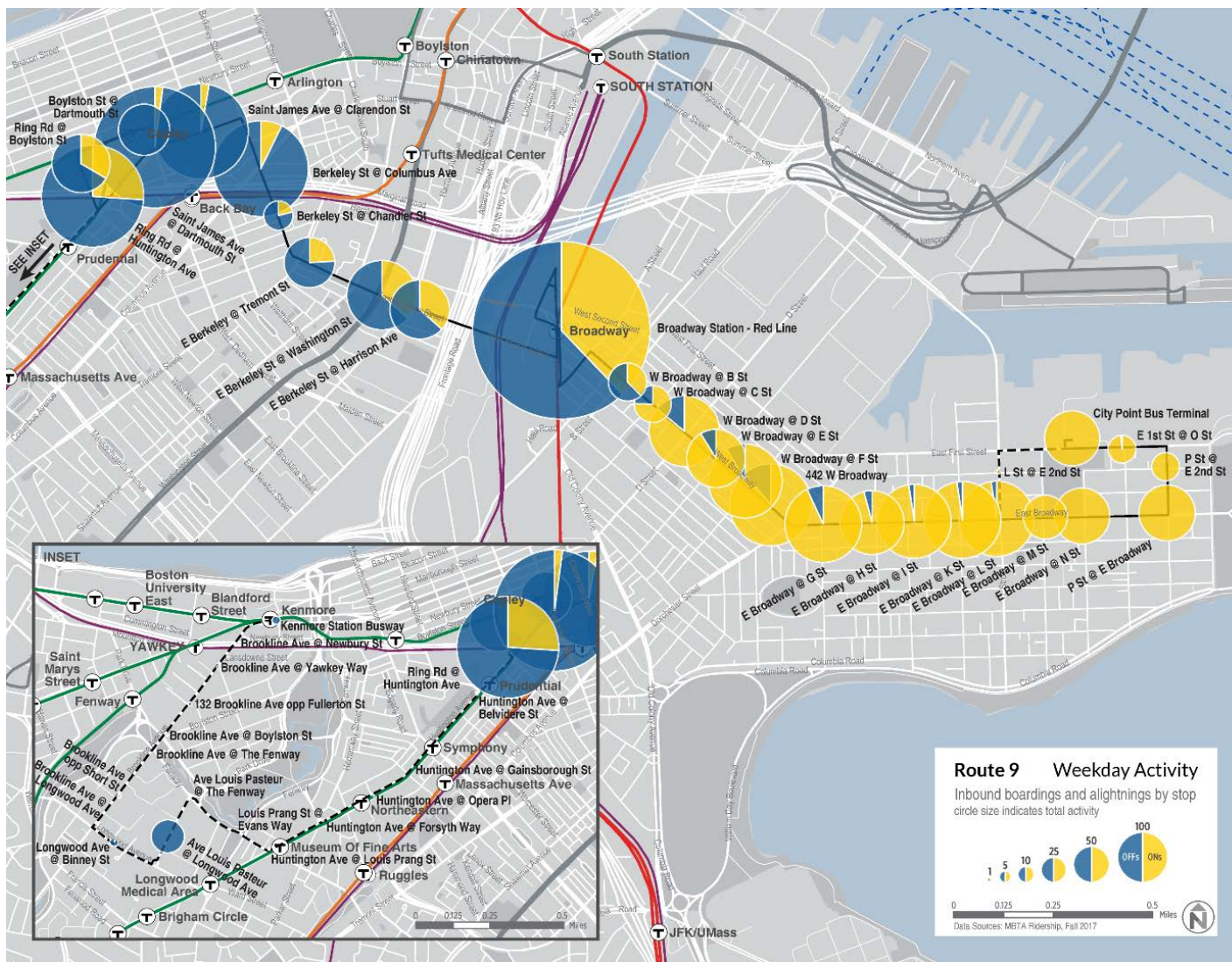


Figure 4 | Weekday Ridership by Trip: Inbound

