

# PVTA Title VI Program Update

Submitted October 2021



Pioneer Valley Transit Authority



---

2808 N. Main Street, Springfield MA 01107  
ph 413-732-6248 fax 413-737-2954  
[www.pvta.com](http://www.pvta.com)

September 29, 2021

Ms. Margaret Griffin  
Regional Civil Rights Officer  
Federal Transit Administration  
U.S. Department of Transportation  
55 Broadway, Suite 904  
Cambridge, MA 02142-1093

SUBJECT: Submittal of PVTA Title VI Civil Rights Program Update October 1, 2021

Dear Ms. Griffin:

The Pioneer Valley Transit Authority is pleased to submit the enclosed 2019-2021 three-year update of our Title VI Civil Rights Program. This program was presented to and adopted by the PVTA Advisory Board on September 22, 2021.

Please feel free to contact me directly should you have any questions or require additional materials. We will upload the plan in TRAMS on 9/30/21.

Sincerely,

A handwritten signature in blue ink, appearing to read "Sandra E. Sheehan", is written over a horizontal line.

Sandra E. Sheehan ADMINISTRATOR

CC: Dana Roscoe, PVPC



## MEMORADUM OF EXECUTIVE APPROVAL

To: All Employees  
From: Sandra E. Sheehan, Administrator  
Date: September 24, 2021  
Subject: Title VI 2021 Program Update

---

The Pioneer Valley Transit Authority (PVTA) is committed to providing equitable services to all customers throughout its service region in accordance with the regulations and requirements of the U.S. Department of Transportation Title VI (49 CFR part 21), as well as the Civil Rights Act of 1964 and its amendments (42 U.S.C. § 200d), collectively known as Title VI, which prohibit discrimination on the basis of race, color, or national origin in programs and activities that receive federal funds.

As part of its fulfillment of this commitment, PVTA every three years submits to the Federal Transit Administration (FTA) a Title VI Civil Rights Program Update. PVTA's Title VI Program Update for 2021 has been prepared in accordance with the guidance given in FTA Circular 4702.b of October 1, 2012, "Title VI Requirements and Guidelines for Federal Transit Administration Recipients."

I hereby approve the attached Title VI 2021 Program Update. Please review and familiarize yourself with these documents, which are available on our website at <http://www.pvta.com/vitalDocuments.php>.

Thank you!

Thank you

A handwritten signature in blue ink, appearing to read "Sandra E. Sheehan", is written over a horizontal line.

Sandra E. Sheehan, Administrator

September 23, 2021

Date

# Translation/Tradução/Traducción/翻译/ Перевод/ Dịch

English: If this information is needed in another language, please contact the PVTA Title VI Specialist at 413-732-6248 x230.

Portuguese: Caso esta informação seja necessária em outro idioma, favor contar o Especialista em Título VI do PVTA pelo telefone 413-732-6248 x230.

Spanish: Si necesita esta información en otro idioma, por favor contacte al especialista de PVTA del Título VI al 413-732-6248 x230.

Chinese Simplified: (mainland & Singapore): 如果需要使用其它语言了解信息，请联系麻纱湾区交通局（PVTA）《民权法案》第六章专员，电话413-732-6248 x230。

Chinese Traditional: (Hong Kong & Taiwan): 如果需要使用其它语言了解信息，請聯繫麻省灣區交通局（PVTA）《民權法案》第六章專員，電話413-732-6248 x230。

Russian: Если Вам необходима данная информация на любом другом языке, пожалуйста, свяжитесь со специалистом по Титулу VI PVTA по тел: 413-732-6248 x230.

Haitian Creole: Si yon moun vle genyen enfòmasyon sa yo nan yon lòt lang, tanpri kontakte Espesyalis PVTA Title VI la nan nimewo 413-732-6248 x230.

Vietnamese: Nếu quý vị cần thông tin này bằng tiếng khác, vui lòng liên hệ Chuyên viên Luật VI của PVTA theo số điện thoại 413-732-6248 x230.

French: Si vous avez besoin d'obtenir une copie de la présente dans une autre langue, veuillez contacter le spécialiste du Titre VI de PVTA en composant le 413-732-6248 x230.

Italian: Se ha bisogno di ricevere queste informazioni in un'altra lingua si prega di contattare lo Specialista PVTA del Titolo VI al numero 413-732-6248 x230.

Khmer: ប្រសិនបើលោក-អ្នកត្រូវការបកប្រែព័ត៌មាននេះ សូមទាក់ទងអ្នកឯកទេសលើជំពូកទី6 របស់ PVTA តាមរយៈលេខទូរស័ព្ទ 413-732-6248 x230

Arabic: إن كنت بحاجة إلى هذه المعلومات بلغة أخرى، يُرجى الاتصال بأخصائي الفقرة السادسة على الهاتف 413-732-6248 x230

This report was funded in part through grant[s] from the Federal Transit Administration, U.S. Department of Transportation. The views and opinions of the authors [or agency] expressed herein do not necessarily state or reflect those of the U. S. Department of Transportation

This page intentionally left blank

# Table of Contents

## Contents

A.	Introduction .....	1
B.	FTA Checklist .....	2
i.	General Requirements.....	2
ii.	Requirements of Transit Providers: .....	2
1	Title VI Notice to the Public and Locations Where It Is Posted .....	3
2	Title VI Complaint Procedures .....	3
3	Title VI Complaint Form .....	3
4	Transit-Related Title VI Investigations, Complaints, and Lawsuits.....	3
5	Public Participation Plan .....	3
6	Language Assistance Plan .....	4
7	Representation on Boards, Committees and Councils .....	4
8	Subrecipient Monitoring Procedures.....	5
9	Title VI Capital Construction Equity Analyses.....	7
10	Title VI Program Approval.....	7
11	Service Standards .....	7
11.1	Vehicle Load .....	7
11.2	Vehicle Headway .....	8
11.3	On-Time Performance .....	8
11.4	Service Availability.....	8
12	Service Policies .....	8
12.1	Transit Amenities.....	9
12.2	Vehicle Assignment .....	10
13	Demographic and Service Profiles .....	10
13.1	Demographic Map 1 .....	11
13.2	Demographic Map 2 .....	12
13.3	Demographic Map 3 .....	13
13.4	Demographic Map 4 .....	14
13.5	Demographic Map 5 .....	15
14	Demographic Ridership and Travel Patterns.....	16
15	Monitoring Program Results .....	18
15.1	Route Performance .....	18
15.2	Routes and Standards.....	20
15.3	Route Performance Discrepancies and Corrective Actions.....	21
15.4	Transit Amenities Policy .....	21
15.5	Observed Disparate Impacts .....	22
16	Major Service Change, Disparate Impact, and Disproportionate Burden Public Processes .....	22
17	Title VI Fare and Service Equity Analyses.....	22
17.1	The Loop Demonstration Service Analysis .....	23
17.2	2021 Fare Impact Analysis.....	24

## Tables

Table 1. <i>PVTA Boards, Committees and Councils</i> .....	5
Table 2. <i>Vehicle Crowding Tolerance</i> .....	7
Table 3. <i>Service Frequency Guidelines</i> .....	8
Table 4. Current Stop Spacing.....	8
Table 5. <i>Race/Ethnicity of Customers</i> .....	16
Table 6. Language Spoken at Home by Customers .....	16
Table 7. <i>Reported Income of Customers</i> .....	17
Table 8. Fare Type Usage by Race/Ethnicity.....	17
Table 9. Fare Type Usage by Income Category.....	17
Table 10. <i>Travel Patterns by Race</i> .....	18
Table 11. <i>Route Performance</i> .....	19
Table 12. Routes Standards Attainment.....	20
Table 13. Average Performance for Minority and Non-Minority Routes .....	22
Table 14. Disparate Impact/Disproportional Burden .....	25
Table 15. Summary of Board Actions related to Fare Impact Analysis.....	25

## Maps

Map 1: Block Group Minority/Non-Minority Population .....	11
Map 2: Transit Facilities Status .....	12
Map 3: Minority and Non-Minority Block Groups .....	13
Map 4: Minority Block Groups and Transit Facilities .....	14
Map 5: Low Income Block Groups .....	15

## A. Introduction

This 2021 Title VI Program Update of the Pioneer Valley Transit Authority (PVTA) is presented to verify compliance with Civil Rights Act of 1964 and its amendments (42 U.S.C. § 200d), collectively known as Title VI, which prohibit discrimination on the basis of race, color, or national origin in programs and activities that receive federal funds.

This document has been produced consistent with the guidelines in Federal Transit Administration (FTA) Circular 4702.1B effective October 1, 2012 as well as the requirements of 49 C.F.R. § 21.23(f). Updates to this Title VI Program are submitted to the Federal Transit Administration Region One Civil Rights Officer every three years, as required by 49 CFR Section 21.9(b). The date arranged by FTA for submittal of the PVTA 2021 Update is October 1, 2021

PVTA is the second largest transit agency in Massachusetts with a service area that covers 24 member communities, across over 600 sq. mi. and a population of 589,974. In FY 2019, with 47 fixed-routes and a fleet of 192 buses and 136 ADA vans, PVTA provided over 10 million fixed-route rides and over 250,000 paratransit trips. Similar to other agencies, the COVID-19 pandemic severely impacted PVTA transit ridership. In FY 2021, fixed-route ridership and paratransit ridership dropped to 3.9 million and 109,000, respectively. As the region recovers from the pandemic, one of PVTA's mission is to increase the number of jobs, affordable housing, health care, retail centers, social services, and public spaces that can be accessed within a given travel radius on transit, especially for minority and EJ populations that were most impacted by the pandemic.

