



# Massachusetts Avenue Bus Priority Pilot

Public Forum

November 14, 2018

# Forum Overview

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- Introductions and presentation (45 minutes)
- Q & A (15 minutes)
- Next steps (10 minutes)



Massachusetts Bay  
Transportation Authority



**ITDP**  
Institute for Transportation  
& Development Policy



**Stantec**



# Overview and Benefits



# Public Transit / Buses

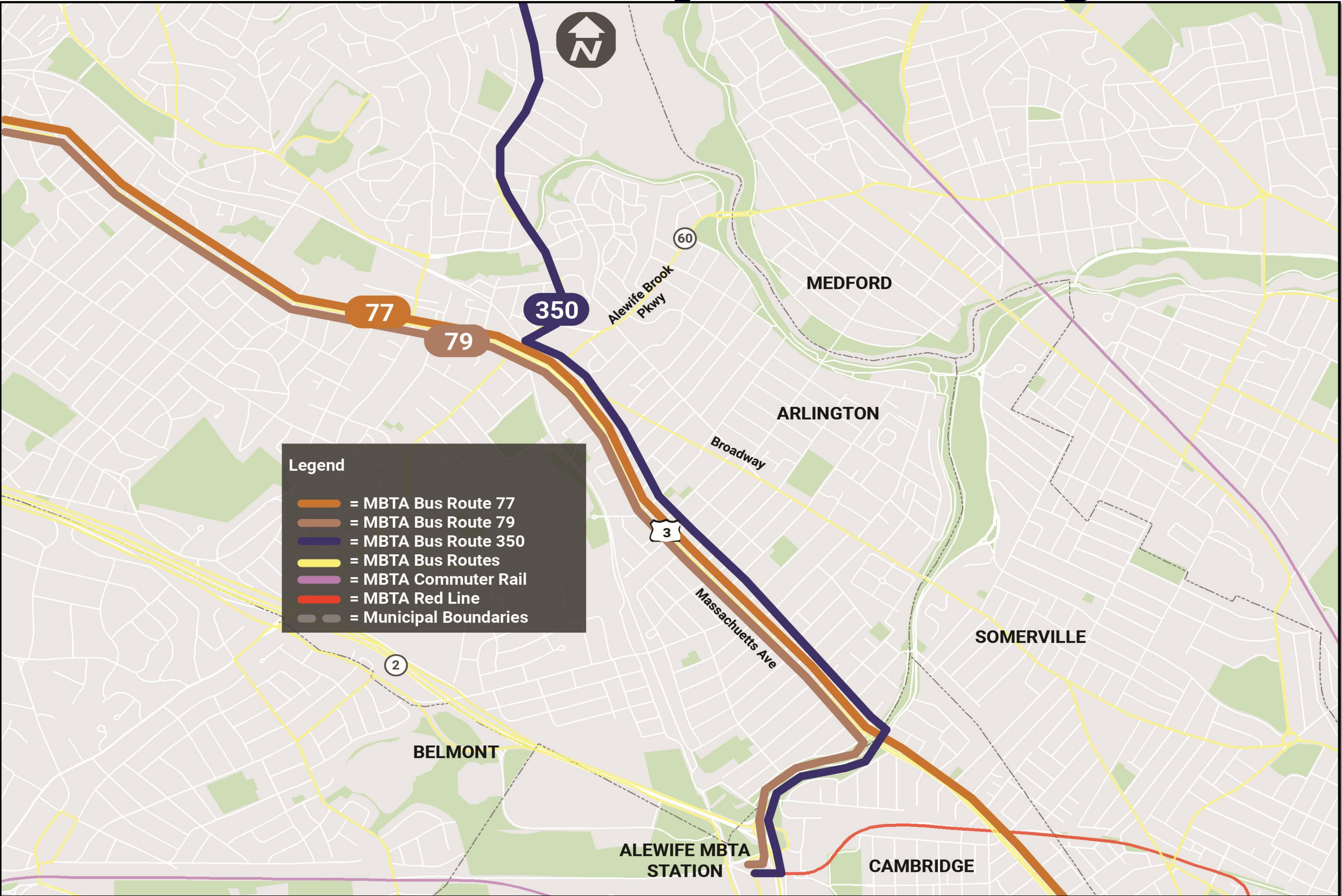
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- The region is growing economically and regional traffic is increasing
- Public transit is the most efficient way to capture and serve that growth in a sustainable way, reduce congestion, relieve demand for parking
- A 30% increase in transit trips in the region is predicted by 2035
- **Bus service suffers from significant delay and reliability challenges**





# MBTA Ridership in Arlington



**Route 77**  
**7,600+ riders/day**

**Route 79**  
**1,200+ riders/day**

**Route 350**  
**1,600+ riders/day**

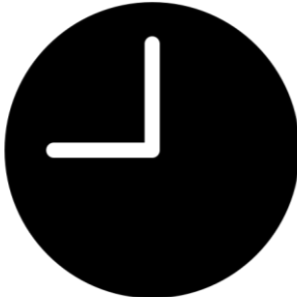
**Over 10,000  
riders/day**



# Time Travel Variance

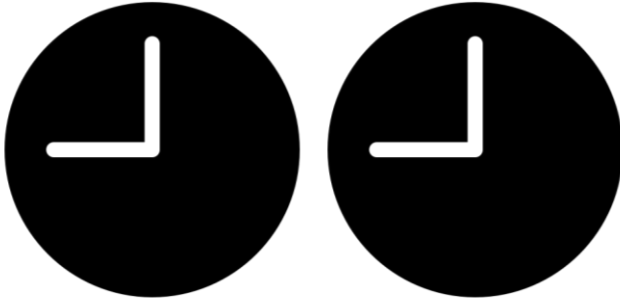
Inbound minutes between scheduled and actual departure times

**50<sup>th</sup>** Percentile



**3-5** minutes behind schedule

**90<sup>th</sup>** Percentile



**10-20** minutes behind schedule

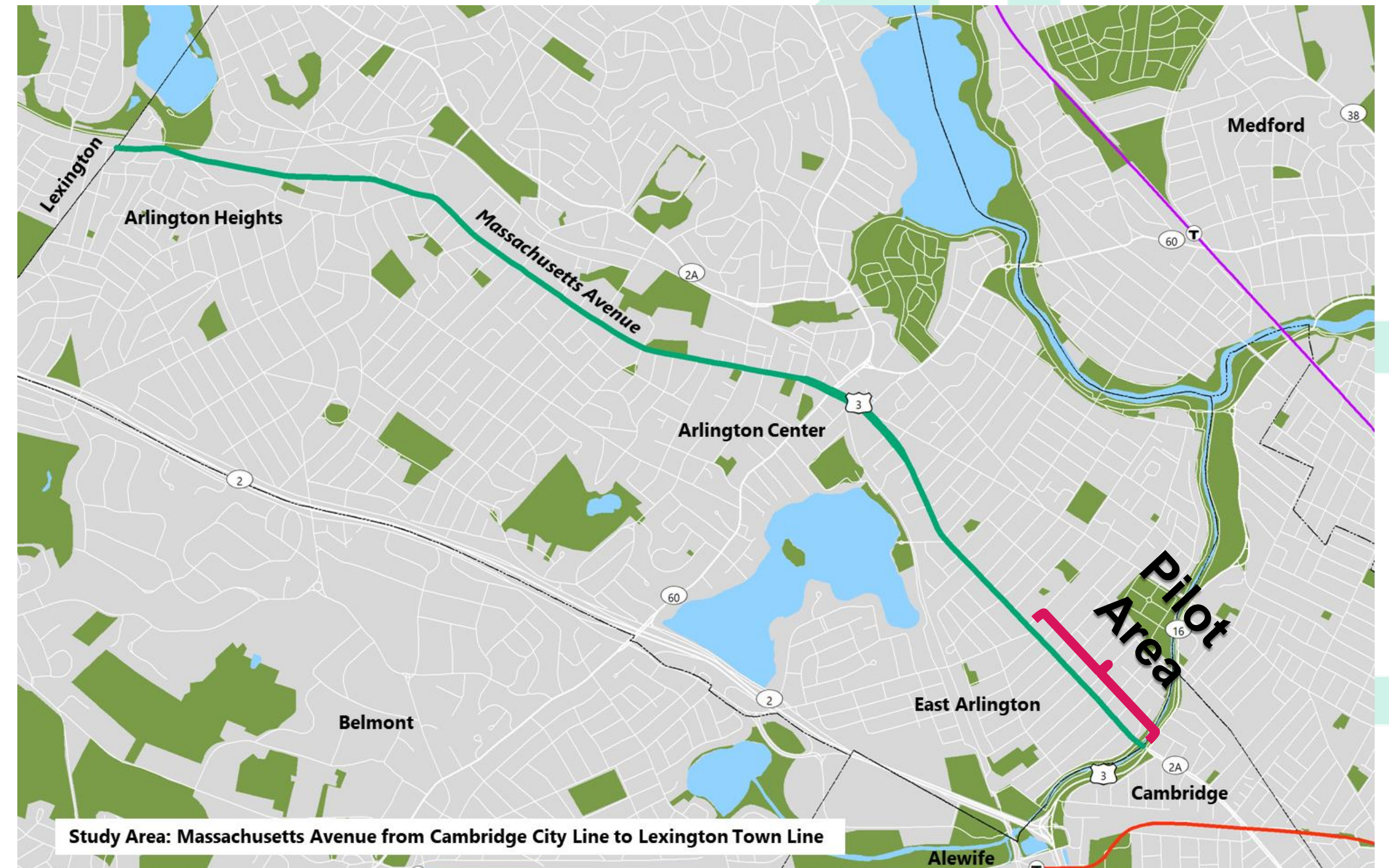
## Causes

- **Long Wait Times**
- **Overcrowding**
- **Bus Bunching**



# Process and Methodology

- ✓ Review of entire Mass Ave corridor
  - Data Collection
  - Observations
  - Field Assessment
- ✓ Conceptual Design
  - Potential Alternatives
  - Range of opportunities
- ✓ Public Review and Input Throughout Process
- ✓ One-Month Pilot Program
- Post-Pilot Assessment





# Timeline

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**April-June:**

Field Work and Data Collection, including stakeholder meetings

**May 16:**

BRT Educational Forum

**June-August:**

Corridor Scenario Development (Conceptual Design of Dedicated Bus Lane, Queue Jumps, Bus Stop Relocation and Related Improvements)

**May-October:**

Stakeholder Meetings in East Arlington

**August 15:**

Alternatives Scenarios Forum

**August-September:**

Implementation

**October 9-November 9:**

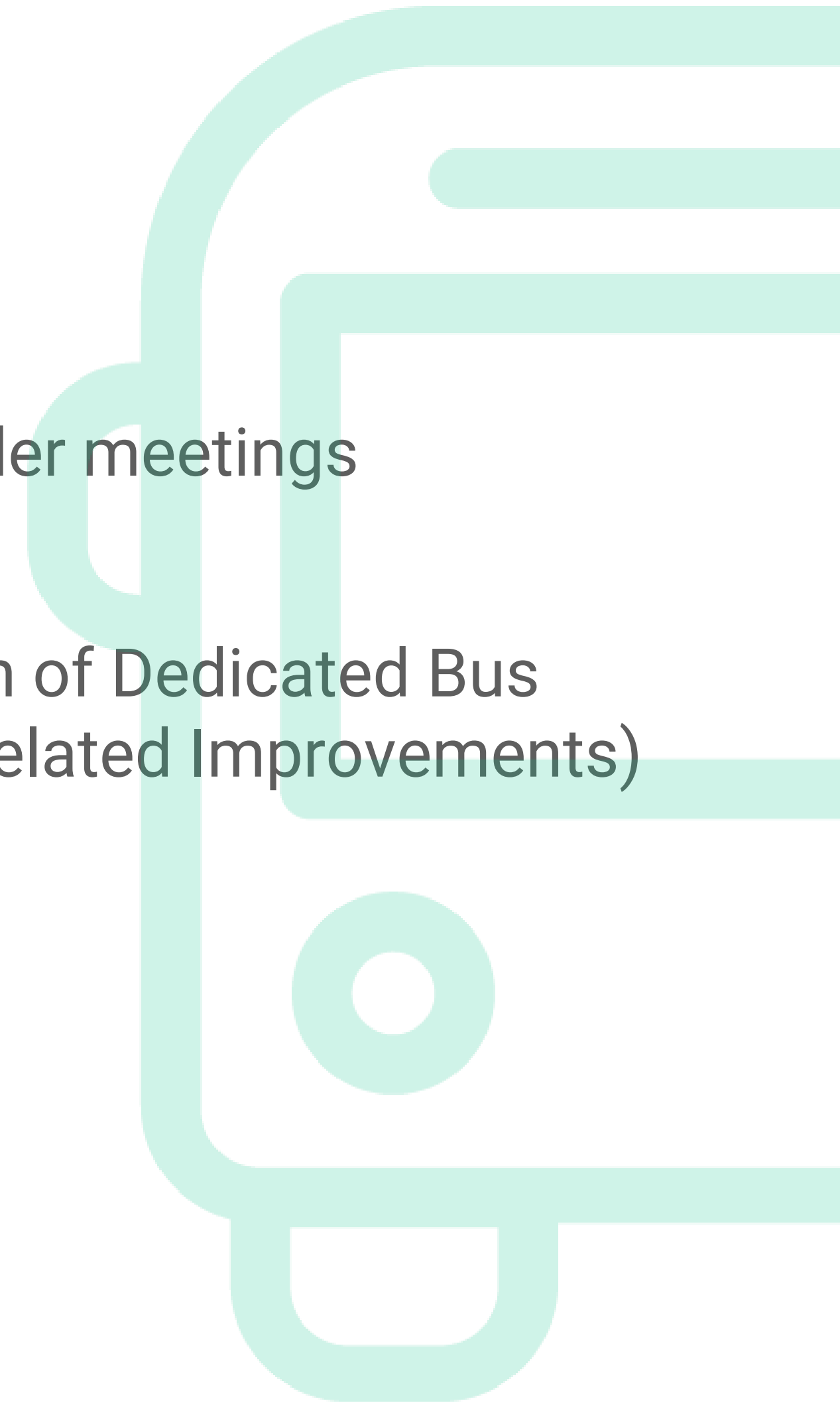
Bus Priority Pilot

**November 14:**

**Final Forum**

**November-December:**

Pilot Evaluation





# Arlington Pilot Goals

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- 1. Improve Traffic Flow**
- 2. Reduce Travel Time**
- 3. Increase Reliability**






