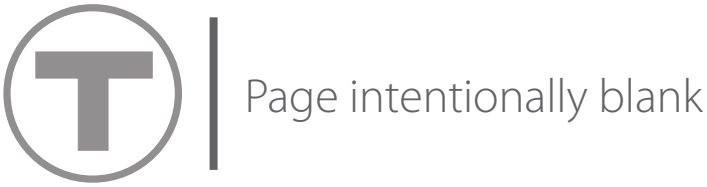
MBTA
TITLE VI REPORT
May 2014

Beverly A. Scott, Ph.D.
General Manager and
Rail and Transit Administrator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MBTA Title VI Report

May 2014

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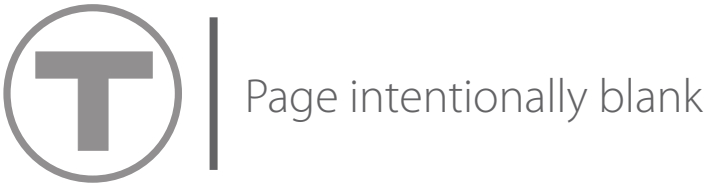
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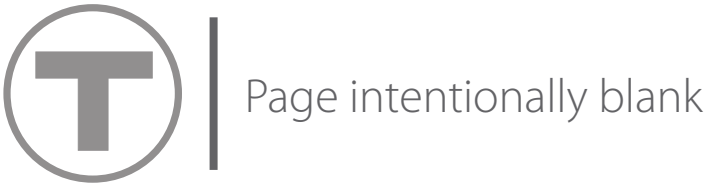
MBTA Title VI Mission Statement

The MBTA is committed to providing a level and quality of service to minority and low-income individuals and communities that is equivalent to the services provided to nonminority and non-low-income individuals and communities.

MBTA Title VI Report Purpose

To document the steps the MBTA has taken and will take to ensure that, for all programs and activities receiving federal financial assistance, the MBTA provides services without excluding or discriminating against minority or low-income individuals or communities or creating additional barriers to their use of the MBTA transit system.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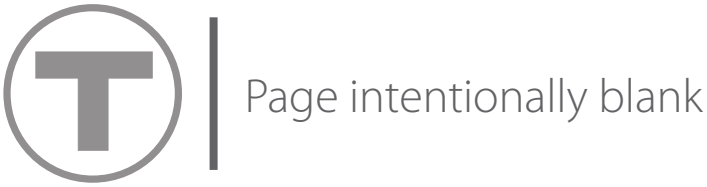
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CHAPTER 1
Introduction

Title VI of the Civil Rights Act of 1964 states that "no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving federal financial assistance." To fulfill this basic civil rights mandate, each federal agency that provides financial assistance for any program is authorized and directed by the United States Department of Justice to apply the provisions of Title VI to each program by issuing applicable rules, regulations, or requirements. The Federal Transit Administration (FTA) of the United States Department of Transportation issued guidelines on May 26, 1988, FTA C 4702.1, describing the requirements of Title VI compliance programs to be adopted and maintained by recipients of FTA-administered funds for transit programs. These guidelines were updated with the publication of FTA C 4702.1A, on May 13, 2007, to include consideration of environmental-justice principals. On October 1, 2012, these guidelines were updated again, with the publication of FTA C 4702.1B, in order to clarify both the distinction between Title VI and environmental justice and the requirements for complying with Title VI.

This document constitutes the Massachusetts Bay Transportation Authority's Title VI Program, adopted with the approval of General Manager Beverly A. Scott, PhD. It is prepared in accordance with FTA C 4702.1B and incorporates the reporting requirements set forth therein. Table 1-1 summarizes the reporting requirements that relate to the chapters in this report. As shown in Table 1-1, Chapter 2 addresses the MBTA's general reporting requirements that conform to the circular, including a copy of the MBTA's notice to the public regarding protection under Title VI and a list of the locations where it is posted; a description of the MBTA's procedures for filing civil rights complaints and a copy of the complaint form; a list of Title VI investigations, complaints, and lawsuits; the MBTA's public-participation plan and a summary of outreach efforts since the last submission; a copy of the MBTA's Language Assistance Plan; a narrative description of the MBTA's efforts to ensure that subrecipients are complying with Title VI; and a copy of the Title VI analysis conducted during the planning phase for any MBTA-constructed facilities. Chapter 3 includes several maps that show the MBTA's extensive transit-service network and the locations of minority and low-income areas. Chapter 4 describes the service policies and standards under which the Authority operates to ensure high-quality and safe service to the public. Chapter 5 evaluates the effects of major service changes and fare increases. Chapter 6 analyzes in depth the extent to which the MBTA has met its service standards, and it compares the levels and quality of service provided to the various communities served by the MBTA. Finally, Chapter 7 presents the service and fare equity analyses that have been conducted by the MBTA since the last Title VI submission.

In June 2009, Governor Deval Patrick signed transportation reform legislation (Chapter 25 of the Acts of 2009, "An Act Modernizing the Transportation Systems of the Commonwealth of Massachusetts [as amended by Chapter 26 of the "Act"]), which required integration of the Commonwealth's transportation agencies and authorities into a new, streamlined Massachusetts Department of Transportation (MassDOT). The MBTA now falls under the MassDOT umbrella, and is responsible for transit operations in the metropolitan Boston area and the 164-community rail service area. MassDOT is administered by a Governor-appointed Secretary of Transportation as Chief Executive Officer. Both MassDOT and the MBTA are overseen by a seven-member Board of Directors (appointed by the Governor). The Rail and Transit Division (RTD) is led by Division Administrator Beverly A. Scott, PhD, who is also is the General Manager of the MBTA. The MBTA remains a separate designated FTA recipient.

This report was developed by the MBTA with technical support for data collection and analysis from the Central Transportation Planning Staff (CTPS) of the Boston Region Metropolitan Planning Organization. CTPS was also responsible for the layout and production of the document. Questions or comments about the content of this program may be addressed to Joseph Cosgrove, Director of Development, MBTA, Room 3910, 10 Park Plaza, Boston, MA 02116, or to Stephanie Neal-Johnson, Undersecretary and Acting Civil Rights Chief, MassDOT, 10 Park Plaza, Boston, MA 02116.

Table 1-1
2014 MBTA Triennial Title VI Report

Report Chapter	Provisions	FTA C 4702.1B Reference	Reporting Requirements
Introduction			
General Reporting Requirements	Notify beneficiaries of protection under Title VI	III.5.	A notice that contains (1) a statement that the agency operates programs without regard to race, color, or national origin, (2) a description of the procedures that members of the public should follow in order to request additional information on the recipient's Title VI obligations, and (3) a description of the procedures that members of the public shall follow in order to file a Title VI discrimination complaint against the recipient.
	Develop Title VI complaint procedures and complaint form	III.6.	(1) A copy of the procedures for investigating and tracking Title VI complaints and (2) a copy of the recipient's Title VI complaint form.
	Record transit-related Title VI investigations, complaints, and lawsuits	III.7.	A list of any of the following that allege discrimination on the basis of race, color, or national origin since the time of the last submittal: (1) active investigations conducted by entities other than FTA, (2) lawsuits, and (3) complaints naming the recipient. This list shall include (1) the date that the investigation, lawsuit, or complaint was filed, (2) a summary of the allegation(s), (3) the status of the investigation, lawsuit, or complaint, and (4) actions taken by the recipient in response to, or final findings related to, the investigation, lawsuit, or complaint.

(cont.)

Table 1-1 (cont.)

Report Chapter	Provisions	FTA C 4702.1B Reference	Reporting Requirements
	Promote inclusive public participation	III.8.	(1) A copy of the recipient's public participation plan and (2) a summary of efforts to involve minority and LEP populations in public participation activities.
	Provide meaningful access to persons with limited English proficiency (LEP persons)	III.9.	A copy of the recipient's Language Assistance Plan which shall, at a minimum (1) include the results of a Four-Factor Analysis, (2) describe how the recipient provides language assistance services by language, (3) describe how the recipient provides notice to LEP persons about the availability of language assistance, (4) describe how the recipient monitors, evaluates, and updates the language access plan, and (5) describe how the recipient trains employees to provide timely and reasonable language assistance to LEP populations.
	Document minority representation on planning and advisory boards	III.10.	(1) A table depicting the racial breakdown of the membership of transit-related, non-elected planning boards, advisory councils or committees, or similar committees of which membership is selected by the recipient and (2) a description of efforts made to encourage the participation of minorities on such committees.
	Provide assistance to and monitor subrecipients	III.11. & III.12.	(1) Documentation of the process for ensuring that all subrecipients are complying with Title VI requirements, (2) collection and review of subrecipient Title VI programs for compliance, and (3) requests that subrecipients verify that their level and quality of service is provided on an equitable basis.

(cont.)

Table 1-1 (cont.)

Report Chapter	Provisions	FTA C 4702.1B Reference	Reporting Requirements
	Determine the site or location of facilities	III.13.	A copy of Title VI equity analyses of the locations of constructed facilities.
	Provide additional information upon request	III.14.	By FTA request, information other than that required by FTA C 4702.1B needed by the FTA to investigate complaints of discrimination or resolve concerns about possible noncompliance with the US DOT's Title VI regulations.
Demographic Data and Maps	Provide demographic and service profile maps and charts	IV.5.a.	(1) A base map of the transit provider's service area that overlays census tract, block, or block group data depicting minority populations with fixed transit facilities, as well as major activity centers or transit trip generators, and major streets and highways, (2) a similar map, which highlights the transit facilities that were recently replaced, improved, or are scheduled for an update in the next five years, (3) a demographic map that plots the information listed in 1 and 2 and also shades the geographic zones where the percent of the total minority population residing in these areas exceeds the average percent of minority populations for the service area as a whole and (4) a demographic map that plots the information listed in (1) and (2) and also shades the geographic zones where the percent of the total low-income population residing in these areas exceeds the percentage of the low-income population for the service area as a whole.

(cont.)

Table 1-1 (cont.)

Report Chapter	Provisions	FTA C 4702.1B Reference	Reporting Requirements
Customer Survey Data	Collect and report survey data related to customer demographic and travel patterns	IV.5.b.	Utilization of customer surveys to provide (1) a demographic profile comparing minority riders and nonminority riders, and trips taken by minority riders and nonminority riders and (2) a summary in tabular format of information collected on race, color, national origin, English proficiency, language spoken at home, household income, travel patterns, and fare usage by fare type.
Service Standards and Policies	Set systemwide service standards	IV.4.a.	Quantitative service standards for (1) vehicle load, (2) vehicle headway, (3) on-time performance, and (4) service availability.
	Set systemwide service policies	IV.4.b.	Systemwide policies for (1) the distribution of transit amenities, and (2) vehicle assignment.
Service Monitoring	Monitor transit services	IV.6.	(1) An assessment and comparison of minority and nonminority routes for each mode and each service standard and service policy, (2) application of a policy or procedure to determine whether disparate impacts exist based on the results of the monitoring activities, and (3) documentation to verify the board's consideration, awareness, and approval of the monitoring results.

(cont.)

Table 1-1 (cont.)

Report Chapter	Provisions	FTA C 4702.1B Reference	Reporting Requirements
Service and Fare Changes	Perform a service-equity analysis	IV.7.a.	(1) Documentation of a major service change policy; (2) definition and analysis of the adverse effects related to the major service change, measured by the change between the existing and proposed service levels; (3) documentation of policies on disparate impacts and disproportionate burdens that establish thresholds for determining when adverse effects of service changes are borne disproportionately by minority and/or low-income populations, presented as a statistical percentage, and applied uniformly across all modes; (4) documentation that the transit provider engaged the public in the decision-making process to develop the major service change policy, disparate impact policy, and disproportionate burden policy; (5) a description of the datasets and the tools and/or technologies used to collect the data; and (6) an evaluation of the impacts of proposed service changes on minority and low-income populations using the recommended framework.

(cont.)

Table 1-1 (cont.)

Report Chapter	Provisions	FTA C 4702.1B Reference	Reporting Requirements
	Perform a fare equity analysis	IV.7.b.	(1) A description of the datasets and the tools and/or technologies used to collect data that indicates whether minority and or low-income riders are disproportionately more likely to use the mode of service, payment type, or payment media that would be subject to a fare change, (2) documentation of disparate impact and disproportionate burden policies which establish thresholds for determining whether minority and/or low-income riders are bearing a disproportionate impact of the change between the existing cost and the proposed cost, presented as a statistical percent, and applied uniformly regardless of fare media, (3) documentation that the transit provider engaged the public in the decision-making process to develop the disparate impact and disproportionate burden thresholds, and (4) an evaluation of the impacts of the proposed fare changes on minority and low-income populations using the recommended framework.

CHAPTER 2
General Reporting Requirements

2.1 Notification to Beneficiaries of Protection under Title VI (FTA C4702.1B, III.5)

The following text is quoted from the brochure that was designed to notify MBTA customers of their rights and protections under Title VI. This brochure has been translated from English into the five other primary languages spoken in the MBTA service area. Copies of the brochure have been placed in station kiosks at rapid transit and major bus transfer stations, at MBTA administrative offices and information desks, and (in electronic form) on the MBTA's website.

INFORMATION ON TITLE VI

Protecting Your Rights

What Is Title VI?

Title VI of the Civil Rights Act of 1964 is a Federal statute that provides that no person shall be discriminated against or denied benefits on the grounds of race, color, or national origin, in programs and services that receive federal financial assistance. As such, to ensure that MBTA customers are not discriminated against, we have adopted policies that promote equal access and quality service to all our customers.

What Does Title VI Mean to You?

Public transit agencies, such as the MBTA, are required to provide services in a fair and equitable manner to all passengers without regard to their race, color, or national origin. Title VI also requires the MBTA to reduce language barriers that may impede access to important services by customers who may not be proficient in English.

In addition to the Title VI requirements there are other laws providing similarprotection on account of a person's gender, religion, age, disability, sexualorientation, or other protected status.

The MBTA also has a zero-tolerance policy prohibiting any form of unlawful discrimination.

What Services Are Available to Customers Who Are Not Proficient in English?

Under Title VI, customers who are not proficient in English are entitled to assistance in accessing critical MBTA information. If deemed essential or upon request, we can translate materials in several languages, including Spanish, Chinese, Haitian Creole, Italian, and Cape Verdean Creole.

Additionally:

- Our automated fare system provides audio and visual instruction in English, Spanish, and Chinese
- Our customer service agents and hub monitors are able to provide guidance to customers who are not proficient in English; and
- If deemed necessary or upon request translation services may be provided.

What Should You Do If You Have a Complaint?

All comments and suggestions for improvement in our service are welcome and will be considered.

You can:

- Submit your comments, suggestions, or complaint to Customer Communications via email to www.mbta.com; or
- Send a letter to MBTA's Customer Communications, Ten Park Plaza, Room 5610, Boston, MA 02116; or
- Call MBTA's Customer Communications at (617) 222-3200.
- For more information or for an alternate format of this document, please call (617) 222-3200 or TTY (617) 222-5416 or visit www.mbta.com.

When submitting complaints, please include your contact information as well as details of the incident including what occurred, where and when, and the names, addresses, phone numbers, and email addresses of witnesses.

We Welcome Your Feedback!

The MBTA is committed to providing safe, efficient and quality transportation services to all the communities that we serve. If you have comments or suggestions on how we can improve on our commitment to non-discrimination in our services or how we can better serve the needs of our customers who are not proficient in English, we would like to hear from you.

A shortened version of this notice, provided below, is printed on the MBTA's system maps.

The MBTA is committed to providing outstanding service in an equitable manner to all persons regardless of race, color, national origin, gender, religious beliefs, age, disability, sexual orientation or other protected class.

The MBTA does not tolerate unlawful discrimination.

To report a violation of this policy, please contact: MBTA Customer Communications Services, 10 Park Plaza, Boston, MA, 02116, Tel.: 617-222-3200, or **mbta.com**.

The MBTA is updating the notice of civil rights. The text of the MBTA's draft revised notice to customers of their rights and protections under Title VI is displayed in Figure 2-1. The MBTA is in the process of adopting this new notice, which will replace the notice that is currently posted in stations, major bus transfer stations, MBTA administrative offices and information desks, and (in electronic form) on the MBTA's website during the coming year. The new notice also will be posted at commuter rail stations when the transition to a new contractor for management of that service begins, in July 2014. The MBTA is also in the process of crafting a shorter version of the revised notice, which will be included on maps and in MBTA documents and meeting notices. The current notice will not be removed until the new notice is posted

2.2 MBTA Title VI Complaint Procedures (FTA C4702.1B, III.6)

Policy

It is the policy of the Massachusetts Bay Transportation Authority (MBTA) to operate all programs, services, and activities without discrimination. The MBTA's Title VI policy, in accordance with Title VI of the Civil Rights Act of 1964, assures that no person or groups of persons shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied benefits of, or be otherwise subjected to discrimination under any and all programs, services, or activities administered by its departments. Additional federal and state laws prohibit discrimination on the basis of gender, religion, age, disability, sexual orientation, and other categories.

The Authority prohibits discrimination, harassment, or retaliation against our customers as outlined in the policies on antidiscrimination and the prevention of harassment, which are distributed to all MBTA employees.

Toward this end, it is the objective of the MBTA to:

1. Ensure that the level and quality of transportation service is provided in a nondiscriminatory manner across all federal and state protected categories, including race, color, and national origin (including limited English proficiency)

2. Identify and address issues of Environmental Justice that affect minority and low-income populations

3. Promote the participation of the public in transportation decision making, including through outreach to Title VI populations and other protected categories such as individuals with disabilities

4. Ensure the equitable distribution of benefits and burdens

The General Manager, as Chief Executive Officer of the Authority, has overall responsibility for carrying out the MBTA's commitment to the Title VI program. The Office of Diversity and Civil Rights (ODCR) has been delegated the responsibility of coordinating Title VI program procedures, overseeing implementation, and monitoring and reporting on the progress attained. The Title VI program is an Authority-wide initiative, and all managers, supervisors, and employees share the responsibility of conducting all programs, services, and activities in a nondiscriminatory manner and addressing possible discrimination, if identified. Appropriate training is provided to customer support representatives, supervisors, superintendents, and other employees. Area superintendents and supervisors (or their designees) are responsible for receiving complaints which come through various intake venues, including the Customer Communications and Marketing (CCM) department.

The MBTA's ODCR has developed a Title VI complaint procedure that covers Title VI and other customer civil rights complaints. However, it does not deny the complainant the right to file formal complaints with the Massachusetts Commission Against Discrimination (MCAD) or the Federal Transit Administration (FTA), or to seek private counsel for complaints alleging discrimination, intimidation, or retaliation, of any kind that is prohibited by law, as is stated in our policy.

Complaint Procedure

The following is a summary of the internal procedures that the MBTA's ODCR uses for the investigation and resolution of Title VI complaints. The Title VI complaint form is available in English, Spanish, Chinese, and Portuguese, and is provided in Appendix A.

Background

MBTA Customer Communications receives complaints from customers through a number of different channels. MBTA customers make initial contact by telephone, website complaint form, email, letter, fax, or at a walk-up service desk. The Customer Communications center also maintains a customer service tracking system called HEAT/IRIS (Incident Reporting Information System). Each complaint is assigned a ticket number. The complaints are categorized, prioritized, and assigned electronically to various areas within the MBTA for investigation, response, and reporting. The Customer Communications Representatives have a list of departments responsible for investigation of a complaint based on category, and ODCR is responsible for all Title VI and discrimination complaints. With the exception of Title VI/Discrimination complaints, Customer Communications will take the response/finding from the area, respond to the customer, and close out the complaint. For Title VI/Discrimination complaints, the response to the customer will come from the area or from ODCR with findings. All information must be properly and accurately entered into the HEAT/IRIS system for proper record keeping, reporting, and identification of trends, and to provide information that can be used to improve the customer experience.

Types of Complaints

Customer Communications assigns each complaint to one of the following four categories of complaint types: Safety, Accessibility, Title VI/Discrimination, and General Complaints. The complaints are prioritized based on type, category, and reason. All Safety, Accessibility, and Title VI/Discrimination complaints are given a “priority one” for immediate action. If the complaint is a “happening now” complaint (complaint in process), the Operations Control Center (OCC) is alerted immediately for action on safety, accessibility, and general complaints, while ODCR is alerted in the instance of Title VI/Discrimination complaints. The MBTA’s top two categories of complaints involve employee and service complaints.

Title VI/Discrimination Complaints

All Title VI and discrimination complaints are entered into the HEAT/IRIS system and categorized. These types of complaints are given a priority one and assigned to ODCR as well as the area responsible for the complaint. The Customer Communications Representatives also must enter additional information on Title VI/ Discrimination complaints into the DETAIL screen in HEAT for additional categorization. The DETAIL screen gives more specific information on the type of discrimination the customer is reporting. Customer Communications Representatives identify Title VI complaints by key words mentioned in relationship to race, color, or national origin. Once the ticket is assigned to ODCR it is received via email in the ODCR internal email box (odcr@mbta.com). ODCR also has access to the HEAT-ALERT MONITOR so that they can see the complaint and add journal note entries. ODCR and the specific areas work together to resolve these types of complaints. In many cases the response to the customer will come from the area or from ODCR with findings. The details of the finding are not disclosed to Customer Communications.

ODCR Investigation Procedures

Title VI of the Civil Rights Act of 1964, as amended (Title VI), prohibits discrimination on the basis of race, color or national origin (including limited English proficiency) for programs and activities receiving federal financial assistance. The Massachusetts Bay Transportation Authority (MBTA) maintains a procedure for the disposition of Title VI complaints. The procedure articulated below is also available on the MBTA's Title VI webpage and in hardcopy in the Office of Diversity and Civil Rights (ODCR) and throughout the agency on request. The complaint procedure is referenced in MBTA's Title VI Notice to Beneficiaries, along with instructions on how to request additional information and/or file a complaint. As part of the Notice, those instructions will be made available in the top six languages of the MBTA service area and the MBTA will translate them into additional languages upon request.

Any person who believes him/herself, or any specific class of persons, to be subjected to discrimination prohibited by Title VI (race, color, national origin [including limited English proficiency]), may he/she or his/her representative file a written complaint with the MBTA. The complaint can be provided either by using the complaint form or by submitting the information described below. Complaints that are received in person, over the phone, or through other non-written means will be memorialized in writing during intake. For persons unable to provide a written complaint, ODCR will provide assistance. A complaint must be filed no later than 180 days after the date of the alleged discrimination, unless the time for filing is extended by the MBTA.

Procedure for Complaints Filed with the MBTA Against the MBTA or a Subrecipient

Complaints submitted to the MBTA in which a MBTA or one of its subrecipients is named as the Respondent will be processed by the Investigations Unit in ODCR, as designated to perform this function by MBTA's Title VI Coordinator. The MBTA may forward such complaints to the FTA Office of Civil Rights, where necessary, for consultation, jurisdictional determinations, or investigation. As articulated in the memorandum attached as Appendix B, the MBTA will "check in" with the FTA upon receipt of disability-based discrimination complaints against the MBTA's FTA subrecipients. The structure of the MBTA's Title VI complaint procedure, articulated below, is based largely on the investigations manual for Title VI complaints developed by the US Department of Justice's Civil Rights Division.

I. Complaint Intake. (15 working days)

a. Input data into a complaint log to catalogue the race, color, or national origin or other protected class of the complainant; the identity of the respondent; the nature of the complaint; the date of the complaint; a summary of the allegations; and actions taken by the MBTA or the subrecipient in response to the complaint. (Note: at the close of the investigative process, the complaint log will need to be updated with the outcome of the investigation).

b. Determine whether the complaint is within the jurisdiction of the MBTA.

c. All complaints must be in writing and signed by the complainant or his/her representative. Complaints shall state, as fully as possible, the facts and circumstances surrounding the alleged discrimination. Complainants, or their representatives, can request assistance from the Office of Diversity and Civil Rights to provide the complaint in writing.

d. Respond to the complainant in writing, confirming receipt of the complaint and describing the steps to be taken and other relevant information.

    i. In the case of third-party complaints, the complainant will remain the recipient of the confirmation of receipt of their complaint. In addition, the alleged victim(s) of discrimination, if identifiable, will be notified that an ODCR investigator may seek a discussion with them in processing the complaint, if needed, and provide general information regarding Title VI protections and complaint procedures.

e. The respondent will be notified by the MBTA that he/she has been named in a complaint. The letter will indicate the Investigator's name and inform the respondent that he/she will be contacted for a discussion.

II. Establish Merit of Complaint/Conduct Investigation. (30 working days)

a. Determine basis of complaint, and identify issues.

b. Assign ODCR investigator to conduct the investigation/review the file. The investigator may want to keep the MBTA General Counsel's office informed of certain complaint activities, based on the nature of the complaint, as needed.

c. Establish file containing the following:

    i. Jurisdictional information
    ii. Identification of basis and issues
    iii. Identification of the applicable legal theories
    iv. Conclusions drawn from the analysis of the data or other evidence already gathered
    v. Description of the documentary, testimonial, and statistical evidence required to complete the investigation and the best sources and means of obtaining each type of evidence
    vi. Anticipated sequence of case activities, including on-site visits if needed
    vii. Anticipated time frames for obtaining and analyzing evidence (if appropriate)
    viii. Statement of likely or enunciated recipient defenses and a description of the evidence required to test their validity

d. Identify parties to be interviewed and conduct interviews (e.g., complainant(s), respondent(s), staff, and witnesses)

e. Review subrecipient's records and, if necessary, its facilities

f. Request any additional information from relevant parties

III. Evaluation and Assessment of Evidence/Investigative Report. (30 working days)

a. Evaluate evidence gathered

b. Develop Investigative Report (IR) that will:

   i. Organize and present the factual information collected during the investigation
   ii. Identify the location in the case file of the specific supportive documentation from which each statement, allegation, conclusion, or determination was drawn
   iii. Present an analysis of the information to determine the relevance of the facts to the allegations
   iv. Draw conclusions based on the analysis
   v. Recommend corrective and/or remedial action, as appropriate

c. The IR should contain the following sections:

   i. Introduction
   ii. Allegation(s)
   iii. Methodology
   iv. Findings of Fact
   v. Analysis
   vi. Determination(s) and Corrective/Remedial Action(s)

Letters of Finding and Resolution

Once the investigation has been conducted and the IR written, the Title VI Coordinator will forward a copy of the complaint and a copy of the IR within thirty (30) days to the FTA Office of Civil Rights. MBTA will transmit to the complainant and the respondent one of the following three letters based on its findings:

a. A letter of resolution that explains the steps the subrecipient has taken or will take to come into compliance with Title VI.

b. A letter of finding that is issued when the subrecipient is found to be in compliance with Title VI. This letter will include an explanation of why the respondent was found to be in compliance, and provide notification of the complainant's appeal rights.

c. A letter of finding that is issued when the subrecipient is found to be in noncompliance. This letter will include each violation referenced as to the applicable regulations, a brief description of proposed remedies, notices of the time limit on the conciliation process, the consequences of failure to achieve voluntary compliance, and an offer of assistance to the subrecipient in devising a remedial plan for compliance, if appropriate.

Letters of finding and resolution will offer the complainant and the subrecipient the opportunity to provide additional information that would lead the MBTA to reconsider its determinations. Parties named in the complaint should provide this additional information within sixty (60) days of the date the letter of finding was transmitted. After reviewing this information, the MBTA will respond either by issuing a revised letter of resolution or finding to the appealing party, or by informing the appealing party that the original letter of resolution or finding remains in force.

2.3 Title VI Investigations, Complaints, and Lawsuits (FTA C4702.1B, III.7)

Table 2-1 lists the Title VI investigations, complaints, and lawsuits filed with the Authority since the MBTA's June 30, 2011, submission to the FTA. The MBTA received 46 discrimination complaints between August 2011 and December 2013

Table 2-1
MBTA Title VI Complaints, Lawsuits, and Investigations
(ADHP = Anti-Discrimination and Harassment Prevention. CP= Complainant. CRI = Civil Rights Investigation. CSA = Customer Service Agent. EEO = Equal Employment Opportunity. MCAD= Massachusetts Commission Against Discrimination. RSP =Respondent. SCMP = Street Car Motor Person. TPD = Transit Police Department.)

	Forum	Date Filed	Summary of Allegations	Status/Action Taken
1.	MBTA	8-10-11	**National Origin − Removed from Bus** CP alleged that operator removed her and her family from the bus because of her national origin (Hispanic).	No Cause. Insufficient evidence. Closed.
2.	MBTA	8-10-11	**Race – Removed from Seat** CP alleged that pregnant woman told her that Green Line operator told her to ask CP to give up her seat.	No Cause. Insufficient evidence.

(cont.)

Table 2-1 (cont.)

	Forum	Date Filed	Summary of Allegations	Status/Action Taken
3.	MBTA	8-14-11	**Race – Offensive** CP alleged that RSP made offensive comments about his race.	No Finding. No response from CP; unable to investigate. Closed.
4.	MBTA	8-19-11	**Race – Offensive** CP alleged that holding the Ashmont Train until the Braintree train passes through is discriminatory.	No Cause. Matter referred back to area.
5.	MBTA	8-26-11	**Race – Offensive** CP alleged that RSP was rude towards her when she boarded the bus.	No Cause. No evidence of civil-rights violation. Referred back to area to nvestigate possible courtesy violation.
6.	MBTA	9-13-11	**National Origin – Offensive** CP alleged that operator said "Learn to speak English." CP did not leave name or contact information.	No Finding. Insufficient evidence. Closed. Referred back to area.
7.	MBTA	9-15-11	**National Origin – Offensive** CP filed a complaint that RSP (MBTA bus driver) cut him off and called him by an offensive epithet (Puerto Rican).	Unable to identify bus or operator. No response from CP. Closed.
8.	MBTA	9-29-11	**Race – Offensive** CP filed a complaint against RSP (MBTA bus driver) that he closed the door on him and his son because they are white.	No Cause. Insufficient evidence. Closed.
9.	MBTA	10-14-11	**Race – Offensive** CP alleged he was arrested by TPD for fare evasion; and that TPD racially profiled him.	No Cause. Closed
10.	MBTA	11-2-11	**National Origin – Offensive** Anonymous caller alleged that RSP (T-pass employee) yelled at customer, "Learn to speak English, you're in America." Caller also alleged that RSP was rude.	Insufficient evidence for civil-rights violation. Referred to area for possible courtesy violation.

(cont.)

Table 2-1 (cont.)

	Forum	Date Filed	Summary of Allegations	Status/Action Taken
11.	MBTA	11-24-11	**National Origin – Offensive** CP complained that RSP (bus operator) made offensive remark about her national origin (Hispanic).	No Cause. Insufficient evidence. Closed.
12.	MBTA	11-28-11	**Race – Offensive** CP alleged that RSP (train operator) made offensive comments about her race (Asian).	Insufficient evidence for cause finding. Closed.
13.	MBTA	12-14-11	**Race – Disparate Treatment** CP was on the Route 28 bus and stated that RSP bypassed her stop even though she rang the bell. CP claims this always happens on this route and believes it is because the route serves a minority community.	No Cause. No contact from CP. RSP submitted statement. CRI to close with no finding. Closed
14.	MBTA	12-15-11	**National Origin – Offensive** Customer alleged CSA mocked Asian speech pattern.	No Cause. Insufficient evidence.
15.	MBTA	2-10-12	**National Origin – Offensive** CP alleged that bus operator made offensive comments because she is Muslim.	Bus operator denied making comments. Attempted to contact CP. No response. Closed with No Cause.
16.	MBTA	2-27-12	**Race – Disparate Treatment** Customer alleged that when bus is full/ running late it bypasses him. Customer believes this is because of his race (Asian Indian).	Insufficient evidence. No Cause. Case closed.
17.	MBTA	3-03-12	**Race – Offensive** Customer alleged that operator made inappropriate comments to her. Customer believes it is because of her race (Asian).	Operator is on 30-day suspension pending discharge for another incident. CRI was not able to interview operator. Case closed.

(cont.)

Table 2-1 (cont.)

	Forum	Date Filed	Summary of Allegations	Status/Action Taken
18.	MBTA	3-8-12	**Race – Offensive** Customer alleged that bus operator made offensive comments about her race (Hispanic). Bus operator denied the allegations. CRI contacted. Customer does not speak English and hung-up on CRI.	No Cause. Closed
19.	MBTA	3-16-12	**Race – Offensive** Anonymous customer alleged that operator called him a racial slur. Customer provided no contact information. No information about the operator or bus route.	No Cause. Closed
20.	MBTA	4-12-12	**Race – Offensive** Anonymous customer called regarding racist graffiti on seat.	No Cause. Referred to TPD. Closed.
21.	MBTA	4-23-12	**National Origin – Offensive** Customer alleged that a "T worker" working in a booth at Downtown Crossing told another customer to "go learn English." Caller left no contact information.	Insufficient information to investigate. Case closed.
22.	MBTA	5-6-12	**Race – Offensive** Passenger alleged that bus operator failed to pull to the curb.	No Cause. Closed.
23.	MBTA	5-31-12	**Race – Offensive** Customer stated that bus operator "yelled" at her for failing to pull the priority seating when she got off the bus. Customer believes it is because she is Hispanic.	No Cause. No contact from CP. Closed.
24.	MBTA	6-19-12	**Race – Offensive** Customer alleged that operator demonstrated offensive conduct towards her. Unable to contact customer to conduct an investigation.	No Cause. Closed with No Finding.

(cont.)

Table 2-1 (cont.)

	Forum	Date Filed	Summary of Allegations	Status/Action Taken
25.	MBTA	7-2-12	**National Origin – Offensive** Anonymous customer alleged that CSA made offensive comments about Hispanics. Customer did not leave contact information or information about CSA.	No Cause. Closed.
26.	MBTA	7-10-12	**Race and Gender – Offensive** Customer alleged that RSP used a racial slur while she boarded Orange Line train. Customer is white female. Operator black female.	No Cause. CRI interviewed operator. No response from customer. Operator was due for ADHP training. Closed.
27.	MBTA	8-06-12	**Race – Offensive** Customer alleged that operator failed to stop at appropriate stop, and let him off near dangerous intersection.	Non-civil rights. No Cause. Closed. Case referred to area for possible rules violation.
28.	MBTA	8-23-12	**Race – Offensive** Customer alleged that operator does not stop at bus stop for her because she is white and Muslim.	No Cause. Closed.
29.	MBTA	9-6-12	**Race – Offensive** CP alleged that T engineer stated that “landlord was treating him like a “racial slur.”	No Cause. Interviewed parties and witnesses. Closed.
30.	MBTA	9-8-12	**Race – Offensive** Customer alleged that bus operator called him by a racial slur.	No Cause. CP has not responded. RSP denied allegations. Closed.
31.	MBTA	9-8-12	**National Origin – Offensive** RSP allegedly made offensive comments to CP about her English proficiency. CP alleged that operator was rude as well.	No Finding. Unable to speak to customer. Closed.

(cont.)

Table 2-1 (cont.)

	Forum	Date Filed	Summary of Allegations	Status/Action Taken
32.	MBTA	9-30-12	**Race/Disability – Offensive** Customer alleged that operator "yelled" and "cursed" at passengers including a passenger with "tremors" and an "Asian" customer who did not understand operator.	No evidence of civil-rights violation. Area investigating for courtesy violations.
33.	MBTA	10-10-12	**National Origin – Offensive** Customer alleged that operator told him and his wife "This is America, speak American." Operator also allegedly cursed at customer.	Cause Finding. RSP suspended and will undergo retraining. Closed.
34.	MBTA	11-15-12	**Race – Offensive** Customer alleged that bus operator bypassed him. No information on driver or bus number.	No evidence of civil rights violation. Referred to area for further investigation for possible rules violation.
35.	MBTA	11-25-12	**National Origin – Offensive** CP alleged that CSA failed to provide assistance.	No Finding. Matter referred to area to identify CSA. Closed.
36.	MBTA	2-11-13	**Race – Offensive** CP alleged that SCMP "hurled" racial slurs at him.	No Finding. Case referred back to area for possible courtesy violation. Closed.
37.	MBTA	4-29-13	**National Origin – Offensive** Anonymous caller alleged that operator was offensive about passengers speaking another language.	No Finding. Case referred back to area for further investigation. Closed.
38.	MBTA	5-15-13	**Race – Disparate Treatment** CP complained that the operator treated her "differently" in the manner he spoke to her.	No Cause. Closed

(cont.)

Table 2-1 (cont.)

	Forum	Date Filed	Summary of Allegations	Status/Action Taken
39.	MBTA	5-16-13	**Race – Offensive** CP alleged that she got on bus and was having problem finding her pass. Operator asked her to get off. CP alleged that operator said he is "tired of white women thinking they can ride for free."	CP did not provide name or badge number for operator. CP did not provide bus number or route. No Finding. Closed.
40.	MBTA	5-18-13	**Race – Offensive** CP tweeted that bus operator was yelling at an elderly Asian woman, and made her move from a priority seat.	CRI reviewed video and could not confirm that operator was yelling at passenger. Operator did have a woman move to provide area for wheeled-mobility device. Case referred to area for possible courtesy violation. Closed.
41.	MBTA	5-23-13	**Race – Offensive** CP alleged that the bus operator called her a racial slur. Operator denied the allegation.	No Cause. Closed.
42.	MBTA	6-19-13	**Race – Offensive** CP Caller stated that she tried to ride the bus for free. When operator refused, she called him by an insulting epithet and in response he called her a racial slur.	No Cause. Case referred to area for possible courtesy violation. Closed.
43.	MBTA	9-13-13	**National Origin – Offensive** CP alleges that bus operator acted with a racist attitude towards an Hispanic woman. No further information.	No Finding. Case closed.
44.	MBTA	12-20-13	**National Origin – Offensive** Customer alleged that RSP made disparaging comments about her.	No Cause. Matter referred to area. Closed.

MCAD, EEO and Other Legal Challenges:				
45.	MCAD	7-20-11	**National Origin – Offensive** CP arrested for evasion. Alleged RSP made offensive comments, kicked and punched him.	Matter referred to Legal Department.
46.	MCAD	12-9-11	**National Origin – Offensive** CP alleged racial profiling by MBTA police.	Matter referred to Legal Department.

2.3 Public Participation (FTA C4702.1B, III.8)

2.3.1 Public Participation Plan

The MBTA, in cooperation with MassDOT, has developed a robust public participation plan. The MBTA's Public Participation Plan serves to guide agency public participation efforts, including for populations that have been underserved by the transportation system and/or have lacked access to the decision-making process. It provides a guide for MassDOT and the MBTA in their efforts to offer early, continuous, and meaningful opportunities for the public to help identify the social, economic, and environmental impacts of proposed transportation policies, projects, and initiatives across MassDOT and the MBTA. The Public Participation Plan, included in Appendix C, is modeled on MassDOT's draft Public Participation Plan. The MassDOT plan is currently under revision to incorporate feedback received during a 45-day public comment period. All relevant revisions to the MassDOT Public Participation Plan will be incorporated in the MBTA Public Participation Plan.

2.3.2 Public Outreach and Involvement Activities

The MBTA conducts extensive public outreach both to keep members of the public informed and to solicit input concerning transit needs and concerns. This section of the report describes the variety of approaches the MBTA uses to facilitate the exchange of ideas and information with members of the public. The MBTA is continually working to improve its outreach, particularly to individuals in low-income and diverse communities.

Community Relations Department

The MassDOT Government Affairs/Community Relations Department (CRD) coordinates and streamlines the public outreach efforts of all of the MBTA's departments and provides a consistent level of support to all communities that interact with the MBTA. The CRD is committed to building and maintaining a positive and lasting relationship with all communities. It makes a concerted communication and outreach effort to involve all project stakeholders and elected officials in the MBTA's project planning and participation process. The CRD works in coopera-

tion with the project managers in all departments on all community relations, communication, and coordination matters. The MBTA's concept of community involvement is more than just communicating with stakeholders; it is communicating and managing the process to achieve an outcome that gathers input on a developing project and gains stakeholder acceptance of the completed project. Consensus does not mean that all are satisfied with the project results; it means stakeholders are willing to accept project outcomes as developed through the community involvement process.

The MBTA typically communicates to the general public through one or more of the following methods:

- Agency website
- Customer service telephone lines
- Press releases, posters, flyers, and mailings
- Newspaper, radio, and television advertisements
- Signs and handouts available in vehicles and at stations
- Community meetings
- Information tables at local events

Some of these communication tools are geared towards riders who are using the system, while other methods are intended to reach the community at large.

Public/Community Meetings Process

The MBTA hosts public/community meetings and workshops to share project information and to solicit input from the community in an informal setting. These meetings are publicized through press releases, mailings, and/or the distribution of informational meeting flyers. Notices of public meetings are also posted on the MBTA and MassDOT websites. The CRD distributes informational materials at these meetings.

Public meetings are planned and publicized as early as possible. It is the responsibility of the CRD staff or the MBTA department charged with the coordination of any public meeting to ensure that the event is accessible to all people. For persons with disabilities and others who might need assistance, various forms of assistance are available, including appropriate room set-up, alternate formats of handouts, and American Sign Language (ASL) interpreters when requested. All meeting planners are provided with a checklist to ensure that the meeting locations are accessible. This checklist is included in the Public Participation Plan, which is provided in Appendix C.

Advance notices of community meetings are published in urban newspapers with a general circulation, as well as newspapers published for specific local communities or neighborhoods. At least one week before a meeting, informational flyers are distributed or signs are posted, as appropriate. Notices of public hearings related to service changes are also posted on the MBTA and MassDOT websites.

For construction projects, public review meetings are held at the conceptual, 30 percent design review, 60 percent design review, and final design phases. Notices of public hearings and meetings regarding planned construction projects are emailed to all affected community groups. The MBTA's Community Relations Department is represented at all internal planning, design, and construction review meetings to ensure that project stakeholders' concerns and interests are identified and addressed early, and to allow the CRD to assess the project scope and resources needed. Early engagement allows the CRD to develop a public community-involvement process tailored to each individual project to allow full participation by all stakeholders.

In addition, the MassDOT Board of Directors meets monthly and includes time on its agenda for public comment—an open forum for individuals to present their concerns regarding transit construction, operations, and policies directly to the General Manager and the Secretary of Transportation, as well as to the MassDOT board, which governs them.

Dissemination of Information Regarding Service Changes

Any change in MBTA service—whether it is a delay caused by bad weather, a modification in scheduling, or an increase in service levels to handle a special event—is of importance to the hundreds of thousands of people who depend on the MBTA to get to work, school, medical appointments, and countless other destinations. The Community Relations Department has an aggressive program in place, targeted to the area's minority and low-income populations, to inform passengers of these changes. In all of its communications with the public, the MBTA takes steps to ensure that important notices comply with the LEP (limited-English-proficiency) policy.

The Authority makes service changes of varying magnitude for a variety of reasons, including: (1) emergency situations, (2) construction activity, (3) periodic service-plan reviews, and (4) regular quarterly schedule updates. The magnitude of and reasons for the changes determine which of the following methods are used to inform the public of these changes.

Newspaper

Pertinent and timely service information is distributed via press releases to citywide and community-oriented newspapers, including newspapers geared to minority communities. Press releases of interest to a specific area are targeted to newspapers in that area. Press releases of more general interest are sent to area newspapers that reach a broad range of ethnic and racial groups with varying income levels.

Internet

The MBTA website (www.mbta.com) has been recognized within the transit industry for its design and content, with a focus on ease of use for transit customers. Features include an interactive-scheduling Trip Planner, real-time bus and train tracking information, MBTA service maps, and multilingual translations. Since 2007, the MBTA has offered "T Alerts," which provide customized service updates to customers via email, mobile phones, and personal-digital-assistant (PDA) devices. "Mobile MBTA.com" provides Web-enabled mobile phones with easy-to-read, specially formatted views of www.mbta.com.

The MBTA website is used to disseminate information regarding ongoing MBTA projects, project proposals, and transit services, including dates and times of public meetings, hearings, and project procurements; schedules, route maps, and schedule changes; and service and escalator/elevator advisories and alerts. The website is also used as a means of soliciting input from interested parties regarding MBTA plans, projects, and services. In addition, the website offers customers an avenue for registering complaints and commendations about MBTA services.

All press releases are posted on the MBTA website. Email and text-messaging customers can sign up for "T-Alerts" to receive instant notification by email, mobile phone, pager, or PDA of delays of 15 minutes or more on their designated service. Customers can also provide input to the MBTA by sending an email to feedback@mbta.com.

Real-Time Information/Applications

In 2009, the MBTA began releasing schedule data and real-time location data for transit vehicles, which can be used by software developers to build applications for the public. Currently, these data are available for all bus routes, as well as for the Red, Orange, Blue, and commuter rail lines.

To date, developers have built many applications (generally known as apps) with the data for computers, cell phones, and smart phones. Some of these applications are available at no charge, while some have a user fee. Generally, these applications show users the actual location of the next bus or train and/ or predict when the vehicle will arrive at a selected stop. There are applications that can be used from any cell phone, with the information provided to the user via a voice or text message. The MBTA maintains a showcase of many of these software applications at www.mbta.com/apps in order to help people find what programs are available, although the MBTA does not guarantee the reliability or accuracy of any particular application.

Public Meetings, Workshops, and Hearings

Public meetings and workshops for service planning are hosted by the MBTA to share information and to solicit input from the public in an informal setting. These meetings are publicized through press releases, mailings, and/or the distribution of informational flyers. Notices of public meetings are also posted on the MBTA's website.

Public hearings are held for the Service Planning Department to solicit formal comments from the public regarding the impacts of proposed service changes. Advance notices of public hearings are published in urban newspapers with a general circulation, as well as newspapers published for specific local communities or neighborhoods. In addition, one week before a hearing, informational flyers are distributed or signs posted, as appropriate.

Community Group Meetings

Upon request, MBTA personnel attend regularly scheduled or special civic and community organization meetings to address construction or service changes that are of interest to the group. The MBTA staff attempts to maintain close working relationships with communities to ensure that relevant service- and construction-related issues and concerns are addressed or resolved. MBTA personnel often serve on community task forces, through which they also disseminate information to the public.

Billboards, Paid Advertisements, and Variable Message Signs

Where it is appropriate, the MBTA uses billboards, paid advertisements, and variable message signs to publicize construction and service disruptions.

Posters and Flyers

The Authority displays posters on vehicles, in stations, and at high-volume bus shelters detailing any service changes that would impact customers. The Authority also distributes flyers to individual passengers, area homes, businesses, and/or community organizations, where appropriate, by the most effective means.

Schedule Cards

The MBTA produces and distributes 2.5 million schedule cards every quarter (10 million annually) to ensure that the public has access to route and schedule information for the bus routes operated by the MBTA (the Authority reviews the routes' timetables four times per year). To assist the public, if a route or schedule has changed since the publication of the previous schedule, the front panel of the schedule card notes the type of change. Major bus terminals have a display case where schedule card information can be easily referenced. Also at these terminals are racks where passengers may obtain schedule cards. Signs at schedule racks inform passengers about routes that have had some type of change since the last quarterly schedule was published. The MBTA website also contains HTML and PDF versions of all schedules.

Customer Care Center

The MBTA has a centralized Customer Communications and Marketing Department, charged with meeting a customer satisfaction goal of responding to 95 percent of customer concerns within five days. All service-related inquiries, commendations, and complaints are received and

monitored through the Customer Care Center. The tracking of customer interactions is accomplished via a state-of-the-art customer service management system. Translation services are available. Reporting and management of call flow are done through the Automated Call Distributor.

MBTA Transit Police

The MBTA Transit Police Department is dedicated to maintaining the MBTA as a safe environment for all riders throughout the system and for all members of the MBTA community.

In order to facilitate service to the community while respecting differences that exist between neighborhoods, the department is structured along four geographic boundaries (designated as Transit Police Service Areas [TPSAs]). Each TPSA has a single Area Commander responsible for the overall quality of police service provided in the area and for engaging the community in the development of policing strategies tailored to local needs. An emphasis on community policing is a cornerstone of the policing strategy.

Community policing is designed to include the regular use of partnerships and problem-solving techniques that proactively address the immediate conditions that give rise to public safety issues such as crime, social disorder, and fear of crime. Each TPSA engages in community outreach and involvement activities.

The MBTA Rider Oversight Committee (ROC)

The MBTA established the Rider Oversight Committee, in 2004, to discuss customer-service improvements and service-quality issues. Through the ROC, which meets monthly, the MBTA has institutionalized ongoing public participation in all aspects of the Authority's operations.

The MBTA ROC's mission statement is: The MBTA ROC, a diverse group of riders, advocates, and MBTA employees, provides recommendations to the MBTA that communicate the needs and concerns of all riders in order to assist the MBTA in providing affordable, safe, and quality service.

The 23-member elected committee is made up of members of the public and advocacy groups; the MBTA provides staff members as resources for the ROC members. The ROC addresses various transit-related issues, including but not limited to the MBTA's fare policy and fare structure, fare equity issues, service improvements, service-quality standards, ridership data collection, and alternative funding sources for both the capital program and the operating budget. In addition to meeting monthly, the committee meets quarterly with the MBTA's General Manager/MassDOT Rail and Transit Administrator, the MBTA's Deputy General Manager/Chief Financial Officer, and the MassDOT Secretary/Chief Executive Officer.

Activities That Require Extensive Public Involvement

The MBTA makes a concerted effort to involve customers and the general public in its project planning, service evaluation, and policy development initiatives. The primary planning processes at the MBTA that include extensive civic engagement are:

- **Service Plan:** the plan through which the MBTA evaluates the performance of existing bus and rapid transit services and assesses the effectiveness of proposed service changes. The Service Plan is usually updated every two years. The 2014 Service Plan update process is currently underway.

- **Capital Investment Program (CIP):** the Authority's five-year capital spending plan, which is prepared annually. The CIP implements the system priorities outlined in the PMT.

- **Program for Mass Transportation (PMT):** the long-range master plan for capital improvements. The PMT defines the Authority's vision and investment priorities for Boston-area transit. The MBTA is required, under its enabling legislation, to prepare the PMT every five years. The MBTA released the last PMT update in 2009, following a two-year public process, and is beginning a new update.

- **Major projects:** The MBTA and MassDOT are committed to targeted, comprehensive, and inclusive civic engagement for all major improvement projects.

- **Fare changes:** The MBTA last had a major fare change in 2012 (fiscal year 2013), and is planning a minor fare change for fiscal year 2015.

- **Boston Region Metropolitan Planning Organization (MPO) certification activities:** The MBTA, as an agency, is a voting member of the MPO and actively participates in MPO public-outreach activities and in the development of federally required planning and policy certification documents: the Long-Range Transportation Plan, the Transportation Improvement Program, and the Unified Planning Work Program.

Outreach for Biennial Service Plan

The 2014 Service Plan is currently under development. Outreach for the plan will include workshops to discuss service and the service-planning process and to solicit ideas from the public for service changes. In addition, suggestions will be accepted via email, letter, an online form, and other customer-service channels within the MBTA. The workshops will be advertised via flyers aboard buses and in stations, banner ads on the mbta.com website, press releases, and ads in the *Haitian Reporter*, *La Semana*, and *Sampan*. The workshops also will be advertised through affinity groups, including ROC, the T Riders Union, and Transportation Management Associations. Language translation will be provided for the meetings based on the demographics of the area.

Outreach for the MassDOT and MBTA Capital Investment Programs

Each year, the MBTA reviews and updates the MBTA Capital Investment Program (CIP), which is a financially constrained document. The CIP provides an overview of the Authority's planned capital expenditures for a five-year planning horizon, describes the MBTA's infrastructure and the capital needs for maintaining the system, outlines ongoing and programmed capital projects, and details planned expansion projects.

The draft CIP is published electronically to encourage public participation and comments on the document. The Authority designates a public-comment period that begins approximately two weeks prior to public workshops and hearings about the draft and ends approximately two weeks after the public meetings. In order to notify the public of the release of the draft and upcoming events, the MBTA posts announcements on its website, sends information to the Boston Region Metropolitan Planning Organization and the MBTA Advisory Board, purchases advertisement space, publishes announcements in the *Metro* newspapers, and places flyers and posters in MBTA vehicles. Members of the public who are unable to attend either the workshops or the hearing can submit comments through the US mail and/or via email. The feedback collected through the public-participation process is synthesized and forwarded to the MassDOT Board of Directors and the MBTA Advisory Board for review.