The mobility that PVTA provides through its fixed route and paratransit services is critical for the many people in the region who do not, or cannot, drive. Data from PVTA bus rider surveys confirm that the majority of customers depend on PVTA for access to work, education, medical care, shopping and other essential services. For the region's businesses and institutions, PVTA provides essential links to economic, academic and cultural activity centers.

This 2021 Title VI Program Update has been prepared to verify that:

1. PVTA benefits and services supported by FTA funds are available to, and fairly distributed among, transit customers without regard to race, color or national origin;
2. The opportunity and ability of persons to participate in transit planning, programming and implementation is not limited on the basis of race, color or national origin; and
3. Any necessary corrective, remedial and affirmative actions have been taken to eliminate and prevent discriminatory treatment of people on the basis of race, color or national origin.



## B. FTA Checklist

FTA circular 4702.1B Attachment A provides a checklist for the items required in Title VI Programs. Below are listed the relevant items for the transit providers serving an urbanized area with greater than 200,000 in population and operating 50 or more fixed route vehicles in peak service, under which PVTA qualifies. This Title VI Program is organized around the requirements as laid out in the checklist.

### i. General Requirements

1. Title VI Notice to the Public, including a list of locations where the notice is posted
2. Title VI Complaint Procedures
3. Title VI Complaint Form
4. List of transit-related Title VI investigations, complaints, and lawsuits
5. Public Participation Plan, including information about outreach methods to engage minority and limited English proficient populations (LEP), as well as a summary of outreach efforts made since the last Title VI Program submission
6. Language Assistance Plan
7. A table depicting the membership of non-elected committees and councils, the membership of which is selected by the recipient, broken down by race, and a description of the process the agency uses to encourage the participation of minorities on such committees
8. Description of how the agency monitors its subrecipients for compliance with Title VI, and a schedule of subrecipient Title VI Program submissions
9. A Title VI equity analysis if the recipient has constructed a facility
10. A copy of board meeting minutes, resolution, or other appropriate documentation showing the board of directors reviewed and approved the Title VI Program

### ii. Requirements of Transit Providers:

11. Service standards
  - 11.1. Vehicle load for each mode
  - 11.2. Vehicle headway for each mode
  - 11.3. On time performance for each mode
  - 11.4. Service availability for each mode
12. Service policies
  - 12.1. Transit amenities for each mode
  - 12.2. Vehicle assignment for each mode
13. Demographic and service profile maps and charts
14. Demographic ridership and travel patterns, collected by surveys
15. Results of monitoring program and report, including evidence that the board considered, was aware of the results, and approved the analysis
16. A description of the public engagement process for setting the “major service change policy,” disparate impact policy, and disproportionate burden policy
17. Results of service and/or fare equity analyses conducted since the last Title VI Program submission, including evidence that the board or other governing entity or officials considered, was aware of, and approved the results of the analysis

## 1 Title VI Notice to the Public and Locations Where It Is Posted

Included in **Appendix A** is a copy of the Title VI Notice to the public used by PVTA. The locations where it is posted:

1. All public-facing spaces at PVTA Administrative Offices;
2. In the Customer Service area at Union Station;
3. In PVTA transit stations, including Holyoke Transportation Center and Westfield Transit Pavilion;
4. In all PVTA fixed-route vehicles.

## 2 Title VI Complaint Procedures

Consistent with 49 CFR Section 21.9(b), PVTA has established and implemented a Title VI complaint procedure. These complaint procedures are posted on the PVTA website at <http://pvta.com/titleVI.php>. As explained on the PVTA website:

### Complaint Filing

To file a complaint alleging a violation of Title VI or related federal nondiscrimination law, contact the Title VI Specialist (above) within 180 days of the alleged discriminatory conduct.

To file a complaint alleging a violation of the state's Public Accommodation Law, contact the Massachusetts Commission Against Discrimination within 300 days of the alleged discriminatory conduct at:

Massachusetts Commission Against Discrimination (MCAD)  
One Ashburton Place, 6th Floor  
Boston, MA 02109  
617-994-6000  
TTY: 617-994-6196

## 3 Title VI Complaint Form

A copy of the Title VI Complaint form in English is included as **Appendix B**. A copy of the Title VI Complaint Form in Spanish is included as **Appendix C**.

## 4 Transit-Related Title VI Investigations, Complaints, and Lawsuits

Since the 2021 submission, PVTA has had no complaints on the basis of race, color, or national origin.

## 5 Public Participation Plan

The PVTA Advisory Board adopted a revised Public Participation Plan on 9/19/2018. This included a public process to update the Disparate Impact and Disproportionate Burdens Policies. The Public Participation Plan can be found as **Appendix D**.

A list of public outreach and community partner engagement in the past three years (October, 2018 to 8/4/2021) includes the following:

- 7 Public Hearings for route changes
- 2 Public hearings fare modification
- 20 PVTA Advisory Board meetings
- 5 Bus stop Route meetings regarding location, placement etc.
- 20 Paratransit Rider’s Council Meetings
- 6 Paratransit Rider Outreach
- 67 Outreaches related to Senior Fare Free Tuesday
- 12 Meetings with community stakeholders related to service and vulnerable populations (Includes with dialysis providers, human service agencies and senior centers)
- 22 Meetings with MassDOT, communities stakeholder regarding PVTA concerns and construction projects
- 2 Emergency preparedness meetings with community stakeholders
- 13 General rider outreach, includes outreach meetings, in person on board outreaches and route specific surveys
- 2019 Southern System passenger survey
- 18 Regional Transportation Advisory Committee (JTC) Public Meetings
- 21 Pioneer Valley Metropolitan Planning Organization (MPO) Public Meetings
- Workforce development opportunities with Western Mass EDC and other community partners including Wayfinders, MassHires Springfield, Springfield BID.
- Age Friendly initiative with Live Well Springfield Coalition
- 7 Meetings with the Quaboag Regional Coordination Council
- Redesigned the Mystery Rider program for Fixed Route and implemented a Paratransit services Mystery Ride Program, conducting approximately 20 rides each month for each program. This program was suspended due to the pandemic, but it is anticipated that it will reinstated shortly.
- PVTA has worked directly with Bay State Medical Center staff to streamline access to transportation for patients who need vaccines at Bay State Facilities.
- We are also working with Curative to conduct vaccine clinic at various PVTA locations that are open to both staff and the general public. PVTA has held two such clinics to date at the Administration building and X at the Holyoke Transit Center.
- Participated in meetings of the Springfield Build Environment Group.

## 6 Language Assistance Plan

The Language Assistance Plan can be found in **Appendix E**.

## 7 Representation on Boards, Committees and Councils

The Pioneer Valley Transit Authority is committed to meeting the needs of all passengers and ensuring that no person is excluded from participation in or denied the benefits of its services. PVTA encourages participation of minorities on transit committees. PVTA conducted a survey of the race and ethnicity of Advisory Board members and Paratransit subcommittee in September 2021. The results showed that of the 21 respondents (out of 26 members), 86% of the Advisory Board identified race as White, 5% as Black, and 10% as “two or more” races. For ethnicity, 80% of those responding are “not Hispanic or

Latino or Spanish Origin,” and 10% are Hispanic, Latino, Spanish Origin, and Puerto Rican. 15% identified as Arab, European, or Ecuadorian.

As described in the enabling state legislation Chapter 161B, Section 5 of the Massachusetts General Laws, the Advisory Board is composed of the chief elected officials from member communities or their representatives. As such, PVTA has no authority in the appointment of community-affiliated Board members. As described in the law, there are two non-community-affiliated positions, the Rider Representative and the ADA Representative. They are selected on a rotating basis by two member-community Board members. The ADA Representative must have a mobility impairment, or have a family member with a mobility impairment. The Rider Representative is chosen from five candidates nominated by the Massachusetts AFL/CIO. PVTA actively seeks input from a broad range of riders on operational and service issues that affect bus riders and organizations with an expressed interest in public transit.

