

TECHNICAL MEMORANDUM

DATE: January 30, 2024

TO: David Churella and Steven Povich, Massachusetts Bay Transportation Authority

FROM: Emily Domanico, Steven Andrews, Tanner Bonner, and Seth Strumwasser, Central Transportation Planning Staff

RE: Low-Income Fares: Fare Equity Analysis Results

When considering changes to fares, the Massachusetts Bay Transportation Authority (MBTA) undertakes a process to evaluate the equity impacts of the proposed changes. At the request of the MBTA, the Central Transportation Planning Staff (CTPS), which serves as staff to the Boston Region Metropolitan Planning Organization (MPO), examined the equity impacts of introducing a low-income fares program, removing change tickets, and making the Commuter Rail Holiday Pass a permanent fare product.

This document fulfills the MBTA's responsibility to conduct a fare equity analysis, as required by Title VI of the Civil Rights Act of 1964 (Title VI). The objective of this analysis was to determine if the fare changes would result in disparate impacts for minority populations or disproportionate burdens for low-income populations. CTPS compared the impacts of relative fare changes between riders who are classified as minorities to all riders and between riders who are classified as low-income to all riders. CTPS applied the MBTA's disparate-impact and disproportionate-burden policies and found neither a disparate impact to minority riders nor a disproportionate burden to low-income riders.

1 FARE CHANGE PROPOSAL

The MBTA is planning the following changes to its fares and fare structure:

1. Introduce low-income fares for riders who do not already qualify for reduced fares with incomes less than 200 percent of the Federal Poverty Level (FPL)

Civil Rights, nondiscrimination, and accessibility information is on the last page.

2. Remove change tickets on buses and light rail
3. Make the Commuter Rail holiday passes permanent fare products.¹

Overall, most of the proposed fare changes result in fare decreases for passengers by making cheaper fares available to riders. The exception to the fare decrease trend is the removal of change tickets on buses and light rail. Table 1A shows the proposed fare structure for single-ride fares. Table 1B shows a list of the existing and proposed fares for fare product passes along with the percentage change from existing to proposed price. For the full list of pass prices, see Table A-1 in Appendix A.

Because the MBTA intends to implement all changes by July 1, 2024, the start of State Fiscal Year (SFY) 2025, the changes are analyzed here in the aggregate.

¹ The holiday passes were introduced on the mTicket app in May 2023 as promotional fare products. The \$10 Holiday Pass covers commuter rail travel on holidays that do not coincide with weekends. The \$10 Holiday Weekend Pass covers commuter rail travel on weekends and holidays that fall on a Monday or Friday as well as Thanksgiving Day, which falls on a Thursday.

Table 1A
Single-Ride Prices: Existing and Proposed

Fare Product	Existing Fare	Proposed Fare	Absolute Change	Percent Change
<i>Bus and Rapid Transit</i>				
Local Bus	\$1.70	\$1.70	\$0.00	0%
Rapid Transit	\$2.40	\$2.40	\$0.00	0%
Express Bus	\$4.25	\$4.25	\$0.00	0%
Local Bus (Reduced)	\$0.85	\$0.85	\$0.00	0%
Rapid Transit (Reduced)	\$1.10	\$1.10	\$0.00	0%
Express Bus (Reduced)	\$2.10	\$2.10	\$0.00	0%
<i>Commuter Rail</i>				
Zone 1A–10	\$2.40–\$13.25	\$2.40–\$13.25	\$0.00	0%
Interzone 1–10	\$2.75–\$7.25	\$2.75–\$7.25	\$0.00	0%
Zone 1A–10 (Reduced)	\$1.10–\$6.50	\$1.10–\$6.50	\$0.00	0%
Interzone 1–10 (Reduced)	\$1.25–\$3.50	\$1.25–\$3.50	\$0.00	0%
<i>Ferry*</i>				
Charlestown Ferry	\$3.70	\$3.70	\$0.00	0%
East Boston Ferry		\$2.40		
Winthrop/Quincy Ferry		\$6.50		
Lynn Ferry		\$7.00		
Hingham/Hull Ferry	\$9.75	\$9.75	\$0.00	0%
Charlestown Ferry (Reduced)	\$1.85	\$1.85	\$0.00	0%
East Boston Ferry (Reduced)		\$1.10		
Winthrop/Quincy Ferry (Reduced)		\$3.25		
Lynn Ferry (Reduced)		\$3.50		
Hingham/Hull Ferry (Reduced)	\$4.85	\$4.85	\$0.00	0%

Note: Reduced fares include existing reduced fare programs—Transportation Access Pass, Senior CharlieCard, Student Card, and Youth Pass CharlieCard—and the proposed low-income fares program.

* East Boston, Lynn, and Winthrop/Quincy fares were not analyzed in this analysis.

Source: MBTA.

Table 2B
Pass Prices: Existing and Proposed

Fare Product	Existing Fare	Proposed Fare	Absolute Change	Percent Change
<i>Bus and Rapid Transit</i>				
1-Day LinkPass	\$11.00	\$11.00	\$0.00	0%
7-Day LinkPass	\$22.50	\$22.50	\$0.00	0%
Local Bus Pass	\$55.00	\$55.00	\$0.00	0%
Monthly LinkPass	\$90.00	\$90.00	\$0.00	0%
Monthly Express Bus Pass	\$136.00	\$136.00	\$0.00	0%
7-Day LinkPass (Reduced)	\$10.00	\$10.00	\$0.00	0%
Monthly LinkPass (Reduced)	\$30.00	\$30.00	\$0.00	0%
Monthly Express Bus Pass (Reduced)	\$67.00	\$67.00	\$0.00	0%
<i>Commuter Rail</i>				
Monthly Pass Zone 1A–10	\$90.00–\$426.00	\$90.00–\$426.00	\$0.00	0%
Monthly Pass Interzone 1–10	\$90.00–\$257.00	\$90.00–\$257.00	\$0.00	0%
mTicket Monthly Pass Zone 1A–10	\$80.00–\$416.00	\$80.00–\$416.00	\$0.00	0%
mTicket Monthly Pass Interzone 1–10	\$80.00–\$247.00	\$80.00–\$247.00	\$0.00	0%
Flex Pass Zone 1A–10	\$21.60–\$119.25	\$21.60–\$119.25	\$0.00	0%
Flex Pass Interzone 1–10	\$24.75–\$65.25	\$24.75–\$65.25	\$0.00	0%
Monthly Pass Zone 1A–10 (Reduced)	\$30.00–\$209.00	\$30.00–\$209.00	\$0.00	0%
Monthly Pass Interzone 1–10 (Reduced)	\$41.00–\$124.00	\$41.00–\$124.00	\$0.00	0%
mTicket Monthly Pass Zone 1A–10 (Reduced)	\$30.00–\$204.00	\$30.00–\$204.00	\$0.00	0%
mTicket Monthly Pass Interzone 1–10 (Reduced)	\$36.00–\$119.00	\$36.00–\$119.00	\$0.00	0%
Flex Pass Zone 1A-10 (Reduced)	\$9.90–\$58.50	\$9.90–\$58.50	\$0.00	0%
Flex Pass Interzone 1–10 (Reduced)	\$11.25–\$31.50	\$11.25–\$31.50	\$0.00	0%
Weekend Pass	\$10.00	\$10.00	\$0.00	0%
Holiday Pass	Promotional Product	\$10.00		New Product

