

Aim High on MBTA Ridership: A big-picture take on the T's strategic plan

Written by Gregory W. Sullivan

We would like to acknowledge Frederick Salvucci for his insight into some of the recommendations made in this paper.



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Introduction

The MBTA's Fiscal and Management Control Board (FMCB) has focused much of its attention on operational and infrastructure fixes since its establishment in July 2015. Over the past six months it has begun a strategic planning effort to clarify its goals and objectives, as well as to lay out a proposal for future governance of the MBTA.

Pioneer Institute shared its view of the key issues to address in the strategic plan in a recent Public Comment document¹, which is summarized here in Appendix A. This report focuses on a single recommendation in our Public Comment, which can be summarized in the following statement:

The Vision, Mission and Values statements undergirding the strategic plan must be aligned toward three commitments over a five-year period:

- Superior service capable of attracting 20 percent more riders
- Enhanced affordability, and
- The utmost safety for the riding public

This report focuses on the first of these three recommended commitments: setting a strategic target for substantial increases in ridership. We examine ridership trends from 2002 through the most recent available data for 2016², tracking annual growth in ridership from September through August for each year on the following six transit modes: heavy rail (the Blue, Orange and Red

This report focuses on the first of these three recommended commitments; setting a strategic target for substantial increases in ridership.

Lines), light rail (Green Line), commuter rail, bus, trolley bus and ferry service. Following our findings on ridership over the period examined, we offer projections of potential revenue the MBTA could generate in a range of scenarios.

As the analysis in this report illustrates, ridership across two out of six modes (trolley bus and commuter rail)—as measured by unlinked passenger trips—has declined since the September 2002 to August 2003 period, while ridership has seen vibrant growth on heavy rail, light rail, bus and ferry service. Light rail would also have seen an overall loss if not for a 2015-16 spike. Heavy rail has seen the largest increase over this period (40.5 percent). Bus ridership has seen extreme fluctuation over the period examined, with a large increase in riders from the September 2002 to August 2003 period to the September 2004 to August 2005 period, a steep drop from the 2004-2005 period to 2005-2006, steady increases from 2005-2006 to

2014-2015, and a precipitous drop from the 2014-2015 period to the span of 2015-2016. Ridership on the MBTA's ferry service has also fluctuated, with an overall ridership increase of 6.5 percent over the period examined.

The Benefits of a Clear Numerical Ridership Goal

1. ***Strategic efforts are more likely to galvanize organizational strength and momentum, and to succeed, when they are expressed in and, in terms of accountability, tied to objective, numerical goals.*** A dozen or more objectives is a lot for the riding public, taxpayers, MBTA management, and direct service employees to grasp and keep at the front of their minds.
2. ***Transition from a full or, in this case, soft receivership governance model is normally defined through benchmarks or triggers, not an artificial timeline.*** The FMCB was initially inspired by the Finance Control Board established by the state legislature in 2003 for the City of Springfield. The Control Board structure is meant to leverage best practices and streamline operations; it was also meant to demonstrate real progress in righting management first of Springfield and now at the transit authority. In Springfield's case, the Patrick administration extended the board's term because it had not yet met benchmarks set to measure its success. Similarly, the FMCB's tenure should not be determined by an artificial timeline because its hard work and the resulting progress should not end until riders see the kind of progress they deserve—and pay for. Ending the FMCB before that progress and MBTA cultural changes are realized would kill the urgency around reform.
3. ***An increase in ridership is a numerical goal that will drive most every one of the dozen-plus objectives articulated in the MBTA's initial draft of strategic considerations,*** from safety, cost-effectiveness, equity, customer service and communications, and other operational considerations. And getting more passengers to choose the T has the potential to meet big-picture regional economic, quality-of-life and environmental goals as well by relieving congestion for commuters at relatively little marginal cost, as is the case across all modes.

Data Analysis

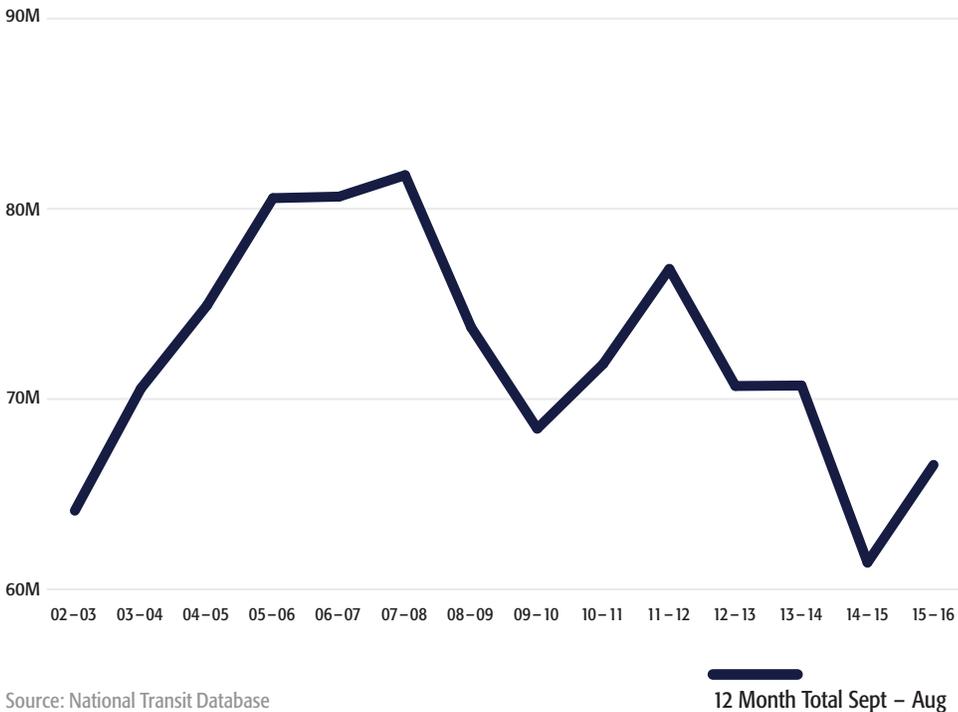
To complement the strategic points made in the previous section, this section will present the potential value the MBTA stands to gain from aggressive efforts to increase ridership. The following section examines ridership trends from September

2002 to August 2016 as measured by unlinked passenger trips (UPTs) across the six modes chosen for our analysis, in addition to data on service miles as measured by Vehicle Revenue Miles (VRM). In conducting the analysis, we have drawn from the most recent data available through the Integrated National Transit Database Analysis System (INTDAS), a web database system designed for retrieval and analysis of data from the National Transit Database (NTD). This resource is partially funded by the Federal Transit Administration in cooperation with and under the direction and leadership of the Florida Department of Transportation's Transit Information System. We have included in our analyses the most recently available NTD data, updated in August 2016.

