



# Service Equity Analysis of Enhanced Northampton Demand Response Service 2024



Replacement of  
NOHO Senior  
and Survival  
Center Shuttles  
with Enhanced  
Demand  
Response  
Service

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## Contents

Table of Figures.....	3
1. Authorities and Summary .....	4
1.1 Summary .....	4
1.2 Background .....	5
2. Description of Changes .....	6
3. Scope and Process.....	7
3.1 Scope.....	7
3.2 Process .....	7
3.3 Data sources .....	7
4. Service Equity Analysis By Route.....	8
4.1 Summary of Service Equity Analysis by Route .....	8
5. Disproportionate Impacts and Disparate Burdens (DI/DB) Analysis .....	17
5.1: DI/DB Analysis Definitions .....	17
5.2: DI/DB Impact Analysis Results .....	18
5.2.1: NOHO Senior Shuttle .....	<b>Error! Bookmark not defined.</b>
5.2.2: Northampton Survival Center Shuttle .....	18
5.2.3: NOHO Shuttle.....	18
6. Public Outreach and Engagement.....	19
6.1 Public Hearings.....	19
6.2 Public Survey.....	20
7. Conclusion.....	22
Appendix A: Presentation .....	23
Appendix B: Public Comments .....	25
Appendix C: Major Service Change Policy.....	29
Appendix D: REMIX Methodology.....	45

## Table of Figures

Figure 1: NOHO Shuttle Service Flyer.....	5
Table 1: Approved Service Changes.....	6
Table 2: Disparate Impacts and Disproportionate Burdens Analysis.....	17
Table 3: Comments by Public Hearings.....	19

## 1. Authorities and Summary

The Pioneer Valley Transit Authority (PVTA) was established through Chapter 161B of the Massachusetts General Laws. This law establishes the initial service area and structure. In addition, “The affairs of an authority shall be managed by an administrator who shall be appointed by and serve at the pleasure of the advisory board of the authority...The administrator shall be the chief executive officer of the authority...” The administrator is given broad authority to exercise the powers given to the transit authority and is given the authorities at the will of the advisory board including managing facilities and equipment and the hiring of officers, agents, and employees. And including activities common to transit planning.

As a recipient of Section 5307 and 5310 funds from the Federal Transit Administration, PVTA is required to perform an Equity Analysis as part of FTA rules developed in response to Title VI of the 1964 Civil Rights Act and outlined in FTA Circular 4702.1B. Major service changes must be assessed for their potential discriminatory impact with regard to race, color, income, or national origin. Equity analyses are required regardless of whether or not the changes proposed would be beneficial or detrimental to riders.

PVTA enters into agreements with third-party management companies to manage transit bus operators. In 2023, DGR Management (managing both Valley Area and Springfield Area Transit Companies starting in October 2021), University of Massachusetts Transit Services, Hulmes Transportation Inc. LTD, Quaboag Valley CDC, and MV Transit (managing paratransit, dial-a-ride and on demand services).

### 1.1 Summary

This document is the equity analysis of PVTA’s NOHO Shuttle. Due to the low performance of the NOHO Senior Shuttle (NSS) and Northampton Survival Center Shuttle (NSCS), PVTA will replace those services and offer a demand response service to serve a variety of locations in Northampton regardless of a passenger’s age and disability. March 20, 2024, the PVTA Advisory Board approved the use of funding to implement the NOHO Shuttle as a pilot program to operate for six (6) months from May 1<sup>st</sup> through November 2024 pending an analysis and evaluation of the service and completion of the Title VI analysis described in this document.

The NOHO Shuttle service requires a Title VI Disparate Impact/Disproportionate Burden (DI/DB) Analysis due to the fact that the new demand response service will require the replacement of two shuttle services in Northampton that primarily served the senior and ADA eligible passengers in the community. The pilot service is being considered as part of PVTA’s regular service. These changes meet the threshold as a major service change and merit a Title VI DI/DB Analysis. While these changes are considered enhancements, a Title VI DI/DB Analysis is warranted due to the nature of the changes.

This analysis assesses the potential impacts of new service proposals specified by PVTA’s own Title VI Update that may have disparate impact or disproportionate burden on PVTA customers of color and/or low-income riders, depending on the nature of the service changes that are implemented. A demographic analysis of impacted PVTA customers is presented to determine the adverse effects of these major service changes. PVTA will consider appropriate mitigating tactics on adverse impacts on minority<sup>1</sup> populations (disparate impacts) and adverse impacts on low-income (disproportionate burden).

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<sup>1</sup> A NOTE ON LANGUAGE: This report uses the term “minorities” only when necessary to conform to federal regulations and definitions.

## 1.2 Background

The NOHO Senior Shuttle was a grant funded van service that began operating as part of the Northampton Council on Aging (COA) to provide transit service to seniors living in Northampton. When the grant expired, PVTA began operating the shuttle with similar eligibility requirements through April 30, 2024. The Northampton Survival Center Shuttle (NSC) ran as a fixed route with nearly zero riders despite efforts by PVTA and the Survival Center to promote the service. Although PVTA has continued to provide regular fixed route and paratransit service to Northampton, the need for a more flexible service for seniors, ADA eligible riders and other Northampton passengers remained. On May 1<sup>st</sup>, 2024, PVTA began operating a pilot demand response service, the NOHO Shuttle, to all who requested trips within Northampton, without age limit or ADA eligibility. This six (6) month pilot will assess the success of the route before a decision can be made to run the route full time.

Figure 1: NOHO Shuttle Service Flyer

**NOHO Shuttle Information**

The NOHO Shuttle service, a pilot project, replaces the Survival Center Shuttle. The NOHO Senior Shuttle service is effective May 1, 2024.

- The NOHO Shuttle operates Monday through Friday from 9:00 AM to 5:00 PM and provides door to door service throughout Northampton, Florence and Leeds.
- It is open to all Northampton residents regardless of disability status or age.
- Same day booking possible with 2-hour advance notice (subject to availability) .
- Fares are as follows
  - \$1.50 regular fare.
  - \$0.75 fare with a valid PVTA E&D ID.
  - Transfers to fixed route \$0.25.
- To book trips call 413-739-7436 advance booking is accepted 1-7 days in advance.

## 2. Description of Changes

The goal of the NOHO Shuttle is to improve transit service options in Northampton by replacing two low-performing shuttles with an enhanced demand response service that will increase mobility for all Northampton residents, including seniors and ADA eligible riders. The NOHO Shuttle will operate Monday through Friday from 9:00 AM to 5:00 PM and provides door to door service throughout Northampton, Florence, and Leeds. It will be open to all Northampton residents regardless of age or disability status. The demand response service will feature same day booking with 2 hours advance notice and subject to availability. Fares will be the same as other PVTA fixed routes: \$1.50 regular fare, \$0.75 fare with a valid PVTA E&D ID, transfers to fixed route \$0.25. The pilot service for the NOHO Shuttle began on May 1<sup>st</sup>, 2024.

Table 1: Approved Service Changes

Route	Proposed Change	Comments
NOHO Senior Shuttle	<ul style="list-style-type: none"> <li>Service replacement</li> </ul>	<ul style="list-style-type: none"> <li>Service to be incorporated into new demand response service for all Northampton residents regardless of age and disability status.</li> <li>Senior van rides and paratransit service in Northampton will still be provided.</li> </ul>
Northampton Survival Center Shuttle	<ul style="list-style-type: none"> <li>Route replacement</li> </ul>	<ul style="list-style-type: none"> <li>Route to be incorporated into new demand response service for all Northampton residents regardless of age and disability status.</li> <li>Senior van rides and paratransit service in Northampton will still be provided.</li> </ul>
NOHO Shuttle	<ul style="list-style-type: none"> <li>New demand response service will operate Monday through Friday from 9:00 AM to 5:00 PM and provide door to door service throughout Northampton, Florence, and Leeds.</li> <li>Open to all Northampton residents regardless of age or disability status. The demand response service will feature same day booking.</li> </ul>	<ul style="list-style-type: none"> <li>The pilot service for the NOHO Shuttle began on May 1<sup>st</sup>, 2024.</li> <li>Permanent status to be determined by the board in November 2024</li> </ul>

### 3. Scope and Process

This document presents an equity impact analysis of the replacement of the NOHO Senior Shuttle and Northampton Survival Center Shuttle due to grant termination and low performance, respectively, with a new demand response service, the NOHO Shuttle.

PVTA's policies require that all proposed major service changes undergo a Title VI Service Equity Analysis to evaluate potential disparate impacts (DI) on people of color and disproportionate burdens (DB) on low-income persons.

