



# ROUTE 28 FARE-FREE PILOT EVALUATION

## SUMMARY FINDINGS

**MARCH 2022**



City of Boston  
Transportation

# BACKGROUND



City of Boston  
Transportation

# Why was the Route 28 selected?



## Essential Travel Connection

- The Route 28 bus is a **key connector** for many Boston neighborhoods including:
  - Mattapan
  - Roxbury
  - Dorchester
- Many residents in this area **rely on daily bus service** to meet their travel needs
- These neighborhoods and are home to **many minority-owned business districts**



## High Ridership Route

- Route 28 is one of the **MBTA's highest ridership bus routes** both during and prior to the COVID-19 pandemic
- Pre-pandemic, Route 28 served **12,500 daily trips**
- **Ridership is steady during the day** compared to most other routes that see low off-peak ridership



## COVID Relief

- More than **two-thirds of riders on Route 28 are classified as low-income**
- The free fares are intended to **lessen riders' financial burden** at a time when economic vulnerability is at a historic high



## Serves Socially Vulnerable Bostonians

- 95% of riders are considered **transit critical**
- The Route 28 runs through some of the most **socially vulnerable areas** of Boston

# What is the Pilot?

- The Route 28 became fare-free starting August 29, 2021
- Riders can use all doors without paying a fare
- All other MBTA services still require payment, including transfers
- Route 28 is still free at the time of this report; MBTA and the City decided to use August 29 to December 17, 2021, for the pilot evaluation period
- The City of Boston and MBTA agreed on a per-ride reimbursement structure for Route 28 and door-to-door paratransit rides within  $\frac{3}{4}$ -mile of the route



# PILOT GOALS AND RESULTS



City of Boston  
Transportation

# Pilot Goals



Encourage Ridership

Bring people back to transit and attract new riders



Improve Service

Improve overall Route 28 service



Improve or Maintain Travel Times

Demonstrate time savings benefits of all-door boarding on Route 28



Improve Rider Experience

Improve the experience of people riding Route 28



Deliver Economic Impact for Riders

Lower the amount of money people need to spend on transportation



Prioritize Rider Equity

Provide a direct benefit to Boston's transit-critical\* residents

\*Transit critical populations, as defined by the MBTA, include “residents who are low-income, people of color, seniors, people with disabilities, or who live in households with few or no vehicles”

# Pilot Results



Encourage Ridership

Free fares increased ridership substantially



Improve Service

Dwell times per passenger decreased by about 20%



Improve or Maintain Travel Times

Route 28 absorbed a significant ridership increase with minimal negative impact on travel times



Improve Rider Experience

Route 28 riders liked the easier boarding process, and overall satisfaction improved



Deliver Economic Impact for Riders

About 20% of riders saved more than \$20 a month



Prioritize Rider Equity

The majority of Route 28 pilot riders were transit-critical\*

\*Transit critical populations, as defined by the MBTA, include “residents who are low-income, people of color, seniors, people with disabilities, or who live in households with few or no vehicles”

# EVALUATION



City of Boston  
Transportation

# Evaluation Purpose and Tools

## Why do an evaluation?

- Looks at how changes on the Route 28 measure up against the goals of the pilot
- Different metrics indicate social impact, changes in bus operations, and other key elements
- Evaluation findings help guide future pilots

## Evaluation Tools



In-Person and  
Online Rider  
Surveys



MBTA Operational  
Data

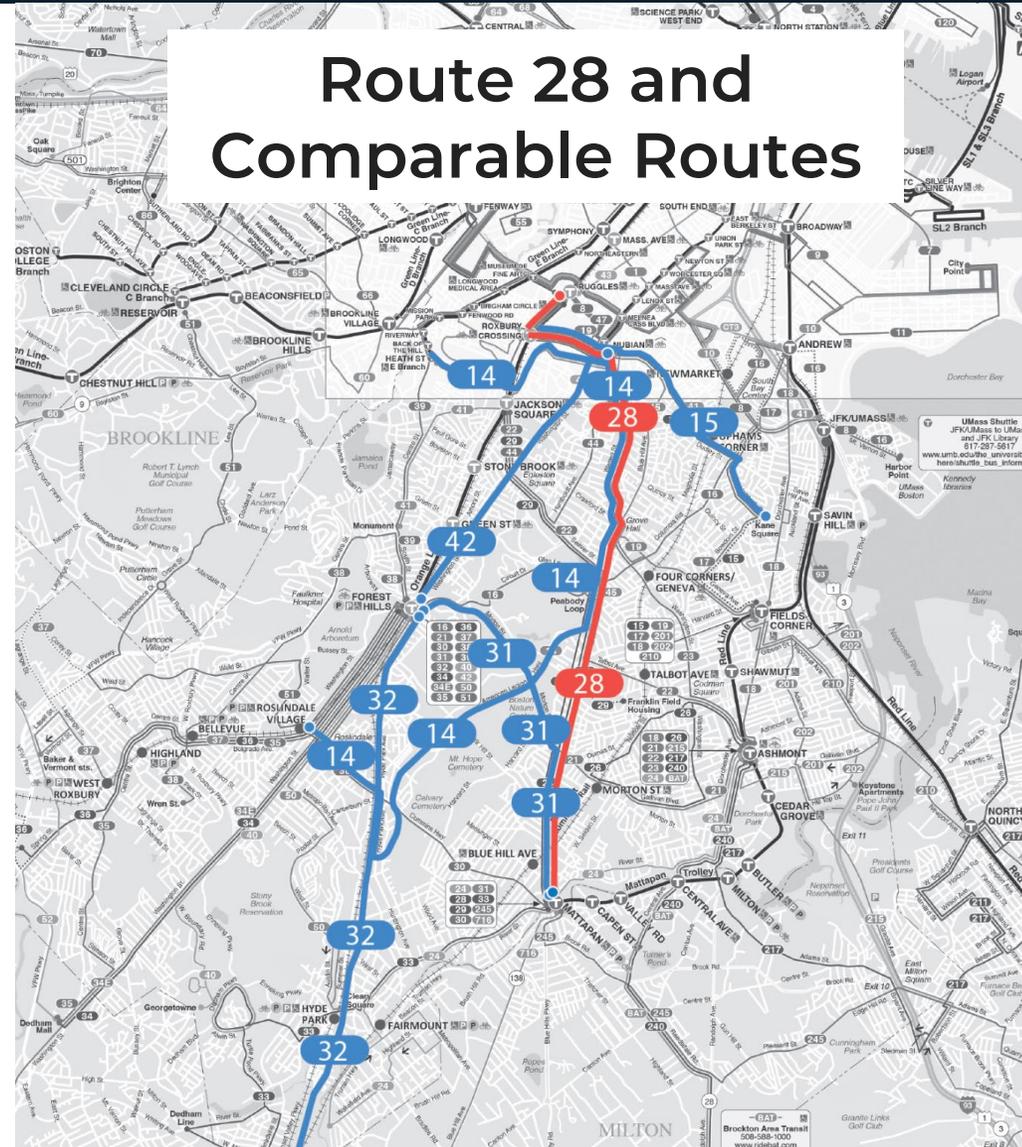


Interviews

*These icons appear on the following pages to indicate the source of various findings.*

# Pilot Survey Details

- Surveys included Route 28 and the following comparable routes: 14, 15, 31, 32, 42
- Surveys were distributed in person and available online
- Survey instrument and approach developed in coordination with MBTA
- **Pre-Pilot (Aug 2021) Surveys**  
AM and PM Peak and Off-Peak Hours  
Weekday and weekend
- **Pilot (Oct 2021) Surveys**  
AM and PM Peak and Off-Peak Hours  
Weekday and weekend



**280**  
APPROXIMATE  
PRE-PILOT  
(AUG) SURVEY  
RESPONDENTS

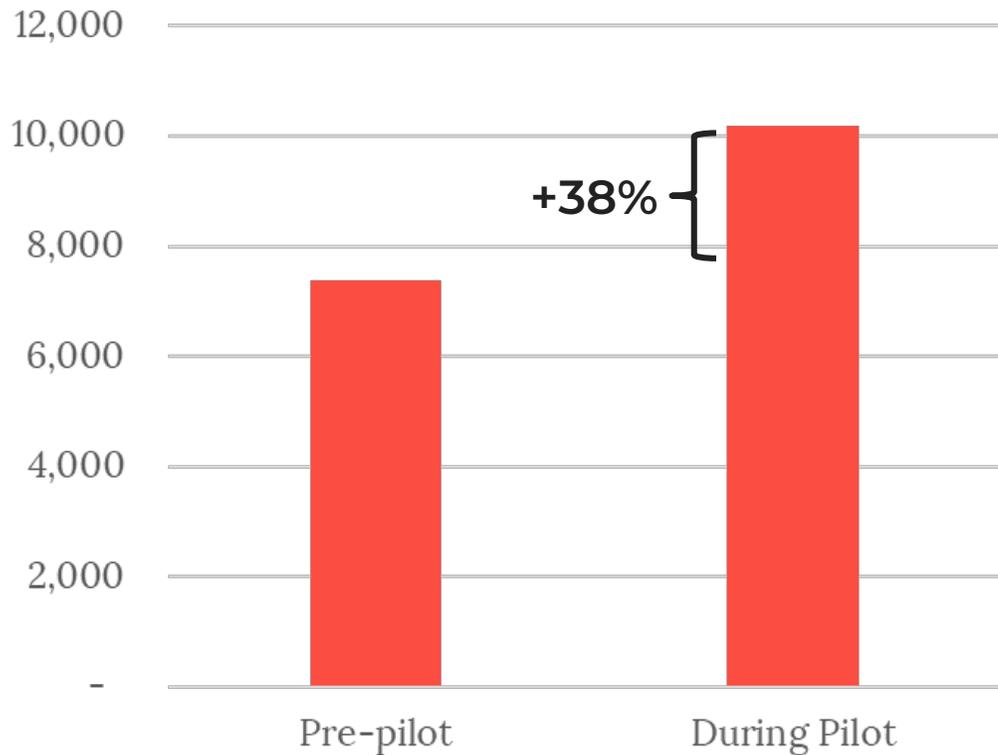
**240**  
APPROXIMATE  
PILOT (OCT)  
SURVEY  
RESPONDENTS

# Route 28 ridership increased substantially during the free fare pilot



Bus Operations Data

## Route 28 Average Weekday Ridership



- Route 28 ridership increased dramatically (38%) after the start of the pilot, experiencing up to 4,000 additional trips per weekday, compared to only a 15% increase in systemwide bus ridership
- 15% of riders surveyed during the pilot said they were new to the Route 28

