



January 2021

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Comprehensive Regional Transit Plan Update 2020

Brockton Area Transit

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Acronyms

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 Transit Authority
BSU	Bridgewater State University
CAD	Computer-Aided Dispatch
CARES	Coronavirus Aid, Relief, and Economic Security Act
CCRTA	Cape Cod Regional Transit Authority
CFR	Code of Federal Regulations
CMAQ	Congestion Mitigation and Air Quality Improvement
COA	Council on Aging
COVID-19	Novel Coronavirus of 2019
CRTP	Comprehensive Regional Transit Plan
DPW	Department of Public Works
FTA	Federal Transit Administration
FY	Fiscal Year
GATRA	Greater Attleboro-Taunton Regional Transit Authority
GHG	Greenhouse Gas
GWSA	Global Warming Solutions Act
HST	Human Services Transportation
HVAC	Heating, Ventilation, and Air Conditioning
LBE	Leading by Example
LED	Light-Emitting Diode
LEED	Leadership in Energy and Environmental Design
LEP	Limited English Proficiency
MAP	Mobility Assistance Program
MART	Montachusett Regional Transit Authority
MassDOT	Massachusetts Department of Transportation
MBTA	Massachusetts Bay Transportation Authority

MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
NSP	National Public Transportation Safety Plan
NTD	National Transit Database
OCPC	Old Colony Planning Council
PPE	Personal Protective Equipment
PTASP	Public Transportation Agency Safety Plan
RTA	Regional Transit Authority
TAM	Transit Asset Management
TCI	Transportation and Climate Initiative
TERM	Transit Economic Requirements Model
TNC	Transportation Network Company
TOD	Transit-Oriented Development
ULB	Useful Life Benchmark

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

As a key part of its commitment to continuous improvement, the Brockton Area Transit Authority (BAT) regularly completes a 5-year Comprehensive Regional Transit Plan (CRTP) update. This report builds on the work of BAT's 2015 CRTP and the recommendations of the 2019 Task Force on Regional Transit Authority Performance, which was commissioned by the Massachusetts Department of Transportation (MassDOT).

Analysis of operations data, along with feedback collected from a public survey, makes clear that BAT offers efficient and effective service that is appreciated by customers. BAT is well situated to implement new programs and initiatives designed to advance its core goals of (1) preserving existing service; (2) supporting Brockton's economic revitalization and environmental health; (3) employing innovative approaches to best serve member communities; (4) creating strong connections to greater Boston; (5) ensuring all service changes are equitable and consider the diverse backgrounds and needs of BAT's customers and employees; and (6) using technology to improve service.

With these goals in mind, BAT identified 35 recommendations that directly respond to the needs and requests articulated by key stakeholders or generated via data analysis and a review of prior planning efforts (Table 1). These recommendations are broken down into seven main categories: service, capital, policy, performance, coordination, studies, and other (recommendations that don't fit neatly into any other category), with some recommendations falling into multiple categories. The icons below indicate the category of the recommendation. They are further prioritized based on ridership scenarios, complexity, and impact in Chapter 9.

Figure 1. Recommendation Icons



Service



Capital



Policy



Performance



Coordination



Studies



Other

Table 1. Recommendations

Category	Recommendation
	Preserve existing service that meets the needs of current customers.
	Work closely with the City of Brockton to support its progress toward achieving economic, environmental, and equity goals.
	Work closely with member communities to assess emerging innovative service delivery models as a means to offer efficient and effective transit service to suburban neighborhoods and smaller commercial centers.
 	Continue coordination with the Massachusetts Bay Transportation Authority (MBTA) on service levels to key transit nodes and transfer points as ridership and service levels change.
 	Ensure any changes to service are decided transparently and account for BAT's broad spectrum of workers and customers, regardless of their age, ethnicity, gender, income, language, or physical abilities.

Category	Recommendation
	Incorporate emerging but tested technologies to improve operations, expand communication platforms, enhance all aspects of customer experience, and reduce negative environmental impacts of service provision.
	Evaluate the combination of Routes 10 and 11 for permanent implementation to ensure that service needs are being met.
	Add Sunday service to Route 14 and evaluate novel coronavirus (COVID)-related service changes for permanent implementation.
	Focus on expansion of customer amenities: add lights to shelters; increase number of shelters, benches, on-board amenities; and consider safety and security at all times.
	Maintain cleaning, sanitizing, mask enforcement, and crowding reduction on vehicles. Stay current with safety best practices regarding minimizing risk from the COVID-19 pandemic.
	Ensure ongoing exploration of existing technology functionalities for enhanced data collection and analysis, in addition to opportunities for new technology to drive additional capabilities.
	Continue coordination with municipalities and Old Colony Planning Council (OCPC) to improve pedestrian connectivity to transit facilities.
	Continue meeting regularly with municipalities, MassDOT, and the Metropolitan Planning Organization (MPO) to ensure street design accommodates transit service where appropriate, including bus pull-outs, dedicated bus lanes, signage, and signal prioritization.
	Tie BAT's new automatic passenger counter (APC) and automatic vehicle locator (AVL) system to mobile fare payment, allowing riders to track bus arrival times and purchase fares in an integrated application.
	Assess the logistics and cost of implementing an online trip booking system and mobile application for DIAL-A-BAT customers.
	Create route-level performance standards that inform service planning decisions when ridership stabilizes post-pandemic.
	Continue quarterly mystery rider program along with rigorous review of results.
	Enhance BAT's currently published performance measures with newly available data from the APC/CAD/AVL system.
	Explore opportunities for further fare integration between BAT and MBTA (joint transfers, passes, or potential fare subsidy).

Category	Recommendation
	Continue coordination with MBTA to ensure alignment between the commuter rail schedule and BAT service.
	Continue participation on the Metro South Chamber of Commerce, South Shore Chamber of Commerce, and Brockton's MassHire Board of Directors or Committees to ensure strong connection to BAT's business community.
	Expand partnership with Bridgewater State University (BSU) to encompass employment, internship, or research opportunities, while also investigating opportunities at other local colleges and high schools.
	Investigate forming partnerships with local vocational schools and other schools specialized in training individuals to become drivers or mechanics.
	Continue progress on the Electric Bus Study and review physical plant energy use to minimize carbon footprint.
	Investigate expanding travel training resources.
	Explore potential partnership with MBTA to reduce cost of commuter rail in short or long term.
	Explore implementation of a partnership with a transportation network company (TNC) (Uber/Lyft) in accordance with the recommendations from the Uber/Lyft Study, <i>Potential Impacts of Ride-Hailing on the Brockton Area Transit Authority (BAT)</i> .
	Explore running additional service to Easton, potentially as a route deviation or adjustment.
	Evaluate the logistics, regulatory compliance, and potential market demand for evening service to Brockton High School.
	Study additional service needs on the Route 18 corridor.
	Review the outcomes of the OCPC Raynham/Taunton Study for implementation.
	Add Sunday morning service once ridership rebounds to pre-COVID levels.
	Increase headways to 20- to 25-minute headways.

Category	Recommendation
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Undertake expanded study of areas that would benefit from microtransit service to fill in mobility gaps.



Further study the BAT service area to reduce the number of transfers between BAT and MBTA.

1.1 Planning Process

The BAT CRTP update 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.

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 policy analysis to the structure of the recommendations, this planning process incorporates considerations relating to uncertainty around how the future might unfold.

However, safety measures implemented by state and local entities like remote learning and teleworking, along with furloughed workers and layoffs, greatly disrupted BAT'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.

This CRTP update was recommended by the Task Force on Regional Transit Authority Performance in its final report issued in April 2019. The report included 24 recommendations in 5 categories:

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

The CRTP update recommendation (No. 7)¹ 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..."

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.

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

1.2 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 by Governor Baker, BAT leadership participated in a workshop 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 85 percent of pre-pandemic ridership), and low-ridership scenario (under 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 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 early summer 2020. BAT also administered the survey by phone to DIAL-A-BAT customers concurrently. Two hundred and sixty-six survey responses were collected using the online survey. Additionally, BAT met with a variety of stakeholders, including a virtual focus group with key regional stakeholders, including local leaders and community members; Advisory Board meetings; Old Colony Joint Transportation Committee meetings; Old Colony Municipal Planning Organization meetings; Regional Planning Agency (RPA) meetings; and bi-annual BAT/Council on Aging (COA) meetings. Due to the relatively limited public outreach process, the survey results 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:

"If someone doesn't call DIAL A BAT shame on them, their loss is my gain" – 2020 Rider Survey Comment

- Survey respondents and focus group members, riders and non-riders alike, believe that BAT brings value to the region and generally approve of BAT's service during the COVID-19 pandemic.
- Stakeholders are supportive of BAT seeking additional funding, either through public-private partnerships or local tax initiatives, acknowledging that the latter is dependent on state policy and municipal action.
- Survey respondents and focus group participants both expressed the need for increased coordination between BAT and MBTA services.
- There was a desire to fill in service gaps through microtransit or other demand response service, potentially through a partnership with ride hailing companies.

2. Background and 2020 Context

BAT, in concert with the Commonwealth's other 14 Regional Transit Authorities (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 BAT, funded by MassDOT, came out of Commonwealth-wide initiatives in 2018 and 2019, which prompted this update of BAT's 2015 plan. This CRTP is both a result of and a contributor to ongoing discussions on regional transportation. Recent and ongoing Commonwealth-wide initiatives include the following:

- Governor's Commission on the Future of Transportation³
- A Vision for the Future of Massachusetts' Regional Transit Authorities⁴ (RTA Task Force)
- Transportation & Climate Initiative⁵
- MBTA Fare Transformation⁶

The RTA Task Force Final Report Recommendation No. 7⁷ was a primary driver for the development of this CRTP. The CRTP update is carried out as a commitment to BAT's 2-year MOU with MassDOT signed in August 2019. In addition to the CRTP update, 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 BAT MOU is discussed in more detail in Chapter 6.

The BAT CRTP update 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 two 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.

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 Massachusetts Bay Transportation Authority, accessed 2020, <https://www.mbta.com/projects/fare-transformation>.

⁷ 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.

2.1 Background

2.1.1 Overview of BAT Services

BAT is headquartered in Brockton, Massachusetts and is one of the 15 RTAs that, along with MBTA, operates public transportation in the Commonwealth. BAT provides fixed route and demand response (DIAL-A-BAT) services to 11 communities in Greater Brockton. BAT's fixed route network includes service to 6 MBTA stations, one of which is located next to the BAT Intermodal Transportation Centre (BAT Centre), BAT's service hub. These connections provide its customers with significant access to Boston via the commuter rail as well as a bus connection to Ashmont Station on the Red Line, and options for travel to points south along the commuter rail system. These southerly connections will be expanded with the launch of South Coast Rail toward Fall River and New Bedford.

In addition to operating fixed route and DIAL-A-BAT services, BAT provides vehicles, training, and basic maintenance to BSU's transit service and supports regional COA demand response services through grant funding and vehicle procurement and maintenance. BAT also provides Human Services Transportation (HST) service to Greater Attleboro-Taunton Regional Transit Authority (GATRA) brokerage clients with demand response services and as an agency contractor.

All of BAT's 15 fixed routes offer regular weekday service; 13 of the routes also have Saturday service and 12 offer Sunday service, along with DIAL-A-BAT's Americans with Disabilities Act (ADA) service.

BAT has implemented a variety of service improvements over the last 5 years that support efforts to improve the customer experience and inform service improvements by better tracking system performance. Improvements include:

- Acquisition of APC and updated computer-aided dispatch (CAD) and AVL for BAT's fleet.
- Addition of touch-free mobile fare payment via the BusPlus application as an optional fare medium in August 2020.
- Transition to an automated (or account-based) fare system for DIAL-A-BAT demand response service.
- Update of its website to a new user-friendly interface in summer 2020.
- Service improvements related to the 2015 CRTP.

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 CRTP update process. BAT and the other 14 RTAs play an important role in getting people across the diverse regions of the Commonwealth to work, to school, and to essential services. Because of this role, BAT is pivotal in improving the public's mobility options as explored through the initiatives described in this section.

2.1.2 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*.⁸ 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 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.
- 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 position Massachusetts for the transportation system that it needs in the coming years and decades.

Within these 5 categories are a total of 18 recommendations on how to best prepare the Commonwealth's transportation network for challenges and opportunities through 2040. The

⁸ 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>.

recommendations will guide Commonwealth-wide systems, specific solutions, and transportation investments, and will have a profound impact on BAT and the other 14 RTAs over the next 20 years.

2.1.3 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,⁹ 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 2019.¹⁰

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 5 categories of action: Investment and Performance, Accountability, Service Decisions, Quality of Service, and Environmental Sustainability.

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

- Sign a mutually negotiated MOU with MassDOT on a plan for performance monitoring and development of performance targets.
- Complete the CRTP and update every 5 years.
- Identify and evaluate demonstrated community need for evening and 7-day service.
- Identify and evaluate appropriate transit services and potential partnerships based on level of demand and efficiency.
- 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 three years.
- 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 CRTP.

⁹ Commonwealth of Massachusetts, "Budget Summary FY2019," https://budget.digital.mass.gov/bb/gaa/fy2019/os_19/houtexp.htm.

¹⁰ 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.

2.1.4 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 Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Virginia, in addition to the District of Columbia.

The initiative builds on the region's strong leadership and commitment to energy efficiency and clean energy issues, 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 has 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 BAT 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.¹¹

2.1.5 MBTA Fare Transformation

BAT is located adjacent to MBTA and connects to the following MBTA Commuter Rail services: Middleborough/Lakeville Line, Providence/Stoughton Line, Kingston/Plymouth Line, Red Line - Ashmont Station, and several MBTA commuter buses. Because of BAT's location and its use of MBTA's Scheidt & Bachmann CharlieCard/CharlieTicket fare media, the Authority will be directly impacted by MBTA's efforts to modernize their fare payment system ("Fare Transformation") using mobile fare payment platforms and other new technologies. One of the key goals of Fare Transformation is reducing the use of cash on board transit vehicles (which is also an interest of BAT, as discussed in Section 4.6).

¹¹ 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>.

2.2 2020 Context

The year 2020 unfolded in a radically different manner than was anticipated. 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 face of an unprecedented threat to public health, had serious, sweeping impacts, including on the development of this plan and transit operations writ large. BAT, along with the other RTAs, suspended fare collection and reduced service levels, encouraging non-essential riders to temporarily discontinue travel.

Because of the COVID-19 pandemic and the as-yet-unknown ways that the pandemic will permanently alter how, when, and where people travel, the CRTP update process had to be flexible. Similarly, this unexpected context requires that BAT and the other 14 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 BAT to continue building a data-driven and performance-focused enterprise-wide decision-making and management framework. This will allow it 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 BAT for continued success.

While BAT continues its return to normal service in accordance with public health guidelines, ridership is still depressed due to distance learning, business closures, telework, furloughs, layoffs, and reluctance to use public transportation. In response to the continued ridership volatility, BAT acknowledges the unpredictability over the coming months and years and used this CRTP to develop recommendations on methods to adapt quickly to a changing transit market.

2.2.1 COVID-19 Pandemic

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

- Reduction of service due to diminished 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, student, and work trips
- Temporary suspension of fare collection or fare collection enforcement along with rear-door boarding
- Implementation of employee protection measures, such as plexiglass shields and distribution of personal protective equipment (PPE)
- 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 2).

Figure 2. Change in Transit Demand (April 15, 2020–October 10, 2020)

Source: *Transit App*

In the early months of the pandemic BAT, like transit agencies nationwide, experienced a dramatic drop in ridership – BAT’s April 2020 ridership saw an 82 percent decline from the previous year. BAT reduced their service in response, making the following modifications:

- All Brockton routes were reduced to hourly service ending at 7:00 PM.
- The Stoughton route ran on a reduced hourly schedule.
- Route 12 Ashmont ran on a reduced schedule with no express trips.
- Routes 10/11 and 5/6 were combined.
- Mini-Maller Service was suspended.
- BSU service was suspended.

On top of working quickly to adjust their service levels, BAT also implemented the following safety measures as a result of the COVID-19 pandemic:

- BAT encouraged customers to take essential trips only.
- PPE was provided daily to all drivers.
- Vehicles were cleaned and disinfected thoroughly multiple times a day.
- Passengers were only allowed to board through the rear door and fare enforcement was suspended.
- DIAL-A-BAT offered solo trips when possible.
- The BAT Centre was closed to the public.

By the fall of 2020, BAT’s ridership had rebounded slightly, with a 55 percent decline in August 2020 ridership compared to August 2019. BAT had returned to service to nearly pre-pandemic levels, including resuming fare collection enforcement in late August 2020. BAT has the following service reductions in place as of October 2020:

- Routes with a 20-minute headway pre-pandemic are now running every 30 minutes.
- Routes 10/11 are still combined.

- Mini-Maller service is still suspended.

Additionally, BAT has enacted the following policies to meet state guidelines and maintain a safe environment for customers and drivers:

- BAT is promoting their new mobile app-based fare option and CharlieCard to reduce the use of cash.
- A plexiglass barrier has been installed on BAT vehicles to protect drivers.
- BAT is enforcing mask wearing through driver announcements, signs on vehicles and in the BAT Centre, and distributing masks to DIAL-A-BAT riders.
- Vehicles continue to be cleaned and disinfected daily.
- Customer service and Operations Shift Supervisor walk-up windows were added to BAT Centre to allow safe, socially distanced customer assistance.

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

BAT 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 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 \$9,048,637 provided to BAT.

2.3 Plan Considerations

Given all the previous work that led to the development of the CRTP and the unprecedented, transformational conditions during which the CRTP was developed, the CRTP update process necessarily evolved through 2020. Considerations included 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. BAT provided a phone-based option to participate in the outreach process for people without access to the internet or smart phones. 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

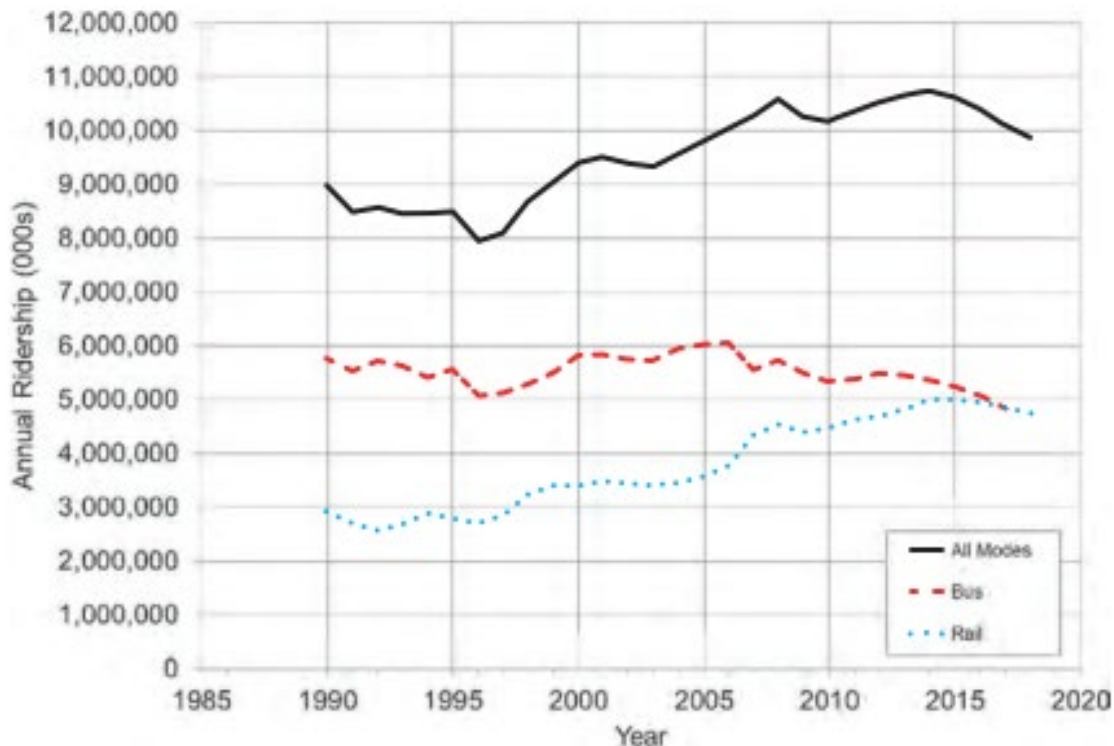
Notwithstanding COVID-19 pandemic-related disruptions, for many years, transit ridership has been stagnant or declining nationally (Figure 3).¹² This trend has accelerated in the past few years, with most systems – and bus transit in particular – experiencing steady declines in ridership, despite a historically 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.¹³ The erosion of time

¹² 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>.

¹³ American Public Transportation Association (APTA), "Understanding Recent Ridership Changes," <https://www.apta.com/research-technical-resources/research-reports/understanding-recent-ridership-changes/>.

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 3. 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

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 BAT 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 BAT, 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 BAT 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

Each of the Commonwealth's 15 RTAs operates in a unique context serving different geographic regions and mixes of urban, suburban, and rural communities and providing service tailored to the needs of their riders. This chapter provides an overview of BAT that establishes context for the findings contained in this CRTP.

3.1 Transit Agency Background

Established in 1974, BAT provides public transportation services to people living and working in Brockton as well as several Metro South communities. BAT serves 11 communities including Abington, Avon, Bridgewater, Brockton, East Bridgewater, Easton, Hanson, Rockland, Stoughton, West Bridgewater, and Whitman. In 2019, BAT carried just over 2.8 million passengers, traveling approximately two million miles and 175,000 revenue hours with an operating budget of \$4.3 million (Table 2).

BAT serves people through its fixed route and demand response services (Figure 3). Its fixed route service (15 routes) is a hub-and-spoke model where all buses start and end in Brockton at the BAT Centre. BSU is a major trip generator in the area and operates its own transit system with BAT buses. Looking beyond the immediate Brockton area, BAT provides service to six MBTA stations, one of which is located next to the BAT Centre. These connections allow its customers a two-seat journey to/from a variety of destinations north toward Boston and soon, with South Coast Rail (scheduled to launch by late 2023), south toward Fall River and New Bedford.

For those who cannot access the fixed route service, BAT provides a demand response service that includes complementary ADA paratransit service and senior demand response (DIAL-A-BAT) service. To support regional COA demand response services, BAT uses grants to pay for some COA service and provides vehicles and preventive maintenance services. Whereas some other RTAs are HST brokers, BAT provides transportation services through these brokerages and other agency arrangements.

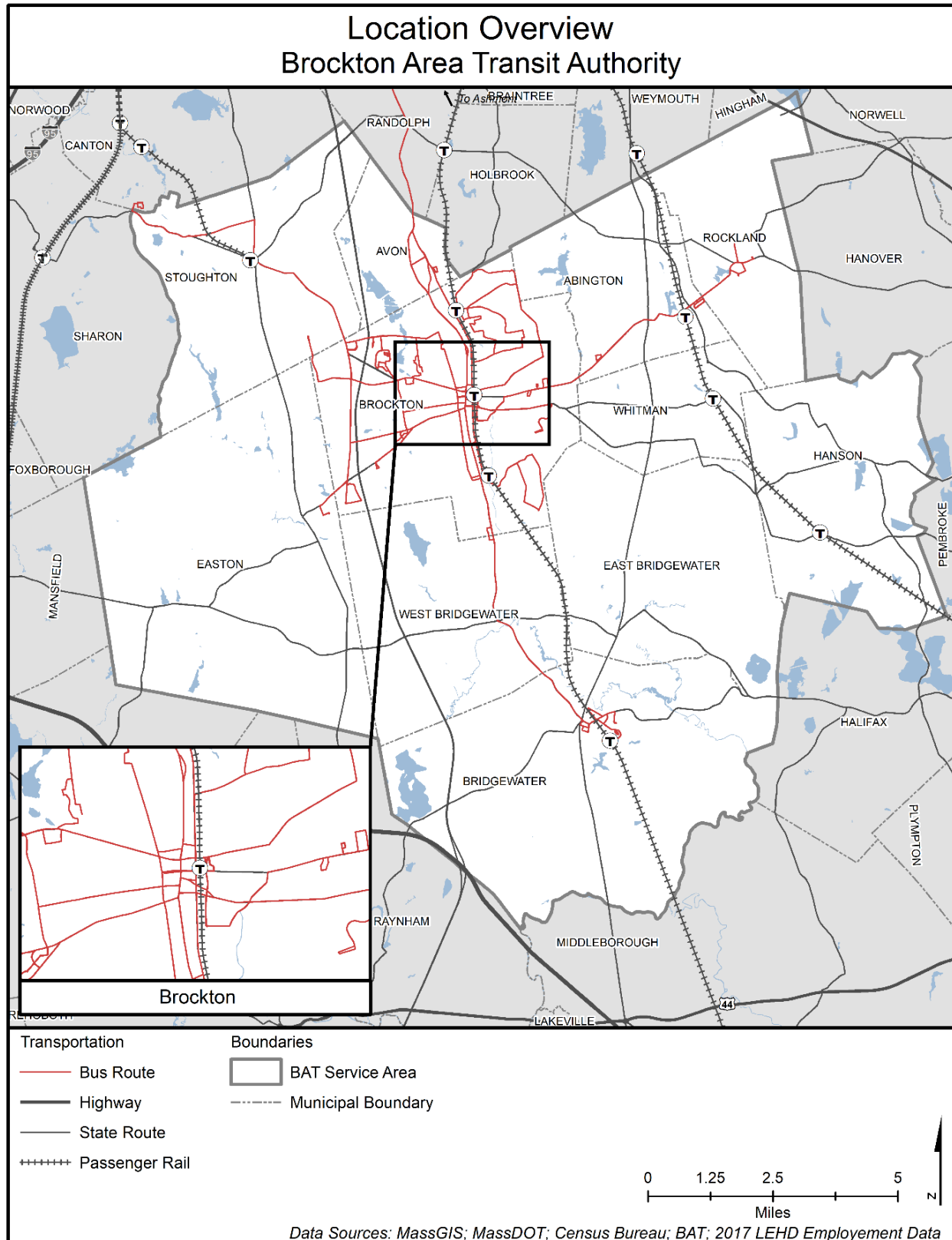
All of BAT's 15 routes offer regular weekday service; 13 of the routes also have Saturday service and 12 offer Sunday service. Most of BAT's fixed routes provide service from 6 AM to 9:05 PM on weekdays, 7:20 AM to 9:15 PM on Saturdays, and 11:20 AM to 6:25 PM on Sundays along with ADA demand response services.

Table 2. Statistics by Service (FY 2019)

FY 2019 Data	Fixed Route	% of Total	Demand Response	% of Total	Total
Ridership	2,636,726	93.8%	173,880	6.2%	2,810,606
Revenue Miles	1,307,255	65.4%	691,855	34.6%	1,999,110
Revenue Hours	107,563	61.3%	67,948	38.7%	175,511

Source: BAT

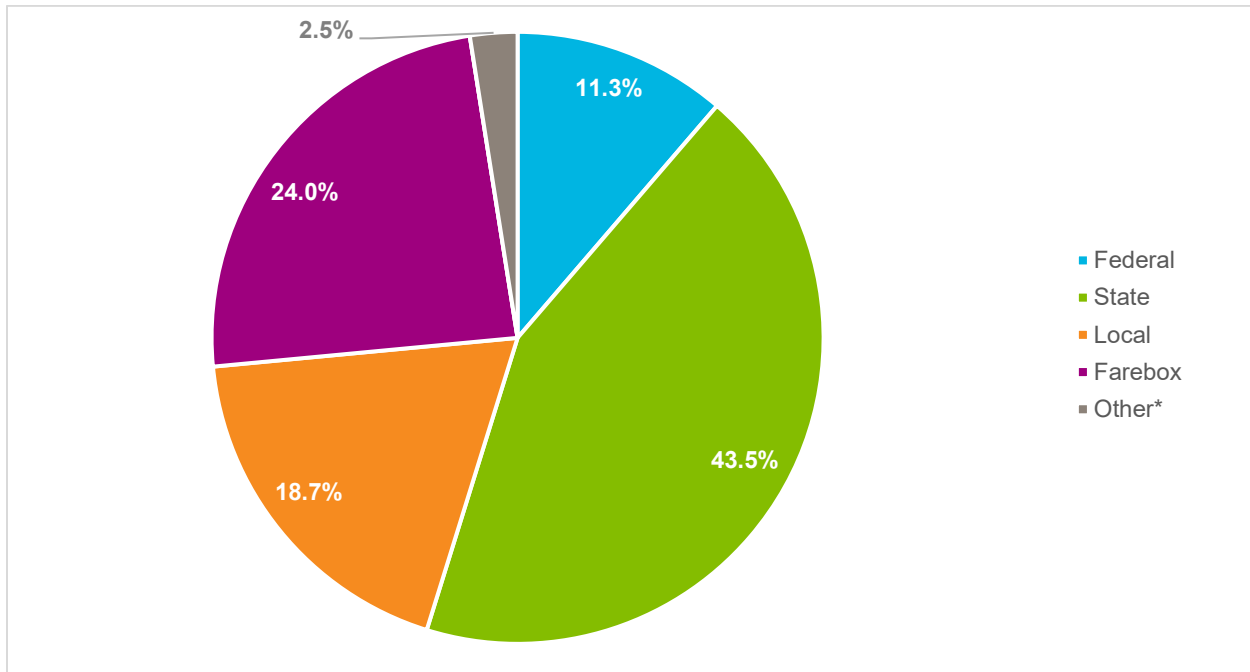
Figure 4. System Map



Source: BAT

The Commonwealth of Massachusetts provides the plurality of BAT's operating subsidies (43.5 percent). Additional funding comes from local assessments from communities in the BAT service area (18.7 percent) and the federal government (11.3 percent), while fares comprise nearly one-quarter of operating revenue (Figure 5).

Figure 5. BAT Operating Funding (FY 2019)



Source: BAT

*Advertising and other revenue

BAT is given general responsibility to develop, finance, and contract for the operation of mass transportation facilities and services within its service area. While an administrator and support staff are responsible for the day-to-day administration of the agency, BAT's operations are overseen by an advisory board made up of one member from each of the 11 communities the agency serves. The Advisory Board is responsible for hiring an Administrator, and passing the annual budget, as well as other duties as outlined in state law and Advisory Board bylaws.

In addition to the Administrator, BAT has 13 staff members. According to Commonwealth of Massachusetts statute, RTAs cannot operate service directly, but instead must contract with private operators for the provision of service. First Transit is under contract to run BAT's service, with Champion City Transit Management (fixed route) and Paratransit Management of Brockton (demand response) as sub-corporations.

3.2 Mission

BAT recognizes its valuable role serving the public and states on its website that its mission is, "To proudly serve and be recognized as an innovative regional transit authority by providing safe, reliable and efficient service to our customers, clients and communities while 'achieving maximum effectiveness in complementing other forms of transportation in order to promote the general, economic, and social well-being of the area and the Commonwealth' (MGL ch. 161b)."

The BAT website notes that, in seeking to fulfill its mission, the Authority holds itself to the following standards:

- Be an organization that is responsive, respectful, friendly, safe, accessible, affordable, and dependable to its customers and clients.

- Be a concerned and responsible entity that supports community activities through both organizational and personal involvement.
- Provide a working environment that recognizes and rewards employee contributions and initiatives, opportunities for personal growth and career advancement, and encouragement for effective and open communication and employee involvement.
- Support BAT's operators in providing resources to support levels and quality of service determined by the Authority to be reasonable, necessary, and consistent with contractual and regulatory obligations.
- Be a well-run, fiscally responsible authority that operates with prudent business policies and practices.

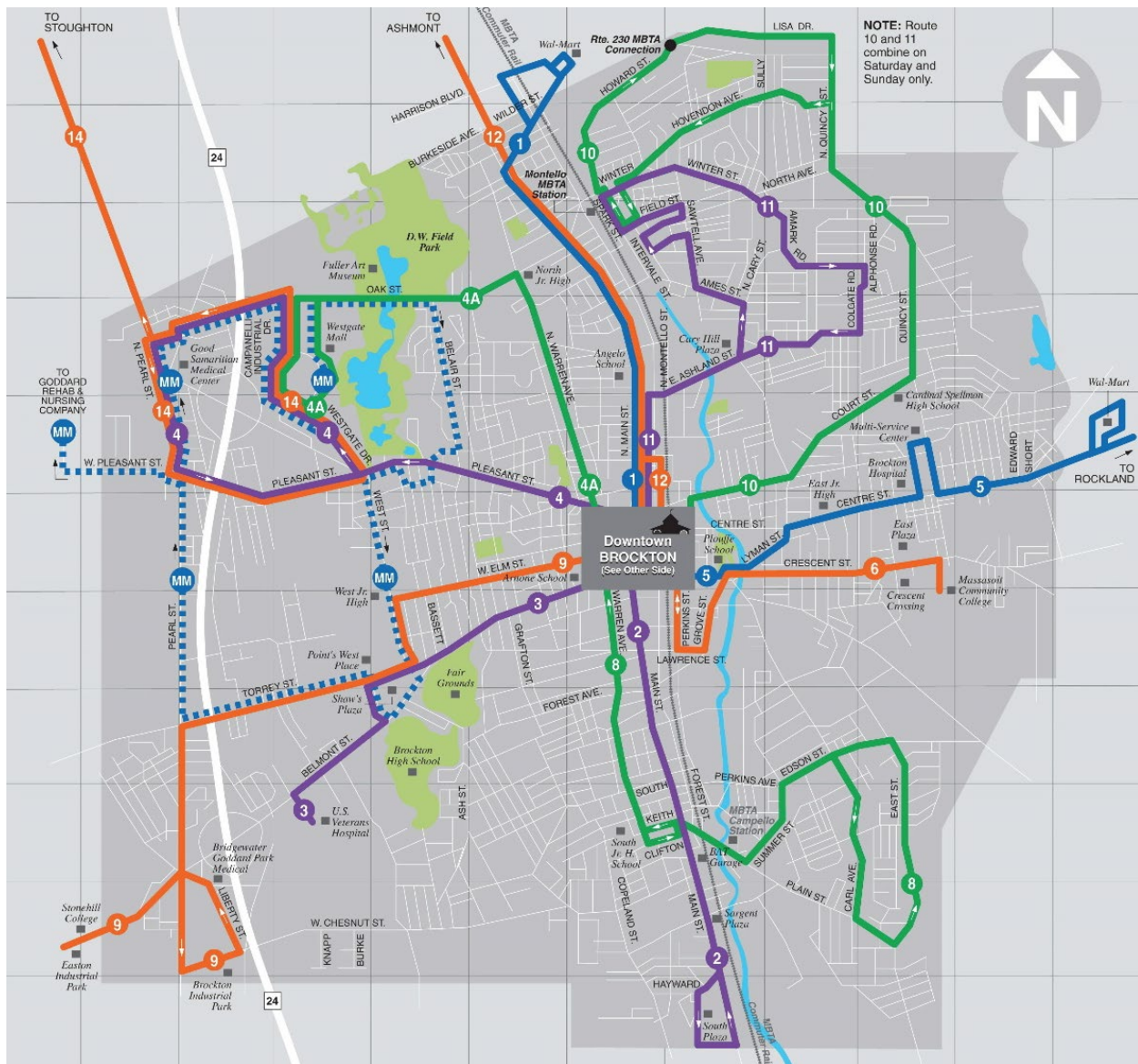
3.3 Goals and Objectives

The 5-year CRTP is an opportunity for BAT to confirm and/or adjust its vision for the future based on new developments since the 2015 CRTP. Goal setting is an iterative process where BAT takes stock of the completed and outstanding goals from previous plans and creates new goals that respond to the needs of the coming 5 years. BAT has established six core goals that inform its development and implementation of new programs and initiatives: (1) preserving existing service; (2) supporting Brockton's economic revitalization and environmental health; (3) employing innovative approaches to best serve member communities; (4) creating strong connections to greater Boston; (5) ensuring all service changes are equitable and consider the diverse backgrounds and needs of BAT's customers and employees; and (6) using technology to improve service.

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

BAT provides service to Brockton and its surrounding suburbs, connecting commuters and area residents to the rest of greater Boston through the MBTA system. The service area contains two centers of activity: Brockton and Bridgewater. The latter is home to BSU, a large public university with a student-run transit network using BAT vehicles. BAT's main hub is the BAT Centre in Brockton. The BAT Centre is adjacent to MBTA's Brockton Commuter Rail Station on the Middleborough/Lakeville Line with service to South Station in Boston (Figure 6 and Figure 7). There are five additional MBTA Commuter Rail stations in BAT's service area: Montello, Campello, and Bridgewater on the Middleborough/Lakeville Line; Abington on the Kingston/Plymouth Line; and Stoughton on the Providence/Stoughton Line.

Figure 6. System Map



Source: BAT

Figure 7. System Map - Brockton Detail



Source: BAT

BAT's fixed route service area extends roughly 10 miles to the south, east, and west of the BAT Centre. Route 12, the system's longest route, extends 20 miles to the north, terminating at the MBTA Ashmont/Peabody Square Station on the Red Line subway.

4.1 Description of Existing Services

BAT's existing services include 15 fixed routes, a deviated fixed route (Rockland Flex Service), and the BSU transit network (operated by BSU).

Apart from Route 13 (the Mini-Maller) and Rockland Flex Ride, all fixed route service operated by BAT initiates and terminates at the BAT Centre. The fixed route service operates as a "pulse system," wherein all buses arrive at the BAT Centre, passengers are able to transfer to their next bus, and then the buses depart at the same time. A pulse system is used frequently in smaller metropolitan areas to make lower frequency headways operate at higher efficiency and convenience. Transfers at the BAT Centre are fare free, supporting pulse system operations. Fare-free transfers, schedules optimized for transfers between routes, and an opportunity to connect to the MBTA Brockton Commuter Rail Station make the BAT Centre the focus of transportation activity in the system.

Demand response service includes complementary ADA paratransit service and senior demand response (DIAL-A-BAT) service. BAT also provides weekly service to some Boston hospitals that offer medical treatment not available in the BAT area. Additionally, Section 5310 grants awarded to BAT support regional demand response service, including service beyond BAT's

ADA corridor in the City of Brockton, and in the towns of Avon and Stoughton. Through Section 5310 awards, BAT is also able to provide fully accessible vehicles and preventive maintenance services to the COAs at no cost to the community. A New Freedom grant supports expanded service hours available to residents of the Town of Easton.

BAT also provides HST to GATRA customers with demand response services and through contracts with businesses (Walgreens, Walmart, and select grocery stores). BAT groups HST trips with other demand response services they provide and does not differentiate the service from its ADA and DIAL-A-BAT service, and includes HST trips in its demand response service statistics in state and federal reports. HST riders make up slightly less than one-third of BAT's demand response customers.

The BAT transportation network serves regional destinations including medical facilities, Massasoit Community College, BSU, Stonehill College, and large industrial parks. Providing service to industrial parks can be challenging for transit providers as they are often in remote locations with no other trip generators nearby, resulting in low ridership. BAT recently received federal grant funding to extend the Rockland Flex Route to an industrial park in Rockland; the grant is also designed to shift Rockland service to a microtransit on-demand model to boost ridership.

BAT also received a discretionary state grant for FY 2020 to study the feasibility of implementing a shared route to connect the two systems in Raynham.

4.1.1 BAT Route Descriptions

BAT offers three kinds of fixed route service: shorter routes that serve destinations within Brockton, longer routes that connect Brockton with transit hubs outside the system (Routes 1, 12, and 14), and deviated fixed route service that serves Rockland (Rockland Flex Ride), an outlying suburban community.

BAT also runs four types of demand response service:

- **ADA Service:** This service is provided to all residents with disabilities that prevent them from using the fixed route service. This service is available to any eligible resident in Brockton, as well as eligible residents in outlying communities who live within $\frac{3}{4}$ mile of fixed route service.
- **DIAL-A-BAT Senior Service:** This service is above-and-beyond federally required ADA service, and is available to all Brockton senior residents (age 65 or over) and those who live $\frac{3}{4}$ miles from a fixed route as well as senior residents in towns that provide senior service. Additional senior service in BAT communities is provided by COAs.
- **DIAL-A-BAT Boston hospital shuttle:** This weekly shuttle service to Boston hospitals is above-and-beyond federally required ADA service, and is available to all ADA-eligible riders and Brockton senior residents (age 65 or over) as well as senior residents in outlying communities who live within $\frac{3}{4}$ mile of fixed route service.
- **Human Service Transportation:** BAT has contracts with agencies in the Brockton area to provide transportation to their clients. These trips may be local, or occasionally travel to destinations outside of the service area. BAT also contracts with GATRA as a provider of non-emergency medical transportation.

BAT supplies BSU with vehicles but does not operate the fixed route service, which operates as its own network with five fixed routes. BSU service is limited to the school's campus except for Route 28, an express weekday-only route from BSU to BAT Centre, which makes seven trips daily. BSU Route 28 is the only fixed route connection between BAT's service and Bridgewater (there is commuter rail service between the two cities via the Middleborough/Lakeville Line) (Table 3). BAT does provide Bridgewater with DIAL-A-BAT service and the town's COA was

awarded a Mobility Assistance Program (MAP) vehicle through BAT's Community Transit Grant Program funding (a Section 5310 program administered through MassDOT).

Table 3. Service Overview

Route	Description
1 Montello	North-south route traveling between the BAT Centre and the Avon Walmart
2 Campello	North-south route serving downtown Brockton operating between the BAT Centre and KMART plaza and Campello High Rise
3 Belmont Street	East-west route connecting the BAT Centre with the Veteran's Administration Hospital via downtown Brockton
4 Westgate	Connects the BAT Centre with Good Samaritan Hospital and Westgate Mall via Pleasant Street
4A N Warren Avenue	Connects the BAT Centre with Westgate Mall via the Legion Parkway in downtown Brockton
5 Brockton Hospital	East-west route connecting the BAT Centre with the Rockland Flex Service, Abington Walmart, and Brockton Hospital via Centre Street
6 Massasoit	Connects the BAT Centre with Massasoit Community College and the Brockton East Shopping Center
8 Southfield	North-south route connecting the BAT Centre with southeast Brockton via Warren Avenue
9 Pearl	Connects BAT Centre with regional medical facilities, shopping hub in South Easton, and Stonehill College via Torrey Street
10 N Quincy	Connects BAT Centre with the MBTA Montello Commuter Rail Station via Cardinal Spellman High School
11 Cary Hill	Connects BAT Centre with the Loop route operating in northwest Brockton and the MBTA Montello Commuter Rail Station
12 Ashmont	Connects the BAT Centre with MBTA's Ashmont Red Line Station
13 Mini-Maller	Loop route connecting public and elderly housing with shopping and healthcare facilities in western Brockton only
14 Stoughton	Connects the BAT Centre and the Stoughton/Canton border via the MBTA Stoughton Commuter Rail Station and Westgate Mall
Rockland Flex Service	Fixed route deviated lifeline service in Rockland that connects hospitals, medical facilities, pharmacies, shopping, grocery stores, education, and Rockland Community Center

Route	Description
BSU Service (<i>operates from September to May</i>)	Multiple fixed routes operated by and serving BSU
DIAL-A-BAT Demand Response	Service for ADA passengers and seniors in BAT's service area communities with weekly trips to Boston hospitals
COA Demand Response	ADA and senior service provided by COAs in select towns
HST Demand Response	BAT is a contracted service provider for Brockton-area agencies and GATRA

Source: BAT

4.1.2 Service Hours

All of BAT's 15 routes offer regular weekday service; 13 of the routes also have Saturday service and 12 offer Sunday service (Table 4).

Most of BAT's fixed routes provide service from 6:00 AM to 9:05 PM on weekdays, 7:20 AM to 9:15 PM on Saturdays, and 11:20 AM to 6:25 PM on Sundays along with ADA demand response services. Due to its level of ridership and connection to Boston, Route 12 has much longer service hours than any of the other fixed routes, aligning with MBTA's Red Line schedule.

Table 4. Span of Service Hours

Route	Weekday	Saturday	Sunday
1 Montello	6:00 AM–9:05 PM	7:20 AM–9:15 PM	11:20 AM–6:25 PM
2 Campello	6:00 AM–9:05 PM	7:20 AM–9:15 PM	11:20 AM–6:25 PM
3 Belmont Street	6:00 AM–9:05 PM	7:20 AM–9:15 PM	11:20 AM–6:25 PM
4 Westgate	6:00 AM–9:05 PM	7:20 AM–9:15 PM	11:20 AM–6:25 PM
4A N Warren Avenue	6:00 AM–9:05 PM	7:20 AM–9:15 PM	11:20 AM–6:25 PM
5 Brockton Hospital	6:00 AM–9:05 PM	7:20 AM–9:15 PM	11:20 AM–6:25 PM
6 Massasoit	6:00 AM–9:05 PM	7:20 AM–9:15 PM	11:20 AM–6:25 PM
8 Southfield	6:00 AM–9:05 PM	7:20 AM–9:15 PM	11:20 AM–6:25 PM
9 Pearl	6:00 AM–6:05 PM	No service	No service
10 N Quincy	6:00 AM–9:05 PM	7:20 AM–9:15 PM*	11:20 AM–6:25 PM*
11 Cary Hill	6:00 AM–6:05 PM	7:20 AM–9:15 PM*	11:20 AM–6:25 PM*
12 Ashmont	4:50 AM–11:30 PM	5:05 AM–10:50 PM	10:10 AM–6:30 PM
13 Mini-Maller	9:45 AM–4:50 PM	10:45 AM–5:50 PM	No service
14 Stoughton	6:00 AM–6:45 PM	6:00 AM–5:30 PM	12:00 PM–7 PM
Rockland Flex Service	8:45 AM–4:50 PM	No service	No service

Route	Weekday	Saturday	Sunday
BSU (<i>operates from September to May</i>)	6:50 AM–2:00 AM	7:00 PM–2:00 AM	7:00 PM–2:00 AM
DIAL-A-BAT Demand Response	6:00 AM–9:05 PM (ADA service) 9:30 AM–4:30 PM (Senior service)	6:00 AM–9:15 PM (ADA service)	11:20 AM–6:25 PM (ADA service)
COA Demand Response	Varies by town	Varies by town	Varies by town
HST Demand Response	Not available	Not available	Not available

Source: BAT

*Routes 10 and 11 combine on weekends.

4.1.3 Service Frequency

Over half of BAT's routes (66 percent) have 25-minute weekday headways or less. The only route with greater than one-hour weekday headways is the Rockland Flex Service (Table 5). Weekend headways are typically double that of weekday headways with the exception of the routes with less frequent weekday service (Routes 9, 10, 11, 13, and 14).

Table 5. Frequency of Service (Minutes)

Route	Weekday	Saturday	Sunday
1 Montello	20	40	40
2 Campello	20	40	40
3 Belmont Street	20	40	40
4 Westgate	20	40	40
4A N Warren Avenue	20	40	40
5 Brockton Hospital	20	40	40
6 Massasoit	25	45	40
8 Southfield	25	45	40
9 Pearl	50	No service	No service
10 N Quincy	50	45*	40*
11 Cary Hill	45	45*	40*
12 Ashmont	20	40	40
13 Mini-Maller	45	45	No service
14 Stoughton	50	45	60
Rockland Flex Service	75	No service	No service
BSU Service (<i>operates from September to May</i>)	Varies by BSU route	Varies by BSU route	Varies by BSU route

Route	Weekday	Saturday	Sunday
DIAL-A-BAT	NA	NA	NA
COA Demand Response	NA	NA	NA
HST Demand Response	NA	NA	NA

Source: BAT

*Routes 10 and 11 combine on weekends.

4.1.4 Operating Funding

BAT's operating subsidies are provided through state contract assistance from the Commonwealth of Massachusetts (43.5 percent), service assessments from towns in the BAT service area (18.7 percent), and the federal government (11.3 percent) in the form of Section 5307 urbanized area formula grants (Table 6).

Table 6. Operating Funding Sources

Funding Source	FY 2017	%	FY 2018	%	FY 2019	%
Federal	\$1,397,184	9.2%	\$1,949,459	12.4%	\$1,818,876	11.3%
State	\$6,983,107	46.1%	\$6,846,851	43.6%	\$6,983,107	43.5%
Local	\$2,854,118	18.8%	\$2,925,471	18.6%	\$2,998,608	18.7%
Farebox	\$3,644,547	24.0%	\$3,603,761	22.9%	\$3,843,083	24.0%
Partnerships/ contracts	\$0	0.0%	\$0	0.0%	\$0	0.0%
Other*	\$282,337	1.9%	\$379,187	2.4%	\$396,905	2.5%
TOTAL	\$15,161,293	100.0%	\$15,704,729	100.0%	\$16,040,579	100.0%

Source: BAT

*Includes facility and parking income, advertising, reimbursement of maintenance, and miscellaneous.