#### 3.1 Scope

This document presents an analysis of the new service as a pilot at PVTA's March 2024 Advisory Board meeting and implemented by PVTA on May 1, 2024. This new service is considered "major," by meeting the threshold of changing the number of revenue miles by 50%, according to the definition requirements of PVTA's policies for major service changes, disparate impacts (DI) and disproportionate burdens (DB). Exceedance of PVTA's 20% DI and DB policy variance threshold by these changes is also reported. Also reported are public comments and responses from PVTA received during the 30-day comment period. Modifications to the changes based on public comment and the DI/DB analysis are also included in this report. In cases where the analysis proves exceedances have overcome the 20% threshold, analysis is provided to show that the proposal is the least discriminatory alternative available.

#### 3.2 Process

PVTA utilized survey data within this document from the 2022 Northern System Customer Survey, 2024 Paratransit Customer Survey and the NOHO Shuttle Survey completed in June of 2024. These surveys provide a snapshot of existing riders for this Title VI Disparate Impact/Disproportionate Burden Analysis. PVTA chose this methodology (using rider survey data) because it is a more accurate account of actual ridership and usage of the previous Northampton shuttles and the current NOHO Shuttle pilot program shuttle. A disparate impact is the impact the change to the system would have on people of color. A disproportionate burden is the burden borne on low-income communities.

#### 3.3 Data sources

- 2024 NOHO Shuttle Survey
- 2024 Paratransit Customer Survey
- 2022 Northern System Customer Survey
- Service area is a set of block groups determined by a shapefile PVTA provides.
- Map and routing data are provided OpenStreetMap, Mapbox, and Valhalla.



## 4. Service Equity Analysis by Route

This section presents the following information for the service changes implemented on May 1, 2024. This change meets the major service changes threshold as determined by the PVTA Title VI Update 2021. The Advisory Board approved three public hearings on April 18, 2024, at both the Northampton Senior Center, the Academy of Music, and a virtual meeting via Zoom platform on April 23<sup>rd</sup>. The Service Equity Analysis is scheduled to be approved at the next scheduled Advisory Board meeting.

### 4.1 Summary of the Route

Following are key points of the service equity analysis for each route.

- Some of the service changes have a disproportionate burden on riders
- The new service, however, is an improvement and less discriminatory than any alternative.
- The new service received favorable responses from the public.
- No further mitigation is necessary at this time.

Route Description	Describes the travel corridor and route where the proposed change would occur, including trip frequency and key characteristics of the service.
Proposed Change or Changes	Description of the service change as implemented emergently.
Communities Affected	The municipality(ies) in which the proposed change(s) would occur.
Effective Date	Date the proposed service change would be implemented.
Major Service Change	Determination whether or not the proposed service change would meet or exceed the PVTA 25% policy threshold in eliminated service on a single service day to be considered a “major service change”. <ul style="list-style-type: none"> <li>• Actual booked trips were used to determine ridership for each route before and after the affected change.</li> </ul>
Customers Affected	An estimated percentage of customers affected per route based on the scheduled trips eliminated. <ul style="list-style-type: none"> <li>• Actual booked trips were used to determine ridership for each route before and after the affected change.</li> </ul>
Disparate (Racial Discrimination) Impact Analysis	Explains whether or not there are likely to be differences in the adverse impacts that the proposed service change will have on customers of color in comparison to customers who are white. This is a federally required assessment known as a “disparate impact analysis.” The threshold for this impact is established in the Disparate Impact Policy adopted by the PVTA Advisory Board which states: “the Pioneer Valley Transit Authority has defined a disparate impact as a Major Service Change in which the adverse impacts of the change that people of color experience as compared to non-people of color is 20% or more. For the purposes of this document, the term ‘people of color’ is synonymous with the term ‘minority’ as used in Federal Circular 4702.1B (page 1-4).” (October 1, 2021)

	<p>Therefore, if the difference in the proportion of customers of color who will be affected by the service change compared to white customers is more than +20%, then the change will be considered to have a disparate impact.</p> <p>For example, if rider surveys show that 60% of the riders on a route are people of color and the remaining 40% are white, then the difference (60% minus 40%) is +20%, which meets the +20% threshold to be considered a disparate impact. As another example, if 35% of riders are people of color and the remaining 65% are white, then the difference (35% minus 65%) is -30%, which is less than +20% and would not be a disparate impact.</p> <p>Data for this analysis are the systemwide customer surveys of 1,529 passenger rides in 2019 (Hampden County) and 1,577 passenger rides in 2022 (Hampshire County).<sup>2</sup></p> <p>Because our customer surveys indicate a majority of riders as people of color, we also include the impact as compared to the system average for discussion purposes. The system averages just under 60% people of color vs. just over 40% white riders, therefore much of the ridership on many of the routes would meet the disparate impact threshold.</p>
<p>Disproportionate (Low-income) Burden Analysis</p>	<p>This section explains whether or not the proposed change would have adverse impacts on customers who have low incomes in comparison to those who do not have low incomes. This is a federally required assessment known as “disproportionate impact analysis.” The threshold for this impact is established by the PVRTA Advisory Board’s Disproportionate Impact Policy which states: “the Pioneer Valley Transit Authority has defined a disproportionate burden to be a change in service where low-income customers would experience a negative impact 20% or larger compared to non-low-income customers. For the purposes of this policy, “low income” is defined as a person reporting an income below the federal poverty line.” (October 1, 2021)</p> <p>For example, if 60% of the riders surveyed on a route are low-income (earning \$11,770/year or less), then the remaining 40% are considered not to be low-income, and the difference (60% minus 40%) is +20%. This meets the policy’s +20% threshold and would therefore be considered a disproportionate impact. In another example, if 35% of riders are low-income, then 65% are not low-income, and the difference (35% minus 65%) is -30%, which is less than the +20% policy threshold, and so would not be considered a disproportionate impact.</p> <p>Data for this analysis are the systemwide customer surveys of 1,529 passenger rides in 2019 (Hampden County) and 1,577 passenger rides in 2022 (Hampshire County).</p> <p>Consistent with the disparate burden analysis, inclusion of a comparison against the system average is included.</p>

Service Equity Analysis of Enhanced Northampton Demand Response Service 2024

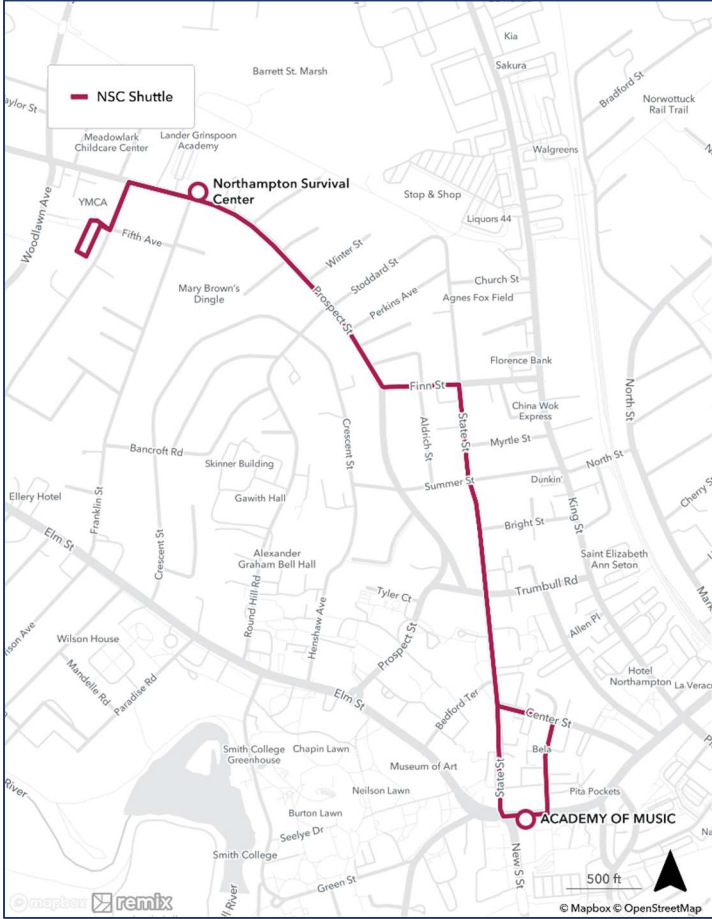
ADA Van Service Impact?	<p>Explains whether or not there would be an impact to ADA van service areas or hours because of the change to the hours or geographic coverage of the underlying fixed route on which the local ADA service is based.</p> <p>In this case, no changes were made to ADA Van Service due to the overlapping nature of service within the areas impacted.</p>
Alternate Transit Service Available?	<p>Description of alternate bus routes and transportation available to make trips in the corridor in which the service change occurs.</p>
Least Discriminatory Alternative	<p>This section provides information on whether or not there is another alternative that could achieve the business purpose of the approved service change that would be less discriminatory. This analysis is required by the PVTa Disparate and Disproportionate Impact and Disparate Burdens Policies (adopted September 23, 2015) which states: "...in the event that the proposed service change would have an adverse impact that affects customers of color or those with low-incomes (defined as the federal poverty level) more than the non-low income or non-minority populations with a disparity that exceeds the adopted 20% thresholds, PVTa must evaluate whether there is an alternative that has a more equitable impact... and demonstrate that a legitimate business purpose cannot otherwise be accomplished and that the proposed change is the least discriminatory alternative."</p>
Mitigation and Modifications in Response to Public Comments	<p>If the service change is expected to have either a disparate or disproportionate impact, mitigation must be proposed and implemented to lessen the effects on riders, as required by the PVTa Disparate and Disproportionate Impact Policies (adopted October 1, 2021) which state: "...PVTa must take measures to mitigate the impact of the proposed action on the affected minority population or low-income population..."</p> <p>This section describes the public comments received that pertain to the service change proposal. It also describes mitigation measures and modifications made by staff to the original December 2021 proposal to anticipated adverse impacts of the change on riders, as well as future and ongoing monitoring and evaluation and additional service changes to reduce adverse effects on riders.</p>

