



EXPANDING MULTIMODAL ACCESS

Credit: Juliette Melton

HARVARD SQUARE

Purpose

- How People Access Harvard Square
 - Pedestrians
 - Bicyclists
 - Transit riders
 - Motorists
- Curbside Management
- Preliminary Circulation Recommendations
- Community Engagement and Path Forward



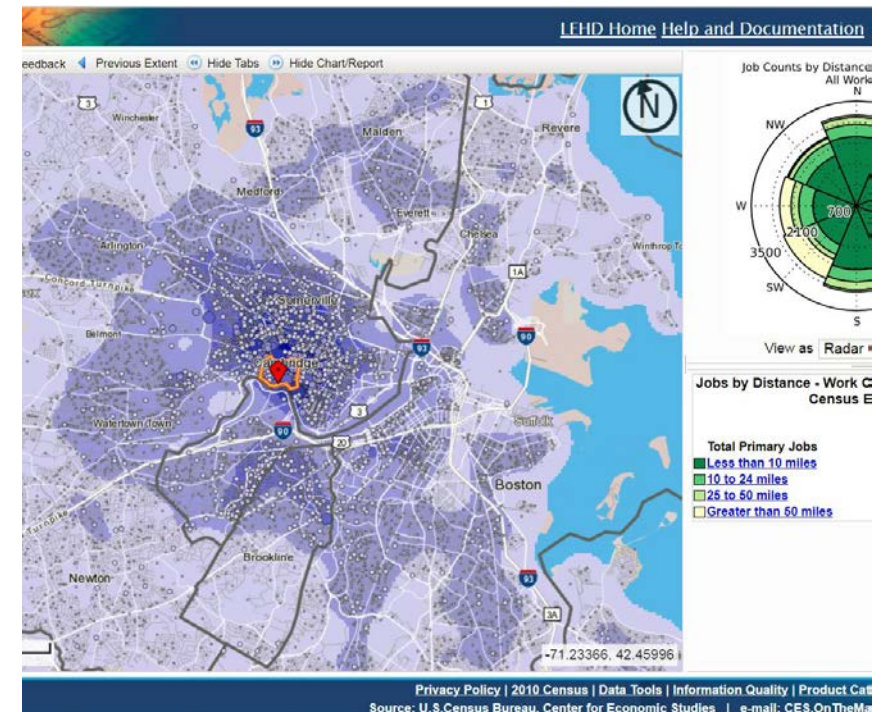
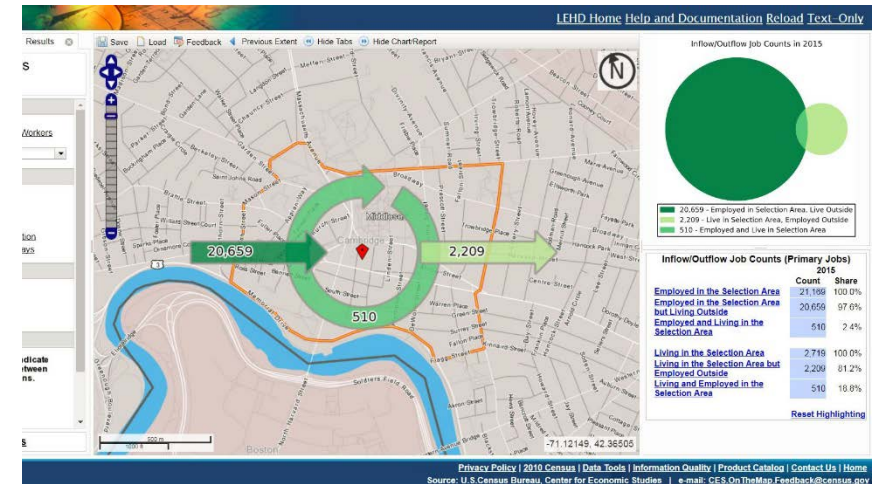
Studying Multimodal Access

- Observations in-person
- Data Review
 - Census
 - LEHD
 - MBTA
 - City of Cambridge
 - Google Travel API



