4 INITIATIVE DEVELOPMENT AND ANALYSIS

As part of the Beyond Boston effort, the study team held a number of meetings with RTA Administrators, MassDOT staff, and agency stakeholders to identify the major issues that should be addressed as part of this study. Additional input was generated through the three Beyond Boston Advisory Committee meetings that specifically focused on initiative development.

A large number of issues were identified through this process. As would be expected, some were considered to be more important than others, some were raised more frequently than others, and some offered greater potential to resolve critical issues. Based on the feedback received and an assessment of the potential for achieving meaningful improvements, ten initiatives were identified for further development in this study:

Service Improvement Opportunities

1. Develop Service Standards and Guidelines: Develop service standards and guidelines to set minimum statewide productivity standards and guide the provision of local services.
2. Improve Service Planning: Improve service planning to ensure that service meets current demands and the most appropriate services are being provided in different service areas.
3. Develop Consistent Data and Reporting: Improve data reporting to ensure a fair and consistent basis for determining need.
4. Enhance Public Information: Enhance public information and marketing to increase awareness of the availability of transit and increase ridership and productivity.

Funding Opportunities

5. Improve Contracting: Improve operations contracting process to better control costs.
6. Improve Capital Planning: Improve the capital planning process to better match funding with need.
7. Identify Additional Funding: Identify new sources of funding to expand and improve service.
8. Develop More Effective Funding Processes: Develop a more predictable, equitable, and transparent funding process that better considers need.

Other Opportunities

9. Foster "Cross-Border Collaboration: Foster greater "cross-border" collaboration to provide more effective and efficient inter-regional services and improve regional facilities.
10. Improve MassDOT/RTA Collaboration: Improve MassDOT and RTA collaboration to increase the overall effectiveness of transit statewide and to implement the above improvements.

To further develop the initiatives, each potential opportunity was analyzed, evaluated and summarized into an initiative document. These documents framed the initiatives in the context of the RTAs and described why the initiative was identified as a major area of concern and/or why it offered an opportunity to improve the delivery of transit services in Massachusetts. The summary documents also

considered existing conditions in the Commonwealth and compared and contrasted the existing conditions with best practices used both in Massachusetts and by transit agencies across the country. As part of summarizing the issues and highlighting potential opportunities, the initiative summaries included a series of "actions to consider" that offered a series of potential next steps for discussion.

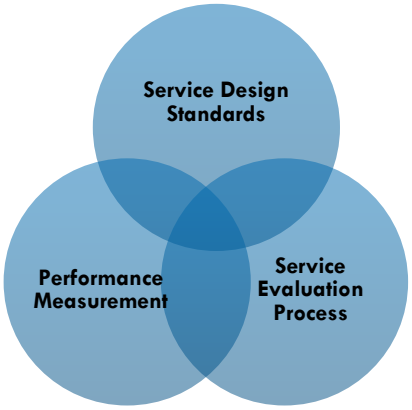
Drafts initiative documents were provided to the Advisory Committee members in advance of the Advisory Committee meetings where they were debated and discussed with the Advisory Committee members in considerable detail. Advisory Committee members were also allowed to submit written comments. The final initiative documents included in this section reflect these comments. They were also a critical resource in developing study findings and recommendations.

INITIATIVE 1:
DEVELOP AND USE SERVICE GUIDELINES: PRACTICES IN OTHER AREAS AND POTENTIAL MA IMPROVEMENTS

Service standards are the foundation of transit service planning and provide an objective and consistent basis upon which to track service performance and make service decisions. Standards are typically used to define:

- How service should be designed
- How much service should be provided and when
- Acceptable productivity levels
- Acceptable cost efficiency levels
- A wide variety of other factors such as Title VI , access to work, and social equity.

Figure 4-1 Systematic Transit Planning[18]



Service standards are also used to measure and evaluate operational performance and to support service evaluation processes designed to improve overall system effectiveness (see Figure 4-1). In addition, service measures are used in the federal funding distribution formula, and also in some state funding distributions.

Certain regional transit authorities (RTAs) in Massachusetts (MA) have established formal service standards, while others employ a variety of tactics to evaluate service performance or design new routes. Yet, there are no service standards or other consistent performance measurement systems used on the statewide level, making it difficult to accurately assess the effectiveness of much of the Commonwealth's transit system.

Furthermore, in 2009, the MA Legislature approved an *Act Modernizing the Transportation Systems of the Commonwealth* (Chapter 25 of 2009), which includes a requirement that MassDOT establish program goals and a system to measure performance against those goals, and report publicly on progress. In accordance with this law, MassDOT has created an Office of Performance Measurement and Innovation to be responsible for performance measurement, including the following specific requirements:

- Performance measurements shall include usage information for all modes of transportation, including measures of throughput, utilization and ridership. This information shall be presented with measurements of congestion, on-time performance, if appropriate, and incidents that have caused delays or closures. Performance measurements shall include assessments of maintenance performance by asset class, mode and region, with an explanation of current year and future year planned maintenance expenditures and the expected result thereof.
- Each MassDOT division shall develop a strategic plan for program activities and performance goals.
- Annual program performance reports shall be required and shall include measures of: maintenance activity, usage (ridership), operational performance, and planning, design and project delivery.
- These performance criteria will be used to determine the quality of service of all entities that perform transportation services on behalf of the Department.

[18] *Best Practices in Transit Service Planning*, Center for Urban Transportation Research, University of South Florida, 2009

To help RTAs comply with this mandate, to develop ways to assess the effectiveness of the Commonwealth's transit services, and to improve service, this document presents an overview of best practices related to the service standards and performance measurement, and describes potential approaches for Massachusetts.

Industry Standards/Common Practice

Individual service standards and performance measures vary significantly among transit agencies. Most standards fall into one of four categories:

1. Service Availability
2. Service Delivery
3. Service Effectiveness
4. Cost Efficiency

Within each category, a large number of measures are used; the most common are summarized in Table 4-1.

Table 4-1 Common Service Standards and Performance Measures

Topic	Measure
Service Availability	Extent of Service Area Covered Minimum/Maximum Distance between routes Service Frequency Span of Service Stop Location & Accessibility
Service Delivery	Vehicle Load On-time performance Speed Service Quality/Passenger Satisfaction Customer Amenities Safety
Service Effectiveness	Ridership Productivity (Passengers per vehicle hour or mile) Passengers per capita
Cost Efficiency	Total Cost per Passenger Net Cost per Passenger Operating Cost per Vehicle Hour or Mile

As illustrated in the following sections, most agencies utilize just a subset of these measures, depending on agency goals and objectives, data availability and the desired service evaluation process. As in many areas, the use of a limited, focused set of measures is usually more effective than the use of a more extensive list of measures.

In addition, different sets of thresholds are typically applied to different types of services. At the transit system level, distinctions are usually made among services (for example, rapid transit, light rail, bus, etc.). At the state level, distinctions are usually made among transit system types (for example, large urban, small urban, rural, etc.). Where services or transit systems are classified differently, the same basic measures are typically used, but different thresholds are set. For example, where the major productivity measure is passengers per vehicle hour, the acceptable level of performance could be set at 20 passengers per hour for large urban systems and 10 passengers per hour for small urban systems. Examples of classification systems are shown in Table 4-2, and additional information is described in the following sections.

Table 4-2 Examples of Bus Service Classification Systems

Transit System Classifications	Service Classification
Kansas City Area Transportation Authority	Key corridor routes Urban local routes Suburban local routes Commuter routes (peak) Lifeline services
Massachusetts Bay Transportation Authority	Local routes Key routes (high demand) Commuter routes Express routes Community routes
Livermore Amador Valley Transit Authority	Fixed-Route Demand-Response
North Carolina	Geographic (range of elevation and highway density) Demographic (density and rural population ratio)
Vermont	Urban Small Town Rural Demand Response Tourism
Pennsylvania	Peers grouped based on four criteria: ▪ Total revenue hours ▪ Total revenue miles ▪ Vehicles in maximum service ▪ Service area population
California	Urban Rural

Transit Agency Examples

Kansas City Area Transit Authority (KCATA), MO

KCATA adopted Service Guidelines in 2011 as part of its Comprehensive Service Analysis (CSA). KCATA service guidelines establish service design principles and set service delivery and performance guidelines. The guidelines are presented as "best practice" due to their simplicity and clarity.

The service design principles are:

- Service should be simple
- Routes should operate along a direct path
- Route deviations should be minimized
- Major transit routes should operate along arterials
- Routes should be symmetrical (same in both directions)
- Routes should serve well defined markets
- Services should be well-coordinated
- Service should be consistent (alignment and headway)
- Stops should be appropriately spaced
- Service design should maximize service (minimize out-of-service time)

KCATA's service delivery guidelines consist of three measures as shown in Table 4-3. Additionally, KCATA measures route productivity using one single measure, which is Passengers per Revenue Vehicle

Hour. The minimum service delivery and productivity guidelines work together to ensure that the appropriate levels of service are provided.

Table 4-3 KCATA Service Delivery and Performance Guidelines

Service Guideline	Measures
Service Delivery Guideline	Minimum Span of Service Minimum Service Frequencies Maximum Passenger Loadings
Productivity	Passengers per Revenue Vehicle Hour

As was shown in Table 4-4, KCATA classifies its services using a hierarchy of five service types (key corridor routes, urban local routes, suburban local route, commuter routes, and lifeline routes). KCATA sets different service delivery and productivity measures for each type of service, and by time of day (see Table 4-4).

Table 4-4 KCATA Productivity Guidelines by Service Type and Time of Day Passengers per Revenue Vehicle Hour

	Key Corridor		Urban Local	Suburban Local	Commuter	Lifeline
	MAX	Other				
Weekdays						
Early Morning	15	10	10	8	-	5
Late Morning	15	10	10	8	-	5
All Day	40	30	20	15	20	5
Saturdays						
Early Morning	15	10	10	8	-	-
Late Night	15	10	10	8	-	-
All Day	35	25	20	15	-	-
Sundays						
Early Morning	15	10	10	8	-	-
Late Night	15	10	10	8	-	-
All Day	30	20	15	10	-	-

Livermore Amador Valley Transit Authority (LAVTA) CA

LAVTA is a small transit system located in Alameda County, southeast of Oakland, CA, that was identified as a "best practice" agency in TCRP's *Transit Performance Measurement* guidebook.[19] It is presented as an example to demonstrate the application and use of performance measurement even within relatively small systems (71 fixed route vehicles, and 18 demand response vehicles).

Before developing specific performance measures and thresholds, LAVTA first established a set of agency goals. The performance measures shown in Table 4-5 apply only to the fixed route system, with performance targets set at a systemwide level. LAVTA plans to transition to a route-based performance measurement system and also to raise its service thresholds over time. The demand response system is currently evaluated against only one measure: passengers per hour.

[19] *A Guidebook for Developing a Transit Performance Measurement System*, TCRP Syntheses 88, 2003.

Table 4-5 LAVTA Fixed Route Performance Measures and Targets

Measure	Performance Target
Farebox Recovery	Goal of 14%
Productivity	13.0 passengers/hour
Service Efficiency	Increase in operating cost shall not exceed increase in local CPI
Service Effectiveness	95% on time performance
	0% missed departures
	0% missed trips
	7,000 miles between road calls
Safety	50,000-70,000 miles between accidents
	1 passenger injury/100,000 boardings
	100% preventative maintenance inspections completed within 10% scheduled mileage

LAVTA contracts its services to a private operator and incorporates various incentive and penalty clauses into its contract depending on whether the above targets are met.

MBTA

The MBTA established service standards in 1996 as part of a Service Quality Project designed to improve the way the MBTA monitors and assesses its services to make them more responsive to rider demand. These standards (see Table 4-6) are used in the MBTA's Service Evaluation and Service Planning process to evaluate route performance and adjust services on an annual basis. Most recently, these standards were used to identify low performing services as part of the MBTA's December 2012 proposal to cut service to help reduce current budget deficits.

Table 4-6 MBTA Service Objectives & Standards

Service Objective	Service Standard	Factors
Accessibility	Coverage	Walking Distance, Population Density
	Span of Service	Mode, Day of Week
	Frequency	Mode, Time of Day (increased for heavy customer demand)
Reliability	Schedule Adherence	Established arrival window % of trips falling into arrival window
Safety & Comfort	Vehicle Load	Mode, Time of Day, Inside/Outside Core
Cost Effectiveness	Net Cost/passenger (bus only)	Deficient routes > 3 times bus average

As was shown in Table 4-2, the MBTA classifies each bus route within one of five classification types: local, key, commuter, express and community.

Montachusett Area Regional Transit Authority (MART)

MART has a set of formal service standards that were updated in January 2012 (see Table 4-7). These standards are used to evaluate progress toward achieving MART's mission and are intended to help achieve the following Service Objectives:

- **Accessibility:** Services should be geographically available throughout the community and should operate at convenient times and frequencies.
- **Reliability:** Services should be operated as scheduled within the permitted parameters.

- **Safety:** Services should be provided in a manner that is safe for the community, the consumers and employees alike.
- **Efficiency:** Services should be provided in a manner that promotes efficient use of resources and consumer quality of service.
- **Cost Effectiveness:** Services should be tailored to target markets in a financially sound and cost-effective manner.

Table 4-7 MART Service Standards

Service Objective	Service Standard/Guideline
Accessibility	Coverage Span of Service Frequency of Service
Safety	Vehicle Load
Reliability	Schedule Adherence
Efficiency	ITS Technologies
Cost Effectiveness	Net Cost/Passenger

These criteria are used in MART's periodic route evaluation process to identify the need for potential service changes. In addition to the above, a number of other criteria are also considered:

- Net cost per new passenger
- Net savings per lost passenger
- Changes in ridership
- Changes in travel time for existing riders
- Changes in operating costs
- Changes in fare revenue
- Key characteristics and demographics of the market
- Contribution to the achievement of external mandates, such as Title VI
- Other factors, as appropriate

Triangle Transit Authority (TTA), Raleigh-Durham, NC

The Triangle Transit Authority (TTA) serves the Raleigh-Durham area, providing local and regional bus service, as well as demand response and vanpool services. TTA measures its services at the system, route, and route segment level with the results used in an annual service evaluation process. Its *Regional Bus Service Standards*[20] also identify factors to be considered before introducing a new service.

TTA's measures are shown in Table 4-8. Of these, it uses Passengers per Vehicle Revenue Hours as its primary indicator of performance. For all measures, averages are determined for each indicator for peak, daytime, evening and weekend time periods and classified into one of the following categories:

- **High-Performing:** Greater than 125% of system or category average
- **Average:** Between 75% and 125% of system or category average
- **Low-Performing:** Less than 75% of system or category average for indicator

Action is recommended when a route is low performing in any one category, and may include route adjustments, special marketing, etc. Routes that are low performing against more than three indicators

[20] *Regional Bus Service Standards*, Triangle Transit Authority, 2004.

for nine months or longer are considered for elimination. Conversely, high performing routes are given priority for passenger amenities, and used promotionally to attract new riders to the system.

Table 4-8 TTA Performance Measures

Goal	Measure	Rationale or Application
Cost Efficiency	Passengers per Vehicle Revenue Hour	Used as "industry standard" for cost-efficiency
	Cost Recovery Ratio	Goal is 25%; also used to assess fare policy
	Operating Cost per Passenger Trip	Used to assess route performance
	Subsidy per Passenger Trip	Measures value of taxpayer investment
Environmental Support	Passengers per Vehicle Revenue Mile	Helps measure VMT and air quality benefits
Other	Pedestrian Accessibility	Based on sidewalks
	Vehicle Ownership	Evaluates transit dependency
	Land Use Planning/TOD	Zoning, residential density

Riverside Transit Authority (RTA), CA

The Riverside Transit Agency (RTA), which provides service in a large and diverse area of Southern California, uses both service standards and performance measures to assess the financial viability of its services (see Table 4-9). In addition, RTA's standards also reflect the state's farebox recovery requirements.

Table 4-9 RTA Service Standards & Productivity Measures

Standard	Factor
Service Delivery Standards	
Service Coverage	Population Density
Span of Service	Type of route, day of week, time of day
Bus Stop Spacing	Type of route, housing units/acre
On time performance	85% of trips within 6 minutes of schedule
Headways	Type of route, service frequency
Transfer wait time	Type of route
Load factor	Bus capacity, #standees
Productivity Measures	
Productivity	Passenger/Revenue Hour Passengers/Revenue Mile
Cost Efficiency	Cost/Revenue Hour Subsidy/passenger mile Subsidy/passenger mile Subsidy/hour Subsidy/Mile
State Mandate	Farebox Recovery of 20% for Urban routes Farebox Recovery of 10% for Rural routes

RTA's standards are based on a classification system that categorizes its services as rural, local, regional, express, Dial-a-Ride, and trolley.

Worcester Regional Transit Authority (WRTA)

WRTA established formal service standards for both its fixed route and demand response services in 2009. WRTA standards are intended to help the agency provide consistent quality service and reflect a series of agency-wide goals and address a large range of activities (larger than any of the other systems described in this document):

- Customer service
- Service quality
- Economics and productivity
- Marketing
- Advertising
- Amenities
- Bus route designation
- Safety and security
- Fleet maintenance
- New services/extensions

Periodic reviews are conducted to compare route performance (ridership and cost) to the systemwide average, with the most recent review completed in 2008. Action is taken based on the ridership performance when compared to the systemwide average, as shown in Table 4-10.

Table 4-10 WRTA Performance Targets & Actions

Route Performance	Action
70-100% of system average	Staff Review
50-70% of system average	Report to Advisory Board
Less than 50% of system average	Route may be eliminated, or continued in six month intervals

Actions taken to improve performance may include a service adjustment, route restructuring, better marketing or the identification of additional revenue sources. Any one individual trip carrying less than five passengers is also considered for elimination. Special cases and circumstances may be accepted by the WRTA Board.

Statewide Practices

An increasing number of state DOTs are now incorporating performance-based management into transportation planning. To date, most state efforts have focused on highway travel. However, many states have recently begun to incorporate transit measures into their performance-based systems. A recent survey of state DOTs by the Transportation Research Board (TRB) found that: [21]

- Most (65%) reported having qualitative transit goals, while 45% reported having quantitative ones. Several agencies have a combination of types.
- Less than a quarter (23%) reported having mode-specific transit goals.
- Three types of transit goals stood out as the most common. Ridership (61%), transit availability (58%), and broader multimodal goals (58%) were most frequently reported. Transit goals were least likely to address travel time and service delivery.

[21] *Statewide Transit Goal Setting*, National Cooperative Highway Research Program, Transporation Research Board, 2011.

- DOTs are using transit goals for various purposes. Aside from helping guide or evaluate investment decision making, DOTs are relying on transit goals to guide local agencies and/or area stakeholders.
- DOTs are primarily developing and documenting their statewide transit goals as part of their statewide long-range transportation planning process. DOTs are also frequently documenting statewide transit goals in state transit management plans.
- DOTs are customarily tracking their transit goals (83%) and linking them to performance measures (77%).
- States are generally tracking their goals quarterly or annually.
- Many states without transit goals (72%) are either developing them or have considered doing so. States cited increased stakeholder interest and broader emphasis on performance measurement and improvement.
- DOTs that do not have statewide transit goals generally cited their departments' limited roles in transit management. Some mentioned that their departments were undergoing reorganization.
- Half of those without statewide transit goals have overarching multimodal goals.
- All respondents who directly operate transit indicate that they track their progress via statewide goals and have linked these goals to performance measures.

A number of motivations were cited for increased DOT involvement in developing transit measures. These include mandates from state legislatures, an increased focus on performance-based planning, the need to more effectively utilize limited funding, and increased efforts to improve interregional travel.

Finally, the TRB report concluded that the establishment of statewide transit goals and performance measures has re-oriented investment priorities, targeted assistance toward lagging systems (in Wisconsin and Minnesota) and encouraged the maintenance and replacement of transit assets (in Oregon and Maine). In other cases, the use of statewide performance measures has provided greater public accountability and helped to advocate for transit system expansion. For example, Missouri DOT used performance measures to provide evidence of transit demand to request additional state transit funding. Minnesota also uses performance data to demonstrate the need for increased statewide transit funding.

Examples of statewide practices are provided below.

California

The CA Transportation Development Act was enacted in 2008. It requires that performance audits be conducted on an annual basis to evaluate the efficiency, effectiveness, and economy of operation. Annual Productivity Improvement Plans (PIPs) must be adopted by each agency prior to receiving any state transit assistance.

California
Best Practices
- Targets for Farebox Recovery and Passengers/Hour
- Different targets for Urban/Rural
- 40% of routes can be based on coverage, rather than productivity

- The Act established a target farebox recovery ratio that transit agencies must achieve to be fully eligible for Transportation Development Act (TDA) funds. The farebox recovery ratio is a blended percentage based on a requirement for urbanized transit service to maintain a farebox recovery of 20 percent and rural transit service to maintain a ratio of 10 percent.
- The state approved criterion for all new and existing service is for 60 percent to be productive and 40 percent to be based on coverage. At this benchmark, productive service is able to meet mandatory farebox recovery. (Note: new services are exempt from performance standards for a

three year period, enabling transit operators to maintain highly productive service and still meet the requirements of the Title VI Civil Rights Act of 1964.)

Although California is a large and diverse state, it classifies transit systems into only two categories: urban or rural.

Colorado

The Colorado State Legislature requires that the revenue/cost ratio for public transit systems be greater than 30 percent. Revenue includes farebox revenue and other non-tax revenue, including FTA funding. Note, however, that while the state mandates a minimum farebox recovery ratio, it does not provide funding for public transit operations.

Minnesota

The Minnesota Legislature has directed the Minnesota Department of Transportation (Mn/DOT) to collect and report on ridership and financial performance each year (Statute 174.247). As part of this process, local systems must submit an approved Management Plan that includes service goals and design guidelines, and report performance indicators. Mn/DOT's Office of Transit then assesses local goals and performance against standard indicators: cost-efficiency, service effectiveness, and cost-effectiveness. Mn/DOT sets productivity goals (passengers per hour and cost per ride) by type of route.

Minnesota

Best Practices

- Statewide Transit Needs Assessment
- Statewide goals set for productivity and use of new funding
- Routes evaluated by segment within three peer groups
- Low performing routes risk loss of funding

Statute 174.247 also requires Mn/DOT to quantify unmet transit needs across the state and develop a plan to meet those needs. To do this, Mn/DOT develops an annual Greater Minnesota Transit Investment Plan to set priorities for investment and to identify priorities in the event of diminished funding.

In years where there is increased future funding, Mn/DOT's highest priority is to establish service in eligible locations where there is no service today. Secondary priorities for expansion include:

1. Expand service hours in the morning and night to provide more trips
2. Expand multi-county services to link more communities.
3. Provide service on more days of the week.
4. Expand service frequencies and coverage.
5. Expand service to provide consistent levels of service statewide.

In years in which transit funding is reduced, system preservation is the highest priority, and Mn/DOT will not support system enhancement. In these years, Mn/DOT evaluates funding needs according to the following three steps:

1. Mn/DOT will work with systems to redesign underperforming service segments.
2. Mn/DOT will reduce state and federal funding to systems with underperforming service segments.
3. If decreases in state and federal funding necessitate additional reductions, Mn/DOT will also reduce funding allocations to systems that meet or exceed performance standards.

Mn/DOT evaluates transit systems within three peer group classifications: Large Urban, Small Urban and Rural. Transit systems are classified into these groups based on system size, service area, and type of service provided.

North Carolina

North Carolina's Department of Transportation (NCDOT) publishes a guide to help community operators benchmark performance, with the goal of improving overall transit performance and quality of service. Under this system, transit operators are measured on a systemwide basis against four benchmarks:

- Subsidy per passenger trip
- Cost per passenger trip
- Passenger trips per vehicle hour
- Non-contract trips per non-urbanized service area population

North Carolina
Best Practices
- Systemwide performance evaluation
- Systems grouped by the level of challenge to deliver transit
- Low performing routes are targeted for improvement

Systems are classified and ranked based on the challenges they face related to these factors (e.g. steep elevations and low population densities present greater challenges), and grouped into five peer groups based on "opportunity to succeed."

Systems are ranked within their classification group as "Superior" (85th percentile or above), "Acceptable" (above median rank) or "Not Acceptable" (below median). For systems that are ranked as "Not Acceptable," NCDOT helps to develop an improvement plan to address reasons for low performance and set actions/ targets/timeline for improvement. Local systems may also pursue improvement plans on their own.

Pennsylvania

In 2007, the PA General Assembly passed Act 44 that requires, among other things, that minimum performance standards be established for each local transit grant recipient. The minimum standards and measures that must be tracked and reported are shown in Table 4-11.

PennDOT also evaluates individual transit agency performance on a systemwide basis each year, comparing each agency to at least five peer systems, with peer group classifications based on:

- Revenue vehicle hours
- Revenue vehicle miles
- Number of peak vehicles
- Service area population

Pennsylvania
Best Practices
- Systemwide performance evaluation
- Use of peer groups
- Low performing routes targeted for improvement
- Funding may also be at risk

Table 4-11 Pennsylvania Statewide Transit Performance Measures

Performance Measures	Indicators/Criteria
Staffing ratios	Ratio of administrative employees to operating employees Number of vehicles per mechanic
Productivity	Vehicle miles per employee Passenger and employee accidents per 100,000 vehicle miles On-time performance Miles between road calls
Fiscal	Operating cost per passenger Subsidy per passenger Operating ratio
Other Measures	As desired by the local governing body

Peer groups are established based on four quantitative criteria: total revenue hours, total revenue miles, number of vehicles in maximum (peak) service, and service area population. For each peer group, PennDOT calculates the average of each performance criteria by mode, and the standard deviation for both the peer group and each local transportation agency.

Four primary evaluation criteria are used to evaluate performance (the remaining criteria are used in the consideration of funding incentives):

- Passengers per revenue vehicle hour
- Operating costs per revenue vehicle hour
- Operating revenue per revenue vehicle hour
- Operating costs per passenger

Local transit agencies are considered to be in compliance if each of the four key performance measures are within one standard deviation of the average among the peer groups. Agencies are considered "at risk" if one or more criteria is more than one standard deviation below average.

PennDOT prepares a five-year trend analysis by performance criteria and mode for each local organization and the peer system group. If the five-year trend for all performance criteria by mode is positive and consistent with the peer trend, the organization is in compliance and no action is taken. If the trend is negative, and not in keeping with the peer group, the organization will be considered at risk. (If the 5-year trend is negative, but consistent with the peer trend, PennDOT will make an individual determination.) For example, if the ratio of administrative employees to operating employees is higher than the peer group, they must identify corrective action to address relative performance.

Agencies that are not in compliance are required to develop a strategic action plan focused on improving the system to achieve the established performance standards. If transit systems fail to implement an agreed upon action plan or fail to show progress in meeting minimum performance standards, PennDOT may reduce state operating assistance by up to 5%.

Vermont

The Vermont Agency of Transportation (VTrans) develops a Public Transportation Policy Plan (PTPP)[22] approximately every five years. The plan sets forth a series of transit performance indicators that are used to assess performance:

- Boardings per hour
- Boardings per mile
- Cost per hour
- Cost per mile
- Cost per passengers
- Daily boardings
- Farebox recovery
- Average passenger fare
- Daily revenue miles and % revenue miles
- Daily revenue hours and % revenue hours

Vermont
Best Practices
- State Policy Plan updates performance indicators every 5 years
- Routes evaluated within 6 peer groups
- Low performing routes risk loss of funding

VTrans requires transit providers to file monthly performance reports for routes that receive federal funding through the state; route performance is reviewed annually. Performance is measured against the

[22] *Vermont's Public Transportation Policy Plan* (PTPP), VTrans, November, 2007

average within seven different categories of route, classified by type of service, as well as population and service span:

- Urban
- Small Town
- Rural
- Demand Response
- Tourism
- Commuter

For funding decisions, VTrans uses three key indicators:

- **Productivity**, which is measured using a single indicator, which depends upon the route class. For most routes, the indicator is Boardings per Revenue Vehicle Hour. The exceptions are for Urban routes (Boardings per Revenue Vehicle Mile) and Commuter routes (Boardings per Trip).
- **Cost Effectiveness**, which is measured by Cost per Passenger Trip.
- **Local Share**, which assesses whether providers have generated 20% of their operating budget from non-federal/state sources.

For productivity, routes that perform at or above the statewide average are considered as "acceptable." However, for cost measures, the minimum acceptable standard is twice the peer average. All routes are reviewed annually. New routes are given a three-year demonstration window, and after three years, if routes underperform for two consecutive years, VTrans works with provider to increase ridership. If those efforts are not successful, funding is withdrawn.

Virginia

Legislation passed by the VA Assembly in 2008 (Item 449.E.) provides that "the principles of local maintenance of effort, transit sustainability, public benefit, and asset management shall be incorporated into all public transportation programs" by the Virginia Department of Rail and Public Transportation (DRPT).

Virginia
Best Practices
- Goals for Ridership and Asset Maintenance
- Guidelines for Service Design
- Provision to ensure increased state funding goes toward enhancements

In response to this legislation, VA's Commonwealth Transportation Board adopted a *Transit Sustainability and Investment Policy* in 2008 that provides guidance to DRPT regarding: (1) the allocation of transit funding; and (2) the setting policy goals desired to be achieved through transit funding programs. These policy goals are:

- Increase transit ridership per capita by at least 3% annually.
- Maintain existing transit assets as the first funding priority.
- Support improved land use, protect the environment, and maximize the use of available funding.

In order to ensure that public transit investments are appropriately maintained or expanded, three policy tools are identified:

1. **Asset Management**: DRPT has a statewide asset management tool that is used to evaluate alternative funding and asset replacement scenarios. The system forecasts capital needs over a 25-year horizon, which are used by local agencies to develop six-year capital plans.

2. **Transit Service Design Guidelines**[23] that provide guidance on how to determine if proposed new services are the most feasible and appropriate mode for the market and operational environment, and if the proposed mode is the most cost effective option.
3. **Maintenance of Effort**: DRPT's maintenance of effort requirement ensures that local spending is maintained from year to year. This allows any increase in state funding to be applied to transit improvements (not to replace local funding).

Summary of Best Practices/Key Themes

Local Service Standards

The use of service standards is common throughout the United States. Notable practices and elements include:

- Most transit systems that use service standards do so to provide the information needed to ensure effective service delivery. Others adopt service standards to comply with state requirements.
- For states that require local transit systems to adopt service standards, some (for example Minnesota and Pennsylvania) specify what those must include. However, most establish more general goals and objectives for transit service, leaving the design of specific service guidelines and standards to local transit systems.
- A relatively wide range of service standards are used throughout the country. However, most agencies focus on a few key measures. Some, however (including WRTA), use a large number of measures. PVTA has focused on service quality measures and, despite recent service cuts and a fare increase, has seen ridership increase by 17% over the last five years.
- Most, but not all, transit systems use service standards to set minimum acceptable levels of performance. Many also specify the actions that will be taken to address underperforming services, including financial incentives or penalties within private operating contracts.
- Most transit systems, especially larger ones, classify services and develop different standards depending on route type and frequency (for example, local, limited stop, express, Flex/Route deviation, low density, etc.) and/or the population served (for example, commuter/work, community, student, special event, regional, circulator, shuttle, peak period).

State Level Performance Measures

As documented by the Transportation Research Board in 2011, state DOTs are increasing their use of performance data to improve the overall quality of transit service and to provide incentives for discretionary funding. Of 43 DOTs surveyed, 75% indicated they are now linking statewide transit goals to performance measures.

The sample of states reviewed as part of the Beyond Boston study found that:

- Most states focus on a few key performance measures (see Table 4-12). For fixed route service performance, *passengers per hour* and *cost per revenue hour* are the most common measures; for demand-responsive service, *passengers per hour* or *passengers per trip* are the most common measure.
- Most states track progress toward meeting certain goals and objectives that extend beyond just efficiency (for example, trips senior citizens, ADA trips, etc.).

[23] Transit Service Design Guidelines, VA DRPT, November, 2008

Table 4-12 Most Common State Performance Measures

Key Performance Measures	States
Passengers per Revenue Hour	MN, VT, PA, NC, CA
Cost per Passenger	MN, VT, PA, NC, IA
Cost per Revenue Mile	IA
Farebox Recovery Ratio	NC, CA, PA, CO
Revenue/Subsidy per Passenger	PA, NC
Other Measures Used	
Passengers per revenue mile	VT (urban routes only)
Passengers per trip	VT (commuter routes only)
Operating cost per hour	VT
Operating cost per mile	VT
Average passenger fare	VT
% Revenue miles and hours	VT
Local Funding Share	IA, VT
Passengers per Capita	NC
Staffing ratios	PA
Accidents and Road Calls	PA
On-time performance	PA

- Many states evaluate performance to identify low-performance and take corrective action, to prioritize funding allocations, or offer funding incentives. These evaluations may be conducted at the systemwide or route level as shown in Table 4-13. In either case, systems or routes are classified into peer groups in order to recognize the differences and challenges of individual service areas (urban, rural, population density) or route characteristic (local, commuter, tourist, etc.)

Table 4-13 Levels at Which States Conduct Performance Evaluations

Evaluation Level	States
System/Agency Performance	NC, CA, PA, CO, IA
Route Performance	MN, VT
Route Segment Performance	MN

- States must collect consistent data from individual agencies to conduct a fair performance review, and many have developed reporting manuals or guides to facilitate this practice. Mn/DOT supplies each system with a digital template to be used to complete monthly reports.

Potential Use of Service Standards in Massachusetts

Summary of Issues

At the present time, several Massachusetts' RTAs have established and use formal service standards, while others employ a variety of different tactics to evaluate route performance or help design new services. Similarly, MassDOT employs a variety of methods to consider the effectiveness and efficiency of regional transit services, but there is no comprehensive, consistent, or readily available data to support such a review. Thus, while it is known that overall ridership has been declining, most RTAs and the state do not have the basic information necessary to identify underperforming services or to identify the reasons for declining ridership.

In addition, Chapter 25 of 2009 mandates MassDOT's Office of Performance Measurement and Innovation to establish program goals for all modes of transportation and to report publicly on progress to improve the effectiveness of transportation policies, projects and service delivery.

The establishment of service standards, on both a local and statewide basis, combined with more effective service planning (Initiative 2) would provide the foundation and means to determine how to provide more effective and efficient service, and meet the mandates of Chapter 25.

Actions to Consider

Potential solutions and improvements–for discussion at the February workshop–to address the above issues include:

1. The development of a clear set of statewide transit delivery goals and objectives.
   - What should these be?
   - How should they be developed?

2. The classification of *transit services* by type (for example, urban local routes, rural local routes, demand response, etc.), and the development of service standards by service type.
   - How much agreement is there on this approach?
   - What should the service hierarchy be?

3. Alternatively, the classification of *RTAs* by type (for example, urban, suburban, rural, tourist-oriented, etc.), and the development of service standards by RTA type.
   - How much agreement is there on this approach?
   - What should the RTA hierarchy be?

4. The development of minimum statewide service standards for each service/RTA type.
   - What are the pros and cons to this approach?
   - What types of measures should be used (for example, passengers per vehicle hour, cost per passenger, etc.)?

5. The development of local service standards by each RTA. Local service standards would include a minimum consistent set of standards that would be used by all RTAs, plus additional measures that would reflect local needs and priorities.
   - How much agreement is there on this approach?
   - What types of measures should be used (for example, passengers per vehicle hour, cost per passenger, etc.)?

For More Information:

Bus Route Evaluation Standards, TCRP, 1995:
onlinepubs.trb.org/onlinepubs/tcrp/tsyn10.pdf

MBTA Service Delivery Policy:
mbta.com/uploadedfiles/About_the_T/T_Projects/T_Projects_List/2009_Service_Delivery_Policy.pdf

Best Practices in Transit Service Planning, (Center for Urban Transportation Research, University of South Florida, 2009):
www.nctr.usf.edu/pdf/77720.pdf

A Guidebook for Developing a Transit Performance Measurement System, TCRP Synthesis 88, 2003:
onlinepubs.trb.org/onlinepubs/tcrp/tcrp_report_88/Guidebook.pdf

Statewide Transit Goal Setting, National Cooperative Highway Research Program, Transportation Research Board, 2011:
onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rrd_358.pdf

Transit Operators Performance Measures, PA State Transportation Advisory Committee, 2007:
ftp://ftp.dot.state.pa.us/public/Bureaus/Cpdm/TAC/TRANSIT_OPERATOR_PERFORMANCE_MEASURES_Final_Report.pdf

Triangle Transit Authority Service Standards:
www.unc.edu/courses/2005fall/plan/127/001/TTAstandards.pdf

Virginia Transit Service Guidelines:
www.drpt.virginia.gov/activities/files/Transit_Service_Design_Guidelines_FINAL.pdf

INITIATIVE 2:
IMPROVE SERVICE PLANNING

Practices in Other Areas and Potential MA Improvements

Massachusetts is a dynamic place. People change where they live, where they work, and the places they travel to. Some places compete better than others, and as a result, some places become more attractive, other places become less attractive, and new areas develop. Newcomers continue to arrive, and existing residents continue to move around–many to other states. The state's residents are also aging.

All of these changes affect the demand for transit. As a result, to provide the best service possible, the transit services that the RTAs provide must also change to reflect demand. Between 2001 and 2010, total RTA ridership declined by 8.7%. This suggests that changes to RTA services have not kept pace with changes in demand. As described below, only four of the state's RTAs comprehensively evaluated their services over the past decade. Others conduct more in-depth planning reviews for specific routes or communities, occasionally survey the public, monitor service quality, or evaluate a particular issue (e.g. on time performance). But, most only loosely track performance on an ongoing basis. As a result, the reasons for the ridership declines are not clear.

In terms of needs, the RTAs, through the MA Association of Regional Transit Authorities (MARTA), undertook an effort in 2004 and 2005 to "identify and prioritize the transit needs of the RTAs, establish a baseline of service standards in line with the specific demographic characteristics of each district and to provide a phased implementation strategy for meeting these needs." However, this Massachusetts Statewide Transit Needs Plan[24] was was conducted at a very macro level, and reviews of the results were mixed. This was largely because the macro-level approach did not provide for the analysis or identification of needs at the local level.

With limited information on the effectiveness of existing services and a lack of consensus on the 2005 Transit Needs Plan, there is currently little agreement on how well RTAs are currently meeting needs, or on the effectiveness of existing services. This initiative is intended to set forth an approach through which MassDOT and the state's RTAs can more accurately determine needs and assess the performance of existing services. With that foundation, MassDOT and the RTAs can then work toward addressing funding issues.

Best Practices

Throughout the country, the most common and widely accepted approach to determine needs and update service is to conduct **Comprehensive Service Analyses**, or CSAs. These studies consist of an evaluation of current and short-term market demand and the development of service changes to better serve those needs.

A second method is through the use of **Ongoing Service Evaluations**. Through the use of these processes, services are evaluated on an ongoing basis rather than a periodic basis as with CSAs. One limitation to these ongoing service evaluation processes is that they focus almost exclusively on the effectiveness of existing services, whereas CSAs address both need and effectiveness.

Many states and regions have implemented other types of performance evaluation processes that contain elements of CSAs and ongoing service evaluations. These methods are described in the following sections.

[24] Urbitran, April 2005

Comprehensive Service Analyses

CSAs,[25] which entail a comprehensive examination of market demand and services, consist of:

1. A market analysis that assesses the demand for transit service to, from, and within the service area
2. A detailed evaluation of the performance of existing routes and services
3. The development and evaluation of alternative service scenarios
4. The development of recommended changes to better align services with market demand.

CSAs are nearly always conducted at the local level; needs vary greatly among areas and statewide efforts such the 2005 Massachusetts Transit Needs Plan are nearly always too broad-brushed to produce results that will be widely accepted. This is especially the case in Massachusetts, where the approaches of the state's RTAs vary greatly from area to area. For example, in more traditional urban areas, such as Lowell and Brockton, the emphasis is on traditional fixed-route service. In more rural areas such as the Montachusett region and Cape Cod, the major focus is on brokering Human Service Transportation trips. In other areas, such as MetroWest, there is a more balanced approach between fixed-route and demand response service. On Cape Cod and the Islands, there is a heavy emphasis on tourist-oriented services.

Throughout the country, some transit agencies never conduct CSAs, some conduct them occasionally, and others conduct them on a regular basis. Periodic reviews are often in response to problems such as funding reductions or community criticism, or due to an internal belief that service could be better. In Massachusetts, most RTAs have either never or only occasionally conducted CSAs, and only four RTAs conducted CSAs or similar studies in the 2000s:[26]

CCRTA (partial): 2009
GATRA: 2008
WRTA: 2005
LRTA 2002

The major goal of a CSA is to determine how to provide better service within existing funding levels. In Massachusetts, three of the four RTAs that conducted CSAs in the last decade experienced ridership increases following the implementation of recommended changes.[27] Throughout the country, most CSAs are oriented-toward determining how to improve service for existing customers and attract new riders.[28]

[25] CSAs are often conducted using different names such as Comprehensive Operations Analysis (COA), Short Range Transit Plan (SRTP), and Transit Development Plan (TDP), as well as more unique names.

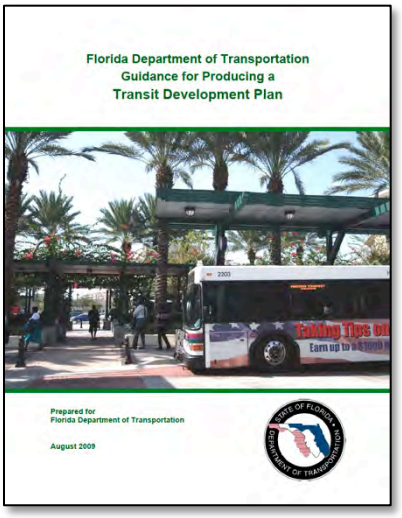
[26] PVTA and SRTA are planning to conduct CSAs in 2012.

[27] The one exception was LRTA, where the transit plan was designed to shift the system's hub from downtown to Lowell's train station. The resulting ridership declines indicate that this shift did not work as well as planned.

[28] Exceptions are when CSAs are conducted to determine how to reduce service levels in response to funding reductions.

State/Regional Comprehensive Service Analyses

Transit systems that conduct CSAs regularly do so to ensure that their services are as effective as possible. In addition, to improve the provision of transit service and ensure effective use of funds, many states and regions require transit systems to conduct regular CSAs as a condition for the receipt of state funds.



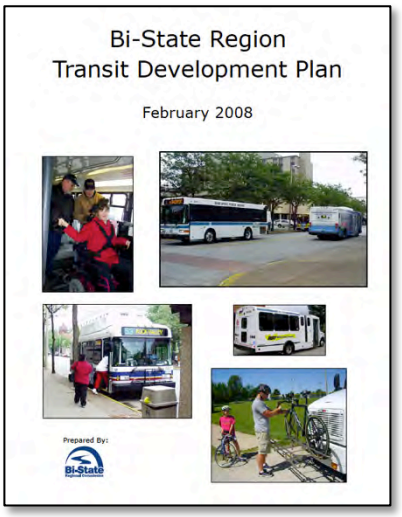
Florida

The Florida Department of Transportation (FDOT) requires that transit systems conduct Transit Development Plans every five years to "support the development of an effective multi-modal transportation system for the State of Florida." State law requires that TDPs be developed as each transit system's planning, development and operational guidance document. They are also intended to serve as strategic planning documents that:

- Define public transportation needs.
- Solicit broad input by coordinating with other plans.
- Involve substantial public participation, and explore community goals with decision makers and other stakeholders.
- Define alternative courses of action.
- Develop a systematic plan and monitoring program.

As stated in FDOT's *Guidance to Producing a Transit Development Plan*, "While required by FDOT, the greatest value from the TDP planning effort, gathered data, and resultant documents occurs when an agency uses the TDP to serve the local area and the traveling public by providing a logical, comprehensive basis for exploring near and mid-term public transit needs and opportunities."

The preparation of TDPs is a prerequisite to receipt of state funds. Local transit systems are responsible for funding and conducting the studies. FDOT provides technical assistance in preparing TDPs, and uses the plans to develop its statewide five-year Work Program, the Transportation Improvement Program, and the Department's Program and Resource Plan.



Iowa/Illinois Bi-State Region

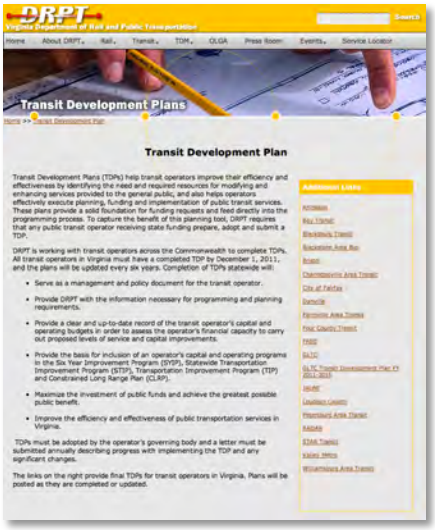
The Iowa/Illinois Bi-State Region (the Quad Cities area) produces a Greater Bi-State Region Transit Development Plan that is a coordinated effort to provide information, guidance, and priorities for passenger transportation. The purpose of the plan is "to provide a framework for efficient and effective transit services related to resource allocation, service development, coordination of services, and addressing gaps or service needs." The TDP includes:

- A profile of the characteristics of the Greater Bi-State Region.
- An assessment of passenger transportation providers within the Greater Bi-State Region.
- The identification of the extent of services, needs, and gaps.

