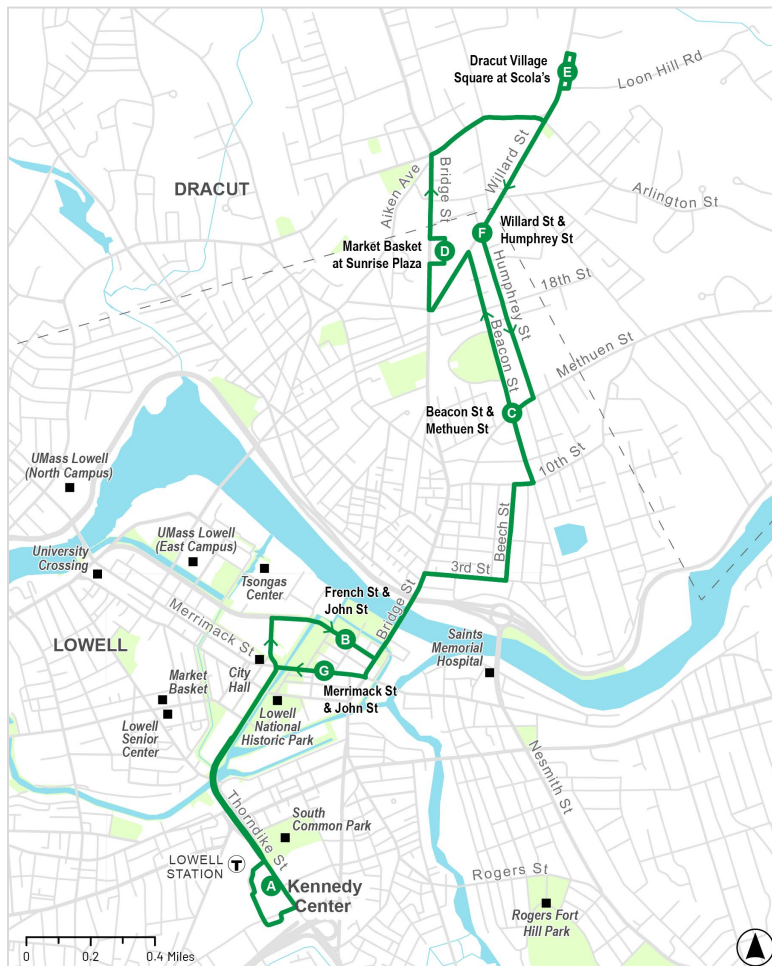


# 1 CHRISTIAN HILL

## ROUTE OVERVIEW

Route 1 Christian Hill operates in Lowell and Dracut. The route connects the eastern part of the Centralville neighborhood with Downtown Lowell, the Kennedy Center, Lowell High School, and other destinations including Market Basket.

### Route Map



Route 1 Characteristics		
Weekday		
Start Time	5:55 AM	
End Time	7:34 PM	
Peak Headway (mins.)	60	
Off-Peak Headway (mins.)	60	
Avg Weekday Boardings	128	
Avg Weekday Revenue Hrs	10	
Avg Boardings per Revenue Hr	12.8	
Schedule Adherence	On Time	66%
	Early	0%
	Late	34%
Saturday		
Start Time	8:00 AM	
End Time	5:32 PM	
Headway (mins.)	60	
Avg Saturday Boardings	52	
Avg Saturday Revenue Hrs	8	
Avg Boardings per Revenue Hr	8.6	

### Alignment

Route 1 operates north from the Kennedy Center on Thorndike and Dutton streets, operating on the common downtown Lowell couplet of Father Morissette Boulevard (outbound) and Merrimack Street (inbound). The route crosses the Merrimack River via Bridge Street. In Centralville, Route 1 operates via Beacon Street (outbound) and Humphrey Street (inbound) couplet. The route has a large clockwise terminal loop that serves the front doors of the Bridge Street Market Basket and Dracut Village Square.

### Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Routes 8 and 10 share an alignment with Route 1 between the Kennedy Center and Bridge Street at Third Street.
- Route 10 also overlaps with Route 1 on upper Bridge Street between Billings and Pleasant streets.

### Key Destinations

- Lowell Station and Kennedy Center
- Downtown Lowell
- Lowell High School
- Market Basket
- Dracut Village Square

## RIDERSHIP AND PRODUCTIVITY

Overall, Route 1 is a relatively low-ridership route within the LRTA system, with high ridership on school-time trips making up for low ridership during other times of the day. Most ridership seems to be related to school or shopping trips.

### Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Near Lowell High School
- Bridge Street, just north of the Merrimack River (fixed and flag stops)
- Beacon Street at Tenth Street (flag stop)
- Along Humphrey Street (fixed and flag stops)
- Market Basket Plaza (fixed stop and flag stop)
- Dracut Village Center, south end of plaza (flag stop)

Areas with the lowest ridership:

- Willard Street between Humphrey Street and Dracut Village Square
- Third and Beach streets
- Thorndike and Dutton streets
- Along and near Arlington Street
  - There are multiple very-low ridership stops.

#### Ridership Ranking

**15** of 19

Route 1 is in the bottom 20% of all LRTA routes.

#### Productivity Ranking

**13** of 19

Route 1 is in the bottom 30% of all LRTA routes.



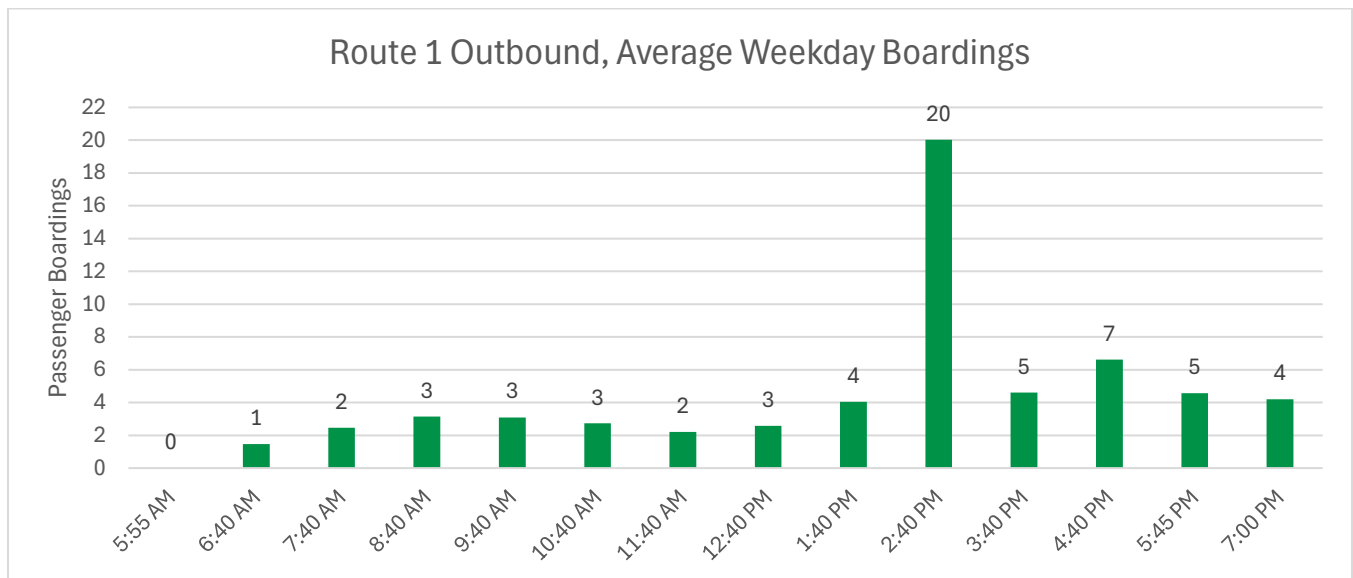
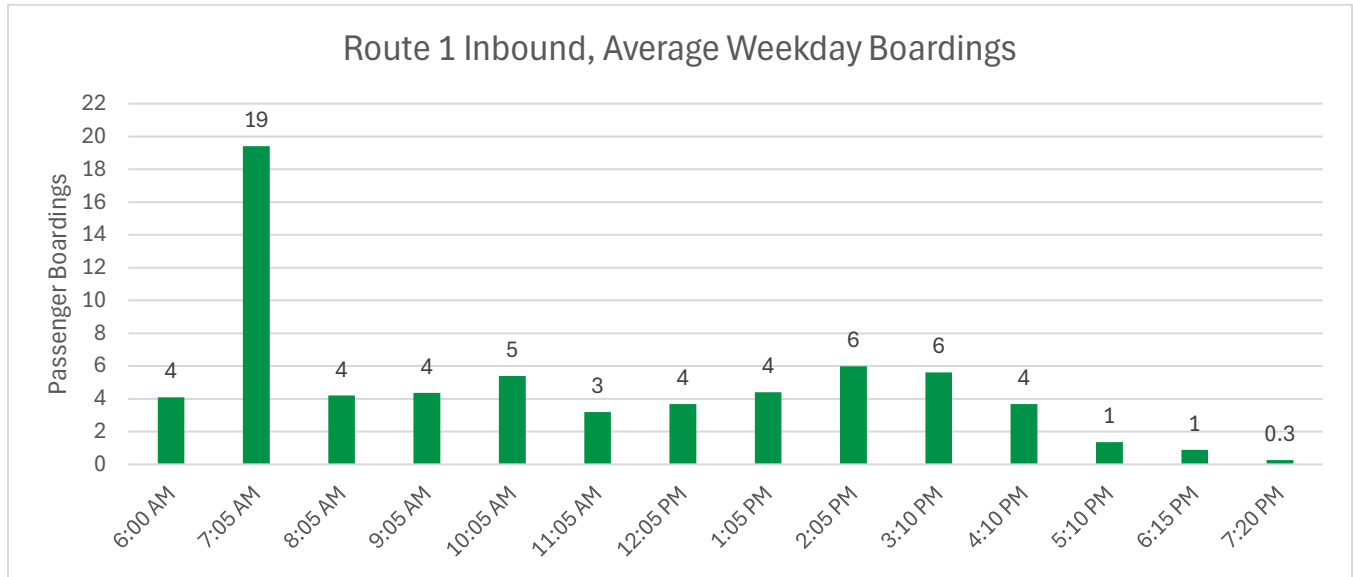
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership is fairly low, ranging from two to five boardings on most trips. The highest average ridership occurs during the 7:05 a.m. inbound trip, which carries over 19 passengers, and the 2:40 p.m. outbound trip, which carries over 20 passengers. While these are not supplemental school trips, most of this ridership is likely students. In the inbound direction, ridership is relatively low throughout the day, and very low after 5:00 p.m. Outbound ridership is very low before 1:00 p.m.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 1 exhibits moderate to poor on-time performance. In July 2025, 66% of trips were on-time and 34% of trips were late. Route 1 did not record any early trips during the month. LRTA operations staff have noted that congestion can be severe on Bridge Street; this may be related to late trips.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 1 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

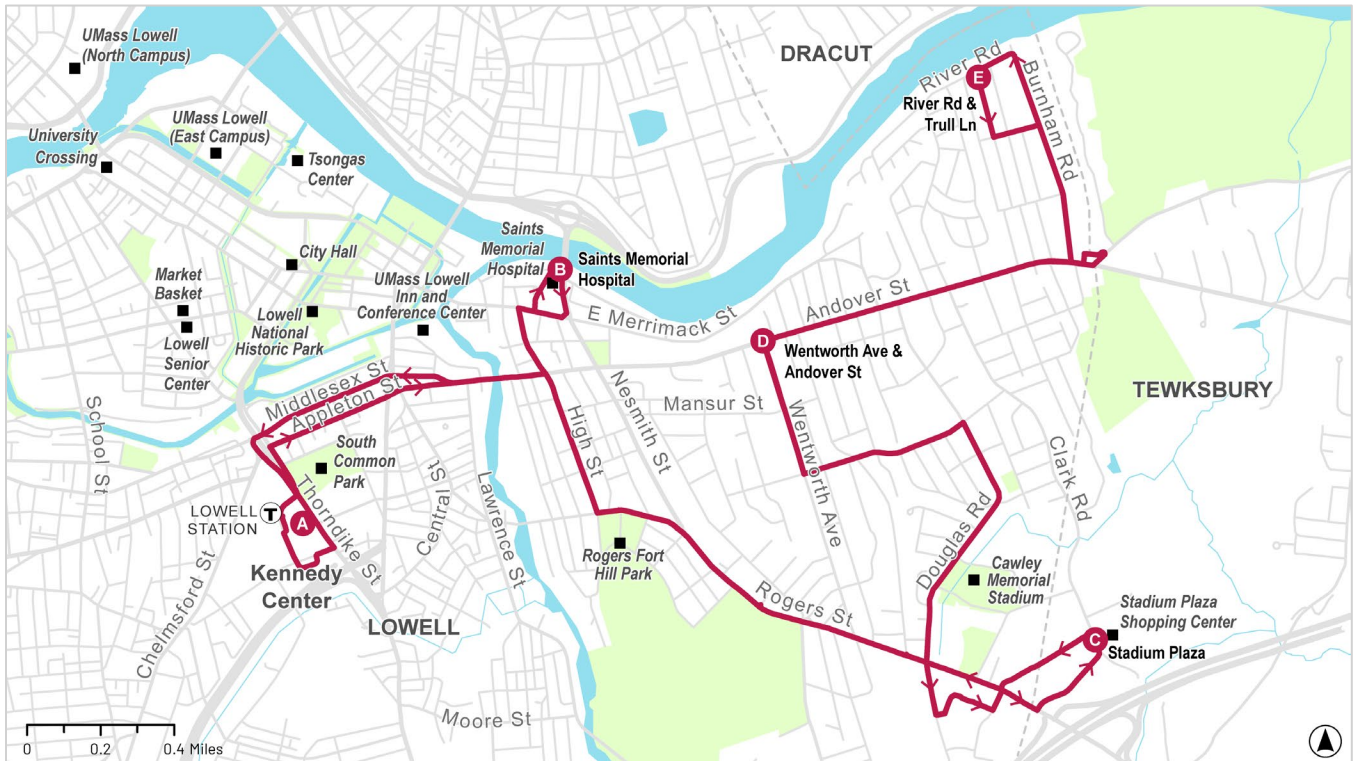
- Operate route bi-directionally on Humphrey Street instead of Beacon Street, which would make service easier to understand and reduce walk distance for riders living on or east of Humphrey Street.
- Operate route bi-directionally on Beacon Street instead of Humphrey Street, which would eliminate two turns and provide better service to Robinson Middle School. It would also make service easier to understand and reduce walk distance for riders living on or west of Beacon Street.
- Eliminate service on upper Bridge and Arlington streets, operating the route bi-directionally on Willard Street between Beacon Street and Dracut Village Square.
  - Riders can still access Market Basket via stops at Willard and Beacon streets, although improved pedestrian infrastructure may be needed and they would need to walk further. Riders can also use Route 10 to access Market Basket.
  - This would make the route faster, more reliable, and easier to understand for some riders.
- Eliminate service on Willard Street between Beacon and Arlington streets, operating the route bi-directionally on upper Bridge and Arlington streets, making the route easier to understand and reducing travel time for many riders.
  - Very few people board the route on Willard Street.
- Stop the route on Bridge Street instead of entering the Market Basket parking lot, providing faster and more reliable service and improving operational safety.
  - The Market Basket parking lot has sidewalks and crosswalks.
- Consider combining alignment with Route 8 and/or Route 10 to provide a better mix of coverage and frequency for Centralville and Dracut.
- Consider operating bi-directionally through downtown Lowell to make service easier to understand and reduce walking distance for some riders.
- Consider making high-activity flag stops into designated bus stops: Beacon Street at Tenth Street, Dracut Village Square (change stop location to south end of plaza by Health Care Family Pharmacy), Bridge Street at 2<sup>nd</sup> Street, and on Humphrey Street.

# 2 BELVIDERE

## ROUTE OVERVIEW

Route 2 operates primarily in Lowell with service extending slightly into Tewksbury. The route connects the Belvidere neighborhood of Lowell with the Stadium Plaza Shopping Center, Hannaford, the Lowell General Hospital Saints Campus, downtown Lowell, and the Kennedy Center.

### Route Map



Route 2 Characteristics						
Weekday			Saturday			
Start Time	6:15 AM	Schedule Adherence	On Time	60%	Start Time	7:45 AM
End Time	7:50 PM		Early	6%	End Time	6:55 PM
Peak Headway (mins.)	30		Late	34%	Headway (mins.)	60
Off-Peak Headway (mins.)	30	Avg Weekday Revenue Hrs	31	Avg Saturday Boardings	131	
Avg Weekday Boardings	332	Avg Boardings per Revenue Hr	10.7	Avg Saturday Revenue Hrs	12	
				Avg Boardings per Revenue Hr	10.9	

## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Alignment

Route 2 operates north from the Kennedy Center on Thorndike Street, operating on the common downtown Lowell couplet of Appleton (outbound) and Middlesex (inbound) streets. East of downtown Lowell, the route becomes circuitous, deviating north on High Street to serve the Saints Campus of Lowell General Hospital. Route 2 then operates bi-directionally on High and Rogers streets, deviating south to serve the front door of Hannaford before deviating again into the Stadium Plaza parking lot to serve Market Basket. After briefly returning to Rogers Street, the route enters the Belvidere neighborhood via Douglas Road. The route continues through Belvidere on Hovey Street, Wentworth Avenue, and Andover Street. After a deviation into a small shopping plaza that helps facilitate a safe left turn, Route 2 runs north on Burnham Road before turning around at River Road. Service is largely bi-directional.

#### Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Routes 3, 11, 12, 18, and 20 also operate on Appleton, Middlesex, Church, and Andover streets.
- Route 11 overlaps Route 2 on Andover Street from Wentworth Avenue to River Road.
- Route 12 service again overlaps with Route 2 on Rogers Street.

#### Key Destinations

- Lowell Station and Kennedy Center
- Downtown Lowell
- Saints Campus, Lowell General Hospital
- Hannaford
- Market Basket at Stadium Plaza Shopping Plaza

# RIDERSHIP AND PRODUCTIVITY

Overall, Route 2 is a relatively high-ridership route within the LRTA system, with high ridership on school-time trips making up for low ridership during other times of the day. Most ridership seems to be related to school, medical, or shopping trips.

## Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Along Middlesex Street
- Near the Lowell Social Security Administration office on Church Street (fixed stop in inbound direction but only flag stop in outbound direction)
- The entire deviation to Lowell General Hospital
- High Street and Rogers Street intersection (fixed stops and flag stops)
- Along Rogers Street
- Hannaford shopping plaza (fixed stop and flag stop)
- Market Basket at Stadium Plaza (fixed stop and flag stop)
- Hovey Street and Wentworth Avenue (flag stop in outbound direction)
- Wentworth Avenue and Andover Street (flag stop)

Areas with the lowest ridership:

- Along Andover Street east of Wentworth Avenue
- Douglas Road between Rogers Street and Hovey Street

## Productivity Observations

Although the route has some of the highest ridership in the system, its productivity is among the lowest in the system. This means the route may have significantly greater frequency than others (this is true), have unproductive segments, or both. The route is one of only a few that LRTA currently operates with 30-minute all-day service. Efforts to improve productivity should re-evaluate segments with low ridership.

### Ridership Ranking

**5** of 19

Route 2 is in the top 25% of all LRTA routes.

### Productivity Ranking

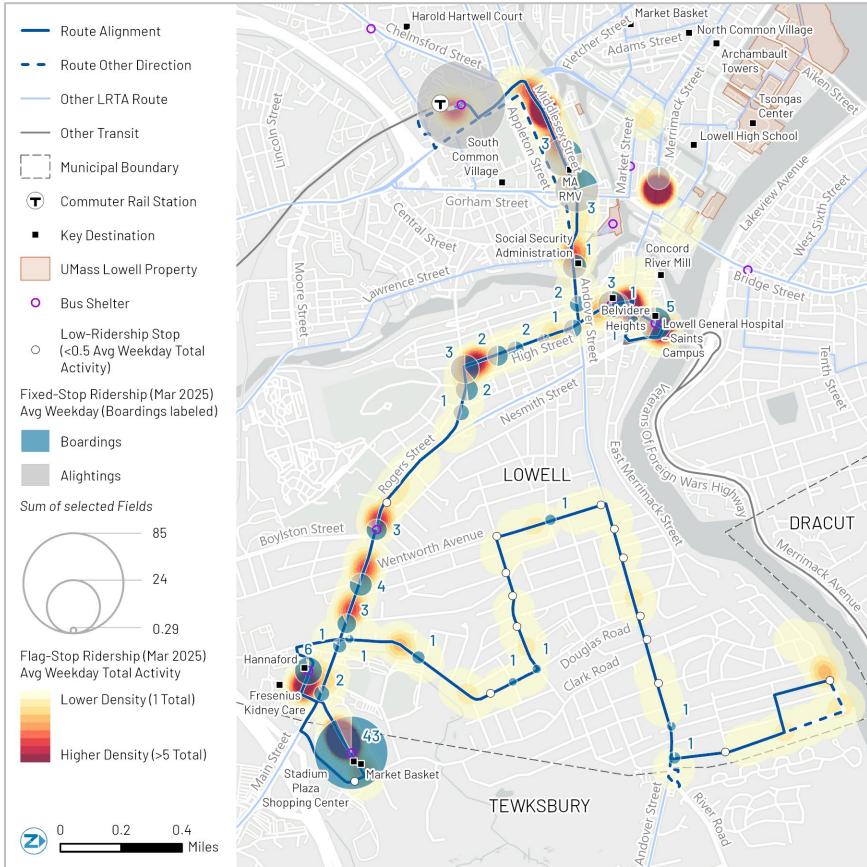
**15** of 19

Route 2 is in the bottom 20% of all LRTA routes.

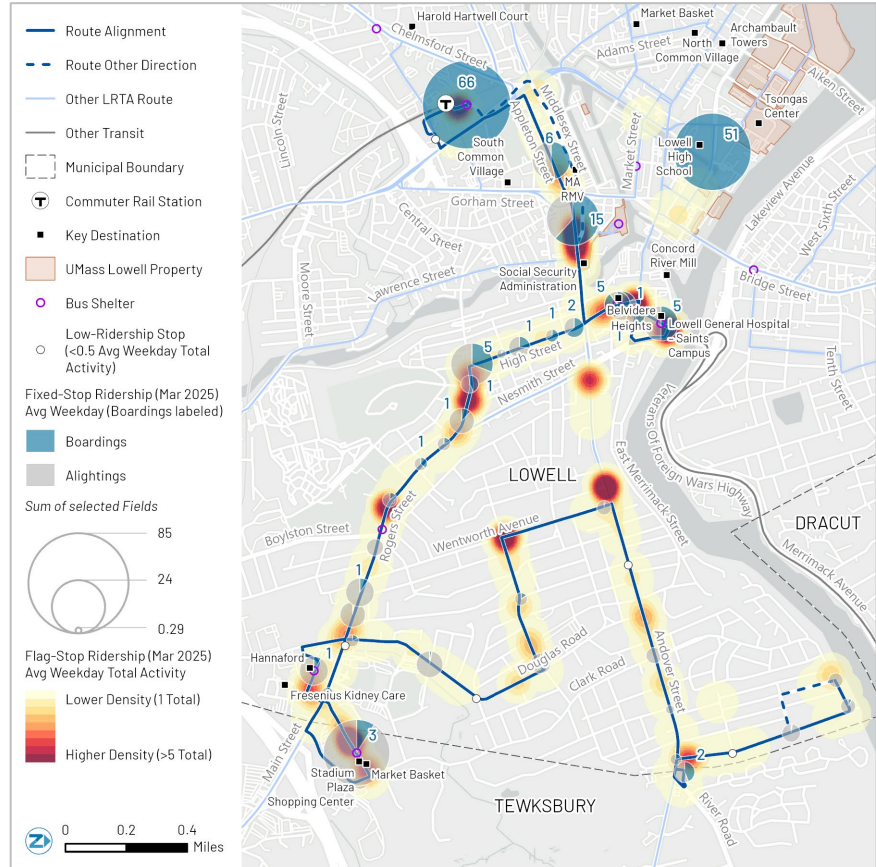
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Average Weekday Boardings Map, Inbound



#### Average Weekday Boardings Map, Outbound



Note: Ridership that appears on maps off of the alignment is assumed to be school-tripper ridership.

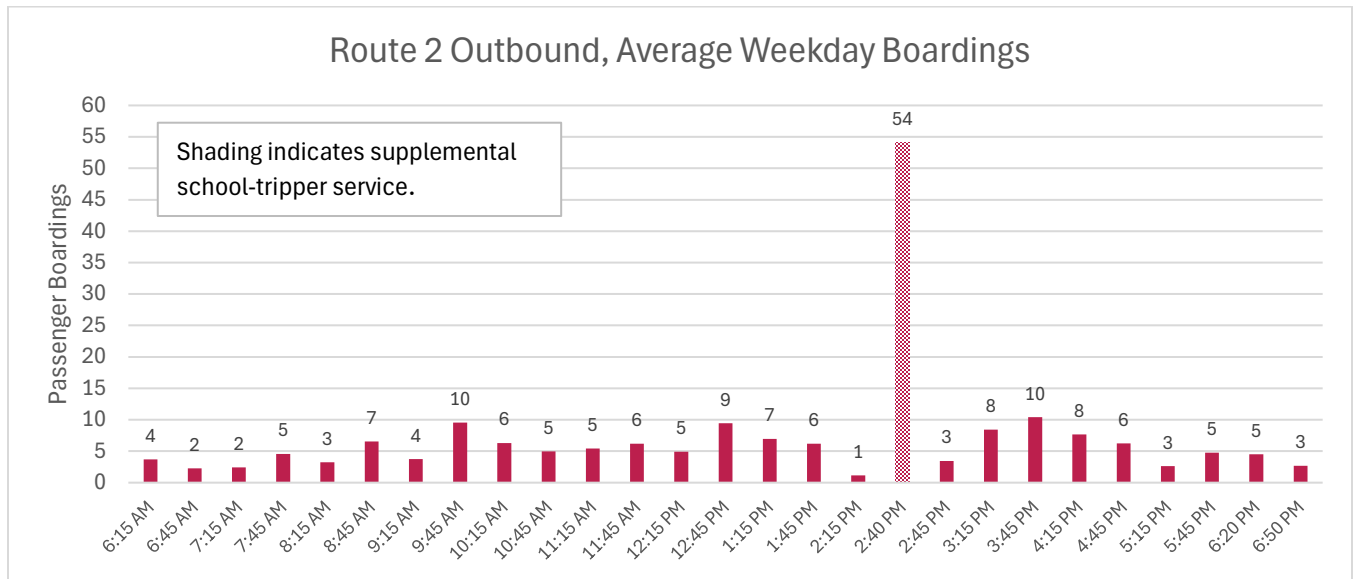
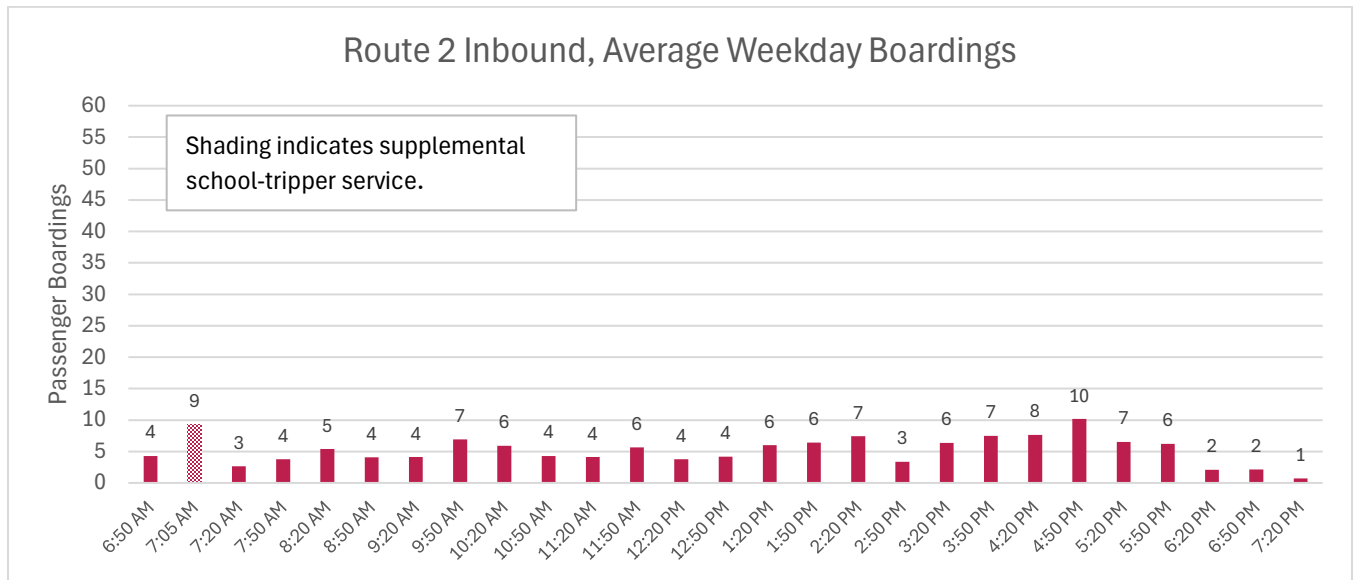
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from three to ten boardings on most trips. The highest ridership trip is the 2:40 p.m. outbound school tripper, which carries 54 passengers. In the inbound direction, ridership remains relatively stable throughout the day, with a slight peak around 5:00 p.m. Outbound, ridership peaks around 9:45 a.m. and 3:45 p.m. Ridership is low after 6:30 p.m.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 2 has poor on-time performance. In July 2025, 60% of trips were on-time, 34% of trips were late, and 6% of trips were early.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 2 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

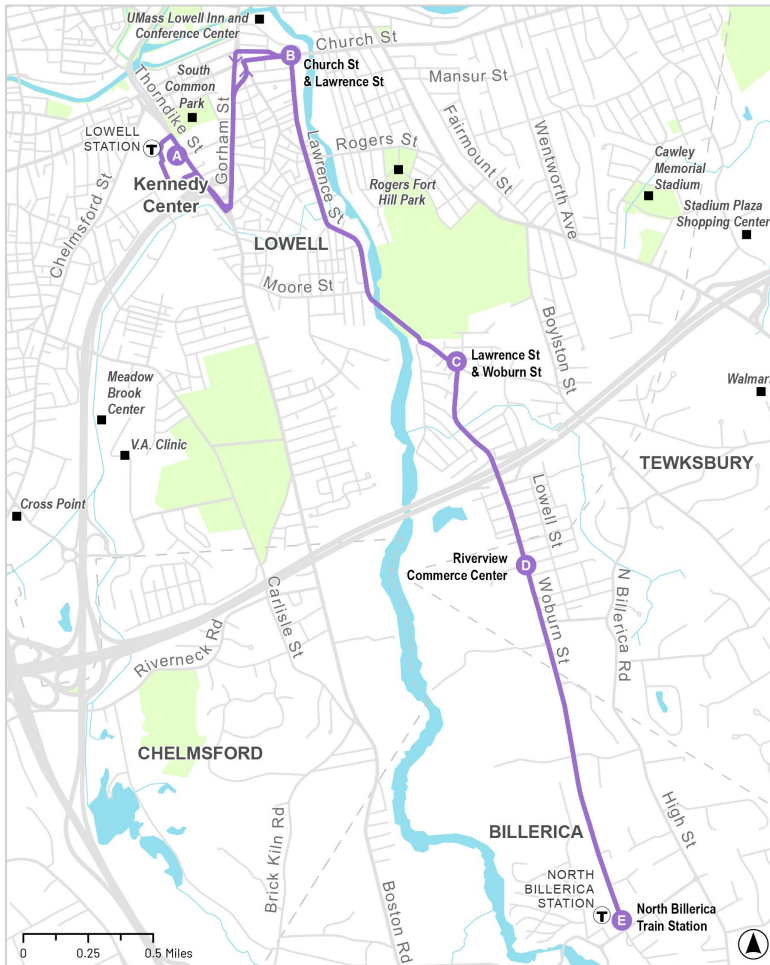
- Discontinue the deviation to Hannaford, as the route already serves Market Basket at the front door, and that is a more popular shopping destination on this route.
- Consider options for truncating or modifying the route alignment.
  - End the route near Wentworth Avenue and Andover Street due to low ridership along Andover Street to the existing route terminus at River Road. This would retain service in the heart of the Belvidere neighborhood while removing unproductive segments.
  - End at Market Basket due to the presence of a strong anchor, and to eliminate less productive segments of the route. Increasing service levels on Route 11 could provide coverage on Andover Street.
  - Turn the bus around at Andover Street and River Road.
  - Operate route directly on Douglas Road to Andover Street to simplify alignment and speed up service for some riders.
- Consider making high-activity flag stops into designated bus stops:
  - Middlesex Street and Pearl Street.
  - Church Street and Warrant Street, outbound.
- Consider stopping on E Merrimack Street instead of entering the Lowell General Hospital campus. This may require improved access-to-transit infrastructure.
- Do not serve Lowell General Hospital with Route 2 and instead serve with another route, such as a downtown circulator.
- Consider operating route on Nesmith Street between Lowell General Hospital and Rogers Street instead of High Street.
  - Nesmith has a wider right-of-way and more mixed-use activity.
  - Left turn from High Street to Rogers Street can be challenging.
  - Can utilize existing stop infrastructure (Route 12) in the northbound direction on Nesmith Street.
  - The left turn from Andover Street onto Nesmith Street is signalized, although this is a highly congested intersection and turning movements here may be difficult.
- Formalize the designated bus stop at Lowell General Hospital-Saints Campus
  - Existing stop doesn't have bench, shelter, or sidewalk.

# 3 SOUTH LOWELL

## ROUTE OVERVIEW

Route 3 operates primarily in Lowell with service extending into Tewksbury and Billerica. The South Lowell route predominately serves the Lawrence Street corridor and connects the Back Central and South Lowell Neighborhoods with downtown Lowell and the Kennedy Center. The MBTA Lowell Line Commuter Rail stations of Lowell and North Billerica are the route’s termini.

### Route Map



Route 3 Characteristics		
<b>Weekday</b>		
Start Time	6:00 AM	
End Time	7:16 PM	
Peak Headway (mins.)	60	
Off-Peak Headway (mins.)	60	
Avg Weekday Boardings	180	
Avg Weekday Revenue Hrs	11	
Avg Boardings per Revenue Hr	16.3	
Schedule Adherence	On Time	89%
	Early	4%
	Late	7%
<b>Saturday</b>		
Start Time	8:00 AM	
End Time	5:36 PM	
Headway (mins.)	60	
Avg Saturday Boardings	28	
Avg Saturday Revenue Hrs	6	
Avg Boardings per Revenue Hr	4.7	

### Alignment

Route 3 primarily follows a linear alignment from downtown Lowell southwards. The route operates from the Kennedy Center on Thorndike Street before turning onto Gorham Street. The route runs briefly on Veteran’s Way and Church Street (outbound) before turning onto Lawrence Street (inbound, the route uses Green Street instead of Church Street). The route continues south on Lawrence Street, turning onto Woburn Street, which becomes Billerica Avenue, and turns around in the MBTA North Billerica Station east parking lot.

## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Routes 2, 11, 12, and 20 overlap with Route 3 on Church Street
- Route 3 connects to the MBTA Lowell Line at its terminus at North Billerica Station, and Route 13 can be accessed by crossing the Commuter Rail tracks.

#### Key Destinations

- Lowell Station and Kennedy Center
- Downtown Lowell
- Back Central Neighborhood
- South Lowell Neighborhood
- Central Plaza shopping center
- Riverview Commerce Center
- MBTA North Billerica Station

## RIDERSHIP AND PRODUCTIVITY

Overall, Route 3 has relatively moderate ridership and productivity within the LRTA system, with high ridership on school-time trips making up for low ridership during other times of the day. Most ridership seems to be related to school trips.

#### Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Lowell High School
- Around Appleton Street and Gorham Street
- Along Lawrence Street from Rogers Street to Woburn Street
- Along Woburn Street from Lawrence Street to Commonwealth Avenue

Areas with the lowest ridership:

- Along Woburn Street in Tewksbury and along Billerica Avenue

#### Productivity Observations

- Route 3 has both moderate ridership and productivity.
- Productivity would likely improve if segments in Billerica and Tewksbury were eliminated.

#### Ridership Ranking

**11** of 19

Route 3 is in the middle of all LRTA routes.

#### Productivity Ranking

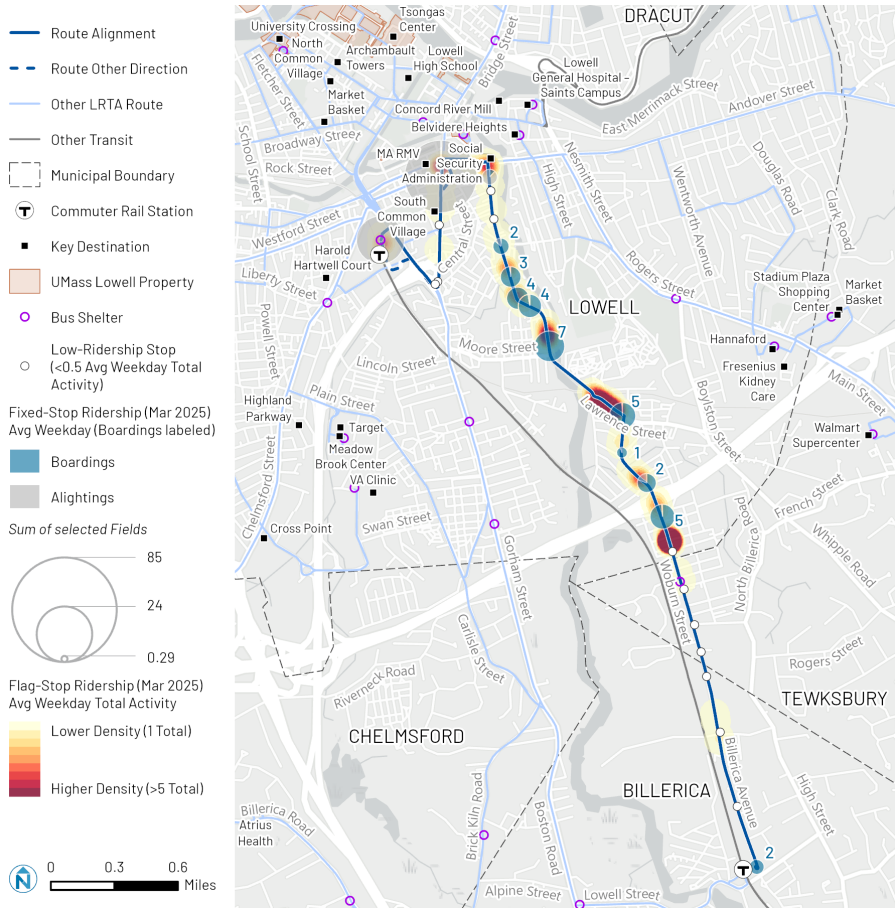
**9** of 19

Route 3 is in the middle of all LRTA routes.