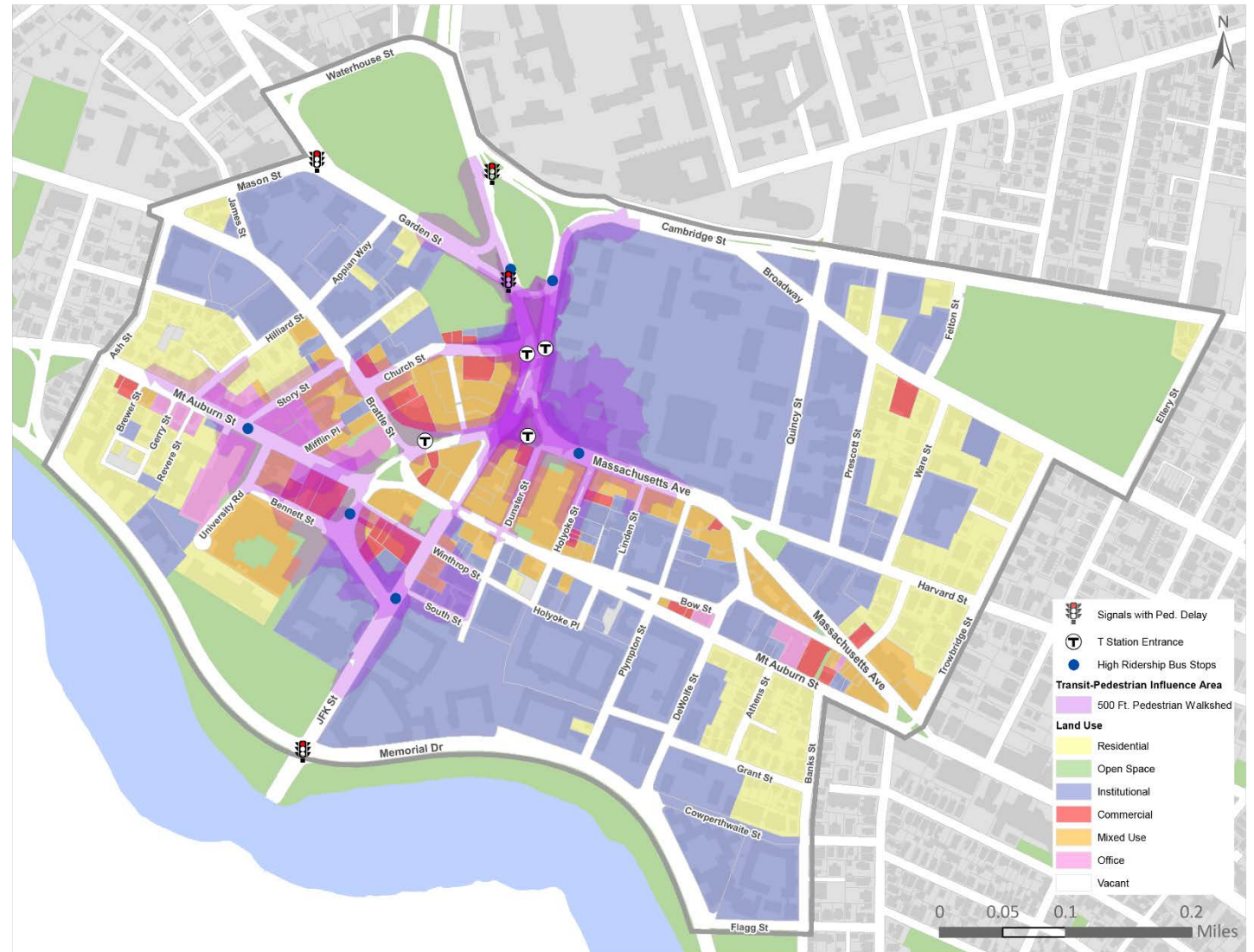
Studying Multimodal Access

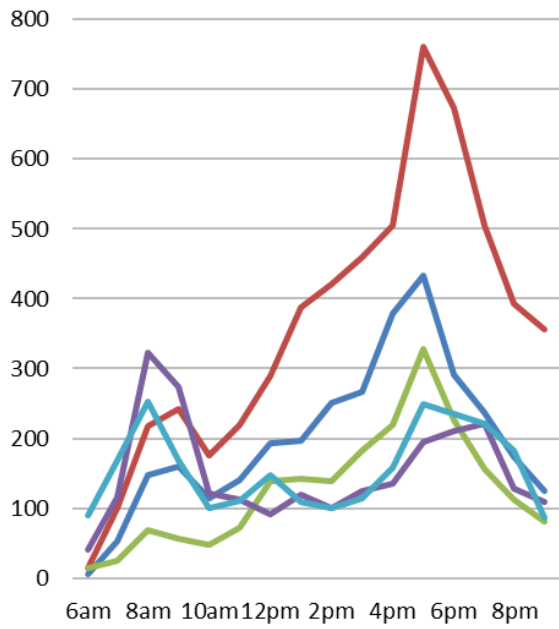
- Commuting Patterns
 - 20,000 commute in
 - 2,000 commute out
 - 500 live and work
- Most employees live in neighboring cities
 - 73% live less than 10 miles from Harvard Square
 - 45% live in Boston, Cambridge, and Somerville



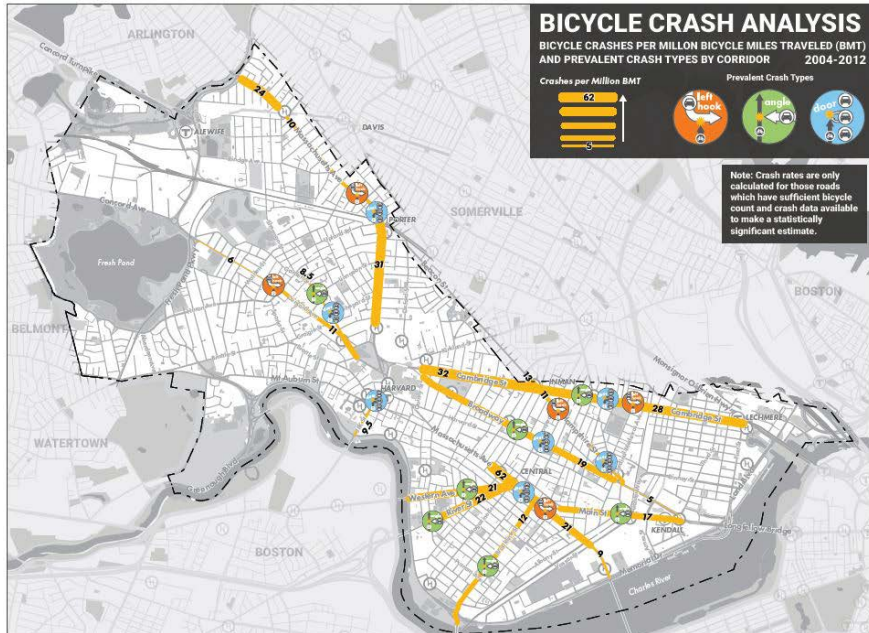
Pedestrian Activity

- Red Line and bus stops generate significant amount of pedestrian activity
- Several traffic signals create delay for pedestrians





- Harvard Square at Brattle St / Eliot St
- Harvard Square at Mass Ave / Dunster
- Harvard Kennedy School at Bennett St / Eliot St
- Harvard University River Houses at DeWolfe St
- Cambridge Main Library at Broadway / Trowbridge St