Findings

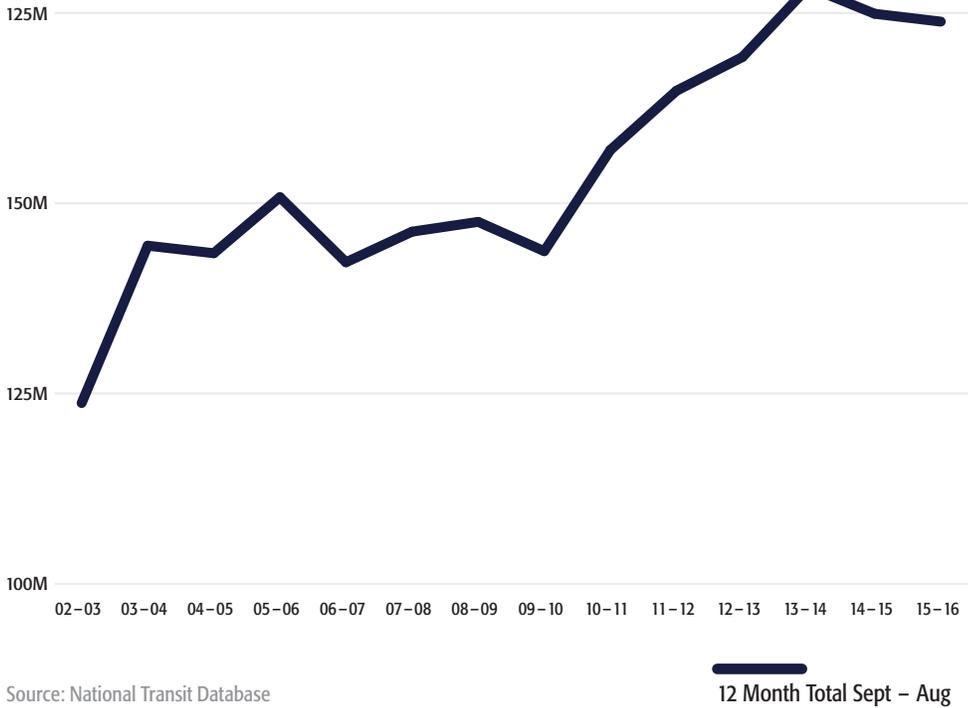
Light rail ridership, as measured by total unlinked one-way passenger trips from September through August annually, has ranged from a high of 81,724,100 during the 2007-08 period to a low of 61,144,567 in the 2014-15 period. From the 2002-2003 period to the 2007-2008 period, ridership increased 17,856,400 (from 63,867,700). Over the 2015-16 period, light rail ridership totaled 66,277,389, representing an increase of 5,132,822 passenger trips over the preceding 12-month period and a decrease of 15,446,711 from the record high over the 2007-2008 period.

Figure 1. Light Rail Ridership, in UPTs 2002-2016



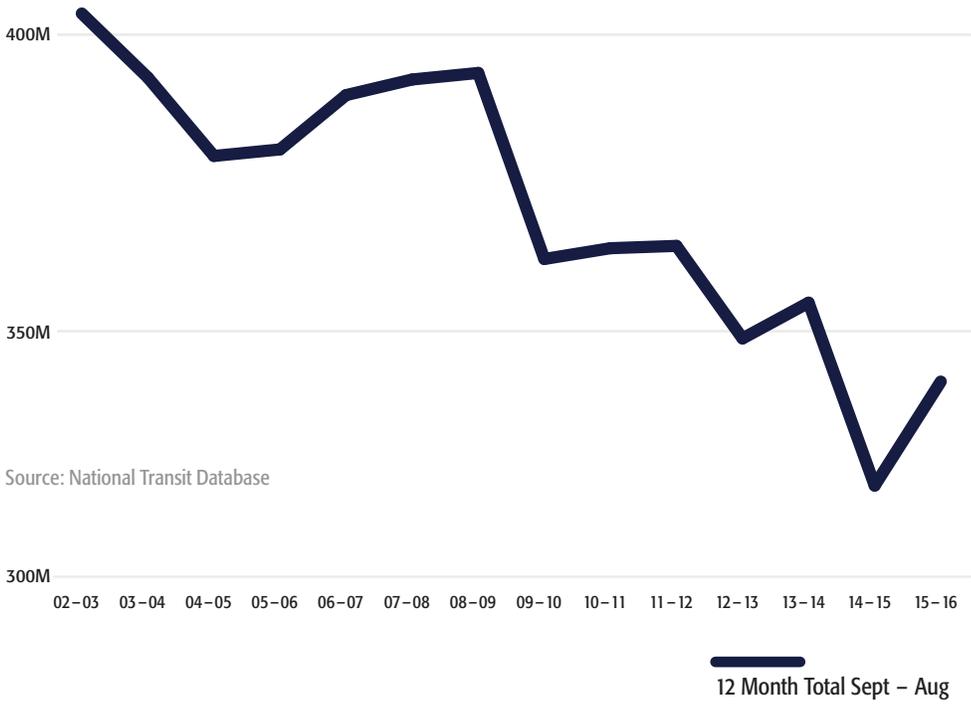
Heavy rail ridership, as measured by total unlinked one-way passenger trips from September through August annually, has ranged from a low of 123,737,800 in 2002-03 to a high of 178,431,147 during the 2013-14 period. Ridership in the 2015-2016 period was 50,127,280 higher than it was in the 2002-03 period (the record low) and 4,566,067 lower than it was during the 2013-2014 period (the record high). In 2015-16, ridership was 173,865,080, a 1,029,941 decline from the preceding 12-month period.