Fare Product	Existing Fare	Proposed Fare	Absolute Change	Percent Change
<i>Ferry</i>				
mTicket Charlestown Ferry	\$80.00	\$80.00	\$0.00	0%
Hingham/Hull Ferry	\$329.00	\$329.00	\$0.00	0%
mTicket Hingham/Hull Ferry	\$319.00	\$319.00	\$0.00	0%
Hingham/Hull Ferry (Reduced)	\$164.00	\$164.00	\$0.00	0%
mTicket Hingham/Hull Ferry (Reduced)	\$159.00	\$159.00	\$0.00	0%

Note: Reduced fares include existing reduced fare programs—Transportation Access Pass, Senior CharlieCard, Student Card, and Youth Pass CharlieCard—and the proposed low-income fares program.
 Source: MBTA.

DRAFT

2 REQUIREMENTS

Title VI of the Civil Rights Act of 1964 prohibits discrimination, either intentionally or unintentionally, by recipients of federal financial assistance based on race, color, or national origin. To comply with Title 49 of the Code of Federal Regulations (CFR) Section 21.5(b) (2), 49 CFR Section 21.5(b) (7), and Appendix C to 49 CFR Part 21, the MBTA must evaluate any fare changes to fixed-route modes prior to implementation to determine if the proposed changes would have a discriminatory effect. The Federal Transit Administration (FTA) provides guidance for conducting fare equity analyses in FTA Circular 4702.1B (“Circular”), Section IV.7.b. Prior to making a permanent fare change, the MBTA must analyze any available information generated from ridership surveys that indicates whether minority and/or low-income riders would be disproportionately more likely than overall riders to use the mode of service, payment type, or payment media that would be subject to a fare change. In addition, the MBTA must describe the datasets and collection methods used in its analysis.

The Circular states that the transit provider shall:

- determine the number and percent of users of each fare media being changed;
- review fares before the change and after the change;
- compare the differences for each particular fare media between minority users and overall users; and
- compare the differences for each particular fare media between low-income users and overall users.

Under Title VI and other directives, the FTA requires that transit agencies develop a policy to assess whether a proposed fare change would have a disparate impact on minority populations or disproportionate burden on low-income populations. The FTA Title VI guidelines define disparate impact as “a facially neutral policy or practice that disproportionately affects members of a group identified by race, color, or national origin, where the recipient’s policy or practice lacks a substantial legitimate justification and where there exists one or more alternatives that would serve the same legitimate objectives, but with less disproportionate effects on the basis, of race, color, or national origin.” The guidelines define disproportionate burden as “a neutral policy or practice that disproportionately affects low-income populations more than non-low-income populations.”

3 MBTA SERVICE AND FARE CHANGE EQUITY POLICY

3.1 Policy Thresholds

As of April 19, 2023, the *MBTA Service and Fare Change Equity Policy*² explains the methodology to be used for fare equity analyses:

“For fare changes, a disparate impact or disproportionate burden will be deemed to have occurred if the ratio between the percentage change in fares for protected riders and overall riders is greater than 1.10x for a fare increase or less than 0.90x for a fare decrease.”

MBTA Service and Fare Change Equity Policy

The policy thresholds are encapsulated in the following equations. A disparate impact would be found if the average fare decrease for minorities is less than 90 percent of the average fare decrease for all riders, or if the average fare increase for minorities is greater than 110 percent of the average increase for all riders:

Minority Average Fare Decrease < 90% × All-Rider Average Fare Decrease
 Minority Average Fare Increase > 110% × All-Rider Average Fare Increase

A disproportionate burden would be found if the average fare decrease for low-income riders is less than 90 percent of the average fare decrease for all riders, or if the average fare increase for low-income riders is greater than 110 percent of the average increase for all riders:

Low-income Average Fare Decrease < 90% × All-Rider Average Fare Decrease
 Low-income Average Fare Increase > 110% × All-Rider Average Fare Increase

The Service and Fare Change Equity Policy also describes the steps the MBTA will take when disparate impacts or disproportionate burdens are identified:

“Finding of Disparate Impact: Consistent with the FTA Circular, if the proposed change will have a disparate impact on riders or potential riders who are protected on the basis of race or ethnicity, the MBTA may only adopt the change upon demonstrating: (1) a substantial legitimate justification for the change; (2) there are no comparably effective alternatives that would result in less-disparate impacts; and (3) the justification for the change is not a pretext for discrimination.”

“Finding of Disproportionate Burden: If the proposed change will disproportionately affect low-income populations, whether by benefit or burden, the MBTA may only adopt the change if further mitigation measures or alternatives that would reduce the disproportionately high

² Massachusetts Bay Transportation Authority, “MBTA Service and Fare Change Equity Policy” (2023). <https://cdn.mbta.com/sites/default/files/2023-05/2023-5-1-service-and-fare-change-equity-policy-final-approved.pdf>.

and adverse effects are not practicable. In determining whether a mitigation measure or alternative is practicable, the social, economic, and environmental effects of avoiding or mitigating the adverse effects shall be taken into account.”

MBTA Service and Fare Change Equity Policy

4 METHODS AND DATASETS

4.1 Datasets, Data Collection Efforts, and Descriptions

CTPS used two primary datasets in the fare equity analysis:

- MBTA System-Wide Passenger Survey
- MBTA ridership and revenue data

4.1.1 MBTA System-Wide Passenger Survey

The 2022 MBTA System-Wide Passenger Survey³ includes all transit modes provided by the MBTA—the heavy rail Red, Blue, and Orange Lines; the light rail Green Line and Mattapan Trolley; the bus rapid transit Silver Line; the commuter rail system; the bus system; and the ferry system. The survey asked questions regarding trip origins and destinations, fare payment method, trip frequency, household size, race, ethnicity, and income.

The 2022 MBTA Passenger Survey is the first release of the MBTA’s ongoing or rolling rider census. Survey data was collected primarily as an intercept-based tablet survey from spring to late fall 2022 and published in the aggregate reporting group in 2023.

In this fare equity analysis, some survey responses from the previous 2015–17 MBTA System-Wide Passenger Survey were retained for fare product and mode combinations with limited sample sizes from the first release of the MBTA’s rolling survey.^{4,5}

4.1.2 Minority and Low-Income Populations

The MBTA Service and Fare Change Equity Policy identifies minority populations as passengers who self-identified as a race other than White or as Hispanic or

³ Office of Performance Management and Innovation, “MBTA 2022 System-Wide Passenger Survey” (2023). <https://mbta-massdot.opendata.arcgis.com/documents/be054dcf28f848aca8b848063f4ca422/explore>.

