

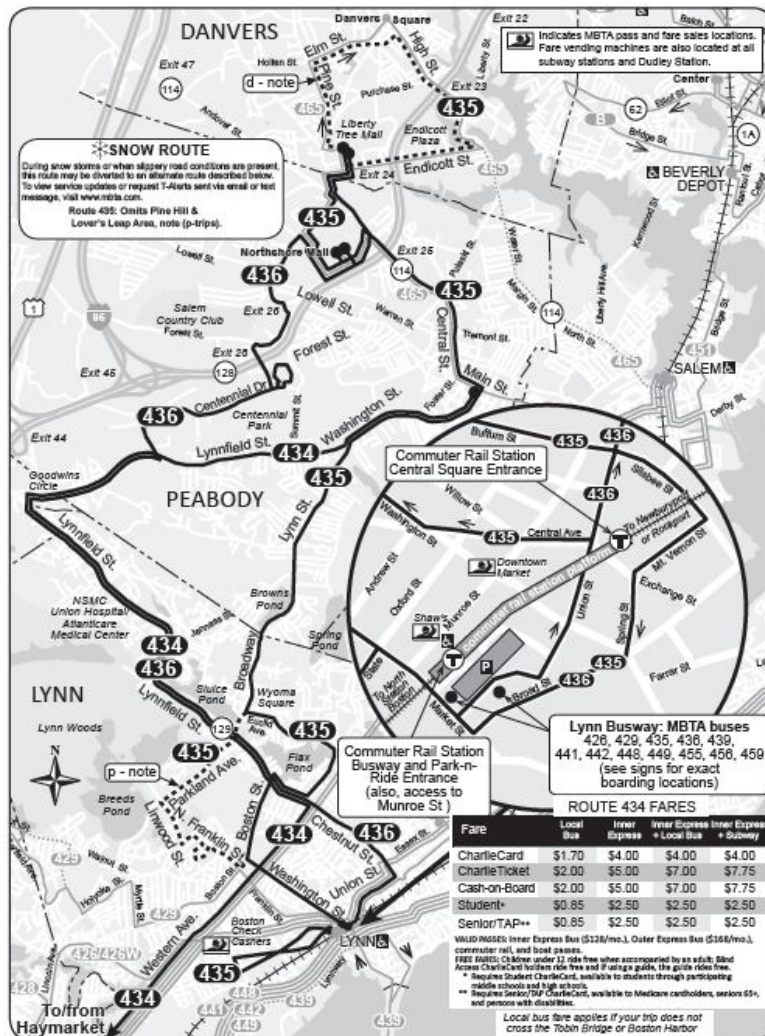
Route 436

Liberty Tree Mall – Central Square, Lynn via Goodwins Circle

Route Overview

Route 436 Liberty Tree Mall – Central Square, Lynn via Goodwins Circle is a Local route running from Liberty Tree Mall to Central Square, Lynn via Danvers, Peabody, and Lynn. The route serves the Northshore Mall, Boston Children’s Hospital, North Shore Medical Center Union Hospital, and Central Square, Lynn. Route 435 Liberty Tree Mall – Central Square, Lynn via Peabody Square also provides a direct connection between the Liberty Tree Mall and Central Square, Lynn, but operates via a different alignment.

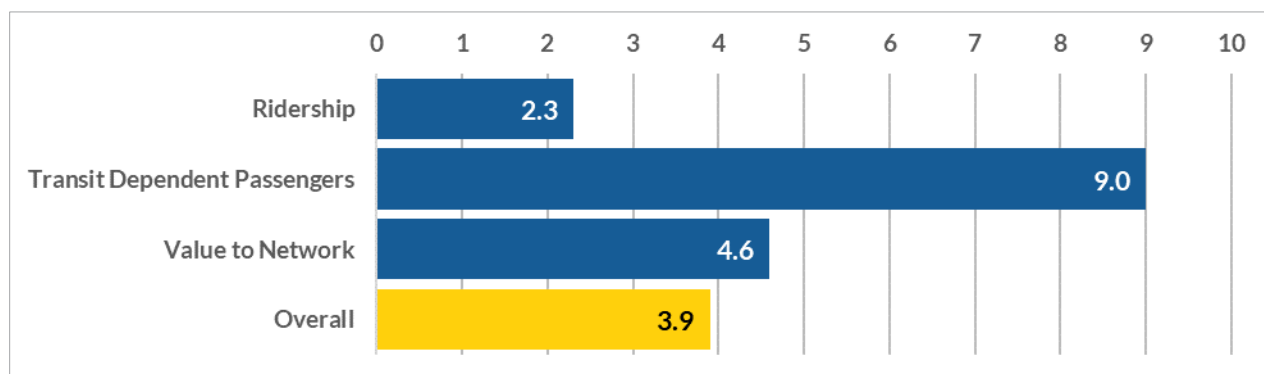
Figure 1 | Service Map



Network Importance

Route 436 is of moderate importance within the overall bus network (see Figure 2). On a relative scale of 0 to 10, the route rates 2.3 in terms of ridership, 9.0 in terms of transit dependent ridership, and 4.6 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 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 3.9.

