



Porter Square Safety Improvement Project

Community Meeting

Roseland St to Beech St

Tuesday, January 25, 2022 | 6:00 p.m. | Zoom



Cycling Safety Ordinance Overview

2019: Cambridge City Council Passed the Cycling Safety Ordinance

Requires the construction of separated bike lanes when streets are being reconstructed as a part of the City's Five-Year Plan for Streets and Sidewalks and they have been designated for "Greater Separation" in the Bicycle Network Vision



Image: A separated bike lane in Brattle Sq; Credit: Kyle Klein



Cycling Safety Ordinance Overview - Continued

2020: Cambridge City Council Passed Amendments to the Cycling Safety Ordinance

The amendments set ambitious requirements for the installation of approximately 25 miles of separated bike lanes within the next five to seven years

The location of these facilities will be informed by both the Cambridge Bicycle Network Vision and specific requirements in the Ordinance



Image: Buffer area and flex posts next to the separated bike lane on Cambridge St; Credit: Kyle Klein

Cycling Safety Ordinance Overview - Continued

In general, the amendments to the Ordinance require the installation of separated bike lanes on:

- All of Massachusetts Ave;
- Broadway from Quincy St to Hampshire St;
- Cambridge St from Oak St to Second St;
- Hampshire St from Amory Street to Broadway;
- Garden St, eastbound from Huron Ave to Berkeley St, and westbound from Mason St to Huron Ave; and
- 11.6 miles of separated bike lanes in other locations that are a part of Bike Network Vision

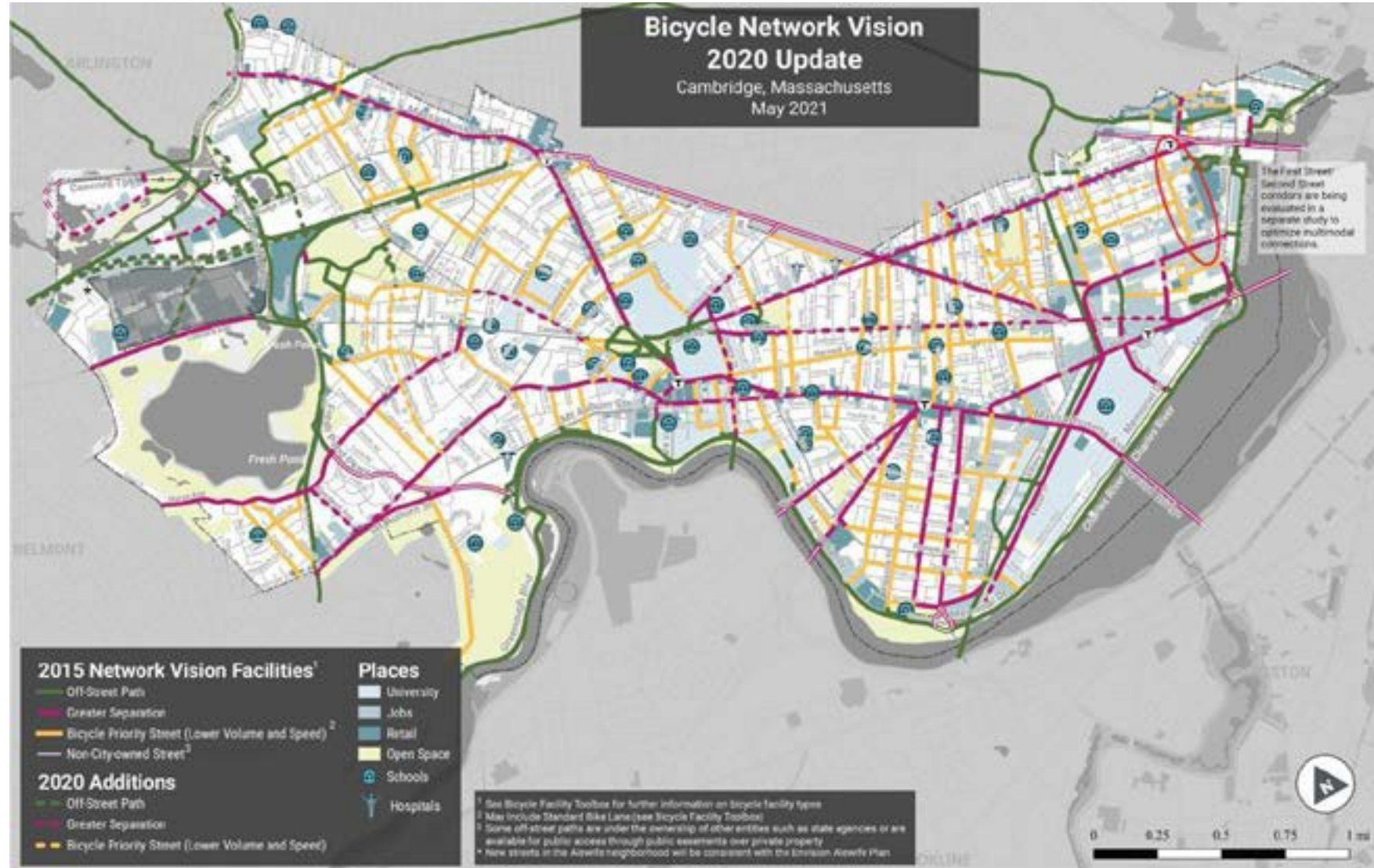


Learn more at
cambridgema.gov/cycling-safety-ordinance



Previous Projects

- Mass Ave
- Cambridge Street
- Western Ave
- Brattle Street
- Binney St/Galileo Way
- Quincy St/ DeWolfe St
- And many others!



What drives our street design?

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

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, not only the Cycling Safety Ordinance

- **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



Project Background



Image: Gift of the Wind Sculpture, Susumu Shingu

Project Area

Mass Ave between Roseland St and Beech St



Project Goals

- Provide safe, separated bicycle facilities that can be used by people of all ages and abilities
- Meet the requirements of the Cycling Safety Ordinance and align with the City's 2020 Bicycle Network Vision
- Reduce fatal and serious injury crashes for all users, in alignment with the City's Vision Zero Plan
- Address issues for all stakeholders, including, but not limited to: local businesses, residents, institutions, and public safety (i.e. Fire Department)



Separated Bike Lane Benefits

- 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

Timeline

The ordinance sets an installation deadline of April 30, 2022 for us to install separated bike lanes on Mass Ave at the following locations:

- Memorial Dr to Vassar St (Spring 2022 completion)
- Bow St to Plympton St (complete)
- Cambridge St to Waterhouse St (complete)
- Roseland St to Waterhouse St (complete)
- **Roseland St to Beech St**
- Dudley St to Alewife Brook Pkwy (complete)



