

# Littleton Commuter Rail Parking



Prepared for:  
Town of Littleton

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## Executive Summary

Littleton Commuter Rail station has benefitted from recent investments, including a new station and new MBTA-owned parking lots. Double-tracking and signal improvements on the Fitchburg line are expected to result in greater reliability and faster travel times starting in January 2016. These improvements have enabled the MBTA to add four additional outbound trains and four additional inbound trains to the weekday schedule at Littleton station. The increased service was implemented in summer 2014 (full schedule provided in Appendix 1).

Even before these service and infrastructure improvements were implemented, ridership at Littleton station has been steadily and significantly increasing over the past decade. However, parking is currently at or very near capacity on most weekdays. The following report documents parking utilization at Littleton station as observed in May 2014, before the additional service began. A number of strategies are recommended to reduce parking demand by improving multimodal access to the station. Options for increasing parking supply are also explored. A summary of the recommendations is provided in Table 1.

Table 1. Summary of Recommendations.

Strategy	Tactic	Responsible Party
<b>Reduce parking demand</b>	Provide a local shuttle to the station	Crosstown Connect TMA, Montachusett RTA, or Lowell RTA
	Build a side path on Foster Street to provide safe pedestrian access	Town of Littleton
	Provide designated bicycle facilities on Foster Street	Town of Littleton
	Provide secure bicycle parking at Littleton station	MBTA and/or Town of Littleton
<b>Increase parking supply</b>	Develop additional parking areas adjacent to the station	MBTA and/or Town of Littleton
	Develop satellite parking with a shuttle to the station	CrossTown Connect TMA or RTAs with Town of Littleton and other surrounding communities

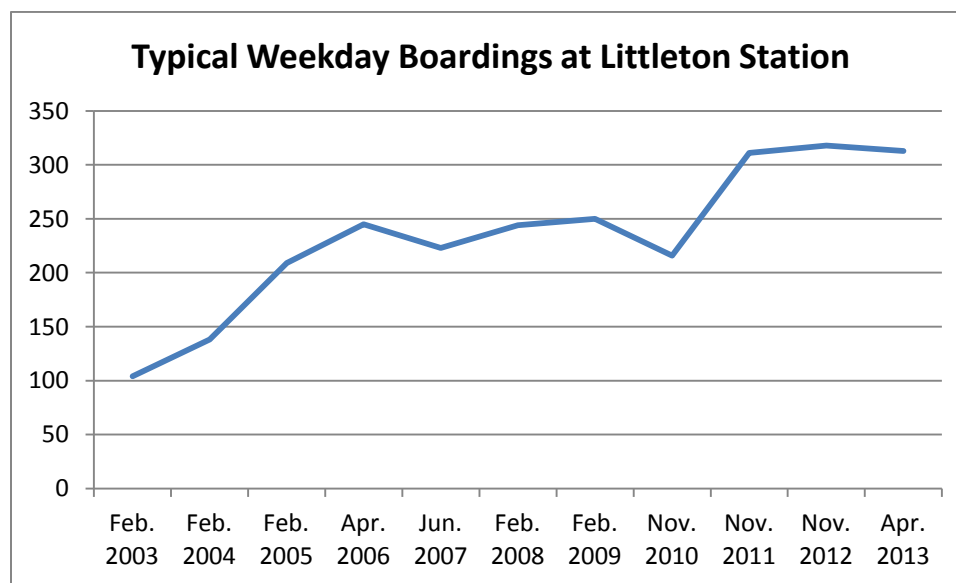
## Station and Ridership Background Information

The Littleton commuter rail station is located on the Massachusetts Bay Transportation Authority (MBTA) Fitchburg commuter rail line, approximately 30 miles northwest of North Station in Boston. Littleton station is located adjacent to the interchange of Interstate 495 and Route 2 (shown on the

following page), which means that commuters can easily choose between driving and transit based on real-time conditions. For example, if the station parking lot fills up before the last peak hour train departs, commuters that arrive once the lot is full can easily continue inbound on Route 2. Littleton station is therefore a location where parking availability plays a key role in encouraging mode shift from vehicles to transit.

The Littleton commuter rail station provides public transportation connections to some of the largest employment areas for Littleton residents (excluding Littleton itself): Acton, Boston, Waltham, Concord and Cambridge. Approximately 23% of Littleton residents work in one of those five municipalities. Commuters who work in Littleton, however, live mainly in surrounding communities that are not located along the commuter rail line. Less than 1% of people who work in Littleton live in Boston, and only .54% of people who work in Littleton live in Cambridge.

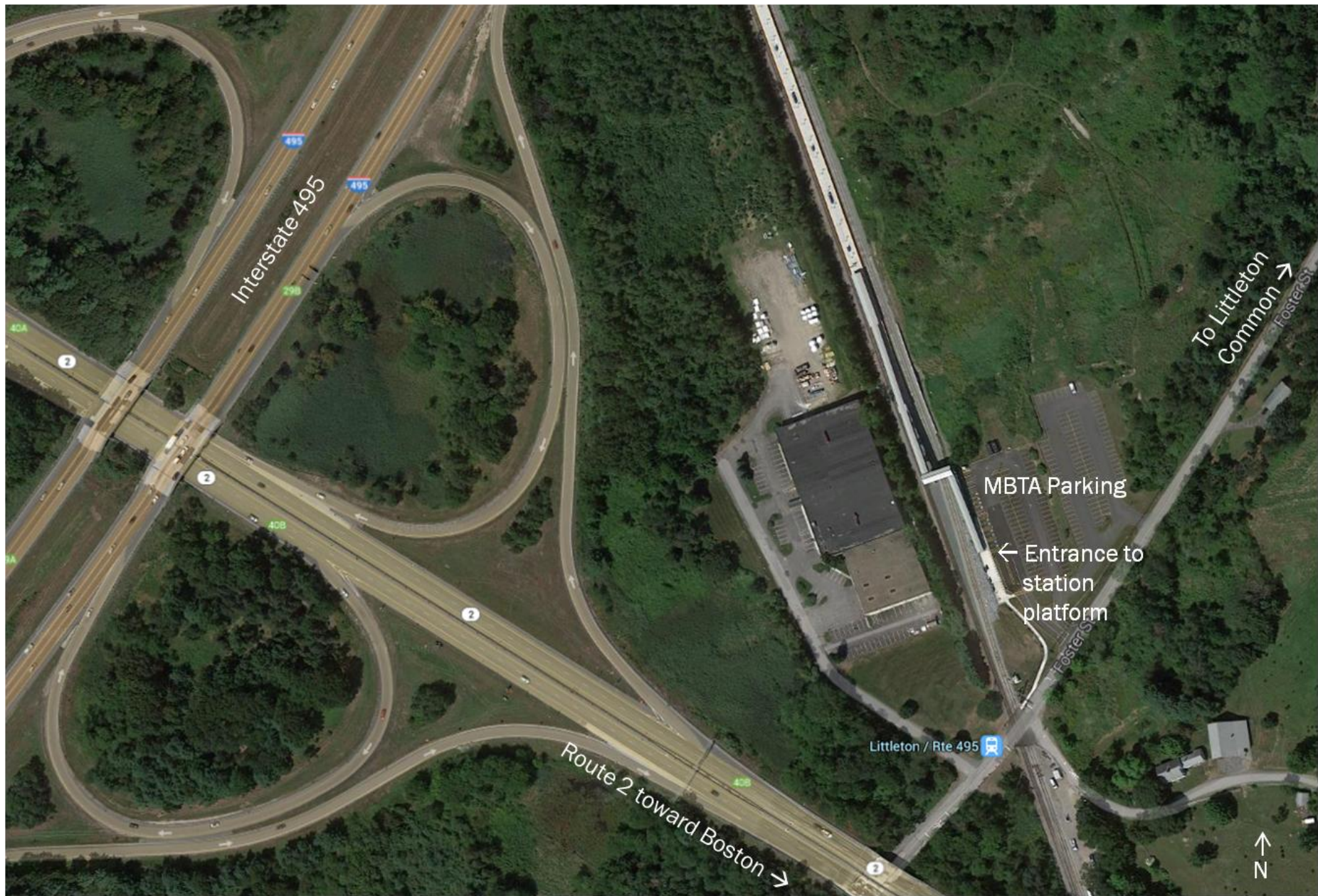
According to the 2014 *MBTA Ridership and Service Statistics* (also called the “Blue Book”), Littleton station had 313 weekday boardings in 2013, a steady increase from 250 boardings in 2009 and 103 boardings in 2003. South Acton, the next station inbound toward Boston, had 902 boardings in 2013. The higher ridership in South Acton is likely due to a number of factors including a greater frequency of service, and a lower price for parking (\$2.50 in South Acton vs. \$4 in Littleton). Under the expanded Fitchburg line schedule implemented in summer 2014, South Acton and Littleton now have the same number of trains each day, which could lead to some shift in demand from South Acton to Littleton. The chart below shows the increased ridership at Littleton station over the past decade.



Source: MBTA Ridership and Service Statistics, Thirteenth Edition (2010) and Fourteenth Edition (2014).



Figure 1. Aerial view of the recently-constructed Littleton station and surrounding area. Source: Google.



According to the 2008-2009 MBTA Systemwide Passenger Survey, more than 95% of people boarding in Littleton are commuting to work, and 91% reported that they chose the train in order to avoid traffic. The other most common reasons for choosing the train included the ability to read or work on the train (67%), the desire to be environmentally responsible (60%), and avoiding parking at the destination (48%). Of the riders who have used other modes to make the same trip, 85% reported their other mode as driving alone. All riders had at least one vehicle available in the household; 83% had two or more vehicles available. Consistent with such a high level of vehicle ownership, 79% of commuters arrived by private car, while 18% were dropped off, 3% walked, and none arrived by bicycle. Detailed excerpts of the survey are included in Appendix 2.

## Schedule Information

As part of the improvements along the Fitchburg Line, Littleton station was recently upgraded from a single platform to a dual platform. In addition, the commuter rail track itself is in the process of being upgraded to a double track from Boston to Ayer to increase train speeds, frequency and on-time performance.

Currently, commuter rail travel time from Littleton to North Station is approximately 64 minutes during commuter peak hours. There are six departures during the morning peak period, and six arrivals during the evening peak period under the new schedule effective summer 2014.<sup>1</sup> In addition to the added peak period train under the new schedule, there is now an outbound arrival and an inbound departure that facilitate reverse commuting. The new schedule includes an 8:37am arrival from Boston and a 5:20pm departure, whereas the old schedule had the first train arriving at 9:40am, and afternoon trains to Boston departing Littleton at 3:34 or 7:26pm. The prior schedule made it near impossible for employees coming to Littleton and surrounding communities for employment to work a regular 9AM-5PM shift. This new schedule will accommodate the traditional work day hours much more effectively.

