massDOT   AECOM

Comprehensive Regional Transit Plan Update 2020

Greater Attleboro-Taunton Regional Transit Authority

GATRA

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Acronyms

ACD	Automatic Call Distribution
ACS	American Community Survey
ADA	Americans with Disabilities Act
APC	Automatic Passenger Counter
APTA	American Public Transportation Association
AVL	Automatic Vehicle Locator
BAT	Brockton Area TransitBEB Battery Electric Bus
BRMPO	Boston Regional Metropolitan Planning Organization
CAD	Computer-Aided Dispatch
CARES	Coronavirus Aid, Relief, and Economic Security
CCRTA	Cape Cod Regional Transit Authority
CHST	Coordinated Human Service Transportation Plan
COA	Council on Aging
COVID	Novel Coronavirus of 2019
CRTP	Comprehensive Regional Transit Plan
CTAA	Community Transportation Association of America
DAR	Dial-A-Ride
EPA	United States Environmental Protection Agency
FRTA	Franklin Regional Transit Authority
FTA	Federal Transit Administration
FY	Fiscal Year
GATRA	Greater Attleboro-Taunton Regional Transit Authority
GCAC	GATRA Consumer Advisory Committee
GHG	Greenhouse Gas
GWSA	Global Warming Solutions Act
HST	Human Service Transportation
IVR	Interactive Voice Response
LEHD	Longitudinal Employer-Household Dynamics
LRTP	Long Range Transportation Plan
MAPC	Metropolitan Area Planning Council
MART	Montachusett Regional Transit Authority

MassDOT   Massachusetts Department of Transportation

MBTA   Massachusetts Bay Transportation Authority

MDT   Mobile Data Terminal

MOU   Memorandum of Understanding

MPO   Metropolitan Planning Organization

MVRTA   Merrimack Valley Regional Transit Authority

NSP   National Public Transportation Safety Plan

NTD   National Transit Database

OCPC   Old Colony Planning Council

OTP   On-Time Performance

PPRH   Passengers Per Revenue Hour

PTM   Professional Transit Management of Attleboro Inc.

RTA   Regional Transit Authority

RTAP   National Rural Transit Assistance Program

RTP   Regional Transportation Plan

SAIL   Seaside Area Inter-Link

SLOOP   Scituate Loop

SRPEDD   Southeastern Regional Planning and Economic Development District

SRTA   Southeastern Regional Transit Authority

TAM   Transit Asset Management

TERM   Transit Economic Requirements Model

TMA   Transportation Management Association

TNC   Transportation Network Company

TOD   Transit-Oriented Development

TVM   Ticket Vending Machine

ULB   Useful Life Benchmark

UPT   Unlinked Passenger Trip

VTA   Vineyard Transit Authority

WAV   Wheelchair Accessible Vehicle

Glossary

Access: The opportunity to reach a given destination within a certain timeframe or without significant physical, social, or economic barriers.

Accessible Vehicle: A public transportation vehicle that does not restrict access, is usable, and provides allocated space and/or priority seating for individuals who use mobility devices.

Americans with Disabilities Act (ADA): The Americans with Disabilities Act, passed in July 1991, gave direction to local transit agencies to ensure full access to transportation for persons with disabilities.

Boardings: The total number of passengers getting on a transit vehicle during a specified period of time. See also Ridership and Passenger Trip.

Capital Cost: The cost of equipment and facilities required to support transportation systems, including vehicles, radios, shelters, software, etc.

Central Transfer Point: A central meeting place where routes or zonal demand response buses intersect so that passengers may transfer. Routes are often timed to facilitate transferring and depart once passengers have had time to transfer. When all routes arrive and depart at the same time, the system is called a pulse system. The central transfer point simplifies transfers when there are many routes (particularly radial routes), several different modes, and/or paratransit zones. A downtown retail area is often an appropriate site for a central transfer point, as it is likely to be a popular destination, a place of traffic congestion and limited parking, and a place where riders are likely to feel safe waiting for the next bus. Strategic placement of the transfer point can attract riders to the system and may provide an opportunity for joint marketing promotions with local merchants.

Circulator: A bus that makes frequent trips around a small geographic area with numerous stops around the route. It is typically operated in a downtown area or area attracting tourists, where parking is limited, roads are congested, and trip generators are spread around the area. It may be operated all-day or only at times of peak demand, such as rush hour or lunchtime.

Commuter Bus Service: Transportation designed for daily, round-trip service, which accommodates a typical 8-hour, daytime work shift (e.g., an outbound trip arriving at an employment center by 8 AM, with the return trip departing after 5 PM).

Coordination: Coordination means pooling the transportation resources and activities of several agencies. The owners of transportation assets talk to each other to find ways to mutually benefit their agencies and their customers. Coordination models can range in scope from sharing information, to sharing equipment and facilities, to integrated scheduling and dispatching of services, to the provision of services by only one transportation provider (with other former providers now purchasing services). Coordination may involve human service agencies working with each other or with public transit operations.

Cost per Boarding: The total operating expenditures of a route or service divided by the number of total boardings.

Cost per Revenue Mile or Hour: The total operating expenditures of a route or service divided by the number of revenue miles or revenue hours.

Demand Response Service: Service to individuals that is activated based on passenger requests. Usually passengers call the scheduler or dispatcher and request rides for dates and times. A trip is scheduled for that passenger, which may be canceled by the passenger. Usually involves curb-to-curb or door-to-door service. Trips may be scheduled on an advanced reservation basis or in "real-time." Usually smaller vehicles are used to provide demand

response service. This type of service usually provides the highest level of service to the passenger but is the most expensive for the transit system to operate in terms of cost per trip. In rural areas with relatively high populations of elderly persons and persons with disabilities, demand response service is sometimes the most appropriate type of service. Sub-options within this service type are discussed in order of least structured to most structured, in terms of routing and scheduling.

- **Pure Demand Response Service**: Drivers pick up and drop off passengers at any point in the service area, based on instructions from the dispatcher. In pure demand response systems, the dispatcher combines immediate requests, reservations, and subscription service for the most efficient use of each driver's time.

- **Zonal Demand Response Service**: The service area is divided into zones. Buses pick up and drop off passengers only within the assigned zone. When the drop off is in another zone, the dispatcher chooses a meeting point at the zone boundary for passenger transfer or a central transfer is used. This system ensures that a vehicle will always be within each zone when rides are requested.

- **Flexibly Routed and Scheduled Services**: Flexibly routed and scheduled services have some characteristics of both fixed route and demand response services. In areas where demand for travel follows certain patterns routinely, but the demand for these patterns is not high enough to warrant a fixed route, service options such as checkpoint service, point deviation, route deviation, service routes, or subscription service might be the answer. These are all examples of flexible routing and schedules, and each may help the transit system make its demand response services more efficient while still maintaining much of the flexibility of demand responsiveness.

- **Microtransit**: A form of demand response service, open to the general public, that requires some type of "reservation," typically made via an app-based system. Typically, microtransit uses software algorithms to completely automate the scheduling of the trip, the fare collection (if any), and the route the driver will utilize (communicating with the driver via some type of mobile data terminals).

Deviated Fixed Route Service: Transit buses travel along a predetermined alignment or path with scheduled time points at each terminal point and in some instances at key intermediate locations. Route deviation service is different than conventional fixed route bus service in that the vehicle may leave the route upon requests of passengers to be picked up or returned to destinations near the route. Following an off-route deviation, the vehicle typically returns to the point at which it left the route. Passengers may call in advance for route deviation or may access the system at predetermined route stops. The limited geographic area within which the vehicle may travel off the route is known as the route deviation corridor.

Dial-A-Ride Service: A name that is commonly used for demand response service. It is helpful in marketing the service to the community, as the meaning of "dial-a-ride" may be more self-explanatory than "demand response" to someone unfamiliar with transportation terms.

Environmental Justice: Executive Order 12898, issued in 1994, requires agencies receiving federal funds to determine whether their programs, policies, and activities will have disproportionately high and adverse human health or environmental effects on minority or low-income populations.

Express Bus Service: Express bus service characteristics include direct service from a limited number of origins to a limited number of destinations with no intermediate stops. Typically, express bus service is fixed route/fixed schedule and is used for longer distance commuter trips. The term may also refer to a bus that makes a limited number of stops, while a local bus makes many stops along the same route but as a result takes much longer.

Farebox Recovery Ratio: The percentage of operating costs covered by revenue from fares and contract revenue (total fare revenue and total contract revenue divided by the total operating cost).

Fares: Revenue from cash, tickets, and pass receipts given by passengers as payment for public transit rides.

Federal Transit Administration (FTA): An operating administration within the United States Department of Transportation that administers federal programs and provides financial assistance to public transit.

Feeder Service: Local transportation service that provides passengers with connections to a longer-distance transportation service. Like connector service, feeder service is service in which a transfer to or from another transit system, such as an intercity bus route, is the focal point or primary destination.

Fixed Route: Transportation service operated over a set route or network of routes on a regular time schedule.

Headway: The length of time between vehicles moving in the same direction on a route. Headways are called short if the time between vehicles is short and long if the time between them is long. When headways are short, the service is said to be operating at a high frequency; if headways are long, service is operating at a low frequency.

Intercity Bus Service: Regularly scheduled bus service for the public that operates with limited stops over fixed routes connecting two or more urban areas not near, that has the capacity for transporting baggage carried by passengers, and that makes meaningful connections with scheduled intercity bus service to more distant points, if such service is available. Intercity bus service may include local and regional feeder services, if those services are designed expressly to connect to the broader intercity bus network.

Interlined Routes: When fixed routes are routed through a transfer center or some other terminal location and become another route, with passengers typically allowed to ride through from one route to another without an additional fare and/or transfer fee. The "interline" is typically identified on public materials.

Operating Expenditures: The recurring costs of providing transit service (wages, salaries, fuel, oil, taxes, maintenance, insurance, marketing, etc.).

Operating Revenue: The total revenue earned by a transit agency through its transit operations. It includes passenger fares, advertising, and other revenues.

Paratransit Service: "Paratransit" means the transportation of passengers by motor vehicle or other means of conveyance by persons operating on a regular and continuing basis and the transportation or delivery of packages in conjunction with an operation having the transportation of passengers as its primary and predominant purpose and activity but excluding regular route transit. "Paratransit" includes transportation by carpool and commuter van, point deviation and route deviation services, shared-ride taxi service, dial-a-ride service, and other similar services.

Boardings per Mile or Hour: Productivity measure that takes the total boardings and divides by the miles and/or hours operated. The hours and/or miles may be presented as either total vehicle miles or hours or as revenue miles or hours.

Passenger Trip (Unlinked): Typically, one passenger trip is recorded any time a passenger boards a transportation vehicle or other conveyance used to provide transportation. "Unlinked" means that one trip is recorded each time a passenger boards a vehicle, no matter how many vehicles that passenger uses to travel from their origin to their destination.

Performance Indicator: An indicator is a metric that provides meaningful information about the condition or performance of the transportation system but is neither managed nor used to evaluate the effectiveness of policies, strategies, or investments.

Performance Measure: A performance measure is a metric that measures progress toward a goal, outcome, or objective. This definition covers metrics used to make decisions or evaluate the effectiveness or adequacy of a policy, strategy, or investment.

Performance Target: A target is a specific performance level representing the achievement of a goal, outcome, or objective.

Point Deviation Service: A type of flexible route transit service in which fixed scheduled stops (points) are established but the vehicle may follow any route needed to pick up individuals along the way if the vehicle can make it to the fixed points on schedule. This type of service usually provides access to a broader geographic area than does fixed route service but is not as flexible in scheduling options as demand response service. It is appropriate when riders change from day to day, but the same few destinations are consistently in demand. Also sometimes called checkpoint service.

Public Transportation: Transportation service that is available to any person upon payment of the fare either directly, subsidized by public policy, or through some contractual arrangement, and that cannot be reserved for the private or exclusive use of one individual or group. "Public" in this sense refers to the access to the service, not to the ownership of the system that provides the service.

Revenue Hours: The number of transit vehicle hours when passengers are being transported. Calculated by taking the total time when a vehicle is available to the public with the expectation of carrying passengers. Excludes deadhead hours, when buses are positioning but not carrying passengers, but includes recovery/layover time.

Revenue Miles: The number of transit vehicle miles when passengers are being transported. Calculated by taking the total mileage operated when a vehicle is available to the public with the expectation of carrying passengers. Excludes deadhead mileage, when buses are moving but not carrying passengers.

Ridership: The total of all unlinked passenger trips, including transfers. One trip that includes a transfer would be counted as two unlinked passenger trips.

Ridesharing: A form of transportation, other than public transit, in which more than one person shares the use of a vehicle, such as a van or car, to make a trip. Variations include carpooling or vanpooling.

Section 5304 (State Transportation and Planning Program): The section of the Federal Transit Act of 1991, as amended, that provides financial assistance to the states for purposes of planning, technical studies and assistance, demonstrations, management training, and cooperative research activities.

Section 5307 (Urbanized Area Formula Program): The section of the Federal Transit Act of 1991, as amended, that authorizes grants to public transit systems in urban areas with populations of more than 50,000 for both capital and operating projects. Based on population and density figures, these funds are distributed directly to the transit agency from the FTA.

Section 5310 (Enhanced Mobility for Seniors and Persons with Disability): The section of the Federal Transit Act of 1991, as amended, that provides grant funds for the purchase of accessible vehicles and related support equipment for private non-profit organizations to serve elderly and/or people with disabilities, public bodies that coordinate services for elderly and

people with disabilities, or any public body that certifies to the state that non-profits in the area are not readily available to carry out the services.

Section 5311 (Non-urbanized Area Formula Program): The section of the Federal Transit Act of 1991, as amended, that authorizes grants to public transit systems in non-urbanized areas (fewer than 50,000 population). The funds initially go to the governor of each state.

Section 5339 (Bus and Bus Facilities): The section of the Federal Transit Act of 1991, as amended, that makes federal resources available to states and designated recipients to replace, rehabilitate, and purchase buses and related equipment and to construct bus-related facilities, including technological changes or innovations to modify low or no emission vehicles or facilities. Funding is provided through formula allocations and competitive grants. A sub-program provides competitive grants for bus and bus facility projects that support low and zero-emission vehicles.

Service Area: The geographic area that coincides with a transit system's legal operating limits (city limits, county boundary, etc.).

Service Gaps: When certain geographic segments cannot be covered by transportation services. This term can also refer to instances where service delivery is not available to a certain group of riders, or at a specific time.

Service Span: The duration of time that service is made available or operated during the service day (e.g., 6 AM to 10 PM on weekdays).

Spare Ratio: The percentage/number of vehicles that an operator purchases in excess of the number of vehicles required to provide the maximum level of service. The spares are required so that some vehicles may cycle through a preventive maintenance regimen while the full level of planned service can still be provided.

Standard: A recommendation that leads or directs a course of action to achieve a certain goal. A standard is the expected outcome for the measure that will allow a service to be evaluated. There are two sets of transit standards.

- **Service design and operating standards**: Guidelines for the design of new and improved services and the operation of the transit system.

- **Service performance standards**: The evaluation of the performance of the existing transit system and of alternative service improvements using performance measures.

State Contract Assistance: The program through which the RTAs receive state operating funding for transit at the discretion of the Massachusetts Legislature via the state budget process annually. The total amount of state contract assistance funding provided in the state budget is allocated to the RTAs via a formula developed with RTA input.

Through Routes: When fixed routes are routed through a transfer center or some other terminal location and become another route, but – unlike interlining – passengers are not typically allowed to ride through from one route to another, as a "through-route" is typically only visible/presented on the operating schedule for bus operators and is not identified on public materials.

Title VI: Title VI of the Civil Rights Act of 1964 requires that "No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."

Transportation Network Companies: Private sector companies that provide software routing, scheduling, and payment services to independent contractor drivers for a fee; these drivers then

utilize their own vehicles to provide a (typically) curb-to-curb transportation service, sometimes to sole riders and sometimes to pooled groups.

Total Operating Cost: The total of all operating costs incurred during the transit system calendar year, excluding expenses associated with capital grants.

Transfer: Passengers arrive on one bus and leave on another (totally separate) bus to continue their trip. The boarding of the second vehicle is counted as an unlinked passenger trip.

Transit Dependent: A description for a population or person who does not have immediate access to a private vehicle, or because of age or health reasons cannot drive and must rely on others for transportation.

Transit Subsidy: The operating costs not covered by revenue from fares or contracts.

Trip Denial: Occurs when a trip is requested by a passenger, but the transportation provider cannot provide the service. Trip denial may happen because capacity is not available at the requested time. For ADA paratransit, a capacity denial is specifically defined as occurring if a trip cannot be accommodated within the negotiated pick-up window. Even if a trip is provided, if it is scheduled outside the +60/-60-minute window, it is considered a denial. If the passenger refused to accept a trip offered within the +60/-60-minute pick-up window, it is considered a refusal, not a capacity denial.

Volunteers: Persons who offer services to others but do not accept monetary or material compensation for the services that they provide. In some volunteer programs, the volunteers are reimbursed for their out-of-pocket expenses; for example, volunteers who drive their own cars may receive reimbursement based on miles driven for the expenses that they are assumed to have incurred, such as gasoline, repair, and insurance expenses.

1.   Executive Summary

1.1   Introduction

This 5-year Comprehensive Regional Transit Plan (CRTP) update builds on the work of the Greater Attleboro-Taunton Regional Transit Authority (GATRA) 2015 Regional Transit Plan (RTP). This update was recommended by the Task Force on Regional Transit Authority Performance and Funding in its final report issued in April 2019.[1] The report included 24 recommendations in five categories:

- Investment and Performance
- Accountability
- Service Decisions
- Quality of Service
- Environmental Sustainability

The CRTPU recommendation (No. 7) was included in the service decisions grouping. Specifically, recommendation 7 advised that "RTAs will continue to succeed by understanding their markets and by aiming to have their service networks meet the current and future mobility needs of their region as well as support connectivity to other regions where possible. This effort will be guided by (1) the completion or updating of Comprehensive Regional Transit Plans (CRTPs) every five years…"

Following publication of the Task Force Report, a commitment to complete the CRTPU was included in GATRA's 2-Year Memorandum of Understanding (MOU) with the Massachusetts Department of Transportation (MassDOT) executed on August 14, 2019.

The primary goals of this CRTPU are to (1) provide an agency and service overview including fare structure; (2) identify essential markets, gaps in service, and ridership growth opportunities given demographic, socioeconomic, and employment data and the impacts of the novel coronavirus (COVID-19) pandemic; (3) evaluate the results of performance indicators and assess performance monitoring systems; and (4) provide recommendations for a strategic 5-year vision that will prioritize the development and implementation of a decision-making framework driven by data analysis and focused on performance.

> **GATRA Commits to Passenger, Operator, and Staff Safety during the COVID-19 Pandemic.**
>
> *"GATRA is committed to providing transportation service to our riders. We continue to work with our partners, other RTA's, the federal, state and local governments to safely provide transit services for those who need it"*
> *-Mark A. Sousa, GATRA Administrator*

The GATRA CRTPU started in December 2019 but took a profound and unexpected turn mid-way through the project. Following the kick-off meeting in January 2020, the process proceeded with data collection, goal development, and planning for community and rider engagement. However, by the middle of March 2020, when the engagement activities were scheduled to commence, the world experienced a historic pause due to the COVID-19 pandemic.

In response to the pandemic, on March 10, 2020, Governor Baker declared a state of emergency and subsequently issued a stay-at-home order on March 23, 2020, closing all non-essential businesses. These safety measures, issued in the

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[1] Task Force on Regional Transit Authority Performance and Funding, *A Vision for the Future of Massachusetts' Regional Transit Authorities*, April 2019, https://malegislature.gov/Reports/7917/SD2385_RTAtaskforceReport.pdf.

face of an unprecedented threat to public health, had serious, sweeping impacts, including on the development of this plan and transit operations writ large. GATRA, along with the other regional transit authorities (RTAs), suspended fare payment and reduced service levels, encouraging non-essential riders to temporarily discontinue travel.

While GATRA continues its return to normal service in accordance with public health guidelines, ridership is still depressed due to pandemic impacts such as distance learning, business closures and capacity limitations, remote work, furloughs, layoffs, and reluctance to use public transportation due to health safety concerns. In response to continued ridership volatility, this CRTPU acknowledges that there will be many uncertainties and challenges over the coming months and years and equips GATRA with data-driven and performance-focused recommendations so that the Authority will be able to adapt quickly to a volatile transit market and ensure success.

1.2   Overview of GATRA Services

GATRA operates across a 28 member community service area located in the southeastern portion of Massachusetts between Rhode Island and the Atlantic coastline. GATRA serves two major cities, Attleboro and Taunton, and 26 towns: Bellingham, Berkley, Carver, Dighton, Duxbury, Foxborough, Franklin, Hanover, Kingston, Lakeville, Mansfield, Marshfield, Medway, Middleborough, Norfolk, North Attleborough, Norton, Pembroke, Plainville, Plymouth, Raynham, Rehoboth, Scituate, Seekonk, Wareham, and Wrentham. GATRA is one of the 15 RTAs that, along with the Massachusetts Bay Transportation Authority (MBTA), operates public transportation in the Commonwealth.

GATRA operates 34 bus routes including 21 fixed routes, 3 deviated routes, 7 commuter shuttles, and 3 in-town shuttles. All 28 member communities have GATRA demand response (Dial-A-Ride [DAR]) services for people with disabilities and seniors. GATRA's newest addition, GATRA GO on-demand microtransit service in the Foxborough, Mansfield, and Plainville area, allows users to reserve rides via smartphone. GATRA's bus routes and demand response service is provided by 15 distinct service operators and operates with varying spans of service primarily on weekdays and Saturdays. Weekday service hours for bus routes span from approximately 5:30 AM to 6:30 PM and on Saturday's from 9:00 AM to 6:00 PM. Saturday service is not provided for any of the commuter shuttles in GATRA's service area and only two of GATRA's bus routes operate on Sundays.

GATRA has implemented a variety of service improvements over the last 5 years that support efforts to improve the customer experience and inform service improvements. Improvements include adding bus service, enhancing facilities, generating connections between RTAs, and beginning its microtransit service to further enhance mobility.

GATRA Service at a Glance

27 Bus Routes

7 MBTA Commuter Shuttles

GATRA GO Microtransit

28 Communities Served by Dial-A-Ride

1.3   Planning Process

The impacts and limitations imposed by the COVID-19 pandemic required flexibility in the approach for developing this 5-year plan. While some elements of the original process developed pre-pandemic remained viable, many had to be adapted to respond to the new

realities of COVID-19. From public outreach to fare policies analysis to the structure of the recommendations, this planning process incorporates considerations relating to uncertainty around how the future might unfold.

1.3.1 Review of Transit Services and Market Conditions

A review of service from the last 5 years and market demand analysis were conducted to identify gaps and needs in GATRA's service area. The analysis overall indicated that GATRA service is provided to areas where data indicate demand is highest. However, safety measures like remote learning and teleworking, along with furloughed workers and lay-offs, greatly disrupted GATRA's existing ridership patterns, making it difficult to infer future transit demand from past performance. This planning process brought to light the importance of harnessing new technology to conduct ongoing analysis of real-time data rather than focusing primarily on historical trends.

1.3.2 Scenario Planning

The project team used scenario planning exercises to imagine what the next 5 years might hold in terms of ridership and market demand. Two months after the state of emergency was issued, GATRA leadership participated in a brainstorming session centered around establishing key uncertainties in the face of the COVID-19 pandemic. Subsequent to that workshop, a high-ridership scenario (a return to 86 percent of pre-pandemic ridership), medium-ridership scenario (60 to 86 percent of pre-pandemic ridership), and low-ridership scenario (less than 60 percent of pre-pandemic ridership) were developed to inform the development of needs and recommendations. These scenarios formed the framework of the recommendations in this plan.

1.3.3 Public Outreach

Due to social distancing guidelines and other safety protocols resulting from the COVID-19 pandemic, no in-person outreach could be conducted. The bulk of the outreach for this CRTP was undertaken through an online stakeholder outreach survey conducted in the summer of 2020. Additionally, GATRA conducted a driver survey and stakeholder meeting with the GATRA Consumer Advisory Committee.

Five-hundred and thirty-one responses were collected from the various outreach methods, though it should be noted that the findings are not a statistically valid sample of GATRA riders or the region's residents (Figure 1). They should be used as a guide in the context of other public outreach and data analysis. Nonetheless, key takeaways that comport with other planning efforts include:

Figure 1. Outreach Summary
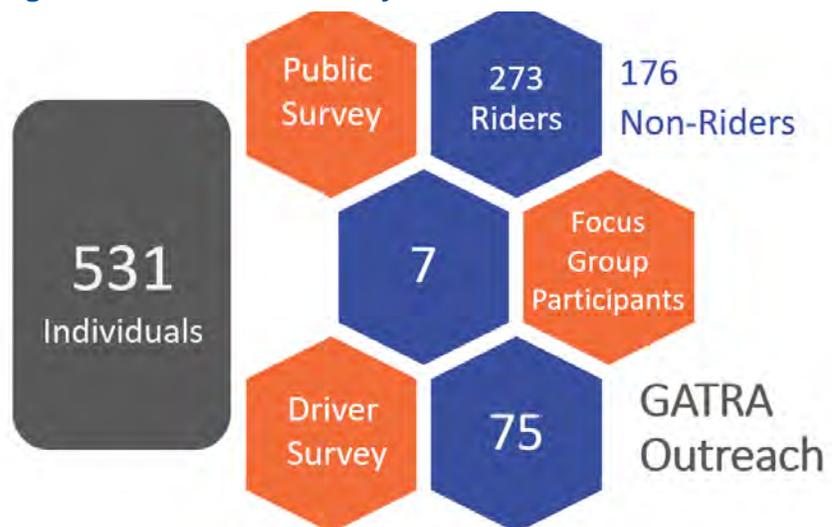
- Drivers and survey respondents identified the need for bus stop signage.
- Demand exists for service to the Raynham Walmart and Market Basket on Broadway.

- The fixed route service is fragmented and needs to be better connected.

- There is a need for demand response zones to increase cross community connections.

- Non-riders understand the value GATRA brings to the region even if they do not utilize the system.

1.4   Needs and Recommendations

GATRA's needs and recommendations were classified into the following seven overarching categories (Figure 2). GATRA identified a total of 72 needs and 56 recommendations to include in this plan, which GATRA will pursue in the next 5 years. Recommendations include expanding service, adjusting service hours, promoting GATRA services through existing technology, and procuring new technology to improve service. Further recommendations include hiring additional staff to measure, monitor, and create a data-driven process. The full list of needs can be found in Chapter 7 and recommendations in Chapter 8.

Figure 2. Classification Categories

General Bus Service
- 9 Needs
- 7 Recommendations

Capital
- 9 Needs
- 8 Recommendations

Demand Response
- 12 Needs
- 7 Recommendations

Technology
- 15 Needs
- 11 Recommendations

New Service
- 7 Needs
- 3 Recommendations

Policy
- 9 Needs
- 9 Recommendations

Other
- 11 Needs
- 11 Recommendations
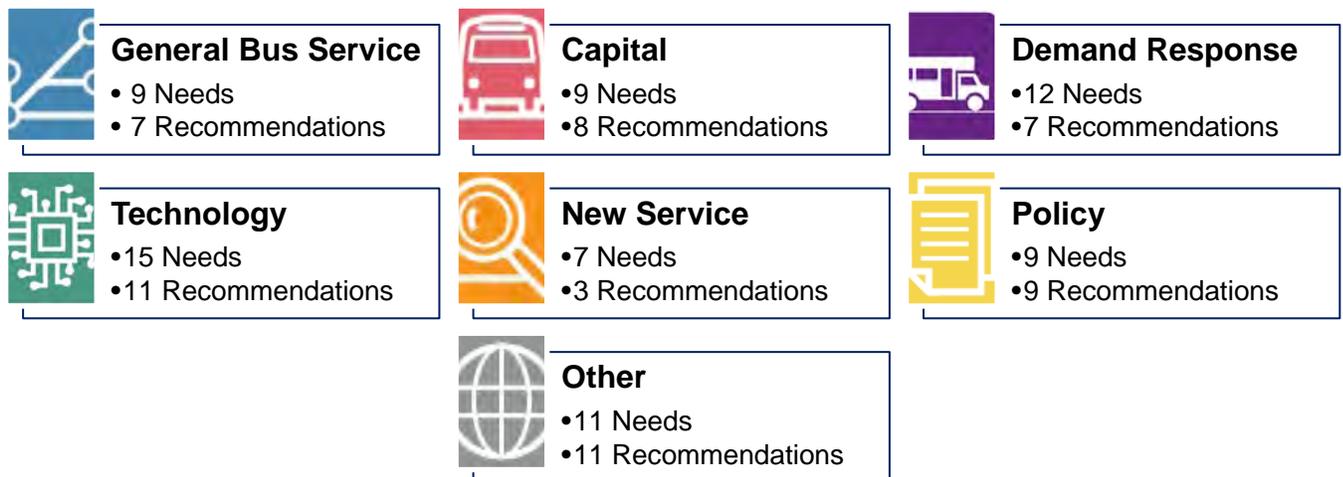
2. Background and 2020 Context

The 15 RTAs[2] provide vital mobility options and lifeline services to the millions of people across the Commonwealth outside of the Greater Boston region. The 2020 CRTP update process for the RTAs, funded by MassDOT, came out of Commonwealth-wide initiatives in 2018 and 2019, which prompted this plan update, most of which were last developed in 2015. The CRTPUs are both a result of and a contributor to the ongoing discussions on regional transportation. Recent and ongoing initiatives include the following:

- Governor's Commission on the Future of Transportation[3]
- A Vision for the Future of Massachusetts' Regional Transit Authorities[4] (RTA Task Force)
- Transportation & Climate Initiative[5]
- MBTA Fare Transformation[5]

The RTA Task Force Final Report Recommendation No. 7[6] was a primary driver for the development of this CRTPU. The CRTPU is carried as a commitment to GATRA's 2-year MOU with MassDOT signed in August 2019. In addition to the CRTPU, the MOU also contained commitments on performance metrics and targets, maintaining an up-to-date asset inventory, submitting a fare policy by December 2020, submitting a balanced budget annually, and reporting timelines. The GATRA MOU is discussed in more detail in Chapter 6.

The GATRA CRTPU process started in December 2019 but took a profound and unexpected turn mid-way through the project. Following the kick-off meeting in January 2020, the process proceeded with data collection, goal development, and planning for community and rider engagement. However, by the middle of March 2020, when the engagement activities were scheduled to commence, the world experienced a historic pause due to the COVID-19 pandemic.

In response to the pandemic, on March 10, 2020, Governor Baker declared a state of emergency and subsequently issued a stay-at-home order on March 23. The stay-at-home order, originally intended for 2 weeks, ended up lasting until May 18, 2020. As of the finalization of this plan in early 2021, the pandemic continues to disrupt services and negatively impact transit ridership. Given the unprecedented nature of this disruption and unknown long-term economic, social, and public health implications, the next few years will likely see continued widespread societal change. Therefore, transit agencies especially will need to continue to build a data-driven and performance-focused decision-making framework to respond to these uncertain demographic and industry trends.

This chapter provides background and current context around the CRTPU process for all RTAs. GATRA-specific contextual information is included in Section 2.2 and Section 2.3.

2.1 Background

Commonwealth-wide initiatives, organized generally around the themes of climate change, new technology, and providing affordable and convenient transportation options for all people, set the stage for the CRTPU process. The RTAs play an important role in getting people across the

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[2] Commonwealth of Massachusetts, "General Laws Chapter 161B: Transportation Facilities, Highway Systems, and Urban Development Plans," https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXXII/Chapter161B.
[3] Commission on the Future of Transportation, *Choices for Stewardship: Recommendations to Meet the Transportation Future*, 2018, https://www.mass.gov/orgs/commission-on-the-future-of-transportation.
[4] Task Force on Regional Transit Authority Performance and Funding, *A Vision for the Future of Massachusetts' Regional Transit Authorities*, April 2019, https://malegislature.gov/Reports/7917/SD2385_RTAtaskforceReport.pdf.
[5] Transportation and Climate Initiative, accessed 2020, https://www.transportationandclimate.org/.
[6] Task Force on Regional Transit Authority Performance and Funding, *A Vision for the Future of Massachusetts' Regional Transit Authorities*, April 2019, https://malegislature.gov/Reports/7917/SD2385_RTAtaskforceReport.pdf.

diverse regions of the Commonwealth to work, to school, and to essential services. Because of this role, the RTAs are pivotal in improving the public's mobility options as explored through the Commonwealth-wide initiatives described in this section.

2.1.1 Governor's Commission on the Future of Transportation

Established by Executive Order in January 2018, the Governor's Commission on the Future of Transportation (the Commission) was convened to explore the following topics across the Commonwealth and their impact on transportation between 2020 and 2040:

- Climate and Resiliency

- Transportation Electrification

- Autonomous and Connected Vehicles

- Transit and Mobility Services

- Land Use and Demographics

The Commission completed its work and released findings in December 2018 in a report entitled *Choices for Stewardship: Recommendations to Meet the Transportation Future.*[7] Findings from the report included:

- The Commonwealth is expected to grow by 600,000 residents by 2040 and job growth is also expected to continue.

- Commonwealth residents are on average older than in many other US states, and older adults are expected to comprise a larger portion of the population in the future.

- As with the national trend, transit ridership has been declining in recent years.

- Use of transportation network companies (TNCs) has increased dramatically in recent years.

- Connected and autonomous vehicles are expected to radically change transportation and mobility in the future.

- The impacts of climate change are happening sooner and more intensely than originally projected with significant implications by 2040.

- Transportation in the Commonwealth accounts for 40 percent of all greenhouse gas (GHG) emissions.

- Electric vehicles could be part of the solution to reducing transportation emissions, but would require significant infrastructure to implement.

The Commission used a scenario planning approach to itemize recommendations to prepare the Commonwealth's transportation system for the future. While many trends were evaluated for use in the scenario planning exercise, technology adoption as well as jobs and housing distribution were chosen as the two major trends that will most likely shape people's mobility options and needs. Based on the scenario planning trend analysis, the Commission then identified key challenges facing the Commonwealth's transportation system and developed recommendations across five categories to prioritize improvements over the next 20 years:

- Modernize existing state and municipal transit and transportation assets to more effectively and sustainably move more people throughout a growing Commonwealth.

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[7] Commission on the Future of Transportation, *Choices for Stewardship: Recommendations to Meet the Transportation Future*, 2018, https://www.mass.gov/orgs/commission-on-the-future-of-transportation.

- Create a 21st Century "mobility infrastructure" that will prepare the Commonwealth and its municipalities to capitalize on emerging changes in transportation technology and behavior.

- Substantially reduce GHG emissions from the transportation sector in order to meet the Commonwealth's Global Warming Solutions Act (GWSA) commitments, while also accelerating efforts to make transportation infrastructure resilient to a changing climate.

- Coordinate and modernize land use, economic development, housing, and transportation policies and investment in order to support resilient and dynamic regions and communities throughout the Commonwealth.

- Make changes to current transportation governance and financial structures in order to better prepare Massachusetts for the transportation system that it needs in the coming years and decades.

Within these five categories are a total of 18 recommendations on how to best prepare the Commonwealth's transportation network for challenges and opportunities through 2040. The recommendations will guide Commonwealth-wide systems, specific solutions, and transportation investments, and will have a profound impact on the RTAs over the next 20 years.

2.1.2 A Vision for the Future of Massachusetts' Regional Transit Authorities

Resulting from the Governor's Commission on the Future of Transportation initiative and directed by Outside Section 72 of the FY 2019 Massachusetts State Budget,[8] a Task Force on Regional Transit Authority Performance and Funding was established in the fall of 2018. The Task Force issued a final report entitled *A Vision for the Future of Massachusetts' Regional Transit Authorities: Report of the Task Force on Regional Transit Authority Performance and Funding* in April 2019.[9]

The report built on the first recommendation from the Commission, "Prioritize investment in public transit as the foundation of a robust, reliable, clean, and efficient transportation system." It set forth a path to stabilize, modernize, and improve the RTAs through five categories of action: Investment and Performance, Accountability, Service Decisions, Quality of Service, and Environmental Sustainability.

From those five categories, several goals related to the CRTPU emerged:

- Sign a mutually negotiated MOU with MassDOT on a plan for performance monitoring and development of performance targets.

- Complete the CRTPU and update every 5 years.

- Identify and evaluate a demonstrated community need for evening and seven-day service.

- Identify and evaluate appropriate transit services and potential partnerships based on level of demand and effciency.

- Develop pilot programs for innovative delivery models.

- Increase regional collaboration, including cross-RTA services.

- Collaborate with municipalities to provide safe walking and bicycle access to transit and comfortable, safe bus stops.

- Conduct a fare equity analysis every 3 years.

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[8] Commonwealth of Massachusetts. "Budget Summary FY2019." https://budget.digital.mass.gov/bb/gaa/fy2019/os_19/houtexp.htm.
[9] Task Force on Regional Transit Authority Performance and Funding, *A Vision for the Future of Massachusetts' Regional Transit Authorities*, April 2019, https://malegislature.gov/Reports/7917/SD2385_RTAtaskforceReport.pdf.

- Collaborate with the MBTA Fare Transformation process and adopt the proposed system.

- Participate in the Massachusetts Environmental Policy Act process.

- Maximize multimodal connectivity.

- Maintain an easily accessible website and robust social media presence.

- Collaborate with MassDOT and MBTA to integrate information services.

- Employ intentional outreach strategies.

- Purchase all zero-emission public buses by 2035.

Many of these goals are addressed and/or discussed as part of this CRTPU.

2.1.3 Transportation & Climate Initiative

Massachusetts is a participating state in the Transportation & Climate Initiative of the Northeast and Mid-Atlantic States:

> The Transportation and Climate Initiative (TCI) is a regional collaboration of Northeast and Mid-Atlantic states and the District of Columbia that seeks to improve transportation, develop the clean energy economy and reduce carbon emissions from the transportation sector. The participating states are Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Virginia, as well as the District of Columbia.

> The initiative builds on the region's strong leadership and commitment to energy efficiency and clean energy, and its programs to reduce carbon emissions in the power sector, which have resulted in the region becoming one of the most energy efficient areas in the nation. At the same time, the effort underscores the sense of urgency shared by all 12 jurisdictions, and their collective aspirations to become the leading region for sustainability and clean energy deployment in the country.

While the COVID-19 pandemic temporarily reduced congestion and associated pollution in the short-term, it has likely altered commuting patterns and housing choice in the long-term, which will have environmental and sustainability implications. As such, the need to reduce carbon emissions from the transportation sector is just as important as it was before the COVID-19 pandemic. Additionally, the COVID-19 pandemic highlighted racial disparities in exposure to air pollution and disproportionate impacts of threats to public health. To that end, the TCI jurisdictions are collaborating to develop a low-carbon transportation program that advances equity.

The TCI jurisdictions are collaborating to develop a regional agreement to cap pollution from transportation fuels and invest in solutions that result in reduced emissions, cleaner transportation, healthier communities, and more resilient infrastructure. Massachusetts TCI participation will likely impact the RTAs in several ways, including vehicles, infrastructure, technology, and funding.

In December 2020, Massachusetts joined with Connecticut, Rhode Island, and the District of Columbia to be the first jurisdictions to launch a multi-state program to reduce pollution and invest $300 million per year in cleaner transportation choices and healthier communities.[10]

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[10] Transportation and Climate Initiative. "Massachusetts, Connecticut, Rhode Island, D.C. are First to Launch Groundbreaking Program to Cut Transportation Pollution, Invest in Communities," December 2020, https://www.transportationandclimate.org/final-mou-122020.

2.1.4 MBTA Fare Transformation

Several RTAs are located adjacent to MBTA and/or connect to MBTA commuter rail service. As such, some RTAs use MBTA's CharlieCard/CharlieTicket fare media, while other RTAs are considering it. Therefore, in order to maintain fare interoperability, the MBTA Fare Transformation project will substantially impact the RTAs.

2.2 2020 Context

The year 2020 unfolded in a radically different manner than was anticipated. Because of the COVID-19 pandemic and the as-yet-unknown ways that the pandemic and its aftermath will permanently alter how, when, and where people travel, the CRTPU process had to be flexible and RTAs will need to be nimble, data-driven, and performance-focused in responding to an uncertain future. To that end, it will be critical for GATRA to continue building a data-driven and performance-focused decision-making and management framework to lean into and respond to the rapid changes that are expected to continue to impact the future of the transit industry. This data-driven and performance-focused approach will position GATRA for continued success.

2.2.1 COVID-19 Pandemic

Impacts to the transit industry from the COVID-19 pandemic in March 2020 included the following:

- Reduction of service due to diminished rider demand and driver availability, social distancing requirements and associated capacity constraints on transit vehicles, and reduced demand

- Loss of ridership due to business closures/disruptions, remote working and learning, increased popularity of online shopping and telemedicine due to safety concerns, and stay-at-home orders and advisories that have depressed demand for discretionary trips, student, and work trips

- Temporary suspension of fare collection or fare collection enforcement along with rear-door boarding by many operators

- Implementation of employee protection measures, such as plexiglass shields and distribution of personal protective equipment

- New rigorous public space cleaning protocols and the removal of seats and tables from transit facilities to discourage congregation

As a result of these impacts, ridership on systems across the country initially declined by up to 80 percent and has been rebounding slowly (Figure 3).

Figure 3. Change in Transit Demand (April 15, 2020–October 12, 2020)
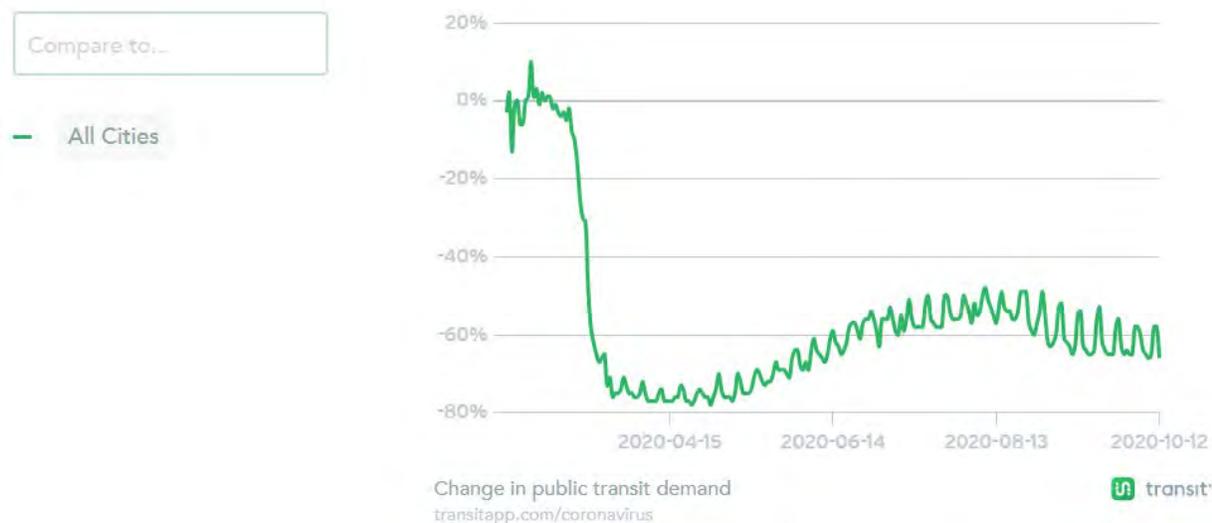
Source: Transit App

GATRA experienced a 72 percent decline in ridership in May, 58 percent decline in June, and 46 percent decline in July. As a result of COVID-19, GATRA purchased four air foggers to disinfect vehicle surfaces and added hand sanitizer units, driver barriers, and UV Air flow systems for two new buses. GATRA closed the GATRA Terminal Building and ceased collecting passenger fares. Additionally, GATRA recommended passengers and employees wear face coverings, practice social distancing, and for administrative staff to work from home. GATRA modified weekday fixed route service and ended afternoon service times at 5:00 PM for both fixed route and Americans with Disabilities Act (ADA) and non-ADA paratransit service. In the fall of 2020, GATRA had resumed collecting fares, expanded its Plymouth microtransit service, and re-opened its customer service window in the Terminal Building.

2.2.2 Federal Coronavirus Aid, Relief, and Economic Security (CARES) Act

GATRA has been able to continue to mitigate the financial impacts of the pandemic through funding from the federal Coronavirus Aid, Relief, and Economic Security (CARES) Act. The CARES Act has provided operating and capital funds for public transportation to mitigate lost revenue due to severe ridership decline, the suspension of fare collection, the implementation of cleaning and protection protocols, etc. The funding has been provided through the Federal Transit Administration (FTA) Section 5337 (capital – state of good repair), Section 5307 (urbanized area), and Section 5311 (rural areas) programs. For the RTAs, a total of $213.4 million was apportioned through the CARES Act with $15,634,793 provided to GATRA.

2.3 Plan Considerations

Given all the previous work that led to the development of the CRTPUs and the unprecedented, transformational conditions during which the CRTPUs were developed, the CRTPU process necessarily evolved through 2020. Considerations include the following:

- The 5-year period prior to the 2020 pandemic year, fiscal year (FY) 2015 to FY 2019, was considered for recent historical trend analysis to understand how the systems were operating prior to the pandemic and to provide a baseline for understanding the market for transit service in each community.

- Rider, community, public, and stakeholder outreach was primarily conducted online through a survey. GATRA and the study team also provided a phone-based option to participate in the outreach process for people without access to the internet or smartphones. As with all transit planning processes, outreach is one component of many that go into the identification of needs, solutions, and recommendations.

2.3.1 Transit Demand and Economic Uncertainties

Notwithstanding COVID-19 pandemic-related disruptions, for many years, transit ridership has been stagnant or declining nationally (Figure 4).[11] This trend has accelerated in the past few years, with most systems – and bus transit in particular – experiencing steady declines in ridership, despite a historically good economy. The American Public Transportation Association (APTA) attributes the decline to four broad categories: erosion of time competitiveness, reduced affinity, erosion of cost competitiveness, and external factors.[12] The erosion of time competitiveness is related to increasing traffic congestion and competing uses of street and curb space. Reduction in affinity refers to more competition for customer loyalty, and the erosion of cost competitiveness has to do with increasing costs without corresponding increase in demand for the service. And, finally, external factors are both the most challenging to define and to mitigate and include such things as policy changes that could improve transit usage but are too far-reaching for a transit agency alone to tackle.

Figure 4. National Change in Annual Ridership by Year for Bus, Rail, and All Modes (1985–2020)
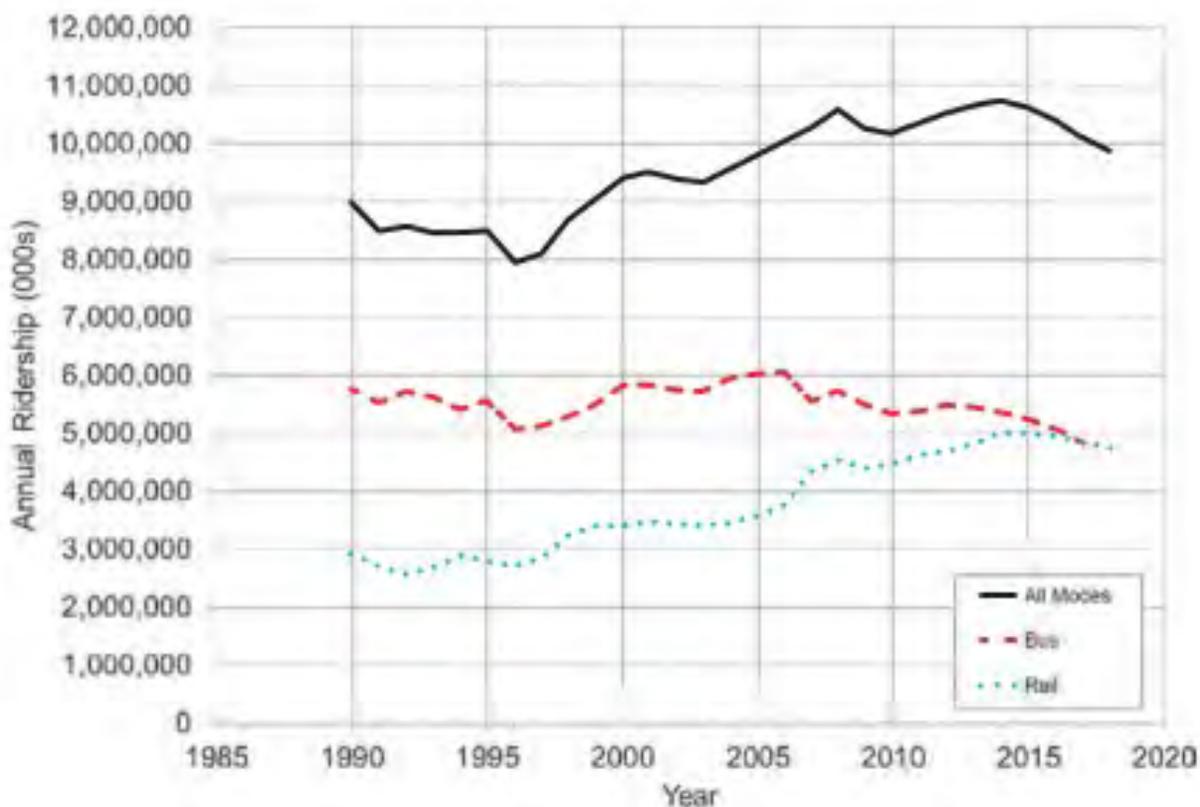
Source: TCRP Research Report 209, Analysis of Recent Public Transit Ridership Trends

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[11] National Academy of Science, Transportation Research Board, Transportation Cooperative Research Program, "TCRP Research Report 209: Analysis of Recent Public Transit Ridership Trends," http://www.trb.org/TCRP/Blurbs/179912.aspx.
[12] American Public Transportation Association (APTA), "Understanding Recent Ridership Changes," https://www.apta.com/research-technical-resources/research-reports/understanding-recent-ridership-changes/.

It is uncertain whether the pre-pandemic downward trends in transit ridership in recent years combined with the pandemic's negative impact on transit ridership will become a longer term pattern that will continue to depress transit usage. Pandemic trends potentially most impactful to GATRA include the increase in remote work and distance learning. Those trends could significantly impact the workforce and student ridership markets for commuter and express services as well as local routes that serve colleges and universities.

For all transit systems, including GATRA, public concern about the health impacts of shared ride services will remain a challenge. While public transit has instituted facial covering requirements, cleaning protocols, social distancing, and other mitigation measures, systems will also have to continue to reassure riders about the public health and safety of their services.

To monitor and lean into these trends and position the Authority for success, it will be critical for GATRA to use data tools to routinely analyze key system performance metrics and make service and financial decisions within the context of a performance-focused framework.

3.   Agency Overview

3.1   Transit Agency Background

GATRA was established in 1976 pursuant to the provisions of Chapter 161B of the General Laws of the Commonwealth of Massachusetts. The authority originally consisted of six cities and towns: the cities of Attleboro and Taunton and the towns of Rehoboth, Seekonk, Mansfield, and Norton. In 1978 GATRA operated its first fixed route transit service in Attleboro and quickly expanded service to Seekonk and Taunton. Now, nearly 40 years after it began its operations, GATRA serves 28 communities: the cities of Attleboro and Taunton, and the towns of Bellingham, Berkley, Carver, Dighton, Duxbury, Foxborough, Franklin, Hanover, Kingston, Lakeville, Mansfield, Marshfield, Medway, Middleborough, Norfolk, North Attleborough, Norton, Pembroke, Plainville, Plymouth, Raynham, Rehoboth, Scituate, Seekonk, Wareham, and Wrentham (Figure 5).

GATRA operates 34 bus routes, including 21 fixed routes, 3 deviated routes, 7 commuter shuttles, and 3 in-town shuttles. Fixed route service is primarily concentrated in the highly populated cities of Attleboro and Taunton as well as many towns on the east and west of the service area. GATRA also plays a vital role by providing shuttle or direct fixed route service to MBTA commuter rail stations in the towns of Franklin, Norfolk, Mansfield, Attleboro, Kingston, Plymouth, Hanover, and Middleborough.

GATRA provides demand response, reservation-based, DAR service throughout all 28 communities to meet the needs of people with disabilities and assist seniors as well as ADA paratransit services. ADA paratransit trips are for eligible riders[13] whose origin and destination are within ¾ mile of a fixed route bus stop. DAR is open to all seniors and those with a disability, with service community wide, but limited hours and destinations compared to the ADA paratransit service. GATRA also provides subsidized, reservation-based, long-distance transportation services for seniors, and people with disabilities through its Miles for Health, Med Wheels (in partnership with United Way of Greater Attleboro/Taunton), and Boston Hospital Bus programs. Its newest addition to demand response service was in 2019, as GATRA began operating its GO on-demand microtransit service in the Foxborough, Mansfield, and Plainville areas, which allows users to reserve rides via a smartphone application.

On weekdays fixed route service runs from approximately 5:30 AM to 6:30 PM with most routes operating a 60-minute headway or greater. Weekend service is limited with reduced Saturday hours (9:00 AM to 6:00 PM), 11 routes do not operate, 6 routes have reduced frequencies, and there is no Sunday service. GATRA does not provide Sunday service except on its Norton-Mansfield Route[14] and Scituate Loop, which operate from 12:15 PM to 9:50 PM and 9:00 AM to 5:15 PM, respectively. On an annual basis GATRA carries approximately 1,300,000 passengers, traveling approximately 4,600,00 miles and 260,000 hours with an operating budget of $14.7 million (Table 1).

Table 1. Statistics by Service (FY 2019)

FY 2019 Data	Fixed Route	Demand Response	Total
Ridership	712,665 (56%)	562,577 (44%)	1,275,242 (100%)
Revenue Miles	2,921,332 (64%)	1,676,459 (36%)	4,597,791 (100%)
Revenue Hours	117,853 (46%)	140,857 (54%)	258,710 (100%)

Source: NTD: BlackCat FY 2019

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[13] Eligibility is based on a person's functional ability to use the fixed route system as outlined in the U.S. DOT's ADA regulations.
[14] This route serves Wheaton College who has a funding partnership with GATRA to operate the route.

Figure 5. Location Map

Greater Attleboro-Taunton Regional Transit Authority
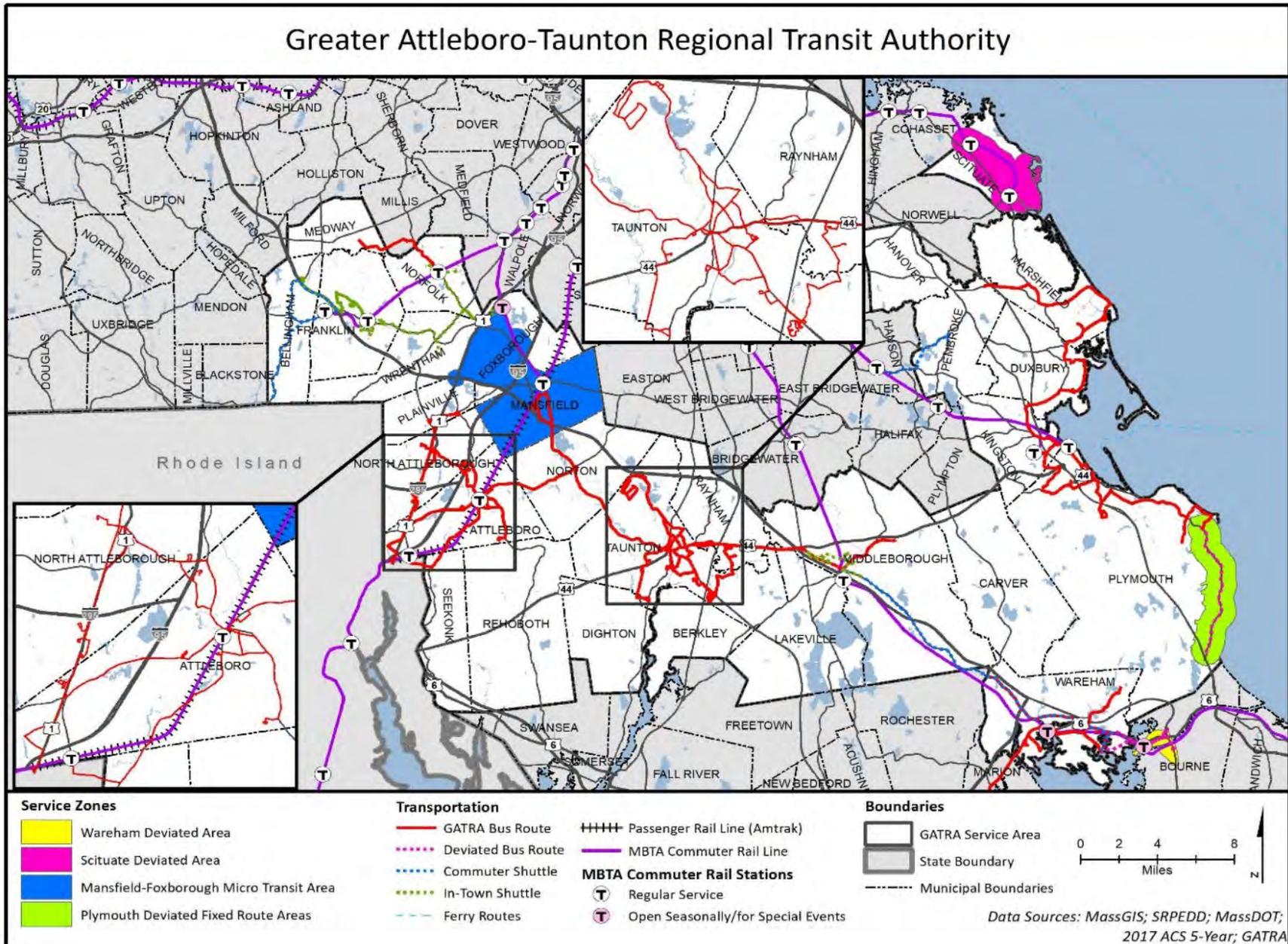
GATRA receives revenue from a variety of federal, state, and local sources, as well as farebox, advertising, parking revenue, and other. Primary revenue sources are FTA grants, state contract assistance, and local assessments. Towns that are served by GATRA pay an assessed amount based on the amount of service operated in each town.[15] Other revenue sources include parking revenue, advertising, rental income, and the sale of property and equipment. The FY 2019 operating budget was $14,860,396 million. The largest percentage of funding (33 percent in FY 2019) comes from the federal government (Figure 6). Capital expenditures vary each year but are typically in the range of $3.5 to $5 million for transit vehicles and infrastructure.

Figure 6. Operating Funding Sources (FY 2019)
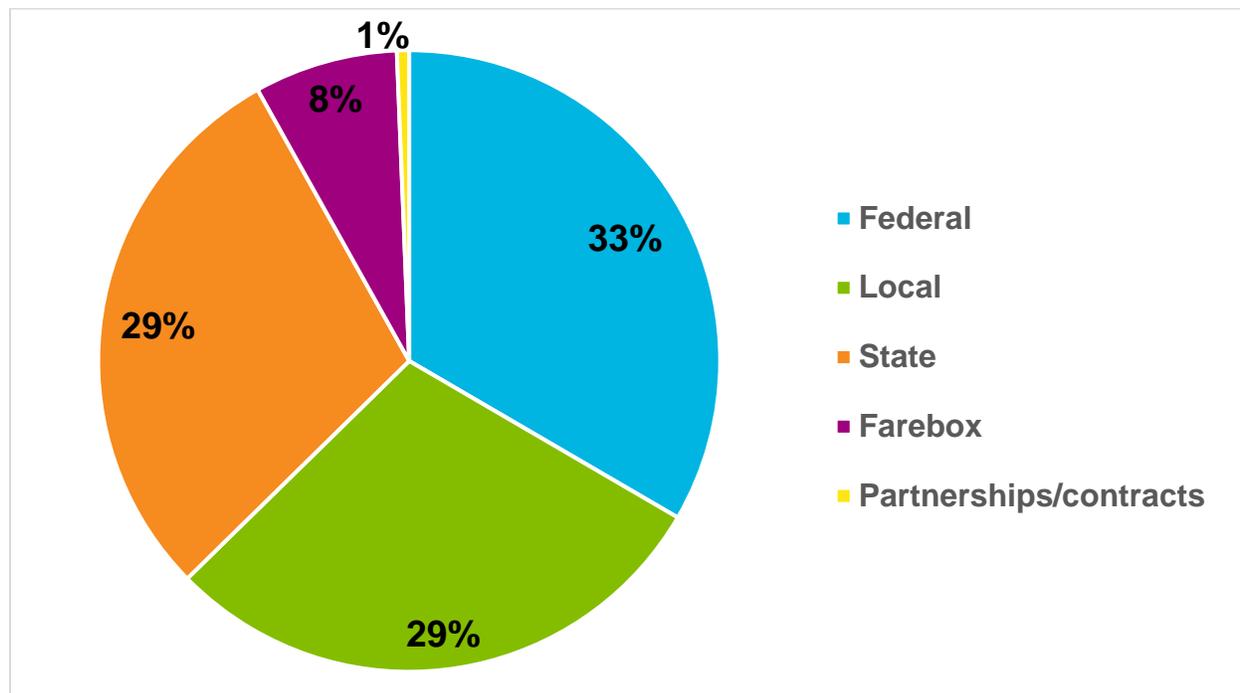
Source: GATRA Revenue & Expense Data 2019

GATRA is given general responsibility to develop, finance, and contract for the operation of mass transportation facilities and services within its territory. While an administrator and support staff are responsible for the day-to-day administration of the agency, GATRA's operations are overseen by an advisory board[16] made up of one member from each of the 28 communities the agency serves as well as a rider representative and mobility representative (Figure 7). The GATRA administrator is the only position appointed by the advisory board. In addition to the administrator, GATRA has 14 support staff. According to the Commonwealth of Massachusetts statute, regional transit authorities cannot operate service directly, but instead must contract with private operators for the provision of service. Companies under contract with GATRA are Professional Transit Management of Attleboro Inc. (PTM), Kiessling Transit, Inc., A&A Metro Transportation (doing business as Bill's Taxi Service, Inc.), and 11 Councils on Aging (COA) (Figure 8). These companies provide fixed route and demand response transportation services.

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[15] The assessment is updated annually based on a sampling of passenger miles, using the same methodology used in reporting data to the FTA for National Transit Database (NTD) submissions.
[16] Voting is based on Massachusetts General Law 161B Section 5 that states each city and town shall have one vote on the advisory board plus additional votes and fractions thereof determined by multiplying one and one half times the number of cities and towns in the authority by a fraction of which the numerator shall be the total amount of all assessments made by the state treasurer to such city or town under this chapter and the denominator shall be the total amount of all such assessment made by the state treasurer to such cities and towns. The rider representative and mobility representative each have one vote.

PTM, Kiessling Transit, Inc., and A&A Metro are contracted using professional contracts and procurement process. Each contract[17] is for 1 year with four additional 1-year options, at which time GATRA must then go through the procurement process for a new contract. The PTM, Kiessling, and A&A Metro contracts expire June 30, 2022. Each of the COA contracts is renewed every year.[18] This is by design as some of the contracts must be signed off on by municipal officials, who can change annually. It allows GATRA to provide a refresher to the operator on contractual requirements and the tweaking of language if needed.

3.2   Mission Statement

It is the mission of GATRA to provide safe, courteous, cost-effective transportation to the people throughout the region. As the needs of the community grow and change, GATRA will be dedicated to meeting the challenges of modern transportation.

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[17] The contract is with Transdev for management services. PTM is a division of Transdev and represented by the Amalgamated Transit Union. PTM is protected under public transit employee protections in Section 13(c) of the Federal Transit Act, which gives them the right to operate the service in that area as they were the private operator prior to the creation of GATRA in 1978. GATRA is responsible for contracting out management for PTM. The contracts with Kiessling Transit and A&A Metro are for management and operations, these two contractors are not unionized and not protected under Section 13(c) of the Federal Transit Act.
[18] GATRA is not required to go through a competitive procurement for these operators because of the contract value.

