

Final Report

Fixed-Route Service Analysis



September 2026





About LRTA

Our Mission

To provide convenient, comfortable, safe, reliable, cost-effective mobility services contributing to the economic vitality of the region.

History

The Lowell Regional Transit Authority (LRTA) began operations in late 1976, pursuant to the provisions of Chapter 161B of the General Laws of the Commonwealth of Massachusetts. The Authority is given general responsibility to develop, finance, and contract for the operation of mass transportation facilities and services within its territory.

How We Are Funded

The LRTA is a political subdivision of the Commonwealth of Massachusetts funded by the Federal and State government, local assessments, as well as income generated from farebox, parking, and advertising revenues. The current budget and most recent audited financial statements can be found [here](#).

The LRTA receives federal and state funding for capital projects and operating expenses. These projects are planned in advance and outlined in the Commonwealth's Transportation Improvement Program. Capital projects include fleet replacement and expansion, facility improvements, equipment purchase and preventive maintenance. Most capital projects are funded according to the following contribution rate: Federal, 80% and Massachusetts, 20%. Operating expenses include items such as salaries, benefits, advertising, and marketing, and are funded by federal, state, and local sources.

Management

The day-to-day affairs of the LRTA are managed by Administrator David Bradley. This position is appointed by the LRTA Advisory Board. The LRTA Advisory Board includes members from each of the 15 communities in the LRTA's service area.

Cover image source: LRTA. The image was edited using generative artificial intelligence to remove pixelation.



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Executive Summary

ABOUT THE STUDY

The LRTA Fixed-Route Service Analysis was a study conducted in 2025 and 2026. The purpose of this study was to improve LRTA's fixed-route bus service by adjusting where, when, and how often bus service operates. This study included the following deliverables:

- An **Existing Conditions Report** detailing all aspects of LRTA's existing fixed-route service, including service span and frequency, infrastructure, ridership and productivity, on-time performance, and regional travel flows.
- **Route profiles** of each of LRTA's 20 fixed routes, with service characteristics, alignment details, existing connections and key destinations, and ridership analysis.
- A **public engagement** process including pop-up events, stakeholder engagement, and a survey.
- **Recommendations for improvements** and expansion to LRTA's fixed routes, including changes to alignment, span, and frequency.

STUDY RECOMMENDATIONS

The outcome of the FRSA is a detailed set of recommendations for changes to where, when, and how often LRTA's bus routes operate. These recommendations were developed based on the existing conditions analysis, a review of current and past planning documents, and input from LRTA staff, including bus operators. Some of the major benefits of these recommendations are:

- Eight routes will see overall **improved spans of service** on weekdays, giving about 2,100 existing average weekday riders opportunities to travel earlier and/or later.
- **Trip times will be shorter** for most riders on six routes, benefitting about 1,900 existing average weekday riders.
- Three routes will see **improved frequency** during some times or all times of the day, benefitting about 380 existing average weekday riders.
- **Improved traffic safety** by removing service from congested parking lots.

Chapter 4 of this report describes the recommendations and their benefits in more detail.

1 Introduction

Project Background

The Fixed-Route Service Analysis (FRSA) is part of LRTA's ongoing recent efforts to improve transit service for riders in the Greater Lowell Region. Since 2025, this has included a rider education program, demand-response improvements, updated rider materials including maps and route schedules, and scheduling changes.

The FRSA complements the Massachusetts Department of Transportation's (MassDOT's) Comprehensive Regional Transit Plan (CRTP) update for LRTA. The updated CRPT was published in February 2026¹ and includes a transit market assessment, which informed this FRSA through population and employment mapping. Key takeaways from the CRTP public survey also informed the FRSA work. These takeaways included a public desire for better intercity routes and connections to neighboring RTAs, longer service hours, more direct routes and fewer transfers, and increased frequency.

Project Purpose

The purpose of the FRSA is to:

- Increase ridership on fixed-route buses by making service more useful for more people.
- Update routes that have not changed significantly in decades, to better align them with contemporary travel patterns.
- Add fixed-route service in Wilmington, the newest LRTA member community.
- Eliminate service being used by zero or very few people, thereby allocating public resources as efficiently as possible.

¹ MassDOT. February 2026. *Comprehensive Regional Transit Plan Update 2026*. <https://lrta.com/wp-content/uploads/2026/02/20260211_CRTPU_LRTA_Final.pdf>

2 Existing Conditions

The first stage of the FRSA was an existing conditions analysis that closely analyzed each of LRTA's 20 fixed routes. This included detailed profiles of each route which documented the areas served, analyzed ridership by stop and trip, assessed on-time performance, and examined route alignments to determine what has worked well and what can be improved. The existing conditions analysis also looked at systemwide performance, existing regional travel patterns, and bus-stop conditions.

Findings from the Existing Conditions Report (ECR) are summarized below and described in more detail in the sections that follow. The complete ECR is Appendix A to this document.

- LRTA's **top-performing routes**—in terms of productivity and ridership—are routes 5 and 7.
- **School-tripper ridership** makes up 14% of all LRTA boardings. Because students also ride non-tripper trips, the percentage of high-school boardings on the system is likely considerably higher than 14%. This represents an important user base for LRTA.
- **Flag-stop boardings** are about 20% of LRTA's fixed-route boardings. To improve safety, speed, and reliability, LRTA should consider reducing the number of routes and/or places along routes where flag stops are allowed.
- **Route 11** operates limited service and has very low ridership and productivity. Eliminating Route 11 as it currently exists may be warranted.
- **On-time performance** is a major potential area of improvement for LRTA, as eight routes have 10% or more of their timepoint departures occurring more than three minutes early. LRTA should strongly consider implementing timepoint-based operations to improve the perceived and actual dependability of the service for riders.
- **Significant deviations** on many routes take buses off main roads to serve destinations at their 'front door', even in places with robust pedestrian infrastructure. This service design makes travel times longer for most riders and worsens reliability.
- **Average stop spacing** on at least seven LRTA routes differs considerably from standard industry practice. LRTA should assess stop locations on these routes, in addition to developing formal bus-stop guidelines.
- LRTA **shares stops** with other transit agencies. There are opportunities to improve shared stops to make the system more comfortable and easier to use for transferring riders.
- **Three downtown circulator**-type routes operate in Lowell. Consolidating and redesigning routes 9, 18, and 20 would save resources and improve ridership.
- The year-round **Nashua-Lowell transit travel market** has been untapped until the recent Route 19 pilot implementation. This could be a high-ridership service, especially if no transfers are required.



Note that this work was conducted just prior to the launch of LRTA's Route 19 pilot and new Route 21, and so these routes are not included in the existing conditions analysis.

SERVICE AREA

LRTA provides transit service in northeastern Massachusetts, serving 15 member municipalities of around 390,000 residents², in communities ranging from urban to rural. The service area, seen in Figure 1, is centered in the City of Lowell where the bulk of LRTA's transit service is provided, but extends to serve Littleton in the west, Tyngsborough³ in the north, Andover in the east, and Burlington in the south.

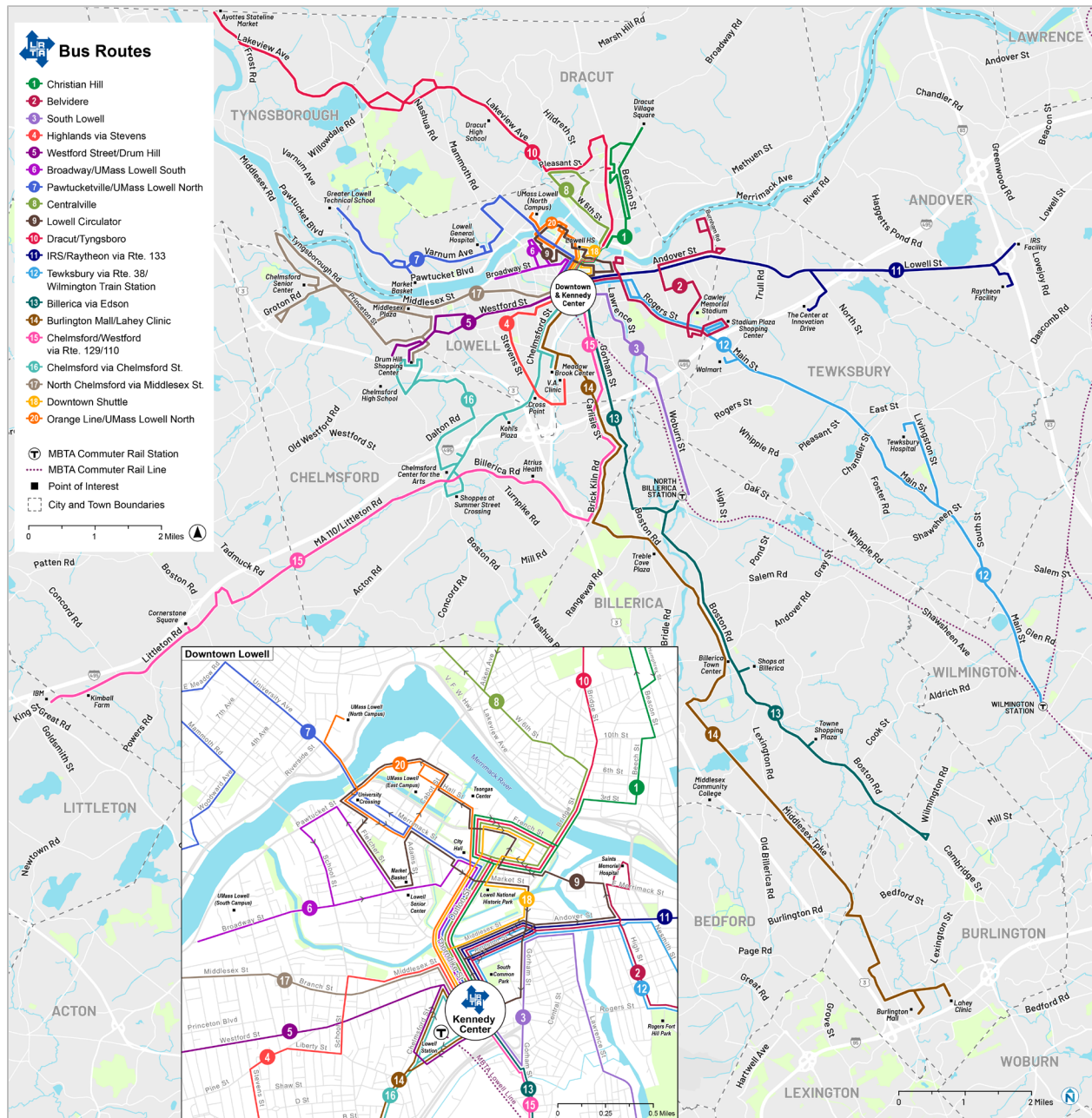
LRTA also provides some fixed-route service outside their 15 member communities in Andover, Bedford, Burlington, and Littleton. These four municipalities do not pay an assessment for the transit service. It is important to note that without this assessment funding, routes serving these communities are more subject to service cuts, as LRTA must prioritize service for member municipalities.

