



# MassAve4

## Recommendation for Implementation of Separated Bike Lanes

City of Cambridge, Massachusetts



April 2022

# Overview

The Cycling Safety Ordinance identifies four segments of Massachusetts Avenue where installing separated bike lanes is challenging due to unique complicating factors, which include significant underground utilities, major bus stops, a center median, and the MBTA's overhead bus wires.

The four segments, collectively referred to as the MassAve4 project, are defined as follows:

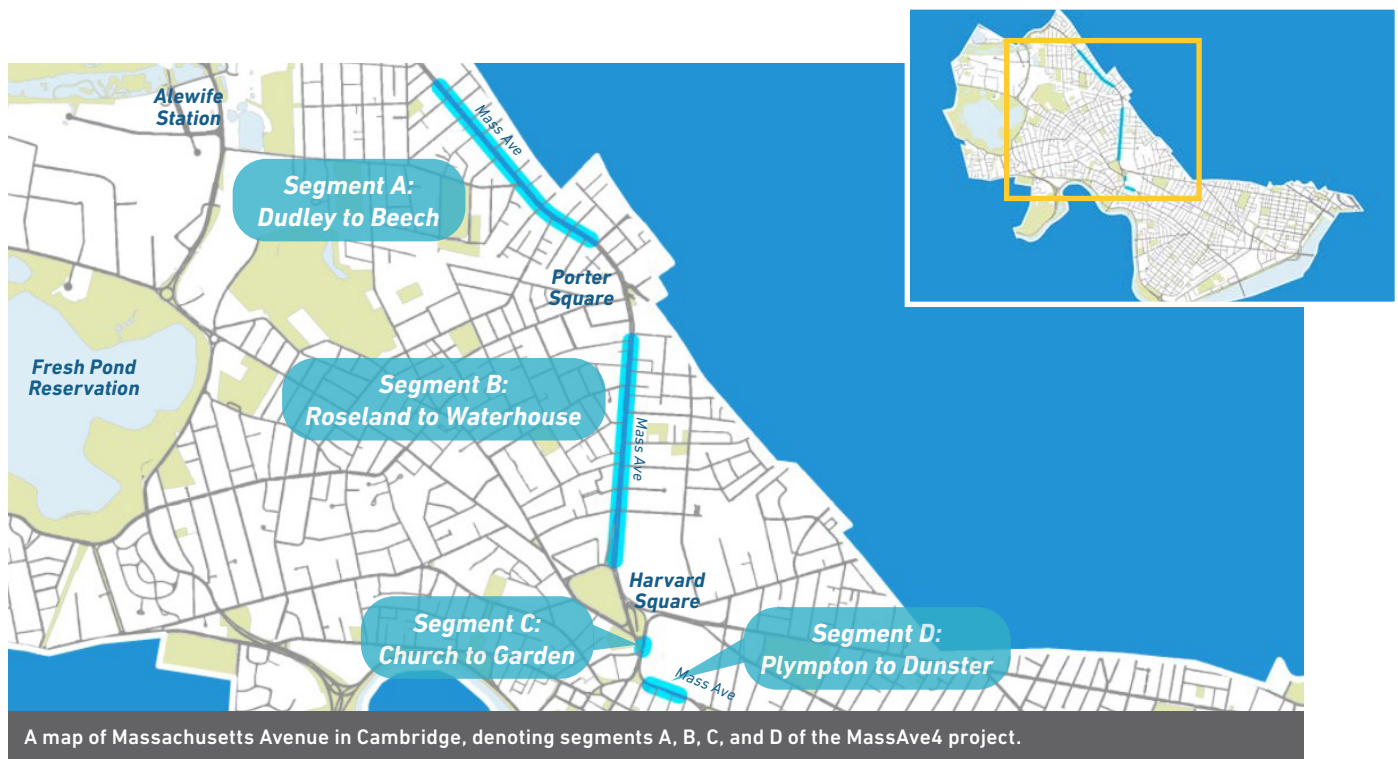
- Dudley Street to Beech Street (A);
- Roseland Street to Waterhouse Street (B);
- Church Street to Garden Street (C); and
- Plympton Street to Dunster Street (D).

The City published an impact analysis on the MassAve4 project in April 2021. This City Council report summarizes the continued analysis and community engagement completed since the initial MassAve4 impact analysis. It evaluates potential street layouts, and the resulting recommendations, estimated costs, and proposed timelines for implementation. The Cycling Safety Ordinance (CSO) requires the City Council to approve the recommended approach and timeline by May 1, 2022.

## Mass Ave Segments

**Segments A & B** include overhead wires that power trolley buses and provide access to the MBTA's bus facility at the north end of the study area. These overhead wires cause access issues for the Fire Department, as separated bike lanes with parking would no longer allow fire trucks to set up under the wires as they do today. The existence of a center median in these segments also presents challenges for emergency response vehicles traveling down the corridor and limits the ability for travel lanes to be removed in order to provide parking regardless of whether the overhead wires are removed.

**Segments C & D** include busy bus stop areas in Harvard Square where several MBTA bus routes, as well as Harvard and MASCO shuttles, pick up and drop off passengers. Several buses also need to layover or wait between their last stop and first stop at these locations. As a result, the typical quick build solutions used at less busy bus stops are not appropriate.





# Mass Ave: Segments A & B

Dudley Street to Beech Street (A) & Roseland Street to Waterhouse Street (B)

In Segments A and B, Mass Ave generally features two travel lanes in each direction, painted bike lanes, parking, and a concrete median. These segments also include overhead bus wires that provide power to trolley buses that travel Mass Ave to access the MBTA bus facility at Dudley Street. In order to allow for construction activity for projects in Cambridge and Watertown, the MBTA has de-energized the overhead wires along Mass Ave and other streets for five years. Strategies are currently under development to ultimately remove the wires and replace the trolley buses with battery electric buses, however, the timeline for the removal of the wires is not yet finalized.

Mass Ave is an important multimodal street for regional, commercial, and local trips. Approximately 1,100 bicyclists use the Mass Ave corridor during peak periods. Currently, these segments of Mass Ave serve three bus routes, providing service to up to 5,700 weekday passengers. These routes experience significant delay during peak hours, as well as during other hours of the day. Several intersections along

these segments of Mass Ave feature traffic signals to help facilitate pedestrian crossings and movements from side streets. Many of these traffic signals are located on the median. There are also crosswalks that are controlled by pedestrian activated flashing beacons, where the median serves as a crossing island, providing a safe place for pedestrians to wait after crossing two lanes of traffic. Some intersections also provide dedicated vehicle turn lanes where additional vehicular capacity may be required.

The curb lane serves different purposes along the corridor, including parking, commercial loading, bus stops, and outdoor dining. These existing curbside uses support the small businesses along Mass Ave as well as the surrounding neighborhood. Mass Ave is also a critical utility corridor, providing services for residents and businesses along Mass Ave and the broader neighborhood and community. Construction impacts associated with different design alternatives and opportunities for utility improvements were explored at a high level to help evaluate options.



Fire access constraints due to overhead wires.

# Mass Ave: Segments A & B

Dudley Street to Beech Street (A) & Roseland Street to Waterhouse Street (B)

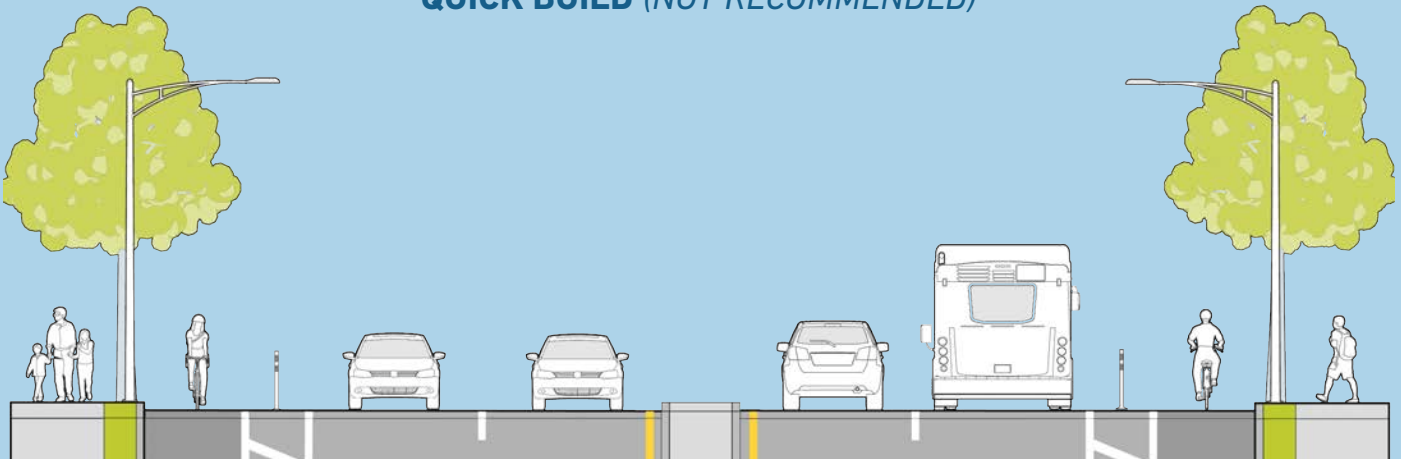
Three levels of construction were evaluated for Segments A & B of Mass Ave. **Quick build** maintains all existing sidewalks and medians, and implements separated bike lanes with paint and flex post barriers. **Partial construction** would remove the center median – except at key pedestrian crossing locations – and sidewalks would remain as they are today. **Full construction** involves reconstructing all of the street infrastructure, including sidewalks and underground utilities, and provides the opportunity to construct sidewalk level separated bike lanes, where feasible.

If the median and overhead wires are removed, parking could be provided on one side of the corridor, but there is not enough space to provide parking

on both sides while maintaining two travel lanes in each direction. Parking could change sides along the corridor where needed. The exact location of parking, commercial loading, and outdoor dining will be determined in later stages of design. Opportunities to provide additional parking on side streets will also be explored during future project stages.

Potential impacts related to utilities, signals, and curbside uses were examined at a high level for each construction scenario to help compare and evaluate options. A summary of the three construction scenarios and their impacts is provided below.

## QUICK BUILD (NOT RECOMMENDED)

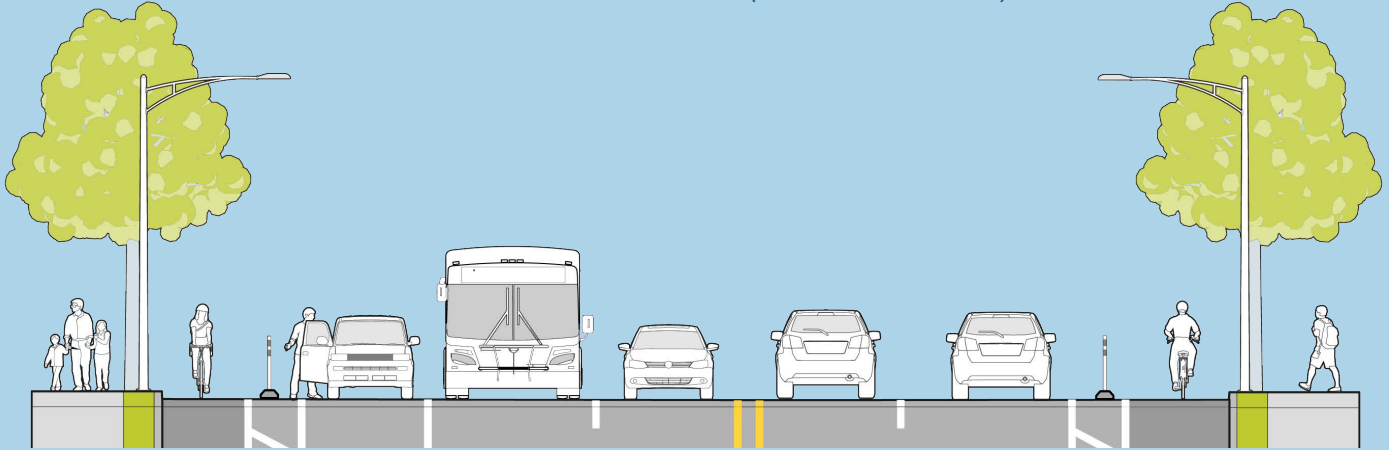


- Flex-post bike lane separation
- 0-5% parking maintained (accessible spaces only)
- Can accommodate dedicated bus lanes

- Lowest impact on utilities
- Shorter implementation timeline (1-2 years)
- Lower overall cost (< \$2 million)