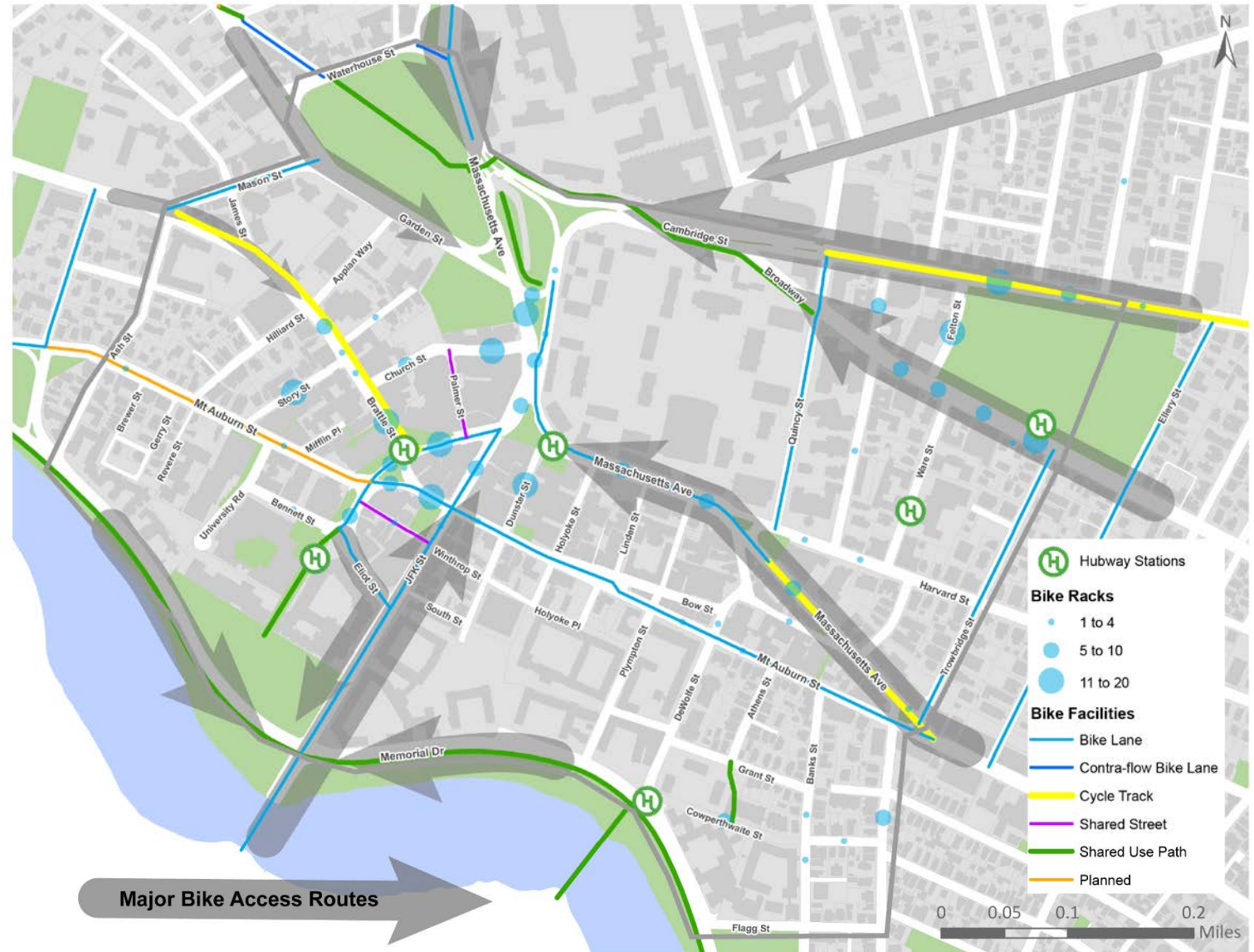


Bicyclist Activity



Bicyclist Activity

- Bicyclists access Harvard Square in all directions
- Mass Ave, Cambridge Street, and JFK are primary routes
- Mount Auburn Street west of Eliot Street is a higher stress biking route; east of Eliot Street it functions as an outbound, not access, route
- Ample bike parking throughout the square



Transit Activity

• Streets

- Harvard Square streets serve a critical function for buses
- Several streets have buses every 3-5 minutes