Figure 2. Heavy Rail Ridership, in UPTs, 2002-2016



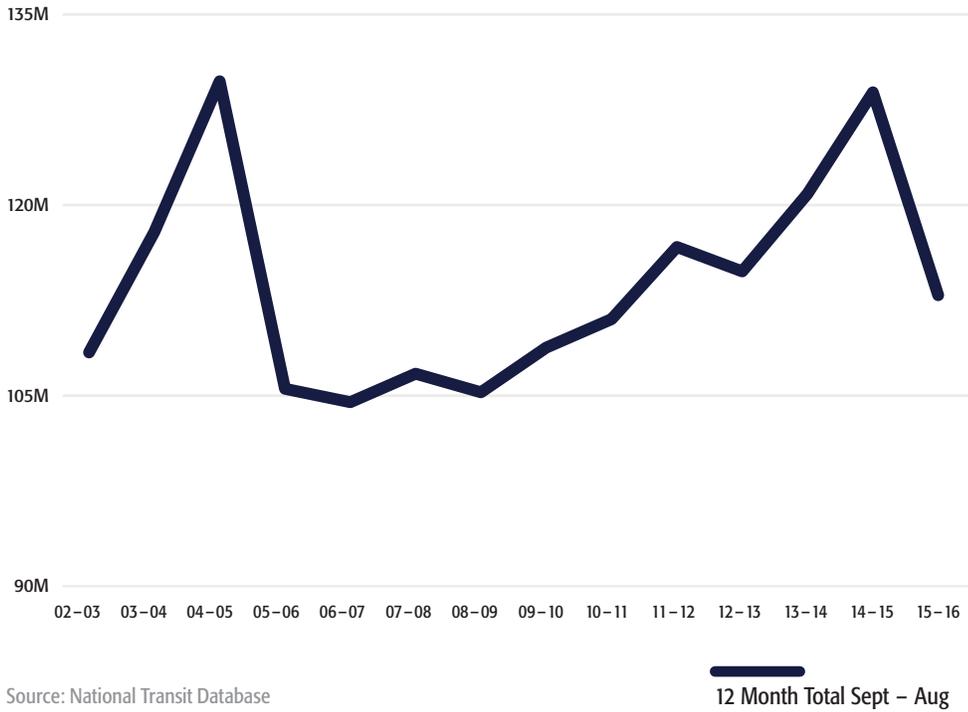
Commuter rail ridership, as measured by total unlinked one-way passenger trips from September through August annually, has ranged from a 2002-03 high of 40,357,600 to a low of 32,394,855 during 2014-15. From the 2014-2015 period to the 2015-16 period, commuter rail ridership increased by 1,754,118, from 32,394,855 to 34,148,973. Ridership for the duration of 2015-2016 was 6,208,627 less than the record high in the 2002-2003 period.

Figure 3. Commuter Rail Ridership, in UPTs, 2002-2016



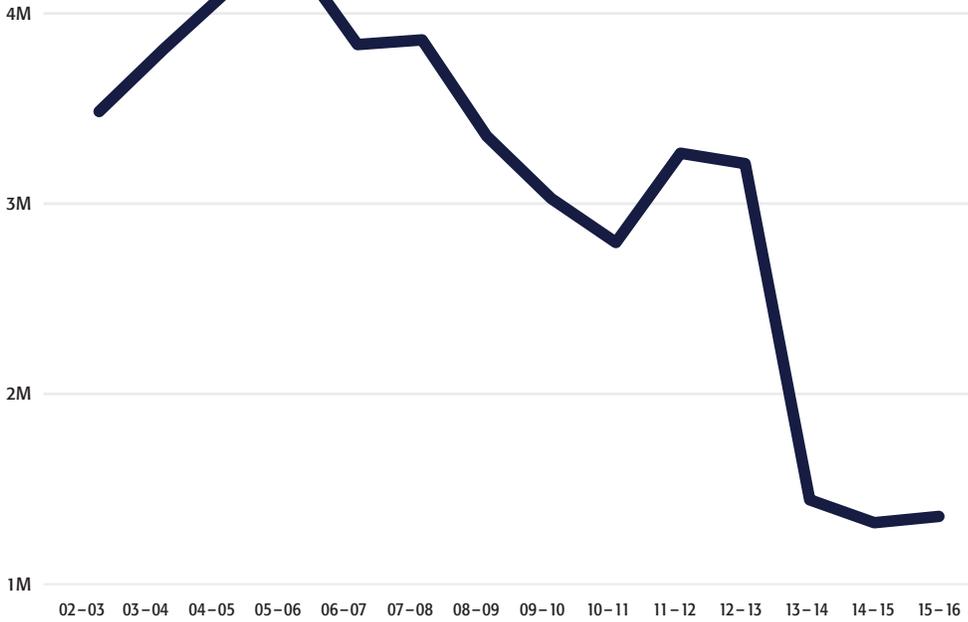
Bus ridership, as measured by total unlinked one-way passenger trips from September through August annually, has ranged from a low of 104,483,400 in 2006-07 to a high of 129,748,469 during the 2004-05 period. This peak followed a period of significant ridership growth from 2002-2003, when the number of trips was 108,397,452. Ridership in the 2015-2016 period was 8,419,540 higher than it was in the 2006-07 period (the record low) and 16,845,529 lower than in 2004-2005 (the record high). From September 2015 to August 2016, ridership was 15,976,305 less than the preceding 12-month period, declining from 128,879,245 to 112,902,940.

Figure 4. Bus Ridership, in UPTs, 2002-2016



Trolley ridership, as measured by total unlinked one-way passenger trips from September through August annually, has ranged from a high of 4,310,539 in 2005-06 to a low of 1,323,059 in 2014-15. Ridership over 2015-2016 was 2,954,394 lower than it was during the 2005-06 period (the record high), representing a 68.5 decline in ridership between these two periods. In 2015-16, ridership was 33,086 more than the number of trips reported over the preceding 12-month period, rising from 1,323,059 to 1,356,145. Trolley ridership hit a steep decline from 2012-2013 to 2014-2015, falling from 3,210,624 to 1,443,513—a drop of 1,767,111.