The public meetings allow members of the public to give their input on and ask questions about the proposed capital program in person. Various MBTA departments designate key personnel to be present at each of the meetings in order to respond to questions. All meeting locations are accessible to persons with disabilities, and American Sign Language (ASL) interpreters are present.

The MBTA has begun to coordinate the development of and outreach for its CIP with the development and outreach process for the MassDOT CIP. In addition to the outreach conducted by the MBTA for the MBTA CIP discussed above, representatives participated in joint CIP outreach meetings with MassDOT.

Public Meeting Formats

The public meetings have one of the following two formats.

- **Public Hearing Format**: During a public hearing, the MBTA presents an overview of the draft CIP, with highlights of key existing and new projects. Members of the public are then invited to provide formal comments; however, no questions are answered during the hearing. A court reporter records the entire hearing, including the comments provided by each of the participants, and this becomes part of the public record. After a hearing has been completed, members of the public can meet informally with MBTA personnel to have their questions answered.

- **Workshop Format:** Each public workshop begins with an overview of the draft CIP, including highlights of key existing and new projects. Since members of the public often come to the meetings with the expectation of having their questions answered, the work shop format includes a question-and-answer segment. No court reporter is present to record the program under this format. However, MBTA staff members take notes on the session and later incorporate the information into a report summarizing the public-participation process.

2.3.4 Summary of Major Outreach Activities since 2011 Title VI Submission

This section summarizes the outreach activities that the MBTA has undertaken for proposed fare increases and capital projects.

2.3.4.1 Fare Changes: Major Fare Increase in 2012 and Minor Fare Increase Proposed for 2014 (Effective Date July 1, 2014)

2012 Major Fare Change

Prior to the MBTA fare increase that was effective July 1, 2012, the MBTA initiated a comprehensive public outreach process to inform its customers and stakeholders of the MBTA's financial condition and the proposals for changes to fare and service levels. Two proposals were presented—Scenario 1, with a larger fare increase and a smaller number of service eliminations than the second scenario, and Scenario 2, with a smaller fare increase coupled with a larger number of service eliminations. The proposals were developed to be consistent with the MBTA's Fare Policy,[1] which was adopted in 2009 after a period of public involvement. The proposals were presented to the public via the MBTA's website, at briefings with the Legislature and other interest groups, and, most importantly, at a series of 31 public meetings and hearings throughout the MBTA service area.

Public Outreach Activities for the 2012 Fare Increase and Service Changes

The MBTA's Public Outreach process consisted of the following elements, designed to maximize public comment on the proposals:

- The full description of the proposed scenarios and impact analyses and numerous supporting documents were placed on the MBTA website for public examination. These documents were made available in accessible formats.

[1] The fare policy states that the MBTA shall conduct a public process for any fare increase of 10 percent or more or for any service reduction of 10 percent or more. The changes proposed in Scenarios 1 and 2 both exceeded these thresholds and required the public process conducted between January and March of 2012.

- An explanatory brochure was made available in English and six other major languages, both in hard copy and online. Additionally, the brochure was mailed directly to more than 60 community associations and groups, and was handed out at MBTA stations. A total of 12,000 translated "Fare Increase" booklets were printed; 2,000 were set aside for public meetings, and 10,000 were distributed to 64 cultural centers. (The list of cultural centers is in Appendix D).The six major languages in which the brochure was available are:

    - Spanish
    - Portuguese
    - Chinese
    - Vietnamese
    - Haitian Creole
    - Cape Verdean Creole

- Staff met with the MassDOT Board of Directors, the Legislature, and the MBTA Advisory Board, as well as numerous other groups, to provide an overview of the MBTA's needs and financial situation, and the content of the proposed changes.

- Public meeting and hearing notices were posted in newspapers throughout the MBTA service area two weeks or more before each date. The meeting/hearing information was continuously posted online as well. The newspapers where the notice was published include: *Bay State Banner, Boston Globe, Boston Haitian, Boston Herald, Dorchester Reporter, Mattapan Reporter, El Mundo, Metro, Patriot Ledger, Sampan,* and *Worcester Telegram and Gazette*.

- Flyers and postings were placed on MBTA vehicles to alert customers to the upcoming meetings and to the information available online. 5,000 flyers were seat-dropped on all MBTA commuter rail lines and 10,000 were distributed on buses.

- An email blast was issued to groups representing minority and/or low-income communities using the MassDOT Constant Contact and Boston Region MPO contact databases.

- The Executive Office of Energy and the Environmental Affairs was provided with an Environmental Notification Form (ENF) on January 31, 2012. This voluntary filing was provided to designated officials in each of the 175 communities in the MBTA service area. A response from the Office of Energy and Environmental Affairs was received in the form of a certificate on March 9, 2012.

- A dedicated email address was created (farepropposal@mbta.com) to provide an additional point of submission for public comment. Customers received first an automatic computerized reply, informing them that their comment had been received, and then an individualized reply, responsive to their specific comment.

- Twenty-five public meetings were held and six public hearings were conducted. Each of the following communities hosted at least one event: Newton, Worcester, Chelsea, Boston (10 meetings in 8 locations), Attleboro, Salem, Lowell, Lynn, Hingham, Framingham, Quincy, Malden, Somerville, Cambridge, Waltham, Brockton, Haverhill, Fitchburg, Hull, Winthrop, Revere, and Providence, Rhode Island.

- At each public meeting or hearing, materials were available in English and in six additional languages, per the MBTA's Language Access Plan, and in Braille, large print, and audio formats. American Sign Language (ASL) translation and Communication, Access, Real-time Translation (CART) reporters were made available as well. Additionally, simultaneous language translation was requested for, and provided at, certain meetings.

Public Comments

The MBTA elicited extensive response from the public and other stakeholders during the 10-week comment and outreach period. In total, over 5,800 people attended a public meeting or hearing, and 1,808 provided comment or testimony. Additionally, over 5,900 letters and emails were received from the public. Organizations representing a wide variety of interests commented in a total of 70 letters or emails. Petitions were received from multiple groups, representing thousands of citizens. The MBTA received 57 letters from elected officials at all levels of government. Finally, policy papers with responses to the initial proposals were prepared and shared with the public, from the MBTA Advisory Board, the MassDOT Transportation Advisory Committee, the Metropolitan Area Planning Council, and A Better City (an advocacy organization representing major employers in Boston), the Bay State Council of the Blind, and numerous other organizations.

SFY 2015 Minor Fare Change

The MBTA initiated a public outreach process in the spring of 2014 for a 5 percent across-the-board increase on all MBTA travel modes, scheduled to take place on July 1, 2014. Per MBTA policy, minor fare increases are defined as fare changes projected to generate 10 percent or less in additional fare revenue. Under the transportation finance legislation enacted in the summer of 2013, the Commonwealth provided additional revenue for MBTA operations and capital budgets and restricted fare increases so as not to increase fares by more than 5 percent annually.

The proposed SFY 2015 fare increase is projected to raise fare revenue by approximately 4 percent ($20 to $24 million in new fare revenue) and result in less than a 1 percent reduction in ridership (2.8 million to 3.8 million trips). The fare increase is consistent with the needs expressed in The Way Forward Plan in January 2013 and with the Transportation Finance legislation of July 2013, which anticipate the need for regular increases of 5 percent. (Individual price changes range from approximately 4 percent to 7 percent, due to rounding, with the

overall average increase being 5 percent. Increases are not proposed for paratransit fares on THE RIDE service; these fares will remain at the current levels: $3.00 for base ADA trips and $5.00 for premium trips.)

An impact analysis was prepared and posted on mbta.com, providing information on ridership, revenue, equity, and emissions impacts. All measureable impacts are minor and do not cause disparate impacts on minority populations or disproportionate burdens on low-income populations.

Public Outreach Activities for the 2015 Fare Increase

Under the MBTA Policy regarding Fare Change Process and Procedures, this proposal is classified as a "Minor" fare change because the fare revenue increase is projected to be less than 10 percent. The policy requires a minimum of five meetings for minor fare changes, and MBTA staff scheduled a total of 10 meetings throughout the region, one of which is a mandated public hearing that took place on April 22, 2014.

All meeting locations are accessible to people with disabilities, and American Sign Language services, assistive-listening devices, and provision for language assistance, when requested or determined to be appropriate by the four-factor analysis, are available. Meeting locations targeted to low-income and/or minority communities have been scheduled in Roxbury, Lynn, and Framingham. Informational materials and meeting translation services are available in Spanish, Chinese, Haitian Creole, Cape Verdean Creole, Vietnamese, and Portuguese.

At each public meeting or hearing, materials are available in English and in those six additional languages per the MBTA's Language Access Plan, and also in Braille, large print, and audio formats. American Sign Language ASL) translation and Communication, Access, Real-Time Translation (CART) reporters are made available as well. Additionally, upon request, simultaneous language translation is provided at meetings

The MBTA's Public Outreach process consists of the following additional elements, designed to maximize public comment on the proposals:

- The full description of the proposed fare changes, the impact analysis, and numerous supporting documents have been placed on the MBTA's website for public examination. These documents have been made available in accessible formats.

- An explanatory brochure has been made available in English and six other major languages, both in hard copy and online. The booklets were translated into six languages:

    - Spanish
    - Portuguese
    - Chinese

- Vietnamese
- Haitian Creole
- Cape Verdean Creole

Additionally, the brochure has been mailed directly to over 60 community associations and groups, and handed out at MBTA stations. A total of 69,000 booklets were printed: 57,000 in English, 3,000 in Spanish, 3,000 in Chinese, 1,500 in Haitian Creole, 1,500 in Cape Verdean Creole, 1,500 in Vietnamese, and 1,500 in Portuguese. More than 6,000 were set aside for public meetings, and more than 2,000 were distributed to area cultural centers (the list of cultural centers is in Appendix D). The brochure was also printed in Braille; Braille versions were available at all public meetings.

- Staff met with the MassDOT Board of Directors, the Legislature, and the MBTA Advisory Board, as well as numerous other groups to provide an overview of the content of the proposed changes

- The MBTA is posting public meeting and hearing notices in newspapers throughout the MBTA service area two weeks or more before each meeting date. The meeting and hearing information is continuously posted online as well. The newspapers where the notice has been or will be published include: *Bay State Banner, Boston Globe, Boston Haitian, Boston Herald, Dorchester Reporter, Mattapan Reporter, El Mundo, Metro, Patri ot Ledger, Sampan, and Worcester Telegram* and *Gazette*.

- The MBTA is placing flyers and information panels on MBTA vehicles to alert customers to the upcoming meetings and to the information available online.

- Notice of the meetings is being posted on social media and sent by email to community groups, corporate pass administrators, and Transportation Management Associations. Organizations and individuals representing minority and low-income communities are included in the email blasts using the MassDOT and Boston Region MPO contact databases.

- A dedicated email address has been created (fareproposal@mbta.com) to provide an additional point of submission for public comment. Customers receive first an automatic computerized reply, informing them their comment had been received, and then an individualized reply, responsive to their specific comment

- Public comments are being accepted through April 30, 2014. Written comments can be directed to MBTA in three ways:

    - Via US mail to MBTA, 10 Park Plaza, Boston, MA 02116, Attn: Fare Proposal Committee
    - Posted via MBTA website at www.mbta.com
    - Via email to fareproposal@mbta.com

2.3.4.2 Capital Project Development and Planning

Fairmount Corridor Project

The MBTA is completing a decade-long program of infrastructure investment in the Fairmount Line, a nine-mile commuter rail service from South Station to Readville serving the low-income and minority communities of Roxbury, Dorchester, Mattapan, and Hyde Park. The MBTA is partnering with a coalition of Fairmount Corridor neighborhood groups; community development corporations; institutions, including the Barr Foundation, the Metropolitan Area Planning Council, and the Boston Foundation; and the City of Boston, in capital project development, design, construction, service plan development, and community education programs focused on the rail line service. Numerous public involvement meetings have been held in those communities to discuss the various phases of this project. The only remaining capital improvement element of the Fairmount Corridor Project is the final design and construction of a Blue Hill Avenue/Cummins Highway station in Mattapan. The MBTA continues to work with its community partners in conducting public outreach and involvement activities for this project.

The MBTA has established a partnership with the Fairmount CDC Collaborative and a Fairmount public education and outreach campaign; both are supported by a $352,500 USDOT grant through the Transportation Communities and System Preservation Program. The funding is matched by 20 percent local funds totaling $88,125, from the MBTA and partner community development corporations. Grant scope activities to be implemented over 18 months from the summer of 2013 center on three activities:

1) Developing and Implementing a Public Information Plan designed to increase awareness and use of Fairmount Line transit service among Corridor residents.

2) Conducting outreach and building partnerships with Fairmount area businesses.

3) Improving connections between Fairmount stations and neighborhood centers through station-area information signage and design improvements, including public art.

The following objectives of the action plan for the Fairmount Corridor Project are being implemented:

- **Community Groups:** Work in close cooperation with community organizations and their network of neighborhood contacts. Market the line as the quickest, cheapest way to get to downtown Boston and for travel within the Corridor and as a service providing more transit options for Fairmount Corridor residents.

- **Distribute Schedule and Line Information/Education Materials:** Need to broaden exposure/visibility of Fairmount Line service and broadly inform neighborhoods of schedule-based rail service now accessible to them. Use traditional print/broadcast media, social media, and neighborhood organizations. (newsletters).

- **Business Recruitment:** Expand contacts and outreach to major employers/institutions, Boston Medical Center, and South Bay Mall, as well as the entire industrial area surrounding Newmarket.

- **Educational Tours/Promotion Events:** Show people how easy it is to use this service. The first tours were conducted in September 2013.

- **Survey:** The MBTA implemented a survey of Fairmount Line riders to gauge customer usage and satisfaction.

- **Place-Making:** Strengthen the position of stations as neighborhood gateways. Increase visibility and improve connections to Main Street/neighborhood business districts.

South Coast Rail Project

The South Coast Rail project will restore passenger rail transportation from South Station in Boston to the Commonwealth Gateway communities of Fall River and New Bedford, and will serve a number of environmental-justice communities. MassDOT is managing the South Coast Rail project. To gather ideas and information during the design phase of the project, MassDOT launched a comprehensive public outreach process, seeking to engage all stakeholders, both supporters and opponents of the project. This civic engagement includes:

- Working with the Southeastern Massachusetts Commuter Rail Task Force. The Task Force was formed in 2004 to help the region prepare for the impacts of the re-introduction of passenger rail to the South Coast. Its membership includes representatives from cities and towns and non-governmental organizations, including business associations and environmental groups.

- Regularly providing information to the media.

- Convening regional civic engagement meetings to hear directly from residents throughout the corridor.

- Meeting with individual cities and towns to discuss planning for stations, priority places for encouraging development and preserving natural resources, and addressing traffic, grade crossing, noise, and other concerns.

- Providing periodic State House briefings to legislators and Congressional Members.

The South Coast Rail project team completed the environmental review process (MEPA) in the fall of 2013, with Secretary Sullivan of the Executive Office of Energy and Environmental Affairs issuing his Certificate on November 1, 2013. For the federal NEPA process, a final wetlands mitigation plan must be generated. This work could not commence until the Final

Environmental Impact Statement/Report (FEIS/R) was publicly issued, which happened on September 23, 2013. MassDOT and the MBTA will hold additional public sessions in the coming year associated with the Mitigation Plan and permitting and engineering design work. In all cases, the South Coast Rail team will continue to follow MassDOT's policy directive on Title VI and accessibility, including providing Section 508 compliant PDF files for posting online; providing or offering language assistance in advertisements, e-blasts, and flyers; and hosting meetings only at locations that are accessible to people with disabilities.

To arrive at the completed FEIS/R, MassDOT held many meetings with communities, officials, legislators, and the general public. Throughout 2013, all public meetings were conducted in facilities designed in compliance with the Americans with Disabilities Act. All flyers prepared for circulation in advance of the public sessions were printed in English, Portuguese, and Spanish, which are the predominant languages spoken in the South Coast area. The flyers also invited individuals requiring specific accommodations to notify MassDOT in advance of the meeting.

The Fact Sheet announcing the release of the FEIS/R in September 2013 was also printed in Spanish. There were no requests for other translations.

MassDOT contracts the South Coast Rail Task Force meetings to the Southeastern Regional Planning and Economic Development District (SRPEDD), which organizes and advertises the meetings, and maintains the meeting attendance records and minutes. During 2013, these meetings were as follows:

- February 27, 2013: Bridgewater State University
- July 17, 2013: Westport Public Library
- October 16, 2013: Norton Public Library
- December 5, 2013: New Bedford Whaling Museum/National Park; Corson Building

Other public meetings included the following two FEIS/R Open Houses:

- October 8, 2013: Taunton High School Cafeteria
- October 17, 2013: UMass Dartmouth Advanced Technology Manufacturing Center, Fall River

For the Open Houses, MassDOT translated the "How to Comment" document into Spanish and Portuguese; notified the city/town clerks in the 31 Corridor communities of the times and locations by US mail; placed notices in local newspapers (*Taunton Gazette; Fall River Herald News; New Bedford Standard-Times*); and sent English, Spanish, and Portuguese e-blasts to a large database (1,400 active email addresses).

In addition, MassDOT held meetings with the Canton Board of Selectmen, and with staff of the towns of Stoughton, Easton, and Taunton. These meetings were conducted at the request of the communities in their facilities. One meeting, with Easton officials, was held at the State Transportation Building, 10 Park Plaza, Boston.

SRPEDD and the other two local regional planning agencies, Old Colony Regional Planning Council (OCPC) and the Metropolitan Area Planning Council (MAPC), in conjunction with MassDOT, the MBTA, and the Executive Office of Housing and Economic Development (EOHED), conducted two workshops on the updated mapping of the Priority Areas, as required by state Executive Order 525, at the following locations:

- Olmsted School in Easton, on September 24, 2013
- Dartmouth Town Hall on September 26, 2013

Additional outreach and public engagement activities for this project include the following:

- MassDOT created a project informational brochure in May of 2013 and mailed copies of the brochure in English, Spanish, and Portuguese to community organizations, neighborhood groups, churches, community centers, and other community-based organizations. This brochure, in English, Spanish, and Portuguese, is shown in Appendix E.
- MassDOT's South Coast Rail team has posted Section 508-compliant versions of updates and fact sheets to the website.

During 2013, neighborhood meetings, hosted by neighborhood groups, were conducted in their facilities at their request. These included:

- Fall River North End Neighborhood Association, on February 18, 2013
- Niagara Neighborhood Association, on January 28, 2013
- Highlands Historic, in December 2013

Green Line Extension — Capital Project Development and MassWIN Localization Program

The Green Line Extension to Somerville/Medford is a major capital infrastructure investment for which MassDOT is seeking a New Starts Full Funding Grant Agreement in 2014. MassDOT developed and implemented a robust program of community involvement during previous stages of planning for the Green Line Extension Project. In partnership with the MBTA, MassDOT will continue this outreach through the design, engineering, and construction of the Green Line Extension. The Public Engagement Plan as outlined in the Project's Final Environmental Impact Statement is in Appendix F.

The project is innovative in that it is an opportunity for the MBTA and MassDOT to launch, with community partners, a program of workforce development and mentoring focused on community during the project's construction phases. A summary of the MassWIN local workforce innovation program follows.

I. MASSWIN PROGRAM DESCRIPTION

The MBTA and MassDOT, in coordination with the Department of Education and Department of Labor and Workforce Development, is adopting the Denver RTD Workforce Initiative Now (WIN) model as the framework for a community-focused economic development job-creation program, specifically targeted as a pilot for further application in implementing major construction projects in low-income and minority communities. This program focuses on workforce development and jobs creation, leveraging an existing broad-based network of training and service providers, including: community colleges, technical schools, community organizations, industry training programs, and the public workforce systems. Through these organizations, MassWIN will help to identify, assess, train, and place community members into careers in transportation. The MBTA and MassDOT are launching the MassWIN-GLX workforce development program in conjunction with the Green Line Extension Project, with an emphasis on targeting local residents, organizations, and institutions in those urban communities most impacted by the GLX project.

II. PURPOSE

To address the need to develop and retain a sustainable workforce qualified to support the rapidly evolving needs of public transportation systems while supporting sustainable communities. Through workforce development, businesses, and neighborhoods, the goal of the MassWIN Program is to train residents to meet the hiring requirements for local transportation jobs. For MassWIN-GLX, the MBTA is focusing on the three cities that are directly affected by the Green Line Extension (GLX) project: Cambridge, Somerville, and Medford. The partners who will participate in this program are:

- White Skanska Kiewit (WSK), Green Line Extension Contractor
- Bunker Hill Community College
- Urban League of Eastern Massachusetts
- City of Cambridge

• City of Somerville

• City of Medford

• Somerville Community Corporation

Each partner, through a Memorandum of Understanding, will play a specific and important role in the development and implementation of the MassWIN-GLX program. In addition to the major partners, training and service providers within the GLX communities will provide specific outreach, recruitment, and training services.

2.4 Minority Representation on Planning and Advisory Bodies (FTA C4702.1B, III.10)

As stated in FTA Title VI Circular 4702.1B:

> Title 49 CFR Section 21.5(b)(1)(vii) states that a recipient may not, on the grounds of race, color, or national origin, "deny a person the opportunity to participate as a member of a planning, advisory, or similar body which is an integral part of the program." Recipients that have transit-related, non-elected planning boards, advisory councils or committees, or similar committees, the membership of which is selected by the recipient, must provide a table depicting the racial breakdown of the membership of those committees, and a description of efforts made to encourage the participation of minorities on such committees.

The MBTA does not have appointed transit-related boards, councils, or committees that meet this description. The MassDOT Board of Directors is the governing body of the MBTA, and members are appointed by the governor. As stated in M.G.L. c 6C §§ 2(b):

> The department shall be governed and its corporate powers exercised by a board of directors. The board shall consist of 7 members appointed by the governor for a term of 4 years, 3 of whom shall be experienced in the field of public or private finance and management; 1 of whom shall have experience in public policy; 1 of whom shall have experience in transportation planning and policy; 1 of whom shall be the secretary of transportation, who shall serve ex officio; and 1 of whom shall be a registered civil engineer with at least 10 years experience. [sic]

The pool of candidates for appointment to the MassDOT Board of Directors is maintained by the Commonwealth's Office of Boards and Commissions.[2] That office receives the credentials of interested potential appointees and maintains lists of qualified candidates across a variety of professional disciplines and administration areas. When a vacancy is identified, the Governor

[2] http://appointments.state.ma.us/.

requests this pool of candidates from the Office of Boards and Commissions and appoints a chosen candidate. The process is not influenced by the agency that will receive the appointee(s), and any member of the public is able to submit credentials to be considered for an appointment.

Biographies of MassDOT's Board of Directors members are maintained online at http://www.massdot.state.ma.us/AboutUs.aspx.

Upon the advice of the FTA's regional civil rights personnel, MassDOT is not required to submit demographic information on Board of Directors members because of the mechanism by which board members are appointed.[3]

2.5 Language Assistance Plan (FTA C4702.1B, III.9)

The MBTA's Language Assistance Plan is provided in Appendix G.

2.6 Subrecipient Assistance and Monitoring (FTA C4702.1B, III.11 and 12)

The MBTA has put administrative processes in place to ensure that all subgrantees of FTA assistance comply with USDOT Title VI regulations.

For all federal grant programs for which the MBTA is implementing a project scope with participation of a subgrantee agency/organization, the MBTA designates an MBTA Project Manager whose oversight responsibilities include monitoring for subgrantee project compliance of all federal requirements, including those described in the Title VI guidelines of FTA Circular 47201.1B.

The MBTA Title VI subgrantee monitoring process/procedure is as follows:

I. The MBTA designates a Project Manager for each subgrantee project. The Title VI Specialist in the MassDOT Office of Diversity and Civil Rights assists the MBTA Project Manager in Title VI program development and subgrantee reviews.

II. Subgrantee agreements between the MBTA and the recipient organization include specific reference to the subgrantee's Title VI Civil Rights obligations as referenced in the master grant agreement and the FTA Circular 47201.1B. All subgrantees are required to establish a Title VI Program that will include the following elements:

    a. Title VI Notice to the Public, including listing of locations of postings

    b. Title VI complaint procedures

[3] M. Riess, FTA Office of Civil Rights, Region III (personal communication, March 11, 2014).

c. Title VI complaint form

d. List of Title VI investigations, complaints and lawsuits

e. Public Participation Plan including information about outreach methods to engage minority and limited-English-proficient people, as well as a summary of outreach efforts

f. Table showing membership of the subgrantee's project committees, with membership by race, and a description of the process used to encourage participation by minorities in project decision-making

g. If any additional subrecipients are included, plan for informing those subrecipients of Title VI responsibilities and monitoring their compliance

h. If subrecipient project involves facility construction, subrecipient will prepare and submit equity analysis showing distribution of benefits and burdens of alternatives considered, as well as any mitigation plan

i. Documentation of the subrecipient agency's governing board or entity indicating review and approval of agency's Title VI program

j. If the subrecipient agency is a transit provider, additional documentation as required by the FTA Circular 47201.1B including development of service standards, service policies and service assessment monitoring

III. The MBTA Project Manager will organize a project initiation meeting to review all project administrative requirements and procedures. The agenda for this meeting will include information about the requirements of FTA Circular 47201.1B, procedures for MBTA Title VI compliance monitoring, and the schedule for subgrantee submittals.

IV. Each subgrantee will designate a Title VI Coordinator/Point of Contact (POC) who will prepare the subrecipient agency's Title VI Program compliance documentation. The agency's Title VI report, including all required elements, will be submitted to the MBTA Project Manager per the schedule defined at the project initiation meeting.

V. The MBTA Project Manager and the MassDOT Title VI Coordinator will review the subgrantee Title VI program submittal for compliance with MBTA and FTA requirements. Any deficiencies identified by the MBTA/MassDOT will be identified and communicated to the subrecipient Title VI POC for correction/further action.

VI. The subrecipient will identify any Title VI issues or concerns in progress reporting and/or invoicing on the project to be submitted, at a minimum quarterly, to the MBTA Project Manager.

VII. For projects lasting more than one year, the subrecipient will submit annual updates of the Title VI program according to a schedule to be determined by the MBTA Project Manager in consultation with the MassDOT Title VI Coordinator in the Office of Diversity and Civil Rights.

The MBTA Subrecipient Monitoring Checklist is provided in Appendix H.

Subgrantee Compliance Monitoring Record

The MBTA has one active subgrantee with whom an agreement has been executed since the October 2012 effective date of the FTA Circular C4702.1B. Information about this subrecipient is provided below.

Project: Fairmount Line TCSP Initiative

Subgrantee: Dorchester Bay Economic Development Corporation

Funding Program: Transportation Communities and System Preservation Program, Discretionary Grant Award 2012; Grant No. MA-26-0063

Subgrantee Agreement: Dated June 28, 2013

Project Administrative Initiation Meeting: August 14, 2013, with follow-up September 19, 2013

Subrecipient Title VI Contact: Michelle Green/COO

Title VI Subrecipient Program Submittal/Review to PM: February 24, 2014, with March 7, 2014, update to Public Participation Plan and Board vote

Title VI Program Subrecipient Submittal/Review to MassDOT ODCR: March10, 2014

Issues: *Update to Public Participation Plan*—Received March 2014, corrected with update

2.7 Title VI Equity Analysis for Location of Constructed Facilities (FTA C4702.1B, III.13)

The circular requires transit providers that have implemented or will implement a New Starts, Small Start, or other fixed-guideway capital project to conduct a service and fare equity (SAFE) analysis. The Green Line Extension to Somerville/Medford is a major capital infrastructure investment for which MassDOT is seeking a New Starts Full Funding Grant Agreement in 2014. The Title VI SAFE analysis for the Green Line Extension Project is in Appendix I.

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CHAPTER 3
Demographic Data and Maps

The circular (FTA 4702.1B, Chapter IV.5) requires that the MBTA create demographic and service profile maps and tables. The data and maps can be used to determine whether and to what extent service is available to minority and low-income populations in the MBTA service area.

3.1 Demographic and Service Profile Maps and Charts

For each Title VI triennial program update, the MBTA provides maps, overlays, and summary statistics for the MBTA service area using demographic data from the US census. In this program update we use the 2010 US census and the American Community Survey (ACS) five-year data set (2007–2011). These materials are used to identify neighborhoods and municipalities that have higher concentrations of minority and low-income people and the spatial relationship these communities have in the MBTA service area. When information about service coverage, planned system improvements, and transit amenities is summarized in tables and is graphically displayed using base maps that identify minority and low-income neighborhoods, and the MBTA's performance with respect to Title VI guidelines can be more fully understood.

The FTA requires transit operators to provide a demographic map that shades those census tracts or transportation analysis zones where the percentage of the total minority population residing in these areas exceeds the average minority population for the service area as a whole. Furthermore, the FTA guidance instructs transit operators to show the same information for low-income populations to address environmental justice issues. The MBTA has created a demographic base map showing minority and low-income census tracts over which the additional information required in the FTA circular is overlaid.

In the 175 municipalities of the MBTA service area, 26.19 percent of the residents are members of minority groups (based on analysis using 2010 US census data). To define low-income, the MBTA is using a locally developed threshold that which is more inclusive than the definition provided in the FTA guidance. The definition of low-income used in this report is comparable to that adopted by the Boston Region Metropolitan Planning Organization (MPO) to designate environmental-justice areas: a low-income area is defined as one in which the median household income is less than 60 percent of the median household income for the service area. The

median household income for the 175-municipality MBTA service area is $69,393 (using the 2011 ACS Five-Year Summary, for the years 2007 through 2011). A low-income census tract is defined as one in which the median household income in 2011 was less than 60 percent of that level, or $41,636.

The MBTA produced maps showing MBTA transit facilities, major activity centers and trip generators, and major streets and highways. The MBTA also produced a map that identifies facilities that have been recently replaced or improved, or have been scheduled or programmed for an upgrade in the next five years. For each map, two versions (a and b) were created: one at a regional scale, representing all 175 cities and towns of the MBTA service area, and another at a scale showing, in more detail, 65 core cities and towns of the MBTA service area.

This report contains the following maps that highlight the minority and low-income areas:

- Figures 3-1a and 3-1b show the MBTA service area and MBTA facilities. They include bus, rapid transit, and commuter rail lines; transit stations; and MBTA office, yard, and shop facilities.

- Figures 3-2a and 3-2b show major transit trip generators, including: city and town halls, shopping centers, hospitals, public libraries, college and university campuses, and high schools.

- Figures 3-3a and 3-3b show the major streets and highways, and the transit lines, stations, and facilities, in the MBTA service area.

- Figures 3-4a and 3-4b show MBTA transit facilities that were recently replaced or improved and major facility modernization projects for the fiscal years 2014 through 2019. They include information on capital improvements for bridges, stations, and maintenance facilities.

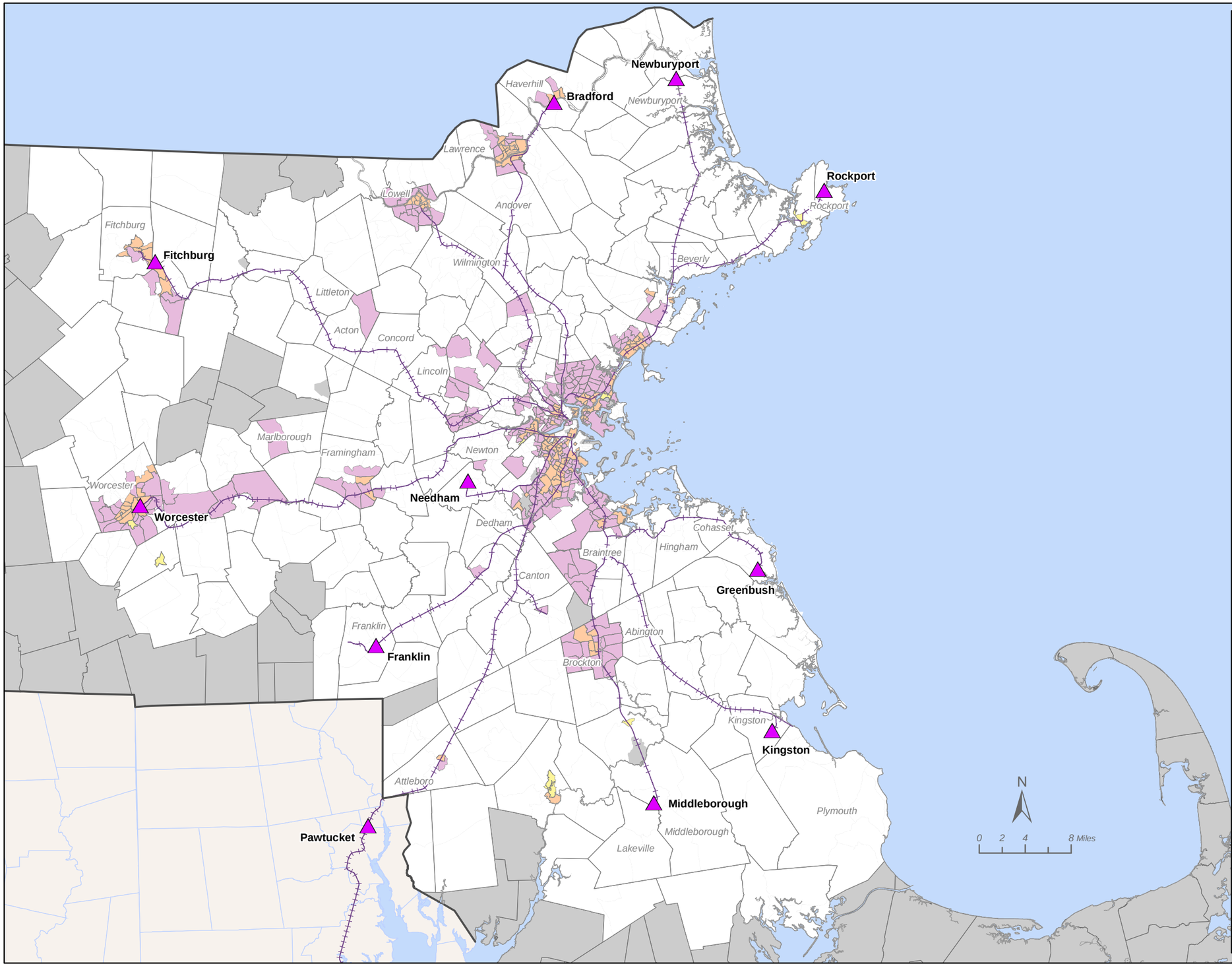

FIGURE 3-1a
MBTA Title VI Report

MBTA Remote
Layover Facilities*

MBTA Facilities

Remote layover facility

MBTA Transit

Commuter rail

Minority and/or Low-Income Status

- Minority tract
- Minority and low-income tract
- Low-income tract
- Not minority or low-income
- Town not within MBTA service area

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The median household income for the years 2007 through 2011 for the 175-municipality MBTA service area was $69,393. A low-income census tract is defined as one in which the median household income in 2011 was less than 60% of that level, or $41,636.

*See Figure 3-1b for detailed map.

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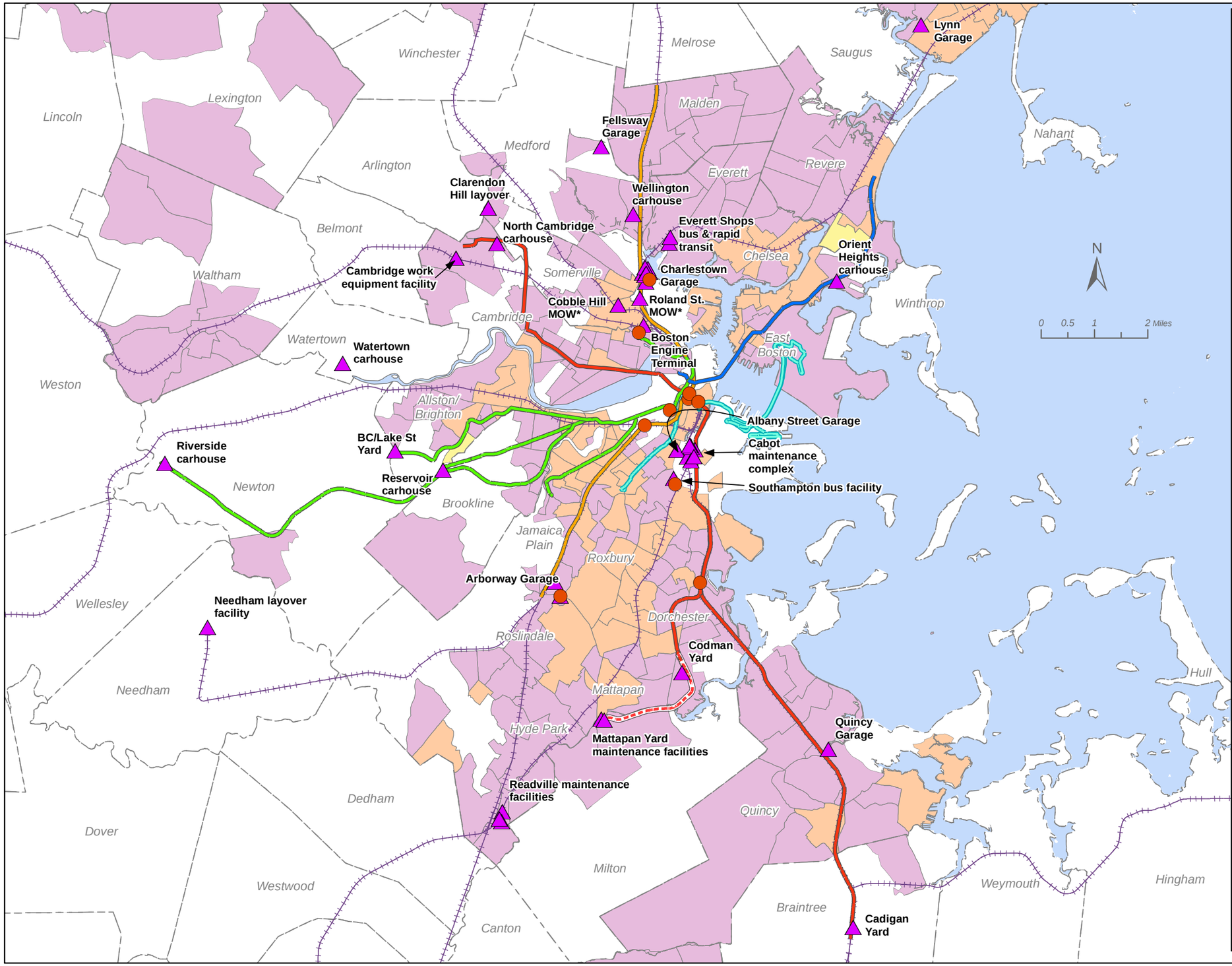

FIGURE 3-1b
MBTA Title VI Report

MBTA Facilities:
Detailed Map

MBTA Facilities
- MBTA office
- MBTA yard and/or shop

MBTA Transit
- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line
- Commuter rail

Minority and/or Low-Income Status
- Minority tract
- Minority and low-income tract
- Low-income tract
- Not minority or low-income

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The median household income for the years 2007 through 2011 for the 175-municipality MBTA service area was $69,393. A low-income census tract is defined as one in which the median household income in 2011 was less than 60% of that level, or $41,636.

*Maintenance-of-way facility

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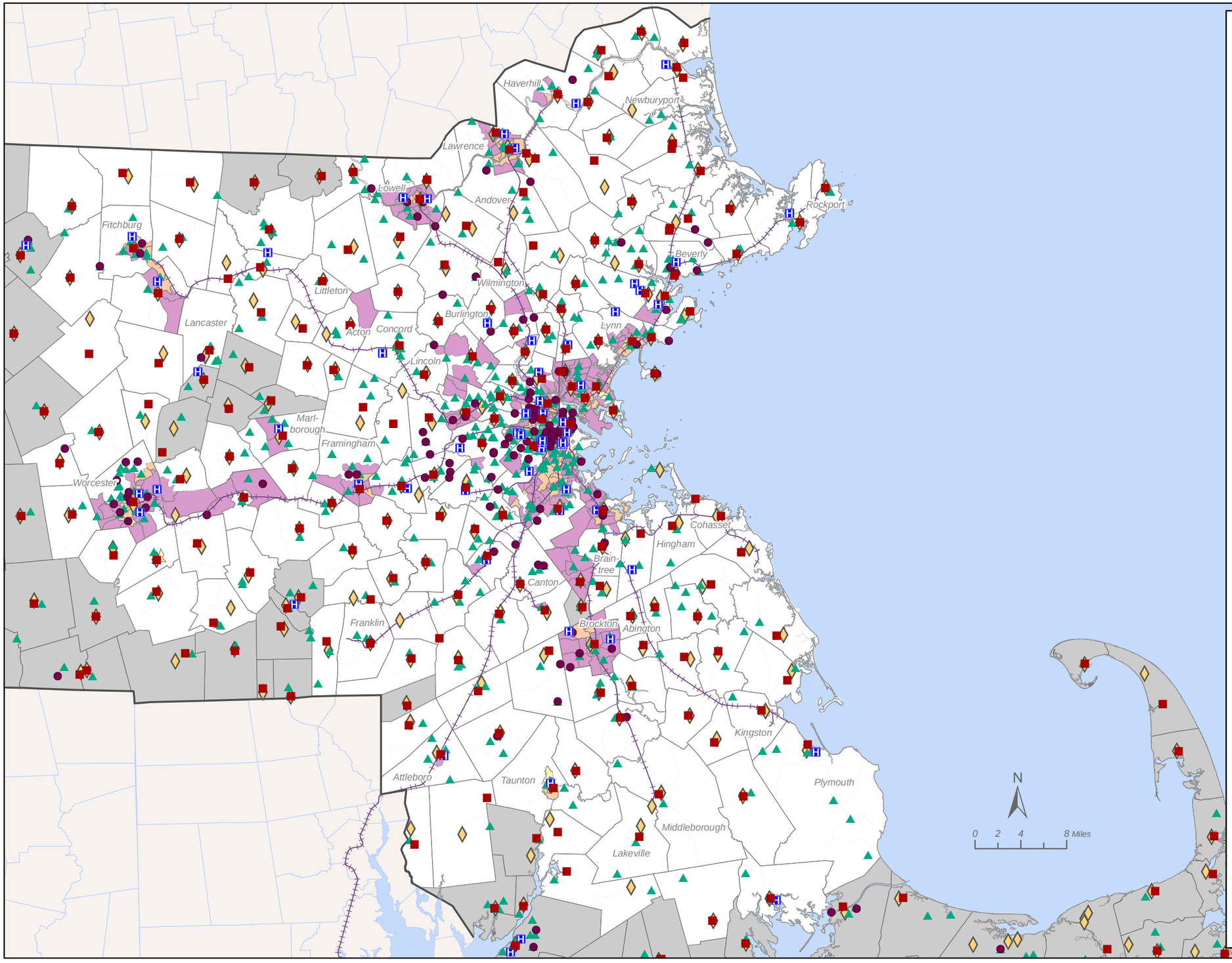

FIGURE 3-2a
MBTA Title VI Report

Major Transit
Trip Generators:
MBTA Service Area*

Selected Trip Generators
- Town hall
- Hospital
- College or university
- High school
- Library

MBTA Transit
- Commuter rail

Minority and/or Low-Income Status
- Minority tract
- Minority and low-income tract
- Low-income tract
- Not minority or low-income
- Town not within MBTA service area

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The median household income for the years 2007 through 2011 for the 175-municipality MBTA service area was $69,393. A low-income census tract is defined as one in which the median household income in 2011 was less than 60% of that level, or $41,636.

*See Figure 3-2b for detailed map.

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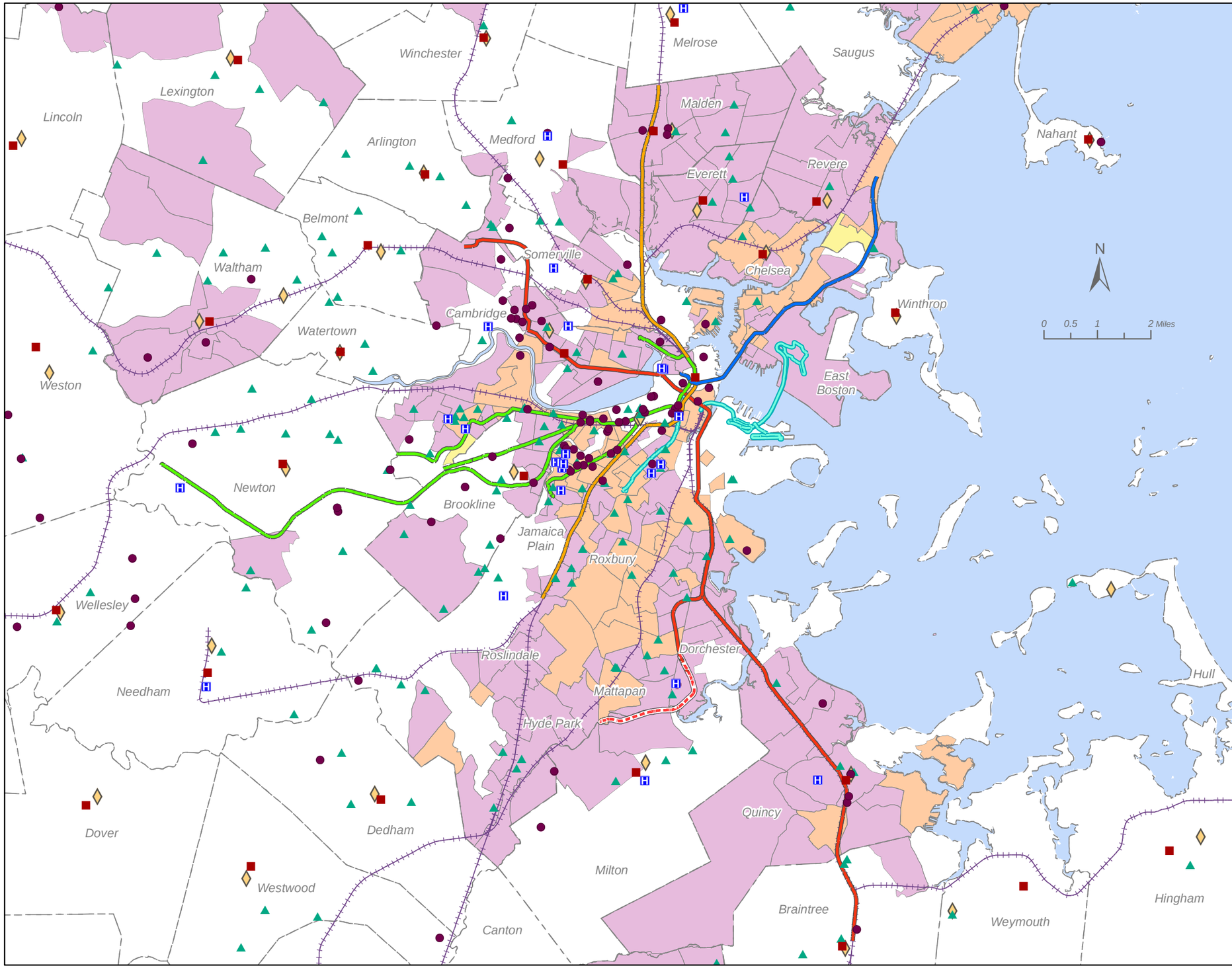

FIGURE 3-2b
MBTA Title VI Report

Major Transit
Trip Generators:
Detailed Map

Selected Trip Generators

- Town hall
- Hospital
- College or university
- High school
- Library

MBTA Transit

- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line
- Commuter rail

Minority and/or Low-Income Status

- Minority tract
- Minority and low-income tract
- Low-income tract
- Not minority or low-income

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The median household income for the years 2007 through 2011 for the 175-municipality MBTA service area was $69,393. A low-income census tract is defined as one in which the median household income in 2011 was less than 60% of that level, or $41,636.

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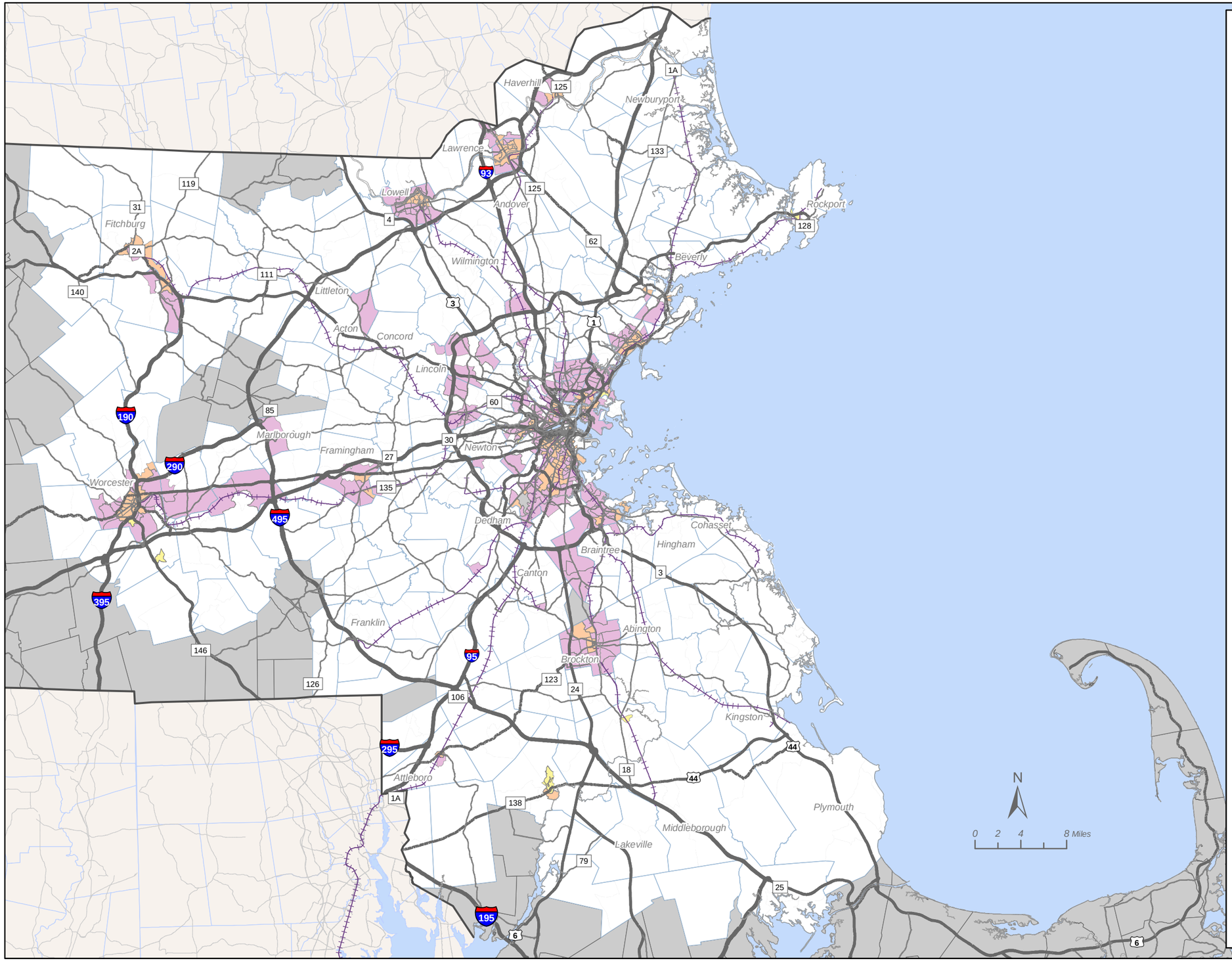

FIGURE 3-3a
MBTA Title VI Report

Major Streets
and Highways:
MBTA Service Area*

Road Network
- Interstate
- Principal arterial
- Other arterial

MBTA Transit
- Commuter rail

Minority and/or Low-Income Status
- Minority tract
- Minority and low-income tract
- Low-income tract
- Not minority or low-income
- Town not within MBTA service area

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The median household income for the years 2007 through 2011 for the 175-municipality MBTA service area was $69,393. A low-income census tract is defined as one in which the median household income in 2011 was less than 60% of that level, or $41,636.