- A summary of coordination among bi-state services and modes, including Human Service Transportation.
- An evaluation of needs and policy direction.
- A prioritization strategy for meeting the mobility needs of the Greater Bi-State Region.

Both the Iowa and the Illinois Departments of Transportation require the regional TDP. The Greater Bi-State Regional TDP complements each state's individual planning efforts.

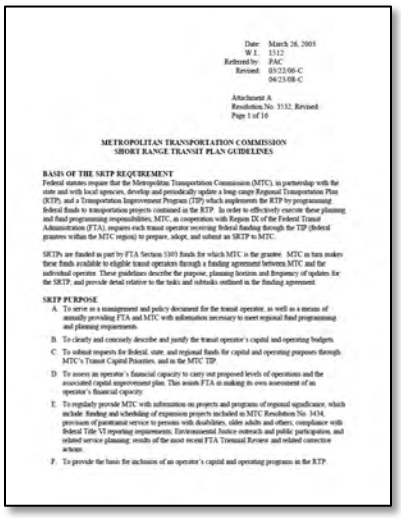
Virginia



The Virginia Department of Transportation's Department of Rail and Public Transit (DRPT) requires that all transit operators that receive state funds produce a Transit Development Plan (TDP) every six years. The TDPs are intended to serve as a management and policy document for the transit operator and identify ways to improve efficiency and effectiveness. The plans also aid operators in effectively executing planning, funding and implementation of public transit services.

For the state, the TDPs are used to:

- Provide DRPT with the information necessary for programming and planning requirements.
- Provide a clear and up-to-date record of each transit operator's capital and operating budgets to assess the operator's financial capacity to carry out proposed levels of service and capital improvements.
- Provide the basis for inclusion of an operator's capital and operating programs in the Six Year Improvement Program (SYIP), Statewide Transportation Improvement Program (STIP), Transportation Improvement Program (TIP) and Constrained Long Range Plan (CLRP).
- Maximize the investment of public funds and achieve the greatest possible public benefit.
- Improve the efficiency and effectiveness of public transportation services in Virginia.



DRPT funds the TDPs and works with transit operators to conduct them. The operator's governing body must adopt the TDPs and a letter must be submitted annually to the DRPT that describes the implementation progress and any major changes.

San Francisco Bay Area

The Metropolitan Transportation Commission (MTC), which is the Bay Area's MPO, requires that transit systems conduct a Short Range Transit Plan (SRTP) every five years as a condition for receiving the federal and state funds that MTC distributes. The SRTPs provide the fundamental basis for determining service and funding needs. In summary, the SRTPs are intended to:

- Serve as a management and policy document for the transit operator, as well as a means of annually providing FTA and MTC with information necessary to meet regional programming and planning requirements.

- Clearly and concisely describe and justify the transit operator's capital and operating budgets.
- Submit requests for federal, state, and regional funds for capital and operating purposes through MTC's Transit Capital Priorities, and in the MTC TIP.
- Assess an operator's financial capacity to carry out proposed levels of operations and the associated capital improvement plan. This assists FTA in making its own assessment of an operator's financial capacity.
- Regularly provide MTC with information on projects and programs of regional significance, which include: funding and scheduling of expansion projects, provision of paratransit service to persons with disabilities, older adults and others; compliance with federal Title VI reporting requirements; Environmental Justice outreach and public participation, and related service planning; results of the most recent FTA Triennial Review and related corrective actions.
- Provide the basis for inclusion of an operator's capital and operating programs in the RTP.

The Bay Area's SRTPs are funded in part through the use of FTA Section 5303. Full SRTPs must be conducted every four years, and "mini" SRTPs must be completed annually. The mini SRTPs provide the basic information needed by MTC for its annual funding distributions.

Washington

By Washington statute, all transit systems must annually produce a Transit Development Plan and Annual Report. The TDPs must contain:

- A system overview that describes the organization, physical plant, service characteristics, and service connections.
- Major activities that the transit system undertook in the previous year.
- Planned strategies for the next six years, including a description of how the strategies align with Washington State Department of Transportation (WSDOT) goals.
- Planned activities for the next six years.
- A Capital Improvement Program for the next six years.
- Operating data for the prior year and projections for the next six years.
- Detailed inventories of facilities, fleet, and equipment.

WSDOT compiles the information in the TDPs to present an overview of transit service and needs to the Washington State Legislature. The TDPs also describe projects of regional significance to be included in regional Transportation Improvement Programs, the State Public Transportation Plan, the statewide Multimodal Transportation Plan, and federally required metropolitan transportation plans.

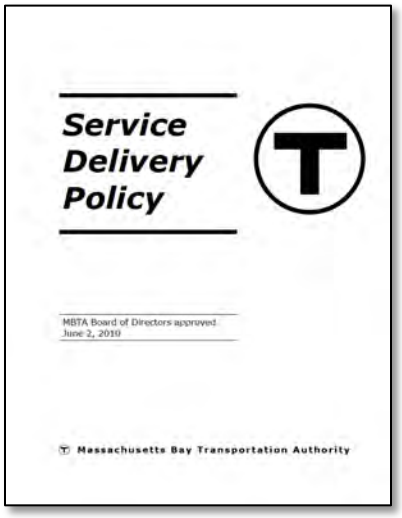
Ongoing Service Evaluations

In addition to, or in lieu of CSAs, some transit systems have implemented ongoing service evaluations. These processes are designed to evaluate the effectiveness of service on an ongoing, rather than periodic, basis.

Massachusetts Bay Transportation Authority (MBTA), Boston

In Massachusetts, the MBTA has an ongoing service evaluation that consists of two components:

1. An on-going evaluation and implementation of incremental service changes that occur on a quarterly basis.
2. A two-year planning cycle for development of the biennial Service Plan, which can include major restructuring of existing routes and proposals for new services.



These activities are defined in the MBTA's *Service Delivery Policy*, which is designed to ensure that the MBTA provides quality transit services that meet the needs of the riding public and are consistent with the MBTA's enabling legislation and other external mandates, such as Title VI of the Civil Rights Act of 1964. The Service Delivery Policy:

- Presents service objectives that define the key performance characteristics of quality transit services.
- Identifies quantifiable Service Standards that are used to measure whether or not the MBTA's transit services achieve the Service Objectives and to evaluate whether MBTA services are provided in an equitable manner (as defined by Title VI).
- Outlines a Service Planning Process that applies the Service Standards in an objective, uniform, and accountable manner.
- Involves the public in the Service Planning Process in a consistent, fair and thorough manner.

The biennial Service Plan reviews service performance and usage of transit services and recommends service changes based on consumer demand. Performance measures include ridership, passenger load per vehicle, schedule reliability, and other factors.

Merrimack Valley Regional Transit Authority (MVRTA), MA

The Merrimack Valley Regional Transit Authority (MVRTA) is the one Massachusetts RTA that uses a formal service evaluation process. MVRTA evaluates its routes on a passenger per revenue vehicle mile and passenger per revenue vehicle hour basis. For each of these measures, MVRTA establishes minimum performance levels at 50% of the system average. Routes that fall below this level are then reviewed using ridership and service data, and passenger surveys are sometimes conducted. Actions that are taken to improve route performance include marketing, alignment and schedule changes, and changes to or discontinuation of individual segments. MVRTA also evaluates whether alternative services could be provided, as well as whether service should be discontinued.

Southeastern Pennsylvania Transportation Authority (SEPTA), Philadelphia, PA

In Philadelphia, the Southeastern Pennsylvania Transportation Authority (SEPTA) evaluates the performance of each of its bus routes on an annual basis based on an operating ratio, or farebox return. For performance to be considered as acceptable, the route's operating ratio must be at least 60% of the system average. Similar to the MBTA's process, routes that perform below acceptable levels are examined to determine whether changes can be made to improve performance. These changes include targeted marketing, realignment, consolidation, and discontinuance.

SEPTA also evaluates and weighs requests for new services against non-performing services–in other words, non-performing services will be discontinued to in order to implement new services that would perform more effectively.

The development of an Annual Service Plan provides the framework for the annual service evaluation process. The Annual Service Plan describes the performance of individual services, and identifies incremental changes that are designed to achieve specific service goals and objectives, and opportunities for cost-effective service expansion. The plan is prepared at the same time each year and follows a defined process that includes municipal and public input.

Port Authority of Allegheny County, Pittsburgh, PA

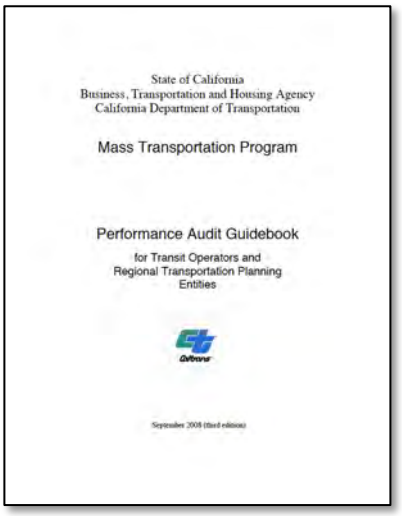
As a result of its 2009 Transit Development Plan, the Port Authority of Allegheny County developed and formally adopted an ongoing service evaluation process. The ongoing evaluation process was based on the MBTA process with changes to meet local needs.

Other Statewide Planning Efforts

A variety of other statewide efforts address service and performance in other ways. In most cases, these efforts are similar to those conducted as part of CSAs.

California

California requires that Regional Transportation Planning Entities conduct a triennial performance audit of local transit systems. The performance audits are a systematic process of evaluating an organization's effectiveness, efficiency and economy of operation under management control, and are intended to:



- Provide management with useful information to assess past activities and provide insight for future planning efforts.
- Provide management with a review and evaluation of an agency's organization and operations.
- Present an opportunity to utilize auditor expertise, which can supplement staff work.
- Assure accountability for the use of public funds.

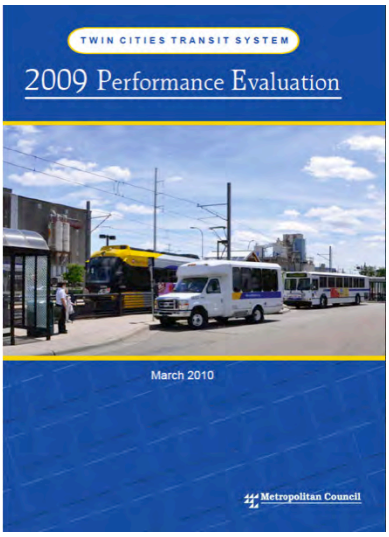
The performance audits also verify a number of key performance indicators, including:

- Operating cost per passenger
- Operating cost per vehicle service hour
- Passengers per vehicle service hour
- Passengers per vehicle service mile
- Vehicle service hours per employee

The Regional Transportation Planning Entity is responsible for ensuring that a performance audit is conducted and selecting the auditors. The Regional Transportation Planning Entities fund the audits.

Minnesota

In the Twin Cities area, state statute requires the Metropolitan Council (the MPO) to perform an evaluation of the Twin Cities transit system every two years. The evaluation includes:



- A description of the regional transit system
- Demographic trends
- Regional transit ridership and operating statistics
- Peer region comparisons
- Peer agency modal analysis
- A funding analysis
- A capital plan
- Information on major initiatives

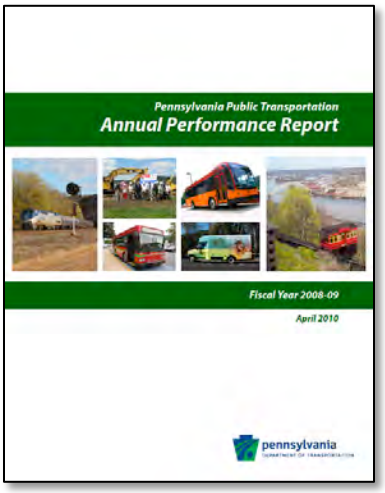
Outside of the Twin Cities, the Minnesota Department of Transportation's (Mn/DOT) Office of Transit conducts a screening

of the performance of approximately ten of the state's transit systems each year. These "Transit System Evaluation Project" reviews are conducted by Office of Transit staff, MnDOT District Transit Project Managers and financial auditors. The goals of these evaluations are to identify best practices in rural transit operations and to assist systems to improve efficiency and effectiveness in service delivery. The areas that are reviewed include:

- Organizational structure
- Personnel
- Risk management and staff training
- Trip making
- Public information and marketing
- Drug and alcohol compliance
- Vehicles and maintenance

Office of Transit staff members also assist rural agencies in developing standards to meet state performance standards for the different types of service provided.

Pennsylvania



In 2008, Pennsylvania significantly reformed the way it funds transit. The backdrop for the changes was a 2006 Transportation Funding and Reform Commission (TFRC) study which concluded that too many systems were underperforming. It also concluded that the "historical funding basis" that the state used tended to ignore changing patterns of development and encouraged a very static transportation system. In 2007, as a result of the TFRC's work, Pennsylvania enacted Act 44, which shifted its funding distribution to a performance-based system.

While the legislation did not require that transit systems conduct any specific planning to improve performance, the ridership components of the funding formula did produce that effect. For example, in Pittsburgh, where performance lagged that of other transit systems, the Port Authority estimated that it would not receive an increase in funding for many years unless it implemented changes to improve ridership and productivity. The passage of Act 44 was directly responsible for the Port Authority undertaking its Connect '09 TDP that completely transformed and improved service, and the development of its ongoing service evaluation process.

At the statewide level, as also required by Act 44, the Pennsylvania Department of Transportation (PennDOT) compiles and publishes an Annual Performance Report that presents the "state of the industry" to Pennsylvania's citizens and elected officials. This document addresses:

- Changing circumstances influencing ridership, costs and other performance factors
- Trends in levels of service, the cost of service, ridership and funding
- Major accomplishments
- New initiatives
- A preview of the challenges and opportunities that will help shape the future agenda for those that financially support, provide, or use public transportation services in Pennsylvania.

It also presents profiles and service statistics for each of the state's public transit operators.

Potential Massachusetts Service Planning Improvements

Summary of Issues

There is a very large range of viewpoints among RTAs, other stakeholders, and MassDOT related to the effectiveness and efficiency of the services that are now being provided by the RTAs, and the magnitude of unmet needs. There are also a variety of viewpoints on desired outcomes:

- Some RTAs believe that they already serve their communities as effectively and efficiently as possible given current funding levels; more rigorous analysis would divert funds that would otherwise be used to provide service.
- Other RTAs believe that more comprehensive analyses should be conducted to determine how to improve service (PVTA and SRTA are both planning to conduct CSAs in 2012).
- Most outside stakeholders believe there are opportunities for RTAs to provide service that better meets current needs.
- MassDOT desires to be able to better assess and determine need in order to ensure the most effective use of available funding.

Because very little formal service analysis is or has been conducted at either the local or state level, neither MassDOT nor the RTAs have been able accurately measure effectiveness and efficiency or convincingly demonstrate unmet needs. As a result, it is challenging to have an objective discussion on how effective the services provided by the RTAs are compared to how effective they could be.

There are also a number of areas of consensus:

- All RTAs do want to provide the best service possible and desire the ability to provide more.
- All parties desire a funding process that is more strongly tied to needs.
- All parties agree that needs should primarily be determined at a local level (with statewide needs then determined based on local needs).

Given the above, key issues to be addressed include:

- Implementation of a method to better assess and measure existing RTA services. Available information also indicates that RTAs should become more aggressive at modifying their services to better meet changes in passenger demand.
- More convincingly documentation of unmet needs within each RTA area, and an estimate of the cost of meeting these needs.
- Development of a process to compile local (RTA) needs into a statewide program that is better designed to address these needs.

Actions to Consider

Potential improvements–for discussion at the February workshop–that could address these issues include:

1. Development of a formalized CSA process in which all RTAs would comprehensively examine their services every four to six years.
   - Would there be agreement on this?
   - What elements should be included?
   - How would they be funded?

2. What is needed to convincingly demonstrate unmet needs?
   - Market analysis?
   - Ridership and cost estimates?
   - Community support?
   - Other?

3. What should be done on an annual basis?
   - Ongoing service evaluation process?
   - Simpler compilation of basic performance data? What elements would be appropriate?
   - Consideration of service expansion requests?

4. How should MassDOT assess and prioritize needs on a statewide basis?
   - Compare costs and effectiveness of individual proposals?
   - Maintain existing services?
   - Provide service to new areas?
   - Improve existing services?
   - Focus on providing a basic level of service?
   - Focus on areas where demand is greatest?
   - Through RTA Council?

For More Information

California Performance Audits:
www.dot.ca.gov/hq/MassTrans/Docs-Pdfs/PAGBookFinalPub.pdf

California Short Range Transit Plan Guidelines:
www.mtc.ca.gov/funding/FTA/downloads/SRTP_Guidelines_rev_042308.pdf

Florida TDP Requirements:
planfortransit.com/wp-content/TDP_Materials/Current_TDP_Rule.pdf

Florida TDP Guidebook:
planfortransit.com/resources/download_center/?did=56

Iowa/Illinois Bi-State Region
Transit Development Plan:
web1.ctaa.org/webmodules/webarticles/articlefiles/08_QuadCities_RegionalCoordinationPlan_20090309.pdf

Massachusetts Bay Transportation Authority (MBTA)
Service Delivery Policy:
mbta.com/uploadedfiles/About_the_T/T_Projects/T_Projects_List/2010ServiceDeliveryPolicy.pdf

Pennsylvania Annual Performance Report:
ftp://ftp.dot.state.pa.us/public/bureaus/PublicTransportation/GeneralInformation/BPT%20Annual%20Report%20FINAL%202008-09.pdf

San Francisco Bay Area Short Range Transit Plan Guidelines:
www.mtc.ca.gov/funding/FTA/downloads/SRTP_Guidelines_rev_042308.pdf

Southeastern Pennsylvania Transportation Authority FY 2011 Annual Service Plan
www.septa.org/reports/pdf/asp11.pdf

Southeastern Pennsylvania Transportation Authority
Service Standards and Process
www.septa.org/reports/pdf/standards.pdf

Virginia Transit Development Plans:
www.drpt.virginia.gov/activities/transitdevplan.aspx

INITIATIVE 3:
DEVELOP CONSISTENT DATA AND REPORTING

Practices in Other Areas and Potential MA Improvements

In order to make effective decisions about where and how to fund, manage and deliver public transit services, planners and decision-makers need to have accurate, reliable data on which to base decisions. At the federal level, transit providers receiving federal assistance are required to submit annual operating and financial statistics to the National Transit Database (NTD). This database serves as a repository for transit data from public transit providers across the country. Many states also utilize data that is either directly drawn from NTD, or similar to it, in order to better understand the unique characteristics of their individual operators, and to evaluate ongoing system performance. Some states go beyond the requirements of NTD and collect additional data on grant expenditures, asset condition and other transit system characteristics. At the local level, most providers monitor their own operating statistics to evaluate the effectiveness of individual services and to make modifications and service adjustments on a periodic basis.

Perhaps, most importantly, reporting of transit operating data and financial statistics to both federal and state funding agencies provides public transparency and helps to monitor and demonstrate fiscal responsibility and effectiveness on behalf of the taxpayer and customer. In many states, additional data beyond basic operating and financial statistics are frequently used to support other state DOT roles such as evaluating the overall quality of service and helping to make funding decisions. These states are able to make informed, data-driven investments that further advance statewide goals for transit and are able to demonstrate their success and progress to the public.

National Transit Database

By law, all transit providers[29] that receive Federal Transit Administration (FTA) Section 5307 (Urbanized Area Formula Program) or Section 5311 (Other than Urbanized Area Formula Program) funds are required to report certain summary-level data to FTA's National Transit Database (NTD).

Reporting takes place both annually and monthly, and is intended to provide a national summary of transit and safety statistics. The primary purpose for collecting this data is to allow FTA to determine how to apportion more than $5 billion in Urbanized Area funds among more than 450 urbanized regions. NTD summary reports are also submitted to Congress each year. In order to compare data across so many individual agencies, NTD collects a variety of information, including, but not limited to, the following:

- Agency information
- Service data, such as service miles and hours
- Performance data, including ridership and fares collected
- Financial data, including operating expenses and sources of funding
- Facility and fleet data
- Employment data

Most data is collected by service mode (for example, demand-responsive, local bus, commuter rail, light rail, etc.) and by operating type (either Directly Operated – that is, operated by the agency itself – or Purchased Transportation, provided through a contract by another entity). Agencies operating fewer than

[29] Over 660 transit providers in urbanized areas around the United States currently report to NTD.

30 vehicles have greatly reduced reporting requirements. Reporting waivers and extensions are also granted in certain cases, to provide relief in the event of natural disasters, transit strikes, etc.

Annual reports encompass all of the above data, whereas monthly reporting includes only a basic set of data, chiefly service data and ridership. NTD schedules its reporting cycles to accommodate agencies' fiscal years, which may differ from agency to agency. NTD reporting deadlines are set no earlier than 120 days after the end of agencies' fiscal year-ends. For example, agencies with a fiscal year-end date that falls between April 1 and June 30 must report by October 31 of the following year. Agencies are also given an additional three months thereafter to submit any final revisions to data. All data is submitted electronically.

NTD oversees the process of collecting this data from transit agencies and makes the data available online for public use. There is a relatively significant delay before this data is made publicly available; data for a given calendar year is typically available about one year later. Historical data sets are also available, meaning that NTD can be a good source of information about how services have evolved. However, as described later in this document, there are a number of important limitations to NTD data that often hinder its usefulness.

Reporting Requirements in PEER States

Washington

Every year, the Washington State Department of Transportation (WSDOT) collects transit agency data and publishes a *Summary of Public Transportation* that documents the status of public transit throughout the state. For accurate reporting in the *Summary of Public Transportation*, WSDOT works closely with the Washington State Transit Association, which represents the majority of public transportation systems in the state. Together, they have developed a standard template for reporting data.[30]

Washington

Best Practices

- Annual Summary of Public Transportation report
- Process streamlined to be more consistent with other state and federal reporting requirements
- Online, consolidated web-based data reporting system
- Explicitly defined data definitions

The data collected is not used as part of budgeting, grant selection, or other decision-making processes, but is presented to the public as part of the *Summary of Public Transportation*. Data collected includes:

- Farebox recovery ratio
- Operating cost per passenger trip
- Operating cost per total vehicle hour
- Operating cost per revenue vehicle hour
- Revenue vehicle hours per total vehicle hour
- Passenger trips per revenue vehicle mile
- Revenue vehicle hours per full-time equivalent employee
- Passenger trips per revenue vehicle hour
- Operating cost per revenue vehicle mile
- Revenue vehicle miles per revenue vehicle hour

WSDOT has tried to make the process of reporting data as user-friendly and seamless as possible and has worked steadily to improve its reporting systems. Prior to 2007, a Microsoft Access database had been

[30] The Transit Summary for 2010 is available online at: www.wsdot.wa.gov/publications/manuals/fulltext/m0000/TransitSummary/2010PTSummary.pdf

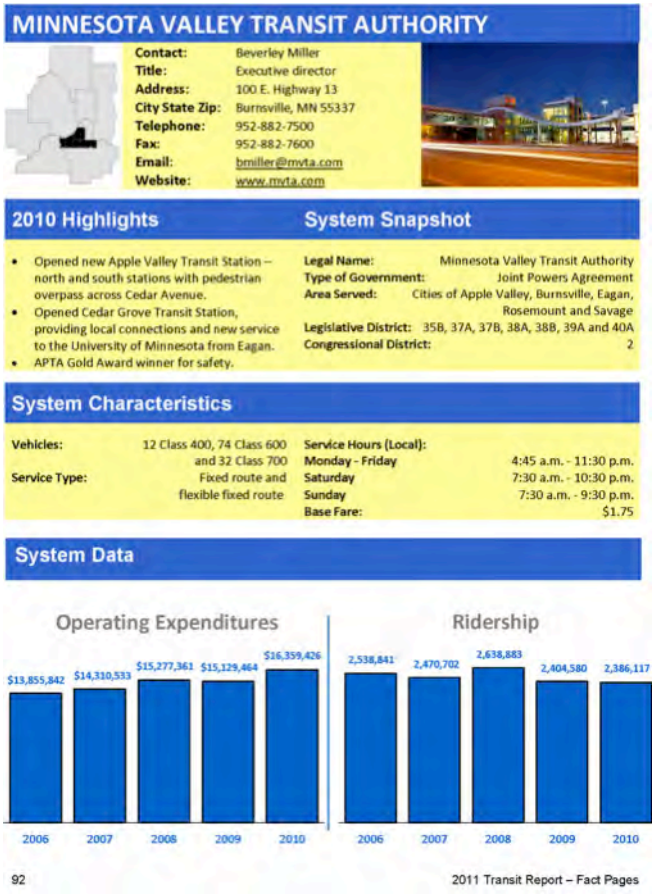
used to tabulate data, and transit operators submitted data through a set of forms. This system was inefficient and cumbersome for operators and the state; for example, every year as transit service data definitions and requirements evolved, forms would have to be revised and the Access database had to be modified to accommodate them, leading to inconsistencies from year to year.

In 2008, as part of an outside review focused on standardizing cost allocation procedures, WSDOT identified significant overlap and conflicts in the reporting required to both the state (for Transit Development Plans (TDPs) and the Summary of Public Transportation) and for NTD. As a result, WSDOT began to streamline the data reporting process. This involved realigning the reporting deadlines and refining how financial and operating data were reported. Among the benefits of improvements in reporting included:

- Irregularities in data were more easily identified.
- Data definitions became more uniform and more consistent with each agencies' other reporting obligations to NTD and TDPs.
- "Other" data was no longer allowed without some explanation or discussion.
- Transit operators were able to report data in more disaggregated formats (such as Directly Operated versus Purchased Transportation, as it is reported to NTD), which allowed them to skip steps requiring aggregation. The state later handled data re-aggregation in the format that it preferred.

In 2010, WSDOT created an online collection form that has made collecting data very efficient, allowing operators to report to a software-independent central database directly and consolidating previously separate forms for financial, operating, and system overview data.

Table 4-14 Greater Minnesota Transit Report-Agency Snapshot



Minnesota

Minnesota DOT (Mn/DOT) provides technical assistance to each of the 59 transit providers outside the Twin Cities region. Each year, the agency distributes more than $28 million in funding to these providers from its general fund and vehicle sales tax. Agencies apply annually for operating, capital and planning funding. In about 2001, the state shifted its goal away from providing transit service in every county in the state (a coverage model goal) to providing for 80% of total transit need (a productivity model goal) by 2015, and 90% of need by 2025. To help support the state's progress toward this goal, the state now makes funding decisions based on transit service performance, rather than according to a set funding formulas as many states do.

To assist the state in progressing toward its goals, the Mn/DOT Commissioner presents the annual Greater Minnesota Transit Report to the state

legislature, detailing the current state of transit services outside of the Twin Cities metropolitan area. The report focuses on the state of the industry, transit system performance, agency financial data, and transit system needs. The report serves not only as an update on transit operators' performance overall, but also provides the basis for the state to evaluate ridership trends and service productivity to make funding allocation decisions.

To assess the performance and cost-effectiveness of each transit agency, Mn/DOT 's Office of Transit uses four measures:

Passengers per service hour

Cost per service hour

Cost per passenger ride

Farebox recovery ratio

These measures are reported by individual providers and tracked over time to observe trends and overall growth and declines. The data is used to plan for future demand, as an opportunity to identify agencies that are underperforming (and then provide technical assistance), and meet the state's goals for meeting public transportation needs. (An additional review of Mn/DOT's use of data for service evaluation is included in *Initiative 1 – Develop Service Standards & Guidelines*.)

Minnesota

Best Practices

- Performance measures reported
- Data summarized in annual statewide report
- Agencies evaluated against peer groups to make comparisons
- Data used to make funding decisions
- Data allows Mn/DOT to provide technical assistance to underperforming services

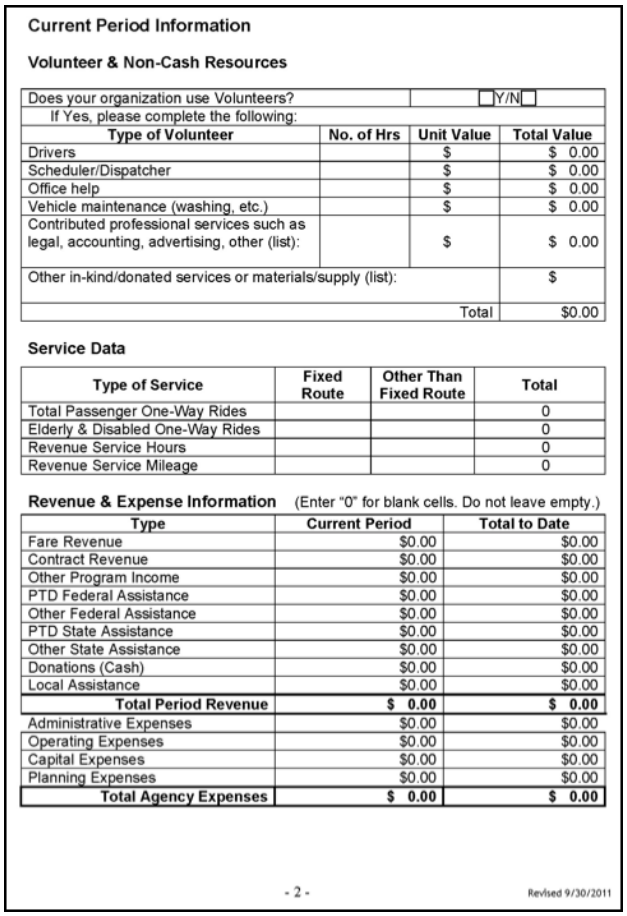
Oregon

The Oregon Department of Transportation (ODOT) collects data directly from its transit providers on a quarterly basis. The reports collect basic transit operating data, and are ultimately used by ODOT to create performance metrics to evaluate system performance. The information is used to monitor transit activities, grant expenditures and project progress. Reports are not published on the ODOT website, but are presented to the Legislature.

A quarterly reporting schedule is used instead of a monthly schedule because it is seen as being less intrusive for agencies, but is frequent enough to allow the state to collect data in a timely manner. All transit agencies who receive state funding for transit are required to complete these reports.

The quarterly reports are composed of separate Microsoft Word- and Excel-based forms, which are filled out by the individual transit providers and submitted electronically to ODOT. The process for filling out these forms is clearly documented in an on-line guidebook (see link at end of this document), with all terms and procedures explicitly defined. In addition to a wide range of supporting documentation, there are two main forms that agencies must submit:

Figure 4-2 Sample Page from Oregon DOT Transit Agency Quarterly Report



Current Period Information

Volunteer & Non-Cash Resources

Does your organization use Volunteers?		☐Y/N☐	
If Yes, please complete the following:			
Type of Volunteer	**No. of Hrs**	**Unit Value**	**Total Value**
Drivers		$	$ 0.00
Scheduler/Dispatcher		$	$ 0.00
Office help		$	$ 0.00
Vehicle maintenance (washing, etc.)		$	$ 0.00
Contributed professional services such as legal, accounting, advertising, other (list):		$	$ 0.00
Other in-kind/donated services or materials/supply (list):			$
		Total	$0.00

Service Data

Type of Service	Fixed Route	Other Than Fixed Route	Total
Total Passenger One-Way Rides			0
Elderly & Disabled One-Way Rides			0
Revenue Service Hours			0
Revenue Service Mileage			0

Revenue & Expense Information (Enter "0" for blank cells. Do not leave empty.)

Type	Current Period	Total to Date
Fare Revenue	$0.00	$0.00
Contract Revenue	$0.00	$0.00
Other Program Income	$0.00	$0.00
PTD Federal Assistance	$0.00	$0.00
Other Federal Assistance	$0.00	$0.00
PTD State Assistance	$0.00	$0.00
Other State Assistance	$0.00	$0.00
Donations (Cash)	$0.00	$0.00
Local Assistance	$0.00	$0.00
Total Period Revenue	**$ 0.00**	**$ 0.00**
Administrative Expenses	$0.00	$0.00
Operating Expenses	$0.00	$0.00
Capital Expenses	$0.00	$0.00
Planning Expenses	$0.00	$0.00
Total Agency Expenses	**$ 0.00**	**$ 0.00**

- 2 -

Revised 9/30/2011

- **Agency Quarterly Report:** The quarterly report form is the basic form used by all grantees to report on the previous quarter. The form is five pages long and includes a mix of checkboxes and text-fields. The form requires agencies to input data such as service data (passenger one-way rides, elderly and disabled one-way rides, revenue service hours, and revenue service mileage), detailed revenue and expense information, volunteer and non-cash resources, accident data, fleet and equipment inventories, civil rights data, and more. For agencies that provide intercity bus service, a separate form is required.
- **Budget Detail Worksheet:** The Budget Detail Worksheet details a transit provider's spending over the past quarter, and includes operations, preventative maintenance, purchased service, planning and mobility management grants. The worksheet allows the state to carefully track spending by grant, and to ensure that projects are not being charged to multiple grant sources.

Oregon

Best Practices

- Quarterly reporting cycle
- Electronic form submission
- Grant reporting to monitor spending
- Performance data used to evaluate transit services
- OPTIS online system streamlining data reporting and communication process for grants

In addition to quarterly reporting, ODOT uses a web-based system called Oregon Public Transit Information System (OPTIS) to handle grant funding applications, award status, and reimbursement requests and history with its funding recipients. All data is tracked online and is therefore available at ODOT and agencies' fingertips as needed. The system is primarily designed to streamline the grant process, but also serves as a tracking method for financial data in general. Currently, agencies attach the Budget Detail Worksheet to their OPTIS reports; eventually, OPTIS developers may fully integrate data reporting addressed within the Budget Detail Worksheet into a single streamlined process.

Massachusetts Human Service Transportation

Massachusetts coordinates its human services transportation through a state office, the Human Services Transportation Office (HST), housed under the Executive Office of Health and Human Services. The HST office has subdivided the state into nine brokerage regions, each managed by an existing Massachusetts RTA. Some RTAs serve as brokers for multiple service areas, even ones in which they do not normally operate transit services.

Massachusetts HST manages a total budget of $111 million annually, supported through three different human service programs. Collectively, the six RTA brokers manage over 300 private transportation carrier vendors across the state, providing more than 5 million trips each year for more than 37,000 consumers. Given the urgent need and specialized nature of many of these trips, it is imperative that the HST office receive timely, accurate data on trip reliability, safety and other performance measures.

The HST office requires its brokers to report system usage and costs and monitor performance benchmarks. Overall, HST compiles data to track the following statistics for its system:

- Total operating costs
- Consumer one-way trips
- Consumer trip expenditures
- Chair car trips
- Broker management expenditures
- Average direct service cost per trip
- Shared trips
- Consumers Served
- Local transportation providers

- Average broker management cost per trip
- Vehicles (including chair cars)
- Drivers
- Monitors

Brokers must submit monthly operations and revenue expenditure reports. Benchmarks used to evaluate system operations include:

- Consumer trips provided without a vehicle accident
- Service requests implemented within prescribed timelines
- Trips provided as scheduled
- On-time trips provided
- Trips provided without a serious vehicle complaint
- Trips provided without a serious driver/monitor complaint
- On-site service inspections

HST prepares an annual report on program performance to the MA Legislature. In addition, HST conducts annual reviews and site reviews of each brokerage, analyzes data trends and monitors monthly expenditures. The HST office and other EOHHS program offices also worked closely with the brokers to train them in operational and reporting requirements.

Summary of Best Practices

The examples presented above are only a few of the transit data collection and reporting practices that take place throughout the country. In most states, collecting data is a typical rather than an exceptional practice. However, the means of compiling data and the use of this data differs from state to state:

- **Regular collection and reporting of data.** Most states compile an annual summary of transit provider performance. These reports provide a useful means of comparison between providers, and allow data collected to be distributed in an easily understood product. While most require only annual reporting, some states such as Oregon collect data more frequently.
- **Type of data collected.** States vary in the level and type of data they collect from agencies. Data typically includes system characteristics, ridership and other performance data, fleet and other inventories, and budget details. However, one consistent practice is that states that collect data directly from their RTAs provide significant guidance and clear definitions of how data should be reported in order to minimize deviations among reporting entities and keep data consistent.
- **Piggybacking on NTD reporting aggregation levels.** By allowing transit operators to report data at least at the same level of disaggregation as they do for NTD, the burden of having to report data in two places can be reduced. For example, Washington State is able to reduce data processing steps for its operators by allowing operators to report data in terms of Directly Operated and Purchased Transportation, which is how services are reported to NTD, and then re-aggregating to the level desired by WsDOT after data collection is complete.
- **Use of Data in Decision Making.** Some states use data collected from RTAs as the basis for decision-making. Data is used by different states to:
  - provide transparency and accountability to the public
  - evaluate system (and even route-level) performance
  - measure trends over time
  - allocate funding

  - monitor and track grant status and reimbursement
  - report to key stakeholders on the progress of statewide transit services
  - justify spending and advocate for additional funds
  - ensure compliance with state and federal rules.

  For example, Minnesota uses its data collection and reporting to guide funding decisions and provide technical assistance to transit operators with underperforming services. Its data reporting practices are ultimately conducted in the service of meeting its statewide goal to provide transit service to meet 90% of total need. Oregon, on the other hand, focuses on using its reporting to track financial data and manage grant processes, although it also collects operating data that in some ways parallels that reported to NTD, on a quarterly basis. Massachusetts HST collects a range of very detailed data that it uses to carefully track service performance on an ongoing basis, which allows it to keep abreast of any challenges as they arise and address them swiftly.

- **Electronic data submission**. Data reporting is evolving toward more streamlined electronic formats. Other states, such as Washington and Oregon, have had success in collecting data electronically, which reduces the burden of reporting and streamlines the process. This allows the state to set a single reporting format that all transit operators must adhere to, and has the advantage of being more readily compiled at the state level. These systems can also help to organize and store transit provider data so that it is available in a central location.

Current Practice in Massachusetts

MassDOT Data Collection

One of MassDOT's three primary goals reads as follows:

> *"Through a culture of innovation and accountability we will deliver the most efficient transportation services and information possible."*[31]

MassDOT is also directed (by M.G.L. Chapter 6C) to collect certain information and data related to each of its divisions. These requirements include:

- The collection and reporting of performance criteria to be published in an annual scorecard, providing a progress report on project development and efforts to improve the effectiveness of service delivery.
- The collection of asset condition data to help oversee and coordinate the maintenance, preservation and investment in transportation facilities and equipment.

While most states collect data directly from transit agencies, MassDOT currently relies on data reported to the National Transit Database (NTD) to understand the services provided by the RTAs it funds. Rather than waiting for NTD to publish statistics more than one year hence, MassDOT does request that RTAs forward a copy of this data as it is reported to NTD. However, since there is no specific benefit to doing so–and no penalty for failing to do so–not all agencies forward their data. Moreover, even when RTAs do forward their data, there is no required or consistent format for this data; RTAs may submit their data in a format that is not easily compiled. As a result, MassDOT has an incomplete set of data that cannot easily be pooled for a complete picture of statewide operations. Furthermore, MassDOT has been inconsistent in the requests it makes to the RTAs for data – often asking for data that goes unutilized.

In 2009, MassDOT compiled a *2009 RTA Scorecard* of transit services based on FY2008 data submitted by the RTAs to NTD. This *Scorecard* ranked the 15 RTAs in terms of 12 performance and productivity

[31] MassDOT 90-Day Integration Report: www.eot.state.ma.us/downloads/90_DayReport/IntegrationRepoort_0909.pdf

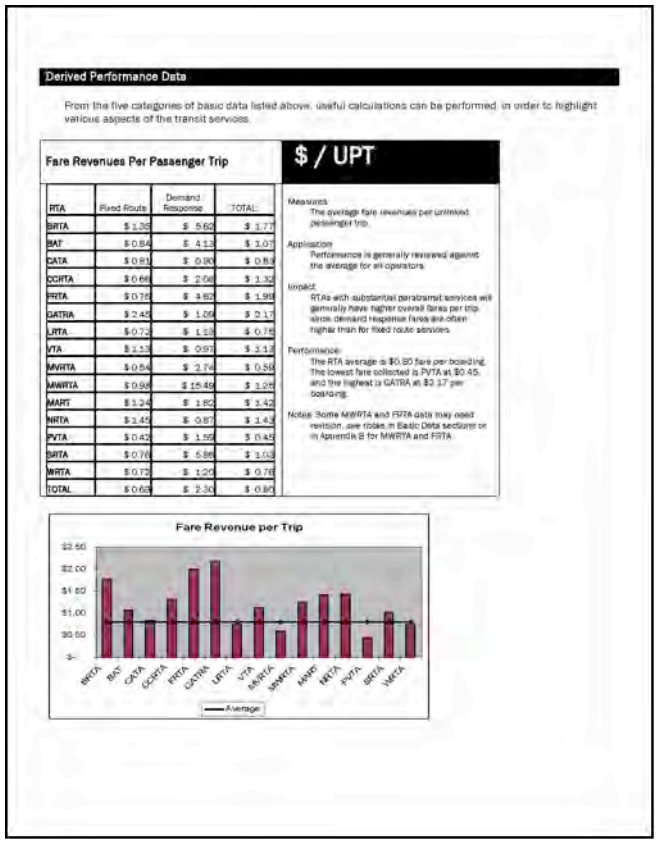
measures, and also presented information on agency fleet and service area population (see also Figure 4-3):

- Unlinked Passenger Trips
- Vehicle Revenue Miles
- Vehicle Revenue Hours
- Operating Expenses
- Fare Revenues
- Fare Revenues per Passenger Trip
- Operating Expenses per Passenger Trip
- Fare Revenues per Mile
- Operating Expenses per Mile
- Fare Revenue per Hour
- Operating Expenses per Hour
- Farebox Recovery Ratio
- Vehicles Available for Maximum Service
- Population in Service Area
- Ridership per Capita

The *Scorecard* provided a snapshot of 2008 performance that indicated that there is a very wide range of performance among RTAs. However, beyond providing a public snapshot of RTA performance, the *Scorecard* did not include any analysis of results nor use the data as a basis in any decision-making.

MassDOT has also recently begun to informally collect information regarding fleet and equipment replacement needs as part of the annual RTA Capital Program funding allocation process. It is hoped that more reliable information can be collected on a permanent basis and used as part of a more equitable and needs-based capital funding allocation process in the future. But previous attempts at addressing this issue were inconsistent and constantly shifting.

Figure 4-3 2009 RTA Scorecard Example Ranking



RTA Reporting

Each Massachusetts RTA must prepare an annual report covering operations from the prior fiscal year, as directed in their enabling legislation (M.G.L. Chapter 161B). These reports are submitted to the Secretary of Transportation and to the MA Legislature. Some RTAs (e.g. PVTA, MVRTA, NRTA and

VTA) post a copy on their websites. These reports are fairly general, and usually report only summary level data, less detailed than the level required for NTD reporting. RTAs also report annually to the State Treasurer on the net cost of service and any excess funds.

As detailed earlier, RTAs that are recipients of federal funding must also report to NTD on an annual basis in accordance with federal law. However, the review and compilation of this data as part of the effort to publish individual RTA profiles as part of this Beyond Boston study has identified some inconsistencies and limitations within these datasets. These concerns are described below.

Limitations & Concerns Related to NTD Reporting

In theory, NTD is designed to provide a consistent, comparable set of data for all transit services in the country. NTD reporting is subject to a lengthy set of rules designed to ensure that the data received accurately represent agencies' services and assets, in order to ensure that FTA funds can be apportioned accurately and fairly. Because of the burden of NTD reporting, however–particularly for smaller agencies, who have relatively limited staff resources–a number of compromises are made. At a macro level–at the level needed by FTA to conduct its apportionment activities–these compromises are likely relatively unimportant. Indeed, since all agencies are subject to the same rules, any variations in reporting practices are likely evenly distributed across the country.

However, these compromises limit the usefulness of NTD data at the local and state level. Of particular relevance to Massachusetts, agencies are permitted within NTD rules to combine data for different types of services. For example, this limits the ability of MassDOT to objectively and fairly compare data across RTA programs, such as fixed route services or demand response trips, or to distinguish the specific services being supported through MA contract assistance. More specifically, these issues are manifested as follows:

Blending of Data for Different Types of Service

A few of the Massachusetts RTAs manage several different types of transportation services and currently blend this data. (e.g. ridership, fares, revenue hours and miles) when reporting to NTD. These services may include intercity bus operations that benefit from federally subsidized vehicle purchases, or specially contracted services with universities. For example, according to NTD data, PVTA's ridership appeared to surge from just under 3 million riders to just under 11 million riders (or 365%) between 2000 and 2001. This ridership jump was not an actual ridership increase; instead, it was caused by a reporting change wherein PVTA began to report data from its services provided to the University of Massachusetts-Amherst in 2001. Some RTAs have other partially subsidized services operating within their areas, such as intercity bus service, and include related mileage and fare data in their NTD reports. For example, GATRA provides the federal match for intercity coach purchases and leases these buses to several private carriers; mileage and fare data from these services is included in GATRA's NTD reporting. Although this is permitted according to NTD reporting guidelines, it significantly skews the overall apparent performance of each RTA and means that what appears on its face to be comparable data is actually not comparable.