## Current Pricing and Parking

The Littleton station is in MBTA zone 7, which has a \$9.75 single-ride fare, and a \$306 monthly pass. Zone and fare information for the entire Fitchburg line is provided in Appendix 3.

Littleton station has an MBTA-owned and operated parking lot with 195 spaces, including 4 electric vehicle charging spaces and 6 handicap only spaces. The parking facility is divided into an upper and lower lot.

Table 2. Littleton Commuter Rail Parking Inventory

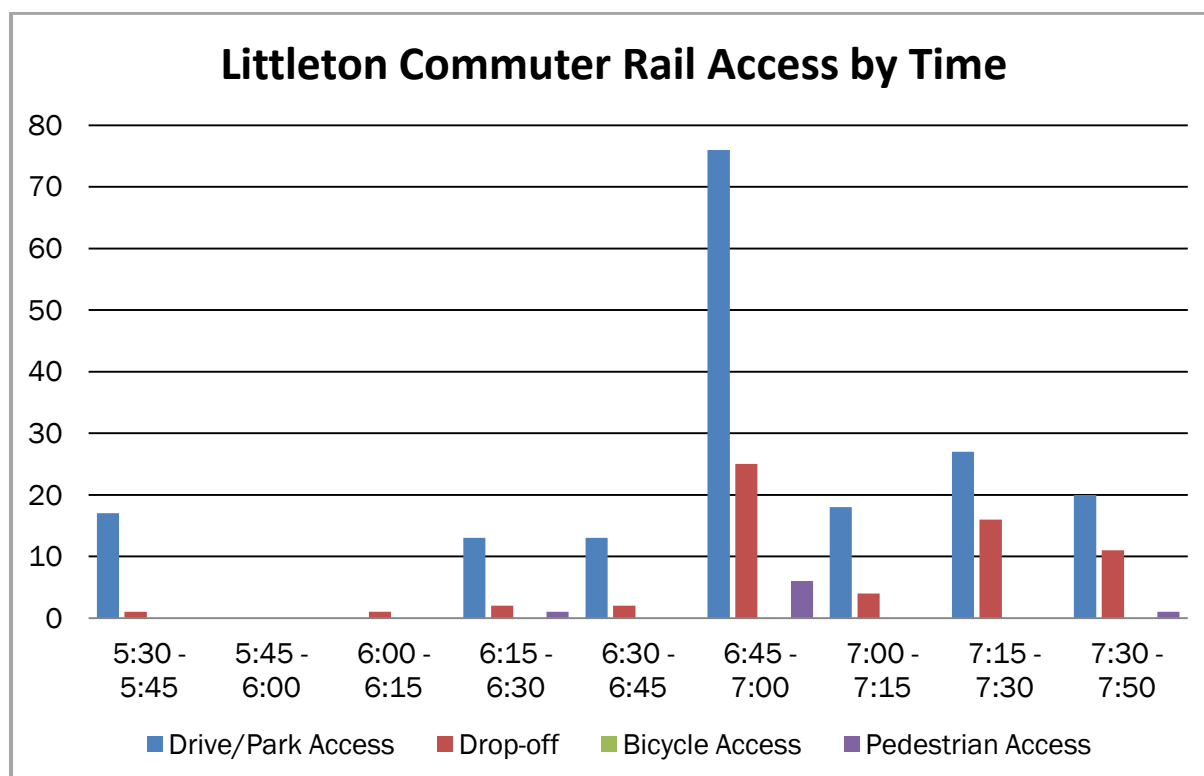
Type	Number
Unrestricted	185 (82 lower level, 103 upper level)
Electric Vehicle Charging	4
Handicap Only	6
<b>Total</b>	<b>195</b>

<sup>1</sup> Full schedule from mbta.com available in Appendix 1.

Cash and mobile phone payments are accepted at Littleton station at a rate of \$4 per day or \$70 for a monthly pass. In comparison, parking is free at Ayer station (the next station outbound), but there are only 30 spaces. There are nearly 300 spaces in South Acton (the next station inbound) where parking is only \$2.50 per day, but parking in South Acton regularly reaches capacity early in the peak period.<sup>2</sup> As mentioned above, the greater demand for parking in South Acton is likely due partly to the lower price for parking and partly to the greater frequency of service, and thus demand may shift now that Littleton and South Acton have equal frequency of service. Information on parking availability along the entire Fitchburg line is provided in Appendix 4.

## Parking Observations

A site visit was conducted at the Littleton commuter rail station on May 15, 2014. Data was collected during the weekday morning peak period of 5:30am – 7:50am (data collection predated the addition of the 8:50am inbound departure). Based on these observations, the peak period for both commuters arriving and parking and those being dropped off was 6:45am - 7:00am, immediately preceding the 7:00am departure. The parking lot was at 94% capacity (97% capacity excluding handicap-only spaces) by 7:50am, which suggests that riders hoping to take advantage of the new 8:50am departure would not be able to park at the station.



Source: MAPC observation, 5/15/14.

<sup>2</sup> As documented in the MAPC study of the South Acton commuter rail station conducted in 2012.



The large majority of commuters boarding the train at Littleton park at the station, as detailed below in Table 2. No bicyclists were observed arriving at the station, however there were two bicycles parked at the station on the day that data collection occurred. These results are similar to those reported in the 2008-09 MBTA Passenger Survey, which found that 79% of commuters arrived by private car, while 18% were dropped off, 3% walked, and none arrived by bicycle.

Table 3. Commuter Rail Access by Mode, MAPC Observations 5/15/14.

	Number	Percent of Total
Drive/Park	184	72.4%
Drop-off	62	24.4%
Bicycle	0	0%
Pedestrian	8	3.1%
<b>Total</b>	<b>254</b>	<b>100%</b>
Parking Utilization		94%
Parking Utilization of non-handicap spaces		97%

Informal observations from Town of Littleton staff found that parking utilization at or near capacity is a frequent occurrence at Littleton station, which has led to some creative, and often illegal, parking strategies by commuters. Vehicles have been observed parked in handicap spaces without a handicap placard, conventional vehicles have been observed parked in electric vehicle charging spaces, and there are approximately 10-15 additional spaces that have been improvised on grassy areas or in access lanes. The following figures show examples of these occurrences and the approximate location of these additional, unmarked spaces.

Figure 2. Vehicle parked in handicap space with no handicap placard. Source: MAPC.





Figure 3. Conventional vehicles parked in electric vehicle charging stations. Source: MAPC.



Figure 4. Location of Observed Vehicles in Unmarked Parking Spaces.



Figures 5 – 7. Cars parked on grass. Source: Keith Bergman.





Figure 8. Worn grass showing evidence of use as a parking space. Source: MAPC.



Figure 9. Car parked in access lane. Source: MAPC.

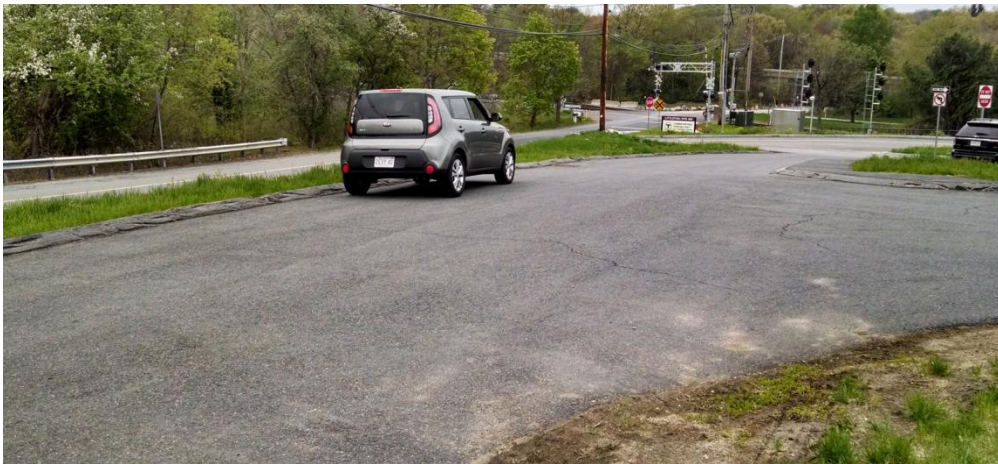
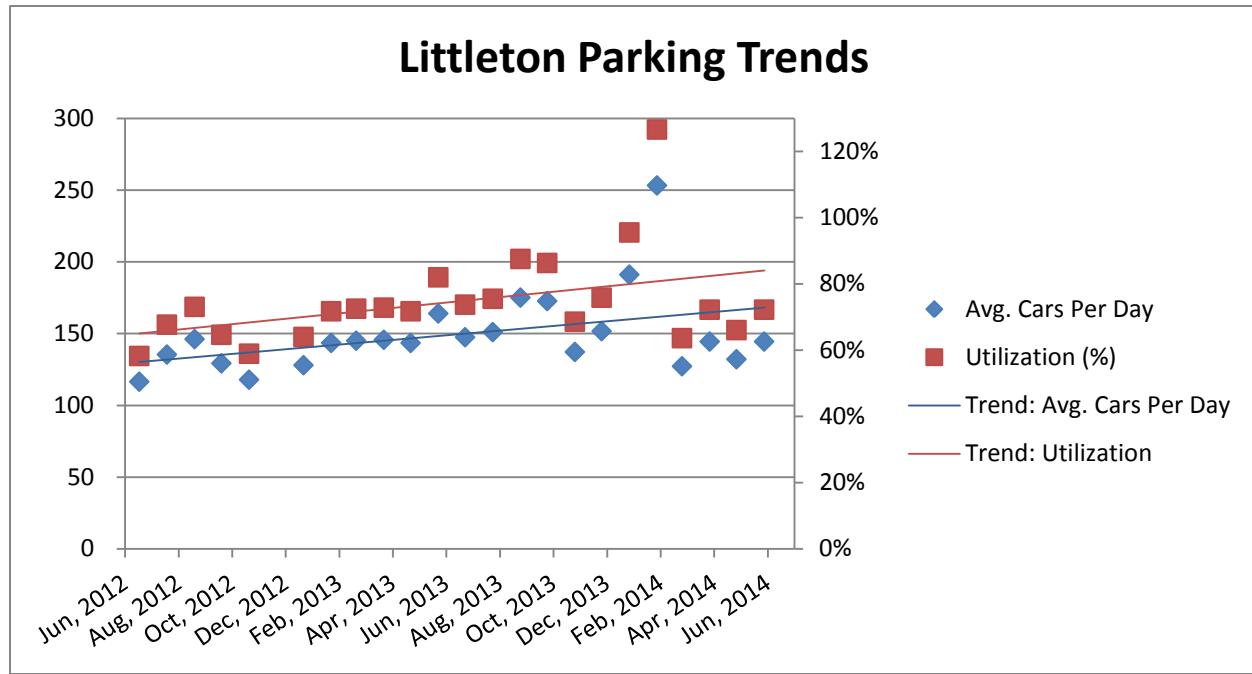


Figure 10. Cars parked on grass. Source: Keith Bergman.



