



Mass Ave Partial Construction Project



*Joint Transportation
Committee Meeting
November 15, 2023*

Agenda

- Project Overview & Status
- Design Direction
- Update on South of Porter Square
- Concept Design Overview – Linnaean to Waterhouse Street
- Next Steps
- Q&A

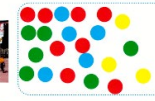


Partial Build Opportunities*

What would you like to see on Mass Ave?
Place a sticker next to the opportunities that interest you.

Separated Bike Lanes and Floating Parking

Separated bike lanes will be implemented as required by ordinance. In a partial build scenario, moving parking away from the curb can help create a buffer between cars and cyclists.



Bus Stop Improvements

Bus stop improvements, such as installing transit shelters or seating.



Crossing Islands

Enhanced crossing islands can provide more comfortable and accessible places of refuge for pedestrians crossing Mass Ave.



Center Median Removal

Removing the center median in certain places can allow space to be reallocated to other uses.



Upgrading Existing Utilities

Some utilities along Mass Ave may have to be addressed in a partial build scenario.



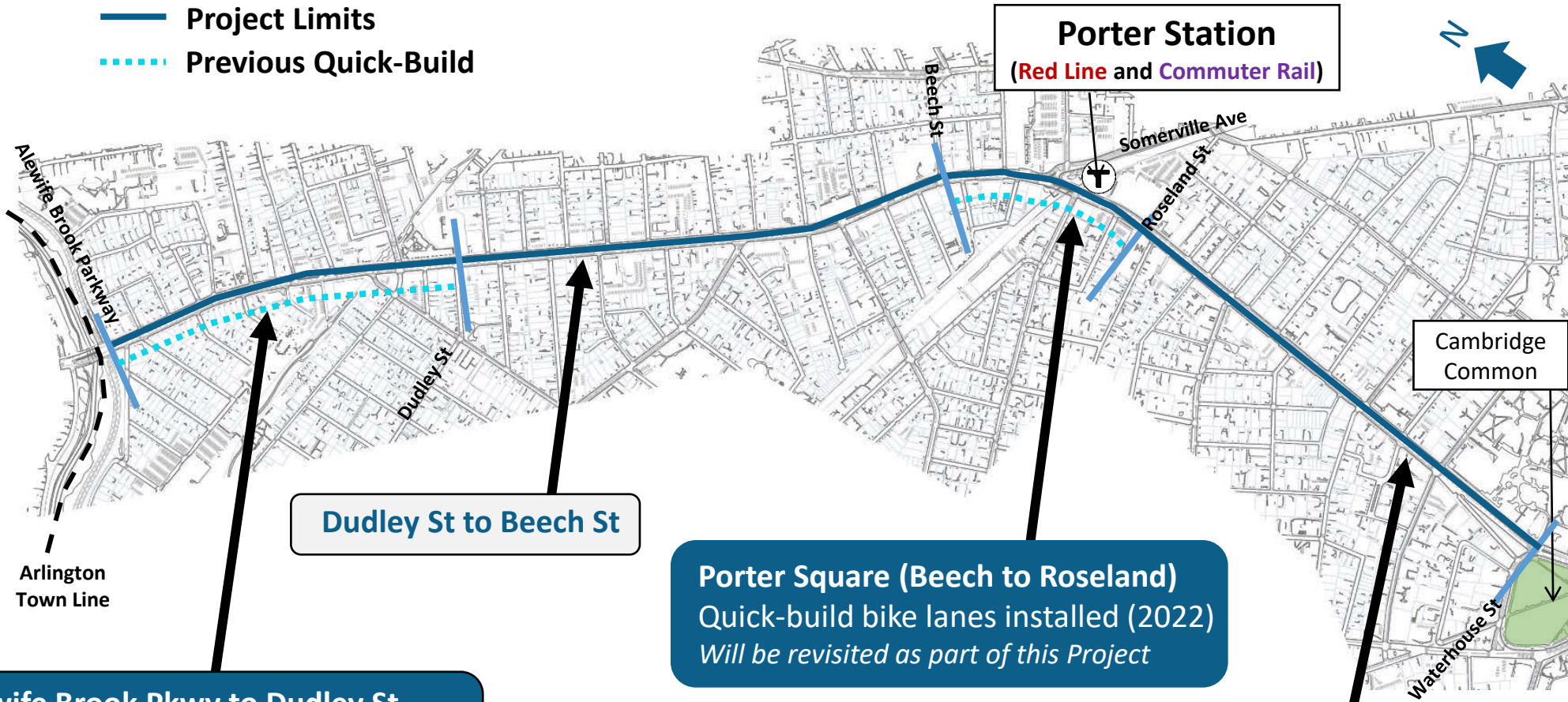
Overview & Status



Partial Construction Project Limits

Massachusetts Ave from Waterhouse Street to Alewife Brook Parkway

- Project Limits
- - - Previous Quick-Build



Porter Station
(Red Line and Commuter Rail)

Dudley St to Beech St

Porter Square (Beech to Roseland)
Quick-build bike lanes installed (2022)
Will be revisited as part of this Project

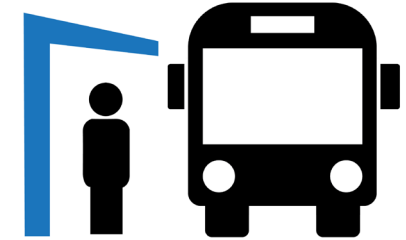
Alewife Brook Pkwy to Dudley St
Quick-build bike lanes installed (2021)
Will be revisited as part of this Project

Roseland St to Waterhouse St



Project goals* to guide design choices

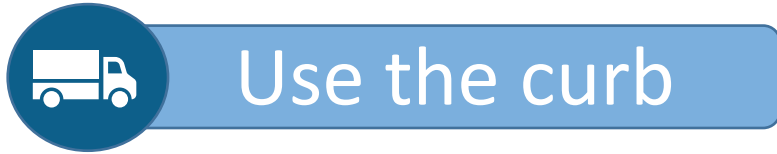
- Improve **safety** for people **biking** in the project area
- Improve **safety** for people **walking** in the project area
- Evaluate crosswalk locations to identify **additional crossing** locations
- Improve **experience for transit riders** with priority treatments at bus stops
- Improve travel times and **reliability of MBTA** buses
- Maintain loading and short-term parking access to **support local businesses**
- Implement changes in line with the **Cambridge Bicycle Plan and Vision Zero Action Plan**
- Meet the requirements of the **Cambridge Cycling Safety Ordinance**, which includes the requirement to add separated bike lanes



* developed through public and stakeholder input, previous Citywide visioning, and roadway observations

The Project Must:

- > **Balance the needs of people who:**



- > **Meet the requirements of the Cycling Safety Ordinance and align with City policies**



- > **Stay within limitations of partial construction**



Features of Partial Construction

Flex-post or curbed bike lane separation

Can remove median except at unsignalized pedestrian crossings. Existing sidewalks to remain

Opportunity to upgrade affected utilities and bus stops

Medium implementation timeline compared to long-term full-build timeline

Medium cost (\$\$) compared to quick-build (\$) or full-build (\$\$\$)



Project Team

City of Cambridge

- **Diane Stokes,**
Director of Engineering Services, DPW
- **Jerry Friedman,**
Supervising Engineer, DPW
- **Andreas Wolfe,**
Street Design Project Manager, TPT
- **Stephen Meuse,**
Street Design Project Manager, TPT
- **Andy Reker,**
Transit Planner, CDD
- **Pardis Saffari,**
Director of Economic Opportunity and Development, CDD
- **Kristen Kelleher,**
Community Relations Manager, DPW
- **Elise Harmon-Freeman,**
Communications Manager, TPT

Consultant Team

- Kleinfelder, Inc.
- Bowman (McMahon)
- Toole Design Group
- KMDG

Working Group – 14 members

- Residents
- Business owners
- Institutional representatives
- People who walk, bike, take the bus and drive on Mass Ave.