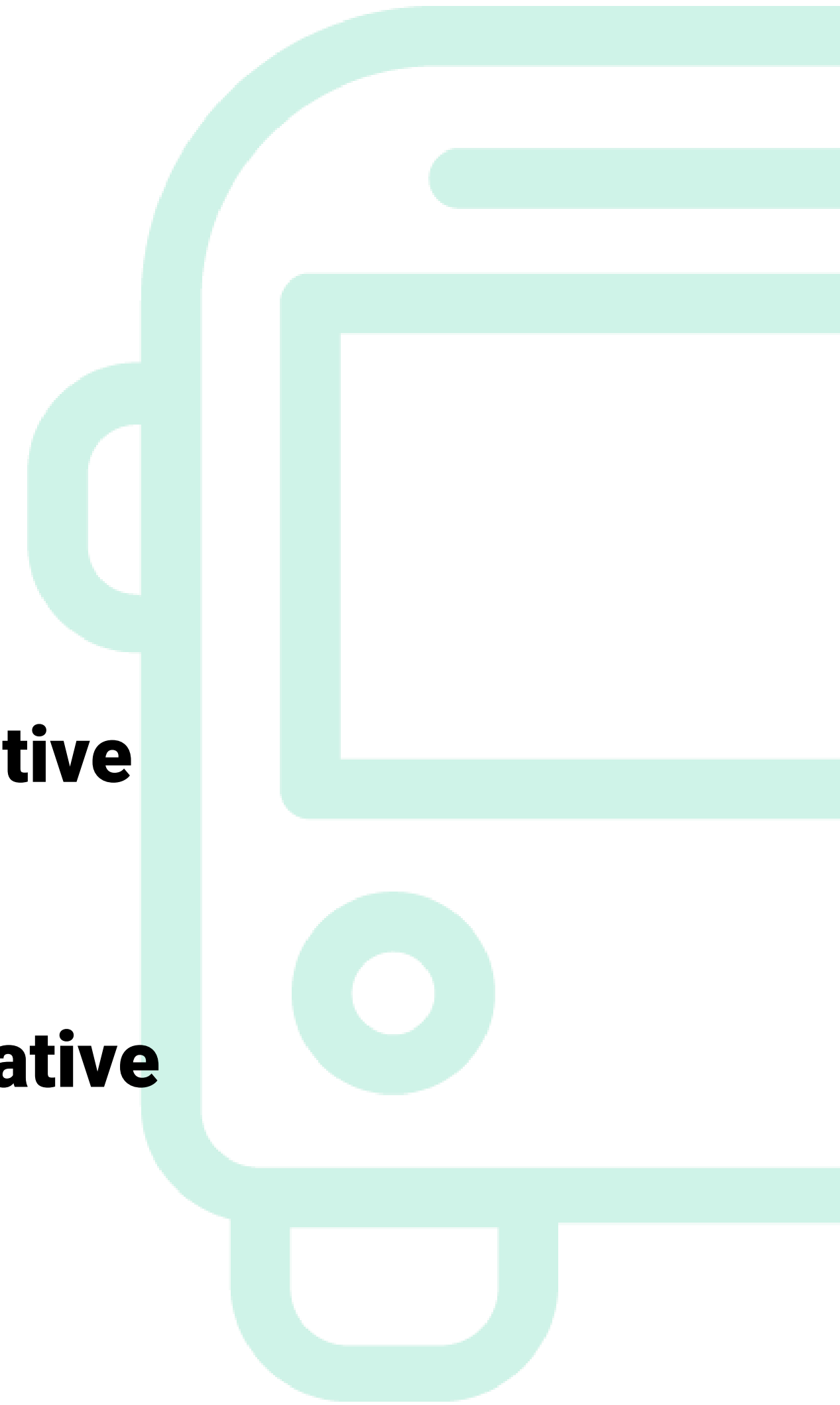
# Criteria Used to Choose Pilot

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**Bus Travel Time**  
**Bus Reliability**  
**Vehicular Traffic**  
**Intersection Queues**  
**Pedestrian Accommodation**  
**Bicycle Accommodation**  
**On-Street Parking Displacement**  
**Feasibility**

## *Impact Designation*

-  **Positive**
-  **Slightly Positive**
-  **Neutral**
-  **Slightly Negative**
-  **Negative**





**Pilot**



# Arlington Bus Priority Pilot

## Pilot

- Minimal construction; cones, signal changes, signs, education and enforcement
- October 9 - November 9 2018 during morning commute eastbound

## Features

- Mass Ave Eastbound – dedicated bus lane Varnum Street to Alewife Brook Parkway
- Bus queue jump at Lake Street and Alewife Brook Parkway
- Bus stop relocation at Lake Street





# Mass Ave at Lake Street

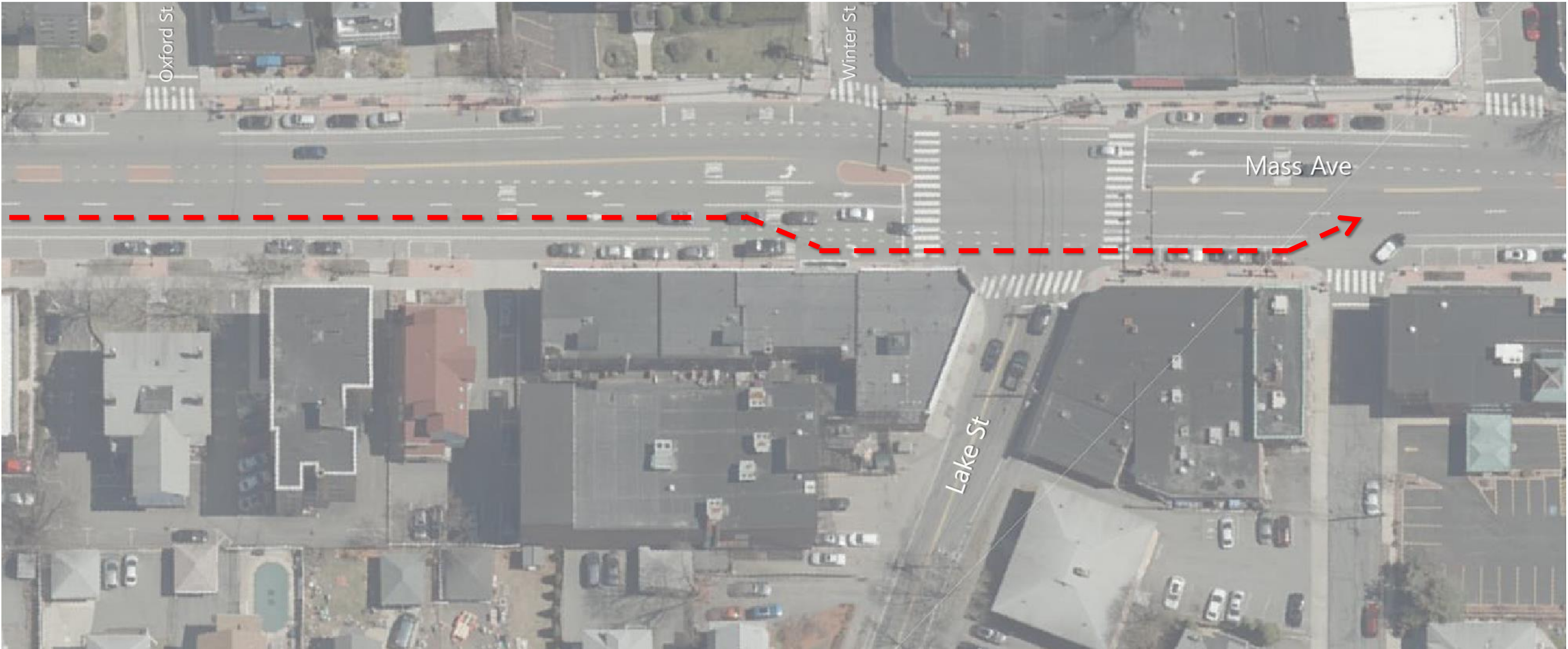
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- Bus stop relocated to far side of intersection
- Relocated signs and markings for bus stop
- Transit Signal Priority (TSP) installed
- Queue jump for buses in right turn lane
- ***All features to remain at end of pilot***



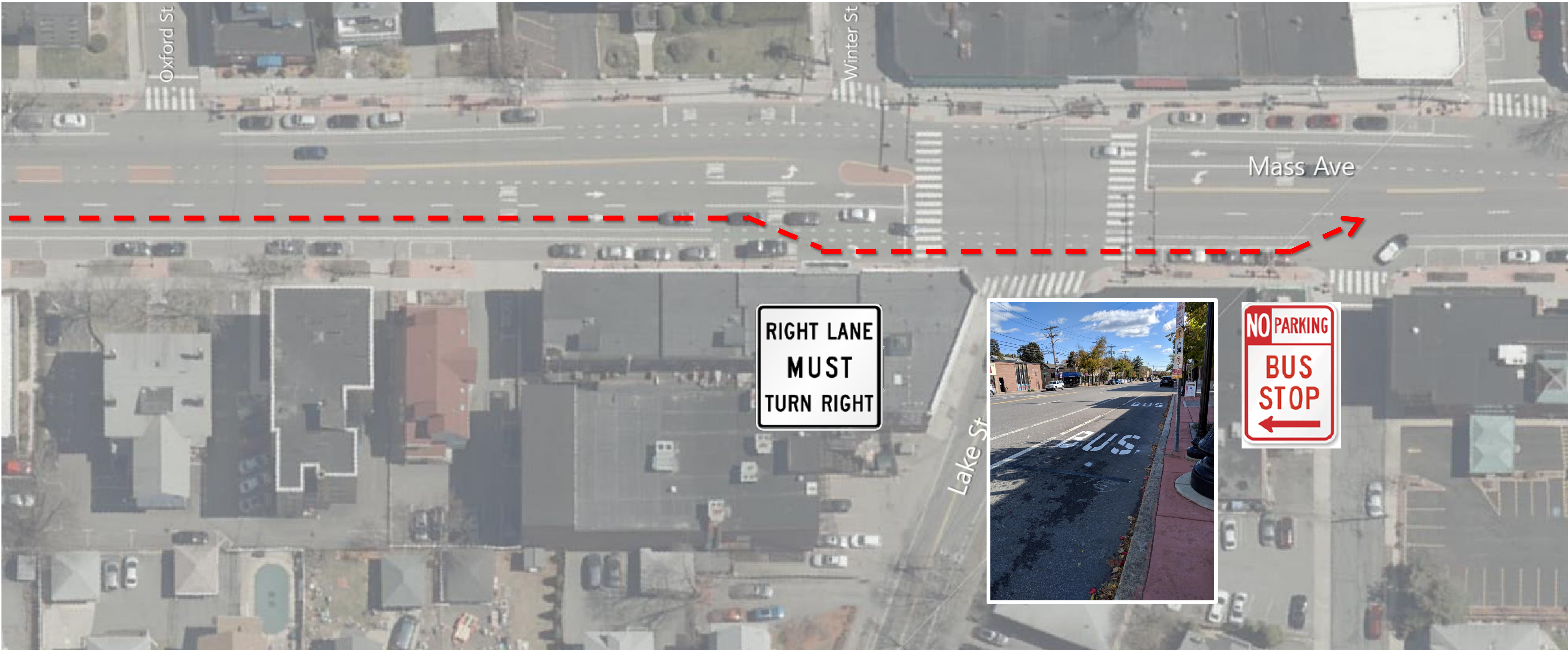


# Mass Ave at Lake Street





# Mass Ave at Lake Street





# Mass Ave between Varnum Street and Alewife Brook Parkway

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- Dedicated bus lane in parking lane 6-9 am
- Delineated by signage and traffic cones
- Police enforcement of no parking, driving, or standing in dedicated lane
- Operation as bus and bike lane
- **All features removed at the end of the pilot**  
(Sidewalk bumpout reconstruction at Lafayette is conditioned upon decision of the permanent dedicated lane.)