*See Figure 3-3b for detailed map.

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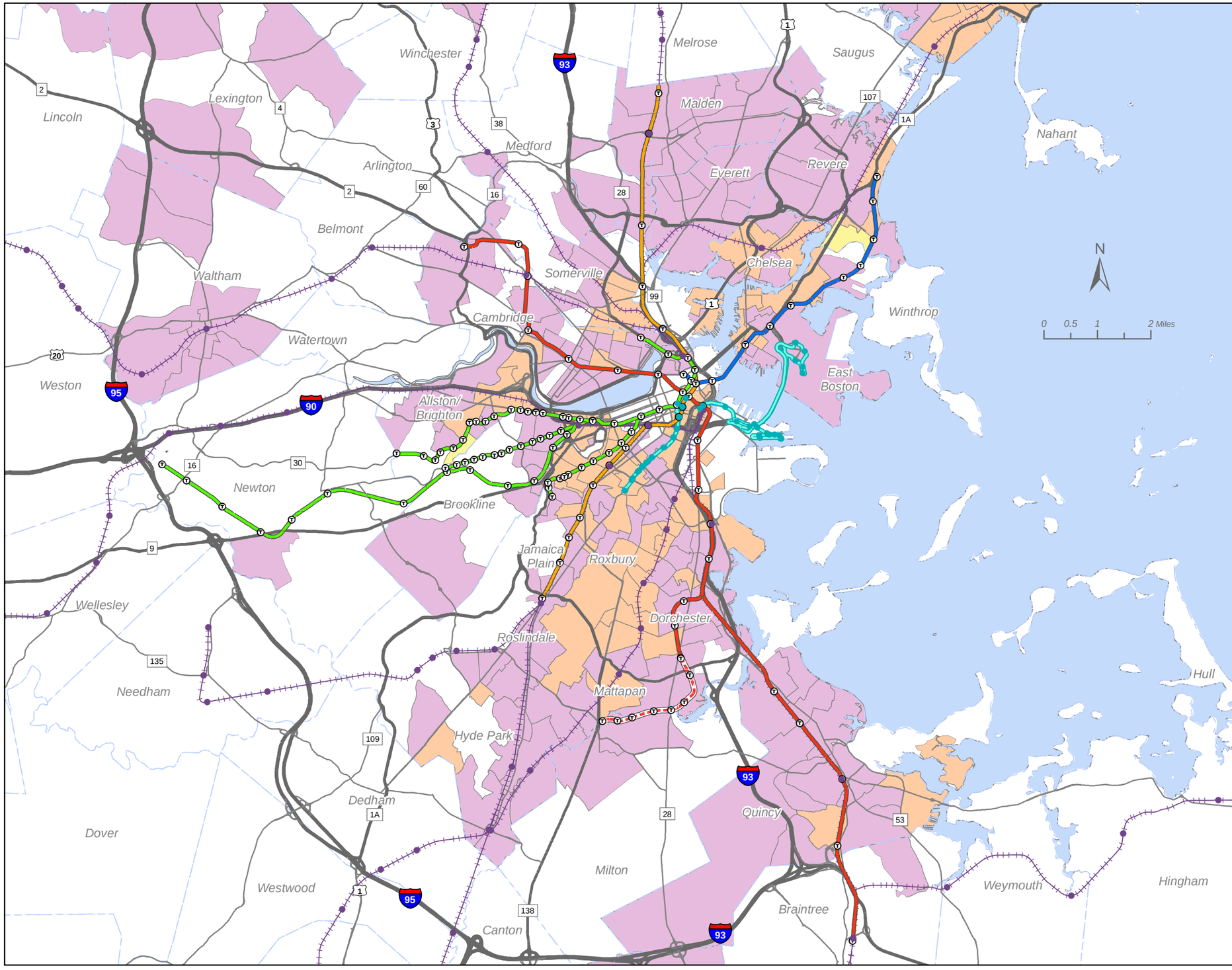

FIGURE 3-3b
MBTA Title VI Report

Major Streets and Highways: Detailed Map

Road Network
- Interstate
- Principal arterial
- Other arterial

MBTA Transit
- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line
- Commuter rail

Minority and/or Low-Income Status
- Minority tract
- Minority and low-income tract
- Low-income tract
- Not minority or low-income

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The median household income for the years 2007 through 2011 for the 175-municipality MBTA service area was $69,393. A low-income census tract is defined as one in which the median household income in 2011 was less than 60% of that level, or $41,636.

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FIGURE 3-4a
MBTA Title VI Report

MBTA Projects from Capital Improvement Plan (2015-2019)*

Newburyport Extension
Haverhill Double Tracking
Beverly Parking Garage
Salem Parking Garage
Wachusett Extension Project
Fitchburg Line Improvements
Worcester-Framingham Rail Improvements
Greenbush Line Construction
Fall River Line
New Bedford Line

See detailed map for Core area projects.

Haverhill
Newburyport
Rowley
Ipswich
Lawrence
Andover
Lowell
Rockport
Fitchburg
Lunenburg
Shirley
Ayer
Beverly
Wilmington
Westminster
Littleton
Leominster
Acton
Concord
Lincoln
Framingham
Newton
Shrewsbury
Worcester
Westborough
Cohasset
Hingham
Scituate
Braintree
Canton
Marshfield
Abington
Stoughton
Brockton
Duxbury
Easton
Kingston
Raynham
Taunton
Plymouth
Berkley
Lakeville
Freetown
Fall River
To New Bedford

N
0 2 4 8 Miles

Minority and/or Low-Income Status

- Minority tract
- Minority and low-income tract
- Low-income tract
- Not minority or low-income
- Town not within MBTA service area

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The median household income for the years 2007 through 2011 for the 175-municipality MBTA service area was $69,393. A low-income census tract is defined as one in which the median household income in 2011 was less than 60% of that level, or $41,636.

*See Figure 3-4b for detailed map.

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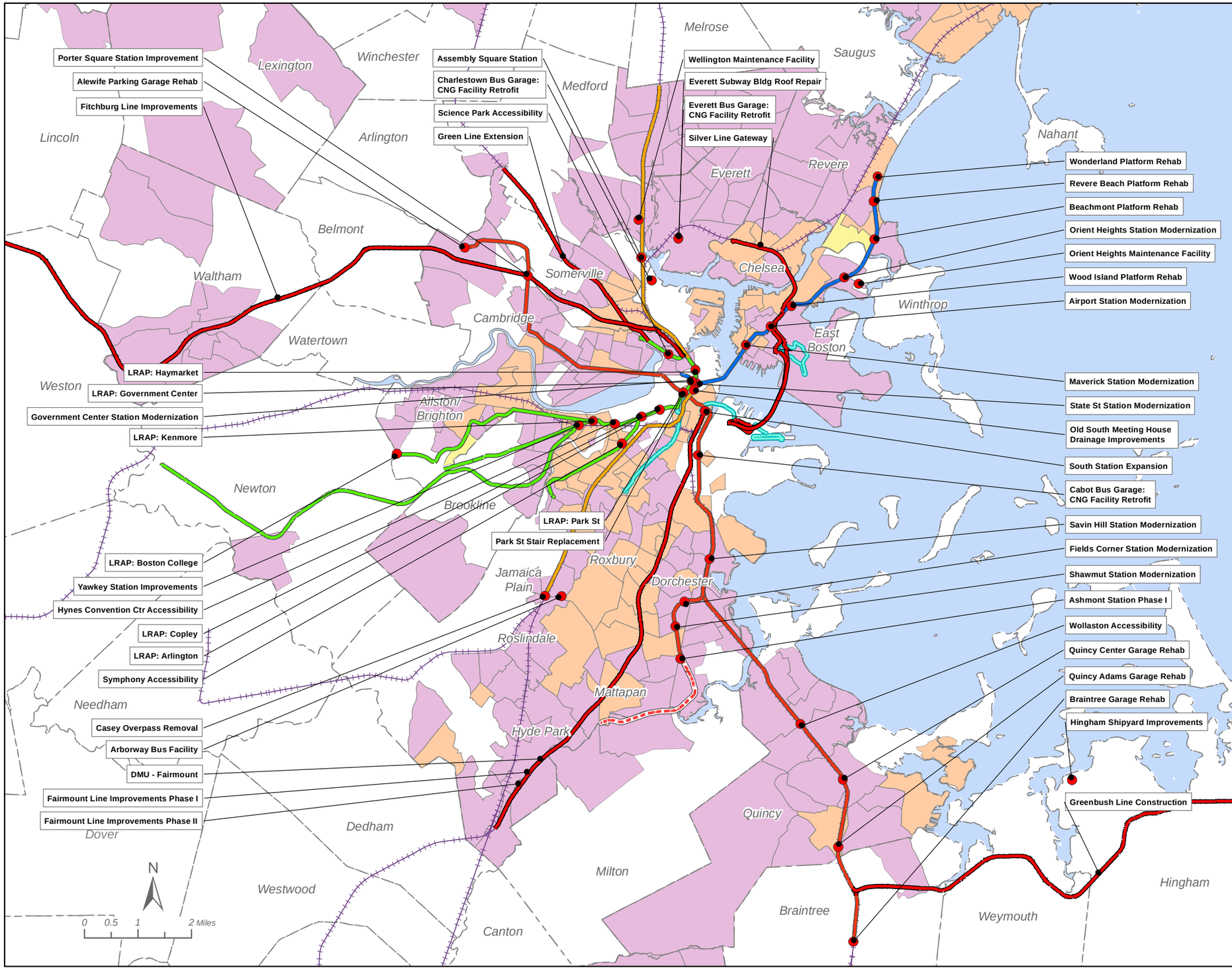
FIGURE 3-4b
MBTA Title VI Report

MBTA Projects from Capital Improvement Plan (2015-2019): Detailed Map



MBTA Transit

- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line
- Commuter rail

Minority and/or Low-Income Status

- Minority tract
- Minority and low-income tract
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NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The median household income for the years 2007 through 2011 for the 175-municipality MBTA service area was $69,393. A low-income census tract is defined as one in which the median household income in 2011 was less than 60% of that level, or $41,636.

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CHAPTER 4
Demographic Ridership and Travel Patterns

The FTA circular requires the MBTA to create demographic profiles that compare minority and nonminority riders' trips and fare usage by fare type based on customer surveys. The circular also requires a profile of fare use by fare type for low-income riders. The MBTA systemwide passenger survey that was published in 2010 was used to create the profiles presented in this chapter, which are presented by mode.[1] While the circular only requires presentation of the analysis of these data in tabular format, the MBTA has elected to include some graphical representations of the data.

The systemwide survey included responses from riders on all five of the MBTA's public transit modes: bus, rapid transit, commuter rail, commuter boat, and commuter ferry. However, because the low response rates for both the commuter boat and commuter ferry cause relatively large margins of error, these two modes are not presented in this analysis.

This chapter includes analyses comparing the following characteristics of minority and nonminority riders:

- Modal use
- Fare usage by fare type
- Frequency of use
- Transfer rates
- Estimation of transit dependency as represented by possession of a driver's license and household vehicle ownership

This chapter also includes an analysis of fare usage by fare type for low-income and non-low-income riders, as required by the circular for fare equity analyses.

[1] The MBTA systemwide surveys were distributed on all modes, with responses tabulated by mode. However, because MBTA riders may use more than one mode, aggregation of the survey results across modes may suffer from selection bias and may not provide an accurate representation of ridership.

4.1 Modal Use

An analysis of the survey data shows that the proportion of minority riders varied by mode. While the percentage of nonminority survey respondents was greater than the percentage of minority respondents for all modes, minority respondents represented the highest proportion of riders on buses, followed by rapid transit, and commuter rail. Figure 4-1 and Table 4-1 show the use of each mode by minority status.

Figure 4-1 Modal Use by Ridership Group

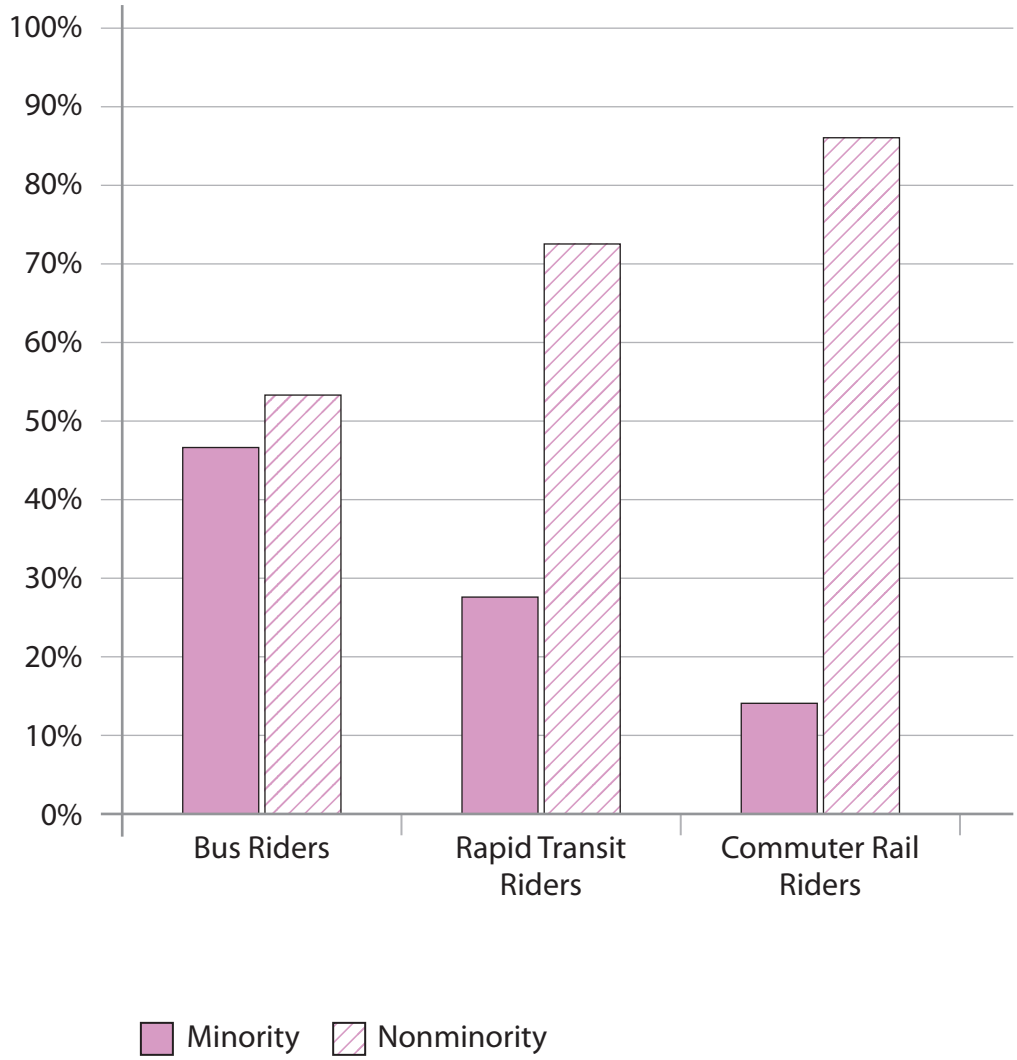

Table 4-1 Modal Use by Ridership Group

Mode	Minority	Nonminority
Bus	47%	53%
Rapid Transit	27%	73%
Commuter Rail	14%	86%

4.2 Fare Type Usage

Figure 4-2 and Table 4-2 show the results of the analysis of fare usage by fare type for minority and nonminority riders. Figure 4-3 and Table 4 3 show the results of the analysis of fare usage by fare type for low-income and non-low-income riders. For all riders on bus, rapid transit, and commuter rail, monthly pass usage accounted for the majority of fare product use.

As shown in Figure 4-2 and Table 4-2, minority riders were more likely than nonminority riders to use single-ride fares (CharlieCard, CharlieTicket, cash, or other) on all modes except for rapid transit. Minority riders were also less likely to use multi-trip tickets or monthly passes, with the exception of commuter rail minority riders. Furthermore, minority riders were more likely than nonminority riders to use the 1-day or 7-day Link pass on bus and rapid transit.

Figure 4-2 Fare Type Use by Mode and Minority Status

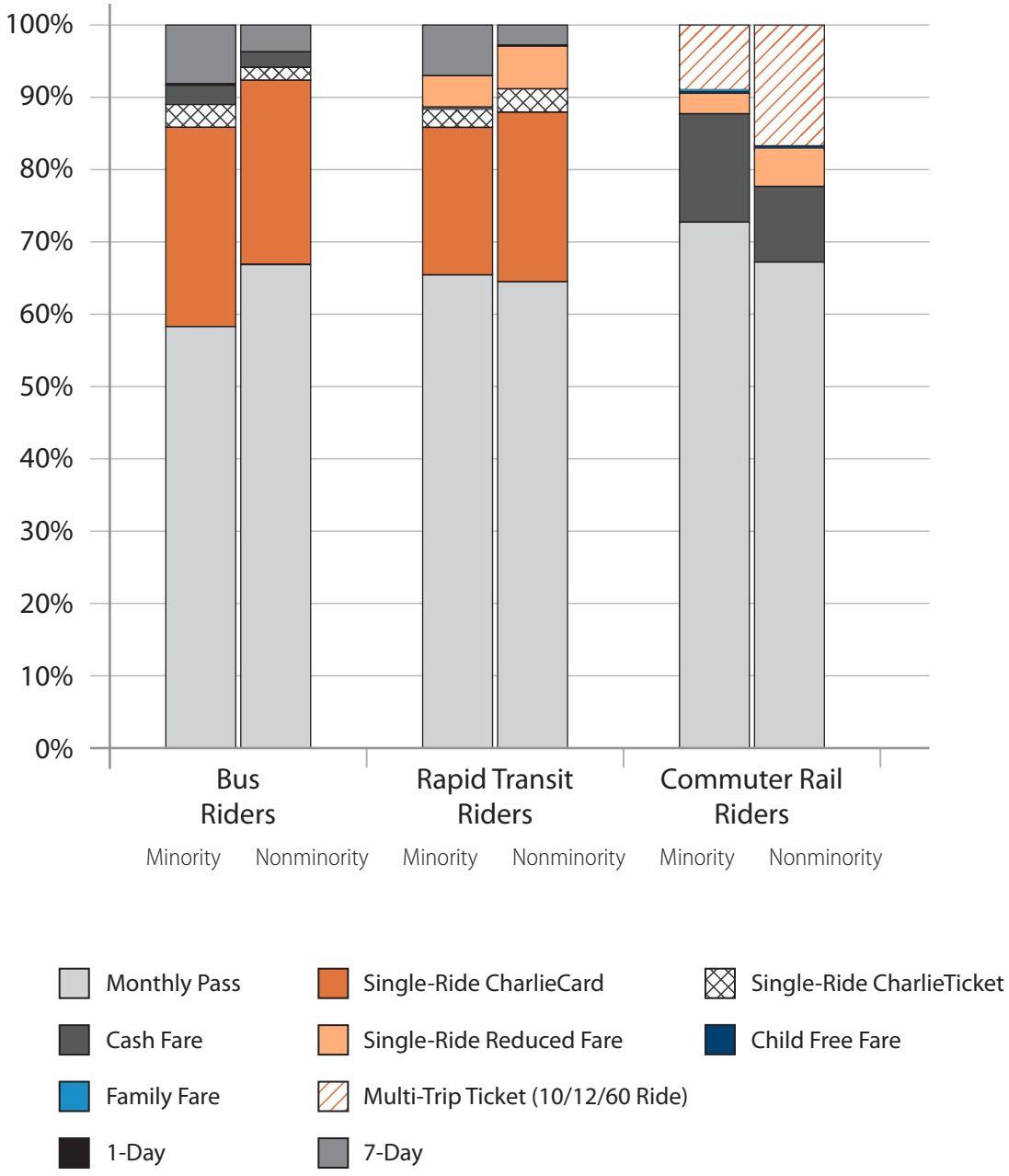

Table 4-2 Fare Type Use by Mode and Minority Status

Mode and Minority Status	Single Charlie-Card	Single Charlie-Ticket	Cash Fare	Single Reduced Fare	Child Free Fare	Family Fare	10-Ride Pass	1-Day Link Pass	7-Day Link Pass	Monthly Pass
Bus - Minority	28%	3%	3%	—	*	—	—	*	8%	58%
Bus - Nonminority	26%	2%	2%	—	—	—	—	*	4%	66%
Rapid Transit - Minority	20%	3%	*	4%	—	—	—	*	7%	65%
Rapid Transit - Nonminority	23%	3%	*	6%	—	—	—	*	3%	64%
Commuter Rail - Minority	—	—	15%	3%	*	*	9%	—	—	73%
Commuter Rail - Nonminority	—	—	11%	5%	*	*	17%	—	—	67%

Note: * = Less than 1%

For low-income riders, fare product usage patterns differ significantly from those of non-low-income riders as well as from minority riders. Low-income riders are much less likely, on all modes, to use monthly passes or multi-ride tickets. Further, low-income riders are much more likely to use every type of single fare — full-, reduced-, or child-fares — than are non-low-income riders. Finally, low-income riders on the bus and rapid transit modes use the 7-day Link pass significantly more often than do non-low-income riders.

Figure 4-3 Fare Type Use by Mode and Income Status

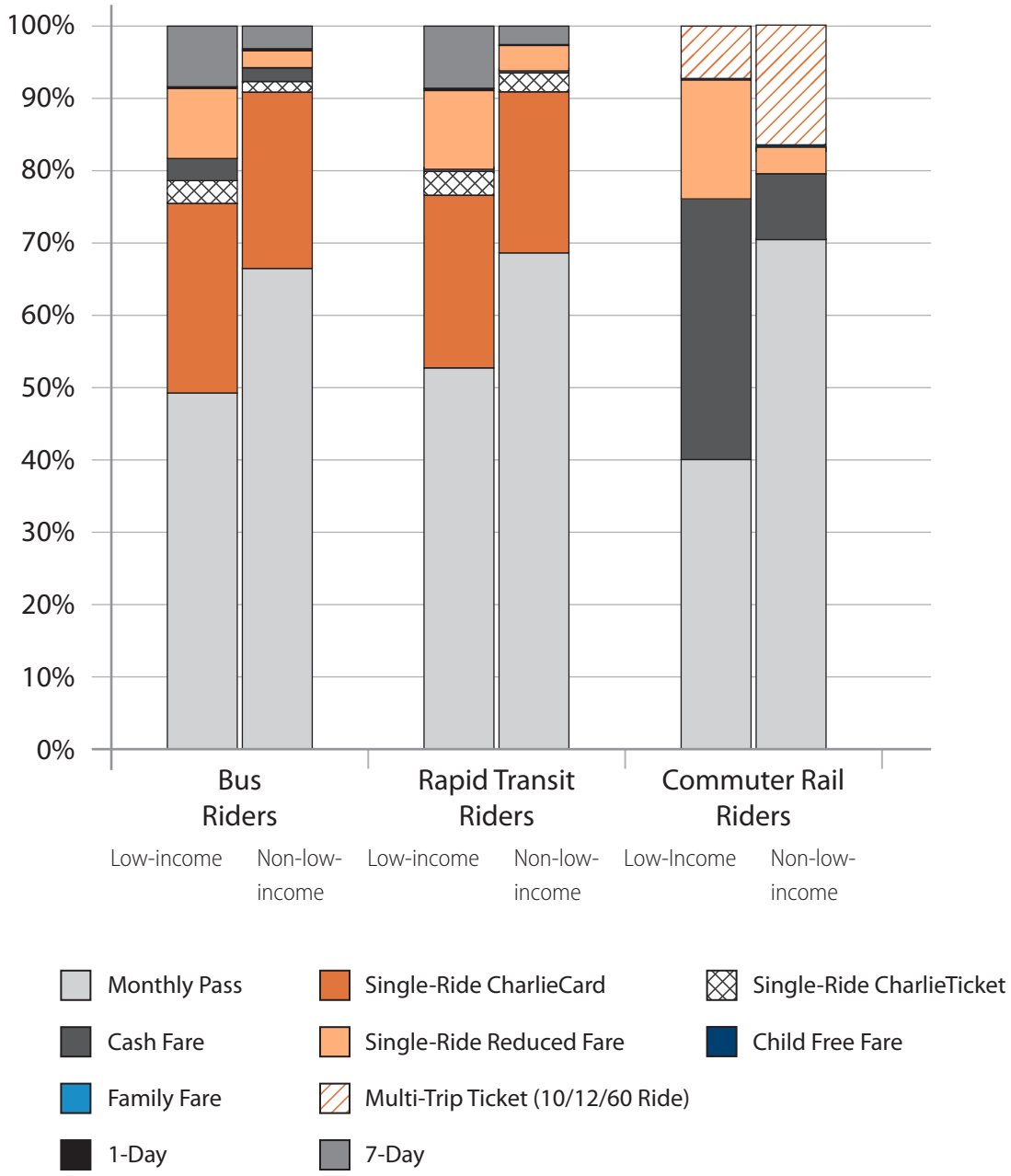

Table 4-3 Fare Type Use by Mode and Income Status

Mode and Minority Status	Single Charlie-Card	Single Charlie-Ticket	Cash Fare	Single Reduced Fare	Child Free Fare	Family Fare	10-Ride Pass	1-Day Link Pass	7-Day Link Pass	Monthly Pass
Bus Low-income	26%	3%	3%	10%	*	—	—	*	8%	49%
Bus Non-low-income	24%	1%	2%	3%	—	—	—	*	3%	66%
Rapid Transit Low-income	24%	4%	*	11%	—	—	—	*	9%	53%
Rapid Transit Non-low-income	22%	3%	*	4%	*	—	—	*	3%	69%
Commuter Rail Low-income	—	—	36%	16%	*	*	7%	—	—	40%
Commuter Rail Non-low-income	—	—	9%	4%	*	*	17%	—	—	70%

Note: * = Less than 1%

4.3 Frequency of Use

Overall, most riders use the MBTA at least five days per week regardless of minority status. The most "traditional" commuter use occurs on the commuter rail, with more than 70 percent of commuter rail riders reporting that they use the MBTA five days per week.

A higher percentage of minority riders than of nonminority riders report using the MBTA six or seven days, across modes. In addition, more minority riders than nonminority riders report using the MBTA more than four days per week.

Figure 4-4 Frequency of Use by Mode and Minority Status

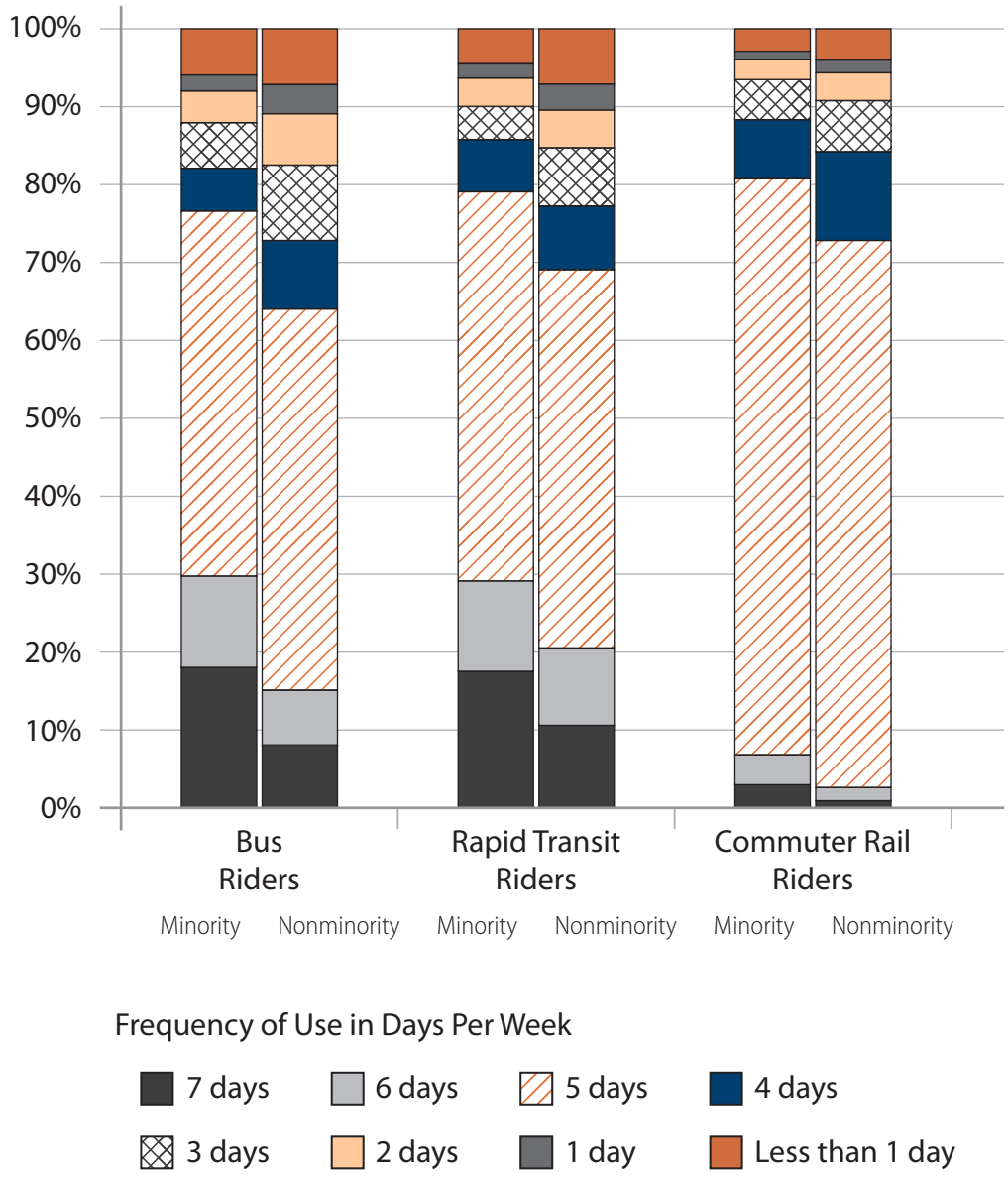

Table 4-4 Frequency of Use by Mode and Minority Status

Number of Days per Week Used	< 1 Day	1 Day	2 Days	3 Days	4 Days	5 Days	6 Days	7 Days
Bus - Minority	6%	2%	4%	6%	5%	47%	12%	18%
Bus - Nonminority	7%	4%	7%	10%	9%	49%	7%	8%
Rapid Transit - Minority	4%	2%	4%	4%	7%	50%	12%	17%
Rapid Transit - Nonminority	7%	3%	5%	8%	8%	49%	10%	10%
Commuter Rail - Minority	3%	1%	3%	5%	8%	74%	4%	3%
Commuter Rail - Nonminority	4%	2%	3%	7%	11%	70%	2%	1%

4.4 Transfer Rates

The overall transfer rates by mode are 32.45 percent for bus, 29.59 percent for rapid transit, and 27.77 percent for commuter rail. Transfer rates are defined, for this chapter, as the percentage of a rider's trips that involved a transfer from one public transit route to another. As shown in Figure 4-5 and Table 4-5, for rapid transit and commuter rail, but not for bus, minority riders are slightly more likely to use a transfer to complete a trip than are nonminority riders.

Figure 4-5 Transfer Rates by Mode and Minority Status

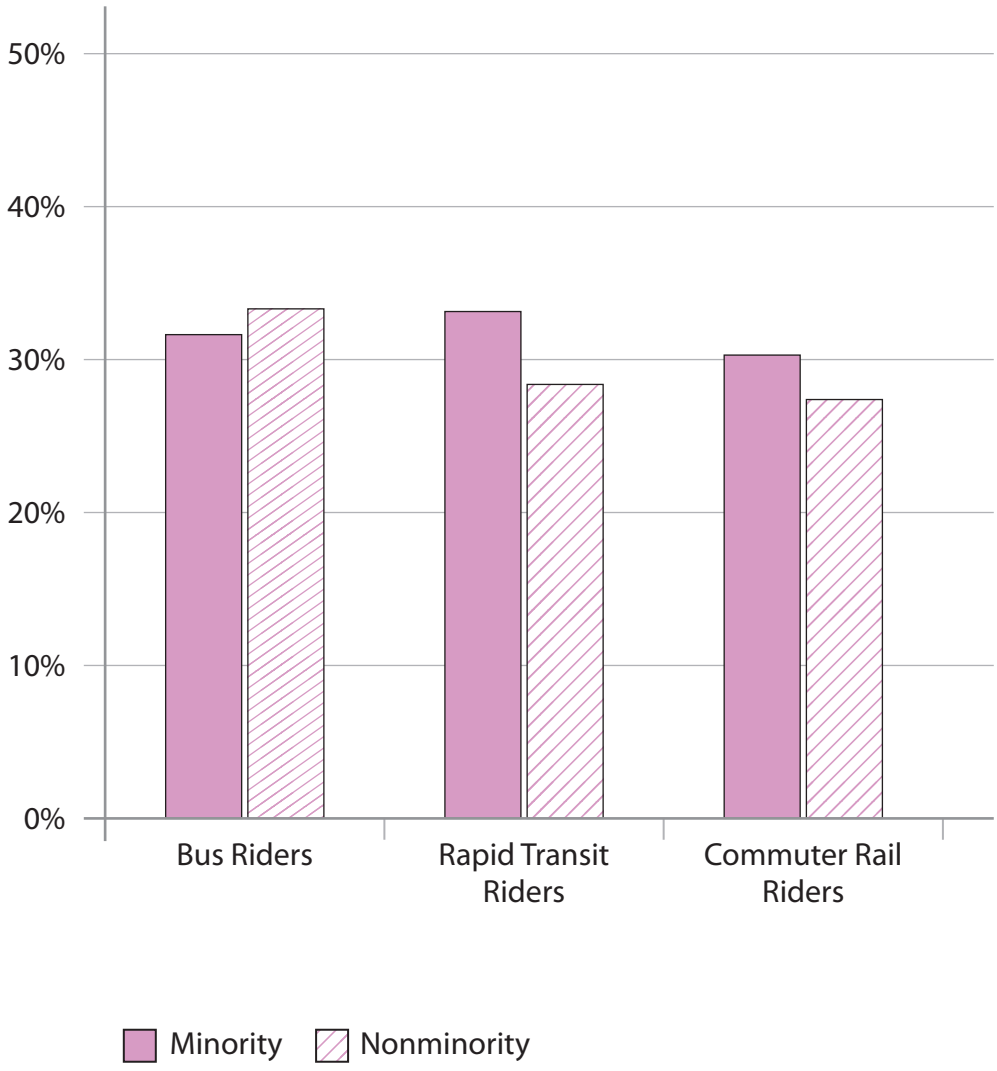

Table 4-5 Transfer Rates by Mode and Minority Status

Minority Status	Bus	Rapid Transit	Commuter Rail
Minority	32%	33%	30%
Nonminority	33%	28%	27%
Average	32%	30%	28%

4.5 Transit Dependency

Transit dependency is an important factor to consider in analyses for fare and service changes. The responses to two questions on the MBTA Systemwide Passenger Survey were used to compare the estimated level of transit dependency of minority and nonminority riders: the two questions were whether the respondent has a valid driver's license, and the number of usable vehicles in the respondent's household.

The majority of all survey respondents, regardless of mode and minority status, possess a driver's license. However, across all modes, minority riders are less likely to possess a driver's license than are non-minority riders. Further, bus and rapid transit riders are less likely to possess a driver's license than are commuter rail riders, who are predominantly nonminority. Similar patterns were noted for household vehicle ownership, with minority riders having fewer vehicles per household than nonminority riders, and bus and rapid transit riders having fewer vehicles per household than commuter rail riders. Table 4 6 shows the percentage of riders who possess a valid driver's license by mode and minority status. Table 4-7 shows the percentage of riders by mode and minority status who have zero, one, two, or "three or more" vehicles in their households.

Figure 4-6 Percentage of Riders Possessing a Driver's License by Mode and Minority Status

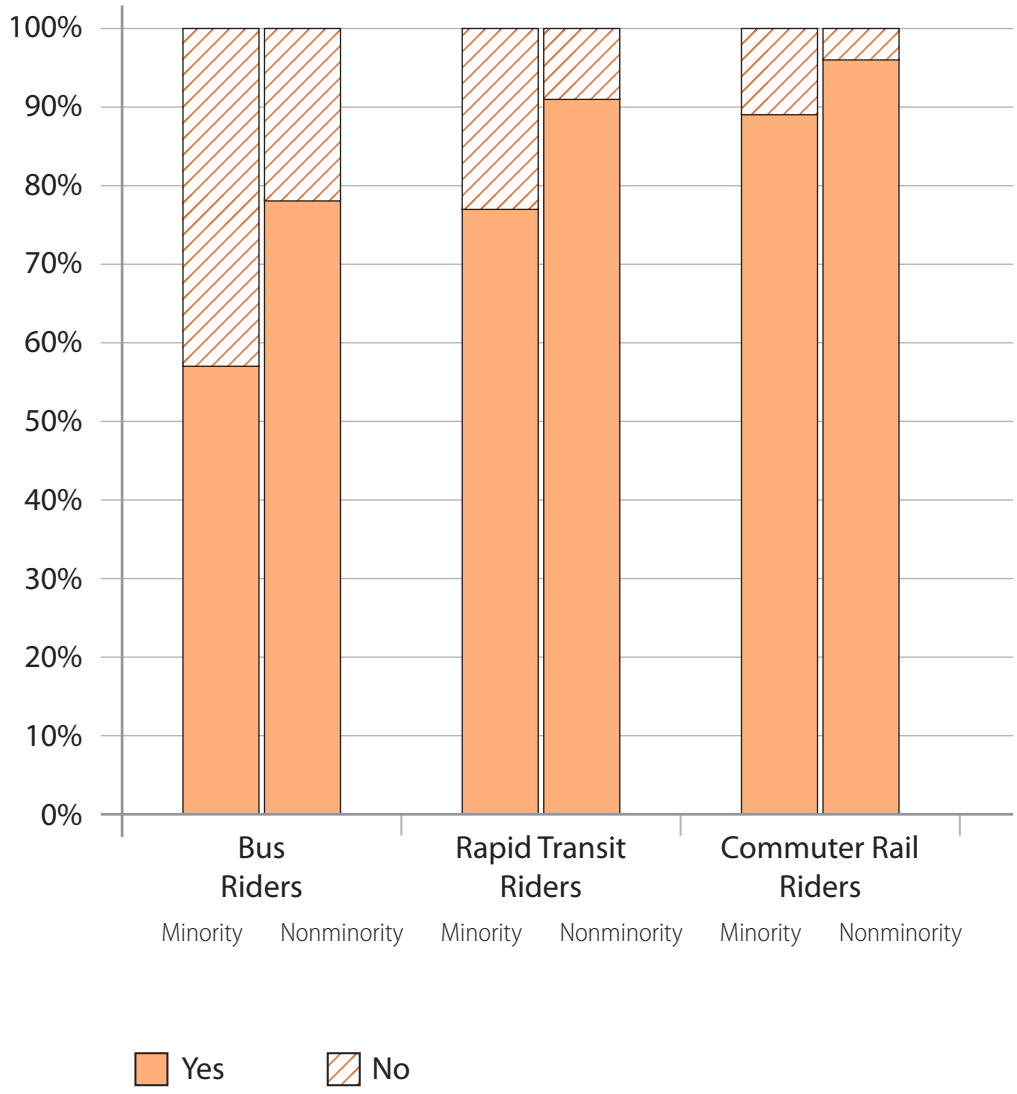

Table 4-6 Percentage of Riders Possessing a Driver's License by Mode and Minority Status

Mode and Minority Status	Possesses Driver's License	
	Yes	No
Bus - Minority	57%	43%
Bus - Nonminority	78%	22%
Rapid Transit - Minority	77%	23%
Rapid Transit - Nonminority	91%	9%
Commuter Rail - Minority	89%	11%
Commuter Rail - Nonminority	96%	4%

Figure 4-7 Percentage of Riders Possessing Zero, One, Two, or "Three or More" Vehicles per Household by Mode and Minority Status

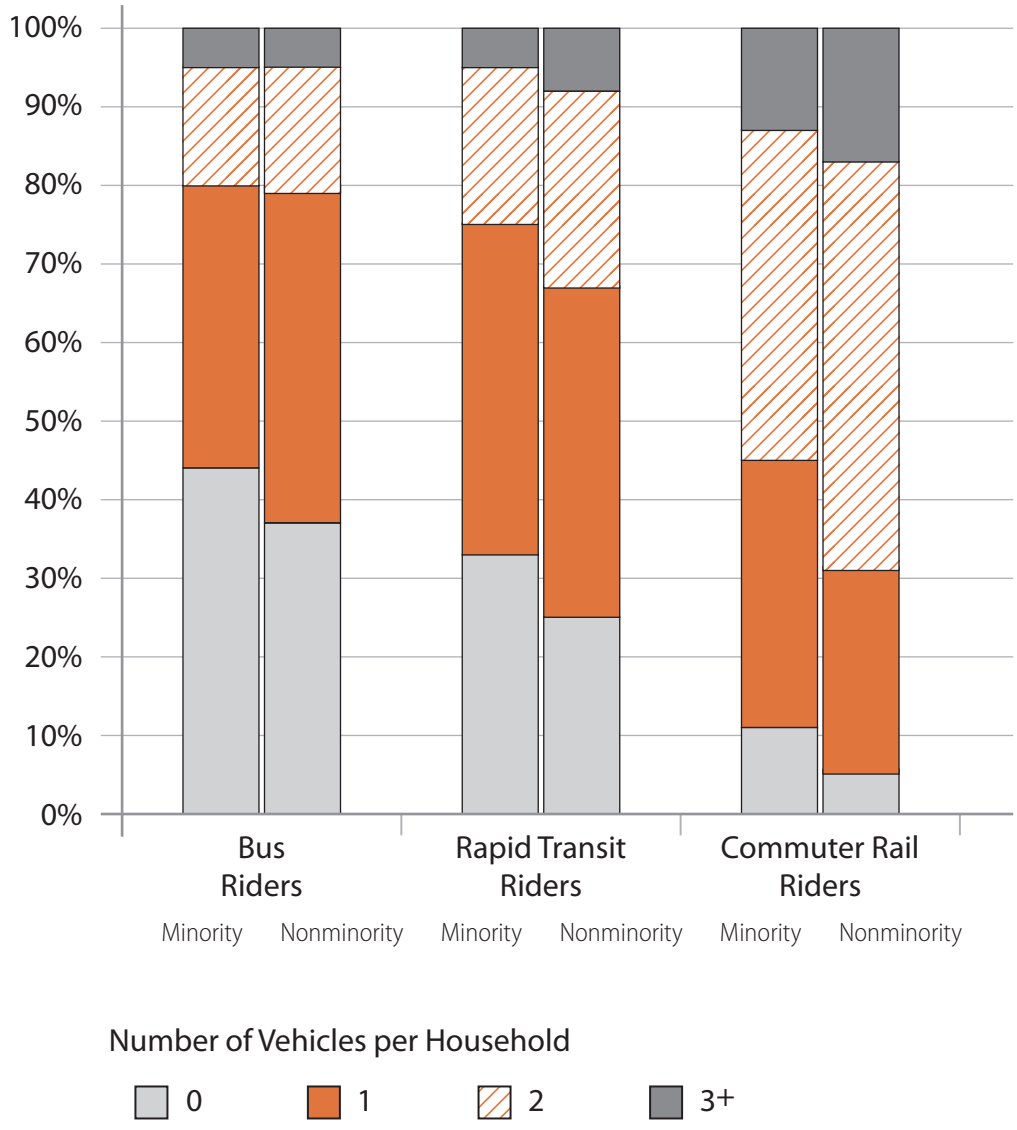

Table 4-7 Percentage of Riders Possessing Zero, One, Two, or "Three or More" Vehicles per Household by Mode and Minority Status

Mode and Minority Status	Vehicles per Household			
	0	1	2	3+
Bus - Minority	44%	36%	15%	5%
Bus - Nonminority	37%	41%	16%	5%
Rapid Transit - Minority	33%	42%	20%	5%
Rapid Transit - Nonminority	25%	42%	25%	8%
Commuter Rail - Minority	11%	34%	42%	13%
Commuter Rail - Nonminority	5%	26%	52%	17%

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CHAPTER 5
Service Standards and Policies

To guard against discriminatory service design or operation, FTA requires that the MBTA adopt systemwide service standards and policies for each fixed-route mode of service.

5.1 Systemwide Service Standards (FTA C4702.1B, IV.4.a)

FTA C 4702.1B describes the requirement for transit providers that operate fixed-route service to set quantitative systemwide service standards for vehicle load, vehicle headway, on-time performance, and service availability. Standards for these four performance indicators are found in the MBTA's Service Delivery Policy. This policy, first adopted in 1996, was created to implement objective standards and consistent decision-making procedures for evaluating existing and proposed services. Since 1996, the Service Delivery Policy has been revised five times: in 2002, 2004, 2006, 2008, and 2010. These revisions were proposed during the development of the 2002, 2004, 2006, 2008, and 2010 Service Plans, and were discussed and commented on at the public meetings and hearings that were held. The proposed revisions were also posted on the MBTA's website, through which additional public comments were accepted. All revisions were ultimately approved by the MBTA Board of Directors before taking effect. Any future revisions to the service standards found in the Service Delivery Policy will also undergo a public-review process and MBTA Board approval.

5.1.1 Vehicle Load

The MBTA's vehicle load standard applies to the maximum number of passengers allowed on a service vehicle in order to ensure the safety and comfort of customers. The load standard is expressed as the ratio of passengers to the number of seats on the vehicle, and it varies by mode and by time of day. The following description of vehicle load standards is quoted directly from the *2010 Service Delivery Policy*.

> As indicated in the Frequency of Service Standard, the level of service provided by the MBTA is primarily a function of the demand for that service, as demonstrated through the number of customers utilizing the service at different times during the day. On weekends and during some weekday time periods, most MBTA services operate with sufficient frequency to provide every passenger with a seat. However, at the heaviest weekday travel times or locations some passengers will need to stand.

During time periods when some passengers will be standing, the MBTA will provide sufficient service so that vehicles are not excessively crowded. The purpose of the Vehicle Load Standard is to define the levels of crowding that are acceptable by mode and time period. The time periods used by the MBTA for all modes, for both the Frequency of Service and Vehicle Load Standards, are defined earlier in this chapter (see Frequency of Service Standard).

Because heavy and light rail in the core area are heavily used throughout the day, some standees can be expected during all time periods. For the purposes of this policy, the core area, as it relates to the heavy rail and light rail Vehicle Load Standard, is defined as follows [Table 9 in the Service Delivery Policy is called Table 5-1 in this report.]:

Table 5-1
MBTA Core Area Boundaries: Light Rail & Heavy Rail Core Area
[Table 9 in the Service Delivery Policy]

Blue Line	Bowdoin to Maverick
Orange Line	Back Bay to North Station
Red Line	Kendall to South Station
Green Line	All underground stations as well as Lechmere and Science Park

By mode and time period, the acceptable levels of crowding are shown in the following table. The load standards in the table are expressed as a ratio of the number of passengers on the vehicle to the number of seats on the vehicle. To determine whether a service has an acceptable level of crowding, the vehicle loads are averaged over specified periods of time. Due to scheduling constraints and peaking characteristics, some individual trips may exceed the load levels expressed in the standards.

Table 5-2
Vehicle Load Standards by Mode
[Table 10 in the Service Delivery Policy]

Mode	Time Period	Passengers/ Seats**
Bus*	Early AM, AM Peak, Midday School & PM Peak	140%
	Midday Base, Evening, Late Evening, Night/Sunrise & Weekends	
	Surface routes	100%
	Tunnel portions of BRT routes	140%

(cont.)

Table 5-2 (cont.)

Mode	Time Period	Passengers/ Seats**
Green Line	Early AM, AM Peak, Midday School & PM Peak	225%
	Midday Base, Evening, Late Evening, Night/Sunrise & Weekends	
	Core Area	140%
	Surface	100%
Red Line #1 & 2 Cars	Early AM, AM Peak, Midday School & PM Peak	270%
	Midday Base, Evening, Late Evening, Night/Sunrise & Weekends	
	Core Area	140%
	Outside Core Area	100%
Red Line #3 Cars	Early AM, AM Peak, Midday School & PM Peak	334%
	Midday Base, Evening, Late Evening, Night/Sunrise & Weekends	
	Core Area	174%
	Outside Core Area	100%
Orange Line	Early AM, AM Peak, Midday School & PM Peak	225%
	Midday Base, Evening, Late Evening, Night/Sunrise & Weekends	
	Core Area	140%
	Outside Core Area	100%
Blue Line	Early AM, AM Peak, Midday School & PM Peak	225%
	Midday Base, Evening, Late Evening, Night/Sunrise & Weekends	
	Core Area	140%
	Outside Core Area	100%
Commuter Rail	Early AM, AM Peak, Midday School & PM Peak	110%
	Midday Base, Evening, Late Evening, Night/Sunrise & Weekends	100%
Ferry	Inner Harbor - All time periods	100%
	Outer Harbor - All time periods	100%

* For the purposes of the Vehicle Load Standard, “bus” encompasses all rubber-tired vehicles, including diesel, CNG, trackless trolley, dual-mode, etc.

** For Bus, Light Rail and Heavy Rail, the Vehicle Load Standard is based on the ratio of passengers to seated capacity at maximum load. For Commuter Rail and Ferry services, the load standard is based on the ratio of boarding passengers per vehicle to seated capacity.

For most modes the load standards shown represent average maximum loads over any time period on weekdays and over the whole day on weekends. For bus, on weekdays the loads cannot exceed the standard when averaged over any 30-minute segment of an Early AM, AM Peak, Midday School or PM Peak period, or any 60-minute segment of a Midday Base, Evening, Late Evening or Night/Sunrise period. On weekend days, the loads cannot exceed the standard when averaged over any 60-minute segment of the whole service day.

In addition to looking at loads within time periods, the MBTA will routinely evaluate loads at the beginning and end of the service day to determine whether changes in frequency and/or span of service are warranted. The Net Cost/Passenger Standard will be used as one means of flagging routes that may be candidates for such changes.

5.1.2 Vehicle Headway (Frequency of Service)

Vehicle headway is an indication of the time interval between vehicles on a route that allows passengers to gauge how long they will have to wait for the next vehicle. Vehicle headway varies by mode and time of day, just as vehicle load does. The following description of frequency-of-service standards is quoted directly from the *2010 Service Delivery Policy*.

To maintain accessibility to the transportation network within a reasonable waiting period, the MBTA has established minimum frequency of service levels for each mode, by time of day. On less heavily traveled services, these minimum levels dictate the frequency of service, regardless of customer demand.

Table 4 [called Table 5-3 in this report] shows the weekday Time Period definitions used by the MBTA for all modes for both the Frequency of Service and Vehicle Load Standards. Because travel patterns on the weekend are different than on weekdays, specific time periods are not defined for Saturdays and Sundays. Table 5 [called Table 5-4 in this report] shows the Minimum Frequency of Service levels for each mode by time period.