⁴ Central Transportation Planning Staff, “2015–17 MBTA Systemwide Passenger Survey” (2018). https://www.ctps.org/dv/mbtasurvey2018/2015_2017_Passenger_Survey_Final_Report.pdf.

⁵ 2015–17 Survey represents 18 percent of distinct survey responses in this analysis; however, the 2015–17 Survey represents less than one percent of annual unlinked trips after survey weighting.

Latino/Latina. The MBTA Service and Fare Change Equity Policy identifies low-income passengers as people whose median household income is less than 80 percent of the median household income for the MBTA service area.⁶

This analysis primarily uses responses from the 2022 MBTA System-Wide Passenger Survey. Survey respondents were classified as having minority status according to the MBTA Service and Fare Change Equity Policy. Respondents whose household income was less than \$75,000—the income category from the survey that most closely matched 80 percent of the median household income for the MBTA service area from the 2019 American Community Survey—were classified as low-income.⁷

4.1.3 MBTA Ridership and Revenue Data

The MBTA provided CTPS with ridership data from its automated fare collection (AFC) system from SFY 2022—the most recent complete SFY ridership and fare revenue data available at the start of the analysis. These data included unlinked trips by mode, fare-payment type, and fare media. For modes that are not part of the AFC system, the MBTA provided other data, such as monthly pass sales data and mTicket activations. These ridership and revenue data were used in conjunction with systemwide passenger survey data to estimate (1) the number of trips made by riders using each fare type and mode, and (2) the magnitude of the fare changes for low-income passengers, minority passengers, and all passengers.

Additionally, the MBTA provided transaction-level data from the AFC system from SFY 2023 so that CTPS could analyze the impact of removing change tickets on buses and light rail. The MBTA also provided mTicket activations by fare product and date for SFY 2022 so that CTPS could analyze the revenue impact of the Holiday Pass on commuter rail.

4.2 Agent-Based Ridership Model

For this analysis, CTPS updated the agent-based fare equity model; the model primarily relies on self-reported travel patterns and demographics from the MBTA System-Wide Passenger Survey. The model estimates the impact of fare changes to existing riders and, therefore, does not consider induced demand

⁶ Previously the Title VI low-income threshold was household incomes less than 60 percent of the median household income for the MBTA service area. In April 2023, the *MBTA Service and Fare Change Equity Policy* updated the Title VI low-income threshold to 80 percent of the area median income. This is the first fare equity analysis to use the updated low-income threshold.

⁷ In the responses retained from the 2015–17 Survey, respondents whose household income was less than \$58,000—the income category from the survey that most closely matched 80 percent of the median household income for the MBTA service area from the 2015 American Community Survey—were classified as low-income.

when projecting trips and revenue associated with fare changes. The focus on impacts to existing riders is consistent with the requirements for fare equity analyses identified in FTA’s Title VI Circular. The agent-based model estimates the annual cost of travel reported in each survey response and what share of annual unlinked passenger trips each survey response represents. Survey weights are determined using SFY 2022 ridership and revenue values, matching fare product usage by mode. The model determines the total annual revenue by demographic by multiplying annual travel costs by the survey weight. Finally, the total annual revenue is divided by the number of annual unlinked passenger trips to find the average fare by demographic population.

Table 2 displays the demographic split between equity populations across modes after weighting the systemwide survey to fare product use by mode. Additionally, Table 3 provides a snapshot of fare type usage by demographic group after the survey travel was weighted to fare-product usage by mode.

**Table 2
Demographic Profiles of MBTA Riders by Mode**

Mode	Minority	Nonminority	Low-Income	Non-Low-Income
Bus	72.8%	27.2%	83.2%	16.8%
Express Bus	35.0%	65.0%	30.6%	69.4%
Commuter Rail	44.5%	55.5%	45.9%	54.1%
Ferry	7.8%	92.2%	18.6%	81.4%
Silver Line	65.8%	34.2%	64.5%	35.5%
Subway and Light Rail	60.8%	39.2%	69.9%	30.1%
Systemwide	63.3%	36.7%	71.8%	28.3%

Source: MBTA System-Wide Passenger Survey, reweighted for Agent-Based Ridership Model by CTPS.

**Table 3
Principal Fare Payment Type by Minority, Low-Income, and All Riders**

Fare-Payment Type	Existing Fare	Annual Usage in Unlinked Trips			Annual Usage Share of Group Total		
		Minority	Low-Income	All Riders	Minority	Low-Income	All Riders
Local Bus							
Local Bus Pass	\$55.00	2,313,000	2,801,000	3,243,000	1.8%	1.9%	1.6%
Local Bus	\$1.70	14,207,000	16,261,000	20,398,000	11.2%	11.2%	10.1%
Local Bus (Reduced)	\$0.85	1,873,000	2,481,000	3,267,000	1.5%	1.7%	1.6%
Express Bus							
Express Bus Pass	\$136.00	167,000	139,000	509,000	0.1%	0.1%	0.2%
Express Bus Pass (Reduced)	\$67.00	1,000	1,000	1,000	0.0%	0.0%	0.0%
Express Bus	\$4.25	205,000	179,000	511,000	0.2%	0.1%	0.2%
Express Bus (Reduced)	\$2.10	8,000	10,000	47,000	0.0%	0.0%	0.0%
Bus and Rapid Transit							
Bus and Rapid Transit	\$2.40	4,981,000	5,644,000	6,750,000	3.9%	3.9%	3.4%
Bus and Rapid Transit (Reduced)	\$1.10	747,000	1,327,000	1,576,000	0.6%	0.9%	0.8%
Rapid Transit							
LinkPass	\$90.00	22,055,000	23,424,000	33,480,000	17.3%	16.2%	16.6%
LinkPass (Reduced)	\$30.00	13,774,000	15,101,000	17,439,000	10.8%	10.4%	8.7%
1-Day LinkPass	\$11.00	338,000	426,000	544,000	0.3%	0.3%	0.3%
7-Day LinkPass	\$22.50	17,158,000	19,744,000	22,408,000	13.5%	13.7%	11.1%
7-Day LinkPass (Reduced)	\$10.00	986,000	1,005,000	1,204,000	0.8%	0.7%	0.6%
Rapid Transit	\$2.40	18,234,000	20,724,000	34,801,000	14.3%	14.3%	17.3%
Rapid Transit (Reduced)	\$1.10	1,798,000	2,035,000	2,613,000	1.4%	1.4%	1.3%
Commuter Rail							
Zone 1A-10 Pass	\$80.00-\$426.00	3,747,000	3,272,000	8,500,000	2.9%	2.3%	4.2%
Zone 1A-10 Pass (Reduced)	\$30.00-\$209.00	459,000	660,000	772,000	0.4%	0.5%	0.4%
Interzone 1-10 Pass	\$80.00-\$257.00	14,000	12,000	82,000	0.0%	0.0%	0.0%
Interzone 1-10 Pass (Reduced)	\$36.00-\$124.00	NR	NR	NR	0.0%	0.0%	0.0%
Zone 1A-10 Flex Pass	\$21.60-\$119.25	189,000	403,000	889,000	0.2%	0.3%	0.4%
Zone 1A-10 Flex Pass (Reduced)	\$9.90-\$58.50	21,000	34,000	43,000	0.0%	0.0%	0.0%
Interzone 1-10 Flex Pass	\$24.75-\$65.25	NR	NR	NR	0.0%	0.0%	0.0%

