



TECHNICAL MEMORANDUM

DATE: March 3, 2021
TO: Kat Benesh, Massachusetts Bay Transportation Authority
FROM: Steven Andrews, Central Transportation Planning Staff
Blake Acton, Central Transportation Planning Staff
RE: Forging Ahead: Title VI Service Equity Analysis

Due to the COVID-19 pandemic, the Massachusetts Bay Transportation Authority (MBTA) is planning to adjust its service levels to better address the significant drop in ridership that has occurred and to hold resources in reserve to ensure that the MBTA is able to continue to provide key service to critical workers who have continued to rely on transit during the course of the pandemic.

The MBTA will make significant service reductions beginning in spring 2021 and plans to make an additional set of changes in summer 2021. These combined changes, part of the Forging Ahead initiative, will exceed the MBTA's major service change threshold.

As a recipient of federal funds through the Federal Transit Administration (FTA), the MBTA is required to comply with Title VI of the Civil Rights Act of 1964 (Title 49, part 21, Code of Federal Regulations). The FTA provides guidance to its subrecipients for carrying out Title VI obligations in Circular 4702.1B. This circular includes a requirement for large transit providers to conduct a Title VI service equity analysis to evaluate, prior to implementing any major service change, whether the planned change would have a discriminatory impact on the basis of race, color, or national origin.

Although low-income populations are not a protected class under Title VI, the FTA also requires transit providers to determine whether low-income populations would bear a disproportionate burden from a proposed major service reduction. Traditionally, the Central Transportation Planning Staff (CTPS) of the Boston Region MPO has conducted service equity analyses for the MBTA.

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

Summary of Service Equity Analysis Results

The results of the service equity analysis indicate that implementation of the combined changes through summer 2021 Forging Ahead service changes will not result in disparate impacts to minority populations, disparate benefits to nonminority populations, disproportionate burdens to low-income populations, or disproportionate benefits to non-low-income populations.

The remainder of this memo documents the detailed results, assumptions, and methodology used to support these conclusions.

1 PLANNED SERVICE LEVEL CHANGES AND THE PUBLIC PROCESS

A detailed description of the service change proposal and how the MBTA derived the proposed changes can be found in the [“Forging Ahead: Service Proposal”](#) presented at the Fiscal and Management Control Board’s (FMCB) December 14, 2020 meeting.¹ The following is a summary of the proposed changes to the MBTA’s fixed-route modes:

Bus	<ul style="list-style-type: none"> • Suspend 20 routes, consolidate 16, shorten four, and operate a few routes during peak times only (many of these changes are already in effect as part of COVID schedules) • 20 percent frequency reduction to non-essential routes • Five percent frequency reduction to essential routes
Rapid Transit	<ul style="list-style-type: none"> • 20 percent frequency reduction to Green, Orange, and Red Lines • As much as five percent frequency reduction to Blue Line
Commuter Rail	<ul style="list-style-type: none"> • Maintain partial weekend service on the Worcester, Providence, Newburyport/Rockport, Middleboro and Fairmount branches; suspend weekend service on all other branches • End weekday service at 9:00 PM • Reduce peak and weekday service • Close five stations (Plimptonville, Prides Crossing, Silver Hill, Hastings, and Plymouth)
Ferry	<ul style="list-style-type: none"> • Suspend Charlestown and Hingham direct service • Reduce weekday Hingham/Hull ferry service

¹ www.mbtta.com/events/2020-12-14/fiscal-and-management-control-board-meeting and cdn.mbtta.com/sites/default/files/2020-12/2020-12-14-fmcb-F-forging-ahead-service-proposal.pdf

These changes were informed by a public process following a presentation on November 9, 2020, of the Forging Ahead service changes. The MBTA held ten virtual public meetings and a virtual public hearing on an initial set of service changes. The MBTA also reached out to more than 200 community organizations and collected nearly 7,000 public comments. More detailed information about the public engagement program and its findings can be found at www.mbta.com/forging-ahead-comments.

2 TITLE VI SERVICE EQUITY ANALYSIS: FRAMEWORK

2.1 The MBTA's Disparate Impact/Disproportionate Burden Policy

The FTA's Title VI Circular 4702.1B, issued in October 2012, under the authority of Title VI of the Civil Rights Act of 1964, directs transit providers to study proposed major service changes and all fare changes for possible disparities in impacts on minority and low-income riders and communities.

This requirement is part of the MBTA's Title VI assurance that no person shall, on the basis of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving federal financial assistance.

The MBTA's Disparate Impact/Disproportionate Burden (DI/DB) Policy describes the general procedure for conducting service and fare equity analyses. Appendix C contains the full text of the current January 30, 2017, version of the MBTA's DI/DB Policy.² This service equity analysis was performed using the information contained in the DI/DB Policy.

2.2 The Need to Conduct a Service Equity Analysis

The MBTA must conduct a service equity analysis when it is proposing a major service change. The MBTA defines a *major service change* in its DI/DB Policy as a service change that meets one or more of the following conditions:

- A change in revenue-vehicle hours (RVH) per week of at least 10 percent by mode
- For routes with at least 80 RVH per week, a change in RVH per week of at least 25 percent
- For all routes, a change in route length of at least 25 percent or three miles

Major service changes also include elimination of existing routes or the addition of new routes. If there is a major service change on any route in a package of

² <http://www.mbta.com/policies/fairness>

changes, the equity analysis must consider all concurrently proposed changes in the aggregate.

Because the MBTA is proposing to eliminate entire routes, among other major RVH reductions, the MBTA's Forging Ahead service changes are considered a major service change.

2.3 Evaluation of Adverse Impacts

The MBTA defines adverse effects as changes to

- the amount of service scheduled, by route and by mode, as measured by changes to weekly RVH; and
- access to the service, by route, as measured by changes to route length.

In accordance with the MBTA's DI/DB Policy, the MBTA analyzes the changes to RVH and route length as relative and absolute changes.³ CTPS also measures the relative share of the burden, which compares the protected population group's share of the net benefit or burden relative to its existing share of the metric.

The MBTA's threshold for determining when adverse effects of major service changes may result in disparate impacts on minority and/or disproportionate burdens on low-income populations is 20 percent. If the ratio of the impact on minority to non-minority populations or low-income to non-low-income populations is more than 1.20 (or 20 percent), then the proposed change would be determined to pose a potential disparate impact or disproportionate burden.

2.4 Datasets and Definitions

Demographic Datasets

CTPS, in consultation with the MBTA, chose to use the 2015–17 MBTA Systemwide Passenger Survey dataset instead of the United States Census Bureau's American Community Survey and census data because the vast majority of the changes the MBTA is proposing are changes to service levels rather than route structure. Many of the route structure changes are route eliminations. Route structure changes largely affect existing riders, which the survey represents well.

More detail about the 2015–17 MBTA Systemwide Passenger Survey, the results, and data collection methodologies may be found at www.ctps.org/apps/mbtasurvey2018/index.html.

³ Massachusetts Bay Transportation Authority, *MBTA Disparate Impact/Disproportionate Burden (DI/DB) Policy*, January 30, 2017.

Definitions of Minority and Low-Income Populations

Minority status was determined based on the answers to the race and ethnicity survey questions. Respondents were classified as having minority status if they self-identified as a race other than white and/or as Hispanic or Latino/Latina. Respondents were classified as not having minority status if they self-identified solely as white and not Hispanic or Latino/Latina. All other respondents could not be classified and were not included in the calculation of minority percentages. The systemwide survey minority percentage was 34 percent.