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



Service Patterns

Schedule

Route 436 operates on weekdays and Saturdays. Weekday service operates from 6:10 AM until 7:15 PM with generally infrequent service. Weekday trips in more detail:

- During the Early AM period, frequencies range from 20 to 50 minutes, but mostly operate every 20 minutes.
- During the AM Peak, trips operate with headways of 20 to 75 minutes, but mostly every 40 minutes.
- Headways range from 60 to 75 minutes during the Midday Base period, but service mostly runs every 68 minutes.
- During the Midday School period, frequencies range from 10 to 75 minutes, but mostly run every 35 minutes.
- During the PM Peak, service runs every 20 to 70 minutes, with an average frequency of 38 minutes.
- A single trip in either direction operates during the Evening period between 6:30 PM and 7:15 PM.

Saturday service operates from 6:20 AM until 6:20 PM with an average frequency of 65 minutes. The route does not operate on Sundays.

Route 436 does not meet the MBTA's frequency standards on weekdays or Saturdays, with average peak period frequencies over 30 minutes and headways that exceed 60 minutes during the Midday Base period and on Saturdays. The route does meet the MBTA's span of service standards.

Table 1 | Schedule Statistics

SERVICE DAY	SPAN OF SERVICE	FREQUENCY (RANGE)	FREQUENCY (AVERAGE)	DAILY TRIPS (INBOUND/OUTBOUND)
Monday-Friday	6:10 AM to 7:15 PM			17/17
Sunrise	-	-	-	-
Early AM	6:10 AM to 6:59 AM	20 – 50	27	1/2
AM Peak	7:00 AM to 8:59 AM	20 – 75	46	4/3
Midday Base	9:00 AM to 1:29 PM	60 – 75	69	4/4
Midday School	1:30 PM to 3:59 PM	6 – 75	35	4/3
PM Peak	4:00 PM to 6:29 PM	20 – 70	42	3/4
Evening	6:30 PM to 7:15 PM	1 trip	-	1/1
Late Evening	-	-	-	-
Night	-	-	-	-
Saturday	6:20 AM to 6:20 PM	60 – 105	67	10/10
Sunday	-	-	-	-

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

Service Patterns

Route 436 typically travels between Liberty Tree Mall and Central Square, Lynn (Pattern 436.0). The route has five inbound and four outbound service patterns, although most of the variations are associated with buses coming into and out of service.

- The first weekday inbound trip (6:40 AM) originates at Goodwins Circle, stops at the Market Street at Commuter Rail stop rather than the Central Square, Lynn, and terminates at the Neptune Towers (Pattern 436.3).
- The following four trips, between 7:00 AM and 9:00 AM, originate at the Northshore Mall (Pattern 436.1).
- Two outbound weekday trips, as well as two inbound and two outbound trips on Saturdays, originate at Goodwins Circle and terminate at the Central Square, Lynn (Pattern 436.2).
- A weekday afternoon trip originates at Broadway at Conomo Avenue in Lynn near the Pickering Middle School and Sission Elementary School. The route terminates

at the MBTA Lynn Garage. This pattern does not operate during school vacations (Pattern 436.8).

- A weekday afternoon trip originates at the Lynn English High School and terminates at the MBTA Lynn Garage on Western Avenue. This pattern does not operate during school vacations (Pattern 436.9).

Table 2 | Service Patterns

PATTERN	ORIGIN	DESTINATION	UNIQUE FEATURE	TRIPS PER WKD	TRIPS PER SAT	TRIPS PER SUN
INBOUND				17	10	-
436.0	Liberty Tree Mall at Best Buy	Central Square, Lynn	Primary pattern	10	8	-
436.1	Northshore Mall at Entrance G	Central Square, Lynn	Skips Liberty Tree Mall at Best Buy	4	-	-
436.2	Lynnfield Street at Salem Street Goodwins Circle	Central Square, Lynn	Short Turn	-	2	-
436.3	Lynnfield Street at Salem Street Goodwins Circle	Neptune Boulevard at Blossom Street	Skips initial stops. Serves Apartments and Institute on Neptune Boulevard.	1	-	-
436.8	Broadway at Conomo Avenue	Western Avenue at MBTA Lynn Garage	School trip	1	-	-
436.9	Goodridge Street at Memorial Park Avenue	Western Avenue at MBTA Lynn Garage	School trip	1	-	-
OUTBOUND				17	10	-
436.0	Central Square, Lynn	Liberty Tree Mall at Best Buy	Primary pattern	10	8	-
436.1	Central Square, Lynn	Northshore Mall at Entrance G	Skips Liberty Tree Mall at Best Buy Stop	4	-	-
436.2	Central Square, Lynn	Lynnfield Street at Salem Street Goodwins Circle	Short Turn	2	2	-
436.3	Neptune Boulevard at Blossom Street	Lynnfield Street at Salem Street Goodwins Circle	Skips final stops. Serves Apartments and Institute on Neptune Boulevard	1	-	-