Blending Brokered Human Service Transportation Data with RTA Services

Some RTAs serve as HST brokers under contract with the Massachusetts Executive Office of Health and Human Services. Not every RTA is a broker, and some RTAs provide brokerage services for large swathes of the state. For example, CCRTA providers brokerage for its own service area plus Nantucket and Martha's Vineyard, and MART provides brokerage service for a large amount of the interior portion of the state, far beyond its own service area. Some of the agencies providing HST brokerage blend mileage, hours, ridership and fares for these services with data for all other demand-responsive services. This means that data for relatively contained ADA services, for example, is mixed in with data for these much

more expansive programs. Furthermore, this data is often combined inconsistently–for example, HST operating costs are not reported, but ridership numbers are included in demand-response reports, and HST reimbursements are reported as demand-response fare revenue. As a result, ridership and revenue is over reported and operating costs are underreported.

With Massachusetts RTAs reporting data using different methodologies it is difficult for MassDOT or the public to examine the RTAs fairly and objectively. For example, in compiling individual RTA profiles at the outset of the Beyond Boston study, significant revisions had to be made to NTD data from many of the providers. In the end, it was necessary to draw on data provided directly by RTAs and make a number of data corrections in order to compile a consistent set of data about each agency.

Outdated Data

While agencies are required to report their data to NTD within 120 days of the end of their fiscal year, MassDOT does not always have access to this data until it is available publically, which is typically almost a full calendar year later. As previously mentioned, while MassDOT requests that agencies forward their NTD reporting data as soon as it is entered, it is not mandated and the degree to which it is actually done is uneven. This means that data available to the state and peer RTAs is not up to date.

Non-Reporting Agencies

While most Massachusetts RTAs report their data to NTD, three agencies are not required to do so: FRTA, VTA, and NRTA. This is because these agencies are not direct FTA funding recipients, and are therefore exempt from NTD reporting requirements. Furthermore, new NTD reporting requirements offer a waiver for agencies who operate 30 or fewer vehicles in maximum service, meaning that these smaller agencies are not required to report to NTD. Currently, two Massachusetts RTAs operate 30 or fewer vehicles and would theoretically qualify for this waiver: NRTA and CATA. CATA currently reports to NTD; NRTA does not report to NTD due to its status as a funding sub-recipient.

Summary of Current Practice in Massachusetts

As a result of its minimal operating and financial data reporting requirements, MassDOT has limited and relatively unreliable information on which to evaluate the effectiveness of taxpayer investments in the statewide transit system, or to make decisions related to statewide transit initiatives. The lack of information challenges MassDOT's ability to make data-driven decisions.

Furthermore, because data reported to NTD often represents a blend of services, it is an inaccurate tool for assessing and comparing the effectiveness of service offered by each RTA or for identifying where resources are most needed. It also hinders the ability of RTAs to understand how their peers are managing different types of services and to learn from each other's experiences. It is challenging to identify the costs and benefits of different service delivery options without having accurate data on the effectiveness of existing operations.

As currently structured, NTD reporting may become less useful to MassDOT as RTAs continue to diversify their service offerings. It will become more challenging for MassDOT to understand the effectiveness of specific programs and services when reviewing broad data categories within NTD. Although it is possible that NTD will refine its reporting definitions to accommodate these changes, it must also balance the desire to collect finely-grained data with the need to keep reporting burdens reasonable on a national basis. In the past, this has led NTD to make compromises.

The ultimate goal of a successful dataset should be to provide data at a sufficiently detailed level to allow accurate, valid comparisons among services and over time. Improving the standard of reporting, and making reporting simpler for all parties involved will assist in identifying opportunities to improve service delivery across the Commonwealth, and aid in the advocacy for further RTA funding.

Potential Improvements in Massachusetts

MassDOT needs to have current data readily available to properly carry out the oversight and coordination roles it has been assigned under M.G.L. Chapter 6C. It is common practice at other state DOTs to collect and publicly report statewide transit data from individual operators. This data is used to evaluate system (and even route-level) performance, allocate funding, provide transparency and accountability to the public, measure trends over time, and report to key stakeholders on progress in achieving statewide transit goals.

All but three of the 15 RTAs already prepare detailed annual data reports to NTD. These data collection and compilation activities take place at virtually every transit operator in the country, and are a fundamental component of transit service operations. Indeed, most RTAs already collect data in disaggregated formats, and re-aggregate it in order to report to NTD. Some adjustment and refinement would be necessary to compile the data in an effective, sufficiently detailed format, but the overall burden should be relatively low if reporting guidance is clear and consistent and MassDOT serves in a supportive role. In fact, MassDOT can even structure its data collection activities to support RTAs' NTD reporting requirements by developing a tool that will help RTAs to package data for both purposes simultaneously.

Key points to consider include:

- **Data accuracy.** MassDOT needs to have accurate data to understand individual systems and geographic distributions of transit service and need. To do this, it must ensure that data is reported correctly (e.g. broken down by service type, brokered HST trips get reported in the appropriate RTA service area rather than by brokerage, etc.).
- **Data consistency**. Data must be consistent across all RTAs and properly classified by service type (e.g. Fixed Route, DR, HST, intercity/partially subsidized services, etc.). *Initiative 1 – Develop Service Standards & Guidelines* discusses the various classification systems used by different states to collect performance data. Because there are only 15 RTAs (much fewer than in many other states), it should be possible to develop a tool that can address every possible transit service type within the state.
- **Clear definition of services and terms**. Services should be considered a different mode if they meet a specific criteria; criteria should be developed, for example, to separate Human Service Transportation, Council on Aging trips and ADA paratransit services. These criteria and definitions should be refined over time as services evolve within the state to ensure that service type categories are comparable.
- **Fulfillment of reporting obligations**. Most importantly, MassDOT needs to fulfill M.G.L. Chapter 6C reporting requirements related to performance criteria requirements and asset condition, and support the agency's goal to provide effective information.
- **Keep things simple**. While accurate and consistent data is essential, data reporting can be burdensome. As stated above, most RTAs already collect data in disaggregated formats, and re-aggregate it in order to report to NTD. Thus, the effort that will be required can be minimized by ensuring that more detailed data can be "rolled-up" into NTD categories, and the same deadlines are used as for NTD reporting.
- **Ease of Reporting**. MassDOT and the RTAs must work together to ensure that barriers to data reporting are low, ensuring full participation and timeliness. Using an online tool that submits reports to MassDOT, and allows RTAs to collect required NTD data would be the most effective.

Actions to Consider

Potential improvements–for discussion at the March workshop–to address the above issues include:

1. What sort of data reports or annual submissions should MassDOT require?

2. How should data be reported? What sort of guidelines or tools would be useful for the RTAs?
   - Should MassDOT develop a program handbook and/or data reporting guidelines?
   - Would development of a data collection instrument/format (e.g. a spreadsheet) be the best way to collect consistent data from all RTAs? What type is most appropriate, easy to use, and effective?
   - Would an online reporting mechanism be the most straightforward for RTA use?
   - What penalties should be established to ensure that all agencies provide data in a timely fashion?

3. What might be the most appropriate categories for data collection by service type?
   - Fixed Route, DR, HST, intercity/partially subsidized services?
   - Ensure categories are consistent with NTD (can "roll up into" NTD categories)?
   - Should data on service quality be collected?

4. How can MassDOT support RTA reporting?
   - Is it easier and more appropriate to report monthly? quarterly? annually?
   - Hold training/workshops in how to report?
   - Design state reporting requirements to directly facilitate the reporting of NTD data, by aggregating and organizing data in such a way that it is "ready for input" into NTD's online reporting system in the format required.

5. How can MassDOT ensure data and other reporting is consistent and fair?
   - Periodic audits by State Auditor?
   - Periodic reviews of individual RTAs by MassDOT staff?

For More Information

Federal Transit Administration's National Transit Database:
www.ntdprogram.gov/

Reporting Guidelines and Forms, Oregon DOT Public Transit Division:
www.oregon.gov/ODOT/PT/reporting/index.shtml

State DOT Public Transportation Performance Measures: State of the Practice and Future Needs. NCHRP Research Results Digest, Issue 361, September 2011:
onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rrd_361.pdf

Washington State Summary of Public Transportation – 2010 Report, Washington State DOT:
www.wsdot.wa.gov/publications/manuals/fulltext/m0000/TransitSummary/2010PTSummary.pdf

2009 RTA Scorecard, MassDOT.
http://www.massdot.state.ma.us/portals/0/docs/infoCenter/scorecards/RTAScorecardDec09.pdf

2011 Transit Report: A Guide to Minnesota's Public Transit Systems. Minnesota DOT:
www.dot.state.mn.us/transit/reports/transitreports/11/index.html

6. What might data be used for?
   - Publish Scorecard/provide transparency to the taxpayer?
   - More comprehensive reports, such as overviews of RTA services to inform key stakeholders such as the Legislature, communities, and the public?
   - Funding allocation?
   - Funding incentives?
   - Application of minimum service standards?

INITIATIVE 4:
ENHANCE PUBLIC INFORMATION

Existing RTA Information and Potential Improvements

For people to be able to use transit, they must first know that it is there and be able to understand how to use it. This means that it is extremely important for transit systems to provide clear and concise information on their available services. Furthermore, transit typically serves a very broad cross-section of an area's residents, workers, and visitors. Because different people access, use, and process information in different ways, transit systems must deliver information in a number of different ways. For example, many seniors are not web-literate, and thus the provision of information via the web will not reach many older residents. For this reason, telephone and printed information must be provided. However, telephone and printed information will not reach many younger riders, who rely primarily on the internet. For transit systems to reach the people that they are there to serve, it is essential that they provide effective information in ways that will reach all potential riders.

Basic Types of Public Information and Delivery Methods

There are two types of basic service information that all transit systems provide:

1. Route and schedule information (maps, schedules, and information on connections)
2. Basic information on how to ride (fare policy, stop locations, accommodation of riders with disabilities, accommodation of bicycles, etc.)

These types of information are delivered in a variety of ways (see Figure 4-4):

1. Traditional delivery methods include printed maps and schedule cards, and "rider guides." These are often distributed physically onboard buses and at key transit locations.
2. As with other types of information, the majority of distribution has moved to the internet. Nearly all transit systems now provide service information on their websites where users can either view it electronically or print it at home or in their office.
3. Third-party distribution systems have also become increasingly common. Most major transit systems now present route and schedule information through Google Transit, and smaller transit systems are also moving in this direction. Many transit systems are also now making their Google Transit data publicly available for use in the development of third party smartphone apps.

In addition, transit systems are increasingly providing real-time service information. This information can be provided via signage at stations and stops, via traditional websites, and via smart phone mobile websites and apps.

Most of Massachusetts' RTAs provide much of this information. However, as described below, there is significant room for improvement; the provision of better information could make service easier to use throughout the state and potentially attract new riders.

Best Practices

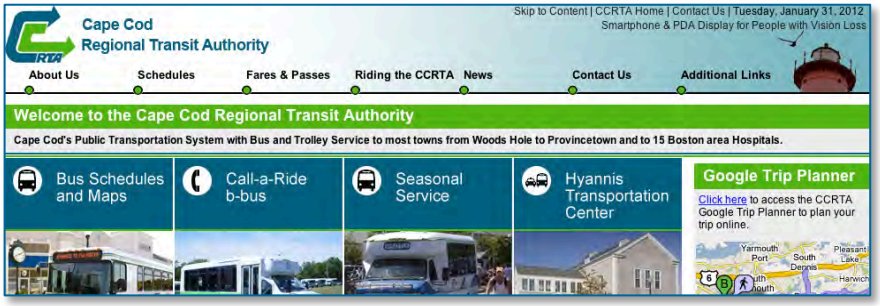
Most large transit agencies provide a wide array of public information, telephone support, printed materials, fully featured websites, and real-time information. In Massachusetts, the MBTA is an excellent example of how to provide information. Increasing, smaller agencies are beginning to provide the same array of information as larger agencies. Three examples are provided below.

Figure 4-4 Public Information Examples

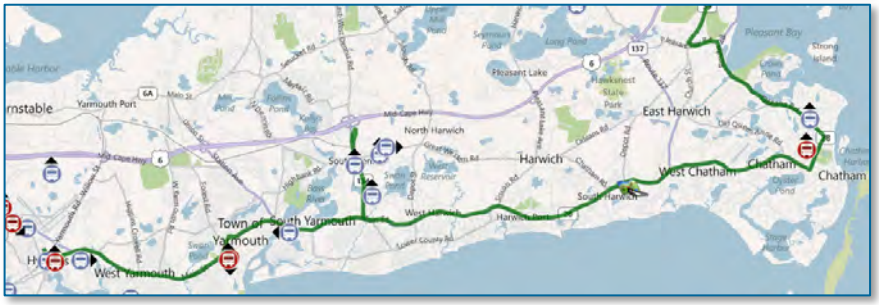
System Map

Printed Schedules and Route Maps

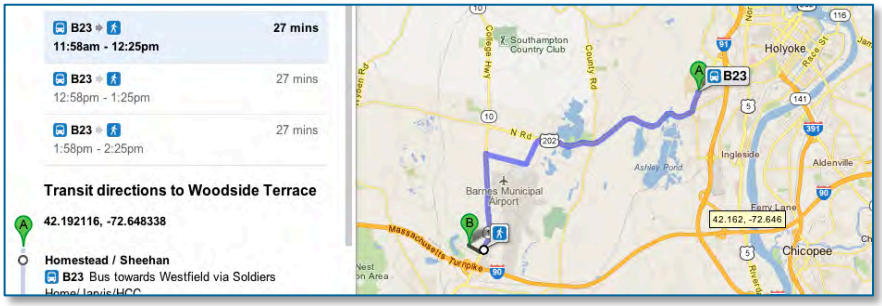
Website



Real-Time Information



Google Transit



Rock Island County Metropolitan Mass Transit (MetroLINK)

MetroLINK provides service in Rock Island and East Moline, Iowa, which is the Iowa half of the Quad Cities area.[32] MetroLINK provides a wide variety of public information. In addition to standard information such as maps, schedules, and fare information, this includes:

1. A printed Rider's Guide that provides information on MetroLink service, as well transit services provided on the Illinois side of the Mississippi River
2. A full-featured website (www.gogreenmetro.com) that provides (see Figure 4-5):
   - Service alerts
   - Google trip planner
   - Real-time information for key locations
   - Rider guides (including videos)
3. A "widget" that users can install on their own computer desktops that continuously displays real-time service information (see Figure 4-6)
4. A mobile website for smartphones
5. Schedule information via text messages at over 200 stops
6. A Facebook page

Figure 4-5 MetroLINK Website

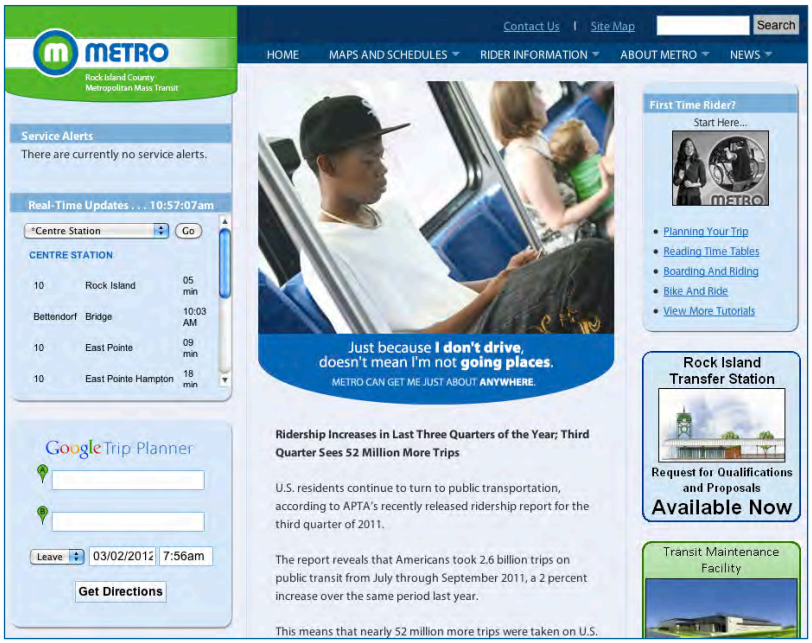


Figure 4-6 MetroLINK Desktop Widget

[32] As described in *Initiative 9, Cross-Border Collaboration*, MetroLINK is one of four transit systems in the Quad City area, and the four collaborate on the provision of public information and other efforts.

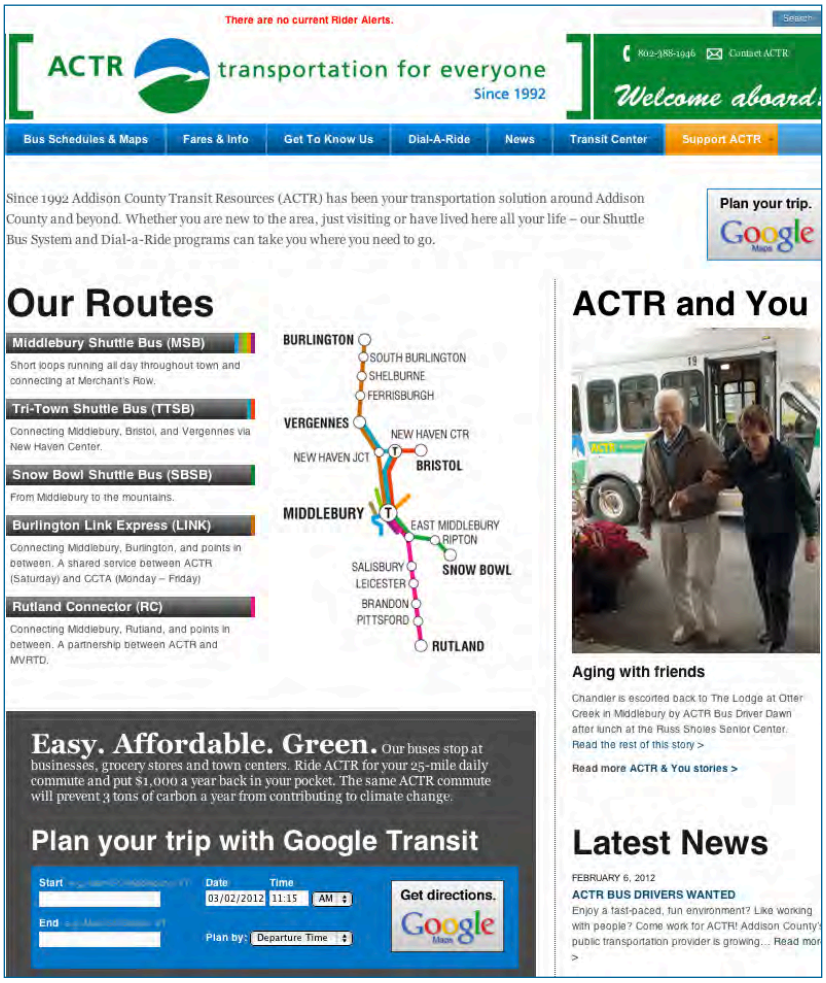
Addison County Transit Resources (ACTR)

ACTR is small transit system that serves Addison County, Vermont, with most services focused on Middlebury. ACTR also provides a wide variety of information in addition to standard information such as maps, schedules, and fare information, and this includes:

1. A printed Rider's Guide that presents information on all ACTR services, including route maps and schedules, and "how to ride" information.
2. An attractive website (www.actr-vt.org) that provides (see Figure 4-7):
   - Service alerts
   - Google trip planner
   - Rider guides
3. Information on regional connections
4. Updates via Twitter
5. A Facebook page

ACTR also uses its website to recruit drivers and solicit sponsorships and donations (as described in more detail in *Initiative 7, Identify Additional Funding*).

Figure 4-7 ACTR Website

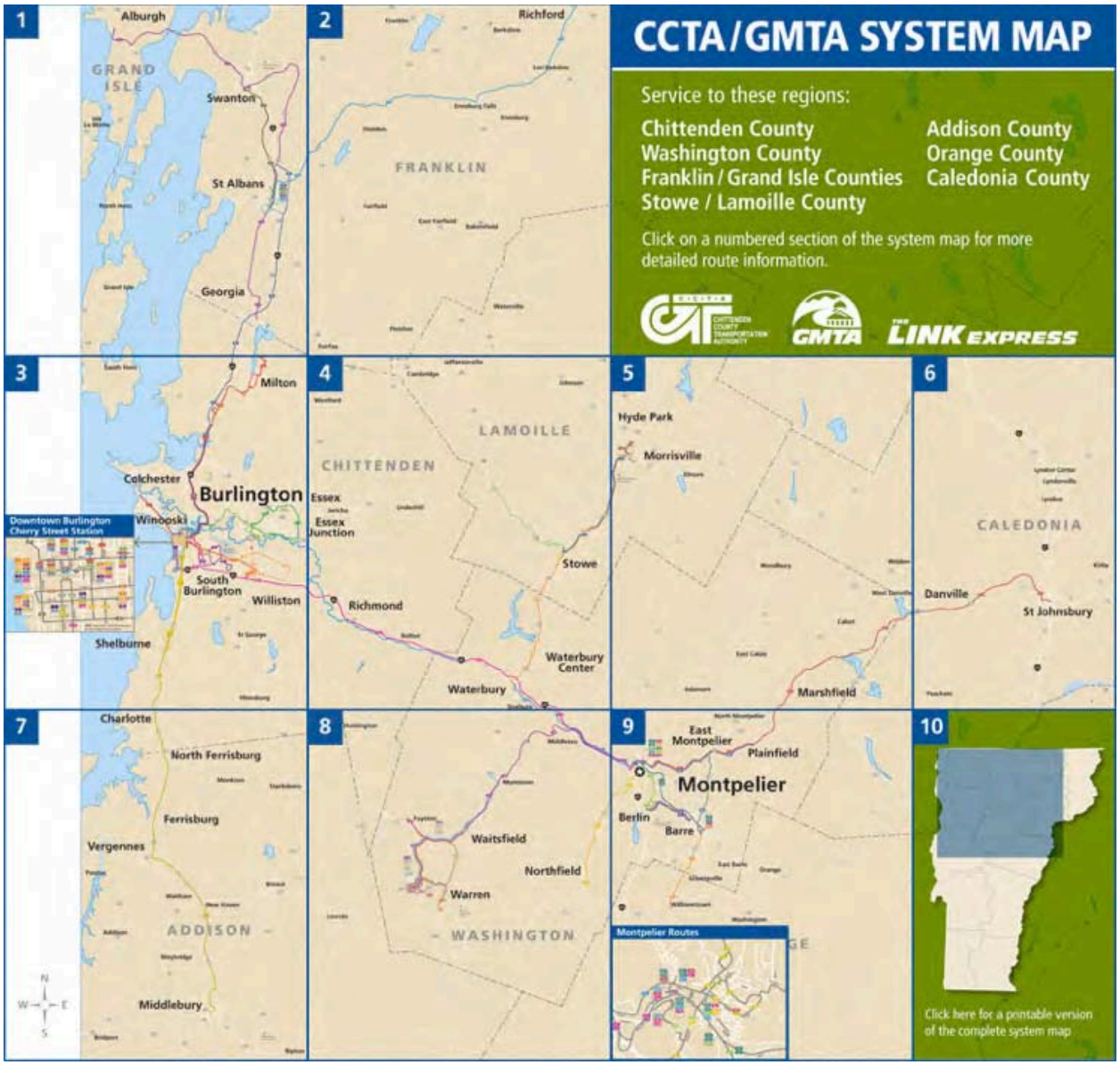


Chittenden County Transit Authority (CCTA) and Green Mountain Transit Authority (GMTA)

Many transit systems serve large areas where it is difficult to display all system information on a single map. In Vermont, Burlington's CCTA and Montpelier's GMTA each serve large geographical areas, and they also collaborate on regional service between the two cities. In total, service extends approximately 80 miles from east to west and 80 miles from north to south. To display all of this information on a single map, the two agencies publish on their websites (www.cctaride.org and www.gmtaride.org) a large overview map that users can then drill down into for more detailed maps.[33] As shown in Figure 4-8, the first page is a large systemwide map designed to provide orientation and an overview of available services. From, there users click on "tiles" that link to detailed area maps.

[33] This is the same approach used by the MBTA on its web system map, but encompasses a larger area and the services provided by multiple agencies.

Figure 4-8 Combined CCTA/GMTA Overview System Map



Review of Current Transit Information in Massachusetts

Any assessment of the public information provided by transit systems is to a certain degree subjective. However, there is also a large body of research on what works, what does not, and best practices. This research from sources such as the Transit Cooperative Research Program (TCRP) and the Center for Urban Transportation Research (CUTR) at the University of South Florida provide a baseline for assessing the practices of transit agencies. The referenced research is listed at the end of this report.

In addition, the types of information that are being provided, and the delivery methods, are changing rapidly through the use of technology, and often faster than available research. To assess the effectiveness of the information provided by Massachusetts' RTAs in the context of recent advances, Nelson\Nygaard asked four junior staff members, from offices outside of New England and who have no involvement in this project or detailed knowledge of any of the RTAs, to assess the quality and ease of use of available

information. These staff are all transit users who frequently use the public information provided by a variety of different transit systems.

This review assessed each RTA's public information in terms of:

- System maps
- Schedules
- Websites
- Real-time information
- Google Transit implementation

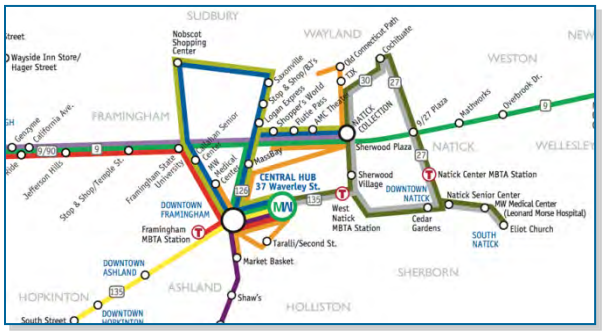
System Maps

System maps illustrate a transit system's entire network of services. Riders reference system maps to help them plan and travel within the transit system. System maps should be available as an actual printed map (usually onboard transit vehicles or at transit customer service centers) and also as a digital map suitable for viewing and printing on a home computer or mobile device.

System maps typically follow one of two basic designs–overlay or schematic (see Figures 5-9 and 5-10). An overlay map design resembles a typical map with additional transit information "overlaid" onto the base map. This design provides a wealth of detail and content for reference–roads, schools, physical topography, points of interest, etc. A schematic map design is a more abstract representation of the transit system, with minimal additional detail. This design maximizes readability and minimizes clutter. Some maps seek to combine elements of both design styles, though they are still primarily one or the other.[34]

Figure 4-9 NRTA Overlay System Map

Figure 4-10 MWRTA Schematic System Map



Most, but not all, Massachusetts RTAs publish a system map on their website, and the available maps were assessed in terms of readability, usability, and accessibility. As summarized in Table 4-11, the effectiveness of available system maps is mixed, and ranges from excellent to not available. Maps were evaluated based on their readability, ease of use, and ability to download and use at home. The best Massachusetts RTA thematic map is produced by NRTA (as was shown in Figure 4-9), and is an excellent map by any standard. The best Massachusetts example of a schematic system map is MWRTA's system map (as was shown in Figure 4-10). The map has a clean and professional look, with well-chosen fonts, colors, and symbols. However, this map style provides a minimal level of reference detail such as street names which makes using them difficult for new riders and those trips requiring transfers between routes. The lack of reference detail requires the user to consult individual route maps for detailed information.

[34] Designing Printed Transit Information Materials: A Guidebook for Transit Service Providers, Center for Urban Transportation Research, (2008)

Figure 4-11 System Map Implementation Among RTAs

RTA	Online System Map?	Notes
BAT	Yes	Easy to find and read; clickable downtown map.
BRTA	Yes	Routes overlap and are not offset or colored, which makes it more difficult to read.
CATA	Yes	Attractive and easy to read; includes area MBTA commuter rail map; will not open in Google Chrome; doesn't show where the Yellow Line goes to the southwest.
CCRTA	Yes	Not very readable (a lot of additional content on the map); route symbology is not clear; however, includes a plethora of other information including connections to GATRA, Plymouth, Brockton, and Peter Pan.
FRTA	Yes	Map is not very easy to read due to thin lines and unnecessary background content, including all streambeds.
GATRA	No	No complete system map, but good local maps.
LRTA	No	No system map available, though the individual route maps are fairly usable and well-designed (however, many appear sideways on screen).
MART	Yes	Map covers most of system but not all service.
MWRTA	Yes	Very attractive; diagrammatic style, but which requires using individual route maps for detailed service information.
MVRTA	No	No system map; offers individual maps with Google Maps (but with no offsetting to distinguish routes); uses transparency to show overlapping routes, though is unusable if many routes are turned on simultaneously.
NRTA	Yes	Very high quality map; usable and appealing; includes major stops for transfer opportunities; has downtown inset and ferry information.
PVTA	Yes	Offered in a scalable and a downloadable version; not very easy to read due to thin lines and unnecessary background content.
SRTA	No	No complete system map, but most riders are likely oriented to Fall River or New Bedford service and these local maps are provided. However these maps are poorly designed–street names are too small to read and the map lacks visual hierarchy. Poor route offsetting makes routes difficult to follow.
VTA	Yes	Map appears busy and cluttered. Unusual font choices, and very bright color palette. Also poor route offsetting makes it difficult to follow various routes.
WRTA	Yes	System map appears "busy" due to poor design and a lack of visual hierarchy. All routes are one color, making it difficult to follow individual routes and understand the system.

Four RTAs–GATRA, LRTA, MVRTA, and SRTA–do not provide system maps (although LRTA currently has one under development). GATRA and SRTA both provide service to a number of geographically distinct areas, and do provide maps for those areas. However, an approach similar to that used by CCTA and GMTA in Vermont (as described above) could provide better a regional context for riders.

Schedules

Route-by-route schedules with accompanying route maps are a second basic type of information that transit systems provide. Some transit systems, especially larger ones, produce individual "schedule cards" for each route; other transit systems, most often smaller ones, include these on their system maps. Schedules are usually available in printed form onboard transit vehicles and at key locations. They also appear on agency websites. This review evaluated the schedule content published on each agency's website.

Based on a TCRP and CUTR national review[35] of public information, this is one area where the greatest improvements are needed. Throughout the country, a large proportion of transit riders view schedule cards (and their associated downloadable versions) as unclear, poorly designed, lacking in sufficient reference information and basic facts such as service hours or frequency. This is generally also the case in Massachusetts, as many published schedules are not easy to read, lack adequate information, or are not available on RTA websites (see Table 4-15). In addition, a number have clearly presented schedule information, but no accompanying map on the same page or at least in the same file, which makes understanding the service and planning a trip difficult. One RTA (BAT) distributes maps in Microsoft Word format (rather than PDF), which is a format that does not display in web browsers and is not loadable for many users. TCRP studies recommend that schedules be provided in PDF format since most web browsers can load these files, formatting will be consistent for all users, and they can be made accessible for users with a disability.

Table 4-15 Printed Schedule Implementation Among RTAs

RTA	Downloadable Schedules?	Notes
BAT	No	Distributed in Microsoft Word, which is important for some users with ADA needs, but not loadable for others; not very readable; missing important content such as associated route maps and interim time points (schedules only list first and last stop).
BRTA	Yes	The "Schedules" link on the home page links to online-only schedules with no PDF versions. However, PDF versions are available on the bottom of the home page and easily missed. These schedules on these downloadable PDFs read down, not across–which is not standard and research has shown that riders have a difficult time using schedules in this format.[36] In addition, AM and PM times are not differentiated.
CATA	Yes	Good looking; all route schedules packaged into one downloadable PDF file. However some individual route maps are impossible to understand what the route does–see the Orange Line map).
CCRTA	Yes	Schedule reads down, not across (see notes on this format above for BRTA). Also, PDF schedules do not feature an accompanying route map, which makes using them difficult.
FRTA	No	Schedules offered in online tables only–no downloadable PDF versions. System map is not on same page, so the user has to click back and forth between the schedule and the map to understand the service.
GATRA	Yes	Downloadable PDF schedules are good looking, easy to read, and follow most recommendations from national research, though the maps lack sufficient detail.
LRTA	Yes	Downloadable PDF schedules are very basic and lack the associated route map, which makes using them difficult.
MART	Yes	Downloadable PDF schedules read down, not across (see note in BRTA above) and they do not include the associated route map, which makes using them difficult.
MWRTA	Yes	Downloadable PDF schedules have a wealth of information, have a high quality design typical of larger agencies, and are easy to read and use. Only negative is the schedules read down, not across (see note above for BRTA).
NRTA	No	NRTA doesn't publish standard schedules. Instead, they offer a description of each service (such as "the bus leaves every 30 minutes between 7:00 AM and 11:30 PM, and other limited time information). The information provided is difficult to interpret.
PVTA	Yes	Downloadable PDF schedules are standard and usable, however they do not feature an accompanying route map, which makes understanding the service difficult.

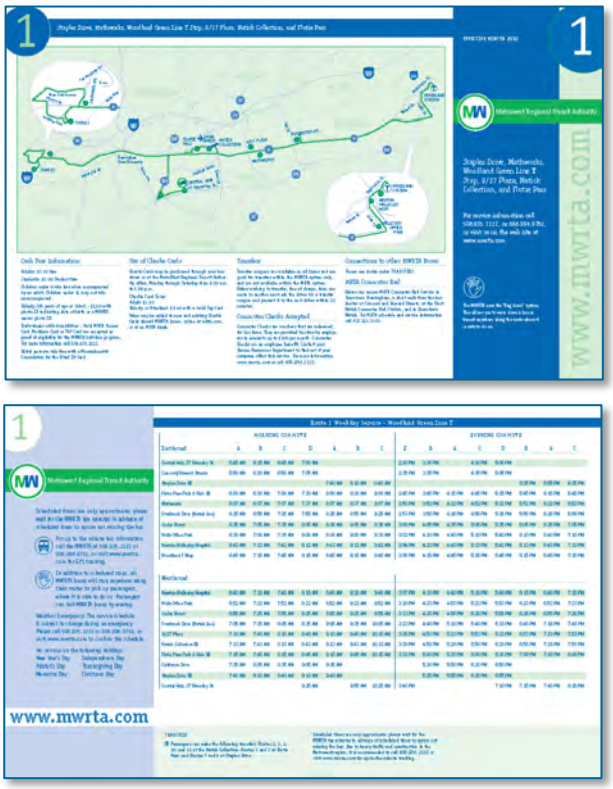
[35] TCRP Synthesis 43: Effective Use of Transit Websites (2002), TCRP Report 92: Strategies for Improved Traveler Information (2003), TCRP Report 45: Passenger Information Services: A Guidebook for Transit Systems (1999), CUTR Report: Designing Printed Transit Information Materials (2008).

[36] Journal of Public Transportation, Vol. 9, No. 4, 2006. A Multidisciplinary Approach Toward Improving Bus Schedule Readability.

RTA	Downloadable Schedules?	Notes
SRTA	No	SRTA provides schedules in two different formats. For Fall River and New Bedford service, they provide relatively low quality scans of their paper brochures. For Fairhaven/Acushnet/Mattapoisett Shuttle service they provide a two page description that appears to have been originally designed for internal use.
VTA	Yes	Offers schedules as PNG image files, which maintain consistency for all users but are not accessible for users with a disability. Schedules read down, not across (see note in BRTA above). Schedules do not have accompanying map, which makes them harder to use.
WRTA	Yes	Downloadable PDFs are easily readable and follow best practices.

Among Massachusetts' RTAs, MWRTA provides the best information (see Figure 4-12). MWRTA's printed schedules are user friendly, easy to read, include a wealth of information, and are visually appealing. (However, unconventionally, the trips on each schedule are read *down* and not *across*, which is a bit harder to read and not recommended by national research published in the Journal of Public Transportation.[37])

Figure 4-12 **MWRTA Schedule Card**



Website Functionality

The internet has become the primary source of information for many riders, and all Massachusetts RTAs provide some level of service information via their websites. Common types of information include maps, schedules, fares, route-by-route information, service disruption updates, and trip planning assistance. A number of absolute minimum standards have emerged from TCRP studies *TCRP Synthesis 43: Effective Use of Transit Websites* and *TCRP Report 92: Strategies for Improved Traveler Information* (referenced at the end of this report) and industry experience. These include:

- System map
- Route-by-route schedule information and maps
- Complementary paratransit service information
- Fare information
- Service alerts (GATRA's website provides an excellent example of how to display service alerts, as shown in Figure 4-13)
- A rider guide to present basic information on how to use service (NRTA's website provides an excellent example of a comprehensive and prominently featured rider guide).

[37] Journal of Public Transportation, Vol. 9, No. 4, 2006. A Multidisciplinary Approach Toward Improving Bus Schedule Readability.

Emerging practices go above-and-beyond these minimums to provide additional features such as:

- Real-time information on vehicle locations and "next bus in ..." content.
- Trip planning service, either through a function on the website or through integration with Google Transit.
- Integration with social media such as Twitter and Facebook to provide service alerts and updates on transit initiatives.
- Customized website for mobile devices.
- Ability to purchase fares online.
- Customizable e-mail or SMS text alerts for service disruptions, agency news, etc.

Figure 4-13 Service Alert Example (GATRA)

To assess the websites of the Massachusetts RTAs, each site was reviewed (in January 2012) and subjectively rated on ten criteria using a scale of 1 to 5. The ten criteria corresponded with the minimum standards and best practices described above:

- **Visual design**–first impression, appropriate amount of content, good organization, professional appearance
- **Ability to find system map**
- **Ability to find fixed route information**–schedules for a particular route, route maps, service span, etc.
- **Ability to find demand response information–service span, coverage maps, etc.**
- **Placement of service alerts**–prominently placed updated information on service delays, disruptions, etc.
- **Ability to find fare information**
- **Ability to find, and quality of, rider guide**–how to ride transit, bicycles on transit, etc.
- **Links to other information**–telephone number, other transportation services, YouTube, Twitter, Facebook, or other social media websites. Social media sites are becoming an increasingly important mechanism to engage the public–most notably for discretionary riders.
- **Trip planner function–**easy to find and easy to use function that allows riders to plan a trip (often utilizes Google Transit)
- **Mobile version of website–**customized version of website for mobile devices

The composite results for each RTA are summarized in Table 4-16. Overall, only a few of the RTA's websites were reviewed favorably. Most were judged to have poor to mediocre visual design, and at least some information (when it was available) was hard to find. The websites that were rated the highest and lowest were:

***Best** (see Figure 4-14)*

- **MWRTA (www.mwrta.com)**: MWRTA's website excels in organization and aesthetics, ease of finding fixed route information, ease of finding demand response information, and ease of finding fare information. The site makes particularly good use of white space. The site has a well-designed mobile version. The only significant negative is that the site lacks a comprehensive rider guide.
- **CCRTA (www.capecodrta.org)**: CCRTA's website excels in the ease of finding fixed route information, ease of finding demand response information, ease of finding fare information, and the trip planner function. Negatives are the absence of social media integration and the lack of a mobile version.
- **GATRA (www.gatra.org)**: GATRA's website excels in the placement of service alerts, ease of finding fixed route information, and a trip planner function. The site has a mobile version. However, the site does not offer a system map.

Figure 4-14 Best Massachusetts RTA Websites

Least Effective

- **CATA (www.cataonline.org and www.canntran.com):** CATA splits fixed route and demand response service into two separate and uncoordinated websites, which is confusing for users. Both sites lack a rider guide, a trip planner function, and integration with social media. The fixed route site does not offer service alerts or a rider guide. The fare information on the demand response site is difficult to find.
- **LRTA (www.lrta.com)**: This site has poor visual design. The site's home page suffers from content overload and a lack of organization, with too much information compressed onto the home page, which results in a very long page requiring continuous scrolling. The website doesn't offer a system map or a rider guide.
- **MART (www.mrta.us)**: This site's organization is non-standard and confusing. For example, service information, including system and route maps, is not found under the "Service" section as would be expected, but is under the "Schedules" section and is listed by the community they serve–which requires the user to be somewhat familiar with the service area. The system maps (there are two) are very difficult to find. The site also makes poor use of white space–there are large areas of blank space in prominent spots on the home page, which pushes important content down, requiring unnecessary scrolling.

Table 4-16 RTA Website Review

RTA	Overall Score (5 = excellent)	Website Notes
BAT	3.4	Visual design is basic and would benefit from an update; there is too much content on the home page and little visual hierarchy or organization. Fixed route and demand response service information, fare information, and the system map is easy to find. Site provides comprehensive rider guide, but no trip planner or mobile version.
BRTA	3.3	Visual design is cluttered and would benefit from an update. Fare information is easy to find. Rider guide offers basics, but is hidden on the "rules" page. No service alerts or mobile version.
CATA	3.0[38]	CATA maintains two separate websites, one for fixed route and the other for paratransit, with different web addresses (URLs). The visual design for both is basic, and CATA would be well served to select one site for upgrading. The sites are not coordinated and do not have a user-friendly structure or hierarchy. There are no service alerts, trip planner, or rider guide offered (other than safety information). The scrolling announcements box on the paratransit site is not user-friendly
CCRTA	4.2	Site is well designed from a visual perspective. Fixed route and demand response information is easy to find, fare information is easy to find, and a trip planner is available. No mobile version.
FRTA	3.4	Visual design is basic and would benefit from an update. Easy to find fixed route information, but system map is difficult to find with no direct link from the main page. No fare information, trip planner, or mobile version. Site is integrated with FRTA's Facebook page.
GATRA	4.2	Site is well designed from a visual perspective. Service alerts are prominent on home page, fixed route information is easy to find, and both a trip planner and mobile version are available..
LRTA	3.2	Visual design is dated and home page scrolls for too long; there is too much content on the home page, no clear organization and no graphical consistency or organization. Demand response and fare information is easy to find, and site has a trip planner service. There is no system map, and many route maps are oriented incorrectly (displayed sideways). There is no mobile version.
MART	3.0	Visual design is basic and would benefit from an update; home page space is not well utilized and graphics are disproportional to text. Both fixed route and demand response information is hard to find. System map is hard to find. No trip planner, no mobile version.
MWRTA	4.4	Excellent organization and visual design, service alerts are prominent on home page, fixed route and demand response information is easy to find, fare information is easy to find, has trip planner, has well-designed mobile version, and site is integrated with Facebook page. No comprehensive rider guide.
MVRTA	3.5	Visual design is cluttered and not well organized. However, fixed route information and fare information are easy to find, and service alerts are prominently placed on home page. No trip planner or mobile version, and rider guide is buried in narrative FAQs.
NRTA	3.7	Site is well designed from a visual perspective. Fixed route, demand response, and fare information is easy to find, and the site has an excellent comprehensive rider guide. No service alerts, no trip planner, and no mobile version.
PVTA	4.1	Site design is somewhat cluttered and lacks visual hierarchy. Fixed route information and fare information are easy to find, there is a comprehensive and easy to find rider guide and trip planner. There is no mobile version.
WRTA	3.7	Site design lacks visual hierarchy and would benefit from an update. Subsequent webpages have no link back to home page. Scrolling service changes alert bar is distracting. Easy to find fixed route and demand response information, easy to find system map, easy to find fare information. No service alerts, no trip planner, no mobile version. Features Facebook and Twitter integration.
SRTA	3.7	Visual design is basic and would benefit from improved scale, organization and hierarchy. Easy to find fixed route and demand response information, easy to find system map, integration with Facebook page. No trip planner, mobile version, or rider guide.
VTA	3.5	Visual design is mediocre. Fixed route content is buried. No demand response information. Fare information is easy to find. No mobile version and no trip planner.

[38] CATA has two different websites. Both were reviewed and ranked as 3.0 out of 5.0.

Real-Time Information

Real-time information utilizes global positioning systems to track and predict the locations of transit vehicles in real time. This technology provides information on estimated arrival/departure times, vehicle locations, and service disruption or delay alerts. Once the back-end system has been installed to track vehicles and deliver this information to the agency's computers, the options for serving this real-time information to the rider are numerous (see Figure 4-15). Common options for offering real-time information include text messages, a web interface, mobile applications, and digital signage at stations and stops (see the example in Figure 4-15 below). Some large transit agencies are placing individualized bus stop numbers or scan codes on bus stop signage, which allows users to text for information or scan the code with their mobile phone and receive real-time service information for that stop.

Figure 4-15 Examples of Real-Time Transit Information

In Massachusetts, the following RTAs provide real-time information (see Table 4-17):

1. CCRTA at its Hyannis Transportation Center and via its desktop internet site
2. MWRTA via its desktop internet site and a smartphone-based mobile site
3. MART via its desktop internet site
4. NRTA via a smartphone-based mobile site, and via desktop-based internet beginning in the spring)

In addition, FRTA will provide station-based real-time information at its new intermodal center. Other Massachusetts RTAs do not provide any form of real-time information.