Previous Safety Improvements

2018 Mass Ave at Somerville Ave

- Reduced number of signal phases
- Removed time penalty to use turn jug-handle
- Separated right turns from people walking and biking



Image: Somerville Ave Jug-Handle



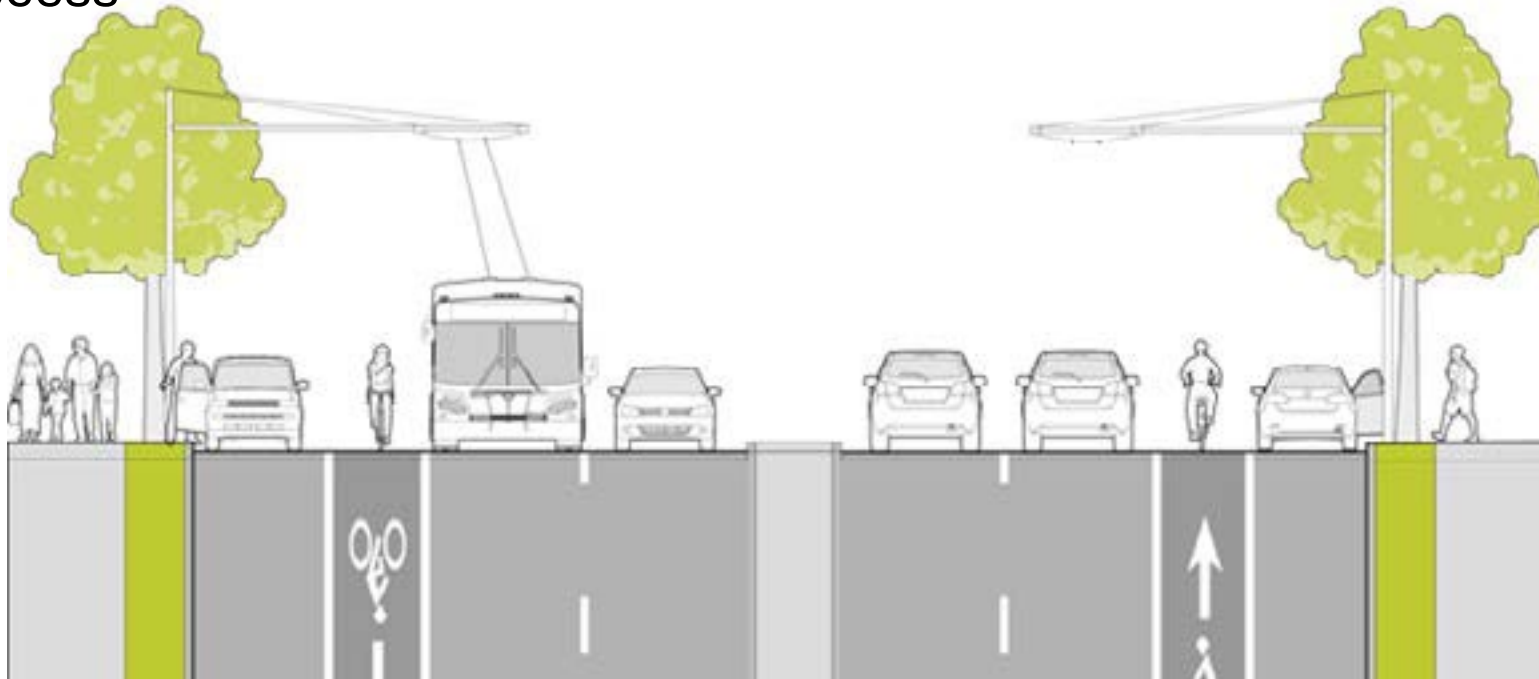
2018 Porter Square Design

Existing Conditions



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
- 600-volt overhead wires constrain the ability to do construction, and create challenges for fire access



Transit

- 7,970 Red Line riders (2018)
- 6,351 bus riders (2018)
 - A high-frequency bus route – 77 Arlington Heights-Harvard
- 2 local routes – 83 to Rindge Ave and 96 to Davis and Medford Squares
- 3,270 Commuter Rail riders (2018)
- 35% of shoppers in Porter Sq arrived by bus or subway (2020 Porter Square Commercial District Assessment)



Biking

- Bike lane is not separated from traffic
- People biking are subject to additional conflicts with people driving
- Current bike lane does not meet the requirements of the Cycling Safety Ordinance