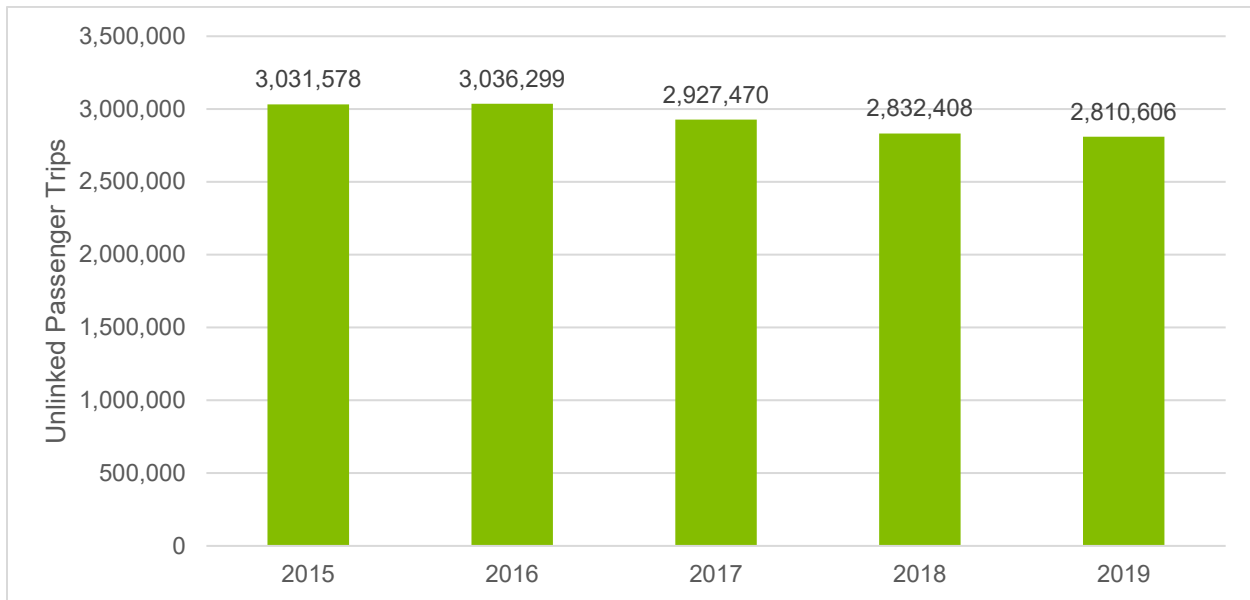
BAT supplements non-operating revenue with discretionary grants. BAT recently received Workforce Development grant funding to extend the Rockland Flex Route to an industrial park in Rockland. BAT also received grant funding from the Commonwealth for FY 2020 with GATRA to study the feasibility of implementing a shared route to connect the two systems in Raynham.

Farebox revenue includes fixed route, DIAL-A-BAT, COA fares, and HST revenues. Funding streams remained consistent from FY 2017 to FY 2019.

4.2 Ridership and Service Operations

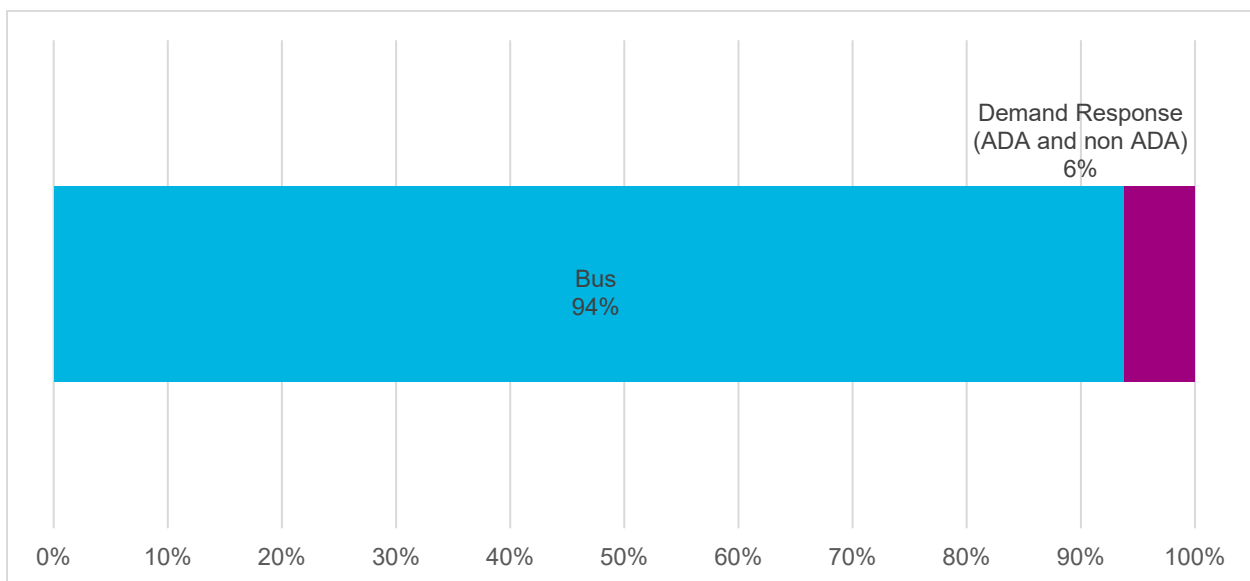
In FY 2018 and FY 2019, BAT had to implement a two-phased fare increase and a service cut to improve efficiency, which likely contributed to a more dramatic decline in ridership than the system had seen in the previous 3 years (Figure 8); the fare increase was the first in 7 years.

The COVID-19 pandemic has interfered with progress BAT was making to reverse the negative ridership trend. FY 2020 was trending toward maintaining FY 2019's ridership level and a planned addition to service (postponed due to the pandemic) would have likely led to an increase in ridership.

Figure 8. Annual System Ridership Trends (FY 2015–FY 2019)

Source: BAT, MassDOT

The majority (93.8 percent) of trips taken in BAT's system are fixed route service (Figure 9). Having a higher percentage of trips taken on the fixed route system typically results in a more financially efficient service, as fixed route trips tend to be much less expensive to operate than door-to-door service.

Figure 9. Ridership Breakdown by Service Type (FY 2019)

Source: BAT

4.2.1 Fixed Route Service

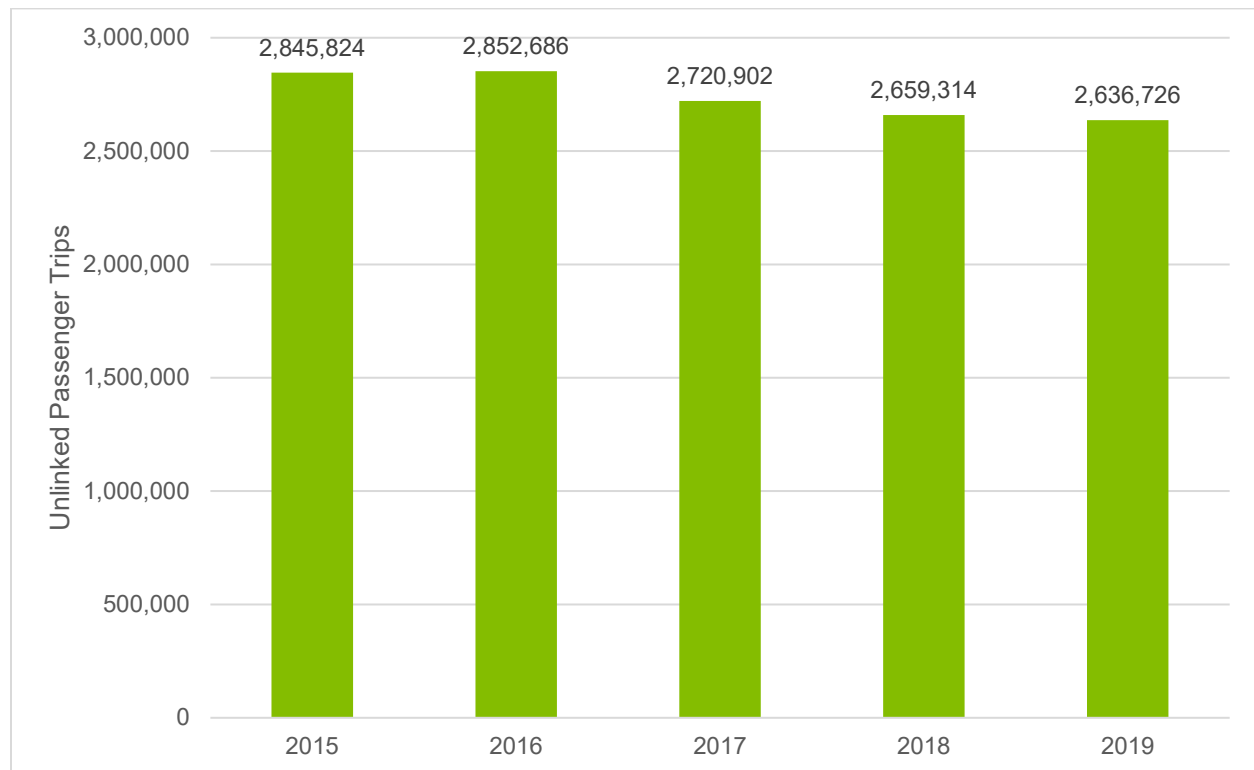
In general, BAT operates a system that is predominately fixed route bus service, with 6.2 percent of its ridership using demand response services. BAT fixed route ridership includes all routes operated by BAT and BSU. Ridership data for BSU are not disaggregated by route

and only annual statistics are available. Disaggregated BSU data will be available in FY 2021 when the APCs BAT recently acquired are functional.

4.2.1.1 Fixed Route Ridership Profile

Fixed route ridership has declined in recent years as BAT has had to implement a service cut and fare increase (Figure 10). Prior to the COVID-19 pandemic, BAT had expected ridership levels to remain even for FY 2020, and a planned service increase (since postponed) was expected to lead to an increase in ridership.

Figure 10. Annual Ridership Fixed Route (FY 2015–FY 2019)

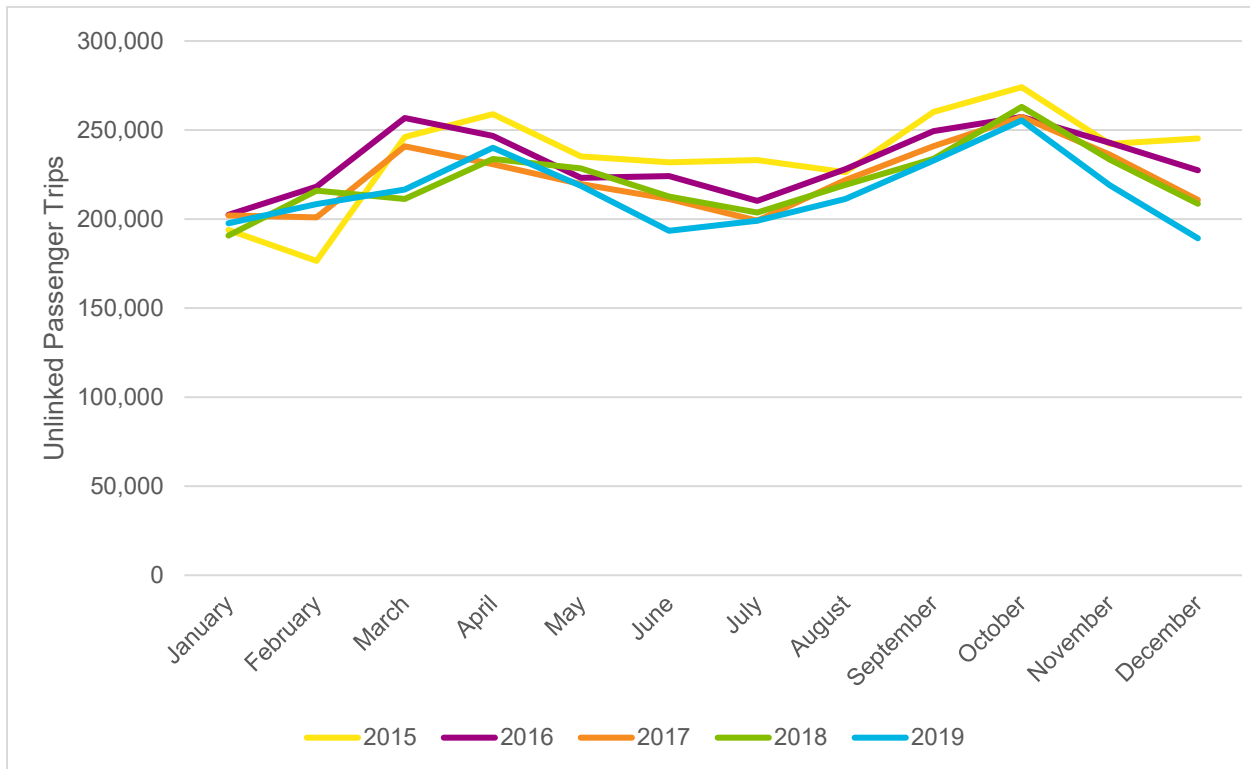


Source: BAT, NTD, MassDOT

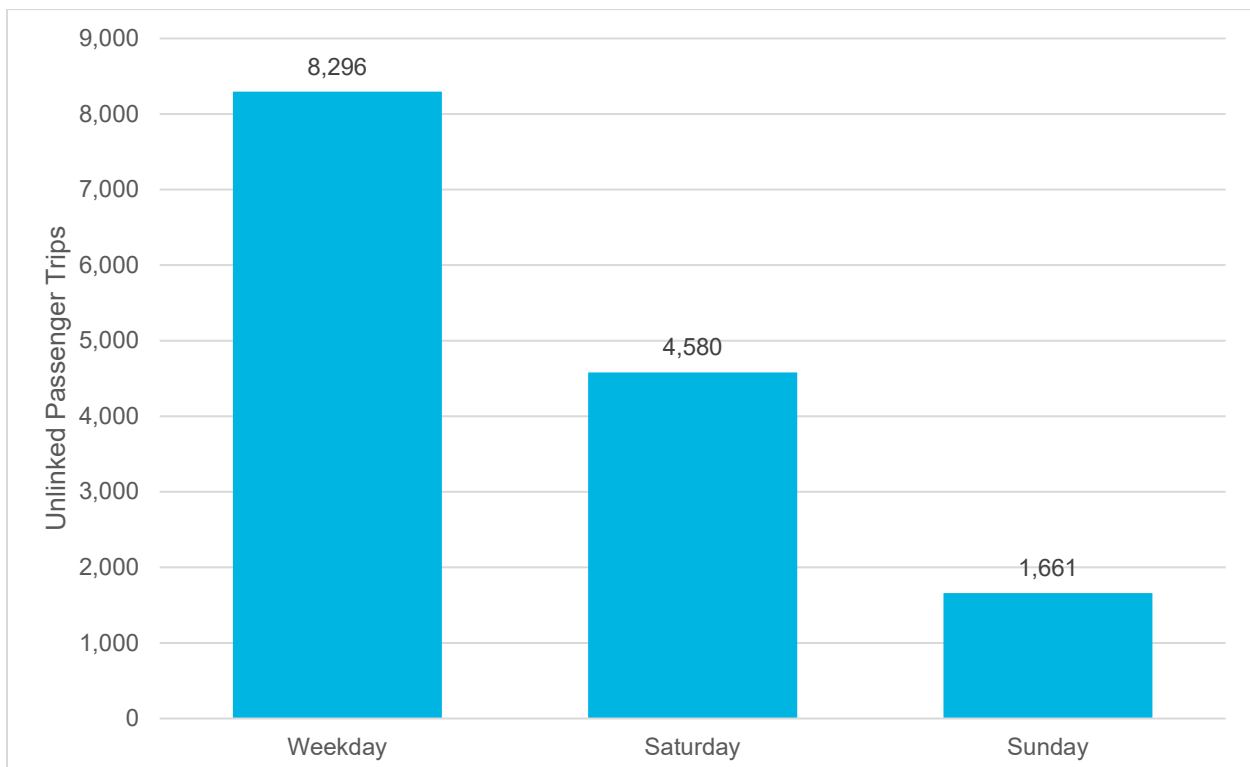
BAT's monthly ridership trends have been consistent for the last 5 years, dipping roughly 25 percent when schools are not in session and when BSU fixed routes are not in service (Figure 11).

The number of weekday riders versus weekend riders mirrors the ratio of weekday service levels to weekend service, when most of BAT's routes transition from 20-minute frequencies to 40-minute frequencies (Figure 12).

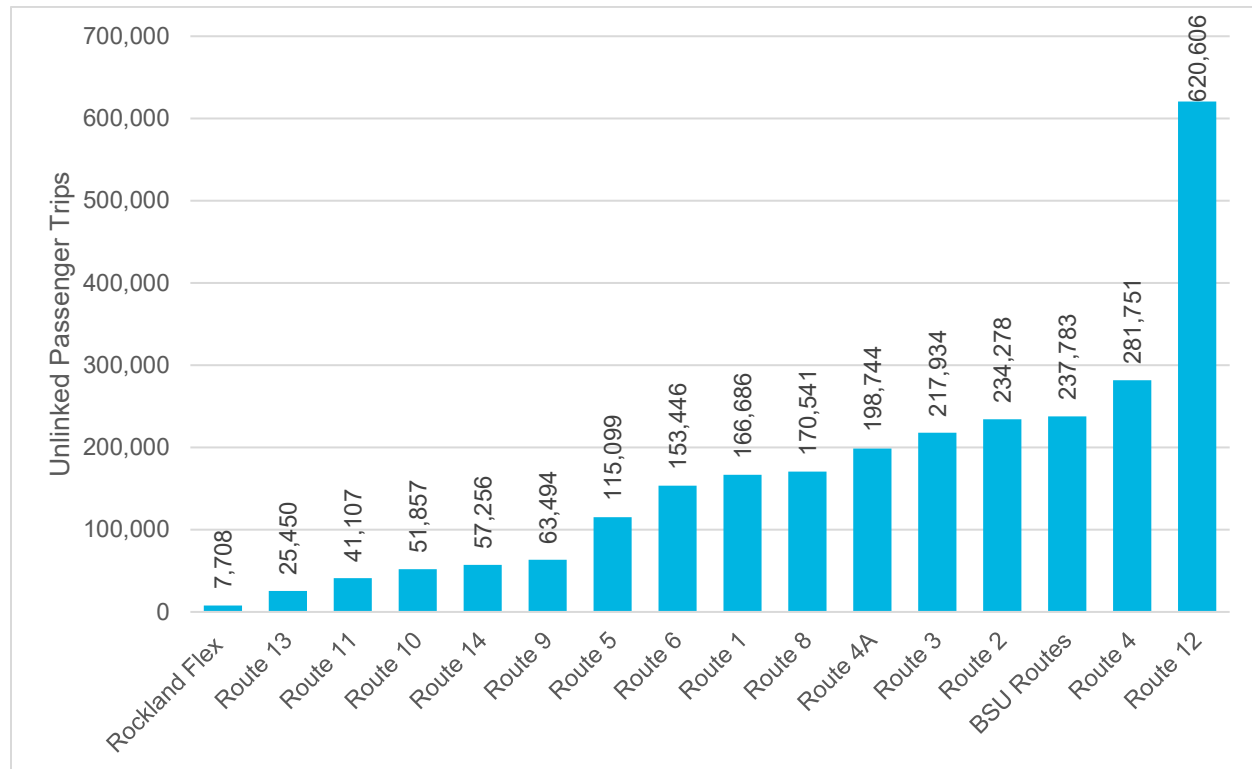
As shown on Figure 13, Route 12 is the highest ridership route in the BAT system, with its ridership making up 23.5 percent of the system's total fixed route passengers in FY 2019. This is as expected given that it connects BAT customers to the MBTA system. Route 12 also runs at a much higher frequency than MBTA's Old Colony Commuter Rail line, which is Brockton's other transit connection to Boston.

Figure 11. Monthly Fixed Route Ridership (FY 2015–FY 2019)

Source: NTD

Figure 12. Average Daily Ridership Fixed Route System (FY 2019)

Source: BAT

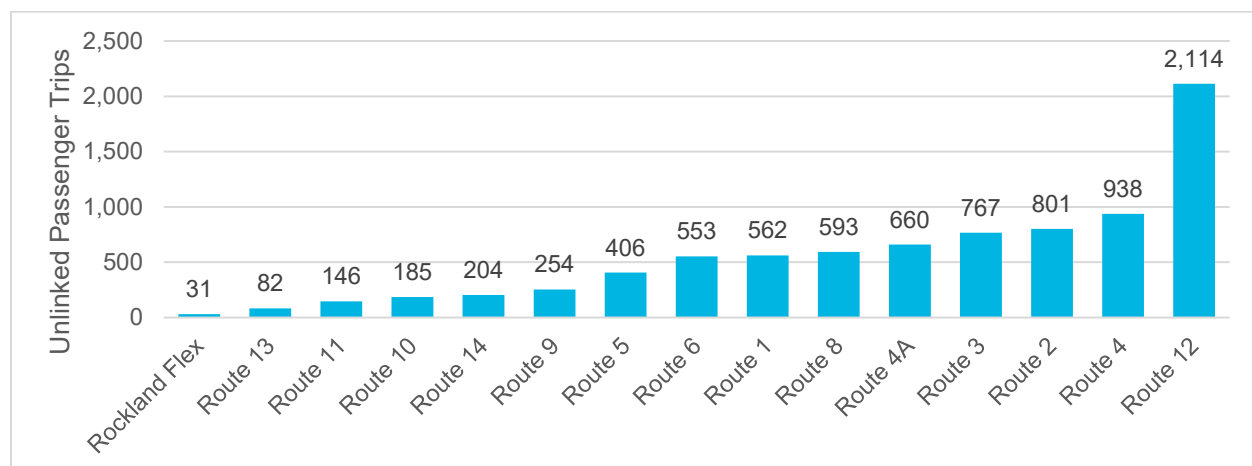
Figure 13. Annual Ridership by Route (FY 2019)

Source: BAT

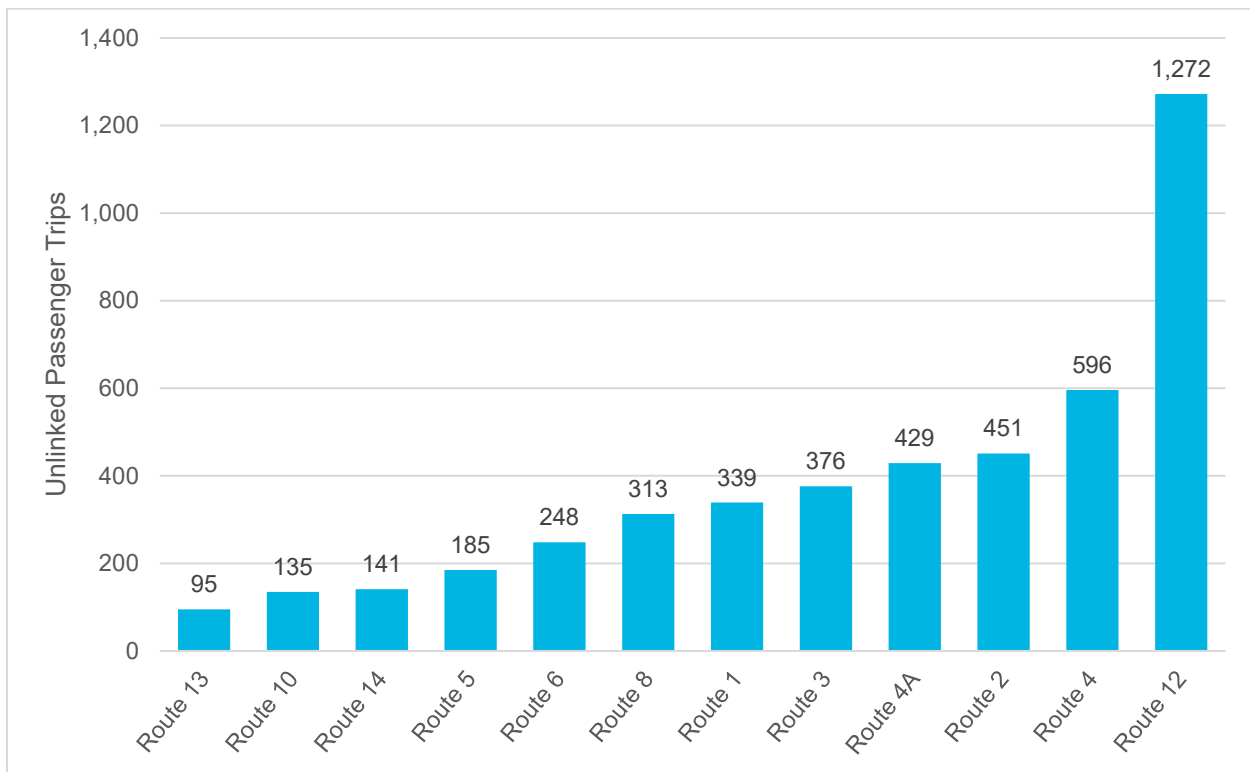
The lowest ridership route was the Rockland Flex Service, a lifeline service provided by the Community Transit Grant Program, which serves areas far from the core of the BAT system. The second lowest ridership route was Route 13 (Mini Maller), which runs 45-minute service to Westgate Mall and connects public and elderly housing with shopping and healthcare facilities; the route does not connect to other routes at the BAT Centre.

Average weekday ridership mirrors annual ridership trends (Figure 14). Average weekend ridership is largely the same, with the exception of Route 4A, which connects downtown Brockton to Westgate Mall and does relatively well on weekends (Figure 15 and Figure 16).

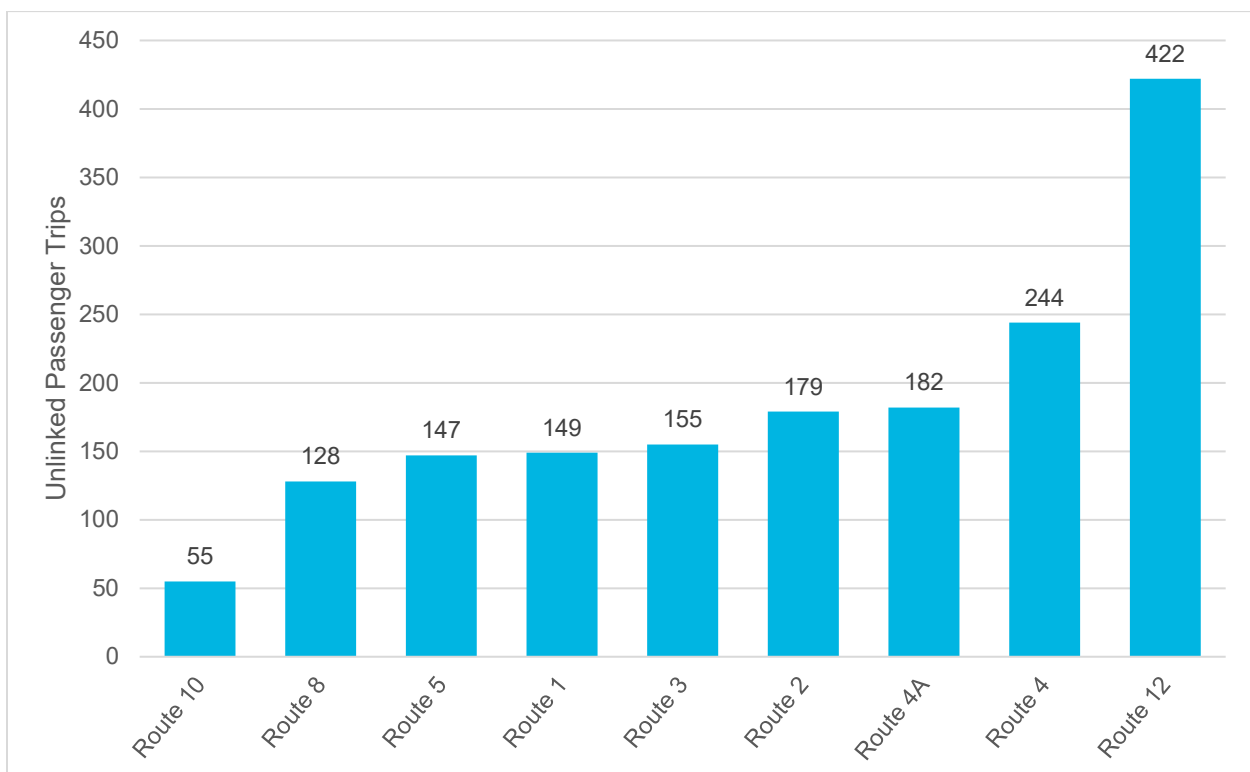
BAT received a discretionary grant in FY 2020 to install APC/CAD/AVL that, when installed in 2021, will produce data that will allow for far more robust ridership analysis.

Figure 14. Average Weekday Ridership by Route (FY 2019)

Source: BAT

Figure 15. Saturday Average Ridership by Route (FY 2019)

Source: BAT

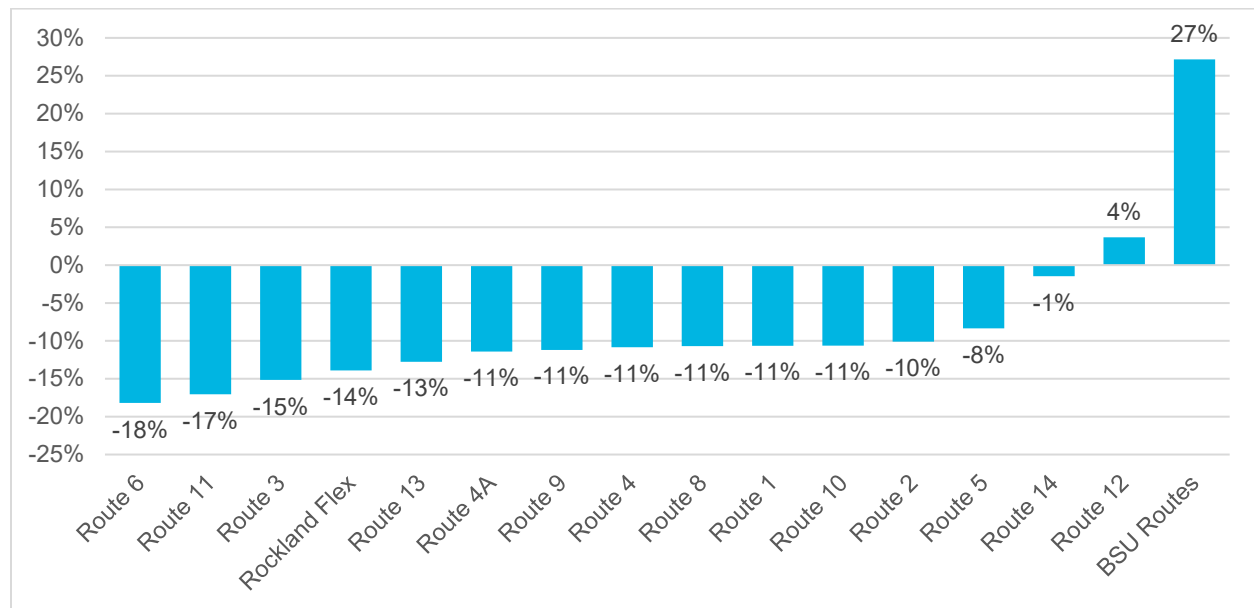
Figure 16. Sunday Average Ridership by Route (FY 2019)

Source: BAT

As shown on Figure 17, Route 12 is the only BAT-operated route that has seen an increase in weekday ridership in the last 4 years. The BSU routes have seen the largest increase by 23 percent. This could be attributed to a FY 2019 discretionary grant that expanded service and increased frequency, and the extension of BSU's Route 28 to the BAT Centre (it previously terminated at a shopping plaza 3 miles south of BAT Centre). This service expansion on Route 28 may also explain declining ridership on Route 2, since Route 28 now covers the same alignment as Route 2.

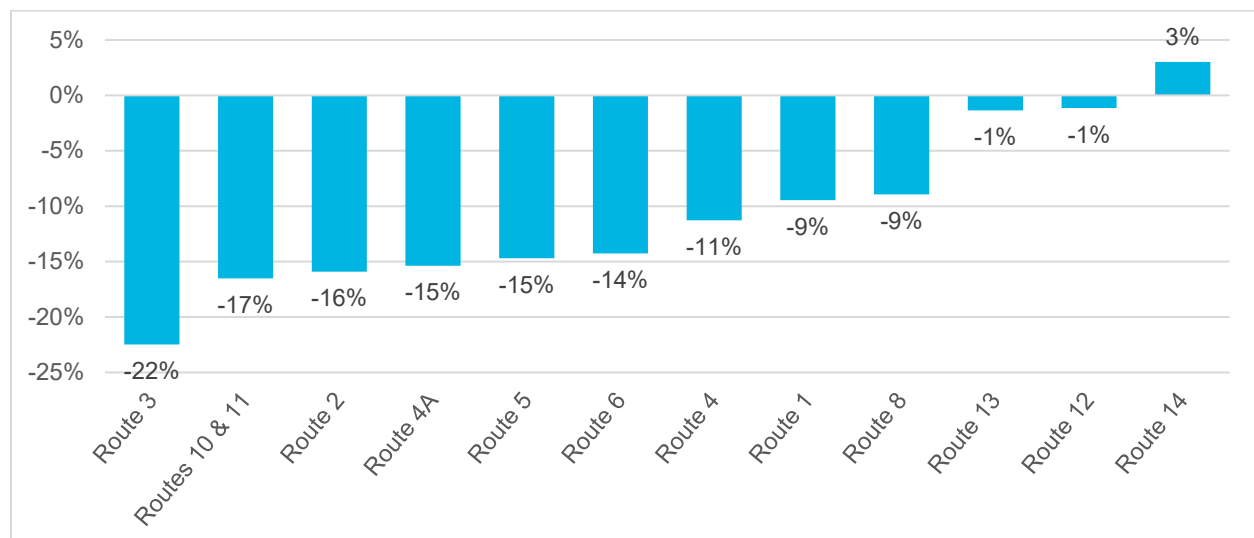
Route 6 had the largest decline in weekday average ridership between FY 2016 and FY 2019, closely followed by Route 11 (Figure 17). Route 3 had the greatest decline in weekend ridership (Figure 18 and Figure 19), continuing a downward trend, which was described in the previous CRTF.

Figure 17. Weekday Average Ridership Change by Route (FY 2016–FY 2019)

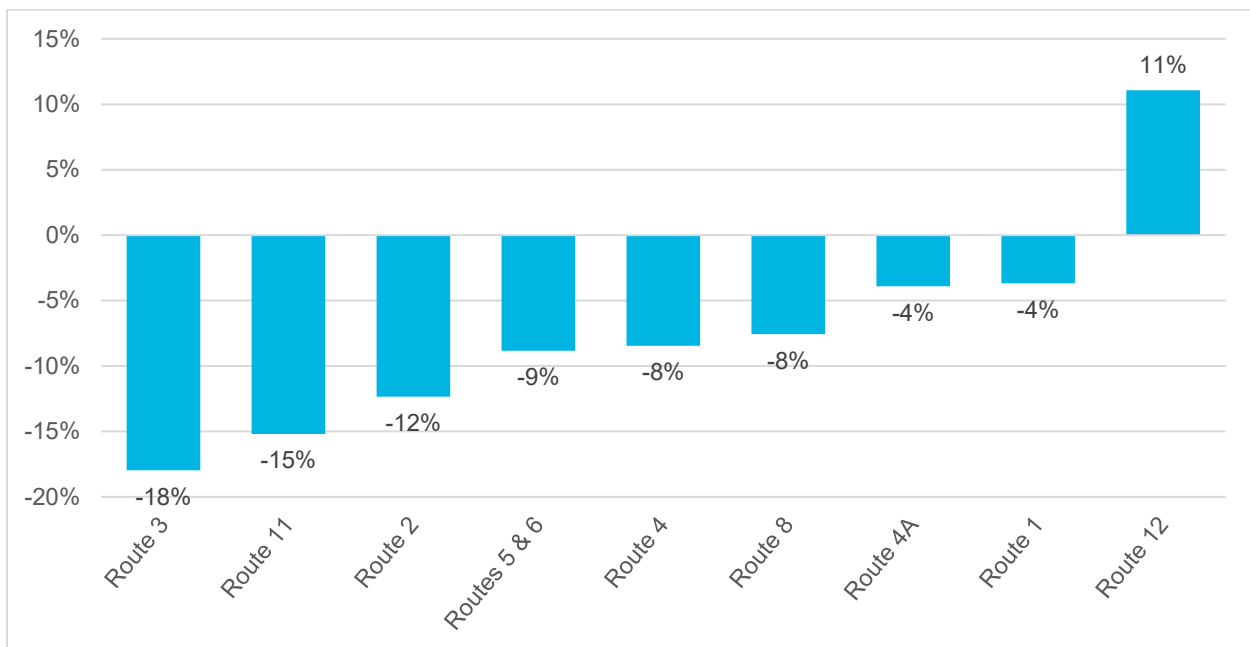


Source: BAT

Figure 18. Saturday Average Ridership Change by Route (FY 2016–FY 2019)

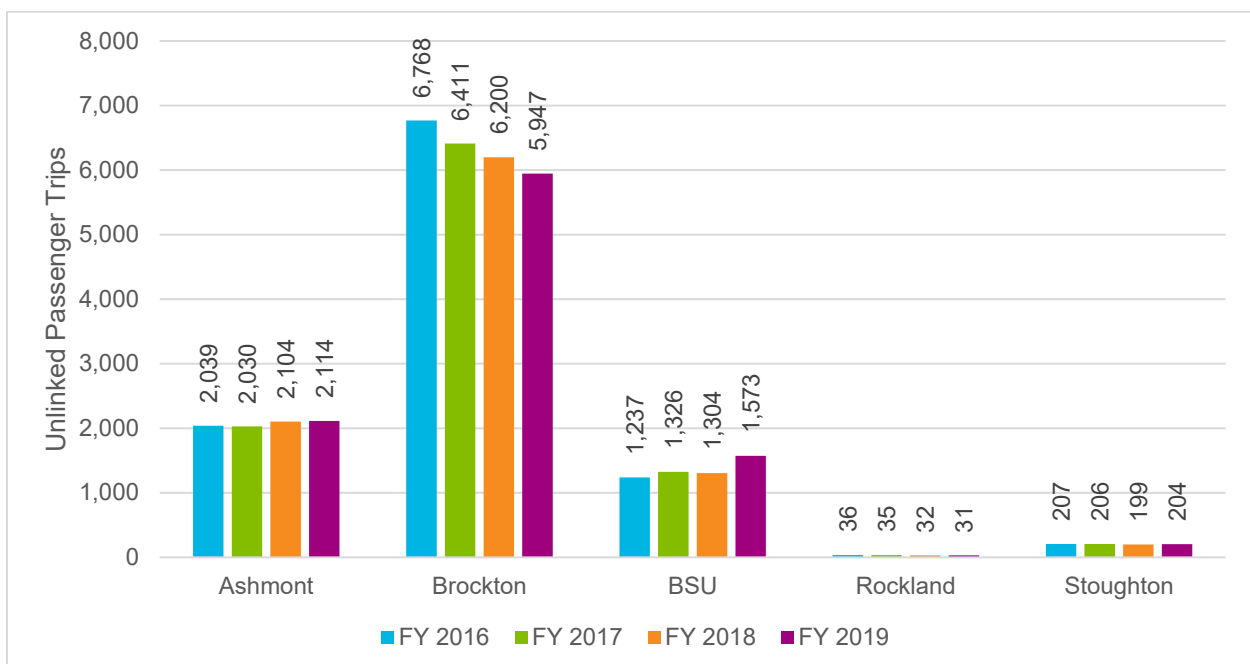


Source: BAT

Figure 19. Sunday Average Ridership Change by Route (FY 2015–FY 2019)

Source: BAT

BAT analyzes ridership data based on sub-regions of the service area in its annual ridership report (Figure 20). Overall ridership in Brockton has declined dramatically over the past 4 years (13 percent), while Ashmont, Rockland, and Stoughton ridership levels have remained steady. BSU is the only area that has seen an increase in ridership (27 percent). Route segment level of analysis will be available along all routes with the APCs. This information will be helpful as BAT evaluates and revises its routes to increase the effectiveness of the service that is offered and to improve its performance.

Figure 20. Average Daily Ridership by Area (FY 2016–FY 2019)

Source: BAT

4.2.1.2 Fixed Route Ridership, Hours, Miles, and Operating Cost

Fixed route revenue hours and miles increased overall from FY 2015 to FY 2019. In FY 2016 there was a steep increase of 6 percent in revenue hours and 4 percent in revenue miles. Since FY 2017, there hasn't been a consistent upward or downward trend. However, both have declined overall, while operating costs have steadily increased year to year (Table 7).

Table 7. Annual Fixed Route Operating Statistics (FY 2015–FY 2019)

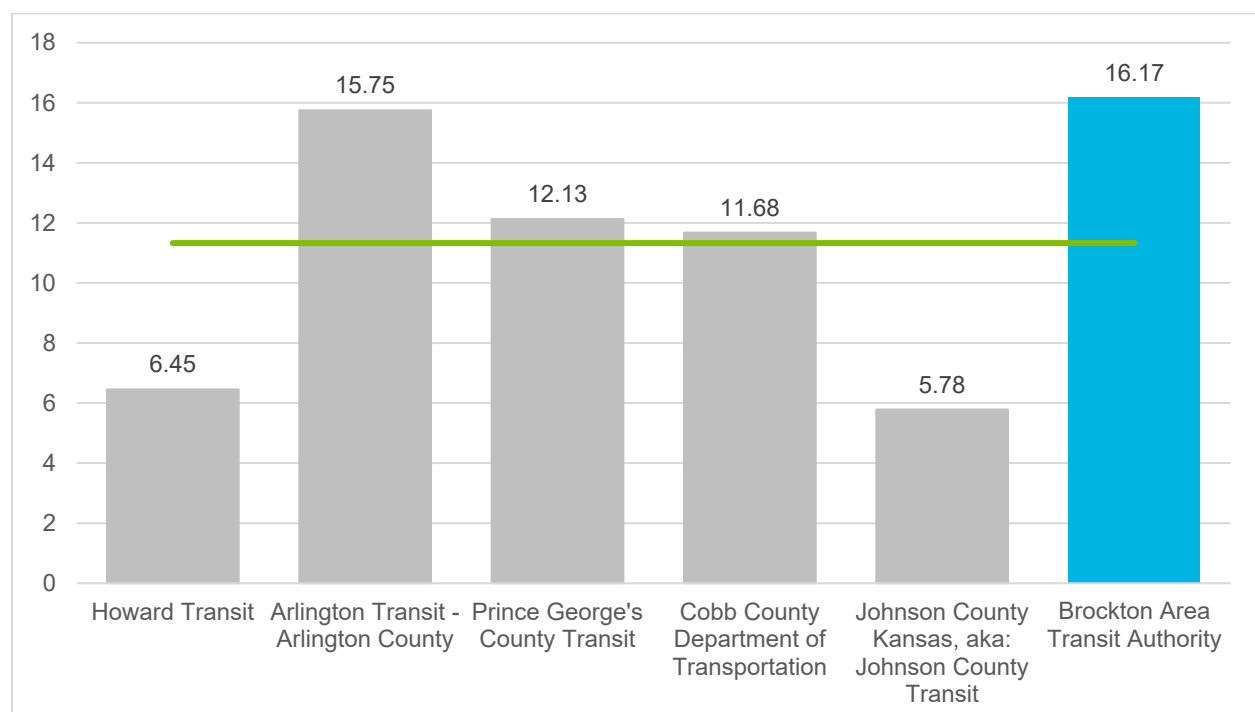
Operating Statistic	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	% change 2015–2019
Ridership	2,845,824	2,852,686	2,720,902	2,659,314	2,636,726	–7.4%
Revenue Hours	102,950	109,444	110,757	107,023	107,563	+4.3%
Revenue Miles	1,261,980	1,311,921	1,310,832	1,315,345	1,307,255	+3.5%
Operating Cost	\$10,217,021	\$10,492,163	\$10,406,286	\$10,518,210	\$11,706,738	+12.7%

Source: NTD, BAT

4.2.1.3 Fixed Route Performance

A more detailed service analysis conducted as part of this planning process is included in Appendix A. It indicated that BAT's fixed route service is efficient, providing a good value to the public (see Figure 21 for an illustrative example). Survey results show that customers appreciate the safe and friendly service and analysis shows that it generally performs better than national peers. See Appendix A for the full analysis results.

Figure 21. BAT Peer Comparison – Trips per Hour (FY 2017)



Source: NTD

4.2.2 Demand Response Service

BAT operates four types of demand response services: DIAL-A-BAT (ADA, non-ADA senior service, weekly trip to Boston hospitals) and HST for GATRA. BAT's DIAL-A-BAT service goes above-and-beyond the federal requirements for ADA service in that it also serves seniors. DIAL-A-BAT also serves the entire city of Brockton instead of limiting service to $\frac{3}{4}$ mile within fixed route service and provides weekly trips to Boston hospitals (at an elevated fare rate). COAs in BAT service area communities use MAP vehicles provided by BAT to offer additional service to ADA and senior customers (and the general public, if room allows) who live outside Brockton and/or the $\frac{3}{4}$ mile fixed route service buffer.

DIAL-A-BAT recently adopted an account-based (pre-paid) system with all prepaid fares, and no tickets or cash are accepted on-board the vans.

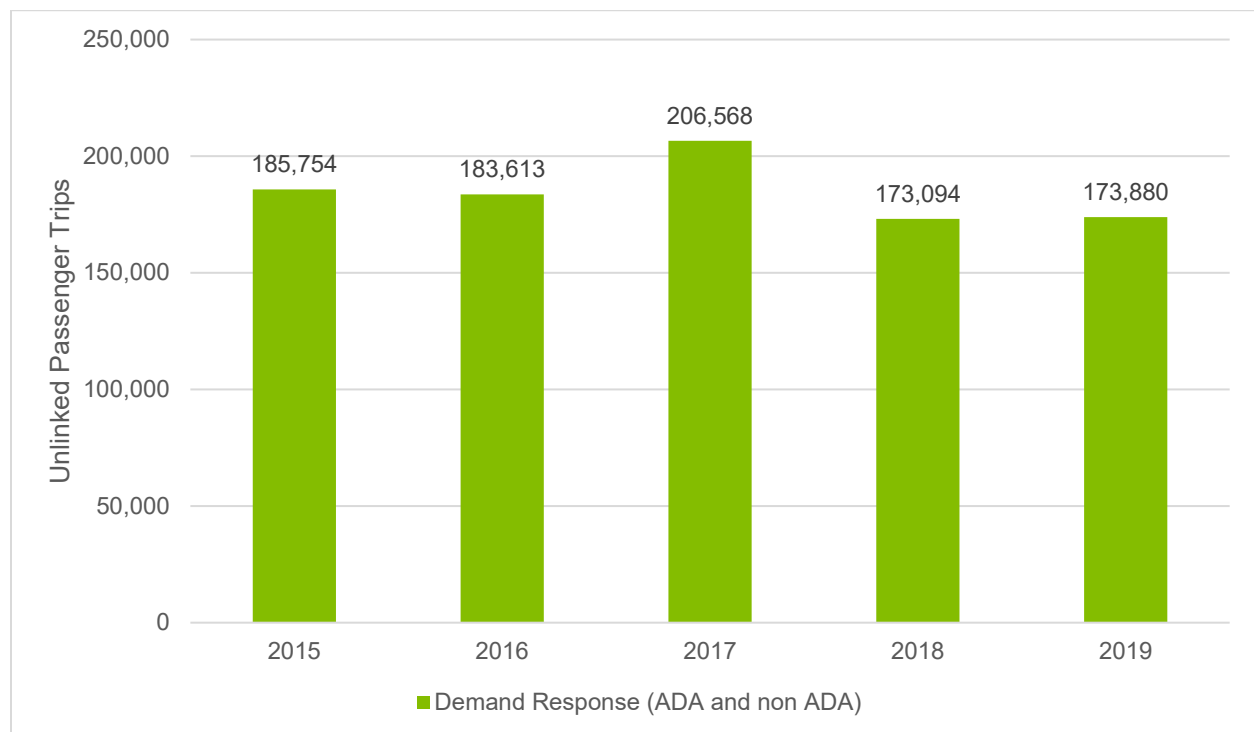
4.2.2.1 Demand Response Ridership Profile

BAT reports data from all the demand response services they operate to the National Transit Database (NTD) as one mode. The only data available by demand response service are ridership data from BAT's annual service report. Combined, the services saw 173,880 passenger trips in FY 2019 (Figure 22).