Figure 7. GATRA Organizational Chart

**Greater Attleboro-Taunton Regional Transit Authority
Organizational Chart**


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                        GATRA Advisory Board
                        28 Member Communities
                                 |
                           Administrator
```

- Director Information Technology (IT)
- Chief Financial Officer — *Disadvantaged Business Enterprise Liaison Officer (DBELO)*
  - Fiscal Officer & Human Resources Manager
  - Brokerage Accountant
  - Brokerage Accountant
- Director of Capital Programs
  - Facilities Manager
- Director of Administration & Compliance
  - Administrative Secretary
  - Administrative Secretary
- Director of Programs & Planning (Brokerage Office)
- Director of Customer Relations & Marketing
  - Mobility Manager
  - Travel Trainer

Source: GATRA Administration Office, December 2020

Figure 8. Demand Response Operators
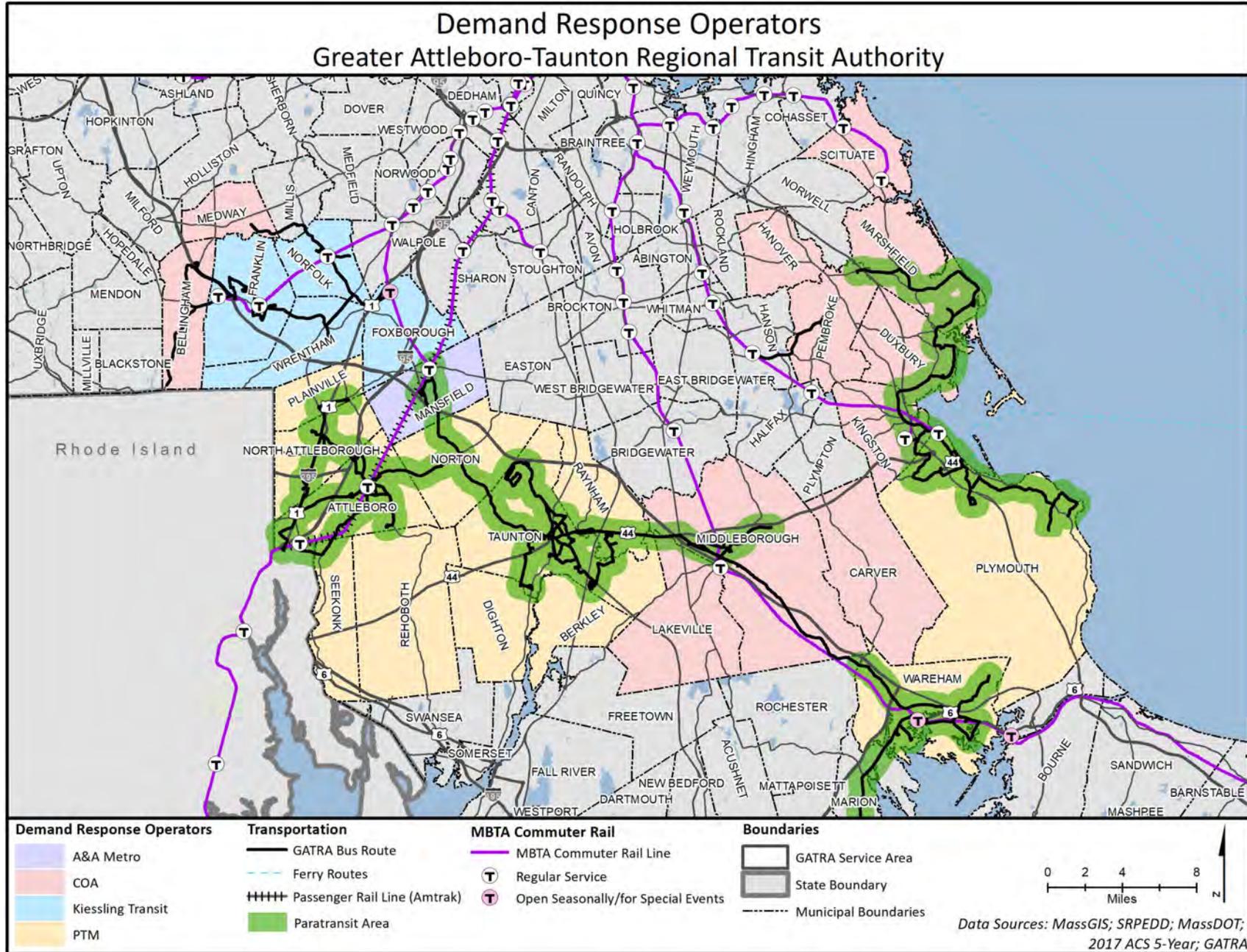
3.3   Goals and Objectives

Better Align Service with Needs

GATRA seeks to ensure access to transit service that meets the demands of the community and provides residents access to jobs and services.

Objectives:

- Evaluate a new hub in the Town of Plymouth and redesign routes in that area.
- Review the Attleboro/North Attleborough/Plainville fixed route system and redesign the routes utilizing the new North Attleborough hub.
- Examine the Franklin Area Bus and Tri-Town Connector for service improvements.

Maximize Mobility Options for Residents of the Region

GATRA seeks to provide an attractive, accessible alternative transportation option that meets mobility needs while contributing to increased access to opportunities and a healthy environment for residents and visitors.

Objectives:

- Identify routes that are candidates for Sunday service.
- Pursue innovative service delivery models.
- Explore a service plan for South Plymouth, incorporating a microtransit pilot project.
- Review the need for regional demand response in the Kingston/Duxbury/Plymouth communities.

Meet the Needs of a Diverse Summer Tourism Population in Coastal Communities

GATRA would like to expand and increase services and frequencies to meet the needs of the increased and diverse populations in coastal communities.

Objectives:

- Examine service in the summer coastal communities for increases in service options, spans, and frequencies.

Develop a Capital Program That Aligns with the Governor's Commission on the Future of Transportation

In order to improve environmental sustainability for the region GATRA will explore developing a capital program that reduces dependency on fossil fuels, is financially sustainable, and is in line with the existing Transit Asset Management (TAM) Plan.

Objectives

- Implement electric buses to align with the Commission's goal for 2040.
- Right size vehicles to a routes/services demand.
- Replace vehicles according to their useful life benchmark (ULB) and the TAM Plan with financially and environmentally sustainable choices.

- Reduce the amount of capital funding flexed for operating while maintaining or increasing service levels.

Obtain Sustainable Funding Options

In order to continue operating at current levels and implement new services in the future, additional funding streams are needed.

Objectives:

- Secure a long-term local dedicated funding source such as a regional ballot initiative or other measures to increase funding at the local level for transit.

- Advocate for state contract assistance to include an automatic inflator to prevent level funding.

- Identify and pursue new funding partnerships.

Improve Data Collection

GATRA collects operating data from over 15 operators. A process is needed to collect uniform data that are easily aggregated by GATRA. Improved data collection will allow GATRA to better monitor service needs and demands in order to supply the correct level of service

Objectives:

- Streamline data collection process from operators.

- Improve reporting tools for COA operators.

4.   Transit Service Overview (FY 2015–FY 2019)

GATRA operates 34 bus routes (Figure 9), which include 21 fixed routes primarily located in the major cities of Attleboro and Taunton and the towns of North Attleborough, Wareham, Plymouth, Kingston, and Duxbury plus several deviated routes, commuter shuttles, and in-town shuttles. While most fixed routes serve one of the region's transit centers, with timing that generally allows for transfers, the commuter shuttles are geared toward serving the train stations. In-town shuttles act as local community circulators, and deviated routes are community shuttles that will deviate up to ¾ mile from their route to pick up or drop off passengers. In Attleboro and Taunton the routes operate using a hub and spoke system originating out of the Bloom Bus Terminal in Taunton and the Intermodal Transit Center in Attleboro with a route connecting the two centers. In Wareham four of the five bus routes pulse out of Cranberry Plaza at half past the hour, while the fifth is a commuter shuttle designed around the train schedule. In Plymouth and Kingston the routes operate along the coast, creating a chain with timing that allows for transfers to the next route at either end.

Figure 9. GATRA's Transit Services[19]
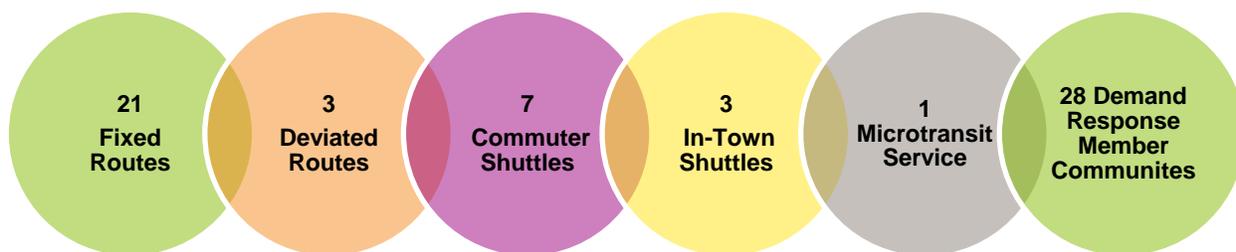
Demand response service is operated in all 28 of GATRA's member communities. GATRA provides complementary ADA paratransit services to eligible individuals within a ¾ mile radius of fixed routes and in-town shuttles, DAR service for passengers who are 60 years of age or older in all 28 communities, and medical transportation to Boston for people with disabilities and seniors who reside in the towns of Duxbury, Foxboro, Franklin, Marshfield, Norfolk, Wrentham, Kingston, Pembroke, and North Plymouth. GATRA also operates a microtransit service in Mansfield/Foxborough, the first transit authority in the state to do so, a same day on-demand service that consumers can request a trip via a phone app.

4.1   Description of Transit Services

In the GATRA service area, Attleboro and Taunton are the two most populous cities. To meet ridership demands, 38 percent of the bus routes are located in these cities. Across all bus routes, PTM is the primary contracted operator with 76 percent of the bus routes under their direction. GATRA's bus routes are listed in Table 2, including service type and area, description, and contracted operator.

[19] GATRA has since made permanent changes due to the pandemic. As of December 1, 2020, there are 19 fixed routes, 2 deviated routes, and 3 microtransit services. Changes, due to the pandemic, to the commuter shuttles, in-town shuttles, and demand response are temporary.

Table 2. Bus Route Service Overview

Route	Route Name	Service Type	Service Area	Description	Operator
1	Westside	Fixed Route	Taunton	Bloom Bus Terminal – Kilmer and Oak – Fairfax Gardens – Plaza 44 – Somerset & Railroad – Somerset & South	PTM
6	Whittenton	Fixed Route	Taunton	Bloom Bus Terminal – Morton Hospital – Whittenton 3 Corners – North Woods – Myles Standish Industrial Park	PTM
7	School Street / Route 44 / Raynham	Fixed Route	Taunton	Bloom Bus Terminal – Downtown Taunton – School Street – Winter Street – Stop & Shop – Shaw's – Wal-Mart – Pinehill Estates	PTM
8	East Taunton – Raynham Wal-Mart	Fixed Route	Taunton	Bloom Bus Terminal – Downtown Taunton –Taunton High School – Hart's 4 Corner – East Taunton – Silver City Galleria – Raynham Wal-Mart	PTM
9	Weir / Route 138	Fixed Route	Taunton	Bloom Bus Terminal – Downtown Taunton – Weir and First Streets – Presbrey Court	PTM
10	Attleboro / North Attleborough	Fixed Route	Attleboro	Attleboro Center – Triboro Plaza – Elm Terrance – Circle Court – Emerald Square Mall	PTM
11	South Attleboro Connector	Fixed Route	Attleboro	Emerald Square – Wal-Mart – Brown & Mendon – Pawtucket	PTM
12	Attleboro / North Attleborough	Fixed Route	Attleboro	Attleboro Bus Shelter – County Square – Newport & Highland – Emerald Square	PTM
14	Attleboro / North Attleborough / Plainville	Fixed Route	Attleboro	Man Mar Drive, Plainville – North Attleborough Center – Triboro Plaza – Attleboro Bus Shelter	PTM
15	Oak Hill	Fixed Route	Attleboro	Attleboro Bus Shelter – Hope Gardens – LaSalette Shrine – Oak Hill	PTM
16	Seekonk / Attleboro	Fixed Route	Attleboro	Central Plaza – Knight Avenue & South Main – Attleboro Crossing – Bishop Feehan High School – Attleboro Center	PTM

Route	Route Name	Service Type	Service Area	Description	Operator
18	Attleboro / Norton / Taunton	Fixed Route	Attleboro/Taunton	Bloom Bus Terminal – Norton Post Office – Bristol Community College (BCC) – Attleboro T – Attleboro Bus Shelter	PTM
24	Attleboro / Pawtucket, RI	Fixed Route	Attleboro	Attleboro Bus Shelter – County Square – Brown & Mendon – Pawtucket, RI	PTM
140	Norton – Mansfield Route	Fixed Route	Norton/Mansfield	Wheaton College to the Mansfield MBTA Commuter Rail Station	PTM
L1	Link 1	Fixed Route	Wareham-Onset	Wareham/Onset/Wareham	PTM
L2	Link 2	Deviated Route	Wareham-Onset	Cranberry Plaza to Buzzards Bay	PTM
L3	Link 3	Fixed Route	Wareham-Onset	Shangri-La to Cranberry Plaza	PTM
L4	Link 4	Fixed Route	Wareham-Onset	Cranberry Plaza to West Wareham	PTM
SAIL	Marshfield to Duxbury to Kingston	Fixed Route	Marshfield-Duxbury-Kingston	Intercity fixed bus service with multiple stops in Marshfield, Duxbury, and Kingston	PTM
Mayflower	Mayflower Link	Fixed Route	Plymouth	Plymouth to Manomet	PTM
Freedom	Freedom Link	Fixed Route	Plymouth	Plymouth Center to W. Plymouth Plaza	PTM
Liberty	Liberty Link	Fixed Route	Plymouth	Plymouth Center to Cordage Park	PTM
MC*	Manomet to Cedarville	Deviated Route	Plymouth	Manomet to Cedarville Deviated Link	PTM
MED	Medway T Shuttle	Commuter Shuttle	Medway	Medway Middle School to Village Street Post Office and Norfolk MBTA Station	COA

Route	Route Name	Service Type	Service Area	Description	Operator
FAB*	Franklin Area Bus	In-town Shuttle	Franklin	Big Y – Shaw's Plaza – MBTA – Dean College – Council on Aging – Franklin High School – Village Plaza	Kiessling Transit
MDS	Downtown Middleborough Area Shuttle	In-town Shuttle	Middleborough	Makes various stops in downtown Middleborough	COA
Pembroke	Pembroke Shuttle to Hanson MBTA Station	Commuter Shuttle	Pembroke	Pembroke Housing Authority – Community Center Parking – Mattakeesett Fields Commuter Parking – Hanson MBTA Station	A&A Metro
Bellingham	Bellingham T Shuttle	Commuter Shuttle	Bellingham	North Bellingham Commuter Shuttle has stops at the Plaza at Bellingham Commons, Jefferson at Bellingham, Home Depot Plaza, Forge Park T Station	COA
WL	Wareham – Lakeville MBTA Connector	Commuter Shuttle	Wareham-Lakeville	Cranberry Plaza – Mill Pond – Wareham Crossing – Rt. 28 and Rt. 58 – So. Middleborough – Lakeville MBTA Station	PTM
TTC*	Tri-Town Connector	In-town Shuttle	Norfolk-Wrentham-Foxborough	Serving Franklin Big Y, Wrentham Council on Aging, Patriot Place, Brigham & Women's, Mass General Health Care, Norfolk MBTA, MCI-Norfolk, Norfolk COA	Kiessling Transit
Foxborough	Foxborough MBTA Commuter Shuttle	Commuter Shuttle	Foxborough	Commuter parking lot and shuttle service for town residents	A&A Metro
SLOOP	Scituate Loop	Deviated Route	Scituate	Stops at Harbor CVS, Village Market, Widow's Walk Golf Course, Greenbush MBTA, Town Hall, Central Park Senior Housing, Wheeler Park Housing, Senior Center	A&A Metro
WNB	Wareham-New Bedford Connection	Commuter Shuttle	Wareham-New Bedford	New Bedford Terminal along Route 6 between Fairhaven and Wareham	SRTA

Route	Route Name	Service Type	Service Area	Description	Operator
WP	Wareham-Plymouth Connection	Commuter Shuttle	Wareham-Plymouth	From Colony Place/Map Academy in Plymouth to the 7-Eleven in East Wareham	PTM

Source: GATRA Routes & Schedules

*Route has since been discontinued and replaced with microtransit.

GATRA provides demand response services, as outlined in Table 3. GATRA collects data from each of its demand response operators and aggregates it to prepare board reports, annual reports, and performance measures. To account for this aggregated data, the following assumptions were utilized in analysis:

- Foxborough, Franklin, Norfolk, Wrentham, and Miles for Health demand response services, which are operated by Kiessling Transit, have been consolidated as the *United Community DAR*. However, Wrentham DAR service is also provided by the Wrentham COA and is listed as a separate service.

- PTM demand response for the towns of Berkley, Dighton, North Attleborough, Norton, Raynham, Rehoboth, and Seekonk have been consolidated and will be informally referred to as the *Southwest Service Area DAR*.

- ADA and non-ADA demand response data for Attleboro and Taunton were combined and are presented in the *Attleboro and Taunton DAR*.

- Boston Hospital bus data are consolidated under the Pembroke Shuttle.

- GATRA GO microtransit was launched August 2019 and service data only include a portion of the fiscal year from August to December 2019.

4.1.1 Service Hours

GATRA bus routes and demand response service operate with varying spans of service on both weekdays and weekends. Table 4 summarizes the span of service hours and days of operation for each bus route. Weekday service hours for bus routes span from approximately 5:30 AM to 6:30 PM and on Saturday's from 9:00 AM to 6:00 PM. Saturday service is not provided for any of the commuter shuttles in GATRA's service area. Sunday service is only provided for two of GATRA's bus routes—Route 140 when Wheaton College is in session and on the Sloop—and operates between 9:00 AM and 9:50 PM.

Table 5 summarizes the span of service hours and days of operation for each demand response service as well as details about when passengers are required to make reservations for the service. Demand response service and reservations differ by town. On weekdays service begins between 6:00 AM and 8:00 AM and ends between 4:00 PM and 8:00 PM. Only five of the demand response services operate on Saturdays (8:00 AM to 6:30 PM) and none of the services operate on Sundays. Some towns offer specific transportation destinations depending on the day of the week, which includes, but is not limited to, grocery shopping, errands, and medical appointments. Reservation requirements for demand response all vary widely; however, a majority of the service providers require, at a minimum, 24 hours' notice prior to the scheduled trip.

4.1.2 Service Frequency

GATRA's bus routes operate with various weekday and weekend headways. Table 6 summarizes the headways of each route for weekday and weekend services.[20] Fixed routes and in-town shuttles generally operate with hourly headways throughout the day on weekdays and for those that operate on Saturday it varies between 1 and 2 hour headways. Commuter routes operate during the peak only and there is no set headway but instead schedules are designed around the train schedule.

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[20] GATRA's demand response services operate only on-demand and are not included in the table.

Table 3. Demand Response Service Overview

Route Name	Service Area	Description	Operator
Attleboro/Taunton DAR	Attleboro and Taunton	Complements Attleboro and Taunton routes; curb-to curb service within surrounding communities	PTM
Bellingham DAR	Bellingham	Complements Bellingham routes; curb-to curb service within town limits	COA
Boston Hospital Bus	Duxbury-Marshfield-Kingston-Pembroke-North Plymouth	Medical transportation for seniors and persons with disabilities in the towns of Duxbury, Marshfield, Kingston, Pembroke, and North Plymouth	COA
Carver DAR	Carver	Curb-to curb service within town limits. Trips available for medical, recreation, and shopping.	COA
Duxbury DAR	Duxbury	Complements Duxbury routes	PTM
		Curb-to curb service within town limits	COA
GATRA GO	Foxborough-Mansfield-Plainville	Microtransit in Foxborough/ Mansfield/ Plainville Area	A&A Metro
Hanover DAR	Hanover	Curb-to curb service within Hanover town limits	COA
Kingston DAR	Kingston	Complements Kingston routes	PTM
		Curb-to curb service within town limits	COA
Lakeville DAR	Lakeville	Curb-to curb service within town limits	COA
Mansfield T Connector	Mansfield	Provides curb-side commuter rail shuttle service for Mansfield residents	A&A Metro
Mansfield DAR	Mansfield	Complements Mansfield routes; curb-to curb service within town limits	A&A Metro
Marshfield DAR	Marshfield	Complements Marshfield routes	PTM
		Curb-to curb service within town limits	COA
Medway DAR	Medway	Curb-to curb service within town limits	COA
Middleborough DAR	Middleborough	Complements Middleborough routes; curb-to curb service within town limits	COA

Route Name	Service Area	Description	Operator
Miles for Health	Franklin, Foxborough, Norfolk, and Wrentham	Long distance medical transportation for seniors and people with disabilities that are ADA eligible in Franklin, Foxborough, Norfolk, and Wrentham	Kiessling Transit
Middleborough / Taunton Connection	Middleborough-Taunton	Reservation service that runs between Middleborough and Taunton with stops in Raynham	COA
Pembroke DAR	Pembroke	Complements Pembroke routes; curb-to curb service within town limits	COA
Plainville DAR	Plainville	Complements Plainville routes; curb-to curb service within town limits	COA
Plymouth DAR	Plymouth	Complements Plymouth routes; curb-to curb service within town limits	PTM
Scituate DAR	Scituate	Complements Scituate routes; curb-to curb service within town limits	COA
Wareham DAR	Wareham	Complements Wareham routes; curb-to curb service within town limits	PTM
Wrentham DAR	Wrentham	Complements Wrentham routes; curb-to curb service within town limits	COA
Southwest Service Area DAR	Berkley, Dighton, North Attleborough, Norton, Raynham, Rehoboth, and Seekonk	Curb-to curb service within town limits of Berkley, Dighton, North Attleborough, Norton, Raynham, Rehoboth, and Seekonk	PTM
United Community DAR	Foxborough, Franklin, Norfolk, and Wrentham	Curb to curb service for the towns of Foxborough, Franklin, Norfolk, and Wrentham	Kiessling Transit

Source: GATRA

Table 4. Span of Service Hours - Bus Routes

Route	Service Type	Weekday	Saturday	Sunday
1-Westside	Fixed Route	6:00 AM–6:37 PM	9:00 AM–5:37 PM	No service
6-Whittenton	Fixed Route	6:35 AM–6:50 PM	9:00 AM–4:49 PM	No service
7-School Street / Route 44 / Raynham	Fixed Route	6:50 AM–6:45 PM	9:30 AM–6:15 PM	No service
8-East Taunton – Raynham Wal-Mart	Fixed Route	5:45 AM–7:40 PM	9:00 AM–6:40 PM	No service
9-Weir / Route 138	Fixed Route	6:40 AM–5:58 PM	9:40 AM–4:58 PM	No service
10-Attleboro / North Attleborough	Fixed Route	5:30 AM–6:55 PM	9:30 AM–5:30 PM	No service
11-South Attleboro Connector	Fixed Route	6:00 AM–7:20 PM	9:10 AM–4:52 PM	No service
12-Attleboro / North Attleborough	Fixed Route	6:00 AM–6:59 PM	9:00 AM–4:59 PM	No service
14-Attleboro / North Attleborough / Plainville	Fixed Route	5:40 AM–6:55 PM	9:00 AM–4:55 PM	No service
15-Oak Hill	Fixed Route	10:00 AM–5:29 PM	8:35 AM–6:04 PM	No service
16-Seekonk / Attleboro	Fixed Route	5:30 AM–6:30 PM	9:31AM–5:30 PM	No service
18-Attleboro / Norton / Taunton	Fixed Route	5:00 AM–7:56 PM	7:45 AM–6:41 PM	No service
24-Attleboro / Pawtucket, RI	Fixed Route	5:30 AM–6:53 PM	No service	No service
140-Norton – Mansfield Route	Fixed Route	6:05 AM–11:15 PM	6:05 AM–10:45 PM*	12:15 PM–9:50 PM*
Link 1	Fixed Route	7:55 AM–5:45 PM	8:55 AM–5:30 PM	No service
Link 2	Deviated Route	7:55 AM–5:25 PM	10:30 AM–5:25 PM	No service
Link 3	Fixed Route	11:10 AM–2:30 PM	No service	No service
Link 4	Fixed Route	7:15 AM–5:51 PM	9:30 AM–4:15 PM	No service

Route	Service Type	Weekday	Saturday	Sunday
SAIL: Marshfield to Duxbury to Kingston	Fixed Route	6:00 AM–6:57 PM	8:30 AM–6:46 PM	No service
Mayflower Link	Fixed Route	6:52 AM–5:54 PM	8:23 AM–5:54 PM	No service
Freedom Link	Fixed Route	6:20 AM–5:20 PM	8:25 AM–5:20 PM	No service
Liberty Link	Fixed Route	6:25 AM–6:25 PM	8:25 AM–5:25 PM	No service
Manomet to Cedarville Deviated Link	Deviated Route	7:07 AM–5:20 PM	9:00 AM–5:20 PM	No service
Medway T Shuttle	Commuter Shuttle	5:57 AM–7:07 AM 5:33 PM–6:47 PM	No Service	No service
Franklin Area Bus	In-town Shuttle	6:40 AM–5:36 PM	8:20 AM–6:09 PM	No service
Downtown Middleborough Area Shuttle	In-town Shuttle	8:00 AM–5:00 PM	No service	No service
Pembroke Shuttle	Commuter Shuttle	6:00 AM–7:18 AM 5:10 PM-6:46 PM	No service	No service
Bellingham T Shuttles	Commuter Shuttle	5:40 AM–7:06 PM (North peak only) 6:05 AM -7:17 PM (South peak only)	No service	No service
Wareham – Lakeville MBTA Connector	Commuter Shuttle	5:50 AM–10:35 AM 2:30 PM-7:10 PM	No service	No service
Tri-Town Connector	In-town Shuttle	5:53 AM–5:57 PM	7:30 AM – 6:00 PM	No service
Foxborough MBTA Commuter Shuttle	Commuter Shuttle	6:20 AM–7:55 AM 4:32 PM–6:51 PM	No service	No service
Scituate Loop	Deviated Route	7:30 AM–5:40 PM**	9:00 AM–5:15 PM**	9:00 AM–5:15 PM

Route	Service Type	Weekday	Saturday	Sunday
Wareham-New Bedford Connection	Shuttle	7:30 AM–11:30 AM 2:00 PM–6:00 PM	No service	No service
Wareham-Plymouth Connection	Commuter Shuttle	7:45 AM–8:38 AM 3:22 PM–4:22 PM	No service	No service

Source: GATRA Routes and Schedules
*Reduced service on Saturdays from 6:05 AM to 9:30 AM and 2:00 PM to 7:15 PM; no service on Sundays for Route 140 when Wheaton College is on winter or summer break.
** Route deviations may be requested and should be made at least 2 hours prior to when the bus is scheduled to depart. Deviations are available between 12:00 PM and 5:40 PM on weekdays, and 12:15 PM and 5:15 PM on Saturdays and Sundays.

Table 5. Span of Service Hours - Demand Response

Route	Weekday	Saturday	Sunday	Reservation Times for Service
ADA Paratransit	6:00 AM–6:30 PM	9:00 AM–5:30 PM	No service	24 hours in advance; recurring weekly or daily trips to the same location can be booked as a subscription.
Attleboro/Taunton DAR	6:00 AM–6:30 PM	9:00 AM–5:00 PM	No service	By 12:00 PM day before appointment Monday–Saturday
Bellingham DAR	8:30 AM–4:00 PM	No service	No service	24 hours in advance for daily and medical transportation
Boston Hospital Bus	Tuesday, Wednesday, and Thursday only Riders meet at designated stops: Plymouth: 8:00 AM Kingston: 8:15 AM Pembroke: 8:30 AM Return by 3:00 PM	No service	No service	Reservations must be made no later than 11:00 AM the day before traveling
Carver DAR	7:00 AM–4:00 PM Medical Appointments Tuesday and Thursday Grocery Shopping Wednesday and Friday	No service	No service	24 hours in advance
Duxbury DAR	Monday, Tuesday, and Wednesday: 8:00 AM–4:00 PM Thursday: 8:00 AM–8:00PM Friday: 8:00 AM–12:00 PM	No service	No service	48 hours in advance for daily and medical transportation

Route	Weekday	Saturday	Sunday	Reservation Times for Service
GATRA GO Microtransit	7:00 AM–7:00 PM	No service	No service	None
Hanover DAR	8:00 AM–3:00 PM	No service	No service	Two weeks in advance of appointment
Kingston DAR	8:30 AM–4:30 PM	No service	No service	No less than 48 hours in advance
Lakeville DAR	Monday-Thursday: 8:00 AM–4:00 PM No Friday service	No service	No service	24 hours in advance for daily and medical transportation
Mansfield T Connector	Reservation based (peak only)	No service	No service	Call to schedule
Mansfield DAR	8:00 AM–3:30 PM	No service	No service	24 hours in advance for daily and medical transportation
Marshfield DAR	8:30 AM–4:30 PM	No service	No service	48 hours in advance for daily and medical transportation
Medway DAR	8:00 AM–2:00 PM	No service	No service	48 hours in advance for daily and medical transportation
Middleborough DAR	8:00 AM–4:00 PM	No service	No service	By 12:00 PM day before appointment Monday–Friday
Miles for Health	Boston Appointments: 9:00 AM–1:00 PM Burlington, Framingham, Newton-Wellesley, and Worcester Wednesday Only 9:00 AM–1:00 PM	No service	No service	48 hours advanced notice
Middleborough / Taunton Connection	3 shuttles daily on Monday, Wednesday, and Friday 10:00 AM–3:00 PM	No service	No service	Reserved by 1:00 PM the previous business day

Route	Weekday	Saturday	Sunday	Reservation Times for Service
Pembroke DAR	8:30 AM–4:30 PM	No service	No service	Minimum of 3-day notice for medical appointments
Plainville DAR	8:00 AM–3:00 PM	No service	No service	24 hours in advance for daily appointments; 48 hours for medical transportation
Plymouth DAR	6:00 AM–6:00 PM	No service	No service	24 hours in advance for daily and medical transportation
Scituate DAR	Monday -Thursday 8:30 AM–3:00 PM Friday 8:30 AM–1:30 PM Out of town medical rides: 10:30 AM–1:15 PM Appointments after 1:15 PM can be as late as 5:00 PM	No service	No Service	72 working hours in advance; out of town medical rides require a 5-day notice
Wareham DAR	8:00 AM–6:30 PM	8:00 AM–5:30 PM	No service	By 12:00 PM day before appointment Monday–Friday
Wrentham DAR	Medical Appointments Monday–Thursday 8:30 AM–3:30 PM Shopping and Errands Friday 8:30 AM–2:00 PM	No service	No service	24 hours for medical transportation
Southwest Service Area DAR:				
Berkley, Dighton, and North Attleborough	6:00 AM–6:30 PM	9:00 AM–5:00 PM	No service	By 12:00 PM day before appointment Monday–Friday

Route	Weekday	Saturday	Sunday	Reservation Times for Service
Norton and Raynham	7:00 AM–7:00 PM	8:30 AM–6:30 PM	No service	By 12:00 PM day before appointment Monday–Friday
Rehoboth and Seekonk	8:30 AM–4:30 PM	No service	No service	By 12:00 PM day before appointment Monday–Friday
United Community DAR*				
Foxborough, Franklin, Norfolk, and Wrentham	7:00 AM–5:30 PM	8:00 AM–5:30 PM	No Service	By 12:00 PM day before appointment Monday through Friday

Source: Ride Match- Massachusetts Transit Options by Town available via massridematch.org, 2020

*Also includes Miles for Health service.

Table 6. Service Headway

Route	Service Type	Weekday	Saturday	Sunday
1-Westside	Fixed Route	Hourly	Hourly	No Service
6-Whittenton	Fixed Route	Hourly	Hourly	No Service
7-School Street / Route 44 / Raynham	Fixed Route	Hourly	Hourly	No Service
8-East Taunton – Raynham Wal-Mart	Fixed Route	Hourly	Hourly	No Service
9-Weir / Route 138	Fixed Route	Hourly	Hourly	No Service
10-Attleboro / North Attleborough	Fixed Route	Hourly	Hourly	No Service
11-South Attleboro Connector	Fixed Route	Hourly	Hourly	No Service
12-Attleboro / North Attleborough	Fixed Route	Hourly	Hourly	No Service
14-Attleboro / North Attleborough / Plainville	Fixed Route	Hourly	Hourly	No Service
15-Oak Hill	Fixed Route	Hourly	5 trips daily	No Service
16-Seekonk / Attleboro	Fixed Route	Hourly	Hourly	No Service
18-Attleboro / Norton / Taunton	Fixed Route	80-minutes	80-minutes	No Service
24-Attleboro / Pawtucket, RI	Fixed Route	Hourly	No Service	No Service
140-Norton – Mansfield Route	Fixed Route	30-minutes	30-minutes	40-minutes service *(when school in session)*
Link 1	Fixed Route	Hourly	Hourly	No Service
Link 2	Deviated Route	Hourly	2 hours	No Service
Link 3	Fixed Route	Hourly	No service	No Service
Link 4	Fixed Route	Hourly	2 hours	No Service
SAIL	Fixed Route	Hourly	90-minutes	No Service
Mayflower Link	Fixed Route	Hourly	Hourly	No Service
Freedom Link	Fixed Route	Hourly	Hourly	No Service
Liberty Link	Fixed Route	Hourly	No Service	No Service

Route	Service Type	Weekday	Saturday	Sunday
Manomet to Cedarville Deviated Link	Deviated Route	Hourly	Hourly	No Service
Medway T Shuttle	Commuter Shuttle	3:00 AM and 3:00 PM Trips 15 minutes apart	No Service	No Service
Franklin Area Bus	In-Town Shuttle	Hourly	80-minutes	No Service
Downtown Middleborough Area Shuttle	In-Town Shuttle	Hourly	No Service	No Service
Pembroke Shuttle to Hanson MBTA Station	Commuter Shuttle	2:00 AM, 3:00 PM trips	No Service	No Service
Bellingham T Shuttle	Commuter Shuttle	6 trips daily (north) 4 trips daily (south)	No Service	No Service
Wareham – Lakeville MBTA Connector	Commuter Shuttle	7.5 trips daily	No Service	No Service
Tri-Town Connector	In-Town Shuttle	90-minutes	120-minutes	No Service
Foxborough MBTA Commuter Shuttle	Commuter Shuttle	30-minute peak only	No Service	No Service
SLOOP	Deviated Route	Hourly	Hourly	Hourly
Wareham-New Bedford Connection	Commuter Shuttle	2:00 AM trips, 2:00 PM trips	No Service	No Service
Wareham-Plymouth Connection	Commuter Shuttle	4:00 AM trips and 5:00 PM trips (15 minutes apart)	No Service	No Service

Source: GATRA Routes & Schedules

4.1.3 Funding Sources

GATRA receives its operating funding from a range of sources, including funding from state and federal governments, local communities served by GATRA, farebox revenue, and partnership/contracts (Table 7). From FY 2015 to FY 2019, GATRA's operating funding was between $12.7 and $15 million. Most years, GATRA's largest funding support is generated from federal grants with a fluctuating funding level between approximately 30 percent and 35 percent (Figure 10). GATRA also receives state and local funding between $3.0 and $4.5 million each year per each funding source. Together federal, state, and local funding sources make up more than 92 percent of GATRA's total operating funding. The remaining percent of funding is derived

from farebox revenue (between $800,000 and $1.1 million), which has been increasing each year but remaining a consistent percentage of the total operating funding. GATRA also receives approximately 1 percent in funding from partnerships and contracts primarily generated from Wheaton College, which is shown in Table 8.

GATRA leases the Attleboro Commuter Parking lot, located at the Attleboro MBTA station. Effective August 2018, the daily rate is $5.00 per vehicle per day. The monthly rate, effective September 2018, is $80.00 per month per vehicle. Payment can be made through the pay stations at the commuter lot or through the ParkMobile app. Commuters can register online for a parking pass. SP Plus Corporation handles the collection of fees for GATRA. In FY 2019, GATRA received $893,868 in parking revenue; however, the revenue generated is considered part of capital funds and used specifically for the upkeep and operations of the lot and as such is not listed in operating revenue funding sources.

Table 7. Operating Funding Sources (FY 2015–FY 2019)

Funding Source	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Federal	$3,925,302	$3,950,496	$4,454,892	$5,119,703	$4,920,000
State	$3,877,364	$4,011,300	$4,136,582	$4,239,997	$4,486,343
Local	$3,877,364	$4,011,300	$4,136,582	$4,239,997	$4,345,997
Farebox	$860,890	$945,298	$799,195	$747,002	$1,087,353
Partnerships/contracts	$157,179	$158,514	$174,777	$215,604	$128,179
TOTAL	$12,698,099	$13,076,908	$13,702,028	$14,562,303	$14,967,872

Source: GATRA Revenue & Expense Data FY 2015 to FY 2019; GATRA Audited Financial Statement

Figure 10. Operating Funding Sources by Percent (FY 2015–FY 2019)
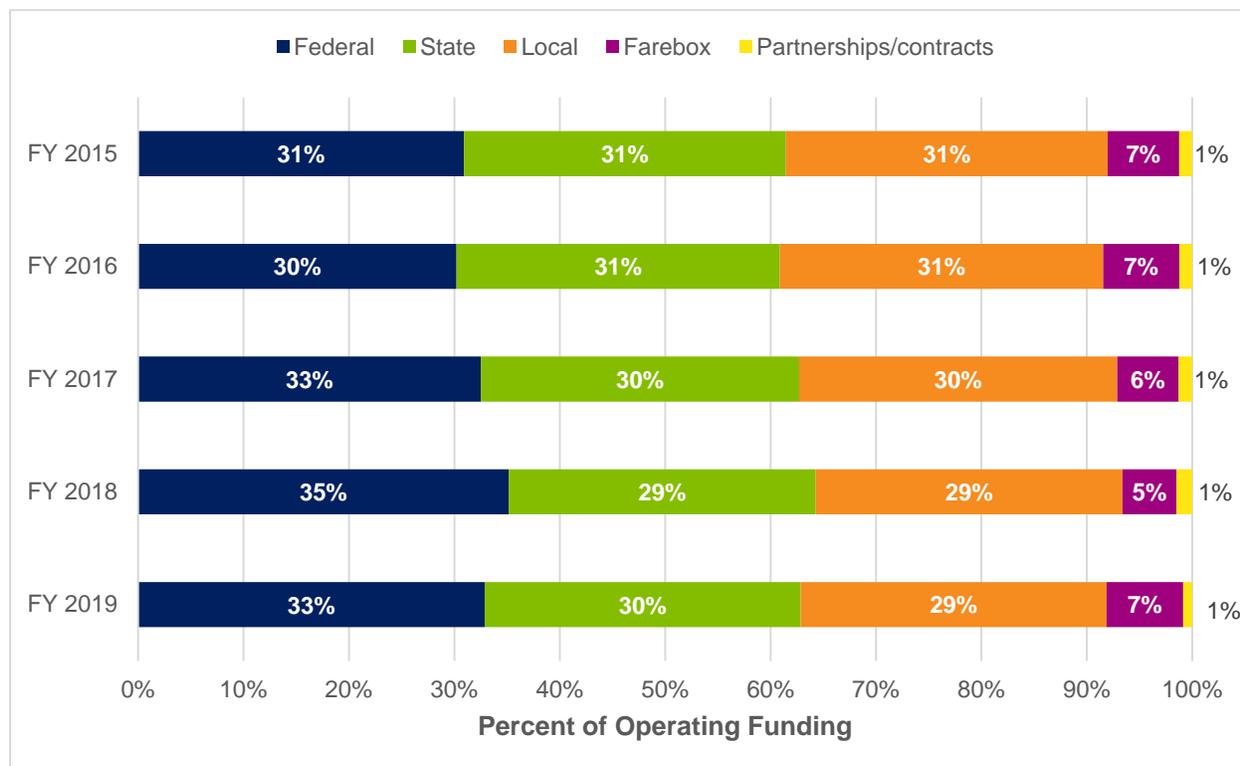
Source: GATRA Revenue & Expense Data FY 2015 to FY 2019; GATRA Audited Financial Statement

Table 8. Operating Contract Revenue (FY 2019)

Organization Contracted With	Annual Contract Revenue
Wheaton College	$94,120

Source: GATRA PTM Data

From FY 2015 to FY 2019 GATRA received between $3.5 and $5.1 million in capital funding (Figure 11). Each year the federal government provides 62 to 77 percent of the capital revenue primarily from the FTA Section 5309 Capital Program Funds, FTA Section 5307 Urbanized Area Funds, and a mix of other FTA funds and grants.[21] Each year GATRA also receives between 17 and 38 percent of capital funds from the Commonwealth of Massachusetts. Together federal and state sources make up the largest portion of capital revenue sources. In FY 2016 and FY 2018 GATRA also received capital funding from local sources and directly generated sources.

Figure 11. Capital Revenue Sources (FY 2015–FY 2019)
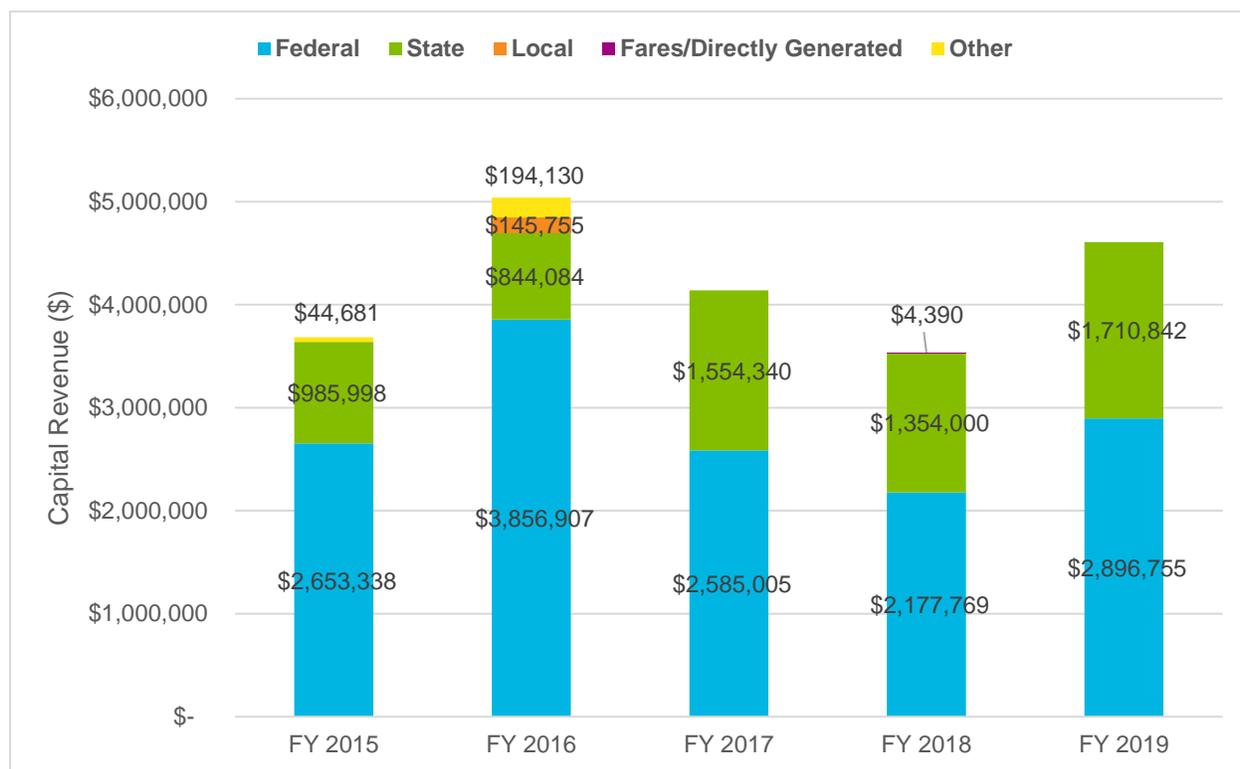
Source: NTD (FY 2015–FY 2019)

GATRA utilizes its capital funding for various capital expenditures; however, between FY 2015 and FY 2019 GATRA spent the largest part of its capital funding on revenue vehicles (49 to 60 percent) (Figure 12). From 2015 to 2017 GATRA also invested its capital funds in passenger stations. In more recent years larger portions of GATRA's capital funding has been used for guideway improvements and maintenance buildings.

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[21] Other Federal Funds include FTA Sections 5316, 5317, and 5339.

Figure 12. Capital Expenditures by Type (FY 2015–FY 2019)
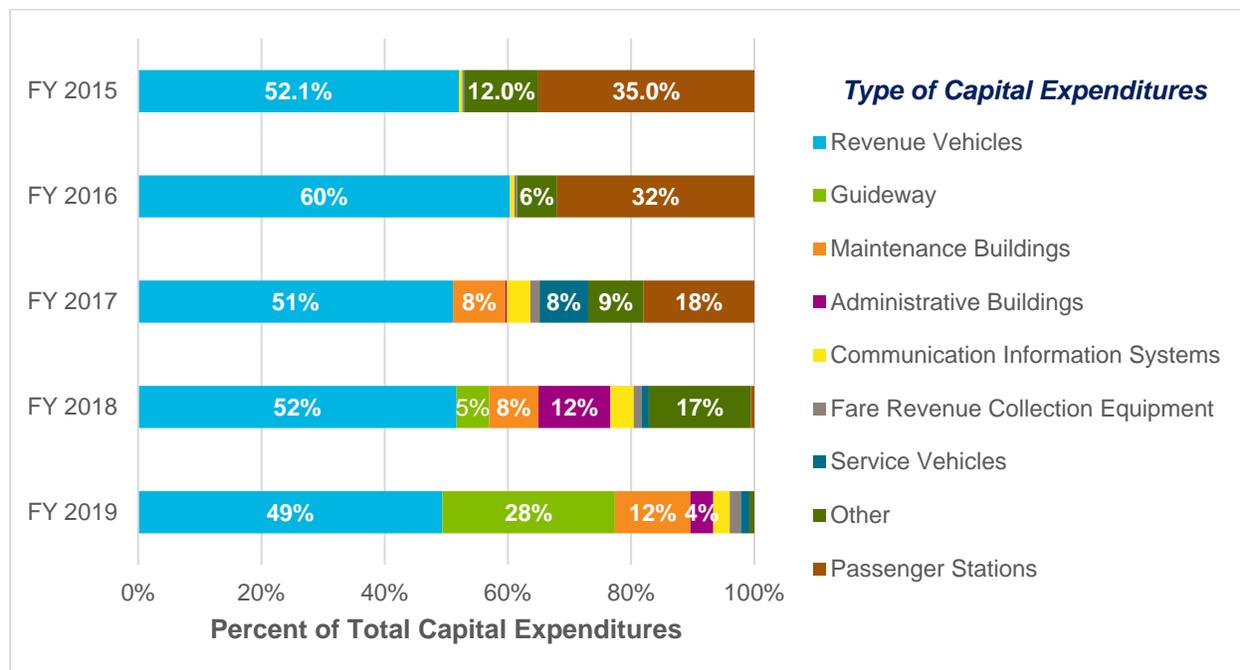
Source: NTD (FY 2015 – FY 2019)

4.1.4 Service Changes

GATRA has made changes to transit services since its last plan in 2014 (Table 9). They have added four new routes, including the Tri-Town Connector, the Scituate Loop (SLOOP), the Wareham-New Bedford Connection in partnership with Southeastern Regional Transit Authority (SRTA), and GATRA GO on-demand microtransit. GATRA has also made improvements to their facilities and technology by adding new bus shelters, renovating its bus terminals, and implementing Ride Match for its passengers.

Table 9. GATRA Service Changes (2014–2020)

Service Change	Year
Tri-Town Connector service added in Norfolk, Wrentham, and Foxborough	2014
Wareham/Lakeville Train Connector stop added at the park and ride in Wareham	
Travel training services expanded	
New service stop added in Norton/Mansfield	
New service added in Scituate, the Scituate Loop (SLOOP), providing shuttle bus service between Scituate Harbor and Greenbush MBTA	2015
Wareham-New Bedford Connection added between the GATRA and SRTA service area	2017
SLOOP service extended to North Scituate	
New Ride Match upgraded with Google technology to make searching for accessible transportation options easier and more accurate	

Service Change	Year
Route 3-Silver City/Myles Standish Industrial Park service eliminated due to a reduction in funding and low ridership	2018
Weekday service expanded for the Wareham-New Bedford Connection	
Service on the Wareham-New Bedford Connection expanded	2019
GATRA GO on demand, a new microtransit service, launched in the Mansfield area	
TPP Transportation Pilot Program, a new on demand service for seniors and persons with disabilities, launched in Plymouth. TPP members can book rides with Uber and Lyft.	
Seasonal Onset Beach Shuttle piloted with the City of Wareham	
Service changed due to COVID-19 pandemic	2020

Source: GATRA Annual Reports; GATRA Newsroom (2014-2020)

4.2   Ridership and Service Operations

This section provides an overview of ridership trends, a comprehensive review of performance can be found in Appendix A. GATRA's system ridership declined by 2.08 percent from FY 2015 to FY 2019; however, more recently, ridership increased by 4.18 percent between 2018 and 2019 (Figure 13). Overall ridership on the bus system declined approximately 3 percent each year, while demand response ridership increased 8 percent annually.

GATRA's monthly ridership trends for bus routes and demand response service are presented on Figure 14 for calendar years 2017 to 2019. Between 2017 and 2019, ridership was highest in August, September, and October and the lowest ridership was reported in January, February, and December. Overall, GATRA does not experience wide monthly or seasonal fluctuations in ridership. In general, GATRA ridership fluctuates from month to month and from year to year and does not vary seasonally.

Figure 13. Annual System Ridership Trends (FY 2015–2019)
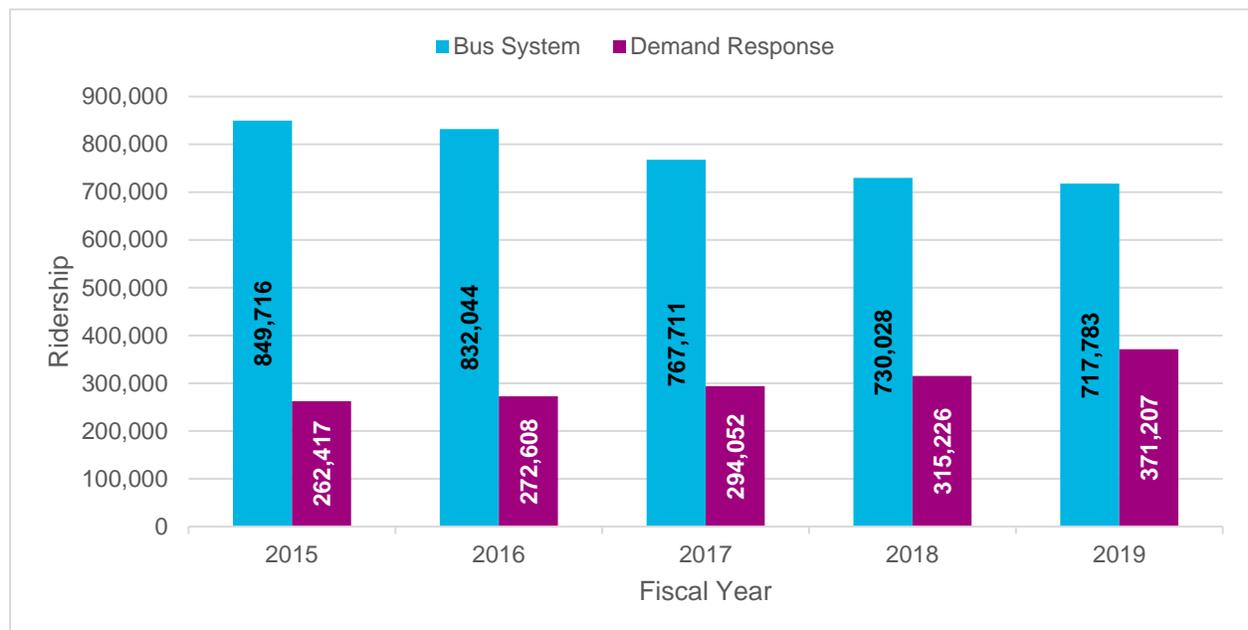
Source: GATRA Annual Reports, FY 2015-2019

Figure 14. Monthly Ridership Trends (2017–2019)
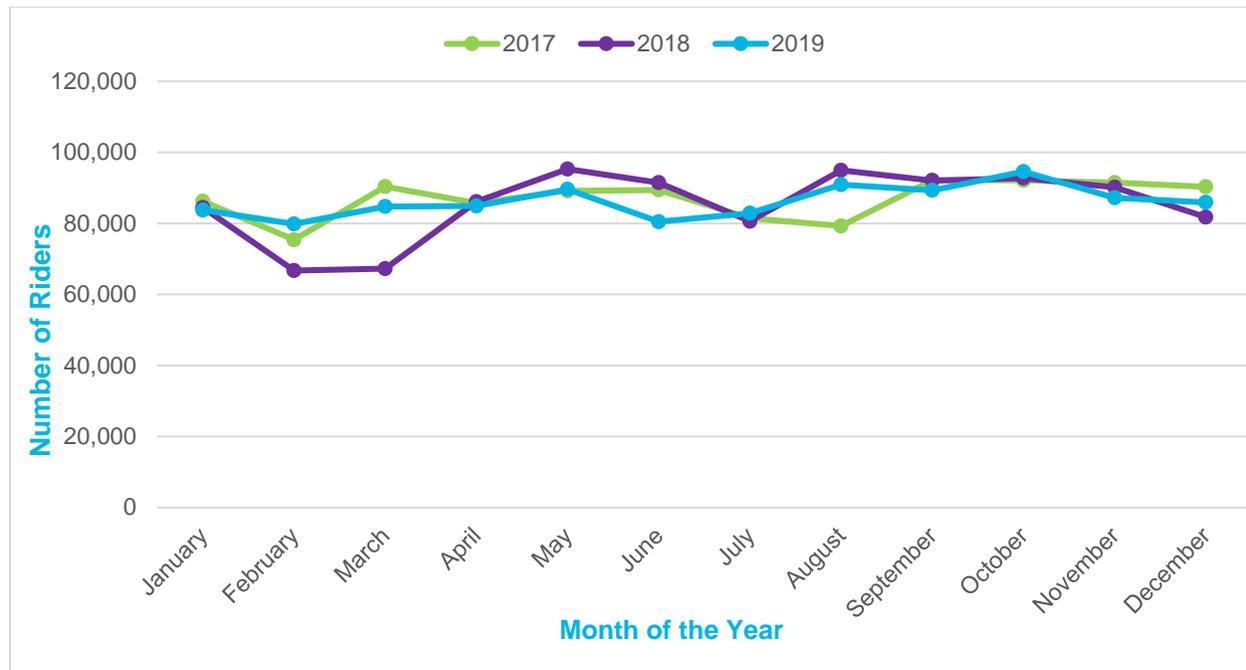
Source: NTD, Monthly Ridership 2017-2019

4.2.1 Bus Route Ridership

In FY 2019, Route 10 had the highest number of riders followed by Route 7 (Figure 15). Across GATRA's bus routes the fixed routes carried the most passengers, excluding Link 3. In general, commuter shuttles had the lowest ridership except the Foxborough MBTA Commuter Shuttle, which had more passengers than the other six commuter shuttles combined. On a daily basis, GATRA carries an average of 67 passengers on each bus route but it varies greatly from 186 to 3. The Pembroke Shuttle, Wareham-Plymouth Connection, and Link 3 average less than 15 passengers combined on a daily basis.

Overall weekday bus route ridership has dropped 16 percent since 2014, which is reflected in ridership at the route level, with 62 percent of applicable routes experiencing declines (Figure 16). Overall, Route 8 and Link 3 had the greatest percent decrease in average daily ridership and the Manomet Cedarville Link and Route 9 had the greatest percent increase since 2015 (Figure 17).

4.2.2 Demand Response Ridership

In 2019, annual ridership for all demand response routes, as shown on Figure 18, averaged approximately 14,500 passengers per service, but is greatly skewed by the urban areas. The demand response vehicles that serve the cities of Attleboro and Taunton had the highest ridership, and in general, those operated by PTM had higher ridership due to their urban nature. The community DARs operated by the COAs ranged from as high as 10,088 in Bellingham and as low as 1,794 in Medway. On a daily basis, GATRA averages 52 riders across all of its demand response services. On average 378 riders utilize PTM's demand response service in Attleboro and Taunton, whereas on average only 4 people utilize the Middleborough/Taunton Connection (Figure 19). GATRA's newest service, GATRA GO microtransit, averages about nine passengers per day.

4.2.3 Annual Operating Trends

GATRA operates more than 200,000 revenue hours per year with an average of 93,635 hours for bus routes and 120,678 hours for demand response. Overall, annual revenue hours for bus routes have declined since 2017, while demand response has increased (Figure 20).

Between FY 2015 and FY 2016, GATRA's annual revenue hours for bus routes increased 2 percent; however, in FY 2018 GATRA's annual revenue hours decreased by 13 percent (Table 10). Comparatively, demand response decreased 2 percent in FY 2017, but increased by 3 percent and 5 percent, respectively, between FY 2018 and FY 2019 (Figure 21).

GATRA operates an average of 1,700,000 revenue miles for bus routes and 1,500,000 revenue miles for its demand response service each year (Table 11). Since FY 2015, the number of revenue miles operated has increased for demand response and decreased for bus routes (Figure 22). Bus route revenue miles decreased sharply in FY 2018 by 18 percent from the year prior. During the same time period, demand response revenue miles increased by 5 percent (Figure 23).

Figure 15. Route Level Ridership – Bus Routes (FY 2019)
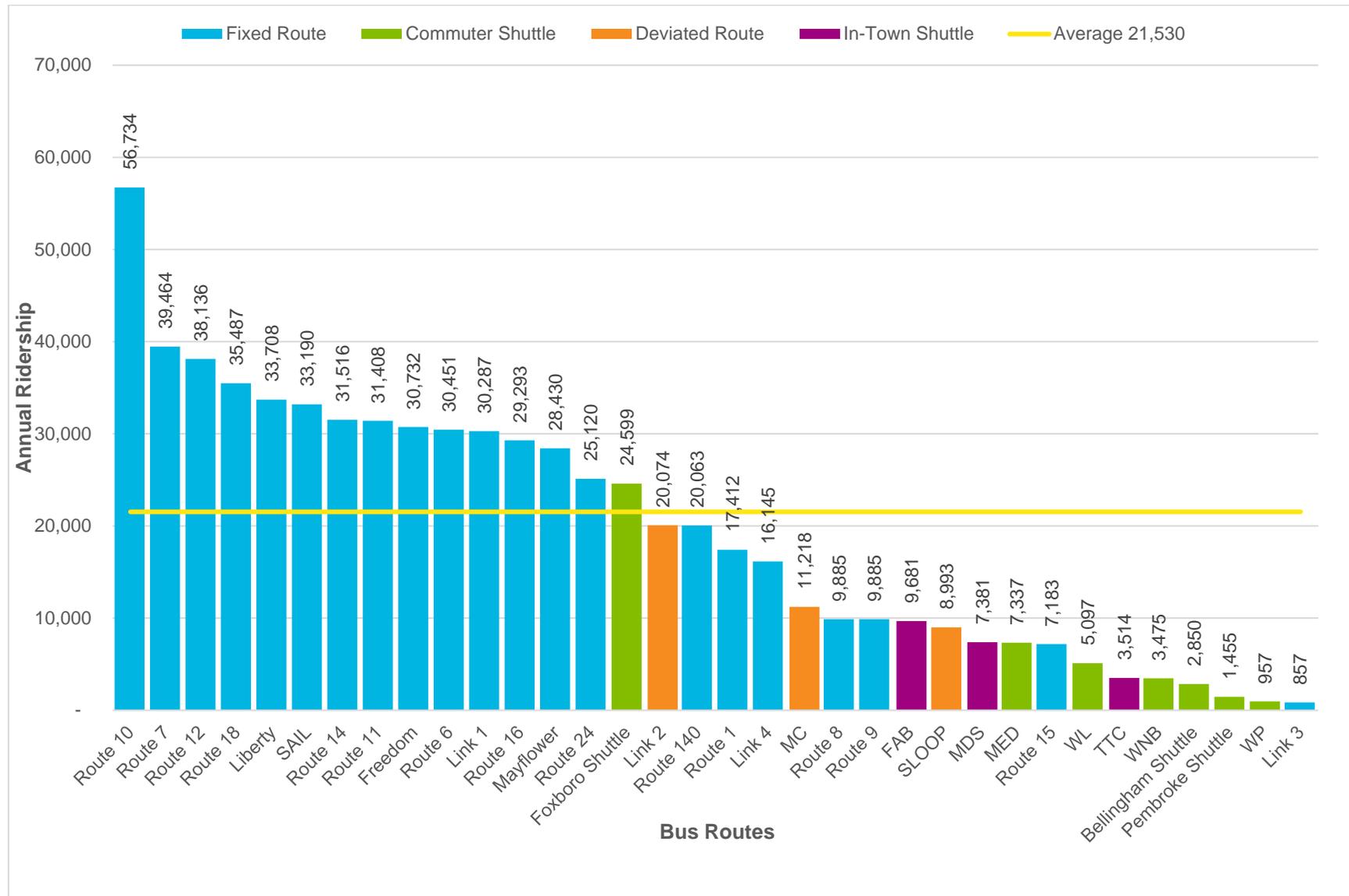
Source: GATRA monthly ridership report

Note: Due to how data are reported, the summation of the bus route ridership by route may differ from other sources.

Figure 16. Bus Route Average Daily Ridership (FY 2019)

Legend: Fixed Route · Commuter Shuttle · Deviated Route · In-Town Shuttle · Average

Y-axis: Average Daily Ridership
X-axis: Bus Routes

Values by route:
- Route 10: 186
- Route 7: 129
- Route 12: 125
- Route 18: 116
- Liberty: 111
- SAIL: 109
- Route 14: 103
- Route 11: 103
- Freedom: 101
- Route 6: 100
- Link 1: 99
- Route 24: 99
- Foxboro Shuttle: 97
- Route 16: 96
- Mayflower: 93
- Link 2: 66
- Route 140: 59
- Route 1: 57
- Link 4: 53
- MC: 44
- Route 8: 32
- Route 9: 32
- FAB: 32
- MDS: 29
- MED: 29
- Route 15: 24
- SLOOP: 21
- WL: 20
- WNB: 14
- TTC: 12
- Bellingham Shuttle: 11
- Pembroke Shuttle: 6
- WP: 4
- Link 3: 3

Average, 67

Source: Calculated from the GATRA monthly riderhsip report

Figure 17. Percent Change in Average Daily Ridership (FY 2014–FY 2019)
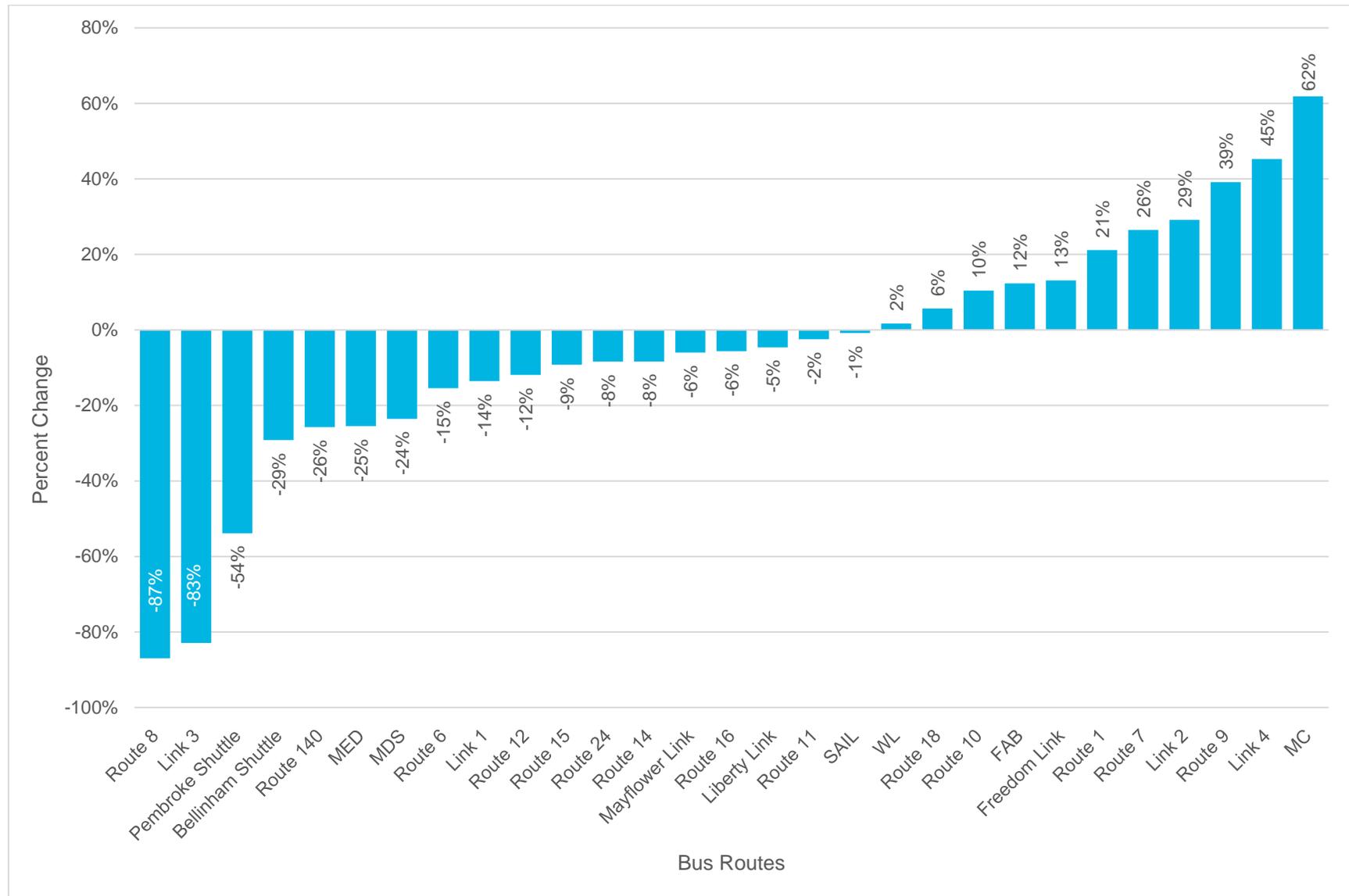
Source: GATRA RTP, 2015

Note: Does not include all of GATRA's current bus routes as of FY 2019 as some routes were not yet formed in the last transit plan.

Figure 18. Route Level Ridership – Demand Response (FY 2019)
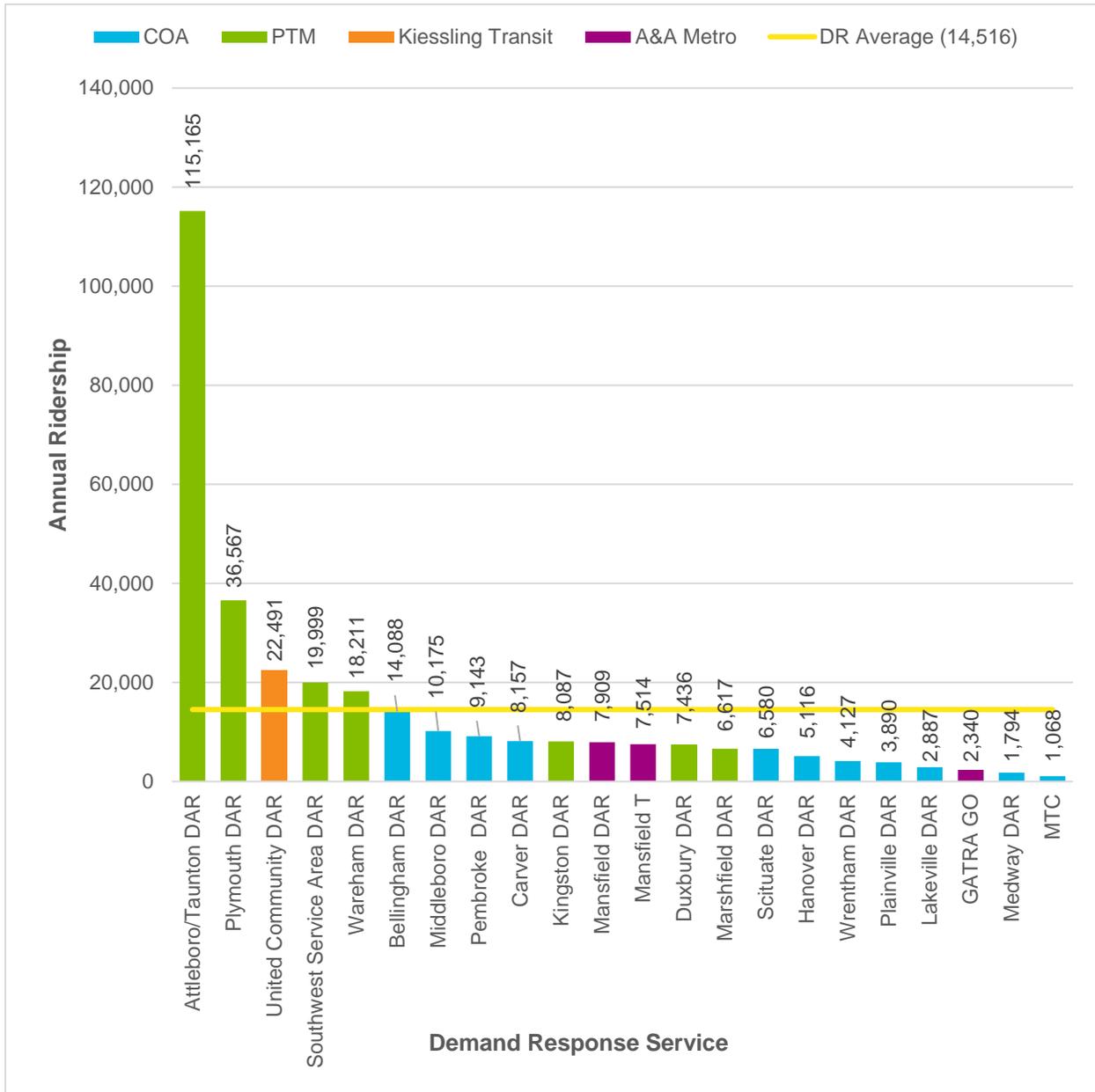
Source: GATRA monthly ridership report

Figure 19. Demand Response Average Daily Ridership (FY 2019)
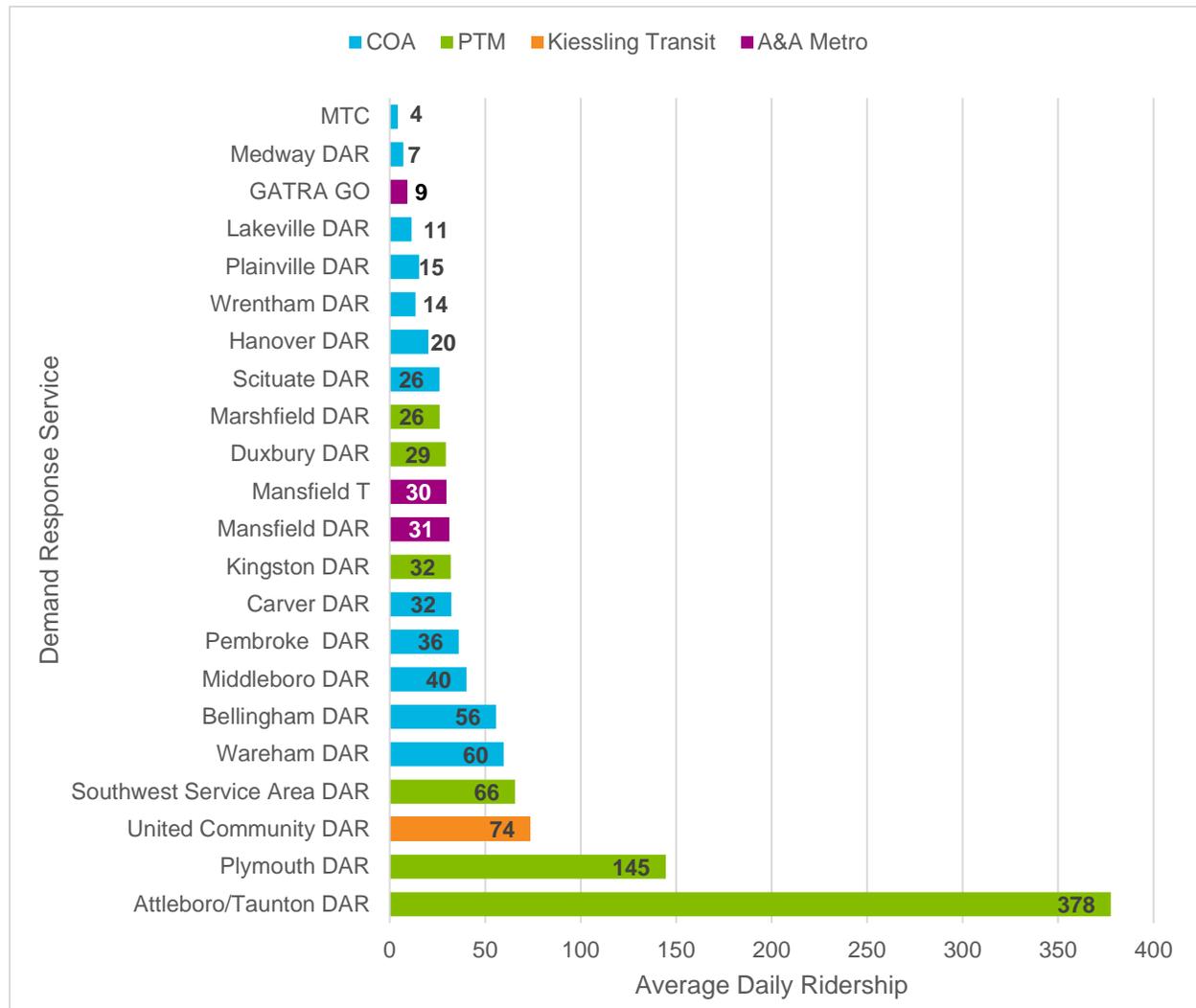
Source: Calculated from the GATRA monthly ridership report

Table 10. Annual Revenue Hours (FY 2015–FY 2019)

Service Type	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Bus*	95,916 (46%)	97,585 (45%)	98,342 (45%)	87,091 (41%)	89,242 (41%)
Demand Response	112,838 (54%)	117,893 (55%)	119,697 (55%)	123,107 (59%)	129,857 (59%)
TOTAL	**208,754 (100%)**	**215,478 (100%)**	**218,039 (100%)**	**210,198 (100%)**	**219,099 (100%)**

Source: MassDOT BlackCat, FY 2015-2019

*Includes commuter bus and fixed route as it varies year to year on how it is reported to NTD and the state.

Figure 20. Annual Revenue Hours by Service Type (FY 2015–FY 2019)
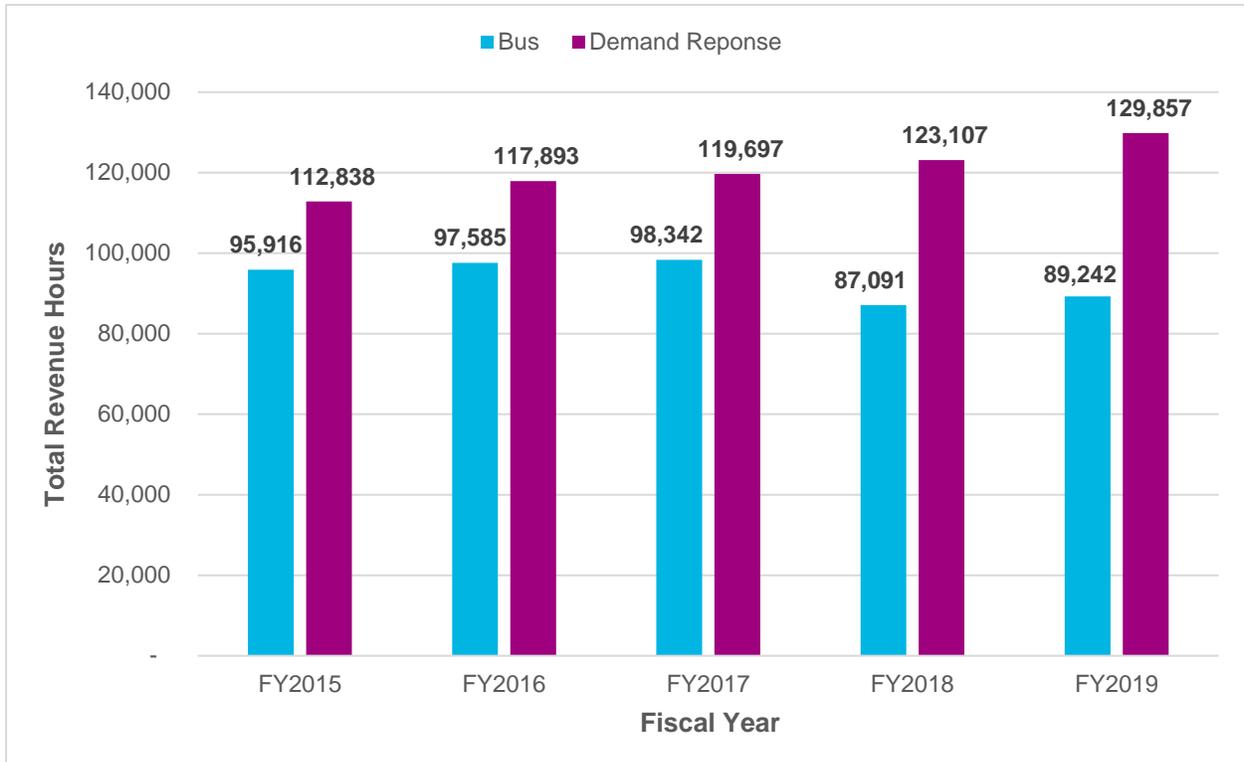
Source: MassDOT BlackCat, FY 2015-2019

Figure 21. Percent Change in Annual Revenue Hours (FY 2015–FY 2019)
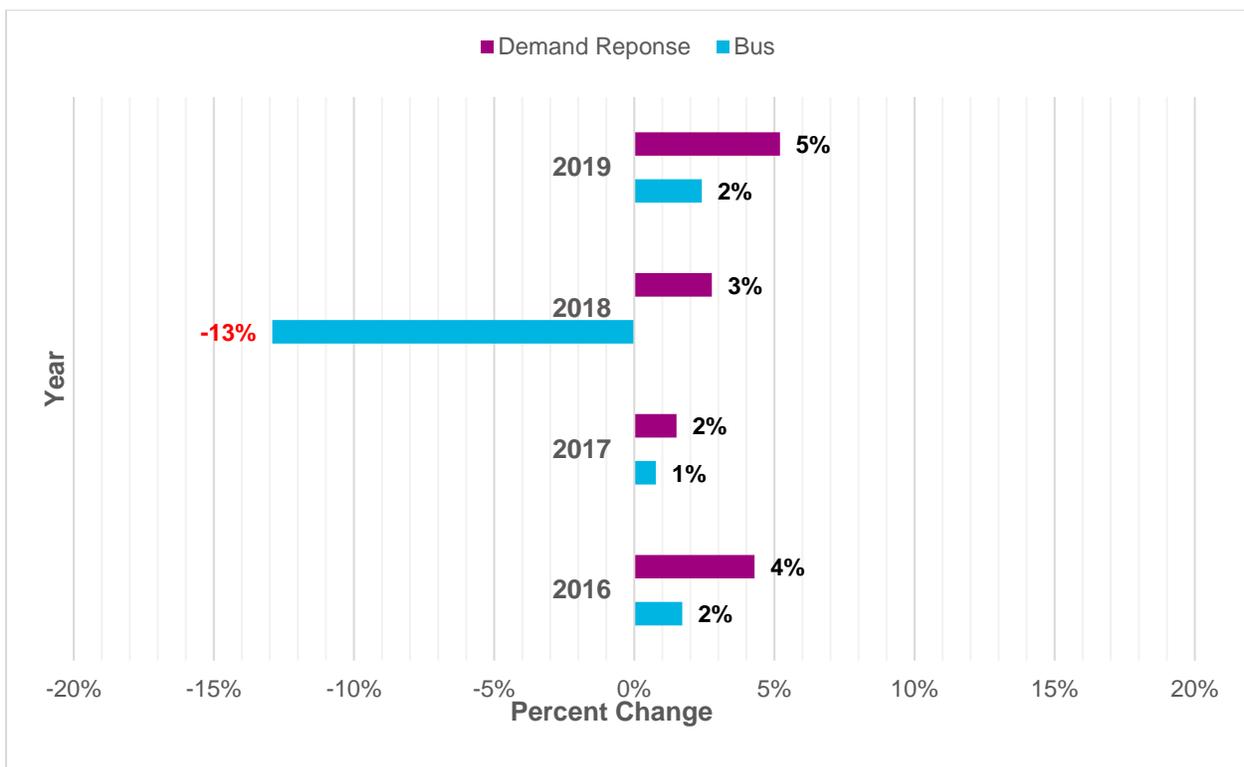
Source: MassDOT BlackCat, FY 2015-2019

Table 11. Annual Revenue Miles (FY 2015–FY 2019)

Service Type	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Bus	1,722,613 (55%)	1,794,717 (55%)	1,799,065 (54%)	1,566,599 (49%)	1,648,332 (50%)
Demand Response	1,381,629 (45%)	1,460,616 (45%)	1,525,564 (46%)	1,600,543 (51%)	1,676,459 (50%)
TOTAL	**3,104,242 (100%)**	**3,255,333 (100%)**	**3,324,629 (100%)**	**3,167,142 (100%)**	**3,324,791 (100%)**

Source: MassDOT Black Cat, FY 2015-2019

Figure 22. Annual Revenue Miles by Service Type (FY 2015–FY 2019)
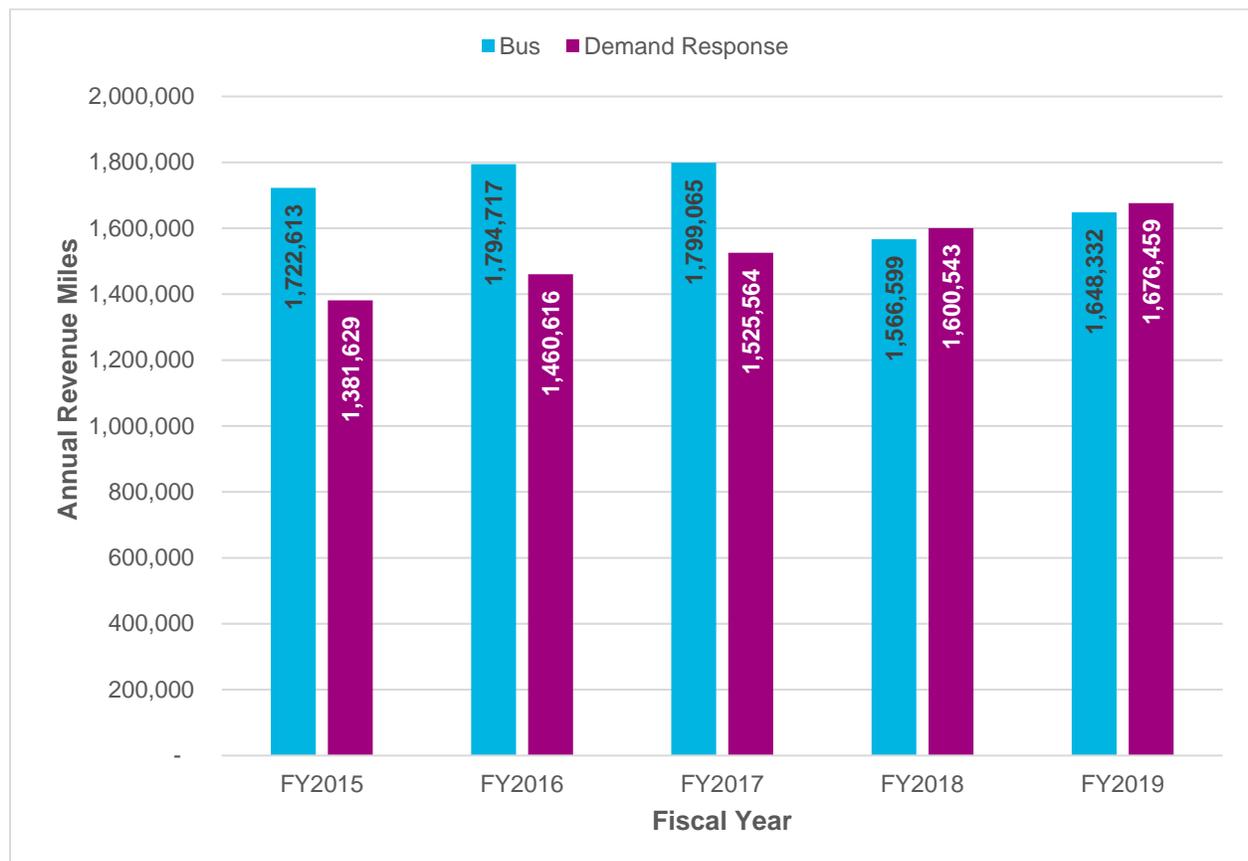
Source: MassDOT BlackCat, FY 2015-2019

Figure 23. Percent Change in Annual Revenue Miles (FY 2015–FY 2019)
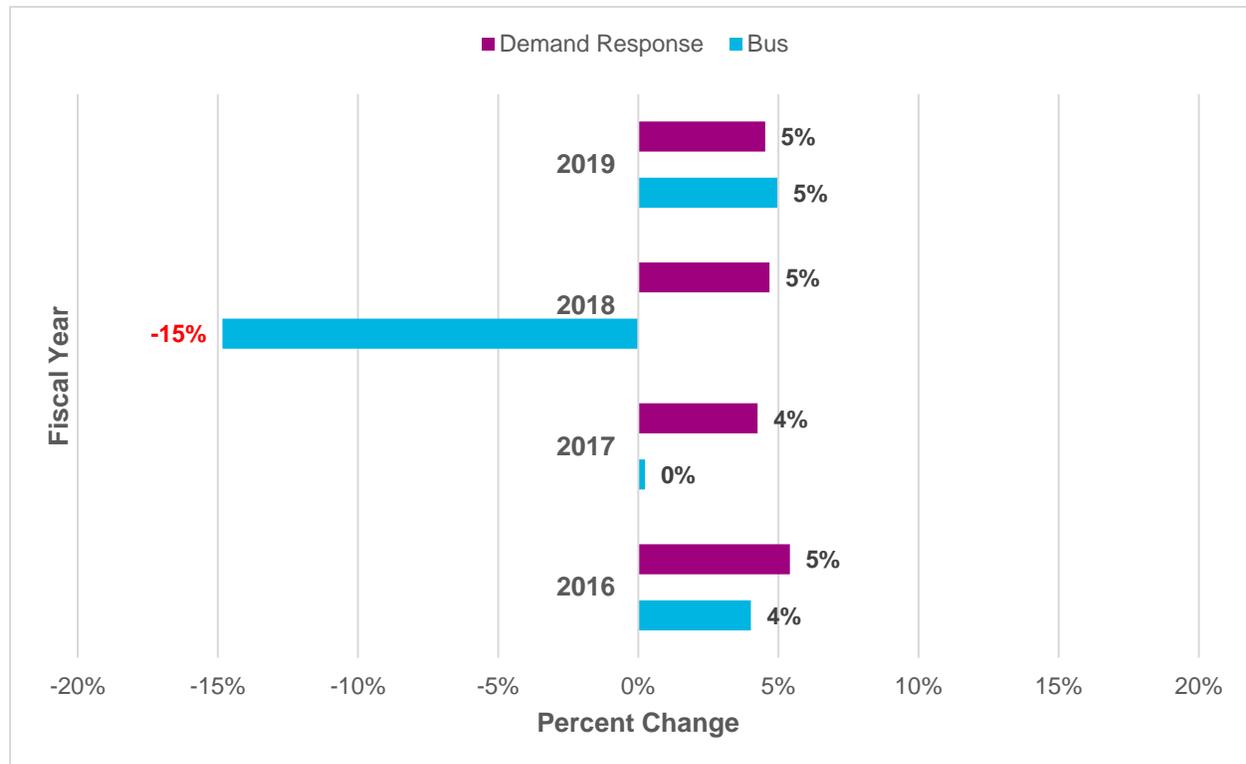
Source: MassDOT BlackCat, FY 2015-2019

GATRA's operating cost for its bus routes averaged $7 million per year and for its demand response averaged $6.8 million from FY 2015 to FY 2019 (Table 12). Operating costs for both service types remained relatively consistent from year to year; however, in FY 2019 demand response costs were greater than bus routes (Figure 24). During the same time period, annual revenue miles and revenue hours operated for demand response increased, thus contributing to the rise in costs, which have grown each year between 3 percent and 7 percent. Bus route costs steadily increased between FY 2015 and FY 2018 by 1 and 2 percent each year. However, in FY 2019 costs only increased by 0.3 percent from the year prior (Figure 25).

Table 12. Annual Operating Cost (FY 2015–FY 2019)

Service Type	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Bus	$6,589,959 (52%)	$6,748,377 (52%)	$7,021,763 (51%)	$7,361,165 (51%)	$7,382,031 (49%)
Demand Response	$6,108,141 (48%)	$6,328,531 (48%)	$6,680,265 (49%)	$7,201,139 (49%)	$7,585,841 (51%)
TOTAL	**$12,698,100 (100%)**	**$13,076,908 (100%)**	**$13,702,028 (100%)**	**$14,562,304 (100%)**	**$14,967,872 (100%)**

Source: GATRA Revenue and Expenses, FY 2015-2019

Figure 24. Annual Operating Cost by Service Type (FY 2015–FY 2019)
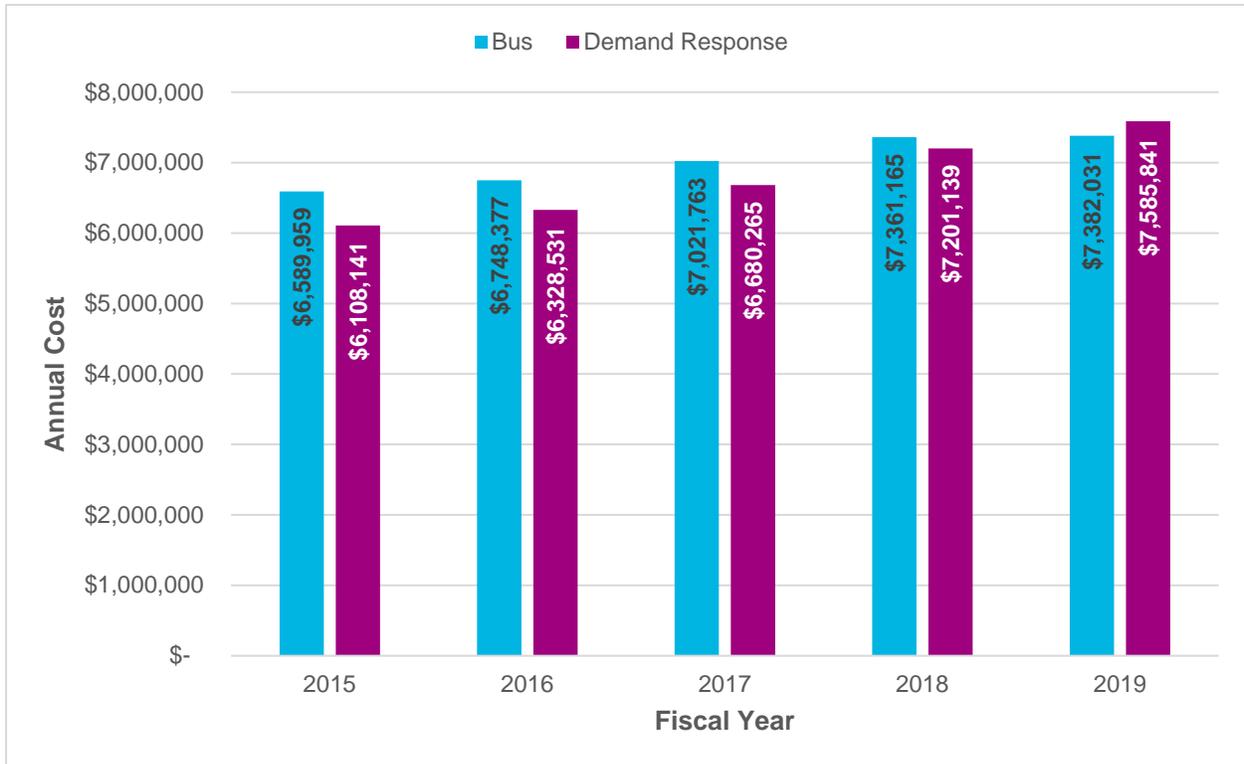
Source: GATRA Revenue and Expenses, FY 2015-2019

Figure 25. Percent Change in Operating Costs (FY 2015–FY 2019)
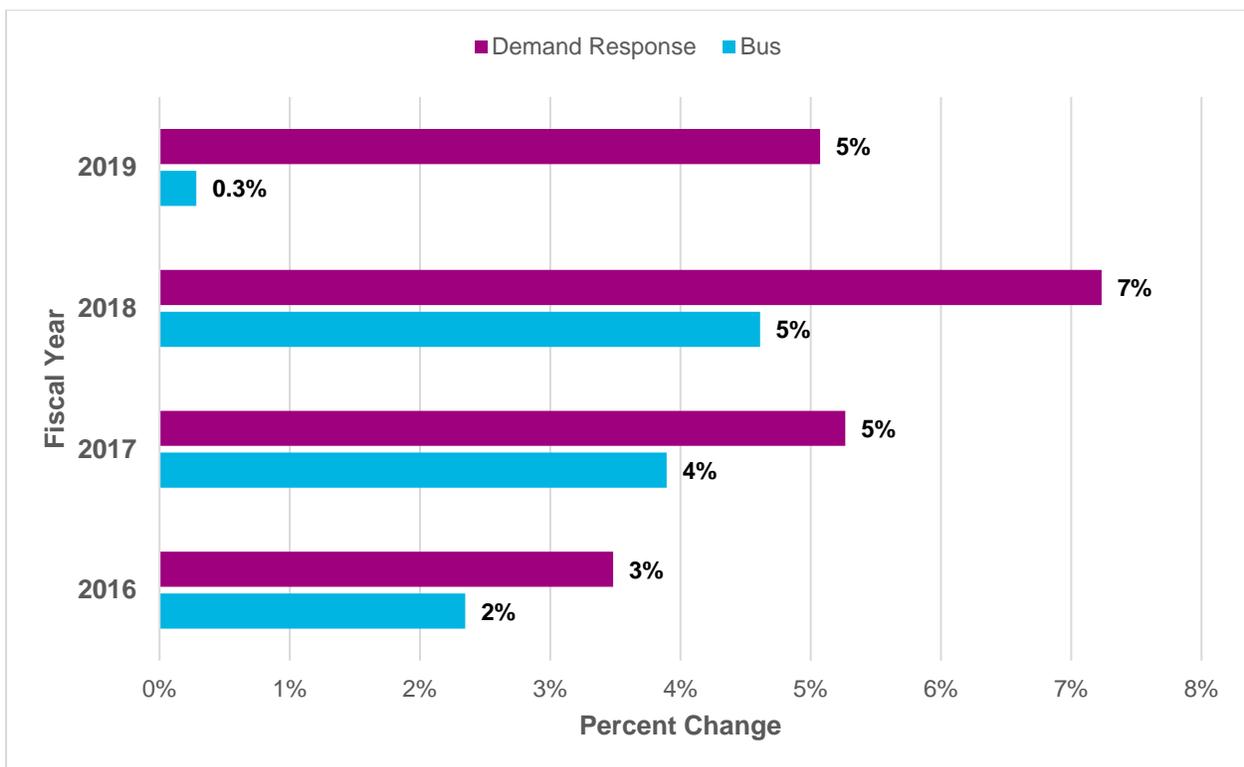
Source: GATRA Revenue and Expenses, FY 2015-2019

4.3   Safety and Security

FTA rule 49 CFR 673 requires transit operators who are recipients or sub-recipients of Section 5307 funding to develop safety plans (PTASP) that include the processes and procedures to implement safety management systems by December 31, 2020. As part of the PTASP, performance targets based on safety performance measures (fatalities, injuries, safety events, system reliability) are established in FTA's National Public Transportation Safety Plan (NSP).

Preventable accidents are used to measure safety. An accident is considered preventable when the operator has failed to do everything reasonable to prevent the accident. In FY 2019, GATRA had 0.88 preventable accidents per 100,000 vehicle revenue miles for bus transit (Figure 26) and 0.96 for demand response (Figure 27). In FY 2016, GATRA had a high number of preventable accidents but this has since decreased.[22]

GATRA has had two fatalities (September 2017 and August 2015), both of which occurred from vehicle accidents involving a GATRA bus. In FY 2015 and FY 2016, GATRA had more safety events and injuries per 100,000 vehicle revenue miles compared to other fiscal years. Safety events occur more frequently on bus transit than demand response, while injuries occur most frequently on demand response service. No injuries (Figure 28) or safety events (Figure 29) were reported in FY 2019 for bus transit; however, demand response recorded one injury and two safety events in FY 2019.

Figure 26. Bus Transit Average Number of Preventable Accidents per Vehicle Revenue Mile (FY 2016–FY 2019)
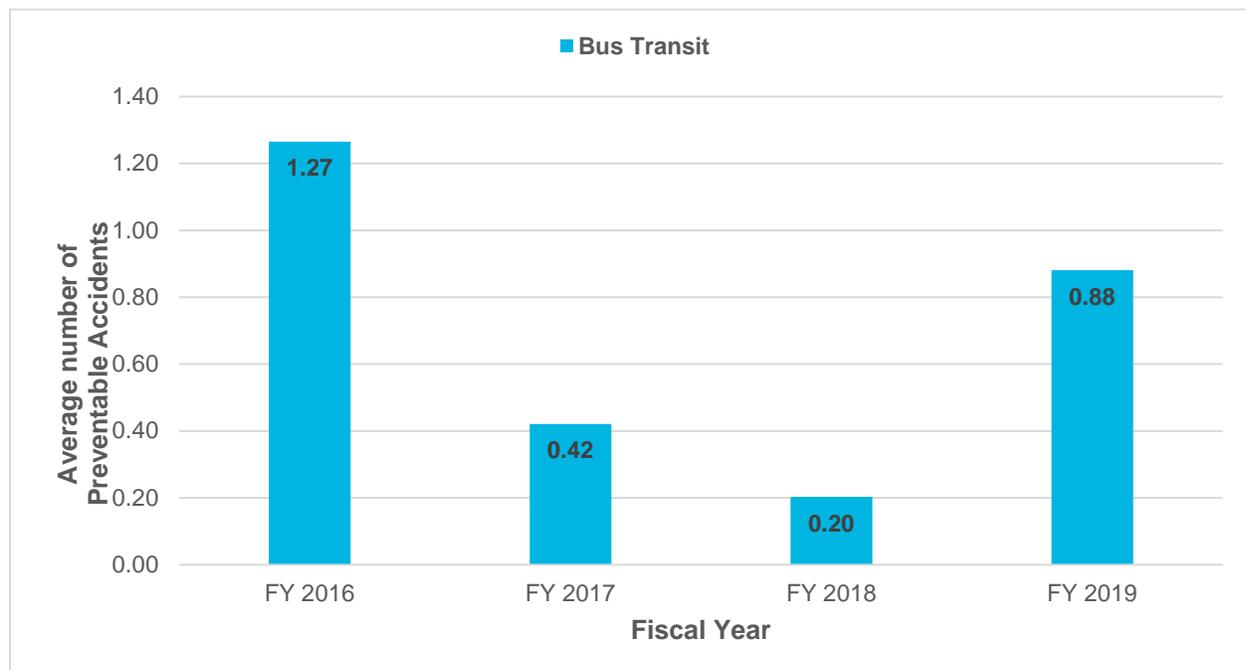
Source: GATRA Performance Measures for Fixed Route & Demand Response, FY 16 to FY 19, All Quarters. Excludes Human Services Routes: Boston Hospital Bus, Miles for Health & Med Wheels

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[22] GATRA performance measures data were not available for FY 2015.

Figure 27. Demand Response Average Number of Preventable Accidents per Vehicle Revenue Mile (FY 2016–FY 2019)
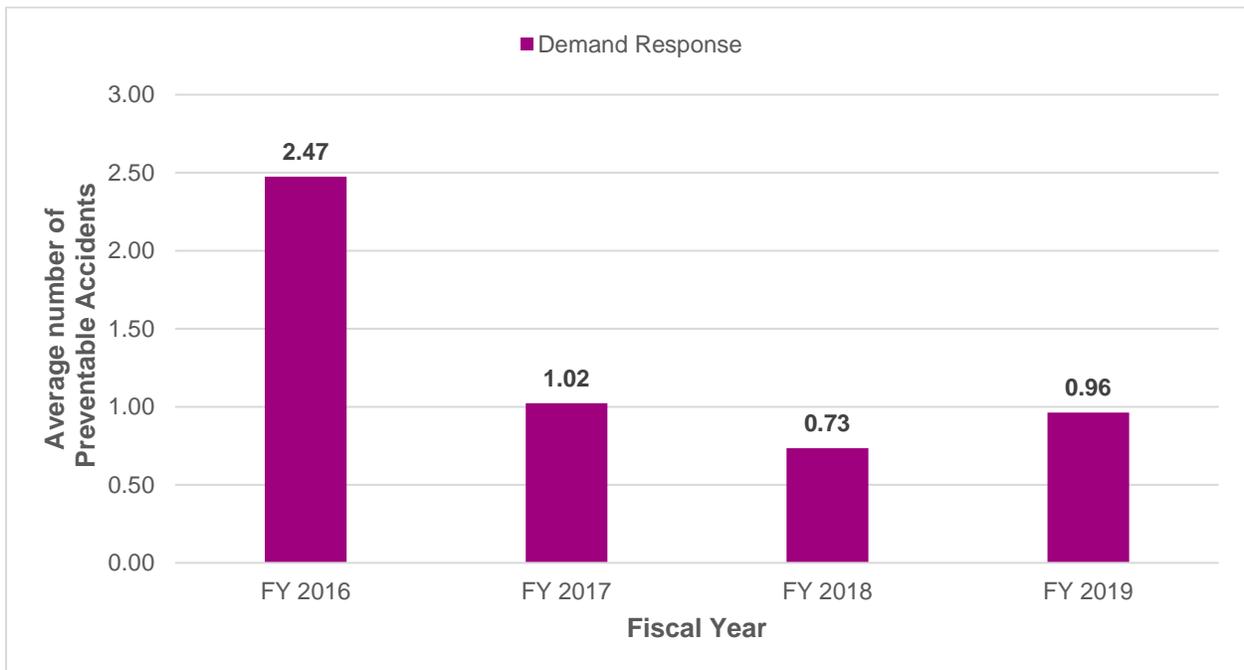
Source: GATRA Performance Measures for Fixed Route & Demand Response, FY 16 to FY 19, All Quarters. Excludes Human Services Routes: Boston Hospital Bus, Miles for Health & Med Wheels

Figure 28. Injuries per 100,000 Vehicle Revenue Mile (FY 2015–FY 2019)
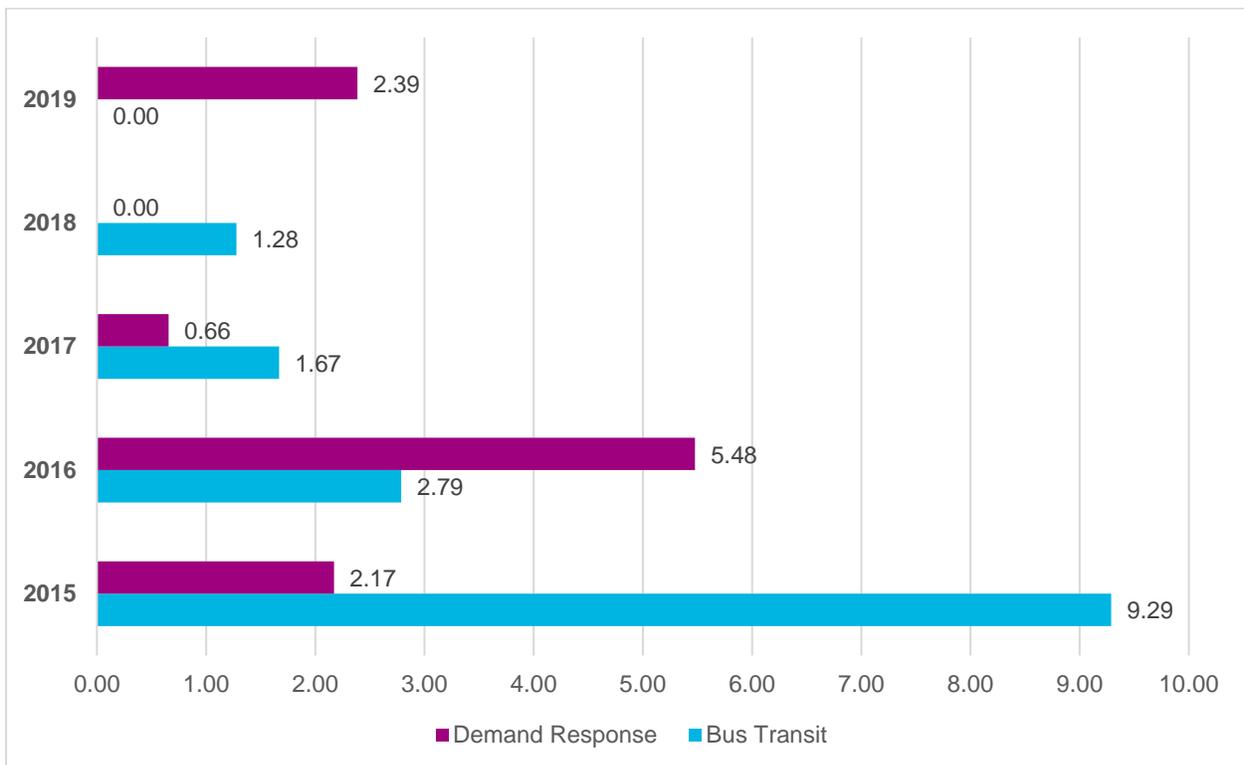
Source: 2019 NTD Safety and Security Time Series data for GATRA

Figure 29. Safety Events per 100,000 Vehicle Revenue Miles (FY 2015–FY 2019)
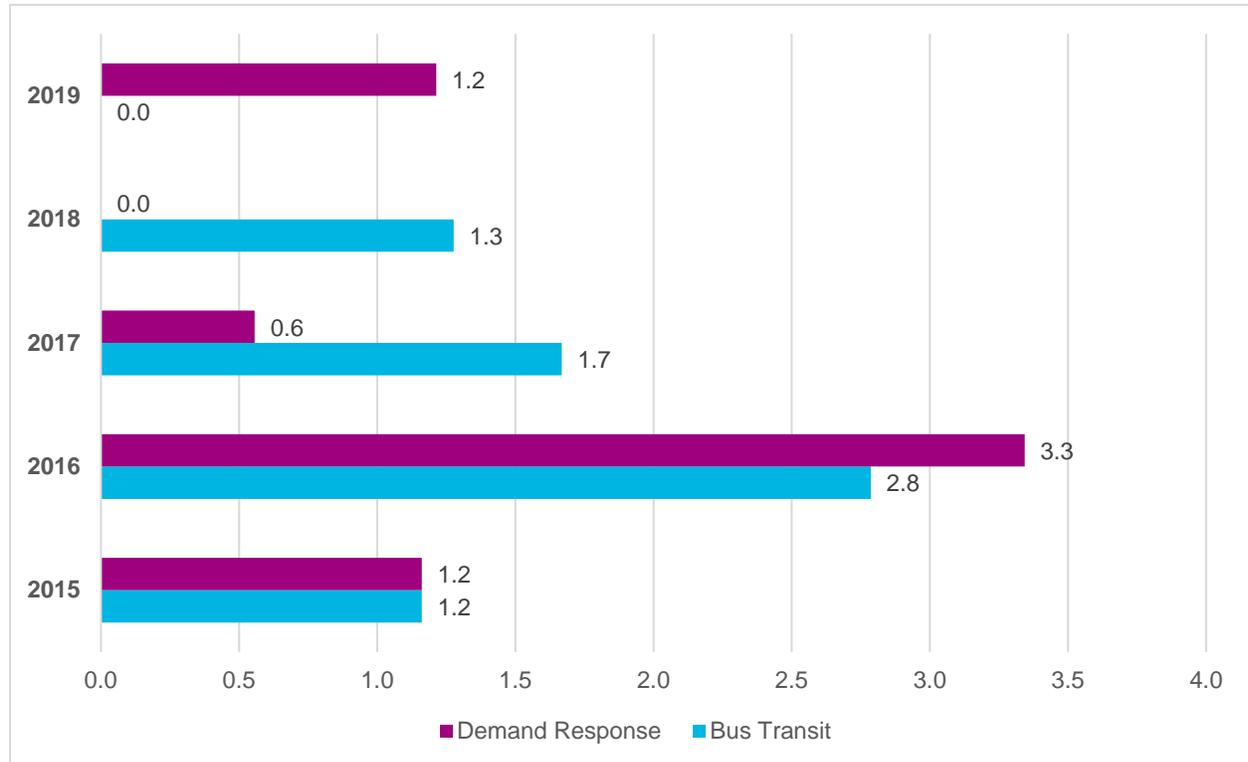
Source: 2019 NTD Safety and Security Time Series data for GATRA

4.4   Asset Management

As a recipient of FTA funds, GATRA is required to develop and maintain a TAM Plan. GATRA's TAM Plan for FY 2019 provides information about the inventory of assets, including vehicles and facilities and the overall condition of those assets. GATRA has 14 maintenance staff members, 10 full-time and 4 part-time. In addition to the TAM Plan GATRA utilizes Vehicle Maintenance and Facility Maintenance Plans, which includes details about the inspection process as well as the appropriate documentation forms used to assess facility and vehicle assets.

In GATRA' TAM Plan, the agency lists capital improvement investments from FY 2019 to FY 2023 (Table 13). The plan includes federal and state funding anticipated over the time period and incorporates planned preventive maintenance and operating assistance. Planned capital investments are focused on vehicles (buying and replacing), technology (acquiring new), and facilities (improving and rehabilitating).

Table 13. Capital Improvement Plan - Prioritized List of Investments

Year	Vehicles	Technology	Facilities
FY 2019	Buy Replacement: • Van (6) • 30-foot Bus (4) • <30-foot Bus (3)	• Acquire miscellaneous support equipment - Non-Fixed Route ADA Paratransit Service • Acquire mobile surveillance/security equipment	• Maintenance facility upgrades • Maintenance facility repaving • Terminal building and parking area lighting upgrade • Administrative office renovations • Solar canopy retrofit - bus shelters (18) • Construct - North Attleborough Bus Station • Rehab/renovate – rail station
FY 2020	Buy Replacement: • Van (5) • 30-foot Bus (2) • <30-foot Bus (4)	• Acquire miscellaneous support equipment	• Purchase landscaping/scenic beautification • Rehab/renovate – rail station
FY 2021	Buy Replacement: • Van (5) • 30-foot Bus (2) • <30-foot Bus (3)	• Acquire miscellaneous support equipment	• Purchase landscaping/scenic beautification • Rehab/renovate – rail station
FY 2022	Buy Replacement: • Van (5) • <30-foot Bus (3)	• Acquire miscellaneous support equipment	• Purchase landscaping/scenic beautification • Rehab/renovate – rail station
FY 2023	Buy Replacement: • Van (5) • <30-foot Bus (3)	• Acquire miscellaneous support equipment	• Purchase landscaping/scenic beautification • Rehab/renovate – rail station

Source: GATRA TAM Plan (2018–2023)

4.4.1 Facilities

GATRA maintains four facilities, outlined in Table 14, which include an administration office, maintenance facility, intermodal terminal, and bus shelter located in Taunton and Attleboro. For each of its facilities, GATRA documents a State of Good Repair to determine its Transit Economic Requirements Model (TERM) rating, as outlined by FTA's Economic Requirement Model, used to describe the condition of an asset. TERM ratings above a three are considered to be in adequate (3), good (4), or excellent (5) condition. All of GATRA's facilities are either at or above a TERM rating of 3.

GATRA has continued to invest in its facilities. In 1990, the construction of the Harry Bloom Maintenance Facility in Taunton was completed and in 2012 safety and energy modifications were added, which included egress improvements and new energy efficient lighting. As part of the Attleboro Downtown Revitalization and Redevelopment project in November 2013, the Attleboro Intermodal Transportation Center was opened to improve access to transit parking and add a new busway, shelter, and associated amenities including bicycle storage with the

goal of enhancing customer connection between MBTA rail and local GATRA bus service. In 2014, GATRA's administrative offices were upgraded, which included a larger call center and upgrades to HVAC, plumbing, and electrical.

Table 14. Facility Inventory Summary

Facility Name	Type	Location	Direct Capital Responsibility	Operator	Facility Age	TERM Rating
Administration Office	Administration	Taunton	Yes	GATRA	27	3
Harry Bloom Maintenance Facility	Bus Maintenance Facility	Taunton	Yes	GATRA	28	4
Attleboro Intermodal Transportation Center (AITC)	Intermodal Terminal	Attleboro	Yes	GATRA	5	5
Attleboro Bus Shelter	Bus Shelter	Attleboro	Yes	GATRA	31	4

Source: GATRA TAM Plan, FY 2019

4.4.2 Vehicles

GATRA has 144 active vehicles in its fleet, including 27 heavy duty buses, 41 medium duty buses, and 92 vans plus 10 non-revenue service vehicles (Table 15).[23] The fleet ranges in age from 15 years to less than a year old with the average being 5.4 years old. The average age of heavy-duty buses is 7.2 years, of light duty buses is 6.9 years, and of vans is 4.1 years. The bus fleet is comprised entirely of diesel vehicles.

The TAM Plan outlines the ULB or the expected lifecycle or acceptable period of use in service for a vehicle classification. The ULB is determined based on the type of vehicle, the number of years of service, and the mileage. Heavy duty buses are a mix of 30- and 35-foot Gillig's, New Flyers, and Orions with the oldest ones (four Orion 30-foot buses) being placed into service in 2003 and having more than 500,000 miles, far exceeding their ULB. Overall, 44 percent of the heavy-duty buses are past their ULB. Seventeen percent of GATRA's medium duty buses were greater or equal to the ULB, far less than the agency's target for those vehicles. Vans make up a majority, 57 percent, of the GATRA fleet and 36 percent are past their ULB. Overall, slightly less than one-third of the revenue fleet is beyond its ULB.

Spare ratio is defined as the number of spare vehicles as a percentage of vehicles required for maximum service. FTA sets a guideline that the number of spare buses in the active fleet for grantees operating 50 or more revenue vehicles should not exceed 20 percent of the number of vehicles operated in maximum service. GATRA's spare ratio for its rolling stock is 27 percent.