Figure 5. Trolley Ridership, in UPTs, 2002-2016

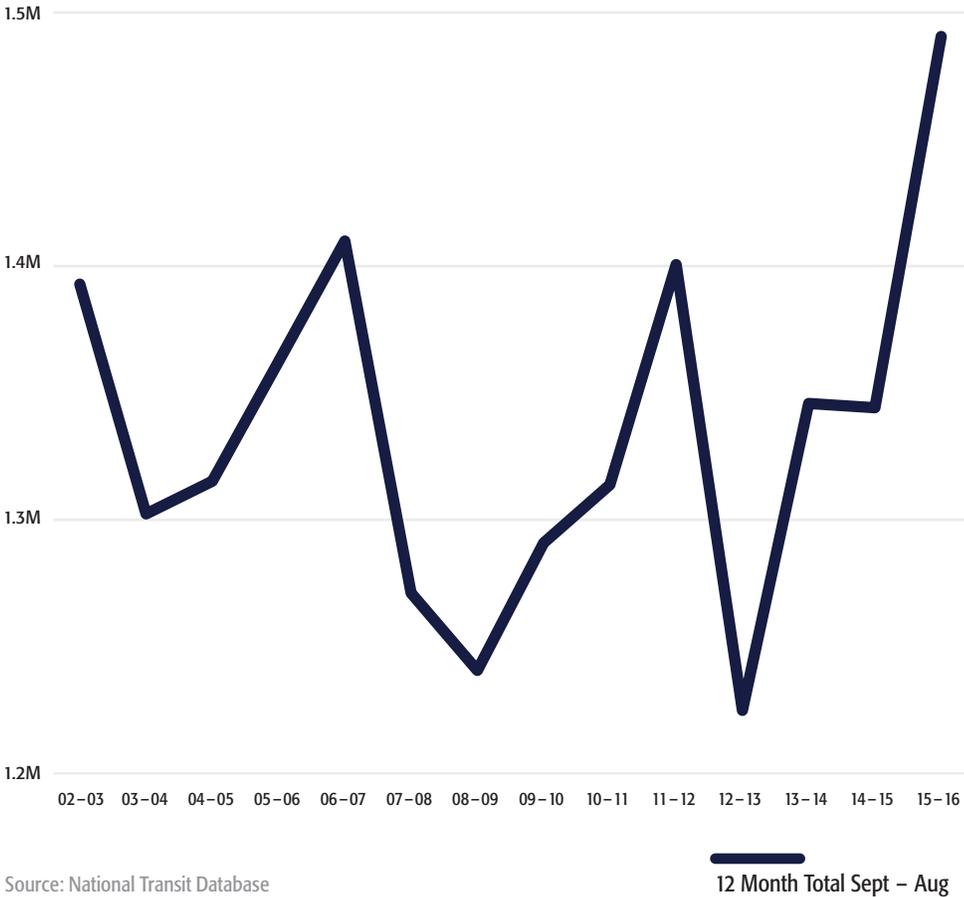


Source: National Transit Database

12 Month Total Sept – Aug

As with buses, MBTA ferry ridership has fluctuated dramatically from September 2002–August 2003 through the September 2015–August 2016 period. From 2002–2003 to 2015–2016, ridership grew from 1,392,900 to 1,490,535, with the largest increase in ridership occurring between 2012–2013, when trips were down to a low of 1,224,851, and a 2015–2016 high of just under 1.5 million trips.

Figure 6. Ferry Ridership, in UPTs, 2002-2016



Source: National Transit Database

12 Month Total Sept – Aug

Overall, MBTA heavy rail ridership gains significantly exceeded all other modes. Ferry service saw the largest percentage increase in ridership over the shortest period of time leading up to the 2015–2016 period, though this growth is dwarfed by the total increase in passenger trips observed on heavy rail. The combined ridership of MBTA buses, ferries, trolleys, and light rail vehicles had the lowest combined ridership of any of the past 14 years in the 12 months period from September 2015 to August 2016. MBTA commuters took 30,779,473 fewer unlinked passenger trips on those transit modes over the 2015–16 period than they did in the record high period of 2004–05, representing a decline of 12.3 percent, and they took 8,890,493 fewer trips in 2015–16 than they did during the previous 12-month period (September 2014 to August 2015).

The decline of more than 30 million passenger trips on the MBTA’s non-heavy rail transit modes from 2004–05 to 2015–16 was largely offset by a 30,433,199 increase in commuter trips taken on the MBTA’s heavy rail subway vehicles over the same period. The net result is that MBTA commuters took 346,274 fewer total trips in 2015–16 than they did during the 2004–05 period.

As the data suggest, the heavy rail system has been the stalwart of MBTA transit modes, with commuter trips growing from 123,737,800 in 2002–03 to 178,431,147 in 2013–14—an annual increase of 50,127,280 trips. In 2015–16, ridership on heavy rail subway vehicles declined by 4,566,067 from the 2013–14 record high year, falling from 178,431,147 to 173,865,080.

Improving Ridership as a Means to Increase Revenue

These trends have important implications for how the MBTA should determine its strategic plan for the near and long-term future of the agency. Principally, the FMCB and T leadership should consider the value that could come from setting and meeting reasonable targets for ridership increases and resulting revenue gains. The potential for boosting revenue is significant, as we describe below.

What would it be worth to restore MBTA ridership to the historical highs observed over the period examined above, both among individual modes and system-wide? Using revenue data from analysis performed by the Central Transportation Planning Staff (CTPS) in their projections of the impact of fare increases on MBTA ridership, in addition to historic data on unlinked trips from the National Transit Database, we extrapolate how much additional revenue could be gained from a range of scenarios with different targets for increased ridership.

The CTPS is the staff of the Boston Region Metropolitan Planning Organization (MPO), which serves as a public resource for multimodal transportation planning and analysis for the Boston metropolitan area. The MPO has been an instrumental research body for the MBTA, performing analysis on trends in ridership, revenue, fare equity and assessing the impact of proposed policy initiatives with respect to these areas. For our projections, we use CTPS's FY2016 revenue and ridership estimates that the group determined through use of an elasticity-based model called Fare Elasticity, Ridership, and Revenue Estimation Tool (FERRET). Using this tool, CTPS conducted a sensitivity analysis to estimate the rider-

Principally, the FMCB and T leadership should consider the value that could come from setting and meeting reasonable targets for ridership increases and resulting revenue gains.

ship loss and subsequent net revenue changes that would result from a fare increase proposed for SFY 2017, using SFY 2015 ridership³ and revenue data as their basis for estimation.

According to their analysis, the proposed fare increase at that time would have resulted in a decrease of 1.2 percent in ridership and an increase in revenue of 5.0 percent.⁴ Based on the ridership and revenue figures they provide, this would result in a system-wide fare revenue per trip (as measured by UPT) of \$1.77/UPT. Across all modes analyzed, the projected revenue by trip varied between \$1.09 and \$7.71 (Fig.7).

Figure 7. Fare revenue/UPT FY2016

Mode	Fare revenue/UPT
Bus	\$1.09
Heavy Rail	\$1.19
Light Rail (Incl. Trolleys)	\$1.66
Commuter Rail	\$6.84
Ferries	\$7.71
Potential Increased Fare Revenue	\$3.10
Total System	\$1.77

Source: CTPS and own calculations

Using CTPS's projected revenue per trip for each mode and combined averages across all modes, we extrapolate how much additional revenue the MBTA could generate under the numbered scenarios listed below using historic data from the NTD going back to January 2002. These results are net of adjustments for fare recovery. In other words, in our analysis we assume the same fare recovery levels for the years presented. If fare recovery could be improved beyond historic levels, revenue from increased ridership would be even higher.