BAT's demand response ridership is not as variable as the fixed route service (Figure 23). There appear to be no trends by month other than slight dips in the winter months, which tend to create conditions unfavorable for the mobility impaired.

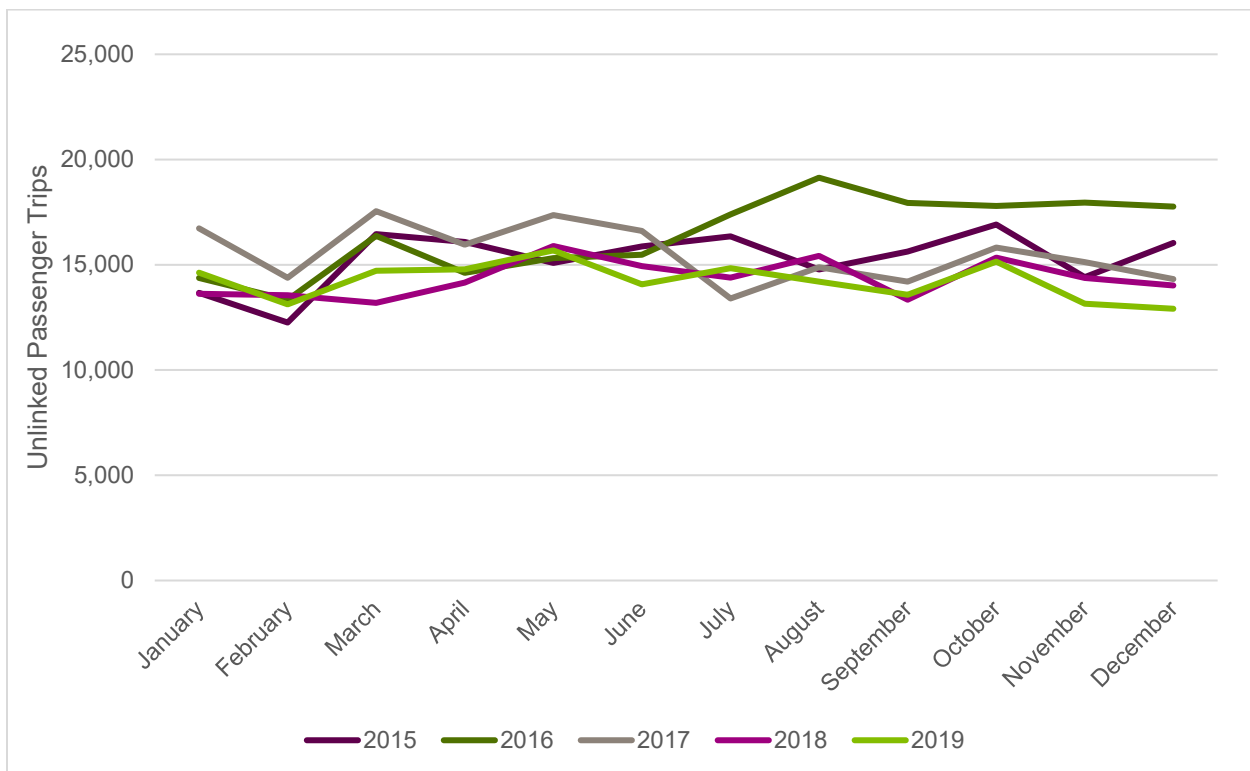
DIAL-A-BAT ridership (within Brockton, service area outside of Brockton, and outside service area) is consistent throughout the year, while BAT's HST service (agency, Department of Developmental Services) sees more change month to month (Figure 24). COA ridership data are not available at the monthly level.

Figure 22. Annual Ridership Demand Response (FY 2015–FY 2019)

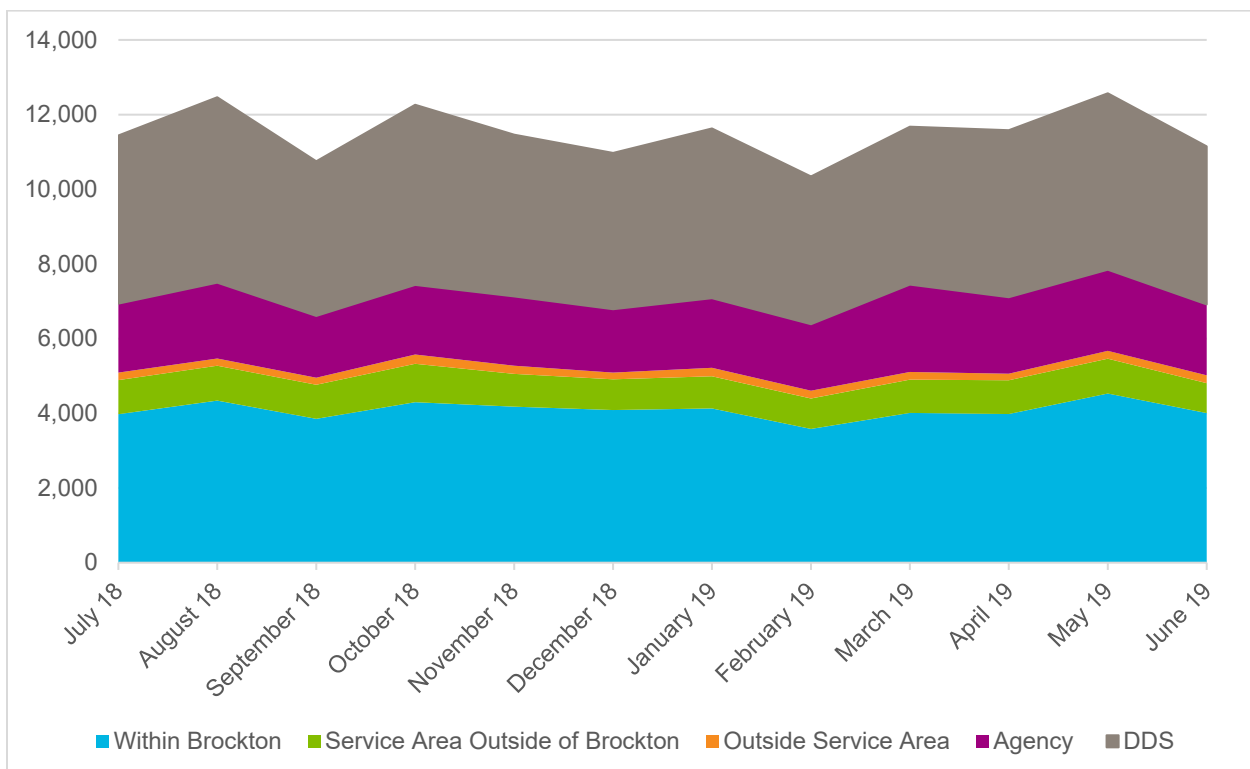


Source: BAT, NTD, MassDOT

*Includes DIAL-A-BAT, BSU ADA Demand Response, HST, and COA ridership.

Figure 23. Monthly Demand Response Ridership Trends (FY 2015–FY 2019)

Source: NTD

Figure 24. Monthly Demand Response Ridership by Type (FY 2019)

Source: BAT

4.2.2.2 Demand Response Ridership, Hours, Miles, and Operating Cost

BAT's demand response revenue hours and miles, along with ridership, increased between FY 2018 and FY 2019 after a decline between FY 2015 and FY 2018. The operating cost has steadily increased since FY 2015 with a significant increase (12 percent) between FY 2018 and FY 2019 (Table 8).

Table 8. Annual Demand Response Operating Statistics (FY 2015–FY 2019)

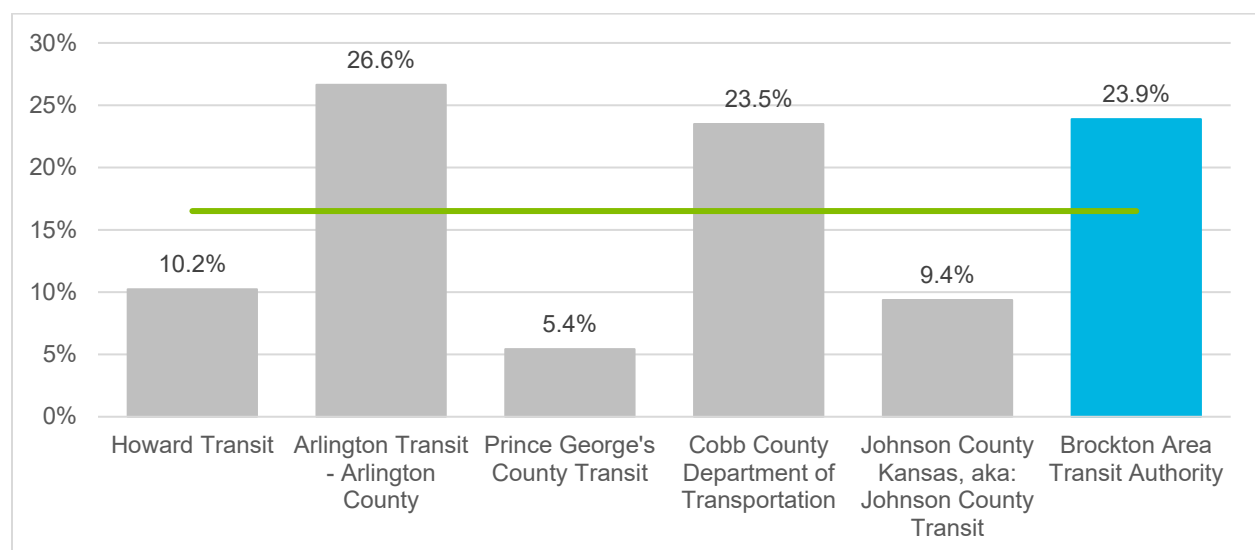
Operating Statistics	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	% Change (2015–2019)
Ridership	185,754	183,613	206,568	173,094	173,880	–6.4%
Revenue Hours	70,565	69,363	70,249	66,499	67,948	–3.7%
Revenue Miles	758,910	745,294	738,661	682,990	691,855	–8.8%
Operating Cost	\$3,838,311	\$3,634,170	\$3,634,170	\$3,797,271	\$4,311,467	+11.0%

Source: NTD, BAT

4.2.2.3 Demand Response Performance

Despite offering service beyond the federally mandated $\frac{3}{4}$ mile surrounding fixed route service, BAT's demand response service is close to or exceeding national and state averages in terms of service and cost effectiveness. BAT's demand response services exceed state and national averages in terms of service effectiveness and its subsidy per passenger is over 30 percent less than similar systems in the Commonwealth and nearly 50 percent less than the national average. Systemwide, BAT's farebox recovery ratio exceeds most national peers (Figure 25). See Appendix A for full peer analysis results.

Figure 25. BAT Peer Comparison – Farebox Recovery Ratio (FY 2017)



Source: NTD

4.3 Policies and Procedures

BAT offers guidance on their website regarding what behavior is expected on their service. Guidance includes:

- How to board the bus
- Unacceptable passenger behavior (smoking, defacing the bus, being under the influence of alcohol or drugs)
- Where to store strollers
- Safe behavior
- Transfer policy

4.4 Regional Connections and Other Transit Providers

BAT Centre is adjacent to MBTA's Brockton Commuter Rail Station on the Middleborough/Lakeville Line with service to South Station in Boston. Additional MBTA commuter rail stations in BAT's service area include three stops on the Middleborough/Lakeville Line: Montello, Campello, and Bridgewater; Abington on the Kingston/Plymouth Line; and Stoughton on the Providence/Stoughton Line. BAT provides service to Ashmont Station on the Red Line of the MBTA's subway service. Several MBTA commuter buses also serve the BAT service area, including Route 230 between Quincy Center and Montello, Route 240 between Dorchester and Avon Square, and Route 716 between Mattapan and Stoughton.

4.5 Sustainable Practices

BAT and the Commonwealth of Massachusetts have prioritized sustainability and environmental stewardship in public transportation policy and operations. Subsequent to the rollout of MassDOT's sustainability initiative GreenDOT, the Commonwealth convened a Commission on the Future of Transportation, which released a report in 2018 that examined, among other topics, climate and resiliency. The report stated the following as one of the chief transportation goals of the Commonwealth:

"Substantially reduce greenhouse gas (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." (page 8)

The Commission recommended the Commonwealth pursue the following sustainable efforts that directly affect BAT's operations:

- Prioritize investment in public transit as the foundation for a robust, reliable, clean, and efficient transportation system.
- Establish a goal that all new cars, light duty trucks, and buses sold in Massachusetts will be electric by 2040.
- Make transportation infrastructure resilient to a changing climate by providing RTAs with resources to assess the vulnerability of their infrastructure and provide design standards to construct resilient infrastructure moving forward, with a mandate that all construction meet statewide LEED Plus green building standards. As of September 2020, 92 public buildings have been LEED certified since the first certification in 2006.

- Reduce overall energy consumption by 35 percent at state-owned and -leased buildings by 2020, using FY 2004 as the baseline. As of FY 2018, overall energy usage has decreased by 14 percent.

The Commission on the Future of Transportation led to the convening of the RTA Task Force, consisting of representatives from the Commonwealth, RTA Administrators, and other public transportation stakeholders. Among numerous recommendations, the final RTA Task Force report noted that:

“A top concern for the [Commission on the Future of Transportation] was increased public transit ridership as part of a broader effort to reduce greenhouse gas emissions and combat climate change . . . The RTAs will require additional investment, both in operations and capital funds, to achieve these goals.” (page 33)

This section outlines BAT’s efforts around sustainability and environmental stewardship undertaken to date, describes planned implementations of future sustainability efforts, and lists needs related to climate change and the environment.

4.5.1 Current Practices

BAT has implemented numerous adjustments or investments to make their operations more sustainable. These practices support Commonwealth initiatives, take advantage of federal funding opportunities, provide environmental benefits, enhance cost efficiency, and improve resiliency.

4.5.1.1 Clean Vehicles

In the past two decades, there has been growing interest in transitioning transit fleets from diesel to hybrid-electric and all-electric (“clean”) vehicles. There have been significant advancements in hybrid and electric bus technology in recent years, and the vehicles have become cheaper as batteries have become less expensive.

BAT maintains the following equipment and policies relating to clean vehicles:

- Fifteen percent of BAT’s fleet is made up of 35-foot diesel/electric buses, or 8 buses total.
- BAT complies with MassDOT’s anti-idling policy (running a vehicle’s engine for longer than 5 minutes when the vehicle is stopped is against state law).

4.5.1.2 Education

Public transit usage plays an important role in the reduction of GHG emissions. According to FTA’s 2010 report *Public Transportation’s Role in Responding to Climate Change* public transit produces 51 percent less CO₂ emissions per passenger mile than single-occupancy vehicles.¹⁴ The majority of Massachusetts residents (68.5 percent) indicated they used an automobile as their primary mode of travel in the 2010-2011 Massachusetts Travel Survey, while 7.6 percent indicated they used transit.

Transit authorities play an important role in encouraging mode shift, and one of the tools available to them is promoting use of their service through education. Education comes in many forms, including providing wayfinding, regional partnerships with large trip generators, and generating instructional materials that make transit services less intimidating to use.

BAT employs the following educational strategies in efforts to boost ridership:

¹⁴ <https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/PublicTransportationsRoleInRespondingToClimateChange2010.pdf>.

- Devotes staff time to maintain an active social media presence.
- Rolled out a new mobile-friendly website in summer 2020.
- Maintains a close partnership with the City of Brockton and two local Chambers of Commerce.
- Attends local events such as the Greek Festival and college registration days, setting up a table and distributing handouts and occasionally a table prize.
- Visits area senior towers to raise awareness about BAT service.
- Coordinates advertising campaigns with the City of Brockton and the Chamber of Commerce.
- Hosts annual customer appreciation day with hot dogs, ice cream, and apple cider doughnuts.

4.5.1.3 Multimodal Integration

Transit authorities can also strengthen multimodal connections in efforts to boost ridership, which is a priority for the Commonwealth. Safe and convenient access to transit facilities via different modes increases the catchment area for transit service. Integrating transit with alternative modes boosts ridership, encourages active transportation, and reduces GHG emissions by offering alternatives to driving. BAT has implemented the following measures to support multimodal integration:

- All BAT buses are equipped with bike racks.
- BAT's hub, the BAT Centre, has bike racks, a commercial tire air pump, and will soon have a bike repair stand (Figure 26).
- The BAT Centre is located at the MBTA Brockton Commuter Rail Station.
- BAT takes part in the City of Brockton's site review process.
- Where possible, traffic lights are designed for transit prioritization.
- BAT requests bus stop cut-outs wherever possible.
- BAT is reviewing potential locations for bus lanes.
- BAT received a Congestion Mitigation and Air Quality Improvement grant to serve Rockland Industrial Park via flex-ride/microtransit, including a park and ride facility.

Figure 26. Bat Centre's Bus Boarding Area and Bicycle Racks

4.5.1.4 Efficient Facilities

Building green facilities (e.g., LEED certified) or retrofitting existing facilities with green infrastructure is an opportunity for transit authorities to reduce both environmental impacts and operational costs. The Commonwealth has committed that state-funded infrastructure must follow green construction guidelines from 2020 on, stating in the 2018 report, *Choices for Stewardship: Recommendations to Meet the Transportation Future*¹⁵, that if infrastructure does not meet MassDOT-developed resiliency design standards, it will not receive state funding.

This commitment is echoed in the Commonwealth's *Clean Energy and Climate Plan for 2020*, which established the Leading by Example (LBE) Program in 2007 to reduce energy use in public buildings across the state.¹⁶ The LBE program created a "Massachusetts LEED Plus" building standard for new construction and major renovations that requires all state government projects to perform 20 percent better than the Massachusetts energy code and be LEED-certified. BAT has made the following improvements, replacing less efficient infrastructure and systems to minimize environmental impacts in their operations:

- Installed LED lighting at BAT's Maintenance Facility and Administrative Offices.
- Replaced the Maintenance Facility windows in FY 2021.
- Will replace the HVAC systems in their Operations and Maintenance Facility and their Administration Offices in FY 2021.
- Installed solar lighting in some passenger shelters.
- Installed solar arrays on the parking garage that BAT owns.

4.5.1.5 Recycling

Recycling waste products has been commonplace across the nation for the past several decades. The Commonwealth has been at the forefront of recycling efforts with the plan 2010-

¹⁵ 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>

¹⁶ <https://www.mass.gov/files/documents/2017/12/06/Clean%20Energy%20and%20Climate%20Plan%20for%202020.pdf>

2020 Solid Waste Master Plan: A Pathway to Zero Waste, which outlines actions the Commonwealth could take to reduce solid waste production.¹⁷ The plan stated that public institutions should “lead by example and implement innovative materials management strategies that improve purchasing efficiencies, reduce waste, maximize the percent of waste that is recycled or composted and minimize disposal.”

In addition to recycling solid waste, recycling water used for washing vehicles is also increasingly commonplace in the transit industry. Recycling water used in bus washes and capturing rainwater for use reduce water consumption and contamination and save money. BAT has modified their operations in the following ways to reduce waste:

- BAT purchases recycled materials when possible.
- BAT uses waste oil heaters.
- The bus wash uses recycled water.
- The metal (including cast iron) and plastic components of BAT’s buses are recycled.

4.5.2 Documented Needs

BAT will continue working to make their operations more sustainable. However, BAT acknowledges that the ability to make any capital improvements is contingent on securing funding, which may be challenging given the uncertainty surrounding impacts on federal, state, and local funding from the COVID-19 pandemic and associated economic recession.

BAT is planning on expanding its clean vehicle fleet when feasible. The current MassDOT capital funding plan includes vehicle electrification infrastructure in FY 2025, with electric vehicle purchases planned but pending both funding availability and continued technological improvements. BAT continues to work with MBTA to ensure commuter rail schedule changes complement the connecting BAT services.

4.6 Fare Rates and Structure

A key responsibility of transit agencies is setting appropriate fare rates that balance maintaining an affordable transportation system with the financial needs of the organization. The RTA Task Force recommended that RTAs should periodically review fares to ensure that fare levels are appropriate, and this recommendation was subsequently included in the MOUs between the RTAs and MassDOT. The purpose of this section is to outline existing fare policies and collection methods and to describe future plans and needs of BAT with regard to fares.

4.6.1 Collection Methods and Media

BAT began using Scheidt & Bachmann fareboxes on their fixed route buses in 2011. The Scheidt & Bachmann system accepts cash, transfers, and MBTA CharlieCards, a smart card to which customers can add value, including all types of passes (day, week, month, etc.).

BAT has continued efforts to update their technology to meet industry best practices and offer their passengers a variety of fare payment options. BAT launched a mobile ticketing application for its fixed route service on August 24, 2020, and transitioned to account-based fares for DIAL-A-BAT demand response on September 1, 2020. Prior to the account-based system, passengers had to pay an exact cash fare (DIAL-A-BAT drivers could not make change) or purchase a 10-ride pass book. Besides making the system more convenient for their customers,

¹⁷ <https://www.mass.gov/doc/2010-2020-solid-waste-master-plan-a-pathway-to-zero-waste/download>

these improvements also limit passenger contact with drivers, an important consideration during the pandemic that improves customer and driver safety.

4.6.1.1 Fare Technology and Media

Scheidt & Bachmann fareboxes are widely used across the state, including the MBTA system. MBTA has been working on updating to a cash-free fare payment system since 2018 and there is still uncertainty surrounding what the new fare technology will be. Ideally BAT and other RTAs, especially those that connect to MBTA services (like BAT), would share a fare payment system with MBTA to encourage multimodal trips.

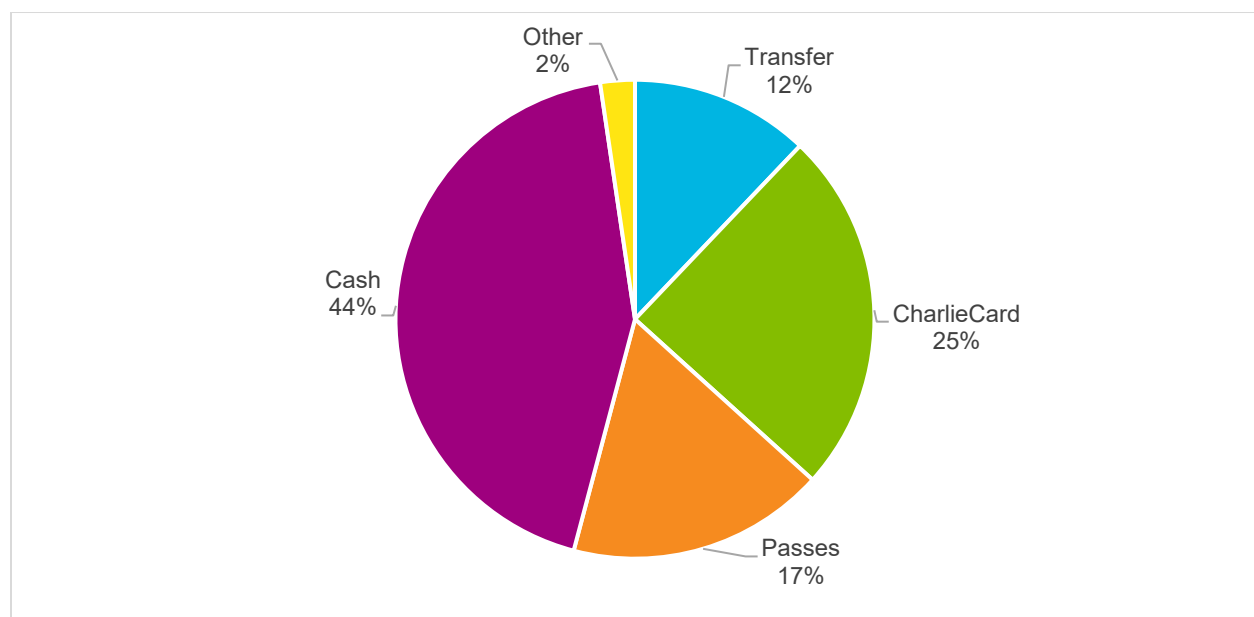
BAT is using the BusPlus mobile fare payment application, a program developed by MassDOT for its intercity bus program. With BusPlus, customers can purchase single-ride tickets and monthly passes on their phones. Riders using the app show bus drivers their phones (which display proof of payment) before boarding. Payment by CharlieCard or cash is still available. The implementation of the BusPlus technology was funded by a MassDOT grant.

In addition to offering mobile ticketing, BAT has ticket vending machines at the BAT Centre where customers can purchase new CharlieCards and load value, including passes, onto already purchased CharlieCards.

Despite the CharlieCard being available to BAT customers at a discounted fare rate for nearly a decade, the most popular fare medium in the system is cash. In FY 2019, the number of fares paid with cash exceeded those paid with stored value and passes combined (Figure 27).

BAT's efforts to encourage customers away from cash fares extends to its demand response service. BAT recently transitioned to an automated (or account-based) fare system for their DIAL-A-BAT demand response service. BAT had been planning to expand account-based fare payment capabilities through automation before the COVID-19 pandemic. The automated system expands payment options for customers; they can either add value to their accounts with credit or debit cards via an online portal (there is an option to auto-replenish accounts), using an automated phone system, or mail a check to BAT. Unbanked customers are able to add value to their accounts by visiting BAT customer service with cash or a money order.

Figure 27. Fixed Route Fare Media Usage (FY 2019)



Source: BAT

*Other includes one-ride tickets and overpayment tickets.

4.6.1.2 Changes During COVID-19 Pandemic

In order to mitigate the public safety risks associated with collecting fare payment during the COVID-19 pandemic, BAT began doing rear-door boarding of their buses and stopped enforcing fare collection in March 2020. Fare collection enforcement resumed on August 24, 2020, consistent with state and federal guidance.

4.6.2 Fare Structure

BAT conducted a review of their fare structure as part of their 2015 CRTP. The review consisted of comparing BAT's fare structure with other RTAs in Massachusetts, including evaluating recent fare increases. BAT also modeled the ridership impacts of several fare structure scenarios. Most recently, BAT implemented a two-phased fare increase in FY 2018 and FY 2019 designed to raise revenue and encourage use of the CharlieCard.

BAT's Advisory Board adopted the following fare policy in September 24, 2020 to fulfill the requirement contained within its MOU with MassDOT:

“The Brockton Area Transit Authority will conduct regular and recurring fare reviews to consider periodic, modest fare adjustments.”

This was added to the pre-existing policy regarding the requirement to conduct fare equity assessments when considering changes to fare policy.

4.6.2.1 Fixed Route Fares

A variety of fares and pass types are available to BAT customers (Table 9). BAT has four fare zones for fixed route service. There is one zone for local routes that operate almost entirely in the City of Brockton, which also includes the Rockland Flex and Stoughton intercity routes, and three zones (classified by distance traveled from Brockton) for segments of the Route 12 (Ashmont) intercity route: between Brockton and Ashmont, Brockton and Milton, and Brockton and Avon. The different tiers of cost associated with the fare zones apply to full fares and reduced fares.

Table 9. Fare Structure

Fare Type	Fare
Single Ride Cash	
Full-Fare	\$1.50
Half-Fare for Seniors age 60 and older and Disabled and/or Medicare Card	\$0.75
Full-Fare Route 12 (between Brockton and Ashmont)	\$2.25
Full Fare Route 12 (between Brockton and Milton)	\$1.75
Full Fare Route 12 (between Brockton and Avon)	\$1.50
Half-Fare for Seniors age 60 and older and Disabled and/or Medicare Card Holders Route 12 (between Brockton and Ashmont)	\$1.10
Half-Fare for Seniors age 60 and older and Disabled and/or Medicare Card Holders Route 12 (between Brockton and Milton or Avon)	\$0.75

Fare Type	Fare
Single Rider CharlieCard	
Full-Fare	\$1.35
Half-Fare for Seniors age 60 and older and Disabled and/or Medicare Card	\$0.65
Half-Fare for Seniors age 60 and older and Disabled and/or Medicare Card (between Brockton and Milton or Avon)	\$0.75
Half-Fare for Seniors age 60 and older and Disabled and/or Medicare Card (between Brockton and Ashmont)	\$1.00
Student Fare for College, Middle or High School students	\$0.75
Student Fare for College, Middle or High School students (between Brockton and Milton)	\$0.85
Student Fare for College, Middle or High School students (between Brockton and Ashmont)	\$1.10
1-Day Pass	
Full-Fare	\$3.50
7-Day Pass	
Full-Fare Local	\$12.00
Full-Fare Systemwide	\$22.00
31-Day Pass	
Full-Fare Local	\$40.00
Full-Fare Systemwide	\$65.00
Reduced Fare Student Local	\$25.00
DIAL-A-BAT (One Way)	
Within the same community	\$3.00
From one community to another	\$4.00
Boston Hospital Service	\$7.50
ADA (One Way)	
Within the ADA service area	\$3.00
Beyond ADA service area, within BAT communities	\$4.00

Source: BAT Fares & Passes, <https://www.ridebat.com/alerts/fare-collection-resumes-monday-august-24-2020/>, August 2020.

The BAT system is designed as a pulse system that brings most fixed routes to the BAT Centre at the same time, allowing for riders to transfer to the next bus and then ride to their final destination. Due to this pulse structure, BAT has built transfers into their transportation model

and offers free transfers for passengers at the BAT Centre. Transfers are not valid for return trips.

BAT offers a range of passes, encouraging regular customers. The available passes include 1 day, 7 days, and 31 days and are available at the local level (all routes except Route 12) and systemwide level (local routes and Route 12 to Ashmont).

Riders can purchase single rides using BAT's mobile ticketing app, CharlieCards, and cash. Reduced fares are available to those who meet ADA and BAT eligibility requirements, including those with disabilities and/or Medicare card holders, seniors aged 60 and older, veterans with a disability rating of 70 percent or greater, and clients of the Department of Mental Health, Department of Developmental Services, and Massachusetts Rehabilitation Commission.

In February 2020, BAT added a monthly discounted pass for students (available to middle school through college students) with the goal of getting younger people in the region habituated to riding transit, building lifelong transit riders. The creation of the monthly pass was funded using the same grant that funded BAT's new mobile ticketing system.

4.6.2.2 Demand Response Fares

BAT's ADA demand response service has two fare zones: trips taken within the ADA service area (within 3/4 mile of a fixed route service) and those that go beyond the ADA service area but are still within the towns that BAT serves. DIAL-A-BAT service for seniors also has two fare zones: rides taken within the same town and rides taken between towns.

Additionally, BAT offers discounted DIAL-A-BAT rides to large groups. Six or more people that are travelling together on DIAL-A-BAT ride for half fare.

In addition to demand response service in BAT communities, BAT offers weekly trips to Boston-area hospitals at an increased fare rate. Demand response fares are presented in Table 9.

4.6.3 Considerations for the Next Five Years

There are significant opportunities for BAT customers to use the system to connect with MBTA. Because the systems are deeply integrated, BAT has been involved in discussions regarding MBTA's impending fare payment system update. BAT and MBTA are working together to develop options for customers to move more seamlessly between the systems, perhaps offering a discounted transfer, for example.

BAT is also planning to improve the customer experience by tying their new APC and AVL system to their fare payment system. This will allow riders to use the same application to track bus arrival times as well as purchase fares.

5. Market Evaluation

5.1 Key Demographic and Geographic Factors

This section describes existing and projected socioeconomic characteristics of the area served by BAT, including the following key demographic and geographic measures for the region impacting transit demand:

- **Population Density:** Population density is particularly important when evaluating a transit market. Fixed route transit operates most efficiently in areas where people are in close proximity to one another. Population density gives a good general proxy for where fixed route service can be most effective, with more flexible forms of transportation in less dense areas.
- **Senior Population:** As people age, they are more likely to need public transportation due to health issues or lower incomes. Areas with high proportions of seniors indicate current or future demand potential for public transportation services.
- **Income and Poverty:** Economic status is a strong factor in the propensity for using transit; low-income households depend on public transportation to get to essential destinations such as work, school, medical appointments, and grocery shopping.
- **Vehicle Ownership:** Related to general economic status, households without access to an automobile are much more likely to use public transportation.
- **Race/Ethnicity:** Per agency goals and federal regulations, ensuring appropriate service to areas that are majority-minority is a priority for BAT.
- **Job Density:** Census maps show where people live. However, major employment centers are also areas where investing in transit can provide an essential link between key destinations and communities predisposed to using transit.

BAT's service area is anchored by the City of Brockton, an urban core that is surrounded by suburban communities with relatively low population density. Some exceptions include several areas with pockets of higher density residential settlement and commercial activity within Rockland, Stoughton, and Bridgewater, as well as BSU. When comparing the service area to the Commonwealth and the United States using multiple demographic characteristics that indicate a strong transit market, data show that BAT's service area is roughly on par or slightly below these Commonwealth-wide or national averages (Table 10).

Table 10. Current Demographic and Socioeconomic Profile

Area	Median Household Income	% People Living Below 150% the Poverty Level	% Households without Vehicles	% Seniors	% Minority	% People with Disabilities
BAT Service Area	\$74,431	16.1%	9.2%	14.1%	33.0%	11.8%
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 2017 ACS

Figure 28 through Figure 35 show the geographic distribution of these key demographic groups, which indicate a very strong transit market in several parts of the service area, especially in downtown Brockton, the hub of BAT's service. The market for transit will only grow in Brockton

with the city's commitment to transit-oriented development (TOD), as exemplified in the decision to adopt a Smart Growth Overlay District in downtown Brockton in 2014.

Figure 28. Population Density

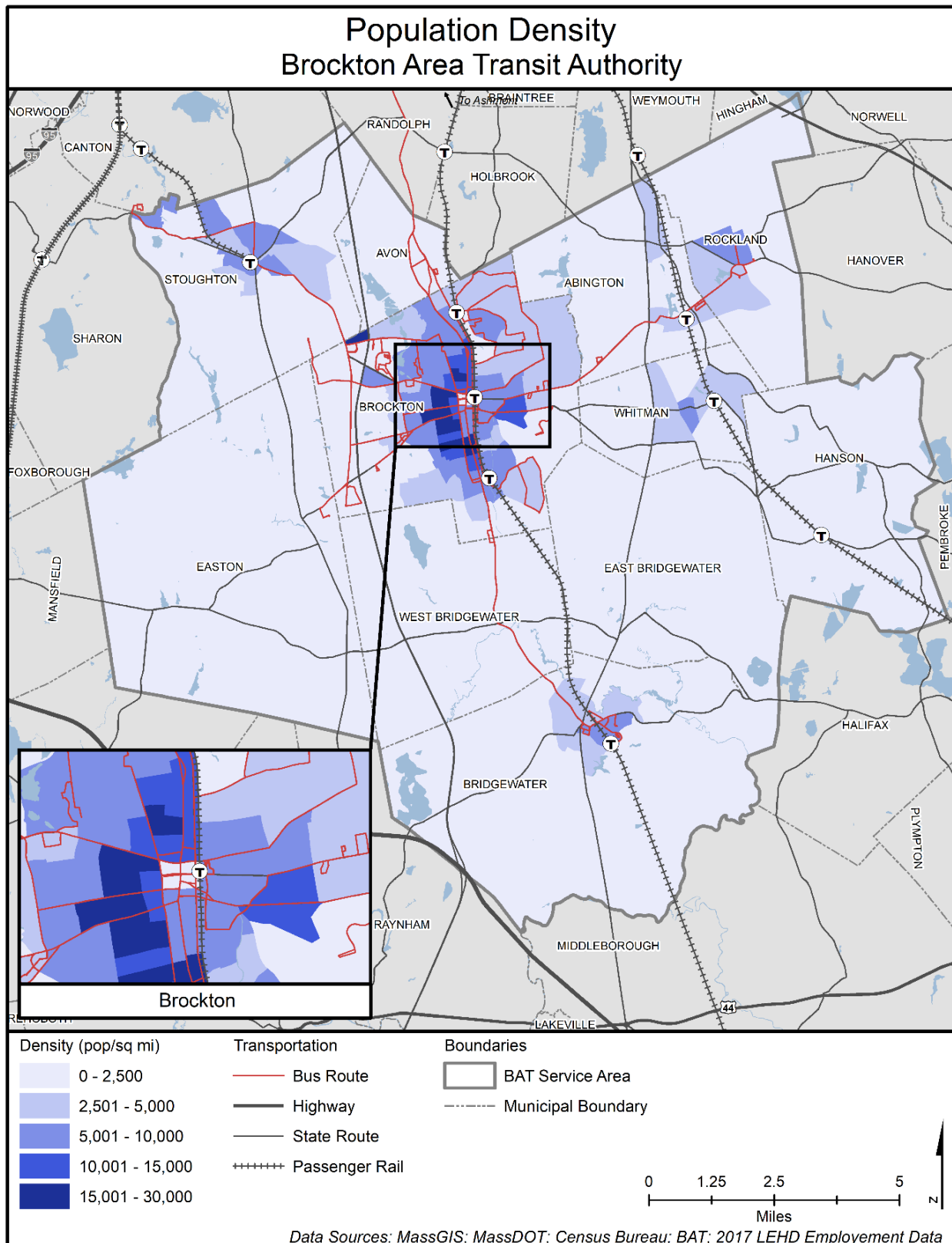


Figure 29. Senior Population

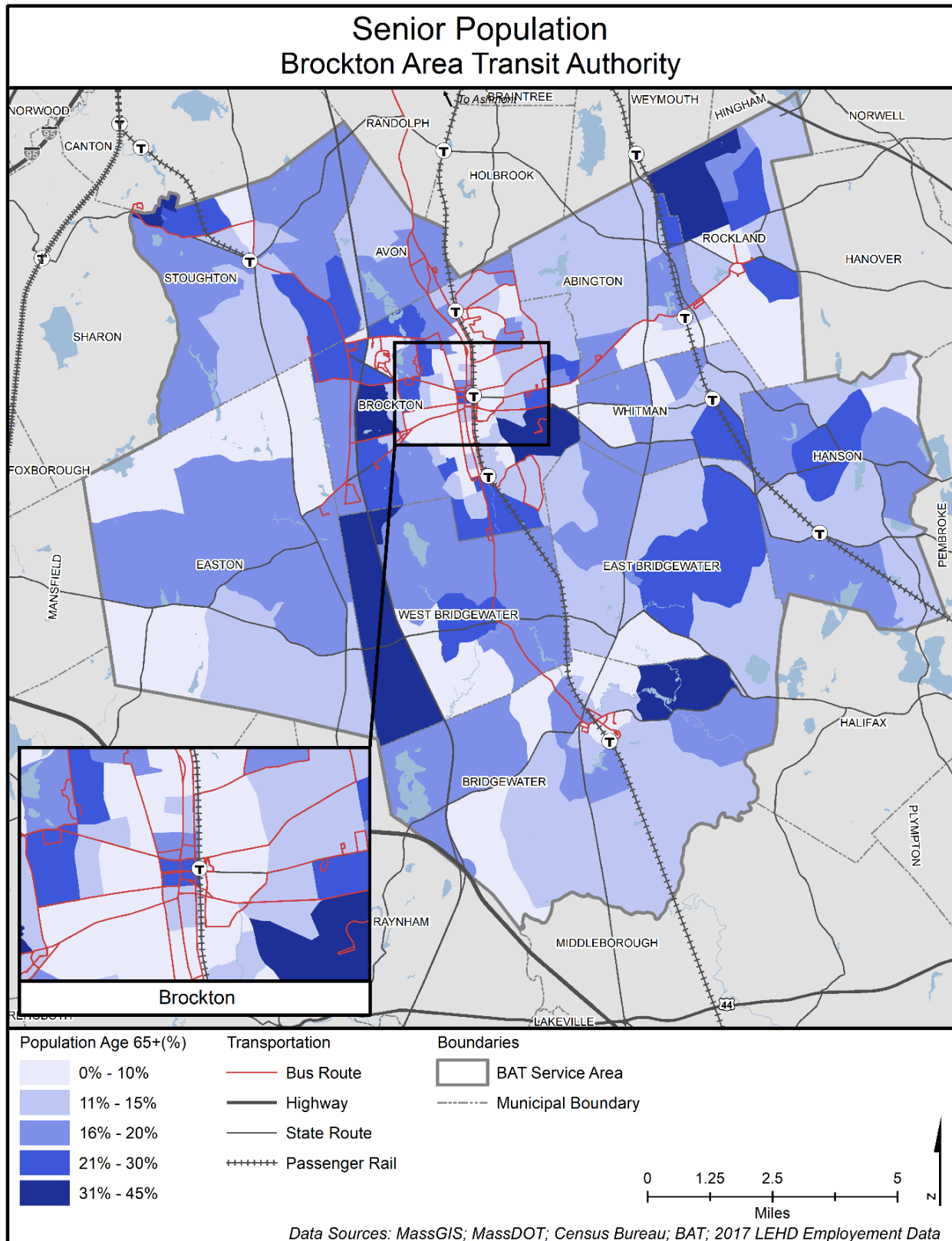


Figure 30. Median Household Income

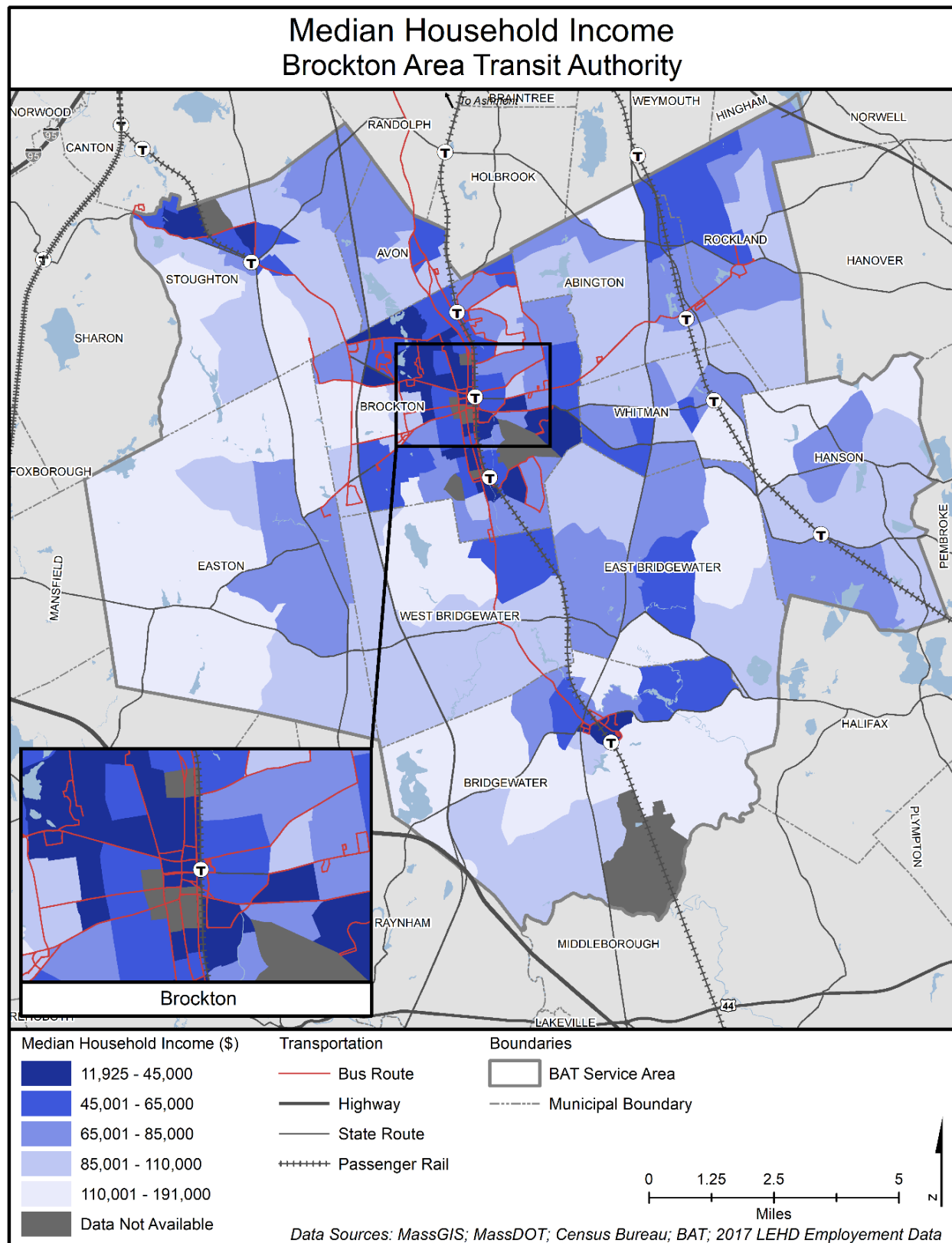


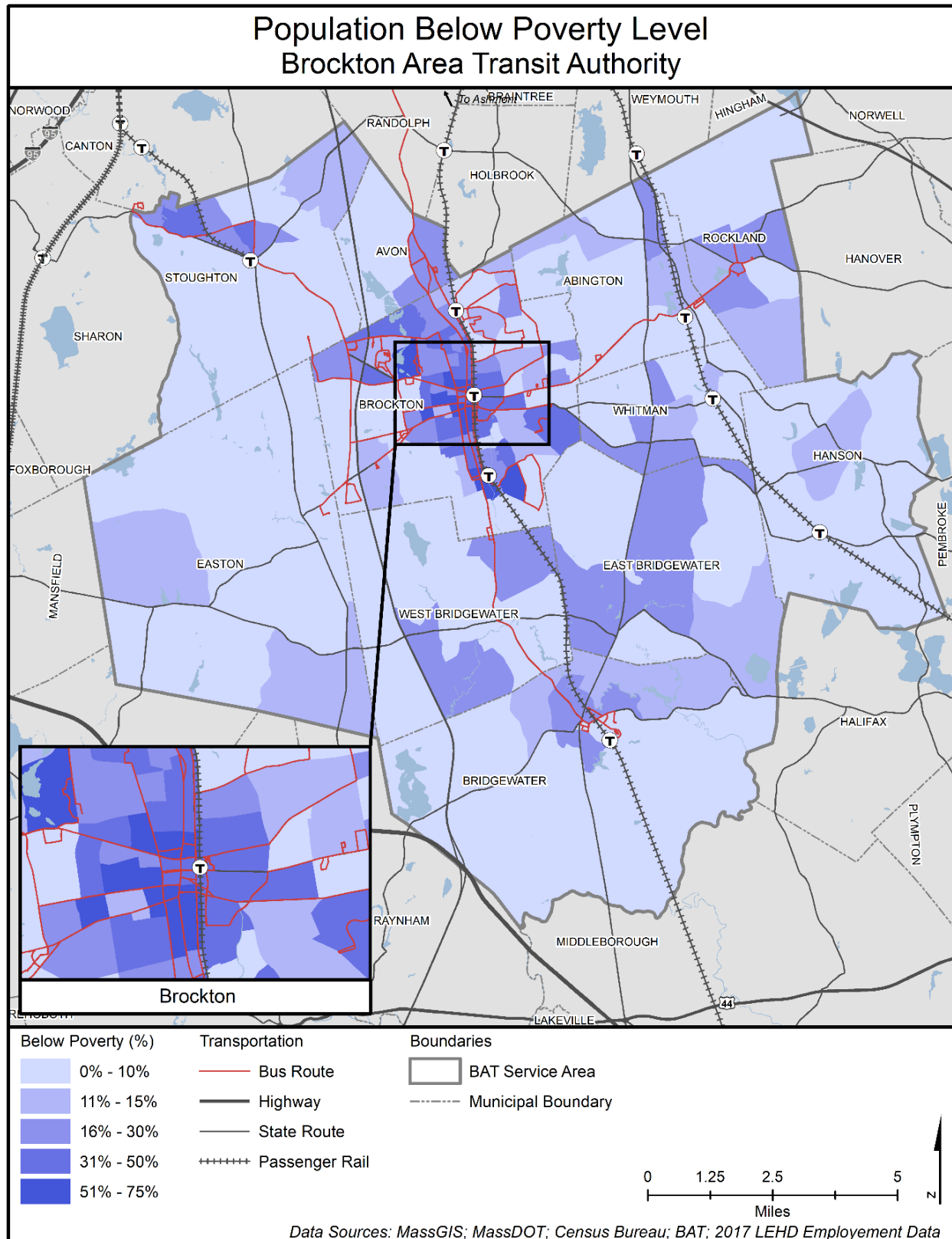
Figure 31. Population Below Poverty Level