Table 4-17 Real-Time Information Implementation among RTAs

RTA	Web-Based	Smart-phone	At Stops/ Stations	Real-Time Info
BAT				No Real-Time info provided
BRTA				No Real-Time info provided
CATA				No Real-Time info provided
CCRTA	√		√	Web map with real-time bus locations; detailed information on location, heading, and speed; also provides real-time information at its Hyannis Transportation Center (HTC).
FRTA			√	Will be provided at new intermodal center, which will open in 2012.
GATRA				No Real-Time info provided

RTA	Web-Based	Smart-phone	At Stops/ Stations	Real-Time Info
LRTA				No Real-Time info provided
MART	√			Has map with real-time bus locations; slow loading; does not offer wait time information at stops.
MWRTA	√	√		Has map with real-time bus locations; does not offer wait time information at stops.
MVRTA				No Real-Time info provided
NRTA	√	√		TransLoc smartphone-based system; web-based beginning in spring.
PVTA				Initiatives currently underway to provide Real-Time info via web site, QR codes at major stops, and at RTIC, with implementation in 2012 and 2013
SRTA				No Real-Time info provided
VTA				No Real-Time info provided
WRTA				Web-based Real-Time info will be provided later in 2012

Google Transit Implementation

Google Transit integrates transit routes, stops, and schedules within Google Maps, and it allows users to plan transit trips from within Google Maps. The use of Google Transit has become increasingly common, and it is often the first place that younger riders will go to find transit information. Google Transit can also be a source of information for trips that require use of services provided by different transit systems, since it is not tied to any individual system. Google Transit can also be accessed via smartphones.

While participation in the Google Transit program is "free," it does require an agency to provide Google with service data in a specialized Google Transit Feed format on an ongoing basis. Therefore it does require staff time to participate in the program and offer this service. Currently, only five RTAs participate in Google Transit: CCRTA, GATRA, LRTA, MWRTA, and PVTA. SRTA is in the process of implementing Google Transit, and MassDOT has undertaken an initiative to implement Google Transit statewide.

Potential Public Information Improvements

Summary of Issues

As in the transit industry as a whole, the public information practices among the Massachusetts RTAs vary greatly. There are no minimum guidelines or directives to achieve consistency regarding public information practices across the state. Even within each RTA, there is much variation in the functionality and ease-of-use across different information platforms–an RTA may maintain a great website, but fail to offer downloadable schedule cards.

National research helps to provide an understanding of the minimum standards, as well as best practices that might be pursued in the area of public information. Adopting minimum standards or identifying desirable best practices could help agencies to:

- Upgrade the quality of public information products (system maps, schedule cards, etc.)
- Improve the user-friendliness of Massachusetts transit services
- Improve public information consistency among RTAs
- Widen the appeal of transit to new market demographic segments
- Provider better customer service to existing customers and attract new riders

Actions to Consider

Potential improvements–for discussion at the March workshop–to address the above issues include:

1. Are there basic information items that should be provided by all RTA's?
   - System map and individual route schedules?
   - Service alerts?
   - Rider guide?
   - Statewide or regional maps similar to CCTA/GMTA regional map?
   - Other?

2. Are there best practices or new technologies that the state should encourage RTAs to pursue (e.g. ongoing Google Transit initiative)?
   - Mobile phone apps?
   - Real time passenger information
   - Other?

3. How can MassDOT support RTAs in the development of new information platforms and applications?
   - Develop guidelines to assist RTAs?
   - Provide templates for schedule design or website design?
   - Statewide blanket contracts for new technologies or sample RFPs?
   - Are their Title VI concerns that need to be considered?
   - Translation services / information in different languages?

4. Can RTAs that have successfully implemented Google Transit or Real time information be helpful to their peers?
   - Should MassDOT provide technical assistance?
   - How can MassDOT help support the distribution and availability of local transit information?

For More Information

For more information on industry standards and best practices in the field of public information, see:

TCRP Synthesis 43: Effective Use of Transit Websites, Transit Cooperative Research Program, National Academy Press, Washington, D.C. (2002): http://onlinepubs.trb.org/onlinepubs/tcrp/tsyn43.pdf

TCRP Report 92: Strategies for Improved Traveler Information, Transit Cooperative Research Program, National Academy Press, Washington, D.C. (2003): http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_92.pdf

Passenger Information Services: A Guidebook for Transit Systems, Transit Cooperative Research Program, *TCRP Report 45:* National Academy Press, Washington, D.C. (1999): http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_45.pdf

Designing Printed Transit Information Materials: A Guidebook for Transit Service Providers, Center for Urban Transportation Research, University of South Florida, Tampa, FL (2008): www.nctr.usf.edu/pdf/77710guidebook.pdf

A Multidisciplinary Approach Toward Improving Bus Schedule Readability. Journal of Public Transportation, Vol. 9, No. 4, 2006. http://www.nctr.usf.edu/jpt/pdf/JPT%209-4%20Sollohub.pdf

INITIATIVE 5: IMPROVE CONTRACTING

Existing Practices and Potential Improvements

M.G.L. Chapter 161B requires all RTAs to contract with private transportation providers for the operation of public transportation services. Consistent with this requirement, all RTAs have at least one contract with a private operator, and many have multiple contracts.

At present, all RTAs contract independently and there is no formal collaboration between RTAs or between the RTAs and MassDOT to incorporate best practices or standardize approaches. During the meetings that were conducted at the beginning of the Beyond Boston study, many RTA Administrators expressed complete satisfaction with this approach and with their current contracts and contractors. In general, it is the approach that the RTAs feel comfortable with, believe that it provides for an effective working relationship with their contractors and ensure high service quality. However, others reported challenges associated with developing and managing effective contracts, and desired changes that would generate greater competition.

In addition, and as described below, nearly all RTAs contract for service on an "actual cost plus management fee" basis, in which they pay their contractors all direct costs for the operation of service plus a management fee. This is a very different approach than is used throughout most of the country, and leaves RTAs vulnerable to fluctuations in costs that they cannot directly control. Many RTA Administrators reported that dealing with unexpected cost increases was a major challenge.

Based on a review of current contracting practices in Massachusetts and best practices elsewhere, it appears that improvements in contracting practices could:

- Reduce costs through greater competition
- Reduce costs through implementation of better contracting practices
- Better control costs and minimize unexpected cost increases through the use of fixed-price contracts
- Simplify the contracting process.

Finally, to the extent that more effective contracts could reduce costs, additional resources would become available to improve and expand service.

Best Practices

Findings from National Research

Throughout the country, a large number of transit systems contract for some or all of their service. There are many similarities in the approaches used, as well as differences. To determine which approaches are most effective, a number of research efforts have been conducted. The two that are most widely cited are:

- *TRB Special Report 258, Contracting for Bus and Demand Responsive Transit Services,*[39] which reports on contracting practices and results at 259 small, medium and large sized transit agencies,
- CUTR *Analysis of Contracting for Fixed-Route Bus Service*[40], which presents the results of several regional and national studies.

Key findings from these studies are presented in the following sections:

[39] Transportation Research Board, 2001.

[40] Center for Urban Transportation Research, University of South Florida. June 2011.

Contract Terms

One of the purported benefits of contracting is that it encourages competition, and through this competition the cost of services is minimized. The ability of transit agencies to attract multiple bids to their RFPs reflects a variety of factors. Competition can be encouraged by:

- Contracting agencies should provide vehicles and equipment to their contractors. Most of the transit agencies responding to a TRB survey felt that including equipment and vehicles in the contracting process reduces the requirements on the bidders and encourages competition. Including equipment and vehicles in the contracts also protects the transit agency when contracts change hands by reducing the start-up costs and reducing transition time.
- Issuing relatively short contracts with options for renewal.
- Changing contracts periodically. Contracts that have a record of changing hands are more likely to attract competitors than contracts that have long standing relationships with a single service provider.

Cost Basis

Nearly all transit service contracts use one of two cost-basis approaches:[41]

6. Fixed-rate, in which transit systems pay their contractors a fixed-rate that is tied to the amount of service provided. This is the approach used for the large majority of contracts in the United States. (Note that the cost per hour contracts typically do exclude some items, which are paid on an actual cost basis. Chief among these is fuel, which due to wide price fluctuations, contractors cannot cost-effectively provide on a fixed-cost basis.)
7. Actual costs plus a management fee, in which transit systems pay their contractors for all actual costs for services provided, plus a management fee. This is the approach used by nearly all Massachusetts' RTAs.

Actual Cost Plus Management Fee

With actual cost plus management fee contracts, the risk for changes in costs (for example, labor costs, health insurance costs, and parts) is borne primarily by the contracting agency. Key characteristics of these types of contracts are:

- The contracts are more "comfortable" for the contractors as they effectively guarantee a profit.
- In theory, actual cost contracts may allow contractors to provide lower overall costs, as they do not have to build in cushions for unexpected cost increases.
- However, actual cost contracts also eliminate incentives to reduce costs or minimize cost increases, which over the longer term can result in higher costs.

These types of contracts can require greater effort on the part of the contracting agencies to ensure that contractors control costs.

Fixed-Rate Contracts

With fixed-rate contracts, risks for changes in costs are shifted from the contracting agency to the contractor, which can produce much more predictable and stable costs. In theory, contractors need to build in "insurance" costs to cover potential price changes. However, to the extent that they can reduce costs by improving efficiency, they can increase profits. This provides a strong incentive to be as efficient as possible, which can minimize initial bid prices as well as annual increases. The challenge to this

[41] Note that both approaches comply with FTA requirements.

approach is providing appropriate oversight to ensure that the quality of service is not affected by "cutting corners."

Preferred Approach

National experience suggests that fixed-price contracting provide lower costs overall without significantly impacting service quality. Considering the advantages and disadvantages of each approach, the CUTR report recommends that:

> *"Contracts should, generally, be bid on a fixed-price basis where the contractor is compensated on the basis of the amount of service provided, such as price per vehicle revenue hour. Contractors are rarely compensated for costs they incur in supplying service."*

Contract Length

Contract lengths and renewal terms vary significantly throughout the country. However, the CUTR report recommends:

> *"To foster competition, a traditional three year contract with two 1-year renewals appears to be long enough to avoid repeated transaction costs that occur with frequent rebidding, yet short enough to ensure that contractor complacency does not develop."*

Labor Costs

The TRB research reports that operating costs savings are the main reason that transit systems contract for service. One of the major sources of savings is in labor costs, as private operators often pay lower wages than public operators. Contractors also often offer public agencies greater flexibility in the use of labor–for example, more flexible work rules and greater use of part-time labor. (In Massachusetts, most RTAs use union labor for major functions, which means that most private operators pay similar wage rates as the RTAs would if directly operating the service.)

Performance Measures

National research demonstrates that, many, but less than half of transit contracts incorporate incentives and penalties in their contracts. According to the TRB research, 25% of contracts provide monetary rewards for good or superior service, and 43% of the contracts include penalties for poor performance. Incentives and penalties can take many forms, but the most common include:

- Customer satisfaction
- On-time performance
- Reliability (miles between breakdowns, etc.)
- Safety/accidents

The primary challenge that transit systems have with incentives and penalties is that they require additional monitoring of the contract and contractor to determine if the standards have been met. However, studies demonstrate the importance of performance measures in ensuring and managing service quality. In addition, the advent of "performance based management" transcends the transit industry; there are numerous national studies outside of transit that identify the use of performance measures as a "best management practice."

Summary of National Research

Based on the research conducted, the TRB and CUTR studies recommended that:

- Contracts should be procured on a fixed-price basis, such as price per vehicle revenue hour.
- Contract durations should be limited to three years with two one-year renewal options.
- Contracts should include penalties to discourage poor performance.

State Involvement in Transit Agency Contracting

It appears that Massachusetts is the only state in the country that requires all of its transit systems to contract for service. However, contracting for service is common in most states, and as such, some states are involved in the contracting process of their local transit systems. Relevant examples include:

Iowa

The Iowa Office of Public Transit (OPT) issues a 15-chapter Transit Managers Handbook.[42] The handbook provides a wide range of information and research about transit operations in the State of Iowa, including contracting. Contracting guidance consists of information and guidance about the contracting process, including:

- When to contract
- Types of service contracts
- Required contract elements

The Handbook provides a checklist for provisions that should be included in a contract, as well as a structure around which contracts can be organized. OPT has also developed a model Purchase of Service contract that it recommends, but does not require, its transit systems to use (and which is for the purchase of service on a unit cost basis).

Massachusetts

The Human Service Transportation (HST) office of the Massachusetts Executive Office of Health and Human Services (EOHHS) manages the state's HST transportation network. This network includes over $111 million worth of human service transportation services that provides approximately 5.5 million trips a year throughout the entire state. A major part of the HST Office's approach involves matching eligible clients with the most appropriate type of transportation service, or to "broker" trips, which involves:

- Arranging consumer trips and contracting for services with local providers
- Monitoring and ensuring service quality (on-site inspections, consumer surveys, etc.)
- Developing routing and other strategies to increase system efficiency and cost effectiveness
- Tracking and reporting system usage and costs and monitoring performance benchmarks

To do this, the HST Office has partnered with MassDOT and the RTAs to implement a system through which RTAs act as HST service brokers. To procure these services, the HST Office issues RFPs to the RTAs for each of its nine regions. These regions are different that the RTA service areas, and as a result, the RTAs provide this service within their own service areas as well as in other areas. Six RTAs–BRTA, CATA, CCRTA, FRTA, GATRA, and MART–provide trip broker services to HST.

The HST Office's contracts with the RTAs set performance standards and specific outcome measures that are established and monitored by the HST Office. This approach has been very successful in controlling

[42] Iowa Office of Public Transit, *Transit Managers Handbook*, April 2011

costs–in FY 2011, while 7% more trip were provided, total expenses rose by only 3% and the cost per trip declined by 3%.

Wisconsin

The Wisconsin DOT (WisDOT) has developed a Procurement Manual that outlines all of the steps that local governments, including transit systems, must follow when contracting for any goods or services that use federal funds. [43] As part of this process, WisDOT reviews RFPs before they can be released, and also reviews and approves the selection process before contracts can be awarded.

Other States

Practices from additional states include:

- The New York State DOT requires any transit agency contracting for service delivery and receiving state operating assistance to provide a copy of the contract to the Department. These contracts must also include a provision to provide operating statistics and to report on performance measures as required by the Department.[44]
- The North Carolina DOT provides a sample RFP for transit agencies to issue when seeking contractors for vehicle maintenance services.

Current RTA Practices

Contracting Approaches

At present, the RTAs contract with a large number of different contractors (see Table 4-18). Most RTAs have separate contractors for fixed-route and demand-response service, and several use the same contractor for both types of service. The variety of contractors that are used and the multiple contracts at several RTAs suggest that competition is relatively robust. However, of the country's three largest public transit contractors by revenue–First Transit, MV Transportation, and Veolia Transportation–only First Transit is particularly active in Massachusetts (and First Transit is very active, providing service for BRTA, FRTA, MVRTA, MWRTA, PVTA, and SRTA). The fact that the other two are not active in Massachusetts suggests that competition could be improved.[45]

Nearly all Massachusetts RTAs (all except MWRTA, NRTA and, for some contracts, GATRA) contract for fixed-route service on an actual cost plus management fee basis. As described above, this is a different approach than is used by most other entities that contract for transit service nationally, and different than CUTR's best practices recommendations.

The RTA contracts that do not use the cost plus management approach use variations of the fixed-rate approach. MWRTA contracts for fixed-route service on a cost per service hour basis plus an additional management fee. GATRA and NRTA contract for service on a cost per service hour basis without a management fee (the effective cost of which is rolled into the hourly cost).

[43] Procurement Manual, Wisconsin DOT, Bureau of Transit and Local Roads, March 2009.

[44] Rules and Regulations Part 975, Statewide Mass Transportation Operating Assistance Program, (§ 18-b), 1999.

[45] Veolia does provide service for WRTA, but through an existing contract that it acquired as part of its acquisition of PTM.

Table 4-18 Overview of RTA Service Contracts

RTA	Fixed-Route Contractor	Fixed-Route Terms	Demand Response Contractor	Demand Response Terms	Other Operating Contracts
BAT	East Coast Transit Services (ECTS)	Cost plus mgmt. fee	Northeast Transit Services	Cost plus mgmt. fee	Councils on Aging (COAs) Intercity bus
BRTA	First Transit	Cost plus mgmt. fee	Americans with Disabilities Act ADA Complementary Paratransit	Per passenger trip	Demand Response COAs and HST
CATA	Not provided to Beyond Boston Study	Cost plus mgmt. fee	Not provided to Beyond Boston Study	Cost plus mgmt. fee	HST Beverly Circulator Route Health Services Links
CCRTA	Eastern Massachusetts Transit Company	Cost plus mgmt. fee	Same as fixed-route	Cost plus mgmt. fee	HST (including for Martha's Vineyard and Nantucket)
FRTA	First Transit	Cost plus mgmt. fee	First Transit in Deerfield, Gill, Greenfield, Montage and Whately. COAs in other areas	Cost plus mgmt. fee	COAs and HST
GATRA	PTM (Taunton/Attleboro) P&B (Plymouth) Churchill (Wareham) Kiessling (Franklin) Bill's Taxi (Mansfield/Norton)	PTM: Cost plus mgmt. fee Others Fixed-rate based on vehicle hours	Same as fixed-route	PTM: Cost plus mgmt. fee Others Fixed-rate based on vehicle hours	COAs, Intercity Bus and HST
LRTA	McDonald Transportation	Cost plus mgmt. fee	First Transit	Cost plus mgmt. fee	COAs
MART	Management Transit Services (MTS)/ Management of Transportation of Gardner Inc (MTSG*	Cost plus mgmt. fee	Dial-A-Mart (D-A-M)***	Cost plus mgmt. fee	Other fixed-route and paratransit services COAs and HST
MVRTA	First Transit	Cost plus mgmt. fee	Same as fixed-route	Cost plus mgmt. fee	
MWRTA	First Transit	Fee plus hourly	Thompson Transit	Per trip by type	
NRTA	VTS of Massachusetts	Hourly rate plus some direct costs	VTS of Massachusetts	Hourly rate plus some direct costs	
PVTA	First Transit	Cost plus mgmt. fee	Hulmes Transportation Services	Actual Hours of Peak Period Service; Actual Trips during Off-Peak	
SRTA	First Transit	Cost plus mgmt. fee	Same as fixed-route	Cost plus mgmt. fee	COAs
VTA	TCI	Cost for services provided plus mgmt. fee (some functions, including maintenance, not contracted)	Same as fixed-route	Same as fixed-route	
WRTA	PTM	Cost plus mgmt. fee	Same as fixed-route	Cost plus mgmt. fee	COAs

Source: Nelson\Nygaard based on data provided by RTAs.

All three MART contractors (MTS, MTSG, and D-A-M) are the same company doing business under different names.

There is much more variation in contracting practices for demand-response service. Most (9 of 15) still use the same cost plus management fee as for fixed-route service. However, some use different approaches such as a fixed-rate per passenger trip (BRTA and MWRTA), a combination of service hours and cost per trip (PVTA), cost per service hour (NRTA), and combinations of approaches (GATRA).

Several RTAs also hold contracts with other service providers, typically with municipal Councils on Aging (COAs), but also with intercity bus operators. Contracts with COAs are usually for local demand responsive service for older adults and persons with disabilities. However, some COAs assist RTAs with ADA paratransit service and augment fixed-route services for members of the general public by providing local services such as shuttles to/from MBTA commuter rail stations. In some cases, RTAs provide vehicles to COAs and in other cases they do not. A handful of RTAs hold contracts with other service providers, most notably regional bus operators. For example, BAT contracts with an intercity bus operator for regional bus service. GATRA also leases vehicles on behalf of intercity operators, but does not provide funding for operating expenses.

Contract Terms

The RTAs use very different styles, templates and structures for their contracts. Some RTAs use contracts that are very short (5-6 pages) and reference terms and provisions provided in other documents. Other contracts include all relevant information in a single, much longer document. While the organization and structure of each contract is different, there are many similarities. These reflect federal requirements[46] imposed on any contract involving federal funds as well as practices that have evolved out of RTA operations over time. In general, these common practices include:

- **Staff** – Most contracts specify that the contractors will engage existing transit operating personnel. Contractors are responsible for recruiting, hiring, and training any new staff. Most contracts also specify training requirements, especially for drivers but also for maintenance staff.
- **Vehicles** – For most services, RTAs provide vehicles and the contractors are responsible for vehicle maintenance, including preventative maintenance. Exceptions to this are some of the ADA and demand response contracts with Councils on Aging (COAs); in some cases vehicles are provided to the COAs, and sometimes the municipality provides a vehicle. Another exception is with intercity bus operators, some RTA contracts provide vehicles, while others do not.
- **Vehicle Maintenance** – When vehicles are provided, contracts require vehicle maintenance program and/or specify maintenance expectations (one exception is VTA, which performs its own maintenance).
- **Facilities** – Most RTAs provide administrative, maintenance and vehicle storage facilities. Contractors are responsible for the maintenance of these facilities. In some cases, maintenance of the passenger facilities, including intermodal terminals and parking garages are included in contracts. In a few cases, contractors are allowed to bid out that work.
- **Insurance** – RTAs typically require the management team to obtain and maintain a variety of different types of insurance. Contracts almost always specify the amounts and types in the contract document.
- **Safety** – Contractors are responsible for ensuring all employees, including drivers, adhere to safety standards, including safety and accident prevention and maintaining safety records.
- **Reporting** – Contracts specify requirements associated with submitting management, performance and other reports.

[46] Federally required contract clauses include provisions associated with energy conservation, clean water, anti-lobbying, access to records, clean air, no obligation by the Federal Government, program fraud and false or fraudulent statements, civil rights, disadvantaged business enterprises, ADA, etc.

- **Consulting and Technical Assistance** – Nearly all contracts look to their management team to provide ad hoc consulting and technical services. Most of these costs are included contract management fees, but some RTAs pay additional fees to have special technical services provided on an as needed basis.

While many of the contracting terms are similar, there are several areas where contract terms differ. The following section provides additional detail some critical contracting terms and compares and contrasts contracting practices. It focuses on the larger contracts held between RTAs and fixed-route and ADA paratransit operators, rather than the smaller service specific contracts that are held with COAs and intercity bus operators. In cases where smaller contracts are referenced, they are called out specifically.

Contract Lengths and Cost Escalation Rates

Most RTA contracts are set for a fixed-term with optional extensions for an additional period of time. Five of the 15 contracts were issued in 2011, and most of the remainder issued between 2007 and 2010. Exceptions include GATRA and CATA. Three GATRA contracts, issued in 2004 or 2006, are being put out for rebid over the next two years. (At the time this document was prepared, the study team had not received finalized contract information from CATA.)

- Most contracts are for a period of three years with two optional one-year extensions (see Table 4-19). This is consistent with best practices reported elsewhere.
- Three contracts–CATA, FRTA and VTA– are issued for only a single year, but with four one year extensions.
- Three contracts–GATRA, MART and MVRTA–are for five-year periods. MART's contract does not specify an extension option, but MVRTA's contract allows for a five-year extension.

Table 4-19 RTA Fixed-Route Service Contracts – Contract Lengths and Cost Escalation Rates

RTA	Start Date	Term (Years)	Extensions	Escalation Rate
BAT	2007	3	Two 1-year	1.3%
BRTA	2011	3	Two 1-year	2.7% - 3.0%
CATA	2008	1	Four 1-year	n/a
CCRTA	2011	4	One 1-year	1.6% - 2.7%
FRTA	2008	1	Four 1-year	n/a
GATRA	2004 - 2006	5	One 3 year One 1-year	3.0%
LRTA	2010	3	Two 1-year	3.75%
MART	2008	5	Not specified	3%
MVRTA	2007	5	One 5-year	4.0%
MWRTA	2011	3	Two 1-year	3.9%-2.7%
NRTA	2011	3	Two 1-year	2.5%
PVTA	2011	3	Two 3-year	2.0%-2.5%
SRTA	2011	3	Two 1-year	0%-2.5%
VTA	2007	1	Four 1-year	2.0%
WRTA	2004	3	Two 1-year[47]	n/a

Source: NN based on contracts provided by RTAs

In most cases, contracts specify the escalation rates that will be assigned to the management fees over the life of the contract period. In recent years, escalation rates have ranged from 1.3% (BAT) to a high of 4.0% (MVRTA).

[47] Although the contract has been extended for six one-year periods. WRTA plans to readvertise in 2012.

Management Personnel

Most fixed-route contracts pay a management fee to the contractor that includes the salary of the General Manager (GM), plus a fee or profit to the operating company. However, three RTAs pay for the cost of additional management personnel:

- Two RTAs (PVTA and CCRTA) also include an Assistant General Manager (AGM) position in the contract.
- MVRTA contracts for a large management team that includes salaries for a GM as well as an AGM for Maintenance, an AGM for Operations, an AGM for Human Resources, a Director of Paratransit and a Manager of Marketing.

Six RTAs have separate contracts for ADA or demand response services. Of these six RTAs, only three (BAT, LRTA, and MART) use the actual cost plus the management fee approach, and all three include a separate GM or AGM position dedicated to ADA service. In the case of MART, although the contracts are issued separately, the contractor is essentially the same organization with same GM designated for all three services. The remaining three RTAs (BRTA, PVTA and MWRTA) contract for ADA services on a per trip or hourly basis, and these contracts do not specify management personnel.

Labor

In most cases, RTA contracts specify that new contractors must retain all existing employees. This means that even if the management team changes, the individuals operating the transit system, including drivers, dispatchers, mechanics, and other personnel remain the same. In most cases, the management team will create a new wholly-owned local subsidiary company that employs current staff and continues the existing employment practices and rules. If existing staff are members of a union, contracts also typically require the management team be bound by the terms and conditions of the existing collective bargaining agreement. As additional employees are needed, the contractor is responsible for recruiting, hiring and training these individuals. This is standard practice throughout the county.

At the RTAs with union labor, the RTA contractors conduct labor negotiations. For the RTAs that have actual cost plus management fee contracts, the situation exists where contractors negotiate costs that they will not pay directly but will instead pass on to the RTAs. This eliminates the incentive that exists with fixed-price contracts for contractors to minimize costs. However, the RTAs do provide their contractors with input on acceptable costs, terms, and related elements that the contractors then use in their negotiations. For agencies that contract on a fixed-price basis (largely outside of Massachusetts), contracting agencies typically do not have any involvement–either direct or indirect–in labor negotiations and resulting costs are not passed on to the contracting agencies.

Performance Measures

About half of the fixed-route and combined fixed-route and ADA contracts contain some mention of performance measures. Most of the language, however, is general and does not spell out clear expectations. For example, five contracts (GATRA, FRTA, MVRTA SRTA and WRTA) contain language that reference annual work plans that will be negotiated and will include performance standards[48]. The performance measures are not specified, nor are they clearly tied to the payment for service. For example:

- CCRTA's contract specifies a handful of performance measures, but the measures are very general and are not tied to payment.
- MWRTA's contract includes performance measures that are more specific as compared to others, but they are not directly tied to payment.

[48] These work plans have not been reviewed as part of the Beyond Boston process thus far.

- VTA's contract has limits on overtime.

PVTA is the only RTA that includes very specific performance criteria in their fixed-route contract and ties these criteria to payment. The performance measures include a variety of metrics, including on-time performance, customer services, safety performance, personnel management and reporting. Each of these criteria is also linked to specific financial incentives and penalties, thereby clearly linking performance and payment.

Performance measures are much more common among the contracts for ADA paratransit services, especially among the contracts that do not follow the actual cost plus management fee model. BRTA, for example, reimburses its ADA provider based on the number of trips provided and sets specific service criteria for these trips. Many performance measures are also designed to ensure that service will comply with ADA requirements. VTA sets on-time performance criteria in its ADA contract as well as productivity ratios in terms of the number of passengers carried per vehicle hour. MWRTA also sets productivity goals for its contractor, which like PVTA, are set in terms of passengers carried per vehicle service hour.

Measures to Limit Cost Escalation

Nearly all contracts for fixed-route service include some measures to limit cost escalation over time. The most common of which is a prohibition on the hiring of additional personnel without direct approval from the RTA. Several contracts also include provisions against substantially increasing pay rates without approval from the RTA. Other terms limit the amount of overhead hours.

Cost-Saving Measures

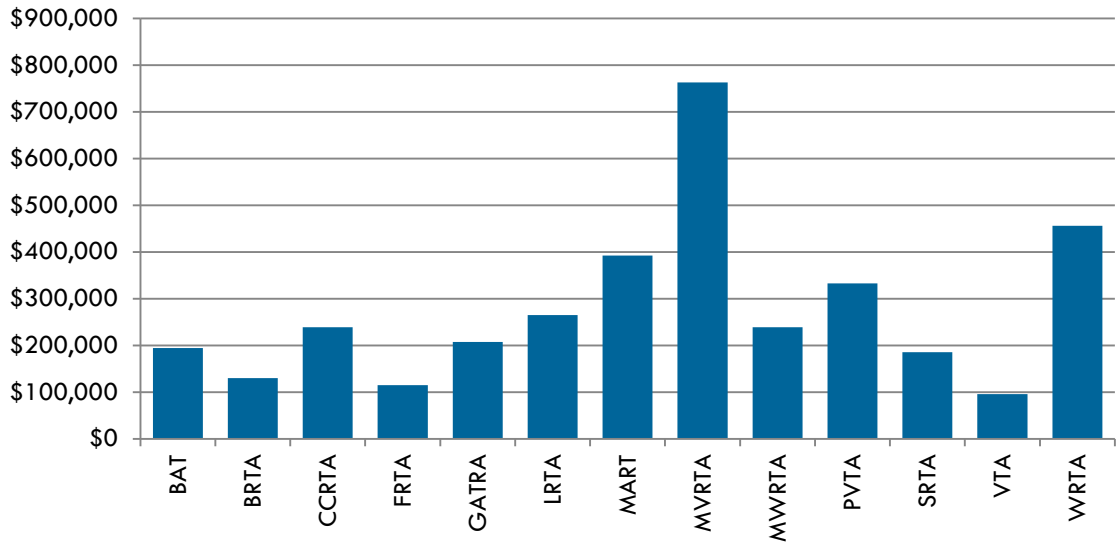
Contracts for demand-response services are more likely to include incentives for cost saving than fixed-route contracts. With demand-response service the relationships between service costs and productivity are more direct because higher rates of passengers per vehicle service hour almost always means more trips are grouped and rides are shared, which lowers service costs. Consequently, several of the contracts specify goals or requirements for the number of passengers carried per vehicle hour. BRTA contracts for demand-response service based on a per-trip cost, with costs varying by vehicle ownership (BRTA pays less for trips made on BRTA vehicles). BRTA's contract also clearly specifies a shared-ride trip rate that is designed to encourage shared rides and reduce BRTA's costs.

Management Fees

The management fees paid by RTAs to their contractors varies considerably, ranging from a low of $95,000 by VTA to a high of $763,000 by MVRTA (combined fees for fixed-route and demand-response service) (see Figure 4-16). The amounts are all bid amounts and reflect contractors' estimates of what they believe they can include in a successful bid. The average management fee paid by RTAs is approximately $270,000. VTA's low fee reflects the small size of the system and the fact that service is largely seasonal. MVRTA's high management fee reflects the large management team approach adopted by that agency.

As a percentage of total operating expenses, management fees range from a low of less than 1% at PVTA and SRTA, to a high of 6.6% at MVRTA (see Figure 4-17). The average fee paid is approximately 4%. These percentages to a significant extent reflect system size, with larger systems generally having lower fees as a percent of total costs, and smaller systems having higher costs (because at larger systems, labor costs for management personnel are spread over a larger base). Still, there are significant differences that cannot be explained by system size.

Figure 4-16 RTA Contracted Management Fee – Includes Fixed-Route and ADA Service (2011)

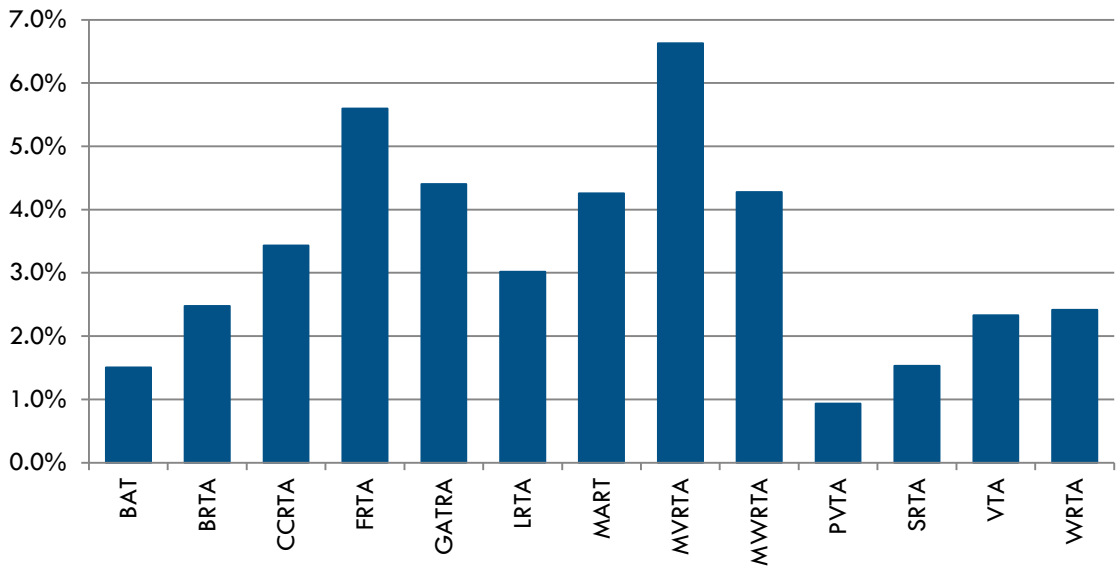


Source: NN based on contracts provided by RTAs. Amounts are factored to reflect 2011 costs where possible.

Data is not reported for CATA because at the time this initiative was written, only a draft contract was available.

GATRA fees reflect only the cost plus management fee contract with PTM, as their other contracts are fixed-rate contracts that do not include a management fee. NRTA not included due to different contracting practices.

Figure 4-17 RTA Contracted Management Fee as a Percentage of Operating Expenses (Fixed-Route and Demand Response)

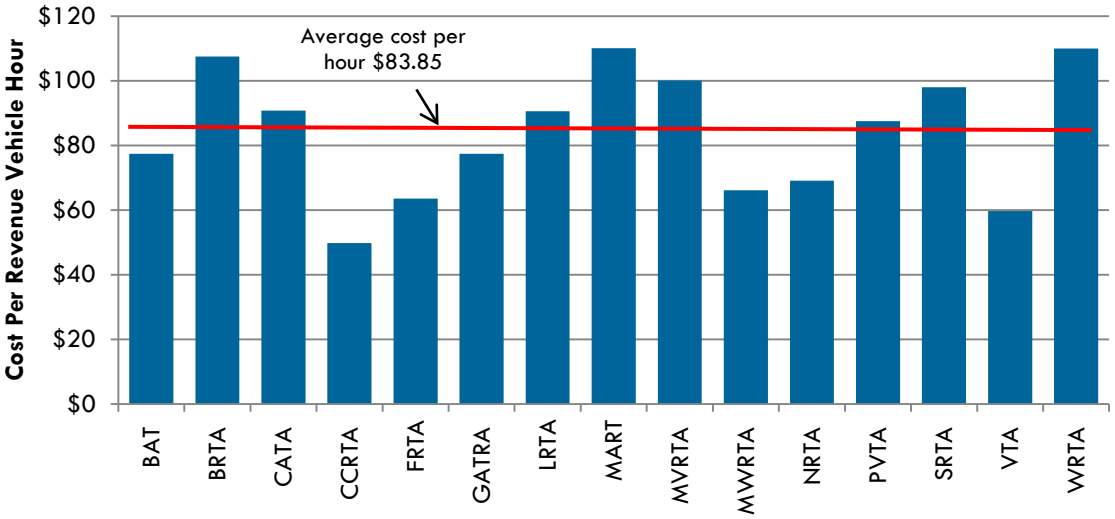


Source: Management free reflects amounts provided in RTAs contracts factored to reflect FY 2011, where possible. Operating expenses from NTD and are for 2010. GATRA expenses estimated for PTM contract area. NRTA not included due to different contracting practices.

Cost of Service

There are a number of factors that influence the cost of service, including differences in service areas and service types, and whether or not union labor is used (and labor almost always comprises the largest cost component). That said, there are larger than expected differences in the average cost of fixed-route service pre revenue hour. Throughout the state, the cost per service hour for fixed-route service ranges from a low of $59.30 at CCRTA to a high of $109.90 at WRTA (see Figure 4-18). The average cost among all RTAs is $83.85.

Figure 4-18 RTA Fixed-Route Costs per Revenue Vehicle Hour



Source: 2010 NTD

Some of the differences in service costs may reflect contracting practices. RTAs that follow an actual cost plus management fee plus cost model, for example, pay an average of $86.34, which is about 30% higher than the $66.17 hourly cost achieved by MWRTA, which uses a fixed-rate approach. Other notable findings are that while PVTA has a marginally higher than average hourly costs, the inclusion of performance incentives and disincentives does not appear to significantly increase service costs. MVRTA's large management team, on the other hand, has not appreciably lowered average service costs.

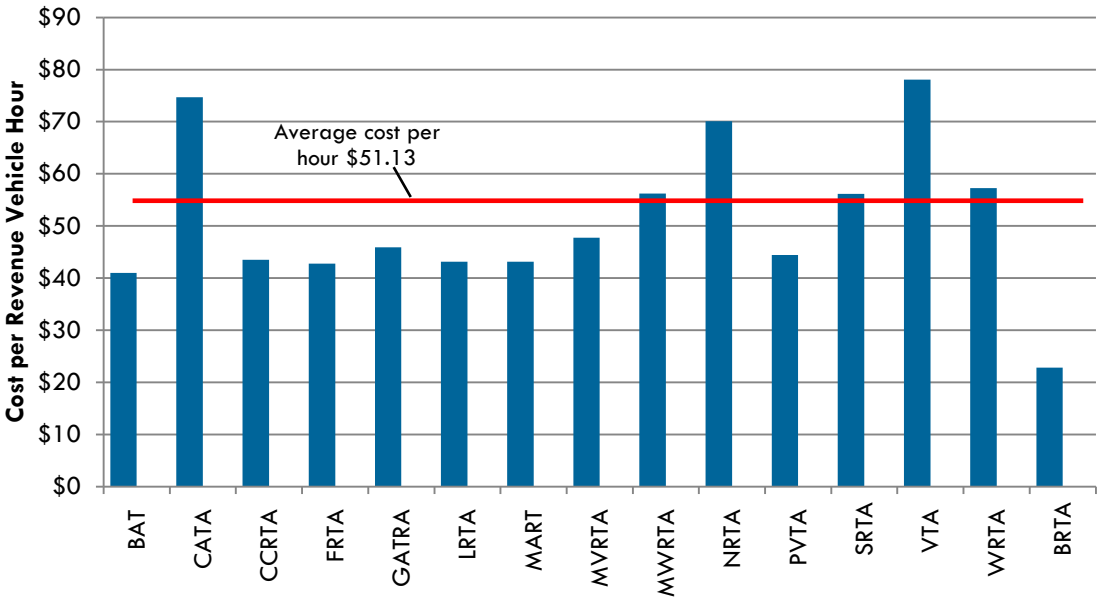
Costs for demand-response service range from a low of $22.13 at FRTA to a high of $78.09 at VTA (see Figure 4-19). The statewide average is $51.13, and half of RTAs have costs that range from $40 to $45 per hour. Of the five RTAs with the lowest per hour service costs, four contract for ADA services separately.

HST Service

Six RTAs (GATRA, MART, FRTA, BRTA, CCRTA and CATA) are contractors to the Massachusetts Human Service Transportation (HST) Office. In these cases HST contracts with the RTAs to broker human service transportation for clients of MassHealth, the Department of Development Service and the Department of Public Health. The RTAs do not provide the actual service, but instead work with a multitude of transportation service providers to manage, broker and coordinate transportation services for HST clients. HST contracts are worth noting because they demonstrate the multiple roles some RTAs play in terms of both contracting with service providers and being contracted to provide management services. HST contracts are also relevant because they offer an example of best practices in contract management with performance standards tied to specific outcome measures. The use of these contract terms between a

state agency and local RTAs also demonstrates the capacity of the RTAs to successfully operate within a performance-based environment.

Figure 4-19 RTA ADA Paratransit Service Costs per Revenue Vehicle Hour



Source: 2010 NTD, paratransit service costs largely have HST trips removed.

Role of MassDOT

To date, MassDOT has not been actively involved in the RTA contracting process. MassDOT does, however, have such authority as specifically provided in Section 23 of Chapter 161B. This statute outlines the Commonwealth's role in paying contract assistance and specifically states that:

> *"Any contract under this section shall include such provisions as the secretary deems necessary and desirable to assure the efficient operation of the authority and the minimum burden on the commonwealth and on the cities and towns within the authority, and to insure contract assistance is provided for projects which are consistent with the program for public mass transportation of the authority."*

As described above, it appears that changes in contracting approaches, especially shifting from an actual cost plus management fee approach to a fixed-fee approach, could produce meaningful cost savings and more predictable costs. As such, and considering that the state is the major funding provider for RTA services, it may be appropriate for MassDOT to become more actively involved in the RTA contracting process.

Summary of Issues

There is wide variation in contracting practices among Massachusetts RTAs, creating a system that differs from national industry trends and best practices achieved by other agencies in the Commonwealth. Consequently, there are opportunities for improvement.

MassDOT has largely been absent in the contracting process. At least partially as a result, RTAs have adopted a variety of different approaches and styles that have produced a wide range of outcomes. Compared to the Massachusetts HST Office, for example, MassDOT exerts very little influence or control

over RTA contracts. The HST Office example demonstrates the potential benefit associated with state involvement in the contracting process. The Office maintains a staff of 11.5 individuals and also pays higher management fees to the RTA brokers than the fees paid by the RTAs to their management teams (6% as compared to an average of 4%). However, the Office remains involved in the oversight of service delivery using an extensive database to monitor performance and evaluate services, respond to changes in the industry and enforce statewide standards and expectations. Hands-on management of the brokerage contracts also likely contributes to the Office's success at cost containment–while the demand for service increased by 66% between FY 2004 and FY 2010, the cost of service increased by only 19%. By comparison, RTA ridership increased by 25 to 30% and costs increased by more than 60%.[49]

RTA contracts show mixed efforts in tailoring contracts to specific services. With some exceptions, such as the five contracts held by GATRA in different parts of their service area, and contracts with COAs and intercity bus operators, most RTAs rely on a single provider for all their transportation services. All but five RTAs, for example, contract with the same management team for both fixed-route and ADA paratransit services. In general, the RTAs that issue separate contracts tend to include more specific terms and performance measures; these smaller, more specialized contracts are more likely to be fixed-price contracts and also tend to realize lower costs overall.

Areas where most RTAs are not in line with national trends and best practices are bidding contracts based on a fixed-price basis and careful monitoring of contractor performance through the use of financial penalties and incentives. Transitioning to fixed-price contracts would offer several critical advantages for the RTAs. First, fixed-price contracting means services costs will be more predictable, working to alleviate some of the uncertainty inherent in the RTAs existing operating and funding environment. Fixed-price contracting also shifts the responsibility for cost containment to the contractor, thereby freeing RTAs to focus on service quality. Another key advantage of using fixed-price contracts in Massachusetts would be to provide stronger incentives for contractors to better control labor costs, since they would not be able to pass on cost increases to the RTAs. While some RTAs disagree with this approach due to concerns that service quality would suffer, national research and local experience suggest otherwise. Furthermore, service quality could be protected through the use of performance measures.

While RTAs may use performance measures to monitor contractor performance and service efficiency, these performance measures are not widely incorporated into contracts. This practice has been identified as a best practice nationally and the local example provided by the HST Office offers considerable evidence that performance measures and monitoring can lead to more efficient operations and also help maintain service quality. The lesson from the HST Office suggests that management costs will increase; indeed the management fees paid to brokers is nearly double the average paid in RTA contracts, but the increased monitoring has led to more effective cost containment system wide.

[49] RTA operating expenses and ridership trends based on 2010 RTA Profiles prepared by Nelson Nygaard as part of the Beyond Boston study, but excluding data for FRTA and MWRTA which were not in existence in 2001.

Actions to Consider

Potential improvements and actions that might be considered to address the above issues include:

1. Most Massachusetts RTAs contracts use an actual cost plus management fee model in their contracts. The transit industry, however, largely uses a fixed-price approach to contracting. Should MA transition to a statewide fixed-price approach?
   - What are the benefits or concerns related to this approach?
   - Is technical assistance required to facilitate this approach?
   - Are there lessons to be learned from the RTAs (NRTA, MWRTA and GATRA) that use fixed-price contracting?
   - What measures might be incorporated into fixed-price contracts to ensure service quality is maintained?

2. Several RTAs institute best practices that were developed through several years of experience with contracting. These best practices, however, are not universally applied.
   - How can RTAs be encouraged to use lessons learned by others in their contracting practices?
   - Should contracting best practices be documented and shared with all RTAs?
   - Is other peer-to-peer training appropriate? Would it be helpful to hold a workshop to discuss best practices and lessons learned in contracting?

3. RTAs that issue separate contracts for fixed-route and ADA/Demand Response services achieve lower costs. The RTAs that issue separate contracts are also more likely to include performance and cost savings measures.
   - Should RTAs be required to issue separate contracts for fixed-route and Demand Response services?
   - Are there specific performance measures that should be included in Demand Response contracts?
   - Are there specific cost containment strategies that should be included in Demand Response contracts?