Working Group Charge for this Project

(1) Serve as community representatives to advise the City on key issues related to the design, including:

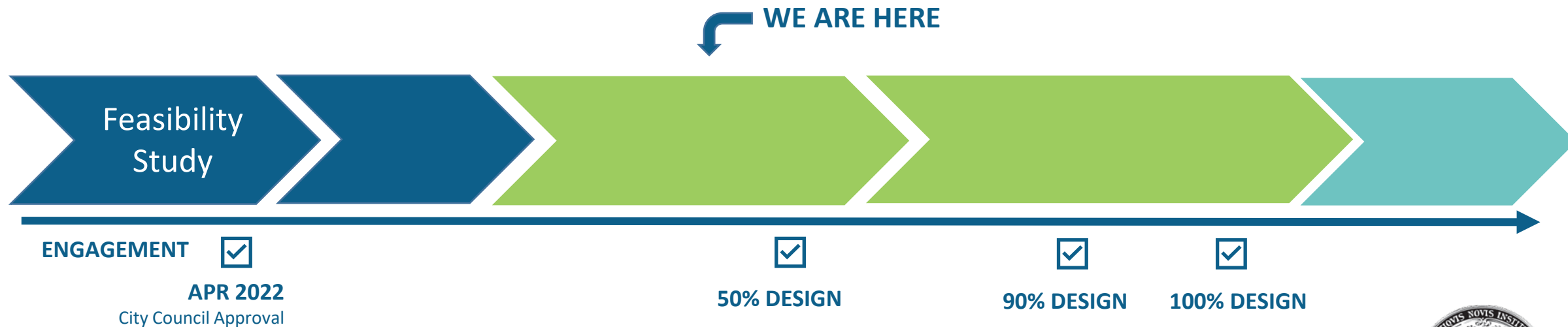
- Separated bicycle lane treatments
- Crosswalk locations and other pedestrian improvements
- Location/side of street for curb access
- Curb regulations (parking/loading)
- Bus priority and stop needs

(2) Help communicate the design and construction process of the project back to the larger community



Project Timeline

- **April 2021:** the City released the MassAve4 Impact Analysis report.
- **November 2021-March 2022:** City conducted public outreach and performed additional analysis of Quick-Build vs. Construction.
- **April 2022:** City Council approved the recommendation for partial construction between Waterhouse Street and Alewife Brook Parkway.
- **April 2022-May 2023:** City collected data and performed field investigations and analysis.
- **May 2023 - Present:** Working Group three meetings to date; 3 site walks



Project Milestone



Design Direction

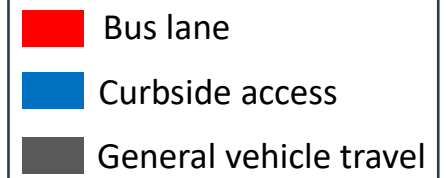


Recap of Working Group Discussions

- Discussed **user behavior**
 - What works well and what could be improved
 - Early design thoughts
- Reviewed **project goals** and cross section elements
- Reviewed the **types of data** we have used to inform the design
- Examined typical interaction of **design elements** such as turn lanes, bus lanes, curbside access, signal phasing, and crosswalks.
- Looked at potential **cross-sections and the trade offs**
- Talked about **stakeholder and business engagement**
- Reviewed **draft concept design** south of Linnaean Street



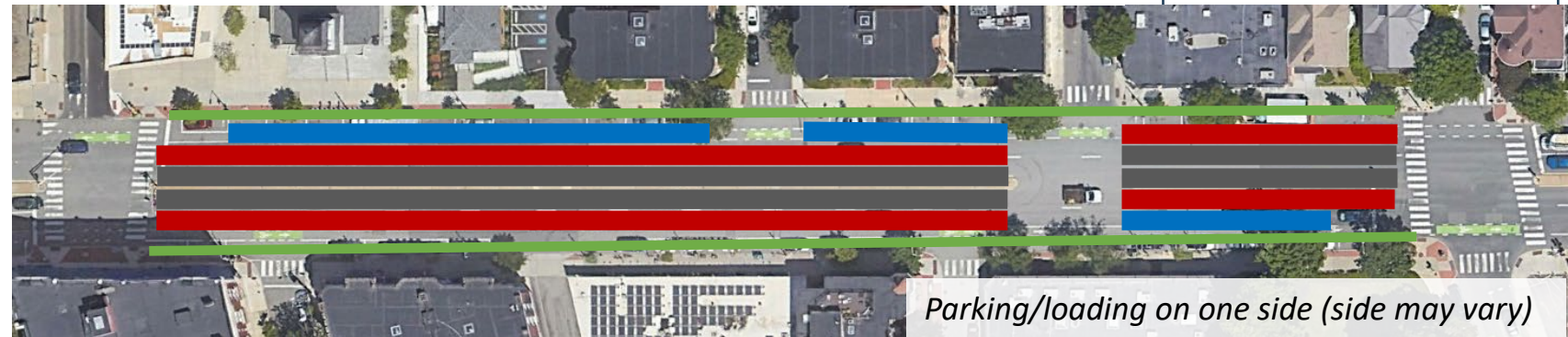
Potential Options to Balance Curbside Uses and Bus Operations



← Northbound- Alewife Brook Parkway Southbound - Harvard Square →

Full time bus lanes

- Curbside access on one side at a time
- Benefits to bus operations



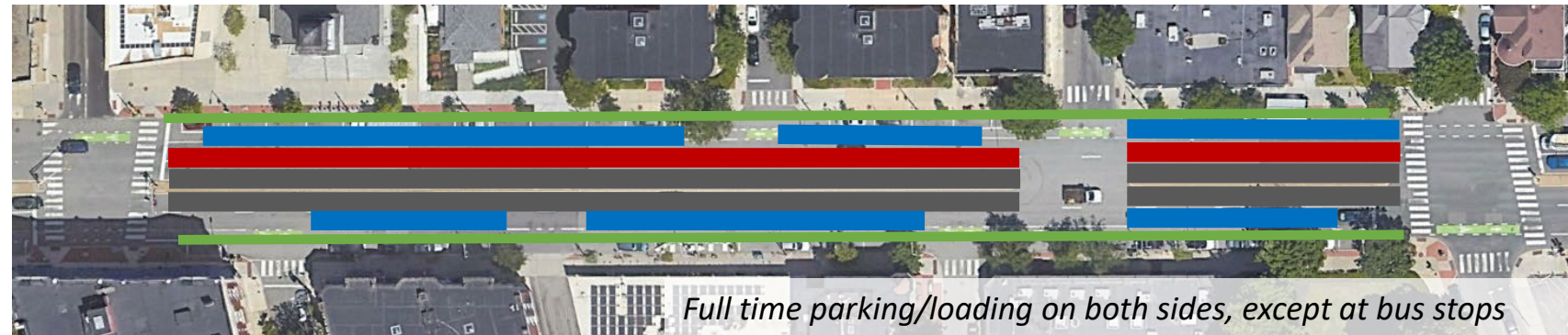
Part time bus lane on one side

- Continuous curbside access on one side, off-peak access on other
- Benefits to buses during peak periods



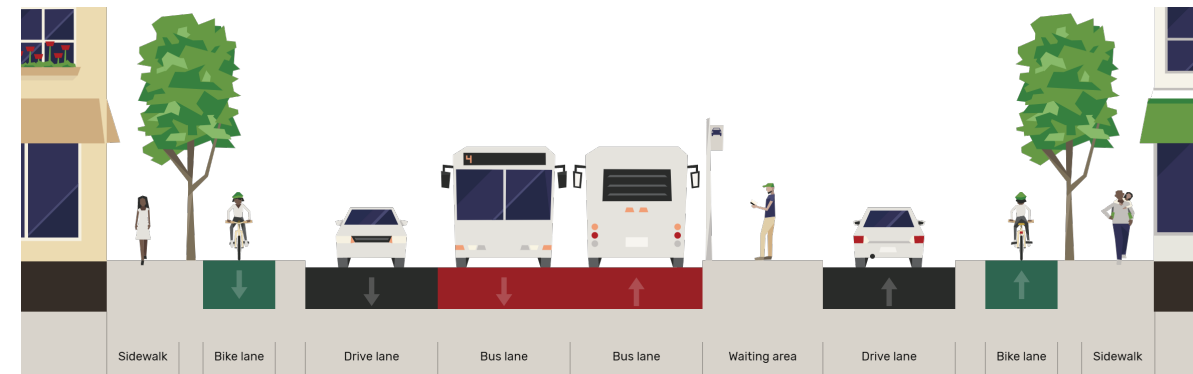
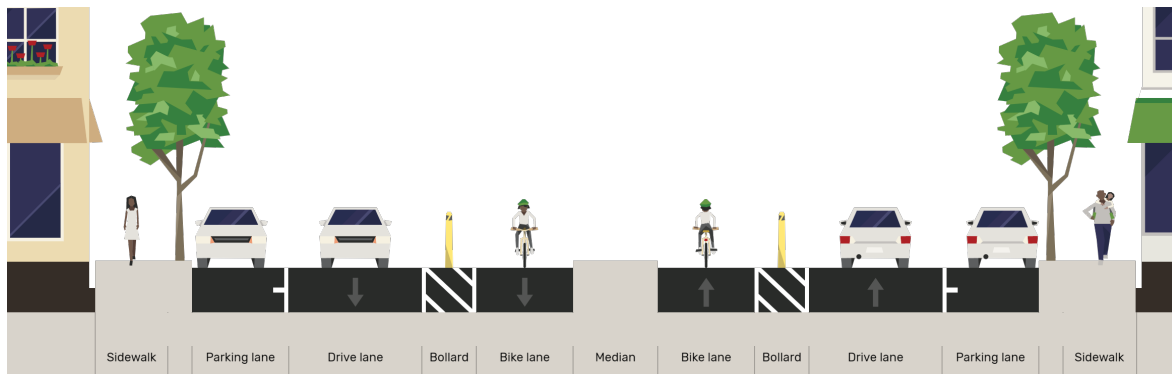
Bus lane on one side only