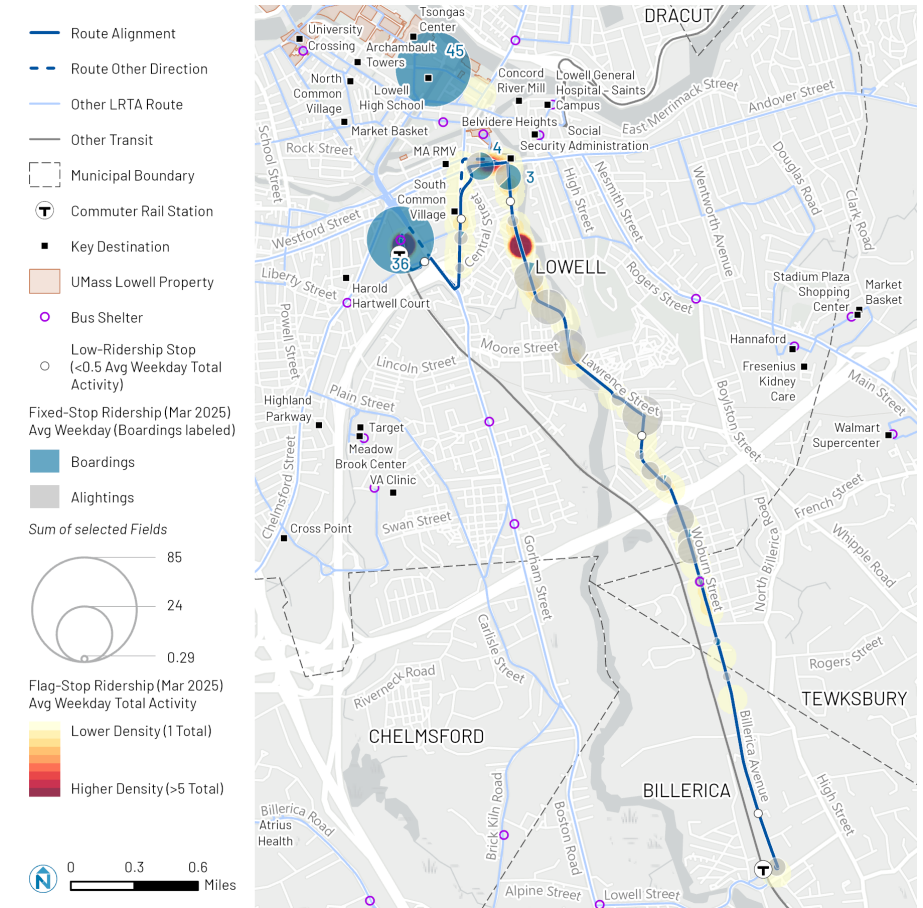
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Average Weekday Boardings Map, Inbound



#### Average Weekday Boardings Map, Outbound



Note: Ridership that appears on maps off of the alignment is assumed to be school-tripper ridership

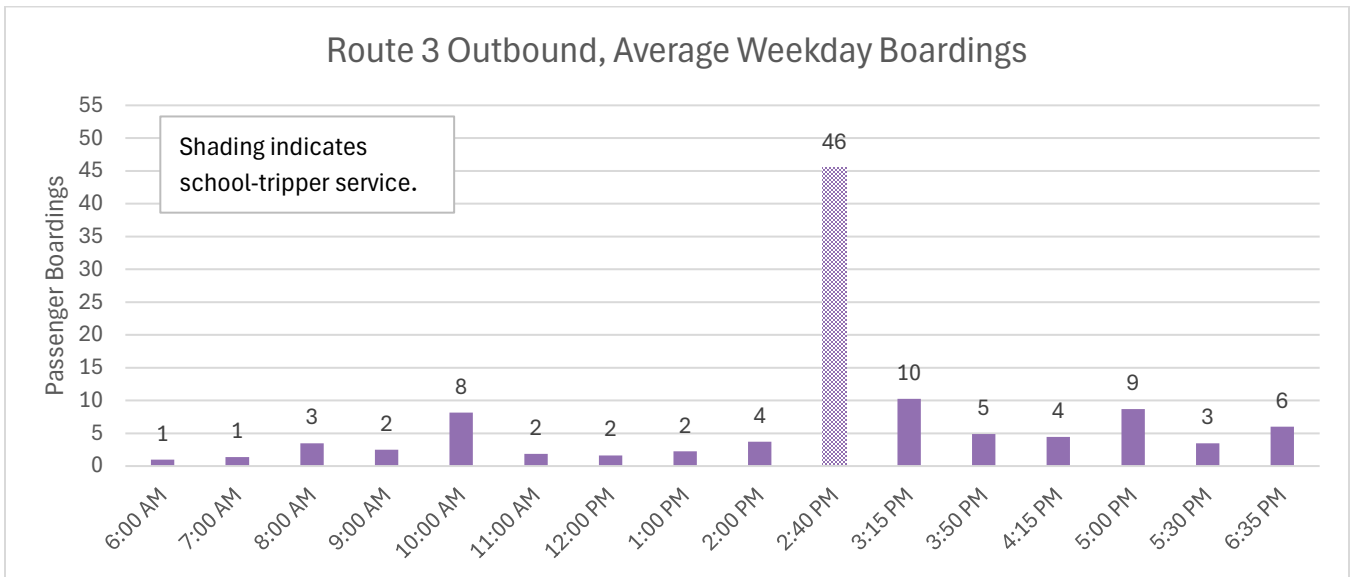
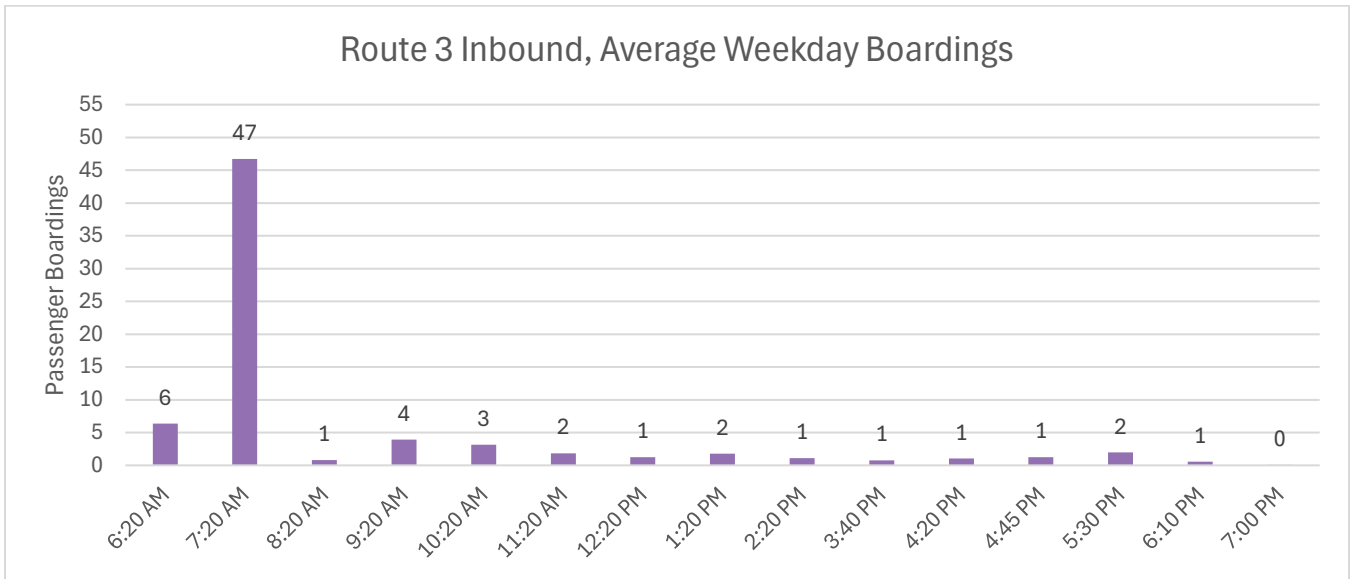
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from one to 10 boardings on most trips. The highest ridership trips are the 7:20 a.m. inbound and 2:40 p.m. outbound trips, which are likely serving high-school students. In the inbound direction, ridership is higher in the morning and extremely low in the afternoon and evening. In the outbound direction, boardings generally increase over the course of the day, with peaks on the 10:00 a.m. and 3:15 p.m. trips. Relatively high boardings during the first inbound trip of the day may indicate demand for earlier service.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 3 exhibits good on-time performance. In July 2025, 89% of trips were on time, 7% of trips were late, and 4% of trips were early.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 3 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

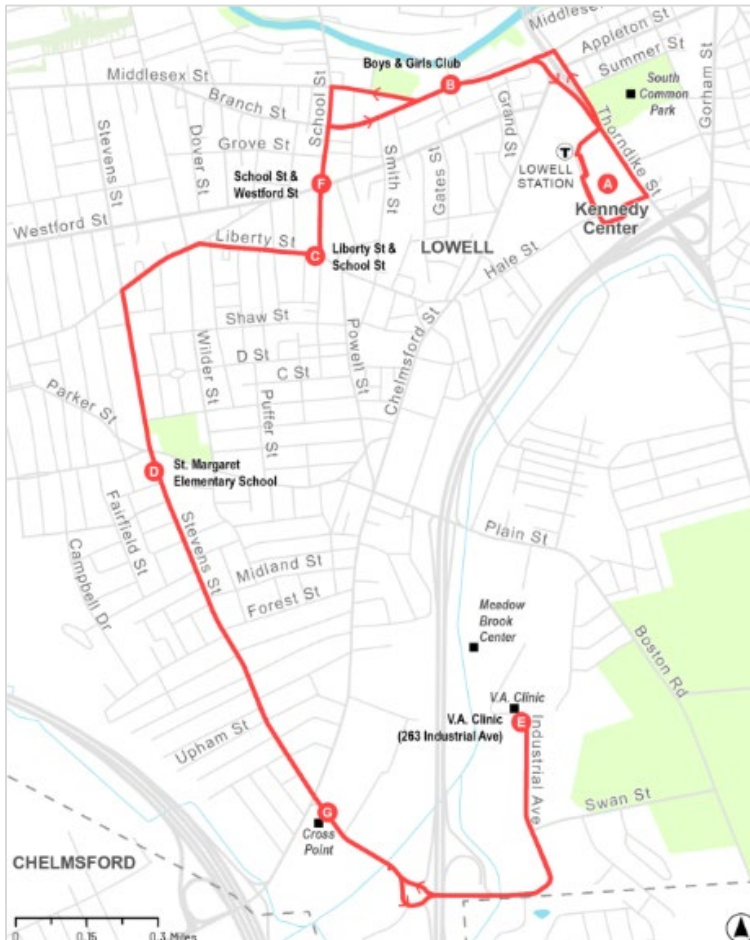
- Realign the route away from Gorham Street, instead using Thorndike Street and the Appleton/Middlesex couplet to Church Street, similar to other routes.
  - Gorham Street sees very low ridership.
  - The South Common Village housing development is on Gorham Street but is within easy walking distance of Appleton Street, where transfers to other routes would be simplified.
- Consider truncating the route at the Lowell-Tewksbury municipal boundary.
  - Lower Woburn Street and Billerica Avenue see very low ridership.
  - A terminal loop around South Lowell could provide better access to Delmont Gardens Apartments.
  - The route could be re-aligned to serve Walmart in Tewksbury.
  - Very few people use this route to access North Billerica Station, and riders can access the Lowell Line via the Kennedy Center, or North Billerica Station via Route 13.
  - Travel-time savings from truncation may enable 30-minute service on the route or allow resources to be applied elsewhere in the system.
- Coordinate bus schedule with MBTA Commuter Rail service
  - Schedule trips so buses arrive and depart North Billerica Station before and after Commuter Rail trains respectively stop at the station.
  - Minimizing wait times for riders transferring across services will make the route more useful.

# 4 HIGHLAND VIA STEVENS

## ROUTE OVERVIEW

Route 4 operates entirely within Lowell, primarily serving the Stevens Street corridor and connecting the Highlands neighborhood with downtown Lowell and the Kennedy Center. This is the only route serving the U.S. Department of Veteran’s Affairs (VA) clinic.

### Route Map



Route 4 Characteristics		
Weekday		
Start Time	6:10 AM	
End Time	7:01 PM	
Peak Headway (mins.)	60	
Off-Peak Headway (mins.)	25-40	
Avg Weekday Boardings	238	
Avg Weekday Rev Hrs	12	
Avg Boardings per RH	19.8	
Schedule Adherence	On Time	82%
	Early	7%
	Late	11%
Saturday		
Start Time	8:20 AM	
End Time	5:55 PM	
Headway (mins.)	60	
Avg Saturday Boardings	27	
Avg Saturday Revenue Hrs	5	
Avg Boardings per Revenue Hr	5.4	

### Alignment

Route 4 operates a crescent-shaped alignment covering the southwest areas of Lowell. The route runs north from the Kennedy Center on Thorndike Street before turning onto Middlesex Street. The route operates as a couplet on Branch and Middlesex streets east of School Street. The route runs briefly on School, Liberty, and Pine streets before reaching Stevens Street. Route 4 continues south on Stevens Street for much of its length. The route then continues on Industrial Avenue, terminating at a dead end near the Lowell V.A. clinic.

## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Route 19 operates on the same alignment as Route 4 on Middlesex Street
- Route 5 intersects with Route 4 at Westford Street and School Street
- Route 16 intersects with Route 4 on Chelmsford Road at Stevens Street

#### Key Destinations

- Lowell Station and Kennedy Center
- Boys & Girls Club of Lowell
- Highlands Neighborhood
- Cross Point Business Center
- Lowell V.A. clinic

## RIDERSHIP AND PRODUCTIVITY

Overall, Route 4 has relatively moderate ridership but relatively high productivity within the LRTA system, with high ridership on school-time trips making up for low ridership during other times of the day. Most ridership seems to be related to school trips.

#### Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Lowell High School (school trippers)
- Along Middlesex Street, especially at the Boys & Girls Club
- Liberty and Pine streets between School and Stevens streets
- Along Stevens Street
  - At Fleming Street (fixed stop and flag stop)
  - At Jenness Street (flag stop)
  - At Cross Point
- Industrial Avenue East at Executive Drive (flag stop)

Areas with the lowest ridership:

- Industrial Avenue East after Executive Drive

#### Productivity Observations

Although the route has moderate overall ridership, it is highly productive relative to other routes.

#### Ridership Ranking

9 of 19

Route 4 is in the middle of all LRTA routes.

#### Productivity Ranking

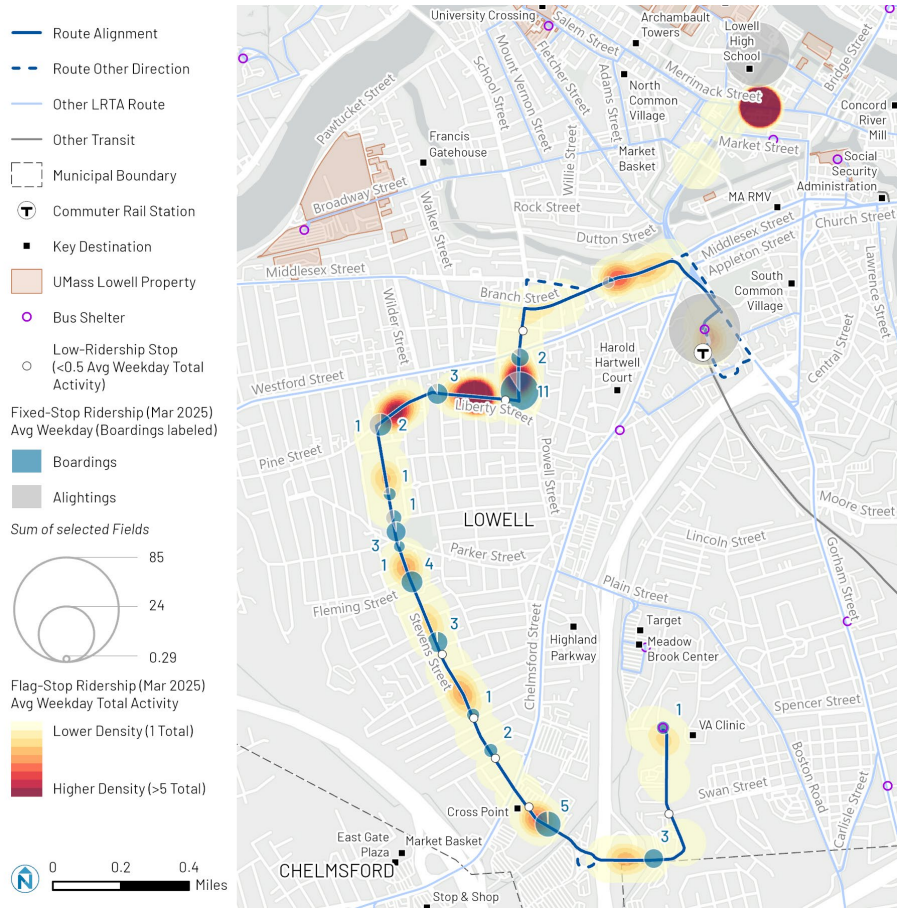
4 of 19

Route 4 is in the top 20% of all LRTA routes.

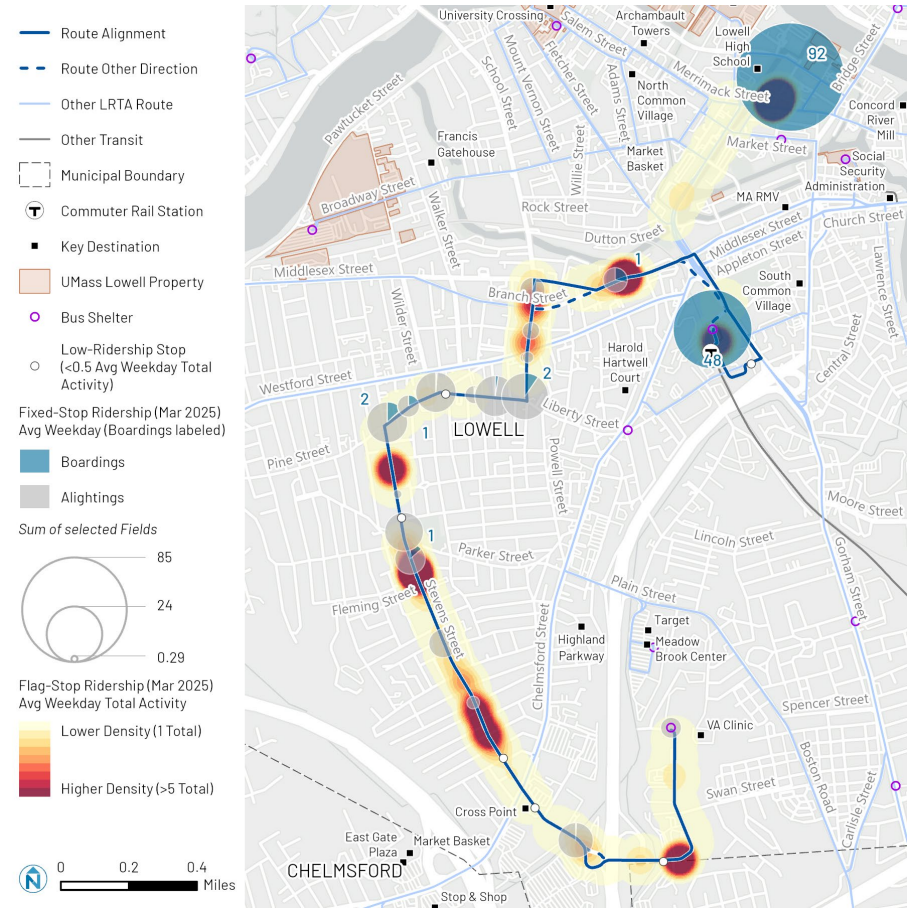
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Average Weekday Boardings Map, Inbound



#### Average Weekday Boardings Map, Outbound



Note: Ridership that appears on maps off of the alignment is assumed to be school-tripper ridership

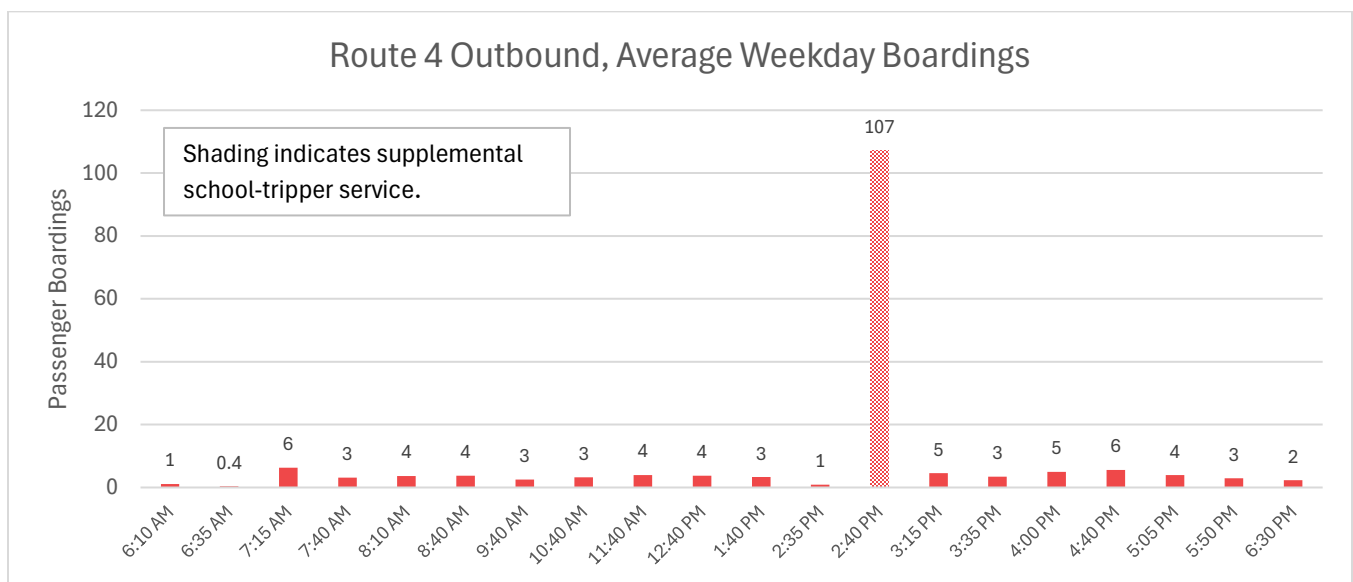
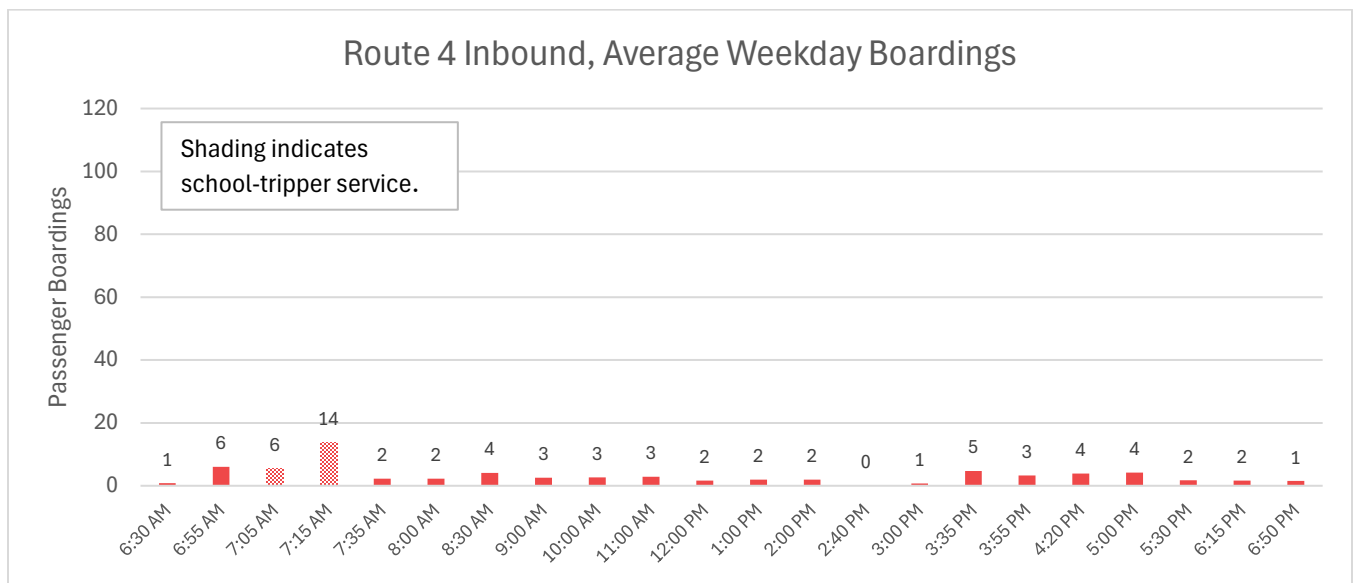
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from two to six boardings on most trips. The highest ridership trips are the 7:15 a.m. inbound trip which carries 14 passengers and the 2:40 p.m. outbound trip which carries 107 passengers (although it is possible for a trip to board 107 passengers, this data point may represent two buses dispatched with the same departure time, or may be another particularity of the data), both of which are supplemental school trips with many students boarding the bus. In the inbound direction, morning ridership is higher before remaining low but mostly stable for the rest of the day. In the outbound direction, boardings remain mostly stable over the course of the day. Inbound school-tripper ridership is considerably lower than outbound school-tripper ridership, suggesting students are using different modes of transportation (or different LRTA routes) to get to and from school.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 4 exhibits fair on-time performance. In July 2025, 82% of trips were on-time, 11% of trips were late, and 7% of trips were early.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 4 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

- Eliminate the couplet on Middlesex and Branch streets.
- Consider making high-activity flag stops into designated bus stops to simplify and improve service for many passengers utilizing these locations today:
  - Industrial Avenue East at Executive Drive
  - Stevens Street around Jenness Street
- Consider adjusting the route terminus to East Gate Plaza instead of the V.A. clinic.
  - Route would turn from Stevens Street onto Route 110 instead of Industrial Avenue.
  - This would provide a new grocery store and shopping connection for riders, with the tradeoff of not serving Industrial Avenue.
- Consider terminating the route just northwest of the V.A. clinic at the Meadow Brook Center shopping plaza.
  - Would require access via Industrial Avenue
  - Alternatively, create a clear path of travel for bus riders between Industrial Avenue, the shopping plaza, and the Lowell Connector Trail.

Route Profiles

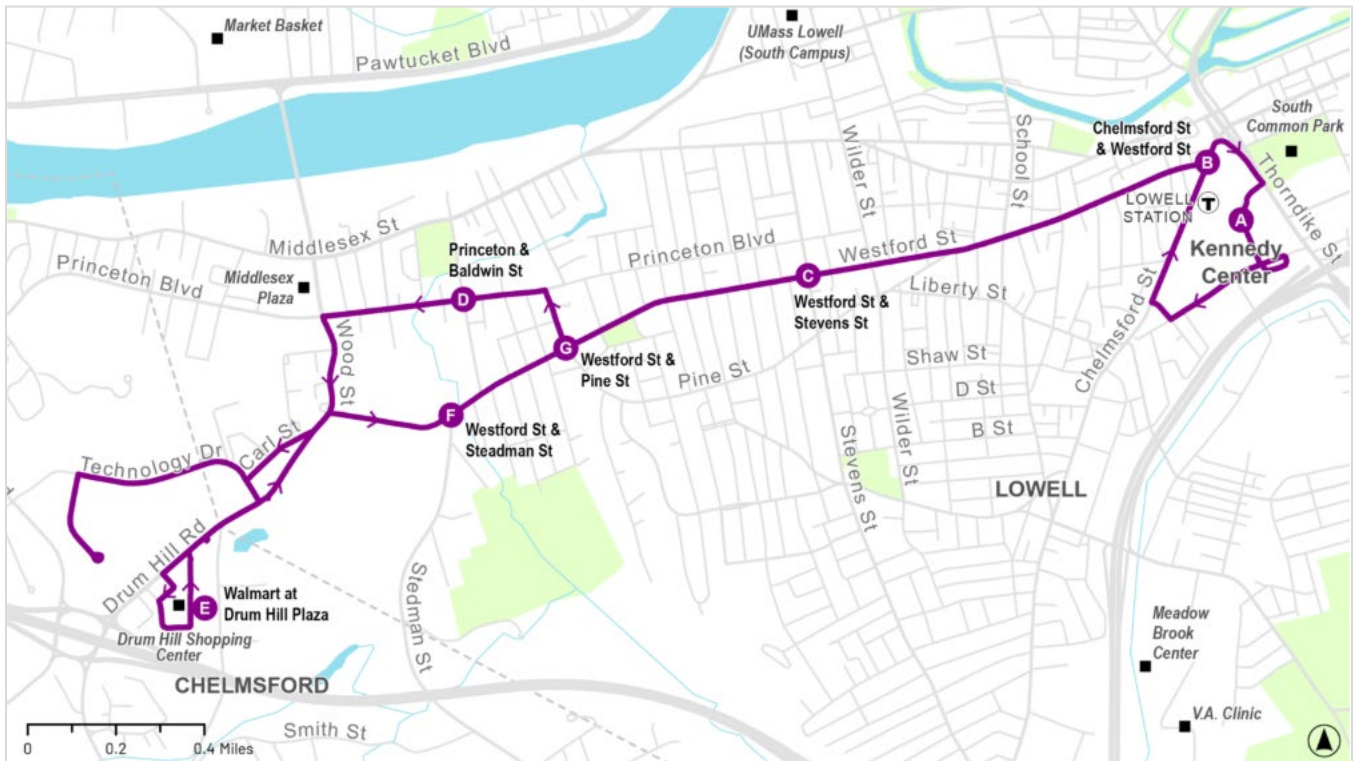
LRTA Fixed-Route Service Analysis

# 5 WESTFORD STREET/DRUM HILL

## ROUTE OVERVIEW

Route 5 Westford Street/Drum Hill operates primarily in Lowell with service extending into Chelmsford in two locations. Route 5 primarily serves the Westford Street corridor and connects north Chelmsford with the neighborhood of Highlands, downtown Lowell, and Kennedy Center.

### Route Map



Route 5 Characteristics						
Weekday			Saturday			
Start Time	5:50 AM	Schedule Adherence	On Time	79%	Start Time	7:45 AM
End Time	7:54 PM		Early	6%	End Time	6:29 PM
Peak Headway (mins.)	30		Late	15%	Headway (mins.)	60
Off-Peak Headway (mins.)	30	Avg Weekday Revenue Hrs	18	Avg Saturday Boardings	128	
Avg Weekday Boardings	454	Avg Boardings per Revenue Hr	25.2	Avg Saturday Revenue Hrs	6	
				Avg Boardings per Revenue Hr	21.3	

## Alignment

Route 5 operates an east-west alignment from Lowell towards Chelmsford. The route departs from the Kennedy Center on Hale Street and Chelmsford Street, with inbound trips returning to the Kennedy Center via Chelmsford Street and Thorndike Street. Route 5 then travels on Westford Street through the Highlands neighborhood. Outbound trips turn on Pine Street to serve Preston Boulevard while inbound trips stay on Westford Street. The route serves Research Place before returning to Drum Hill Road and terminating at the Walmart in Drum Hill Shopping Center.

## Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Route 5 parallels routes 16 and 19 on Chelmsford Street.
- Route 5 crosses Route 4 at Westford Street and School Street.
- Route 16 shares the terminus at Drum Hill Shopping Center with Route 5; Route 17 also serves that stop.

## Key Destinations

- Lowell Station and Kennedy Center
- Neighborhood of Highlands
- Research Place
- Drum Hill Shopping Center

# RIDERSHIP AND PRODUCTIVITY

Overall, Route 5 has high ridership and productivity within the LRTA system, with high ridership on school-time trips making up for low ridership during other times of the day. Most ridership seems to be related to school or employment trips.

## Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Along Westford Street
  - At Queen Street (inbound fixed stop and outbound flag stop)
  - At Stevens Street (fixed stops and flag stops)
  - At Stedman Street
- Princeton Boulevard and Wood Street (fixed stop and flag stop)
- Westford Street between Carl Street and Technology Drive

### Ridership Ranking

**2** of 19

Route 5 is in the top 10% of all LRTA routes.

### Productivity Ranking

**1** of 19

Route 5 is the top performer of all LRTA routes.

## Route Profiles

### LRTA Fixed-Route Service Analysis

- Research Place (flag stops)
- Drum Hill Shopping Center (fixed stop and flag stop)

Areas with the lowest ridership:

- Carl Street
- Technology Drive

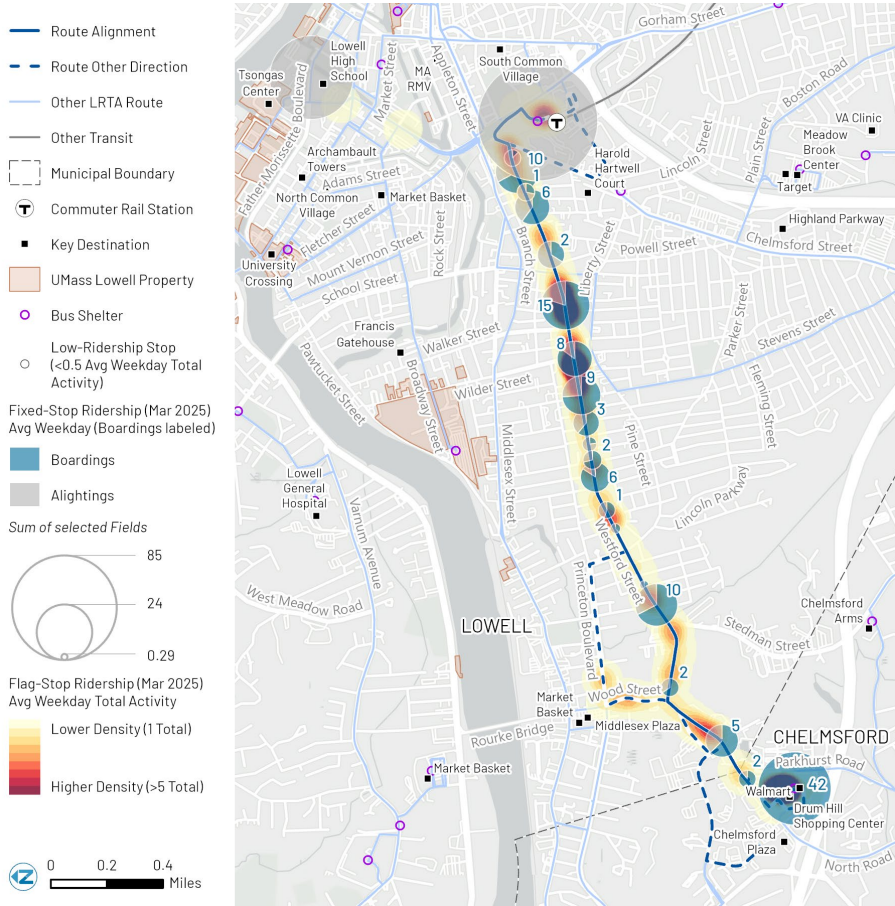
### Productivity Observations

- The route has the second highest ridership and highest productivity in the system.
  - The route currently has 30-minute headways but may support higher frequency.

