A Vision for the Future of Massachusetts' Regional Transit Authorities

Report of the Task Force on Regional Transit Authority Performance and Funding

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Executive Summary

Well-run far reaching and sustainable public transportation is critical to the future of the Commonwealth. In December 2018, the *Governor's Commission on the Future of Transportation*, after nearly a year's worth of work, released its recommendations to meet the transportation future. Their first recommendation was to "*Prioritize investment in public transit as the foundation of a robust, reliable, clean and efficient transportation system.*"[1] The Commission chose to lead with this "foundational recommendation" because public transit is the most efficient and sustainable way to move people as they go about their daily lives.

In Massachusetts, outside of the Greater Boston region, fifteen Regional Transit Authorities (RTAs) provide public transportation service to millions of Bay Staters. For those who ride the RTAs, they provide a lifeline. They are their connections to work, school, healthcare, grocery stores, social activities, substance use treatment, and family support networks. They help people get where they need to go. And for the communities they serve, and the businesses and institutions that rely on RTAs for commuting employees, students, customers and visitors, RTAs provide an essential service.

The Task Force on Regional Transit Authority Performance and Funding was created in the fall of 2018 by Outside Section 72 of the FY 2019 Massachusetts State Budget. The Task Force's purpose is to investigate the challenges and opportunities facing transit service providers, specifically charging its members to investigate how the RTAs can:
- best provide and improve transit services that meet identified community needs;
- conduct regular service planning to maximize ridership using available resources; and
- ensure that fares, local contributions, and other revenues cover an appropriate share of costs.

The Task Force statute specified what the composition of its membership should be, namely to include elected members of the state legislature, the MassDOT Rail and Transit administrator, current RTA administrators, representatives of municipal governments, and members of the business, rider, and advocacy communities. The Task Force met on an almost weekly basis from September 2018 through March 2019 to discuss a number of topics pertaining to the RTAs. This report reflects the diverse views of the Task Force and general consensus achieved on most issues. The Task Force tried to operate through a consensus process, so not every Task Force member supported every recommendation.

The importance of public transit cannot be overstated. Unpredictable funding has limited efforts to improve innovation and modernization to meet 21st century demands. Despite an increase in funding for Fiscal Year 2019, as of the time of this report, most RTAs are facing continued budget challenges.

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[1] Commission on the Future of Transportation, "Choices for Stewardship: Recommendations to Meet the Transportation Future," December 2018.

Stabilizing, modernizing and improving the RTAs needs to be a priority for the Commonwealth. However, RTAs need to continue to prove their relevance to the communities they serve who are paying the bill. This report lays out a vision for the future of the RTAs by discussing how we can improve and innovate in five categories: **Investment & Performance**, **Accountability**, **Service Decisions**, **Quality of Service**, and **Environmental Sustainability**.

In addition to the first foundational recommendation, the recently released report of the *Governor's Commission on the Future of Transportation* sets forth several additional well-structured recommendations that directly bear on the work of the Task Force:

> 9. "Establish a goal that beginning in 2040, all new cars, light duty trucks, and buses sold in Massachusetts will be electric or use another technology that meets the same emissions standards;"

> 14. "Use land use, economic development, and transportation policies and investment to enable Gateway Cities and the regions they anchor throughout the Commonwealth to compete for the growing number of residents and jobs;"

> 16. "Provide better mobility options in rural communities through reimagined public transportation, community transportation services, and public/private partnerships;"

> 17. "Prepare MassDOT and other transportation-related entities to effectively oversee a changing transportation system;" and

> 18. "Develop a fiscally sound and responsible transportation resource plan to operate, maintain, and upgrade the transportation system."

(See the full report of the [Governor's Commission on the Future of Transportation](#) for the Initial Steps corresponding to the above recommendations.)

Individually and taken together, the above recommendations highlight the importance of a strong network of regional public transportation to better serve residents, to address climate change, to ensure access to jobs, to act in partnership, and to be managed in a way that is accountable and forward-looking. The recommendations of the *Governor's Commission on the Future of Transportation* informed the recommendations included in this report.

The Task Force on Regional Transit Authority Funding and Performance provides this report and recommendations to help guide the Executive and Legislative branches of state government as we set a new course for public transportation across Massachusetts.

Thus, we offer the following recommendations:

Investment & Performance:

1. *The legislature should fund the RTAs in fiscal year 2020 with a base of $90.5 million[2] in state contract assistance. Each subsequent year increase the state contract assistance by an automatic inflator[3].*
2. *All state contract assistance will be connected to performance targets via a Memorandum of Understanding (MOU). MOUs will be bilaterally negotiated between MassDOT and each RTA and will identify performance targets in the following categories: ridership; customer service and satisfaction; asset management; and financial performance (incorporating a number of factors including farebox recovery ratio).*
3. *Provide communities with the tools they need to increase local contributions to RTA funding, including through regional ballot initiatives.*
4. *Establish a Human Services Transportation working group to explore ways to better collaborate, improve service and save money through the brokerage system.*

Accountability:

5. *Maintain local control of day-to-day operations and management of the RTAs, while standardizing performance metrics for level and quality of service and increasing regional collaboration to present a statewide vision for public transportation in the Commonwealth. MassDOT should include the RTAs as partners in statewide planning and decision making.*
6. *There should be a reinvigorated RTA Council that fosters greater collaboration, promotes best practices, and provides a statewide vision for RTAs.*

Service Decisions:

7. *RTAs will continue to succeed by understanding their markets and by aiming to have their service networks meet the current and future mobility needs of their region as well as support connectivity to other regions where possible. This effort will be guided by (1) the completion or updating of Comprehensive Regional Transit Plans (CRTPs) every five years; (2) the evaluation of current service based on RTA service policies and standards; and (3) participation in local and regional planning processes.*
8. *RTAs should identify routes in their service areas where there is a demonstrated community need for seven day a week and evening and night service.*
9. *In high-density areas, 0.25 miles, or 5 minutes' walk time, is the limit of a fixed-bus route's typical "service area." In lower-density areas and to supplement fixed route service, RTAs should seek to provide on-demand service, microtransit service, or partner with Transportation Management Associations, municipal shuttles, Councils on Aging, Transportation Network Companies (TNCs), bikeshare companies and other mobility services to meet demonstrated community needs.*
10. *RTAs should develop pilot programs that include innovative transit delivery models. By piloting different transit models, the RTAs will be able to determine what will improve transit delivery in their service area.*
11. *In communities that sit on the border of two RTAs, RTAs should work together to increase access to cross RTA services in order to better unify the Commonwealth's public transportation and increase access to more robust services.*

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[3] This represents the consensus view of the RTA Task Force. It differs from the position of the Baker-Polito Administration as stated in the Administration's FY2020 Budget Proposal.

12. *RTAs should work with cities and towns to provide a safe, accessible, and comfortable walking and biking environment around all bus stops, as well as safe, accessible, and comfortable bus stops.*
13. *RTAs should provide reliable paratransit service in compliance with the Americans with Disabilities Act (ADA) requirements and consider the feasibility of offering additional services beyond ADA that meet the needs of their communities. RTAs should also implement an easy-to-use scheduling system using technology that improves the customer experience.*
14. *MassDOT and the RTAs should carefully utilize farebox recovery ratio as a performance metric, considering the ratio in context with other factors and balancing the need to maintain the affordability of service.*
15. *Every three years, each RTA should conduct a fare equity and market analysis and present the findings to their Advisory Boards and MassDOT. This process should inform any fare increases or changes in fare policy.*
16. *RTAs should modernize and standardize fare collection by partnering with the MBTA and adopting the new Automated Fare Collection, or AFC 2.0 system, on a statewide basis, while still maintaining an accessible system for cash customers as appropriate.*
17. *RTAs will perform regular analysis, community outreach, and actively participate in the Massachusetts Environmental Policy Act (MEPA) process to: (a) understand employment patterns, (b) identify opportunities to establish partnerships, and (c) explore potential service adjustments and potential new service to meet demand.*

Quality of Service:

18. *RTAs should determine which routes are prone to bus crowding and address the issues that cause bus crowding.*
19. *RTAs should ensure fixed routes, or on demand services where appropriate, maximize multimodal connectivity. To this same end, new infrastructure which addresses first-last mile problems, especially sidewalks, bike lanes, racks, bikeshares, and/or lockers, should be prioritized. RTAs should work in-tandem with their planning partners to participate in transit-oriented development and engage with new developments to provide transportation solutions to new developments and housing as it comes online.*
20. *All RTAs should have an easily accessible website and a robust social media presence to allow for direct communication with their riders or potential riders.*
21. *MassDOT should collaborate with the RTAs and the MBTA to adopt consistent use of statewide tables, maps and abbreviations and work towards greater integration between RTA and MBTA information services where appropriate.*
22. *RTAs should formally include the public in decision-making on matters related to new projects, fare changes and service planning. In doing so, RTAs should strive to include potential or would-be riders as well as current riders through intentional outreach to large employers, schools and other venues.*

Environmental Sustainability:

23. *In order to reduce greenhouse gas emissions from the transportation sector by at least 40 percent by 2040, the RTAs and MassDOT should determine the mode shift that will be required to meet that goal, as well as work with local partners to create a long term environmental sustainability plan.*
24. *In keeping with the state's environmental goals related to transportation, all public transit bus purchases should be zero-emissions by 2035.*

Introduction

The fifteen Regional Transit Authorities (RTAs) provide bus service for millions of Bay Staters each year. RTAs serve a vital role in communities across Massachusetts. For residents, employees, students and others who choose to, or must rely on public transit, RTAs are often-times the only option. The history of public transit in Massachusetts and elsewhere suggests that for service to succeed, it must be convenient, reliable, affordable and efficient.

Today, RTA service is highly variable. But with higher standards - and the means and mandate to achieve them and measure them - access to opportunity will open up for people, with benefits to the economy, congestion, pollution and social mobility.

What would it take to get us there?

This report lays out a vision and achievable recommendations for the Commonwealth and the RTAs. It all starts with **investment and performance**, maximizing all funding sources, including federal, state, local, farebox and own-source revenue, to grow ridership. Even with greater and more predictable investment accompanied by a commitment to high quality transit service, the RTAs must also strategically improve and innovate. In addition to recommending increased and predictable funding linked to performance, this report also proposes the adoption of recommendations and best practices in the following four additional categories: **accountability**, **service decisions**, **quality of service**, and **environmental sustainability**.

This report reflects the diverse views of the Task Force and general consensus achieved on most issues. The Task Force tried to operate through a consensus process, so not every Task Force member supported every recommendation.

State of the Regional Transit Authorities

[Massachusetts General Laws Chapter 161B](#) establishes the RTAs and defines roles and responsibilities for agencies, municipalities, and the state.[4] The RTAs are controlled by the municipalities in which they operate. Each RTA is governed by an Advisory Board composed of member communities' chief elected officials or their designees, as well as one representative of the disabled commuter population and one representative of the local rider community population. Advisory Boards appoint administrators, establish bylaws, and approve budgets. Advisory Boards also approve changes to service and fare adjustments.

Chapter 161B does give the Commonwealth certain oversight responsibilities. RTAs can issue Revenue Anticipation Notes, but not long- term indebtedness without approval by the MassDOT Secretary. RTAs must also report various operating and performance data to MassDOT for annual reports to the Legislature.

Figure 1. Massachusetts RTAs and their service areas[5]

There are currently fifteen RTAs in Massachusetts serving diverse communities from the Berkshires and Franklin County, to the cities of Worcester and Springfield, and to the Cape and

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[4] "[General Law – Part I, Title XXII, Chapter 161B, Section 6](#)," The General Court of the Commonwealth of Massachusetts, accessed March 8, 2019.

[5] "[Public Transportation in Massachusetts](#)," Commonwealth of Massachusetts, accessed January 3, 2019.

Islands. Although RTAs manage their own operations, they are required to contract with private companies to operate their services. For these reasons, RTAs tend to have relatively small staffs, but need to excel at contract negotiation and management. The extent of service offered varies widely; some RTAs provide night and weekend services, but others do not.