Figure 32. Zero-Vehicle Households

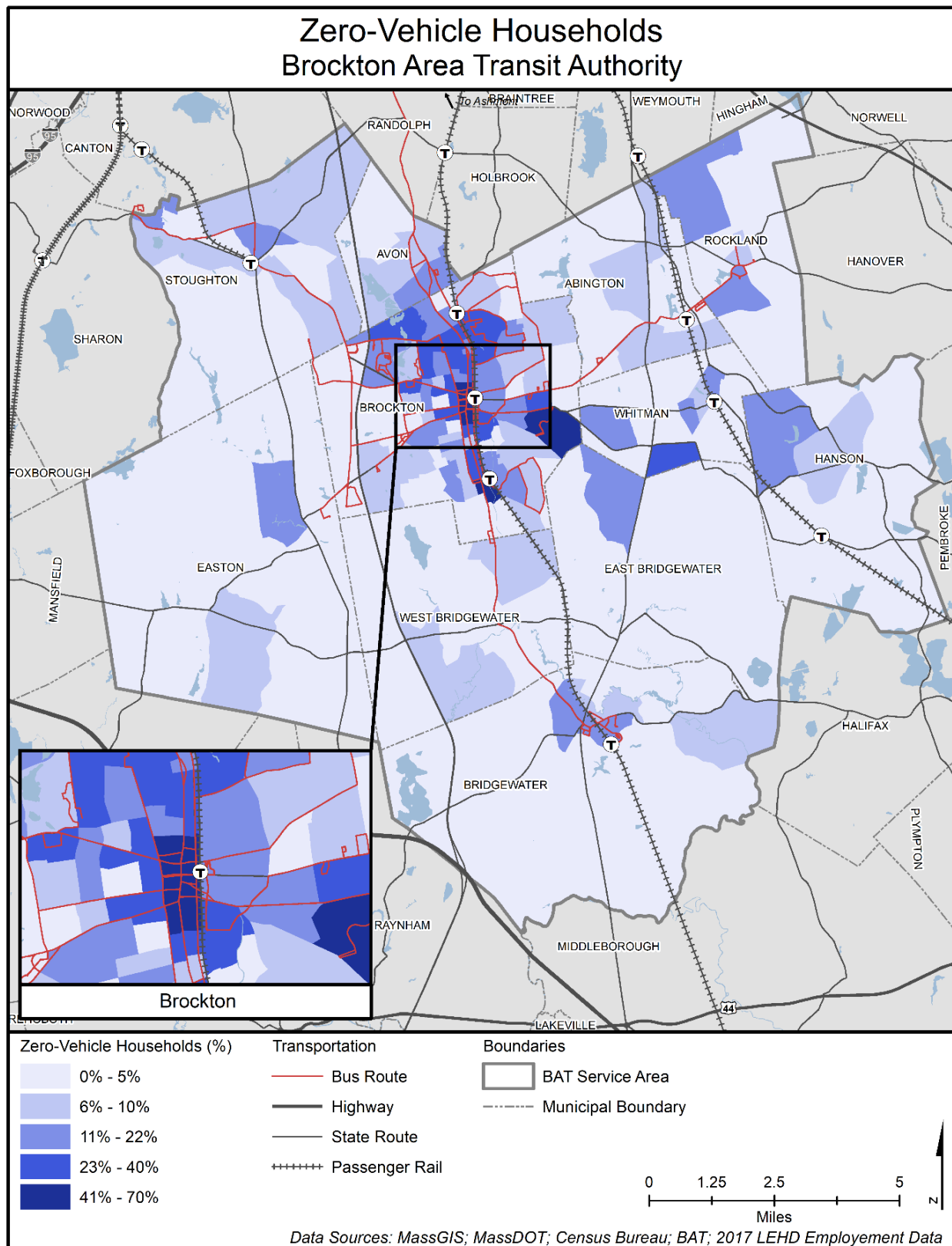


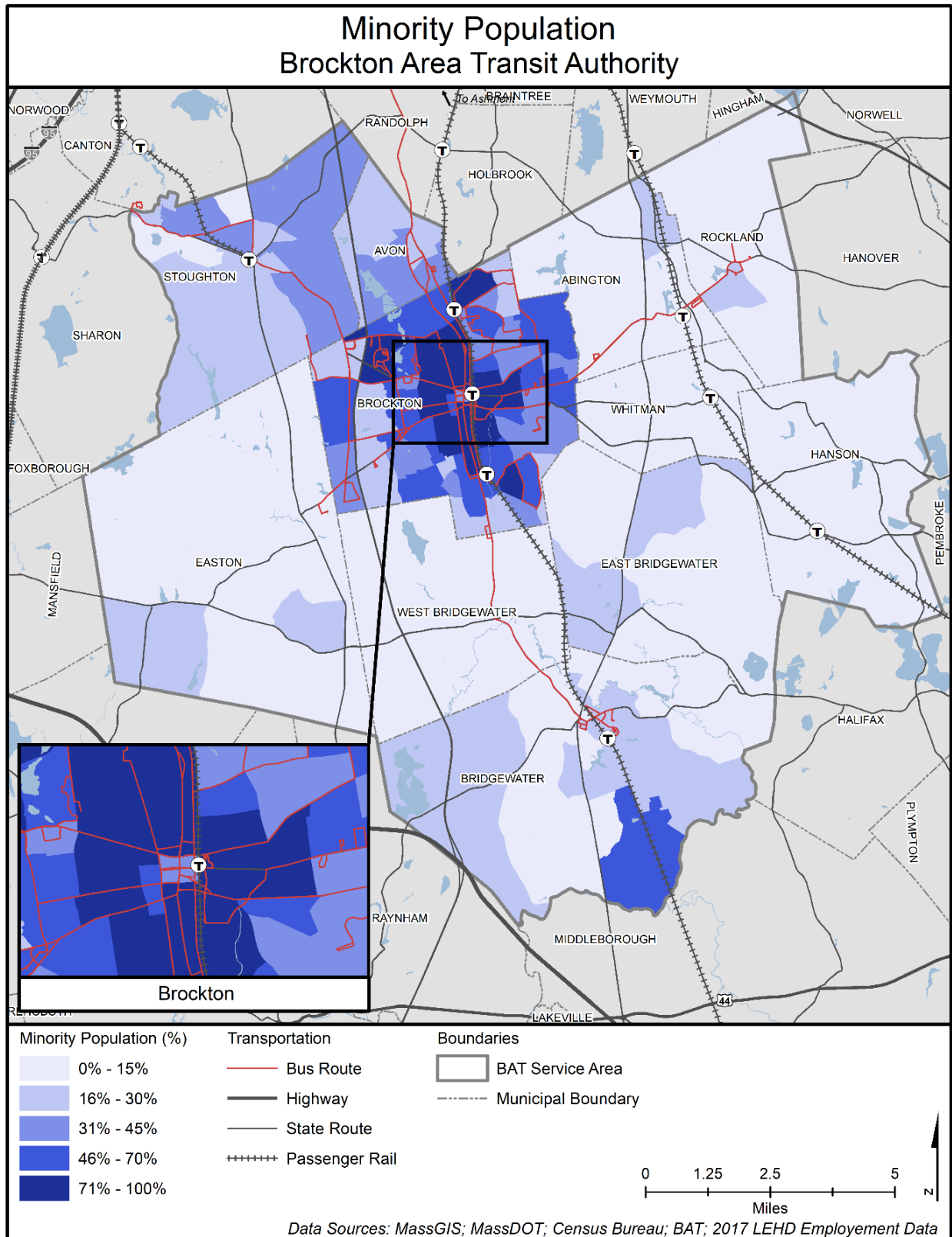
Figure 33. Minority Population

Figure 34. Job Density

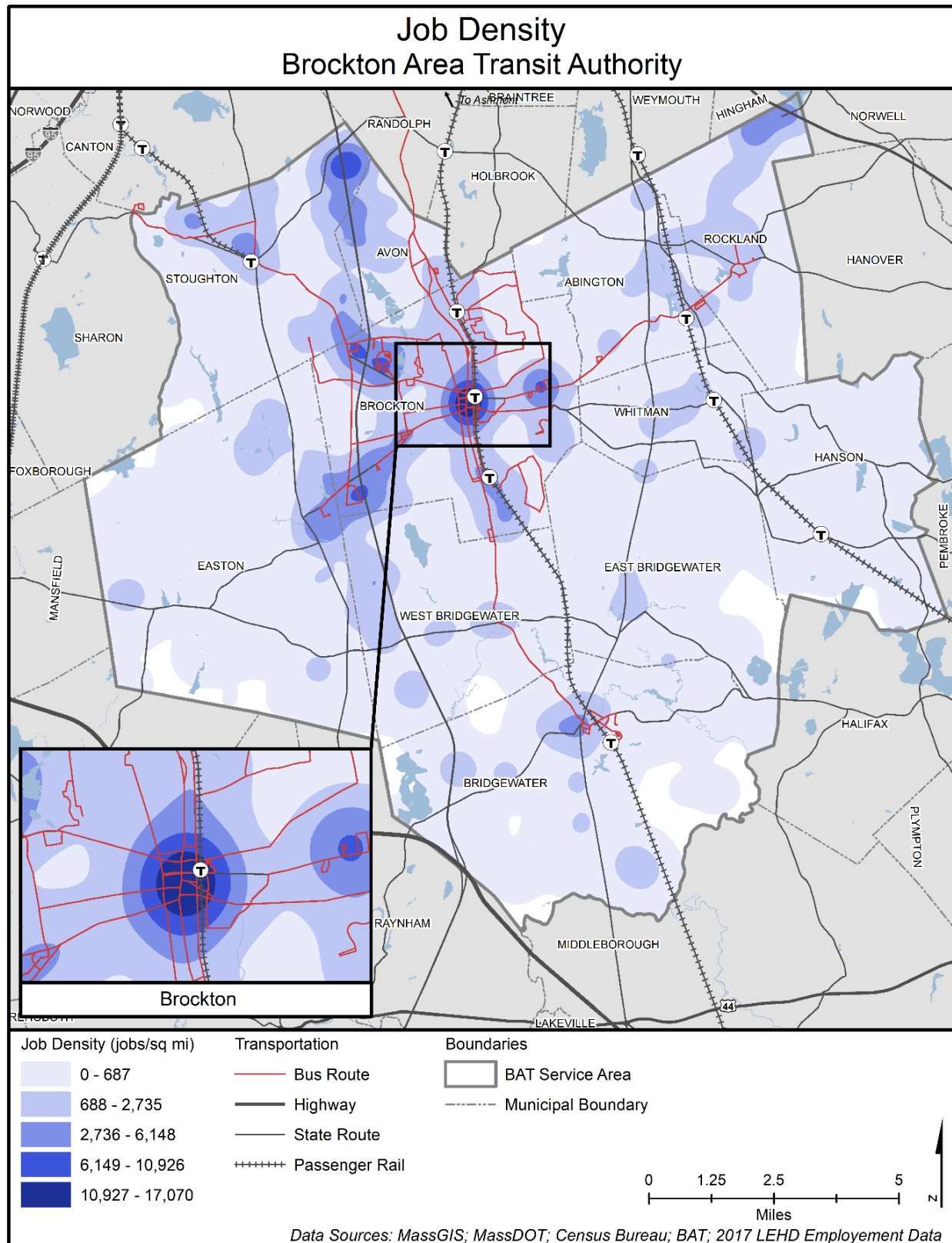
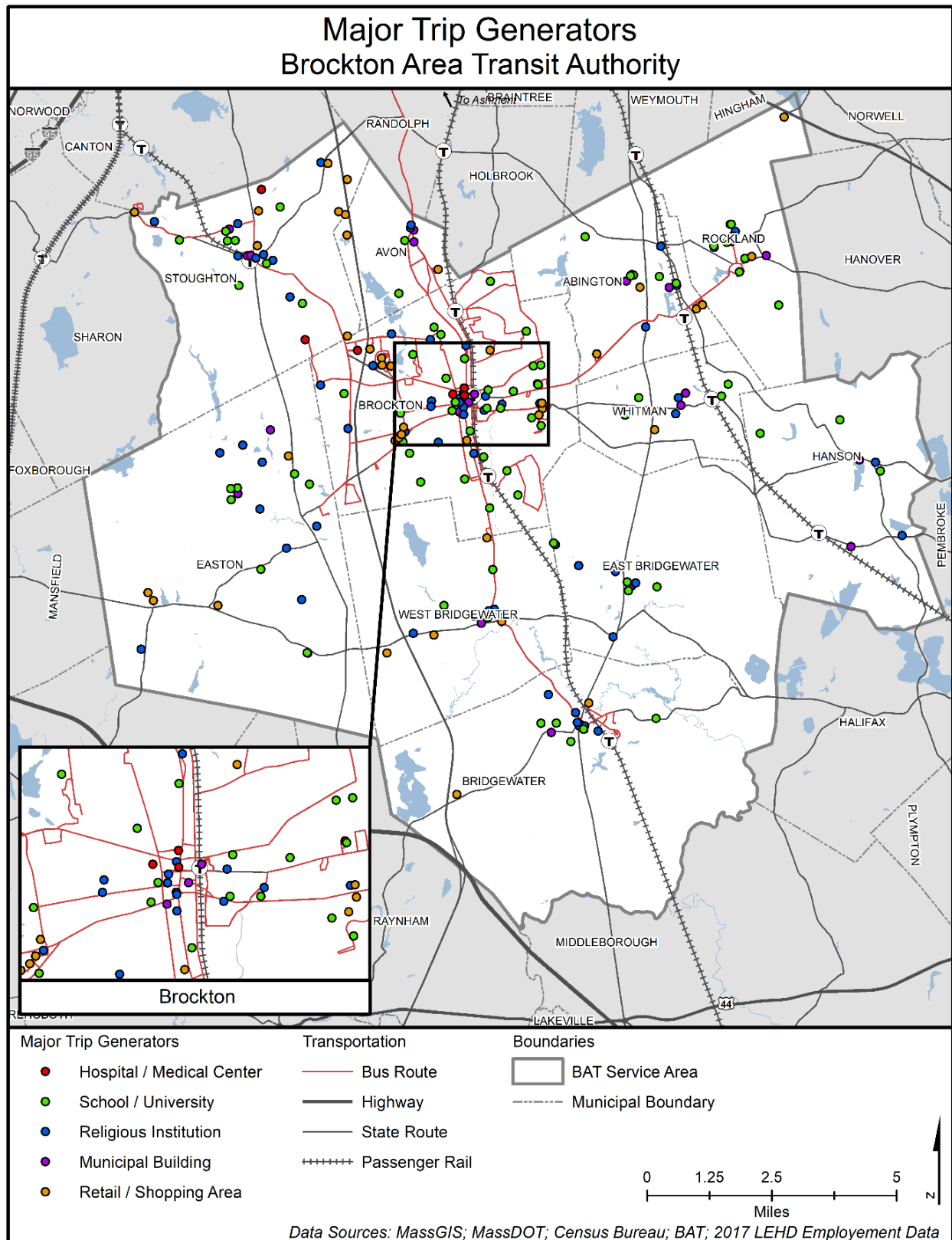


Figure 35. Major Trip Generators



5.2 Transit Score

The transit score map (Figure 36) is a composite score based on many of the factors discussed in the previous section. 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 and to identify areas of potential demand.

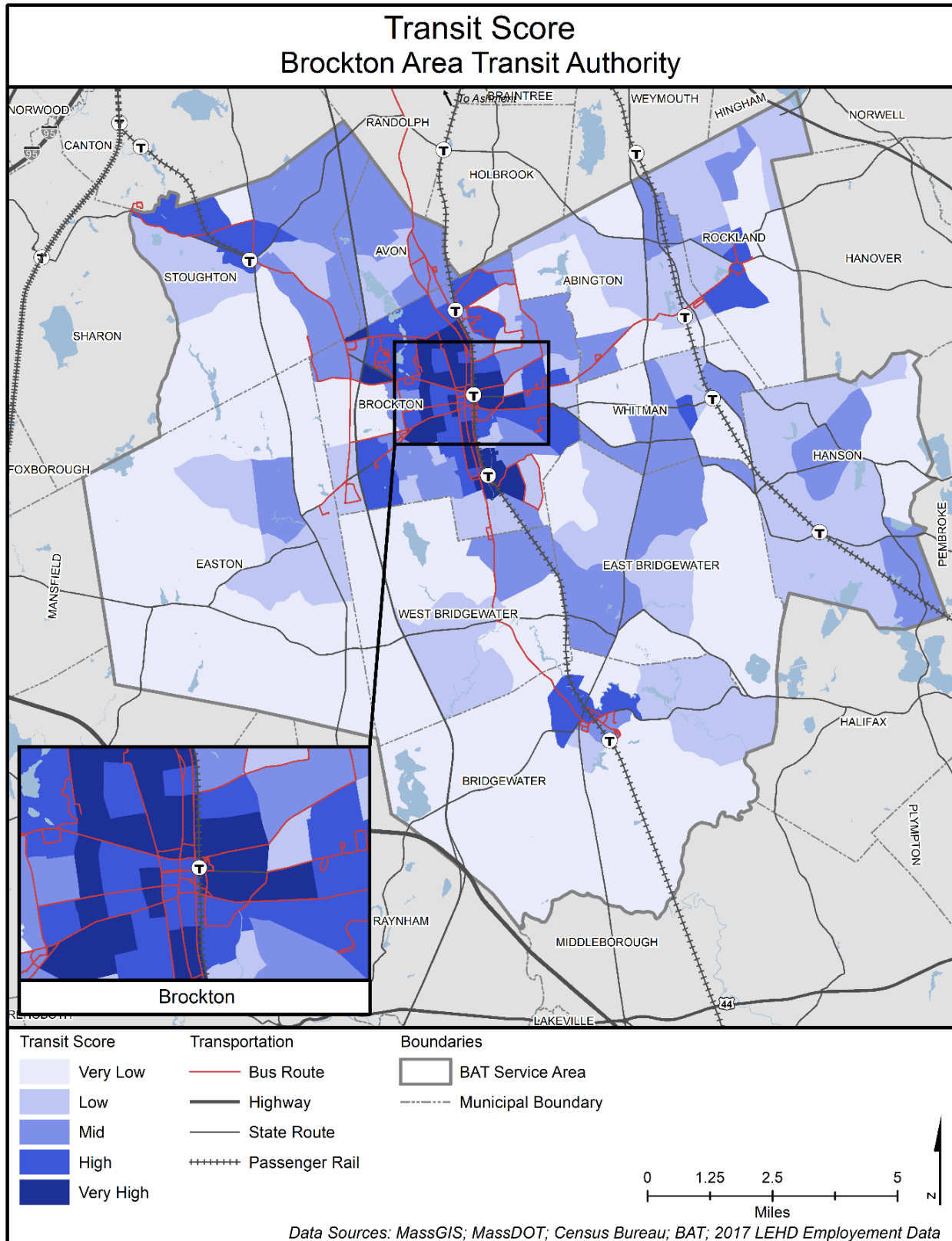
To calculate the transit score, demographic and socioeconomic information is collected from the US Census Bureau for a region divided into smaller geographic units such as tracts, block groups, or blocks. Block groups and census tracts were used for this analysis. Transit-oriented variables used for 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 65¹⁸
- Percentage of the Population Living Below the Poverty Level
- Percentage of Zero-Car Households

The composite transit score map is only suggestive of potential transit markets. Fixed route public transportation might not currently exist in areas the analysis identifies as opportunities for good reasons, including topography, roadway geometry, presence of overpasses, or other local context. However, in the absence of these factors, this map does provide some insight on areas to consider for future transit expansion should the opportunity arise.

Figure 36 indicates that the areas with the strongest transit demand are already being served by BAT's fixed route service. There are parts of the service area where data indicate that increased demand response service may be utilized to meet the needs of households with limited access to vehicles or those with low family income. These areas include the Stoughton/Avon border, the East/West Bridgewater border, and Whitman. Some of these areas that have a low population density might be candidates for consideration of demand response service in addition to the existing DIAL-A-BAT service.

¹⁸ 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.

Figure 36. Transit Score

6. Performance Monitoring

Performance-focused management is a critical priority for BAT and the Commonwealth. 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 BAT as it works to sustain success in the face of the challenges of COVID-19 and other market uncertainties.

The purpose of this chapter is to outline BAT's current performance practices, track performance results for the BAT/MassDOT Bilateral MOU (which the Authority monitors quarterly) and make recommendations to enhance BAT's performance framework to support data-driven, performance-focused decision-making. Historical performance information and a review of peer agencies are included in Appendix A.

As transit operations equipment has become more technologically sophisticated, vast amounts of operations data have become available to service providers. Providers should have data analysis strategies that ensure the data collected both inform operations planning and facilitate the RTA's reporting requirements. When evaluating existing practices and developing recommendations for new metrics, it is important to keep in mind that performance measures should:

- Be easily measurable with realistic, aspirational targets that will lead to successful outcomes
- Have a clear and intuitive meaning so that they are understandable to transit staff as well as non-transportation professionals
- Be acceptable and useful to transportation professionals
- Be comparable across time and between geographical areas
- Be performed on either a monthly, quarterly, or annual basis, depending on state and federal requirements and the nature of the data
- Have a strong functional relationship to actual system operations so that changes are reflected with minimal lag time in operating statistics
- Provide the most cost-effective means of data collection
- Be based on statistically sound measurement techniques
- Be consistent with measures identified for other systems
- Be readily available, when possible, to facilitate flexibility and agility in service planning
- Include actionable language, setting thresholds when additional analysis or service changes are warranted

These principles have informed the following analysis of performance recommendations and strategies, guiding the development of the recommendations at the end of this chapter.

6.1 Current Performance Measurement Practices

Performance measurement and reporting is a priority for the regional transit providers and the Commonwealth. BAT has incorporated a culture of performance-driven analysis into its decision-making as technology providing higher accuracy and timeliness of operational data has improved. The federal government has supported this movement to becoming more

performance driven in the last decade as it mandated that federally funded agencies implement a performance-based approach to planning and programming with the passage of the Moving Ahead for Progress in the 21st Century (MAP-21) Act of 2012 and its successor, Fixing America's Surface Transportation Act (FAST Act) of 2015. These performance mandates and industry trends are further reinforced by the need to make data-driven decisions in the face of COVID-19.

BAT's performance monitoring practices are detailed in the following sections. In general, BAT monitors data internally and posts performance summaries for the public on its website. The areas they track range from route-specific to systemwide metrics that include operating, safety, asset management, and many other measures.

6.1.1 Monthly and Annual Performance Monitoring

BAT develops two performance reports, one annual report for fixed route and demand response services, and a dashboard that is posted on the website and updated monthly. It also submits data monthly, quarterly, and annually as required by MassDOT and FTA.

6.1.1.1 State and Federal Monitoring Requirements

BAT reports 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.

BAT also reports service and asset data to the Commonwealth through the GrantsPlus system. Additionally, BAT participated in the RTA Task Force, which was convened by MassDOT in 2019 to develop a performance measurement strategy for each RTA. The results of this effort were laid out in individual MOUs signed by the RTAs and MassDOT.

6.1.1.2 Additional Monitoring Practices

In addition to federal and state reporting requirements, BAT organizes annual ridership data into a report that includes route-level analysis. The report is used for route-level ridership monitoring and includes the following information:

- Fixed Route
 - Average daily ridership by route (weekday, Saturday, and Sunday)
 - Share of overall ridership by route (weekday, Saturday, and Sunday)
 - Share of overall ridership by area served: Brockton city routes, Ashmont, Stoughton, Rockland Flex, or BSU routes (weekday and Saturday)
 - Average daily annual ridership (actuals and projections) for FY 2016 to FY 2024 by route (weekday, Saturday, and Sunday)
 - Average daily ridership by area served: Brockton city routes, Ashmont, Stoughton, Rockland Flex, or BSU routes
 - Change in daily ridership for FY 2016 to FY 2019 and FY 2018 to FY 2019 by area served: Brockton city routes, Ashmont, Stoughton, Rockland Flex, or BSU routes
 - Change in daily ridership for FY 2016 to FY 2019 and FY 2018 to FY 2019 by route (weekday, Saturday, and Sunday)
 - Average ridership per bus round trip by area served: Brockton city routes, Ashmont, Stoughton, Rockland Flex, or BSU routes (weekday and Saturday)

- Average ridership per bus round trip by route (weekday and Saturday)
- Passengers per mile by area served: Brockton city routes, Ashmont, Stoughton, Rockland Flex, or BSU routes (weekday and Saturday)
- Passengers per mile by route (weekday and Saturday)
- Change in passengers per mile for FY 2016 to FY 2019 and FY 2018 to FY 2019 by area served: Brockton city routes, Ashmont, Stoughton, Rockland Flex, or BSU routes
- Saturday percent of ridership by route for FY 2018 and FY 2019
- Demand Response
 - Total ridership by month broken down by COA and DIAL-A-BAT service
 - Change in ridership by month for FY 2018 to FY 2019 broken down by COA and DIAL-A-BAT service

BAT also posts a performance report for fixed route and demand response services on its website (<https://ridebat.com/about-bat/reports-open-government/>) showing operating statistics broken down by mode, month, and fiscal year, along with BAT's target for each metric (Figure 37). The performance report is also submitted to BAT's Advisory Board. The following metrics are included in these updates:

- Fixed Route
 - Total passenger trips
 - Passenger trips per revenue hour
 - Passenger trips per revenue mile
 - On-time performance
 - Preventable accidents per 100,000 miles
 - Valid customer complaints per 100,000 miles
 - Miles between breakdowns with passenger interruption
- Demand Response
 - Total passenger trips
 - Passenger trips per revenue hour
 - On-time performance
 - Preventable accidents per 100,000 miles
 - Valid customer complaints per 100,000 miles
 - Miles between breakdowns with passenger interruption

Figure 37. Annual Performance Dashboard Posted on BAT's Website



Performance Dashboard FY20

Fixed Route	July	Aug.	Sept.	Average	Standard	Goal	FY19
Total Passengers	199,117	211,340	232,895	214,451			219,727
Pass/Rev Hour	23.03	23.91	24.96	23.97	22.00	26.00	24.28
Pass/Rev Mile	1.84	2.02	2.16	2.01	2.00	2.20	2.02
On-Time	98.49%	98.47%	94.96%	97.31%	95%	98%	97.81%
Demand Response	July	Aug.	Sept.	Average	Standard	Goal	FY19
Total Passengers	14,117	13,602	13,244	13,654			14,490
Pass/Rev Hour	2.52	2.99	3.26	2.92	2.25	2.75	2.51
On-Time	87.85%	88.32%	84.46%	86.88%	85%	90%	88.10%
Safety	July	Aug.	Sept.	Average	Standard	Goal	FY19
Preventable FR Accidents/ 100K miles	1.83	1.77	0.00	1.20	3	2	1.27
Preventable DR Accidents/10K miles	0	0.2	0.21	0.14	3	2	0.67
Maintenance	July	Aug.	Sept.	Average	Standard	Goal	FY19
Fixed Route Miles Between Breakdowns w/ passenger interruption	54,761.50	56,632.50	104,563.00	71,986	20,000	25,000	45,778
Demand Response Miles Between Breakdowns w/ passenger interruption	25,243.00	50,136.00	55,463.00	43,614	25,000	30,000	37,622
Customer Service	July	Aug.	Sept.	Average	Standard	Goal	FY19
Valid Complaints /100,000 pax FR	3.01	1.42	1.92	2.12	8	5	2.52
Valid Complaints /10,000 pax DR	3.44	1.80	2.79	2.68	4	2	0.85

6.1.2 Performance Metrics and Targets from MassDOT Memorandum of Understanding

In August 2019, BAT, along with the Commonwealth's 14 other RTAs, entered into 2-year MOUs with MassDOT. This agreement is based on performance metrics established by MassDOT and the RTAs, and includes performance targets in the categories of ridership, customer service and satisfaction, asset management, and financial performance. The MOU states that BAT's performance is to be measured by comparing established baselines to FY 2020 and FY 2021 targets.

The performance measures included in the MOU, along with their baselines, targets, and BAT's progress (through the third quarter of FY 2020), are included in Table 11 and Table 12. Given that the COVID-19 pandemic did not significantly impact operations until the last two weeks of the third quarter, the data suggest that BAT appeared to be on track to meet or exceed 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 BAT and MassDOT developed the performance targets in the MOU, they developed baselines against which to measure BAT's performance between FY 2019 and FY 2021. With few exceptions, these baselines are averages of data collected in FY 2016 to FY 2018. MOU targets reflected the reasonable expectation that BAT 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 challenging.

BAT will use FY 2021 as a time to reevaluate targets and performance metrics as transit demand stabilizes and BAT and MassDOT continue to discuss how to best reflect the impact of the pandemic on ridership, operations, and efficiency. BAT and MassDOT will continue to review MOU performance results through the term of the agreement and will mutually utilize this data to inform agreements for FY 2022 and beyond.

6.1.2.1 Service Effectiveness Measures

The following performance measures are calculated on a monthly and annual basis using farebox data, passes sold, schedules, and operations data recorded by drivers and dispatchers. As evident in Table 11, BAT was on track to meet many of its targets before the pandemic struck toward the end of the third quarter. The fourth quarter saw greatly reduced ridership with the stay-at-home order and service cuts.

- **Total Ridership (Unlinked Passenger Trips):** This measures passenger trips taken on BAT vehicles (transfers are counted as individual trips rather than one multi-segment trip). These data are collected from farebox records.
- **Unlinked Passenger Trips per Vehicle Revenue Hour:** This measures the number of total passengers divided by the corresponding revenue hours. Revenue hours are calculated by using schedule data and operations data recorded by drivers and dispatchers.
- **On-Time Performance:** This measures the percentage of fixed route and ADA demand response trips that operate on-time, early, or late. BAT reports trips that leave the BAT Centre within 5 minutes of the scheduled departure as being on-time.

Table 11. MOU Service Effectiveness 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	2,405,040	2,432,457	1,828,573	1,987,197
Demand Response	167,843	168,312	119,143	127,816
Systemwide	2,572,883	2,600,769	1,947,716	2,115,013

Operating Statistic	Baseline (FY 2016–FY 2018 Average)	Target FY 2020	FY 2020 (First Quarter–Third Quarter)	FY 2020 (Full Year)
Unlinked Passenger Trips per Revenue Hour				
Fixed Route	22.27	22.57	22.69	20.45
Demand Response	2.46	2.47	2.49	2.14
Systemwide	14.60	15.65	15.15	13.49
On-Time Performance				
Fixed Route	97.33%	97.50%	97.42%	98.07%
Demand Response	88.73%	88.75%	89.07%	90.76%
Systemwide	96.81%	96.98%	96.77%	97.14%

Source: BAT and MassDOT MOU (2019), BAT

6.1.2.2 Financial Efficiency Measures

These measures from the MOU 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 Ratio:** This metric is the percentage of operating costs covered by fares, calculated by the fares collected divided by the cost to operate the route. BAT does not calculate revenue data by route, so this measure is only available by mode.
- **Operating Expenses per Revenue Mile:** This is the overall operating cost divided by the corresponding revenue miles.
- **Operating Expenses per Unlinked Passenger Trip:** This is the overall operating cost by mode divided by total passengers.

Table 12. 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	22.13%	22.25%	21.82%	16.45%
Demand Response	28.95%	29.00%	31.09%	24.97%
Systemwide	23.96%	24.24%	24.13%	18.51%
Operating Expenses per Vehicle Revenue Mile				
Fixed Route	\$8.79	\$8.86	\$8.81	\$9.69
Demand Response	\$6.32	\$6.62	\$5.81	\$6.71
Systemwide	\$7.97	\$8.11	\$7.81	\$8.75

Operating Statistic	Baseline (FY 2016–FY 2018 Average)	Target FY 2020	FY 2020 (First Quarter–Third Quarter)	FY 2020 (Full Year)
Operating Expenses per Unlinked Passenger Trip				
Fixed Route	\$4.59	\$4.70	\$4.73	Not available
Demand Response	\$25.68	\$26.80	\$24.09	Not available
Systemwide	\$5.65	\$6.05	\$5.91	Not available

Source: BAT and MassDOT MOU (2019), BAT

6.1.2.3 Asset Measures

BAT has adopted national FTA 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 useful life benchmark (ULB) or a condition rating on the Transit Economic Requirements Model (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, BAT sets ULB goals for their rolling stock, equipment, and facilities in their Transit Asset Management (TAM) Plan, while the targets for the metrics in the sections above were set in the MOU. BAT's vehicles and facilities are generally in good condition (Table 13).

- **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.
- **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.
- **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.

Table 13. Condition of BAT's Vehicles and Facilities

Asset Type	FTA Standard
Vehicle	ULB
Bus	2%
Cutaway bus	75%
Van	5%
Trucks or other rubber tire vehicles	100%
Non-revenue/service automobile	17%
Facility	TERM Rating
BAT Centre	4
1442 Main	3
Administration	4

6.2 Considerations for the Next 5 Years

Given BAT's implementation of new technology, there are some improvements and measures that BAT is implementing, or considering implementing, over the next 5 years. These changes will both aid their navigation of the uncertainties brought on by COVID-19 and further their efforts to adopt industry best practices.

6.2.1 How BAT'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 as much as 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 BAT's ridership, have been severely altered for the foreseeable future. Some of the most significant include:

- Virtual classes at BSU, Massasoit Community College, and the region's public schools
- Decline in customers and workforce at retail locations, restaurants, and bars
- Reduced service on MBTA

These impacts were not limited to lost ridership on the BAT system; these trip generators also contribute significantly to area employment and the local and state budgets that comprise a significant portion of BAT's funding. As the timeline for eradicating the virus is extremely uncertain (social distancing continued into 2021), BAT will need to be flexible in their ability to adjust service according to demand and funding availability. Access to ridership data that are detailed and readily available is imperative to BAT's ability to both maintain lifeline service and transport essential workers.

6.2.2 Enhancing Data-Driven Evaluation

While the ability to access reliable up-to-date data was important prior to the pandemic, it is now essential that BAT has the tools needed to make informed service changes in a nimble way. These tools include technology like APCs and AVLs, which, when combined, allow agencies to analyze ridership at bus stop level, identifying new ridership patterns, and adjusting service accordingly. Because these data are rich with information about a system's travel patterns and are readily available, they are invaluable when considering service changes—particularly when those changes need to respond to a transit market in flux.

BAT acquired APCs and updated CAD/AVL technology for their fleet. BAT plans on setting up this technology so that APC and CAD/AVL data can be tied together to get ridership-by-stop data. BAT anticipates this system will be functional by the beginning of 2021. Stop-level ridership data will enhance the in-depth route analysis in BAT's annual ridership reports.

In addition to tracking ridership at the stop level, BAT should work with MBTA to track instances of riders transferring between MBTA and BAT services. While BAT's highest ridership route provides a connection between Brockton and the Ashmont Red Line station, there are also

opportunities for BAT ridership to connect to the MBTA Commuter Rail in Abington, Brockton, Bridgewater, and Stoughton, as well as MBTA commuter buses in Brockton, Avon, and Stoughton. Analyses of how riders use both services could inform BAT service planning, offering insight on new service opportunities. For example, BAT and MBTA can continue to collaborate on changes that would balance rider needs and capacity constraints between MBTA commuter rail service and complementary BAT routes. This would also create baselines for joint ridership as the Commonwealth continues efforts to implement service on the South Coast rail project.

BAT will use new CAD/AVL technology to improve the accuracy of their on-time performance measurement. BAT currently measures on-time performance from the routes' departures from the BAT Centre. BAT plans on using the CAD/AVL technology to also track buses' arrival at the end of the route. BAT uses flag stops, which makes it difficult to establish timepoints along the route. The resulting data are instructive and can be used to remedy the issues causing delays.

As BAT adjusts its performance measurement procedures with the arrival of APC and CAD/AVL equipment (and as post-pandemic ridership stabilizes), BAT should create actionable route-level guidelines based on the following performance metrics:

- Passengers per revenue hour
- Passengers per revenue mile
- On-time performance

Standardizing thresholds for when actions such as more extended analysis or service changes are warranted would simplify service planning and significantly boost transparency if BAT shared the guidelines with the public.

Currently, BAT performs service analysis as needed for MassDOT and NTD on a monthly, quarterly, and annual basis and, internally, produces a more in-depth analysis on an annual basis. As more data become available, BAT should increase the frequency of their route-level analysis on a quarterly and, where appropriate, monthly basis with the purpose of informing service changes where needed.

6.2.3 Expand Public Transparency

BAT's website includes a "Reports and Open Government" page, which includes a monthly performance dashboard (organized by month) for the fixed route and demand response services along with targets for each metric. The availability of these reports boosts public trust in BAT and allows the public to better understand the service. As discussed, the website does not include route-level performance data.

BAT should consider the following options for presenting key route-level operating statistics on the BAT website:

- **Static PDF:** Key operating statistics can be formatted in Microsoft Word or a similar word processing tool and then saved as a static PDF.
- **Tableau:** One platform for providing key service statistics that should be considered is Tableau. This is an easy-to-use data visualization platform that allows the public to interactively explore operational data.

If feasible, BAT should also include the option to download raw data from the website, making the data easy to access so that analysis can be included in efforts to educate the public, academic studies, or planning projects.

6.2.4 Additional Measures to Consider Including in Performance Reports

As described above, BAT has a monthly performance dashboard that includes fixed route and demand response statistics on their website including ridership data, service productivity data, and some safety and reliability data. In addition to this dashboard, BAT develops an annual ridership report that includes extensive route-level analysis, including ridership, route productivity, projected ridership, and ridership changes over the prior 3 years. When BAT's APC and CAD/AVL technology is installed, BAT should make publicly available the additional analysis listed below that is not currently included in performance reports.

- **Mode-Level Performance**

- **Cost per Passenger:** This is the overall cost to operate a route divided by the number of passengers. This is recommended for annual reports.
- **Subsidy per Passenger:** This is the total expenses minus fare revenue divided by ridership. This is recommended for annual reports.

- **Route-Level Performance**

- **Ridership by Route:** This measures passenger trips taken on BAT vehicles. This is already done for BAT's annual report and it is recommended for quarterly reports.
- **On-Time Performance by Route:** This measure is the percentage of fixed route trips that operate late or are missed. The recommended standard for late trips is any trip that is more than 5 minutes behind schedule, and any trip that leaves before the scheduled time is considered early. This is recommended for quarterly and annual reports.
- **Ridership by Major Stop:** This measures passengers boarding and disembarking by stop. The technology associated with this data collection (APCs and CAD/AVLs) and supporting software can generate reports quickly for any time period requested and includes features that can assist in looking at the data spatially and by time of day. It is especially important in the context of a shifting transit market (due to the pandemic) to understand how ridership demand has changed where data are available. This is recommended for annual reports, though in the near-term it may be more appropriate for monthly reports as ridership stabilizes.

- **Demand Response Percent No-Show:** This measures cancellations made less than 1 hour prior to the pickup time or not being present for the pick-up. This is recommended for quarterly and annual reports.
- **Demand Response Percent Cancellations:** This measures same day cancellations made at least one hour prior to the start of the pick-up window. This is recommended for quarterly and annual reports.
- **Percent Denied Trips:**
 - **Fixed Route:** This measures the percentage of passengers left behind due to vehicle overload. This is recommended for quarterly and annual reports.
 - **Demand-Response:** This measures the denial of trips requested at least a day prior that the agency cannot provide or is outside the one-hour negotiation window. This is recommended for quarterly and annual reports.
- **Average Phone Hold Time:** This measures the average length of time a customer is on hold with customer service or with reservations for ADA and non-ADA service. This is recommended for quarterly and annual reports.

6.2.4.1 Service Guidelines

One of the critical performance metrics that BAT should utilize as ridership stabilizes in the wake of the pandemic is route-level service guidelines, which provide context for evaluating route-level performance. There are two approaches that BAT could take to establish guidelines: creating goals based on route type or comparing route-level performance to the system or route category average. It is recommended that these measures be included in quarterly and annual reports once ridership levels have stabilized to a point where it is appropriate to do so:

- **Route Performance by Route Type:** When establishing these guidelines, BAT could consider not only the mode of service, but also the route's purpose, including geography and primary market served. BAT already categorizes routes using the following categories in its annual ridership report:

- Brockton Routes
- Ashmont Route (Route 12)
- Stoughton Route (Route 14)
- Rockland Flex

Each route type should have different performance measures to monitor existing service and evaluate new service. Once ridership has stabilized, BAT should set performance thresholds for each service type (e.g., passenger per revenue mile, cost per passenger).

- **Route Performance by System or Route Category Average:** In this approach routes are compared to the system or route category average and placed into three tiers based on their performance. This approach may be preferred in this period of destabilized ridership, as the system or route category average is fluid, reflecting the instability in the market. Recommended tiers for route performance include:
 - Pass: Productivity measure is greater than 50 percent of the systemwide or route category average and no corrective action is necessary.
 - Monitor: Productivity measure is less than 50 percent of the systemwide or route category average but greater than 35 percent of the average; performance should be monitored, and a corrective plan is developed.
 - Fail: Productivity is less than 35 percent of the systemwide or route category average; the corrective plan is implemented.

BAT should also look at ridership year-to-year, using standard deviation to determine whether changes in a route's ridership are significant. External factors that may have affected ridership (i.e., reduced school enrollment if school is a trip generator) should also be considered. This analysis should be an integral part of BAT's service planning.

7. Stakeholder Engagement

Engaging the public is an essential element of a successful 5-year plan. Planning efforts should be driven by the needs and preferences of transit customers, major regional employers, institutional partners (such as higher education), municipal officials, human service organizations, and other stakeholders. Public outreach for this project took the form of two efforts: an online stakeholder survey and a stakeholder focus group. This chapter outlines the results of these outreach efforts as part of this 5-year CRTP update.

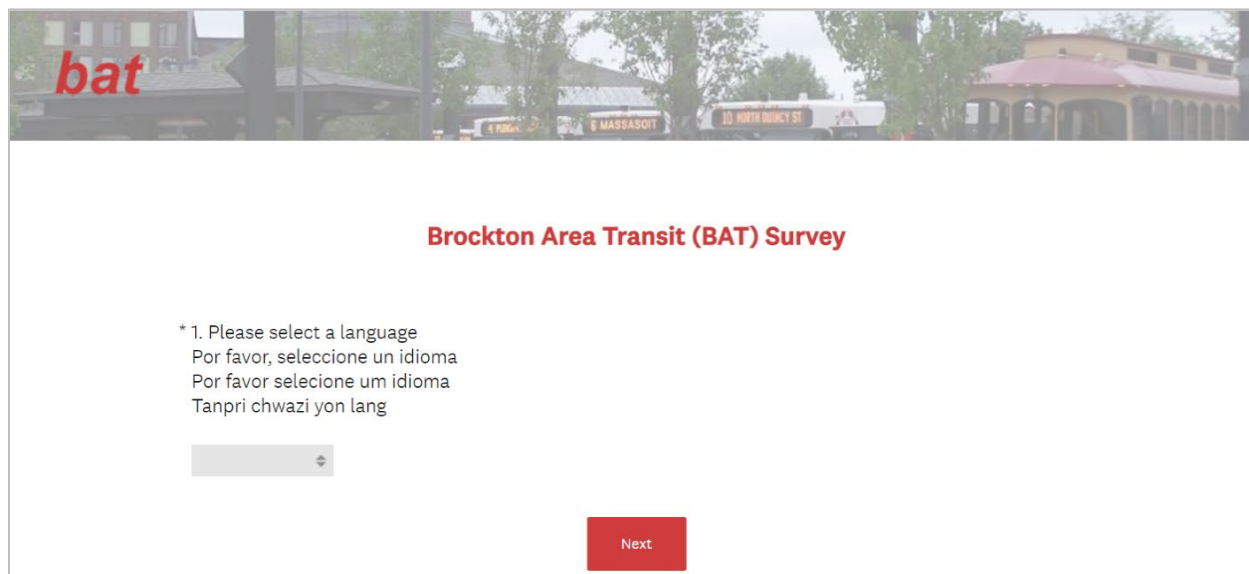
7.1 Stakeholder Survey

The primary outreach element for this project was an online stakeholder survey. The survey was launched June 25, 2020, and was open through July 31, 2020. To promote the survey to its riders, BAT posted links on its social media accounts, posted a link on BAT's website, and emailed it to specific community contacts.

7.1.1 Surveying Approach and Limitations

Due to social distancing guidelines and other safety protocols resulting from the COVID-19 pandemic, no in-person outreach could be conducted. Thus, the bulk of the outreach effort rested on an online stakeholder outreach survey conducted in the early summer of 2020. The project team developed an online survey using the SurveyMonkey platform (Figure 38). In order to include people without internet access, BAT staff called a sample of DIAL-A-BAT riders (200 customers) to conduct the survey over the phone.

Figure 38. Survey Landing Page



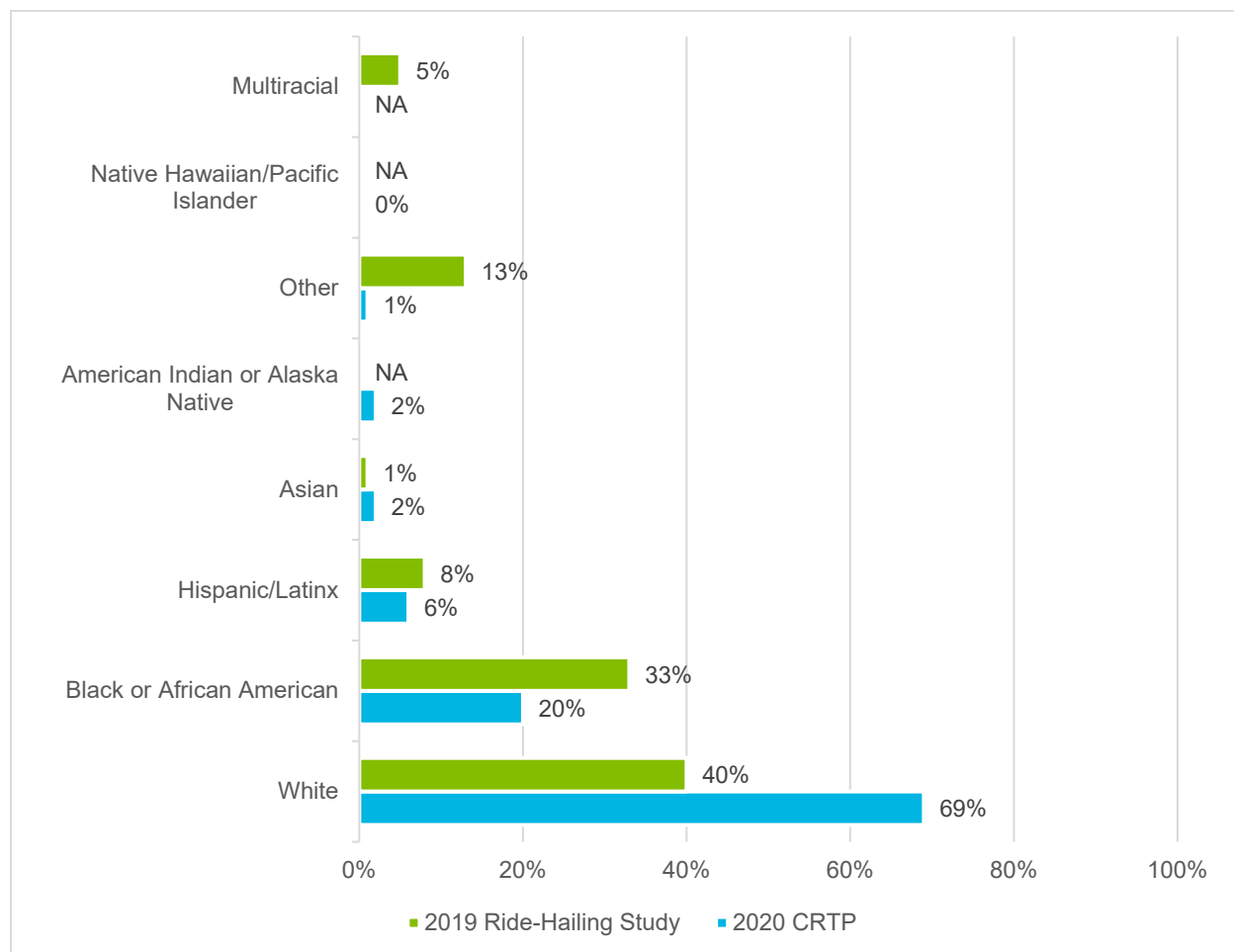
Based on comparisons to the survey results in the 2019 report *Potential Impacts of Ride-Hailing on the Brockton Area Transit Authority (BAT)* (Ride-Hailing Report),¹⁹ the impact of this all-online approach resulted in a greater proportion of White respondents and respondents who identified as male compared to the Ride-Hailing Report survey. The age of respondents and educational attainment was similar between the Ride-Hailing Report survey and the 2020 survey.

With regard to race, 69 percent of respondents to this plan's survey identified as White, whereas only 40 percent of respondents identified as White in the Ride-Hailing Report (Figure 39).