- Continuous curbside access on both sides
- Southbound bus in mixed traffic



Other Cross Section Strategies Considered

During the 2022 Feasibility Study, other configurations were considered, but not advanced for safety and operational reasons



Center-running Bike Lanes

- Does not allow access to destinations along the street for bikes
- Increases conflict points for bikes entering and exiting bike lanes
- Added delay for cars/bikes at intersections as all turns must be signal separated

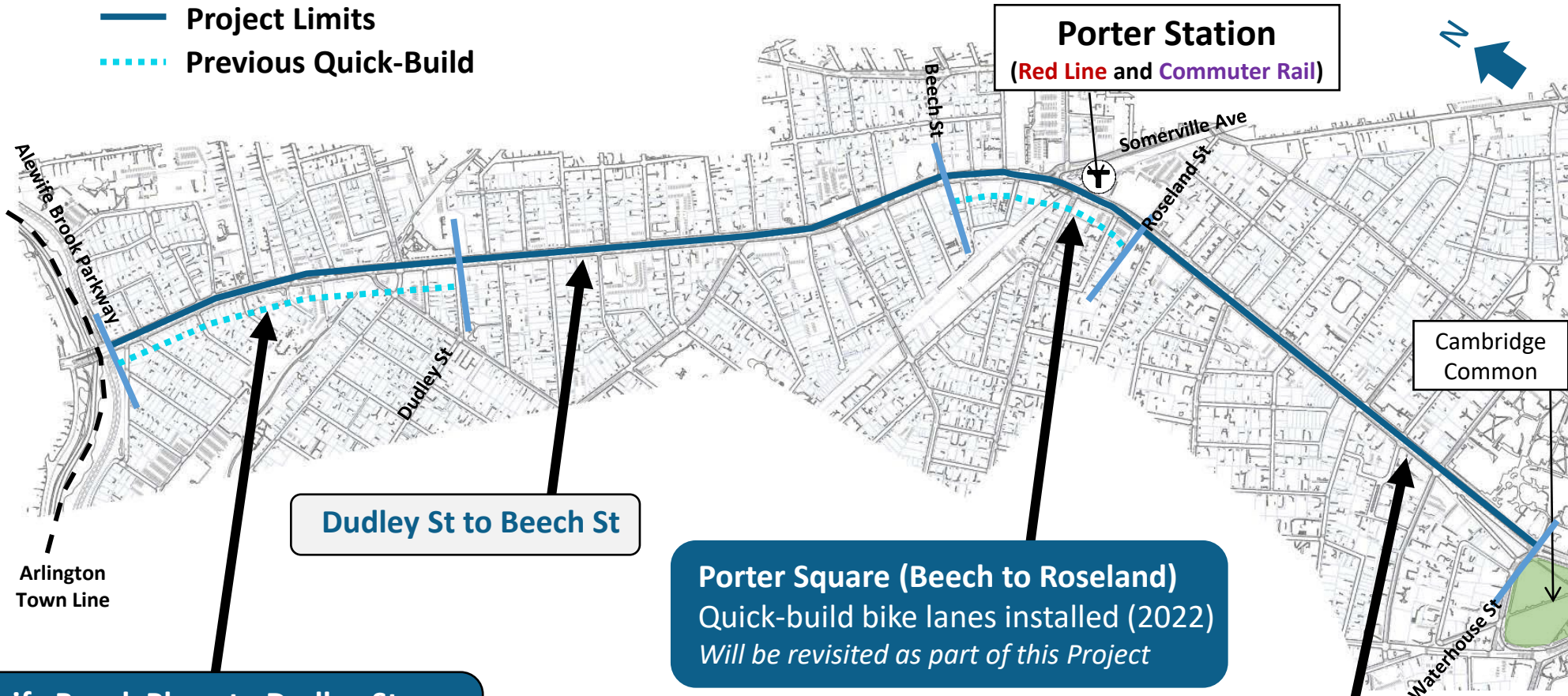
Center-running Bus Lanes

- Requires full reconstruction of street to allow for bus stop islands and amenities – beyond scope of this "partial-construction" project
- Limited space for turning lanes at intersections
- Increased conflicts for transit users to access center bus islands

Partial Construction Project Limits

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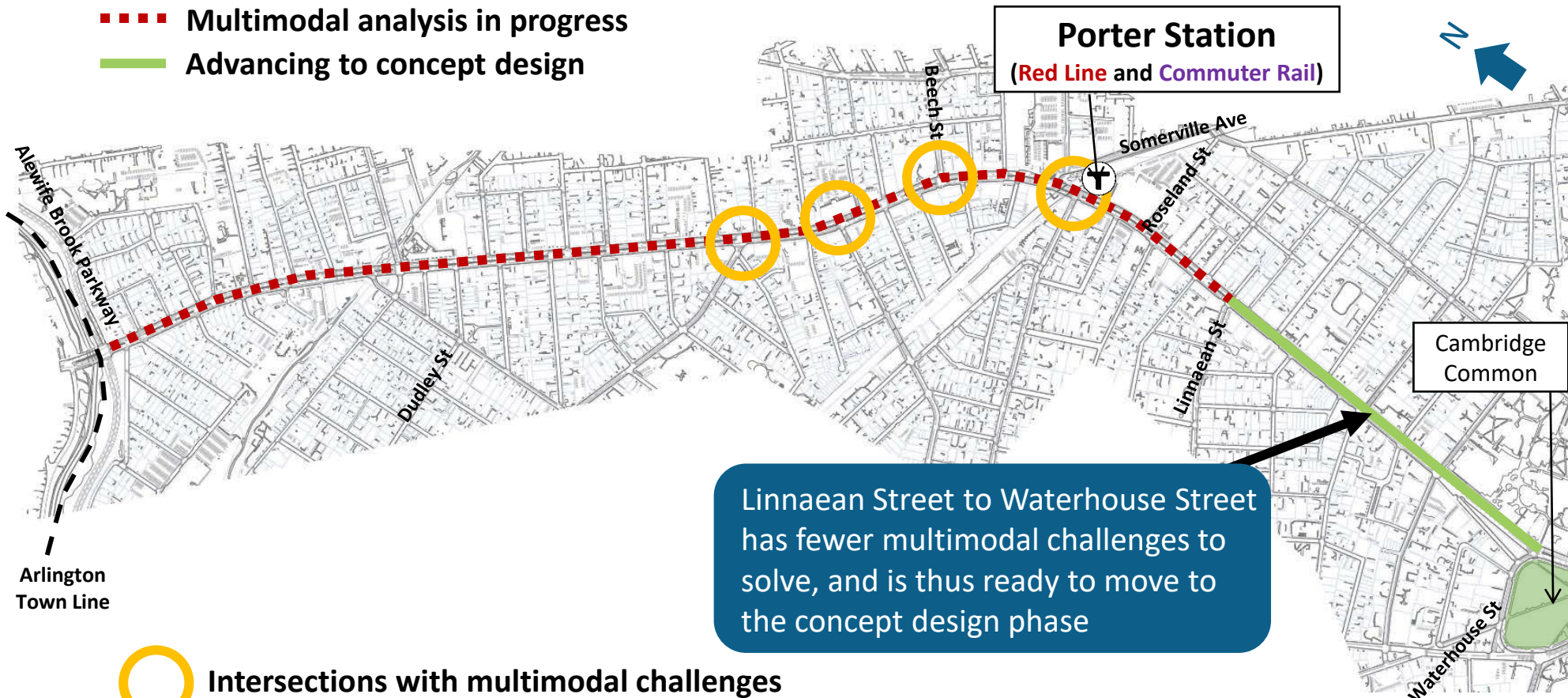
Roseland St to Waterhouse St