During FY2018, the RTAs provided nearly 28 million unlinked fixed-route passenger (i.e. bus) trips. The most active RTAs are the PVTA, which provided 39% of all trips, the WRTA, providing 11% of all trips, and the BAT and the SRTA, which each provided about 9% of all trips.[6]

In addition to providing regular mass transit services, six RTAs (BRTA, CATA, CCRTA, FRTA, GATRA, and MART) serve as regional transportation brokers delivering Non-Emergency Medical Transportation Services to consumers under a contract with the Massachusetts Executive Office of Health and Human Services (EOHHS)/Human Services Transportation Office (HST). Under this contract in FY2018, Massachusetts spent approximately $238 Million on 8.6 million trips.[7]

The RTAs are funded through a combination of state and Federal funding, local assessments, fare revenue, and other own-source revenue. Each RTA's budget breaks down differently, but on average, the RTAs receive 39 percent of their operating funding from the state, 24 percent from Federal grants, 20 percent from local funds, 13 percent from fare revenues, and 4 percent from other sources.[8]

State operating funding (known as State Contract Assistance or "SCA") is provided as a pass through to the RTAs. The total amount of SCA funds provided in the state budget is distributed among the RTAs according to an allocation formula that was developed with the RTAs. In FY2014, the RTAs were "forward funded," meaning state operating assistance to RTAs is now provided in the current fiscal year and not as a reimbursement for service already provided. In FY2014, the RTAs received a base funding level of $67.6 million, plus an additional $17.1 million for a debt repayment bonus. In FY2015-2018, the RTAs received $80 million, $82 million, $82 million, and $80.4 million respectively. In FY2019, the RTAs received $88 million in total, with $82 million as base funding, $4 million in competitive innovation funds, and $2 million for debt relief payment to PVTA and WRTA.

For capital expenses, the picture is quite different as RTA capital budgets mainly use state and Federal funds. RTA capital funding is used for transit infrastructure like buses and associated equipment, garages, and passenger facilities. FTA grants require a 20% match from the state, a requirement that MassDOT regularly fulfills. In some cases, MassDOT will allocate more than is required, and when it does, the match is usually at 50% of the FTA grant amount. Since FY2014, state capital assistance has increased every year, averaging at about $29.36 million annually. RTAs do not carry capital debt except in rare and limited instances. Because the three

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[6] MassDOT Tracker, accessed March 4, 2019.
[7] Data Provided by the Massachusetts EOHHS/HST Office.
[8] MassDOT 2018 Program Preview Data

rural RTAs are not eligible to receive federal capital formula funds, MassDOT traditionally funds 100% of their capital budget.

MassDOT's FY19-23 Capital Improvement Program (CIP) includes $188.8 million for the capital costs of public transportation services provided through the RTAs.

Recommendations for the Future of Service and Investment

These recommendations are broken down into five broad categories: **Investment & Performance**, **Accountability**, **Service Decisions**, **Quality of Service**, and **Environmental Sustainability**. In each category, we have compiled a set of recommendations or best practices, as well as several case studies to illustrate how some of the recommendations can be implemented.

The recently released report of the *Governor's Commission on the Future of Transportation* sets forth several well-structured recommendations that directly bear on the work of the Task Force:

> 1. "Prioritize investment in public transit as the foundation for a robust, reliable, clean, and efficient transportation system;"

> 9. "Establish a goal that beginning in 2040, all new cars, light duty trucks, and buses sold in Massachusetts will be electric or use another technology that meets the same emissions standards;"

> 14. "Use land use, economic development, and transportation policies and investment to enable Gateway Cities and the regions they anchor throughout the Commonwealth to compete for the growing number of residents and jobs;"

> 16. "Provide better mobility options in rural communities through reimagined public transportation, community transportation services, and public/private partnerships;"

> 17. "Prepare MassDOT and other transportation-related entities to effectively oversee a changing transportation system;" and

> 18. "Develop a fiscally sound and responsible transportation resource plan to operate, maintain, and upgrade the transportation system."

Individually and taken together, the above recommendations highlight the importance of a strong network of regional public transportation to better serve residents, to address climate change, to ensure access to jobs, to act in partnership, and to be managed in a way that is accountable and forward-looking. These recommendations informed the recommendations included in this report.

Investment & Performance

> **Recommendation 1:** The legislature should fund the RTAs in fiscal year 2020 with a base of $90.5 million[9] in state contract assistance. Each subsequent year increase the state contract assistance by an automatic inflator[10].

Building the public transportation system that Massachusetts needs and deserves starts with investment and performance. To innovate, expand and improve to meet demonstrated community needs, the RTAs need financial predictability and stability.

For years, RTAs across the Commonwealth have been facing budgetary challenges. They have struggled just to maintain a stable level of service. Several RTAs have been forced to cut service and raise fares, while very few have been able to increase service in a significant way. The RTAs can work towards greater efficiencies in service and spending, but greater efficiency alone is not a substitute for adequate funding.

Many of the recommendations below are designed to drive up ridership by increasing access, frequency, and convenience of RTA service. All these recommendations will require investment and the use of performance targets to demonstrate the value and relevance of transit. Without increased, predictable and stable funding, the RTAs will be unable to accomplish much of what is included in this report.

State contract assistance should rise year to year to keep up with inflation and regular cost increases, and funding will be tied to clearly articulated performance targets negotiated between each RTA and MassDOT.

Base funding for the RTAs should continue to come in the form of forward funded state contract assistance. Starting in fiscal year 2020, the base should be $90.5 million[11]. Moving forward, each year, that amount should continue to be increased by an automatic inflator[12] to allow the RTAs to keep up with inflation and rising costs. This annual increase should be codified so that RTAs can rely on their base level of funding.

This would provide a baseline stability and predictability of RTA funding so that both the RTAs and riders can expect the year-to-year continuation of existing service levels. Predictability of funding is important for the RTAs in their planning and budget processes, but it is just as important for riders. Some riders take jobs or decide where to live based on transit accessibility.

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[12] This represents the consensus view of the RTA Task Force. It differs from the position of the Baker-Polito Administration as stated in the Administration's FY2020 Budget Proposal.

If they cannot rely on the fact that a bus route, or some form of transit service, will continue to be available they may not be able to take a job, or live in a certain area.

> **Recommendation 2**: All state contract assistance will be connected to performance targets via a Memorandum of Understanding (MOU). MOUs will be bilaterally negotiated between MassDOT and each RTA and will identify performance targets in the following categories: ridership; customer service and satisfaction; asset management; and financial performance (incorporating a number of factors including farebox recovery ratio).

MassDOT and each RTA will individually negotiate a self-renewing MOU that will include performance targets that are most relevant to that RTA's unique system. Targets will be measured against agreed upon baselines. The MOU will also include appropriate timelines for implementation and reporting. The measurement process will not be punitive. If an RTA consistently does not meet targets, MassDOT and the RTA will develop a remedial plan to facilitate improvement. RTAs that are doing well should also be eligible for additional funding to help them pilot and expand successful services.

The performance targets will address the following categories: ridership; customer service and satisfaction; asset management; and financial performance. The financial performance category will incorporate a number of factors, including farebox recovery ratio. "Stretch" targets may be added that would not be subject to the same expectations as the baseline targets and would encourage RTAs to be entrepreneurial.

In the extraordinary case where an RTA and MassDOT are unable to come to agreement on the terms of an MOU, a dispute resolution process should be implemented, which for example could include one representative from the RTA in dispute, one representative from MassDOT, and one representative mutually agreed upon by both parties.

> **Recommendation 3**: Provide communities with the tools they need to increase local contributions to RTA funding, including regional ballot initiatives.

The RTAs receive an average of 20 percent of their funding from local sources.[13] Under Section 9 of Chapter 161B of the General Laws, annual local assessment payments are adjusted based on the "loss" (operating cost minus revenue) for each specific transit route and the activity and the share of that loss attributable to each town or city.

Increasing the amount of state investment does not necessarily mean that the percentage of funding from local sources must go down. While the state increases investments, so should the local communities. Local assessments may stay the same, but the RTAs, the legislature, and MassDOT should work with cities and towns to increase their local contributions to transit funding.

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[13] MassDOT 2018 Program Preview Data

Right now, communities in Massachusetts are missing a tool used elsewhere in the country to allow them to increase their local share. It is common across the United States for local voters to decide whether to fund transportation projects. In Colorado, Kansas, Florida, Georgia, Michigan and many other states, cities or counties bring proposals directly to the public on the ballot.[14] Transit, roads, bikeways and more projects are often funded through locally-assessed taxes.[15] Massachusetts communities currently do not have this valuable local funding tool.[16]

Specific regional ballot initiatives can be subject to differing points of views. However, some Task Force members consider them to have potential as an additional local revenue source for RTAs.[17]

Case Study: Grand Rapids, Michigan - The Rapid is a regional transit agency that serves six cities across the Grand Rapids region with 28 fixed bus routes and paratransit service.[18] The Rapid receives a full third of its operating budget through voter-approved property taxes.[19] Since 2000, Grand Rapids area residents have voted four times to approve The Rapid's local property tax funding, and in 2011, even voted to increase the tax rate in order to fund a new bus rapid transit line.[20]

> **Recommendation 4**: Establish a Human Services Transportation working group to explore ways to better collaborate, improve service and save money through the brokerage system.

The Human Service Transportation (HST) Office, within the Department of Health and Human Services, promotes access to health and human services, employment and community life by managing a statewide transportation brokerage network for eligible consumers and by providing technical assistance and outreach strategies in support of local mobility and transportation coordination efforts especially for transportation disadvantaged Massachusetts residents.[21] The Office currently contracts with six RTAs to provide Non-Emergency Medical Transportation (NEMT) and other specialized transportation services.[22] In FY2018, Massachusetts spent approximately $238 million on 8.6 million trips delivered through the six RTA brokers.

A working group should be established with the goal of examining and better understanding the HST program and identifying opportunities for improved service and productivity that provides a

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[14] Transportation for America, "Regional ballot measures fund transportation projects."

[15] Transportation for America, "Regional ballot measures fund transportation projects."

[16] Transportation for America, "Regional ballot measures fund transportation projects."

[17] MassDOT does not opine on pending legislation and/or ballot initiatives.

[18] The Rapid Public Transportation Authority, "About the Rapid," accessed January 3, 2019.

[19] Transportation for America, "Regional ballot measures fund transportation projects."

[20] Transportation for America, "Regional ballot measures fund transportation projects."

[21] Executive Office of Health and Human Services, "Human Service Transportation Office," accessed January 30, 2019.

[22] Executive Office of Health and Human Services, "Human Service Transportation Office," accessed January 30, 2019.

strong "safety net" for vulnerable populations in both rural and urban areas. For example, are there rides that are being provided individually that could instead be provided on a regular RTA route? Instead of providing individuals rides for all riders, it may be more cost effective for RTAs to provide bus passes. RTA brokers of HST service need to also have strong, transparent, and consistent cost allocation systems in place to ensure that the capital and operating costs for both the brokerage and public transit systems are assigned to the appropriate cost center for reimbursement.

The working group should include MassDOT representatives, RTA representatives, representatives from the Human Service Transportation Office, and at least one rider representative.

Accountability

Recommendation 5: Maintain local control of day-to-day operations and management of the RTAs, while standardizing performance metrics for level and quality of service and increasing regional collaboration to present a statewide vision for public transportation in the Commonwealth. MassDOT should include the RTAs as partners in statewide planning and decision-making.

Each RTA is managed and operated through its own organizational processes, but because the RTAs receive so much of their funding from the state, they are already required to report annually to the state on a number of performance measurements.[23] The RTAs will continue to report the eight performance metrics listed below in bold, as well as two additional measures regarding the Transit Asset Management Plan Performance Reporting required by FTA, and on time performance (OTP). RTAs will continue to report quarterly to MassDOT on all required measures. While MassDOT understands that data is seasonally variable and not consistent throughout the year, and that operating expenses and revenue will not be validated by the annual audit until the fall after the fiscal year ends, MassDOT will work with the RTAs to allow data to be labeled "estimated" where necessary. MassDOT will also add a column to the reporting format to enable RTAs to list the previous year's metrics so that year to year comparisons can be displayed.

- Ridership:
    - o Unlinked passenger trips.
- Customer Service and Satisfaction:
    - o Scheduled trips operated;
    - o Vehicle revenue hours;
    - o Vehicle revenue miles;
    - o On-time performance.
- Asset Management:
    - o Total Asset Management performance measures, as required by the Federal Transit Administration;
    - o Miles between road calls;
    - o Preventable accidents by 100,000 miles.
- Financial Performance:
    - o Operating expenses by:
        - ▪ Revenue hour;
        - ▪ Revenue mile;
        - ▪ Unlinked passenger;
    - o Farebox recovery ratio (with the context discussed below in the section on "Fare Policy").

This basic structure of governance should be maintained, where each RTA retains local control of day-to-day operations and management, but there needs to be greater collaboration between

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[23] MassDOT, "Tracker 2018: Annual Performance Report."

the RTAs and MassDOT. To that end, moving forward, MassDOT should include the RTAs as partners in statewide planning and decision making.