Fare-Payment Type	Existing Fare	Annual Usage in Unlinked Trips			Annual Usage Share of Group Total		
		Minority	Low-Income	All Riders	Minority	Low-Income	All Riders
Interzone 1–10 Flex Pass (Reduced)	\$11.25–\$31.50	NR	NR	NR	0.0%	0.0%	0.0%
Zone 1A–10 Single Ride	\$2.40–\$13.25	2,908,000	2,992,000	5,909,000	2.3%	2.1%	2.9%
Zone 1A–10 Single Ride (Reduced)	\$1.10–\$6.50	92,000	154,000	248,000	0.1%	0.1%	0.1%
Interzone 1A–10 Single Ride	\$2.75–\$7.25	54,000	165,000	319,000	0.0%	0.1%	0.2%
Interzone 1A–10 Single Ride (Reduced)	\$1.25–\$3.50	8,000	21,000	32,000	0.0%	0.0%	0.0%
Weekend Pass	\$10.00	289,000	364,000	489,000	0.2%	0.2%	0.2%
Ferry							
Commuter Ferry Pass	\$319.00–\$329.00	19,000	19,000	93,000	0.0%	0.0%	0.0%
Commuter Ferry Pass (Reduced)	\$159.00–\$164.00	NR	NR	NR	0.0%	0.0%	0.0%
Charlestown Ferry Pass	\$80.00	NR	3,000	20,000	0.0%	0.0%	0.0%
Hingham/Hull Ferry	\$9.75	31,000	39,000	356,000	0.0%	0.0%	0.2%
Hingham/Hull Ferry (Reduced)	\$4.85	NR	NR	4,000	0.0%	0.0%	0.0%
Charlestown Ferry	\$3.70	2,000	53,000	140,000	0.0%	0.0%	0.1%
Charlestown Ferry (Reduced)	\$1.85	NR	NR	NR	0.0%	0.0%	0.0%
Free Transfers and Other Fares							
In-station Transfers	No Cost	17,784,000	20,476,000	28,948,000	14.0%	14.2%	14.4%
Free Trips	No Cost	2,984,000	4,582,000	5,827,000	2.3%	3.2%	2.9%

Notes: Values are rounded to the nearest 1,000. Percentages are calculated using unrounded values. NR indicates that insufficient riders from a given classification responded to the survey. The figures for free trips include people who are not required to pay a fare. Some of these people pay with the Blind Access Card.

NR = No response or insufficient responses.

Source: MBTA, processed by Central Transportation Planning Staff.

The agent-based model tracks how fare revenue changes for each passenger as fare product prices change and as new fare products are introduced. Within the agent-based model, whether or not passengers shift to a new fare product and what fare product they switch to depend on 1) the cost of their travel under the proposed fare structure, 2) what alternative fare products cover their travel, and 3) how efficiently their reported fare product covered the trip-making patterns in the survey response.

For this analysis, CTPS used the agent-based model to analyze the equity impacts of introducing a low-income fares program.

See Appendix A for a detailed description of how the agent-based fare equity model estimates the equity and revenue impacts associated with changes to fare prices and changes to fare product validity rules.

4.2.1 Low-Income Fares

The low-income fares program will allow qualifying passengers to pay reduced fares on all modes. CTPS identified qualified passengers based on passenger survey responses, and we found the change in revenue if they made their reported trip with a reduced fare.

To qualify for low-income fares, passengers must not already qualify for other reduced fare programs and have an income that is less than 200 percent of the Federal Poverty Level. CTPS identified potential qualifying low-income fare passengers by finding survey respondents who did not report paying reduced fares and reported an age between 26–64 years old. Passengers younger than 26 and older than 64 are already eligible for reduced fares. From potential qualifying passengers, CTPS found those with qualifying incomes using the reported household size, the reported household income, and the poverty guidelines published by the U.S. Department of Health and Human Services.^{8,9}

4.3 Off-Model Fare Changes

For fare changes that rely on trends with limited representation in the passenger survey, CTPS estimated the revenue associated with the magnitude of the fare change directly from MBTA ridership data. The revenue changes associated with

⁸ U.S. Department of Health and Human Services, "Poverty Guidelines API." <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/poverty-guidelines-api>.

⁹ When age was not reported, CTPS assumed a qualifying age. When household size was unreported, CTPS assumed qualifying income if Title VI income status was low-income. When 200 percent FPL split the income ranges reported on the survey, CTPS assigned qualifying incomes to a portion of passengers represented by the survey. The portion of passengers assigned qualifying incomes matched the percent that 200 percent FPL threshold covered the range of the income bracket.

removing change tickets is derived from AFC transaction data. The revenue change associated with introducing the Holiday Pass on commuter rail is estimated from tracking holiday travel with mTicket activations. Weighted passenger survey responses for the most relevant ridership group were then applied to estimate demographics.

4.3.1 Change Tickets for Cash Payment

Currently, riders who pay with cash on buses or light rail and overpay by more than \$0.50 receive the excess value as stored value on a change ticket. Riders can pay with coins and bills amounting to as much as \$20. Under the new fare policy, change tickets would no longer be issued, and the accepted bills would be limited to \$1 and \$5.¹⁰

CTPS identified change tickets issued during SFY23 for amounts between \$0.50 and \$3.30 from AFC transaction data. This fare value range was based on the assumption that the maximum cash payment following the change will be \$5, and thus the maximum overpayment will be \$3.30 if a \$5 bill is used to pay for a standard bus fare. Of these change tickets, CTPS calculated the total cash value issued on buses and light rail. The total potential overpayment by demographic group was estimated using weighted passenger survey responses for riders who reported paying for their fare with cash.

4.3.2 Holiday Pass on Commuter Rail

Prior to the introduction of the Holiday Pass, a weekend pass would allow for unlimited rides only on Saturday and Sunday of the weekend for which it was purchased. Under the new fare policy, the pass would also be valid for a holiday on an adjacent Friday or Monday. For midweek holidays, a \$10 pass would be available for unlimited rides only on that day. For Thanksgiving weekend, the pass would be valid Thursday through Sunday.