These images, and the data collected by MAPC, are supported by revenue and utilization data supplied by the MBTA for parking at Littleton station. The following chart shows the increasing number of cars parking at Littleton station over the past two years, with utilization averaging 80% in fiscal 2014.



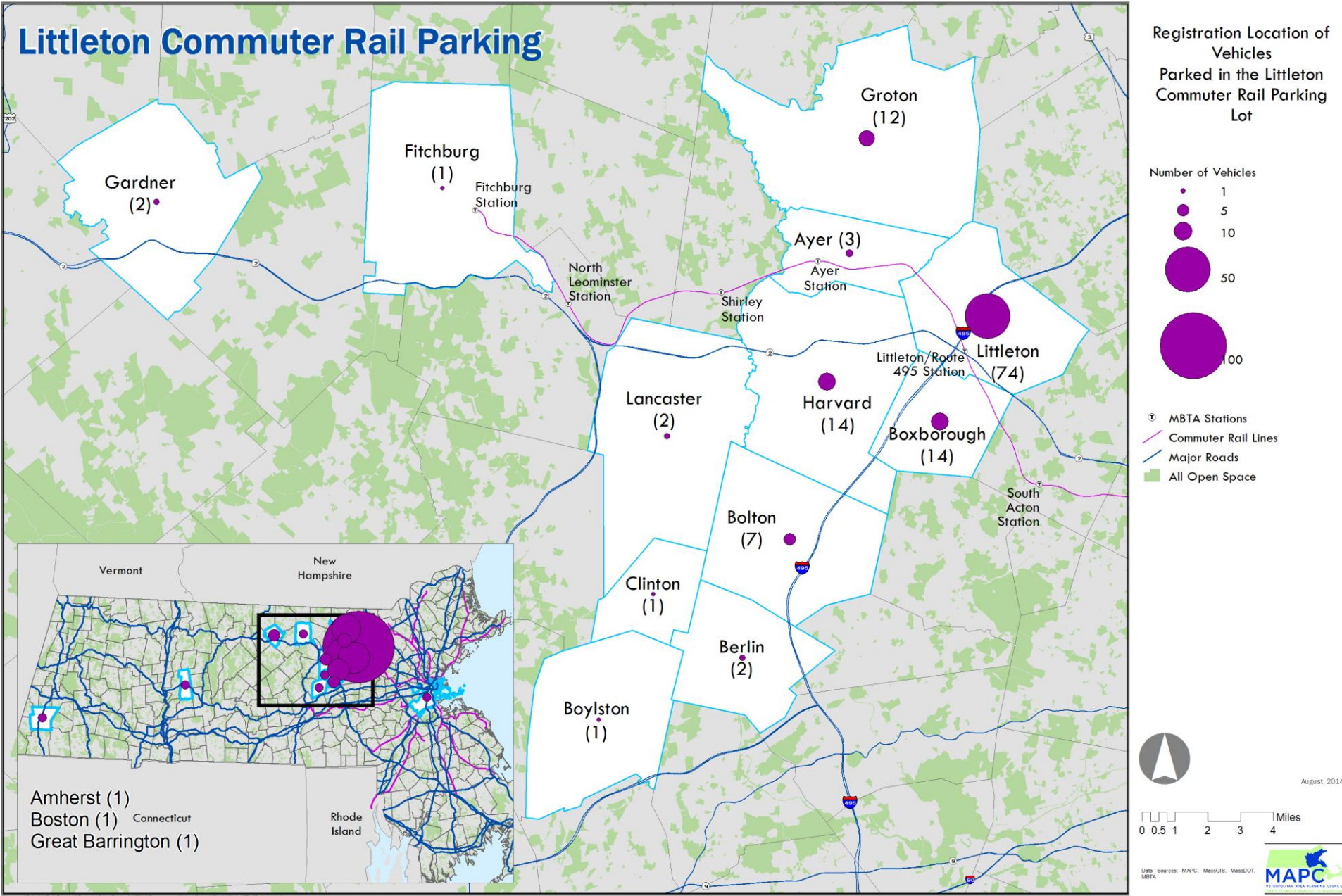
Source: Revenue and utilization information provided by MBTA.

Multiple sources of data demonstrate that demand for parking at Littleton station meets or exceeds current supply. With the recent expansion in service to include an additional peak period departure, the ridership demand at Littleton station is likely to grow. Accommodating the existing demand for commuter rail ridership and encouraging additional ridership are consistent with MetroFuture, MAPC's 30-year plan for the region, and the state's Mode Shift goal to triple the number of trips taken by transit, walking and biking by 2030. Accommodating current and future ridership demand will likely require efforts to both reduce demand for vehicle parking and increase vehicle parking supply.

Improving walking, biking, and transit access to the station can be an important tool for reducing parking demand. In order to investigate the viability of alternative mode access to Littleton station, MAPC did a license plate survey of vehicles parked at the station on May 15, 2014. The results are mapped in Figure 11, and show that 40.2% of parked vehicles are registered in Littleton, with an additional 7.6% arriving from both Boxborough and Harvard immediately to the south, and 6.5% from Groton immediately to the northwest. The distribution of origins of cars parked at Littleton station is fairly consistent with the 2008-09 MBTA Passenger Survey, which found that 51.4% of people who boarded at Littleton live in Littleton, along with a combined 43% from Boxborough, Groton, Harvard and Westford (detailed breakdown in Appendix 2).



Figure 11. Registration location of vehicles observed in the Littleton Commuter Rail Parking Lot on 5/15/14.



## Reduce Parking Demand: Provide Connected Shuttle Service

Providing a shuttle service to bring commuters to Littleton station could play a key role in managing parking demand. A shuttle could help alleviate parking demand by encouraging some commuters who currently drive to the station to take the shuttle instead, and a shuttle could also attract new riders who may be avoiding the commuter rail because of the lack of parking or the expense of parking. Potential operators of a commuter shuttle include the Lowell Regional Transit Authority, the Montachusett Regional Transit Authority, and the CrossTown Connect Transportation Management Association.

The Lowell Regional Transit Authority currently does not serve Littleton station. LRTA's Route 15 bus provides service to the IBM campus, but there is no other service in Littleton. The Town is a member of the Montachusett Regional Transit Authority (MART) which has one shuttle route from Fitchburg to Boston that stops at the Littleton commuter rail station. This shuttle is scheduled to stop at Littleton station at 8:05am and reach Boston at 9:10am (full route information is provided in Appendix 4). The next commuter rail inbound departure after the shuttle arrives is at 8:50am, arriving in Boston at 9:49am. Therefore the shuttle does not serve as a connector to the commuter rail, since riders would be able to reach Boston faster by remaining on the shuttle. MAPC observed the shuttle arriving at Littleton station at 8:26, which, despite being approximately twenty minutes late, may still get riders to Boston earlier than transferring to the train, depending on traffic.

In addition to regional transit authorities, privately-run transportation management associations (TMAs) provide transit service in many communities in the MAPC region. The Town of Littleton has joined the CrossTown Connect TMA, along with neighboring Acton, Boxborough, Concord, Stow, Westford, and Maynard. To date the only service offered in Littleton is central dispatching for Council on Aging vans. As noted above, 40% of the cars observed at Littleton station originated in Littleton, while an additional 7.6% originated in Boxborough, which is also a member of CrossTown Connect. A TMA shuttle serving Littleton residents, or both Littleton and Boxborough, could allow commuter rail ridership to grow while managing demand for parking.

The introduction of an earlier outbound arrival in Littleton increases the viability of a transit reverse commute, which would potentially attract interest from employers in the Littleton area in participating in a shuttle service. IBM, one of the larger employers in Littleton, is already a member of CrossTown Connect. If IBM has available parking capacity, the site could also serve as satellite parking for commuter rail riders. Cisco Systems in Boxborough is another potential partner for a reverse commute shuttle, and a Holiday Inn near Cisco Systems has expressed a willingness to provide satellite parking for commuters.

As a Transportation Management Association, CrossTown Connect could work with the Town of Littleton, the Town of Boxborough and major employers near Littleton station to develop a route that would bring commuters from satellite parking to the station, and bring reverse commuters from the station to their destination. TMA shuttles are often public-private partnerships, funded by contributions from employers as well as municipal funds or grants.

In order to be successful, the cost of riding a shuttle should be kept to a minimum, or be free if possible. The shuttle is unlikely to be an attractive option if the fare is not sufficiently lower than the



cost of parking at the station, currently \$4/day or \$70/month. Shuttle service to the South Acton commuter rail station is provided both for commuters parking in satellite lots, and for reverse commuters traveling to the Clock Tower Place development in Maynard. A pass including reserved parking at a satellite lot and shuttle fare is \$3 per day, \$40 per month, or \$250 per year. Shuttle fare only is \$1 per trip or \$200 per year<sup>3</sup>. However, parking at the South Acton station is only \$2.50 per day. This price disparity likely contributes to the situation that MAPC observed in a 2010 study: parking at the station was full by 7:10am and only one commuter was observed using the shuttle.

## Reduce Parking Demand: Increase Walking Trips to Station

In December 2013, Littleton adopted a Complete Streets policy that was ranked as the best in the nation by the advocacy group Smart Growth America. However, according to the 2010 *Boston Region's Pedestrian Transportation Plan*, only 11% of Littleton's main roads and 28% of local roads have sidewalks on at least one side.<sup>4</sup> Figure 13 (on the following page) shows the location of sidewalks in Littleton.

Despite the lack of sidewalks on the roads near Littleton station, some people do walk to the station. MAPC observed eight people arriving on foot, and the 2008-09 MBTA Passenger Survey also observed pedestrians accessing the station. With no sidewalks on Foster Street in either direction from the station, pedestrians were observed walking in the street, which is highly unsafe on such a narrow road.

Figure 12. Pedestrian approaching Littleton station. Source: MAPC.



The map in Figure 14 below shows the areas of Littleton that are within either a half-mile walk or a three-mile bike ride of the station. A half-mile walk takes approximately ten minutes, and is typically the distance where a significant number of people can be expected to choose to walk rather than drive. Providing continuous sidewalks within a mile of the station would reduce parking demand by encouraging more commuters to walk to the train, and would improve safety for those already walking.