Recommendation 6: There should be a reinvigorated RTA Council that fosters greater collaboration, promotes best practices, and provides a statewide vision for RTAs.

The RTAs and MassDOT will collaborate to reinvigorate the RTA Council quarterly meetings as provided by MGL Chapter 161B Section 27: "There shall be a Regional Transit Authority Council for the purposes of coordination and sharing information and best practices in matters of security and public safety planning and preparedness, service delivery, cost savings, and administrative efficiencies. Members of the Council shall include the administrator of each authority established under Section 14. The Secretary shall be Chairman of the Council and the General Manager of the Massachusetts Bay Transportation Authority shall be a nonvoting member of the Council. The Council shall meet no less than once each calendar quarter or upon the request, with reasonable notice, of the Secretary."

The RTA Council will provide a forum to promote best practices in financial and operational management to strengthen a culture of continuous improvement and innovation among RTAs across the Commonwealth. The Council could also serve in a dispute resolution function and provide an opportunity for non-traditional stakeholders, such as businesses, universities, and health care providers, to advocate for their needs.

A reinvigorated RTA Council can be part of a new framework for accountability between the RTAs and MassDOT. This multi-layered framework allows the RTAs to maintain local control through their Advisory Boards while using MOUs to improve the transparency and performance of RTAs, and further rely on the RTA Council for cross-cutting issues, the discussion of best practices, and a possible forum for dispute resolution and appeal/arbitration.

Service Decisions

Service decisions, as we are using the phrase here, relates to the amount of service provided both in frequency and hours of coverage—the latter sometimes referred to as the "span" of service. Within the category, are several subcategories: Scheduling or span of service, service coverage, pedestrian environment, and cost.

> **Recommendation 7:** RTAs will continue to succeed by understanding their markets and by aiming to have their service networks meet the current and future mobility needs of their region as well as support connectivity to other regions where possible. This effort will be guided by (1) the completion or updating of Comprehensive Regional Transit Plans (CRTP) every five years; (2) the evaluation of current service based on RTA service policies and standards, and (3) participation in local and regional planning processes.

The Commission on the Future of Transportation in the Commonwealth urges the prioritization of investment in public transit as the foundation for a robust, reliable, clean and efficient transportation system. Public transit systems can support economic development, job creation, and reduce pollution. Transit can also be key in meeting the GHG climate goals and is critical to get to work, school and go about daily life for those without access to a private automobile. RTA CRTPs should identify how the RTAs will advance these principles.

RTAs have completed CRTPs and submitted each plan to MassDOT. Prepared with community stakeholder public input, these plans identify community needs for service and restructuring, and ensure consistency with state and regional goals.

Based on the CRTPs, local participation and other data (including performance and demographic), RTAs will evaluate the sustainability and value of existing service and analyze the cost and benefits associated with delivering any new service. RTAs will assess the viability of any new service based upon the benefits and the availability of operational and financial resources. During the Program Preview process, RTAs and MassDOT will discuss the need for additional resources to meet the unmet need if available operational and financial resources do not allow for current service or needed expansions.

RTAs will also use the CRTPs to work with local partners, including TMAs, municipalities, regional economic development organizations (REDOs), Chambers of Commerce, employment centers, Workforce Investment Boards, and major business and educational institutions, to provide appropriate levels of transportation service to the working population and students.

To enable RTA periodic completion or updating of CRTPs, as well as participation in local planning processes (zoning and development reviews, and the development of bicycle and pedestrian plans) MassDOT will offer a local match for federal statewide planning funds

(Section 5303) used for transit. The RTAs will coordinate their planning activities with the RPAs as well as MassDOT and local municipalities.

Scheduling or "Span of Service"

> **Recommendation 8:** RTAs should identify routes in their service areas where there is a demonstrated community need for seven day a week and evening and night service.

If transit service is not available when a potential rider needs it, transit use is not an option. We are increasingly living in a society where we need transportation options outside of the traditional nine-to-five commuter schedule. This is especially true for riders of public transportation, who are more likely to work in lower wage jobs, including in the bar and food service industry, that require working the second or third shift and working on weekends. It is also especially true for riders with continuing healthcare needs, for example, drug treatment. Many people in recovery from opioid addiction need reliable daily and weekly transportation to methadone clinics and support group meetings but also have suspended drivers licenses or are unable to afford cars.

Likewise, for public transit to be an option for recreation or errands, like going to an evening event or grocery shopping or an activity on the weekend, there needs to be convenient, affordable options available during those times.

Based on an evaluation of projected ridership, revenue and costs, every transit agency should determine whether seven day a week and evening and night service are needed for their communities. That does not mean that all buses and all routes need to run seven days a week and all night. Transit agencies should spend considerable time assessing the needs of the community and provide an adequate level of service where it is needed.[24] This should include an assessment of the needs of potential, or would-be riders, as well as current riders, and will require outreach to major employment centers, schools, hospitals and other venues.

RTAs routinely collaborate with RPAs and other stakeholders to develop their Regional Transportation Plans (RTPs). Required by Federal law, the RTP is a comprehensive 20-year plan that outlines the transportation needs and proposed services and projects for each region. RTPs also incorporate regional economic development and land use considerations. RTAs should use their RTPs, as well as their CRTPs, to identify community needs and guide service decisions.

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[24] The 2014 Transportation Finance Law required each RTA to complete a comprehensive service analysis, which they have all completed. In large part, these needs have already been identified through that process.

Service Coverage

> **Recommendation 9**: In high-density areas, 0.25 miles, or 5 minutes' walk time, is the limit of a fixed-bus route's typical "service area." In lower density areas and to supplement fixed route service, RTAs should seek to provide on-demand service, microtransit service, or partner with Transportation Management Associations, municipal shuttles, Councils on Aging, Transportation Network Companies (TNCs), bikeshare companies and other mobility services to meet demonstrated community needs.

If transit service is located too far away from a potential rider, transit use is not an option. The outside limit of a bus route's typical service area is about 0.25 miles, or a five minutes' walk.[25] For train service, it is about double that.[26]

As much as is practicable, the RTAs should plan their routes so that the majority of potential riders are serviced by a bus stop within a five-minute walk.

This level of service coverage is possible in urban areas, but is not practical everywhere. In more suburban or rural low-density areas, it is unlikely that a transit agency will be able to ensure that a large portion of the population lives within a five-minute walk of a bus stop. But the principle still applies, so in order to run successful transit service, where necessary, rural and suburban transit agencies need to find other ways to meet their riders where they are. That could mean moving away from fixed-route transit service and towards an on-demand or microtransit model.

MassDOT and relevant RTAs should develop a 2020-2040 strategy for public transportation in rural areas of the state, to include employment and education transportation, medical and other appointments, and (with Executive Office of Elderly Affairs (EOEA) and Massachusetts Councils On Aging (MCOA)) include transit services for the growing senior population to promote independent living.

MassDOT will convene and facilitate discussions in rural areas of the Commonwealth with rural transportation advocates, local RTA(s), regional planning commissions, Regional Coordinating Councils (RCCs), TNCs and HST providers about accessing HST resources by multiple transportation providers.

Partnering with the leadership of high traffic destinations, especially colleges and universities, can provide additional sources of revenue to facilitate broader service area coverage. Colleges across the country have paid local transit agencies to provide specially designed bus routes. These routes connect campuses with malls, downtown areas, and grocery stores. Moreover,

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[25] "Transit Capacity and Quality of Service Manual," Transportation Research Board Transit Cooperative Research Program.
[26] "Transit Capacity and Quality of Service Manual," Transportation Research Board Transit Cooperative Research Program.

transit agencies may collect, by way of the participating universities, a blanket fee from students in order to grant students unlimited, fare-free access to public transit. Studies have shown that fare-free transit policies are especially beneficial to small to medium sized transit agencies for encouraging ridership among targeted groups.[27]

The RTAs should act as Mobility Managers by partnering with Transportation Management Associations, municipal shuttles, Transportation Network Companies (TNCs), and mictrotransit companies to provide responsive, customer-focused service in areas where they are not otherwise able to do so. These partnerships can also increase access to public transit service by providing first mile/last mile connections to transit hubs.

Case Study: AC Transit Flex - In 2016, the Alameda-Contra Costa Transit District (AC Transit), which provides bus service to 13 cities outside of San Francisco, launched an on-demand transit pilot called AC Transit Flex.[28] According to AC Transit Transportation Planner John Urgo, the pilot was "part of an effort to address declining ridership, improve service quality, and redesign our network in low-density, low-demand areas."[29] In the first year of operation, 700 riders used the service, completing over 23,000 trips.[30] On-time performance improved, frequency of service was increased and 94 percent of riders surveyed preferred Flex over restoring the fixed route.[31]

Case Study: UMass Amherst and PVTA Partnership - UMass Transit is the second oldest fare-free transit service in the US, offering public transportation to students of UMass Amherst, the Five College System, and residents of the surrounding towns.[32] An extension of the Pioneer Valley Transit Authority, UMass Transit is paid for by student fees and is free to students, faculty and staff to use throughout the year except during summer break. The system's twelve specially designed bus routes connect the area's five major campuses with key destinations. One of these routes, nicknamed the Shopper Shuttle, operates through the UMass Amherst campus, carrying students and residents through Amherst Center and the Campus Plaza Shopping Center.[33] Specially designed routes such as these are particularly important in rural areas which are unnavigable to those without access to cars.[34]

Case Study: Tacoma's "Limited Access Connections" Program (in partnership with Lyft) - In Tacoma, WA, Pierce Transit has partnered with Lyft to create the "Limited Access

[27] Perrone, Jennifer (2002). "Advantages and Disadvantages of Fare Free Public Transit", *National Center for Transportation Research*.

[28] Alameda-Contra Costa Transit District, "AC Transit Flex," accessed January 3, 2019.

[29] John Urgo, "Flex V. Fixed: An Experiment in On-Demand Transit," Transit Center, May 15, 2018.

[30] John Urgo, "Flex V. Fixed: An Experiment in On-Demand Transit," Transit Center, May 15, 2018.

[31] John Urgo, "Flex V. Fixed: An Experiment in On-Demand Transit," Transit Center, May 15, 2018.

[32] Perrone, Jennifer (2002). "Advantages and Disadvantages of Fare Free Public Transit", *National Center for Transportation Research*.

[33] UMass Amherst, "Transportation Services: Routes and Schedules," accessed January 3, 2019.

[34] UMass Amherst, "Transportation Services: Routes and Schedules," accessed January 3, 2019.

Connections" program.[35] The program provides free Lyft trips to or from four transit centers, and bus stops in the Tacoma area.[36] Only trips originating or terminating in specific geographic zones during designated times are eligible, with the times varying by zone.[37]

> **Recommendation 10:** RTAs should develop pilot programs that include innovative transit delivery models. By piloting different transit models, the RTAs will be able to determine what will improve transit delivery in their service area.

RTAs shall regularly communicate, collaborate, and exchange successful best practices, including but not limited to business relationships, initiatives, and models, partnerships, pilots, and all other successful endeavors so that their peer RTAs can adopt similar approaches within their service areas. In particular, MassDOT and the RTAs should collaborate to determine how best to continue and scale successful pilots and how such pilots and service delivery models will be funded.

On-demand or flex service should be considered as a replacement for a low-ridership or infrequent fixed routes as a means to reduce overall costs while continuing to provide service. New routes or pilot services could also begin as on-demand rather than fixed route if density or demographics do not provide a clear demand for regular service.

> **Recommendation 11**: In communities that sit on the border of two RTAs, RTAs should work together to increase access to cross RTA services in order to better unify the Commonwealth's public transportation and increase access to more robust services.

The reality of the 21st century economy is that people do not necessarily live where they work, go to school or where their other activities are. Transportation is regional in its very nature. People who live in one RTA's service area often need to travel, sometimes on a daily basis, into another RTA's service area. Recognizing this, RTAs should explore ways to work collaboratively to provide more robust cross-RTA services in communities that border two RTA service areas. These cross-border arrangements should be supported by negotiated agreements that outline revenue sharing, and cost and service provisions. This will help ensure that more people are able to use RTA services and will help connect the Commonwealth's public transportation into a system that works together.

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[35] Joseph Schwieterman, et al., "Partners in Transit: A Review of Partnerships Between Transportation Network Companies and Public Agencies in the United States," Chaddick Institute for Metropolitan Development at DePaul. University, August 1, 2018.

[36] Joseph Schwieterman, et al., "Partners in Transit: A Review of Partnerships Between Transportation Network Companies and Public Agencies in the United States," Chaddick Institute for Metropolitan Development at DePaul University, August 1, 2018.