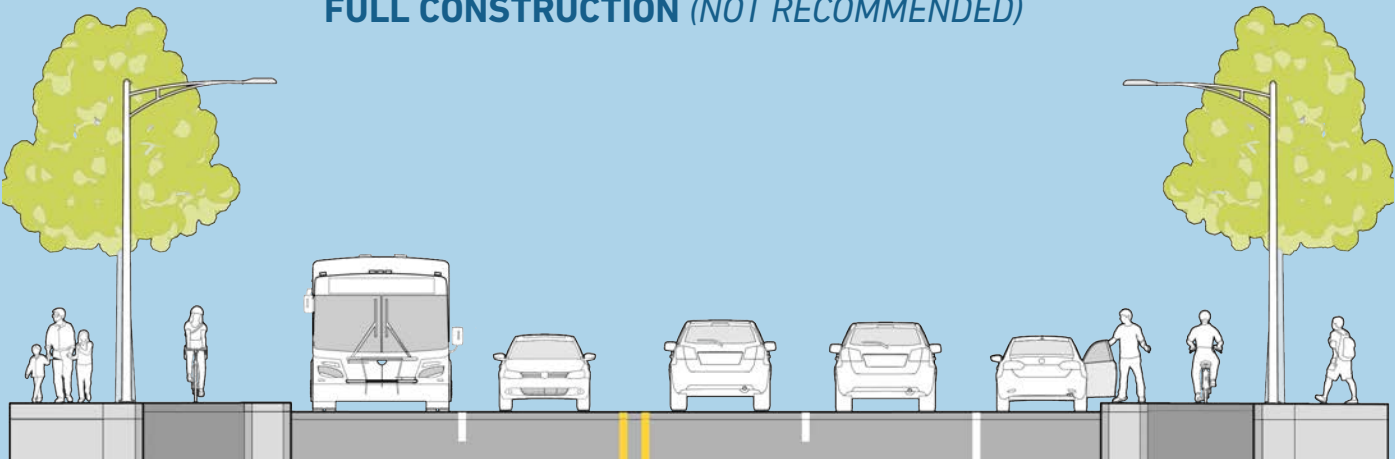


## PARTIAL CONSTRUCTION (RECOMMENDED)



- Flex post or curbed bike lane separation
- Median removed, but upgraded at pedestrian crossings
- Can accommodate dedicated bus lanes and improvements at bus stops
- Upgrades to affected utilities
- No sidewalk upgrades or reconstruction, except for accessible curb ramps
- 40-50% parking possible to maintain on one side of the street if overhead wires are removed
- Medium implementation timeline (4-6 years)
- Medium cost (approximately \$40 million)

## FULL CONSTRUCTION (NOT RECOMMENDED)



- Opportunity to provide raised separated bike lanes
- Median removed but upgraded at pedestrian crossings
- Sidewalk reconstruction and new plantings/amenities
- Can accommodate dedicated bus lanes and other transit improvements
- Major utility upgrades
- 40-50% parking possible to maintain on one side of the street if overhead wires are removed
- Longer design and implementation timeline (up to 10 years)
- Higher cost (\$100s of millions)

# Mass Ave: Segments C & D

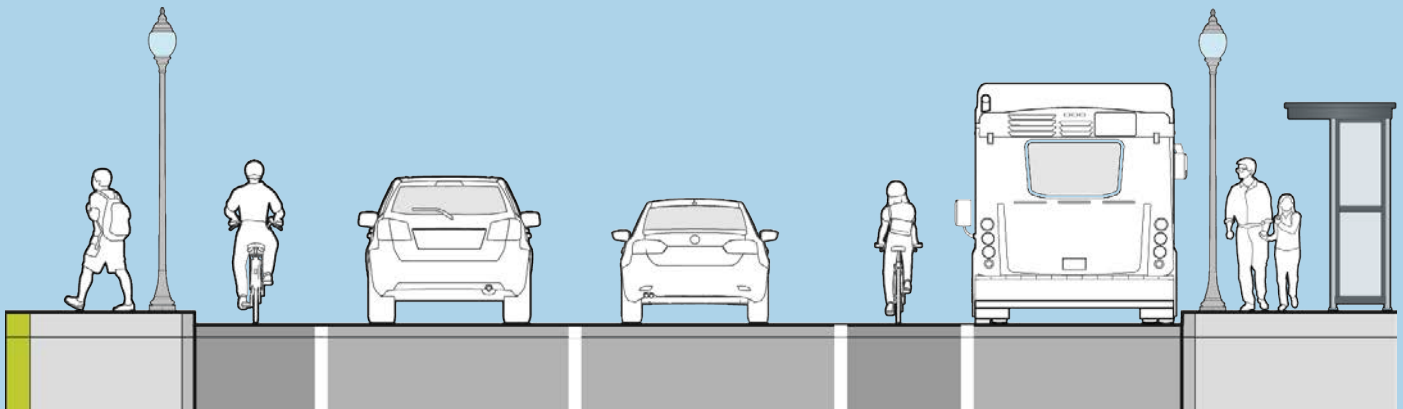
Church Street to Garden Street (C) & Plympton Street to Dunster Street (D)

Several MBTA bus routes and shuttles servicing Harvard and the Longwood Medical Area use the existing stops at Johnston Gate and Holyoke Street. Over 2,800 MBTA bus riders use the Holyoke stop on weekdays. The majority of riders exit the bus here, while bus operators wait to start return trips to Kendall, Lechmere, or Nubian Square in Boston. Approximately 800 passengers use the Johnston Gate stop daily, most of whom are using this stop to board the bus. The existing bike lanes in this area are located between the travel lanes and the areas where buses pull over to service stops.

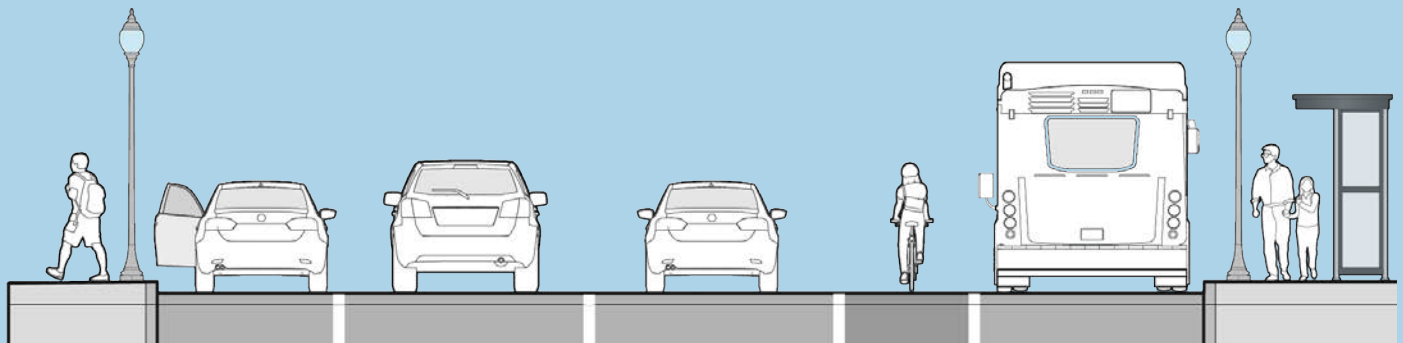
Two levels of construction were evaluated for Segments C & D of Mass Ave. **Quick build** bike lanes use paint and flex posts to provide separation,

however, buses share space with bikes at bus stops. Options to utilize temporary bus islands to expand bus stop areas past the curb present accessibility and maintenance challenges and would not accommodate the high number of bus riders and bicyclists in these areas. They may also conflict with existing utilities and are therefore not preferred.

**Full construction** will allow for bike lanes to be raised to sidewalk level and for bus stop islands to be placed next to the curb to reduce conflicts between bicyclists and boarding or alighting passengers at each stop.



*Existing Conditions: Church Street to Garden Street*



*Existing Conditions: Plympton Street to Dunster Street*

# Mass Ave: Segments C & D

Church Street to Garden Street (C) & Plympton Street to Dunster Street (D)

Due to heavy bus stop activity and the need for bus layovers, quick build bike lanes are not recommended for Segments C & D. **Full construction is recommended for Mass Ave between Plympton Street and Garden Street**, as highlighted below, to ensure

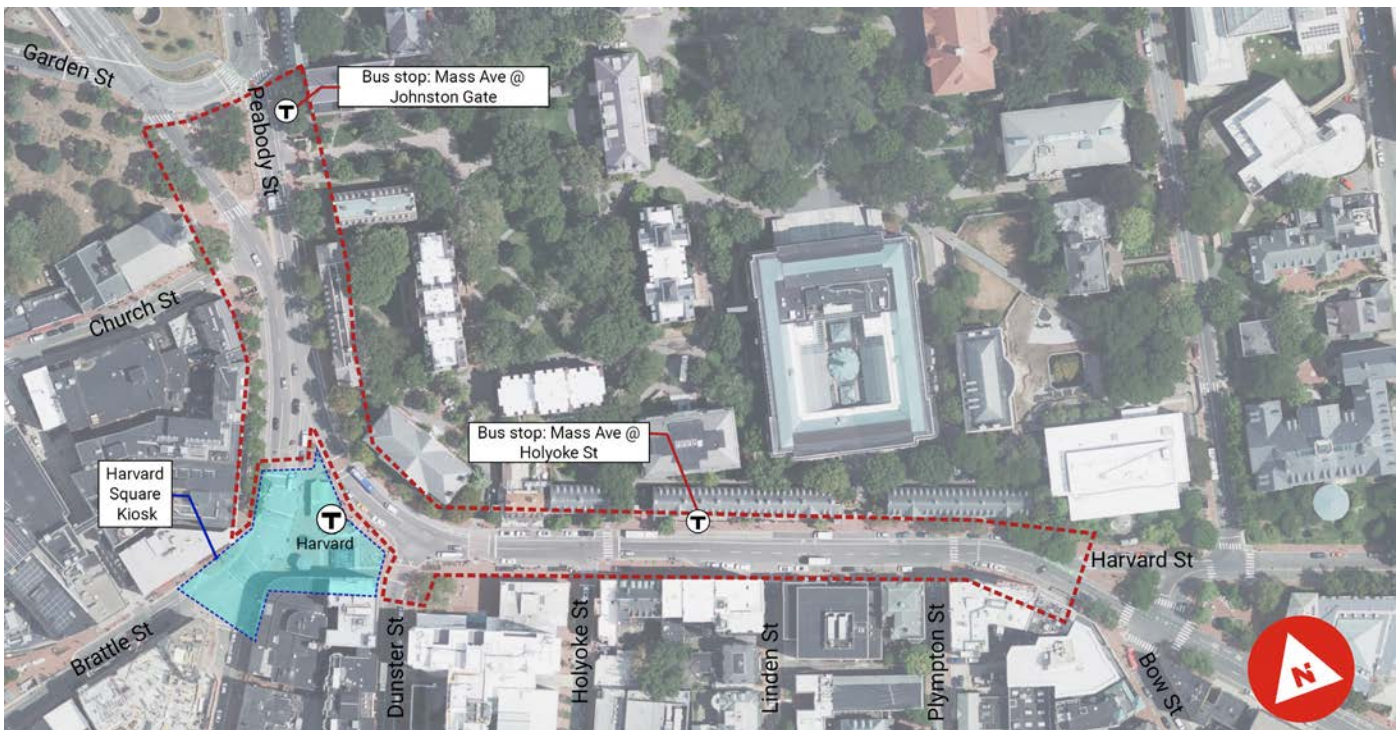
continuity between the bus stops and to provide safe and comfortable facilities for all users. This is estimated to cost approximately \$15 million.



An example of a quick-build shared bike lane and bus stop. (Not Recommended)



An example of a full construction bus boarding island with raised bike lane. (Recommended)



The proposed Segment C & D project area, highlighting the Harvard Square Kiosk, a major civic space, and key bus stops.



# Community Engagement & Feedback

## Public Engagement - Phase 1

To provide information and obtain feedback on Segments A&B of the MassAve4, the City used a multi-pronged strategy involving both digital and in-person outreach in November 2021.

### Project Summary Video

### Four In-Person Pop-Up Events

### Online Survey

### Questions/Comments via Email

Common themes and topics of interest from the community included:

- Expand separated bike lanes on Mass Ave;
- Provide short-term and customer parking for businesses;
- Remove the center median to provide additional design flexibility; and
- Improve the experience for people walking and taking the bus.

**"Crossing Mass Ave is extremely frightening"**

**"Please... retain parking to help small businesses survive"**

**"I love all the shops and restaurants"**

**"Consider the needs of ... elderly and disabled in the area"**

**"I love seeing people walk around and eat outside"**

**"Bike travel is much more dangerous than it should be"**

**"We need separated bike lanes"**

**"Parking for us will be challenging if taken away"**



November 2021 Pop-Up Engagement Event

## Public Engagement - Phase 2

Draft recommendations were shared with the community for all four segments of MassAve4 in March 2022 to gather additional feedback and gauge support for the proposed design direction.

