

# Route 111

Woodlawn or Broadway & Park Avenue – Haymarket Station

## Route Overview

Route 111 is a Key Bus route that connects Chelsea with downtown Boston via the Tobin Bridge (see Figure 1). The route is one of the primary transit options across the Mystic River and Boston Harbor. Route 111 provides more weekday scheduled trips than any other MBTA bus service and has the third highest overall weekday ridership of any MBTA bus service.

Route 111 serves residential neighborhoods in northern Chelsea and the downtown Chelsea business district before terminating at Haymarket Station in downtown Boston. At Haymarket, customers can transfer to the Orange and Green Lines.

Note that the Route 111 was modified to use the Everett Avenue onramp during preparation of this analysis. All data informing this profile dates to Fall of 2017.

## Network Importance

Route 111 is one of the most important routes in the MBTA's bus route network. On a relative scale of 0 to 10, the route ranks 9.7 in terms of ridership, 8.1 in terms of transit dependent ridership, and 8.7 in terms of its overall value to the network. Its overall score, which gives a 70% weight to overall ridership and a 15% weight to the other measures, is 10.0, the highest possible score.

Figure 1 | Route 111 Service Map

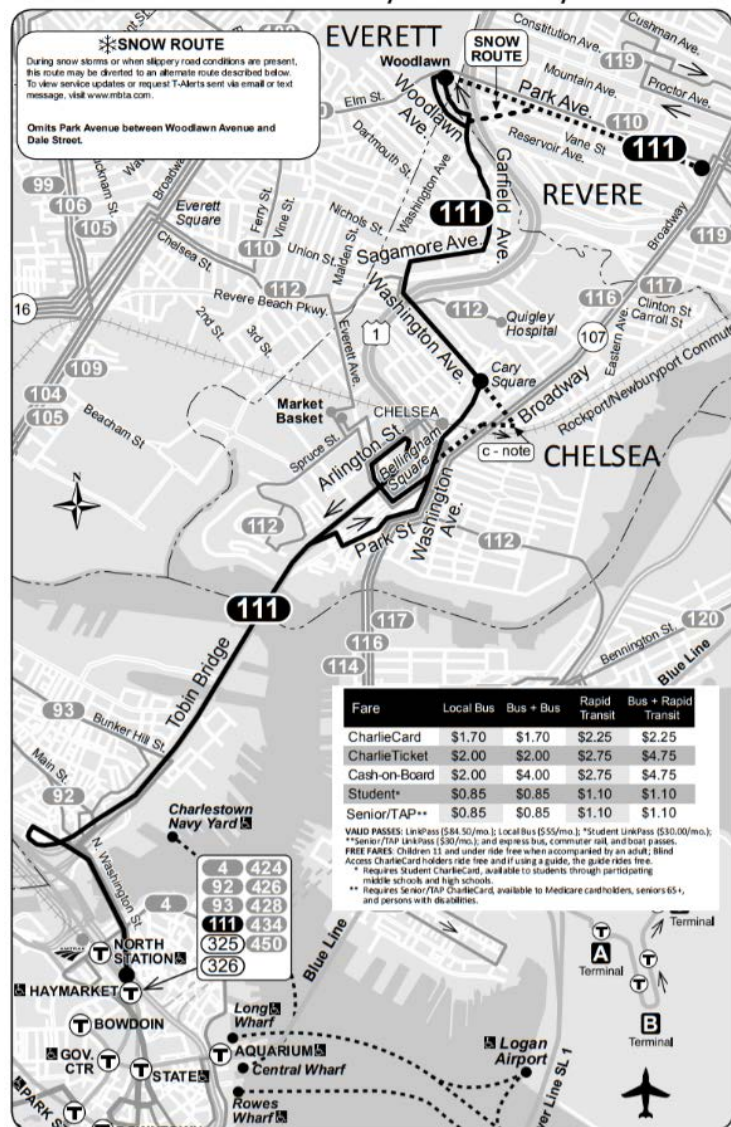
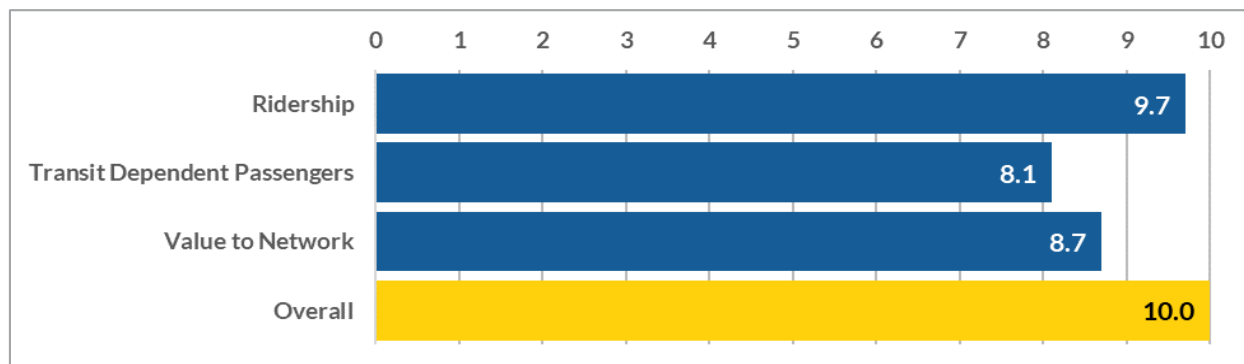


Figure 2 | Relative Importance within MBTA Bus Network (on a scale of 0 to 10)



## Service Overview

### Schedule

Route 111 provides frequent service from early morning until after 1:00 AM seven days a week (see Table 1). On weekdays, it operates from 4:49 AM to 1:23 AM, at an average of every three to four minutes during the day and every eight to nine minutes at night. Route 111 operates with a similar span of service on Saturdays, with service running every eight minutes on average. On Sundays, the first trip departs at 5:35 AM, with average service frequency of nine minutes.