² National Transit Database. 2024. 2024 Annual Agency Profile.

<https://www.transit.dot.gov/sites/fta.dot.gov/files/transit_agency_profile_doc/2024/10005.pdf>. The approximately 20,000 current residents of Wilmington were added to this 2024 National Transit Database figure.

³ There is seasonal LRTA service on Route 19 connecting to Nashua, NH.

Figure 1 LRTA Regular Fixed-Route System Map (as of 2025)



Note: This map excludes the seasonal Route 19.

RIDERSHIP

Assessing existing ridership conditions is essential to plan service changes, as current ridership patterns show where service is being used and where it is not being used. This information allows for informed decisions to be made around where service is in demand and may need to be improved, and where service is not being used and can reasonably be reduced. The FRSA looked at systemwide ridership on a route and trip level using March 2025 ridership data.

Ridership by Route

Average daily boardings by route and day type are shown in Figure 3. Route 7 sees by far the highest weekday ridership of any route. The five routes exceeding 300 average daily boardings are a mix of urban and suburban routes, showing that suburban service can be effective in LRTA's service area.

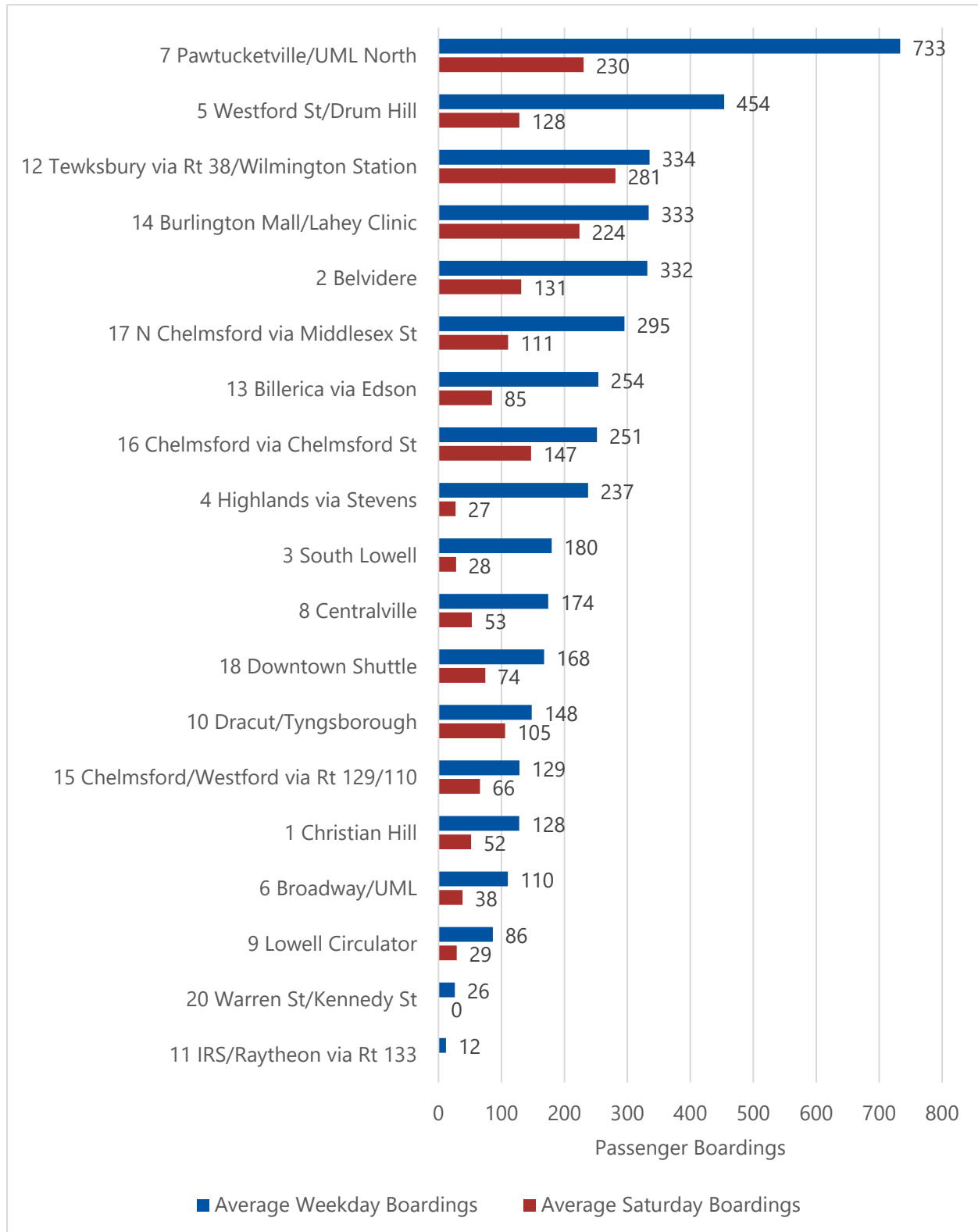
The three lowest-ridership routes are 9, 20, and 11. Route 11 is commuter-focused and operates only four round trips per weekday, making it inconvenient for most riders. Routes 9 and 20 are downtown circulator-type routes, and Route 20 only operates in the morning.

On Saturday, almost all routes operate with hourly headways (Route 16 operates every 90 minutes). Routes 12 and 14 exhibit high ridership retention from weekday figures, whereas routes 7 and 5 show a significant decline in ridership from weekdays. Routes 4 and 3 have the lowest Saturday ridership and among the steepest declines from weekday ridership. Routes 11 and 20 do not operate on Saturdays.

Figure 2 Photograph of Riders Boarding an LRTA Bus



Figure 3 Average Daily Boardings by Route and Day Type, March 2025



Ridership by Stop

When examining ridership by stop across the entire service area, the map in Figure 4 shows a clear concentration of ridership in downtown Lowell, with additional high-ridership hotspots just north of the Merrimack River and minimal ridership south of I-495. Outside the City of Lowell, major points of ridership include shopping centers, grocery stores, and hospitals. Among LRTA's suburban routes, routes 12 and 17 generally have more high ridership stops. Specifically, stops at Tewksbury Hospital (Route 12) and Drum Hill Plaza (routes 5, 16, and 17) have relatively more boardings. Stops on routes 15 and 16 have fewer boardings, even among suburban routes.