Ridership

Route 436 serves 664 passengers on weekdays and 343 passengers on Saturdays.

Ridership by Stop

Most boardings and alightings take place at the Liberty Tree Mall, the Northshore Mall, and in downtown Lynn. Ridership is very low along the rest of the route.

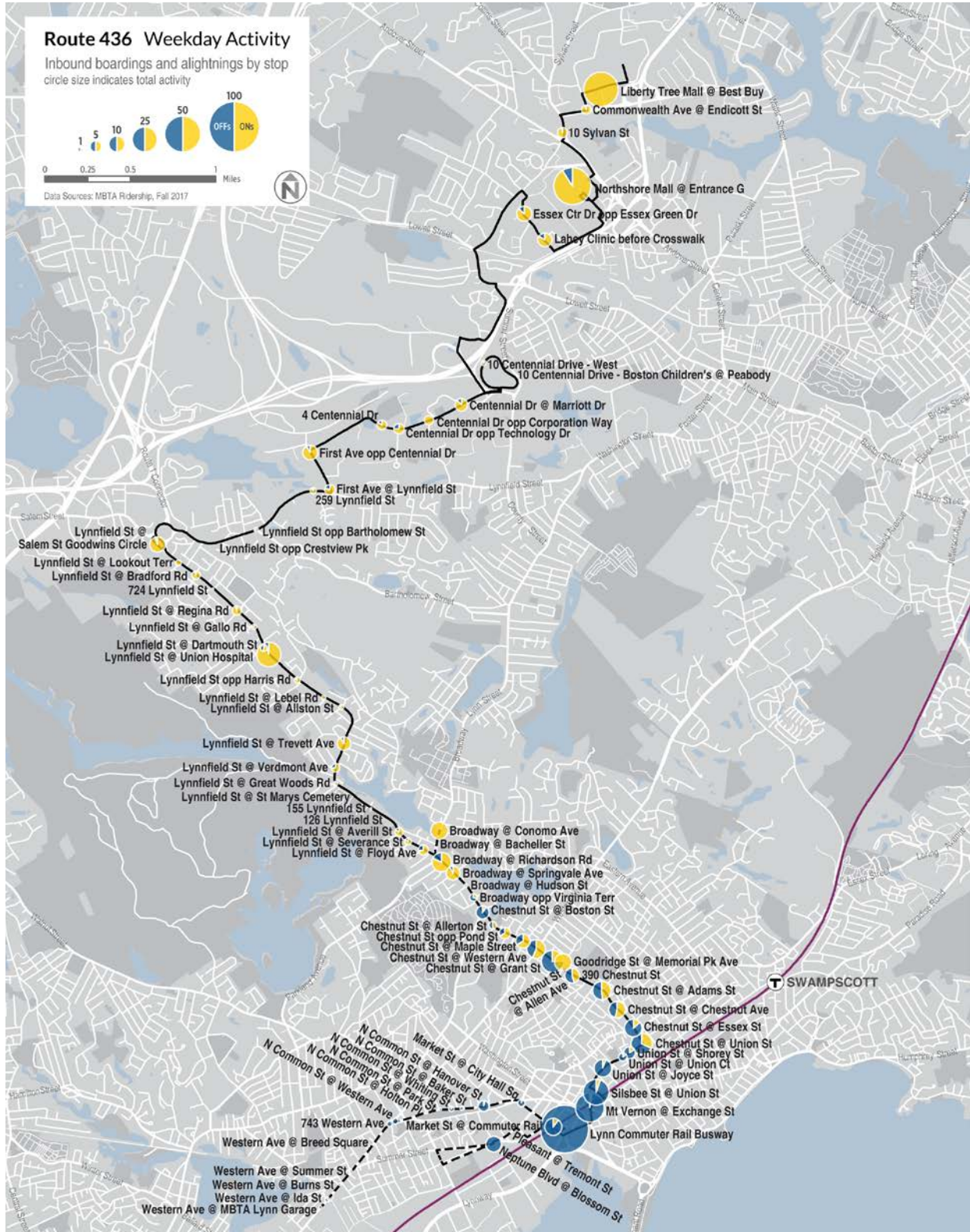
- 119 passengers board at the six stops from Liberty Tree Mall to Essex Center Drive opposite Essex Green Drive. Among these stops:
 - 47 passengers board at the Liberty Tree Mall.
 - 50 passengers board at the Northshore Mall.
- 89 passengers board and 12 passengers alight at the 29 stops along Centennial Drive and Lynnfield Street.
- 12 passengers board at Broadway at Conomo Avenue and Broadway at Bacheller Street, which are served on a school trip.
- 84 passengers board and 156 passengers alight at the 19 stops from Broadway at Richardson Road to Mount Vernon Street at Exchange Street.
- 94 passengers alight the bus at Central Square, Lynn.
- One passenger boards and 11 alight when the bus stops at Market Street rather than Central Square, Lynn Busway.
- On trips that terminate at the MBTA Lynn Garage, one passenger boards and 12 passengers alight between Market Street at City Hall Square and the Garage.