# Mass Ave between Varnum Street and Alewife Brook Parkway

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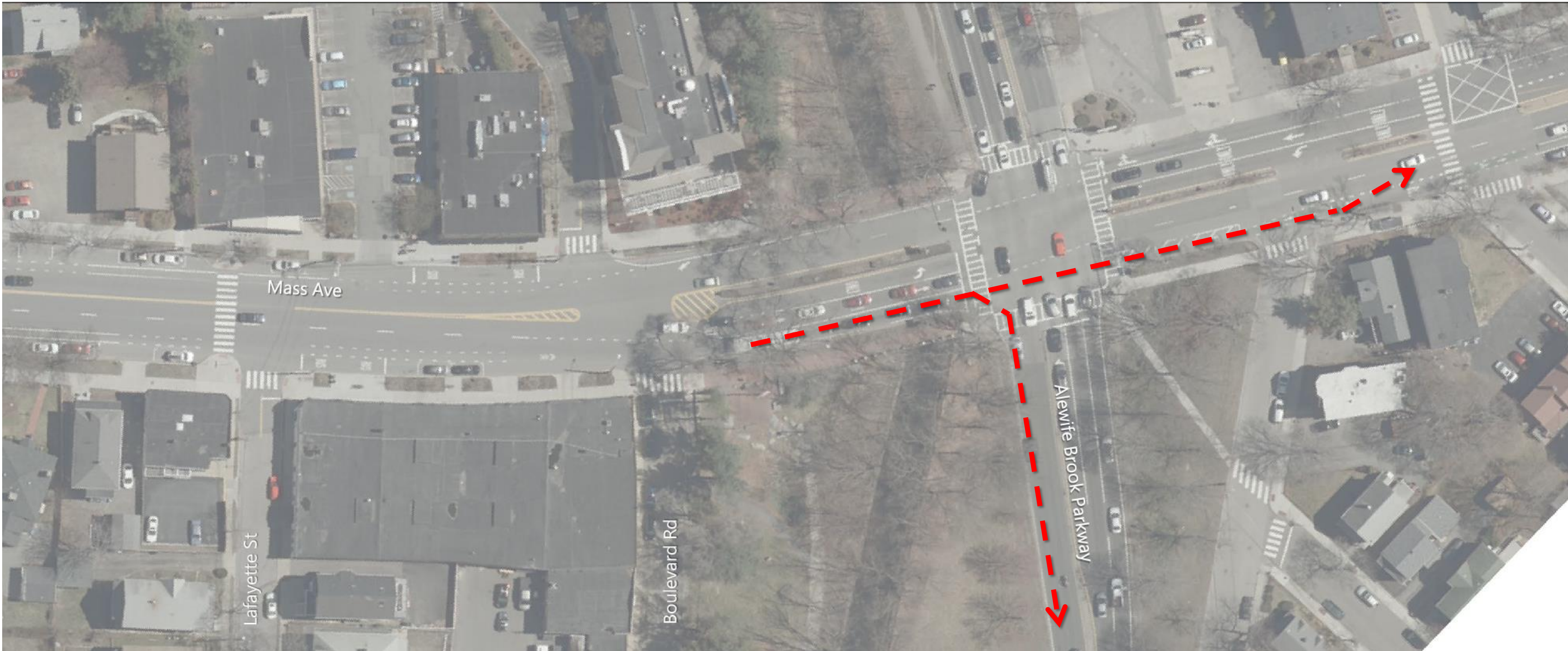
# Mass Ave at Alewife Brook Parkway

- Lane assignment changed in the eastbound direction
- Traffic Signal changed to split phase
- Queue jump for buses and bikes in the right turn only lane
- *All features to remain at end of pilot*



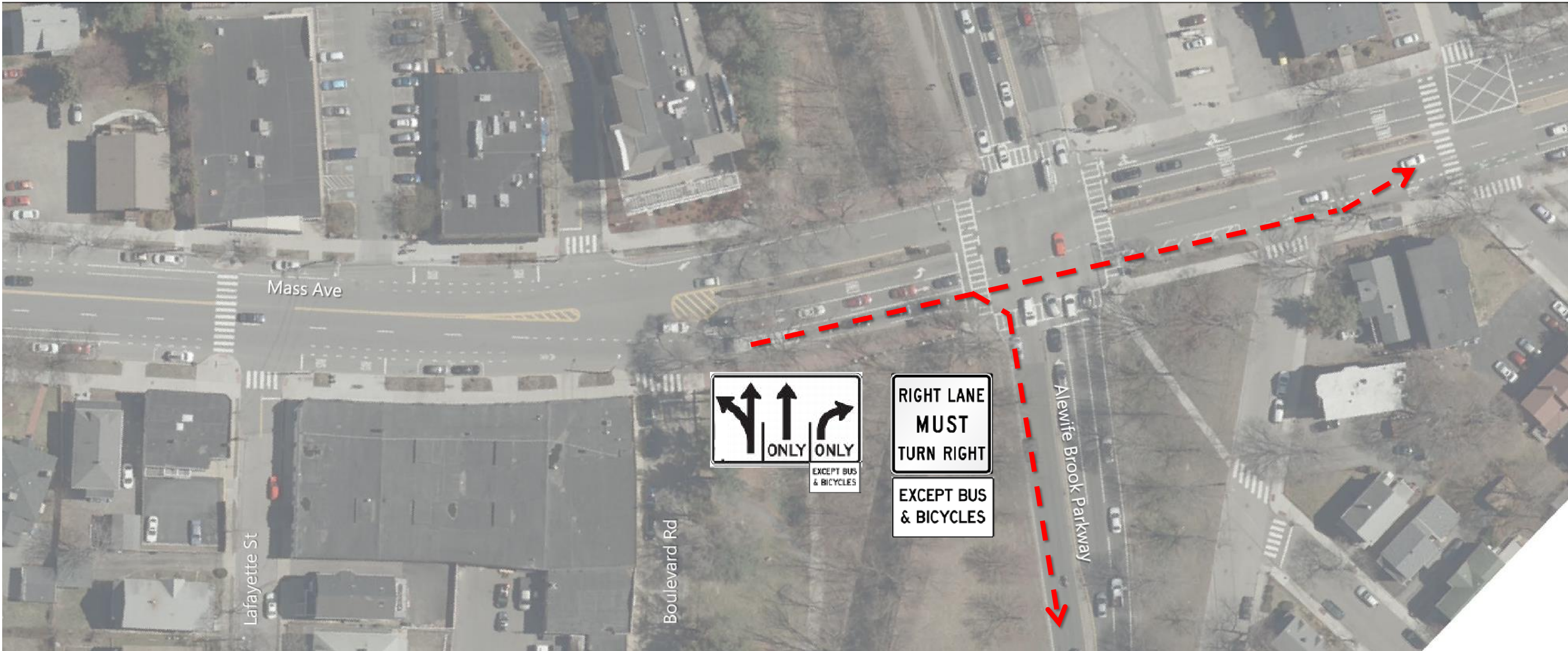


# Mass Ave at Alewife Brook Parkway





# Mass Ave at Alewife Brook Parkway





# Feedback and Data



# Pre-Pilot Survey

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- Opened the week before the pilot started
- 314 responses
- Respondents: drivers (51%), bus riders (26.5%), walkers (7.5%), cyclists (10%), other (5% - mostly multiple modes)
- About 75% of respondents travel on Mass Ave 4+ days per week
- 85% familiar with the BRT Pilot before it started

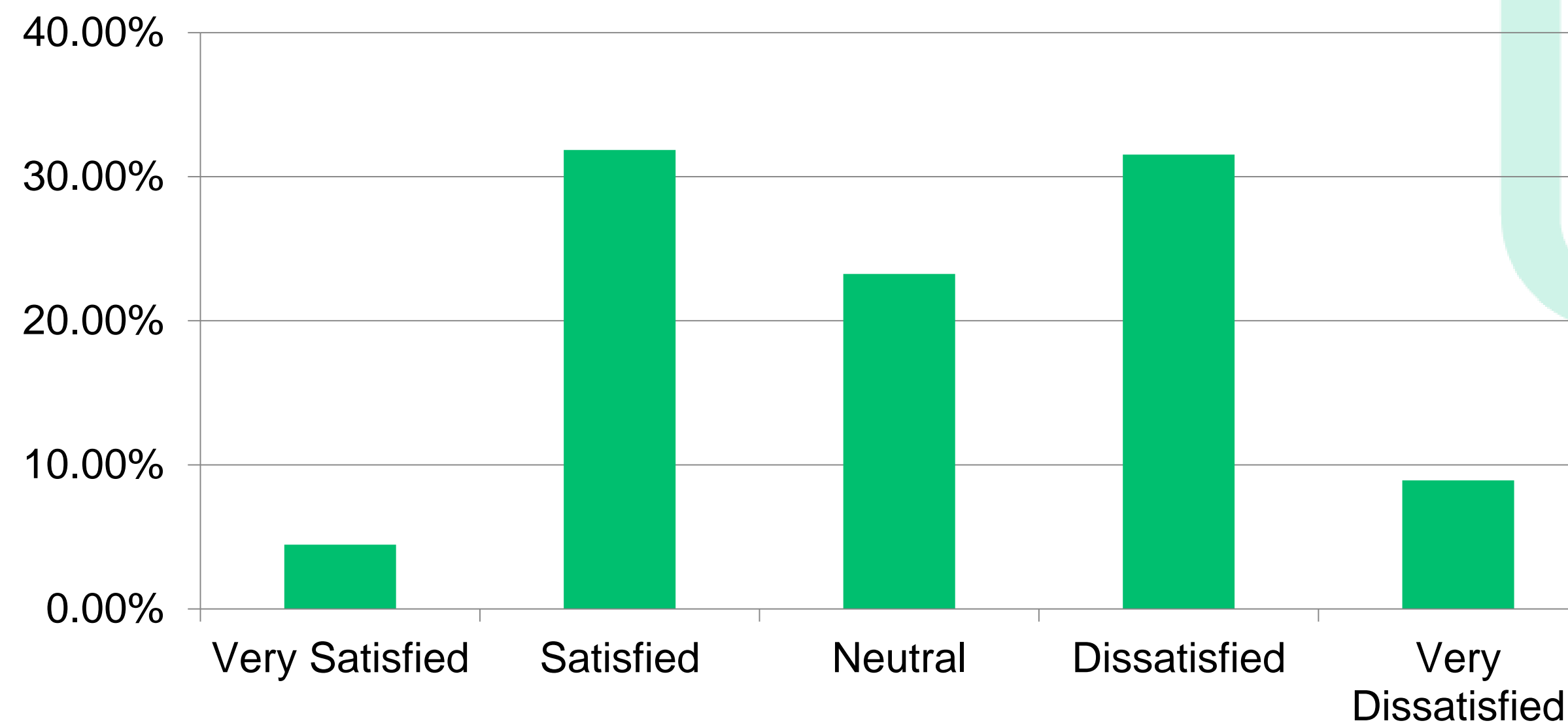




# Pre-Pilot Survey

- Varying levels of satisfaction with how existing Mass Ave (without Pilot) functions; 36% of all respondents satisfied, 40% dissatisfied
- Majority of bus riders (2/3) dissatisfied or very dissatisfied
- Respondents using other modes generally satisfied or neutral

**Based on your typical mode of travel on Mass Ave, how satisfied are you with how the street functions?**

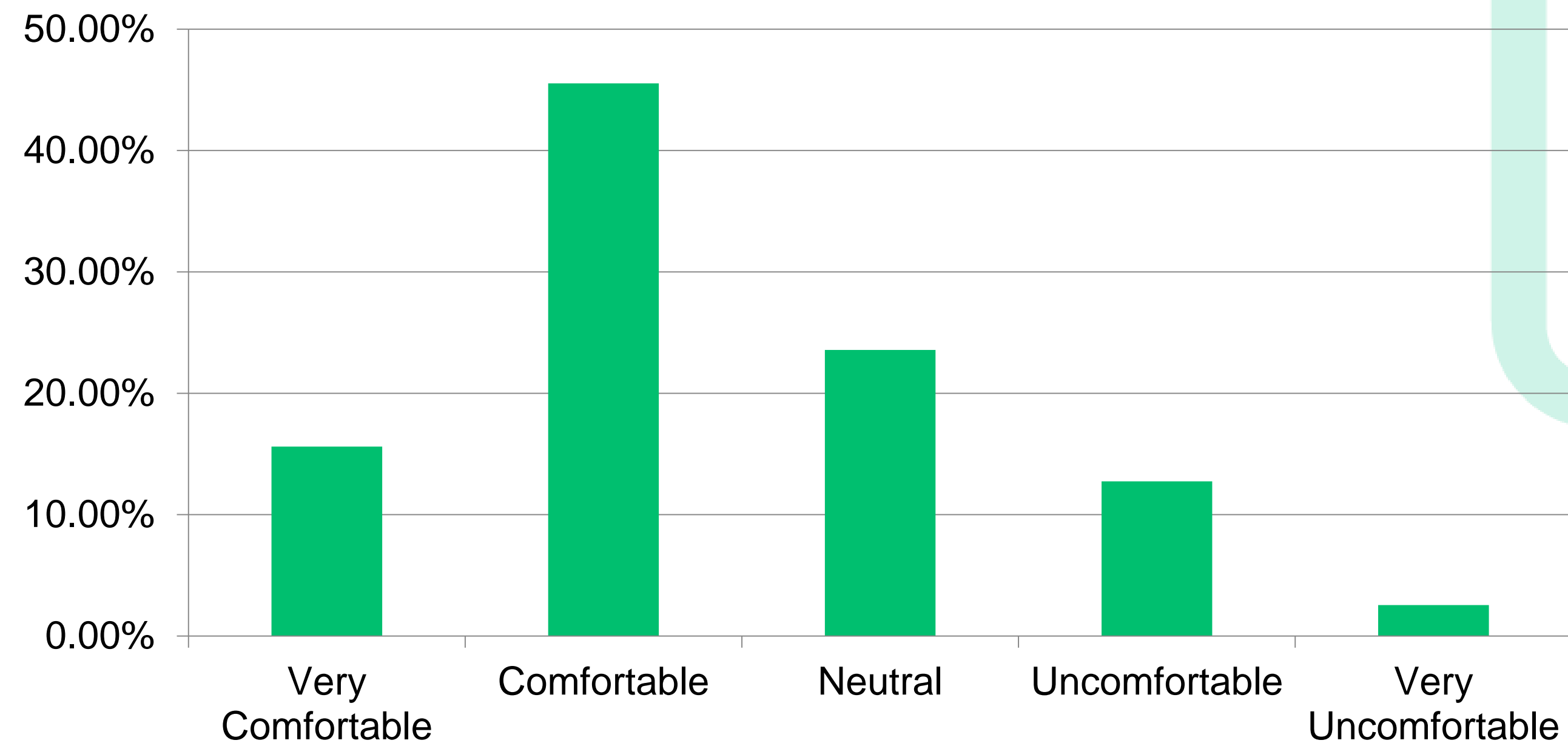


# Pre-Pilot Survey

- Most respondents (61%) comfortable traveling on Mass Ave

- Bicyclists least comfortable (25%)