Table 1 | Schedule Statistics

SERVICE DAY	SPAN OF SERVICE	FREQUENCY (RANGE)	FREQUENCY (AVERAGE)	DAILY TRIPS (INBOUND/OUTBOUND)
<b>Monday-Friday</b>	<b>4:49 AM to 1:23 AM</b>			<b>200/173</b>
Sunrise	4:49 AM to 5:59 AM	1 - 12	4	18/6
Early AM	6:00 AM to 6:59 AM	3 - 10	3	18/7
AM Peak	7:00 AM to 8:59 AM	1 - 8	4	27/20
Midday Base	9:00 AM to 1:29 PM	3 - 10	8	33/30
Midday School	1:30 PM to 3:59 PM	3 - 17	6	24/26
PM Peak	4:00 PM to 6:29 PM	2 - 6	4	37/37
Evening	6:30 PM to 9:59 PM	1 - 11	8	25/28
Late Evening	10:00 PM to 11:59 PM	7 - 20	8	14/13
Night	12:00 AM to 1:23 AM	9 - 11	9	4/6
<b>Saturday</b>	<b>4:56 AM to 1:20 AM</b>	<b>5 - 20</b>	<b>8</b>	<b>150/148</b>
<b>Sunday</b>	<b>5:35 AM to 1:14 AM</b>	<b>5 - 20</b>	<b>9</b>	<b>124/126</b>

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

Route 111 meets the span of service and service frequency standards for Key Bus routes during all service days and periods.

## Service Patterns

Route 111 operates with a combination of long trips and short trips. Long trips operate the full length of the route from Woodlawn to Haymarket (see Table 2). Short trips operate between Cary Square, which is just north of downtown Chelsea, and Haymarket. Long trips and short trips generally alternate, resulting in higher service frequency to/from Cary Square than Woodlawn:

- About half of all weekday and weekend trips operate the full length of the route between Woodlawn and Haymarket as shown in Figure 1 (Pattern 111.5).
- Just under half of Route 111 trips start or end at Cary Square (Pattern 111.2 and signed as 111C). These short trips provide additional service on the most crowded section of Route 111 between downtown Chelsea and Haymarket. Service generally alternates between trips to/from Woodlawn and Cary Square, except inbound on weekday mornings when there are more full length trips.
- On weekday mornings running inbound, short trips begin about ½ mile north of Cary Square at Revere Beach Parkway (Pattern 111.6). This service pattern provides additional service on a section of Washington Street when passenger loads are heaviest.
- On weekdays after 7:00 PM, all trips to Woodlawn are extended along Park Avenue to Broadway in Revere (Pattern 111.8). These trips duplicate Route 110 (Wonderland or Broadway at Park Avenue – Wellington) during this period.

Table 2 | Service Patterns

PATTERN	ORIGIN	DESTINATION	UNIQUE FEATURE	TRIPS PER WKD	TRIPS PER SAT	TRIPS PER SUN
<b>INBOUND</b>				<b>200</b>	<b>150</b>	<b>124</b>
111.2	Cary Square	Haymarket	Short turn from Cary Square	66	75	60
111.5	Woodlawn	Haymarket	Primary service alignment	88	75	64
111.6	Revere Beach Parkway	Haymarket	Short turn from Revere Beach Parkway	27	-	-
111.8	Broadway at Park Avenue	Haymarket	Extension via Park Avenue	19	-	-
<b>OUTBOUND</b>				<b>173</b>	<b>148</b>	<b>126</b>
111.2	Haymarket	Cary Square	Short turn at Cary Square	72	73	62
111.5	Haymarket	Woodlawn	Primary service alignment	78	75	64
111.8	Haymarket	Broadway at Park Avenue	Extension via Park Avenue	23	-	-

## Ridership

Route 111 is one of the MBTA's highest ridership and most productive bus routes, carrying over 12,000 passengers per weekday, 7,600 passengers per Saturday, and 5,800 passengers per Sunday. It is the MBTA's third-highest ridership route on weekdays, behind only Route 28 Mattapan Station – Ruggles Station and Route 66 Harvard Square – Dudley Station. Route 111 is also the third-highest ridership route on both Saturdays and Sundays.