Outbound ridership generally mirrors inbound ridership, although with some notable differences:

- There is higher ridership along Lynnfield Street and Centennial Drive: 128 passengers alight and 20 board along this leg on outbound trips compared to the 89 boardings and 12 alightings that occur during inbound trips.
- There is also more activity at Central Square, Lynn, 140 passengers boarding at this stop during outbound trips while 94 passengers alight on inbound trips.

On Saturdays this same general pattern is observed, although with lower volumes.

Figure 3 | Weekday Inbound Ridership by Stop Map



Ridership by Trip

Inbound ridership varies throughout the day. On weekday inbound trips:

- The first trip of the day (6:40 AM) and the second trip of the day (7:00 AM) serve 24 and 20 passengers, respectively.
- Trips from 7:00 AM to 11:00 AM carry between eight and 14 passengers.
- Trips at 12:05 PM and 1:10 PM carry 19 and 18 passengers respectively.
- Ridership peaks on the three trips at 2:25 PM, 3:35 PM, and 4:45 PM, which each carry between 30 and 33 passengers.
- The two trips at 2:35 PM and 2:45 PM serve 14 and 17 passengers, respectively.
- The last three trips each carry between 10 and 16 passengers.

Outbound ridership is more uniform throughout the day:

- Between 6:00 AM and 2:00 PM, trips carry 18 to 30 passengers.
- Ridership peaks slightly on the 2:30 PM trip with 36 passengers.
- Between 2:30 PM and 4:00 PM, trips carry about 28 passengers.
- Between 4:00 PM and 7:30 PM, trips carry 8 to 16 passengers.

On Saturdays, inbound ridership peaks at 4:00 PM with 28 passengers, and ranges from six to 24 passengers on all other trips. The first two outbound trips of the day carry just eight and five passengers, respectively. Between 9:00 AM and 5:10 PM, trips carry 16 to 26 passengers, with ridership highest on the 1:40 PM trip.