<sup>3</sup> Source: <http://www.minutevan.net/Portals/28/Documents/MinutevanBrochurev-Rail%20Shuttle8-13-14.pdf>

<sup>4</sup> Main roads are defined as carrying through traffic and having limited access points, while local roads are defined as serving adjacent businesses and residential areas and having more access points.

Figure 13. Littleton Sidewalk Inventory. Data Source: MassGIS.

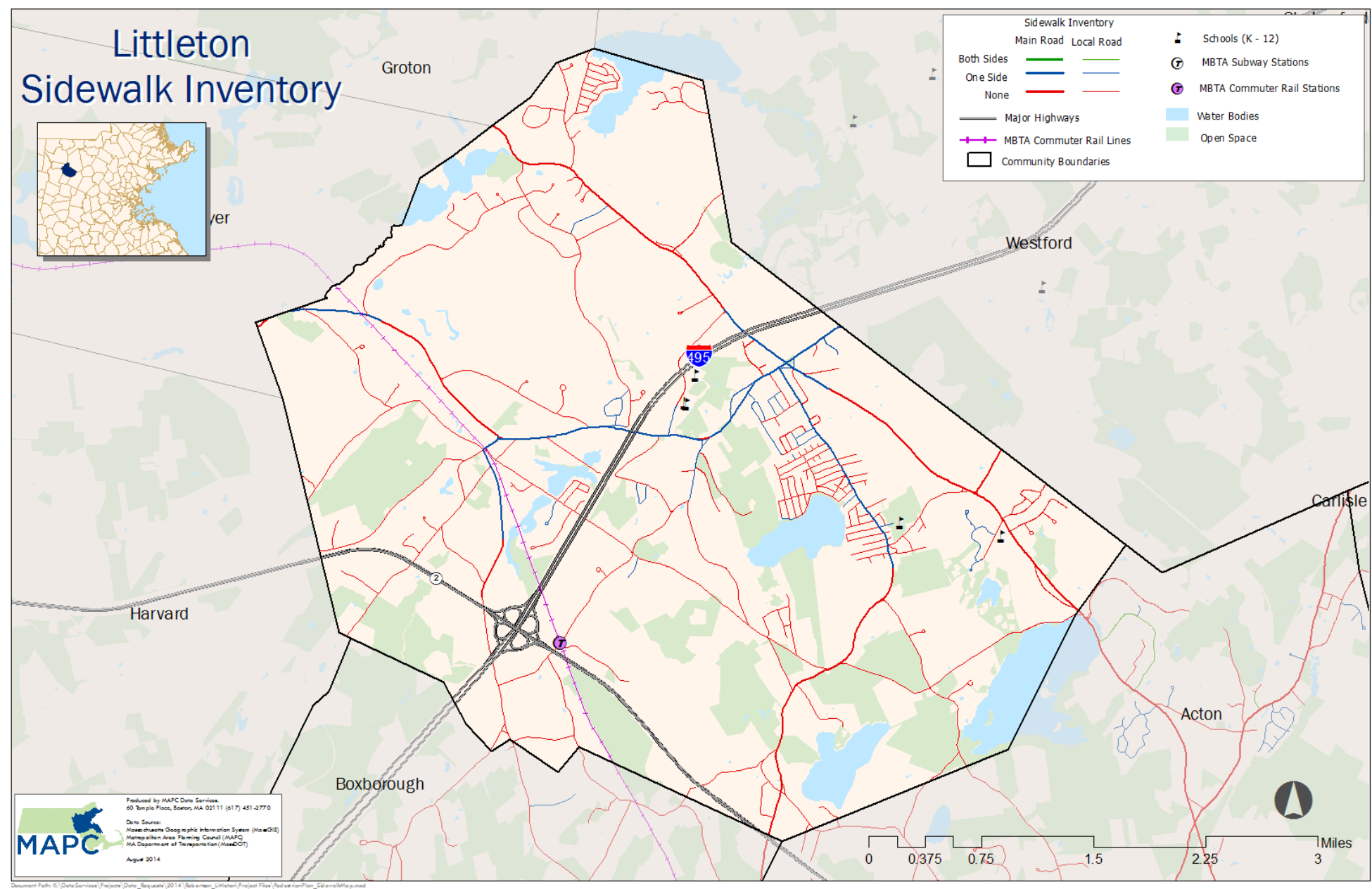
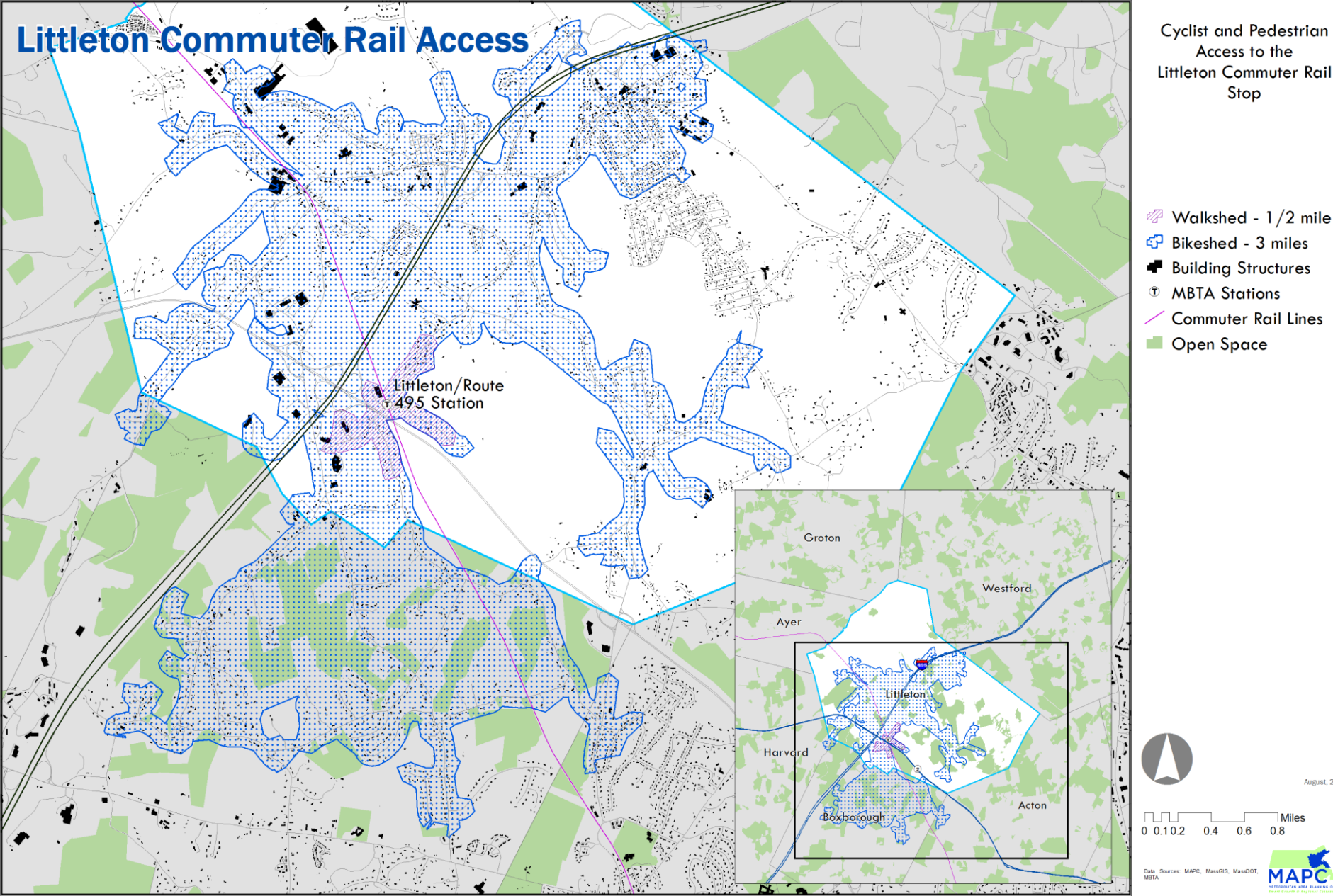




Figure 14. Half-mile Walkshed and 3-mile Bikedshed to Littleton station.



## Reduce Parking Demand: Increase Biking Trips to Station

Cycling is an increasingly popular mode of transportation in the Boston region, and other stations along the Fitchburg line have a significant number of riders arriving at the station by bicycle. The 2008-09 MBTA Systemwide Passenger Survey found 4% of riders boarding in Fitchburg arrived by bike, along with 1.8% of riders in South Acton, 1.9% in Lincoln, and 4.6% at Brandeis-Roberts. These numbers are almost certainly higher today, as overall bike ridership in the Boston region has increased since 2009, many communities have begun to provide bike facilities on local streets, and the MBTA has increased bike parking at stations.

Both the 2008-09 MBTA Passenger Survey and MAPC's 2014 data collection observed no bicyclists arriving at Littleton station (although MAPC observed two bicycles parked at the racks at the station). As Figure 13 above shows, significant portions of Littleton are within a three mile or approximately 12-15 minute bike ride of the station, which shows potential to increase the bicycle mode share, and thereby decrease demand for vehicle parking.

In South Acton, many commuter rail users opt to ride bicycles to the station. The station has multiple areas to secure bicycles – including rentable lockers and standard bicycle racks. The Bike & Ride locker program is run by the Town of Acton Planning Department and lockers can be rented at a cost of \$75 per year or \$10 per month. A 2010 MAPC study observed that despite a lack of bicycle lanes or paths in the area of the South Acton commuter rail station, 22 bicycles were parked at the regular racks, in addition to 37 out of 40 bicycle lockers being rented at the time of the study.

The South Acton example shows that providing high-quality bike parking can play a role in encouraging bicycle commuting. Figures 15 and 16 show the bike parking options at other suburban MBTA commuter rail stations.

Figure 15. Bike & Ride lockers at South Acton station. Source: MAPC.



Figure 16. Covered bike parking at Hersey Station on the Needham line. Source: Tad Staley.



## Options for Increased Parking Supply

In addition to efforts to reduce parking demand by promoting walking, biking and transit access to Littleton station, the high demand for parking, and the location where commuters can easily choose to drive all the way into Boston if no parking is available, justify exploration of whether and where additional parking could be created. The potential options for additional parking include:

- On-street parking
- 263 Foster Street
- 245 Foster Street
- 265 Foster Street
- 295/305 Foster Street
- Satellite parking elsewhere in Littleton
- Structured parking at the current MBTA parking lot

On-street parking is not a viable option for Littleton Station. Foster Street is 24 feet wide with a 2 foot shoulder on one side. This is not wide enough to add on-street parking; a minimum of 30 feet is required to fit parking on just one side. Even if there were adequate width on Foster Street, on-street parking would not add a large amount of capacity.