### Presentation to Joint Bike, Ped, Transit Committees

### Two Virtual Community Meetings

### In-Person Pop-Up Event

### Online Survey

### Questions/Comments via Email

Across multiple engagement formats, the following emerged as common themes:

- Public support for the draft recommendations, as they:
  1. Meet the goals of the Cycling Safety Ordinance
  2. Improve multimodal safety
  3. Preserve loading and short-term parking for local businesses
- Specific design concerns will be addressed in the next project phase. The public emphasized the importance of the following elements:
  1. Providing parking to support local businesses
  2. Improving bike and pedestrian infrastructure
  3. Balancing the needs of all modes of travel when implementing separated bike lanes



March 2022 Pop-Up Engagement Event

# Recommended Approach

## Segments A & B

Partial Construction is recommended for Segments A & B, as it best meets the needs of the community while also offering a shorter implementation timeline than full construction.

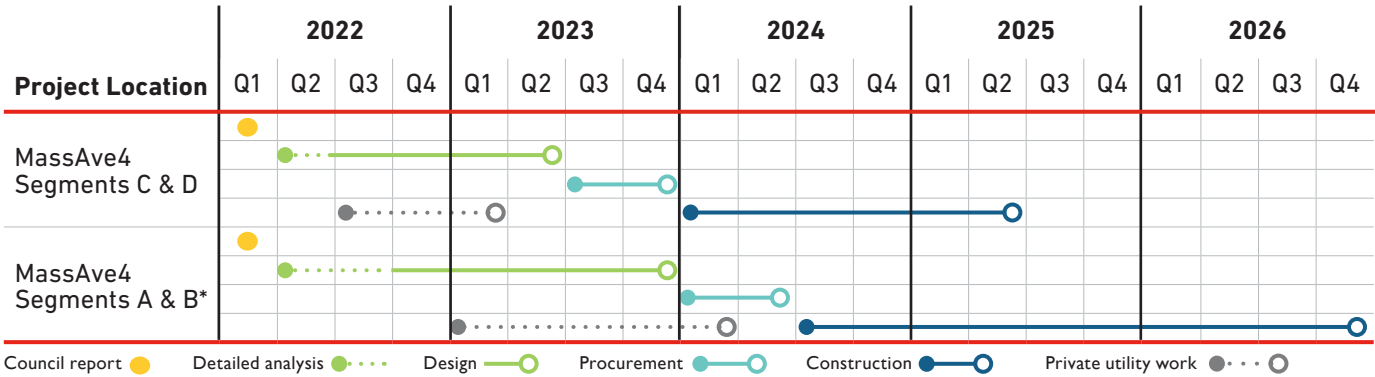
Some small segments in constrained areas may require full construction such as the Walden Street intersection, which has been considered in the proposed cost and timeline estimates.

## Segments C & D

Full Construction is recommended between Plympton Street and Garden Street to provide safe and comfortable facilities for all users through these high volume bus stop areas.



# Estimated Implementation Timeline



\*Construction timeline may involve multiple contracts, with phasing to be informed by scope of construction and impacts to the community

Pending City Council approval, the MassAve4 segments will proceed into the design stage to determine the design specifics for each segment. The community will have multiple ways to provide feedback on the segment designs through engagement opportunities such as pop-up events and community meetings. Implementation will be phased along with other major construction projects in the city to reduce disruptions during construction.

The schedule and cost estimates provided in this report are based on the information available at this time. Detailed construction phasing will be further developed as the design progresses and we understand more about the scope of the improvements and impacts on utilities.

# Attachments

1. **NOVEMBER 2021 - PROJECT SUMMARY VIDEO SLIDE DECK (SEGMENTS A & B)**
2. **NOVEMBER 2021 - ENGAGEMENT SUMMARY**
3. **MARCH 3, 2022 - PUBLIC MEETING SLIDE DECK (SEGMENTS A & B)**
4. **MARCH 10, 2022 - PUBLIC MEETING SLIDE DECK (SEGMENTS C & D)**
5. **MARCH 2022 - ENGAGEMENT SUMMARY**





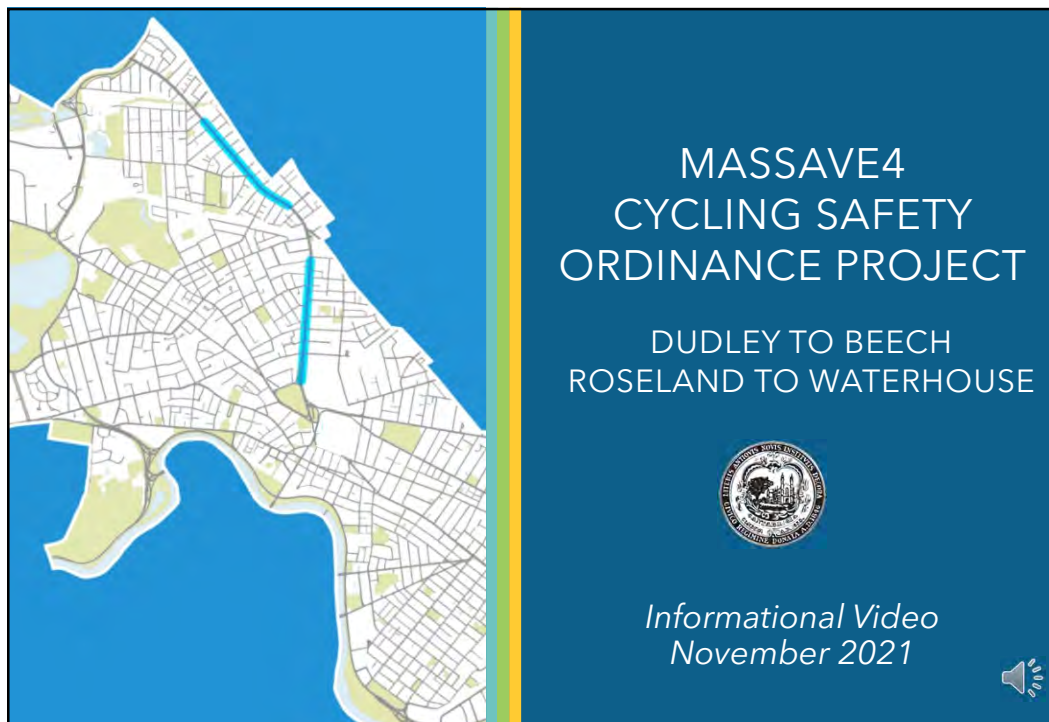
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**NOVEMBER 2021**

**PROJECT SUMMARY VIDEO**

**SLIDE DECK (SEGMENTS A & B)**



01



1

## Purpose of Video

- This video will share:
  - Where we are in the process of evaluating the MassAve4 - segments of Mass Ave with complicating factors
  - The project timeline as it relates to the Cycling Safety Ordinance requirements
  - The range of design possibilities as well as associated implementation considerations of each
  - How to provide feedback to the project team



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# What drives our street design?

## Many policies and plans are foundational to our work

- Cycling Safety Ordinance, Vehicle Trip Reduction Ordinance, Cambridge Growth Policy, Complete Streets Policy, Vision Zero Policy, Climate Protection Plan and others

## We design for people of ALL ages and abilities. This means including:

- People who many not have access to a car
- Safe and accessible bike lanes that can be used by a wide range of people
- Streets that are safe and accessible for all abilities

## Focus is on moving people and goods, not their vehicles

- Buses run less frequently than cars and carry more people
- Cannot ignore access for trucks and local deliveries

## How we think about vehicle congestion and delay

- Moving people slowly is moving people safely
- We do not prioritize eliminating delay for people driving alone



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# Project Background

- Cambridge Cycling Safety Ordinance (CSO) requires separated bike lanes along Mass Ave
- For MassAve4 - by April 30, 2022 the City must:
  - Present analysis on which sections can be quick-build or construction
  - Obtain approval from the City Council on a construction timeline for separated bike lane sections not recommended for quick-build
- Any sections recommended for quick-build must be installed by April 30, 2023
- If a timeline is not approved by the City Council for sections recommended for construction, those sections must be quick-build and installed by April 30, 2024



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## Project Background

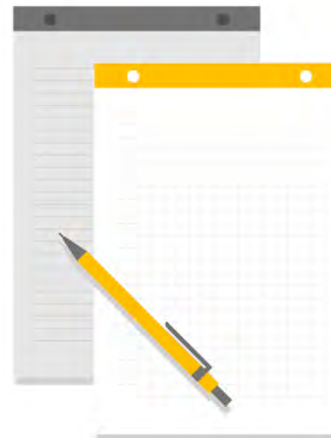
- Four segments of Mass Ave have major constraints
- City released MassAve4 Impacts Analysis report in April 2021
- Report reviewed options for quick-build separated bike lanes only



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## Current Status

- Based on impact analysis results, a new study is under development to:
  - Identify potential quick-build and reconstruction options to meet Cycling Safety Ordinance
  - Evaluate corridor impacts
  - Estimate probable construction costs
  - Establish a construction implementation timeline for approval by the City Council



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## Project Limits

- Segments of Mass Ave include:
  - Dudley Street to Beech Street
  - Roseland Street to Waterhouse Street
- These segments include where there are overhead bus wires to power trolley buses



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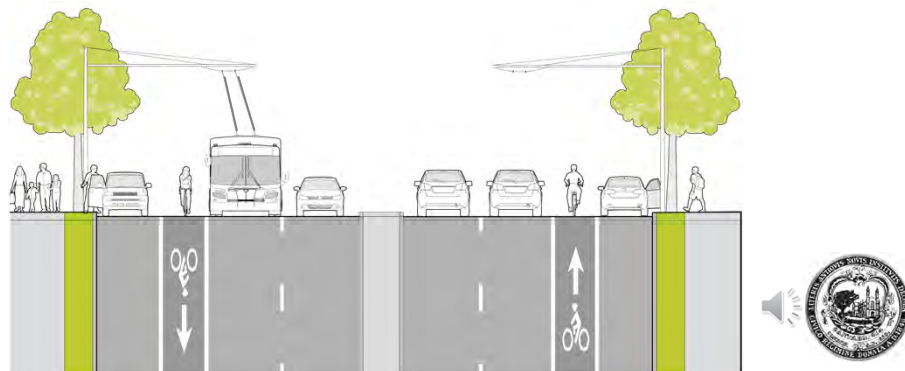
## Existing Conditions



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## Existing Roadway Configuration

- Includes two travel lanes, painted bike lanes, and parking on each side as well as a concrete median
- Overhead bus wires run along the outside (right) travel lanes to allow trolley buses to access the MBTA garage. These 600-volt overhead wires constrain the ability to do construction, and create challenges for fire access



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## Fire Access

- Ladder truck's position in relation to the overhead bus wires
  - Ladder truck is set up in bike lane as close to the curb as possible
  - Allows the ladder to be safely positioned under the overhead bus wires and reach all levels of multi-story buildings
  - Under certain fire conditions, the ladder truck is also used to provide aerial roof access to lower story buildings



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## Existing Utilities

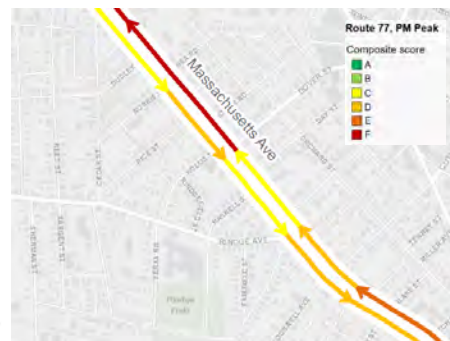
- Public Utilities
  - Cambridge sewer and stormwater mains of varying sizes (10 to 36-inch diameter) with many sections over 100 years old
  - Cambridge water mains of varying sizes (6 to 12-inch diameter) with many sections over 100 years old
  - Cambridge electrical and traffic signal infrastructure
  - Large diameter MWRA water main (48-inch)
  - MBTA power duct bank
- Private Utilities
  - Eversource Electric
  - Eversource Gas
  - Verizon
  - Comcast
  - Other telecommunication infrastructure



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## Traffic & Transit Operations

- Mass Ave is an important transportation network connection for local and regional traffic
  - Approximately 21,500 daily vehicular trips
- Mass Ave is an important route for cyclists
  - 1,100 bicycle trips during peak periods
- Served by MBTA bus routes 77, 83, and 96
  - Approximately 1,900 - 2,500 public transit riders per day on these three bus routes
  - Currently experiences significant transit delays throughout the day



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# Intersection Controls + Crossings

- Dudley Street to Beech Street:
  - Six signalized intersections
  - Two crosswalks with flashing beacons
- Roseland Street to Waterhouse Street:
  - Six signalized intersections
  - One crosswalk with flashing beacons



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# Curbside Uses

- Available space along the curb is used for many different purposes including:
  - Short-term parking
  - Loading
  - Bus stops
  - Accessible parking
  - Outdoor dining
  - Taxi stands



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## Land Uses

- Many different adjacent land uses with various curbside needs
- Mix of residential, commercial, and institutional uses
- Consider potential future redevelopment needs
- Consider additional challenges for fire access with taller buildings



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## Design Opportunities



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## Quick-Build

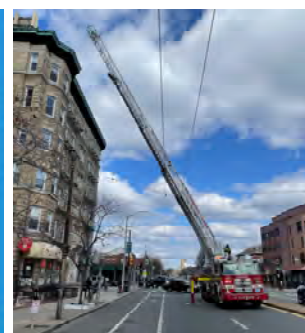
- Quick-build projects use pavement markings, flex-posts, signs, and signal changes
- Allow reallocating the roadway space between the existing curbs
- Can be implemented quickly due to no construction



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## Quick-Build Considerations

- Consider retaining parking and removing a travel lane
  - The overhead bus wires create significant challenges
  - Typical floating parking would place a fire truck in what is now the inside (left) lane. This does not allow the ladder to reach all levels of multi-story buildings.