### Goals

Encourage Ridership

Improve Service

Improve or Maintain Travel Time

Improve Rider Experience

Deliver Economic Impact for Riders

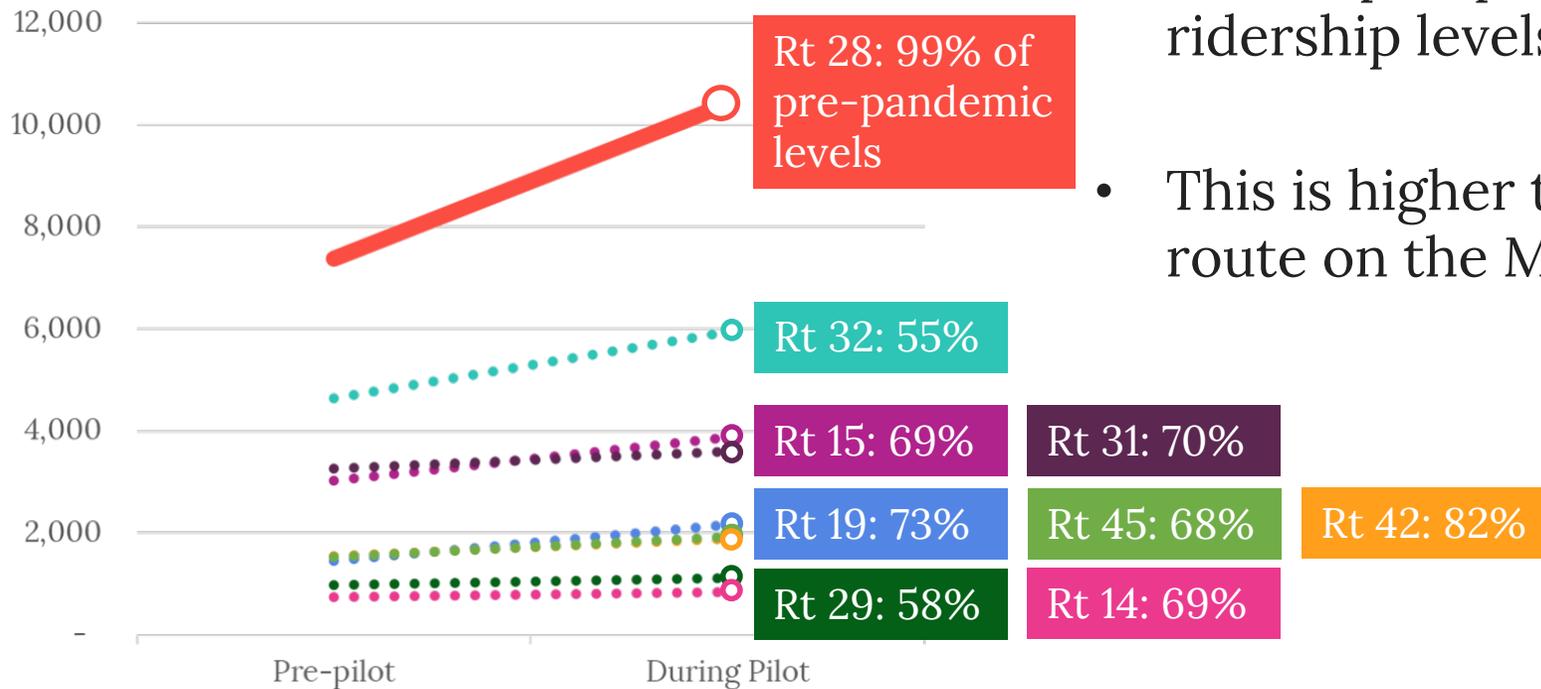
Prioritize Rider Equity

Source: MBTA Average Weekday Ridership; pre-pilot baseline calculated using average weekday ridership from 16-Aug-21 through 27-Aug-21; during pilot calculated using average weekday ridership from 30-Aug-21 through 17-Dec-21

# Route 28 returned to pre-pandemic ridership levels more quickly than comparable routes



## Average Weekday Ridership by Route



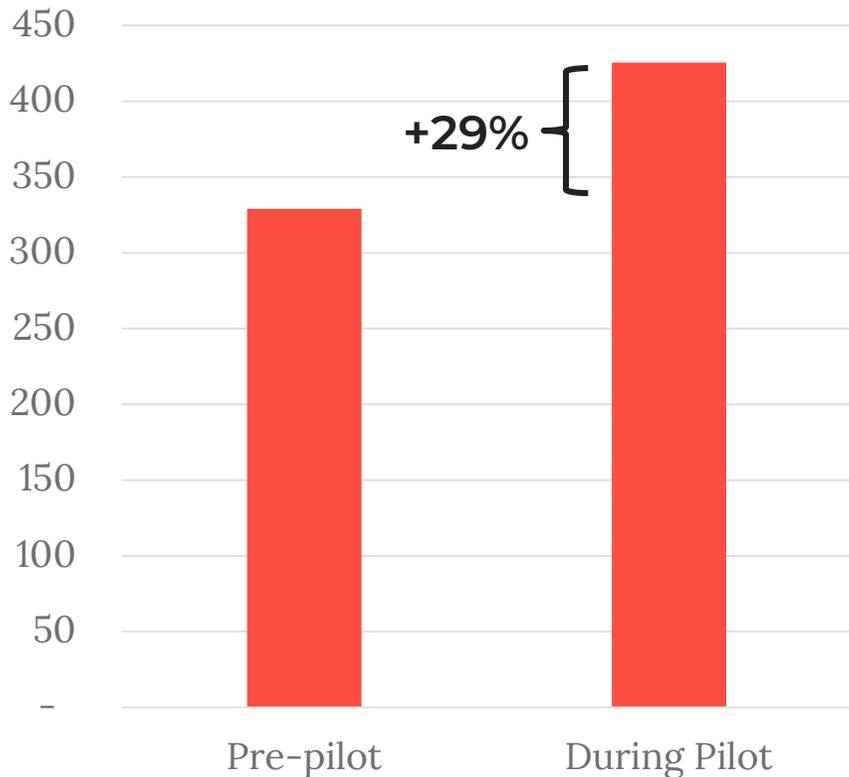
- At the end of the pilot evaluation period, Route 28 had reached 99% of pre-pandemic weekday ridership levels
- This is higher than any other bus route on the MBTA system

Goals
Encourage Ridership
Improve Service
Improve or Maintain Travel Time
Improve Rider Experience
Deliver Economic Impact for Riders
Prioritize Rider Equity

# The free pilot zone also enticed paratransit customers who did not travel pre-pilot to take trips on The RIDE



## The RIDE Average Weekly Ridership



- Ridership within the free pilot zone increased at a faster rate than systemwide paratransit ridership, which only saw a 6% increase in trips
- Almost 900 individual paratransit riders benefitted from a free trip, taking an average of 8 trips during the pilot evaluation period
- Approximately 300 previously inactive RIDE users traveled during the pilot