This analysis is principally concerned with the modes with the most revenue potential from augmenting ridership; this includes commuter rail, heavy rail, ferry service, bus, light rail and trolley bus service (which are combined for this analysis⁵). The RIDE, the MBTA's paratransit service, while critical to ensuring access to transportation options for those who are unable to use fixed-route transit due to disability, is not included in this analysis by virtue of the robust subsidy it receives and the fact that it does not present an inherent revenue benefit from increased ridership.

The following scenarios are the bases for our revenue projections:

1. Restoring ridership to the historic⁶ annual maximum of trips for each individual mode;
2. Restoring ridership to the historic annual maximum of trips across all modes, or when ridership was highest as an average across all the modes examined (FY 2014);
3. Increasing ridership to 110 percent of the historic maximum number of trips across all modes (FY2014);
4. Increasing ridership to 120 percent of the historic maximum number of trips across all modes (FY2014).
5. Increasing ridership to 110 percent of the number of trips measured in FY2016;
6. Increasing ridership to 120 percent of the number of trips measured in FY2016;

7. Increasing ridership to 110 percent of the historic maximum number of trips for each individual mode;
8. Increasing ridership to 120 percent of the historic maximum number of trips for each individual mode;

These projections show that if the MBTA could return ridership to the historic annual high in the number of trips for each mode going back to January 2002 (scenario 1), the agency could see increased fare revenue of \$22,771,558 for buses, \$4,917,157 for heavy rail, \$31,218,766 for light rail and trolley service combined, and \$42,395,628 in additional fare revenue for commuter rail. This adds up to an aggregate total of \$101,303,109 in potential additional fare revenue.⁷ In other words, if the T could restore ridership to its highest annual levels for each mode over the last 13 years, it could potentially boost revenue by more than \$100 million.

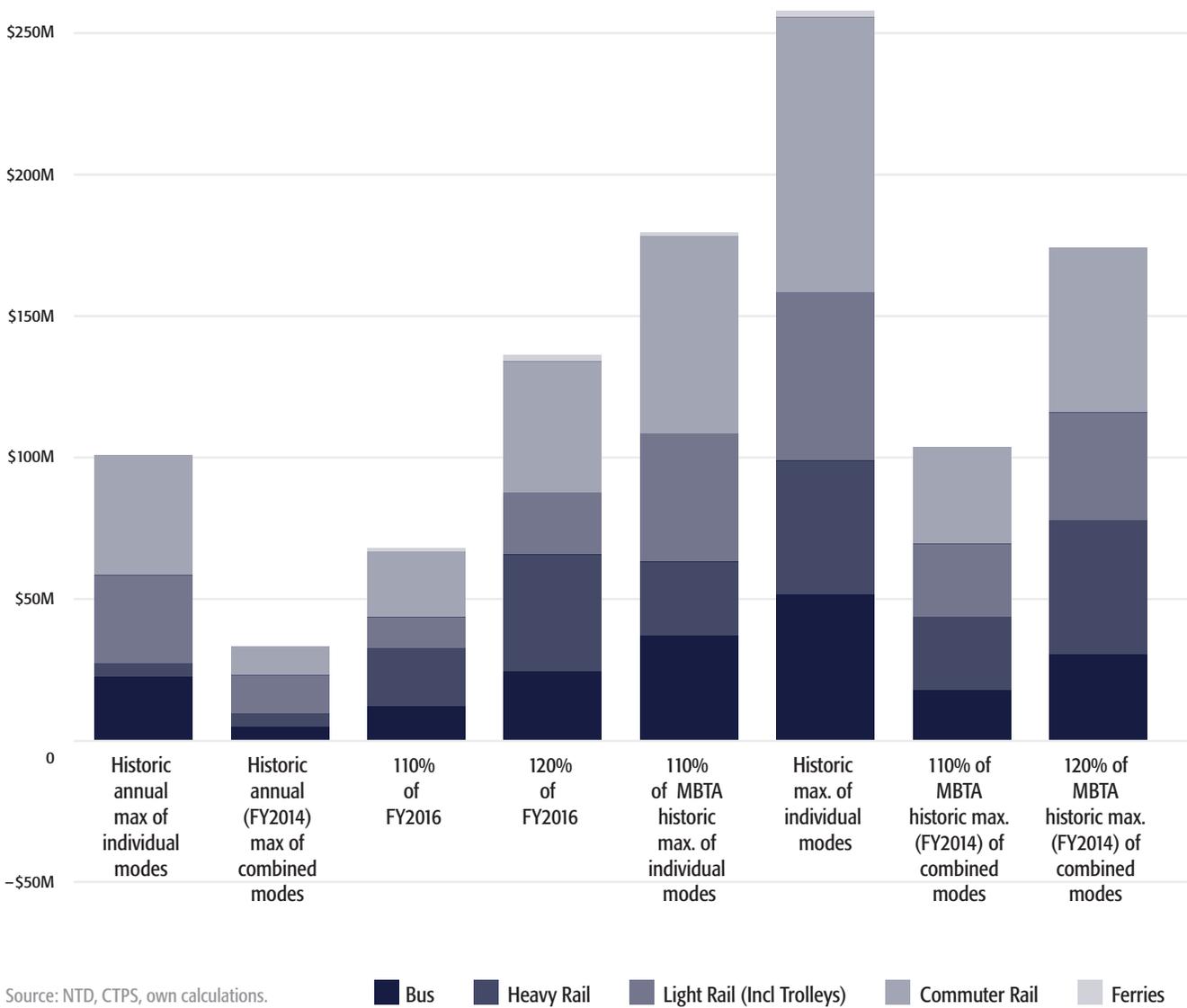
If ridership were restored to levels observed over FY 2014 (scenario 2), when the number of trips across all modes combined was the highest since 2002, the MBTA could see potential revenue growth of \$32,388,009. Increasing ridership to 110 percent of this historic high for all modes combined (scenario 3) could potentially generate additional revenue of \$103,894,166—increasing ridership to 120 percent (scenario 4) could conceivably yield \$175,400,322.

Similar gains could be realized by augmenting ridership based on benchmarks tied to the number of unlinked trips observed for FY 2016. For instance, increasing ridership to 110 percent of the number of trips observed in FY 2016 (scenario 5) could

result in combined increased fare revenues of \$68,267,356 across all modes, according to our projections. The majority of these gains would come from increases in commuter rail (\$23,100,943) and heavy rail (\$20,701,881) ridership. If ridership could be expanded to 120 percent of FY2016 numbers (scenario 6), potential combined additional fare revenues would be a projected \$136,534,711, with \$24,723,964 from added bus service, \$41,403,763 from heavy rail, \$21,942,546 from light rail and trolley, \$46,201,885 from commuter rail and \$2,262,553 from growth in ferry ridership.