[37] Joseph Schwieterman, et al., "Partners in Transit: A Review of Partnerships Between Transportation Network Companies and Public Agencies in the United States," Chaddick Institute for Metropolitan Development at DePaul University, August 1, 2018.

Recommendation 12: RTAs should work with cities and towns to provide a safe, accessible, and comfortable walking environment around all bus stops, as well as safe, accessible, and comfortable bus stops.

Even if transit service is theoretically located within walking distance of a rider's origin and destination, the areas around the transit stops must provide a comfortable walking environment in order for transit to be available. Lack of sidewalks, poorly maintained sidewalks and lack of street lighting all discourage pedestrian travel. Wide or busy streets without signalized crosswalks at regular intervals, or without pedestrian refuges in the median, also discourage pedestrian travel.

The bus stops themselves should also be comfortable and safe for riders while they wait. Benches should be available for riders who cannot stand for long periods of time, and where possible, shelters should be erected to protect riders from wind and rain. Quality passenger amenities at bus stops improve accessibility to transit for community residents and visitors, which in turn improves access to work, school and medical appointments as well as retaining connections to family.[38] These seemingly small improvements should not be overlooked.

Case Study: Twin Cities MetroTransit "Better Bus Stops" Project - MetroTransit, which serves Minneapolis and St. Paul, launched their "Better Bus Stops" project with the goal of providing customers a safe, secure and comfortable experience at the bus stop.[39] They have developed a bus stop evaluation process, as well as guidelines for bus shelter placements, and over the past few years have vastly improved the quality of bus stops on their routes. As of 2018, 60 percent of bus boardings occurred at stops with shelters.[40]

Paratransit Services

Paratransit service is one of the most essential functions of the RTAs. For many with physical disabilities, especially those of lower incomes, public transportation is the only viable option to get around. All the RTAs in Massachusetts offer some level of paratransit service, usually taking the form of on-demand, dial-a-ride service in compliance with ADA requirements. Many of the problems related to level of service in the RTA service areas also affect the quality of paratransit service across the state. While there are unique considerations for paratransit services, the standard of service should be the same as that of fixed route service.

Recommendation 13: RTAs should provide reliable paratransit service in compliance with the Americans with Disabilities Act (ADA) requirements and consider the feasibility

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[38] Mary Buchanan and Kirk Hovenkotter, "From Sorry to Superb Everything You Need to Know about Great Bus Stops," *Transit Center*, October 2018.

[39] Metro Transit, "Better Bus Stops," accessed January 3, 2019.

[40] Mary Buchanan and Kirk Hovenkotter, "From Sorry to Superb Everything You Need to Know about Great Bus Stops," *Transit Center*, October 2018.

of offering additional services beyond ADA that meets the needs of their communities. RTAs should also implement an easy-to-use scheduling system using technology that improves the customer experience.

Typically, paratransit services are only available during the hours of fixed route bus service. When service is cut, paratransit riders are perhaps the most affected. While able-bodied riders may have other transit options, disabled riders who cannot drive, bike, or walk far distances have limited mobility choices. For that reason, some RTAs have offered demand response service to persons with disabilities and others (particularly the elderly) even though it is not required of paratransit.

Some transit systems have partnered with TNCs and mictrotransit companies. These partnerships can attract more customers with limited RTA financial support and can offer more precise schedules.

RTAs can also improve the paratransit rider's customer experience by implementing modern and easy-to-use scheduling systems where available and feasible.

Fare Policy

> **Recommendation 14**: MassDOT and the RTAs should carefully utilize farebox recovery ratio as a performance metric, considering the ratio in context with other factors and balancing the need to maintain the affordability of service.

Even if transit service is available when a rider needs it, is located within walking distance of a rider's origin and destination, and the area around the transit stops provide a comfortable walking environment, it needs to be affordable for the rider to be available.

While farebox recovery ratio, or the fraction of operating expenses which are met by the fares paid by passengers, can remain a performance metric that the RTAs must report and consistently evaluate in the overall mix of revenue generation, the standard should be set carefully. It should avoid creating a perverse incentive not to provide robust service in areas populated by seniors, for example, who by law pay no more than half-priced fares. This is especially important, as the Governor's Task Force on Aging identified transportation as one of the key challenges for seniors.[41] It should also avoid disincentivizing fare policies that increase access, like providing discounted fares to low-income riders, or students.

Any farebox recovery ratio standard should be considered within the context of these other factors.

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[41] Governor's Council to Address Aging in Massachusetts, "Aging in Massachusetts: Shaping the Future," Dec. 10, 2018.

Another potentially useful metric may be to measure an RTA's total own-source revenue recovery—a measure that would include revenue generated from parking, advertising, special grants and other sources. Alternative metrics that don't penalize agencies for the use of discounted fares (such as those required for seniors or persons with disabilities, as well as those commonly provided to students) should be considered as well.

A related effort to maximize revenue for RTAs is Bill HD.1993, "An Act Establishing a Federal Transit Funding Maximization Fund," sponsored in the 2019 session by Representative Peake and Transportation Chairman Straus.[42]

Beginning in 2016, CCRTA entered into a partnership with the Woods Hole, Martha's Vineyard and Nantucket Steamship Authority (SSA), such that SSA voluntarily submits service data to NTD. As a result of SSA's submissions, an additional $3.2 million in FTA formula funds were allocated to the Barnstable urbanized area in FY2018, a portion of which was provided to the SSA for eligible public transportation purposes. It is currently not possible to directly provide Federal funding to potential private ferry or intercity bus providers under Federal grant regulations. With implementation of the legislation, private carriers would be compensated with state funds of up to 25% of the additional formula funding their submission to NTD brings into the Commonwealth, and the state would be able to offset a commensurate amount of state funding provided to transit because of the substitution of a like amount of new federal funding available to support eligible public transit purposes.

Private transportation providers include intercity bus carriers, ferries, shuttle services, van pools, and other similar types of transportation services that are available to the public and operate within the service areas of all 15 RTAs.

> **Recommendation 15**: Every three years, each RTA should conduct a fare equity and market analysis and present the findings to their Advisory Boards and MassDOT. This process should inform any fare increases or changes in fare policy.

Modest, incremental fare increases are often necessary and good practice for transit agencies. RTAs consider fare change as a reaction to various forces, financial or otherwise. While fares should not be raised solely as a matter of course, review of fares and fare policy should be considered a normal part of planning, and small, regular fare increases can help prevent the disruption to customers that larger fare increases might cause.

Every three years, each RTA should conduct a fare equity and market analysis. This will require the RTAs to consider changing fares as part of the solution to providing service, but will also help them understand the impacts of changing fares.

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[42] MassDOT does not opine on pending legislation.

Passengers' capacity to pay needs to be an important factor in setting the fare. Everyone is hurt when a passenger stops riding public transit. If they are making that trip in a car, it is adding to the greenhouse gases that mode shift to transit can alleviate.

There may be reasons to raise fares, but there also may be reasons not to raise fares—like incentivizing greater use. The fare equity and market analyses will help each RTA determine what makes the most sense, and what is most efficient, for them.

Each RTA should be required to present the findings of the fare equity and market analysis to the their Advisory Boards and MassDOT, which should help the Advisory Boards set appropriate fares and implement appropriate fare policy based on the analyses.

> **Recommendation 16**: RTAs should modernize and standardize fare collection by partnering with the MBTA and adopting the new AFC 2.0 system on a statewide basis, while still maintaining an accessible system for cash customers as appropriate.

Efficient fare collection mechanisms can help speed up bus service and avoid delays. On highly used routes, off-board fare collection can significantly reduce the time a bus spends at each stop. Paying fares in advance using turnstiles slashes boarding time and eliminates the aggravation and anxiety of grappling with payment methods.[43]

MassDOT and the RTAs should cooperate to incorporate technological advances into transit service. Microtransit, APC, AVL, all these technologies require resources not only for planning, design, purchasing, implementation but also for annual maintenance. In addition, technologies evolve extremely fast requiring constant updating of systems. Incorporation of technology systems into RTA transportation will increase customer service, attractiveness of public transit service and ease of use, and provide valuable information for data driven decision-making.

A standardized fare collection system throughout the RTAs can increase regional use of public transportation by allowing residents to use the same fare card or system to ride on multiple transit agencies. The MBTA is currently developing a new fare collection system that is designed to make paying for transit easier and more convenient.[44] With Automated Fare Collection 2.0, or AFC 2.0, riders will be able to tap and board at any door with a fare card, smartphone, or contactless credit card.[45] Riders will be able to reload using cash or credit card at vending machines at all stations and some bus stops, or go online to manage one's account 24 hours a day.[46] The RTAs should partner with the MBTA to adopt the new fare collection system that comes out of AFC 2.0. By doing so, the RTAs can ensure that an as simple as possible standardized and modern system is available throughout the commonwealth.

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[43] Boston BRT, "The Gold Standard," accessed January 3, 2019.
[44] Massachusetts Bay Transportation Authority, "Automated Fare Collection 2.0," accessed January 3, 2019.
[45] Massachusetts Bay Transportation Authority, "Automated Fare Collection 2.0," accessed January 3, 2019.
[46] Massachusetts Bay Transportation Authority, "Automated Fare Collection 2.0," accessed January 3, 2019.

Because some RTAs service economically challenged populations, they may decide to maintain a system for on-board cash payment for riders who have no other option.

The MEPA Process

> **Recommendation 17:** RTAs will perform regular analysis, community outreach, and actively participate in the Massachusetts Environmental Policy Act (MEPA) process to: (a) understand employment patterns, (b) identify opportunities to establish partnerships, and (c) explore potential service adjustments and potential new service to meet demand.

The RTAs and MassDOT's Office of Transportation Planning (OTP) will collaborate on a process that will not only bring RTA suggestions into the MEPA process, but also improve the likelihood that those suggestions will be incorporated into the Commonwealth Section 61 findings that establish the basis for any access permit that MassDOT may be asked for at the conclusion of the MEPA process.

OTP will contact the RTA when a relevant project is entering MEPA or undergoing MEPA review. OTP will solicit from the RTA information on commitments that it would ask the project proponent to make to facilitate transit usage. This could be funding for a pilot service, a bus shelter, a pedestrian crosswalk, subsidizing transit passes, marketing transit services to tenants, or other TDM initiatives, including first mile/last mile programs. OTP will include that material in MassDOT's comment letter to MEPA and ask that the contents be reflected in the final certificate that concludes the MEPA process.

Projects that do not trigger a MEPA review are subject to the municipal development plan approval process, which may not require coordination with the RTA. The inconsistent early coordination can delay transit service to the site, provide inadequate transit amenities, or present an unsafe condition for passengers. These issues can be avoided if the development process includes a provision to notify the RTA of the intent to develop a site that may affect demand for public transit service.

Finally, the RTAs and MassDOT in coordination with the Regional Planning Agencies (RPAs) should explore options to develop guidelines for municipalities so that notice is given to the RTA regarding proposed development projects that may affect demand for transit service. RTAs are strongly encouraged to participate in the review of projects that they are notified of.

Quality of Service

Quality of service is twice as important to the average public transit rider as fare cost.[47] Providing riders with an easy, stress-free commute should be a top priority of RTAs, no less important than service area coverage or frequency. When passengers experience frequent discomfort, they are less likely to use public transit for their daily commutes, or are more likely to miss work, classes or doctor appointments. Some RTA riders have the fallback option of driving, but many do not. Often, improvements in level and quality of service go hand-in-hand.

Passenger Comfort

> **Recommendation 18**: RTAs should determine which routes are prone to bus crowding and address the issues that cause bus crowding.

RTA's should consider three main metrics to ascertain the general comfort level of their average bus rider: Number of seats per bus, bus ridership per route, and delay hours per passenger. Bus crowding is perhaps one of the most obvious causes of passenger discomfort. When there are more people on a bus than there are seats, some passengers will have to stand. The more people on the bus, the less room there is to stand. The MBTA, for example, determines a bus to be "crowded" when it is at 140% of its seating capacity.[48] The average MBTA bus has 39 seats, so a bus with 55 or more passengers is considered "crowded."[49] The MBTA also uses a metric called "minutes of crowded passenger" to determine how long a bus on a certain route remains crowded.[50] Being on a bus that is crowded for one stop is very different than being on one that remains crowded throughout its route. The number of seats on a bus is relatively fixed, but there are still measures that can be taken to improve overall rider experience.