263 Foster Street is the parcel that was purchased by the MBTA in order to construct the existing parking lots. The current parking lots occupy the portion of the parcel along Foster Street; there is additional space further back along the rail line where the parking lots could be extended. This parcel has an obvious advantage in that it is already owned by the MBTA, however the construction costs at that site would be higher than the typical \$5,000 - \$10,000 per space cost to construct



Figure 17. Aerial view of 245 – 265 Foster Street parcels. Source: Littleton Public Maps Online.





surface parking. The site is steeply graded and has remnants of foundations of old buildings, both conditions that would necessitate expensive site work before the parcel could be paved for parking.

245 Foster Street is commonly called the Nordblom property. The owner of this parcel has expressed interest in selling it to the Town or the MBTA for development as a solar farm or parking for the commuter rail station. This parcel would also require some site work, as it is sloped and partially wooded, but it has strong advantages in that it is adjacent to the existing parking area and its owner is interested in selling. The Town of Littleton has assessed the property at \$1,523,900.

265 Foster Street is a commercial property located adjacent to the commuter rail tracks on the opposite side from the station entrance and parking. While the driveway of the property is connected to the station by a sidewalk (Figure 18), there is currently a sign at the entrance prohibiting commuter parking (Figure 19).

Figure 18. Sidewalk to 265 Foster St.  
Source: MAPC.



Figure 19. Commuter parking prohibited.  
Source: MAPC.



There is an area at the rear of the parcel, directly adjacent to the station platform, which is permitted for use by the current tenant for open and bulk storage of stone products. According to the Town of Littleton, the owner of the 265 Foster Street has not been interested in selling the property for use as commuter parking, and has recently leased to a new commercial tenant. However, if the use or ownership of the site changes in the future, this rear area would provide a convenient location for commuter parking. Permitting requirements for the Water Resource District would need to be met, which may necessitate Low Impact Development techniques to reduce surface water runoff. In addition, if the rear lot were to be converted to commuter parking, there would be a strong desire line for pedestrians to cross the tracks directly to the station, rather than walking out to Foster Street and back up to the platform. Figure 20 on the following page shows the proximity of the unpaved parking area to the commuter rail platform. Poor visibility and the raised station platform currently

make this an unsafe location to cross. A safe access point to the platform would need to be provided, or if that is impossible, a fence could be installed to prevent unsafe crossings.

Figure 20. Proximity of 265 Foster Street rear lot to tracks and station platform. Source: MAPC.



295, 300 and 305 Foster Street are commercial properties further southwest of the station on Foster Street, as shown in Figure 21 on the following page. They all have large parking areas, which may be underutilized by current tenants, and if so could allow for overflow commuter parking. 295 Foster Street would be the most advantageous site, as it has a very large parking lot and is closest to the station, on the same side of Foster Street. It is approximately 1/2 mile, or a 10 minute walk, from the middle of the 295 Foster Street parking lot to the entrance to Littleton Station. 305 Foster Street is approximately 1/10 mile further from Littleton Station, which would make it less advantageous than 295 Foster Street, but still potentially feasible for use as overflow commuter parking.

300 Foster Street is on the opposite side of the street from Littleton Station, and the bulk of the parking is located at the far corner of the site. It would be almost a mile to walk from the middle of the parking area to the station entrance; this is likely further than most commuters would want to walk, so 300 Foster Street is the least advantageous of the possible overflow sites on Foster Street. However, if a commuter shuttle is established, it could have a stop at 300 Foster Street and bring commuters the rest of the way to the station.

In order for any of these sites to be used for overflow commuter parking, a sidewalk or side path would need to be built on Foster Street between the parking area and the station. If 300 Foster Street is used, a crosswalk would also be needed. In addition, if overflow parking is developed at these or any other sites, it should be priced lower than the MBTA lot, or free, in order to be an attractive option.

Satellite parking options could also be explored elsewhere in Littleton. There are several commercial properties with large parking lots further southwest on Foster Street that are within walking distance of the station. If a commuter shuttle was established, satellite parking could be provided in other locations where there may be excess parking capacity on weekdays, such as IBM, the Holiday Inn in Boxborough, or the Saint Anne Catholic Church on King Street.



Figure 21. Aerial view of 295 – 305 Foster Street parcels. Source: Littleton Public Maps Online.





Finally, another option to increase parking capacity is to construct structured parking at the site of the existing commuter parking lots. However, structured parking is quite expensive to build at \$20,000 - \$50,000 per space, and has ongoing maintenance costs much higher than surface parking. Beyond the financial challenges of constructing and maintaining surface parking, there is also a political challenge in that MBTA constructed the existing lots very recently and would be unlikely to tear them up to build a parking structure in the near future. Furthermore, MBTA officials have informally indicated to MAPC that in general there is little desire from the MBTA to build new structured parking.

## Recommendations

Recommendations for accommodating current and future commuter rail ridership demand at Littleton station fall into two categories: strategies to reduce parking demand, and to increase parking supply.

### Recommendations to Reduce Parking Demand

1. **Partner with CrossTown Connect to offer a shuttle connecting Littleton residents to the commuter rail station.** The 7:00, 7:24 and 7:45am departures had the largest number of riders and should be prioritized in any future shuttle service. Shuttle service should be free or significantly less expensive than parking at Littleton station. Work with local employers including IBM to offer reverse commute shuttle service.

**Partners:** CrossTown Connect, employers, neighboring municipalities

**Next Steps:** Identify private-sector partners willing to contribute to a shuttle service. Conduct a detailed study to examine the routes and stops that would maximize ridership, and the cost of providing such a service.

2. **Build a sidewalk or side path along Foster Street.** While Littleton's densest residential areas are a beyond a ten-minute walking distance from Littleton station, there are residents who would benefit from a safe and comfortable walking route to the station, and some might switch from driving to walking. In addition to potentially easing demand for parking, a sidewalk or side path along Foster Street would greatly improve safety for those who are currently walking to the station.

**Next Steps:** Examine right of way along Foster Street and begin design and permitting for a sidewalk or side path. Utilize Chapter 90 funds or seek dedicated or MPO or grant funding.

3. **Work with the MBTA to provide covered or secure bike parking at Littleton station.** The MBTA has provided enhanced bike parking at a number of commuter rail stations, while at other stations the local municipality has provided bike parking equipment that is located on MBTA property. If the Town wishes to purchase bike parking, MAPC's Regional Bike Parking Program provides a pre-selected list of bike parking options at 20% - 40% discounts. More information is available at <http://www.mapc.org/resources/regional-bike-parking>.

**Partners:** MBTA, MAPC



**Next Steps:** Determine if MBTA is likely to upgrade bike parking; if not, secure local funding and purchase through MAPC.

4. **Install bike facilities on Foster Street and other streets within 3-5 miles of Littleton station.** Facilities could range from shared lane markings (“sharrows”) painted in the travel lane, to side paths wide enough to comfortably accommodate both cyclists and pedestrians.

**Next Steps:** Conduct a bike planning study to determine which routes to prioritize and what types of bike facilities are feasible given the width of the public right of way.

#### Recommendations to Increase Parking Supply

1. **Examine the feasibility of expanding parking on the MBTA-owned parcel where parking currently exists, 263 Foster Street.** While developing additional parking directly adjacent to Littleton station is of course the most desirable option, developing this parcel would require significant site work, and the MBTA may not be interested in investing more of its own resources at Littleton station, given all of the recent improvements. However, it is an option worth exploring, and the Town should also explore alternate sources of funding.

**Partners:** MBTA

**Next Steps:** Hire an engineering firm to determine the cost of developing parking on this parcel; reach out to the MBTA to investigate the likelihood of additional investment in Littleton.

2. **Determine the cost and feasibility of constructing new parking at 245 Foster Street.** 245 Foster Street is directly adjacent to existing commuter parking, and its owner has expressed interest in selling to the Town or the MBTA. The Town of Littleton would likely need to lead the development of this parcel, as the MBTA would likely expand parking on the parcel it already owns if it is able to invest more resources at Littleton station. However, the Town could charge parking rates slightly less than or equal to the rates charged at the MBTA lot, which would generate revenue for ongoing maintenance and possibly even to repay a portion of land acquisition and construction costs.

**Partners:** Property owner of 245 Foster Street

**Next Steps:** Hire an engineering firm to determine the cost of developing parking on this parcel; allocate local resources or seek grant funding.

3. **Explore options for providing overflow commuter parking at the commercial properties southwest of the station along Foster Street.** If overflow parking is developed at 295, 300, or 305 Foster Street, parking should be free or significantly less expensive than parking at Littleton station, as these sites are a 10-15 minute walk from the station. If satellite parking is provided at these sites, a sidewalk or side path should also be constructed along Foster Street linking them to the station.

**Partners:** Property owners and commercial tenants of 295, 300, and/or 305 Foster Street

**Next Steps:** Reach out to property owners to gauge interest and determine if there is available parking capacity.

4. **Explore options for providing satellite commuter parking at other locations in the area**, such as IBM, the Holiday Inn in Boxborough, or the Saint Anne Catholic Church. If a commuter rail shuttle service is introduced in Littleton it would be possible to offer satellite parking at other locations in the area. Locations should be selected that have unused parking capacity on weekdays between 6:00am and 7:30pm. Options to compensate property owners could include a lease payment from the Town, or a parking fee for commuters. However, in order to be an attractive option the combined cost of satellite parking and the shuttle fare should be significantly less than \$4, the cost of parking at the station.

**Partners:** Property owners and tenants (if applicable) of sites identified.

**Next Steps:** Determine sites in Littleton that currently have excess weekday parking; reach out to property owners.

5. **Monitor the status of 265 Foster Street, the parcel directly adjacent to the commuter rail station.** While the current owner is not interested in selling or leasing the parcel for commuter parking, and the current tenant is utilizing the potential parking area on the site, it is possible that conditions could change in the future. If so, the proximity of the site would allow parking fees for commuters similar to rates charged by the MBTA at the existing lot. Parking could be controlled by the landowner, who would receive any revenue, or the Town could buy or lease the parking area and use parking revenue to offset the cost. However, in the event that the rear section of the 265 Foster Street parcel is developed for commuter parking, a safe access point should be constructed to allow commuters direct access to the platform, or a fence should be installed to prevent pedestrians from crossing the tracks at an unsafe location.