Figure 4 Map of Ridership by Stop, Lowell, March 2025

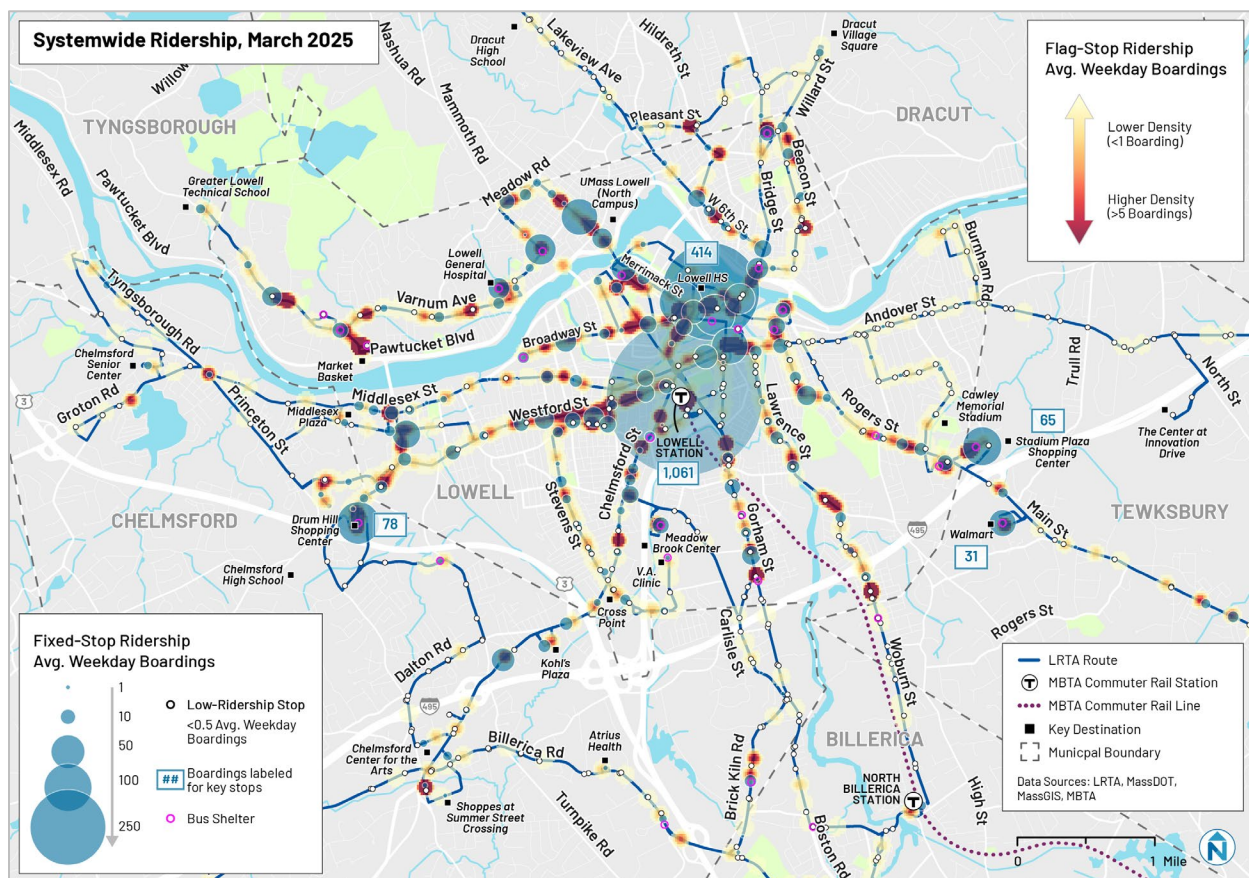
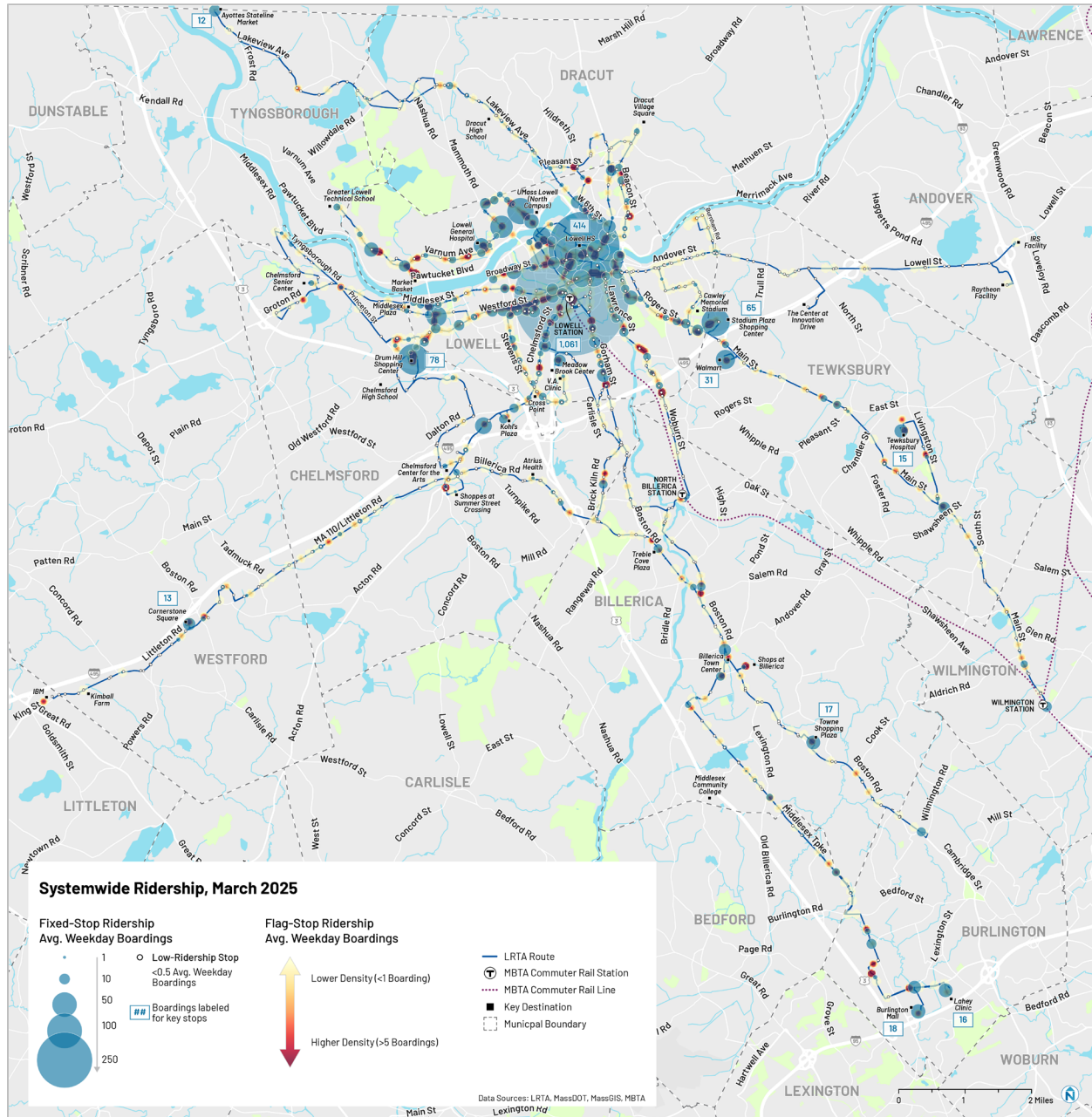


Figure 5 shows ridership by stop for the LRTA service area.

Figure 5 Map of Ridership by Stop, LRTA Service Area, March 2025



School Trippers

School trippers serve a major portion of LRTA's riders, making up 14% of LRTA's weekday ridership when high school is in session. School trippers are differentiated from other trips in each route's schedule and act as supplemental service meeting demand for travel to and from Lowell High School. School-tripper departure times are tailored to the school schedule rather than route headways, typically operating inbound trips at 7:00 a.m. and outbound trips at 2:40 p.m. School trippers are open to all members of the public.