¹⁹ Metropolitan Area Planning Council, <https://www.mapc.org/resource-library/batstudy/>.

Additional responses to this plan's survey effort included 20 percent of respondents identifying as Black or African American, and 6 percent as Hispanic or Latinx, both of which are much lower than the proportions in the Ride-Hailing Report. The remaining responses were split between American Indian or Alaska Native, Asian or Asian American, and Other.

Figure 39. Race/Ethnicity Comparison

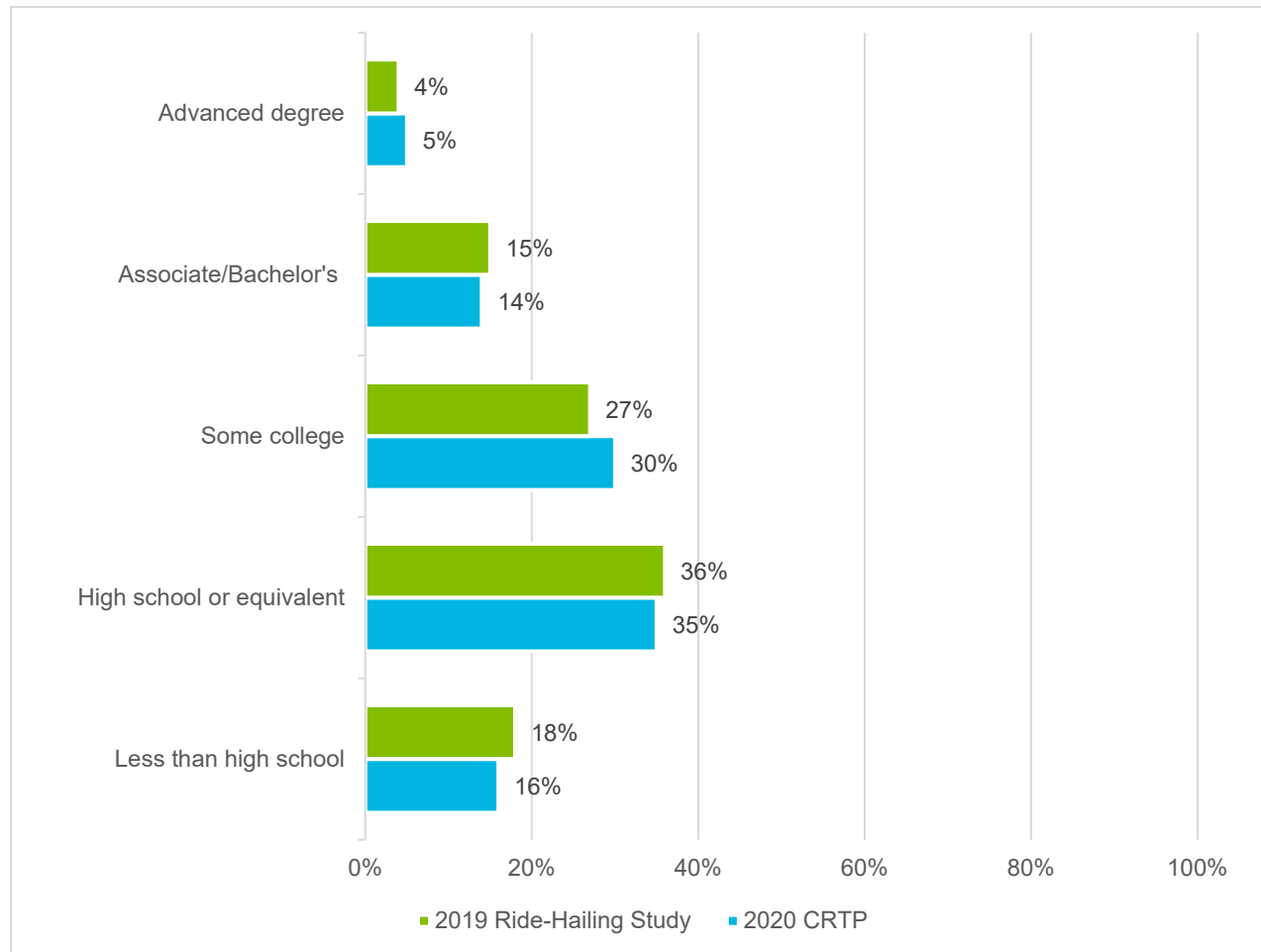


(n=127, 2020 CRTP) (n=562, Ride-Hailing Report)

*"NA" means not applicable as this category was not offered in the corresponding report.

The gender balance of survey respondents also differed between the surveys. Fifty-three percent of participants in the 2020 survey identified as Male, 46 percent identified as Female, and one percent as Both. The Ride-Hailing Report saw 59 percent identified as Female, while only 39 percent identified as Male and 2 percent as Other/Prefer not to answer.

Both survey efforts saw most respondents with approximately the same age distribution; the average age of respondents for the 2020 survey was 52, while the age bracket with the most respondents in the Ride-Hailing study was 45 to 64 years old. Respondents' levels of educational attainment were also similar between the 2020 survey and those of the Ride-Hailing Report (Figure 40). The majority of respondents, 81 percent for both surveys, did not have a post-secondary degree.

Figure 40. Educational Attainment (2020 CRTP vs 2019 Ride-Hailing Report)

(*n*=123, 2020 CRTP) (*n*=551, 2019 Potential Impacts of Ride-Hailing on the Brockton Area Transit Authority (BAT))

Due to the limitations of the 2020 survey effort and the differences in demographics compared to the Ride-Hailing Report, the findings in the 2020 survey should not be considered statistically representative of Brockton-area stakeholders or BAT riders.

7.1.2 Survey Design

Three primary groups of stakeholders were targeted in this surveying effort:

- **Current riders:** As users of the system, current riders are an essential group to understand travel patterns and public transportation mobility needs for the region.
- **Former riders:** As a result of the pandemic, many people are no longer using transit due to loss of a job, distance learning, social distancing guidelines, or fear of public spaces. Understanding how to bring these former riders back to transit is important information for BAT.
- **Non-riders:** BAT is committed to growing the base of riders in the region, and as such wants to hear from people who do not use the system.

The survey created separate tracks for each of these groups to provide feedback, with some further disaggregation based on the mode of transit selected (demand response and/or fixed route).

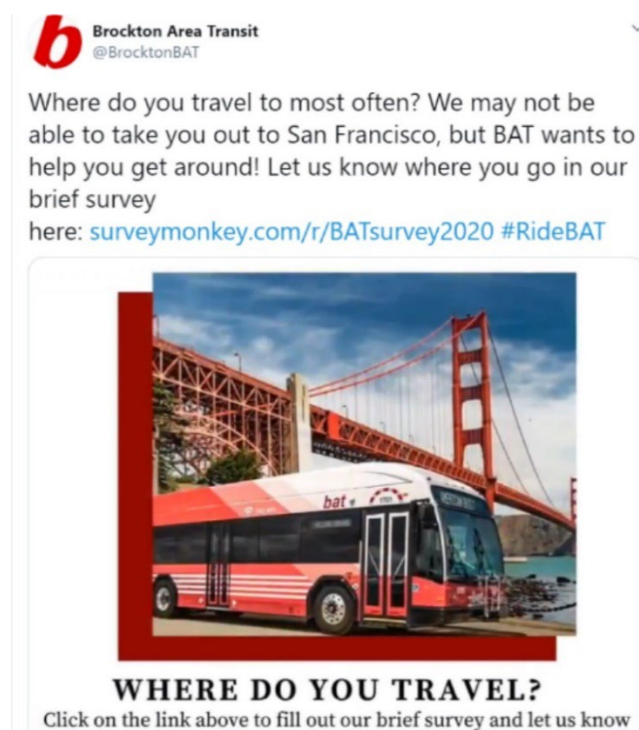
7.1.3 Limited English Proficiency Outreach

In accordance with BAT's commitment to ensuring inclusion of people with limited English proficiency (LEP), and in a context in which in-person outreach was not feasible, the project team took special care to reach out to organizations that regularly interact with people with limited English abilities.

The vast majority of survey respondents from this plan's outreach effort spoke English as their primary language at home (108 responses). After "English," "English and Spanish" was the most popular selection (five responses) followed by "English and Haitian Creole" (two responses). "Asek," "English, French and Haitian Creole," "Haitian Creole," "Portuguese," and "Vietnamese" each saw one respondent (or 1 percent of total responses).

With the limitations of an all-online survey approach in mind, the project team worked to ensure that the broadest possible cross-section of BAT's stakeholders was represented. In addition to phone calls to DIAL-A-BAT riders, there was extensive online outreach through the BAT website, social media accounts (Figure 41), and coordination with partner organizations through their online outlets.

Figure 41. Social Media Post



The project team implemented a targeted outreach campaign where community groups working with LEP populations were reached via email. Additionally, the survey was available in four languages, English, Spanish, Portuguese, and Haitian Creole, in conformance with the BAT Language Access Plan. The partner organizations in Table 14 were contacted to raise awareness about the survey.

Table 14. Partner Organizations Contacted for Survey Distribution

Organization	Organization
Arc of Massachusetts (resources for children, families and adults)*	Massachusetts Association of Teachers or Speakers of Other Languages*
Avon Fire Department	MassHire Greater Brockton Workforce Board
Avon Police Department	MassHire Greater Brockton YouthWorks
Bridgewater State University	Metro South Chamber of Commerce
Brockton Community Access TV (BCATV)	Old Colony Elder Services
Brockton Emergency Management Agency	Old Colony Planning Council
Brockton Fire and Life Safety	South Shore Community Action Council
Brockton Housing Authority	The Enterprise of Brockton
Brockton Neighborhood Health Center	Town of Abington
Brockton Police Department	Town of Avon
Brockton Public Schools	Town of Bridgewater
BSU Transit	Town of Easton
City of Brockton	Town of Hanson
Community Services of Greater Brockton	Town of Milton
Good Samaritan Medical Center	Town of Milton COA
Greater Brockton Health Alliance	Town of Milton Commission on Disability
Haitian Community Partners*	Town of Randolph
Hanson Fire Department	Town of Stoughton
Hanson Police Department	Town of Whitman
Metropolitan Area Planning Council	United Way of Greater Plymouth County*

**Indicates community group that works with LEP populations.*

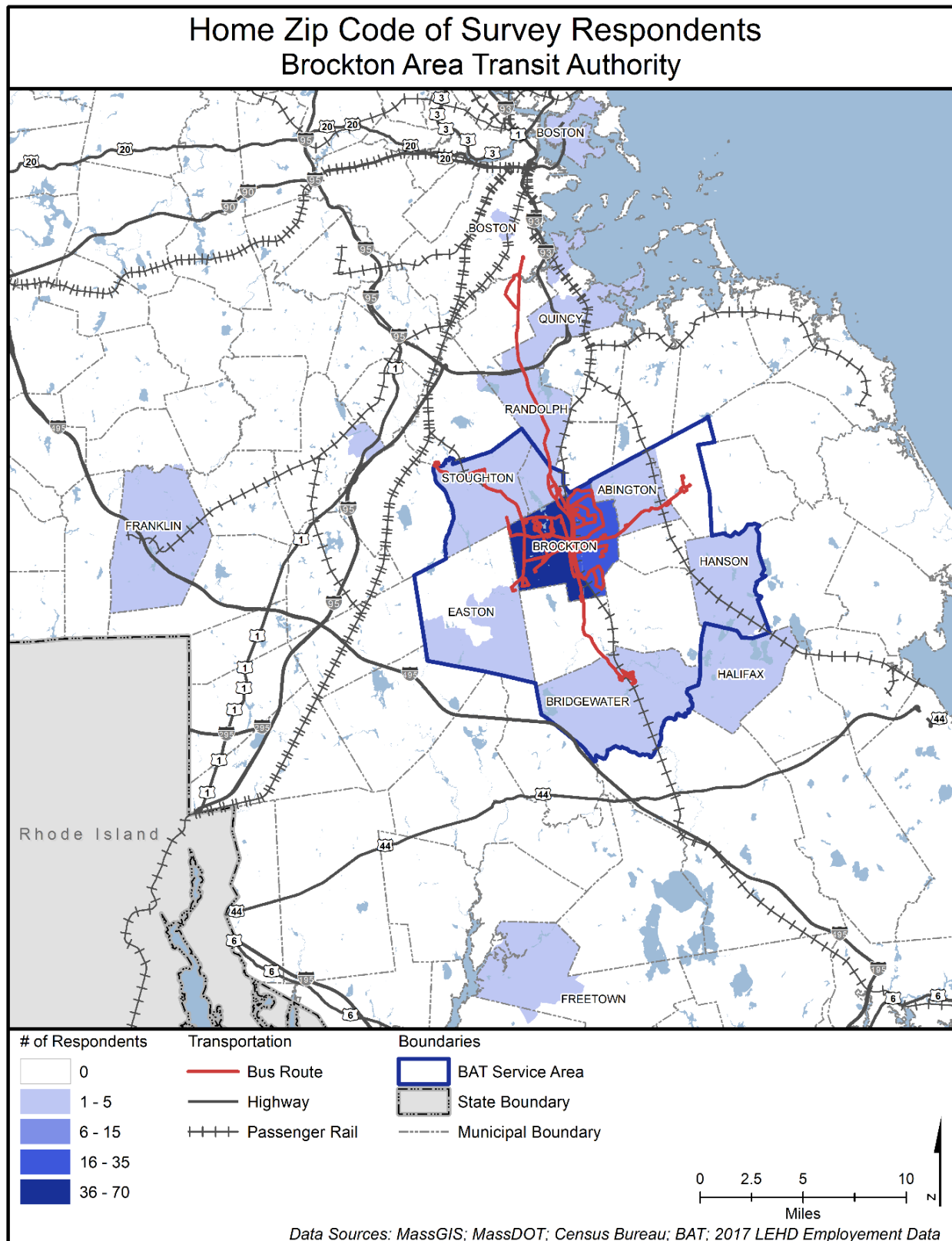
7.1.4 Survey Results

A total of 266 responses were collected using the online survey: 188 completed surveys and 78 partial responses. Responses that were blank were likely the result of immediate abandonment of the survey due to a time constraint, technical problem, or user error. The survey's respondents included:

- 75 current BAT fixed route customers
- 18 current DIAL-A-BAT customers
- 37 current fixed route and DIAL-A-BAT customers
- 21 former BAT customers
- 54 non-riders

Most of the survey respondents were Brockton residents, with 80 percent of people who provided their zip code living in Brockton's two zip codes, 02301 or 02302 (Figure 42).

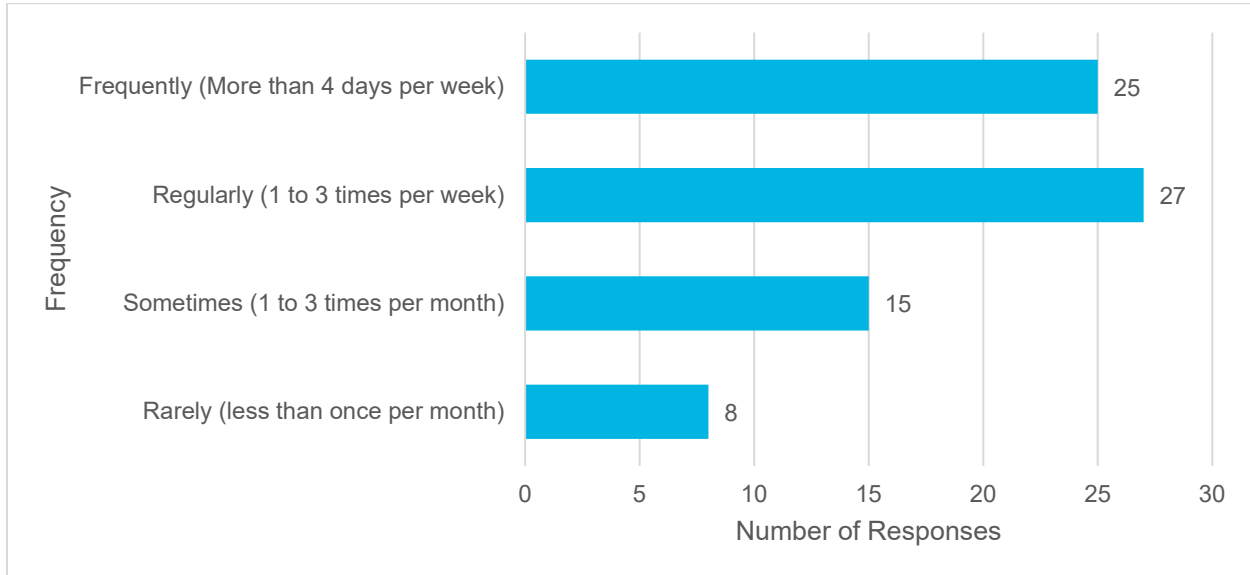
Figure 42. Home Zip Code of Survey Respondents



7.1.4.1 Current Fixed Route Riders

The majority of rider respondents who only use BAT's fixed route bus service used it at least once per week with 33 percent of respondents answering they used BAT more than four days per week (Figure 43).

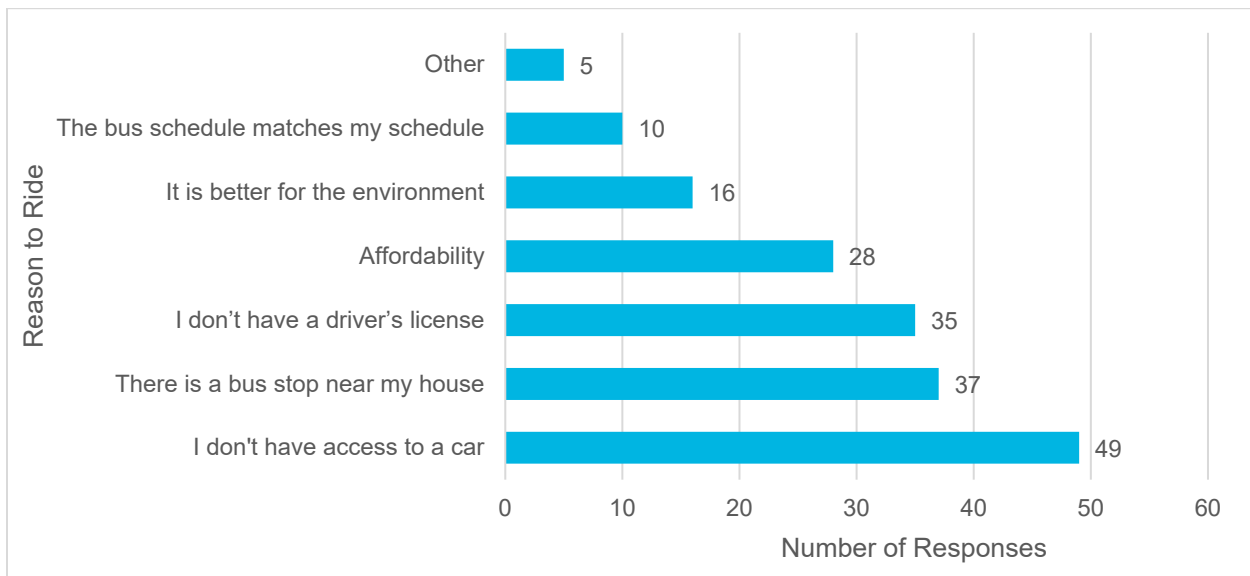
Figure 43. Fixed Route Riders: Frequency of Fixed Route Service Use



n=75

The majority of respondents who identified as current riders of fixed route alone were transit dependent. When asked why they rode BAT service (respondents were allowed multiple selections), 67 percent of respondents indicated that they use BAT because they did not have access to a car and 48 percent indicated that they did not have a driver's license (Figure 44).

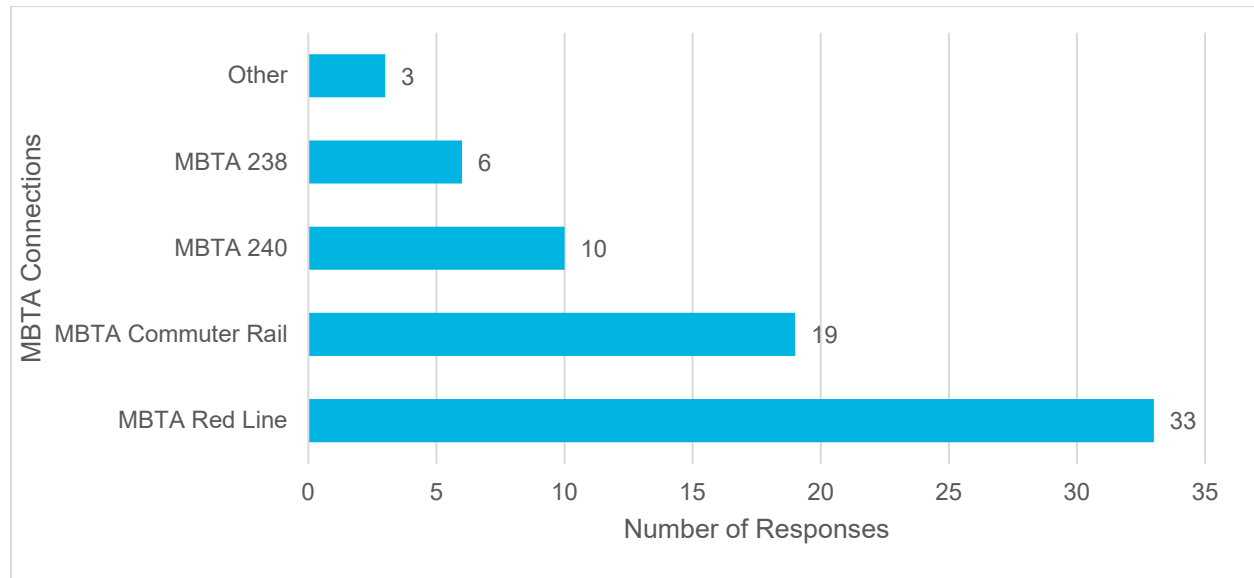
Figure 44. Reason(s) for Riding BAT Fixed Route Service



n=73

More than half of the fixed route riders surveyed (53 percent of respondents) indicated they used BAT services to connect to MBTA public transportation services. Of that user group, 71 percent stated that they used BAT to access the Red Line or Commuter Rail (Figure 45).

Figure 45. Fixed Route Riders: Use of BAT Service to Connect to MBTA Service

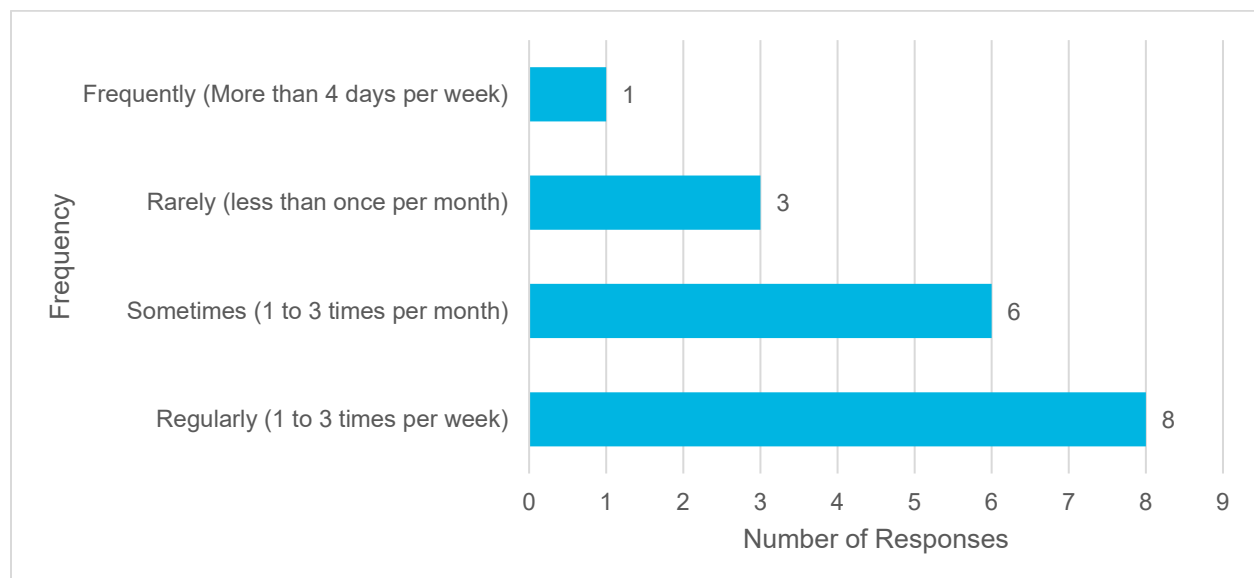


n=71

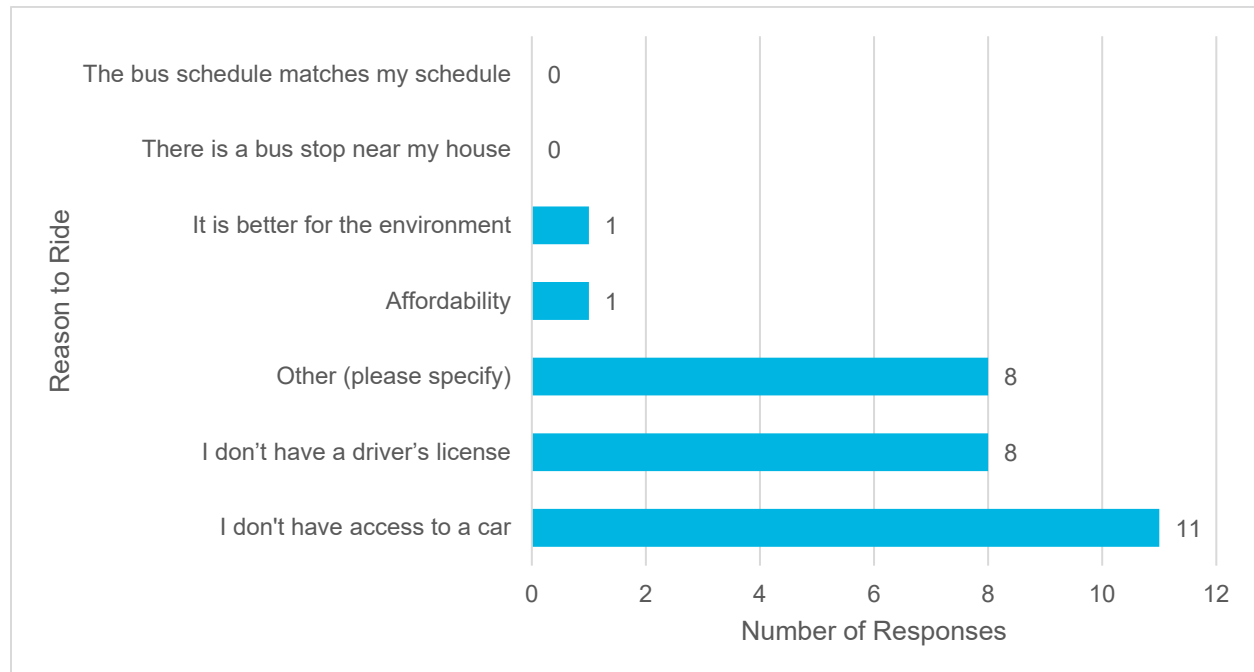
7.1.4.2 Current DIAL-A-BAT Only Riders

There were 18 respondents who only used DIAL-A-BAT service and did not use fixed route service. Nearly half of these respondents (44 percent) relied on the service one to three times per week (Figure 46). Like fixed route riders, the majority of DIAL-A-BAT riders were transit-dependent, and 61 percent used DIAL-A-BAT because they did not have access to a car (Figure 47). An overwhelming majority of DIAL-A-BAT customers primarily used the service to travel to medical appointments, illustrating how this service is a lifeline for riders who do not have any other way to travel.

Figure 46. DIAL-A-BAT Riders: Frequency of Use



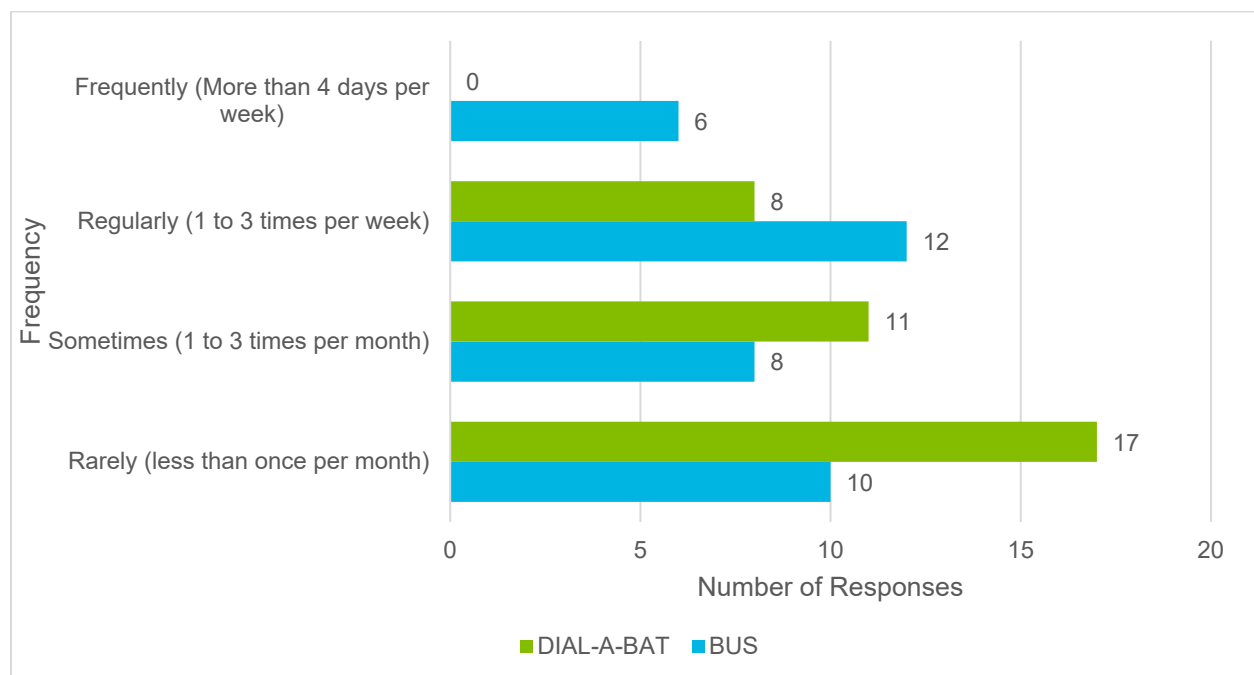
n=18

Figure 47. DIAL-A-BAT Riders: Reason(s) for Riding

n=18

7.1.4.3 Current Fixed Route and DIAL-A-BAT Riders

Eighteen percent of respondents indicated that they use both fixed route and DIAL-A-BAT services. Nearly half of this group rarely used DIAL-A-BAT, while 22 percent of them used the service one to three times a week. These customers were more likely to use fixed service regularly, almost half of them used fixed route service multiple times a week (Figure 48).

Figure 48. Fixed Route and DIAL-A-BAT Riders: Frequency of Use

n=37

7.1.4.4 Needs or Opportunities for Future Improvements

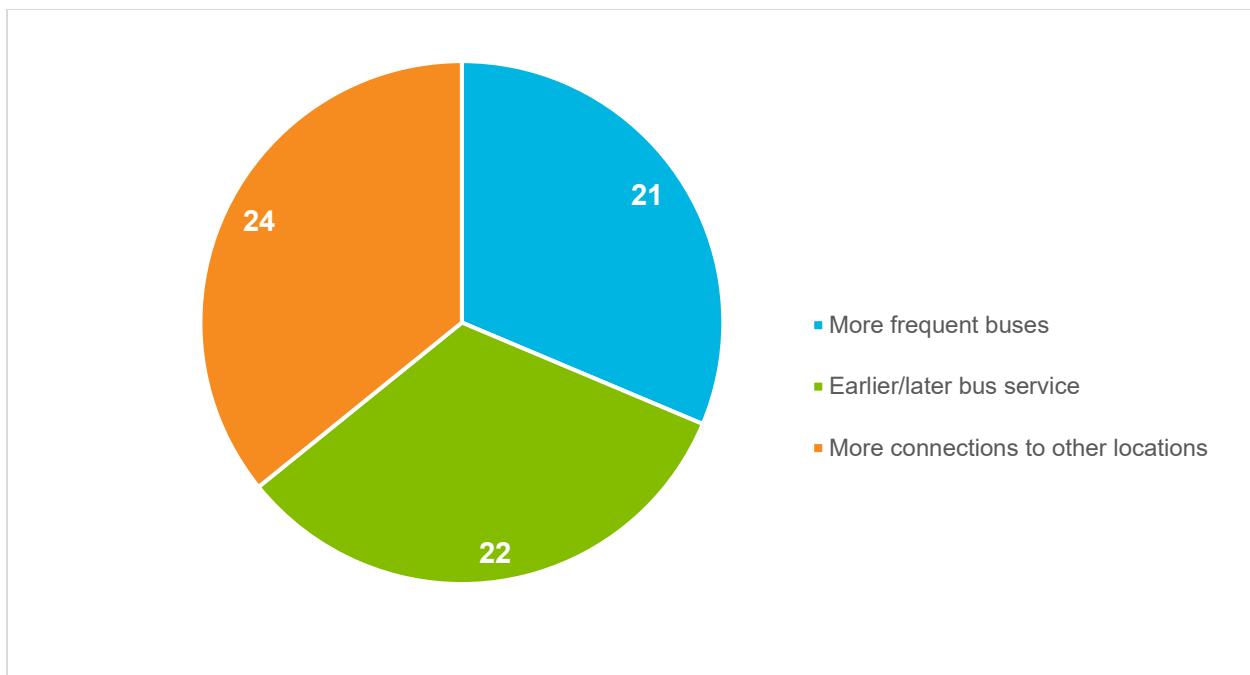
BAT used the survey to gauge respondents' comfort using service during the COVID-19 pandemic. BAT was interested in gaining insight into what measures could be taken to make riders feel safer on their vehicles and what could be done to attract former riders back to the service, seeking input via an open-ended question. The various user groups indicated the following:

- **Fixed Route Riders:** The most common feedback from fixed route riders currently using the service was to continue BAT's COVID-19 safety measures (mandatory face masks, frequent cleanings, open windows).
- **DIAL-A-BAT Riders:** Users of BAT's demand response service commented that limiting the number of riders per van would help but were overall comfortable with the service.
- **Former Riders and Non-Riders:** Of the respondents who answered they did not currently use BAT services, 21 out of 75 indicated that they had used the service prior to COVID-19 pandemic restrictions. However, only 2 respondents indicated they had stopped using BAT's services out of concern for their safety. When asked what specifically kept them from riding during the pandemic, most responded that furloughs, business closures, and remote learning caused them to stop using the service.

The survey also asked respondents to prioritize service improvements that have either been brought up in past outreach efforts or investments that BAT believes would benefit customers.

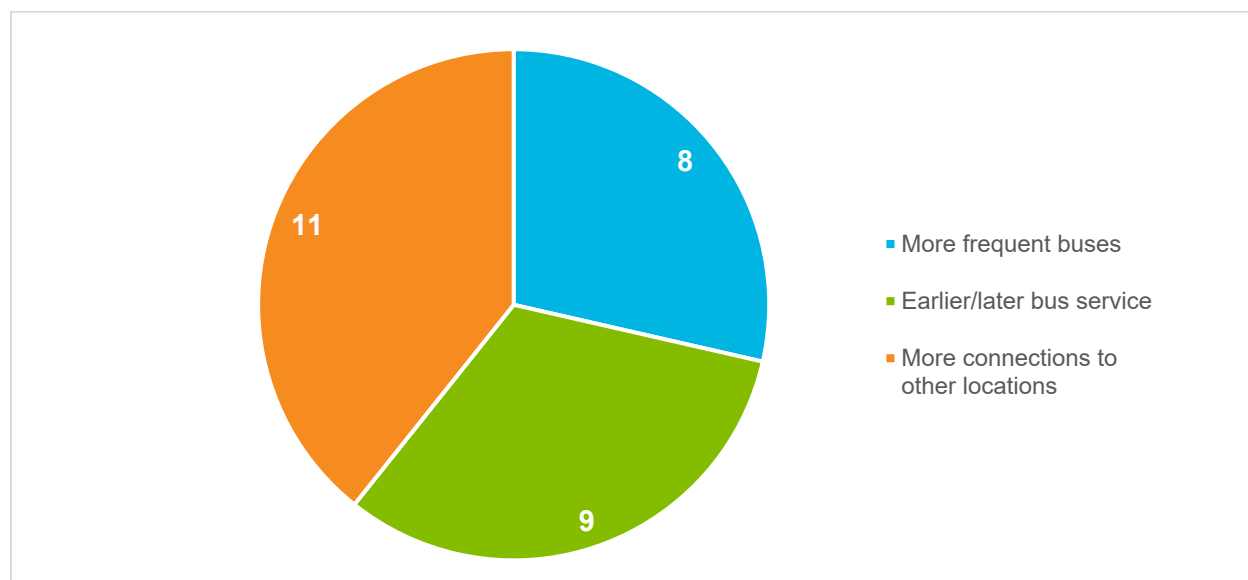
When asked whether they preferred more frequent service, extended service hours, or more connections to other locations, there was no strong preference among riders who use BAT's fixed route service (Figure 49 and Figure 50).

Figure 49. Fixed Route Riders: Preference for More Frequent Buses, Longer Service Hours, or More Connections



n=67

Figure 50. Fixed Route and DIAL-A-BAT Riders: Preference for More Frequent Buses, Longer Service Hours, or More Connections



n=28

Survey results indicate that, overall, riders were pleased with BAT's service. Eighty-four percent of both fixed route riders only and fixed route and DIAL-A-BAT rider respondents, as well as 100 percent of DIAL-A-BAT only riders, indicated they either felt neutral, satisfied, or very satisfied with BAT's current routes and schedules. The vast majority of all rider respondents were also satisfied or felt neutral about BAT's customer service (Table 15).

Table 15. Percentage of Riders Satisfied with BAT's Routes, Schedules, and Customer Service

	Fixed Route Riders	Fixed Route and DIAL-A-BAT Riders	DIAL-A-BAT Only Riders
Routes and Schedules	84%	84%	100%
Customer Service	85%	89%	94%

Rider respondents echoed their overall satisfaction with BAT services in the comments portion of the survey. Respondents who use DIAL-A-BAT left overwhelmingly positive comments, with one "complaining" that they couldn't leave the drivers tips and another writing "If someone doesn't call DIAL A BAT shame on them, their loss is my gain."

However, there were some areas that some riders believed BAT could improve. Recurring comments included:

- Twelve riders who use fixed services only indicated they would like to see changes to BAT's scheduling and frequency, specifically later evening service, more service, better alignment with MBTA schedules, and improved on-time performance.
- Seven fixed route riders also commented that they would like BAT drivers to provide better customer service.
- Two respondents who use both fixed route and DIAL-A-BAT service expressed a need for additional service to Easton, specifically medical centers.

One respondent writing on behalf of clients who used BAT's services wrote "the greatest barriers my clients face is outdated and missing infrastructure – missing sidewalks, absence of traffic controls, especially audible pedestrian indicators, and very poor snow removal near key businesses and services."

7.2 Focus Group

In addition to the stakeholder survey, the project team hosted a digital stakeholder focus group on August 6, 2020. Focus group attendees represented public officials, riders, disability awareness groups, educational institutions, transportation professionals, transportation advocates, and economic development organizations. Guests included Mayor Sullivan, members of BAT's Advisory Board, MassHire of Greater Brockton, members of the OCPC, the Executive Office of Health and Human Services, BSU, Massasoit Community College, Metro South Chamber of Commerce, South Shore Chamber of Commerce, Independence Associates, and MassInc. The session produced several notable themes described below, many of which align with survey responses.

7.2.1 Equity

Some stakeholders expressed a desire for BAT to ensure equitable policies by continuing its use of disproportionate burden/disparate impact studies along with an inclusive planning process. The discussion focused on how environmental justice should go beyond traditional community outreach because informing and getting feedback isn't enough to advance equity. Advancing equity also involves making sure each element of a plan accounts for environmental justice needs.

7.2.2 Public Safety

Early in the discussion, there were conversations about the safety precautions in place for COVID-19 as well as some other safety concerns such as crime or general feelings of safety at bus stops. One stakeholder acknowledged that there could be concerns about crime, but also noted that any potential increase in enforcement could create new conflicts within the community. It was recommended to explore innovative ways to increase safety both on the bus and at stations, including improved passenger amenities such as lighting.

7.2.3 Partnerships

Several stakeholders wanted a strategic plan to involve exploring partnerships with other entities in the region. These could include public-private partnerships and, though not within BAT's control, increasing BAT's operating funding through tax policy. Regardless of the position, there seemed to be an acknowledgement that a strategic plan should explore ways to increase BAT's resources and capabilities.

7.2.4 Potential Service Changes/Modifications

Propositions for changes in service included:

- Exploring the option of running service to the MBTA Red Line station in Braintree in addition to the existing service that runs to the MBTA Red Line station in Ashmont.
- One stakeholder from Brockton Public Schools stated that existing evening service at Brockton High School could be improved by relocating the bus stop to the front of the building. Doing so may reduce the incentive for night-students to use Uber/Lyft.

7.2.5 Regional Growth

Several stakeholders felt the region might see a lot of growth along the Route 3 and Route 24 corridors, largely because it has direct transit access to Boston (via South Coast Rail and roads) and is also a gateway to the southeastern part of the Commonwealth. One item that was indirectly addressed, in relation to growth, was the City of Brockton's efforts to encourage TOD around MBTA Commuter Rail Stations through the implementation and continued expansion of a 40R Smart Growth overlay zoning district. This also involved an emphasis on a need for BAT to align with potential regional rail policies, if implemented.

7.3 Key Takeaways

While this effort yielded an array of valuable insight from stakeholders, both riders and non-riders alike, a few key takeaways guided the development of this plan's recommendations:

- Survey respondents and focus group members overwhelmingly acknowledge the value that BAT brings to the region and generally approves of BAT's performance in delivering service, particularly during the challenging conditions of the pandemic.
- Stakeholders are supportive of BAT seeking additional funding, either through public-private partnerships or local tax initiatives, acknowledging that the latter is dependent on state policy and municipal action.

Survey respondents and focus group stakeholders both expressed need for increased coordination between BAT and MBTA services.

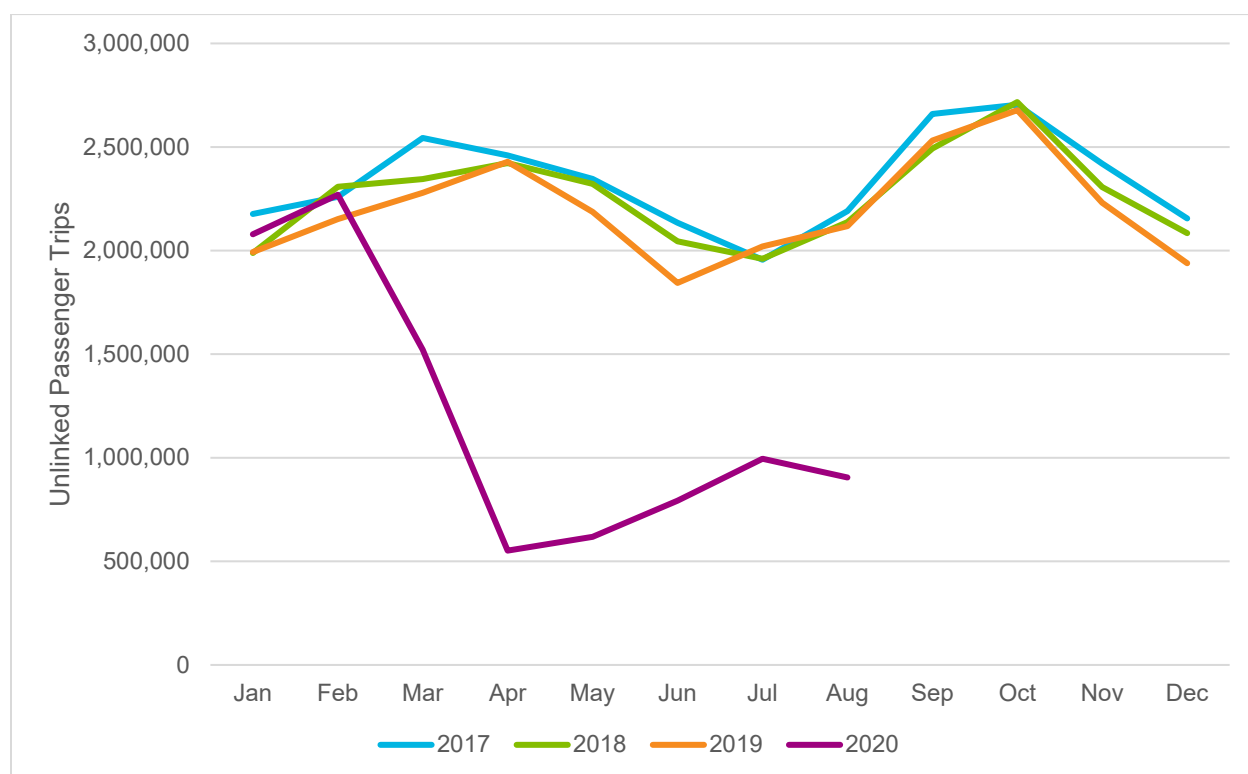
8. Transportation Service Needs

Transportation needs were identified for the BAT service area through discussions with BAT leadership, review of previous studies and relevant documents, analysis of transit service operations from FY 2015 to FY 2019, and an outreach effort conducted as part of this plan development process. The needs identified in this chapter reflect this extensive analysis undertaken as a part of the overall planning process and directly inform the recommendations provided in Chapter 9.

8.1 FY 2020 Service

A central challenge in identifying needs for this plan has been the unprecedented context in which the plan was prepared. As described in Chapter 2, the COVID-19 pandemic has had sweeping impacts on all aspects of life, including major implications on the operation of public transportation. Between the stay-at-home order in the spring and ongoing distance learning, business closures, telework, furloughs, layoffs, and reluctance to use public transportation, BAT has had to quickly adapt to a rapidly shifting landscape. BAT has transformed service protocols to meet safety needs while at the same time operating a service with radically shifted ridership and travel patterns (Figure 51).

Figure 51. Massachusetts RTA Monthly Ridership (2017–2020)



Source: NTD

While the pandemic has disrupted some aspects of the transit industry, some issues, such as the demographic composition of a region, remain largely unchanged. For example, residents in suburban and rural parts of the BAT service area remain on average older than the rest of the Commonwealth regardless of the pandemic. Meanwhile, the pandemic has severely disrupted some markets, such as higher education, which has pivoted heavily to distance learning.

8.2 Needs Identification Process

The impacts and limitations imposed by the COVID-19 pandemic required flexibility in the approach for identifying the needs for this plan. While some elements of the planning process developed pre-pandemic remained viable, many had to be adapted to respond to the new realities of COVID-19. The pandemic and volatility of the ridership market fundamentally changed the plan's outreach strategy and impacted BAT's needs for the next 5 years.

8.2.1 Review of Transit Services and Market Conditions

A review of service from the last 5 years (Appendix A) and market demand analysis (Chapter 5) were conducted to identify gaps and needs in BAT's service area. The analysis included a review of transit routes and other services, frequency and span of service, assets, technology, and policies. 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.

8.2.2 Review of Previous Studies

In addition to the analysis of past operational data, the team also reviewed previous studies and other relevant resources developed within the past 5 years, including the 2015 CRTP. This review allowed BAT to track progress on past needs that had been identified, and confirm or update those needs that were still standing (Table 16).

Table 16. Review of Previous Studies

Study Name	Author	Year Completed
BAT Comprehensive Regional Transportation Plan (BAT CRTP)	Old Colony Planning Council	2015
Brockton Master Plan	City of Brockton	2017
Coordinated Human Service Transportation Plan	Old Colony Planning Council	2019
Potential Impacts of Ride-Hailing on the Brockton Area Transit Authority	Metropolitan Area Planning Council	2019
Long Range Transportation Plan	Old Colony Planning Council	2020

8.3 List of Identified/Requested Needs

Based on the information collected from public outreach, discussions with BAT leadership, study of industry best practices, and prior plans, a list of identified needs was developed. Needs are described in this section by category (Table 17 through Table 23):

- Service
- Capital
- Performance
- Policy
- Coordination
- Studies

- Other

Several needs identified in the 2015 CRTP have already been fulfilled. These needs are denoted with an asterisk.