**How comfortable are you in traveling along the corridor in your typical mode of travel?**





# Pre-Pilot Survey

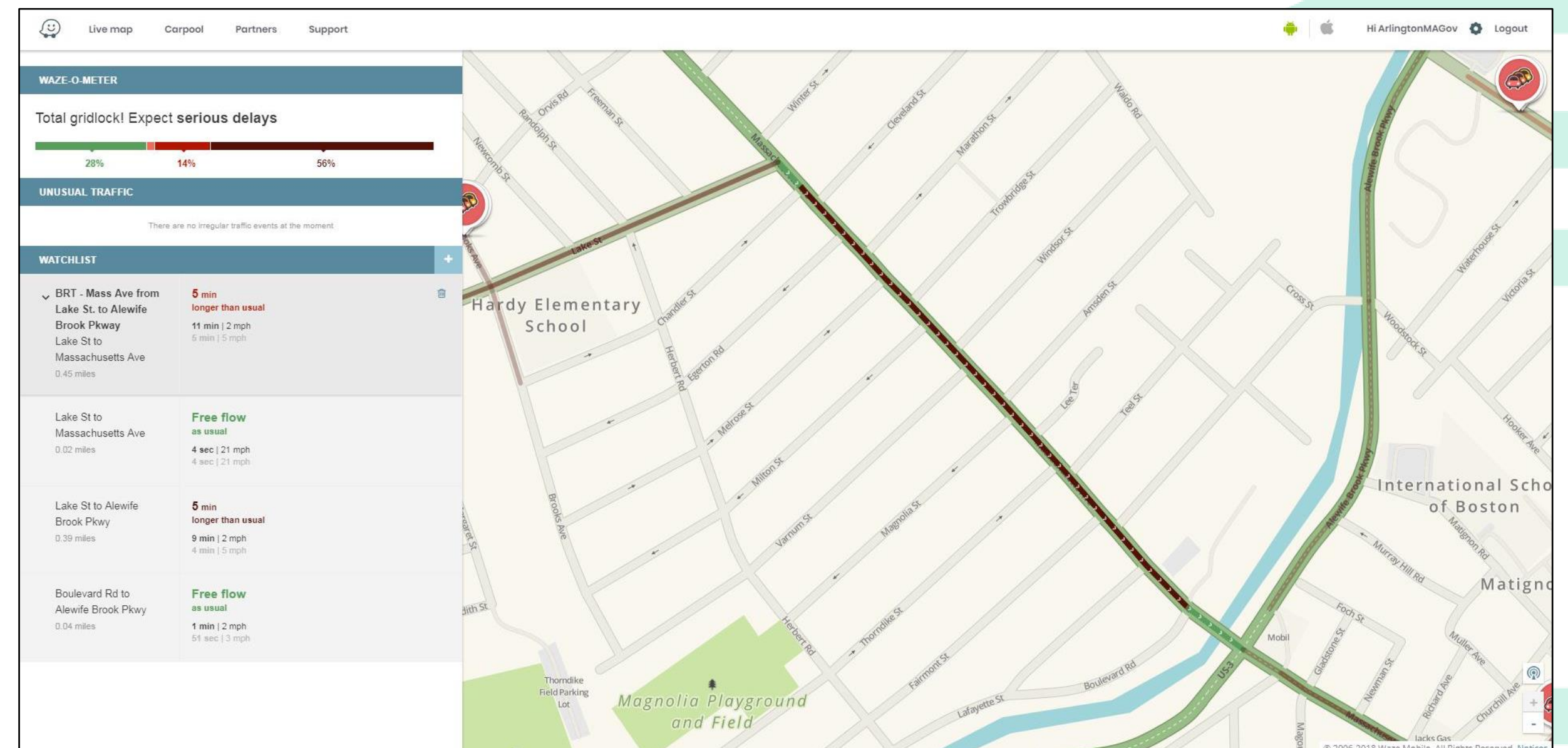
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- Traffic and congestion frequently cited as issues on Mass Ave
- Bus riders noted heavy traffic which creates slow travel conditions, as well as lack of bus reliability and bus bunching
- **Safety**
  - Lack of visibility and predictability of other road users makes travel uncomfortable and stressful
  - Pedestrian and bicycle safety a concern for all users – need more continuous bike lanes and improved crosswalks



# Waze Data

- Monitoring at 8:30 am from beginning of Pilot with regular check-ins at same time on weekday mornings
- Additional delays between Lake Street and Alewife Brook Parkway during first few days of the pilot (5-8 minutes more than usual)
- After second week, traffic delays went back to usual







ARLINGTON  
BRT

# Evaluating Our Success: Bus Rider Surveys

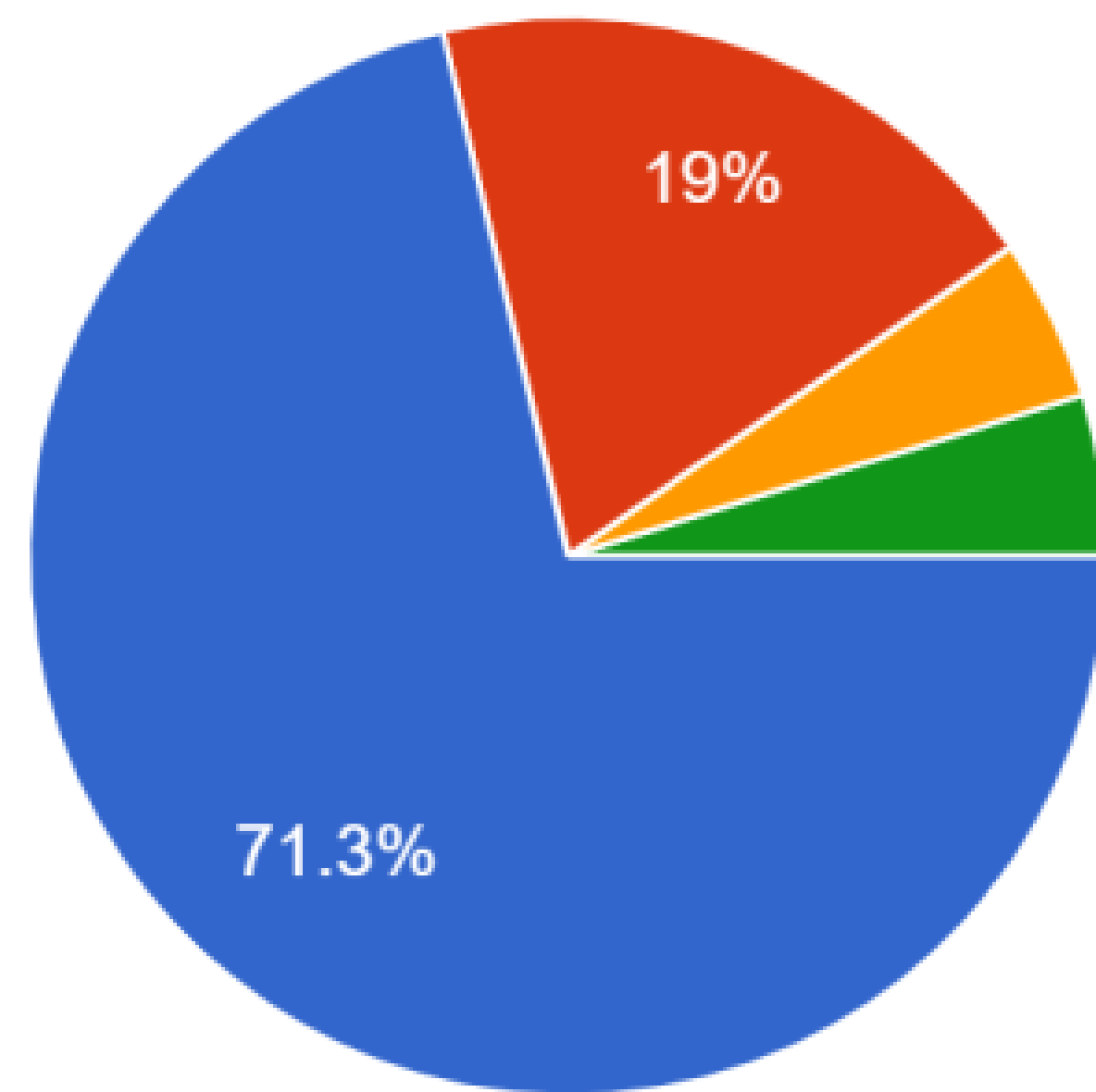
Results from **274 surveys** conducted by street teams at bus stops from Arlington Heights to Thorndike Street from 7-9 am on **10/16 (Tues), 10/17 (Wed) & 10/18 (Thurs)**



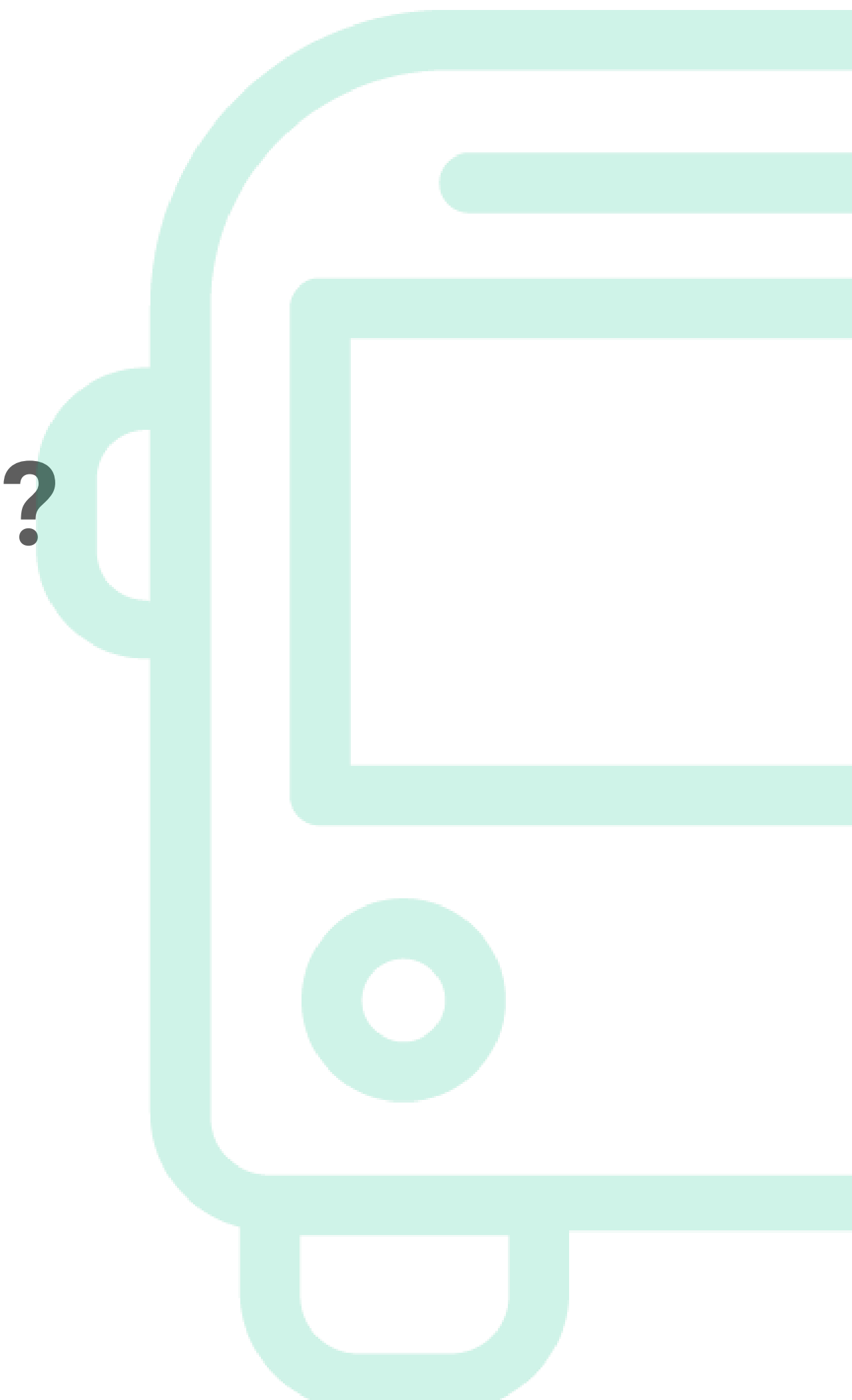
# Pilot Survey

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How often do you ride the bus on Mass Ave?