Partial Construction Project Limits

Massachusetts Ave from Waterhouse Street to Alewife Brook Parkway

- ■ ■ ■ Multimodal analysis in progress
- Advancing to concept design



○ Intersections with multimodal challenges



South of Porter Square Design Direction



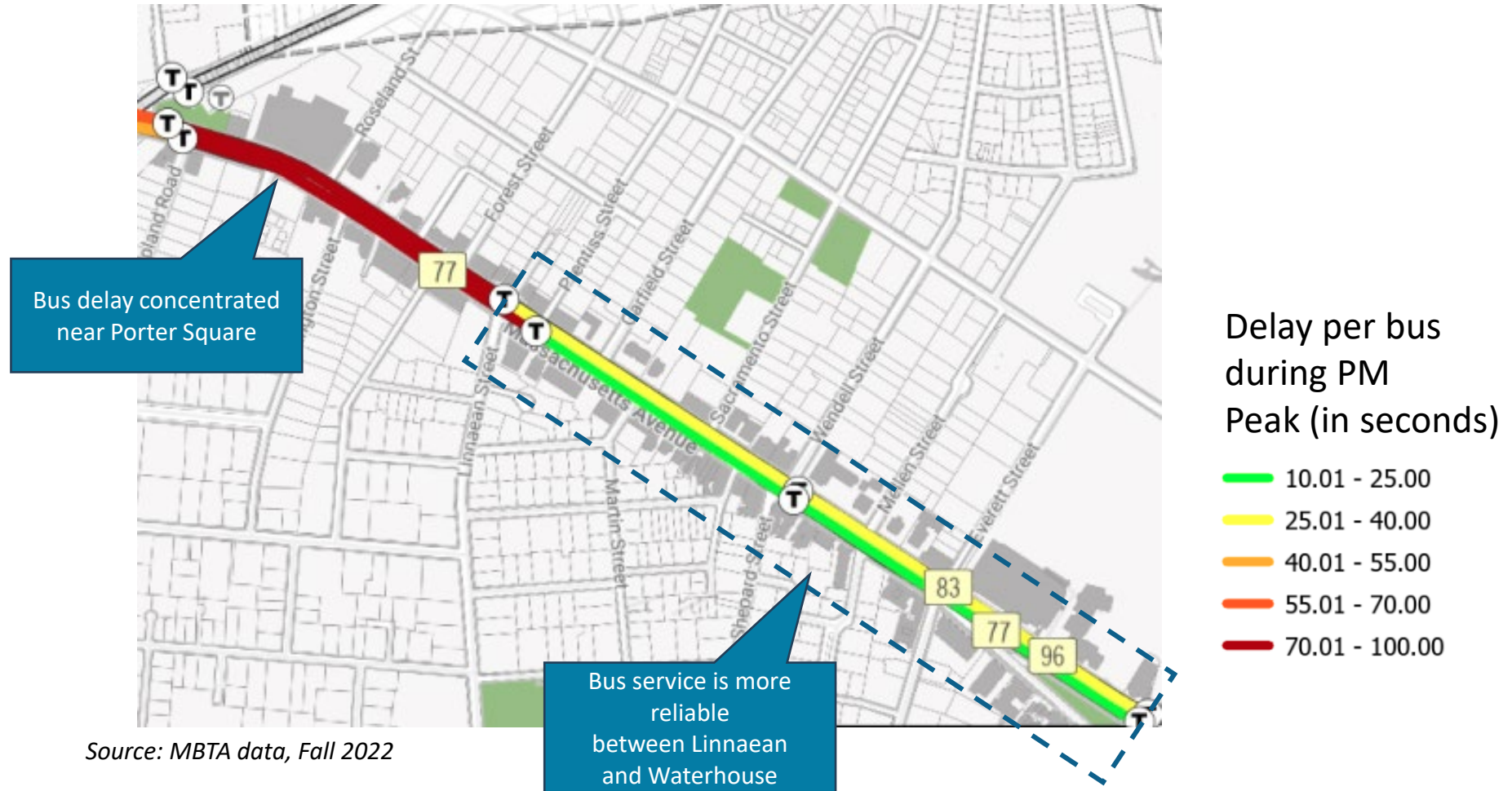


Design Considerations Overview

South of Porter Square Segment has lower traffic demands than North of Porter Square

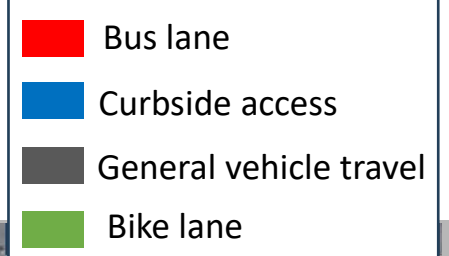
- Less overall bus delay – bus delay is concentrated around Porter Square
- Fewer locations with conflicting turning movements
- Higher levels of commercial activity on both sides of the street

Bus Delay during the PM Peak (weekdays in 2022)



Proposed Cross-section to Balance Curbside Uses and Bus Operations South of Linnaean St

← Northbound- Alewife Brook Parkway Southbound - Harvard Square →



Full time bus lanes

- Curbside access on one side at a time
- Benefits to bus operations



Part time bus lane on one side

- Continuous curbside access on one side, off-peak access on other
- Benefits to buses during peak periods



Bus lane on one side only

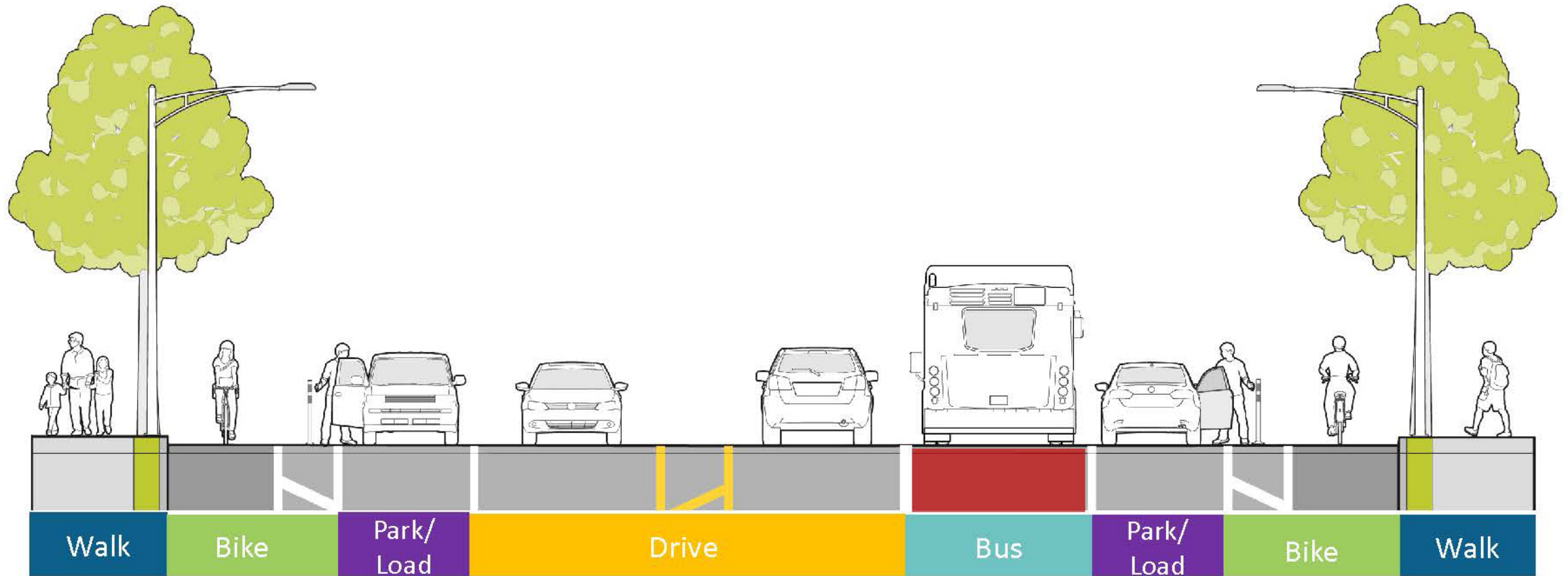
- Continuous curbside access on both sides
- Southbound bus in mixed traffic