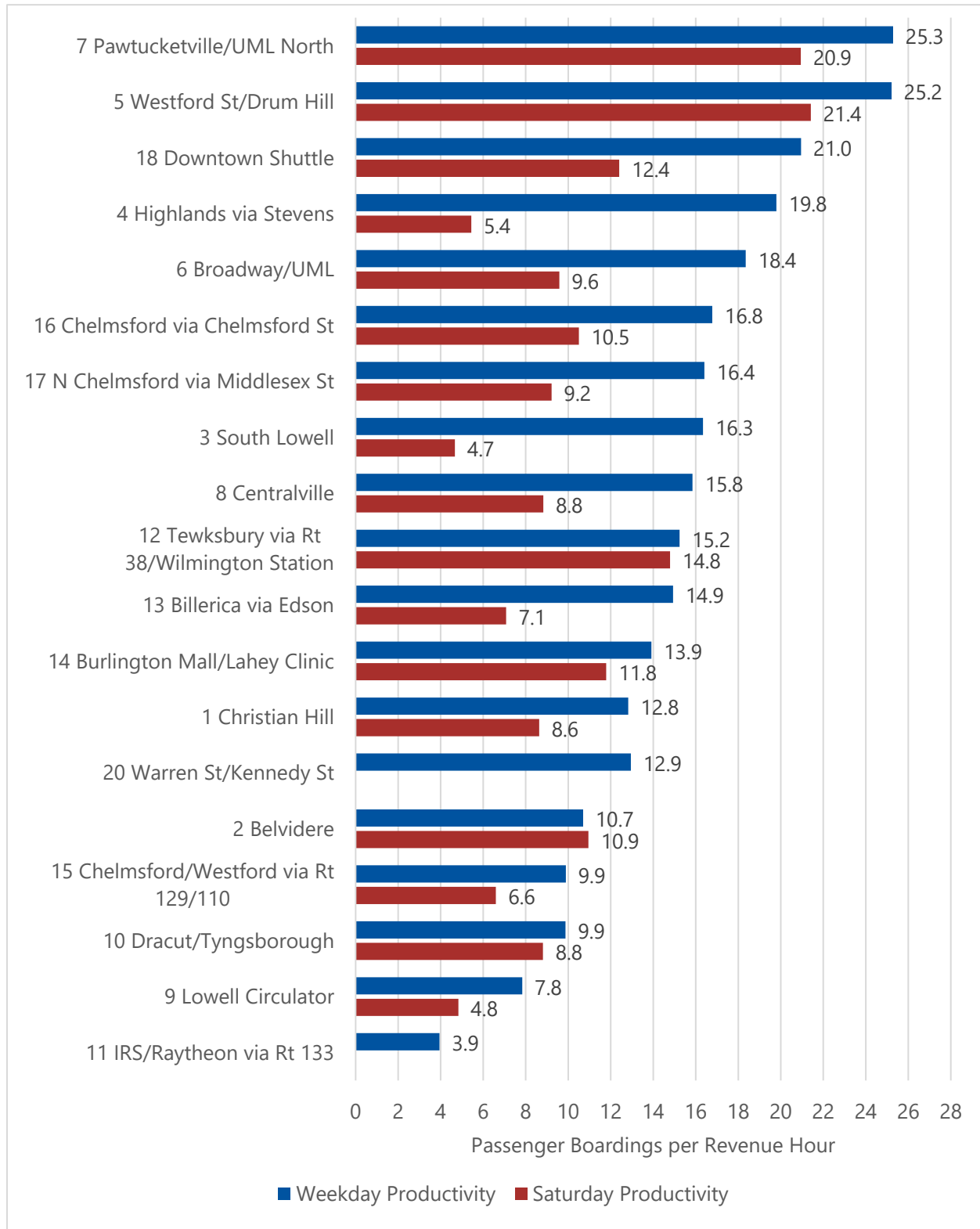
Route 4 has the highest percentage of boardings made on school trippers by far, at 53%. Routes 3, 5, and 13 also had at least 25% of their ridership on school trippers. Most school-tripper ridership occurs on routes operating on the south side of the system, including routes 4, 5, and 13. Some inner-core routes, such as 1, 6, and 8, have no school trippers. These routes still see spikes in ridership during the morning and afternoon school times.

PRODUCTIVITY

Productivity is another essential measure of transit performance. It measures the number of riders using a service per hour, identifying which service is most efficient on a time and cost basis. Service that carries more people per hour is a more efficient use of LRTA resources, and vice versa.

Routes 5 and 7 are LRTA's most productive routes, while routes 10, 9, and 11 are the least productive. Comparing a route's productivity to its overall ridership is a useful way to tell which routes may support more or less service. For example, Route 2 has relatively low productivity, despite having relatively high ridership. This suggests that the higher service levels on the route (Route 2 operates every half hour during much of weekdays) are driving higher ridership but are also not producing ridership at the same rate as they might be on other routes. Productivity for each route, broken down by day type, is in Figure 6.

Figure 6 Productivity by Route and Day Type, March 2025



ON-TIME PERFORMANCE

At the time the ECR was produced, LRTA did not request that operators observe timepoints, so the agency did not operate with on-time performance (OTP) as a key service goal. OTP was recorded, however, and was still a useful metric in the existing conditions analysis for assessing how reliably LRTA's buses arrived when riders expected them to.

LRTA defines a bus as 'on time' if it departs between three minutes early and five minutes late. Trips before and after that threshold are considered early or late, respectively. Late departures are the most common OTP issue for LRTA, although early departures occur in significant volumes, with eight routes seeing more than 10% of all timepoint departures occurring more than three minutes early. Overall, urban and shorter routes tend to have slightly better OTP than longer and more suburban routes, which is typical, given that a longer route has more opportunities to be delayed by traffic, passenger activity, or other issues. There does not appear to be a strong geographic pattern to LRTA's OTP. Routes 7 and 15 each show more than one in four departures as early. Route 3 has the best on-time performance. Routes 15 and 16, serving Chelmsford, have the lowest on-time performance. It is also notable that Route 11 has the third-worst OTP despite having only four daily round trips.

3 Public Engagement

Public engagement was an important part of the FRSA process. It allowed the project team to gauge how well the proposed recommended service aligned with the wants and needs of riders, and collected valuable feedback that improved the recommendations.

Methods

Engagement for the FRSA was conducted after the project team developed draft proposed recommendations for service changes. These recommendations were based on the existing conditions analysis, a review of current and past planning documents, and input from LRTA staff, including bus operators. The purpose of the engagement was to present the draft proposed recommendations to the public and collect their feedback on the proposed changes.

Engagement was conducted through in-person pop-up events and an online survey. The survey was hosted on SurveyMonkey from April 1 through May 12, 2026, and requested feedback on proposed changes to the LRTA bus system, which were detailed using maps and written descriptions. The questions gave respondents an opportunity to comment on changes to individual routes and also solicited demographic information. Flyers, social media, and printed bus cards were used to promote the survey. E-mail 'blasts' to LRTA stakeholders were also used to share information about the survey. The survey and advertising materials were translated into Khmer and Spanish.

The in-person pop-up events were held on April 8, 2026 at the Gallagher Terminal, from 6:00 to 8:00 a.m. and then 3:00 to 5:00 p.m.; these times were chosen because they are the busiest ridership periods at the Kennedy Center. At the pop-ups, LRTA staff and their consultants spoke with riders and stakeholders about their current riding habits and preferences, along with the preliminary recommended route changes. The pop-ups featured a table with printed surveys and copies of the ECR and route profiles. Two boards were set up to display important information: one had a map of the existing system showing average daily boardings at each stop; the second showed proposed changes to the system with a map of proposed alignments and a table of proposed span and frequency changes. There were also electronic and paper copies of the survey available to the public.

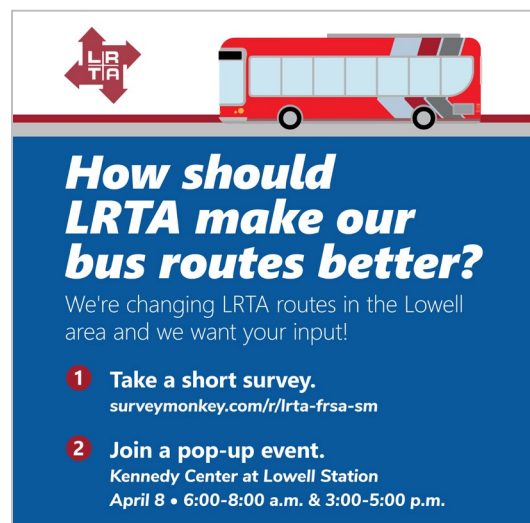


Figure 7 Social-Media Graphic Advertising Pop-Ups and Survey

Results

The results of the FRSA public engagement efforts are described below.

General Feedback

Over the course of the FRSA, the study team received feedback from the public, key stakeholders (e.g., UMass Lowell [UML]), and LRTA staff. LRTA bus operators provided especially feedback on the operational feasibility of proposed changes; operators were engaged through an operator engagement meeting and also at the Gallagher Terminal pop-up events. Feedback from these sources is generally summarized here, and the next section of this report includes an analysis of survey results.

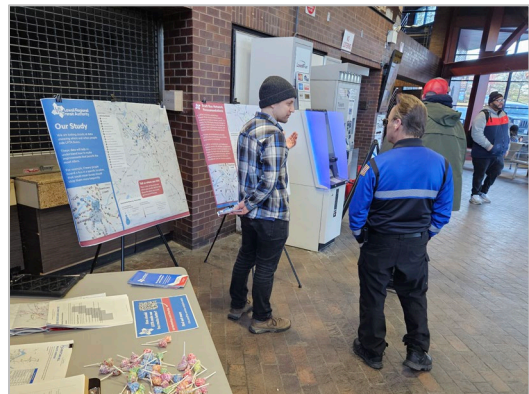


Figure 8 Photo of Pop-Up Engagement Event in Gallagher Terminal

- Two people sent emails with general comments about the proposed service, including a desire for through-routing to provide more one-seat rides to downtown Lowell and UML, coordination of schedules to create higher-frequency corridors where routes overlap, and to introduce transit service along high-demand corridors that do not currently have transit service.
- Five people sent messages about specific routes, including a request to maintain bi-directional service on Burnham Road for Route 2, asking about which destinations will still be served on Route 5, a request to maintain service to Littleton on Route 15, concerns about Burlington Mall access, and a request to maintain access to Dalton Road for Route 16.
- Six people emailed to specifically express their opposition to the potential loss of bus service at Chelmsford Arms senior housing on Smith Street in Chelmsford.
- UML staff strongly value their partnership with LRTA on Route 20 and understand that many UML students rely on other LRTA routes. UML transit staff plan to continue coordinating with LRTA to provide efficient and complementary services.

Survey Results

The survey received 457 total responses, with 298 responses where the survey was filled out beyond the first question. The survey used multiple ‘collectors’, each of which had a unique web address and quick-response code, which allowed the survey team to track which advertising methods were most successful. The pop-ups and project website provided the most responses, followed by social media (Figure 9).