Low-income status was determined for respondents who provided their household income. Household incomes of less than \$43,500 were classified as low income. The low-income threshold was set at 60 percent of the median household income for the MBTA service area from the 2013 American Community Survey. Respondents who did not answer the household income question or selected “prefer not to say” could not be classified and were not included in the calculation of low-income percentages. The systemwide survey low-income percentage was 29 percent.

The Comparison Population

In this analysis, the comparator is the amount of each metric, RVH, and route-miles of service, attributed to each population.

The Effects of COVID-19 on Rider Demographics

The impact of the COVID-19 pandemic on ridership varies by demographics and mode. While the 2015–17 MBTA Systemwide Passenger Survey is the premier dataset for rider demographics, it describes pre-pandemic rider demographics and may no longer be representative of current riders. To address this issue, the demographics of riders on each route were assigned in two ways.

The first method (“proportionate allocation”) uses demographic data directly from the survey and allocates a metric (revenue-vehicle hours or route-miles) by the percent of a demographic by route. For example, every week Route 1 operated 1,325 RVH and 37 percent of its riders were classified as minorities. For this route, 490 RVH ($1,325 * 0.37$) were allocated to riders classified as minorities.

The second method (“full allocation”) assigns each route a classification based on whether it is above or below the systemwide average for each demographic. All of a given metric is attributed to the group. Continuing the above example, according to the 2015–17 MBTA Systemwide Passenger Survey, 34 percent of systemwide riders were classified as minority riders. Because the ratio of riders classified as minority riders on Route 1 (37 percent) is greater than 34 percent,

all 1,325 RVH were allocated to minority riders. Under the full allocation method, Route 1 would be classified as a minority route.

The proportionate allocation method allows the allocation of route metrics to vary between routes and more precisely captures each route's unique demographic profile. However, this method is limited by the, likely false, assumption that the COVID-19 pandemic has not significantly altered rider demographics since the survey was conducted. The full allocation method addresses this limitation by acknowledging that while the precise demographics of current riders are unknown, route *classifications* are likely to remain stable. Most pre-COVID low-income and minority routes will probably remain low-income and minority routes post-COVID. This method sacrifices some precision by “hiding” the variation within low-income and minority routes, but since the accuracy of this variation is questionable the results are likely a better representation of reality.

3 TITLE VI SERVICE EQUITY ANALYSIS RESULTS

3.1 Change in Weekly Revenue-Vehicle Hours

Using the proportionate allocation method described above, CTPS estimated the existing RVH by rider classification and the change in RVH from the planned, pre-COVID spring 2020 schedule to the proposed summer 2021 schedule, as shown in Table 1.

Table 9, at the end of the document, presents the RVH changes on a route-by-route basis.

Table 1
Net Change in Weekly Revenue-Vehicle Hours for Each Population Group:
Proportionate Allocation

Population Group	Existing Hours	Share of Existing Hours	Net Change	Share of Net Change	Percent Change
Minority	28,381.6	41.4%	-3,325.1	30.9%	-11.7%
Nonminority	40,200.7	58.6%	-7,445.4	69.1%	-18.5%
Low-Income	24,903.0	36.3%	-2,973.4	27.6%	-11.9%
Non-Low-Income	43,679.3	63.7%	-7,797.1	72.4%	-17.9%

Note: Values in this table differ from those published in a January 29, 2021, Air Quality and Environmental Justice Analysis. Revenue-vehicle hour reductions for several commuter rail routes were inadvertently underreported.

Sources: MBTA revenue-vehicle hour spreadsheets as processed by CTPS and 2015–17 MBTA Systemwide Passenger Survey.

Using the full allocation method described above, CTPS performed the same analysis, as shown in Table 2.

Table 2
Net Change in Weekly Revenue Vehicle Hours for Each Population Group:
Full Allocation

Population Group	Existing Hours	Share of Existing Hours	Net Change	Share of Net Change	Percent Change
Minority	37,698.1	55.0%	-4,003.4	37.2%	-10.6%
Nonminority	30,884.2	45.0%	-6,767.1	62.8%	-21.9%
Low-Income	39,401.6	57.5%	-4,144.2	38.5%	-10.5%
Non-Low-Income	29,180.7	42.5%	-6,626.3	61.5%	-22.7%

Note: Values in this table differ from those published in a January 29, 2021, Air Quality and Environmental Justice Analysis. Revenue-vehicle hour reductions for several commuter rail routes were inadvertently underreported.

Sources: MBTA revenue vehicle hour spreadsheets as processed by CTPS and 2015–17 MBTA Systemwide Passenger Survey.

Weekly Revenue Vehicle Hours: Disparate Impact/Disproportionate Burden Analysis

Table 3 summarizes the results of the service equity analysis relating to RVH changes according to the proportionate allocation methodology. As shown in Table 3, the results do not indicate a disparate impact to minority populations or a disproportionate burden to low-income populations.

Table 3
Summary of DI/DB Results Relating to Revenue-Vehicle Hour Changes:
Proportionate Allocation

Analysis Method	Impacts on Minority Populations	Impacts on Low-Income Populations
Absolute Change (Protected / Nonprotected)	No Disparate Impact Ratio: -3,325 / -7,445 < 120%	No Disproportionate Burden Ratio: -2,973 / -7,797 < 120%
Relative Change (Protected / Nonprotected)	No Disparate Impact Ratio: -11.7% / -18.5% < 120%	No Disproportionate Burden Ratio: -11.9% / -17.9% < 120%
Protected Share of Change / Protected Share of Existing Hours	No Disparate Impact Ratio: 30.9% / 41.4% < 120%	No Disproportionate Burden Ratio: 27.6% / 36.3% < 120%

Note: Values correspond to Table 1.

DI/DB = disparate impact/disproportionate burden.

Source: CTPS.

Table 4 summarizes the results of the service equity analysis relating to RVH changes according to the full allocation methodology. As shown in Table 4, the results do not indicate a disparate impact to minority populations or a disproportionate burden to low-income populations.

Table 4
Summary of DI/DB Results Relating to Revenue-Vehicle Hour Changes:
Full Allocation

Analysis Method	Impacts on Minority Populations	Impacts on Low-Income Populations
Absolute Change (Protected / Nonprotected)	No Disparate Impact Ratio: -4,003 / -6,767 < 120%	No Disproportionate Burden Ratio: -4,144 / -6,626 < 120%
Relative Change (Protected / Nonprotected)	No Disparate Impact Ratio: -10.6% / -21.9% < 120%	No Disproportionate Burden Ratio: -10.5% / -22.7% < 120%
Protected Share of Change / Protected Share of Existing Hours	No Disparate Impact Ratio: 37.2% / 55.0% < 120%	No Disproportionate Burden Ratio: 38.5% / 57.5% < 120%

Note: Values correspond to Table 2.

DI/DB = disparate impact/disproportionate burden.

Source: CTPS.

3.4 Change in Route Length

Base Route Length

When calculating each route's length CTPS used the shapes contained in the planned spring 2020 General Transit Feed Specification (GTFS) schedule. CTPS grouped all of the variations of a route travelling in the same direction (inbound or outbound) and calculated the length of the route including each distinct portion of the alignment only once. This step was repeated for the other direction and the lengths were summed to determine the total route length. For the weekday schedules, CTPS used a "no school" schedule to eliminate some of the MBTA's exceptionally unusual variations from the calculations.

Changes to Route Length

The MBTA's service planning department provided a GTFS file for its proposed spring 2021 schedule—the schedule for which the planned route length changes will take place. For each route that the MBTA was planning to change, the route lengths were calculated and compared to the planned pre-COVID spring 2020 route lengths.

