

A photograph of a residential street, Garden Street, with trees, parked cars, and a pedestrian. The image is darkened to serve as a background for the text.

Garden Street Safety Improvement Project Historical Commission Review

November 3, 2022

Description of Proposed Changes - Case 4869

The City of Cambridge is seeking to make modifications to Garden Street and Berkeley Street within the Old Cambridge Historic District, roughly between Chauncy Street and Mason Street. This work would be completed as part of the Garden Street Safety Improvement Project, which itself extends from Huron Avenue to Mason Street.

Specifically, this Fall the City proposes to install a combination of flexible delineator posts (white and/or yellow) and pre-cast concrete curbing along Garden Street, install a (gloss black) rectangular rapid flashing beacon (RRFB) assembly at the Waterhouse Street crosswalk across Garden Street, and to widen the concrete sidewalk along Berkeley Street near Garden Street into the grass planting strip to accommodate the conversion of part of a loading zone into a new accessible/disability parking space. Some minor curb adjustment work (raise sunken/misaligned/missing pieces) would also take place to accommodate this new accessible space on Berkeley Street. This new concrete sidewalk would be the length of the space (~20ft) and be contained to the existing planting strip.

Seeking Certificate of Appropriateness

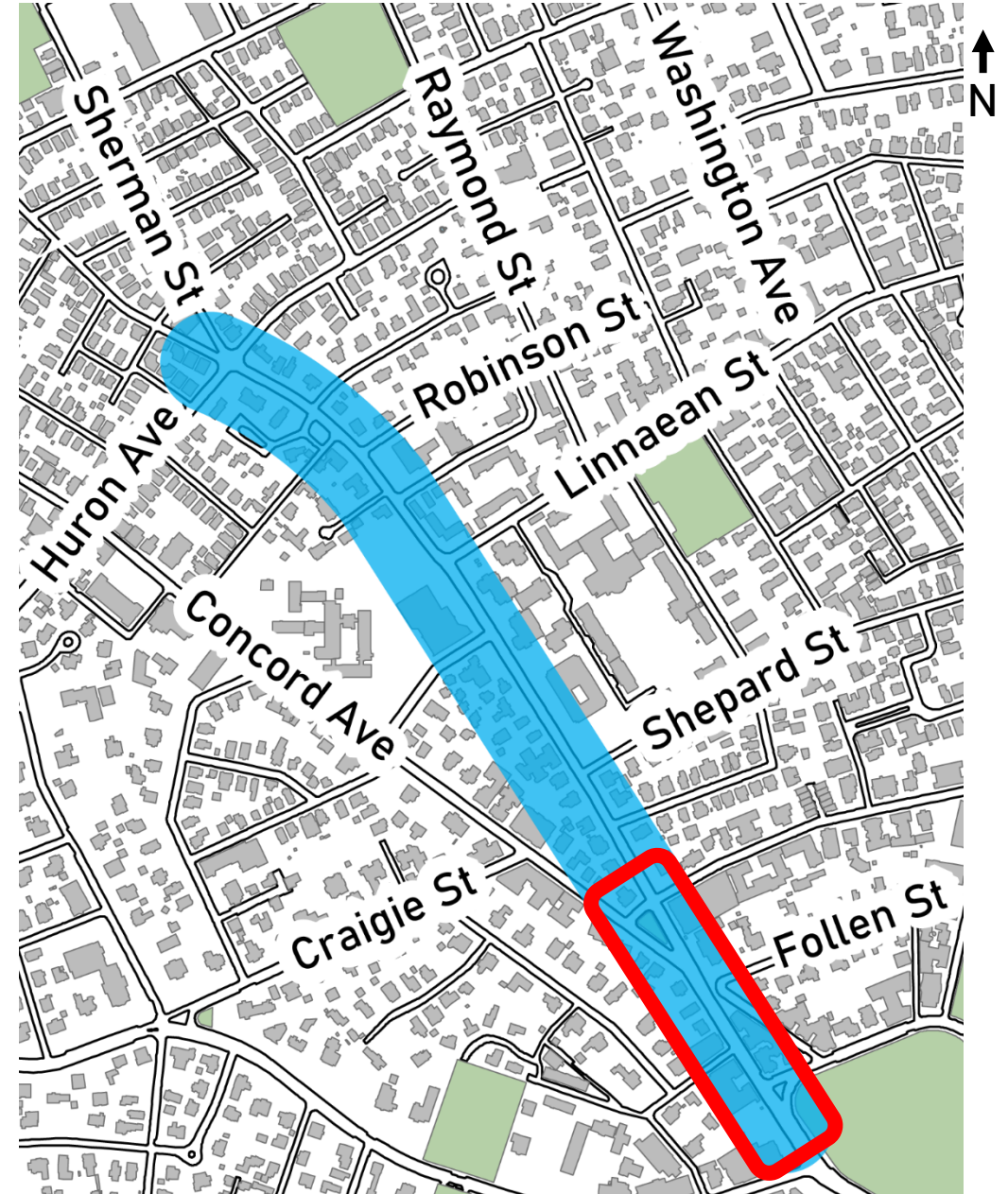
Project Area

Garden St Project Limits

Huron Avenue to Mason Street

Old Cambridge Historic District

Chauncy St to Mason St
(approximate, see plans)



Project Scope

This is a quick-build project which uses pavement markings, signs, traffic signals, and vertical elements to increase safety.