Figure 9 Survey Responses by Collector

Collector	Responses
Bus Card	15
Flyer	34
Stakeholder Email	64
Social Media	150
Project Webpage & Pop-ups	194
Total	457

The survey’s demographic questions asked about race/ethnicity, income, language, and residence location. Demographic results showed most respondents were from Lowell, and a notable number were from Chelmsford and Wilmington. Respondents with various incomes and ages were fairly well represented, although the number of under 18 respondents was low, especially given that at least 14% of LRTA’s fixed-route ridership consists of high-school students (Figure 10).

Figure 10 Survey Respondent Demographics

Residency	Number	Percent
Acton	1	0%
Billerica	7	3%
Chelmsford	36	15%
Dracut	8	3%
Lowell	136	56%
Tewksbury	6	2%
Tyngsborough	1	0%
Westford	3	1%
Wilmington	30	12%
Other	14	6%
Total	242	100%

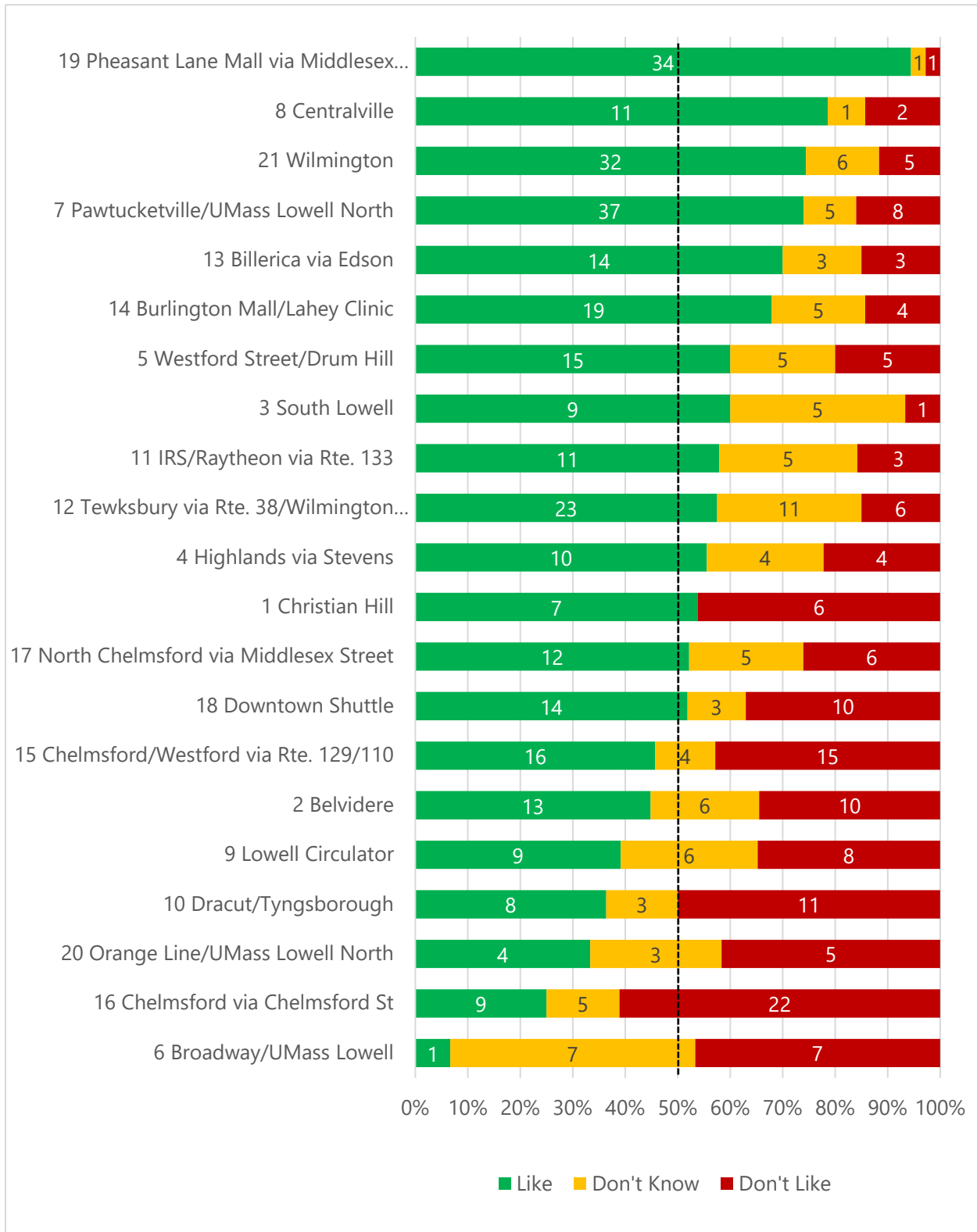
Annual Household Income	Number	Percent
I prefer not to answer	68	27%
Less than \$15,000	32	13%
\$15,000 to \$34,999	41	16%
\$35,000 to \$49,999	13	5%
\$50,000 to \$74,999	32	13%
\$75,000 to \$149,999	43	17%
\$150,000 or more	25	10%
Total	254	100%

Race/Ethnicity	Number	Percent
I prefer not to answer	33	13%
American Indian or Alaska Native	2	1%
Asian or Pacific Islander	29	12%
Black or African American	8	3%
Hispanic or Latino	25	10%
White or Caucasian	158	63%
Other	7	3%
Total	252	100%

Age	Number	Percent
I prefer not to answer	19	7%
Under 18	8	3%
18 to 24	31	12%
25 to 34	39	15%
35 to 44	42	17%
45 to 54	29	11%
55 to 64	33	13%
65 to 74	39	15%
75 or older	14	6%
Total	254	100%

The bulk of the survey was the route-specific questions. Each question shared a map of proposed changes to routes, as well as a detailed description of the draft service recommendations for each of the proposed 21 fixed routes, including alignment, frequency, and span changes. Each route description was followed by a multiple-choice question asking how the respondent felt about the proposal and an open-ended question asking what was good or bad about the proposal. Survey participants liked the majority of proposed route changes overall, with 17 routes having more likes than dislikes. Only four of the 21 route change proposals had more negative than positive responses. See Figure 11 for the favorability of the recommended changes by route.

Figure 11 Favorability of Changes by Route Among Survey Participants



The survey also gave respondents the opportunity to provide open-ended responses to the proposed changes for each route, as well as for the changes at large. Overall, respondents were most supportive of the proposed changes that would make bus service more direct, more frequent, and easier to use. Many respondents liked proposals that would reduce circuitous routing, shorten travel time, and better serve major destinations.

At the same time, many comments expressed concern about changes that would remove stops, reduce coverage, or make some riders walk farther. These concerns were especially strong when changes affected senior housing and/or disabled riders—with a focus on Chelmsford Arms in particular. Many respondents described how transit is their primary or only way to get to medical appointments, shopping, work, and other daily needs.

Overall common themes in the survey responses included:

- Support for **simpler, more direct routes** that reduce backtracking and confusing deviations.
- Strong **concern about losing stops** or forcing some riders to walk further, especially for seniors and disabled riders.
- Requests for **better frequency** and **longer service hours**, especially during evenings and on weekends.
- A desire for **better-timed connections** to Commuter Rail and other bus services.
- Ensuring **social equity** by maintaining and improving transit for people without cars, including students, workers, older people, and people with disabilities.

4 Recommendations

The outcome of the FRSA is the following set of recommendations. These recommendations were developed based on the existing conditions analysis, a review of current and past planning documents, and input from LRTA staff, including bus operators. These recommendations were first developed in draft form and presented to the public for feedback (see Chapter 3 for information on this process). After reviewing input from the public and key stakeholders, the recommendations were finalized.

In general, recommendations strive to improve service where it will benefit the most riders. Because service improvements are planned in a 'resource-neutral' fashion (meaning the changes will not require LRTA to buy more buses, hire more operators, or operate more hours of service), there are reductions in the quality of service that are also recommended. These reductions are recommended where very few or zero people are currently using the service. The principle behind these types of recommendations is efficiency; limited public resources are recommended to be allocated to provide the maximum possible benefit to the public. Recommendations are also made within a social equity framework, where service for those most in need (e.g., seniors and people with disabilities) is also prioritized.

Summary of Recommendations

These recommendations significantly improve LRTA's fixed-route bus service, most notably by improving bus speed, directness, and reliability for thousands of daily bus riders. Recommendation benefits are highlighted below, and recommended change details are in the following section.

Frequency Improvements

- Three routes⁴ will see improved frequency during some times or all times of the day, benefitting about 380 existing average weekday riders.
- Three routes⁵ will see improved frequency during all times on Saturdays, benefitting about 320 existing average Saturday riders.

Span of Service Improvements

- Eight routes⁶ will see overall improved spans of service on weekdays, giving about 2,100 existing average weekday riders opportunities to travel earlier and/or later.
- Seven routes⁷ will see overall improved spans of service on Saturdays, giving about 560 existing average Saturday riders opportunities to travel earlier and/or later.