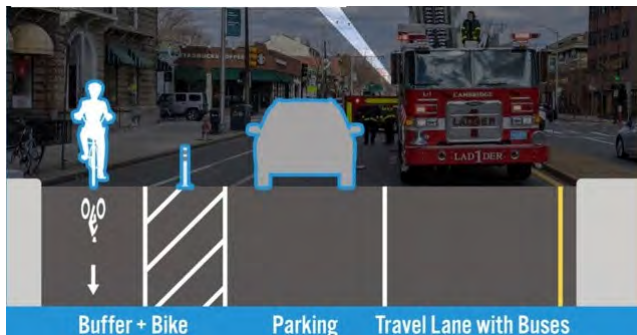


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## Quick-Build Considerations

- Consider retaining parking and removing a travel lane
  - Due to the existing median, a single travel lane would not provide adequate road width for vehicles to move to allow emergency vehicles to pass
  - Significant additional delay for transit



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## Reconstruction

- Construction projects involve more extensive changes such as moving curbs, relocating or upgrading utilities, and incorporating landscaping/green infrastructure
- Would require significant changes to the overhead bus wires
- Allows reconfiguring the right of way space available between buildings



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## Reconstruction Considerations

- Full reconstruction projects offer many benefits, but take years to design and implement
- Consider partial reconstruction options that limit impacts to reduce project timeline
  - Removal of center median while maintaining outside curbs
  - Relocation or removal of conflicting utilities (signal equipment, etc.)
- Would require changes to the overhead bus wires



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## Reconstruction Considerations

- Full and partial reconstruction projects must consider the condition of existing utilities and the impact of construction on those utilities
- Responsibility not to compromise existing utilities
- Opportunity to address deteriorated infrastructure
- Complexity of existing utilities can make "small changes" more complicated than anticipated



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## Quick-Build Opportunities



Separated bike lanes with flex posts



Off-peak commercial loading



Bus only lanes

Costs: \$



23

## Partial Construction Opportunities\*

\* requires significant modifications to the overhead bus wires



Remove portions of center median



Crossing Islands



Parking Protected Separated Bike Lanes

Costs: \$\$ - \$\$\$



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## Full Construction Opportunities\*

\* requires significant modifications to the overhead bus wires



Sidewalk level bike lanes, tree plantings



Sidewalk widening with new trees



Floating bus stops

Costs: \$\$\$\$ - \$\$\$\$\$



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## Opportunities for Input



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## Tell us what you think!

- What do you like/not like about Mass Ave?
- What is your vision for the future of Mass Ave?
- Attend an outdoor engagement event:
  - **St John's Church** (2252 Mass Ave)
    - Saturday November 13, 2-4 PM
    - Monday November 15, 3-6 PM
  - **Cambridge Common** (Waterhouse & Mass Ave)
    - Saturday November 13, 10-12 PM
    - Tuesday November 16, 3-6 PM
- Webpage: [cambridgema.gov/MassAve4A](http://cambridgema.gov/MassAve4A)
- Email the project team at: [kriley@cambridgema.gov](mailto:kriley@cambridgema.gov)





# NOVEMBER 2021

## ENGAGEMENT SUMMARY

# 2021





# Mass4 Project Engagement Summary

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Number of engagement sessions held (two each at St. John's Church and Cambridge Common)

150+

Visitors to engagement sessions that left their name on sign-in sheets

27

Opportunities presented for re-imagining Mass Ave, **ranging** from quick build to full reconstruction

1,300+

Dots placed indicating interest in a specific opportunity on boards presented at engagement sessions

230+

Survey responses filled out and returned between online and paper submissions

90+

Comments placed on tabletop maps of the Mass Ave corridor calling out specific locations of interest

## MassAve4 Engagement – Phase 1 (November 2021)

### Overview

To provide information and obtain feedback on the MassAve4 Cycling Safety Ordinance Project (MassAve4), the City of Cambridge used a multi-pronged strategy involving both digital and in-person outreach. The project website – <https://www.cambridgema.gov/Departments/publicworks/cityprojects/2021/massave4cyclingsafetyordinanceprojectduleytobeach,roselandtowaterhouse> - includes:

- Links to public engagement materials
- An online survey used to obtain feedback
- A 12-minute video providing a comprehensive overview of MassAve4
- Contact information for a City representative

Some of this information was also available on a flyer that was distributed in the project area and which advertised the engagement events that took place in November 2021. These engagement events took place at two locations – St. John’s Church at 2252 Mass Ave, and on the Cambridge Common at Waterhouse Street and Mass Ave – on Saturday, November 13<sup>th</sup> (both locations), Monday, November 15<sup>th</sup> (St. John’s only) and Tuesday, November 16<sup>th</sup> (Cambridge Common only). Visitors to the events had several opportunities to learn about MassAve4 and provide feedback. They could:

- Speak with City officials and project team members
- View project opportunities, displayed on a tabletop map and poster boards, and provide feedback by indicating interest with a sticker or a written comment
- Fill out and return paper copies of the project survey (these responses were later uploaded to be included along with the digital responses)

The posters grouped opportunities into the following categories:

- Quick-build (no construction or changes to the curb)
- Partial-build (some construction, such as removal of the median or interventions regarding the overhead wires)
- Full reconstruction (construction/changes to the curb involved)

After the first day of engagement, it was determined an additional board relating specifically to parking would be beneficial, and this board was available at the final two sessions on Monday and Tuesday.

### Key Findings

The majority of recorded feedback received, by volume, was via the dot stickers placed on poster boards. While the color of these dot stickers was not intended to have meaning, some participants indicated that they used red dots to indicate they opposed something and green dots if they supported something. As such, the number of dots placed next to each opportunity is not necessarily a good measure of support, but rather of interest, whether positive or negative.

### Takeaways from Boards

- Bike lanes generated the most interest



THE TWO MOST PROMINENT THEMES FROM THE PUBLIC ENGAGEMENT RESULTS ARE IMPROVING INTERMODAL SAFETY AND PRESERVING ACCESS TO LOCAL BUSINESSES, SEEN AS THE HEART OF MASS AVE. A DESIGN MUST INCORPORATE THESE THEMES, BALANCING THE NEEDS ACROSS DIFFERENT MODES, AS DRIVING, WALKING, BIKING AND TAKING TRANSIT ARE ALL COMMON.



- Customer and short-term parking received the most dots of any parking categories
- Transit- and utility-focused opportunities received relatively less interest

#### Takeaways from Map Comments

- Numerous crosswalks and areas of the existing bike lane were identified as dangerous
- The most noted specific location is the area of westbound Mass Ave near Walden where the bike lane disappears
- General comments indicated:
  - Support for keeping parking for businesses;
  - Support for separated bike lanes; and
  - Concern for the ability of the street to serve the elderly and disabled

#### Takeaways from Surveys

Multiple choice survey questions asked respondents how they traveled on and otherwise used Mass Ave, while open-ended questions asked about favorite aspects of Mass Ave, challenging locations, and locations that work well. There was also a fully open-ended question where respondents could leave additional comments. Multiple choice questions were sorted by answer, while open-ended responses were analyzed and placed into categories based on the general concern of the comment (and not necessarily whether the comment was in support or opposition).

- Driving and walking were the most popular modes, at 78% and 76% respectively, with biking third at 50% of respondents
- The most popular other uses of Mass Ave were overwhelmingly shopping and dining, at 86% and 84% respectively
  - This sentiment was echoed in the open-ended responses to “favorite thing on Mass Ave,” where 81% mentioned something related to shopping or business
- Biking was the most common topic referenced for both what is challenging on Mass Ave and what works well on Mass Ave. In general, respondents found areas without separated bike lanes challenging and found areas with separated bike lanes to work well.
- In the remaining survey questions, the most common responses discussed aspects of biking, specific intersections, or walking/pedestrian infrastructure

#### Common Themes

Across the multiple engagement formats, the following topics emerged as key themes:

- Bike lanes
- Parking for businesses
- Improving pedestrian infrastructure, specifically at crosswalks

#### Attachments

Attached is the flyer advertising the engagement events, which includes links to the project website. The survey is available on the project website and through this link: <https://www.surveymonkey.com/r/MassAve>

Also attached is the handout that was distributed at the events and which includes the paper version of the survey that respondents could complete and return, or scan the QR code to complete electronically.



**Photos of Mass 4 Engagement Events**  
*Pop-Up Location: Cambridge Common*

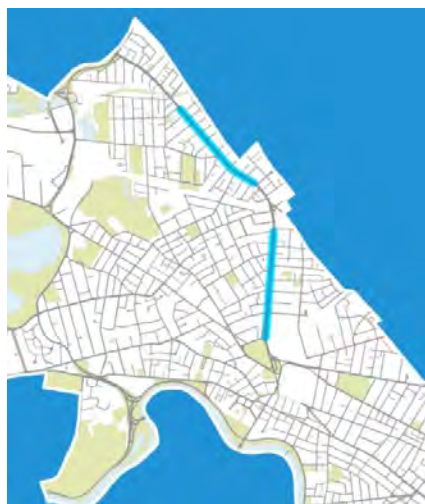




**Photos of Mass 4 Engagement Events**  
*Pop-Up Location: St. John's Church*







# MASS AVE IMPROVEMENTS

Dudley to Beech

Roseland to Waterhouse

## POP UP ENGAGEMENT

The City is committed to implementing separated bike lanes on Mass. Ave. to improve safety, consistent with the [Cambridge Bike Plan](#) and the [Cycling Safety Ordinance](#).

For these two sections of Mass. Ave., City staff must get Council approval by the end of April 2022 on a timeline for implementing separated bike lanes. The implementation could include a combination of quick-build and construction.



## TELL US WHAT YOU THINK!

See below for ways to learn more about the evaluation of options for providing separated bike lanes; other improvements that can be implemented; and provide your feedback.

Visit the City's <a href="#">project website</a> via the QR Code above to watch a video presentation	Live Friday, November 12, 2021
Attend a pop up event to learn about the project, ask questions and provide feedback  <b>St. John's Church,</b> 2252 Mass Ave Hollis & Mass Ave  Cambridge Common, Waterhouse & Mass Ave	<p>Saturday, November 13 10-12PM Monday, November 15 3-6 PM</p> <p>Saturday, November 13 2-4 PM Tuesday, November 16 3-6 PM</p> <p>Check the website for rain dates in case of inclement weather</p>

For more information about the project, visit the website via the QR Code above. Questions or comments? Contact [kriley@cambridgema.gov](mailto:kriley@cambridgema.gov) or 617-349-4870

*The City of Cambridge does not discriminate on the basis of disability. The City will provide auxiliary aids and services, written materials in alternative format and responsible modifications in policies and procedures to qualified individuals with disabilities upon request given 48-hour notice.*



# MASS AVE IMPROVEMENTS

## Dudley to Beech

## Roseland to Waterhouse



### PROJECT OVERVIEW



The City is committed to implementing separated bike lanes on Mass. Ave. to improve safety, consistent with the [Cambridge Bike Plan](#) and the [Cycling Safety Ordinance](#).

For these two sections of Mass. Ave., City staff must get Council approval by the end of April 2022 on a timeline for implementing separated bike lanes. The implementation could include a combination of quick-build and construction.



Take a comment form or use the QR code to visit the website and take the survey online

---

HOW DO YOU TRAVEL ON MASS AVE?

Walk | Bike | Drive | Bus | Other

HOW ELSE DO YOU USE MASS AVE?

Live | Work | Shop | Dine Out | Other

WHAT IS YOUR FAVORITE THING ON MASS AVE?

ARE THERE LOCATIONS YOU FIND CHALLENGING?

ARE THERE LOCATIONS YOU THINK WORK ESPECIALLY WELL?

DO YOU HAVE ANY OTHER COMMENTS TO HELP IN CONSIDERING DESIGN OPTIONS?