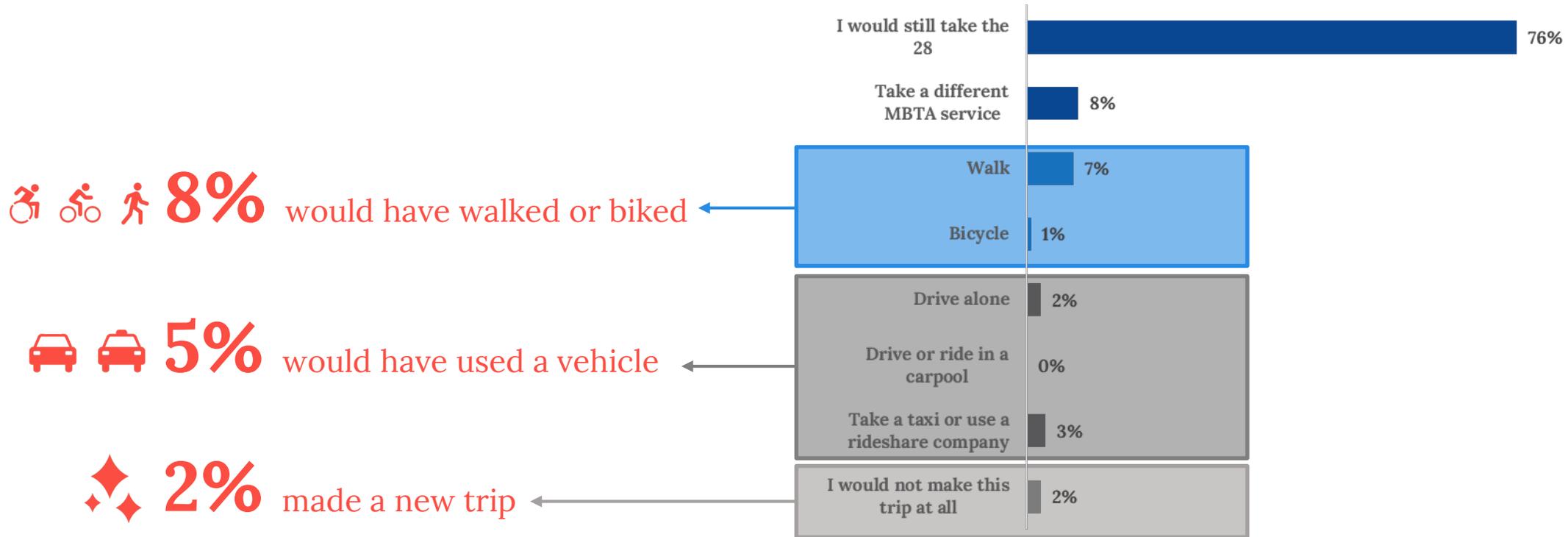
Goals
Encourage Ridership
Improve Service
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Deliver Economic Impact for Riders
Prioritize Rider Equity

# The pilot shifted some people onto the bus from other travel modes



Survey Findings

Survey Question: How would you have made this trip if the 28 were not free?



## Goals

Encourage Ridership

Improve Service

Improve or Maintain Travel Time

Improve Rider Experience

Deliver Economic Impact for Riders

Prioritize Rider Equity

# Rider Perception - Interviews

- Some people reported changing behavior and **taking more trips on the Route 28** because it was free



## Goals

Encourage  
Ridership

Improve Service

Improve or  
Maintain Travel  
Time

Improve Rider  
Experience

Deliver Economic  
Impact for Riders

Prioritize Rider  
Equity

# Route 28 boarding time per passenger decreased significantly during the pilot



Route	Pre-pilot Dwell Time per Passenger (sec)	During Pilot Dwell Time per Passenger (sec)	Actual change (sec)	% change
28	7.7	5.9	-1.7	-23%
45*	8.9	7.8	-1.1	-12%
14*	10.5	9.7	-0.8	-8%
42	9.5	8.9	-0.6	-7%
19	8.1	7.7	-0.4	-5%
32	7.4	7.1	-0.3	-4%
31*	7.9	7.7	-0.3	-3%
15	7.8	7.7	-0.2	-2%
29*	8.7	8.8	0.1	1%

*faster*

*slower*

- Route 28 boarding times (i.e. dwell time) per passenger decreased significantly more than on comparable routes
- The decrease in dwell time translates to savings of 4.8 hours per weekday
- At Nubian Station, buses were able to leave up to 30 seconds faster thanks to all-door boarding

\*Indicates that the route overlaps Route 28 on Blue Hill Ave

Goals
Encourage Ridership
Improve Service
Improve or Maintain Travel Time
Improve Rider Experience
Deliver Economic Impact for Riders
Prioritize Rider Equity

Source: MBTA boardings and dwell times by route; dwell time per passenger calculated by dividing total dwell time by total boardings; during pilot figures are calculated using 29-Aug-21 through 25-Sep-21; pre-pilot figures are calculated using 1-Aug-21 through 22-Aug-21; time savings calculated by multiplying decrease in dwell time per passenger (s) by average weekday ridership (10,200)

# Rider Perception - Interviews

- Interviewees understood and had a **very positive view of all-door boarding**
- Interviewees often mentioned **reduced dwell times** and **reduced conflicts with operators**, which made them feel safer on board
- Interviewees **heavily valued travel time savings from easier boarding**
- Almost all interviewees indicated that **buses seemed more reliable** during the pilot



## Goals

Encourage  
Ridership

Improve Service

Improve or  
Maintain Travel  
Time

Improve Rider  
Experience

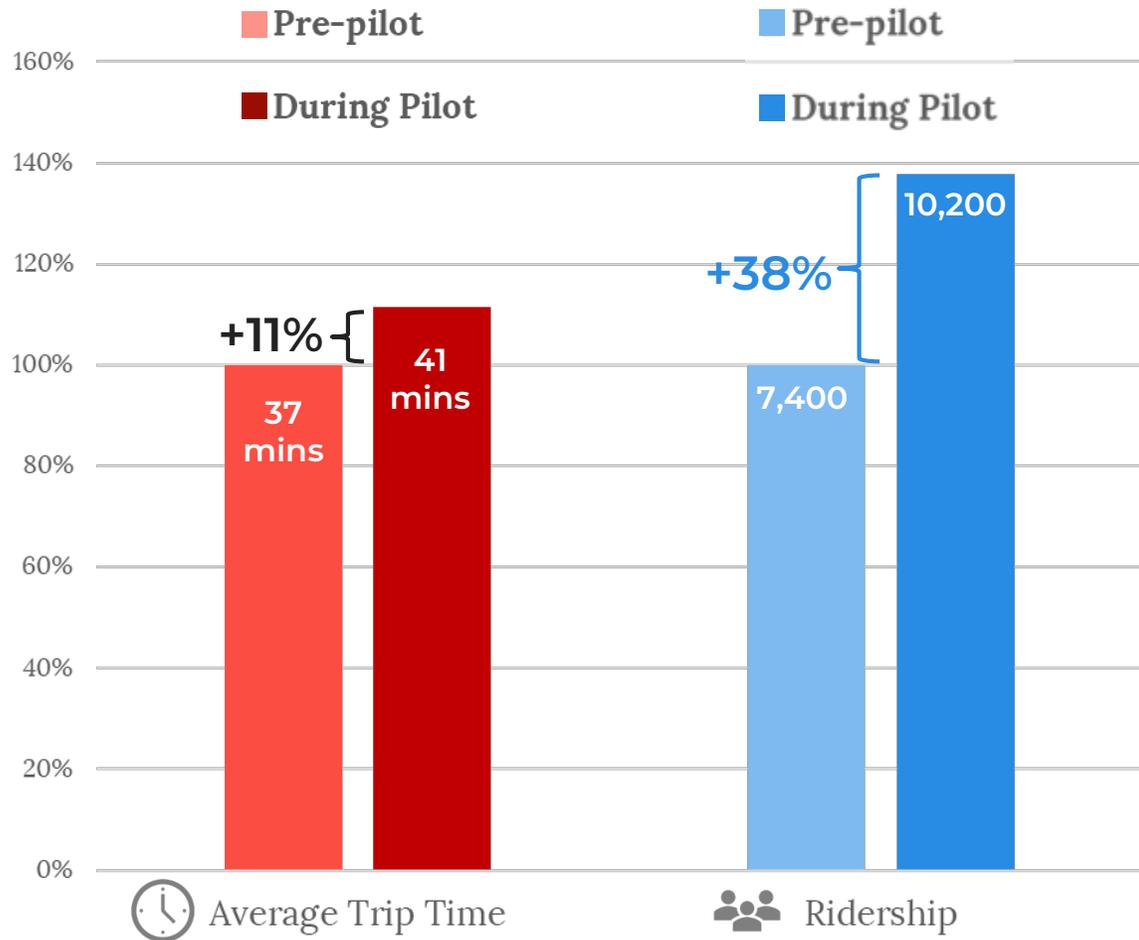
Deliver Economic  
Impact for Riders

Prioritize Rider  
Equity

# Route 28 experienced a 38% increase in ridership without severe penalties to peak travel times



Bus Operations Data



- The free fare pilot and all-door boarding helped the Route 28 absorb a 38% increase in ridership without severe penalties to peak (rush hour) travel times
- These results seem to indicate that reductions in travel time will require infrastructure improvements
- The evaluation team could not access data on overall changes in traffic on the Blue Hill Ave/Warren Street corridor, where Route 28 runs