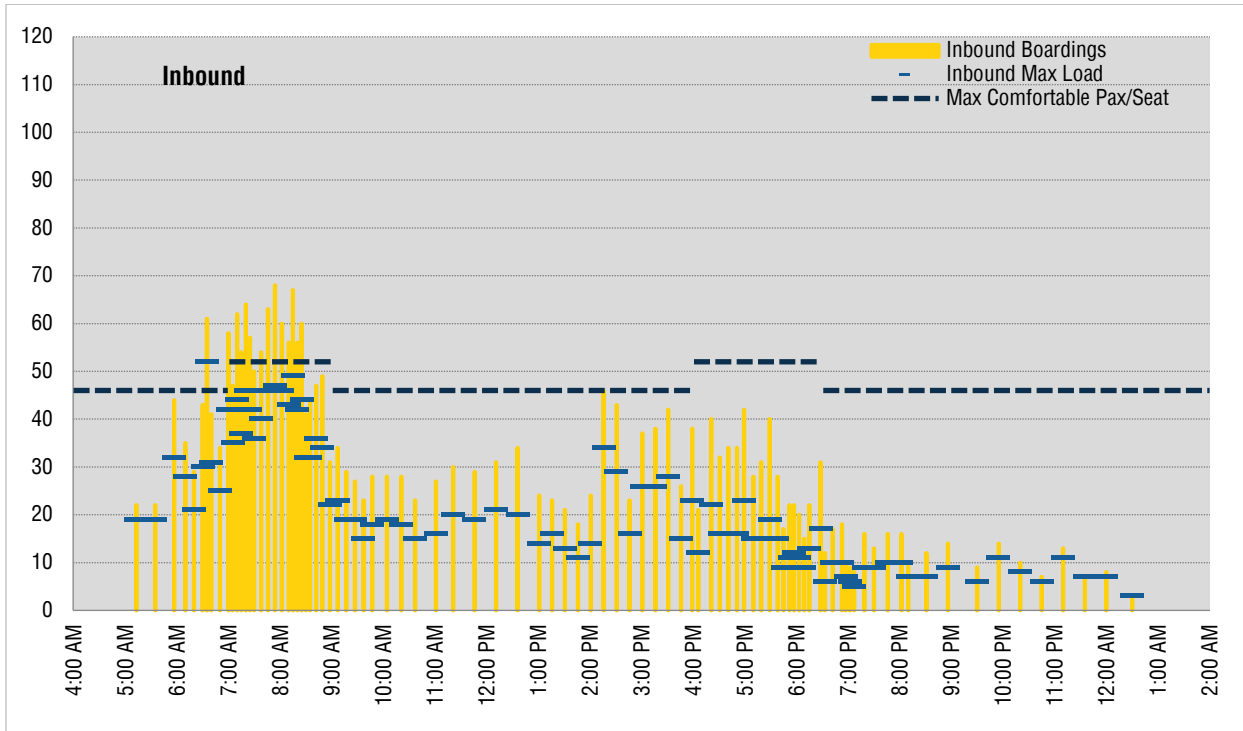
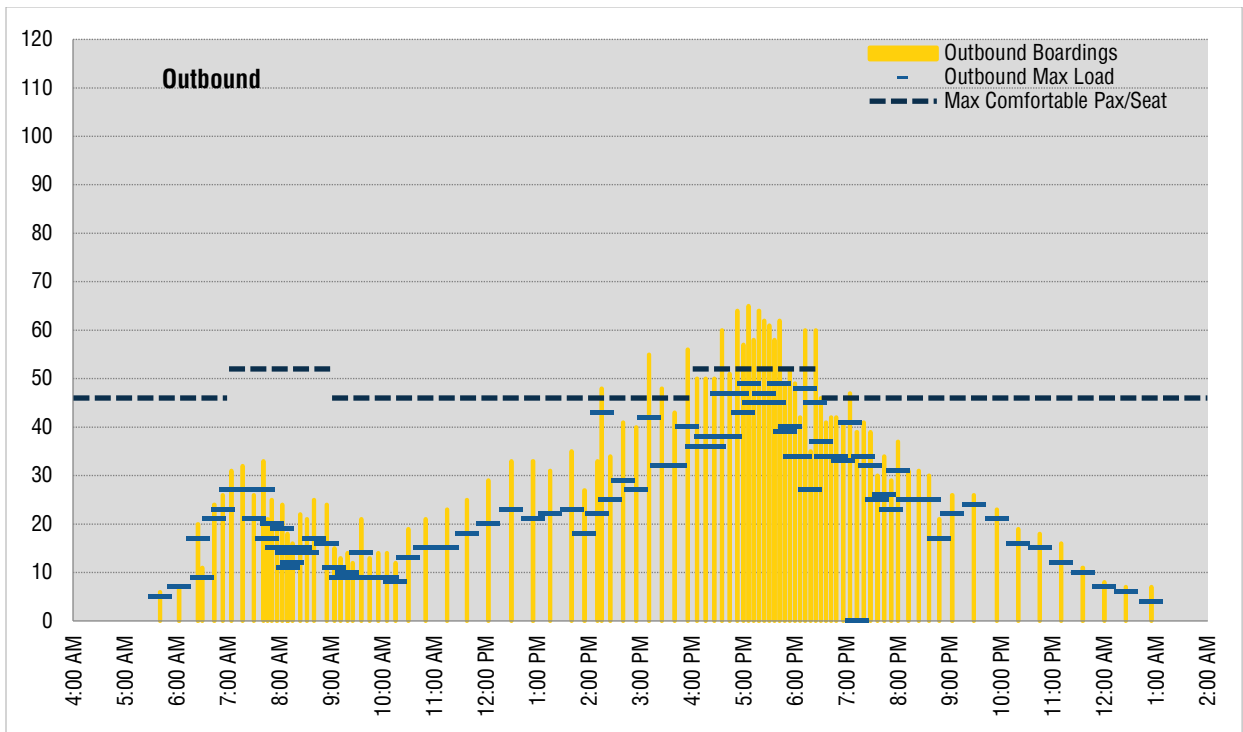