Table 5-3
MBTA Weekday Time Period Definitions
[Table 4 in the Service Delivery Policy]

Time Period	Definition
Early AM	6:00 AM - 6:59 AM
AM Peak	7:00 AM - 8:59 AM
Midday Base	9:00 AM - 1:29 PM
Midday School	1:30 PM - 3:59 PM
PM Peak	4:00 PM - 6:29 PM
Evening	6:30 PM - 9:59 PM
Late Evening	10:00 PM - 11:59 PM
Night/Sunrise	12:00 AM - 5:59 AM

Table 5-4
Minimum Frequency of Service Standards
[Table 5 in the Service Delivery Policy]

Mode	Weekday Time Periods	Minimum Frequency*
Bus**	**Local/Community Rts.**	
	AM & PM Peak	30-minute headway
	All Other Periods	60-minute headway (Mid-day policy objective of 30-minute headway in high density areas)
	Saturday & Sunday - all day	60-minute headway
	Express/Commuter Rts.	
	AM Peak	3 trips in the peak direction
	PM Peak	3 trips in the peak direction
	Key Routes	
	AM & PM Peak	10-minute headway
	Early AM & Midday Base/School	15-minute headway
	Evening & Late Evening	20-minute headway
	Saturday - all day	20-minute headway
	Sunday - all day	20-minute headway

(cont.)

Table 5-4 (cont.)

Mode	Weekday Time Periods	Minimum Frequency*
Light Rail/Heavy Rail	AM & PM Peak Periods	10-minute headway
	All other Periods	15-minute headway
	Saturday & Sunday - all day	15-minute headway
Commuter Rail	AM & PM Peak Periods	3 trips in the peak direction
	All Other Periods	180-minutes in each direction
	Saturday - all day	180-minutes in each direction
Ferry/Commuter Boat	AM & PM Peak Periods	30-minute headway in peak direction
	Off-Peak Periods	120-minute headway

* The Minimum Frequency of Service standards are primarily expressed as "Headways," which indicate the number of minutes scheduled between trips on a route.

** For the purposes of the Frequency of Service standard, "Bus" encompasses all rubber-tired vehicles, including diesel, CNG, trackless trolley, dual-mode, etc. The definitions of types of bus routes are found in Chapter 2.

On heavily used services, the minimum frequency of service levels may not be sufficient to meet customer demand. When load levels indicate that additional service is warranted, as defined in the Vehicle Load Standard, the frequency of service will be increased to provide a sufficient number of vehicles to accommodate passenger demand.

5.1.3 On-Time Performance (Schedule Adherence)

In 2006, the bus schedule-adherence standard in the Service Delivery Policy was revamped to make it more useful for effectively diagnosing on-time performance problems. One major addition to the new bus standard was adherence to mid-route timepoints in anticipation of the rollout of CAD/AVL (computer-aided dispatch/automatic vehicle location) equipment, which allows the measurement of multiple timepoints and provides unlimited amounts of data that can be averaged over many days. By 2009, it became evident that the schedule-adherence standard needed to be revised again to take full advantage of the CAD/AVL data. At that time, the requirement that, for any given route, 75 percent of all *trips* must adhere to the arrival/departure standards for a route to be considered on time was changed so that 75 percent of all *timepoints* must adhere to the arrival/departure standards.

The schedule adherence standards for all modes, as they appear in the *2010 Service Delivery Policy, are quoted below*.

Schedule Adherence Standards vary by mode and provide the tools for evaluating the on-time performance of the individual MBTA routes. The Schedule Adherence Standards also vary, based on frequency of service; because, passengers using high-frequency services are generally more interested in regular, even headways than in strict adherence to published timetables, whereas, on less frequent services passengers expect arrivals/departures to occur as published.

Bus Schedule Adherence Standards: The Schedule Adherence Standards for bus routes are designed to ensure that routes operate as reliably as possible without early departures, chronic delays, or unpredictable wait and/or travel times.

1. Bus Timepoint Tests: To determine whether a bus is on-time at an individual timepoint, such as the beginning of a route, end of a route, or a scheduled point in between, the MBTA uses two different tests based on service frequency:

    - Scheduled Departure Service: A route is considered to provide scheduled departure service for any part of the day in which it operates less frequently than one trip every 10 minutes (headway ≥10 minutes). For scheduled departure services, customers generally time their arrival at bus stops to correspond with the specific scheduled departure times.

    - Walk-Up Service: A route is considered to provide walk-up service for any part of the day in which it operates every 10 minutes or better (headway <10 minutes). For walk-up service, customers can arrive at a stop without looking at a schedule and expect only a brief wait.

    A route might operate entirely with walk-up service, entirely with scheduled departure service, or with a combination of both throughout the day. Because any given route may have both types of service, each trip is considered individually to determine whether it represents schedules departure service or walk-up service, and each timepoint crossed on that trip is measured accordingly. Therefore, there are two separate timepoint tests:

    - On Time Test for Scheduled Departure Timepoints: To be considered on time, a timepoint crossing of any trip with a leading headway scheduled for 10 minutes or more must meet the relevant condition out of the following:

        - Origin: The trip must leave its origin timepoint between 0 minutes before and 3 minutes after its scheduled departure time.

- Mid-route timepoint: The trip must leave the route midpoint(s) between 0 minutes before and 7 minutes after its scheduled departure time.

- Destination: The trip must arrive at its destination between 3 minutes before and 5 minutes after its scheduled arrival time.

o On Time Test for Timepoints on Walk-Up Trips:

- Origin or mid-route timepoint: To be considered on time, any timepoint of a trip with a leading headway scheduled for less than 10 minutes must leave its origin timepoint or mid-route timepoint within 1.5 times the scheduled headway. For example, if "trip A" is scheduled to start at 7:30 AM and the route's next trip "trip B" is scheduled to start at 7:38 AM, trip B has an 8-minute scheduled headway. Therefore, trip B must start no more than 12 minutes after trip A actually starts to be considered on time.

- Destination: The actual run time from the origin timepoint to the destination timepoint must be within 20% of the scheduled run time for the destination timepoint to be considered on time.

2. Bus Route Test: The second part of the Bus Schedule Adherence Standard determines whether or not a route is on time, based on the proportion of timepoints on the route that are on time over the entire service day. 75% of all timepoints on the route over the entire service day must pass their on-time tests.

Table 5-5
Summary of Bus Schedule Adherence Standard
[Table 6 in the Service Delivery Policy]

Timepoint Test	Origin Timepoint	Mid-Route Time Point(s)	Destination
Scheduled Departure Trips (Headways ≥ 10 minutes):	Start 0 minutes early to 3 minutes late	Depart 0 minutes early to 7 minutes late	Arrive 3 minutes early to 5 minutes late
Walk-up Trips (Headways < 10 minutes):	Start within 1.5 times scheduled headway	Leave within 1.5 times scheduled headway	Running time within 20% of scheduled running time
Route Test			
For any given bus route to be in compliance with the Schedule Adherence Standard, 75% of all timepoints must be on-time according to the above definitions over the service period measured.			

Exceptions:

- Express routes that serve only two points do not have a midpoint.
- Express routes may arrive more than 3 minutes early at their final destinations.
- A schedule may note that certain trips will not leave until another vehicle arrives and allows passengers to transfer. (For instance, the last bus trip of the day might wait for passengers from the last train of the day.) When applying the standard, these trips are not included.

- The first trip of the day, which does not have a leading headway, is considered a scheduled departure trip.

- If a route does not have published departure times (such as Silver Line Washington Street, which does not need a published timetable because it runs so frequently all day) its trips shall be considered walk- up trips regardless of scheduled headway.

Light Rail & Heavy Rail Schedule Adherence Standards: As with frequent bus services, passengers on light rail and heavy rail do not rely on printed schedules, but expect trains to arrive at prescribed headways. Therefore, schedule adherence for light rail and heavy rail is measured similarly to the way in which frequent bus service is measured. The percent of individual trips that are on time is calculated, based on a measure of how well actual headways correlate to scheduled headways. In addition, the percent of trip times that correspond to scheduled trip times is measured.

Two different measures are used to evaluate headway performance. For surface light rail and heavy rail, Schedule Adherence is measure based on the percent of trips that operate within 1.5 scheduled headways. For example, a trip with a 4-minute headway would be considered late if the observed headway were greater than 6 minutes (1.5 x 4 minutes). Because the headways in the core area for light rail are less than two minutes, Schedule Adherence is measured by the percent of trips with headways less than 3 minutes. Table 7 [called Table 5-6 in this report] provides a summary of the Schedule Adherence standards for Light Rail and Heavy Rail services.

Table 5-6
Schedule Adherence Standards for Light Rail & Heavy Rail
[Table 7 in the Service Delivery Policy]

Mode	Headway Performance	Trip Time Performance
Light Rail - Surface	85% of all trips operated within 1.5 scheduled headways over the entire service day.	95% trips operated within 5 minutes of scheduled total trip time over the entire service day.
Light Rail - Subway	95% of all service operated with headways less than 5 minutes over the entire service day.	95% of all trips operated within 5 minutes of scheduled trip time over the entire service day.
Heavy Rail	95% of all trips within 1.5 headways over the entire service day	95% of all trips operated within 5 minutes of scheduled trip time over the entire service day.

Commuter Rail & Ferry/Commuter Boat: The Schedule Adherence standards for Commuter Rail and Ferry/Commuter Boat measure the percent of trips that depart/arrive within 5 minutes of scheduled departure/arrival times. These standards reflect the long distances and wide station spacing of commuter rail, and the absence of intermediate stations on most boat services. Table 8 [called Table 5-7 in this report] shows the Schedule Adherence standards for Commuter Rail and Ferry/Commuter Boat services.

Table 5-7
Schedule Adherence Standards for Commuter Rail & Ferry/Commuter Boat
[Table 8 in the Service Delivery Policy]

Mode	Standard
Commuter Rail	95% of all trips departing and arriving at terminals within 5 minutes of scheduled departure and arrival times
Boat	95% of all trips departing and arriving at ports within 5 minutes of scheduled departure and arrival times

5.1.4 Service Availability (Coverage)

The MBTA's coverage guidelines are only for the bus and rapid transit system service area (the urban-fixed route system), where customers are most likely to walk to transit. The guidelines are established to indicate the maximum distance that a passenger who lives in a densely populated area should need to walk to access some transit service (regardless of the mode). The following description of the coverage guidelines is quoted directly from the Service Delivery Policy.

> An important aspect of providing the region with adequate access to transit services is the geographic coverage of the system. Coverage is expressed as a guideline rather than a standard, because uniform geographic coverage cannot always be achieved due to constraints such as topographical and street network restrictions. In addition, coverage in some areas may not be possible due to the infeasibility of modifying existing routes without negatively affecting their performance.
>
> The Coverage guidelines are established specifically for the service area in which bus, light rail, and heavy rail operate, as riders most frequently begin their trips on these services by foot. Because commuter rail is usually accessed via the automobile, the coverage guidelines do not apply in areas where commuter rail is the only mode provided by the MBTA.

Table 5-8
Coverage Guidelines
[Table 2 in the Service Delivery Policy]

Service Days	Minimum Coverage
Weekdays & Saturday	Access to transit service will be provided within a 1/4 mile walk to residents of areas served by bus, light rail, and/or heavy rail with a population density of greater than 5,000 persons per sq/mile.
Sunday	On Sunday, this range increases to a 1/2 mile walk.

5.2 Systemwide Service Policies (FTA C4702.1B, IV.4.b)

FTA guidance requires that the MBTA adopt systemwide service policies for the distribution of transit amenities and vehicle assignment for each mode to ensure service design and operations practices do not result in discrimination on the basis of race, color, or national origin. Service policies differ from service standards in that they are not necessarily based on a quantitative threshold.

5.2.1 Distribution of Transit Amenities

The FTA circular defines transit amenities as items of comfort, convenience, and safety that are available to the general riding public. FTA guidance requires the MBTA to set policy to ensure equitable distribution of transit amenities across the system. The following policies address how amenities are distributed within the MBTA's transit system.

Bus Shelter Placement

There are essentially three categories of bus shelters in the MBTA system. The first category is MBTA-owned and -managed: shelters that are purchased, installed, and maintained by the MBTA. Historically, most shelters were of this variety. More recently, two other categories of shelters, both of which are privately owned, have been placed at MBTA bus stops. For stops located in the city of Boston, the City entered into a contractual agreement with JCDecaux (formerly Wall USA) to provide shelters that are manufactured, owned, and maintained by JCDecaux. These shelters display advertisements, and the cost of their upkeep is paid for through advertising revenues. Outside of Boston, the MBTA entered into an agreement with a different company, Cemusa, to provide shelters in other municipalities. The manufacture, placement, and maintenance of these shelters are also supported by advertising revenues. Although the

MBTA does not set standards for privately owned shelters, it coordinates with both companies to ensure that the placement of their shelters does not disadvantage minority and low-income areas.

In 2005, the MBTA updated its standards for determining the eligibility of bus stops for shelter placements, regardless of the source. The following description of how decisions are made for bus shelter placement is quoted directly from the *2005 Bus Shelter Policy*.

A. Purpose

The purpose of this policy is to provide guidance for the placement of MBTA bus shelters and to establish a procedure for evaluating shelter requests. In areas or locations where the MBTA, or its contractors, are the primary suppliers of shelters at bus stops, placements will be evaluated using two steps:

1) Conformance with eligibility standards, and
2) a site suitability test.

Central to any placement decision will be a commitment to meeting the requirements of Title VI of 1964 Civil Rights Act as defined in the FTA Circular C 4702.1. Title VI ensures that MBTA services are distributed in such a manner that minority communities receive benefits in the same proportion as the total service area. This policy in no way establishes a requirement for placement, since all placements will be dependent on available resources.

B. Background

The previous shelter policy was established in 1984, having been extracted from the 1977 Service Policy for Surface Public Transportation. This older policy considered three major factors when evaluating stops: number of boardings, frequency of service, and percentage of persons using the stop that were elderly or had disabilities.

The current policy continues to include these important measures; however, it more systematically quantifies each factor in determining eligibility.

C. Evaluation Procedure

MBTA Operations will be responsible for evaluating placement requests and ensuring compliance with Title VI.

The first step in the evaluation process is a determination if the bus stop conforms with shelter eligibility standards. As in the previous shelter policy, the number of boardings at a bus stop is a major determinant for eligibility. As described in the table

below, all bus stops that meet the required number of boardings will be eligible. However, a number of other criteria can also be considered. To standardize the process, the various types of criteria have been given values. The following table lists all criteria to be factored into an assessment of eligibility for each bus stop and the value associated with each criterion. A site must receive a total of 70 points to be considered eligible under this policy. Any bus stop that has more than 60 boardings is eligible for a shelter, with an automatic score of 70 points. For bus stops with fewer boardings, a combination of the factors listed above will be considered in determining eligibility. Operations will keep records of all requests that document the assignment of scores. All bus stops that currently have shelters will be grandfathered into the program without need for additional analysis.

Table 5-9
Shelter Eligibility Criteria for MBTA Bus Stops

Eligibility Criteria	Points
60+ Average weekday daily boardings (ADB)	70
50-59 ADB	60
20-49 ADB	40
Less than 20 ADB	30
MBTA initiative to strengthen route identity	20
Seniors, disabled, medical, social service, or key municipal facility in close proximity to stop	15
Official community recommendation	10
Bus route transfer point	10
Infrequent service (minimum of 30-minute peak/60-minute off-peak headway)	10
Poor site conditions (weather exposure etc.)	5
Shelter promotes adjacent development/increased ridership	5
Passing Score:	**70**

The second step in the evaluation process is the site suitability test. There are physical and practical requirements that must be met before a shelter can be placed. These include:

1) Property ownership,
2) abutter approval,
3) compliance with the Americans with Disabilities Act requirements,
4) adequate physical space and clearances,
5) close proximity to an existing bus stop, and
6) community approval

D. Reporting

The Operations Department will retain the necessary documents to ensure correct application of the policy. The Service Planning Department and CTPS will submit the required Title VI reports. Title VI ensures that MBTA services are distributed in such a manner that minority communities receive benefits in the same proportion as the total service area.

In terms of the shelter policy, once a bus stop is eligible for a shelter it will be included in all analyses for Title VI purposes, until such time that it is indicated otherwise. Consequently, all bus stops with 60 or more boardings will be included in Title VI reports, as well as any bus stops with less than 60 boardings that meet the 70-point eligibility requirement. Any bus stop that meets the eligibility standard, but is found not to meet the site suitability test, will be noted and not included in the analysis. Bus stops in the MBTA service area that have pre-existing shelters, but do not meet the policy requirements, will be noted and included in the total comparisons.

Benches

It is the MBTA's policy that all bus shelters have benches, whether the shelters are provided by the MBTA or through one of the two private companies (JCDecaux and Cemusa) that install shelters under contract to individual municipalities. Benches are also provided at all subway and light rail station platforms, with the exception of certain Green Line surface stops where the platform is too narrow to accommodate a bench.

Timetables and Route Maps

Historically, the MBTA did not post timetables (schedules) in bus shelters; however, the MBTA requires that Cemusa, which provides bus shelters to municipalities outside of Boston, post bus timetables in all of their shelters. In addition, timetables are provided at all bus stops located at rapid transit stations. Transit maps are provided at all Cemusa and JCDecaux shelters.

Neighborhood Maps in Rapid Transit Stations

The neighborhood map program involves the placement of two types of maps at rapid transit stations that have bus connections: (1) neighborhood maps, showing major landmarks, bus routes, the street network, the one-half-mile walking radius around the station, green space, pathways, and accessible station entrances; and (2) more detailed maps that show all bus routes that serve a particular station, along with service frequency information.

The objectives that the program hopes to accomplish at each station include: (1) providing route and schedule information for bus routes serving that station, (2) placing the transit station in the context of the surrounding neighborhood, and (3) highlighting the areas around the station that are within easy walking distance.

Where space allows, one or both maps are placed at stations with bus connections. The maps are also generally installed at new or renovated stations, regardless of whether or not a station has bus service. Due to space constraints, maps are not located at many surface Green Line stops.

Intelligent Transportation Systems (ITS): Automated Fare Collection (AFC) Fare Gates and Fare Vending Machines

The automated-fare-collection system was rolled out during 2006 and was fully implemented on the bus and subway systems at the beginning of 2007. The number and location of fare gates and fare vending machines to be placed at each rapid transit station were determined based on the number of customers entering the station, the number of station entrances, and the general configuration and available space at the station.

Retail sales outlets were initially placed so that they would be convenient to customers who use the Key Bus Routes, as they are the most heavily used routes in the system and operate in the urban core, where minority and low-income populations are most prevalent.

The AFC equipment relays monitoring data on device status to the AFC Central Computer System, which is located at 10 Park Plaza. These data are also available to AFC field technicians via workstations located in each of the booths in the subway system formerly used by toll collectors, and at each of the locations used by AFC farebox technicians to store fares collected on buses and the Green Line.

Each AFC device is monitored for cash and ticket levels so that Revenue Service personnel and management can schedule the necessary resources to maintain the ticket and coin levels in all devices.

The MBTA has established performance metrics that are based on the availability for use of the fare gates and fare vending machines.

- The minimum acceptable device availability threshold is 95 percent.
- The device availability goal is 98 percent.

Intelligent Transportation Systems (ITS): Variable Message Signs (VMS)

The MBTA currently has three different types of electronic message signs in use on the bus rapid transit (BRT), rapid transit, and commuter rail systems. These include: (1) signs that display public-service announcements, (2) signs that alert passengers that trains are approaching and arriving at the station, and (3) signs that count down the number of minutes until the next vehicle arrives at or departs from the station.

Bus Rapid Transit VMS

VMS that count down the minutes until the arrival of the next BRT vehicle are placed at 19 of the 23 stops on Silver Line Washington Street. There is one sign at each end of the two routes—one at Dudley Station, one at the Temple Place inbound terminus, and one at the South Station inbound terminus—and one sign at each of the 16 stops (8 per direction) on Washington Street. Eighteen of these VMS were installed as a part of the Washington Street reconstruction/Silver Line ITS project and were bound to the project in two key ways. First, as part of station construction, this project included the construction of kiosks along Washington Street that were used to house the signs. Second, Washington Street service had a dedicated fleet that wirelessly relays vehicle location data to a central computer, so that the arrival time can be displayed on the VMS. The sign at the South Station surface stop was installed as part of the Washington Street South Station Connector Project, and it runs off of the MBTA's general prediction feed.

The MBTA initiated the "T-Tracker Trial" pilot project in 2009. This project included the installation of additional VMS signs to provide countdown information for buses. One VMS sign was installed in Bellingham Square in East Boston for all routes serving that location in the outbound direction, and two LCD displays were installed in the Ruggles and Back Bay Stations to provide countdown information for buses serving these stations.

Rapid Transit VMS

The MBTA has installed VMS at rapid transit stations throughout the system. Through the 2006 agreement between the MBTA and the Boston Center for Independent Living (BCIL), signs are located at each set of fare gates and on inbound and outbound platforms. The exact locations and quantities of signs were determined through field observations of existing conditions and needs at each station.

Two types of VMS are in use: those that display next-train information, and those that display only public-service announcements. All Red, Orange, and Blue Line stations are being equipped with electronic message signs that display “next train approaching” and “next train arriving” messages. The information displayed on these signs is triggered through the train’s signal system. Because the Green Line has a different type of signal system than the other rapid transit lines, next-train signs cannot be used at this time on that line. However, VMS that display public-service information have been installed at stations in the Green Line central subway and on the Green Line’s D Branch.

The MBTA expects to introduce next-train information on the Green Line by the end of 2014, when work is completed to upgrade the train tracking system with GPS and sensor technology.

Commuter Rail VMS

In 1997, in conjunction with the opening of the Old Colony’s Middleborough/Lakeville Line and Kingston/Plymouth Line, “PENTA” LED (light-emitting diode) message boards were installed at all stations on those lines. Although these signs used the current technology of that period, they had limited display capability—only one message at a time could be shown, with no more than 99 characters per message. PENTA signs were also installed at the new stations on the Framingham/Worcester Line west of Framingham, and on the Newburyport/Rockport Line at the new stations in Ipswich, Rowley, and Newburyport.

A project to install new passenger information signs at all commuter rail stations (with the exception of Silver Hill, Plimptonville, and Foxboro) was initiated in 2000.; at least one sign was added on each inbound platform, and, at stations with mini-high platforms, an additional sign was added. The PENTA signs were not replaced, however. The new signs can display multiple messages and have a capacity of up to 1,600 characters. All signs are installed on the inbound platforms in order to serve the greatest number of customers, as they travel inbound during the morning peak period.

The MBTA has implemented a Passenger Train Information System (PTIS), also known as the “Next Train” system, on commuter rail at all stations except those that offer live information (South Station, North Station, and Back Bay Station). The PTIS uses state-of-the-art global-positioning-system (GPS) technology on the trains moving along the line to generate automated messages regarding the arrival of the next train on the LED signs located on the station platforms. If service is disrupted, the location information is supplemented by a “Console Operator” who monitors the movement of the trains to manually send ad hoc messages as required to the signs. The system also generates automatic station announcements on board the train.

Bus VMS

Throughout 2014, the MBTA plans to install countdown clocks at a number of bus stations to notify riders when the next bus on each route is expected to depart. The signs will utilize real-time bus tracking data and feature both visual and audio messages. A push-button activated sound system will be included so individuals with visual impairments can access the information on the sign. The MBTA currently plans to install the countdown clocks in the busways at Forest Hills, Dudley Square, and Ruggles stations. Eight other stations have been "tentatively" chosen to receive the signs: Harvard Square, Haymarket, Ashmont, Kenmore, Maverick, Wonderland, Jackson Square, and Central Square.

Elevators and Escalators

Elevators and escalators provide vital access to the system, particularly for persons with disabilities. In 2006, the MBTA formalized a partnership with the Boston Center for Independent Living (BCIL) through a consent agreement that sets operational protocols and standards, as well as a proactive agenda for making the transit system more accessible. The MBTA uses the Americans with Disabilities Act (ADA), 49 CFR, Section 37.161 *Maintenance of accessible feature: General*, as its operability standard:

> a) Public and private entities providing transportation services shall maintain inoperative condition those features of facilities and vehicles that are required to make the vehicles and facilities readily accessible to and usable by individuals with disabilities. These features include, but are not limited to, lifts and other means of access to vehicles, securement devices, elevators, signage and systems to facilitate communications with persons with impaired vision or hearing.
>
> b) Accessibility features shall be repaired promptly if they are damaged or out of order. When an accessibility feature is out of order, the entity shall take reasonable steps to accommodate individuals with disabilities who would otherwise use the feature.
>
> c) This section does not prohibit isolated or temporary interruptions in service or access due to maintenance or repairs[1].

The MBTA contracts for the complete maintenance, service testing, and inspection of all transit system and facility elevators and escalators. The MBTA's contract imposes penalties if the contractor fails to comply with the ADA requirements. The MBTA has implemented a proactive maintenance program to keep equipment safe and operational. Maintenance specifications are defined to cover all equipment components. The MBTA's Maintenance Control Center (MCC) tracks all elevator and escalator service requests, which are transmitted to the MCC via MBTA

[1] Title 49, U. S. Code of Federal Regulations, § 37.161.

personnel and field inspectors. The MCC transmits the service-request information to the elevator/escalator maintenance contractor via a computer terminal, and the contractor then dispatches maintenance personnel to perform repairs. The causes of equipment failures vary, as well as the length of time required to repair them.

5.2.2 Vehicle Assignment

Vehicle assignment refers to the process by which vehicles are placed in garages and assigned to routes throughout the system. The policies used for vehicle assignment vary by mode and are governed by various operational characteristics and constraints.

Bus Vehicle Assignment

The MBTA's bus fleet consists of 28 electric trackless trolleys; 360 compressed-natural-gas (CNG) vehicles; 32 dual-mode vehicles; 502 emission-control-diesel (ECD) vehicles; 25 hybrid vehicles; and 104 older diesel buses. The MBTA has acquired over 500 clean-fuel vehicles to provide new service on Silver Line Washington Street bus rapid transit (BRT) routes and to replace the oldest diesel vehicles in the fleet. In accordance with the September 1, 2000, Administrative Consent Order, Number ACO-BO-00-7001, issued by the Commonwealth of Massachusetts, the Department of Environmental Protection (DEP), under the Executive Office of Environmental Affairs (now the Executive Office of Energy and Environmental Affairs), the MBTA will, "Insofar as possible, operate lowest emission buses in the fleet in transit dependent, urban areas with highest usage and ridership as the buses enter the MBTA bus fleet." Table 5-10 provides additional information on the vehicles in the bus fleet.

Table 5-10
Bus Fleet Roster

Propulsion	Active Vehicles	Year Built	Air Cond.	Accessible	Over-haul	Length	Width	Seats
Straight Electric	28	2003-04	Y	Ramp	None	40’	102”	31
Diesel Series 60 500 HP (dual-mode)	24	2004-05	Y	Ramp	None	60’	102”	47
	8	2005	Y	Ramp	None	60’	102”	38
CNG Cummins C8.3	175	2004	Y	Ramp	2010-13	40’	102”	39
	124	2003	Y	Ramp	2009-11	40’	102”	39
CNG Series 60 400HP	44	2003	Y	Ramp	None	60’	102”	57
CNG Series 50G	15	2001	Y	Ramp	None	40’	102”	39
	2	1999	Y	Ramp	None	40’	102”	39
Diesel Caterpillar C9	192	2004-05	Y	Ramp	In progress	40’	102”	38
Diesel Series 50	104	1994-95	Y	Lift	2004-05	40’	102”	40
Diesel Cummins ISL	155	2006-07	Y	Ramp	None	40’	102”	39
	155	2008	Y	Ramp	None	40’	102”	39
Hybrid	25	2010	Y	Ramp	None	60’	102”	57

The MBTA’s policy is to maintain an average age of the bus fleet of eight years or less. In general, each bus is assigned to one of nine MBTA bus storage and maintenance facilities and operates only on routes served by the garage to which it is assigned. Daily, within each garage, individual vehicles are not assigned to specific routes, but circulate among routes based on a number of operating constraints and equipment criteria. The following summarizes the guidelines used by inspectors when assigning vehicles in the current bus fleet to routes:

- **28 Trackless Trolleys -** The trackless trolley fleet currently consists of 28 vehicles. These vehicles are limited to use on three routes—in Belmont, Cambridge, and Watertown—where overhead catenary lines provide electric power.

- **360 Compressed-Natural-Gas (CNG) Buses -** This fleet is composed of 316 40-foot nonarticulated vehicles and 44 60-foot articulated vehicles. Service is currently provided on Route 39 and Silver Line Washington Street with the 60-foot vehicles, all of which are housed at the Southampton facility; 17 of the 44 60-foot vehicles are dedicated to the Silver Line. All of the 316 40-foot buses are housed at the Arborway and Cabot garages; they provide service on many routes in the urban core. With the exception of the vehicles at Southampton, which currently serve only three routes, inspectors assign these buses daily, on a random basis, within each garage.

- **606 Diesel Buses -** The diesel buses are assigned to the suburban garages, as well as to the Albany Street and Charlestown garages. Of the 502 ECDs in the fleet, 310 are New Flyer vehicles and 192 are Neoplan vehicles. These ECDs have been divided among the following facilities: Charlestown (169), Lynn (69), Quincy (65), Fellsway (76), Albany (116), and Cabot (7) garages. The 104 1994/1995 Nova vehicles remain at the Charlestown (64), Lynn (23), and Quincy (17) garages.

- **32 Diesel-Electric (Dual-Mode) Buses -** All of the 60-foot, articulated dual-mode vehicles are designed for operation on the Waterfront portion of the new Silver Line BRT service between South Station, various locations in South Boston, and Logan Airport.

- **25 Hybrid Buses -** The new 60-foot, articulated hybrid vehicles operate on the following Routes: 28, which operates between Mattapan Station and Ruggles Station via Dudley Station; Silver Line 4 (SL4), which operates between Dudley Station and South Station; and Silver Line 5 (SL5), which operates between Dudley Station and Downtown Crossing.

Light Rail and Heavy Rail Vehicle Assignment

The MBTA operates light rail vehicles on the Ashmont-Mattapan extension of the Red Line—the Mattapan High-Speed Line—and on all four branches of the Green Line: B–Boston College, C–Cleveland Circle, D–Riverside, and E–Heath Street.

Type 7 and Type 8 Green Line vehicles can be operated on any Green Line branch.

The Mattapan High-Speed Line has weight, curve, and power limitations that prevent the use of current Green Line light rail vehicles. Instead, PCC (President's Conference Committee) cars are used for that line. All of the PCCs have undergone extensive rehabilitation, including the replacement of major structural components. These cars were equipped in 2008, for the first time, with air conditioners. Table 5-11 lists the vehicles in the light rail fleet.

Table 5-11
Light Rail Fleet Roster

Line	Type/Class of Vehicle	Fleet Size	Year Built	Builder	Length	Width	Seats
Green Line	Type 7 (1)	91	1986-88	Kinki-Sharyo (Japan)	74’	104”	46
	Type 7 (2)	20	1997	Kinki-Sharyo (Japan)	74’	104”	46
	Type 8	94	1998-2007	Breda(Italy)	74’	104”	44
	“Wartime” PCC	10	1945-46	Pullman Standard (USA)	46’	100”	40

Heavy rail vehicles are operated on the three subway lines: the Red Line, Orange Line, and Blue Line. The specific operating environment of each line prevents one line’s cars from operating on another line; therefore, each line has its own dedicated fleet.

Because there are no branches on the Orange Line or the Blue Line, and there is only one type of Orange Line car and one type of Blue Line car, no distribution guidelines are necessary for either of these lines. The Blue Line introduced a new replacement fleet in 2009. The Red Line has two branches, and operates using three types of cars. There are no set distribution policies for the assignment of Types 1, 2, and 3 cars to the two Red Line branches (Ashmont and Braintree). All three types are put into service on both branches as available. Table 5-12 lists the vehicles that are currently in the heavy rail fleet.

Table 5-12
Heavy Rail Fleet Roster

Line	Type/Class of Vehicle	Fleet Size	Year Built	Builder	Length	Width	Seats
Blue Line	No. 5 East Boston	94	2007-08	Siemens	48’ 10”	111”	42
Orange Line	No. 12 Main Line	120	1979-81	Hawker-Siddeley (Canada)	65’ 4”	111”	58
Red Line	No. 1 Red Line	74	1969-70	Pullman Standard (USA)	69’ 9 3/4”	120”	63
	No. 2 Red Line	58	1987-89	UTDC (Canada)	69’ 9 3/4”	120”	62
	No. 3 Red Line	86	1993-94	Bombardier (USA)	69’ 9 3/4”	120”	52

Planning and design are underway for the next generation of vehicles for the Red and Orange Lines, as well as for accommodation of expanded Green Line service associated with the Commonwealth’s commitment to extend the Green Line to Somerville and Medford by December 2017.

Commuter Rail Vehicle Assignment

Vehicle assignments are developed based on specific standards of commuter rail service. These standards include providing a minimum number of seats for each scheduled trip, providing one functioning toilet car in each trainset, maintaining the correct train length to accommodate infrastructure constraints, and providing modified vehicles, when necessary, for a specific operating environment. The MBTA strives to assign its vehicles as equitably as possible within the equipment and operational constraints of the system.

Railroad Operations operates a 377-route-mile regional rail system in the Boston metropolitan area composed of 14 lines that serve 125 stations. The existing system consists of two separate rail networks: a five-route northern system, which operates north and east from North Station to terminals at Rockport, Newburyport, Haverhill, Lowell, and Fitchburg; and an eight-route southern system, which operates south and west from South Station to terminals at Worcester, Needham, Franklin, Wickford Junction, Providence, Stoughton, Readville, Greenbush, Middleborough, Kingston, and Plymouth. Trains operate in a push-pull mode, with the locomotive leading (pull mode) when departing Boston and the control car leading when arriving in Boston.

The commuter rail coach fleet is composed of five types of coaches and three types of locomotives, which are assigned to the 14 commuter rail routes. Both coaches and locomotives have a service life of 25 years. Modernization of the commuter rail fleet is currently underway through the procurement of 40 locomotives and 75 bilevel coaches. At this time, 17 of the 28 CTC-5 and 21 of the 47 BTC-4D bilevel coaches have been delivered. The remaining coaches, along with the 40 locomotives, are scheduled to arrive in 2014.Table 5-13 lists the vehicles in the current and near-future fleet.

Table 5-13
Commuter Rail Fleet Roster

Manufacturer	Fleet Size	Date	Classification*	Rebuilt	Seats
Pullman	57	1978-79	BTC-1C	1995-96	114
MBB	33	1987-88	BTC-3	-	94
MBB	34	1987-88	CTC-3	-	96
Bombardier A	40	1987	BTC-1A	-	127
Bombardier B	54	1989-90	BTC-1B	-	122
Bombardier C	52	1989-90	CTC-1B	-	122
Kawasaki	50	1990-91	BTC-4	-	185
Kawasaki	25	1990-91	CTC-4	-	175
Kawasaki	17	1997	BTC-4	-	182
Kawasaki	15	2001-02	BTC-4	-	182
Kawasaki	33	2005-07	BTC-4C	-	180
Rotem	28	2013-14	CTC-5	-	173
Rotem	47	2013-14	BTC-4D	-	175

*BTC = Blind Trailer Coach; CTC = Controller Trailer Coach

Train consists are assembled as required based on minimum seating capacity to meet the morning and evening peak-period requirements. Presently the MBTA commuter rail contract operator is contractually required to have 133 coaches in 23 North Side trains and 228 coaches in 38 South Side trains. Most train consists generally are not dedicated to a specific line, but are cycled throughout the system (either North or South). Every train consist must have a control coach. The following vehicle characteristics must also be considered when assigning vehicles:

- **Kawasaki Coaches (bilevel) –** There is no specific policy restricting the use of these vehicles in the commuter rail system. Currently they are used primarily in the South Side commuter rail system, since it carries approximately 65 percent of the total boardings of the system. The bilevel coaches offer substantially more seating than the single-level coaches. This allows Railroad Operations to maintain consist seating capacity while minimizing the impacts of platform and layover facility constraints. The MBTA intends to purchase only bilevel coaches in future procurements in order to accommodate increasing ridership demands and to allow for greater flexibility when scheduling vehicle assignments.

- **Rotem Coaches (bilevel) –** The delivery and operation of these vehicles began in 2013 and will continue through 2014. There are 75 cars on order, of which 47 will be equipped with toilet facilities.

- **Messerschmitt-Bolkow-Blohm (MBB) Coaches–** Every train consist has at least one MBB coach equipped with toilet facilities. MBB blind-trailer coaches have also been modified to guarantee priority seating for eight wheelchair spaces on all trains on the Worcester Line in accordance with agreements made at the time of the commuter rail extension to Worcester. There are only 14 trains that are cycled on the Worcester Line daily; however, 33 coaches were modified to provide for greater vehicle assignment flexibility. The MBB fleet is slated to be reduced as the Rotem fleet enters service.

- **Old Colony Lines –** The coaches used for service on the Old Colony lines (Middleborough/Lakeville, Kingston/Plymouth, and Greenbush) are equipped with power doors, as all of the stations on these lines have high platforms. This enables a crew member to control the operation of the doors in the consist from any coach via the door control panel. Portions of the Kawasaki, Pullman, and MBB coach fleets have had the power doors activated to meet this requirement. All new Rotem coaches will be equipped with power doors.

- **Advanced Civil Speed Enforcement System (ACSES) –** All control coaches and locomotives operating on the Providence Line must be equipped with a functioning ACSES system. ACSES is a Federal Railroad Administration (FRA)-mandated requirement for Amtrak high-speed rail service, which shares the Providence Line corridor with the MBTA. All locomotives have ACSES installed and functioning. The

Bombardier control coaches do not yet have ACSES installed, and therefore are limited to North Side service. There are more locomotives and control coaches equipped with ACSES than are required to meet the daily Providence scheduled trips. This provides for greater flexibility in vehicle assignments.

All coaches in the commuter rail fleet are equipped with similar amenities, the exception being the coaches which are equipped with toilets; therefore, the primary variation among coaches is age. For the purpose of periodic monitoring, an assessment of compliance for vehicle assignment is completed each year based on the average age of a trainset for a specified time period.

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CHAPTER 6
Service Monitoring

The revised FTA Title VI circular, FTA C4702.1B, Chapter IV.6, requires that, to comply with Title VI, providers of public transportation that operate 50 or more fixed-route vehicles in peak service, and that are located in an urbanized area (UZA) of 200,000 or more in population, must monitor the performance of their transit system relative to their systemwide service standards and policies not less often than once every three years. It also requires transit providers to develop a policy or procedure to determine whether there are disparate impacts on the basis of race, color, or national origin, and apply that policy or procedure to the results of the monitoring activities (FTA C4702.1B, IV.6). Although it is required that monitoring be conducted every three years at a minimum, the MBTA conducts annual monitoring to ensure that potential problems are found and rectified in a timely fashion. Table 6-1 presents the framework for the MBTA's Title VI monitoring procedures. The subsequent text reports the findings of the most recent Title VI data collection and analysis. A summary of the monitoring results is provided in Appendix J.

Table 6-1
MBTA Title VI Level-of-Service Monitoring

Service Indicator	Department(s) Responsible	Planned Frequency of Compliance Assessments	Even Year or Odd Year
1. Vehicle Load, Vehicle Headway, and On-Time Performance			
Bus	Service Planning	Every 2 years	Even
Heavy Rail and Light Rail	Subway Operations and Service Planning	Every 2 years	Even
Commuter Rail	Railroad Operations	Every 2 years	Even
2. Transit Access			
All Modes	Service Planning	Every 2 years	Even
3. Distribution of Transit Amenities			
Bus Shelter	Operations and Service Development	Every 2 years	Even

(cont.)

Table 6-1 (cont.)

Service Indicator	Department(s) Responsible	Planned Frequency of Compliance Assessments	Even Year or Odd Year
Station Condition and Amenities	CTPS	Every 2 years	Odd
Neighborhood Maps	Operations and Service Development	Every 2 years	Odd
AFC Fare Gates, Fare Vending Machines, and Retail Sales Terminals	AFC	Annually	N/A
Variable Message Signs	Subway, Silver Line, and Railroad Operations	Every 2 years	Odd
Station Elevator and Escalator Performance	Engineering and Maintenance	Annually	N/A
4. Vehicle Assignment			
Bus	Bus Operations	Annually	N/A
Heavy Rail and Light Rail	Subway Operations	Annually	N/A
Commuter Rail	Railroad Operations	Annually	N/A

N/A = not applicable

6.1 Minority Classification

The minority classification of MBTA transit routes, stations, and stops were updated using 2010 US census data and an MBTA systemwide passenger survey that was published in 2010. This section outlines the processes for which each of these data sources is selected and applied.

Previously, the MBTA used two different service areas for determining the minority (and low-income) thresholds: one for the urban fixed-route service area (65 municipalities) and another for the commuter rail service area (175 municipalities). In light of the new census information and due to complications caused by definitions of the two service areas, the MBTA now uses a single service area definition that encompasses the entire MBTA service area (with the exception of parts of the Providence/Stoughton commuter rail line, which extends into Rhode Island).

6.1.1 Determining Service-Area Thresholds Using US Census Data

Using the latest available demographic data from the 2010 US census, a threshold was set for determining whether a census tract should be classified as minority. The minority threshold was determined by calculating the percentage of the population living in the MBTA service area that is classified as minority. Using this threshold, a census tract was designated as minority if the percentage of the population classified as minority was greater than or equal to the percentage of the population of the entire MBTA service area that was classified as minority. The percentage of minorities in the MBTA service areas was found to be 26.2 percent. Therefore, a census tract is defined as minority if the minority population is greater than or equal to 26.2 percent.

6.1.2 Route Classification

Each route is classified according to the minority status for the bus, rapid transit, and commuter rail systems. Route-level classification is conducted using boarding data. Boarding data for bus service is collected using automatic passenger counter (APC) equipment, when available, and CTPS ridecheck data when APC data are not available; for rapid transit using automated-fare-collection (AFC) data; and for commuter rail using data provided by the Massachusetts Bay Commuter Railroad Company (MBCR). For all modes, a route is classified as minority if more than 40 percent of boardings along the route occur in minority census tracts. A list of bus routes and the corresponding minority status of each is provided in Appendix K, and a list of rapid transit and commuter rail lines and the corresponding minority status of each is provided in Appendix L.

6.1.3 Station Classification

Each station is classified according to minority status to perform an analysis of the distribution of transit amenities. For rapid transit and commuter rail service, stops and stations were classified using either census data or survey data, as outlined below. A list of rapid transit stations and the corresponding minority status of each is provided in Appendix M, and a list of commuter rail stations and the corresponding minority status of each is provided in Appendix N.

Selecting the Classification Method

Two methods were used to classify the minority status of a station:

- Utilizing available census demographic data for a buffer zone around the station, consisting of the area within 0.5 miles (for rapid transit stations) or 1.0 miles (for commuter rail stations)

- Using survey data supplemented with census data

To determine which classification method should be used for a given station, stations were categorized by how they were accessed:

- Local stations: Stations where most of the ridership was likely to originate in the vicinity of the station. The potential ridership at these stations was defined by generating the appropriate buffer zone around the station and utilizing census data.

- Non-local stations: Stations where most of the ridership was not likely to originate near the station. The potential ridership at these stations was defined using the results of the analysis of the passenger survey responses.

- Destination stations: Stations where most of the riders who use these stations were not likely to live near them. These include stations that are located in downtown areas where most of the development is commercial, there is little residential development, and the station is primarily used to provide access to a work, shopping, or entertainment destination. The potential ridership at these stations was defined using results of the analysis of the passenger survey responses.

For the rapid transit system, a station was considered local if more than half of the riders who began their trip at home walked to the station. For the commuter rail system, a station was considered local if half or more of the riders who began their trip at home walked to the station, drove to and parked at the station within less than 10 minutes, or were dropped off at the station within less than 10 minutes.

To designate the destination stations, staff used their professional judgment and information about the availability of nearby housing.

Results Based on US Census Data

Based on the thresholds developed using the most recent demographic data available, as described in Section 6.1.1, each census tract was classified as minority or nonminority, and the population density of each tract was calculated. A buffer zone was then generated around each station in the service area using geographic information system (GIS) software. Once the buffer zones were generated, the area of each tract that was contained in each buffer zone was calculated; the area of each tract was then multiplied by the population density to obtain the population within the buffer zone. Finally, minority and nonminority populations within each buffer zone were summed to obtain a total population for each. Then the threshold for determining minority areas (described in Section 6.1.1) was used to classify the station. For all rapid transit, Silver Line, and ferry stations, a buffer zone radius of 0.5 miles was used. For commuter rail stations, a buffer zone radius of 1.0 miles was used.

Results Based on Survey Data

The MBTA systemwide passenger survey, published in 2010, included a question about the respondent's race.

Based on the response to the question about race, each respondent was categorized as a minority individual or a nonminority individual. Based on these categories, the number of riders who boarded and alighted at each station was aggregated by minority status. If, based on the sample size and the distribution of the results, the percentage of passengers boarding and alighting at the station who were classified as minority was greater than the threshold (26.2 percent), the station was classified as a minority station. The criteria for this classification scheme are summarized below:

- Minority: Adequate sample size and minority boardings and alightings greater than 26.2 percent

- Small sample size: Revert to census-based classification

6.1.4 Bus Stop Classification

Each bus stop is classified by minority status to perform an analysis of the distribution and condition of bus shelters. The classification of each stop was defined by the classification of the census tract in which the stop was located.

6.2 Disparate Impact Policy Threshold

At the time of the submittal of this report, the MBTA was conducting a public review of its proposed Disparate Impact and Disproportionate Burden Policy. The MBTA's draft policy is included as Appendix O. It describes the disparate impact threshold for service monitoring:

> For service monitoring:
>
> A disparate impact would be found if for each service standard/policy, the performance of a service provided to minority areas passed the service standard at a rate less than 80 percent of the service provided to nonminority areas.

6.3 Vehicle Load, Vehicle Headway, and On-Time Performance

6.3.1 Bus and Trackless Trolley

Through its regular service-planning process, the MBTA Service Planning Department evaluates the performance of all bus routes in relation to the Authority's Service Delivery Policy, which includes service standards for vehicle load, vehicle headway (frequency of service), and on-time performance (schedule adherence). In keeping with the Service Delivery Policy, minor service changes are made routinely in response to changes in service demand, whereas major changes can only be made through a Service Plan.[1] Every two years, all bus routes (with the exception of those that were subject to major restructuring in the previous Service Plan) are evaluated through a comparative analysis for all of the service standards in the Service Delivery Policy. Based on this analysis, proposed changes to existing services, as well as suggestions for new services, are compiled into a Preliminary Service Plan. The goals of the Service Plan are to bring all routes into compliance with the service standards and to meet the changing demands for transit services. Before any Service Plan is finalized, a Title VI level-of-service analysis, based on the predicted performance after the proposed changes are made, is completed. The draft plan is presented to the public in a variety of ways, including public meetings and a hearing. Based on public input, additional service changes may be made before the final recommendations are compiled, approved, and implemented. The MBTA is currently developing the 2013–2014 Service Plan.

Bus and Trackless Trolley Vehicle Load

Vehicle load standards for light rail, as defined in the MBTA's Service Delivery Policy, allow for loads equal to 140 percent of the seated capacity in the Early AM, AM Peak, Midday School, and PM Peak periods. During all other time periods (Midday Base, Evening, Late Evening, Night/Sunrise, and Weekends), loads should not exceed 100 percent of seated capacity.

Table 6-2 presents the vehicle load performance, in terms of the percentage of routes that met the vehicle load standard, of all of the routes evaluated in the Preliminary 2013–2014 Service Plan. The last row of the table shows the results of the disparate impact analysis. For each of the three categories of service days (weekdays, Saturdays, and Sundays), a lower percentage of minority routes than nonminority routes met the vehicle load standard. For weekday and Saturday bus service, the ratio of minority routes to nonminority routes that met the vehicle load standard was compliant with the MBTA's disparate impact policy threshold, so no disparate impact was found. However, for Sunday service, with 64.5 percent of minority routes meeting the vehicle load standard and 86.4 percent of nonminority routes meeting that standard, the ratio of minority to nonminority routes that met the vehicle load standard (0.75) indicates that there is a disparate impact on minority populations.

[1] Major service changes might also be made in conjunction with a fare increase process.

Table 6-2
Bus and Trackless Trolley: Percentage of Routes That Met the Vehicle Load Standard

Route Classification	Weekday	Saturday	Sunday
Minority	67.0%	68.5%	64.5%
Nonminority	78.8%	76.5%	86.4%
Ratio of minority to nonminority	0.85	0.90	0.75
Disparate impact threshold	> 0.80	> 0.80	> 0.80
Result of disparate impact analysis	NDI	NDI	DI

NDI = no disparate impact
DI = disparate impact

The MBTA will determine why a significantly smaller percentage of minority bus routes than nonminority routes met the vehicle load standard on Sundays, and take corrective action to remedy the disparities to the greatest extent possible. The MBTA will continue its endeavor to maintain vehicle loads that meet the vehicle load standard for all bus and trackless trolley routes.

Bus and Trackless Trolley Vehicle Headway

Bus and trackless trolley vehicle headway standards, as defined in the MBTA Service Delivery Policy, allow for headways of 30 minutes or less in the AM and PM peak periods, and 60 minutes or less at all other times.

Table 6-3 provides data on the adherence to the vehicle headway standard for all of the routes evaluated in the Preliminary 2013–2014 Service Plan, which includes the percentage of routes that met the vehicle headway standard. The last row of the table shows the results of the disparate impact analysis. For all three categories of service days—weekdays, Saturdays, and Sundays—a higher percentage of minority routes than nonminority routes met the vehicle headway standard. Furthermore, for each category of service days, the ratio of minority routes to nonminority routes that met the vehicle headway standard indicates that there is no disparate impact on minority populations.

Table 6-3
Bus and Trackless Trolley: Percentage of Routes That Met the Vehicle Headway Standard

Route Classification	Weekday	Saturday	Sunday
Minority	65.2%	82.0%	73.7%
Nonminority	63.5%	70.6%	63.6%
Ratio of minority to nonminority	1.03	1.16	1.16
Disparate impact threshold	> 0.80	> 0.80	> 0.80
Result of disparate impact analysis	NDI	NDI	NDI

NDI = no disparate impact

Bus and Trackless Trolley Schedule Adherence

As defined in the MBTA Service Delivery Policy, schedule adherence policies for buses and trackless trolleys call for 75 percent of all timepoints to be on time.

Historically, schedule adherence was determined through direct observation of all scheduled trips on each route. Due to the size of the MBTA bus system, data for each route were collected on only one composite day every two or more years. The installation of a CAD/AVL (computer-aided dispatch and automatic vehicle location) system on all buses has allowed the MBTA to collect data for each route on a daily basis at multiple timepoints. The MBTA's Service Planning Department has been using this increased volume of data to refine current public timetables so that the printed schedules used by customers better reflect actual running times along an entire route.

Figure 6-1 displays the schedule adherence performance of all routes evaluated in the Preliminary 2013–2014 Service Plan by plotting the percentage of timepoints served on time for each route by minority status and service day.