For more information contact Kate Riley at [kriley@cambridgema.gov](mailto:kriley@cambridgema.gov) or 617-349-4870

# Quick-Build Opportunities

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

## Separated Bike Lanes

Separated bike lanes will be implemented as required by ordinance. In a quick-build scenario, these may be set apart by painted buffers or features like flexible posts

☐

## Transit Facilities

These include transit-only lanes, queue jump lanes, or transit-specific signals

☐

## Off-peak Loading

Regulations can dedicate space for loading for businesses on Mass Ave during the off-peak hours

☐

## Pick-up/Drop-off Zones

Providing spaces for taxis and rideshares to pick up and drop off passengers can keep these uses from encroaching on parking or bike lanes

☐

## Outdoor Dining

Parking spaces can be re-purposed as outdoor dining

☐

# 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

☐

\*Partial build opportunities require significant modifications to overhead bus wires



# Full Reconstruction Opportunities\*

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

## Grade-separated Bike Lanes

Full reconstruction allows for the separation of bikes from vehicles at a different grade

☐

## Center-running Bus Lane

Center-running bus lanes, with bus stop islands located within the roadway, may be possible via full reconstruction

☐

## Transit Amenities

While some improvements can be made to transit amenities, such as shelters, through a partial build, many are only possible with full reconstruction

☐

## Sidewalk Widening

Sidewalk widening provides for additional pedestrian space and amenities like benches and plazas

☐

## Outdoor Dining

Sidewalk cafes and other outdoor dining areas can be planned for expanded sidewalk areas

☐

\*Full reconstruction opportunities require significant modifications to overhead bus wires



# Full Reconstruction Opportunities\*

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

## Green Infrastructure

Green infrastructure uses plants to improve drainage and benefit the environment

☐

## Pocket Parks

Pocket parks are small areas for passive recreation, seating, and green space located within the roadway right-of-way

☐

## Tree Plantings

Beyond green infrastructure, new plantings of shade trees in enlarged tree pits can increase the tree canopy along Mass Ave

☐

## Bicycle Amenities

Amenities for bicycles, such as parking or repair stations

☐

## Comprehensive Utility Upgrade

While some utilities may have to be addressed in a partial build, comprehensive upgrades are only possible in a full reconstruction

☐

\*Full reconstruction opportunities require significant modifications to overhead bus wires



## MASS AVE IMPROVEMENTS

Dudley to Beech

Roseland to Waterhouse



### PROJECT OVERVIEW



The City is committed to implementing separated bike lanes on Mass. Ave. to improve safety, consistent with the [Cambridge Bike Plan](#) and the [Cycling Safety Ordinance](#).

For these two sections of Mass. Ave., City staff must get Council approval by the end of April 2022 on a timeline for implementing separated bike lanes. The implementation could include a combination of quick-build and construction.



Take a comment form or use the QR code to visit the website and take the survey online

HOW DO YOU TRAVEL ON MASS AVE?

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ARE THERE LOCATIONS YOU THINK WORK ESPECIALLY WELL?

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# Parking Opportunities

When you think about parking, what is most important?  
Place a sticker next to the opportunities that are most important.

Accessible Parking

☐

Loading

☐

Pick-up/Drop-off

☐

Customer Parking

☐

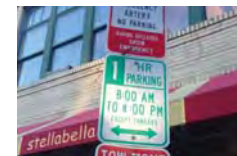
Visitor Parking

☐

Resident Parking

☐

Short-Term Parking  
(1-2 Hours)

☐





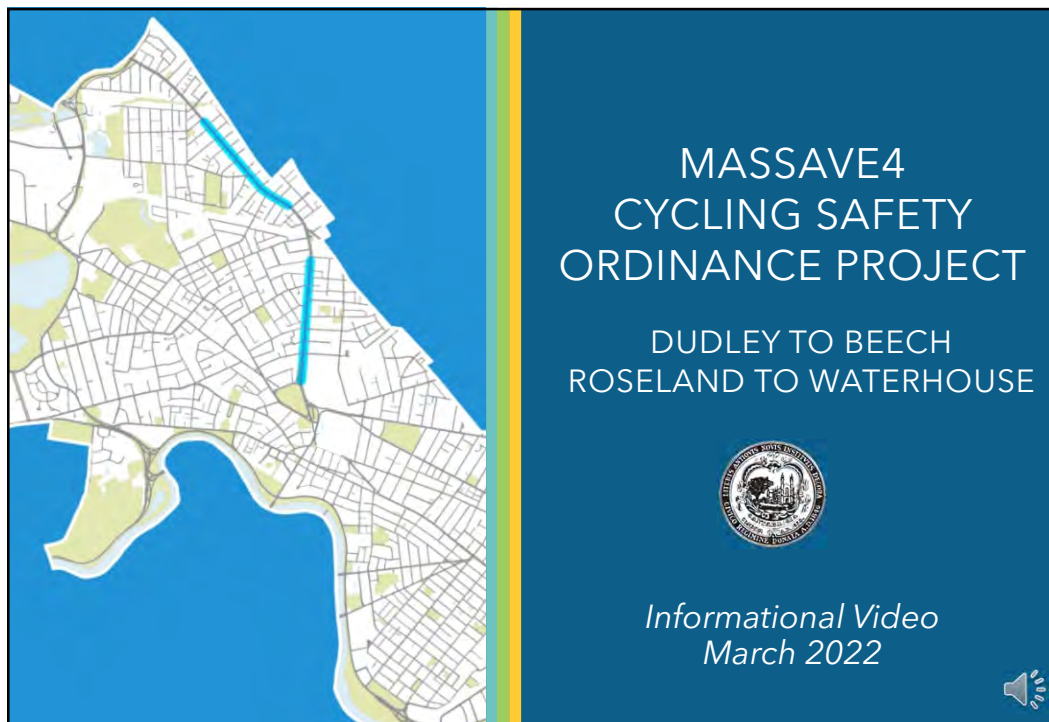
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**MARCH 3, 2022**

**PUBLIC MEETING SLIDE DECK  
(SEGMENTS A & B)**

**03**






1

## Purpose of Video

- This video will share:
  - The project timeline as it relates to the Cycling Safety Ordinance requirements
  - What we heard from the public during engagement events in November
  - The range of cross section possibilities as well as feasibility considerations for each
  - The draft approach to be presented to City Council for consideration
  - How to provide feedback to the project team
  - Next Steps



2

# What drives our street design?

**We design for people of ALL ages and abilities. This means including:**

- People who many not have access to a car
- Safe and accessible facilities, including bike lanes, that can be used by a wide range of people

**How we think about vehicle congestion and delay**

- Moving people slowly is moving people safely
- We do not prioritize eliminating delay for people driving alone

**Many policies and plans are foundational to our work**

- 1) 1992 Cambridge Vehicle Trip Reduction Ordinance, 2) 1993/2007 Cambridge Growth Policy, 3) 2016 Complete Streets Policy, 4) 2016 Vision Zero Policy

**Focus is on moving people and goods, not their vehicles**

- Buses run less frequently than cars and carry more people
- Cannot ignore access for trucks and local deliveries



3

# Why Separated Bike Lanes?

- Fewer crashes
- Eliminates threat of “dooring” from parked vehicles
- Buffer space reduces conflicts between turning vehicles and people biking
- Shorter crossing distances for people walking
- Increased comfort for people biking of all ages and abilities
- Increased comfort for people driving as they know where to expect people biking
- Enables more people to choose cycling as a transportation option
- Supports City’s climate goals



Top Image: Mt Auburn St before a separated bike lane was installed  
Bottom Image: Mt Auburn St after a separated bike lane was installed in 2020



4

## Project Background

- Cambridge Cycling Safety Ordinance (CSO) requires separated bike lanes along Mass Ave
- For MassAve4 - by April 30, 2022 the City must:
  - Present analysis on which sections can be quick-build or construction
  - Obtain approval from the City Council on a construction timeline for separated bike lane sections not recommended for quick-build
- Any sections recommended for quick-build must be installed by April 30, 2023
- If a timeline is not approved by the City Council for sections recommended for construction, those sections must be quick-build and installed by April 30, 2024



5

## Study Area

- There are many installed, planned and ongoing projects along Mass Ave
- This study is reviewing the MassAve4 segments with overhead wires, including:
  - Dudley Street to Beech Street
  - Roseland Street to Waterhouse Street



6



## MBTA Overhead Wires

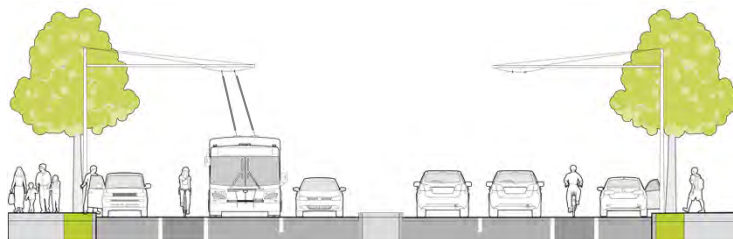
- Overhead wires power trackless trolley buses along Mass Ave
- Overhead wires present design challenges for access to buildings by the fire department
- Design options must ensure no conflicts between ladder trucks and overhead wires



7

## MBTA Overhead Wire Status

- Beginning March 2022, MBTA will de-energize the overhead wires on Mass Ave for five years to accommodate construction projects in Cambridge and Watertown
- MBTA is proposing to convert the trolley buses to Battery Electric Buses (BEBs) and remove the overhead wires. The timeline for removal is currently unknown
- Removing the overhead wires provides significantly more flexibility for design options



8

## Design Opportunities

- Recall the three levels of construction that could be considered:
  1. Quick Build - paint and flex posts, maintain median and sidewalks
  2. Partial Construction - removal of center median, paving and upgrades to affected utilities
  3. Full Construction - median removal, street/sidewalk reconstruction and full utility upgrades



9

## Public Engagement Summary

November 2021



10

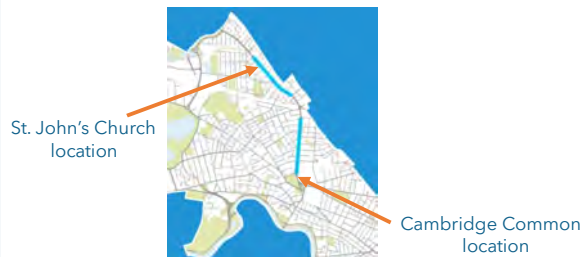
# Public Engagement: Overview

Four pop-up events in November

1400+ recorded comments



200+ survey respondents  
(through 11/30/2021)



11

# Public Engagement: Common Themes

**"Crossing Mass Ave is extremely frightening"**

**"Please... retain parking to help small businesses survive"**

**"I love all the shops and restaurants"**

**"Consider the needs of ... elderly and disabled in the area"**

**"I love seeing people walk around and eat outside"**

**"Bike travel is much more dangerous than it should be"**

**"We need separated bike lanes"**

**"Parking for us will be challenging if taken away"**



12

# Public Engagement Themes

## Quick-Build Opportunities

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

- Separated Bike Lanes**
- Transit Facilities**
- Off-peak Loading**
- Pick-up/Drop-off Zones**
- Outdoor Dining**

## Expand Separated Bike Lanes

## Partial Build Opportunities\*

What would you like to see on Mass Ave?

- Separated Bike Lanes and Floating Parking**
- Bus Stop Improvements**
- Crossing Islands**
- Center Median Removal**
- Upgrading Existing Utilities**

## Full Reconstruction Opportunities\*

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

- Green Infrastructure**
- Pocket Parks**
- Tree Plantings**
- Bicycle Amenities**
- Comprehensive Utility Upgrade**

## Parking Opportunities


When you think about parking, what is most important?  
Place a sticker next to the opportunities that are most important.

- Accessible Parking**
- Loading**
- Pick-up/Drop-off**
- Customer Parking**
- Visitor Parking**
- Resident Parking**
- Short-Term Parking (1-2 Hours)**

## Reconsider the Median


## Improve experience for people walking and taking the bus

## Provide Customer Parking



13

# Option Feasibility Review



14



## Feasibility Considerations

- There are many possible configurations for Mass Ave based on the available space
- For these segments of Mass Ave, special consideration for emergency and fire access is required due to the median and overhead wires
- Other considerations include:
  - Safety for people walking
  - Safety for people biking
  - Transit efficiency
  - Parking/curbside access for businesses
  - Utility impacts
  - Implementation timeline



15

## Infeasible Options

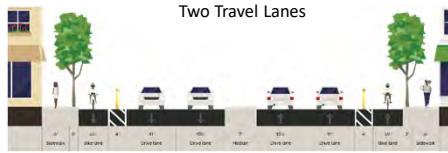
- Several options were reviewed but deemed infeasible and therefore not advanced:
  - Parking along the median
  - Bike or bus lanes along the median
  - Two-way bike lane on one side
  - Wider landscaped median
  - One lane and parking on each side with median
  - Two lanes and parking on each side without median
- These options **do not**:
  - Allow for safe and intuitive use of the street by all users;
  - Allow emergency services to travel down the corridor and access buildings unimpeded; and/or
  - Fit within the available space.