This project does the following on Garden Street:

- Adds separated bike lanes
 - In both directions between Huron Avenue and Mason Street*
- Converts part of the street to one-way eastbound
 - Between Huron Avenue and Concord Avenue, drivers will only travel toward Cambridge Common and Harvard Square
- Improves crosswalks
- Changes parking and loading

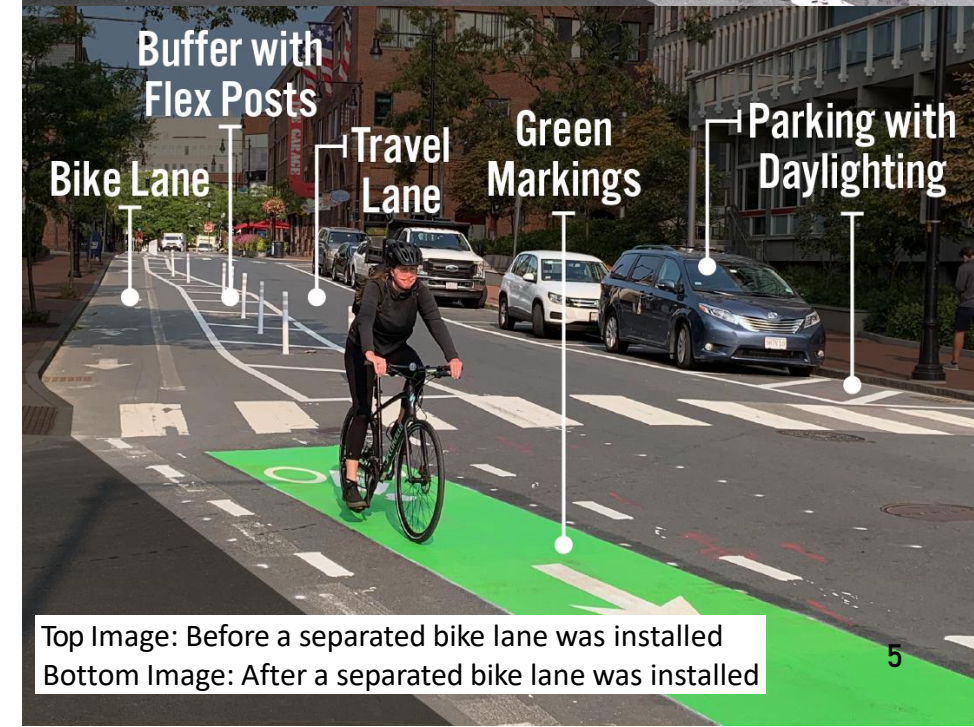
*Eastbound separated bike lane to Berkeley Street only



Image: Cambridge Street Separated Bike Lane (2017)

Separated Bike Lane Benefits

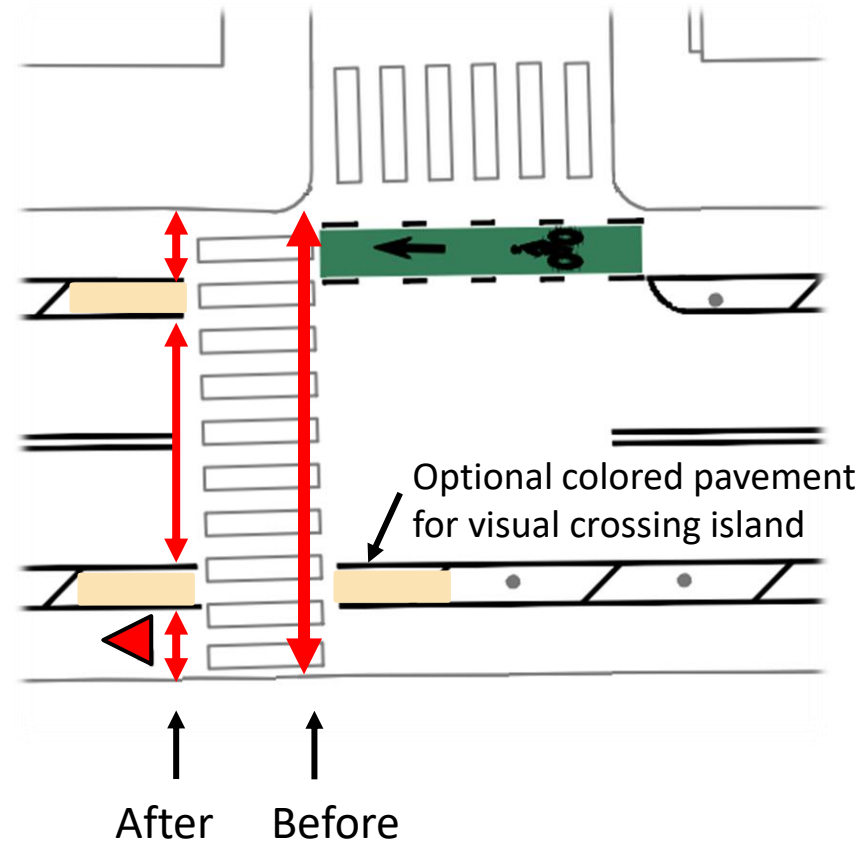
- Increases comfort and access for people of all ages and abilities
- Reduces crash and injury risk
- Eliminates threat of "dooring" from parked vehicles
- Reduces potential conflicts between vehicles and people biking
- Encourages slower traffic speeds by visually narrowing the roadway width