## Goals

Encourage Ridership

Improve Service

Improve or Maintain Travel Time

Improve Rider Experience

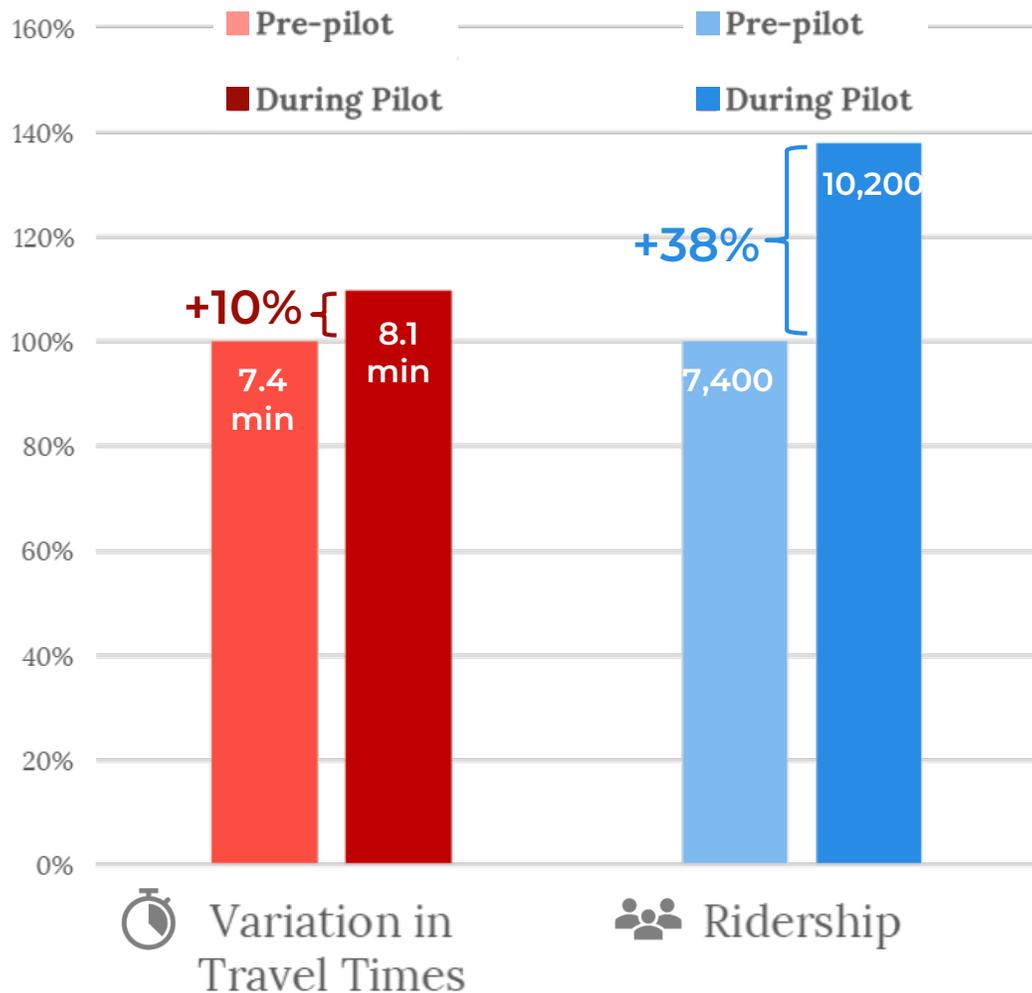
Deliver Economic Impact for Riders

Prioritize Rider Equity

# Route 28 experienced a 38% increase in ridership without severe penalties to reliability



Bus Operations Data



- While ridership increased by nearly 40%, variability only increased by 10%
- Variability in travel time is a measure of reliability for riders
- We focused on inbound peak for this evaluation measure because this is typically when passengers are picked up, and therefore when most of the benefits of all-door boarding are accrued

Goals
Encourage Ridership
Improve Service
Improve or Maintain Travel Time
Improve Rider Experience
Deliver Economic Impact for Riders
Prioritize Rider Equity

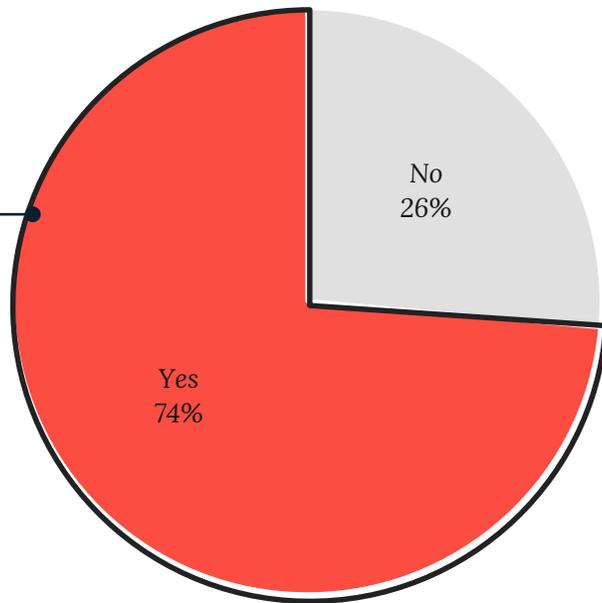
**Sources:** MBTA run times by route for peak inbound trips, variability = (90th percentile trip time - median trip time), analysis only uses core route patterns, pre-pilot variability uses Aug data, pilot average uses Sept to Dec; MBTA Average Weekday Ridership; pre-pilot baseline calculated using average weekday ridership from 16-Aug-21 through 27-Aug-21; during pilot calculated using average weekday ridership from 30-Aug-21 through 17-Dec-21.

# Route 28 riders say they are saving time, even if their actual trip on the bus does not feel faster



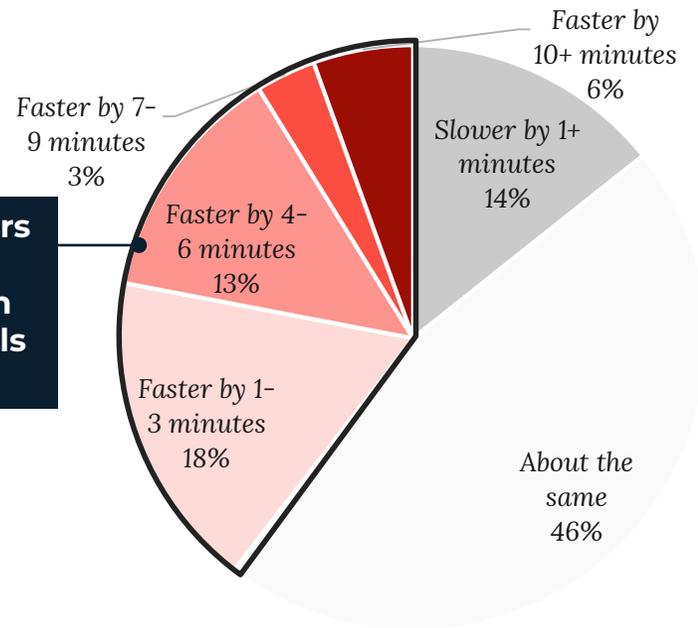
Survey Findings

*Survey Question: Are you saving time as a result of the Route 28 Fare Free Pilot?*



**74% of respondents say that they are saving time**

*Survey Question: Do you feel your trips on the 28 have been faster or slower during the Route 28 Fare Free Pilot?*



**40% of riders stated that their trip on the bus feels faster**

**Survey Note:** Only asked to people who responded Yes to: "Did you use the 28 before the start of the Route 28 Fare Free Pilot?"

## Goals

Encourage Ridership

Improve Service

Improve or Maintain Travel Time

Improve Rider Experience

Deliver Economic Impact for Riders

Prioritize Rider Equity

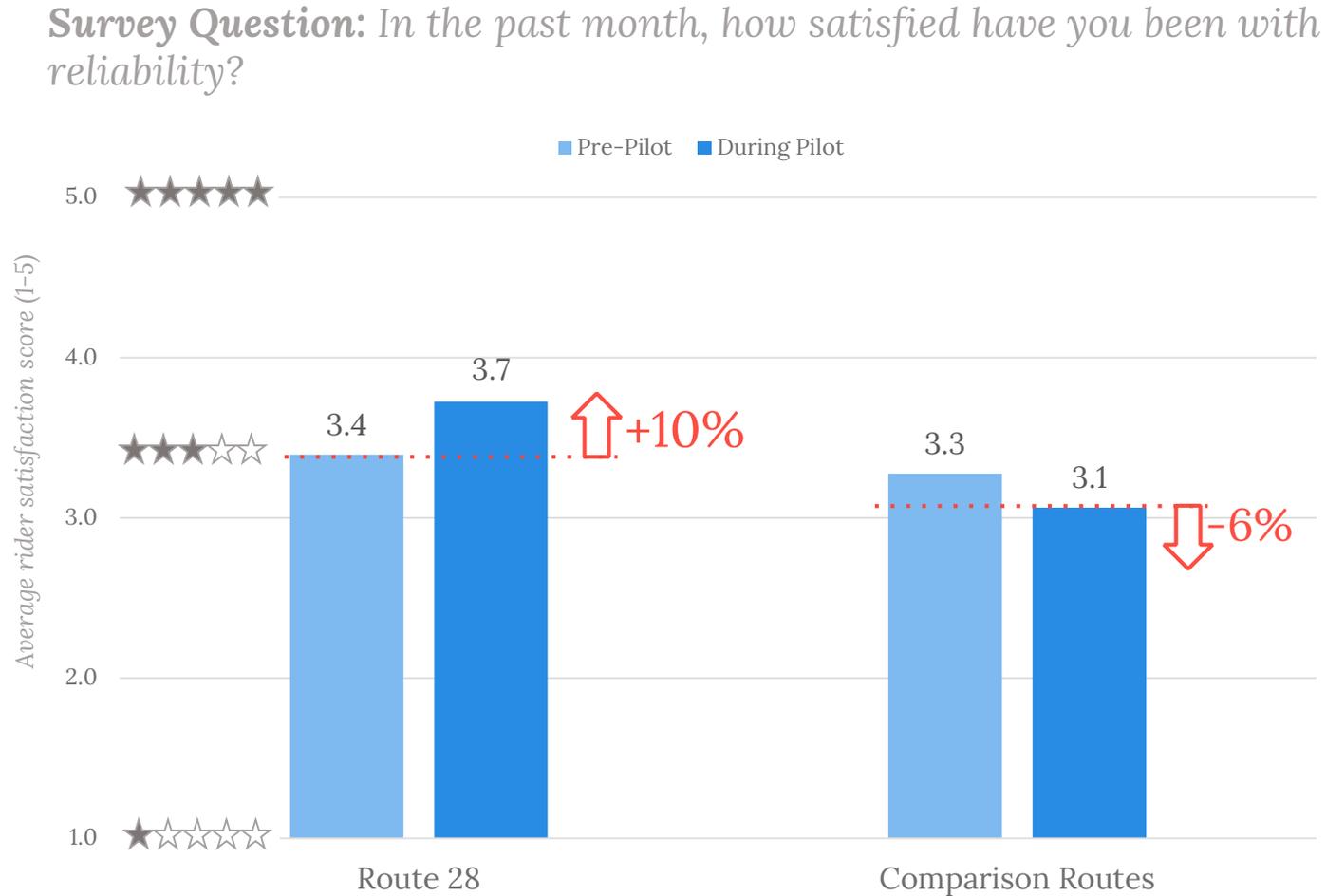
**Source:** During-pilot survey, August and October 2021. Route 28 only.  
 Are you saving time as a result of the Route 28 Fare Free Pilot? N=106  
 Do you feel your trips on the 28 have been faster or slower during the Route 28 Fare Free Pilot? N=91