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## Quick-Build Options

### Existing Median Maintained



#### FEASIBLE

Allows for emergency and fire access.  
Requires removal of parking along the corridor



#### FEASIBLE

Allows for emergency and fire access.  
Requires removal of parking along the corridor



17

## Partial Construction Options

### Existing Median Removed/Modified



#### FEASIBLE

Parking can change sides along the corridor. More design flexibility if overhead wires are removed.



#### FEASIBLE

Parking can change sides along the corridor. More design flexibility if overhead wires are removed.



#### FEASIBLE

for small segments if overhead wires are removed. Not compatible with bus lanes



18

## Full Construction Options

### Median Removed and Sidewalks Reconstructed



#### FEASIBLE

Parking can change sides along the corridor. More design flexibility if overhead wires are removed.



#### FEASIBLE

Parking can change sides along the corridor. More design flexibility if overhead wires are removed.



#### FEASIBLE

Requires long-term investments. Parking limited to one side between bus stops and intersections



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## Feasible Option Summary

### Quick Build

Median Maintained

Parking removed for emergency access

May include bus lanes for all or part of the corridor

### Partial & Full Construction

Median Removed

Parking on one side of street (may change sides as needed)

May include bus lanes for all or part of the corridor

Additional design flexibility if overhead wires are removed



20

# Possible Design Features



21

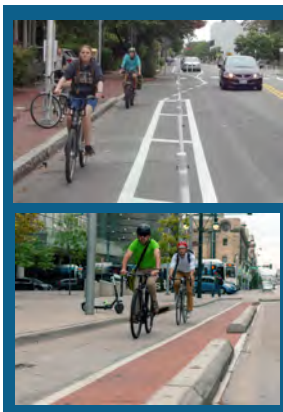
## Improvements for people biking

Quick Build



Flex posts and paint

Partial Construction



Flex post or concrete curb  
barrier separation

Full Construction



Raised sidewalk-level bike lanes



22



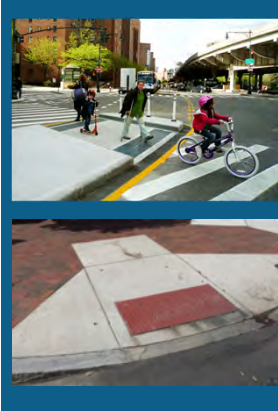
## Improvements for people walking

### Quick Build



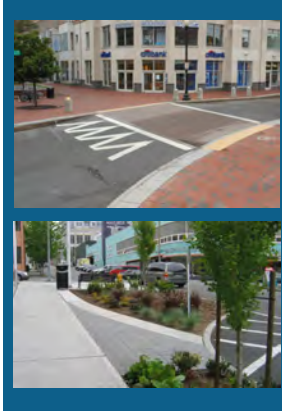
Refresh existing crosswalks  
Leading Pedestrian Intervals (LPis)

### Partial Construction



Reconstruct crossing islands and  
accessible pedestrian ramps  
Leading Pedestrian Intervals (LPis)

### Full Construction



Reconstruct islands and ramps  
Raised side street crossings  
Add trees and landscaping



23

## Improvements for people taking the bus

### Quick Build



Bus Lanes  
Transit Signal Priority/Queue Jumps

### Partial Construction



Bus Lanes  
Transit Signal Priority/Queue Jumps

### Full Construction



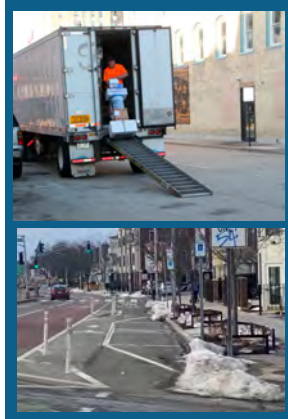
Floating bus islands  
Center bus lanes



24

## Curbside Use

### Quick Build



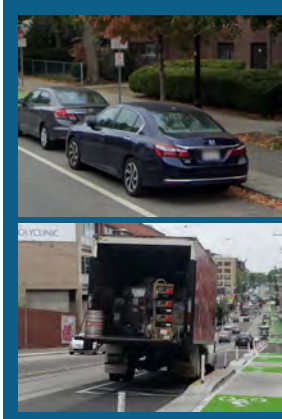
Off-peak loading  
Accessible parking

### Partial Construction



Short term and accessible parking  
Outdoor dining  
Loading zones

### Full Construction



Short term and accessible parking  
Outdoor Dining  
Loading zones



25

## Utility and Signal Considerations

### Quick Build



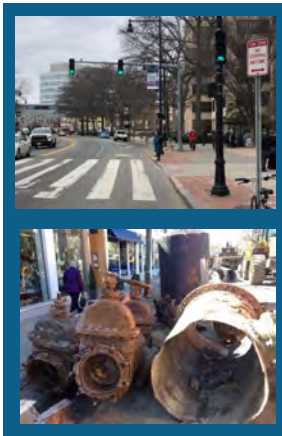
Minor signal upgrades  
Spot repaving

### Partial Construction



Signal relocation/upgrades  
Upgrades to affected utilities

### Full Construction



Full signal upgrades  
Major utility upgrades



26

# Option Evaluation



27

## Quick Build Summary

- **Flex-post** bike lane separation
- **0-5%** parking maintained
- Lowest impact on utilities
- Shorter implementation timeline **(1 year)**
- Lower cost **(\$)**

### Public Engagement Themes

- ☒ Separated Bike Lanes
- ☒ Improvements for people walking and taking the bus
- ☐ Provide Customer Parking on Mass Ave
- ☐ Remove the Median

☒ Meets CSO goal of accelerated separated bike lane implementation



28

## Partial Construction Summary

- **Flex-post or Curbed** bike lane separation
- Median removed, but upgraded at pedestrian crossings
- Upgrade affected utilities
- **40-50%** parking possible to maintain (if wires are removed)
- Medium implementation timeline (to be determined based on project scope and utilities)
- Medium cost (\$\$)

### Public Engagement Themes

- ☒ Separated Bike Lanes
- ☒ Improvements for people walking and taking the bus
- ☒ Provide Customer Parking on Mass Ave
- ☒ Remove the Median

☒ Meets CSO goal of accelerated separated bike lane implementation



29

## Full Construction Summary

- **Raised** bike lane separation
- Median removed, but maintained and upgraded at pedestrian crossings
- Sidewalk reconstruction and new plantings/amenities
- Major utility upgrades
- **40-50%** parking possible to maintain (if wires are removed)
- Longer design and implementation timeline (**10+ years**)
- Higher cost (\$\$\$\$)

### Public Engagement Themes

- ☒ Separated Bike Lanes
- ☒ Improvements for people walking and taking the bus
- ☒ Provide Customer Parking on Mass Ave
- ☒ Remove the Median

☐ Meets CSO goal of accelerated separated bike lane implementation

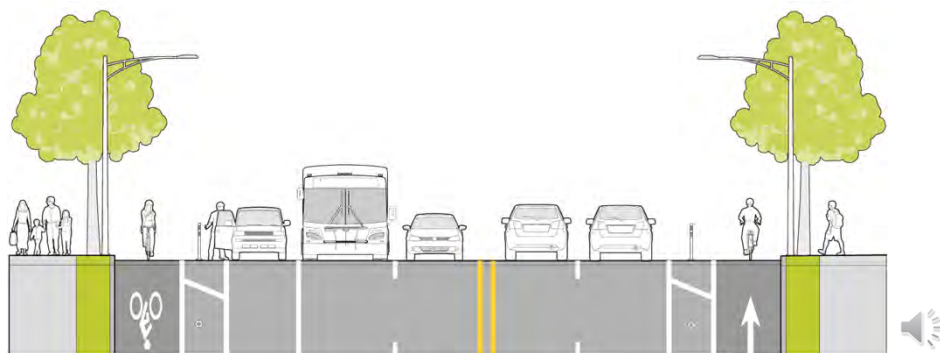


30



## DRAFT Recommendation

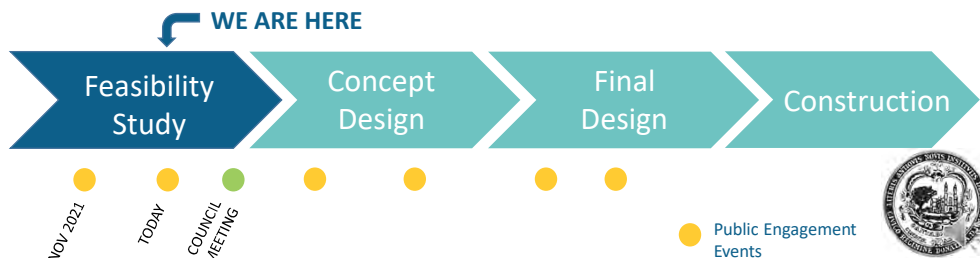
- Based on community feedback and the analysis completed, the **Partial Construction** option of removing the median is recommended
- This option meets CSO goals, can maintain up to 40-50% of existing parking (if overhead wires are removed) and allows for improvements for people walking, biking and taking the bus



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## Next Steps

- Get feedback on DRAFT Recommendation
- Obtain City Council approval of Partial Construction recommendation and timeline by April 30, 2022
  - If approved, additional public engagement will be completed as the detailed design is developed
- If approval is not granted, the corridor must be implemented as a quick-build by April 2024 in accordance with requirements of the CSO



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## Tell us what you think!

### Let us know:

- ✓ Did we miss anything?
- ✓ What are your thoughts about our DRAFT Recommendation to proceed with Partial Construction?

Complete the survey on the project webpage:  
**[cambridgema.gov/MassAve4A](http://cambridgema.gov/MassAve4A)**

Attend the Community Meeting on Thursday, March 3<sup>rd</sup>  
6pm-8pm on Zoom

Join City staff in person on Saturday, March 19<sup>th</sup>  
10am-2pm outside Lunder Arts Center (1801 Mass Ave)

Email the project team at: [kriley@cambridgema.gov](mailto:kriley@cambridgema.gov)





# MARCH 10, 2022

## PUBLIC MEETING SLIDE DECK (SEGMENTS C & D)

# 04





1

## Welcome

- Welcome & Introductions 6:00 PM
- Project Presentations 6:00-6:30PM
  - Kiosk and Plaza Construction Update
  - MassAve4 - Harvard Square Bus Stops
- Question and Answer 6:30-8:00 PM

Presentation available on the project webpages:

**[cambridgema.gov/Departments/publicworks/cityprojects/2021/harvardsquarekioskandplaza](https://cambridgema.gov/Departments/publicworks/cityprojects/2021/harvardsquarekioskandplaza)**

**[cambridgema.gov/MassAve4B](https://cambridgema.gov/MassAve4B)**



2



# Welcome

- Use "Raise Hand" button to signal you have a question or press \*9 if you are joining by phone only
  - Verbal questions will be taken in order hands are raised
  - Questions/comments limited to 1 minute to allow as many people as possible to participate
  - We will take 10 to 15 questions/comments at a time
- Write in questions in Q&A Window
  - Questions may be submitted at any time
  - Will answer as many questions as possible during Q & A
- Will alternate between verbal questions and responses to written questions
- Please be kind to each other and help us hear from as many people as possible
- Technical support: Kate Riley ([kriley@cambridgema.gov](mailto:kriley@cambridgema.gov))
- Closed Captioning available

Click "CC" and "Show Subtitles"

Bottom Panel of Zoom Screen

CC Closed Caption

Raise Hand

Q&A Q&A

Ask a Question

More



3

## Harvard Square Kiosk and Plaza Reconstruction Update



4

### Construction Timeline

- **Out of Town News Kiosk and Harvard Square MBTA Headhouse**
  - Contractor: WES Construction Corporation
  - Bid opening: May 2021
  - Estimated completion: November 2022
- **Tenant Fit Out**
  - Operator RFP to be released this month
  - Operator on board summer 2022
- **Harvard Square Plaza**
  - Contractor: TBD
  - Bid opening: March 10, 2022
  - Project duration: 24 months



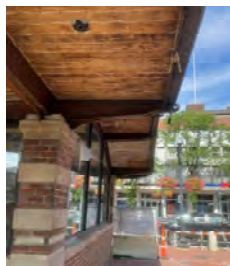
5



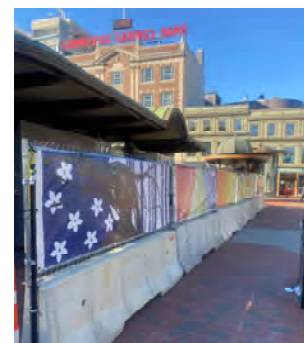
Demolition of Kiosk Ticket Booth



Kiosk interior after removal of OOT News fixtures



Years of paint stripped from the Kiosk overhang



In coordination with the Cambridge Arts Council, fence scrim was designed by artist Patricia Thaxton. For more on the artist & project please visit:

[Coming soon to Harvard Square: Art to mend the fabric of life - The Boston Globe](#)

6



## EXISTING CONDITIONS

7



HARVARD SQUARE - CAMBRIDGE, MASSACHUSETTS  
MARCH 14, 2022

Toulioukian Toulioukian Inc.  
ARCHITECTS

PERSPECTIVE RENDERING  
HAYDONSON DESIGN  
ARCHITECTS

8



HARVARD SQUARE - CAMBRIDGE, MASSACHUSETTS  
2020-2025

Touloukian Touloukian Inc.  
ARCHITECTURAL RENDERING

PERSPECTIVE RENDERING  
HALVORSON DESIGN  
PLAZA DESIGN

9

PERSPECTIVE VIEW FROM DUNSTER STREET - PLAZA AT NIGHT



HARVARD SQUARE - CAMBRIDGE, MASSACHUSETTS  
2020-2025

Touloukian Touloukian Inc.  
ARCHITECTURAL RENDERING

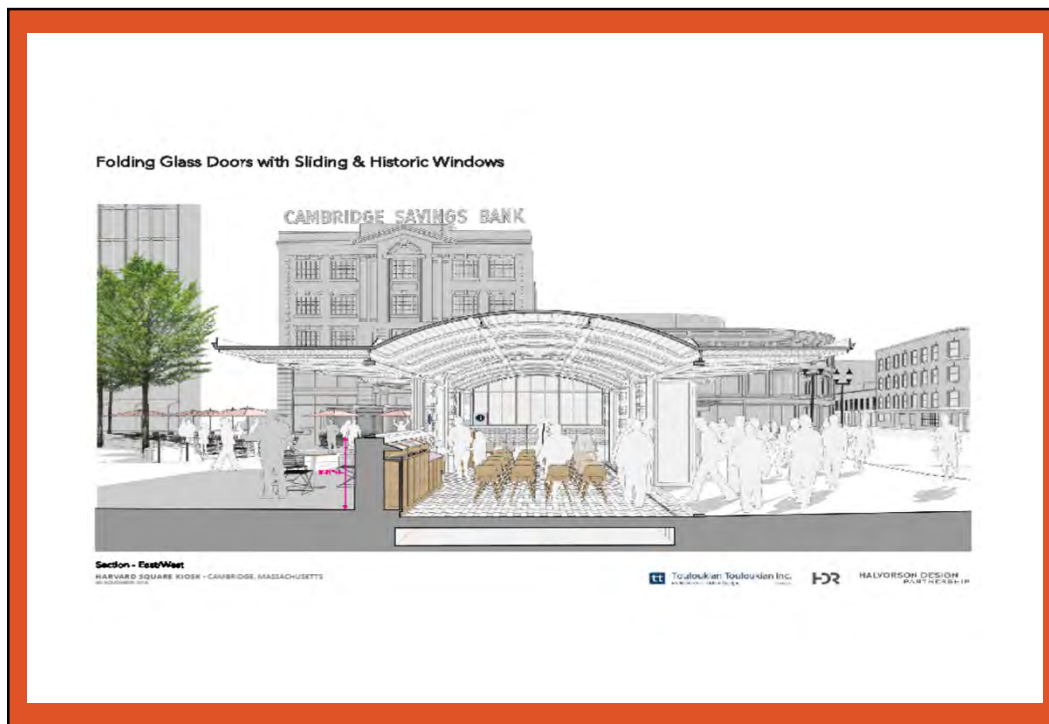
HALVORSON DESIGN

PLAZA DESIGN

CITY OF CAMBRIDGE

10





11



12

## BUSINESS SUPPORT EFFORTS AND COMMUNITY OUTREACH

- Ongoing electronic and printed communications and periodic surveys of individual businesses to learn about critical operations issues
- “Preparing Your Business for Construction” tools and workshop
- Group and individual meetings with business owners on construction questions
- A “Shop Local” customer loyalty program (23 businesses currently participating)
- Distribution of promotional materials
- Continuing support of Harvard Square Business Association’s events and placemaking activities (e.g. banners, street furniture)
- *If you are interested in learning more about these programs and how you can participate, please contact Pardis Saffari at [psaffari@cambridgema.gov](mailto:psaffari@cambridgema.gov)*
- City of Cambridge Community Relations Manager:
  - Kate Riley, [kriley@cambridgema.gov](mailto:kriley@cambridgema.gov)
- Supervising Engineer, Dept. of Public Works:
  - Melissa A. Miguel, P.E., [mmiguel@cambridgema.gov](mailto:mmiguel@cambridgema.gov)
- City Project Webpage:
  - <https://www.cambridgema.gov/Departments/publicworks/cityprojects/2021/harvardsquarekioskandplaza>

13



# MassAve4 Improvements Harvard Sq Bus Stops



14

# What drives our street design?

## Many policies and plans are foundational to our work

- Cycling Safety Ordinance, Vehicle Trip Reduction Ordinance, Cambridge Growth Policy, Complete Streets Policy, Vision Zero Policy, Climate Protection Plan and others

## We design for people of ALL ages and abilities. This means including:

- People who many not have access to a car
- Safe and accessible bike lanes that can be used by a wide range of people
- Streets that are safe and accessible for all abilities

## Focus is on moving people and goods, not their vehicles

- Buses run less frequently than cars and carry more people
- Cannot ignore access for trucks and local deliveries

## How we think about vehicle congestion and delay

- Moving people slowly is moving people safely
- We do not prioritize eliminating delay for people driving alone



15

# Why Separated Bike Lanes?

- Fewer crashes
- Eliminates threat of “dooring” from parked vehicles
- Buffer space reduces conflicts between turning vehicles and people biking
- Shorter crossing distances for people walking
- Increased comfort for people of all ages and abilities who are biking
- Increased comfort for people driving as they know where to expect people biking
- Enables more people to choose cycling as a transportation option
- Supports City’s climate goals
- Supports Public Health goals



Top Image: Mt Auburn St before a separated bike lane was installed  
Bottom Image: Mt Auburn St after a separated bike lane was installed in 2020



16

## Study Area

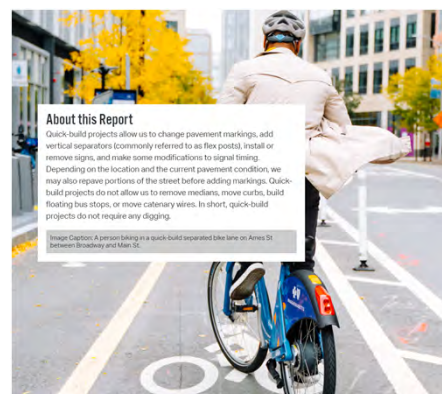
- There are many installed, planned, and ongoing projects along Mass Ave
- Four segments of Mass Ave have complicating factors (MassAve4)
- This study is reviewing the MassAve4 segments with bus stops serving Harvard Square



17

## Project Background

- City released MassAve4 Impacts Analysis report in April 2021
- Report reviewed impacts of quick-build separated bike lanes only
- It was identified that further analysis was required to review possible construction scenarios



18



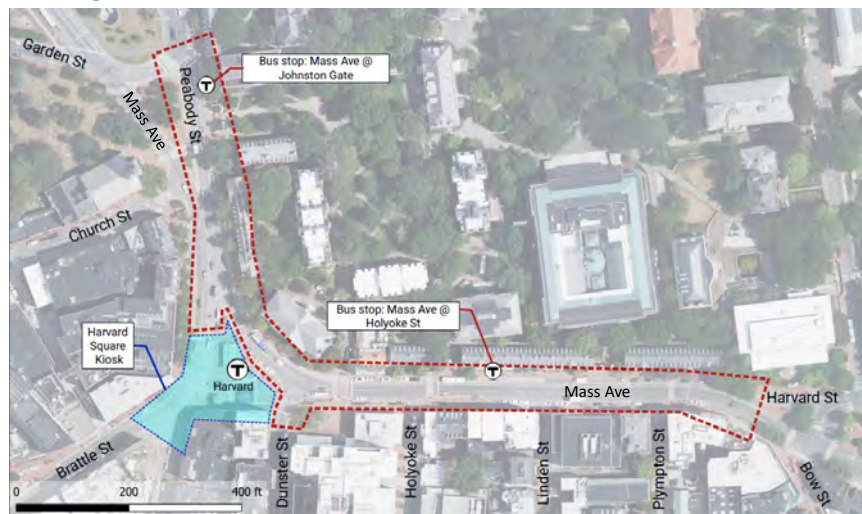
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- Cambridge Cycling Safety Ordinance (CSO) requires separated bike lanes along Mass Ave
- For MassAve4 - by April 30, 2022 the City must:
  - Present analysis on which sections can be quick-build, and which sections require construction
  - Obtain approval from the City Council on a construction timeline for separated bike lane sections not recommended for quick-build
- Any sections recommended for quick-build must be installed by April 30, 2023
- If a timeline is not approved by the City Council for sections recommended for construction, those sections must be quick-build and installed by April 30, 2024



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## Project Limits



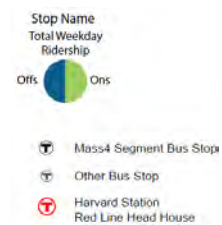
20

## Existing Curbside Uses



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## Existing Bus Routing



### MBTA Bus Route



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## Existing Bus Layovers

- Buses often need to wait, or 'layover', between the last stop of a trip and first stop of the next one.
  - This time is needed as a buffer so that the next trip starts on schedule.
- Three MBTA routes end and begin at the Holyoke Gate stop.
  - Space for at least two and up to four buses to wait in this area is needed for the routes here.



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## Harvard and MASCO Shuttles

- Harvard shuttles pick-up/drop-off passengers at both the Mass Ave & Johnston Gate and Mass Ave & Holyoke St bus stops
- MASCO shuttle ends route in Harvard and may need space to layover



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## Plympton to Dunster- Existing



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## Church to Garden - Existing



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## Quick Build vs Construction

- Quick build bike lanes use paint and flex posts to provide separation
  - Buses share space with bikes at bus stops
- Temporary bus islands expand bus stop area past the curb
  - May conflict with utilities
  - Present accessibility and maintenance issues
  - Would not accommodate the high number of bus riders and cyclists in this area



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## Quick Build vs Construction

- Construction allows for bike lanes to be raised and for bus stop islands to be placed next to the curb
- Due to heavy bus activity and need for layovers, quick build bike lanes are not recommended
- Construction is recommended between Plympton Street and Garden Street



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## Next Steps

- Get community feedback on DRAFT Recommendation
- By April 30, 2022, obtain City Council approval of Construction recommendation and timeline
  - If approved, there will be additional public engagement as the detailed design is developed
- If Council approval is not granted, this segment must be implemented as a quick-build by April 2024 in accordance with requirements of the CSO



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## Share your thoughts

### Kiosk / Plaza

- Questions about the Kiosk / Plaza construction?

### MassAve4 - Harvard Square Bus Stops

- How are these areas used today? Are there any challenges we should address?
- What do you think about the recommendation to reconstruct these bus stop areas?

Is there anything else you'd like to share with the project team?



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# MARCH 2022

## ENGAGEMENT SUMMARY

# 05

## MassAve4 Engagement – Phase 2 (February-March 2022)

### Overview

The City of Cambridge conducted Phase 2 of public engagement for the MassAve4 Cycling Safety Ordinance Project (MassAve4) in February and March 2022, as a follow up to Phase 1 (November 2021). In Phase 1, public feedback was obtained through both virtual and in-person public outreach and was used to develop an evaluation framework for the possible design options – including Quick-Build, Partial Construction, and Full Construction scenarios. The project team evaluated the feasibility of the design options to develop design recommendations based on community feedback from Phase 1.

For Phase 2 of public engagement, the City continued its multi-pronged approach to obtain feedback on the draft recommendations and to understand if the project team missed any important considerations in the evaluation process. Over 19,000 postcards (attached) were distributed to residents and businesses to notify the community of the public meeting schedule. Phase 2 focused on all four segments of the MassAve4 project and the respective design recommendations:

- **Partial Construction** for Segments A&B (Dudley to Beech and Roseland to Waterhouse)
- **Full Construction** for Segments C&D (Church to Garden and Plympton to Dunster)

Phase 2 consisted of both virtual and in-person opportunities to provide input on the proposed recommendations, including:

- MassAve4 (A&B) Presentation to the City of Cambridge’s Joint Bike/Pedestrian/Transit Advisory Committee (Tri Committee) – **February 16, 2022** (Virtual)
- MassAve4 (A&B) Community Meeting – **March 3, 2022** (Virtual)
- MassAve4 (C&D) Community Meeting – **March 10, 2022** (Virtual)
- MassAve4 in-person pop-up event (all four segments) – **March 22, 2022** (in-person outside Lesley University’s Lunder Arts Center)
- An online survey
- Direct emails to DPW with comments and questions prior to the virtual meetings

To ensure community-informed recommendations to the Cambridge City Council, the project team asked for feedback through two questions:

1. Did we miss anything?
2. What are your thoughts about our recommendations to proceed with Partial Construction for Segments A&B, and Full Construction for Segments C&D?