The largest portion of route length changes came from the elimination of services (approximately 90 percent of the net loss of miles). Routes that were consolidated—Routes 24 and 27, 136 and 137, and 214 and 216—were excluded from the analysis because coverage was maintained. Because Route 79 can be viewed as a short-turn variant of Route 77 and the MBTA maintained coverage at all of the route’s stops, its elimination was treated as a loss of 1.4 miles rather than the full route length. Given the demographics of the route, which has a lower proportion of minority riders and low-income riders, from an equity perspective, this is a conservative choice.

Using the proportionate allocation method described above, CTPS estimated the existing route length by rider classification and the change in route length from the planned pre-COVID spring 2020 schedule to the proposed summer 2021 schedule, as shown in Table 5.

Table 10, at the end of the document, presents the route length changes on a route-by-route basis.

Table 5
Net Change in Weekly Route Length for Each Population Group:
Proportionate Allocation

Population Group	Existing Miles	Share of Existing Miles	Net Change	Share of Net Change	Percent Change
Minority	7,369	33.1%	-938	27.1%	-12.7%
Nonminority	14,867	66.9%	-2,517	72.9%	-16.9%
Low-Income	6,356	28.6%	-810	23.4%	-12.7%
Non-Low-Income	15,880	71.4%	-2,645	76.6%	-16.7%

Sources: MBTA GTFS files and descriptions of proposed changes as processed by CTPS and 2015–17 MBTA Systemwide Passenger Survey.

Using the full allocation method described above, CTPS performed the same analysis, as shown in Table 6.

Table 6
Net Change in Weekly Route Length for Each Population Group:
Full Allocation

Population Group	Existing Miles	Share of Existing Miles	Net Change	Share of Net Change	Percent Change
Minority	9,779	44.0%	-1,216	35.2%	-12.4%
Nonminority	12,457	56.0%	-2,239	64.8%	-18.0%
Low-Income	9,877	44.4%	-939	27.2%	-9.5%
Non-Low-Income	12,359	55.6%	-2,516	72.8%	-20.4%

Sources: MBTA GTFS files and descriptions of proposed changes as processed by CTPS and 2015–17 MBTA Systemwide Passenger Survey.

Weekly Route Length: Disparate Impact/Disproportionate Burden Analysis

Table 7 summarizes the results of the service equity analysis relating to route length changes according to the proportionate allocation methodology. As shown in Table 7, the results do not indicate a disparate impact to minority populations or a disproportionate burden to low-income populations.

Table 7
Summary of DI/DB Results Relating to Route Length Changes:
Proportionate Allocation

Analysis Method	Impacts on Minority Populations	Impacts on Low-Income Populations
Absolute Change (Protected / Nonprotected)	No Disparate Impact Ratio: -938 / -2,517 < 120%	No Disproportionate Burden Ratio: -810 / -2,645 < 120%
Relative Change (Protected / Nonprotected)	No Disparate Impact Ratio: -12.7% / -16.9% < 120%	No Disproportionate Burden Ratio: -12.7% / -16.7% < 120%
Protected Share of Change / Protected Share of Existing Hours	No Disparate Impact Ratio: 27.1% / 33.1% < 120%	No Disproportionate Burden Ratio: 23.4% / 28.6% < 120%

Note: Values correspond to Table 5.

DI/DB = disparate impact/disproportionate burden.

Source: CTPS.

Table 8 summarizes the results of the service equity analysis relating to route length changes according to the full allocation methodology. As shown in Table 8, the results do not indicate a disparate impact to minority populations or a disproportionate burden to low-income populations.

Table 8
Summary of DI/DB Results Relating to Route Length Changes:
Full Allocation

Analysis Method	Impacts on Minority Populations	Impacts on Low-Income Populations
Absolute Change (Protected / Nonprotected)	No Disparate Impact Ratio: -1,216 / -2,239 < 120%	No Disproportionate Burden Ratio: -939 / -2,516 < 120%
Relative Change (Protected / Nonprotected)	No Disparate Impact Ratio: -12.4% / -18.0% < 120%	No Disproportionate Burden Ratio: -9.5% / -20.4% < 120%
Protected Share of Change / Protected Share of Existing Hours	No Disparate Impact Ratio: 35.2% / 44.0% < 120%	No Disproportionate Burden Ratio: 27.2% / 44.4% < 120%

Note: Values correspond to Table 6.

DI/DB = disparate impact/disproportionate burden.

Source: CTPS.

Appendix: Tables 9 and 10

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
857.702.3700 (voice)
617.570.9193 (TTY)