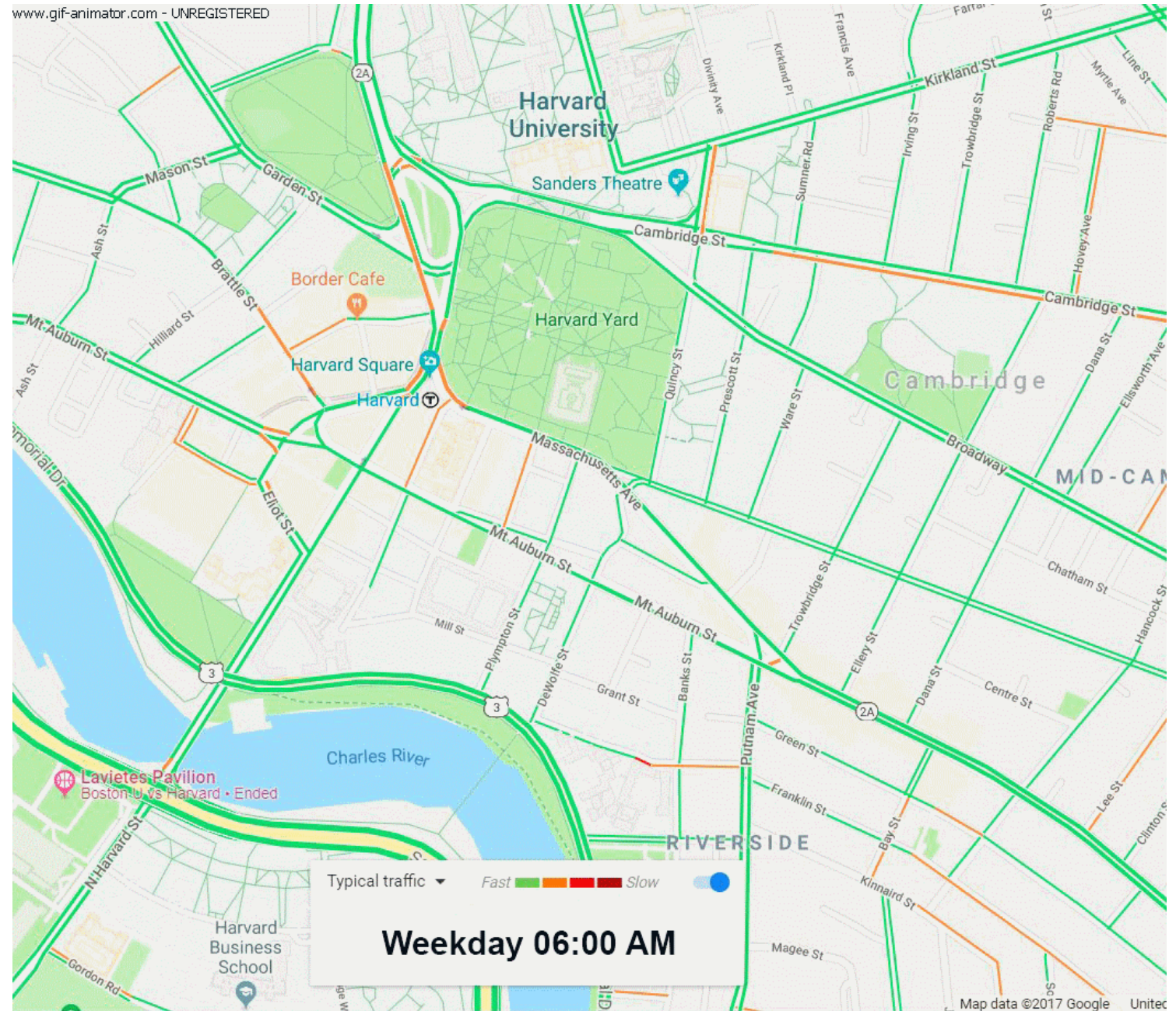
• Stations

- Red Line stop is main hub of activity
- Several other bus stops



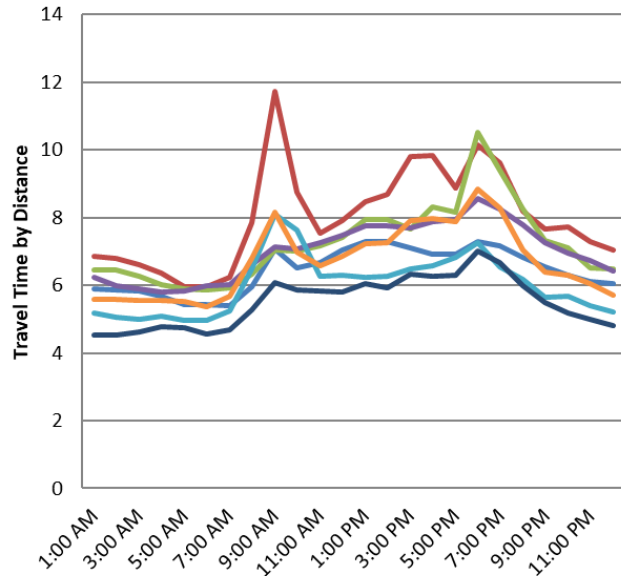
Vehicle Access

- Congestion occurs throughout the day
- Most pronounced in the afternoon/evening



Vehicle Access

- Average travel times through and across Harvard Square range between 4 and 12 minutes
- Slowest travel times on Eliot Street and JFK Street between Memorial Drive and Massachusetts Avenue



- Massachusetts to Mt Auburn
- Massachusetts to JFK
- JFK to Massachusetts
- Mt Auburn to Garden
- Mt Auburn to Kirkland
- Irving to Memorial
- Putnam to Cambridge