Separated Bike Lane Benefits - Pedestrian Safety

Separated bicycle lanes improve safety for people walking

- Shorter crossing distances
- Better sightlines
- Each potential conflict can be handled separately (i.e., cross bike lane, then vehicle lanes)
- Visually narrows the roadway for drivers, encouraging lower speeds and higher yielding rates



Previous Community Meetings

Community feedback included:

- Preference for one-way bike lanes on both sides instead of a two-way bike lane on one side
- Keep as much parking as possible
- Consider the needs of seniors
- Improve the crosswalks at Waterhouse Street (Sheraton) and at Shepard Street
- Make Garden Street a one-way to make space for parking
- Reduce cut through traffic
- Keep people on bikes off the sidewalks

Based on this feedback and more, we pursued the option which converted a portion of Garden Street to one-way.



Garden Street Layout – Key Aspects

One-way vehicle traffic

(Huron Avenue to Concord Avenue, eastbound)

- Reduces total traffic volumes
- Provides space for parking
- Reduces vehicle volumes on Garden Street west of Huron Avenue (aligns with goals in the Bicycle Network Vision Plan)

One-way separated bike lanes on both sides

- Predictable interactions at side streets and driveways
- Better access when biking to destinations on both sides of the street
- Straightforward operations and expectations at traffic signals and crosswalks

Parking and loading

- Retains more parking on Garden Street
- Parking changes sides to maximize the number of spaces
- Prioritizes parking where there is the most need
- Street cleaning parking restrictions are no longer needed