Table 9: Weekly Revenue-Vehicle Hour Changes by Day of the Week

Route	Mode	Existing RVH	Change in RVH	Minority Percentage	Low Income Percentage	Minority RVH Change	Nonminority RVH Change	Low-Income RVH Change	Non-Low-Income RVH	Minority Route	Low Income Route	Minority Route RVH	Nonminority Route RVH	Low Income Route RVH	Non-Low-Income Route
1	Bus	1,325.0	-148.1	37%	34%	-54.3	-93.7	-50.2	-97.9	1	1	-148.1	0.0	-148.1	0.0
4	Bus	82.4	-20.4	14%	7%	-2.8	-17.7	-1.4	-19.0	0	0	0.0	-20.4	0.0	-20.4
7	Bus	371.5	-146.7	9%	6%	-12.9	-133.8	-8.3	-138.4	0	0	0.0	-146.7	0.0	-146.7
8	Bus	528.8	-25.6	54%	38%	-13.8	-11.8	-9.8	-15.8	1	1	-25.6	0.0	-25.6	0.0
9	Bus	680.7	-24.4	11%	15%	-2.7	-21.7	-3.7	-20.7	0	0	0.0	-24.4	0.0	-24.4
10	Bus	426.7	-21.9	32%	25%	-7.1	-14.8	-5.5	-16.4	0	0	0.0	-21.9	0.0	-21.9
11	Bus	504.5	-115.4	9%	11%	-10.2	-105.1	-13.0	-102.3	0	0	0.0	-115.4	0.0	-115.4
14	Bus	206.3	-12.1	86%	57%	-10.4	-1.6	-6.8	-5.2	1	1	-12.1	0.0	-12.1	0.0
15	Bus	740.5	-6.9	75%	67%	-5.2	-1.7	-4.6	-2.3	1	1	-6.9	0.0	-6.9	0.0
16	Bus	564.6	118.6	74%	50%	87.8	30.8	59.3	59.3	1	1	118.6	0.0	118.6	0.0
17	Bus	248.2	4.3	78%	69%	3.4	1.0	3.0	1.4	1	1	4.3	0.0	4.3	0.0
18	Bus	112.7	-112.7	81%	62%	-91.6	-21.1	-69.4	-43.4	1	1	-112.7	0.0	-112.7	0.0
19	Bus	288.1	-18.8	67%	34%	-12.6	-6.2	-6.3	-12.4	1	1	-18.8	0.0	-18.8	0.0
21	Bus	348.0	-20.0	87%	48%	-17.4	-2.6	-9.6	-10.4	1	1	-20.0	0.0	-20.0	0.0
22	Bus	869.3	28.0	91%	70%	25.4	2.6	19.5	8.5	1	1	28.0	0.0	28.0	0.0
23	Bus	1,124.9	19.7	85%	59%	16.7	3.0	11.6	8.1	1	1	19.7	0.0	19.7	0.0
24	Bus	187.1	32.3	92%	56%	29.8	2.5	18.1	14.2	1	1	32.3	0.0	32.3	0.0
26	Bus	154.8	0.4	86%	67%	0.4	0.1	0.3	0.1	1	1	0.4	0.0	0.4	0.0
27	Bus	76.9	-76.9	93%	60%	-71.1	-5.8	-46.1	-30.8	1	1	-76.9	0.0	-76.9	0.0
28	Bus	1,233.8	70.0	92%	65%	64.6	5.4	45.5	24.5	1	1	70.0	0.0	70.0	0.0
29	Bus	234.4	-28.6	91%	70%	-26.0	-2.7	-19.9	-8.7	1	1	-28.6	0.0	-28.6	0.0
30	Bus	217.8	7.9	70%	43%	5.6	2.4	3.4	4.5	1	1	7.9	0.0	7.9	0.0
31	Bus	569.7	-45.7	93%	58%	-42.3	-3.4	-26.4	-19.3	1	1	-45.7	0.0	-45.7	0.0
32	Bus	836.2	12.9	76%	43%	9.7	3.2	5.5	7.4	1	1	12.9	0.0	12.9	0.0
33	Bus	129.6	-0.7	92%	56%	-0.6	-0.1	-0.4	-0.3	1	1	-0.7	0.0	-0.7	0.0
34	Bus	381.2	-34.4	42%	37%	-14.3	-20.1	-12.7	-21.7	1	1	-34.4	0.0	-34.4	0.0
34E	Bus	506.1	20.6	42%	37%	8.6	12.0	7.6	13.0	1	1	20.6	0.0	20.6	0.0
35	Bus	290.6	4.2	33%	24%	1.4	2.8	1.0	3.2	0	0	0.0	4.2	0.0	4.2
36	Bus	362.0	2.8	37%	33%	1.0	1.8	0.9	1.9	1	1	2.8	0.0	2.8	0.0
37	Bus	185.8	1.2	32%	31%	0.4	0.8	0.4	0.8	0	1	0.0	1.2	1.2	0.0
38	Bus	135.4	-0.3	39%	24%	-0.1	-0.2	-0.1	-0.2	1	0	-0.3	0.0	0.0	-0.3
39	Bus	1,147.2	-271.1	36%	27%	-97.6	-173.6	-74.3	-196.8	1	0	-271.1	0.0	0.0	-271.1
40	Bus	153.4	2.0	51%	33%	1.0	1.0	0.7	1.4	1	1	2.0	0.0	2.0	0.0
41	Bus	311.0	-34.1	68%	63%	-23.3	-10.8	-21.4	-12.7	1	1	-34.1	0.0	-34.1	0.0
42	Bus	247.6	-8.7	91%	66%	-7.9	-0.8	-5.7	-2.9	1	1	-8.7	0.0	-8.7	0.0
43	Bus	220.1	-81.7	51%	44%	-42.1	-39.6	-35.6	-46.1	1	1	-81.7	0.0	-81.7	0.0
44	Bus	381.5	-53.5	91%	66%	-48.7	-4.8	-35.3	-18.2	1	1	-53.5	0.0	-53.5	0.0
45	Bus	418.5	-58.2	87%	70%	-50.3	-7.8	-40.4	-17.7	1	1	-58.2	0.0	-58.2	0.0
47	Bus	607.9	-76.5	33%	26%	-25.0	-51.5	-20.2	-56.4	0	0	0.0	-76.5	0.0	-76.5
50	Bus	118.8	3.3	51%	33%	1.7	1.6	1.1	2.2	1	1	3.3	0.0	3.3	0.0
51	Bus	192.4	0.4	42%	23%	0.2	0.3	0.1	0.3	1	0	0.4	0.0	0.0	0.4
52	Bus	138.8	-138.8	35%	27%	-48.7	-90.2	-37.4	-101.5	1	0	-138.8	0.0	0.0	-138.8
55	Bus	168.4	-168.4	34%	24%	-56.8	-111.5	-39.7	-128.7	0	0	0.0	-168.4	0.0	-168.4
57	Bus	1,049.3	-133.2	28%	43%	-37.9	-95.3	-56.9	-76.3	0	1	0.0	-133.2	-133.2	0.0