Figure 4 | Weekday Ridership by Trip: Inbound

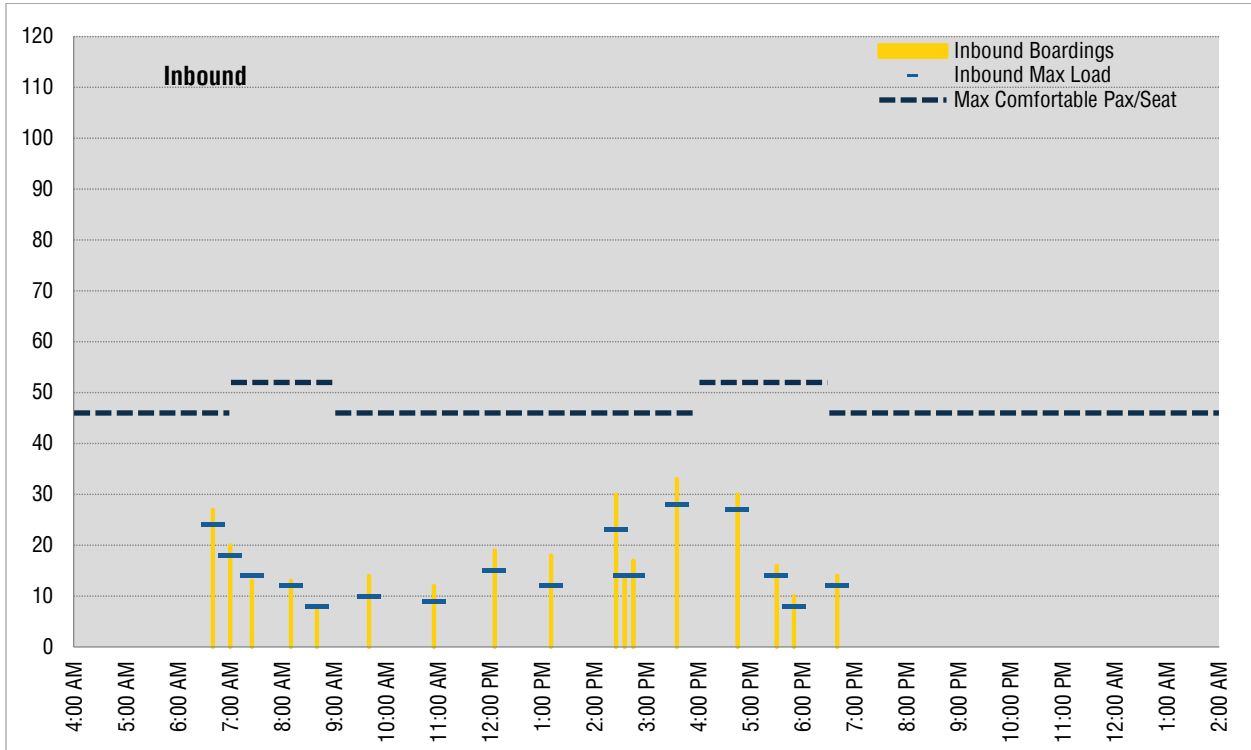


Figure 5 | Weekday Ridership by Trip: Outbound