<p><b>Route Description</b></p> <p><i>NOHO Senior Shuttle</i></p>	<p><i>Map of the Northampton Senior Shuttle Service Area</i></p> <p>The NOHO Senior Shuttle was part of the Northampton Council on Aging (COA) to provide transit service to seniors over the age of 60 living in Northampton and serving the Northampton Senior Center.</p> <p>Schedule:</p> <p>The NOHO Senior Shuttle provided demand response service from 9:00am-3:30pm, Monday through Friday.</p> <p>Ridership: 374 (October 2023)</p>
<p><b>Proposed Change or Changes</b></p>	<p>Service discontinuation in order to begin new demand response service.</p>
<p><b>Communities Affected</b></p>	<p>Northampton</p>
<p><b>Effective Date</b></p>	<p>May 1, 2024</p>
<p><b>Major Service Change</b></p>	<p>The service discontinuation exceeds the 25% threshold that defines PVTA’s “major service change.”</p>
<p><b>Customers Affected</b></p>	<p>100% of Passenger Trips are expected to be affected by the change.</p>

Service Equity Analysis of Enhanced Northampton Demand Response Service 2024

<p>Disparate (Racial Discrimination) Impact Analysis</p>	<p>Information from the 2023 PVTA Paratransit Survey shows that ridership on the NOHO Senior Shuttle is 19% People of Color (Minority).  Based on the DI/DB Analysis, the change borne by People of Color (Minority) riders is 19% compared to the system average of 66%. This is a gap of 47%. Although this service elimination burdens a greater percentage of minority riders than the system average, the replacement demand response service will compensate for the loss of service and opens more mobility opens to people of color.</p>
<p>Disproportionate (Low-income) Burden Analysis</p>	<p>Information from the 2023 PVTA Paratransit Survey shows that ridership on the NOHO Senior Shuttle is 43% low-income.  Based on the DI/DB Analysis, the change borne by low-income riders is 43% compared to the system average of 50%. This is a gap of 7%. Since this percentage is less than 20%, this change is therefore not a disproportionate burden based on income.</p>
<p>ADA Van Service Impact?</p>	<p>There is no impact on ADA Van Service. These bus stops and the service span are duplicative to other routes.</p>
<p>Alternate Transit Service Available?</p>	<p>There are several viable alternative transit services including the B48, G73, R41, R42, R44 provide fixed-route service to the Salvo House which is adjacent to the Northampton Senior Center. Bus routes R41, R42 and R44 primary serve Northampton and the B48 and G73 serve Northampton via the Academy of Music from Holyoke and Springfield, respectively.</p>
<p>Least Discriminatory Alternative</p>	<p>The replacement of service with the new demand response service is less discriminatory than the alternative transit service.</p>
<p>Mitigation and Modifications in Response to Public Comments</p>	<p>The service discontinuation received favorable responses from the public due to the planned replacement with demand response service and continued ADA van service. No further mitigation is necessary.</p>

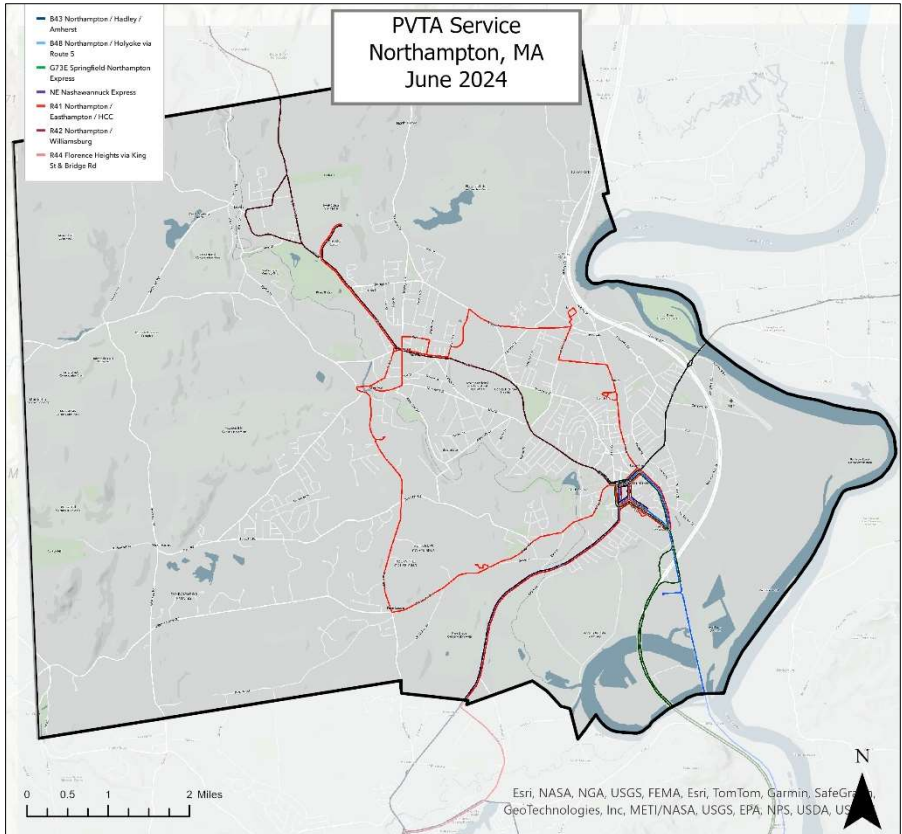
Service Equity Analysis of Enhanced Northampton Demand Response Service 2024

<p><b>Route Description</b></p> <p><i>Northampton Survival Center Shuttle</i></p>	 <p><i>Map of the Northampton Survival Center Shuttle Route</i></p> <p>The Northampton Survival Center provided direct service between the Academy of Music and the Northampton Survival Center.</p> <p>Headways and Schedule:</p> <p>The provides three trips per day based on the schedule of events at the Northampton Survival Center.</p> <p>Ridership: 0 YTD Passengers (2023)</p>
<p><b>Proposed Change or Changes</b></p>	<p>Service discontinuation in order to begin new demand response service.</p>
<p><b>Communities Affected</b></p>	<p>Northampton</p>
<p><b>Effective Date</b></p>	<p>May 1, 2024</p>
<p><b>Major Service Change</b></p>	<p>The service discontinuation exceeds the 25% threshold that defines PVTa’s “major service change.”</p>
<p><b>Customers Affected</b></p>	<p>100% of Passenger Trips are affected by the change.</p>

Service Equity Analysis of Enhanced Northampton Demand Response Service 2024

<p>Disparate (Racial Discrimination) Impact Analysis</p>	<p>Information from the 2023 PVTA Paratransit Survey shows that potential ridership on the Northampton Survival Center Shuttle is 45% People of Color (Minority).</p> <p>Since actual ridership on the shuttle was zero, the disparate Impact is less than 20%, this change is therefore not a disparate impact based on race.</p>
<p>Disproportionate (Low-income) Burden Analysis</p>	<p>Information from the 2023 PVTA Paratransit Survey shows that potential ridership on the Northampton Survival Center Shuttle is 23% low-income.</p> <p>Since actual ridership on the shuttle was zero, the disparate Impact is less than 20%, this change is therefore not a disproportionate burden.</p>
<p>ADA Van Service Impact?</p>	<p>There is no impact on ADA Van Service. ADA Van Service will continue to the Northampton Survival Center.</p>
<p>Alternate Transit Service Available?</p>	<p>Bus routes R42 and R44 come within 1/6 of a mile of the center. Weekday spans of service are 7:00am to 9:00pm weekdays for the R42 and 7am to 6pm for the R44. In addition, the piloted Noho Shuttle service will provide demand response trips to the Northampton Survival Center.</p>
<p>Least Discriminatory Alternative</p>	<p>The replacement of service with the new demand response service is less discriminatory than the alternative transit service.</p>
<p>Mitigation and Modifications in Response to Public Comments</p>	<p>Comments regarding the elimination of the Northampton Survival Center Shuttle were in favor of the piloted NOHO Shuttle demand response service. There is no need for mitigation as there is no disproportionate burden or disparate impact.</p>