59	Bus	218.7	-47.3	42%	36%	-19.9	-27.4	-17.1	-30.3	1	1	-47.3	0.0	-47.3	0.0
60	Bus	267.2	-62.2	43%	32%	-26.8	-35.4	-19.8	-42.5	1	1	-62.2	0.0	-62.2	0.0
61	Bus	128.3	-37.0	35%	36%	-12.8	-24.1	-13.3	-23.7	1	1	-37.0	0.0	-37.0	0.0
62	Bus	179.7	59.0	25%	26%	14.6	44.4	15.6	43.4	0	0	0.0	59.0	0.0	59.0
64	Bus	257.3	-23.9	30%	25%	-7.1	-16.8	-5.9	-17.9	0	0	0.0	-23.9	0.0	-23.9
65	Bus	232.8	26.4	28%	28%	7.3	19.1	7.3	19.0	0	0	0.0	26.4	0.0	26.4
66	Bus	1,367.9	91.8	40%	40%	36.7	55.2	36.8	55.1	1	1	91.8	0.0	91.8	0.0
67	Bus	93.3	-50.6	22%	10%	-11.4	-39.2	-5.3	-45.3	0	0	0.0	-50.6	0.0	-50.6
68	Bus	61.6	-61.6	36%	25%	-22.1	-39.5	-15.2	-46.4	1	0	-61.6	0.0	0.0	-61.6
69	Bus	259.7	-29.0	36%	32%	-10.3	-18.7	-9.3	-19.7	1	1	-29.0	0.0	-29.0	0.0
70	Bus	913.0	33.2	35%	36%	11.5	21.7	12.0	21.3	1	1	33.2	0.0	33.2	0.0
71	Bus	632.2	-145.3	24%	21%	-35.0	-110.3	-30.6	-114.7	0	0	0.0	-145.3	0.0	-145.3
72	Bus	20.8	-20.8	20%	17%	-4.1	-16.7	-3.4	-17.3	0	0	0.0	-20.8	0.0	-20.8
73	Bus	736.2	-254.0	19%	21%	-49.5	-204.6	-52.2	-201.8	0	0	0.0	-254.0	0.0	-254.0
74	Bus	168.7	-62.1	32%	15%	-19.8	-42.3	-9.6	-52.5	0	0	0.0	-62.1	0.0	-62.1
75	Bus	177.0	-32.5	32%	21%	-10.3	-22.2	-6.8	-25.7	0	0	0.0	-32.5	0.0	-32.5
76	Bus	165.0	-165.0	40%	10%	-66.0	-99.0	-16.4	-148.6	1	0	-165.0	0.0	0.0	-165.0
77	Bus	1,110.4	-411.9	24%	35%	-98.9	-313.0	-144.4	-267.4	0	1	0.0	-411.9	-411.9	0.0
78	Bus	243.6	1.9	34%	20%	0.7	1.3	0.4	1.5	0	0	0.0	1.9	0.0	1.9
79	Bus	129.6	-129.6	22%	19%	-29.1	-100.5	-25.2	-104.4	0	0	0.0	-129.6	0.0	-129.6
80	Bus	291.0	5.3	28%	24%	1.5	3.8	1.3	4.1	0	0	0.0	5.3	0.0	5.3
83	Bus	252.2	-37.5	29%	35%	-10.9	-26.6	-13.2	-24.3	0	1	0.0	-37.5	-37.5	0.0
84	Bus	28.6	-28.6	17%	8%	-4.9	-23.7	-2.4	-26.2	0	0	0.0	-28.6	0.0	-28.6
85	Bus	71.3	-21.2	34%	13%	-7.1	-14.0	-2.9	-18.3	0	0	0.0	-21.2	0.0	-21.2
86	Bus	600.0	63.7	26%	36%	16.4	47.4	22.7	41.0	0	1	0.0	63.7	63.7	0.0
87	Bus	390.2	-43.7	22%	25%	-9.6	-34.1	-11.0	-32.7	0	0	0.0	-43.7	0.0	-43.7
88	Bus	370.3	-40.2	25%	24%	-10.2	-29.9	-9.5	-30.7	0	0	0.0	-40.2	0.0	-40.2
89	Bus	333.8	-10.1	25%	24%	-2.6	-7.6	-2.4	-7.7	0	0	0.0	-10.1	0.0	-10.1
90	Bus	164.9	-21.5	25%	24%	-5.5	-16.0	-5.1	-16.4	0	0	0.0	-21.5	0.0	-21.5
91	Bus	201.1	-49.9	32%	48%	-15.9	-33.9	-23.9	-26.0	0	1	0.0	-49.9	-49.9	0.0
92	Bus	217.3	-88.1	23%	30%	-20.2	-67.9	-26.7	-61.4	0	1	0.0	-88.1	-88.1	0.0
93	Bus	388.4	-89.7	23%	30%	-20.6	-69.1	-27.2	-62.5	0	1	0.0	-89.7	-89.7	0.0
94	Bus	230.2	-40.7	28%	29%	-11.4	-29.3	-11.9	-28.9	0	1	0.0	-40.7	-40.7	0.0
95	Bus	249.2	-18.6	41%	42%	-7.6	-11.0	-7.9	-10.8	1	1	-18.6	0.0	-18.6	0.0
96	Bus	293.3	-51.3	23%	28%	-11.7	-39.6	-14.4	-36.9	0	0	0.0	-51.3	0.0	-51.3
97	Bus	112.1	-1.0	48%	54%	-0.5	-0.5	-0.6	-0.5	1	1	-1.0	0.0	-1.0	0.0
99	Bus	179.0	-10.8	47%	37%	-5.1	-5.7	-3.9	-6.9	1	1	-10.8	0.0	-10.8	0.0
100	Bus	144.9	-15.3	49%	27%	-7.6	-7.8	-4.1	-11.2	1	0	-15.3	0.0	0.0	-15.3
101	Bus	495.0	-99.4	31%	40%	-30.9	-68.4	-40.2	-59.2	0	1	0.0	-99.4	-99.4	0.0
104	Bus	388.1	149.9	56%	56%	83.9	66.0	84.1	65.8	1	1	149.9	0.0	149.9	0.0
105	Bus	123.0	17.7	52%	45%	9.1	8.5	8.0	9.6	1	1	17.7	0.0	17.7	0.0
106	Bus	278.7	17.4	46%	40%	8.0	9.4	7.0	10.3	1	1	17.4	0.0	17.4	0.0
108	Bus	302.3	28.1	45%	57%	12.5	15.5	15.9	12.2	1	1	28.1	0.0	28.1	0.0
109	Bus	378.9	97.7	38%	61%	37.6	60.1	59.8	37.9	1	1	97.7	0.0	97.7	0.0
110	Bus	348.0	26.7	51%	43%	13.5	13.2	11.5	15.2	1	1	26.7	0.0	26.7	0.0
111	Bus	1,206.2	214.5	63%	60%	134.2	80.3	128.1	86.4	1	1	214.5	0.0	214.5	0.0
112	Bus	249.9	17.4	47%	64%	8.2	9.3	11.1	6.3	1	1	17.4	0.0	17.4	0.0
114	Bus	36.6	0.0	60%	55%	0.0	0.0	0.0	0.0	1	1	0.0	0.0	0.0	0.0
116	Bus	554.2	77.9	6											