Looking at the frequency of delays on individual routes and working to minimize those delays is an essential first step. A single delay can have reverberating effects on service quality across an entire transit network. The fewer buses servicing a route, the more passengers must crowd onto buses. Minimizing delays is an ongoing goal of all transit agencies, large and small, and is one of the many areas which concerns issues related to both quality of service and level of service.

Often, it is not only riders that crowd a bus, it is also the things they bring with them. A bus route that runs through a college campus or shopping center should expect to have lots of riders with heavy backpacks and grocery bags. Many agencies will ask that backpacks be removed and placed on the floor as a courtesy, or actually enforce this practice a policy.[51] However, as more people turn to public transit for their daily errands, agencies should consider making room for passengers' personal belongings. Newer bus models are being designed with passenger

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[47] Perk et al (2008). *Transit Ridership, Reliability, and Retention*.
[48] MBTA Office of Performance Management & Innovation (2017). *Service Improvement Toolbox: Bus Crowding*..
[49] MBTA (2016). "Bus Crowding: Introduction", *Data Blog*.
[50] MBTA (2016). "Bus Crowding: Introduction", *Data Blog*.
[51] The Bus, City and County of Honolulu. "Rules, Regulations, and Rider Tips".

belongings in mind, with designs that feature inward facing seats, more aisle space, and elevated seats to allow for more under seat storage.

Other components of buses also affect passenger experience. Older diesel buses with dated suspension systems, engines, and emissions standards can saddle passengers with bumpy, noisy rides and poor onboard air quality.[52] The Federal Transit Administration reports that around 20% of transit buses operating in the US are at least one year past the standard retirement age.[53] In addition to improving passenger comfort, monitoring the age and fuel type of an agency's fleet is an essential component to any agency's sustainability plan.

Case Study, King County Metro: In 2018, King County Metro, the public transit agency that serves King County, Washington, which includes Seattle, was named the best transit agency in the country by the American Public Transportation Association (APTA).[54] To meet growing demands of its booming ridership Kings County has taken proactive steps to improve safety, efficiency, and maintenance with improved passenger experience at the forefront of their mission.[55]

In 2016, the agency reported that 13 of its bus routes were "chronically crowded."[56] After determining where the most need was, the agency prioritized improvement to those routes. These improvements included adding service hours, advocating with city planners for more dedicated bus lanes, and investment in a new fleet.[57] The ameliorated route efficiency helped mitigate bus crowding, and the agency had announced plans to minimize delays, with a year-end goal of 80% of buses running on-time.[58]

Ease of Access

Like passenger comfort, transit accessibility represents an intersection between quality of service and level of service. Greater service coverage and trip frequency will make transportation more readily available and accessible. There are unique logistical challenges agencies must consider when working to increase citizen access to public transportation. RTAs must design routes that connect riders with intermodal links, including to other regional transit authorities. Recognizing the importance of Commuter Rail connections in Gateway Cities, the RTAs should prioritize connecting neighborhoods and Commuter Rail stations. They must also work with regional planning associations (RPAs) to support transit-oriented development in RTA service areas.

> **Recommendation 19**: RTAs should ensure fixed routes, and on demand services where appropriate, maximize multimodal connectivity. To this same end, new

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[52] Laver et al (2007). "Useful Life of Transit Buses and Vans", *Federal Transportation Administration*.

[53] Laver et al (2007). "Useful Life of Transit Buses and Vans", *Federal Transportation Administration*.

[54] Constantine, Dow (2018). "King County Metro named best large transit system in North America" (press release).

[55] Constantine, Dow (2018). "King County Metro named best large transit system in North America" (press release).

[56] King County Metro (2016). "2016 System Evaluation".

[57] King County Metro (2018). "2018 System Evaluation".

[58] Ringman, Steve (2018). "Your metro bus is on time more often than you may realize", *The Seattle Times*.

infrastructure which addresses first-last mile problems, especially sidewalks, bike lanes, racks, bikeshares and/or lockers, should be prioritized. RTA should work in-tandem with their planning partners to participate in transit-oriented development and engage with new developments to provide transportation solutions to new developments and housing as it comes online.

Optimizing multimodal connectivity can help decrease traffic congestion, improve rider experience, and offer solution to the first-last mile problem.[59] Multimodality dramatically improves a transit system's sustainability and efficiency, while cutting travel times for commuters. Even simple steps to increase a system's multimodality will make current riders' daily commute simpler and more convenient, as well as attract new riders.

Many multimodal improvements could help commuters bypass single-person automobiles all together. In areas like central Massachusetts and Cape Cod with extensive bike path networks, public transit agencies should develop routes that connect trail hubs and terminuses.[60] All buses should be equipped with bike racks to further encourage multimodal travel among cyclists. New focus should also be given to towns that lie on the border of RTA service areas.

RTAs in Gateway Cities and other areas served by the MBTA Commuter Rail should pay particular attention to connecting neighborhoods with those stations in order to solve first-mile/last-mile challenges.

Public transportation will best serve communities whose development patterns actively encourage transit use. Everything from traffic flow, to the location of housing, shopping, and schools will affect the accessibility of public transit to the population. Transit agencies across the country have long struggled to coordinate community development with their transportation network. Massachusetts TOD policies offer programs that provide credit or grant funding to projects designed to integrate new development with local transportation options. A chief concern of many of these programs is ensuring new housing developments near public transportation remain affordable, as lower income people are often most reliant of mass transit. RTAs should work with their MPOs to take advantage of state programs as new development projects emerge. RTAs and MPOs can also take an active role in offering developers incentives to create transit accessible housing and commercial space.

RTAs should also work with the cities and towns within their service area to anticipate new service needs based on new development. Cities and towns should alert RTAs to new development and open discussions on how to implement transit services to meet new potential demand.

Case Study: Safe Routes to Transit Program: In 2014, The San Francisco Bay Area Planning Organization, San Francisco's MPO, developed a $20 million dollar targeted investment program to facilitate safer walking and bicycling to and around public transit.[61] The program was funded with highway toll revenue.[62] The MPO then worked directly with San Francisco County Transportation Authority (SFCTA) to design and construct bike lockers, dedicated bike and

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[59] The first/last mile problem refers to the difficulty of getting people from transportation hubs (i.e. bus stops or rail stations) to their final destination.

[60] A map of the Massachusetts bike trail network can be found here.

[61] San Francisco Transportation Authority "Safe Route to Transit Cycle 4".

[62] Shinkle, Douglas (2012). "Transit-Oriented Development in the States", *National Conference of State Legislatures*.

pedestrian areas near transit hubs, and signage to direct cyclists towards protected lanes and trails.[63] By expediting these intermodal projects, SFCTA reduced the need for new parking facilities in high traffic areas.[64]

Case Study, TOD along the Wasatch Front- The Wasatch Front is a chain of contiguous cities in North-Central Utah. Home to the state's capital, Salt Lake City, around 80% of Utah's population lives in this region.[65] The area's public transit is provided by the Utah Transit Authority (UTA) which operates both light and heavy rail trains as well as bus routes throughout the region. The area has steadily grown throughout the past decade, seeing 25% population growth since 2000.[66] This new, younger population helped bring new public transportation infrastructure including subway stops, bus stations, and intermodal links.[67]

UTA owned a significant portion of land that was not using for transit purposes. UTA leadership worked with state legislatures to create a bill that allowed public transit agencies to partner directly with land developers to create TOD projects in population centers. UTA could contribute their undeveloped land as part of their monetary contribution to the project, giving the agency control over where development occurred, and what transit related infrastructure was created to properly service it.[68]

This arrangement is unique to UTA, but as a case study it reveals the importance of coordinating with community leaders and state lawmakers to determine TOD projects that will actually serve the needs of a community.

Rider Relations

An RTA could in theory provide exceptional, on time service across a wide, varied area and still be plagued with low-ridership if the RTA is unable to effectively communicate with the public. Modern transit agencies have a wide range of tools to help the public navigate their system. Opt-in text alerts, social media and other web-based platforms can provide the public with up-to-date information regarding services, fares, planned projects, and real-time updates. RTAs should also share real-time data so that it can be used by apps and outside services that provide real-time information to users.

These tools can also be a platform for great rider engagement. There are also methods by which to formally include the voices of riders in decision-making including rider-representation on administrative boards, public comment periods during project review, and direct engagement with interest groups.

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[63] San Francisco Transportation Authority "Safe Route to Transit Cycle 4".

[64] San Francisco Transportation Authority "Safe Route to Transit Cycle 4".

[65] Shinkle, Douglas (2012). "Transit-Oriented Development in the States", *National Conference of State Legislatures*.

[66] US Census Data 2000-2010.

[67] Calthorpe Associates et al (2002). "Wasatch Front Transit Oriented Development Guidelines (Presentation)", *Envision Utah*.

[68] Shinkle, Douglas (2012). "Transit-Oriented Development in the States", *National Conference of State Legislatures*.

Recommendation 20: All RTAs should have an easily accessible website and a robust social media presence to allow for direct communication with their riders or potential riders.

An easy-to-use, user-friendly, regularly updated website is a baseline essential for any modern transit agency, regardless of size. From the largest cities, to the most rural communities, Americans get a majority of their news and information from online sources and RTAs must meet the public where they are.[69] Websites should also have information in languages other than English based on community demographics.

An RTA website should be a simple-to-use tool for commuters who may not be familiar with the transit network. To meet this standard, all RTA websites should have up-to-date schedules, route maps, and a trip planner that aligns with other RTAs and the MBTA. Additional online features could include real time vehicle tracking and online fare collection through a mobile app.

All the Massachusetts RTA websites have current schedules posted that are accessible in under five keystrokes.[70] All but two have route maps, with varying levels of interactivity.[71] However, only five have a trip planner built into their website.[72] Pioneer Valley Transit Authority is the only RTA in Massachusetts to offer a mobile app.

Case Study, Santa Barbara: Santa Barbara is a medium-size coastal city in California. With a population of around 90,000, the city is served by the Santa Barbara Metropolitan Transit District.[73] The city is a year-round tourist destination and the agency's website is designed to help anyone navigate the system, local and visitor alike. The homepage of the website has an intuitive trip planner.[74] The user puts in their current location and intended destination, and the website provides a step by step transit plan for the user. Just below the trip planner is a live bus tracker application and a real-time schedule that includes delays and other service updates. The website is clear, concise, and provides riders with useful, updated information.

Recommendation 21: MassDOT should collaborate with the RTAs and the MBTA to adopt consistent use of statewide tables, maps and abbreviations and work towards greater integration between RTA and MBTA information services where appropriate.

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[70] For example, the Worcester Regional Transit Authority website has a sidebar of "quick links" which includes a link to a complete list of routes. Clicking on individual routes opens a new page which lists the routes current schedule and provides a link to a route map.
[71] For example, the maps on the WRTA website and PDF files which are not interactive. The Franklin Regional Transit Authority website also offers PDF maps, but also provides a link to Google Maps with specific routes highlighted. This allows riders to plan their trip while staying on the website.
[72] The Daily Collegian, October 9, 2012, "PVTA mobile app now available on Android."
[73] US Census Estimates.
[74] See the website.

On websites and in all written or printed materials, MassDOT should work with the RTAs and the MBTA to adopt consistent use of statewide tables, maps and abbreviations to make all transit agencies across the state as simple to use and accessible as possible.

The ultimate goal should be a single transportation website and app for the entire state, where riders can find information about the entire public transportation system, including the MBTA, the Commuter Rail and the RTAs.

Additionally, access to General Transit Feed Specifications (GTFS) technology as used in the MassDOT RTA Task Force presentation would assist the RTAs and RPAs in mapping current routes but also to identify where transit service could be added and restructured. GTFS data is an industry standard format used by many transit agencies, including the MBTA.

> **Recommendation 22**: RTAs should formally include the public in decision-making on matters related to new projects, fare changes, and service planning. In doing so, RTAs should strive to include potential or would-be riders as well as current riders through intentional outreach to large employers, schools and other venues.

Decisions involving new construction projects, service changes, and/or broader updates in overall mission should invite public comment and allow for a 60-day comment period before any decision is made final.

Case Study, Grand Rapids: In 2010, the city government of Grand Rapids announced a citywide environmental sustainability plan.[75] Noting the outsized contribution of transportation to overall greenhouse gas emissions, the city worked closely with the regional transit authority to implement key elements of the plan.[76]

 A major component of the RTA's plan was a traffic management study. The study tested a variety of congestion mitigation measures along Michigan Street. Every day, 10,000 workers and 41,000 college students descend on Michigan Street, leading to heavy gridlock.[77] The RTA wanted to implement more bus rapid transit on Michigan Street to help lower the number of cars in the corridor.[78] Any policy regarding Michigan Street would affect tens of thousands of people every day, from college students to nurses and doctors at the street's two medical complexes.[79]

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[75] Experience Grand Rapids (2018). *Green Green Rapids*.