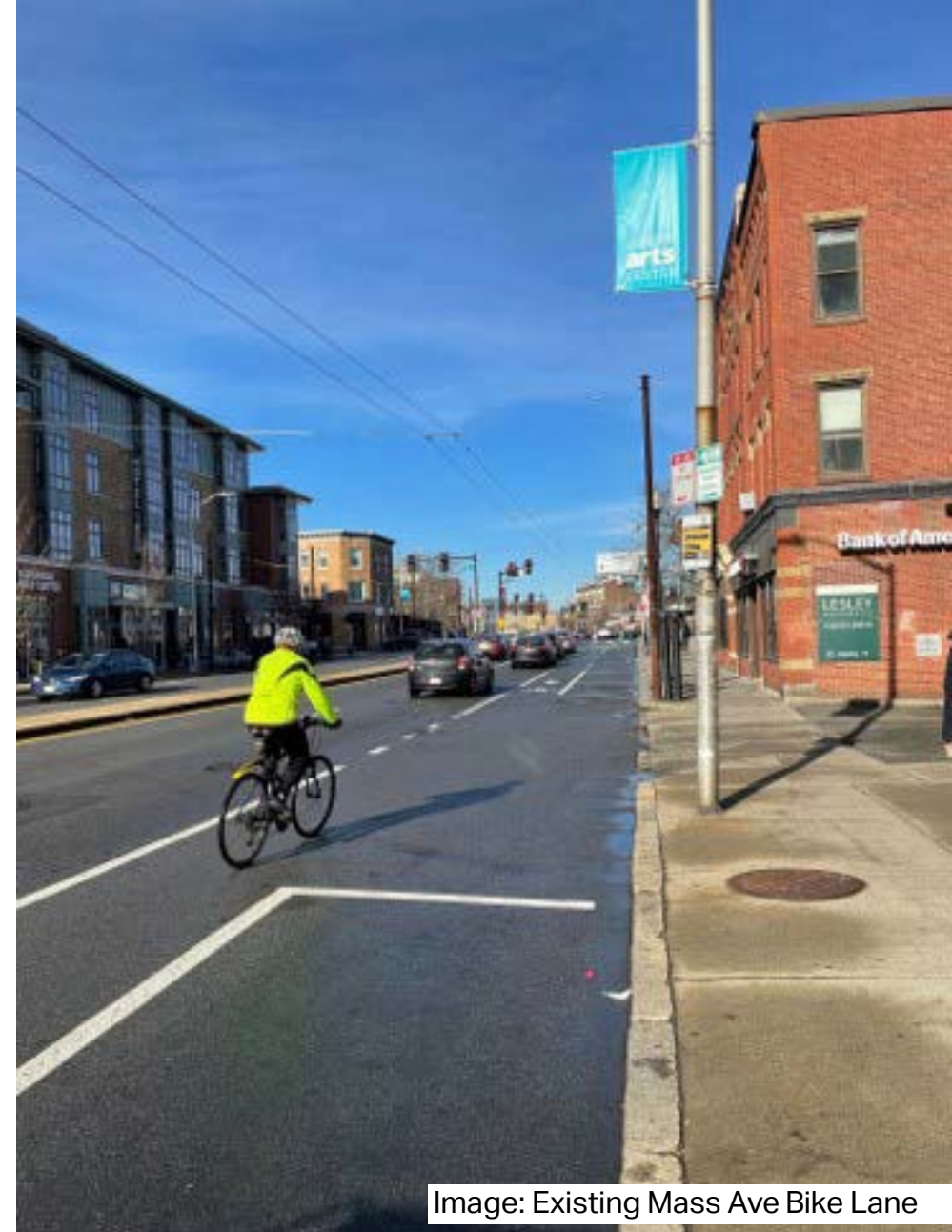
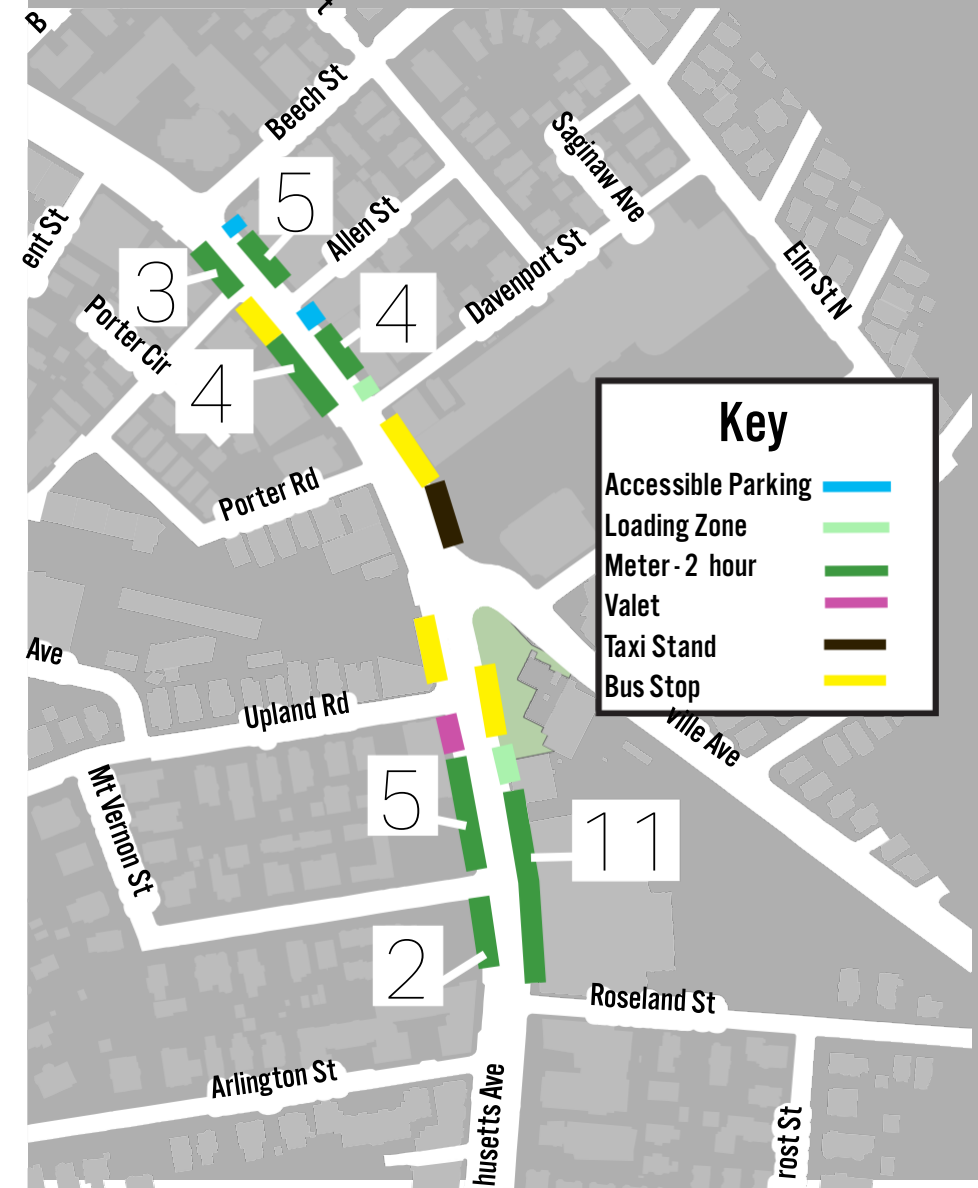


Image: Existing Mass Ave Bike Lane



On-Street Parking

- Current parking regulations vary by location
- Accessible parking spaces will be retained
- Additional outreach where there is special use parking (i.e. Loading, Valet, Taxi) to determine how to best accommodate those needs with the new design
- Limited parking and loading zones are available on side-streets



Quick-Build Considerations



What is a quick-build project?

Quick-build projects allow us to make safety improvements more rapidly

Our quick-build toolbox includes:

- Pavement marking changes
- Installation of flex posts
- Changes to signage
- Some modifications to signal timing



Image: Brattle St 2-way Protected Bike Lane



What is not a quick-build project?



Source: Seattle.gov

Curb ramps and crosswalks



Source: suresealpaving.com

Curbs, catch basins and utilities



Quick-build vs Construction

Under the ordinance, this project must be completed using only “quick-build” materials by April 2022

- Quick-Build projects can be installed significantly faster than typical construction projects
- Capital Construction projects must be programmed into the City’s 5-year Sidewalk and Street Reconstruction Plan for funding and coordination with utilities