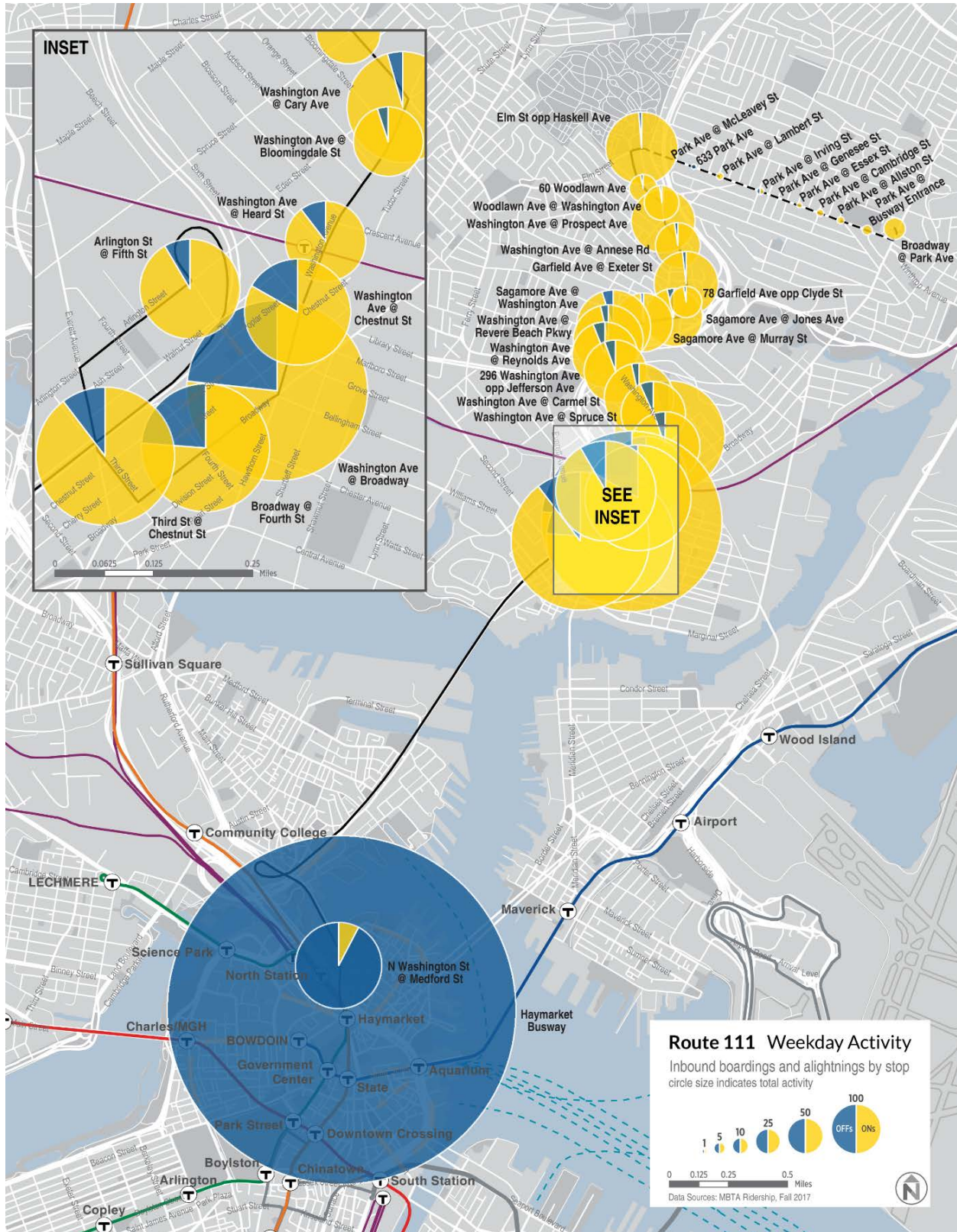
### Ridership by Stop

Route 111 has strong ridership between Woodlawn and Haymarket, especially south of Revere Beach Parkway. The majority of Route 111 passengers traveling inbound ride to the end of the route at Haymarket, accessing jobs in downtown Boston and transit connections at Haymarket (see Figure 3 and Figure 4).

On weekdays, traveling inbound from Woodlawn:

- The Route 111's primary alignment begins at Elm Street opposite of Haskell Avenue, where 207 passengers board and 3 alight.
- As the route heads inbound along Woodlawn, Washington, and Garfield Avenue 512 passengers board and 10 alight. Ridership is lowest along Woodlawn and Garfield Avenues, with several stops that have fewer than 50 boardings each weekday.
- The route continues on to Sagamore Avenue, where ridership is higher and relatively evenly distributed among three stops on Sagamore Avenue, where 479 passengers board and 17 alight.
- Along Washington Avenue north of Cary Square, 843 passengers board and 44 alight, with boardings per stop ranging from about 130 to 200 each weekday.
- Cary Square, the origin for most short turn trips, has nearly 500 boardings and 22 alightings. Ridership is higher at this stop in part because passengers are willing to walk farther to access more frequent service.
- Just over half of inbound Route 111 riders board at six stops in downtown Chelsea. Bellingham Square (Washington Avenue at Broadway) is the highest ridership stop in this area, with 1,000 boardings and 300 alightings each weekday. The two stops immediately after Bellingham Square generate over 500 passenger boardings and 80 alightings each day.
- About 25% of Route 111 passengers that board between Woodlawn and Cary Square alight in downtown Chelsea, which provides connections to Route SL3, 116, and 117.

Figure 3 | Weekday Inbound Ridership by Stop Map



- Nearly 85% (4,900 passengers) of all Route 111 passengers alight at Haymarket Station in downtown Boston, where they can transfer to the Orange and Green Lines.

Ridership along Park Avenue, which is only served by Route 111 on weekday nights and is also served by Route 110, is very low. Only 164 passengers board or alight on Park Avenue in either direction, representing just 7% of total ridership on these extended trips. Weekend ridership patterns on Route 111 are similar to weekday patterns, with fewer but similarly distributed boardings and alightings.

### Ridership by Trip

Route 111 provides the only one-seat service between Chelsea and downtown Boston. The majority of Route 111 passengers board or alight at Haymarket Station in downtown Boston. Together, these characteristics have a significant impact on Route 111 ridership by trip. On all days:

- Route 111 trips have very limited turnover, as most passengers ride to and from Haymarket. Thus, maximum loads are nearly as high as total ridership by trip.
- AM inbound trips from Woodlawn often have standing loads by the time buses reach Cary Square. With additional passengers boarding at Cary Square, most Woodlawn trips have loads that exceed the MBTA's comfort standard. PM outbound trips do not have overcrowding problems.
- Passenger loads are lower on trips that originate at Cary Square; few of these trips carry loads that exceed seating capacity.