Meeting ridership growth targets based on a benchmark of 110 percent of the historically highest number of trips by individual mode (scenario 7) would also result in considerable additional revenue. If ridership on each mode increased to 110 percent of the maximum levels since January 2002, the MBTA could generate \$179,700,776 in potential additional fare revenue. The biggest source of this revenue boost would be \$69,736,133 from expanding commuter rail ridership and \$45,311,916 from increases in light rail. The projected total based on a target of 120 percent of historic maximum number of trips (scenario 8) would be \$258,096,442. This would be a significant sum that could be put towards a range of needs, including capital repairs and infrastructure renewal, as well as towards MBTA operating expenses. The MBTA reported a \$1.39 billion operating loss in its FY 2015 financial statements⁸—revenue generated through realizing the ridership targets in the scenario just above would offset 18.5 percent of this loss.

Figure 7. Projected ridership by mode, in UPTs



The data above illustrates the level of decline in total ridership across all MBTA modes since 2002-2003, but the level of service as measured by vehicle revenue miles (VRM) has remained relatively unchanged. The number of revenue miles across all modes, which refers to the number of miles a transit vehicle travels in revenue service, grew from just over 84,589,976 over the September 2002-August 2003 period to 96,263,125 for September 2015-August 2016—a 13.8 percent increase. Most of this increase, however, can be attributed to a large rise in vehicle miles on the RIDE, which saw a 91.8 percent jump from 9,750,169 vehicle miles in 2002-2003 to 18,703,358 in 2015-2016.

Data for all modes excluding the RIDE show that vehicle miles increased by just 3.63 percent system-wide (from 74,839,807 in 2002-2003 to 77,559,767 in 2015-2016). This suggests that

efforts to accommodate increased ridership across the modes which have seen the most extreme decline in unlinked passenger trips can largely be met by getting more passengers onto existing levels of service that have stayed constant or have increased only slightly. In other words, increasing ridership is a channel through which the MBTA stands to gain significant additional revenue without having to commit to any significant additional operating expenses. *(This excludes some additional operating costs that would fall within relevant range, such as higher expenses for cleaning resulting from higher volumes of passengers.)*

It is important to note that this does not necessarily hold for all modes. Heavy rail, for instance, would benefit from increased service to ensure its historical ridership growth since the early 2000s can be sustained and continued. The success of heavy

rail, as illustrated over the last 14 years of ridership data, confirms the importance of maintaining and expanding on existing ridership on the red, blue and orange lines. It is imperative that appropriate levels of capital investment that have been dedicated to renewing T infrastructure are allocated to these lines in accordance with their proportion of increased ridership relative to other modes.

Recommendations

Based on the analysis presented in this report, there are two principal conclusions to draw:

1. Setting measurable and increasing ridership targets is an effective organizing principle for the MBTA's strategic plan, as it aligns with many subsidiary goals.
2. The revenues from such an explicit effort to increase ridership would place the MBTA on a more robust financial footing. An explicit ridership goal set for each mode will help guide resources and governance of the MBTA's service and, assuming these targets can be met, will likely help to significantly augment revenue.

Capturing the revenue benefits of increased ridership

Increasing ridership has numerous benefits that range from quality of life improvements to environmental benefits and the authority's financial viability. Focusing for a moment on the T's financial viability, it is necessary to state that any initiative to increase ridership must be complemented by improvements in fare collection. As the MBTA concluded in a special report to the Governor's office in 2014, a benchmarking analysis comparing the MBTA to peer agencies showed that the T's farebox recovery was lower than that of other agencies "both overall and across each of the modes."⁹ Directly operated bus service, for instance, has a recovery ratio of 0.21, meaning just over 20 percent of the fare revenues collected from commuters using this service covers the expenses of operating it. Solutions to this issue must come from both the revenue side—e.g. improving fare collection methods—and expense side, which could include reducing bus maintenance costs through channels such as deployment of smaller buses on routes with less ridership to mitigate use of longer buses in the MBTA's fleet that have higher operating expenses..

How to boost ridership?

As the MBTA determines whether to stipulate explicit ridership goals as part of its strategic plan, it should consider the following policy and practice options that would help it achieve those goals.

Commuter Benefits Programs

One promising way to increase ridership is a systematic expansion of commuter benefits plans, otherwise known as qualified transportation fringes—in essence, subsidies distributed to employees. A 2005 study from the Transit Cooperative Research Program (TCRP)¹⁰ explains the general purpose and perceived value of commuter benefits:

The federal tax code allows employers to provide employees with tax-free transit and vanpool benefits, often referred to as "commuter benefits." By lowering the cost of riding on transit and in vanpools for employees, commuter benefits should increase transit and vanpool ridership and reduce personal vehicle use. Commuter benefits programs are also believed to be advantageous for transit agencies because they increase ridership and/or revenues while potentially lowering costs associated with cash handling and individual fare transactions. Reduced vehicle use for commuting can result in parking cost savings for employers and should, in turn, yield social benefits in terms of reduced traffic, improved air quality, reduced fuel consumption, and fewer greenhouse gas emissions.¹¹

Existing data on the impact of commuter benefits programs ridership growth is not conclusive, but a number of studies suggest the two are strongly linked. In the 2005 TCRP study mentioned above, the authors share results from surveys that generally fit two categories: (1) surveys performed by transit agencies, commuter groups and "other agencies in regions with transit benefits programs" and (2) worksite trip reduction reports with data from areas that have mandatory commute trip reduction (CTR) programs. The authors note that more than half of the respondents to the surveys reported an increase in transit readers between 10 and 40 percent after introduction of transit benefits, with nearly one quarter reporting more than a 60 percent increase.¹² There was, however, wide variability among the respondents. For example, the results of surveys of both San Jose in 1997 and Atlanta in 2003 suggest ridership in these cities more than doubled after introduction of a transit benefits program; ridership growth in Washington State, Southern California and Tucson County Arizona—areas with a mandatory CTR program in place—was significant smaller.¹³

Another study, published in 2008 by the Journal of Public Transportation, notes that ridership data from the NTD and available survey data on the proportion of transit benefit users who are either 'new to transit or who increased their transit use' suggests a promising connection. The authors note that, for the agencies examined, the data suggest that transit benefits programming "may have been responsible for a substantial—perhaps 30 or 40 percent—portion of ridership growth

between 1997 and 2001 (the most recent year for NTD data on ridership at the time the research was conducted) at two agencies” out of the group the study focused on. The authors did qualify this by noting a “high degree of uncertainty in these estimates” resulting from limitations of the survey data.¹⁴ The authors reference similar findings for WMATA, Washington D.C.’s metro service, noting that up to 60,000 out of 187,000 new transit riders from 1997 to 2001 could have been due to the transit benefits program.¹⁵