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[23] Fleet inventory and information is as recorded in the GATRA TAM Plan dated September 28, 2018.

Table 15. Vehicle Inventory Summary (FY 2019)

Vehicle Type	Total Number	Average Age	ULB	Total Assets ≥ ULB	Percent of Assets ≥ ULB	FY 2019 Target Percent
Rolling Stock						
Bus 30 foot + (Heavy Duty)	27	7.2	10–12 years or 350,000– 500,000 miles	12	44%	28%
Bus <30 foot (Medium Duty)	41	6.9	7–10 years or 200,000–350,00 miles	7	17%	29%
Van	92	4.1	4 years or 100,000 miles	33	36%	37%
Non-Revenue Vehicles						
Maintenance, Operation, and Administration	10	--	--	--	--	--
Total	170	--	4–12 years or 100,000– 500,000 miles	52	-	-

Source: GATRA TAM Plan Life Summary Report, 2019.

In FY 2021, GATRA is planning to replace two 30-foot buses, five non-fixed route ADA paratransit vans, and three less than 30-foot buses, as outlined in the TAM Plan. GATRA explored the possibility of purchasing alternative fuel vehicles such as battery electric buses (BEB), fuel cell, and compressed natural gas but found that to convert the entire fleet to BEB would require expanding the fleet size to accommodate the shorter mile range experienced by BEB. Converting to compressed natural gas would be difficult and costly as it would require an upgrade and redesign of the facility to meet current codes for storing vehicles with gaseous fuels indoors, in addition to new fueling stations. Additionally, all three alternative modes were found to have a higher capital cost to procure vehicles. In FY 2022, as part of the Volkswagen settlement, GATRA will be receiving five electric buses. These vehicles will be utilized on Taunton-based routes and GATRA is anticipating that vehicles will only be able to operate ½ day given the mile range[24] and is planning accordingly.

4.4.2.1   Vehicle Maintenance

As part of its vehicle maintenance GATRA keeps a detailed record of vehicle repair history, which includes information about the vehicle serviced, the date of service, the type of work performed, the cost for parts and labor, and the mechanic who was responsible for the repair. Vehicle repair history reports were provided by GATRA for the time period from February 2015 to February 2020. In FY 2019, GATRA had 100 percent on-time maintenance for both modes.

For DAR vehicles, for the 5-year period analyzed, there were 1,026.96 labor hours at a cost of $66,307 and an associated parts cost of $12,767.70. This is a total cost of $79,074.07 for demand response required maintenance. For bus routes, there were 1,812.32 labor hours at a

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[24] GATRA will be procuring long range BEB, which require overnight charging and do not utilize on-road charging infrastructure.

cost of $108,030.20 and a parts cost of $89,925. This is a total cost of $197,955.20 for bus route vehicle maintenance.

4.4.2.2   Road Calls

A road call is a mechanical failure of a bus in revenue service that necessitates removing the bus from service until repairs are made. The frequency of road calls is monitored to measure maintenance performance but is also an indicator of an aging fleet. Each road call disrupts service and creates an inconvenience to customers. Average miles operated between failures or road calls provide GATRA with an overview of the effectiveness of their preventive maintenance programs and repair maintenance programs, with the caveat that an aging fleet, such as GATRA's, inevitably suffers more frequent breakdowns.

The total number of miles between road calls for both bus transit and demand response is displayed on Figure 30. The total number of miles between road calls was greater in FY 2015 for bus routes compared to other fiscal years and has since declined from an average of 1.4 million miles between calls to 200,000, indicating that the performance is decreasing. Demand response experienced an increase in the number of miles between road calls since FY 2015.

Monthly trends for miles between road calls for both bus transit and demand response are presented on Figure 31 and Figure 32.[25] For bus routes, the number of miles between road calls is higher during the winter and lower during the summer months. This could be attributed to buses overheating in the summer, particularly as they age. For demand response the number of miles between road calls on a monthly basis varies greatly year-to-year with no specific trends.

Figure 30. Miles Between Road Calls – Systemwide (FY 2015–FY 2019)
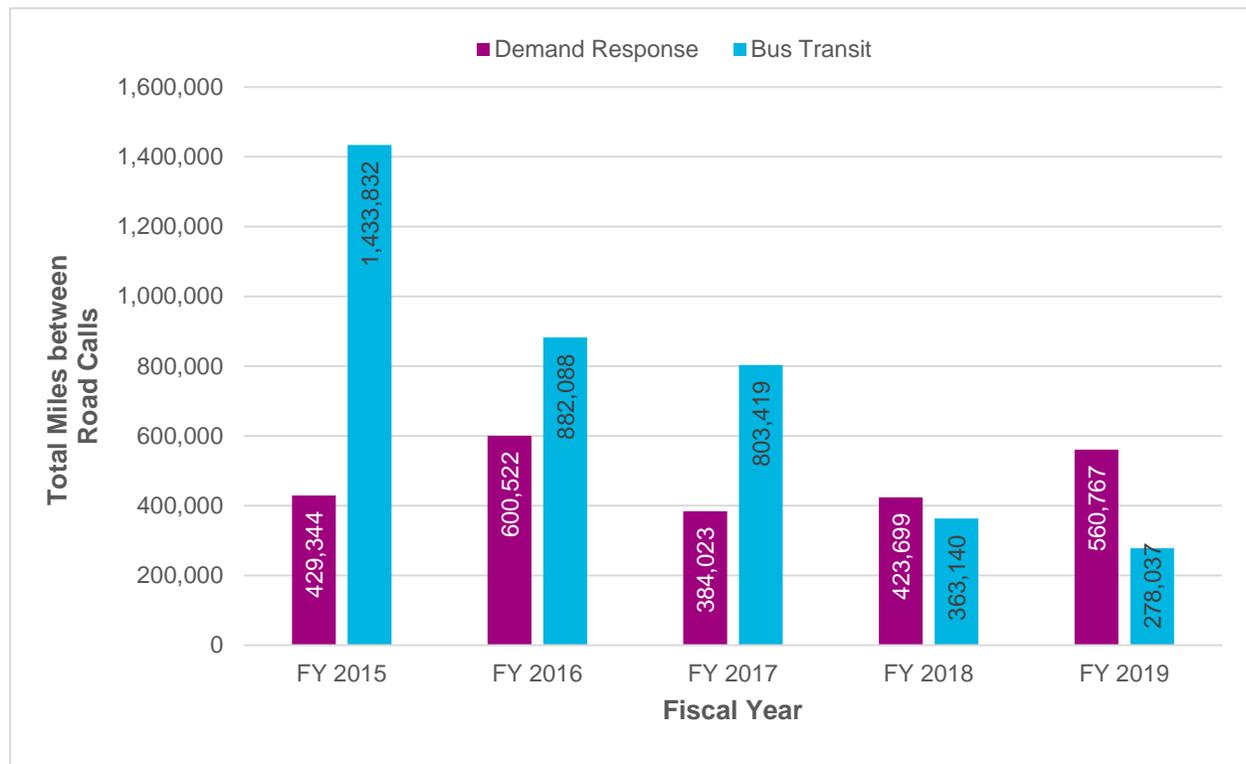
Source: GATRA BlackCat Data (FY 2015-FY 2019)

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[25] FY 2015-FY 2017 data include fixed route and commuter bus.

Figure 31. Monthly Trends: Bus Route Miles between Road Calls (FY 2015–FY 2019)
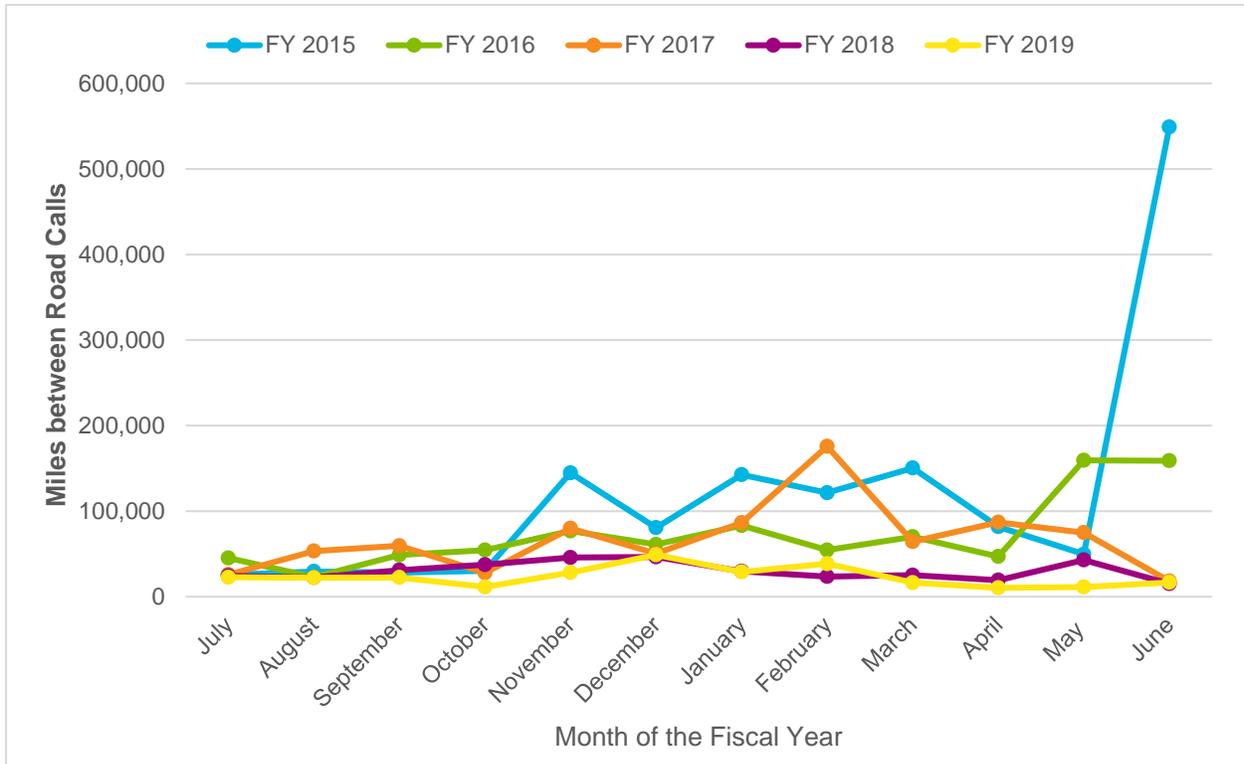
Source: GATRA BlackCat Data (FY 2015-FY 2019)

Figure 32. Monthly Trends: Demand Response Miles Between Road Calls (FY 2015– FY 2019)
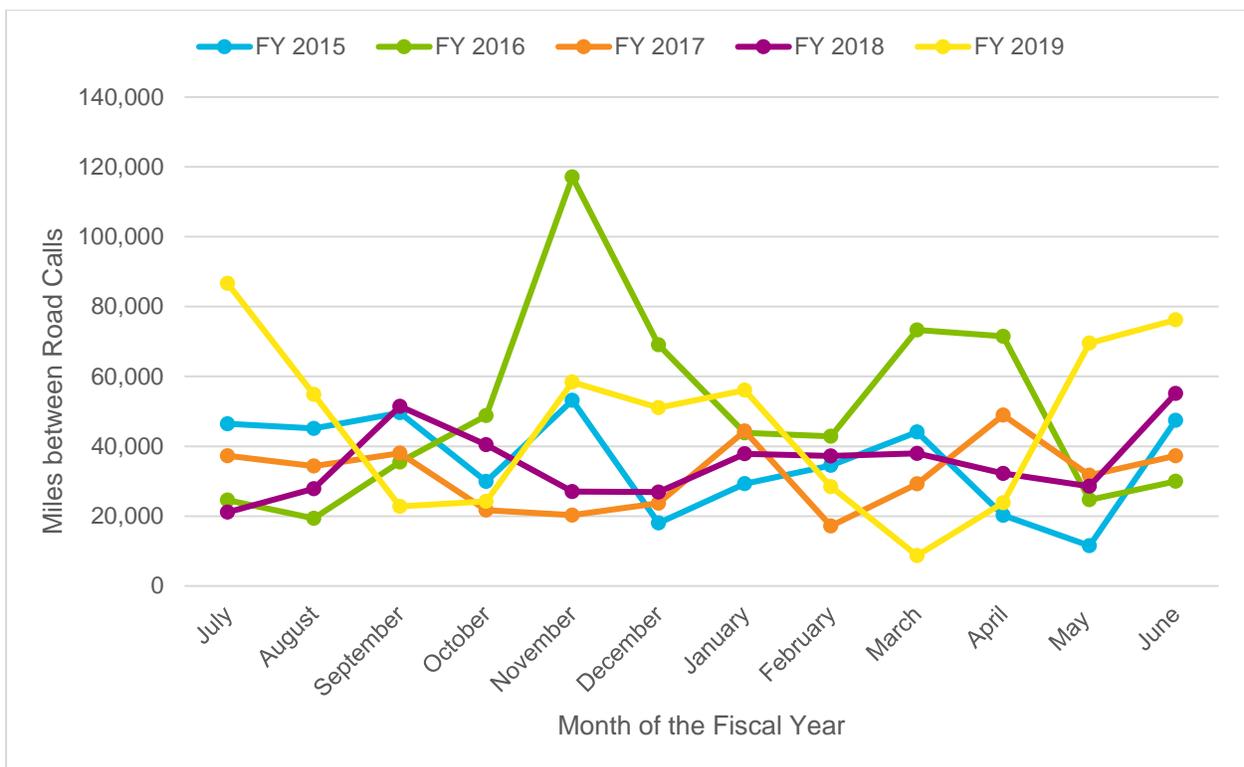
Source: GATRA BlackCat Data (FY 2015-FY 2019)

4.4.3 Technology

GATRA utilizes a range of technology tools to promote ridership, ensure safety for its passengers and drivers, develop performance measures and analyze transit system data, and complete needed maintenance. Table 16 lists the technology by type as well as the technology provider, if applicable. GATRA's technology often does not meet the needs of the large, diverse transit system. For example, PTMS software used for scheduling does not have the automation technology needed to accurately schedule trips. The software requires users to know many details about the service area and driving time between trip locations, which can be difficult given the size of the service area. GATRA hopes to analyze its existing technology and identify ways to prioritize upgrades in the future.

Table 16. Existing Technology

Technology Type	Technology Provider
Automatic Vehicle Locations	Clever Devices Digital Recorders: Bus
	PTMS: Demand Response
Mobile Trip Planning Application*	TransLoc
Fare Collection	GFI Genfare Odyssey: Bus
	Dropbox: Demand response
Mobile Fare Payment*	Token Transit
Automated Announcements	GATRA does not currently have this technology
Next-Stop Announcements	Clever Devices
Radio System	Industrial Communications
In-House Monitoring for Accidents and Injuries	Microsoft Access database
On-Board Cameras	Demand Response: Seon
	Bus route: REI
Facility Video Systems	ExacVision
Dispatching Software:	Bus Route and Demand Response:
PTM	ABS
Kiessling Transit	HBSS
COA	Data unavailable
A&A Metro	ABS
Scheduling	Bus route: Microsoft Excel
	Demand Response: PTMS from ABS; My Senior Center; HBSS
Ride Match (trip planning tool)	Massachusetts specific
	Web-based tool

Technology Type	Technology Provider
Parts and Maintenance (including maintenance work orders)	RTA Fleet Software
Asset Management	TransAM

Source: GATRA

*Available only for GATRA GO microtransit service.

4.5   Policies and Procedures

For all its routes, GATRA has developed a "How to Ride" Guide that outlines policies and procedures. Table 17 outlines the various policies and procedures GATRA has established for its passengers aboard bus route and demand response vehicles. Violation of these policies or procedures can result in removal from the bus or suspension of service for passengers who repeatedly violate rules specific to demand response vehicles. Policies and procedures have been established to ensure the safety and comfort of all GATRA passengers.

Table 17. Policies and Procedures

GATRA Policy	Description of Policy
Animals	Service animals are allowed on GATRA vehicles to assist passengers with disabilities.
Bag Policy	Passengers are limited to what they can safely carry themselves on and off the vehicles.
Code of Conduct	Proper behavior is expected at all times and GATRA has the right to refuse transportation to any person under the influence of alcohol or drugs or whose conduct or personal hygiene is objectionable to other passengers.
Etiquette and Safety	GATRA requires passengers to practice common courtesy for others aboard vehicles. Objectionable, dangerous, or offensive behavior toward others or the driver is not acceptable.
	Children less than 6 years of age or who weigh less than 40 pounds are required to be secure in a child safety seat aboard demand response vehicles to be provided by the parent or guardian.
Flag Stop Policy	Passengers may board the bus anywhere along the route where it is safe to do so by waving at the bus driver to indicate pick-up.
Scooters	Three- or four-wheeled scooter-type mobility devices are allowed aboard DAR buses with three belts securing them to the floor.
Seatbelts	Riders aboard DAR buses are required to wear seatbelts unless they have information that a documented medical condition prohibits their use.
Special Equipment	Passengers are permitted to travel with a respirator/compressor or portable oxygen supply aboard DAR vehicles.

GATRA Policy	Description of Policy
Wheelchair Securement	Wheelchairs are required to be secured in a forward-facing position and must be secured to the floor tracks.

Source: GATRA "How to Ride" Guide

4.6   Regional Connections and Other Transit Providers

Strong regional connections are critical for ensuring that residents throughout the GATRA community have access to employment, education, healthcare, and affordable housing. It is the agency's mission to provide safe and cost-effective transportation so that people can travel safely to and from their destinations throughout Massachusetts. Attleboro and Taunton are GATRA's two biggest cities served and are located approximately 30 miles away from Boston, which is the twenty-first most populous city in the United States. GATRA also provides transit service in coastal communities such as Scituate, Marshfield, Duxbury, and Plymouth. The GATRA transit system can connect passengers to cities and towns both large and small, provide access to MBTA commuter rail lines, Amtrak passenger rail system, coastal ferries, and intercity bus lines. Additionally, GATRA has established partnerships with other regional transit agencies to allow passengers to transfer easily throughout the region.

GATRA and SRTA systems intersect in Wareham via the Wareham-New Bedford Connection Route. The route originates at SRTA's New Bedford Terminal and travels along Route 6 between Fairhaven and Wareham ending at Wareham Cranberry Plaza in GATRA's service area. There are two morning trips and two evening trips each day Monday through Friday between 7:30 AM and 5:00 PM. The Cape Cod Regional Transit Authority (CCRTA) connects with GATRA's OWL (Onset/Wareham Link 1) route at the Wareham Cranberry Plaza, providing connections to CCRTA's Bourne Run with trips between 8:00 AM and 7:45 PM Monday through Friday. Additionally, GATRA is a transit partner with the Rhode Island Public Transit Authority, and GATRA Route 24 runs hourly between the Attleboro Transit Center and Broadway & Benefit in Pawtucket, Rhode Island. GATRA Route 11 also makes stops in Pawtucket and Emerald Square Mall in North Attleborough and operates hourly during the week.

GATRA passengers can also make connections to intercity transit lines, including DATTCO Motor Coach, Bloom Bus Lines Inc, Peter Pan Bus Lines, and Plymouth & Brockton Street Railway Co. Passengers can utilize DATTCO to connect to the Galleria Mall park and ride in Taunton, which is served by GATRA's Route 8 leaving to Boston at 5:30 AM, 7:30 AM, and 3:30 PM. Bloom Bus Lines make connections between Taunton and Boston leaving at GATRA's Bloom Terminal between 5:15 AM and 5:00 PM. Peter Pan Bus Lines have a commuter service available in Wareham and at the SRTA Terminal in New Bedford (which connect to GATRA's service area). Plymouth & Brockton bus service has a stop at the Plymouth park and ride connecting passengers to the Logan Airport with a travel time of approximately 1 hour and 30 minutes.

Ferry services are available from Plymouth to Provincetown, which allows for ferry connections to the Boston harbor. A ferry leaves Plymouth during the summer months (June to September) and departs once daily at 10:00 AM and returns to Plymouth at 6:00 PM. GATRA's Plymouth Area Link provides multiple routes to connect throughout Plymouth, including making connections to the wharf.

GATRA has seven commuter routes, one deviated route in Scituate, and several fixed routes in Attleboro that connect passengers to the MBTA Commuter Rail line. GATRA connects to all 11 MBTA stations in member communities (Table 18). The CapeFLYER is a summer weekend passenger train that runs from June to September. The train connects between Boston and Hyannis with stops in Middleborough/Lakeville leaving on Friday night at 6:38 PM to Hyannis and on Saturday at 8:52 AM back to Boston.

Table 18. GATRA MBTA Commuter Rail Connections

MBTA Station	GATRA Routes
Attleboro	Routes 10, 12, 14, 15, 16, 18, 24
Bellingham	Bellingham T Shuttle
Franklin Line / Foxboro Pilot	Franklin Area Bus
Greenbush	Scituate Loop
Hanson	Pembroke Shuttle
Kingston	SAIL
Lakeville	Wareham-Lakeville Connector
Mansfield	Route 140, Mansfield T Connector, Foxborough Shuttle
N Scituate Plaza	Scituate Loop
Norfolk	Tri-Town Connector, Medway T Shuttle
Plymouth	Freedom Link, Liberty Link
South Attleboro	Route 16

Since 2017, TNCs, commonly Uber and Lyft, have been increasingly providing on-demand transportation throughout Massachusetts and the nation. Massachusetts state law requires TNCs to share data with the Commonwealth. TNCs have grown in popularity because passengers are quickly and easily matched with drivers who use their private vehicles to take them to and from any destination. Operating similarly to taxi services, people with their own vehicles give passengers rides to specific destinations requested, which allows passengers to have quick and easy access to an on-demand ride at any time of day.

In 2019, TNCs provided 91.1 million rides in Massachusetts, which was a 12.8 percent increase from 2018 and 40.6% increase from 2017. In 2019 there were 971,376 TNC rides originating in the GATRA service area, which represents approximately 1.1% of all TNC rides in Massachusetts (Table 19). This is a 61 percent increase in TNC ridership in GATRA member communities since 2017. In 2019, the majority of TNC trips originated in Taunton, Plymouth, and Attleboro (more than 100,000 trips) (Figure 33). The fewest TNC trips started in Carver and Dighton (fewer than 5,000). Between 2017 and 2019, Wareham, Carver, Taunton, Dighton, and Bellingham had the greatest increase in TNC trip originations with an increase between 69 and 80 percent; however, all of GATRA's member communities had an increase in TNC ridership since 2017 (Figure 34). Some of the communities with a smaller number of TNC rides had a large percent change since 2017; however, for some communities this percent change is magnified due to the lower number of rides in comparison to other communities.

Additionally, GATRA currently provides GATRA GO microtransit service, which is an on-demand service allowing transit riders to request a vehicle to pick them up and drop them off where needed. Riders can book a ride through the TransLoc mobile app, which is similar to how TNC riders book rides through their chosen provider. Currently, GATRA microtransit service runs complementary to fixed route bus service in portions of the towns of Mansfield, Plainville, and Foxborough. In 2019, across GATRA's service area, Foxborough and Mansfield had the fourth and fifth highest TNC ridership while Plainville had the sixteenth most ridership. As shown in Figure 34, Plainville (59.2 percent) has seen the most growth in TNC ridership in the past 3

years, followed by Mansfield (51.3 percent) and Foxborough having the lowest percent change across communities (44.4 percent). There may be additional opportunities for GATRA GO microtransit to expand in the future to reach communities that have seen an increased interest and use of TNC transportation.

Table 19. TNC Rides Started in GATRA Member Communities (2017–2019)

GATRA Member Communities	TNC Rides Started (2017)	TNC Rides Started (2018)	TNC Rides Started (2019)
Attleboro	46,212	83,287	114,997
Taunton	31,042	74,694	118,760
Bellingham	5,011	9,797	16,671
Berkley	878	1,223	2,444
Carver	1,480	2,906	5,841
Dighton	681	1,384	2,600
Duxbury	5,143	9,169	12,661
Foxborough	45,633	69,507	82,113
Franklin	19,788	30,815	45,935
Hanover	13,163	20,272	28,725
Kingston	10,574	18,179	24,840
Lakeville	2,591	4,749	6,883
Mansfield	30,986	50,394	63,682
Marshfield	9,019	16,795	26,384
Medway	3,326	6,294	8,875
Middleborough	5,241	1,114	16,862
Norfolk	4,468	7,614	10,288
North Attleborough	25,230	45,627	60,857
Norton	11,305	17,089	25,549
Pembroke	7,110	12,406	17,979
Plainville	7,841	14,869	19,195
Plymouth	38,451	76,095	115,848
Raynham	9,518	21,624	29,728
Rehoboth	2,492	3,686	5,885
Scituate	5,123	8,595	16,117
Seekonk	20,062	30,616	40,413

GATRA Member Communities	TNC Rides Started (2017)	TNC Rides Started (2018)	TNC Rides Started (2019)
Wareham	4,997	11,825	25,652
Wrentham	11,096	17,603	25,592
TOTAL	**378,461**	**668,228**	**971,376**

Source: 2017- 2019 Data Report Rideshare in Massachusetts, Mass.gov
https://tnc.sites.digital.mass.gov/ .

Figure 33. TNC Trips Started in GATRA Member Communities (2019)
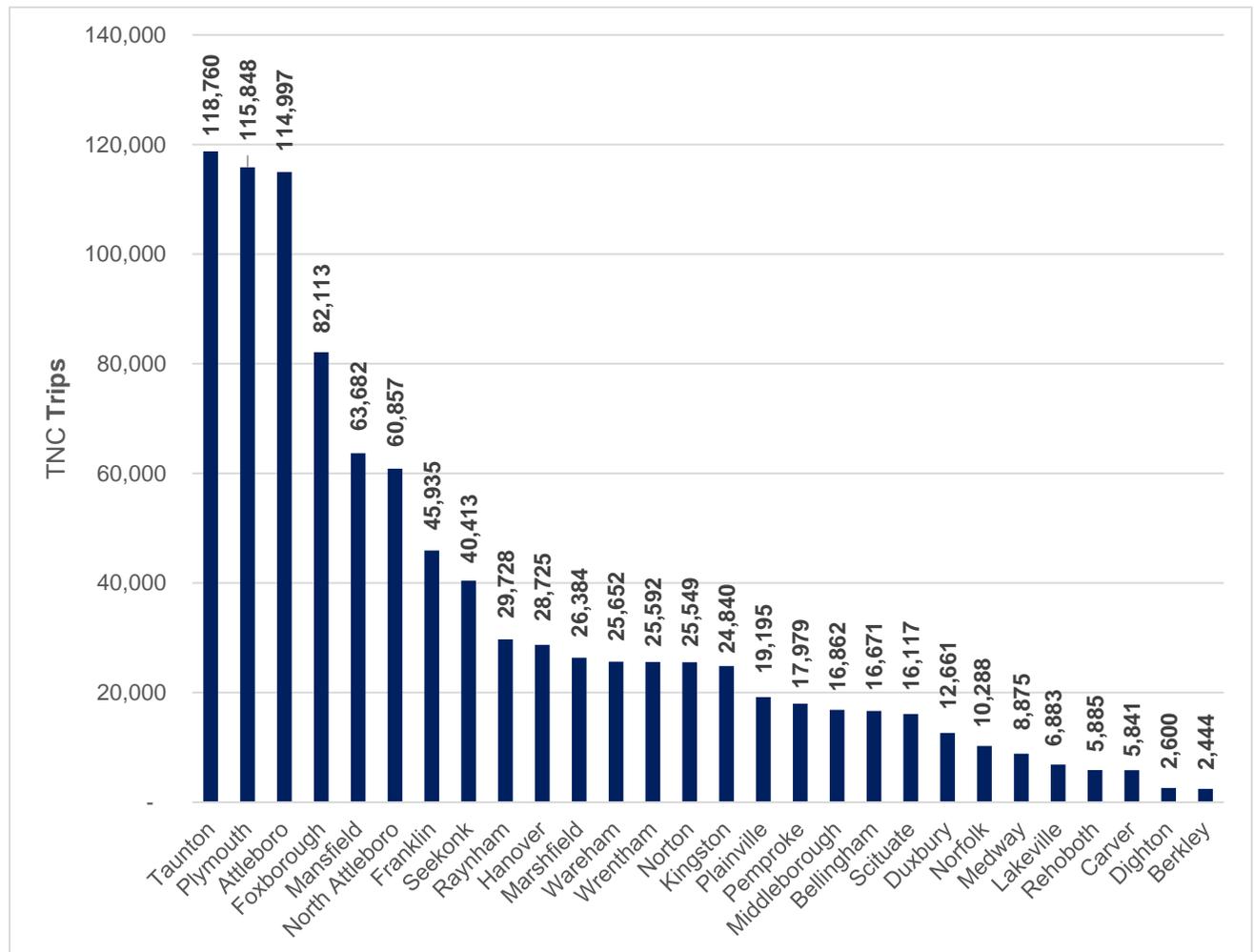
Source: 2019 Data Report Rideshare in Massachusetts, Mass.gov
https://tnc.sites.digital.mass.gov/ .

Figure 34. Percent Change in TNC Rides Started in GATRA Member Communities (2017–2019)
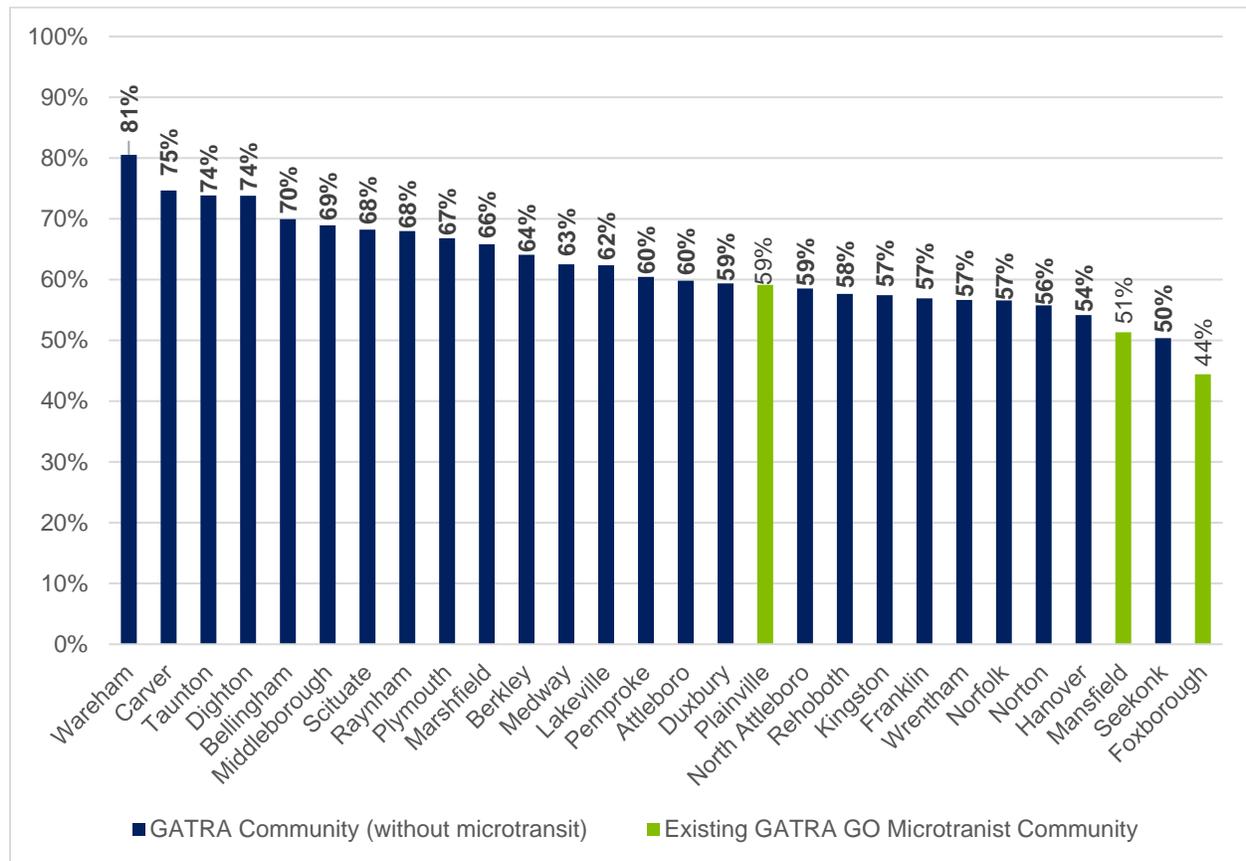
Source: 2019 Data Report Rideshare in Massachusetts, Mass.gov
https://tnc.sites.digital.mass.gov/ .

4.7   Sustainable Initiatives

Climate change is a real and present threat and working toward a more sustainable system means addressing the role of our transportation system. Bus transit plays a critical role both as a source of pollutant emissions and by providing an effective alternative to single occupant automobiles. Under this context the study team reviewed the RTA's progress toward five key sustainability indicators: Clean Vehicles, Education, Multimodal Integration, Efficient Facilities, and Recycling. These indicators address the sustainable aspects of RTA infrastructure (clean vehicles, efficient facilities, etc.) and how their system accommodates vulnerable and multimodal users (education, multimodal integration, etc.). The following section outlines GATRA's progress toward meeting these indicators (Figure 35).

In recent years GATRA has made a concerted effort to reduce the carbon footprint of their facilities by making capital improvements and changing how they conduct maintenance and manage their facilities. They have also worked hard to remove barriers to multimodal access by adding bike parking and adding bike racks to buses. GATRA also plants new facilities with native and adaptive species to limit watering and other maintenance needs. They also replaced roofing with high albedo materials to improve reflectivity. This type of treatment reduces cooling costs during the summer months by reducing the amount of solar radiation absorbed by the building.

Figure 35. GATRA Ongoing Sustainability Initiatives

Clean Vehicles

- Currently operates two diesel-electric hybrid buses
- Procuring five new electric buses by FY 2022

Education

- Maintains a "how to ride" section on their website that outlines their flag stop policy among other tips to help new users access the system
- Provides material about bike integration and transit opportunities at all public meetings to help promote multimodal transit opportunities
- Travel training program

Multimodal Integration

- Provides secure bike parking at some of the larger stops in the region
- TOD potential in the region was analyzed in conjunction with the Commuter Rail Master Plan
- Equips all buses with bike racks

Efficient Facilities

- Working toward having all facilities equipped with motion sensor/occupancy lighting to reduce electricity usage
- New facilities are planted with native and adaptive species, along with some existing facilities. Additionally, remaining grass surfaces are mowed with reduced frequency
- Integrated pest management (IPM) is used for maintenance projects and construction sites, and mechanical control methods are used to reduce the use of traditional herbicides
- High albedo roofing has been implemented to increase reflectivity and improve building efficiency
- Implemented high-efficiency fixtures to reduce water consumption
- Performed an energy audit to better understand where and how energy was being used in their facilities

Recycle

- Recycled and reclaimed materials are used for landscaping and working toward 100% recycled content paper products
- Water conservation methods are currently in place and are investigating recycled and water capture technology
- Working toward increasing the proportion of hazardous materials that are recycled
- Currently working toward full single stream recycling at all facilities

4.8   Fare Rates and Structure

4.8.1 Collection Methods and Media

GATRA upgraded to the GFI Genfare Odyssey (GFI) farebox in June 2006.[26] GFI fareboxes are installed in most fixed route buses, except for those operated in Franklin, which have Diamond drop boxes, and those buses operating in Bellingham, Foxborough, Franklin, Lakeville, Medway, Middleborough, Norfolk, Pembroke, and Scituate, which utilize lock boxes for fares and paper passes.[27] The GFI fareboxes accept magnetic stripe tickets as well as cash and coin for fares. The GFI farebox is capable of electronically validating and registering all coins and bills inserted for payment. Coins and bills are automatically identified by denomination, without operator action. The driver can verify the fare deposited using the operator control unit. The farebox will generate a change card for any amount deposited over the fare due. Change cards do not have an expiration date. The GFI fareboxes also have the capability of accepting smart card technology; however, GATRA currently does not utilize this fare technology.[28] GATRA audits its fareboxes bimonthly to ensure that all fareboxes are recording fares properly.

Demand response vehicles are not equipped with fareboxes. Fares and passes for demand response passengers are collected by the driver upon passenger pickup. Shuttle service to MBTA commuter rail stations operated by the COAs in Bellingham, Medway, and Middleborough do not have fareboxes either and operate on a donation-based fare payment system.

Passengers can purchase GATRA tickets and passes, including fixed route and demand response 10-ride passes and 31-day passes at ticket vending machines (TVM). TVMs are located at the Attleboro Intermodal Center, and the Taunton terminal. All TVMs are multilingual, presenting fare information both in English and Spanish. At this time, GATRA does not have reloadable tickets, so all fares and passes must be purchased following its complete usage. Passes purchased on the TVM are not activated until a passenger boards and activates it on the bus. Riders can purchase most GATRA fares on the bus; however, 31-day passes, or DAR 10-ride passes, can also be purchased from a ticket agent located at the GATRA bus terminal offices in Taunton, Massachusetts, between 8:00 AM and 4:00 PM. Riders can also purchase passes via mail by choosing a pass type, selecting the appropriate pass form, and mailing the form to the GATRA office. All fares and passes are non-refundable and non-transferable.

4.8.2 Fare Structure

GATRA provides riders with various fares and pass types to meet their transportation needs as shown in Table 20. Riders can purchase single ride one-way tickets and choose from 1-day, 10-ride, or 31-day passes. Discount (half-price) fares are available to those who meet ADA and GATRA Special Services eligibility requirements for reduced fares, including those with disabilities and/or Medicare card holders, seniors aged 60 and older, and students through high school. GATRA also offers passengers one transfer within one town for free.

If a rider is disabled or over 60 years of age, they must obtain a Statewide Access Pass in order to qualify for half-fare discounts. Riders must complete an application available from the transit authority in the area in which they live. Eligible riders must either (1) verify their disability from a licensed professional to receive ADA services or (2) provide proof of date of birth to obtain a senior identification (ID) card. ID cards cost $3.00 each. Those who qualify for ADA services are

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[26] GATRA is not part of the CharlieCard system used by MBTA and neighboring RTAs.
[27] GFI fareboxes are electronic fareboxes and information must be pulled daily. Having this style of farebox requires specialized equipment at the garage the vehicle is housed at to empty them (both of the electronic data and cash). PTM is the only operator set up to do this; installing the necessary infrastructure at the facilities used by the other small operators would not be cost effective. Because of this the routes listed do not use the GFI electronic fareboxes.
[28] The SMART card deployment using GFI technology by other RTAs was not successful due to numerous technical issues with the TVMs and lack of support from the vendor.

permitted to bring a personal care attendant on the bus who can ride for free. The personal care attendant differs from a companion because they are acting in a formal capacity as a personal care attendant versus a companion who may be a friend or family member along for the ride. Other special services GATRA provides such as Miles for Health and Med Wheels accept donations as payment, while the Boston Area Bus requires a flat fee of $15.00 roundtrip for those visiting Boston hospitals or the greater South Shore Hospital area.

The pass fares outlined in Table 20 are only valid on fixed route buses in greater Attleboro/Taunton, Wareham, Plymouth, on the SAIL route in Kingston, Marshfield, and Duxbury. They are not valid on services in Bellingham, Foxborough, Franklin, Lakeville, Medway, Middleborough, Norfolk, Pembroke, or Scituate due to variations in fareboxes on these routes.

In 2019, GATRA implemented changes to its transit system. In January 2019, GATRA announced that it would be increasing fares for both the fixed route and demand response services to be effective February 4, 2019. Prior to this increase, GATRA had not increased fares in 15 years. The increase was needed to account for the rising operations costs. The changes in fare structure are outlined in Table 21. Additionally, in August 2019 GATRA began operating GATRA GO on-demand microtransit services in the Mansfield/Foxborough area, which runs complementary to fixed route services provided on the Routes 1, 140, and 106 corridors, and allows the transit rider to request a vehicle to pick them up and drop them off where needed. To request a pickup, riders can download the TransLoc mobile application on their smartphone or call a GATRA dispatcher. Through the app, ADA riders can request a wheelchair-enabled vehicle. Fares for this service can be paid directly through the TransLoc app.

Table 20. Fare Structure

Fare Type	Fare (in dollars)
Single Ride Ticket (One-Way)	
Full-Fare	$1.50
Half-Fare for Seniors age 60 and older	$0.75
Half-Fare for Disabled and/or Medicare Card Holders	$0.75
Half-Fare for Students through High School (with student ID)	$0.75
Wheaton College Student (with student ID)	Free
Transfer (within one town only)	Free
Route Deviation	$1.00
One Day Pass	
Full-Fare	$4.00
Half-Fare for Seniors age 60 and older	$2.00
Half-Fare for Disabled and/or Medicare Card Holders	$2.00
Half-Fare for Students through High School	$2.00
10-Ride Pass	
Full-Fare	$13.00
Half-Fare for Seniors age 60 and older	$6.50

Fare Type	Fare (in dollars)
Half-Fare for Disabled and/or Medicare Card Holders	$6.50
Half-Fare for Students through High School	$6.50
31-Day Pass	
Full-Fare	$40.00
Half-Fare for Seniors age 60 and older	$20.00
Half-Fare for Disabled and/or Medicare Card Holders	$20.00
Half-Fare for Students through High School	$20.00
Dial-A-Ride Fare (One-Way)*	
Cash Fares	$1.75
Companions	$1.75
10 Ride Pass	$15.00
Trips beyond boundaries of neighboring communities	$3.50
Personal Care Attendant	Free
ADA Fare (One-Way)	
Cash Fares	$3.00
10 Ride Pass	$25.00
Personal Care Attendant	Free
Special Services (eligibility-based)	
Miles for Health	Donation Based
Med Wheels	Donation Based
Boston Hospital Bus	$15.00 roundtrip

Source: GATRA Fares & Passes, http://www.gatra.org/index.php/fares-passes/, and http://www.gatra.org/index.php/special-services/dial-a-ride/, February 2020.

*Excludes GATRA GO demand microtransit; riders must pay full fares for this route.

Table 21. Fare Increases (2019)

Fare Type	Fare Prior to Increase	New Fare after Increase	Amount Increased or Decreased
Fixed Route			
Full Fare	$1.00	$1.50	$0.50
Half Fare	$0.50	$0.75	$0.15
Child 6 and Under with an Adult	FREE	FREE	No Change

Fare Type	Fare Prior to Increase	New Fare after Increase	Amount Increased or Decreased
One Transfer *(within one town)*	$1.50	FREE	-$1.50
10 Ride Pass *(full fare)*	$9.00	$13.00	$4.00
10 Ride Pass *(half fare)*	$4.00	$6.50	$2.50
31-Day Pass *(full fare)*	$30.00	$40.00	$10.00
31-Day Pass *(half fare)*	$15.00	$20.00	$5.00
Day Pass *(full fare)*	$3.00	$4.00	$1.00
Day Pass *(half fare)*	$1.50	$2.00	$0.50
Dial-A-Ride			
Cash Fare	$1.25	$1.75	$0.50
Companions	$1.25	$1.75	$0.50
Trips Beyond Boundaries of Neighboring Communities	$2.50	$3.50	$1.00
10 Ride Pass	$10.00	$15.00	$5.00
ADA Paratransit			
Cash Fare	$1.25	$3.00	$1.75
Personal Care Attendant	FREE	FREE	No Change
10 Ride Pass	$10.00	$25.00	$15.00

Source: New Fare Structure Press Release, January 14, 2019, GATRA

4.8.3 Fare Policy

At the November 30, 2020 GATRA Advisory Board meeting, the Board adopted GARTA's fare policy. The MOU with MassDOT requires the agency to have an established fare policy. The intent of the policy is to help guide GATRA in making decisions regarding fares, fare levels, fare changes, media, and technology. The fare policy explored current fare structures, historical changes, performance targets, the current climate, and the region's needs. The goals for GATRA's fare policy are: 1) streamline the fare collection process, 2) to be fair and equitable, 3) reduce the handling of cash, 4) align with the needs of GATRA's multiple operators, and 5) to regularly evaluate fares. The complete GATRA Board-approved fare policy can be found in Appendix B.

5.   Market Evaluation

This chapter describes existing and projected socioeconomic characteristics of the area served by GATRA.

5.1   Service Area Overview

Understanding the demographics can help explain changes in transit demand and support recommendations for changes in future transit service. Specifically, people living below the poverty level, households without vehicles, seniors, and disabled individuals typically rely on transit; changes in these demographics as well as job and population densities can provide insight into transit demand trends. The U.S. Census Bureau's American Community Survey (ACS) and Longitudinal Employer-Household Dynamics (LEHD) program are the primary sources of demographic data used in this analysis and provide valuable indications of trends and projections.

5.2   Demographics and Socioeconomics

Demographic and socioeconomic statistics are important in transit planning to understand the potential transit markets that exist in an area. Table 22 outlines the demographic and socioeconomic summary statistics for the GATRA service area in relation to the Commonwealth of Massachusetts and the United States. Transit dependency is frequently related to level of income, age, vehicle availability, and disability status. Income is a key determinant in the type of transportation used to commute. People with lower incomes are often more likely to need public transportation options than people with higher incomes who can afford private transportation. Overall GATRA's demographic and socioeconomic profile mirrors that of the Commonwealth.

Table 22. Current Demographic and Socioeconomic Profile (2017)

Area	Median Household Income	% People Living Below 150% of the Poverty Level	% Households without Vehicles	% Seniors	% Minority	% Disabled
GATRA Service Area	$79,844	16%	10%	16%	25%	11.5%
Massachusetts	$74,167	17.4%	12.4%	15.5%	27.1%	11.6%
United States	$57,652	23.7%	8.8%	14.9%	38.5%	12.6%

Source: US Census Bureau ACS 2017

5.2.1 Population Density

Population density maps can help identify where populations are concentrated and where population distribution may be sparse. Population density is particularly important when evaluating a transit market and in transit planning when considering how and where services can best meet the transportation needs of various populations. Population density in the GATRA service region is mapped on Figure 36. North Attleborough, Attleboro, and Taunton are the most densely populated areas that GATRA serves and align with the concentrations of many of GATRA's current routes. Areas to the north of the service area such as Franklin, Medway, and Foxborough see medium-high densities with more than 1,200 people per square mile. Areas along the coast are also densely populated, and recently GATRA expanded to serve these areas, such as Scituate, which is now served by a deviated fixed route bus.

Figure 36. Population Density
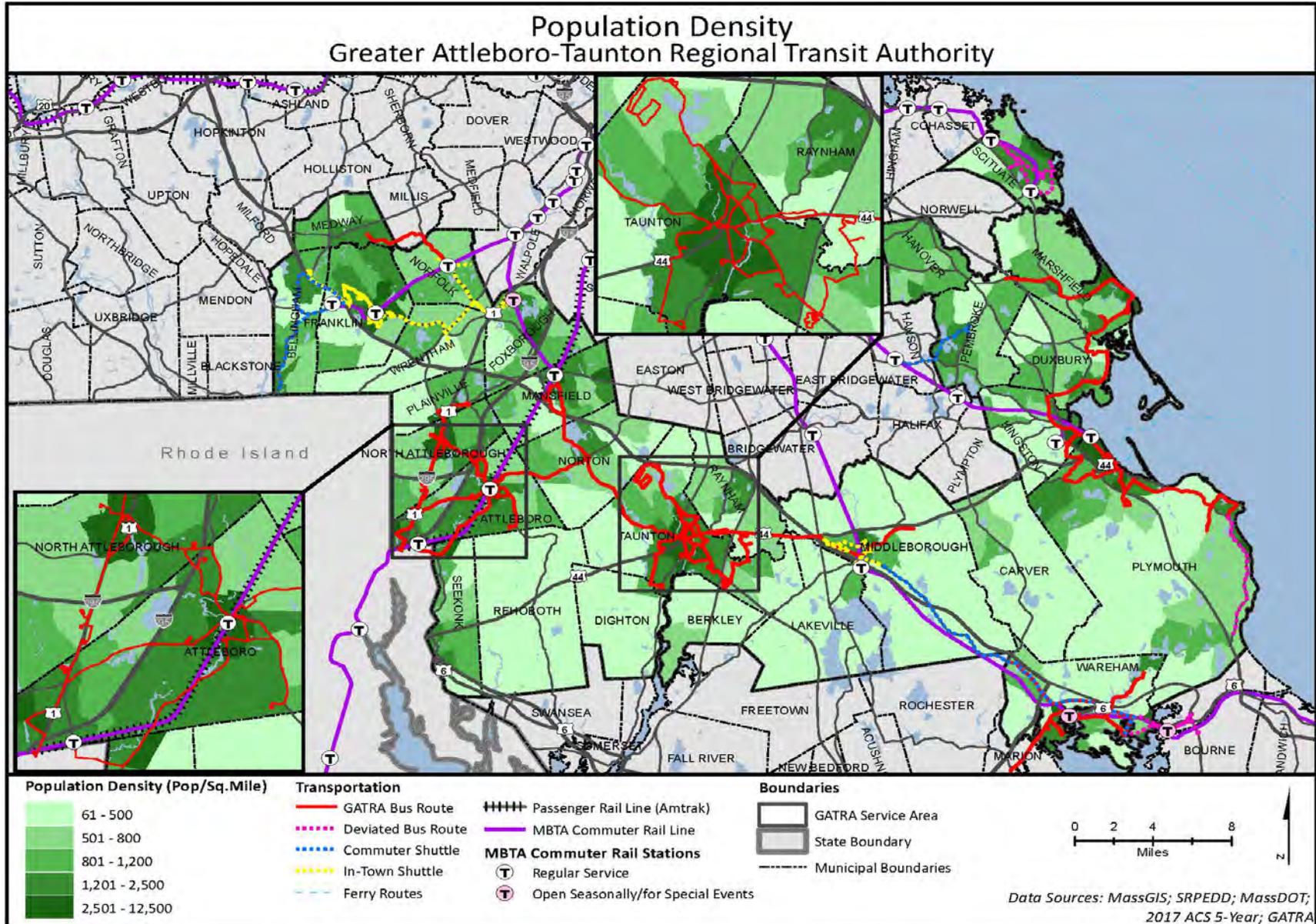
Massachusetts is the third most densely populated state in the country with an average population density of 876 people per square mile throughout the state. In the GATRA service area the population is roughly 574,000, equating to a density of 734 people per square mile. Of the 574,000 residents, approximately 55.9 percent of the population is within ¾ mile of a GATRA fixed route, served by a deviated fixed route zone, or part of the GATRA on-demand. Areas served by GATRA have an overall higher population density at 1,141 people per square mile than areas without transit (505 people per square mile)

5.2.2 Older Populations

According to a report written by Transportation for America on mobility and the baby boom generation, life expectancies are rising, more seniors are choosing to "age in place," and transit ridership among this cohort is rising.[29] Experts argue that as the average age increases, and the baby boom generation reaches 65+, the percentage of the population without access to a vehicle will increase over time and these older adults will need affordable alternatives to driving in order to "age in place" and maintain independence.

Senior population typically correlates with areas of lower income levels and vehicle ownership. These individuals are often on fixed incomes, which could impact their desire to own a vehicle. Additionally, health issues such as poor eyesight can deter them from driving. GATRA provides special services for seniors, including its Miles for Health, Boston Hospital Bus, and Med Wheels services. DAR curb to curb transportation services are also available and are dependent on the town in which the senior lives. Many COAs in the GATRA service area coordinate DAR reservation services for their seniors. In order to be eligible for DAR service, a senior is considered someone aged 60 and above or who meets ADA requirements.

Figure 37 shows the percentage of the population over 65 in the GATRA area. Carver, Plymouth, areas of Raynham, Middleborough, and the southern portion of Attleboro have the highest concentrations of adults over the age of 65. Many of the areas' seniors live outside of the Greater Attleboro-Taunton area in towns closer to the coastline. On average, GATRA serves 16 percent of seniors, which is greater than the state of Massachusetts at 15.5 percent and the United States in general at approximately 14.9 percent. However, in portions of the service area this percentage is even greater, for example, in Carver where more than 31 percent of the population is over the age of 65. These statistics demonstrate a need for continued municipal wide DAR service in these areas, as well as hospital commuter service from the towns with high percentages of seniors to Boston for medical services, especially given the considerable distance from some of these towns to the city.

5.2.3 Youth Populations

Youth populations, defined as individuals under the age of 18, are less likely to have access to or own a personal vehicle. Owning and maintaining a reliable car can be expensive; therefore, it is likely that those under 18 depend on others or utilize public transportation to meet their mobility needs. Figure 38 shows the percentage of the population in the GATRA service area that is under 18 years of age. Many of the youth in the service area are located in the highly populated cities of Attleboro and Taunton. A higher percentage of youth are also concentrated along the coastline near Duxbury and Marshfield. Overall, those under 18 appear to be located in the denser cities and towns, which corresponds closely with the number of schools in these areas as shown on Figure 46.

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[29] Transportation for America, "Aging in place, Stuck without Options: Fixing the Mobility Crisis Threatening the Baby Boom Generation," https://t4america.org/docs/SeniorsMobilityCrisis.pdf.

Figure 37. Senior Population
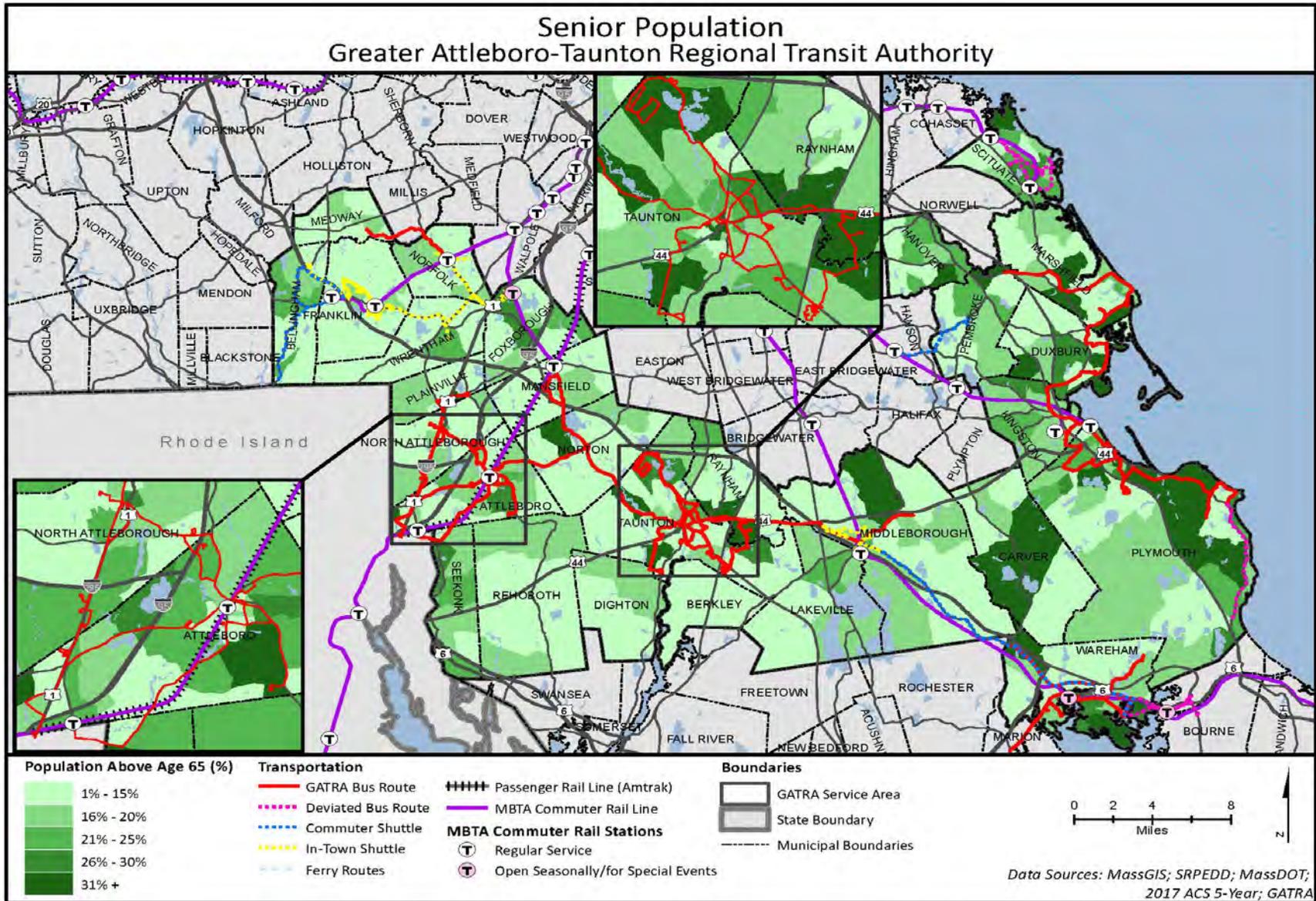
Figure 38. Youth Population
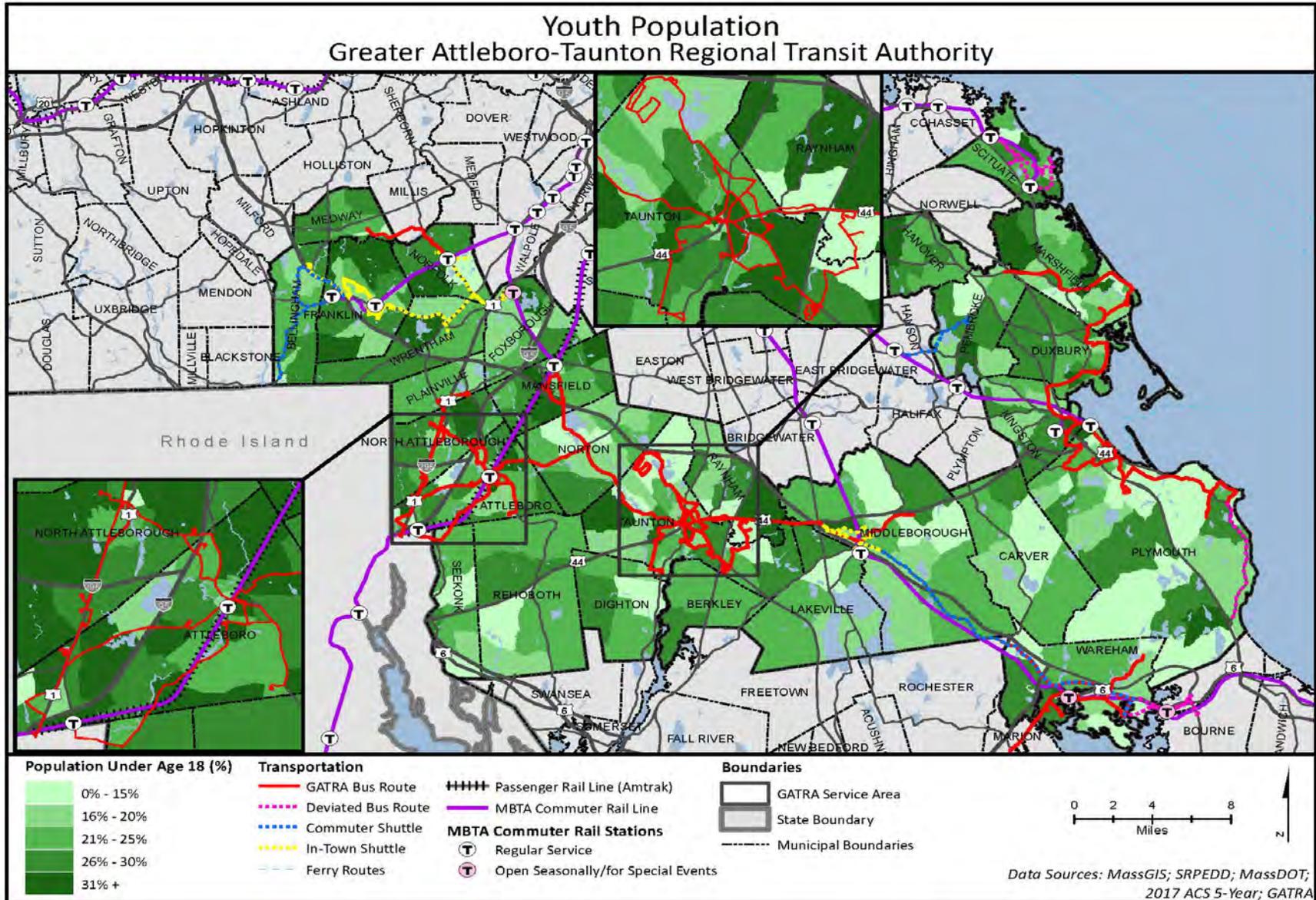
5.2.4 People with Disabilities

In compliance with the ADA, GATRA provides DAR service for persons with disabilities who are unable to use accessible public fixed route bus services.[30] ADA paratransit will pick up passengers at their home and take them to where they want to go, as long as the origin and destination are within ¾ mile radius from the GATRA fixed route bus service.[31]

Figure 39 shows the percentage of persons with disabilities living within the GATRA service area according to census data. The city of Taunton and the towns of Carver and Wareham have the highest percentage of people with disabilities, with select areas having 16 percent to 22 percent of the population with a disability.[32] Similar to the trends with the older population in this area, the town of Carver has the highest percentage of individuals who are 65 and older and/or identify as persons with disabilities. It is important that GATRA continue to provide DAR service to the areas with higher concentrations of the population with disabilities.

5.2.5 Measures of Income

Median household income and the percentage of those living below the poverty line are used as measures for propensity to use transit. Automobile ownership can be expensive, and as household incomes decline so does the likelihood of having access to a private vehicle. Work-trip market shares from the ACS show that as income rises the percentage of people using transit decreases. Figure 40 shows the population in the GATRA service area living below 150 percent of the poverty level. Higher concentrations of this population are located in the towns of Wareham, Carver, Dighton, and parts of the cities of Attleboro and Taunton. Many of the residents who live in poverty are also vulnerable to environmental injustices and are eligible for environmental protections.

Figure 41 shows the median household income for residents in the GATRA region. The median household income in the region is $79,844, which is slightly higher than the state and U.S. median household income. Those earning less than $65,000 a year are heavily concentrated in the town of Carver, portions of Middleborough, Hanover, and North Attleborough. Comparatively, the town of Carver has high concentrations of persons earning less than $65,000 a year and living below 150 percent of the poverty level. This trend also corresponds with the trends seen in previous figures showing higher concentrations of persons over 65 and those with disabilities living in Carver. Currently, GATRA fixed route bus service is not provided in this town, and residents in Carver must be eligible to utilize the DAR service for their transportation needs. This gap may indicate a need for GATRA fixed route service in this area, as well as considerations for fixed route service in other areas with low median household income and high concentrations of poverty.

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[30] American with Disabilities Act, 1990, PART III.B.
[31] http://www.gatra.org/index.php/special-services/senior-disabled/.
[32] Disability is based on Census data; not all individuals with a disability are eligible for ADA demand response service.

Figure 39. Disabled Population


Disabled Population
Greater Attleboro-Taunton Regional Transit Authority
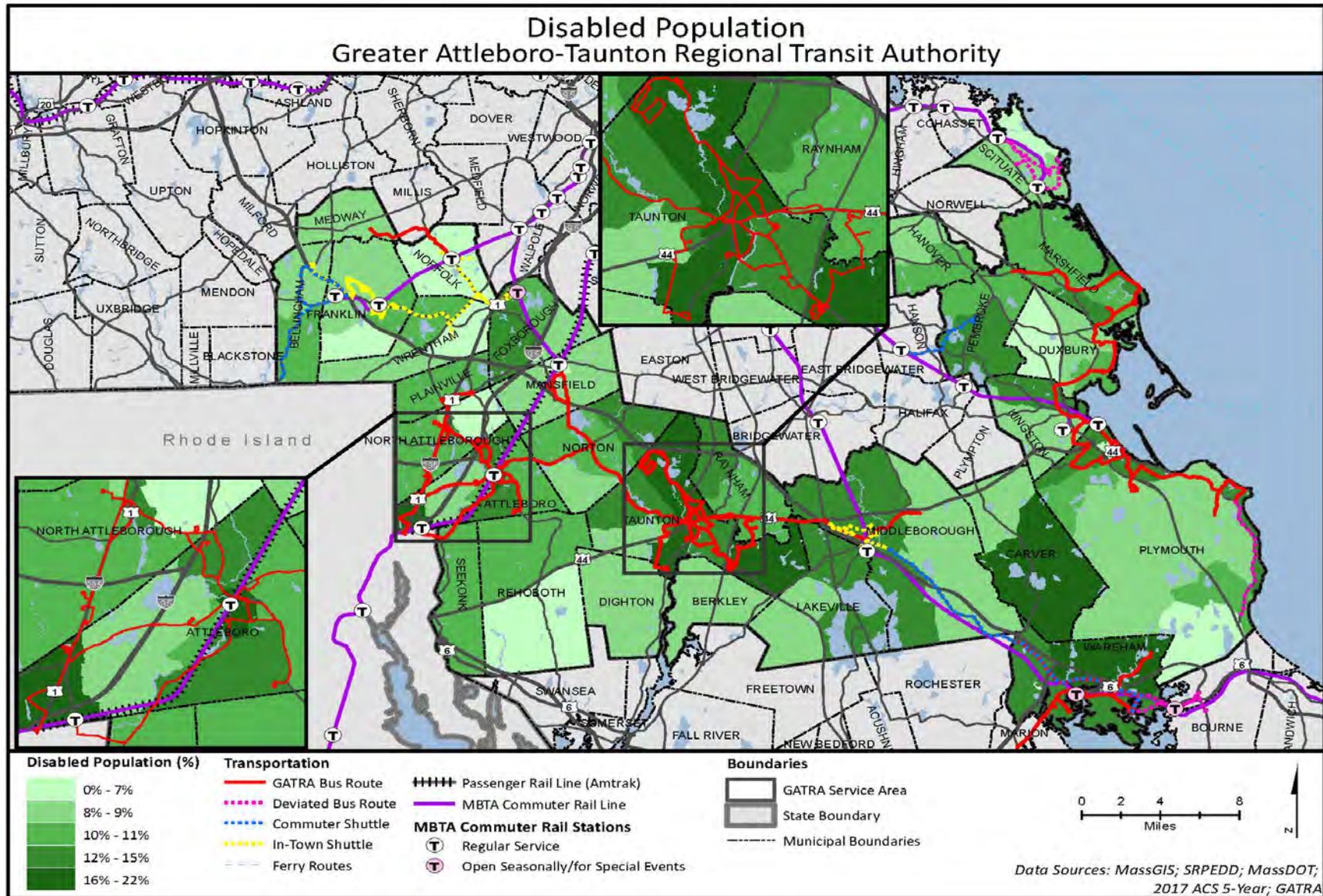
Figure 40. Population Below Poverty Level

Population Below Poverty Level
Greater Attleboro-Taunton Regional Transit Authority
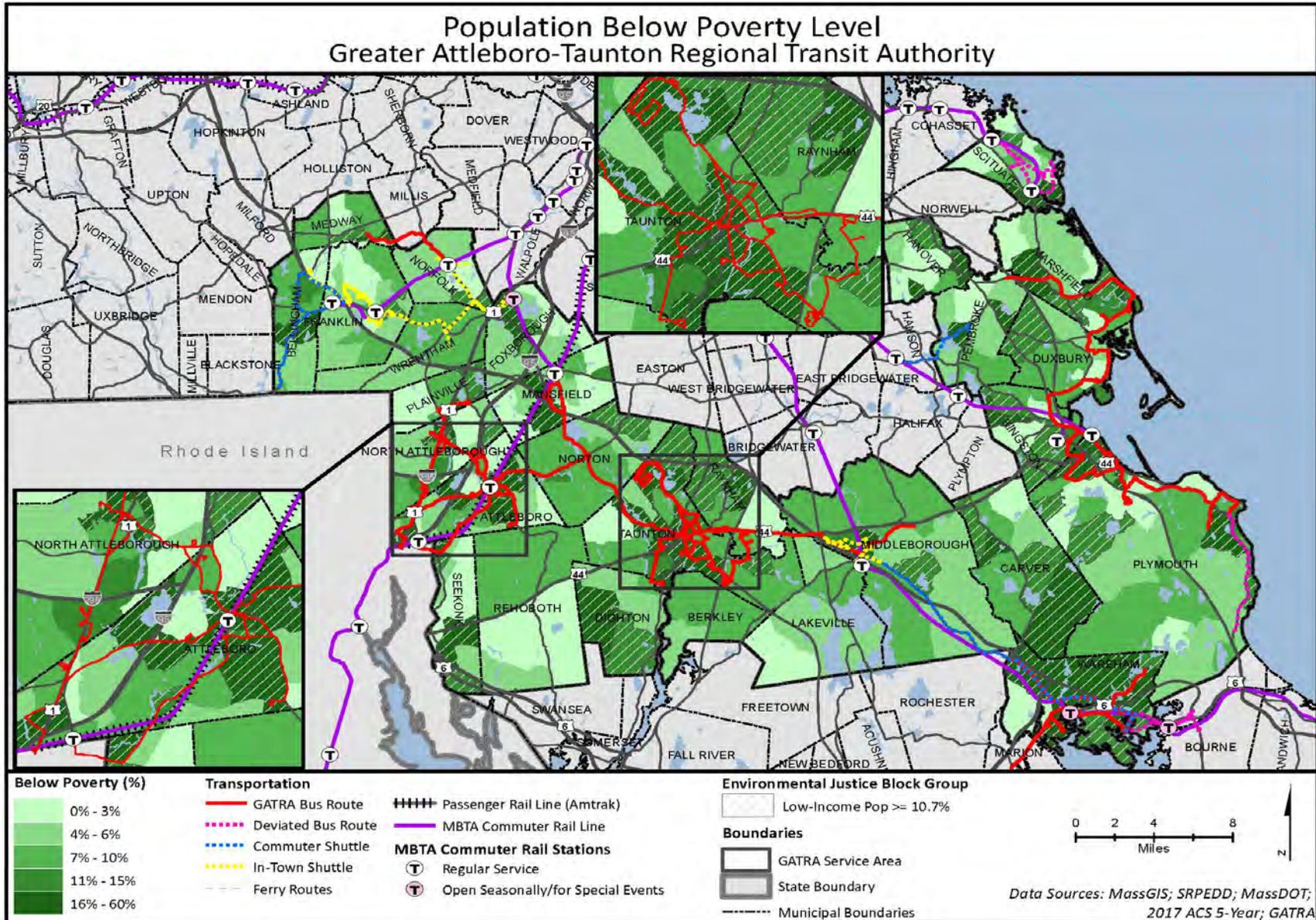
Figure 41. Median Household Income
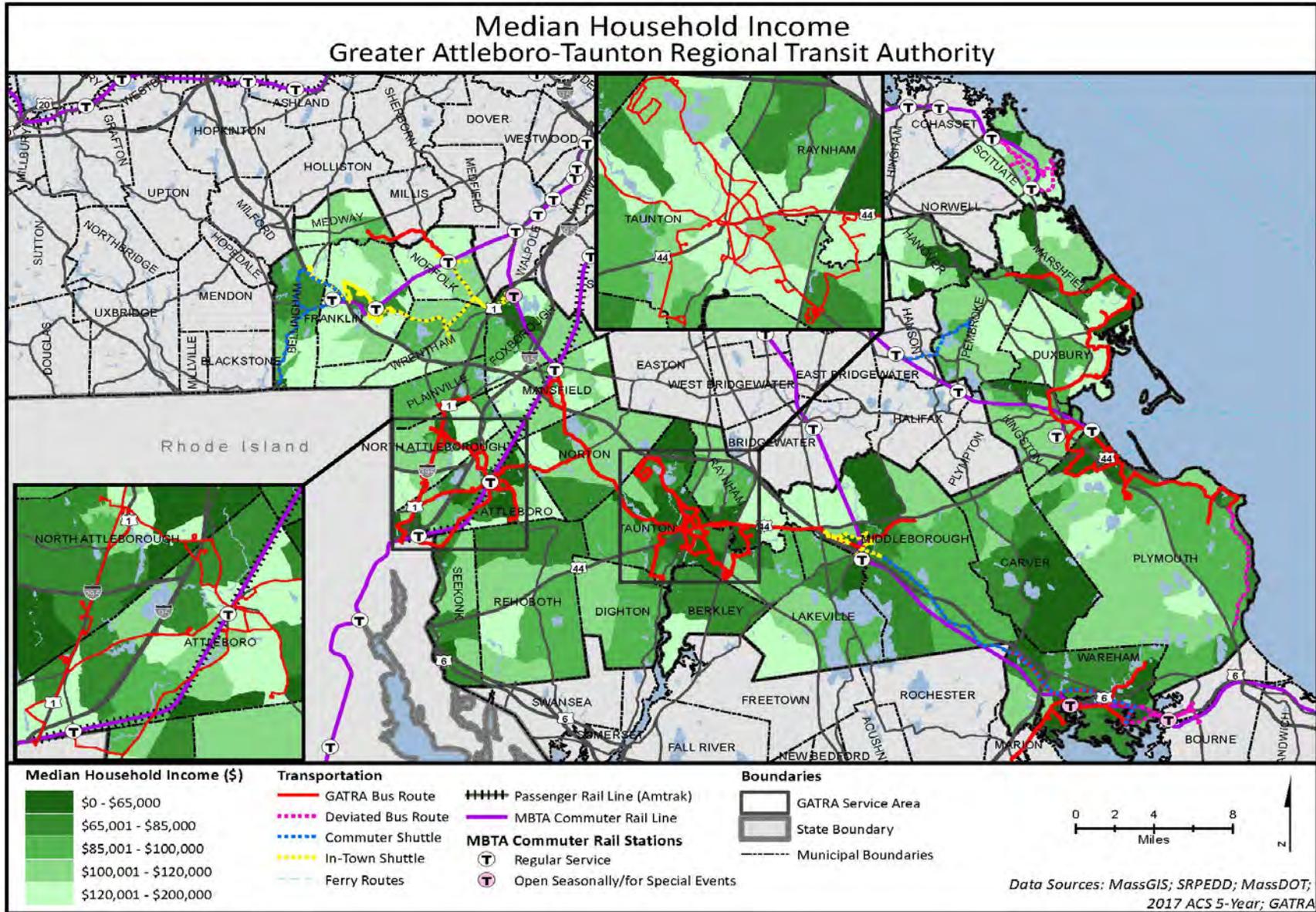
5.2.6 Zero-Vehicle Households

Zero-vehicle households indicate a strong market for transit as they are considered to be entirely dependent upon alternate transportation, including carpooling/ridesharing, walking, bicycling, and public transportation. Figure 42 shows the percentage of households without a vehicle in the GATRA service area. In some areas, the percentage of households without vehicles is as high as 35 percent, specifically in portions of Franklin, Attleboro, and Taunton. However, the distribution of households without a vehicle is spread throughout the region. A majority of the towns and cities in the GATRA service area see between 1 percent and 35 percent of households without one vehicle; however, on average about 10 percent of households in the area do not own a vehicle.

This information is helpful in understanding where transit needs are likely to exist as families without vehicles are likely to be more dependent on transit, specifically on GATRA's services. Fixed route service is limited in the southeast portion of the service area as well as in areas in the northwest near Franklin, which rely on the in-town shuttle service for transportation.

5.2.7 Minority Populations

Minority populations, much like the youth populations, are also less likely to have access to an automobile. They also tend to live farther away from their jobs and therefore are more likely to use public transit for commuting to work.[33] Though any population may be subject to disproportionate impacts from a transportation project or investment, identifying minority and low-income populations is useful to understand the comparative effects throughout affected populations.

Figure 43 shows where the minority population, or persons who identify as non-white and/or Hispanic, is dispersed throughout the region. Higher concentrations of minority populations are located in Attleboro, Taunton, Wareham, and the southern portion of Rehoboth. Additionally, these areas represent environmental justice communities, defined by the United States Environmental Protection Agency (EPA) as areas most impacted by environmental harms and risk. EPA defines environmental justice as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin or income" and is entitled to equal protection from environmental harms and risks.[34] Currently, GATRA's fixed route and demand response serve these key areas; however, many areas in the southeast and towns near Rhode Island could benefit from an expansion in service.

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[33] Pew Research Center, "Who Relies on Public Transit in the U.S.," Monica Anderson, April 7, 2016.
[34] Environmental Protection Agency, "Environmental Justice," accessed April 2020, https://www.epa.gov/environmentaljustice.

**Figure 42. Zero-Vehicle Households**
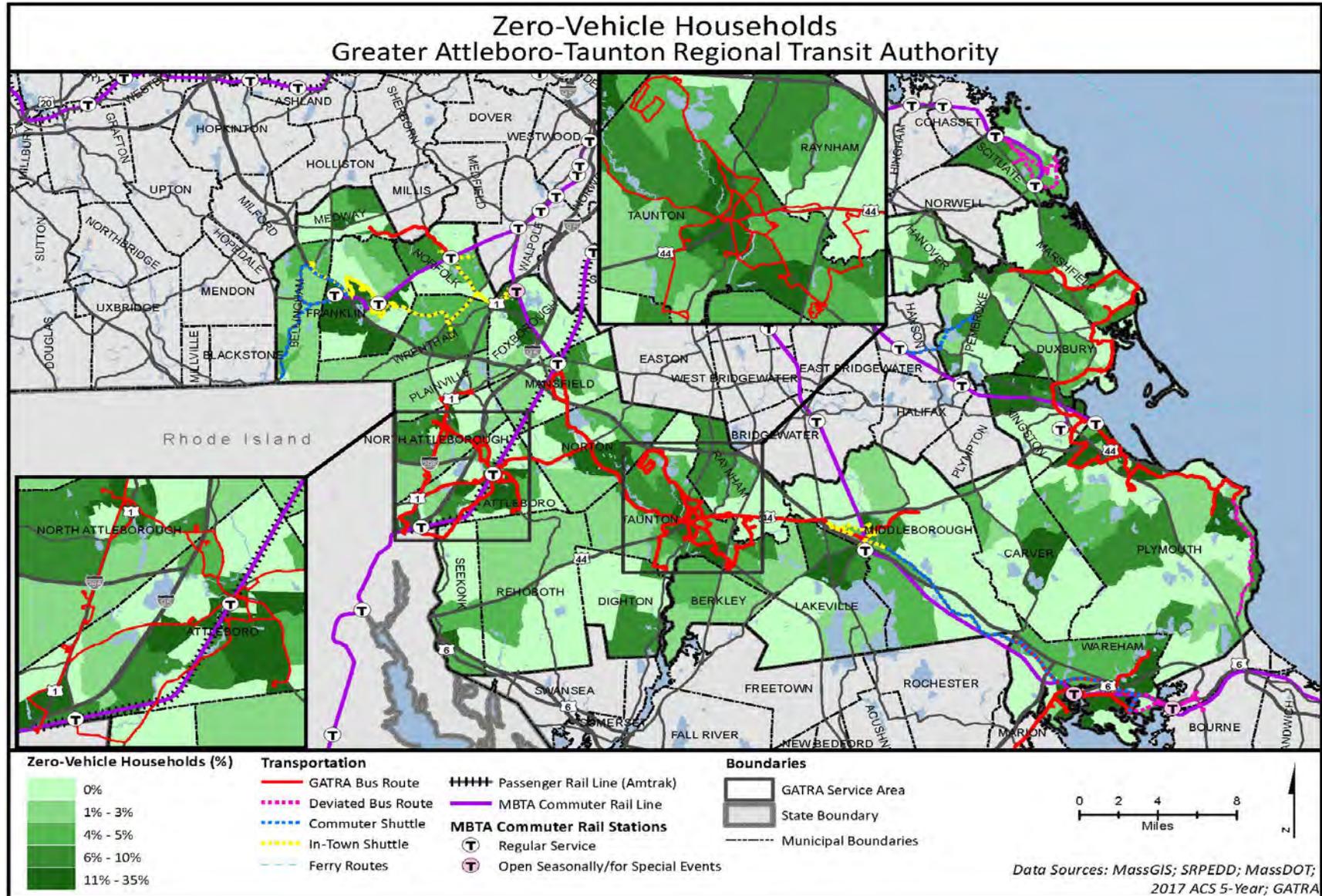
Figure 43. Minority Population
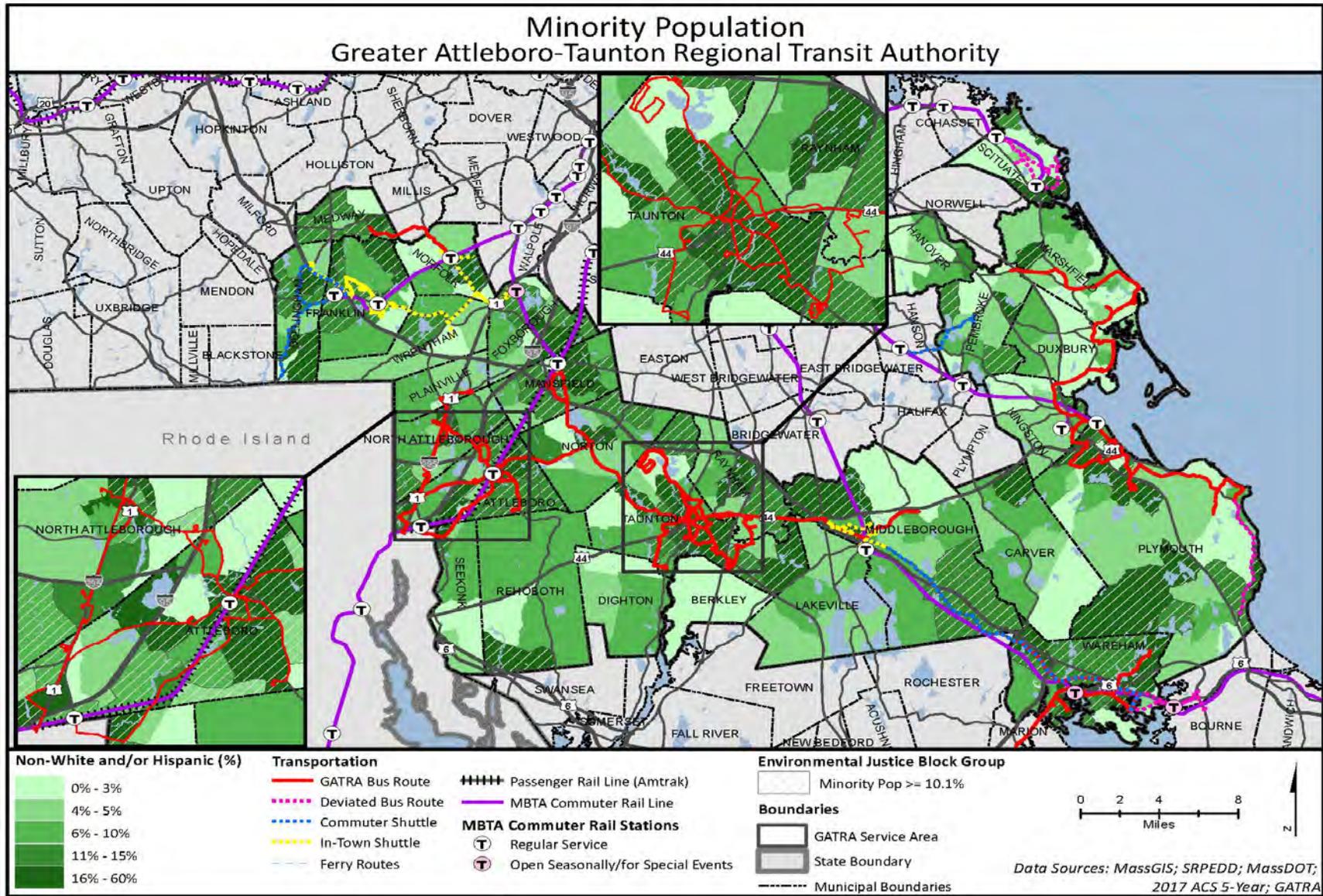
5.3   Employment

Commuting to and from work is the most frequent trip purpose on public transit; therefore, employment characteristics are important factors for transit planning. Large employers are common destinations for significant numbers of people. Table 23 outlines major employers in the GATRA service area using Labor Market Information provided by the state of Massachusetts[35]. Major employers are those with over 500 employees. The cities of Attleboro and Taunton and the towns of Foxborough, Mansfield, and Raynham have employers with between 1,000 and 4,999 employees. Six employers have over 1,000 and 18 employers have between 500 and 999. Additionally, the leading industry types vary by municipality. In 2017, in the area's two largest cities, Attleboro and Taunton, more than 54 percent of those employed worked in the health care and social assistance, manufacturing, retail trade, or accommodation and food services industries.

Table 23. GATRA Major Employers

Employer	Municipality	Number of Employees
Sensata Technologies Inc	Attleboro	1,000-4,999
Invensys Systems	Foxborough	1,000-4,999
Team Ops LLC	Foxborough	1,000-4,999
Medtronic	Mansfield	1,000-4,999
Depuy Inc	Raynham	1,000-4,999
General Dynamics Mission Systems	Taunton	1,000-4,999
Sturdy Memorial Hospital	Attleboro	500-999
Putnam Investments	Foxborough	500-999
Putnam Investments	Franklin	500-999
Garelick Farms LLC	Franklin	500-999
Xfinity Center	Mansfield	500-999
National Lumber Co	Mansfield	500-999
Marshfield Town Hall	Marshfield	500-999
Ocean Spray Cranberries Inc	Middleborough	500-999
Walmart Supercenter	North Attleborough	500-999
Three C Enterprises Inc	North Attleborough	500-999
Beth Israel Deaconess Hospital	Plymouth	500-999
Plymouth County Sheriff	Plymouth	500-999
Pilgrim Nuclear Station	Plymouth	500-999
Plymouth County Correctional	Plymouth	500-999

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[35] Mass.gov Labor Market Information https://lmi.dua.eol.mass.gov/LMI/LargestEmployersArea

Employer	Municipality	Number of Employees
Tech Etch Inc	Plymouth	500-999
Walmart Supercenter	Raynham	500-999
Taunton State Hospital	Taunton	500-999

Source: Labor Market Information: Largest Employers by Area
https://lmi.dua.eol.mass.gov/lmi/LargestEmployersArea#

Figure 45 shows a map of job density for the GATRA service area, which corresponds with the information provided in the state Labor Market data of top employers. Employment density in the region is 298 jobs per square mile. The cities of Attleboro and Taunton have the highest job density as well as the highest number of GATRA fixed routes. Towns on the outskirts of the service area have less job density; however, commuter service runs through many of these towns, indicating that employed individuals may be commuting via MBTA to other more job dense cities.

Overall, the region is a net exporter of employees, with more people leaving the region to work than entering (Figure 44). Of the 233,000 jobs approximately, 67.6 percent are within ¾ mile of a GATRA fixed route, served by a deviated fixed route zone, or part of the GATRA on-demand. Areas served by GATRA have an overall higher job density at 561 jobs per square mile than areas without transit (151 jobs per square mile).

Figure 44. GATRA Work Flow

5.4   Local and Regional Travel Patterns

Major trip generators are locations frequented by a significant number of people, traveling by all modes, within the study area. Common transit generators include municipal buildings, schools and universities, places of worship, hospitals and medical centers, and retail and shopping areas. These generators must be considered when evaluating transit service for a region. Figure 46 shows a map of the key trip generators for the GATRA service area. Towns in the service area often have fewer trip generators than the cities and have few numbers of schools, hospitals, and shopping found in the denser areas. Clusters of trip generators exist in areas throughout towns where the MBTA Commuter Rail Line is located. It is common for major trip generators, such as housing, shopping, and other services, to pop up near existing transportation lines. The map shows that GATRA fixed route service is currently serving areas with a large number of trip generating clusters near Attleboro and Taunton, and along the coast near the Atlantic Ocean in the towns of Scituate, Marshfield, Duxbury, and Kingston.

Figure 45. Job Density
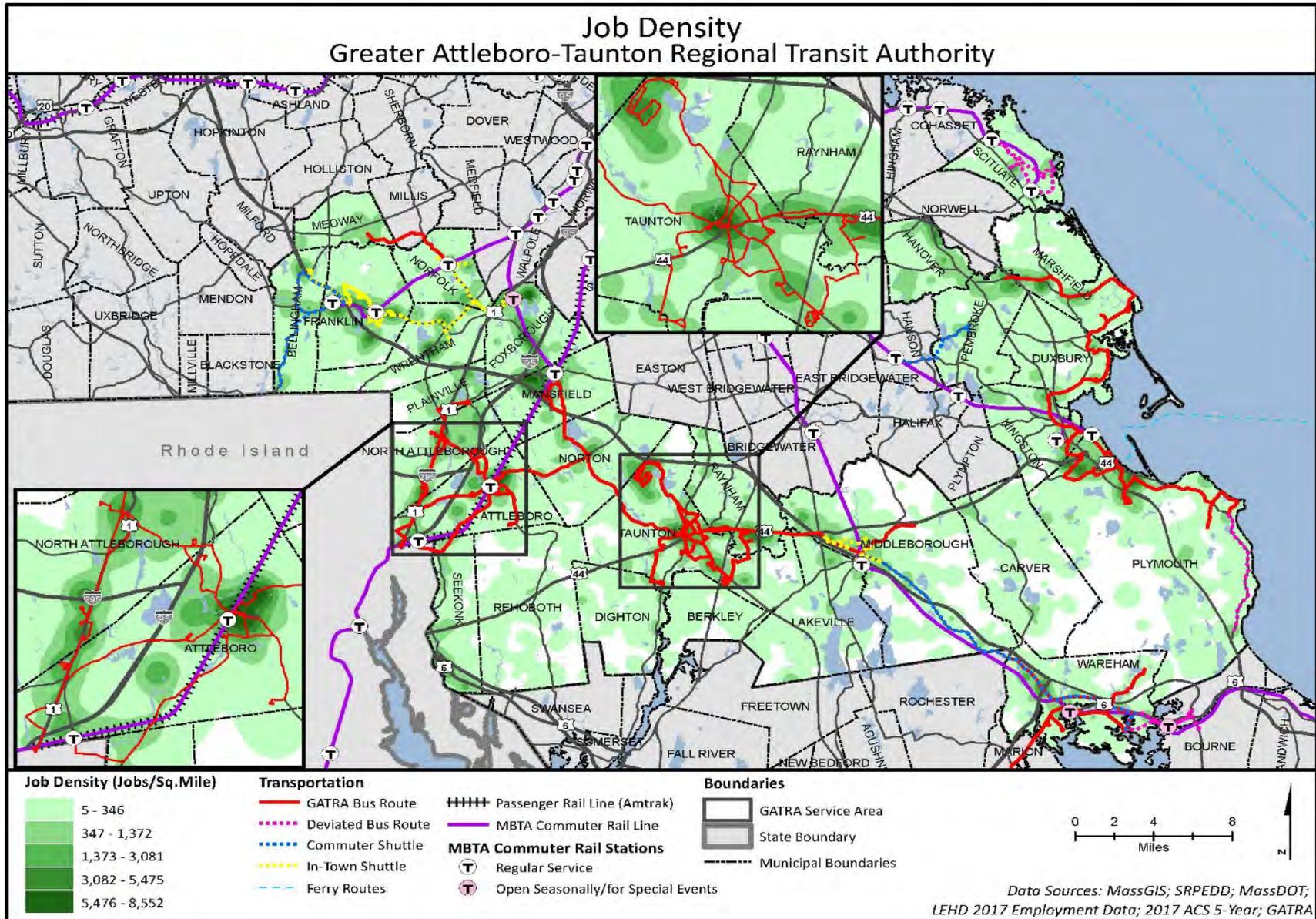
Figure 46. Major Trip Generators
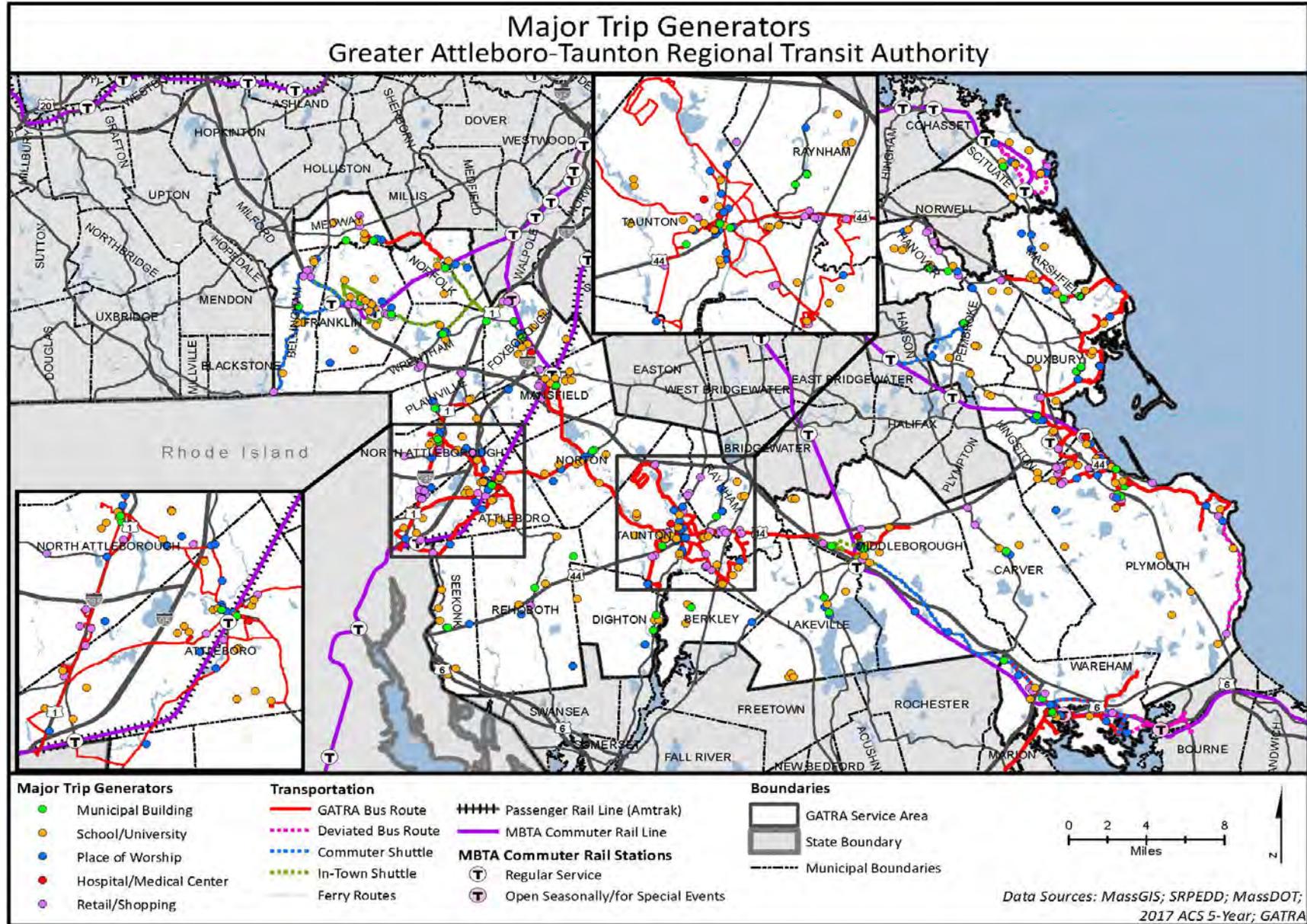
5.5   Land Use and Growth

The 28 communities in the Greater Attleboro-Taunton Region are under the purview of various planning and economic development organizations throughout the greater Massachusetts region.

- Southeastern Regional Planning and Economic Development District (SRPEDD) is the state-designated Metropolitan Planning Organization (MPO) for Attleboro, North Attleborough, Rehoboth, Dighton, Berkley, Taunton, Raynham, Norton, Mansfield, Middleboro, Carver, and Wareham.

- Metropolitan Area Planning Council (MAPC) is the regional planning agency for metropolitan Boston, including Medway, Franklin, Norfolk, Bellingham, Wrentham, Foxborough, Scituate, Pembroke, Duxbury, Hanover, Pembroke, and Marshfield.

- Old Colony Planning Council (OCPC) is the state-designated MPO for Plymouth, Kingston, Duxbury, Pembroke, and Hanover

- Boston Regional Metropolitan Planning Organization (BRMPO) is the state-designated MPO for the Boston area, including GATRA towns of Medway, Franklin, Norfolk, Bellingham, Wrentham, Foxborough, Scituate, and Marshfield.

The communities that make up the GATRA region are considered members of at least one or more planning organizations outlined above. The goal of many of these planning organizations is to establish a vision for the region, expand economic opportunity, protect resources, and foster joint and cooperative action for transportation, land use, and future growth throughout the region.

SRPEDD represents 15 of the GATRA region communities, specifically Attleboro, Berkley, Carver, Dighton, Lakeville, Mansfield, Middleborough, North Attleborough, Norton, Plainville, Raynham, Rehoboth, Seekonk, Wareham, and Taunton. SRPEDD staff conduct a majority of GATRA's short- and long-term planning activities, review ridership trends, and identify new areas of the market for public transit services. MAPC represents 11 of GATRA region communities, specifically the towns of Franklin, Foxborough, Wrentham, Norfolk, Medway, Bellingham, Scituate, Marshfield, Pembroke, Hanover, and Duxbury. However, Duxbury, Hanover, and Pembroke are also part of the OCPC in addition to the towns of Kingston and Plymouth. In many instances, the 28 communities are represented by multiple interested planning parties.