Figure 5 | Weekday Ridership by Trip: Outbound

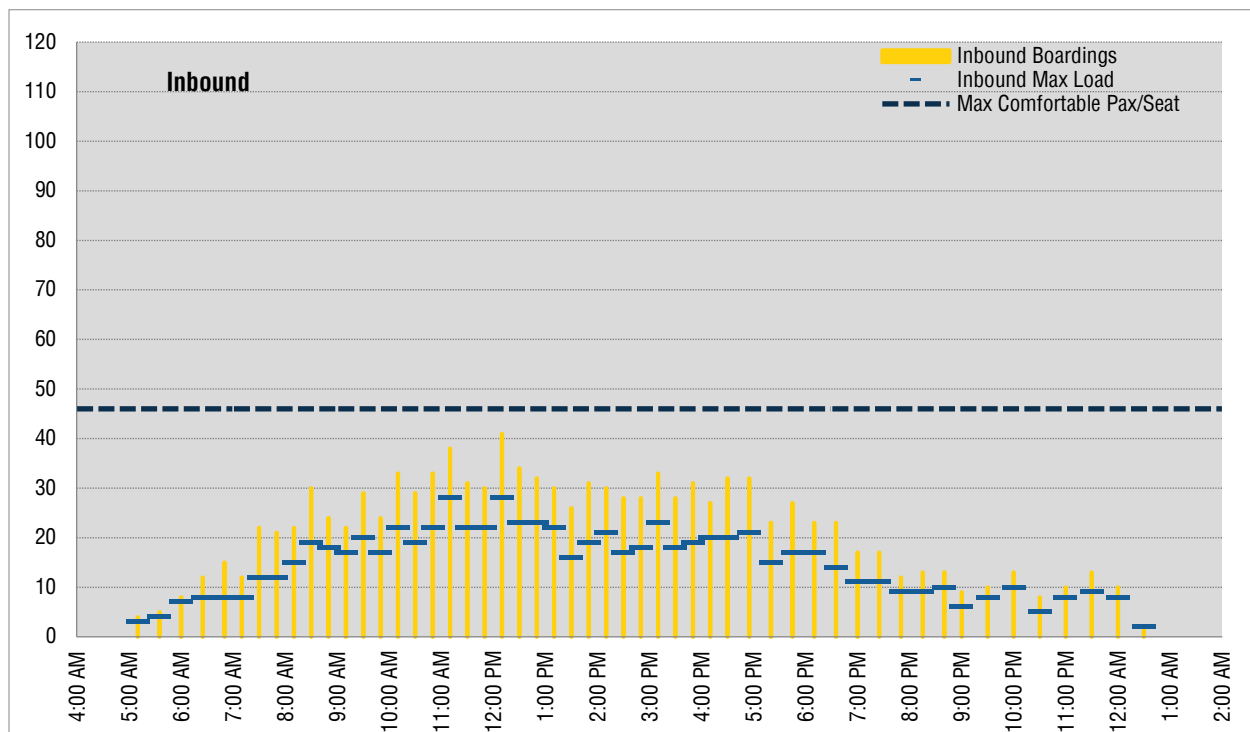


- In the evening, outbound ridership per trip ramps down from over 40 passengers per trip to 20 at around 10:00 PM, and then to below 10 after midnight. Inbound ridership is significantly lower, at 10 to 20 passengers for most the evening.