New Service

- Route 11 will now provide reliable, all-day service to about 20,000 residents and 10,000 jobs⁸, including off Andover Street in Lowell and Tewksbury, and North Street, Livingston Street, and Chandler Street in Tewksbury. This will deliver new high-quality transit service.

Travel-Time Improvements

- Trip times will be shorter for most riders on six routes⁹, benefitting about 1,900 existing average weekday riders.

Reliability and Operational Improvements

- Routes will be timed so on-time performance goals are achievable on most trips.
- Improved traffic safety by removing service from congested parking lots.
- Regular recovery time and layovers will help keep service operating smoothly.

⁴ Routes 11, 16, and 19.

⁵ Routes 7, 11, and 19.

⁶ Routes 2, 7, 8, 11, 13, 15, 17, and 18.

⁷ Routes 1, 3, 5, 7, 8, 11, and 15.

⁸ Based on ¼-mile Euclidean buffer of estimated stops along route, using American Community Survey five-year estimates, 2020-2024, via Remix.

⁹ Routes 2, 5, 10, 12, 14, and 17.

Incorporation of Public Input

Public feedback was influential in developing the final recommendations for this project. In-person conversations, e-mails, and survey responses all provided important critiques of and suggestions for planned service changes. The project team reviewed this input alongside operational considerations and adjusted the recommendations. Below are major changes made between the draft and final recommendations stage which were most directly based on public input:

- **Route 7:** Retain front-door service to D'Youville Life & Wellness Community in Lowell.
- **Route 11:** Based in public on overwhelming public support, we recommend the Lowell-Tewksbury alignment for this route, over the Tewksbury-only alignment option.
- **Route 16:** Retain service to Chelmsford Arms on Smith Street in Chelmsford.
- **Route 17:** Retain service to Drum Hill Shopping Center in Chelmsford in both directions. Also retained service on Lynn Avenue in Chelmsford.

Detailed Recommendations

This section of the report provides detailed descriptions of the recommended changes to each route. The final recommended changes are shown as a whole in the table and map on the following pages. Note that the school trippers are not recommended to change.

Figure 12 Table of Recommended Span and Frequency by Route, Compared to July 2026 Service Levels

Rt #	Weekday Span of Service (Apprx.)				Weekday Headways				Saturday Span of Service (Apprx.)				Saturday Headways			
	July '26 Start	July '26 End	Rec Draft Start	Rec Draft End	July '26 Avg. Peak	July '26 Avg. Off-Peak	Rec Draft Peak	Rec Draft Off-Peak	July '26 Start	July '26 End	Rec Draft Start	Rec Draft End	July '26 Avg. Peak	July '26 Avg. Off- Peak	Rec Draft Peak	Rec Draft Off-Peak
1	5:58 AM	7:34 PM	6:00 AM	7:30 PM	60	60	60	60	8:00 AM	5:34 PM	8:00 AM	6:00 PM	60	60	60	60
2	6:15 AM	7:50 PM	6:15 AM	8:15 PM	30	30	60	60	7:45 AM	6:51 PM	7:45 AM	6:45 PM	60	60	60	60
3	6:00 AM	7:16 PM	5:45 AM	6:45 PM	60	60	60	60	8:15 AM	5:51 PM	8:00 AM	6:00 PM	60	60	60	60
4	6:00 AM	7:11 PM	6:00 AM	7:00 PM	30	30	60	60	8:00 AM	5:50 PM	8:15 AM	6:15 PM	60	60	60	60
5	5:43 AM	8:04 PM	5:45 AM	7:45 PM	30	30	30	30	8:00 AM	6:33 PM	7:45 AM	6:45 PM	60	60	60	60
6	6:00 AM	6:30 PM	-	-	60	60	-	-	8:05 AM	5:33 PM	-	-	60	60	-	-
7	5:45 AM	8:03 PM	5:45 AM	8:45 PM	30	30	30	30	7:45 AM	6:56 PM	7:45 AM	7:45 PM	60	60	45	45
8	6:00 AM	7:44 PM	5:45 AM	7:45 PM	60	60	60	60	8:00 AM	5:20 PM	8:00 AM	6:00 PM	60	60	60	60
9	6:15 AM	7:19 PM	-	-	60	60	-	-	7:15 AM	6:49 PM	-	-	60	60	-	-
10	6:15 AM	7:32 PM	6:00 AM	7:00 PM	60	60	60	60	8:15 AM	6:35 PM	8:30 AM	6:30 PM	60	60	60	60
11	6:00 AM	4:55 PM	6:30 AM	6:30 PM	4 daily round trips		45	45	-	-	8:00 AM	6:30 PM	-	-	90	90
12	5:45 AM	7:53 PM	5:45 AM	7:45 PM	60	60	60	60	6:45 AM	6:43 PM	7:00 AM	7:00 PM	60	60	60	60
13	6:00 AM	7:46 PM	6:30 AM	8:30 PM	60	60	60	60	7:45 AM	5:53 PM	7:30 AM	5:30 PM	60	60	60	60
14	6:00 AM	7:54 PM	5:45 AM	7:45 PM	60	60	60	60	7:00 AM	6:54 PM	7:00 AM	7:00 PM	60	60	60	60
15	7:00 AM	7:40 PM	6:00 AM	8:00 PM	60	60	60	60	7:00 AM	6:20 PM	6:15 AM	6:15 PM	60	60	60	60
16	6:00 AM	8:04 PM	6:00 AM	7:30 PM	30	60	45	45	7:30 AM	6:36 PM	8:00 AM	6:30 PM	60	60	90	90
17	6:30 AM	7:56 PM	6:15 AM	8:15 PM	60	60	60	60	7:45 AM	6:13 PM	8:00 AM	6:00 PM	60	60	60	60
18	5:45 AM	7:12 PM	5:45 AM	7:45 PM	30	30	40	40	7:15 AM	7:12 PM	7:15 AM	7:15 PM	30	30	40	40
19	6:45 AM	7:57 PM	7:45 AM	7:45 PM	60	60	45	45	7:45 AM	6:57 PM	7:45 AM	6:15 PM	60	60	45	45
20.	7:15 AM	11:22 AM	7:15 AM	11:15 AM	30	30	30	30	-	-	-	-	-	-	-	-
21	7:00 AM	6:54 PM	7:00 AM	7:00 PM	60	60	60	60	8:00 AM	6:54 PM	8:00 AM	7:00 PM	60	60	60	60