SRPEDD's 2020 Regional Plan identified the need to offset the issues of urban sprawl, specifically continuing to support Priority Development Areas and Priority Protection Areas to focus development near adequately designed and multimodal transportation centers.[36] Additionally, a need for park-and-ride lots throughout the region has been identified to serve riders who utilize commuter rail to commute to Boston. MAPC is in the process of developing its 2050 MetroCommon Regional Plan for the future; however, its Strategic Plan for 2015-2020 outlined goals for promoting innovative transportation strategies including implementing transit solutions that meet the needs of those both in cities and suburbs.[37] Additionally, OCPC's Long-Range Transportation Plan for 2020-2040 describes initiatives for promoting healthy communities and active living through land use investments that encourage walking, biking, and using transportation services such as GATRA.[38] The plan also emphasizes the importance of

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[36]SRPEDD 2020 Regional Plan, Land Use Recommendations, accessed April 2020, http://www.srpedd.org/manager/external/ckfinder/userfiles/resources/Transportation/RTP%202020/2020%20RTP%20Main%20Text%20July%2017%202019.pdf.
[37] MAPC Strategic Plan 2015-2020, accessed April 2020, http://www.mapc.org/wp-content/uploads/2017/08/Strategic-plan-FINAL-DRAFT-for-Fall-Council-Meeting-10-29-14-2.pdf.
[38] Old Colony Planning Council LRTP, 2020-2040, accessed April 2020, http://www.ocpcrpa.org/docs/mpo/Old_Colony_MPO_2020-2040_Long_Range_Transportation_Plan.pdf.

continuing to connect commuters to the commuter rail service. GATRA currently provides the Pembroke Shuttle, which provides service to the MBTA Hanson Commuter Rail Station.

The BRMPO, representing Franklin, Norfolk, Wrentham, Foxborough, Scituate, and Marshfield, is specifically mentioned in the BRMPO 2040 Long-Range Transportation Plan, which identifies issues that impact land use and the transportation system for these towns. The MPO defines Franklin, Foxborough, Norfolk, and Wrentham as developing suburbs that are less-developed towns that have large expanses of currently undeveloped land that could be converted to developable uses. The MPO states that these towns have a well-defined mixed use town center; however, the extent of economic development varies but is in general often quite limited.[39] The MPO defines Scituate and Marshfield as Maturing Suburbs, meaning that these towns are moderately dense residential communities with a limited supply of undeveloped land. These towns are considered bedroom communities where less than 20 percent of the land area is devoted to commercial and industrial uses. The plan outlines the need to continue to connect elderly adults in these areas to transportation, enhance park-and-rides, and implement future bus infrastructure such as dedicated bus lanes.

5.6   Transit Score

The transit score map, as shown on Figure 47, was created to spatially analyze several transit-oriented demographic and socioeconomic characteristics at the same time (the characteristics discussed individually in this chapter so far). The transit score is a relative measure of how successful a fixed route transit system is expected to be in a particular region. Used in conjunction with a congruency analysis of major transit generators, the transit score can be used to evaluate existing service as well as to identify areas of potential demand.

Demographic and socioeconomic information is collected from the US Census Bureau for a region divided into smaller geographic units such as tracts, block groups, or blocks. Block groups and census tracts were used for this analysis. Transit-oriented variables used for the analysis include:

- Overall Population Density

- Overall Job Density

- Density of the Population under the age of 18

- Density of the Population over the age of 65[40]

- Percentage of the Population Living Below the Poverty Level

- Percentage of Zero-Car Households

The transit score map shows the cities of Attleboro and Taunton as being areas with very high transit scores, as well as portions of Hanover, Foxborough, and towns that support the MBTA Commuter Rail service. GATRA provides demand response service to the town of Hanover; however, there is currently no fixed route service, although the town demonstrates a very high need for transit service. Conversely, the towns of Rehoboth, Lakeville, and portions of Plymouth have very low transit scores, which aligns with trends seen in previous figures. These areas have fewer trip generators and lower job and population densities. GATRA bus service is

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[39] Boston Region MPO Long-Range Plan 2040, Land Use & Transportation Development, accessed April 2020, https://www.ctps.org/data/pdf/plans/LRTP/destination/Destination-2040-Needs-Assessment.pdf#page=23.

[40] Note that the federal definition of senior as aged 65 or over is used in this case, but age in relation to transportation need is more nuanced than a strict age cutoff implies. In 2017, Governor Baker signed Executive Order 576 establishing the Governor's Council to Address Aging in Massachusetts. As part of this effort, the Council looked at different methods and solutions to create an age-friendly Commonwealth and conducted research and listening sessions across the state, during which transportation was identified as a key challenge facing older adults. Additionally, research presented from this effort showed a trend toward people staying in the workforce longer than previous generations. This research shows that the topic of transportation for older adults is one that is evolving and will require more attention in transportation planning in the future.

currently concentrated in the dense cities of Attleboro and Taunton and in towns to the northwest of the cities; however, the map shows that GATRA service could be extended to other areas in the service region, such as Hanover, portions of Raynham, and more areas within Attleboro and Taunton. Overall, GATRA's existing bus network matches the transit scores of each of its member towns, indicating GATRA is matching transit demand.

Figure 47. Transit Score
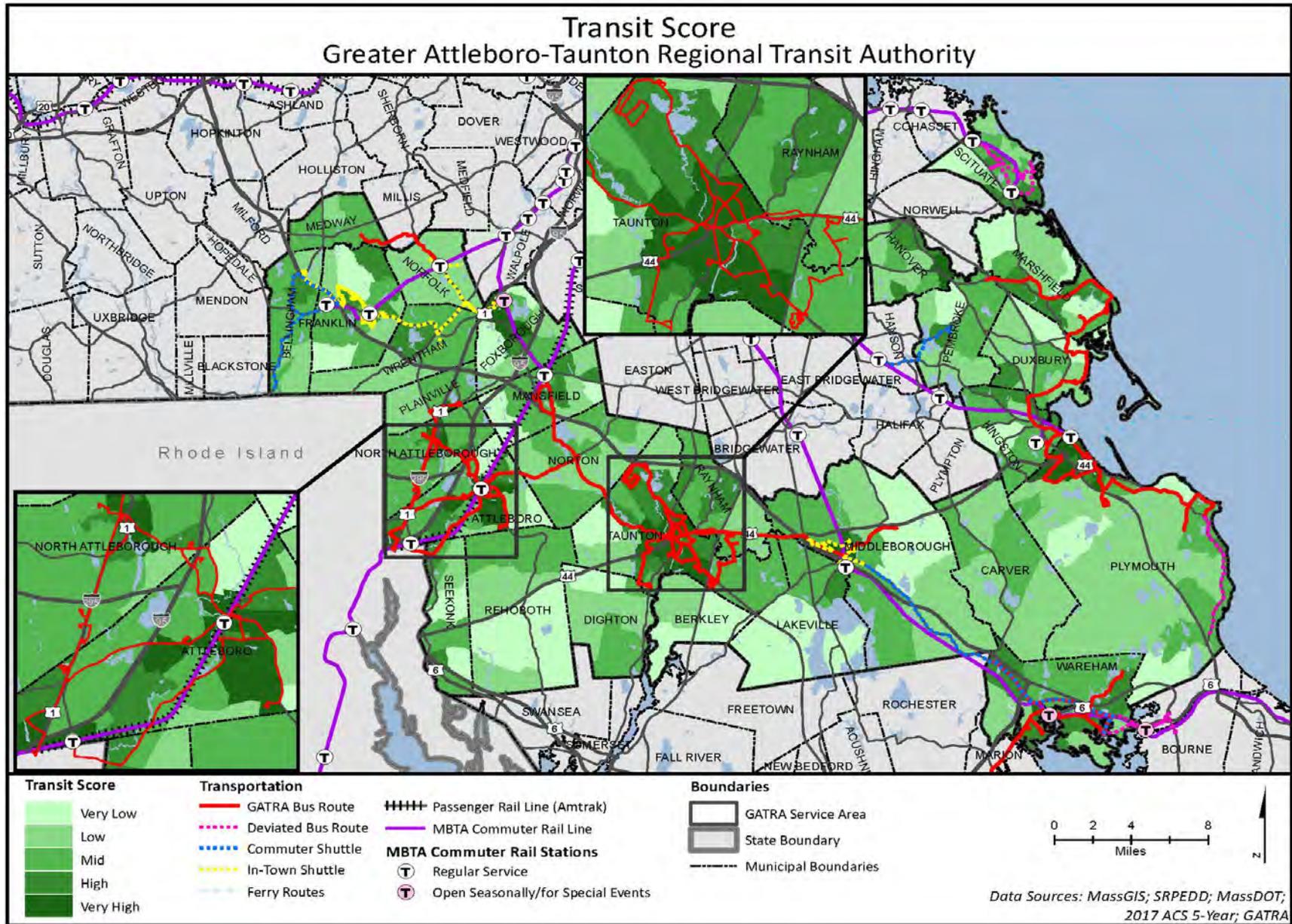
6.   Performance

Performance focused management is a critical priority for the Commonwealth and regional transit providers. The federal government has also led the transportation industry to become more performance-driven in the last decade by mandating that federally funded agencies implement a performance-based approach to planning and programming. This broad emphasis on the importance of having a strong enterprise-wide, data-driven, and transparent performance management framework as the foundation for making decisions, particularly in the service planning and financial areas, is especially relevant to the RTAs as they work to sustain success in the face of the challenges of COVID-19 and other market uncertainties.

The purpose of this chapter is to outline GATRA's current performance practices; track performance results for the GATRA/MassDOT Bilateral MOU, which the Authority monitors; and make recommendations to enhance GATRA's performance framework to support data-driven performance-focused decision-making.

6.1   Current Performance Measurement Practices

GATRA's performance management system includes reporting a broad range of performance results to its Advisory Board, and federal and state funding partners, transparent sharing of performance results with the public, and a commitment to tracking and reporting key metrics to MassDOT under the bilateral 2-year MOU that GATRA signed with MassDOT in August 2019.

GATRA also has internal performance monitoring protocols related to management decisions. Although GATRA has a base to build on, it will be very beneficial for the Authority to strengthen their performance management practices to support data-driven enterprise-wide decision-making. Recommendations for improving GATRA performance management practices are provided at the end of this chapter and in Chapter 8

6.1.1 State and Federal Monitoring Requirements

Besides using performance monitoring to inform service planning, GATRA is required to report a variety of performance metrics to both FTA and the Commonwealth on a monthly, quarterly, and annual basis as part of their funding agreements. FTA requires transit providers that receive federal funding to submit data (including service, financial, and asset inventory and condition) both monthly and annually to be posted on the NTD.

The Commonwealth also requires GATRA and the other RTAs to report service and asset data through the state's GrantsPlus system. The Commonwealth has taken other steps in recent years to promote industry best practices, including a more data-driven approach to service planning. In 2019, MassDOT convened a stakeholder group, including RTA administrators, to develop a performance measurement strategy that could be tailored to each RTA's needs and challenges. The results of this effort were laid out in individual MOUs signed by MassDOT and the RTA administrators.

In addition to reporting to meet federal and state requirements, GATRA organizes ridership data on a daily, monthly, and quarterly basis for the PTM operated fixed routes to monitor trends. Ridership, revenue miles, and revenue hours data for both the fixed route and demand response operations are organized into a year-over-year spreadsheet for the board. Data are aggregated up from the provider/modal level to show how each month and quarter compares to that of the previous year. For each route GATRA monitors monthly ridership and revenue.

GATRA also posts its annual reports and performance measures reports on the Agency website.[41] GATRA uses performance measures to evaluate and improve service. GATRA's fixed route service and DAR service areas are divided into groups for comparison. Fixed route services are broken down by type of service, while the DAR service area has been broken into regional groups. Both fixed route and DAR services are measured using passengers per revenue mile (PPRM), passengers per revenue hour (PPRH), revenue miles between preventable accidents, and miles between road calls. Operating statistics are classified by fiscal year and quarter.

Figure 48. GATRA Fixed Route Performance Measures as Posted on the GATRA Website

GATRA Fixed Route Performance Measures

FY18 (All Quarters) - FY19 (All Quarters)

Group 1 Fixed Routes: Attleboro/Taunton Fixed Routes and Route 140 Service in Norton/Mansfield

	Q1 FY18	Q1 FY19	Q2 FY18	Q2 FY19	Q3 FY18	Q3 FY19	Q4 FY18	Q4 FY19
Total Passengers	118,737	114,417	124,383	124,944	109,715	111,552	122,462	110,442
Revenue Miles	193,796	187,328	197,897	196,747	204,587	202,255	206,760	187,054
Revenue Hours	9,596	9,275	9,798	9,741	10,055	10,011	10,168	10,554
Passengers/Rev. Mile	0.61	0.61	0.63	0.64	0.54	0.55	0.59	0.59
Passengers/Rev. Hour	12.37	12.34	12.69	12.83	10.91	11.14	12.04	10.46
Preventable Accidents per 100,000	1.03	0.53	NO ACCIDENTS	1.52	1.47	0.49	0.48	2.14
Revenue Miles between Road Calls	96,898	26,761	49,474	10,930	40,917	20,226	25,845	37,411

Group 2 Suburban Routes: Onset/Wareham Link (OWL), Plymouth Area Link (PAL), and Seaside Area Inter-Link (SAIL)

	Q1 FY18	Q1 FY19	Q2 FY18	Q2 FY19	Q3 FY18	Q3 FY19	Q4 FY18	Q4 FY19
Total Passengers	57,335	57,237	50,971	53,643	46,712	46,609	54,443	53,149
Revenue Miles	147,885	147,799	148,849	151,132	140,366	155,389	147,900	155,390
Revenue Hours	9,117	7,815	9,205	7,967	8,807	8,189	8,093	8,313
Passengers/Rev. Mile	0.39	0.39	0.34	0.35	0.33	0.30	0.37	0.34
Passengers/Rev. Hour	6.29	7.32	5.54	6.73	5.30	5.69	6.73	6.39
Preventable Accidents per 100,000	NO ACCIDENTS	NO ACCIDENTS	0.67	0.66	NO ACCIDENTS	1.29	NO ACCIDENTS	1.29
Revenue Miles between Road Calls	73,943	49,266	74,425	7,954	20,052	14,126	14,790	17,266

Group 3 In-Town Routes: Middleborough Downtown Shuttle, Franklin Area Bus (FAB), Tri-Town Connector, and Scituate Link

	Q1 FY18	Q1 FY19	Q2 FY18	Q2 FY19	Q3 FY18	Q3 FY19	Q4 FY18	Q4 FY19
Total Passengers	7,637	7,823	7,209	7,444	6,733	6,844	7,793	7,551
Revenue Miles	50,287	47,879	50,559	47,450	47,890	46,817	51,621	49,384
Revenue Hours	3,041	3,124	3,009	3,065	2,974	3,077	3,201	3,134
Passengers/Rev. Mile	0.15	0.16	0.14	0.16	0.14	0.15	0.15	0.15
Passengers/Rev. Hour	2.51	2.50	2.40	2.43	2.26	2.22	2.43	2.41
Preventable Accidents per 100,000	NO ACCIDENTS	NO ACCIDENTS	NO ACCIDENTS	NO ACCIDENTS	NO ACCIDENTS	NO ACCIDENTS	NO ACCIDENTS	NO ACCIDENTS
Revenue Miles between Road Calls	50,287	47,879	50,559	23,725	15,963	23,409	51,621	NO ROADCALLS

Group 4 Commuter Shuttles: Bellingham, Medway, Pembroke, Wareham/New Bedford, and Middleborough/Taunton Connection

	Q1 FY18	Q1 FY19	Q2 FY18	Q2 FY19	Q3 FY18	Q3 FY19	Q4 FY18	Q4 FY19
Total Passengers	3,352	4,378	3,490	3,628	4,100	3,723	4,956	4,399
Revenue Miles	16,749	18,433	16,040	16,998	18,433	18,833	19,561	20,383
Revenue Hours	1,469	1,479	1,445	1,390	1,488	1,370	1,539	1,435
Passengers/Rev. Mile	0.20	0.24	0.22	0.21	0.22	0.20	0.25	0.22
Passengers/Rev. Hour	2.28	2.96	2.42	2.61	2.76	2.72	3.22	3.06
Preventable Accidents per 100,000	NO ACCIDENTS	NO ACCIDENTS	NO ACCIDENTS	5.88	NO ACCIDENTS	NO ACCIDENTS	NO ACCIDENTS	NO ACCIDENTS
Revenue Miles between Road Calls	16,749	NO ROADCALLS	8,020	8,499	6,144	4,708	9,781	NO ROADCALLS

Source: GATRA Annual Report and Performance Measures Reports:
https://www.gatra.org/reports-and-policies/.

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6.1.2 Performance Metrics and Targets from MassDOT Memorandum of Understanding

New to GATRA's performance monitoring obligations is a commitment to monitor and report on a selection of performance metrics, baselines, and targets established by GATRA and MassDOT in the categories of ridership, customer service and satisfaction, asset management, and financial performance. This commitment is contained in a bilateral MOU signed by GATRA and MassDOT in August 2019. The MOU states that GATRA's performance in FY 2020 and 2021 is to be measured by comparing established baselines against FY 2020 and FY 2021 targets. With a few exceptions, the baselines are averages of data collected in FY 2016 to FY 2018. The performance measures included in the GATRA MOU, along with their baselines and targets, are in Table 24 and Table 25 for FY 2020 and FY 2021, respectively.

Table 24. MOU Performance Measure Targets (FY 2020)

Metric	Bus Routes	Demand Response	Systemwide
Ridership Metrics			
Unlinked Passenger Trips (UPT)	768,450	320,100	1,088,500
UPT/Vehicle Revenue Miles	0.42	0.23	0.33
UPT/Vehicle Revenue Hours	6.30	2.70	4.50
Travel Trainings	11.00	–	–
Customer Service and Satisfaction Metrics:			
On-Time Performance (OTP)	92%	93%	–
Preventable Accidents per 100,000 Vehicle Miles	0.48	0.60	–
Asset Management Metrics:**			
Revenue Vehicles TAM Plan Useful Life Benchmarks (ULB)			
Bus	–	–	39%
Cutaway	–	–	62%
Van	–	–	32%
Equipment Asset TAM Plan ULB Targets	–	–	Percentage of vehicles that have either met or exceeded their ULB
Facilities Asset TAM Plan ULB Targets	–	–	Percentage of facilities that are below a condition 3 on the FTA TERM Rating

Metric	Bus Routes	Demand Response	Systemwide
Financial Performance Metrics			
Farebox Recovery Ratio	9.3%	6.0%	–
Operating Cost per VRH	$78.25	$59.30	–
Subsidy per Passenger Trip	$8.45	$20.00	–

Source: MassDOT MOU with GATRA

* All metrics are measured in terms of interim targets for FY 2020.

** ULBs are based on the default benchmark provided by FTA (FTA Circular 5010.E) as assets acquired by GATRA are funded in part with federal transit funds.

Table 25. MOU Performance Measure Targets (FY 2021)

Metric	Bus Routes	Demand Response	Systemwide
Ridership Metrics			
Unlinked Passenger Trips (UPT)	788,950	342,000	1,130,950
UPT/Vehicle Revenue Miles	0.45	0.25	0.35
UPT/Vehicle Revenue Hours	7.00	3.00	5.00
Travel Trainings	14.00	–	–
Customer Service and Satisfaction Metrics:			
On-Time Performance (OTP)	96%	94%	–
Preventable Accidents per 100,000 Vehicle Miles	0.40	0.53	–
Asset Management Metrics**:			
Revenue Vehicles TAM Plan Useful Life Benchmarks (ULB)			
Bus	–	–	39%
Cutaway	–	–	52%
Van	–	–	52%
Equipment Asset TAM Plan ULB Targets	–	–	Percentage of vehicles that have either met or exceeded their ULB
Facilities Asset TAM Plan ULB Targets	–	–	Percentage of facilities that are below a condition 3 on the FTA TERM Rating

Metric	Bus Routes	Demand Response	Systemwide
Financial Performance Metrics			
Farebox Recovery Ratio	9.80%	6.70%	–
Operating Cost per VRH	$81.00	$61.35	–
Subsidy per Passenger Trip	$7.94	$19.60	–

Source: MassDOT MOU with GATRA

* All metrics are measured in terms of interim targets for FY 2021.

** ULBs are based on the default benchmark provided by FTA (FTA Circular 5010.E) as assets acquired by GATRA are funded in part with federal transit funds.

The performance measures included in the MOU, along with their baselines, targets, and GATRA's progress (through the third quarter of FY 2020) are included in the follow sections. Given that the COVID-19 pandemic did not significantly impact operations until the last two weeks of the third quarter, the data suggest that GATRA appeared to be on track to meet some of these goals before transit operations were interrupted.

When developing performance targets, it is typical to take into account external factors that are influencing performance, but it is not common practice to consider unforeseen disruptions that have the potential to greatly upset the status quo, like COVID-19. When GATRA and MassDOT developed the performance targets in the MOU, they developed baselines against which to measure GATRA's performance between FY 2019 and FY 2021. With few exceptions, these baselines are averages of data collected in FY 2017 to FY 2018. MOU targets reflected the reasonable expectation that GATRA could improve upon these baselines for the next 2 years. Since the outbreak of the pandemic, all parties acknowledge that meeting ridership and service efficiency goals will be very challenging.

As MassDOT notes in their July 2020 *Annual Report on the Regional Transit Authority Performance Management Program*, the performance management program will be a valuable tool in identifying progress, best practices, and innovative adaptations to the inevitable challenges the RTAs may face. In that report MassDOT states that "the Q4 data submittal will provide MassDOT and the RTA stakeholders with a better understanding of the depth of impact the COVID-19 pandemic has had on public transportation in Massachusetts." GATRA will use FY 2021 as a time to reevaluate targets and performance metrics as transit demand stabilizes and GATRA and MassDOT continue to discuss how to best reflect the impact of the pandemic on ridership, operations, and efficiency. This is discussed in greater detail below.

6.1.2.1   Ridership Measures

The following performance measures are calculated on a monthly and annual basis using farebox data, scheduling software, and operations data recorded by drivers and dispatchers. Prior to the pandemic GATRA was exceeding their target for fixed route passengers per revenue hour and was able to meet the target for the year despite drops in ridership (Table 26). At the end of the third quarter GATRA had fixed route ridership levels that were shy of meeting the target for the year, though historically ridership drops in the winter and begins to rise in the spring.

- **Total Ridership (Unlinked Passenger Trips):** This measures passenger boardings on GATRA vehicles (transfers counted as individual trips, rather than one multi-segment

trip). These data are collected from GATRA's fareboxes for fixed route and monthly reports from the COAs and operators.

- **Unlinked Passenger Trips per Vehicle Revenue Hour:** This is calculated by the number of total passenger boardings divided by the corresponding revenue hours.

- **Travel Trainings:** Travel training instructors teach individuals how to safely and independently ride public transportation systems in Attleboro, Taunton, and other communities where GATRA operates fixed route buses. Travel training can consist of one-on-one sessions or group lessons. The goal of travel training is to enable former demand resonse customers to travel independently on fixed-route buses.

Table 26. MOU Ridership Measures

Operating Statistic	Baseline (FY 2016-FY 2018 Average)	Target FY 2020	FY 2020 (First Quarter – Third Quarter)	FY 2020 (Full Year)
Total Ridership (Unlinked Passenger Trips)				
Fixed Route	729,400	768,450	487,563	543,247
Demand Response	307,650	320,100	211,493	226,492
Systemwide	1,037,050	1,088,550	699,056	769,739
Unlinked Passenger Trips per Revenue Hour				
Fixed Route	5.90	6.30	7.35	6.68
Demand Response	2.50	2.70	2.20	2.15
Systemwide	4.20	4.50	4.31	4.12
Travel Trainings				
Systemwide	7	11	*53*	53

Source: GATRA and MassDOT MOU (2019), GATRA

6.1.2.2   Customer Measures

The following performance measures are calculated on a monthly and annual basis using farebox data, automatic vehicle locator (AVL) software, and operations data recorded by drivers and dispatchers. GATRA was meeting the targets for preventable accidents up through the third quarter and continued to do so in the full fiscal year (Table 27). While they were not meeting the OTP targets for FY 2020 at the end of FY 2020, both had improved over the baseline.

- **On-Time Performance:** This measures the percentage of trips that operate late.

- **Preventable Accidents per 100,000 Revenue Miles:** For each mode, the number of preventable accidents reported per 100,000 miles of actual revenue vehicle mileage presented on a 12-month rolling average ([Preventable accidents divided by actual revenue mileage]*100,000). Preventable accidents are accidents in which the driver failed to do everything that reasonably could have been done to avoid the crash.

Table 27. Customer Service Measures

Operating Statistic	Baseline (FY 2016-FY 2018 Average)	Target FY 2020	FY 2020 (First Quarter – Third Quarter)	FY 2020 (Full Year)
On-Time Performance				
Fixed Route	87.00%	92.00%	88.40%	91.3%
Demand Response	89.00%	93.00%	88.64%	91.48%
Preventable Accidents per 100,000 Vehicle Miles				
Fixed Route	0.51	0.48	0.25	0.20
Demand Response	0.76	0.60	0.43	0.39

Source: GATRA and MassDOT MOU (2019), GATRA

6.1.2.3   Financial Efficiency Measures

These measures are calculated on a monthly and/or annual basis using data from fare payment machines, fareboxes, pass sales, contracted service agreements, schedule data, and operations data recorded by drivers and dispatchers. Farebox recovery for fixed route had improved for both modes and was just shy of the FY 2020 targets through the third quarter. At the end of the fiscal year fixed route met the target but demand response was still shy. The other two financial metrics did not meet their targets (Table 28) and increased between the end of the third quarter and end of the fiscal year. This is primarily because of increased costs associated with cleaning and lower ridership.

- **Farebox Recovery Ratio:** This metric is the percentage of operating costs covered by fares.

- **Operating Expenses per Revenue Hour:** This is the cost of service divided by revenue hours.

- **Subsidy per Unlinked Passenger Trip:** This is the total cost of service minus fare revenue divided by the number of passenger boardings.

Table 28. MOU Financial Efficiency Measures

Operating Statistic	Baseline (FY 2016-FY 2018 Average)	Target FY 2020	FY 2020 (First Quarter – Third Quarter)	FY 2020 (Full Year)
Farebox Recovery Ratio				
Fixed Route	8.25%	9.30%	9.22%	9.40%
Demand Response	4.20%	6.00%	5.33%	5.62%
Operating Expenses per Vehicle Revenue Hour				
Fixed Route	$75.65	$78.25	$87.93	$90.07
Demand Response	$56.67	$59.30	$60.98	$69.92

Operating Statistic	Baseline (FY 2016-FY 2018 Average)	Target FY 2020	FY 2020 (First Quarter – Third Quarter)	FY 2020 (Full Year)
Subsidy per Unlinked Passenger Trip				
Fixed Route	$8.75	$8.45	$10.82	$12.22
Demand Response	$21.99	$20.00	$26.57	$30.71

Source: GATRA and MassDOT MOU (2019), GATRA

6.1.2.4   Asset Measures

FTA has developed national standards for rating the condition of transit equipment and facilities. FTA categorizes vehicles, equipment, and facilities into asset classes and those classes have either a ULB or a condition rating on the (TERM) scale. While FTA has default ULBs for expected service years for vehicle classes, agencies are permitted to submit their own ULBs for approval from FTA if they choose. Although the MOU lists the following asset management metrics and targets, GATRA sets ULB goals for their rolling stock, equipment, and facilities in their 2018 TAM Plan, while the targets for the metrics in the sections above were set in the MOU.

- **FTA Reportable Revenue Vehicles Asset Class Meeting FTA TAM Plan ULB**: This metric is the percentage of vehicles within a particular asset class that have met or exceed their ULB. GATRA did not meet this target for any class of vehicle. Buses and cutaways were over by 1.75 percent and vans were over by 25.41 percent. Targets were not met for FY 2020 because the vehicles arrived late. Due to COVID-19 the vehicles arrived in July not June, thus putting them in FY 2021, and GATRA is not meeting their ULB target. Replacements for FY 2021 are scheduled as planned to meet targets.

- **FTA Reportable Equipment Asset Class Meeting FTA TAM Plan ULB:** This metric is the percentage of equipment within a particular asset class that has met or exceed their ULB**.** GATRA met this target for trucks and other rubber tire vehicles but not for automobiles.

- **FTA Reportable Facilities Asset Class Meeting FTA TAM Plan ULB:** This metric is the percentage of facilities with a condition rating below 3.0 on the FTA TERM scale. GATRA met this target.

6.1.3 How GATRA's Market Has Been Affected by COVID-19

Months into the pandemic, Americans are still trying to understand what the "new normal" will look like. Transit providers are uncertain how many former customers will return (ridership has dropped by more than 80 percent in some systems) and what that timeline looks like. They are also grappling with how to ensure a safe workplace and retain employees as the risk associated with transit operations (and driving a vehicle in particular) has increased significantly since March 2020.

Since the outbreak became widespread in Massachusetts in mid-March, many institutions and industries that fuel the region's economy, and therefore GATRA's ridership, have been severely altered for the foreseeable future. Some of the most significant include:

- Virtual classes at the region's public schools, community colleges, and Wheaton College located in Norton

- Decline in customers and workforce at restaurants and retail/shopping outlets

- Decreased tourism levels in the region's coastal communities

- Industry/business closures

- Increase in remote working resulting in less transit trips

- Reduction in commuter rail services or intercity bus

- Governor mandate on gathering capacity

- Promotion of essential trips only via transit

- Reduction of on-site human service programs

- Discouraging seniors and immunocompromised individuals from traveling

These institutions and services are not only major trip generators, but they also contribute to area employment and sales tax receipts that impact GATRA's local revenue streams. As the timeline for eradicating the virus, and the impact that pandemic-related trends such as increased telework, distance learning, telemedicine, and online shopping could have on future transit demand are extremely uncertain, GATRA will need to be flexible in its ability to adjust service according to demand and funding availability.

When the pandemic hit in March 2020 ridership dropped sharply to just 15 percent of FY 2019 levels in April (Figure 49). Year over year GATRA experienced a 24 percent decline in fixed route ridership between FY 2019 and FY 2020 and 29 percent for demand response (Table 29). Revenue hours and miles dropped in line with changes in demand response ridership as GATRA adjusted their service due to the pandemic by greatly reducing operations on the commuter demand response services (Table 30). Additionally, several of the COA operators were unable to operate DAR services during the pandemic, further resulting in a decline of ridership and service supplied. Fixed route services saw a sharper decrease in ridership than the corresponding decrease in service supplied. This is largely because GATRA operates limited service with 60 minute or greater headways.

Figure 49. GATRA Monthly Ridership FY 2019 vs FY 2020
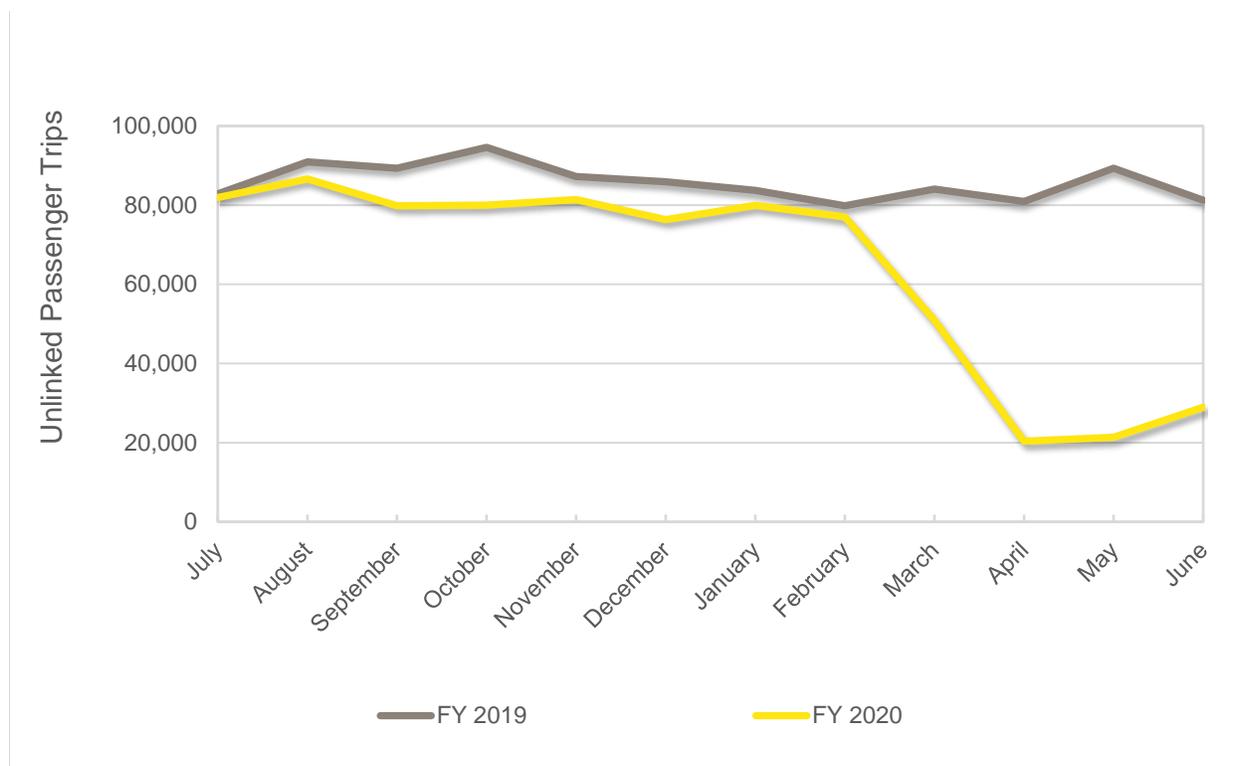
Table 29. GATRA Service Changes (FY 2019 and FY 2020)

	FY 2019	FY 2020	Percent Change (FY 2019 to FY 2020
Unlinked Passenger Trips			
Fixed Route	712,715	540,664	-24%
Demand Response	317,207	223,917	-29%
Total	1,029,922	764,581	-26%
Revenue Hours			
Fixed Route	89,242	80,815	-9%
Demand Response	129,857	105,559	-19%
Total	219,099	186,374	-15%
Revenue Miles			
Fixed Route	1,648,332	1,504,681	-9%
Demand Response	1,676,459	1,275,249	-24%
Total	3,324,791	2,779,930	-16%

Table 30. GATRA Service Changes in Response to COVID-19 Pandemic

Route/Service	Change
Service Reduction	• Attleboro and Taunton modified weekday fixed route service. Normal morning hours, however, afternoon service ends at 5:00 PM. • SAIL route reduced service • Plymouth Area Link routes reduced service • SLOOP route reduced service • Foxborough MBTA Commuter Shuttle reduced service
Demand Response	ADA and paratransit service operate on a modified weekday schedule (similar to fixed route bus service).
Route Suspensions	• Route 140/Wheaton Shuttle service (to Wheaton College) is suspended. • Franklin Area Bus and Tri-Town Connector suspended. • Wareham Plymouth Connection temporarily suspended (resumed August 31, 2020) • Pembroke Shuttle
Fare Change	GATRA temporarily stops collecting passenger fares. Resumed collecting fares effective August 31, 2020.
Policy Change	Recommends passengers wear face coverings per state law. Posted recommended practices for social distancing.
Facility Change	GATRA Terminal Building is closed to customers. GATRA' administrative staff begin working from home.

Route/Service	Change
Fleet Modification	GATRA purchases four air foggers that disinfect all surfaces in each vehicle, offices, and maintenance facilities. Added hand sanitizer units to buses.
Fleet Modification	To protect operators, GATRA adds driver barriers to all vehicles. Restricts passengers from sitting anywhere near the operator and roped off the seats closest to the operator to prevent passengers from getting too close.
Fleet Modification	GATRA receives two 35-foot Gillig buses during the pandemic in which they retrofit with a UV Air Flow System for the bus air ducts. GATRA plans to pilot the new air flow system and will modify buses in the future if the system works well cleaning the air.

6.2 Considerations for the Next 5 Years: Moving to a Data-Driven Performance-Focused Decision-making Framework

Building on GATRA's current performance management practices, there are some critical enhancements in the areas of data and performance measurement that the GATRA should adopt over the next 5 years. These changes will support enterprisewide, and data-driven performance-based decision making by GATRA, and aid in the navigation of the uncertainties brought on by COVID-19 and other market trends. Ultimately, adopting a data-driven performance-focused decision-making framework will sustain continued success.

6.2.1 Data

The first critical need that GATRA should fulfill to enhance performance management is in the area of data collection and evaluation. While GATRA collects, analyzes, and reports performance data, the Authority would greatly benefit from strengthening its data collection tools to better support performance-driven decision-making. It will be critical for GATRA to evaluate its data collection and evaluation tools and invest in technology driven solutions to provide real-time information on key system indicators and reaffirm the key metrics that will best inform GATRA decisions, particularly in the service planning, cost control, and financial business lines.

Principles for data collection and evaluation include:

- **Data Collection:** A transit agency must have the data collection systems in place from which to draw the information for making decisions. These systems can be automated, such as automatic passenger counters (APCs), or are drawn from manual observations or samples. Validation of the information collected is a crucial aspect of data-driven decision making. As transit operations equipment has become more technologically sophisticated, vast amounts of operations data have become available to service providers. Authorities should have technology driven data analysis tools and strategies that ensure that the data collected both informs operations, service, and financial planning and facilitates the RTA's reporting requirements.

- **Data Analysis:** Transit operators have ample data produced on a daily or even hourly basis from the systems used in delivering service. Information from AVLs, APCs, fareboxes, phone systems, and other technology can be voluminous, and having appropriate levels of data analysis capacity is essential to distilling the information into key decision-driving reports. GATRA does not currently have APCs or viable AVL installed on their vehicles, but is interested in pursuing that given the availability of procurement and capital support. Having information available by route – and even by

stop – is very important. it enables a transit system to understand and evaluate the performance of each route – both for ridership and efficiency. GATRA should also consider acquiring and implementing other technology driven tools that will enhance GATRA's data collection and evaluation capabilities.

6.2.2 Performance Metrics

GATRA should continue to assess its performance metrics and identify a select group of key enterprisewide measures that evaluate important service, cost, and financial indicators. It is important for GATRA to keep in mind that these key performance measures should be:

- Easily measurable with realistic, aspirational targets that will lead to successful outcomes

- Identification of thresholds for corrective actions

- Clear and intuitive to transit staff as well as to non-transportation professionals

- Acceptable and useful to transportation professionals

- Comparable across time and between geographical areas

- Reported on a regular schedule (monthly, quarterly, or annually), depending on the state and federal requirements and the nature of the data

- Functionally related to actual system operations so that changes are reflected with minimal lag time in operating statistics

- Based on statistically sound measurement techniques, where appropriate

- Consistent with measures identified for other systems

- Readily available, when possible, to facilitate flexibility and agility in service planning

- Framed around actionable language, setting thresholds when additional analysis or service changes are warranted

GATRA should also create actionable guidelines for these key performance metrics. Metrics that are already monitored and lend themselves to quantitative thresholds include the following:

- Passengers per hour

- Subsidy per passenger

- Cost per revenue hour

- Farebox recovery ratio

- Cost per revenue hour

- Late trips

- Service/road calls

- Accidents per 100,000 miles

6.2.3 Service Guidelines

One of the critical performance metrics that GATRA should utilize in making service decisions is service guidelines. When establishing these guidelines, GATRA should consider not only the mode of service, but also the route's purpose, including geography and primary market served. For example, routes operating year-round service may warrant different thresholds for performance than those that operate only in the summer months when the number of people on

the island swells. The following sections outline the recommended service guidelines that GATRA should use to evaluate their routes. The recommendations are a combination of existing practices and new guidelines.

6.2.3.1   Service Delivery Guidelines

In order to establish service guidelines in the pursuit of establishing a monitoring program in the future, service must first be monitored, and data collected. The bases of the guidelines though require that the operators report data monthly so that GATRA can monitor trends and make informed decisions. Routes should be defined by the function they service in order to accurately measure the health of a route. Four types of routes are recommended for GATRA: (1) urban fixed routes, (2) suburban fixed routes, (3) in-town shuttle, and (4) intercity routes. Each route type will have in turn different performance measures to monitor existing service and evaluate new service. Table 31 provides an overview of the suggested route type and pairing for existing and recommended GATRA routes.

- **Urban Fixed Routes:** Routes serving the Attleboro/Taunton core region
- **Suburban Fixed Routes:** Routes primarily servicing the less dense suburban communities
- **In-town shuttle**: In-town circulating routes
- **Intercity Routes**: Routes traveling longer distances, connecting multiple communities characterized by having six or less trips daily

Table 31. GATRA Route Types

Route Type	Routes
Urban fixed route	Numbered routes serving Attleboro/Taunton region except Route 18 and new Attleboro Circulator
Suburban fixed route	Link 1, 2, 4, Freedom Link, Liberty Link, Mayflower Link, The Grove
In-town shuttle	In-town circulating routes: Middleboro Downtown Shuttle, Attleboro Circulator
Intercity route	Route 18, Taunton-Middleborough-Wareham Connector, Wareham-Plymouth, Wareham-New Bedford

Frequency often has a direct correlation with ridership; higher levels are more attractive to riders but cost more to operate; therefore, it is critical to establish frequencies that are high enough to attract riders but not so high that the subsidy is greater than the need. Higher frequency routes require more vehicles and drivers. The frequencies in Table 32 represent minimums but can have variations throughout the day such as added service during the peak hours or reduced service at night.

Table 32. Route Frequency Guide

Route Classification	Minimum Frequency
Urban fixed route	60-minutes
Suburban fixed route	60-minutes
In-town shuttle	60-minutes
Intercity route	5 trips daily

Microtransit   On-demand

Weekend service minimum spans assume that the route meets the minimum requirement for service on the weekend (Table 33). Service can begin earlier or end later if demand warrants. Adjustments to the times can also be made based on the hours of centers served and the passengers' needs but should be within the financial capacity of GATRA. For routes to operate on Saturday they should be exceeding the minimum weekday thresholds set for performance, have a funding partnership, or be designed to serve specific groups such as tourists where ridership would be higher on the weekend. The determination for adding Sunday service to any route where it is not already recommended should be based on Saturday service performance and needs. On Saturdays the route should carry more than 8 PPRH to be considered for Sunday service unless a funding partnership has been developed.

Table 33. Minimum Requirements for Service Guide

Route Classification	Weekday	Saturday	Sunday
Urban fixed route	6:00 AM – 7:00 PM	9:00 AM – 6:00 PM	10:00 AM – 6:00 PM
Suburban fixed route	7:30 AM – 5:30 PM	9:00 AM – 6:00 PM	10:00 AM – 6:00 PM
In-town shuttle	8:00 AM – 5:00 PM	---	---
Intercity route	7:00 AM – 6:00 PM	---	---
Microtransit	7:00 AM – 7:00 PM	---	---

6.2.3.2   Service Benchmarks

In order to be able to effectively monitor route performance GATRA should require the operators to report the following at the route level on a monthly basis: unlinked passenger trips, revenue miles, revenue hours, operating costs, and fare revenue. For PTM operated services many of these elements are reported at the garage level only and had to be calculated manually for the CRTP update. Actual revenue hours for Attleboro/Taunton-based routes are not reported but instead calculated based on an assumed operating speed and revenue miles.

The aforementioned performance measures can be used to create benchmarks for service operation. The benchmarks will help GATRA track progress and set goals for the performance of the route. These benchmarks should be seen as short-term goals that should be re-evaluated at set intervals to ensure that the expectations for the route are consistently evolving. If a specific benchmark is greatly exceeded, the criteria should be changed to provide a progressive target for the service. The benchmarks should include one performance and one financial benchmark (Table 34). The subsidy per passenger benchmark should include not only farebox revenue but any contract revenue or local funds above and beyond the agreed upon formulae GATRA utilizes for determining the local share.

Table 34. Service Benchmarks

Route Classification	Passengers Per Revenue Hour (PPRH) (minimum)	Subsidy Per passenger (maximum)
Urban fixed route	11 PPRH	$8
Suburban fixed route	7 PPRH	$10
In-town shuttle	5 PPRH	$15

Intercity route	5 per trip	$28
Microtransit	2.9 PPRH	$26
Demand response	1.6 PPRH	$20

Once APC technology is installed GATRA should monitor ridership activity by stop. The technology associated with this data collection (APCs and AVLs) and supporting software can generate reports quickly for any time period requested and includes data that can assist in looking at the data spatially and by time of day. Stop-level ridership data are especially important in the context of a shifting transit market (due to the COVID-19 pandemic) to understand how ridership demand has changed where data are available. This metric is only feasible once APCs have been installed and is recommended for annual reports.

As GATRA expands its staff capacity as recommended, GATRA should consider using the following measures for internal tracking purposes[42] and to drive the evaluation of performance, both systemwide and for their individual operator contractors.

- Mode-Level Performance

  — **Valid Complaints per 100,000 riders**: This measures passenger satisfaction by dividing 100,000 by the average number of complaints per rider (ridership divided by the number of complaints). It is recommended for quarterly and annual reports.

  — **On-Time Performance**: GATRA should consider monitoring OTP for fixed route and demand response. It is recommended for quarterly and annual reports. AVL technology should provide the data for this metric.

  — **Maintenance Cost per Vehicle Revenue Hour**: This measures the cost to maintain vehicles divided by the revenue hours operated. It is recommended for quarterly and annual reports.

- Demand Response

  — **Late for Demand Response:** This measure is the percent of demand response trips for which the pick-up occurred beyond the given window. This is not currently monitored by GATRA and is a measure that can be used to understand OTP and capacity issues.

  — **Demand Response No-Show:** This metric counts cancellations made less than 1 hour prior to the scheduled pick-up time or not being present for the pick-up. It is recommended for annual reports. Currently it is only monitored for PTM operated routes but should be for all demand response service operators.

  — **Demand Response Cancellations:** These are same-day cancellations made at least 1 hour prior to the start of the pick-up window. It is recommended for annual reports. Currently it is only monitored for PTM operated routes but should be for all demand response service operators.

6.2.3.3   New Service Warrants

GATRA often receives requests for new service; new service warrants will help GATRA evaluate proposals and determine service levels. The development of the new services should follow the new service warrants, and GATRA should examine how the route will fit into the context of the system as a whole. New routes should connect to the larger GATRA system and not be isolated to a specific community unless a funding partnership is made that helps offset the cost and federal/state subsidies needed to operate. The cost to operate any new route should be

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[42] In addition to what is reported to GrantsPlus at the state level and the NTD at the federal level.

evaluated in the context of the overall GATRA budget. Additionally, when analyzing new service requests and proposals, the following should be considered:

- **Area coverage:** When service is proposed the new route should be evaluated for its ability to connect to other routes, meet service thresholds, and operate cost effectively. Routes that extend the service area may have a demand, but the increased miles per hour may cause the subsidy to be greater than those recommended in the performance measures.

- **Transit-dependent populations:** The presence of transit-dependent populations should be considered when evaluating new service proposals. If there is a high but remote transit-dependent population, alternative service types such as DAR or flex routes might be warranted.

- **Special markets:** New service is often proposed for special markets such as a new shopping center, island gateways, or employment centers. These markets often produce demand but the cost to service them can be high and ridership potential undetermined. GATRA should work with these destinations to secure some dedicated funding, which can help bring down the cost of the route.

Often deviations are requested to serve shopping plazas or areas just beyond a route's reach. A policy should be established for when to serve a deviation. Possible policies include:

- **Three minute rule:** The total additional travel time for all through passengers impacted by the deviation (on-board the bus but do not utilize the deviation) does not exceed 3 minutes for each rider boarding or alighting at the deviation. Example: average through passengers = 5, time it takes to do the deviation 4 minutes, average number of passengers served by the deviation = 3. (5 through passengers * 4 minutes)/ 3 passengers served = 6.6 minutes. Since 6.6 minutes is greater than 3 minutes, the deviation is not recommended.

- **Productivity based:** The productivity of the deviation will be greater that the productivity of the overall route.

- **Travel time:** The total travel time (in regard to the deviation) for those benefiting from the deviation is greater than those who do not. Example: The deviation takes 3 minutes to complete, and 1 person will be boarding at the stop and 5 getting off, 4 people will not use the deviation. Travel time for those who benefit 18 minutes (6 people * 3 minutes each), additional travel time from those that would not is 12 minutes. 18 > 12, so deviation occurs.

Regardless the policy selected the deviation should not result in a negative impact to the route's regular frequency or existing time transfers. Exceptions can be made for areas that may not meet the minimum requirement but would serve a vulnerable population and result in a decreased use of the demand response system, which is more costly to operate.

6.2.3.4   Action for Low Performing Routes

The 2015 RTP recommended that routes that failed to meet thresholds for at least two out of the three main indicators (passengers per hour, subsidy per passenger, or farebox recovery) or fall below the minimum suggested values should be evaluated for possible modification. As post-pandemic ridership stabilizes, implementing thresholds for when actions like more extended analysis or service changes are warranted would simplify service planning and boost transparency if GATRA shared the guidelines with the public.

If a fixed route is not meeting or exceeding the benchmark for either productivity or subsidy, it should be evaluated to determine whether a certain segment of the route or time of day is the reason and adjust accordingly. If the route overall is performing poorly and the routing and span

have already been examined and adjusted, the frequency can be reduced if it is exceeding the minimum threshold. Weekday service can be compared to weekend service and weekend service eliminated or reduced if it is not meeting metrics on the weekends. Table 35 outlines what to do if a fixed route falls below certain productivity levels.

Table 35. Route Performance Actions

Performance	Definition	Action
Very low	Route is below 50% of standard	Consider replacing route with alternative service type
Low	Route is between 50% and 80% of standard	Consider route adjustments
On par	Route is meeting productivity standard or within 80% of it	No action needed
High	Greater than 20 PPRH	Consider improving frequency

For fixed routes that fall below 4 PPRH, microtransit can be considered as a replacement. Microtransit often has a higher associated cost than traditional demand response service that requires trips be scheduled the same day. If the microtransit is not meeting the metrics it can be converted to demand response and absorbed into the existing system. Alternatively, the service can be converted to a TNC/taxi feeder area.

If the subsidy per passenger is beyond the threshold, it is likely not meeting the productivity threshold. Altering service may improve the subsidy by increasing passengers and/or decreasing costs. Contract partnerships can be used to lower the subsidy on routes. Examples include shopping centers, major employers, schools/colleges, housing complexes, and medical centers.

6.2.4 Public Transparency

GATRA's website includes an "Open Government" page, which includes annual payroll and audited financial statements from 2010 to 2019. Advisory Board meeting minutes are located under the "GATRA Advisory Board Meetings" page. Annual performance metrics (system, mode, and route type) and the annual report are included on the "Reports and Policies" page. The purpose of providing this information is to boost public trust in GATRA and allow the public to better understand the service and key decision making. The GATRA website also includes links to planning documents (such as the 2015 RTP) under the "Reports and Policies" page and other important documents, such as the TAM Plan under the "Important Documents" page. GATRA should consider the following options for presenting key route-level operating statistics in one location on its website:

- Key route-level operating statistics can be formatted in Microsoft Word or a similar word processing tool and then saved as a static PDF file. This report can be combined with or presented separately from the similarly formatted fixed route and demand response performance metrics report.

- If possible, use of Microsoft references or strategic visual basic may allow for a more automated update of a customized dashboard template using standard data formats, reducing GATRA staff burden in creating the public- facing performance dashboard.

- Several platforms exist for creating customizable data visualization dashboards that allow the public to interactively explore operational data.