Due to high ridership turnover at Broadway Station, on average, no trips exceed the MBTA's peak period comfort standard. However, maximum loads on many trips come very close, and so when there are service issues, individual trips can become overcrowded.

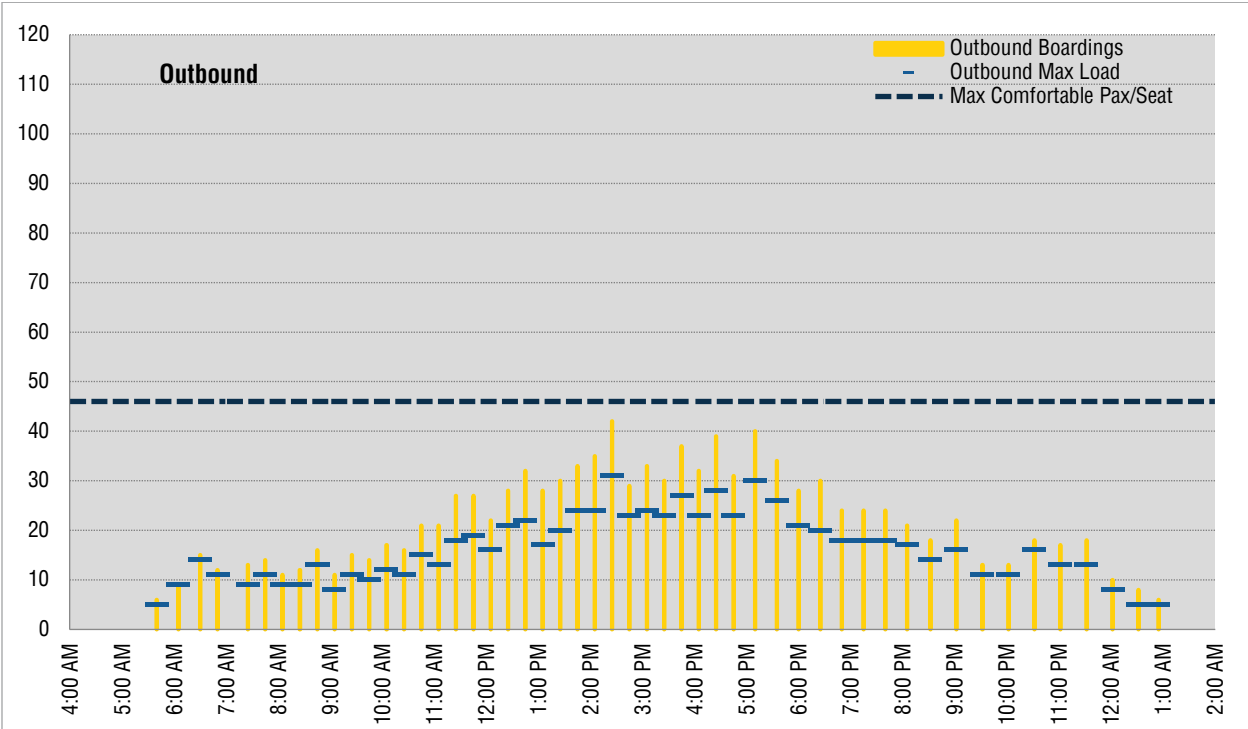
On Saturdays, inbound ridership starts very low before 6:00 AM, with fewer than five passengers per trip (see Figure 6). It then ramps up from there from approximately 10 passengers per trip to 30 at 8:30 AM. It maintains that level until around 5:00 PM, when it tapers off to 10 passengers per trip at approximately 7:30 PM, and stays at that level until the end of service except for the last trip that carries only two passengers.