[76] Occhipinti, Nicolas and Aaron Ferguson (2013). "Grand Rapids Climate Resiliency Report", *West Michigan Environmental Action Council.*

[77] Quick et al (2011). "Suggested Design and Management Techniques for Enhancing Public Engagement in Transportation Policymaking", *University of Minnesota Center for Transportation Studies*.

[78] Quick et al (2011). "Suggested Design and Management Techniques for Enhancing Public Engagement in Transportation Policymaking", *University of Minnesota Center for Transportation Studies*.

[79] Occhipinti, Nicolas and Aaron Ferguson (2013). "Grand Rapids Climate Resiliency Report", *West Michigan Environmental Action Council.*

Through a combination of public meetings and focus group sessions with stakeholders, the RTA learned where the need for bus rapid transit was greatest. They also learned how to design routes that would not interfere with ambulances going to and from hospitals and at the same time connect to student shuttles and bike paths. Community leaders in Grand Rapids have noted that the process did not merely consult with riders but made riders the decision-makers.[80]

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[80] Quick et al (2011). "Suggested Design and Management Techniques for Enhancing Public Engagement in Transportation Policymaking", *University of Minnesota Center for Transportation Studies*.

Environmental Sustainability

The transportation sector is the largest contributor to carbon emissions in the Commonwealth.[81] In December 2018, Massachusetts along with eight other states and Washington, DC, entered into an agreement to reduce transportation related emissions by 2040.[82] That same month, the Commission on the Future of Transportation in the Commonwealth released a series of recommendations for improving mobility across Massachusetts. The top concern of the commission was increased public transit ridership as part of a broader effort to reduce greenhouse gas emissions and combat climate change.[83] RTAs must recognize their role in meeting the state's environmental goals.

The RTAs will require addition investment, both in operations and capital funds, to achieve these goals. Future money from a regional or statewide carbon pricing or transportation cap-and-invest program, like is being developed through the Transportation and Climate Initiative process, should support RTA service and environmental sustainability measures. While it seems premature to consider how the cap-and-invest proceeds would be allocated since they do not yet exist, it is important to start thinking about how this approach could benefit the RTAs.

Decreasing Statewide Emissions

> **Recommendation 23**: In order to reduce greenhouse gas emissions from the transportation sector by at least 40 percent by 2040, the RTAs and MassDOT should determine the mode shift that will be required to meet that goal, as well as work with local partners to create a long term environmental sustainability plan. .

From fiscal years 2017 to 2018, overall ridership of RTAs in Massachusetts decreased an average of 2.7 percent. Worcester Regional Transit Authority experienced the sharpest fall in ridership, losing 13 percent of its ridership.[84] Falling ridership has wide-reaching consequences which affect every aspect of an RTA's day-to-day operation. Many of these consequences have been covered in this report. There are also extensive environmental impacts. When RTA ridership falls and public transit is no longer an option for residents, they will turn to single person automobiles or carpooling for their daily travel, leading to an increase in overall greenhouse gas emissions.[85]

*Figure 2: Annual CO2 emissions by transportation mode*

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[81] Commission on the Future of Transportation in the Commonwealth (2018). *Choices for Stewardship: Background Books – Facts, Trends, & Issues*.

[82] Transportation and Climate Initiative Statement (2018). This statement was signed by the governors of CT, DL, MY, MA, NJ, PA, RI, VT, and VW, and the mayor of DC.

[83] Commission on the Future of Transportation in the Commonwealth (2018). *Choices for Stewardship: Recommendations to Meet the Transportation Future*.

[84] Moulton, Cyrus (2018). "WRTA Ridership Decline is Worst in the US", *Telegram and Gazette.*

[85] Siddiqui, Faiz (2018). "Falling transit ridership poses an 'emergency' for cities, experts fear", *Washington Post*.
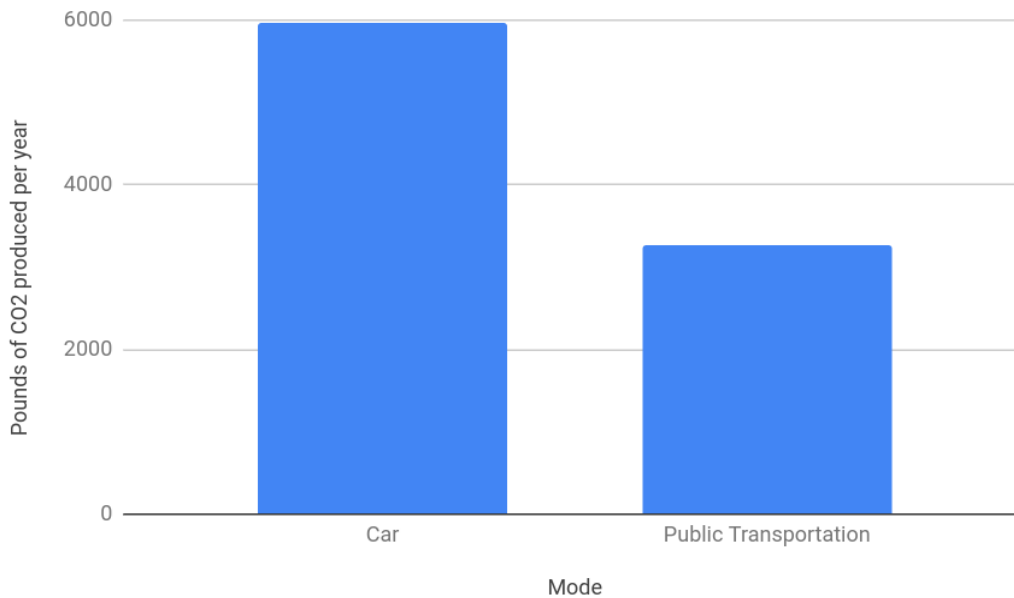
The average Massachusetts resident travels 26.8 miles every day.[86] If that resident is traveling by car, they produce an average of 16.37 pounds of CO_2 emissions every day.[87] If that same commuter were to use public transportation for their daily commute, their transportation-related CO_2 emissions would be cut nearly in half.[88] A single passenger switching from a gasoline automobile to public transit for their daily travel can avoid 1.22 metric tons of CO_2 each year.

Unfortunately, many Massachusetts residents cannot rely on public transportation for their day-to-day travel. Providing RTAs with the necessary funding to expand coverage and improve quality of service will directly help lower our state's overall greenhouse gas emissions.

The RTAs and MassDOT should work together to determine the mode shift required of each system to help reach the Commonwealth's goal of reducing transportation related emissions by 40 percent over the next 20 years, which will help the Commonwealth meet the emissions reduction goals of the Global Warming Solutions Act. Similarly, the RTAs should work with their local planning partners, such as their local communities and RPAs, to create a long term environmental sustainability plan for transportation in their region.

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[86] Office of Performance Management and Innovation (2017). "Tracker 2017", *MassDOT.*

[87] Commission on the Future of Transportation in the Commonwealth (2018). *Choices for Stewardship: Background Books – Facts, Trends, & Issues.*

[88] Commission on the Future of Transportation in the Commonwealth (2018). *Choices for Stewardship: Background Books – Facts, Trends, & Issues.*

Recommendation 24: In keeping with the state's environmental goals related to transportation, all public transit buses purchases should be zero-emissions by 2035.

The RTAs have done a good job at keeping their fleets and facilities in a State of Good Repair (SGR). As they plan to replace vehicles, RTAs need to increase the share of low-emission electric vehicles in their fleet. This is critical to helping the Massachusetts Commonwealth meet the Global Warming Solutions Act (GWSA) 2050 mandate. As they plan new facilities, RTAs will incorporate sustainable materials and practices in the design and construction of these structures.

RTAs will take advantage of joint procurement opportunities, particularly for vehicle purchases, to achieve cost savings. As they continue to procure no emission buses, joint procurement actions would not only be cost effective but would also provide RTAs with similar buses and enable them to establish joint maintenance training opportunities for their workforces. Getting more people out of cars and on to public transit is a critical first step in achieving the state's environmental goals, but it is not a sufficient plan to address our environmental challenges. In order to meet the goals laid out the Massachusetts Global Warming Solutions Act of 2008, the state must also move towards complete vehicle electrification.[89] Public transit agencies should be leading the state towards this goal by phasing out diesel and other emitting fuels and committing to fully electric bus fleets by 2035.

Electric vehicles, including buses, produce no tailpipe emissions and have the potential to radically reduce statewide greenhouse gas emissions.[90] Since 1990, emission levels from the Massachusetts electrical grid have steadily decreased while transportation-related emissions have remained the same.[91] Even when emissions created from charging electric vehicles is factored in, they are still three times less polluting than conventional gasoline or diesel engines.[92] Replacing all diesel buses currently operated by RTAs with electric models would be the equivalent to taking 3100 cars off the road annually in terms of emissions reductions.

Figure 3: Transportation and Electricity CO2 Emissions in Massachusetts[93]

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[89] Commission on the Future of Transportation in the Commonwealth (2018). *Choices for Stewardship: Recommendations to Meet the Transportation Future*.

[90] Miller, Alana et al (2018). "Electric Buses: Clean Transportation for Healthier Neighborhoods and Cleaner Air", U.S. PIRG Education Fund.

[91] Commission on the Future of Transportation in the Commonwealth (2018). *Choices for Stewardship: Background Books – Facts, Trends, & Issues*.

[92] Commission on the Future of Transportation in the Commonwealth (2018). *Choices for Stewardship: Background Books – Facts, Trends, & Issues*.

[93] Commission on the Future of Transportation in the Commonwealth (2018). *Choices for Stewardship: Background Books – Facts, Trends, & Issues*.
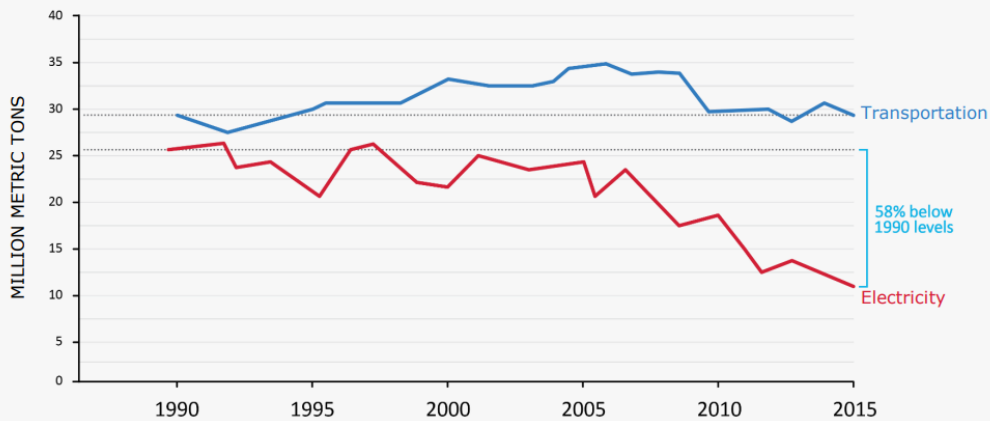
Electric buses will also improve local air quality and public health across RTA districts. Currently, a majority of RTA bus fleets are powered by diesel, a highly polluting fuel that is internationally recognized as a likely carcinogen.[94] Diesel exhaust contains many dangerous pollutants, including nitrogen oxide which contributes to smog and ground-level ozone, particulate matter, small pieces of metal that can cause respiratory damage when inhaled, and cancer-causing hydrocarbons.[95] The city of Worcester, within the WRTA's service area has the twelfth highest asthma rates in the country.[96] Springfield, within the PVTA's service area has the highest asthma rates in the country.[97]

Though more expensive to purchase, electric buses are also cost-efficient for transit agencies in the long-run because they offer lower lifetime fuel and maintenance costs than their diesel counterparts.[98] Electric buses have fewer parts than conventional fuel models, meaning they often require less routine maintenance and fewer major repairs throughout their lifetime.[99] Additionally, electricity costs are consistently lower and less variable than diesel and natural gas.[100] While electric transit buses costs around $200,000 more than diesel buses, they can save a transit agency $400,000 throughout their lifetime.[101]

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[94] International: World Health Organization, International Agency for Research on Cancer, "IARC: Diesel Engine Exhaust Carcinogenic" (press release), 12 June 2012/

[95] Quian Di et al., "Air Pollution and Mortality in the Medicare Population," The New England Journal of Medicine.