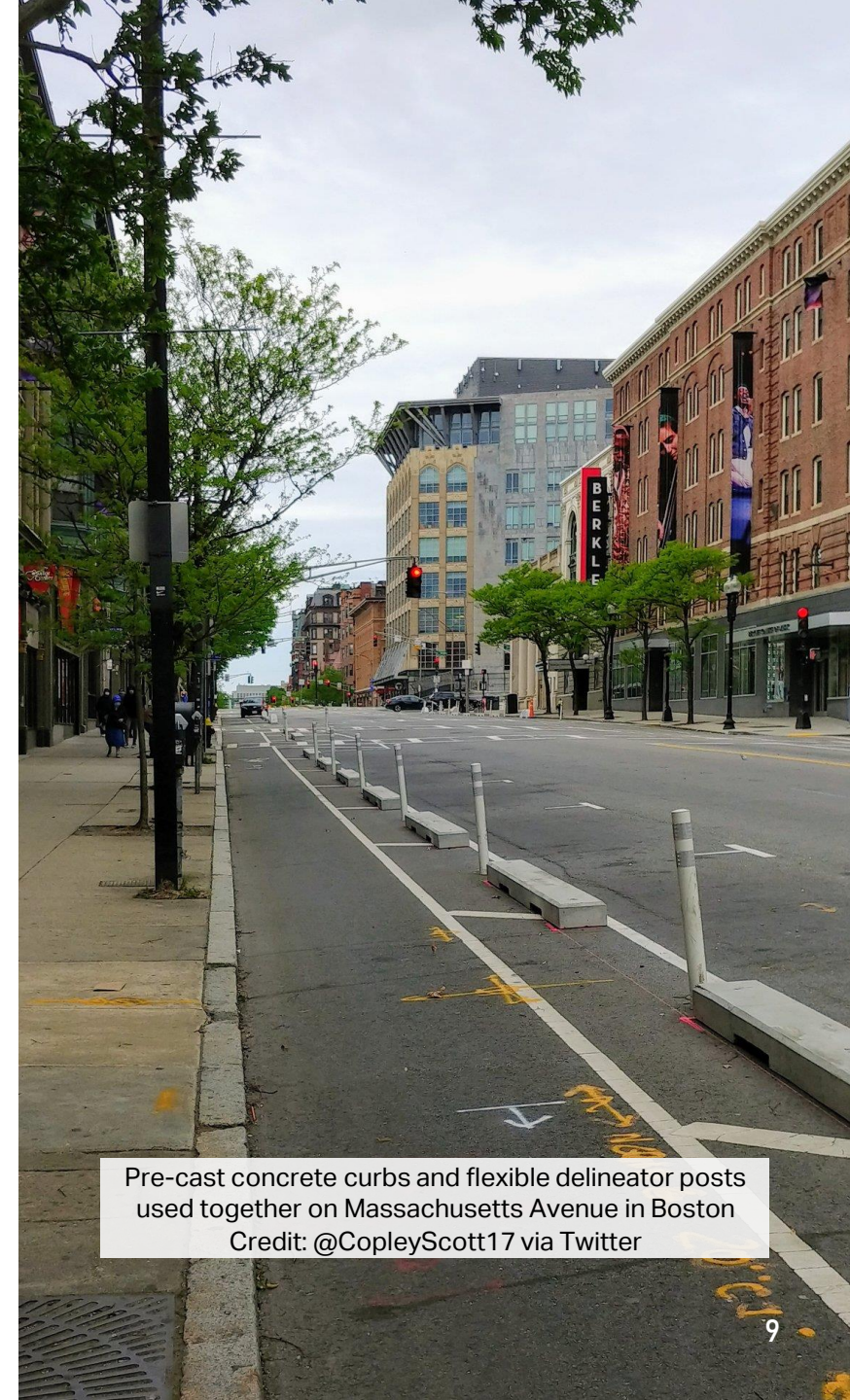
Types of Separation

Flexible Delineator Posts (flex posts)

- Height provides added visibility (nighttime, snow, etc.)
- Installed at driveways, side-streets, other key locations to control turns and reduce bike lane encroachment
- Provides clarity to road users
- Familiar product used throughout region and country
- Off-the-shelf, readily available

Pre-Cast Concrete Curbs

- Reduce visual clutter
- More durable material
- Stronger protection for people biking
- Use of City of Boston specification/design improves cost effectiveness, availability, and increases recognition across region



Pre-cast concrete curbs and flexible delineator posts used together on Massachusetts Avenue in Boston
Credit: @CopleyScott17 via Twitter

Proposed Separation

Within the Old Cambridge Historic District, we plan to use a combination of flex posts and pre-cast concrete curbs.

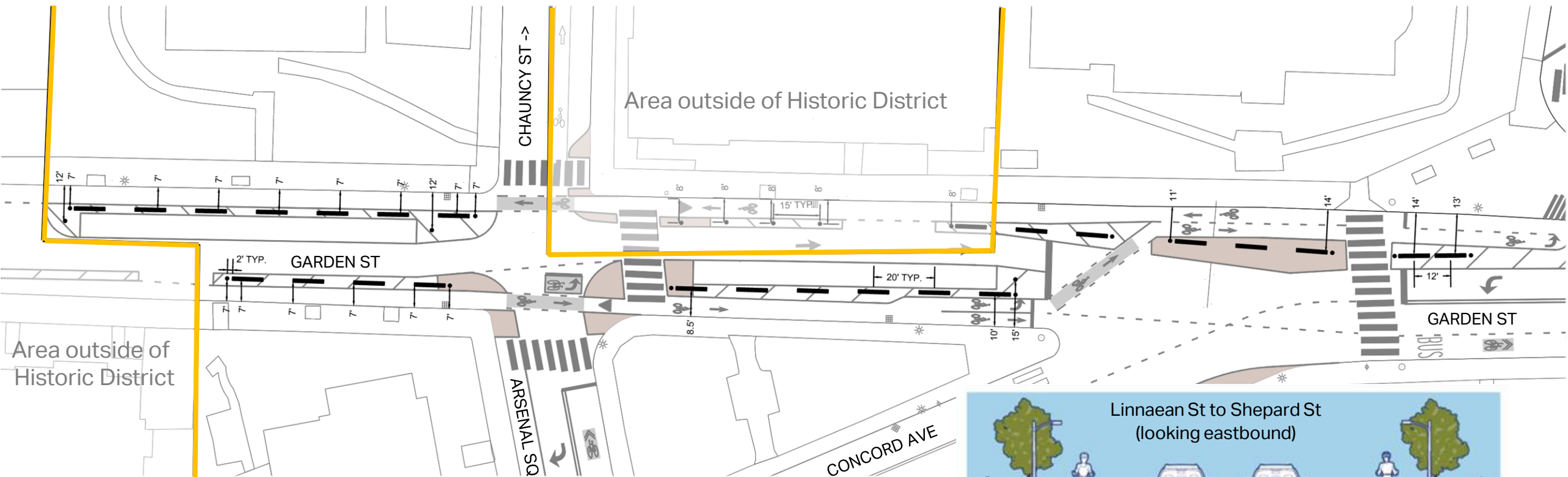
Engineering judgement and prior Historical Commission feedback regarding nearby Brattle Street leads to a design that:

- Minimizes the use of flex posts
- Locates flex posts at the beginning and end of each run of curbing for visibility
- Places curbing approximately every 20ft on-center: 10ft of curb, ~10ft of gap