Figure 6 | Saturday Ridership by Trip: Inbound



Saturday outbound service also starts with very low ridership, and is then around 10 to 15 passengers per trip from approximately 6:00 AM to 11:00 AM, when it ramps up to around 30 passengers at about noon (see Figure 7). Ridership is then 30 to 40 passengers per trip until about 6:30 PM. It then gradually tapers off to about 10 passengers per trip around midnight and through the end of service.

Figure 7 | Saturday Ridership by Trip: Outbound



Sunday service follows similar patterns. Because less service is provided (every 30 minutes versus approximately every 20 minutes on Saturdays), ridership by trip is lower, but not significantly so (see Figure 8 and Figure 9).

Figure 8 | Sunday Ridership by Trip: Inbound

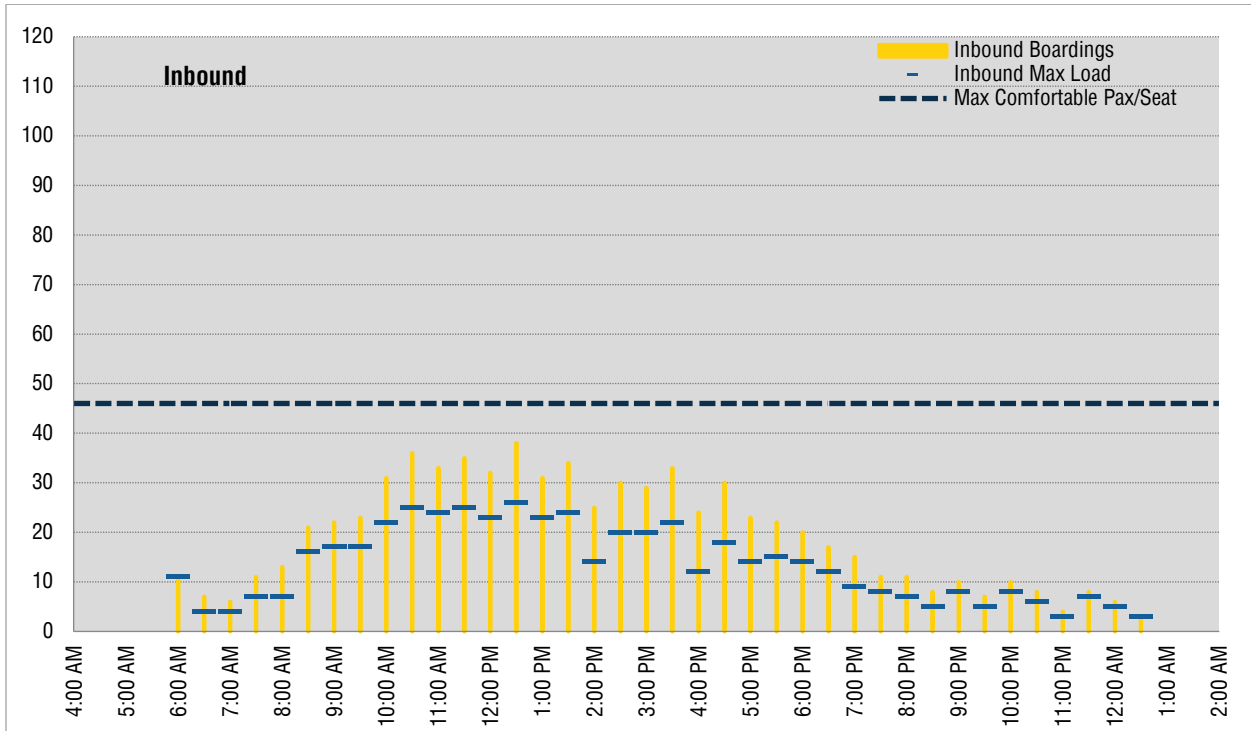
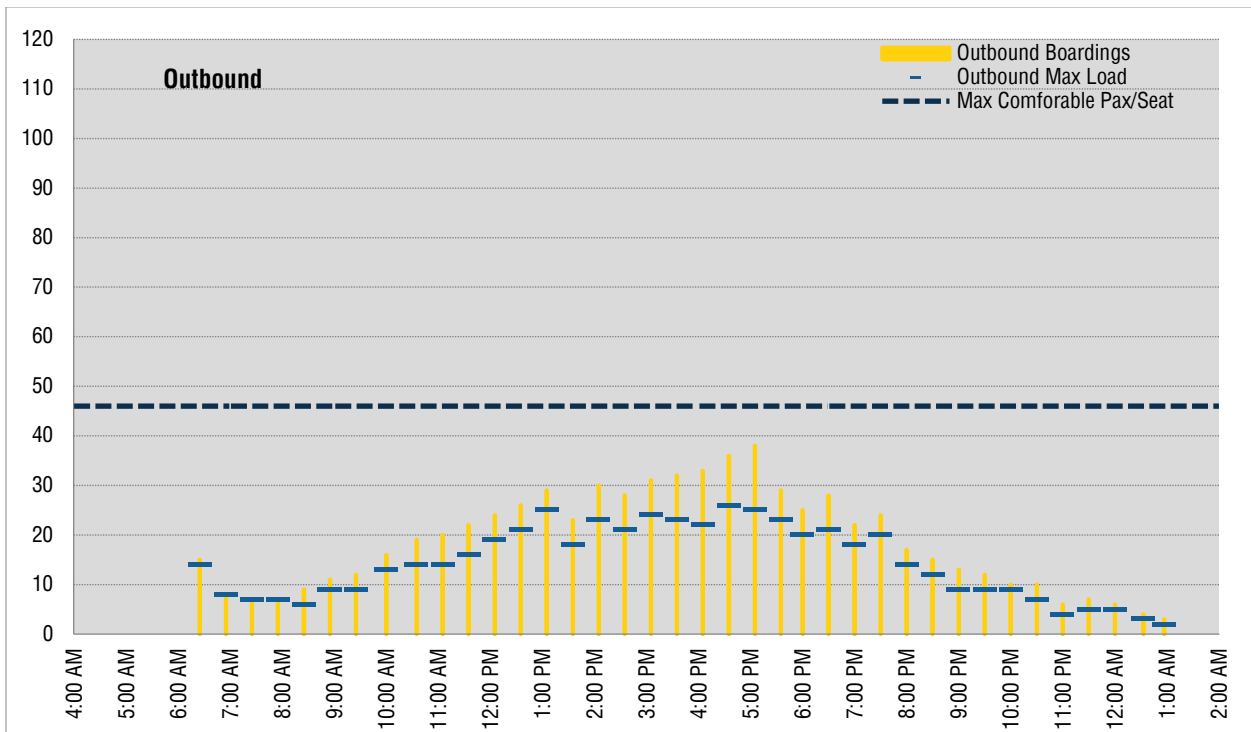