Commuter Benefit Programs at the T

At the MBTA, the Corporate Program, which offers Boston-area employers pre-paid T passes, should be a central area of focus for the MBTA’s efforts to boost ridership through commuter benefits. According to a 2013 MIT study, The Corporate Pass Program accounts for a significant portion of overall MBTA fare revenue; 27 percent of total sales revenue comes from this source.¹⁶ The study surveyed Boston-area employers to determine the level of engagement with the program. Based on replies from the 555 companies that responded, the authors determined that the overall employee participation rate was 33 percent program-wide.¹⁷ Virtually all the participating employers that responded are located within 0.5 miles of an MBTA station—a third of the participating group is within 0.5 miles of Government Center Station, in the heart of downtown Boston.¹⁸ This suggests there is great room to increase participation in the program among area workers as a means of bolstering sales revenue.

Of the 559 employers that responded to the survey’s question of whether pretax commuter benefits are offered, 97 percent of them confirmed that they offer passes pretax, and/or provide passes to employees for free. As the study notes, this is a positive finding for the MBTA to observe as it reflects widespread familiarity with the program among Boston area employers and suggests the program isn’t prohibitively difficult to administer. The level of subsidy varied considerably; the authors found that 74 percent of employees eligible for the Corporate Pass had the option of a subsidized pass through their employer, and 80 percent of employees participating in the program receive an employer-provided subsidy.¹⁹ Participation rates among larger Boston employers were found to be lower than for smaller organizations. Of the largest 25 firms in both Cambridge and Boston, just 57 percent of employees have the option of a Corporate Pass Program. As the study notes, this signals that the MBTA could reap benefit from new partnerships with larger companies in the Boston area who don’t yet participate but might have interest.²⁰

Creative Approaches to Marketing Commuter Benefits Programs

MIT’s Mobility Pass Trial:

Higher Levels of Employee Subsidy

The above-mentioned MIT study takes note of the ‘creative approaches’ that can be used to market commuter benefits to employees. The authors make specific reference to the Mobility Pass Trial started by MIT, the results of which indicate programs of a similar nature could “increase transit usage and revenue to the MBTA.”²¹

Grassroots Employee Marketing

Other ideas that the MBTA could consider include distributing employee-targeted promotional material (ads, fliers, e-blasts, etc.) with details on potential savings opportunities and tax benefits. These are sometimes called “bug your boss”²² campaigns, in as much as the materials are designed to nudge workers to ask their managers about program enrollment. Such an effort is informational, ranging from posting information and guidelines on the MBTA’s website targeting employers and employees, to sharing details on how to complete state and federal tax documents, how to subsidize passes and explanations of financial benefits such as tax savings.

Coordinating with Payroll Vendors

As the MIT study illustrates, the MBTA would be prudent to augment efforts to work collaboratively with employers to develop materials that can be distributed internally at these firms. One specific partnership with potential for great impact would be a collaborative effort between the MBTA and the various prominent payroll vendors in the Boston area whose clients are employers offering corporate T passes. Under a basic contract, vendors such as Paychex, ADP and Kronos could send out their own promotional material and documents outlining the benefits of the pass to their clients and nudging employers to offer the reimbursement program to employees. The MBTA should consider a concerted effort to forge a partnership of this nature to cast a wider net among Boston-area employers.

Marketing through Operational Changes

There are a number of changes the MBTA could make to its infrastructure to accommodate increased passenger volume. Signal systems should be a principal focus here, as signal issues have been a source of recurring delays and performance issues in recent years. From the perspective of increasing ridership, signal modernization is one of the most important things to fix to reduce headways on some of the busiest corridors in the

MBTA's inter-modal system. One study estimates headways could be reduced from the line's current peak times of six minutes²³ to as low as two minutes, which would enable the red line to carry more than double its capacity, assuming an adequate number of vehicles are available.²⁴ Dedicated bus lanes are another consideration, especially for some of the most congested bus routes in Greater Boston, as the CTPS has started to explore.²⁵

Conclusion

Beyond the clear financial benefits the MBTA could reap from augmenting ridership, bringing more passengers onto modes that have seen a decline in passenger trips could also have significant collateral benefits for alleviating strain on local infrastructure brought on by recent growth in personal vehicle commuting. In setting targets for increased ridership, it is important to consider the impact of more commuters using the T's various modes on congestion on Greater Boston roadways. Road congestion has grown to increasingly damaging levels in the area in recent years, with high costs to commuting residents. One 2015 study from Texas A&M University's Transportation Institute found that congestion costs Boston \$3.3 billion annually and \$1,388 per commuter.²⁶ While this analysis does not serve as a basis for estimating how much traffic could be reduced through augmenting MBTA ridership, one can reasonably anticipate that bringing more commuters back to MBTA service would have a strong impact on reducing personal vehicle commutes.

It will take additional actions and many hands to make the FMCB and therefore the MBTA successful in its turnaround effort. As noted previously, it will even require additional action by legislature to have the state take on a portion of the MBTA's \$5.2 billion in outstanding debt, implement a partnership with MassPort to operate expanded ferry service, consider separation of the commuter rail system from the core subway system, and level the playing field by instituting the binding arbitration system currently utilized by Massachusetts police and fire department employees at the MBTA. Aggressive measures to increase ridership would be just one of many critical steps in steering the T on a prudent fiscal course.