*Table 1. PVTA Boards, Committees and Councils*

<b>Committee</b>	<b>Composition</b>
PVTA Advisory Board	<ul style="list-style-type: none"> <li>a) The Mayor or City or Town Manager of each city.</li> <li>b) The Chair of the Board of Selectmen of each town having such board, or the Town Manager or Town Administrator of each town.</li> <li>c) Advisory Board members may appoint designees to act on their behalf.</li> </ul>
Paratransit Sub-Committee	PVTA Advisory Board members
Paratransit Rider Council	PVTA Advisory Board members
Finance and Audit Committee	PVTA Advisory Board members
Compensation Committee	PVTA Advisory Board members
Route Sub-committee	PVTA Advisory Board members
Paratransit Appeals Committee	<ul style="list-style-type: none"> <li>a) PVPC</li> <li>b) PVTA</li> <li>c) Agawam Council of Aging / PVTA Advisory Board</li> <li>d) Belchertown Select Board / PVTA Advisory Board</li> </ul>
Bus Rider Appeals Committee	<ul style="list-style-type: none"> <li>a) PVPC</li> <li>b) Agawam Council of Aging / PVTA Advisory Board</li> <li>c) Belchertown Select Board / PVTA Advisory Board</li> </ul>
PVTA Safety Committee	<ul style="list-style-type: none"> <li>a) PVTA Chief Safety Officer.</li> <li>b) members of local fire and police departments</li> <li>c) other appropriate community representatives</li> </ul>

## 8 Subrecipient Monitoring Procedures

The Pioneer Valley Transit Authority has one subrecipient of federal funding, the Pioneer Valley Planning Commission (PVPC). To ensure compliance with Title VI requirements, the PVTA implements the following methods:

1. PVTA Title VI Program Officer works closely with subrecipient staff to determine the appropriate level of assistance to be provided.
2. PVTA Title VI Program Officer provides subrecipient staff with guidance and references to Title VI resources as needed. These include FTA publications, webinars, website resources, and information received at FTA trainings.
3. Title VI complaints against PVPC are to be immediately reported to PVTA to ensure consistency with its complaint procedures.
4. PVTA Title VI Program Officer assesses the effectiveness of assistance to the subrecipient through the review of monthly invoices, regular service review meetings, informal ongoing meetings and phone calls, quarterly staff coordination meetings, and review of FTA Triennial and Title VI Program Reviews.
5. PVTA annually reviews and renews the interagency agreements with PVPC for 5303 and 5307 funding to assure that the terms pertaining to Title VI program compliance are up-to-date and are achieving compliance with the PVTA Title VI Program.
6. PVTA reviews subrecipient invoices and activity reports monthly.
7. PVTA subrecipient oversight is also performed as a part of quarterly coordination meetings among senior PVTA and PVPC staff; monthly service review meetings involving PVPC and operating contractors; and through meetings between PVTA and PVPC staff as needed.

Samples of PVPC Title VI forms and resources can be found in the following appendices:

- Sample notices to the public informing beneficiaries of their rights under DOT's Title VI regulations can be found in **Appendix F**.
- Sample PVPC Title VI complaint procedure form can be found in **Appendix G**.
- Sample PVPC Title VI complaint form can be found in **Appendix H**.
- Sample demographic information for PVPC can be found in the PVPC Title VI Program found in **Appendix I**.

The Planning Commission does not provide any transportation services. A copy of their Title VI Program can be found in **Appendix I**.

## 9 Title VI Capital Construction Equity Analyses

There have been no Capital Construction Equity Analyses required since the submission of the last PVTA Title VI Program Plan.

## 10 Title VI Program Approval

The federal circular requires, “A copy of board meeting minutes, resolution, or other appropriate documentation showing the board of directors or appropriate governing entity or official(s) responsible for policy decisions reviewed and approved the Title VI Program.” (page A-1) Further, the circular requires transit providers to, “Submit the results of the monitoring program as well as documentation (e.g., a resolution, copy of meeting minutes, or similar documentation) to verify the board’s or governing entity or official(s)’s consideration, awareness, and approval of the monitoring results to FTA . . .” (page VI-10) Finally, the circular requires, “A copy of the board meeting minutes or a resolution demonstrating the board’s or governing entity or official(s)’s consideration, awareness, and approval of the major service change policy and disparate impact policy.” (page IV-4).

The Advisory Board meeting minutes from 9/22/2021 showing the consideration, awareness, and approval of the above items can be found in **Appendix J**.

## 11 Service Standards

On Page IV-3 of Circular 4702.1B, FTA requires service providers to submit “System-wide service standards and system-wide service policies, whether existing or new (i.e. adopted by the transit provider since the last submission) as described in this chapter.” The standards required by the circular are:

- Vehicle load for each mode
- Vehicle headway for each mode
- On-time performance for each mode
- Service availability for each mode

Below are the specific standards developed by PVTA as outlined in the circular.

### 11.1 Vehicle Load

The PVTA has developed service standards for vehicle loads. This standard is calculated by taking the percentage of monthly trips for each route that, for some portion of the trip, exceeded 35 passengers onboard. The number of trips with more than 35 passengers is divided by the total trips operated for each route. This percentage of “crowded” trips for each route is compared against the allowable threshold for the route’s tier of service, with higher crowding tolerance at higher tiers of service frequency.

Table 2. *Vehicle Crowding Tolerance*

	Tier 1: 4/hr	Tier 2: 3/hr	Tier 3: 2/hr	Tier 4: 1/hr	Tier 5: <1/hr
Crowded Trips Threshold	20%	15%	10%	5%	0%

## 11.2 Vehicle Headway

PVTA's routes are classified into tiers based on their typical weekday vehicle headway. This standard is calculated by taking the percentage of weekday trip intervals (during the academic year) equal to or less than the target headway. Suggested guidelines for weekend frequencies are also provided, but are not used to measure headway attainment.

Table 3. Service Frequency Guidelines

	Tier 1: 4/hr	Tier 2: 3/hr	Tier 3: 2/hr	Tier 4: 1/hr	Tier 5: <1/hr
Weekday Headway	15	20	30	60	120
Saturday Headway	30	30	60	60	--
Sunday Headway	60	60	120	120	--

## 11.3 On-Time Performance

The PVTA has set a goal of 90% on-time performance for fixed route service. The agency tracks performance by operator on a monthly basis. Performance is measured against scheduled time points. A trip is considered "Early" if it departs prior to the scheduled time, and is considered "Late" if it departs more than five minutes after the scheduled departure time.

## 11.4 Service Availability

The PVTA applies a uniform target for stop spacing across its system.

Table 4. Current Stop Spacing

	Tier 1: 4/hr	Tier 2: 3/hr	Tier 3: 2/hr	Tier 4: 1/hr	Tier 5: <1/hr
Minimum Stop Spacing (feet)	1000	1000	1000	1000	1000
Maximum Stops per Mile	5	5	5	5	5

## 12 Service Policies

As required in circular 4702.1B pages IV-6 – IV-7, PVTA has developed policies related to distribution of transit amenities and vehicle assignment to the four garages.

PVTA requires bus shelter placement at stops with ridership of at least 60 boardings per day in urban locations, ridership of at least 40 boardings per day in suburban locations, and ridership of at least 15 boardings per day in rural locations. Shelter placement at stops with lower ridership may be considered if the location experiences a particularly large number of transfers, development proposed for the area will likely increase ridership, or elderly or mobility challenged passengers in the area would benefit from the addition of a shelter. Bus shelter policy requires input from appropriate stakeholders (i.e., community planners, abutters, residents, and business owners), which should be solicited before final placement decisions are made. PVTA has 285 stops (15.6 percent of stops) with shelters, 66 of these have over 60 boardings per day (Figure 40 and Figure 41). Nineteen stops do not have shelters but

have over 60 boardings per day, thus meeting the requirement. These stops include Main/Bridge; North Village Apartments; Cowles Lane; Amherst Glass (In); Sci Tech High School; Rolling Green Apts (In); Mill Valley Apartments (In); Maple/Suffolk; Maple/Hampshire; Commerce High School (opposite); Belmont/Beaumont; Main/Acushnet; Putnam High School (Blunt Park Road); Amherst Common (N); Springfield Library; Memorial/(Park Inn 628); Sylvan Residential (In); Walmart Chicopee; North Amherst Center (In); and Boston/Lucerne (1).

## 12.1 Transit Amenities

Bus shelters are an attractive and often a very important amenity for bus riders. At stops with lower bus frequency, shelters provide much needed protection from the elements; at stops with higher frequency, shelters can help to grow ridership. Shelters are important to the user experience for any bus stop, however due to resource limitations, a prioritization process is necessary to determine which stops would be best suited for a shelter.

PVTA requires bus shelter placement at stops with ridership of at least 60 boardings per day in urban locations, ridership of at least 40 boardings per day in suburban locations, and ridership of at least 15 boardings per day in rural locations. Shelter placement at stops with lower ridership may be considered if the location experiences a particularly large number of transfers, development proposed for the area will likely increase ridership, or elderly or mobility challenged passengers in the area would benefit from the addition of a shelter. Bus shelter policy requires input from appropriate stakeholders (i.e., community planners, abutters, residents, and business owners), which should be solicited before final placement decisions are made. PVTA has 285 stops (15.6 percent of stops) with shelters, 66 of these have over 60 boardings per day. Nineteen stops do not have shelters but have over 60 boardings per day, thus meeting the requirement. These stops include Main/Bridge; North Village Apartments; Cowles Lane; Amherst Glass; Sci Tech High School; Rolling Green Apts; Mill Valley Apartments; Maple/Suffolk; Maple/Hampshire; Commerce High School; Belmont/Beaumont; Main/Acushnet; Putnam High School (Blunt Park Road); Amherst Common; Springfield Library; Memorial/(Park Inn 628); Sylvan Residential; Walmart Chicopee; North Amherst Center; and Boston/Lucerne.

PVTA does not have a policy for benches at stops. Currently, 1,549 stops do not have benches, including 117 stops that do have shelters but no bench. While PVTA does not have a standard for shelter placement, a review of other system policies shows that in general the guideline for installing a bench is half of the standard used for shelter placement. Using this guideline and the PVTA standard for urban areas, 72 stops with over 30 passengers per day do not have seating.