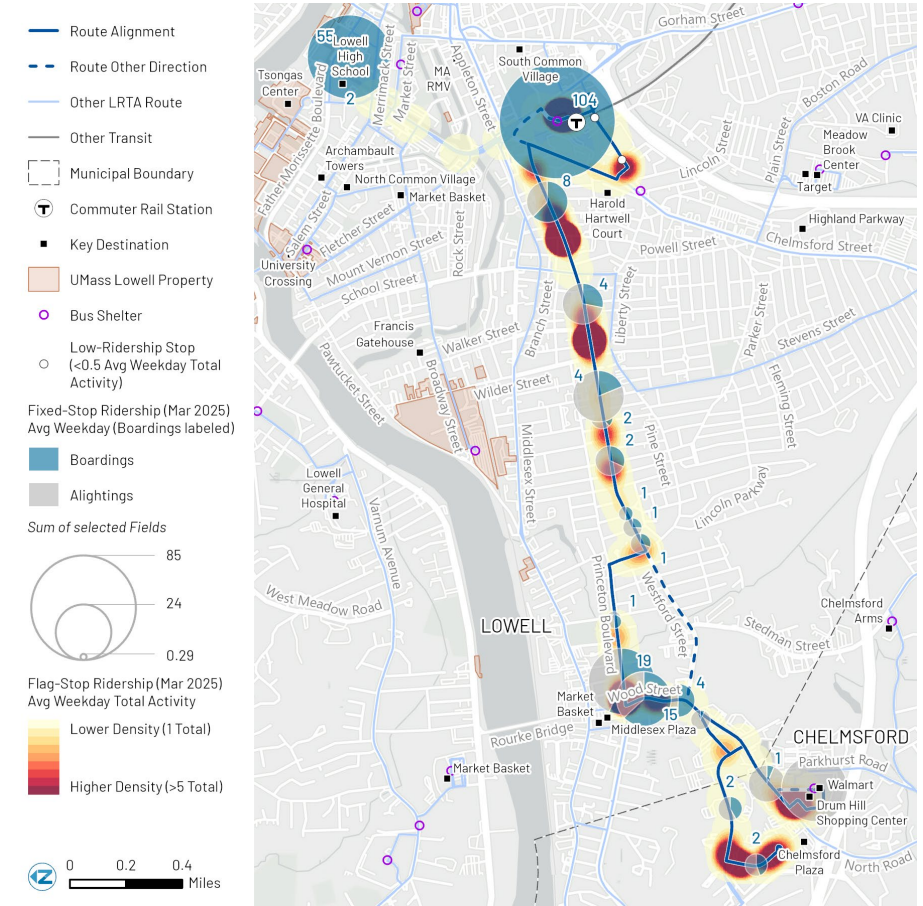
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Average Weekday Boardings Map, Inbound



#### Average Weekday Boardings Map, Outbound



Note: Ridership that appears on maps off of the alignment is assumed to be school-tripper ridership

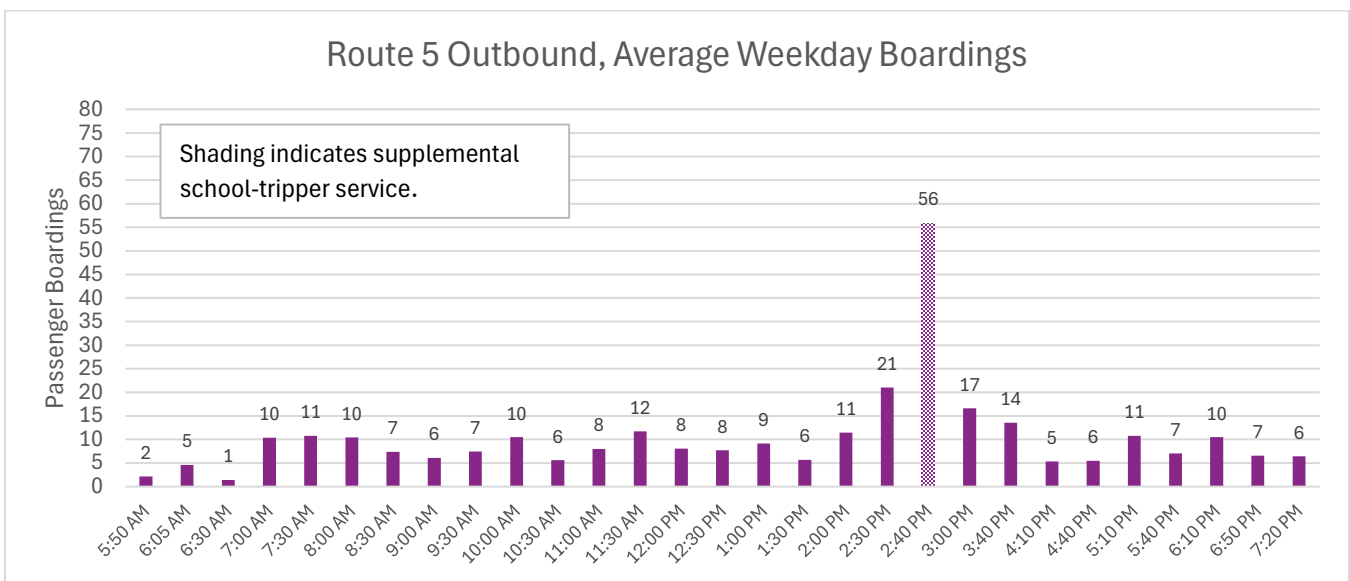
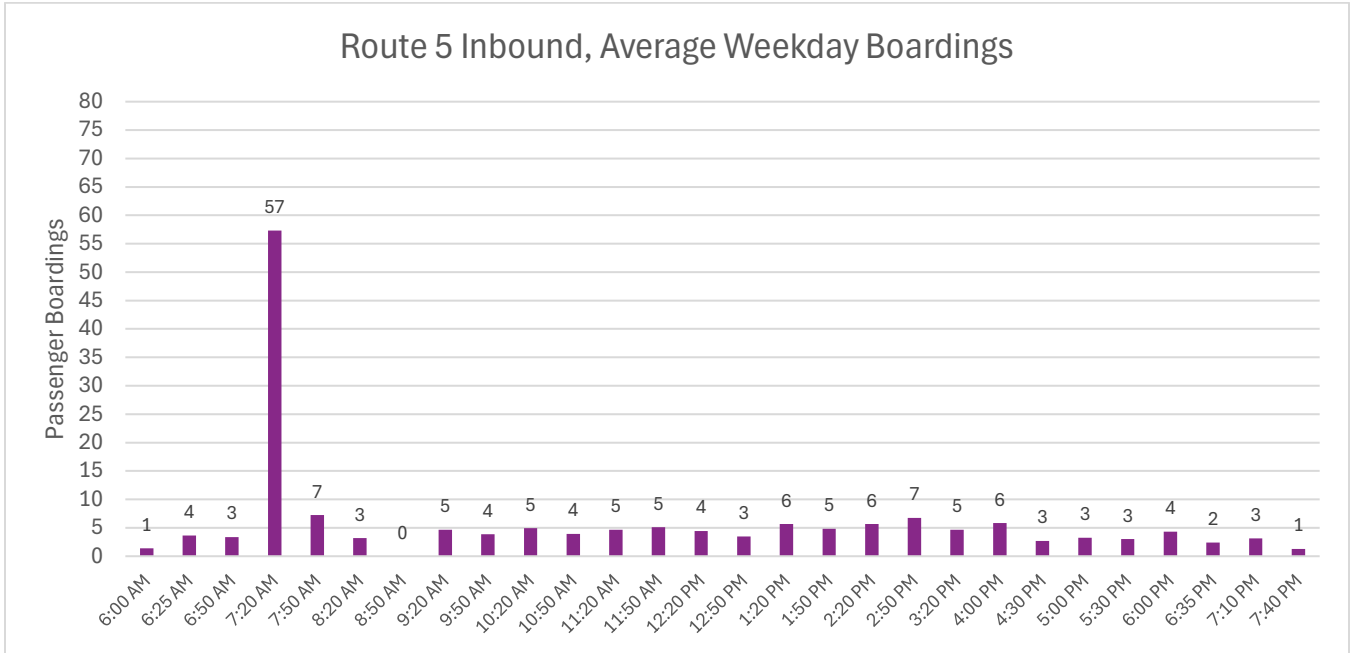
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from two to 11 boardings on most trips. The highest ridership trips are the 7:20 a.m. inbound trip, which carries 57 passengers, and the 2:40 p.m. outbound trip which carries over 56 passengers. While the morning trip is not a supplemental school trip like the afternoon one, the very high ridership is likely due to students. Early-morning boardings are low in both directions before 7:00 a.m., and ridership remains relatively stable throughout the day.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 5 exhibits fair on-time performance. In July 2025, 79% of trips were on time, 15% of trips were late, and 6% of trips were early.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 5 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

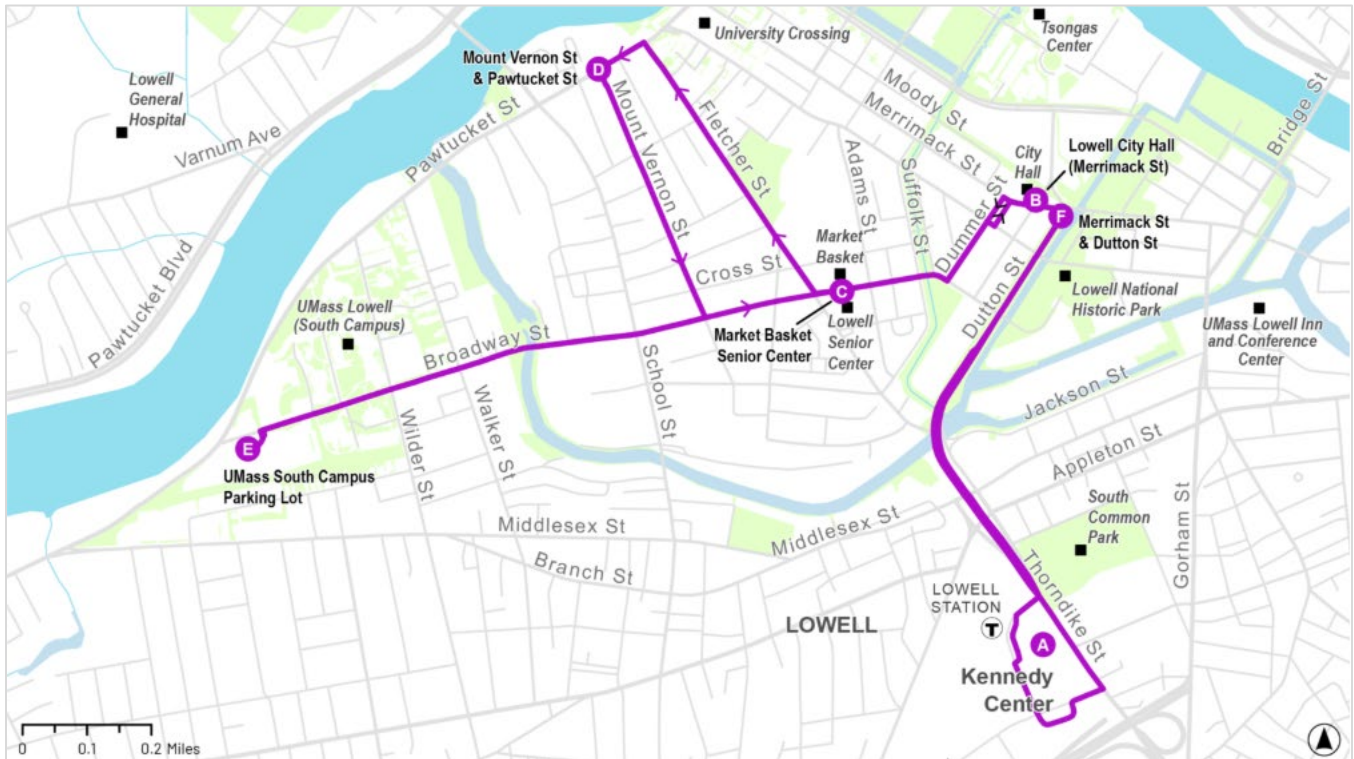
- Modify alignment to use Baldwin Street instead of Pine Street to connect Westford Street and Princeton Boulevard for both inbound and outbound service.
  - Potential outbound alignment: Westford Street to Baldwin Street to Princeton Boulevard to Wood Street to Westford Street.
  - Simplifies alignment by keeping route on same street in both directions.
  - Discontinues inbound front-door service to Pratt Avenue and Westford Park Apartments, but allows for better access on outbound trips for riders.
- Eliminate service on Princeton Boulevard and put all service on Westford Street.
  - Travel-time savings could possibly be used to increase frequency of service.
  - Riders currently accessing service on Princeton Street could take Route 17 or walk up to 10 minutes to access Route 5 on Westford Street.
  - A tradeoff is that Route 5 would no longer serve Market Basket.
- Discontinue outbound deviation onto Hale Street.
  - Operate both directions directly between Thorndike Street and Westford Street.
  - This may speed up service for most riders, with travel time savings possibly allowing for more frequent service.
  - Riders accessing service on Hale Street could take Route 16 or walk up to 10 minutes to access Route 5 on Westford Street.
- Discontinue deviation to Technology Drive and Research Place.
  - Riders can access Research Place destinations by walking from Chelmsford Plaza.
- Modify alignment in combination with Route 6, Route 17, and Route 19 to serve Middlesex Street, Westford Street, Princeton Boulevard, and Broadway Street corridors.
  - Each of these four corridors are strong transit markets with a mix of residential, institutional, and commercial uses.
  - Redesign the route alignments together to achieve simple, direct service along the corridors without unnecessary deviations on any of the individual routes.
  - Consider overlapping route alignments to achieve high frequency service corridors(s), as the streets are parallel and within a short walking distance from each other.

# 6 BROADWAY/UMASS LOWELL

## ROUTE OVERVIEW

The Broadway/UMass Lowell route operates entirely within Lowell. Route 6 predominately serves Broadway Street with service on the Fletcher Street/Mount Vernon Street corridors in the outbound direction only. The route connects the South Campus of UMass Lowell and the Acre neighborhood with University Crossing, Market Basket, the Lowell Senior Center, and the Kennedy Center.

### Route Map



Route 6 Characteristics						
Weekday			Saturday			
Start Time	6:00 AM	Schedule Adherence	On Time	83%	Start Time	8:00 AM
End Time	6:32 PM		Early	9%	End Time	5:33 PM
Peak Headway (mins.)	60		Late	8%	Headway (mins.)	60
Off-Peak Headway (mins.)	60	Avg Weekday Revenue Hrs	6	Avg Saturday Boardings	38	
Avg Weekday Boardings	110	Avg Boardings per Revenue Hr	18.4	Avg Saturday Revenue Hrs	4	
				Avg Boardings per Revenue Hr	9.6	

## Alignment

Route 6 operates a somewhat indirect alignment in areas north of the Pawtucket Canal and south of the Merrimack River. The route operates north from the Kennedy Center on Thorndike and Dutton Street before turning on Merrimack Street and Dummer Street to get to Broadway Street. Outbound trips deviate north on Flecher Street to serve University Crossing before running south on Mount Vernon Street, whereas inbound trips stay on Broadway Street. The route continues on Broadway Street and terminates at the South Campus of UMass Lowell.

## Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Route 20 parallels much of Route 6 until the corner of Broadway and Fletcher Streets.
- Route 9 parallels Route 6 on Fletcher Street.

## Key Destinations

- Lowell Station and Kennedy Center
- Lowell Senior Center
- Market Basket
- The Acre Neighborhood
- Francis Gatehouse homes
- South Campus of UMass Lowell

# RIDERSHIP AND PRODUCTIVITY

Overall, Route 6 has relatively low ridership but relatively high productivity within the LRTA system. Most ridership seems to be related to school or shopping trips.

## Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Merrimack Street
- Along Broadway Avenue
  - At Fletcher Street near the Market Basket (fixed and flag stop)
  - At School Street (fixed and flag stop)
  - At Walker Street (inbound fixed and outbound flag stop)
  - Through UMass Lowell South Campus west of Wilder Street
- Northern end of Mount Vernon Street (fixed and flag stops)

### Ridership Ranking

**16** of 19

Route 6 is in the bottom 15% of all LRTA routes.

### Productivity Ranking

**5** of 19

Route 6 is in the top 25% of all LRTA routes.

## Route Profiles

### LRTA Fixed-Route Service Analysis

Areas with the lowest ridership:

- Along Thorndike Street and Dutton Street
- Along Fletcher Street

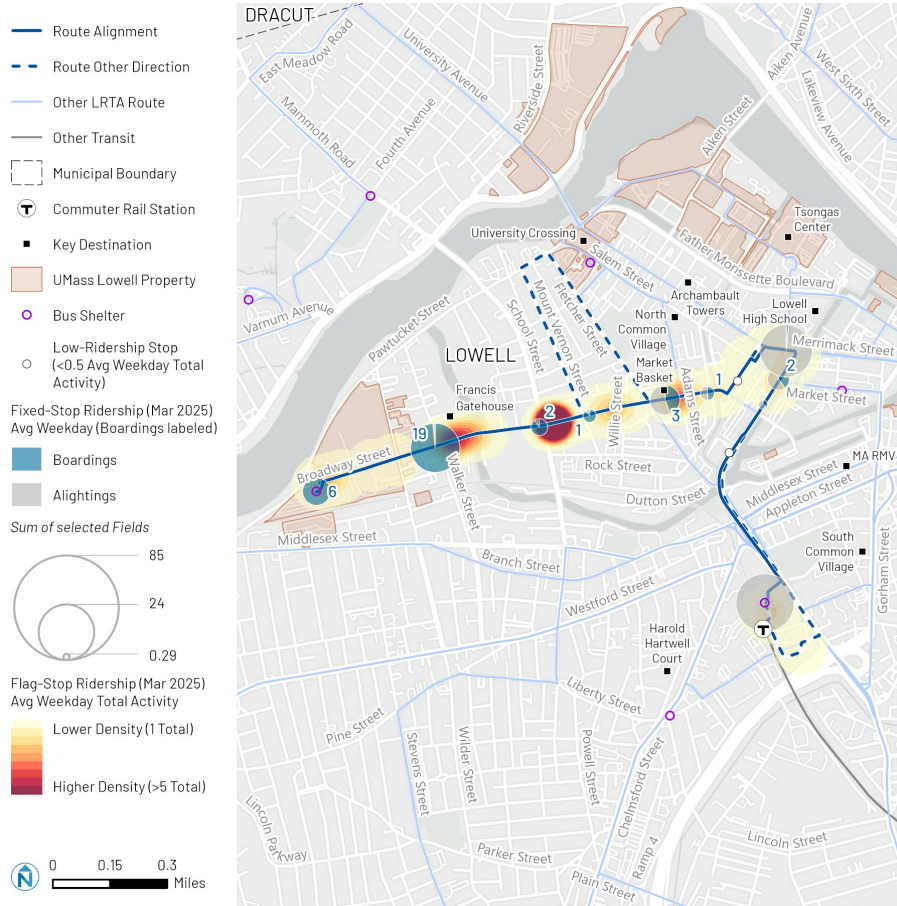
### **Productivity Observations**

- Despite low ridership, the route is fairly productive. This is partly due to the relatively short runtime of the service.

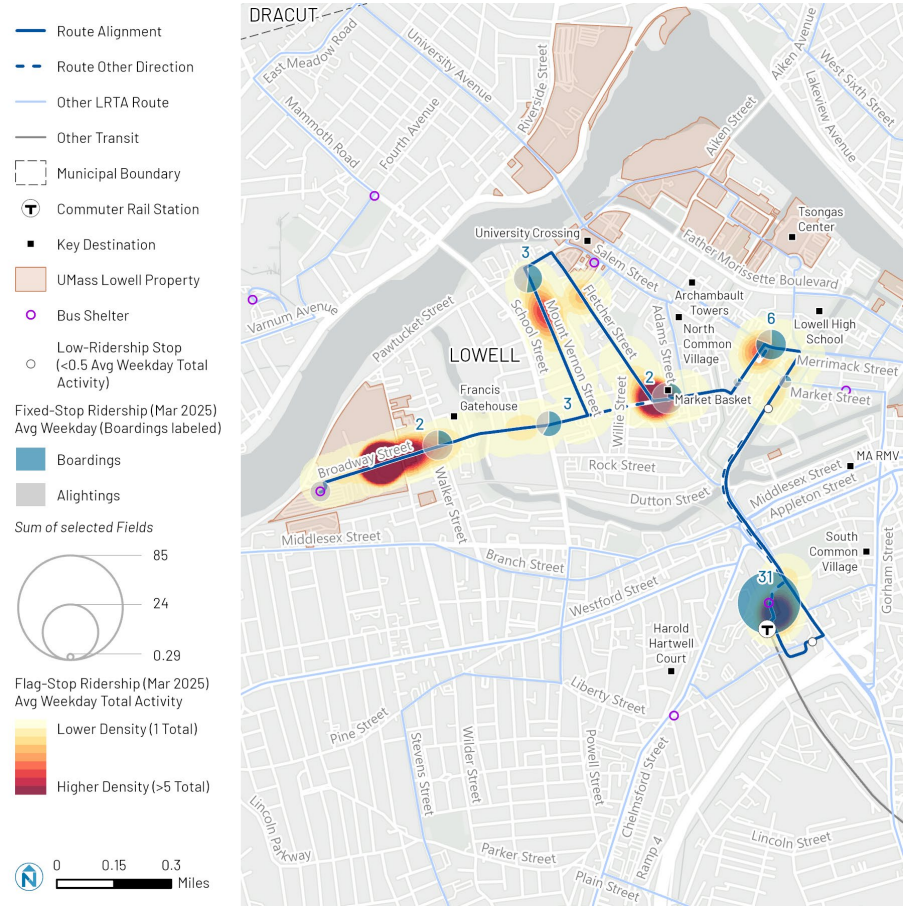
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Average Weekday Boardings Map, Inbound



#### Average Weekday Boardings Map, Outbound



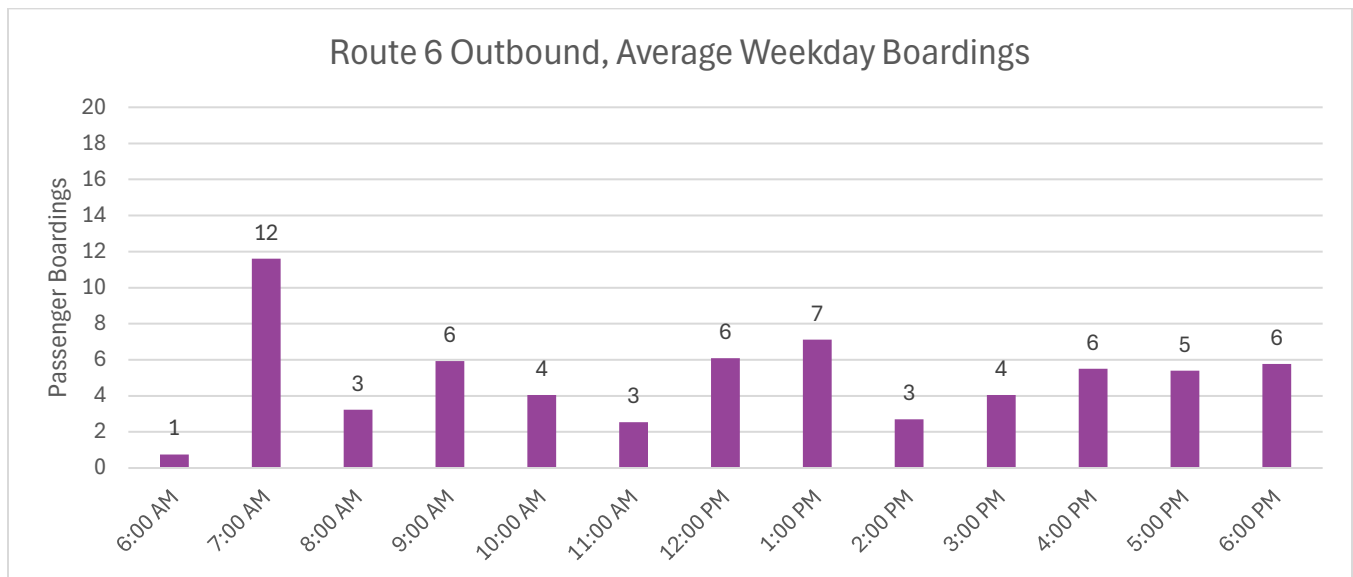
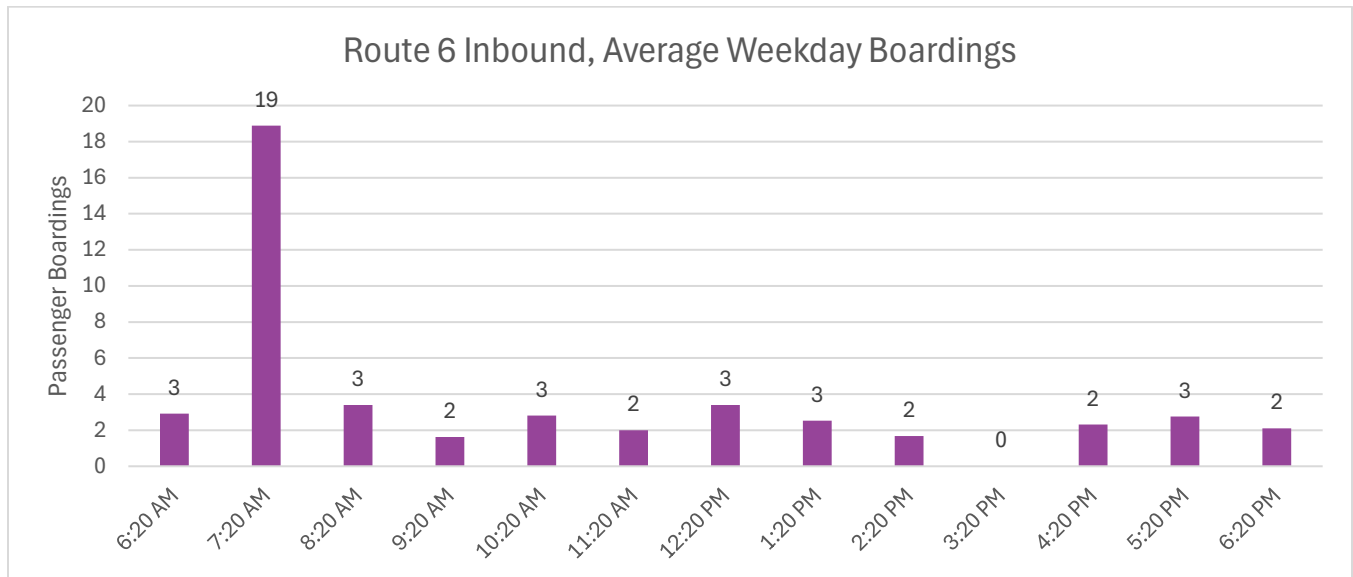
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from two to six boardings on most trips. The highest ridership trips are the 7:20 a.m. inbound trip, which carries 19 passengers, and the 7:00 a.m. outbound trip, which carries 12 passengers. While these are not supplemental school trips, the very high ridership can most likely be attributed to students. In the inbound direction, ridership remains stable throughout the day with a lull on the 3:20 p.m. trip. In the outbound direction, ridership varies somewhat among trips. The first trip has low ridership, with the 7:00 a.m. trip acting as a ridership peak. There are also relatively smaller peaks in the early afternoon and toward the end of service. Strong ridership during the last trips of the service day may indicate demand for later trips.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 6 exhibits fair on-time performance. In July 2025, 83% of trips were on time, 8% of trips were late, and 9% of trips were early.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 6 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

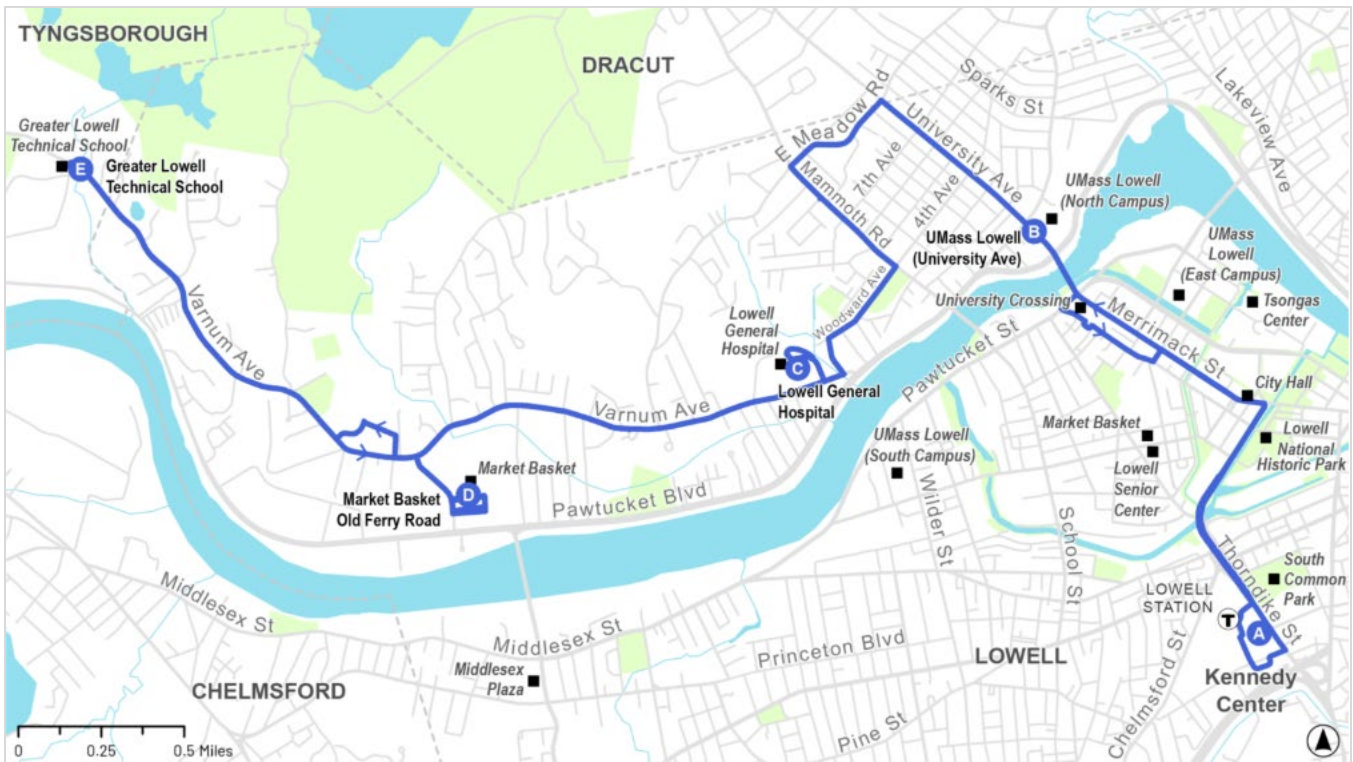
- Consider eliminating the deviation on Fletcher and Mount Vernon streets and creating a new route to serve those corridors.
- Alternatively, serve the Fletcher Street and Mount Vernon Street deviation in both directions.
  - This would make the service more useful and predictable for residents of the neighborhood and UMass Lowell students travelling from South Campus to University Crossing.
- Modify alignment in combination with Route 5, Route 17, and Route 19 to serve Middlesex Street, Westford Street, Princeton Boulevard, and Broadway Street corridors.
  - Each of these four corridors are strong transit markets with a mix of residential, institutional, and commercial uses.
  - Redesign the route alignments together to achieve simple, direct service along the corridors without unnecessary deviations on any of the individual routes.
  - Consider overlapping route alignments to achieve high-frequency service corridors, as the streets are parallel and within a short walking distance of each other.

# 7 PAWTUCKETVILLE/UMASS LOWELL NORTH

## ROUTE OVERVIEW

Route 7 Pawtucketville/UMass Lowell North operates in Lowell, Dracut, and Tyngsborough. Route 7 primarily serves the Merrimack Street, University Avenue, and Varnum Avenue corridors. The route connects Greater Lowell Technical School with Lowell General Hospital, the north and east campuses of UMass Lowell, and the Kennedy Center.

### Route Map



Route 7 Characteristics						
Weekday			Saturday			
Start Time	5:50 AM	Schedule Adherence	On Time	59%	Start Time	7:45 AM
End Time	8:13 PM		Early	27%	End Time	6:56 PM
Peak Headway (mins.)	30		Late	14%	Headway (mins.)	60
Off-Peak Headway (mins.)	30	Avg Weekday Revenue Hrs	29	Avg Saturday Boardings	230	
Avg Weekday Boardings	733	Avg Boardings per Revenue Hr	25.3	Avg Saturday Revenue Hrs	11	
				Avg Boardings per Revenue Hr	20.9	

## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Alignment

Route 7 has a relatively direct alignment that parallels the north side of the Merrimack River. The route operates north from the Kennedy Center on Thorndike Street and Dutton Street before turning on Merrimack Street. Route 7 briefly operates with a couplet on Merrimack Street and Salem Street. From Merrimack Street, Route 7 crosses the Merrimack River via University Avenue before deviating onto East Meadow Street through Pawtucketville and serving Lowell General Hospital. The route continues on to Varnum Avenue, serving Market Basket, before terminating at the 'back door' of Greater Lowell Technical School.

#### Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Route 7 parallels Route 9 along Merrimack Street and intersects with it at Merrimack Street at Pawtucket Street.

#### Key Destinations

- Lowell Station and Kennedy Center
- East and North Campuses of UMass Lowell
- Lowell General Hospital
- Market Basket
- Greater Lowell Technical School

## RIDERSHIP AND PRODUCTIVITY

Overall, Route 7 has high ridership and productivity within the LRTA system. Most ridership seems to be related to school, medical, or shopping trips.

#### Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Lowell High School (fixed stop and flag stop)
- Along Merrimack Street (fixed stops)
- Along University Avenue
  - White Street (fixed stops)
- Along East Meadow Road
- Mammoth Road and Woodward Avenue (fixed stops)
- Lowell General Hospital (fixed stop and flag stop)

#### Ridership Ranking

**1** of 19

Route 7 is the top performer of all LRTA routes.

#### Productivity Ranking

**2** of 19

Route 7 is in the top 10% of all LRTA routes.

## Route Profiles

### LRTA Fixed-Route Service Analysis

- In front of Fairhaven Healthcare Center (flag stop)
- Market Basket (fixed stop and flag stop)
- In front of Riverview Village Condos (fixed stop and flag stop)

Areas with the lowest ridership:

- Varnum Avenue between West Meadow Road and Market Basket
- Outer Varnum Avenue, west of Freda Lane
- Greater Lowell Technical School

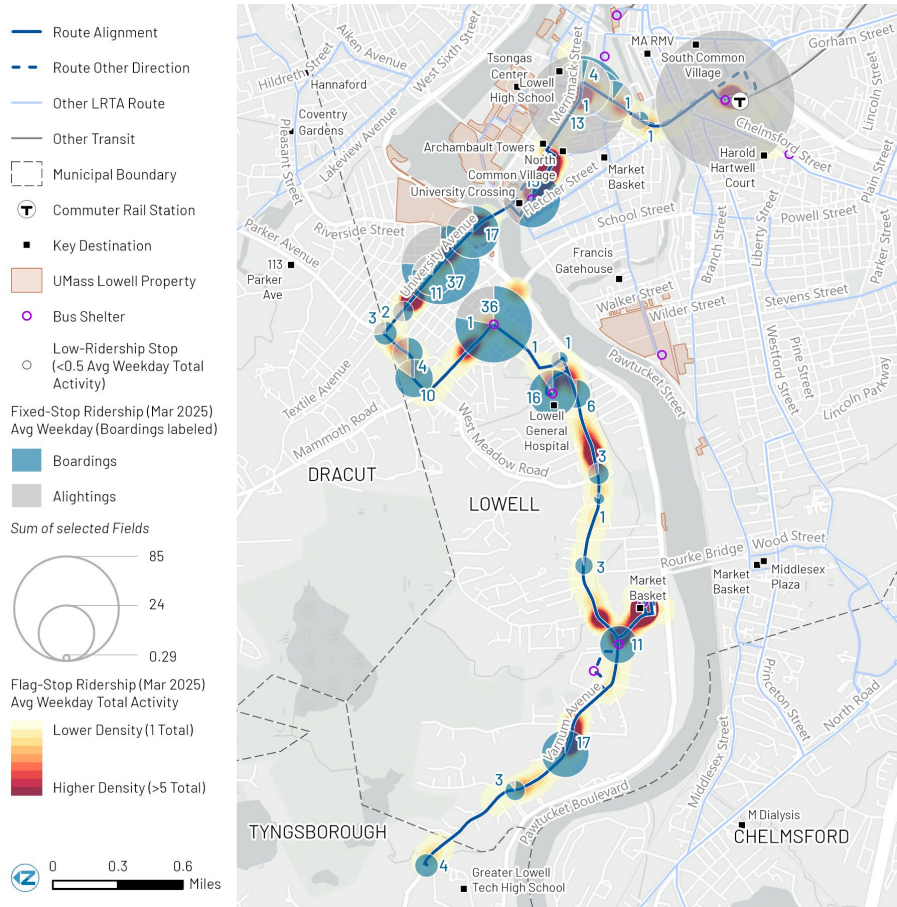
### **Productivity Observations**

- Route 7 has the highest ridership and second-highest productivity in the LRTA system, with 30-minute service. This suggests a higher level of service could be warranted.

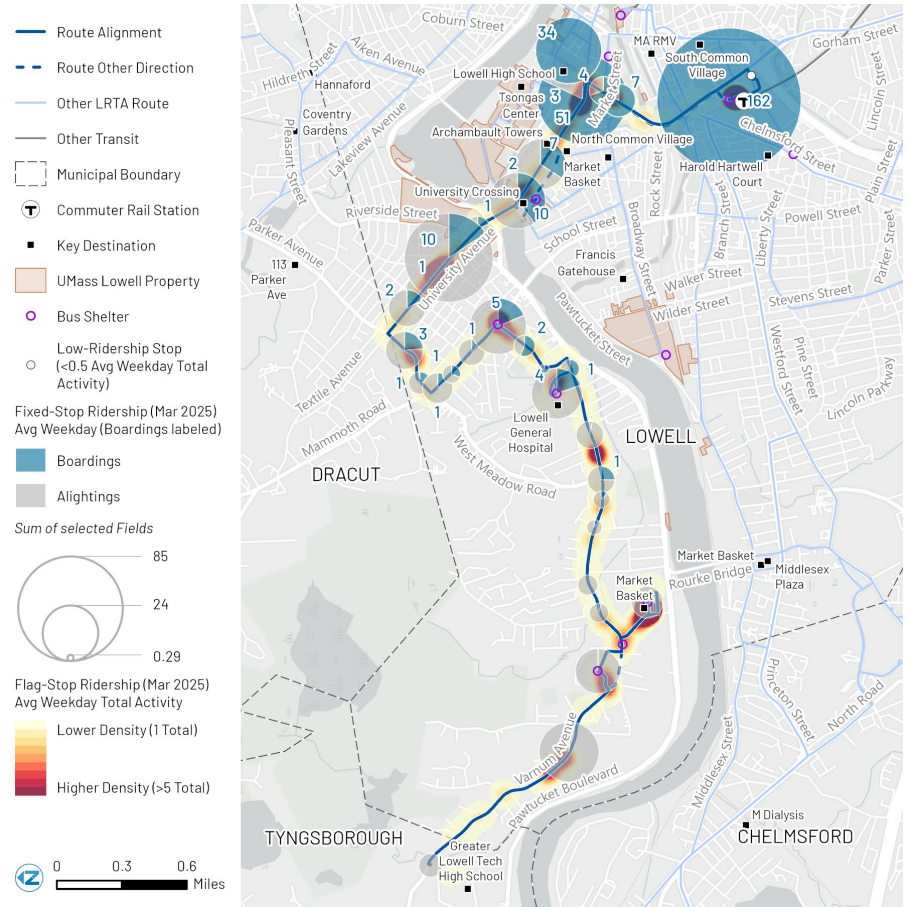
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Average Weekday Boardings Map, Inbound



#### Average Weekday Boardings Map, Outbound



Note: Ridership that appears on maps off of the alignment is assumed to be school-tripper ridership.

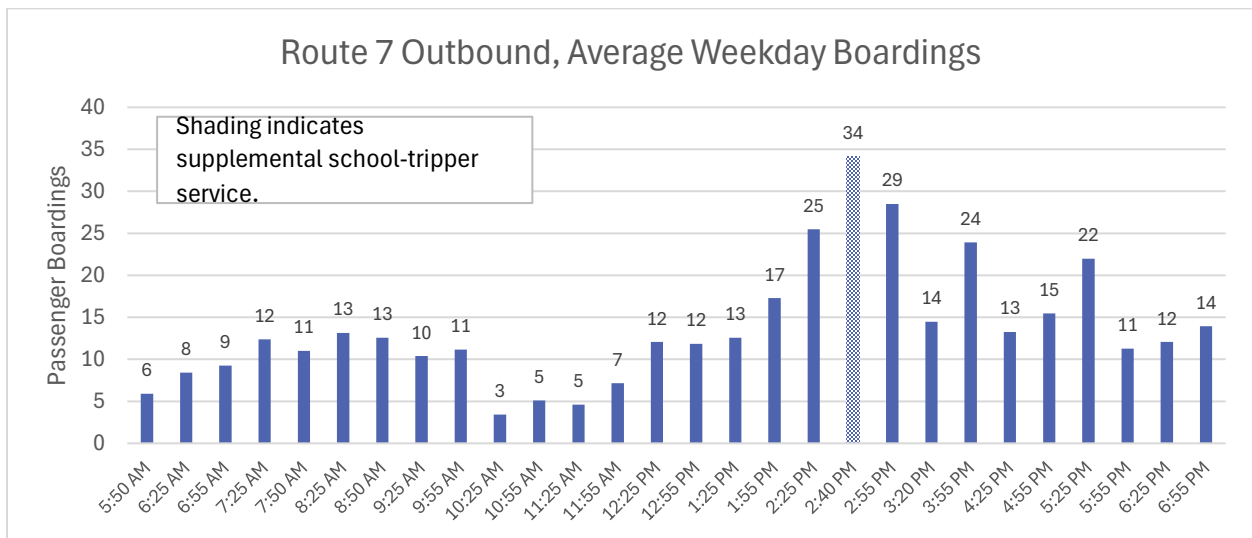
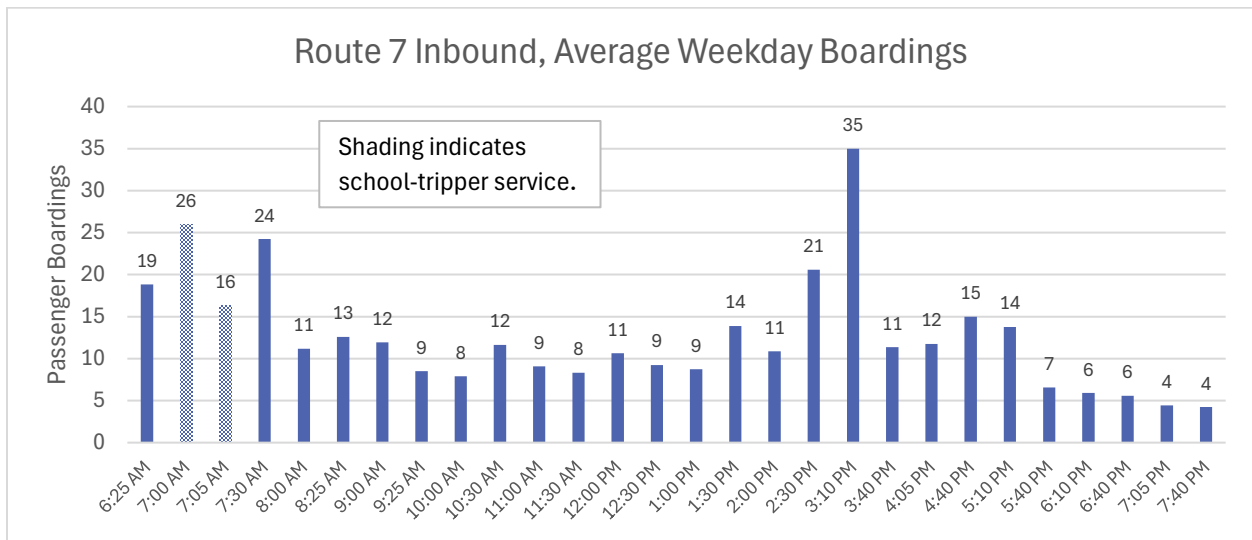
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from five to 29 boardings on most trips. The highest-ridership trips are the 3:10 p.m. inbound trip, which carries 35 passengers, and the 2:40 p.m. outbound trip, which carries over 34 passengers. For both directions, ridership is generally high in the mid-morning and relatively lower during midday. Both inbound and outbound see high ridership again in the late afternoon and early evening. In the outbound direction, the peak is in the mid-afternoon. While the lowest ridership in the inbound direction occurs after 5:10 p.m., outbound ridership during the same period is strong, indicating potential demand for later service.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 7 exhibits moderate to poor on-time performance. In July 2025, 59% of trips were on-time, 14% of trips were late, and 27% of trips were early.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 7 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

- Consider modifying the route alignment to go directly from University Avenue to Riverside Street, eliminating diversion on East Meadow Street.
  - This would speed up service, with the tradeoff of less neighborhood coverage.
- Eliminate the couplet on Salem Street and keep all service on Merrimack Street.
  - This simplifies service and would save travel time by eliminating turning movements.
- Consider making high-activity flag stops into designated bus stops to simplify and improve service for many passengers using these locations today:
  - Place a designated stop in the inbound direction of Varnum Avenue and Stockbridge Avenue.
  - Relocate the stop at the Market Basket to capture more of the flag stops.
- Reduce service to Greater Lowell Technical High School during the midday period with a midday terminus at Market Basket on Old Ferry Road or Westminster Village.
  - This could improve on-time performance or allow for more efficient interlining of the route.
- Consider increasing the frequency on the route to every 15 or 20 minutes.
  - Route 7 is the highest-ridership route in the system and over 700 daily riders would benefit from this change.