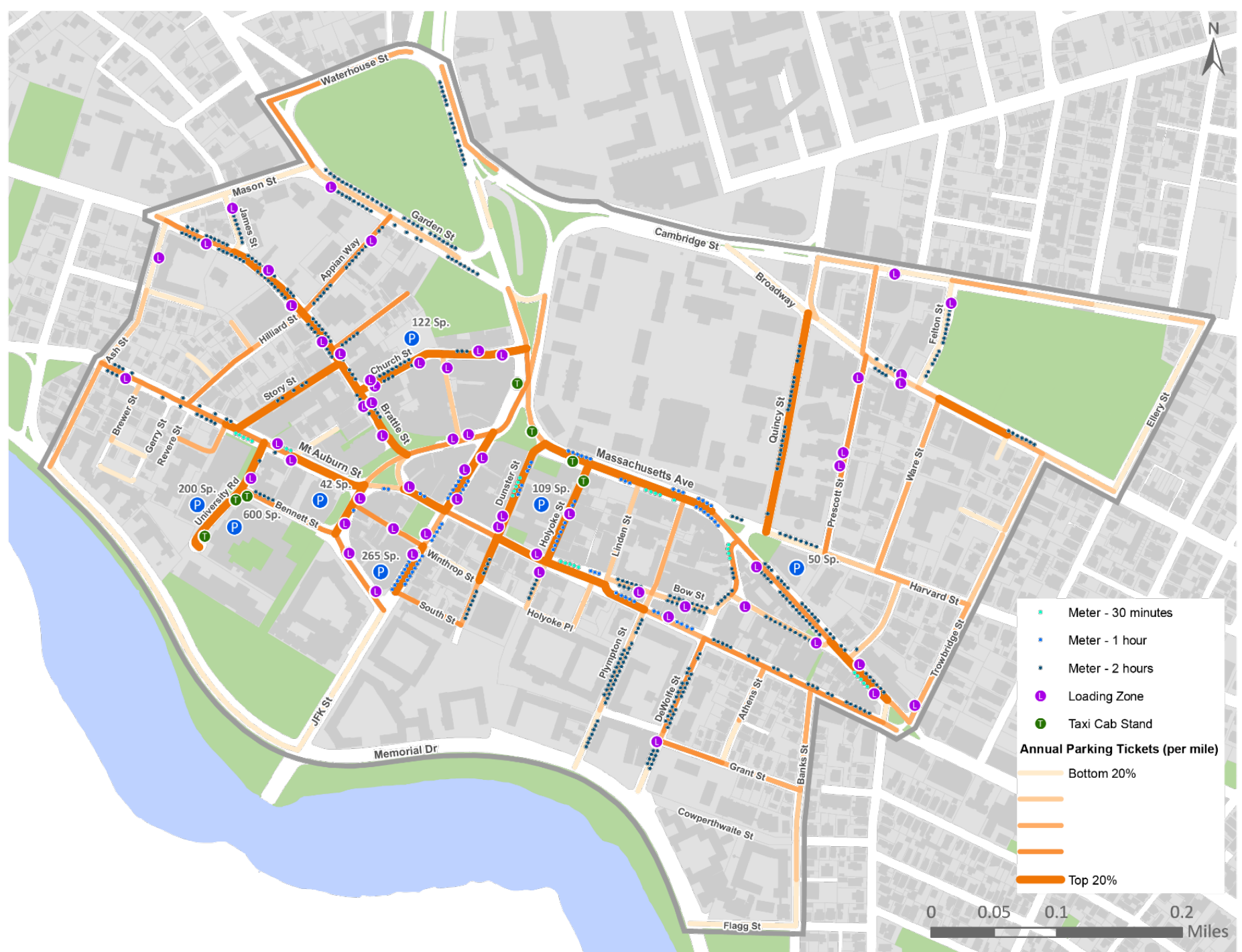
Studying Curbside Activity

- Observations in-person
- Data Review
 - City of Cambridge



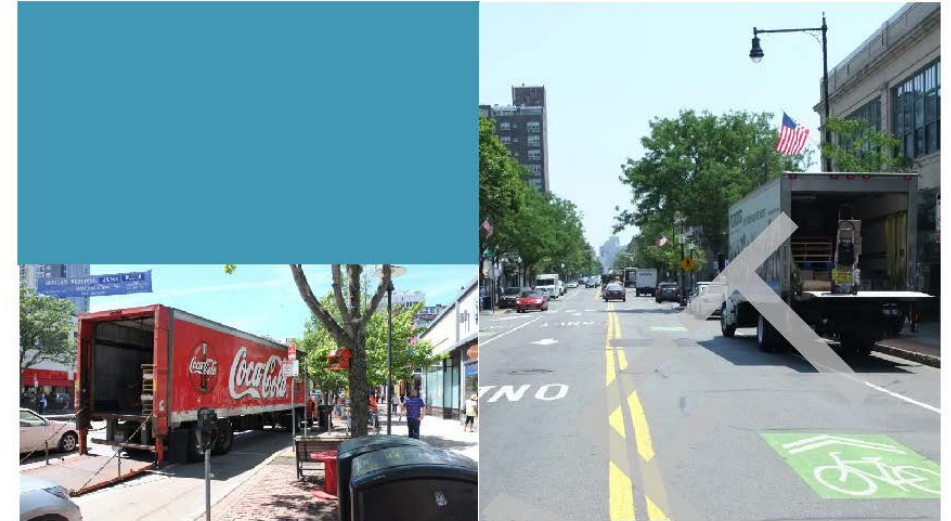
Curbside Activity

- On-Street Parking
 - Competing uses (57 loading zones, 600 metered spaces, 10 taxi stands)
 - Illegal parking (high demand) prevalent
- Off-Street Parking
 - 7 Garages with 1,388 spaces



Cambridge Curbside Activity Study

- Eight-hour surveys at three locations:
 - Cambridge Street from Inman Square to Prospect Street
 - Massachusetts Avenue from Inman Street to Lafayette Square
 - 3rd Street from Broadway to Binney Street
- Draft findings
 - Parking lane widths insufficient to accommodate large trucks results in bike lane intrusion
 - Passenger vehicles parking in loading zones displace trucks to other locations
 - Truck double parking observed, particularly between 9 AM and Noon



Survey Findings

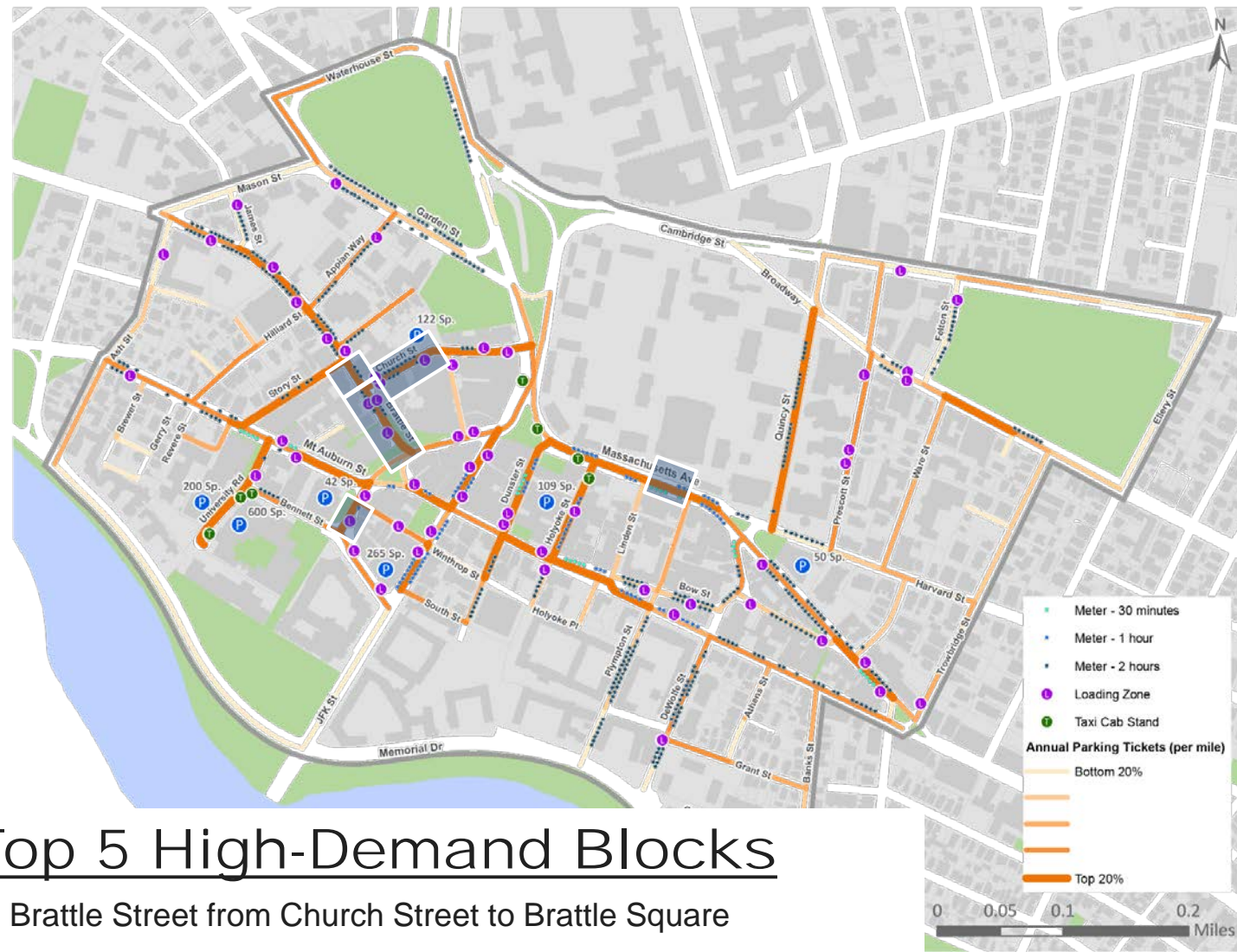
Cambridge Truck Loading Improvement and
Delivery Solutions Study