Figure 6-1
Bus and Trackless Trolley Schedule Adherence

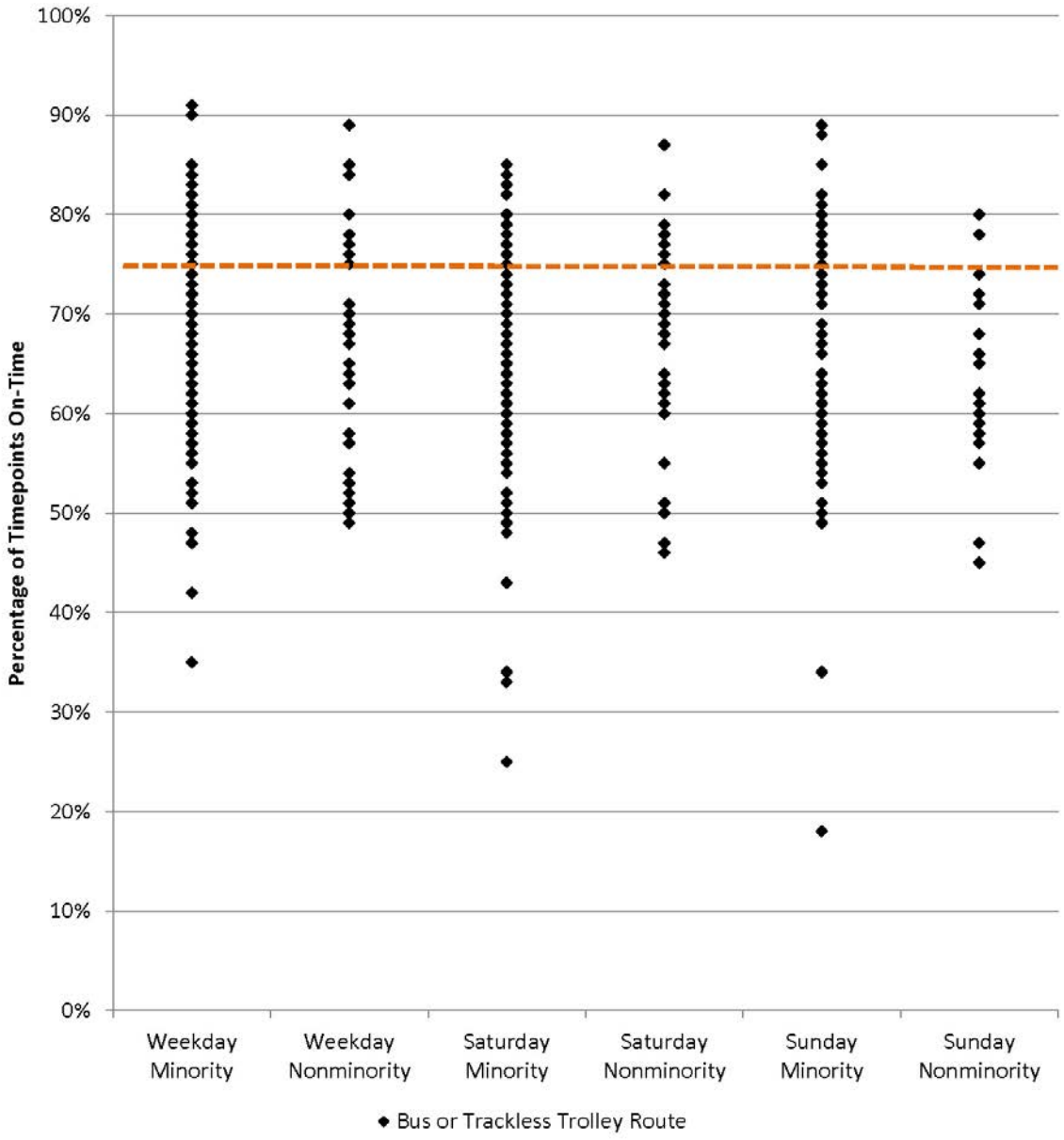


Table 6-4 reports the schedule adherence of all of the routes that were evaluated in the Preliminary 2013–2014 Service Plan by showing the percentage of routes that met the schedule adherence standard. The last row of the table shows the results of the disparate impact analysis. For weekday and Saturday service, a lower percentage of minority routes than nonminority routes met the schedule adherence standard, which indicates that there is a disparate impact on minority populations. For Sunday service, a higher percentage of minority routes than nonminority routes met the schedule adherence standard, which indicates that that there is no disparate impact on minority populations.

Table 6-4
Bus and Trackless Trolley: Percentage of Routes That Met the Schedule Adherence Standard

Route Classification	Weekday	Saturday	Sunday
Minority	22.3%	23.6%	19.7%
Nonminority	32.7%	32.4%	13.6%
Ratio of minority to nonminority	0.68	0.73	1.45
Disparate impact threshold	> 0.80	> 0.80	> 0.80
Result of disparate impact analysis	DI	DI	NDI

DI = disparate impact

The MBTA will determine why a significantly smaller percentage of minority bus routes than nonminority bus routes met the schedule adherence standard on weekdays and Saturdays, and will take corrective action to remedy the disparities to the greatest extent possible. The MBTA will continue its endeavor to operate within the schedule adherence standard for all bus and trackless trolley routes.

6.3.2 Heavy and Light Rail

Automated-fare-collection (AFC) data indicate that more than 40 percent of boardings along each of the MBTA's three heavy rail lines (Red Line, Blue Line, and Orange Line) occur in minority census tracts. Therefore, because each heavy rail line is classified as a minority route, comparative monitoring of minority and nonminority service performance is not necessary.

However, the light rail system, which includes the four branches of the Green Line and the Mattapan High-Speed Line, has variability in minority status. The Green Line B, C, and E branches and the Mattapan Line are classified as minority, while the Green Line D Branch is classified as nonminority. The minority status of each heavy and light rail line and the source of data used to determine the status of each is displayed in Table 6-5.

Table 6-5
Heavy and Light Rail Minority Classification

Line	Branch	Source	Percent Minority	Classification
Heavy Rail				
Red	—	AFC	45.2%	Minority
Blue	—	AFC	61.8%	Minority
Orange	—	AFC	66.4%	Minority
Light Rail				
Green	B	CTPS	83.5%	Minority
	C	CTPS	46.7%	Minority
	D	CTPS	10.8%	Nonminority
	E	CTPS	100.0%	Minority
Mattapan (Red)	—	CTPS	100.0%	Minority

AFC = automated fare collection

Light Rail Vehicle Load

Vehicle load standards for light rail, as defined in the MBTA's Service Delivery Policy, allow for loads equal to 225 percent of the seated capacity in the Early AM, AM Peak, Midday School, and PM Peak periods. During all other time periods (Midday Base, Evening, Late Evening, Night/Sunrise, and Weekends), loads in the core area should not exceed 140 percent of seated capacity.

Vehicle loads were observed during each time period for each branch of light rail service. Each branch was evaluated on the basis of the vehicle load standard for each time period to determine whether it meets the relevant service standard. The results of this evaluation are shown in Table 6-6.

Table 6-6
Light Rail Vehicle Load: Adherence to Service Standard

Classification/ Line	Branch	Peak Periods				Off-Peak Periods		
		Early AM	AM Peak	Midday School	PM Peak	Midday Base	Evening	Late Evening
Minority								
Green	B	•	•	•	•	X	X	X
	C	•	•	•	•	X	X	•
	E	•	•	•	•	•	•	•
Mattapan (Red)	N/A	•	•	•	•	•	•	•
Nonminority								
Green	D	•	•	•	•	X	X	X

• = adheres to service standard
X = does not adhere to service standard
N/A = not applicable

Table 6-7 shows the results of the disparate impact analysis for the light rail vehicle load. During the peak periods, 100 percent of all rapid transit lines complied with the vehicle load standard. During the off-peak periods, 50 percent of minority lines (all light rail lines other than the Green Line D Branch) complied with the vehicle load standard during the midday base and evening periods, and 75 percent of minority lines complied with the vehicle load standard during the late evening period. The single nonminority rapid transit line (Green Line D Branch) did not comply with the vehicle load standard during any of the off-peak periods. As a result, no disparate impact was found for light rail vehicle loads during any of the time periods.

Table 6-7
Light Rail Vehicle Load: Disparate Impact Analysis

Line Classification	Peak Periods				Off-Peak Periods		
	Early AM	AM Peak	Midday School	PM Peak	Midday Base	Evening	Late Evening
Minority	100%	100%	100%	100%	50%	50%	75%
Nonminority	100%	100%	100%	100%	0%	0%	0%
Ratio of minority to nonminority	1.00	1.00	1.00	1.00	N/A	N/A	N/A
Disparate impact threshold	> 0.80	> 0.80	> 0.80	> 0.80	> 0.80	> 0.80	> 0.80
Result of disparate impact analysis	NDI	NDI	NDI	NDI	NDI	NDI	NDI

N/A = not applicable; the ratio is interminably higher than the disparate impact threshold.
NDI = no disparate impact

Light Rail Vehicle Headway

With respect to scheduled headways, almost all light rail service met the MBTA service standards for frequency of service of 10 minutes or less in the AM and PM peak periods, and 15 minutes or less at all other times. The only light rail service that did not meet the frequency standards is the Mattapan High-Speed Line, a minority route. This route operates every 26 minutes on Saturday and Sunday before 10:00 AM and after 8:00 PM, but is in compliance at all other times. At this time, ridership levels do not justify the resources required to reduce the headway to 15 minutes. The MBTA will continue to monitor ridership levels to determine if and when an adjustment to the headway becomes appropriate (if resources become available).

Light Rail Schedule Adherence

Schedule adherence policies for surface light rail call for 85 percent of all trips to operate at intervals of less than or equal to 1.5 times the scheduled headway.

As seen in Figure 6-2, the Mattapan line (a minority line) was the only light rail line to adhere to this schedule adherence standard; 89 percent of Mattapan line trips operated within 1.5 scheduled headways, while none of the Green Line branches (including the D Branch, the only nonminority branch) had more than 82 percent of trips operating within 1.5 scheduled headways.

Figure 6-2
Light Rail Schedule Adherence: Adherence to Headway-Based Standard

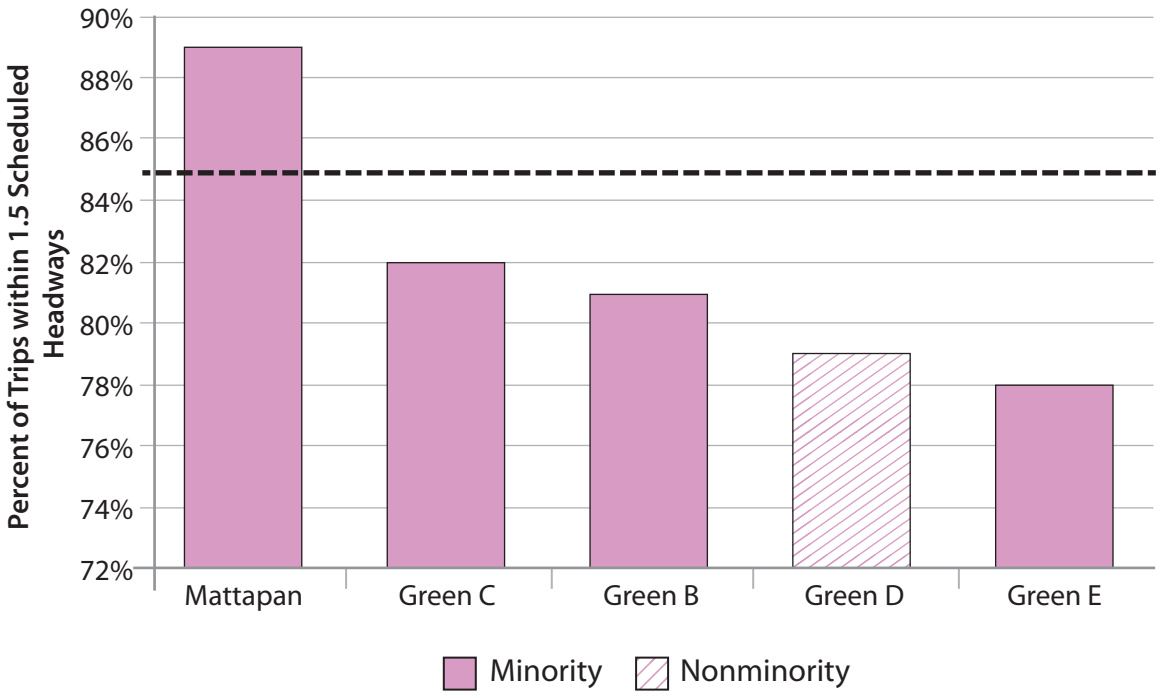


Table 6-8 shows the percentage of light rail lines that adhered to the schedule adherence standard by minority classification. As shown in Table 6-8, there is no disparate impact on minority populations based on adherence to the headway performance standard because the only nonminority light rail line (Green Line D Branch) did not adhere to the headway performance standard.

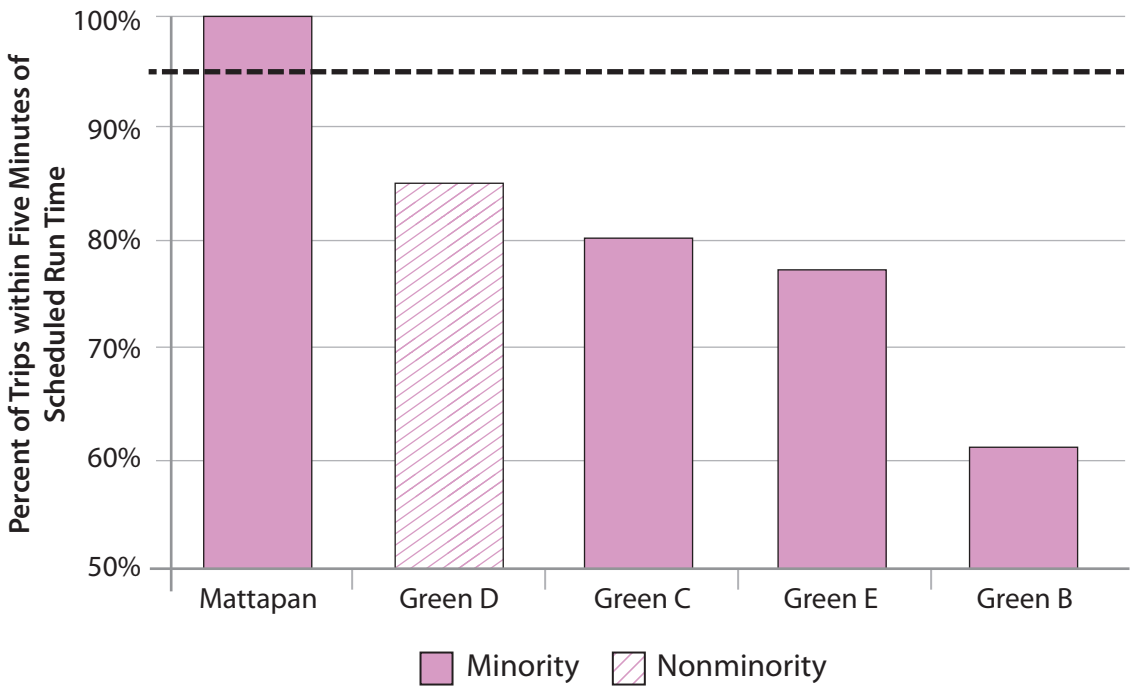
Table 6-8
Light Rail Schedule Adherence: Headway-Based Disparate Impact Analysis

Classification	Percent of Lines Adhering to Service Standard
Minority	25%
Nonminority	0%
Ratio of minority to nonminority	N/A
Disparate impact threshold	> 0.80
Result of disparate impact analysis	NDI

N/A = not applicable; the ratio is interminably higher than the disparate impact threshold
NDI = no disparate impact

Schedule adherence policies for surface light rail call for 95 percent of all trips to operate within 5 minutes of the scheduled trip time over the entire service day. As seen in Figure 6-3, the Mattapan line (a minority line) was the only light rail line that adhered to this schedule adherence standard; 100 percent of trips on this line operated within 5 minutes of their scheduled run time, while none of the Green Line branches (including the only nonminority branch, the D Branch) had more than 85 percent of trips operating within 5 minutes of their scheduled run time.

Figure 6-3
Light Rail Schedule Adherence: Adherence to Trip-Time-Based Standard



Since the only nonminority light rail line (Green Line D Branch) did not adhere to the trip-time-based performance standard, the ratio of the percentage of minority lines adhering to the trip-time-based performance standard to the percentage of nonminority lines adhering to the trip-time-based performance standard indicates that there is no disparate impact on minority populations, as shown in Table 6-9.

Table 6-9
Light Rail Schedule Adherence: Trip-Time-Based Disparate Impact Analysis

Classification	Percent of Lines Adhering to the Standard
Minority	25%
Nonminority	0%
Ratio of minority to nonminority	N/A
Disparate impact threshold	> 0.80
Result of disparate impact analysis	NDI

N/A = not applicable; the ratio is interminably higher than the disparate impact threshold
NDI = no disparate impact

6.3.3 Commuter Rail

As a part of its ongoing planning process, every six months the MBTA's Railroad Operations Department evaluates the performance of commuter rail services against the MBTA's standards for vehicle load, vehicle headway, and schedule adherence. Through contractual agreement, the commuter rail operating contractor, currently the Massachusetts Bay Commuter Railroad Company (MBCR), provides the data used for this analysis. Based on the analysis, minor schedule changes are implemented to improve service in areas with a demonstrated need. Minor changes may also result from passenger suggestions forwarded to the "Write to the Top" campaign, and can be accomplished by, but are not limited to, one or more of the following: (1) adjusting schedule times, (2) increasing service with additional trips (for example, adding more express service), and (3) redistribution of equipment. Major service changes, such as service expansion or line extensions, require approval of the MassDOT Board of Directors and capital funding prior to implementation.

For the purposes of Title VI monitoring, Railroad Operations completes compliance assessments for vehicle load, vehicle headway, and on-time performance (OTP) twice a year, before implementing the schedule changes that are made as a part of the regular planning process. If the assessment of the proposed changes demonstrates that service on minority routes does not comply with Title VI requirements, Railroad Operations develops, within the operating constraints of commuter rail, a solution that minimizes or eliminates Title VI noncompliance before changes are implemented.

Commuter Rail Vehicle Load

The MBTA commuter rail load standard during peak periods, as indicated in the Service Delivery Policy, is 110 percent of the seating capacity.

The passenger counts used in evaluating the vehicle loads are the manual counts reported in a 2012 study performed by CTPS, which counted the number of passengers boarding and alighting from each train in each direction at each station on each line on one composite weekday. These passenger counts were analyzed in conjunction with consist data provided by MBCR to calculate vehicle loads for each train leaving each station for a composite weekday.

No trains across the entire commuter rail system were found to violate the vehicle load standard of 110 percent of the seating capacity; therefore, a comparative analysis of minority and nonminority service performance is not necessary.

Commuter Rail Vehicle Headway

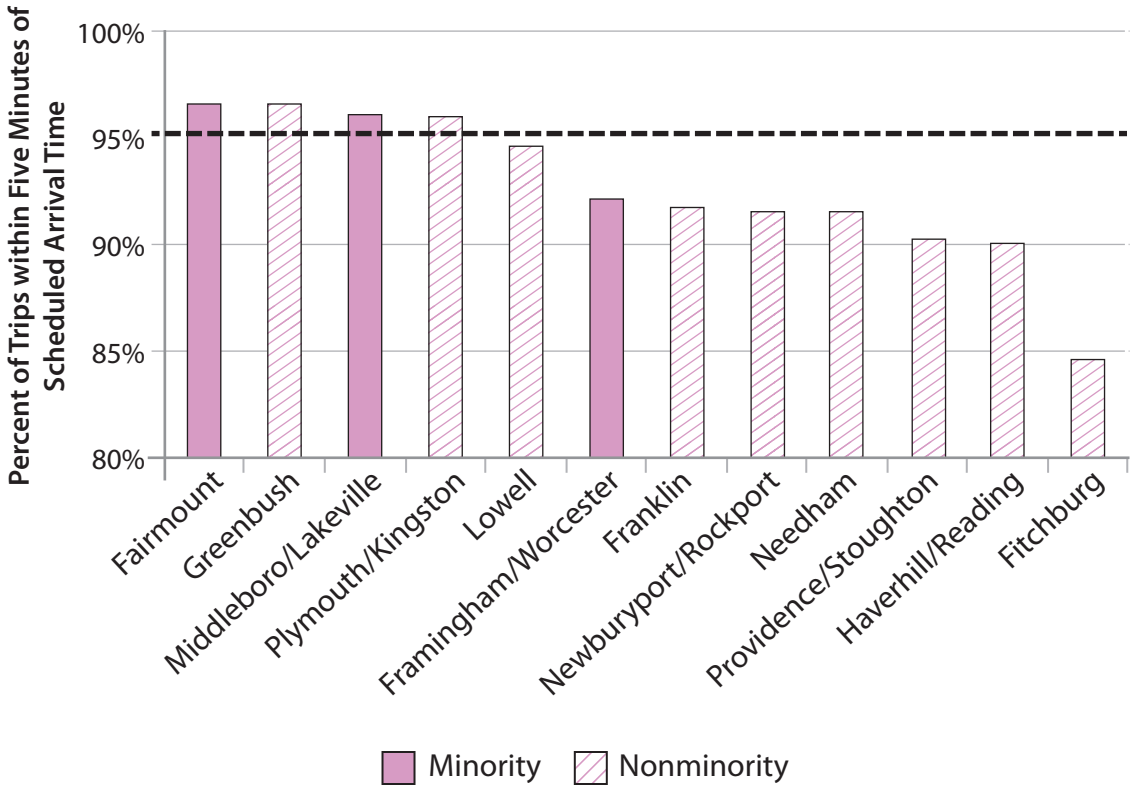
All commuter rail lines met the MBTA's Frequency of Service Standard during peak and off-peak periods on weekdays. There are four lines that do not operate on Saturday, the Fairmount, Greenbush, Kingston/Plymouth, and Needham lines. Of these, only the Fairmount Line is classified as minority. The other three lines are classified as nonminority and have the smallest percentage of minority ridership systemwide, with 0 percent of boardings occurring at minority stations along the Greenbush and Plymouth lines, and only 5 percent of boardings occurring at minority stations along the Needham Line.

Commuter Rail Schedule Adherence

The MBTA's Service Delivery Policy sets a schedule adherence standard of 95 percent for all trains arriving at their final terminals within 5 minutes of scheduled arrival times. The Commuter Rail Operating Agreement specifies benchmarks for different on-time performance measures, and subjects the contract operator to a penalty for any train that arrives at its final terminal more than 4 minutes and 59 seconds late when the on-time performance (OTP) for the line on which that train operated is less than 95 percent for that day.

The contractor for operating the MBTA's commuter rail service, currently MBCR, collects and records the OTP data of all revenue trains on a daily basis and maintains it in the rail operations management system. The system generates daily reports that provide statistics on trains scheduled, trains operating on time, and OTP. Because this information is readily available, data for a period of one year, from December 2012 to November 2013, were reviewed. Figure 6-4 shows the OTP for each commuter rail line over this period.

Figure 6-4
Commuter Rail Schedule Adherence, December 2012 – November 2013



Of the 12 MBTA commuter rail lines, four met the schedule adherence standard of 95 percent for all trains arriving at their final terminals within 5 minutes of scheduled arrival times. Of these four commuter rail lines, two are classified as minority, the Fairmount Line and the Middleboro/Lakeville Line. The remaining eight commuter rail lines failed to meet the schedule adherence standard, including the Framingham/Worcester Line, which is the only line in the group that was classified as minority. As shown in Table 6-10, 67 percent of minority lines met the schedule adherence standard, while only 22 percent of nonminority lines met the schedule adherence standard. As a result, the ratio of the percentage of minority lines to nonminority lines that met the schedule adherence standard indicates that there is no disparate impact on minority populations.

Table 6-10
Commuter Rail Schedule Adherence: Disparate Impact Analysis

Classification	Percent of Lines Adhering to Schedule Adherence Standard
Minority	67%
Nonminority	22%
Ratio of minority to nonminority	3.00
Disparate impact threshold	> 0.80
Result of disparate impact	NDI

NDI = no disparate impact

6.4 Service Availability (Coverage)

The MBTA's Transit Coverage guidelines are established specifically for the service area in which bus, light rail, and heavy rail operate, as riders most frequently begin their trips on these services by foot. To meet the Transit Coverage guidelines, transit service—of any mode—should be accessible on weekdays and Saturdays within one-quarter mile to residents in areas with a population density greater than 5,000 people per square mile, and within one-half mile on Sundays. The analysis for this report was completed using GIS software by measuring distances via the street network (rather than "as the crow flies") to realistically assess the distance that an individual might have to walk to access transit service at a bus stop or rail stop/station.

Tables 6-11, 6-13, and 6-15 show transit coverage by mode separately for weekdays, Saturdays, and Sundays, in areas within the MBTA bus and rapid transit service area with a population density greater than 5,000 people per square mile. Tables 6-12, 6-14, and 6-16 show the combined transit coverage for all modes separately for weekdays, Saturdays, and Sundays, in areas within the MBTA bus and rapid transit service area with a population density greater than 5,000 people per square mile.

As shown in Table 6-12, for weekday service, and for high-density census tracts within the bus and rapid transit service area, 75.5 percent of street-miles in minority areas met the MBTA's Transit Coverage guidelines, while 61.3 percent of street-miles in nonminority areas conformed with the Transit Coverage guidelines. Since the transit coverage in minority areas exceeds that in nonminority areas, there is no disparate impact on minority populations.

Table 6-11
Weekday Transit Coverage within the Bus and Rapid Transit Service Area by Mode

Area Classification	Total Street Miles	Bus Market		Subway Market		Bus + Subway Market		Commuter Rail Market	
		Street Miles	Percent of Total	Street Miles	Percent of Total	Street Miles	Percent of Total	Street Miles	Percent of Total
Minority	2,014	1,497	74.3%	155	7.7%	1,517	75.3%	50	2.5%
Nonminority	1,364	815	59.7%	73	5.3%	830	60.9%	44	3.2%

Table 6-12
Weekday Combined Transit Coverage within the Bus and Rapid Transit Service Area

Area Classification	Total Street-Miles	Transit Coverage – All Modes	
		Street Miles	Percent of Total
Minority	2,014	1,520	75.5%
Nonminority	1,364	836	61.3%
Ratio of minority to nonminority	—	—	1.23
Disparate impact threshold	—	—	> 0.80
Result of disparate impact analysis	—	—	NDI

NDI = no disparate impact

As shown in Table 6-14, for Saturday service, and for high-density census tracts within the bus and rapid transit service area, 71.8 percent of street-miles in minority areas met the Transit Coverage guidelines, while 53.2 percent of street-miles in nonminority areas met the Transit Coverage guidelines. Since the transit coverage in minority areas exceeds that in nonminority areas, there is no disparate impact on minority populations.

Table 6-13
Saturday Transit Coverage within the Bus and Rapid Transit Service Area by Mode

Area Classification	Total Street Miles	Bus Market		Subway Market		Bus + Subway Market		Commuter Rail Market	
		Street Miles	Percent of Total	Street Miles	Percent of Total	Street Miles	Percent of Total	Street Miles	Percent of Total
Minority	2,014	1,421	70.5%	155	7.7%	1,445	71.7%	33	1.6%
Nonminority	1,364	697	51.1%	73	5.3%	717	52.5%	35	2.6%

Table 6-14
Saturday Combined Transit Coverage within the Bus and Rapid Transit Service Area

Area Classification	Total Street-Miles	Transit Coverage – All Modes	
		Street-Miles	Percent of Total
Minority	2,014	1,447	71.8%
Nonminority	1,364	726	53.2%
Ratio of minority to nonminority	—	—	1.35
Disparate impact threshold	—	—	> 0.80
Result of disparate impact analysis	—	—	NDI

NDI = no disparate impact

As shown in Table 6-16, for Sunday service, and for high-density census tracts within the bus and rapid transit service area, 83.8 percent of street-miles in minority areas met the Transit Coverage guideline, while 70.3 percent of street-miles in nonminority areas met the Transit Coverage guideline. Since the transit coverage in minority areas exceeds that in nonminority areas, there is no disparate impact on minority populations.

Table 6-15
Sunday Transit Coverage within the Bus and Rapid Transit Service Area by Mode

Area Classification	Total Street Miles	Bus Market		Subway Market		Bus + Subway Market		Commuter Rail Market	
		Street Miles	Percent of Total	Street Miles	Percent of Total	Street Miles	Percent of Total	Street Miles	Percent of Total
Minority	2,014	1,643	81.6%	416	20.6%	1,667	82.8%	143	7.1%
Nonminority	1,364	897	65.8%	182	13.3%	929	68.1%	132	9.6%

Table 6-16
Sunday Combined Transit Coverage within the Bus and Rapid Transit Service Area

Area Classification	Total Street-Miles	Transit Coverage – All Modes	
		Street Miles	Percent of Total
Minority	2,014	1,688	83.8%
Nonminority	1,364	959	70.3%
Ratio of minority to nonminority	—	—	1.19
Disparate impact threshold	—	—	> 0.80
Result of disparate impact analysis	—	—	NDI

NDI = no disparate impact

Transit coverage on weekdays, Saturdays, and Sundays is shown in Figures 6-5 (a and b), 6-6 (a and b), and 6-7 (a and b), respectively. For each category of service day there is one version (a) of each figure which displays the transit coverage for the bus and rapid transit service area, and a second, more detailed, version (b), which magnifies the area where the majority of MBTA transit services are located. Lack of transit coverage in some high-density MBTA service area communities is generally due to operational constraints imposed by street configurations or other physical barriers. Although some high-density nonminority census tracts, such as all of Winthrop and part of Medford, as well as one minority census tract in Milton, appear on

the map not to have access to local transit services, these areas are provided with coverage through private contract carriers that are subsidized by the MBTA. Because these routes are not coded in the analysis, the coverage numbers in Tables 6-12, 6 14, and 6-16 appear slightly lower than they actually are, but do not significantly impact the results of the disparate impact analysis.

6.5 Distribution of Transit Amenities

6.5.1 Bus Shelter Monitoring

For the purpose of monitoring Title VI compliance, the Operations and Service Development Department is responsible for the level-of-service assessment of bus shelters. This assessment is completed on an annual basis to evaluate whether the distribution of bus shelters and associated amenities in minority areas are commensurate with the distribution of bus shelters and associated amenities in nonminority areas.

Bus Shelter Location

Operations and Service Development maintains records on the location of existing bus shelters and tracks the installation of new ones, including those that are installed by the MBTA, JCDecaux (formerly Wall USA), and Cemusa. Both JCDecaux and Cemusa are private companies that install bus shelters that they purchase and maintain using revenues earned from the sale of advertising space on the shelters. JCDecaux shelters are located exclusively in the city of Boston, and Cemusa shelters are located in a number of municipalities other than Boston that are within the MBTA service area. MBTA-owned shelters are sometimes installed by the Authority at bus stops where advertising is not viable. As shown in Table 6-17, the percentage of minority stops with shelters (9.6 percent) is higher than the percentage of nonminority stops with shelters (3.8 percent) for all bus stops within the MBTA service area. The ratio of the percentage of minority stops to the percentage of nonminority stops with shelters is 2.54. Since the percentage of minority stops with shelters is higher than the percentage of nonminority stops with shelters, there is no disparate impact on minority populations. Figure 6-8a displays the distribution of all bus shelters within the entire service area, and Figure 6-8b displays the distribution of all shelters within an area magnified to show the area where the majority of MBTA transit services are located.

Table 6-17
Bus Shelter Placement: All Bus Stops

Stop Classification	Total Stops	Stops with Shelters	Percent of Stops with Shelters
Systemwide	7,876	535	6.8%
Minority	4,062	391	9.6%
Nonminority	3,805	144	3.8%
Ratio of minority to nonminority	—	—	2.54
Disparate impact threshold	—	—	> 0.80
Result of disparate impact analysis	—	—	NDI

NDI = no disparate impact

Under the MBTA's shelter placement policy, any bus stop with more than 60 average daily boardings that does not have a shelter is eligible for placement of a new shelter. CTPS analyzed data for shelters located at stops that met this threshold. As seen in Table 6-18, the percentage of minority stops with shelters (28.8 percent) is higher than the percentage of nonminority stops with shelters (20.3 percent) for bus stops with more than 60 average daily boardings. The ratio of the percentage of minority stops with shelters to the percentage of nonminority stops with shelters is 1.42. Since the percentage of minority stops with shelters is higher than the percentage of nonminority stops with shelters, there is no disparate impact on minority populations. Figure 6-9a displays the distribution of all bus shelters within the MBTA service area that have more than 60 average daily boardings and bus shelters, and Figure 6-9b displays the distribution of all bus shelters within an area magnified to show the area where the majority of MBTA transit services are located that have more than 60 average daily boardings and bus shelters.

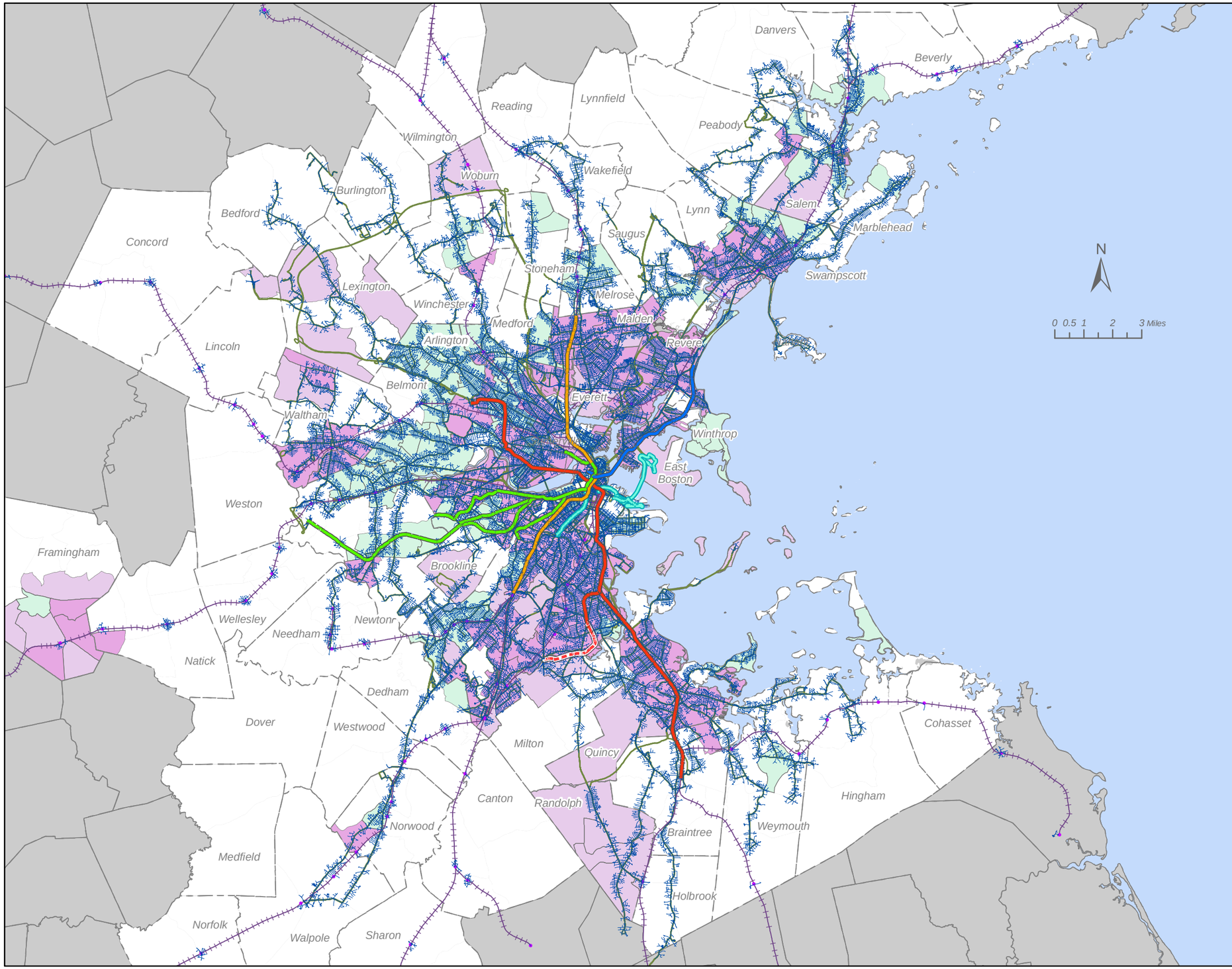


FIGURE 6-5a
MBTA Title VI Report

Weekday Transit Coverage: Bus and Rapid Transit Service Area*

Transit Coverage - Weekday
Street within 1/4 mile of MBTA stop or station

MBTA Transit
- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line
- Commuter rail
- Commuter rail station
- MBTA bus route

Minority Status/Population Density
("High" - more than 5,000 persons per sq. mi.)
- Minority tract; low density
- Minority tract; high density
- Not minority; low density
- Not minority; high density
- Town not within MBTA service area

NOTE:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

*See Figure 6-5b for detailed map.

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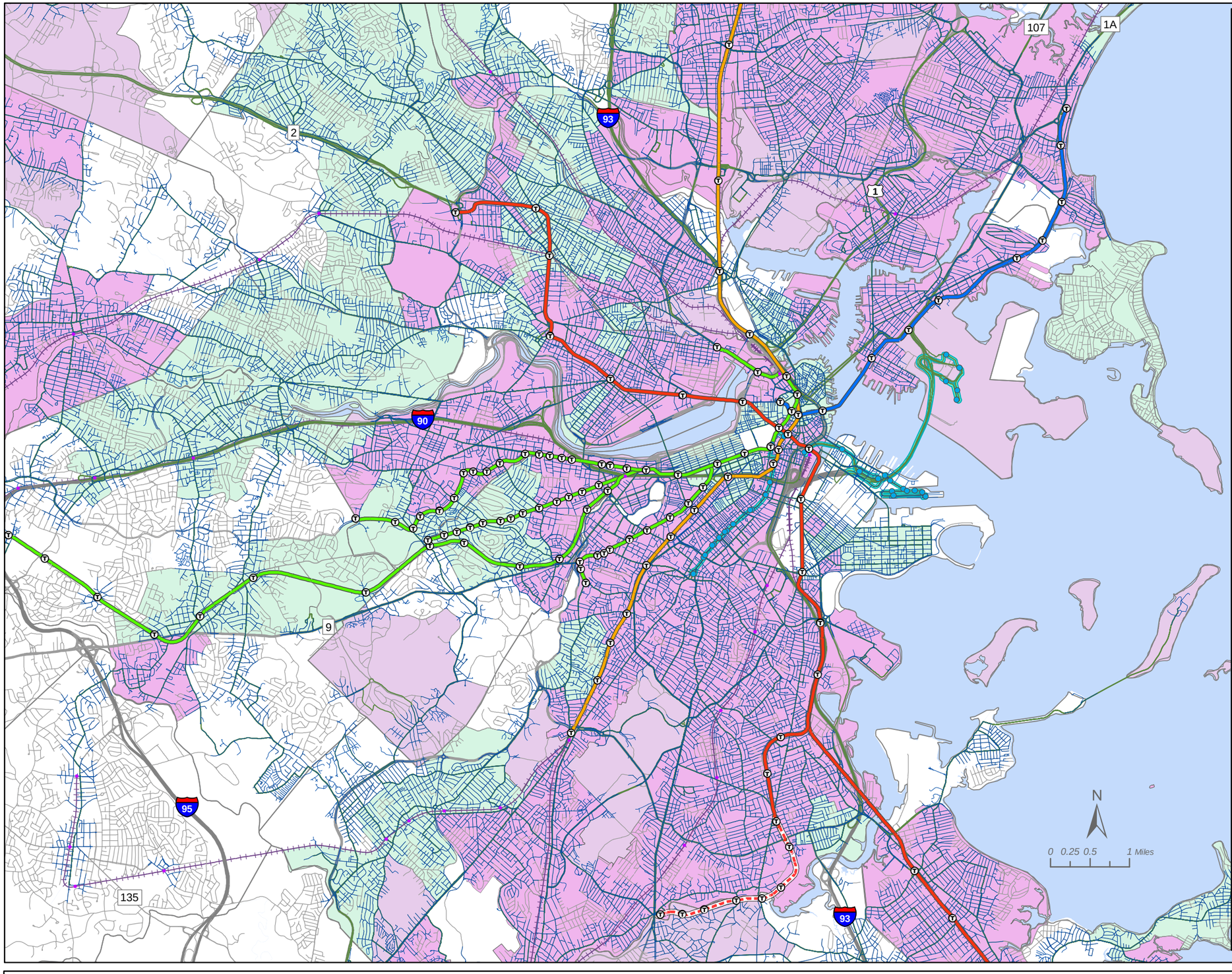
FIGURE 6-5b
MBTA Title VI Report

Weekday Transit Coverage: Detailed Map



MBTA Transit
- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line

Transit Coverage - Weekday
- Street within 1/4 mile of MBTA stop or station
- MBTA bus route
- Silver Line
- Commuter rail

Minority Status/Population Density
("High" - more than 5,000 persons per sq. mi.)
- Minority tract; low density
- Minority tract; high density
- Not minority; low density
- Not minority; high density

NOTE:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

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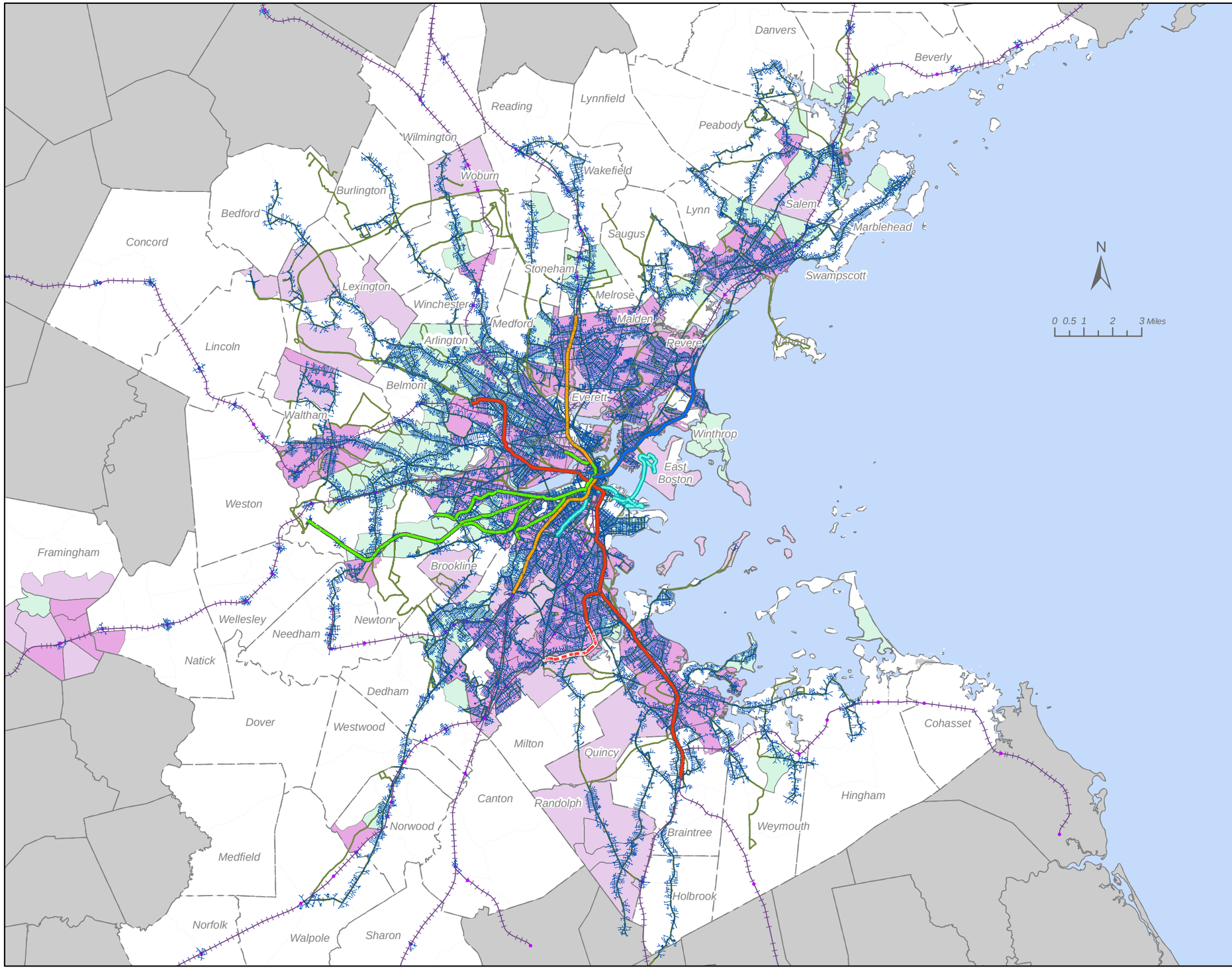

FIGURE 6-6a
MBTA Title VI Report

Saturday Transit Coverage: Bus and Rapid Transit Service Area*

Transit Coverage - Saturday
- Street within 1/4 mile of MBTA stop or station

MBTA Transit
- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line
- Commuter rail
- Commuter rail station
- MBTA bus route

Minority Status/Population Density
("High" - more than 5,000 persons per sq. mi.)
- Minority tract; low density
- Minority tract; high density
- Not minority; low density
- Not minority; high density
- Town not within MBTA service area

NOTE:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

*See Figure 6-6b for detailed map.

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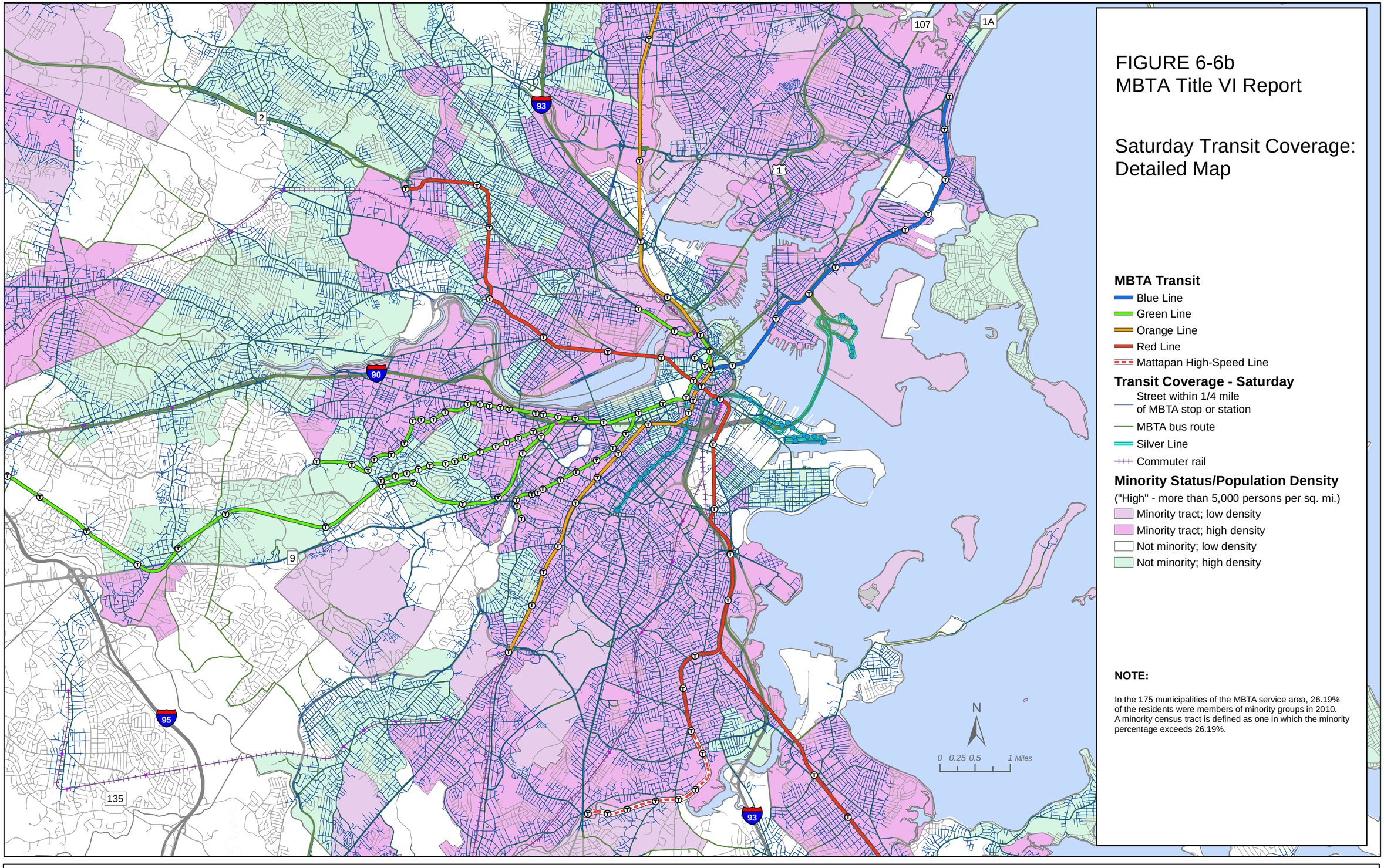

FIGURE 6-6b
MBTA Title VI Report

Saturday Transit Coverage:
Detailed Map

MBTA Transit

- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line

Transit Coverage - Saturday

- Street within 1/4 mile of MBTA stop or station
- MBTA bus route
- Silver Line
- Commuter rail

Minority Status/Population Density

("High" - more than 5,000 persons per sq. mi.)

- Minority tract; low density
- Minority tract; high density
- Not minority; low density
- Not minority; high density

NOTE:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

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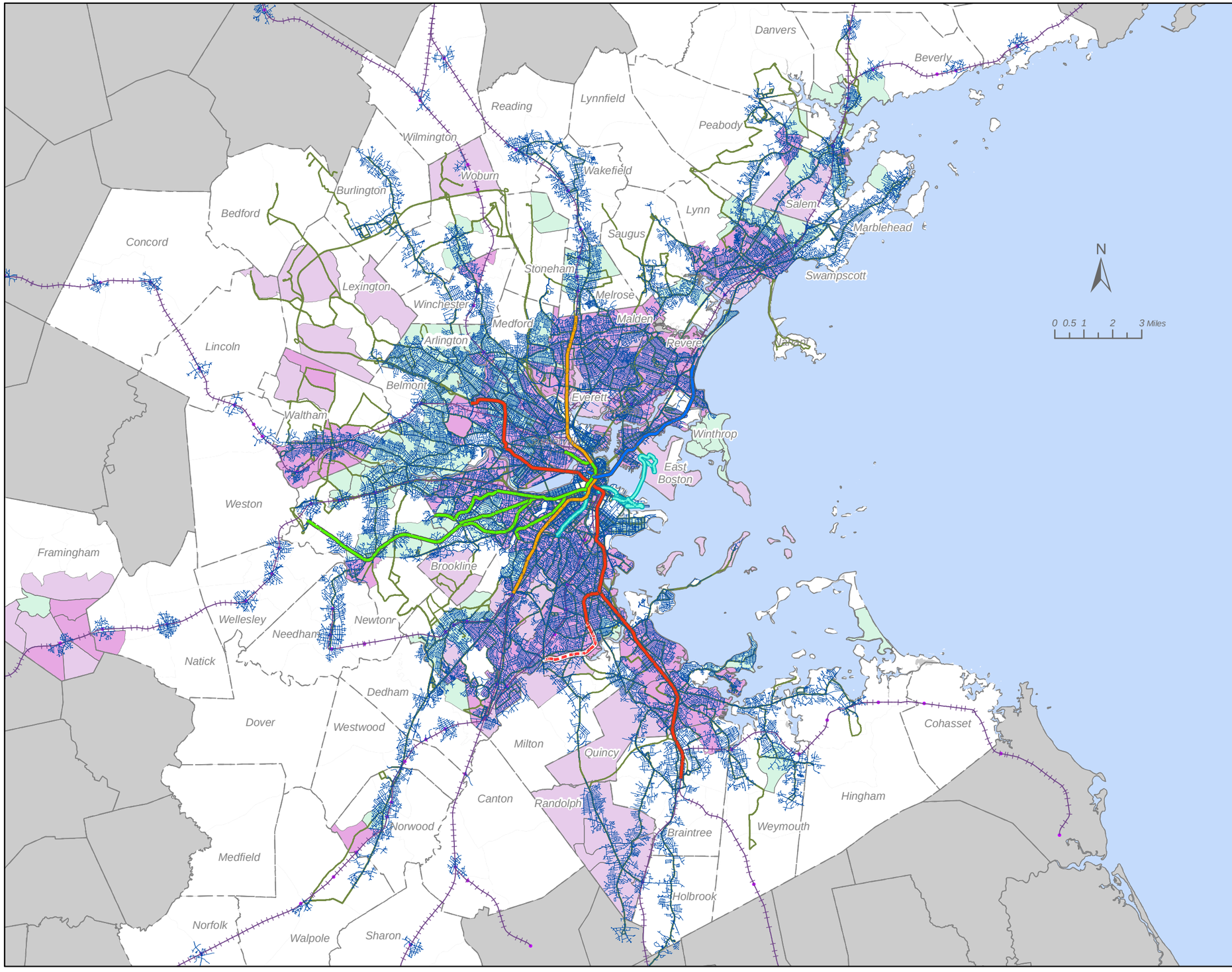

FIGURE 6-7a
MBTA Title VI Report

Sunday Transit Coverage: Bus and Rapid Transit Service Area*

Transit Coverage - Sunday
- Street within 1/2 mile of MBTA stop or station

MBTA Transit
- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line
- Commuter rail
- Commuter rail station
- MBTA bus route

Minority Status/Population Density
("High" - more than 5,000 persons per sq. mi.)
- Minority tract; low density
- Minority tract; high density
- Not minority; low density
- Not minority; high density
- Town not within MBTA service area

NOTE:
In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

*See Figure 6-7b for detailed map.