# 8 CENTRALVILLE

## ROUTE OVERVIEW

Route 8 Centralville operates primarily in Lowell with service extending into Dracut. Route 8 connects Lowell’s Centralville and Lakeville neighborhoods with downtown Lowell and the Kennedy Center.

### Route Map



Route 8 Characteristics		
Weekday		
Start Time	6:15 AM	
End Time	7:44 PM	
Peak Headway (mins.)	25-40	
Off-Peak Headway (mins.)	60-65	
Avg Weekday Boardings	174	
Avg Weekday Revenue Hrs	11	
Avg Boardings per Revenue Hr	15.8	
Schedule Adherence	On Time	69%
	Early	2%
	Late	28%
Saturday		
Start Time	8:00 AM	
End Time	5:42 PM	
Headway (mins.)	60	
Avg Saturday Boardings	53	
Avg Saturday Revenue Hrs	6	
Avg Boardings per Revenue Hr	8.8	

### Alignment

Route 8 has a moderately linear northwards alignment with a large end-of-line loop. Route 8 Centralville operates north from the Kennedy Center on Thorndike and Dutton streets. It operates on the same downtown Lowell couplet shared by many LRTA routes of Father Morissette Boulevard (outbound) and Merrimack Street (inbound). The route crosses the Merrimack River via Bridge Street. The route then turns on to W 6<sup>th</sup> Street and runs through the Centralville and Lakeville neighborhoods. Outbound service travels north on Lakeville Avenue and turns on to Pleasant Street. Inbound service operates on Hildroth Street and Aiken Avenue before returning to W 6<sup>th</sup> Street.

### Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Route 1 and Route 10 parallel Route 8 across Bridge Street to Centralville.
- Route 10 service again overlaps with Route 8 on Pleasant Street.

### Key Destinations

- Lowell Station and Kennedy Center
- Downtown Lowell
- Lowell High School
- Hannaford in Dracut

## RIDERSHIP AND PRODUCTIVITY

Overall, Route 8 has relatively moderate ridership and productivity within the LRTA system. Most ridership seems to be related to school or shopping trips.

### Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Merrimack Street and John Street (fixed stop and flag stop)
- Along Bridge Street, both north and south of the Merrimack
- Along W 6<sup>th</sup> Street between Bunker Hill and Aiken avenues (fixed stops and flag stops)
- Hovey Square near Hannaford (flag stops)
- Hildreth Street and Aiken Avenue (inbound flag stop)

Areas with the lowest ridership:

- Along Thorndike Street and Dutton Street
- W 6<sup>th</sup> Street between Bridge Street and Bunker Hill Avenue
- Along Lakeview Avenue

### Productivity Observations

- Route 8 has both average ridership and average productivity.
- The large loop segment of one-way service may be harming the attractiveness of the route.

#### Ridership Ranking

**10** of 19

Route 8 is in the bottom 40% of all LRTA routes.

#### Productivity Ranking

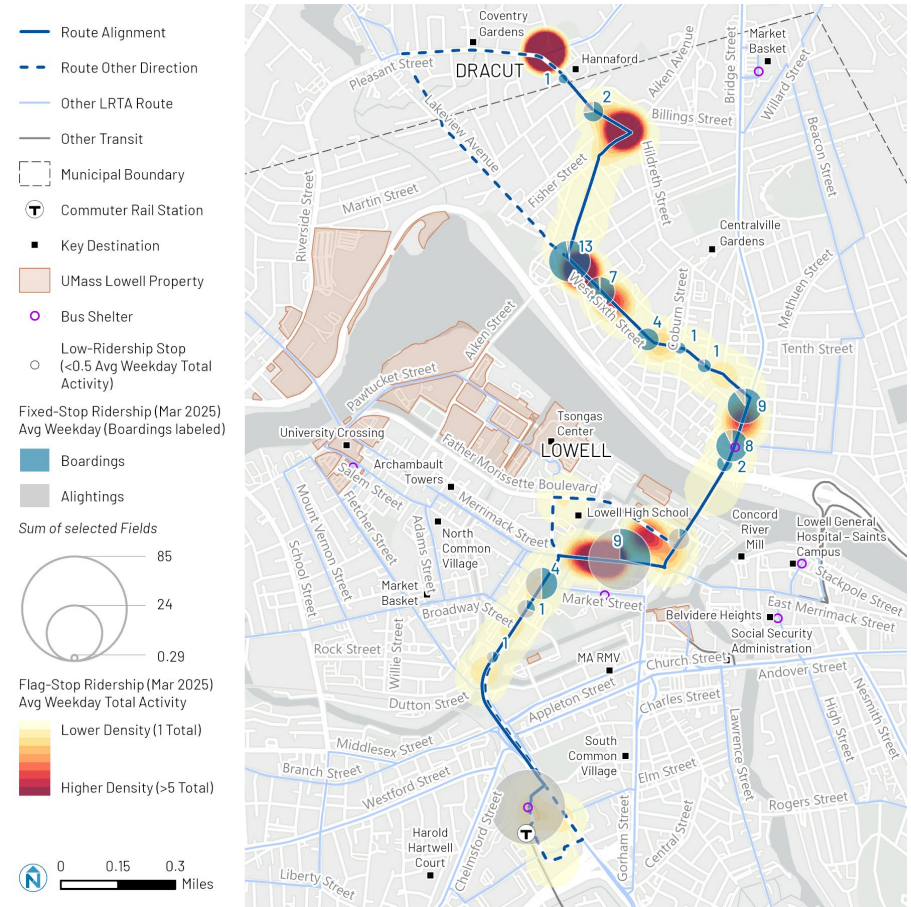
**8** of 19

Route 8 is in the top 40% of all LRTA routes.

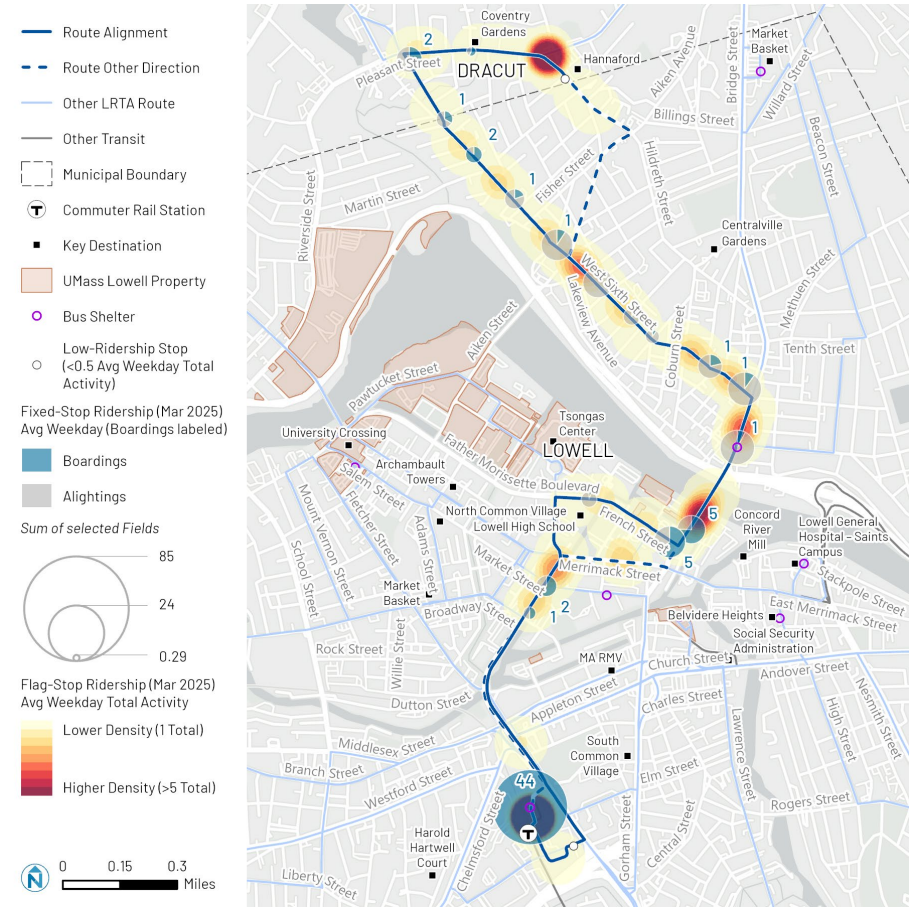
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Average Weekday Boardings Map, Inbound



#### Average Weekday Boardings Map, Outbound



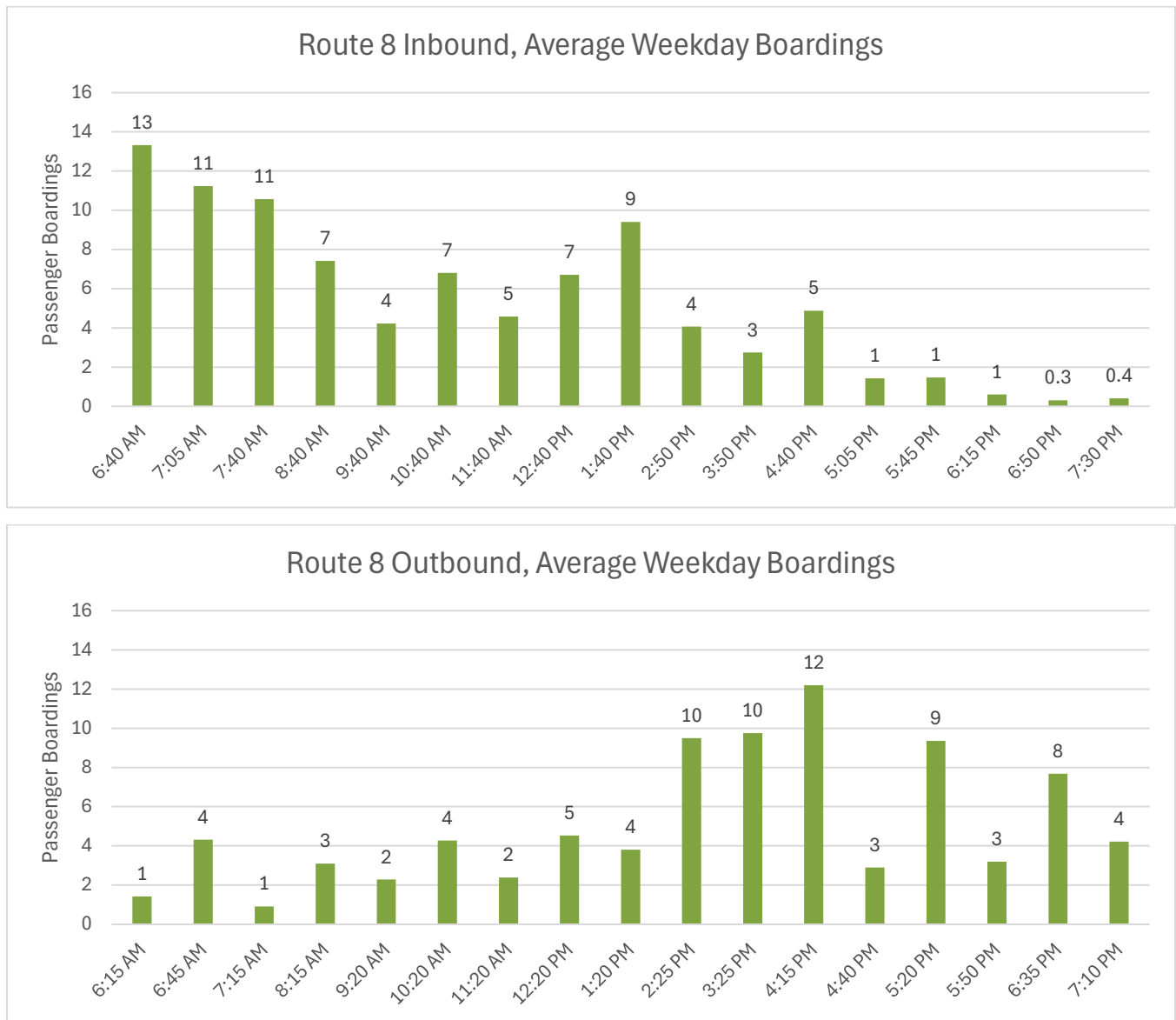
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from one to 13 boardings on most trips. The highest ridership trips are the 6:40 a.m. inbound trip, which carries 13 passengers, and the 4:15 p.m. outbound trip, which carries 12 passengers, showing strong directionality. In the inbound direction, ridership is highest in the early morning and decreases through late morning before picking up during midday. There is a small peak during the 1:40 p.m. trip. From there, ridership generally decreases throughout the remainder of the day, with low ridership occurring after 5:00 p.m. In the outbound direction, boardings are low in morning and increase through the day until the peak at 4:15 p.m. After that, ridership varies significantly between trips, with an overall decrease until the final trip of the day. Peak ridership during the first morning trip indicates a strong demand for earlier service.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 8 exhibits moderate to poor on-time performance. In July 2025, 69% of trips were on time, 28% of trips were late, and 3% of trips were early.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 8 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

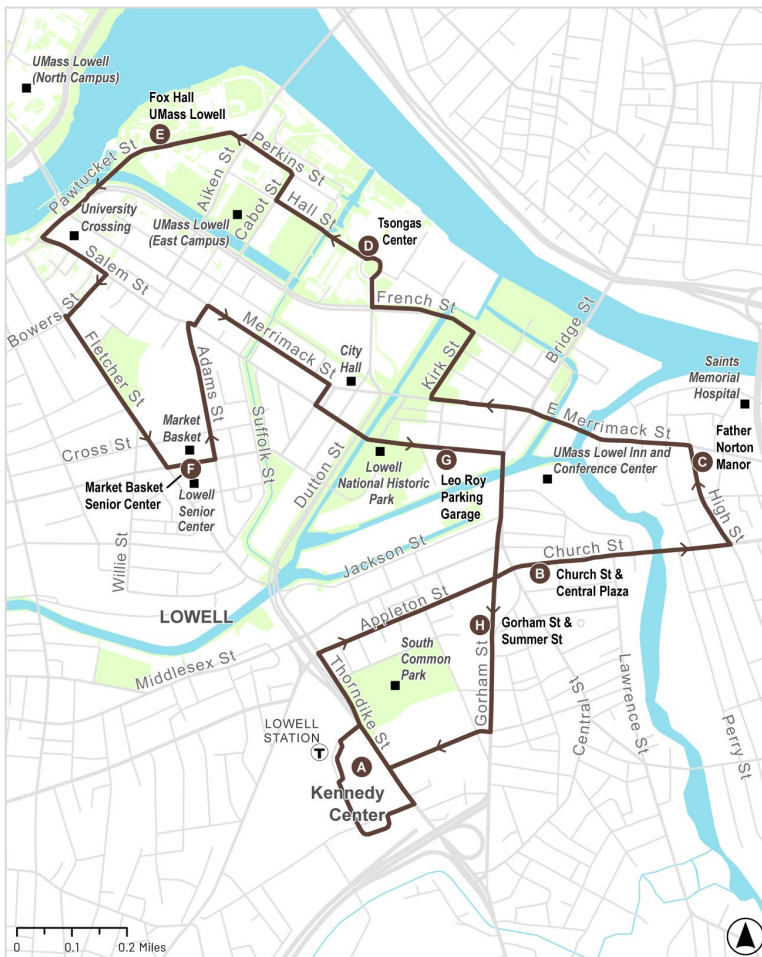
- Operate the route via Aiken Avenue and Hildreth Street and discontinue service on Lakeview Avenue and Pleasant Street.
  - Place terminal stop in the Hannaford plaza in Dracut.
- Consider combining alignment with Route 1 and/or Route 10 to provide a better mix of coverage and frequency for Centralville and Dracut.
- Consider making high-activity flag stops into designated bus stops to simplify and improve service for many passengers utilizing these locations today:
  - Consolidate flag stops at Hovey Square and fixed stop at Hannaford.
  - Add fixed stops in both directions at Hildreth Street and Aiken Avenue.

# 9 LOWELL CIRCULATOR

## ROUTE OVERVIEW

Route 9 Lowell Circulator operates entirely in Lowell. Route 9 connects riders from the Kennedy Center to locations around downtown Lowell including the Saints Campus of Lowell General Hospital, Tsongas Center, the East Campus of UMass Lowell, national historic sites, and the Acre neighborhood.

### Route Map



Route 9 Characteristics		
<b>Weekday</b>		
Start Time	6:50 AM	
End Time	7:24 PM	
Peak Headway (mins.)	60	
Off-Peak Headway (mins.)	60	
Avg Weekday Boardings	86	
Avg Weekday Revenue Hrs	11	
Avg Boardings per Revenue Hr	7.8	
Schedule Adherence	On Time	71%
	Early	17%
	Late	12%
<b>Saturday</b>		
Start Time	7:45 AM	
End Time	6:24 PM	
Headway (mins.)	60	
Avg Saturday Boardings	29	
Avg Saturday Revenue Hrs	6	
Avg Boardings per Revenue Hr	4.8	

### Alignment

Route 9 has an indirect, looping alignment that circulates through downtown Lowell. The route operates north from the Kennedy Center on Thorndike Street before turning on to Appleton Street and Church Street. Route 9 runs on High Street before turning on to East Merrimack Street. The route then crosses downtown Lowell, serving Merrimack Street at John Street before running north past Tsongas Center and through the East Campus of UMass Lowell. After exiting the UMass Lowell campus on Pawtucket Street, Route 9 serves

## Route Profiles

### LRTA Fixed-Route Service Analysis

the Acre neighborhood on Fletcher Street and Adams Street. The route then returns to Downtown via Market Street. Finally, Route 9 turns on to Gorham Street to returns to the Kennedy Center.

#### Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Route 9 overlaps with Route 6 on Fletcher Street
- Route 9 overlaps with Route 7 on Merrimack Street
- Route 9 overlaps with Route 3 on Gorham Street

#### Key Destinations

- Lowell Station and Kennedy Center
- Saints Campus of Lowell General Hospital
- Downtown Lowell
- Lowell High School
- Tsongas Center
- East Campus of UMass Lowell
- Market Basket
- Lowell Senior Center

# RIDERSHIP AND PRODUCTIVITY

Overall, Route 9 has low ridership and productivity within the LRTA system. Most ridership seems to be related to school trips.

## Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Near Lowell General Hospital – Saints Campus (fixed and flag stops)
- Merrimack Street at John Street (flag stop)
- Tsongas Center (flag stop)
- Fletcher Street, Broadway Street, and Adams Street
  - Especially at Market Basket (fixed stop and flag stops)
- Merrimack Street and Dummer Street (fixed stop and flag stops)

Areas with the lowest ridership:

- Along Appleton Street
- East Campus of UMass Lowell
- Along Market Street
- Along Gorham Street

## Productivity Observations

- Route 9 operating as the second lowest performing route in terms of both ridership and productivity
- The service struggles to attract riders despite serving most downtown destinations.
  - The circuitous alignment connects many destinations, but is not being well-used by riders.
  - The infrequent service does not facilitate transfers between other LRTA routes and Route 9 downtown.

### Ridership Ranking

**17** of 19

Route 9 is in one of the lowest performers of all LRTA routes.

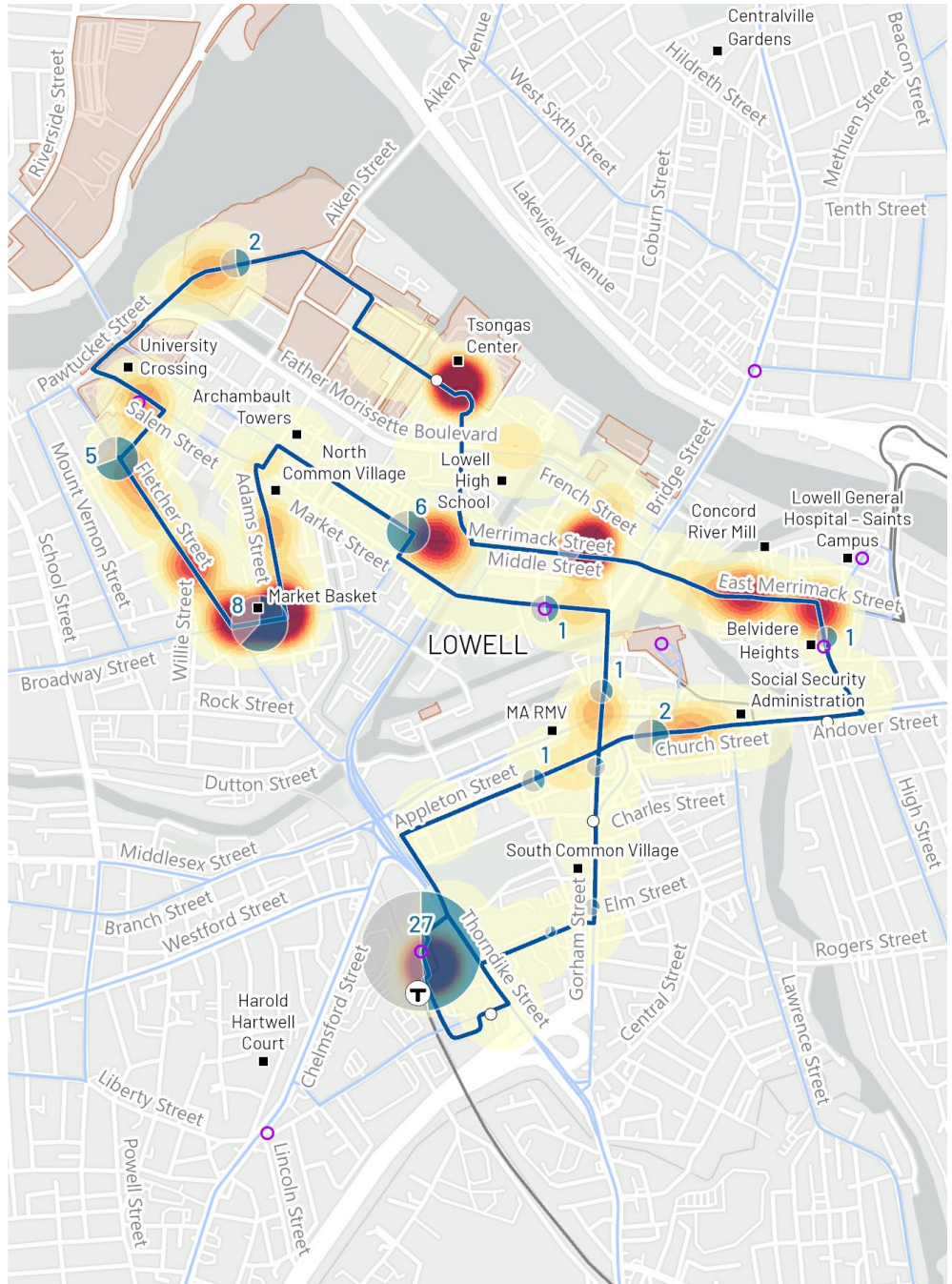
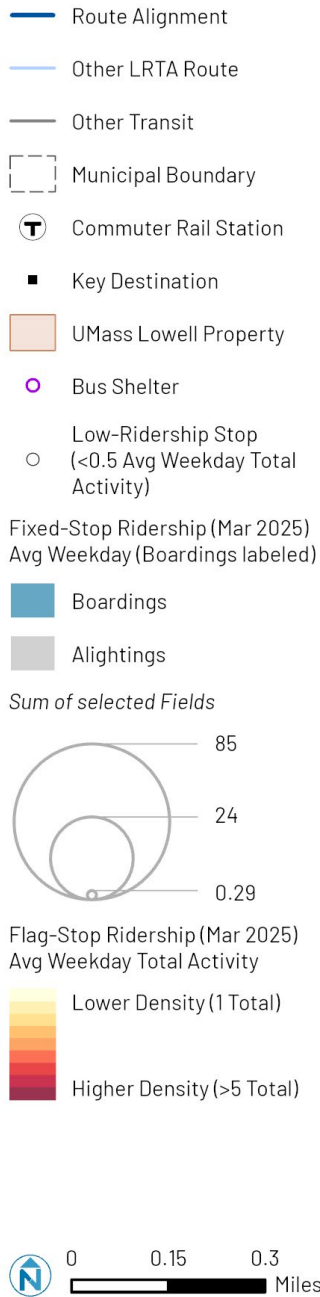
### Productivity Ranking

**18** of 19

Route 9 is one of the lowest performers of all LRTA routes.

**Route Profiles**  
LRTA Fixed-Route Service Analysis

**Average Weekday Boardings Map**



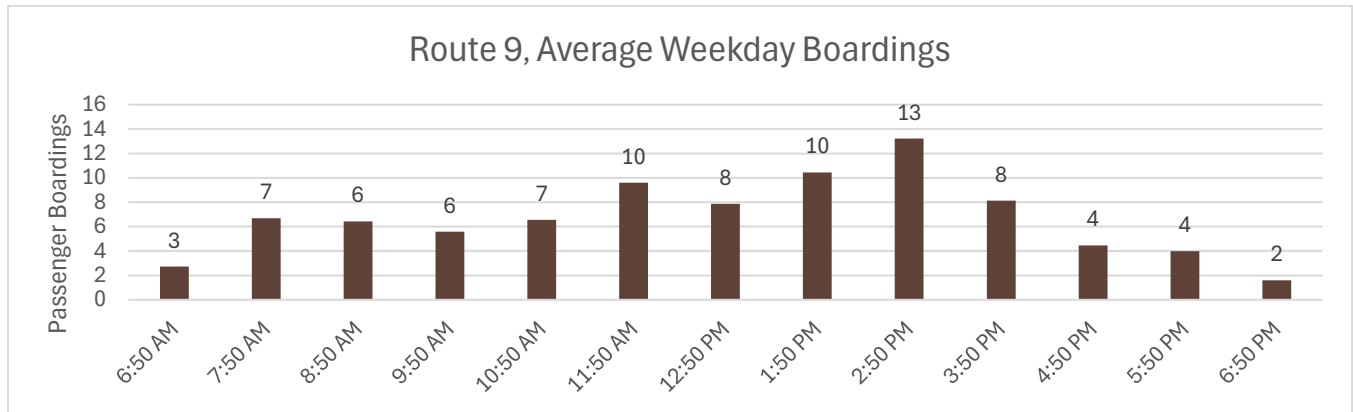
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from two to 13 boardings. Because Route 9 operates as a one-way loop, there is only service in one direction. Ridership is low on the first trip and moderate during the morning, generally increasing through midday. Ridership peaks at 2:50 p.m., with 13 boardings. After that, the number of boardings decreases until the end of the service day.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 9 exhibits fair to moderate on-time performance. In July 2025, 71% of trips were on-time, 12% of trips were late, and 17% of trips were early.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 9 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

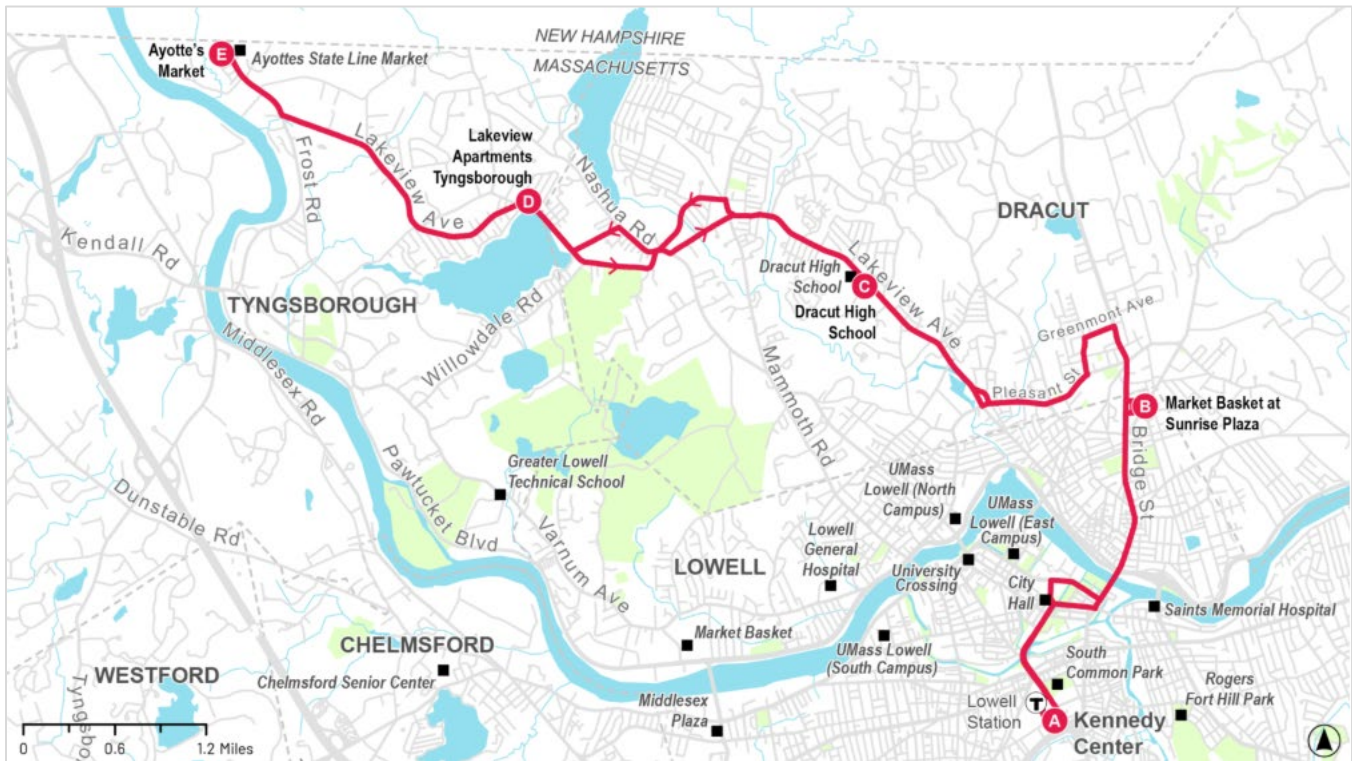
- Consider discontinuing Route 9 due to very low ridership and productivity.
  - Resources can be used elsewhere in the LRTA system for increased service levels.
- Consider removing the section on Market Street and Gorham Street and instead serving Dutton Street and Thorndike Street.
- Consider making high-activity flag stops into designated bus stops to simplify and improve service for many passengers utilizing these locations today:
  - Consolidate fixed- and flag-stop ridership near Merrimack Street at John Street.
  - Add fixed stops along E Merrimack Street.
- Increase frequency of the circulator to every 30 minutes.
  - The disadvantage of a circuitous one-way route that also competes with other routes passing through the area should be offset by higher frequencies. Considering today's hourly headways and full sidewalk network downtown, many riders can likely walk to their destinations faster.
- Consider combining with Route 18, which serves a similar area and purpose.

# 10 DRACUT/TYNGSBOROUGH

## ROUTE OVERVIEW

The Dracut-Tyngsborough route operates in Lowell, Dracut, Tyngsborough, and stops just before the New Hampshire border. Route 10 serves the Lakeview Avenue corridor, connecting western Dracut and northeast Tyngsborough with Dracut High School, the Centralville neighborhood of Lowell, and the Kennedy Center.

### Route Map



Route 10 Characteristics						
Weekday			Saturday			
Start Time	6:35 AM	Schedule Adherence	On Time	60%	Start Time	8:30 AM
End Time	7:07 PM		Early	2%	End Time	6:50 PM
Peak Headway (mins.)	60		Late	38%	Headway (mins.)	60
Off-Peak Headway (mins.)	60	Avg Weekday Revenue Hrs	15	Avg Saturday Boardings	106	
Avg Weekday Boardings	148	Avg Boardings per Revenue Hr	9.9	Avg Saturday Revenue Hrs	12	
				Avg Boardings per Revenue Hr	8.8	

## Alignment

Route 10 has a primarily linear alignment between Lowell and Tyngsborough that travels northwest after crossing the Merrimack River. The route operates north from the Kennedy Center on Thorndike and Dutton streets. It operates on the downtown Lowell couplet of Father Morissette Boulevard (outbound) and Merrimack Street (inbound). The route crosses the Merrimack River via Bridge Street. In the Centralville neighborhood, Route 10 turns onto Greenmont Avenue to reach Pleasant Street and continues north onto Lakeview Avenue. In western Dracut, the route operates outbound service via Varnum Road and Nashua Road along residential streets, whereas inbound service operates directly along Tyngsboro Road and Lakeville Avenue. Bidirectional service resumes on Tyngsboro Road and continues through Tyngsborough before terminating at Ayotte's Stateline Market just before the New Hampshire-Massachusetts border.

## Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Route 1 and Route 8 parallel Route 10 across Bridge Street to Centralville.
- Route 1 service again overlaps with Route 10 on upper Bridge Street.
- Route 8 service again overlaps with Route 10 on Pleasant Street.

## Key Destinations

- Lowell Station and Kennedy Center
- Downtown Lowell
- Market Basket
- Dracut High School
- Ayotte's Stateline Market

# RIDERSHIP AND PRODUCTIVITY

Overall, Route 10 has moderate ridership and low productivity within the LRTA system. Most ridership seems to be related to school, medical, or shopping trips.

## Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Upper Dutton Street, Merrimack Street, and Bridge Street through downtown Lowell (fixed stops)
- Bridge Street just north of the Merrimack River (fixed and flag stop)
- Market Basket on Bridge Street (fixed and flag stops)

### Ridership Ranking

**13** of 19

Route 10 is in the bottom 30% of all LRTA routes.

### Productivity Ranking

**16** of 19

Route 10 is in the bottom 15% of all LRTA routes.

## Route Profiles

### LRTA Fixed-Route Service Analysis

- Ayotte's Stateline Market (fixed stops)

Areas with the lowest ridership:

- Greenmont Avenue deviation
- Varnum Road and Stewart Street
- Along Tyngsboro Road and outer Lakeview Avenue
- Along Lakeville Avenue East of the Dracut-Tyngsborough town line

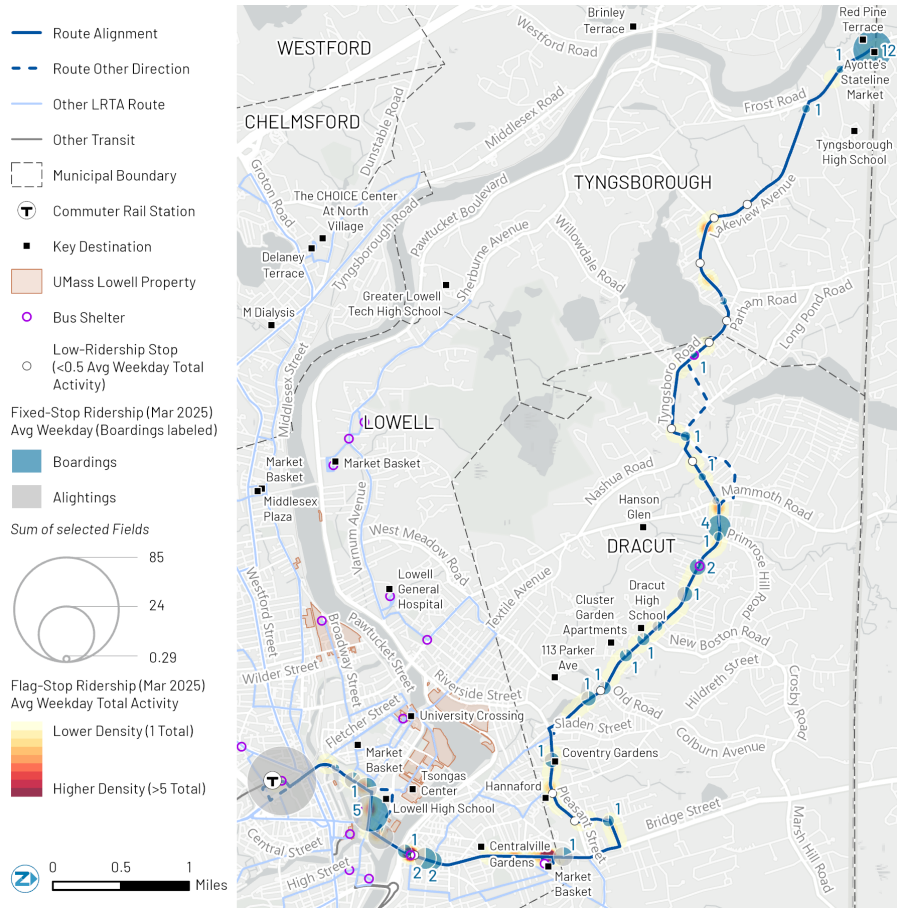
### **Productivity Observations**

- Route 10 is a low-performing route with low ridership and a very long alignment.
  - The unproductivity can likely be attributed to long distances through low-density areas .