CTPS analyzed the equity of this policy by estimating the change in revenue for trips taken using mTickets on the proposed holiday weekends. CTPS calculated the total mTicket revenue collected on holiday weekends in SFY 2022. To calculate the proposed revenue, CTPS adjusted the price of travel for the same trips according to the rules set by the policy change. To do so, CTPS assumed that riders whose total price of travel for the weekend plus the holiday was greater than \$10 would instead purchase a weekend pass, meaning their total price for the weekend would be \$10. The revenue was then summed for all holiday weekends and compared with the pre-change revenue. Demographics

¹⁰ MBTA policy will be to issue change for cash payment onto a CharlieCard. To conservatively model the equity impact for riders who pay cash, this portion of the equity analysis tests the equity of the fare change assuming no change is issued onto CharlieCards.

for affected riders were estimated using weighted passenger survey responses for riders who reported using Weekend Passes.

5 RESULTS

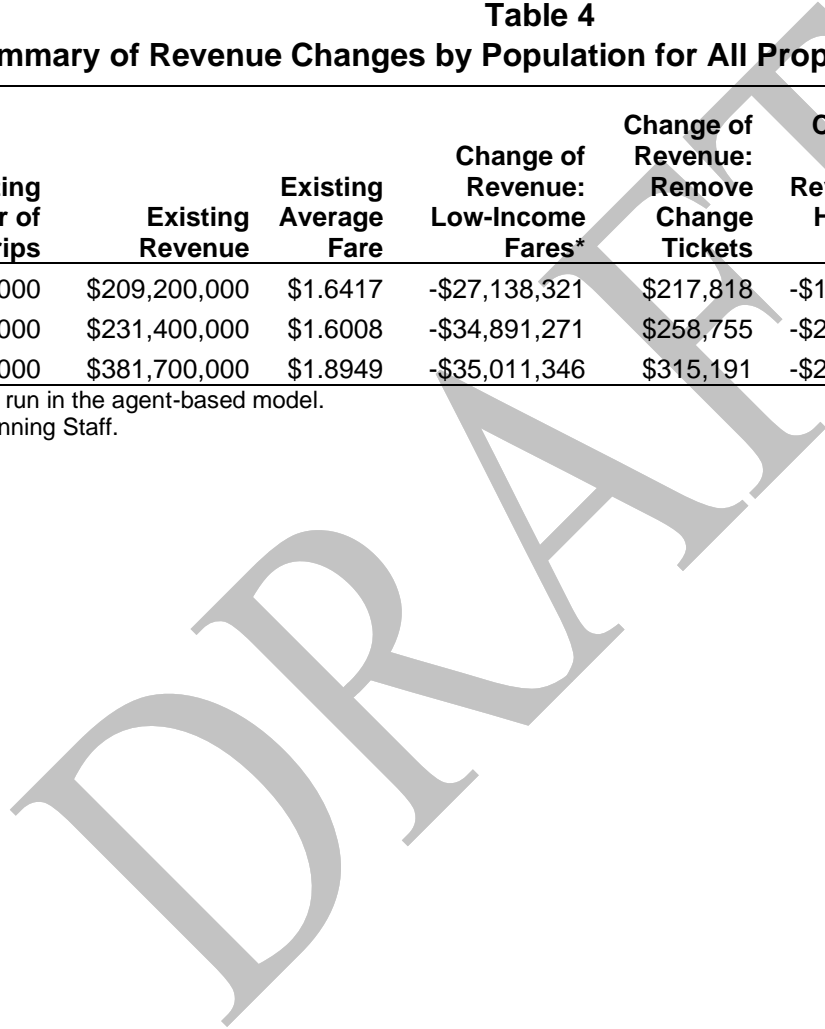
5.1 Estimated Revenue Impacts for Proposed Fare Changes

CTPS designed the agent-based model to report on the equity of the proposed fare change package while considering the interaction between specific changes. Table 4 summarizes revenue impact by individual fare change and as a package for each population. CTPS combined the revenue changes from the agent-based model with the revenue impact estimates from the off-model fare analyses. Table 4 shows the change in revenue and projected change in average fares associated with the proposed revenue changes for the agent-based model and off-model analysis combined.

Table 4
Summary of Revenue Changes by Population for All Proposed Fare Changes

Rider Classification	Existing Number of Trips	Existing Revenue	Existing Average Fare	Change of Revenue: Low-Income Fares*	Change of Revenue: Remove Change Tickets	Change of Revenue: Holiday Pass	Total Revenue Change	Projected Revenue	Projected Average Fare
Minority	127,400,000	\$209,200,000	\$1.6417	-\$27,138,321	\$217,818	-\$162,410	-\$27,028,913	\$182,117,087	\$1.4290
Low-Income	144,600,000	\$231,400,000	\$1.6008	-\$34,891,271	\$258,755	-\$221,860	-\$34,854,376	\$196,545,624	\$1.3597
All Riders	201,500,000	\$381,700,000	\$1.8949	-\$35,011,346	\$315,191	-\$280,146	-\$34,976,301	\$346,723,699	\$1.7210

* Results for proposed fare change run in the agent-based model.
 Source: Central Transportation Planning Staff.



5.2 Summary of All Changes

The results of the equity analysis, shown in Table 5, show that the proposed fare changes would neither produce a disparate impact on minority riders nor a disproportionate burden to low-income riders. There is a significant projected decrease in the average fare for all riders. Additionally, the average fare decreased more for low-income riders and for minority riders than for all riders.

Table 5
Existing and Proposed Average Fare and Price Changes

Rider Classification	Existing Average Fare	Projected Average Fare	Percent Price Change	DI/DB Ratio
Minority	\$1.6417	\$1.4290	-12.96%	141.23%
Low-Income	\$1.6008	\$1.3597	-15.06%	164.15%
All Riders	\$1.8949	\$1.7210	-9.17%	

Note: Percent changes in average fares and DI/DB ratios are calculated prior to rounding.
DI/DB = disparate impact and disproportionate burden.
Source: Central Transportation Planning Staff.

Application of the disparate-impact threshold to the combined results shows that the relative decrease in the average fare for minority riders is 141 percent of the relative decrease in the average fare for all riders. Application of the disproportionate-burden threshold shows that the relative decrease in the average fare for low-income riders is 164 percent of the relative decrease in the average fare for all riders. Because the average fare decreases for both minority and low-income riders are both greater than 90 percent of the average fare decrease for all riders—the threshold defined by the DI/DB policy—CTPS does not find a disparate impact on minority riders or a disproportionate burden on low-income riders.