[96] Asthma and Allergy Foundation of America, "Asthma Capitals 2018: The Most Challenging Places to Live with Asthma."

[97] Asthma and Allergy Foundation of America, "Asthma Capitals 2018: The Most Challenging Places to Live with Asthma."

[98] California Air Resources Board, 5th Innovative Clean Transit Workgroup Meeting (presentation– slide 40), 26 June 2017.

[99] California Air Resources Board, 5th Innovative Clean Transit Workgroup. 26 June 2017

[100] U.S. Energy Administration Information (2018). Data on diesel, electricity, and other fuel costs over time available at: https://www.eia.gov/petroleum/; U.S. Dept. of Energy (2018). "Charging Electric Vehicles", Alternative Fuels Data Center. Retrieved from: https://www.afdc.energy.gov/fuels/electricity_charging_home.html.

[101] Casale, Matthew and Brendan Mahoney (2018). "Paying for Electric Buses: Financing Tools for Cities and Agencies to Ditch Diesel", *U.S. PIRG Education Fund.*

In the Focus 40 deliberations that are ongoing for the MBTA, it is being suggested that the MBTA will no longer purchase additional buses powered only by diesel fuel. The MBTA will plan for all new and upgraded facilities to be able to accommodate a zero-emission fleet, and will also consider the feasibility of committing to a target date for transitioning to a fully zero-emission fleet. The RTAs should consider a similar approach.

While electric buses offer lifetime savings for transit agencies, RTAs will likely need additional capital assistance in order to make the switch. RTAs and MassDOT should seek federal funding opportunities to help with initial purchases and facility retrofitting.

Case Study, Worcester Regional Transit Authority: Electric buses have already proven themselves in Massachusetts. Since 2012, the Worcester Regional Transit Authority has been operating electric buses along its routes.[102] The WRTA purchased its first three electric buses and supporting charging infrastructure with an FTA Clean Fuels grant. Despite initial concerns over the effects of cold New England weather on battery life, the buses performed better than expected in the notoriously hilly city. In the first three years of the WRTA electric bus program, the city has avoided an estimated 700 tons of CO_2 emissions. To date, the buses have saved the city over $100,000 in fuel and maintenance costs, with a projected lifetime savings of $390,000. Additionally, passengers have noted the buses provide a quieter and smoother ride, free from the unpleasant odors often associated with diesel engines.[103]

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[102]Church, Jonathan (2017). "*Worcester Regional Transit Authority Battery Electric Bus Deployment Project*" (presentation).

[103] Church, Jonathan (2017). "*Worcester Regional Transit Authority Battery Electric Bus Deployment Project*" (presentation).

Other Concepts

This report provides numerous recommendations to move the RTAs forward, improve RTA performance, and sustain and grow critical transit services that the state of Massachusetts needs and deserves. The Task Force was not able to consider all topics of potential relevance to the RTAs, but this does not mean that the discussion for improving regional transit has to end here. Other topics for future consideration include the use of non-traditional performance metrics (see the Appendix), the use of centralized, standardized and customer-friendly technologies for RTA operations, the use of technology that could make paratransit more useful and responsive, and how mobility can be enhanced in communities not served by the RTAs. The Task Force hopes that this report will help prepare the RTAs to meet the challenges ahead.

Additional recommendations and action items approved by the Task Force can be found in the Appendix.

Appendix

The following recommendations and action items were adopted by the Task Force on February 6, 2019 and are reflected in the body of the report.

1. RTAs have completed Comprehensive Regional Transit Plans (CRTPs) and submitted each plan to MassDOT. These plans were prepared with community stakeholder public input, identified community needs for service and restructuring, and ensured consistency with state and regional goals.
   a. *Action Item:* With support from MassDOT, the RTAs will update the CRTPs every five years to help the RTAs and MassDOT understand the needs of the region.
   b. *Action Item:* MassDOT shall provide technical assistance to help the RTAs with transportation planning and data analysis, particularly to implement best practices and performance standards. The form of technical assistance will vary from RTA to RTA. In some cases it may mean a staff position, in others it may mean access to a shared contract capacity.
2. RTAs will continue to succeed by understanding their markets and by aiming to have their service networks meet the current and future mobility needs of their region as well as support connectivity to other regions where possible. This effort will be guided by (1) the completion or updating of CRTPs every five years; (2) the evaluation of current service based on RTA service policies and standards, and (3) participation in local and regional planning processes.
   a. *Action Item:* To enable RTA periodic completion or updating of CRTPs, as well as participation in local planning processes (zoning and development reviews, and the development of bicycle and pedestrian plans) MassDOT will offer a local match for federal statewide planning funds (Section 5303) used for transit. The RTAs will coordinate their planning activities with the Regional Planning Agencies (RPAs) as well as MassDOT and local municipalities.
   b. *Action Item:* Based on the CRTPs, local participation and other data (including performance and demographic), RTAs will evaluate the sustainability and value of existing service and analyze the cost and benefits associated with delivering any new service. RTAs will assess the viability of any new service based upon the benefits and the availability of operational and financial resources. During the Program Preview process, RTAs and MassDOT will discuss the need for additional resources to meet the unmet need if available operational and financial resources do not allow for current service or needed expansions.
   c. *Action Item:* RTAs will use performance metrics and data to continually evaluate whether the current system meets the needs of the region.
   d. *Action Item:* MassDOT will provide technical support for route planning to rural RTAs that do not receive the benefits of Section 5303 Federal funding.
   e. *Action Item:* MassDOT will offer technical support to RTAs for updating their standards and service policies. MassDOT will specifically offer technical assistance to RTAs who wish to install APCs on their fleets.

3. Wherever documented demand does not support traditional fixed-route services, RTAs will work with residents to understand available transportation options and help identify the most appropriate service.
    a. *Action Item:* RTAs will continue to collaborate with Regional Coordinating Councils, Councils on Aging, the Executive Office of Health and Human Services/Human Service Transportation, and local/regional social service agencies to help seniors, persons with disabilities, and members of vulnerable populations understand their mobility options, receive travel training, and assist in identifying the most appropriate service.
    b. *Action Item:* Based on CRTPs and other related planning studies/demographic data, RTAs will work with local partners, including TMAs, municipalities, regional economic development organizations (REDOs), Chambers of Commerce, employment centers, Workforce Investment Boards, and major business and educational institutions, to provide appropriate levels of transportation service to the working population and students.
4. Wherever fixed-route service may be warranted given transit-supportive documented demand, or to provide access to major employment centers, colleges and universities, the service, whenever possible, should be based on a partnership between the RTA, TMAs and the employers and/or major institutions. These partnerships can help support employment, health care and other regular and recurring trip purposes for their workers and clients.
    a. *Action Item:* RTAs will collaborate with local employers, municipalities, colleges and universities, health care providers, and any other regional partners that can assist in identifying mobility needs and discuss prioritizing those needs and/or provide financial support.
5. RTAs will perform regular analysis, community outreach, and actively participate in the MEPA process to: (a) understand employment patterns, (b) identify opportunities to establish partnerships, and (c) explore potential service adjustments and potential new service to meet demand.
    a. *Action Item:* MassDOT will work with the MEPA Office to review practices and guidelines to ensure that that RTAs transportation needs and options are fully considered throughout the MEPA environmental review process.
    b. *Action Item:* RTAs will engage with local developers, municipalities (i.e. economic developers), employers, and planners to demonstrate how transit can enhance value, particularly with transit oriented development.
    c. *Action Item:* MassDOT, the RTAs, municipalities, TMAs, and MPOs will work together to identify where RTAs can best advocate the value of transit during the local permitting and zoning processes that are not elevated to the MEPA level. A suggested example would be during the UPWP process or during municipal department meetings.
    d. *Action Item:* MassDOT shall convene conversations with HST, MassHire, and Mass Office of Business Development (MOBD).
    e. *Action Item:* The RTAs should commit to regular, data driven reviews of service to determine if resources could be better deployed.

6. MassDOT and the RTAs will work together to better understand the HST brokerage and service provision contract model and identify opportunities for improved service and productivity that provides a strong "safety net" for vulnerable populations in both rural and urban areas.
    a. *Action Item:* MassDOT will meet with EOHHS/HST and the RTAs to identify innovative service pilots to optimize cost-efficient service delivery solutions for NEMT consumers, while also supporting maximum use of the existing transit network.
    b. *Action Item:* MassDOT and the RTAs will consult with MassHealth and HST on the eligibility for the provision of bus transit passes to NEMT consumers under Medicaid rules. Bus passes would be a lower cost option for NEMT consumers when the public transit network is available. RTA brokers could then supplement with HST brokerage transportation when public transit is not available (nights and weekends).
    c. *Action Item:* RTA brokers and service providers will devise several innovative service pilot ideas to present to HST along with MassDOT. These ideas might include better rules to discourage no show trips, the use of more volunteer driver programs, and the use of transportation network options.
7. RTA brokers of HST service need to have strong, transparent, and consistent cost allocation systems in place to ensure that the capital and operating costs for both the brokerage and public transit systems are assigned to the appropriate cost center for reimbursement.
    a. *Action Item:* RTA brokers will collaborate with HST on the development of a program-wide database, and use the same software system to support information sharing and reporting from a consistent and common dataset. This approach could improve cost-effectiveness, fraud deterrence and customer service by enabling HST and MassDOT to better evaluate and compare each RTA broker's actual costs and performance in delivering NEMT trips and identify strategies for improvement.
    b. *Action Item:* MassDOT, MassHealth and the RTAs will meet to identify potential opportunities for cost savings and possible amendment of the policies to optimize service delivery. This should include maximizing the ridership potential of brokerage transport.
8. RTA leadership will work to strengthen community outreach. This can be done in a variety of ways, including establishing Consumer Technical Advisory Committees or Councils, scheduled open office hours, or other consumer outreach strategies.
    a. *Action Item:* RTA leadership will be encouraged to join local boards (i.e. Chamber of Commerce, MassHire, REDOs, and TMAs (ex officio)) to further develop stakeholder relations and identify community mobility needs and opportunities.
    b. *Action Item:* In their roles as regional mobility managers, RTAs should host and chair Regional Coordinating Council meetings that are designed to improve communication among key businesses, schools, community-based organizations, planning agencies, and local governments regarding

transportation opportunities and challenges. RTA staff should regularly update their Advisory Boards regarding issues raised at RCC meetings.

    c. *Action Item:* MassDOT will reach out to RTAs and their Advisory Boards to inquire about their training and resource needs to support data driven decision-making. MassDOT is available to offer technical assistance to meet those needs.

9. The Commission on the Future of Transportation in the Commonwealth urges the prioritization of investment in public transit as the foundation for a robust, reliable, clean and efficient transportation system. Public transit systems can support economic development, job creation, reduce pollution. Transit can also be key in meeting the GHG climate goals and is critical to get to work, school and go about the daily life for those without access to a private automobile. RTA CRTPs should identify how the RTAs will advance these principles.

    a. *Action Item:* MassDOT and each RTA will review implementation of the CRTPs as part of the Program Preview Process.

10. RTAs should actively participate in their respective region's Transportation Advisory Group. The Transportation Advisory Group was established by the 3-C (Comprehensive, and Continuing, Cooperative) Memorandum of Understanding (MOU), which emphasizes a comprehensive, cooperative and continuing process for transportation planning and programming. The Advisory Group is designed to assist the MPO in incorporating citizen participation in transportation decisions which provides a mechanism for federal, state, and local input into the regional transportation planning process.

    a. *Action Item:* As part of the MPO process, each RTA will assign a representative to their region's Transportation Advisory Group.

11. RTAs should allocate adequate resources for professional development and work with MassDOT to obtain supportive technical assistance. Improving the knowledge base of the staff (RTA and/or RPA) could help the RTA's become aware of the many technological improvements taken place and how those are reshaping the transportation network.

    a. *Action Item:* MassDOT and the RTAs will collaborate to facilitate information sharing through peer to peer collaboration and transit associations.

12. MassDOT and the RTAs should cooperate to incorporate technological advances into transit service. Microtransit, APC, AVL, all these technologies require resources not only for planning, design, purchasing, implementation but also for annual maintenance. In addition, technologies evolve extremely fast requiring constant updating of systems. Incorporation of technology systems into RTA transportation will increase customer service, attractiveness of public transit service and ease of use, and provide valuable information for data driven decision-making.

    a. *Action Item:* MassDOT shall assist RTA route and service planning efforts by providing technical assistance and help to fund supportive technology, such as automatic passenger counters and automated fare collection systems.