Concept Design Overview – Linnaean Street to Waterhouse Street



Typical Proposed Cross Section: Linnaean Street to Waterhouse Street



Mass Ave Looking North



Key Features of the Draft Concept

- Between Linnaean Street and Waterhouse Street, the following are proposed:
 - Separated bike lanes
 - Northbound bus lane
 - Floating bus stop islands
 - Crosswalk signal timing improvements
 - New crosswalk locations
 - New accessible parking spaces
 - Loading zones maintained/relocated
- Parking/loading can be provided on both sides in this segment as the median will be removed with a 3-lane cross-section



Working Group Input



Curb Uses



Crosswalk locations



Bus stops



Curb Use Elements



Floating Parking



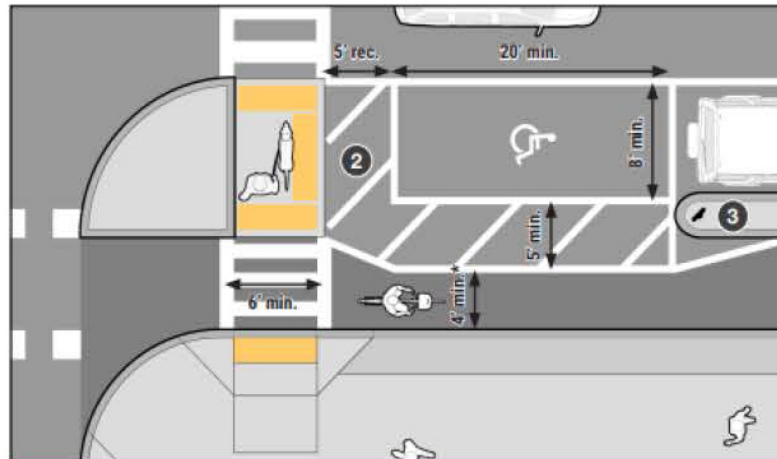
Side street curb regulations



Loading Zone



Curbside Accessible Space



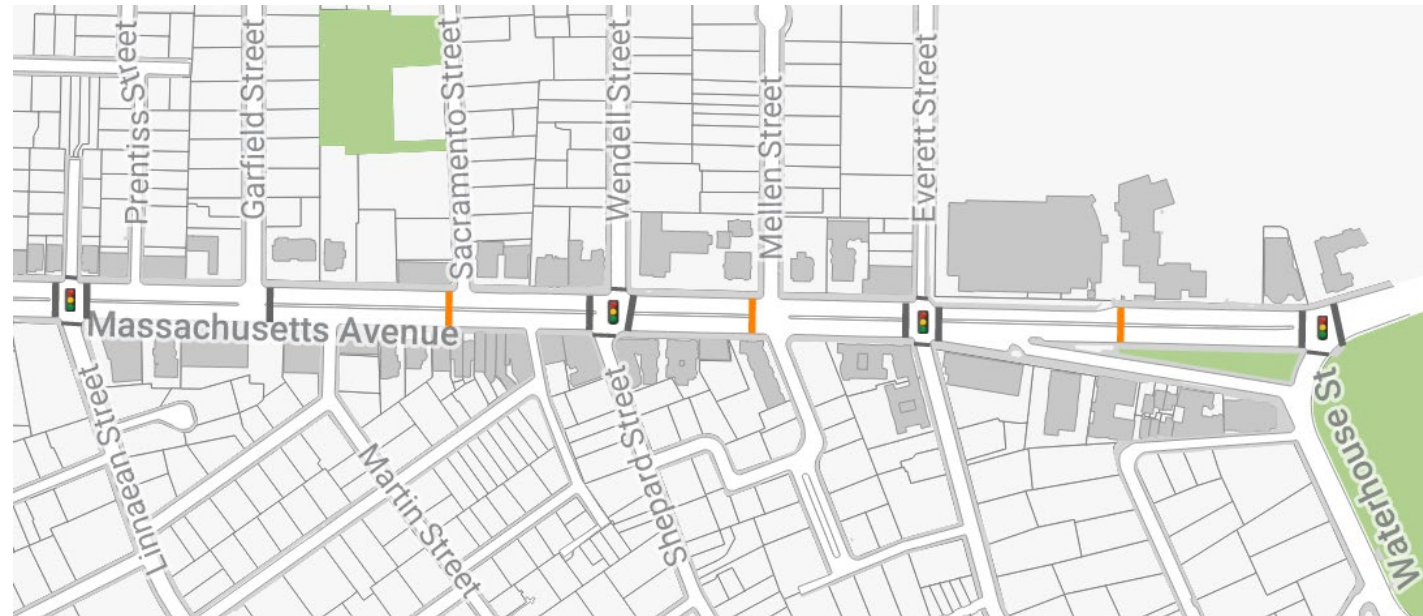
"Floating" Accessible Space
(MassDOT Separated Bike Lane Design Guide)



Floating Bus Stop

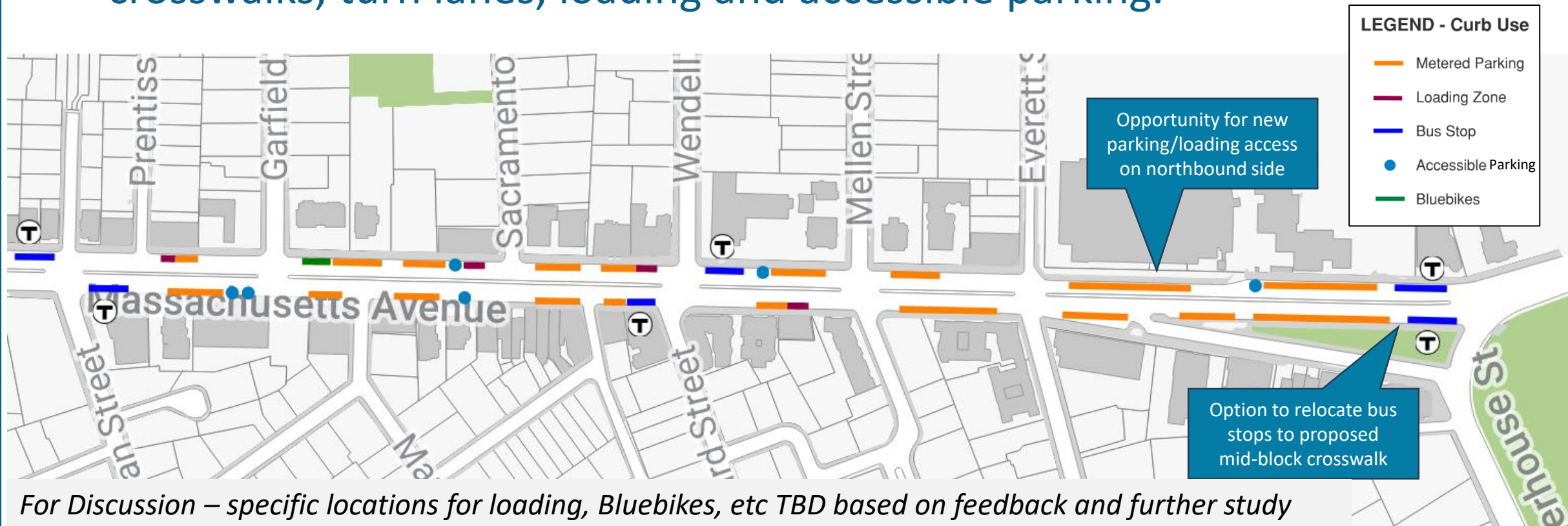
Crosswalks

- Existing crosswalks will be enhanced with pedestrian islands and/or signal timing adjustments
- New crosswalk locations proposed based on existing crosswalk spacing and suggestions from Working Group/Public
 - Additional crosswalk locations require reduction in curbside access/parking



Draft Curbside Use Allocation Proposal

- With the median removed and a 3-lane cross-section proposed in this segment, curbside activity can be maintained on both sides.
- Some on-street metered parking will be converted to space for new crosswalks, turn lanes, loading and accessible parking.