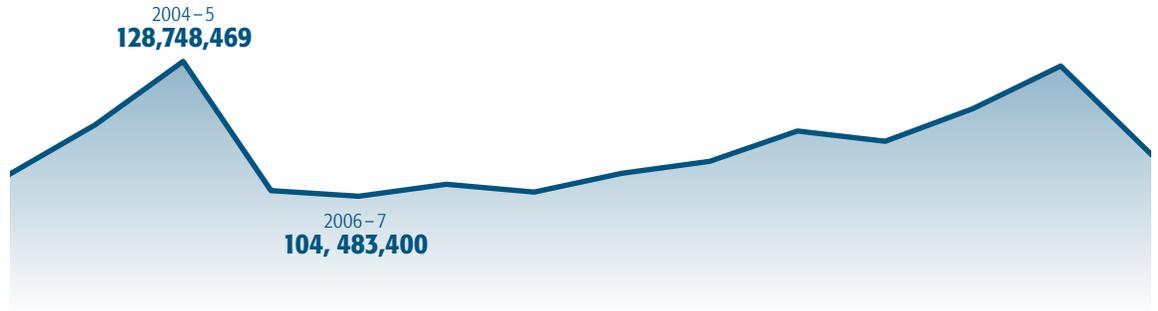
Fig. 1: Ridership Trends by Transportation Type 2002 – 2016

Heavy Rail

- RL** RED LINE
- OL** ORANGE LINE
- SL** SILVER LINE and branches
- BL** BLUE LINE
- SL1 SL4**
- SL2 SL5**



Bus



Light Rail

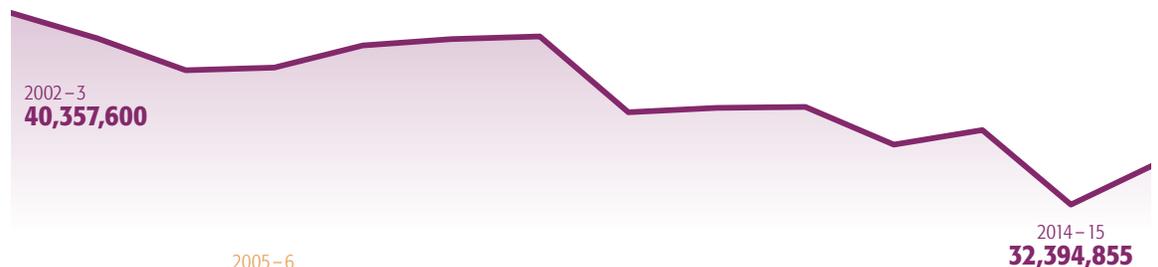
- GL** GREEN LINE and branches
- B C D E**



Commuter Rail



COMMUTER RAIL LINES



Trolley Bus



TRACKLESS TROLLEYS/
BUSES 71, 72, 73 77A



Ferry Service



FERRY



Endnotes

1. To read Pioneer's public comment on the MBTA's strategic plan, see: http://pioneerinstitute.org/press_releases/government-pr/press-releases-transportation/future-mbta/.
2. August 2016 is the most recent month for which data was available at the time of writing this report.
3. SFY 2015 refers to the period July 1, 2014 – June 30, 2015.
4. Central Transportation Planning Staff, "Potential MBTA Fare Changes in SFY 2017: Option 1 Impact Analysis" (Report produced for the Massachusetts Bay Transportation Authority; Boston, MA: December 2015), 7, http://www.mbta.com/uploadedfiles/About_the_T/Board_Meetings/FY17FareChangesOption1FinalDrafttoBoard.pdf.
5. CTPS's analysis combines data for trolley bus and light rail—our calculations for both are based on these combined figures.
6. 'Historic' here refers to the period starting January 2002 and ending with August 2016.
7. For ferry service, there would be a net increase in additional revenue of zero.
8. Massachusetts Bay Transportation Authority, "Financial Statements, Required Supplementary Information and Supplementary Information June 30, 2015 and 2014" (Boston, MA, April 28, 2016), 6, http://www.mbta.com/uploadedfiles/About_the_T/Financials/F_395701_15_MBTA_FS.PDF.
9. http://www.mbta.com/uploadedfiles/About_the_T/Panel/PanelReportFAQs-FareboxRecovery.pdf
10. This group is sponsored by the Federal Transit Administration.
11. "Analyzing the Effectiveness of Commuter Benefits Programs," (Transit Cooperative Research Program, January 1, 2005), 1, http://www.tcrponline.org/PDFDocuments/TCRP_RPT_107.pdf.
12. Ibid. These surveys offer a range of different information from transit agencies and other groups nationwide, including responses from transit benefits recipients and commuters in general, as well as information from before and after surveys.
13. 3 percent, 6 percent and a slight decline percentage-wise, respectively.
14. Liisa Ecoa and Michael Grant, "Impacts of Transit Benefits Programs on Transit Agency Ridership, Revenues, and Costs" (Journal of Public Transportation, Vol. 11, No. 2, 2008), 7-8, <http://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=1210&context=jpt>.
15. This is based on the assumptions that (1) approximately 25 percent of transit benefits recipients using WMATA are new riders and (2) the average person using benefits takes two trips per day using WMATA service.
16. Dianne Kamfonik, "Qualifying the Current and Future Impacts of the MBTA Corporate Pass Program" (Cambridge, MA: Massachusetts Institute of Technology, June 2013), 25.
17. Ibid. 81.
18. Ibid. 59-61.
19. Ibid. 84.
20. Ibid. 84.
21. Ibid. 47.
22. Ibid.
23. Massachusetts Bay Transportation Authority, "Ridership and Service Statistics: Fourteenth Edition" (Boston, MA: July, 2014), 17, [http://www.mbta.com/uploadedfiles/documents/2014%20BLUEBOOK%2014th%20Edition\(1\).pdf](http://www.mbta.com/uploadedfiles/documents/2014%20BLUEBOOK%2014th%20Edition(1).pdf).
24. Katharina McLaughlin, "Accessibility-Based Analysis of Infrastructure Improvements to the Multimodal Western Corridor in Massachusetts" (Thesis submitted to Massachusetts Institute of Technology, June 2016), 21, <https://dspace.mit.edu/bitstream/handle/1721.1/104153/958279764-MIT.pdf?sequence=1>.
25. See CTPS's "Prioritization of Dedicated Bus Lanes" available at: <https://www.massdot.state.ma.us/Portals/49/Docs/BusLane20160513%20.pdf>
26. Texas A&M Transportation Institute, "Mobility Scorecard 2015", 22 + 26, <http://d2dtl5nnlpfr0r.cloudfront.net/tti.tamu.edu/documents/mobility-scorecard-2015.pdf>.

About the Authors

Gregory W. Sullivan is Pioneer's Research Director, and oversees the Centers for Better Government and Economic Opportunity. Prior to joining Pioneer, Sullivan served two five-year terms as Inspector General of the Commonwealth of Massachusetts, where he directed many significant cases, including a forensic audit that uncovered substantial health care over-billing, a study that identified irregularities in the charter school program approval process, and a review that identified systemic inefficiencies in the state public construction bidding system. Prior to serving as Inspector General, Greg held several positions within the state Office of Inspector General, and was a 17-year member of the Massachusetts House of Representatives. Greg is a Certified Fraud Investigator, and holds degrees from Harvard College, The Kennedy School of Public Administration, and the Sloan School at MIT.

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