**Partners:** Owner of 265 Foster Street, tenants of 265 Foster Street

**Next Steps:** Monitor status of 265 Foster Street.

## Appendix 1: Fitchburg Line Commuter Rail Schedule

Fitchburg/South Acton Line - North Station : Weekday Effective 08/04/14

Train Number	400 AM	402 AM	404 AM	406 AM	408 AM	452 AM	454 AM	414 AM	416 AM	418 PM	420 PM	456 PM	458 PM	426 PM	428 PM	430 PM	432 PM
Fitchburg	05:15	06:00	06:30	06:55	07:15			10:35	11:50	12:50	03:05			06:52	07:40	08:25	10:30
North Leominster	05:22	06:07	06:37	07:02	07:22			10:42	11:57	12:59	03:14			07:01	07:47	08:32	10:38
Shirley	05:29	06:15	06:44	07:09	07:30			10:49F	12:04F	01:06	03:21			07:08	07:54F	08:40	10:46F
Ayer	05:34	06:21	06:51	07:15	07:36			10:54F	12:09	01:11	03:26			07:13	07:59	08:44	10:50
Littleton / Rte 495	05:43	06:30	07:00	07:24	07:45	08:50	09:51	11:02	12:17	01:19F	03:34F	03:55	05:20	07:26	08:07F	08:54	10:58F
South Acton	05:51	06:38	07:08	07:32	07:53	08:58	09:59	11:10	12:25	01:27	03:42	04:03	05:28	07:32	08:15	09:01	11:05
West Concord	05:56	06:43		07:37	07:58	09:03	10:04	11:15	12:30	01:32	03:47	04:08	05:33	07:40	08:20	09:06	11:11
Concord	06:02	06:49		07:44	08:04	09:09	10:10	11:21	12:36	01:38	03:53	04:14	05:38	07:46	08:26	09:12	11:17
Lincoln	06:08	06:55		07:50	08:10	09:15	10:16	11:27F	12:42F	01:44	03:59	04:20	05:44	07:52F	08:32	09:18	11:21
Silver Hill		06:58			08:13												
Hastings	06:12	07:00			08:15		10:19F	11:31F									
Kendal Green	06:14	07:02			08:17	09:19	10:21F	11:33F		01:50	04:05	04:24	05:48	07:58	08:38F	09:24F	11:26F
Brandeis/ Roberts	06:17	07:06			08:21	09:22	10:24	11:36F	12:50	01:53	04:08	04:27	05:51	08:01	08:41	09:27F	11:30
Waltham	06:22	07:10		08:00	08:25	09:26	10:28	11:40	12:55	01:57	04:12	04:31	05:55	08:05	08:45	09:31	11:33
Waverley	06:27	07:15			08:30	09:31	10:33F	11:45F				04:36	06:00			09:36F	
Belmont	06:30	07:17		08:07F	08:32	09:33	10:35F	11:47F	01:00F	02:02F	04:16F	04:38F	06:02F	08:11		09:38F	
Porter Square	06:36	07:23	07:40	08:12	08:38	09:38	10:40	11:52	01:05	02:07	04:22	04:43	06:07	08:16	08:54	09:43	11:42
North Station	06:47	07:34	07:50	08:23	08:49	09:49	10:51	12:03	01:16	02:18	04:33	04:54	06:18	08:27	09:05	09:54	11:53

Fitchburg/South Acton Line - Fitchburg : Weekday Effective 08/04/14

Train Number	451 AM	453 AM	405 AM	407 AM	409 AM	411 PM	455 PM	457 PM	417 PM	419 PM	421 PM	423 PM	425 PM	427 PM	429 PM	431 PM	433 AM
North Station	07:32	08:40	08:55	09:55	11:00	01:15	02:30	04:00	04:30	05:05	05:30	05:50	06:20	07:50	08:45	10:45	12:10
Porter Square	07:42	08:50	09:05	10:05	11:10	01:25	02:40	04:10	04:40	05:15	05:40	06:00	06:30	08:00	08:56	10:56	12:20
Belmont	07:47F	08:55		10:10F		01:30F	02:45F	04:15F		05:20		06:05	06:35	08:05F	09:01F	11:01F	12:25F
Waverley	07:49F	08:57		10:12F			02:47F	04:17F		05:22		06:07	06:37	08:07F	09:03F	11:03F	12:27F
Waltham	07:55	09:03	09:15	10:16	11:20	01:37	02:53	04:23		05:28	05:52	06:13	06:43	08:13	09:08	11:08	12:33
Brandeis/ Roberts	07:59F	09:08	09:19	10:21	11:25	01:41	02:57	04:27F		05:32		06:18	06:48	08:18	09:12	11:12	12:37
Kendal Green	08:02		09:22	10:24F	11:28F	01:44F	03:00F	04:30F		05:35		06:20	06:50	08:21F	09:16F	11:16F	12:40F
Hastings				10:26F	11:30F			04:32F		05:37F		06:22F		08:23F			
Silver Hill												06:24	06:53	08:25			
Lincoln	08:09F		09:29	10:30F	11:34F	01:50F	03:07F	04:38		05:43	06:04	06:30	06:59	08:28F	09:21F	11:21F	12:46F
Concord	08:15F	09:19	09:35	10:36	11:40	01:56	03:13	04:44		05:49	06:10	06:36	07:05	08:34	09:26	11:26	12:51
West Concord	08:21	09:25		10:42F	11:46	02:02	03:19	04:50		05:55	06:16	06:42	07:11	08:40	09:31	11:31F	12:55F
South Acton	08:29	09:32	09:42	10:48	11:52	02:08	03:27	04:58	05:12	06:02	06:23	06:49	07:18	08:47	09:37	11:37	01:01
Littleton / Rte 495	08:37	09:40		10:56F	12:00F	02:15	03:35	05:05	05:19	06:09	06:30	06:56	07:25	08:54	09:44	11:44F	01:08F
Ayer			09:58	11:04	12:08	02:23			05:27	06:17	06:38	07:04	07:33	09:03	09:53	11:53	01:17
Shirley			10:03	11:09F	12:13	02:28			05:32	06:22	06:43	07:09	07:38	09:08	09:58	11:58F	01:22F
North Leominster			10:09	11:16	12:20	02:35			05:39	06:29	06:50	07:16	07:45	09:15	10:05	12:05	01:29
Fitchburg			10:21	11:28	12:32	02:49			05:49	06:39	07:02	07:28	07:55	09:25	10:15	12:15	01:39



## Appendix 1: 2008-9 MBTA Systemwide Passenger Survey Excerpts

### **MBTA Surveys: 2008-09** *Commuter Rail Survey*

#### ***Trip Purpose, Reasons for Using the MBTA, and Alternative Means***

Expanded Results

**Fitchburg Line**  
Entry Station: Littleton/Route 495

<b>Trip Purpose:</b>	Number of Riders	Percent of Riders	Cumulative Percentage
Home-based Work	155	95.3%	95.3%
Home-based School	5	3.3%	98.6%
Home-based Shopping	0	0.0%	98.6%
Home-based Social Activity	0	0.0%	98.6%
Home-based Personal Business	0	0.0%	98.6%
Home-based Work-related	0	0.0%	98.6%
Home-based Other	0	0.0%	98.6%
Work-based	0	0.0%	98.6%
Non-Home/Non-Work-based	2	1.4%	100.0%
<b>TOTAL</b>	<b>163</b>		
No Answer	3		

<b>Reasons for Using the MBTA:</b>	Number of Riders	Percent of Riders*
Convenience	55	33.2%
Speed/travel time	37	22.4%
Avoid driving/traffic	151	91.1%
Avoid parking at destination	80	48.1%
Environmentally responsible	99	59.8%
Less expensive	37	22.4%
Can read/do work	112	67.3%
Only transportation available	5	3.2%
Other	3	1.9%
<b>TOTAL RIDERS GIVING AT LEAST 1 REASON:</b>	<b>166</b>	

<b>Use Other Mode to Make Same Trip?</b>	Number of Riders	Percent of Riders	<b>Other Modes Reported by Riders Who Checked "Yes":</b>	Number of Riders	Percent of Riders*
Yes	74	45.7%	Drive alone	53	85.0%
No	88	54.3%	Non-MBTA bus	0	0.0%
<b>TOTAL</b>	<b>163</b>	<b>100.0%</b>	Carpool/vanpool	6	10.0%
No answer	3		Bicycle	0	0.0%
			Other MBTA service	6	10.0%
			Other	0	0.0%
			<b>TOTAL RIDERS GIVING AT LEAST 1 OTHER MODE:</b>	<b>62</b>	
			(No other modes reported)	12	

*\*Note: Percentages may total to more than 100 because of multiple choices checked.*

**Origin Locations and Activities**

Expanded Results

**Fitchburg Line**

Entry Station: Littleton/Route 495

ORIGIN LOCATIONS				ORIGIN ACTIVITIES							
City/Neighborhood Origins	Total Riders	Pct. of Riders	No Resp.	Home	School	Work	Store	Pers. Bus.	Work- rel.	Social/ Rec.	Other
Littleton	85	51.4%		97.3%							2.7%
Boxborough	22	13.1%		100.0%							
Groton	19	11.2%		100.0%							
Harvard	15	9.4%		100.0%							
Westford	15	9.4%		100.0%							
Clinton	3	1.9%		100.0%							
Hudson	3	1.9%		100.0%							
Oxford	3	1.9%		100.0%							
Other (< 0.5 % of riders)	0	0.0%									
OVERALL TOTAL	166	100.0%		98.6%							1.4%

Note: Totals shown may differ from column total because of rounding.