Focus Areas



Full draft concept for this segment to be shared at future meetings



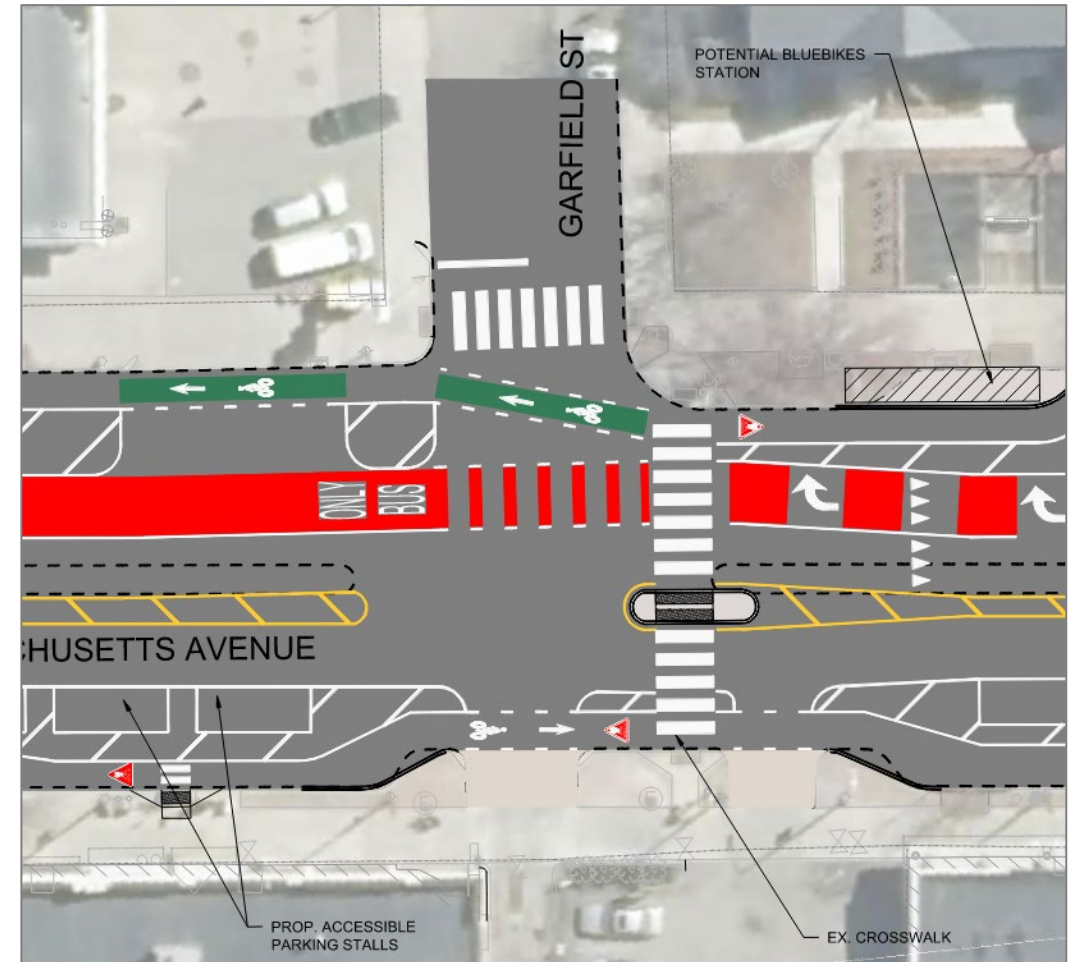
Garfield Street Intersection

Issues

- Hard for pedestrians to cross Mass Ave
- Challenging turns

Potential Solutions

- Include pedestrian crossing island
- Upgrade to RRFB at crosswalk
 - Signal warrants are not met



Garfield Street Intersection



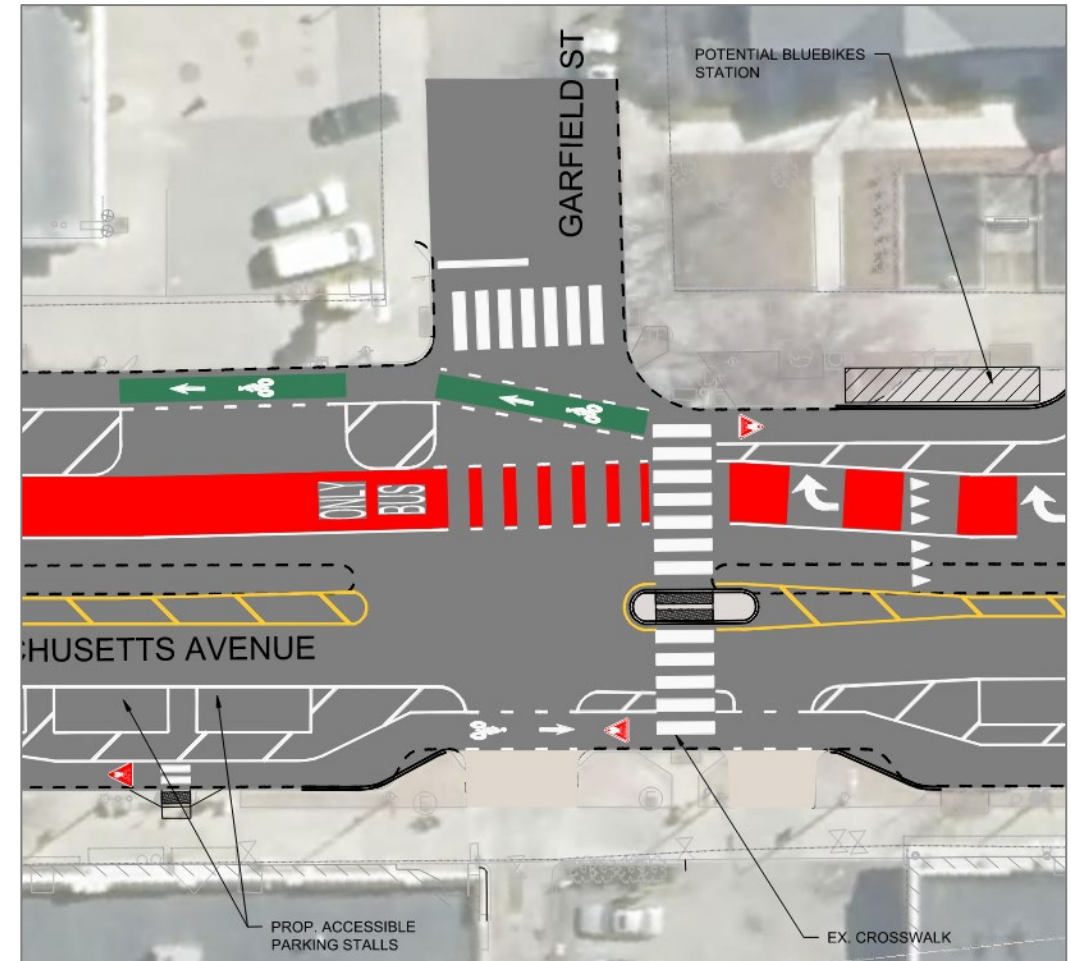
Working Group Feedback

- Concern about Garfield Street left turns
- Questions about side street parking regulations



NEXT STEP

Ensure proposed RRFB for Mass Ave pedestrian crossing is more visible to side street traffic