- — Tableau: Most commonly used tool for transit providers that maintain a performance dashboard. Requires proficiency in SQL queries.

- — Microsoft Power BI: Drag and drop dashboard format that is integrated with other Microsoft software. Does not work well for complex data associations. Free version may be suitable for limited data analysis

- — Domo: Selection of pre-built graphics allows for less technical staff to develop some visualizations while more technical staff may customize more complex visualizations using SQL.

If feasible, GATRA should consider the option to allow download of limited raw data sets, making the data easy to access so that analysis can be included in efforts to educate the public, academic studies, or planning studies.

7. Transportation Service Needs

Transportation needs were identified for the GATRA service area through discussions with GATRA staff, review of previous studies and relevant documents, analysis of the transit services operated during the period of FY 2015 to FY 2019, and an outreach effort conducted as part of this plan development process. As previously noted, this plan was developed in 2020 when the COVID-19 pandemic began to be widespread across the United States, thus impacting transit agencies and their provision of service. In order to understand the immediate impact of the pandemic on GATRA's service, transportation needs, and their accompanying recommendations, the early portions of FY 2020 in addition to the original FY 2015 to FY 2019 review. Transportation needs are discussed in context of ridership rebound in response to the change in ridership faced by GATRA and other RTAs. Core needs are needs that are important regardless of how fast ridership rebounds and ridership needs are those needs that are dependent on the level of ridership rebound before it is logical for GATRA to address.

7.1 Needs Identification Process

To identify needs the team began by examining the existing conditions to determine opportunities for improvement and the enhancement of service. This included a review of routes. If the performance data indicated there was a need for expansion of service (hours, days, frequencies), alignment changes, or mode shift, appropriate recommendations were developed. Assets were analyzed to determine the fleet condition and constraints, whether there was a need for facility expansions or upgrades, or technology that would improve service delivery, customer service, operations, safety, or the ability to monitor performance. Existing policies/procedures were analyzed to determine gaps, inconsistencies, and adherence. The market analysis was used to identify regional trends, service gaps, and service saturation levels.

7.1.1 Review of Previous Studies

In addition to the existing conditions analysis the team reviewed other existing documents/resources that were published within the last 5 years, including the 2015 RTP, to identify previously identified mobility and transit needs for the region. This work supplemented the existing conditions analysis, and the documents reviewed are listed in Table 36.

Table 36. Existing Documents Reviewed

Document Title	Year Published
Intercity Bus Study- Stakeholder Survey (Intercity Bus Study)	2020
Old Colony MPO 2020-2040 Long Range Transportation Plan (OCPC LRTP)	2019
SRPEDD Regional Transportation Plan (SRPEDD RTP)	2019
Old Colony MPO Coordinated Human Service Transportation Plan (OCPS HST Plan)	2019
GATRA Alternative Bus Fuels Analysis	2019
Cape Cod 2020 Regional Transportation Plan	2019
SRPEDD Coordinated Human Service Transportation Plan (SRPEDD CHST Plan)	2018
GATRA Regional Transit Plan (2015 RTP)	2015

Document Title	Year Published
Cape Cod Coordinated Public Transit – Human Services Transportation Plan	2014

7.1.2 Outreach Effort

Public outreach was conducted through an online public survey, a stakeholder meeting, and a driver survey to better understand the needs for GATRA. Due to COVID-19, no in-person outreach was possible. A summary of the outreach results can be found in the following sections, a more detailed report of the outreach findings can be found in Appendix C.

7.1.2.1 Public Survey

Due to the COVID-19 pandemic in-person outreach was not possible and instead an online survey was conducted. The online survey opened on June 20, 2020, and was available through August 10, 2020. The survey was open to all individuals who live, work, or visit the GATRA service area and was open to both riders and non-riders. A total of 449 individuals responded to the survey; 61 percent were GATRA riders. Of the riders who responded, 66 percent utilized the fixed route system, 17 percent just the demand response, and the remaining 17 percent used both.

Figure 50. Left: Survey Respondents GATRA Usage; Right: Breakdown of users
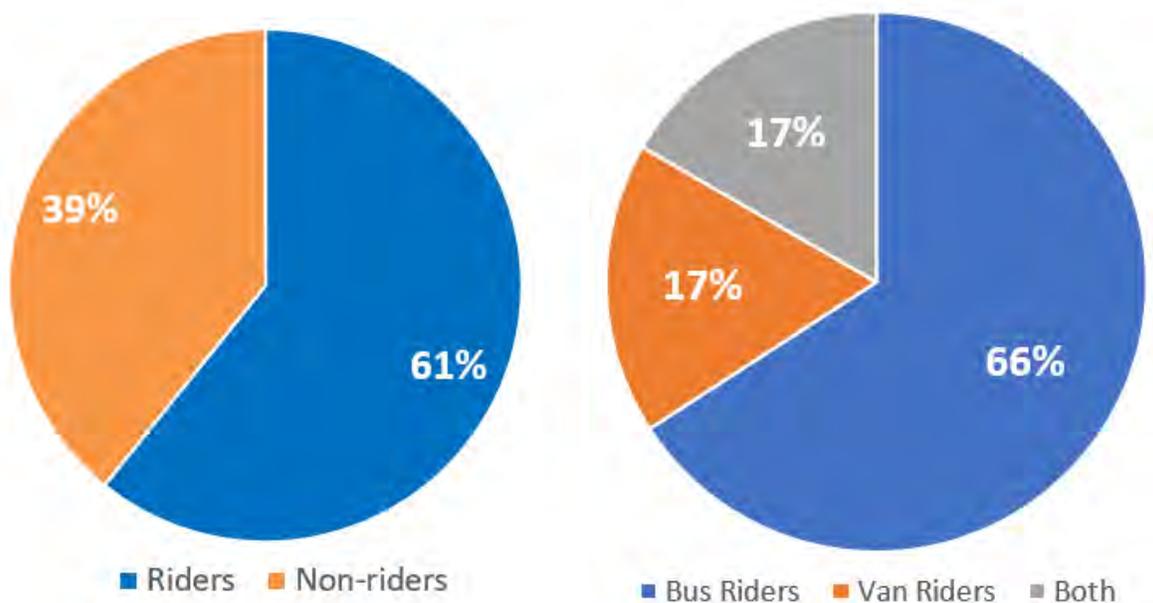
Rider responses were received from 32 different communities with the greatest number of responses coming from Taunton, Attleboro, and Wareham. The top three places individuals travel to most often were clustered in downtown Attleboro, Taunton, Wareham, Plymouth, Foxborough, and along the Route 1 corridor in North Attleborough. The routes used most often were those in the Attleboro/Taunton area (Figure 51). The survey found that there was a desire for Sunday service on select routes; later evening service on weekdays; increased frequency on certain routes; service to the Wrentham outlets, Plainville Casino, and Route 138 Raynham Walmart; designated bus stops; mobile fare payments; real-time schedule information; improved connections throughout the GATRA region; and better OTP. Fixed route riders were asked three trade off-questions regarding how they prefer GATRA invest in the system, and the results found that coverage was preferred over frequent or fast service and that longer service hours were desired over serving more places (Figure 52).

Figure 51. GATRA Fixed Route Usage

Route	Usage
10 - Attleboro/North Attleboro	20%
8 - East Taunton/Raynham Wal-Mart	17%
18 - Attleboro/Norton/Taunton	16%
12 - South Attleboro/Attleboro	14%
7 - School St/Raynham/Taunton	14%
14 - Attleboro/North Attleboro/Plainville	13%
SAIL	12%
Link 1	11%
16 - Seekonk/Attleboro	11%
Liberty Link	11%
Freedom Link	11%
11 - South Attleboro Connector	10%
Mayflower Link	10%
Link 4	10%
Franklin Area Bus	8%
24 - Attleboro/Pawtucket, RI	8%
9 - Weir/Route 138	8%
6 - Whittenton	8%
Wareham/Lakeville Commuter	7%
Link 2	7%
1 - Westside	7%
140 - Norton-Mansfield Crossing	5%
Manomet/Cedarville Deviated Link	4%
Middleboro Downtown Shuttle	3%
Tri-town Connector	2%
Wareham-New Bedford Connection	2%
Wareham-Plymouth Connection	2%
Pembroke Commuter Shuttle	2%
Foxborough MBTA Commuter Service	2%
Sloop	2%
15 - Oak Hill	2%
Bellingham T Shuttle	1%
Link 3	1%
Medway T Shuttle	1%

Figure 52. GATRA Trade-off Questions

Faster Service	68%	More Places
More Places	58%	Longer Hours
More Frequent	62%	More Coverage
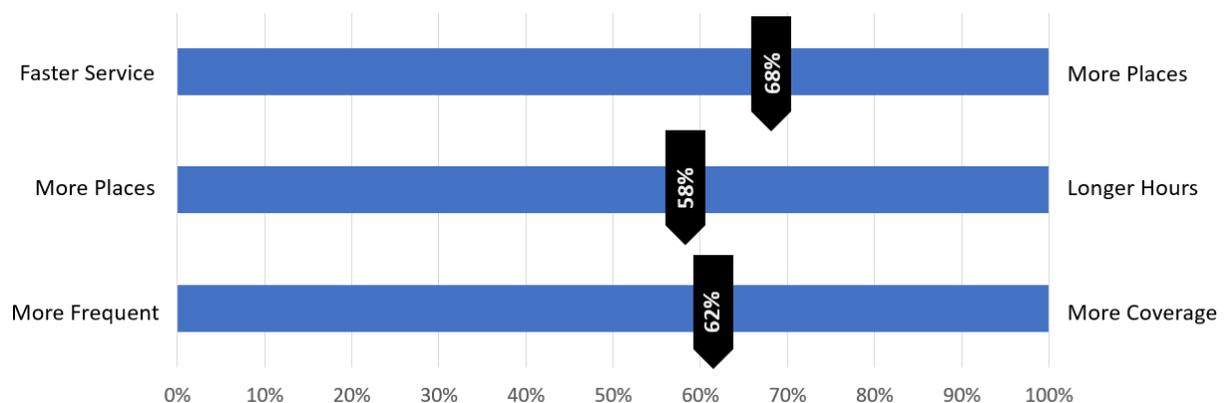
Demand response users were asked what their top desired improvements were, and the results aligned with the findings of the fixed route survey for Sunday service, expanded hours, and improved connections throughout the GATRA region along with the ability to book their trip online. Those who desired service improvements were asked if they would pay a higher fare. Just under half would pay a higher fare for later evening, earlier morning, Sunday, or same day service. An even greater percentage (approximately two-thirds) would pay a higher fare to be able to access locations in neighboring communities that are either in or outside the GATRA service area. Seventy-eight percent of users would schedule their trip online or through their smartphone if the technology was made available and 57 percent would also use mobile payments to pay their fare (Figure 53).

Figure 53. Left: Use of Online Trip Scheduling; Right: Use of Mobile Payments
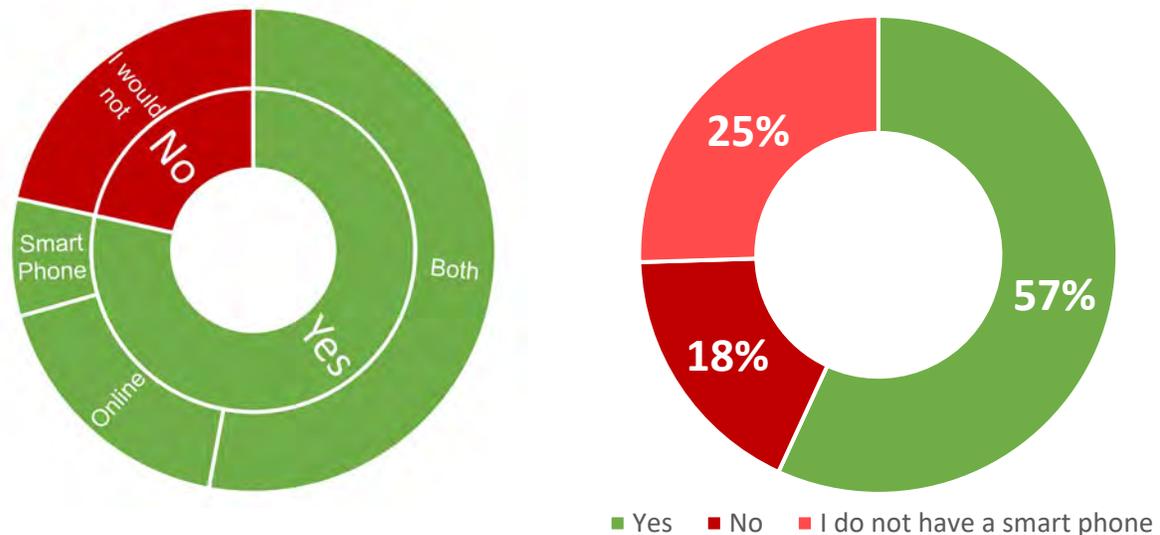
7.1.2.2   Stakeholder Meeting

In lieu of planned face-to-face stakeholder workshops a conference call was held instead with the GATRA Consumer Advisory Committee (GCAC) to discuss transportation barriers and needs for the region. The GCAC is made up of representatives throughout the GATRA service area and includes consumers, COAs, HST providers, municipal governments, housing service agencies, planning organizations, and others. The GCAC identified the follow list of needs for transportation in the region:

- Transit access in south Plymouth
- Expanded DAR hours
- Intercommunity demand response connections

7.1.2.3   Driver Survey

A survey was sent to all GATRA operators. Responses were received from 75 operators of both the demand response and fixed route services. Half of the respondents were PTM operators and the other half represented the COAs, A&A Metro, and Kiessling Transit. Fixed route drivers identified the need for getting rid of the flag stop system and replacing it with designated bus stops, new AVL technology and service to the Plainville Casino, Seekonk, and the Walmart and Market Basket located along Route 138 in Raynham. Demand response drivers identified the need for connecting their community to neighboring communities, expanded hours, properly working tablets/GPS, and improved operational practices.

7.2   List of Identified Needs

Through the needs identification process, which included reviewing previous documents, the existing conditions analysis, and the outreach process, 72 needs were identified. The list was presented to GATRA and then workshopped to identify recommendations to address the needs. Recommendations can be found in Chapter 8.

Needs were grouped by category as follows: general bus needs, demand response needs, new service needs, capital needs, technology needs, policy needs, and other (Figure 54). The largest category of needs was for modifications of technology followed by demand response and other needs. The following sections outline the needs by category along with information on why it was identified as a need and where.

Figure 54. GATRA's Category of Needs
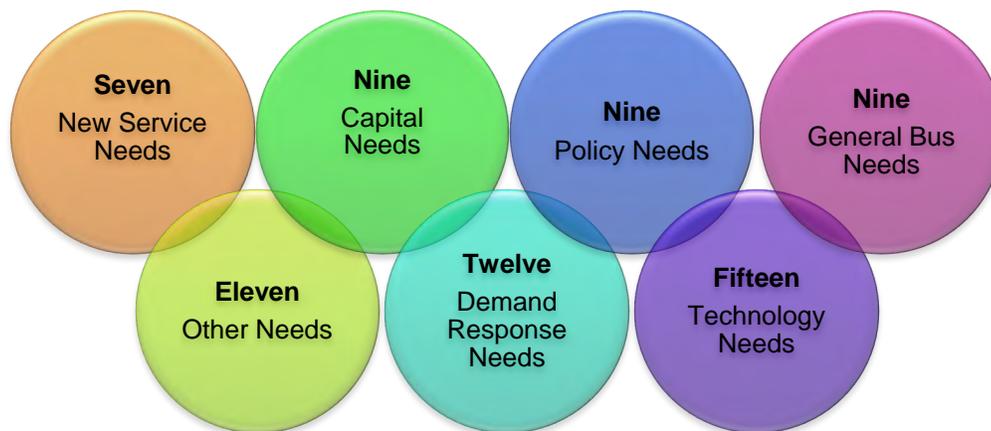
7.2.1   General Bus Service Needs

Nine different needs were identified for general bus service as outlined in Table 37. Each need was identified in more than one location with some being identified in over five different locations. These needs include additional service (Sunday, frequencies, and spans of service), increasing connections, better matching schedules to demand, and improving OTP.

Table 37. General Route Needs

Need	Rationale	Sources
Sunday service	Many low-income jobs are in the retail and service industry, which do not have typical 9 to 5 weekday hours. The survey showed that overwhelmingly individuals want Sunday service on at least one route.	• Existing Conditions • Public Outreach • OCPC HST Plan • SRPEDD CHST Plan • OCPC LRTP • 2015 RTP • SRPEDD RTP • Intercity Bus Study

Need	Rationale	Sources
Adjusted routing based on demand	The routes have been incrementally built upon as new developments occur, but a wholistic look has not been done. This has resulted in the duplication of routes along corridors, and a mismatch between demand and service.	• Existing Conditions • 2015 RTP
Later evening service	Later service would accommodate second and third shift workers. Outreach results showed that later hours were desired over increasing coverage.	• Existing Conditions • Public Outreach • OCPC HST Plan • 2015 RTP • SRPEDD CHST Plan • SRPEDD RTP • Intercity Bus Study
Increased frequency	The bulk of service operates using 1-hour headways, which is inadequate for most people. Ridership data though show that activity on many routes is low.	• Existing Conditions • Public Outreach • OCPC HST Plan • 2015 RTP • SRPEDD CHST Plan • SRPEDD RTP
Realign commuter rail shuttles with commuter rail times	Bus schedules and train schedules are not always aligned. Due to the frequency of changes made by MBTA it is difficult to adjust routes in time. Additionally, many of the commuter routes have very low ridership.	• Existing Conditions • 2015 RTP • SRPEDD RTP • COVID Exercise
Expanded service between Wareham and New Bedford	There is a gap in mid-day service between 11:30 AM and 2:00 PM. This route provides connections for Wareham residents to access social services in New Bedford. Improved connections to New Bedford was heard in the public outreach and mentioned in 31 comments.	• Public Outreach • SRPEDD CHST Plan • SRPEDD RTP
Better connected GATRA communities	There are three distinct service areas for fixed route with very little or no connection between the areas. The fragmented service makes it difficult to move through the region via transit.	• Existing Conditions • Public Outreach • Driver Survey

Need	Rationale	Sources
Coordination with MBTA	GATRA operates several commuter rail shuttles. As MBTA adapts and adjusts service levels due to COVID-19, GATRA may need to adjust the timing on these routes.	• COVID Exercise • MassDOT
Improved OTP	While OTP data were not available, drivers did report that route timing is tight and there is insufficient time for a bathroom break. The average operating speed on the Attleboro/Taunton routes is 20 miles per hour, which is high.	• Existing Conditions • Driver Survey

7.2.2 Demand Response Needs

Twelve needs were identified for GATRA's demand response (Table 38). Many of these needs were identified through the outreach process. These needs include expanding service (hours operated, days operated, locations served, same day service), creating connections, investing in capital such as additional vehicles, and developing a centralized dispatch and call center to improve efficiency in scheduling trips.

Table 38. Demand Response Needs

Need	Rationale	Sources
Expanded general public demand response	Employment is growing and there is a need to better connect the suburbs to the urban cores, especially as the job market decentralizes to suburban office parks.	• Existing Conditions • Public Outreach • OCPC HST Plan • Driver Survey • SRPEDD CHST Plan • SRPEDD RTP
Regionalized demand response and zones to increase intercommunity connectivity	Currently demand response is operated by COAs and limited to in-town service with very limited interregional service. The cost per hour by COA operator varies from as low as $25 to as high as $75 with some carrying less than 15 people per day and others more than 50. Productivity ranges from less than one PPRH to almost four.	• Existing Conditions • OCPC HST Plan • GCAC Meeting • SRPEDD CHST Plan
Long distance medical transportation to Boston for the entire region	The Boston Health Bus, Med Wheels, and Miles for Health are limited to select communities and seven GATRA communities are not part of one of these programs.	• Existing Conditions • SRPEDD CHST Plan • SRPEDD RTP • Intercity Bus Study

Need	Rationale	Sources
Same day service	While GATRA has piloted a microtransit program, there is a need for same day service throughout the region for demand response users.	• OCPC HST Plan • SRPEDD CHST Plan
Increased paratransit/DAR service hours.	Would improve the ability for users to access the services they need.	• Public Outreach • OCPC HST Plan • Driver Survey • GCAC Meeting • SRPEDD CHST Plan
Increased paratransit/ DAR service area	Would improve the ability for users to access the services they need.	• Public Outreach • OCPC HST Plan • SRPEDD CHST Plan
Attleboro and Taunton connection	Connections between Attleboro and Taunton are only available for ADA registered individuals and not the larger group of DAR users.	• Public Outreach • Driver Survey
Consolidated scheduling and dispatching center	Each COA schedules their own trips, many using pen and paper. A consolidated center could improve scheduling and efficiency by combining trips.	• Existing Conditions • Technology Survey
Weekend service on microtransit	Saturday service was desired by 100% of GATRA GO users.	• Public Outreach
Weekend service	Demand response service is only available to ADA registered individuals. Approximately one-half of the service users identified this as a need.	• Public Outreach • Driver Survey • Intercity Bus Study
Additional vehicles for the COAs	COAs report that they need additional vehicles, but there is no data available regarding trip denials or capacity issues to support.	• Driver Survey
Reduced anxiety around the demand response window	A shorter wait time/window was identified as a need.	• Existing Conditions • Public Outreach

7.2.3 New Service Needs

Seven new service needs were identified (Table 39). Many of the new service needs are creating connections to major destinations outside of the GATRA service area such as Fall River, Brockton, and Cape Cod in order to create a connected transit network that improves mobility for all. Additionally, a need was identified for service in South Plymouth, which currently has no service.

Table 39. New Service Needs

Need	Rationale	Sources
Service connecting Taunton and Fall River	There is no direct transit connection between these two cities. Peter Pan previously operated a route between Rhode Island and Boston with limited stops in Fall River and Taunton. Now to take such a trip would require using three different transit operators and take 2:45 at a minimum. By comparison it would take 30 minutes by car. In the public outreach survey only one individual identified Fall River as a place connecting service is needed. The SRTA public outreach did not identify a need to connect to Taunton.	• SRPEDD CHST Plan • SRPEDD RTP • Intercity Bus Study
Service connecting Taunton and Brockton	There are several gaps in service in southeastern Massachusetts between the various cities, limiting mobility. While these two cities are only 15 miles apart (26 minute car ride), an individual taking this trip via transit would have to go into Boston via the commuter rail to connect, creating a 3.5 hour long trip. In the public outreach survey three individuals identified Brockton as a place connecting service is needed. The BAT public outreach did not identify a need to connect to Taunton.	• SRPEDD CHST Plan • SRPEDD RTP • Intercity Bus Study
Service connecting Plymouth and Taunton	While both are member communities of GATRA due to the fragmented service and gaps to take this trip via transit would take at least 5.5 hours, using four different transit providers (including Peter Pan), significantly more than a trip that would take 38 minutes by car. Outreach data did not specifically state there was a demand to create a direct connection between these two locations.	• Existing Conditions • Driver Survey • SRPEDD CHST Plan
Transit service in southern Plymouth	There is no general public transit service in this region. This was identified in the public survey and in stakeholder focus group discussions.	• Public Outreach • OCPC HST Plan • GCAC Meeting • SRPEDD CHST Plan

Need	Rationale	Sources
Connection from Plymouth/Wareham to Cape Cod in Hyannis	There is a need to connect to adjacent RTAs. Cape Cod was identified by the public as needing access to.	• Existing Conditions • Public Outreach • 2015 RTP • SRPEDD RTP
Service outside of GATRA service hours and to new areas	There is a need to provide service beyond the existing hours and to areas not currently served. These areas though have very low density and a bus route is not feasible in many cases. The demand response service has limited hours and is available only to seniors and the disabled.	• Existing Conditions • Public Outreach
Service connecting Attleboro to Fall River	There is no direct transit connection between these two cities. A trip can be made by taking commuter rail to Providence and connecting with the RIPTA 24X. Depending on the time of day the trip can take as little as 1 hour or as long as 4 hours. In the public outreach survey only one individual identified Fall River as a place connecting service is needed. The SRTA public outreach did not identify a need to connect to Attleboro.	• Intercity Bus Study

7.2.4 Capital Needs

Nine capital needs are outlined in Table 40. These needs include facilities, bus stops, and vehicles. Facilities include a new garage in Plymouth as the current facility is rented and lacks indoor storage. A new larger facility would also allow GATRA to perform preventive maintenance on the COA vehicles located in the eastern service area instead of requiring they go to the Taunton facility for maintenance, which is farther away.

Table 40. Capital Needs

Need	Rationale	Sources
Intermodal Transportation Center in downtown Plymouth	Currently routes converge in downtown Plymouth along Memorial Drive. Downtown Plymouth can be congested in the summer with tourism traffic. The narrow streets and one-way roads make it difficult to service at times. Having an off-street hub would be a safer option.	• OCPC LRTP • Driver Survey • SRPEDD RTP

Need	Rationale	Sources
Relocate the hub in Wareham from Cranberry Plaza to the Wareham Center and Station	Travel patterns in Wareham have changed due to the development of Wareham Crossing, the new Walmart Supercenter, and additional retail space along Route 28 in East Wareham. Demand has shifted from Cranberry Plaza, which serves as the hub for the Onset – Wareham Link service, to a more central location.	• SRPEDD RTP • 2015 RTP
North Attleborough intermodal center	A transfer center or hub would improve service along the Route 1 corridor.	• Existing Conditions • 2015 RTP • SRPEDD RTP
Bike racks at key stops	Bike racks at key stops would improve mobility in the region and create friendlier places to wait.	• Existing Conditions • SRPEDD RTP
Shelters at high volume stops and improved pedestrian access to transit stops	Bus stop shelters and benches offer a safe and comfortable place to wait for the bus. They should meet ADA guidelines.	• Existing Conditions • SRPEDD RTP
New intermodal transit center at the rail station in Attleboro	The current lot owned by GATRA is at capacity; a new garage and intermodal station would benefit this location as it is one of the busiest commuter rail stations outside of Boston.	• SRPEDD RTP
A new garage facility in Plymouth	The facility in Plymouth is rented and lacks indoor storage for the vehicles.	• SRPEDD RTP
Designated bus stops	GATRA uses a flag stop system. Designated stops was the top improvement for riders (48%) in the survey; operators also identified not having designated stops as a top challenge.	• Existing Conditions • Public Outreach • Driver Survey
Alternative fuel vehicles	Support the environmental sustainability goals for the region and reduce dependence on fossil fuels. GATRA is in the process of procuring or exploring electric buses, including the impact on the facility.	• SRPEDD RTP

7.2.5 Technology Needs

GATRA's greatest number of needs (15) are technology based (Table 41). GATRA lacks APCs and real-time and a fixed route scheduling system. Additionally, several technologies such as the AVL, demand response scheduling system and fare system, are outdated with limited features and in some cases no vendor support. These technology barriers prevent GATRA from being able to effectively and efficiently monitor and deploy service because of the lack of data available.

Table 41. Technology Needs

Need	Rationale	Sources
Improved passenger data collection	APC data would allow GATRA to monitor and evaluate ridership at a stop and time of day level.	• Existing Conditions • SRPEDD RTP • Technology Survey
Recalibrated AVL	OTP data were not available due to issues with the AVL system. There is a need to evaluate the AVL trigger boxes and runs and recalibrate the system, so that it collects data properly. The AVL not working was cited by several operators.	• Existing Conditions • Driver Survey • Technology Survey
Electronic fare collection on all routes	Routes not operated by PTM do not have electronic farebox, which results in not being able to use all fare media on all routes. Several vehicles have no farebox but a money pouch.	• Existing Conditions • 2015 RTP • SRPEDD RTP • Fare Policy • COVID Exercise
Mobile fare payment	This will encourage cashless transactions and could be deployed systemwide and utilized by all vendors and modes, expanding the pass option. 57% of demand response users would utilize it, and 45% of bus riders. Expanding cash-free payments was the top thing identified by riders as to how to make them more comfortable riding during the pandemic.	• Existing Conditions • Driver Survey • Technology Survey • Fare Policy
Expanded AVL to include all routes	AVL is limited to certain vehicles and operators.	• Existing Conditions • SRPEDD RTP • Technology Survey
Regionalized fare system	Due to the varying fare collection technology among the bus system passes are only valid on certain routes.	• Existing Conditions • 2015 RTP • SRPEDD CHST Plan • Fare Policy
Real-time tracking phone app	There is currently no app that allows passengers to track when the bus will arrive in real-time.	• Existing Conditions • SRPEDD RTP
Transit signal priority on congested corridors	Transit signal priority would improve travel times and OTP.	• SRPEDD RTP
New fare collection system	The current fare system is outdated and does not have a smart card component. Additionally, GATRA uses GFI fareboxes and the surrounding RTAs use S&B.	• Existing Conditions • 2015 RTP • Driver Survey • Technology Survey • Fare Policy

Need	Rationale	Sources
New dispatcher software for fixed route that is computer-aided dispatch (CAD) enabled	The current system is outdated, has very little vendor support, and is not CAD enabled, having such a system would improve dispatch.	• Existing Conditions • Technology Survey
Fixed route scheduling software	There is no current scheduling system, it is done by hand using Microsoft Excel. An automated system would improve the process and allow for GATRA to make route changes more efficiently.	• Existing Conditions • Technology Survey
Demand response scheduling software	The current system has very limited features, is outdated, and lacks support from the vendor.	• Existing Conditions • Technology Survey
Service alert system	A service alert feature would better inform passengers of changes in the system.	• Existing Conditions • Technology Survey
Radio system for demand response	Many of the COAs do not have a radio system and rely upon cell phones.	• Existing Conditions • Driver Survey
Properly working tablets	Drivers reported issues with the tablets for demand response not working properly and losing power.	• Driver Survey

7.2.6 Policy Needs

Nine policy needs were identified (Table 42). Many of these policies focus on fares and fare structures or operator contracts.

Table 42. Policy Needs

Needs	Rationale	Sources
Bus stop inventory	To better manage assets and identify areas for investment.	• Existing Conditions • SRPEDD RTP[43]
Ability to purchase bus passes using a credit card or debit card	Currently, passes can only be purchased from customer service using cash.	• Existing Conditions • Fare Policy
Alternative funding sources	State funding can change yearly, which makes planning difficult and as a result GATRA relies equally on local funding. Local revenue makes up 29% and the amount it can be increased annually is limited by Proposition 2.5. This makes increasing revenue to add service difficult without the ability to raise revenue.	• Existing Conditions • SRPEDD RTP

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[43] SRPEDD maintains a comprehensive inventory of bus stops served by fixed route transit.

Needs	Rationale	Sources
Inclusion of transit in land use decisions, development, redevelopment, and roadway projects	Transit is often considered an afterthought, and while service is desired, it can be challenging when not considered in the design. Concerns often experienced are inadequate pavement to handle heavy loads, narrow turning radii, lack of ability to safely deploy a wheelchair ramp, and illogical routing requirements.	• Existing Conditions • SRPEDD RTP
Route level mileage	Route level mileage was not available for Attleboro/Taunton routes but instead a systemwide speed used to derive miles based on revenue hours. Having mileage data will help with performance monitoring of the routes.	• Existing Conditions
Improved data collection from operators	Currently data are fragmented. For each bus route the operators should be reporting monthly ridership, miles, hours, costs, revenues, asset, and safety information and OTP so that GATRA can better monitor their routes and make informed decisions. For each demand response service collect data on ridership, miles, hours, denials, fare revenue, costs, unique passengers, same day cancellations, no shows, preventable accidents, OTP, and road calls.	• Existing Conditions
Data-driven framework for determining service levels	Enhanced performance management system to support an enterprisewide data-driven and performance-focused management and decision-making framework.	• RTA Task Force • MassDOT
Enforcement of contract obligations	While the contracts do have punitive measures for liquidated damages, GATRA does not routinely enforce this segment on the contract.	• Existing Conditions
Simplified fare structure	GATRA offers many pass types. The 3-day passes are hardly utilized, accounting for less than half a percent of all passes sold.	• Fare Policy

7.2.7 Other Needs

Other needs are those that do not fall into one of the predefined categories. Eleven other needs were identified as outlined in Table 43. These include adding new staff positions, particularly as GATRA increases their use of technology and uses data to better monitor service, providing accurate cohesive schedule information, marketing rider education program, being more

proactive, utilizing the valuable insight that operators have, using a more data driven approach to service planning, uniform training, and improving communications with the public.

Table 43. Other Needs

Needs	Rationale	Sources
IT position	Due to the number of contractors and various technology, GATRA would benefit from an IT person who could create reports that pull from the various IT systems and better allow GATRA to monitor service. The individual would be responsible for maintaining all IT systems.	• Existing Conditions • Technology Survey
Provide demand response service information for each town that includes service hours, days of service and towns served	Current information on the website does not state the hours or days of service for each town or which communities riders can travel to demand response with. If no major medical facility exists, trips should be provided at least once a week to the nearest facility. The same applies to grocery stores and/or major retail outlet.	• Existing Conditions
Rider education programs	GATRA does have a How to Ride section of the website but would benefit from additional material that could be pushed through social media accounts and shared with various communities.	• Existing Conditions • SRPEDD CHST Plan
Proactive dispatch	For return will-call pick-ups, the dispatcher currently does an all-call to drivers to determine who has space in their schedule. Not all drivers respond even if space is available.	• Existing Conditions • Driver Survey
Driver route committee	As the eyes and the ears on the road for GATRA, drivers have unique insight into what is and is not working. Their input into route changes is valuable.	• Existing Conditions • Driver Survey
Improved schedule design	Schedules for the Attleboro/Taunton routes have been updated and are simple, easy to read, and cohesive but the remaining route schedules are not. Creating a single design will help market GATRA services as one system.	• Existing Conditions

Needs	Rationale	Sources
Improved communications about vehicle cleanliness	The cleanliness of vehicles was the top concern for riders regarding COVID-19.	• Public Outreach
Driver room	PTM operated services are in need of a space where drivers can quietly and discreetly report issues.	• Driver Survey
Consistent training for COAs	Training programs are needed to ensure consistent practices among operators with refresher annually.	• Driver Survey
Service standards and benchmarks	Route level service standards and benchmarks will help GATRA make future decisions about when to alter service.	• Existing Conditions
Data analyst	As AVL and APC technology is installed, there will be a need to analyze and monitor the data in order to make informed decisions.	• Existing Conditions

8.   Recommendations

The recommendations for this 5-year plan are based on a wholistic process that takes into account historical operational data, stakeholder input, industry best practices, Commonwealth-wide goals, and RTA priorities. The strategy for generating these recommendations embraces the uncertainty introduced by the COVID-19 pandemic and considers a spectrum of recommendations depending on ridership demand in the region. These recommendations provide a decision-making framework for pursuing strategic service changes, capital enhancements, and policy approaches, and prioritize maximizing mobility options for those living, working, and visiting the GATRA service area.

8.1   Guiding Principles

As GATRA prepares for the next 5 years, several looming questions face operators across the country: When will ridership return? How might the transit market be permanently changed by the pandemic? How can new technology be used to accommodate these changes to the transit market? How might new housing preferences impact transit demand?

Despite the uncertainty facing the transit industry due to the COVID-19 pandemic, several guiding principles remain steadfast despite the shifting transit landscape. These guiding principles must be considered as GATRA's needs are analyzed and recommendations are made.

- **Safety**: The pandemic has underscored the importance of safety as the number one priority for GATRA. Before the pandemic, safety included considerations such as driver training, security systems, security guards at key locations, and enforcement of the Drug and Alcohol Program. In the context of the COVID-19 pandemic, safety considerations have been expanded to include issues such as routine cleaning, sanitizing, enforcing mask and social-distancing mandates, and removing benches and other amenities that may encourage congregation at transit facilities.

- **Top-Notch Customer Experience:** A guiding principle is the commitment to provide the best customer experience possible. The entire purpose of a transit agency is to move people efficiently to their desired destinations, and the efficiency of the system depends on robust ridership. Ensuring a high-quality customer experience is the best way to acquire and retain a loyal ridership base, especially during times of uncertainty.

- **Equity Considerations/Title VI**: Equity is an organizational priority for GATRA in addition to being a requirement of state and federal regulations. Federal guidance requires that service supported by federal funding not be provided in a way that places undue burdens on minority populations or those living in low-income households. Equity considerations are codified in GATRA's Public Participation Plan and Language Access Plan, both of which ensure that major service decisions are done in consultation with the public.

- **Fiscal Responsibility:** A key group to whom GATRA has responsibility is the taxpayer. As such, GATRA pays close attention to the efficient use of public funding to meet local and statewide goals. While maximizing ridership is one metric for assessing efficient use of funding, there are numerous other goals expected of public transportation operators (many of which are listed elsewhere in this section).

- **Environmental Stewardship:** GATRA and the Commonwealth of Massachusetts have both made a commitment to environmental stewardship, and this commitment should guide decisions even in an uncertain future. This ongoing commitment to reducing environmental impacts should be reflected in the priorities of GATRA, with a recognition

that one of the most meaningful environmental goals is shifting car trips to fixed route bus trips.

- **Regional Land Use and Economic Development Goals:** There are numerous land use and economic development goals at the regional and local level that should guide GATRA's decisions. This includes priority development areas developed by SRPEDD, various area municipal plans, and local initiatives.

8.2   Key Recommendations

The needs outlined in Chapter 7 drove the development of recommendations presented below. The recommendations in this section are broken down by category (Table 44). For each of the 72 needs in Table 45, 56 recommendations were developed based on the findings in order to address the need.

Table 44. Recommendation Categories

Category	Icon	Description
General Bus		General bus recommendations deal with specific routing or other operational considerations of day-to-day provision of bus service.
Demand Response		Demand response recommendations deal with specific improvements to demand response service or the operational considerations of day-to-day provision of service.
New Service		New service recommendations deal with the new provision of service to enhance existing GATRA service.
Capital		Capital recommendations deal with the purchase or management of equipment, rolling stock, facilities, or other assets.
Technology		Technology recommendations deal with new or updated technology that would improve data collection and the customer experience.
Policy		Policy recommendations are needed changes to state and local policy that would improve the GATRA operating environment.
Other		Other recommendations deal with issues not handled by the other categories.

Table 45. Needs and Recommendation by Category

Type	Need	Recommendation
	Sunday service	Add Sunday service 10:00 AM to 6:00 PM on select routes.

Type	Need	Recommendation
	Adjusted routing based on demand	System redesign
	Later evening service	Expand service to 9:00 PM on weekdays and 7:30 PM on Saturdays for select routes. After hours establish a taxi/TNC voucher program.
	Increased frequency	Route 10 has the highest ridership; by combining Routes 10 and 12 and creating circular routes in each direction it will effectively increase the frequency on the corridors served. Establish benchmarks for service improvements based on ridership and outreach. Improve frequency on Route 18 to 60 minutes; frequency was the top concern on this route that had one of the higher survey response rates.
	Realign commuter rail shuttles with commuter rail times	Convert many of the commuter shuttles to microtransit zones, therefore eliminating the need to adjust schedules each time the commuter rail adjusts. The zones can be expanded to provide service to other areas in the communities.
	Expanded service between Wareham and New Bedford	Add a mid-day trip.
	Better connected GATRA communities	Connect service areas via fixed route with system redesign.
	Improved OTP	System redesign.
	Coordination with MBTA	GATRA will continue to work with MBTA to identify changes in commuter rail level of service, schedule, ridership, etc.
	Expanded general public demand response	Partner with taxi/TNCs to complement the existing service and increase connectivity in the region for areas not currently served.
	Regionalized demand response and zones to increase intercommunity connectivity	Reduce the number of operators by creating zones that cover numerous towns. Each zone should have a connection to at least one fixed route that can be used to access areas outside of the zone. This would increase connection options.
	Long distance medical transportation to Boston for the entire region	Establish a volunteer driver program to expand long distance trips.

Type	Need	Recommendation
	Same day service	Pilot a same day service by partnering with taxi and TNC companies and subsidizing part of the trip where a microtransit program does not exist. Work with a local taxi company to procure WAV.
	Increased paratransit/DAR service hours	Partner with taxi and TNC companies and subsidize part of the trip for after hour service. Work with a local taxi company to procure WAV.
	Increased paratransit/ DAR service area	Partner with taxi and TNC companies and subsidize part of the trip for those going beyond 3/4 mile. Work with a local taxi company to procure WAV.
	Service connecting Attleboro and Taunton	The proposed TNC/taxi subsidy program would provide a connection for individuals whose origin and/or destination is not near a fixed route.
	Consolidated scheduling and dispatching center	Continue pilot program and expand to all COAs once kinks have been worked out. The centralized location could schedule and batch the trips and send over the manifests daily to the COAs until mobile data terminals (MDTs) or tablets can be installed and tested on all vehicles. COAs would then update any trip changes (no-shows, lates, etc.) daily in the system. With the trips scheduled into the system, the COAs would no longer need to report as much information monthly.
	Weekend service on microtransit	Implement Saturday service on GATRA GO.
	Weekend service	Partner with taxi and TNC companies and subsidize part of the trip for weekend service. Work with a local taxi company to procure WAV.
	Additional vehicles for the COAs	COAs to report trip denials monthly until a centralized scheduling/dispatcher center is created.
	Reduced anxiety around the demand response window	Instituting interactive voice response (IVR) would send a notification the night before to individuals reminding them of their trip scheduled the next day. This would reduce no-shows and late cancellations, which impacts scheduling. The IVR can also be used to push messages to passengers that the vehicle will arrive in a certain number of minutes. This will reduce the anxiety around not knowing when your trip will be.
	Service connecting Taunton and Fall River	The survey did not identify a demand for connection to Fall River at the moment. A targeted study should be conducted to better understand the need. If such a route were developed, GATRA could apply for intercity bus funding to operate it.

Type	Need	Recommendation
	Service connecting Taunton and Brockton	The survey did not identify a demand for connection to Brockton at the moment. A targeted study should be conducted to better understand the need. If such a route were developed, GATRA could apply for intercity bus funding to operate it.
	Service connecting Plymouth and Taunton	While not direct, the trip time is reduced with the increase in service and realignment of the Taunton-Middleborough-Wareham route and Wareham-Plymouth Route. Additionally, the TNC/taxi subsidy program could provide the service. A one-way UberX trip is approximately $35 between these two locations.
	Transit service in southern Plymouth	Establish a microtransit zone.
	Connection from Plymouth/Wareham to Cape Cod in Hyannis	The new microtransit zone in South Plymouth will connect to the redesigned Link 2 and CCRTA.
	Service outside of GATRA service hours and to new areas	Create a taxi/TNC voucher program where GATRA subsidizes a portion of the trip if the trip could not be made via fixed route or microtransit.
	Service connecting Attleboro to Fall River	The survey did not identify a demand for connection to Fall River at the moment. A targeted study should be conducted to better understand the need. If such a route were developed, GATRA could apply for intercity bus funding to operate it.
	Relocate the hub in Wareham from Cranberry Plaza to the Wareham Center and Station	Link 1 has the highest ridership among the Wareham Route because it serves downtown Wareham. Relocating the hub to this location in the vicinity of the train station will create a true multimodal system.
	Intermodal Transportation Center in downtown Plymouth	Consider converting one of the numerous parking lots downtown to a hub or creating a multimodal hub at the Plymouth Rail station. A feasibility study is needed.
	North Attleborough intermodal center	Hub has been constructed and routes adjusted to serve the hub.
	Bike racks at key stops	Prioritize bike rack placement at stops through new guidelines for bus stops.
	Shelters at high volume stops and improved pedestrian access to transit stops	Create a guideline for establishing bus stop infrastructure. Develop a capital improvement plan. Develop a priority list for stops to install benches and shelters at. Locations that service high elderly and disabled densities should be given preferences.

Type	Need	Recommendation
	New intermodal transit center at the rail station in Attleboro	Support the redevelopment of the 26-acre site as transit-oriented development (TOD) with amenities for GATRA routes and access.
	New garage facility in Plymouth	Continue pursuing a new facility and secure funding.
	Designated bus stops	Where possible add designated bus stops and reduce flag stop zones. In flag stop zones add more route markers to indicate that the route travels along that road. Create a bus stop guidelines document that outlines the process for establishing a stop and any amenities.
	Alternative fuel vehicles	Complete electric bus study.
	Improved passenger data collection	Jointly procure an APC system with the other RTAs for installation on all Attleboro, Taunton, Wareham, and Plymouth routes. Consider a joint procurement with Franklin Regional Transit Authority (FRTA), MART, and Vineyard Transit Authority (VTA) who are also considering this technology.
	Recalibrated AVL	Evaluate AVL system to identify performance issues and recalibrate. Long term: Procure a new AVL system with MDTs. Consider a joint procurement with Merrimack Valley Regional Transit Authority (MVRTA), MART, and VTA who are also looking to procure a new system.
	Electronic fare collection on all routes	It is not cost effective to install electronic fareboxes on all vehicles because of the operating requirements. Instead consider an open payment system and/or mobile payment that is integrated into the larger systemwide fare collection system.
	Mobile fare payment	Begin by implementing a cloud-based system that requires no upfront hardware but utilizes visual validation. Eventually install readers on all PTM operated fixed routes.
	Expanded AVL to include all routes	Upgrade AVL system and install on all bus routes operated by PTM. Consider joint procurement with MVRTA, MART, and VTA.
	Regionalized fare system	Joint procurement across all RTAs for a regionalized fare collection system.
	Real-time tracking phone app	Procure new AVL system that has an integrated app function.

Type	Need	Recommendation
	Transit signal priority on congested corridors	Examine the possibility of implementing transit signal priority on congested corridors.
	New fare collection system	The RTAs should do a joint procurement for a new fare system that includes a mobile payment option, items such as fare capping and multiple outlets to procure smart cards.
	New dispatcher software for fixed route that is CAD enabled	A new system (NBSS) has been procured but not implemented yet.
	Fixed route scheduling software	Procure new system. Consider a joint procurement with MVRTA and LRTA who are also looking to procure a new system.
	Demand response scheduling software	Procure a new system that is cloud based. This would enable the COAs and other smaller operators to schedule rides through it. With all the information in the system, GATRA would be able to pull reporting information instead of relying on the COAs to submit it correctly and in a timely manner. The system should have a passenger portal and app where they can request and track their trips (78% of users would utilize this). IVR should be included so that automatic calls are made the day before reminding individuals of their trip the next day. This should reduce no-shows. IVR can also be used to push messages a few minutes before the vehicle arrives, reducing anxiety around the wait window.
	Service alert system	When procuring a new AVL system, make sure there is a phone app component with an alert feature that is utilized.
	Radio system for demand response	Procure radio system for demand response with repeaters that provide coverage over the entire service area. FRTA, MART, and CCRTA are also looking to do a joint procurement.
	Properly working tablets	Investigate the cause of the tablets not working properly.
	Bus stop inventory	Create a bus stop inventory.
	Purchase of bus passes using a credit card or debit card	Upgrade customer service to allow for the purchase of passes with credit/debit cards.

Type	Need	Recommendation
	Alternative funding sources	Work with RTAs across the state to allow regional ballot initiatives, which would allow towns to generate dedicated revenue for transit. Advocate for state contract assistance to include automatic inflators.
	Inclusion of transit in land use decisions, development, redevelopment, and roadway projects	Work with local communities and MassDOT to include GATRA in the review of all projects during preliminary design phases to make sure it considers transit access and requirements in addition to stop amenities.
	Route level mileage	Track mileage at the route level for all bus routes. Require contractors to submit a breakdown of mileage by route with each monthly invoice.
	Improved data collection from operators	Create a standard sheet that must be filled out monthly with the needed service information and tie it back to the contract and invoicing. This would work best with the COAs and smaller operators. With PTM work together to create an outline of needed monthly information by mode and standardize the process into a single report.
	Enforcement of contract obligations	Begin monitoring contractual obligations for reporting and performance and assess penalties as outlined.
	Data-driven framework for determining service levels	Identify technology-driven data tools and key performance metrics, particularly in the service and financial performance areas. Utilize these tools to establish an improved enterprise-wide data-driven performance-focused management and decision-making framework; implement a public-facing and transparent performance reporting mechanism.
	Simplified fare structure	Eliminate 3-day passes.
	IT position	Hire an IT person; consider a joint procurement with FRTA who also has this need.
	Demand response service information for each town that includes service hours, days of service, and towns served	Create brochures/schedules for demand response in each town showing the fare, service hours, and which communities they connect to.
	Rider education programs	Create simple how to read a bus schedule graphics, one-page attractive flyers about how to use the service that promotes the existing apps, and website trip planner. Develop education videos.

Type	Need	Recommendation
🌐	Proactive dispatch	Dispatch should proactively assign the trip based on schedule availability and proximity instead of relying on drivers to state availability.
🌐	Driver route committee	Establish a driver route committee.
🌐	Improved schedule design	Update schedule design.