Appendix A: Agent-Based Ridership Model Description

Appendix Table A-1

The Boston Region Metropolitan Planning Organization (MPO) operates its programs, services, and activities in compliance with federal nondiscrimination laws including Title VI of the Civil Rights Act of 1964 (Title VI), the Civil Rights Restoration Act of 1987, and related statutes and regulations. Title VI prohibits discrimination in federally assisted programs and requires that no person in the United States of America shall, on the grounds of race, color, or national origin (including limited English proficiency), be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination under any program or activity that receives federal assistance. Related federal nondiscrimination laws administered by the Federal Highway Administration, Federal Transit Administration, or both, prohibit discrimination on the basis of age, sex, and disability. The Boston Region MPO considers these protected populations in its Title VI Programs, consistent with federal interpretation and administration. In addition, the Boston Region MPO provides meaningful access to its programs, services, and activities to individuals with limited English proficiency, in compliance with U.S. Department of Transportation policy and guidance on federal Executive Order 13166.

The Boston Region MPO also complies with the Massachusetts Public Accommodation Law, M.G.L. c 272 sections 92a, 98, 98a, which prohibits making any distinction, discrimination, or restriction in admission to, or treatment in a place of public accommodation based on race, color, religious creed, national origin, sex, sexual orientation, disability, or ancestry. Likewise, the Boston Region MPO complies with the Governor's Executive Order 526, section 4, which requires that all programs, activities, and services provided, performed, licensed, chartered, funded, regulated, or contracted for by the state shall be conducted without unlawful discrimination based on race, color, age, gender, ethnicity, sexual orientation, gender identity or expression, religion, creed, ancestry, national origin, disability, veteran's status (including Vietnam-era veterans), or background.

A complaint form and additional information can be obtained by contacting the MPO or at http://www.bostonmpo.org/mpo_non_discrimination.

To request this information in a different language or in an accessible format, please contact

Title VI Specialist
Boston Region MPO
10 Park Plaza, Suite 2150
Boston, MA 02116
civilrights@ctps.org

By Telephone:

857.702.3700 (voice)

For people with hearing or speaking difficulties, connect through the state MassRelay service:

- **Relay Using TTY or Hearing Carry-over:** 800.439.2370
- **Relay Using Voice Carry-over:** 866.887.6619
- **Relay Using Text to Speech:** 866.645.9870

For more information, including numbers for Spanish speakers, visit <https://www.mass.gov/massrelay>.

APPENDIX A: AGENT-BASED RIDERSHIP MODEL DESCRIPTION

A1. Agent-Based Ridership Model

CTPS developed an agent-based fare equity analysis methodology to report on the equity impacts of fare changes. The agent-based fare equity analysis methodology allows analysis of passenger-level fare changes, and it efficiently analyzes new fare products and changing validity rules.

To make the agent-based ridership model CTPS matches survey responses with annual MBTA ridership and revenue. Within the model, we distribute unlinked trips from the base ridership year across systemwide survey responses through the survey weighting process. Then, we estimate the number of passengers—or agents—each survey represents based on the trip-making patterns reported in the survey response, and we identify fare products used, modes traveled on, and the reported trip frequency.

Individual agents in the model approximate passenger behavior, as individual agents are assumed to make the same trip with the same fare product at a constant trip frequency the entire year. However, the total trips made in the model by all agents equals the total amount of unlinked trips observed in the base ridership year. Additionally, the amount of money agents spend on their travel equals the amount of fare revenue anticipated for the most recent fare structure.

A1.1 Survey Weighting by Fare Product and Mode

To develop the agent-based model from the systemwide ridership survey, CTPS determined that survey responses should be reweighted by annual unlinked boardings by fare product and mode. CTPS staff reweighted the travel reported in survey responses to observed boardings by fare product and mode for SFY 2022. Survey responses were excluded from the analysis if

- minority or income status were unreported,
- all fare payment information was missing,
- a fare product could not be assigned because fare questions were incomplete, or
- trip frequency was unreported.

A1.2 Pricing Survey Travel and Estimating Revenue from Fares

CTPS calculated the annual cost of reported travel in the passenger survey dataset based on the pricing structure that was in place as of July 1, 2022. To find annual costs for travel, CTPS assumed that each survey respondent would travel at the reported frequency for the entire SFY, and we scaled up each person's trip frequency accordingly. For example, if a respondent reported

purchasing a monthly LinkPass for \$90, then that person was assumed to have purchased the same pass every month, for a total of \$1,080 spent on fares that year. Alternatively, if a respondent paid for travel on a per-ride basis, the travel costs were calculated as the total cost of the linked trip at the estimated scaled trip frequency. For example, if travel included a rapid transit trip with a step-up transfer to bus service three-to-four days a week, each linked trip would cost \$2.40 and the person would make this trip approximately 29.7 times a month or 357 times a year. In total, this per-ride travel would cost \$856.73 per year.

CTPS estimated the number of passengers represented by each survey response by dividing the total weighted boardings per survey response by the boardings per passenger associated with the reported survey travel.

$$\text{Passengers represented per survey} = \frac{\text{Weighted boardings}}{\text{Boardings per passenger in survey response}}$$

CTPS estimated the revenue per survey response as the number of passengers represented per survey multiplied by the cost of yearly travel per passenger.

$$\text{Revenue per survey} = (\text{Cost of yearly travel per passenger}) \times (\text{Passengers represented per survey})$$

This process was used to calculate the revenue and total trips associated with minority, low-income, and all riders for the current fare structure. Next, CTPS found how travel costs would change under the proposed fare structure. To identify the change in price for fare changes made to existing fare products, CTPS priced survey travel using the proposed pricing structure. For new fare products, CTPS identified the riders with travel patterns that will be best served by the new fare product and shifted them to the new product.

A1.3 Introducing New Fare Products and Changing Validity Rules

Within the agent-based model, whether passengers shift to a new fare product and what fare product they switch to depend on 1) the cost of their travel under the proposed fare structure, 2) what alternative fare products cover their travel, and 3) how efficiently their reported fare product covered the trip-making patterns in the survey response.

To determine if a survey respondent would switch to a new fare product within the agent-based model, CTPS uses the following methodology:

1. Find the price for the reported travel using all possible fare products, including the per-ride price and all passes that cover the modes indicated in the survey response.
2. Identify the most cost-efficient fare option for reported travel based on the trip-making information provided in the survey.

3. Determine how likely the survey respondent is to switch to a new fare product by assigning a sensitivity threshold to each survey response. (See the next section for further discussion.)
4. Find the percent change in cost between the reported fare product and all possible fare products in the proposed fare structure.
5. Switch passengers to a new fare product if the cost savings exceed their sensitivity threshold.

A1.4 Estimating Survey Respondents' Sensitivity to Change

The ridership survey represents an incomplete snapshot of a passenger's travel, as it asked respondents to report their fare payment and travel for their most recent MBTA trip. For example, a passenger could have a Monthly LinkPass, but the passenger's most recent MBTA trip reported in the survey was a local bus trip. As a result, not every survey response is matched to the most efficient fare product for the reported travel patterns.