City of Cambridge, MA

August 2, 2017

Curbside Management Recommendations

- **Loading Zones**
 - Study curbside conflicts at high-demand locations (blocks with highest parking-related ticketing)
 - Assess local business opinions on loading zone permitting and pricing
 - Identify high- and low-demand times for loading zones (opportunity to convert all-day zones to TNC pick-up/drop-off for part of the day)



Top 5 High-Demand Blocks

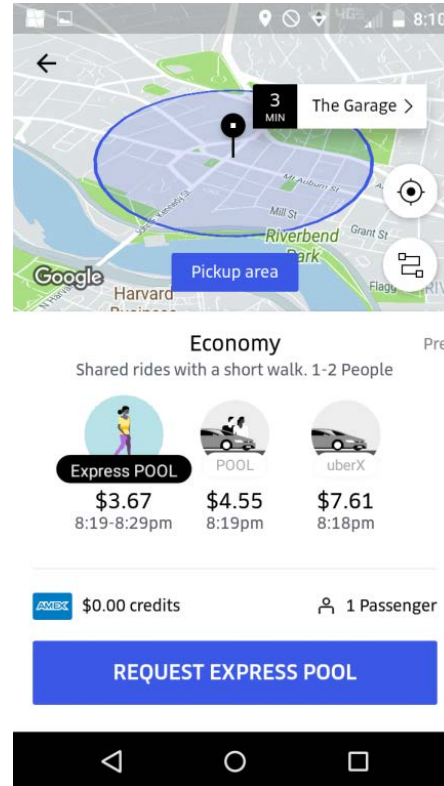
- 1 Brattle Street from Church Street to Brattle Square
- 2 Eliot Street from Bennet Street to Winthrop Street
- 3 Massachusetts Avenue from Linden Street to Plympton Street
- 4 Brattle Street from Story Street to Church Street
- 5 Church Street from Brattle Street to Palmer Street



Curbside Management Recommendations

- TNCs

- Identify current TNC pick-up and drop-off location trends
- Assess local business opinions on taxi stands and TNCs
- Develop draft TNC Zone implementation plan using best practices from Davis Square in Somerville
 - 5 spaces located in 3 zones
 - 2 spaces are loading zones during the day; convert to TNC drop-off and pickup from 6 pm to 8 am
 - 3 spaces are an all-day TNC zone



Curbside Management Recommendations

- TNCs

- Potential pilot drop off / pick up locations include:

- Brattle Street at Palmer Street
- Church Street from Massachusetts Ave to Brattle St
- Holyoke Street from Massachusetts Ave to Mt Auburn St
- Mt Auburn St at Mifflin Pl