Design Considerations - 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

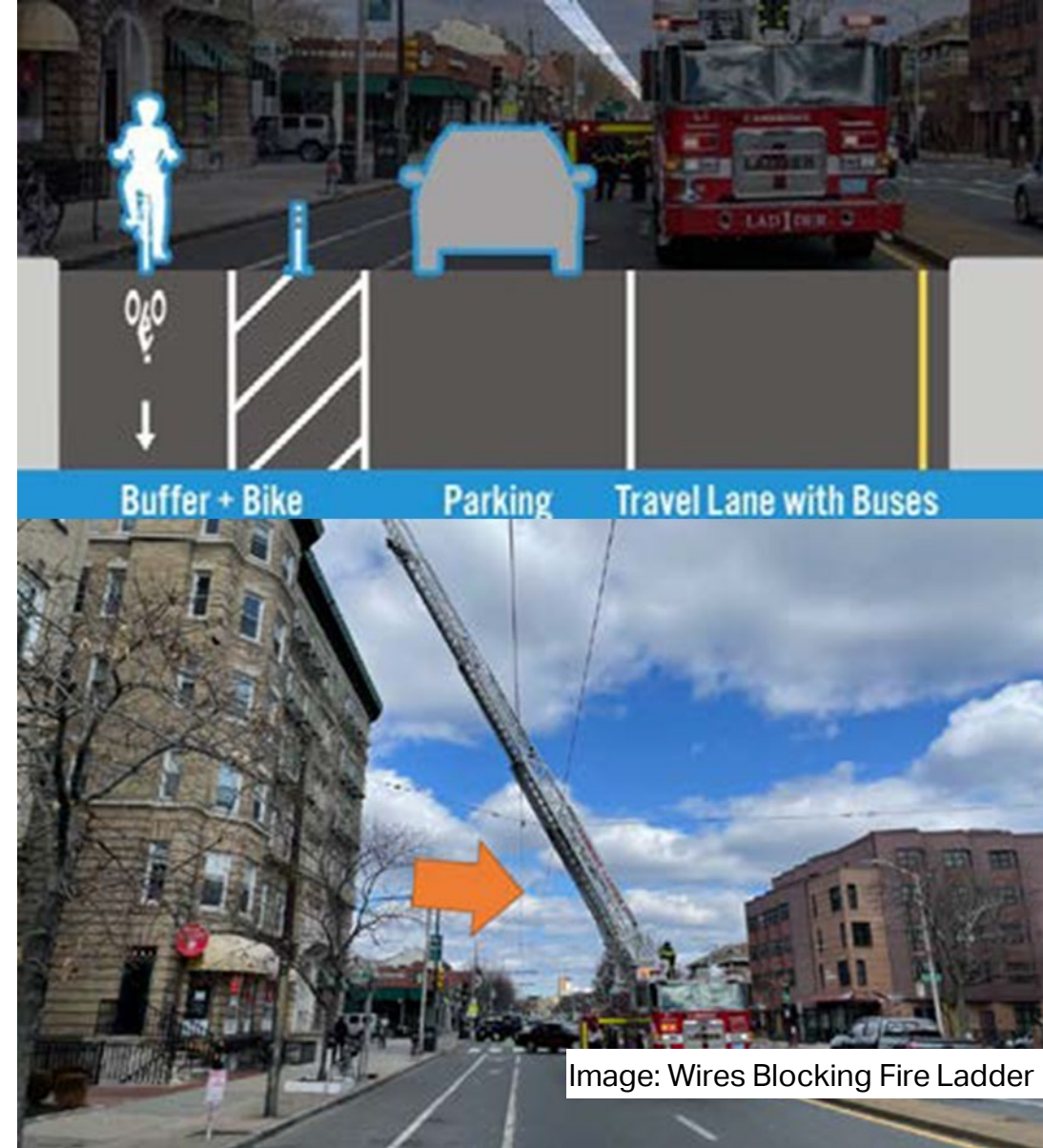


Image: Fire Response on Mass Ave



Design Considerations - Catenary

- Parking cannot “float off the curb”
- Positioning fire truck in left lane would interfere with the wires
- Catenary wire removal is under the control of the MBTA
- The City will work closely with the MBTA to discuss the long-term future of the catenary



Design Considerations - Median

As a “quick-build” project, the median cannot be moved

- Limits our ability to move lanes
- Poses additional fire department response issues related to “floating parking”
- A single travel lane between parking and the median does not provide enough width to deploy a fire truck