4. National data suggests shorter contract lengths and limited extension periods encourage competition, something that is currently lacking in Massachusetts.
   - How could RTAs attract more competition in the RFP process?
   - Are there other aspects of the contracting process that need changing?

For More Information

Analysis of Contracting for Fixed Route Bus Service, National Center for Transit Research, University of South Florida, June 2011:
http://www.nctr.usf.edu/wp-content/uploads/2011/08/77923.pdf

Iowa Transit Managers Handbook:
http://www.iowadot.gov/transit/handbook.html

Massachusetts RTA Enabling Legislation, M.G.L. Chapter 161B:

http://www.malegislature.gov/Laws/GeneralLaws/PartI/TitleXXII/Chapter161b

Special Report 258, Contracting for Bus and Demand Responsive Transit Services, Transportation Research Board (TRB), 2001.
http://onlinepubs.trb.org/onlinepubs/sr/sr258.pdf

2010 Annual Report, Commonwealth of Massachusetts Executive Office of Health and Human Services, Human Service Transportation Office FY 2011:
http://www.mass.gov/eohhs/docs/hst/hst-annual-report-fy10.pdf

5. Should MassDOT take a more active role in monitoring contract performance and trends, providing technical assistance, and ensuring contracts are structured to gain statewide efficiencies?
   - Should MassDOT look to the HST Office as a model for contract oversight? Do RTAs that are HST brokers see any benefits from this approach?
   - How else could MassDOT support RTAs in their contracting efforts?
   - Should MassDOT develop standards and policies to guide contracting practices?
   - Limit the size of the management team?
   - Issue standard terms for maximum contract duration and renewals?
   - Require performance measures?

INITIATIVE 6: IMPROVE CAPITAL PLANNING

Best Practices and Potential MA Improvements

Capital planning helps agencies establish an overall strategy for investing capital transportation dollars over the near and long-term. When there are competing needs and limited funding resources, an objective capital planning process enables decision-makers to identify the most critical needs and prioritize projects. Benefits of this approach include more cost-effective investments and productive improvements to the overall quality of a transportation system.

A capital improvement plan (CIP) is an annualized program of capital facility and equipment needs, usually programmed over a short timeframe (3-6 years) and forecast over a longer term (10-20 years). A CIP can either be "needs based" or financially constrained. A needs-based CIP presents all identified capital needs, regardless of the financial resources available. A financially constrained CIP prioritizes improvements based on the financial capacity to fund the plan.

In order to properly assess capital needs, many transit agencies and state DOTs use asset management techniques to systematically track and prioritize upcoming maintenance and replacement costs. As authorized under Chapter 25 of 2007, MassDOT is directed to develop and implement a single integrated asset management system to oversee and coordinate the maintenance, preservation, reconstruction and investment of all of the assets in its custody and control.

Chapter 25 also directs MassDOT to utilize a life-cycle cost approach during project planning and selection. Life-cycle costs shall include all relevant costs of a transportation asset's lifespan (e.g. planning, study, design, purchase or lease, operation, maintenance, repair, replacement and disposal).

Specific capital planning responsibilities of the MA Regional Transit Authorities (M.G.L. Chapter 161B) include the annual preparation of a long-range program for the construction, reconstruction or alteration of facilities for mass transportation with a schedule for the implementation and comprehensive financial estimates of costs and revenues. This plan is to be developed in consultation with MassDOT.

Current Practice in MA

In Massachusetts, federal capital programs cover 80 percent of transit capital expenditures. These federal funds are distributed through formulas based on population, population density, bus revenue vehicle miles and total operating costs. Additional federal funds may be appropriated through congressional earmarks. These federal funds typically require a 20 percent state or local match, which is funded completely through the MassDOT Regional Transit Authority Capital Assistance Program (RTACAP).

The RTACAP program uses state bond proceeds to provide the non-federal match to federal transit capital funds, and to help maintain transit delivery systems in a state of good repair. Until recently, annual capital funding allocations to each RTA were based largely on historical distributions. MassDOT recently established an “interim” model for RTACAP distribution (see below), and hopes to further develop this approach to more appropriately reflect current broader RTA asset replacement and ongoing maintenance needs.

Interim Allocation Model for RTACAP Funds

The interim process to allocate and program the RTACAP[50] funds uses estimated RTA transit fleet replacement costs as a proxy for each agency's total capital needs. MassDOT calculates annual allocations as part of a two-step process.

Step I – Develop Fleet Replacement Statement

Working with the individual RTAs and the revenue service fleet information reported to the National Transit Database (NTD) program, MassDOT develops an Annual Fleet Replacement Statement. This statement identifies both the current and deferred replacement needs for each RTA's transit fleet. Unit costs are based on actual procurements made by the RTAs and other available industry data.

The Fleet Replacement Statement includes a calculation of both the percentage of total fleet replacement and total fleet replacement backlog.

Step II – Develop Distribution Targets

Distribution targets are calculated based on the total available RTACAP program funding, and each agency's percentage of total statewide fleet replacement needs, as follows:

1. For each RTA:

   % of Total Fleet Replacement Need[51] * Total RTACAP Funding = **Raw Distribution %**
2. For Rural RTA's, an adjustment is made to recognize that the three rural transit providers do not receive FTA capital funds on a formula basis. These agencies are funded at 90% of what they would receive had FTA funds been available to them, then subtracts this rural funding to identify the remaining funds available to be shared by urban systems.

   Total RTACAP Funding – Rural Agency Allocation = **Urban RTACAP Funding**
3. Calculate Blended Target Distribution for each Urban RTA:

   % Current Fleet Replacement * Urban RTACAP Funding Total = % RTA Current Need

   % Fleet Replacement Backlog * Urban RTACAP Funding Total = % RTA Backlog

   Average of (% RTA Current Need) + (% RTA Backlog) = **Target RTACAP Distribution**

This "blended target" averages the current fleet replacement need with the identified fleet replacement backlog. It is designed to shift greater levels of investment to areas with deferred capital needs, while maintaining funding to all agencies based on the relative size of each RTA's fleet and scope of services.

In addition to fleet needs, MassDOT is now beginning to track other State of Good Repair needs such as operations facilities, passenger facilities, and equipment/systems. However, these factors have yet to be incorporated into the annual RTACAP Allocation Process.

In summary, the RTACAP funding allocation process does not consider actual projects that might be implemented, it simply identifies the relative share of funding each RTA will receive. Projects are then selected for implementation based primarily on local and regional input, as described below.

[50] *RTA Transit Capital Program (RTACAP) Policy & Procedures*, MassDOT Office of Rail & Transit, revised March 2011.

[51] The % of Total Fleet Replacement Need is calculated as the proportion of an RTA Replacement Need divided by the Total (all RTA) Replacement Need.

Regional Planning Process - Capital Project Development & Selection

For local transit projects to be eligible for funding they must be included in their Metropolitan Planning Organization's (MPO) Transportation Improvement Program (TIP). Each RTA coordinates with their respective MPO for formal approval of both Federal and State funds for their transit projects. MassDOT's annual RTACAP allocations are provided to each regional planning organization to support this process, along with a rolling five -year forecast of future allocation levels. Each regional TIP must reflect the funding levels provided in these forecasts. This policy ensures compliance with federal requirements that TIPs only include projects for which funding "can reasonably be expected to be available."

As part of an extensive statewide public process in 2003, MassDOT worked with the 13 MPOs to identify a set of project evaluation criteria. These are referenced in the state's Long Range Transportation Plan, and are to be used to assess and prioritize all transportation projects, regardless of mode (see Table 4-20).

Table 4-20 MA Transportation Project Evaluation Criteria

Type of Project	Criteria	Measure
Transit Preservation Projects	Condition	Age of asset/Remaining useful life Condition of asset Effect on user comfort, safety and health
	Usage	Operational impact and need Effect on system reliability
	Cost Effectiveness	Cost/Rider
Service Improvement Projects	Condition & Service Quality	Improvement in infrastructure condition User comfort / User convenience Effect on crowding
	Mobility	Change in total usage Travel time Connectivity/access/transfers System reliability Effect on other modes
	Safety & Security	User safety / User security Affect on other modes
	Cost Effectiveness	Capital cost/new rider Capital cost/time savings Operating cost/new rider Operating cost/time Savings
Service Expansion Projects	*Same as Service Improvement, but Cost Effectiveness criteria also includes:* Change in total user benefit	

MPOs have adjusted the state criteria to fit regional characteristics or reflect local priorities and have used these criteria to develop Regional Transportation Plans and TIPs. These criteria are also intended to be used in individual agencies' capital planning processes.

Project Implementation

Once allocation targets are established and regional coordination is complete, each RTA develops and submits a program of projects that MassDOT will review and endorse. These submissions include a general project description, project justification, funding sources anticipated, project schedule and cash flow. Projects are classified as State of Good Repair, System Efficiency, System Enhancement, Safety, Statutory Compliance or System Expansion. A brief basis for the project cost estimate must also be provided.

There is no local match or contribution required to obtain RTACAP funding.

RTAs are expected to expend 95% of their annual RTACAP allocation in the fiscal year the funds were distributed. However, RTAs are often challenged to spend these grants within the given timeframe. If the money is not spent bond proceeds are recaptured by the Commonwealth. As a result, RTAs have found themselves in a "use or lose" situation and to avoid losing funds, they will use RTACAP funds to make small capital purchases, such as for office furniture, computers or other equipment. While the purchases may be needed, they do not necessarily reflect investments in the system operations.

RTAs identified a variety of factors that make it challenging for them to spend their funds:

- Projects are not fully "ready to go", often because RTAs need capital funds to adequately plan for implementation.
- Federal grant awards are not subject to the same "one-year" timeframes as state match funding.
- Actual project costs exceed budget estimates and, without assurances of future funding, RTAs are not able to continue project development.
- Certain capital projects, such as large intermodal facilities or the implementation of new technologies, involve a number of technical and management complexities. RTAs may not always have capabilities in house and finding the skills slows project implementation.

Best Practices in Capital Investment Programming

Virginia

Virginia is selected as a "Best Practice" state because it covers many aspects of capital planning and management. There is a statewide asset management system, and the Department of Rail and Public Transportation (DRPT) has established Transit Service Guidelines. These two elements, along with required local Transit Development Plans, are integrated into the capital funding process.

Virginia's Commonwealth Transportation Board (CTB) establishes administrative policies for the transportation system and allocates funding. The CTB's *Transit Sustainability and Investment Policy* includes the following goals:

- Asset Management: The Commonwealth's asset management system shall support the development of a statewide transit and human service capital replacement and improvement program.
- Capital Project Programming and Evaluation: All proposed transit projects shall:
  - Include sufficient justification and clearly address an identified transit need.
  - Include a project implementation plan.
  - Be advanced to a state of readiness for implementation within one year of the targeted award date.
  - Have reached the end of their useful life to be considered for rehabilitation or replacement (unless there is a sufficient safety, security or financial rationale).

The DRPT is responsible for evaluating capital projects according to CTB policy. All applications for Capital Assistance are evaluated using the criteria shown in Table 4-21.

Table 4-21 Virginia Capital Assistance Evaluation Criteria

Criteria	Description
Project Justification	Explanation of the need/problem that the project will address
Planning	Documentation that sufficient planning has been conducted to execute the project
Project Scope	Approach to addressing the need/problem
Project Readiness	Ability to advance the project within the fiscal year

Criteria	Description
Technical Capacity	Project management team and ability to execute the project
Project Budget	Ability to execute the project scope within the project budget
Project Schedule	Ability to execute the project scope within the project schedule
Monitoring and Evaluation Plan	Approach to measuring performance and evaluating project results
Consistency with State Asset Management System	Used to evaluate requests for replacement or rehabilitation of existing equipment
Consistency with VA Transit Service Design Guidelines & Transit Development Plan requirements	Used to evaluate requests for new systems, modes and services
Cost Benefit Data	Uses VA's Public Benefit Model to evaluate all transit "new starts"

Upon completion of the evaluation process, DRPT includes the recommended applications and allocation in the Draft Six Year Improvement Program. This program is based on projected revenues; the CTB makes actual funding allocations on an annual basis.

One capital account, the *Mass Transit Capital Fund (MTCF)*, funds specific projects selected by the CTB and allocates funds according to a hierarchy of state goals. This approach is intended to advance projects that the CTB deems most beneficial; the hierarchy is anticipated to evolve as the Commonwealth's vision and priorities change over time. For FY 12, DRPT has used the following hierarchy:

- Tier 1: Replacement/rehabilitation of revenue vehicles
- Tier 2: New/replacement facilities, new service or service expansions
- Tier 3: Discretionary programs (all other activities based on VA's transportation goals and objectives)

Finally, it is worthwhile noting that when Virginia capital assistance is used to match federal grants, the state contribution is typically 16 percent, with a 4 percent local match. If no federal assistance is involved, the local match percentage ranges from 5 to 50 percent depending on the program.

Washington State

In 2003, the Washington State Legislature implemented legislation to guide the maintenance and preservation of transportation assets and to ensure that public assets were properly maintained and preserved. Working collaboratively, Washington State DOT (WSODT) and the Washington State Transit Association (WSTA) developed tools to help agencies meet mandates. The WSTA represents the 29 transit systems operating in the state.

As a condition of receiving state funds, publicly owned transit systems are required to submit an asset management plan to the State Transportation Commission. The Commission is responsible for transportation policy development and issues the 20-year state transportation plan. Asset information is used to identify overall statewide needs and priorities for funding.

Individual asset management plans must inventory all transportation system assets and provide a preservation plan based on lowest life-cycle cost methodologies. This approach is intended to ensure that assets are maintained in an acceptable condition maximizing safety and useful life, and resulting in lower lifetime maintenance costs.

The WSDOT worked with the WSTA to establish an expert panel to develop an asset management plan framework and help individual agencies develop and submit management plans. Individual transit agency preventative maintenance programs were reviewed to assess their compliance with legislative requirements. Training and technical assistance was provided to transit agencies to help prepare individual plans.

Framework for Washington State Asset Management Plans

- A mission statement with guiding principals
- An asset inventory
- Replacement schedules and maximum useful life
- A preventative maintenance program
- A cost analysis that reflects the agency's policies and standards for preventative maintenance.

A cost model tool was developed by the expert panel to assist transit agencies with the cost analysis component. The model can be used to analyze the differences of life cycle costs of different fleets and to identify problem assets that may need to be replaced ahead of schedule. The tool was designed to be simple to use. Each agency only needs to fill in the information related to costs and frequencies. The tool will automatically generate a graph based on the information. This provides the State Transportation Commission with complete asset information in a consistent format.

Pennsylvania

Pennsylvania, like Virginia, takes an integrated approach to capital planning and budgeting, requiring asset maintenance spending plans and detailed capital budgets. Like Washington State, Pennsylvania has provided significant technical support to help local transit track asset replacement needs; PennDOT uses this data to allocate funding in a statewide discretionary program for asset improvement.

Capital Budget & Asset Maintenance Spending Plan Requirements

In 2007, the PA General Assembly passed "Act 44" that requires, among other things, each local transportation organization receiving state aid to adopt a capital budget and an asset maintenance spending plan for submission to PennDOT.

The capital budget must include:

- Descriptions of all capital projects, with projected cost and schedule.
- Projected useful life of the project.
- Proposed funding sources.
- An update on prior grant awards, with an explanation of any significant project delays.
- A five-year plan for future use of capital funds.

The asset maintenance spending plan must include:

- A description of asset maintenance expenditures in the prior year.
- Asset maintenance needs and costs projected to be funded in the upcoming year.
- A five-year plan for future use of capital funds for asset maintenance.

Asset Management Model

In an effort to assist smaller transit systems, PennDOT created a uniform capital planning model[52] to provide both near term and long-term projections of capital asset needs. The platform is Microsoft Excel based and menu driven, and designed to be simple for transit agency staff to input capital asset condition. The information is then electronically submitted to PennDOT, providing the state with the following capital planning tools:

- A uniform inventory of system assets;

[52] Capital Planning for Small and Medium Sized Transit Systems, prepared for PennDOT, August, 2006

- A schedule of statewide capital needs;
- A framework for prioritizing investment alternatives, and
- A basis for apportioning limited public funds

Total capital spending needs are presented by fiscal year and by asset category over an extended 30-year period.

Capital Fund Allocation & Local Match

There are two primary statewide funding programs for bus transit projects. The Asset Improvement Program is a discretionary program, while the Capital Improvement Program is formula based. Act 44 establishes the total amount of program funds available for distribution within agency peer groups.

The Asset Improvement Program account funds a statewide transit capital program based on need. The distribution of funds is discretionary, but based on factors shown in Table 4-22 and ranked from highest to lowest in priority.

Table 4-22 Pennsylvania Criteria for Ranking Asset Improvement Projects

Priority Level	Evaluation Factor
Highest Rank	Existing debt service commitment
	Matching funds for federally approved projects
	Non-federal capital projects prioritized by: Emergency/mandatory/safety projects Replacement of assets that have exceeded their useful life Non-emergency asset replacement projects
Lowest Rank	Asset expansion, where a project shows a return on investment that improves operating efficiency and/or customer service.

The local match contribution for the Asset Improvement Program is set at 3.33 percent. The Capital Improvements Program account is distributed by formula based on passengers, and there is no local match required. There has been some consideration given to increasing the local match required to obtain state funds. Overall, transit capital investment in the state is approximately 60 percent federally supported, with slightly less than 40 percent provided by the Commonwealth.

Oregon

Oregon DOT's Flexible Funds Program directs funding from the Federal Highway Administration's Surface Transportation Program (STP) for transit, bicycle, pedestrian and transportation demand management projects. The program is of interest due to its "goal-based" scoring system.

Projects are eligible for funding if they meet federal program eligibility and can demonstrate readiness for implementation. The technical feasibility of the project and cost estimate are also reviewed. Applications are then scored based upon the following program goals and objectives:

Oregon Flexible Funds: Scoring Criteria.

- Connectivity, Integration and Overall Benefit to the Transportation System (20 points)
- Environmental Sustainability (15 points)
- Community Livability and Sustainability (15 points)
- Mobility, Access and Health (15 points)

Each project is reviewed by a "modal scoring team" with expertise in a particular transportation mode. These scoring teams prioritize applications within their assigned mode and establish three tiers of high, medium, and low priority projects. Projects are then matched to available funding. Once awarded, if a project cannot meet timelines, the next prioritized project is awarded funding.

Iowa

As detailed in *Initiative 1 – Develop and Use Service Guidelines*, many states consider transit system performance data when allocating state operating assistance. However, Iowa is presented here for its use of performance data in capital fund allocation. This practice is also utilized in certain other states (such as Pennsylvania) that maintain a general transit fund to support both operating and capital expenses.

Allocation of Capital Funds

State Transit Assistance fund distribution is primarily formula-based. Each transit system's performance during the previous year in terms of rides, miles and local funding support is factored into the formula. The formula funds can be used to support any operating, capital or planning expenses related to providing public transportation.

A Consolidated Transit Funding Application requires project justification, including a description of why vehicle upgrades or an expanded fleet is needed. A feasibility study must be prepared for the construction of a new transit facility or any substantial expansion.

New York State

There are several capital planning and management techniques used in New York State that are of interest.

- Performance measures and specific investment criteria for each goal/objective are used to help determine specific investment levels within two-tiers: a Core Program and Enhancements. Within the Core Program, transit systems are allocated funds based on their level of state-of-good repair and normal replacement needs.
- Non-MTA transit authorities in the state rely mainly on Federal funds to support 80 percent of capital investments. The New York State Dedicated Fund contributing 10 percent of the required match, with the remaining 10 percent obtained from localities.
- Projects are selected 18 months ahead of time to ensure selected projects will be "ready to go."
- New York hopes to implement "ARRA-type" reporting requirements to better manage and oversee the capital investment process. These might include more frequent reports on the use of funds, project status and project benefits.

California

The California Transportation Commission is responsible for the programming and allocation of transportation funding. One of the capital funding programs under its purview is the *State-Local Partnership Program (SLPP)*, which includes both formula and incentive-based funding awards.

- 95% of SLPP funds are distributed by a formula based on the local revenues received and population.
- 5% of SLPP funds are granted on a competitive basis. The Commission gives consideration to geographic balance and gives higher priority to projects that:
  - Are most cost-effective
  - Are "ready to go"

- Can leverage more funds per program dollar
- Can demonstrate air quality benefits or a reduction in VMT

Higher priority is also given to projects in areas without formula funding shares. The SLPP requires a significant, dollar for dollar match of local funds. (California voter referenda have provided many local transit districts with local revenues, such as taxes and fees, that can be used for capital projects.)

California also sets a variety of state level thresholds and performance targets related to capital funding[53] and mandates that State Transportation Improvement Program (STIP) dedicate 25 percent of funding to interregional projects nominated by Caltrans and 75 percent to regional projects.

SANDAG (MPO of San Diego, CA)

The San Diego MPO (SANDAG) uses transit performance measures to assess the impact and priority of transit projects in the regional transportation plan (RTP). SANDAG does not get involved with transit performance measures and service standards related to assessing MTDB's system performance.

The impact and priority of transit capital projects in the 2030 RTP (Transit Emphasis Alternative) is assessed using the quantitative measures in Table 4-23 below. Transit projects are scored one to five points for each of the criteria listed. Projects are also scored based on estimates of operating and capital costs. Future criteria to be incorporated into SANDAG's planning process are anticipated to include transit service coverage and geographic balance of projects.

Table 4-23 SANDAG Performance Measures Used in Regional Project Selection

SANDAG Goal	Measures
Serving Commute Needs	▪ % of route on roads operating at LOS "E" or "F" ▪ Ratio of employment in region ▪ Average route speed ▪ Peak period ridership ▪ Peak period ridership per service mile
Serving Transit-Supportive Corridors	▪ Population within ½ mile of stations ▪ Employment within ¼ mile of stations ▪ # of major activity centers within ½ mile of stations ▪ Midday and evening ridership ▪ Midday and evening ridership per service mile.
Developing Network Integration	▪ # of other transit routes connected to ▪ # of transferring passengers (per service mile)
Cost-Effectiveness	▪ Subsidy per passenger mile

MBTA Capital Investment Program

One of the highest priorities for the MBTA is the pursuit of a "State of Good Repair", meaning all assets are subject to regularly scheduled maintenance over their lifetime and replaced at the end of their useful life.

A comprehensive asset inventory has been developed to track the age and condition of all capital assets, and determine life cycle costs. The MBTA "State of Good Repair" asset management system uses this inventory to track and prioritize capital needs, and forecast financial need. Annual needs are calculated by combining lifetime maintenance costs with replacement costs, and dividing by the anticipated useful life of the asset.

- Annual Needs = (Cost to Replace + Lifetime Rehab Costs) ÷ Total Useful Life

[53] State Transit Program Guidelines (Draft), Caltrans Division of Mass Transportation, 2010

The MBTA's asset management system has enabled the Authority to estimate the current backlog of State of Good Repair projects: it would take $3.0 billion to replace all outdated assets and perform deferred rehabilitation on other assets. Once a State of Good Repair is achieved, it would take about $470 million a year to maintain this state. These "total annual life cycle costs" represent more than 50% of the current annual funding in the current MBTA Capital Budget,

The MBTA's goal is to have all capital assets in a State of Good Repair, or functioning at their ideal capacity within their design life. However, with total capital spending limited to about $800 million per year and many demands for expansion and enhancement, the capital need exceeds available funding. About 60% of the MBTA's proposed FY13-17 capital program is dedicated to State of Good Repair projects.

The MBTA conducts an annual prioritization and selection process to select projects to include in the CIP based on the criteria shown in Table 4-24.

Table 4-24 MBTA Capital Project Prioritization Criteria

MBTA Criteria	Goal to be Achieved
Health & the Environment	▪ Correct existing deficiencies for passengers and/or employees
State of Good Repair	▪ Improve the condition of the Authority's existing infrastructure mile.
Ratio of Cost/Benefit	▪ Maximize # of passengers affected, minimize net operating cost and the debt service impacts
Operational Impact	▪ Make the transportation network more effective; make investments in critical operational areas.
Legal Commitments	▪ Fulfill commitments such as those included in the State Implementation Plan or needed for ADA compliance.

The MBTA also considers environmental justice in its capital investment decision-making.

Summary of Best Practices/Key Themes

Capital Planning

- Capital planning can be conducted at the state and/or agency level and provides a foundation for strategic investments and helps achieve system efficiencies. Most states reviewed within this best practices evaluation:
  - Utilize and publish a transparent capital planning process with clearly articulated goals and program priorities.
  - Update capital plans on an annual basis.
- Virginia integrates its required transit service guidelines and transit development plans into capital decision-making, making sure requests for enhancement projects are well thought out.
- California sets overall statewide funding targets for regional/intercity and local projects
- New York conducted a statewide needs assessment as a first step in introducing a new capital planning process.

Asset Management / State of Good Repair

- States and agencies that have asset management systems in place tend to readily use this data to inform capital decision-making. Data on aging infrastructure and equipment also present a persuasive argument that additional funding should be appropriated to support transit.
- Virginia has a statewide asset management system; New York conducted a statewide "state of good repair" needs assessment in 2007; and, Iowa, Pennsylvania and Washington electronically collect agency data to maintain a statewide asset inventory.
- Washington worked closely with the state transit association to develop a framework for asset management and to develop practical requirements.
- Agency level asset management systems are used primarily to determine asset replacement schedules and estimate long term funding needs, although more sophisticated models can help evaluate alternative funding investment scenarios.
- The MBTA has a comprehensive asset management system that has served as model for other transit agencies, and has helped articulate system needs.

Capital Fund Allocation

- Most states reviewed utilize a clear and transparent allocation method for capital fund allocation.
- Several states require Asset Management Plans as a condition for receiving state capital transit assistance (e.g. WA, PA). Most require detailed status reports on past awards before additional funding is awarded.
- Many states and localities have an established means of generating local revenues and thus providing the opportunity for local authorities to participate financially in transit investments. The level of local contribution required (or targeted) to match federal and state funds for capital projects vary from 0 to 50 percent. In Virginia, local match requirements vary year to year, based on demand for funding and available resources.
- California offers an incentive program for capital funding with priority given to projects that are cost-effective, are "ready to go", leverage local funds and have air quality benefits.
- Oregon uses a "goal based" system to score projects applying for Flexible Funds. Projects are ranked according to their ability to meet overall program goals. Funding is being reprogrammed prior to award if priority projects are not "ready to go."

- Iowa and New York incorporate performance-based measures into the capital funding allocation process. SANDAG, the San Diego MPO, uses specific transit performance measures to rank projects for inclusion in the Transportation Improvement Program.

Potential Application in MA

Summary of Issues

Based on a review of current practice, comparison to other states, and discussions with MassDOT, the following issues have been identified:

1. Massachusetts does not have a clearly articulated statewide strategy for capital transit investment.
   - Capital funding allocations on the state level are not necessarily based on commonly desired goals, specific project need or merits.
   - MassDOT and MPOs have identified project evaluation criteria, but these are not fully applied when allocating state transit capital funds.

2. There is no comprehensive inventory of statewide transit assets or condition, making it difficult for MassDOT to fully understand statewide transit needs.
   - Detailed fleet inventories are maintained, but recent investments in new technologies and intermodal passenger facilities necessitate that these assets also be integrated into the statewide capital planning process.
   - Mission critical maintenance facilities, shop equipment, non-revenue vehicles and life-safety equipment must also be considered.
   - Annual life cycle costs (i.e. maintenance needs) have not been identified.

3. The need for capital matching funds clearly outpaces funding availability and there is a large backlog of deferred needs. The state must set priorities for investment.

4. Appropriated funding is often not spent within established timeframes.
   - Projects are not always “ready to go”.
   - Budgets often increase after grants are awarded making it difficult to advance projects.
   - There are no consequences if RTAs are not able to achieve stated capital project goals.
   - Smaller RTAs may lack technical abilities to estimate full project costs, assess implementation risks and/or manage large construction projects.

Actions to Consider

Potential solutions and improvements–for discussion at the February workshop–to address the above issues include:

1. Establish Strategic Goals & Capital Management Policies
   - How should goals be developed?
   - What might these goals be? Maintain a State of Good Repair? Safety First? Support Actions that Achieve Efficiencies?

2. Establish a Statewide Capital Planning Process
   - How detailed should capital program guidance be? What sort of assistance is most needed?
   - What should be required of RTAs? (Note: Chapter 161B Section 8 requires RTAs to prepare an annual long-range program for mass transportation facilities, including costs and revenues, in consultation with MassDOT.)
   - What should capital plan timeframes be (3 years? 5 years? 10 years?)

3. Introduce an Asset-Management System for RTAs
   - Who should manage this? MBTA? MassDOT? Individual RTA's with defined template? (Note: Chapter 25 of 2007 mandates the establishment and operation of an asset management system for all MassDOT divisions.)
   - What administrative changes are needed to implement?

4. Establish Project Selection Criteria and a Process to Prioritize Projects
   - Design process to be fair, simple and transparent
   - How to ensure critical projects receive funding?
   - Establish two-tiered system with thresholds or targets for State of Good Repair and System Enhancement?
   - Encourage greater public participation?
   - More fully consider Cost/Benefits of potential new projects?
   - Ensure Title VI equity considered in any allocation.

For More Information

Capital Planning for Small and Medium Sized Transit Systems, prepared for PennDOT, August 2006
ftp://ftp.dot.state.pa.us/public/Bureaus/PublicTransportation/GeneralInformation/CapitalPlanningTransitSystems.pdf

A Guide to Preparing your Transit Asset Management Plan, WSDOT, 2005
http://www.wsdot.wa.gov/NR/rdonlyres/13DDC2A7-C522-4E20-BA38-69F44FB301CA/0/guide_to_preparing_your_TAMP.pdf

Massachusetts State Transportation Plan, 2006
http://www.eot.state.ma.us/downloads/longrangeplan/EOTFINAL011107.pdf

Massachusetts Bay Transportation Authority Capital Investment Program FY13-FY17 (Draft)
http://mbta.com/uploadedfiles/About_the_T/Financials/0000%2013-17%20Draft%20CIP%20[2011%2012-12].pdf

Performance Based Measures in Transit Fund Allocation, TCRP Synthesis 56, 2004
http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_syn_56.pdf

Public Transportation and Transportation Demand Management Grant Program Application Guidance, VA DRPT, FY 2012
http://www.drpt.virginia.gov/grants/files/DRPT%20FINAL%20Program%20Application%20Guidance%20-%20FY12.pdf

Statewide Capital Investment Strategy, NJDOT, March 2011.
http://www.state.nj.us/transportation/capital/cis/

5. Maximize Use of Available Resources
   - Establish goal to use every available federal and state dollar every year.
   - Could administrative and structural changes provide more flexibility?
   - Introduce a local match requirement?
   - How can MassDOT and RTAs work together to ensure projects are ready to go?
   - How do we align MassDOT & FTA timelines for expenditure?
   - What should MassDOT oversight and reporting requirements be? Should there be penalties/incentives for effective project delivery?
   - Would statewide procurements help maximize efficiency?

6. Develop and/or Seek Technical Expertise
   - What sort of assistance is most needed? (e.g. procurement, A/E services, project management, etc.)
   - Who might provide technical assistance: MassDOT, MBTA, DCAM?
   - How to improve Cost Estimating and Risk Assessment?

INITIATIVE 7: ADDITIONAL REVENUE

Opportunities to Increase Revenue for RTAs

Over the last year, the lingering effects of the recession have produced funding shortfalls throughout the country that have forced 80% of the nation's transit systems to raise fares and/or reduce service.[54] Fortunately, in Massachusetts, this has generally not been the case. Still, the Commonwealth's RTAs face significant funding challenges, and identified the need for additional revenue as one their most pressing issues.

A critical element of the RTAs' funding challenge is that they receive nearly two-thirds of their operating funds from federal and state sources (see Table 4-25). While these are essential sources of funding, the amounts available have been largely flat over the past several years. Also challenging is that RTAs only have a limited ability to affect the amount of money provided because funds are allocated by legislative bodies balancing competing needs.

Table 4-25 RTA Operating Funds FY 2012 in Millions of Dollars

Funding Program	Amount	Percentage
State Contracting Assistance	$59.2	37%
Federal Transit Administration (FTA)	$41.5	26%
Local Assessments	$29.4	18%
Farebox	$23.1	14%
Other Revenue*	$8.1	5%
Total	$161.3	100%

Source: MassDOT Approved budget in Net Cost of Service FY 2012 & MassDOR Cherry Sheet FY 2012. Other *Revenues consist of advertising, parking, sale of capital assets and interest income.

A third major source of RTA funding is local assessments, which reflect local contributions for service. However, since the passage of Proposition 2½ in 1981, increases in local assessments have been limited to 2.5% per year, which is often less than the rate of inflation. In addition, both state and assessment funds are provided to RTAs in arrears for service completed, meaning that there is a delay between providing the service and funding the service.

As the economy improves, it is possible that federal and state funding for transit will once again begin to increase. As described in multiple initiatives, with better analysis and documentation of RTA needs, MassDOT and the RTAs will be in a stronger position to advocate for additional state funding. Opportunities currently exist, however, for RTAs to increase revenue by better leveraging existing sources that they directly control, and by leveraging new sources of funding. This document explores potential sources of additional funding for RTAs through fare increases, partnerships with educational institutions, and the establishment of local option taxes.

Funding Opportunities

One of the most common methods of raising transit agency revenues involves fare revenue. Some transit agencies have been assertive about maximizing fare revenues by consistently reviewing their fares, targeting farebox recovery rates, and conducting periodic fare increases.

[54] http://trimet.org/choices/what-are-other-agencies-doing.htm

Another common source of funding for transit agencies is pass agreements with colleges and universities, or UPass programs. UPass programs are among the most common types of partnerships, and involve universities paying transit agencies for universal access to transit services for students, faculty and staff. Several transit agencies, including RTAs, have also successfully developed partnerships with local public school districts.

In addition, transit agencies have also worked with their local and regional communities to develop local option taxing mechanisms to help raise funds to support public transportation. These allow communities, at their local option, to generate additional revenue for the expansion of transit services.

Transit Fares

Current Practice in Massachusetts

Fare revenues are a critical revenue source for RTAs, raising an estimated $23.1 million in FY 2012 and contributing approximately 14% to the overall cost of service on a statewide basis. The proportion of revenues attributed to fares, however, varies widely by individual RTA–some RTAs collect as much as 33% of revenues from fares (VTA) and others as little as 8% (CATA). Variations reflect differences in the types and levels of service offered as well as variations in fare levels and fare structures. RTA fares on fixed-route services range from $1.00 to $5.00 with higher fares generally associated with longer distance services (see Figure 4-19). Fares on Americans with Disabilities Act (ADA) complementary paratransit services vary from $1.00 to $10.00 and fares on non-ADA paratransit service (such as council on aging (COA) operated demand-responsive service) range from $1.00 to $9.00 (or by donation).

In terms of base fares (i.e. the full adult cash fare for the minimum distance traveled) on fixed-route services, five out of 15 RTAs charge a fare of $1.25 per ride, and seven agencies charge $1.00. Only three RTAs have a base fare of more than $1.25–MWRTA and WRTA charge $1.50 and CCRTA charges $2.00.[55] In addition, a key characteristic of most RTAs' fare structures is the use of distance-based fares. Only three RTAs set a single adult base fare for all fixed-route services: CCRTA ($2.00), WRTA ($1.50), and PVTA ($1.25). The remaining RTAs scale their fares so that longer-distance services charge a higher fare, with fares increasing for each zone or town traveled.

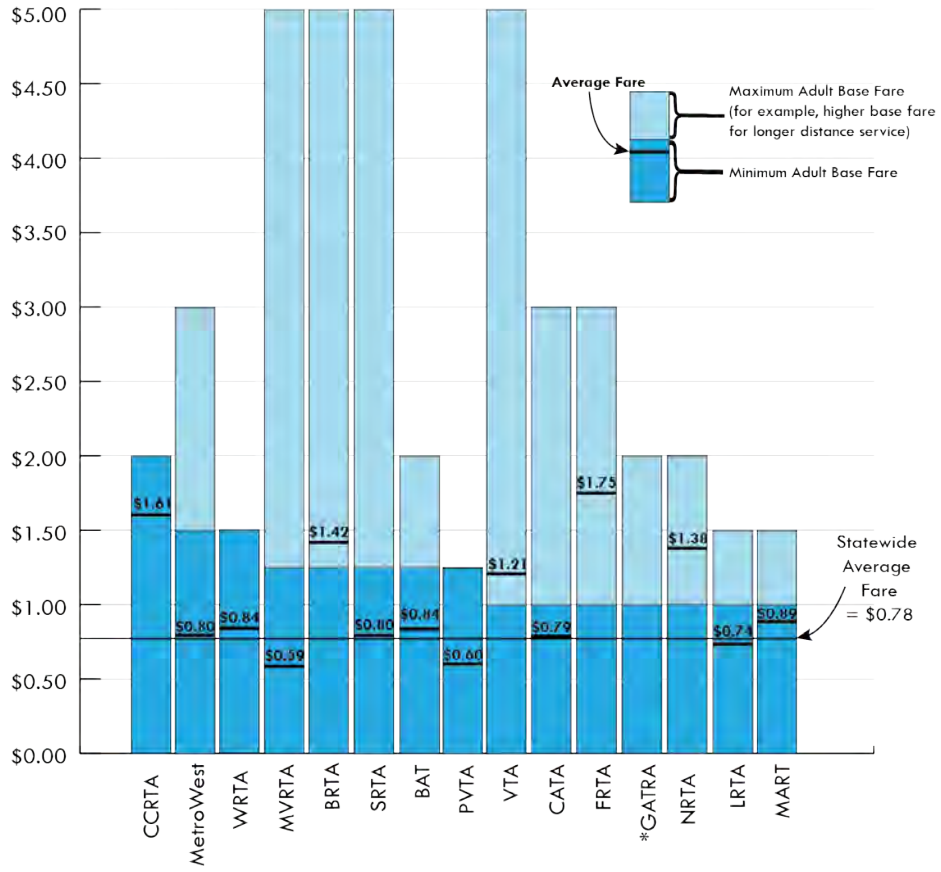
The ADA sets fares for complementary paratransit service at no more than twice the rate of the corresponding fixed-route service. This means that while agencies may charge less than twice the fixed-route fare, they cannot charge more. In Massachusetts, four agencies currently set their ADA paratransit fares at twice the fixed route rate (see Figure 4-20). The remaining 11 agencies charge less, and five charge the same fare for fixed route as for ADA complementary paratransit. There is a clear relationship between higher fares and higher farebox recovery rates for ADA service; agencies that charge the maximum allowable fare have a higher farebox recovery rate (see Figure 4-21).[56]

Setting equitable and reasonable fares for ADA service is a challenge. Demand-responsive services provide a higher level of service and are more costly to provide on a per-rider basis as compared with fixed-route service. Thus, operators typically want to encourage passengers to use fixed-route service whenever possible. While setting ADA fares at the maximum level can help accomplish this, operators also recognize that ADA services often transport the most vulnerable (and often least able to pay) members of the community and, as a result, there is considerable pressure to keep fares low.

[55] PVTA is planning to raise its base fare from $1.25 to $1.50 on July 1, 2012.

[56] One exception is PVTA. Although it charges twice the base fare for ADA complementary paratransit trips, it also charges 50¢ for non-ADA paratransit trips. As a result, its overall farebox return for demand-response service is low (8%).

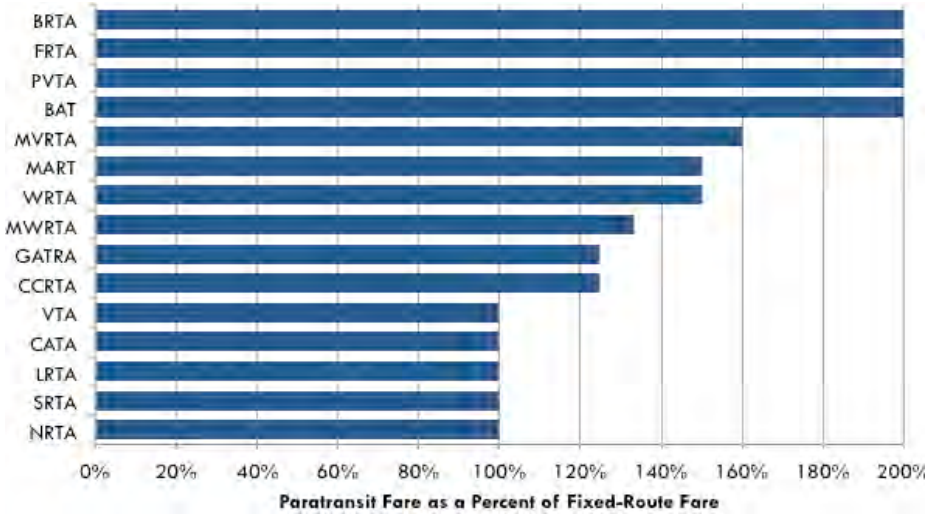
Figure 4-20 RTA Fixed-Route Fares



Source: NTD data adapted by Nelson\Nygaard

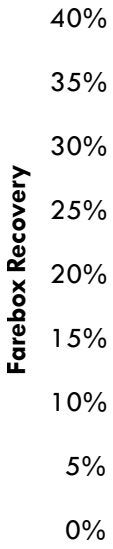
*Note: PVTA average fare does not account for direct revenues received in lieu of fare for 5 College area students. GATRA average fare is unavailable due to mixing of intercity bus service in its data reporting.

Figure 4-21 Ratio of Minimum Fixed-Route Base Fare to Minimum ADA Complementary Base Fare



Source: NTD data adapted by Nelson\Nygaard

Figure 4-22 Impact of Paratransit Fare Levels on Farebox Return



Source: NTD data adapted by Nelson\Nygaard

Analysis of RTA Fares

The potential for RTAs to raise additional revenue through fares was examined through an analysis of average fares. The average fare is calculated by taking the sum of all fare revenues and dividing it by the total number of unlinked passenger trips. The average fare is usually considerably lower than the adult cash fare because it includes fare discounts associated with half-fare programs, monthly and other bulk discounted pass media, plus any arrangements that give groups of riders unlimited rides (e.g. agreements with universities). The average fare for a fixed-route rider among all Massachusetts RTAs in FY 2010 was $0.78 and the average fare for a demand-response rider was $2.48 (see Table 4-26).

As discussed, average fixed-route fares vary widely among agencies. For example, CCRTA, BRTA, VTA, FRTA and NRTA have average fares that are much higher (ranging between $1.21 and $1.75) than the statewide RTA average ($0.78). These higher average fares are largely realized by setting higher base fares and charging premiums for longer distance travel.

The FY 2010 average fare for RTAs was lower than the national average for fixed-route bus service of $0.96 and the average for demand-responsive services of $2.59 (see Table 4-26).[57] RTA average fares, however, are higher than the current MBTA average fares of $0.72 (fixed-route) and $1.67 (demand-responsive). The MBTA, however, has a much higher farebox recovery rate for fixed-route service than the RTAs; this reflects a higher volume of passengers served. The RTA demand-responsive farebox recovery ratio is relatively high, and RTAs perform better in this regard than both the MBTA and the national average. Since fixed-route services account for a much higher volume of statewide RTA operating costs than demand-responsive services ($107.0 million versus $41.1 million), the relatively strong farebox recovery performance on demand-responsive services is offset by lower performance on fixed-route services.

[57] National Transit Database, 2011

The MBTA is currently planning to increase its fares, which would both significantly increase its average fare and farebox recovery rate. If RTAs increased their fares to the extent that average fares matched the national average or recommended MBTA fares, approximately $3.3 to $3.5 million in new fare revenue could be raised (see Table 4-27). The amounts that could be generated by each RTA would vary significantly, and PVTA could raise over one-third of all potential revenue.[58] Other RTAs that could generate significant increases would be LRTA, MVRTA, SRTA, and WRTA.

Table 4-26 Average Fares and Farebox Recovery Rates

	RTAs	National	MBTA-Current	MBTA-Recommended Increase
Average Fares				
Fixed-Route	$0.78	$0.96	$0.72	$0.95
Demand-Response	$2.48	$2.59	$1.67	$3.24
Farebox Recovery				
Fixed-Route	19%	27%	23%	N/A
Demand-Response	12%	8%	4%	N/A

Note: Current MBTA figures are based on NTD 2010 data. MBTA Recommended Increase average fare figures are based on analysis published by Boston MPO (Travel Demand Model based), and farebox recovery figures were not calculated.

Table 4-27 Potential Revenues from Fare Increases – Fixed-Route

	2010 Average Fare	2010 Fare Revenue	With Increase to National Average (96¢)	With Increase to Recommended MBTA Levels (95¢)
BAT	$0.84	$2,422,013	*	*
BRTA	$1.42	$724,891		
CATA	$0.79	$162,754	+$34,000	+$33,000
CCRTA	$1.61	$646,788		
FRTA	$1.75	$204,294		
GATRA	N/A	$1,591,331		
LRTA	$0.74	$996,160	+$287,000	+$276,000
MART	$0.89	$517,426	+$40,000	+$35,000
MVRTA	$0.59	$1,225,272	+$754,000	+$737,000
MWRTA	$0.80	$254,590	+$49,000	+$47,000
NRTA	$1.38	$314,166		
PVTA	$0.83**	$5,815,840	+1,260,000	+$1,181,020
SRTA	$0.80	$1,438,497	+$283,000	+$268,000
VTA	$1.21	$1,328,421		
WRTA	$0.84	$2,759,796	+$387,000	+$360,000
Total		$20,402,239	+$3,449,000	+$3,269,000

Note: Farebox revenue increase amounts are not shown for agencies that already have a higher average fare than that of the proposed scenario.