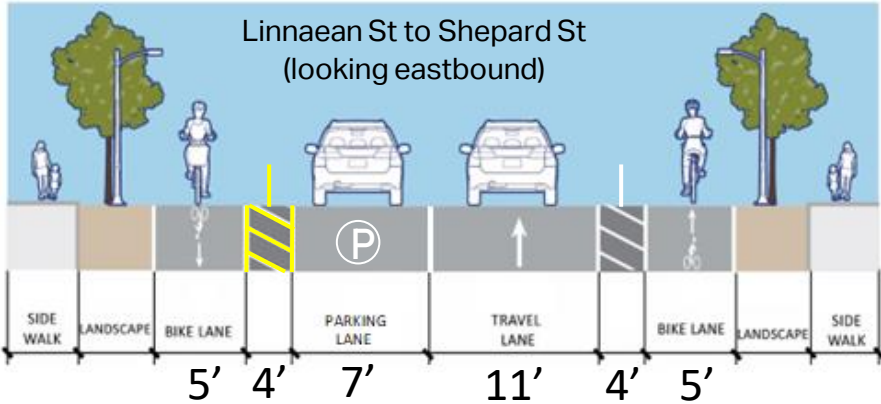


Rendering of Brattle Street using a similar approach to flex post and barrier placement. Shows an older arrangement that had more flex posts than currently proposed.

Flex Post and Curb Layout: Chauncy St to Concord Ave

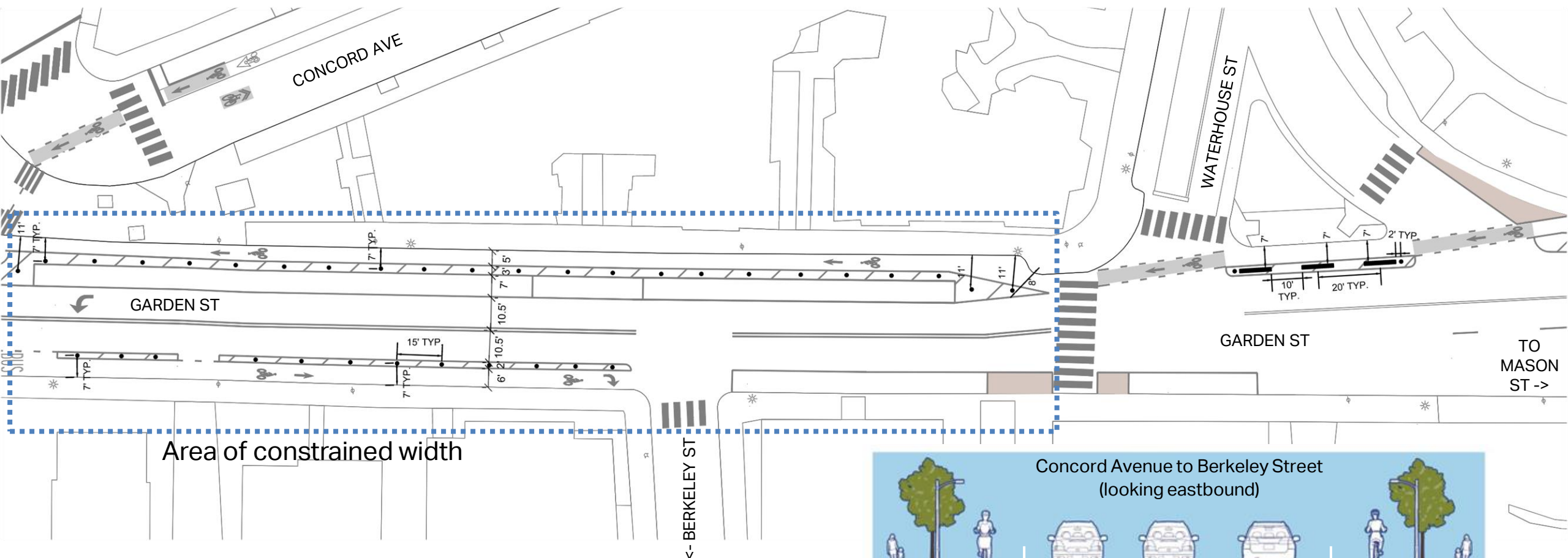


- Key
- Pre-cast concrete curb
 - Flex post

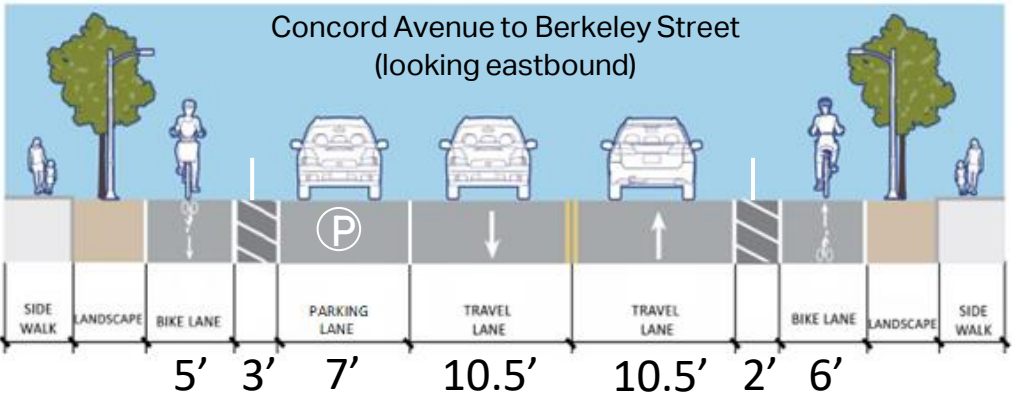


(parking is on the right side between Chauncy St and Concord Ave)