Intersection Considerations

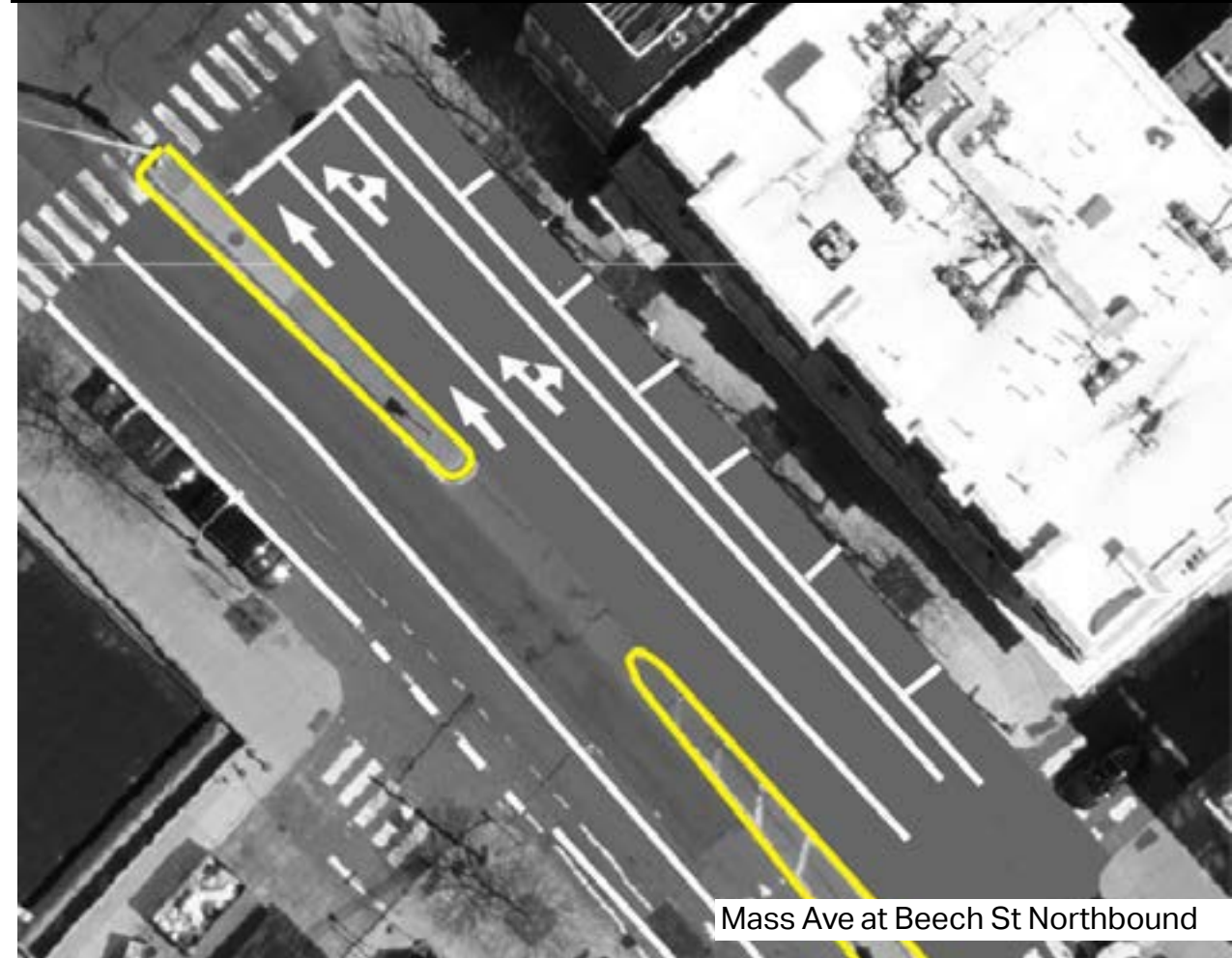


Mass Ave at Beech St

Northbound

- Large number of right turning vehicles
- Creates safety conflicts between turning vehicles and bicyclists continuing straight
- Transit delay
- Two bus routes continue straight (77, 83) and one route turns right (96)

Existing



Mass Ave at Somerville Ave

Southbound

- Existing bus stop on the bridge
- Bike lane separation is not added at bus stops to allow for proper bus boarding

Northbound

- Significant number of right turns
- Existing signal phase separates right turns from people walking and biking
- Current bike lane does not have physical separation



Image: Mass Ave at Somerville Ave Southbound



Image: Mass Ave at Somerville Ave Northbound



Mass Ave at Somerville Ave

- Current bike lane is not wide enough to add separation as is
 - Widening bike lane would require removing a travel lane. All travel lanes are at minimum width.
 - Removing a travel lane would add significant delay to the 77 and 96 bus routes
 - These changes would cause cascading impacts along the entire corridor
- Safety improvements were made in 2018
 - Addressed turning conflicts and reduced delay for all users
- MassDOT owned and maintained bridge
 - Ordinance does not require separated bike lanes on state facilities
- **Modifications between Upland Rd and Somerville Ave may not be feasible at this time**



Possible Roadway Configurations



Outline

We will be sharing a considerable amount of information, including:

- Different possible layouts for Mass Ave
- Possible intersection configurations
- Other alternatives we considered, but ruled out
- Summaries, benefits and drawbacks

Some things to consider:

- Does this idea meet your needs?
- How can it be improved?

We will take public comment

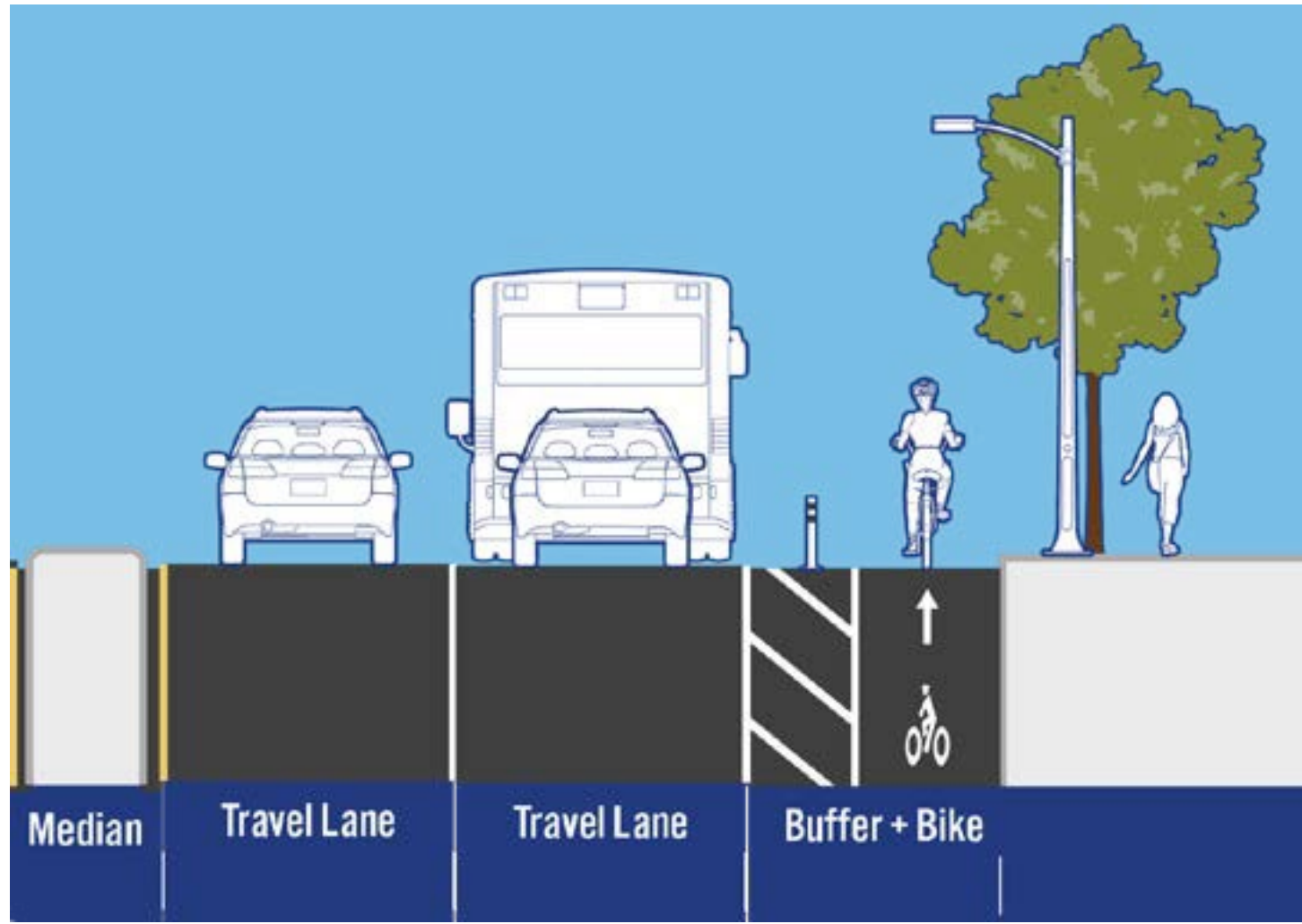
- We welcome questions and feedback on all aspects of the project
- We will share a link to a survey to solicit more detailed feedback following the meeting
- Location specific feedback may be easier to provide through the survey



Two Travel Lanes, Separated Bike Lanes

Details:

- Provides separated bike lanes
- No travel lane reductions
- Vehicles cannot stop at any time
- No parking or loading
- Meets criteria for fire access



Two Travel Lanes, Separated Bike Lanes, cont.