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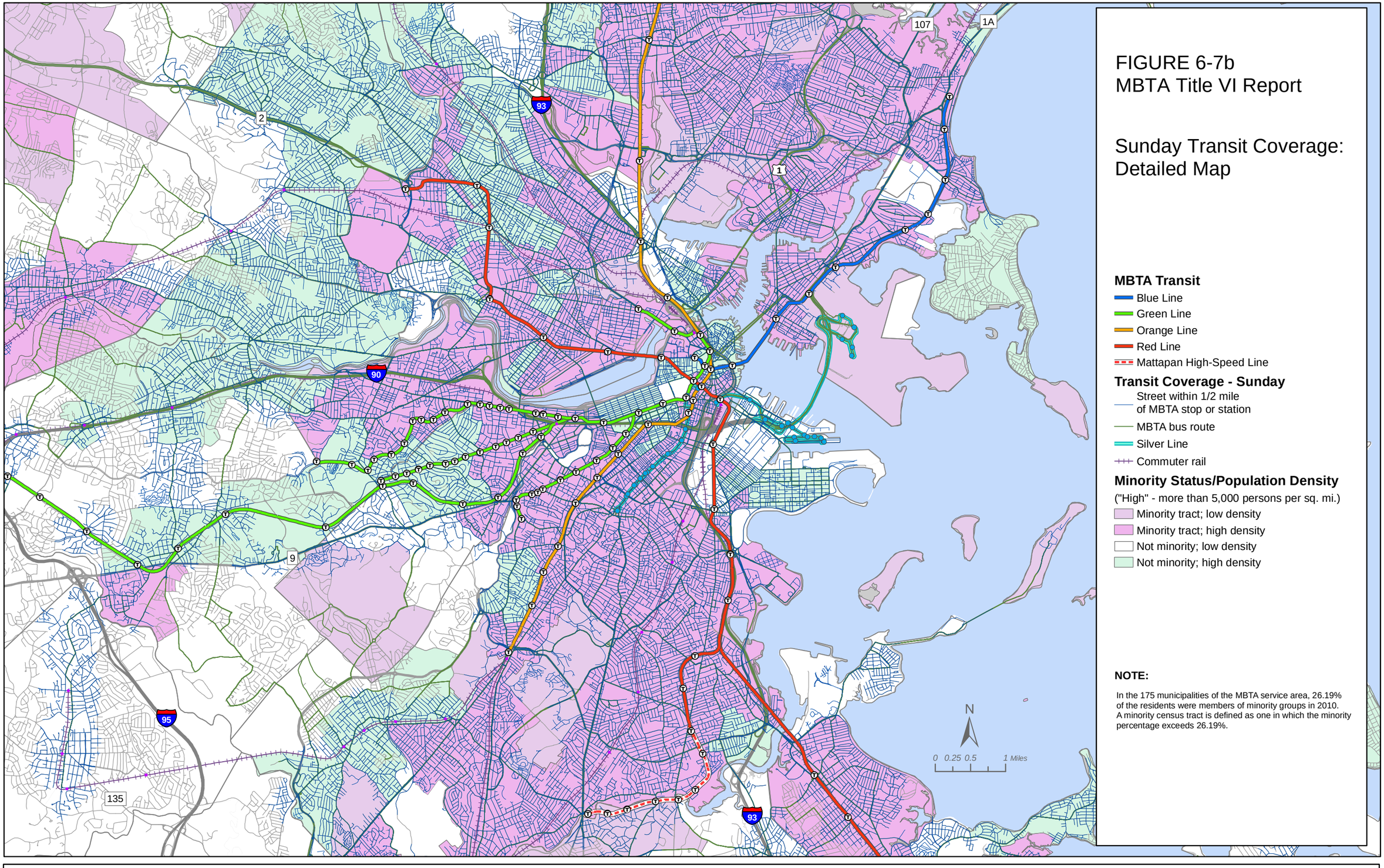

FIGURE 6-7b
MBTA Title VI Report

Sunday Transit Coverage:
Detailed Map

MBTA Transit
- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line

Transit Coverage - Sunday
- Street within 1/2 mile of MBTA stop or station
- MBTA bus route
- Silver Line
- Commuter rail

Minority Status/Population Density
("High" - more than 5,000 persons per sq. mi.)
- Minority tract; low density
- Minority tract; high density
- Not minority; low density
- Not minority; high density

NOTE:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

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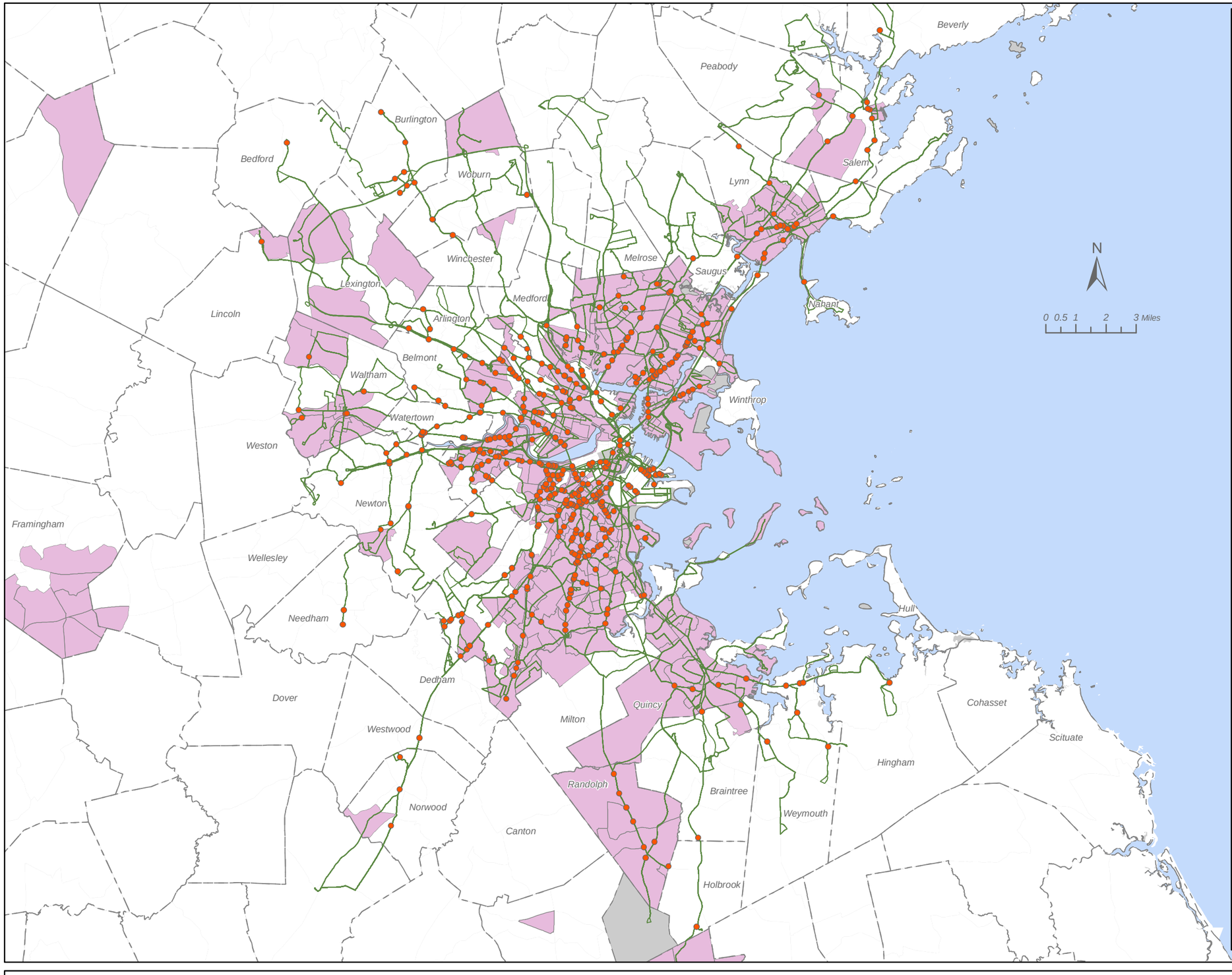

FIGURE 6-8a
MBTA Title VI Report

Bus Shelter Placement:
All Shelters*

MBTA Transit

- MBTA bus shelter
- MBTA bus route

Minority Status

- Minority tract
- Not minority
- Town not within MBTA service area

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The minority classification of each MBTA bus stop is determined by the status of the census tract in which it resides.

*See Figure 6-8b for detailed map.

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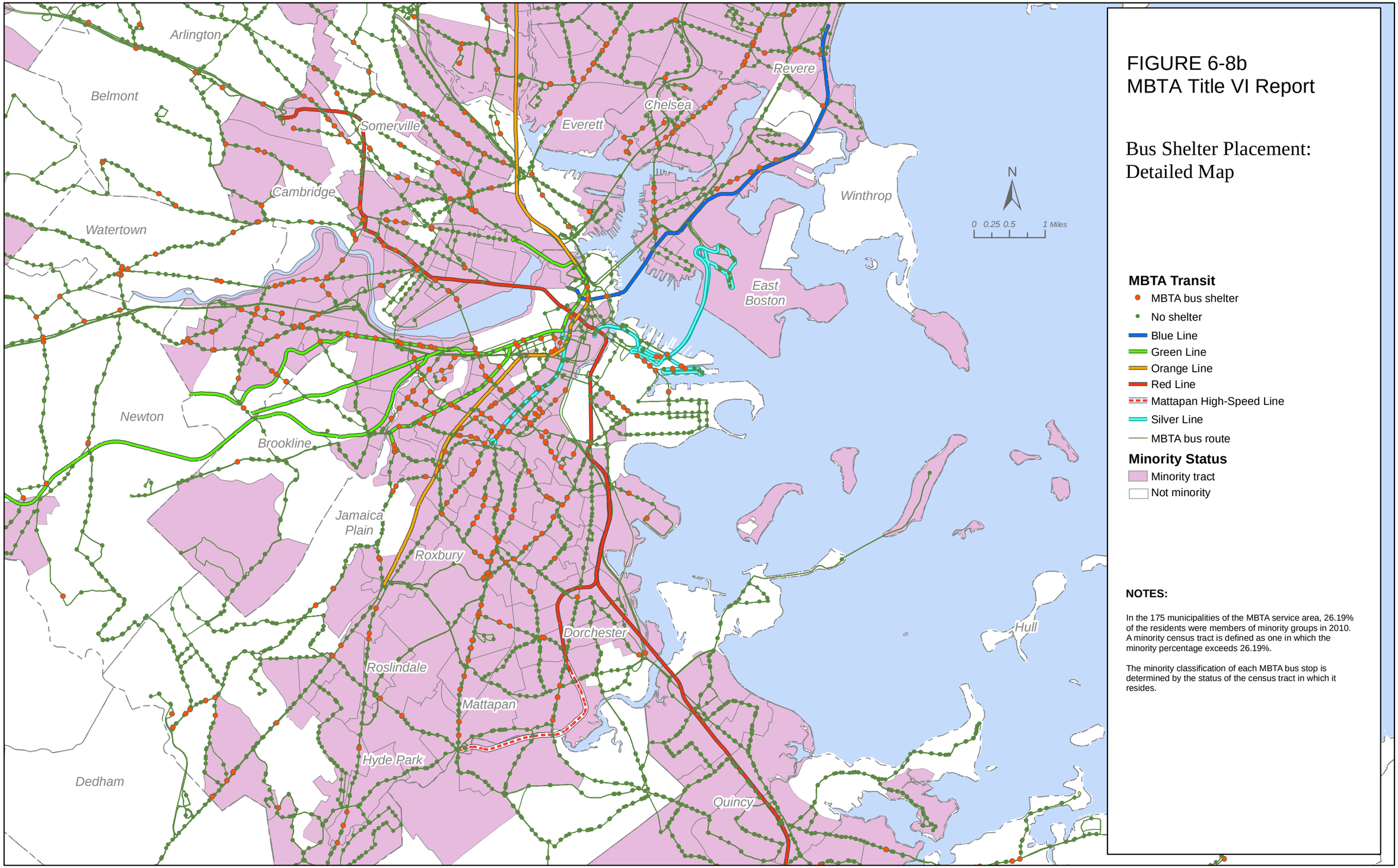

FIGURE 6-8b
MBTA Title VI Report

Bus Shelter Placement:
Detailed Map

MBTA Transit

- MBTA bus shelter
- No shelter
- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line
- MBTA bus route

Minority Status

- Minority tract
- Not minority

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The minority classification of each MBTA bus stop is determined by the status of the census tract in which it resides.

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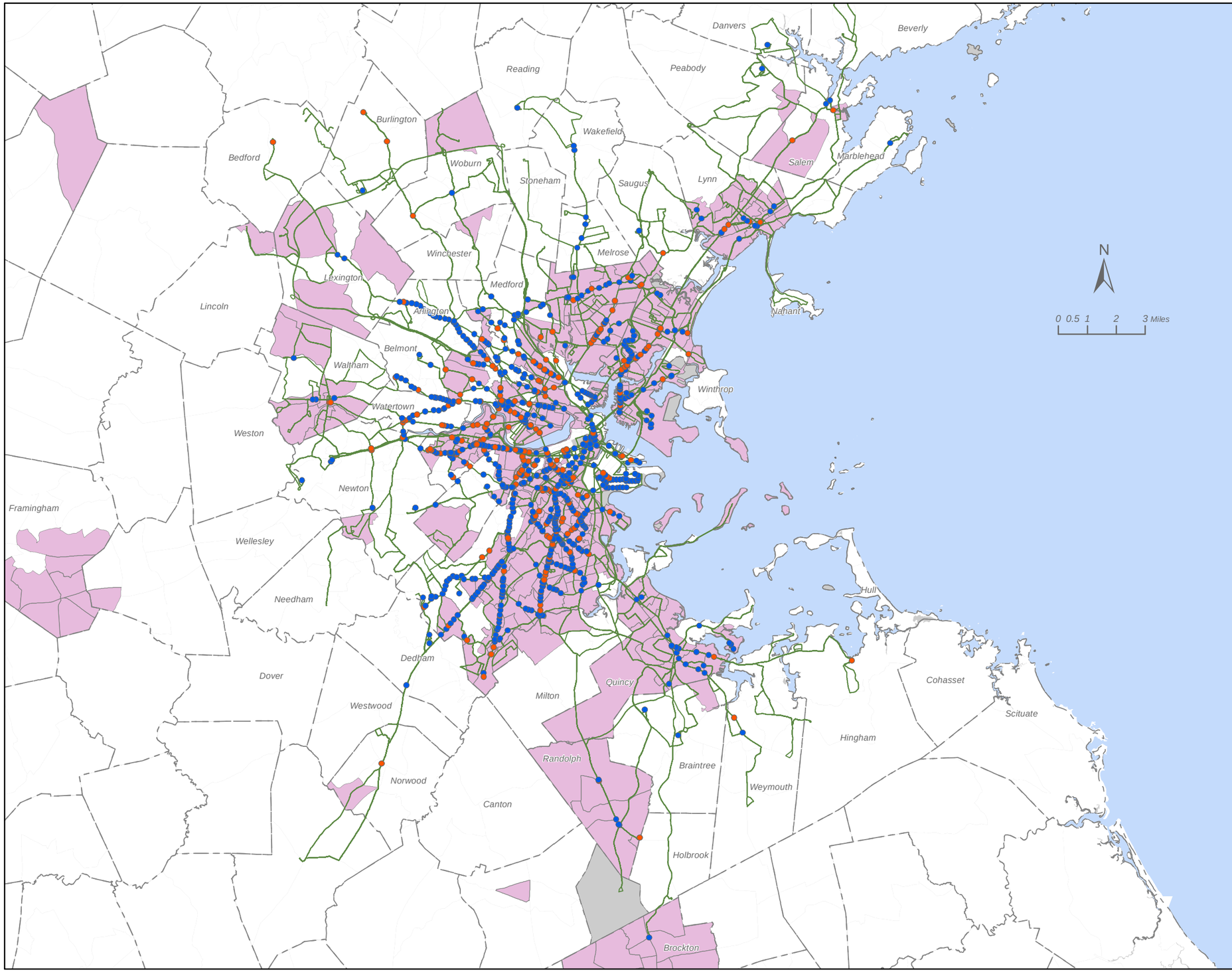

FIGURE 6-9a
MBTA Title VI Report

Bus Shelter Placement:
Stops with More Than
60 Average Daily Boardings*

Bus Stops with >60 Avg. Daily Boardings
- MBTA bus shelter
- No shelter

MBTA Transit
- MBTA bus route

Minority Status
- Minority tract
- Not minority
- Town not within MBTA service area

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The minority classification of each MBTA bus stop is determined by the status of the census tract in which it resides.

*See Figure 6-9b for detailed map.

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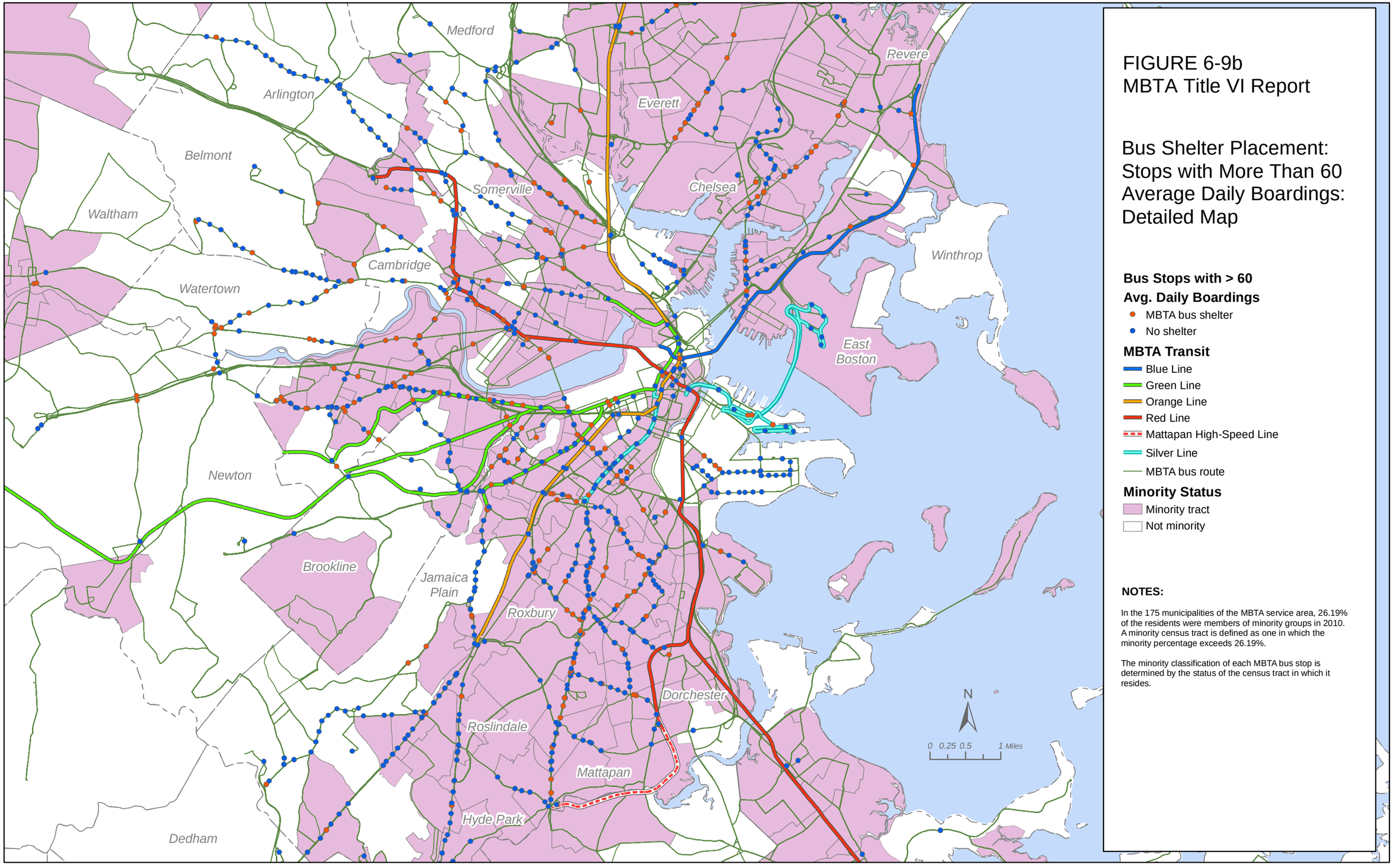

FIGURE 6-9b
MBTA Title VI Report

Bus Shelter Placement: Stops with More Than 60 Average Daily Boardings: Detailed Map

Bus Stops with > 60 Avg. Daily Boardings
- MBTA bus shelter
- No shelter

MBTA Transit
- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line
- MBTA bus route

Minority Status
- Minority tract
- Not minority

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The minority classification of each MBTA bus stop is determined by the status of the census tract in which it resides.

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Table 6-18
Bus Shelter Placement: Bus Stops with More than 60 Average Daily Boardings

Stop Classification	Total Stops	Stops with Shelters	Percent of Stops with Shelters
Systemwide	1,064	282	26.5%
Minority	781	225	28.8%
Nonminority	281	57	20.3%
Ratio of minority to nonminority	—	—	1.42
Disparate impact threshold	—	—	> 0.80
Result of disparate impact analysis	—	—	NDI

NDI = no disparate impact

Bus Shelter Amenities

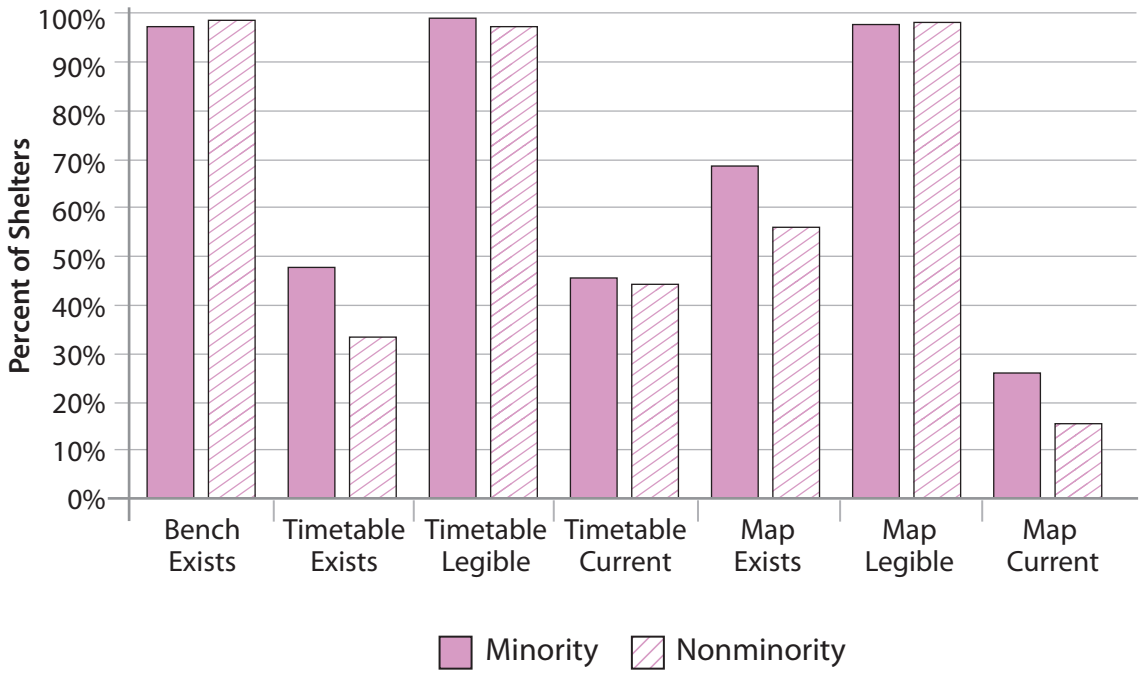
An additional metric for analyzing bus shelter condition is the percentage of shelters with certain attributes—specifically, whether the following amenities are present at the shelter location: a bench, a timetable, and a map; and whether the map and timetable are legible and current. CTPS staff collected data for each of these metrics; the results are presented in Table 6-19 and Figure 6-10.

Table 6-19
Bus Shelter Amenities

Shelter Classification	Number of Shelters	Bench Exists	Timetable			Map		
			Exists	Legible	Current	Exists	Legible	Current
Minority	314	97.8%	47.8%	99.3%	46.0%	69.1%	98.6%	26.3%
Nonminority	226	98.7%	33.6%	97.4%	44.7%	56.2%	98.4%	15.7%
Ratio of minority to nonminority	—	0.99	1.42	1.02	1.03	1.23	1.00	1.68
Disparate impact threshold	—	> 0.80	> 0.80	> 0.80	> 0.80	> 0.80	> 0.80	> 0.80
Result of disparate impact analysis	—	NDI	NDI	NDI	NDI	NDI	NDI	NDI

NDI = no disparate impact

Figure 6-10
Bus Shelter Amenities



There is little difference between minority and nonminority areas in the percentage of shelters that have benches. Minority areas had a slightly lower percentage of bus shelters with benches (97.8 percent) than did nonminority areas (98.7 percent). However, the ratio of the percentage of shelters in minority areas with benches to the percentage of shelters in nonminority areas with benches (0.99) indicates that there is no disparate impact on minority populations.

A higher percentage of the shelters in minority areas had timetables than those in nonminority areas, and a higher percentage of timetables in minority areas were both legible and current than those in nonminority areas. This indicates that for each of these amenities there are no disparate impacts on minority populations.

A higher percentage of the shelters in minority areas had maps than those in nonminority areas, and a higher percentage of maps in minority areas were both legible and current than those in nonminority areas. This indicates that for each of these amenities there are no disparate impacts on minority populations.

The MBTA will continue to implement its procedures to ensure that there are signs, benches, and current and legible timetables and maps at shelters systemwide, giving special attention to shelters located in minority areas.

Bus Shelter Conditions

In addition to monitoring the locations of bus shelters and their associated amenities for the purpose of Title VI compliance, the MBTA also monitors the condition of bus shelters.

JCDecaux and Cemusa inspect and clean their shelters twice a week and make repairs as needed. They both respond to complaints, which are submitted to the MBTA, and address each problem within 24 hours. The MBTA assumes no responsibility for these shelters or their maintenance. However, the MBTA is responsible for the condition of the shelters it owns. Inspection and maintenance of MBTA shelters occurs on a regular basis, and additional repairs and cleaning are performed by the MBTA in response to customer complaints and bus operator reports.

To ensure Title VI compliance for bus shelter conditions, CTPS inspects all shelters every two years, regardless of ownership. For this Title VI assessment, CTPS staff evaluated the following characteristics of shelters: roof condition, condition of side panels, presence of graffiti/vandalism, and shelter cleanliness. For every shelter, each characteristic was given a rating of 1 to 3, with 1 representing a “good” condition and 3 representing a “poor” condition. A composite score was then assigned to each shelter based on its worst rating. Thus, if a shelter received ratings of 1 for roof and side panel condition, 2 for graffiti/vandalism, and 3 for shelter cleanliness, it would receive a composite score of 3.

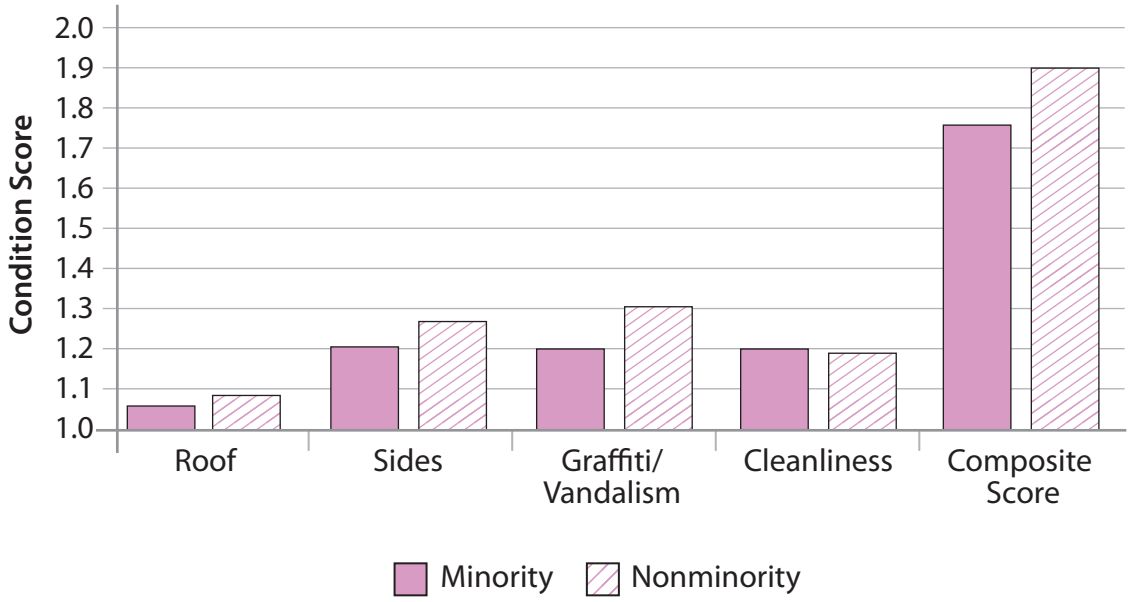
As indicated by the data in Table 6-20 and Figure 6-11, bus shelter conditions in minority areas are similar to those in nonminority areas. Therefore there is no disparate impact on minority populations.

Table 6-20
2012 Bus Shelter Conditions

Shelter Classification	Roof Condition	Sides Condition	Graffiti/ Vandalism	Shelter Cleanliness	Composite Score
Minority	1.06	1.21	1.20	1.20	1.76
Nonminority	1.09	1.27	1.31	1.19	1.90
Ratio of minority to nonminority	0.97	0.95	0.92	1.01	0.93
Disparate impact threshold	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20
Result of disparate impact analysis	NDI	NDI	NDI	NDI	NDI

NDI = no disparate impact

Figure 6-11
2012 Bus Shelter Conditions



6.5.2 Provision of Information

Neighborhood Maps and Bus Transfer Maps at Rapid Transit Stations

Through the neighborhood map program, maps that show bus connections are provided at rapid transit stations with bus service. Neighborhood maps are also generally installed at all new or renovated stations, regardless of the availability or lack of availability of bus service. Table 6-21, shows that 47.3 percent of minority rapid transit stations provide neighborhood maps, which is a higher percentage than the 33.8 percent of nonminority rapid transit stations that provide neighborhood maps. As a result, the ratio of the percentage of systemwide minority rapid transit stations with neighborhood maps to the percentage of systemwide nonminority rapid transit stations with neighborhood maps indicated that there is no disparate impact for this category.

Similarly, Table 6-21 shows that the percentage of minority rapid transit stations that provide bus transfer maps is 25.7 percent, which is a higher percentage than that of nonminority rapid transit stations, at 22.1 percent. As a result, the ratio of the percentage of minority rapid transit stations with bus transfer maps to the percentage of nonminority rapid transit stations with bus transfer maps indicates that there is no disparate impact on minority populations.

Table 6-21
Neighborhood Maps and Bus Transfer Maps at Rapid Transit Stations: All Stations

Station Classification	Number of Stations Systemwide	Number with Neighborhood Maps	Percent with Neighborhood Maps	Number with Bus Transfer Maps	Percent with Bus Transfer Maps
Minority	74	35	47.3%	19	25.7%
Nonminority	68	23	33.8%	15	22.1%
Ratio of minority to nonminority	—	—	1.40	—	1.16
Disparate impact threshold	—	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI

NDI = no disparate impact

Table 6-22, shows that the percentage of minority rapid transit stations with at least one bus connection that have neighborhood maps is 51.1 percent, which is slightly lower than the percentage of nonminority rapid transit stations with at least one bus connection that have neighborhood maps, at 52.6 percent. Although the percentage of rapid transit stations with at least one bus connection that have neighborhood maps is slightly lower for minority stations than for nonminority stations, the ratio of the percentage of minority to nonminority rapid transit stations with at least one bus connection that have neighborhood maps indicates that there is no disparate impact on minority populations.

Table 6-22 also shows that the percentage of minority rapid transit stations with at least one bus connection that have bus transfer maps is 42.2 percent, which is higher than the percentage of nonminority rapid transit stations with at least one bus connection that have bus transfer maps, at 39.5 percent. As a result, the ratio of the percentage of minority to nonminority rapid transit stations with at least one bus connection and bus transfer maps indicates that there is no disparate impact on minority populations.

Table 6-22
Neighborhood Maps and Bus Transfer Maps at Rapid Transit Stations: Stations with Bus Connection

Station Classification	Stations with at least one Bus Connection	Number with Neighborhood Maps	Percent with Neighborhood Maps	Number with Bus Transfer Maps	Percent with Bus Transfer Maps
Minority	45	23	51.1%	19	42.2%
Nonminority	38	20	52.6%	15	39.5%
Ratio of minority to nonminority	—	—	0.97	—	1.07
Disparate impact threshold	—	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI

NDI = no disparate impact

Figure 6-12 shows the availability of neighborhood maps and bus transfer maps at rapid transit stations.

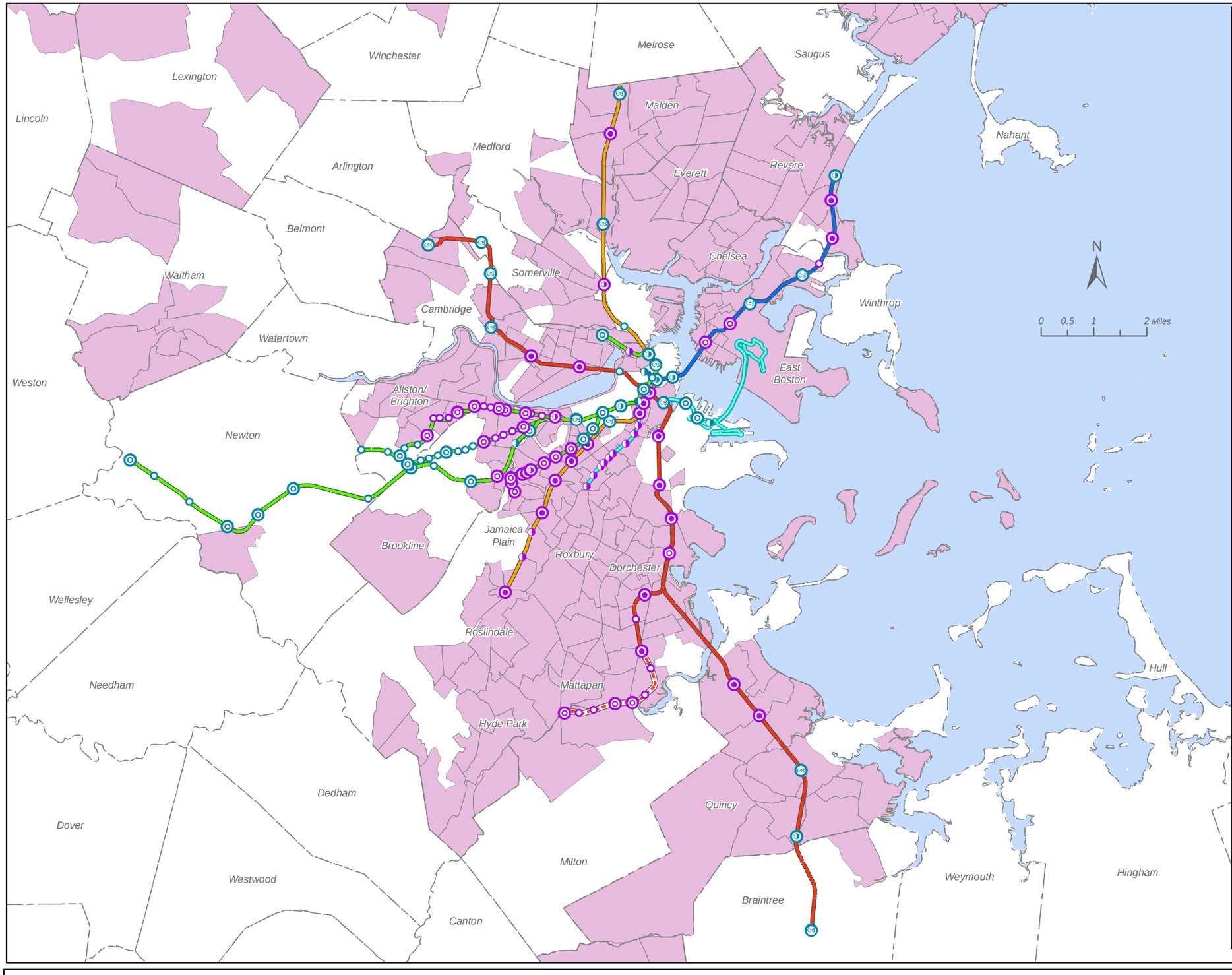


FIGURE 6-12
MBTA Title VI Report

Neighborhood Maps and Bus Transfer Maps at Rapid Transit Stations

Station Status: Bus Connections and Maps

Nonminority		*Minority*
○	No bus connection, no maps	○
◑	Neighborhood map	◑
◎	Bus connection, no maps	◎
◑	Bus connection, neighborhood map	◑
◉	Bus connection, bus transfer map, and neighborhood map	◉

MBTA Transit

- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line

Minority Status

- Minority tract
- Not minority

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The minority classification of MBTA rapid transit stations is dependent on how riders access the station. For stations where the majority of riders walk to the station from their home, the station is considered “local,” and minority status is determined through a demographic analysis of the surrounding area. For stations where the majority of the riders do not walk to the station from their home, the station is considered “non-local,” and minority status is determined by using demographic results from the most recent systemwide MBTA passenger survey. For a full description of this procedure, see the Minority and Low-Income Classification section of Chapter 6.

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Intelligent Transportation Systems (ITS): Variable Message Signs (VMS)

With the exception of the stations that are either under construction or were scheduled to be under construction at the time of this analysis, all rapid transit stations on the Red Line, Blue Line, and Orange Line had variable-message signs that alert customers to the approach and arrival of trains.

Currently, the type of signal system used on the Green Line cannot trigger a display of next-train information on VMS. However, signs showing public service information have been installed at stations in the Green Line central subway and on the D Branch. Upgrades to the signal system are currently underway in order to provide next-vehicle information by the end of 2014 at all Green Line stations where VMS already exists. Kenmore Station, a minority station, was the first to provide next-vehicle arrival information on the Green Line, and future implementation will be prioritized according to the ability to produce accurate countdowns.

Due to the lack of power and communication connections to stations on the B, C, and E branches of the Green Line, no VMS signs can be used at these stations in the near term.

In the bus network, only Forest Hills Station currently has VMS displays of next-bus arrival information, with plans for Dudley Station to receive next-bus signage as well. Both of these stations are classified as minority. The MBTA has identified eight potential additional locations for VMS within the bus network, each of which is pending an analysis of technical feasibility.

All of the commuter rail stations have VMS, with the exception of Mishawum, Silver Hill, and Hastings. Of these, only Mishawum is classified as a minority station.

6.5.3 Subway Rapid Transit Station Monitoring

To ensure Title VI compliance for subway rapid transit station amenity and condition reporting, CTPS collected data from August 2013 through September 2013 to evaluate subway rapid transit stations.

Subway Rapid Transit Station Amenities

For station amenities (including trash receptacles, recycling receptacles, seating fixtures, and maps) a simple tally was recorded at each station to indicate if these amenities were present.

Subway Rapid Transit Station Lobby Amenities

The results of the monitoring of amenities in subway rapid transit lobbies are shown in Tables 6-23 (a and b). The ratio of the percentage of minority rapid transit station lobbies with the monitored amenities to the percentage of nonminority rapid transit station lobbies with the monitored amenities (trash receptacles, seating fixtures, system maps, and line maps) indicates that there is no disparate impact on minority populations. However, the ratio of the percentage of minority rapid transit station lobbies with recycling receptacles to the percentage of nonminority rapid transit station lobbies with recycling receptacles indicates that there is a disparate impact on minority populations. The MBTA will take remedial action by placing additional recycling receptacles in minority subway rapid transit station lobbies.

Table 6-23a
Subway Rapid Transit Lobby Amenities

Classification	Subtotal	Trash Receptacles		Recycling Receptacles		Seating Fixtures	
		No.	Pct.	No.	Pct.	No.	Pct.
Minority	31	29	93.5%	11	35.5%	18	58.1%
Nonminority	31	24	77.4%	21	67.7%	9	29.0%
Ratio of minority to nonminority	—	—	1.21	—	0.52	—	2.00
Disparate impact threshold	—	—	> 0.80	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	DI	—	NDI

No. = the number of stations with amenity present
Pct. = percentage of stations with amenity present
NDI = no disparate impact
DI = disparate impact

Table 6-23b
Subway Rapid Transit Lobby Amenities

Classification	Subtotal	System Map		Line Map	
		No.	Pct.	No.	Pct.
Minority	31	27	87.1%	30	96.8%
Nonminority	31	27	87.1%	22	71.0%
Ratio of minority to nonminority	—	—	1.00	—	1.36
Disparate impact threshold	—	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI

No. = the number of stations with amenity present
Pct. = percentage of stations with amenity present
NDI = no disparate impact

Subway Rapid Transit Platform Amenities

The results of the monitoring of amenities at subway rapid transit station platforms are shown in Tables 6-24 (a and b). The ratio of the percentage of minority to nonminority subway rapid transit station platforms with amenities indicates that there is no disparate impact on minority populations.

Table 6-24a
Subway Rapid Transit Platform Amenities: Receptacles and Seating Fixtures

Classification	Subtotal	Trash Receptacles		Recycling Receptacles		Seating Fixtures	
		No.	Pct.	No.	Pct.	No.	Pct.
Minority	33	31	93.9%	31	93.9%	33	100.0%
Nonminority	35	34	97.1%	32	91.4%	35	100.0%
Ratio of minority to nonminority	—	—	0.97	—	1.03	—	1.00
Disparate impact threshold	—	—	> 0.80	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI	—	NDI

No. = the number of stations with amenity present
Pct. = percentage of stations with amenity present
NDI = no disparate impact

Table 6-24b
Subway Rapid Transit Platform Amenities: Receptacles and Seating Fixtures

Classification	Subtotal	System Map		Line Map	
		No.	Pct.	No.	Pct.
Minority	33	31	93.9%	33	100.0%
Nonminority	35	34	97.1%	32	91.4%
Ratio of minority to nonminority	—	—	0.97	—	1.09
Disparate impact threshold	—	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI

No. = the number of stations with amenity present
Pct. = percentage of stations with amenity present
NDI = no disparate impact

Subway Rapid Transit Station Conditions

MBTA subway rapid transit stations are inspected, cleaned, and maintained on a regular basis. For station conditions, each station component was given a score of "acceptable" or "deficient" based on an evaluation of a defined set of subcomponents; if any one of the subcomponents was found "deficient," the station component was classified as "deficient" as a whole. Table 6-25 lists each subway rapid transit station component that was monitored, along with the associated list of subcomponents.

Table 6-25
Subway Rapid Transit: Station Condition Monitoring Components

Component	Area Monitored	Subcomponent
Condition of structure	Lobby exterior Lobby interior Platform	Walls Windows Doors Roof
Condition of floor surface	Lobby interior Platform	Broken surface Uneven Wet
Stairwell	Lobby interior Platform	Surface Poor handrails Dark
Vandalism	Lobby exterior Lobby Interior Platform	Graffiti/stickers Vandalism
Cleanliness	Lobby exterior Lobby interior Platform	Litter Odor Cans full
Station name signage	Lobby exterior Platform	Obstructed Missing Poor condition
Station way-finding signage	Lobby interior Platform	Obstructed Missing Poor condition
Lighting	Lobby interior Platform	Bulbs out Dark
Tactile strips	Platform	Not present Substandard

Subway Rapid Transit Station Exterior Lobby Conditions

The results of monitoring the condition of subway rapid transit station exterior lobby components are shown in Table 6-26. The ratio of the percentage of minority subway rapid transit station exterior lobbies with acceptable conditions to the percentage of nonminority subway rapid transit station exterior lobbies with acceptable conditions indicates that there is no disparate impact on minority populations.

Table 6-26
Subway Rapid Transit Stations: Exterior Lobby Conditions

Classification	Subtotal	Structure		Cleanliness		Vandalism		Name Signage	
		No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Minority	31	22	71.0%	27	87.1%	29	93.5%	28	90.3%
Nonminority	31	26	83.9%	27	87.1%	30	96.8%	26	83.9%
Ratio of minority to nonminority	—	—	0.85	—	1.00	—	0.97	—	1.08
Disparate impact threshold	—	—	> 0.80	—	> 0.80	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI	—	NDI	—	NDI

No. = number of stations where condition is acceptable
Pct. = percentage of stations where condition is acceptable
NDI = no disparate impact

Subway Rapid Transit Station Interior Lobby Conditions

The results of the monitoring of the condition of subway rapid transit station interior lobby components are shown in Tables 6-27 (a and b). The ratio of the percentage of minority subway rapid transit station interior lobbies with acceptable conditions (the structure, vandalism, cleanliness, way-finding signage, floor surface, and lighting components) to the percentage of nonminority subway rapid transit station interior lobbies with acceptable conditions indicates that there is no disparate impact on minority populations. However, the ratio of the percentage of minority subway rapid transit station interior lobbies with acceptable stairwells to the percentage of nonminority subway rapid transit station interior lobbies with acceptable stairwells indicates that there is a disparate impact on minority populations.

Table 6-27a
Subway Rapid Transit Interior Lobby Conditions

Classification	Subtotal	Structure		Vandalism		Cleanliness		Way-Finding Signage	
		No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Minority	31	20	64.5%	29	93.5%	29	93.5%	30	96.8%
Nonminority	31	22	71.0%	30	96.8%	28	90.3%	31	100.0%
Ratio of minority to nonminority	—	—	0.91	—	0.97	—	1.04	—	0.97
Disparate impact threshold	—	—	> 0.80	—	> 0.80	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI	—	NDI	—	NDI

No. = number of stations where condition is acceptable
Pct. = percentage of stations where condition is acceptable
NDI = no disparate impact

Table 6-27b
Subway Rapid Transit Interior Lobby Conditions

Classification	Subtotal	Floor Surface		Stairwell		Lighting	
		No.	Pct.	No.	Pct.	No.	Pct.
Minority	31	15	48.4%	11	35.5%	29	93.5%
Nonminority	31	11	35.5%	16	51.6%	29	93.5%
Ratio of minority to nonminority	—	—	1.36	—	0.69	—	1.00
Disparate impact threshold	—	—	> 0.80	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	DI	—	NDI

No. = number of stations where condition is acceptable
Pct. = percentage of stations where condition is acceptable
NDI = no disparate impact
DI = disparate impact

All stairwell deficiencies were related to the condition of the surface, and no stairwell deficiencies were related to the condition of the handrails or lighting within the stairwells. A majority of the stairwell surface concerns were related to the tactile strips located at the edge of the stairs having faded away over time. Other issues included surface cracking, surface warping, and standing water located on the steps and landings. The MBTA will take remedial action to address the issue of a higher percentage of stairwell deficiencies in minority rapid transit stations than in nonminority stations.

Subway Rapid Transit Platform Conditions

The results of monitoring the condition of subway rapid transit station platform components are shown in Tables 6-28 (a and b). The ratio of the percentage of minority subway rapid transit platforms with acceptable conditions to the percentage of nonminority subway rapid transit platforms with acceptable conditions indicates that there is no disparate impact on minority populations.

Table 6-28a
Subway Rapid Transit Platform Conditions

Classification	Subtotal	Structure		Vandalism		Cleanliness		Name Signage	
		No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Minority	33	17	51.5%	32	97.0%	28	84.8%	33	100.0%
Nonminority	35	21	60.0%	34	97.1%	34	97.1%	34	97.1%
Ratio of minority to nonminority	—	—	0.86	—	1.00	—	0.87	—	1.03
Disparate impact threshold	—	—	> 0.80	—	> 0.80	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI	—	NDI	—	NDI

No. = number of stations where condition is acceptable
Pct. = percentage of stations where condition is acceptable
NDI = no disparate impact

Table 6-28b
Subway Rapid Transit Platform Conditions

Classification	Subtotal	Way-finding Signage		Floor Surface		Tactile Strips		Stairwell		Lighting	
		No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Minority	33	32	97.0%	13	39.4%	26	78.8%	11	33.3%	24	72.7%
Nonminority	35	34	97.1%	12	34.3%	29	82.9%	9	25.7%	30	85.7%
Ratio of minority to nonminority	—	—	1.00	—	1.15	—	0.95	—	1.30	—	0.85
Disparate impact threshold	—	—	> 0.80	—	> 0.80	—	> 0.80	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI	—	NDI	—	NDI	—	NDI

No. = number of stations where condition is acceptable
Pct. = percentage of stations where condition is acceptable
NDI = no disparate impact

6.5.4 Surface Rapid Transit Station Monitoring

To ensure Title VI compliance for surface rapid transit station amenity and condition reporting, CTPS collected data from August 2013 through September 2013 to evaluate surface rapid transit stations.

Surface Rapid Transit Station Amenities

For station amenities (including trash receptacles, recycling receptacles, seating fixtures, and maps) a simple tally was recorded at each station to indicate if these amenities were present. The results of the monitoring of the placement of amenities at surface rapid transit stations are shown in Tables 6-29 (a and b). The ratio of the percentage of minority surface rapid transit stations with the monitored amenities (the distribution of trash receptacles, seating fixtures, system maps, and line maps) to the percentage of nonminority surface rapid transit stations with the monitored amenities indicates there is no disparate impact on minority populations. However, the ratio of the percentage of minority surface rapid transit stations with recycling receptacles to the percentage of nonminority surface rapid transit stations with recycling receptacles indicated that there is a disparate impact on minority populations. The MBTA will take remedial action by placing additional recycling receptacles at minority surface rapid transit stations.

Table 6-29a
Surface Rapid Transit Station Amenities

Classification	Subtotal	Trash Receptacles		Recycling Receptacles		Seating Fixtures	
		No.	Pct.	No.	Pct.	No.	Pct.
Minority	43	30	69.8%	6	14.0%	35	81.4%
Nonminority	27	22	81.5%	12	44.4%	23	85.2%
Ratio of minority to nonminority	—	—	0.86	—	0.31	—	0.96
Disparate impact threshold	—	—	> 0.80	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	DI	—	NDI

No. = number of stations with amenity present
Pct. = percentage of stations with amenity present
NDI = no disparate impact
DI = disparate impact

Table 6-29b
Surface Rapid Transit Station Amenities

Classification	Subtotal	System Map		Line Map	
		No.	Pct.	No.	Pct.
Minority	43	36	83.7%	18	41.9%
Nonminority	27	18	66.7%	4	14.8%
Ratio of minority to nonminority	—	—	1.26	—	2.83
Disparate impact threshold	—	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI

No. = number of stations with amenity present
Pct. = percentage of stations with amenity present
NDI = no disparate impact

Surface Rapid Transit Station Conditions

As it does for subway rapid transit stations, the MBTA also inspects, cleans, and maintains surface rapid transit stations on a regular basis. For station conditions, each station component was given a score of "acceptable" or "deficient" based on an evaluation of a defined set of subcomponents; if any one of the subcomponents was found "deficient," the station component was classified as "deficient" as a whole. Table 6-30 lists each surface rapid transit station component that was monitored, along with the associated list of subcomponents.