# Route 28 rider satisfaction with reliability increased



Survey Findings

- Rider satisfaction with reliability on the Route 28 increased by 10%
- Rider satisfaction with reliability decreased slightly on comparable routes



**Source:** Pre and During-pilot survey, August and October 2021.  
 Pre-Pilot Route 28: N=125 | During Pilot Route 28: N=116 | Pre-Pilot Comparable Routes: N=150 | During Pilot Comparable Routes: N=121  
 High dissatisfaction for comparable routes is almost entirely due to the decrease in satisfaction for Route 32 riders.

## Goals

Encourage Ridership

Improve Service

Improve or Maintain Travel Time

Improve Rider Experience

Deliver Economic Impact for Riders

Prioritize Rider Equity

# Route 28 experienced little to no "official" crowding during the pilot



- Route 28 experienced very limited crowding during the pilot, according to MBTA's official measure of "uncomfortable" crowding
- There were concerns that making the route free would cause undue crowding, but this did not happen
- When crowding did happen, it took place in the very early morning and late in the evening

## Average Percent of Crowded Passenger Minutes by Hour During the Pilot



Source: MBTA crowding by passenger hour for September through December 2021 on Route 28

### Goals

Encourage Ridership

Improve Service

Improve or Maintain Travel Time

Improve Rider Experience

Deliver Economic Impact for Riders

Prioritize Rider Equity

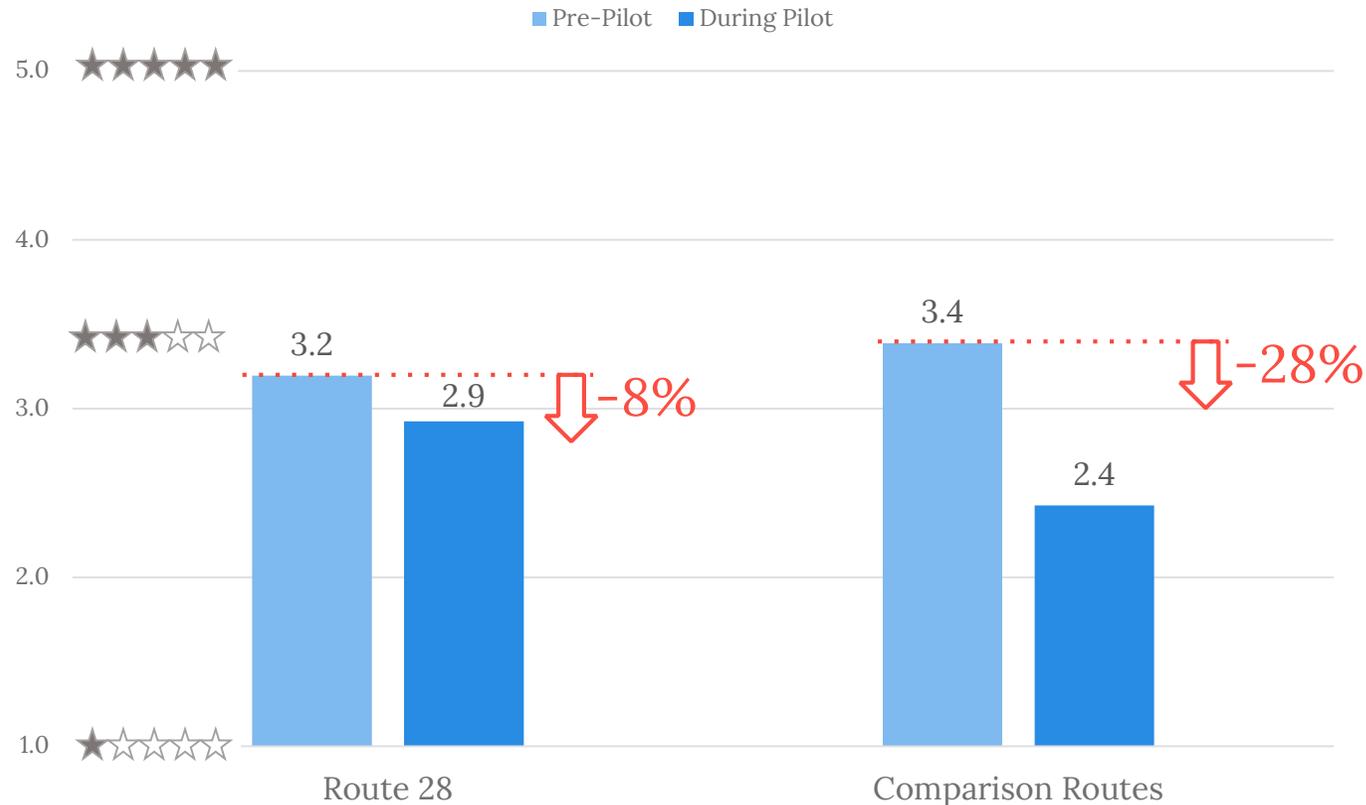
# Satisfaction with crowding decreased more on comparable routes than on the Route 28



Survey Findings

- While Route 28 riders became slightly less satisfied with crowding during the pilot, riders on comparable routes were significantly less satisfied than Route 28 riders

Survey Question: In the past month, how satisfied have you been with crowding?



Source: Pre and During-pilot survey, August and October 2021.  
 Pre-Pilot Route 28: N=127 | During Pilot Route 28: N=118 | Pre-Pilot Comparable Routes: N=151 | During Pilot Comparable Routes: N=121  
 High dissatisfaction for comparable routes is almost entirely due to the decrease in satisfaction for Route 32 riders.

## Goals

Encourage Ridership

Improve Service

Improve or Maintain Travel Time

Improve Rider Experience

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Prioritize Rider Equity

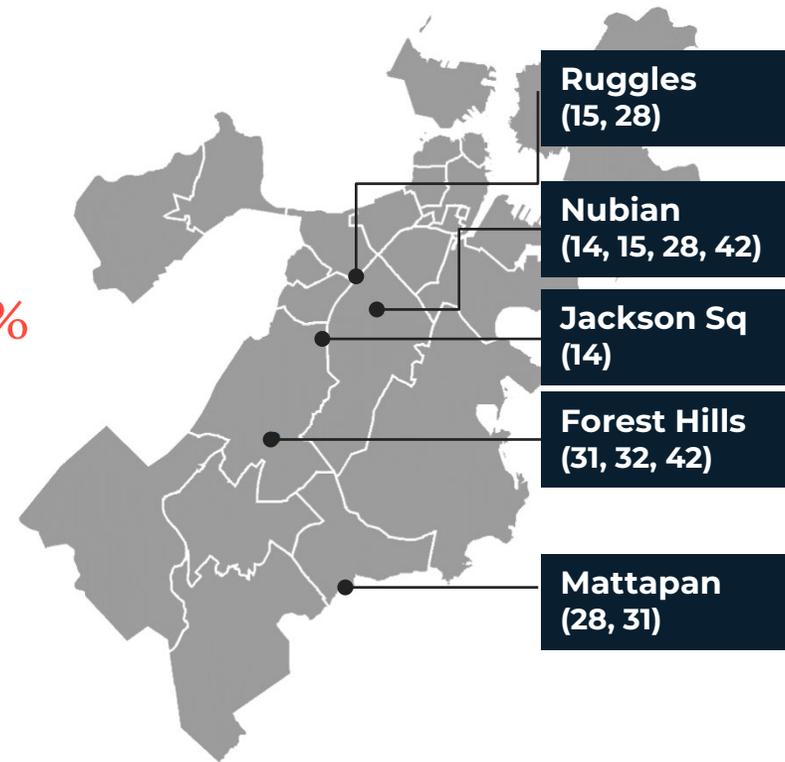
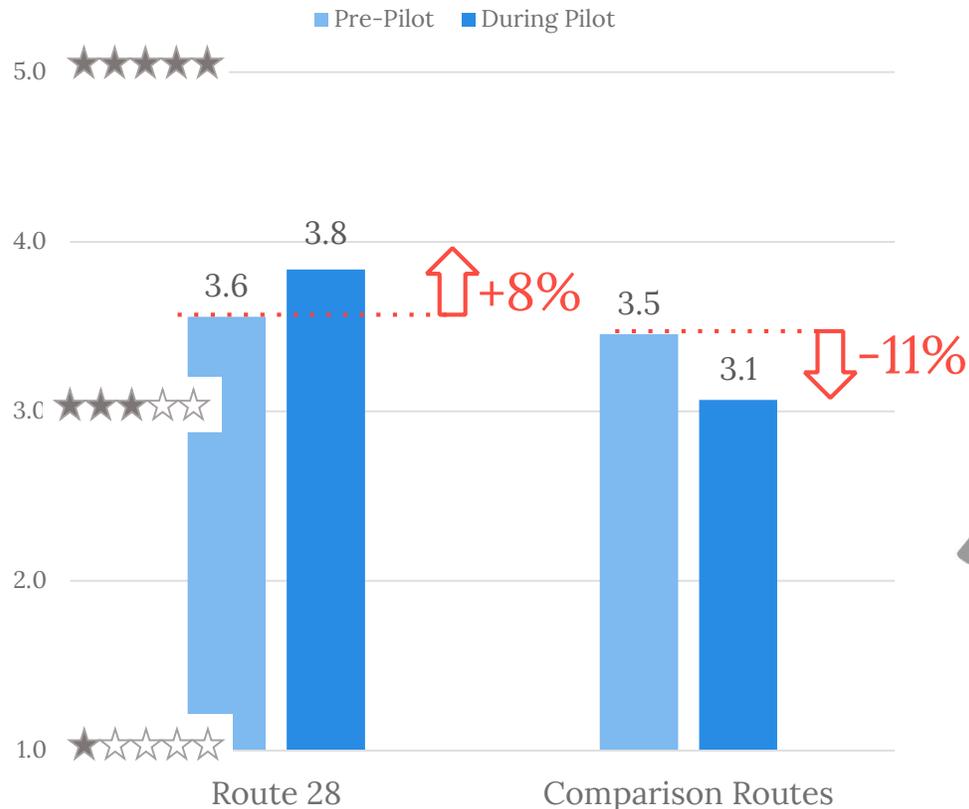
# Route 28 riders were more satisfied with the boarding process at major hubs