To address this issue, we estimate a sensitivity threshold to describe how sensitive a given respondent is to a price change, based on how appropriate the reported fare product is for the passenger's travel. Then, when introducing new fare products, CTPS projects a fare product switch if the cost savings exceed the sensitivity threshold. If we find a respondent is purchasing the lowest cost fare product in the baseline, then we assume that person is more sensitive to a price change than someone who could potentially be saving tens to hundreds of dollars per month.

To determine whether a survey respondent will switch to a lower cost fare product, we classified respondents into three sensitivity categories: very sensitive, somewhat sensitive, and insensitive:

- ***Very sensitive*** respondents are purchasing the lowest cost fare product available in the baseline. Respondents in this category will switch to a new fare product if switching would result in a five percent cost savings or more.
- ***Somewhat sensitive*** respondents are not purchasing the lowest cost fare product available, but their potential savings are less than their sensitivity threshold.
- ***Insensitive*** respondents are not purchasing the lowest cost fare product available, and their potential savings are greater than the weighted average of potential savings for similar riders. In the model, these riders will not switch to a new fare product regardless of the potential cost savings, as we assume their choice of fare product is minimally related to the fare product cost.

CTPS found the sensitivity threshold to distinguish between somewhat sensitive and insensitive survey respondents by finding the average percent respondents “overpaid” for similar travel. Of survey respondents who were not purchasing the most cost-efficient fare product, commuter rail and/or ferry riders pay 18 percent more than the most cost-efficient product. Bus and/or rapid transit riders pay on average 25 percent more than the most cost-efficient product.

**Table A-1
Complete Pass Prices: Existing and Proposed**

Fare Product	Rider Type	Existing Fare	Proposed Fare	Percent Change
<i>Bus and Rapid Transit</i>				
1-Day	Adult	\$11.00	\$11.00	0%
7-Day	Adult	\$22.50	\$22.50	0%
Local Bus	Adult	\$55.00	\$55.00	0%
LinkPass	Adult	\$90.00	\$90.00	0%
Express Bus	Adult	\$136.00	\$136.00	0%
7-Day	Reduced	\$10.00	\$10.00	0%
LinkPass	Reduced	\$30.00	\$30.00	0%
Express Bus	Reduced	\$67.00	\$67.00	0%
<i>Commuter Rail</i>				
Zone 1A	Adult	\$90.00	\$90.00	0%
Zone 1	Adult	\$214.00	\$214.00	0%
Zone 2	Adult	\$232.00	\$232.00	0%
Zone 3	Adult	\$261.00	\$261.00	0%
Zone 4	Adult	\$281.00	\$281.00	0%
Zone 5	Adult	\$311.00	\$311.00	0%
Zone 6	Adult	\$340.00	\$340.00	0%
Zone 7	Adult	\$360.00	\$360.00	0%
Zone 8	Adult	\$388.00	\$388.00	0%
Zone 9	Adult	\$406.00	\$406.00	0%
Zone 10	Adult	\$426.00	\$426.00	0%
Interzone 1	Adult	\$90.00	\$90.00	0%
Interzone 2	Adult	\$110.00	\$110.00	0%
Interzone 3	Adult	\$120.00	\$120.00	0%
Interzone 4	Adult	\$139.00	\$139.00	0%
Interzone 5	Adult	\$158.00	\$158.00	0%
Interzone 6	Adult	\$178.00	\$178.00	0%
Interzone 7	Adult	\$196.00	\$196.00	0%
Interzone 8	Adult	\$216.00	\$216.00	0%
Interzone 9	Adult	\$237.00	\$237.00	0%

Fare Product	Rider Type	Existing Fare	Proposed Fare	Percent Change
Interzone 10	Adult	\$257.00	\$257.00	0%
Zone 1A (mTicket)	Adult	\$80.00	\$80.00	0%
Zone 1 (mTicket)	Adult	\$204.00	\$204.00	0%
Zone 2 (mTicket)	Adult	\$222.00	\$222.00	0%
Zone 3 (mTicket)	Adult	\$251.00	\$251.00	0%
Zone 4 (mTicket)	Adult	\$271.00	\$271.00	0%
Zone 5 (mTicket)	Adult	\$301.00	\$301.00	0%
Zone 6 (mTicket)	Adult	\$330.00	\$330.00	0%
Zone 7 (mTicket)	Adult	\$350.00	\$350.00	0%
Zone 8 (mTicket)	Adult	\$378.00	\$378.00	0%
Zone 9 (mTicket)	Adult	\$396.00	\$396.00	0%
Zone 10 (mTicket)	Adult	\$416.00	\$416.00	0%
Interzone 1 (mTicket)	Adult	\$80.00	\$80.00	0%
Interzone 2 (mTicket)	Adult	\$100.00	\$100.00	0%
Interzone 3 (mTicket)	Adult	\$110.00	\$110.00	0%
Interzone 4 (mTicket)	Adult	\$129.00	\$129.00	0%
Interzone 5 (mTicket)	Adult	\$148.00	\$148.00	0%
Interzone 6 (mTicket)	Adult	\$168.00	\$168.00	0%
Interzone 7 (mTicket)	Adult	\$186.00	\$186.00	0%
Interzone 8 (mTicket)	Adult	\$206.00	\$206.00	0%
Interzone 9 (mTicket)	Adult	\$227.00	\$227.00	0%
Interzone 10 (mTicket)	Adult	\$247.00	\$247.00	0%
Flex Pass Zone 1A (mTicket)	Adult	\$21.60	\$21.60	0%
Flex Pass Zone 1 (mTicket)	Adult	\$58.50	\$58.50	0%
Flex Pass Zone 2 (mTicket)	Adult	\$63.00	\$63.00	0%
Flex Pass Zone 3 (mTicket)	Adult	\$72.00	\$72.00	0%
Flex Pass Zone 4 (mTicket)	Adult	\$78.75	\$78.75	0%
Flex Pass Zone 5 (mTicket)	Adult	\$87.75	\$87.75	0%
Flex Pass Zone 6 (mTicket)	Adult	\$94.50	\$94.50	0%
Flex Pass Zone 7 (mTicket)	Adult	\$99.00	\$99.00	0%
Flex Pass Zone 8 (mTicket)	Adult	\$110.25	\$110.25	0%
Flex Pass Zone 9 (mTicket)	Adult	\$114.75	\$114.75	0%
Flex Pass Zone 10 (mTicket)	Adult	\$119.25	\$119.25	0%
Flex Pass Interzone 1 (mTicket)	Adult	\$24.75	\$24.75	0%
Flex Pass Interzone 2 (mTicket)	Adult	\$29.25	\$29.25	0%
Flex Pass Interzone 3 (mTicket)	Adult	\$31.50	\$31.50	0%
Flex Pass Interzone 4 (mTicket)	Adult	\$38.25	\$38.25	0%
Flex Pass Interzone 5 (mTicket)	Adult	\$42.75	\$42.75	0%
Flex Pass Interzone 6 (mTicket)	Adult	\$47.25	\$47.25	0%
Flex Pass Interzone 7 (mTicket)	Adult	\$51.75	\$51.75	0%
Flex Pass Interzone 8 (mTicket)	Adult	\$56.25	\$56.25	0%