- 4+ days a week
- 2-3 days a week
- 1 day a week
- Less than 1 day a week

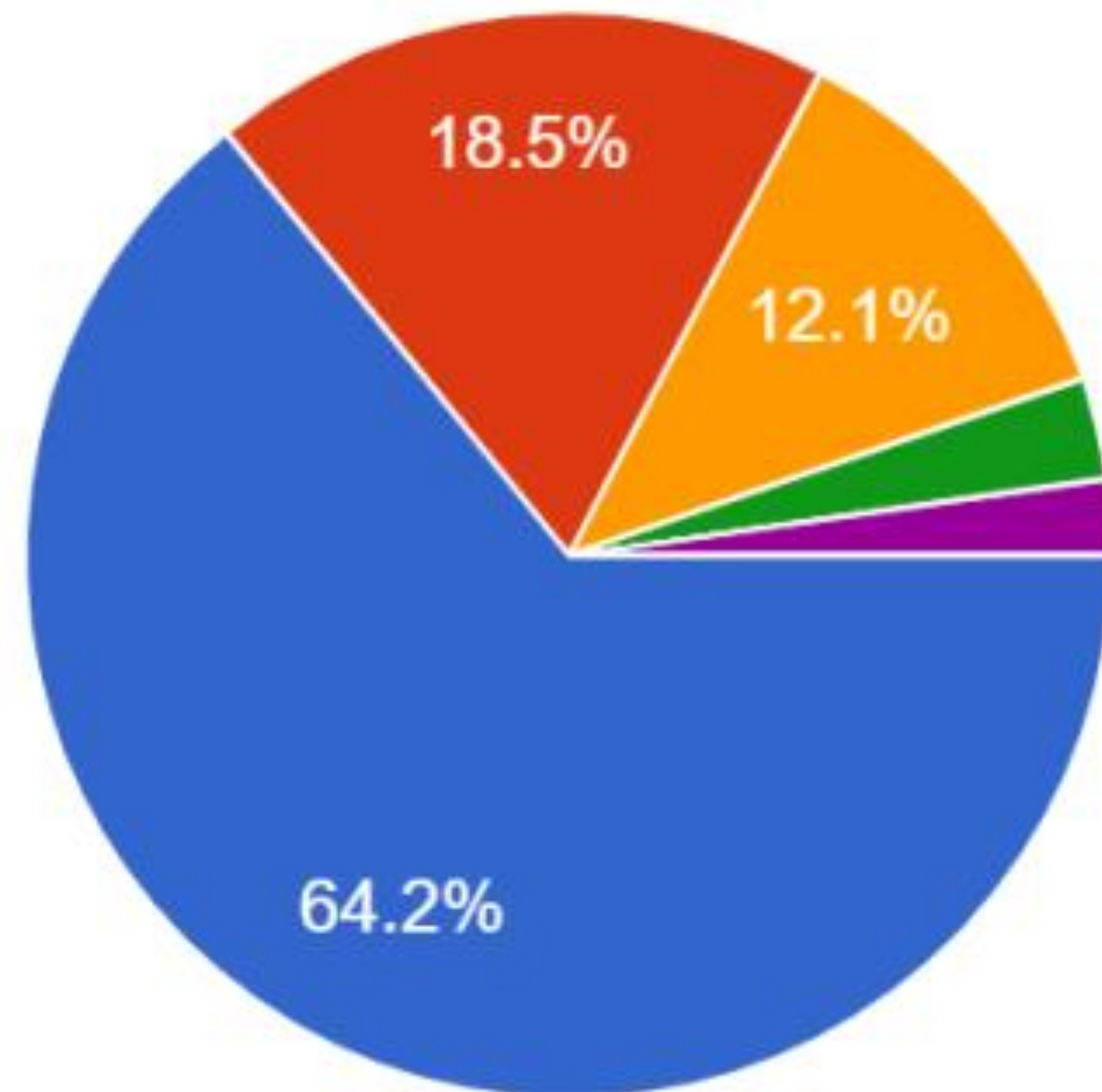




# Pilot Survey

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How satisfied are you with the dedicated bus lane on Mass Ave?



- Satisfied
- Somewhat satisfied
- Neutral
- Somewhat dissatisfied
- Dissatisfied



# What people said (about the dedicated bus lane)

The ride was so much faster on the 77 and all the stress I normally feel about getting on a bus that is immediately clogged in congestion went away

The dedicated bus lane only saved me only a portion of the time I lose waiting long periods for the 77 bus to show up.

So much faster than before. Make it permanent

It makes my bike commute faster!

I am extremely happy with the dedicated bus lane on Mass Ave. It substantially reduces the commute time. I wish that it extended up Mass Ave into Arlington and further down Mass Ave in Cambridge.

No doubt it's improving situation in East but bunching past the center to heights is not fixed

It still feels like buses arrive in an unpredictable schedule and doubled up sometimes

Much faster! But too short

Needs to be longer

Noticeable improvement in speed

A great and flexible use of space during the peak hours

Huge improvement at alewife parkway

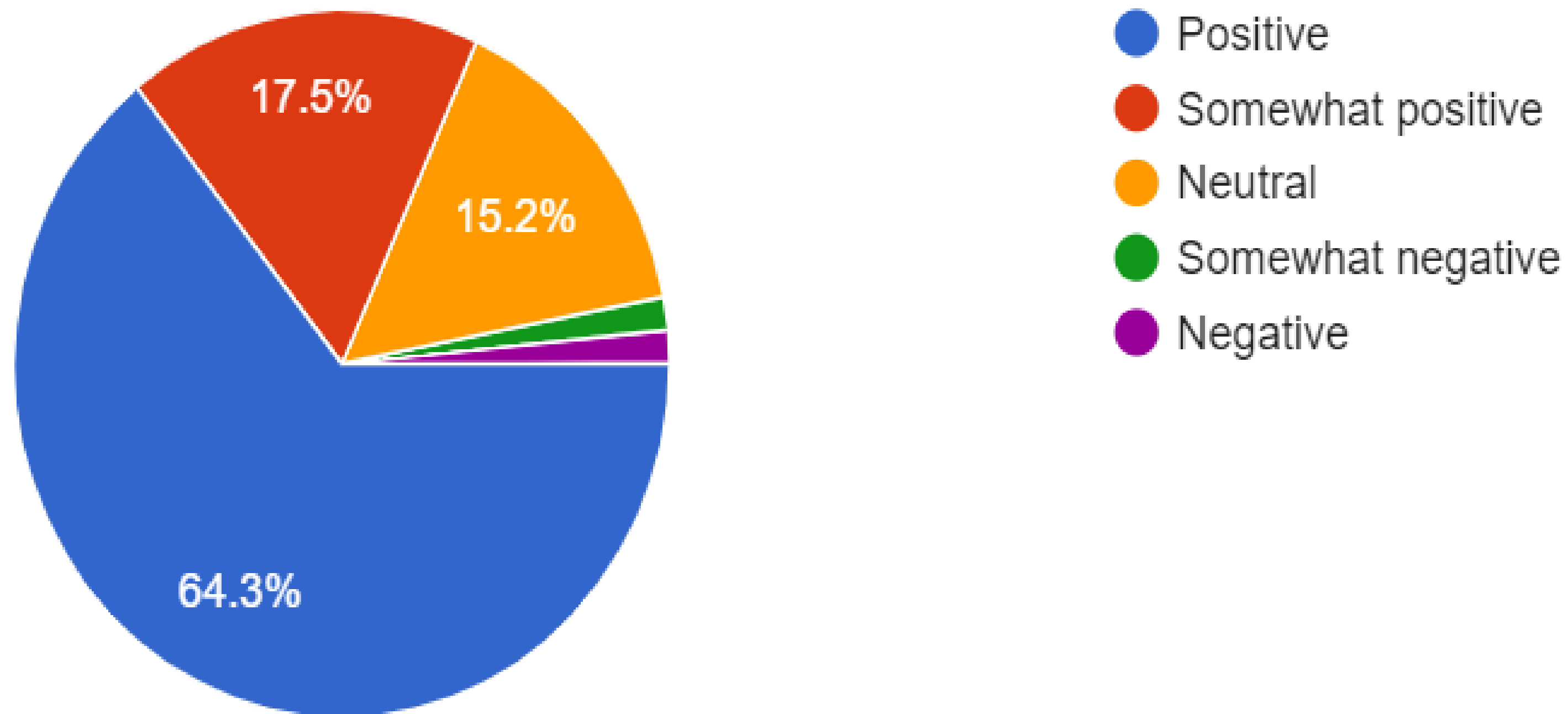




# Pilot Survey

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How would you rate your overall bus experience on Mass Ave in Arlington since the pilot was implemented?



# What people said (about their overall bus experience)

The dedicated bus lane has been amazing! It's been great to jump ahead of traffic and get into Cambridge faster. If buses ran more frequently then my experience would be positive. It has created a bit of a bottleneck of traffic right after the light at Alewife Parkway.

It is such a relief to not have to sit in traffic in the morning - the bus lane has taken 10 minutes off of my commute. The population of Boston and the surrounding suburbs is going to continue to increase and roadways do not have the capacity for more vehicles. More people should be incentivized to take public transit - providing a bus lane is one way of doing so. People will sacrifice some convenience if those sacrifices are offset somewhere else.

Less stress,  
more reliable

Buses  
still late

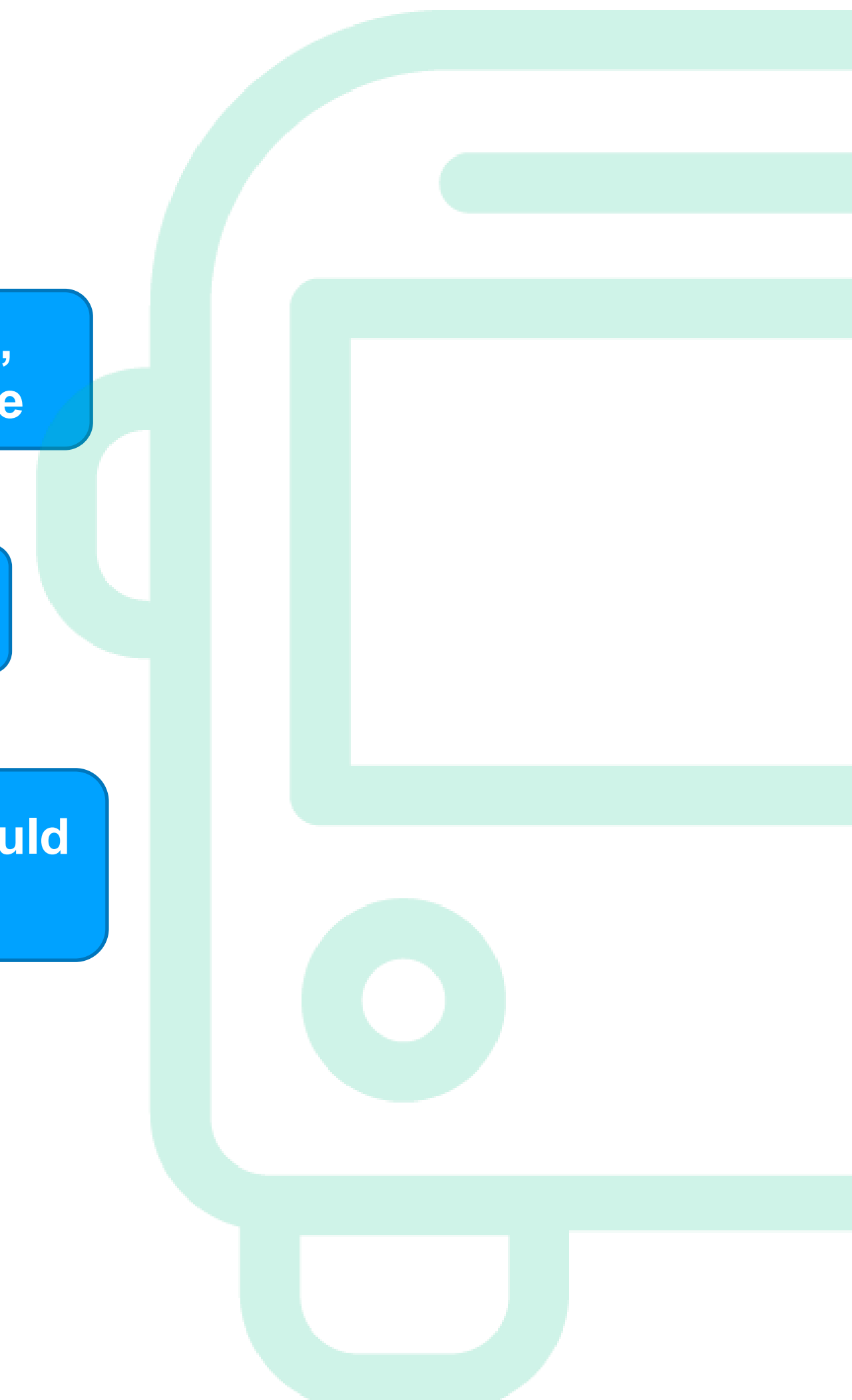
Better but could  
be better

It cut down on my commute time and with the 79 bus only running every 30 min it allowed me to take the later bus and get to work at the same time the earlier bus got me there with out the dedicated bus lane.