Benefits

- Does not cause additional delay
- Creates the least amount of travel delay overall for all vehicles

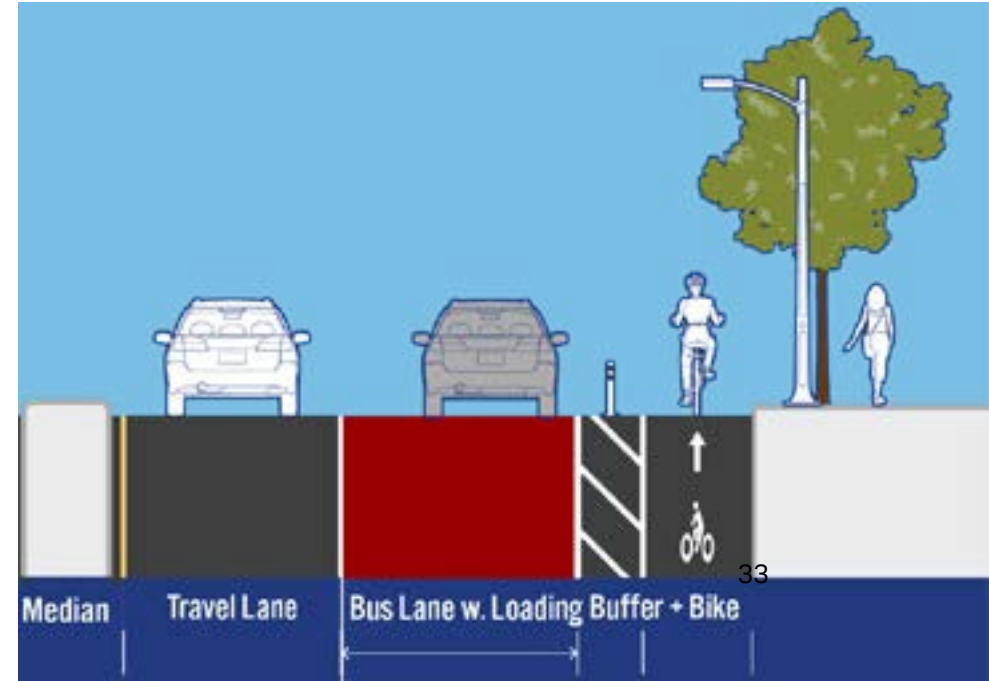
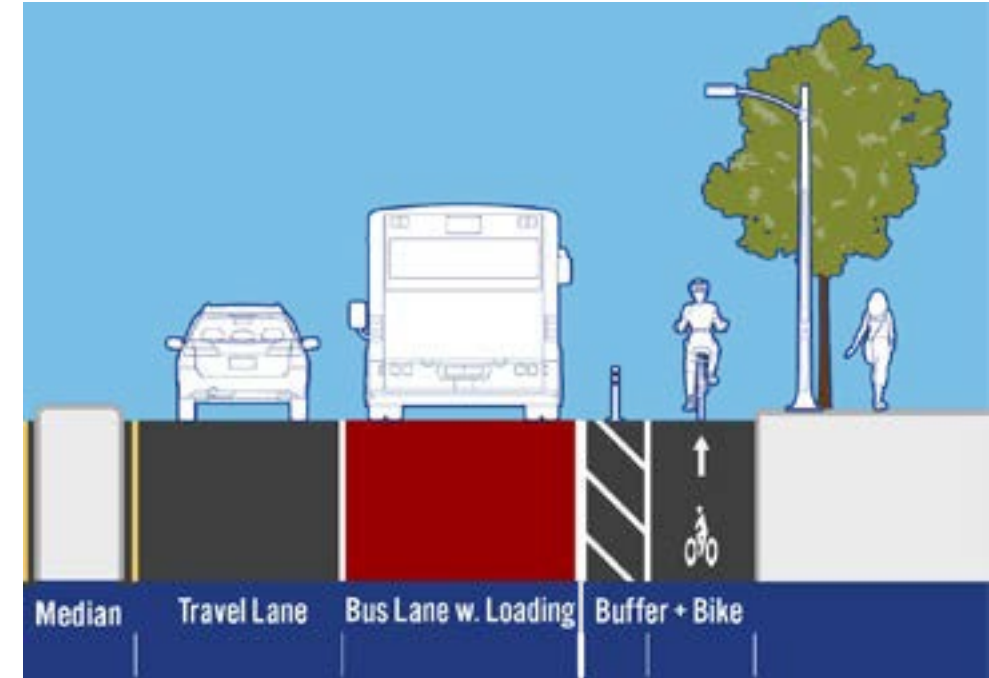
Drawbacks

- Removal of parking
- No option for short-term stopping
- Does not improve bus reliability over existing conditions



Bus Lane with Part-time Loading

- All vehicles may stop for 15 minutes for pick up and drop off
- Commercial vehicles may stop for 30 minutes
- Limiting use of the right-lane to short-term loading, makes it possible for drivers to quickly move their vehicles in an emergency
- Loading is limited to certain hours of the day
- Meets criteria for fire access



Bus Lane with part-time Loading, cont.

Benefits

- Provides short-term stopping option for people arriving by car










Drawbacks

- Bus speed and reliability is impacted during hours bus lane is used for loading
- Overall, creates more delay for buses than Option 1
- Causes most vehicle delay
- Removal of parking
- Pick-up and drop-off is retained for a portion of the day



Summary

- The final design will likely include a mix of options, block by block, spot by spot
- Will depend on public feedback and physical constraints

	Two Travel Lanes		Bus Lane with Part-Time Loading	
Bike	Improves safety and comfort		Improves safety and comfort	
Bus	Travel time and reliability is unaffected by project		Travel time and reliability improved during peak	
			Travel time and reliability worsens midday	
Car	No parking or loading		Retains some loading during off peak hours	
	No travel time impacts		Significant travel time impacts	