*BAT raised its fares in 2011 following publication of the 2010 data, which is currently the most recent set of comprehensive data that is available. With its recent fare increase, it is likely that BAT's average fare is now close to national average and MBTA recommended fares, and that additional amounts that could be raised, if any, would be low.

**PVTA average fare adjusted to account for free student ridership. Average fare and additional revenue amounts are for riders who pay a fare.

[58] PVTA is planning to raise its fares in July 2012 (with an increase in its base cash fare from $1.25 to $1.50, and estimates that the fare increase will increase revenues by $800,000 per year.

A similar case exists on the demand-response side, and between $1.1 and $2.3 million in new fare revenue could be raised (see Table 4-28). Four RTAs–GATRA, PVTA, CCRTA and WRTA–could each raise $100,000 or more annually by raising fares on demand responsive services to average national levels or to recommended MBTA levels (see Table 4-28). The total amount of new fare revenue that could be raised for both fixed-route and demand response services would be as high as $5.5 million (at MBTA fare levels).

Table 4-28 Potential Revenues from Fare Increases – Demand-Responsive

	Current Average Fare	2010 Fare Revenue	With Increase to National Average ($2.59)	With Increase to Recommended MBTA Levels ($3.24)
BAT	$5.65	$1,139,500		
BRTA	$5.45	$472,163		
CATA	$0.71	$23,713	+$62,000	+$84,000
CCRTA	$1.55	$234,080	+$155,000	+$254,000
FRTA	$2.23	$264,868	+$42,000	+$120,000
GATRA	$1.06	$234,215	+$335,000	+$479,000
LRTA	$1.10	$109,203	+$148,000	+$213,000
MART	$2.84	$793,174		$112,000
MVRTA	$1.99	$133,477	+$40,000	+$84,000
MWRTA	$2.65	$264,131		+$59,000
NRTA	$0.91	$8,417	+$16,000	+22,000
PVTA	$2.06	$654,084	+$168,000	+$375,000
SRTA	$1.75	$162,083	+$78,000	+$138,00
VTA	$1.14	$16,626	+$22,000	+$31,000
WRTA	$2.18	$456,840	+$85,000	+$222,000
Total		$4,966,574	+$1,150,000	+$2,191,000

Note: Farebox revenue increase amounts are not shown for agencies that already have a higher average fare than that of the proposed scenario.

UPass Programs

One revenue-generating strategy that has been particularly successful for transit agencies around the country is partnerships with universities and colleges. Universities and colleges typically have a strong interest and high demand for transit service because:

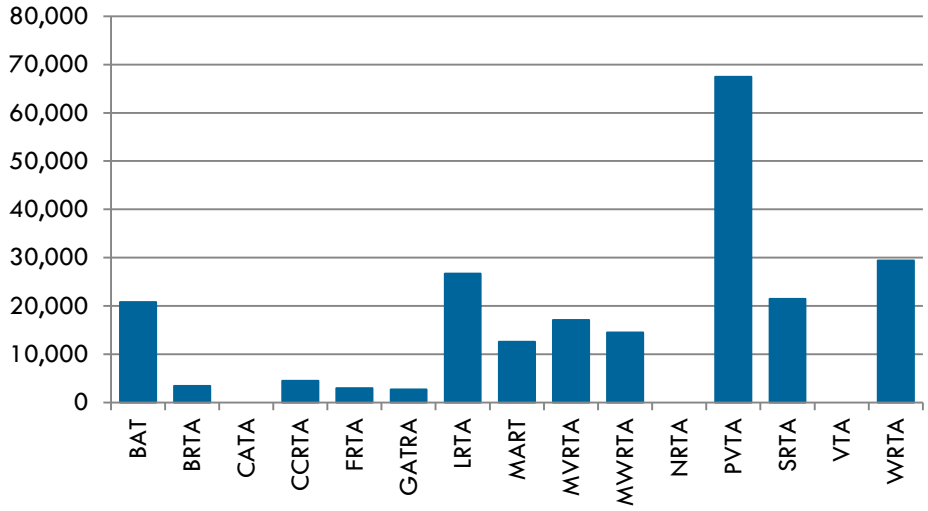
- Students do not always have access to private vehicles, but need and want to travel.
- University and college campuses often have limited and/or restricted parking facilities, and offering transit programs is often equally or less expensive than developing parking structures.
- Many colleges are interested in being more "green" and look to transit programs as one of the ways they can reduce the environmental impact of their institution.

Partnerships between transit agencies and universities and colleges are typically referred to as "UPass" programs, which reflect both that such arrangements are with universities and often offer universal (i.e. fare-free) access to transit service. These programs have become an increasingly important way to generate revenue for improved services.

Current Practice in Massachusetts

UPass programs represent a large potential market in Massachusetts due to the high number of colleges and universities. There are an estimated 347,000 students in Massachusetts[59], of which approximately 220,000 students go to school in RTA service areas[60]. Of these students, about 50,000 are at private institutions and the remaining 170,000 are at public institutions (see Figure 4-23). Most of the RTAs have significant student populations in their service areas.

Figure 4-23 Massachusetts Student Populations by RTA Service Area



Source: Association for Independent Colleges and Universities in Massachusetts

Note: Does not include students in MBTA service area

Several RTAs in Massachusetts have developed partnerships with colleges and universities in their service area and in 2011, these agreements generated approximately $1.6 million. These funds have helped support additional service that directly serve area colleges and universities and also provide local resources to match state and federal funding programs.

Despite existing success, the potential for UPass programs in Massachusetts has not been fully realized, and as a result, there is potential to use this strategy to raise revenues. Of the RTAs with successful programs, three (PVTA, MART and GATRA) have transit service agreements with local universities and colleges that provide universal access for students, faculty and staff. Several other RTAs already work with local community colleges, but these efforts are primarily to discuss service issues and sell transit passes (see Table 4-29).

Pioneer Valley Transit Authority (PVTA)

The largest agreement between an RTA and local institution is PVTA's agreement with Five Colleges Inc. PVTA also has a contract with Westfield State University.

- **Five Colleges Inc.** – Five Colleges is a non-profit organization that represents the five colleges in the Pioneer Valley region, including the University of Massachusetts, Amherst College, Hampshire College, Mt. Holyoke College and Smith College. Combined, these five institutions have a student population of over 35,000 students. PVTA began providing service to the Five

[59] Association for Independent Colleges and Universities in Massachusetts

[60] NN estimate includes some schools that are partially in RTAs and partially in MBTA service area (Middlesex CC).

Colleges institutions in the 1980s, and Five Colleges pays the local assessment portion of operating costs. In exchange, students, faculty and staff associated with the Five Colleges institutions ride PVTA services for free. This agreement provides approximately $1.2 million per year.

When Five Colleges requested additional trips and routes (FY11), PVTA set new terms for these routes whereby Five Colleges agreed to pay the full cost of the additional service, or approximately $132,000.

Table 4-29 Current Agreements between RTAs and Massachusetts Universities and Colleges

RTA	College	Partnership	Estimated Revenue (2011)
BRTA	Berkshire Community College	BCC uses space at BRTA intermodal facility	n/a
FRTA	Greenfield Community College	GCC sells bus passes on campus (full fare)	n/a
GATRA	Wheaton College	College pays part of route costs and full cost of service extension route to late night and weekend service; students, faculty and staff ride for free	$70,000 (est.)
MART	Fitchburg State University	FTSU pays entire cost of FTSU routes Students, faculty and staff ride free	$75,000
MART	Mount Wachusett Community College	MWCC sells half-fare bus passes	n/a
MWRTA	Framingham State University (FSU)	FSU operates student run system with limited oversight and support from MWRTA, including rolling stock and maintenance, student operator training and management oversight.	n/a
PVTA	Five Colleges Inc.	Five Colleges Inc. pays local assessment for historical routes; pay full cost for new service Students, faculty and staff ride free	$1.15 m (historical) $132,300 (new)
PVTA	Westfield State	WSU pays full cost of OWL shuttle Students, faculty and staff ride free on OWL and WSU routes only	$75,000
PVTA	Springfield Technical College	PVTA provides additional services and trips to campus	$105,000
PVTA	Holyoke Community College	PVTA provides additional services and trips to campus	$160,000

Source: Nelson\Nygaard Consulting Associates

- **Westfield State University** – In addition to services provided for Five Colleges, PVTA runs the OWL Shuttle service for Westfield State University (WSU), a shuttle bus that runs between a remote parking facility and the main WSU campus. WSU pays the full cost of this service. The actual cost depends on the amount of service provided and varies by year, but was estimated at approximately $75,000 in FY 2011. Students, faculty and staff ride the OWL shuttle, plus the two PVTA routes that directly serve the WSU campus (R-1o West Springfield to Westfield State University and B-23 Holyoke to Westfield) for free. In contrast with services provided to the Five Colleges members, WSU students, faculty and staff are not allowed to ride all PVTA services for free. Funds to support the service are raised in part by a $10 per semester for each enrolled student.

Montachusett Regional Transit Authority (MART)

MART has an agreement with Fitchburg State University (FSU). FSU pays the fully allocated cost of FSU Route 4, a shuttle between a remote parking lot and the FSU campus. In exchange for fully funding this service, FSU students, faculty and staff ride all MART services for free. Revenue generated from FSU is used to match federal and state grant programs.

Greater Attleboro Regional Transit Authority (GATRA)

GATRA currently has an agreement with Wheaton College in Norton wherein the college subsidizes the cost of Route 140 (Norton to Mansfield). The route existed before the partnership but by working with the College, GATRA was able to increase service levels, especially for late night and weekend service when there is more demand from the college than from the broader community. The late night and weekend services only operate when school is in session. In exchange for the contribution from Wheaton College, students, faculty and staff of Wheaton College ride for free. This partnership raises an estimated $70,000 per year for GATRA.

Examples from Other Areas

King County Metro (Seattle)

One of the first and most successful UPass programs in the country is the University of Washington (UW) UPass. This program began in the early 1990s and offers students, faculty and staff unlimited, free-fare access to most public transportation services in the Puget Sound region. When the program was initially implemented, the largest regional operator, Seattle King County Metro (KCM) added transit service to the main UW campus in Seattle. UW also increased parking fees substantially and developed a series of other transportation demand management programs, such as vanpool fare credits, discounted carpool parking, guaranteed ride home, etc.

Students, faculty and staff accessed bus service by using their university ID card. Revenues to support the program were raised through a transportation fee charged to students, faculty, and staff, plus parking fees. The UPass program resulted in a significant increase in demand for transit services and over time as ridership has increased, so has transit service to the campus.

Since the program inception, UW has paid transit operators on a per trip basis according to a negotiated trip rate. The negotiated trip rate varies by operator, but is lower than the cash fare. In the early days of the programs, students, faculty and staff flashed their ID card when they boarded the bus and trips were measured through surveys. More recently, however, UW began participating in the regional smart card program so that UPass trips are now recorded by the fare box and allocated to providers according to measured ridership. By more accurately recording use and reducing fraud, smart cards became an important strategy in keeping program costs low. For 2011, students are required to participate in the UPass program and pay a $76 fee per quarter. Participation is optional for faculty and staff, who pay $136/quarter for the program. Studies of UW's UPass program demonstrate that since the program began, drive alone commuting has decreased by some 38%. The program also generates approximately $7.5 million annually for King County Metro (who is among several transit providers participating in the program).

Rhode Island Public Transit Authority

The Rhode Island Public Transportation Authority (RIPTA) has also achieved considerable success developing UPass programs and partnerships with colleges and universities. Currently, RIPTA has a UPass agreement with every college and university in the state.

With private universities and colleges (Brown, Providence College, Rhode Island School of Design, Johnson & Wales, Bryant, Salve Regina, Roger Williams and Lincoln Tech) contracts are negotiated individually and vary by institution. However, all consist of a pay-per-ride contract based on trips recorded through a Smart Card or magnetic swipe school ID. RIPTA generates ridership reports, which are provided to the institutions and used to generate monthly invoices. FY 2011 ridership from this program was estimated at 1.3 million riders and generated approximately $1.66 million for RIPTA.

Public institutions in Rhode Island also all have transit programs, although financial constraints mean that most do not include unlimited access programs. Each of the four campuses of Rhode Island Community Colleges sell RIPTA passes for half-fare, with the college absorbing the other 50% of the costs. In addition, the University of Rhode Island (URI) in Kingston contracts with RIPTA to run an on-campus shuttle plus additional limited service into a nearby town. URI pays for this service and URI students ride these routes for free. URI students can also purchase RIPTA fare products for half-fare. Combined, the half-fare program generated nearly $740,000 in pass and ticket sales for RIPTA in 2011.

Port Authority of Allegheny County (Pittsburgh)

The Port Authority of Allegheny County, which provides service to the Pittsburgh area, has UPass arrangements with major universities, including the University of Pittsburgh and Carnegie Mellon University. The Port Authority's program differs from the King County Metro and RIPTA programs in that the Port Authority and the universities negotiate a flat fee that funds transit use for all students and employees. The students and employees then display their student or employee IDs for free use of all Port Authority services.

Mankato Transit System (Mankato, MN)

The Mankato Transit System (MTS) is a small transit system (10 buses) that serves Mankato, MN, which is a city of 37,000 in Southern Minnesota. MTS has a strong partnership with Minnesota State University Mankato (MSU), and at present, MSU contracts with MTS for the operation of three routes that primarily serve the university but are also open to the general public. All riders must currently pay fares, which for students are $45 per semester, $16 per month, or the regular cash fare. Student ridership comprises nearly half of total MTS ridership.

At the present time, the MTS and MSU are now in the process of expanding this relationship to provide more evening service and to implement a UPass agreement. Under the terms of this agreement, MSU students and staff would be provided with free access to all MTS service, and the program would be funded with a $9 per semester student fee. The new fee, which is being billed as a "Green Fee," will provide $225,000 per year to MTS for the operation of existing and new services.

Partnerships with Public Schools

Transit agencies around the country and in Massachusetts have also successfully partnered with public school districts, typically with high schools. Common arrangements include transit agencies contracting directly with the public school district to provide specific trips to a particular school. Other transit agencies have arrangements with school districts where the school district purchases bulk pass sales.

Historically, transit agencies have been reluctant to work directly with public school systems due to regulations from the Federal Transit Administration (FTA) that state that recipients of FTA grant funds are not allowed to provide public school transportation. Recent publications from the FTA, however, clearly state that, "public transportation vehicles can be used to transport students to and from school if they ride regularly scheduled mass transportation service that is open to the general public. Such service may be designed or modified to accommodate the needs of school students and personnel, using various

fare collection subsidy systems. This is commonly known as 'tripper service'."[61] Clarification by the FTA combined with local pressure on school system budgets has encouraged in many transit agencies, including RTAs in Massachusetts, to partner directly with school districts. Similar with UPass programs, partnerships vary by location. Some public school districts pay for additional bus service, while other school districts purchase bus passes for their students.

Current Practice in Massachusetts

In Massachusetts, as was presented in Table 4-29, several RTAs have already developed such partnerships. PVTA, for example, has an agreement with the cities of Springfield and Holyoke through which each city pays for additional trips that directly serve local public schools. These routes and trips are published in PVTA schedules and open to members of the public and thus also increase service for the broader community. The cities also purchase tokens and passes for students. PVTA raised an estimated $400,000 from each city for these services, for a total of $800,000 raised through partnerships with school districts in 2011.

Examples from Other States

Rhode Island

The City of Providence does not provide school bus transportation for high school students and instead issues monthly RIPTA bus passes to those high school students living more than 3 miles from school (whether public, charter or out-of-district). Students may also receive passes if they:

1. Have a documented need written in their Individual Education Plan (IEP)
2. Have a medical need and supporting doctor's note
3. Live within 2.5 miles of school and can show a financial hardship

Final eligibility decisions are made by the Supervisor of Transportation. This program is funded locally, through the Providence school department budget. Approximately 2,500 high school students receive passes each month, out of a total high school population of about 7,600. In total, the City purchased $1.4 million worth of RIPTA passes in FY 2009.

Local Option Taxes

Local option taxes, especially sales taxes, are a common funding source for transit authorities throughout the country, especially among larger transit agencies. Agencies benefit from being able to budget local revenues without relying on governing bodies to allocate revenues to them. Most transit agencies that have dedicated, local revenue streams to fund their services feel strongly about the positive effect on their financial health, particularly with regard to long range planning. Sales taxes are the most common type of local option taxing mechanism used to support transit, and in most cases, an increment is added to the existing sales tax with the revenues dedicated to the transit agency. Other local option taxes are also used to support transit agencies, including property taxes, fuel taxes, income and payroll taxes, and in some case "sin" taxes on alcoholic beverages. Dedicated funding sources, especially local taxes, also strengthen the tie between local communities and transit providers and further encourage agencies to be responsive to local needs.

There are several challenges associated with local option taxes, the clearest of which is that there are many competing demands for tax revenues and tax payers have a limited ability to pay. Another challenge reflects governance and the fact that transit agencies typically provide regional service. New England, unlike other parts of the country, is oriented around municipal governance rather than county systems

[61] FTA, Public Transportation and School Buses

and therefore lacks a mechanism to tax regions or groups of cities and towns. Nationally, however, numerous transit agencies have had success increasing existing taxes or instituting new taxes to support transit service.

Current Practice in Massachusetts

State support for public transportation in Massachusetts is funded, in part, through a dedicated tax levied on gasoline sales, registry fees and sales that are deposited into the Commonwealth Transportation Fund. These taxes are levied and distributed statewide.

As local entities, Massachusetts cities and towns have a very limited ability to adopt local taxes. Outside of the property tax and motor vehicle excise tax, the Commonwealth permits only a handful of local optional taxes, two of which are relatively new (2009):

- Increasing the tax on hotel and motel rooms from 4% to 6%.
- Adding an additional 2% to the meals tax.

Reports suggest that as many as 75 communities, mostly larger cities and towns, have taken advantage of the hotel and motel tax and a similar number has levied the local option meals tax. To date, however, none of the communities are using this revenue to support the RTAs. The ability to develop new local option taxes would require enabling legislation.

In addition, local communities can provide additional "local assessment" funds to RTAs on a voluntary basis for the provision of new or expanded services. In these cases, the communities provide these funds directly from whatever sources they desire, and not through the formal Local Assessment process. While it is challenging for RTAs to convince communities to provide additional funding, BAT has had success in this area.

Practices in Other States

California

The State of California enables counties to raise sales taxes for defined periods to support transportation. In the past few decades, over 25 counties have instituted these "local transportation sales taxes" (LTST) and collectively they generate about $2.5 billion per year. The taxes are used to support both highways and transit systems and have been one of the fastest growing revenue sources for transportation in California. One of the reasons that the taxes are so popular is that they allow civic and political leaders to bypass the state transportation finance and decision-making. The popularity of the local transportation sales taxes is also attributable to the fact that:

1. Taxes must be approved directly by the voters
2. Funds are raised and spent within the counties that enact them
3. Most LTSTs are temporary and typically last 15 or 20 years, unless voters specifically reauthorize them
4. Voters approve a specific list of transportation projects to be financed by the tax.

A wide variety of counties have adopted LTSTs, including large urban counties (Los Angeles, San Diego and Sacramento), several suburban counties (Contra Costa, Riverside and San Mateo) as well as many rural counties (Fresno, Imperial and San Joaquin).[62]

[62] *Local Transportation Sales Taxes, California's Experiment in Transportation Finance*, University of California, Wachs, etc.

Arizona

In Arizona, various statutes enable counties to enact transportation excise taxes of up to 0.5% for transportation (including transit) purposes. The imposition of the tax requires advance specification of how the funds will be spent and voter approval. The state's two largest counties (Maricopa and Pima) have both enacted the sales taxes, as have three smaller counties (Gila, Pinal, and Yavapai).

In addition, individual cities may also enact local option sales taxes of up to 0.5%, and these taxes may be enacted by the governing bodies of the individual jurisdictions. At least five cities (Peoria, Phoenix, Scottsdale, Tempe, and Yuma) have adopted additional transportation excise taxes with rates that range from 0.2% and 0.5%.

Idaho

Idaho is one of four states that does not provide any state funding for transit operations (together with Mississippi, Alaska and Hawaii), or allow for local option taxes dedicated solely for public transportation. Under the Idaho State Sales Tax Act, however, certain resort cities that have a tourist-based economic and a population of less than 10,000 can use a local option tax to supplement the city budget. Several cities, including the city of Sun Valley, used this tax to generate funding for local public transit. Ponderay, Idaho, a community of just over 1,000 residents, located in the northern most part of the state, between Washington and Montana also used this tax to fund local transit service. In 2010, voters approved an eight-year bed tax of 5% on short-term stays in hotels. The revenues generated from the tax will be dedicated to fund tourism programs, including a new bus system through four communities in the region: Dover, Sandpoint, Ponderay and Konntenai. The bus system is under development and is planned as free-fare, multi-community system with a projected annual budget of about $500,000.

Pennsylvania–Allegheny County

In December, 2007, Allegheny County instituted a 10% county tax on the retail sale of alcoholic beverages (the "drink tax"), with all revenues dedicated to fund the Port Authority of Allegheny County, which is the county's transit operator. The tax was instituted in conjunction with a tax on rental cars in order to raise the local resources necessary for the Port Authority to match state and federal transit funds[63]. The tax encountered significant resistance, and in 2009, was lowered to 7%. However, the past few years have highlighted an advantage of the drinks tax as it proved to be more recession-proof than most other local taxing mechanisms.

Potential Revenue Opportunities for RTAs

Summary of Issues

The largest sources of funding for the RTAs are the Commonwealth and the federal government, both of which are currently severely constrained. As noted at the beginning of this initiative, there is recognition at MassDOT that RTAs need more funding in order to make major improvements in serving their customers. Although MassDOT's current budget situation leaves it with little opportunity to increase RTA funding directly, the Commonwealth's entire transportation system faces serious revenue shortfalls that may ultimately necessitate a statewide and systemwide solution. The expectation is that the needs of RTAs would be addressed as part of any such comprehensive solution.

Absent a comprehensive solution to statewide needs, there are still a variety of potential strategies that could help RTAs raise additional funds to expand their operations. While all options pose challenges, they

[63] Allegheny County Oks Drink Tax, The Pittsburgh Challenge, 2007

also present significant opportunities to strengthen their relationship with riders and partner organizations as well to increase ties to their local communities.

Fare Revenue

Fares offer opportunities to increase RTA funds, especially for those that currently have lower average fares and/or have set ADA fares at less than twice the fixed-route fares. As demonstrated, increasing agencies' average fares on the order of 20% provides the potential to raise between $6.4 million and $13.2 million. Because RTAs have very different fare structures, some agencies would stand to raise considerably more revenue than others. PVTA has the most potential associated with raising fixed-route revenues, reflecting a combination of high ridership and lower average fares. GATRA has the greatest potential to raise revenues by increasing demand-responsive fares; again this reflects a lower starting fare and high ridership on those services.

While raising fares offers potential for RTAs to increase revenue, it is also true that raising fares is not easy. Constituent groups, including transit agency boards, will likely challenge proposals to raise fares, citing equity and affordability concerns. Some of these concerns can be mitigated through a fare structure that offers a variety of fare media (monthly passes, day passes, etc.) that provide discounts for bulk purchases. RTAs in Massachusetts have also had success basing fares on distance. This strategy allows RTAs to capture more revenue on service that is costlier to provide. Finally, there are strong arguments for keeping fares in line with other similarly sized and positioned transit agencies, including RTA peers in Massachusetts. In this way, it is possible that agencies' relatively low fares across the board have served to suppress efforts to increase fares. To assist RTAs in raising fares while still providing local flexibility, MassDOT could set statewide minimum fare levels at the same level as MBTA fares, but with exceptions (for example the substitution of other RTA revenues, such as UPass revenues) for fare revenue).

UPass Programs

Partnerships with universities and colleges represent a significant opportunity for RTAs to raise additional funding. Developing UPass programs has an upside potential of approximately $11 million annually, assuming every student in the RTA service area paid $25 per semester for universal access to RTA services[64]. In addition, as mentioned, partnerships have the dual benefit of raising funds for local service as well as tying new service to critical market segments.

To date most of the partnerships between universities and the RTAs reflect an agreement where institutions contribute a lump sum towards service that directly serves the campus and in exchange, students, faculty and staff ride for free. This model may be more cost effective for suburban and rural systems where there are fewer transit services and riders. In other cases, however, RTAs may explore the negotiated trip rate model, which is more common nationwide. Several RTAs are exploring implementation of CharlieCard or other smart card technology, and this technology would make implementing a negotiated trip rate approach considerably easier.

Developing these partnerships, however, is not without challenges. According to MA law (MGL 15A Section 22), agreements that impact student fees must be developed locally with student government participation. This means that each UPass program must be negotiated independently, although some contracts and terms may be shared. The groundwork required to develop and maintain these programs and partnerships requires considerable effort, but would also provide the opportunity RTAs to work with their local institutions to ensure that any agreement and service is relevant and appropriate. UPass programs are an established practice for transit agencies across the country and have a proven track

[64] $11million estimate assumes every student in RTA district is assessed a $25 per semester fee (220,000 x $25 x 2 semesters = $11,000,000).

record of not only at raising revenues but also increasing ridership, which in turn can help improve RTAs' performance and ability to access funds from other sources.

Partnerships with Public School Districts

Transit agencies, including RTAs in Massachusetts, have successfully worked with public school districts to increase service to local high schools and/or sell bus passes to students. Interest in these types of partnerships has increased nationally as school district budgets are constrained. These types of arrangements may not be appropriate for all RTAs, but there are opportunities for increased use of this strategy.

Local Option Taxes

Local option taxes have significant potential to increase and provide more consistent funding sources for transit operations, which typically need ongoing operational (rather than capital) funds. Currently, for Massachusetts' RTAs to leverage local option taxes as a public transportation funding source, they must work with their member communities to use existing taxing authority and channel these revenues to RTA services. The current list of local option taxes in the state is limited, and thus enabling legislation would be required. This type of effort would not be easy, and would require RTAs to work to develop strong support within their communities. Finally, efforts to establish local option taxes to support RTAs should also consider opportunities to create regional taxing mechanisms so service and system costs can be allocated across multiple communities.

Actions to Consider

For the foreseeable future, funding from existing sources will almost certainly continue to be constrained. However, costs will continue to increase and there will continue to be demands for new services. Thus, to maintain and improve service, it will become increasingly important to develop new funding sources and to better leverage existing funding that the RTAs directly control. This document addresses some of the most promising ways in which this could be done. All would require a significant amount of effort in terms of the public process involved in fare increases, developing new relationships and negotiating agreements, and advocating for legislative changes.

To further explore these options, topics for discussion at the next workshop include:

1. Transit fares vary considerably by agency and fares are low overall. As a result, RTAs could increase their revenues by raising fares.
   - What factors are most important when considering when and how much to raise fares (for example, service and funding needs, inflation, rider incomes, etc.)?
   - Should statewide fare policies be developed? What should they include?
   - Would statewide policies help give RTAs 'cover' when they go about raising fares?
   - Should fare standards or policies be extended to both fixed-route and ADA services?

2. Some RTAs have been more successful and proactive about establishing partnerships with educational institutions than others.
   - Are there obstacles preventing RTAs reaching out to potential partners?
   - How can the state support RTAs in developing these partnerships?
   - Is there a role for RTA-to-RTA assistance?

For More Information

2010 Ballot Measures, Center for Transportation Excellence: http://www.cfte.org/success/2010BallotMeasures.asp

Local Transportation Sales Taxes: California's Experiment in Transportation Finance, Amber Crabbe, Rachel Hiatt, Susan Poliwka and Martin Wachs, Institute of Transportation Studies, University of California, Berkeley, 2005: http://www.uctc.net/papers/737.pdf

Local Option Transportation Taxes: Devolution is Revolution, Martin Wachs, Institute of Transportation Studies, University of California, Berkeley: http://www.uctc.net/access/22/Access%2022%20-%2002%20-%20Local%20Option%20Transportation%20Taxes.pdf

A Quiet Revolution in Transportation Finance: The Rise of Local Option Transportation Taxes, Todd Goldman and Martin Wachs, Transportation Quarterly, Vol 57, No. 1 Winter 2003: http://www.uctc.net/research/papers/644.pdf

Issues Related to Providing Dedicated Funding for the Washington Metropolitan Area Transit Authority, United States Government Accountability Office: GAO—6-516 (May 2006)

Future Financing Options to Meet Highway and Transit Needs, NHCRP 20-24 (49): http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_w102.pdf

Federal Transit Administration – Public Transportation and School Buses: http://www.fta.dot.gov/documents/SchoolBusBrochureJanuary19-2005.pdf

University of Washington: UPass reports: http://www.washington.edu/facilities/transportation/commuterservices/files/reports/employee_res_dist_study.html

U-PASS: A Model Transportation Management Program that Works, Michael Williams and Kathleen Petrait, TRB Report 1404: http://ntl.bts.gov/DOCS/UPAS.html

3. Local taxes pose considerable challenges in Massachusetts but also offer significant benefits, especially for RTAs looking for more control over their funding.
   - Are RTAs interested in working towards establishing a local option tax mechanism?
   - Are future efforts better directed towards existing mechanisms or working towards new ones?

4. Are there other potential funding opportunities:
   - Fund raising (one small VT system raises approximately $140,000 in donations per year, plus its 10% local match for a new maintenance facility)?
   - Other?

Table 4-30 Massachusetts Colleges and Universities by Town and RTA

College	Primary Campus Location	Student Population	RTA
Stonehill College	Easton	2,400	BAT
Bridgewater State University	Bridgewater	11,000	BAT
Massasoit Community College	Brockton, Canton, Middleborough	7,400	BAT
Williams College	Williamstown	2,200	BRTA
Berkshire Community College	Pittsfield	1,222	BRTA
Dean College	Franklin	1,100	GATRA
Greenfield Community College	Greenfield	3,000	FRTA
Wheaton College	Norton	1,650	GATRA
UMass Lowell	Lowell	14,700	LRTA
Middlesex Community College	Bedford, Lowell	12,000	LRTA
Fitchburg State University	Fitchburg	7,600	MART
Framingham State University	Framingham	6,100	MWRTA
Mount Wachusett Community College	Gardner	5,000	MART
Mass Bay Community College	Wellesley, Framingham, Ashland	8,500	Metrowest
Merrimack College	N. Andover	2,100	MVRTA
North Essex Community College	Haverhill, Lawrence	15,000	MVRTA
Amherst College	Amherst	1,600	PVTA
Bay Path College	Longmeadow	1,500	PVTA
Elms College	Chicopee	1,200	PVTA
Hampshire College	Amherst	1,400	PVTA
Mt. Holyoke College	S. Hadley	2,100	PVTA
Smith College	Northampton	3,100	PVTA
Springfield College	Springfield	4,700	PVTA
Western New England University	Springfield	276	PVTA
Westfield State University	Westfield	6,000	PVTA
Holyoke Community College	Holyoke	12,547	PVTA
Springfield Technical College	Springfield	6,000	PVTA
UMass (Amherst)	Amherst	27,000	PVTA
Bristol Community College	Fall River, New Bedford, Attleboro, Taunton	12,123	SRTA GATRA
UMass Dartmouth	New Bedford, Fall River	9,400	SRTA
Assumption College	Worcester	2,700	WRTA
Becker College	Worcester	1,700	WRTA
Clark University	Worcester	2,800	WRTA
College of the Holy Cross	Worcester	2,700	WRTA
Nichols College	Dudley	1,500	WRTA
Worcester Polytechnic Institute	Worcester	4,000	WRTA
Quinsigamond Community College	Worcester	13,000	WRTA
UMass Worcester	Worcester	1,000	WRTA
Worcester State University	Worcester	6,200	WRTA
Mass College of Pharmacy	Worcester	900	WRTA
Mass Bay Community College	Wellesley, Framingham, Ashland	8,500	Metrowest
Merrimack College	N. Andover	2,100	MVRTA
Total all Colleges and Universities:		236,918	

INITIATIVE 8:
IMPROVE FUNDING PROCESSES

Existing RTA funding Processes and Potential Improvements

As is the case everywhere in the country, transit funding in Massachusetts is extremely limited. Especially now, but also for the future, it is essential that limited resources be used as effectively as possible. During Beyond Boston interviews in the fall of 2011, many RTA Administrators also expressed frustration that the existing funding allocation process:

- Does not tie funding sufficiently to need
- Does not always adequately balance state and federal funds
- Does not reward or encourage local contributions
- Is not sufficiently predictable or transparent
- Does not encourage innovation/experimentation
- Provides funding in arrears, challenging the annual budgeting process

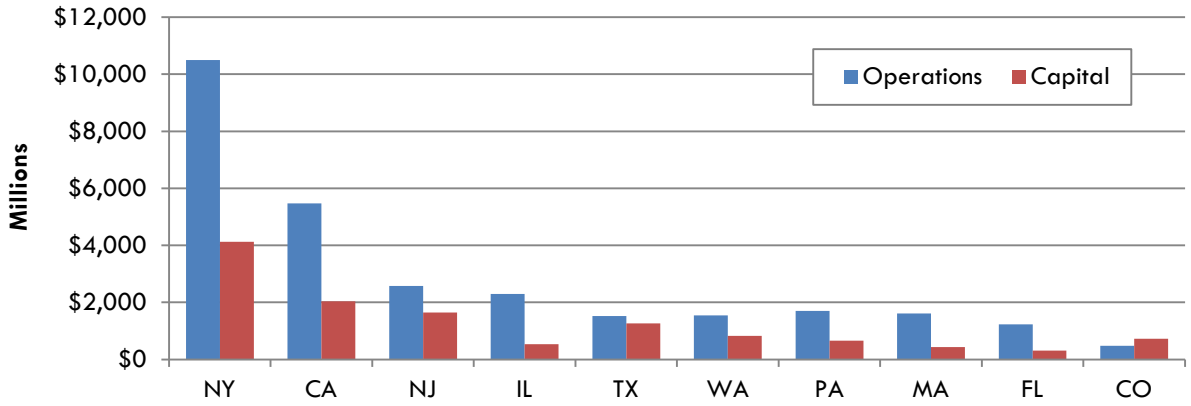
There is a desire on the part of both MassDOT and the RTAs to improve funding allocation processes. MassDOT has worked with the RTAs over the past few years, making several proposals for adjusting the operating and capital funding allocation formulas. Interim changes have been made to the capital funding allocation process, but this is seen as only a temporary improvement until better information on capital needs can be developed. This document describes existing funding sources, the processes that are used to distribute funds, issues, and potential new approaches.

Massachusetts Overall Funding Levels

In 2010, Massachusetts provided just over $2 billion in total transit funding to the MBTA, the RTAs, and other eligible providers. Of this, $1.6 billion was directed to support transit operations (both the MBTA and the RTAs), and the remaining $400 million was for capital investments. This represents the eighth highest total level of transit investment in the United States (see Figure 4-24).

Most states with large metropolitan transit systems, particularly those with high infrastructure costs (for example, with rail service), fund smaller bus-only systems differently than their larger systems. This is also the case in Massachusetts, where a different funding process is used for the MBTA and the RTAs. However, discounting funding for the large systems, Massachusetts still provides a high level of financial support. Since state funding for RTAs exceeds that of all other sources, it is clear that the Commonwealth has a strong interest in ensuring that funds are utilized as effectively as possible.

Figure 4-24 Transit Funding by State, Top 10 States (in Terms of Combined Operating and Capital Funding, 2010)



Source: National Transit Database, 2010

Massachusetts RTAs Funding Sources[65]

Transit service in Massachusetts is funded through a combination of federal, state, local, and transit system generated funds. Especially at the federal level, there are a large number of funding programs; however, for the Massachusetts RTAs, the overwhelming majority of funding is from:

Operations

- FTA Section 5307 Urbanized Area Formula Program Operating Assistance
- FTA Section 5307 Capital Assistance Used for Operations[66]
- FTA Section 5311 Formula Grants for Other than Urbanized Areas
- State Contract Assistance
- Local Assessments
- Farebox Revenue

Capital[67]

- FTA Section 5307 Urbanized Area Formula Program
- FTA Section 5309 Bus and Bus Facilities
- FTA Section 5310 Transportation for Elderly Persons and Persons with Disabilities
- FTA Section 5311 Formula Grants for Other than Urbanized Areas (Section 5311)
- FTA Section 5316 Job Access and Reverse Commute Program
- FTA Section 5317 New Freedom Program
- Congestion Mitigation and Air Quality (CMAQ) Improvement Program
- Massachusetts RTA Capital Assistance Program
- Massachusetts Toll Credits
- Massachusetts Mobility Assistance Program

[65] This report was originally produced in March 2012. In July 2012, President Obama signed a two-year transportation bill, Moving Ahead for Progress in the 21st Century (MAP-21), which changes several of the federal funding programs used by RTAs. Some of these changes may directly impact RTA funding, however, due to the timing of the bill, changes were not incorporated into this document.

[66] FTA 5307 capital funds can be used for operating expenses such as preventative maintenance and some ADA complementary paratransit service.

[67] These funding sources do not include "temporary" sources such as ARRA stimulus funds, which over the past few years have been a major source of capital funding for transit. They also do not include state Intermodal Transportation Center Capital Assistance Program funds, which will be phased out in 2014.

Operating Funding

For FY 2012, Massachusetts' RTAs are budgeted to receive and generate a total of $161.3 million in operating funds. The largest source of funding is State Contract Assistance ($59.2 million, or 37%), followed by federal FTA funding ($41.5 million, or 26%), local assessments ($29.4 million, or 18%), and farebox revenue ($23.1 million, or 14%) (see Table 4-31).

Table 4-31 RTA Operating Budget Totals for FY2012 in Millions of Dollars

Funding Source	Total	Percent
State Contract Assistance	$59.2	37%
Federal Transit Administration (FTA)	$41.5	26%
Local Assessments	$29.4	18%
Farebox	$23.1	14%
Other Revenue*	$8.1	5%
Total	$161.3	100%

Source: MassDOT Approved Budget in Net Cost of Service FY 2012 & MassDOR Cherry Sheet FY 2012

*Other Revenues consist of advertising, parking, sale of capital assets, and interest income.

FTA Section 5307 Urbanized Area Formula Funds

FTA Section 5307 Urbanized Area funds are available to transit systems in urbanized areas. In Massachusetts, all RTAs except the three non-urban RTAs (FRTA, NRTA and VTA) receive FTA Section 5307 funds. These funds are split into two different categories based on urban area size:

1. Large urban area funds (with more than 200,000 residents)
2. Small urban area funds (with 50,000 to 200,000 residents)

Large Urban Area Section 5307 Funds

The FTA allocates Section 5307 funds to each large urban area using a formula that incorporates the following factors:

- Population
- Population density
- Bus revenue vehicle miles
- Bus passenger miles
- Fixed guideway revenue vehicle miles
- Fixed guideway route miles

The funds flow directly from the FTA to a single "designated recipient" in each urbanized area, and all eligible transit operators within each urban area negotiate with the designated recipient a mutually agreeable split of funds. In some cases there are multiple designated recipients in each urbanized area. Based on census definitions, Massachusetts RTAs operate in five large urban areas, which are Boston, Worcester, Springfield, Barnstable, and Providence. Each of these urbanized areas is served by more than one RTA, and many RTAs serve more than one urban area (see Table 4-32).[68] As a result, all RTAs must negotiate its share of Section 5307 large urban area funds in at least one urban area, and some in two or three. In cases where there are multiple designated recipients in a single urbanized area, the amount of 5307 funds an RTA is initially allocated from FTA may differ from the amount received after funds are distributed locally based on local agreements and negotiations with agencies in that urbanized area.

[68] In some cases urbanized areas overlap state boundaries.

Table 4-32 RTA Service in Large Urban Areas

RTA	Boston	Worcester	Springfield	Barnstable	Providence
BAT	√				
BRTA					
CATA	√				
CCRTA				√	
FRTA					
GATRA	√			√	√
LRTA	√				
MART	√	√			
MVRTA	√				
MWRTA	√				
NRTA					
PVTA			√		
SRTA					√
WRTA	√	√			
VTA					

These funds are generally only available for capital purposes. However, there are a number of exceptions, and through these exceptions, the funds are available for operating purposes such as preventive maintenance and ADA complementary paratransit in areas with more than 200,000 residents. RTAs generally use FTA 5307 funds for operating purposes wherever possible.

Small Urban Area Section 5307 Funds

Unlike in the large urban areas where funds are allocated separately to each urban areas, each state's total amount of small Section 5307 urban area funds flow to the state and are administered by the "Governor's designee." In Massachusetts, this is MassDOT. MassDOT has discretion over how these funds are allocated between eligible recipients, but distributes them based on population and population density, which is how they are allocated by FTA. Small urban area Section 5307 funds can be used for operating or capital purposes, and eligible RTAs generally maximize the use of these funds for operating purposes.

Fitchburg, New Bedford and Pittsfield are small urbanized areas with populations less than 200,000, meaning that MART, SRTA and BRTA qualify to use 5307 funds for either operating or capital purposes.

Total Section 5307 Operating Assistance

For FY 2010, Massachusetts RTAs received a total of $32.6 million in Section 5307 operating assistance. Among eligible RTAs, amounts ranged from a low of $0.2 million for CATA to a high of $9.0 million for WRTA (see Table 4-33).

Table 4-33 FTA Section 5307 Funds Used for Operations (millions; FY 2010)

RTA	Large Urban	Small Urban	Total
BAT	$1.2	$0.0	$1.2
BRTA	$0.0	$1.6	$1.6
CATA	$0.2	$0.0	$0.2
CCRTA	$4.8	$0.0	$4.8
GATRA*	$0.3	$0.0	$0.3
FRTA**	$0.0	$0.0	$0.0
LRTA	$1.5	$0.0	$1.5
MVRTA	$2.2	$0.0	$2.2
MWRTA	$0.6	$0.0	$0.6
MART	$0.0	$2.7	$2.7
NRTA**	$0.0	$0.0	$0.0
PVTA	$5.4	$0.0	$5.4
SRTA	$0.0	$3.3	$3.3
VTA**	$0.0	$0.0	$0.0
WRTA	$9.0	$0.0	$9.0
RTA Total	$25.1	$7.5	$32.6

*Reflects 5307 funds allocated from the Boston UZA only

**Rural RTAs are not eligible for 5307 funds

Sources: MassDOT, RTA finance staff, and "Commonwealth of Massachusetts Boston Urbanized Area Memorandum of Understanding" April 2016

FTA Section 5311 Formula Grants for Other than Urbanized Areas

In non-urbanized areas (areas with populations of less than 50,000), transit systems receive FTA Section 5311 Formula Grants for Other than Urbanized Areas. In total, these funds comprise a small amount of funding for most RTAs, but are a major source of funding for FRTA, NRTA and VTA, which are the three RTAs that provide service exclusively in non-urbanized areas, as well as for BRTA, which provides much of its service in non-urbanized areas.

Table 4-34 FTA Section 5311 Funds (FY 2011)

RTA	Amount
BAT	$0
BRTA	$228,096
CATA	$22,940
CCRTA	$46,018
FRTA	$820,665
GATRA	$47,306
LRTA	$7,773
MART	$36,202
MVRTA	$0
MWRTA	$0
NRTA	$464,745
PVTA	$32,761
SRTA	$9,553
VTA	$738,717
WRTA	$43,597
Total	$2,498,373

Source: MassDOT

These funds are allocated to the state based on population, and are administered by MassDOT. Eligible RTAs that operate some level of rural service, including just a single route, may apply for 5311 funds for either operating or capital funding through the Community Transit Grant Application. RTAs primarily request 5311 funds for operating due to limited sources of available operating funds.[69] MassDOT directs approximately 73% of Section 5311 funds to the RTAs. The remaining funds are used to support the Intercity Bus Program (14%), and the Rural Transit Assistance Program (3%), as directed by law. MassDOT also retains 10% of program funds for administration. In FY 2011, Massachusetts RTAs received a total of $2.5 million in FTA Section 5311 funds, which included $228,096 for BRTA, $820,665 for FRTA, $464,745 for NRTA, and $738,700 for VTA (see Table 4-34).

[69] FTA allows these funds to be used for operations or capital expenditures

State Contract Assistance

State Contract Assistance (SCA) is the major source of state operating assistance for transit. These funds are provided through the Commonwealth Transportation Fund (CTF) and the Massachusetts Transportation Trust Fund (MTTF):

- The CTF is funded through gas taxes, registry fees, and a portion of the 2009 state sales tax increase from 5% to 6.25%. By law, a minimum of $15 million per year must be provided to the RTAs, and since its inception in 2009[70], this is the amount that has been allocated.
- The MTTF is funded through Mass Turnpike tolls, Tobin Bridge tolls, departmental revenues of the former Executive Office of Transportation (EOT), Massachusetts Highway Department, and Massachusetts Aeronautics Commission, and appropriations of non-dedicated revenue from the CTF.[71] MTTF funds from the Massachusetts Turnpike tolls and Tobin Bridge tolls are not eligible for transit, but other funds are. In FY2012, MassDOT allocated $44.2 million of MTTF funds for RTA operations.