LEGEND

INDICATES EXISTING SERVICE

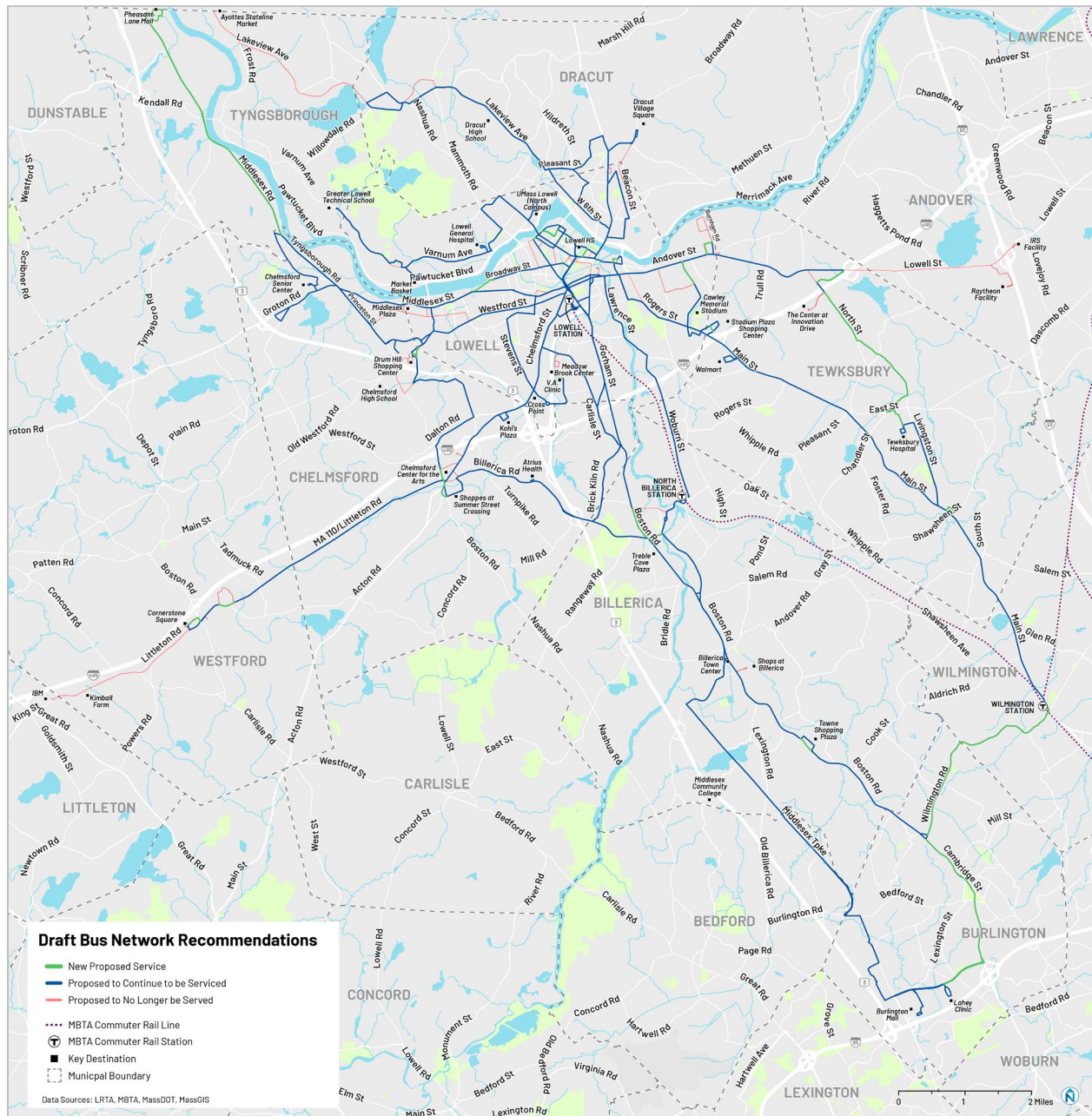
INDICATES RECOMMENDED SERVICE

INDICATES AN IMPROVEMENT FROM EXISTING SERVICE

INDICATES A DEGRADATION FROM EXISTING SERVICE

Note: Recommended span changes of fewer than 15 minutes are not considered improvements or degradations in this table, as exact start and end times will likely differ slightly from what is shown in this table when the service is scheduled.

Figure 13 Map of the Recommended Bus Network



Note: School trippers are not shown on this map but are not proposed to be changed. E.g., school-tripper service to Innovation Academy in Tyngsborough would continue to operate.

Recommendations by Route

The following pages describe the major recommended changes to each route.

1 Christian Hill

- Route 1 would operate on Beacon Street, Willard Street, Bridge Street, and Arlington Street, in both directions. It would no longer operate on Humphrey Street, Methuen Street, or part of Willard Street. This would make service easier to understand and allow most riders to avoid riding out-of-direction to reach their destination. The segment of Willard Street that would no longer be served has very low ridership today.
- Route 1 would no longer enter the Market Basket parking lot and would instead stop on Bridge Street in front of Market Basket, in both directions. This would make operating the bus safer and make the bus faster and more reliable.
- There are no recommended changes to weekday service span or frequency. Route 1 would continue to run every 60 minutes from 6:00 a.m. to 7:30 p.m.
- On Saturdays, Route 1 would run every 60 minutes from 8:00 a.m. to 6:00 p.m., which is the same frequency and start time as the current route, but the route would end service 26 minutes later.

2 Belvidere

- Route 2 would operate via High Street and Bartlett Street to serve the Saints Campus of Lowell General Hospital. This change would make service more reliable by discontinuing the left onto James Court from East Merrimack Street.
- Route 2 would operate via Douglas Road between Rogers Street and Andover Street, instead of via Hovey Street and Wentworth Avenue. This change would make service faster and more direct by allowing most riders to avoid a large deviation. Hovey Street and Wentworth Avenue have low ridership today, and riders currently boarding near Wentworth Avenue and Andover Street could use the recommended Route 11.
- Route 2 would turn around on Florence Street instead of River Road, to focus resources on places with more ridership. The segments of Burnham Road and River Road that would no longer be served have low ridership today.
- On weekdays, Route 2 would run every 60 minutes from 6:15 a.m. to 8:15 p.m., which is the same start time as the current route, but the route would arrive less often than its current schedule of every 30 minutes and would end service 25 minutes later.
- There are no recommended changes to Saturday service. Route 2 would continue to run every 60 minutes from 7:45 a.m. to 6:45 p.m.

3 South Lowell

- Route 3 would operate via Highland Street instead of Gorham Street and Thorndike Street on inbound trips only. This change would make service faster and more reliable for most riders by shortening the distance to the Kennedy Center. Riders currently boarding along southern Gorham Street and Thorndike Street would need to walk farther.
- On weekdays, Route 3 would run every 60 minutes from 5:45 a.m. to 6:45 p.m. This is the same frequency as the current route, but Route 3 would start service 15 minutes earlier and end service 31 minutes earlier.
- On Saturdays, Route 3 would run every 60 minutes from 8:00 a.m. to 6:00 p.m. This is the same frequency and end time as the current route, but the route would start service 15 minutes earlier.

4 Highlands via Stevens Street

- Route 4 would run on most of the same streets as today but would now also use Chelmsford Street to serve the Chelmsford Mall. In the outbound direction, the bus would serve Chelmsford Mall after serving the VA. The bus would then leave Chelmsford Mall, serve the VA, and return to the Kennedy Center. This would give more people access to shopping and jobs. Route 4 is currently one of the only LRTA routes that does not serve a grocery store.
- On weekdays, Route 4 would run every 60 minutes from 6:00 a.m. to 7:00 p.m., which is the same start and end time as the current route, but less frequently than its current schedule of every 30 minutes.
- On Saturdays, Route 4 would run every 60 minutes from 8:15 a.m. to 6:15 p.m., which is the same frequency as the current route, but the route would start service 15 minutes later and end service 25 minutes later.

5 Westford Street

- Route 5 would operate via Westford Street in both directions, and would not use Princeton Boulevard between Pine and Wood streets. This change would make service more consistent, easier to understand, and faster for most riders. Pine Street and most of the segment of Princeton Boulevard that would no longer be served have low ridership today, and riders who currently board on Wood Street could use the recommended Route 17 or walk to Route 5.
- Circulation around Drum Hill Shopping Center would be simplified to speed up service, and the bus stop would be moved to the north side of the Hannaford.
- On weekdays, Route 5 would run every 30 minutes from 5:45 a.m. to 7:45 p.m., which is the same frequency and start time as the current route, but the route would end service 19 minutes earlier.
- On Saturdays, Route 5 would run every 60 minutes from 7:45 a.m. to 6:45 p.m., which is the same frequency and end time as the current route, but the route would start service 15 minutes earlier.

6 Broadway/UMass Lowell

- Route 6 would be discontinued. The recommended routes 18 and 19 would serve most of the same streets.
- Riders would be able to reach destinations on Broadway Street via the recommended Route 19, which would arrive every 45 minutes. Riders would be able to reach destinations on Fletcher Street via the recommended Route 18, which would arrive every 40 minutes.

7 Pawtucketville

- Route 7 would operate via Merrimack Street in both directions between Pawtucket and Cabot streets, and would no longer serve Salem Street. This would make service more consistent and easier to understand, improve bus speed and reliability, and improve safety by reducing the number of turns the bus makes. Riders boarding along Salem Street today would need to walk to Merrimack Street.
- Route 7 would serve the front door of D'Youville in both directions. This change would make service simpler and more convenient for riders boarding and alighting at D'Youville.
- On weekdays, Route 7 would run every 30 minutes from 5:45 a.m. to 8:45 p.m., which is the same frequency and start time as the current route, but service would end 42 minutes later.
- On Saturdays, Route 7 would run every 45 minutes from 7:45 a.m. to 7:45 p.m., which is the same start time as the current route. The route would arrive more often than its current schedule of every 60 minutes and would end service 49 minutes later.

8 Centralville

- There are no recommended changes to where Route 8 would operate.
- On weekdays, Route 8 would run every 60 minutes from 5:45 a.m. to 7:45 p.m., which is the same frequency and end time as the current route, but service would start 15 minutes earlier.
- On Saturdays, Route 8 would run every 60 minutes from 8:00 a.m. to 6:00 p.m., which is the same frequency and start time as its current route, but service would end 40 minutes later.

9 Lowell Circulator

- Route 9 would be discontinued and replaced with Route 18.
- Riders would be able to reach destinations around downtown Lowell via the recommended Route 18 every 40 minutes on weekdays and Saturdays. Riders currently using Route 9 to access destinations on University Avenue and nearby could use the recommended Route 7 or Route 20.

10 Dracut/Tyngsborough

- Route 10 would no longer enter the Market Basket parking lot and would instead stop on Bridge Street in front of Market Basket, in both directions. This would make operating the bus safer and make the bus faster and more reliable.

- Route 10 would operate via Lakeview Avenue, Nashua Road, and Stewart Street, and would turn around via Tyngsboro Road near the Dracut town line. The route would no longer continue to Ayotte's Stateline Market. Riders could reach destinations in New Hampshire via Route 19. The segment of Lakeview Avenue that would no longer be served has very low ridership today. Riders boarding near Ayotte's today would no longer have access to a bus route. Service on Varnum Road in Dracut would be discontinued and riders currently boarding there would need to walk to Lakeview Avenue.
- On weekdays, Route 10 would run every 60 minutes from 6:00 a.m. to 7:00 p.m., This is the same frequency as the current route, but Route 10 would start service 15 minutes earlier and end service 32 minutes earlier.
- On Saturdays, Route 10 would run every 60 minutes from 8:30 a.m. to 6:30 p.m., which is the same frequency and end time as the current route, but service would start 15 minutes later.