Flex Post and Curb Layout: Concord Ave to Berkeley St/Mason St



- Key
- Pre-cast concrete curb
 - Flex post

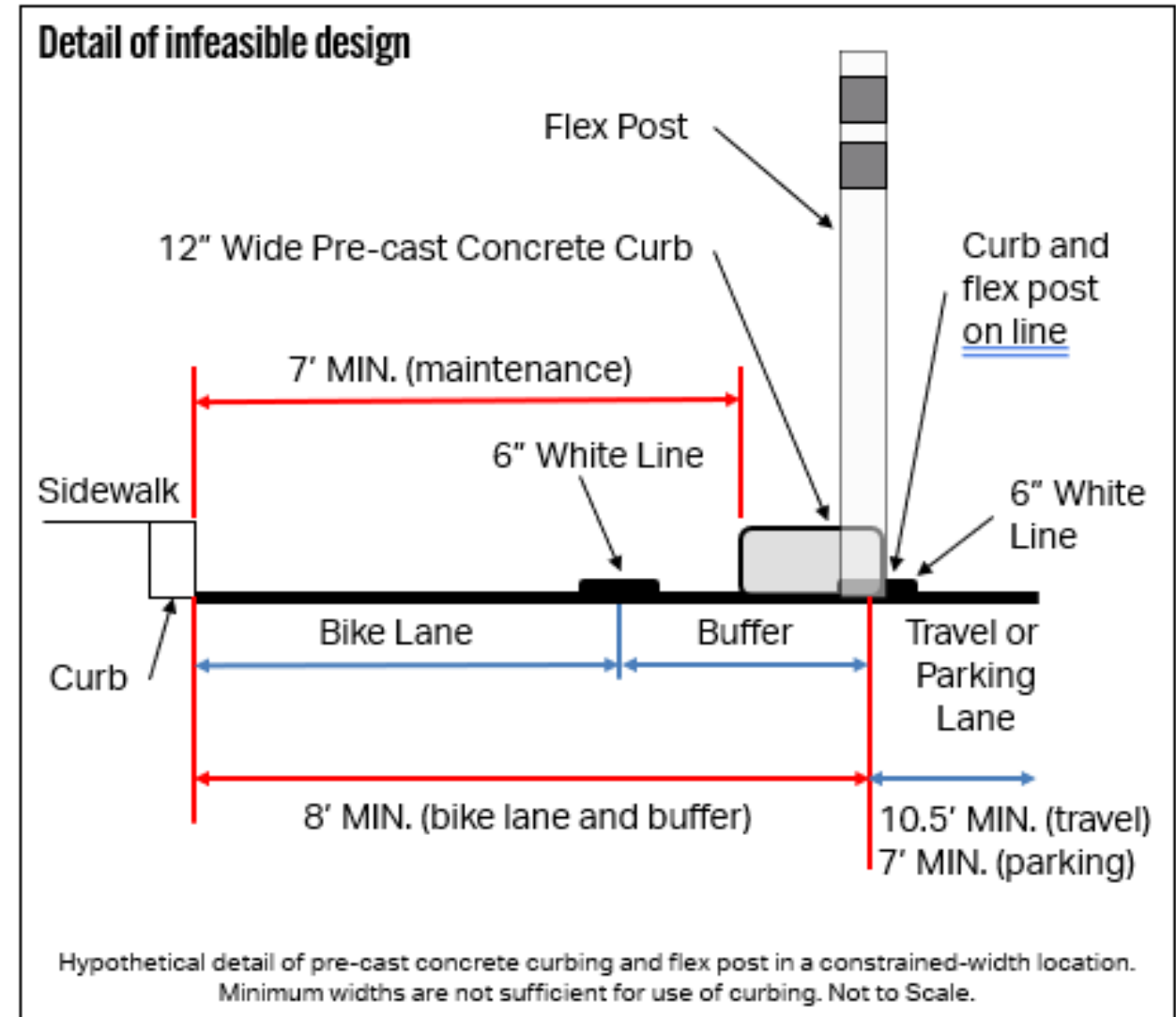


Constrained-Width Section

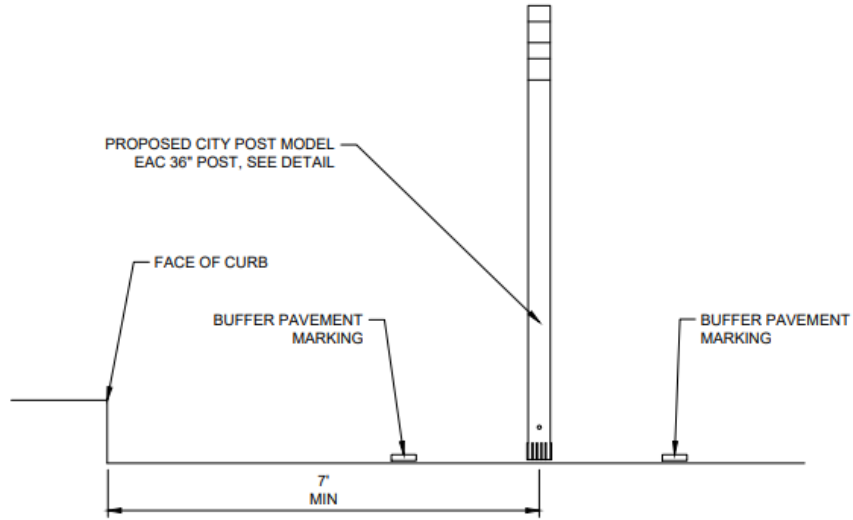
Between Concord Avenue and Waterhouse Street

Lane widths at minimums in this section.
Space is too narrow for curbing.

- Outer edge of curb and flex post would need to be on the white edge line
- Challenging for drivers to see edge of driving area without visible white line
- Not enough clearance for trucks, buses, and service vehicles (plows, etc.)