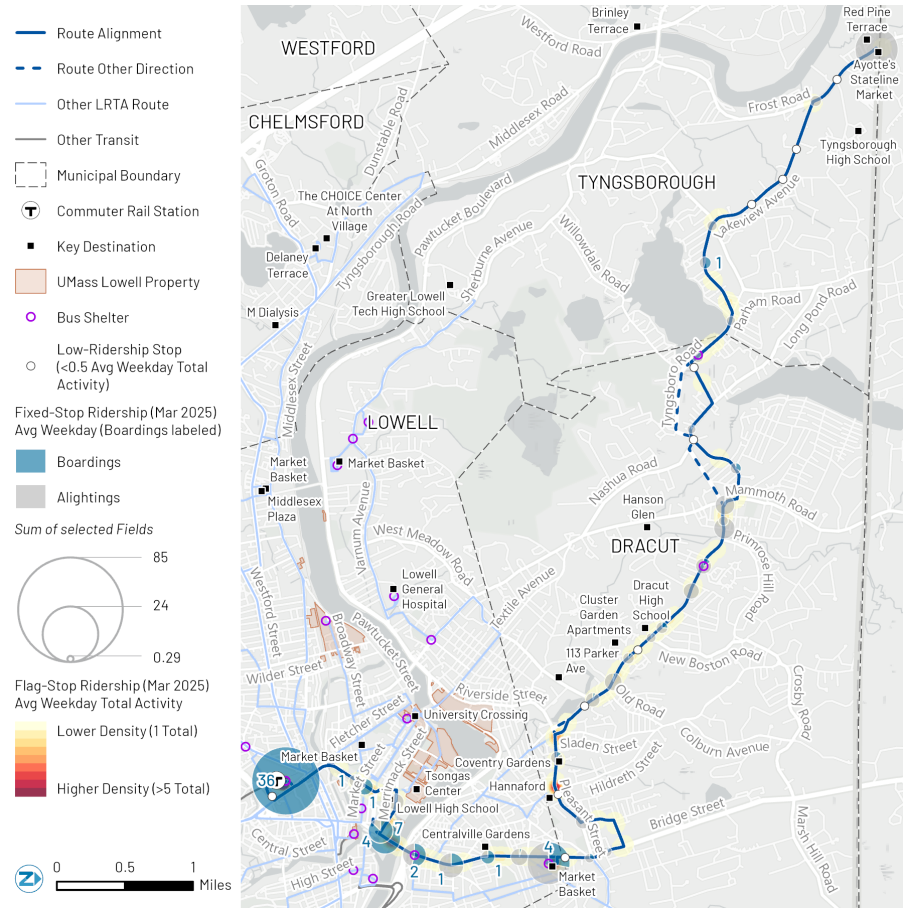
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Average Weekday Boardings Map, Inbound



#### Average Weekday Boardings Map, Outbound



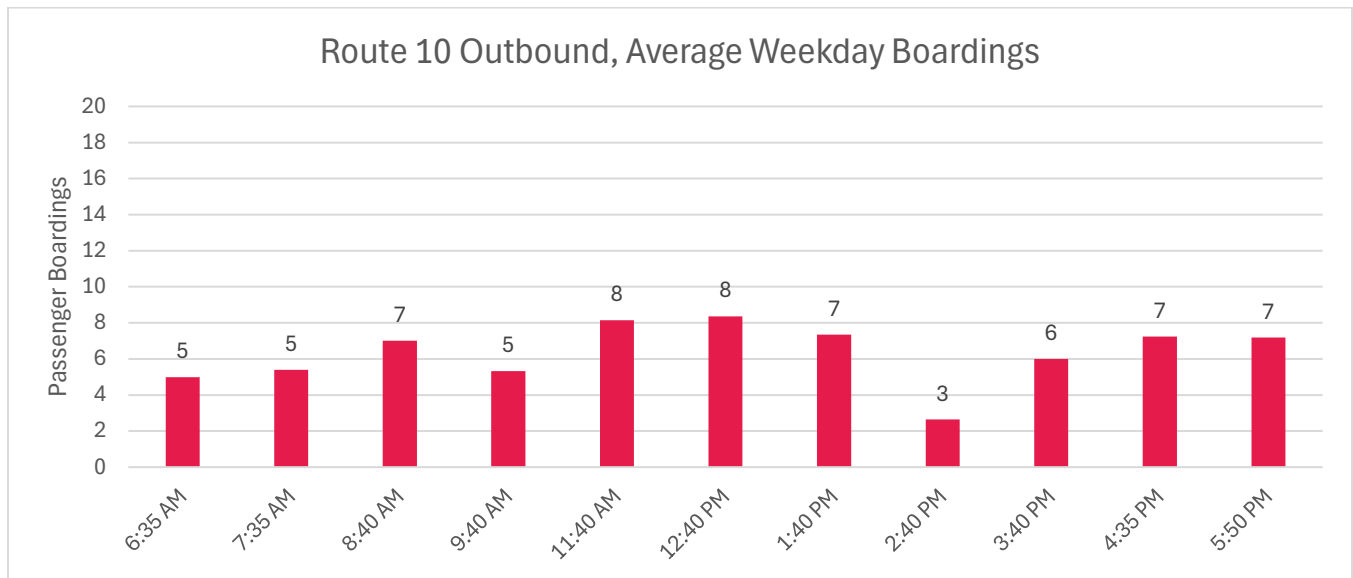
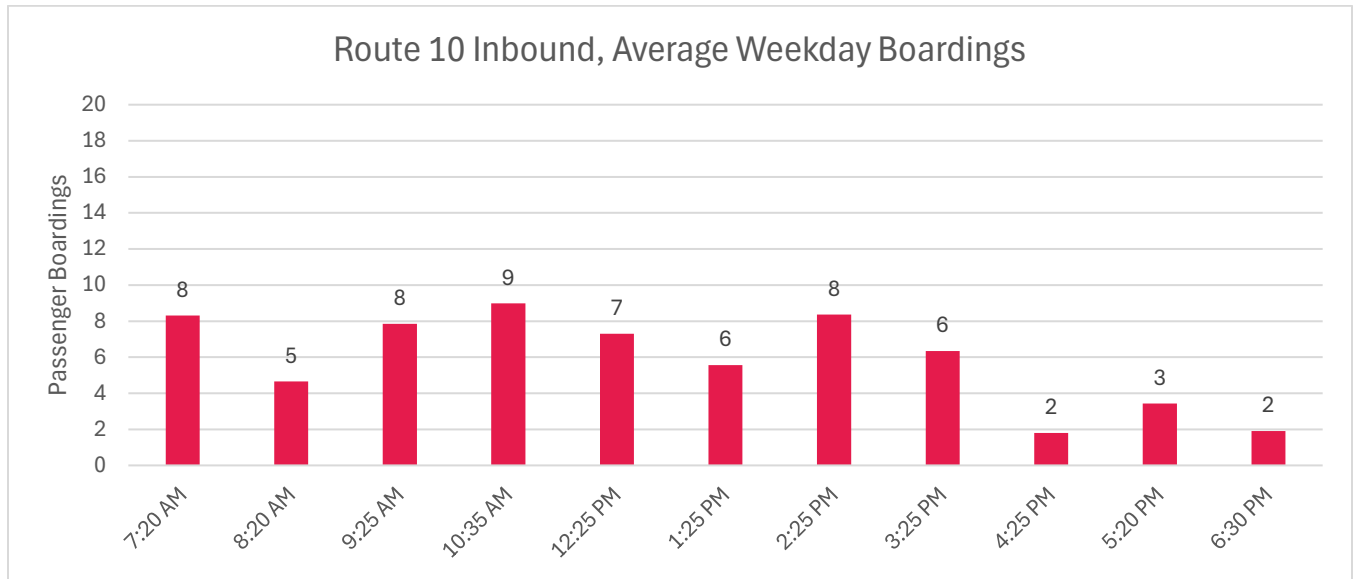
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from one to eight boardings on most trips. The highest-ridership trip is the 10:35 a.m. inbound trip, which carries nine passengers. In the inbound direction, ridership is relatively high from morning through early afternoon and decreases significantly after 3:25 p.m. Fewer people ride after the 3:25 p.m. trip. In the outbound direction, ridership is relatively stable across the day.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 10 exhibits moderate to poor on-time performance. In July 2025, 60% of trips were on-time, 38% of trips were late, and 2% of trips were early.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 10 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

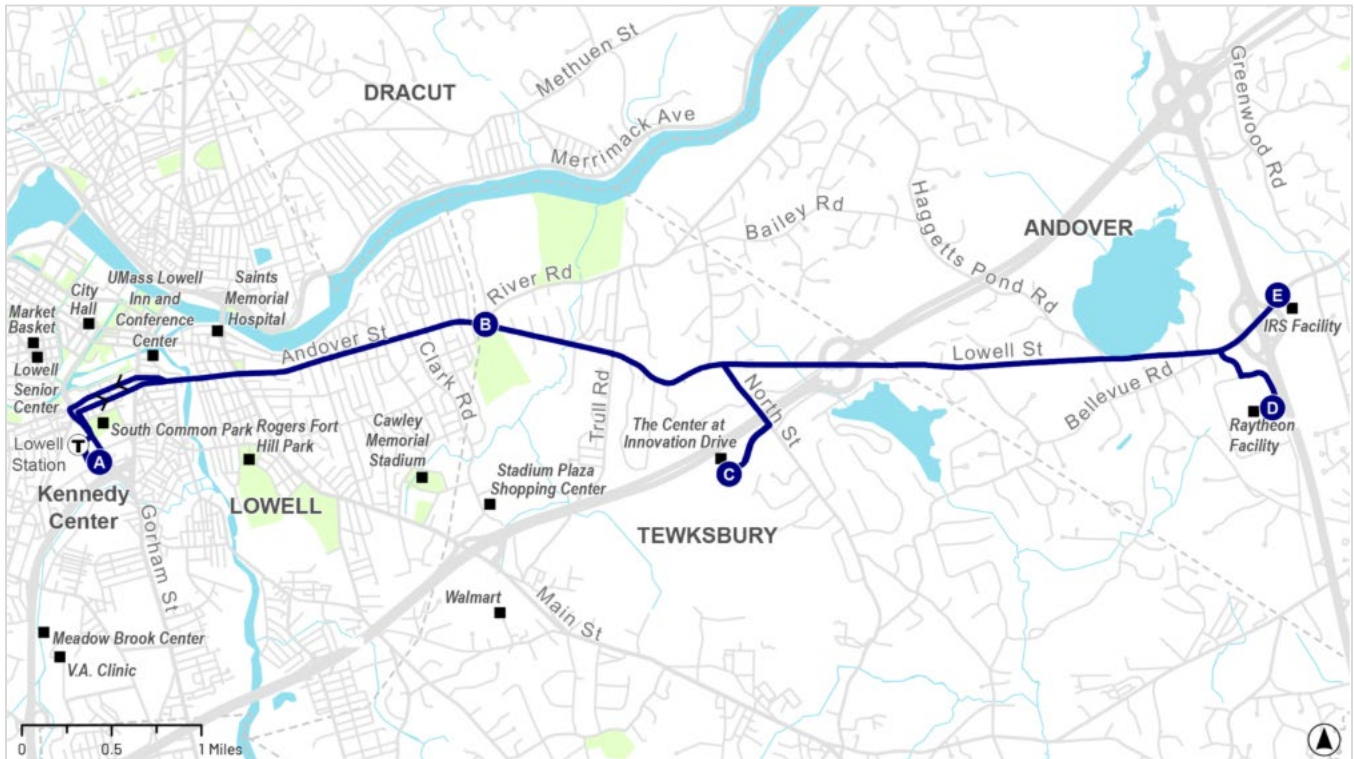
- Eliminate the Greenmont Avenue deviation to make service more direct and save travel time.
  - Very few riders are boarding or alighting in this location today.
- Remove the one-way service on either side of Nashua Road and provide bi-directional service from Lakeview Avenue to Stewart Street via Nashua Road.
  - Both current inbound and outbound alignments have minimal ridership. Lakeview Avenue features some businesses and adult day-care center, while being a short walk from Varnum Avenue. Stewart Street serves residential and medical uses.
- Truncate the route at Stewart Street and discontinue service to the New Hampshire state line.
  - Route 10 has very few boardings north of this point and resources could instead be used in parts of the LRTA system with much higher ridership.
- Extend service into Hudson, New Hampshire to serve Market Basket or Walmart.
  - These destinations may create demand for new riders along the route.

# 11 IRS/RAYTHEON VIA RT. 133

## ROUTE OVERVIEW

Route 11 operates in Lowell, Tewksbury, and Andover. The route serves the Andover Street and Lowell Street corridor, functioning primarily as a commuter service to the Center at Innovation Drive in Tewksbury and the Internal Revenue Service (IRS) and Raytheon facilities in Andover. The route only operates four trips that occur during peak weekday hours.

### Route Map



Route 11 Characteristics					
Weekday					Saturday
Start Time	8:00 AM	Schedule Adherence	On Time	59%	No Service
End Time	4:55 PM		Early	13%	
Peak Headway (mins.)	60		Late	28%	
Off-Peak Headway (mins.)	N/A	Avg Weekday Revenue Hrs	3		
Avg Weekday Boardings	12	Avg Boardings per Revenue Hr	3.9		

## Alignment

Route 11 operates north from the Kennedy Center on Thorndike Street before turning on Appleton Street/Church Street and Middlesex Street/Green Street as an inbound/outbound couplet. The route operates on MA-133/Andover Street/Lowell Street for most of the alignment. In Tewksbury, Route 11 deviates to serve the Center at Innovation Drive before returning to MA-133 and continuing to Andover. The route then deviates to serve the Raytheon facility and then turns around at the IRS facility in Andover. The route appears to serve all three deviations in both directions.

## Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Routes 2, 3, 12, and 20 overlap with Route 11 on Appleton, Middlesex, Church, and Andover streets.
- Route 2 then overlaps Route 11 again further along Andover Street.
- MeVa Route 26 (two trips per day) connects to Route 11 at the IRS and Raytheon facilities.

## Key Destinations

- Lowell Station and Kennedy Center
- Downtown Lowell
- The Center at Innovation Drive
- Raytheon
- IRS

# RIDERSHIP AND PRODUCTIVITY

Overall, Route 11 has low ridership and productivity within the LRTA system. Most ridership is likely work trips.

## Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Downtown Lowell, on Andover Street, and at the IRS facility

Areas with the lowest ridership:

- Most of the route alignment

## Productivity Observations

- Route 11 is the lowest-performing route in the LRTA system for both ridership and productivity.
- While the low ridership ranking can be explained by the limited amount of service provided, the lowest-productivity ranking indicates poor utilization of the service even when it is provided.

### Ridership Ranking

**19** of 19

Route 11 is the lowest performer of all LRTA routes.

### Productivity Ranking

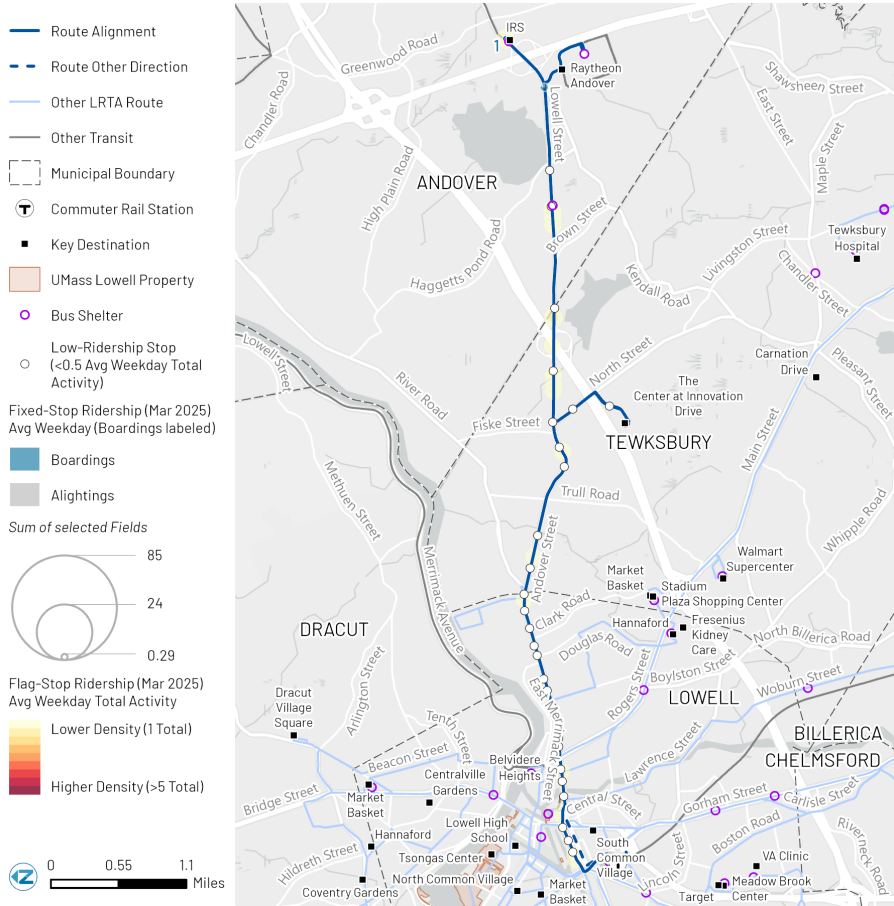
**19** of 19

Route 11 is in the lowest performer of all LRTA routes.

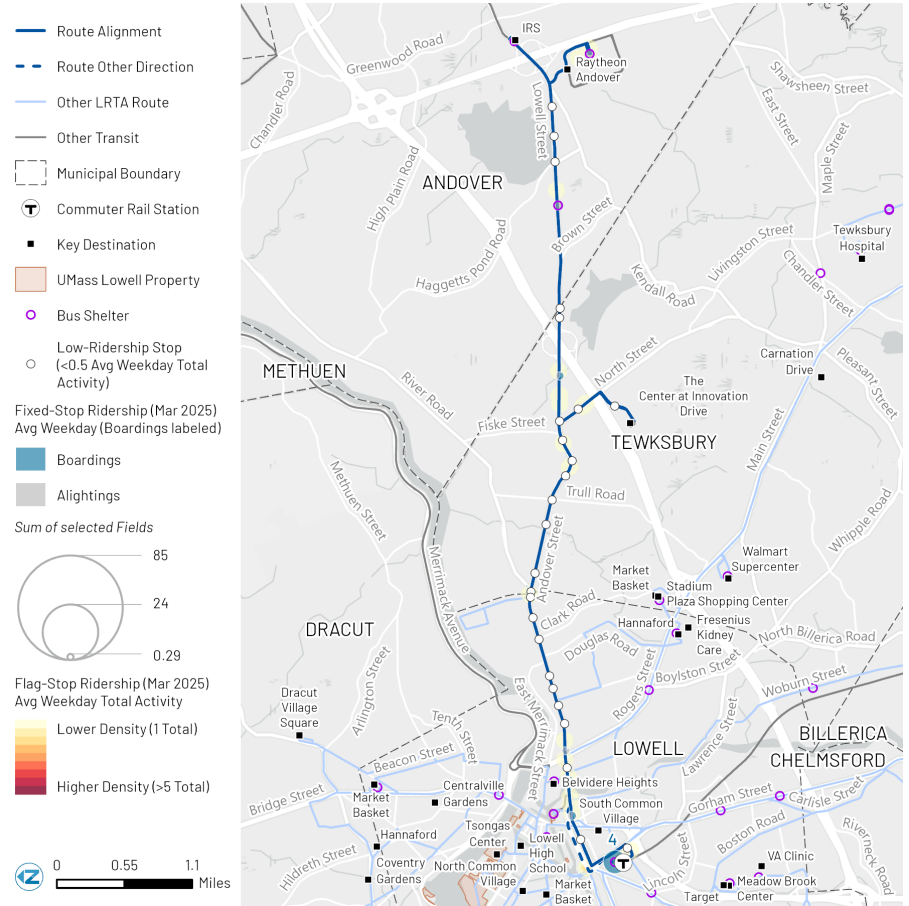
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Average Weekday Boardings Map, Inbound



#### Average Weekday Boardings Map, Outbound



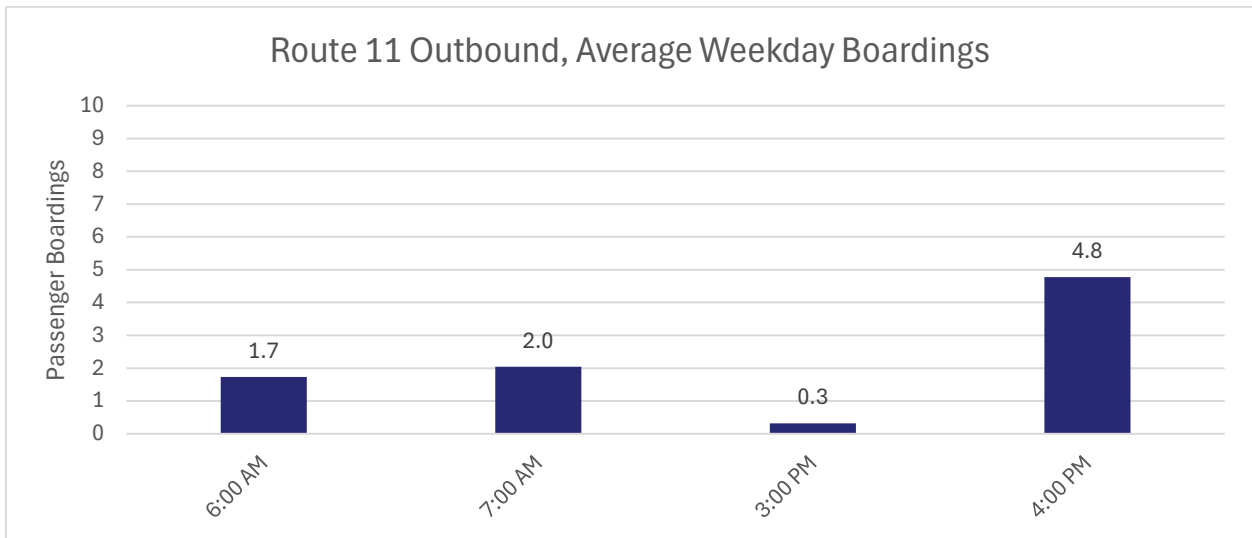
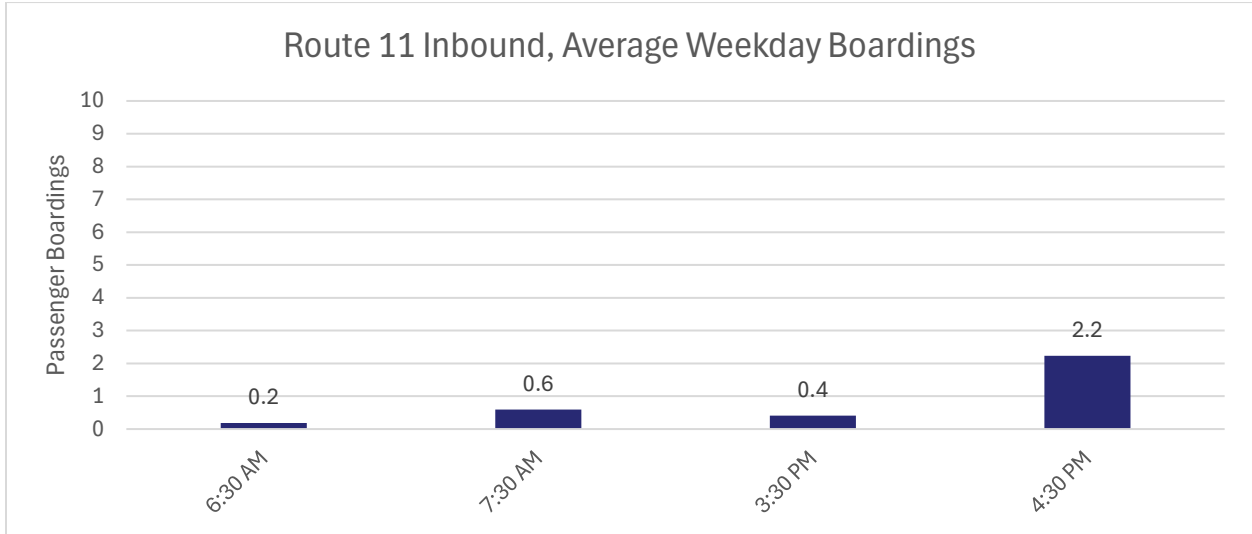
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

March 2025 ridership is very low on all Route 11 trips. Inbound ridership is less than one average daily boarding for three of the four trips. In the outbound direction, only the 4:00 p.m. trip has more than two average daily boardings.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 11 exhibits moderate to poor on-time performance. In July 2025, 59% of trips were on time, 28% of trips were late, and 13% of trips were early.

# IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 11 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

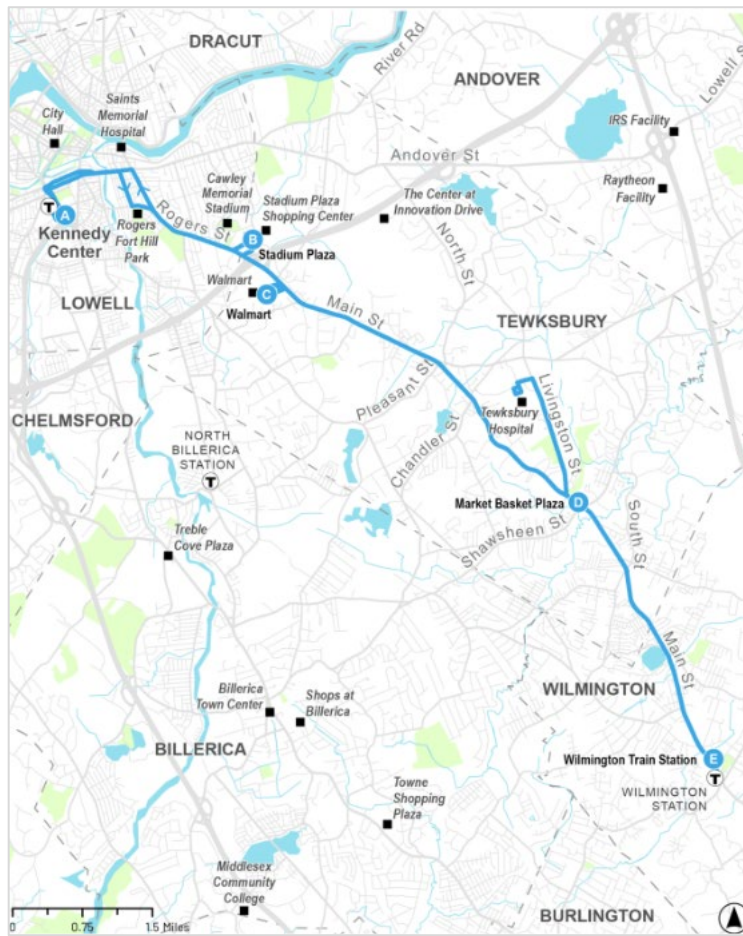
- Consider eliminating Route 11 and using the resources elsewhere in the system.
  - Route 11 operates as a specialized service for riders commuting to a few major employers.
  - The very low ridership and productivity show that the route is not fulfilling its intended function.
- Adjust the schedule and add more trips.
  - Confirm the peak-hour only service times match shift times at the Center on Innovation Drive, IRS, and Raytheon.
  - Adding more trips may make the route more useful for people living along the alignment, or for those transferring from other routes at the Kennedy Center.
- Run express service between major stops.
  - This could speed up the service for commuters who use the service between the Kennedy Center and work.
- Operate the route with a smaller vehicle, such as a cutaway or van.
  - This could free up a transit bus for service elsewhere and may be slightly less costly than operating the route with a transit bus.

# 12 TEWKSBURY/WILMINGTON TRAIN STATION

## ROUTE OVERVIEW

Route 12 operates in Lowell, Tewksbury, and Wilmington. The route primarily serves the MA-38 corridor, connecting the MBTA's Wilmington Station with Tewksbury Hospital, shopping destinations, several neighborhoods, downtown Lowell, and the Kennedy Center.

### Route Map



Route 12 Characteristics		
Weekday		
Start Time	6:00 AM	
End Time	8:03 PM	
Peak Headway (mins.)	60	
Off-Peak Headway (mins.)	60	
Avg Weekday Boardings	335	
Avg Weekday Revenue Hrs	22	
Avg Boardings per Revenue Hr	15.2	
Schedule Adherence	On Time	66%
	Early	14%
	Late	20%
Saturday		
Start Time	7:00 AM	
End Time	6:53 PM	
Headway (mins.)	60	
Avg Saturday Boardings	281	
Avg Saturday Revenue Hrs	19	
Avg Boardings per Revenue Hr	14.8	

### Alignment

Route 12 follows a mostly linear alignment southeast through Tewksbury and into Wilmington, with deviations to serve shopping plazas and a major deviation to serve Tewksbury Hospital and Livingston Street. Outbound, the route operates north from the Kennedy Center on Thorndike Street before turning on Appleton Street/Church Street and Middlesex Street/Green Street as a couplet. The route proceeds down Andover Street and turns onto a couplet of High Street (outbound, as an unprotected left turn) and Nesmith Street (inbound) and proceeds to Rogers Street/MA-38. Route 12 then continues on MA-38 for most of the rest of the route, deviating to provide front-door service to

## Route Profiles

### LRTA Fixed-Route Service Analysis

Market Basket and Walmart. In Tewksbury Center, the route makes a significant deviation from Main Street/MA-38 onto Livingston Street to serve the Tewksbury Hospital campus on both inbound and outbound trips. Returning to Main Street, Route 12 continues south and terminates at the MBTA's Wilmington Station, where it turns around in the parking lot.

### Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Routes 2, 3, 11, and 20 overlap with Route 12 on Appleton, Middlesex, and Church streets.
- Route 2 overlaps with Route 12 on Rogers Street.

### Key Destinations

- Lowell Station and Kennedy Center
- Downtown Lowell
- Market Basket
- Walmart
- Tewksbury Hospital
- MBTA Wilmington Station

## RIDERSHIP AND PRODUCTIVITY

Overall, Route 12 has high ridership and moderate productivity within the LRTA system. Much of the ridership seems to be related to medical and shopping trips. Route 12 has more average-daily ridership on Saturdays than on weekdays.

### Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Along Andover Street (fixed and flag stops)
- Stadium Plaza Market Basket
- Walmart Supercenter
- Main Street at Summer Street in Tewksbury
- Tewksbury Hospital
- Tewksbury Market Basket
- MBTA Wilmington Station

### Ridership Ranking

**3** of 19

Route 12 is in the top 15% of all LRTA routes.

### Productivity Ranking

**10** of 19

Route 12 is in the middle of all LRTA routes.

## Route Profiles

### LRTA Fixed-Route Service Analysis

Areas with the lowest ridership:

- Much of MA-38 in Tewksbury, especially:
  - From Tewksbury Center to Livingston Street
  - From Shawsheen Street in Tewksbury to Richmond Street in Wilmington

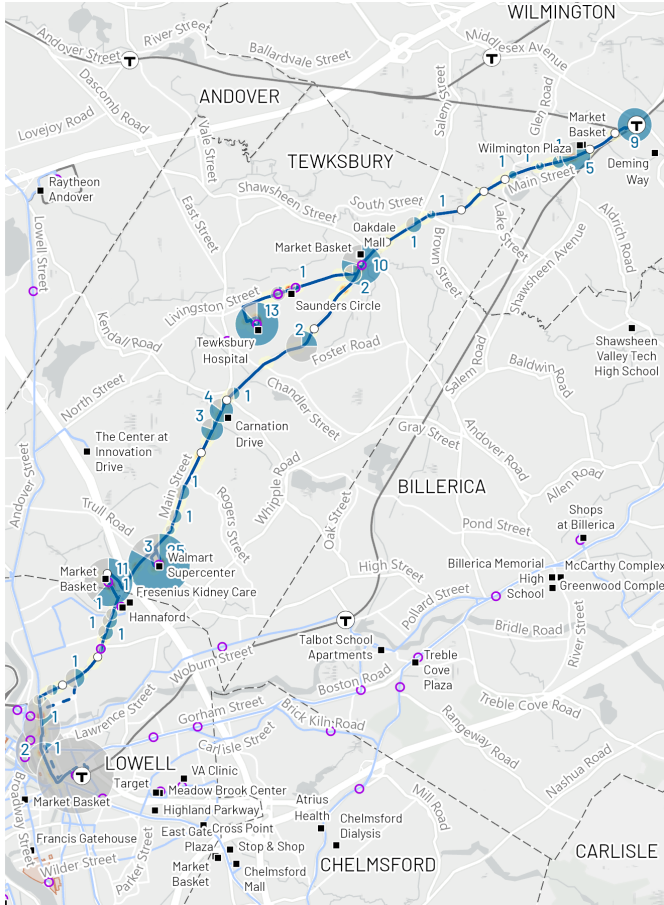
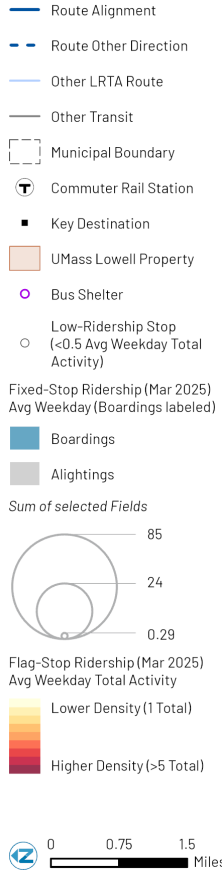
### Productivity Observations

- Route 12 is among the highest-ridership routes in the LRTA system, which is notable because of the hourly headways.
- The moderate productivity ranking may be attributable to the long travel times and extended coverage of some low-ridership segments.

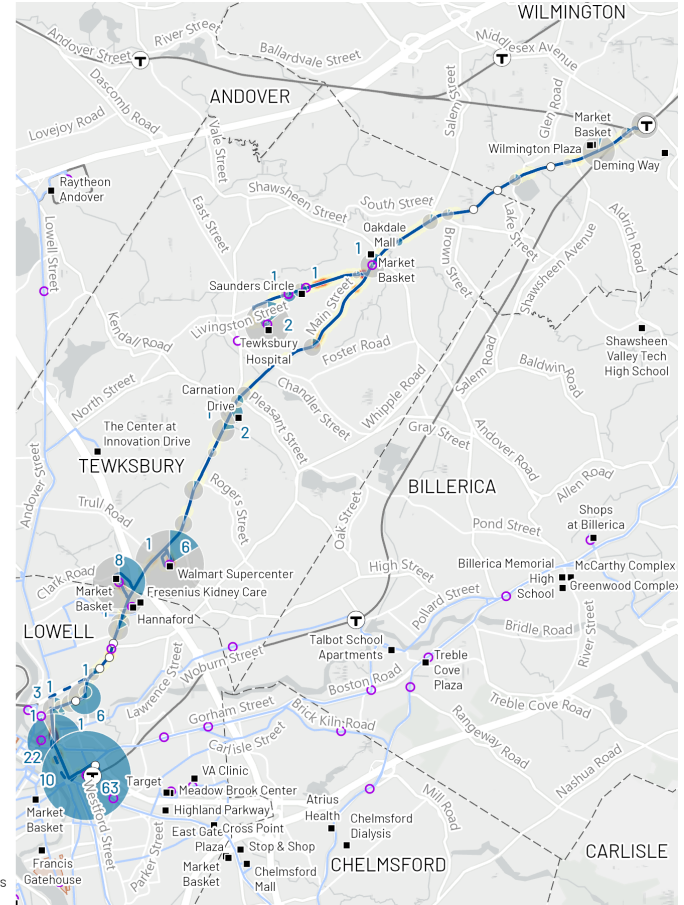
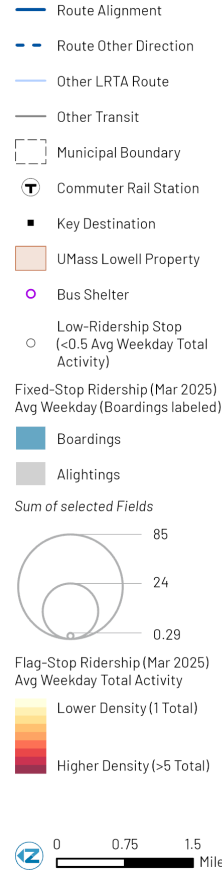
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Average Weekday Boardings Map, Inbound



#### Average Weekday Boardings Map, Outbound



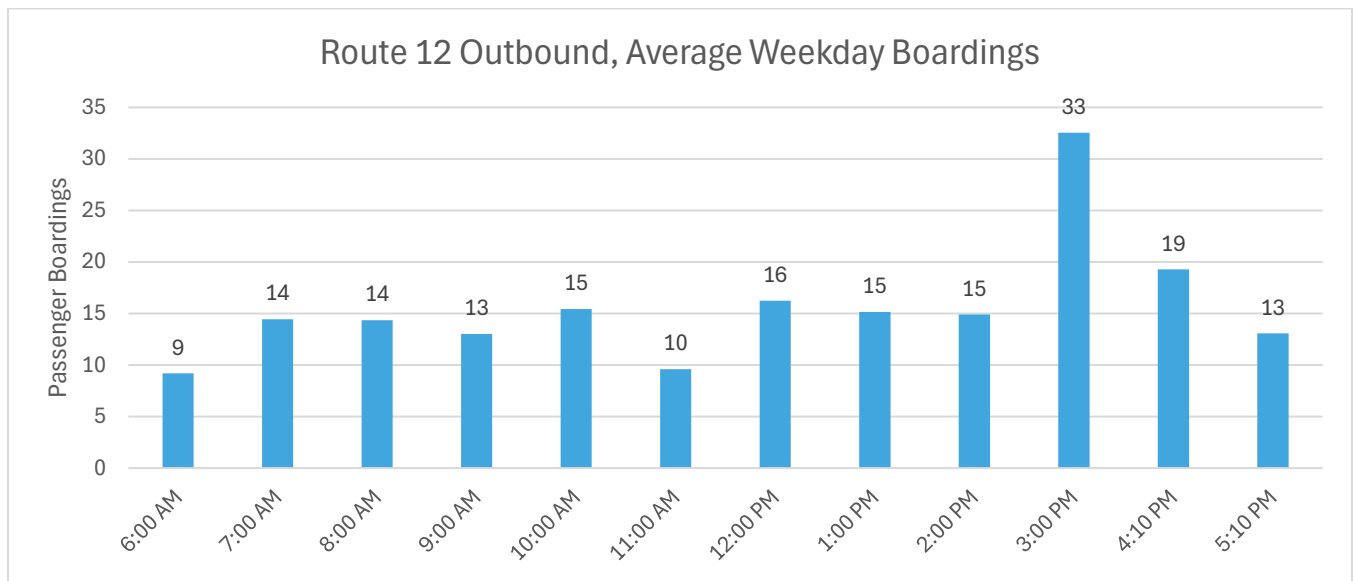
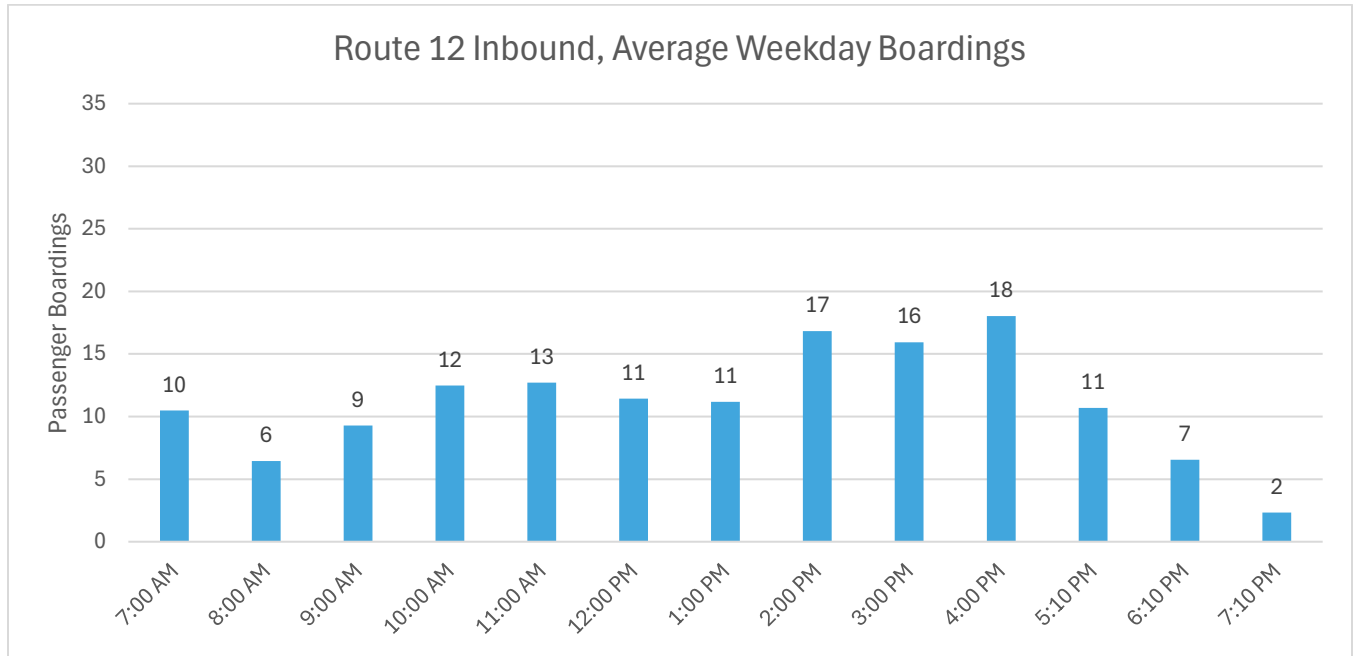
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from two to 18 boardings on most trips. The highest-ridership trips are the 3:00 p.m. outbound and 4:00 p.m. inbound trips with 33 and 18 boardings, respectively. Ridership is generally stable throughout the day, with higher ridership in the afternoon and early evening. The first inbound and last outbound trips of the day have moderately strong ridership that may indicate demand for earlier and later service.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 12 exhibits moderate to poor on-time performance. In July 2025, 66% of trips were on-time, 20% of trips were late, and 14% of trips were early.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 12 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

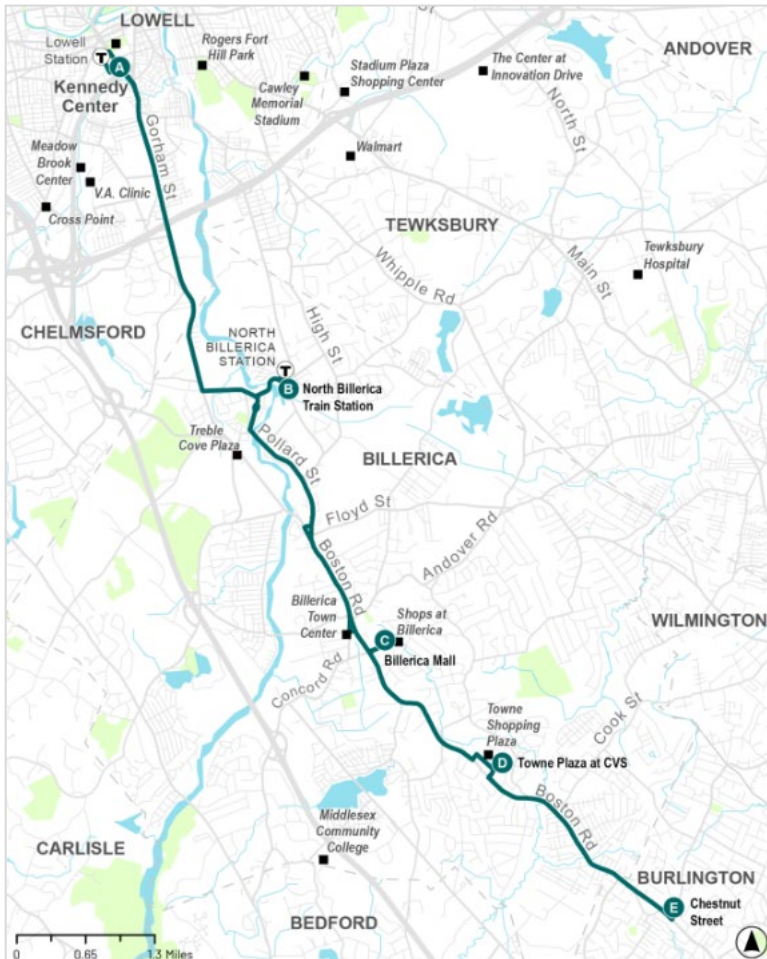
- Consider terminating the route at Tewksbury Hospital.
  - The northern segment of the route sees significantly more ridership than the southern portion.
  - The MBTA Lowell Line is already served at the Kennedy Center, so the Wilmington Station service could be considered redundant.
- Improve frequencies to 30 minutes between downtown Lowell, South Tewksbury Market Basket, and Tewksbury Hospital.
  - Route 12 has the highest ridership of any LRTA route with hourly service. Operating 30-minute service on the most productive segments while still providing hourly service to Wilmington Station may be warranted.
  - This could be operated as a short-turn pattern.
- Consider putting all service onto Nesmith Street or High Street instead of operating a couplet.
  - This would provide more consistent access for riders in the neighborhood.
  - Nesmith Street has a wider right-of-way and fewer turns, allowing for faster bus speeds.
  - High Street is closer to housing in the area. Signalizing the High Street at Rogers Street intersection would make it safer for the bus to turn left off High Street.
- Extend service hours on Route 12 to offer earlier and later service.
  - Ridership during the first and last trips is high, especially in the outbound direction.
  - *Note: service was extended in August 2025, with the first trip beginning at 6:00 a.m. and the last trip ending at 8:03 p.m.*
- Operate the route bi-directionally on Livingston Street and Hospital Road instead of MA-38.
- Make the Tewksbury Hospital deviation shorter by using Hospital Road from MA-38, rather than Livingston Road.
- Consider stopping on-street at Wilmington Station, which may be safer than driving in the station parking lot.
- Improve access to transit at key destinations without front-door service (e.g., both Market Baskets on MA-38).
- Coordinate bus schedule with MBTA Commuter Rail service
  - Schedule trips so buses arrive and depart Wilmington Station before Commuter Rail trains depart and after they arrive, to minimize wait times for transferring riders.