Table 6-30
Surface Rapid Transit: Station Condition Monitoring Components

Component	Area Monitored	Subcomponent
Condition of walkway to stop	Pedestrian access area	Broken surface Uneven Dark
Pedestrian Control	Pedestrian access area	No crosswalk Poor condition
Condition of structure	Shelter	Walls Windows Roof None
Vandalism	Shelter	Graffiti/Stickers Vandalism
Cleanliness	Shelter	Litter Odor Cans full
Condition of platform surface	Platform	Broken surface Uneven
Station name signage	Platform	Obstructed Missing Poor condition
Tactile strips	Platform	Not present Substandard

Surface Rapid Transit Shelter Conditions

The results of the monitoring of the condition of surface rapid transit shelters are shown in Table 6-31. The ratio of the percentage of minority surface rapid transit shelters with acceptable conditions to the percentage of nonminority surface rapid transit shelters with acceptable conditions indicates that there is no disparate impact on minority populations.

Table 6-31
Surface Rapid Transit Shelter Conditions

Classification	Subtotal	Structure		Vandalism		Cleanliness	
		No.	Pct.	No.	Pct.	No.	Pct.
Minority	43	29	67.4%	40	93.0%	35	81.4%
Nonminority	27	15	55.6%	27	100.0%	26	96.3%
Ratio of minority to nonminority	—	—	1.21	—	0.93	—	0.85
Disparate impact threshold	—	—	> 0.80	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI	—	NDI

No. = number of stations where condition is acceptable
Pct. = percentage of stations where condition is acceptable
NDI = no disparate impact

Surface Rapid Transit Platform Conditions

The results of the monitoring of the condition of surface rapid transit platform components are shown in Tables 6-32 (a and b). The ratio of the percentage of minority surface rapid transit station platforms with acceptable conditions to the percentage of nonminority surface rapid transit station platforms with acceptable conditions indicates that there is no disparate impact on minority populations.

Table 6-32a
Surface Rapid Transit Platform Conditions

Classification	Subtotal	Platform Surface		Name Signage		Tactile Strips	
		No.	Pct.	No.	Pct.	No.	Pct.
Minority	43	29	67.4%	26	60.5%	11	25.6%
Nonminority	27	13	48.1%	17	63.0%	5	18.5%
Ratio of minority to nonminority	—	—	1.40	—	0.96	—	1.38
Disparate impact threshold	—	—	> 0.80	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI	—	NDI

No. = number of stations where condition is acceptable
Pct. = percentage of stations where condition is acceptable
NDI = no disparate impact

Table 6-32b
Surface Rapid Transit Platform Conditions

Classification	Subtotal	Walkway		Pedestrian Control	
		No.	Pct.	No.	Pct.
Minority	43	36	83.7%	33	76.7%
Nonminority	27	20	74.1%	21	77.8%
Ratio of minority to nonminority	—	—	1.13	—	0.99
Disparate impact threshold	—	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI

No. = number of stations where condition is acceptable
Pct. = percentage of stations where condition is acceptable
NDI = no disparate impact

6.5.5 Commuter Rail Station Monitoring

To ensure Title VI compliance for commuter rail station amenity and condition reporting, CTPS collected data from September 2013 – October 2013 to evaluate commuter rail stations.

Commuter Rail Station Amenities

For station amenities (including trash receptacles, recycling receptacles, seating fixtures, maps, and schedules), a simple tally was recorded at each station to indicate if these amenities were present. The monitoring results for the placement of amenities at commuter rail stations are shown in Tables 6-33 (a and b). The ratio of the percentage of minority commuter rail stations with amenities to the percentage of nonminority commuter rail stations with amenities indicates that there is no disparate impact on minority populations.

Table 6-33a
Commuter Rail Station Amenities

Classification	Subtotal	Trash Receptacles		Recycling Receptacles		Seating Fixtures	
		No.	Pct.	No.	Pct.	No.	Pct.
Minority	33	32	97.0%	7	21.2%	33	100.0%
Nonminority	101	99	98.0%	5	5.0%	98	97.0%
Ratio of minority to nonminority	—	—	0.99	—	4.28	—	1.03
Disparate impact threshold	—	—	> 0.80	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI	—	NDI

No. = number of stations with amenity present
Pct. = percentage of stations with amenity present
NDI = no disparate impact

Table 6-33b
Commuter Rail Station Amenities

Classification	Subtotal	System Map		Schedule	
		No.	Pct.	No.	Pct.
Minority	33	27	81.8%	26	78.8%
Nonminority	101	65	64.4%	73	72.3%
Ratio of minority to nonminority	—	—	1.27	—	1.09
Disparate impact threshold	—	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI

No. = number of stations with amenity present
Pct. = percentage of stations with amenity present
NDI = no disparate impact

Commuter Rail Station Conditions

As it does for rapid transit stations, the MBTA inspects, cleans, and maintains commuter rail stations on a regular basis. For station conditions, each station component was given a score of “acceptable” or “deficient” based on an evaluation of a defined set of subcomponents; if any one of the subcomponents was found “deficient,” the station component was classified as “deficient” as a whole. Table 6-34 lists each surface rapid transit station component that was monitored, along with the associated list of subcomponents.

Table 6-34
Commuter Rail: Station Condition Monitoring Components

Component	Area Monitored	Subcomponent
Condition of structure	Shelter Platform	Walls Roof Windows (shelter only) Doors (platform only)
Vandalism	Shelter Platform	Graffiti/Stickers Vandalism
Cleanliness	Shelter Platform	Litter Odor Cans full
Station name signage	Shelter Platform	Obstructed Missing Poor condition
Condition of floor surface	Platform	Broken surface Uneven Wet
Stairwell	Platform	Surface Poor handrails Dark
Station wayfinding signage	Platform	Obstructed Missing Poor condition
Tactile Strips	Platform	Not present Substandard
Lighting	Platform	Bulbs out Dark

Commuter Rail Shelter Conditions

The results of the monitoring of the condition of commuter rail shelters are shown in Table 6-35. The ratio of the percentage of minority commuter rail shelters with acceptable conditions to the percentage of nonminority commuter rail shelters with acceptable conditions indicates that there is no disparate impact on minority populations.

Table 6-35
Commuter Rail Shelter Conditions

Classification	Subtotal	Structure		Vandalism		Cleanliness		Station Name Signage	
		No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Minority	30	27	90.0%	27	90.0%	26	86.7%	27	90.0%
Nonminority	75	64	85.3%	67	89.3%	62	82.7%	61	81.3%
Ratio of minority to nonminority	—	—	1.05	—	1.01	—	1.05	—	1.11
Disparate impact threshold	—	—	> 0.80	—	> 0.80	—	> 0.80	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	NDI	—	NDI	—	NDI

No. = number of stations where condition is acceptable
Pct. = percentage of stations where condition is acceptable
NDI = no disparate impact

Commuter Rail Platform Conditions

The results of the monitoring of the condition of commuter rail platform components are shown in Tables 6-36 (a, b, and c). The ratio of the percentage of minority commuter rail platforms with acceptable conditions to the percentage of nonminority commuter rail platforms with acceptable conditions indicates that there is no disparate impact on minority populations.

Table 6-36a
Commuter Rail Platform Conditions

Classification	Structure			Vandalism			Cleanliness		
	ST	No.	Pct.	ST	No.	Pct.	ST	No.	Pct.
Minority	24	21	87.5%	33	25	75.8%	33	26	78.8%
Nonminority	82	64	78.0%	101	92	91.1%	101	86	85.1%
Ratio of minority to nonminority	—	—	1.23	—	—	0.83	—	—	0.93
Disparate impact threshold	—	—	> 0.80	—	—	> 0.80	—	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	—	NDI	—	—	NDI

ST = subtotal
No. = number of stations where condition is acceptable
Pct. = percentage of stations where condition is acceptable
NDI = no disparate impact

Table 6-36b
Commuter Rail Platform Conditions

Classification	Station Name Signage			Floor Surface			Stairwell		
	ST	No.	Pct.	ST	No.	Pct.	ST	No.	Pct.
Minority	33	29	87.9%	33	19	57.6%	27	20	74.1%
Nonminority	101	87	86.1%	101	57	56.4%	54	33	61.1%
Ratio of minority to nonminority	—	—	1.02	—	—	1.02	—	—	1.21
Disparate impact threshold	—	—	> 0.80	—	—	> 0.80	—	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	—	NDI	—	—	NDI

ST = subtotal
No. = number of stations where condition is acceptable
Pct. = percentage of stations where condition is acceptable
NDI = no disparate impact

Table 6-36c
Commuter Rail Platform Conditions

Classification	Wayfinding Signage			Tactile Strips			Lighting		
	ST	Acpt.	Pct.	ST	Acpt.	Pct.	ST	Acpt.	Pct.
Minority	33	26	78.8%	33	16	48.5%	33	28	84.8%
Nonminority	101	84	83.2%	101	39	38.6%	101	80	79.2%
Ratio of minority to nonminority	—	—	0.95	—	—	1.26	—	—	1.07
Disparate impact threshold	—	—	> 0.80	—	—	> 0.80	—	—	> 0.80
Result of disparate impact analysis	—	—	NDI	—	—	NDI	—	—	NDI

ST = subtotal
No. = number of stations where condition is acceptable
Pct. = percentage of stations where condition is acceptable
NDI = no disparate impact

6.5.6 Commuter Boat Station Monitoring

Because the commuter boat stations are either non-local stations or destination stations (such as Logan Airport), most of the ridership for these stations is not likely to originate near the station. Therefore, potential ridership at these stations is defined using results of the passenger survey. The systemwide passenger survey showed that 95 percent of commuter boat passengers are nonminority, so it was determined that all commuter boat stations should be classified as nonminority. As a result, comparative monitoring of commuter boat station amenities and station conditions is not necessary.

6.5.7 Automated Fare Collection (AFC): Fare Gates and Fare Vending Machines

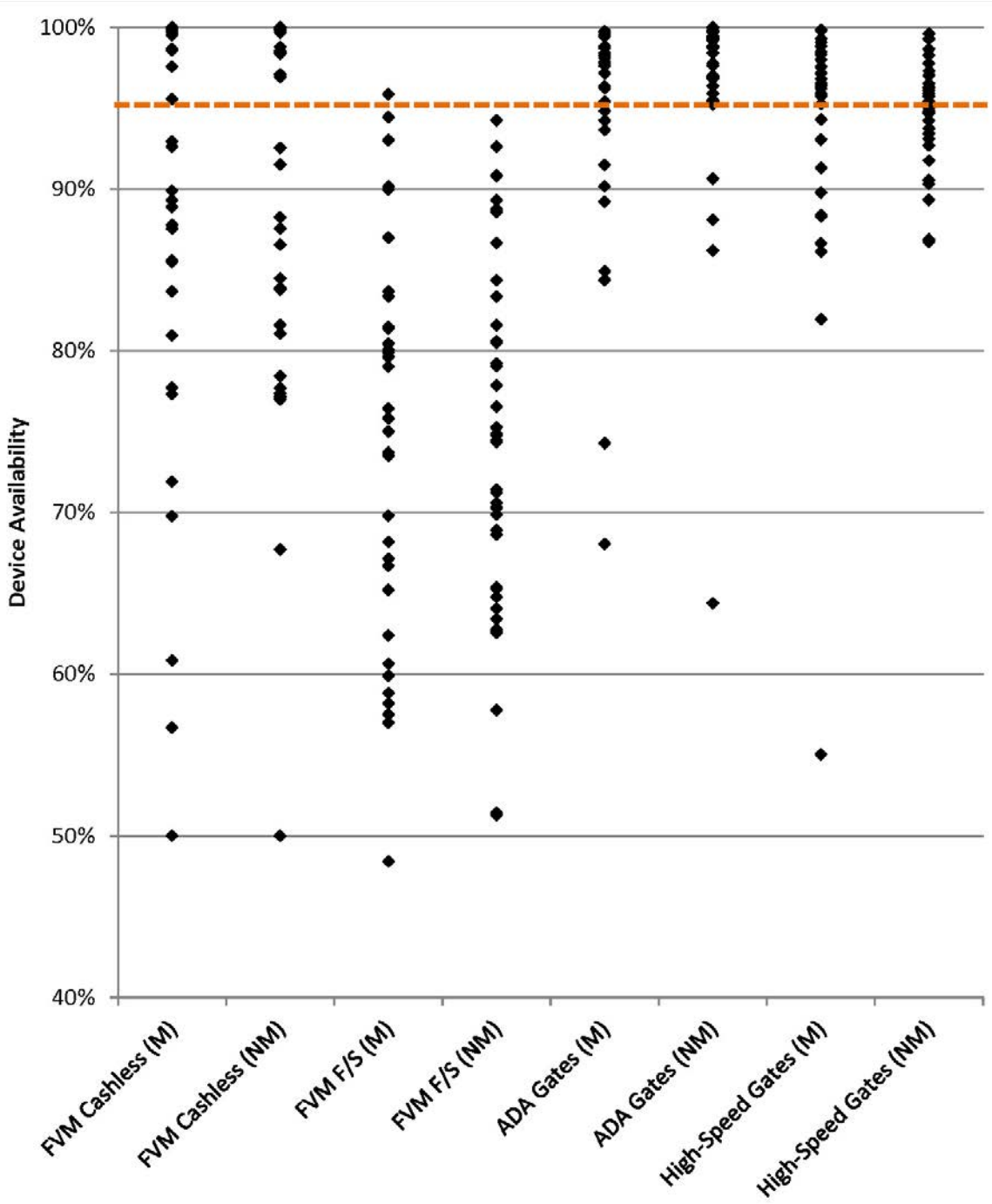
All rapid transit stations are equipped with fare gates and fare vending machines (FVMs). The MBTA established the following performance metrics, which are based on the availability for use of the fare gates and fare vending machines:

- The minimum acceptable device availability threshold is 95 percent.
- The device availability goal is 98 percent.

Figure 6-13 shows a plot of the device availability for each station for each type of fare gate and fare vending machine by minority classification, and Table 6-37 summarizes the device availability for each type of fare gate and fare vending machine by station minority classification. As shown in Table 6-37, for three out of the four types of AFC machines (cashless fare vending machines, full-service fare vending machines, and high-speed gates), the percent of stations that met the minimum device availability threshold of 95 percent was higher for minority stations than for nonminority stations, which indicates that there is no disparate impact on minority populations.

For ADA gates, 84.8 percent of nonminority stations met the minimum device availability threshold, while only 63.3 percent of minority stations met the standard. The resulting ratio of the rate of minority stations meeting the minimum device availability threshold for ADA gates to the rate of nonminority stations meeting the minimum device availability threshold for ADA gates indicates that there is a disparate impact on minority populations.

Figure 6-13
Faregate and Fare Vending Machine (FVM) Operability



FVM = fare vending machine
F/S = full service
M = minority
NM = nonminority

Table 6-37
Faregate and Fare Vending Machine (FVM) Operability

Station Classification	Total Devices	Number of Stations with Device	Number of Stations Meeting Availability Threshold	Percent of Stations Meeting Availability Threshold
Cashless FVM				
Systemwide	158	65	28	43.1%
Minority	72	33	15	45.5%
Nonminority	86	32	13	40.6%
Ratio of minority to nonminority	—	—	—	1.12
Disparate impact threshold	—	—	—	> 0.80
Result of disparate impact analysis	—	—	—	NDI
Full-Service FVM				
Systemwide	320	79	1	1.3%
Minority	152	35	1	2.9%
Nonminority	168	44	0	0.0%
Ratio of minority to nonminority	—	—	—	n/a**
Disparate impact threshold	—	—	—	> 0.80
Result of disparate impact analysis	—	—	—	NDI

(cont.)

Table 6-37 (cont.)

Station Classification	Total Devices	Number of Stations with Device	Number of Stations Meeting Availability Threshold	Percent of Stations Meeting Availability Threshold
ADA Gates				
Systemwide	125	63	47	74.6%
Minority	58	30	19	63.3%
Nonminority	67	33	28	84.8%
Ratio of minority to nonminority	—	—	—	0.75
Disparate impact threshold	—	—	—	> 0.80
Result of disparate impact analysis	—	—	—	DI
High-Speed Gates				
Systemwide	353	61	36	59.0%
Minority	160	29	19	65.5%
Nonminority	193	32	17	53.1%
Ratio of minority to nonminority	—	—	—	1.23
Disparate impact threshold	—	—	—	> 0.80
Result of disparate impact analysis	—	—	—	NDI

N/A = not applicable; the ratio is interminably higher than the disparate impact threshold
NDI = no disparate impact
DI = disparate impact

It should be noted that although the availability of full-service fare vending indicates that there is no disparate impact, it only did so because the one station (systemwide) that met the device availability threshold of 95 percent was a minority station. As shown in Table 6-38, over the past year the rate at which stations systemwide are meeting the minimum acceptable device availability standard of 95 percent for full-service fare vending machines, as well as ADA gates and high-speed gates, has decreased dramatically.

Table 6-38
Faregate and Fare Vending Machine (FVM) Operability – Change from Previous Year

Station Classification	Total Devices	Number of Stations with Device	Number of Stations Passing Availability Threshold	Percent of Stations Passing Availability Threshold
Cashless FVM				
Systemwide	-3	—	1	3.7%
Minority	—	—	1	7.1%
Nonminority	-3	—	0	0.0%
Full-Service FVM				
Systemwide	3	—	-6	-85.7%
Minority	3	—	-2	-66.7%
Nonminority	—	—	-4	-100.0%
ADA Gates				
Systemwide	-13	—	-7	-13.0%
Minority	-7	—	-8	-29.6%
Nonminority	-6	—	1	3.7%
High-Speed Gates				
Systemwide	—	—	-17	-32.1%
Minority	—	—	-7	-26.9%
Nonminority	—	—	-10	-37.0%

The MBTA will determine why a greater percentage of ADA gates at minority stations than at nonminority stations fail to meet the minimum device availability threshold and take remedial action. The MBTA will continue its endeavor to maintain higher rates of device availability in minority stations than in nonminority stations for cashless and full-service fare vending ma-

chines and for high-speed gates. The MBTA will also determine why full-service fare vending machines, ADA gates, and high-speed gates are failing to meet the minimum device availability threshold at an increasing rate.

Figures 6-14, 6-15, 6-16, and 6-17 display the availability of cashless fare vending machines, full-service fare vending machines, ADA gates, and high-speed gates at rapid transit stations.

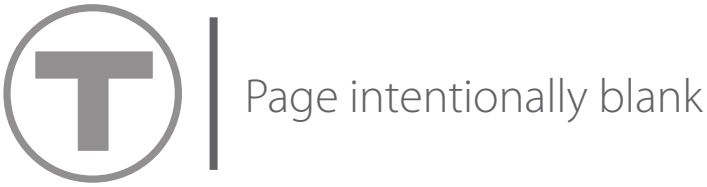
6.5.8 AFC Retail Sales Terminals

Retail sales terminals (RSTs), found at a variety of locations ranging from supermarkets and convenience stores to banks and check cashing agencies, allow passengers to purchase many different fare products. They give riders access to the less expensive fares that cannot be purchased on board. Therefore, access to RSTs could be a useful indicator of equity. Access to RSTs was evaluated using 2010 US census data for population counts by minority status in the areas around each RST using the methods that were outlined in Section 6.1.3. An analysis of the locations of retail sales terminals, summarized in Table 6-39, indicates that they are far more accessible to minority populations than to nonminority populations within the MBTA service area. The ratio of the percentage of minorities to nonminorities living within a quarter of a mile of an AFC retail sales terminal indicates that there is no disparate impact on minority populations. Figure 6-18a is a map depicting the location of RSTs within the MBTA service area. A second map, Figure 6-18b, displays the same information, but at a level magnified to show the area where the majority of MBTA light and heavy rail services are located.

Table 6-39
Population Served by CharlieCard Retail Sales Terminals (RST)

Classification	Service Area Population	Within 1/4 Mile of an RST	
		Population	Percent of Total
Total population	4,833,606	227,288	4.7%
Minority	1,266,019	110,394	8.7%
Nonminority	3,567,587	116,894	3.3%
Ratio of minority to nonminority	—	—	2.66
Disparate impact threshold	—	—	> 0.80
Result of disparate impact analysis	—	—	NDI

NDI = no disparate impact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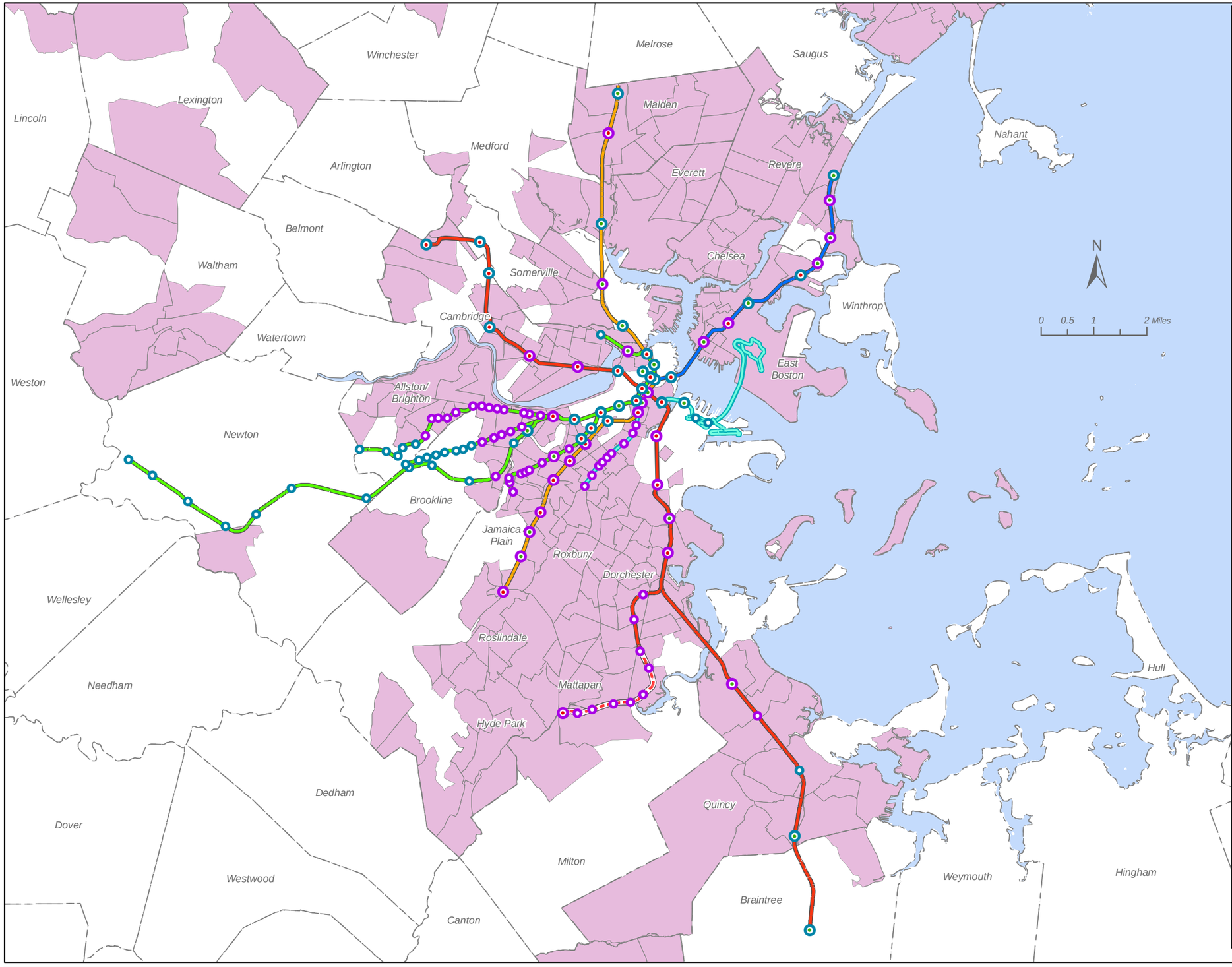

FIGURE 6-14
MBTA Title VI Report

Availability of Cashless Fare Vending Machines at Rapid Transit Stations

Station Status:
Cashless Fare Vending Machines (FVMs)

Nonminority	*Minority*
Station, no cashless FVM	
Station with device, doesn't meet threshold	
Station with device, meets threshold	

MBTA Transit
- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line

Minority Status
- Minority tract
- Not minority

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The minority classification of MBTA rapid transit stations is dependent on how riders access the station. For stations where the majority of riders walk to the station from their home, the station is considered "local," and minority status is determined through a demographic analysis of the surrounding area. For stations where the majority of the riders do not walk to the station from their home, the station is considered "non-local," and minority status is determined by using demographic results from the most recent systemwide MBTA passenger survey. For a full description of this procedure, see the Minority and Low-Income Classification section of Chapter 6.

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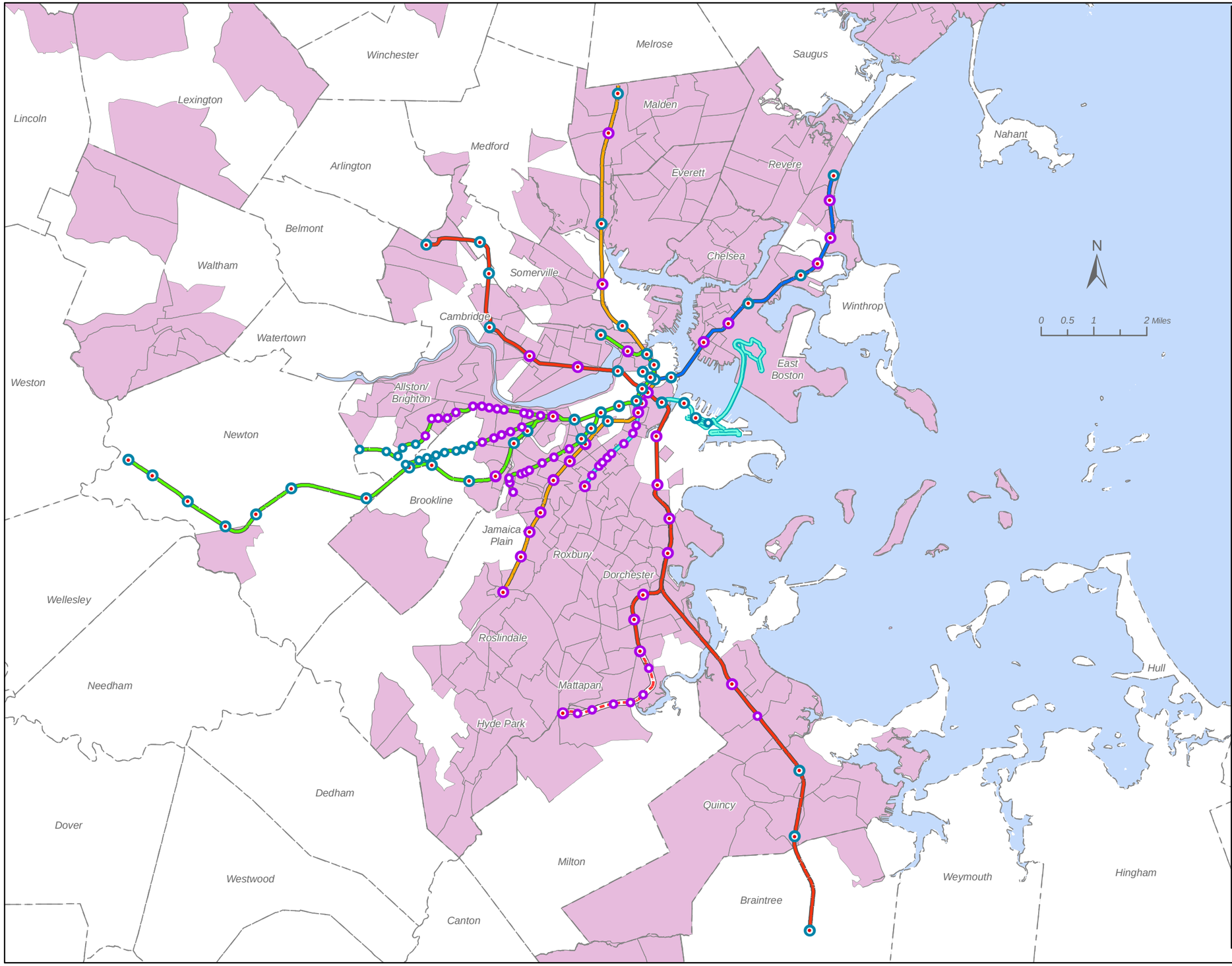

FIGURE 6-15
MBTA Title VI Report

Availability of Full-Service Fare Vending Machines at Rapid Transit Stations

Station Status:
Full-Service Fare Vending Machines (FVMs)

Nonminority	*Minority*
Station, no full-service FVM	
Station with device, doesn't meet threshold	
Station with device, meets threshold	

MBTA Transit

- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line

Minority Status

- Minority tract
- Not minority

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The minority classification of MBTA rapid transit stations is dependent on how riders access the station. For stations where the majority of riders walk to the station from their home, the station is considered “local,” and minority status is determined through a demographic analysis of the surrounding area. For stations where the majority of the riders do not walk to the station from their home, the station is considered “non-local,” and minority status is determined by using demographic results from the most recent systemwide MBTA passenger survey. For a full description of this procedure, see the Minority and Low-Income Classification section of Chapter 6.

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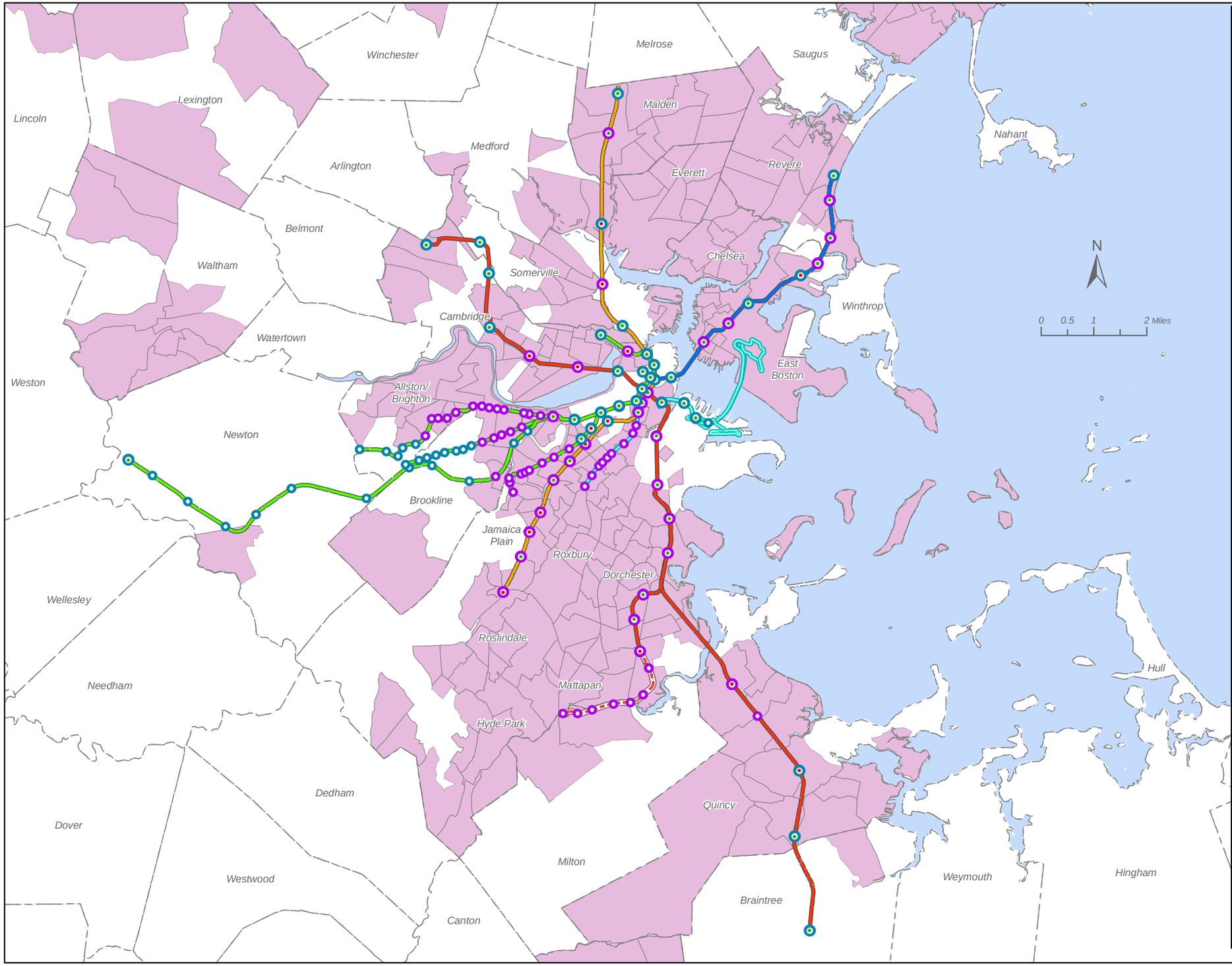
FIGURE 6-16
MBTA Title VI Report

Availability of ADA Gates at Rapid Transit Stations



Station Status: ADA Gates

Nonminority	*Minority*
Station, no ADA gates	
Station with ADA gates; doesn't meet threshold	
Station with ADA gates; meets threshold	

MBTA Transit

- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line

Minority Status

- Minority tract
- Not minority

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The minority classification of MBTA rapid transit stations is dependent on how riders access the station. For stations where the majority of riders walk to the station from their home, the station is considered “local,” and minority status is determined through a demographic analysis of the surrounding area. For stations where the majority of the riders do not walk to the station from their home, the station is considered “non-local,” and minority status is determined by using demographic results from the most recent systemwide MBTA passenger survey. For a full description of this procedure, see the Minority and Low-Income Classification section of Chapter 6.

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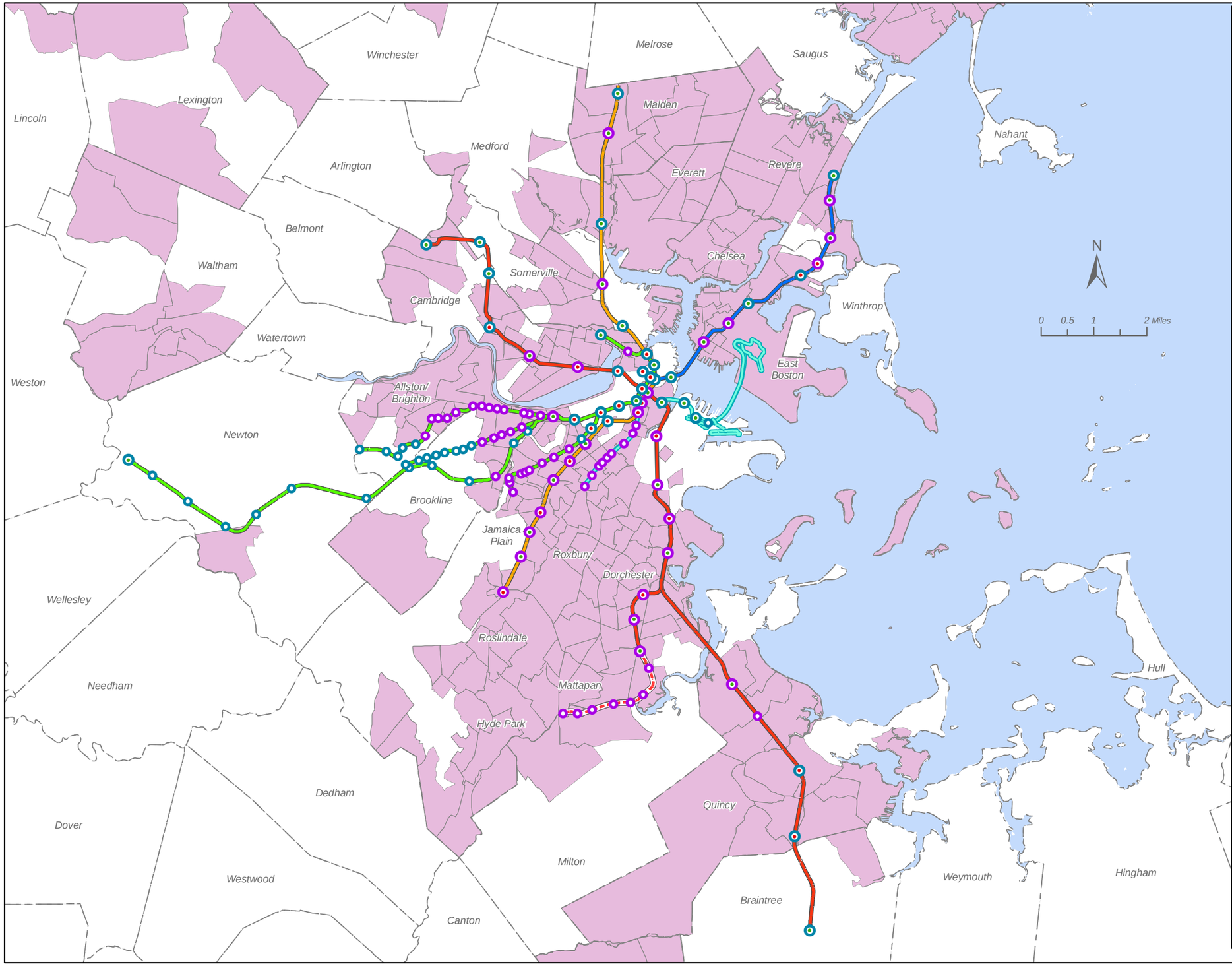

FIGURE 6-17
MBTA Title VI Report

Availability of High-Speed Gates at Rapid Transit Stations

Station Status: High-Speed Gates

Nonminority	*Minority*
Station, no high-speed gates	
Station with high-speed gates; doesn't meet threshold	
Station with high-speed gates; meets threshold	

MBTA Transit

- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line

Minority Status

- Minority tract
- Not minority

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The minority classification of MBTA rapid transit stations is dependent on how riders access the station. For stations where the majority of riders walk to the station from their home, the station is considered “local,” and minority status is determined through a demographic analysis of the surrounding area. For stations where the majority of the riders do not walk to the station from their home, the station is considered “non-local,” and minority status is determined by using demographic results from the most recent systemwide MBTA passenger survey. For a full description of this procedure, see the Minority and Low-Income Classification section of Chapter 6.

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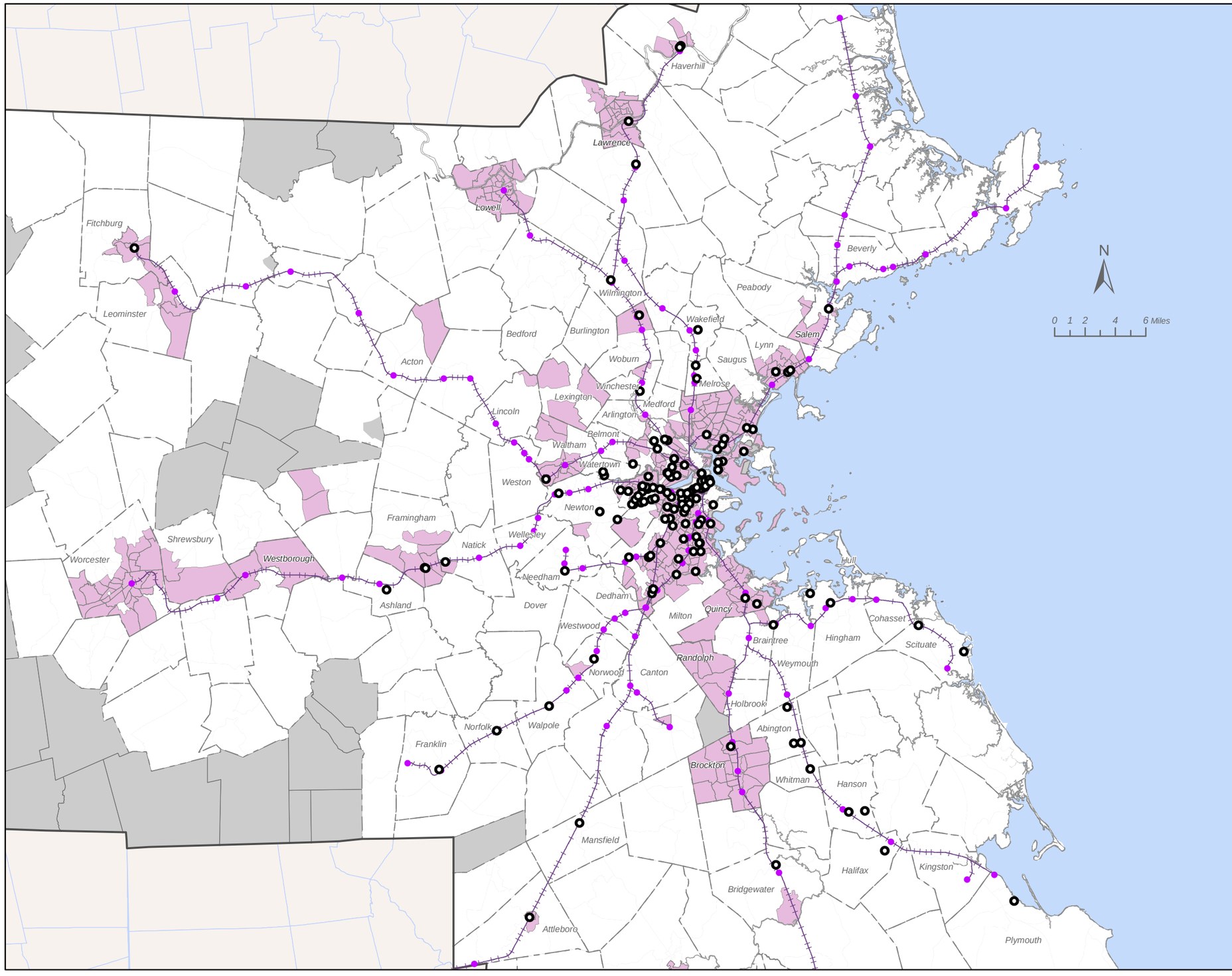

FIGURE 6-18a
MBTA Title VI Report

Locations of CharlieCard Retail Sales Terminals: MBTA Service Area*

MBTA Facilities
- Retail sales terminal

MBTA Transit
- Commuter rail

Minority Status
- Minority tract
- Not minority
- Town not within MBTA service area

NOTE:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

*See Figure 6-18b for detailed map.

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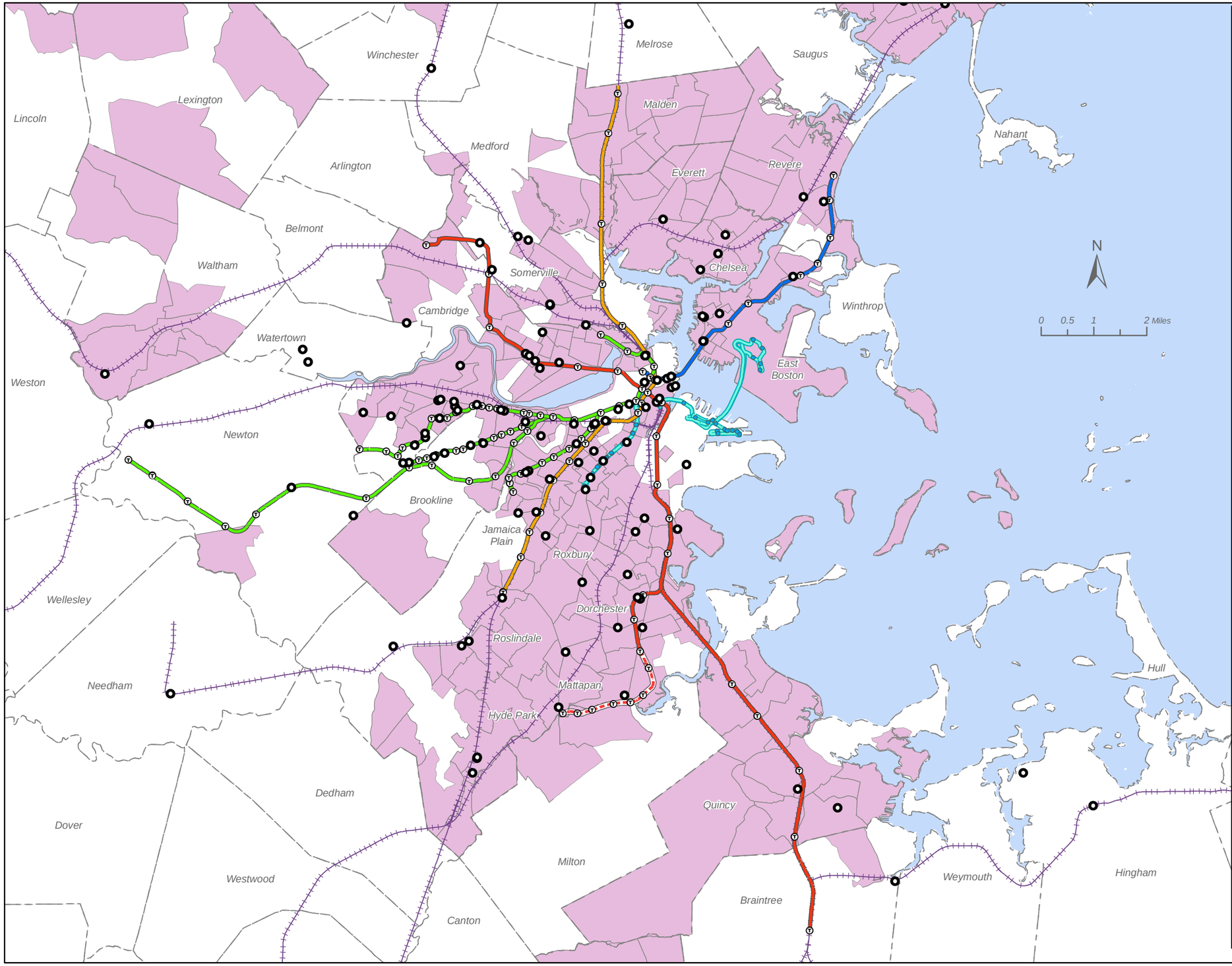
FIGURE 6-18b
MBTA Title VI Report

Locations of CharlieCard Retail Sales Terminals: Detailed Map



MBTA Facilities
- Retail sales terminal

MBTA Transit
- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Rapid transit station
- Silver Line
- Silver Line stop
- Commuter rail

Minority Status
- Minority tract
- Not minority

NOTE:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

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6.5.9 Elevators and Escalators

For the purposes of monitoring Title VI compliance, the Engineering and Maintenance Department is responsible for the level-of-service assessment of elevators and escalators. This monitoring is completed on an annual basis to evaluate whether the distribution and operability of station elevators and escalators in minority areas is commensurate with the distribution and operability of station elevators and escalators in nonminority areas.

The complete maintenance, service testing, and inspection of all elevators and escalators in the transit system and in other MBTA facilities are outsourced to a private maintenance contractor. Elevator and escalator service requests are transmitted from the MBTA to the contractor, which dispatches maintenance personnel to perform repairs.

On a daily basis, the Engineering and Maintenance Department keeps records of station escalator and elevator maintenance activity and hours of operation. In an effort to determine the average length of time each elevator and escalator was out of service, CTPS staff examined the data provided by Engineering and maintenance on equipment failure service calls that were placed between April 1, 2012, and March 31, 2013. Equipment failures vary in cause and in the length of repair time required. The primary reasons for the length of time an elevator or escalator is out of service include the waiting time for specific replacement parts from manufacturers, the complexity of the repair, and the need for investigation due to an incident.

Data are collected for elevator and escalator repair time, out-of-service time, and incident rates for minority and nonminority stations.

- The average repair time per incident (the total amount of revenue-hours between the out-of-service and return-to-service times for each service call).[3]

- The average number of incidents per elevator (or escalator) and per station.

- The average out-of-service time per elevator (or escalator) and per station. Out-of-service time differs from repair time in that it equals the total number of revenue-hours between the went-out-of-service and returned-to-service times for all overlapping time periods of incidents, while repair time is a per-incident measure.[4] The average repair time is the appropriate measure on a per-incident basis, while average out-of-service time is the appropriate measure on a per-elevator or per-station basis.

- The median out-of-service and repair time, to indicate the extent to which outliers affect the average (mean).

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[3] Out-of-service time is defined as the total number of revenue hours an elevator (or escalator) was out of service, meaning that it does not include the 4.5 hours of non-revenue time, from approximately 1:00 AM to 5:30 AM.

[4] For example, if one elevator (or escalator) is out of service from 1:00 PM until 3:00 PM, and another elevator (or escalator) at the same station is out of service from 2:00 PM until 4:00 PM, the repair time for each incident is two hours, but the out-of-service time for the station is three hours (since the two incidents overlap each other).

Elevators

Elevators in stations designated as minority had, on average, a lower rate of incidents per elevator than stations designated as nonminority. Furthermore, minority stations had lower average and median repair times per incident and per elevator than nonminority stations. Lastly, minority stations had lower average and median out-of-service times per station than nonminority stations. Therefore, there is no disparate impact on minority populations. These results are summarized in Table 6-40 and are displayed in Figure 6-19.

Table 6-40
Elevator Performance April 1, 2012, through March 31, 2013

Station Classification	Average Number of Incidents	Repair Hours				Hours Out of Service	
		Average Number		Median Number		Average Number	Median Number
	Per Elevator	Per Incident	Per Elevator	Per Incident	Per Elevator	Per Station	Per Station
All stations	**6.8**	**5.2**	**35.4**	**1.6**	**16.3**	**96.6**	**52.2**
Minority	5.8	4.3	24.8	1.6	11.8	54.5	42.9
Nonminority	7.5	5.8	43.5	1.7	19.6	145.5	105.6
Ratio of minority to nonminority	0.77	0.74	0.57	0.95	0.60	0.37	0.41
Disparate impact threshold	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20
Result of disparate impact analysis	NDI	NDI	NDI	NDI	NDI	NDI	NDI

NDI = no disparate impact

The five stations with the greatest rates of incidents per elevator were Harvard (18.5), Science Park (13.5), Copley (13.5), Park Street (13.0), and Downtown Crossing (11.5). Two of these five stations are designated as minority (Science Park and Downtown Crossing). The median numbers of out-of-service hours per station are significantly less than the respective averages, indicating that these high incident rates at stations significantly raised the averages for the station classifications to which these stations belong.

When compared to the previous year, minority stations exhibited an improvement across all performance metrics, with one exception: the median number of repair hours per incident increased slightly. In fact, the improved elevator performance in minority stations offset the decrease in performance of nonminority stations for the average number of incidents per elevator, median number of repair hours per elevator, and the median number of hours out of service, resulting in a systemwide improvement for these metrics. A comparison to the previous year's elevator performance is summarized in Table 6-41.

Table 6-41
Elevator Performance – Change from Previous Year

Station Classification	Average Number of Incidents	Repair Hours				Hours Out of Service	
		Average Number		Median Number		Average Number	Median Number
	Per Elevator	Per Incident	Per Elevator	Per Incident	Per Elevator	Per Station	Per Station
All stations	-0.5	0.7	1.6	0.1	-1.2	8.5	-5.0
Minority	-1.0	-0.8	-9.8	0.1	-4.4	-23.7	-6.4
Nonminority	0.4	1.7	10.3	0.2	1.4	60.8	28.8

The MBTA will endeavor to continue to maintain nondiscriminatory elevator service consistent with the MBTA's disparate impact policy.

Escalators

Escalators in stations designated as minority had, on average, a higher rate of incidents per escalator than stations designated as nonminority. However, minority stations had lower average and median repair times per incident and per escalator than nonminority stations. Furthermore, minority stations had lower average and median out-of-service times per station than nonminority stations. As a result, there was only one performance indicator for escalator operability—the average number of incidents per escalator—for which there is a disparate impact on minority populations. These results are summarized in Table 6-42 and displayed in Figure 6-20.