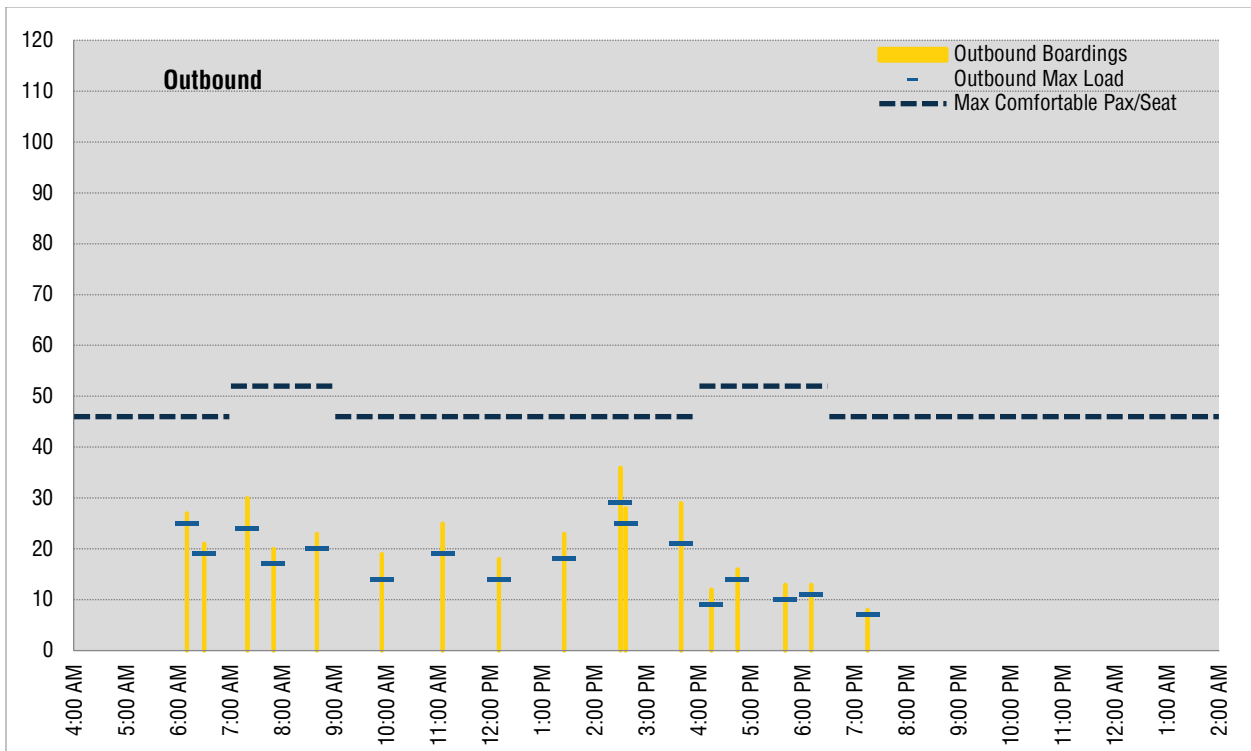


Figure 6 | Saturday Ridership by Trip: Inbound

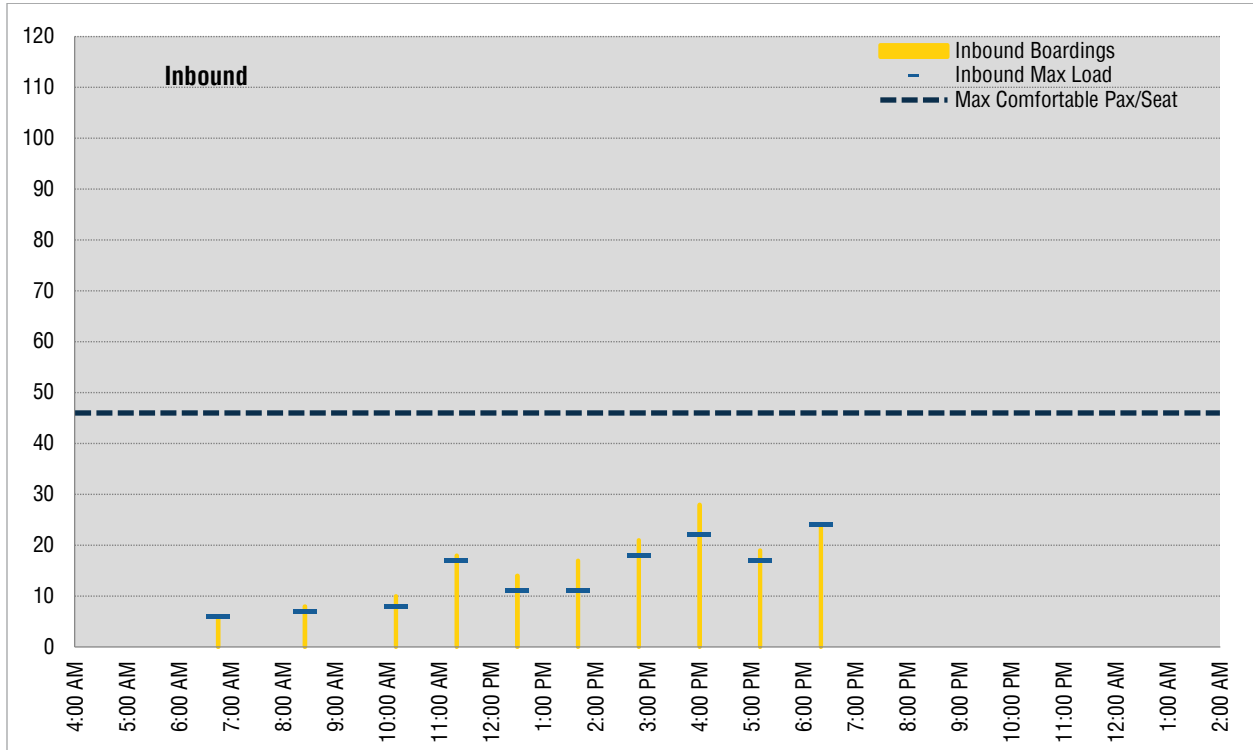
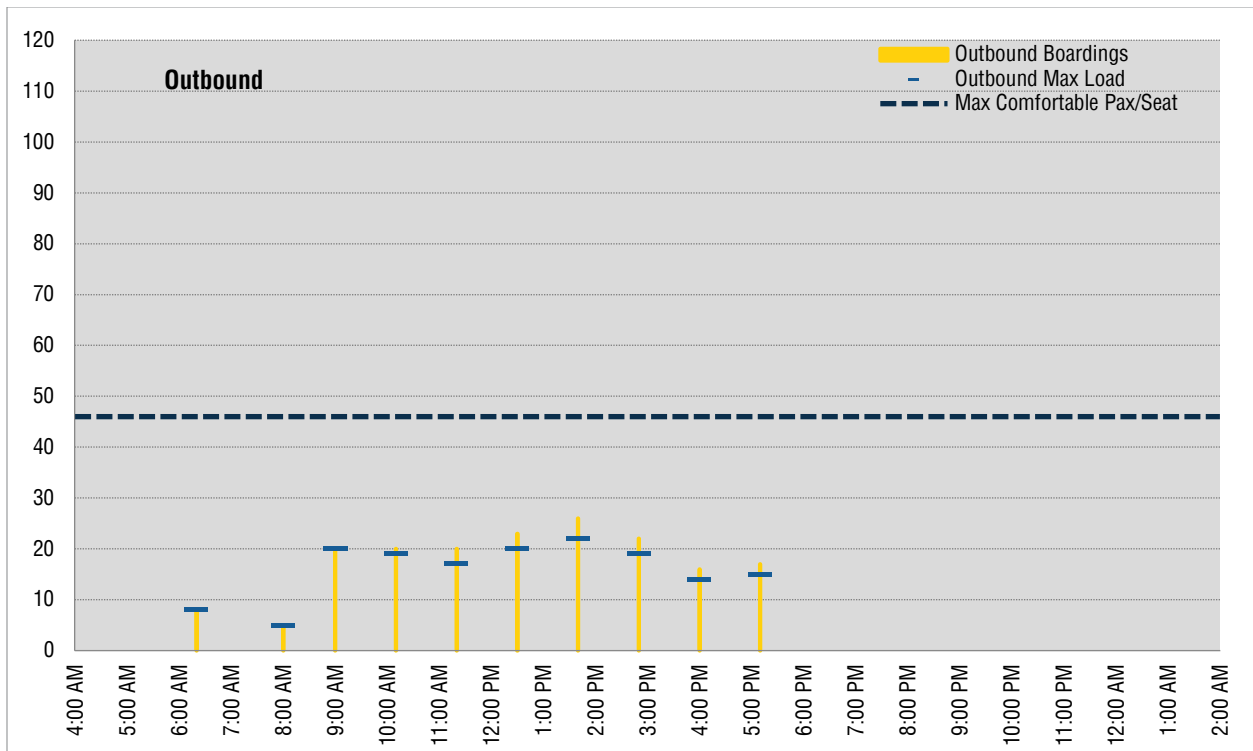