Route 111 also appears to have significant unmet demand for earlier morning and later night service on all days:

- Many sunrise inbound trips have 50 or more boardings and regularly exceed MBTA maximum comfortable passengers per trip standards. This indicates significant demand for inbound sunrise trips before 4:45 AM.
- The first Saturday and Sunday inbound trips also have very high ridership, indicating significant demand for earlier service.
- Weekend outbound ridership is strong during the afternoon and early evening, as well as towards the end of service. Strong ridership on the final trips indicates unmet demand for late night service, especially on Saturday nights. Acknowledging this, the MBTA implemented additional late night service on Saturdays in September 2018.

Figure 4 | Weekday Ridership by Trip: Inbound

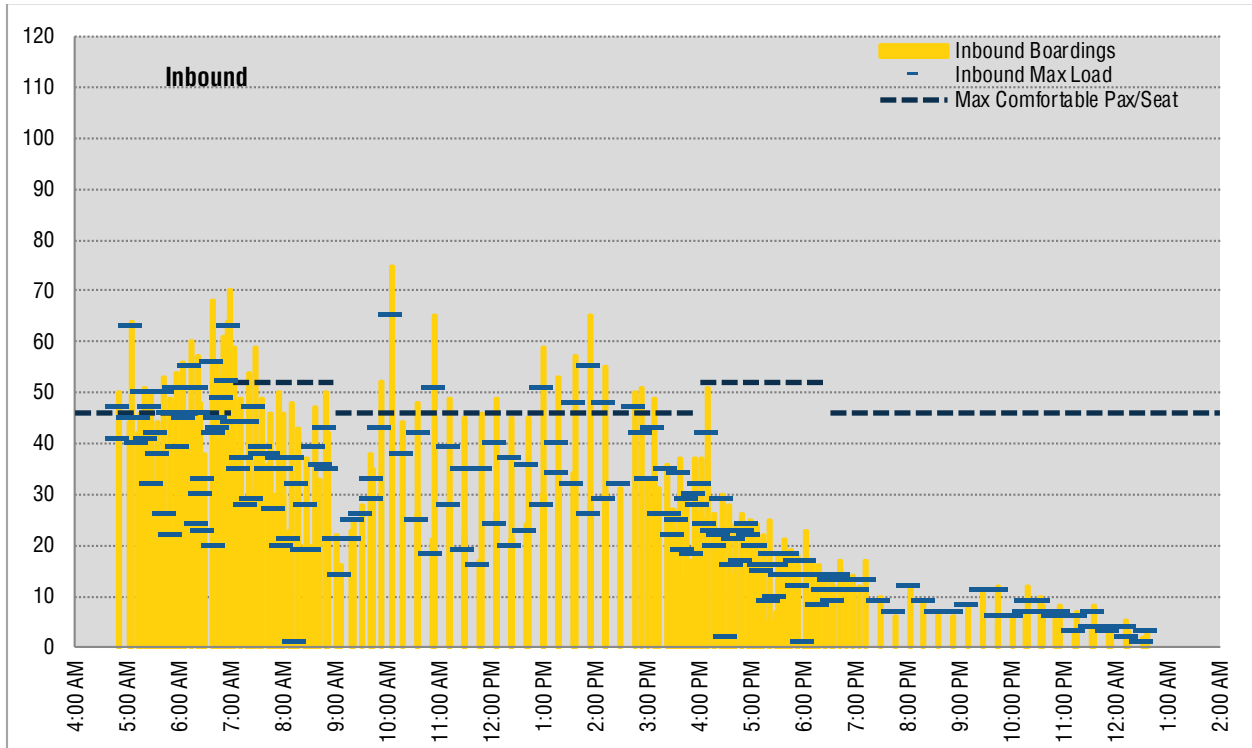