# 13 BILLERICA VIA EDSON

## ROUTE OVERVIEW

Route 13 Billerica via Edson operates in Lowell, Chelmsford, Billerica, and Burlington. Route 13 primarily serves the MA-3A corridor and connects Burlington and Billerica with shopping, the MBTA North Billerica Station, and the Kennedy Center.

### Route Map



Route 13 Characteristics		
<b>Weekday</b>		
Start Time	6:30 AM	
End Time	7:51 PM	
Peak Headway (mins.)	60	
Off-Peak Headway (mins.)	60	
Avg Weekday Boardings	254	
Avg Weekday Revenue Hrs	17	
Avg Boardings per Revenue Hr	14.9	
Schedule Adherence	On Time	78%
	Early	7%
	Late	16%
<b>Saturday</b>		
Start Time	7:30 AM	
End Time	5:41 PM	
Headway (mins.)	60	
Avg Saturday Boardings	85	
Avg Saturday Revenue Hrs	12	
Avg Boardings per Revenue Hr	7.1	

### Alignment

The route is primarily linear, with deviations for key destinations. Outbound, the route operates south on Gorham Street from the Kennedy Center. The route then makes a significant deviation to serve North Billerica Station before returning to MA-3A to continue south. Route 13 makes another deviation to serve the front doors of the Shops at Billerica and Towne Shopping Plaza. The route turns around using a small terminal loop at Chestnut Avenue.

### Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Route 14 overlaps with some of Route 13 in Billerica.
- Route 13 connects to MBTA bus routes 350 and 354 at its southern terminus.

### Key Destinations

- Lowell Station and Kennedy Center
- MBTA North Billerica Station
- Talbot School Apartments
- Shops at Billerica
- Towne Shopping Plaza
- Burlington Town Center

## RIDERSHIP AND PRODUCTIVITY

Overall, Route 13 has moderate ridership and productivity within the LRTA system, with high ridership on school-time trips making up for lower ridership at other times of the day. Most ridership seems to be related to school and shopping trips.

### Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Lowell High School
- Along Gorham Street, especially near Cosgrove Street (fixed and flag stops)
- Pollard Street at Boston Road
- Market Basket at Towne Plaza in Burlington (fixed stops)

Areas with the lowest ridership:

- Along Gorham Street south of I-495
- Along Pollard Street
- MA-3A between Towne Plaza and Wilmington Road

### Productivity Observations

- The route is very long and serves segments of low-density land uses, which likely contributes to its moderate productivity.

#### Ridership Ranking

8 of 19

Route 13 is in the top 40% of all LRTA routes.

#### Productivity Ranking

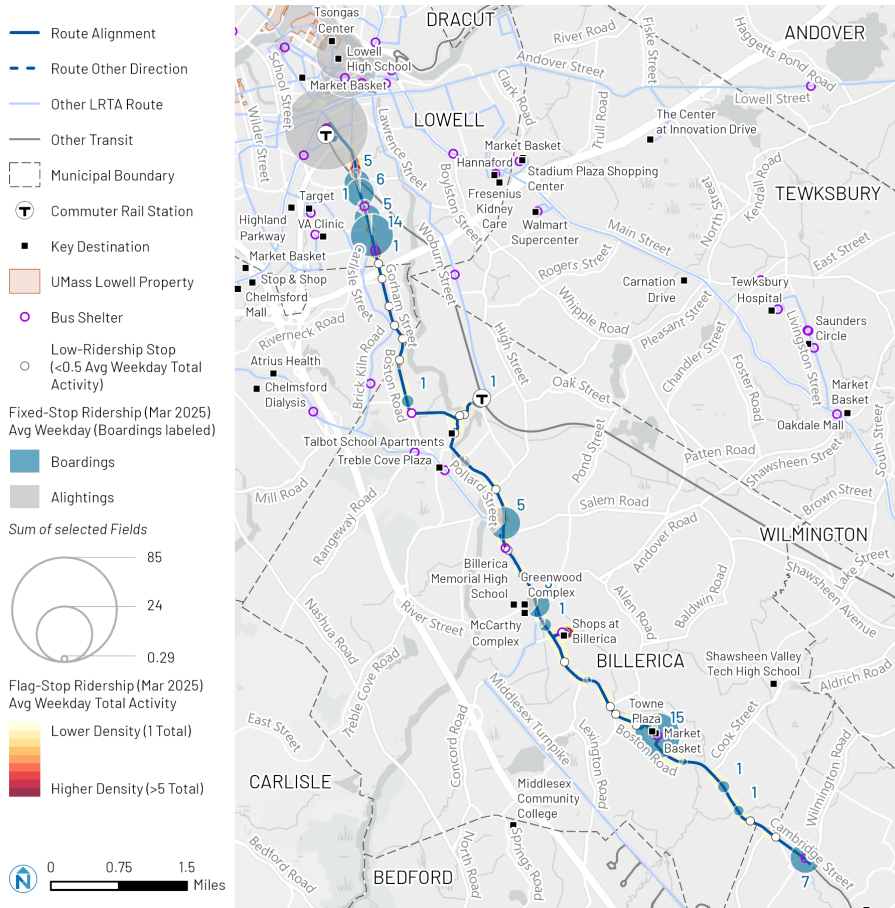
11 of 19

Route 13 is in the bottom 40% of all LRTA routes.

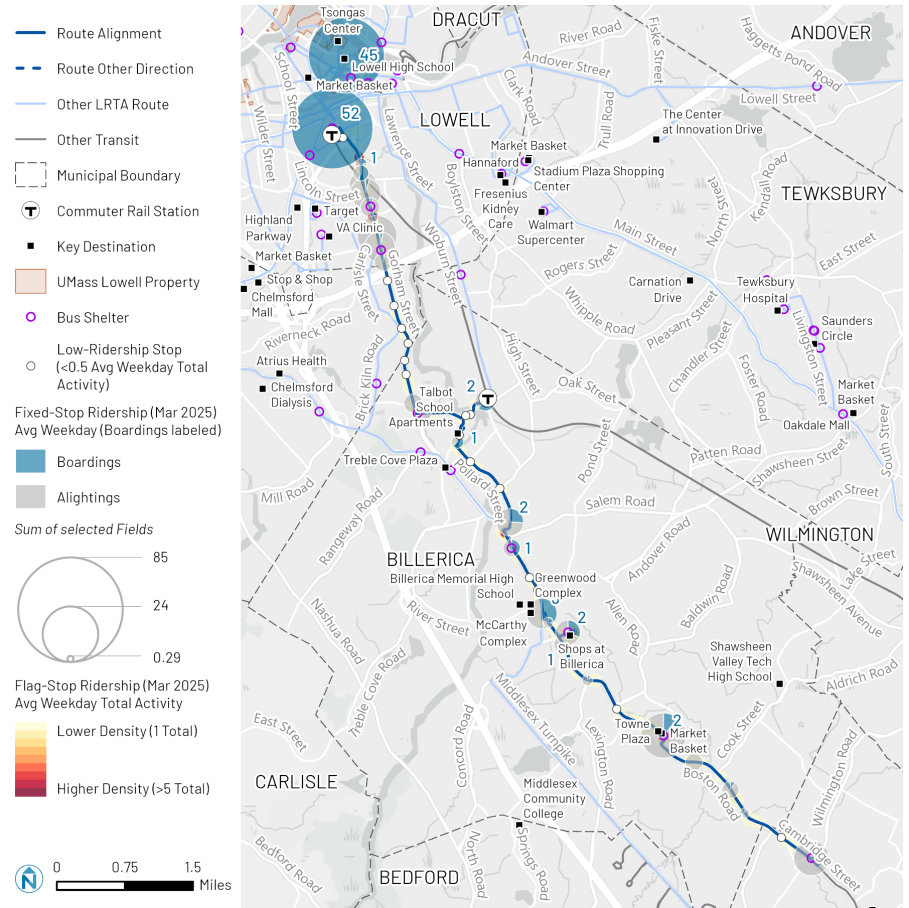
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Average Weekday Boardings Map, Inbound



#### Average Weekday Boardings Map, Outbound



Note: Ridership that appears on maps off of the alignment is assumed to be school-tripper ridership.

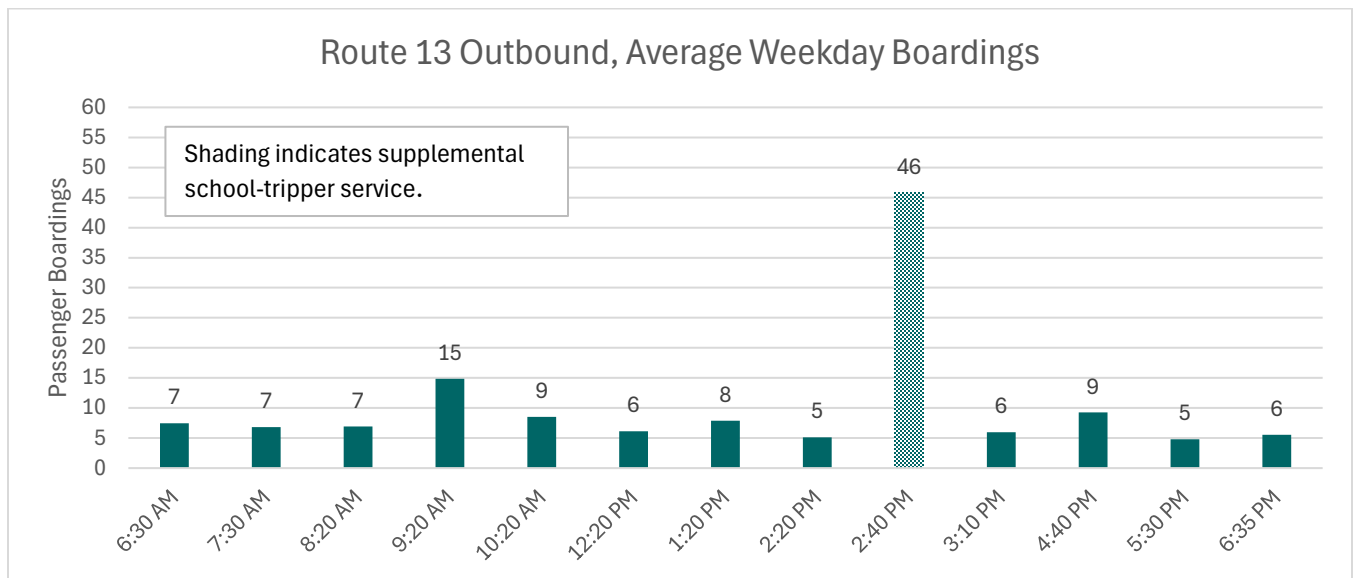
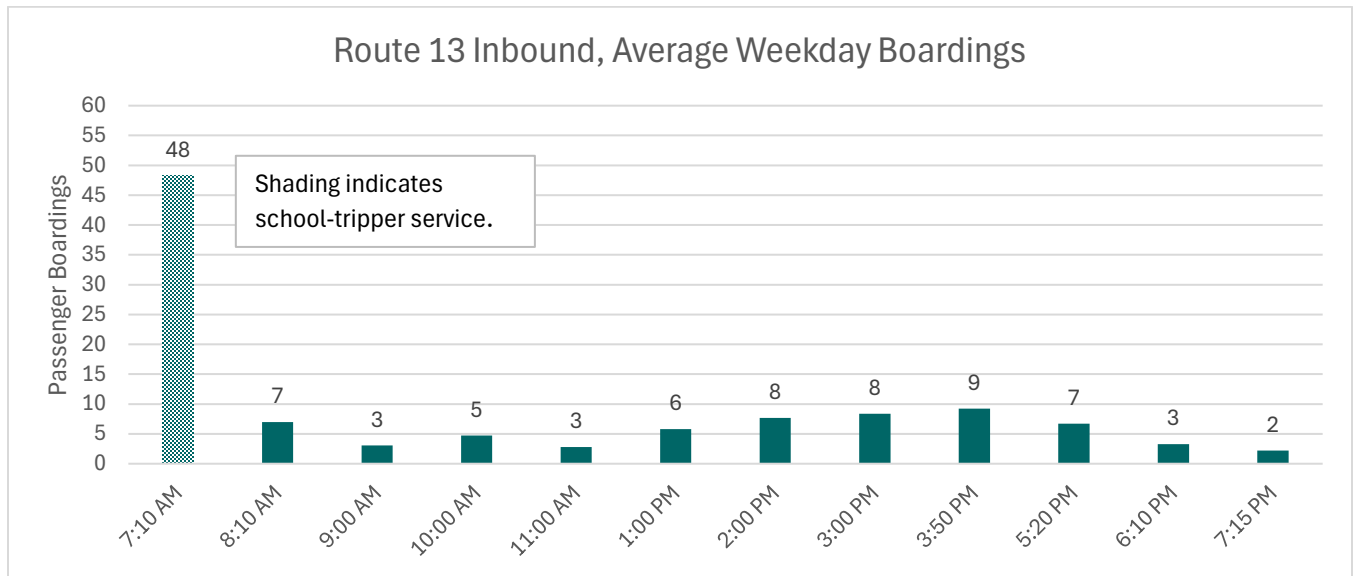
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from two to 15 boardings on most trips. The highest-ridership trips are the 7:10 a.m. inbound and 2:40 p.m. outbound school trippers. In the inbound direction, ridership remains relatively steady throughout the day, with somewhat higher ridership in the afternoon and early evening. In the outbound direction, boardings remain steady from the beginning of service until an increase at 9:20 a.m., then decrease through midday. Another minor peak in boardings occurs at 4:40 p.m.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 13 exhibits fair to moderate on-time performance. In July 2025, 78% of trips were on time, 16% of trips were late, and 7% of trips were early.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 13 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

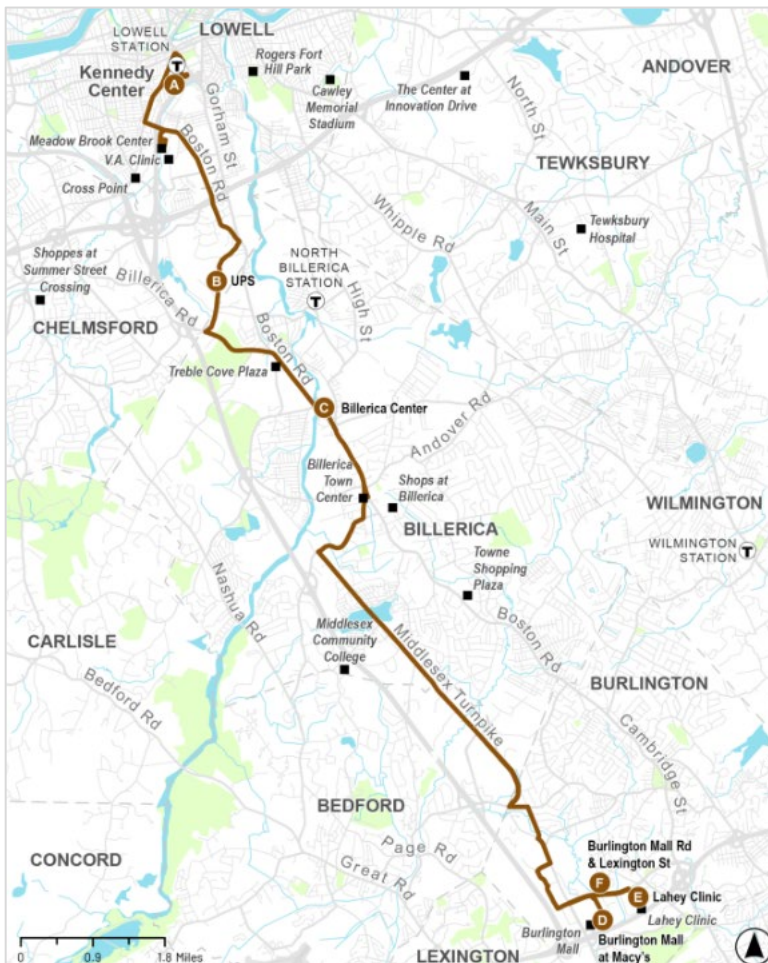
- Eliminate the deviation to North Billerica Station.
  - This deviation adds about seven minutes of travel time in each direction and is only used by two average daily riders.
  - If Route 13 stayed on Lowell Street and Talbot Avenue, the North Billerica Station is still accessible via a five- to ten-minute walk.
- Eliminate front-door service at the Shops at Billerica
  - There is access-to-transit infrastructure available for people to travel between storefronts and bus stops.
- Extend service into Burlington Center.
  - Lengthening the route southward by less than one mile would connect to a commercial node in Burlington with a pharmacy and grocery store on the north end of Winn Street.
  - This may increase ridership, especially with riders in Billerica and Burlington.
- Coordinate schedules with Route 14 in Billerica Center to provide more consistent headways.
  - Currently, Route 13 and Route 14 both serve Boston Road in Billerica. The routes usually arrive within 10 minutes of each other, but both have 60-minute headways.
  - Offsetting arrival times would effectively create a 30-minute frequency connection between Billerica and Lowell.
- Offer a trip earlier in the morning.
- Turn the route around at Towne Plaza, as there is relatively little ridership south of Towne Plaza.
- Coordinate bus schedule with MBTA Commuter Rail service.
  - Schedule trips so buses arrive and depart North Billerica Station before Commuter Rail trains stop and after they arrive, to minimize wait times for transferring riders.

# 14 BURLINGTON MALL/LAHEY CLINIC

## ROUTE OVERVIEW

Route 14 operates in Lowell, Chelmsford, Billerica, and Burlington. The route primarily serves the MA-3A and Middlesex Turnpike corridors and connects the Lahey Clinic complex and the Burlington Mall with Billerica and the Kennedy Center.

### Route Map



Route 14 Characteristics		
Weekday		
Start Time	6:00 AM	
End Time	7:45 PM	
Peak Headway (mins.)	60	
Off-Peak Headway (mins.)	60	
Avg Weekday Boardings	334	
Avg Weekday Revenue Hrs	24	
Avg Boardings per Revenue Hr	13.9	
Schedule Adherence	On Time	68%
	Early	13%
	Late	19%
Saturday		
Start Time	7:00 AM	
End Time	6:49 PM	
Headway (mins.)	60	
Avg Saturday Boardings	224	
Avg Saturday Revenue Hrs	19	
Avg Boardings per Revenue Hr	11.8	

### Alignment

Route 14 is a mostly straight and direct route that largely runs parallel to US-3 between Lowell and I-95. Outbound, the route operates south from the Kennedy Center via Chelmsford Street. Route 14 deviates into Meadow Brook Center before continuing south on Boston Road, turning onto Brick Kiln and Chelmsford roads before turning back onto Boston Road/MA-3A through Billerica. The route turns onto Concord Road to reach the Middlesex Turnpike. Route 14 then runs along nearly the entire length of the Middlesex

## Route Profiles

### LRTA Fixed-Route Service Analysis

Turnpike, deviating first to serve Wegmans and then into the Burlington Mall before turning around in a counter-clockwise loop around the Lahey Clinic visitor/patient garage.

#### Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Route 13 overlaps with some of Route 14 in Billerica.
- Route 15 overlaps with Route 14 along Carlisle Street and Brick Kiln Road in Chelmsford.
- On Burlington Mall Road, Route 14 connects with MBTA Route 350.
- On 3<sup>rd</sup> Avenue, Route 14 connects with MBTA Route 351.
- Route 14 connects with Lexpress Route B at the Lahey Clinic.

#### Key Destinations

- Lowell Station and Kennedy Center
- Meadow Brook Center
- Wegmans
- Burlington Mall
- Lahey Clinic

## RIDERSHIP AND PRODUCTIVITY

Overall, Route 14 has high ridership and moderate productivity within the LRTA system. Most ridership seems to be related to medical, work, and shopping trips.

#### Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Meadow Brook Center
- Along Concord Road
- Near Wegmans in Burlington (fixed stops and flag stops)
- Middlesex Turnpike at Baron Park Lane (fixed stops)
- Burlington Mall (fixed stops and flag stops)
- Lahey Clinic (fixed stops)

#### Ridership Ranking

**4** of 19

Route 14 is in the top 20% of all LRTA routes.

#### Productivity Ranking

**12** of 19

Route 14 is in the bottom 35% of all LRTA routes.

## Route Profiles

### LRTA Fixed-Route Service Analysis

Areas with the lowest ridership:

- Along Boston Road/Carlisle Street
- Along Brick Kiln Road (except UPS)
- Along MA-3A in Billerica between Floyd Street and Billerica Center
- Along the northern portion of the Middlesex Turnpike in Billerica

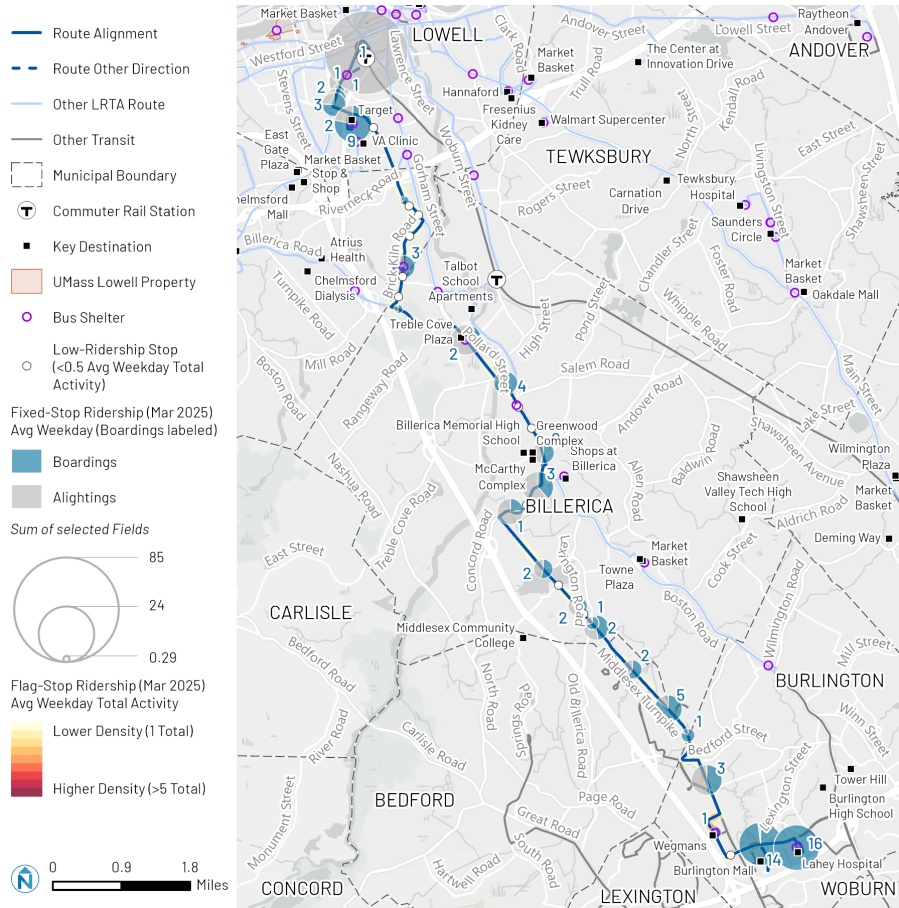
### **Productivity Observations**

- The route has below-average productivity. This may be attributable to the long travel times needed to connect riders with these destinations.

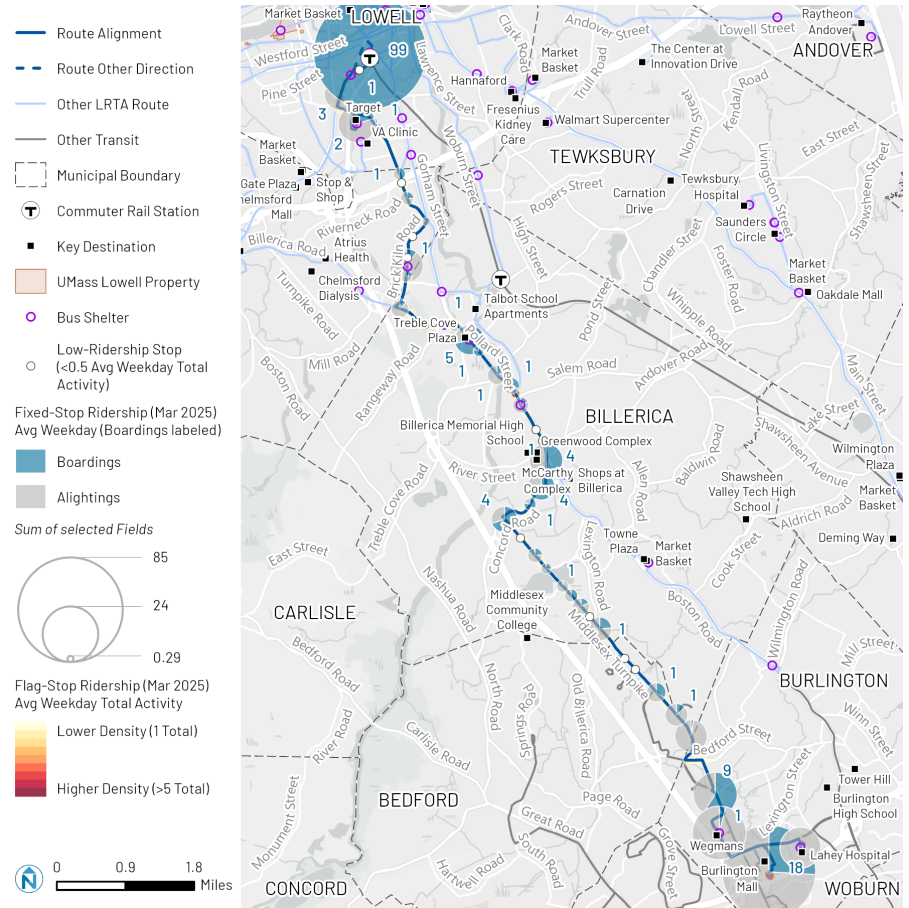
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Average Weekday Boardings Map, Inbound



#### Average Weekday Boardings Map, Outbound



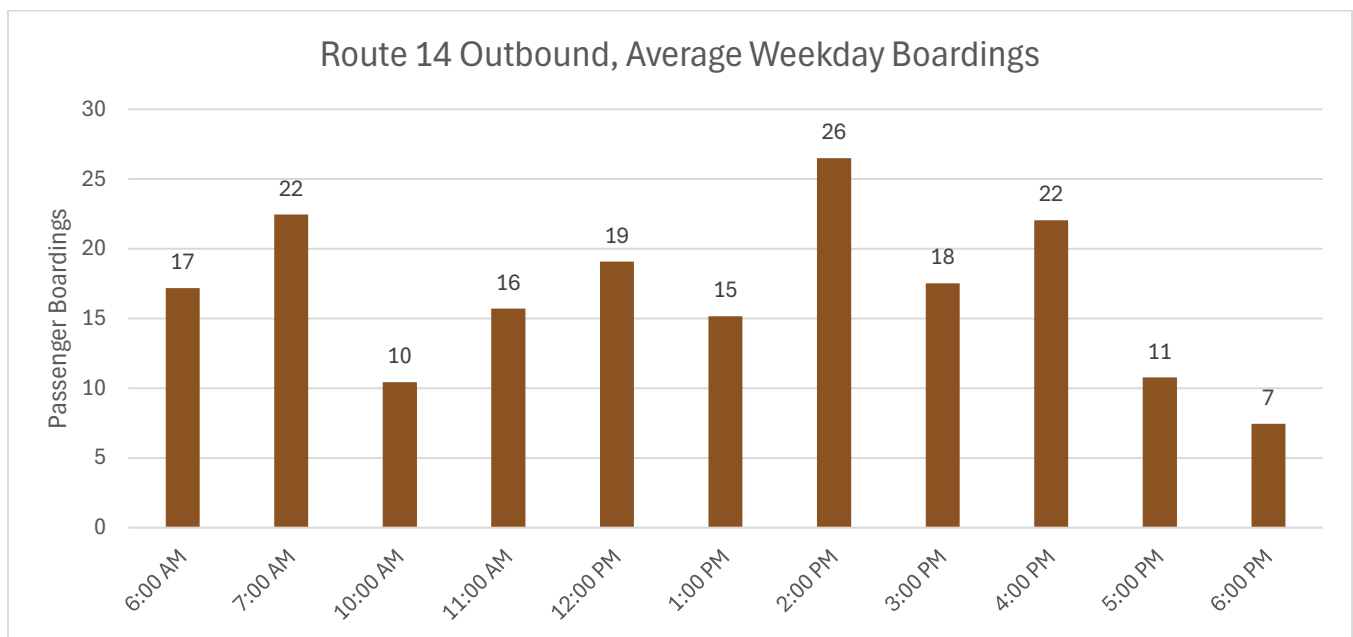
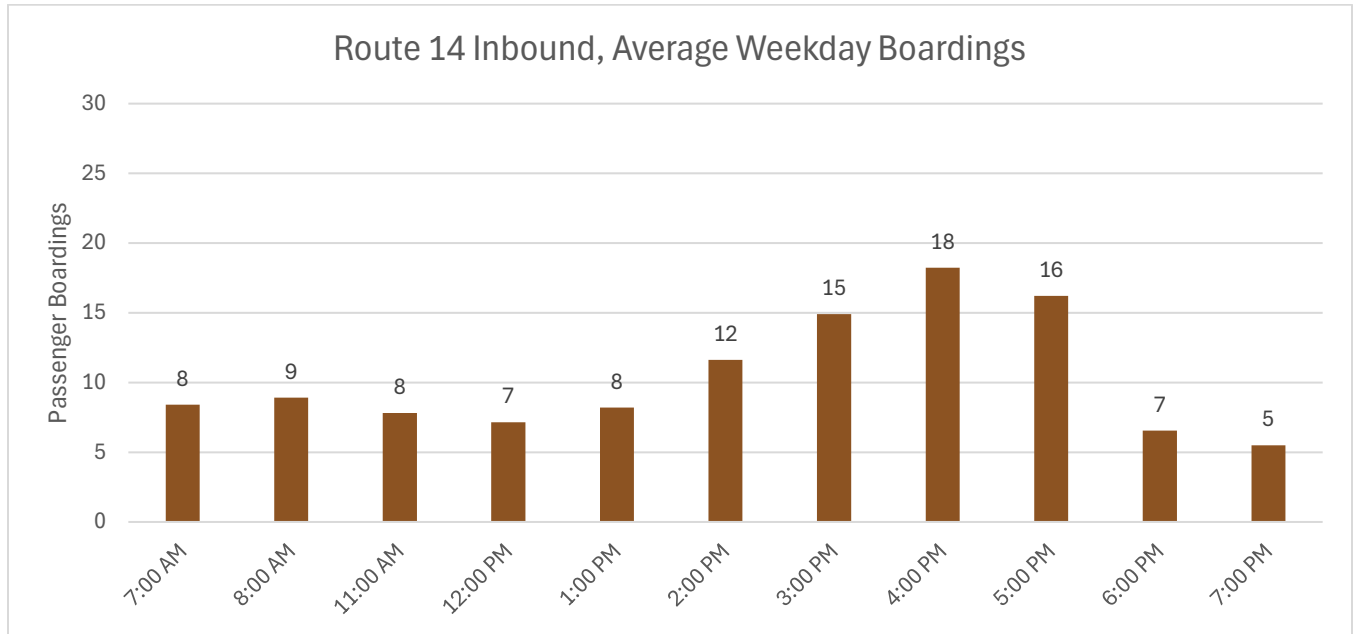
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from five to 22 boardings on most trips. The highest-ridership trips are the 7:00 a.m., 2:00 p.m., and 4:00 p.m. outbound trips. In the inbound direction, ridership remains steady through the morning and grows through the afternoon, with a peak at 4:00 p.m. After 5:00 p.m., boardings drop significantly. Boardings in the outbound direction are about double inbound boardings in the morning. Like inbound ridership, outbound ridership peaks in the afternoon before decreasing into the last trip. High ridership on the first inbound trip may indicate demand for earlier service.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 14 exhibits relatively poor on-time performance. In July 2025, around two-thirds of trips (68%) were on time, with 19% of trips late and 13% of trips early.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 14 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

- Adjust deviations to make service simpler and more direct, while improving speed and reliability. Route 14 has a long alignment with many potential points of traffic congestion, so keeping the route on the main road as much as possible will make the route faster and more reliable.
  - Consider discontinuing the deviation into Meadow Brook Center. The stop sees moderately high ridership; however, the stores can be accessed from Plain Street via sidewalks, and Route 14 serves other shopping plazas, including front-door service to Wegmans and the Burlington Mall.
  - Move the stop at Burlington Mall to the north or east side of the building. Route 14 currently makes a significant deviation around the mall to stop at Macy's. Changing the stop location to be closer to Burlington Mall Road would speed up service. Locating the stop near the commercial buildings east of the mall will also provide better access for riders walking there from the mall. Serving Burlington Mall on inbound trips would improve service for riders accessing the mall.
- Increase service frequencies to 30 minutes during the peak period.
  - The route serves major commercial hubs and has the fourth-highest ridership in the system.
- Operate on Crosby Drive instead of Middlesex Turnpike in Bedford, as this may serve more people.
- Serve Network Drive at Northwest Park instead of Middlesex Turnpike Extension in Burlington, as this may serve more people.
- Explore highway service between downtown Lowell and Billerica.
  - Route 14 is one of the longest routes in LRTA system and has notable segments of minimal ridership. Some riders may be traveling 40 minutes or longer to access Burlington Mall and Lahey Clinic. Operating part of the route on US-3 could reduce travel times for riders.
  - Most of Route 14's service within Lowell is provided by other routes.
  - The route could use highway access ramps at Chelmsford Road or Treble Cove Road.
- Extend the span of service on Route 14 to offer earlier service.
  - Ridership during the first trip is high, especially in the outbound direction.
  - *Note: service was extended in August 2025 with the first trip now beginning at 6:00 a.m.*
- Coordinate Burlington Mall and Lahey Clinic service with connecting transit agencies
  - Lexpress Route B and MBTA routes 350 and 351 also serve the Lahey Clinic and Burlington Mall area. Work with these agencies so that routes serving the same locations share bus stops.

## Route Profiles

### LRTA Fixed-Route Service Analysis

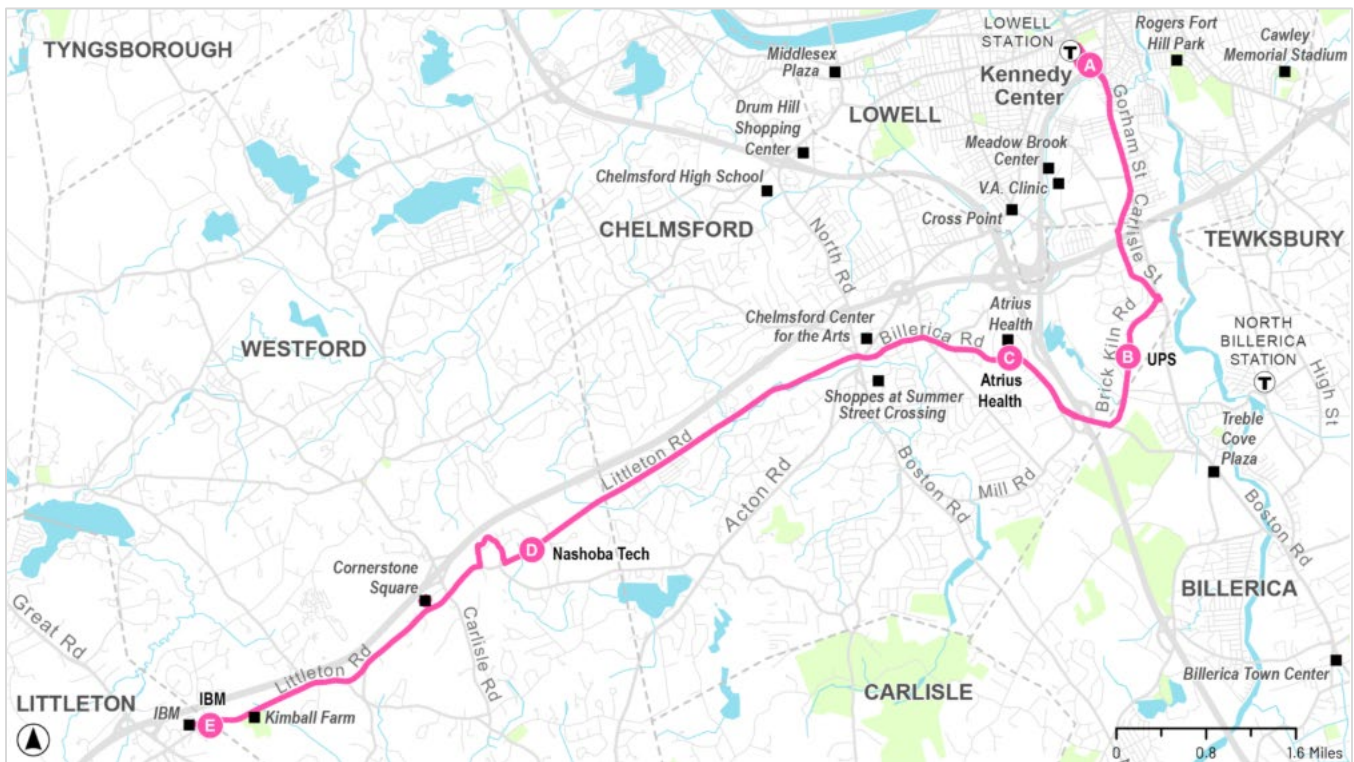
- Consider selecting an existing site as a transportation hub where riders can wait comfortably for timed transfers across services and bus operators have access to restrooms while laying over.