Curbside Management Recommendations

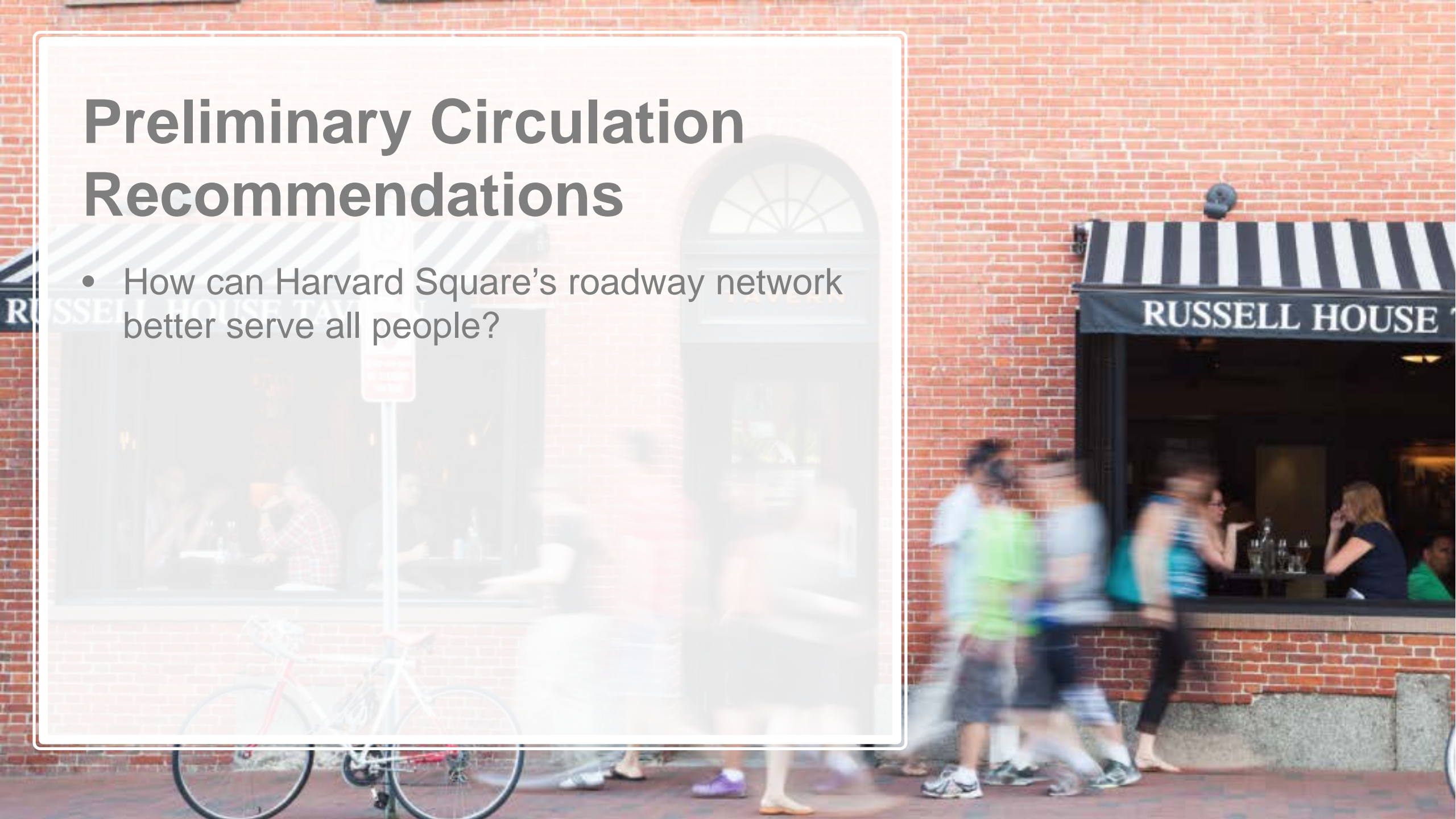
- **Tour Buses**

- Consider stricter enforcement of 15 minute parking limit at current tour bus drop off / pick up location on Mt Auburn Street
- Work with City of Cambridge to find permanent layover area for tour buses
 - E.g., Cambridge Common



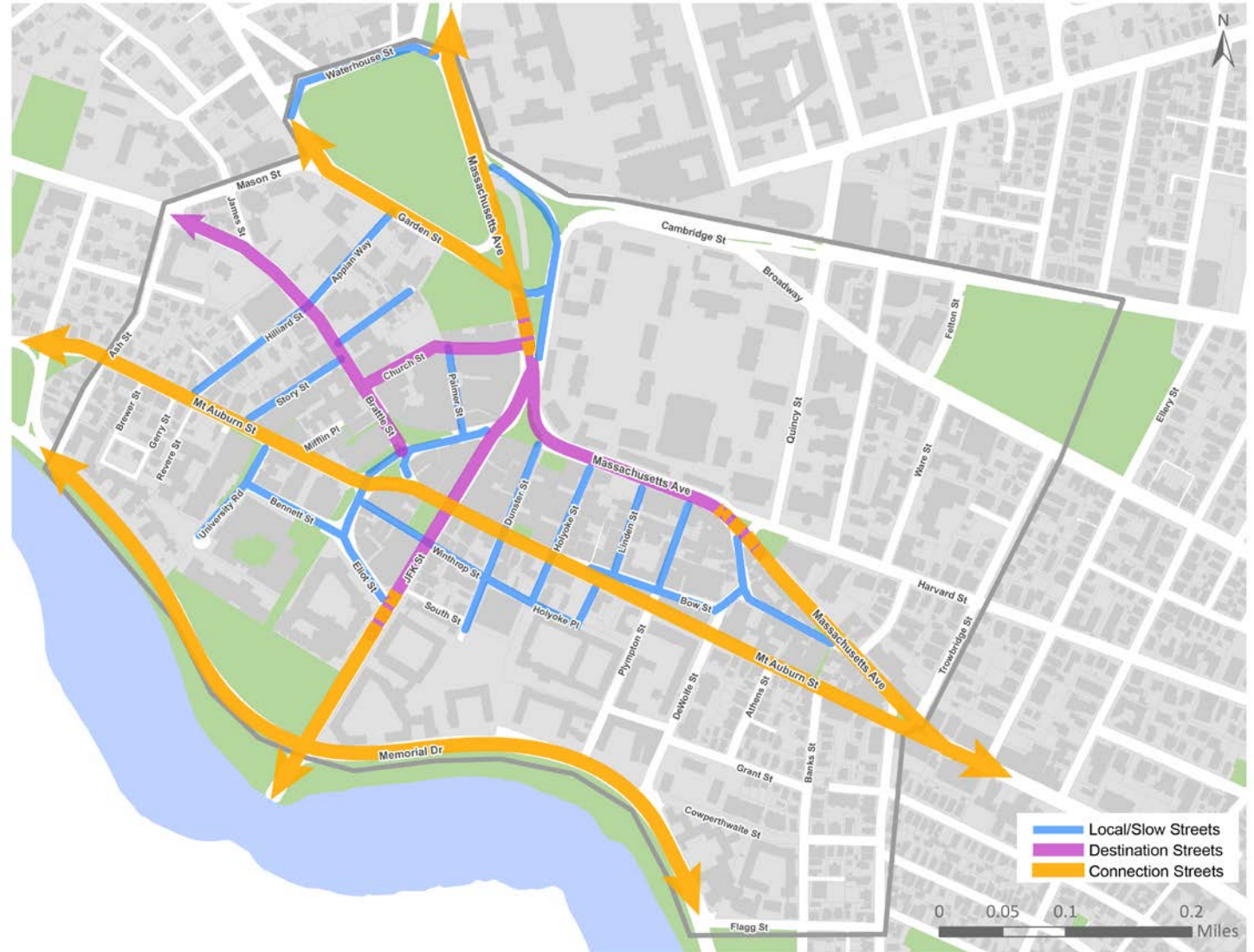
Preliminary Circulation Recommendations

- How can Harvard Square's roadway network better serve all people?