PVTA does not have a policy for lighting at stops. Currently, 374 stops do not have adequate lighting. Lighting at stops is an important factor as it improves the safety and security of the bus stops, as well as allows bus drivers to see waiting passengers and drivers of other vehicles to see passengers boarding and deboarding the bus. Most of the bus stops are marked with PVTA bus stop signs; however, unmarked stops or flag stops are used in some areas. Passengers need to arrive at the stop 5 minutes or more before the expected arrival of the bus, be ready to board (with fare and any ID cards), and signal the driver as the bus approaches. PVTA provides different types of transit services, including local and express services. Generally, services that provide more accessibility have more frequent stops that are closely spaced, and services that provide more mobility such as express or commuter services have fewer stops. PVTA follows guidelines for a minimum stop spacing (or maximum stops per mile) based on the type of service offered. Where multiple routes operate in the same corridor, the



standard for the higher service type applies.

Additional information on the service policies and guidelines are available in the [PVTA 2021 Comprehensive Regional Transit Plan Update/AECOM](#) .

## 12.2 Vehicle Assignment

Buses are replaced based on fiscal constraints including annual state allocations, the Regional Transportation Plan, and State Transportation Improvement Plan, grant specifications and awards, and grant availability. Bus replacement is detailed in the Transit Asset Management Plan. Buses are specified to the regional garage rather than specific routes. Buses are the property of PVTA and driven and maintained by each bus operating company (First Transit, MV Transportation, Hulmes Transportation Ltd, University of Massachusetts Transit Services, and Quaboag Connector).

Route vehicle assignments are based on the size of the vehicle and passenger loads on each particular route. There are also garage limitations to consider, as some garages are better equipped to deal with articulated 60-foot buses and others have equipment specific to battery-electric buses.

All models provide similar passenger accommodations: all are air conditioned, equipped with wheelchair tie-downs and ramps, and have automatic announcements that comply with the Americans with Disabilities Act.

Vehicles are deployed at PVTA's three fixed route garages to provide equitable service among routes. PVTA maintains operational requirements while ensuring that a higher proportion of route miles services census blocks with larger than average populations of low-income residents and people of color.

## 13 Demographic and Service Profiles

The PVTA service area is defined by a diverse population, both in terms of race/ethnicity and income levels. The average proportion of people of color for block groups in the 24 PVTA member communities is 34.1%, and the average low-income population is 16.2%. "Minority" is defined as anyone who does not identify as white and/or is Hispanic, and low-income is defined using the federal poverty definition.

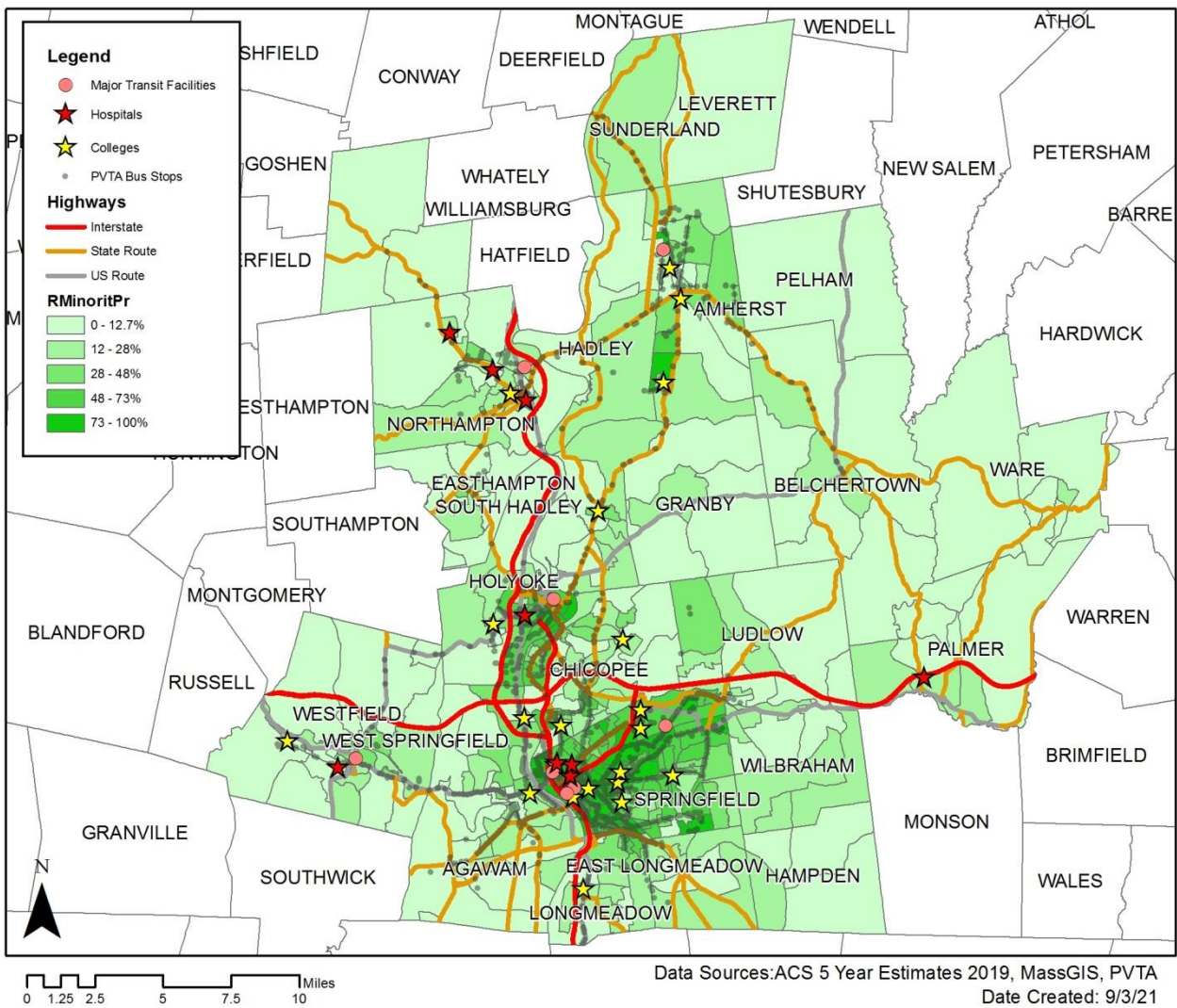
The following demographic maps show the information required in FTA circular 4701.1B on page IV-8.

### 13.1 Demographic Map 1

The circular requires, “A base map of the transit provider’s service area that overlays . . . geographic data with transit facilities . . . as well as major activity centers or transit trip generators and major streets and highways. . . This map shall overlay census tract, block or block group data depicting minority populations with fixed transit facilities” (page IV-8). The first map shows the following:

1. Transit stops
2. Transit facilities
3. Major activity centers (Hospitals and post-secondary institutions)
4. Highways
5. Block group data depicting minority populations

Map 1: Block Group Minority/Non-Minority Population

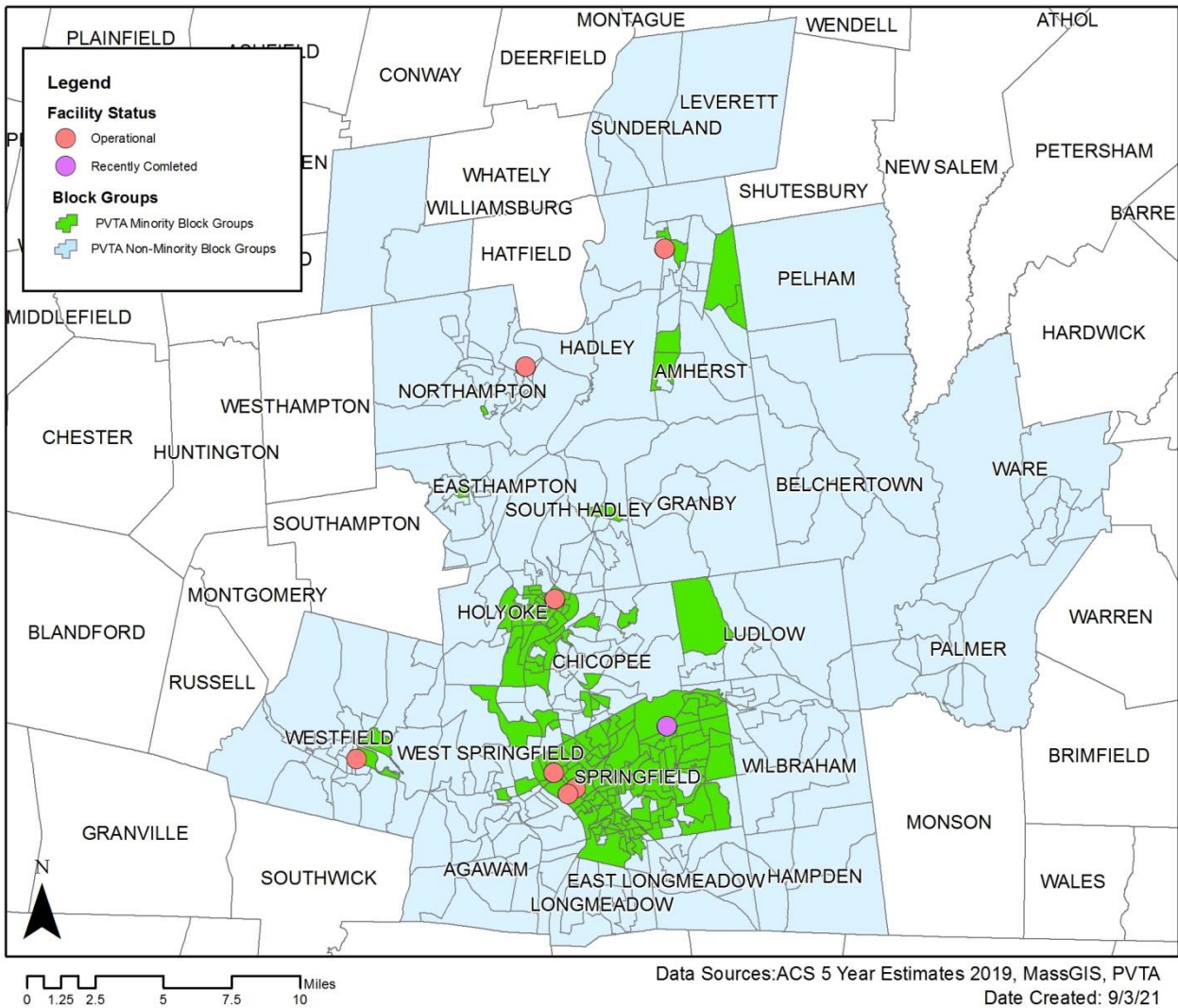


### 13.2 Demographic Map 2

The circular requires, “Another map shall highlight those transit facilities that were recently replaced, improved or are scheduled (projects identified in planning documents) for an update in the next five years.” (Page IV-8) The second demographic map depicts the following:

1. Transit facilities that were recently upgraded
2. Transit facilities that are being constructed
3. Block groups with a larger-than-average minority population

Map 2: Transit Facilities Status

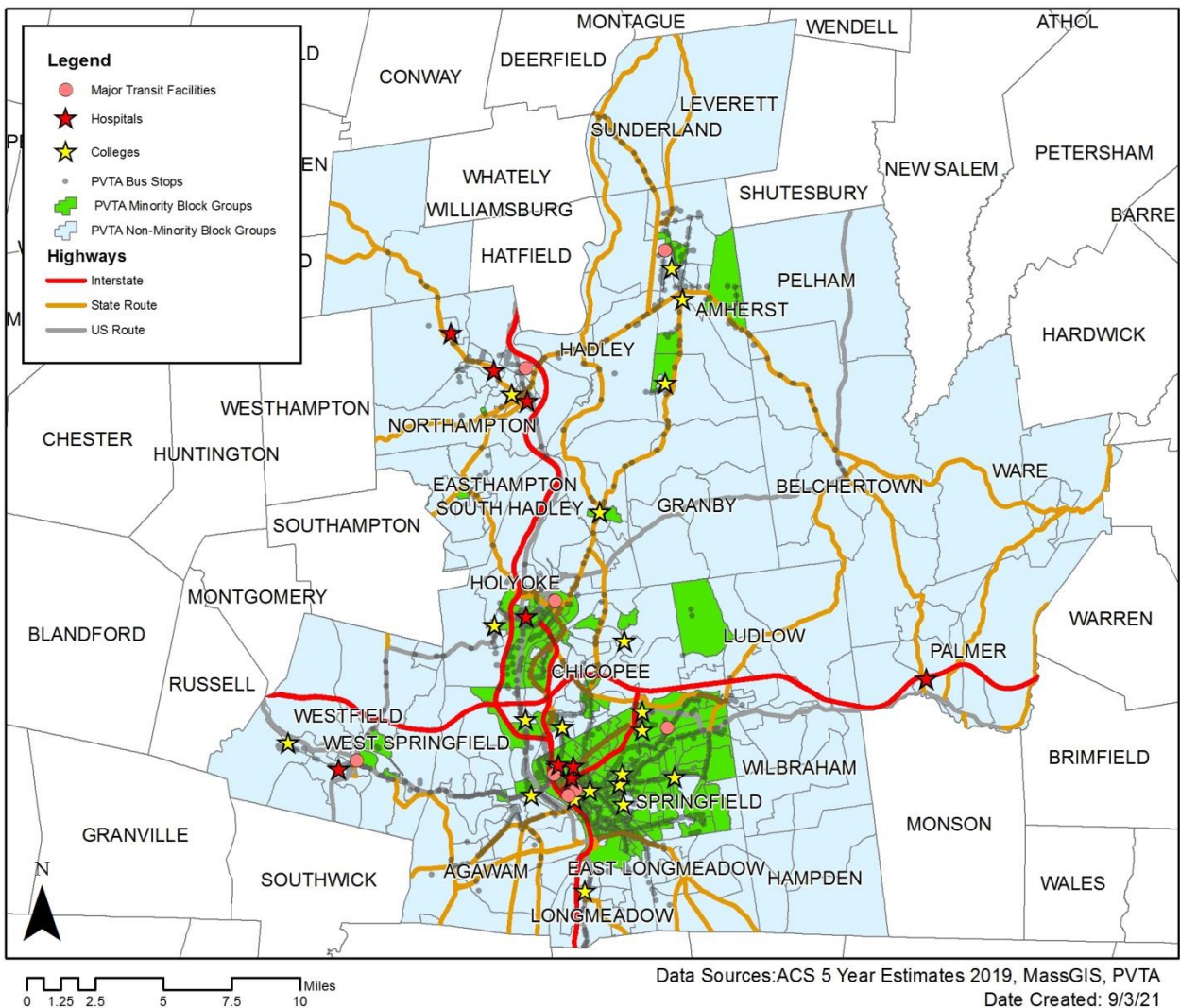


### 13.3 Demographic Map 3

The circular requires, “A demographic map that plots the information listed . . . above and also shades those Census tracts, blocks, block groups, TAZs, or other geographic zones where the percentage of the total minority population residing in these areas exceeds the average percentage of minority populations for the service area as a whole.” (page IV-8) The third demographic map shows the following:

1. Transit stops
2. Transit facilities
3. Major activity centers (Hospitals and post-secondary institutions)
4. Highways
5. Block groups with a larger-than-average minority population

Map 3: Minority and Non-Minority Block Groups

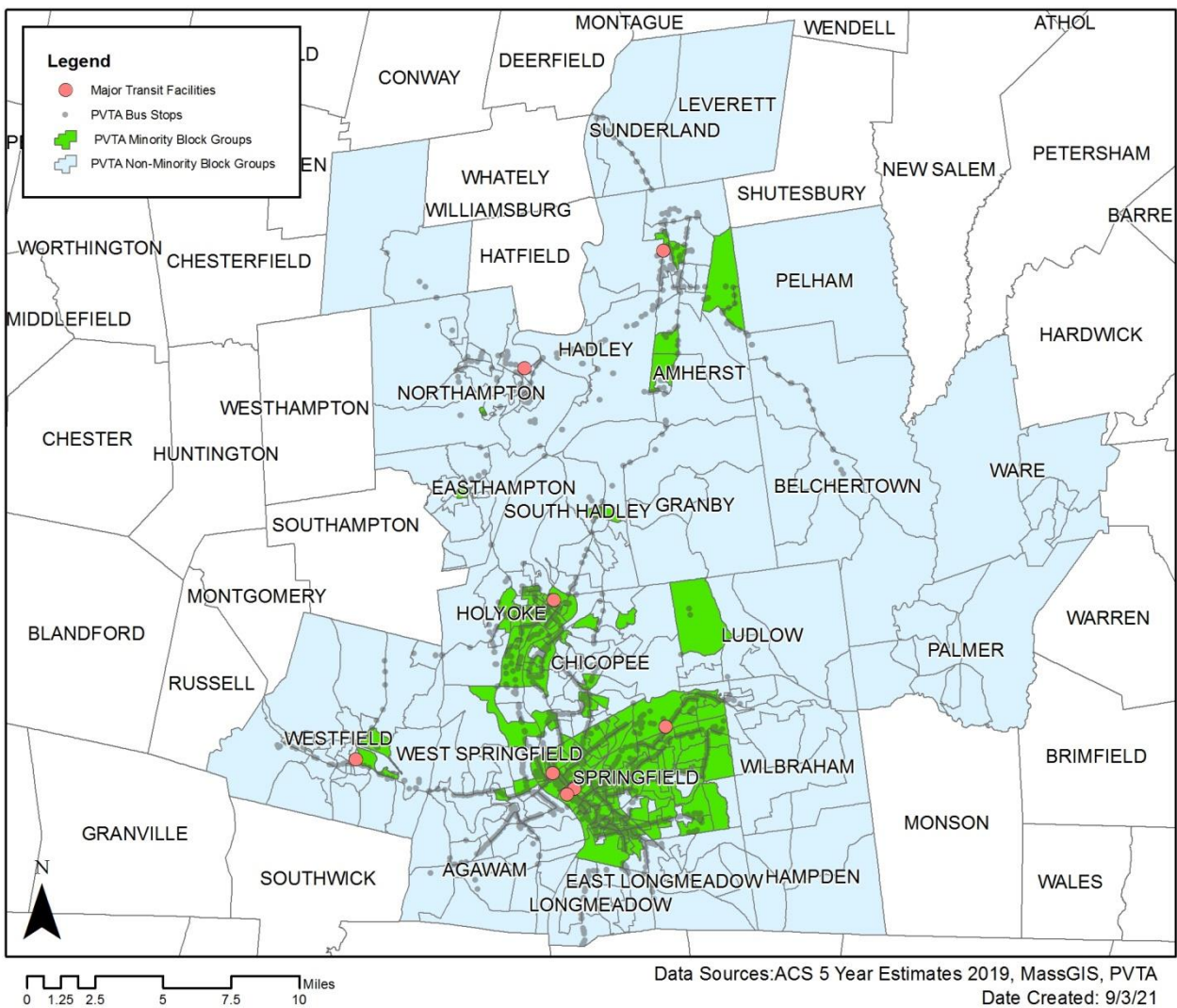


### 13.4 Demographic Map 4

The circular requires, “Transit providers shall also prepare a GIS or alternative map overlaying minority populations with fixed transit facilities, such as bus shelters, transit stations, and fixed guideways.” (page IV-8) The fourth demographic map shows the following:

1. Major Transit Facilities
2. Bus Stops
3. Block groups with a larger-than-average minority population

Map 4: Minority Block Groups and Transit Facilities

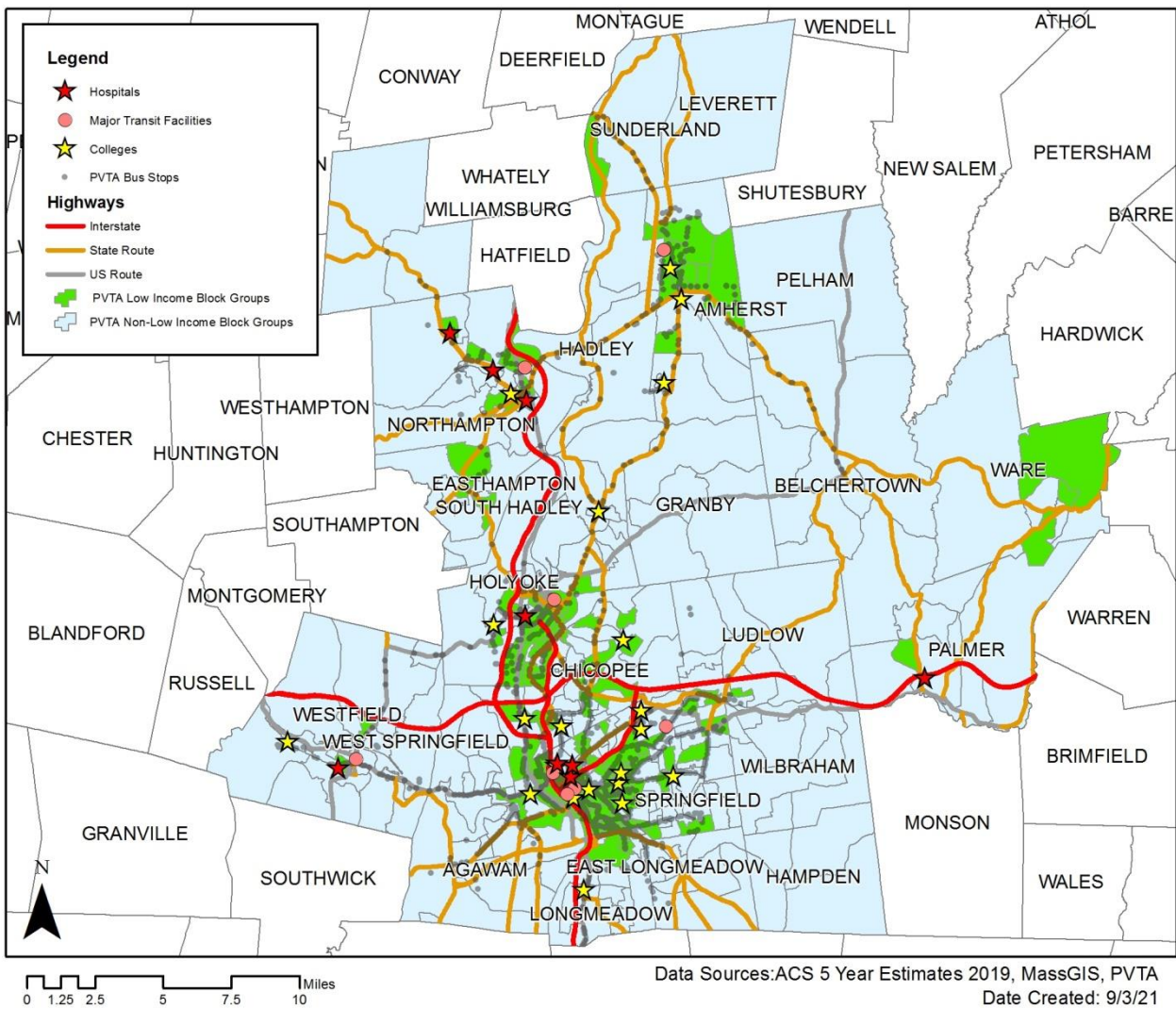


### 13.5 Demographic Map 5

The circular requires that, “. . . demographic maps shall also depict those Census tracts, blocks, block groups, TAZs, or other geographic zones where the percentage of the total low-income population residing in these areas exceeds the average percentage of low-income populations for the service area as a whole.” (page IV-8) The fifth demographic map shows the following:

1. Transit stops
2. Transit facilities
3. Major activity centers (Hospitals and post-secondary institutions)
4. Highways
5. Block groups with a larger-than-average low-income population

Map 5: Low Income Block Groups



## 14 Demographic Ridership and Travel Patterns

The PVTA conducted on-board customer surveys in 2019 (southern area) and 2016 (northern area) collecting ridership and customer information. As outlined in circular 4701.1B pages IV-8 to IV-9, the PVTA below provides information from those surveys in tabular format on the following:

1. “Information on the race, color, national origin, English proficiency, language spoken at home, household income, and travel patterns” (IV-8); and
2. Information on “fare usage by fare type amongst minority users and low-income users.” (IV-8)

**Table 5. Race/Ethnicity of Customers**

<b>Race/Ethnicity</b>	<b>Percent</b>
<b>American Indian/Alaskan Native</b>	1.0%
<b>Asian/Pacific Islander</b>	8.2%
<b>Black/ African American</b>	15.7%
<b>Hispanic/Latino</b>	28.7%
<b>Other</b>	2.4%
<b>Two or More Races</b>	2.3%
<b>White</b>	41.8%

This table was developed using the 2016 Northern System Customer Survey and 2019 Southern System Customer Survey. The data was distributed by region using FY2019 ridership totals by Operator. The 2019 Southern System Customer Survey questions included a separate question for ethnicity and allowed riders to choose multiple answers. In contrast, the 2016 Northern System Customer Survey asked a single question with the available options above. Riders could choose a single answer. Those answering “Yes” to “Hispanic/Latino” in the 2019 survey are considered Hispanic/Latino whether a race option was chosen. Only those choosing more than one option on the 2019 survey question on race are listed as Two or More Races.

**Table 6. Language Spoken at Home by Customers**

<b>Language</b>	<b>Percent</b>
<b>English Only</b>	61.49%
<b>English and Spanish</b>	19.86%
<b>English and Other</b>	12.88%
<b>Spanish Only</b>	3.37%
<b>Other Only</b>	2.40%

This table was developed using the 2016 Northern System Customer Survey and 2019 Southern System Customer Survey. The data was distributed by region using FY2019 ridership totals by Operator. In 2019, multiple options could be chosen. Respondents choosing any option that includes “Spanish” with any option that includes “English” are considered speaking both “English and Spanish.”

Table 7. *Reported Income of Customers*

Income Level	Percent
Less than \$12,501	50.37%
\$12,501 - \$21,500	13.73%
\$21,500 - \$35,000	12.99%
More than \$35,000	11.46%
Blank	11.46%

Table 8. *Fare Type Usage by Race/Ethnicity*

Fare Type	American Indian/ Native American	Asian/ Pacific Islander	Black/ African American	Hispanic/ Latino	Other	Two or More Races	White
Free (Prepaid)	0.28%	7.44%	4.83%	5.74%	1.15%	0.36%	23.97%
Full Fare (Cash on Board)	0.24%	0.59%	5.78%	12.86%	0.59%	0.91%	8.50%
Senior or Discount (Cash on Board)	0.00%	0.00%	0.75%	1.38%	0.20%	0.08%	1.74%
Weekly or Monthly Pass	0.40%	0.28%	2.61%	6.29%	0.32%	0.75%	4.11%
Senior or Discount Pass	0.00%	0.04%	1.11%	1.27%	0.08%	0.12%	3.05%

Answers are not distributed by system (Northern/Southern) to provide a more complete picture of race by fare type throughout the service area.

Table 9. *Fare Type Usage by Income Category*

Income Level	Free (Prepaid)	Full Fare (Cash On Board)	Senior or Discount (Cash on Board)	Weekly or Monthly Pass	Senior or Discount Pass
Less than \$12,501	27.9%	11.0%	1.9%	6.2%	2.5%
\$12,501 - \$21,500	5.2%	4.6%	0.7%	2.1%	0.7%
\$21,500 - \$35,000	3.8%	5.4%	0.4%	2.5%	0.6%
More than \$35,000	4.5%	4.1%	0.5%	1.6%	0.6%

The four income categories listed are the narrowest congruent categories between the 2016 and 2019 Customer Surveys.