Wendell/Shepard Inte




Working Group Feedback

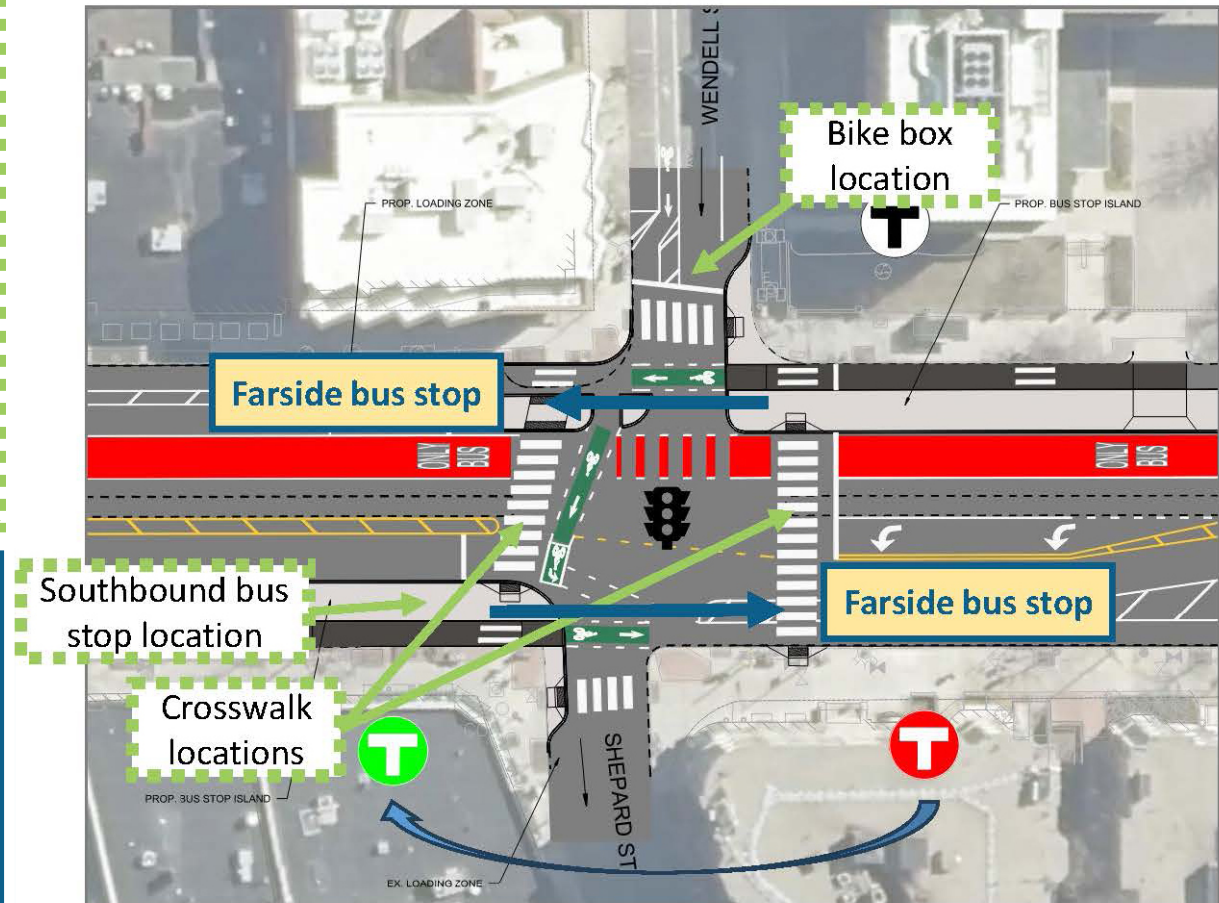
- Concerns about crosswalk locations pulled back from intersection
- Bike box location is offset from desire line
- Southbound bus stop potential to block traffic and reduce visibility of pedestrians and cyclists

NEXT STEP

Consider bus stop locations farside of intersection and bike box on Wendell St approach

LEGEND

-  REMOVED OR RELOCATED BUS STOP
-  PROPOSED BUS STOP
-  EXISTING BUS STOP



Chauncy/Everett to Waterhouse

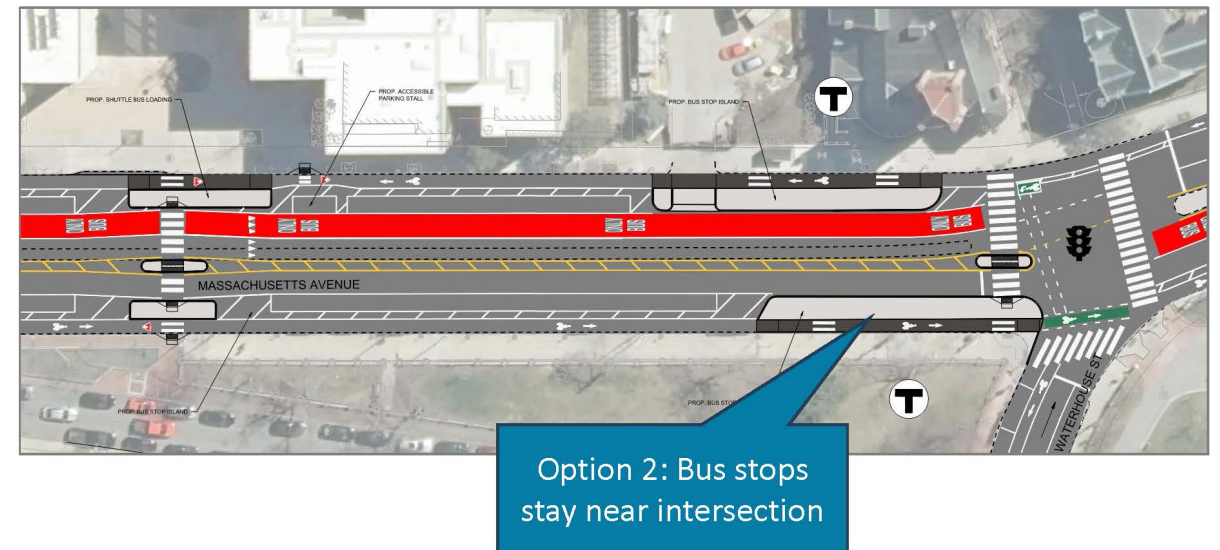
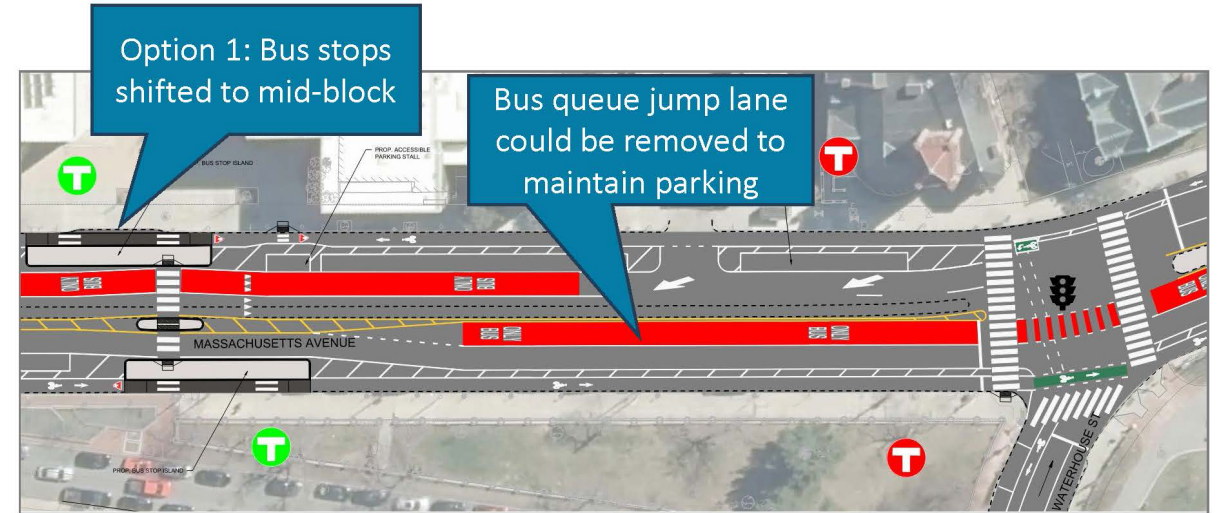
Issues