Service Equity Analysis of Enhanced Northampton Demand Response Service 2024

<p><b>Route Description</b></p> <p><i>NOHO Shuttle</i></p>	 <p><i>Map of NOHO Shuttle Service Area</i></p> <p>The NOHO Shuttle is a new demand response service piloted by PVTA to serve all of Northampton including Florence and Leeds.</p> <p>Headways and Schedule:</p> <p>Ridership: 381 YTD Passengers (2023)</p>
<p><b>Proposed Change or Changes</b></p>	<p>PVTA proposes new demand response service</p>
<p><b>Communities Affected</b></p>	<p>Northampton</p>
<p><b>Effective Date</b></p>	<p>May 1, 2024</p>
<p><b>Major Service Change</b></p>	<p>Due to the increase in frequency, this exceeds the 25% threshold that defines PVTA's "major service change."</p>
<p><b>Customers Affected</b></p>	<p>100% of Passenger Trips are expected to be affected by the change.</p>
<p><b>Disparate (Racial Discrimination) Impact Analysis</b></p>	<p>Information from route survey data shows that ridership on the NOHO Shuttle is 13% minority.</p>



Service Equity Analysis of Enhanced Northampton Demand Response Service 2024

	Based on the DI/DB Analysis, the change borne by People of Color (Minority) riders are 13% compared to the system average of 66%. The Disparate Impact is calculated as the difference: 53%. Since this change is positive, it mitigates any disparate impacts from discontinuing the NOHO Senior Shuttle.
Disproportionate (Low-income) Burden Analysis	Information from route survey data shows that ridership on the NOHO Shuttle is predominately low-income (79%). Based on the DI/DB Analysis, the change borne by low-income riders is 29% compared to the system average of 50%. The disproportionate Burden is calculated as the difference: Since this change is positive, it disproportionately improves service for low-income riders.
ADA Van Service Impact?	ADA Van Service will be unchanged; however, in addition to regular ADA service, riders can utilize the NOHO Shuttle with the same ease and process they book their ADA trips.
Alternate Transit Service Available?	Fixed-route service is also available within the area, including the B43, 39 and 39E (to Hadley and Amherst) and the R42 and R44 (within Northampton) and the R41, B48 and G73E (toward Holyoke).
Least Discriminatory Alternative	The addition of the new demand response service is less discriminatory than the alternative transit service.
Mitigation and Modifications in Response to Public Comments	The enhancements to the NOHO Shuttle received favorable responses from the public. Minor changes were made to better accommodate local needs expressed by the public. The disproportionate burden is less than 20% but the disparate impact is greater than 20%. The DI/DB Analysis is only able to calculate the differences of the change to this one route. Due to the nature of service delivery and connections to existing routes, there is no other alternative that would accomplish the same goals with the same positive impacts.

## 5: Disparate Impacts and Disproportionate Burden (DI/DB) Analysis

The following is an analysis of the Disparate Impact and Disproportionate Burden associated with the proposed service change. The replacement of the NOHO Senior Shuttle (NSS) and the Northampton Survivor Center Shuttle (NSCS) with the NOHO Shuttle resolves any disparate impact and disproportionate burdens associated with the service change.

### 5.1: DI/DB Analysis Definitions

An extensive methodology is provided as in [Appendix D](#).

**Booked-Trips:** Actual booked trips were used to determine ridership for each route before and after the affected change.

**Low-Income and People of Color Percentages:** Low-income and people of color percentages are calculated using results from a rider survey conducted between May 20 and June 3, 2024.

**System Averages:** REMIX estimates this using 2021 5-Year ACS population estimates for the PVTa service area.

Table 2: Disparate Impacts and Disproportionate Burdens Analysis

	<i>Booked Trips (Ridership)</i>	<i>People of Color Riders</i>	<i>People of Color Riders (%)</i>	<i>Comparison to System</i>
<i>Discontinued Ridership</i>				
NSS	374	71	19%	47%
NSCS	0	0	45%	0%
<i>Additional Ridership</i>				
NOHO	381	50	13%	53%
			System Average	66%
	<i>Booked Trips (Ridership)</i>	<i>Low Income Riders</i>	<i>Low Income Riders (%)</i>	<i>Comparison to System</i>
<i>Discontinued Ridership</i>				
NSS	374	161	43%	7%
NSCS	0	0	23%	0%
<i>Additional Ridership</i>				
NOHO	381	301	79%	29%
			System Average	50%

## 5.2: DI/DB Impact Analysis Results

A comparison to the system takes the percent of those potentially impacted by the change and subtracting the system average. A difference greater than 20% is considered a disparate impact or disproportionate burden.

### 5.2.1: NOHO Senior Shuttle (NSS)

The disproportionate burden analysis shows the elimination of the route impacts a population that is 7% more low-income riders than the system average. This is below the 20% threshold to be considered a disproportionate burden. The elimination of this route does not have a disparate impact on minority riders as the population impacted is 47% less minority than the system average.

### 5.2.2: Northampton Survival Center (NSCS)

The replacement of the Northampton Survival Center Shuttle shows no disparate impact findings based on race and no disproportionate burden on low-income populations. No riders have utilized this route for at least a year.

### 5.2.3: NOHO Shuttle (NOHO)

The addition of the NOHO Shuttle service acts to mitigate the impacts felt on the low-income population that used the NOHO Senior Shuttle. While the new NOHO Shuttle has a disproportionate burden on low-income riders (53%), the low-income population is within the margin of error of the previous NOHO Senior Shuttle (13% vs. 19% respectively). The monthly ridership is also similar (381 vs. 374 riders respectively). The barriers previously imposed on NOHO Senior Shuttle riders have been eliminated with the new service. The process for requesting a ride have also not changed between the two services. This replacement service provides mitigation for those disproportionately burdened by the elimination of the NOHO Senior Shuttle.

## 6: Public Outreach and Consultation

PVTA reached out for public comments and engagement about the service change proposals at public meetings and through written surveys. This section summarizes input received from the public through these processes. The service equity analysis was incomplete at the time of the public meeting and was therefore not included for discussion.

### 6.1 Public Hearings

PVTA performed three (3) public hearings on April 18<sup>th</sup> and April 23<sup>rd</sup>, 2024.

These events were conducted both in-person and virtually in compliance with the Open Meeting Law, that recently extended the option for virtual attendance to public meetings. PVTA utilized Massachusetts Guidelines for Successful Virtual Public Meetings and complied with the existing 2021 Public Participation Plan and 2021 Title VI Update.

Here is a chart of those events and related comments.

Table 3: Comments by Public Hearings

<i>Date and Time and Location</i>	<i>Number of Comments</i>	<i>Summary of Comments</i>
April 18, 11am Northampton Senior Center, Northampton	8 relevant comments about the new service changes	<p>C: I am very interested that this service will provide access to the survival center. R: Now someone can schedule a ride to and from their homes</p> <p>C: There will be no Northampton Senior Center Shuttle? R: That was a grant funded service that has run out of the initial funding. This new service can serve the Senior Center but not include an age limit or need for ADA eligibility</p> <p>C: If it gets a lot of riders, will it continue after 6 months? R: PVTA will assess the performance.</p> <p>C: Would this impact ADA or Senior Rides? R: You will still have senior van rides and ADA service.</p> <p>C: Do you have a way of getting the information out there? R: The service is advertised in many relevant places.</p> <p>C: So, anyone over 60 can ride a van? R: PVTA has elderly and disabled (E&amp;D) discounted pass that you can apply for.</p> <p>C: Will riders be able to transfer from the new service to the regular buses? R: Yes</p> <p>C: There are many people with disabilities that feel trapped, especially in Florence. R: Additional door to door service will be better for people in those situations.</p>