I saw minimal improvement in my commute. Either a larger implementation of a bus lane is necessary or cooperation with Cambridge to make the route more efficient is necessary.

some drivers are blocking  
the lane from cross streets

Bunching &  
crowding are  
still a problem

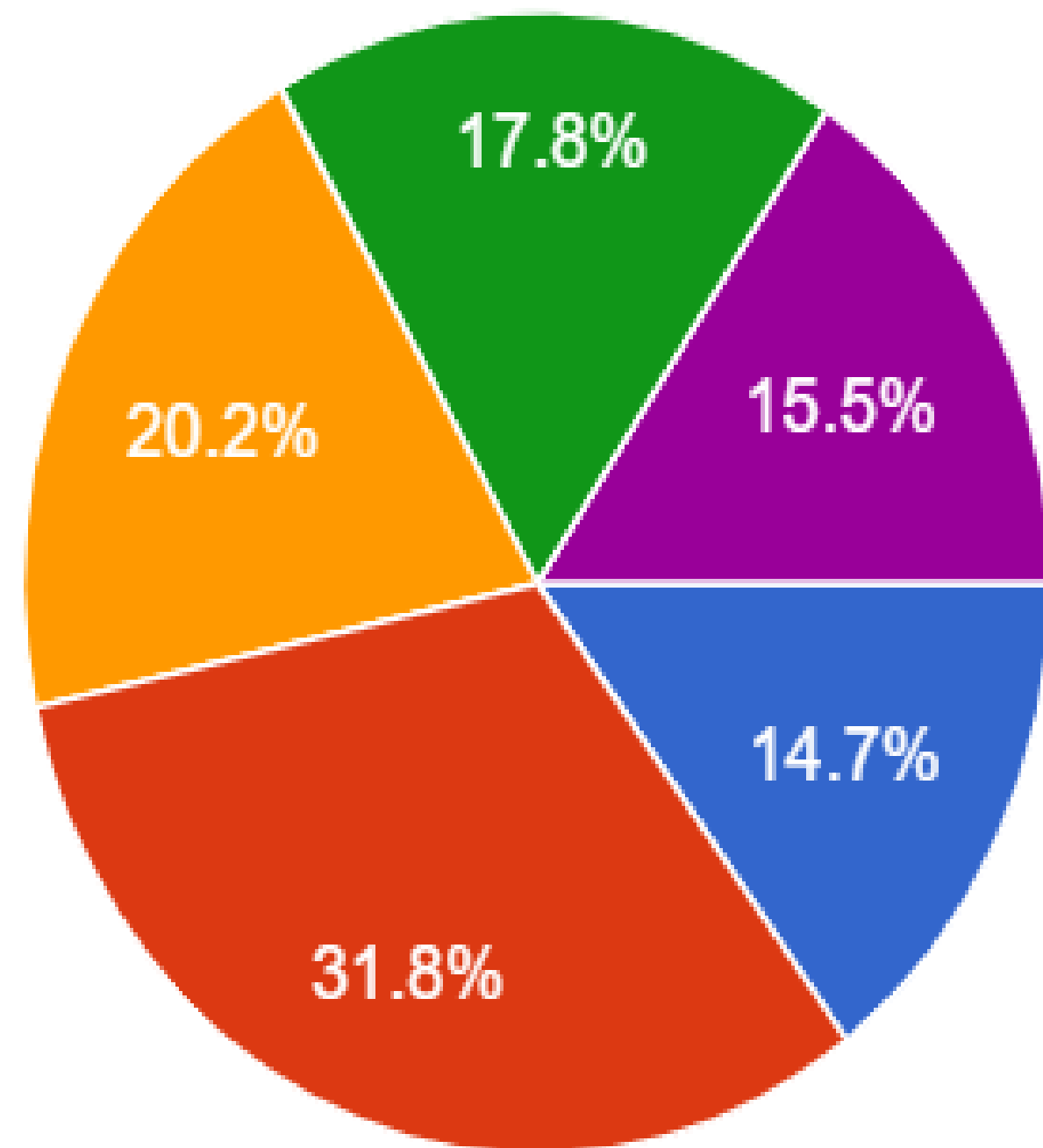




# Pilot Survey

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Do you feel your bus trip is faster with the new dedicated lane & intersection improvements?



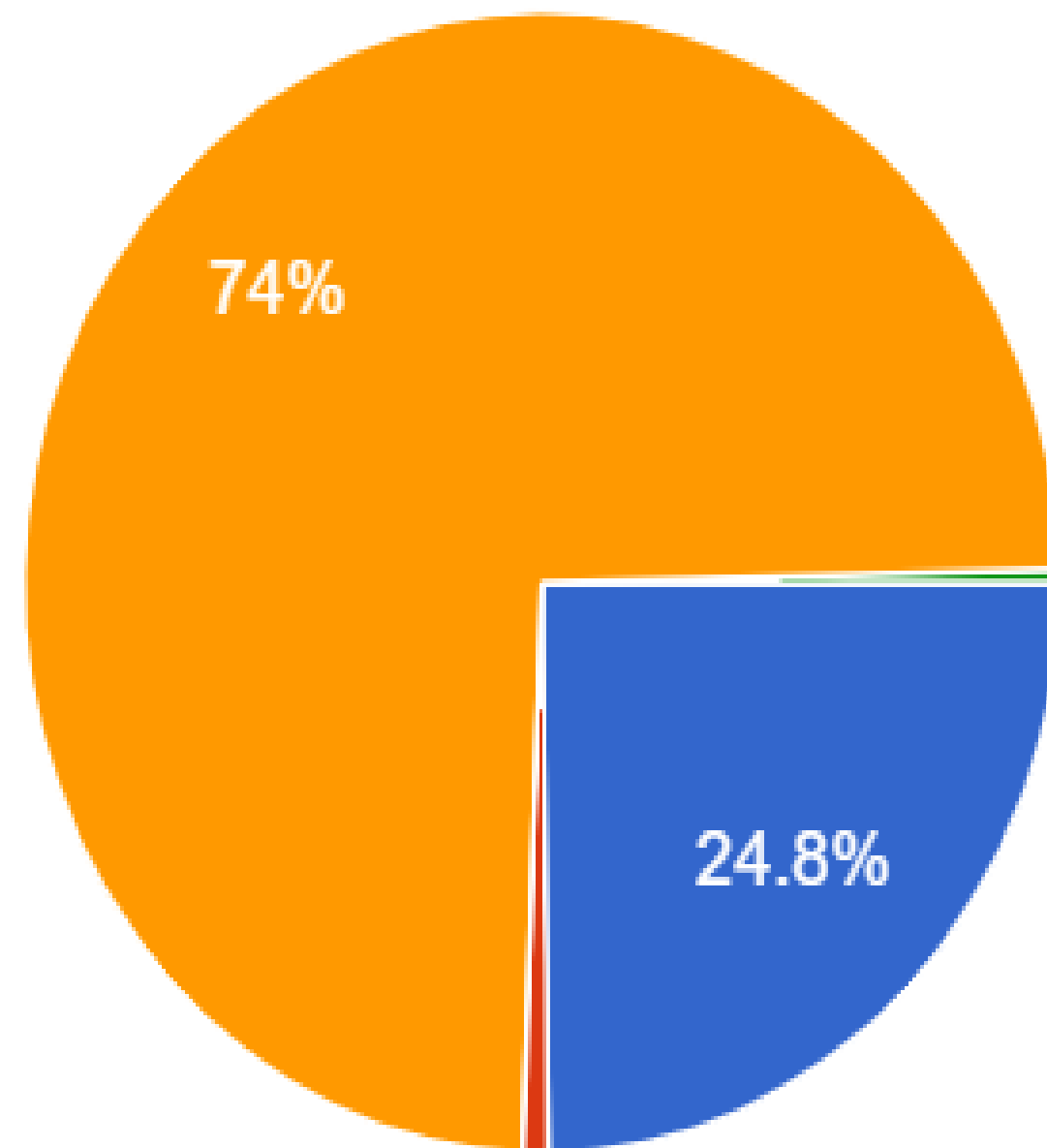
- Faster by 1-3 minutes
- Faster by 4-6 minutes
- Faster by 7-9 minutes
- Faster by 10+ minutes
- Not faster



# Pilot Survey

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Since the Town & partners made changes to Mass Ave, have you changed how often you take the bus?



- I take the bus on Mass Ave more often.
- I take the bus on Mass Ave less often.
- I take the bus on Mass Ave as often.
- This does not apply to me (e.g. I have not come here before or I am not familiar with the changes.)

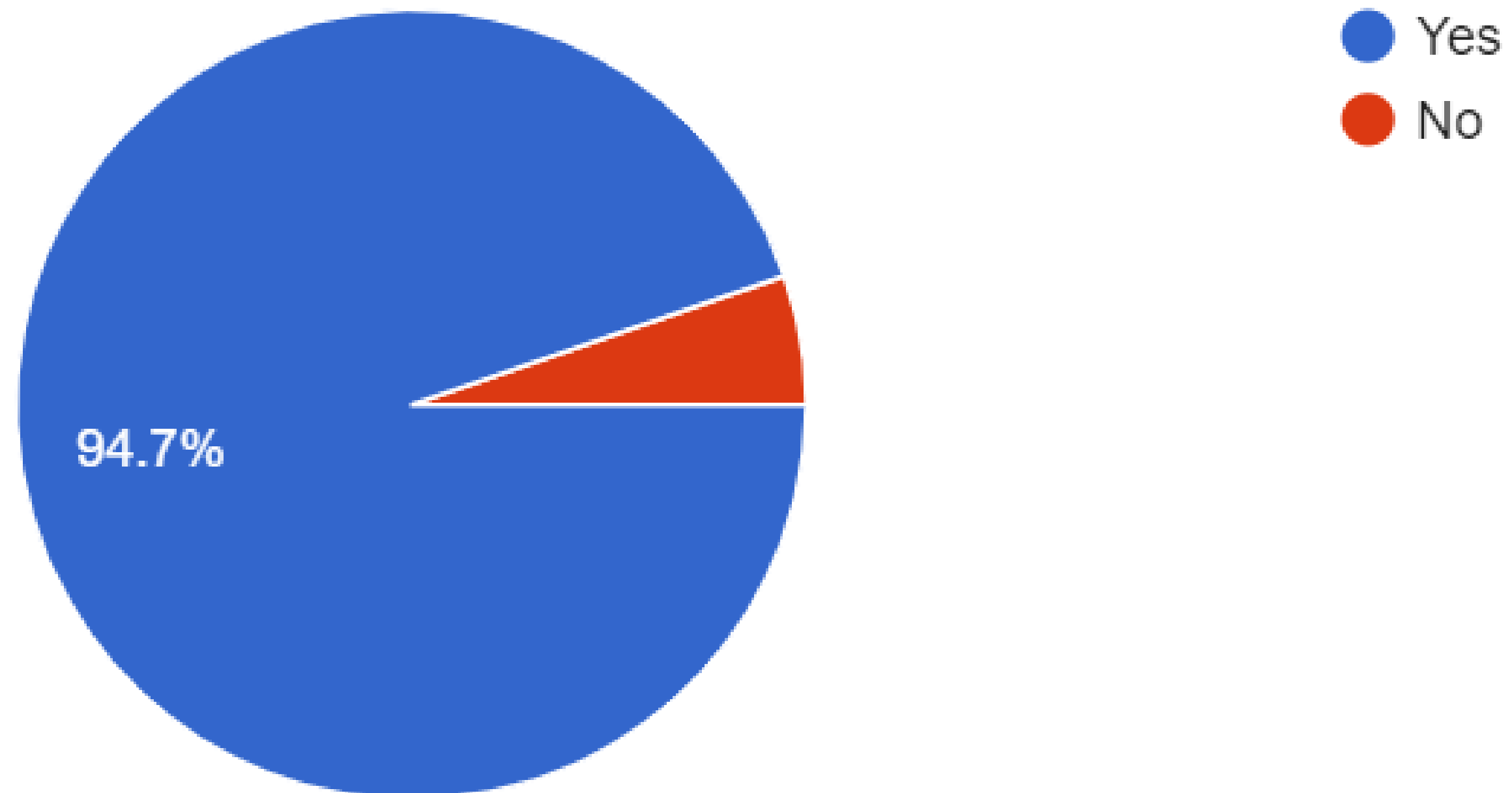




# Pilot Survey

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Should the Town of Arlington and the MBTA make this dedicated bus lane permanent?