The needs directly inform the development of recommendations listed in Chapter 9 and include ID numbers to show a clear direct line between the source of the need and the recommendation that responds to it. Importantly, some needs may need to be prioritized depending on how the transit market recovers from the COVID-19 pandemic, which is considered in Chapter 9.

8.3.1 Service Needs/Requests

Several specific service-related needs were identified through public outreach and prior plans (Table 17). These range from requests for service from the public to serve specific regional destinations to more general needs such as running service on Sundays or extending hours.

Table 17. Service Needs/Requests

ID	Need/Request	Sources	Notes
1	Preserve existing service.	- Public Outreach - Discussions with BAT Leadership	Survey results show that BAT's customers and the community at large think BAT provides a valuable service to the Brockton area. Overall, BAT customers are pleased with the level of service provided and appreciate BAT's efforts to reduce headways.
2	Additional bus stops in Easton including a route running down Route 138 to Route 106 and/or Five Corners.	- Public Outreach - BAT CRTP	This need is included in the Brockton-Taunton Bus Route Feasibility Study. Could potentially be served as a part of a route deviation or adjustment.
3	Re-introducing the Boundary Street stop on Route 10*.	Public Outreach	Route 10 and Route 11 have been combined; the process of making that change permanent should include evaluation of impacts.
4	Connection to the GATRA system in either Raynham, Taunton, or the Brockton Veteran's Administration using demand response, microtransit, or other modal option.	- Public Outreach - BAT CRTP - OCPC Human Service Transportation Plan - OCPC Long Range Transportation Plan - Discussions with BAT Leadership	There are currently no fixed route connections between GATRA and BAT. A feasibility study is being conducted by the OCPC as of the drafting of this plan.
5	Add Sunday service to Stoughton*.	- Public Outreach - OCPC Long Range Transportation Plan	BAT has implemented service to Stoughton.

ID Need/Request	Sources	Notes
6 Sunday morning service citywide in Brockton.	Public Outreach	BAT had planned to implement Sunday service that had to be delayed due to the COVID-19 pandemic.
7 Explore the option of partnering with MBTA to provide shared service between the BAT Centre and Braintree or Quincy Center Red Line Stations.	- Public Outreach (Survey and Focus Groups) - Discussions with BAT Leadership	Due to changed demand resulting from the COVID-19 pandemic there may be new opportunities for partnership between BAT and MBTA on serving the connection between the BAT service area and the MBTA rapid transit system.
8 Improve evening service at Brockton High School by relocating the bus stop to the front of the building.	Public Outreach (Focus Group)	Route 3 currently runs nearby to Brockton High School though there are outstanding questions about the feasibility of running service directly to the High School.
9 Increase bus frequency citywide.	- Public Outreach - BAT CRTP - Potential Impacts of Ride-Hailing on the Brockton Area Transit Authority (BAT) - OCPC Long Range Transportation Plan	BAT had planned to increase pulse frequency, but the pandemic required delay of implementation.
10 Improve customer experience on buses and near bus stops.	Public Outreach (Survey and Focus Groups)	Shelters are being added across the City. There is also a new mobile app integrated with ticketing, which is contributing to an improved customer experience.

ID	Need/Request	Sources	Notes
11	Improve the customer experience through expansion of one-seat ride service.	- Public Outreach - BAT CRTP - OCPC Human Service Transportation Plan - Potential Impacts of Ride-Hailing on the Brockton Area Transit Authority (BAT) - OCPC Long Range Transportation Plan	Currently the BAT system is set up as a “pulse” where buses converge at the Centre on the same time interval and then, for those traveling to destinations beyond walking distance from the Centre, customers complete their trip via a transfer.
12	Evaluate service to Massasoit Community College.	- Public Outreach (Focus Group) - OCPC Human Service Transportation Plan - BAT CRTP	This will be reviewed further with OCPC.
13	Additional service needs on Route 18 Corridor.	Discussions with BAT	This corridor is challenging to serve due to size of the area and relatively low density.
14	Potential Uber/Lyft partnerships: Avon/Rockland; extended service hours; enhanced DIAL-A-BAT service; strategically deployed microtransit services.	Uber/Lyft Study	BAT commissioned a study of ride-hailing services in their region in 2019.
15	Fill in service gaps with demand response service or microtransit.	- Discussions with BAT Leadership - Potential Impacts of Ride-Hailing on the Brockton Area Transit Authority (BAT) - Brockton Master Plan - RTA Task Force	Service to Rockland is a good example of an area where flexible public transportation is more appropriate than traditional fixed route.

**Need/Request already fulfilled or completed*

8.3.2 Capital Needs/Requests

Several needs were identified related to new technology or other capital investments that BAT should consider (Table 18). A recent capital investment was the implementation of APCs and CAD/AVLs on all of BAT's buses, which allows for new capabilities in customer service and data collection. There is opportunity to build on that investment through additional mobile capabilities that enhance the customer experience.

Table 18. Capital Needs/Requests

ID	Need/Request	Sources	Notes
16	Tie BAT's new APC and CAD/AVL system to mobile fare payment, allowing riders to track bus arrival times and purchase fares in an integrated application.	- Discussions with BAT Leadership - RTA Task Force	BAT will implement an APC system on fixed route buses in 2021. BAT is in the process of updating CAD/AVL technologies and implemented the MassDOT BusPlus Mobile Fare Payment App in 2020.
17	Explore an easy-to-use online and/or mobile scheduling system for DIAL-A-BAT using technology that improves the customer experience.	RTA Task Force Report	This is planned for FY 2022.
18	Review options for electric bus implementation in coordination with regional and statewide studies and capital planning.	RTA Task Force Report	BAT has programmed electric vehicle infrastructure into its capital plan.
19	Seek funding to install gasoline pumps at the BAT maintenance garage*.	BAT CRTP	This has been completed.

**Need/Request already fulfilled or completed*

8.3.3 Performance Needs/Requests

Several needs were identified through workshops and discussions with BAT leadership as well as research on industry best practices related to performance. The recent APC and CAD/AVL acquisition opens up much opportunity for enhanced performance tracking, which can be reported publicly on its improved website.

Table 19. Performance Needs/Requests

ID	Need/Request	Sources	Notes
20	Maintain focus on continuous improvement of customer service.	Public Outreach	BAT conducts a quarterly “Mystery Rider” program for quality control.
21	Use newly acquired APC and CAD/AVL technology and acquire additional technology (if needed) in effort to expand data analysis capabilities.	- Discussions with BAT Leadership - RTA Task Force	BAT will have APC/CAD/AVL equipment functional by 2022, possibly by 2021.
22	Expand performance data availability through publishing information in interactive platforms (e.g., Tableau) and/or as raw data on BAT's website for use by public.	RTA Task Force	BAT will have expanded data reporting capabilities through the implementation of APC/CAD/AVL systems. BAT also updated its website in 2020 to improve the user interface.

8.3.4 Policy Needs/Requests

Two policy needs were identified, one related to fares and the other to policies on how performance data inform agency operating decisions. With the adoption of BAT's Fare Equity Policy and its new Fare Review Policy, BAT has gone above-and-beyond federal requirements for ensuring equitable fare policies. BAT also remains committed to a formalized process by which performance data are used to drive operations decisions in an uncertain transit market.

Table 20. Policy Needs/Requests

ID	Need/Request	Sources	Notes
23	Explore more equitable fare policies.	Public Outreach (Survey and Focus Groups)	This is ongoing and remains a long-standing priority. BAT goes above-and-beyond federal Title VI requirements through its Fare Equity Policy, which includes public outreach and data analysis as a part of its periodic fare reviews.
24	Create actionable guidelines to accompany performance monitoring that inform service planning decisions when ridership stabilizes.	RTA Task Force	Discussed in greater detail in Chapter 6.

**Need already fulfilled/completed*

8.3.5 Coordination Needs/Requests

BAT sits at the nexus of two public transportation agencies operating multiple modes, including MBTA commuter rail (including soon-to-be opened South Coast Rail), subway transit, and fixed route bus; and GATRA service. This underscores the need to frequently coordinate with other transit operators to ensure a seamless customer experience.

Table 21. Coordination Needs/Requests

ID	Need/Request	Sources	Notes
25	Work with MBTA to align MBTA Commuter Rail and BAT service*.	- Public Outreach - Discussions with BAT Leadership - RTA Task Force	BAT and MBTA have ongoing discussions on coordinating their services in the context of a rapidly shifting transit market due to the COVID-19 pandemic.
26	Continue collaboration with OCPC and municipalities to improve walkability in the region*.	- Public Outreach - Discussions with BAT Leadership - Brockton Master Plan - RTA Task Force	BAT's Administrator serves as the Vice-Chair of the Old Colony Metropolitan Planning Organization. BAT also serves on the Joint Transportation Committee at OCPC, which has the participation of Departments of Public Works (DPWs) and other regional partners. BAT also participates in Road Safety Audits with MassDOT and the Site Plan Review Committee for Brockton. BAT is a key partner with the City of Brockton for any projects around BAT facilities.
27	Work with municipalities, OCPC, and MassDOT to redesign streets and implement Transit Signal Priority to better serve transit operations where appropriate*.	- Discussions with BAT Leadership - Brockton Master Plan - RTA Task Force	BAT participates on the Joint Transportation Committee at OCPC, which also has the participation of DPWs and other regional partners. BAT also participates in Road Safety Audits with MassDOT and the Site Plan Review Committee for Brockton. BAT is a key partner with the City of Brockton for any projects around BAT facilities.

ID	Need/Request	Sources	Notes
28	Work closely with member communities to assess emerging innovative service delivery models as a means to offer efficient and effective transit service to suburban neighborhoods and smaller commercial centers.	Discussions with BAT Leadership	BAT is actively investigating new technologies and service delivery models, such as microtransit.
29	Encourage private sector participation in public transit operations.	- OCPC Long Range Transportation Plan - Potential Impacts of Ride-Hailing on the Brockton Area Transit Authority - RTA Task Force	BAT undertook a 2019 study looking at ride hailing companies that considered potential partnerships.
30	Expand the employment pool of drivers or mechanics from regional residents.	BAT CRTP	BAT had a partnership with Southeastern Regional Vocational School in the past to help train and recruit mechanics.
31	Work with MBTA to track multileg journeys that use both systems, identifying new service opportunities for BAT and creating baselines for joint ridership prior to the start of South Coast Rail service.	RTA Task Force	BAT completed a 2020 rider survey on Route 12, which provides service between Brockton and the MBTA Red Line Station Ashmont.
32	Continue to work with MBTA to develop options for customers to move more seamlessly between the systems.	- Industry best practices - RTA Task Force	BAT and MBTA are in regular communication and collaborate on joint projects.
33	Engage with local developers, municipalities, employers, and planners to demonstrate how transit can enhance value, particularly with TOD*.	RTA Task Force Report	BAT serves on the City of Brockton's Site Review Board, as well as the Board for the Metro South Chamber of Commerce and the Transportation Committee of the South Shore Chamber of Commerce.

ID	Need/Request	Sources	Notes
34	Collaborate with local employers, municipalities, colleges and universities, health care providers, and any other regional partners that can assist in identifying mobility needs and discuss prioritizing those needs and/or providing financial support*.	RTA Task Force Report	BAT's Administrator serves as Vice Chair of the Metropolitan Planning Organization and chairs the Regional Coordinating Council, as well as hosting regular meetings of area COAs.
35	Continue to support Brockton's efforts to promote development.	Discussions with BAT Leadership	The City of Brockton and BAT work closely to ensure that BAT's service supports the City's ongoing efforts to boost TOD.

**Need already fulfilled/completed*

8.3.6 Study Needs/Requests

Prior studies and discussions with BAT leadership suggested the need for further study specifically focusing on the conversion of some fixed route service in hard-to-serve areas into microtransit or other on-demand service. There is also the potential of adding route deviations to current routes to improve service in the areas denoted below.

Table 22. Study Needs/Requests

ID	Need/Request	Sources	Notes
36	Study feasibility of converting Mini-Maller route to microtransit or fold key destinations into a different existing route.	- Discussions with BAT Leadership - Potential Impacts of Ride-Hailing on the Brockton Area Transit Authority (BAT) - Brockton Master Plan - RTA Task Force	As of October 2020 the Mini-Maller remains suspended as a result of COVID-19-related service changes.
37	Look at the feasibility of further expanding service in Avon and Rockland to meet demands of large employment centers.	- Discussions with BAT Leadership - Potential Impacts of Ride-Hailing on the Brockton Area Transit Authority (BAT)	BAT received a grant for Rockland service. The service will be launched as soon as the COVID-19 pandemic permits.

**Need already fulfilled/completed*

8.3.7 Other Needs/Requests

Two needs did not fit into the categories above, including mobility management and safety. The safety needs in particular are a pressing topic in the context of the COVID-19 pandemic and one that BAT is deeply committed to through enforcement of mask policy, regular sanitation and cleaning protocols, and other activities as described in state and federal guidelines.

Table 23. Other Needs/Requests

ID	Need/Request	Sources	Notes
38	Mobility Management: Expand opportunities for demand response users to use the fixed route system for most trips.	BAT CRTP	Demand response ridership has been stable for the past several years.
39	Safety: Continue to implement COVID-19-related measures such as cleaning, requiring masks, and reducing overcrowding on buses*.	Public Outreach	BAT currently enforces mask use, social distancing, and enhanced cleaning and sanitation protocols in compliance with state and federal guidelines.

**Need already fulfilled/completed*

9. Recommendations

The recommendations for this 5-year plan are based on a holistic process that takes into account historical operational data, stakeholder input, industry best practices, RTA priorities, and Commonwealth-wide goals. The strategy for generating these recommendations embraces the uncertainty introduced by the COVID-19 pandemic and considers a spectrum of recommendations that depend 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 residents of the BAT service area.

9.1 Guiding Principles

As BAT 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 BAT's needs are analyzed and recommendations are made.

- **Safety:** The pandemic has underscored the importance of safety as the number-one priority for BAT. 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, enforcement of mask and social-distancing mandates, and removal of benches and other amenities that may encourage congregation at transit facilities.
- **Top-Notch Customer Experience:** A primary guiding principle is the commitment to 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 BAT 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 minorities or those living in low-income households. Equity considerations are codified in BAT'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 that BAT has responsibility to is the taxpayer, and as such BAT 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:** BAT 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 BAT, 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 BAT's decisions. This could be service to new 40R (Smart Growth) developments built on infill lots in Brockton or new commercial properties along Route 3.
- **Data-Driven Performance-Focused Decision-Making:** BAT's service and fiscal decisions should be made within a data-driven and performance-focused framework that is the foundation for management of the Authority and provides accountability and transparency.

9.2 Performance Monitoring

As outlined in Chapter 6, performance monitoring, analysis, and adjustments are the key strategies to navigate the extreme uncertainty facing BAT in the context of this 5-year plan. Those steps will also be key in the future once the public health crisis of the pandemic has passed and we have arrived at a "new normal."

Since the pandemic began, ridership has declined sharply across the BAT system, and it is unclear which routes and modes will bounce back more quickly and which will be compromised for a longer period. Performance monitoring will help BAT assess the answers to those questions and respond promptly with service plan adjustments as more facts are learned.

Performance monitoring depends on three key ingredients that underpin the entire approach of this plan:

- **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 APCs, or are drawn from manual observations or samples. Validation of the information collected is a crucial aspect of data-driven decision making.
- **Data Analysis:** More often than not, transit operators are overwhelmed with the 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 for distilling the information into concise decision-driving reports.
- **Decision-making Processes:** The final essential component of using data to drive decisions is developing the process by which key decision-making bodies, such as the Administrator, senior staff, and/or the oversight board, are presented with information for making choices as well as the criteria and policy bases on which they will make those choices. This can include regular reviews of summary reports and/or meetings to review key performance metrics with responsible staff.

Each step of the process for a data-driven decision-making framework is necessary but, in and of itself, insufficient to confront the volatility facing the transit industry. Taken together, they provide a powerful framework for navigating the uncertainty of the coming months and years. The recommendations provided in Chapter 6, and reiterated below, underscore this essential strategy BAT is utilizing to ensure the best possible decisions are made in the context of the COVID-19 pandemic.

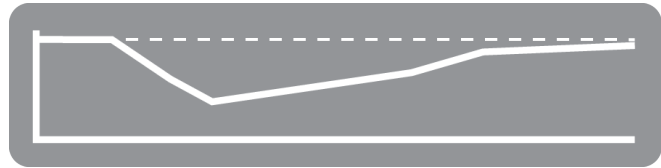
9.3 Ridership Scenarios

The recommendations in this plan are structured around the uncertainty of how ridership could rebound in the BAT service area. While other considerations, such as funding availability, are important when understanding what the future might hold, this plan's approach focuses on ridership demand as the primary driving factor for these future scenarios.

In order to better understand how ridership might change in the coming months and years, BAT used three qualitative ridership scenarios to sketch out the future of transit demand in potential futures through 2025. These include a high-ridership scenario (a return to 86 percent of pre-pandemic ridership), a medium-ridership scenario (between 60 to 85 percent of pre-pandemic ridership), and a low-ridership scenario (below 60 percent of pre-pandemic ridership). These are explored more below.

9.3.1 High-Ridership Scenario

In the high-ridership scenario, this plan illustrates what the world could look like when BAT's ridership returns to 86 percent of pre-pandemic levels. Even though system ridership has returned to roughly 2019 levels, some specific markets might continue to be impacted. The conditions expected to have occurred in a high-ridership scenario are:



- There is an effective vaccine developed and widely available around the country. Vaccination rates exceed 80 percent of the population, achieving “herd immunity.”
- There is continued federal support for small businesses and state and local governments to reduce layoffs resulting from the pandemic and prevent further workforce reductions due to lagging consumer spending and tax receipts.
- Major regional events restart with strong attendance, and local businesses are able to reopen with minimal permanent closures resulting from the pandemic.

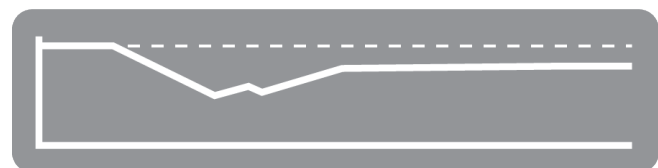
As a result of this successful vaccination development and distribution effort, and ongoing federal support, ridership is expected to return to levels near those seen in 2019. Specific aspects of this return of ridership demand include the following:

- Major regional events drive strong demand for transit due to traffic and parking constraints.
- Restaurants, cafés, and other small businesses open with strong sales as people return in record numbers after months of social distancing and deferred travel plans.
- High schools and higher education institutions resume full in-person education, though at-home learning may be somewhat more common than pre-pandemic.
- Unemployment drops to levels seen pre-pandemic, with people traveling to work on transit, in particular service-sector workers who depend on public transportation for mobility.

Importantly, the high-ridership scenario does not envision ridership rising above where it was pre-pandemic, but rather envisions a return to ridership at roughly the same levels seen in 2019.

9.3.2 Medium-Ridership Scenario

The medium-ridership scenario imagines a future in which ridership recovers somewhat from its lowest level in 2020 but ranges between 60 and 85 percent of pre-pandemic ridership. This scenario would envision the following conditions:



- The COVID-19 vaccine is slow to be developed, has limited effectiveness, has distribution problems, or has low-uptake due to public skepticism about its safety. While many people would be vaccinated, this lack of widespread immunization means that many are still reluctant to be in public spaces for fear of infection.
- Federal support for small businesses and laid off workers is modest, and state and local governments are forced to reduce services and lay off staff due to significant funding shortfalls.
- Some economic activity returns as portions of the population are vaccinated and return to pre-pandemic activities, though unemployment still remains substantially higher than in 2019.

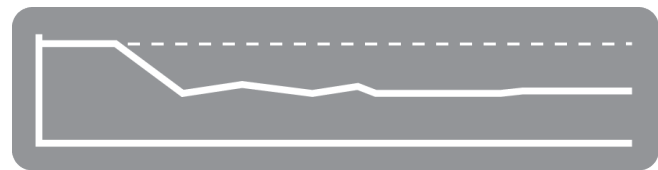
As a result of this middling performance on vaccination and economic support, the transit market remains depressed. Some specific transit market impacts are:

- Offices both in the BAT service area and in the Boston core see higher occupancy, though working from home part-time is still a common schedule for many white collar workers.
- High school and higher education classes resume mostly in person, though there is more flexibility for at home learning, particularly for at-risk students with pre-existing medical conditions.
- Those riders most sensitive to the risks of the pandemic (seniors, people with pre-existing conditions) tend to use demand response transit more often, which has higher fares than fixed route transit. The perceived risk of riding and prohibitive cost of fares reduce overall demand.
- Unemployment remains somewhat high and travel to service-sector places of work is depressed, reducing overall ridership.

These factors produce a scenario where there is some rebound from the lows of spring 2020 but keep overall system ridership below pre-pandemic numbers.

9.3.3 Low-Ridership Scenario

The low-ridership scenario imagines a future where the transit market is permanently compromised and transit demand has been structurally impacted, resulting in an indefinite plateau at or near ridership levels seen during the worst of the pandemic. There are some seasonal fluctuations, but overall ridership remains below 60 percent of pre-pandemic levels. This scenario would envision the following conditions:



- The vaccine development effort proves to be more challenging than anyone thought, with vaccine trials showing limited or no effectiveness, or the need for annual vaccinations similar to flu shots.
- There is a strong shift in housing demand from urban areas (e.g., Boston) to auto-oriented suburban housing in the BAT region as well as a move toward part- or full-time telework for computer-based professions.
- High schools and higher education continue a hybrid educational model, with significant portions of the student body continuing to learn from home. Community colleges in particular see a strong shift toward all-online learning.

- The national economy enters a period of extreme volatility, with unemployment rates spiking due to disruptions from recurring lockdown and social distancing orders.
- The federal government is stuck in gridlock and is unable to intervene effectively in addressing the ongoing economic crisis. Plummeting state and local revenues force layoffs, which exacerbates the economic turbulence.

This poor outcome on both the economic and public health fronts could impact the transit market in the following ways:

- Local business closures due to poor economic conditions and the ongoing cancellation or underattended public events severely depress ridership demand.
- Travel demand to educational destinations is minimal due to the severe impacts of the pandemic.
- The severity of infection rates of the disease results in an ongoing hesitation to be in any public space, including transit vehicles, which diverts people to alternatives such as carpooling, active transportation, or lower-capacity shared rides (e.g., Uber/Lyft).
- The movement of people from more transit-oriented pre-war development into auto-oriented suburbs further erodes the market for fixed route transit and expands the need for demand response service.
- The ongoing presence of high infection rates and the inability of the federal government to address the economic fallout result in volatility in the transit market, with ridership on average staying below 60 percent of pre-pandemic levels.

9.4 Key Recommendations

The needs and public comment requests outlined in Chapter 8 drove the development of recommendations presented below. The recommendations in this section are broken down by service, capital, policy, performance, coordination, planning, and other needs. If a recommendation spans two or more categories, it is denoted with an icon to indicate that it is cross listed (Table 24).

Table 24. Recommendations Categories

Category	Icon	Description
Service		Service recommendations deal with specific routing or other operational considerations of day-to-day provision of service.
Capital		Capital recommendations deal with the purchase or management of equipment, rolling stock, facilities, technology, or other assets.
Policy		Policy recommendations deal with practices and standards adopted by the transit agency to guide how the organization functions.
Performance		Performance recommendations deal with the systems and protocols for monitoring agency operations.
Coordination		Coordination recommendations deal with communications between the transit agency and other regional and statewide partners.

Category	Icon	Description
Studies		Studies recommendations deal with needs that require further examination in order to make an informed decision.
Other		Other recommendations deal with issues not handled by the other categories.

This breakdown of recommendations can be used to help inform funding priorities, with BAT using it as a reference document for assembling future grant applications. It also serves to outline the approach that BAT will be taking depending on the level of transit demand (described in the three ridership scenarios above), as well as listing core needs for the Authority.

Importantly, some recommendations respond to “Core Needs,” which exist independent of the level of ridership. These recommendations tend to relate to pre-existing industry trends, such as no-touch mobile ticketing, that should be pursued regardless of whether ridership is at 50 percent of pre-pandemic levels or 100 percent.

Table 25 through Table 31 include the specific needs and requests from Chapter 8 (located in the column “Need ID”) that the recommendation is responding to. This establishes a clear line from the source of the needs (e.g., public comment) to the development of the specific need and the recommendation that responds to that need. Both the complexity of implementing the recommendation and the impact it is projected to have are indicated in the following tables.

9.4.1 Service Recommendations



Service recommendations for BAT center on improving transportation options for residents of the Metro South region. Due to the location of BAT at the nexus of two other public transportation providers, including MBTA (the largest in the Commonwealth), coordination of service plays a key role in the recommendations in Table 25. Some areas could use closer analysis to determine an appropriate level of service based on customer requests and prior planning processes.

Table 25. Service Recommendations

Recommendation	Need ID	Core Need	Low-Ridership Scenario	Medium-Ridership Scenario	High-Ridership Scenario	Complexity of Implementation (Low, Mid-Level, High)	Impact (Low, Mid-Level, High)
Preserve existing service that meets the needs of current customers.	1	X				Low	High
 Incorporate emerging but tested technologies to improve operations, expand communication platforms, enhance all aspects of customer experience, and reduce negative environmental impacts of service provision.	21, 22	X				High	High
 Ensure any changes to service are decided transparently and account for BAT's broad spectrum of workers and customers, regardless of their age, ethnicity, gender, income, language, or physical abilities.	11, 20, 22, 23, 30, 34, 39, 38	X				Mid-Level	High
 Explore running additional service to Easton, potentially as a route deviation or adjustment.	2				X	Mid-Level	Low

Recommendation	Need ID	Core Need	Low-Ridership Scenario	Medium-Ridership Scenario	High-Ridership Scenario	Complexity of Implementation (Low, Mid-Level, High)	Impact (Low, Mid-Level, High)
 Evaluate the combination of Routes 10 and 11 for permanent implementation to ensure that service needs are being met.	3	X				Mid-Level	Mid-Level
 Continue coordination with MBTA on service levels to key transit nodes and transfer points as ridership and service levels change.	7	X				High	High
 Evaluate the logistics, regulatory compliance, and potential market demand for evening service to Brockton High School.	8			X		Mid-Level	(To be evaluated)
 Add Sunday service to Route 14 and evaluate COVID-related service changes for permanent implementation.	5	X				Mid-Level	High
Focus on expansion of customer amenities: Add lights to shelters; increase number of shelters, benches, and on-board amenities; and consider safety and security at all times.	10	X				Mid-Level	Mid-Level
Add Sunday morning service once ridership rebounds to pre-COVID levels.	6	X				High	High
Increase headways to 20- to 25-minute headways.	1	X				High	High

Recommendation	Need ID	Core Need	Low-Ridership Scenario	Medium-Ridership Scenario	High-Ridership Scenario	Complexity of Implementation (Low, Mid-Level, High)	Impact (Low, Mid-Level, High)
Study additional service needs on the Route 18 corridor.	13				X	Low	Low
 Explore implementation of a partnership with a transportation network company (TNC) (Uber/Lyft) in accordance with the recommendations from the Uber/Lyft Study, <i>Potential Impacts of Ride-Hailing on the Brockton Area Transit Authority (BAT)</i> .	14				X	High	Mid-Level
 Explore potential partnership with MBTA to reduce the cost of commuter rail in the short or long term.	31		X			High	High

9.4.2 Capital Recommendations



The capital recommendations (Table 26) focus on new technology as well as opportunities for improvements to the built environment. The implementation of APC and CAD/AVL systems opens a great deal of opportunity for further data collection and analysis, as well as new customer tools such as tracking transit vehicles to anticipate arrival times. There was also need for increased attention paid to pedestrian connectivity and bus stop amenities, which requires coordination with the regional planning agency and municipal governments.

Table 26. Capital Recommendations

	Recommendation	Need ID	Core Need	Low-Ridership Scenario	Medium-Ridership Scenario	High-Ridership Scenario	Complexity of Implementation (Low, Mid-Level, High)	Impact (Low, Mid-Level, High)
	Undertake expanded study of areas that would benefit from microtransit service to fill in mobility gaps.	15, 28, 36, 37				X	Mid-Level	(To be evaluated)
	Tie BAT's new APC and CAD/AVL system to mobile fare payment, allowing riders to track bus arrival times and purchase fares in an integrated application.	16	X				Mid-Level	Mid-Level
	Assess the logistics and cost of implementing an online trip booking system and mobile application for DIAL-A-BAT customers.	17	X				High	Low
	Ensure ongoing exploration of existing technology functionalities for enhanced data collection and analysis, in addition to opportunities for new technology to drive additional capabilities.	21	X				High	Mid-Level

Recommendation	Need ID	Core Need	Low-Ridership Scenario	Medium-Ridership Scenario	High-Ridership Scenario	Complexity of Implementation (Low, Mid-Level, High)	Impact (Low, Mid-Level, High)
 Continue coordination with municipalities and OCPC to improve pedestrian connectivity to transit facilities.	26	X				Low	Mid-Level
Continue meeting regularly with municipalities, MassDOT, and the MPO to ensure street design accommodates transit service where appropriate, including bus pull-outs, dedicated bus lanes, signage, and signal prioritization.	27	X				Low	Mid-Level

9.4.3 Policy Recommendations



There are three policy recommendations for BAT to pursue over the next 5 years, all of which are considered core needs and do not depend on the level of ridership (Table 27). These include continuing BAT's data monitoring practices and formalizing the process by which performance data drives operational decisions, consistent with the recommendations in Chapter 6. BAT should also continue coordination with MBTA to identify opportunities for further fare integration to ensure a seamless customer experience.

Table 27. Policy Recommendations

Recommendation	Need ID	Core Need	Low-Ridership Scenario	Medium-Ridership Scenario	High-Ridership Scenario	Complexity of Implementation (Low, Mid-Level, High)	Impact (Low, Mid-Level, High)
 Ensure any changes to service are decided transparently and account for BAT's broad spectrum of workers and customers, regardless of their age, ethnicity, gender, income, language, or physical abilities.	11, 20, 22, 23, 30, 34, 39, 38	X				Mid-Level	High
 Create route-level performance standards that inform service planning decisions, particularly decisions to be made as ridership stabilizes post-pandemic.	24	X				Mid-Level	Mid-Level
 Explore opportunities for further fare integration between BAT and MBTA (joint transfers, passes, or potential fare subsidy).	32	X				High	Mid-Level

9.4.4 Performance Recommendations



BAT has made a key strategic investment by equipping their fixed route vehicles with APC and CAD/AVL technology, providing the Authority with substantial data collection and analysis capabilities. The performance recommendations hinge on leveraging those capabilities to deepen the ability of BAT to use this data to drive decisions about their operations (Table 28). This strategy is a core need in the face of the unpredictable transit market and policy context in the aftermath of the COVID-19 pandemic.

Table 28. Performance Recommendations

Recommendation	Need ID	Core Need	Low-Ridership Scenario	Medium-Ridership Scenario	High-Ridership Scenario	Complexity of Implementation (Low, Mid-Level, High)	Impact (Low, Mid-Level, High)
 Incorporate emerging but tested technologies to improve operations, expand communication platforms, enhance all aspects of customer experience, and reduce negative environmental impacts of service provision.	21, 22	X				High	High
Continue quarterly mystery rider program along with rigorous review of results.	20	X				Mid-Level	High
 Ensure ongoing exploration of existing technology functionalities for enhanced data collection and analysis, in addition to opportunities for new technology to drive additional capabilities.	21	X				High	High
Enhance BAT's currently published performance measures with newly available data from the APC/CAD/AVL system.	22	X				Low	High

Recommendation		Need ID	Core Need	Low-Ridership Scenario	Medium-Ridership Scenario	High-Ridership Scenario	Complexity of Implementation (Low, Mid-Level, High)	Impact (Low, Mid-Level, High)
	Create route-level performance standards that inform service planning decisions when ridership stabilizes post-pandemic.	24	X				Mid-Level	High

9.4.5 Coordination Recommendations



Because of BAT's geographic position, they are in frequent close communication with both MBTA and GATRA, their neighboring public transportation providers. The recommendations provided in Table 29 focus on specific aspects of coordination to pursue over the next 5 years, such as on fare policy, multimodal service to commuter rail stations, and alignment of schedules to facilitate transfers. Additionally, there are recommendations to pursue partnerships with ride hailing companies (Uber/Lyft) and continued partnership with organizations like the regional Chambers of Commerce.

Table 29. Coordination Recommendations

Recommendation	Need ID	Core Need	Low-Ridership Scenario	Medium-Ridership Scenario	High-Ridership Scenario	Complexity of Implementation (Low, Mid-Level, High)	Impact (Low, Mid-Level, High)
Work closely with the City of Brockton to support its progress toward achieving economic, environmental, and equity goals.	35	X				Mid-Level	High
Work closely with member communities to assess emerging innovative service delivery models as a means to offer efficient and effective transit service to suburban neighborhoods and smaller commercial centers.	28	X				High	High
 Continue coordination with MBTA on service levels to key transit nodes and transfer points as ridership and service levels change.	7	X				High	High
 Further study the BAT service area to reduce the number of transfers between BAT and MBTA.	11			X		High	High
 Explore implementation of a partnership with a TNC (Uber/Lyft) in accordance with the recommendations from the Uber/Lyft Study.	14				X	High	Mid-Level

Recommendation	Need ID	Core Need	Low-Ridership Scenario	Medium-Ridership Scenario	High-Ridership Scenario	Complexity of Implementation (Low, Mid-Level, High)	Impact (Low, Mid-Level, High)
Continue coordination with MBTA to ensure alignment between the commuter rail schedule and BAT service.	25	X				Low	Mid-Level
 Continue coordination with municipalities and OCPC to improve pedestrian connectivity to transit facilities.	26	X				Low	Mid-Level
  Undertake expanded study of areas that would benefit from microtransit service to fill in mobility gaps.	15, 36, 37				X	Mid-Level	(To be evaluated)
 Continue meeting regularly with municipalities, MassDOT, and the MPO to ensure street design accommodates transit service where appropriate, including bus pull-outs, dedicated bus lanes, signage, and signal prioritization.	27	X				Low	Mid-Level
Continue participation on the Metro South Chamber of Commerce, South Shore Chamber of Commerce, and Brockton's MassHire Board of Directors or Committees to ensure strong connection to BAT's business community.	29	X				Low	Mid-Level

Recommendation	Need ID	Core Need	Low-Ridership Scenario	Medium-Ridership Scenario	High-Ridership Scenario	Complexity of Implementation (Low, Mid-Level, High)	Impact (Low, Mid-Level, High)
Expand partnership with BSU to encompass employment, internship, or research opportunities, while also investigating opportunities at other local colleges and high schools.	30, 34	X				High	Mid-Level
Investigate forming partnerships with local vocational schools and other schools specialized in training individuals to become drivers or mechanics.	30	X				High	Mid-Level
 Explore potential partnership with MBTA to reduce the cost of commuter rail in the short or long term.	31		X			High	High
 Explore opportunities for further fare integration between BAT and MBTA (joint transfers, passes, or potential fare subsidy).	32	X				High	Mid-Level

9.4.6 Studies Recommendations

Several recommendations are derived from public comment requests where the overall demand for a specific service enhancement is unclear (Table 30). Overall, there is a need to understand which fixed route services might be better served using a demand response system such as a microtransit platform.



Table 30. Studies Recommendations

	Recommendation	Need ID	Core Need	Low-Ridership Scenario	Medium-Ridership Scenario	High-Ridership Scenario	Complexity of Implementation (Low, Mid-Level, High)	Impact (Low, Mid-Level, High)
	Explore running additional service to Easton, potentially as a route deviation or adjustment.	2				X	Mid-Level	Low
	Evaluate the combination of Routes 10 and 11 for permanent implementation to ensure that service needs are being met.	3	X				Mid-Level	Mid-Level
	Add Sunday service to Route 14 and evaluate COVID-related service changes for permanent implementation.	5	X				Mid-Level	High
	Evaluate the logistics, regulatory compliance, and potential market demand for evening service to Brockton High School.	8			X		Mid-Level	(To be evaluated)
	Further study the BAT service area to reduce the number of transfers between BAT and MBTA.	11			X		High	High
	Study additional service needs on the Route 18 corridor.	13				X	Low	Low

	Recommendation	Need ID	Core Need	Low-Ridership Scenario	Medium-Ridership Scenario	High-Ridership Scenario	Complexity of Implementation (Low, Mid-Level, High)	Impact (Low, Mid-Level, High)
	Undertake expanded study of areas that would benefit from microtransit service to fill in mobility gaps.	15, 36, 37				X	Mid-Level	(To be evaluated)
								
	Continue progress on the Electric Bus Study and review physical plant energy use to minimize carbon footprint.	18	X				Mid-Level	Mid-Level
	Review the outcomes of the OCPC Raynham/Taunton study for implementation.	4					Low	Mid-Level

9.4.7 Other Recommendations



Four recommendations did not fit into the categories outlined above (Table 31). Two of them had to do with safety, recommending a continued focus on safety of customers using the system. This is both safety from crime, such as adding lights to shelters, but also safety from infection, such as strict enforcement of the mask policy on BAT vehicles. BAT already strictly adheres to state and federal guidance regarding COVID-19 safety, such as mask policy enforcement, social distancing on buses, and cleaning/sanitizing protocols of the vehicles and BAT facilities.

Table 31. Other Recommendations

Recommendation	Need ID	Core Need	Low-Ridership Scenario	Medium-Ridership Scenario	High-Ridership Scenario	Complexity of Implementation (Low, Mid-Level, High)	Impact (Low, Mid-Level, High)
Safety: Focus on expansion of customer amenities: Add lights to shelters; increase number of shelters, benches, and on-board amenities; and consider safety and security at all times.	10	X				Mid-Level	Mid-Level
 Environment: Continue progress on the Electric Bus Study and review physical plant energy use to minimize carbon footprint.	18	X				Mid-Level	Mid-Level
Mobility Management: Investigate expanding travel training resources on BAT website.	38	X				Mid-Level	Mid-Level
Safety: Maintain cleaning, sanitizing, mask enforcement, and crowding reduction on vehicles. Stay current with safety best practices regarding minimizing risk from the COVID-19 pandemic.	39	X				Mid-Level	High

Appendix A Illustrative FY 2015–2019 Performance Results and Peer Review

Performance Evaluation

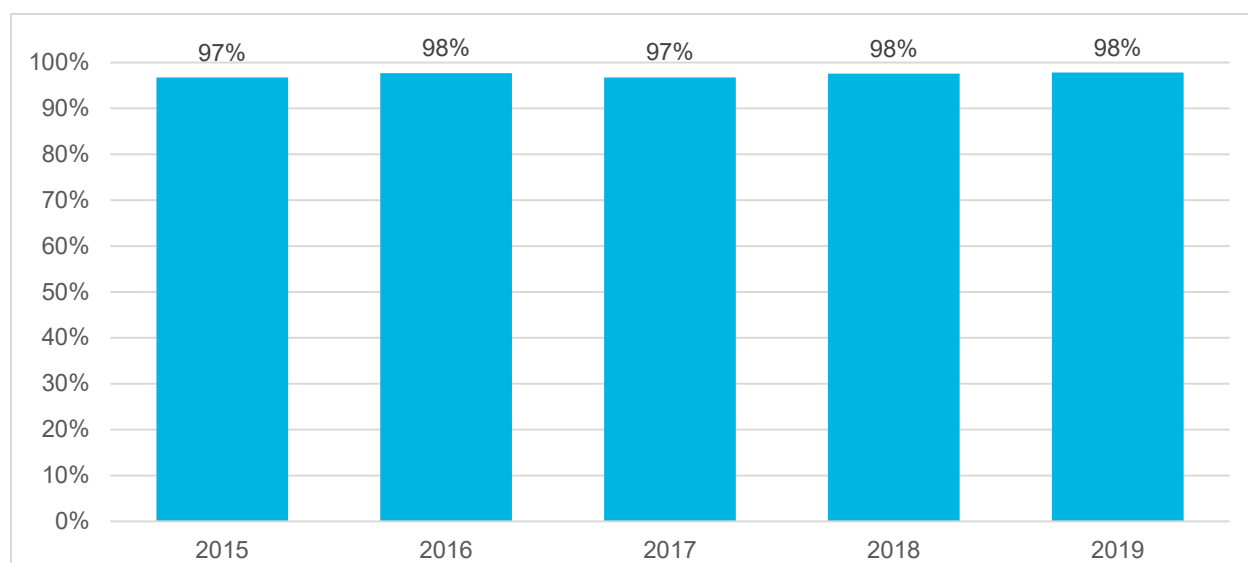
To provide historical context for BAT's performance since the 2015 CRTP, this appendix provides information on BAT's systemwide performance for fixed route and demand response modes for FY 2015 through FY 2019. (FY 2020 results are covered under the Bilateral BAT/MassDOT MOU discussed in Chapter 6.) A brief performance comparison with peer transit systems is also included in this appendix.

Fixed Route Service Performance

On-Time Performance

BAT's average on-time performance for fixed routes remained steady between 97 and 98 percent from FY 2015 to FY 2019 (Figure 52). BAT defines trips that leave the BAT Centre within 5 minutes of scheduled departure as being on-time.

Figure 52. On-Time Performance Fixed Route Average (FY 2015–FY 2019)



Source: BAT

Service Effectiveness

Service effectiveness 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 trips. While poorer performing routes have fewer trips per revenue mile, longer routes, particularly in rural areas, also tend to have smaller numbers.

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

BAT's trips per mile and hour totals for 2019 vary from route to route (Table 32). Overall, the system average exceeds the Massachusetts average but falls below national averages (Table 33).

Table 32. Operating Statistics by Route (FY 2019)

Route	Ridership	Revenue Hours	Revenue Miles	Trips/Mile	Trips/Hour
1 Montello	166,686	5,991	60,049	2.78	27.82
2 Campello	234,278	6,821	57,568	4.07	34.35
3 Belmont Street	217,934	6,821	56,845	3.83	31.95
4 Westgate	281,751	6,821	73,641	3.83	41.31
4A N Warren Avenue	198,744	6,821	73,797	2.69	29.14
5 Brockton Hospital	115,099	6,624	70,354	1.64	17.37
6 Massasoit	153,446	6,624	60,230	2.55	23.16
8 Southfield	170,541	6,821	84,646	2.01	25.00
9 Pearl	63,494	3,299	45,398	1.40	19.24
10 N Quincy	51,857	4,635	57,574	0.90	11.19
11 Cary Hill	41,107	3,888	45,860	0.90	10.57
12 Ashmont	620,606	25,840	415,143	1.49	24.02
13 Mini-Maller	25,450	2,128	28,158	0.90	11.96
14 Stoughton	57,256	4,192	63,589	0.90	13.66
Rockland Flex Service	7,708	2,179	33,540	0.23	3.54
BSU Service	237,783	8,055	79,920	2.98	29.52
Total (Average)	2,643,740	107,559	1,306,312	(2.02)	(24.58)

Source: BAT

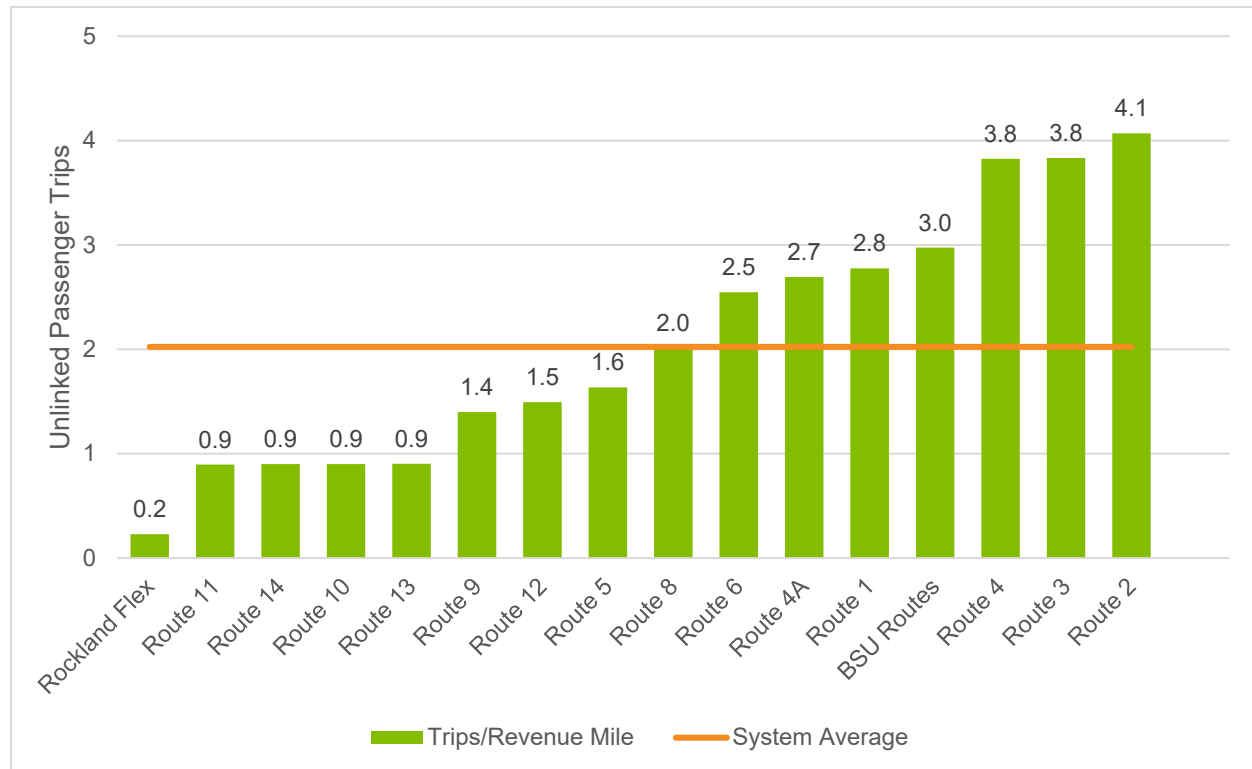
Table 33. Fixed Route Productivity (FY 2019)

Averages	Trips/Mile	Trips/Hour
Fixed Route Average	2.02	24.58
Massachusetts Fixed Route Average*	1.37	18.39
National Fixed Route Average	2.26	27.21

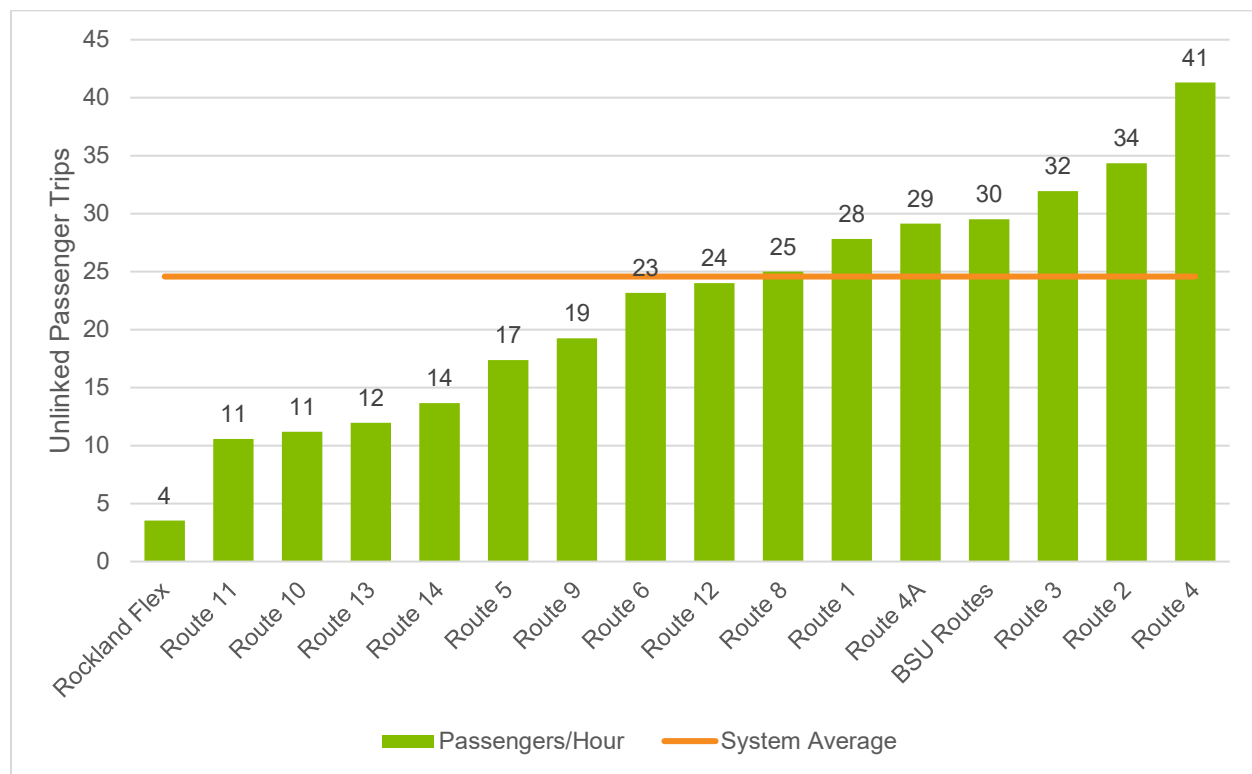
Source: BAT, NTD

*Does not include MBTA.

