MBTA 2022 System-Wide Passenger Survey

Executive Summary

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Prepared by the Office of Performance Management and Innovation

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The Massachusetts Bay Transportation Authority (MBTA) regularly surveys its riders to understand who rides the bus, subway or light rail, commuter rail, and the ferry. The MBTA's Rolling Rider Census represents the diversity of people who ride MBTA services and is an important tool in planning for bus, rail, and ferry services in the Greater Boston region. In 2022, the MBTA kicked off an annual survey to collect information about who is using the transit system and which services they rely on. The MBTA is required to collect this information by the Federal Transit Administration (FTA) to ensure that the changes to our system, service, and fares equally benefit people, regardless of their income levels or race and ethnicity. In addition to ensuring equity in transit, the MBTA uses results from the Rolling Rider Census to understand how people move through the system to better plan improvements.

Data is collected annually from spring through late fall, and data will typically be available mid-spring of the following year. The documentation included on this page represents data collected in calendar year 2022, and provides context and guidance to understand and use the Rolling Rider Census Data. The Technical Documentation may assist those who are looking to more deeply understand the data calculation and aggregation process. The data is available for download on the MBTA Open Data Portal.

Survey Background

Pursuant to Title VI of the Civil Rights Act of 1964, and in line with guidance from the Federal Transit Administration (FTA) circular FTA C 4702.1B the MBTA must conduct a triennial (every three years) evaluation of its system to ensure equity across income levels and race and ethnicity demographics. Additionally, major changes in service or fares must be evaluated to ensure they do not disproportionately impact minority riders, or disparately burden lower income riders (see the MBTA Disparate Impact/Disproportionate Burden Policy for details).

Previous versions of the Rider Census, conducted once every five years, reflected point-in-time snapshots of rider demographics; the last survey was conducted in 2016. As of 2022, the MBTA conducts an ongoing, or "rolling," Rider Census, which collects data annually from a smaller sample of riders across the T. This shift to more frequent data collection allows a consistently fresher, more accurate understanding of who travels on bus, rail, and ferry services. For example, a rolling survey format allows riders of new services to be counted sooner, which enables the MBTA to include riders of new services – like the SL3 to Chelsea (opened 2018) or the Green Line Extension (opened 2022) – in its planning and analysis, rather than having to wait up to five years to survey riders of new services.

In addition to Title VI equity analyses, the results of the Rider Census are used across the T in capital planning, service planning, fare policy, and public outreach planning. Among other benefits, this continual survey model means that pilots can be evaluated using demographic data collected through a methodologically consistent effort.

Methods: Data

To ensure that the MBTA surveyors talk to a sample of transit riders that accurately reflects the people riding specific services and traveling between specific stops or stations, the Rolling Rider Census research team developed a sampling plan that allows for accurate representation of the system every five years. This means that, during the first five years of the new Rolling Rider Census data may be summarized at a more aggregate level than that of previous system-wide surveys. With each additional year of data collection, the MBTA will be able to share more granular data, specific to individual routes and stations.

Detailed information about the Rolling Rider Census sampling plan and response weighting may be found in Chapters 2 and 3 of the technical documentation, respectively.

The Rolling Rider Census sampling plan was constructed to allow reporting at a similar level of aggregation to 2015-17 by the end of the first five years of data collection. This means that the collection of Rolling Rider Census data collected through calendar year 2026 will provide data aggregated at a similar level as the 2016 Rider Census data release.

Prior to the 2026 data release, survey data will be publicly available at a higher level of aggregation than in years past. Specifically aggregation by service mode is as follows[1]:

- Heavy rail will generally be reported by station or small group of stations
- Light rail reporting will be at the branch level, except for downtown Green Line stations, which will be reported individually or in pairs, and the Green Line E Branch, which will be split into two reporting groups comprised of stations on either side of downtown
- Bus will be reported individually or in small groups for high-ridership routes and in larger geographic groups for moderate and low-ridership routes
- Ferry data will be reported in one group, consisting of all routes
- Commuter rail reporting is aggregated to the individual line

Responses to the Rolling Rider Census survey are weighted by both ridership (how many people ride that particular service) and transfer rate (how many people make similar transfers as reported in the survey). This ensures that conclusions drawn from survey data are as representative as possible of overall MBTA ridership.

It is important to note that all survey research and data collection is exposed to some level of bias and error. The MBTA acknowledges that sampling bias may have been introduced by a series of factors, including but not limited to:

- Weekday only surveying
- The need to survey high-ridership locations in order to meet minimum response requirements for statistical validity of reporting
- Limited range of languages available
- Survey respondents' potential lack of awareness of available languages

Survey Findings

Conducted six years after the last Rider Census, and two years after the onset of the COVID-19 pandemic dramatically altered how people travel, data from the 2022 Rolling Rider Census shows significant changes in the demographics of MBTA ridership. The percentage of transit riders who self-identified as a minority, as defined by the FTA Title VI analysis guidelines, increased from 34% of system riders in 2016 to 58% of riders in 2022. The percentage of riders from households earning less than 60% of the Boston area's median income also increased, from comprising 29% of transit riders in 2016, to 48% of riders in 2022.

The Rolling Rider Census is available in twelve languages. The MBTA received at least one transit rider's response in each available language. Ninety-five percent of surveys were taken in English, 3.6% in Spanish, 0.4% in Portuguese, 0.2% in Chinese, and less than 0.1% were taken in each of the other available languages: French, Haitian Creole, Russian, Vietnamese, Arabic, Italian, and Cape Verdean Creole. This reflects an increase in responses in a language other than English from the last Rider Census; 0.7% responses to the 2015-2017 survey were in a language other than English. Relatedly, 32.0% of respondents (unweighted) indicated that they speak a language other than English at home.

Detailed information about rider demographics may be found in the [technical documentation](#) or the [interactive web tool](#).

Next Steps

We expect to repeat this data collection and release cycle on an annual basis. Rider surveying for calendar year 2023 will result in a public data release in spring 2024. If you have any questions or comments, please reach out at opmi@mbta.com.

Endnotes

1	**Service Mode definitions:**

The MBTA's **rapid transit system** includes its **heavy rail** and **light rail** services, described below.

Heavy Rail: The MBTA operates three heavy rail lines—the Red Line, the Blue Line, and the Orange Line—that provide core subway services.

Light Rail: The MBTA's primary light rail system, the Green Line, provides local service in outlying areas via its surface operations and core subway services in and around the Boston city center. In addition, the MBTA operates the Mattapan High Speed Line, which serves as a Red Line extension from Ashmont Station to Mattapan Station via light rail.

Bus: All rubber-tire vehicles regardless of the vehicle's power source.

Commuter Rail: Long-haul, commuter-oriented services that link the outer portions of the region with Downtown Boston.

Ferry: Inner Harbor Ferry services for travel between destinations in Boston, and Commuter Ferry services from the South Shore to Downtown Boston and Logan Airport.