Service Equity Analysis of Enhanced Northampton Demand Response Service 2024

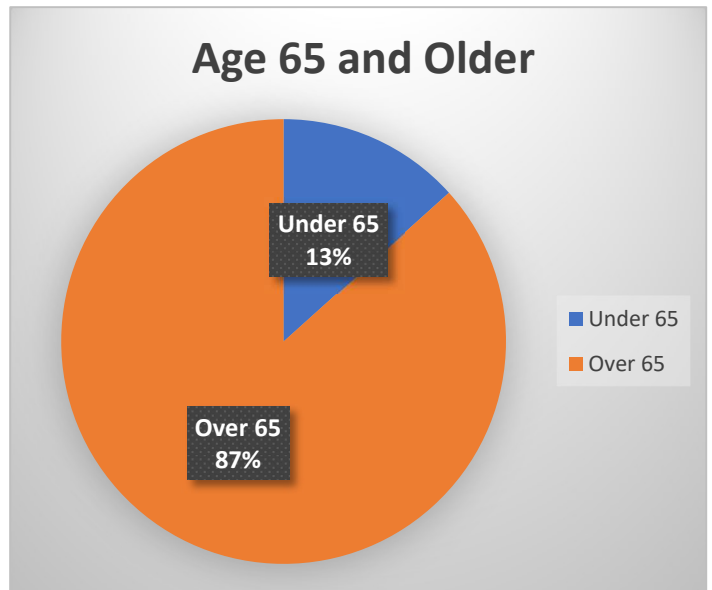
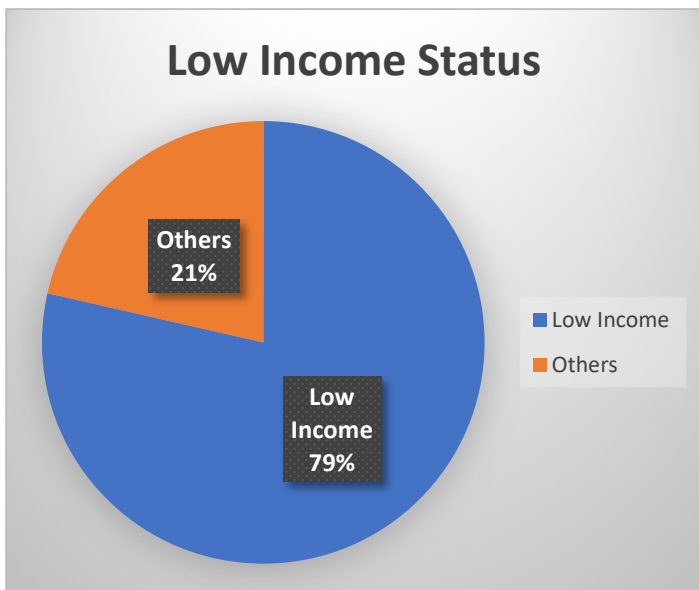
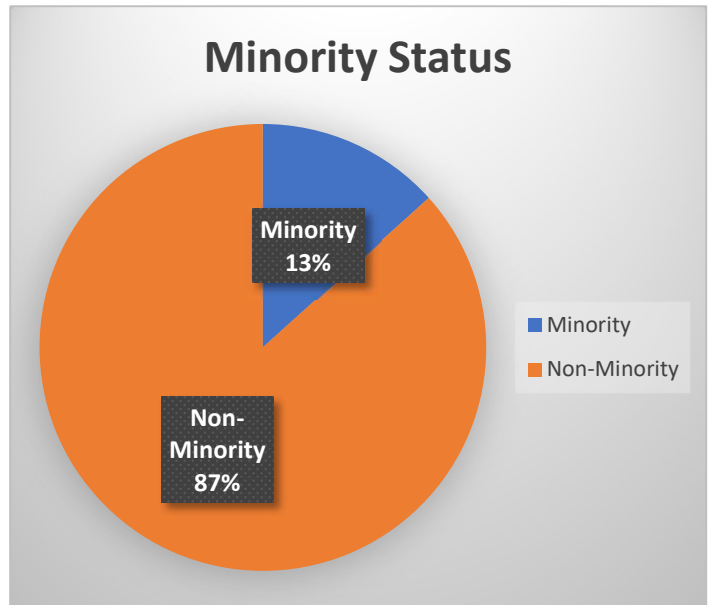
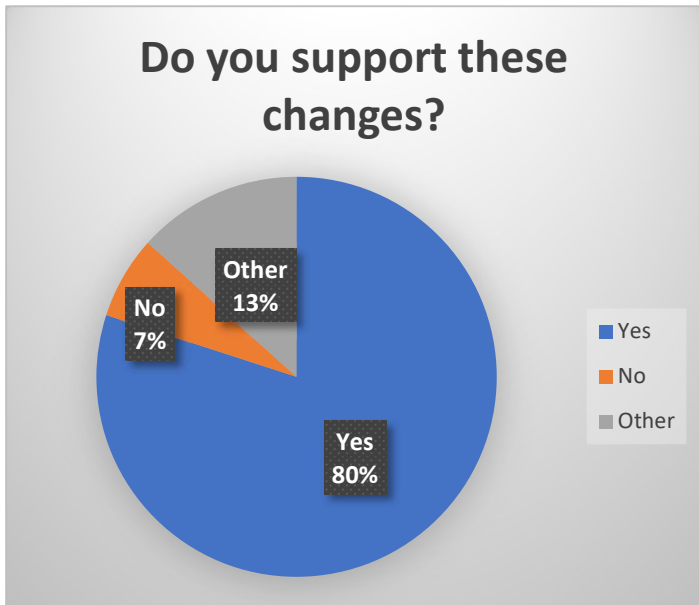
<p><i>April 18, 12pm Academy of Music</i></p>	<p>7 relevant comments about the new service changes</p>	<p>C: How does booking work? R: You can call us to book a trip at 413-739-7436</p> <p>C: When does the new service start? R: May 1<sup>st</sup></p> <p>C: Will this be a regular bus that goes around? R: This will not be a regular bus, this will be a paratransit bus, but there will be no qualifications for using the service.</p> <p>C: Appointments to use the service have to be booked in advance. R: Yes, you will need to book in advance, and you will have a 1-hour window for pick up and return.</p> <p>C: Will others be on the bus with you? R: Yes, others will be on the bus with you.</p> <p>C: Is this open to all people or just those who live in Northampton? R: For now, we are piloting everyone who takes trips within the city limits can call for a ride.</p> <p>C: Doesn't door to door service not usually provide great ridership? R: This service is not viable everywhere but could be here.</p>
<p><i>April 23, 11am Virtual (Zoom)</i></p>	<p>2 relevant comments about the new service changes</p>	<p>C: Thank you for providing details for the service. I will see if I am able to make use of the shuttle when it is running, I am in Northampton.</p> <p>C: Since the fare is similar to that on the bus, will bus passes be accepted for this service? Thank you. R:Yes</p>

A full accounting of comments from these events are included as an appendix.

### 6.1 Public Survey

PVTA conducted a survey after the NOHO Shuttle Service pilot began service. The survey was conducted between May 20 and June 3, 2024. Full survey responses are available in the Appendix.

Total Respondents: 15



## 7. Conclusion

The goal of the NOHO Shuttle is to improve transit service options in Northampton by replacing two low-performing shuttles, the NOHO Senior Shuttle and the Northampton Survival Center Shuttle, with a demand response service that will increase mobility for all Northampton residents, including seniors and ADA eligible riders.

On March 20, 2024, the PVTA Advisory Board approved the use of funding to implement the NOHO Shuttle as a pilot program to operate for six (6) months from May 1<sup>st</sup> through November 2024 pending an analysis and evaluation of the service and completion of the Title VI analysis.

PVTA performed three (3) public hearings on April 18<sup>th</sup> and April 23<sup>rd</sup>, 2024. These events were conducted both in-person and virtually in compliance with the Open Meeting Law, that recently extended the option for virtual attendance to public meetings. Comments received at the public meetings were mostly service questions that were easily answered by staff.

A public survey was also conducted of NOHO Shuttle riders from May 20 to June 3<sup>rd</sup> following the implementation of the pilot program. The survey revealed that eighty (80%) of respondents supported the service change.

The replacement of the NOHO Senior Shuttle and Northampton Survival Center Shuttle with the NOHO Shuttle shows no disparate impact findings based on race or disproportionate burden on low-income populations. The addition of the Northampton “NOHO” Shuttle provides sufficient mitigation to any disparate impacts or disproportionate burdens to riders if the shuttles were discontinued alone.

As a new demand response service, The NOHO Shuttle will serve the same population of riders and feature the same fare reductions for seniors and people with disabilities. The NOHO Shuttle will also be open to more people regardless of age, potentially attracting more diverse riders and provide a larger increase in service and mobility options for low-income populations. PVTA will also continue to provide regular fixed route service, “Dial-A-Ride” and ADA services to Northampton, which will not be affected by the service change.

Appendix A: Presentation



## NOHO Shuttle

### *Title VI Service Equity Analysis*

AUGUST 2024

PREPARED BY PVPC

## Motivation

- The goal of the NOHO Shuttle is to improve transit service options in Northampton by replacing two low-performing shuttles, the NOHO Senior Shuttle and the Northampton Survival Center Shuttle, with a demand response service that will increase mobility for all Northampton residents.
- In March, the Advisory Board approved the use of funding to implement the NOHO Shuttle as a **pilot program** to operate for six (6) months from May through November 2024 pending completion of the Title VI analysis.