Table 10. *Travel Patterns by Race*

Trip Purpose	American Indian/Alaskan Native	Asian/Pacific Islander	Black/African American	Hispanic/Latino	Other	Two or More	White
College	0.13%	4.24%	3.36%	3.81%	0.62%	0.39%	13.82%
Work	0.42%	0.65%	5.73%	9.78%	0.65%	0.85%	7.27%
Shopping	0.13%	0.65%	2.97%	6.45%	0.36%	0.59%	5.31%
Social/Recreation	0.07%	0.29%	1.73%	3.32%	0.33%	0.42%	4.95%
Medical	0.10%	0.16%	1.37%	4.33%	0.33%	0.42%	2.48%
School (K-12)	0.03%	0.49%	1.21%	3.45%	0.20%	0.33%	1.56%
Other	0.03%	0.39%	0.55%	1.37%	0.07%	0.10%	1.66%

On the 2019 Customer Survey, respondents could answer this question by choosing multiple trip purposes while in 2016 respondents were limited to a single answer. All recorded answers are included in this chart.

## 15 Monitoring Program Results

Circular 4702.1B on page IV-10 requires that transit providers, “Submit the results of the monitoring program as well as documentation (e.g., a resolution, copy of meeting minutes, or similar documentation) to verify the board’s or governing entity or official(s)’s consideration, awareness, and approval of the monitoring results to FTA every three years as part of the Title VI Program.” The results of the monitoring program are presented below. Minority Routes are those routes where the proportion of people of color riding the route is greater than the system average of 60%.

### 15.1 Route Performance

The circular requires that, “Transit providers shall assess the performance of each minority and nonminority route in the sample for each of the transit provider’s service standards and service policies.” (page IV-10). The four service standards outlined in the section Service Standards, as required by circular 4702.1B pages IV-5 to IV-6, are Headway, On-Time Performance, Vehicle Loading, and Service Availability (stop spacing).

Table 11. Route Performance

Route	Tier	Minority Route	% Headway Standard Met	OTP	% Crowded Trips	% Stop Spacing Standard Met
G1	Tier 2	YES	79%		63%	3%
G2	Tier 3	YES	97%		76%	3%
G3	Tier 3	YES	63%		85%	1%
B4	Tier 3	YES	0%		77%	1%
G5	Tier 4	YES	100%		82%	1%
B6	Tier 2	YES	83%		62%	3%
B7	Tier 1	YES	83%		70%	7%
OWL	Tier 1	NO	93%		66%	1%
R10	Tier 4	NO	100%		83%	2%
R10S	Tier 3	NO	95%		69%	0%
P11	Tier 4	YES	82%		81%	3%
B12	Tier 5	YES	50%		74%	0%
R14	Tier 4	NO	75%		61%	1%
B17	Tier 4	YES	100%		74%	2%
P20	Tier 2	YES	68%		74%	4%
P20E	Tier 3	YES	43%		84%	0%
P21	Tier 3	YES	100%		78%	7%
P21E	Tier 4	YES	100%		77%	1%
B23	Tier 4	NO	100%		84%	1%
R24	Tier 4	YES	100%		72%	0%
R29	Tier 5	NO	100%		79%	0%
X90	Tier 3	YES	97%		74%	1%
X92	Tier 4	YES	100%		75%	2%
LOOP	Tier 3	NO	0%		70%	0%
B43	Tier 2	NO	75%		72%	2%
B48	Tier 3	NO	74%		62%	2%
R41	Tier 4	NO	92%		79%	1%
R42	Tier 4	NO	93%		67%	1%
R44	Tier 5	NO	100%		76%	0%
Route 30	Tier 1	NO	76%		79%	12%
Route 31	Tier 1	NO	77%		82%	8%
Route 33	Tier 3	NO	0%		80%	1%
Route 34	Tier 1	NO	100%		88%	2%
Route 35	Tier 1	NO	88%		80%	1%
Route 38	Tier 3	NO	83%		85%	2%
Route 39	Tier 3	NO	74%		86%	0%
Route 45	Tier 5	NO	67%		70%	0%
Route 46	Tier 5	NO	0%		73%	1%

## 15.2 Routes and Standards

As required in the FTA circular 4702.1B, “Transit providers shall compare the transit service observed in the assessment to the transit provider’s established service policies and standards.” (page IV-10) The following table shows the results of that analysis.

**Table 12. Routes Standards Attainment**

Route	Tier	Minority Route	Headway Standard Met	OTP Standard Met	Load Standard Met	Stop Spacing Standard Met
G1	Tier 2	YES	NO	NO	YES	NO
G2	Tier 3	YES	YES	NO	YES	NO
G3	Tier 3	YES	NO	YES	YES	NO
B4	Tier 3	YES	NO	NO	YES	YES
G5	Tier 4	YES	YES	NO	YES	YES
B6	Tier 2	YES	YES	NO	YES	NO
B7	Tier 1	YES	YES	NO	YES	NO
OWL	Tier 1	NO	YES	NO	YES	YES
R10	Tier 4	NO	YES	NO	YES	YES
R10S	Tier 3	NO	YES	NO	YES	YES
P11	Tier 4	YES	YES	NO	YES	YES
B12	Tier 5	YES	NO	NO	YES	YES
R14	Tier 4	NO	NO	NO	YES	YES
B17	Tier 4	YES	YES	NO	YES	YES
P20	Tier 2	YES	NO	NO	YES	YES
P20E	Tier 3	YES	NO	NO	YES	YES
P21	Tier 3	YES	YES	NO	YES	NO
P21E	Tier 4	YES	YES	NO	YES	YES
B23	Tier 4	NO	YES	NO	YES	YES
R24	Tier 4	YES	YES	NO	YES	YES
R29	Tier 5	NO	YES	NO	NO	YES
X90	Tier 3	YES	YES	NO	YES	YES
X92	Tier 4	YES	YES	NO	YES	YES
LOOP	Tier 3	NO	NO	NO	YES	YES
B43	Tier 2	NO	NO	NO	YES	YES
B48	Tier 3	NO	NO	NO	YES	YES
R41	Tier 4	NO	YES	NO	YES	YES
R42	Tier 4	NO	YES	NO	YES	YES
R44	Tier 5	NO	YES	NO	NO	YES
Route 30	Tier 1	NO	NO	NO	YES	YES
Route 31	Tier 1	NO	NO	NO	YES	YES
Route 33	Tier 3	NO	NO	NO	YES	YES
Route 34	Tier 1	NO	YES	YES	YES	YES
Route 35	Tier 1	NO	YES	NO	YES	YES
Route 38	Tier 3	NO	YES	YES	YES	YES
Route 39	Tier 3	NO	NO	YES	YES	YES
Route 45	Tier 5	NO	NO	NO	YES	YES
Route 46	Tier 5	NO	NO	NO	NO	YES

### 15.3 Route Performance Discrepancies and Corrective Actions

The circular requires that, “For cases in which the observed service for any route exceeds or fails to meet the standard or policy . . . the transit provider shall analyze why the discrepancies exist and take steps to reduce the potential effects.” (page IV-10) The PVTA is aware of the areas where performance for Minority Routes is not meeting standards. In each case, the agency is pursuing corrective action.

- **Stop Spacing Standard** – The majority of our routes do meet the minimum spacing requirements for bus stops. For those routes which have excessively close stops, the PVTA is engaging in a process of bus stop relocation to improve on-time performance and travel reliability. PVTA is currently working with the City of Springfield to consolidate many bus stops for this purpose, and plans to next engage with neighboring communities on a similar effort.
- **Headway Standard** – Under the direction of MassDOT, AECOM performed a [Comprehensive Service Analysis](#) of the Pioneer Valley Transit Authority in 2020. This included fixed-route service. Route classifications were built using route headways. Headway recommendations were provided route by route based on many factors. Many survey responses or riders throughout PVTA's service area included requests for decreased headways and increased frequency. Many routes have recommendations for increased headways listed in the AECOM CRTF Table 55: Fixed Route Recommendations and Appendix E: PVTA Recommendations. Many survey responses or riders throughout PVTA's service area included requests for decreased headways and increased frequency.
- **On-Time Performance** – There are two factors which result in low OTP for Minority Routes in the PVTA service area. The first is technological; due to routing and schedule structure, some trips are being counted as “early” when they are in fact on time. PVTA is working with its IT vendor to resolve that issue. The other has to do with the rural/urban nature of the region. Areas which have smaller percentages of people of color tend to be more rural, and thus traffic congestion is less common. This results in our areas with higher proportions of people of color dealing with slower travel and worse OTP, while rural areas can maintain a higher OTP. PVTA is working with MassDOT and the communities to install Transit Signal Priority on key corridors, as well as other rapid bus elements (e.g. queue jumps) on especially congested corridors.

### 15.4 Transit Amenities Policy

The circular also requires that transit agencies must examine the application of its transit amenities policy. The PVTA has a policy for installing shelters, benches, ADA landing pads, and other amenities for high-ridership, high-frequency (Tier I) bus routes. Once those routes have been completed, PVTA will move on to Tier II bus routes, and so on until all bus stops are ADA compliant and, where appropriate, have shelters, benches, trash receptacles, and other amenities.

PVTA is committed to using a Title VI lens for installing bus stop amenities, with a special emphasis on ADA improvements. For example, PVTA recently completed a full stop inventory for the system, determining the location and condition of existing shelters. This stop inventory has allowed PVTA to systematically prioritize installation of bus shelters in Environmental Justice block groups whenever funding is available. PVTA received grant funding in FY2021 for implementation of 9 new bus shelters at bus stops through the MassDOT Shared Winter Streets and Spaces Program.