- Difficult to park with pre-cast curb immediately adjacent to parking lane
- One poorly parked vehicle could block two-way travel
- Increased risk of curb being struck and dislodged



Flexible Reflector Post Detail



TYPICAL LATERAL DISTANCE OF FLEXPOST FROM CURB
(UNLESS OTHERWISE NOTED ON PLANS)
NOT TO SCALE



2" and 4" aluminum anchor cups and optional pop-in, screw-out anchor cup plug cap for when post is removed



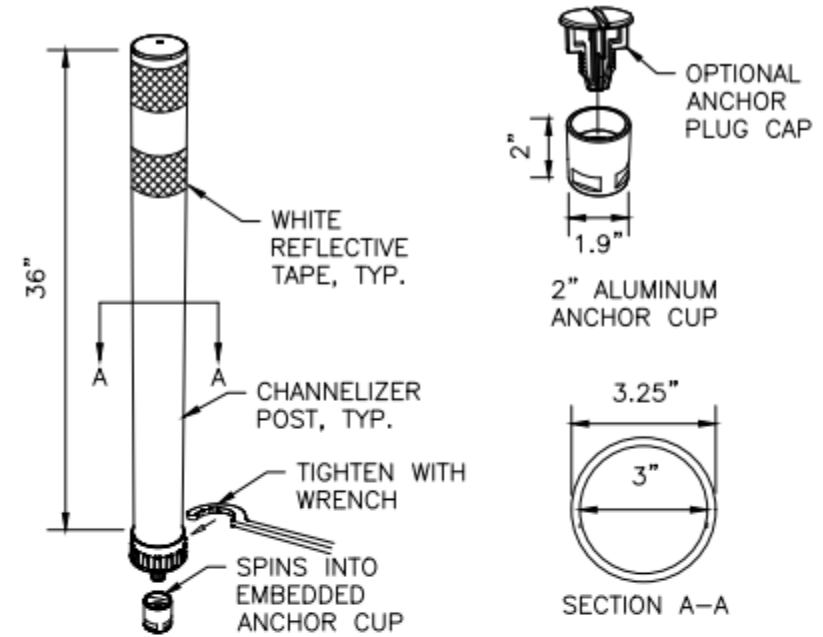
The anchor cup securely installed shown with and without plug cap