**T MBTA Surveys: 2008-09**  
**Commuter Rail Survey**

**Access to the Commuter Rail System**  
Expanded Results

**Fitchburg Line**  
Entry Station: Littleton/Route 495

**Access Mode:**

	Number of Riders	Percent of Riders
Walk Access	5	3.2%
Drive/Park Access	130	78.6%
Drop-off Access	30	18.2%
Taxi Access	0	0.0%
Shuttle/Van Access	0	0.0%
Bicycle Access	0	0.0%
Other Access	0	0.0%
Total Private Trans.	166	100.0%
MBTA Bus	0	0.0%
Other Bus	0	0.0%
Rapid Transit	0	0.0%
Boat	0	0.0%
Other	0	0.0%
Total Public Trans.	0	0.0%
TOTAL	166	100.0%
No Answer	0	

**Wait Time at Board Station:**

	Number of Riders	Percent of Riders	Cumulative Percent
0-1 minute	3	1.9%	1.9%
2-4	12	7.5%	9.4%
5-7	25	15.0%	24.3%
8-10	39	23.8%	48.1%
11-15	15	8.9%	57.0%
16-20	31	18.7%	75.7%
Over 20	40	24.3%	100.0%
TOTAL	166	100.0%	100.0%
No Answer	0		
Avg. Wait Time (min)		15.8	

**Trip time from trip origin to station by private transportation:**

	WALK		DRIVE/PARK		DROP-OFF		OTHER		TOTAL	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0-5 minutes	0	0.0%	31	24.4%	15	48.6%			46	28.5%
6-10	3	100.0%	53	41.5%	12	41.1%			68	42.5%
11-15	0	0.0%	28	22.0%	0	0.0%			28	17.4%
16-20	0	0.0%	9	7.3%	3	10.3%	(No responses)		12	7.7%
21-30	0	0.0%	3	2.4%	0	0.0%			3	1.9%
31-45	0	0.0%	3	2.4%	0	0.0%			3	1.9%
Over 45	0	0.0%	0	0.0%	0	0.0%			0	0.0%
TOTAL	3	100.0%	127	100.0%	30	100.0%			160	100.0%
No Answer	2		3		0				5	
Avg. Time (min)		6.0		10.7		7.9				10.1





# MBTA Surveys: 2008-09

## Commuter Rail Survey

### Egress from the Commuter Rail System

Expanded Results

Fitchburg Line

Exit Station: Littleton/Route 495

#### Egress Mode:

	Number of Riders	Percent of Riders
Walk Egress	10	100.0%
Drive/Park Egress	0	0.0%
Pick-up Egress	0	0.0%
Taxi Egress	0	0.0%
Shuttle/Van Egress	0	0.0%
Bicycle Egress	0	0.0%
Other Egress	0	0.0%
Total Private Trans.	10	100.0%
MBTA Bus	0	0.0%
Other Bus	0	0.0%
Rapid Transit	0	0.0%
Commuter Rail	0	0.0%
Boat	0	0.0%
Other	0	0.0%
Total Public Trans.	0	0.0%
TOTAL	10	100.0%
No Answer	0	

#### Trip time from station to trip destination by private transportation:

	WALK		DRIVE/PARK		PICK-UP		OTHER		TOTAL	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0-5 minutes	10	100.0%							10	100.0%
6-10	0	0.0%							0	0.0%
11-15	0	0.0%							0	0.0%
16-20	0	0.0%	(No responses)		(No responses)		(No responses)		0	0.0%
21-30	0	0.0%							0	0.0%
31-45	0	0.0%							0	0.0%
Over 45	0	0.0%							0	0.0%
TOTAL	10	100.0%							10	100.0%
No Answer	0								0	
Avg. Time (min)		5.0								5.0



***MBTA Surveys: 2008-09***  
***Commuter Rail Survey***

***Destination Locations and Activities***

Expanded Results

**Fitchburg Line**

Exit Station: Littleton/Route 495

DESTINATION LOCATIONS				DESTINATION ACTIVITIES							
City/Neighborhood Destinations	Total Riders	Pct. of Riders	No Resp.	Home	School	Work	Store	Pers. Bus.	Work- rel.	Social/ Rec.	Other
Littleton	10	100.0%				100.0%					
Other (< 0.5 % of riders)	0	0.0%									
OVERALL TOTAL	10	100.0%				100.0%					

Note: Totals shown may differ from column total because of rounding.



# MBTA Surveys: 2008-09

## Commuter Rail Survey

### Origin-Destination Cross-tabulation

Expanded Results

**Fitchburg Line**

Entry Station: Littleton/Route 495

#### Destination Town/Neighborhood:

Origin Town/ Neighborhood:	Cambridge : Kendall/MIT	Boston: Financial/R etail	Cambridge: : Central Square	Boston: Park Square	Cambridge: : Harvard Square	Boston: Govt Center	Boston: Longwood Med Area	Boston: Beacon Hill	Boston: Fenway	Boston: Back Bay	Other & % of Row	Row Total & % of Overall
Littleton	9	22	3	8	12	9	6	3	3	3	2	85
											2.7%	51.4%
Boxborough	9	3	3	3	0	0	3	0	0	0	0	22
											0.0%	13.1%
Groton	3	0	6	3	0	0	0	0	0	0	6	19
											33.3%	11.2%
Westford	3	3	0	0	0	0	0	0	0	0	9	15
											60.0%	9.4%
Harvard	6	0	3	3	3	0	0	0	0	0	0	15
											0.0%	9.4%
Oxford	0	0	3	0	0	0	0	0	0	0	0	3
											0.0%	1.9%
Hudson	0	0	0	0	0	3	0	0	0	0	0	3
											0.0%	1.9%
Clinton	0	0	0	0	0	0	0	0	0	0	3	3
											100.0%	1.9%
Column Total & % of Overall	31	28	19	18	15	12	9	3	3	3	21	166
	18.7%	16.8%	11.2%	10.7%	9.4%	7.5%	5.6%	1.9%	1.9%	1.9%	12.6%	



**Socioeconomic Characteristics**

Expanded Results

**Fitchburg Line**

Entry Station: Littleton/Route 495

**Age of Riders:**

	Number of Riders	Percent of Riders	Cumulative Percentage
18 and Under	0	0.0%	0.0%
19 - 24	8	5.2%	5.2%
25 - 34	15	9.5%	14.7%
35 - 44	34	21.0%	35.7%
45 - 64	98	60.5%	96.2%
65 and Older	6	3.8%	100.0%
TOTAL	163	100.0%	100.0%
No Answer	3		

**Gender of Riders:**

	Number of Riders	Percent of Riders
Male	88	56.4%
Female	68	43.6%
Transgender	0	0.0%
TOTAL	156	100.0%
No Answer	9	

**Annual Household Income of Riders:**

	Number of Riders	Percent of Riders	Cumulative Percentage
Under \$20,000	0	0.0%	0.0%
\$20,000 - \$29,999	3	2.2%	2.2%
\$30,000 - \$39,999	0	0.0%	2.2%
\$40,000 - \$49,999	8	6.0%	8.2%
\$50,000 - \$59,999	3	2.2%	10.4%
\$60,000 - \$74,999	9	6.6%	16.9%
\$75,000 - \$99,999	19	13.1%	30.0%
\$100,000 or more	99	70.0%	100.0%
TOTAL	142	100.0%	100.0%
No Answer	24		

Mean Household Size: 2.86



## ***MBTA Surveys: 2008-09***

### ***Commuter Rail Survey***

#### ***Ethnicity of Riders***

Expanded Results

#### **Fitchburg Line**

Entry Station: Littleton/Route 495

##### **Self-Identified Race:**

American Indian/Alaskan Native  
Black or African-American  
Native Hawaiian or Other Pacific Islander  
Asian  
White  
Other

TOTAL

Number of  
Responses

Percent of  
Responses

0  
0  
0  
9  
150  
0

0.0%  
0.0%  
0.0%  
5.8%  
94.2%  
0.0%

159 100.0%

Note: Responders were allowed to check more than 1 box; percentages shown represent fractions of total responses.

##### **Are You Hispanic/Latino?:**

Yes  
No  
TOTAL  
No Answer

Number of  
Responses

Percent of  
Responses

3  
150  
153  
12

2.0%  
98.0%  
100.0%



# MBTA Surveys: 2008-09

## Commuter Rail Survey

### Usage Rates and Fare Types

Expanded Results

Fitchburg Line

Entry Station: Littleton/Route 495

Number of Days per Week Riders Use the Service:	Number of Riders	Percent of Riders	Cumulative Percentage
Less than One	3	1.9%	1.9%
One Day	0	0.0%	1.9%
Two Days	6	3.8%	5.7%
Three Days	3	1.9%	7.6%
Four Days	22	13.3%	21.0%
Five Days	126	77.6%	98.6%
Six Days	0	0.0%	98.6%
Seven Days	0	0.0%	98.6%
Only Visiting	2	1.4%	100.0%
TOTAL	163	100.0%	100.0%
No Answer	3		

Weekend Usage:	Sunday Usage*				Saturday Total
Saturday Usage*	Regularly	Occasionally	Not at All	No Answer	
Regularly	0 0.0%	0 0.0%	0 0.0%	0	0 0.0%
Occasionally	0 0.0%	43 27.8%	0 0.0%	9	43 27.8%
Not at all	0 0.0%	3 2.0%	108 70.2%	0	111 72.2%
No Answer	0	0	0	3	
Sunday Total	0 0.0%	46 29.8%	108 70.2%		153 *

\* Totals and percentages reflect only riders who responded to both Saturday and Sunday questions.

### Usage Rates by Fare Type:

Fare Payment Type	Number of Riders	Percent of Riders	Avg. No. of Days Line Used/Wk.
Adult full fare	11	6.5%	3.0
Family fare	0	0.0%	0.0
Monthly pass	130	78.6%	4.9
12-ride ticket	22	13.1%	3.6
Senior citizen half fare	0	0.0%	0.0
Student half fare	0	0.0%	0.0
Blind Access Card	0	0.0%	0.0
10-ride half fare ticket	3	1.9%	5.0
Disability half fare	0	0.0%	0.0
Child under age 12 free fare	0	0.0%	0.0
Other	0	0.0%	0.0
All Payment Types	166	100.0%	

### Zones Reported by Users of Zone Passes:

Zone	Number of Riders	Percent of Riders
1A	0	0.0%
1	0	0.0%
2	3	1.9%
3	0	0.0%
4	0	0.0%
5	0	0.0%
6	0	0.0%
7	118	71.1%
8	6	3.7%
Interzone	3	1.9%
No Zone Selected	0	0.0%
Total Riders Using Zone Passes	130	78.6%



**Vehicle Availability**

Expanded Results

**Fitchburg Line**

Entry Station: Littleton/Route 495

**Licensed Drivers:**

	Number of Riders	Percent of Riders
Licensed	163	100.0%
Not Licensed	0	0.0%
TOTAL	163	100.0%
No Answer	3	

**Usable Vehicles per Household:**

	Number of Riders	Percent of Riders
No vehicles	0	0.0%
1 vehicle	28	17.2%
2 vehicles	88	54.3%
3 or more vehicles	46	28.6%
TOTAL	163	100.0%
No Answer	3	

**Was a Household Vehicle Available to Rider?:**

	Number of Riders	Percent of Riders
Yes	142	92.5%
No	12	7.5%
TOTAL	153	100.0%
No Answer	12	

**Vehicles Owned per Capita:**

	Number of Riders	Percent of Riders	Cumulative Percentage
No vehicles	0	0.0%	0.0%
0.01 to 0.49 vehicles	15	9.7%	9.7%
0.50 to 0.99 vehicles	67	41.7%	51.4%
1.00 to 1.49 vehicles	62	38.9%	90.3%
1.50 to 1.99 vehicles	12	7.8%	98.1%
2 or more vehicles	3	1.9%	100.0%
TOTAL RESPONSES	159		

**Service Quality**

Expanded Results

**Fitchburg Line**

Entry Station: Littleton/Route 495

Service Quality	Mean	1 (Poor)	2	3 (Average)	4	5 (Excellent)	Total	No Response	Importance*
Reliability (on-time performance)	2.8	13.3%	24.7%	30.3%	27.9%	3.8%	163	2	91
Safety and security	3.6	5.7%	1.9%	30.3%	49.3%	12.8%	163	2	30
Cleanliness/condition of vehicles	2.9	13.3%	15.2%	45.5%	24.1%	1.9%	163	2	15
Courtesy of train crews	3.7	5.7%	1.9%	26.5%	45.5%	20.4%	163	2	3
Announcement of stations	2.9	11.4%	20.9%	41.7%	20.9%	5.2%	163	2	6
Availability of seating on trains	3.2	5.7%	17.1%	32.2%	39.3%	5.7%	163	2	24
Frequency of service	2.8	9.5%	26.5%	37.4%	24.7%	1.9%	163	2	67
Travel time/speed	2.9	9.5%	19.0%	45.5%	22.3%	3.8%	163	2	12
Parking availability	2.0	49.0%	23.5%	11.8%	11.8%	3.9%	158	8	28
Station amenities	2.0	40.0%	28.0%	28.0%	4.0%	0.0%	155	11	0

\* The number of respondents who indicated that this service quality measure was one of the three most important to them. Many respondents checked no measures, while others checked more than three.