Table 6-42
Escalator Performance April 1, 2012, through March 31, 2013

Station Classification	Average Number of Incidents	Repair Hours				Hours Out of Service	
		Average Number		Median Number		Average Number	Median Number
	Per Escalator	Per Incident	Per Escalator	Per Incident	Per Escalator	Per Station	Per Station
All stations	**8.9**	**8.2**	**70.7**	**2.3**	**33.8**	**225.4**	**81.8**
Minority	10.2	6.6	63.5	2.1	31.5	147.2	63.6
Nonminority	8.2	9.1	74.6	2.5	36.0	297.9	194.4
Ratio of minority to nonminority	1.25	0.73	0.85	0.84	0.88	0.49	0.33
Disparate impact threshold	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20
Result of disparate impact analysis	DI	NDI	NDI	NDI	NDI	NDI	NDI

NDI = no disparate impact
DI = disparate impact

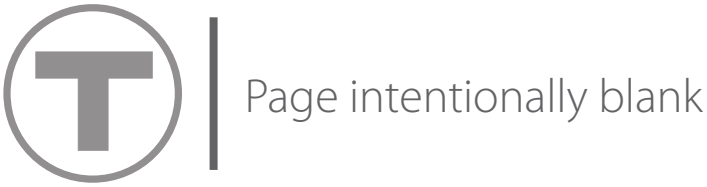
The five stations with the greatest rates of incidents per escalator were Airport (32.5), Copley (23.0), Government Center (18.7), Fields Corner (17.0), and Wollaston (17.0). Three of these five stations are classified as minority (Airport, Fields Corner, and Wollaston). The median out-of-service time per station is significantly less than the respective averages, indicating that the high incident rates at those five stations significantly raised the averages for the station classifications to which these stations belong.

When compared to the previous year, minority stations exhibited an improvement across five of the seven performance metrics, with two exceptions: the average number of incidents per escalator and the median number of repair hours per incident, both of which increased only slightly. A comparison to the previous year's escalator performance is summarized in Table 6-43.

Table 6-43
Escalator Performance – Change from Previous Year

Station Classification	Average Number of Incidents	Repair Hours				Hours Out of Service	
		Average Number		Median Number		Average Number	Median Number
	Per Escalator	Per Incident	Per Escalator	Per Incident	Per Escalator	Per Station	Per Station
All stations	**-0.8**	**-2.0**	**-14.3**	**0.1**	**2.0**	**-44.6**	**-55.2**
Minority	0.1	-1.8	-15.0	0.2	-14.5	-40.1	-51.3
Nonminority	-1.3	-2.2	-13.9	0.2	9.6	-48.8	-44.5

The MBTA will endeavor to maintain the nondiscriminatory elevator service indicated by these performance metrics and consistent with the MBTA's disparate impact policy. Furthermore, the MBTA will continue to determine why there are greater rates of incidents per escalator occurring at minority stations than at nonminority stations, and why the average number of incidents per escalator and median number of repair hours per incident has increased in minority stations over the past year.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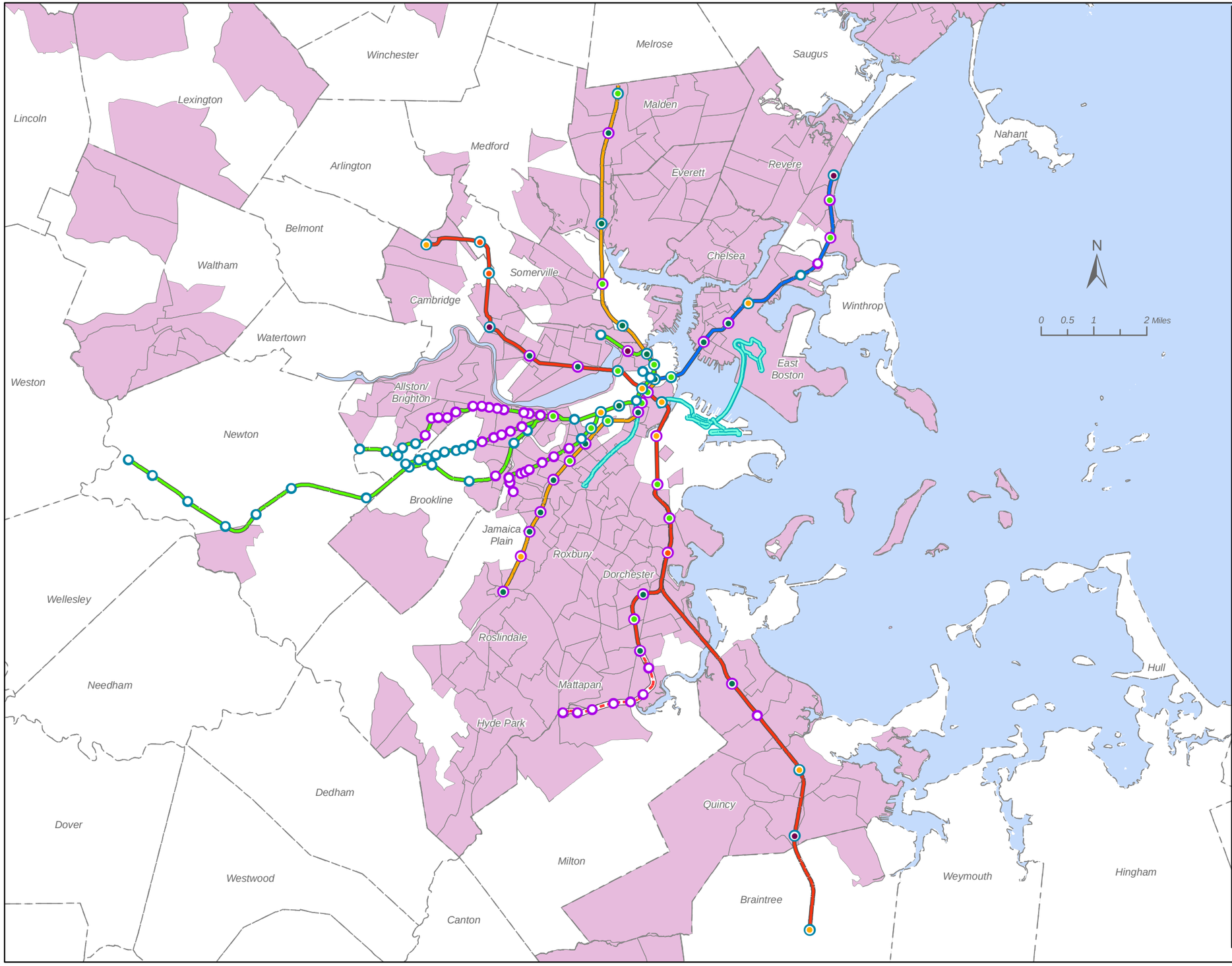

FIGURE 6-19
MBTA Title VI Report

Elevator Repair Times at Rapid Transit Stations

Average Elevator Repair Time per Station

Nonminority	*Avg. Repair Time*	*Minority*
	No elevator	
	15 hours or less	
	> 15 to 30 hours	
	> 30 to 60 hours	
	> 60 to 90 hours	
	More than 90 hours	

MBTA Transit

- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line

Minority Status

- Minority tract
- Not minority

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The minority classification of MBTA rapid transit stations is dependent on how riders access the station. For stations where the majority of riders walk to the station from their home, the station is considered “local,” and minority status is determined through a demographic analysis of the surrounding area. For stations where the majority of the riders do not walk to the station from their home, the station is considered “non-local,” and minority status is determined by using demographic results from the most recent systemwide MBTA passenger survey. For a full description of this procedure, see the Minority and Low-Income Classification section of Chapter 6.

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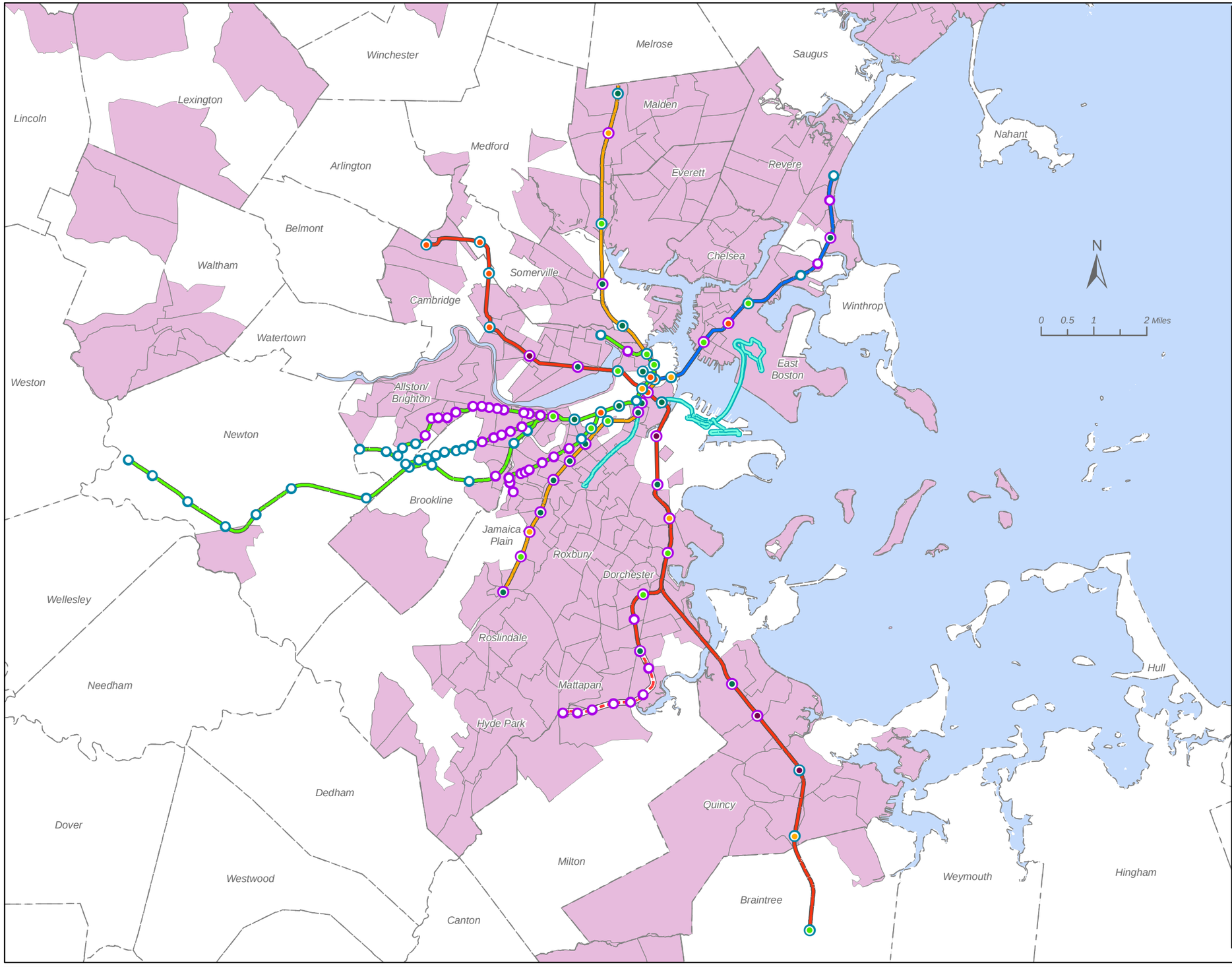

FIGURE 6-20
MBTA Title VI Report

Escalator Repair Times at Rapid Transit Stations

Average Escalator Repair Time per Station

Nonminority	*Avg. Repair Time*	*Minority*
	No escalator	
	30 minutes or less	
	> 30 to 60 minutes	
	> 60 to 90 minutes	
	> 90 to 180 minutes	
	More than 180 minutes	

MBTA Transit

- Blue Line
- Green Line
- Orange Line
- Red Line
- Mattapan High-Speed Line
- Silver Line

Minority Status

- Minority tract
- Not minority

NOTES:

In the 175 municipalities of the MBTA service area, 26.19% of the residents were members of minority groups in 2010. A minority census tract is defined as one in which the minority percentage exceeds 26.19%.

The minority classification of MBTA rapid transit stations is dependent on how riders access the station. For stations where the majority of riders walk to the station from their home, the station is considered “local,” and minority status is determined through a demographic analysis of the surrounding area. For stations where the majority of the riders do not walk to the station from their home, the station is considered “non-local,” and minority status is determined by using demographic results from the most recent systemwide MBTA passenger survey. For a full description of this procedure, see the Minority and Low-Income Classification section of Chapter 6.

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6.6 Vehicle Assignment

6.6.1 Bus Vehicle Assignment

For the purposes of monitoring Title VI compliance, the Bus Operations Department is responsible for the level-of-service assessment of bus vehicle assignment, which is performed on an annual basis. It involves evaluating the operational distribution of buses throughout the system based on vehicle age and the functionality of air conditioning.

In general, buses are assigned to one of the nine MBTA bus storage and maintenance facilities, and a bus operates only on routes served by the garage to which it is assigned. Within each garage, individual vehicles are not assigned to specific routes on a given day, but rather they circulate among routes based on a number of operating constraints and equipment criteria.

To complete the annual bus vehicle assignment monitoring for Title VI, Bus Operations collects data on a summer day using bus pull-out and swing-on sheets, which display information pertaining to the operator, the bus, and the route number. These data are used to determine both the average age of the vehicles and the status of air-conditioning functionality of the vehicles assigned to each route. Analysis of the data is then performed to compare the average vehicle age and the proportion of air-conditioner failures on routes that serve minority areas with the average vehicle age and proportion of air-conditioner failures on routes that serve nonminority areas.

It is the MBTA's policy to maintain a bus fleet with an average age of eight years or less. If the data demonstrate a disparity based on vehicle age for vehicle assignments on routes serving minority areas, data from two additional days of monitoring are collected and analyzed to determine whether the data for the first day are truly representative. If a disparity is again demonstrated, the Bus Operations Department reviews both the distribution of vehicles by facility and the manner in which vehicles are assigned within each facility to evaluate the source of the problem. Appropriate actions are then taken to modify either the distribution of vehicles to facilities or the route assignments of vehicles within each facility. Follow-up monitoring is conducted six months later to determine whether the disparity has been rectified.

For the purposes of this report, the Bus Operations Department collected vehicle assignment data on an unusually warm day in the summer of 2013 (July 19, 2013) to ensure an accurate assessment of air-conditioner functionality). To determine vehicle age, CTPS staff analyzed the pull-out data that identify (by vehicle number) which bus was assigned to each operator run to match the bus type to each trip operated on each route. An average vehicle age was then calculated for each route. In addition, CTPS staff examined maintenance logs for the same day to determine which buses had been flagged as having defective air-conditioning systems.

As shown in Table 6-44, on the selected day, 35.8 percent of minority routes had an average bus age of eight years or less, while 42.3 percent of nonminority routes had an average bus age of eight years or less. This resulted in a ratio of 0.85 for the percentage of minority routes meeting the vehicle age standard to the percentage of nonminority routes meeting the vehicle age standard, which indicates that there is no disparate impact on minority populations. The scatterplot in Figure 6-21 displays the average vehicle age for each route, and the corresponding minority or nonminority classification.

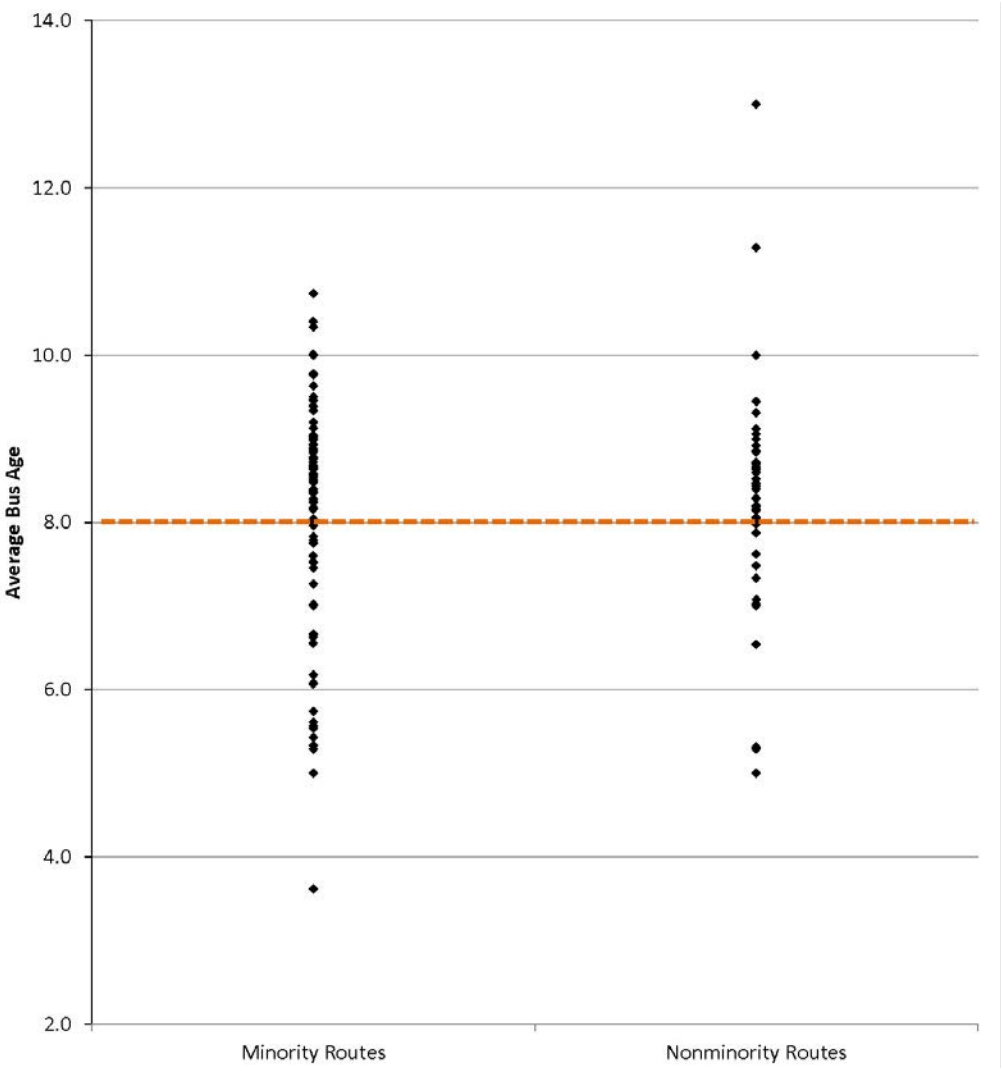
CTPS staff then determined, for each trip, if an assigned bus was equipped with air conditioning (based on the bus number) and, if so equipped, whether the air-conditioning system had been marked in the maintenance-reporting database as defective. As shown in Table 6-44, it was found that 96 percent of buses on minority routes and 97 percent of buses on routes systemwide were identified as having working air conditioning. This resulted in a ratio of 0.98 for the percentage of buses on minority routes with functional air-conditioning to the percentage of buses on nonminority routes with functional air conditioning, which indicates that there is no disparate impact on minority populations.

Table 6-44
Bus Vehicle Assignment on July 19, 2013

Route Classification	Percent of Routes Passing the Vehicle Age Standard	Percent of Buses with Functional A/C
Minority	35.8%	96%
Nonminority	42.3%	98%
Ratio of minority to nonminority	0.85	0.98
Disparate impact threshold	> 0.80	> 0.80
Result of disparate impact analysis	NDI	NDI

NDI = no disparate impact

Figure 6-21
Average Bus Age on July 19, 2013



6.6.2 Heavy Rail and Light Rail Vehicle Assignment

For the purposes of monitoring Title VI compliance, Subway Operations is responsible for the level-of-service assessment of vehicle assignments on light and heavy rail routes. This is completed on an annual basis to evaluate the distribution of rail vehicles throughout the system based on vehicle age.

Each of the three heavy rail lines (Red Line, Blue Line, and Orange Line) operates with dedicated equipment, meaning that the equipment on one line is not interchangeable with equipment on any of the other lines.

The two light rail lines are the Green Line and the Mattapan High-Speed Line. The Mattapan Line operates as a short, stand-alone, light-rail extension of the Red Line's Ashmont Branch, with a dedicated fleet; its equipment cannot be used elsewhere in the system. The Green Line, however, is an extensive light rail system, with four branches (B, C, D, and E) that feed into a core service area.[5] For Title VI, the B, C, and E branches are defined as minority routes, and the D Branch is defined as a nonminority route. The Mattapan Line is classified as minority. Therefore, periodic Title VI monitoring of vehicle assignment of light rail is necessary.

To complete the annual light-rail vehicle assignment monitoring for Title VI, Subway Operations collects data on at least one sampled spring weekday. If analysis of these data indicates that there are disparities between light-rail vehicle assignments on routes that serve minority areas and assignments for all light rail lines, Subway Operations works in conjunction with Service Planning to resolve them, and a subsequent analysis is completed six months later in order to monitor whether the remediation eliminated the problem.

For the purposes of this report, CTPS staff analyzed Green Line vehicle assignments by branch, using data provided by Subway Operations for a randomly chosen weekday in November 2013. The age of each car for each trip on all four Green Line branches was calculated. An average age was then calculated for the branches that are classified as minority (Green Line B, C, and E branches) and for those classified as nonminority (Green Line D Branch).

Table 6-45 shows that the average age per car-trip of light rail equipment operated on the three minority Green Line branches was 16.2 years, and the average age per car-trip of light rail equipment on the one nonminority Green Line branch was 17.7 years. The ratio of average age per car-trip on the minority lines to the average age per car-trip on the nonminority line indicates that there is no disparate impact on minority populations.

Table 6-45
Light Rail Vehicle Assignment

Line Classification	Average Age per Car-Trip (Years)
Minority	16.2
Nonminority	17.7
Ratio of minority to nonminority	0.91
Disparate impact threshold	< 1.20
Result of disparate impact analysis	NDI

NDI = no disparate impact

[5] The core area boundary for light rail service is defined in the MBTA's Service Delivery Policy.

The Mattapan High-Speed Line vehicles were not included in the light rail vehicle assignment analysis because the Mattapan Line is an isolated light rail service and its equipment cannot be used elsewhere in the system. The Mattapan fleet consists of 10 historic President's Conference Committee (PCC) cars that were built in 1945 and were extensively rebuilt between 1999 and 2005. The 10 PCC cars were equipped with air-conditioning systems in 2008.

6.6.3 Commuter Rail Vehicle Assignment

For the purposes of monitoring Title VI compliance, the Railroad Operations Department is responsible for the level-of-service assessment of vehicle assignments on commuter rail routes. This assessment is completed on an annual basis to evaluate the distribution of commuter rail vehicles throughout the system based on vehicle age.

Vehicle assignments are developed to correspond with specific characteristics of commuter rail service. These characteristics include minimum seating requirements for each scheduled trip, one functioning toilet car in each trainset, a train length consistent with infrastructure constraints, and modified equipment for a specific operating environment, such as the power doors on the Old Colony trains. In order to optimize coach utilization and the requirements for the train characteristics stated above, bilevel coaches are operated on trains that have the largest volume of ridership.

All coaches in the commuter rail fleet are equipped with similar amenities (such as air conditioning), with the primary variation among coaches being age. To determine the average age of a trainset, Railroad Operations looks at a sample of consist utilization summary reports. Within the operating constraints of the commuter rail system, Railroad Operations works to alleviate any Title VI vehicle-assignment disparities found in the analysis.

For this report, Railroad Operations collected consist data for every train that operated on each line on December 20, 2013. CTPS staff then developed a consist summary report to determine the average age of the equipment by line. As shown in Table 6-46, the average coach age operating on minority lines was 22.1 years, and the average coach age operating on nonminority lines was 23.5 years. Therefore, the ratio of average coach age operating on minority lines to average coach age operating on nonminority lines indicates that there is no disparate impact on minority populations.

Table 6-46
Commuter Rail Vehicle Assignment

Line Classification	Average Coach Age (Years)
Minority	22.1
Nonminority	23.5
Ratio of minority to nonminority	0.94
Disparate impact threshold	< 1.20
Result of disparate impact analysis	NDI

NDI = no disparate impact

CHAPTER 7
Evaluation of Service and Fare Changes

The Federal Transit Administration (FTA) Circular (47021B, IV.7) requires the Massachusetts Bay Transportation Authority (MBTA) to evaluate the impacts of proposed major service changes and fare changes of any magnitude on minority and low-income populations to determine whether the proposed changes would have adverse effects, and if so, whether the adverse effects would be borne disproportionately by minority or low-income populations. The circular requires that the MBTA create, engage the public in developing, and obtain Board approval of the following policies:

- Major Service Change Policy, which establishes a threshold for determining whether a service change is major
- Disparate Impact Policy, which establishes a threshold for determining when adverse effects of fare or service changes are borne disproportionately by minority populations
- Disproportionate Burden Policy, which establishes a threshold for determining when adverse effects of fare or service changes are borne disproportionately by low-income populations

Both the MBTA's Major Service Change Policy and Disparate Impact and Disproportionate Burden Policy are summarized in this chapter, and the full Disparate Impact and Disproportionate Burden policy is in Appendix O.

Since the previous MBTA Triennial Title VI report was submitted to the FTA, in 2011, the MBTA has implemented one fare change and is planning another. The Authority is also in the process of planning a major service change. The first fare change, effective July 1, 2012, was implemented with some minor service changes. At the time, the MBTA conducted a Service and Fare Equity (SAFE) analysis for both the service and fare changes according to the guidance provided at the time, FTA Circular 4702.1A, even though the service equity analysis for the proposed service changes was not required, because the service changes did not meet the MBTA's definition of a major service change. The results of the Fare Equity Analysis for the 2012 fare changes are summarized in this chapter, and the full Service and Fare Equity (SAFE) Analysis is included in Appendix P.

The MBTA is currently proposing a minor change in fares, scheduled to take effect in state fiscal year (SFY) 2015, but is not proposing any service changes for SFY 2015. The results of the Fare Equity Analysis for the proposed fare changes are summarized in this chapter, and the full impact report of the fare change, including the Fare Equity Analysis (Chapter 6), is included in Appendix Q.

Finally, the MBTA is proposing an extension of the Silver Line bus rapid transit (BRT) service, which will be referred to as Silver Line Gateway. This new service is intended to fill a critical gap in access between the residential neighborhoods of Chelsea, which have the greatest proportion of transit-dependent residents in Greater Boston and are the most densely populated residential neighborhoods outside of the City of Boston, East Boston, and other Blue Line communities, and the areas where there has been rapid growth in employment opportunities, across Boston Harbor in the Seaport District. The results of the Service Equity Analysis for the proposed Silver Line Gateway service are summarized in this chapter, and the full Service Equity Analysis is included in Appendix R.

MBTA Fare Change Policies

The MBTA's Fare Policy establishes guidelines for setting or restructuring fares. MBTA staff and the MassDOT Board of Directors follow the policy's guidelines when making decisions about adjusting fares. The MBTA Fare Policy requires that all decisions about fare change be made in accordance with the MBTA's enabling legislation (M.G.L. c. 161A), which directs the MBTA to adopt a fare policy that addresses the following:

- A fare structure, including fare media and passes
- Fare levels, including discounts
- A system of free or substantially price-reduced transfer privileges
- Fare equity

Although the FTA does not make the distinction between major and minor fare changes, for the purposes of public outreach, the MBTA Public Process for Changing MBTA Fares, and/or Fare Structure or Major Service Reductions, distinguishes between "Major" and "Minor" fare increases. This distinction has also been incorporated into the MBTA's policy on disparate impacts and disproportionate burdens.

Major Fare Increases are defined in the "Public Process for Changing MBTA Fares, and/or Fare Structure or Major Service Reductions" as:

- Major changes to the fare structure; or
- A system-wide fare increase in which the percent increase in fare revenue realized by the MBTA would be 10% or more; or
- A system-wide fare increase of less than 10% that results in a cumulative increase in fare revenue of 10% or more within a three-year period.

Minor Fare Increases are defined in the "Public Process for Changing MBTA Fares, and/or Fare Structure or Major Service Reductions" as:

- Minor changes to the MBTA fare structure; or
- A system-wide fare increase in which the percent increase in fare revenue realized by the MBTA would be less than 10%; or
- A system-wide fare increase of less than 10% that results in a cumulative increase in fare revenue of less than 10% within a three year period.

Disparate Impact and Disproportionate Burden Thresholds for Fare Changes

As mentioned above, the MBTA has accounted for the distinction between major and minor fare changes when setting the Disparate Impact and Disproportionate Burden Policy, and has set thresholds for both types of fare changes in the MBTA Disparate Impact and Disproportionate Burden Policy.

For **minor fare changes**, the MBTA has proposed the following policy thresholds:

- A disparate benefit would be found if the minority riders (population) are projected to receive less than 80 percent of the benefit that all customers (population) receive.
- A disproportionate benefit would be found if the low-income customers (population) are projected to receive less than 80 percent of the benefits that all customers (population) receive.
- A disparate burden would be found if the minority customers (population) are projected to sustain more than 20 percent additional burden than the total burden that all customers (population) sustain.

- A disproportionate burden would be found if the low-income customers (population) are projected to sustain more than 20 percent additional burden than the total burden that all customers (population) sustain.

For **major fare changes**, the MBTA has proposed the following policy thresholds:

- A disparate benefit would be found if the minority customers (population) are projected to receive less than 90 percent of the benefit that all customers (population) receive.

- A disproportionate benefit would be found if the low-income customers (population) are projected to receive less than 90 percent of the benefits that all customers (population) receive.

- A disparate burden would be found if the minority customers (population) are projected to sustain more than 10 percent additional burden than the total burden that all customers (population) sustain.

- A disproportionate burden would be found if the low-income customers (population) are projected to sustain more than 10 percent additional burden than the total burden that all customers (population) sustain.

Findings of the 2012 Fare-Change Fare Equity Analysis

The MBTA implemented a major fare change in July 2012. When planning for the fare change, the MBTA conducted a fare equity analysis on the proposed changes under the then-contemporary guidance (FTA C4702.1A). Although the MBTA had not yet developed its draft disparate impact and disproportionate burden policy at the time, it determined that the fare change would result in neither a disparate impact on minority riders nor a disproportionate burden on low-income riders. The MBTA used two approaches to evaluating the impacts of the 2012 fare change. The first used an elasticity-based spreadsheet model to determine the absolute change and the percentage change in fares for each classification of rider. The resulting estimated impacts of the fare change on minority and low-income riders are summarized in Table 7-1. Table 7-1 shows that the absolute change in the average fare is less for minority and low-income riders than for minority and non-low-income riders. Since the existing average fare for low-income riders is significantly lower than the non-low-income average, the price increase affects low-income communities relatively more on a percentage basis. However, even though the percentage change in the average fare is higher for low-income riders than non-low-income riders, the average fare for low-income riders will still be lower than for non-low-income riders.

Table 7-1 Average Fare Increase by Fare Product and Minority or Low-Income Status (2012)

Rider Classification	Existing Average Fare	Proposed Average Fare	Absolute Price Change	Percentage Price Change
Minority	$0.95	$1.15	$0.20	21.3%
Nonminority	$1.33	$1.62	$0.29	22.0%
Low-income	$0.84	$1.04	$0.20	24.1%
Non-low-income	$1.32	$1.58	$0.26	20.0%
Systemwide	$1.17	$1.42	$0.25	21.4%

Source: "Service and Fare Equity Analysis of Potential MBTA Fare Increase and Service Changes in 2012" (see Appendix P).

The second approach used the Boston Region Metropolitan Planning Organization's (MPO) regional travel demand model set, and followed the Boston Region MPO's approach to conducting environmental justice analysis, which resulted in estimates of the impacts of the fare change on each classification of rider in the following categories:

- Average fare
- Transit walk-access, wait, and in-vehicle times
- Number of transit transfers and trips
- Access to various types of jobs and facilities
- Vehicle-miles traveled and

The analysis of the equity impacts on the various metrics from the regional travel demand model set showed that, in general, for the metrics in which minority and low-income communities have better existing (pre-fare and service change) "scores" than nonminority and non-low-income communities—scores for the transit and accessibility equity measures—the fare change, while making the scores slightly worse overall, degrades the scores less for minority and low-income communities than for nonminority and non-low-income communities. For the metrics in which minority and low-income communities have worse existing scores than non-minority and non-low-income communities—scores for the highway congestion and air quality equity measures—the fare change results in larger negative impacts on minority and

low-income communities than on nonminority and non-low-income communities, again further increasing the differences. However, many of the differences between minority and nonminority communities and between low-income communities and non-low-income communities were so small that they were not statistically significant, indicating that there would be no significant difference.

The full Service and Fare Equity (SAFE) Analysis for the 2012 fare and service changes is included in Appendix P.

Findings of the SFY 2015 Fare Equity Analysis

The MBTA is currently in the process of proposing a fare change that would take effect in SFY 2015. At this time, the MBTA has completed the equity analysis for the fare change, as proposed, and has begun public outreach and engagement efforts. The impacts of the fare change by mode and fare payment type by minority and income status are shown in Table 7-1, and, as required by FTA C4702.1A, the findings of the SFY 2015 Fare Equity Analysis by fare media are summarized in Table 7-3. A more detailed analysis of the potential impacts is in Chapter 6 of the full 2015 fare equity analysis, "Potential MBTA Fare Changes in SFY 2015," is provided in Appendix Q.

The MBTA found that the proposed SFY 2015 fare changes would not result in a disparate impact on minority riders or a disproportionate burden on low-income riders.

Application of the proposed disparate-impact policy showed:

- The projected absolute increase in the average fare for minority riders was 81% of the projected absolute increase in the average fare for all riders.

- The projected relative increase (or the change taken as a percentage if the initial fare) in the average fare for minority riders was 101% of the projected relative increase in the average fare for all riders.

Application of the proposed Disproportionate Burden Policy showed:

- The projected absolute increase in the average fare for low-income riders was 69 percent of the projected absolute increase in the average fare for all riders.

- The projected relative increase in the average fare for low-income riders was 96 percent of the projected relative increase in the average fare for all riders.

The fare changes were projected to affect the overall ridership more severely than minority or low-income riders when considering the absolute changes in fares; and to affect overall ridership more than low-income riders when considering the relative changes in fares. While the relative change in projected fares was greater for minority riders than for all riders, the relative increase for minority riders was only 1 percent greater than the projected increase for all riders. Because this is less than the 20 percent threshold in the disparate-impact policy, there was no disparate impact.

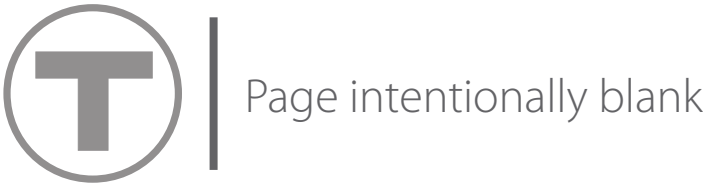

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Table 7-2 Proposed Fare Increase by Fare Payment Type and Minority and Income Status

Fare-Payment Type	Price		Change		Annual Usage by Group: Total Trips			Annual Usage by Group: Percent of Group Total		
	Existing	Proposed SFY 2016	Absolute	Percent	Minority	Low-Income	All Riders	Minority	Low-Income	All Riders
SINGLE-RIDE FARES								**26.9%**	**30.0%**	**27.2%**
CharlieCard										
Adult										
Local Bus	$ 1.50	$ 1.60	$ 0.10	6.7%	8,983,000	7,725,000	17,090,000	6.4%	5.9%	4.4%
Rapid Transit	2.00	2.10	0.10	5.0%	10,436,000	10,263,000	38,134,000	7.4%	7.9%	9.8%
Bus + Rapid Transit	2.00	2.10	0.10	5.0%	3,553,000	3,193,000	8,715,000	2.5%	2.4%	2.2%
Inner Express	3.50	3.65	0.15	4.3%	226,000	201,000	540,000	0.2%	0.2%	0.1%
Outer Express	5.00	5.25	0.25	5.0%	24,700	12,400	102,000	0.0%	0.0%	0.0%
Senior										
Local Bus	$ 0.75	$ 0.80	$ 0.05	6.7%	1,718,000	3,449,000	4,582,000	1.2%	2.6%	1.2%
Rapid Transit	1.00	1.05	0.05	5.0%	1,032,000	2,283,000	4,179,000	0.7%	1.7%	1.1%
Bus + Rapid Transit	1.00	1.05	0.05	5.0%	533,000	1,104,000	1,645,000	0.4%	0.8%	0.4%
Inner Express	2.25	2.35	0.10	4.4%	4,400	38,300	75,700	0.0%	0.0%	0.0%
Outer Express	3.25	3.40	0.15	4.6%	NR	NR	13,700	0.0%	0.0%	0.0%
Student										
Local Bus	$ 0.75	$ 0.80	$ 0.05	6.7%	1,522,000	1,477,000	1,979,000	1.1%	1.1%	0.5%
Rapid Transit	1.00	1.05	0.05	5.0%	807,000	658,000	1,252,000	0.6%	0.5%	0.3%
Bus + Rapid Transit	1.00	1.05	0.05	5.0%	333,000	309,000	456,000	0.2%	0.2%	0.1%
Inner Express	2.25	2.35	0.10	4.4%	19,800	30,600	32,600	0.0%	0.0%	0.0%
Outer Express	3.25	3.40	0.15	4.6%	NR	NR	500	0.0%	0.0%	0.0%

(cont.)

Table 7-2 (cont.)

Fare-Payment Type	Price		Change		Annual Usage by Group: Total Trips			Annual Usage by Group: Percent of Group Total		
	Existing	Proposed SFY 2016	Absolute	Percent	Minority	Low-Income	All Riders	Minority	Low-Income	All Riders
CharlieTicket										
Adult										
Local Bus	$ 2.00	$ 2.10	$ 0.10	5.0%	2,001,000	2,016,000	3,406,000	1.4%	1.5%	0.9%
Rapid Transit	2.50	2.65	0.15	6.0%	5,288,000	5,501,000	14,442,000	3.8%	4.2%	3.7%
Bus + Rapid Transit	4.50	4.75	0.25	5.6%	7,600	7,600	14,100	0.0%	0.0%	0.0%
Inner Express	4.50	4.75	0.25	5.6%	40,600	46,800	90,200	0.0%	0.0%	0.0%
Outer Express	6.50	6.80	0.30	4.6%	4,900	NR	8,700	0.0%	0.0%	0.0%
Commuter Rail										
Zone 1A–10	$2.00–$11.00	$2.10–$11.50	$0.10–$0.50	3.4%–6.3%	1,092,000	774,000	8,324,000	0.8%	0.6%	2.1%
InterZone 1–9	$2.50–$6.00	$2.75–$6.25	$ 0.25	4.2%–10.0%	20,600	14,600	157,400	0.0%	0.0%	0.0%
InterZone 1	2.50	2.75	0.25	10.0%	1,400	300	8,400	0.0%	0.0%	0.0%
InterZone 2	3.00	3.25	0.25	8.3%	4,000	2,000	31,500	0.0%	0.0%	0.0%
InterZone 3	3.25	3.50	0.25	7.7%	4,200	1,200	28,200	0.0%	0.0%	0.0%
InterZone 4	3.50	3.75	0.25	7.1%	3,600	900	20,100	0.0%	0.0%	0.0%
InterZone 5	4.00	4.25	0.25	6.3%	6,000	1,300	32,700	0.0%	0.0%	0.0%
InterZone 6	4.50	4.75	0.25	5.6%	2,900	600	16,400	0.0%	0.0%	0.0%
InterZone 7	5.00	5.25	0.25	5.0%	2,500	600	15,200	0.0%	0.0%	0.0%
InterZone 8	5.50	5.75	0.25	4.5%	500	400	4,800	0.0%	0.0%	0.0%
InterZone 9	6.00	6.25	0.25	4.2%	0	0	0	0.0%	0.0%	0.0%
InterZone 10										
Ferry										
F1: Hingham	$ 8.00	$ 8.50	$ 0.50	6.3%	19,100	7,300	541,000	0.0%	0.0%	0.1%

(cont.)

Table 7-2 (cont.)

Fare-Payment Type	Price		Change		Annual Usage by Group: Total Trips			Annual Usage by Group: Percent of Group Total		
	Existing	Proposed SFY 2016	Absolute	Percent	Minority	Low-Income	All Riders	Minority	Low-Income	All Riders
Ferry										
F2: Boston	8.00	8.50	0.50	6.3%	1,400	31,500	205,000	0.0%	0.0%	0.1%
F2: Cross Harbor	13.00	13.75	0.75	5.8%	200	500	1,900	0.0%	0.0%	0.0%
F2: Logan	16.00	17.00	1.00	6.3%	3,100	8,300	28,800	0.0%	0.0%	0.0%
F4: Inner Harbor	3.00	3.25	0.25	8.3%	20,900	14,700	220,000	0.0%	0.0%	0.1%
PASSES								**50.3%**	**46.4%**	**49.1%**
Local Bus	$ 48.00	$ 50.00	$ 2.00	4.2%	3,243,000	2,527,000	5,498,000	2.3%	1.9%	1.4%
LinkPass	70.00	75.00	5.00	7.1%	30,072,000	20,774,000	91,766,000	21.5%	15.9%	23.5%
Senior/TAP	28.00	29.00	1.00	3.6%	3,919,000	7,561,000	11,532,000	2.8%	5.8%	2.9%
Student 5-Day	25.00	26.00	1.00	4.0%	5,943,000	5,383,000	9,007,000	4.2%	4.1%	2.3%
Student 7-Day	28.00	29.00	1.00	3.6%	622,000	564,000	943,000	0.4%	0.4%	0.2%
1-Day	11.00	12.00	1.00	9.1%	665,000	494,000	799,000	0.5%	0.4%	0.2%
7-Day	18.00	19.00	1.00	5.6%	21,249,000	21,505,000	44,721,000	15.2%	16.5%	11.4%
Inner Express	110.00	115.00	5.00	4.5%	639,000	351,000	2,190,000	0.5%	0.3%	0.6%
Outer Express	160.00	168.00	8.00	5.0%	107,000	30,100	375,000	0.1%	0.0%	0.1%
Commuter Boat	262.00	275.00	13.00	5.0%	8,000	7,400	265,000	0.0%	0.0%	0.1%
Commuter Rail										
Zone 1A–10	$70.00–$345.00	$75.00–$362.00	$5.00–$17.00	4.7%–7.1%	4,074,000	1,430,000	24,644,000	2.9%	1.1%	6.3%
Zone 1A	$ 70.00	$ 75.00	$ 5.00	7.1%	706,000	394,000	2,261,000	0.5%	0.3%	0.6%
Zone 1	173.00	182.00	9.00	5.2%	247,000	82,400	1,609,000	0.2%	0.1%	0.4%
Zone 2	189.00	198.00	9.00	4.8%	471,000	156,000	3,871,000	0.3%	0.1%	1.0%
Zone 3	212.00	222.00	10.00	4.7%	558,000	150,000	3,931,000	0.4%	0.1%	1.0%

(cont.)

Table 7-2 (cont.)

Fare-Payment Type	Price		Change		Annual Usage by Group: Total Trips			Annual Usage by Group: Percent of Group Total		
	Existing	Proposed SFY 2016	Absolute	Percent	Minority	Low-Income	All Riders	Minority	Low-Income	All Riders
Commuter Rail										
Zone 4	228.00	239.00	11.00	4.8%	671,000	215,000	3,646,000	0.5%	0.2%	0.9%
Zone 5	252.00	265.00	13.00	5.2%	285,000	89,700	2,035,000	0.2%	0.1%	0.5%
Zone 6	275.00	289.00	14.00	5.1%	561,000	139,000	3,689,000	0.4%	0.1%	0.9%
Zone 7	291.00	306.00	15.00	5.2%	323,000	104,000	1,762,000	0.2%	0.1%	0.5%
Zone 8	314.00	330.00	16.00	5.1%	245,000	93,400	1,782,000	0.2%	0.1%	0.5%
Zone 9	329.00	345.00	16.00	4.9%	5,800	4,900	45,200	0.0%	0.0%	0.0%
Zone 10	345.00	362.00	17.00	4.9%	900	1,000	12,700	0.0%	0.0%	0.0%
InterZone 1–9	$82.00–$201.00	$86.00–$211.00	$4.00–$10.00	4.6%–5.3%	18,300	5,400	113,800	0.0%	0.0%	0.0%
InterZone 1	82.00	86.00	4.00	4.9%	0.4	0.1	2.6	0.0%	0.0%	0.0%
InterZone 2	100.00	105.00	5.00	5.0%	1.7	0.8	13.2	0.0%	0.0%	0.0%
InterZone 3	109.00	114.00	5.00	4.6%	3.3	0.9	21.7	0.0%	0.0%	0.0%
InterZone 4	118.00	124.00	6.00	5.1%	3.9	1.0	21.5	0.0%	0.0%	0.0%
InterZone 5	134.00	141.00	7.00	5.2%	3.6	0.8	19.4	0.0%	0.0%	0.0%
InterZone 6	151.00	159.00	8.00	5.3%	2.1	0.4	11.8	0.0%	0.0%	0.0%
InterZone 7	167.00	175.00	8.00	4.8%	2.8	0.7	16.8	0.0%	0.0%	0.0%
InterZone 8	184.00	193.00	9.00	4.9%	0.7	0.6	6.8	0.0%	0.0%	0.0%
InterZone 9	201.00	211.00	10.00	5.0%	N/A	N/A	0.0			
InterZone 10										
FREE TRANSFERS AND OTHER FARES								22.8%	23.7%	23.8%

Note:
Values greater than 100,000 are rounded to the nearest 1,000. Values less than 100,000 are rounded to the nearest 100. Percentages are calculated using unrounded values.
NR indicates that no riders from a given classification responded to the survey.
Shading indicates highest fare product usage rates within each group (minority, low-income, and all riders)
Source: “Potential MBTA Fare Changes in SFY 2015” (see Appendix _).

Table 7-3 Average Fare Increase by Fare Product and Minority or Low-Income Status (SFY 2015)

Fare Payment Type	Minority		Nonminority		Low-Income		Non-Low-Income		All Riders	
Systemwide	$1.70	6%	$2.33	6%	$1.26	6%	$2.53	6%	$2.11	6%
CharlieCard Single Fare	$0.07	6%	$0.08	5%	$0.07	5%	$0.08	5%	$0.07	5%
CharlieTicket Single Fare	$0.11	6%	$0.12	6%	$0.11	6%	$0.12	6%	$0.11	6%
Passes (Core)	$2.37	6%	$2.90	7%	$2.00	6%	$3.04	7%	$2.67	7%
Commuter Rail Single Fare	$0.24	4%	$0.24	4%	$0.24	4%	$0.24	4%	$0.24	3%
Commuter Rail Passes (Zones 1-10)	$8.67	5%	$9.13	5%	$8.05	5%	$9.05	5%	$8.98	5%
Commuter Boat Single Fare	$0.42	7%	$0.46	6%	$0.51	6%	$0.46	6%	$0.46	6%
Commuter Boat Pass	$13.00	5%	$13.00	5%	$13.00	5%	$13.00	5%	$13.00	5%

The public outreach activities for the SFY 2015 fare increase are documented in Chapter 2 of this document.

MBTA Service Change Policies

The MBTA's Service Delivery Policy defines major service changes at an individual route level as major service restructuring that includes:

- Implementation of new routes or services
- Elimination of a route or service
- Elimination of part of a route
- Span of service changes greater than one hour
- Route extension of greater than 1 mile

Major service changes systemwide are as defined in the "Public Process for Changing MBTA Fares, and/or Fare Structure or Major Service Reductions" policy, latest update 2009, as "a systemwide reduction of 10% or more, as measured by typical daily usage."

The MBTA has set the following thresholds for determining disparate impacts and disproportionate burdens for major service changes:

- A disparate benefit would be found if the minority customers (population) receive less than 80 percent of the benefits that the nonminority customers (population) receive.
- A disproportionate benefit would be found if the low-income customers (population) receive less than 80 percent of the benefits that the non-low-income customers (population) receive.
- A disparate burden would be found if the minority customers (population) sustain more than 20 percent additional burden than the total burden that the nonminority customers (population) sustain.
- A disproportionate burden would be found if the low-income customers (population) sustain more than 20 percent additional burden than the total burden that the non-low-income customers (population) sustain.

Findings of the Silver Line Gateway Service Equity Analysis

The MBTA is currently expanding service on the bus rapid transit (BRT) network, with an additional Silver Line BRT line from Downtown Boston through East Boston and terminating in Chelsea. Because this service addition meets the MBTA definition of a major service change, the MBTA conducted a service equity analysis using US census and American Community Survey data to determine the relative impact on minority and nonminority populations. The proposed Silver Line Gateway service improves travel time and accessibility for residents in Chelsea, East Boston, and other Blue Line communities and does not come at the expense of reductions in service on other routes; no adverse effects were identified.

The Service Equity Analysis was performed to compare the demographic makeup of the population receiving the benefits of the new transit service to the demographic makeup of the MBTA service area as a whole. The results of the demographic analysis are provided in Table 7-3. As shown, the percentage of minority and low-income populations in the area directly surrounding the new Silver Line Gateway transit service is significantly higher than the percentage of minority and low-income populations in the MBTA service area as a whole. The minority percentage of 77.1 percent in the Silver Line Gateway service area is 2.9 times the minority percentage of the MBTA service area, and the low-income percentage of 48.1 percent in the Silver Line Gateway service area is 1.6 times the low-income percentage of the MBTA service area.

Table 7-4 Silver Line Gateway Demographic Analysis

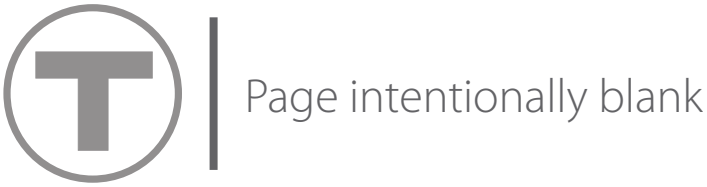
Facility	Affected Population	Minority Population	Percent Minority	Total Households	Low-Income Households	Percent Low-Income
MBTA Service Area	4,833,606	1,266,019	26.2%	1,859,979	577,349	31.0%
Silver Line Gateway	5,273	4,214	77.1%	1,740	972	48.1%

The findings of the demographic analysis show that minority and low-income populations are more likely to benefit from the Silver Line Gateway service than nonminority and non-low-income populations are, and there is no disparate impact on minority populations or disproportionate burden on low-income populations with the addition of this service. Additional information on the Silver Line Gateway Service Equity Analysis can be found in Appendix __.

Late-Night Service Pilot Program

In response to feedback received from members of the public and the business community encouraging the MBTA to offer late-night service as a way to boost the region's economy and provide affordable transportation options to employees working late evening shifts, the MBTA initiated a one-year pilot program that began on Friday, March 28, 2014. The program extended the hours of service by 90 minutes for the MBTA's rapid transit system[1] and Key Bus Routes[2] on Friday and Saturday nights. This extended service provides a transit alternative for many patrons and employees of late-night businesses, including those in the restaurant, entertainment, and hospitality sectors. While the addition of late-night service qualifies as a major service change according to the MBTA's Service Delivery Policy, which defines any change greater than one hour in the span of service, as a major service change, the late-night service is exempt from a service equity analysis, as described in Chapter IV-13 a. (1) (a) of FTA C 4702.1B, which states that "a transit provider may exempt a temporary addition of service (e.g., demonstration projects), including those that would otherwise qualify as a major service change, from its definition of a major service change." Should the MBTA decide to extend the addition of late-night service for more than 12 months, it would conduct a service equity analysis using data that had been collected during the pilot period.

[1] Service was extended on the Red, Orange, Green, Blue, Mattapan, and Silver Lines (except SL2).
[2] The MBTA's Key Bus Routes are bus Routes 1, 15, 22, 23, 28, 32, 39, 57, 66, 71, 73, 77, 111, and 116/117.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