🌐	Improved communications about vehicle cleanliness	GATRA has a cleaning protocol in place but could create material that could be placed on the website and social media highlighting it.
🌐	Driver room	Identify an unused space that can be used. A computer should be put in along with forms that drivers can fill out to report incidents.
🌐	Consistent training for COAs	Develop a training program that COAs can deploy. Consider online trainings through Community Transportation Association of America (CTAA) to National Rural Transit Assistance Program (RTAP) eLearning's.
🌐	Service standards and benchmarks	Establish service guidelines that outline spans, frequencies, benchmarks, and what to do when a route is not meeting or largely surpassing benchmarks.
🌐	Data analyst	Hire a part-time person to handle data, performance reporting, and service analysis and planning. This could be a shared position with another RTA, part-time employee, or consultant.

8.3   Prioritization

Each recommendation was scored based on the scenario it would fall under and what the complexity, impact, and cost would be for each using the following methodology. The recommendations and results of the prioritization process are presented in the following sections by category

8.3.1 Methodology

A two-stage process was used for categorizing and prioritizing recommendations. The process was developed in conjunction with GATRA and designed to meet their needs and requirements for making changes. The first stage involves determining which scenario the recommendation falls under. In the second stage each recommendation is scored based on the complexity to implement, overall impact it would have, and a category for estimated costs of implementing the recommendation.

8.3.2 Recommendation Scenarios

Each need is categorized as either a core need or ridership dependent (Figure 55). If it is ridership dependent then low, medium, and high ridership scenarios are used. Ridership level is relative to the recommendation and can be route or systemwide (Figure 56).

Ridership is considered low if it remains at less than 60 percent[44] of pre-COVID-19 levels and will continue to do so as primary and secondary educational institutions are doing virtual learning, tourism remains low, many businesses remain closed, and workers continue to work remotely. Medium ridership is when ridership begins to rebound and is between 60 and 85 percent of pre-COVID-19 levels and will continue to do so as primary and secondary educational institutions implement a hybrid learning approach, tourism picks up, businesses begin to open or expand hours, and remote workers shift to a hybrid of in-person and remote work. High ridership is when the economy rebounds and ridership returns to 86 percent[45] or higher of pre-COVID-19 levels, primary and secondary educational institutions discontinue remote learning, tourism levels are back to within 90 percent of 2019 levels, businesses are back to pre-COVID-19 operating hours and capacities, and employees convert from remote to in-person work.

Figure 55. Recommendation Scenarios

Core Need
• This is a need that should be implemented regardless of how ridership or the economy responds over the next 5 years.

Ridership Dependent
• Not identified as a core need
• Classfied as either low, medium, or high ridership based on identified thresholds.
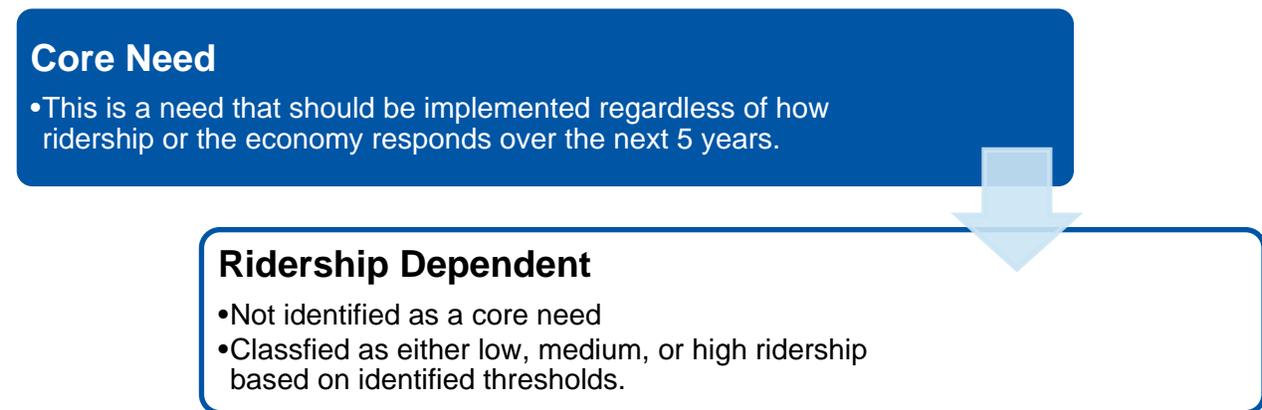
Figure 56. Recommendation Scenarios: Ridership Thresholds

Low Ridership	Medium Ridership	High Ridership
• Ridership is less than 60% of pre-COVID-19 levels.	• Riderships remains between 60% and 85% of pre-COVID-19 levels.	• Ridership returns to 86% or higher of pre-COVID-19 levels.
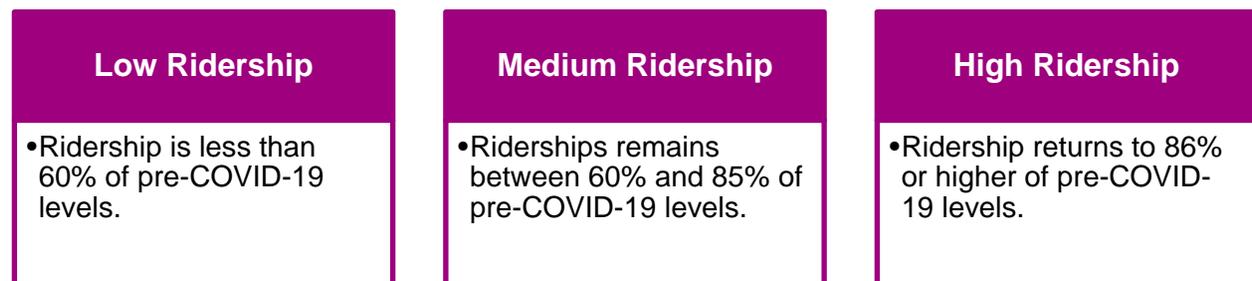
8.3.3 Recommendation Scoring

Scoring is based on two categories: complexity of implementation and impact.

Category 1: Complexity of Implementation factors include the factors outlined in Table 46. Thresholds for complexity are highlighted in Figure 57.

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[44] Among all RTAs the average month ridership difference for June 2019 and June 2020 was a 60 percent ridership decline.
[45] Among all RTAs ridership in FY 2019 was 88.7% of that in 2015.

Table 46. Complexity of Implementation Factors

High Cost	Considers both capital and/or operating. Annual operating cost greater than $50,000 or capital cost greater than $150,000
Difficulty in implementing	• Need to hire more operators • Do not have the current technology to do so • Would require procuring additional vehicles • Potential union contract or operating issues • Logistics- a detailed plan is needed first in order to figure out how it will operate, roles, responsibilities, and needs
Political Consensus	An issue that requires state or local approval and/or political consensus
Board Consensus	Service extends beyond GATRA boundaries
Coordination with other Agencies	Agencies include: • Other RTA's • Funding partners • Human service agencies • Others

Figure 57. Recommendation Complexity Thresholds

Low Complexity	Medium Complexity	High Complexity
•Two or less barriers to implementing the recommendation	•Three barriers to implementing the recommendation	•More than three barriers to implementing the recommendation
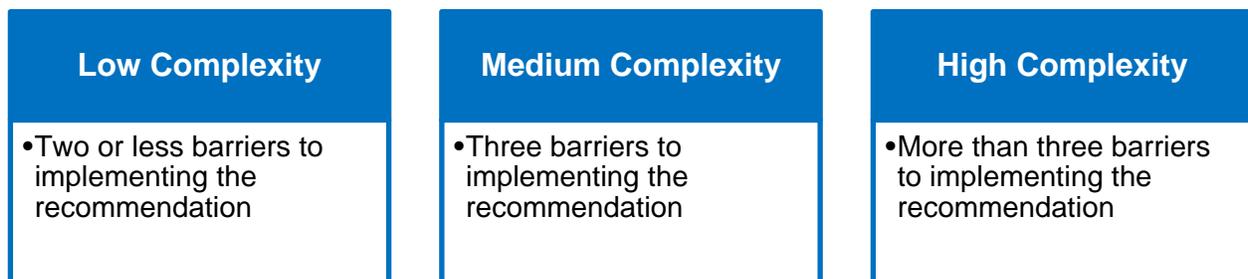
**Category 2**: The Impact is relative to the recommendation level (route/community specific or systemwide) and factors include both rider benefit (Figure 58) and operational benefit (Figure 59).

Thresholds for rider benefits fall into four categories: negative impact, low impact, medium impact, and high impact.

Figure 58. Recommendation Impact Thresholds: Rider Benefit

Negative Impact	Low Impact	Medium Impact	High Impact
•Recommendation would have a **negative impact** on riders, typically service reduction or elimination, without an alternative being recommended.	•**Less than 25 percent** of route/ system users. These would typically go unnoticed by most people.	•**Between 25 and 75** percent of route/system users. This change would be noticed by most users but would only impact some.	•**Greater than 75** percent of route/system users. This would impact most of the system or route users and would be noticed.

There are four impact thresholds for operational benefits as highlighted in Figure 59: negative impact, low impact, medium impact, and high impact.

Figure 59. Recommendation Impact Thresholds: Operational Benefit

Negative Impact	Low Impact	Medium Impact	High Impact
•Recommendation would create a burden on administration •Does not result in improved efficieny, but additional oversight, monitoring, and analysis	•No impact on administration or operational practices.	•Positively Impacts either administration or operational practices but not both.	•Positively impacts both administration or operational practices.

Additionally, a decision-making matrix has been developed to be reflective of both the rider benefits and the operational benefits as previously discussed (Figure 60). This matrix classifies recommendations into the following categories, low, medium, and high as outlined in Figure 61.

Figure 60. Decision Matrix

Operational, Rider	Riders			
Operational	Negative, Negative	Negative, Low	Negative, Medium	Negative, High
	Low, Negative	Low, Low	Low, Medium	Low, High
	Medium, Negative	Medium, Low	Medium, Medium	Medium, High
	High, Negative	High, Low	High, Medium	High, High

Figure 61. Decision Matrix Scores for Impact

Low	Medium	High
•Recommendation would have a negative impact on riders, typically service reduction or elimination, without an alternative being recommended.	•**Less than 25 percent** of route/ system users. These would typically go unnoticed by most people.	•**Between 25 and 75** percent of route/system users. This change would be noticed by most users but would only impact some.

Complexity scores were assigned a value of 1, 2, or 3 from high to low, while impacts were assigned a value of 1, 2, or 3 from low to high, such that total scores range from 2 (high complexity and low impact) to 6 (low complexity and high impact). Those with the highest score (6) are priority one and those with the lowest score (2) are priority five.

8.4   General Bus Recommendations

General bus recommendations are recommended changes to fixed routes that already exist (Table 47). Needs like adjusting routes to better match demand are core needs but improving frequency or adding trips are high ridership needs. The GATRA system has not been holistically looked at and updated but instead altered slightly each time a new development occurs, resulting in routes that may not reflect demand and a system that is redundant in some places yet fragmented in others. A holistic approach was used to examine the three GATRA regions to improve access to major trip generators, improve connections between regions/cities, improve OTP and reduce redundancy in the system. The proposed changes are outlined in Table 48 and Figure 62 and can be achieved without any additional resources. Changes include alignment changes on 17 routes, the discontinuation of 6 routes, creation of 3 new routes, and conversion of 7 routes to microtransit zones.

Table 47. General Bus Recommendations

Need	Rationale	Recommendation	Core Need	Low Ridership	Medium Ridership	High Ridership	Complexity	Impact
Adjusted routing based on demand	The routes have been incrementally built upon as new developments occur, but a wholistic look has not been done. This has resulted in the duplication of routes along corridors, and a mismatch between demand and service.	System redesign	✔				Low	High

Need	Rationale	Recommendation	Scenarios				Complexity	Impact
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Sunday service	Many low-income jobs are in the retail and service industry, which do not have typical 9 to 5 weekday hours. The survey showed that overwhelmingly individuals want Sunday service on at least one route.	Add Sunday service 10:00 AM to 6:00 PM on select routes.	✔				Medium	High
Later evening service	Later service would accommodate second and third shift workers. Outreach results showed that later hours were desired over increasing coverage.	Expand service to 9:00 PM on weekdays and 7:30 PM on Saturdays for select routes. After hours establish a taxi/TNC voucher program.	✔				Medium	High

| Need | Rationale | Recommendation | Core Need | Scenarios | | | Complexity | Impact |
				Low Ridership	Medium Ridership	High Ridership		
Increased frequency	The bulk of service operates using 1-hour headways, which is inadequate for most people. Ridership data though show that activity on many routes is low.	Route 10 has the highest ridership; by combining Routes 10 and 12 and creating circular routes in each direction it will effectively increase the frequency on the corridors served. Improve frequency on Route 18 to 60 minutes; frequency was the top concern on this route that had one of the higher survey response rates.				✔	Low	Medium
Realign commuter rail shuttles with commuter rail times	Bus schedules and train schedules are not always aligned. Due to the frequency of changes made by MBTA, it is difficult to adjust routes in time. Additionally, many of the commuter routes have very low ridership.	Convert many of the commuter shuttles to microtransit zones, therefore eliminating the need to adjust schedules each time the commuter rail adjusts. The zones can be expanded to provide service to other areas in the communities.		✔			Low	Low

| Need | Rationale | Recommendation | Scenarios | | | | Complexity | Impact |
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Coordination with MBTA	GATRA operates several commuter rail shuttles. As MBTA adapts and adjusts service levels due to COVID-19, GATRA may need to adjust the timing on these routes.	GATRA will continue to work with MBTA to identify changes in commuter rail level of service, schedule, ridership, etc.			✓		**Low**	**High**
Expanded service between Wareham and New Bedford	There is a gap in mid-day service between 11:30 AM and 2:00 PM. This route provides connections for Wareham residents to access social services in New Bedford. Desire for improved connections to New Bedford was heard in the public outreach and mentioned in 31 comments.	Add a mid-day trip.				✓	**Low**	**Low**

Table 48. Proposed Route Changes

| Route	Recommendation	Reasoning
Central		
Route 1	End at Hannaford's Supermarket and interline with new Route 5	No points south were identified as trip generators, no housing complexes.
Route 6	End route at Northwood Medical Center. Work with business park to determine whether Transportation Management Association (TMA) is needed or specific employment shuttles	The route serves the industrial park on almost all trips. There are numerous businesses here, but survey data had very little demand.
Route 7	Service Cape Roads Plaza, Stop & Shop, and Shaw's Plaza. Extend to Middleboro Avenue	Service into these plazas was desired in public outreach.
Route 8	End route at Target at the Taunton Depot and travel via 140	The route has very low ridership, most likely because of the convoluted routing. The recommendation smooths out the routing while still providing service to the major trip generators on Route 140
Route 9	Interline with Route 18	Efficiency
Route 10	Combine with Route 12 and create a circulating route with one bus in each direction	These two routes currently connect at the train station and Emerald Square Mall. Combining into one and providing circulation in each direction creates a one seat ride that serves multiple destinations along Route 1 and connects to downtown Attleboro.
Route 11	Extend to Plainridge	Extending Route 11 to Plainridge (an area without service but has demand) and North Attleborough creates a route that runs along Route 1 servicing all the major retail outlets with multiple opportunities to transfer to routes servicing Attleboro. This allows for Route 14 to be eliminated.
Route 12	Combine with Route 10 and create a circulating route with one bus in each direction	These two routes currently connect at the train station and Emerald Square Mall. Combining into one and providing circulation in each direction creates a one seat ride that serves multiple destinations along Route 1 and connects to downtown Attleboro.

Route	Recommendation	Reasoning
Route 14	Eliminate	Replaced with extension of Route 11.
Route 15	Eliminate	Low performing route with little ridership. Replaced with new circulator route that covers the majority of the service area lost.
Route 16	Streamline routing into North Attleborough, use Olive Street	This route has a tight running schedule; streamlining it will allow for additional layover to reduce the route from running behind. The new circulator route in Attleboro will cover the portion lost.
Route 18	Eliminate BCC; interline with Route 9	This will be served via the new circulator providing more trips daily. By interlining with Route 9, frequency is improved to 60 minutes.
Route 24	Eliminate	Service replaced with updated Routes 10,11, and 12.
Route 140	No changes	Route is partially funded by Wheaton College, so adjust route as needed to meet demands as in-person and remote learning change.
Middleborough-Taunton Connection	Extend route to Wareham	By extending the route to Wareham and operating as a fixed route 5 days a week it connects the Wareham region to the Attleboro/Taunton region.
Downtown Middleborough Shuttle	Service the train station on all trips	While train service is limited at the moment it will create connections for those going to and from the train as well as those accessing the modified Middleborough-Taunton-Wareham route.
Foxborough Commuter Service	Convert to microtransit	This route has high ridership but travels a very short distance as it connects a parking lot to the train station. If the lots begin to fill up and demand increases from the satellite lot to the train station beyond the capacity of microtransit, consider converting back to fixed route.
New Route 5	Service to Raynham Walmart. Interline with Route 1	Raynham Walmart and Market Basket were identified as top areas not currently served by transit. Serve Market Basket first followed by Walmart via Broadway weekdays 7:00 AM to 7:00 PM, 9:00 AM to 7:00 PM Saturdays.

Route	Recommendation	Reasoning
New Route 13	Circulating route in Attleboro	New route that circulates in a figure eight pattern using O'Neil Boulevard as the spine. Replaces eliminated Route 15 and portions of Routes 16 and 18. Weekday service only 7:00 AM to 7:00 PM.
East		
Link 1	Circulate Onset Avenue – Main Avenue – Cranberry Highway – Depot Street	Route 4 will circulate in the opposite direction. Routes will connect at Cranberry Plaza for timed transfer. When new hub is created revert to current routing.
Link 2	Route to stay on Route 6 and not deviate into Onset	Links 1 and 4 will service Onset, allowing the two to stay on Route 6 and serve the numerous businesses along this corridor. Given the extension to the Sagamore park and ride lot the route timing is tight. This will help it stay on schedule. When new hub constructed extend to Wareham Center via Route 6 and interline with Link 4.
Link 3	Eliminate	Very low ridership; less than three people daily. Area covered by South Plymouth microtransit.
Link 4	End route at Walmart Plaza and convert area north of Walmart to by-request only. In Onset Circulate Cranberry Highway – Main Avenue Onset Avenue –Depot Street	Survey data showed that demand is to access Walmart with very little demand north. By converting to on-request the route can circulate in Onset until a new hub is created. When the new hub is created truncate in downtown Wareham and interline with Link 2.
SAIL	No change	---
Mayflower Link	End route at Plymouth Plantation and serve The Grove with new route	South of Plymouth Plantation will be served via a new microtransit zone. A direct connection from Plymouth plantation to the center can be promoted for tourism as parking in downtown is tight.
Freedom Link	No changes	---
Liberty Link	No changes	---
M/C Link	Replace with South Plymouth microtransit	Ridership on the route is low and there were no locations identified on the eliminated segment as top areas people travel to.

Route	Recommendation	Reasoning
Grove Link (new route)	New route from Plymouth center to The Grove at Plymouth Shopping area	This section is currently served by the Mayflower Link by separating the routes into two. The Mayflower Link can be promoted to tourists in addition to serving hospital. 7:00 AM to 6:00 PM weekdays and 9:00 AM to 6:00 PM Saturdays.
Pembroke Commuter Shuttle	Eliminate	Route carries only six people per day (one per trip).
Wareham-Plymouth	Extend to Plymouth Center	Route currently terminates at Walmart, but by extending to the center it will increase access to the system.
Wareham-New Bedford	No alignment changes	Examine ridership and consider express via I-495 after servicing downtown Wareham.
Sloop	Convert to microtransit	Route has low daily ridership and carries 2.4 people per hour. Converting to microtransit would better serve the area with service to more areas and could easily be accomplished with one vehicle.
Wareham/Lakeville Commuter	Eliminate and replace with Taunton-Middleborough-Wareham route	Route only carries 20 people per day and serves the train station in Lakeville. Servicing this route results in a reduction in service on the remaining Wareham routes, which have a higher demand. Constantly adjusting the route to meet the commuter's needs is difficult. The focus of the route should be to connect the GATRA regions and not commuters. Survey data showed that Middleborough individuals were using this route to access shopping in Wareham and Wareham residents to access shopping in Wareham.
West		
Medway T Shuttle	Convert to microtransit 6:00 AM to 7:30 PM weekdays	Low ridership commuter shuttle, which must be adjusted each time the train schedule changes. Converting to microtransit will provide better service with more destinations/times.
Bellingham T Shuttle	Convert to microtransit 6:00 AM to 7:30 PM weekdays	Low ridership commuter shuttle, which must be adjusted each time the train schedule changes. Converting to microtransit will provide better service with more destinations/times.

Route	Recommendation	Reasoning
FAB	Convert to microtransit 6:00 AM to 7:30 PM weekdays	Low ridership (32 per day). Converting to microtransit will provide better service with more destinations/times.
Tri-town Connector	Convert to microtransit 6:00 AM to 7:30 PM weekdays	Low ridership (12 per day). Converting to microtransit will provide better service with more destinations/times.

Figure 62. Proposed Redesign Map
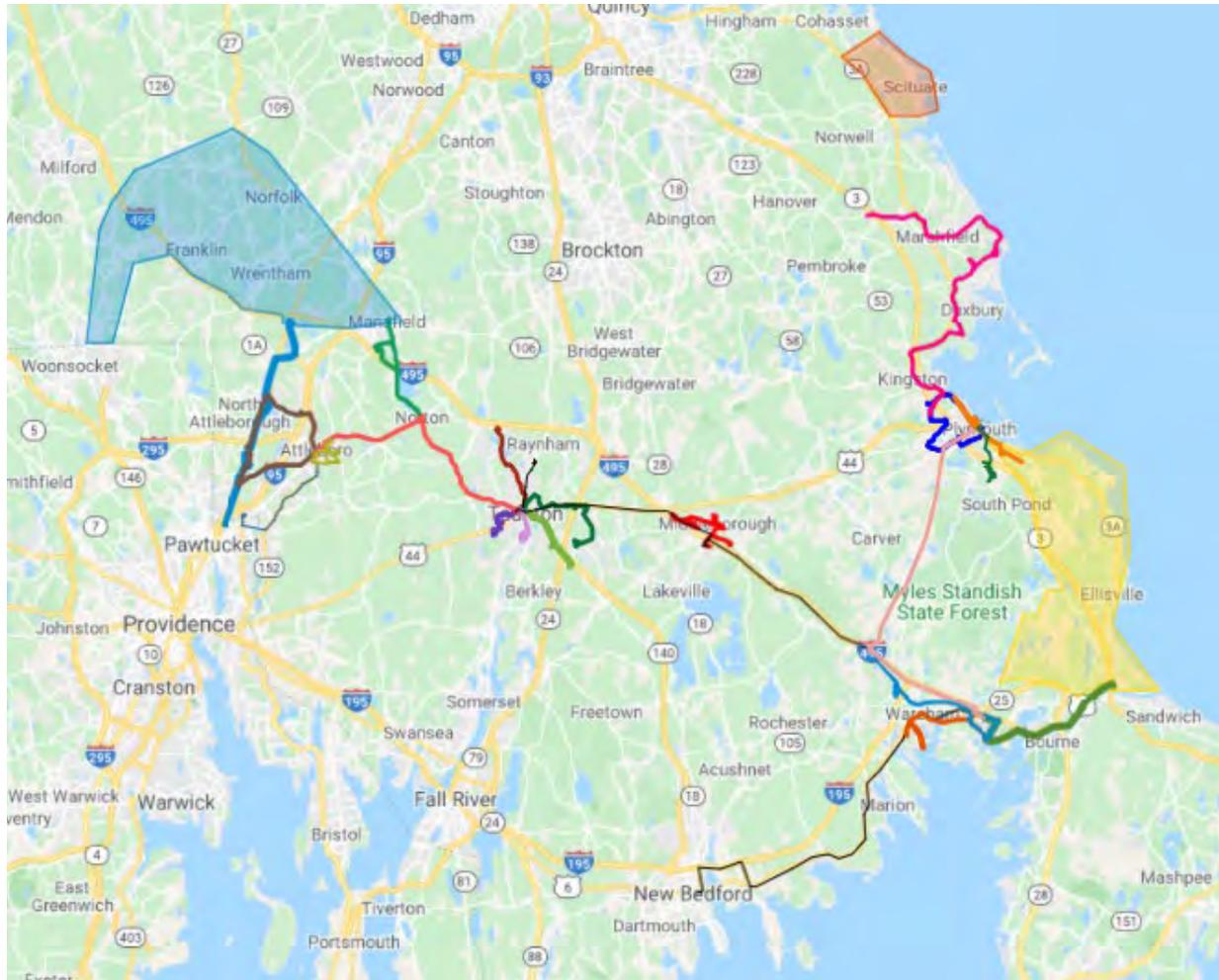
Each route was evaluated for the need for Sunday service, later weekday service, later Saturday service, and earlier Sunday service; the results are presented in Table 49. Sunday service from 10:00 AM to 6:00 PM is recommended on 13 routes. Weekday service

would be extended on 11 routes to 9:00 PM. One additional earlier Saturday morning trip is recommended on 10 routes and one later Saturday evening trip on 6 routes. Note that the expansion of fixed route service hours and addition of Sunday service will impact the demand response service as ADA service must be expanded as well to meet FTA requirements.

Table 49. Recommended Span Changes

Route	Sunday Service	Later Weekday Service	Later Saturday Service	Earlier Saturday Service
Route 1	✔			
Route 6				
Route 7	✔	✔	✔	
Route 8		✔	✔	
Route 9	✔			
Route 10	✔	✔	✔	✔
Route 11	✔	✔	✔	✔
Route 12				
Route 13 (New Route)				
Route 16	✔	✔	✔	✔
Route 18		✔	✔	
Route 5 (New Route)	✔			
Route 140				
Link 1	✔	✔	✔	
Link 2	✔			
Link 4	✔		✔	✔
SAIL		✔		

Route	Sunday Service	Later Weekday Service	Later Saturday Service	Earlier Saturday Service
Mayflower Link	✔	✔	✔	✔
Freedom Link	✔	✔	✔	✔
Liberty Link				
The Grove (New Route)	✔	✔		
Middleboro Downtown Shuttle				
Middleborough Taunton Wareham Connector (New Route)				
Wareham-Plymouth				
Wareham-New Bedford				
GATRA GO – Scituate				
GATRA GO – S. Plymouth				
GATRA GO – West				
GATRA GO – Pembroke/Hanson				

8.5 Demand Response Recommendations

Demand response recommendations include proposed changes to the municipalwide senior DAR services, GATRA GO microtransit, and general public demand response services geared toward commuters (Table 50). The recommendations are split between core needs and those that are ridership dependent. One of the core needs is to regionalize demand response by creating zones that cover multiple zones. This would improve mobility but also efficiency in providing service if done in conjunction with the proposed consolidation of scheduling and dispatch.

Table 50. Demand Response Recommendations

| | | | Scenarios | | | | | |
			Core Need	Low Ridership	Medium Ridership	High Ridership	Complexity	Impact
Need	**Rationale**	**Recommendation**						
Regionalized demand response and zones to increase intercommunity connectivity	Currently demand response is operated by COAs and limited to in-town service with very limited interregional service. The cost per hour by COA operator varies from as low as $25 to as high as $75 with some carrying less than 15 people per day and others more than 50. Productivity ranges from less than one PPRH to almost 4.	Reduce the number of operators by creating zones that cover numerous towns. Each zone should have a connection to at least one fixed route that can be used to access areas outside of the zone. This would increase connection options.	✔				**Medium**	**High**
Weekend service on microtransit	Saturday service was desired by 100% of GATRA GO users.	Implement Saturday service on GATRA GO.			✔		**Low**	**Medium**

			Scenarios					
Need	**Rationale**	**Recommendation**	**Core Need**	**Low Ridership**	**Medium Ridership**	**High Ridership**	**Complexity**	**Impact**
Consolidated scheduling and dispatching center	Each COA schedules their own trips, many using pen and paper. A consolidated center could improve scheduling and efficiency by combining trips.	Continue pilot program and expand to all COAs once kinks have been worked out. The centralized location could schedule and batch the trips and send over the manifests daily to the COAs until MDTs or tablets can be installed and tested on all vehicles. COAs would then update any trip changes (no-shows, lates, etc.) daily in the system. With the trips scheduled into the system, the COAs would no longer need to report as much information monthly.	✔				**Medium**	**Medium**
Long distance medical transportation to Boston for the entire region.	The Boston Health Bus, Med Wheels, and Miles for Health are limited to select communities, and seven GATRA communities are not part of one of these programs.	Establish a volunteer driver program to expand long distance trips.				✔	**Medium**	**Medium**

Need	Rationale	Recommendation	Scenarios				Complexity	Impact
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Same day service	While GATRA has piloted a microtransit program, there is a need for same day service throughout the region for demand response users.	Pilot a same day service by partnering with taxi and TNC companies and subsidizing part of the trip where a microtransit program does not exist. Work with a local taxi company to procure WAV. The Taxi/TNC program can be used to also provide after hour service, weekend service and connect regions for all.				✔	High	High
Additional vehicles for the COAs	COAs report that they need additional vehicles, but there is no data available regarding trip denials or capacity issues to support.	COAs to report trip denials monthly until a centralized scheduling/dispatcher center is created.				✔	Low	Low

			Scenarios					
Need	**Rationale**	**Recommendation**	**Core Need**	**Low Ridership**	**Medium Ridership**	**High Ridership**	**Complexity**	**Impact**
Reduced anxiety around the demand response window	A shorter wait time/window was identified as a need.	Instituting IVR would send a notification the night before to individuals reminding them of their trip scheduled the next day. This would reduce no-shows and late cancellations, which impacts scheduling. The IVR can also be used to push messages to passengers that the vehicle will arrive in a certain number of minutes. This will reduce the anxiety around not knowing when your trip will be.				✔	**Low**	**High**

8.6   New Service Recommendations

The new service recommendations are for high ridership scenarios (Table 51). For all three the recommendation is to perform a more targeted study to better understand the need and potential services to implement.

Table 51. New Service Recommendations

Need	Rationale	Recommendation	Scenarios				Complexity	Impact
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Service connecting Taunton and Fall River	There is no direct transit connection between these two cities. Peter Pan previously operated a route between Rhode Island and Boston with limited stops in Fall River and Taunton. Now to take such a trip would require using three different transit operators and take 2:45 at a minimum. By comparison it would take 30 minutes by car. In the public outreach survey only one individual identified Fall River as a place connecting service is needed. The SRTA public outreach did not identify a need to connect to Taunton.	The survey did not identify a demand for connection to Fall River at the moment. A targeted study should be conducted to better understand the need. If such a route were developed, GATRA could apply for intercity bus funding to operate it.				✔	**Low**	**Medium**

Need	Rationale	Recommendation	Scenarios				Complexity	Impact
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Service connecting Taunton and Brockton	There are several gaps in service in southeastern Massachusetts between the various cities, limiting mobility. While these two cities are only 15 miles apart (26 minute car ride), an individual taking this trip via transit would have to go into Boston via the commuter rail to connect, creating a 3.5 hour long trip. In the public outreach survey three individuals identified Brockton as a place connecting service is needed. The BAT public outreach did not identify a need to connect to Taunton.	The survey did not identify a demand for connection to Brockton at the moment. A targeted study should be conducted to better understand the need. If such a route were developed, GATRA could apply for intercity bus funding to operate it.				✓	**Low**	**Medium**

| Need | Rationale | Recommendation | Scenarios | | | | Complexity | Impact |
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Service connecting Attleboro to Fall River	There is no direct transit connection between these two cities. A trip can be made by taking commuter rail to Providence and connecting with the RIPTA 24X. Depending on the time of day the trip can take as little as 1 hour or as long as 4 hours. In the public outreach survey only one individual identified Fall River as a place connecting service is needed. The SRTA public outreach did not identify a need to connect to Attleboro.	The survey did not identify a demand for connection to Fall River at the moment. A targeted study should be conducted to better understand the need. If such a route were developed, GATRA could apply for intercity bus funding to operate it.				✓	Low	Medium

8.7   Capital Recommendations

Capital recommendations are for new facilities and improving bus stops (Table 52). Establishing policies and guidelines that help GATRA develop a capital improvement plan for bus stops will provide direction for investments. Pursuing hubs and intermodal centers in Wareham and Plymouth will create safe places for passengers to wait and aid in creating smooth transfers among routes. Creating policies have a low impact, but the resulting infrastructure can have high impacts for those using the system.

Table 52. Capital Recommendations

Need	Rationale	Recommendation	Core Need	Low Ridership	Medium Ridership	High Ridership	Complexity	Impact
Intermodal Transportation Center in downtown Plymouth	Currently routes converge in downtown Plymouth along Memorial Drive. Downtown Plymouth can be congested in the summer with tourism traffic. The narrow streets and one-way roads make it difficult to service at times. Having an off-street hub would be a safer option.	Consider converting one of the numerous parking lots in downtown to a hub or creating a multimodal hub at the Plymouth Rail station. A feasibility study is needed.	✔				**Low**	**High**

| Need | Rationale | Recommendation | Scenarios | | | | Complexity | Impact |
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Designated bus stops	GATRA uses a flag stop system. Designated stops was the top improvement for riders (48%) in the survey; operators also identified not having designated stops as a top challenge.	Where possible add designated bus stops and reduce flag stop zones. In flag stop zones add more route markers to indicate that the route travels along that road. Create a bus stop guidelines document that outlines the process for establishing a stop and any amenities.			✔		**Low**	**High**
New intermodal transit center at the rail station in Attleboro	The current lot owned by GATRA is at capacity; a new garage and intermodal station would benefit this location as it is one of the busiest commuter rail stations outside of Boston.	Support the redevelopment of the 26-acre site as TOD with amenities for GATRA routes and access.	✔				**Low**	**Medium**

Need	Rationale	Recommendation	Scenarios				Complexity	Impact
			Core Need	Low Ridership	Medium Ridership	High Ridership		
New garage facility in Plymouth	The facility in Plymouth is rented and lacks indoor storage for the vehicles.	Continue pursuing a new facility and secure funding.	✔				Low	Medium
Bike racks at key stops	Bike racks at key stops would improve mobility in the region and create friendlier places to wait.	Prioritize bike rack placement at stops through new guidelines for bus stops.	✔				Low	Low
Shelters at high volume stops and improved pedestrian access to transit stops	Bus stop shelters and benches offer a safe and comfortable place to wait for the bus. They should meet ADA guidelines.	Create a guideline for establishing bus stop infrastructure. Develop a capital improvement plan. Develop a priority list for stops to install benches and shelters at. Locations that service high elderly and disabled densities should be given preferences.	✔				Low	Low

			Scenarios					
Need	Rationale	Recommendation	Core Need	Low Ridership	Medium Ridership	High Ridership	Complexity	Impact
Alternative fuel vehicles	Support the environmental sustainability goals for the region and reduce dependence on fossil fuels. GATRA is in the process of procuring or exploring electric buses, including the impact on the facility.	Complete electric bus study.	✔				**High**	**High**

| Need | Rationale | Recommendation | Scenarios | | | | Complexity | Impact |
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Relocate the hub in Wareham from Cranberry Plaza to the Wareham Center and Station	Travel patterns in Wareham have changed due to the development of Wareham Crossing, the new Walmart Supercenter, and additional retail space along Route 28 in East Wareham. Demand has shifted from Cranberry Plaza, which serves as the hub for the Onset – Wareham Link service, to a more central location.	Link 1 has the highest ridership among the Wareham Route because it serves downtown Wareham. Relocating the hub to this location in the vicinity of the train station will create a true multimodal system.	✔				**Medium**	**Medium**

8.8   Technology Recommendations

Technology recommendations will improve the flow of communication, information, and data to GATRA and passengers, and many are core needs (Table 53). Procuring new technology such as an APC system, radios, fixed route scheduling software, fare collection, or new AVL has a high cost, but GATRA could partner with other RTAs if the specifications for the technology meet their needs. Improving existing technology, such as upgrading hardware and software, adding a new module, or recalibrating, has a lower cost but may not resolve the issue.

Table 53. Technology Recommendations

| | | | Scenarios | | | | | |
Need	Rationale	Recommendation	Core Need	Low Ridership	Medium Ridership	High Ridership	Complexity	Impact
Recalibrated AVL	OTP data were not available due to issues with the AVL system. There is a need to evaluate the AVL trigger boxes and runs and recalibrate the system, so that it collects data properly. The AVL not working was cited by several operators.	Evaluate AVL system to identify performance issues and recalibrate.	✔				**Low**	**High**

| Need | Rationale | Recommendation | Scenarios | | | | Complexity | Impact |
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Mobile fare payment	This will encourage cashless transactions and could be deployed systemwide and utilized by all vendors and modes, expanding the pass option. 57% of demand response users would utilize it, and 45% of bus riders. Expanding cash-free payments was the top thing identified by riders as to how to make them more comfortable riding during the pandemic.	Launch mobile-fare payment system-wide to reduce cash handling. Begin by implementing a cloud-based system that requires no upfront hardware but utilizes visual validation. Eventually install readers on all PTM operated fixed routes.		✔			**Low**	**High**
New dispatcher software for fixed route that is CAD enabled	The current system is outdated, has very little vendor support, and is not CAD enabled, having such a system would improve dispatch.	A new system (HBSS) has been procured but not implemented yet.	✔				**Low**	**Medium**
Properly working tablets	Drivers reported issues with the tablets for demand response not working properly and losing power.	Investigate the cause of the tablets not working properly.	✔				**Low**	**Medium**

| | | | Scenarios | | | | | |
			Core Need	Low Ridership	Medium Ridership	High Ridership	Complexity	Impact
Need	**Rationale**	**Recommendation**						
Expanded AVL to include all routes	Upgrade AVL system and install on all bus routes operated by PTM. Consider joint procurement with MVRTA, MART, and VTA.	Procure a new AVL system with MDTs. Consider a joint procurement with MVRTA, MART, and VTA who are also looking to procure a new system.	✔				**High**	**High**
New fare collection system	The current fare system is outdated and does not have a smart card component. Additionally, GATRA uses GFI fareboxes and the surrounding RTAs use S&B.	The RTAs should do a joint procurement for a new fare system that includes a mobile payment option, items such as fare capping and multiple outlets to procure smart cards.	✔				**High**	**High**
Electronic fare collection on all routes	Routes not operated by PTM do not have electronic farebox, which results in not being able to use all fare media on all routes. Several vehicles have no farebox but a money pouch.	It is not cost effective to install electronic fareboxes on all vehicles because of the operating requirements. Instead consider an open payment system and/or mobile payment that is integrated into the larger systemwide fare collection system.				✔	**High**	**High**

| Need | Rationale | Recommendation | Scenarios | | | | Complexity | Impact |
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Improved passenger data collection	APC data would allow GATRA to monitor and evaluate ridership at a stop and time of day level.	Jointly procure an APC system with the other RTAs for installation on all Attleboro, Taunton, Wareham, and Plymouth routes. Consider a joint procurement with FRTA, MART, and VTA who are also considering this technology.	✔				High	Medium
Fixed route scheduling software	There is no current scheduling system, it is done by hand using Microsoft Excel. An automated system would improve the process and allow for GATRA to make route changes more efficiently.	Procure new scheduling system. Consider a joint procurement with MVRTA and LRTA who are also looking to procure a new system.	✔				High	Medium
Radio system for demand response	Many of the COAs do not have a radio system and rely upon cell phones.	Procure radio system for demand response with repeaters that provide coverage over the entire service area. FRTA, MART, and CCRTA are also looking to do a joint procurement.				✔	High	Medium

| Need | Rationale | Recommendation | Scenarios | | | | Complexity | Impact |
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Transit signal priority on congested corridors	Transit signal priority would improve travel times and OTP.	Examine the possibility of implementing transit signal priority on congested corridors.				✔	High	Low

8.9   Policy Recommendations

Policy recommendations are both core needs and ridership dependent (Table 54) and are not complex to implement. The basis of many of the policy recommendations are improvements in data collection and analysis so that GATRA can make informed decisions and changes to the existing fare policy. Additionally, towns often have set budgets, and additional local funding is only possible when there is the ability to raise set funding. In Massachusetts there is no legislation that allows for regional ballot initiatives for local municipalities to assess taxes or fees to specifically fund transit. The ability to raise additional local funding is needed to implement improvements that add service, but to obtain that ability is a statewide political issue beyond that of which GATRA has control over.

Table 54. Policy Recommendations

| | | | Scenarios | | | | | |
			Core Need	Low Ridership	Medium Ridership	High Ridership	Complexity	Impact
Need	Rationale	Recommendation						
Bus stop inventory	To better manage assets and identify areas for investment.	Create a bus stop inventory.	✔				Low	Medium

Need	Rationale	Recommendation	Scenarios				Complexity	Impact
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Improved data collection from operators	Currently data are fragmented. For each bus route the operators should be reporting monthly ridership, miles, hours, costs, revenues, asset, and safety information and OTP so that GATRA can better monitor their routes and make informed decisions. For each demand response service collect data on ridership, miles, hours, denials, fare revenue, costs, unique passengers, same day cancellations, no shows, preventable accidents, OTP, and road calls.	Create a standard sheet that must be filled out monthly with the needed service information and tie it back to the contract and invoicing. This would work best with the COAs and smaller operators. With PTM work together to create an outline of needed monthly information by mode and standardize the process into a single report.	✔				**Low**	**Medium**
Simplified fare structure	GATRA offers many pass types. The 3-day passes are hardly utilized, accounting for less than half a percent of all passes sold.	Eliminate 3-day passes.	✔				**Low**	**Medium**
Ability to purchase bus passes using a credit card or debit card	Currently, passes can only be purchased from customer service using cash.	Upgrade customer service to allow for the purchase of passes with credit/debit cards.				✔	**Low**	**Medium**

| Need | Rationale | Recommendation | Scenarios | | | | Complexity | Impact |
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Alternative funding sources	State funding can change yearly, which makes planning difficult and as a result GATRA relies equally on local funding. Local revenue makes up 29% and the amount it can be increased annually is limited by Proposition 2.5. This makes increasing revenue to add service difficult without the ability to raise revenue.	Work with RTAs across the state to allow regional ballot initiatives, which would allow towns to generate dedicated revenue for transit. Advocate for state contract assistance to include automatic inflators.	✔				Medium	High
Inclusion of transit in land use decisions, development, redevelopment, and roadway projects	Transit is often considered an afterthought, and while service is desired, it can be challenging when not considered in the design. Concerns often experienced are inadequate pavement to handle heavy loads, narrow turning radii, lack of ability to safely deploy a wheelchair ramp, and illogical routing requirements.	Work with local communities and MassDOT to include GATRA in the review of all projects during preliminary design phases to make sure it considers transit access and requirements in addition to stop amenities.	✔				Medium	Medium

| Need | Rationale | Recommendation | Scenarios | | | | Complexity | Impact |
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Route level mileage	Route level mileage was not readily available for Attleboro/Taunton routes and had to be calculated. Having mileage data will help with performance monitoring of the routes.	Track mileage at the route level for all bus routes. Require contractors to submit a breakdown of mileage by route with each monthly invoice.	✔				**Low**	**Low**
Data-driven framework for determining service levels	Enhanced performance management system to support an enterprise-wide data-driven and performance-focused management and decision-making framework.	Identify technology-driven data tools and key performance metrics, particularly in the service and financial performance areas. Utilize these tools to establish an improved enterprise-wide data-driven performance-focused management and decision-making framework; implement a public-facing and transparent performance reporting mechanism.	✔				**Medium**	**High**

| Need | Rationale | Recommendation | Scenarios | | | | Complexity | Impact |
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Enforcement of contract obligations	While the contracts do have punitive measures for liquidated damages, GATRA does not routinely enforce this segment on the contract.	Begin monitoring contractual obligations for reporting and performance and assess penalties as outlined.	✔				Low	Low

8.10 Other Recommendations

Other recommendations have a varying complexity level with medium to high impacts and low to medium costs (Table 55). As state and federal reporting increases and technology is procured that allows GATRA to better track performance, new staff members are needed to help with service planning and IT. To reduce costs GATRA could jointly hire a position with other RTAs having a similar need or hire a consultant to help on an as-needed basis. One of the greatest needs identified in the public outreach not previously identified was the need for improved educational awareness of GATRA's service. Creating accurate brochures about demand response, creating a cohesive schedule design, improving communication, and providing information such as "how to ride guides" or promotional videos can go a long way with not only raising awareness of the various GATRA services but how to use them.

Having varying operators means that there are varying training programs used, and while some are state standards and require certain refreshers, it still varies among operators. Programs like RTAP and CTAA have online toolkits and trainings available that GATRA could use to build a program that the COAs could use that goes above and beyond minimal requirements and includes things like managing difficult passengers, sensitivity training, customer service, and safety culture.

Table 55. Other Recommendations

			Scenarios					
Need	**Rationale**	**Recommendation**	**Core Need**	**Low Ridership**	**Medium Ridership**	**High Ridership**	**Complexity**	**Impact**
Rider education programs	GATRA does have a How to Ride section of the website but would benefit from additional material that could be pushed through social media accounts and shared with various communities.	Create simple how to read a bus schedule graphics, one-page attractive flyers about how to use the service that promotes the existing apps, and website trip planner. Develop education videos.	✔				**Low**	**Medium**

Need	Rationale	Recommendation	Scenarios				Complexity	Impact
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Proactive dispatch	For return will-call pick-ups, the dispatcher currently does an all-call to drivers to determine who has space in their schedule. Not all drivers respond even if space is available.	Dispatch should proactively assign the trip based on schedule availability and proximity instead of relying on drivers to state availability.	✔				Low	Medium
Improved communications about vehicle cleanliness	The cleanliness of vehicles was the top concern for riders regarding COVID-19.	GATRA has a cleaning protocol in place but could create material that could be placed on the website and social media highlighting it.	✔				Low	Medium

| Need | Rationale | Recommendation | Scenarios | | | | Complexity | Impact |
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Provide demand response service information for each town that includes service hours, days of service and towns served	Current information on the website does not state the hours or days of service for each town or which communities riders can travel to demand response with. If no major medical facility exists, trips should be provided at least once a week to the nearest facility. The same applies to grocery stores and/or major retail outlet.	Create brochures/schedules for demand response in each town showing the fare, service hours, and which communities they connect to.				✔	Low	Medium

| Need | Rationale | Recommendation | Scenarios | | | | Complexity | Impact |
			Core Need	Low Ridership	Medium Ridership	High Ridership		
IT position	Due to the number of contractors and various technology, GATRA would benefit from an IT person who could create reports that pull from the various IT systems and better allow GATRA to monitor service. The individual would be responsible for maintaining all IT systems.	Hire an IT person; consider a joint procurement with FRTA who also has this need.	✔				**Medium**	**High**
Driver route committee	As the eyes and the ears on the road for GATRA, drivers have unique insight into what is and is not working. Their input into route changes is valuable.	Establish a driver route committee.	✔				**Medium**	**Medium**

			Scenarios					
Need	**Rationale**	**Recommendation**	**Core Need**	**Low Ridership**	**Medium Ridership**	**High Ridership**	**Complexity**	**Impact**
Driver room	PTM operated services are in need of a space where drivers can quietly and discreetly report issues.	Identify an unused space that can be used. A computer should be put in along with forms that drivers can fill out to report incidents.	✔				**Low**	**Low**
Service standards and benchmarks	Route level service standards and benchmarks will help GATRA make future decisions about when to alter service.	Establish service guidelines that outline spans, frequencies, benchmarks, and what to do when a route is not meeting or largely surpassing benchmarks.	✔				**Low**	**Low**
Data analyst	As AVL and APC technology is installed, there will be a need to analyze and monitor the data in order to make informed decisions.	Hire a part-time person to handle data, performance reporting, and service analysis and planning. This could be a shared position with another RTA, part-time employee, or consultant.	✔				**Low**	**Medium**

Need	Rationale	Recommendation	Scenarios				Complexity	Impact
			Core Need	Low Ridership	Medium Ridership	High Ridership		
Improved schedule design	Schedules for the Attleboro/Taunton route have been updated and are simple, easy to read, and cohesive but the remaining route schedules are not. Creating a single design will help market GATRA services as one system.	Update schedule design.			✔		**Low**	**Medium**
Consistent training for COAs	Training programs are needed to ensure consistent practices among operators with refresher annually.	Develop a training program that COAs can deploy. Consider online trainings through CTAA to RTAP eLearning's.	✔				**Low**	**Low**

8.11 Recommendation Ranking

Recommendations were ranked based on complexity and impact. In several cases the category of the recommendation may not meet the need such as the need for automatic announcements technology, but the recommendation is geared toward capital replacement and establishing a policy for warranties. In these cases the recommendation falls into multiple categories and has been identified using the icons. Other examples include service changes that require technology, capital recommendations that establish a policy to monitor or explore an element, or a recommendation that would impact both fixed route and demand response users.

Based on the results of the scoring, each recommendation was given a priority of one to five with those with a priority one to occur sooner as they have the greatest impact and are the least complex to implement. Overall, 56 unique recommendations were identified, with the greatest majority being priority two (Figure 63).

Figure 63. Unique Recommendations

Priority 1 — 11
Priority 2 — 24
Priority 3 — 17
Priority 4 — 3
Priority 5 — 1

8.11.1   Priority One