- Long distance between crosswalks
- Bus stop operations

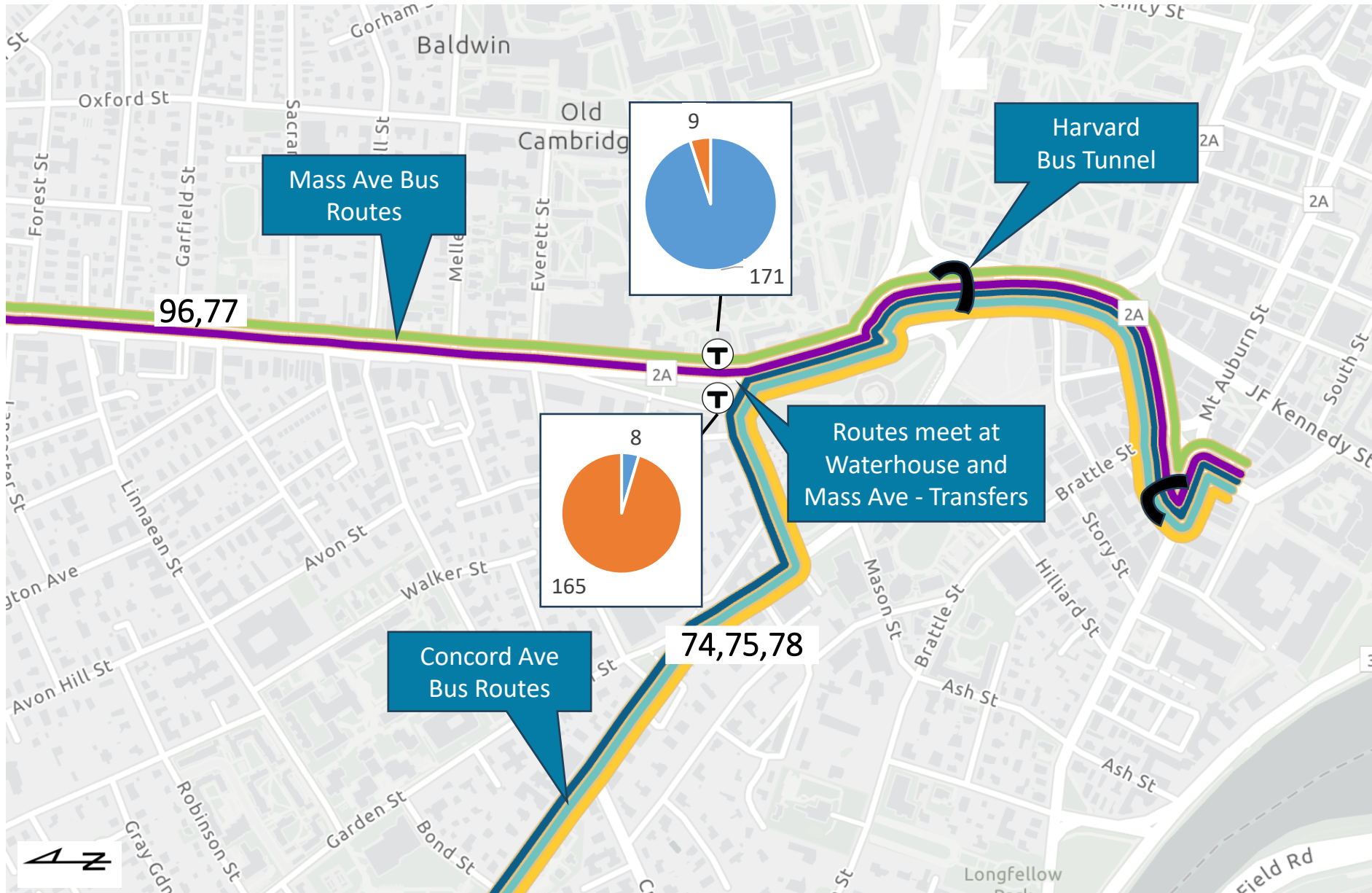
Draft Recommendations

- Potential mid-block crosswalk
- Bus stops near potential mid-block OR closer to Waterhouse?*
- Potential southbound bus queue jump lane

*Coordination with MBTA ongoing



Bus Routing - Waterhouse to Bus Tunnel



Daily Weekday Ridership (2022)

- Riders getting off the bus
- Riders getting on the bus



Chauncy/Everett to Waterhouse

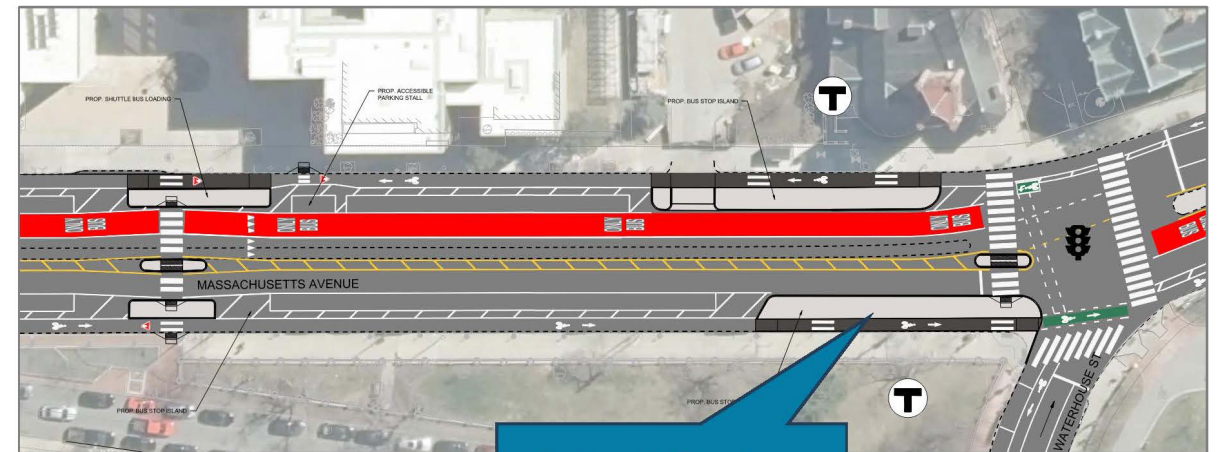
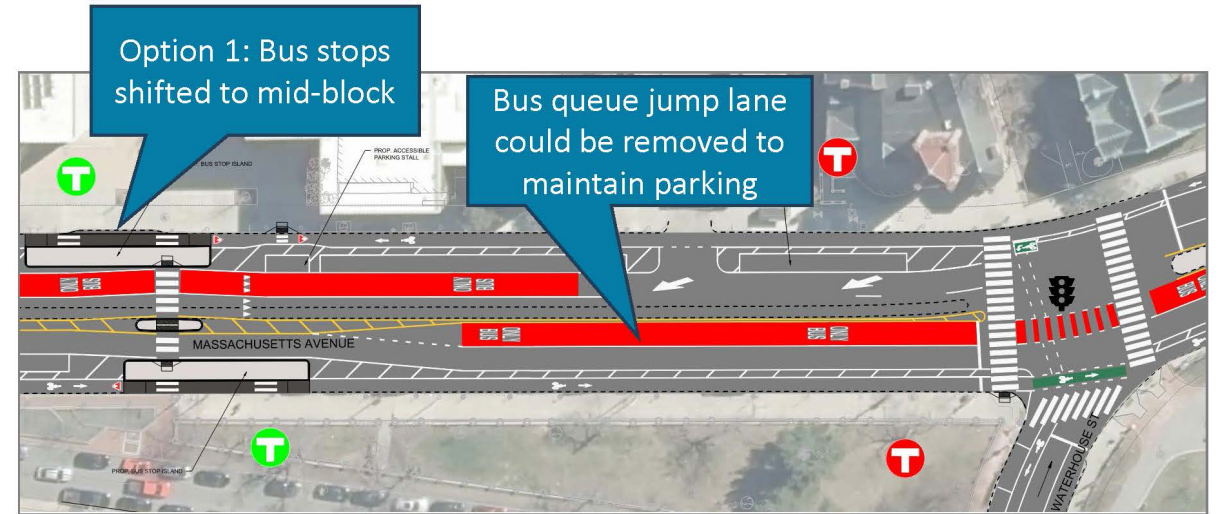
Working Group Feedback

- Bus stops at Waterhouse benefits from signalized pedestrian crossing
- Support for pedestrian crossing islands
- Consider treatments to reduce speeding in southbound direction
- Support for on-street parking on northbound side



NEXT STEP

Ongoing coordination and discussion



Next Steps



Expected Timeline and Next Steps

November

- **Joint transportation committee**
- **Business 1:1 conversations**

December

- **Community Open House 12/5**
- **Stakeholder outreach**

Winter 2024

- **Concept development for Porter Square and segments North**
- **Working Group #4**



Questions?

Please reach out to our Project Team at

Email: MassAve4@Cambridgema.gov

Webpage: cambridgema.gov/massavepartialconstruction