Table 9: Weekly Revenue-Vehicle Hour Changes by Day of the Week

Route	Mode	Existing RVH	Change in RVH	Minority Percentage	Low Income Percentage	Minority RVH Change	Nonminority RVH Change	Low-Income RVH Change	Non-Low-Income RVH	Minority Route	Low Income Route	Minority Route RVH	Nonminority Route RVH	Low Income Route RVH	Non-Low-Income Route
210	Bus	231.9	-115.9	52%	51%	-60.6	-55.3	-58.8	-57.1	1	1	-115.9	0.0	-115.9	0.0
211	Bus	229.9	-124.1	41%	40%	-50.8	-73.3	-49.1	-75.0	1	1	-124.1	0.0	-124.1	0.0
212	Bus	64.8	-64.8	52%	51%	-33.9	-30.9	-32.9	-32.0	1	1	-64.8	0.0	-64.8	0.0
214	Bus	190.3	-200.8	38%	39%	-75.9	-124.9	-79.3	-121.6	1	1	-200.8	0.0	-200.8	0.0
215	Bus	422.1	-194.7	46%	60%	-89.4	-105.3	-117.3	-77.4	1	1	-194.7	0.0	-194.7	0.0
216	Bus	297.6	-99.3	38%	39%	-37.6	-61.8	-39.2	-60.1	1	1	-99.3	0.0	-99.3	0.0
217	Bus	50.3	-25.3	49%	39%	-12.4	-12.9	-9.9	-15.4	1	1	-25.3	0.0	-25.3	0.0
220	Bus	496.5	-232.1	28%	43%	-65.9	-166.2	-99.1	-133.0	0	1	0.0	-232.1	-232.1	0.0
221	Bus	34.8	-34.8	28%	43%	-9.9	-24.9	-14.9	-20.0	0	1	0.0	-34.8	-34.8	0.0
222	Bus	460.3	-248.8	34%	40%	-85.3	-163.5	-99.5	-149.3	1	1	-248.8	0.0	-248.8	0.0
225	Bus	542.7	-247.5	47%	41%	-116.7	-130.8	-102.6	-144.9	1	1	-247.5	0.0	-247.5	0.0
226	Bus	255.5	-151.5	47%	41%	-71.4	-80.1	-62.8	-88.7	1	1	-151.5	0.0	-151.5	0.0
230	Bus	516.9	-227.9	49%	39%	-112.6	-115.3	-88.9	-139.0	1	1	-227.9	0.0	-227.9	0.0
236	Bus	189.7	-70.4	44%	36%	-31.0	-39.4	-25.2	-45.2	1	1	-70.4	0.0	-70.4	0.0
238	Bus	438.8	-178.7	44%	36%	-78.7	-99.9	-63.9	-114.7	1	1	-178.7	0.0	-178.7	0.0
240	Bus	744.0	-345.9	72%	57%	-247.4	-98.4	-195.5	-150.4	1	1	-345.9	0.0	-345.9	0.0
245	Bus	183.0	-150.9	49%	39%	-74.1	-76.8	-59.2	-91.7	1	1	-150.9	0.0	-150.9	0.0
325	Bus	90.3	-90.3	15%	5%	-13.1	-77.2	-4.7	-85.7	0	0	0.0	-90.3	0.0	-90.3
326	Bus	110.9	-110.9	17%	2%	-18.3	-92.6	-2.5	-108.4	0	0	0.0	-110.9	0.0	-110.9
350	Bus	317.3	24.7	38%	36%	9.4	15.3	8.9	15.8	1	1	24.7	0.0	24.7	0.0
351	Bus	33.8	-33.8	48%	18%	-16.1	-17.7	-6.2	-27.6	1	0	-33.8	0.0	0.0	-33.8
352	Bus	69.4	-69.4	25%	3%	-17.2	-52.2	-1.9	-67.5	0	0	0.0	-69.4	0.0	-69.4
354	Bus	175.5	-49.4	18%	10%	-8.7	-40.7	-4.8	-44.6	0	0	0.0	-49.4	0.0	-49.4
411	Bus	137.0	-14.6	50%	38%	-7.3	-7.3	-5.5	-9.1	1	1	-14.6	0.0	-14.6	0.0
424	Bus	36.9	-7.4	48%	58%	-3.6	-3.9	-4.3	-3.1	1	1	-7.4	0.0	-7.4	0.0
426	Bus	373.2	-141.3	32%	28%	-45.0	-96.3	-40.0	-101.3	0	0	0.0	-141.3	0.0	-141.3
428	Bus	30.8	-30.8	32%	28%	-9.8	-21.0	-8.7	-22.1	0	0	0.0	-30.8	0.0	-30.8
429	Bus	290.9	-51.3	45%	73%	-23.0	-28.3	-37.5	-13.8	1	1	-51.3	0.0	-51.3	0.0
430	Bus	149.1	-8.0	50%	38%	-4.0	-4.0	-3.0	-5.0	1	1	-8.0	0.0	-8.0	0.0
434	Bus	13.4	-13.4	44%	66%	-5.9	-7.5	-8.8	-4.6	1	1	-13.4	0.0	-13.4	0.0
435	Bus	201.8	-10.3	44%	66%	-4.6	-5.7	-6.7	-3.6	1	1	-10.3	0.0	-10.3	0.0
436	Bus	171.3	-28.1	44%	66%	-12.4	-15.6	-18.4	-9.7	1	1	-28.1	0.0	-28.1	0.0
439	Bus	23.3	-5.0	11%	33%	-0.6	-4.4	-1.7	-3.3	0	1	0.0	-5.0	-5.0	0.0
441	Bus	207.8	-30.4	47%	68%	-14.4	-16.0	-20.8	-9.6	1	1	-30.4	0.0	-30.4	0.0
442	Bus	433.1	82.4	38%	54%	31.7	50.7	44.7	37.7	1	1	82.4	0.0	82.4	0.0
450	Bus	333.8	-39.5	48%	58%	-18.9	-20.6	-23.0	-16.6	1	1	-39.5	0.0	-39.5	0.0
451	Bus	57.3	-57.3	18%	70%	-10.3	-47.0	-40.3	-16.9	0	1	0.0	-57.3	-57.3	0.0
455	Bus	596.8	2.5	52%	60%	1.3	1.2	1.5	1.0	1	1	2.5	0.0	2.5	0.0
456	Bus	44.1	-44.1	48%	58%	-21.1	-23.0	-25.6	-18.5	1	1	-44.1	0.0	-44.1	0.0
465	Bus	113.6	-113.6	18%	70%	-20.4	-93.2	-80.0	-33.6	0	1	0.0	-113.6	-113.6	0.0
501	Bus	257.1	-61.3	21%	13%	-12.9	-48.4	-8.2	-53.1	0	0	0.0	-61.3	0.0	-61.3