# What people said (general comments)

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Thank you for the art installations!

Looks like parking is pretty underutilized up farther on mass ave so great opportunity to extend the bus lane

**PLEASE PLEASE MAKE THIS PERMANENT!!** And please work with Cambridge to extend the bus lane farther onto Mass Ave, specifically through Cameron Street and at Rindge Ave

I was finally on time!

Please make sure you remember the bike benefit when deciding!

Make it longer past Lake St

It turned a frustrating commute into an acceptable one. Please keep it!

It has improved safety on this stretch of road and I thank you

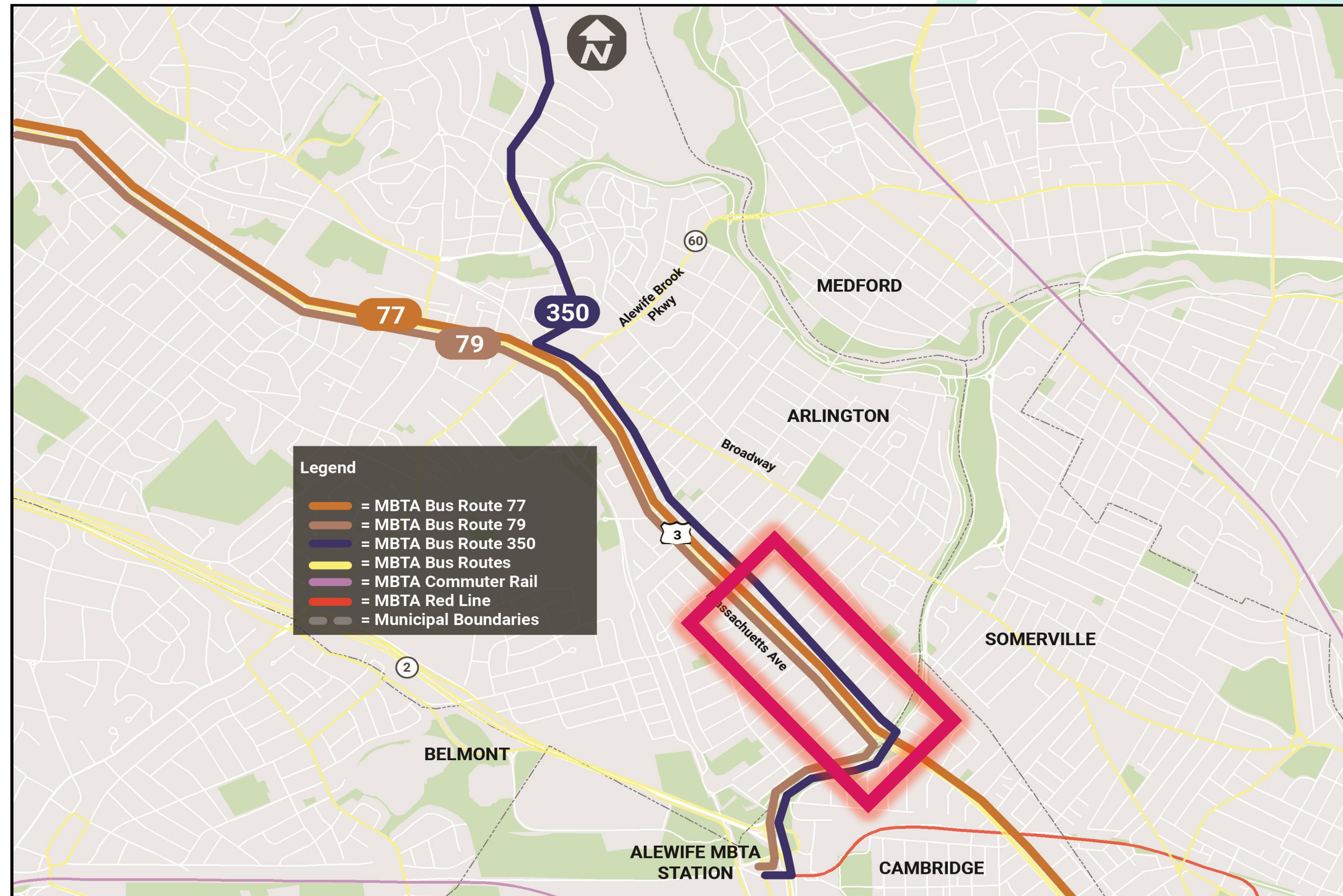
Make sure vehicles exiting cross streets don't block bus lane





# Preliminary MBTA Data

- Pilot Data – 10/9 – 10/24
- Pre-Data – 9/10 - 10/5
- Measured from 260 Mass Ave to one stop past Alewife Brook Parkway
  - Rte 77 – Magoun Street
  - Ret 79/350 - Alewife





# Route 77 – Pilot Corridor

*50<sup>th</sup> Percentile – Average Travel Time*

Overall Route 60 minutes

Pre-Pilot Travel Time



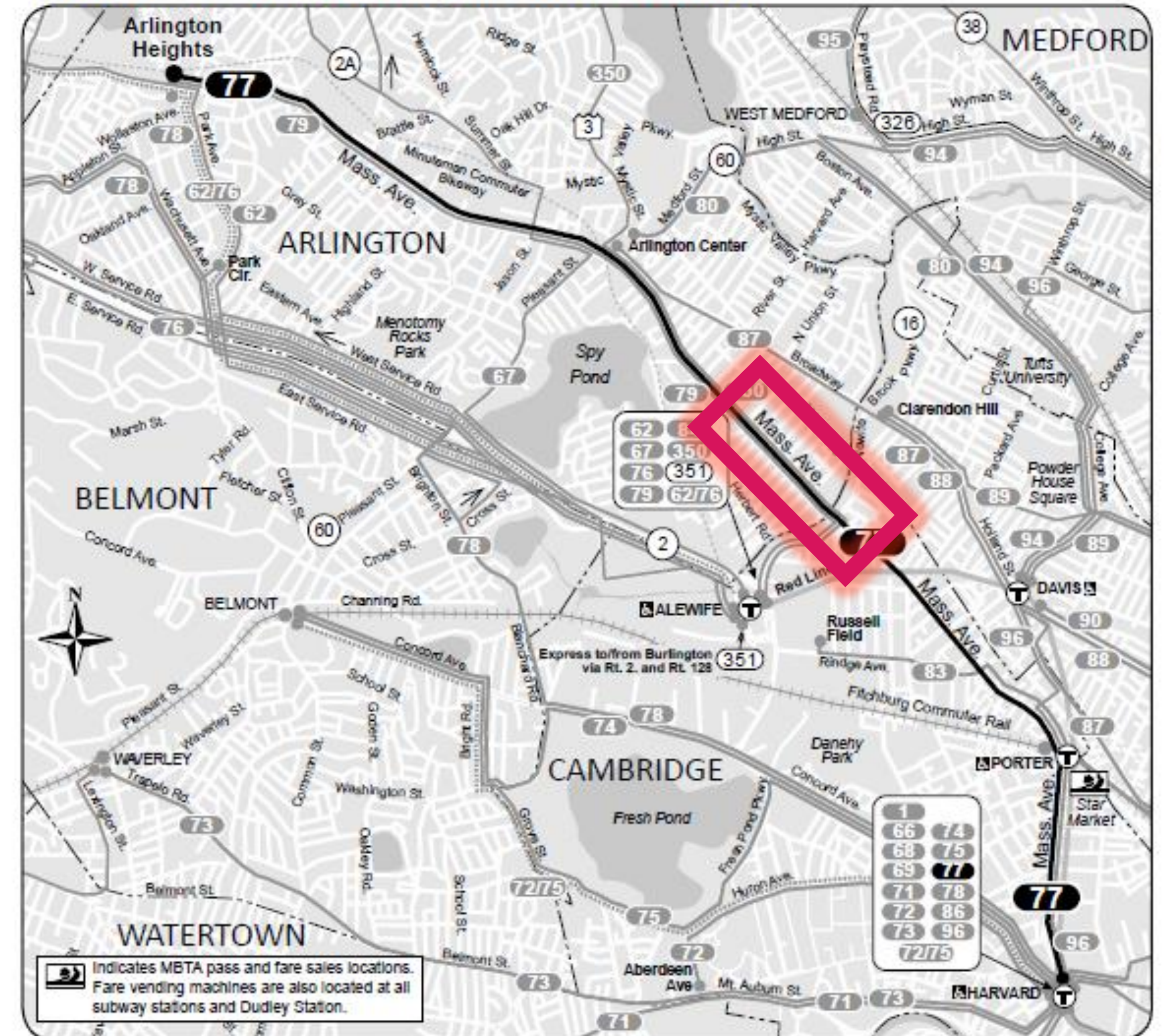
Pilot Travel Time



*5 – 6 minute savings in Corridor*

*50 % Travel Time Reduction*

Route 77 Arlington Heights - Harvard Station





# Route 77 – Pilot Corridor

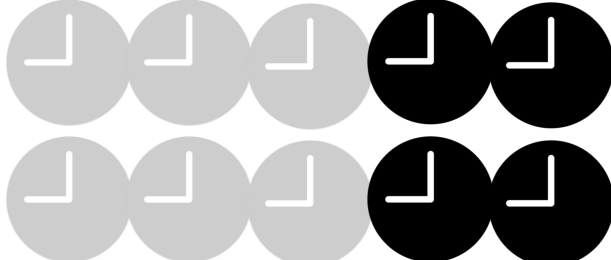
*90<sup>th</sup> Percentile – Typical Bad*

Overall Route 105 minutes(60)