Ideas We Did Not Pursue

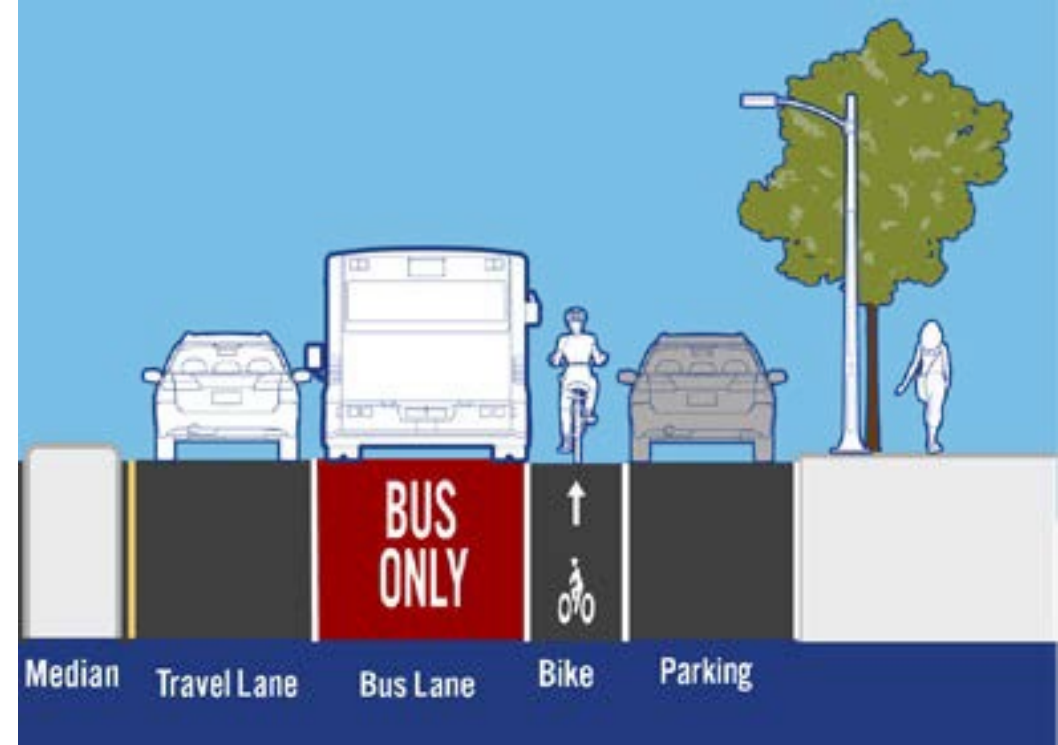


Bike Lanes Without Separation

- Retains on-street parking at the curb
- Bus Priority Lane could be included in the right-hand lane
- Does not provide separated bike lanes

Does not meet project goals

- Does not provide safe, separated bicycle facilities
- Does not meet the requirements of the Cycling Safety Ordinance



On-Street Parking, Separated Bike Lanes

- Provides separated bike lanes
- Replaces the right travel lane with parking
- Reduces Mass Ave to one lane for all traffic

Does not meet project goals

Due to overhead wires

- Typical floating parking would place a fire truck in what is now the inside (left) lane

Due to median

- A single travel lane would not provide enough space to deploy fire equipment
- Creates significant additional delay for transit

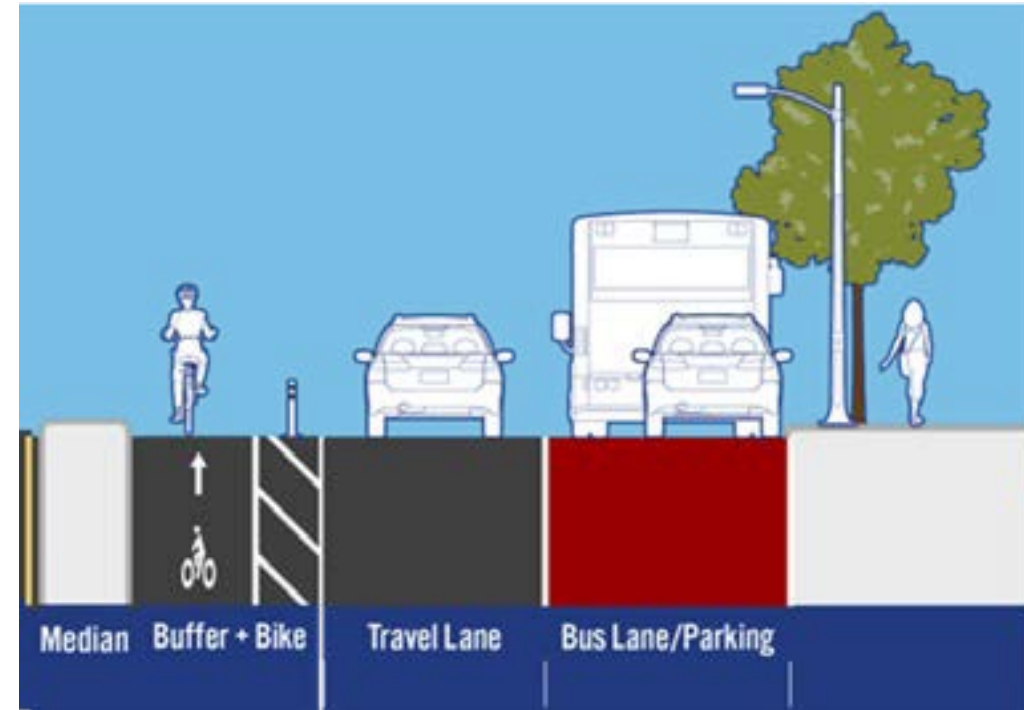


Center-Running Bike Lanes

- Enables parking to occur at the curb
- Bike lane is on the left side of the street
- One general travel lane at all times

Does not meet project goals

- Introduces bicycling to an unexpected location
- Left turn conflicts at all side streets likely to be confusing for all users, and potentially unsafe for cyclists
- Does not provide safe access to destinations along the street
- Bus delay increases during hours when parking is allowed
- Increased delay for general traffic during all hours
- Results in substantial changes to signals along the corridor that would require significant changes