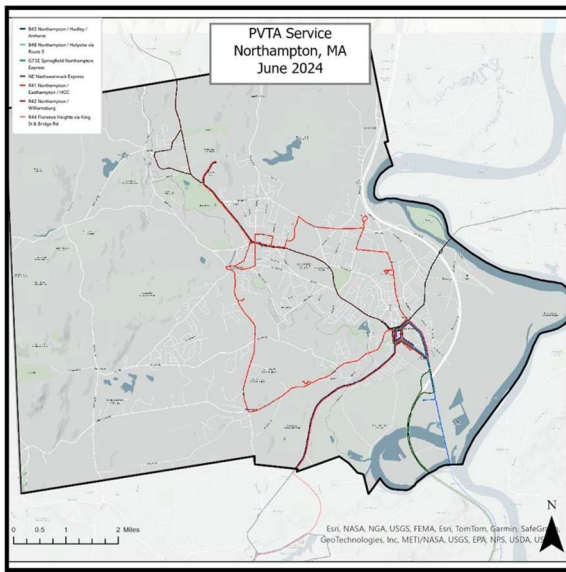


# Authorities and Responsibilities

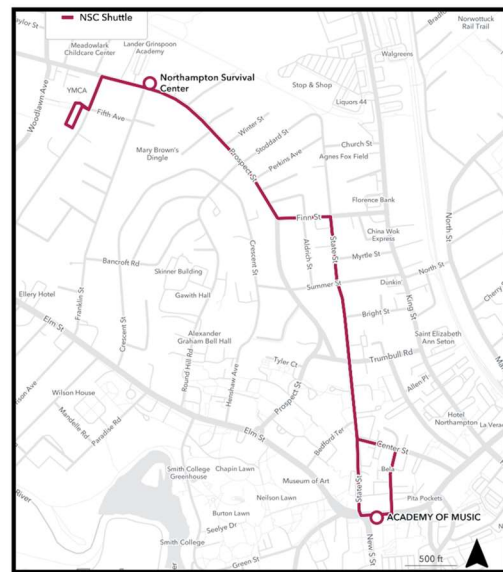
Under Title VI of the Civil Rights Act of 1964 and subsequent executive orders and FTA Circular 4702.1B, PVRTA must conduct an analysis of any major service change

The following route changes qualify for this analysis under the major service changes definition:

- **Discontinued Services**
- NOHO Senior Shuttle
- Northampton Survival Center Shuttle
- **New Service**
- NOHO Shuttle



NOHO Senior Center Shuttle



Northampton Survival Center Shuttle


## Major Service Change

---

### **NOHO Senior Shuttle (Discontinued)**

- Grant funded transit service established by the City of Northampton provided by PVTA, for seniors over the age of 60.
- Since the grant expired, PVTA has continued to operate without funding
- The service was discontinued on April 30, 2024.


### **Northampton Survival Center Shuttle (Discontinued)**

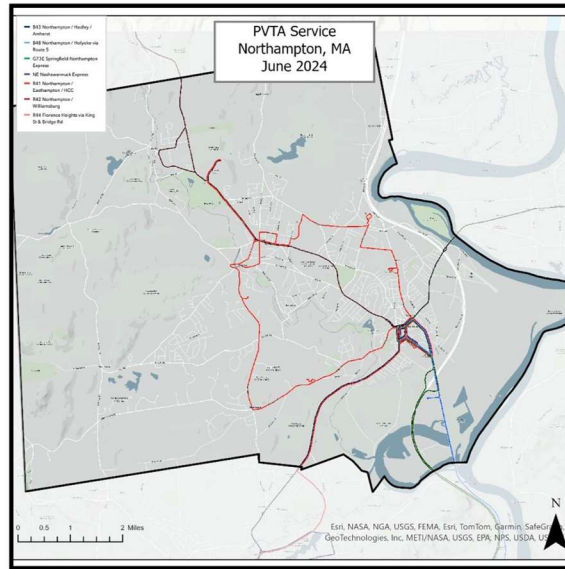
- Operated as a fixed route by PVTA.
  - No ridership since 2023
  - The service was discontinued on April 30, 2024.
- 

## Major Service Change

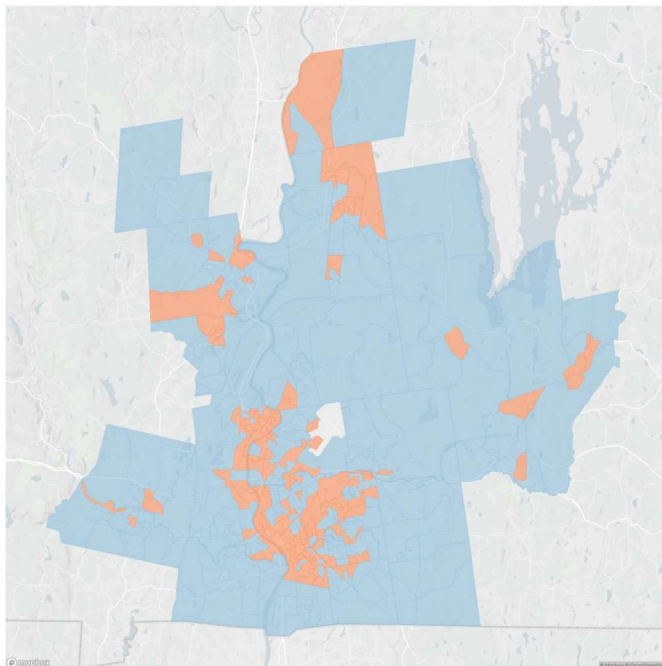
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### **NOHO Shuttle (New Service)**

- The pilot service began on May 1<sup>st</sup>, 2024.
  - Replaces discontinued services with a demand response service
  - Provides door to door service in Northampton (Florence and Leeds)
  - Allows same day booking with 2 hour advance notice
  - Open to all Northampton residents regardless of age or disability status.
  - Operates Monday through Friday from 9:00 AM to 5:00 PM and fares will be the same as other PVTA fixed routes
- 



NOHO Shuttle Service Area



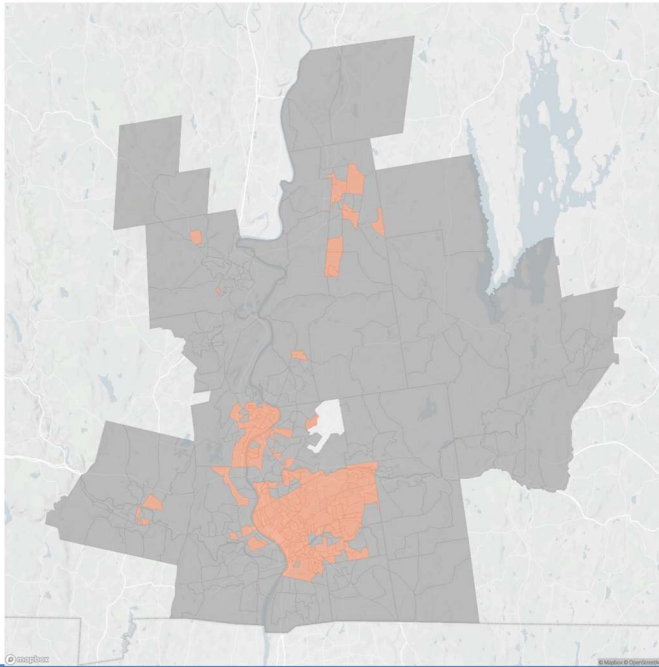
## System-wide Low-Income Populations

### Low Income

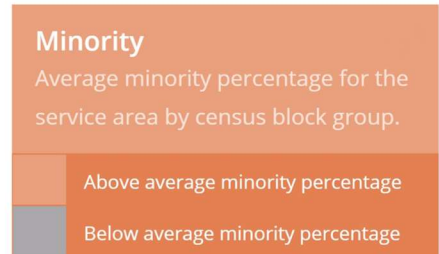
Average low income percentage for the service area by census block group.

Above average low income percentage

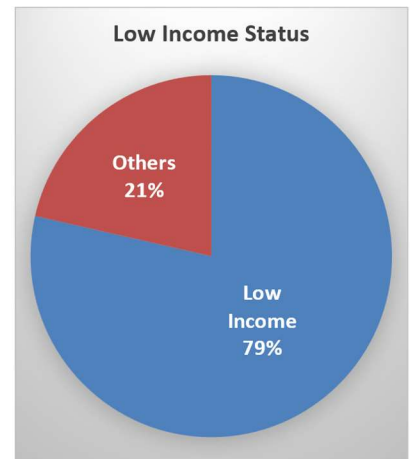
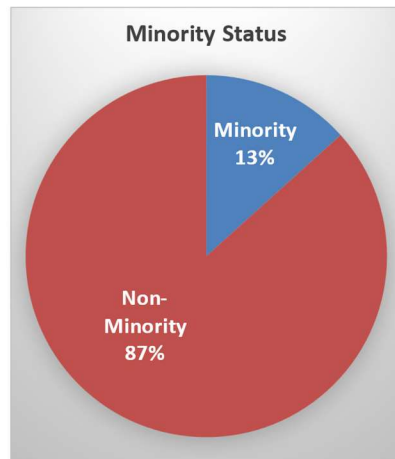
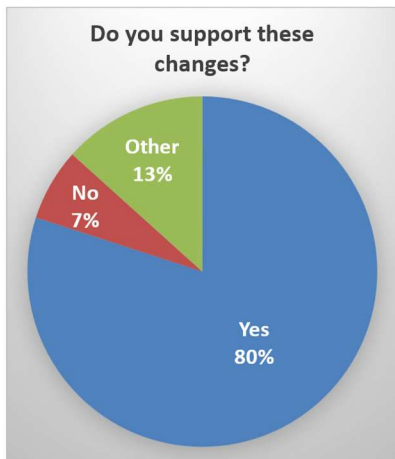
Below average low income percentage



## System-wide People of Color Populations



## Northampton Rider Survey



## Major Service Change/NOHO Shuttle

	Booked-Trips (Ridership)	Low Income People- Trips	Minority People-Trips	Change Borne By Low Income	Change Borne by Minorities	Low Income Comparison to System	Minority Comparison to System
<i>Discontinued Ridership</i>							
NSS	374	161	71	43%	19%	7%	47%
NSCS	0	0	0	23%	45%	0%	0%
<i>Additional Ridership</i>							
NOHO	381	301	50	79%	13%	29%	53%
System Average				50%	66%		

Actual booked trips were used to determine ridership for each route before and after the affected change. Low-income and people of color percentages are calculated using results from a rider survey conducted between May 20 and June 3, 2024. REMIX estimates system averages using 2021 5-Year ACS population estimates for the PVRTA service area.