### Appendix 3: Fares and Passes along the Fitchburg Line

ZONES			ZONE	RIDE FARE	MONTHLY PASS	10-RIDE PASS	CASH ON BOARD
			1A	\$2.10	\$75.00	\$21.00	\$5.10
			1	\$5.75	\$182.00	\$57.50	\$8.75
			Interzone 1	\$2.75	\$86.00		
			2	\$6.25	\$198.00	\$62.50	\$9.25
			Interzone 2	\$3.25	\$105.00		
			3	\$7.00	\$222.00	\$70.00	\$10.00
			Interzone 3	\$3.50	\$114.00		
			4	\$7.50	\$239.00	\$75.00	\$10.50
			Interzone 4	\$3.75	\$124.00		
			5	\$8.50	\$265.00	\$85.00	\$11.50
			Interzone 5	\$4.25	\$141.00		
			6	\$9.25	\$289.00	\$92.50	\$12.25
			Interzone 6	\$4.75	\$159.00		
			7	\$9.75	\$306.00	\$97.50	\$12.75
			Interzone 7	\$5.25	\$175.00		
			8	\$10.50	\$330.00	\$105.00	\$13.50
			Interzone 8	\$5.75	\$193.00		
			9	\$11.00	\$345.00	\$110.00	\$14.00
			Interzone 9	\$6.25	\$211.00		
			10	\$11.50	\$362.00	\$115.00	\$14.50

Source: [www.mbta.com](http://www.mbta.com), August 2014



## Appendix 4: Parking Availability and Rates along the Fitchburg Line

STATION NAME	PARKING	RATE	MANAGED BY
<a href="#">Fitchburg</a>	<b>Spaces:</b> 400 <b>Avg. Weekday Availability:</b> <b>Accessible:</b> 6 <b>Bike:</b> 20	<b>Type:</b> Garage <b>Rate:</b> \$3.00/day \$50.00/month	Montachusett RTA <a href="mailto:info@montachusetttrta.org">info@montachusetttrta.org</a> (978) 345-7711 <a href="#">Website</a>
<a href="#">North Leominster</a>	<b>Spaces:</b> 436 <b>Avg. Weekday Availability:</b> 15% <b>Accessible:</b> 7 <b>Bike:</b> N/A	<b>Type:</b> Garage <b>Rate:</b> \$3.00/day \$50.00/month	Montachusett Regional Transit Authority <a href="mailto:contactMART@mrta.us">contactMART@mrta.us</a> (978) 345-7711 <a href="#">Website</a>
<a href="#">Shirley</a>	<b>Spaces:</b> 25 <b>Avg. Weekday Availability:</b> <b>Accessible:</b> 2 <b>Bike:</b> N/A	<b>Type:</b> Surface Lot <b>Rate:</b> Free	Town of Shirley <a href="#">Website</a>
<a href="#">Ayer</a>	<b>Spaces:</b> 30 <b>Avg. Weekday Availability:</b> <b>Accessible:</b> N/A <b>Bike:</b> N/A	<b>Type:</b> Surface Lot <b>Rate:</b> Free	Town of Ayer <a href="#">Website</a>
<a href="#">Littleton/Rt 495</a>	<b>Spaces:</b> 194 <b>Avg. Weekday Availability:</b> 69% <b>Accessible:</b> 6 <b>Bike:</b> N/A	<b>Type:</b> Surface Lot <b>Rate:</b> \$4.00/day \$70.00/month	LAZ Parking <a href="mailto:LAZParkingMBTA@lazparking.com">LAZParkingMBTA@lazparking.com</a> (781) 794-1791 <a href="#">Website</a>
<a href="#">South Acton</a>	<b>Spaces:</b> 287 <b>Avg. Weekday Availability:</b> <b>Accessible:</b> 6 <b>Bike:</b> 44	<b>Type:</b> Surface Lot <b>Rate:</b> \$2.50/day	Town of Acton (978) 264-9618 Mon-Fri 8am-5pm <a href="#">Website</a>
<a href="#">West Concord</a>	<b>Spaces:</b> 146 <b>Avg. Weekday Availability:</b> 20% <b>Accessible:</b> 3 <b>Bike:</b> 10	<b>Type:</b> Surface Lot <b>Rate:</b> \$4.00/day	Town of Concord <a href="#">Website</a>
<a href="#">Concord</a>	<b>Spaces:</b> 86 <b>Avg. Weekday Availability:</b> <b>Accessible:</b> 2 <b>Bike:</b> 10	<b>Type:</b> Surface Lot <b>Rate:</b> Free	Town of Concord <a href="#">Website</a>
<a href="#">Lincoln</a>	<b>Spaces:</b> 161	<b>Type:</b> Surface Lot	Town of Lincoln

	<b>Avg. Weekday Availability:</b> <b>Accessible:</b> N/A <b>Bike:</b> 21	<b>Rate:</b> \$3.00/day	<a href="#">Website</a>
<a href="#">Silver Hill</a>	<b>Spaces:</b> N/A <b>Avg. Weekday Availability:</b> <b>Accessible:</b> N/A <b>Bike:</b> N/A	<b>Type:</b> No MBTA parking <b>Rate:</b> N/A	N/A
<a href="#">Hastings</a>	<b>Spaces:</b> 6 <b>Avg. Weekday Availability:</b> <b>Accessible:</b> N/A <b>Bike:</b> N/A	<b>Type:</b> Surface Lot <b>Rate:</b> Free	Town of Weston <a href="#">Website</a>
<a href="#">Kendal Green</a>	<b>Spaces:</b> 57 <b>Avg. Weekday Availability:</b> <b>Accessible:</b> N/A <b>Bike:</b> N/A	<b>Type:</b> Surface Lot <b>Rate:</b> Free	Town of Weston <a href="#">Website</a>
<a href="#">Brandeis/Roberts</a>	<b>Spaces:</b> 70 <b>Avg. Weekday Availability:</b> 86% <b>Accessible:</b> 3 <b>Bike:</b> 8	<b>Type:</b> Surface Lot <b>Rate:</b> \$4.00/day	LAZ Parking <a href="mailto:mbta@lazparking.com">mbta@lazparking.com</a> (781) 794-1791 <a href="#">Website</a>
<a href="#">Waltham</a>	<b>Spaces:</b> 50 <b>Avg. Weekday Availability:</b> <b>Accessible:</b> 4 <b>Bike:</b> 8	<b>Type:</b> Surface Lot <b>Rate:</b> \$2.00/day	City of Waltham <a href="#">Website</a>
<a href="#">Waverley</a>	<b>Spaces:</b> N/A <b>Avg. Weekday Availability:</b> <b>Accessible:</b> N/A <b>Bike:</b> N/A	<b>Type:</b> No MBTA parking <b>Rate:</b> N/A	N/A
<a href="#">Belmont Center</a>	<b>Spaces:</b> N/A <b>Avg. Weekday Availability:</b> <b>Accessible:</b> N/A <b>Bike:</b> 8	<b>Type:</b> No MBTA parking <b>Rate:</b> N/A	N/A
<a href="#">Porter Square</a>	<b>Spaces:</b> N/A <b>Avg. Weekday Availability:</b> <b>Accessible:</b> N/A	<b>Type:</b> No MBTA parking <b>Rate:</b> N/A	N/A

	<b>Bike:</b> 34		
<a href="#">North Station</a>	<b>Spaces:</b> 1,275 <b>Avg. Weekday Availability:</b> <b>Accessible:</b> 38 <b>Bike:</b> 20	<b>Type:</b> Garage <b>Rate:</b> Hourly rates from \$5 Special events: \$25	ProPark 617-222-3042 <a href="#">Website</a>

Source: [www.mbta.com](http://www.mbta.com), August 2014



## Appendix 5: Montachusett RTA (MART) Boston Shuttle Schedule

BOSTON SHUTTLE			
*FITCHBURG ITC	7:30A	12:00P	3:00P
*LEOMINSTER SENIOR CENTER	7:40A	12:10P	3:10P
*DEVENS- MWCC Campus	7:55A	12:25P	3:25P
*RT 2/495- Littleton Station	8:05A	12:35P	3:35P
CONCORD/EMERSON HOSPITAL- Main Entr.	8:15A	12:45P	3:45P
BEDFORD VA- Ambulance Entrance	8:25A	12:55P	3:55P
ALEWIFE- Pick up & Drop off area	8:40A	1:10P	4:10P
METRO BOSTON/MAJOR HOSPITALS	9:10A	1:40P	4:40P
WEST ROXBURY VA- Main Entrance	9:15A	1:45P	4:45P
ALEWIFE- Pick up & Drop off area	9:30A	2:00P	5:00P
CONCORD/EMERSON HOSPITAL- Main Entr.	9:40A	2:10P	5:10P
RT 2/495- Littleton Station	9:45A	2:15P	5:15P
DEVENS- MWCC Campus	9:50A	2:20P	5:20P
LEOMINSTER SENIOR CENTER	10:00A	2:30P	5:30P
FITCHBURG ITC	10:05A	2:35P	5:35P
<b>**Guaranteed Stop</b>			
<b>IF YOU NEED A RETURN RIDE CALL MART AT 800-922-5636 EXT. 3 AT LEAST 1 HOUR BEFORE TIME LISTED ABOVE.</b>			