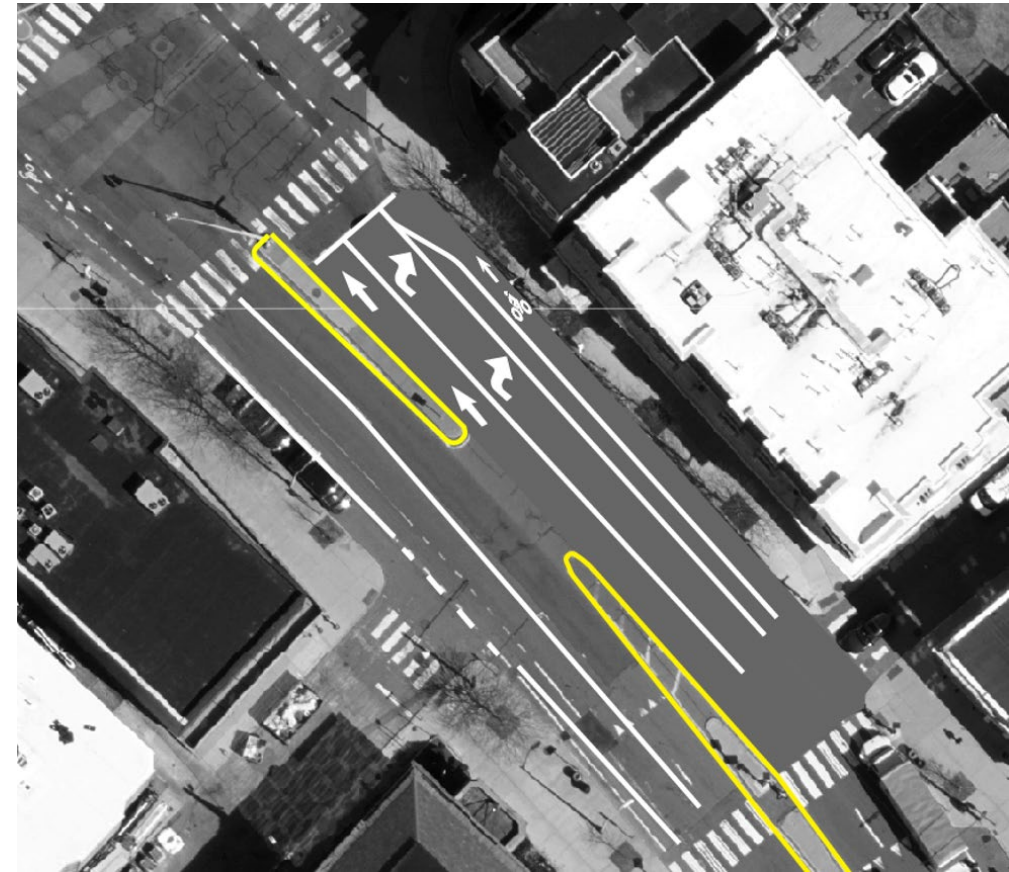
Intersections

Mass Ave at Beech St



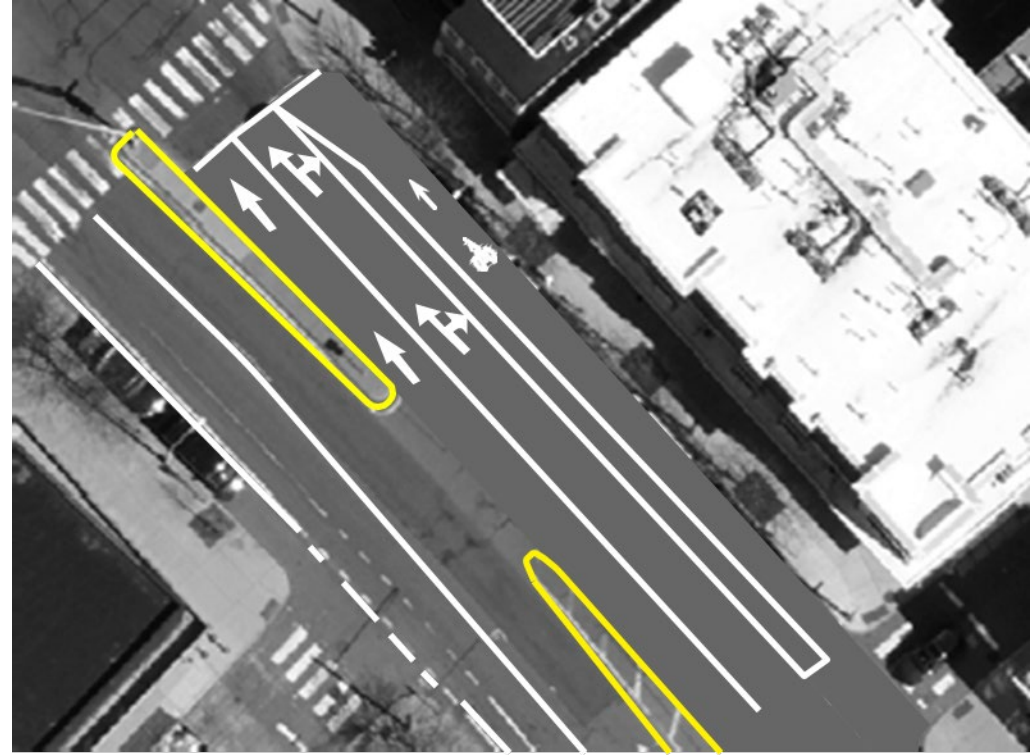
1. Dedicated right-turn lane with signal separation

- Right turns proceed at a different time than people walking and biking
- Best practice for streets with separated bike lanes at intersections with high volumes of turns
- Creates significant additional delay for all vehicles, including transit





2. Remains the same

- Right lane is a combined right turn and through lane
- Maximizes vehicle throughput
- Does not provide timed separation between turning vehicles, bikes and pedestrians



Mass Ave at Beech St Summary

	Dedicated Right Lane	Remains the Same
Benefits 	<ul style="list-style-type: none"> Improved safety and comfort for people walking and biking 	<ul style="list-style-type: none"> Less vehicular delay Buses continuing straight may use both lanes
Drawbacks 	<ul style="list-style-type: none"> Increased delay for all vehicles, including buses 	<ul style="list-style-type: none"> Does not improve safety Does not improve bus reliability



Intersections

Mass Ave at Upland Rd



1. One-Way Towards Mass Ave

- Allows for additional parking on Upland Rd
- Addresses safety
 - Turning movement into Upland Rd is removed
- Mitigates delay on Mass Ave
 - Removes signal phase, dedicating more time to cars and buses on Mass Ave
- Reduces access to Upland Rd



2. One-Way Away from Mass Ave

- Allows for additional parking on Upland Rd
- Mitigates delay on Mass Ave
- Does not address safety related to turning vehicles
- Reduces access to Upland Rd















3. Both Directions Retained

- Does not allow for additional parking on Upland Rd
- Does not mitigate delay on Mass Ave
- Does not address safety related to turning vehicles
- Retains access to Upland Rd



Mass Ave at Upland Rd Summary

	One-Way Towards Mass	One-Way Away From Mass	Existing
Delay	Addresses delay on Mass Ave 	Addresses delay on Mass Ave 	Does not address Mass Ave delay 
Parking	Adds parking on Upland Rd 	Adds parking on Upland Rd 	Does not add parking on Upland Rd 
Safety	Addresses safety related to turning vehicles 	Does not address safety related to turning vehicles 	Does not address safety related to turning vehicles 
Access	Reduces Access to Upland Rd 	Reduces Access to Upland Rd 	Retains existing access to Upland Rd 



Next Steps

- Absorb and collect feedback
- Host a second community meeting later in the winter
- Conduct targeted business outreach
- Distribute survey



Feedback

- We will take comment in the order hands are raised
- In order to allow everyone to speak, please try to limit your time to 2 minutes
- Provide us with your general feedback on the different ideas shared today
- The meeting is scheduled to end at 8:00 p.m.
- If you like, please fill out our survey for more detailed feedback. The link will be made available at the project webpage, below

Contact Information

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cambridgema.gov/porter-square-cycling-safety