Figure 5 | Weekday Ridership by Trip: Outbound

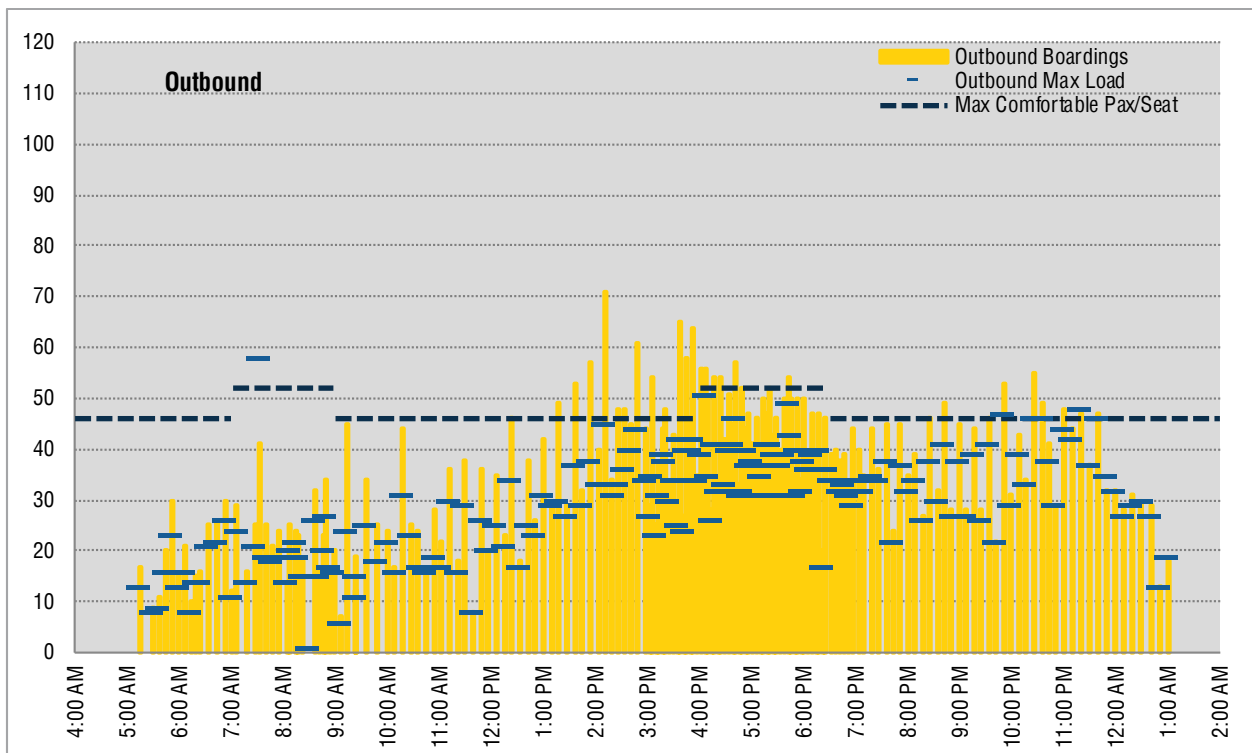


Figure 6 | Saturday Ridership by Trip: Inbound

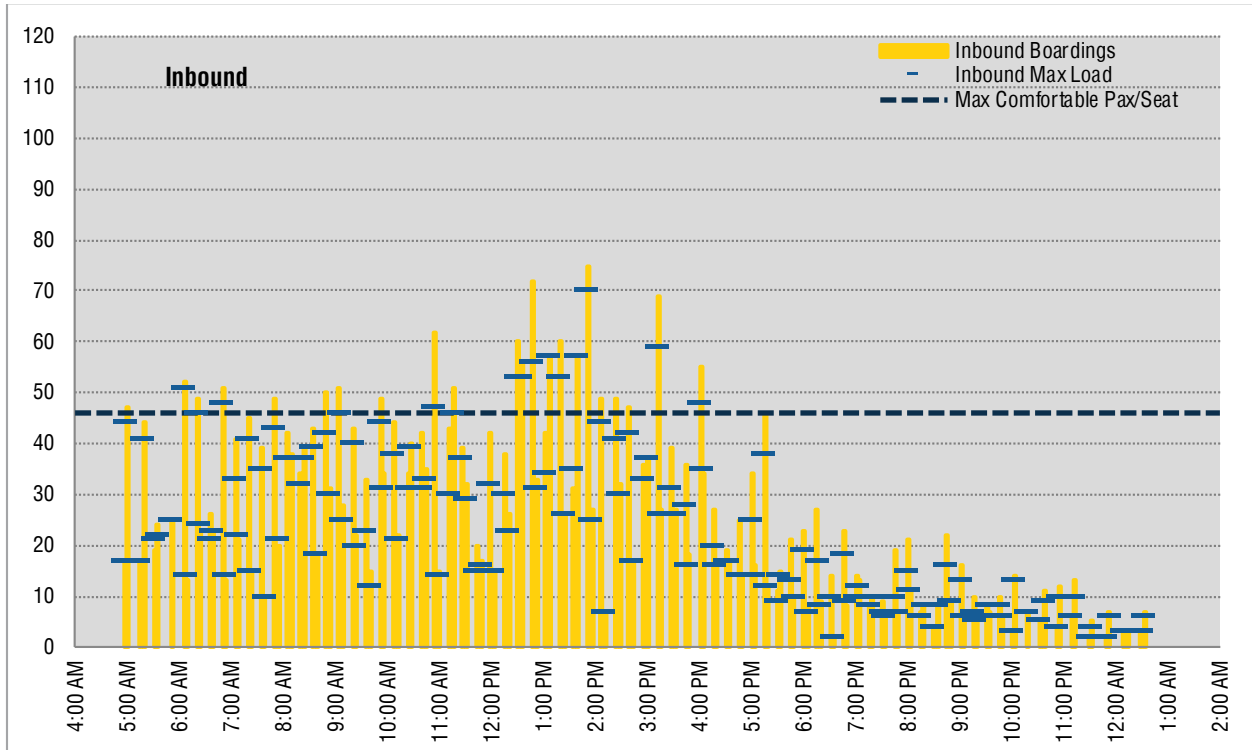


Figure 7 | Saturday Ridership by Trip: Outbound

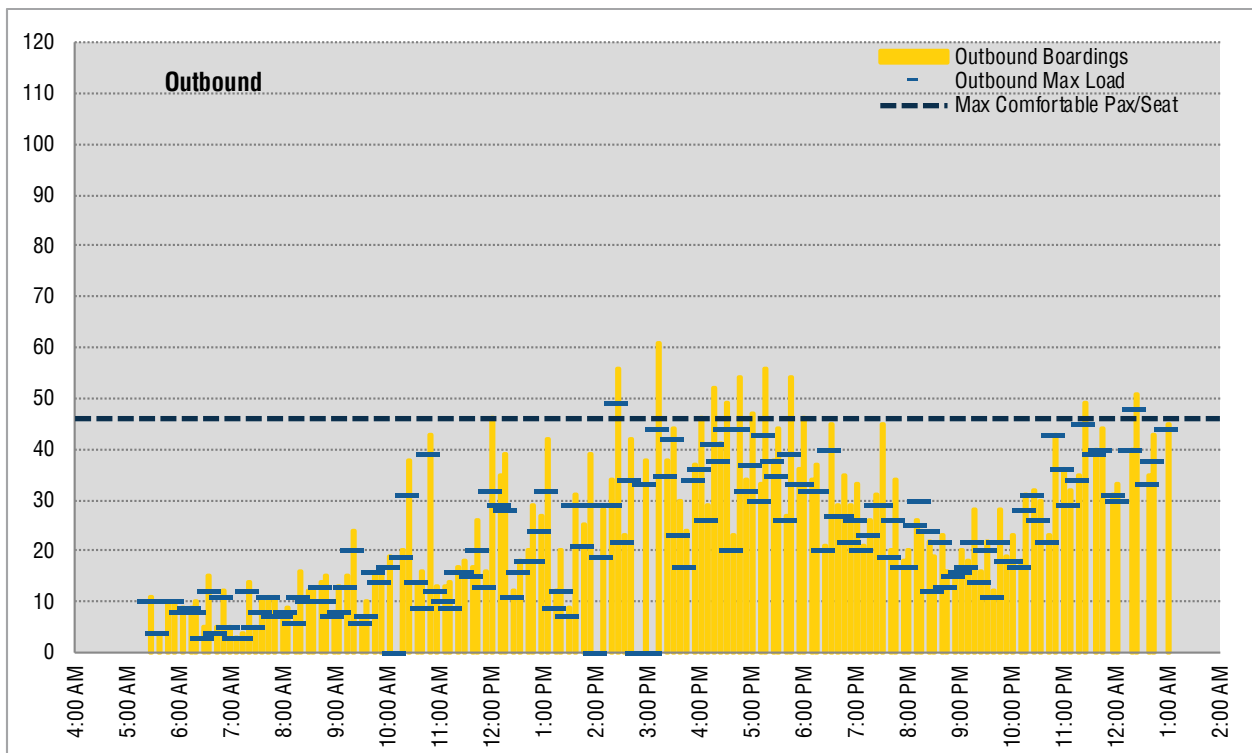




Figure 8 | Sunday Ridership by Trip: Inbound

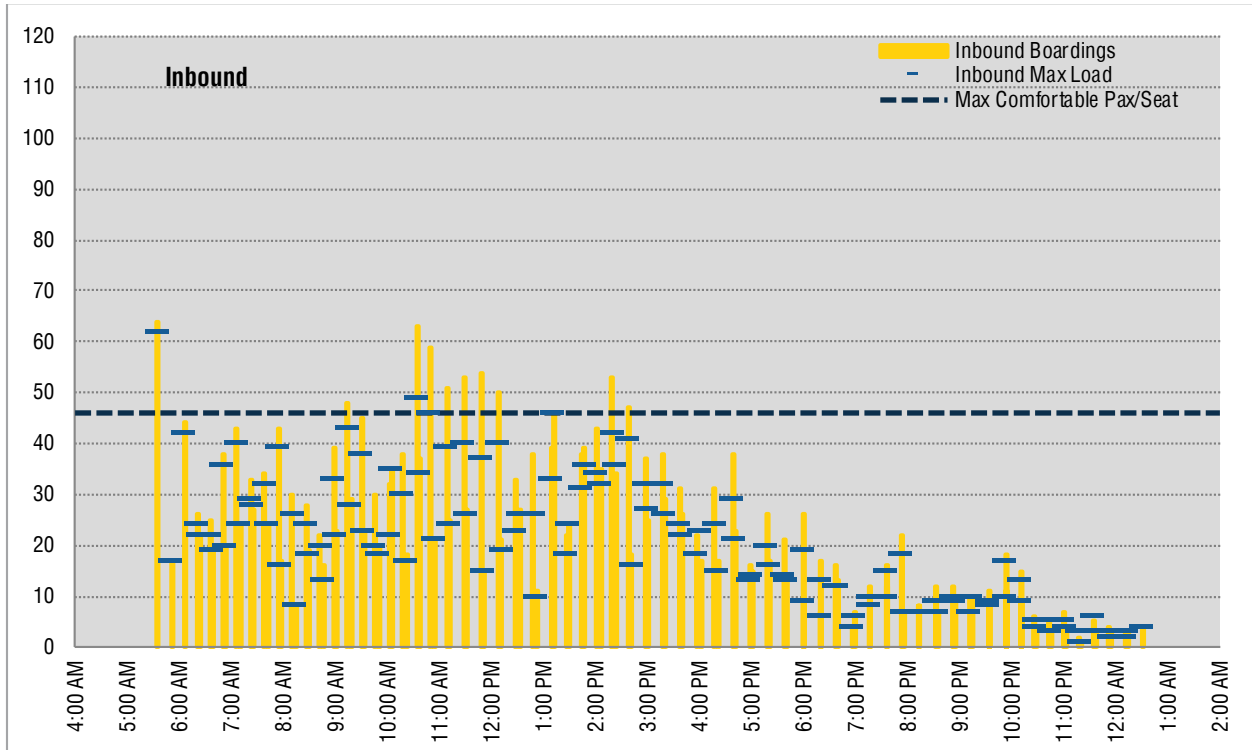
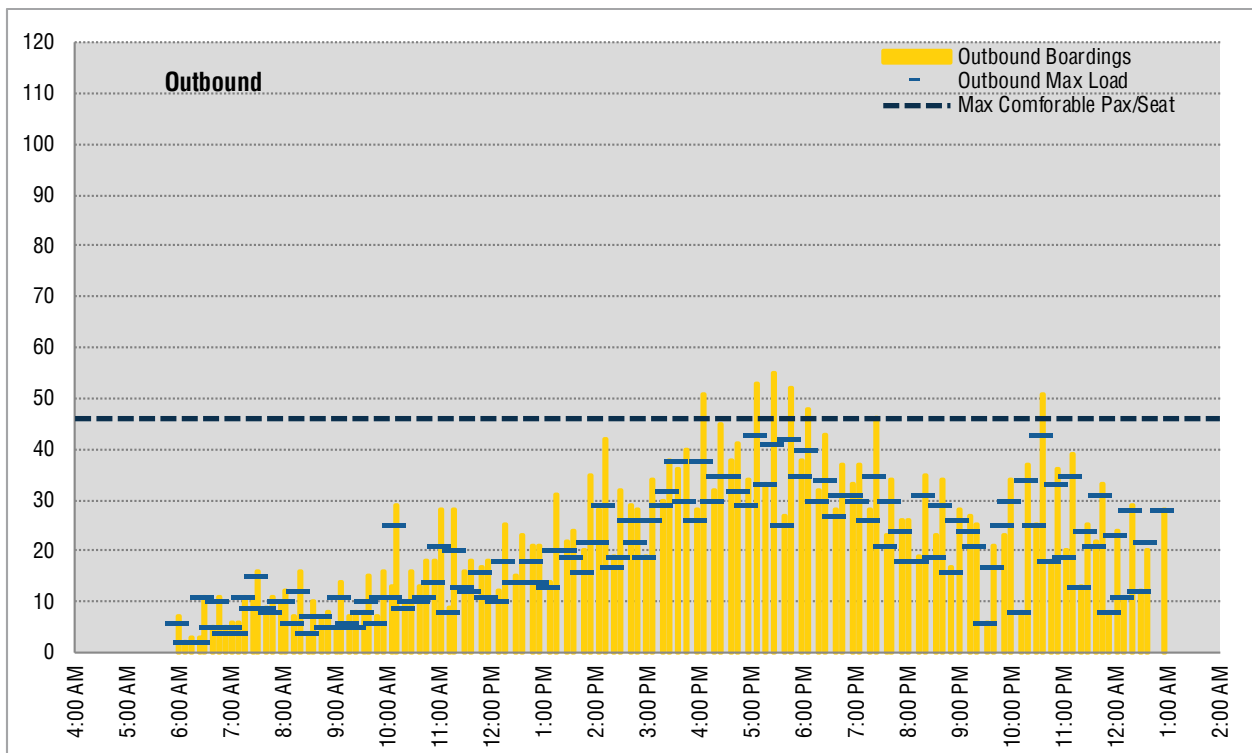