Figure 9 | Sunday Ridership by Trip: Outbound



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 weekdays, 84.4% of passenger minutes on Route 9 are in comfortable conditions, which is below the minimum standard (see Table 3). However, as described below, reliability is within standard, but many trips are still late. Missed trips are also a problem. The below standard passenger comfort levels are the result of off-schedule service, and not because too little service is scheduled.

On Saturdays and Sundays, 100% and 99.7% of passenger minutes are spent in comfortable conditions. Both of these figures are well above the minimum and target standards.

Table 3 | Passenger Time Spent Traveling in Comfortable Conditions

	WEEKDAYS	SATURDAYS	SUNDAYS
Minimum Standard	92%	92%	92%
Target	96%	96%	96%
Actual	84.4%	100%	99.7%

Reliability and Speed

Reliability

Route 9 is more reliable than most other local MBTA routes. Overall weekday reliability is 79%, which exceeds the MBTA's local route target of 75% (see Table 4). However, because peak period service is scheduled with very little extra capacity, the off-schedule performance that does occur often creates overcrowding. Dropped trips are an issue, with 1.6% of trips not operated in Fall 2017. This also creates and exacerbates overcrowding.

Table 4 | Reliability

SERVICE DAY	ORIGIN/MID-ROUTE ON-TIME PERFORMANCE	DESTINATION ON-TIME PERFORMANCE	OVERALL RELIABILITY	DROPPED TRIPS
Monday-Friday	78%	88%	79%	1.6%
Saturday	67%	68%	67%	-
Sunday	69%	64%	69%	-

Running Times

On weekends, only 68% of Saturday trips are completed on time and 64% of Sunday trips are completed on time.

Many or most of the issues with mid-route reliability are due to differences between actual running times and scheduled running times, which are up to five minutes longer than scheduled for most of the day (see Figure 10 and Figure 11). Since the completion of this document, the MBTA has updated Route 9 schedules to better reflect actual running times.