502	Bus	104.8	-104.8	23%	10%	-24.5	-80.3	-10.8	-93.9	0	0	0.0	-104.8	0.0	-104.8
503	Bus	67.8	-67.8	28%	15%	-18.9	-48.9	-10.1	-57.7	0	0	0.0	-67.8	0.0	-67.8
504	Bus	262.2	-32.2	23%	7%	-7.5	-24.7	-2.2	-29.9	0	0	0.0	-32.2	0.0	-32.2
505	Bus	214.7	-214.7	23%	7%	-49.9	-164.8	-14.9	-199.8	0	0	0.0	-214.7	0.0	-214.7
553	Bus	204.3	-43.7	26%	25%	-11.5	-32.2	-10.8	-32.9	0	0	0.0	-43.7	0.0	-43.7
554	Bus	148.8	-104.7	39%	35%	-40.3	-64.4	-36.2	-68.5	1	1	-104.7	0.0	-104.7	0.0
556	Bus	103.1	-64.0	31%	13%	-19.8	-44.2	-8.6	-55.4	0	0	0.0	-64.0	0.0	-64.0
558	Bus	84.3	-42.2	37%	23%	-15.8	-26.4	-9.6	-32.6	1	0	-42.2	0.0	0.0	-42.2
627	Bus	25.6	-25.6	31%	20%	-8.0	-17.6	-5.0	-20.6	0	0	0.0	-25.6	0.0	-25.6
708	Bus	182.8	-28.0	44%	25%	-12.4	-15.6	-7.0	-21.0	1	0	-28.0	0.0	0.0	-28.0
712	Bus	171.5	0.0	19%	26%	0.0	0.0	0.0	0.0	0	0	0.0	0.0	0.0	0.0
713	Bus	177.8	0.0	19%	26%	0.0	0.0	0.0	0.0	0	0	0.0	0.0	0.0	0.0
741	Bus	711.0	-163.0	24%	14%	-38.7	-124.3	-23.0	-140.0	0	0	0.0	-163.0	0.0	-163.0
742	Bus	418.3	-45.0	24%	14%	-10.7	-34.3	-6.4	-38.6	0	0	0.0	-45.0	0.0	-45.0
743	Bus	790.3	22.9	60%	58%	13.8	9.1	13.2	9.7	1	1	22.9	0.0	22.9	0.0
746	Bus	202.6	-93.9	24%	14%	-22.3	-71.6	-13.3	-80.6	0	0	0.0	-93.9	0.0	-93.9
747	Bus	266.2	-61.3	33%	21%	-20.3	-41.1	-12.7	-48.6	0	0	0.0	-61.3	0.0	-61.3
749	Bus	701.4	-4.3	61%	36%	-2.6	-1.7	-1.5	-2.7	1	1	-4.3	0.0	-4.3	0.0
751	Bus	479.1	-25.6	61%	36%	-15.6	-10.1	-9.2	-16.4	1	1	-25.6	0.0	-25.6	0.0
Fairmount Line	Comm. Rail	180.4	17.2	53%	16%	9.1	8.1	2.8	14.5	1	0	17.2	0.0	0.0	17.2
Fitchburg Line	Comm. Rail	331.5	-74.5	17%	9%	-12.8	-61.8	-6.4	-68.1	0	0	0.0	-74.5	0.0	-74.5
Franklin Line	Comm. Rail	199.8	-25.5	12%	6%	-3.1	-22.4	-1.5	-24.0	0	0	0.0	-25.5	0.0	-25.5
Greenbush Line	Comm. Rail	153.1	-8.5	5%	3%	-0.5	-8.0	-0.3	-8.2	0	0	0.0	-8.5	0.0	-8.5
Haverhill Line	Comm. Rail	214.7	-49.1	12%	7%	-5.8	-43.2	-3.4	-45.6	0	0	0.0	-49.1	0.0	-49.1
Kingston/Plymouth Line	Comm. Rail	164.8	-29.8	5%	6%	-1.5	-28.2	-1.7	-28.1	0	0	0.0	-29.8	0.0	-29.8
Lowell Line	Comm. Rail	230.1	-65.6	15%	7%	-9.6	-56.0	-4.8	-60.8	0	0	0.0	-65.6	0.0	-65.6
Middleborough/Lakeville Line	Comm. Rail	154.0	13.5	24%	7%	3.2	10.3	1.0	12.5	0	0	0.0	13.5	0.0	13.5
Needham Line	Comm. Rail	130.4	-39.1	12%	4%	-4.5	-34.6	-1.6	-37.5	0	0	0.0	-39.1	0.0	-39.1
Newburyport/Rockport Line	Comm. Rail	429.3	-122.2	9%	8%	-11.5	-110.7	-10.3	-111.9	0	0	0.0	-122.2	0.0	-122.2
Providence/Stoughton Line	Comm. Rail	423.3	-50.7	15%	5%	-7.7	-43.0	-2.6	-48.2	0	0	0.0	-50.7	0.0	-50.7
Worcester Line	Comm. Rail	406.2	-151.2	19%	8%	-28.5	-122.8	-11.9	-139.3	0	0	0.0	-151.2	0.0	-151.2
Hingham - Long Wharf	Ferry	224.2	-92.7	2%	4%	-1.5	-91.2	-3.4	-89.3	0	0	0.0	-92.7	0.0	-92.7
Hingham Shipyard - Rows Wharf	Ferry	149.5	-149.5	2%	4%	-2.5	-147.0	-5.5	-143.9	0	0	0.0	-149.5	0.0	-149.5
Long Wharf - Charlestown Navy Yard	Ferry	114.3	-114.3	2%	4%	-1.9	-112.4	-4.2	-110.0	0	0	0.0	-114.3	0.0	-114.3
Blue Line	Heavy Rail	1,039.5	-64.4	37%	33%	-24.0	-40.4	-21.4	-43.0	1	1	-64.4	0.0	-64.4	0.0
Orange Line	Heavy Rail	1,594.7	-309.2	35%	28%	-109.1	-200.1	-85.4	-223.7	1	0	-309.2	0.0	0.0	-309.2
Red Line	Heavy Rail	2,576.6	-446.8	28%	23%	-127.3	-319.5	-101.8	-345.1	0	0	0.0	-446.8	0.0	-446.8
Green Line	Light Rail	6,945.1	-1,068.3	27%	28%	-285.1	-783.2	-298.9	-769.4	0	0	0.0	-1,068.3	0.0	-1,068.3
Mattapan Trolley	Light Rail	385.1	16.0	57%	35%	9.1	6.9	5.7	10.4	1	1	16.0	0.0	16.0	0.0
Total Change						-3,325.1	-7,445.4	-2,973.4	-7,797.1			-4,003.4	-6,767.1	-4,144.2	-6,626.3