There are 11 priority one recommendations, of which 6 are core needs (Table 56). System redesign can be implemented in phases for the fixed routes. Changes to the Attleboro routes should be done first as these routes have the tightest schedules and run behind schedule the most. Phase two should be the changes to the Taunton routes and Route 18 as the system connects with the Attleboro routes. Phase three should be the Wareham routes and phase four the Plymouth routes, including the South Plymouth microtransit. Due to the pandemic many of the routes in the west are either not operating or at a very reduced schedule. These routes could be converted to microtransit effectively as GATRA GO is currently operating but has capacity to provide additional trips.

Table 56. Priority One Recommendations

Category	Scenario	Recommendation	Other Requirements
	Core Need	System redesign	N/A
	Core Need	Evaluate AVL system to identify performance issues and recalibrate.	N/A

Category	Scenario	Recommendation	Other Requirements
	Core Need	Create simplified graphics on how to read a bus schedule, one-page attractive flyers about how to use the service that promotes the existing apps, and website trip planner. Develop education videos.	N/A
	Core Need	Dispatch should proactively assign the trip based on schedule availability and proximity instead of relying on drivers to state availability.	N/A
	Core Need	Consider converting one of the numerous parking lots in downtown to a hub or creating multimodal hub at the Plymouth Rail station. A feasibility study is needed.	N/A
	Core Need	Launch mobile fare payment system-wide to reduce cash handling. Begin by implementing a cloud-based system that requires no upfront hardware but utilizes visual validation. Eventually install readers on all PTM operated fixed routes.	RFP must be developed
	Low Ridership	GATRA has a COVID cleaning protocol in place but could create material that could be placed on the website and social media highlighting it.	
	Medium Ridership	Where possible add designated bus stops and reduce flag stop zones. In flag stop zones add more route markers to indicate that the route travels along that road. Create a bus stop guidelines document that outlines the process for establishing a stop and any amenities.	Coordination with municipalities
	Medium Ridership	Create brochures/schedules for demand response in each town showing the fare, service hours, and which communities they connect to.	N/A
	High Ridership	Instituting IVR would send a notification the night before to individuals reminding them of their trip scheduled the next day. This would reduce no-shows and late cancellations, which impacts scheduling. The IVR can also be used to push messages to passengers that the vehicle will arrive in a certain number of minutes. This will reduce the anxiety around not knowing when the trip will be.	Technology needs to be procured

Category	Scenario	Recommendation	Other Requirements
	Medium Ridership	GATRA will continue to work with MBTA to identify changes in commuter rail level of service, schedule, ridership, etc.	MassDOT RTA Task Force

8.11.2   Priority Two

There are 24 priority two recommendations, of which 16 are core needs (Table 57). Priority two recommendations include adding service, developing policies, supporting initiatives, obtaining new technology, exploring new facilities, enforcing contracts, hiring new positions, and completing additional studies to better identify solutions.

Table 57. Priority Two Recommendations

Category	Scenario	Recommendation	Other Requirements
	Core Need	Identify technology-driven data tools and key performance metrics, particularly in the service and financial performance areas. Utilize these tools to establish an improved enterprisewide data-driven performance-focused management and decision-making framework; implement a public-facing and transparent performance reporting mechanism.	MassDOT RTA Task Force
	Core Need	Add Sunday service 10:00 AM to 6:00 PM on select routes.	Additional operators needed
	Core Need	Expand service to 9:00 PM on weekdays and 7:30 PM on Saturdays for select routes.	Additional operators needed
	Core Need	Reduce the number of operators by creating zones that cover numerous towns. Each zone should have a connection to at least one fixed route that can be used to access areas outside of the zone. This would increase connection options.	N/A
	Core Need	Support the redevelopment of the 26-acre site in Attleboro as TOD with amenities for GATRA routes and access.	N/A
	Core Need	Continue pursuing a new operating facility in Plymouth and secure funding.	Final design is needed
	Core Need	A new system for demand response scheduling (NBSS) has been procured but not implemented yet.	N/A

Category	Scenario	Recommendation	Other Requirements
	Core Need	Investigate the cause of the tablets not working properly for PTM Attleboro/Taunton demand response operators.	N/A
	Core Need	Create a bus stop inventory.	N/A
	Core Need	Create a standard sheet that must be filled out monthly with the needed service information and tie it back to the contract and invoicing. This would work best with the COAs and smaller operators. With PTM work together to create an outline of needed monthly information by mode and standardize the process into a single report.	N/A
	Core Need	Eliminate 3-day passes.	N/A
	Core Need	Hire an IT person; consider a joint procurement with FRTA who also has this need.	RTA coordination
	Core Need	Establish a driver route committee.	N/A
	Core Need	Identify an unused space that can be used for operators to report issues. A computer should be put in along with forms that drivers can fill out to report incidents.	N/A
	Core Need	Establish service guidelines that outline spans, frequencies, benchmarks, and what to do when a route is not meeting or largely surpassing benchmarks.	N/A
	Core Need	Hire a part-time data analyst position to handle data, performance reporting, and service analysis and planning. This could be a shared position with another RTA, part-time employee, or consultant.	RTA coordination
	Medium Ridership	Implement Saturday service on GATRA GO.	Additional operators
	Medium Ridership	Update the schedules design so that all are cohesive presenting the same information.	N/A

Category	Scenario	Recommendation	Other Requirements
	High Ridership	Route 10 has the highest ridership, by combining Routes 10 and 12 and creating circular routes in each direction it will effectively increase the frequency on the corridors served. Frequency improved on Route 18 to 60 minutes; frequency was the top concern on this route that had one of the higher survey response rates.	Additional operators may be needed
	High Ridership	The survey did not identify a demand for connection to Fall River at the moment. A targeted study should be conducted to better understand the need. If such a route were developed GATRA could apply for intercity bus funding to operate it.	N/A
	High Ridership	The survey did not identify a demand for connection to Brockton at the moment. A targeted study should be conducted to better understand the need. If such a route were developed, GATRA could apply for intercity bus funding to operate it.	N/A
	High Ridership	The survey did not identify a demand for connection to Fall River at the moment. A targeted study should be conducted to better understand the need. If such a route were developed, GATRA could apply for intercity bus funding to operate it.	N/A
	High Ridership	Upgrade customer service to allow for the purchase of passes with credit/debit cards.	N/A
	High Ridership	Work with RTAs across the state to allow regional ballot initiatives, which would allow towns to generate dedicated revenue for transit. Advocate for state contract assistance to include automatic inflators.	RTA coordination

8.11.3   Priority Three

There are 17 priority three recommendations, of which 11 are core needs (Table 58). Many of these build on phase two recommendations but are either more complex to implement or would have less of an impact.

Table 58. Priority Three Recommendations

Category	Scenario	Recommendation	Other Requirements
	Core Need	Procure a new AVL system with MDTs. Consider a joint procurement with MVRTA, MART, and VTA who are also looking to procure a new system.	RFP must be developed
	Core Need	Work with local communities and MassDOT to include GATRA in the review of all projects during preliminary design phases to make sure it considers transit access and requirements in addition to stop amenities.	Local coordination
	Core Need	Link 1 has the highest ridership among the Wareham Route because it serves downtown Wareham. Relocating the hub to this location in the vicinity of the train station will create a true multimodal system in an area that is highly utilized.	Local coordination
	Core Need	Continue pilot program and expand to all COAs once kinks have been worked out. The centralized location could schedule and batch and the trips and send over the manifests daily to the COAs until MDTs or tablets can be installed and tested on all vehicles. COAs would then update any trip changes (no-shows, lates, etc.) daily in the system. With the trips scheduled into the system, the COAs would no longer need to report as much information monthly.	N/A
	Core Need	Prioritize bike rack placement at stops through new guidelines for bus stops.	N/A
	Core Need	Create a guideline for establishing bus stop infrastructure; develop a capital improvement plan. Develop a priority list for stops to install benches and shelters at. Locations that service high elderly and disabled densities should be given preference.	N/A
	Core Need	Complete electric bus study.	N/A
	Core Need	The RTAs should do a joint procurement for a new fare system that includes a mobile payment option, items such as fare capping, and multiple outlets to procure smart cards.	RFP must be developed

Category	Scenario	Recommendation	Other Requirements
	Core Need	Track mileage at the route level for all bus routes. Require contractors to submit a breakdown of mileage by route with each monthly invoice.	N/A
	Core Need	Begin monitoring contractual obligations for reporting and performance and assess penalties as outlined.	N/A
	Core Need	Develop a training program that COAs can deploy. Consider online trainings through CTAA to RTAP eLearning's.	N/A
	Low Ridership	Convert many of the commuter shuttles to microtransit zones, therefore eliminating the need to adjust schedules each time the commuter rail adjusts. The zones can be expanded to provide service to other areas in the communities.	N/A
	High Ridership	Add a mid-day trip between Wareham and New Bedford.	N/A
	High Ridership	Establish a volunteer driver program to expand long distance trips.	N/A
	High Ridership	Pilot a same day service by partnering with taxi and TNC companies and subsidizing part of the trip where a microtransit program does not exist. Work with a local taxi company to procure WAV. The taxi/TNC program can be used to also provide after hour service, provide weekend service, and connect regions for all.	RFP must be developed; requires new technology
	High Ridership	COAs to report monthly the trip denials until a centralized scheduling/dispatcher center is created.	N/A
	High Ridership	It is not cost effective to install electronic fareboxes on all vehicles because of the operating requirements. Instead consider an open payment system and/or mobile payment that is integrated into the larger systemwide fare collection system.	RFP must be developed; requires new technology

8.11.4   Priority Four

There are three priority four recommendations, of which two are core needs (Table 59). All three are technology related and would require going through a procurement process to obtain new capital equipment.

Table 59. Priority Four Recommendations

Category	Scenario	Recommendation	Other Requirements
	Core Need	Jointly procure an APC system with the other RTAs for installation on all Attleboro, Taunton, Wareham, and Plymouth routes. Consider a joint procurement with FRTA, MART, and VTA who are also considering this technology.	RFP must be developed
	Core Need	Procure fixed route scheduling system. Consider a joint procurement with MVRTA and LRTA who are also looking to procure a new system.	RFP must be developed
	High Ridership	Procure radio system for demand response with repeaters that provide coverage over the entire service area. FRTA, MART, and CCRTA are also looking to do a joint procurement.	RFP must be developed

8.11.5   Priority Five

There is one priority five recommendation, which is to explore the feasibility of implementing transit signal priority along congested corridors (Table 60).

Table 60. Priority Five Recommendations

Category	Scenario	Recommendation	Other Requirements
	High Ridership	Examine the possibility of implementing transit signal priority on congested corridors.	Municipal coordination required

Appendix A Illustrative FY 2015–FY 2019 Performance Results

To provide historical context for GATRA performance since the 2015 CRTP, this appendix provides information on GATRA systemwide performance for fixed route and demand response modes for FY 2015 through FY 2019 (FY 2020 and FY 2021 results are covered under the Bilateral GATRA/MassDOT MOU discussed in Chapter 6.

Performance Evaluation

This appendix evaluates the performance of the system and each route.[46] Five data sets were collected from FY 2019 records to analyze service effectiveness and financial performance: ridership statistics, revenue hours, revenue miles, operating cost, and revenue generated (Table 61).

Table 61. 2019 Operating Statistics by Route

Route	Ridership	Revenue Hours	Revenue Miles	Operating Cost	Revenue Generated
Route 1	17,412	1,841	37,570	$201,840	$12,711
Route 6	30,451	3,122	63,724	$342,347	$22,229
Route 7	39,464	2,062	42,078	$226,060	$28,809
Route 8	9,885	4,124	84,157	$452,121	$7,216
Route 9	9,885	761	15,534	$83,454	$7,216
Route 10	56,734	4,112	83,910	$450,793	$41,416
Route 11	31,408	2,327	47,496	$255,166	$22,928
Route 12	38,136	2,433	49,647	$266,722	$27,839
Route 14	31,516	2,959	60,392	$324,445	$23,007
Route 15	7,183	577	11,780	$63,285	$5,244
Route 16	29,293	2,251	45,942	$246,817	$21,384
Route 18	35,487	4,056	82,770	$444,668	$25,906
Route 24	25,120	2,756	56,242	$302,152	$18,338
Route 140	20,063	4,626	94,414	$507,228	$14,646
Link 1	30,287	2,903	40,935	$185,628	$13,326
Link 2	20,074	2,640	36,433	$168,805	$8,833
Link 3	857	402	7,843	$25,717	$377
Link 4	16,145	1,860	36,633	$118,918	$7,104

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[46] Due to how data are reported, and the various sources, system totals may vary from previous tables.

Route	Ridership	Revenue Hours	Revenue Miles	Operating Cost	Revenue Generated
SAIL	33,190	6,666	134,683	$422,178	$19,914
Mayflower Link	28,430	5,781	130,878	$366,115	$17,058
Freedom Link	30,732	3,191	53,514	$202,092	$18,439
Liberty Link	33,708	3,439	57,677	$217,813	$20,225
Manomet to Cedarville	11,218	2,889	50,525	$182,963	$6,731
Medway T Shuttle	7,337	1,260	13,470	$55,867	$8,458
Franklin Area Bus	9,681	3,124	50,232	$190,717	$5,109
Downtown Middleborough Area Shuttle	7,381	1,848	24,414	$92,088	$7,437
Pembroke Shuttle/Boston Hospital Bus	1,455	1,434	12,383	$89,515	$1,888
Bellingham T Shuttle	2,850	1,388	16,388	$71,562	$5,287
Wareham – Lakeville MBTA Connector	5,097	1,848	48,541	$7,879	$519
Tri-Town Connector	3,514	3,694	67,021	$211,112	$1,478
Foxborough MBTA Commuter Shuttle *	24,599	1,656	6,430	$60,282	$0
SLOOP	8,993	3,769	49,338	$229,683	$4,701
Wareham-New Bedford Connection	3,475	3,475	23,699	$101,855	$7,881
Wareham-Plymouth Connection	957	598	11,225	$37,880	$574
Mansfield T Connector	7,514	3,059	27,141	$175,274	$13,069
Middleborough / Taunton Connection	1,068	601	8,715	$23,545	$2,908
GATRA GO Microtransit**	2,340	1,711	10,356	$133,743	$243

Route	Ridership	Revenue Hours	Revenue Miles	Operating Cost	Revenue Generated
Attleboro/Taunton DAR	115,165	43,665	598,941	$3,119,864	$145,108
Bellingham DAR	14,088	5,862	128,360	$159,316	$17,120
Carver DAR	8,157	5,623	89,488	$150,946	$10,875
Duxbury DAR	7,436	3,270	38,928	$125,357	$9,948
Hanover DAR	5,116	2,675	23,485	$112,367	$763
Kingston DAR	8,087	3,113	50,222	$102,441	$15,453
Lakeville DAR	2,887	1,505	19,234	$38,968	$2,827
Mansfield DAR	7,909	4,052	42,676	$228,842	$14,303
Marshfield DAR	6,617	2,230	33,532	$116,009	$12,187
Medway DAR	1,794	1,322	7,854	$69,943	$2,690
Middleborough DAR	10,175	4,040	43,831	$17,571	$15,042
Pembroke DAR	9,143	3,837	43,541	$142,840	$15,456
Plainville DAR	3,890	1,652	12,699	$41,733	$5,453
Plymouth DAR	36,567	14,491	218,301	$833,522	$39,759
Scituate DAR	6,580	1,690	15,749	$126,487	$9,935
Southwest Service Area DAR***	19,999	3,228	40,791	$230,641	$25,199
Wareham DAR	18,211	8,649	107,175	$497,490	$19,801
Wrentham DAR	4,127	1,289	9,071	$46,146	$5,951
United Community DAR***	22,491	18,725	173,672	$813,089	$17,006
Total****	**981,378**	**228,161**	**3,391,680**	**$14,511,901**	**$835,324**

Source: Information provided from various GATRA sources, including annual reports, financial statements, and service data

*Foxborough MBTA Commuter Shuttle is a fare-free service provided to passengers and does not generate revenue.

**GATRA GO microtransit data were only available for the months of July to December 2019.

****Data incorporate multiple demand response service areas.*

****Totals may vary slightly due to different data sources utilized.

On-Time Performance

GATRA collects data in regard to its OTP. While the agency does not have a formal definition of OTP for bus routes, it often looks at data to see where a bus is at any given time and whether it is early or late. OTP data were not available because the agency is conducting a study to evaluate OTP data challenges. The study will examine current OTP data challenges, such as data aggregation, from the different transit operators who all have their own methodologies for storing and reporting OTP data. The study will also analyze existing challenges with aging OTP software and hardware and identify opportunities for improvement. The study is estimated to be completed in the fall of 2020.

Between FY 2015 and FY 2019 the percentage of scheduled bus route trips that operated were between 98.1 percent and 100 percent (Figure 64). Trips that operated as scheduled declined slightly in FY 2018 but rose again in FY 2019. GATRA defines demand response OTP as a ride that arrives 15 minutes before or 15 minutes after the scheduled pick-up time. Demand response trips operated as scheduled between 99.2 percent and 100 percent of the time between FY 2015 and FY 2019 (Figure 65).

Figure 64. Percentage of Scheduled Trips Operated - Bus Routes (FY 2015–FY 2019)
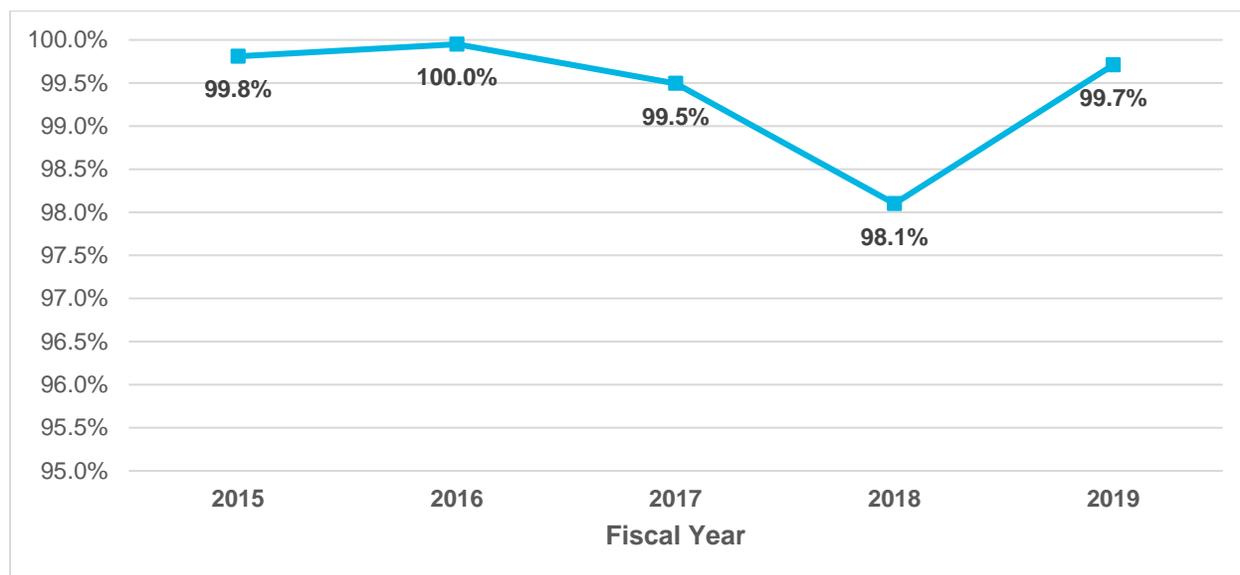
Source: MassDOT BlackCat, FY 2015-2019

Figure 65. Percentage of Scheduled Trips Operated - Demand Response (FY 2015–FY 2019)
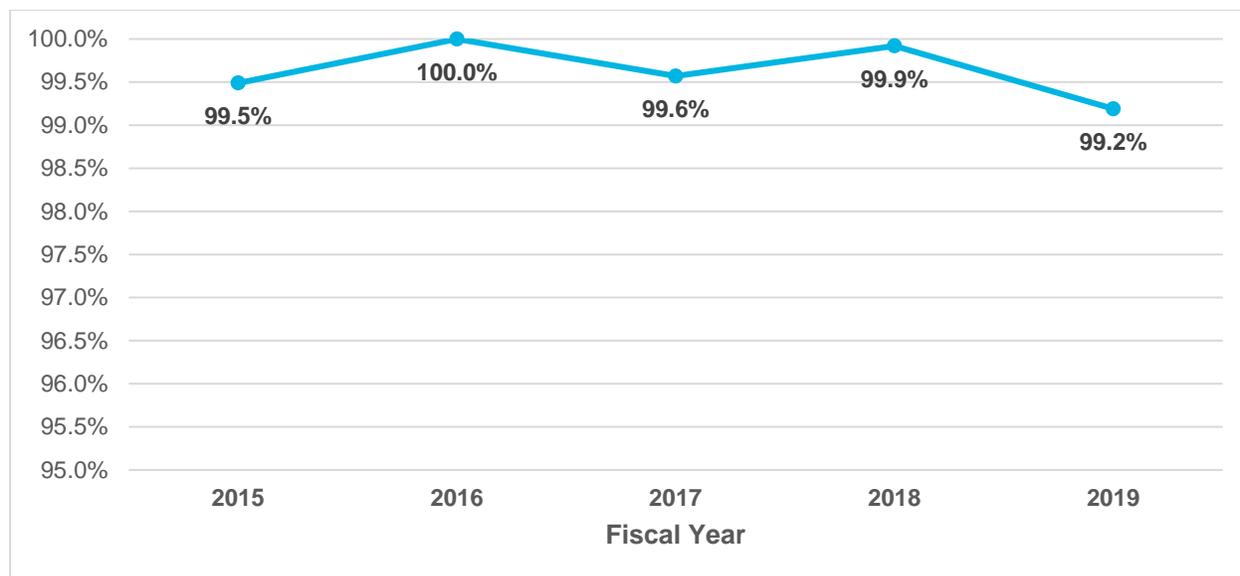
Source: MassDOT BlackCat, FY 2015-2019

Service Effectiveness

Service effectiveness or productivity describes the amount of service utilized per unit of transit service provided. Service effectiveness is measured based on two indicators: passengers per mile and passengers per hour.

- **Passengers per mile is a measure of efficiency and trip length**. Large numbers indicate shorter passenger trips. Smaller numbers indicate either longer trips, where passengers are traveling greater distances, or poorer performing routes.

- **Passengers per hour measures ridership as a function of the amount of service provided** and varies based on the geographic spread of the area and average operating speed. Higher numbers indicate a more efficient system.

Bus Route Productivity

Bus route productivity for passengers per mile and passengers per hour is summarized in Table 62. GATRA bus routes averaged 0.40 passengers per revenue mile in 2019, which is below both the state average (1.37) and the national average (2.26). Only one bus route, the Foxborough MBTA Commuter Shuttle (3.83), exceeded the state and national averages, while all the other bus routes were below 1.0 passenger per mile (Figure 66). Utilizing the bus route average of 0.40, 19 bus routes met or exceeded the passengers per mile average with the fixed routes generally performing the best in comparison to in-town shuttles and commuter shuttles.

Table 62. Bus Route Productivity (2019)

Measure	Passengers/Mile	Passengers/Hour
System Average	0.40	7.21
Massachusetts Average (excludes MBTA)	1.37	18.39
National Average	2.26	27.21

On average, GATRA's average 7.21 passengers per revenue hour is significantly below the state average of 18.39 and national average of 27.21 passengers per hour. Bus routes in Attleboro and Taunton have the highest number of passengers per hour, which is likely attributed to the highly populous area in which these routes operate. The route with the fewest number of passengers per hour is the Tri-Town Connector (Figure 67). In general, fixed routes carry the highest number of passengers per revenue hour and the commuter shuttles and in-town shuttles the lowest.

Average speed on a route also effects service efficiency (Table 63). In general, GATRA's bus routes have an average operating speed of 17.47 miles per hour. The Wareham – Lakeville MBTA Connector has the greatest average operating speed (26.27 miles per hour), while the Foxborough Commuter Shuttle has the lowest average (3.88 miles per hour). The bus routes in Attleboro and Taunton have the same average operating speed of 20.41 miles per hour because revenue hours are estimated based on 4.9 percent of revenue miles thus always leading to the same speed of 20.41 miles per hour.

Table 63. Bus Route Operating Speed

Bus Route	Average Operating Speed (miles per hour)
Wareham – Lakeville MBTA Connector	26.27
Mayflower Link	22.64
Attleboro and Taunton Numbered Routes	20.41
SAIL	20.20
Link 4	19.70
Link 3	19.50
Wareham-Plymouth Connection	18.77
Tri-Town Connector	18.14
Manomet to Cedarville	17.49
Freedom Link	16.77
Liberty Link	16.77
Franklin Area Bus	16.08
Link 1	14.10
Link 2	13.80
Middleboro Downtown Shuttle	13.21
SLOOP	13.09
Bellingham Shuttle	11.81
Medway T Shuttle	10.69
Pembroke Shuttle	8.64
Wareham-New Bedford Connection	6.82

Bus Route	Average Operating Speed (miles per hour)
Foxboro Shuttle	3.88

Demand Response Productivity

GATRA demand response service averaged 0.18 passengers per mile in 2019, which is above the state and national averages (Table 64). The Southwest Service Area DAR, SLOOP, Plainville DAR, Mansfield T Connector, Middleborough DAR, Medway DAR, and GATRA GO microtransit service are much higher than the demand response average. The Southwest Service Area DAR had the highest number of passengers per mile at 0.49, and the Wrentham DAR and Carver DAR had the least number of passengers per mile at 0.02 and 0.09, respectively (Figure 68).

GATRA's demand response productivity averaged 2.34 passengers per hour in 2019, which is above both the state and national averages (Table 64). The Southwest Service Area DAR had the highest number of passengers per hour at 6.20, and the Wrentham DAR had the lowest number of passengers per hour at 0.31 (Figure 69). In general, demand response services, which are provided by PTM and the COAs, had more passengers per hour than services operated by A&A Metro and Kiessling Transit.

Table 64. Demand Response Productivity (FY 2019)

Measure	Passengers per Mile	Passengers per Hour
GATRA System Average	0.18	2.34
Massachusetts Average*	0.15	2.13
National Average	0.13	1.97

Source: Calculations based on GATRA ridership data

*Massachusetts average excludes MBTA, CCRTA, and MART.

Figure 66. Bus Route Passengers per Mile (FY 2019)
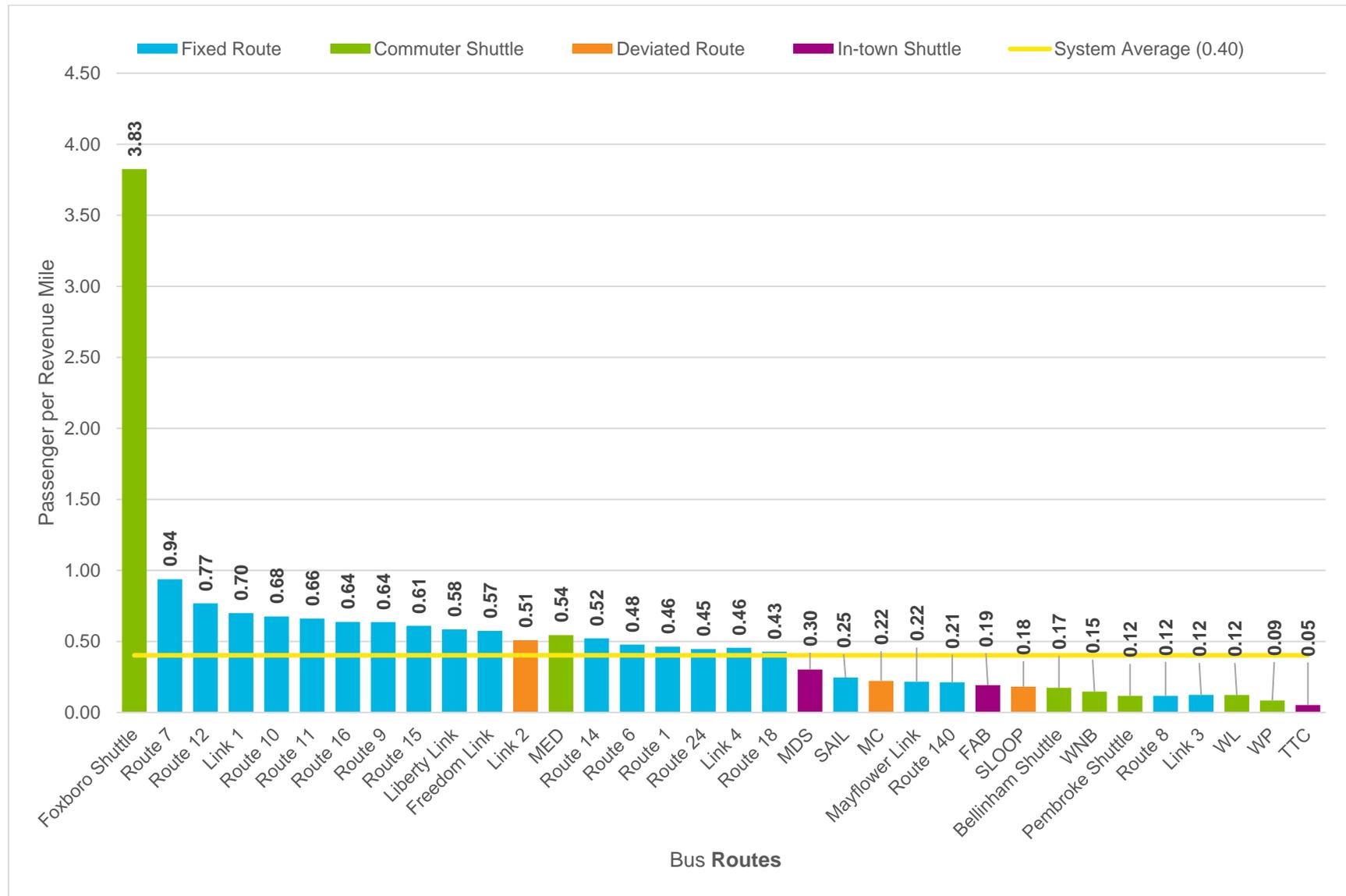
Source: Calculations based on GATRA ridership and revenue miles data

Figure 67. Bus Route Passengers per Hour (FY 2019)
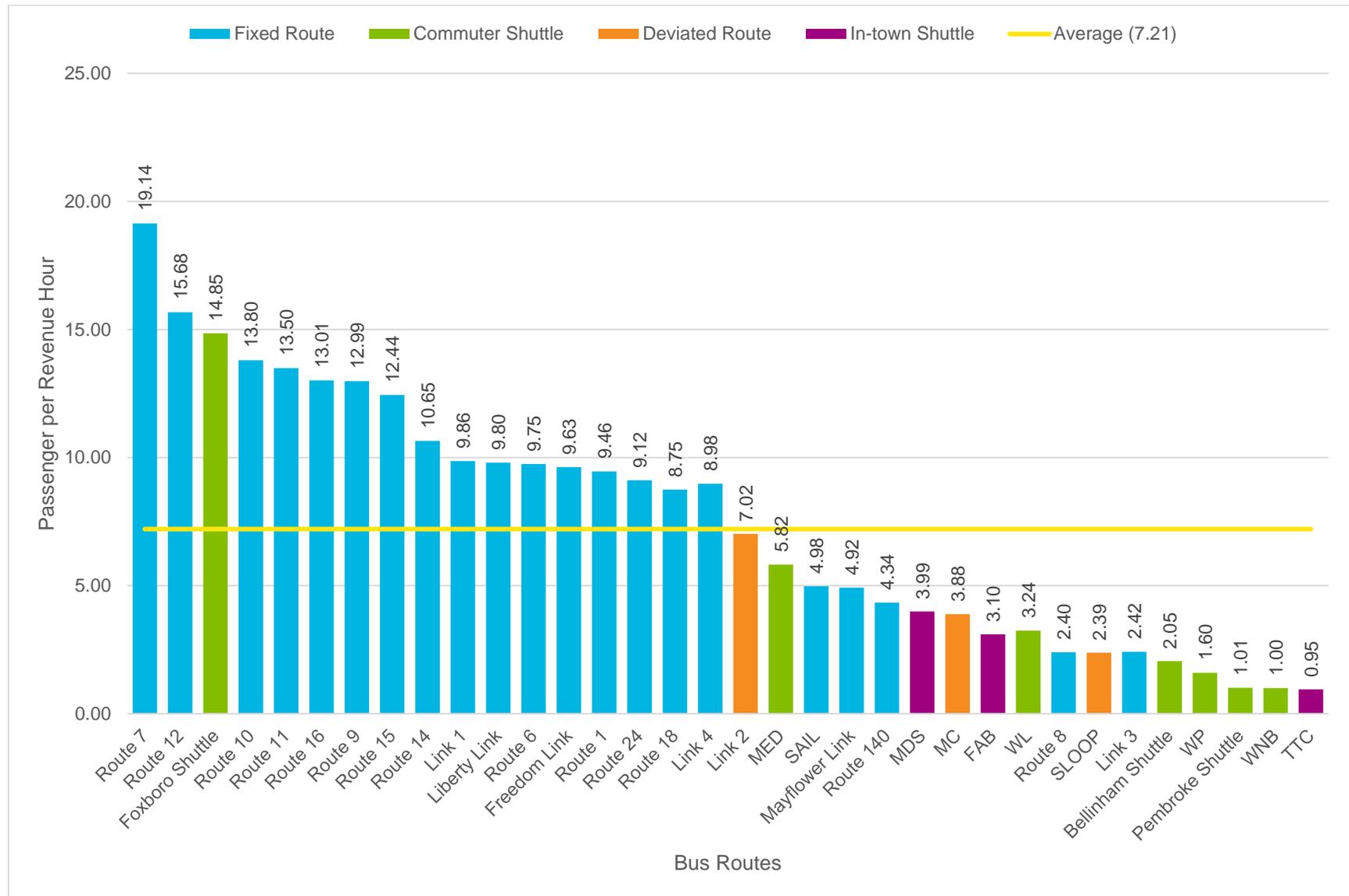
Source: Calculations based on GATRA ridership and revenue miles data

Figure 68. Demand Response Productivity - Passengers per Mile (FY 2019)
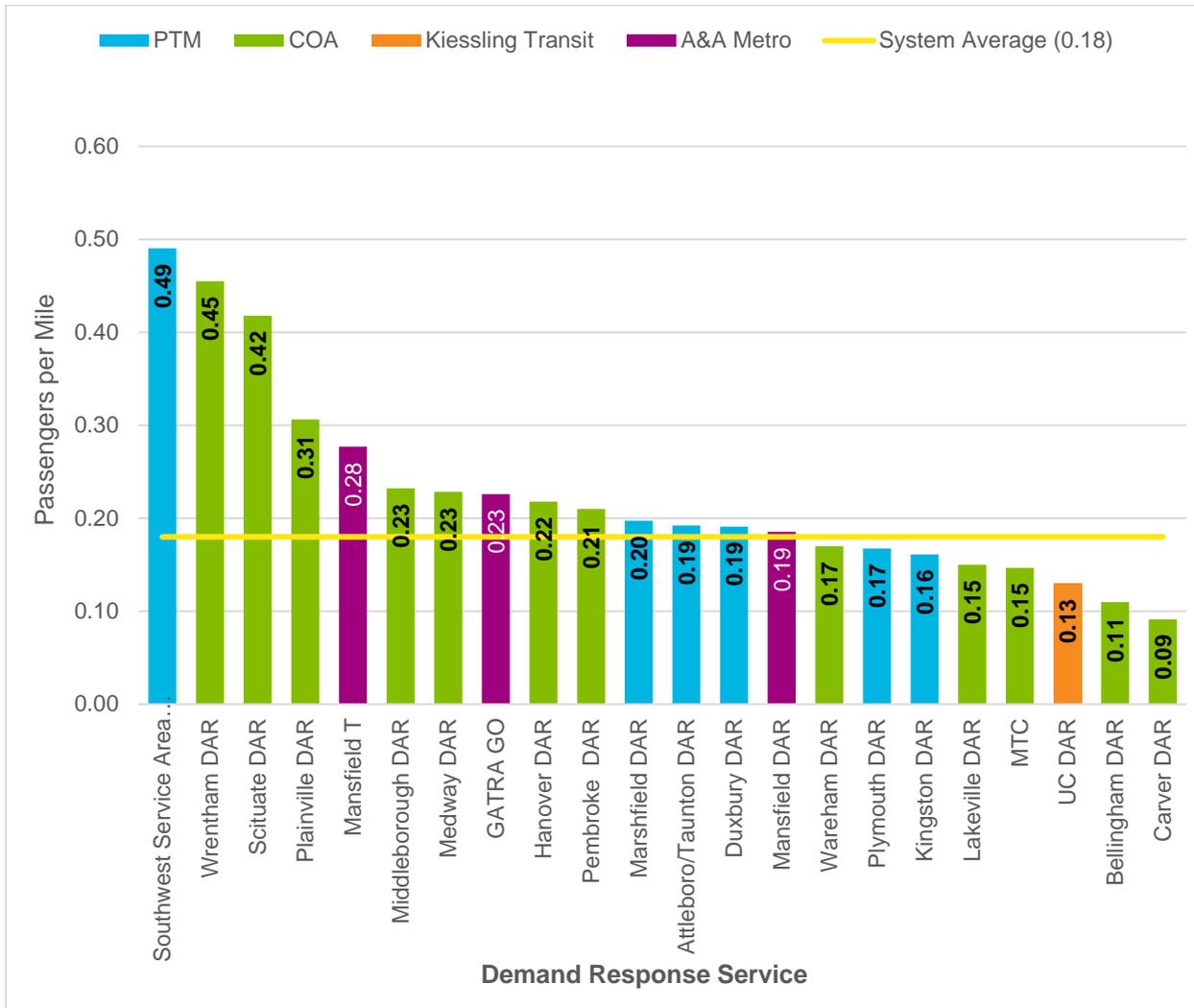
Source: Calculations based on GATRA ridership data

Figure 69. Demand Response Productivity - Passengers per Hour (FY 2019)
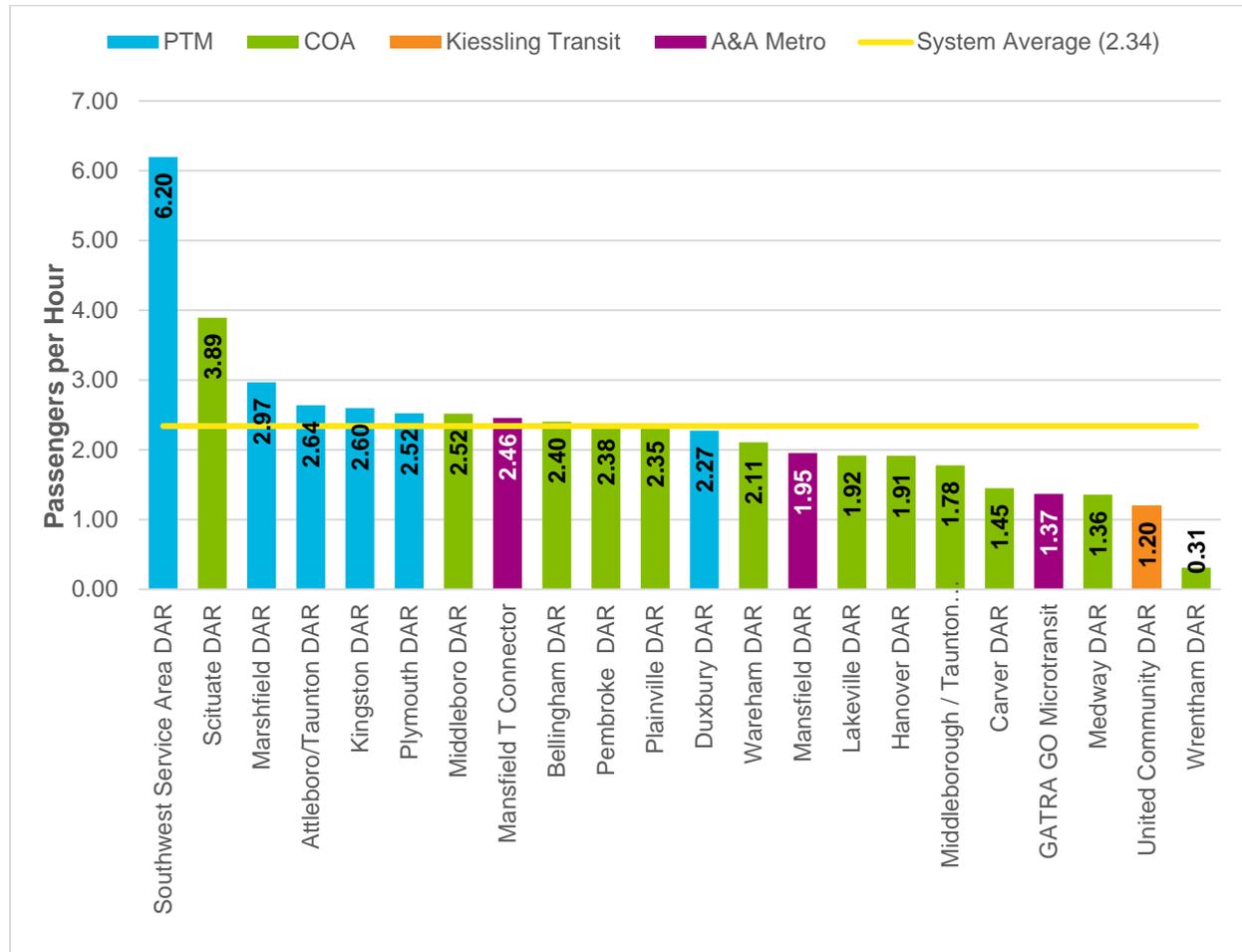
Source: Calculations based on GATRA ridership data

Financial Performance

Cost effectiveness measures the effectiveness of the system from a financial standpoint – how well the dollars put into the system are being used to produce trips. The cost effectiveness indicators are cost per passenger, cost per mile, cost per hour, farebox recovery, and subsidy per passenger.

- **Cost per mile** is the total cost of operating a route divided by the number of revenue miles. A smaller number indicates more financial efficient routes and/or faster operating speeds.

- **Cost per hour** is the total cost of operating a route divided by the number of revenue service hours. A smaller cost per hour a smaller number indicates more efficient routes and/or faster operating speeds.

- **Cost per passenger** is the overall cost to operate a route divided by the number of passengers.

- **Subsidy per passenger** is the total cost of operating a route minus fare revenue divided by the number of passengers. This measures the amount of government subsidy requied for each passenger carried. As such, subsidy per passenger is a function of operating cost, ridership, and fare revenue.

- **Farebox recovery** measures the percent of operating cost covered by fares and is an outcome heavily influenced by ridership and fare policy.

Bus Route Financial Efficiency

In 2019, on average, GATRA's bus routes had lower averages than the state and nation in cost per mile and cost per hour (Table 65). GATRA's cost per passenger and subsidy per passenger are almost three times higher than the state and the nation. GATRA also has a lower farebox recovery percentage comparatively. This indicates that GATRA has relatively low operating costs but also low ridership.

Table 65. Bus Route Financial Performance (FY 2019)

| Route	Cost/ Mile	Cost/ Hour	Cost/ Passenger	Subsidy/ Passenger	Farebox Recovery
Bus Average	$4.37	$78.43	$10.88	$10.23	6.0%
Massachusetts Average*	$7.24	$97.20	$5.29	$4.47	15.4%
National Average	$11.15	$133.99	$4.92	$3.83	22.08%

Source: NTD; GATRA

*Massachusetts average excludes MBTA.

GATRA's cost per hour for bus routes averaged $78.43 in FY 2019, which is substantially lower than both the state and national averages of $97.20 and $133.99, respectively. The Attleboro and Taunton bus routes (Routes 1, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 18, 24, and 140) had similar costs per hour and were the highest costs across the bus route system. However, despite having higher costs on a system level, the average cost is still lower than the state average. The Wareham-Lakeville MBTA Connector had the lowest cost per hour at $4.26 (Figure 70). The cost per hour for Attleboro and Taunton routes was the same across all routes because they all have the same operator.

The Foxborough MBTA Commuter Shuttle had the highest cost per mile ($9.38) in FY 2019, followed closely by the Pembroke Shuttle ($7.23) (Figure 71). The Wareham-Lakeville MBTA Connector, a similar service, had the lowest cost per mile at $0.16. Both the Foxborough MBTA Commuter Shuttle and Pembroke Shuttle had relatively slower operating speeds compared to other routes, which can result in a higher cost per mile. The cost per mile for Attleboro and Taunton routes does not vary by route..

The bus route system averaged $10.88 per passenger in FY 2019, which is more than double the state and national averages of approximately $4.50. Only two routes outperformed the state and national averages: the Wareham-Lakeville MBTA Connector and the Foxborough MBTA Commuter Shuttle. The Pembroke Shuttle ($61.52) and the Tri-Town Connector ($60.08) had the highest cost per passenger across all bus routes. However, both of these routes had the lowest ridership, which can equate to a higher cost per passenger (Figure 72). Commuter routes had both the highest and lowest cost per passenger routes. Overall, the fixed routes had the lowest subsidies and the commuter routes had the highest average.

Figure 70. Bus Route: Cost per Hour (FY 2019)
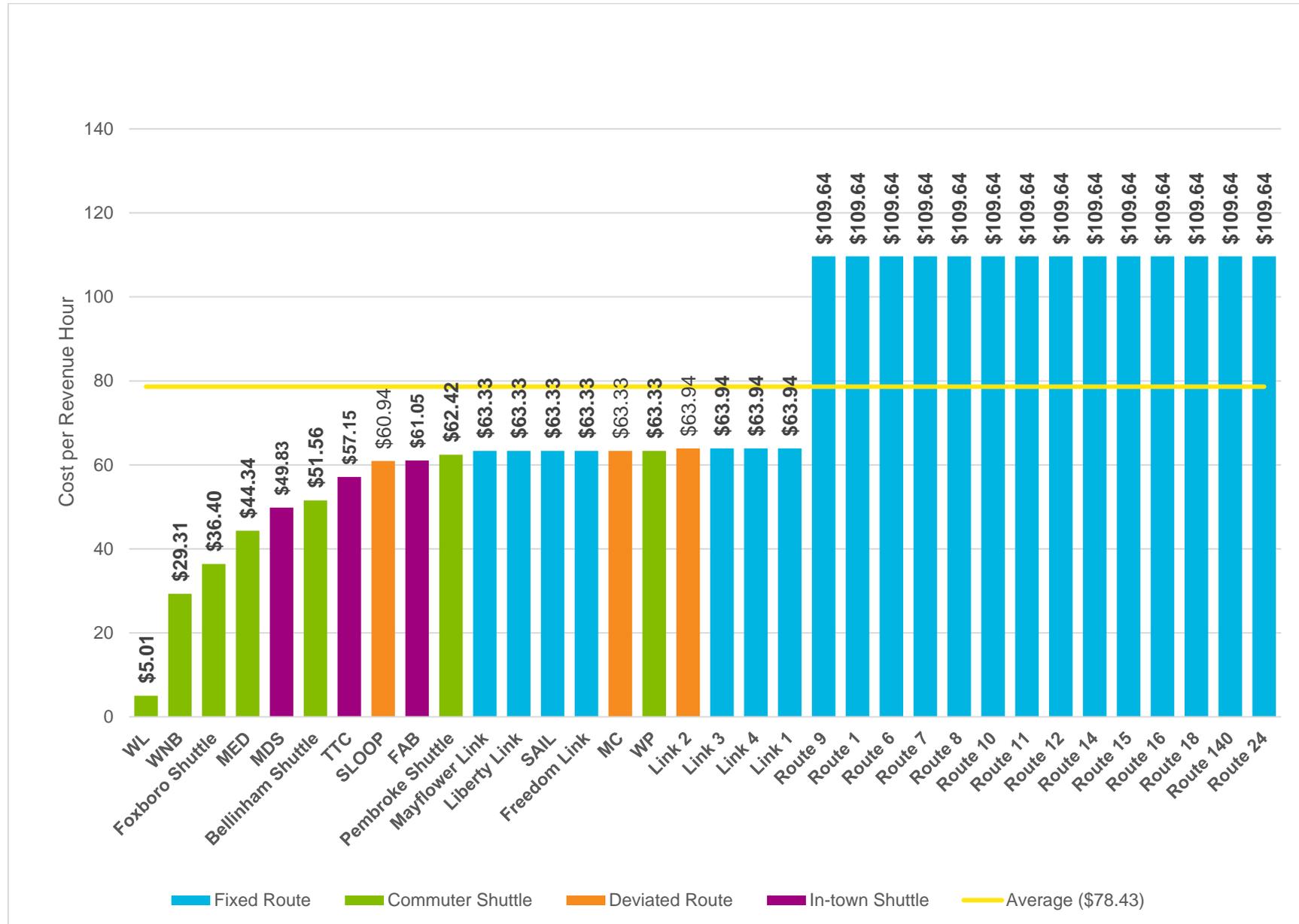
Source: Calculations based on GATRA Data, FY 2019

Figure 71. Bus Route: Cost per Revenue Mile (FY 2019)
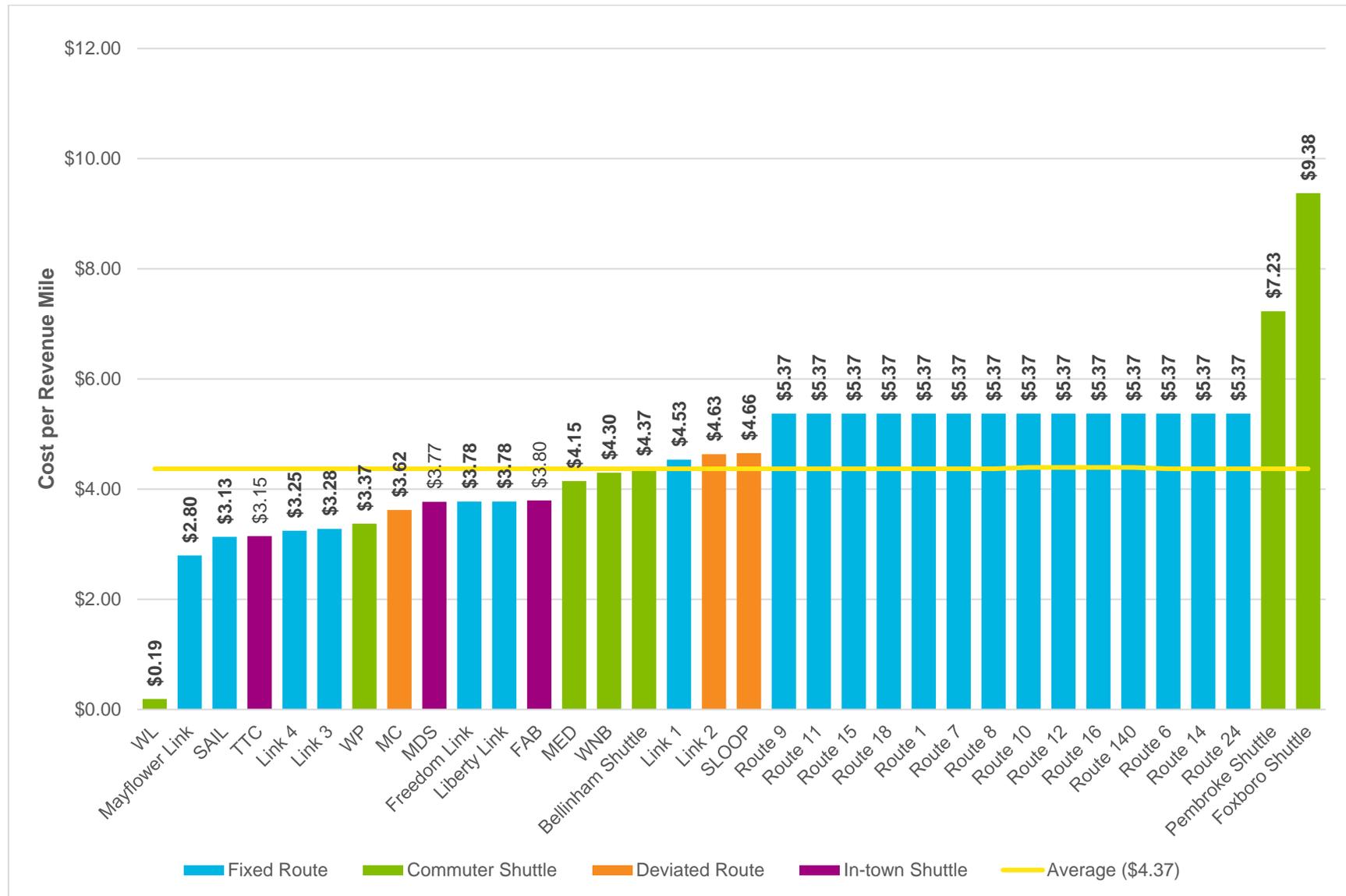
Source: Calculations based on GATRA Data, FY 2019

Figure 72. Bus Route: Cost per Passenger (FY 2019)
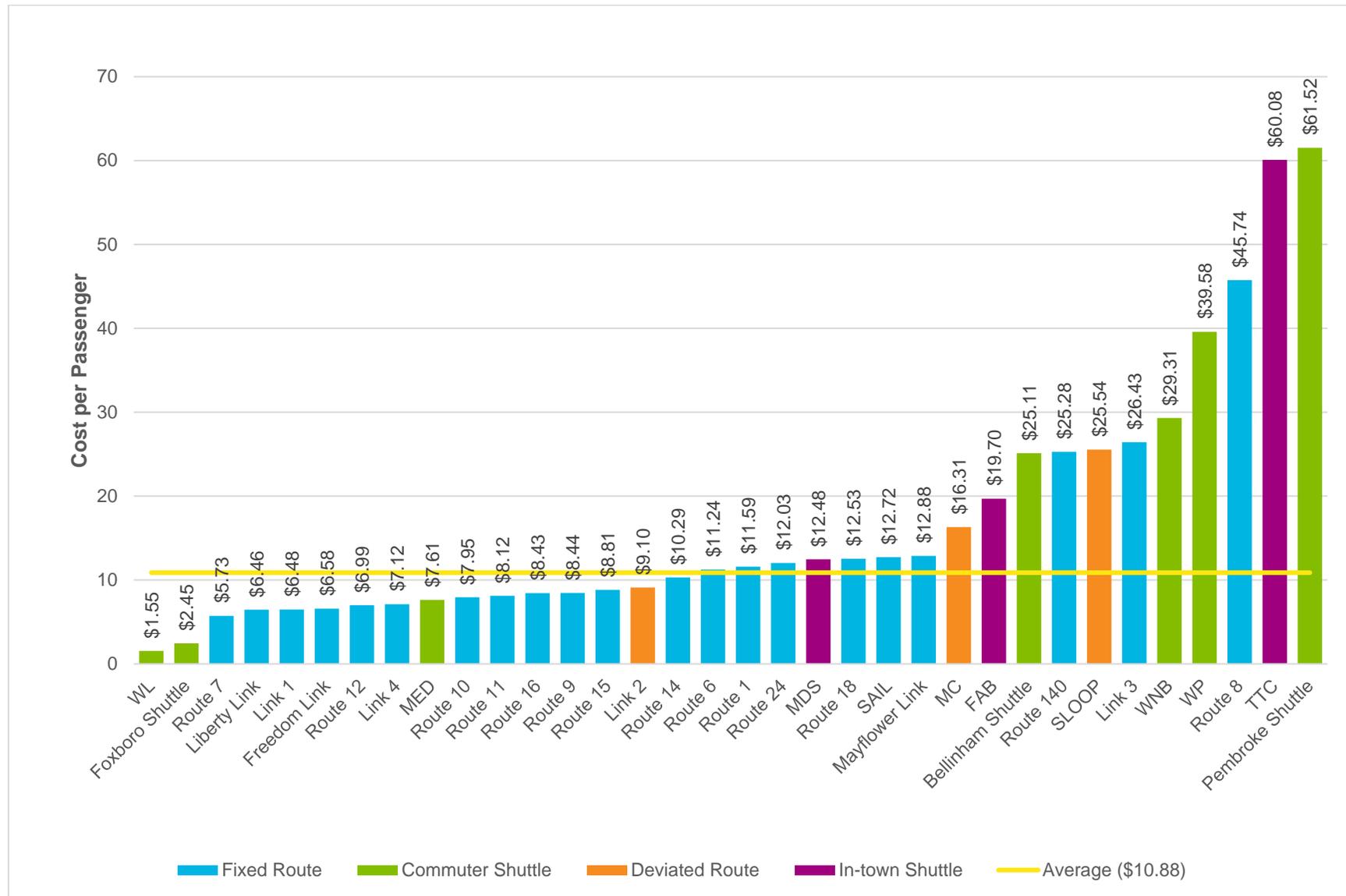
Source: Calculations based on GATRA Data, FY 2019

GATRA's subsidy per passenger average was $10.23, which is more than double the state ($4.47) and national ($3.83) averages (Table 65). This is likely because GATRA has low farebox recovery percentages across all its bus routes, thus increasing costs to subsidize ridership. Similar trends are seen in the subsidy per passenger as with the cost per passenger, likely because of low ridership. The Pembroke Shuttle had the highest subsidy per passenger at $60.22 followed by the Tri-Town Connector at $59.66 and Route 8 at $45.01 (Figure 73). This is as expected as these routes have some of the lowest passengers per revenue hour values.

In FY 2019, GATRA farebox recovery was 6.0 percent, which was substantially lower than the state and national averages of 15 to 22 percent, respectively. The Medway T Shuttle had the highest farebox recovery at 15 percent followed by Route 7 at 13 percent (Figure 74).[47] In general, fixed routes tend to have higher farebox recovery compared to in-town shuttles and commuter shuttles.

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[47] The Foxborough MBTA Commuter Shuttle is not included in farebox recovery because this route does not collect fares.

Figure 73. Bus Route: Subsidy per Passenger (FY 2019)
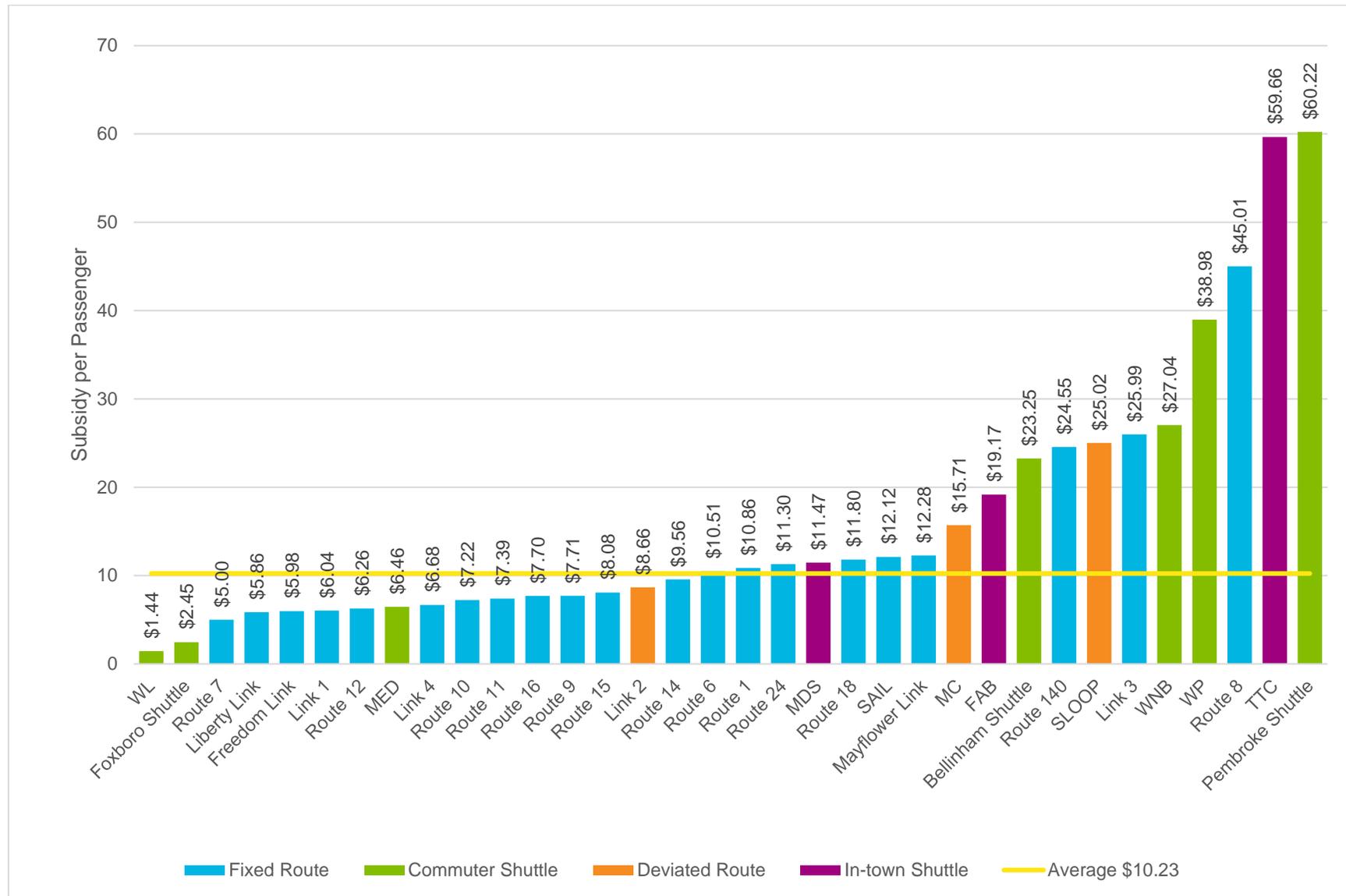
Source: Calculations based on GATRA data, FY 2019

Figure 74. Bus Route: Farebox Recovery (FY 2019)
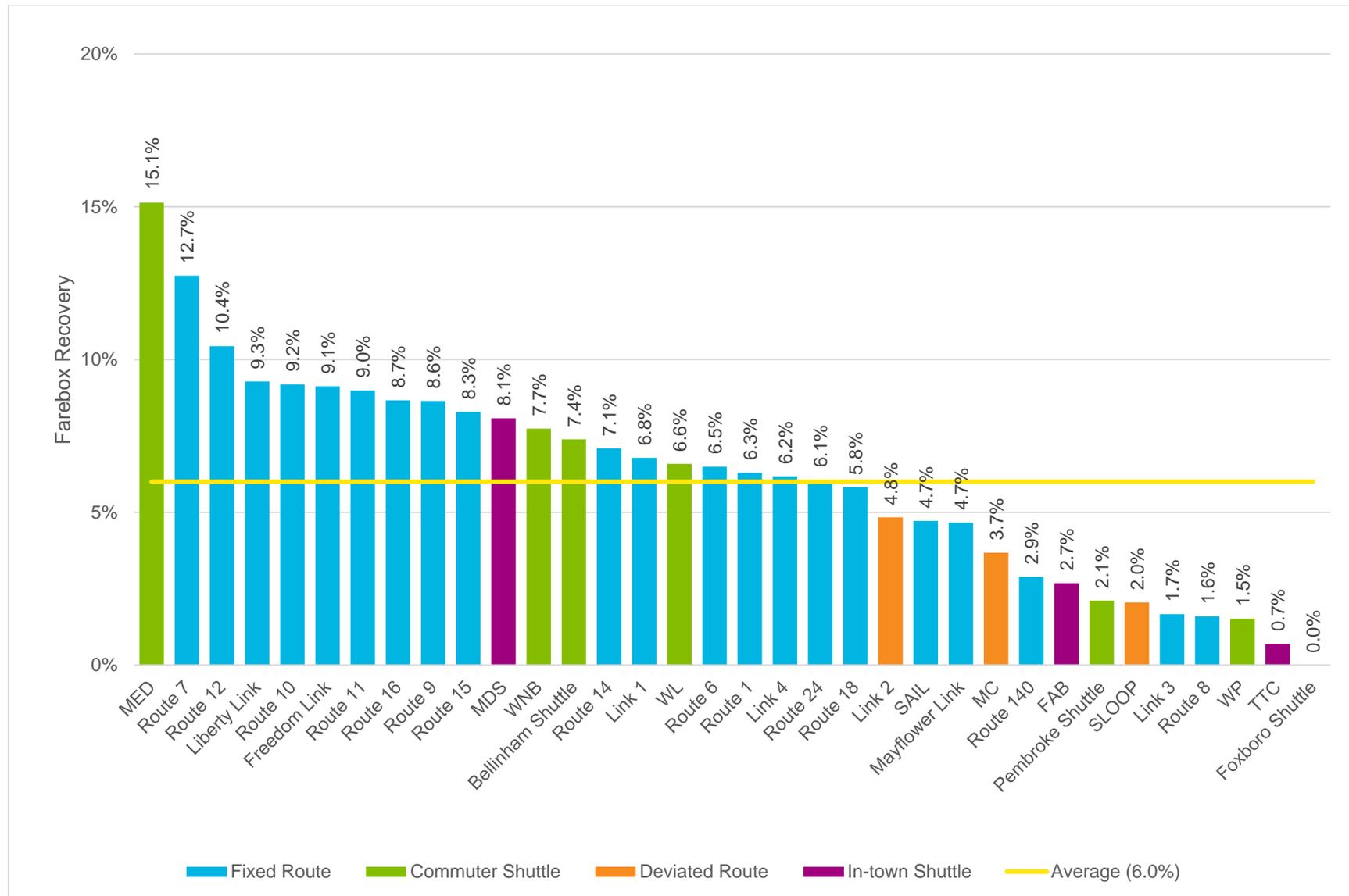
Source: Calculations based on GATRA data, FY 2019

Demand Response Financial Efficiency

The financial efficiency of GATRA's demand response service is outlined in Table 66. In 2019, GATRA had a lower cost per mile, cost per hour, cost per passenger, and subsidy per passenger than the state and national averages, which indicates financial efficiency for its demand response services. However, GATRA had a lower farebox recovery percentage comparatively. Demand response services that are operated by A&A Metro Transit had the highest costs and lowest farebox recovery, and the services operated by the COAs and PTM had the highest farebox recovery percentage and the lowest cost across operators.

Table 66. Demand Response Financial Efficiency (2019)

Service	Cost/Mile	Cost/Hour	Cost/ Passenger	Subsidy/ Passenger	Farebox Recovery
System Average	$4.19	$53.61	$22.88	$21.62	5%
Massachusetts Average*	$4.38	$59.86	$28.28	$25.95	8.3%
National Average	$4.33	$64.93	$32.92	$30.46	7.45%

Source: Calculations based on GATRA data, FY 2019

*Massachusetts average excludes MBTA, CCRTA, and MART.

GATRA's average cost per mile for demand response was $4.19, which is below the state ($4.38) and national ($4.33) averages (Table 17). The GATRA GO microtransit service, operated by A&A Metro, had the highest cost per mile at ($12.91); however, this is a new service and only includes six months of data. This route may see a reduction in costs per mile in the future given the input of more data regarding how the passengers are utilizing the service. The Middleborough DAR had the lowest cost per mile at $0.40 and had the lowest route operating cost (Figure 75).

The average cost per hour for GATRA's demand response is $59.30, which is below the state and national averages at $59.86 and $64.93, respectively. Four of GATRA's demand response services: GATRA GO microtransit, Scituate DAR, Attleboro/Taunton DAR, and Southwest Service Area DAR had the highest overall operating costs among demand response services (Figure 76). In general, the demand response services operated by the COAs had a lower cost per hour, partially attributed to the fact that operators are part-time and not provided benefits.

GATRA's cost per passenger of $22.88 is approximately $5 lower than the state average of $28.28 and $10 lower than the national average of $32.92. GATRA's highest cost per passenger is GATRA GO microtransit at $57.16 followed by Medway DAR at $38.99. The Middleborough DAR had the lowest cost per passenger at $1.73 (Figure 77). Due to the fact that the microtransit is still a new service, the ridership is lower compared to other demand response service, resulting in higher cost per passenger.

GATRA averaged a $21.62 subsidy per passenger, which is lower than the state and national averages of approximately $25 and $30, respectively. As seen in other financial efficiency measures, GATRA GO microtransit had the highest subsidy per passenger at $57.05. Middleborough DAR had the lowest subsidy at $0.25 (Figure 78). The services operated by the COAs and PTM had a lower subsidy per passenger than services provided by other operators.

GATRA's farebox recovery average for demand response is 5 percent, which is lower than both the state and national averages at 8.3 percent and 7.45 percent, respectively. Middleborough DAR had the highest farebox recovery at 85.6 percent. This is attributed to the route's fairly low operating cost and the amount of revenue the route receives. The second highest farebox

recovery route is Kingston DAR at 15 percent. The lowest farebox recovery is the GATRA GO microtransit at 0.2 percent; however, this route has only operated a short time (Figure 79). Among routes that operated year-round, the Hanover DAR had the second lowest farebox recovery at 1 percent due to its revenue generation of $763 for the whole year, despite having over 5,000 riders.

Figure 75. Demand Response: Cost per Mile (FY 2019)
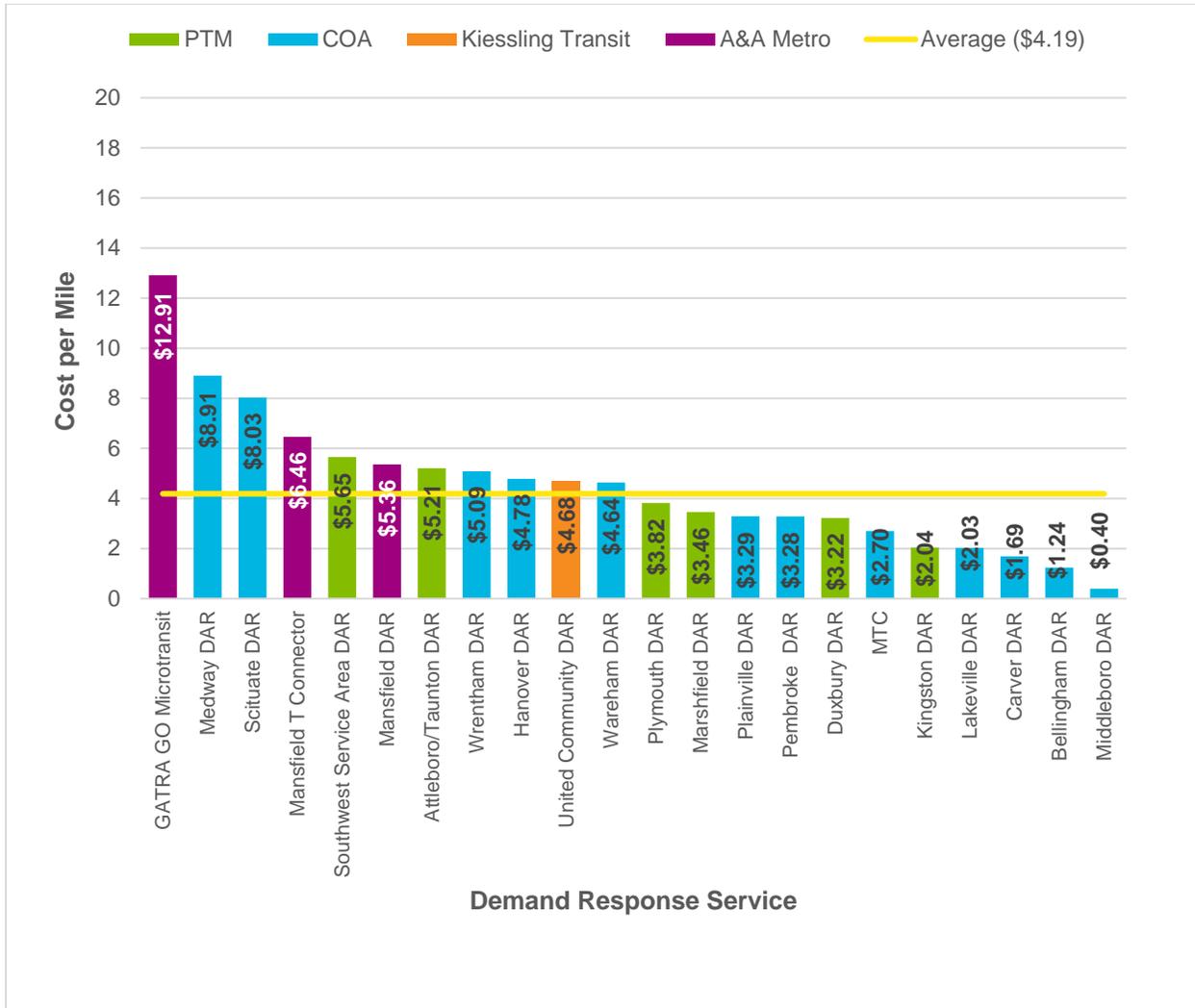
Source: Calculations based on GATRA data, FY 2019

Figure 76. Demand Response: Cost per Hour (FY 2019)
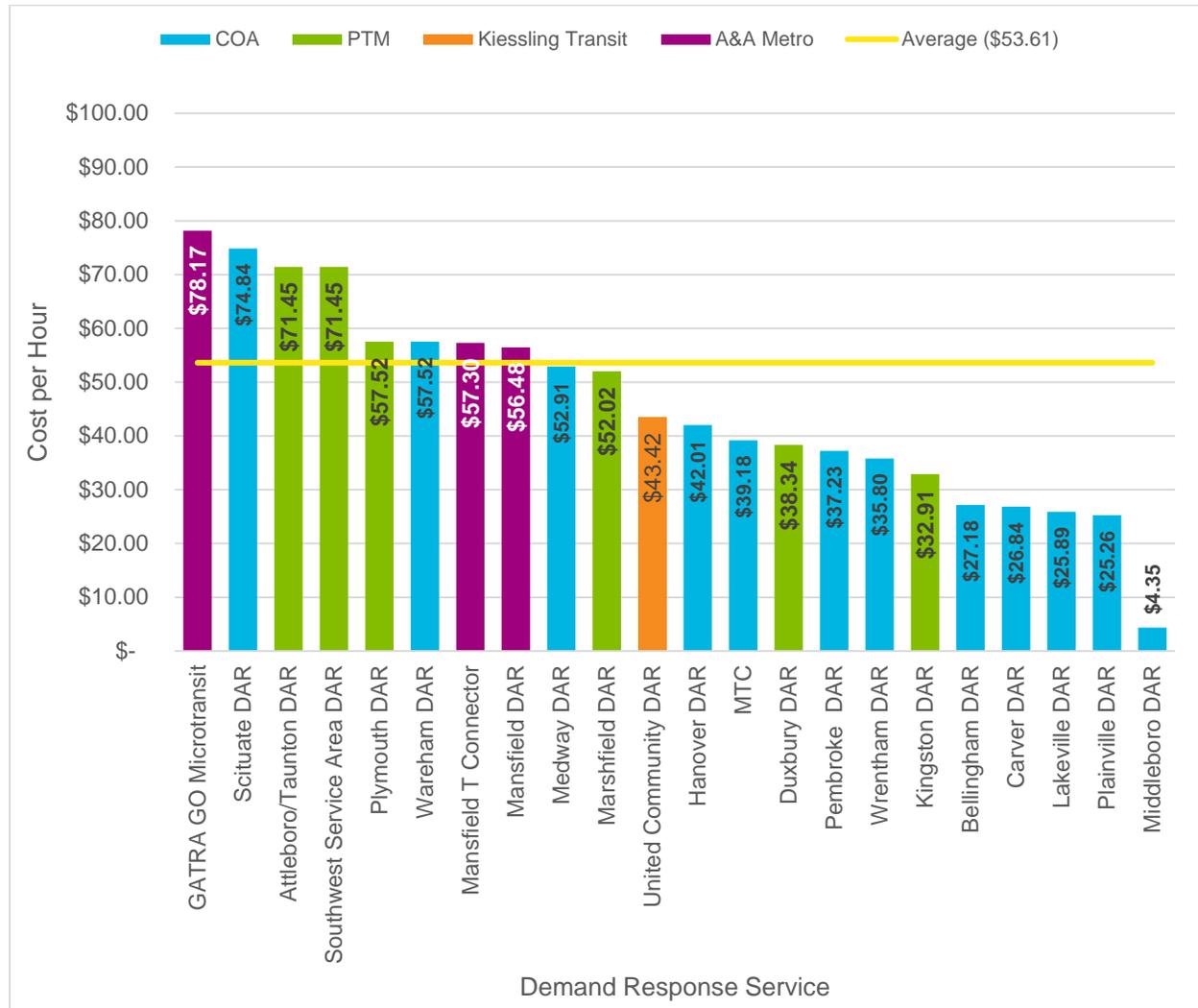
Source: Calculations based on GATRA data, FY 2019

Figure 77. Demand Response: Cost per Passenger (FY 2019)
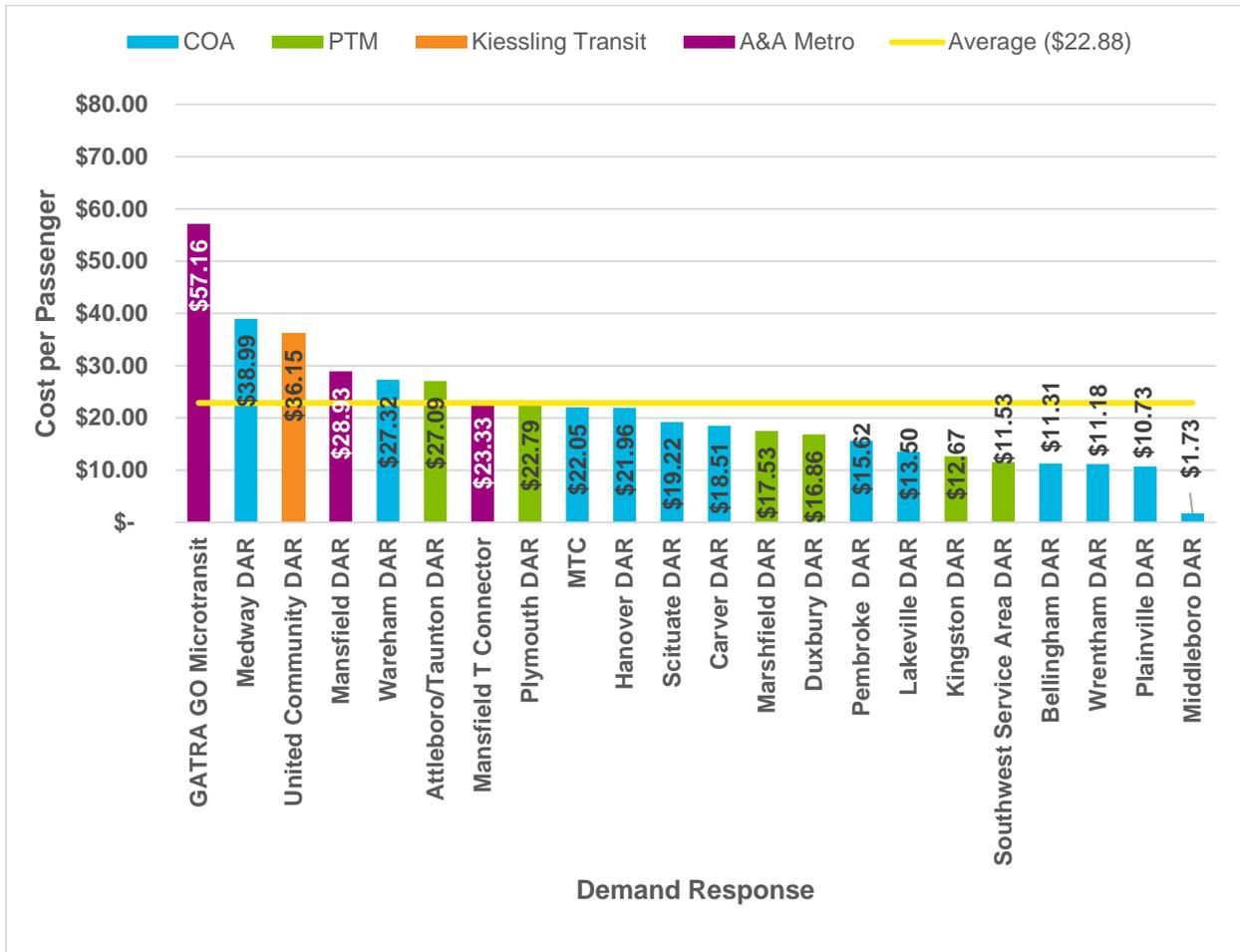
Source: Calculations based on GATRA data, FY 2019

Figure 78. Demand Response: Subsidy per Passenger (FY 2019)
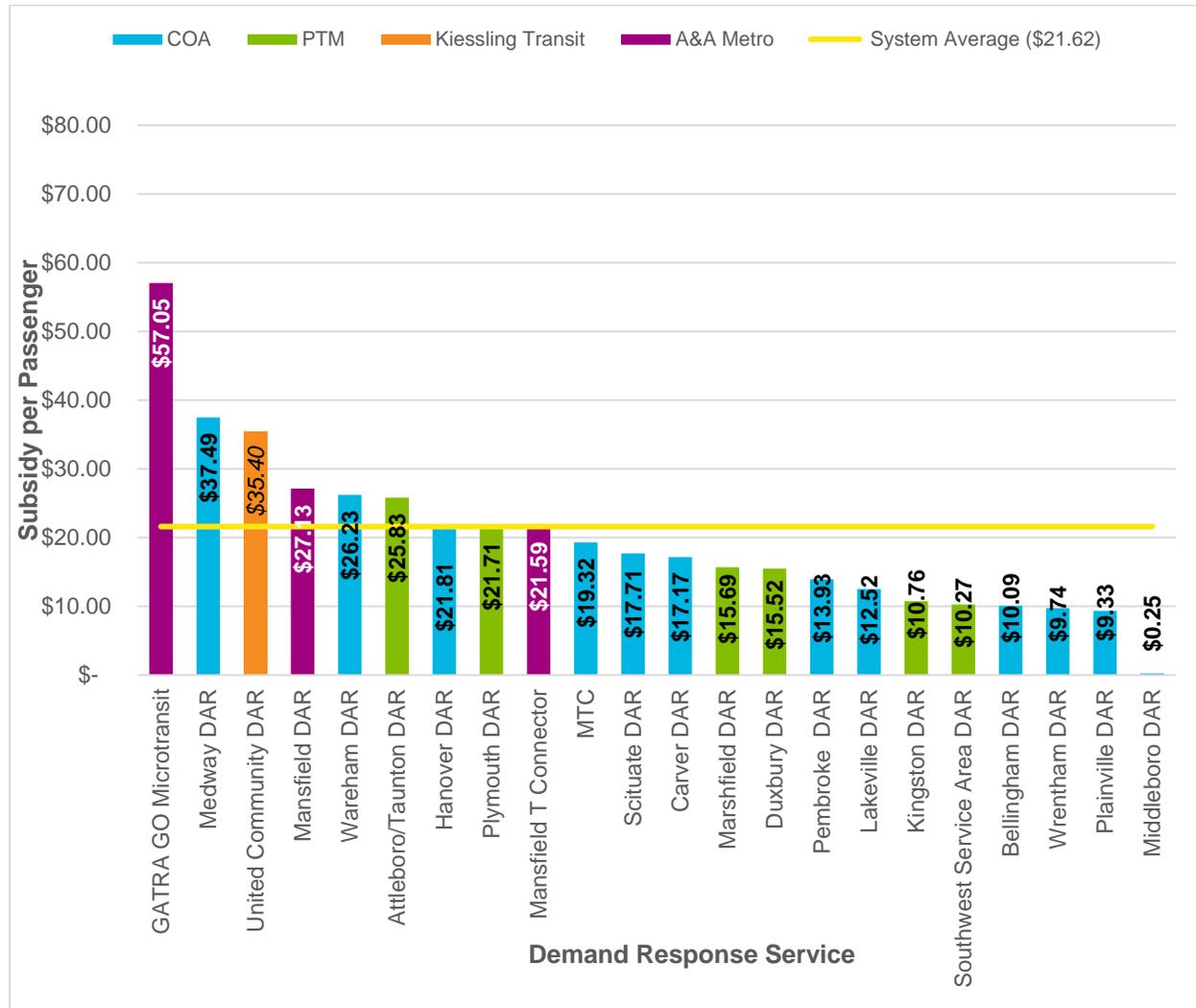
Source: Calculations based on GATRA data, FY 2019

Figure 79. Demand Response: Farebox Recovery (FY 2019)
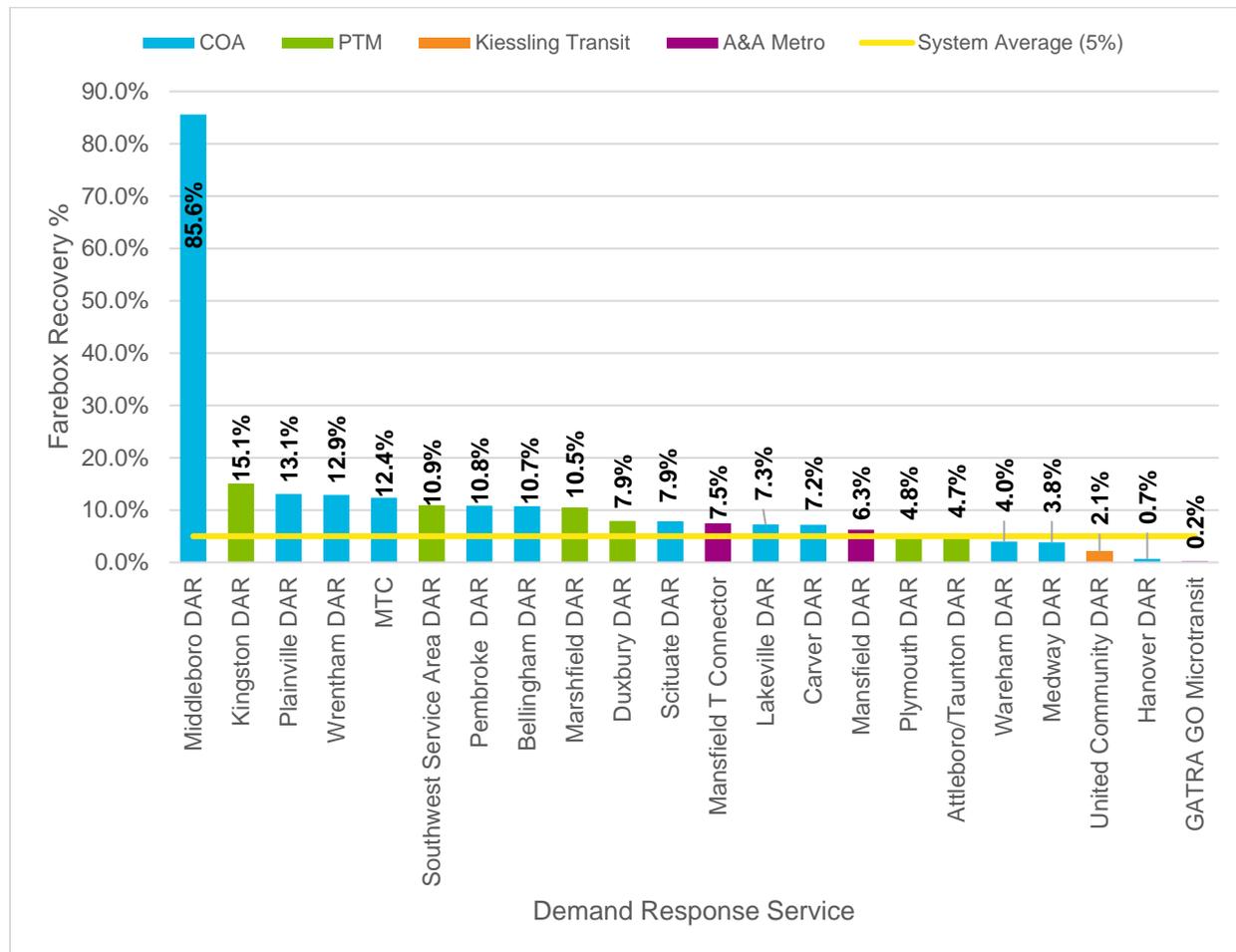
Source: Calculations based on GATRA data, FY 2019

Capacity

Demand response capacity constraints can be indicated by denied and missed trips, long telephone hold times, and OTP. High levels of cancellations and no-shows can be a strain on the system and lead to capacity issues as well. GATRA provided no-show and late cancellation data for ADA and non-ADA from 2015 to 2019; however, data from 2015 were cataloged differently than data from 2016 to 2019. For data consistency and accuracy, only data between FY 2016 and FY 2019 were utilized. Personal care attendants and companions who reported to cancel or no-show were excluded from the analysis to ensure that a paratransit passenger is only counted once. The percentage of no-shows and percentage of late cancellations are outlined in Table 67.

A no-show is documented when a demand response vehicle arrives at the pick-up location within the 30-minute pick-up window, waits the required 5 minutes, an attempt is made to contact the client, and the client ultimately does not board the vehicle. No-shows also include late cancels when a passenger cancels the trip less than 1 hour prior to their scheduled 30-minute pick-up window. Between FY 2016 and FY 2019, the number of no-shows declined by 14 percent; however, during the same time period ridership increased by 36 percent. In FY 2019, on average, there were six no-shows per week.

While some level of cancellations is anticipated, high percentages of same-day cancellations can put strain on a system and lead to increased costs. A same day cancellation requires a

passenger to call the GATRA call center to cancel the ride at least 1 hour beforehand.[48] The number of same day cancellations increased by 19 percent in FY 2017, but overall between 2016 and 2019 cancellations increased by only 1 percent.

Table 67. Demand Response Trip No-Shows and Cancellations (FY 2016–FY 2019)

Demand Response*	FY 2016	FY 2017	FY 2018	FY 2019
Number of No-show Trips	2,061	1,976	1,715	1,765
Number of Trips Cancelled	20,793	24,863	22,898	21,204
Total	**22,854**	**26,839**	**24,613**	**22,969**

Source: Calculations based on GATRA No-Show & Cancellation Records, 2016-2019

*Data represent only that of PTM operated services; data from the other operators were not available.

GATRA defines a missed trip as an instance where the vehicle never arrives or arrives before or after the 15-minute pick-up window and the customer chooses not to take the ride. GATRA did not have any data available regarding the number of missed trips that meet this definition. GATRA will not deny any ADA passenger transportation unless the individual exhibits illegal, violent, or disruptive behavior. GATRA did not have data available regarding trip denials.

Customer Service

Customer Feedback

Passengers who would like to provide feedback are encouraged to contact GATRA's administrative offices either by phone or email. GATRA logs all complaints and compliments received from customers, which includes information about the following: date received, which GATRA staff member received the complaint or compliment, the contact information of the individual contacting GATRA, and information from the investigation about whether a complaint, in particular, is valid.

All complaints are investigated. This can involve reviewing bus on-board surveillance footage[49] and interviewing GATRA operators and any witnesses involved. GATRA documents all results of the complaint investigation, which includes the final conclusion of whether a complaint is determined to be valid or not. The person who made the original complaint is contacted and informed of the results of the investigation. In FY 2019, GATRA received 3.8 complaints per 100,000 passenger trips, which was higher than FY 2016 through FY 2018 (Figure 80). In FY 2019, GATRA placed a higher emphasis on tracking complaints during this year and as a result experienced an increase in valid complaints.

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[48] GATRA ADA Guidelines, accessed April 2020, http://www.gatra.org/index.php/special-services/ada-guidelines/.
[49] All revenue vehicles are equipped with cameras.

Figure 80. Valid Complaints per 100,00 Passenger Trips (FY 2016–FY 2019)
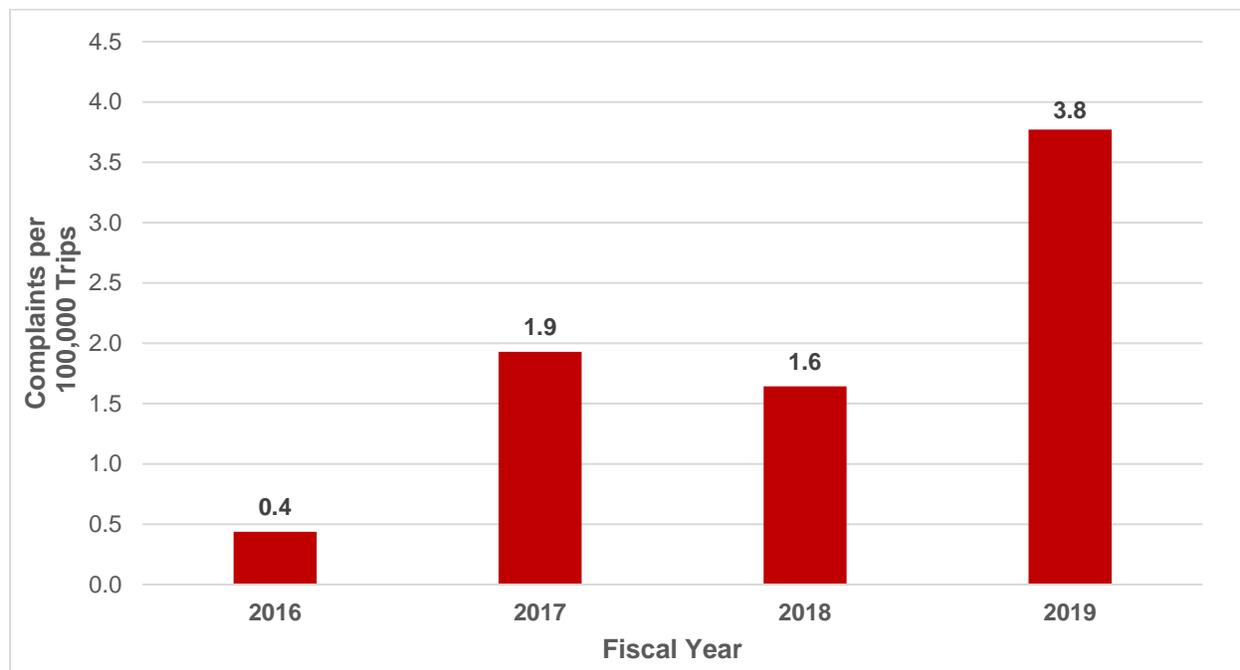
Source: GATRA

Customer Service

In order to make a reservation or to cancel an existing reservation, GATRA's DAR passengers are required to call GATRA's customer service line. GATRA keeps a record of the number of calls handled, calls abandoned, calls transferred from extension, and the speed of answering calls by its customer service agents. GATRA uses a software feature called Automatic Call Distribution (ACD), which routes calls to groups of agents based on a first-in, first answered criteria. This ensures that a caller who has been waiting the longest is routed to the next available agent. This process is often referred to as a call queue. The ACD log also tracks non-ACD calls, which is a call that is either placed or received by a customer service agent and includes incoming, outing, and internal calls that were placed from, or received by, an agent. Calls are considered abandoned when the caller hangs up before the call is answered by an agent. GATRA FY 2019 DAR call information is outlined in Table 68.

In Figure 81, GATRA's FY 2019 customer service phone data are displayed graphically to show the number of calls and calls transferred to extension by time of day the call was received. GATRA had a large number of callers in the morning hours between 7:00 AM and 12:00 PM and then a sharp increase around 4:30 PM when GATRA begins to stop taking DAR reservations. A majority of the calls GATRA received were calls that were transferred to an extension, such as another department, and very few were callers waiting in a phone call queue. GATRA agents answer calls quickly, usually within 5 seconds of receiving the call, and agents spend an average of two minutes and thirty seconds on the phone with the caller.

Table 68. Customer Service for Demand Response (FY 2019)

Number of Calls Handled (ACD and non-ACD)	Number of Calls Abandoned	Calls Transferred to Extension	Average Speed of Answer	Average Time Spent on Call with Agent
20,273	1,870	106,488	5 seconds	00:02:30

Figure 81. Customer Service Phone Call Analysis (FY 2019)
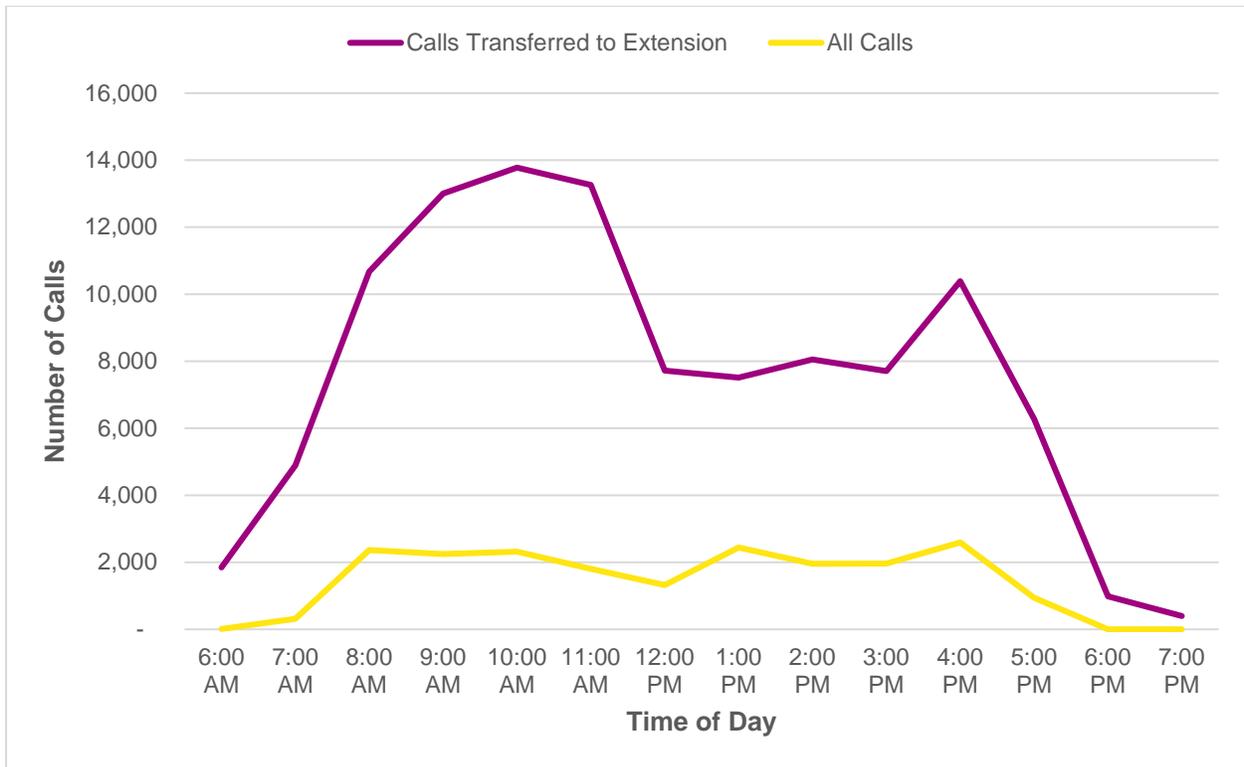
Source: GATRA Extension Performance by Period, 2019

Appendix B GATRA Board Approved Fare Policy

The next meeting of the GATRA Advisory Board
will be a Virtual Meeting
November 30th 2:30 p.m.

The November 30th – 2:30 p.m. Advisory Board Agenda is as follows:

1. Review/Approval of Minutes of 6/23/20 Advisory Board Meeting
2. Fare Policy
3. Safety Plan
4. Comprehensive Regional Transit Plan
5. Maintenance Department Management
6. Audit
7. Budget Discussion
8. Weighted Vote
9. Other Business

GATRA BOARD APPROVED FARE POLICY

GATRA's MOU with MassDOT requires the agency to have an established fare policy. Fare policies help guide transit agencies in making decisions regarding fares, fare levels, fare changes, media, and technology. To develop a fare policy, transit agencies set goals that become the foundation for the policy and establish criteria for making recommendations. The goals for GATRA's fare policy are listed in Figure 82 and are consistent with the needs of the region.

Figure 82. Fare Policy Goals

1. Streamline fare collections

2. Fair and equitable

3. Reduce handling of cash

4. Align with multiple operator needs

5. Regularly evaluate fares
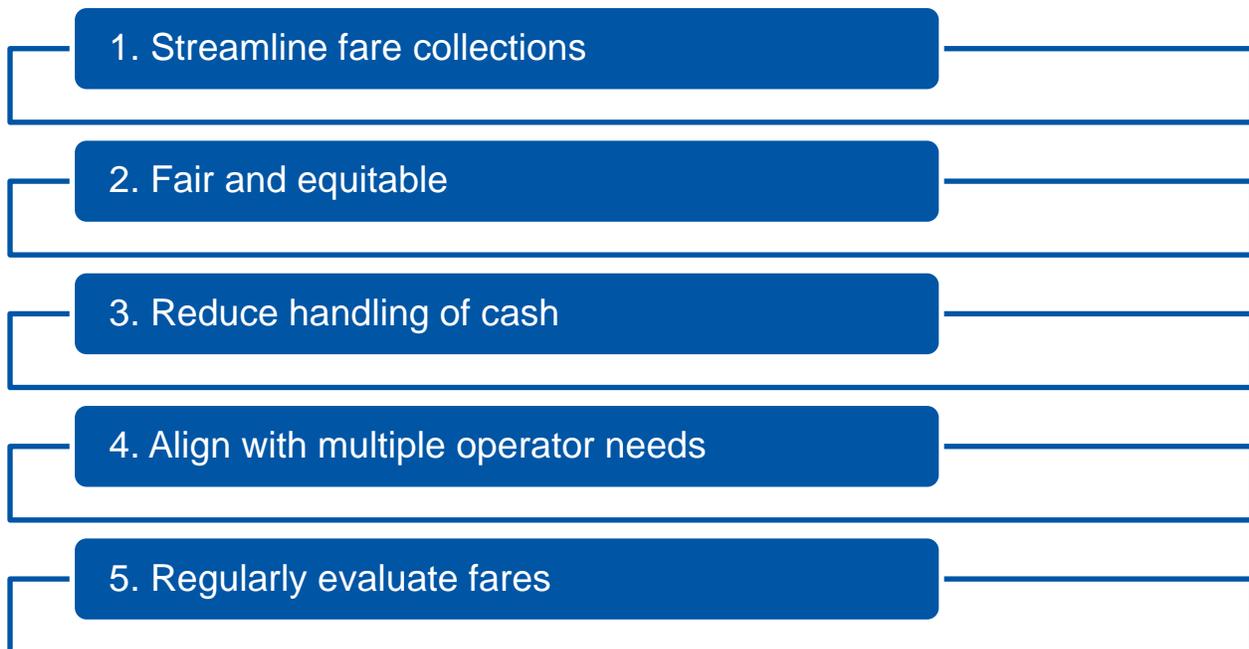
GATRA has moved to simplify its fare structure by creating a uniform base fare across all fixed routes, but the current fare policy is still characterized as having multiple pass types. Therefore, one of the goals of the fare policy is simplification and reduction of the number of fare and pass types in order to reduce administrative costs related to maintaining a more complex fare structure. An equitable fare policy is important to GATRA to accommodate residents who are low income and cannot afford higher fares or to purchase passes. Additionally, not all users of the system have access to passes as some routes do not accept them because of the varying operators and limited technology. Increasing the use of technology for fares would reduce the handling of cash, but many of GATRA's riders may not have bank accounts or credit cards, and any technology solution must keep this in mind. Since GATRA has multiple operators, the fare policy must be compatible for all and recognize that some facilities are limited. The last goal would be to regularly evaluate fares because, like many of the RTAs, GATRA has not historically reviewed fare policy or made fare level changes often on a consistent basis.

Current fare structures, historical changes, performance targets, the current economic climate, and the region's needs were reviewed in order to develop recommendations that are in line with the needs of GATRA but also meet the requirements of the MOU with MassDOT. The results of the review can be found throughout the 2020 Comprehensive Regional Transit Plan Update and key findings are summarized below:

- The last fare increase was in February, 2019. Prior to that it had been 15 years since a fare increase was considered.

- The current fare collection system was procured in 2006 and is not compatible with surrounding RTAs.

- Smartcard technology is not used; however, the fareboxes do have the capability of accepting smartcards

- 31-day passes and Dial-A-Ride 10-ride passes can be purchased from a ticket agent at the Taunton terminal but must be paid for in cash or by check.

- Exact fares are not required; however, no cash will be returned; instead, change is given in the form of stored value cards issued at the farebox on those routes with GFI Odyssey fareboxes installed. These cards can be used to pay for future fares but are not redeemable for cash.

- Not all routes accept passes, only those operated by PTM (Attleboro/Taunton, Plymouth, and SAIL routes).

- Demand response has a lower farebox recovery (5 percent) than fixed route (6 percent).

- It is not cost effective to install mechanical fareboxes on vehicles not operated by PTM because the vehicles would have to report back to the main facility in Plymouth or Taunton at least once a week to have the fareboxes probed and emptied. The cost to install such technology at each operator's facility outweighs the potential revenue generated.

- The MOU targets are for increased farebox recovery.

- Dial-A-Ride fare is only $0.25 more than the fixed route fare, ADA fares as two times the fixed route fare.

- Several communities pay the fares for demand response passengers. The information online is unclear as to which communities do this. Currently GATRA must keep track of how many passengers this is for each town and reconcile.

The following is recommended for the GATRA fare policy:

- Eliminate the 3-day pass option.

- Do not purchase electronic fareboxes for vehicles not operated by PTM but do consider open fare payment systems and mobile ticketing. Install vault style, non-electronic fareboxes on all demand response vehicles and all fixed routes not operated by PTM.

- Consider fare increases in increments of $0.25 only.

- Upgrade the fare system as part of a joint procurement with other transit agencies. The fare system should be an account-based system that includes fare capping and mobile payments; is integrated with SRTA, CCRTA, and BAT; and where riders can purchase and load value onto smartcards at retail outlets and on-line.

- Implement mobile payments system-wide.

- At least every 5 years address the GATRA board regarding fare changes.

- Establish data-driven fare policies and metrics.

An upgraded fare collection system is needed for services (fixed route and demand response) operated by PTM. The system should be account-based and have fare capping options, a mobile payment option, and Smartcards sold at multiple outlets. Account-based systems allow individuals to view and load money onto their card online, reducing the need for multiple ticket vending machines. The Smartcards should be available for purchase and to load value onto at TVMs located at terminals and customer service as well as at retail outlets. By partnering with

retail outlets such as convenience stores and gas stations, individuals can load value onto their cards. Fare-capping will allow riders to pay incrementally towards a monthly pass, receiving the benefit of the monthly pass without having to provide the upfront cost, which is difficult for low income individuals. A mobile payment option should be deployed with the same fares and passes as the smart card. On the fixed routes operated by PTM readers should be installed to validate mobile payments and speed up boarding times. Due to the low volume of ridership on the remaining fixed routes and demand response, visual validation could be used.

In terms of fare technology, it is not cost-effective for the agency to install upgraded fare equipment on vehicles not operated by PTM as it would require the vehicles' fareboxes to be emptied and probed on a weekly basis. The investment in the needed capital for each facility is substantial and the alternative, each vehicle goes weekly to an existing GATRA facility, with this technology would result in either an increase in fleet needs or reduction in service hours to accommodate. Vault-style drop boxes should be installed instead where money pouches or open boxes are used in order to increase security. An open fare payment system should be explored, and any mobile payment system should include demand response. An open fare payment system would allow individuals to pay their fare using a standard bank/credit card and mobile payment apps such as Android or Apple Pay. Utilizing an open-payment system and mobile payments on the fixed routes not operated by PTM would allow riders the benefit of passes, like the other fixed routes.

As part of simplification, an analysis of the different pass types sold was conducted and is presented Table 69. This table shows that over a 3-year period very few 3-day passes were sold, and this pass should be discontinued. While the volume of 31-day passes sold is also very low, technology solutions such as fare-capping, may make this pass type more viable in the future; therefore, it should not be discontinued, especially given the high usage of 1-day passes and 10-ride passes.

Table 69. Fare Pass Analysis

Fare Type	Category	3 Year Total Passes Sold	Percent of Passes Sold
1-Day Pass	Regular Full Fare	7,126	25.00%
	Elderly/Disabled	10,896	38.23%
	Student	730	2.56%
10-Ride Pass	Regular Full Fare	2,701	9.48%
	Elderly/Disabled	3,204	11.24%
	Student	769	2.70%
10-Ride Pass for Route 18	Regular Full Fare	182	0.64%
	Elderly/Disabled	160	0.56%
	Student	27	0.09%
3-Day Pass	Regular Full Fare	38	0.13%
	Elderly/Disabled	37	0.13%
	Student	21	0.07%

Fare Type	Category	3 Year Total Passes Sold	Percent of Passes Sold
	Regular Full Fare	249	0.87%
31-Day Pass	Elderly/Disabled	371	1.30%
	Student	331	1.16%
Paratransit	Paratransit	1,660	5.82%

Any changes in fare policies, technology, and structure need to be supported by data. The data should look at not only how much revenue would be collected from a fare change but also how the change would impact the community, including lower income riders. Information such as historical fares collected by type and method, the community's response to surveys about smartphone and internet saturation rates, national trends and research, and best practices should be considered. GATRA will approach the board every 5 years regarding the current fare policy unless other triggers are identified in the interim. If the board decides to consider a change in the fare policy GATRA will evaluate at least two scenarios and how they would impact the overall budget, what the change in fare revenue would be, and how this would impact vulnerable populations such as low income and minority. Any changes should be in denominations of $0.25; as the economy continues to transition to cashless, individuals are less likely to carry smaller coinage. A public meeting should be held to garner feedback on the results of the analysis each time a fare change is considered.

Appendix C Outreach Backup Materials

This appendix presents the results from the outreach efforts, including the public survey, stakeholder meetings, and driver survey.

Public Survey