11 North Tewksbury

- Route 11 would operate from the Kennedy Center in Lowell via Andover Street but would no longer serve the Raytheon or Internal Revenue Service sites in Andover. Instead, Route 11 would extend into Tewksbury via North Street and Livingston Street to serve Tewksbury Hospital and Market Basket at the Oakdale Mall. This change would discontinue service to street segments and destinations that have very low ridership today, and provide new access to popular destinations while maintaining a connection to the Kennedy Center.
- On weekdays, Route 11 would run every 45 minutes from 6:30 a.m. to 6:30 p.m. The route would run more often than its current schedule of four daily trips, would start service 30 minutes later, and would end service one hour and 35 minutes later than today.
- On Saturdays, Route 11 would run every 90 minutes from 8:00 a.m. to 6:30 p.m. Route 11 does not operate on Saturday today.

12 Tewksbury via Rte. 38

- Route 12 would operate via High and Rogers streets between Andover Street and Waverly Avenue in both directions, and would no longer operate on Nesmith Street in the outbound direction. This change would make service simpler and more reliable. Nesmith Street has very low ridership today.
- Route 12 would no longer serve Livingston Street or Tewksbury Hospital. Those destinations would be served by the recommended Route 11. This change would make service easier to understand and much faster for all riders not accessing Livingston Street or Tewksbury Hospital on Route 12.
- There are no recommended changes to weekday service span or frequency. Route 12 would continue to run every 60 minutes from 5:45 a.m. to 7:45 p.m.

- On Saturdays, Route 12 would run every 60 minutes from 7:00 a.m. to 7:00 p.m. This is the same frequency as the current schedule, but service would start 15 minutes later and end 17 minutes later.

13 Billerica

- Route 13 would operate via Chelmsford Street, Boston Road, and Brick Kiln Road between the Kennedy Center and North Billerica Station in both directions, instead of using Gorham Street. Service on Gorham Street would be available on the recommended Route 14.
- Route 13 would run on the same roads as today between North Billerica Station and Wilmington Road. Route 13 would no longer go in the Shops at Billerica parking lot, and would instead stop on Boston Road in front of the Shops at Billerica in both directions. This change would speed up service for most riders and make operating the bus safer.
- Route 13 would stop inside Towne Plaza near Market Basket in both directions, instead of only one direction. This will make it safer and easier for riders to access the plaza.
- On weekdays, Route 13 would run every 60 minutes from 6:30 a.m. to 8:30 p.m. This is the same frequency as the current schedule, but the route would start service 30 minutes later and end service 44 minutes later.
- On Saturdays, Route 13 would run every 60 minutes from 7:30 a.m. to 5:30 p.m. This is the same frequency as the current schedule, but the route would start service 15 minutes earlier and end service 23 minutes earlier.

14 Burlington/Lahey

- Route 14 would operate via Gorham Street and Boston Road between the Kennedy Center and North Billerica in both directions, instead of using Chelmsford Street, Boston Road, and Brick Kiln Road. Service on Chelmsford Street, Boston Road, and Brick Kiln Road would be available on the recommended Route 13. This change would speed up service for riders traveling between the Burlington Mall/Lahey Clinic area and Lowell.
- Route 14 would stop at the Burlington Mall in both directions at the current stop at Macy's.
- On weekdays, Route 14 would run every 60 minutes from 5:45 a.m. to 7:45 p.m., which is the same frequency and end time as today, but service would start 15 minutes earlier.
- There are no recommended changes to Saturday span of service or frequency. Route 14 would continue to run every 60 minutes from 7:00 a.m. to 7:00 p.m.

15 Chelmsford/Westford

- Route 15 would operate via Chelmsford Street between the Kennedy Center and Chelmsford Center in both directions and would no longer serve Gorham Street, Brick Kiln Road, and parts of Billerica Road east of Chelmsford Center. Gorham Street, Brick Kiln Road, and parts of Billerica Road east of Chelmsford Center would instead be served by the recommended Route 16. This change would increase access to popular destinations and speed up service on the long route.

- Route 15 would no longer deviate into the Westford Tech Park or Westford Valley Marketplace, and would turn around at Cornerstone Square. The route would no longer continue to Littleton. These changes would speed up service. Places no longer being served all have very low ridership today.
- On weekdays, Route 15 would run every 60 minutes from 6:00 a.m. to 8:00 p.m. This is the same frequency as the current schedule, but service would start one hour earlier and end 20 minutes later.
- On Saturdays, Route 15 would run every 60 minutes from 6:15 a.m. to 6:15 p.m. This is the same frequency and end time as the current schedule, but service would start 45 minutes earlier.

16 Chelmsford via Rte. 129

- Route 16 would operate via Gorham Street, Boston Road, and Billerica Road between the Kennedy Center and Chelmsford Center in both directions, serving UPS and Atrius Health, similar to Route 15 today. The route would no longer serve Chelmsford Street, but Chelmsford Street would instead be served by the recommended Route 15.
- Route 16 would serve Summer Street Crossing shopping center in both directions.
- Route 16 would operate via Parkhurst Road in both directions to serve Drum Hill Shopping Center and would no longer serve the northern segment of North Road in the outbound direction. This change would speed up service for many riders and make the route more reliable. The northern section of North Road has low ridership today.
- Circulation around Drum Hill Shopping Center would be simplified to speed up service, and the bus stop would be moved to the north side of the Hannaford.
- On weekdays, Route 16 would run every 45 minutes from 6:00 a.m. to 7:30 p.m. The route would run less often than today's every 30 minutes during peak times and more often than today's every 90 minutes during off-peak times. The route would start service at the same time as the current schedule but would end service 34 minutes earlier.
- On Saturdays, Route 16 would run every 90 minutes from 8:00 a.m. to 6:30 p.m. This is the same end time as the current schedule, but the route would arrive less often than today's hourly service, and would start 30 minutes later.

17 North Chelmsford via Technology Drive

- Route 17 would operate via Middlesex Street, Wood Street, Technology Drive, North Road, and Princeton Street in both directions, instead of using different inbound and outbound routing. Service would be discontinued on Princeton Boulevard and Middlesex Street between the Rourke Bridge and Vinal Square. Riders could still access destinations on Middlesex Street via the recommended Route 19. Riders boarding on Princeton Street today would need to walk farther to the bus. These changes would make service more reliable, simpler, and more direct.

- Circulation around Drum Hill Shopping Center would be simplified to speed up service, and the bus stop would be moved to the north side of the Hannaford.
- On weekdays, Route 17 would run every 60 minutes from 6:15 a.m. to 8:15 p.m. This is the same frequency as the current schedule, but the route would start service 15 minutes earlier and end service 19 minutes later.
- On Saturdays, Route 17 would run every 60 minutes from 8:00 a.m. to 6:00 p.m. This is the same frequency and end time as the current schedule, but the route would start service 15 minutes later.

18 Downtown Circulator

- Route 18 would serve more destinations downtown, including many places Route 9 serves today.
- Route 18 would operate via Appleton/Church/Andover Street and High Street to serve the Saints Campus of Lowell General Hospital. Riders boarding along Middlesex Street today would need to walk farther to board the bus on Appleton Street. Route 18 would then operate via East Merrimack Street, Kirk Street, and French Street to serve downtown Lowell and Lowell High School. Route 18 would then operate via Hall Street, Pawtucket Street, and Fletcher Street to serve UML and other destinations. These changes would allow Route 18 to reach more popular destinations in downtown Lowell. Riders boarding along Shattuck Street, John Street, and the segment of Central Street that would no longer be served would need to walk farther to the bus route and may be able to use one of several other routes that operate nearby.
- On weekdays, Route 18 would run every 40 minutes from 5:45 a.m. to 7:45 p.m. This is the same start time as the current route, but Route 18 would run less often than the current schedule of every 30 minutes and service would end 33 minutes later.
- On Saturdays, Route 18 would run every 40 minutes from 7:15 a.m. to 7:15 p.m. This is the same start and end time as the current route, but Route 18 would run less often than the current schedule of every 30 minutes.

19 Tyngsborough/Nashua

- There are no recommended changes to where Route 19 would operate.
- On weekdays, Route 19 would run every 45 minutes from 7:45 a.m. to 7:45 p.m. This is the same end time as the current schedule, but the route would arrive more often than today's hourly service, and would start one hour later.
- On Saturdays, Route 19 would run every 45 minutes from 7:45 a.m. to 6:15 p.m. This is the same start time as the current schedule, but the route would arrive more often than today's hourly service, and would end 42 minutes earlier.

20 Orange Line - UMass Lowell North

- There are no recommended changes to where Route 20 would operate.
- There are no recommended changes to weekday service. Route 20 would continue to run every 30 minutes from 7:15 a.m. to 11:15 p.m.

21 Wilmington

- There are no recommended changes to where Route 21 would operate.
- There are no recommended changes to weekday service. Route 21 would continue to run every 60 minutes from approximately 7:00 a.m. to 7:00 p.m.
- There are no recommended changes to Saturday service. Route 21 would continue to run every 60 minutes from approximately 8:00 a.m. to 7:00 p.m.

Acknowledgements

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To LRTA's riders: *Thank you for helping us create a better bus system.*

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