Figure 9 | Sunday Ridership by Trip: Outbound



## 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 111, 79% of weekday passenger minutes are spent in comfortable conditions, which is well below the minimum standard (see Table 3). This means that 21% of weekday passenger minutes are in uncomfortable conditions, which is very high. Weekend trips also fail to meet the minimum standard for passenger comfort.

Table 3 | Passenger Time Spent Traveling in Comfortable Conditions

	WEEKDAYS	SATURDAYS	SUNDAYS
<b>Minimum Standard</b>	92%	92%	92%
<b>Target</b>	96%	96%	96%
<b>Actual</b>	78.8%	82.9%	90.5%

## Reliability and Running Times

### Reliability

Passengers using high frequency services like Route 111 expect buses to arrive on a regular basis, and typically do not rely on published schedules. For these services, the MBTA measures reliability based on actual service frequency and the travel time for a given trip. Trips must depart their origin and serve points along the route within three minutes of the scheduled frequency.

Route 111's reliability averages 75% on weekdays, 49% on Saturdays, and 80% on Sundays (see Table 4). Weekday service is at the MBTA's target of 75%. Saturday service is well below the minimum at 49%. Dropped trips are a major issue, with nearly 5% of trips not run. This is a major cause of the overcrowding discussed above.

Table 4 | Route 111 Reliability

SERVICE DAY	ORIGIN/MID-ROUTE ON-TIME PERFORMANCE	DESTINATION ON-TIME PERFORMANCE	OVERALL RELIABILITY	DROPPED TRIPS
<b>Monday-Friday</b>	77%	67%	75%	4.9%
<b>Saturday</b>	78%	41%	49%	-
<b>Sunday</b>	79%	84%	80%	-

## Running Times

There are significant differences between scheduled and actual running times, with most trips taking longer than scheduled during many weekday periods (see Figure 11 and Figure 12). Between approximately 6:00 AM and 9:30 AM, actual running times are generally five to over 10 minutes longer than scheduled times. Running times are slightly shorter than scheduled from 9:30 AM to 1:30 PM, but then significantly longer again from then until the end of service.

The MBTA subsequently increased scheduled run times in Fall 2018.