# 15 CHELMSFORD/WESTFORD

## ROUTE OVERVIEW

Route 15 Chelmsford/Westford operates in Lowell, Chelmsford, Westford, and Littleton. Route 15 primarily serves the MA-110 and MA-129 corridors, connecting the former IBM facility in Littleton with Technology Park Drive, Nashoba Valley Technical High School, central Chelmsford, and the Kennedy Center.

### Route Map



Route 15 Characteristics						
Weekday			Saturday			
Start Time	6:45 AM	Schedule Adherence	On Time	55%	Start Time	8:30 AM
End Time	7:45 PM		Early	29%	End Time	6:50 PM
Peak Headway (mins.)	90		Late	17%	Headway (mins.)	90
Off-Peak Headway (mins.)	90	Avg Weekday Revenue Hrs	13	Avg Saturday Boardings	66	
Avg Weekday Boardings	129	Avg Boardings per Revenue Hr	9.9	Avg Saturday Revenue Hrs	10	
				Avg Boardings per Revenue Hr	6.6	

## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Alignment

Route 15 follows a somewhat meandering path through Lowell and Billerica before turning through Chelmsford and staying on a mostly direct path through Westford to Littleton. The route operates south from the Kennedy Center on Thorndike Street and Gorham Street/MA-3A. Route 15 serves South Lowell before heading to MA-129 via Carlisle Street and Brick Kiln Road. Route 15 then runs on MA-129 until it meets MA-110 in Chelmsford Center. The route stays on MA-110 until it deviates onto Technology Park Drive, then into Westford Valley Market, and into the Cornerstone Square Plaza in Westford before returning to MA-110. The route terminates at the former IBM building in Littleton.

#### Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Route 13 overlaps with Route 15 in South Lowell.
- Route 14 shares stops with Route 15 on Gorham Street at Brick Kiln Road.
- Route 16 shares a stop with Route 15 in Chelmsford Center.

#### Key Destinations

- Lowell Station and Kennedy Center
- UPS/85 Brick Kiln Road
- Chelmsford Town Center Plaza
- Nashoba Technical High School
- Westford Technology Park
- Market Basket at Cornerstone Square Plaza
- Westford Valley Marketplace

## RIDERSHIP AND PRODUCTIVITY

Overall, Route 15 has low ridership and productivity within the LRTA system. Much of the ridership seems to be shopping and/or employment trips.

#### Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

#### Ridership Ranking

**14** of 19

Route 15 is in the bottom 25% of all LRTA routes.

## Route Profiles

### LRTA Fixed-Route Service Analysis

- Kennedy Center
- Market Basket in Westford
- Littleton at route terminus (flag stops)

## Productivity Ranking

**17** of 19

Route 15 is in the bottom  
10% of all LRTA routes.

## Route Profiles

### LRTA Fixed-Route Service Analysis

Areas with the lowest ridership:

- Along Carlisle Street
- Along Brick Kiln Road
- Along Billerica Road in Chelmsford
- Along eastern MA-110 in Chelmsford

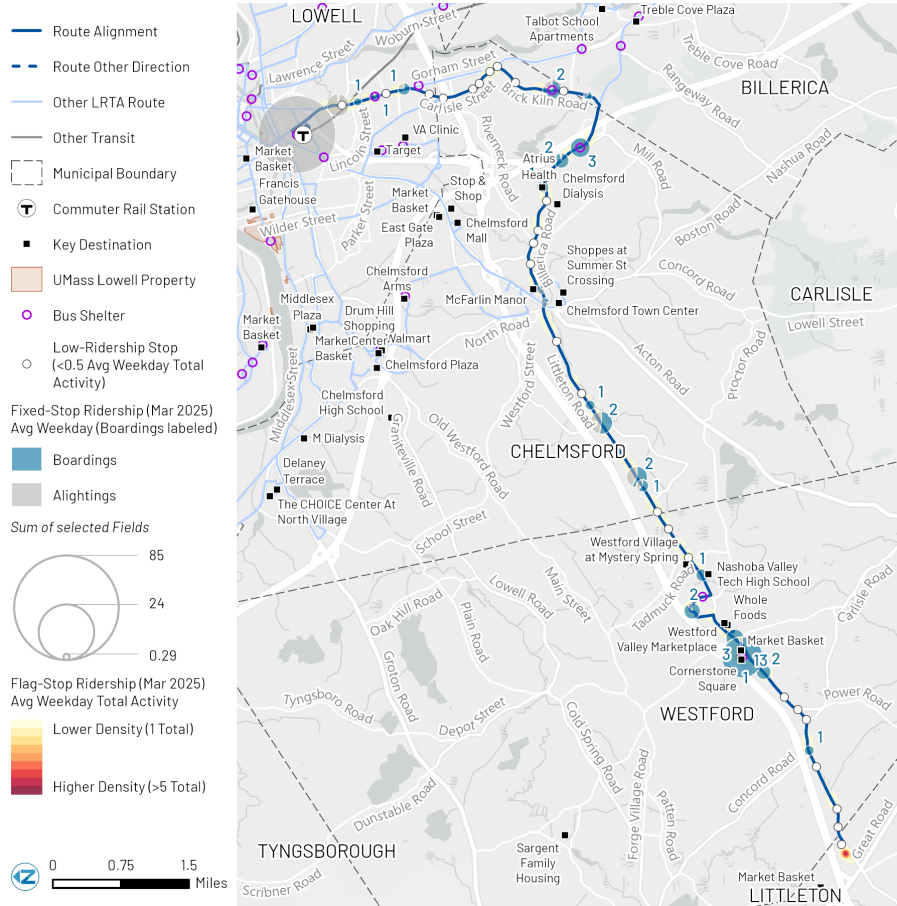
### **Productivity Observations**

- Route 15 struggles with low ridership and even lower productivity.
- The route is very long and has few high-ridership destinations. Additionally, service runs every 90 minutes, which has less utility for riders than more-frequent service would.

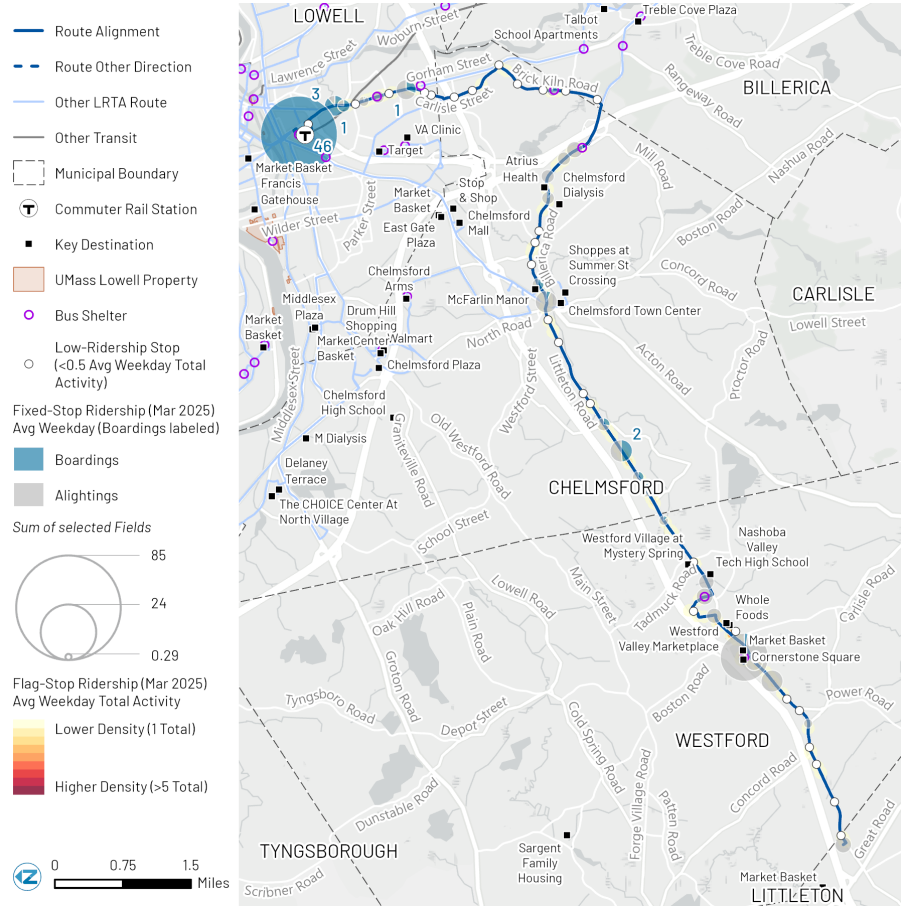
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Average Weekday Boardings Map, Inbound



#### Average Weekday Boardings Map, Outbound



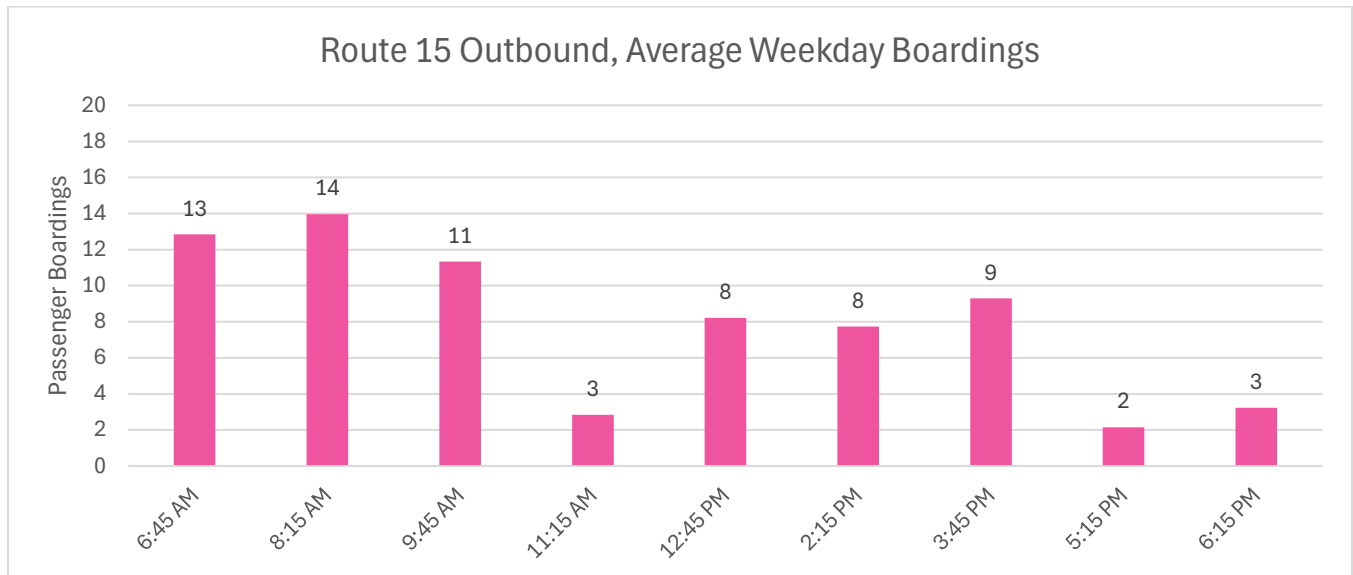
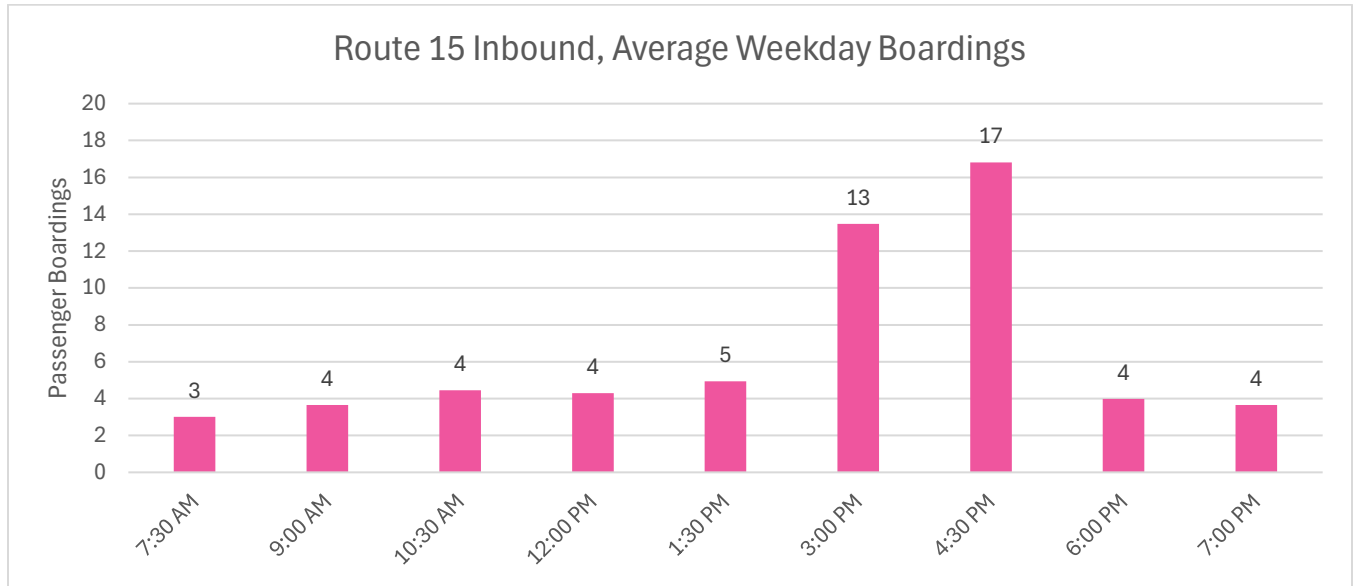
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from two to 17 boardings. The highest-ridership trips are the 8:15 a.m. outbound trip, which carries 14 passengers, and the 4:30 p.m. inbound trip, which carries 17 passengers. In the inbound direction, ridership is low through most of the day, with significantly higher ridership during a peak on the 3:00 p.m. and 4:30 p.m. trips. In the outbound direction, boardings peak during the first three trips of the morning. There is a lull on the 11:15 a.m. trip, after which ridership moderately increases through the late afternoon. The final two trips of the day see low ridership.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 15 has the lowest on-time performance of any route in the LRTA system. In July 2025, only 55% of trips were on time, 17% of trips were late, and 29% of trips were early.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 15 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

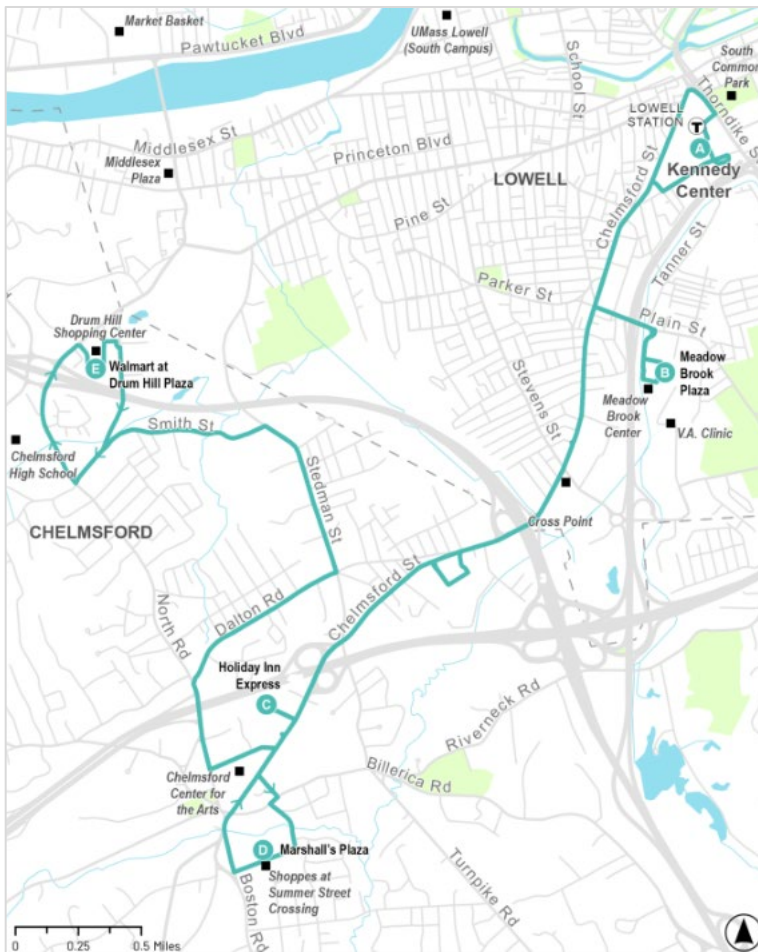
- Extend route into Littleton to provide a new anchor in place of IBM.
  - As the former IBM facility at the route terminus is vacant, a relatively short extension into Littleton may provide a suitable anchor and access to the new transit market.
  - One option is to terminate at Littleton Common, serving residential areas and small businesses.
  - Other options are to extend past Littleton Common and up Great Road to serve Market Basket, or down Shattuck Street to serve Pine Tree Park affordable housing and Littleton Town Hall.
- Move Westford Valley Marketplace stop to Whole Foods instead of CVS.
  - Alternatively, stay on MA-110 and don't provide front-door service, as Market Basket is nearby and receives front-door service.
- Consider serving Nashoba Technical High School at the front door during school times.
  - There is no crosswalk at this part of MA-110. Adding a crosswalk and a signalized crossing would allow the bus to remain on MA-110.
- Increase frequency to 60 minutes.
  - Fixed-route service provided every 90 minutes has limited utility for most riders. Making the route more frequent would likely boost ridership.
- Realign route to use Chelmsford Street through Lowell to Chelmsford.
  - Ridership is minimal along current alignment east of Chelmsford Center.
  - Service on Carlisle Street and Brick Kiln Road can continue to be provided by Route 14.
  - Operating on Chelmsford Street would serve higher-activity destinations, including Chelmsford Mall and the Highland Parkway homes.
  - The more direct path to and from Lowell would result in travel-time savings for riders traveling between Lowell and the towns of Littleton and Westford.
- Combine Route 15 with Route 16 to serve the Chelmsford Street corridor with more frequent service.
  - While Route 15 has low ridership today, Route 16 has moderately high ridership despite uneven headways throughout the day.
  - Combining resources could provide this corridor with service at least every 60 minutes.
- Eliminate the Technology Park Drive deviation to reduce travel time. Two average daily riders would need to walk further. There are sidewalks on Technology Park Drive and a crosswalk across MA-110 at S Chelmsford Road.

# 16 CHELMSFORD VIA CHELMSFORD STREET

## ROUTE OVERVIEW

Route 16 Chelmsford via Chelmsford Street operates in Lowell and Chelmsford. The route primarily serves the Chelmsford Street corridor and connects the Westlands neighborhood of Chelmsford with Chelmsford Center, the Highlands neighborhood, and the Kennedy Center.

### Route Map



Route 16 Characteristics		
<b>Weekday</b>		
Start Time	6:00 AM	
End Time	8:06 PM	
Peak Headway (mins.)	30-50	
Off-Peak Headway (mins.)	90	
Avg Weekday Boardings	252	
Avg Weekday Revenue Hrs	15	
Avg Boardings per Revenue Hr	16.8	
Schedule Adherence	On Time	56%
	Early	3%
	Late	40%
<b>Saturday</b>		
Start Time	8:00 AM	
End Time	6:11 PM	
Headway (mins.)	60	
Avg Saturday Boardings	147	
Avg Saturday Revenue Hrs	14	
Avg Boardings per Revenue Hr	10.5	

### Alignment

Route 16 operates an indirect alignment with multiple deviations and a large end-of-line loop. The route operates south from the Kennedy Center via Chelmsford Street through the Highlands neighborhood. The route deviates to serve Meadow Brook Center before returning to the main road. After the Chelmsford town line, Route 16 provides front-door service to Chelmsford Mall. The Holiday Inn Express is the terminus of a short-turn route pattern operated on the first three weekday trips. The short-turn trips serve the hotel at the

## Route Profiles

### LRTA Fixed-Route Service Analysis

front door while all other trips serve it via stops on Chelmsford Street. The route circles Chelmsford Center clockwise before doubling back onto Chelmsford Street. Route 16 then turns on to North Road via Fletcher Street. The route makes a large deviation to serve the Westlands neighborhood via Dalton Road, Stedman Street, and Smith Street. The route returns to North Road to serve the Chelmsford Village Condominiums and terminates at the Walmart in Drum Hill Shopping Center, resulting in a large clockwise loop as inbound trips go directly from Drum Hill Shopping Center to Smith Street via Parkhurst Road, bypassing Chelmsford Village.

#### Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Route 14 overlaps with Route 16 on Chelmsford Street, with both serving Meadow Brook Center.
- Route 4 crosses Route 16 at Industrial Avenue by Cross Point.
- Route 15 crosses Route 16 on MA-129 in Chelmsford Center.
- Route 5 shares the terminus at Drum Hill Shopping Center with Route 16, and Route 17 also serves that stop.

#### Key Destinations

- Lowell Station and Kennedy Center
- Meadow Brook Center
- Cross Point Business Center
- Chelmsford Center
- Drum Hill Shopping Center

## RIDERSHIP AND PRODUCTIVITY

Overall, Route 16 has moderate ridership and productivity within the LRTA system, with high ridership on school-time trips making up for low ridership during most other times of the day. Much of the ridership seems to be related to school and shopping trips.

#### Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center

#### Ridership Ranking

7 of 19

Route 16 is in the top 40% of all LRTA routes.

## Route Profiles

### LRTA Fixed-Route Service Analysis

- Lowell High School (school trippers)
- Along Chelmsford Street between Liberty Street and Stevens Street (fixed stops and flag stops), especially:
  - At Shaw Street (inbound fixed stop, outbound flag stop)
  - At Plain Street (fixed stops)
- Stop & Shop and Chelmsford Mall (fixed stops and flag stops)
- Near Benchmark Senior Living
- Chelmsford Center (flag stops)
- Drum Hill Shopping Center

Areas with the lowest ridership:

- Meadow Brook Center
- Deviation along Dalton Road, Stedman Street, and Smith Street
- North Road

### Productivity Observations

- Route 16 performs slightly above average in terms of ridership and productivity.
- The route alignment is relatively short but features many deviations and some lower-density segments.

### Productivity Ranking

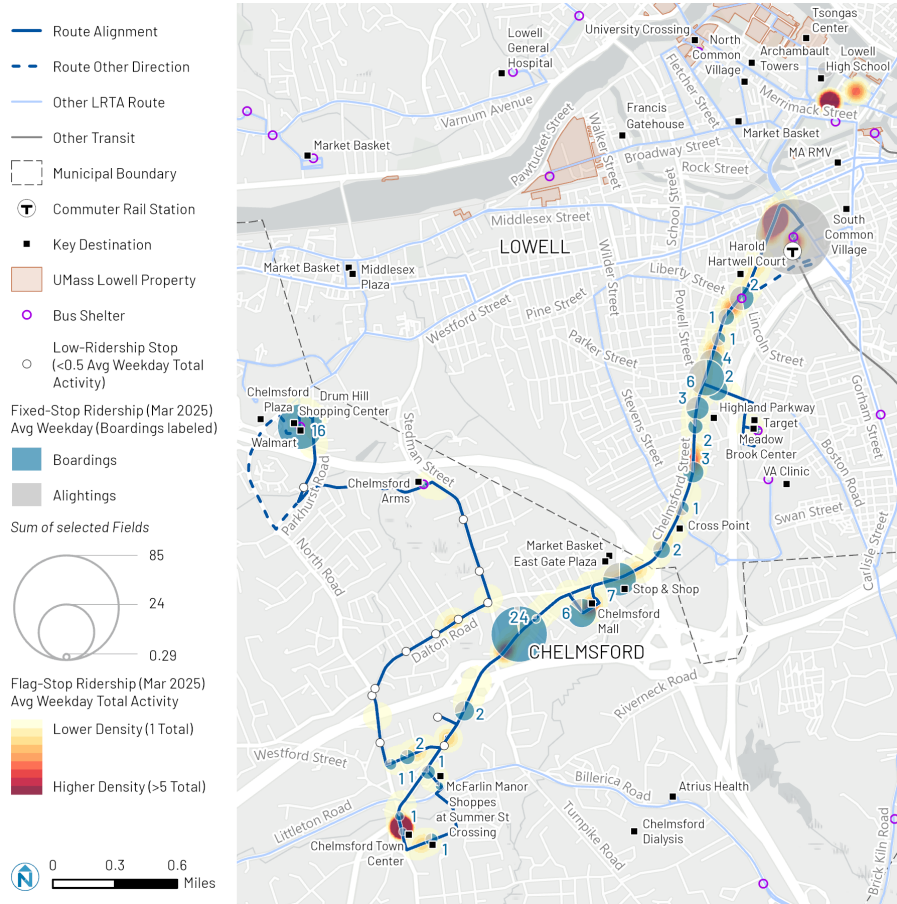
**7** of 19

Route 16 is in the top 35% of all LRTA routes.

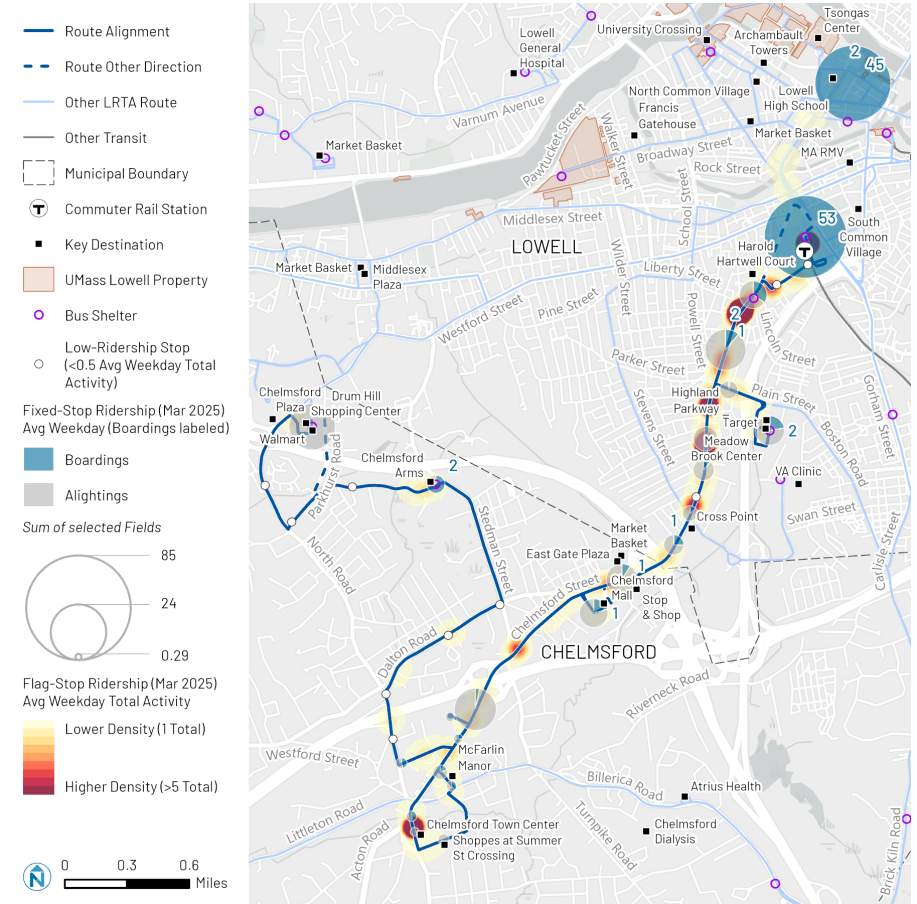
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Average Weekday Boardings Map, Inbound



#### Average Weekday Boardings Map, Outbound



Note: Ridership that appears on maps off of the alignment is assumed to be school-tripper ridership.

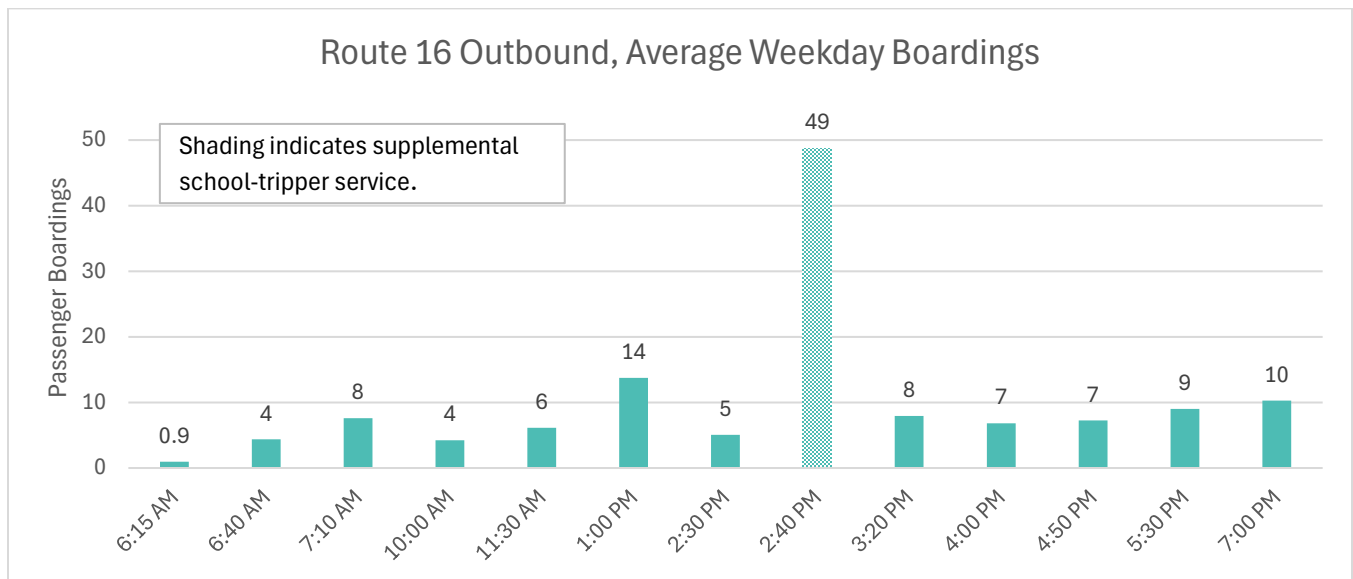
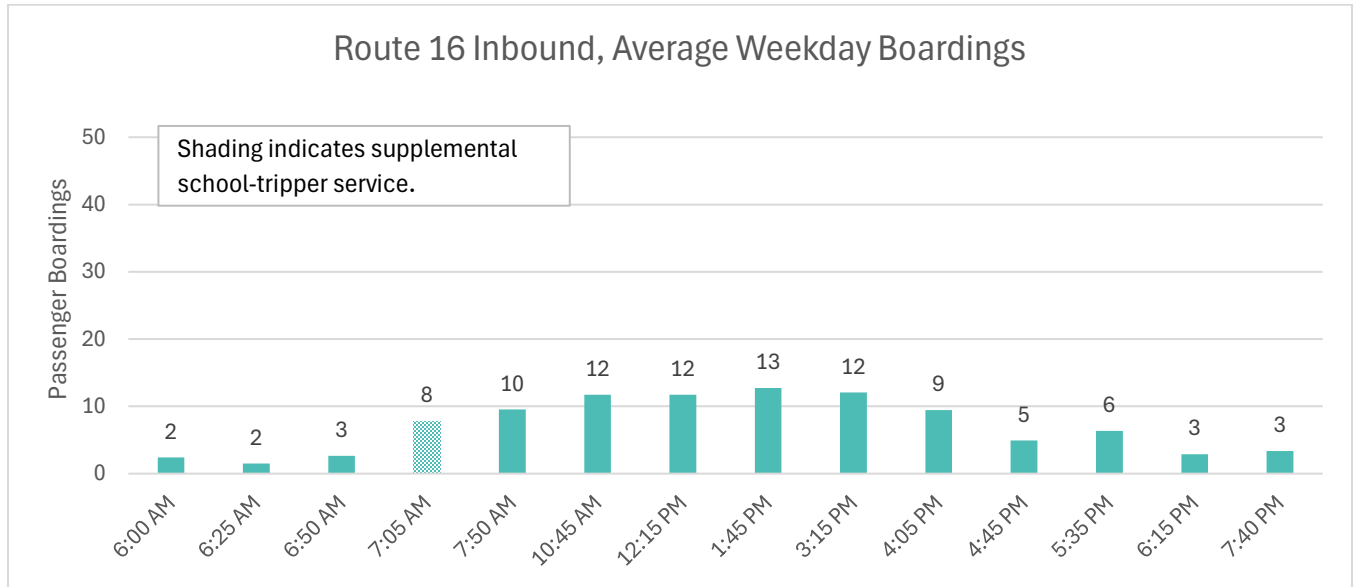
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from four to 14 boardings on most trips. The highest-ridership trips are the 1:00 p.m. outbound trip, which carries 14 passengers and the 2:40 p.m. outbound school tripper, which carries 49 passengers. In the inbound direction, ridership begins low on the first few trips but increases somewhat and remains steady from morning through early afternoon. Boardings decrease after 3:15 p.m. Boardings are also relatively stable in the outbound direction after low ridership on the first trip. Outbound service has a major student-ridership peak at the 2:40 p.m. run and also sees relatively higher ridership on last two trips of the day.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 16 has the second lowest on-time performance in the LRTA system. In July 2025, only 56% of trips were on time, 40% of trips were late, and 3% of trips were early. Numerous deviations and turning movements likely contribute to this.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 16 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

- Discontinue deviation to Dalton Street, Stedman Street, and Smith Street, operating instead on North Road.
  - This segment has minimal ridership and simplifying the alignment could help mitigate Route 16's on-time performance issues.
- Serve Stop & Shop or Market Basket at the front door instead of Chelmsford Mall.
  - Alternatively, stay on Chelmsford Street and don't provide front-door service to any of the shopping centers.
- Consider terminating the route at Chelmsford Center.
  - Segments north of this major destination feature much lower ridership than the rest of the route.
  - This could also allow for more consistent and improved headways throughout the day.
- Eliminate the Holiday Inn Express short-turn trips to simplify service and improve span of service for riders heading to the north and west.
- Add missing inbound and outbound stops to complete stop pairs, especially in popular locations.
  - At Shaw Street (inbound fixed stop, outbound flag stop)
  - Crescent Street (inbound fixed stop, outbound flag stop)
- Provide bi-directional service to Chelmsford Center by keeping the route on North Road and removing service on Fletcher Street.
  - There is minimal ridership on Fletcher Street.
- Consider combining Route 16 with Route 15 to serve the Chelmsford Street corridor with more frequent service.
  - Route 16 has moderately high ridership despite uneven headways throughout the day, while Route 15 suffers from low ridership but maintains consistent, if infrequent, headways.
  - Combining resources could provide this corridor with service at least every 60 minutes.
- Eliminate Meadow Brook Center deviation to improve travel time, as this stop is not highly used.

Route Profiles

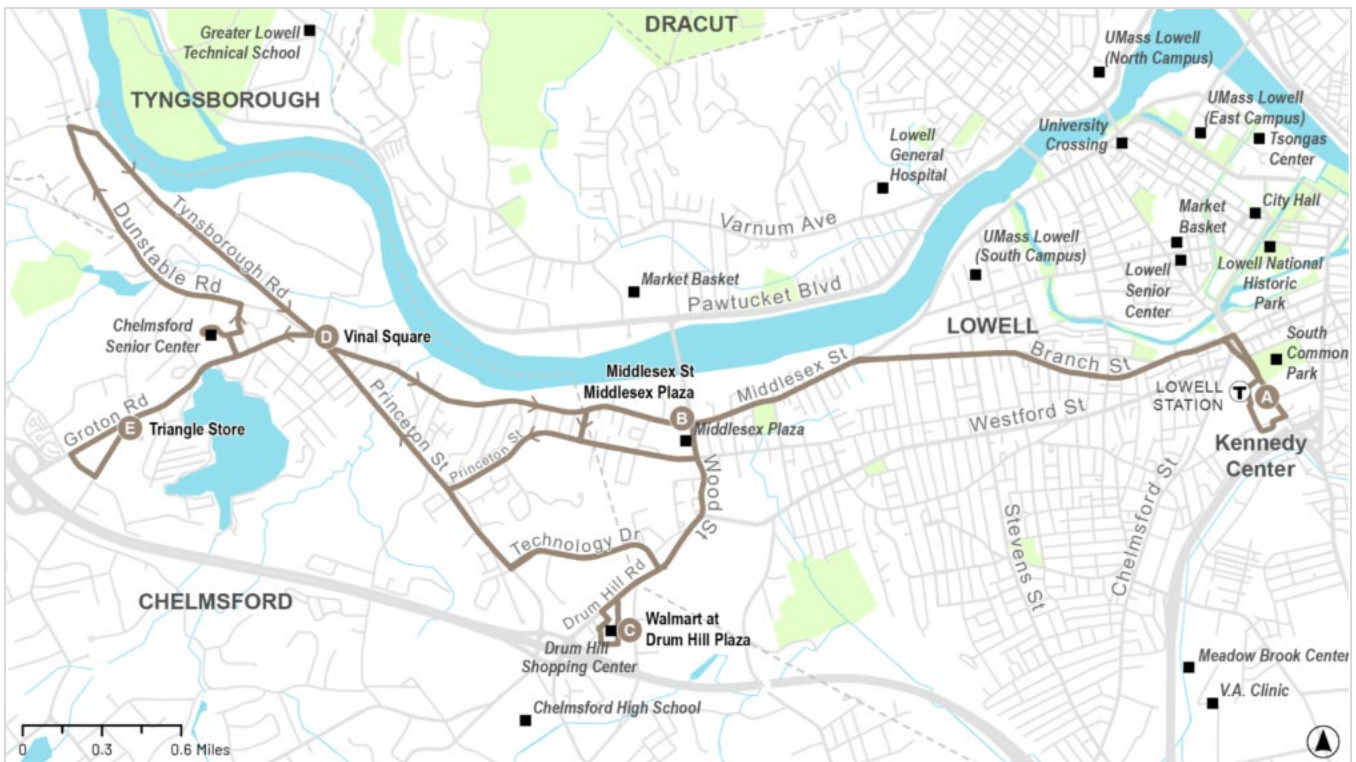
LRTA Fixed-Route Service Analysis

# 17 NORTH CHELMSFORD VIA MIDDLESEX STREET

## ROUTE OVERVIEW

Route 17 North Chelmsford operates in Lowell, Chelmsford, and Tyngsborough. Route 17 predominately serves the Middlesex Street corridor and connects north Chelmsford, south Tyngsborough, Lowell’s Highlands neighborhood, and the Kennedy Center.

### Route Map



Route 17 Characteristics						
Weekday			Saturday			
Start Time	6:20 AM	Schedule Adherence	On Time	68%	Start Time	8:00 AM
End Time	7:51 PM		Early	17%	End Time	6:13 PM
Peak Headway (mins.)	30-65		Late	15%	Headway (mins.)	60
Off-Peak Headway (mins.)	60-65	Avg Weekday Revenue Hrs	18	Avg Saturday Boardings	111	
Avg Weekday Boardings	295	Avg Boardings per Revenue Hr	16.4	Avg Saturday Revenue Hrs	12	
				Avg Boardings per Revenue Hr	9.2	

## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Alignment

Route 17 has a complex alignment with a significant number of deviations and one-way segments. From the Kennedy Center, Route 17 travels north on Thorndike Street before turning onto Middlesex Street. The route serves the Cambodia Town and Highlands neighborhoods along with UMass Lowell student housing. As the route reaches Wood Street, inbound and outbound alignments diverge significantly. Outbound service continues past Middlesex Plaza and turns left onto Brouillette Street and then left onto Princeton Boulevard before heading south on Wood Street and deviating into the Drum Hill Shopping Center before doubling back to turn left onto Technology Drive. Next, outbound trips continue onto North Road and Groton Road in North Chelmsford, deviating to serve Delaney Terrace and the CHOICE Center before turning around on Lynn Avenue.