Routes that travel farther afield with lower ridership (Rockland Flex Service and Route 14) are not as efficient with fewer trips per revenue mile and hour. Some of BAT's higher ridership routes operate particularly efficiently (Figure 53 and Figure 54).

Figure 53. Fixed Route Trips per Revenue Mile by Route (FY 2019)

Source: BAT

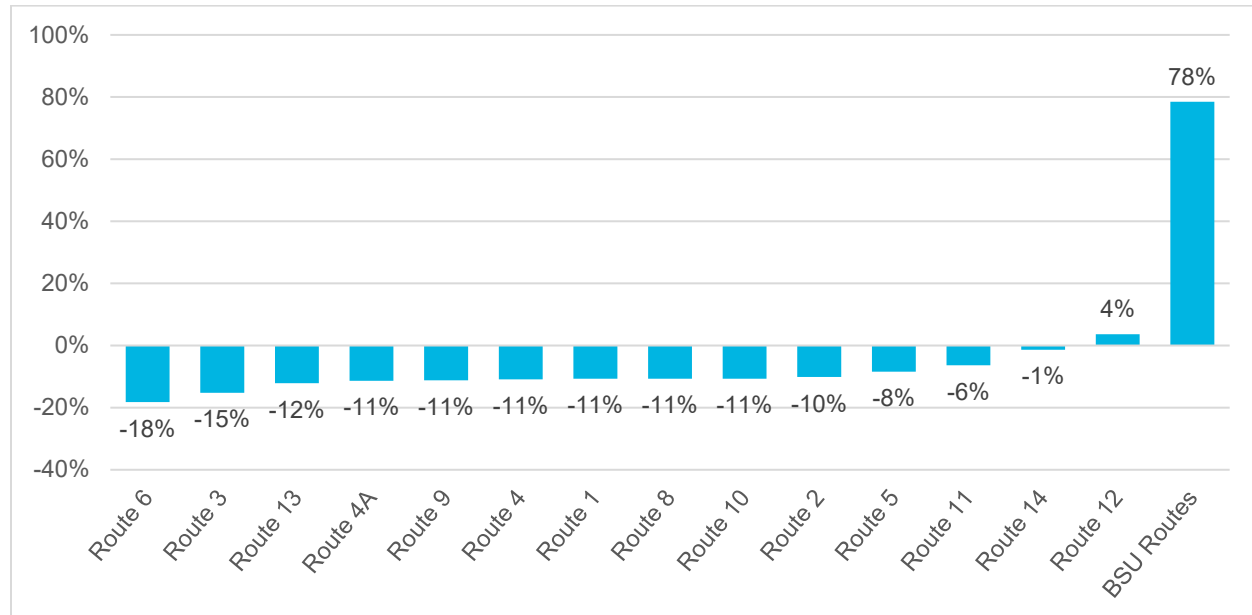
Figure 54. Fixed Route Trips per Revenue Hour by Route (FY 2019)

Source: BAT

Service effectiveness for Route 12 has increased (Figure 55). The decline in effectiveness seen in most routes can be attributed to several challenges trending nationwide, including declining

ridership and increased traffic. Overall, the system is more efficient than the average route in Massachusetts with 62.5 percent of routes exceeding the Commonwealth's trip per mile and trip per hour averages. However, seven of BAT's routes rank below the average whether in terms of passenger per mile or passenger per hour.

Figure 55. Fixed Route Trips per Revenue Mile by Route (Percent Change from FY 2016 to FY 2019)



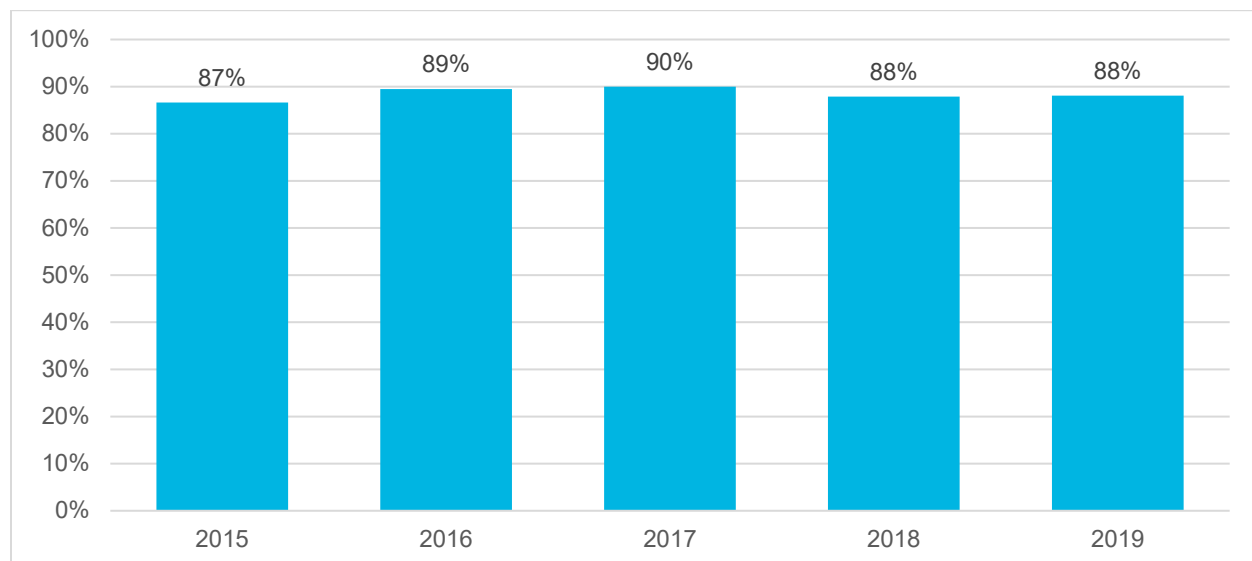
Source: BAT

Demand Response Service Performance

On-Time Performance

BAT's demand response on-time performance has hovered around 88 percent for the past 5 years (Figure 56). BAT classifies trips that arrive within 15 minutes of the scheduled time as being on time.

Figure 56. On-Time Performance – Demand Response (FY 2015–FY 2019)



Source: BAT

Service Effectiveness

BAT's demand response services exceed state and national averages in terms of service effectiveness, despite offering service beyond the federally mandated $\frac{3}{4}$ mile surrounding fixed route service and providing door-to-door service, rather than the more common curb-to-curb service (Table 34). The nationwide average includes many service providers that are operating in different geographies and population densities—external factors that greatly impact service metrics like trips per mile.

Table 34. Demand Response Productivity (FY 2019)

Route	Trips/Mile	Trips/Hour
Demand Response	0.25	2.56
Massachusetts Demand Response Average (FY 2018)*	0.15	2.13
National Demand Response Average (FY 2018)	0.13	1.97

Source: BAT, NTD

*Does not include MBTA, CCRTA, or MART.

Financial Performance

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

BAT, like several other RTAs, is currently not able to track revenue by route; with multiple pass options available at a variety of price points it is challenging to calculate route revenue based on farebox data alone. Transit agencies often rely on complex models to estimate revenue by route. Without these models, precise revenue by route cannot be determined. BAT will be adding APCs to assist with this improvement. Since data by route is important to evaluating the performance of each route, establishing that technical capacity is one of the core recommendations made in this plan.

- **Cost per passenger** is the overall cost to operate a route divided by the number of passengers. A smaller number is preferred and typically correlates to higher ridership per hour or per mile. BAT shows a lower cost per passenger compared to state and national averages.
- **Cost per mile** measures financial efficiency of providing service and will vary based on the average operating speed. A smaller number indicates more financially efficient routes and/or faster operating speeds. BAT shows a higher cost per mile compared to state and national averages; it is important to remember that BAT's service area includes dense urban centers close to Boston, which sees some of the heaviest traffic congestion in the nation.
- **Cost per hour** measures the financial efficiency of providing service. A smaller cost per hour indicates more financially efficient routes and/or faster operating speeds. Similar to cost per mile, BAT exceeds state and national averages, again likely due to its proximity to Boston and dense urban nature of its service area.
- **Farebox recovery** measures the percent of operating cost covered by fares and is an outcome heavily influenced by the ridership productivity of a route against its total operating cost, as well as the fare policy of the system. It is calculated by dividing fare revenue by operating cost. BAT fixed route farebox recovery ratio compares favorably to

state and national averages. BAT's demand response farebox recovery ratio far exceeds both state and national averages, likely due in part to the BAT's HST contracts.

- **Subsidy per passenger** measures how much it costs to operate a route on a "per passenger" basis. It is calculated by subtracting passenger revenue from operating cost and dividing by the total number of passengers. It is the cost to operate after taking into account fare revenue and represents the required operating subsidy to run the service. BAT's subsidy per passenger is lower than or equivalent to state and national averages for both fixed route and demand response.

BAT has made efforts to maintain financial efficiency in the face of rising operating costs. In July 2019, BAT completed a two-phase increase of transit fares and parking rates in the public surface lot and garage they own and operate.

BAT has also continued to receive state and federal grants to offset costs associated with operating the Rockland Flex Service, DIAL-A-BAT Avon/Stoughton/Brockton above-and-beyond ADA services, and MAP vehicles for COA services. BAT also received three state discretionary grants for FY 2020 that will increase service to a nearby urban center and commuter rail station, add trips to BAT's busiest route to Ashmont, create a stronger connection between Brockton and BSU (an area with high transit demand), and expanded frequency of service to Stoughton.

Both BAT's fixed route and demand response systems are close to or exceeding national and state averages in terms of cost effectiveness, despite offering more demand response service than required by the federal government (Table 35 and Table 36). In addition to BAT's proactive approach to funding opportunities, this is likely due to BAT's zone-based fares and funding from HST contracts.

Table 35. Fixed Route Financial Efficiency Compared to Massachusetts and National Averages (FY 2019)

Route	Cost/ Mile	Cost/ Hour	Cost/ Passenger	Subsidy/ Passenger	Farebox Recovery
Fixed Route Average	\$8.96	\$108.84	\$4.43	\$3.42	22.8%
Massachusetts Fixed Route Average*	\$7.24	\$97.20	\$5.92	\$4.47	15.4%
National Fixed Route Average	\$11.15	\$133.99	\$4.92	\$3.83	22.1%

Source: BAT, NTD

*Does not include MBTA.

Table 36. Demand Response Financial Efficiency Compared to Massachusetts and National Averages (FY 2019)

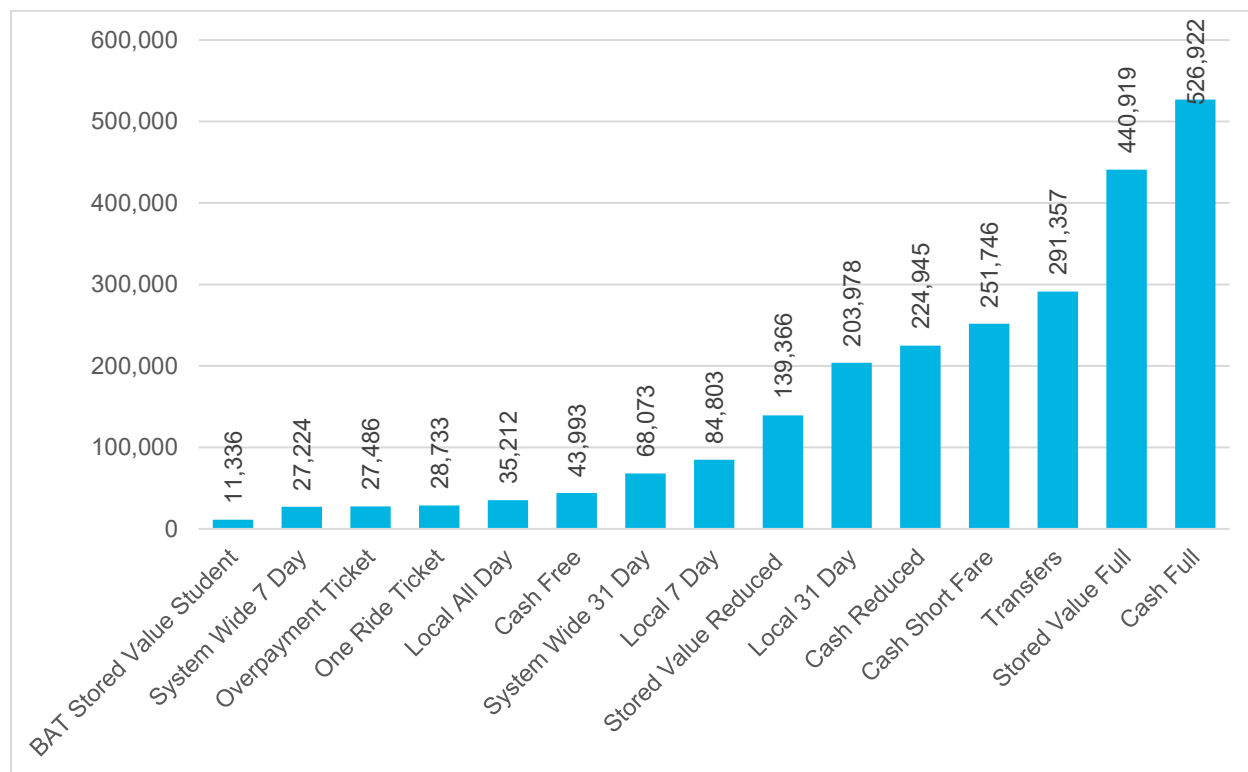
Route	Cost/ Mile	Cost/ Hour	Cost/ Passenger	Subsidy/ Passenger	Farebox Recovery
Demand Response	\$6.23	\$63.45	\$24.80	\$17.58	29.1%
Massachusetts Demand Response Average*	\$4.38	\$59.86	\$28.28	\$25.95	8.3%
National Demand Response Average	\$4.33	\$64.93	\$32.92	\$30.46	7.5%

Source: BAT, NTD

*Does not include MBTA, CCRTA, or MART.

The most popular fare medium in the BAT system is the full cash fare followed by full fare on a CharlieCard. Transfers are also very popular, making up 12 percent of all fares; free transfers are only available at the BAT Centre (Figure 57).

Figure 57. Systemwide Fare Media Usage (FY 2019)



Source: BAT

**Transfers include paper transfers and CharlieCard transfers with the following fare payment levels: full fare, reduced fare, senior, and student.*

Capacity

BAT collects the following data for both their ADA and non-ADA demand response: denied trips, missed trips, no-show, late cancellation, and same day cancellation. The following definitions are used:

- **Denied Trips:** Unable to schedule a qualifying trip within one hour, before or after, the desired departure time.
- **Missed Trips:** Passenger chooses not to go when the transportation arrives outside the ± 15 minute service window.
- **No-Show:** Passenger does not go when the transportation arrives within the ± 15 minute service window.
- **Late Cancellation:** Cancellation is received less than one hour prior to scheduled pickup.
- **Same Day Cancellation:** Cancellation is received same day and one hour or more prior to scheduled pickup.

Data show no capacity issues in the demand response system (Table 37 and Table 38).

With the exception of 1 percent of trips in 2015, all scheduled trips in BAT's system have been operated since 2015 (Figure 58).

Table 37. ADA Demand Response Capacity (FY 2015–FY 2019)

ADA Demand Response Capacity	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
% Denied Trips	0.0%	0.0%	0.0%	0.0%	0.0%
% Missed Trips	0.0%	0.0%	0.0%	0.0%	0.0%
% No-Show	0.3%	0.3%	0.3%	0.4%	0.4%
% Late Cancellation	0.1%	0.1%	0.1%	0.1%	0.1%
% Same Day Cancellation	1.5%	1.6%	1.1%	1.4%	1.5%

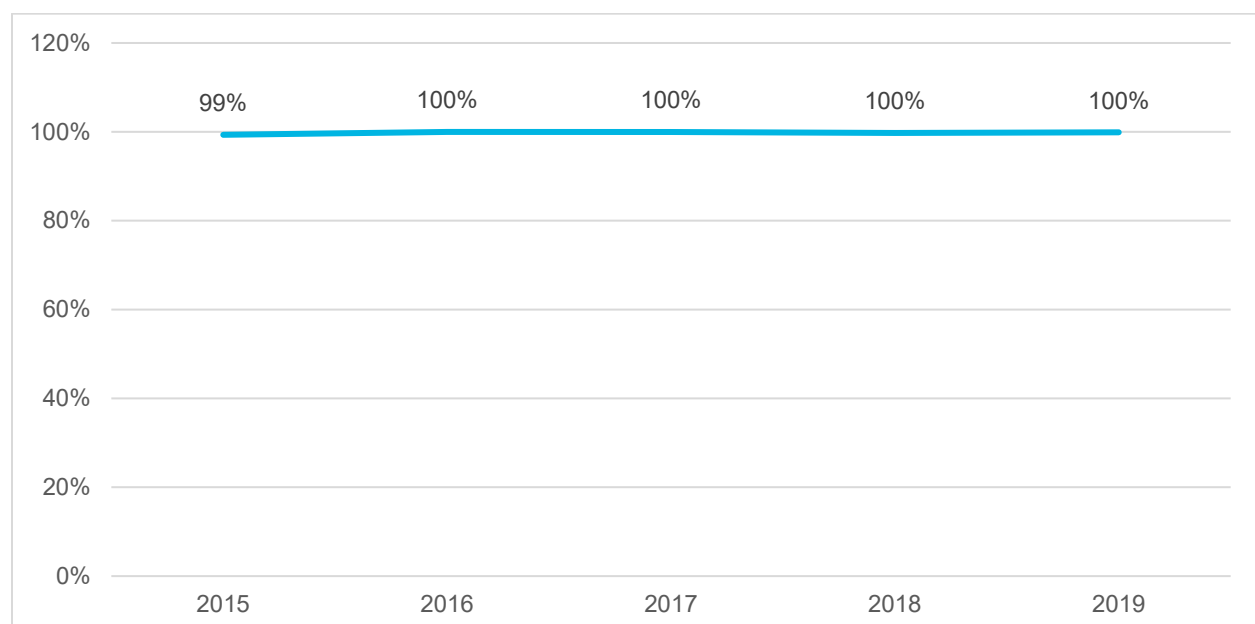
Source: BAT

Table 38. Non-ADA Demand Response Capacity (FY 2015–FY 2019)

Non-ADA Demand Response Capacity	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
% Denied Trips	0.0%	0.0%	0.0%	0.0%	0.0%
% Missed Trips	0.0%	0.0%	0.0%	0.0%	0.0%
% No-Show	1.1%	1.0%	0.8%	0.9%	0.8%
% Late Cancellation	0.3%	0.3%	0.3%	0.2%	0.1%
% Same Day Cancellation	3.6%	2.8%	2.1%	2.3%	2.3%

Source: BAT

Figure 58. Percent Scheduled Trips Operated Systemwide (FY 2015–FY 2019)

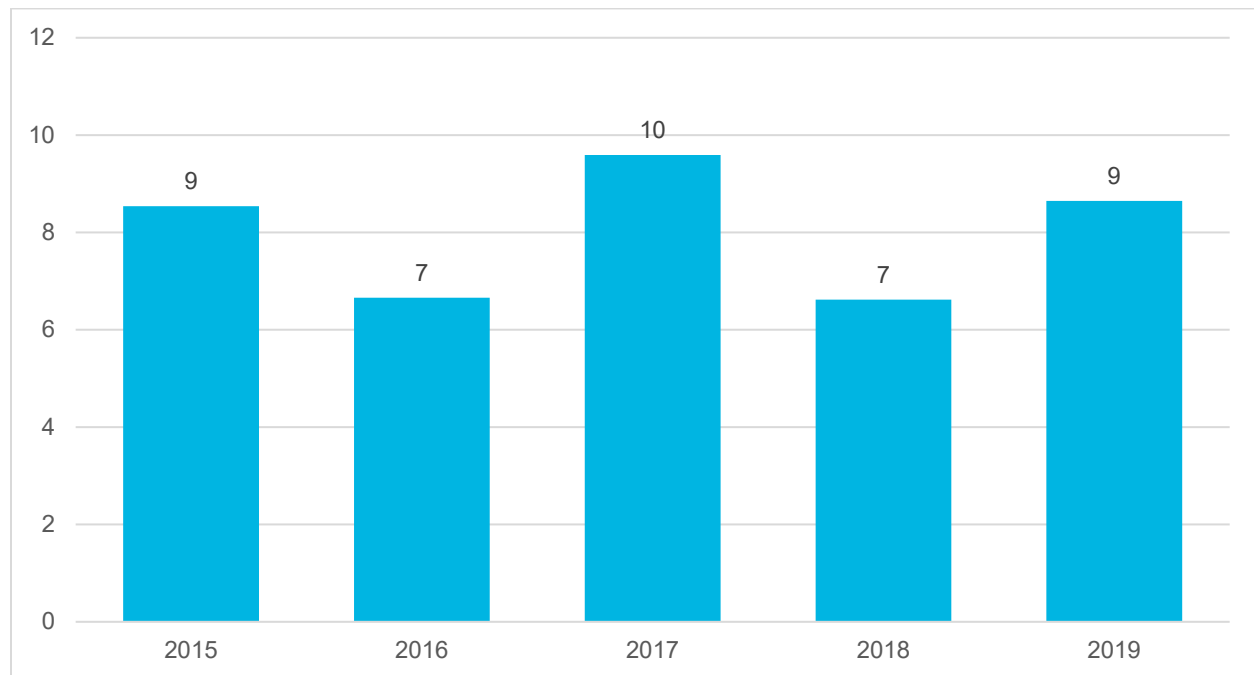


Source: MassDOT

Customer Service

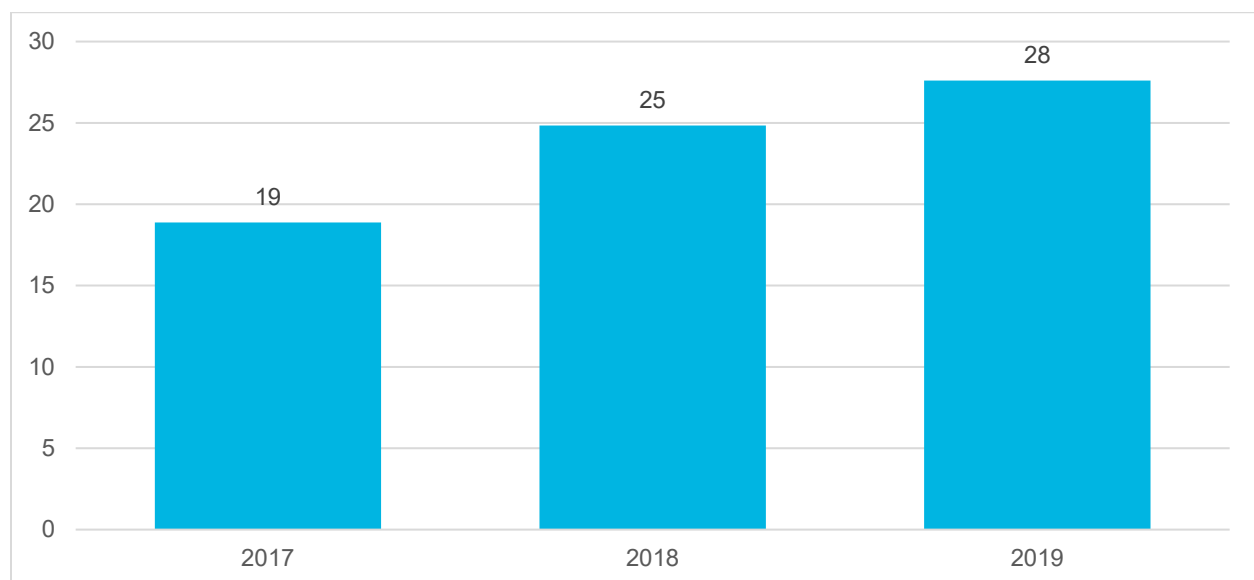
BAT tracks customer complaints for both their fixed route (Figure 59) and demand response services (Figure 60). Both services have very few complaints given the number of passengers served, but the demand response services are seeing an upward trend in complaints, which might warrant further investigation.

Figure 59. Valid Complaints per 100,000 Passenger Trips – Fixed Route (FY 2015–FY 2019)



Source: BAT

Figure 60. Valid Complaints per 100,000 Passenger Trips – Demand Response (FY 2017–FY 2019)



Source: BAT

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 (the original deadline of July 20, 2020, was delayed due to the COVID-19 pandemic). As part of the PTASP, performance targets should be based on safety performance measures (fatalities, injuries, safety events, system reliability) established in FTA's National Public Transportation Safety Plan (NSP).

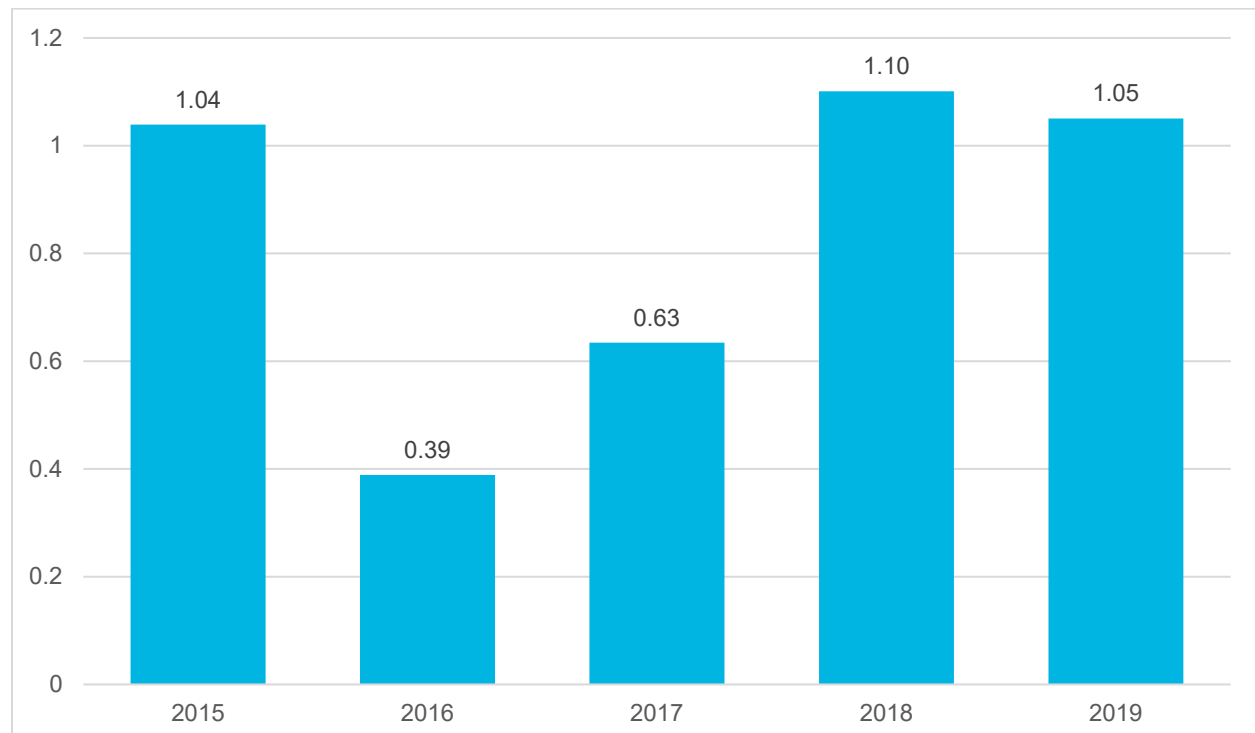
Systemwide, BAT operates a safe system and has had few safety events given the amount of service offered (Figure 61). BAT maintains a state of good repair for their rolling stock; the vehicles are reliable with relatively few major mechanical failures (Table 39). Only 2 percent of BAT's buses are at or past their ULB (Table 41).

Table 39. Safety and Security (FY 2019)

Mode of Service	Fatalities	Injuries	Safety Events	System Reliability (Miles Between Major Mechanical Failures)
Bus Transit Actual	0	27	3	26,145
Bus Transit Target	0	10	6	20,000
Demand Response	0	0	0	46,124
Demand Response Target	0	4	4	30,000

Source: BAT

Figure 61. Preventable Accidents per 100,000 Miles – Fixed Route and Demand Response (FY 2015–FY 2019)



Source: BAT, NTD, MassDOT

Asset Management

BAT's administrative offices, BAT Centre bus hub, surface parking lot, and parking garage are clustered together at the intersection of Court and Commercial Streets in downtown Brockton, across the street from the MBTA Brockton Commuter Rail Station. BAT's maintenance facility is located nearby on Main Street. The BAT Centre was recently renovated; new features include a concession area, renovated customer service area, and bicycle parking outside. The TERM ratings for BAT's facilities are all 4, or Good, with the exception of the maintenance facility whose TERM rating is 3, or Adequate, which means that repairs are needed, but the facility is still functioning as intended (Table 40).

BAT's vehicle fleet is generally in good condition, with only 2 percent of its buses and 5 percent of its vans (which together make up 92 percent of BAT's service fleet) at or exceeding their ULB (Table 41). BAT's cutaway buses are generally older, with 75 percent meeting or exceeding their ULB. BAT's overall spare ratio (including BSU system and Rockland Flex Shuttle) is 18.18 percent. The good overall condition of BAT's fleet is reflected in the infrequency of road calls and declining system maintenance costs (Figure 62 and Figure 63).

BAT conducts a biannual (twice yearly) asset inventory to track the condition of their assets and uses a maintenance software system, Ron Turley Associates, to track parts inventory, vehicle miles, preventive maintenance, fuel consumption, and costs.

Table 40. Facility Inventory Summary

Facility Name	Type	Location	Direct Capital Responsibility	Operator	TERM Rating
BAT Centre	Passenger - Bus transfer center	10 Commercial Street, Brockton, MA	BAT	BAT	4
1442 Main	Combined administrative and maintenance facility	1442 Main Street, Brockton, MA	BAT	BAT	3
Administration	Administration office / Sales office	155 Court Street, Brockton, MA	BAT	BAT	4
Parking Garage	Parking structure	10 Commercial Street, Brockton, MA	BAT	BAT	4

Source: BAT

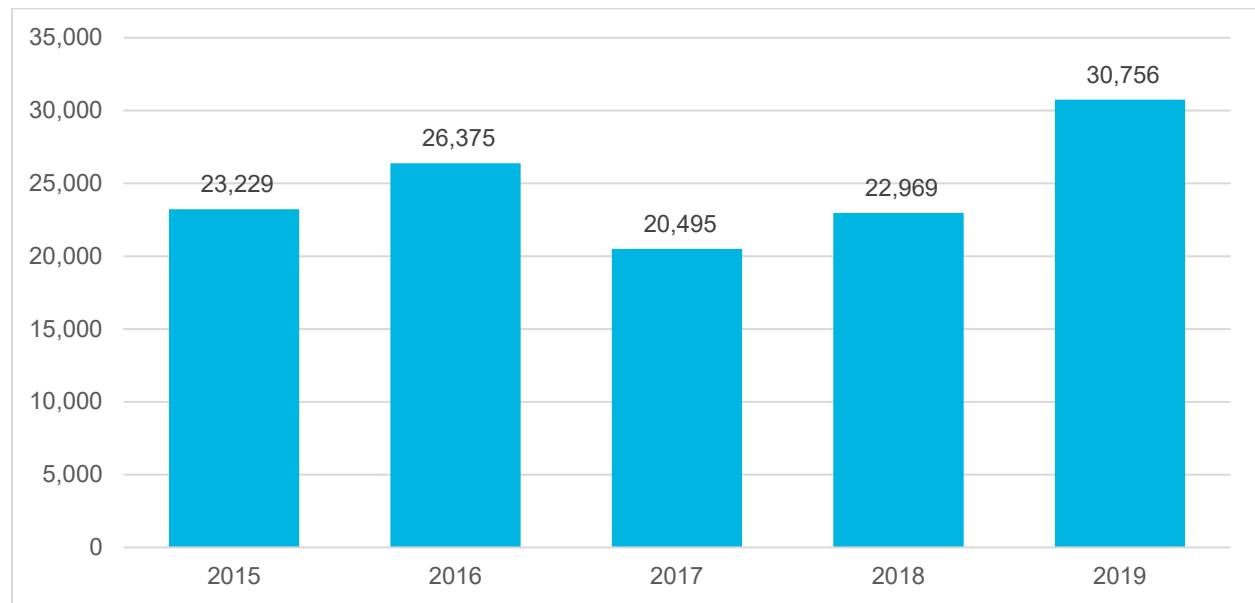
Table 41. Equipment Inventory Summary

Vehicle Type	Total Number	Average Age	Average Mileage	% at or past ULB
Bus	45	5.6	181,318	2%
Cutaway bus	4	9.8	145,626	75%
Van	60	4.4	64,251	5%
Trucks or other rubber tire vehicles	5	6	16,896	100%

Vehicle Type	Total Number	Average Age	Average Mileage	% at or past ULB
Non-Revenue/Service Automobile	6	4	36,455	17%

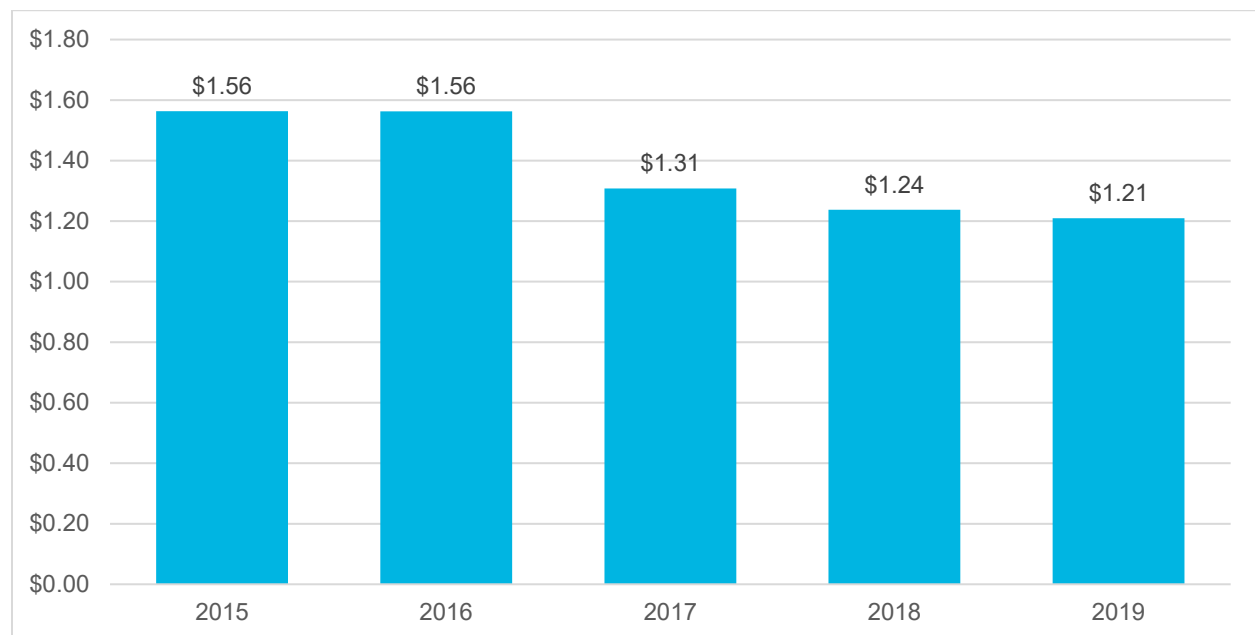
Source: BAT

Figure 62. Miles Between Road Calls – Fixed Route and Demand Response (FY 2015–FY 2019)



Source: BAT, NTD, MassDOT

Figure 63. Maintenance Cost per Revenue Mile – Fixed Route and Demand Response (FY 2015–FY 2019)



Source: BAT, NTD

Peer Evaluation

As part of this plan, a peer review was conducted to gain an understanding of how similar systems operate transit service. This peer review explores five transit services that operate in similar conditions. Although each transit system and routes are unique, the similarities and differences in these five peers provide useful insight into how transit service is provided and operated throughout the country.

Peers were chosen using iNTD²⁰ (Urban Integrated National Transit Database), which assigns transit agencies across the country and their service areas with likeness scores for metrics seen in the charts below. iNTD's overall likeness score was used to narrow down this list of peers to five (Table 42 and Table 43). All data are from FY 2017.

Despite BAT's metro area falling in the middle of its peer group in terms of population and population density, the system has relatively high ridership and offers the most trips per mile and hour of its peers (Table 42, Table 43, Figure 64, Figure 65).

In terms of financial efficiency, BAT's cost per hour is close to the peer group average but has a relatively low cost per passenger (Figure 66 through Figure 68). This is likely due, in part, to the heavy traffic congestion in the Boston metropolitan area. With the exception of Arlington Transit – Arlington County, BAT has the highest farebox recovery ratio of its peer group (Figure 69).

Table 42. Peer Systems Census Data (FY 2017)

System	Town	State	Metro Area Population	Population Density	Population Growth Rate*	Percent Poverty
Howard Transit	Ellicott City	MD	2,277,839	3,177	5.3%	11.1%
Arlington Transit - Arlington County	Arlington	VA	5,042,681	3,815	14.5%	8.3%
Prince George's County Transit	Largo	MD	5,042,681	3,815	14.5%	8.3%
Cobb County Department of Transportation	Marietta	GA	5,057,220	1,912	27.2%	11.8%
Johnson County Kansas, also known as Johnson County Transit	Olathe	KS	1,595,437	2,354	12.4%	10.7%
Brockton Area Transit Authority	Brockton	MA	4,433,253	2,366	7%	10.0%

Source: NTD

*Percent change between 2010 and 2017 (Census and ACS data).

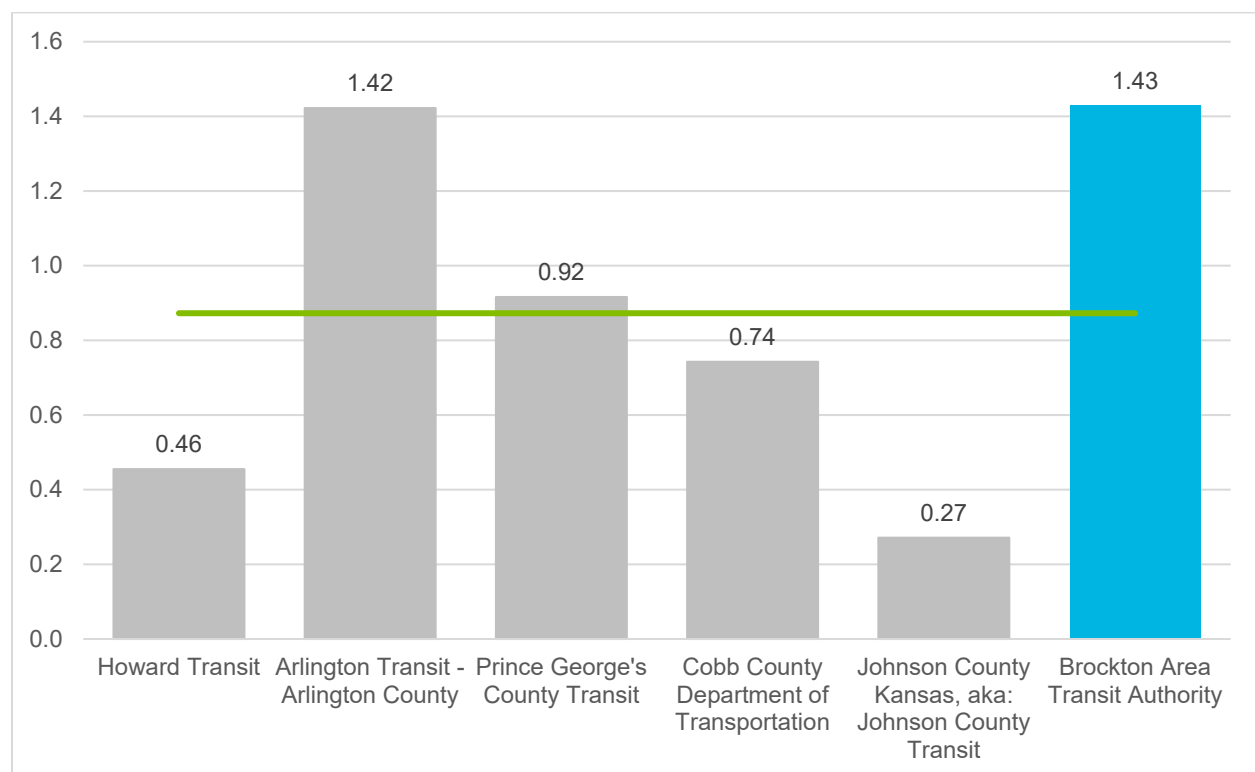
²⁰ For more information on the iNTD process, please visit https://www.ftis.org/urban_iNTD.aspx.

Table 43. Peer Systems Operating Data (FY 2017)

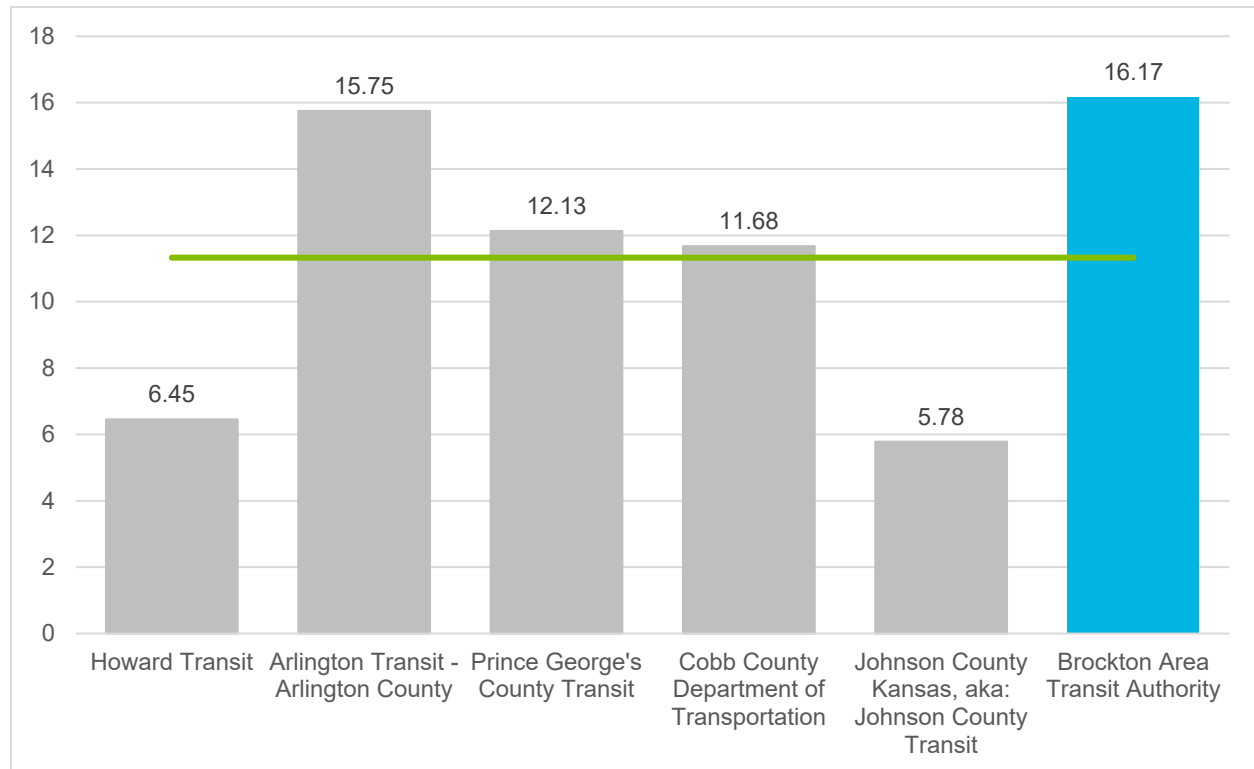
System	Ridership	% Demand Response*	Operating Budget	Revenue Miles Operated	Revenue Hours Operated	Farebox Revenue
Howard Transit	919,519	48%	\$8,815,039	2,020,216	142,472	\$901,390
Arlington Transit - Arlington County	3,507,219	16%	\$17,077,105	2,465,826	222,678	\$4,550,234
Prince George's County Transit	3,073,817	34%	\$30,318,137	3,354,752	253,380	\$1,647,145
Cobb County Department of Transportation	2,735,849	25%	\$22,207,419	3,683,383	234,317	\$5,216,329
Johnson County Kansas, aka: Johnson County Transit	560,702	22%	\$10,351,523	2,065,209	96,948	\$969,829
Brockton Area Transit Authority	2,927,470	49%	\$15,259,454	2,049,493	181,006	\$3,644,548

Source: NTD

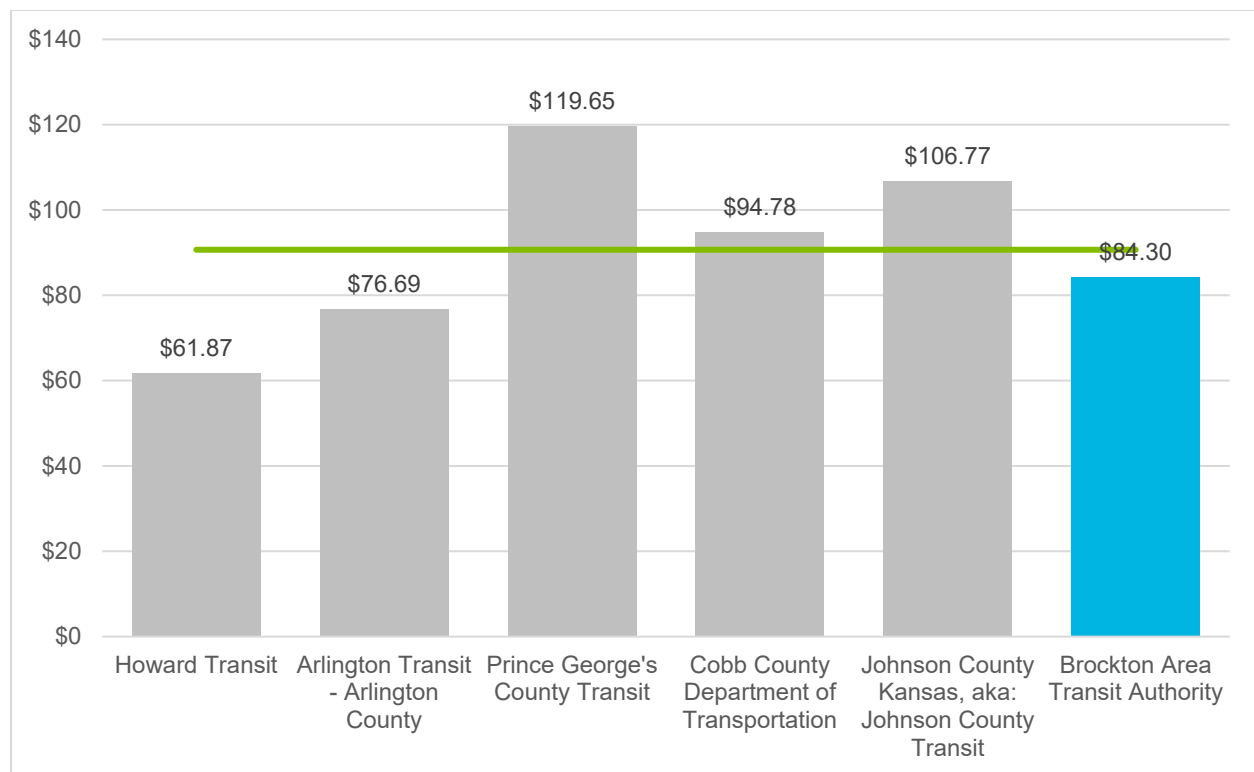
* Percentage of vehicles operated in maximum service that are demand response vehicles.