Survey Findings

- Route 28 riders became more satisfied with boarding at major transit hubs, while comparable route riders became less satisfied

*Survey Question: In the past month, how satisfied have you been with your experiences boarding at [relevant hub]?*



## Goals

Encourage Ridership

Improve Service

Improve or Maintain Travel Time

Improve Rider Experience

Deliver Economic Impact for Riders

Prioritize Rider Equity

Source: Pre and During-pilot survey, August and October 2021.

Pre-Pilot Route 28: N=103 | During Pilot Route 28: N=116 | Pre-Pilot Comparable Routes: N=128 | During Pilot Comparable Rts: N=115

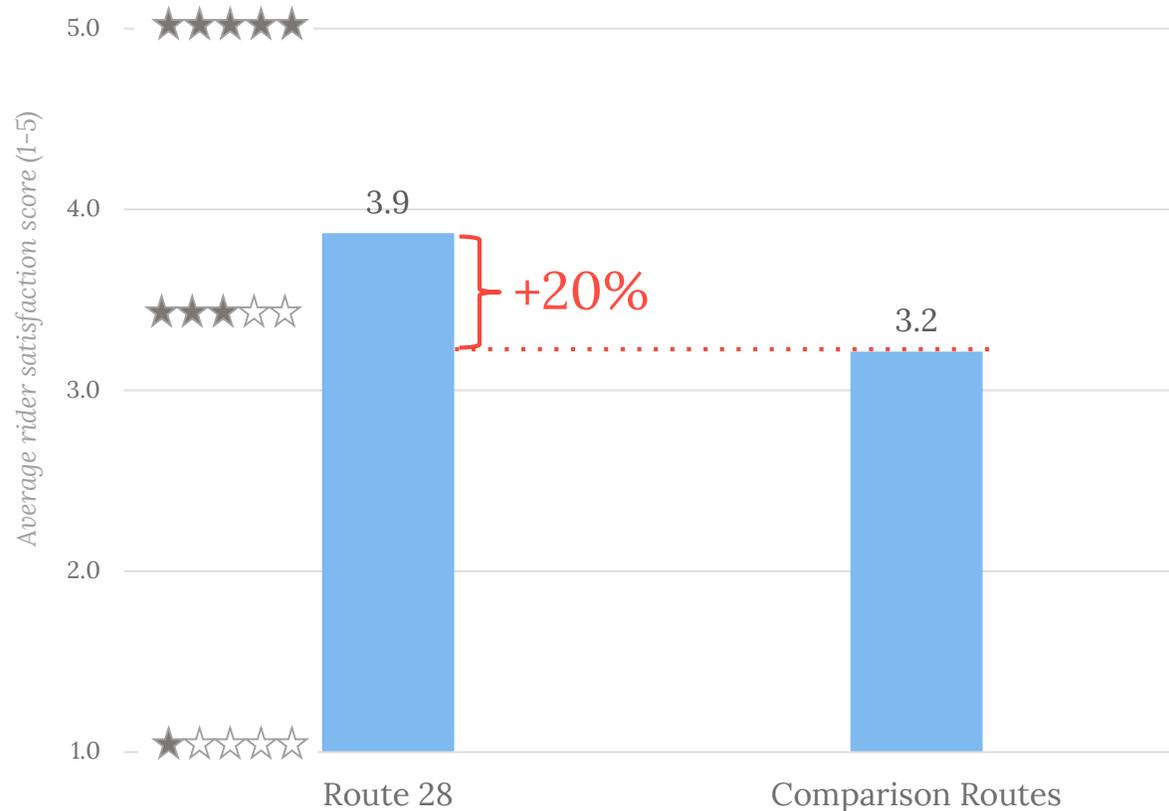
# Route 28 riders were 20% more satisfied with the boarding process in general



Survey Findings



**Survey Question:** In the past month, how satisfied have you been with your experiences getting on the bus?



## Goals

Encourage Ridership

Improve Service

Improve or Maintain Travel Time

Improve Rider Experience

Deliver Economic Impact for Riders

Prioritize Rider Equity

**Source:** Pre and During-pilot survey, August and October 2021.  
 During Pilot Route 28: N=118 | Pre-Pilot Comparable Routes: N=122

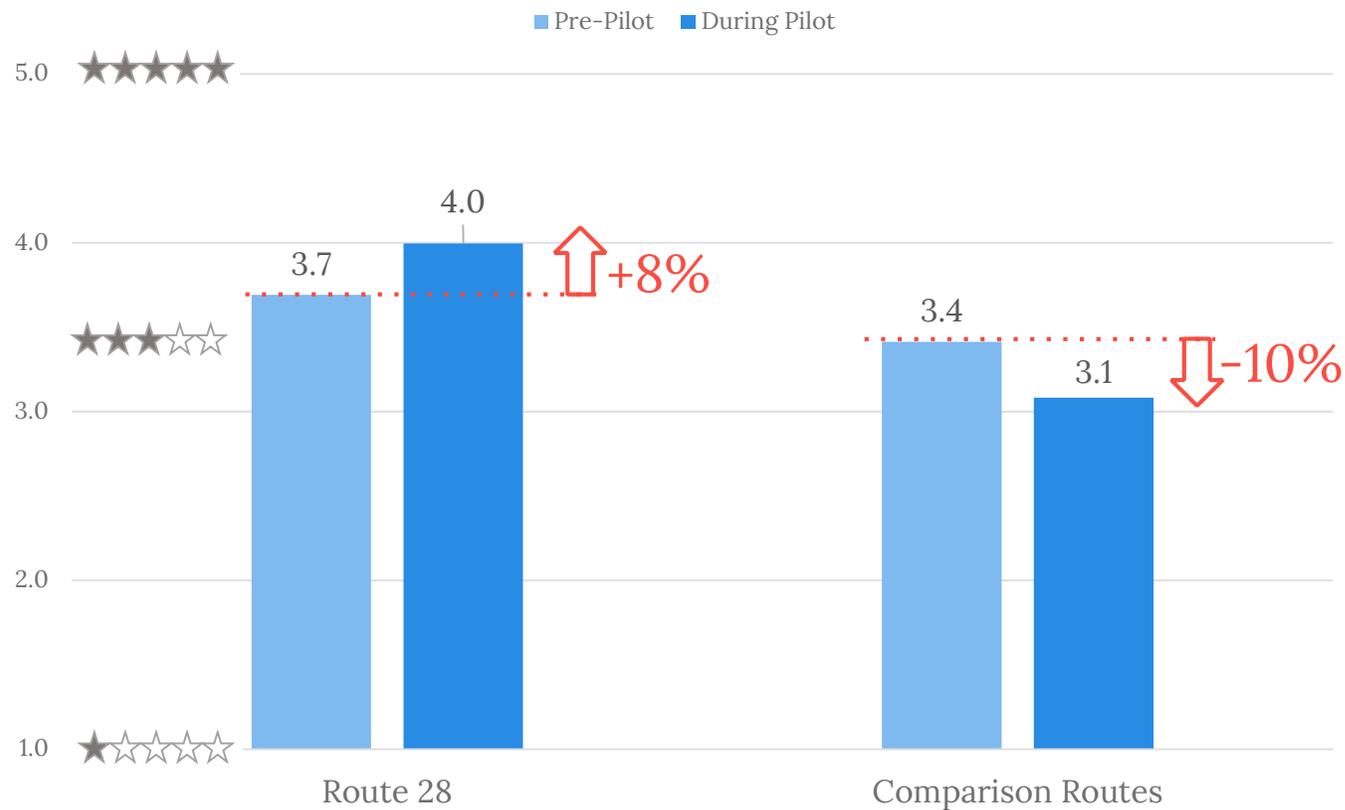
# Route 28 riders were more satisfied with their overall transit experience



Survey Findings

- Riders were more satisfied with the Route 28 overall than comparable routes
- Overall satisfaction increased on the Route 28, while decreasing on comparable routes

Survey Question: In the past month, how satisfied have you been overall?