Figure 7 | Saturday Ridership by Trip: Outbound



Passenger Comfort

On Route 436, 99% of passenger minutes are in comfortable conditions, which meets 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	99%	100%	-

Reliability and Speed

Reliability

Route 436 is a generally unreliable, route with overall reliability of 62% during the week and 59% on Saturdays. The route’s destination on-time performance is much higher than origin/mid-route on-time performance of 60% during the week. Dropped trips are not a major issue on this route.

Table 4 | Reliability

SERVICE DAY	ORIGIN/MID-ROUTE ON-TIME PERFORMANCE	DESTINATION ON-TIME PERFORMANCE	OVERALL RELIABILITY	DROPPED TRIPS
Monday-Friday	60%	72%	62%	0.1%
Saturday	54%	84%	59%	-
Sunday	-	-	-	-

Running Times

Route 436 generally completes trips within a few minutes of scheduled total travel time. Trips are often completed earlier than scheduled.

Stop Spacing

Route 436 has an average of 3.9 stops per mile, although stop spacing along the route is variable. East of Goodwins Circle, stops are farther apart, at 2.6 stops per mile. West of Goodwins Circle, the route has an average of six stops per mile. Average stop spacing is over 10 stops per mile between Saint Mary’s Cemetery and 390 Chestnut Street.