13. RTAs should develop pilot programs that include innovative transit delivery models. By piloting different transit models, the RTAs will be able to determine what will improve transit delivery in their service area.

a. *Action Item:* RTAs will implement pilot programs whenever discretionary funds are made available for a pilot, and the results of the pilot will be shared with other RTAs.

14. Access to General Transit Feed Specifications (GTFS) technology as used in the MassDOT RTA Task Force presentation would assist the RTAs and RPAs in mapping current routes but also to identify where transit service could be added and restructured.

    a. *Action Item:* As part of MassDOT's technical assistance program, MassDOT will provide GTFS mapping services to the RTAs and RPAs to allow update to data for service planning.

15. Projects that do not trigger a MEPA review are subject to municipal development plan approval process, which may not require coordination with the RTA. The inconsistent early coordination can delay service to the site, provide inadequate transit amenities, or present an unsafe condition for passengers. These issues can be avoided if the development process includes a provision to notify the RTA of the intent to develop a site that may affect demand for public transit service.

    a. *Action Item:* The RTAs and MassDOT in coordination with the Regional Planning Agencies will explore options to develop guidelines for municipalities so that notice is given to the RTA regarding proposed development projects that may affect demand for transit service. RTAs are strongly encouraged to participate in the review of projects that they are notified of.

16. As mobility managers in their regions and stewards of public funds, RTAs shall take active steps to evaluate the appropriateness of supporting new and existing economic and housing development with transit options and, when appropriate, make recommendations to project proponents regarding transit options. RTAs will work with MassDOT and EEA to participate early in the environmental review and design phases of new developments, roadway and signalization projects in their regions so that these projects incorporate features that support accessible and convenient transit stops, transit vehicle flow, and bicyclist and pedestrian needs.

    a. *Action Item:* RTAs will collaborate with the cities, towns and MassDOT in their service areas to facilitate bike and pedestrian access to transit and to incorporate design elements that will expedite bus operation (i.e. bus stops/pull outs, etc.) that not only provide better service, but also reduce GHG emissions by decreasing congestion and time spent idling in traffic.

    b. *Action Item:* RTAs and MassDOT will develop material that can be used to educate decision makers (including members of the Legislature) on the interdependency of transit, housing, and commercial development. This material may include national examples as well as local ones.

    c. *Action Item:* MassDOT will establish a website where RTAs can post the initiatives that they have undertaken to support transit-friendly economic development and to enlist local stakeholders in plans to increase ridership. The information will both share best practices and allow the RTAs to report on the outcomes (i.e. ridership increases) of those initiatives.

d. *Action Item:* RTAs and MassDOT will work with municipalities, developers, businesses, and TMAs to encourage TDM initiatives in the planning process that work for each community.

e. *Action Item:* Accessibility and sidewalks should be a primary action item. Accessibility benefits a large portion of RTA customers: disabled, elderly, strollers, and pedestrians in general. Sidewalks/accessibility can make a transit service significantly more comfortable and convenient. RTAs should support this principle at the local level.

17. The RTAs and MassDOT's Office of Transportation Planning (OTP) will collaborate on a process that will not only bring RTA suggestions into the Massachusetts Environmental Policy Act (MEPA) process, but also improve the likelihood that those suggestions will be incorporated into the Section 61 findings that establish the basis for any access permit that MassDOT may be asked for at the conclusion of the MEPA process.

a. *Action Item:* OTP will contact the RTA when a relevant project is entering MEPA or undergoing MEPA review. OTP will solicit from the RTA information on commitments that it would ask the project proponent to make to facilitate transit usage. This could be funding for a pilot service, a bus shelter, a pedestrian crosswalk, subsidizing transit passes, marketing transit services to tenants, or other TDM initiatives, including first mile/last mile programs. OTP will include that material in MassDOT's comment letter to MEPA and ask that the contents be reflected in the final certificate that concludes the MEPA process.

18. RTAs should sustain or pursue new partnerships with Transportation Network Companies (TNCs), Transportation Management Associations (TMAs), Councils on Aging, and local businesses and other activity generators, not only to increase revenue or cut costs but also to provide cutting-edge mobility options to their riders. With the rapidly changing demographic and mobility landscape, Massachusetts residents and visitors are increasingly seeking flexible and cost-effective options to get them where they need to go. These options include car, bike and scooter sharing, on-demand mobility with TNCs, flexible micro-transit services, shuttles, and in the future will involve autonomous vehicles. If they are to provide competitive service and be the innovators that their riders expect, RTAs must look ahead and be at the forefront of identifying the best options from among increasing mobility choices, to facilitate and/or deliver optimum cost-effective service to their customers.

a. *Action Item:* MassDOT will offer technical assistance to help RTAs structure partnerships with local stakeholders (i.e. educational institutions, municipalities, MassHIRE, REDOs, TMAs, hospitals, assisted living facilities, other major employers, etc.) to design, implement, and measure targeted services that will increase ridership or make existing services more efficient and cost-effective.

b. *Action Item:* As part of the annual Program Preview process, each RTA will discuss with MassDOT, the status of its existing partnerships and prospects for transit-supportive economic development opportunities that are expected in that RTA's region.

19. RTAs will review existing customer outreach strategies, particularly in the area of foreign languages and social media, to facilitate effective, robust connections with their riders.

RTAs will continue to conduct regular customer service surveys and outreach meetings, and not just rely on customer complaints to obtain service feedback. These customer service strategies should continue to be part of the RTAs performance plan and should be measured regularly.

   a. *Action Item:* For fare increase/service change meetings, or CRTP outreach sessions, RTAs will conduct public meetings with translation services available for the majority of customers (if appropriate).

   b. *Action Item:* RTAs will convene meetings at COAs and at Areas Agencies on Aging. RTAs will convene meetings that include drivers and dispatchers as well as residents.

20. The RTAs have done a good job at keeping their fleets and facilities in a State of Good Repair (SGR). As they plan to replace vehicles, RTAs need to increase the share of low-emission electric vehicles in their fleet. This is critical to helping the Massachusetts Commonwealth meet the Global Warming Solutions Act (GWSA) 2050 mandate. As they plan new facilities, RTAs will incorporate sustainable materials and practices in the design and construction of these structures.

   a. *Action Item:* RTAs will take advantage of joint procurement opportunities, particularly for vehicle purchases, to achieve cost savings. As they continue to procure no emission buses, joint procurement actions would not only be cost effective but would also provide RTAs with similar buses and enable them to establish joint maintenance training opportunities for their workforces.

21. RTAs will continue to collaborate with the RPAs for the development of the region's Unified Planning Work Program. Each year, Metropolitan Planning Organizations (MPOs) are required to prepare a Unified Planning Work Program (UPWP), in cooperation with member agencies, to describe all anticipated transportation planning activities over the course of the upcoming federal fiscal year. This will allow for regular service planning of the RTAs service area, assistance from the RPAs planning staff and access to regional data.

   a. *Action Item:* MassDOT will work with the RTAs to coordinate with RPAs in the development of the annual UPWP.

22. RTAs will continue to collaborate with the RPAs in the updates to the region's long range transportation plans. The RTP for each of the RPAs regions outlines the direction of transportation planning and improvements for that region for the next 20 years. The RTP provides the basis for the TIP as well as state and federal funding for regional transportation planning and projects. While focusing on transportation, the RTP is a comprehensive planning document that incorporates regional economic development and land use considerations.

   a. *Action Item:* The RTAs should provide input on the future of transportation in the each of the regions they serve.

23. Maintain RTA Council and language below. The RTAs and MassDOT will collaborate to reinvigorate the RTA Council quarterly meetings as provided by MGL Chapter 161B Section 27: "*There shall be a regional transit authority Council for the purposes of coordination and sharing information and best practices in matters of security and public safety planning and preparedness, service delivery, cost savings, and administrative*

efficiencies. Members of the Council shall include the administrator of each authority established under section 14. The Secretary shall be Chairman of the Council and the General Manager of the Massachusetts Bay Transportation Authority shall be a nonvoting member of the Council. The Council shall meet no less than once each calendar quarter or upon the request, with reasonable notice, of the Secretary." The RTA Council will provide a forum for the discussion of best practices in financial and operational management to strengthen a culture of continuous improvement and innovation among RTAs across the Commonwealth. Past Council activities have included:

    a. RTAs presenting best practice models each meeting

    b. RTAs and DOT (EOTC at the time) coordinated RTA funding formula and RTA forward funding process

    c. RTAs and MBTA coordinated interoperability with MBTA Charlie Card for providing one fare platform for customer convenience

    d. *Action Item:* MassDOT will use the RTA Council to accomplish this recommendation.

24. RTAs will continue to report the eight performance metrics listed below in bold, as well as two additional measures regarding the Transit Asset Management Plan Performance Reporting required by FTA, and on time performance (OTP). RTAs will continue to report quarterly to MassDOT on all required measures. While MassDOT understands that data is seasonally variable and not consistent throughout the year, and that operating expenses and revenue will not be validated by the annual audit until the fall after the fiscal year ends, MassDOT will work with the RTAs to allow data to be labeled "estimated" where necessary. MassDOT will also add a column to the reporting format to enable RTAs to list the previous year's metrics so that year to year comparisons can be displayed.

    a. *Action Item:* RTAs will report the performance metrics listed below on a quarterly basis.

    b. *Action Item:* MassDOT will provide RTAs with technical assistance as needed, on the use of performance metric data to drive decision-making.

25. RTAs will continue working closely with MassDOT on the implementation of the Federal Transit Administration's Transit Asset Management requirements, and to provide MassDOT with data on achievement of their TAM targets quarterly.

    a. *Action Item:* RTAs shall also keep their Asset Management Database (TransAM or other) up to date and allow "read-only" access to MassDOT Office of Rail and Transit for capital planning analysis. Furthermore, RTAs will develop their Capital Investment Plan (CIP) Scenarios in accordance with their Transit Asset Management (TAM) Plan.

26. All RTAs will develop a customer-centric system for measuring reliability, particularly on-time performance. Some RTAs, based on route lengths and other operating characteristics might benefit from utilizing mid-route time points in their analysis of on-time performance. Where appropriate, RTAs will consider and evaluate such an analytic metric as it relates to improving the customer experience.

a. *Action Item:* MassDOT will work with the RTAs to determine the specifics of their on-time performance measure.
27. RTAs will review the following additional metrics and consider adding them to their performance management system as appropriate:
    a. Environmental Benefits
        i. Energy savings/passenger
        ii. Energy savings/funding
        iii. Total CO_2 emissions
        iv. Total diesel consumption
        v. Total electricity consumption
        vi. Transit facility energy use covered by alternative sources (%)
    b. Network Coverage
        i. Transit dependent population served (%)
        ii. Jobs/employment opportunities served (%)
        iii. Community activity centers/major streets/municipalities served (%)
        iv. Increase/decrease in medical appoints made/missed
    c. Ridership Patterns
        i. Passes sold for fixed route
        ii. Demand response usage per rider
        iii. Passengers per trip by route
        iv. Vehicle loading/overcrowding
    d. Financial
        i. Budgeted vs. actual revenue
        ii. Budgeted vs. actual expenses
    e. Communication/Outreach
        i. Frequency of meetings w/ stakeholders
        ii. Social media connections (# of tweets, # of website hits, # of followers on twitter, etc.)
    f. Congestion
        i. Actions taken to make vehicles move faster (e.g. traffic signal prioritization, special bus lanes, etc.)
    g. RTA Specific Measure
        i. An RTA specific metric that measures something unique to that particular RTA system
    h. *Action Item:* RTAs will work with MassDOT Planning and Regional Planning Agencies to help establish a methodology for collecting and reporting data for this type of unique measure
    i. *Action Item:* RTAs will work with MassDOT to identify and secure common methodology and systems to collect, track, and analyze the data collected.
    j. *Action Item:* MassDOT will work with the RTAs to identify opportunities to evolve individual metrics to common metrics.
28. MassDOT will require each RTA to provide a report on how they use performance metrics to support data driven decision-making and a culture of continuous

improvement, and their practices for transparently sharing this information with internal and external stakeholders, including but not limited to advisory board members.

    a. *Action Item:* MassDOT will use the RTA Council to provide a forum for the discussion of best practices and performance management in financial and operational management to strengthen a culture of continuous improvement and innovation among RTAs across the Commonwealth.

29. RTAs shall regularly communicate, collaborate, and exchange successful best practices, including but not limited to business relationships, initiatives, and models, partnerships, pilots, and all other successful endeavors so that their peer RTAs can adopt similar approaches within their service areas.

    a. *Action Item:* MassDOT will provide forums (i.e. through the RTA Council meetings) to allow RTAs to exchange best practices.