Figure 64. BAT Peer Comparison – Trips per Mile (FY 2017)

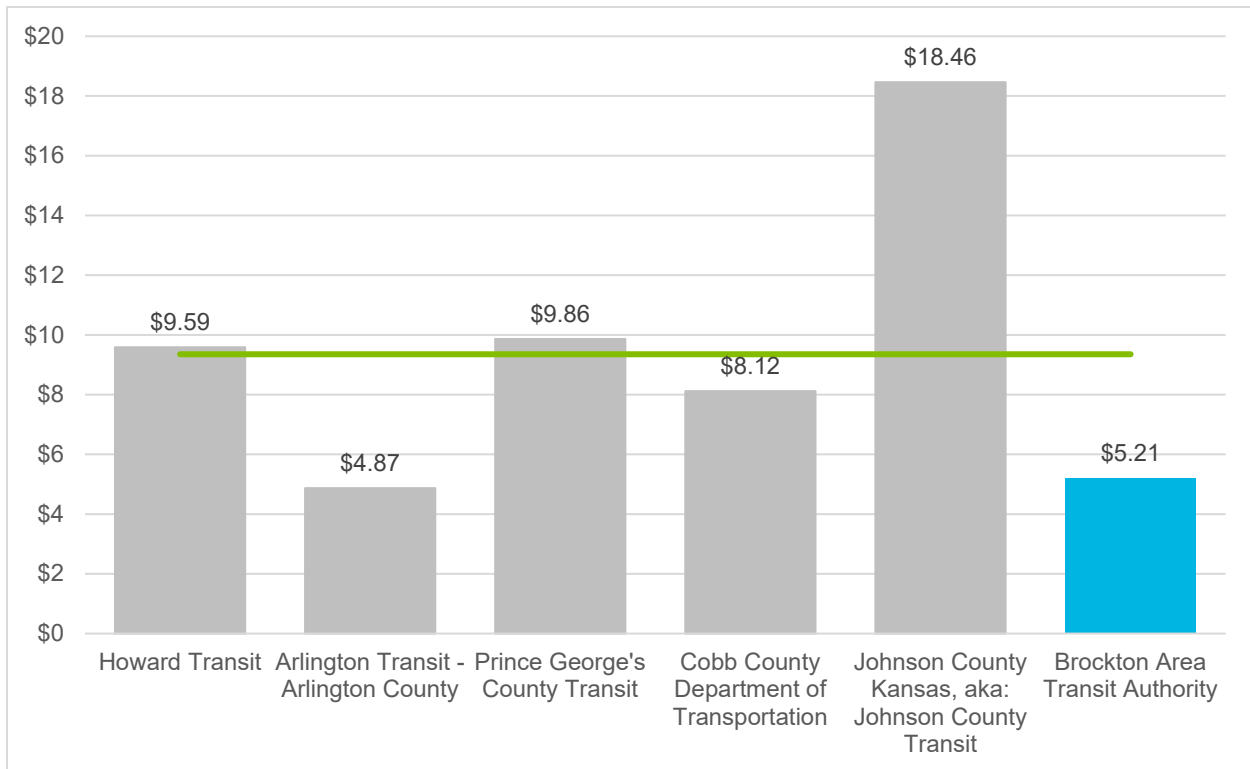
Source: NTD

Figure 65. BAT Peer Comparison – Trips per Hour (FY 2017)

Source: NTD

Figure 66. BAT Peer Comparison – Cost per Hour (FY 2017)

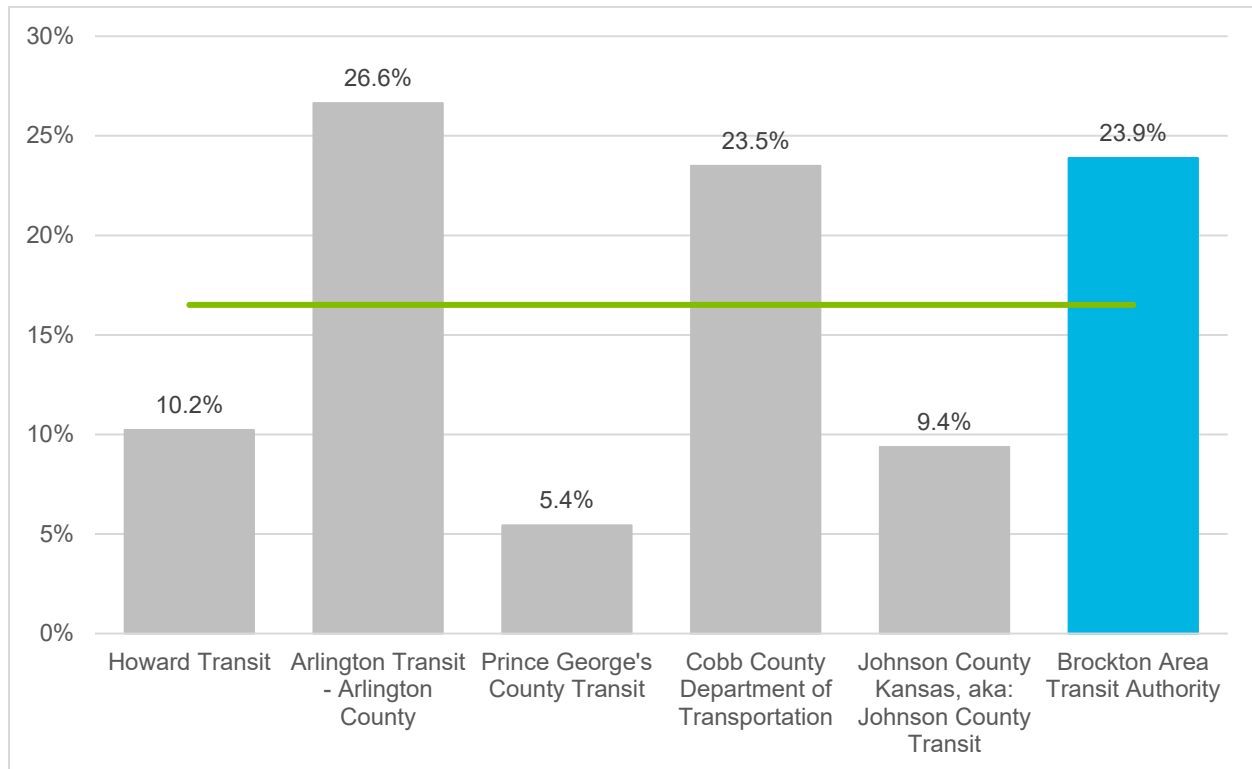
Source: NTD

Figure 67. BAT Peer Comparison – Cost per Passenger (FY 2017)

Source: NTD

Figure 68. BAT Peer Comparison – Subsidy per Passenger (FY 2017)

Source: NTD

Figure 69. BAT Peer Comparison – Farebox Recovery Ratio (FY 2017)

Source: NTD

Appendix B 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,²¹ helping to meet the emissions reduction goals of the GWSA.

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 2018.²² It aims to develop a roadmap for climate mitigation and adaptation for the Commonwealth.

Sustainability requirements for transportation are summarized in 310 CMR 60.05,²³ 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.”²⁴ 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.²⁵ In 2019, the Commission on the Future of Transportation released their report, *Choices for Stewardship: Recommendations to Meet the Transportation Future*.²⁶

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

²¹ <https://www.mass.gov/doc/a-vision-for-the-future-of-massachusetts-regional-transit-authorities/download>.

²² <https://www.mass.gov/executive-orders/no-569-establishing-an-integrated-climate-change-strategy-for-the-commonwealth>.

²³ <https://www.mass.gov/doc/final-regulation-4/download>.

²⁴ <https://www.mass.gov/executive-orders/no-579-establishing-the-commission-on-the-future-of-transportation-in-the>.

²⁵ <https://www.mass.gov/executive-orders/no-579-establishing-the-commission-on-the-future-of-transportation-in-the>.

²⁶ <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 Chapter 4 and recommendations for future sustainable practices are described in Chapter 9.

Appendix C BAT CRTP Public Outreach Summary

Survey Instrument

The following survey instrument was used to ask riders and non-riders about travel patterns, perceptions of BAT, and demographic information.

Do you currently use BAT services?

- a. Yes (to current rider questions)
- b. No (to former rider questions)

THE FOLLOWING ARE THE CURRENT RIDER QUESTIONS

Current Riders

Thank you for taking the time to fill out this short survey. BAT is always striving to best serve each and every rider with the utmost care and we want to know how you feel. Please answer the following question to help us understand your level of comfort for riding with BAT as the state begins to reopen.

What measures can BAT take to make you feel most comfortable while riding?

In what ZIP code do you live? (Enter 5-digit zip code)

How often do you use BAT bus service?

- Rarely (less than once per month)
- Sometimes (1 to 3 times per month)
- Regularly (1 to 3 times per week)
- Frequently (More than 4 days per week)
- I have never used BAT bus service

How often do you use the DIAL-A-BAT service?

- Rarely (less than once per month)
- Sometimes (1 to 3 times per month)
- Regularly (1 to 3 times per week)
- Frequently (More than 4 days per week)
- I have never used DIAL-A-BAT service

How satisfied are you with current BAT schedules and routes?

- Very satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very dissatisfied

How satisfied are you with BAT's customer service?

- Very satisfied

- Satisfied
- Neutral
- Dissatisfied
- Very dissatisfied

What is your primary trip purpose when you use BAT services?

- Work
- School
- Shopping
- Recreation/Entertainment
- Medical Appointments
- Family Visits
- Other (please specify)

Why do you ride BAT service? (Select all that apply)

- I don't have access to a car
- I don't have a driver's license
- Affordability
- There is a bus stop near my house
- The bus schedule matches my schedule
- It is better for the environment
- Other (please specify)

What bus line(s) do you use? (Select all that apply)

- DAB – DIAL-A-BAT
- 1 – Brockton Route 1
- 2 – Brockton Route 2
- 3 – Brockton Route 3
- 4 – Brockton Route 4
- 4A – Brockton Route 4A
- 5 – Brockton Route 5
- 6 – Brockton Route 6
- 8 – Brockton Route 8
- 9 – Brockton Route 9
- 10 – Brockton Route 10
- 11 – Brockton Route 11
- 12 – Ashmont Route 12
- 13 – Mini Maller Route 13
- 14RF – Stoughton Route 14

- RF – Rockland Flex
- BSU – Bridgewater State University

Do you use BAT to connect to MBTA services?

- Yes (to #11)
- No (to #12)

To which MBTA services do you use BAT to connect? (Select all that apply)

- MBTA 238
- MBTA 240
- MBTA Red Line
- MBTA Commuter Rail
- Other (please specify)

Which would you prefer:

- More connections to other locations
- More frequent buses
- Earlier/later bus service

How do you currently receive communications and information from BAT? (Select all that apply):

- BAT website
- Mobile app
- Customer service (phone)
- Customer Service (In-Person)
- Social media (Facebook, Twitter)

What is your age?**What is your gender?****What is your race/ethnicity? (Select all that apply)**

- White/Caucasian
- Black or African American
- Hispanic or Latino
- Asian or Asian American
- American Indian or Alaska Native
- Native Hawaiian or other Pacific Islander
- Other (please specify)

What language is spoken at home?**What is your highest level of education?**

- Less than a high school diploma
- High school diploma or equivalent (e.g. GED)

- Some college, no degree
- Associate degree (e.g. AA, AS)
- Bachelor's degree (e.g. BA, BS)
- Higher than bachelor's degree

Please tell us more about your experience(s) using BAT transportation below:

[END OF SURVEY FOR CURRENT RIDERS]

THE FOLLOWING ARE THE FORMER RIDER QUESTIONS

Former Riders

Thank you for taking the time to fill out this short survey. BAT is always striving to best serve each and every rider with the utmost care and we want to know how you feel. Please answer the following question to help us understand your level of comfort for riding with BAT as the state begins to reopen.

1. Did you use BAT services prior to the COVID-19 pandemic restrictions?

- a. Yes
- b. No (please explain why) – THIS ANSWER DENOTES A NON-RIDER

[END OF SURVEY FOR NON-RIDERS]

Which BAT services did you use?

- c. Fixed Route Bus
- d. DIAL-A-BAT
- e. Both

Do you plan to use BAT services again after the COVID-19 pandemic restrictions are lifted?

- Yes
- No (please describe why)

What would make you feel more comfortable to ride with BAT again?

In what ZIP code do you live? (Enter 5-digit zip code)

How often did you use BAT bus service?

- Rarely (less than once per month)
- Sometimes (1 to 3 times per month)
- Regularly (1 to 3 times per week)
- Frequently (More than 4 days per week)
- I have never used BAT bus service

How often did you use the DIAL-A-BAT service?

- Rarely (less than once per month)
- Sometimes (1 to 3 times per month)
- Regularly (1 to 3 times per week)
- Frequently (More than 4 days per week)

- I have never used DIAL-A-BAT service

How satisfied are you with current BAT schedules and routes?

- Very satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very dissatisfied

How satisfied are you with BAT's customer service?

- Very satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very dissatisfied

What was your primary trip purpose when you used BAT services?

- Work
- School
- Shopping
- Recreation/Entertainment
- Medical Appointments
- Family Visits
- Other (please specify)

Why did you ride BAT service? (Select all that apply)

- I don't have access to a car
- I don't have a driver's license
- Affordability
- There is a bus stop near my house
- The bus schedule matches my schedule
- It is better for the environment
- Other (please specify)

What bus line(s) did you use? (Select all that apply)

- DAB – DIAL-A-BAT
- 1 – Brockton Route 1
- 2 – Brockton Route 2
- 3 – Brockton Route 3
- 4 – Brockton Route 4
- 4A – Brockton Route 4A

- 5 – Brockton Route 5
- 6 – Brockton Route 6
- 8 – Brockton Route 8
- 9 – Brockton Route 9
- 10 – Brockton Route 10
- 11 – Brockton Route 11
- 12 – Ashmont Route 12
- 13 – Mini Maller Route 13
- 14 – Stoughton Route 14
- RF – Rockland Flex
- BSU – Bridgewater State University

Did you use BAT to connect to MBTA services?

- Yes (to #14)
- No (to #15)

To which MBTA services did you use BAT to connect?

- MBTA 238
- MBTA 240
- MBTA Red Line
- MBTA Commuter Rail
- Other (please specify)

Which would you prefer:

- More connections to other cities
- More frequent buses
- Earlier/later bus service

How do you currently receive communications and information from BAT?:

- BAT website
- Mobile app
- Customer service (phone)
- Customer Service (In-Person)
- Social media (Facebook, Twitter)

What is your age?**What is your gender?****What is your race/ethnicity? (Select all that apply)**

- White/Caucasian
- Black or African American
- Hispanic or Latino

- Asian or Asian American
- American Indian or Alaska Native
- Native Hawaiian or other Pacific Islander
- Other (please specify)

What language is spoken at home?

What is your highest level of education?

- Less than a high school diploma
- High school diploma or equivalent (e.g. GED)
- Some college, no degree
- Associate degree (e.g. AA, AS)
- Bachelor's degree (e.g. BA, BS)
- Higher than bachelor's degree

Please tell us more about your experience(s) using BAT transportation below:

Why did you stop using BAT service?

- Furloughed/laid off from job
- Began working from home
- Closed businesses/offices due to social distancing guidelines
- Safety concerns of using the bus
- Other

[End of Survey]

Survey Open-Ended Responses

Table 44. Open-Ended Survey Responses

ID	Question	Comment
1	Q3. What measures can BAT take to make you feel most comfortable while riding?	Best thing BAT can do right now is keep the door on the bus open when they get to the terminal. Not every one can stand for 15 minutes waiting to get on the bus they need. I realize drivers go into the terminal because they may need to, but they never in the past closed the buses up when they did that
2	Q3. What measures can BAT take to make you feel most comfortable while riding?	DIAL A BAT DRIVERS ARE VERY GOOD AND MAKE CUSTOMERS FEEL COMFORTABLE

ID	Question	Comment
3	Q3. What measures can BAT take to make you feel most comfortable while riding?	Aligning their schedule with the Commuter rail for when I come back from work. For example, the train enters Brockton as the last number 9 leaves the terminal. It should be in alignment so people won't be left stranded.
4	Q3. What measures can BAT take to make you feel most comfortable while riding?	I LOVE RIDING DIAL A BAT BUT DON'T LIKE TO WAIT. THE BUS RIDES ARE BUMPY THOUGH.
5	Q3. What measures can BAT take to make you feel most comfortable while riding?	ON THE DIAL A BAT, THE HEIGHT OF THE STEPS CAN BE A PROBLEM.
6	Q3. What measures can BAT take to make you feel most comfortable while riding?	Stop overcrowding buses and also they should not drive by anyone waiting for the  ..
7	Q3. What measures can BAT take to make you feel most comfortable while riding?	GET RID OF THE STAIRS
8	Q3. What measures can BAT take to make you feel most comfortable while riding?	Tell the drives to stop driving through stop signs at the Mall. Tell the drivers to slow down while driving through the Mall. Bus 4a.
9	Q3. What measures can BAT take to make you feel most comfortable while riding?	More accessible to areas
10	Q3. What measures can BAT take to make you feel most comfortable while riding?	More available buses especially on busiest routes
11	Q3. What measures can BAT take to make you feel most comfortable while riding?	Dividers between seats, rear door only, lower fares, better access, improved bus stops
12	Q3. What measures can BAT take to make you feel most comfortable while riding?	On time service with no missed pulse connections
13	Q3. What measures can BAT take to make you feel most comfortable while riding?	Waiting for handicapped people to sit down before they start to speed away I almost got hurt several times and yes I am disabled
14	Q3. What measures can BAT take to make you feel most comfortable while riding?	More room for customers with shopping carts, especially the elderly
15	Q3. What measures can BAT take to make you feel most comfortable while riding?	Not as crowded

ID	Question	Comment
16	Q3. What measures can BAT take to make you feel most comfortable while riding?	Overcrowding
17	Q3. What measures can BAT take to make you feel most comfortable while riding?	On time
18	Q3. What measures can BAT take to make you feel most comfortable while riding?	THE HEIGHT OF THE STAIRS COULD BE ADJUSTED TO THOSE WITH BAD KNEES. I SUFFER FROM MOTION SICKNESS AND THE LIFT IS NOT AN OPTION
19	Q3. What measures can BAT take to make you feel most comfortable while riding?	no changes and I love it!
20	Q3. What measures can BAT take to make you feel most comfortable while riding?	I think it's great. love the service and the drivers are very nice and knowledgeable
21	Q3. What measures can BAT take to make you feel most comfortable while riding?	ok with service now
22	Q3. What measures can BAT take to make you feel most comfortable while riding?	Nothing Buses Are Very Comfortable.
23	Q3. What measures can BAT take to make you feel most comfortable while riding?	all is saticfactory
24	Q3. What measures can BAT take to make you feel most comfortable while riding?	better/more security
25	Q3. What measures can BAT take to make you feel most comfortable while riding?	More hours
26	Q3. What measures can BAT take to make you feel most comfortable while riding?	Providing more travel options to areas outside Brockton. Current travel options are limited, contributing to a deteriorated travel experience. The only option out of town is Ashmont. Many people don't like going to Ashmont. Several existing options include the Route 128 Commuter Rail Station, the Rockland Park and Ride Lot, and the Taunton GATRA hub. Service to these points will relieve pressure from the Ashmont Line so no longer will people have to travel into Boston to get away from Boston. And for the residents who might object to seeing large diesel buses passing

ID	Question	Comment
		through their towns, the use of minibuses in these areas can offer a more comfortable experience.
27	Q3. What measures can BAT take to make you feel most comfortable while riding?	You're doing fine.
28	Q3. What measures can BAT take to make you feel most comfortable while riding?	When waiting for a stop some drivers drives past when you call for them like if I was sitting in the shade the stop is right next to I get up because I see the bus I signal for him to stop and he kept going got fired from work that day
29	Q3. What measures can BAT take to make you feel most comfortable while riding?	Have drivers that aren't rude
30	Q3. What measures can BAT take to make you feel most comfortable while riding?	Friendlier drivers an go back to every 20minutes
31	Q3. What measures can BAT take to make you feel most comfortable while riding?	Everythings great
32	Q3. What measures can BAT take to make you feel most comfortable while riding?	The 14 should run until later time like the ashmont bus
33	Q3. What measures can BAT take to make you feel most comfortable while riding?	No attitude from drivers
34	Q3. What measures can BAT take to make you feel most comfortable while riding?	I need bus go in Stoughton on Sunday
35	Q3. What measures can BAT take to make you feel most comfortable while riding?	I would like to see early morning services to ashmont station on the weekends since I work every other weekends..going towards ashmont station. At least between 6am and 7am
36	Q3. What measures can BAT take to make you feel most comfortable while riding?	Have free WiFi on all buses, like you were planning on back in 2017
37	Q3. What measures can BAT take to make you feel most comfortable while riding?	Sometimes the bus will have to stop suddenly or swerve around a parked car. It'd be helpful to work with the city and towns on better curbside rules on bus routes.
38	Q3. What measures can BAT take to make you feel most comfortable while riding?	Send more than one Route 12 (Ashmont) buses during peak times both Inbound & Outbound.

ID	Question	Comment
		On Saturdays the Route 12 (Ashmont) last inbound to Brockton time should be 11:40pm like the rest of the week. On Sunday schedule (de-merge) the jointed bus lines. Now that Covid is a factor there's no reason to pack up MORE PEOPLE on the bus. Double the line double the people double the possible spread of covid. In addition to Sunday extend the hours. Lastly, go back to waiting for the 920pm commuter rail train (inbound) to come in before sending out last buses. Not everyone works a 9-5 nor have the resource to get home other than the bus service. Thank you for your time.
39	Q3. What measures can BAT take to make you feel most comfortable while riding?	Enforcement of elderly and disabled seats, especially on the #6 bus
40	Q3. What measures can BAT take to make you feel most comfortable while riding?	Enforcement of elderly and disabled seats
41	Q3. What measures can BAT take to make you feel most comfortable while riding?	I'm satisfied
42	Q3. What measures can BAT take to make you feel most comfortable while riding?	Whip down the seats
43	Q3. What measures can BAT take to make you feel most comfortable while riding?	height of the bus is a problem for me - boarding & exiting the bus
44	Q3. What measures can BAT take to make you feel most comfortable while riding?	all good/ no complaints
45	Q3. What measures can BAT take to make you feel most comfortable while riding?	I think BAT does a great job providing services.
46	Q3. What measures can BAT take to make you feel most comfortable while riding?	More cleaning opportunities
47	Q3. What measures can BAT take to make you feel most comfortable while riding?	Provide more security measures on the buses in the event of dangerous situations. And also continue service to the Avon Walmart after 6PM.

ID	Question	Comment
48	Q3. What measures can BAT take to make you feel most comfortable while riding?	You guys should get the seats that have no cushions like in boston because all sorts of liquids can get into those seats
49	Q3. What measures can BAT take to make you feel most comfortable while riding?	No crowding, cleaner vehicles, more frequently Routes
50	Q3. What measures can BAT take to make you feel most comfortable while riding?	Lower the cost of monthly bus passes they are now \$40.00 a month some people can't afford them
51	Q3. What measures can BAT take to make you feel most comfortable while riding?	More bus service
52	Q3. What measures can BAT take to make you feel most comfortable while riding?	Have free WiFi.
53	Q3. What measures can BAT take to make you feel most comfortable while riding?	To extend the hours for the bus till 12
54	Q3. What measures can BAT take to make you feel most comfortable while riding?	Always lower the busses to let people off at their stop.
55	Q3. What measures can BAT take to make you feel most comfortable while riding?	take care of your drivers and they'll take care of us
56	Q3. What measures can BAT take to make you feel most comfortable while riding?	Put more buses on
57	Q3. What measures can BAT take to make you feel most comfortable while riding?	Put more buses on And no smoking at the bat center
58	Q3. What measures can BAT take to make you feel most comfortable while riding?	Some drivers need to pay attention for handicapped people I am a handicap veteran and I've watched people with handicap with canes walkers and people just having mobility issues get on the bus in the drivers do not wait for them to sit down they just take off almost causing serious injuries to the elderly
59	Q9. What is your primary trip purpose when you use BAT services?	SENIOR CENTER
60	Q9. What is your primary trip purpose when you use BAT services?	ALL OF THE ABOVE

ID	Question	Comment
61	Q9. What is your primary trip purpose when you use BAT services?	SHOPPING AND MEDICAL APPOINTMENTS
62	Q9. What is your primary trip purpose when you use BAT services?	GOES TO THE HAIR SALON & SHOPPING
63	Q9. What is your primary trip purpose when you use BAT services?	Combination of shopping, medical appointments, and recreation
64	Q9. What is your primary trip purpose when you use BAT services?	BINGO AND SHOPPING
65	Q9. What is your primary trip purpose when you use BAT services?	MEDICAL A WHILE AGO
66	Q9. What is your primary trip purpose when you use BAT services?	LAUNDRY
67	Q9. What is your primary trip purpose when you use BAT services?	ALL OF THE ABOVE
68	Q9. What is your primary trip purpose when you use BAT services?	shopping & recreation
69	Q9. What is your primary trip purpose when you use BAT services?	all of the above
70	Q9. What is your primary trip purpose when you use BAT services?	Gym ,doctors appointment
71	Q10. Why do you ride BAT service? (Select all that apply)	CANT WALK VERY WELL
72	Q10. Why do you ride BAT service? (Select all that apply)	Commute from Boston
73	Q10. Why do you ride BAT service? (Select all that apply)	VERY HELPFUL ON THE DIAL A BAT
74	Q10. Why do you ride BAT service? (Select all that apply)	DOOR TO DOOR SERVICE WITH DIAL A BAT
75	Q10. Why do you ride BAT service? (Select all that apply)	Disabled

ID	Question	Comment
76	Q10. Why do you ride BAT service? (Select all that apply)	ELDERLY
77	Q10. Why do you ride BAT service? (Select all that apply)	I trained visually impaired people to use BAT service
78	Q10. Why do you ride BAT service? (Select all that apply)	I train vision impaired people to ride BAT buses
79	Q10. Why do you ride BAT service? (Select all that apply)	I don't drink and drive
80	Q10. Why do you ride BAT service? (Select all that apply)	NO LONGER ALLOWED TO DRIVE
81	Q10. Why do you ride BAT service? (Select all that apply)	CONIENENCE
82	Q10. Why do you ride BAT service? (Select all that apply)	Convience
83	Q10. Why do you ride BAT service? (Select all that apply)	needed the assistance from Dial A Bat
84	Q10. Why do you ride BAT service? (Select all that apply)	Convience
85	Q10. Why do you ride BAT service? (Select all that apply)	all of the above
86	Q10. Why do you ride BAT service? (Select all that apply)	for convience
87	Q10. Why do you ride BAT service? (Select all that apply)	Wheelchair bound
88	Q10. Why do you ride BAT service? (Select all that apply)	i don't like to drive
89	Q10. Why do you ride BAT service? (Select all that apply)	I am disabled
90	Q10. Why do you ride BAT service? (Select all that apply)	Need to fix my car
91	Q13. To which MBTA services do you use BAT to connect?	THE T RIDE
92	Q13. To which MBTA services do you use BAT to connect?	HE DOESNT ANY MORE THE SERIVE IS TERRIBLE
93	Q13. To which MBTA services do you use BAT to connect?	USES THE T RIDE
94	Q13. To which MBTA services do you use BAT to connect?	RIDE

ID	Question	Comment
95	Q13. To which MBTA services do you use BAT to connect?	MBTA 230 (Quincy to Montello, via Braintree)
96	Q13. To which MBTA services do you use BAT to connect?	MBTA 230
97	Q13. To which MBTA services do you use BAT to connect?	the ride
98	Q13. To which MBTA services do you use BAT to connect?	MBTA 230
99	Q13. To which MBTA services do you use BAT to connect?	ride paratransit
100	Q13. To which MBTA services do you use BAT to connect?	MBTA 230
101	Q21. Please tell us more about your experience(s) using BAT transportation below:	It has been good so far
102	Q21. Please tell us more about your experience(s) using BAT transportation below:	NOTHING OTHER THEN HES HAPPY WITH THE DIAL A BAT SERVICE
103	Q21. Please tell us more about your experience(s) using BAT transportation below:	VERY HAPPY WITH OUR SERVICES .
104	Q21. Please tell us more about your experience(s) using BAT transportation below:	HE IS VERY PLEASED WITH OUR SERVICES
105	Q21. Please tell us more about your experience(s) using BAT transportation below:	HE LIKES THE WAY THINGS ARE SETUP NOW
106	Q21. Please tell us more about your experience(s) using BAT transportation below:	The bus passed by i called you a they laughed at me and hung up on me
107	Q21. Please tell us more about your experience(s) using BAT transportation below:	I HAVE A PROBLEM WITH THE SIGN THAT SAYS "NO TIPS" IF I HAVE A GOOD EXPERIENCE WITH A DRIVER, I WILL TIP THEM IF I WANT TO.
108	Q21. Please tell us more about your experience(s) using BAT transportation below:	AS LONG AS EVERYONE CONTINUES TO BE NICE TO ME, I HAVE NO COMPLAINTS
109	Q21. Please tell us more about your experience(s) using BAT transportation below:	UNDERSTANDING THE PANDEMIC, LIMITING NUMBER OF PASSENGERS ON THE BUS, AN ADDITION OF RUNS WOULD BE HELPFUL ESPECIALLY DURING PEAK TIMES. THE DAB

ID	Question	Comment
		DRIVERS HAVE BEEN GREAT VERY NICE& HELPFUL.
110	Q21. Please tell us more about your experience(s) using BAT transportation below:	Certain routes are always late for connecting to other routes. The times are not always accurate
111	Q21. Please tell us more about your experience(s) using BAT transportation below:	Would love to see a connection to the GATRA system in the future
112	Q21. Please tell us more about your experience(s) using BAT transportation below:	You can do better, I love seeing police officers there, do better in customer service, yes some of the people there have some type of mental health issues.
113	Q21. Please tell us more about your experience(s) using BAT transportation below:	The drivers need to work on their customer service skills, alot of them are very rude and there is no need to be that way. The buses should run a little later than they currently do, alot of people who work may not get out until 10 or 11 at night and it would be nice to have the option to take a bus home rather than spending the money on an Uber or a cab.
114	Q21. Please tell us more about your experience(s) using BAT transportation below:	Sometimes I am waiting at the bus stop and I wave my hand to Signal a driver and the bus goes right by me
115	Q21. Please tell us more about your experience(s) using BAT transportation below:	The greatest barrier to access that my clients face is outdated and missing infrastructure- missing sidewalks, absence of traffic controls, especially audible pedestrian indicators, and very poor snow removal near key businesses and services.
116	Q21. Please tell us more about your experience(s) using BAT transportation below:	I notice the new hires, mainly on the weekend can be rude, some drive too fast. Some need better communication with cystemers
117	Q21. Please tell us more about your experience(s) using BAT transportation below:	Great service but route 11 should run outbound on weekends
118	Q21. Please tell us more about your experience(s) using BAT transportation below:	WHEN A CLIENT MISSES THEIR BUS, THE DELAY ON ANOTHER BUS TRIP CAN BE EXCESSIVE ON DIAL A BAT.
119	Q21. Please tell us more about your experience(s) using BAT transportation below:	PROBLEMS WITH DELAYS AND EARLY ARRIVALS WITH DIAL A BAT
120	Q21. Please tell us more about your experience(s) using BAT transportation below:	the height of the fixed route bus causes difficulty getting off with bundles.

ID	Question	Comment
121	Q21. Please tell us more about your experience(s) using BAT transportation below:	in favor of the automated payment service, the customer service is great, you guys are awesome compared to other companies and the drivers are really great ... it is really a great service and a god send.
122	Q21. Please tell us more about your experience(s) using BAT transportation below:	I used the dial a bat service for the first time last December and I thought it was great. My daughter came with me one time and she thought it was great too.
123	Q21. Please tell us more about your experience(s) using BAT transportation below:	should be more than once a week service to medical centers in Easton.
124	Q21. Please tell us more about your experience(s) using BAT transportation below:	I love the service but you need to lower the bus pass for people that are on a fix income
125	Q21. Please tell us more about your experience(s) using BAT transportation below:	if someone doesn't call DIAL A BAT shame on them, their loss is my gain.
126	Q21. Please tell us more about your experience(s) using BAT transportation below:	Overall good. More frequent and later Ashmont and local routes would be nice.
127	Q21. Please tell us more about your experience(s) using BAT transportation below:	Poor hours serve
128	Q21. Please tell us more about your experience(s) using BAT transportation below:	The first time I've rode a BAT bus, I was coming in from Boston and, being new to the area, I thought I would just grab a bus to Brockton and walk home. No one told me that there would be an entire bus terminal, lined with buses going to different destinations. And when you have 60 seconds to pick a bus, everything looks like jibberish. Amidst the blur of buses, I played eenie meenie money moe and stumbled onto bus #10 which ended up passing a familiar-looking store in my new neighborhood (Plaza Farms). As I pushed the bell, I was surprised to find myself dropped off at the end my street! It definitely ended up being a great first-time experience. Over time, I would learn that we chose one of the most convenient areas of the city. The Montello Station area is like its own transit hub with #1,#10,#11,#12, and #230 buses all within comfortable walking distance. During my college years, I've worked at the Burger King in Randolph and I was very grateful to be able to catch a bus that would take me to work 15 minutes away, in a place outside Brockton. Staying in Brockton just

ID	Question	Comment
		made me feel "stuck", not to mention the Brockton location of our franchise was located on the other side of town, requiring a bus transfer which resulted in a 45-minute commute. And the lack of late night service made it impossible to take late shifts, thus threatening the school/work life balance. Living near Montello, I traveled in confidence knowing that I can still catch a bus well past 11:00pm. This does something to a traveler in terms of sense of security. Another feature that adds to a sense of security while traveling is communication; signage. A neighborhood map at Montello Station will alert visitors (and there are many) of the nearby connections. Currently, the stop is bare and devoid of any information of connecting bus routes. The bus stops themselves provide minimal information, forcing passengers to rely on strangers for information. On an almost daily basis, I've given directions to people who've used the stop for the first time. A major area of confusion for them was the southbound 1/12 stop on North Main St @ Oak. One day I met a Weymouth man traveling with his family; he said the last time he waited at that stop, the #12 wouldn't stop there, so he naturally assumed this time that he will take the #1 to get to the BAT terminal. When I got there, he explained to me that he let two buses go by; when I explained to him that the #1 stopped running an hour prior, he was clearly frustrated that there was no signage to confirm my statement. I am overall satisfied with the BAT service. Good city coverage and an adequate span of service make it a pleasant experience. Connections to other cities may be a challenge, due to the socioeconomic layout of the region. But this should not stop the BAT from expanding to the already existing infrastructure in the areas outside the city.
129	Q21. Please tell us more about your experience(s) using BAT transportation below:	the 13 was so helpful. Got me to pick up prescription, food shopping, and Walmart without the hassle of taking multiple busses
130	Q21. Please tell us more about your experience(s) using BAT transportation below:	Most of my issues were when they kept driving past me when I signal to stop or bus takes so long to get to the stop I'm waiting at so I just have to walk 2 miles to get to work

ID	Question	Comment
131	Q21. Please tell us more about your experience(s) using BAT transportation below:	There's a couple of drivers that always rush and are inpatient with people getting on or off the bus. They never lower the bus for elderly or people that need it and don't wait until you sit down before they take off.
132	Q21. Please tell us more about your experience(s) using BAT transportation below:	Everythings great.
133	Q21. Please tell us more about your experience(s) using BAT transportation below:	Good experience a few bad experiences
134	Q21. Please tell us more about your experience(s) using BAT transportation below:	It's nice when you find a seat on the bus' before going to work and after
135	Q21. Please tell us more about your experience(s) using BAT transportation below:	I use the bus for work sometimes. I use it more for shopping.
136	Q21. Please tell us more about your experience(s) using BAT transportation below:	I've been using BAT for years now. It would be nice to see BAT expand and have other connections to other cities. And, early/late bus services. And more frequent services.
137	Q21. Please tell us more about your experience(s) using BAT transportation below:	The 12 bus is usually very clean and usually on time. If it ran later that would be helpful for going out for dinner with friends etc., but probably not the top priority.
138	Q21. Please tell us more about your experience(s) using BAT transportation below:	The drivers are all friendly and except for 1 driver on Saturday who was driving with his mask pulled down, they all follow the safety guidelines.
139	Q21. Please tell us more about your experience(s) using BAT transportation below:	Please stop saying final call for all buses when NOT ALL BUSES are in the terminal. I understand the schedule is standard and needs to be run a certain way. But if a bus is 1 min away then just wait.
140	Q21. Please tell us more about your experience(s) using BAT transportation below:	I use bus service to get from point A to point B also want to see more service and late night bus service in Brockton
141	Q21. Please tell us more about your experience(s) using BAT transportation below:	I find BAT service to be very good. More frequent buses would be nicer.
142	Q21. Please tell us more about your experience(s) using BAT transportation below:	Great

ID	Question	Comment
143	Q21. Please tell us more about your experience(s) using BAT transportation below:	I wish there was more options for Easton bus stops besides just the industrial park. Maybe expand down 138 to 106 and/or to Five Corners?
144	Q21. Please tell us more about your experience(s) using BAT transportation below:	more cleaning ness
145	Q21. Please tell us more about your experience(s) using BAT transportation below:	Rude drivers, drivers drive too fast
146	Q21. Please tell us more about your experience(s) using BAT transportation below:	love the drivers
147	Q21. Please tell us more about your experience(s) using BAT transportation below:	I use the BAT buses to get to and from work, and to get to and from appointments.
148	Q21. Please tell us more about your experience(s) using BAT transportation below:	I love the bat system.
149	Q21. Please tell us more about your experience(s) using BAT transportation below:	like the service. affordable.
150	Q21. Please tell us more about your experience(s) using BAT transportation below:	never had a problem riding with bat, 10/10 service.
151	Q21. Please tell us more about your experience(s) using BAT transportation below:	It's pretty good some times it gets crowded.
152	Q21. Please tell us more about your experience(s) using BAT transportation below:	I use BAT very frequently. Buses 10/11 have merged which means both my mom & myself have to walk 1/2 a mile to Hovendon Ave. to get the bus. There used to be a stop at Boundry my mom is 81 & I am 62. My mother has COPD & 1/2 a mile is too far for both of us. Bring the #10 back please.
153	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	Not offered in my area
154	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	Never used the bus
155	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I have my own car

ID	Question	Comment
156	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I own a car
157	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	There are no bus services in my area unfortunately.
158	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I drive. Only occasional do I take it.
159	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I have a car
160	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	Only if I have to I have a car!
161	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	Have my own transportation
162	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I have a car
163	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I have a car
164	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I have my own transportation
165	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I have a car
166	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I would drive car to Stoughton train station
167	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	Too hard to get around on
168	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I have my own car and am able to drive myself
169	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	No service in my area

ID	Question	Comment
170	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I have a car
171	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	Not available to me
172	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I have a car.
173	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I live in Halifax. No BAT service. Also, I own a car and I am generally happy to drive myself.
174	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	Didn't need it
175	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I use my car schedule the schedule and routes plus handicap access are problems for me.
176	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	No need own a car
177	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I drive a car & use it to go to my destinations.
178	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	Not available in my area
179	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	You don't Service Halifax MA
180	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	I live in Halifax. But I would love to have BAT service here!!
181	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	No need
182	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	no local service
183	Q22. Did you use BAT services prior to the COVID-19 pandemic restrictions?	No offered in Halifax

ID	Question	Comment
184	Q25. What would make you feel more comfortable to ride with BAT again?	On time schedule.
185	Q25. What would make you feel more comfortable to ride with BAT again?	I already feel comfortable using it I just hate waiting for the bus in bad weather
186	Q25. What would make you feel more comfortable to ride with BAT again?	Less people in bus
187	Q25. What would make you feel more comfortable to ride with BAT again?	Cleaning buses
188	Q25. What would make you feel more comfortable to ride with BAT again?	People following the rules
189	Q31. What was your primary trip purpose when you used BAT services?	Court
190	Q31. What was your primary trip purpose when you used BAT services?	Travel to Ashmont mostly.
191	Q31. What was your primary trip purpose when you used BAT services?	bringing clients to and from the LIFE Center & recreational
192	Q32. Why did you ride BAT service? (Select all that apply)	Disability
193	Q32. Why did you ride BAT service? (Select all that apply)	My clients are disabled
194	Q32. Why did you ride BAT service? (Select all that apply)	I could work on my way to school
195	Q43. Please tell us more about your experience(s) using BAT transportation below:	All of my experiences using the service was Pleasant. It is mainly when the bus is maneuvering in the city that other cars always try to cut the bus off which makes me feel uncomfortable
196	Q43. Please tell us more about your experience(s) using BAT transportation below:	It's great, I just wish there was a bus that goes the street of west chestnut because I leave off west chestnut so I have to get off the bus on Belmont and it's a long walk to get to my house
197	Q43. Please tell us more about your experience(s) using BAT transportation below:	my clients spoke very highly of the services provided

ID	Question	Comment
198	Q43. Please tell us more about your experience(s) using BAT transportation below:	Was on crutches and going to school, you guys were great.
199	Q43. Please tell us more about your experience(s) using BAT transportation below:	Have used BAT since 1970's. Used to be daily rider using monthly pass even though always owning a car. Used as primary transportation to work, shop, visiting, etc. Also used for years as part of exercising routine that consisted of long walks to various parts of the city and hopping on bus to other destinations and back home.
200	Q44. Why did you stop using BAT service?	I have been working at home for years now. Until a couple years ago, still used BAT daily as a way to get out of the house and get exercise. Unfortunately for out of the habit due to long hours and work stress. Something I need work on.
201	Q46. ¿Qué medidas puede tomar BAT para que se sienta más cómodo mientras utiliza los servicios de BAT?	Por la presente continúan con un excelente servicio
202	Q46. ¿Qué medidas puede tomar BAT para que se sienta más cómodo mientras utiliza los servicios de BAT?	To clean the buses after every ride
203	Q53. ¿Por qué utiliza los servicios de BAT? (Seleccione todas las que correspondan)	A veces no tengo quien me lleve para mis citas
204	Q64. Cuéntanos más sobre tu experiencia / experiencias usando los servicios BAT a continuación:	El servicio es bueno. Algo que deben mejorar es que después del medio día se tardan mucho.
205	Q64. Cuéntanos más sobre tu experiencia / experiencias usando los servicios BAT a continuación:	Puntualidad y seguridad
Comments Related to COVID-19		
300	Q3. What measures can BAT take to make you feel most comfortable while riding?	RIGHT NOW NOTHING BECAUSE HE IS HIGH RISK FOR COVID .
301	Q3. What measures can BAT take to make you feel most comfortable while riding?	ONLY ONE PERSON ON THE BUS , BUT IS COMFORTABLE ALL THE TIME
302	Q3. What measures can BAT take to make you feel most comfortable while riding?	Go back to normal

ID	Question	Comment
303	Q3. What measures can BAT take to make you feel most comfortable while riding?	Try enforcing the face covering rule, I've seen too many people get on the bus without one and the driver doesn't say anything to them. Also most of your drivers are very rude.
304	Q3. What measures can BAT take to make you feel most comfortable while riding?	maintain social distance between riders and assist visually impaired riders find an appropriate seat using verbal cues.
305	Q3. What measures can BAT take to make you feel most comfortable while riding?	maintain social distance between riders and help blind riders locate an appropriate seat with verbal cues.
306	Q3. What measures can BAT take to make you feel most comfortable while riding?	you guys have been awesome throughout this covid and i trust that your measures will continue to strive for gold
307	Q3. What measures can BAT take to make you feel most comfortable while riding?	maintain distance between riders
308	Q3. What measures can BAT take to make you feel most comfortable while riding?	I am not riding, but have seniors in town that do ride. I think they feel most comfortable right now when there are few people on board and the driver follows all precautions they can.
309	Q3. What measures can BAT take to make you feel most comfortable while riding?	Well for starters some Social distancing would be nice. I am just getting back to work and was on the last 12 out is Ashmont last Sunday and the bus was over Crowded and people where setting everywhere. I work for a tour company and we had to half are amount of people on the tour buses and every other set roped off you guys should be doing this. If you know the route is high traffic then have a plan to deal with it. It had always been like this on this bus. Also talk to the driver on the bus he is always late and then gets off the bus and just walks away from the bus and does not leave for another 29 plus minutes.
310	Q3. What measures can BAT take to make you feel most comfortable while riding?	Sanitation
311	Q3. What measures can BAT take to make you feel most comfortable while riding?	Distancing, masks required, disinfectant.
312	Q3. What measures can BAT take to make you feel most comfortable while riding?	Mask

ID	Question	Comment
313	Q3. What measures can BAT take to make you feel most comfortable while riding?	More Distance Away From People. More Barriers From People Not Just The Driver.
314	Q3. What measures can BAT take to make you feel most comfortable while riding?	Probably something along the lines of what your doing now along with more disinfecting of the buses in general
315	Q3. What measures can BAT take to make you feel most comfortable while riding?	Crowded bus
316	Q3. What measures can BAT take to make you feel most comfortable while riding?	People wear mask
317	Q3. What measures can BAT take to make you feel most comfortable while riding?	Enforcing mask wearing
318	Q3. What measures can BAT take to make you feel most comfortable while riding?	Making sure that the other passengers are wearing masks correctly until the virus is under control.
319	Q3. What measures can BAT take to make you feel most comfortable while riding?	Just keep up with social distancing with current COVID boarding policys
320	Q3. What measures can BAT take to make you feel most comfortable while riding?	when the drivers aren't wearing a mask
321	Q3. What measures can BAT take to make you feel most comfortable while riding?	strong cleaning program and requiring everyone that boards the bus to wear a mask.
322	Q3. What measures can BAT take to make you feel most comfortable while riding?	Insist people wear their masks cover nose and mouth. On 7/8/20 i had a bad experiece and so did the drivers people talking on phones for long periods of time and insisting on not keeping their nose and mouth covered and cussing the drivers and other passengers with foul language! They should be put off the bus wherever
323	Q3. What measures can BAT take to make you feel most comfortable while riding?	Less people
324	Q3. What measures can BAT take to make you feel most comfortable while riding?	rear door opening
325	Q3. What measures can BAT take to make you feel most comfortable while riding?	Maintain rear door boarding. Inform customers of methods and frequency of cleaning.

ID	Question	Comment
326	Q3. What measures can BAT take to make you feel most comfortable while riding?	Continue to make it mandatory for masks.
327	Q3. What measures can BAT take to make you feel most comfortable while riding?	Keep the windows open. Keep telling passengers to wear their masks. This hasn't been an issue since ridership is low, but as ridership rebuilds, deploy extra buses if there is crowding... i.e. we shouldn't be forced to sit next to people not in our household.
328	Q3. What measures can BAT take to make you feel most comfortable while riding?	it's comfortable enough, wish while we have to use back door they would put the bus down because it is hard to enter and exit.
329	Q3. What measures can BAT take to make you feel most comfortable while riding?	When is safe for me to take the bus to work until this Covid-19 is over and done with.
330	Q3. What measures can BAT take to make you feel most comfortable while riding?	Everyone wearing a mask. Drivers need to either have the heat on in the winter & ac when its hot and humid out for people with breathing issues.
331	Q3. What measures can BAT take to make you feel most comfortable while riding?	Everyone wearing masks
332	Q3. What measures can BAT take to make you feel most comfortable while riding?	The drivers not constantly harassing me about wearing a mask despite me being on oxygen 24/7 and being medically exempted from wearing a mask by my PCP
333	Q21. Please tell us more about your experience(s) using BAT transportation below:	i appreciate the money i saved on bus fare during covid
334	Q21. Please tell us more about your experience(s) using BAT transportation below:	When I take the Ashmont bus no matter what time of day or day of the week it always late and over crowded. In the times we are in there is no social Distancing. I love being back to work but hate my Commute commute because dog this. I have started only using the bat as a last resort because if it.
335	Q21. Please tell us more about your experience(s) using BAT transportation below:	I WOULD LIKE TO GET ACCESS TO THE TEMINAL FOR SCHEDULES. I ENJOY BOTH SERVICES
336	Q21. Please tell us more about your experience(s) using BAT transportation below:	hate being close to people. Need to be 6 feet away. Need more barriers.

ID	Question	Comment
337	Q25. What would make you feel more comfortable to ride with BAT again?	Extensive cleaning, restrictions on number of riders per bus for social distancing, and mandatory use of face masks by all riders
338	Q25. What would make you feel more comfortable to ride with BAT again?	Covid-19 vaccine and wide adoption and distribution.
339	Q25. What would make you feel more comfortable to ride with BAT again?	If there was a vaccine.
340	Q44. Why did you stop using BAT service?	Pandemic
341	Q44. Why did you stop using BAT service?	School closed