## Conclusions

- The NOHO shuttle provides sufficient mitigation to any disparate impacts or disproportionate burdens to riders if the shuttles were discontinued alone.
- The NOHO shuttle provides a larger increase in service and mobility options to more diverse riders regardless of age.
- PVRTA will continue to provide regular fixed route service, "Dial A Ride" and ADA services to Northampton, which will not be affected by the service change.

## Appendix B: Public Comments

### Northampton Van Service Expansion Public Hearing

April 18<sup>th</sup> , 2024

Northampton Senior Center (11am) and Academy of Music Bus Stop (12pm)

In Attendance:

Paul Burns-Johnson - PVTA

Brandy Pelletier - PVTA

Alex Forrest - PVTA

Peter Kuusisto – Pioneer Valley Planning Commission

Kyle – MV Transit

Tiffany Duff – MV Transit

Jamin Carroll – Valley Area Transit Company

Sign-In Sheets are provided at the top of these minutes

#### Northampton Senior Center

The meeting at Northampton Senior Center was opened by Paul Burns-Johnson at 11am, followed by a brief presentation and opening the event to public comment.

Commenter: I am very interested that this service will provide access to the survival center. How does that processwork?

Paul Burns-Johnson: The Survival Center bus does not receive a lot of use. It has little or no ridership.

Now, someone can call and schedule a ride to and from their homes, which we hope will increase accessibility to the site.

Commenter: There will be no Northampton Senior Center Shuttle?

Paul Burns-Johnson: This is a grant funded service that has run out of the initial funding. This new service will not include an age limit or need for ADA eligibility. It is a 6 month pilot that we will be assessing as we go. We plan to advertise the service throughout the VATCo service area, focusing on the Northampton area.

Commenter: If it gets a lot of riders, will it continue after 6 months?

Paul Burns-Johnson: If it makes sense or if we find something else that will work better (as the nature of a pilot) PVTA will assess the performance.

Commenter: Would this impact ADA or Senior Rides?

Paul Burns-Johnson: You will still have senior van rides and ADA service.

Commenter: But what about the fact that not many people know about senior van rides or ADA service, do you have a way of getting the information out there?

Paul Burns-Johnson: We've offered it for many years and the service is advertised in many relevant places.

Commenter: Will this stop at someone's home to pick up and bring them back home after their trip? So this would

be easier than the buses. I go to the Academy of Music for a musical or show I can take this. Will 6 months be enough time to get people to see and ultimately use this new service?

Paul Burns-Johnson: Yes we will evaluate the performance of the new service, including the opportunity for residents to learn about the service.

Commenter: Some residents feel that without transportation their homes feel like prisons and those people will take a while to learn about this new service. I only learned about this service from my son who works at Harbor Transportation. This door to door service would mean it would be very useful but we don't know if the information is available to everyone.

Paul Burns-Johnson: We don't see many attendees at public hearings in general. This is likely the largest crowd we've seen since COVID. There is not a lot of interest in attending meetings about new or expanded service. It is great to see people interested.

Commenter: So, anyone over 60 can ride a van? They can call and get a ride?

Paul Burns-Johnson: PVTA has an elderly and disabled (E&D) discounted pass that you can apply for.

Brandy Pelletier: We can process an E&D Pass right here after this meeting if you are interested.

Commenter: But those who are legally blind do not need to pay on any public transit bus in Massachusetts, right?

Paul Burns-Johnson: Yes, that is correct, those who are blind can ride for free.

Commenter: I have a complaint about the R44 service. The service on weekends is horrible. Is there anyway that can be fixed? The R44 is really our only Northampton local bus that gets us around town.

Paul Burns-Johnson: We always seek public input on additional service. Additional service is dependent on staffing and buses. PVTA also has a responsibility to bring back service that was previously cut and that includes the 48, 43 and 41 and 42 buses. You can always advocate for additional funding at the state level. We don't have nearly enough. Commenter: Will riders be able to transfer from the new service to the regular buses?

Paul Burns-Johnson: Yes

Commenter: So I can transfer to the B48 out of town.

Commenter: Don't we get rides to medical appointments already?

Paul Burns-Johnson: Yes, for seniors, they receive a dedicated trip as long as it is scheduled within a week.

Commenter: But not to Boston?

Paul Burns-Johnson: Not to Boston.

Commenter: What are the services that PVTA offers?

Paul Burns-Johnson: We have Dial A Ride that's for seniors, Paratransit and now the Northampton Shuttle which is open to anyone.

Commenter: What level of funding would be necessary and adequate?

Paul Burns-Johnson: \$185 Million would be best. Currently we are on the third year of \$95 Million with additional discretionary funding. But we need the discretionary funding to be available for operations to operate the system. Each year of level funding is a cut with inflation. \$130 Million would be better as an Operations amount.

Commenter: With the current level of funding in the future would you have lay-offs?

Paul Burns-Johnson: Yes, if we are level funded again, we will have to consider laying off drivers and cutting service.

Commenter: I've seen some new drivers on the R44 and that seems promising that there is more staff.

Paul Burns-Johnson: Yes

Commenter: In our community there are many people with disabilities that feel trapped especially in Florence. Sometimes the regular bus doesn't get you to where you want to go.

Paul Burns-Johnson: Additional door to door service will be better for people in those situations.

Peter Kuusisto of the Pioneer Valley Planning Commission ended the meeting at 11:31 AM.

### Academy of Music Bus Stop

A second meeting at the Academy of Music Bus Stop was subsequently held with the same attendees representing

PVTA and contractors.

Peter Kuusisto of the Pioneer Valley Planning Commission opened the meeting at 12:03 PM.

As technology cooperated and attendees gathered at 12:21 PM, Paul Burns-Johnson presented the service enhancements and opened the meeting to public comment.

Commenter: How does booking work?

Alex Forrest: Booking up to a week in advance for trips. You can call us to book a trip at the phone number included with the presentation.

Commenter: When does the new service start?



Alex Forrest: May 1st

Commenter: Will this be a regular bus that goes around?

Paul Burns-Johnson: This will not be a regular bus, this will be a paratransit bus, but there will be no qualifications for using the service.

Commenter: Appointments to use the service have to be booked in advance?

Paul Burns-Johnson: Yes, you will need to book in advance and you will have a 1 hour window for pick up and return. This is not a taxi service. We can do the best we can if you don't book a return trip but please book your return trip at the same time you schedule your initial trip.

Commenter: Will others be on the bus with you?

Paul Burns-Johnson: Yes, others will be on the bus with you. This is public transportation.

Commenter: Is this open to all people or just those who live in Northampton? Let's say I live in Holyoke and need to take a trip from one location in Northampton to another location in Northampton, I can book that with this number?

Paul Burns-Johnson: For now, we are piloting everyone who takes trips within the city limits can call for a ride. If we find out during the pilot that there is just too much demand than we could impose additional restrictions to ensure a robust system to the City of Northampton.

Commenter: Doesn't door to door service not usually provide great ridership? I saw a talk about a similar service where someone tried to use a bus like this to get to work but it just didn't work for them and they were fired from their position.

Paul Burns-Johnson: This service isn't viable everywhere but could be here. This is an auxiliary service that PVTA is able to provide above the existing service. We hope to help some people take trips that wouldn't otherwise happen.

Commenter: I would like to see a shelter on Main St across from the Post Office.

Paul Burns-Johnson: That shelter was initially placed by the City of Northampton. We don't usually put stops that are usually alighting stops.

Commenter: What about adding shelters to stops on State Street?

Paul Burns-Johnson: We cannot put shelters everywhere. It depends on the ridership of the stop. It is difficult at stops that act more like Flag Stops.