From the terminus, inbound service proceeds on Groton Road, turning left to serve Delaney Terrace and continuing through Delaney Terrace to Dunstable Road. The route then heads north on Mission Road before turning south on Tyngsborough Road. Inbound service continues through Vinal Square in North Chelmsford and onto Middlesex Street. The route turns right onto Brouillette Street and proceeds to serve Drum Hill Shopping Plaza via Princeton Street, North Road, and Technology Drive before continuing to loop back on Wood Street to Princeton Boulevard to Brouillette Street. Then, inbound trips proceed east on Middlesex Street and deviate to serve the Market Basket at Middlesex Plaza. Finally, the route proceeds back through Highlands and Cambodia Town to the Kennedy Center.

#### Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Route 5 overlaps with Route 17 on Wood Street, Westford Street, and Technology Drive
- Route 5, Route 16, and Route 17 all share a stop at Drum Hill Shopping Center
- Route 19 (when operating) overlaps with Route 17 on Middlesex Street

#### Key Destinations

- Lowell Station and Kennedy Center
- Middlesex Plaza
- Drum Hill Shopping Center
- Lowell High School

# RIDERSHIP AND PRODUCTIVITY

Overall, Route 17 has moderate ridership and productivity within the LRTA system. Most ridership seems to be related to school and shopping trips.

## Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Lowell High School (school tripper)
- Along Middlesex Street, from Branch Street to Wood Street, especially:
  - At School Street (flag stops)
  - At Canton Street and at Stevens Street (fixed stops and flag stops)
- Middlesex Plaza (fixed stops and flag stops)
- Drum Hill Shopping Center (fixed stops and flag stops)
- Vinal Square (flag stops)

Areas with the lowest ridership:

- Along Technology Drive and Princeton Street
- Along North Road
- Along Dunstable Road
- Along Middlesex Street between Vinal Square and Brouillette Street

## Productivity Observations

- Route 17 is in the top third of route performance for both ridership and productivity, despite having a convoluted and meandering service alignment.
- This indicates very high demand for certain destinations along the route, as significant segments of the alignment see low ridership.

### Ridership Ranking

**6** of 19

Route 17 is in the top 30% of all LRTA routes.

### Productivity Ranking

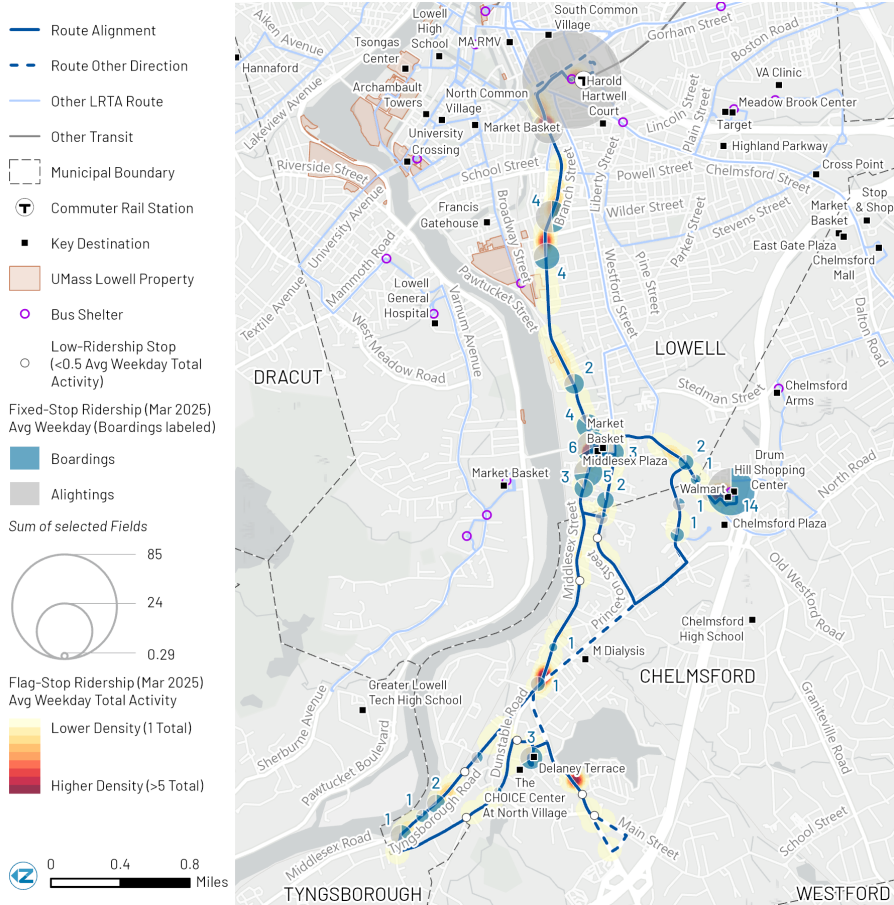
**6** of 19

Route 17 is in the top 30% of all LRTA routes.

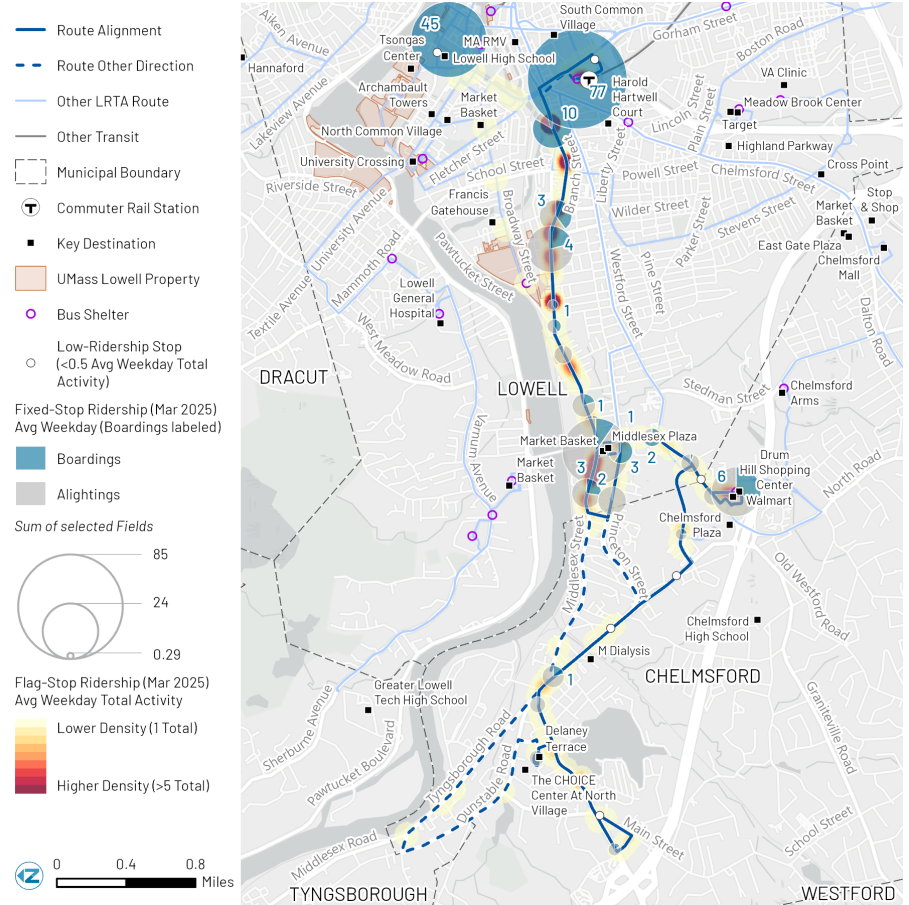
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Average Weekday Boardings Map, Inbound



#### Average Weekday Boardings Map, Outbound



Note: Ridership that appears on maps off of the alignment is assumed to be school-tripper ridership.

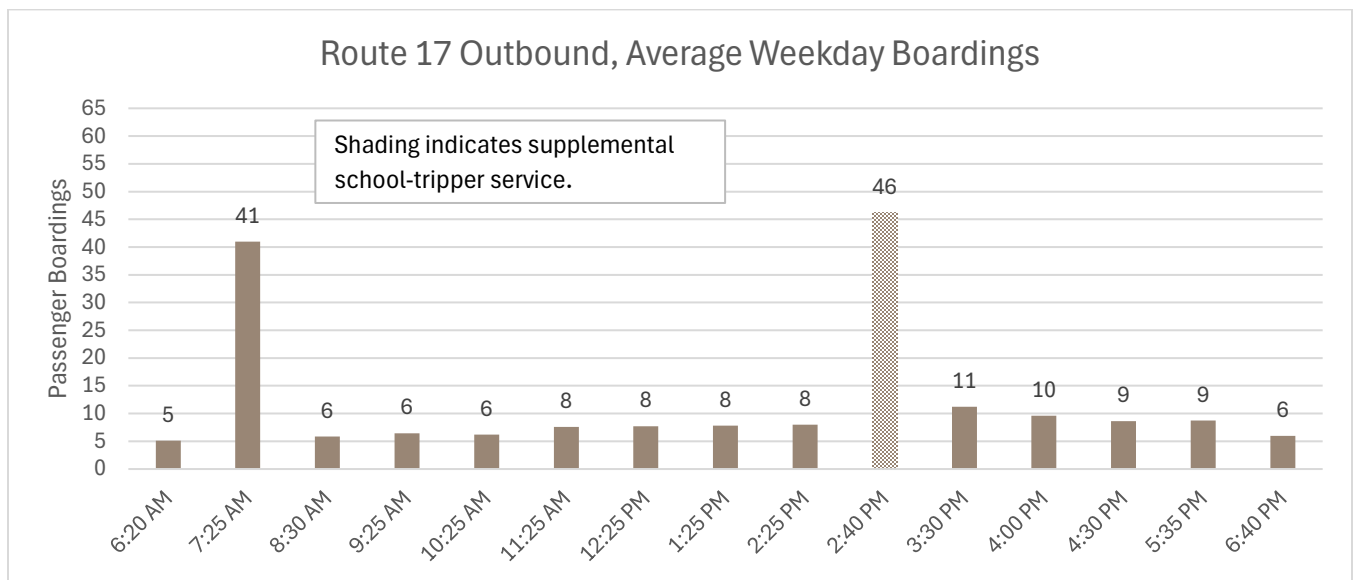
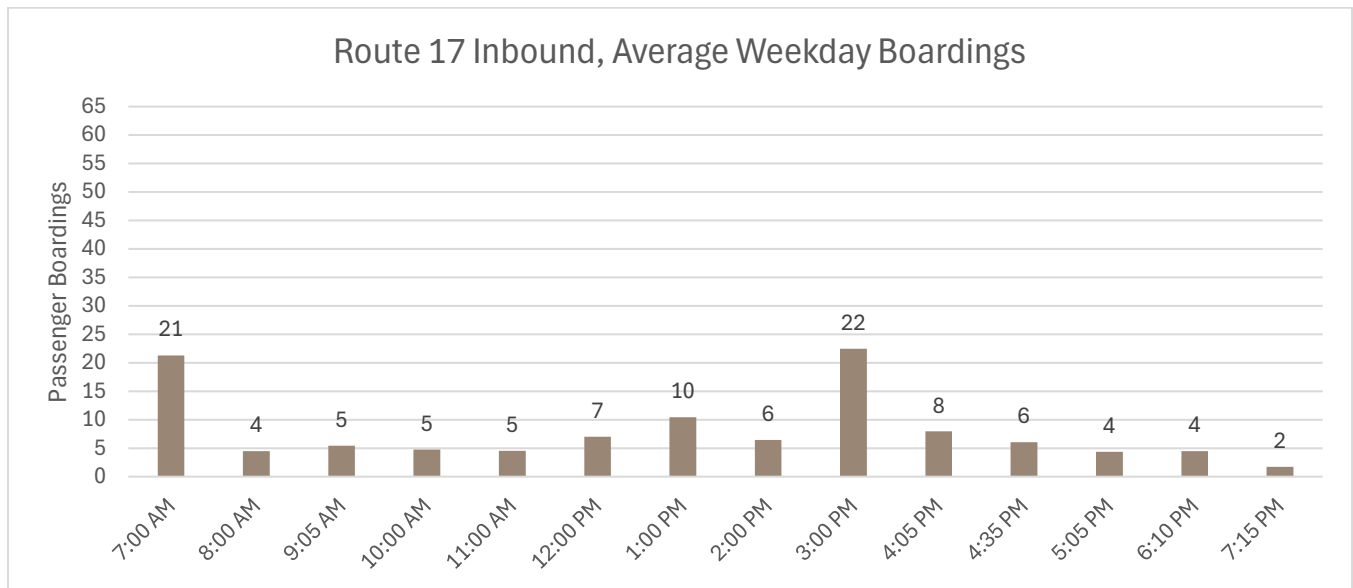
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from four to 22 boardings on most trips. The highest-ridership trips are the 7:25 a.m. outbound trip, which carries 41 passengers, and the 2:40 p.m. outbound school tripper, which carries 46 passengers. In the inbound direction, ridership begins with 21 boardings on the first trip of the day, while the remaining morning trips have low ridership that increases slightly into midday, peaking on the 3:00 p.m. trip. Evening ridership is relatively low. Boardings are relatively stable across the day in the outbound direction, aside from the peaks at 7:25 a.m. and 2:40 p.m. Ridership is slightly higher from midday through early evening.

#### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 17 exhibits moderate on-time performance. In July 2025, 68% of trips were on-time, 15% of trips were late, and 17% of trips were early.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 17 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

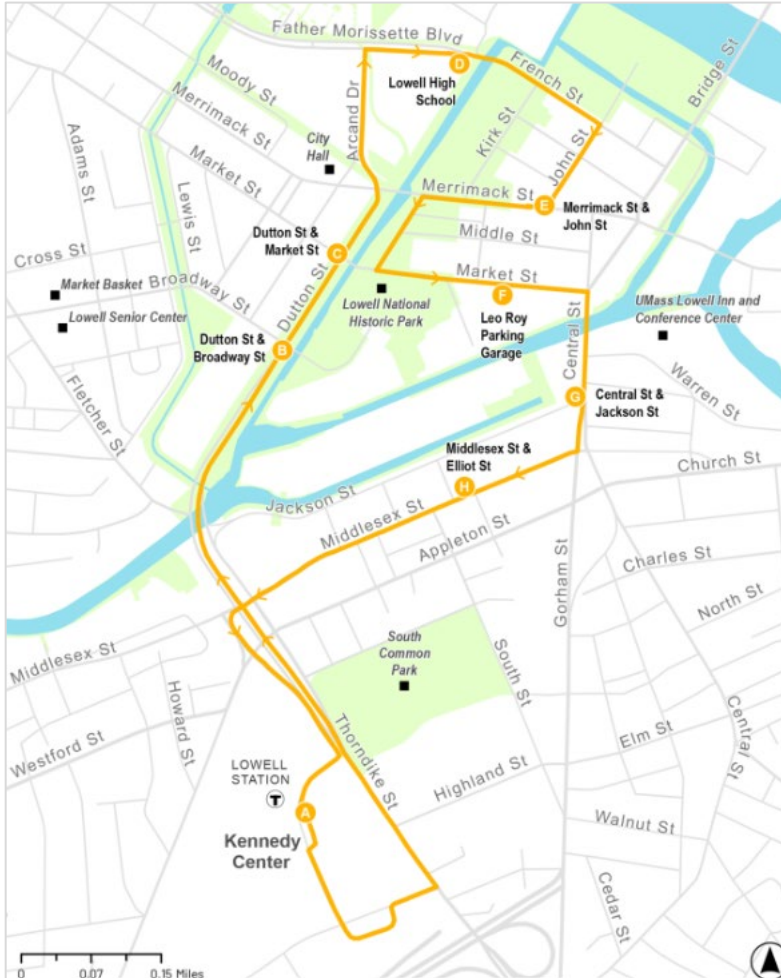
- Refocus service on Middlesex Street corridor.
  - The route currently operates a complex pattern that attempts to serve too many functions at the same time. This makes the service difficult for riders to understand and use.
  - Keeping service primarily on Middlesex Street may capture the transit market there without providing service on segments that are very low ridership or are redundantly served by other routes.
- Discontinue the Drum Hill Shopping Center deviation to simplify service.
  - Route 5 also serves Chelmsford Street, Drum Hill Shopping Center, and Technology Drive, while riders on Route 17 have good access to shopping and grocery options at Middlesex Plaza.
  - Run-time savings could be used to even out headways or address on-time performance issues.
- Modify alignment in combination with Route 5, Route 6, and Route 19 to serve Middlesex Street, Westford Street, Princeton Boulevard, and Broadway Street corridors.
  - Each of these four corridors are strong transit markets with a mix of residential, institutional, and commercial uses.
  - Redesign the route alignments together to achieve simple, direct service along the corridors without unnecessary deviations on any of the individual routes.
  - Consider overlapping route alignments to achieve high-frequency service corridors, as the streets are parallel and within a short walking distance of each other.
- Eliminate service on Groton Road west of Delaney Terrace, as this portion of the route sees relatively little ridership.
- Operate service earlier in the morning.

# 18 DOWNTOWN SHUTTLE

## ROUTE OVERVIEW

Route 18 Downtown Shuttle route operates entirely within Lowell. Route 18 connects locations around downtown Lowell, such as Lowell High School and historic sites, with the Kennedy Center.

### Route Map



Route 18 Characteristics		
Weekday		
Start Time	5:45 AM	
End Time	7:12 PM	
Peak Headway (mins.)	30	
Off-Peak Headway (mins.)	30	
Avg Weekday Boardings	168	
Avg Weekday Revenue Hrs	8	
Avg Boardings per Revenue Hr	21.0	
Schedule Adherence	On Time	70%
	Early	27%
	Late	3%
Saturday		
Start Time	7:15 AM	
End Time	7:12 PM	
Headway (mins.)	30	
Avg Saturday Boardings	74	
Avg Saturday Revenue Hrs	6	
Avg Boardings per Revenue Hr	12.4	

### Alignment

The Downtown Shuttle operates as a clockwise loop. Route 18 travels north from the Kennedy Center on Thorndike and Dutton streets and briefly on Arcand Drive to serve Lowell High School before turning onto Father Morrisette Boulevard. Route 18 travels back south through Downtown Lowell on a series of streets including Merrimack Street and Market Street. The route crosses the Lower Pawtucket Canal on Central Street before turning onto Middlesex Street to return to the Kennedy Center.

### Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Routes 1, 6, 7, 8, 10, and 20 overlap with Route 18 on Dutton Street.
- Route 9 overlaps with Route 18 on French Street and Central Street.
- Routes 2, 3, 11, 12 and 20 overlap with Route 18 on Middlesex Street.

### Key Destinations

- Lowell Station and Kennedy Center
- Lowell High School
- Downtown Lowell

## RIDERSHIP AND PRODUCTIVITY

Overall, Route 18 has moderate ridership and high productivity within the LRTA system. Most ridership seems to be related to school and work trips.

### Weekday Ridership by Stop

The following maps show ridership by stop, where the size of the bubble at each fixed stop indicates the number of average weekday boardings and alightings. The color ramp from yellow to red indicates the number of flag-stop boardings occurring in the colored area.

Areas with the highest ridership:

- Kennedy Center
- Dutton Street from Market Street to Middle Street (flag stops)
- Father Morissette Boulevard by Lowell High School (fixed and flag stops)
- John Street at French Street (flag stops)
- Merrimack Street at John Street (fixed stop and flag stops)
- Along Middlesex Street, especially:
  - Near the RMV (flag stops)
  - Between Lowell District Court and South Street (flag stops)

Areas with the lowest ridership:

- Along Dutton Street between Middlesex Street and Market Street
- Along Central Street
- Along Thorndike Street

### Productivity Observations

- The route is among the most productive in the system, despite low ridership relative to other routes.

#### Ridership Ranking

**12** of 19

Route 18 is in the bottom 35% of all LRTA routes.

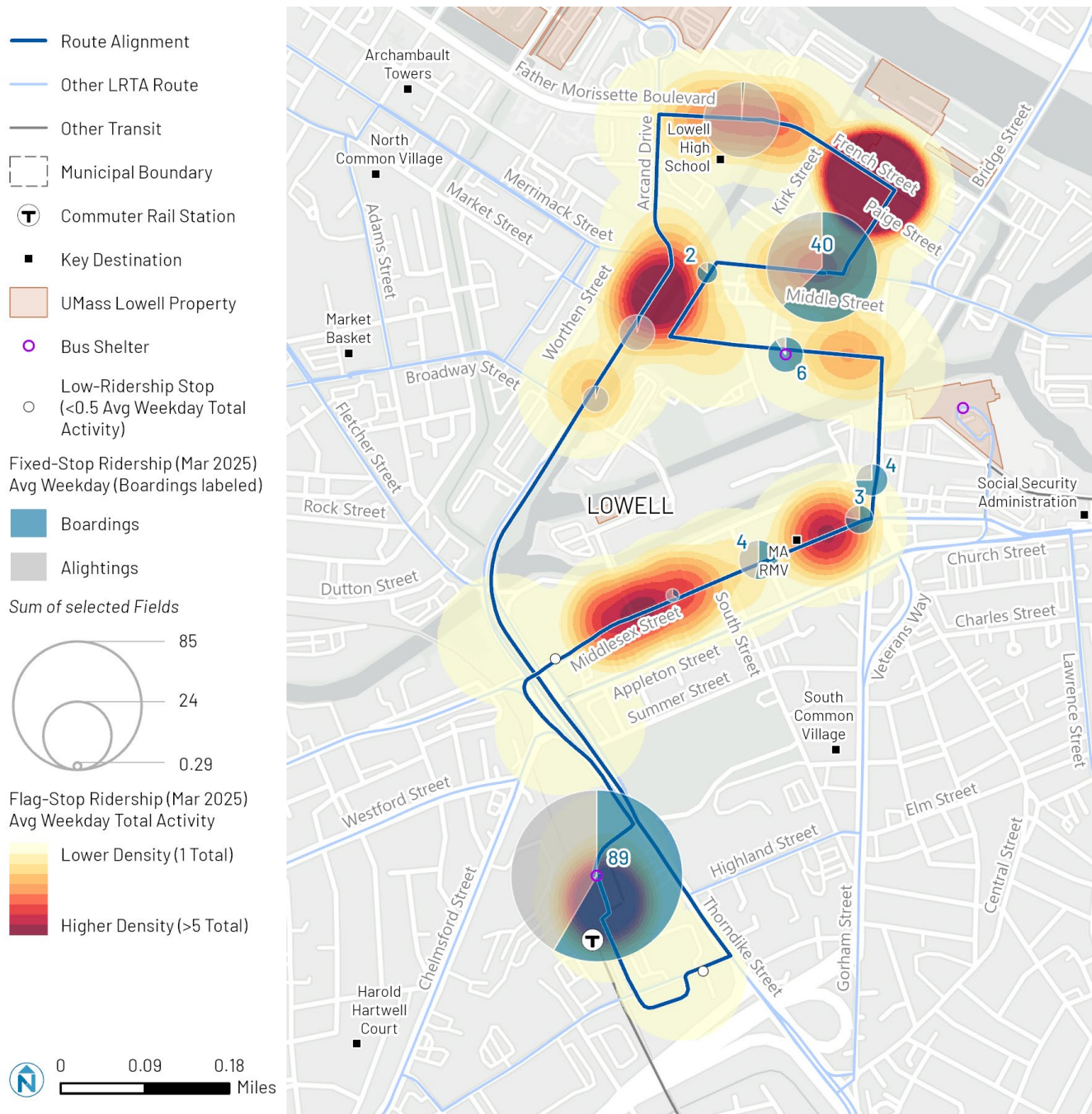
#### Productivity Ranking

**3** of 19

Route 18 is in the top 15% of all LRTA routes.

**Route Profiles**  
LRTA Fixed-Route Service Analysis

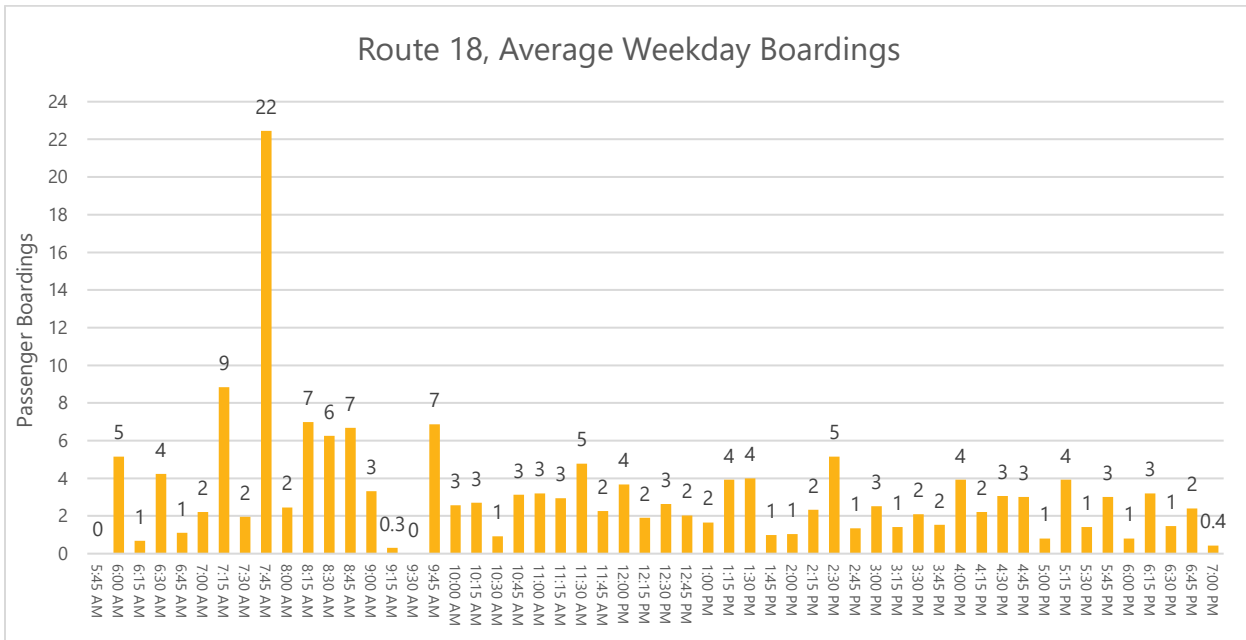
**Average Weekday Boardings Map**



### Weekday Ridership by Trip

Average weekday March 2025 ridership ranges from one to nine boardings on most trips. The highest-ridership trip is at 7:45 carrying 22 passengers, which may be largely students. Boardings are variable on early morning trips, with a lull at 9:15 a.m. Ridership is variable between trips, with somewhat more stability in boardings through midday. Late afternoon and evening ridership is somewhat lower.

### Weekday Boardings by Trip (March 2025)



## ON-TIME PERFORMANCE

Route 18 exhibits moderate on-time performance. In July 2025, 70% of trips were on time, 3% of trips were late, and 27% of trips were early.

## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 18 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

- Consider making high-activity flag stops into designated bus stops to simplify and improve service for many passengers using these locations today, such as Dutton Street and Merrimack Street.
- Consider eliminating Route 18, as most of the route’s service is provided by other routes, and Route 9 operates a very similar service.
- Consider combining with Route 9, which serves a similar area and purpose.
- Operate the route on Central Street instead of Merrimack, Shattuck, and Market streets for a more direct alignment. This would make the route faster, potentially improve frequency, and have minimal impact on walking distance to stops.

Route Profiles

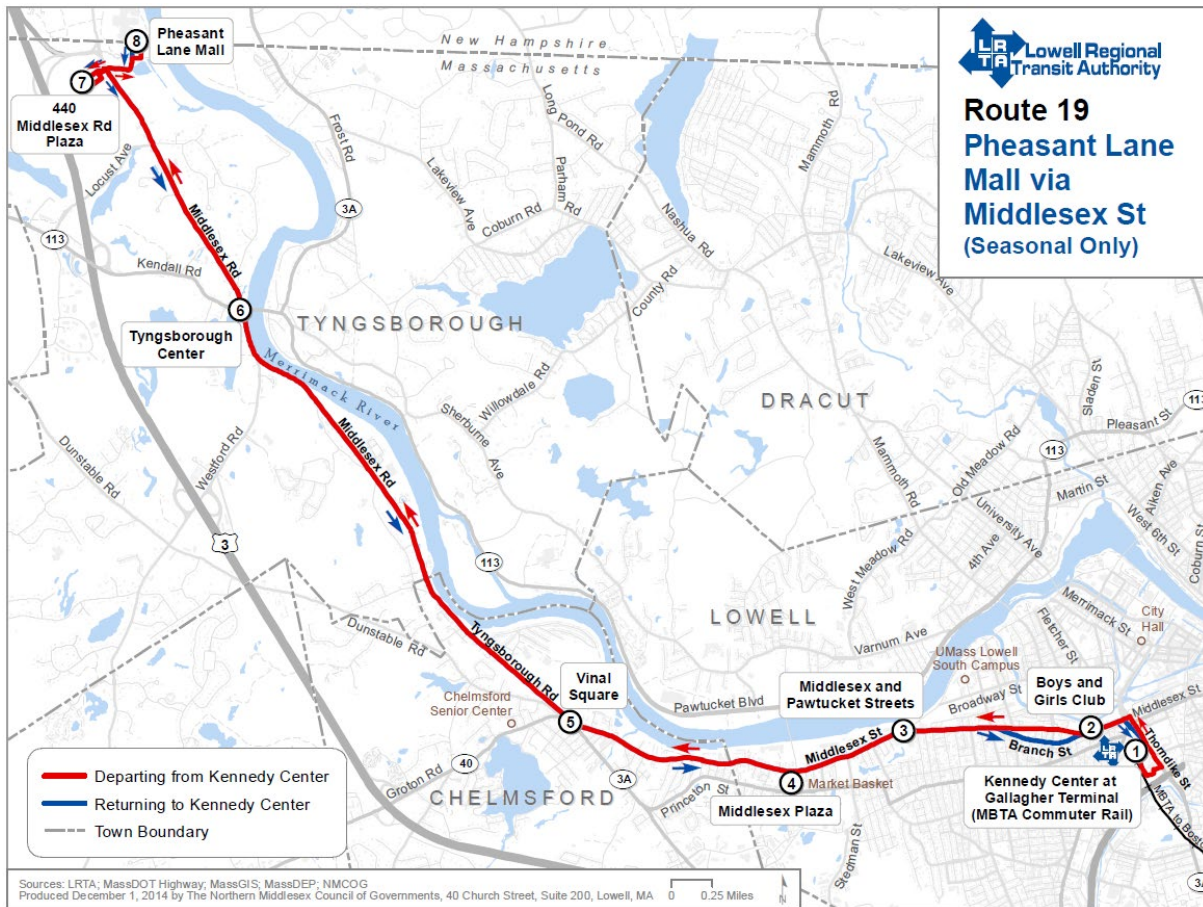
LRTA Fixed-Route Service Analysis

# 19 PHEASANT LANE MALL

## ROUTE OVERVIEW

Route 19 Pheasant Lane Mall is a seasonal route operating Fridays and Saturdays between Thanksgiving and Christmas in Lowell, Chelmsford, Tyngsborough, and Nashua, New Hampshire. Route 19 connects the Kennedy Center and residential neighborhoods to shopping and jobs in the Pheasant Lane Mall area.

### Route Map



Route 19 Characteristics			
Friday and Saturday			
Start Time	8:00 AM	Headway (mins.)	90
End Time	5:50 PM	Average Daily Boardings	96
Average Daily Revenue Hrs	7	Avg Boardings per Revenue Hr	13.7
<i>Service between Thanksgiving and Christmas only. Data from November and December 2024.</i>			

## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Alignment

Route 19 has a simple, direct, and linear alignment that travels westward and then northward from Lowell to Pheasant Lane Mall. From the Kennedy Center, Route 19 travels on Middlesex Street through Lowell's (inbound trips run on Branch Street) Cambodia Town and Highlands neighborhoods. The route then runs on MA-3A through Chelmsford. After the intersection with MA-113, the route continues on Middlesex Road. Route 19 terminates at the Pheasant Lane Mall in Nashua, where connections are possible to Nashua Transit System routes 6, 6A, and South Route.

#### Connections

- All LRTA routes connect with one another at the Kennedy Center, along with the MBTA Lowell Line, Greyhound intercity bus, and MeVa Route 24 to Lawrence.
- Route 19 overlaps with Route 17 on Middlesex Street
- Nashua Transit Route 6, Route 6A, and South Route share a stop with Route 19 at Pheasant Lane Mall

#### Key Destinations

- Lowell Station and Kennedy Center
- Middlesex Plaza
- Pheasant Lane Mall

## RIDERSHIP AND PRODUCTIVITY

#### Weekday Ridership by Stop

Areas with the highest ridership:

- Kennedy Center (~32 average daily boardings)
- Pheasant Lane Mall (~42 average daily boardings)

Areas with the lowest ridership:

- All other areas on the route; other fixed stops account for only six total average daily boardings.

#### Productivity Observations

This route saw about 14 boardings per hour when it was last in operation, which is moderate productivity for the LRTA system. The route serves primarily as a shopping and employment shuttle between Lowell Station and Pheasant Lane Mall, with very little ridership activity occurring outside these locations.

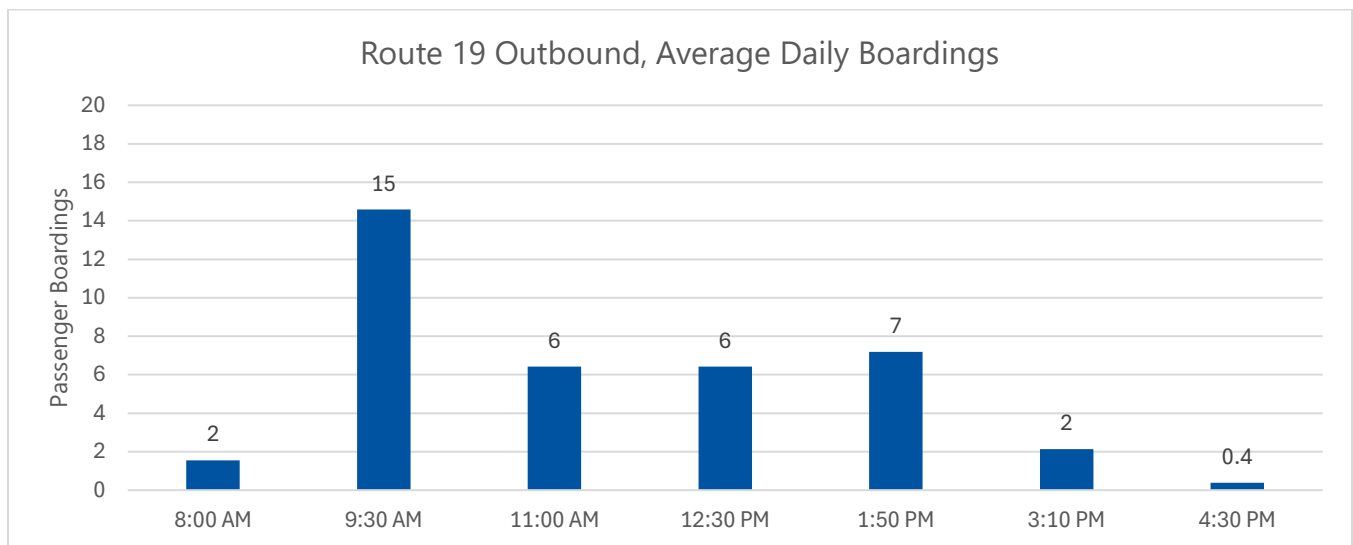
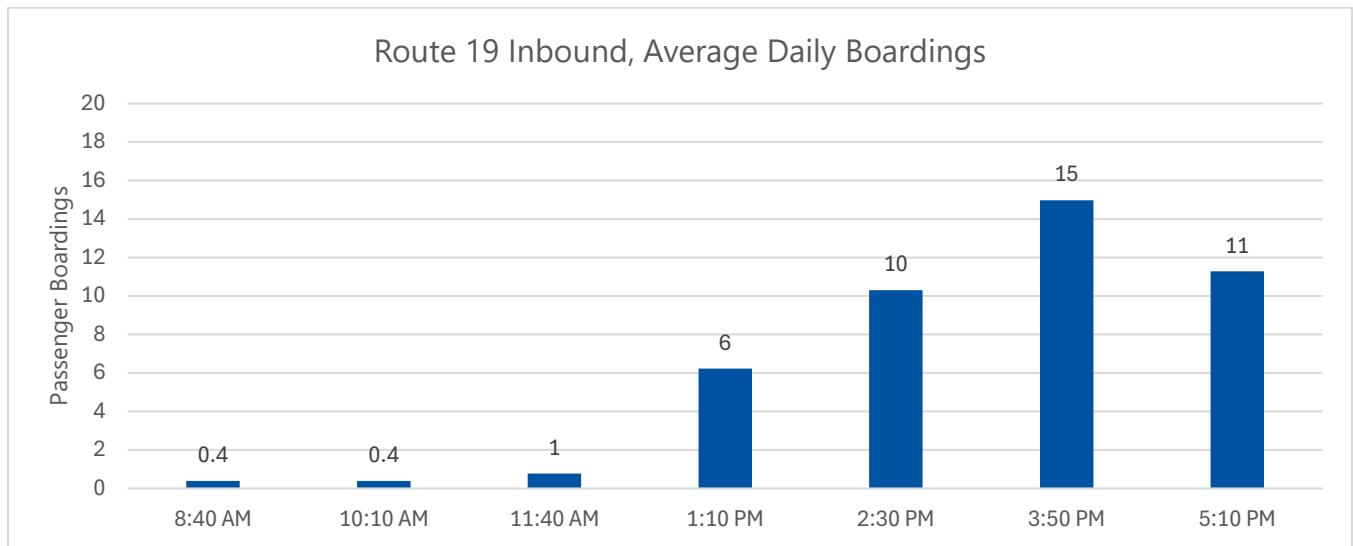
## Route Profiles

### LRTA Fixed-Route Service Analysis

#### Weekday Ridership by Trip

Average daily November and December 2024 ridership ranges from less than one to 15 boardings per trip. The highest ridership trips are the 3:50 p.m. inbound trip and the 9:30 a.m. outbound, which both carry 15 passengers. In the inbound direction, ridership is very peaked, with almost no boardings on the morning trips and relatively high ridership in the afternoon and early evening. Higher ridership on the last trip may indicate demand for later service. Outbound ridership is very low on the first trip, while the second morning trip has the highest ridership. Midday boardings are relatively stable in the outbound direction, with ridership tapering off in the later afternoon to less than one average boarding on the last trip of the day.

#### Weekday Boardings by Trip (November & December 2024)



## IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 19 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

- Operate the route year-round.
  - Route 19 features a simple and direct alignment connecting moderately dense residential developments with shopping and employment destinations.
  - Providing service beyond the very limited seasonal service available today would likely grow ridership along the Middlesex Street-Tyngsboro Road-Middlesex Road corridor.
  - This route provides the only public-transit connection to Nashua Transit System. Offering it year-round would make that connection available all year.
- Extend the route to Nashua and operate it jointly with Nashua Transit System, so riders don't need to transfer when traveling between Nashua and Lowell.
- Modify alignment in combination with routes 5, 6, and 17 to serve Middlesex Street, Westford Street, Princeton Boulevard, and Broadway Street corridors.
  - Each of these four corridors are strong transit markets with a mix of residential, institutional, and commercial uses.
  - Redesign the route alignments together to achieve simple, direct service along the corridors without unnecessary deviations on any of the individual routes.
  - Consider overlapping route alignments to achieve high-frequency service corridors, as the streets are parallel and within a short walking distance from each other.

# 20 ORANGE LINE/UMASS LOWELL NORTH

Route 20 is not included in this route profile package, as the route was recently changed and ridership has likely not had time to 'mature' and settle into a distinct pattern that will be useful for service planning.