Source: Pre and During-pilot survey, August and October 2021.  
 Pre-Pilot Route 28: N=126 | During Pilot Route 28: N=126 | Pre-Pilot Comparable Routes: N=154 | During Pilot Comparable Rts: N=127

## Goals

Encourage Ridership

Improve Service

Improve or Maintain Travel Time

Improve Rider Experience

Deliver Economic Impact for Riders

Prioritize Rider Equity

# Rider Perception - Interviews

- Interviewees understood and had a **very positive view of all-door boarding**
- It seemed that **interviewees heavily valued the time savings during boarding**, and this contributed to **an overall sense of saving time** while traveling
- Almost all interviewees indicated that buses **seemed more reliable** during the pilot



## Goals

Encourage  
Ridership

Improve Service

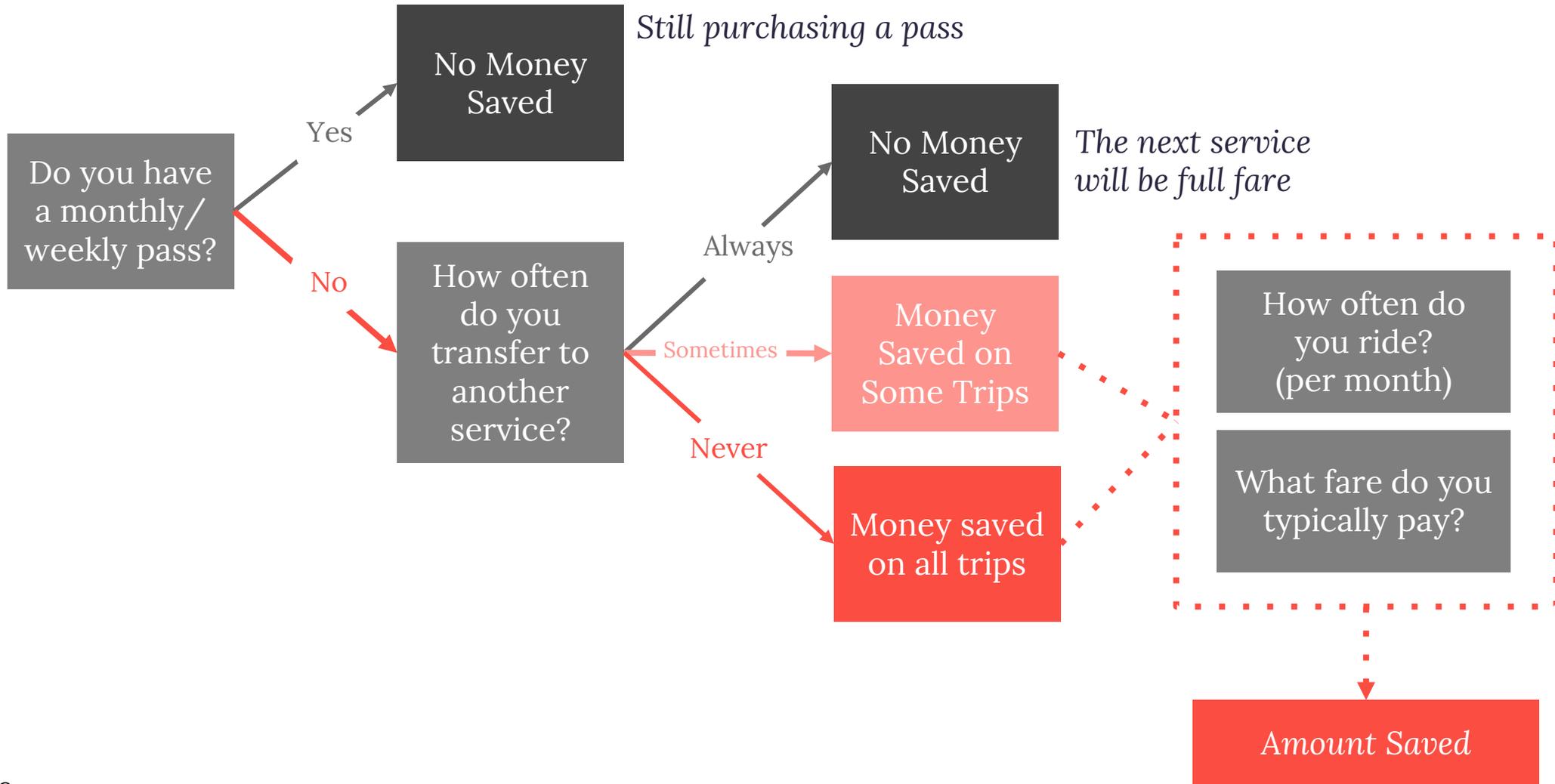
Improve or  
Maintain Travel  
Time

Improve Rider  
Experience

Deliver Economic  
Impact for Riders

Prioritize Rider  
Equity

# What does it mean to save money...



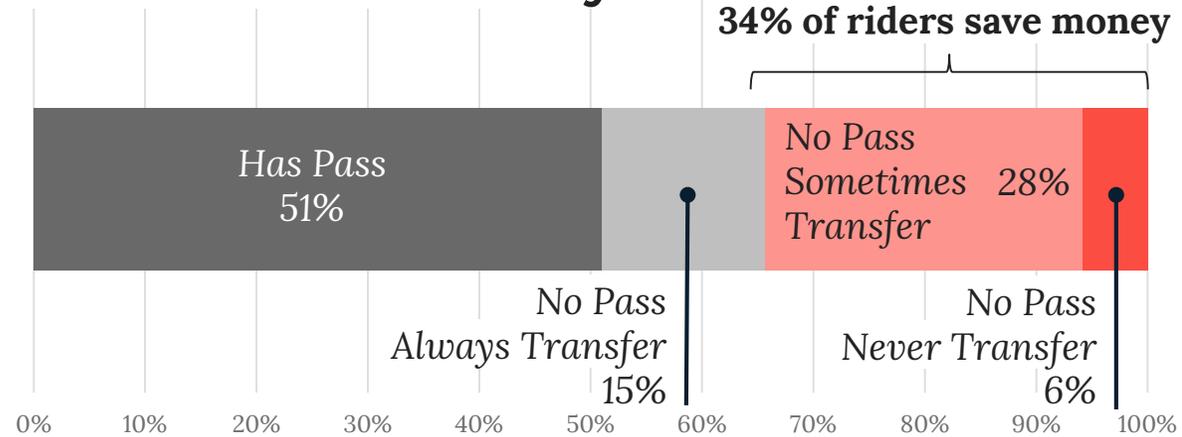
Goals
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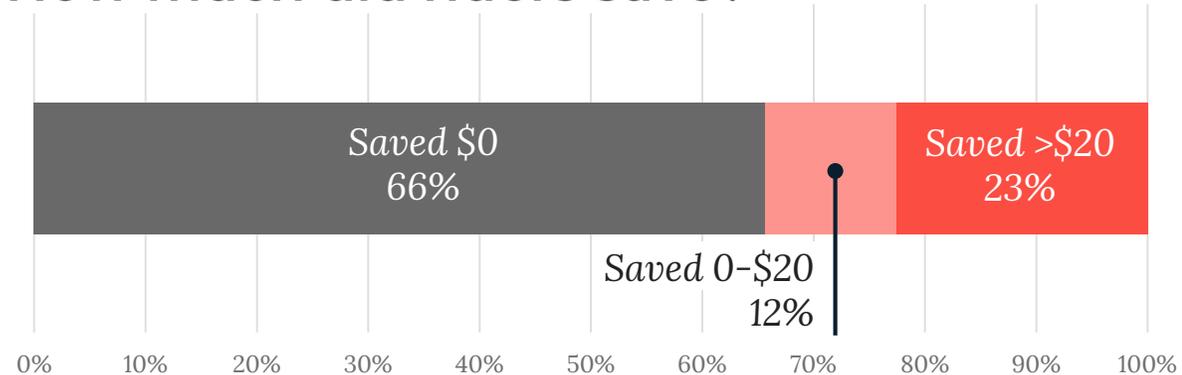
# 34% of riders are saving money from the pilot

- Overall, 34% of Route 28 riders would always or sometimes save money based on their typical transfer behavior and whether they had a pass during the pilot program
- 23% of all riders would save more than \$20 per month

## Did riders save money?



## How much did riders save?



Source: During-pilot survey, October 2021. During Pilot Route 28 saving money analysis: N=102

Chart depicts likelihood of riders saving money based on typical transfer behavior and whether the rider had a pass during the pilot. Detailed analysis of amount money saved is based on ride frequency, typical transfer behavior, whether the rider had a pass, and reduced fare pass type. This analysis also includes data for those who did not indicate their typical transfer behavior but did answer the question about transferring on the day of the survey. Percentages have been rounded.