Pre-Pilot Travel Time



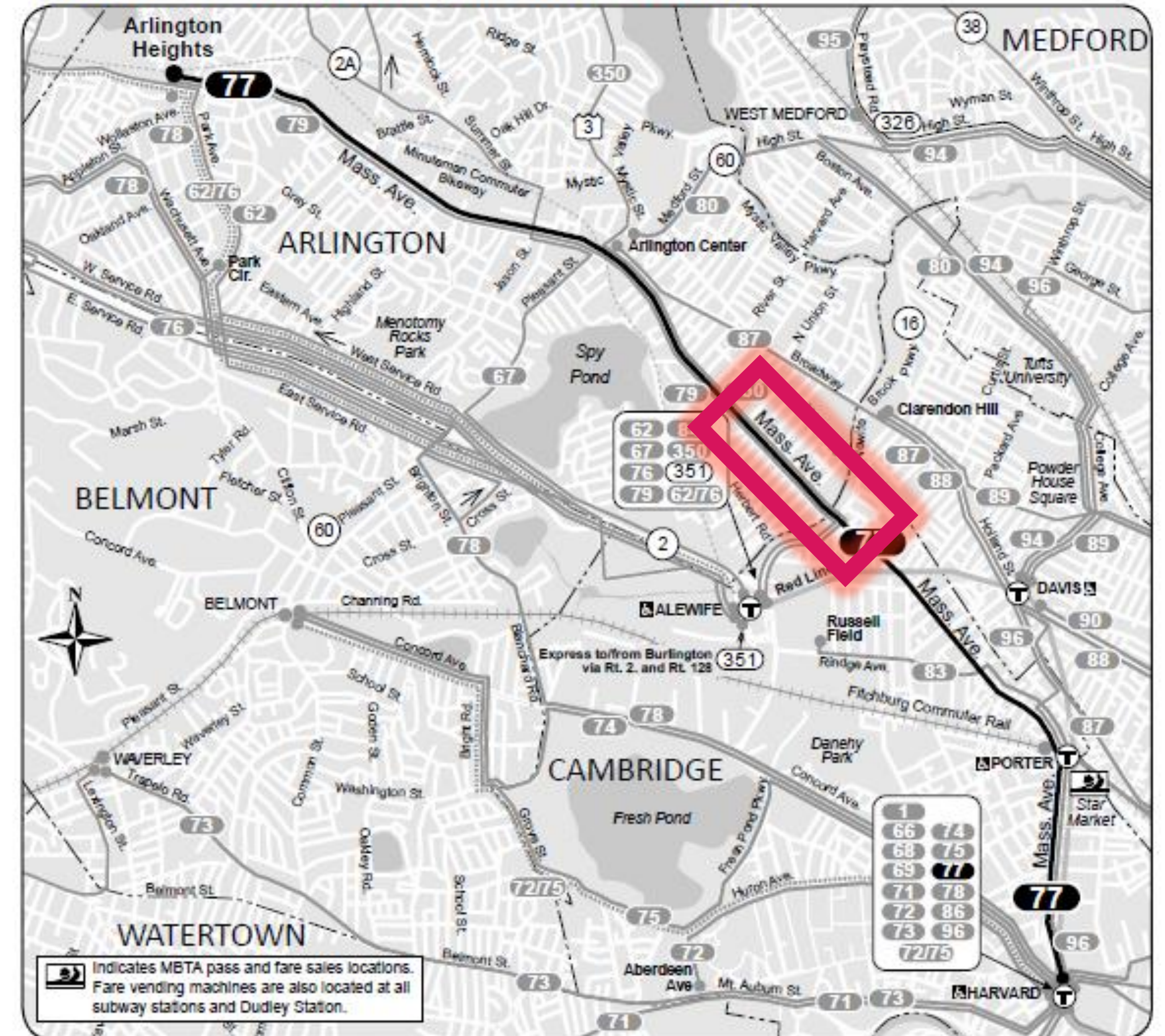
Pilot Travel Time



*10+ minute savings off typical delayed trip*

*40% reduction in variability of trip times*

Route 77 Arlington Heights - Harvard Station





# Route 77

Overall Route – Corridor Length



50<sup>th</sup> Percentile – Pre-Pilot Travel Time



50<sup>th</sup> Percentile – Pilot Travel Time





# Route 77

Overall Route – Corridor Length



90<sup>th</sup> Percentile – Pre-Pilot Travel Time

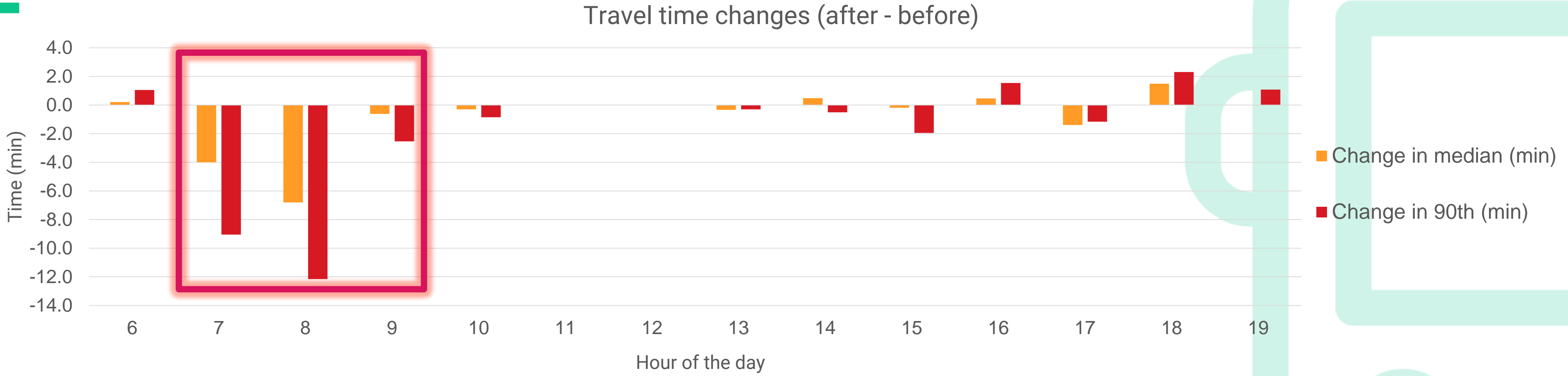


90<sup>th</sup> Percentile – Pilot Travel Time

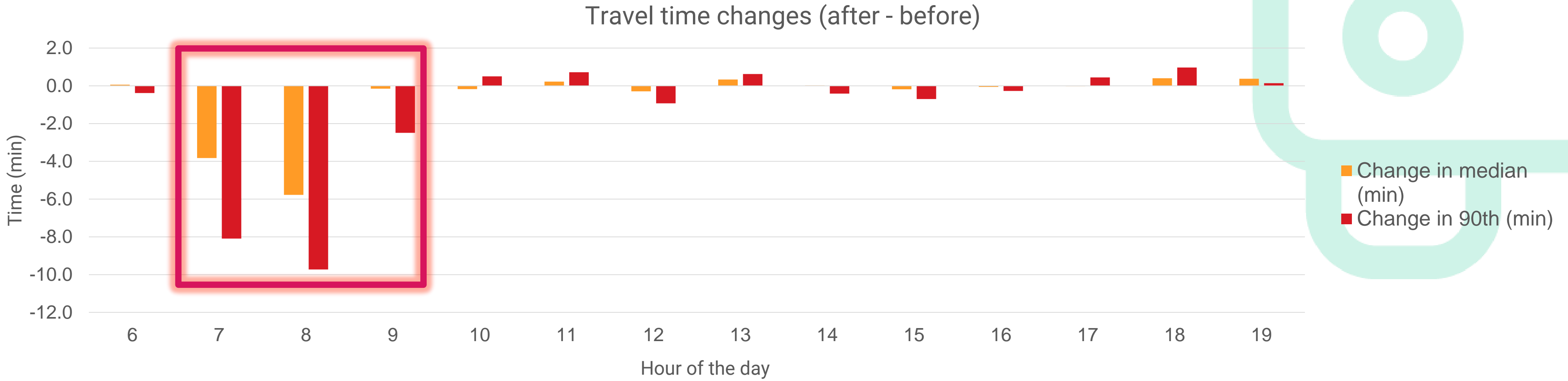


# Travel Time Savings

Route 79/350



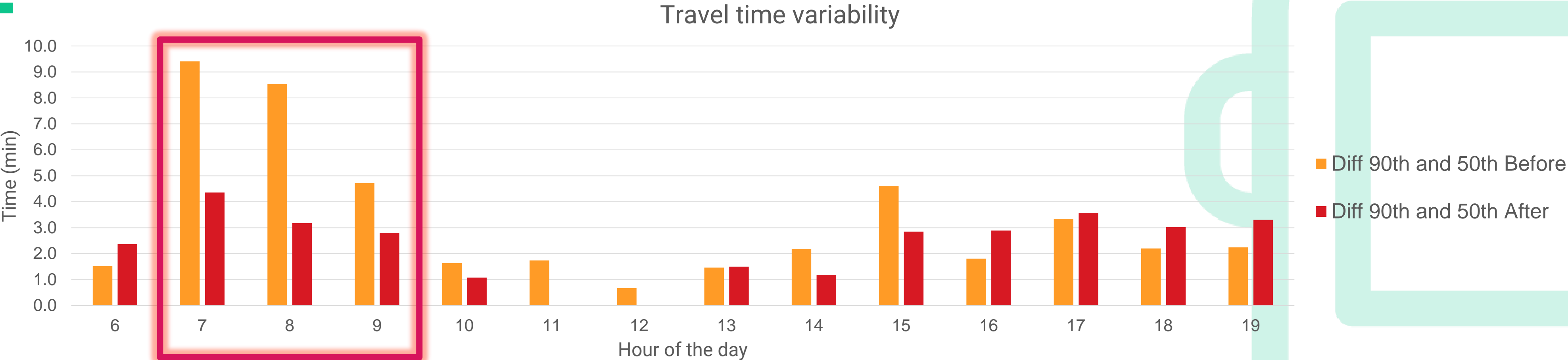
Route 77



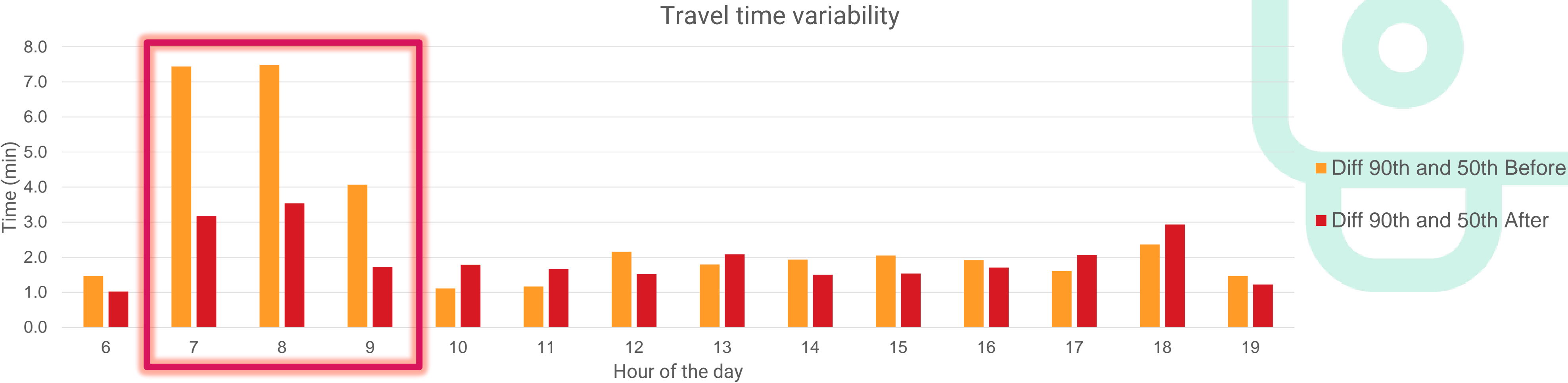


# Variability Improvement

Route  
79/350



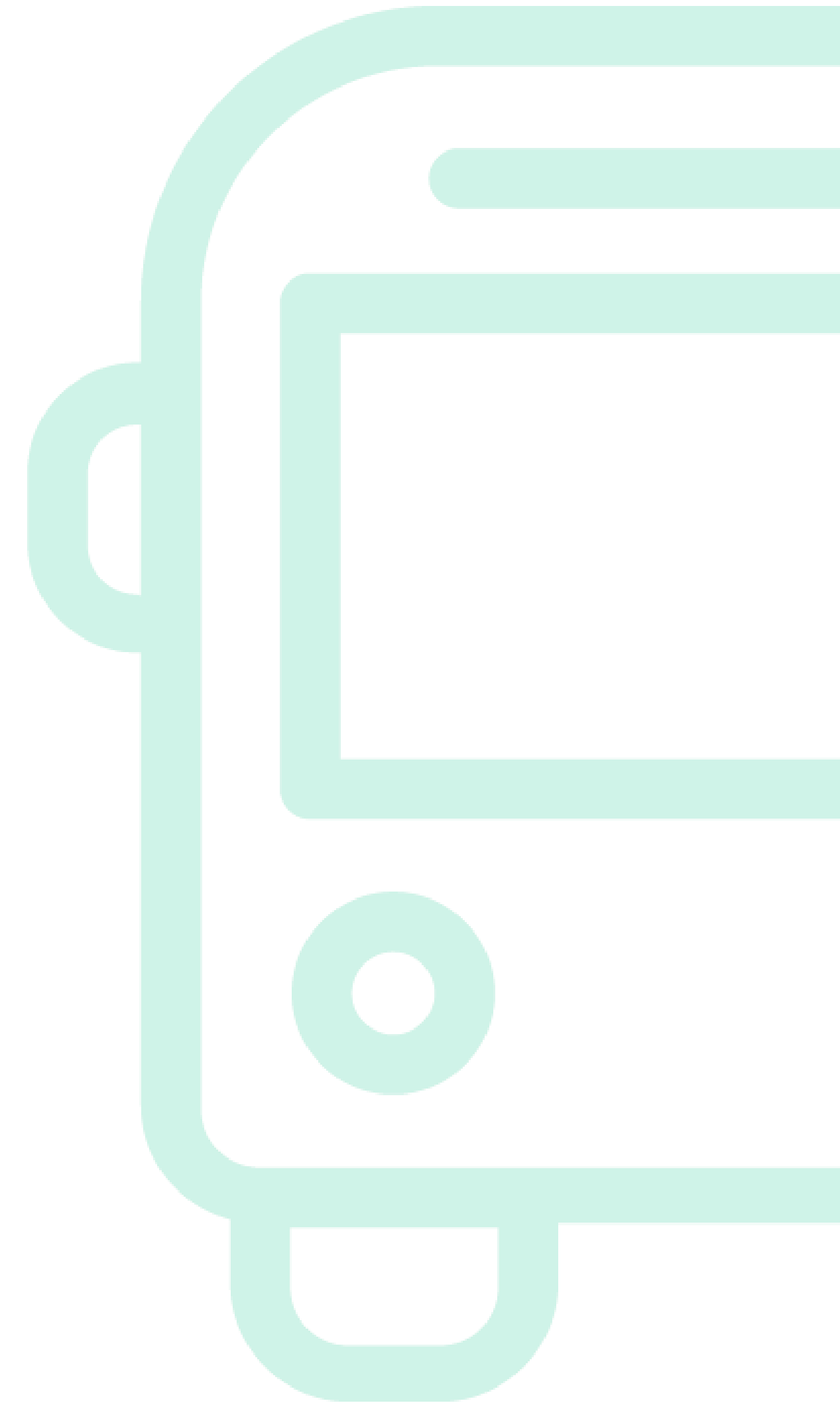
Route 77



# Conclusion/Lessons Learned

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- **Very positive feedback from bus riders and people bicycling**
- **Preliminary MBTA data extremely promising with significant improvement in travel times and reliability**
- **Dedicated lane improves street function for bus riders (and bicyclists)**
- **Low impact on vehicle traffic compared to typical conditions**
- **Low impact to on-street parking from bus lane due to low utilization in 6-9 am timeframe**





# Next Steps

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- **Post-Pilot survey open until November 30**
- **Review full set of MBTA data and feedback November-December**
- **Deliver report in early 2019 on recommendations for permanent bus lane**
- **Continue work at Alewife Brook Parkway intersection and signal modifications**
- **Investigate pedestrian safety improvements**
- **Add TSP to Mass Ave signals – also added to Jason and Mill Street intersection**
- **Consider level platform boarding**
- **Work with MBTA and Cubic to implement off-board fare collection system**
- **Explore BRT elements on Broadway and broader application of BRT elements along other sections of Mass Ave**



# Q & A







# Thank You

**For more information:**

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