### Key Findings

Through the Phase 2 engagement process, the City continued to work with community stakeholders to confirm the technical viability of the design recommendations, while obtaining overall public support for Partial Construction for A&B and Full Construction for C&D through public outreach. These design recommendations meet the goals of the Cambridge Cycling Ordinance (CSO) while recognizing the community’s desires to improve intermodal safety and preserve access to local businesses – themes that have been expressed throughout both phases of the public engagement process. The public had questions and concerns regarding specific locations and design elements, however, the City reminded the community that the project is still in the feasibility phase. The City will assess these specific concerns in the design phase should the recommendation for Partial Construction gain approval from Cambridge City Council.



The Tri Committee provided the project team with feedback on the proposed design approach for Segments A&B, while the community meetings, pop-up event, and online surveys provided opportunities for community members to voice their opinions and ask questions. Key takeaways from each component of Phase 2 are included below:

#### Tri Committee Takeaways

- While some stakeholders would like to see the changes made as fast as possible through Quick-Build, stakeholders expressed support for Partial Construction for A&B, as it meets the goals of the CSO, maintains more of the existing on-street parking than a Quick Build allows; and, improves pedestrian, bike, and transit infrastructure.
- It was noted by some participants that Full Construction would meet more multimodal objectives, but acknowledged it would take over 10 years to implement. Participants also expressed an understanding that some roadway changes could have more significant impacts on sub-surface utilities so the Partial Construction scenario allows for utilities to be accounted for as needed.

#### **Key Themes**

- **Community support for recommendations:**
  - **A&B: Partial Construction**
  - **C&D: Full Construction**
- **Specific design concerns will be addressed in the design phase**
- **Stakeholders stress the need to prioritize multimodal safety and access to parking for local businesses**

#### Community Meeting Takeaways

- A key theme from the community meetings were questions and comments related to specific locations and design elements. However, the project is in the feasibility phase and will not move forward until the Cambridge City Council weighs in on the recommendation to proceed with a Partial Construction design option. City staff reminded the public that specific design questions will be addressed in the subsequent design phase, and these types of questions do not affect the overall feasibility of the build recommendations. Examples of questions include:
  - “How will loss of parking be identified?”
  - “How will the City handle snow plowing on bike lanes?”
  - “Will bike parking be expanded?”
- Comment cards and poster comments demonstrate overall support for the build recommendations (Partial Construction for A&B, Full Construction for C&D) over other build options.
  - Both recommended options help increase safety for all users, while the Partial Construction recommendation for A&B helps maintain sufficient parking for local businesses.
- There were questions and comments regarding the prioritization of one mode of travel over another. The City reiterated the goal is to move people as safely (not as quickly) as possible, balancing the needs of all roadway users.
- Questions related to transit, specifically MBTA buses and the overhead catenary wires, are part of the design considerations for the project, as the project team is looking at all roadway users within the design considerations – driving, transit, walking, biking.

#### Survey Takeaways

- Broad support for the Partial Construction recommendation for A&B – very few responses preferred the Quick Build scenario. While some would prefer Full Construction, they view Partial Construction as a good compromise.
- Continued concern was expressed from Phase 1 engagement regarding impacts to local businesses, especially relating to availability of on-street parking

- Some community members expressed concerns with the overall process, believing that they need to know more about potential impacts before supporting the recommendations for Partial Construction for A&B and Full Construction for C&D

### Common Themes

Across multiple engagement formats, the following emerged as common themes:

- Support for the draft recommendation of Partial Construction for Segments A&B and Full Construction for Segment D over the other build options
- Within the context of the overall support for the draft recommendations, the public feedback heard in Phase 2 emphasized the importance of considering the following elements as part of the design process:
  - Providing parking to support local businesses
  - Improving bike and pedestrian safety
  - Finding a balance between all modes of travel when implementing separated bike lanes



### Attachments

Postcard/flyer advertising the engagement events, which included a QR code and link to the project website.



# Cycling Safety Ordinance

## Important Community Meetings



City of Cambridge  
795 Massachusetts Ave.  
Cambridge, MA 02139  
[www.cambridgema.gov](http://www.cambridgema.gov)



Register for Zoom meetings and find more information  
by scanning the QR Code or visiting  
[cambridgema.gov/CyclingSafetyOrdinance](http://cambridgema.gov/CyclingSafetyOrdinance)

### MEETING INFORMATION

#### **Dudley to Beech and Roseland to Waterhouse**

Thursday, March 3rd, 2022

6:00 – 8:00 PM via Zoom

#### **Harvard Square Bus Stops and Kiosk Construction Update**

Thursday, March 10th, 2022

6:00 – 8:00 PM via Zoom

#### **Porter Square**

Tuesday, March 15th, 2022

6:00 – 8:00 PM via Zoom

*Still have questions or feedback?*

Join City staff in person on  
Saturday, March 19th, 2022

10:00 AM – 2:00 PM

Outside Lunder Arts Center  
1801 Mass Avenue

# Project Background



## Our Street Design Principles

Mass Ave safety improvements are based on two key principles:

Designing for people of ALL ages and abilities, including:

- People who may not have access to a car
- Safe and accessible facilities, including bike lanes, that can be used by a wide range of people

Rethinking vehicle congestion and delay

- Slow movement is safe movement
- Eliminating delay for people driving alone is not the top priority
- Move people and goods, not their vehicles



Cambridge Bicycle Plan, 2020



## Backed by Policy

Many other multimodal safety policies and plans—including the Cycling Safety Ordinance—led to this project:

1. Cambridge Vehicle Trip Reduction Ordinance (1992)
2. Cambridge Growth Policy (1993/2007)
3. Complete Streets Policy (2016)
4. Vehicle Trip Reduction Ordinance
5. Parking & Transportation Demand Ordinance
6. Climate Protection Plan
7. Growth Policy Document Update
8. School Wellness Policy
9. Envision Cambridge



## Cycling Safety Ordinance (2020)

- Requires the installation of separated bike lanes in certain parts of the city
- Set deadline of April 30 for quick-build projects on Mass Ave – Porter Square is the only remaining quick-build project on Mass Ave

## Porter Square versus Mass4

Porter Square and the Mass4 are separate projects. The Mass4 are four sections of Mass Ave that will get separated bike lanes but on a slightly longer timeframe. Porter Square from Roseland St to Beech St is not part of the Mass4.

## Mass4:

- 1 Dudley Street to Beech Street
- 2 Roseland Street to Waterhouse Street
- 3 4 Two large bus stops in Harvard Square



# Mass Ave Bicycle Lanes - Start Here!

Please sign in so we know you were here



Want more information or to complete the survey?

Visit the project website:  
[cambridgema.gov/CyclingSafetyOrdinance](http://cambridgema.gov/CyclingSafetyOrdinance)



Point your phone camera here to access the project website.

Each Station focuses on a different part of Mass Ave.

Walk around to stations, talk to the project team, and let us know your thoughts.

## Station 1 Dudley to Beech; Roseland to Waterhouse



## Station 2 Harvard Bus Stops



## Station 3 Porter Square





# MassAve4 Overview



## Project Background

Cambridge Cycling Safety Ordinance (CSO) requires separated bike lanes along Mass Ave

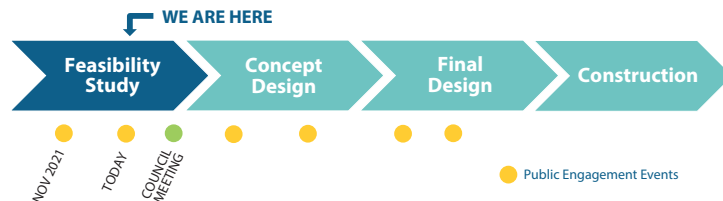
There are four segments of Mass Ave where implementing quick build bike lanes would be more challenging due to complicating factors, such as overhead wires and busy bus stops. These segments are referred to as the MassAve4.

Construction Level	Requirement
Quick Build	Installation by April 30, 2023
Construction	Obtain approval from City Council on construction timeline for separated bike lanes If timeline not approved, sections must be quick-build and installed by April 30, 2024

## Next Steps

- Community feedback on DRAFT recommendations
- With City Council approval, additional public engagement as detailed designs developed

### Dudley to Beech & Roseland to Waterhouse



### Harvard Square Bus Stops



Want more information or to complete the survey?

Visit the project website:  
[cambridgema.gov/  
CyclingSafetyOrdinance](http://cambridgema.gov/CyclingSafetyOrdinance)



Point your phone camera here to access the project website.



# Design Opportunities



Recall the three levels of construction that could be considered:

1. Quick Build – paint and flex posts, maintain median and sidewalks
2. Partial Construction – removal of center median, paving and upgrades to affected utilities
3. Full Construction – median removal, street/sidewalk reconstruction and full utility upgrades



Quick Build



Partial Construction



Full Construction

## Feasible Option Summary

### Quick Build

Median Maintained  
Parking removed for emergency access  
May include bus lanes for all or part of the corridor

### Partial & Full Construction

Median Removed  
Parking on one side of street (may change sides as needed)  
May include bus lanes for all or part of the corridor  
Additional design flexibility if overhead wires are removed



# Option Evaluation



	Public Engagement Themes				
	Separated bike lanes	Improvements for people walking and taking the bus	Provide customer parking on Mass Ave	Remove the median	Meets CSO goal of accelerated separated bike lane implementation
Quick Build Summary	<b>Flex-post</b> bike lane separation				
	0-5% parking maintained				
	Lowest impact on utilities	✓	✓	✗	✗
	Shorter implementation timeline (1 year)				✓
	Lower cost (\$)				
Partial Construction Summary	<b>Flex-post or Curbed</b> bike lane separation				
	Median removed, but upgraded at pedestrian crossings				
	Upgrade affected utilities	✓	✓	✓	✓
	40-50% parking possible to maintain (if wires are removed)	✓	✓	✓	✓
	Medium implementation timeline (to be determined based on project scope and utilities)				
	Medium cost (\$\$)				
Full Construction Summary	<b>Raised</b> bike lane separation				
	Median removed, but maintained and upgraded at pedestrian crossings				
	Sidewalk reconstruction and new plantings/amenities	✓	✓	✓	✗
	Major utility upgrades	✓	✓	✓	✗
	40-50% parking possible to maintain (if wires are removed)				
	Longer design and implementation timeline (10+ years)				
	Higher cost (\$\$\$\$)				

## Recommendation: Partial Construction



- Based on community feedback and the analysis completed, the **Partial Construction** option of removing the median is recommended
- This option meets CSO goals, can maintain up to 40-50% of existing parking (if overhead wires are removed) and allows for improvements for people walking, biking and taking the bus



# Mass Ave 4 – Dudley to Beech; Roseland to Waterhouse



## 3 Ways to Tell Us What You Think!

- Write here
- Comment Card
- Complete the survey

## Let us know:

- Did we miss anything?
- What are your thoughts about our DRAFT Recommendation to proceed with Partial Construction?

Want more information or to complete the survey?

Visit the project website:  
[cambridgema.gov/MassAve4A](http://cambridgema.gov/MassAve4A)

[cambridgema.gov/harvardsquarekiosk](http://cambridgema.gov/harvardsquarekiosk)



Point your phone camera here to access the project website.



# Harvard Bus Stops

Existing Conditions

## Project Limits

Mass Ave - Garden St to Harvard St



## Existing Bus Routing



## Existing Curb Uses

Mass Ave - Church St to Garden St & Plympton St to Dunster St curbside uses



## Church to Garden: Existing



## Plympton to Dunster: Existing



# Harvard Bus Stops

## Quick Build vs Construction

### QUICK BUILD

Quick build bike lanes use paint and flex posts to provide separation

- Buses share space with bikes at bus stops

Temporary bus islands expand bus stop area past the curb

- May conflict with utilities
- Present accessibility and maintenance issues
- Would not accommodate the high number of bus riders and cyclists in this area



### CONSTRUCTION

Construction allows for bike lanes to be raised and for bus stop islands to be placed next to the curb

Due to heavy bus activity and need for layovers, quick build bike lanes are not recommended

Construction is recommended between Plympton Street and Garden Street



## Recommendation: Full Construction



# MassAve4 – Harvard Bus Stops



## 2 Ways to Tell Us What You Think!

- Write here
- Comment Card

## Let us know:

- ✓ Did we miss anything?
- ✓ What are your thoughts about our recommendation to proceed with Full Construction?

Want more information or to  
complete the survey?

Visit the project website:  
[cambridgema.gov/MassAve4B](http://cambridgema.gov/MassAve4B)

[cambridgema.gov/  
harvardsquarekiosk](http://cambridgema.gov/harvardsquarekiosk)



*Point your phone  
camera here to access  
the project website.*