Figure 8 | Scheduled & Median Travel Time by Trip: Route 436 Inbound

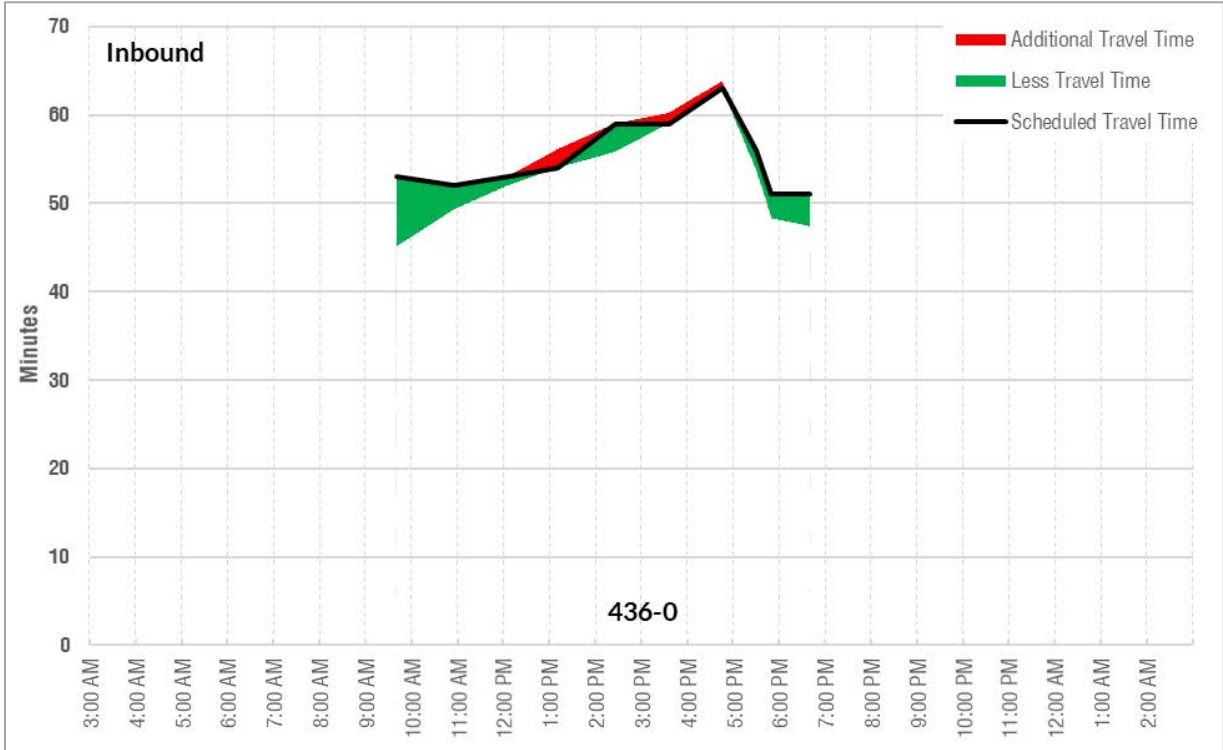
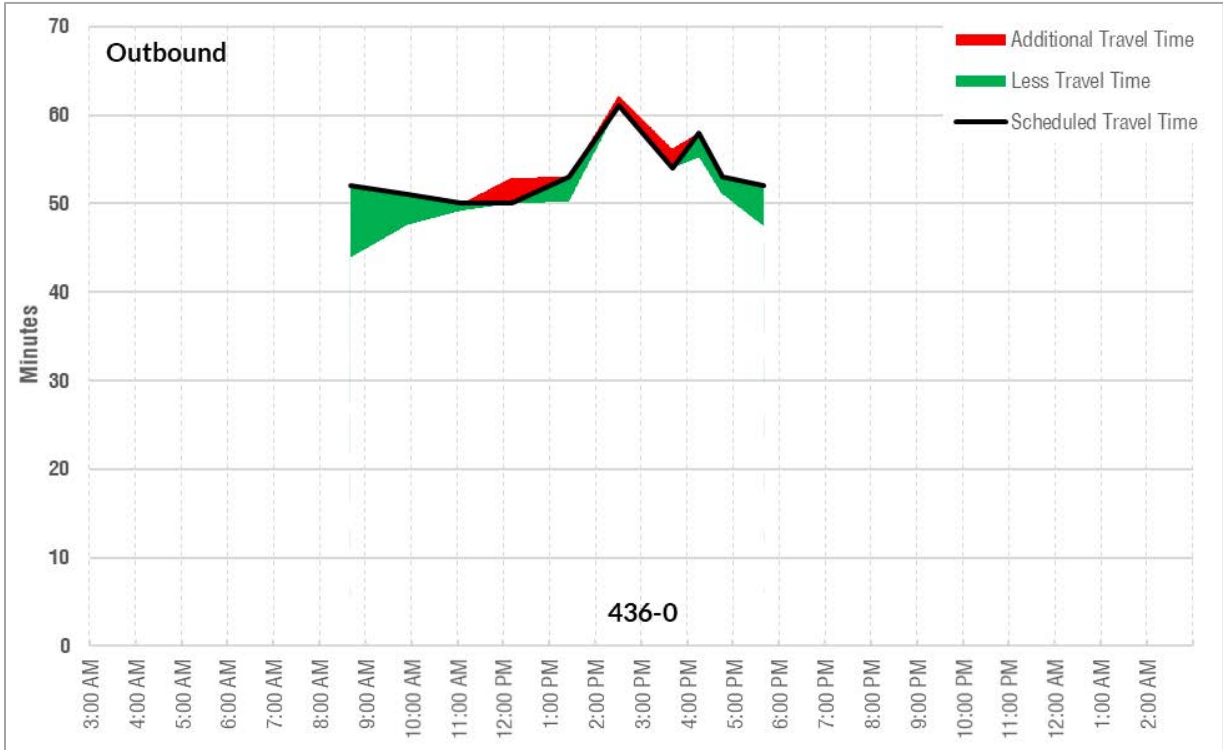


Figure 9 | Scheduled & Median Travel Time by Trip: Route 436 Outbound



Summary

Route 436 is a low-ridership bus route that runs from the Liberty Tree Mall in Danvers to Central Square, Lynn. The route is important for those who are transit dependent, yet relative to the rest of the MBTA network it is not a crucial route. As a route with low ridership, there are no issues with crowding and passenger comfort. However, the route is only somewhat reliable, with 62% on-time reliability overall on weekdays. The route also fails to meet the MBTA's frequency standards, with headways that can exceed 70 minutes and are generally inconsistent.