## 15.5 Observed Disparate Impacts

The circular requires that, “Transit providers shall develop a policy or procedure to determine whether disparate impacts exist on the basis of race, color, or national origin, and apply that policy or procedure to the results of the monitoring program.” (page IV-10) PVRTA has examined key performance measures and applied the Disparate Impact threshold (20%) to those measures which are, on average, not meeting standards.

**Table 13. Average Performance for Minority and Non-Minority Routes**

Route Category	% Headway Goal Achieved	On-Time Performance	% Vehicle Loading Goal Achieved	% Stop Spacing Goal Achieved
Goal	100%	>85%	<10%	>100%
Minority Routes	79.0%	75.2%	2.2%	435.4%
Non-Minority Routes	74.3%	75.8%	1.7%	251.2%

Headways and on-time performance for both minority and non-minority routes are, on average, not meeting performance standards. Minority routes perform better on headways, and non-minority routes perform better for on-time performance. Corrective actions are described in the section *Route Performance Discrepancies and Corrective Actions*. Since the on-time performance disparity between minority and non-minority routes does not exceed the Disparate Impact threshold of 20%, there is no disparate impact determined for this difference.

## 15.6 Advisory Board Consideration, Awareness, and Approval of Monitoring Program

The PVRTA Advisory Board reviewed and approved the Title VI program, the Disparate Impact and Disproportional Burden Policy, and the results of the Monitoring Program on 9/22/2017. The meeting notice, agenda and minutes for this action are included as an attachment.

## 16 Major Service Change, Disparate Impact, and Disproportionate Burden Public Processes

The public was consulted on the proposed Major Service Change, Disparate Impact, and Disproportionate Burden policies through four public meetings in 2018. Comments on the policies were received in-person, by telephone and online through the use of a public comment form.

The Major Service Change, Disparate Impact, and Disproportionate Burden policies as adopted by the board can be found in **Appendix K**.

## 17 Title VI Fare and Service Equity Analyses

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving Federal financial assistance. PVTA is required greater to evaluate any fare change and any major service change to determine whether those changes have a discriminatory impact.

The Pioneer Valley Transit Authority performed two Title VI analyses during the three year reporting period for this Title VI Program. You can find copies of the analyses in **Appendix M** and **N**. The Advisory Board agendas and meeting minutes demonstrating that the board considered, was aware of, and approved the analyses can be found in **Appendix J**.

### 17.1 The Loop Demonstration Service Analysis

The Loop route was added as a “temporary or experimental” service on August 24, 2018. This service operated as a limited downtown circulator service that provided access between the new MGM Springfield, Union Station, major downtown attractions, and area hotels.

The temporary service was funded to date with a \$200,000 environmental and economic mitigation grant from MGM Springfield. The schedule was designed to support special events and downtown tourism during peak entertainment programming times, and link downtown employment destinations with PVTA and regional transportation services. The service was suspended during the Covid-19 Health Emergency in March of 2020.

Using Remix, a transit planning tool that draws upon data from the US American Community Survey, 2013- 2017, PVTA found that 52% of residents living within ¼ mile of the route were considered low-income, and 83.6% were minorities. Accordingly, The Loop meets the FTA’s classification as a “minority population” transit service, and the area served by the Loop route would be considered low-income according to the Federal Poverty definition by U.S. Department of Health and Human Services. The additional service provided by the Loop benefits these communities, and the Loop route was not found to disproportionately burden low-income or minority populations.

## 17.2 2021 Fare Impact Analysis

In FY 2018, PVTA's Advisory Board reviewed a fare impact and equity analysis that included various fare change options and approved a 20% increase in fares for FY 2019. At the same time, the Board elected to complete fare reviews every three years, with the next potential fare change commencing on July 1, 2021 for FY 2022 subject to Board approval. Prior to the effective date, PVTA would perform fare impact and equity analyses to provide the Board with a better understanding of the impacts to PVTA's ridership and fare revenue in the event of fare policy, structure, or level changes.

PVTA, in collaboration with PVPC, commenced the Fare Impact Analysis for FY 2022 in winter 2020 and presented the historical context of PVTA fares and the proposed scenarios being considered in the FY 2022 analysis. PVTA's new Bytemark mobile ticketing data provided a rich data source that allowed the team to utilize advanced modeling and analytical approaches for the FY 2022 fare impact analysis. The impact analysis technique included the following broad sections with further details below:

1. Forecasting of FY 2022 ridership to predict the ongoing COVID-19 and other non-fare related impacts on baseline ridership
2. Estimation and validation of a Fare Product Choice Logit Model using Bytemark mobile ticket data
3. Development of scenario fare levels and structures
4. Application of the validated Fare Product Choice Model to all fare-paying riders to predict fare product choices under new fare scenarios
5. Application of price sensitivity (elasticity) factors to estimate the expected ridership change in response to fare changes for each fare product
6. Aggregation of the ridership, revenue, and ticket sales for FY 2022
7. Analysis of the equity impacts of fare changes and associated ridership changes.

The equity impacts of a given fare change scenario were evaluated by comparing the change against the average fares under the current baseline for minority or low-income riders compared to non-minority or non-low-income riders. PVTA calculated an equity ratio as follows:

$$Equity\ Ratio = \frac{\% \Delta Avg. Cost\ per\ Ride_{Minority\ or\ Low\ Income}}{\% \Delta Avg. Cost\ per\ Ride_{Non\ Minority\ or\ Non\ Low\ Income}}$$

If the ratio is greater than 1.2, the scenario does not pass the test for equity. The equity analysis accounts for switching between fare product types in each scenario to reallocate the percentage of low-income and minority riders under each fare type from the baseline.

The survey data was used to calculate the minority rate and low-income rate in each fare-product-user-group, and then new minority rates and low-income rates were calculated for each fare change scenario by the model as it simulated riders switching between fare types in response to the fare change. Using the forecast ridership and revenue for each scenario, these scenario minority rates and low-income rates for each fare type were used to calculate the average cost per ride experienced by low-income/non-low-income and minority/non-minority riders.

The Advisory Board adopted a fare capping system which took effect in September, 2021. The fare change (using MassDOT BusPlus) is not forecast to have a disparate impact on minority riders or a disproportionate burden on low-income riders. In fact, it is actually forecast to improve equity for minorities, decreasing the average cost per ride for minorities by \$0.05, and by \$0.04 for non-minorities. These positive equity benefits, corroborated by various studies at other transit agencies nationwide, were the main motivator for this fare change. Fare Capping will be implemented in fall of 2021. The equity forecast results for the \$54 Fare Cap scenario are outlined in the table below.

**Table 14. Disparate Impact/Disproportional Burden**

	Minority Avg. Cost/Ride	Non-Minority Avg. Cost/Ride	Disparate Impact Ratio:	Low-Income Avg. Cost/Ride	Non-Low-Income Avg. Cost/Ride	Disproportionate Burden Ratio:
Baseline	\$1.10	\$0.98	-	\$1.06	\$1.06	-
Fare Capping at \$54	\$1.05	\$0.94	0.78	\$1.01	\$1.01	0.99

The analysis found no disparate impact on minority riders. All fare change scenarios analyzed were calculated to have a disparate impact ratio less than 1.20. The analysis also found no disproportionate burden on low-income riders. All fare change scenarios analyzed were calculated to have a disproportionate burden ratio less than 1.20.

**Table 15. Summary of Board Actions related to Fare Impact Analysis**

<p>3/24/2021 Advisory Board is <b>provided an overview</b> of PVTA's Fare Report Summary and the Board reviewed possible fare modifications, including:</p> <ul style="list-style-type: none"> <li>• Make Senior Fare-Free Tuesday permanent</li> <li>• Pilot monthly fare capping using PVTA's mobile fare payment app: MassDOT BusPlus</li> <li>• Fare Structure for Amherst/Worcester Intercity Route</li> </ul> <p><a href="http://www.pvta.com/documents/meetingMinutes/AB/2021-3-24.pdf">http://www.pvta.com/documents/meetingMinutes/AB/2021-3-24.pdf</a></p>
<p>5/19/2021 Advisory Board reviews "Fare Impact and Equity Report" and the Board <b>approves public hearings</b> for the following modifications:</p> <ul style="list-style-type: none"> <li>• Make Senior Fare-Free Tuesday permanent</li> <li>• Pilot monthly fare capping using PVTA's mobile fare payment app: MassDOT BusPlus</li> <li>• Fare Structure for Amherst/Worcester Intercity Route</li> </ul> <p><a href="http://www.pvta.com/documents/meetingMinutes/AB/2021-5-19.pdf">http://www.pvta.com/documents/meetingMinutes/AB/2021-5-19.pdf</a></p>
<p>6/23/2021 Advisory Board <b>approves/adopts</b> the following fare modifications:</p> <ul style="list-style-type: none"> <li>• Make Senior Fare-Free Tuesday permanent</li> <li>• Pilot monthly fare capping using PVTA's mobile fare payment app: MassDOT BusPlus</li> <li>• Fare Structure for Amherst/Worcester Intercity Route</li> </ul> <p><a href="http://www.pvta.com/documents/meetingMinutes/AB/2021-6-23.pdf">http://www.pvta.com/documents/meetingMinutes/AB/2021-6-23.pdf</a></p>

END

PVTA 2021 Title Update to FTA (Appendices attached)