Figure 10 | Scheduled & Median Travel Time by Trip: Route 111 Inbound

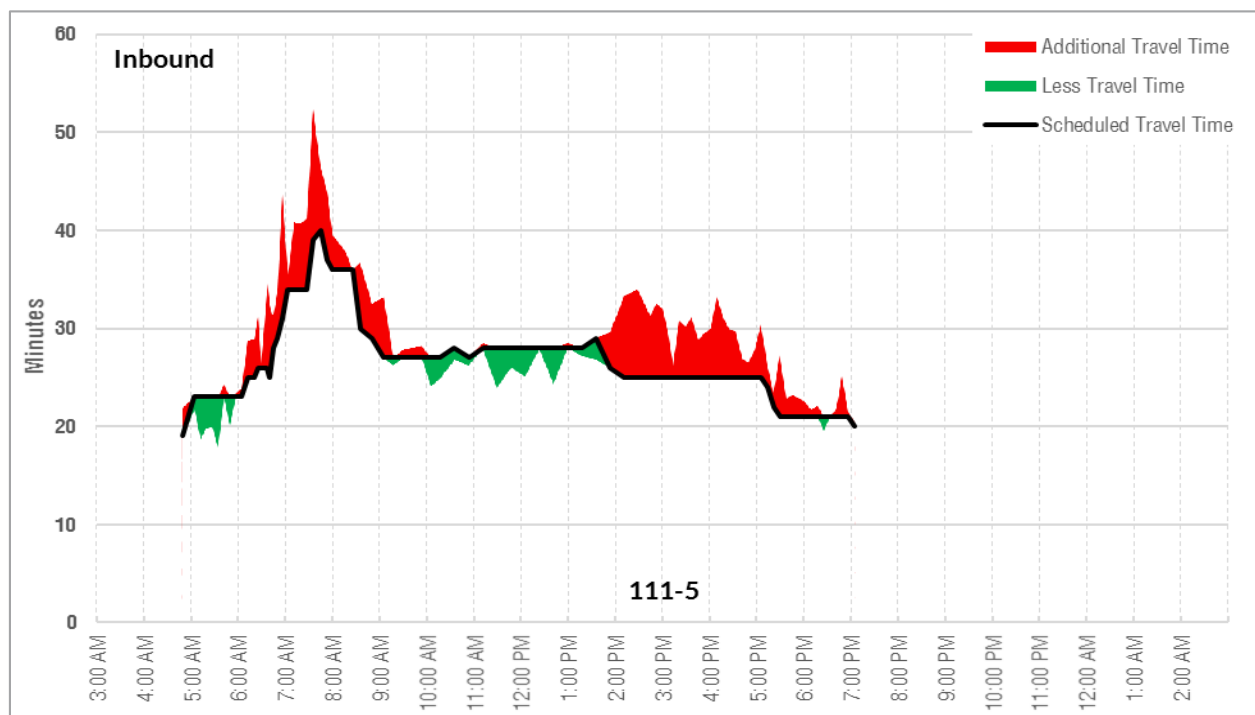
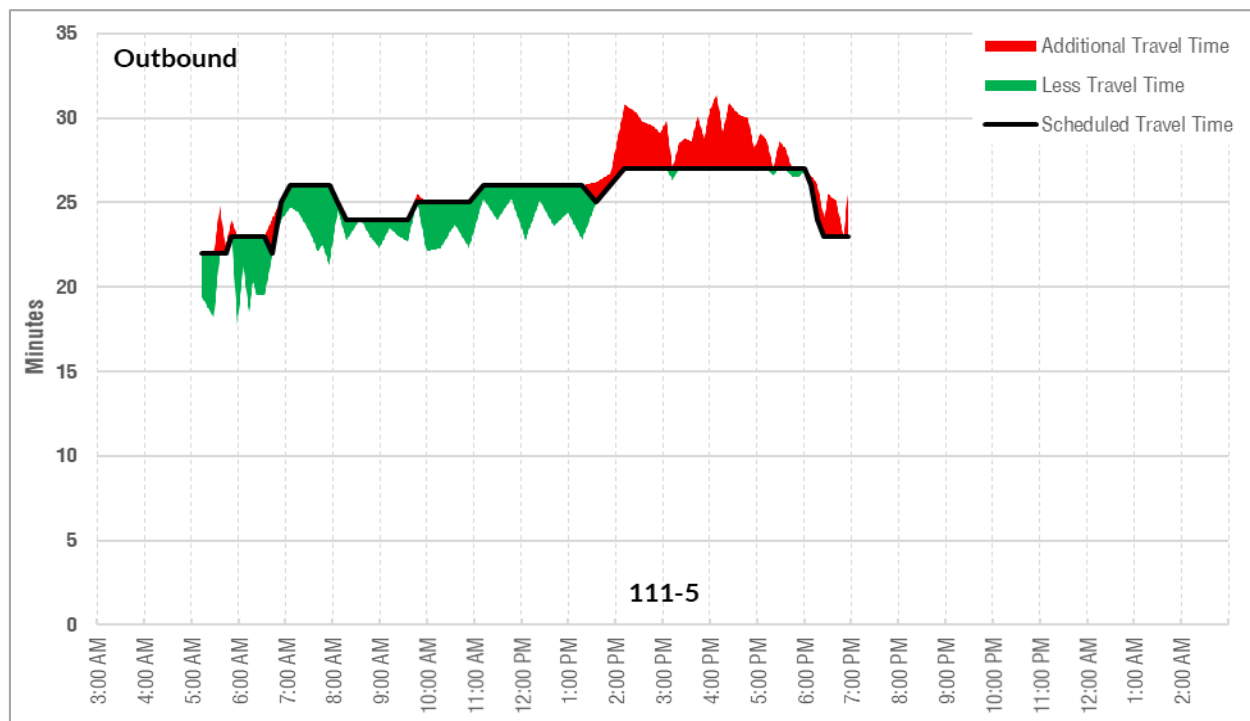


Figure 11 | Scheduled & Median Travel Time by Trip: Route 111 Outbound



### Stop Spacing

Excluding its highway segments, Route 111 has an average of 8.5 stops per mile. This equates to a stop every 650 feet, or only a two-minute walk between stops. Several stops are closer than 500 feet apart and some are as close as 300 feet apart. This stop spacing is much higher than the MBTA’s standard of four to seven per mile for Key Bus routes and contributes to slow service and poor reliability.

### Summary

Route 111 is one of the highest ridership and most productive MBTA bus services on both weekdays and weekends. Many Route 111 trips are crowded, due to high demand and limited passenger turnover. There is strong demand to increase Route 111’s service span, especially weekday and weekend sunrise inbound service and weekend late night outbound service.