Figure 10 | Scheduled & Median Travel Time by Trip: Route 9 Inbound

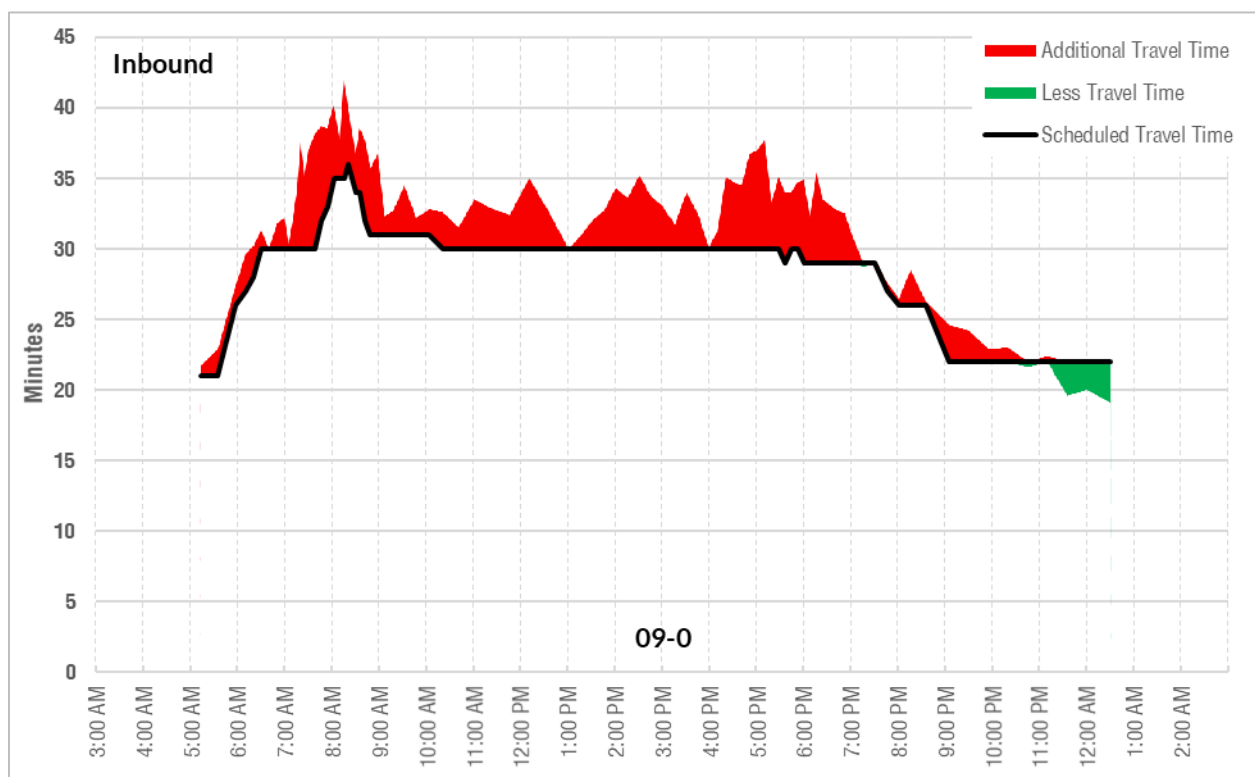
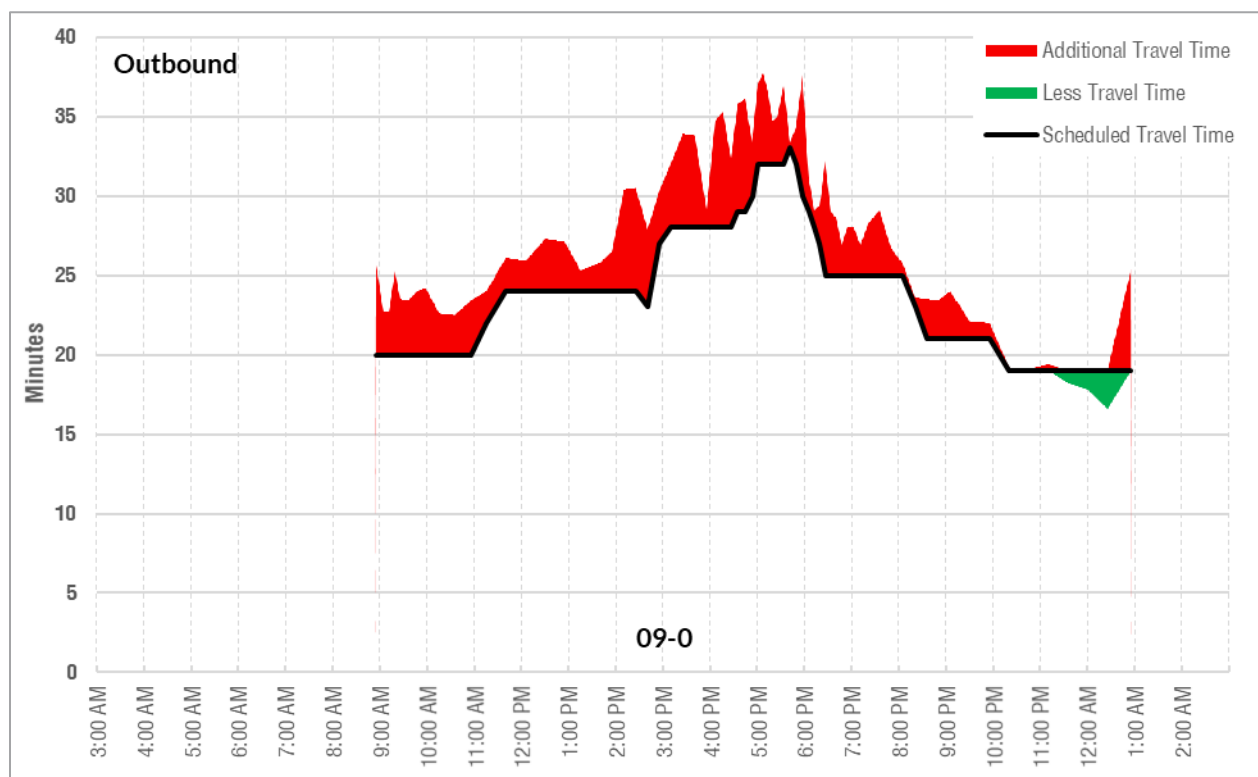