As a result of the COVID-19 pandemic and the associated social distancing requirements, in-person public outreach was cancelled and an online, mobile-friendly survey was created to reach as many people as possible who travel in and around the 28 communities GATRA serves within southern Norfolk County, northern Bristol County, Plymouth County, and the South Shore. The goal of this survey was to engage the community in a discussion of transportation needs and how it can best serve the region into the future. The survey went live to the public on June 20, 2020, and remained open until August 10, 2020. This appendix contains an analysis of the survey results for the entire duration of the survey.

Methodology

Through a series of conference calls and meetings with the AECOM team and GATRA staff, a series of survey questions was prepared to target both riders of the GATRA system (both fixed bus and demand response), and those who do not use the service. The development of the questions began in February 2020 and included questions about residency, frequency of travel with GATRA, primary mode of transportation, preference of service extensions, possible improvements, and optional demographic questions.

GATRA helped the AECOM team spread the word about the survey through stakeholder email blasts that included a QR code, short link, and advertising graphic for use on websites and social media accounts. All the survey promotional content included a brief description of the purpose of the survey, a link to the survey, and a QR code, which when scanned by a smartphone, provided a direct link to the survey. In addition, GATRA posted links to the survey on their Facebook account to reach a larger audience. Facebook posts boosted using Facebook advertising tools to target the local communities in the GATRA service area. The Facebook posts also included callouts and "tags" of towns, local groups, and businesses to gather feedback from customers or patrons of the local businesses and further develop connections across the service area. Flyers and signs were posted at GATRA transportation hubs and on vehicles for passengers to read while riding. All posters and flyers were prepared in English, Spanish, and Portuguese. The AECOM team prepared and distributed a press release to local media outlets, towns, community groups, and local businesses for additional coverage. A Google Voice phone number and email address were created for the GATRA survey to provide additional opportunities for the public to provide comments and feedback for the CRTP. The phone number and email address were listed on each of the promotional materials in case respondents did not have access to the internet or preferred to submit their comments in a different format. The voicemails and emails are summarized below with the survey results.

A stakeholder meeting was held with the GATRA GCAC to present the goals of the CRTP and elicit additional feedback through open discussions and dialog. The AECOM team made a presentation to the GCAC about the goals of the CRTP, the development process of the plan, the public survey, Google Voice phone number, and email address for the GCAC members to share with their constituents and other contacts to reach a larger audience.

Online Survey

The online survey was open to all individuals who live, work, or visit the area and was open to both riders and non-riders of the GATRA system. The survey was made available in English and translations were available upon request to GATRA.

Responses

The survey received 449 responses, including 308 completed surveys and 141 partially completed surveys. A total of 273 respondents use GATRA services (fixed route bus and/or van) and 176 respondents do not ride with GATRA. Not all respondents answered all the survey questions. As such, the percentages in all figures are based on the number of responses received for that question rather than on the total number of responses.

1.   Do you use GATRA services? (n = 449)

A total of 273 survey respondents use GATRA services (fixed route and demand response), and 176 respondents do not (Figure 83).

Figure 83. Use of GATRA Services
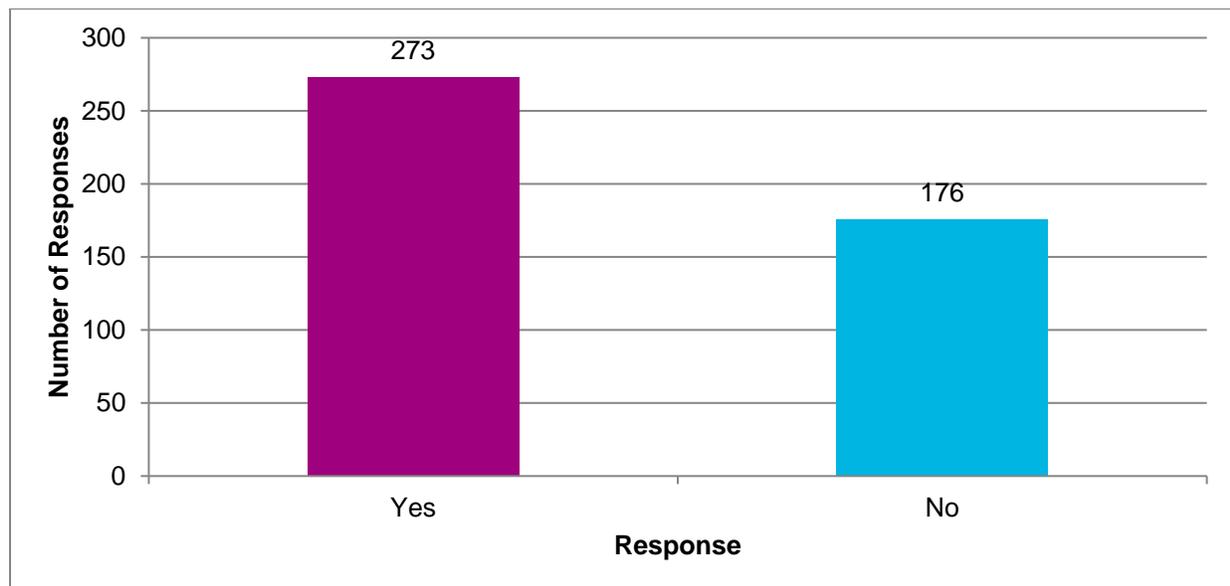
FIXED ROUTE:

**2.   Do you use the GATRA fixed route Bus service? (n = 270)**

Approximately 74 percent of respondents (201) use the GATRA fixed route bus service and 69 respondents do not (Figure 84). The respondents who answered "no" were directed to the demand response questions (summarized below).

Figure 84. Use of GATRA Fixed Route Bus Service
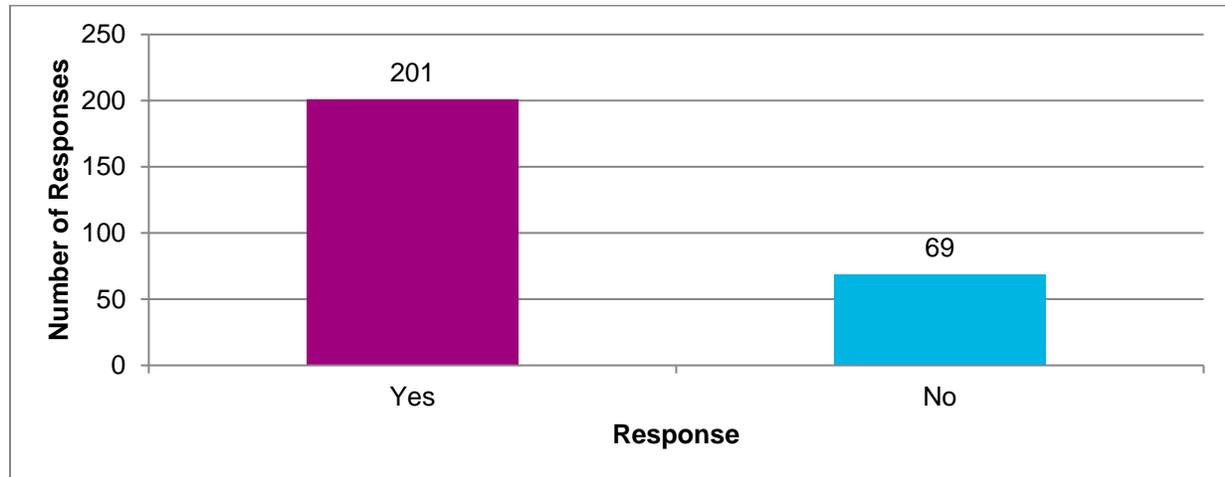
3.   What town do you live in? (n = 176)

Almost 19 percent of fixed route bus riders (33 total) live in Taunton, 21 respondents live in Wareham, 21 respondents live in Attleboro, and 16 respondents live in Plymouth, representing approximately 51 percent of respondents (Figure 85).

Figure 85. Residence of Rider Respondents
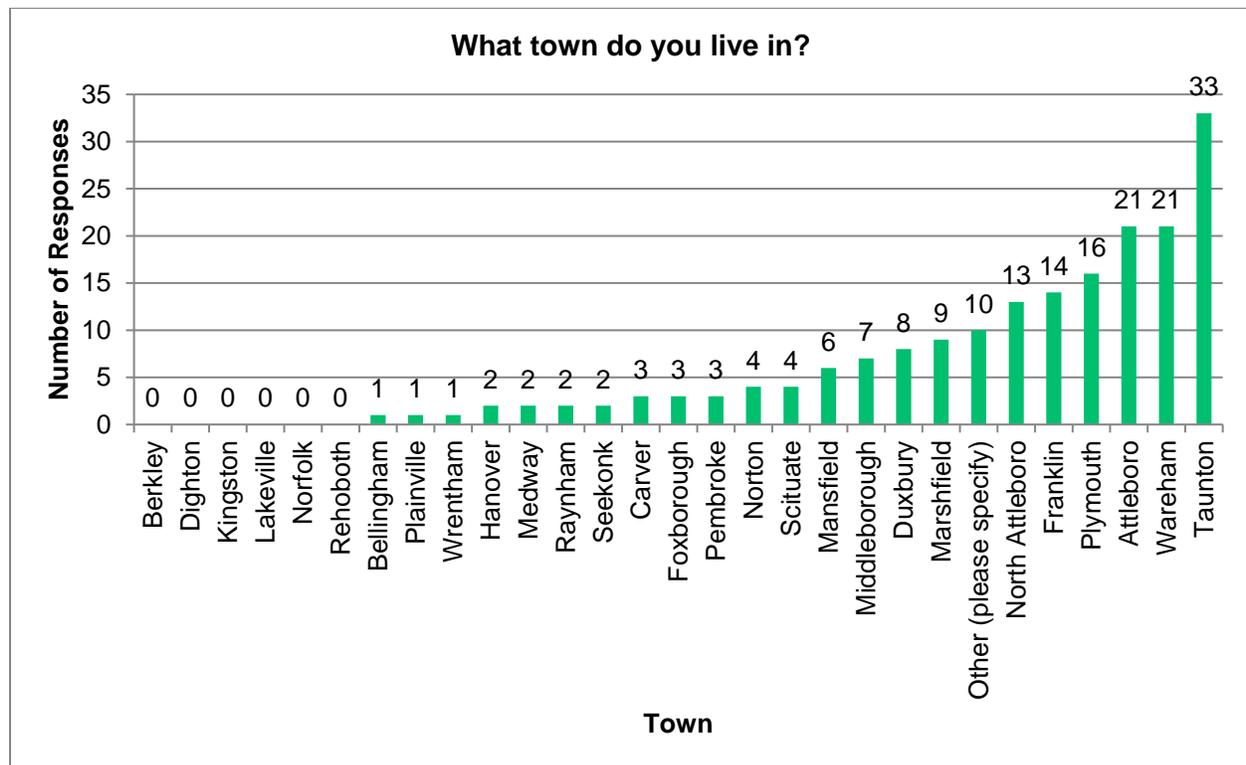
4.   What are the top three places you travel to most often? (n = 168)

The most common responses from respondents who use the GATRA fixed route bus service include the following towns, businesses, and other general locations: Attleboro, Marshfield, New Bedford, Norton, Plymouth, South Attleboro, Taunton, Wareham, Attleboro Train Station, Bellingham malls, Emerald Square Mall, Kingston Collection, Mansfield Crossing, Patriot Place, South Attleboro Station, Walmart, Wareham Crossing, Target, train stations, and grocery stores (i.e., Stop & Shop, Shaw's, Roche Bros., Hannaford, and Market Basket) (Figure 86)

Figure 86. Top 3 Destinations by Bus Riders

#1 Walmart
#2 Stop and Shop
#3 Market Basket
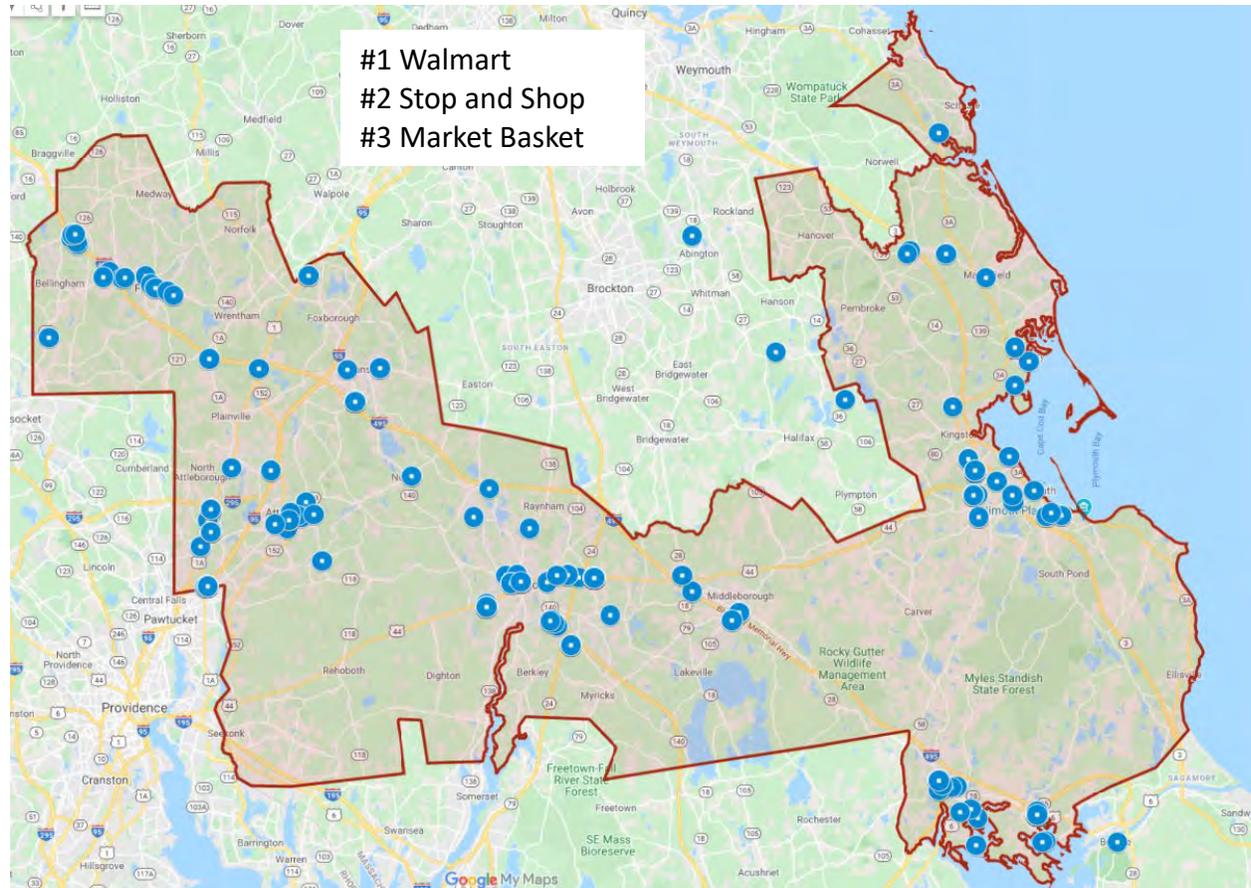
5.   Which of the following fixed route GATRA Routes do you use? (n = 166)

Respondents were asked to select all the fixed route bus routes they use most often. A total of 436 responses were collected from 166 respondents. The top five most used GATRA fixed bus routes per survey respondents are Route 10 Attleboro/North Attleborough (34), Route 8 East Taunton/Raynham Wal-Mart (29), Route 18 Attleboro/Norton/Taunton (27), Route 12 South Attleboro/Attleboro (24), and Route 7 School St/Raynham/Taunton (24). Only 1 respondent uses the Medway T Shuttle most often (Figure 87).

Figure 87. GATRA Fixed Routes Used

Medway T Shuttle — 1
Link 3 - Shangri-La to Cranberry Plaza — 2
Bellingham T Shuttle — 2
15 - Oak Hill — 3
Scituate Loop (SLOOP) — 3
Foxborough MBTA Commuter Service — 3
Pembroke Commuter Shuttle — 4
Wareham-Plymouth Connection — 4
Wareham-New Bedford Connection — 4
Tri-town Connector — 4
Middleboro Downtown Shuttle — 5
Manomet/Cedarville Deviated Link — 6
140 - Norton-Mansfield Crossing — 8
1 - Westside — 11
Link 2 - Cranberry Plaza to Buzzards Bay — 11
Wareham/Lakeville Commuter — 11
6 - Whittenton — 13
9 - Weir/Route 138 — 13
24 - Attleboro/Pawtucket, RI — 13
FAB (Franklin Area Bus) — 13
Link 4 - Cranberry Plaza to West Wareham — 16
Mayflower Link — 16
11 - South Attleboro Connector — 17
Freedom Link — 18
Liberty Link — 18
16 - Seekonk/Attleboro — 19
Link 1 - Wareham/Onset/Wareham — 19
SAIL (Marshfield/Duxbury/Kingston) — 20
14 - Attleboro/North Attleboro/Plainville — 21
7 - School St/Raynham/Taunton — 24
12 - South Attleboro/Attleboro — 24
18 - Attleboro/Norton/Taunton — 27
8 - East Taunton/Raynham Wal-Mart — 29
10 - Attleboro/North Attleboro — 34

GATRA Route (y-axis) — Number of Responses (x-axis)

6.   Would you like increased frequency on the routes you currently ride? (n = 155)

The majority of respondents would like for GATRA to increase the frequency of each bus route. The only route that more riders would not like to see increased frequency Route 1 Westside; six respondents said "no," and three respondents said "yes." Over 40 percent of respondents would not like to see increased frequency on Routes 14 and 16. The route with the most responses (34) is Route 10 Attleboro/North Attleborough and a total of 25 respondents would like to see the buses run more frequently (Figure 88).

**Figure 88. Desired Frequency Improvement by Route**
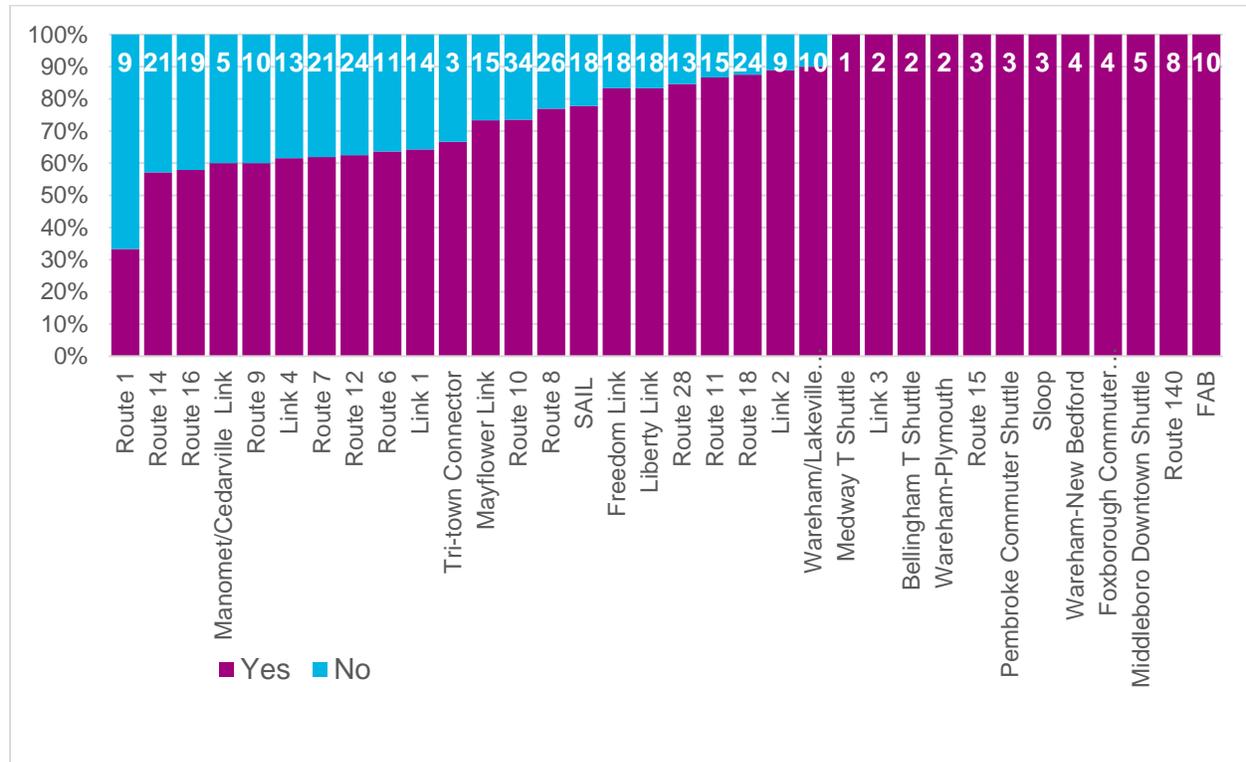
7. **Are there times or days on the routes that you use that the GATRA bus does not run but that you need it to? (n = 160)**

On weekdays respondents identified the need for later evening service over earlier morning on all routes except the Foxborough Commuter Shuttle (Figure 89). On Saturdays there was a need identified for additional morning and later evening service on many of the routes (Figure 90).

8. **On the routes you currently use, what times would you use Sunday service if available? (n = 85)**

Sunday service was identified as a need on all routes but two; further analysis was conducted on routes that had 10 or more responses to identify times (Figure 91). For most routes there was a need for service from 8:00 AM to 6:00 PM with the greatest need mid-day (Figure 92)

Figure 89. Weekday Desired Times
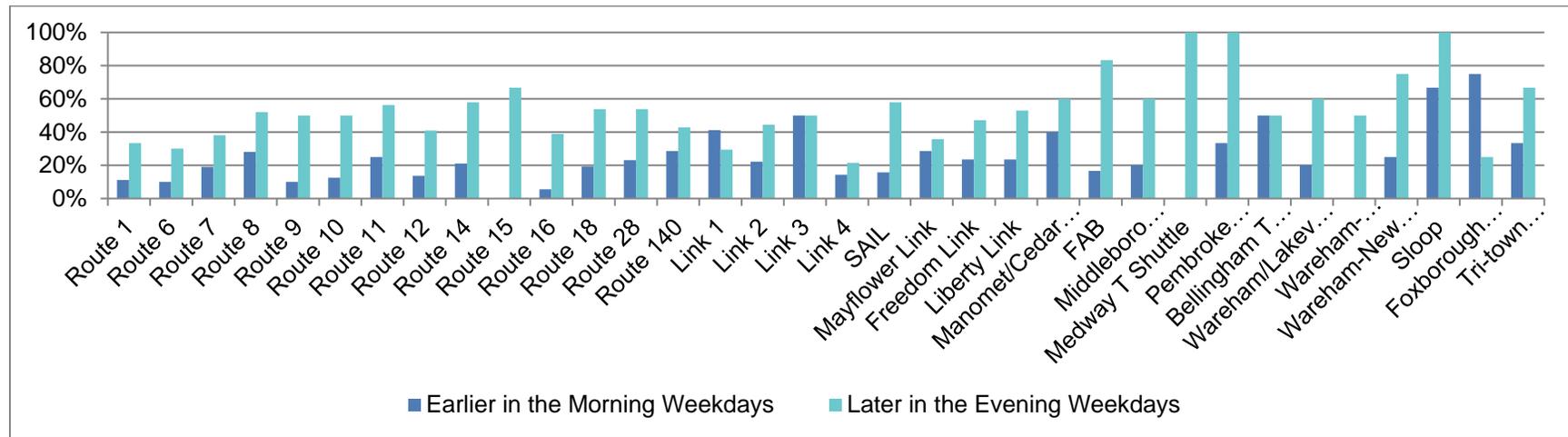
Figure 90. Saturday Desired Times
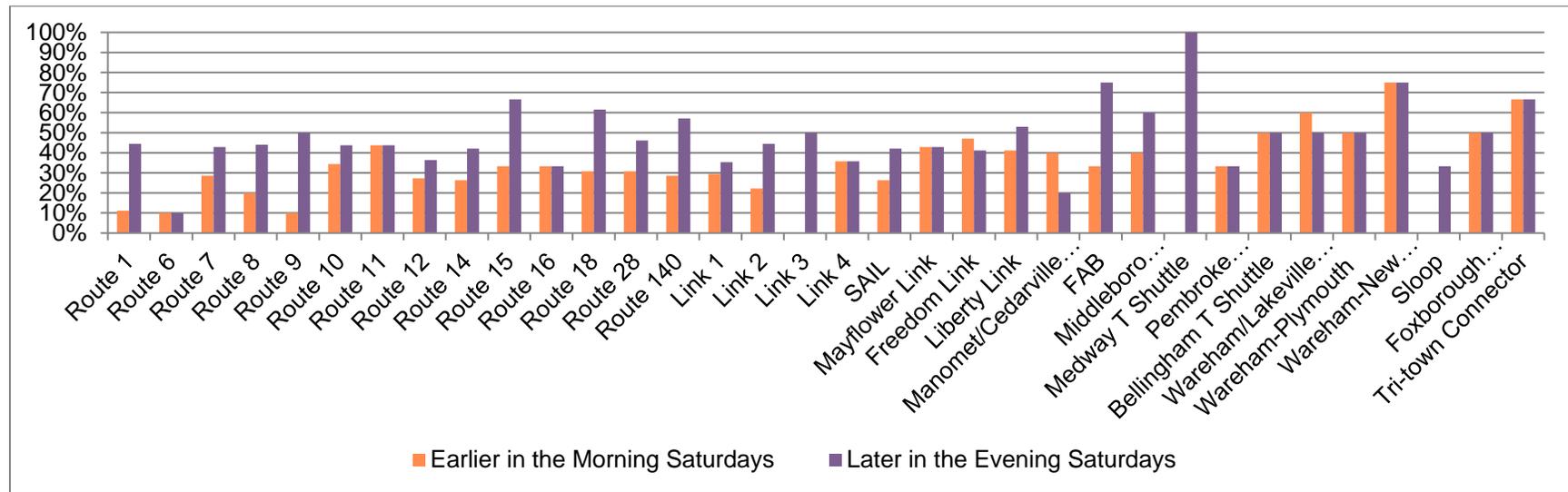
Figure 91. Sunday Desired Service by Route
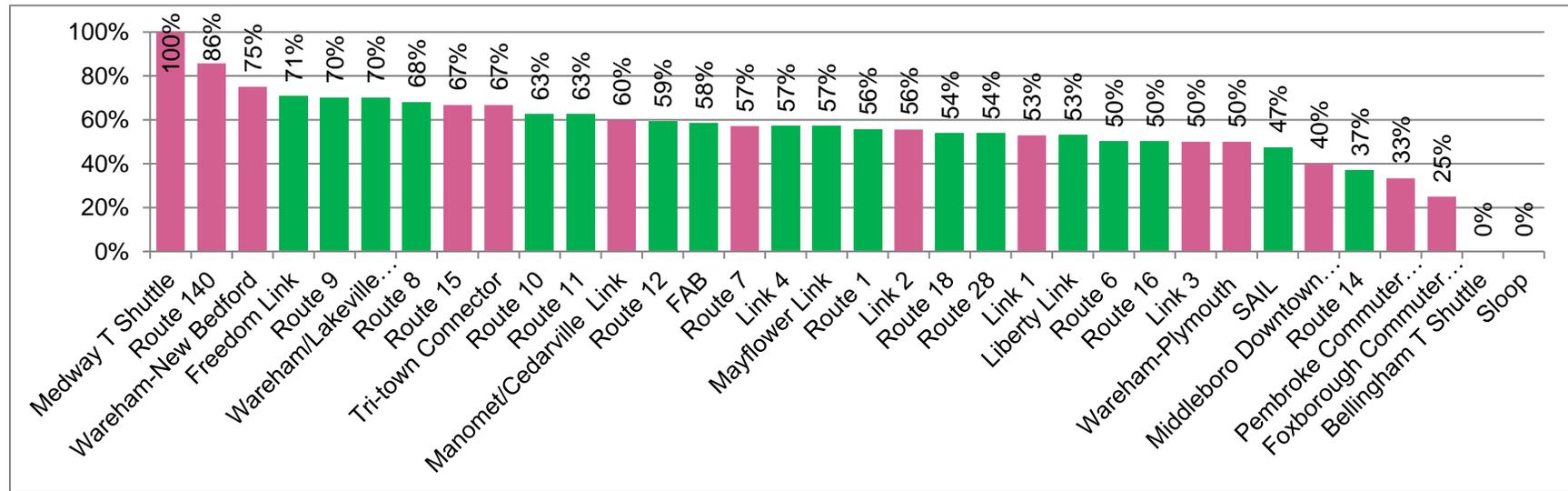
Figure 92. Sunday Desired Times on Top Routes That Had 10 or More Responses
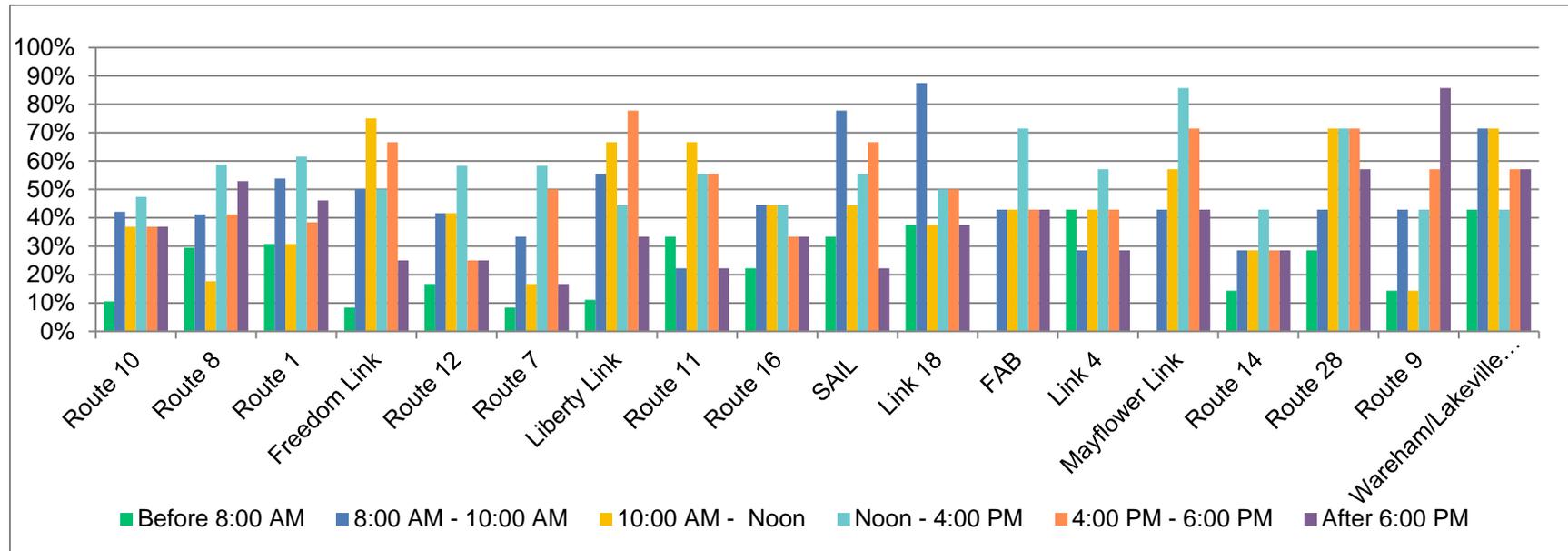
9. Are there any locations you would like the bus to go to that it does not go to now? (n = 156)

More than 50 percent (84 total) would like the GATRA bus to travel to additional locations than currently offered. The remaining 72 respondents selected "no" to indicate satisfaction with the current GATRA bus routes and stops (Figure 93).

**Figure 93. Unserved Locations**
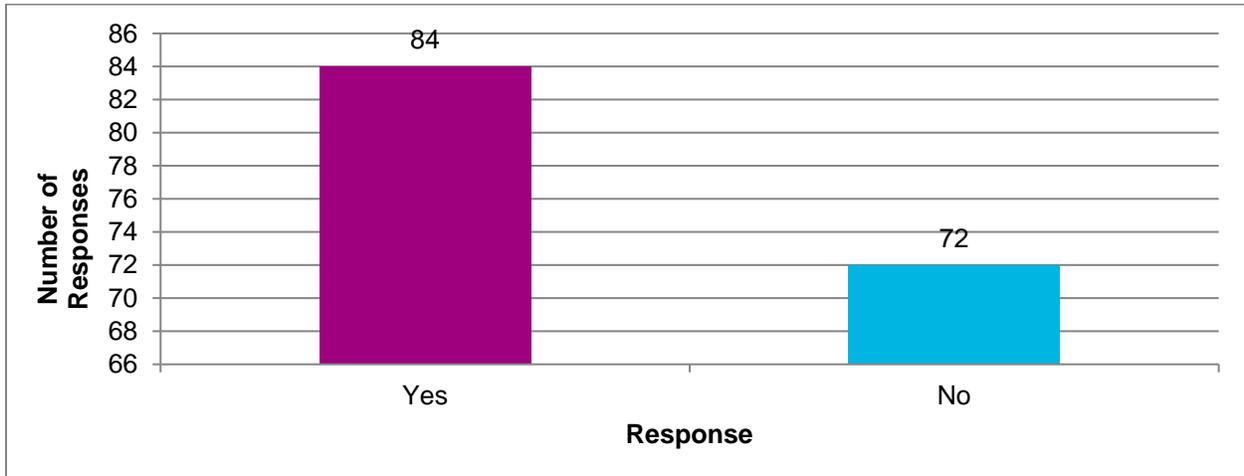
10. Where would you like to go? (n = 80)

A total of 80 respondents provided a location to where they would like to travel that is not currently available using a GATRA fixed route bus. These are mapped in Figure 94 with specific locations in red dots and needed connections with lines. The most common destination was the Walmart and Market Basket plaza in Raynham. Additionally, 20 percent of the locations were for areas outside the current GATRA service area.

Figure 94. Bus Rider Needed Connections
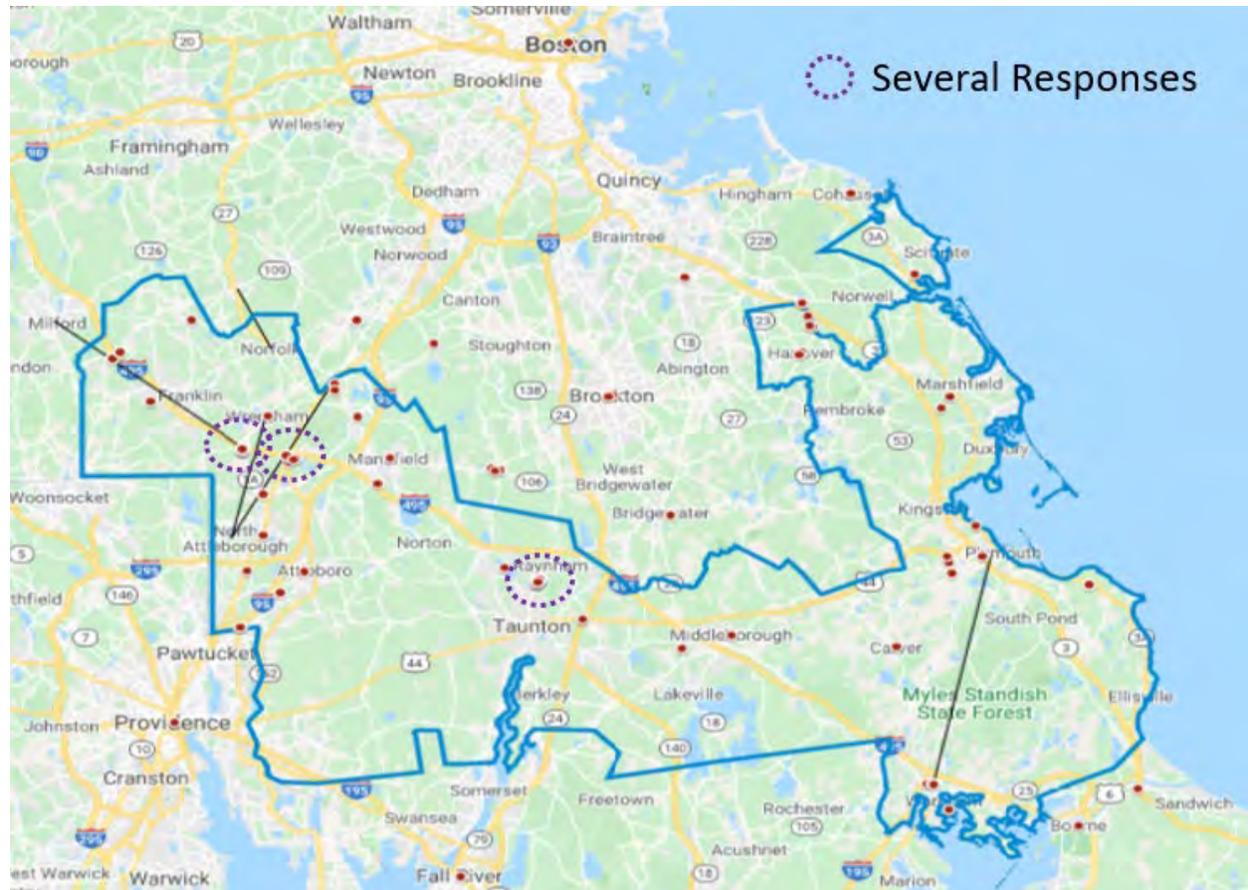
11. What days and times would you like to go? (n = 76)

Using the above-mentioned locations to where respondents would like to travel using GATRA fixed route services, the following days and times are most requested (Figure 95): weekday service, service after 4:00 PM, early morning service (i.e., at 6:00 AM), Saturdays, and Sundays.

Figure 95. Left: Times Would Like to Travel; Right: Days Would Like to Travel
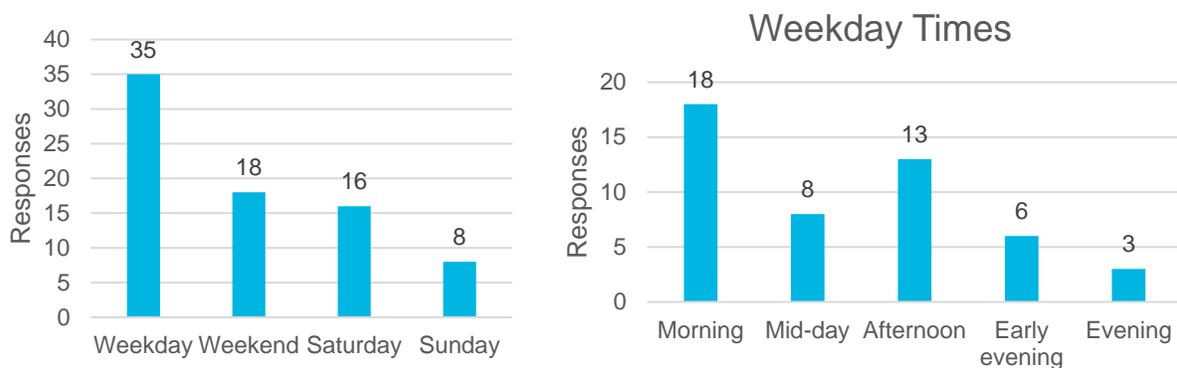
12. What aspects of GATRA service would you like to see improved or made available? (n = 141)

A total of 463 responses were collected from 141 respondents. The top improvement they would like to see GATRA make is designated bus stops with signs (67). A total of 65 respondents would like the option to buy passes or tickets online or with their mobile device, and 61

respondents would like to have access to real-time bus departure and delay information. Only 12 respondents would like to see better onboard safety while riding the buses (Figure 96).

Figure 96. Desired Service Improvements
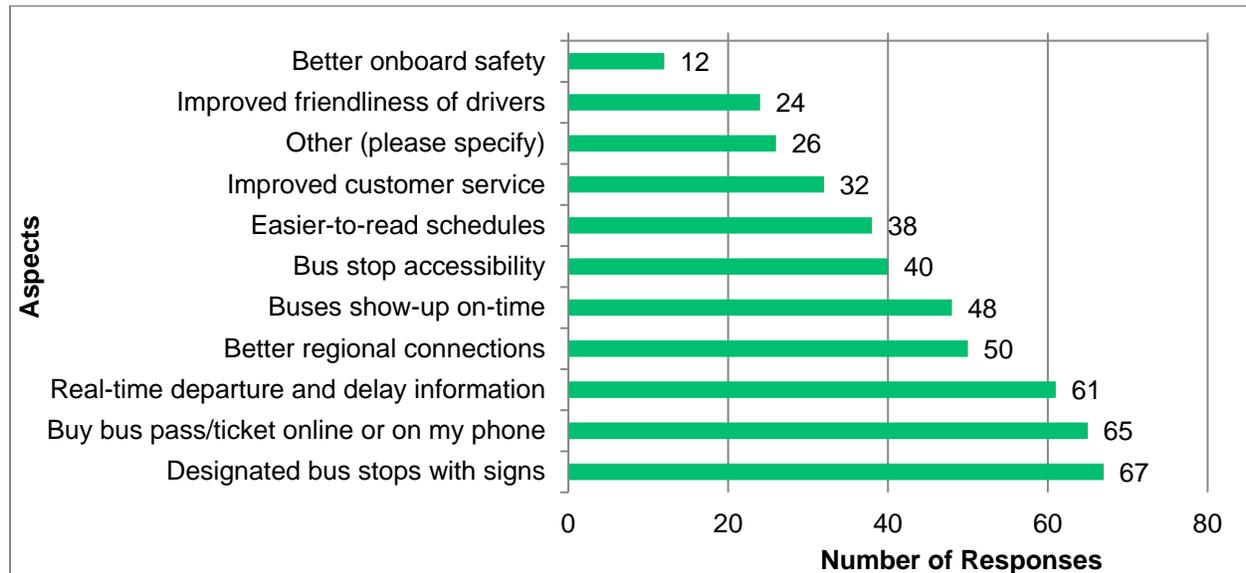
13. **Would you rather increase the places the bus goes to or have the bus run earlier/later in the day? (n = 137)**

Using a scale from 1 to 100, respondents were asked to slide the scale to the option they most prefer: the bus travels to more places or runs for longer hours while traveling to the same places. A "1" represents the bus travels to more places and a "100" represents longer hours. The average score from respondents is 58.1, indicating only a slight majority of respondent would prefer the buses ran for longer hours while traveling to the same locations.

14. **Would you rather the bus come more often (improved frequency) or the bus went to more places (improved coverage)? (n = 126)**

Using the same scale as in the previous question, respondents were asked to denote their preference between two choices: improved frequency or improved coverage. A "1" represents improved frequency and a "100" represents improved coverage. The average score from respondents was 62.3, indicating the majority of respondents would prefer the bus went to more places.

15. **Would you prefer that the bus went to more places (such as into shopping plaza's) or was faster and more direct (stopped on the main road outside of shopping plaza's)? (n = 128)**

Using the 1 to 100 scale, respondents were asked again to select their preference between the bus traveling to more places or the bus running on faster routes and more direct stops. With a "1' representing more places and a "100" representing faster routes, the average score of 68.1 indicates more respondents prefer a faster, more direct bus route.

DEMAND RESPONSE:

16. **Do you use GATRA on-demand services such as GATRA GO, Dial-a-ride, Boston Hospital Bus, Miles for Health or Med Wheels? (n = 215)**

Over half of respondents (120) only use the GATRA fixed route bus and 84 use GATRA on-demand service. Only 11 respondents do not use GATRA (Figure 97).

Figure 97. Use of GATRA Demand Response Services
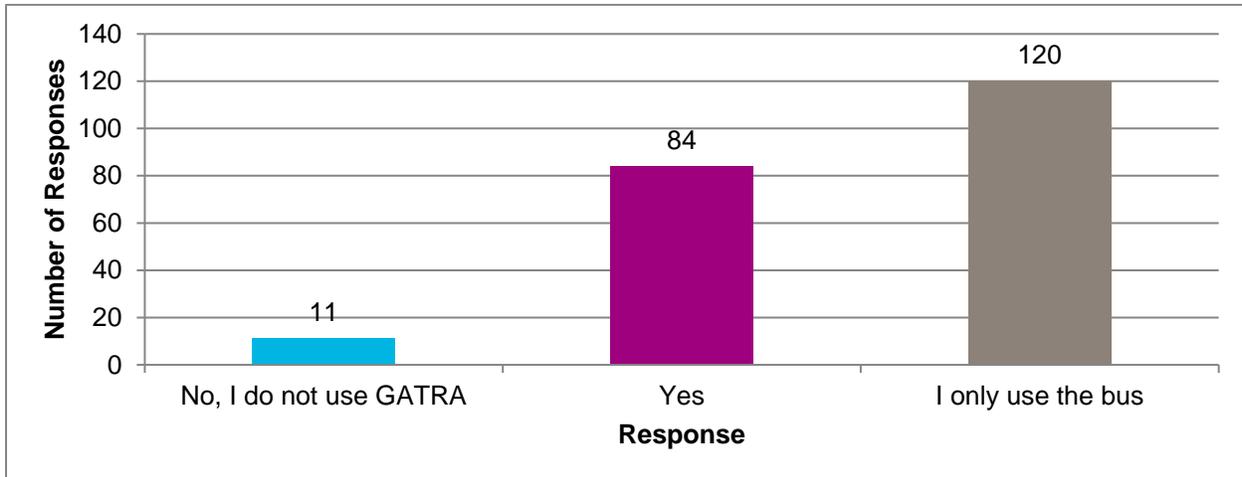

17. What town do you live in? (n = 66)

Nine respondents who use GATRA on-demand services live in Taunton, eight live in Franklin, and five live in Wareham. An additional four respondents live in Plymouth and four live in North Attleborough. No GATRA on-demand respondents live in Dighton, Hanover, Medway, Norfolk, Plainville, Rehoboth, or Scituate (Figure 98).

Figure 98. Residence of Demand Response Users
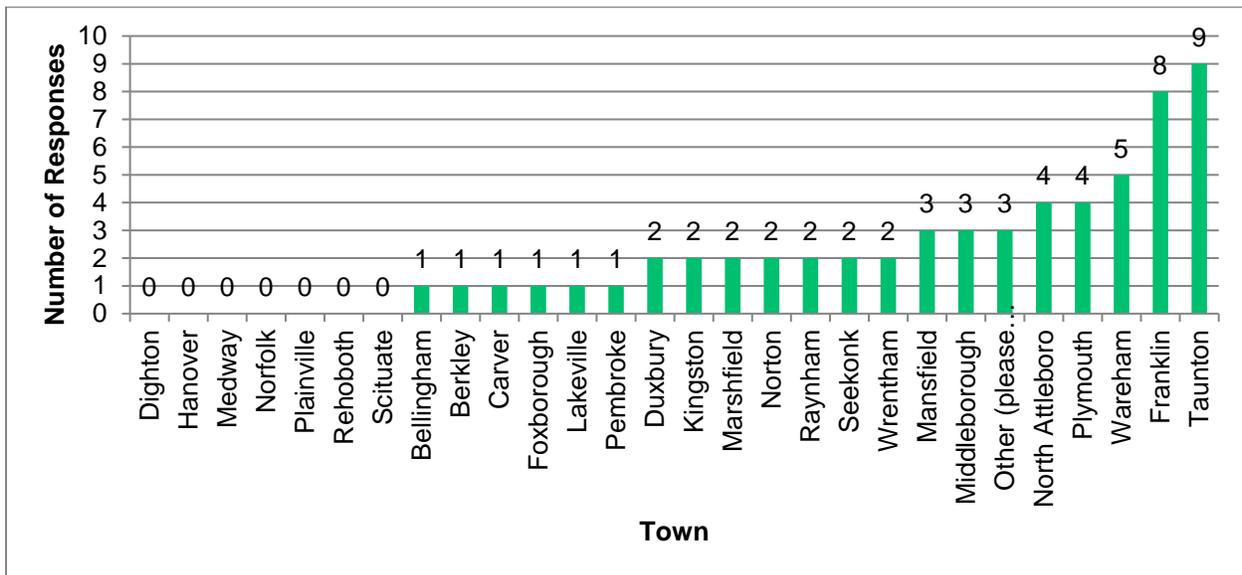
18. What are the top three places you travel to most often? (n = 58)

The top three places respondents travel to most often using the GATRA on-demand services are grocery stores (i.e., Walmart, Stop & Shop, Hannaford, Market Basket), medical appointments, and work (Figure 99).

Figure 99. Top Destinations by GATRA On-Demand Riders
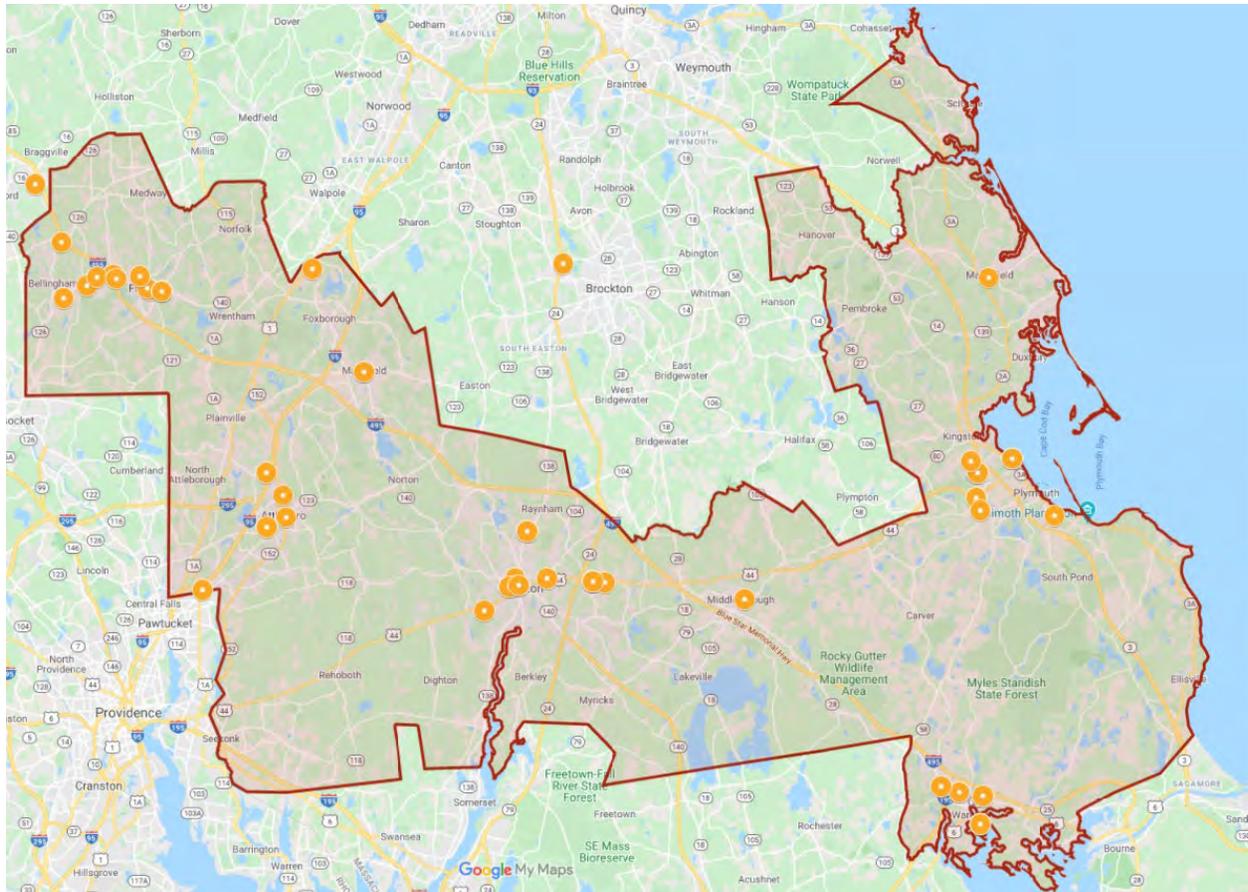
**19. Which GATRA Demand Response services do you use? (n = 69)**

The majority of respondents who use GATRA on-demand services use GATRA Dial-a-Ride (58). Eleven respondents do not use any of the listed services, three use the Boston Hospital Bus service, two use the Med Wheels service, and one respondent uses the Miles for Health service (Figure 100).

Figure 100. GATRA Demand Response Services Used
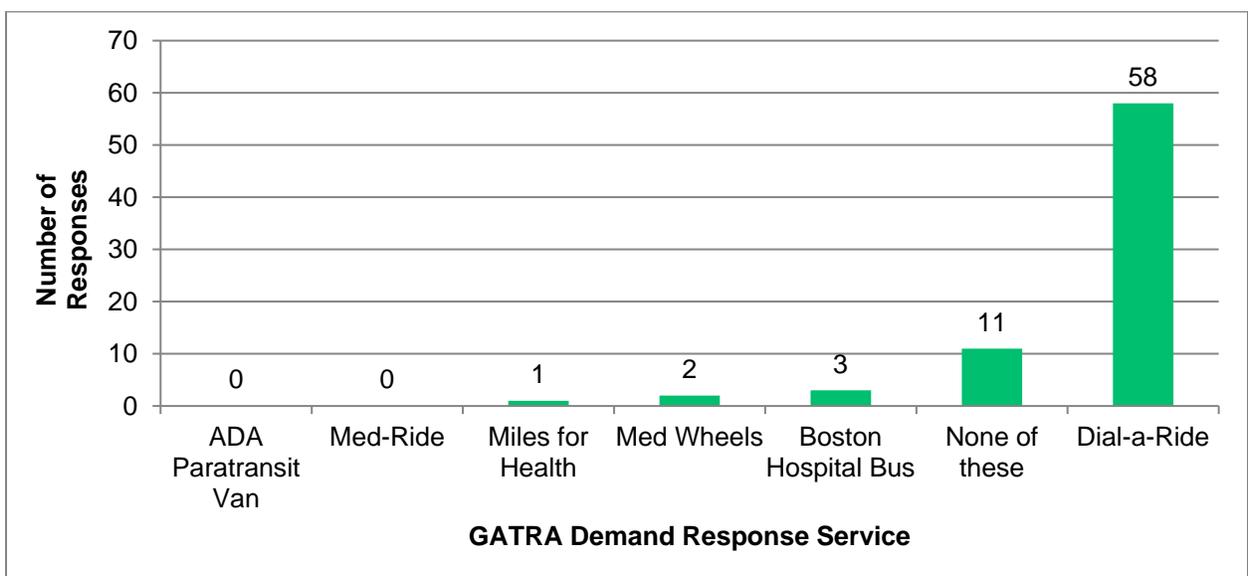
20. Which of the following service improvements would most improve service for you to use? (n = 51)

The top improvements respondents would like to see GATRA make to the current on-demand services are service outside of the GATRA service area (27), later evening service on weekdays (26), same day service (22), and Sunday service (22) (Figure 101).

**Figure 101. Demand Response Desired Service Improvements**
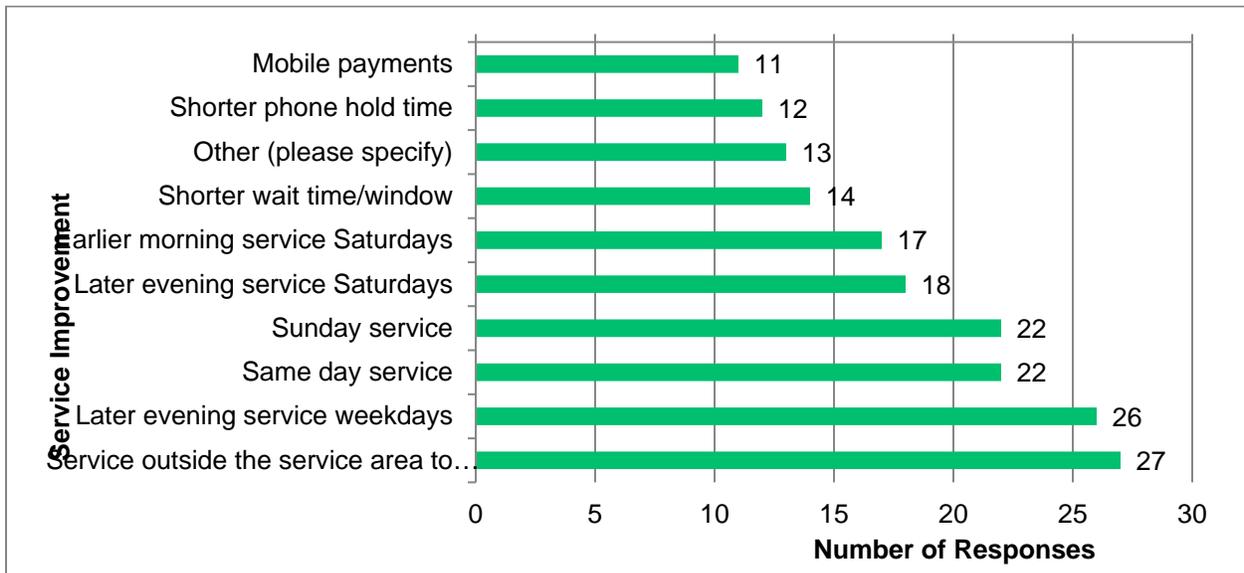
21. Where would you like to go that you currently cannot using GATRA service? (n = 29)

From the 29 responses collected for this question, the majority of respondents would like to go to other towns, Walmart on Route 138, Raynham grocery stores, train stations, and the Wrentham Outlets (Figure 102).

Figure 102. Van Rider Needed Connections
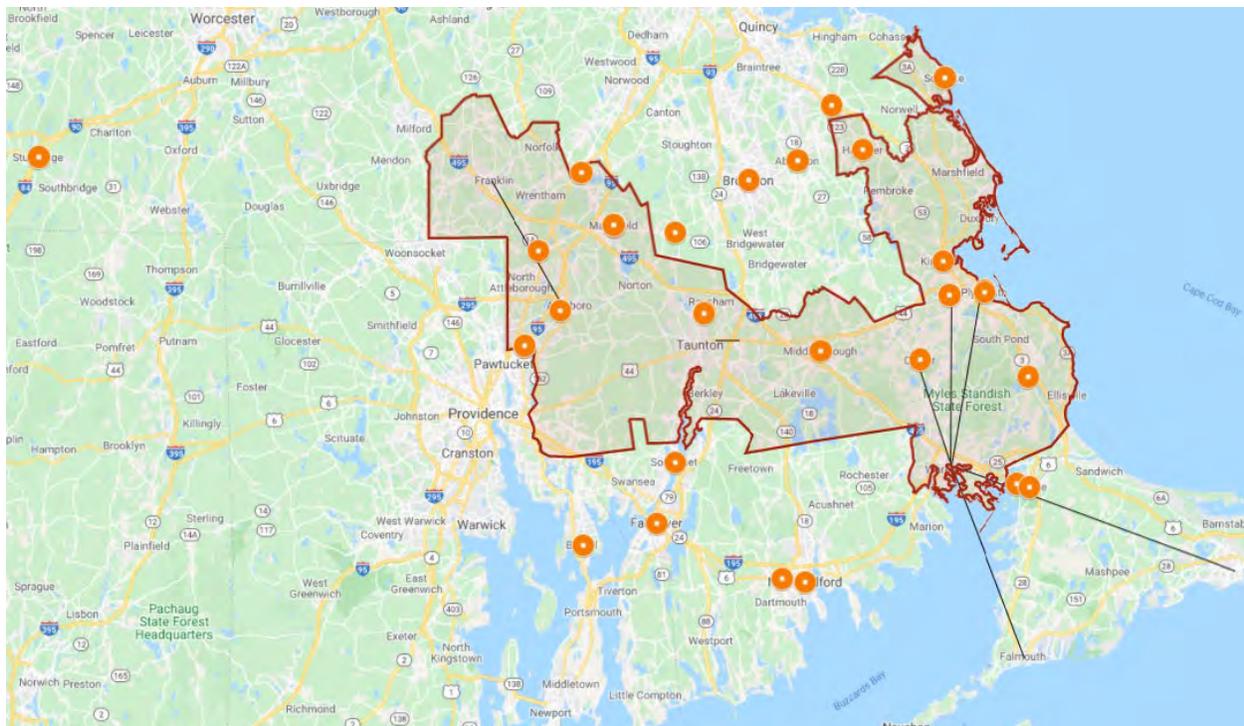
22. What is the maximum you would be willing to pay? (n = 52)

If GATRA were to add on-demand service to neighboring communities, the majority of respondents would be willing to pay between $3.50 and $5.00. For each of the remaining potential improvements, the majority of respondents are not willing to pay more than they currently pay to ride (Table 70)

Table 70. Amount Demand Response Users are Willing to Pay for Additional Services

Service	No more than I currently pay	$3.5-$5	$5-$7.5	$7.50-$10	$10+
Later evening service	57.45%	27.66%	8.51%	2.13%	4.26%
Earlier morning service	55.56%	31.11%	4.44%	4.44%	4.44%
Same day service	51.16%	30.23%	13.95%	2.33%	2.33%
Sunday service	51.16%	30.23%	16.28%	0.00%	2.33%
Neighboring communities not currently served	31.91%	38.30%	10.64%	14.89%	4.26%
Outside GATRA service area	34.04%	27.66%	19.15%	8.51%	10.64%

23. How would you rate your experience when booking a ride on a scale of 1 to 10, with 10 being the best?

Using a scale from 1 to 10, with 10 representing the best, respondents gave GATRA an average score of 6.9 for their overall experience when booking a ride for on-demand services.

## 24. Are you able to schedule rides at the times and days needed? (n = 48)

Approximately 68 percent of respondents (33) are able to schedule rides with GATRA on-demand services on the times and days needed, and 15 respondents report they are not able to do so (Figure 103).

Figure 103. Ability to Schedule Rides When Needed
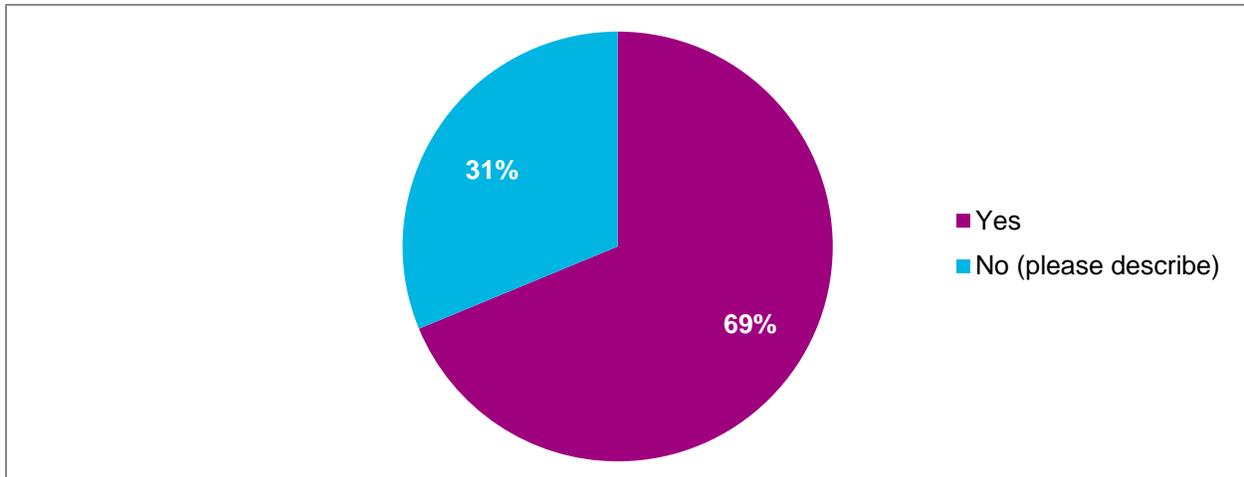
25. If you could book your trip online or through a smartphone, would you? (n = 51)

Just over 70 percent of respondents (27) would book a trip with GATRA on-demand services online or on a smartphone if the option were available. Eleven respondents would not book a trip with GATRA online or on a smartphone if the option were available (Figure 104).

**Figure 104. Potential Use of Online or Smart Phone for Trip Booking**
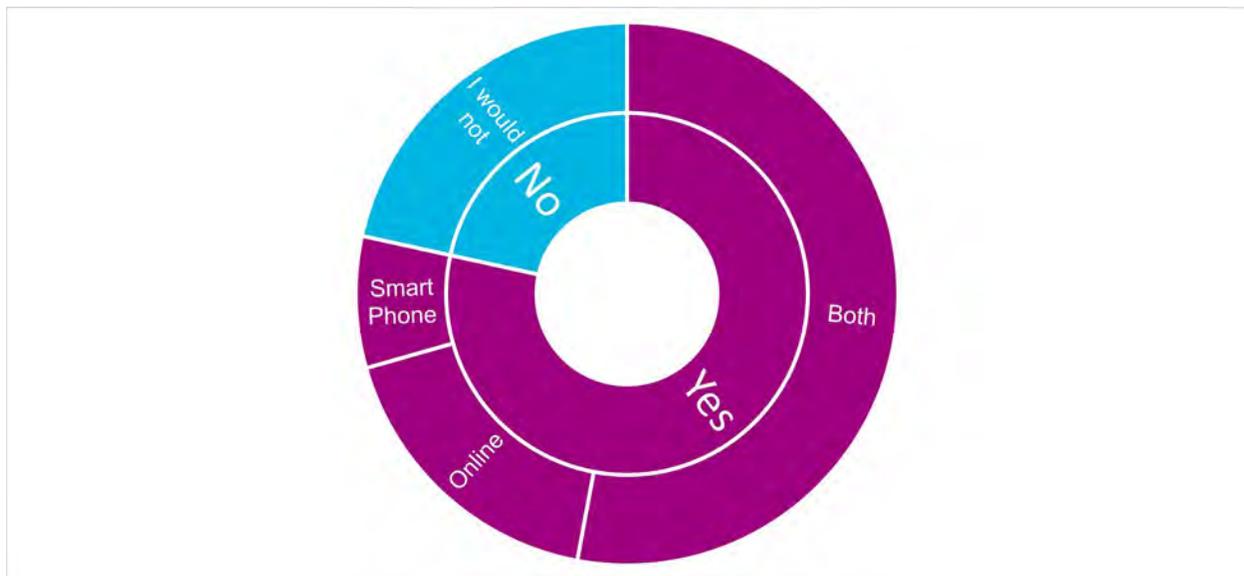
26. If you could pay your fare on your smartphone, would you? (n = 51)

If the option to pay for tickets or passes using a smartphone was available, 29 out of 51 total respondents would use it. A total of 13 respondents do not have a smartphone and the remaining 9 respondents would not pay using a smartphone (Figure 105).

Figure 105. Potential Use of Mobile Fare Payment

Yes   No   I do not have a smart phone
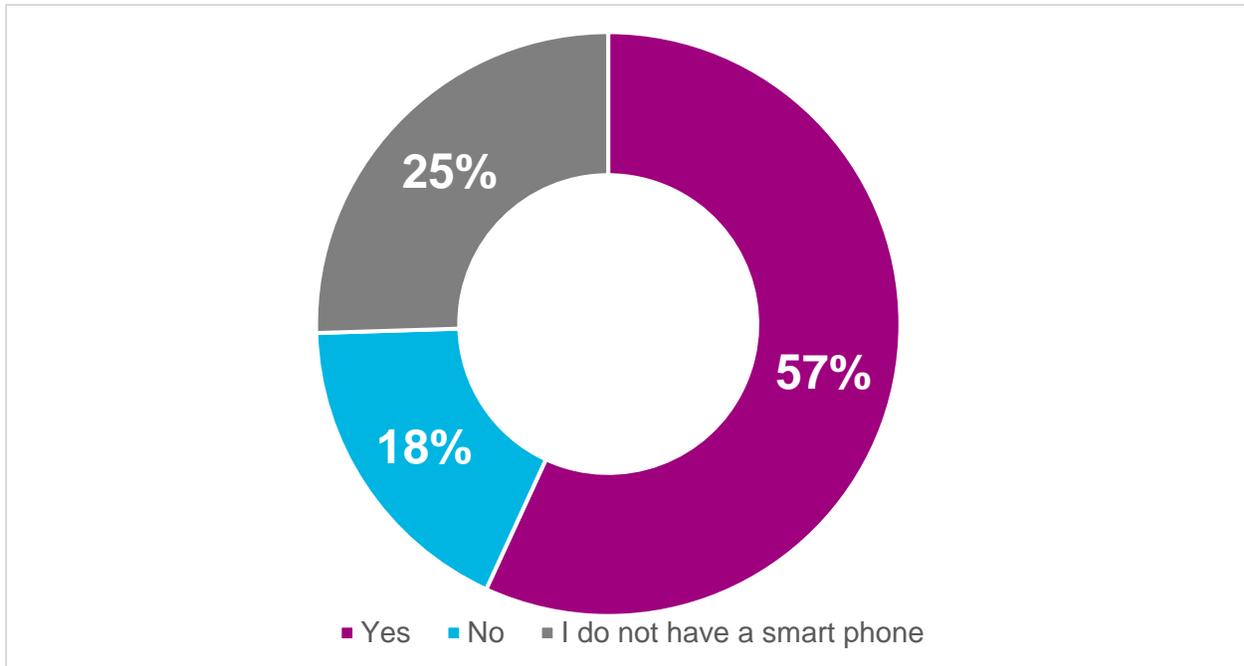
27. How often do you share your GATRA trip with another person (not including a companion, friend, family member or personal care attendant with you)? (n = 52)

A total of 16 respondents out of 52 who responded to this question rarely share a GATRA trip with another passenger and 14 never share a ride. Only two respondents report sharing a ride with another passenger on every three out of four trips, and five respondents share every ride with another passenger (Figure 106).

Figure 106. Frequency at Which Shared Trips Occur
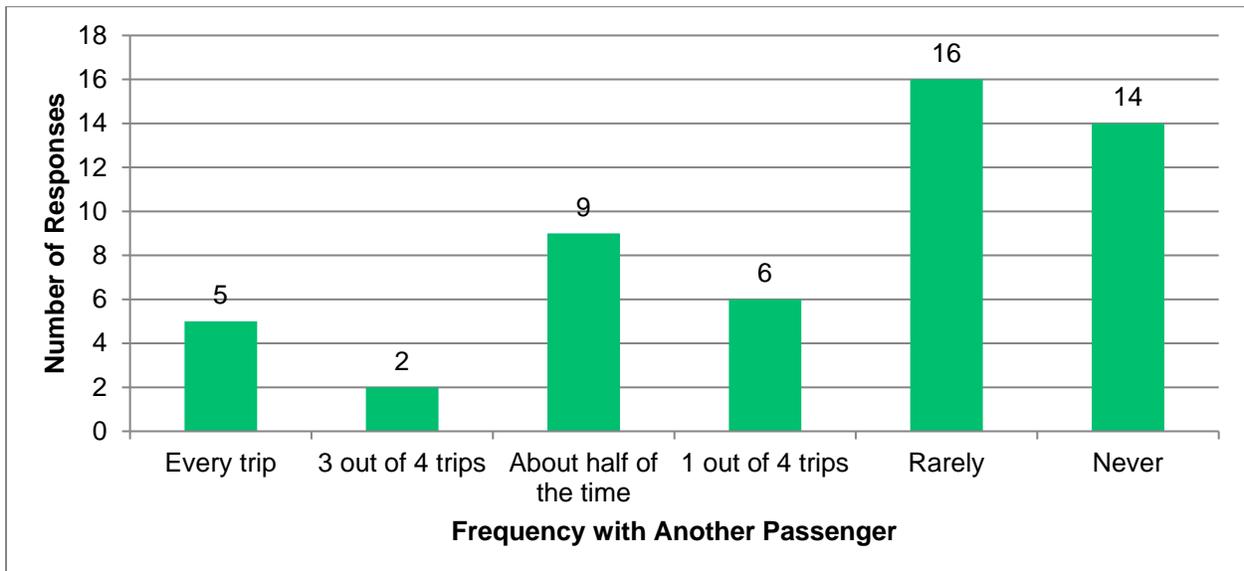
28. Do you use the GATRA GO, GATRA's On-Demand Microtransit service? (n = 60)

Only seven respondents (12 percent) use the GATRA GO microtransit service (Figure 107).

Figure 107. Use of GATRA GO Microtransit
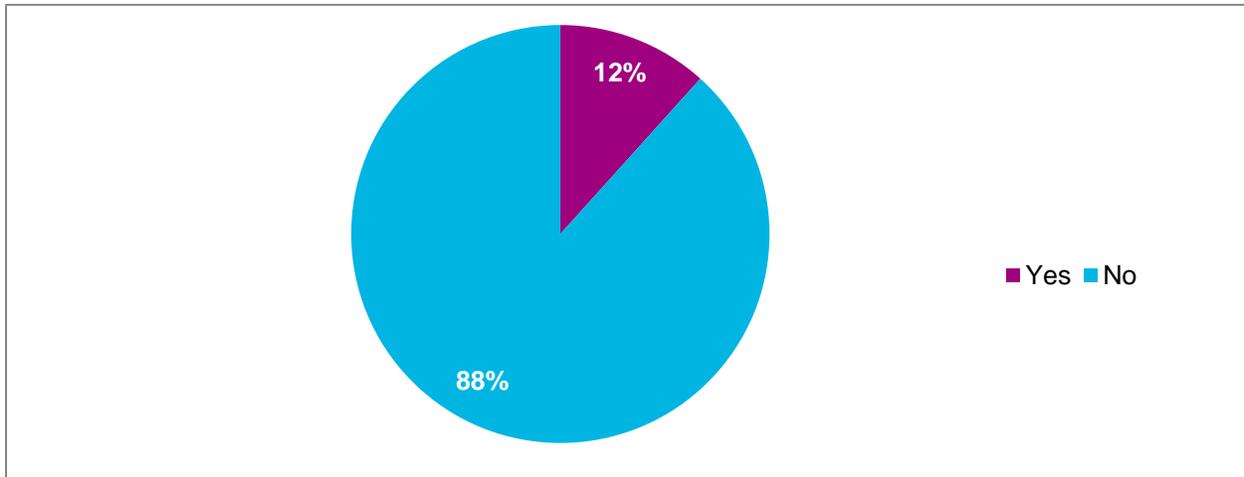
29. Are you able to schedule rides at the times and days needed? (n = 7)

Of the seven respondents who use the microtransit on-demand service, GATRA GO, three are able to schedule a ride for the times and days needed, while four report they are not able to do so (Figure 108).

Figure 108. Ability to Schedule GATRA GO Trips
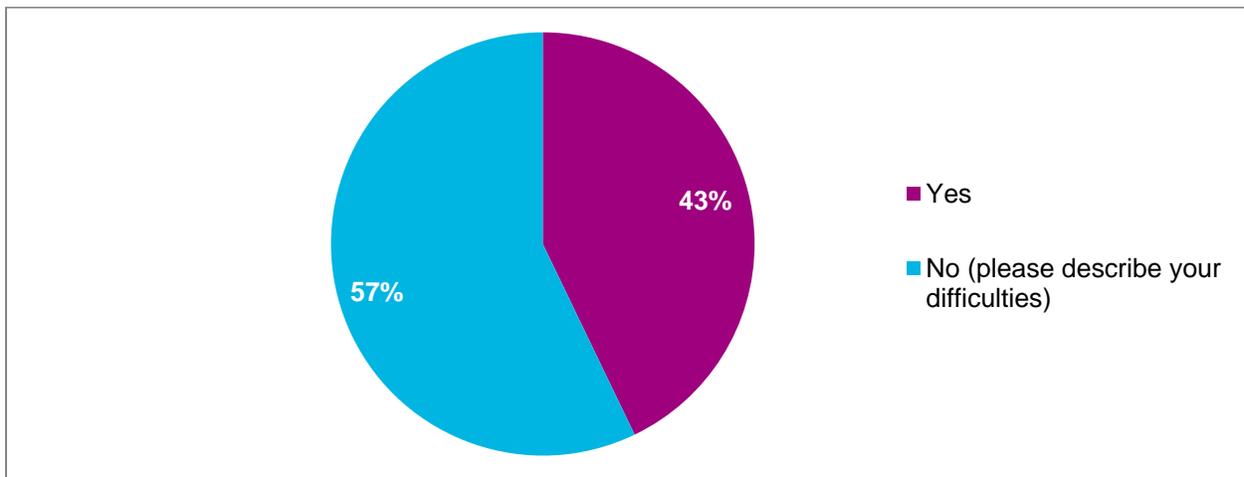
30. Are there places you wish you could go with the GATRA GO that you cannot go now? (n = 6)

From the six responses collected, the destinations to where respondents would like to travel using GATRA GO are currently available stops later into the day than currently offered.

31. Would you use the service more if any of the following improvements were implemented? (n = 7)

If GATRA implemented service to other towns on GATRA GO or if GATRA offered Saturday service on GATRA GO, all seven respondents would use the service. Almost all respondents would use GATRA GO if GATRA offered later evening service, earlier morning service, and Sunday service (Figure 109).

Figure 109. Future Uses of GATRA GO
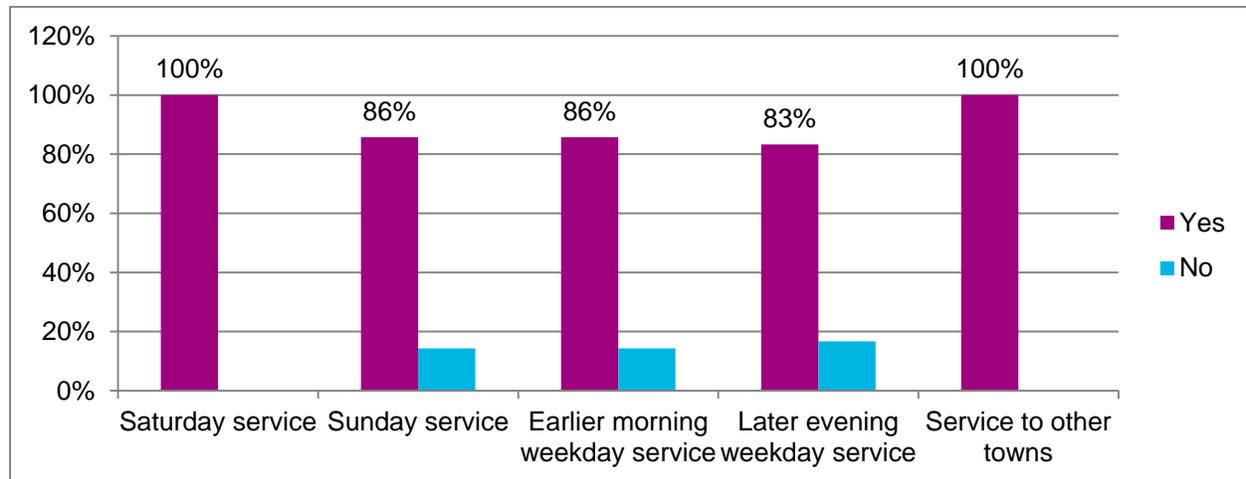
NON-RIDERS:

1.   What town do you live in? (n = 151)

Out of 151 total respondents who do not use GATRA services, 15 live in Attleboro, 12 live in Foxborough, 9 live in Scituate, 9 live in Medway, 8 live in Taunton, and 8 live in Dighton. An additional six respondents selected "other" and live in East Taunton, East Wareham, Watertown, Buzzards Bay, and Lincoln, RI (Figure 110).

Figure 110. Residence for Non-riders
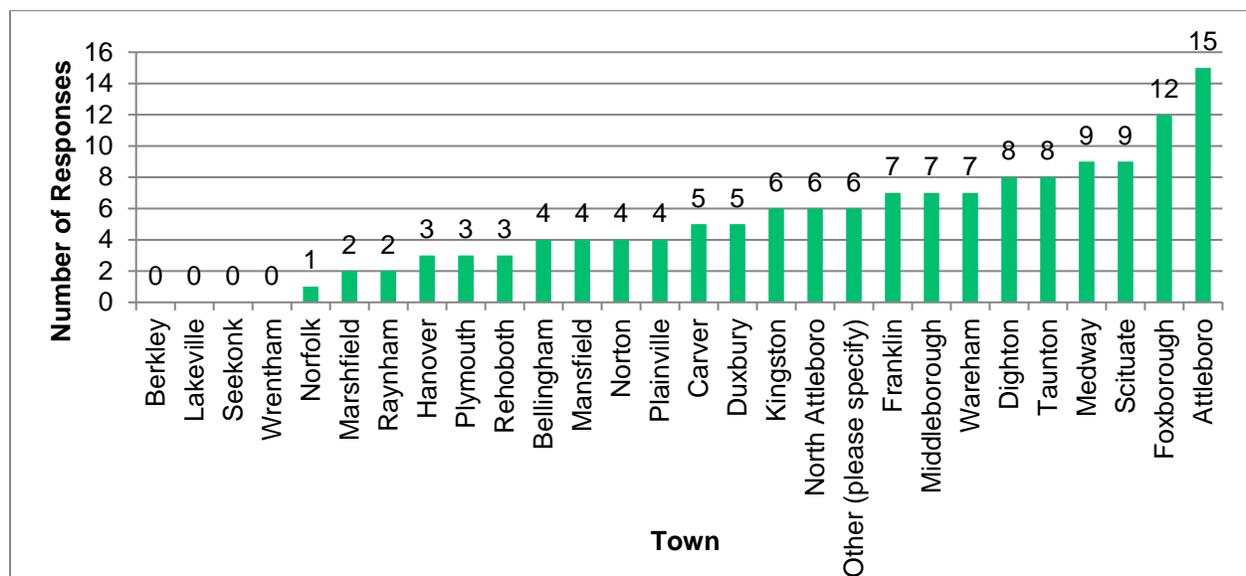
2.   What is the primary reason you do not use GATRA transit services? (n = 155)

The primary reason most respondents do not use GATRA services is because they use their own car (62 total). An additional 30 respondents do not use GATRA because they do not know how. None of the respondents feel the fares are too expensive (Figure 111).

Figure 111. Primary Reason Non-Riders Don't Use GATRA
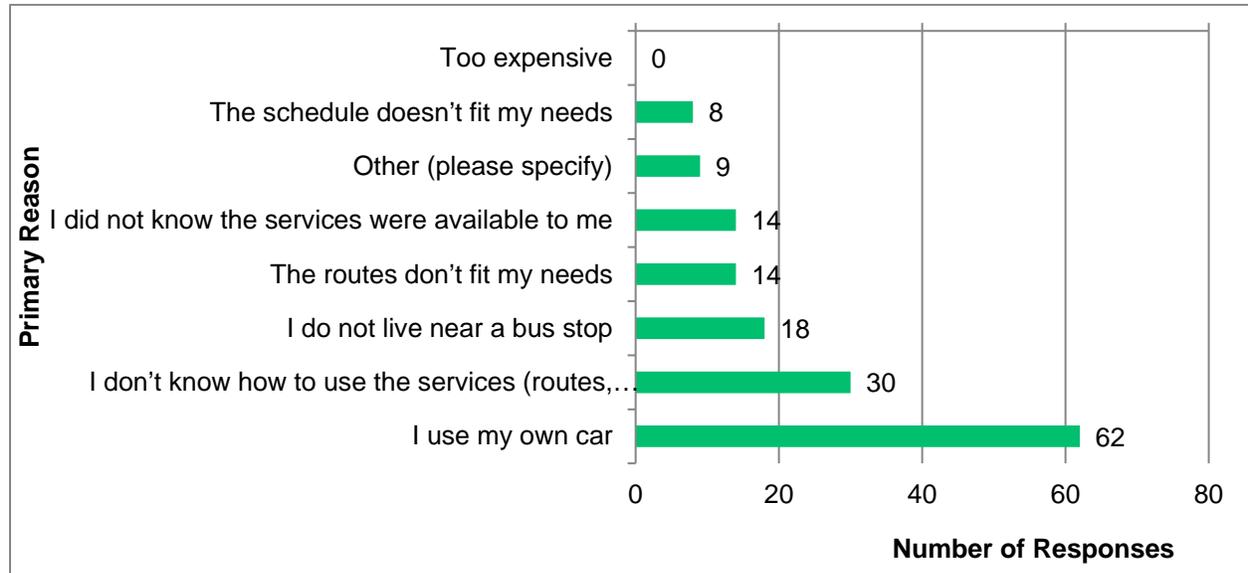
3.   What would encourage you to use GATRA transit services? (n = 145)

When given a list of possible incentives or improvements to get them to ride with GATRA, 73 respondents indicated they would ride if it were easier to understand what and how services are offered. Fifty-five respondents would ride if there were more bus stops, 49 would ride if service was more frequent, and 41 would ride if service hours were extended (Figure 112).

Figure 112. Improvements That Would Encourage Non-riders to Use GATRA
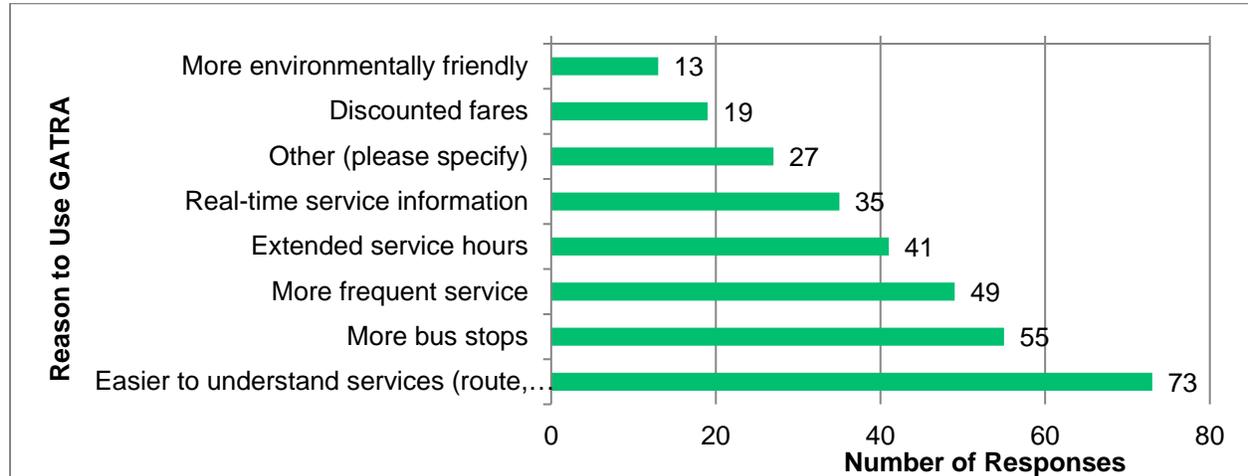
4.   What is your primary mode of transportation? (n = 155)

The primary mode of transportation of almost all respondents (135 total) is their own car. No respondents use a bike or taxi for regular transportation (Figure 113).

Figure 113. Primary Mode of Transportation
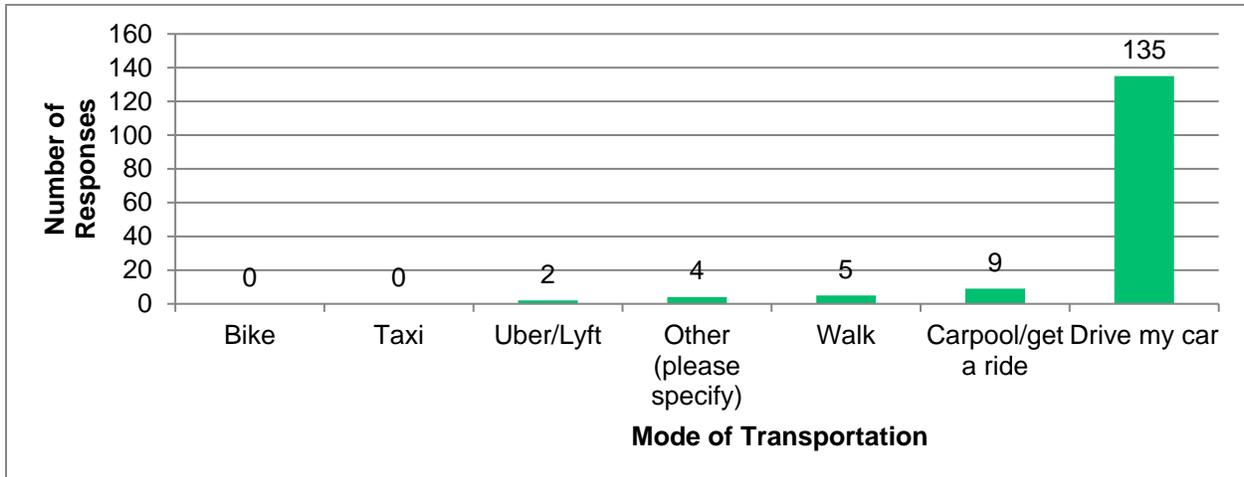
5. **Do you feel that GATRA is a valuable public transportation resource in the region? (n = 156)**

Approximately 72 percent of respondents feel GATRA is a valuable public transportation resource in the region and only 10 respondents answered "no" (Figure 114).

Figure 114. Value of GATRA
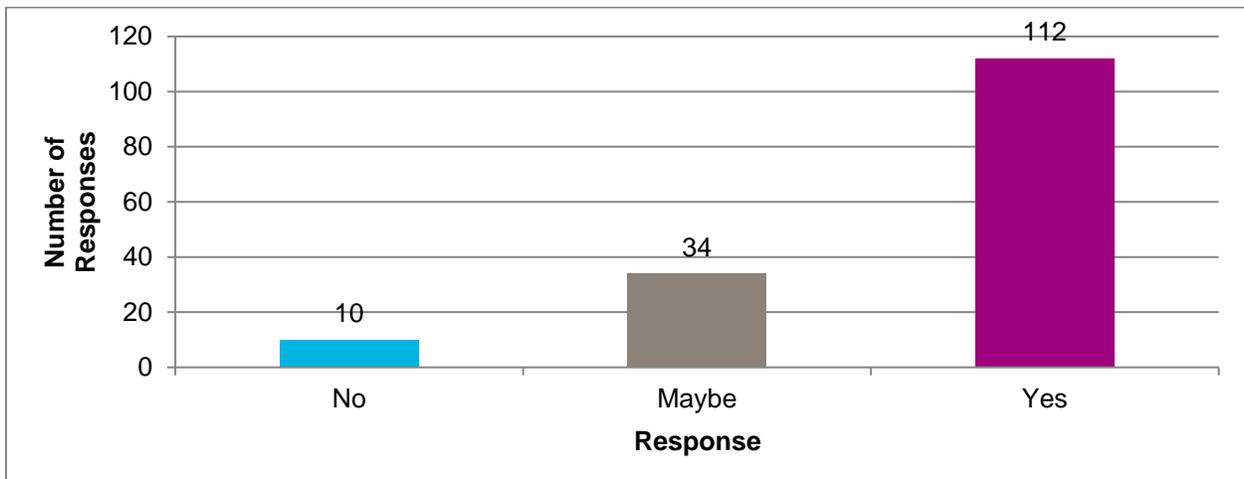
COVID-19 QUESTIONS:

1. **Did you use GATRA services prior to the COVID-19 pandemic restrictions? (n = 179)**

Respondents who use GATRA services, both fixed route and on-demand, were asked if they used GATRA prior to the COVID-19 pandemic and associated restrictions. A total of 172 respondents did use GATRA prior to COVID-19 (Figure 115).

Figure 115. Use of GATRA Services Prior to COVID-19 Pandemic Restrictions for Riders
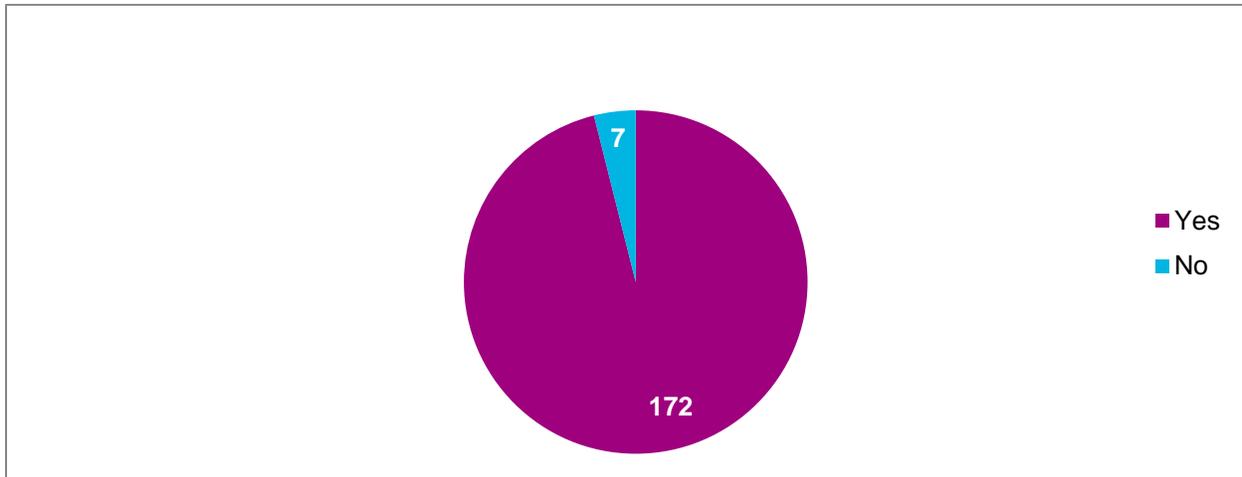
2. **Do you plan to use GATRA services again after the COVID-19 pandemic restrictions are lifted? (n = 170)**

Asked if they would use GATRA after the COVID-19 pandemic restrictions are lifted, almost all respondents (115) indicated they will ride, and an additional 49 are using GATRA during the pandemic. Only six respondents will not use GATRA services even after the public health pandemic restrictions are lifted (Figure 116).

Figure 116. Stated Use of GATRA Services Post COVID-19
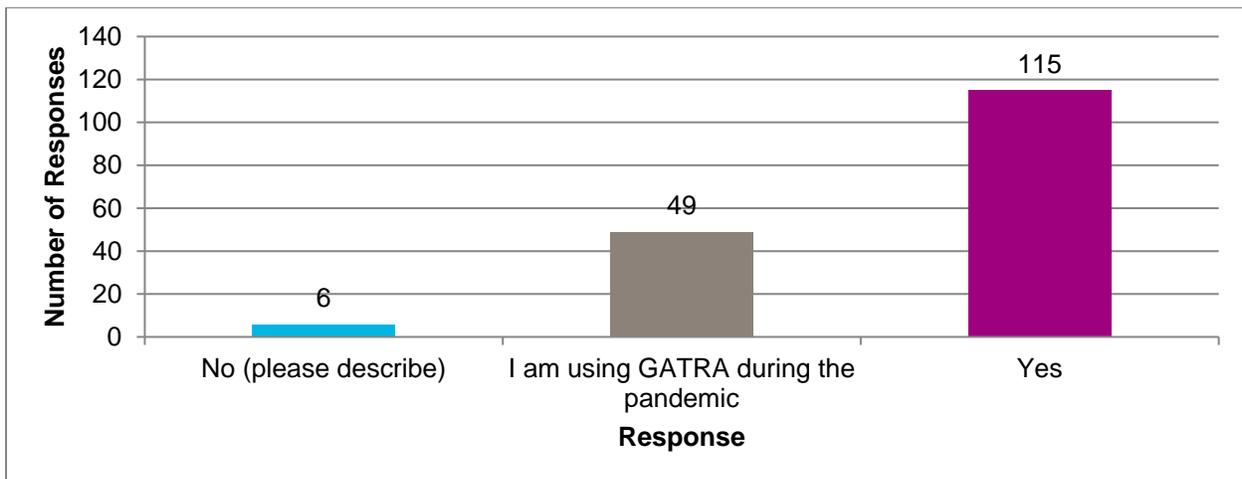
3. **What are your concerns riding on GATRA, due to COVID-19? (n = 164)**

The primary concerns of respondents when riding GATRA as a result of COVID-19 are sanitization (90), social distancing on vehicles (85), bus schedule changes (74), and face coverings (71). A total of 18 respondents selected "other" to indicate additional concerns, including open windows for air circulation, air conditioning, friendly drivers, rear door boarding, and reduced hours (Figure 117).

Figure 117. Concerns Riding GATRA Due to COVID-19
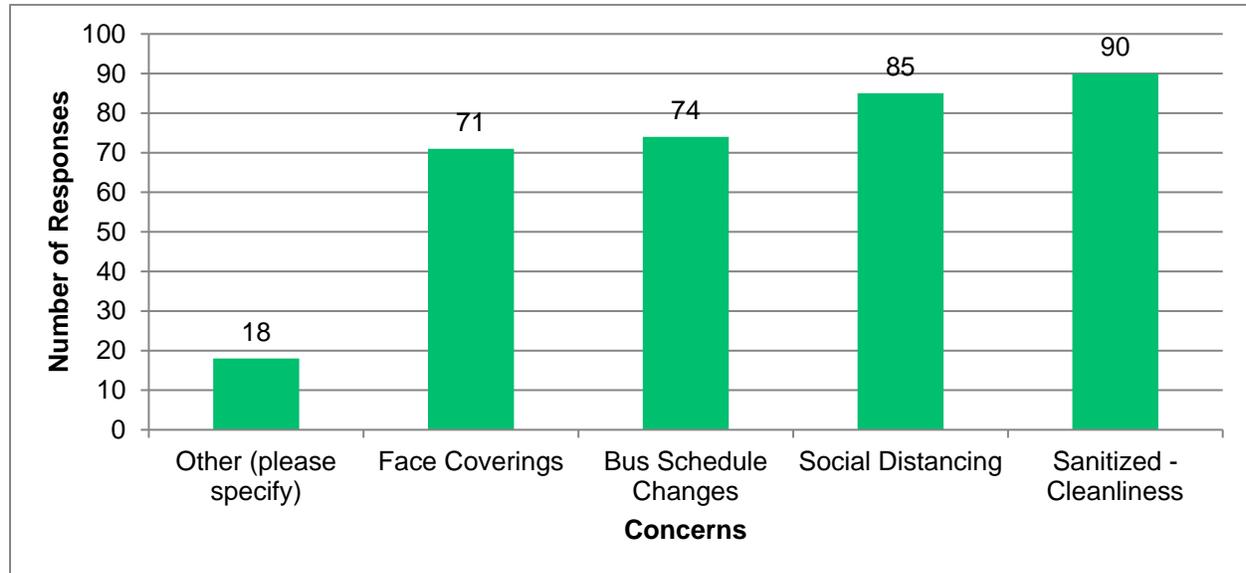
4. **As the GATRA communities and surrounding areas begin to reopen following the COVID-19 pandemic closures, what can GATRA do to make you feel more comfortable about riding with us? (n = 164)**

More than half of respondents (93) would feel more comfortable riding with GATRA following COVID-19 closures if cash-free payment options were expanded and an additional 91 respondents would feel most comfortable with enhanced cleaning measures. Service was reduced as a result of COVID-19 restrictions and 83 respondents would feel most comfortable if GATRA more rapidly returned to normal schedules and services (pre-pandemic). A total of 54 respondents want improved communications from GATRA and 12 selected "other" to provide their own response. The additional responses provided include increased air flow, bus passes available on the bus, more destinations/stops, friendly drivers, advance scheduling for all riders, and all drivers wearing masks/face coverings to feel more comfortable while riding (Figure 118).

Figure 118. How GATRA Can Make Individuals Feel More Comfortable Riding
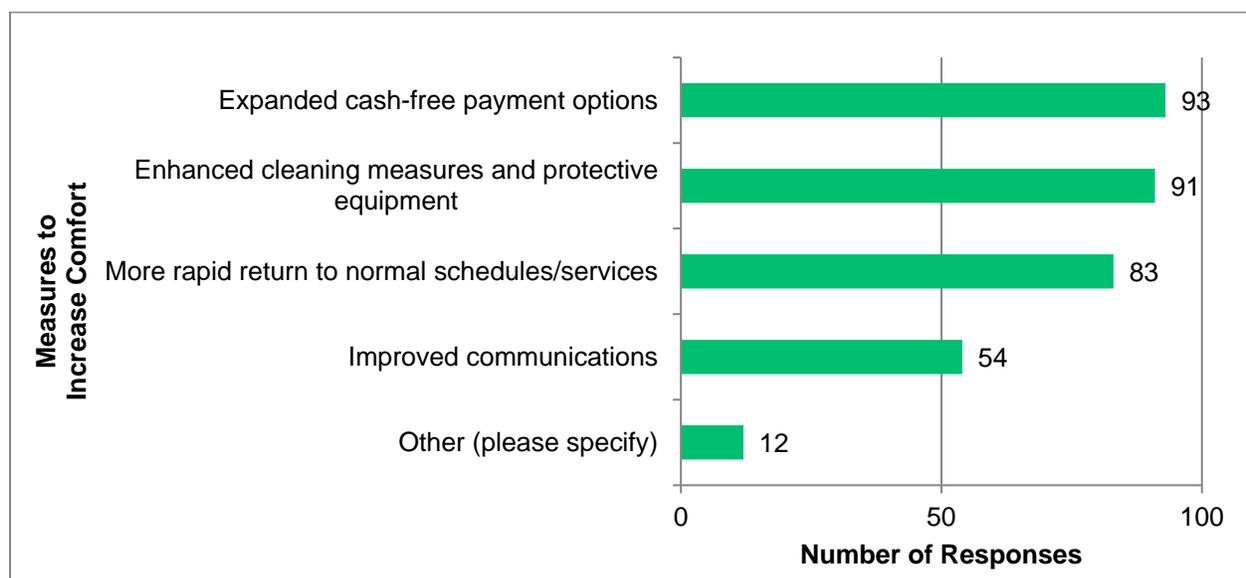
5. **How safe do you feel while riding on a GATRA vehicle? (1 = unsafe and 5 = very safe) (n = 172)**

Using a scale from 1 to 5 where 5 represents very safe, a total of 172 respondents measured their level of safety while riding on a GATRA vehicle. The average score from respondents is 4.2.

6. **How do you feel that GATRA handling the COVID-19 pandemic? (1 = poor and 5 = excellent) (n = 239)**

Using a scale from 1 to 5 where 5 represents excellent, a total of 239 respondents measured how GARA handled a response and plan for the COVID-19 public health pandemic. The average score from participants is 3.9.

7. **As a result of COVID-19 pandemic closures, are you currently working from home? (n = 331)**

All respondents were asked if they are currently working from home as a result of the COVID-19 pandemic. Working from home is not applicable to 122 respondents as they are retired, unemployed, a student, etc. Of the remaining respondents, 85 are not able to work from home, 55 work from home 100 percent of the time, and 22 cannot work from home because their office has reopened. A total of 20 respondents work from home a few days a week and only four have always worked from home. Additional respondents selected "other" and provided the following responses: furloughed, work from home 50 percent of the time, work from home schedule changes week-to-week, disabled, and self-employed (Figure 119).

Figure 119. Remote Working Breakdown
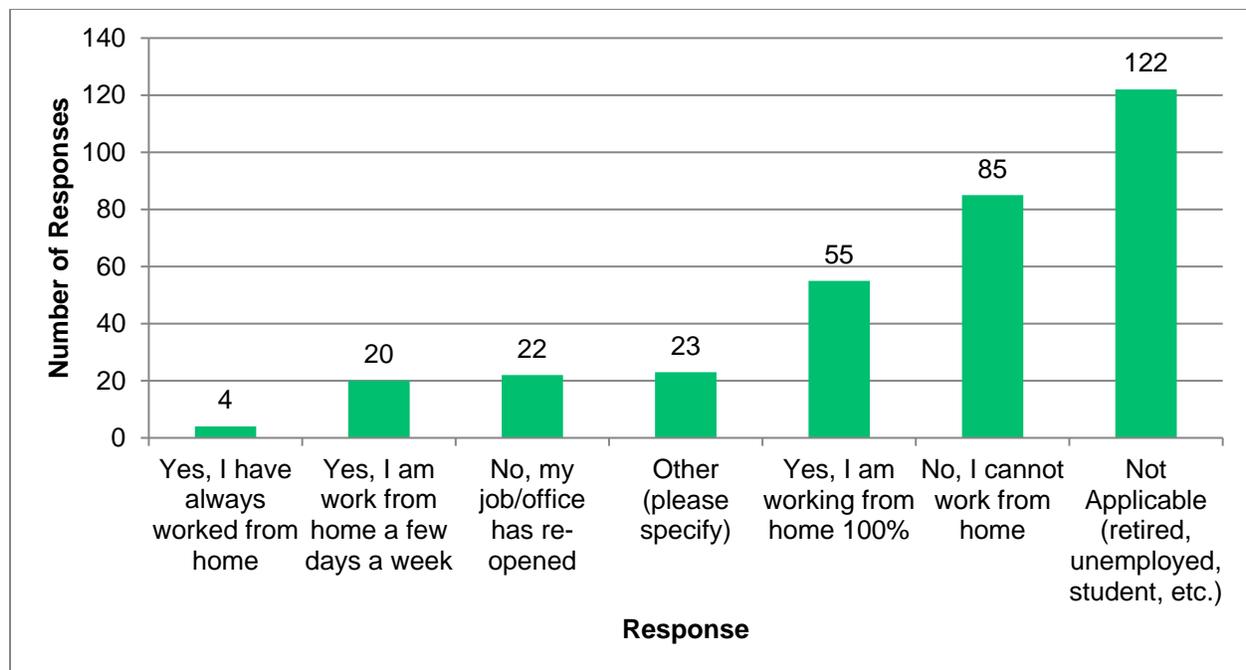
8. **Will you continue to work from home once the restrictions are lifted? (n = 77)**

Respondents who work from home were asked if they will continue to work from home after pandemic restrictions are lifted. Out of 77 total respondents, approximately half of respondents (39) will not continue to work from home and 38 will (Figure 120).

Figure 120. Remote Working Post Pandemic
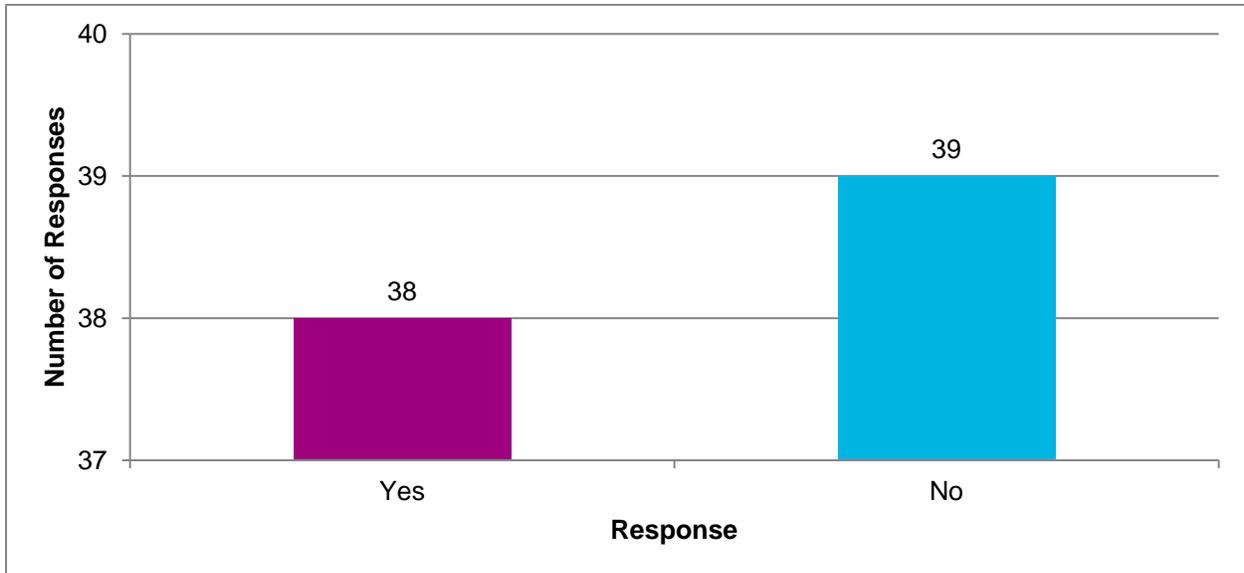
DEMOGRAPHICS:

The average age of respondents was 49 years with a median age of 50. The other demographics of survey respondents are summarized in following figures: Figure 121, Figure 122, Figure 123, Figure 124, and Figure 125.

Figure 121. Gender Breakdown of Survey Respondents
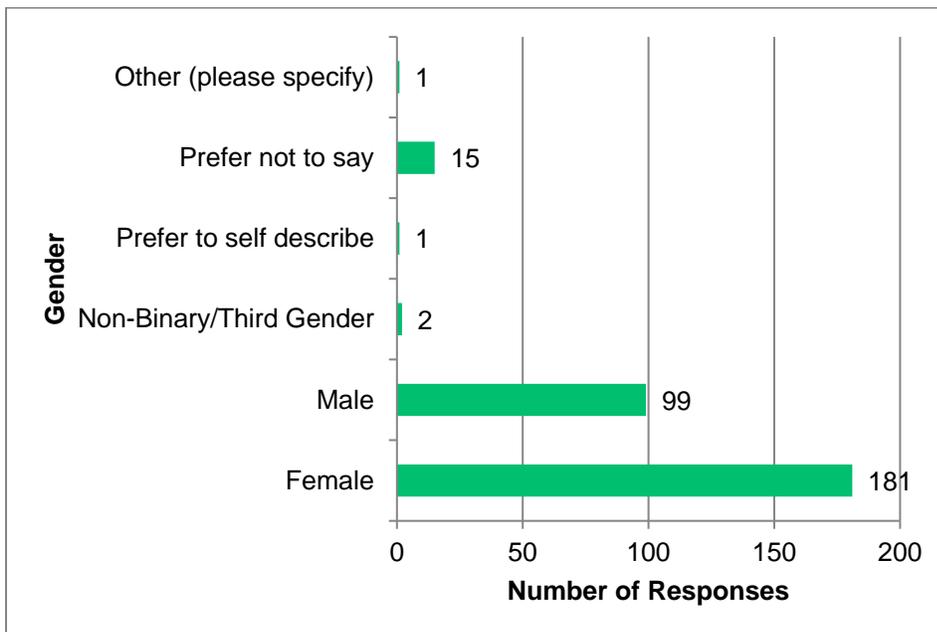
Figure 122. Race/ethnicity Breakdown of Survey Respondents
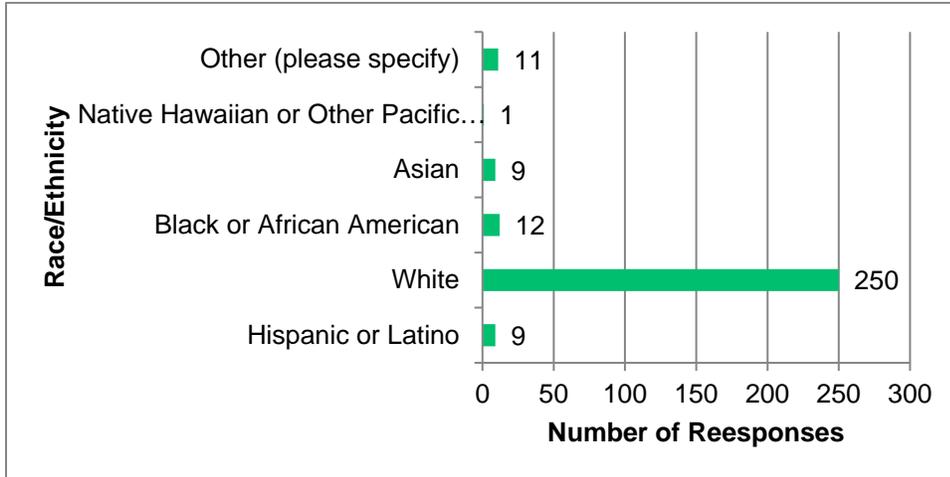
Figure 123. Household Size Breakdown of Survey Respondents
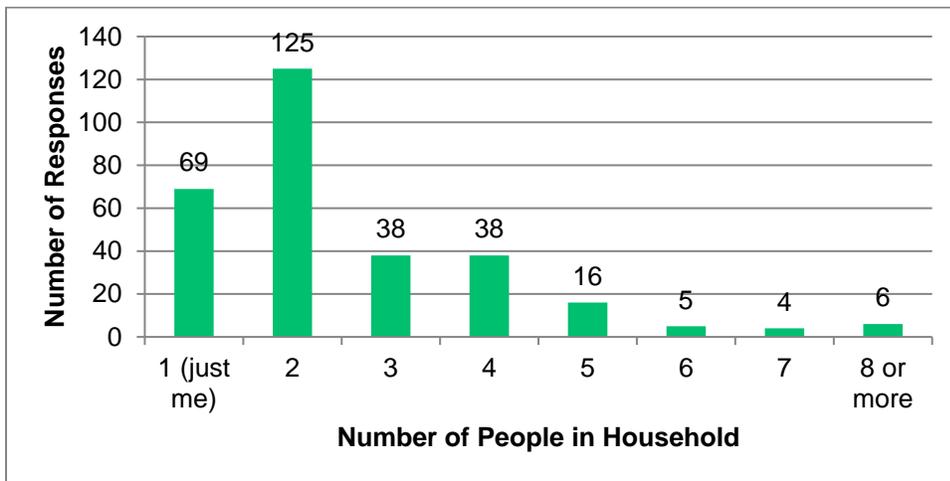
Figure 124. Household Annual Income Breakdown of Survey Respondents
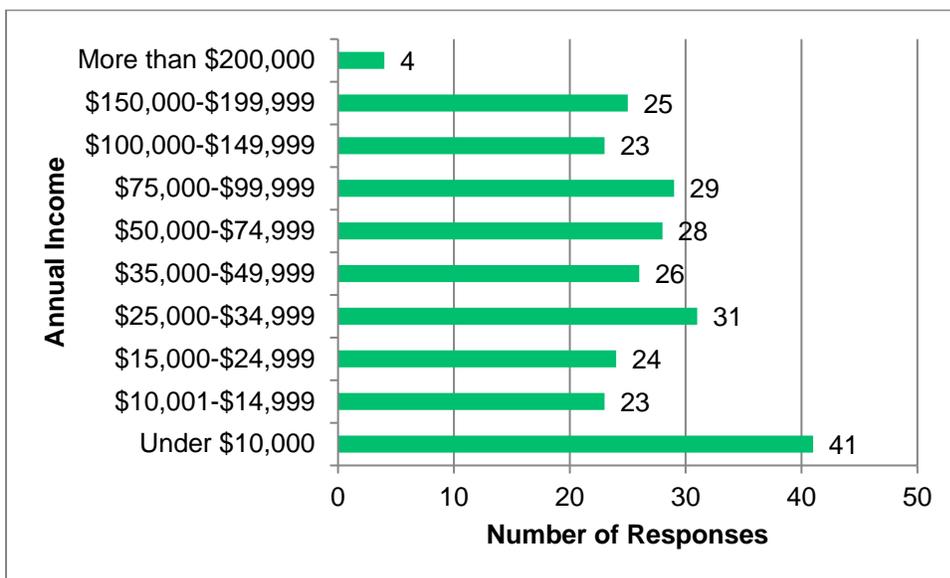
Figure 125. Primary Language Breakdown of Survey Respondents
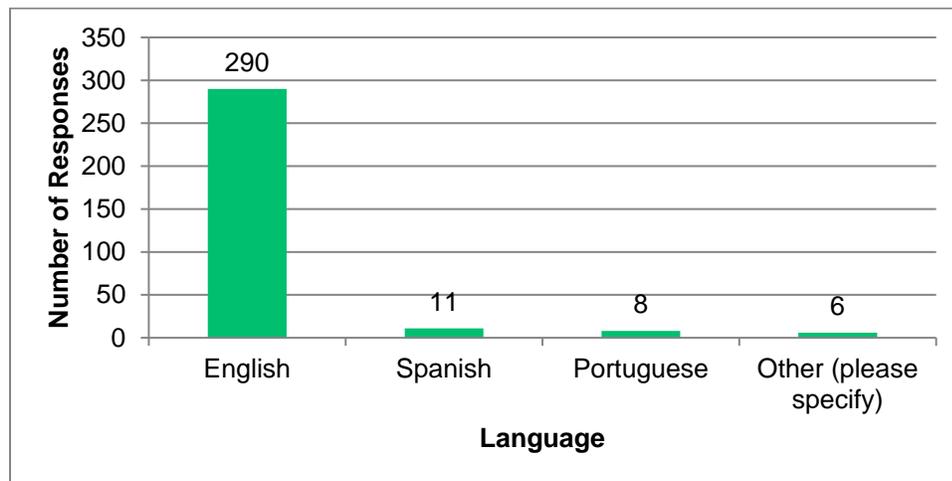
Table 71. Demographic Breakdown by GATRA Usage

Demographic	Bus Riders	Van Riders	Non-Rider
Average Age	48	52	54
Gender	60% female	57% female	63% female
Ethnicity	81.6% white	80.0% white	93.5% white
Language	99% speak English, 11% speak a second language	100% speak English, 12% speak a second language	100% speak English, 8% speak a second language
Income	45% made less than $25,000	58% made less than $25,000	17% made less than $25,000
Household Size	2.5	2.2	2.8

Do you have any other concerns regarding GATRA service? (n = 83)

More than 50 percent of respondents (44) do not have additional concerns regarding GATRA service or expressed happiness with current services. The remaining respondents expressed concerns over overall safety and security on GATRA vehicles and in transit centers (2), friendliness of drivers and staff (7), the frequency and schedules of buses and vans (11), weekend service (1), masks, cleanliness, and social distancing (4), existing routes (11), technology (1), and accessibility and comfort on-board GATRA vehicles (3).

Feedback from Google Voicemail or Project Email Address (n = 2):

Two respondents submitted additional feedback for the CRTP update: one voicemail and one email. The feedback is summarized below:

Voicemail

A respondent would like GATRA to offer on-demand service from Foxborough to Norwood or Walpole directly, without stops or route deviations. The respondent would also like an option for direct service from Foxborough to Attleboro.

Email

A respondent would like GATRA to research equitable transportation options with specific attention to low-income communities and younger riders. An additional suggestion is for GATRA to connect passengers to locally grown food and local food systems in an effort to contribute to the improvement of the overall health of these communities. The respondent also suggested GATRA continue to research how to use renewable energy to provide services, such as electric buses.

Stakeholder Meetings

A conference call was held on July 16, 2020, with the GATRA GCAC to discuss transportation barriers and needs for the region. The GCAC is made up of representatives throughout the GATRA service region and includes consumers, COAs, HST providers, municipal governments, housing service agencies, planning organizations, and others. At the July 16 meeting there were seven GCAC members in attendance in addition to GATRA (Table 72). A short presentation was given in the beginning to give context for why GATRA was updating the plan and what it contained followed by a discussion around three questions. A summary of the conversation around each question is presented in Figure 126.

Table 72. GCAC Attendance for Stakeholder Meeting

GCAC Member Groups Represented

Kingston COA

Independent Associates of East Bridgewater

Attleboro Housing Department

North Attleborough COA

Seekonk COA

GATRA Consumer

SRPEDD

Figure 126. GCAC Transit Needs

| Q1 | Are there places you wish you could go on GATRA that you cannot? |

•Demand response needs to connect North Attleboro and Taunton as many social service reources are located in Taunton
•Demand response needs to connect East Taunton to Attleboro
•Extended hours for the Seekonk demand response
•Service from Seekonk to neighboring towns for demand response

| Q2 | What barriers or concerns do you have about the GATRA service? |

•Would like to see a shorter pick-up window
•Demand reponse trips must be picked up within the window given
•Lack of transit access to south Plymouth

| Q3 | What are the top improvements you would like to see? |

•Reiteration of what was said in questions 1 and 2

Operator Survey

A survey was sent to all GATRA fixed route and demand response operators. Responses were received from 30 fixed route and 45 demand response operators. The survey had separate questions for fixed route and demand response operators, which asked about needed improvements/ changes, operational challenges, and recommendations to improve service. A review of responses by question and mode operated is presented below.

Fixed Route

Responses were heard from 30 bus operators, with the greatest number coming from PTM (Taunton/Attleboro), the largest operator (Figure 127).

Figure 127. Response by Bus Operator
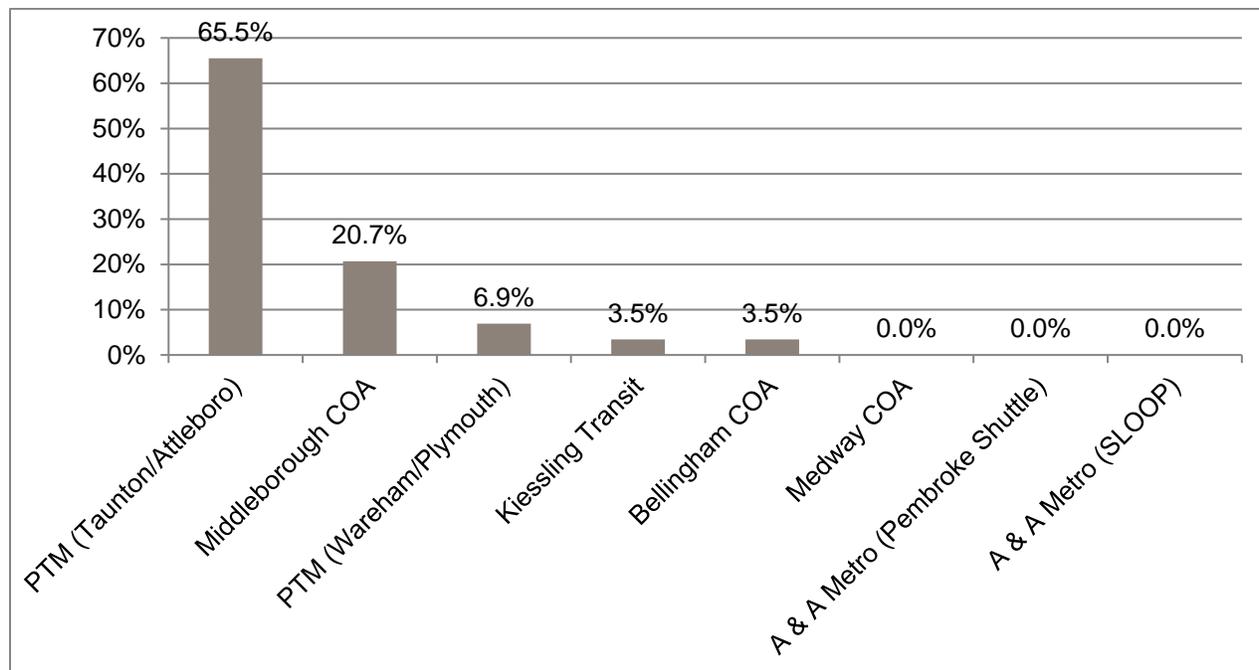
Q1. What is the best part about the GATRA service?

Respondents were able to select more than one response. The top cumulative response, at 22 responses (73 percent) was that it served a vital need for the community (Figure 128).

Figure 128. Best Part About the GATRA Service by Fixed Route Operator

	It serves a vital need for the community	Low-cost service	My fellow employees	Convenient service	Management	Good for the environment	The passengers	Opportunity for growth	Other
A & A Metro (SLOOP)	0	0	0	0	0	0	0	0	0
A & A Metro (Pembroke Shuttle)	0	0	0	0	0	0	0	0	0
Medway COA	0	0	0	0	0	0	0	0	0
Bellingham COA	1	1	1	1	1	0	1	0	0
Kiessling Transit	1	0	0	0	0	0	0	0	0
PTM (Wareham/Plymouth)	1	2	2	1	1	1	0	0	0
Middleborough COA	5	5	6	4	2	1	5	1	0
PTM (Taunton/Attleboro)	14	13	5	5	7	7	3	2	1

Q2. What are the top three service changes that you would like to see that would improve service for the customers?

This question was open-ended, responses were then categorized into 11 themes. The top mentioned themes were scheduling and bus stops (Figure 129). Scheduling comments included the need to adjust the timing on routes to improve transfers, and that routes often ran behind schedule and the schedules were too tight. A breakdown of the comments within each theme is shown in Figure 130 with the number of responses in parenthesis. There were a number of operational comments beyond the extent of the RTP such as the need for more drivers, increased pay, better benefits, more training, management issues, or how shifts are designed.

Figure 129. Top Service Changes Identified by Operators
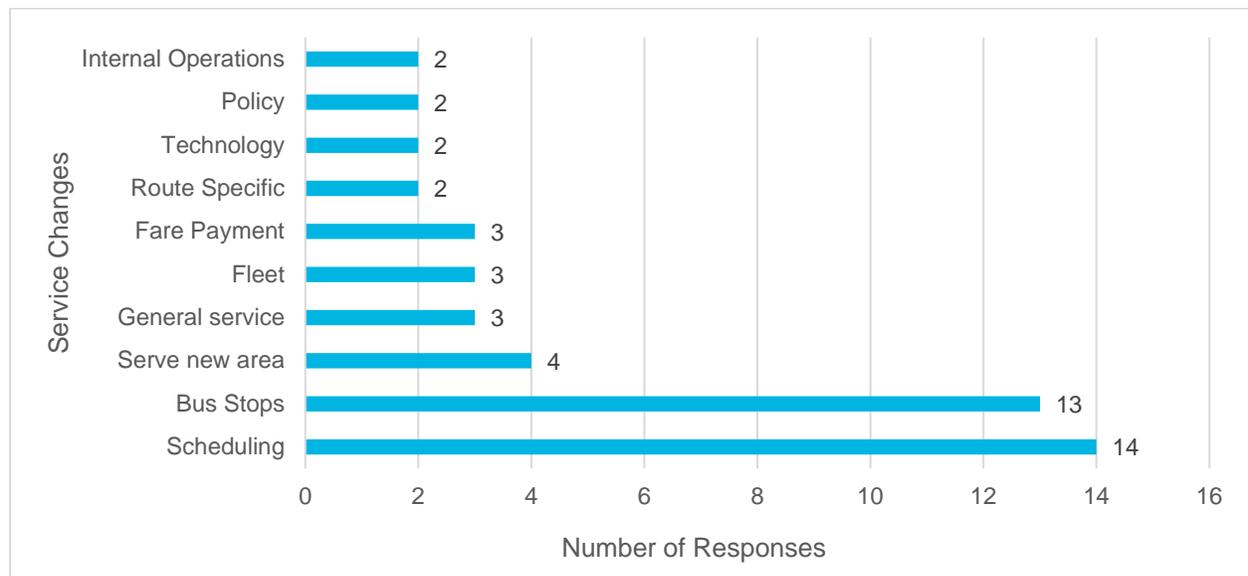
Figure 130. Breakdown of Comments by Theme

Scheduling
- Schedules too tight (7)
- Adjust timing to improve transfers (5)
- Improved scheduling (2)

Bus Stops
- Replace flag stops with designated bus stops (11)
- Shelters (1)
- Adjust stop location for N. Attleboro Walmart (1)

Service New Areas
- Direct service to Emerald Mall and Market Basket (1)
- Plainville Casino (1)
- Seekonk (1)
- Connect to RIPTA (1)

General Service
- Difficulty to access the High Schools (2)
- More routes (1)

Fleet
- Newer buses (2)
- Cleaner buses (1)

Fare Payment
- Contactless payments (3)

Route Specific
- More service on Route 18 (1)

Tehcnology
- AVL on all vehicles (1)
- Automatic annoucements on all vehicles (1)
- Internal operations (2)

Policy
- Enforce no loitering at facilities policy (1)
- Prohibit smoking near bus terminals (1)

Q3. Where else or when do you think transit service should be provided that is currently not?

This question was open-ended; 21 individuals responded with comments. Responses were heard by more than one individual for service to the Plainville Casino, stores along Route 138 in Raynham, Seekonk and Saturday service in Middleborough.

Q4. What times/trips on specific routes do you think should be evaluated and/or possibly eliminated due to extremely low ridership?

This question was open-ended; 14 individuals responded, 6 of which provided specifics, which are summarized in Table 73.

Table 73. Route-Specific Recommendations to Evaluate for Low Ridership

Recommended Service to Evaluate for Low Ridership

Saturday evening on the SAIL route
Route 10
Cordage Park
Tri-town shuttle
T station shuttles
Do not go into shopping plazas, service from the main road
Mid-day

Q5. Do you face any operational challenges?

Respondents were able to select more than one response, over all 24 individuals provided 104 (Figure 131) responses. The overwhelming majority identified more than one challenge, with only 16 percent stating only 1. The top challenge reported was winter weather followed by the timing between bus stops.

Figure 131. Operational Challenges Faced
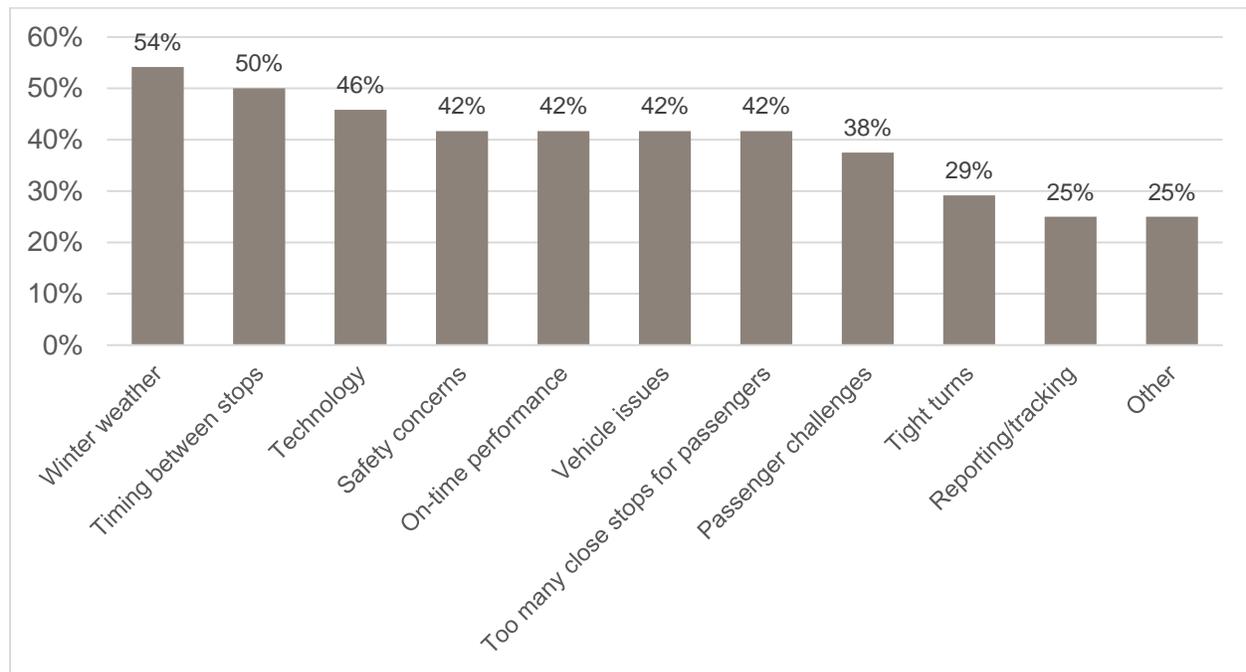
For each challenge selected follow-up questions were provided for the operator to describe the challenge (Table 74).

Table 74. Description of Challenges by Theme

Challenge	Responses
Passenger challenges	• Seat belts (2) • Being able to identify flag stop passengers • Driver safety – COVID • Disrespectful passengers • Making transfers
Timing between stops	• General difficulties in making timepoints (9) • Making transfers (1)
On-time performance	• Need for designated stops (4) • Need to follow timepoints (3) • Plymouth area routes in the summer • Liberty and Freedom Routes timing issues
Tight turns	• General (4) • Mayflower Link turnaround on Beaver Dam Road • Crescent onto Smith Street • Court Street onto Park South in Plymouth • Seabras in Attleboro
Winter weather	• Wiper blades not working properly • Poor vehicle traction • Icing on mirrors • Steep hills (Brown and Mendon) • Servicing shopping plaza is difficult • Removing snow off vehicles stored outside
Technology	• AVL issues (6) • Farebox issues (4) • Destination sign issues • Radio issues
Safety concerns	• Route timing (2) • COVID • Wiper blades not working properly • Railroad crossings • AC not working in the summer • Navigating parking lots • Flag stops • Hills in the winter • Passengers removing seatbelt
Other	• Signage on-board vehicles about proper behavior (2) • Layovers too short • Need a system map • Designated bus stops • More supervisors

Challenge	Responses
Too many stops	• Need designated stops (9)
Vehicle	• Maintenance (2) • Wheelchair securement oxidation (2) • Need dashboard fans • Cleanliness of vehicles • Mirrors • Fareboxes • Older vehicles • AC not working • Backup warning signal inoperable
Reporting/tracking	• AVL not working (5)

Q6. What other recommendations/thoughts do you have which would improve the service?

This question was open-ended; 13 individuals responded. The top other suggestions were in regard to management concerns, followed by improved driver communication, the need for designated bus stops, improved transfers, reduction in entering store plazas, and tight route timing.

Demand Response

Responses were heard from 45 bus operators, with the greatest number coming from PTM (Taunton/Attleboro), the largest operator (Figure 132).

Figure 132. Response by Operator - Demand Response
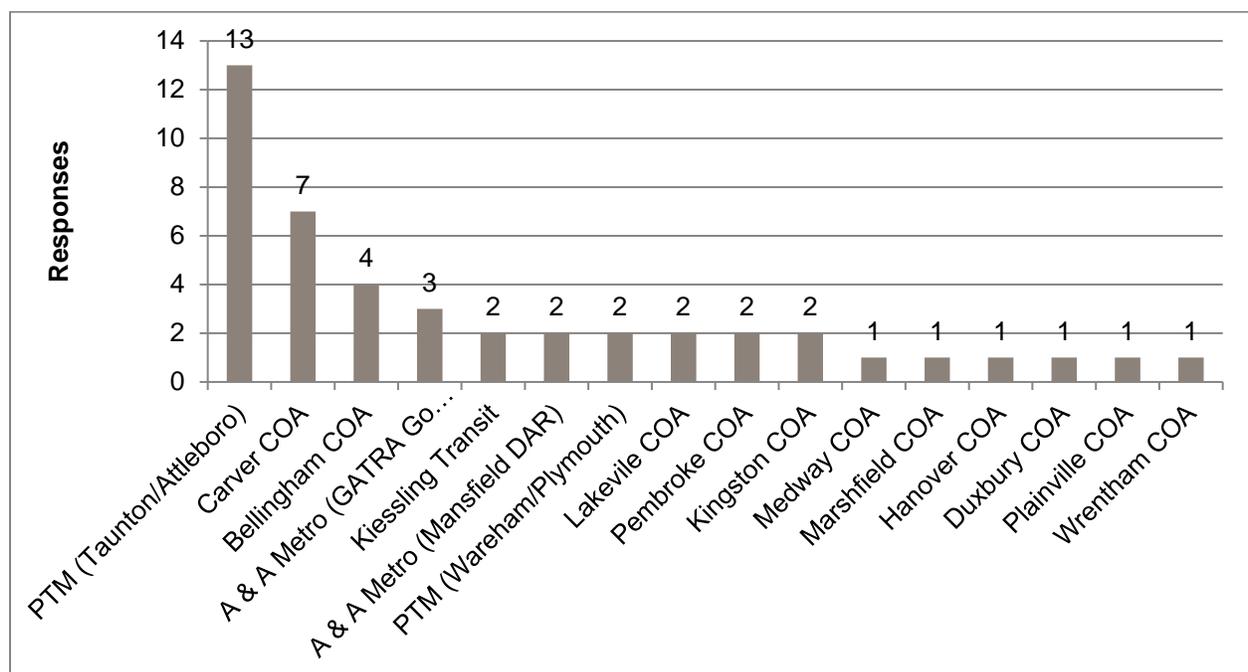
Q1. What is the best part about the GATRA service?

Respondents were able to select more than one response. The top cumulative responses, at 88 percent was that it serves a vital need for the community followed by low cost service and convenient service, each at 79 percent (Figure 133).

Figure 133. What is the Best Part About the GATRA Service – Demand Response
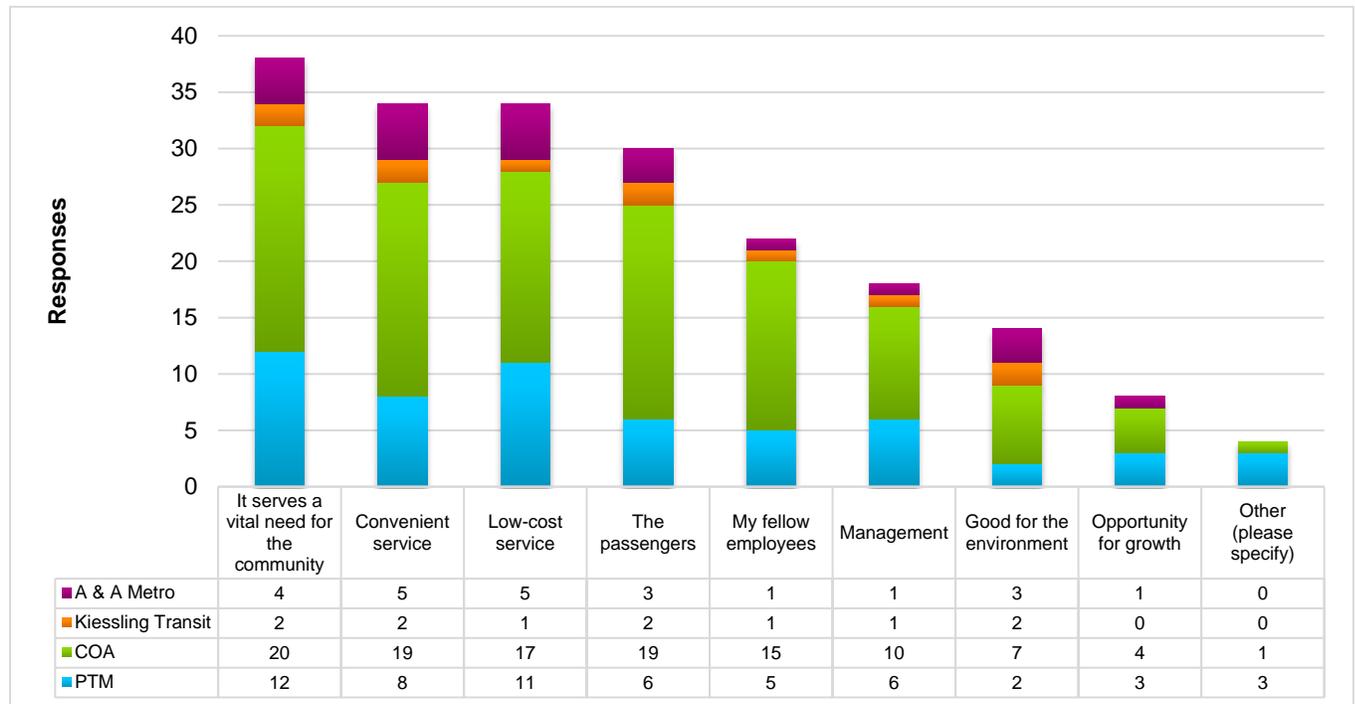
	It serves a vital need for the community	Convenient service	Low-cost service	The passengers	My fellow employees	Management	Good for the environment	Opportunity for growth	Other (please specify)
■ A & A Metro	4	5	5	3	1	1	3	1	0
■ Kiessling Transit	2	2	1	2	1	1	2	0	0
■ COA	20	19	17	19	15	10	7	4	1
■ PTM	12	8	11	6	5	6	2	3	3

Q2 What are the top three service changes that you would like to see that would improve service for the customers?

This question was open-ended. Thirty-nine individuals responded providing 81 responses that were categorized into 10 themes. The most mentioned theme had to do with passengers being unable to get a pick-up time at the time requested and having to negotiate for a time within a 1-hour window followed by return trips having very long wait times (Figure 134).

Figure 134. Top Three Changes – Demand Response
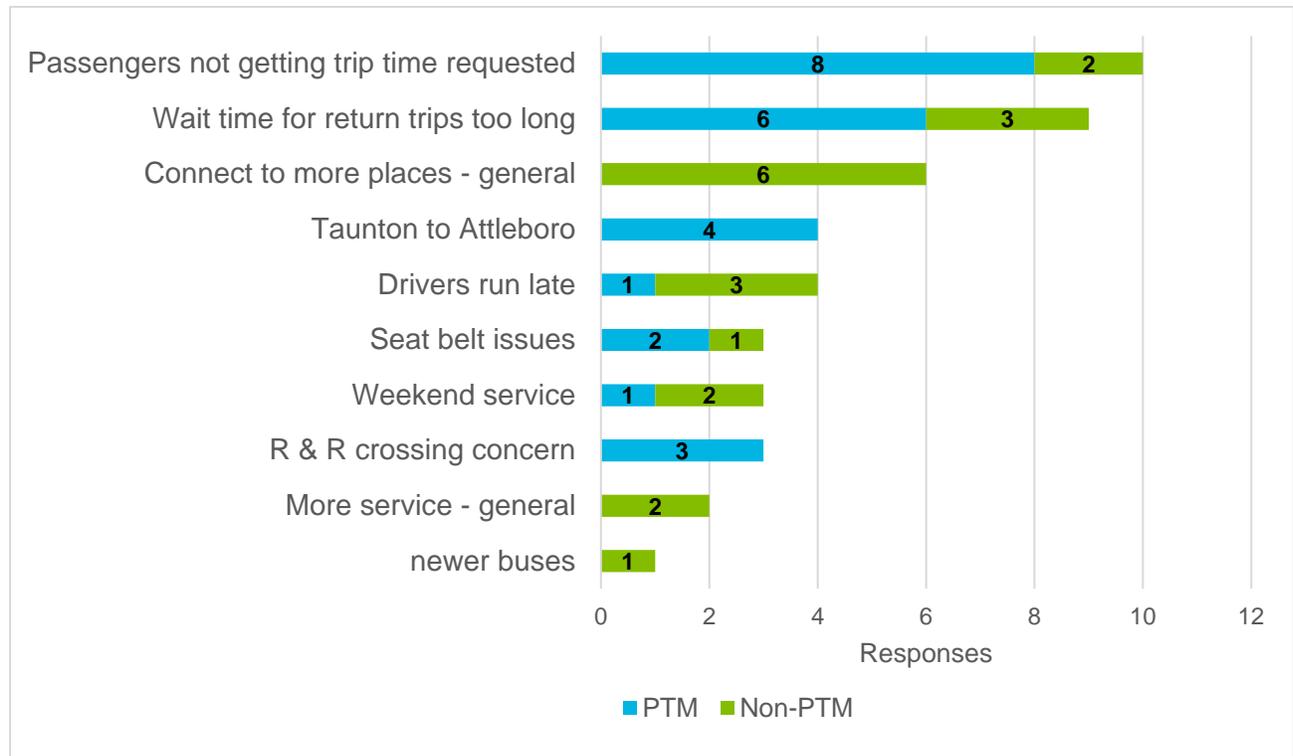
Q3. What do you hear from customers about with regard to unmet needs – places they'd like to go or times/days they'd like to travel?

This question was open-ended; 33 responses were received. A summary of relevant responses where more than one individual reported it is below broken down by PTM operated services and those operated by others.

- PTM
  — Saturday service (2)
  — Connections to service outside of the GATRA area (2)
  — Connections to neighboring towns (2)
  — Connecting Attleboro/Taunton to Plymouth (2)
  — More service in Seekonk (2)
- Other operators
  — Connect to adjacent towns (8)
  — Later hours (3)
  — Saturday service (2)

Q5. Do you face any operational challenges?

Respondents were able to select more than one response; overall 29 individuals provided 56 responses and just over half had more than one challenge. The top challenge reported was technology followed by schedules (Figure 135). For each challenge selected follow-up questions were provided for the operator to describe the challenge (Table 75). The majority of the technology challenges are issues with the tablets losing power and the schedules are too tight.

Figure 135. Demand Response Operational Challenges
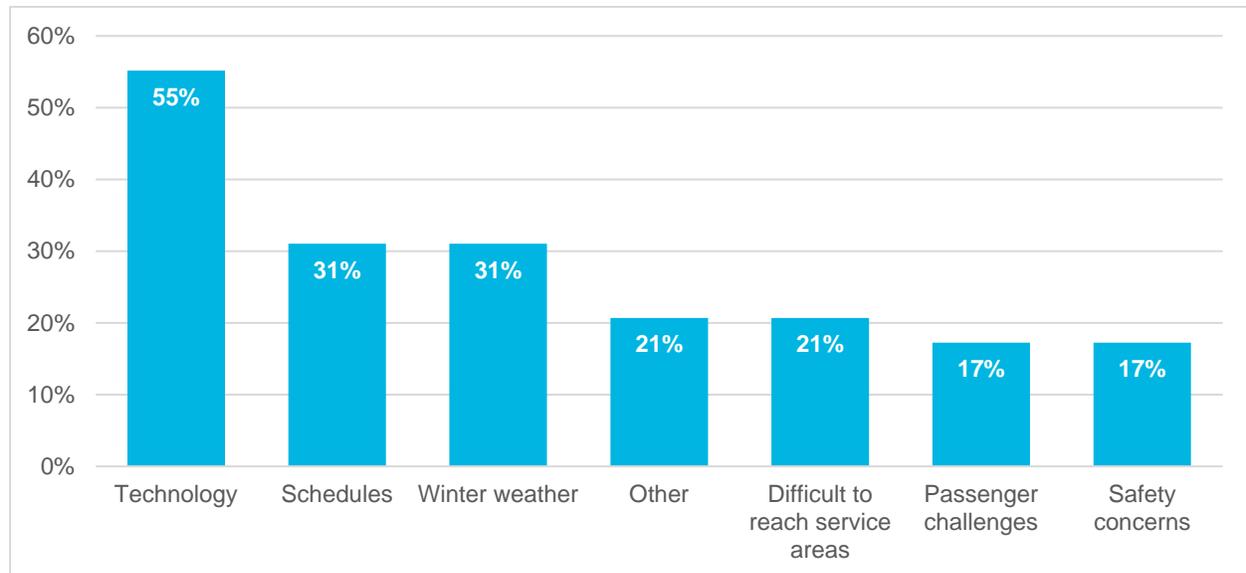
Table 75. Demand Response Challenge by Theme

Challenge	Responses
Schedules	• Schedules are too tight (2) • Scheduling program is not good • Remote scheduling lacks local knowledge • More vehicles needed for the peak
Technology	• Tablets not charging properly -PTM Attleboro/Taunton (11) • GPS concerns (2) • Bluetooth for dispatch
Winter weather	• Safety should be prioritized over schedules (2) • Cold vehicles • Snow removal of vehicles stored outside
Difficult to reach service areas	• Parking lots and driveways • GPS failures • Rhode Island
Passenger challenges	• Seatbelts (2) • Non-communicative passengers
Safety concerns	• Side mirrors do not adjust • Driver fatigue
Other	• Wheelchairs not rated for securement • Personal care attendants not joining passenger for trip • New vehicles

Q6. What other recommendations/thoughts do you have which would improve the service?

This question was open-ended; 19 individuals responded. A summary of relevant responses is as follows:

- New vehicles (2)
- Internal operations concerns (2)
- More vehicles – Carver
- Preventive maintenance at Plymouth not Taunton for Carver COA
- COAs to be able to schedule trips in software
- More training
- Additional supervisors
- Earlier hours for DAR for senior shopping hours
- Place drivers can confidentially report issues
- Radio dispatch for COAs

Appendix D Productivity and Financial Efficiency

Bus Route Productivity (FY 2019)

Route	Passengers/Mile	Passengers/Hour
1	0.46	9.46
6	0.48	9.75
7	0.94	19.14
8	0.12	2.40
9	0.64	12.99
10	0.68	13.80
11	0.66	13.50
12	0.77	15.68
14	0.52	10.65
15	0.61	12.44
16	0.64	13.01
18	0.43	8.75
24	0.45	9.12
140	0.21	4.34
L1	0.74	10.43
L2	0.55	7.60
L3	0.11	2.13
L4	0.44	8.68
SAIL	0.25	4.98
Mayflower	0.22	4.92
Freedom	0.57	9.63
Liberty	0.58	9.80
Manomet to Cedarville	0.22	3.88
Medway T Shuttle	0.54	5.82
Franklin Area Bus	0.19	3.10
Downtown Middleborough Area Shuttle	0.30	3.99
Pembroke	0.12	1.01

Route	Passengers/Mile	Passengers/Hour
Bellingham	0.17	2.05
Wareham – Lakeville MBTA Connector	0.11	2.76
Tri-Town Connector	0.05	0.95
Foxborough MBTA Commuter Shuttle	3.83	14.85
SLOOP	0.18	2.39
Wareham-New Bedford Connection	0.15	1.00
Wareham-Plymouth Connection	0.09	1.60
System Average	**0.40**	**7.21**
Massachusetts Average*	1.37	18.39
National Average	2.26	27.21

Source: Calculations based on GATRA ridership and revenue miles data

*Massachusetts average excludes MBTA.

Demand Response Productivity (FY 2019)

Route	Passengers per Mile	Passengers per Hour
Attleboro/Taunton DAR	0.19	2.64
Bellingham DAR	0.11	2.40
Carver DAR	0.09	1.45
Duxbury DAR	0.19	2.27
GATRA GO Microtransit	0.23	1.37
Hanover DAR	0.22	1.91
Kingston DAR	0.16	2.60
Lakeville DAR	0.15	1.92
Mansfield T Connector	0.28	2.46
Mansfield DAR	0.19	1.95
Marshfield DAR	0.20	2.97
Medway DAR	0.23	1.36
Middleborough DAR	0.23	2.52
Middleborough/Taunton Connection	0.12	1.78
Pembroke DAR	0.21	2.38
Plainville DAR	0.31	2.35
Plymouth DAR	0.17	2.52
Scituate DAR	0.42	3.89
Wareham DAR	0.17	2.11
Wrentham DAR	0.02	0.31
Southwest Service Area DAR	0.49	6.20
United Community DAR	0.13	1.20
GATRA System Average	**0.18**	**2.34**
Massachusetts Average*	**0.13**	**1.8**
National Average	**0.13**	**1.97**

Massachusetts average excludes MBTA, CCRTA, and MART.

Bus Route Financial Efficiency (FY 2019)

Route	Cost/Mile	Cost/Hour	Cost/ Passenger	Subsidy/ Passenger	Farebox Recovery
1	$5.37	$109.64	$11.59	$10.86	6.3%
6	$5.37	$109.64	$11.24	$10.51	6.5%
7	$5.37	$109.64	$5.73	$5.00	12.7%
8	$5.37	$109.64	$45.74	$45.01	1.6%
9	$5.37	$109.64	$8.44	$7.71	8.6%
10	$5.37	$109.64	$7.95	$7.22	9.2%
11	$5.37	$109.64	$8.12	$7.39	9.0%
12	$5.37	$109.64	$6.99	$6.26	10.4%
14	$5.37	$109.64	$10.29	$9.56	7.1%
15	$5.37	$109.64	$8.81	$8.08	8.3%
16	$5.37	$109.64	$8.43	$7.70	8.7%
18	$5.37	$109.64	$12.53	$11.80	5.8%
24	$5.37	$109.64	$12.03	$11.30	6.1%
140	$5.37	$109.64	$25.28	$24.55	2.9%
L1	$4.53	$63.94	$6.13	$5.69	7.2%
L2	$4.63	$63.94	$8.41	$7.97	5.2%
L3	$3.28	$63.94	$30.01	$29.57	1.5%
L4	$3.25	$63.94	$7.37	$6.93	6.0%
SAIL	$3.13	$63.33	$12.72	$12.12	4.7%
Mayflower	$2.80	$63.33	$12.88	$12.28	4.7%
Freedom	$3.78	$63.33	$6.58	$5.98	9.1%
Liberty	$3.78	$63.33	$6.46	$5.86	9.3%
Manomet to Cedarville	$3.62	$63.33	$16.31	$15.71	3.7%
Medway T Shuttle	$4.15	$44.34	$7.61	$6.46	15.1%
Franklin Area Bus	$3.80	$61.05	$19.70	$19.17	2.7%

Route	Cost/Mile	Cost/Hour	Cost/ Passenger	Subsidy/ Passenger	Farebox Recovery
Downtown Middleborough Area Shuttle	$3.77	$49.83	$12.48	$11.47	8.1%
Pembroke	$7.23	$62.42	$61.52	$60.22	2.1%
Bellingham	$4.37	$51.56	$25.11	$23.25	7.4%
Wareham – Lakeville MBTA Connector	$0.16	$4.26	$1.55	$1.44	6.6%
Tri-Town Connector	$3.15	$57.15	$60.08	$59.66	0.7%
Foxborough MBTA Commuter Shuttle	$9.38	$36.40	$2.45	$2.45	0.0%
SLOOP	$4.66	$60.94	$25.54	$25.02	2.0%
Wareham-New Bedford Connection	$4.30	$29.31	$29.31	$27.04	7.7%
Wareham-Plymouth Connection	$3.37	$63.33	$39.58	$38.98	1.5%
GATRA System Average	**$4.37**	**$78.43**	**$10.88**	**$10.23**	**6.0%**
Massachusetts Average*	**$7.24**	**$97.20**	**$5.29**	**$4.47**	**15.4%**
National Average	**$11.15**	**$133.99**	**$4.92**	**$3.83**	**22.08%**

Source: Calculations based on GATRA data, FY 2019

*Massachusetts average excludes MBTA.

Demand Response Financial Efficiency (FY 2019)

Service	Cost/ Mile	Cost/ Hour	Cost/ Passenger	Subsidy/ Passenger	Farebox Recovery
Attleboro/Taunton DAR	$5.21	$71.45	$27.09	$25.83	4.7%
Bellingham DAR	$1.24	$27.18	$11.31	$10.09	10.7%
Carver DAR	$1.69	$26.84	$18.51	$17.17	7.2%
Duxbury DAR	$3.22	$38.34	$16.86	$15.52	7.9%
GATRA GO Microtransit	$12.91	$78.17	$57.16	$57.05	0.2%
Hanover DAR	$4.78	$42.01	$21.96	$21.81	0.7%
Kingston DAR	$2.04	$32.91	$12.67	$10.76	15.1%
Lakeville DAR	$2.03	$25.89	$13.50	$12.52	7.3%
Mansfield T Connector	$6.46	$57.30	$23.33	$21.59	7.5%
Mansfield DAR	$5.36	$56.48	$28.93	$27.13	6.3%
Marshfield DAR	$3.46	$52.02	$17.53	$15.69	10.5%
Medway DAR	$8.91	$52.91	$38.99	$37.49	3.8%
Middleborough DAR	$0.40	$4.35	$1.73	$0.25	85.6%
Middleborough/Taunton Connection	$2.70	$39.18	$22.05	$19.32	12.4%
Pembroke DAR	$3.28	$37.23	$15.62	$13.93	10.8%
Plainville DAR	$3.29	$25.26	$10.73	$9.33	13.1%
Plymouth DAR	$3.82	$57.52	$22.79	$21.71	4.8%
Scituate DAR	$8.03	$74.84	$19.22	$17.71	7.9%
Wareham DAR	$4.64	$57.52	$27.32	$26.23	4.0%
Wrentham DAR	$0.25	$3.44	$11.18	$9.74	12.9%
Southwest Service Area DAR	$5.65	$71.45	$11.53	$10.27	10.9%
United Community DAR	$4.68	$43.42	$36.15	$35.40	2.1%
GATRA System Average	**$4.19**	**$53.61**	**$22.88**	**$21.62**	**5%**
Massachusetts Average*	**$4.38**	**$59.86**	**$28.28**	**$25.95**	**8.3%**
National Average	**$4.33**	**$64.93**	**$32.92**	**$30.46**	**7.45%**

Source: Calculations based on GATRA data, FY 2019

*Massachusetts average excludes MBTA, CCRTA, and MART.

Appendix E Commonwealth Environmental Policies

Transportation is a leading producer of greenhouse gas emissions (GHG) in the Commonwealth, and the only sector identified through the Global Warming Solutions Act of 2006 (GWSA) with a volumetric increase in GHG emissions; meaning that any effort to reduce emissions must significantly target the transportation system. In 2008, through the passage of the GWSA, Massachusetts committed to reduce its GHG emissions by 80 percent below 1990 baseline levels by 2050. Commonwealth policies and action on environmental sustainability in the transportation sector can be summarized by a series of executive orders, regulations, and recommendations to achieve the Commonwealth's goal of reducing transportation-related emissions by 40 percent over the next 20 years,[50] helping to meet the emissions reduction goals of the GSWA.

Massachusetts is establishing an integrated climate change strategy for the Commonwealth through the implementation of Executive Order 569, which was issued in 2017 and had major elements codified in 2018.[51] It aims to develop a roadmap for climate mitigation and adaptation for the Commonwealth.

Sustainability requirements for transportation are summarized in 310 CMR 60.05,[52] where the Climate Protection and Green Economy Advisory Committee advises the Executive Office of Energy and Environmental Affairs on measures to reduce GHG emissions in accordance with the GWSA. The purpose of 310 CMR 60.05 is to assist the Commonwealth in achieving the GHG emissions reduction goals, and to establish an annually declining aggregate GHG emissions limit for MassDOT, as well as general requirements for determining aggregate transportation GHG emissions in the transportation planning process.

To be in line with this regulation, RTAs in particular must conduct comprehensive service reviews; identify service enhancements to increase passenger ridership; identify vehicle technology and operational improvements that can reduce aggregate transportation GHG emissions; and work within the MPO process to prioritize and fund GHG reduction projects and investments.

In Executive Order 579: Establishing the Commission on the Future of Transportation in the Commonwealth, the goal is to determine "how to ensure that transportation planning, forecasting, operations, and investments for the period from 2020 through 2040 can best account for likely demographic, technological, climate, and other changes in future mobility and transportation behaviors, needs and options."[53] This will be accomplished by further investigating topics such as climate and resiliency, transportation electrification, autonomous and connected vehicles, transit and mobility services, and land use and demographics.[54] In 2019, the Commission on the Future of Transportation released their report, *Choices for Stewardship: Recommendations to Meet the Transportation Future.*[55]

The report provides five recommendations with a planning horizon of year 2040. The recommendations include (1) modernizing existing transportation assets; (2) creating a 21st Century "mobility infrastructure" to prepare the Commonwealth for emerging changes in transportation technology and behavior; (3) substantially reducing GHG emissions from the transportation sector; (4) coordinating and modernizing land use, economic development, housing, and transportation policies and investment in order to support resilient and dynamic regions and communities throughout the Commonwealth; and (5) changing current

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[50] https://www.mass.gov/doc/a-vision-for-the-future-of-massachusetts-regional-transit-authorities/download.
[51] https://www.mass.gov/executive-orders/no-569-establishing-an-integrated-climate-change-strategy-for-the-commonwealth.
[52] https://www.mass.gov/doc/final-regulation-4/download.
[53] https://www.mass.gov/executive-orders/no-579-establishing-the-commission-on-the-future-of-transportation-in-the.
[54] https://www.mass.gov/executive-orders/no-579-establishing-the-commission-on-the-future-of-transportation-in-the.
[55] https://www.mass.gov/doc/choices-for-stewardship-recommendations-to-meet-the-transportation-future-volume-1/download.

transportation governance and financial structures in order to better position Massachusetts for the transportation system that it needs in the next years and decades.

Current RTA-specific sustainable practices are described in Section 4.7 and recommendations for future sustainable practices are described in Chapter 8.

Appendix F Public Comments

The following comments were received from the public on the final document during the comment period.