### Goals

Encourage Ridership

Improve Service

Improve or Maintain Travel Time

Improve Rider Experience

Deliver Economic Impact for Riders

Prioritize Rider Equity

# Rider Perception – Interviews + Survey

- People **perceive they are saving money**, even if their transfer behavior means **they likely are not**
- Some people did report **walking after taking the Route 28** instead of transferring to another MBTA service, which means they were benefitting from some individual free trips
- **76% of riders surveyed perceived that they were saving money** due to the pilot



## Goals

Encourage  
Ridership

Improve Service

Improve or  
Maintain Travel  
Time

Improve Rider  
Experience

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Impact for Riders

Prioritize Rider  
Equity

# The RIDE customers who took advantage of the free fare pilot zone saved an average of \$13 per month



Bus Operations Data



- On average, a paratransit rider who took advantage of the free fare pilot zone saved \$13 per month over the course of the pilot evaluation period
- In total, paratransit riders saved almost \$23,000 because of the pilot during the evaluation period

## Goals

Encourage Ridership

Improve Service

Improve or Maintain Travel Time

Improve Rider Experience

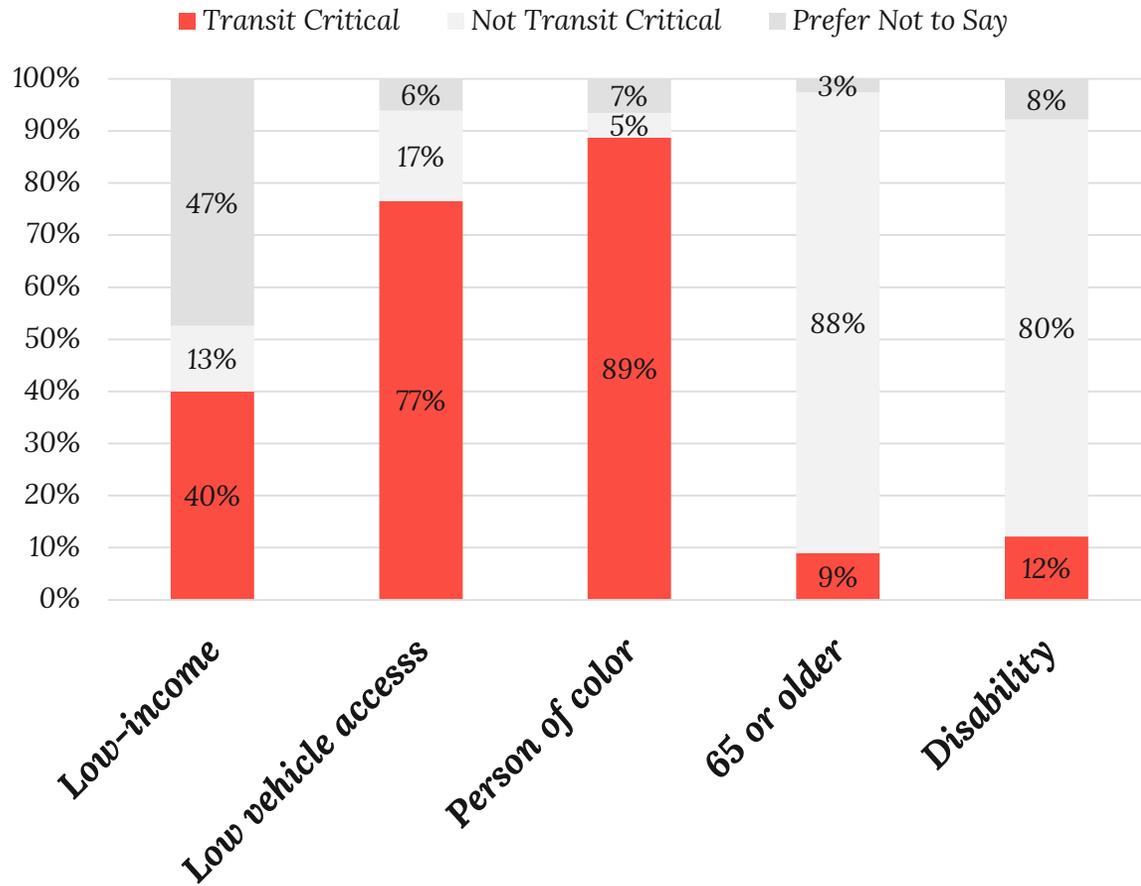
Deliver Economic Impact for Riders

Prioritize Rider Equity

# 97% of Route 28 riders are “transit critical”



Survey Findings



**97%**  
**Transit Critical Riders**  
*(i.e. fall into one of these categories)*

## Goals

Encourage Ridership

Improve Service

Improve or Maintain Travel Time

Improve Rider Experience

Deliver Economic Impact for Riders

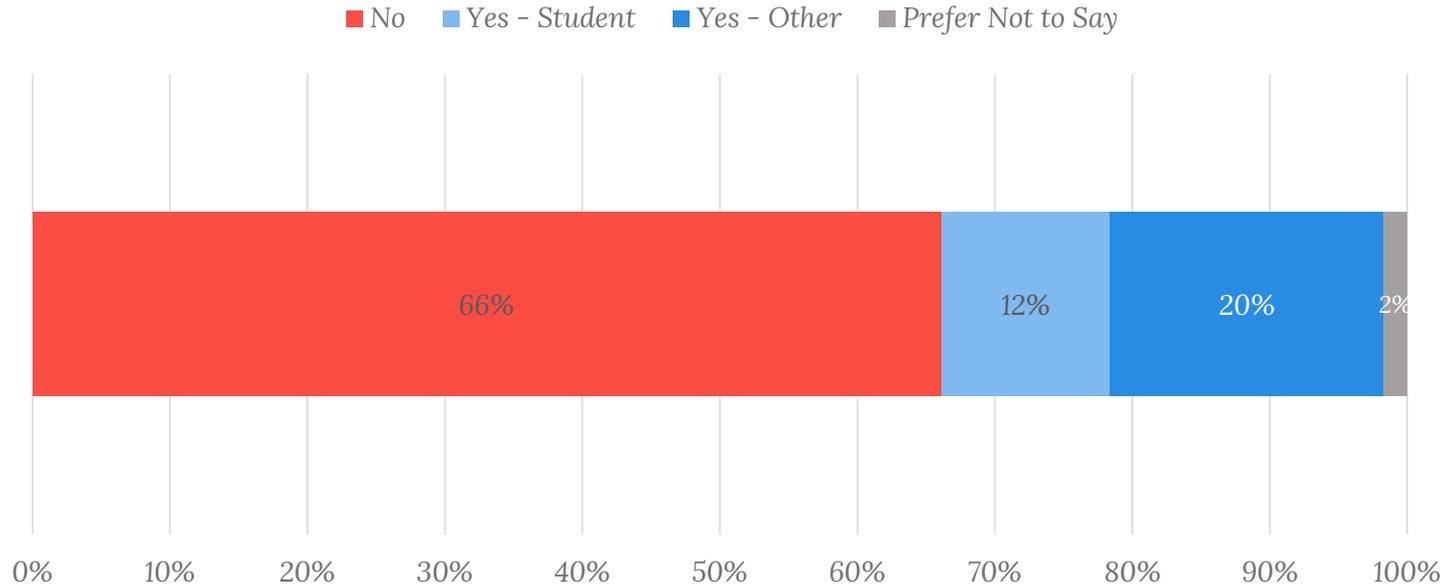
Prioritize Rider Equity

# Most Route 28 riders were paying full fare before the pilot and are not members of a discount fare program



Survey Findings

**Survey Question:** Are you a member of an MBTA reduced fares program? If so, what type of reduced fare CharlieCard do you have?



## Goals

Encourage Ridership

Improve Service

Improve or Maintain Travel Time

Improve Rider Experience

Deliver Economic Impact for Riders

Prioritize Rider Equity

**Source:** Pre and During-pilot survey, August and October 2021. Route 28 only. N=236

**Notes:** Reduced fare programs include: Transportation Access Pass (TAP) (for people with disabilities, Medicare cardholders), Senior CharlieCard, S-Card and M7 Card (for some middle and high school students), Youth Pass (for people 18 to 25 w/low income)

# Main Takeaways

## Ridership

*Free fares successfully encouraged increases in ridership, some of which came from trips that would have been car trips or wouldn't have happened at all*

## Service

*Route 28 absorbed a material increase in ridership with minimal negative impacts on travel times and reliability*

## Economics

*While about two-thirds of passengers either had a pass or always transferred and thus did not save money on fares, approximately 20% of riders saved more than \$20 per month*



# Future analyses should consider...

- **Traffic Trends**
  - How have travel times on the Route 28 corridors changed for all users?
- **Travel Time Impacts & Service Delivery/Reliability**
  - Reliability on key segments
  - Dwell time at key locations
  - “Buffer time” – qualitative analysis that better defines how riders perceive travel time of their bus trip (from point of boarding) vs loading fares and/or preparing fares for their trip
- **Ridership Trends**
  - Ridership past transfer points
  - Ridership moving to free routes from other routes
- **Bus Driver Perceptions**
  - Does removing the payment process make things easier for bus drivers?
- **Lifestyle Changes**
  - Has the pilot enabled people to access more (activities, jobs, etc.)?

*These data are  
unavailable at this time.*