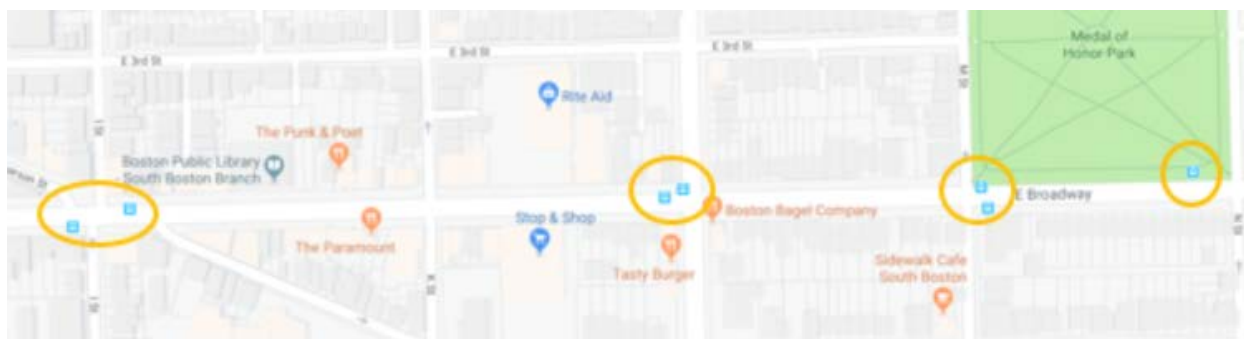
Figure 11 | Scheduled & Median Travel Time by Trip: Route 9 Outbound



Stop Spacing

In City Point, Route 9 uses the same stops as Routes 5 City Point-McCormack Housing, 7 City Point-Otis and Summer Streets, and 10 City Point-Copley Square. Along Broadway, there is a stop nearly every block. Stops could be consolidated to speed service, maintain convenient walks to and from the bus, and make space available for additional on-street parking.

Figure 12 | Close Stop Spacing on Broadway in South Boston



Summary

Route 9 is a very strong route that provides important connections between South Boston, the Red Line, and the Back Bay. The route serves more riders than some Key Bus Routes. Major issues are related to poor weekday reliability and overcrowding, with the overcrowding largely related to the poor reliability.