By law, Massachusetts must use State Contract Assistance to fund at least 50% of the RTAs' Net Cost of Service, which is the operating deficit after deducting federal operating assistance and RTA-generated revenues (including fares). For FY 2012, a total of $59.2 million in SCA will be distributed to the RTAs (see Table 4-35). SCA, in total, will cover 68% of the RTAs' net cost of service, which is equivalent to 37% of total costs.

At present, SCA distributions are based on historical funding levels; current service levels, needs and performance are not considered. In addition, these funds are provided 12 months in arrears, rather than in the year that funds are expended. Between the time of expenditure and receipt of funds, RTAs must borrow money and pay interest to support operations. The receipt of funding 12 months in arrears also increases uncertainty–if state funding is reduced, then spending reductions must occur after funds have already been spent. This can result in more dramatic unplanned cuts in current year spending, to make up for funds already spent.

In 2009, following passage of the Transportation Reform Act, MassDOT and the RTAs began working together to develop a formula-based allocation process that considered need, performance, and other factors. All parties agree that the current process is flawed and inequitable, but have not been able to agree on how changes should be made.

Table 4-35 State Contract Assistance (millions; FY 2012)

RTA	Amount
CATA	$1.0
CCRTA	$3.2
BAT	$4.9
BRTA	$1.8
FRTA	$0.7
GATRA	$2.7
LRTA	$2.6
MART	$4.1
MVRTA	$5.2
MWRTA	$2.0
NRTA	$0.4
PVTA	$16.2
SRTA	$4.4
VTA	$1.1
WRTA	$8.7
Total	$59.2

Source: MassDOT

[70] Chapter 25 of the Acts of 2009

[71] Independent State Auditor's Report on the Massachusetts Department of Transportation's (MassDOT's) Use of American Recovery and Reinvestment Act Funds, February 17, 2009 through February 27, 2010.

Local Assessments

Local Assessments represent local contributions to transit operations, and are funded through deductions from state aid to communities. In accordance with M.G.L. Chapter 161B, annual Local Assessments are based on the "loss" (operating cost minus revenue) for each specific route and the share of that loss and activity attributable to each town or city. Local Assessments are adjusted annually for all RTAs based on changes in the Consumer Price Index (CPI) for the Boston metropolitan area, but may not exceed an increase of 2.5%.[72] As a result, in years when inflation exceeds 2.5%, these revenues shrink in relation to total costs. For FY 2012, RTAs will receive a total of $29.4 million in local assessments (see Table 4-36).

Table 4-36 Local Assessments (millions; FY 2012)

RTA	Amount
BAT	$2.5
BRTA	$0.8
CATA	$0.4
CCRTA	$1.5
FRTA	$0.4
GATRA	$2.9
LRTA	$2.4
MART	$1.8
MVRTA	$2.2
MWRTA	$1.6
NRTA	$0.3
PVTA	$6.7
SRTA	$1.9
VTA	$0.8
WRTA	$3.3
Total	$29.4

Source: RTA Approved Budgets in Net Cost of Service Format

RTA Generated Revenues

RTAs generate revenue through fares, as well as through other sources such as the sale of capital assets, interest income, advertising, parking fees and other means. The RTAs directly control these funds, and the amounts collected are determined through a combination of RTA policies (for example, fares) and efforts (for example, the development of local partnerships or leasing of space). In 2011, urban RTAs generated over $31.2 million in income through these sources, most of which was from fare revenue ($23.1 million), and the non-urban RTAs generated $1.7 million.

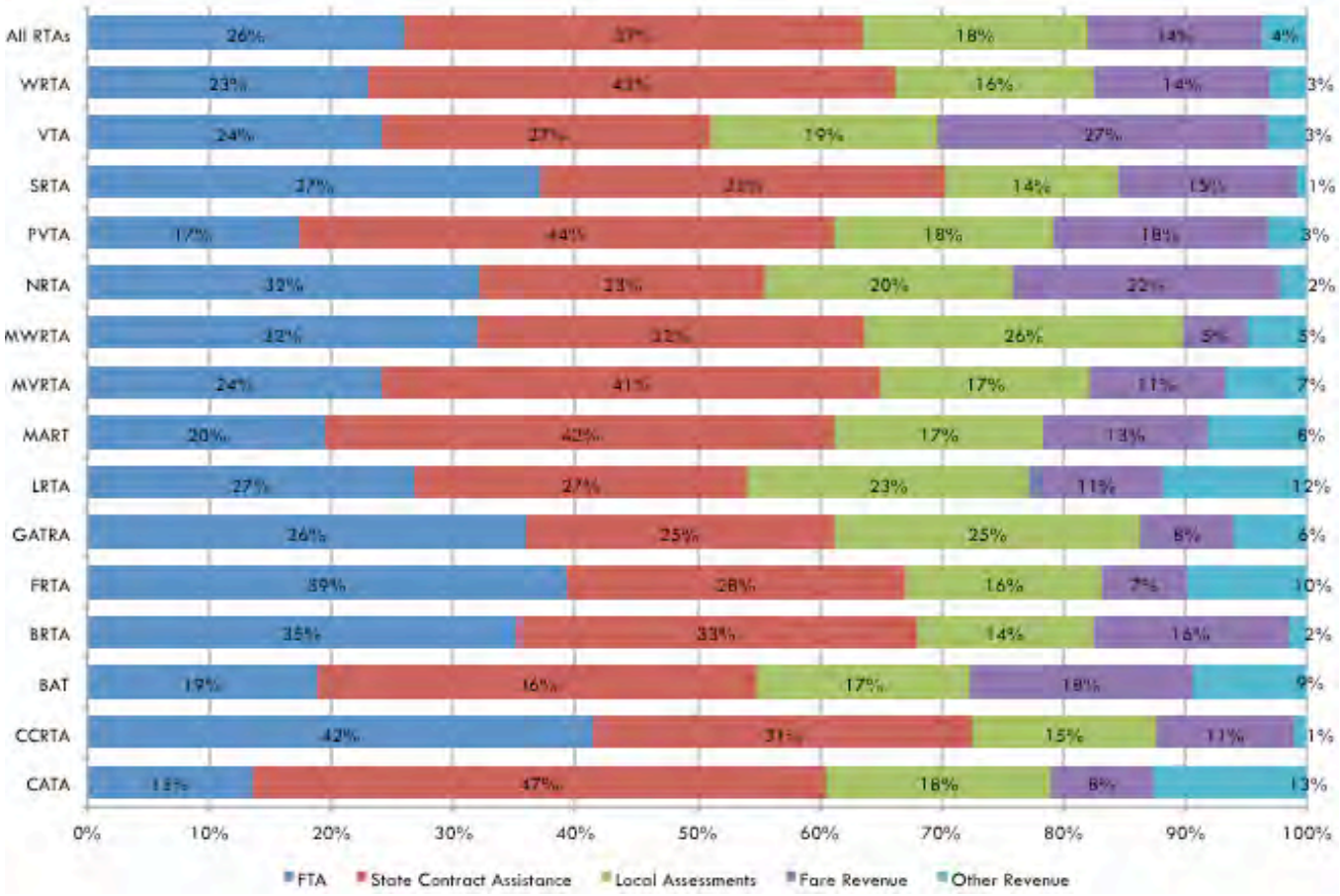
Mix of Operating Funding

The overall mix of operating funding varies greatly between RTAs. As illustrated in Figure 4-25, the greatest amounts of variation are with federal and state funding, and fares:

- Federal funding: In total, federal funds allocated to all RTAs in Massachusetts represent 26% of their total funding. However, by individual RTA, amounts range from a low of 13% (CATA) to a high of 42% (CCRTA). There are many reasons for these differences, including eligibility for different types of federal funds, agreements made in large urban areas, MassDOT allocation methods, and historic precedents.
- State funding: In total, RTAs receive 37% of their funding through State Contract Assistance. However, by RTA, amounts range from a low of 25% (GATRA) to a high of 47% (CATA). As discussed in more detail below, State Contract Assistance is allocated largely based on historical precedent. In many cases, but not always, RTAs that receive lower levels of federal funding receive higher levels of state funding (for example, BAT, CATA, PVTA, and WRTA) and those that receive higher levels of federal funding receive lower levels of state funding (for example, CCRTA and SRTA). However, the relationship is not constant, and at least in recent years, state funds have not been allocated in a manner that attempts to balance federal funds.
- Fare revenues: In total, RTAs generate 14% of their funding through fare revenues. However, by RTA, fare revenue amounts range from 5% (MWRTA) to 27% (VTA).

[72] The CPI is only estimated for larger metro areas by the Bureau of Labor Statistics. So the Boston CPI is applied to the entire state as there is no CPI measurement at the state level.

Figure 4-25 Share of Operating Funds for Each RTA by Source



Source: MassDOT Approved RTA budgets

Capital Funding

For capital funding, RTAs rely on federal and state funds, but not local funds. The most important funding programs (in terms of the total amount of funds received) are:

FTA Section 5307 Urbanized Area Formula Funds

FTA Section 5307 funds, which were described above, are also available for capital purposes. Allocation and distribution methods for capital use are the same as those described above for operations. In FY 2010, Massachusetts' RTAs received $14 million in Section 5307 funds for capital purposes.

FTA Section 5309 Bus and Bus Facilities

FTA Section 5309 provides capital assistance on a discretionary basis in both urbanized and rural areas. Eligible projects include new buses, bus rehabilitation, support facilities, intermodal terminals, park-and-ride stations, bus rebuilds, passenger shelters and miscellaneous equipment. These funds are earmarked by Congress and flow directly to transit systems. MassDOT has no control over these funds. In 2010, BRTA, FRTA, and LRTA received $4.3 million in Section 5309 fund.

FTA Section 5310 Transportation for Elderly Persons & Persons with Disabilities

FTA Section 5310 provides capital assistance for the purchase of vehicles and related equipment used to provide transportation services to the elderly, persons with disabilities, and for families transitioning from public assistance to employment.

Section 5310 funds are distributed to states based on their respective populations of elderly and disabled residents, and in Massachusetts are administered by MassDOT. MassDOT directs approximately 50% of 5310 funding to the RTAs, 30% to private non-profits, 10% to local Councils on Aging, and retains 10% for administration. In FY 2010, RTAs in received $3.1 million in FTA Section 5310 funds. Funds are dispersed as part of a competitive application process through the Community Transit Grant Program. MassDOT evaluates grant applications based on the following criteria:

- Does the project establish, preserve, or improve public transportation services in a community?
- Does the project address a recognized need in the community?
- Does the project leverage funds from other sources?
- Does the project reflect a community process of coordination and input?
- Does the project appear to be feasible as described?
- Is the project identified as a regional priority in the local Coordinated Public Transit – Human Services Transportation Plan?

FTA Section 5311 Formula Grants for Other than Urbanized Areas (Section 5311)

FTA Section 5311 provides funds for transit planning, capital, operating and administrative assistance in non-urbanized areas with population less than 50,000. RTAs generally requests these funds for operations rather than capital.

FTA Job Access Reverse Commute Program (Section 5316)

This program supports capital, planning and operating expenses for projects that transport low income individuals to and from jobs or employment activities. Funds are dispersed as part of a competitive application process annually, and 5316 funds have been combined with other funds into a single application under the Community Transit Grant Program. Eligible projects apply through the Community

Transit Grant Program and are prioritized by the Metropolitan Planning Organization with guidance from MassDOT; the prioritized list of projects is then evaluated by MassDOT.

Massachusetts received $3.4 million in Section 5316 funds in FY2010. MassDOT directs the majority of these funds to the Boston urbanized area (55%), followed by the Springfield/Pioneer Valley area (12%) and Central Massachusetts (8%). Other small urban areas share 10% of these funds, and the rural RTAs share 4%. MassDOT retains 8% for administration.

FTA New Freedom Program (Section 5317)

This program funds capital and operating expenses for new transportation services beyond those required by the American with Disabilities Act (ADA) of 1990. Like 5316 funds, applications are prioritized by the Metropolitan Planning Organization with guidance from MassDOT, and 5317 funds are dispersed as part of a competitive application process annually through the Community Transit Grant Program. Massachusetts received $1.8 million in Section 5317 funds in FY2010. MassDOT distributes Section 5317 funds on the same basis as Section 5316 funds; the majority of these funds are distributed to Boston (56%), then Springfield/Pioneer Valley (10%), Central Massachusetts (7%) and Cape Cod (4%). Small urban areas share 10% of these funds, and the three rural RTAs share 5%. MassDOT retains 8% for administration.

Congestion Mitigation and Air Quality (CMAQ) Improvement Program

The CMAQ program is jointly administered by the Federal Highway Administration (FHWA) and the FTA, with funds available for projects that improve air quality and/or reduce congestion, and can be used for capital and start-up operating purposes (up to three years). These funds are allocated to areas with air quality problems based on a formula that takes into account the population and severity of air quality status for each area of the country. At the local level, CMAQ project selection is controlled by MPOs. For a project to be eligible for CMAQ funding, the RTAs must work with their respective Metropolitan Planning Organization or Regional Planning Commission to get it included in the regional Transportation Improvement Program (TIP).

Massachusetts RTA Capital Assistance Program

The Regional Transit Authority Capital Assistance Program (RTACAP), which is administered by MassDOT, provides local funds for RTA capital projects, including matching funds for federally funded projects. The program is funded through state bond proceeds, and for FY 2012, the RTAs are budgeted to receive $6.7 million. For projects to be eligible for funding they must be listed in the Metropolitan Planning Organization's TIP, and the RTAs must provide MassDOT with project cost estimates. As described in more detail below, these funds are allocated largely as block grants based on each RTA's fleet value and deferred fleet replacement needs. RTAs need to apply for funds and describe how they will be used, but MassDOT does not conduct any needs-based analyses or evaluate the requests to any significant extent. As currently structured, there is no guaranteed capital funding stream for the three rural RTAs. These three agencies rely on MassDOT to allocate RTACAP funds.

Until recently, annual capital funding allocations to each RTA were based largely on historical distributions. As with State Contract Assistance, MassDOT desires to change the approach to a comprehensive needs-based process. Until this can be done, MassDOT established an "interim" model that it views as better than the historical approach but still not sufficient to meet ongoing needs. This interim approach uses estimated RTA transit fleet replacement costs as a proxy for each agency's total capital needs, with distributions based on a multi-step process:

1. Develop statewide Fleet Replacement Statement that includes a calculation of each RTA's percentage of total fleet replacement needs and fleet replacement backlog.

2. Calculate distribution targets based on the total available RTACAP program funding, and each agency's percentage of total statewide fleet replacement needs.
3. Adjust distribution targets to reflect the fact that the three non-urbanized RTAs do not receive FTA Section 5307 capital funds on a formula basis. Targets are adjusted to fund these rural RTAs at 90% of what they *would* receive if FTA formula funds *were* available to them. This rural funding is then subtracted from the RTACAP available to be shared by the 12 urban systems.
4. Final "blended" distribution targets are calculated for the urban systems based on the percentage of their current fleet replacement needs and backlog with a floor of $206,000. This blended target is considered an interim step through FY 2013 towards developing a distribution formula.

This approach is designed to shift greater levels of investment to areas with deferred capital needs, while maintaining funding to all agencies based on the relative size of each RTA's fleet and scope of services. However, it does not consider need and does not include a competitive process. MassDOT is now beginning to track other State of Good Repair needs such as operating facilities, passenger facilities, and equipment/systems. However, these factors have yet to be estimated in any detail nor incorporated into the annual RTACAP Allocation Process.

Massachusetts Toll Credits

FHWA and FTA allow states to substitute certain previously financed toll investments for state matching funds.[73] This permits states to use toll credits as a "soft" match for federal funds. MassDOT determines the projects for which these credits are used, and has made them available for some RTA capital projects. There are currently $87.5 million in approved toll credits available for Massachusetts (FY 2012). The first RTA project to be supported through this program was a recent $13.7 million fleet acquisition by PVTA. MassDOT does not have a defined program for use of the toll credits.

Massachusetts Mobility Assistance Program

The Mobility Assistance Program (MAP), which is administered by MassDOT, provides approximately $3 million per year for the purchase of vehicles and related equipment to be used in the provision of transportation services to the elderly, persons with disabilities, and families transitioning from public assistance to employment for which existing public and/or private mass transportation is unavailable, insufficient, or inappropriate. State funds provided under this program are used to match federal 5310 funds. Applicants for MAP funds must be either a public organization or a private non-profit corporation, and coordinate with their Regional Planning Agency or local Regional Transit Authority.

State Funding in Other States

States vary in the ways that they distribute funds to transit authorities, and several states have relatively recently changed their approach to funding transit to a more needs-based approach. Practices in other states include:[74]

New York

New York State funds transportation through two major programs: the Mass Transit Operating Assistance (MTOA) fund and the State Dedicated Transportation Trust Fund (SDTF). Funding for both programs comes from a petroleum business tax (PBT) levied on any company that produces, refines, or imports petroleum in the state. The MTOA provides transit operating assistance to both "upstate" and

[73] Section 120 of Title 23

[74] Note that Delaware, Maryland, New Jersey and Rhode Island were not evaluated due to their statewide approach toward the delivery of transit services.

"downstate"[75] transit providers. The SDTF provides capital funds for both highway/bridge (63%) and transit (37%) projects, with 3% going to upstate transit projects.

As in Massachusetts, New York uses two different funding processes for its upstate (smaller) and downstate (larger) transit systems. For its upstate transit providers, New York provides both operating and capital assistance, as described below.

State Operating Assistance

The State Transit Operations Assistance (STOA) fund is a permanent dedicated fund for transit, supported by general funds, as well as the MTOA. NYSDOT distributes operating funds to transit agencies using a simple formula that is based on ridership and the amount of service provided. For FY 2012, the amounts provided were:

- $0.405 per passenger carried
- $0.69 per vehicle mile driven.

These amounts are adjusted annually based on the amount of funding available. Distributions are based on operating statistics (revenue passengers and vehicle mile data) reported to NYSDOT on a quarterly basis. To receive state funding, transit systems must also provide a local match equal to the state funding amount.

State Capital Assistance

The transit portion of the SDTF provides funding for the capital needs of non-MTA transit providers. Each year, NYSDOT updates a six-year capital program based upon the transit systems' identified unfunded needs to determine how to allocate the SDTF. Unfunded needs were initially identified in a statewide 20-year unfunded needs assessment study performed in 2007. No local match is required, and funding is allocated according to the following steps:

- NYSDOT develops an inventory of eligible capital needs for all non-MTA systems
- NYSDOT projects the amount of federal/local funding available for such projects
- Systems are allocated funds based on their level of state of good repair and replacement needs (new initiatives and expansion projects are not included)
- Funding is awarded based upon the percentage of unmet needs

The Omnibus Fund is an additional capital funding program that provides 10% state funds to match federal capital projects (non-MTA). Local sponsors are also responsible for 10 percent, effectively matching federal dollars on an 80/10/10 basis.

Pennsylvania

In 2009, Pennsylvania passed Act 44, which among other things transformed the way that transit is funded in Pennsylvania. As is still the case in Massachusetts, Pennsylvania had funded transit primarily on a historical basis that did not take into account changes in need or performance. The act changed the funding process to one that is now very strongly tied to performance. It also strengthened oversight by the Pennsylvania Department of Transportation and is intended to promote operating and financial efficiency. Major provisions of the new funding process are as follows:

[75] The downstate part of the New York MTOA also benefits from special taxes and fees in the New York City region intended to support the large New York City Metropolitan Transit Authority (MTA).

State Operating Assistance

Pennsylvania's new funding process for operations is formula-based, and emphasizes ridership and system size:

- 25% based on existing ridership
- 10% based on senior passengers
- 35% based on revenue vehicle hours
- 30% based on revenue vehicle miles

Because the immediate use of this formula would have produced significant cuts in funding for some transit systems, Act 44 also included hold harmless and transition provisions. These include:

- Notwithstanding cuts in overall funding levels, all 22 transit systems would be held-harmless and receive at least as much funding as under the prior system[76]
- The new formula would apply to amounts above the hold harmless amounts
- Systems that would benefit from the new formula could not receive increases that exceeded 50% in the first year or 20% in succeeding years

Other relevant provisions include a 15% local match for state operating assistance, and additional funding for large urban systems (Philadelphia and Pittsburgh).

State Capital Assistance

Transit capital projects are now programmed on a statewide basis through the regional planning process using three primary funding sources:

1. The discretionary Asset Improvement Program
2. The formula-based Capital Improvement Program
3. The New Initiatives Program for fixed guideways

The Asset Improvement Program funds statewide transit capital projects on a discretionary basis that considers agency needs. A local match of 3.33% is required, and funds are distributed for the following priorities (ranked highest to lowest):

1. Payment of existing debt service commitments
2. Provision of matching funds for federally approved projects
3. Provision of funds for non-federal capital projects prioritized by:
    a. Emergency/mandatory/safety projects
    b. Replacement of existing assets that have exceeded their useful life
    c. Non-emergency asset replacement projects
4. Provision of funds for asset expansion (not New Starts), where a project shows a return on investment that improves operating efficiency and/or customer service

The Capital Improvements Program account is distributed by formula based on passenger trips, and there is no local match required.

Washington

The Washington State Department of Transportation (WSDOT) uses a consolidated application process for both state and federal transit grants, with timelines for both types of grants brought in line with the

[76] Note that due to reductions in state transit funding, transit systems throughout Pennsylvania have had funding reduced.

state biennium. This allows applicants to submit their proposals for all types of grant funding once every two years, instead of applying separately for each type of grant program.

The process is needs-based and uses the following criteria:

- Project Component
  - Does the project establish, preserve, or improve public transportation services?
  - Does the project address a recognized need?
  - Does the project reflect a community process of coordination and input?
  - Availability of other project matching funds
  - Project feasibility
- Applicant Component
  - Management capability
  - Track record with previous grant awards
  - Financial capability and resources for implementation
  - Long term project commitment (beyond grant timeframe)
- Performance Component
  - Community benefits
  - Identification of specific performance measures to be used to determine project success
  - Ability to improve efficiency and effectiveness
  - Existing performance (for ongoing projects)

WSDOT evaluates all applications in collaboration with representatives from the Washington State Transit Association, plus representatives from other state agencies, community groups, rider groups, regional planning associations, tribal organizations, and other groups. These community grant review committees are reappointed each year.

Iowa

Iowa devotes 0.8¢ of its sales tax collected on motor vehicles and accessory equipment sales to public transportation. These State Transit Assistance (STA) funds are administered by the Iowa DOT, and are available for operating, capital, and planning expenses. The funds are allocated based on two formulas:

1. Funds are first split between urban and regional systems based on vehicle revenue miles.
2. Funds are then distributed to individual systems within each category based on a formula that emphasizes local funding and cost efficiency:
   - Locally generated income (50%)
   - Cost per trip (25%)
   - Cost per vehicle revenue mile (25%)

Iowa's Office of Public Transportation also retains a maximum of $300,000 of the total STA funds for technical training and statewide initiatives.

Virginia

Virginia provides funding for operating and capital purposes. Operating funds are allocated largely on a historical basis, but with some qualifications, and capital funds are allocated using a tiered system that reflects the state's transit capital priorities.

State Operating Assistance

Virginia allocates operating funding that is based largely on a historical basis, but also includes adjustments for year-to-year changes. This process:

1. First takes the total amount of available operating assistance and allocates it among applicants based upon operating expenses from the previous fiscal year.
2. Second, two "tests" are then performed, with amounts adjusted based on the results. These are:
   - Maximum Eligibility Test: Applicants may be reimbursed for up to 95% of Administration and Maintenance expenses after subtracting other revenues (such as federal aid, other state assistance and farebox returns). This is the Maximum Eligibility amount.
     - If the Operating Assistance amount identified in Step 1 above is less than the Maximum Eligibility amount, an agency's operating assistance amount is not adjusted.
     - If the operating assistance amount is more than the Maximum Eligibility amount (this rarely occurs), then their operating assistance is reduced to the Maximum Eligibility.
   - Maintenance of Effort Test: If state funding increases from one year to the next, transit systems must meet one of two requirements in order to be eligible for an increase in funding:
     - Local funding (farebox revenue plus local operating support) must at least as high as it was in the previous year.
     - The number of revenue hours of service must be as least as high as in the previous year.
     - If neither condition is met, then the amount of state Operating Assistance will be reduced until local funding levels as calculated in the second tier evaluation are maintained.

State Capital Assistance

For capital assistance through Virginia's Mass Transit Capital Fund (MTCF), funding decisions are made by the Commonwealth Transportation Board (CTB), which is a 17 member board whose members are appointed by the Governor. As described in its policy handbook,[77] the CTB's capital-related transit priorities are:

- Maintain existing transit assets as the first funding priority.
- Match new investments with quantifiable service needs and local commitments.
- The asset management system shall support the development of a statewide transit and human service capital replacement and improvement program. Beginning in FY2010, DRPT shall submit a report to the CTB on asset management in the early development stages of the annual Six-Year Improvement Program.
- All proposed transit projects shall include sufficient justification for funding and shall clearly address an identified transit need.
- Proposed projects shall include an implementation plan that adequately addresses the need for any necessary clearances and approvals.
- Proposed projects shall be advanced to a state of readiness for implementation in the target year indicated in the grant application.
- A project shall be considered ready if grants for the project can be obligated and the project can be initiated within one year of the award date, or in the case of larger construction or procurement projects, obligated according to an accepted implementation schedule.
- To be eligible for replacement or rehabilitation, transit assets shall have reached the end of their useful life or the appropriate rehabilitation interval as specified by the Federal Transit

[77] Policy Handbook, Commonwealth, Transportation Board, Virginia Department of Transportation, Policy Division, July 2010.

Administration. (Exceptions may be considered if unforeseen circumstances result in irreparable damage to a transit asset, if a grantee has secured approval by the Federal Transit Administration or, in the case of projects that do not receive federal funds, if the transit operator provides sufficient justification in terms of safety, security or financial rationale.)

- All new projects exceeding $2 million and/or that involve construction of transit facilities to include fixed guideway systems shall conform to threshold requirements detailed in program guidance before the project may be considered eligible for state funding.

Before decisions are made by the CTB, applications for capital funding are reviewed by the Virginia Department of Transportation's Department of Rail and Public Transportation (DRTP). Applications for funding must provide a standardized set of information and are evaluated the basis of:

- Project Justification – explanation of the need/problem that the project will address
- Planning – documentation that sufficient planning has been conducted to execute the project
- Project Scope – approach to addressing the need/problem
- Project Readiness – ability to initiate and advance the project within the fiscal year the funds are applied for
- Technical Capacity – identification of the project management team and ability to execute the project
- Project Budget – ability to execute the project scope within the project budget
- Project Schedule – ability to execute the project scope within the project schedule
- Monitoring and Evaluation Plan – applicant's approach to measuring performance and evaluating the results of the requested capital project(s)

Finally, funds are allocated according to a hierarchy of state goals, which are:

- Tier 1: Replacement/rehabilitation of revenue vehicles based on the statewide asset management system
- Tier 2: New Starts/new facilities based on consistency with state Transit Service Guidelines and a Public Benefit Model
- Tier 3: Discretionary programs–all other activities based on state goals and objectives

Summary of Issues/Potential Improvements

Massachusetts allocates state transit funding in a manner than is different than in most other states, and in a manner than most parties are dissatisfied with. To date, attempts by MassDOT and the RTAs to develop a mutually agreeable process have not been successful. Part of the difference results from very different objectives and perspectives. At the state level, current administrative policy is to develop and implement performance-based measurement systems for its transportation systems. As the major provider of RTA transit funding, the state has a very strong interest in ensuring that transit funds are spent as effectively as possible. However, many of the RTAs believe that RTA decisions should be made locally and that the state should not play a significantly larger role.

Issues

To find common ground, many issues have been identified, and these include:

Operating Funds/State Contract Assistance

- **Funding distributions are based on historical levels that do not adequately consider need or recent changes.** In many cases, service needs have changed, but the distribution of funds based on historical levels encourages the maintenance of a static system.
- **Funding distributions that are based on historical levels are inequitable.** All RTAs view the existing funding process based on historical levels as inequitable as it does not consider current circumstances or needs. However, the specific reasons that RTAs dislike the existing system are varied and, as a result, there has been little agreement among them on how to develop a more equitable system.
- **Funding distributions based on historical levels hinder innovation and the development of new services.** Certain federal funds such as CMAQ, Section 5316 JARC and Section 5317 New Freedom can be used to support services but are subject to a one-time or short-term appropriation. While many RTAs use these funds to support new demonstration or pilot services, they often cannot be continued without reducing or eliminating other services within that RTA's area. As currently structured, there is no incentive program to provide increased funding for successful new services.
- **SCA funding distributions do not consider the availability of other funding sources.** Different RTAs are eligible for different types of federal funding, and as a result, some RTAs may need more or less SCA than others.
- **Funding in arrears makes budgeting challenging.** RTAs receive SCA and local assessments one to two years after operating expenses are incurred, which can make it difficult for RTAs to manage their budgets in cases where funding has been cut after money has been spent.
- **Funding in arrears increases operating costs.** RTAs borrow money to pay for operations until SCA funds are received. This financing requires interest payments that increase the overall cost of delivering transit services. To achieve forward funding, similar to the MBTA, MassDOT estimates that a onetime injection of $70 million in additional funding would be needed to cover lagged revenues and pay down financing costs for all the RTAs in Massachusetts.
- **Available information is insufficient.** At present, relatively little information is available on service performance and needs, which makes the development of a more needs based process more difficult.
- **Short-term implementation challenges.** With any change to funding allocation methods, some RTAs will receive proportionally more and others proportionally less.

State Capital Assistance

Capital needs in Massachusetts, as everywhere else in the United States, greatly exceed resources. As a result, it is critically important that capital expenditures be based on a careful consideration of need, and that is currently not the case. As a first step toward improving the state's capital funding processes, MassDOT has implemented an interim program that uses fleet replacement value as a proxy for overall RTA capital needs. MassDOT recognizes that this change, while an improvement, still falls short of an effective needs-based process. Issues that need to be addressed in the development of a more effective process include:

- **MassDOT distributions to RTAs are not based on need.** MassDOT distributions of state and federal funding are generally based on fleet size and value, rather than the condition of all assets or the merits of new projects.

- **Asset repair and replacement needs are not fully known**. According to MassDOT, Massachusetts' RTAs have a 20% older fixed route fleet than peer systems and an estimated $223 million in deferred capital needs. However, detailed asset inventories or condition assessments have not been prepared on a statewide basis. The scale and scope of asset replacement needs is not fully known.
- **Capital funds must be spent in the fiscal year awarded.** MassDOT requires that capital funds be spent in the fiscal year awarded, but the FTA allows the use of federal funds over a multi-year period. Allowing for capital funds to be used over a multi-year period would assist RTA capital planning as funds could be used in sync with Federal funds.
- **Federal funds are not leveraged to the extent possible**. RTAs are encouraged to pursue federal discretionary funds (Section 5309), but often the required local match is not available to properly leverage these awards. MassDOT and the RTAs need to work more collaboratively on long term capital planning, or better communicate to match projects with available resources, to ensure federal investment in maximized.
- **Cost estimates are sometimes unreliable.** When an RTA provides a capital cost estimate to MassDOT as part of its funding request, there is no system in place to vet or verify the reasonableness of the estimate. In the past, the costs of several significant projects have escalated following grant award. This leads to a delay in project implementation and potentially the ineffective use of available resources.
- **Limited coordination to achieve statewide goals.** Capital project selection is done at the regional level, often without sufficient consideration of statewide goals or initiatives.
- **Long term costs are not considered**. Life-cycle costs for facilities, fare collection systems and other investments are not always fully understood or forecast at the time of project award. For example, several new intermodal passenger facilities have been built over the last decade, yet the long-term maintenance needs of these facilities are not programmed. MassDOT has been directed to consider life-cycle costs in project selection but has not yet done so.

Potential Improvements

As described above, RTAs are funded through a variety of sources, each of which differs in terms of eligibility, who controls the funds, and how they are allocated. To date, most emphasis has been placed on how state funds are allocated. State funds are only one piece of the overall funding picture, but particularly important to this project as the allocation of state funds is the area in which MassDOT and the RTAs can work together to produce meaningful improvements.

As described above, neither MassDOT nor the RTAs are satisfied with the current process. The primary objectives that MassDOT and the RTAs have articulated that they desire to base improved funding processes on are:

MassDOT	RTAs
Needs-Based	Needs-Based
Performance-Based	Equity
Equity	No reductions from existing funding levels for any RTA

At a conceptual level, both MassDOT and the RTAs agree the funding should be allocated on a more need-based level and more equitably. The major area of disagreement is whether or not new processes should be performance-based. MassDOT, as part of larger state initiatives, is moving toward performance-based systems in all areas. Many RTAs, however, believe that because they provide different services to different areas, performance-based systems would be inequitable.

Needs-Based Funding

There are two primary approaches to needs-based funding. The first is to use formulas as a surrogate for needs, and the second is through detailed analyses of needs. Formulas are easier and more straightforward to use, while detailed analyses of needs can provide better results but require much more effort. Also, surrogates work better when needs change slowly, but do not work well when there are large year-to-year changes. As a result, the most common approach is to use formulas for operating funding and a detailed analysis of needs for capital funding.

Potential Operating Formulas

As described in this document, a large number of measures are used throughout the country to allocated operating funds. The most commonly used are:

- Population
- Population density
- Ridership, including passengers miles
- System size, on the basis of vehicle hours or miles
- Cost efficiency (cost per passenger, cost per vehicle service hour, etc)

When formulas are developed, they are recognized as imperfect, but also as reasonable, transparent, and simple to understand and administer. Single formulas are also used to allocate funding among transit systems that vary greatly in terms of the types of services provided, system size, and areas served. For example, as described above, the FTA uses two simple formulas to allocate all Section 5307 funds.

The second approach to needs-based funding is through the documentation of specific needs. As described in *Initiative 2 Improve Service Planning*, and *Initiative 6 Improve Capital Planning*, existing needs are not well documented. However, with the potential improvements described in those initiatives, the necessary information could become available over a period of years for operating needs, and relatively quickly for capital needs. Needs-based approaches are generally used to a much greater extent for capital funding than for operating funding, although operating processes often reserve a portion of funding for new needs-based programs and projects.

Over the past few years, attempts were made to introduce a formula-based approach to the allocation of SCA. One of the challenges with these efforts was that there was no mutually agreeable starting point from which to work, and thus there were disagreements over proposals in their entirety, rather than discussions on how to make them work.

Moving forward, the development of a starting point would be a logical place to begin. One new starting point could be the FTA Section 5307 formulas, both of which are well understood, use existing data, and are already used to provide funding for a wide mix of transit service types and applications. As was described above, these are:

Large Urban Area

- Population
- Population density
- Bus revenue vehicle miles
- Bus passenger miles
- Fixed guideway revenue vehicle miles
- Fixed guideway route miles

Small Urban Area

- Population
- Population density

Then, once the starting point has been established, MassDOT and the RTAs could work together to determine mutually agreeable changes to ensure that the objectives of all parties are considered and included.

Distribution of Capital Funds

MassDOT and the RTAs agree that that the capital process should be based on actual needs rather than on historical patterns. However, the major impediment to the development of an equitable needs-based process is that the required information does not exist. As described in *Initiative 10 Better MassDOT/RTA Collaboration*, under Chapter 161B, "RTAs are directed to consult with MassDOT to prepare an annual program for mass transportation, including a long range program for the construction, reconstruction or alteration of facilities together with a schedule for implementation and comprehensive financial estimates of costs and revenues." The RTAs do not do this, and MassDOT has not required them to do so. The fulfillment of this requirement would provide most, if not all, of the information required to develop a needs-based process.

In addition, because state capital funds are distributed largely on a block grant basis, MassDOT has not required the RTAs to provide detailed justification or documentation of capital requests. MassDOT could also require the same level of justification and other information as other states with more robust processes (for example, Minnesota) or by the FTA.

Once the information is available, then the actual process will still need to be developed. As for the allocation of operating funds, a starting point should first be established, and that starting point could be established through addition work to identify best practices in other states.

Balancing of Federal Funds

As described above, many RTAs receive different amounts of federal funding based on the types of funding that they are eligible for. For operations and as a percent of total operating budgets, this ranges from a low of 13% for CATA to a high of 42% for CCRTA.

With the development of a formula-based allocation system, State Contract Assistance could also be allocated in a manner that balances differences in federal funding levels. To do this, whatever formula is adopted could be applied to the total amount of federal and state operating funding, which state allocations set to differences between each RTA's total share and its federal share.

Hold Harmless

Many RTAs feel very strongly that with changes to funding allocation processes, no RTA should receive less funding that they do under the present process (that they should be "held harmless" from changes). At current funding levels, this would mean that no changes would be possible.

However, the provisions of a new process, or processes, could be implemented over time as total funding allocations increases. In this case, RTAs that now receive more funding than they would under a new process would have their funding held constant until their share under the new process exceeded their current amount. Depending upon how fast or slowly funding levels increase, this is a process that could take years.

Actions to Consider

Overall, discussions about modification to the funding structure would benefit from recognition of the fact that funding levels are in line with other states, and that resources are limited and it is unlikely that additional monies will be identified over the near term. Any funding allocation system needs to be designed to work within existing funding levels, as well as in future years when additional resources may become available. Furthermore, any new transit funding strategies implemented must consider the needs of the RTAs, local customers, and statewide objectives.

Potential solutions and improvements–for discussion at the Beyond Boston workshop in April include:

1. As described above, MassDOT and RTAs have defined basic funding principles (Needs, Performance, Equity, and Hold Harmless).
   - Are there other principles that should be included?
   - Should any of the four not be included?
   - How would you rank their importance?

2. What types of measures should be included for operating assistance?
   - Service area population characteristics (Should funding be based on latent demand?)
   - Ridership (should funding be based on actual demand?)
   - System size (should bigger systems receive more funding than smaller systems?)
   - Service effectiveness (should systems be rewarded for performance?)
   - Cost efficiency (should systems be rewarded for minimizing costs?)
   - Other?

3. Should federal funding be considered in the determination of state operating assistance distributions?

4. Both MassDOT and the RTAs desire funding processes that are "equitable." How would you define equitable?

5. What should be done to better determine capital needs?
   - Develop annual Programs for Mass Transportation by RTAs?
   - Develop asset management plans?
   - Better justify capital requests?
6. Should some funds be reserved for special purposes?
   - Statewide initiatives (for example, Google Transit, CharlieCard, etc.)?
   - Service experimentation/innovative programs?
   - Planning?
   - Technical assistance?
   - Other?
7. Should funding be tied to statewide goals or targets for service and infrastructure?
   - Safety?
   - State of good repair/asset replacement?
   - Expansion and enhancement?

   - Other?
8. Are there circumstances in which funds should be shifted between RTAs?
9. What is the relative importance of:
   - Improving the allocation of state operating assistance
   - Improving the allocation of state capital assistance
   - Moving to forward-funding

For More Information

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INITIATIVE 9:
FOSTER CROSS-BORDER COLLABORATION

Practices in Other Areas and Potential MA Improvements

Transit systems are complex entities that require expertise in a large number of areas. At the same time, most small to medium size transit systems have only small management and administrative staff. As a result, it is not realistic to expect that all RTA Administrators, or their limited management and administrative staff, be experts in all areas.

At present, there is a already large amount of collaboration between RTAs and with the MBTA. The most recent example is the assistance that BAT provided to SRTA to manage that RTA and address management and operating issues until an new Administrator was brought onboard. Then, following the hiring of a new Administrator, BAT and other RTAs have continued to provide assistance to bring new SRTA staff up to speed. RTAs have also collaborated among themselves and with the MBTA on CharlieCard implementation, and some RTAs collaborate with the MBTA on the management and operation of MBTA stations.

The collaboration that does occur is on an informal, or ad-hoc basis. As a result, not all RTAs are aware of what other RTAs are doing, or are able to do. Also, the RTAs usually work individually with the MBTA on issues such as station management and operation. Some RTAs have reported having a very good working relationship with the MBTA, while others have reported significant challenges. There are also shared issues that the RTAs do not collaborate on. One current example is the development of Title VI policies, which nearly all RTAs have reported to be a significant challenge to complete. More formal "cross-border" collaboration could fill many gaps in existing efforts in a manner that would increase the benefits of collaboration beyond those that already being achieved. Examples include:

- **Operation of Regional Services** – All of the RTAs serve unique geographical areas. However, many of the trips that transit riders make–or desire to make–cross RTA boundaries. Collaboration in service delivery could provide more seamless service.
- **Management/Operation of Regional Facilities** – Throughout the Commonwealth, there are a number of regional facilities, many of which are MBTA commuter rail stations. Many of these facilities are owned and operated by the MBTA, some are owned and operated by an RTA, and others are owned by the MBTA but managed and operated by an RTA. Outside of the Boston area, these are some of the state's most important transit facilities, and those that are managed and operated with local involvement are among the best in the state (for example, Brockton, Lowell, North Billerica, and Worcester's Union Station). A higher level of RTA involvement in the management and operation of regional facilities could provide for upgrades at additional stations, and this could be facilitated through the development of consistent policies.
- **Grants Management** – There are a variety of federal and state grants available to support transit service and operations. However, it can be difficult for small transit agencies to designate staff time to research potential grants and complete applications. When grants are successful, RTAs must then get programs started and manage grant reporting and oversight. Sharing resources to compete for grants and manage programs can facilitate this process and ease burdens on individual RTAs.
- **Training** – All RTAs must perform a number of training activities, especially driver training. Some RTAs are members of the Massachusetts Rural Transit Assistance Program (MArtap), which is a federally funded, state-administered program that offers training, education and technical assistance programs with special emphasis on rural services. This program could

provide service to all RTAs (although the focus is on rural providers, the program is not restricted to rural providers) and/or larger RTAs could provide training for smaller RTAs.

- **Maintenance** – Depending on the fleet size and composition and expertise of staff, vehicle maintenance may provide an opportunity for collaboration, especially with respect to heavy maintenance.
- **Procurement** – All RTAs procure many similar types of equipment, facilities, and services. Efficiencies may be gained through collaboration for agency purchases. This may involve joint purchases to increase purchasing power for items such as employee benefits or insurance.
- **Intelligent Transit Systems (ITS)** – ITS options continue to advance rapidly, and small transit agencies are often challenged to implement new technologies. This may be due to of a lack of familiarity with current trends and costs, difficulty with procurement, and/or a lack of expertise to fully implement and manage new systems. Developing and sharing expertise in ITS could help agencies successfully procure and implement new technologies.
- **Human Resources** – Finding, retaining, and training good staff is a challenge for transit agencies large and small. Where there are opportunities to jointly recruit staff and perform other human resources functions, agencies may achieve increased efficiencies.
- **Community Outreach** – Reaching out to local communities and understanding their transportation needs is an essential part of developing successful transit services. In many cases, small transit agencies are able to only designate a fairly small portion of staff time to working with members of the community and community organizations.
- **Regulations** – The number of regulations that transit systems must comply with is constantly changing and often increasing. An increased emphasis on Title VI compliance at the federal level is one example, and this project may also recommend new state regulations. A collaborative approach to addressing regulations could ease the burden on individual RTAs.

In total, the management of transit systems is complicated. Massachusetts' 15 RTAs have a variety of individual strengths and weaknesses. Greater collaboration among RTAs provides the opportunity to leverage the strengths of each to better address shared interests.