Clear shield and rubber gasket factory-applied for a clean installation



City Posts can be tightened and loosened with the City Post wrench

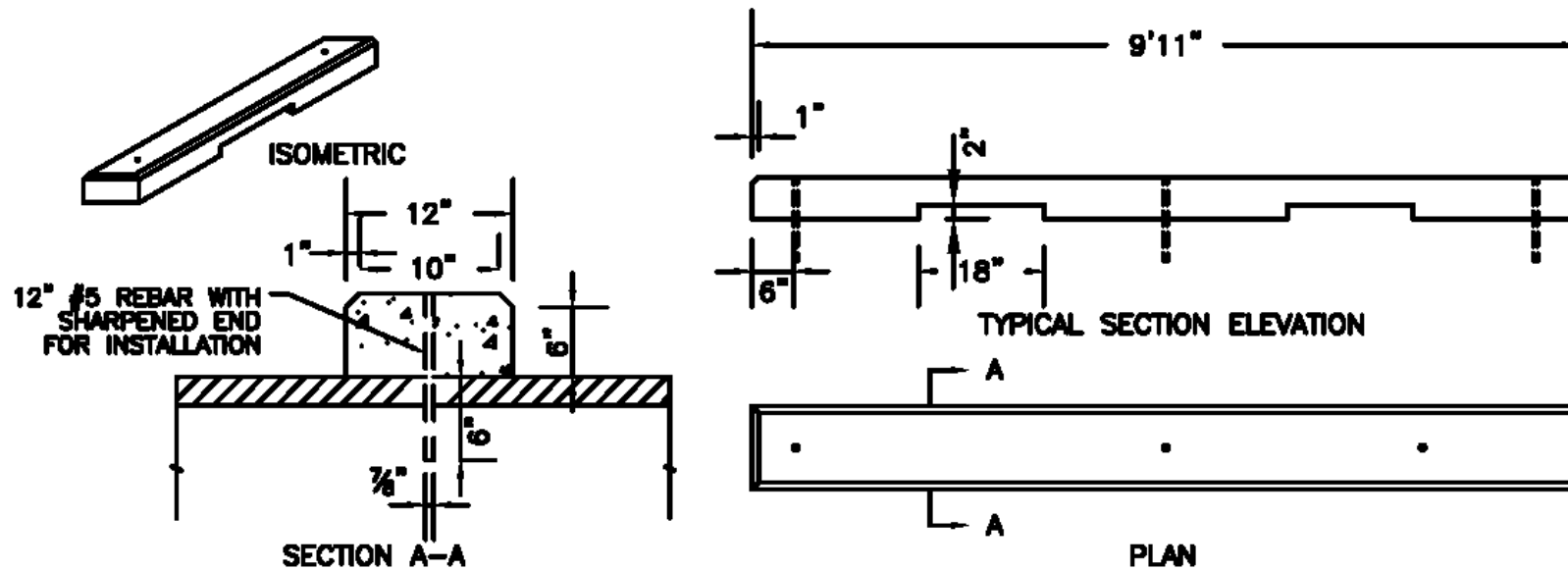


36" WHITE CORED
BASE FLEXPOST DETAIL
NOT TO SCALE

FLEXPOST NOTES:

1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DIMENSIONS, MATERIALS, AND ATTACHMENTS MAY VARY BETWEEN MANUFACTURERS.
3. COLOR OF POST SHALL MATCH COLOR OF APPLICABLE EDGE LINE.

CITY POST MODEL EAC 36" POST
NOT TO SCALE



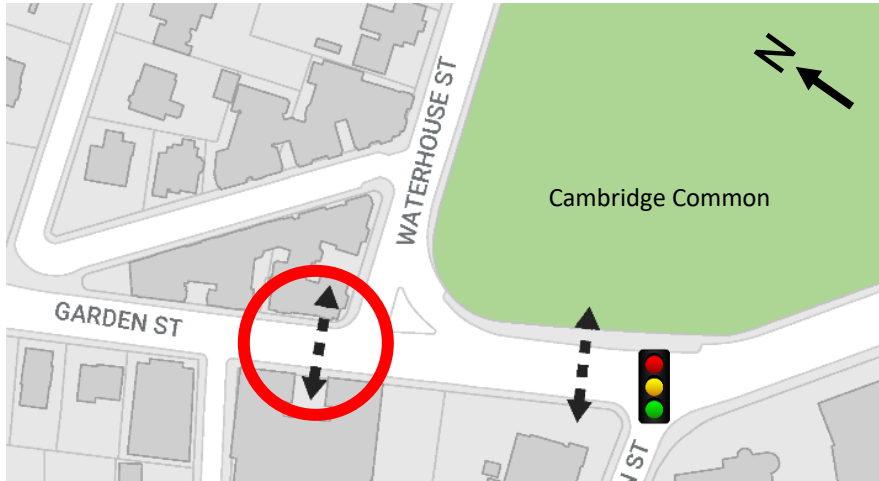
NOTES:

1. CONCRETE TO BE 5000 PSI, SULFATE RESISTANT WITH FIBER REINFORCEMENT.
2. UNITS TO BE SECURED USING #5 CORROSION RESISTANT REBAR HAND DRIVEN TO DEPTHS INDICATED.

**12" PRECAST CONCRETE CURBING FOR BICYCLE LANES
(NOT TO SCALE)**

Design based on City of Boston specifications

Proposed Traffic Signal Equipment



Rectangular Rapid Flashing Beacon (RRFB) to be installed at the crosswalk across Garden St at Waterhouse St

- Gloss black finish
- Matches others in City
- Detailed specs in application packet



Photo: Example of RRFB on Albany Street at Portland Street

Proposed Curbing and Sidewalk Modifications

Berkeley St at Garden St (looking south)



Proposed replacement and or realignment of curb to meet accessibility requirements

Proposed sidewalk widening for new accessible/disability parking space (approx. 20ft)

Proposed widening of concrete sidewalk along Berkeley St near Garden St into grass planting strip

- Accommodates conversion of part of loading zone into new accessible/disability parking space
- Minor curb adjustment work (raise sunken/ misaligned/ missing pieces)
- Concrete sidewalk would be the length of the space (~20ft) and be contained to the existing planting strip.
- Match existing materials