Fare Product	Rider Type	Existing Fare	Proposed Fare	Percent Change
Flex Pass Interzone 9 (mTicket)	Adult	\$60.75	\$60.75	0%
Flex Pass Interzone 10 (mTicket)	Adult	\$65.25	\$65.25	0%
Weekend Pass (mTicket)	Adult	\$10.00	\$10.00	0%
Holiday Pass (mTicket)	Adult	Promotional Product	\$10.00	New Product
Zone 1A	Reduced	\$30.00	\$30.00	0%
Zone 1	Reduced	\$107.00	\$107.00	0%
Zone 2	Reduced	\$116.00	\$116.00	0%
Zone 3	Reduced	\$130.00	\$130.00	0%
Zone 4	Reduced	\$136.00	\$136.00	0%
Zone 5	Reduced	\$152.00	\$152.00	0%
Zone 6	Reduced	\$170.00	\$170.00	0%
Zone 7	Reduced	\$180.00	\$180.00	0%
Zone 8	Reduced	\$190.00	\$190.00	0%
Zone 9	Reduced	\$199.00	\$199.00	0%
Zone 10	Reduced	\$209.00	\$209.00	0%
Interzone 1	Reduced	\$41.00	\$41.00	0%
Interzone 2	Reduced	\$51.00	\$51.00	0%
Interzone 3	Reduced	\$60.00	\$60.00	0%
Interzone 4	Reduced	\$65.00	\$65.00	0%
Interzone 5	Reduced	\$75.00	\$75.00	0%
Interzone 6	Reduced	\$85.00	\$85.00	0%
Interzone 7	Reduced	\$94.00	\$94.00	0%
Interzone 8	Reduced	\$104.00	\$104.00	0%
Interzone 9	Reduced	\$114.00	\$114.00	0%
Interzone 10	Reduced	\$124.00	\$124.00	0%
Zone 1A (mTicket)	Reduced	\$30.00	\$30.00	0%
Zone 1 (mTicket)	Reduced	\$102.00	\$102.00	0%
Zone 2 (mTicket)	Reduced	\$111.00	\$111.00	0%
Zone 3 (mTicket)	Reduced	\$125.00	\$125.00	0%
Zone 4 (mTicket)	Reduced	\$131.00	\$131.00	0%
Zone 5 (mTicket)	Reduced	\$147.00	\$147.00	0%
Zone 6 (mTicket)	Reduced	\$165.00	\$165.00	0%
Zone 7 (mTicket)	Reduced	\$175.00	\$175.00	0%
Zone 8 (mTicket)	Reduced	\$185.00	\$185.00	0%
Zone 9 (mTicket)	Reduced	\$194.00	\$194.00	0%
Zone 10 (mTicket)	Reduced	\$204.00	\$204.00	0%
Interzone 1 (mTicket)	Reduced	\$36.00	\$36.00	0%
Interzone 2 (mTicket)	Reduced	\$46.00	\$46.00	0%
Interzone 3 (mTicket)	Reduced	\$55.00	\$55.00	0%
Interzone 4 (mTicket)	Reduced	\$60.00	\$60.00	0%
Interzone 5 (mTicket)	Reduced	\$70.00	\$70.00	0%

Fare Product	Rider Type	Existing Fare	Proposed Fare	Percent Change
Interzone 6 (mTicket)	Reduced	\$80.00	\$80.00	0%
Interzone 7 (mTicket)	Reduced	\$89.00	\$89.00	0%
Interzone 8 (mTicket)	Reduced	\$99.00	\$99.00	0%
Interzone 9 (mTicket)	Reduced	\$109.00	\$109.00	0%
Interzone 10 (mTicket)	Reduced	\$119.00	\$119.00	0%
Flex Pass Zone 1A (mTicket)	Reduced	\$9.90	\$9.90	0%
Flex Pass Zone 1 (mTicket)	Reduced	\$29.25	\$29.25	0%
Flex Pass Zone 2 (mTicket)	Reduced	\$31.50	\$31.50	0%
Flex Pass Zone 3 (mTicket)	Reduced	\$36.00	\$36.00	0%
Flex Pass Zone 4 (mTicket)	Reduced	\$38.25	\$38.25	0%
Flex Pass Zone 5 (mTicket)	Reduced	\$42.75	\$42.75	0%
Flex Pass Zone 6 (mTicket)	Reduced	\$47.25	\$47.25	0%
Flex Pass Zone 7 (mTicket)	Reduced	\$49.50	\$49.50	0%
Flex Pass Zone 8 (mTicket)	Reduced	\$54.00	\$54.00	0%
Flex Pass Zone 9 (mTicket)	Reduced	\$56.25	\$56.25	0%
Flex Pass Zone 10 (mTicket)	Reduced	\$58.50	\$58.50	0%
Flex Pass Interzone 1 (mTicket)	Reduced	\$11.25	\$11.25	0%
Flex Pass Interzone 2 (mTicket)	Reduced	\$13.50	\$13.50	0%
Flex Pass Interzone 3 (mTicket)	Reduced	\$15.75	\$15.75	0%
Flex Pass Interzone 4 (mTicket)	Reduced	\$18.00	\$18.00	0%
Flex Pass Interzone 5 (mTicket)	Reduced	\$20.25	\$20.25	0%
Flex Pass Interzone 6 (mTicket)	Reduced	\$22.50	\$22.50	0%
Flex Pass Interzone 7 (mTicket)	Reduced	\$24.75	\$24.75	0%
Flex Pass Interzone 8 (mTicket)	Reduced	\$27.00	\$27.00	0%
Flex Pass Interzone 9 (mTicket)	Reduced	\$29.25	\$29.25	0%
Flex Pass Interzone 10 (mTicket)	Reduced	\$31.50	\$31.50	0%
Weekend Pass (mTicket)	Adult	\$10.00	\$10.00	0%
Ferry				
Hingham/Hull Ferry	Adult	\$329.00	\$329.00	0%
Charlestown Ferry (mTicket)	Adult	\$80.00	\$80.00	0%
Hingham/Hull Ferry (mTicket)	Adult	\$319.00	\$319.00	0%
Hingham/Hull Ferry (mTicket)	Reduced	\$159.00	\$159.00	0%
Hingham/Hull Ferry	Reduced	\$164.00	\$164.00	0%

Note: The 'Reduced' rider type includes riders enrolled in existing reduced fare programs—Transportation Access Pass, Senior CharlieCard, Student Card, and Youth Pass CharlieCard—and the proposed low-income fares program.

Source: MBTA.