Examples from Other States

California

The Southern California Regional Transit Training Consortium (SCRTTC) is a coalition of more than 30 transit operators, community colleges, and other educational organizations that work together to develop standardized training for the transit industry. The Consortium is an effort to reduce training costs and share the best curricula (hence the partnership between transit agencies and educational expertise). The Consortium works to:

- Improve, refine, and make more efficient regional transit training
- Coordinate and share information and resources within the Southern California area for the purpose of improving existing transit training
- Develop new methods and systems for training to keep pace with technological changes taking place in the industry
- Create regional shop standards

Delaware and Pennsylvania

The Southeastern Pennsylvania Transportation Authority (SEPTA), which serves the Philadelphia area, also operates a regional rail line between Delaware and Philadelphia. The Delaware Transit Corporation

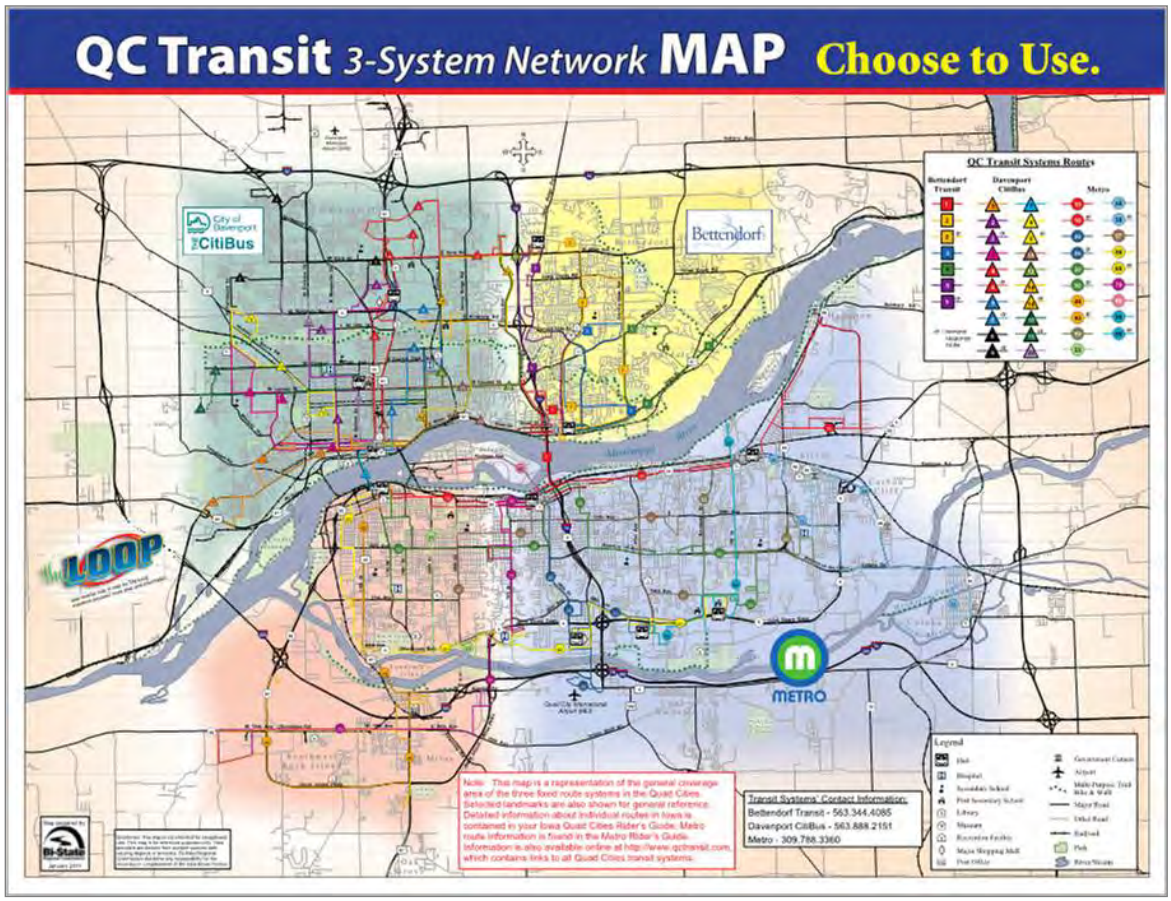
(DTC) coordinates with Amtrak, which owns the Delaware facilities, and contracts with SEPTA to provide the service. DTC pays SEPTA on unit cost basis, and is credited for revenues generated by Delaware passengers. In addition, DTC maintains ticket sales locations for SEPTA rail riders, and allows SEPTA pass customers to ride DTC buses to and from regional rail stations. Overall, this arrangement is a low cost way to increase ridership on all systems while providing ease of use for customers.

Iowa/Illinois

Four cities on the Iowa/Illinois border, Davenport and Bettendorf in Iowa, and Rock Island and Moline in Illinois, form the Quad City region. Three fixed-route and one demand-response transit systems serve the area and the four systems collaborate in a number of ways.

- The Rock Island and Davenport systems share a single maintenance facility that is managed by a separate board with membership from both agencies.
- A single marketing entity (Quad Cities Transit) produces all marketing including a Rider's Guide that presents information on all systems, including route-by-route information.
- The systems collaborate on a joint pass for fixed-route service.
- The systems produce a joint system map (see Figure 4-26).

Figure 4-26 Quad Cities Joint System Map



Ohio

The Ohio Department of Transportation's (ODOT) Office of Public Transportation strongly encourages coordination among transit agencies and other transportation providers, and has published a two volume publication on coordination:

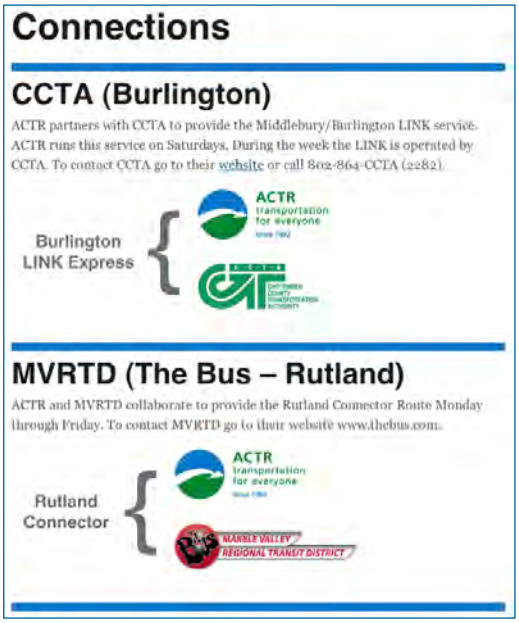
- **Volume I – A Handbook for Coordinating Transportation Services** provides an introduction to coordination, and outlines a step-by-step approach to starting a coordination program. Designed for transit agencies, and individual service providers, the handbook provides detailed worksheets, checklists, surveys, and other tools to take providers through the steps to understand what coordination is, begin pre-implementation planning, determine how to develop the cooperation program, and even set up joint use arrangements leading to implementation. The Handbook is designed to cover a range of potential services and functions. It includes a number of examples of Best Practices including:
  - Joint training for drivers between a transit agency, hospital and social service provider in Seneca County
  - Shared fueling arrangements between a transit agency and community action council in Mahoning County
- **Volume II – A Guide for Implementing Coordinated Transportation Systems** is a supplement to Volume I and is intended to provide more specific direction during the implementation process. It includes references and examples of materials, documents and agreements from implemented, coordinated programs.

Vermont

As is the case in Massachusetts, Vermont is served by a number of medium to small transit systems that serve unique geographical areas, and where demand crosses those boundaries. Similar to bi-directional travel between Lowell and Lawrence, there is bi-directional demand for service between Middlebury and Rutland, Vermont. In that case, the two respective transit systems each provide half of the service and share costs. Addison County Transit Resources (ACTR), which is Middlebury's transit provider, operates trips that originate in Middlebury, and The Ride, which is Rutland's transit provider, operates trips that originate in Rutland. Service is coordinated so that each operator provides alternating trips.

In addition, ACTR and the Chittenden County Transit Authority (CCTA), which serves Burlington, collaborate on service between Middlebury and Burlington. CCRTA operates weekday service, and ACTR operates Saturday service.

Figure 4-27 ACTR Regional Information



Washington

Statewide

In Washington State, public transit agencies pool their resources in order to provide and purchase insurance coverage, manage claims and litigation, and receive risk management and training. The Washington State Transit Insurance Pool (WSTIP) began in the late 1980s with eight transit agencies and

now includes 25 agencies. WSTIP is governed by a board of directors, which includes a representative from each member transit agency.

Insurance coverage provided by WSTIP includes a combination of self-insurance, coverage purchased from a captive insurance pool, and commercial market insurance. There are several categories of coverage:

- Liability
- Property
- Miscellaneous, including employee theft, robbery, computer fraud, and more

WSTIP staff serves as a resource to transit agencies by providing services that benefit its members in terms of loss prevention, loss reduction, and/or resource sharing.

Seattle Area

In the Seattle area, seven different transit providers developed an integrated fare collection system. The ORCA (One Regional Card for All) system, which was implemented in 2009, is designed for transit riders who use multiple services and modes to travel through the Puget Sound area. Implementation of the ORCA system involved the creation of a formal agreement between agencies–the Interlocal Cooperation Agreement that defines involvement of all agencies in:

- Planning
- Cost sharing
- Establishment of a joint board for program oversight
- Ongoing management
- Fare processing and settlement

The partner agencies anticipate achieving significant benefits in customer convenience, service planning improvements, and operating efficiencies.

Examples within Massachusetts

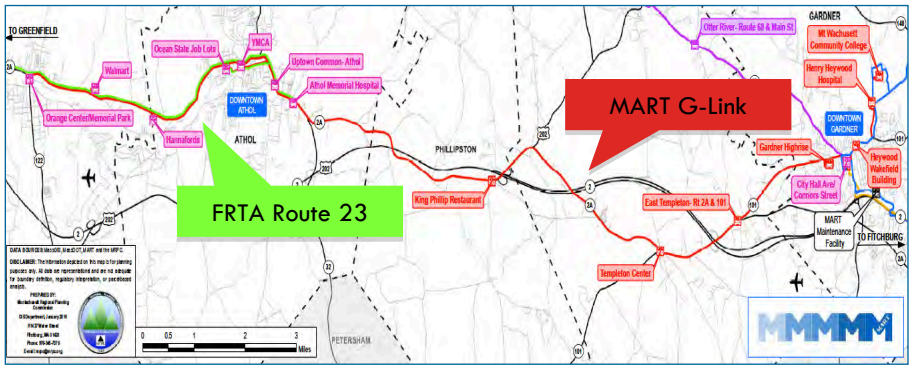
Regional Service

There are a number of examples of regional services that are provided in Massachusetts either through the efforts of a single RTA or through collaborations between RTAs. However, in contrast with the way service and costs are shared between Middlebury and Rutland, Vermont, a single RTA funds the costs of each service. These include:

- MVRTA provides Route 41 service between MVTA's McGovern Center in Lawrence and LRTA's Gallagher Transit Terminal in Lowell. This route provides service between two of the Merrimack Valley's larger cities, and provides connections to local routes at both ends. MVRTA funds the cost of the service, but the two agencies share fare revenue.
- Transfer points have been developed by a number of RTAs to facilitate transfers between systems. These arrangements are not as convenient for passengers as true regional services (like MVTRA's Route 41), and do not involve cost sharing or fare coordination. However, they do provide important regional travel opportunities: Examples include:
  - MART operates "G-Link" service between Gardner and Orange, which between Athol and Orange overlaps with FRTA's Route 23 Athol – Greenfield service (see Figure 4-28). The overlap between these two routes provides the ability for local residents to travel between Gardner and Greenfield and points in between.

- PVTA and FRTA services connect at the UMass Haigis Mall, in downtown Northampton, and in South Deerfield.
- PVTA also connects with Connecticut Transit (CTTransit) service in Enfield, CT. Through this connection, trips can be made to Hartford.

Figure 4-28 MART and FRTA Connecting Services



Many RTAs also provide service and connections to MBTA stations. Most of these connections are to commuter rail service; two examples are LRTA's Gallagher Terminal at Lowell Station, which is the hub of LRTA's services, BAT's BAT Center adjacent to Brockton Station. Some RTAs also provide feeder service to MBTA rapid transit stations:

- BAT service to and from Ashmont Station on the MBTA's Red Line
- MWRTA service to and from Woodland Station on the MBTA's Green Line

Finally, and while beyond the subject of this initiative, it should be noted that many RTAs have developed partnerships with private and other public operators, including private-carrier bus operators and the Steamship Authority. There arrangements include the use RTA terminals and stations for private bus operations, capital assistance for bus purchases, and ticket sales.

Management/Operation of MBTA Stations

A number of RTAs manage and operate MBTA stations. GATRA has operated the MBTA commuter rail station in Attleboro since the early 1980s, and has made most of the capital improvements since that time. In the Lowell area, LRTA owns and operates Lowell Station (and leases the land from the MBTA), and pays all station costs and receives all station revenue. In North Billerica, LRTA leases North Billerica Station from the MBTA, has improved and expanded the station, pays all station operating costs and splits parking revenue with the MBTA. In Brockton, BAT maintains Brockton Station for the MBTA.

Figure 4-29 North Billerica Station

CharlieCard

Since the MBTA introduced its new CharlieCard fare collection system, many RTAs have implemented, or are in the process of implementing, the same system. These RTAs include:

- BAT
- CCRTA (in process)
- GATRA (planned)
- LRTA
- MART (in process)
- MWRTA
- PVTA (planned)
- SRTA (in process)

The MBTA assists the RTAs with implementation. It also processes CharlieCard system fare data for the RTAs. It should be noted that PVTA has opted to implement a smart card system using a different vendor—that system is expected to come on line in July 2012.

Other

BAT has an agreement with Bridgewater State University (BSU). The University owns four vehicles and operates three local routes. BAT trains BSU drivers (who are typically students) and maintains the vehicles under contract to BSU.

Potential Opportunities

Summary of Issues/Potential Opportunities

Opportunities for cross-border collaboration encompass many aspects of RTA responsibilities. Based on the results of the stakeholder interviews, technical work conducted as part of the study, and Advisory Committee input, there are a number of issues that could be better addressed through cross-border collaboration. These include:

- Planning for regional services
- Management and operation of regional facilities
- Assistance with regulatory requirements (especially Title VI)
- Assistance with grant applications
- Construction management
- Vehicle heavy maintenance
- Bus painting
- Driver training
- Travel training
- Procurement (through blanket contracts or joint purchases)
- Technology/ITS procurement

Actions to Consider

There are a number of different approaches through which these issues could be addressed. One would be to develop statewide (MassDOT) initiatives to provide assistance throughout the state (as described in *Initiative 10: Improve MassDOT/RTA Collaboration*). Other approaches would include:

- Use of the MassDOT/RTA Council to address and develop solutions to cross-border/inter-RTA issues.
- A greater focus by MARTA on providing technical assistance to the RTAs in terms of identifying, addressing, and developing solutions to cross-border/inter-RTA issues.
- Development of "Centers of Excellence" in which one or more RTAs or the MBTA would become experts in specific subject areas and then provide assistance to other RTAs. Examples include:
  - Construction management
  - Vehicle heavy maintenance
  - Bus painting
  - Sign production
  - Driver training
  - Travel training
  - Procurement
  - Fare collection technology
  - Technology/ITS procurement
  - Data collection and management
  - Public information
  - Planning expertise

  In many cases, it is likely that the MBTA and the larger RTAs would become the Centers for Excellence as they currently have the largest technical capabilities. However, in some cases, such as NRTA's implementation of smartphone based real-time passenger information, smaller RTAs could also become Centers of Excellence.

It should also be noted that the same approach would not need to be used for each issue (and it would likely not be appropriate to use the same approach). Examples of different ways that collaboration could work include:

- The MBTA and the RTAs could work through the MassDOT/RTA Council or MARTA to address regional service needs, service delivery approaches, and cost sharing agreements. As examples:
  - The MBTA currently provides bus service in RTA areas (for example , Bedford, Burlington, and Weston), and is proposing reductions in these services as a result of its financial problems. With appropriate cost-sharing arrangements, it may be possible for RTAs to operate some of these services at a lower cost, in which case more service could be preserved.
  - The MBTA is also proposing reductions in commuter rail service that operates between RTA areas and Boston. Again, which appropriate financial arrangements, it may be possible to offset some of those reductions with new RTA provided bus service to and from Boston.
- MassDOT, the MBTA, and the RTAs could work through the MassDOT/RTA Council to develop a consistent and mutually agreeable framework through which RTAs would manage outlying commuter rail stations.
- MassDOT could develop statewide initiatives in some areas such as Title VI compliance and blanket contracts for procurement.

- The MBTA and larger RTAs could provide services such as heavy maintenance, driver training, and bus painting for smaller RTAs.
- MARTA could work with RTAs on the joint purchase of fixed assets such as vehicles and shelters, services such as liability and health insurance, and fuel.
- The MBTA and individual RTAs could act as Centers of Excellence to provide assistance to other RTAs in specialized areas such as ITS implementation. For example, CCRTA and NRTA have the most advanced real-time passenger information systems, and PVTA is advancing a number of ITS initiatives, and these RTAs could share that expertise with others.
- The RTAs could work together through the MassDOT/RTA Council or MARTA to improve public information.

As described above, there are a number of ways that the RTA could collaborate. For discussion at the March Advisory Committee meeting:

1. Which types of collaboration would provide the greatest potential for improvement?
   - Planning for regional services
   - Management and operation of regional facilities
   - Assistance with regulatory requirements (especially Title VI)
   - Assistance with grant applications
   - Construction management
   - Vehicle heavy maintenance
   - Bus painting
   - Driver training
   - Travel training
   - Procurement (through blanket contracts or joint purchases)
   - Technology/ITS procurement
   - Others? What?
2. Which ones would provide less value but should still be pursued?
3. For those that should be pursued, which types of approaches should be considered?
   - MassDOT inititiative (as in Initiative 10 Improve MassDOT/RTA Collaboration)
   - Through MassDOT/RTA Council
   - Through MARTA
   - Through the development of Centers of Excellence
   - Direct work between two or more RTAs
   - Other?

For More Information

A Handbook for Coordinating Transportation Services – Volume I, Ohio Department of Transportation, Office of Public Transportation, October 1997, 2003 re-issue: http://www.dot.state.oh.us/Divisions/Planning/Transit/Pages/Publications.aspx

A Guide for Implementing Coordinating Transportation Systems – Volume II, Ohio Department of Transportation, Office of Public Transportation, October 1997, 2003 re-issue: http://www.dot.state.oh.us/Divisions/Planning/Transit/Pages/Publications.aspx

Regional Organizational Models for Public Transportation, TCRP Project J-11, Booz/Allen/Hamilton in association with Paul Bay, January 2011: http://www.apta.com/resources/reportsandpublications/Documents/Organizational_Models_TCRP_J11_Task10.pdf

Toolkit for Rural Community Coordinate Transportation Services, TCRP Report 101, Transportation Research Board, Jon E. Burkhardt, Charles A. Nelson, Gail Murray, David Koffman, 2004: http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_101.pdf

Washington State Transit Insurance Pool (website): http://www.wstip.org/default.aspx

Southern California Regional Transit Training Consortium (website): http://www.scrttc.com

INITIATIVE 10:
IMPROVE MASSDOT-RTA COLLABORATION

Defined Roles, Current Practice, and Practices in Other States

Like most states, Massachusetts has both a statewide Department of Transportation (DOT) overseeing different modes of transportation, and numerous independent transit operators providing services in urban and rural environments. The relationship between these DOTs and transit operators varies depending on enabling legislation, administrative structure and funding relationships.

In Massachusetts, the Regional Transit Authorities (RTAs) operate as independent authorities, yet rely on the state for fiscal contributions as codified in M.G.L. Chapter 161B. This law also provides the state with certain oversight responsibilities. Creation of the Massachusetts Department of Transportation (MassDOT) in 2009 introduced a new administrative structure and policy into the state transportation arena. New roles and responsibilities were defined within Chapter 25 of the Acts of 2009[78], but have yet to be fully promulgated or put into practice. Because of this, and differences with regard to how state funding should be allocated, the working relationship between the MassDOT and the RTAs has been strained and to date, less collaborative than in other states.

Better defined roles and responsibilities would ensure more realistic expectations, and a basis from which MassDOT and the RTAs could more successfully collaborate to serve the customer and protect the interest of the taxpayer. Identifying common goals and working as a team to achieve these goals should create the opportunity to provide better service, increase ridership, improve facilities, and operate with increased efficiency.

Defined Roles and Current Practice in Massachusetts

M.G.L. Chapter 161B – Regional Transit Authorities

M.G.L. Chapter 161B defines the process by which RTAs may be formed or expanded within the Commonwealth, as well as the duties, powers and limitations of these RTAs. The law also outlines the role and membership of RTA Advisory Boards and their ability to appoint administrators, approve budgets, and approve significant changes in service or fares.

Additional responsibilities, roles and duties of the RTAs, as defined in Chapter 161B and that have specific impact on their relationship with the Commonwealth, include:

- RTAs may accept state (or federal) grants or loans, but must accede to such conditions and obligations that may be imposed as a prerequisite to such funds.
- RTAs must seek approval from the Secretary of Transportation to issue bonds, use their Reserve Fund or use their Stabilization Fund.
- RTAs are directed to determine the net cost of service and local assessment levels in accordance with sound accounting practice and guidelines developed in consultation with MassDOT.
- RTAs are directed to consult with MassDOT to prepare an annual program for mass transportation, including a long range program for the construction, reconstruction or alteration of facilities together with a schedule for implementation and comprehensive financial estimates of costs and revenues.

[78] Chapter 25 of the Acts of 2009, *An Act Modernizing the Transportation Systems of the Commonwealth*, served to update M.G.L. Chapter 6C outlining the duties and roles of the Massachusetts Department of Transportation.

- RTAs must provide annual reports to both the Secretary of Transportation and the MA Legislature.

Specific duties and powers of the Commonwealth, as outlined in Chapter 161B, include:

- Pay 50% of the RTAs' Net Cost of Service and debt service (unless revenues of the RTA are sufficient to cover outstanding debt).
- Impose provisions to be included in operating contracts between RTAs and private operators to ensure efficient operation, and minimum burden on the Commonwealth, and the cities and towns within each RTA. These conditions are also intended to ensure contract assistance is provided for projects which are consistent with the program for public mass transportation for each RTA.
- Perform biennial audits of RTAs.
- Establish guidelines for the distribution of bond funds among the RTAs; the State is directed to ensure aggregate bonding does not exceed $20 million at any one time, with 75% of bond proceeds going to match federal or other non-state funding.
- Take actions related to securing federal assistance for the RTAs, such as filing applications, supervising the expenditure of federal funds and complying with federal requirements.

Chapter 161B also establishes an RTA Council for the purposes of coordination and sharing information and best practices in matters of security and public safety, service delivery, cost savings, and administrative efficiencies. Council membership is to include each RTA Administrator, with the Secretary serving as chairperson and the General Manager of the Massachusetts Bay Transportation Authority serving as a non-voting member. The Council is directed to meet no less than once each calendar quarter or upon the request, with reasonable notice, of the Secretary.

Chapter 25 of the Acts of 2009 – MA Department of Transportation

Chapter 25 of the Acts of 2009 defines the constitution and powers of the Massachusetts Department of Transportation (MassDOT). Section 30(b) of this chapter clearly states that "any regional transportation authorities established under Chapter 161 or 161B shall be within the jurisdiction of the department." Section 53 further gives MassDOT's Transit Division responsibility for overseeing, coordinating and planning all transit and rail matters throughout the Commonwealth, including intercity bus, the MBTA, the RTAs, and the RTA Council.

The following summarizes specific MassDOT responsibilities, roles and duties that reference or relate to the RTAs:

- Direct and administer transit programs, and the planning, design, construction and improvement of transportation facilities, and related infrastructure.
- Adopt regulations and procedures for the administration of Chapter 25. Review and recommend changes in laws, rules, programs and policies of the Commonweath and its agencies to further transportation financing, infrastructure and development.
- Act as the central entity and coordinating organization for transportation initiatives on behalf of the Commonwealth and work in collaboration with other entities to advance interests and investments in transportation.
- Enter into agreements with authorities to improve efficiency and program effectiveness and to preserve fiscal resources. Promote economy and efficiency; and, leverage federal funding and private investment.
- Develop and administer the long-term statewide transportation plan; develop a process, procedures and criteria for transportation project selection.
- Administer the Massachusetts Transportation Trust Fund (MTTF).

- Enter into agreements with public and private entities dealing with transportation to distribute and provide for leveraging of monies for promoting overall economic growth.
- Provide assistance to local authorities to maximize opportunities for transportation and development initiatives.
- Ensure regional equity related to transportation planning, construction, maintenance, capital improvement, development and funding.

Chapter 25 also outlines the structural relationship between MassDOT and regional planning entities regarding transportation planning and project development. MassDOT's Office of Transportation Planning is established as the principal source of planning for *state-level* transportation projects; the Office is further directed to work with regional planning agencies, which remain the principal source of planning for *local and regional* projects. MassDOT is also directed to cooperate with RTAs to support local and regional planning, deliver transportation programs and execute demonstration projects.

MassDOT is responsible for preparing a statewide intermodal transportation plan to improve and maintain facilities and equipment and to ensure the equitable allocation of investments across regions. This plan is to include transportation improvement projects for all RTAs, as well as an analysis to identify ways in which each RTA can improve the efficiency of existing service, and provide new or expanded services to the communities.

Chapter 25 also provides MassDOT with several coordinating roles on the administrative level to promote the overall efficiency of transportation delivery in the Commonwealth. Specifically, MassDOT is directed to:

- Function as a single agency to consolidate human resources, financial management, information technology, legal, procurement and asset management.
- Require divisions to establish program goals and a performance measurement system; MassDOT is to publish an annual Scorecard using this information and to report on progress to improve the effectiveness of service delivery and project development.
- Use performance criteria to determine the quality of service provided by all private entities that deliver transportation services on behalf of the department and to use these performance measures as criteria in negotiating contracts.
- Establish and operate an asset management system for all divisions to report on condition, and to oversee and coordinate the maintenance, preservation, reconstruction and investment in these assets.
- Utilize life-cycle costing in all project planning and selection in order to demonstrate that sufficient revenues exist or will be generated to maintain assets in a state of good repair.

Massachusetts Association of Regional Transit Authorities (MARTA)

The Massachusetts Association of Regional Transit Authorities (MARTA) is a non-profit organization that represents Massachusetts' 15 RTAs. MARTA works closely with the RTAs and often serves to present MassDOT and the Legislature with updates on RTA accomplishments, as well as serving as a voice on formal RTA positions on issues and concerns. MARTA also works with MassDOT on such initiatives as an annual joint conference sponsored by MARTA, MassDOT and the MA Rural Transit Assistance Program (maRTAP). The association is funded via RTA dues and is professionally staffed (one position).

Summary of Current Practice and Issues

M.G.L. Chapter 161B establishes the individual RTAs as independent operating authorities, yet also outlines formal reporting requirements to, and certain fiscal oversight responsibilites by the State. The

more recently enacted Chapter 25 places the RTAs under the jurisdiction of MassDOT, and provides the Department with a range of oversight and coordination roles related to the delivery of efficient transportation services throughout the Commonwealth. In general, these entities are functioning as prescribed and the Commonwealth is host to a multi-faceted and comprehensive transportation system.

However, there are a number of responsibilities that are not being performed. In addition, during the stakeholder interviews conducted at the beginning of the study, many stakeholders shared frustration with the lack of a working partnership and the presence of a general level of distrust between MassDOT and the RTAs. The following issues and challenges have been identified:

- **Unclear roles and responsibilities/roles not being performed as defined:** Certain roles and responsibilities defined in Chapters 25 of the Acts of 2009 and M.G.L. Chapter 161B are not being fulfilled. Whether this is due to inadequate funding, lack of staff resources or a happenstance of administrative priorities, this contributes to uncertainty and distrust. Directives from these two laws that do not appear to be carried out today include:

  Chapter 161B

  - MassDOT has not developed "provisions to be included in operating contracts between RTAs and private operators to ensure efficient operation, and minimum burden on the Commonwealth, and the cities and towns within each RTA."
  - The RTAs do not develop an annual "program for mass transportation" that defines a long-range program for mass transportation.
  - MassDOT does not ensure that contract assistance is provided for projects that are consistent with the RTAs programs for mass transportation.
  - The Commonwealth does not conduct biennial audits of the RTAs (only seven of the RTAs have been audited over the past ten years).
  - The RTA Council has not met since before the creation of MassDOT.

  Chapter 25 of the Acts of 2009

  - MassDOT has developed a process, procedures and criteria for transit project selection (as part of the long range transportation planning process), but this process is not completely in-line with allocations for funding for RTA capital projects.
  - MassDOT has not yet established an asset management system for transit.
  - MassDOT has not developed a performance measurement system, nor does it publish an annual Scorecard to report on transit performance.
  - MassDOT does not use life-cycle costing in project planning and selection for any assets other than vehicles.

  There is also some room for interpretation in how these directives should be carried out. It would be helpful if MassDOT were to provide clear guidance on what should be included in each RTA's "annual program for mass transportation," and what sort of data should be reported in terms of asset condition, life-cycle costs, performance data, etc.
- **Lack of mutually agreed upon goals:** While the MA Statewide Transportation Program identifies statewide goals, none have been specifically articulated with respect to regional transit services. If common goals could be mutually agreed upon, MassDOT and the RTAs would have a clear vision and direction and could better work together.
- **MassDOT and RTAs do not currently work as a team:** RTAs fall under MassDOT's jurisdiction, but are not necessarily treated as "part of the team." For example, RTAs should be routinely and expressly invited to partake in training and to take advantage of technical assistance offered to other MassDOT divisions. At the same time, a different approach would be for

MassDOT to play a more limited coordination and oversight role, provide funding and then let the RTAs use it as they see fit.

- **Lack of coordination and leadership on statewide transit initiatives:** MassDOT periodically updates the Long Range Transportation Plan and actively participates in regional planning efforts. However, there have been few successful examples of statewide transit initiatives. For example, many RTAs have moved to implement AVL technology, but most have procured different equipment technologies, minimizing the opportunity for systems integration.
- **Ineffective channels of communication:** Despite open lines of communication and periodic opportunities to interact, stakeholders on either side do not feel as though their voices or concerns are being heard or addressed. Some have developed personal relationships and feel as though they can obtain feedback and get issues resolved, while others have no confidence that critical matters will be handled quickly. This is true regardless of whether it is MassDOT or an RTA that is looking for information, input or a response.

  The RTA Council has not met for several years, and not since the creation of MassDOT. However, it is not clear that the council previously served as an effective venue for communication. Prior to reform, the council served primarily to encourage coordination between the RTAs and the MBTA. There were several factors that limited the effectiveness of this group:

  – The RTAs and MBTA have different needs and priorities. While the RTAs may have been looking to the State/MBTA for technical guidance, assistance and issue resolution, the MBTA often sent different representatives to these meetings and provided little continuity.
  – RTA administrators are generally well versed in most technical aspects of their business, while the MBTA staff tended to be more specialized in one area, such as planning, finance, fare collection, etc. This made it challenging to get appropriate information or make decisions on a specific issue if the MBTA representative was not involved in the topic.
  – Topics were not of interest to everyone. For example, not all RTAs were interested in coordination with the MBTA at commuter rail stations.
  – The areas identified for collaboration did not necessarily reflect the day-to-day priorities of the RTAs. It was often easier for RTA Administrators to work through and solve an issue on their own, rather than wait to develop a joint, statewide solution.
  – Quarterly meetings of one hour duration did not provide enough time to address issues, and there was effectively no staff resources available to work on issues in between meetings.

  MassDOT has indicated an intent to reestablish this group, although no specific date, format or agenda has been proposed as of yet.

  MARTA appears to have stepped in to take up more of a coordination role, often communicating with MassDOT on behalf of the RTAs. However, in confidential interviews with RTA Administrators in the fall of 2011, several indicated that although they value the collective voice that MARTA provides, they also desire to strengthen direct communication between MassDOT and the RTAs.

Best Practices From Other States

As stated earlier, the relationships between DOTs and transit operators across the United States vary depending on enabling legislation, administrative structure and funding relationships. Recognizing these differences, the focus of the following best practice evaluation was not on administrative structure or particular responsibilities, but on how the DOTs and transit operators work cooperatively to establish and achieve common goals, and how the DOTs help to foster a more collaborative and productive working relationship. Examples are provided below.

State DOT Staffing

Throughout this study, the RTAs have voiced frustration that MassDOT does not respond to RTAs in a timely manner on issues ranging from requests for information, clarification, the use (or lack thereof) of the information they provide, and in fulfilling responsibilities that are required of them, or that they have assumed. Recent examples cited by the RTAs include broken links on MassDOT's RTA web page, and Google Transit data not being updated. Many RTAs have expressed many frustrations in dealing with MassDOT, and most of those believe that much of the problem is that MassDOT does not devote sufficient staff to its transit responsibilities.

At present, there are only three positions within MassDOT's Transit Office. Based on a quick review of what is done in other states (additional analysis is currently being conducted), MassDOT's transit staffing levels do appear to be low compared to those at other state DOTs:

- Colorado: 8
- Ohio: 14
- Minnesota: More than 30
- New York: 3 for just rural programs
- New Hampshire: 2 (for a state with relatively little public transit)
- Vermont: 4

Transit Policy Statements/Program Handbooks

Many states publish a comprehensive, one-stop source document on state transit programs. These documents detail overall program goals and policies, describe the roles and responsibilities of state and local stakeholders, and outline requirements for grant applications, reporting, and other tasks.

- Virginia's Department of Rail and Public Transportation (DRPT) regularly updates a Strategic Plan identifying agency goals and monitoring progress on key initiatives. The DRPT website has a dedicated page explaining how public transportation decisions are made, and the department regularly updates its *Public Transportation and Transportation Demand Management Grant Program Application Guidance*, which provides eligibility, project selection and procurement guidelines for both federal and state transit grant programs.
- The Iowa Office of Public Transit publishes a Transit Manager's Handbook, which provides detailed guidance on the role of the Iowa DOT, funding programs, planning and reporting requirements, and guidelines on contracting, procurement, capital management, vehicle operations, training, and federal compliance.
- Both Oregon and Minnesota are in the process of developing Transit Providers Handbooks. In Oregon, chapters on capital asset management and vehicle maintenance have been developed and are posted for public reference.

These documents give local transportation providers procedural guidance and an overview of programmatic rules and deadlines that must be met. However, given that most local transportation providers are generally cognizant of the policies and program rules affecting their business, these documents are perhaps most helpful in providing the general public and other stakeholders with a clear and transparent overview of public transportation programs.

Technical Guidance and Support

As detailed in *Initiative 1: Develop Service Guidelines*, and *Initiative 2: Improve Service Planning*, many states issue guidance for service design and evaluation. Many offer technical and compliance guidance in additional areas, including:

- Transit facility development guidelines / Minimum service guidelines
- Procurement guidelines and sample RFP templates
- Federal compliance (e.g. vehicle disposition guidelines, sample Drug & Alcohol policies)
- Vehicle maintenance and inspection guidelines

Other states offer more innovative and unique mechanisms to support local transit providers, as follows:

- The North Carolina Department of Public Transit issues guidance on performance based management, including performance-based budgeting, billing methods that encourage performance, and fiscal management guidelines. These guidelines include a rate setting model to calculate the fully allocated cost of providing community service and how to set rates (e.g. rate per mile).
- Both North Carolina and Oregon hold periodic workshops on their online grant management systems.
- The Ohio DOT conducts Technical Assistance Reviews for each provider about every four years. These reviews ensure grantees are in compliance with federal and state rules, and provide the opportunity for the state to learn more about each local program.
- The Washington State DOT (WSDOT) offers a Peer Review Program in partnership with the State Transit Association and the Community Transportation Association of the Northwest. **Participation is voluntary** and is initiated by a request to the Public Transportation Division. These reviews can encompass an entire agency's operations or simply one technical element. For example, one operator requested a peer review of its paratransit operation. WSDOT assembled a team of experts from other systems that performed on-site and off-site reviews and produced a report containing 74 recommendations to save money and improve performance.
- WSDOT also helps to organize community coordination, and reviews draft engineering plans, environmental documents, and studies.

Technical guidance is helpful because many transit providers have minimal staff and cannot affordably maintain technical expertise for special projects or actions that only occur periodically. Furthermore, technology and federal compliance rules are constantly evolving, and it is often difficult to keep up with state-of-the-art practice. State DOTs can provide a helpful resource in maintaining centralized expertise, or helping to locate such expertise when needed.

Since local control is often desired, technical guidance is often optional, and is provided in the event that local providers wish to make use of it. Yet, it is still important to have clear guidelines established at the state level to provide direction for providers who develop their own programs for procurement, maintenance, etc.

Coordination with Statewide Transit Associations

Many states, like Massachusetts, have public transit associations that monitor legislative activities, hold conferences and share technical advice. Many actively engage the state DOT in their regular meetings. Some states work more closely with state DOTs on specific issues or programs. Other association activities include:

- The Washington State Transit Association partners with WSDOT on the Peer Review Program (described above) and also worked with WSDOT to develop a framework for the statewide asset management system, ensuring any new protocols would work well with existing provider maintenance programs.

- The Arkansas State Transit Association maintains a training center and partners with the state DOT to provide specialized passenger and paratransit training programs that cover a variety of safety and operating issues.
- The Colorado Association of State Transit Agencies serves as CDOT's administrator for the state Rural Transit Assistance Program.

Public Transit Advisory Committees

While transit provider associations and regional planning agencies provide valuable insight and input into the delivery of public transit, many states also convene public transit advisory committees (PTACs). These groups are typically composed of a broader range of stakeholders in order to introduce more wide-ranging perspectives on issues and programs.

- The Washington state PTAC is comprised of representatives from transit agencies, cities, counties, regional transportation planning organizations, associations and the Washington State Commute Trip Reduction Task Force. They advise WSDOT's Public Transportation Division on a variety of topics, including a regional mobility grant program.
- The Oregon PTAC provides a forum for transit stakeholders to communicate with the Oregon Transportation Commission and Oregon DOT. Membership includes 17 representatives of transportation providers and other interests. The PTAC reviews and makes recommendations on policy issues and investment options affecting mobility in Oregon, and provides a venue to discuss issues and solutions with regional or statewide significance. The agenda is developed based on PTAC and staff input.
- The Texas PTAC is made up of public transportation providers and members of the general public. The committee's primary responsibilities include advising the Texas Transportation Commission on the needs of public transportation providers, advising the commission on the allocation of funds, and commenting on rules affecting the delivery of public transportation.

Training & Skills Development

Most local public transit providers have limited staffing and a broad range of operating and technical responsibilities. It is difficult to develop and manage training to cover all technical areas, or to establish skill sets to handle issues that only arise periodically. Also, many local transit providers find it difficult to find employees with appropriate skills for the transit industry. Several states offer support to address these issues:

- **The North Carolina DOT** offers an apprentice program in public transportation management, matching recent undergraduates with public transit providers. It is a one-year paid apprenticeship eligible for recent graduates of any NC college or university. The Public Transit Division works with the local transit provider to help supervise these apprentices. A similar program funds a 12-month part-time internship for graduate students, and typically involve some sort of research effort or completion of a special project.
- **The Iowa Office of Public Transit** provides training reimbursement to designated transit systems and planning agencies through its Transit Fellowship Program. Fellowships for small agencies are funded through the Rural Transit Assistance Program, while fellowships for large urban transit systems or MPOs are funded through the State Transit Assistance program.
- **The Washington State Transportation Training Coalition** was formed in 1997 with the goal of reducing training duplication and increasing cost-effectiveness. In addition to offering training, the Coalition develops statewide training policies and manages the resources for

training. The Coalition includes representatives from WSDOT, the State Transit Insurance Pool, the State Transit Association, and Community Transportation Association of the Northwest.

In Massachusetts, the Brockton Area Transit Authority (BAT) has established an internship program with Massasoit Junior College to develop skilled labor in the area of transit vehicle maintenance. Expansion of this program to a statewide initiative could provide positive efficiencies for the RTAs and MassDOT.

Statewide Transit Initiatives

Opportunities to achieve operating or cost efficiencies can be realized through the development of statewide transit initiatives, using a more coordinated approach to procurement, the implementation of new technologies, asset management or other programs. State DOTs are well positioned to take the lead on such strategic initiatives.

- Many states have developed statewide transit technology plans or Intelligent Transportation Systems (ITS) plans. North Carolina developed a statewide technology plan and a policy to qualify for implementation funding. Virginia has an ITS Strategic Plan in which the Department of Rail and Public Transit assumes a lead role to coordinate ITS development among local transit providers, helping to facilitate the proliferation of interoperable systems across the state. Iowa has developed a statewide ITS deployment plan.
- Joint procurement initiatives are used to secure better unit pricing on equipment purchases and to ease the administrative process for small agencies. The Connecticut DOT coordinates a statewide insurance consortium to provide vehicle coverage for transit providers throughout the state. CTDOT also coordinates a consortium for the administration of a statewide drug & alcohol testing program for 41 different transit providers.
- As detailed in *Initiative 3: Improve Capital Planning*, many states have performed statewide needs assessments to help identify overall transit system needs and to establish priorities for investment. Others have developed statewide asset management systems and/or tools to assist local transit providers to inventory and assess the condition of their assets.

MassDOT has taken some action within each of these areas, (e.g. working with RTAs to coordinate statewide utilization of Charlie Card fare technology), but there is ample opportunity to further develop and coordinate in each of these areas.

Summary of Best Practices

In many states, the DOT has developed clear protocols and guidelines, and a variety of means to support the needs of local transit providers. The content or format of these offerings is not the defining factor in whether the DOT-provider relationship will be productive and respectful; the critical factor is that the DOT takes a strong leadership role in establishing and implementing statewide transit policies and goals, and assisting local providers to meet these goals. In return, local transit providers respect the established rules and look to the DOT to provide technical assistance and guidance in better managing resources and serving their customers.

Key elements in successful DOT-provider relationships appear to include:

- Transparency
- Clear articulation of program objectives and mutual goals
- Partnership/working together to achieve these common goals
- Active engagement and direct professional interaction (e.g. DOT staff making time to meet with local providers and better understand their challenges and needs, and providers attending presentations and other meetings to understand state and federal rules and policies.)

- Innovation: identifying problems, testing solutions, and if successful, sharing them with others
- Support/Guidance in terms of capital planning, funding applications, implementing technology, training, procurement, etc, and the proper staffing levels to provide that support.
- Respect

Potential Improvements

Summary of Issues

1. MassDOT and RTA roles are defined by Chapter 25 of the Acts of 2009 and by M.G.L. Chapter 161B, yet not all responsibilities are being fulfilled as directed. In some areas, these laws are broad and leave room for interpretation. Lack of definition about roles and responsibilities results in different RTAs working through different channels, with different results. By clearly articulating state policy goals and by better defining specific planning, reporting and oversight roles and responsibilities, MassDOT can create greater opportunity for operating efficiencies and improved service delivery.
2. Other states direct, to a much greater extent than Massachusetts, the planning and reporting processes that local providers must undertake in return for receiving state operating and capital assistance. Many states provide detailed step-by-step program guidance for fulfilling these requirements either on a DOT website or in a published state transit program handbook. Requirements may include reporting on performance standards, conducting periodic service evaluations or transit planning studies, tracking and reporting asset conditions, preparing feasibility studies prior to capital investment, and quarterly/annual reporting on performance and financial statistics.
3. Limited staffing resources at both MassDOT and the RTAs underscore the need to develop a more effective partnership. In particular, limited staffing at MassDOT hampers the state's ability to provide in-depth fiscal oversight of state funding assistance, provide technical guidance and monitor program effectiveness.
4. Other states provide more guidance since most are working directly with small community transportation providers. Massachusetts RTAs are likely more knowledgeable and experienced than many of these small community operators, however they would still benefit from technical support and guidance. One local best practice example is the education program the MA Human Service Transportation office conducts with the RTAs who serve as brokers. Working with the Department of Public Health, MA HST helps to train brokerage staff, which in turn helps to establish good communication pathways between human service providers, clinics, brokers, and the HST office.
5. Poor Communication
   - There is a high level of frustration among most parties regarding the ability to communicate and get results.
   - There is a need for greater direct communication between MassDOT and the individual RTAs, as well as formal protocols for communicating with the group as a whole.
   - The roles of MARTA and the RTA Council need to be clearly defined. The RTA Council would be more successful if the agenda includes issues of mutual interest and if appropriate time and resources are dedicated to ensure appropriate solutions can be developed.
6. Lack of Partnership

- MassDOT and RTAs don't always work together as a "team"

- Need to identify mutually agreed upon goals, so everyone is working on a common mission to serve the customer and Massachusetts taxpayer.

More clearly defined goals, roles and responsibilities could improve the working relationship between MassDOT and the RTAs and, in turn, improve the delivery of transit services in the Commonwealth.

Actions to Consider

1. Beyond what is required by Chapters 25 and 161B, how can roles and responsibilities be better defined:
   - Develop procedural guidelines and calendars with critical deadlines?
   - Define roles and responsibilities with respect to funding, service delivery, planning, asset management and performance measurement?
   - Identify directives in Chapters 25 and 161B that are not being fulfilled?

2. How can MassDOT and RTAs work more as a team, or partners in delivering public transit in MA?
   - Encourage RTA staff to become involved in MassDOT employee training and other initiatives? For example:
     - MassDOT's "*How Can I Help you Today*?" training, a department-wide training program for front line employees to ensure customer service excellence throughout the Commonwealth. Six to eight sessions are held around the state each month and are anticipated to continue for at least another year. To date, the MBTA, Registry of Motor Vehicles (RMV), MassHighway and Mass Bay Commuter Rail (MBCR) have participated. Should RTA employees be invited to join?
     - MassDOT's *Universities Initiative* will be holding two-day leadership training programs for all senior managers. Should RTA Administrators be invited to attend?
   - Share expertise in other areas (procurement, training, federal compliance, technology, etc.)?

3. Is current MassDOT staffing sufficient to provide the oversight and support roles given to the Department under Chapter 25 or the Acts of 2009?

4. How can communications be improved?
   - Reconvene RTA Council in a more meaningful manner than in the past? How should the format of Council meetings be structured to ensure it provides value by addressing relevant issues at a constructive level?
   - More direct interaction between MassDOT and the RTAs rather than through MARTA?
   - Provide more opportunities for individual MassDOT-RTA meetings?
   - Strengthen RTA role within MPOs? How?

For More Information

M.G.L. Chapter 161B:
http://www.malegislature.gov/Laws/GeneralLaws/PartI/TitleXXII/Chapter161b

Chapter 25 of the Acts of 2009:
http://www.malegislature.gov/Laws/SessionLaws/Acts/2009/Chapter25