RVH = revenue-vehicle hours.

Source: MBTA Revenue-Vehicle Hour Estimates.

Table 10: Route Length Changes by Day of the Week

Route	DOW	Mode	Weekly Length Spring 2020	Weekly Length Change	Minority Percentage	Low-Income Percentage	Minority Length Change	Nonminority Length Change	Low-Income Length Change	Non-Low-Income Length Change	Minority Route	Low-Income Route	Minority Length Change	Nonminority Length Change	Low-Income Length Change	Non-Low-Income Length Change
18	Weekday	Bus	39.3	-39.3	81%	62%	-31.9	-7.4	-24.2	-15.1	100%	100%	-39.3	0.0	-39.3	0.0
18	Saturday	Bus	7.9	-7.9	81%	62%	-6.4	-1.5	-4.8	-3.0	100%	100%	-7.9	0.0	-7.9	0.0
52	Weekday	Bus	106.6	-106.6	35%	27%	-37.3	-69.2	-28.7	-77.9	100%	0%	-106.6	0.0	0.0	-106.6
55	Weekday	Bus	28.5	-28.5	34%	24%	-9.6	-18.9	-6.7	-21.8	0%	0%	0.0	-28.5	0.0	-28.5
55	Saturday	Bus	3.5	-3.5	34%	24%	-1.2	-2.3	-0.8	-2.7	0%	0%	0.0	-3.5	0.0	-3.5
55	Sunday	Bus	3.5	-3.5	34%	24%	-1.2	-2.3	-0.8	-2.7	0%	0%	0.0	-3.5	0.0	-3.5
62	Weekday	Bus	126.8	71.1	25%	26%	17.6	53.5	18.8	52.3	0%	0%	0.0	71.1	0.0	71.1
68	Weekday	Bus	22.0	-22.0	36%	25%	-7.9	-14.1	-5.4	-16.6	100%	0%	-22.0	0.0	0.0	-22.0
72	Weekday	Bus	2.5	-2.5	20%	17%	-0.5	-2.0	-0.4	-2.1	0%	0%	0.0	-2.5	0.0	-2.5
74	Weekday	Bus	39.0	-2.3	32%	15%	-0.7	-1.5	-0.3	-1.9	0%	0%	0.0	-2.3	0.0	-2.3
74	Saturday	Bus	7.8	-0.5	32%	15%	-0.1	-0.3	-0.1	-0.4	0%	0%	0.0	-0.5	0.0	-0.5
75	Weekday	Bus	44.1	2.1	32%	21%	0.7	1.4	0.4	1.7	0%	0%	0.0	2.1	0.0	2.1
75	Saturday	Bus	8.8	-0.5	32%	21%	-0.1	-0.3	-0.1	-0.4	0%	0%	0.0	-0.5	0.0	-0.5
75	Sunday	Bus	8.8	-0.5	32%	21%	-0.1	-0.3	-0.1	-0.4	0%	0%	0.0	-0.5	0.0	-0.5
76	Weekday	Bus	149.2	-149.2	40%	10%	-59.7	-89.5	-14.8	-134.3	100%	0%	-149.2	0.0	0.0	-149.2
78	Weekday	Bus	83.0	-8.0	34%	20%	-2.7	-5.3	-1.6	-6.4	0%	0%	0.0	-8.0	0.0	-8.0
78	Saturday	Bus	15.0	0.0	34%	20%	0.0	0.0	0.0	0.0	0%	0%	0.0	0.0	0.0	0.0
78	Sunday	Bus	15.0	0.0	34%	20%	0.0	0.0	0.0	0.0	0%	0%	0.0	0.0	0.0	0.0
79	Weekday	Bus	7.0	-7.0	22%	19%	-1.6	-5.4	-1.4	-5.6	0%	0%	0.0	-7.0	0.0	-7.0
80	Weekday	Bus	66.6	-4.6	28%	24%	-1.3	-3.3	-1.1	-3.5	0%	0%	0.0	-4.6	0.0	-4.6
80	Saturday	Bus	13.3	-0.9	28%	24%	-0.3	-0.7	-0.2	-0.7	0%	0%	0.0	-0.9	0.0	-0.9
80	Sunday	Bus	13.3	-0.9	28%	24%	-0.3	-0.7	-0.2	-0.7	0%	0%	0.0	-0.9	0.0	-0.9
88	Weekday	Bus	40.9	0.0	25%	24%	0.0	0.0	0.0	0.0	0%	0%	0.0	0.0	0.0	0.0
88	Saturday	Bus	8.2	0.0	25%	24%	0.0	0.0	0.0	0.0	0%	0%	0.0	0.0	0.0	0.0
88	Sunday	Bus	8.2	0.0	25%	24%	0.0	0.0	0.0	0.0	0%	0%	0.0	0.0	0.0	0.0
170	Weekday	Bus	210.7	-210.7	69%	54%	-145.9	-64.8	-113.5	-97.2	100%	100%	-210.7	0.0	-210.7	0.0
195	Weekday	Bus	32.3	-32.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
195	Saturday	Bus	6.5	-6.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
195	Sunday	Bus	6.5	-6.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
212	Weekday	Bus	29.1	-29.1	52%	51%	-15.2	-13.9	-14.8	-14.3	100%	100%	-29.1	0.0	-29.1	0.0
212	Saturday	Bus	5.8	-5.8	52%	51%	-3.0	-2.8	-3.0	-2.9	100%	100%	-5.8	0.0	-5.8	0.0
221	Weekday	Bus	57.4	-57.4	28%	43%	-16.3	-41.1	-24.5	-32.9	0%	100%	0.0	-57.4	-57.4	0.0
325	Weekday	Bus	127.2	-127.2	15%	5%	-18.5	-108.6	-6.6	-120.6	0%	0%	0.0	-127.2	0.0	-127.2
326	Weekday	Bus	84.9	-84.9	17%	2%	-14.0	-70.8	-1.9	-83.0	0%	0%	0.0	-84.9	0.0	-84.9
351	Weekday	Bus	205.0	-205.0	48%	18%	-97.5	-107.5	-37.6	-167.4	100%	0%	-205.0	0.0	0.0	-205.0
354	Weekday	Bus	212.3	-2.8	18%	10%	-0.5	-2.3	-0.3	-2.5	0%	0%	0.0	-2.8	0.0	-2.8
428	Weekday	Bus	134.6	-134.6	32%	28%	-42.9	-91.7	-38.1	-96.5	0%	0%	0.0	-134.6	0.0	-134.6
434	Weekday	Bus	178.6	-178.6	44%	66%	-79.2	-99.4	-117.0	-61.6	100%	100%	-178.6	0.0	-178.6	0.0
451	Weekday	Bus	83.8	-83.8	18%	70%	-15.1	-68.7	-59.0	-24.8	0%	100%	0.0	-83.8	-83.8	0.0
456	Weekday	Bus	75.6	-75.6	48%	58%	-36.2	-39.4	-43.9	-31.7	100%	100%	-75.6	0.0	-75.6	0.0
465	Weekday	Bus	123.9	-123.9	18%	70%	-22.3	-101.6	-87.2	-36.7	0%	0%	0.0	-123.9	-123.9	0.0
465	Saturday	Bus	18.1	-18.1	18%	70%	-3.3	-14.8	-12.7	-5.4	0%	100%	0.0	-18.1	-18.1	0.0
505	Weekday	Bus	140.7	-140.7	23%	7%	-32.7	-108.0	-9.8	-130.9	0%	0%	0.0	-140.7	0.0	-140.7
553	Weekday	Bus	163.2	-88.3	26%	25%	-23.3	-65.0	-21.9	-66.4	0%	0%	0.0	-88.3	0.0	-88.3
553	Saturday	Bus	14.8	0.1	26%	25%	0.0	0.1	0.0	0.1	0%	0%	0.0	0.1	0.0	0.1
554	Weekday	Bus	198.0	-108.8	39%	35%	-41.9	-66.9	-37.6	-71.2	100%	100%	-108.8	0.0	-108.8	0.0
556	Weekday	Bus	130.9	-102.9	31%	13%	-31.8	-71.0	-13.8	-89.0	0%	0%	0.0	-102.9	0.0	-102.9
558	Weekday	Bus	159.7	-77.9	37%	23%	-29.1	-48.7	-17.6	-60.2	100%	0%	-77.9	0.0	0.0	-77.9
710	Weekday	Bus	62.9	-62.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Boat-F1	Weekday	Ferry	106.5	-106.5	2%	4%	-1.8	-104.7	-4.0	-102.5	0%	0%	0.0	-106.5	0.0	-106.5
Boat-F2H	Saturday	Ferry	47.4	-47.4	2%	4%	-0.8	-46.6	-1.8	-45.6	0%	0%	0.0	-47.4	0.0	-47.4
Boat-F2H	Sunday	Ferry	47.4	-47.4	2%	4%	-0.8	-46.6	-1.8	-45.7	0%	0%	0.0	-47.4	0.0	-47.4
Boat-F4	Weekday	Ferry	12.4	-12.4	2%	4%	-0.2	-12.2	-0.5	-11.9	0%	0%	0.0	-12.4	0.0	-12.4
Boat-F4	Saturday	Ferry	2.5	-2.5	2%	4%	0.0	-2.4	-0.1	-2.4	0%	0%	0.0	-2.5	0.0	-2.5
Boat-F4	Sunday	Ferry	2.5	-2.5	2%	4%	0.0	-2.4	-0.1	-2.4	0%	0%	0.0	-2.5	0.0	-2.5
CR-Fitchburg	Saturday	Comm. Rail	107.0	-107.0	17%	9%	-18.3	-88.6	-9.2	-97.7	0%	0%	0.0	-107.0	0.0	-107.0
CR-Fitchburg	Sunday	Comm. Rail	107.0	-107.0	17%	9%	-18.3	-88.6	-9.2	-97.7	0%	0%	0.0	-107.0	0.0	-107.0
CR-Franklin	Saturday	Comm. Rail	60.8	-60.8	12%	6%	-7.4	-53.4	-3.5	-57.3	0%	0%	0.0	-60.8	0.0	-60.8
CR-Franklin	Sunday	Comm. Rail	60.8	-60.8	12%	6%	-7.4	-53.4	-3.5	-57.3	0%	0%	0.0	-60.8	0.0	-60.8
CR-Greenbush	Saturday	Comm. Rail	55.5	-55.5	5%	3%	-2.9	-52.5	-1.9	-53.6	0%	0%	0.0	-55.5	0.0	-55.5
CR-Greenbush	Sunday	Comm. Rail	55.5	-55.5	5%	3%	-2.9	-52.5	-1.9	-53.6	0%	0%	0.0	-55.5	0.0	-55.5
CR-Haverhill	Saturday	Comm. Rail	65.8	-65.8	12%	7%	-7.8	-58.0	-4.6	-61.2	0%	0%	0.0	-65.8	0.0	-65.8
CR-Haverhill	Sunday	Comm. Rail	65.8	-65.8	12%	7%	-7.8	-58.0	-4.6	-61.2	0%	0%	0.0	-65.8	0.0	-65.8
CR-Kingston	Saturday	Comm. Rail	74.2	-74.2	5%	6%	-3.8	-70.4	-4.2	-70.0	0%	0%	0.0	-74.2	0.0	-74.2
CR-Kingston	Sunday	Comm. Rail	74.2	-74.2	5%	6%	-3.8	-70.4	-4.2	-70.0	0%	0%	0.0	-74.2	0.0	-74.2
CR-Lowell	Saturday	Comm. Rail	50.5	-50.5	15%	7%	-7.4	-43.1	-3.7	-46.8	0%	0%	0.0	-50.5	0.0	-50.5
CR-Lowell	Sunday	Comm. Rail	50.5	-50.5	15%	7%	-7.4	-43.1	-3.7	-46.8	0%	0%	0.0	-50.5	0.0	-50.5
CR-Needham	Saturday	Comm. Rail	27.3	-27.3	12%	4%	-3.1	-24.1	-1.1	-26.1	0%	0%	0.0	-27.3	0.0	-27.3
CR-Newburyport	Saturday	Comm. Rail	105.7	-105.7	12%	4%	-12.2	-93.5	-4.3	-101.3	0%	0%	0.0	-105.7	0.0	-105.7
CR-Newburyport	Sunday	Comm. Rail	105.7	-105.7	9%	8%	-10.0	-95.7	-8.9	-96.7	0%	0%	0.0	-105.7	0.0	-105.7
Total Change							-937.6	-2517.5	-809.8	-2645.3			-1216.3	-2238.7	-938.9	-2516.2

Note: Weekday route lengths are multiplied by five to obtain a weekly value.

CR = commuter rail, DOW = Day of the week.

Sources: Planned, Pre-COVID Spring 2020 MBTA GTFS and Spring 2021 MBTA GTFS.