Alex Forrest: Those stops are not currently served by PVTA.

Jamin Carrol: Those stops are served by FRTA at the moment.

Peter Kuusisto ended the meeting at 12:31 PM

## Northampton Van Service Expansion Public Hearing

April 23, 2024

Virtual via Zoom Platform

### **In Attendance:**

Paul Burns-Johnson – PVTA  
Brandy Pelletier -- PVTA  
Alex Forrest -- PVTA  
Jamin Carroll – PVTA (VATCo)  
Nicole Rohan -- PVTA

### **Other members of the public**

Tom O'Brien

The meeting was opened by Carl Jackson at 6:30 PM, followed by a brief presentation regarding the service change by Paul Burns-Johnson.

Tom O'Brien submitted the following chat:

*"Thank you for providing details for the service. I will see if I am able to make use of the shuttle when it is running, and I am in Northampton."*

Tom O'Brien submitted the following chat:

*"Since the fare is similar to that on the bus, will bus passes be accepted for this service? Thank you."*

Paul Burns-Johnson submitted the following chat in response:

*"Yes"*

Carl Jackson ended the meeting at 7:00 PM

## Northampton “NOHO” Shuttle Service Survey Comments

May 20<sup>th</sup> to June 3<sup>rd</sup>, 2024

Comments
Thank you for asking riders for their opinions and info. PVTA van service drivers & dispatchers & others who answer phone are so friendly, patient and kind. Thank you for \$.75 fair one-way seniors <Heart Sign>
I think it's fantastic! It's important for people to have access to Survival Center doctors, shopping, etc.
Add Mass RMV ID can be used in addition to RMV pass to establish qualification for senior one-way rate of \$.75
Excellent drivers, very kind and friendly
I rode on the first day of the new fares. Nobody understood then, but everybody was happy!
Seems it will increase ridership as much the timing will be hard to predict
<The respondent circled Hispanic and crossed out Latinx on the survey form>
Insufficient to base response 1. Do you take healthy ambulatory Noho residents to Baystate hospital for 1-time test and return? or 2.Holyoke retail repairs? or 3. Easthampton MD appt R/T. I am healthy but family and friends have scattered even to other states. Some have had car keys taken from them unjustifiably. Most of your phone clerks are rude and impatient with riders trying to make schedule arrangements. Drivers however are excellent and well mannered.
I attended hearing so knew of change, other people on vans did not know/confused. Van drivers were not able to explain changes. Bus drivers should give written info to passengers.
Rides outside of NOHO's

## Appendix C: Major Service Change Policy

# Major Service Change Policy, Disparate Impact Policy, and Disproportionate Burden Policy

## Major Service Change Policy

The Pioneer Valley Transit Authority is required by the Federal Transit Administration to have a threshold at which point a service change is considered a “Major Service Change.” Any service change exceeding that threshold is required to be presented to the public for comment and consideration, as outlined in the PVTA Public Hearing and Major Service Change Policy in Appendix 1 in the [Public Participation Plan](#).<sup>1</sup> In fulfillment of this requirement, the PVTA will hold public hearings and conduct an analysis on Disparate Impact and Disproportionate Burden when a proposed change meets the following criteria:

- Any change in PVTA fare policies, rates, or media is being considered; or
- An alteration of service to existing fixed route service that:
  - Cumulatively changes the number of vehicle revenue hours in the service area by 7.5% or more.

Or:

- Changes the number of vehicle revenue hours on any specific route by 50% or more; or
- Changes the location or number of stops on any specific route by 25% or more.
- The establishment of a new route.

Service or fare changes which are considered temporary or experimental, and which have a duration of 12 months or shorter, are not considered Major Service Changes.

## Process for Restoring Service

Approximately 50% of PVTA operating funding is provided through state legislative appropriations, subject to gubernatorial approval. In FY17 and FY18, funding levels for the next fiscal year were not determined until after the start of the fiscal year. However, PVTA has a fiduciary responsibility to pass a balanced budget before the start of the fiscal year (July 1<sup>st</sup>) even if state funding levels may not be finalized until July, August, or even September.

As a response, PVTA bases the upcoming fiscal year budget on the Governor’s proposed budget, which is typically released in the winter of the prior fiscal year. However, there has been a great deal of uncertainty in recent years regarding final budget amounts. For instance, in 2018 the FY19 governor’s budget resulted in a projected \$3.1 million funding shortfall for the PVTA. In order to approve a balanced budget before June 1<sup>st</sup>, PVTA conducted a public process on a suite of service reductions in accordance with the Major Service Change Policy in force at the time. <sup>2</sup>

Ultimately, the budget deficit for FY19 was reduced from \$3.1 million to \$800,000 due to additional funding from the state. However, this was not determined until the end of August, well after the start of the new fiscal year on July 1. In instances where a projected shortfall is reduced, PVRTA staff will use performance measures to systematically reinstate service using the following criteria:

- ☐ Percentage of people of color and low-income customers using the route
- ☐ Ridership and performance measures as compared to service standards

PVRTA will create a ranking of service reductions should additional funding be provided and rescind service cuts based on that ranking.

### Disparate Impact Policy (Racial Discrimination)

In accordance with FTA Circular 4702.1B, and industry standards and best practices, the Pioneer Valley Transit Authority has defined a disparate impact as a Major Service Change in which the adverse impacts of the change that people of color experience as compared to non-people of color is 20% or more. For the purposes of this document, the term “people of color” is synonymous with the term “minority” as used in Federal Circular 4702.1B (page I-4).

### Disproportionate Burden Policy (Low Income)

In accordance with FTA Circular 4702.1B, and industry standards and best practices, the Pioneer Valley Transit Authority has defined a disproportionate burden to be a change in service where low-income customers would experience a negative impact 20% or larger compared to non-low-income customers. For the purposes of this policy, “low income” is defined as a person reporting an income below the federal poverty line.

## Appendix D: REMIX Methodology

PVTA utilized REMIX for this Title VI Disparate Impact/Disproportionate Burden Analysis. Disparate impact is the impact the change to the system would have on low-income communities. Disproportionate burden is the burden borne on people of color.

PVTA “drew” the route shapes and inputted the proposed timetables into REMIX. Remix allows you to automatically generate a Title VI report (based on Census data) by comparing existing service to a set of proposed changes. This page outlines the methodology and data sources we use when generating this report.

### Data sources

- Demographic data comes from the US Census Bureau, 2017-2021 American Community Survey (ACS) 5-Year Estimates.
- Population is coded by table B03002, field B03002001.
- Low-income status is set at 100% of the US federal poverty level, depending on your individual agency. This is coded by the appropriate fields in table C17002.
- Minority status is coded by table B03002, by subtracting the white, non-Hispanic population (B03002003) from the total population (B03002001).
- Service area is a set of block groups determined by a shapefile your agency provides.
- Map and routing data are provided OpenStreetMap, Mapbox, and Valhalla.

### Methodology

1. Get the population near a route, including its low-income and minority percentage.
  - For each route, build a shape that represents the area within quarter mile of any of its stops.
  - Intersect the catchment area with 2017-2021 ACS 5-year estimates. Get a list of block groups and the percentage overlap with each.
  - For each block group, take the percentage of overlap and multiply it by the block group’s statistics.
  - Get the population, minority population, and low-income population for each group and sum them together. This is the total population a route could serve.
2. Compare the number of people-trips, before and after.
  - Multiply the population near a route by the number of trips it makes (per year) to get “people-trips.”
  - Repeat for low-income and minority populations to get “low-income people-trips” and “minority people trips.”
  - Compare these numbers between the before and after versions of the route, to get a set of people-trip differences. We match before and after using routes that have the same name.
3. Get the total difference in people-trips across the transit system.
  - Repeat the process above for every route in the transit system.

## Service Equity Analysis of Enhanced Northampton Demand Response Service 2024

- Sum together the difference in people-trips. This will return three numbers: total difference in people-trips, total difference in low-income people-trips, and total difference in minority people trips.
4. Calculate the change borne by low-income and minority populations.
    - Divide the total difference in low-income people trips by the total difference in people-trips to get the percentage of change borne by those with low incomes.
    - Repeat for minority people-trips.
  5. Compare the percentage change to the average in the service area.
    - Calculate the average percentage of low-income and minority populations across the entire service area.
    - Subtract from the change borne by those populations.
    - Get two final numbers: the delta between the impact this set of transit changes had on low-income and minority populations compared to any average change.

### Additional Raw Data

In addition to the methodology outlined above, Remix also produces a set of raw data you can use in your own methodology. Specifically, we provide:

- A list of Census block groups in the service area with population, low-income, minority information for each.
- A before and after count of trips in each block group.
- A service-area-wide average of minority and low-income populations

### A Process Note

This analysis is rigorous and meets the needs of most transit agencies. PVRTA's Title VI Program Plan allows for either survey data or the use of the latest 5-Year ACS data (available through REMIX). This process complies with FTA Circular 4702.1B.