Street Typology

- Develop design treatments to match street function
- **Local/Slow Streets:** implicitly slow vehicle speeds using pedestrian volumes, design, and other cues to slow or divert traffic
- **Destination Streets:** provide access to key destinations
- **Connection Streets:** move people to and through the Square



Precedents

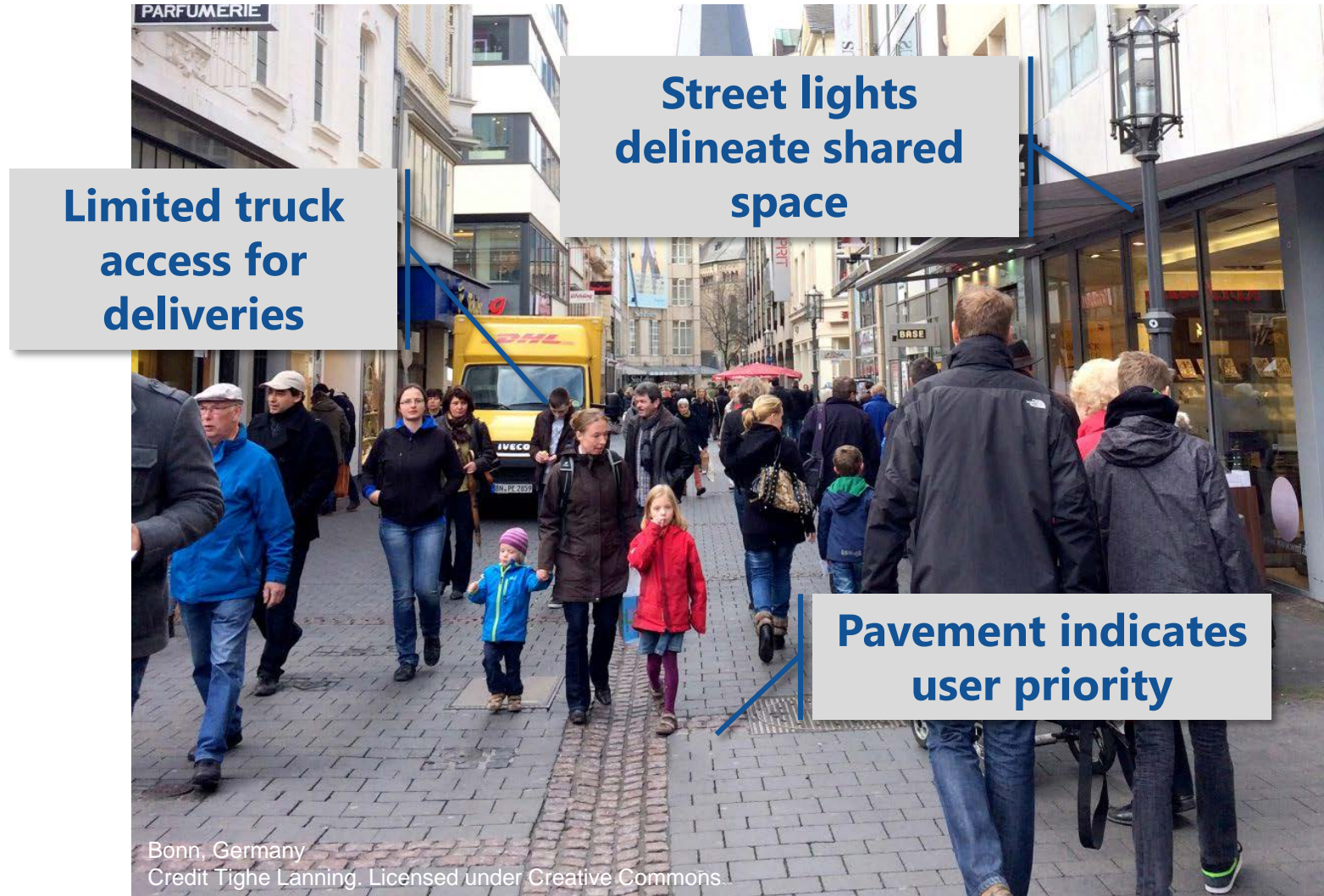
- **Local/Slow Streets**

- Implicitly slow vehicle speeds using pedestrian volumes, design, and other cues to slow or divert traffic

Shared Space



Transit vehicles are typically not found on local/shared streets. If found, transit vehicles share the roadway with other modes



Bonn, Germany
Credit Tighe Lanning. Licensed under Creative Commons.

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Shared Space



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Foliage visually narrows street

Curb-free street reinforces user priority

Copenhagen, Denmark
Credit Michael Kodransky, EURIST e.V.

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Cambridge, Massachusetts
Credit NACTO Urban Street Design Guide



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Portland, Oregon
Credit NACTO Urban Bikeway Design Guide



Precedents

- Destination Streets:
 - Provide access to key destinations

Separated Spaces



Street trees reinforce separation and offer shade

Street furniture is pedestrian protection and placemaking



San Francisco, California
Credit NACTO Urban Street Design Guide



Precedents

- **Destination Streets:**
 - Provide access to key destinations

Separated Spaces



Clear pedestrian, parking, and motorized vehicle zones



Precedents

- **Connection Streets**

- Move people to and through the Square

Separated Spaces



Cambridge, Massachusetts
Credit: Google



Precedents

- **Connection Streets**

- Move people to and through the Square

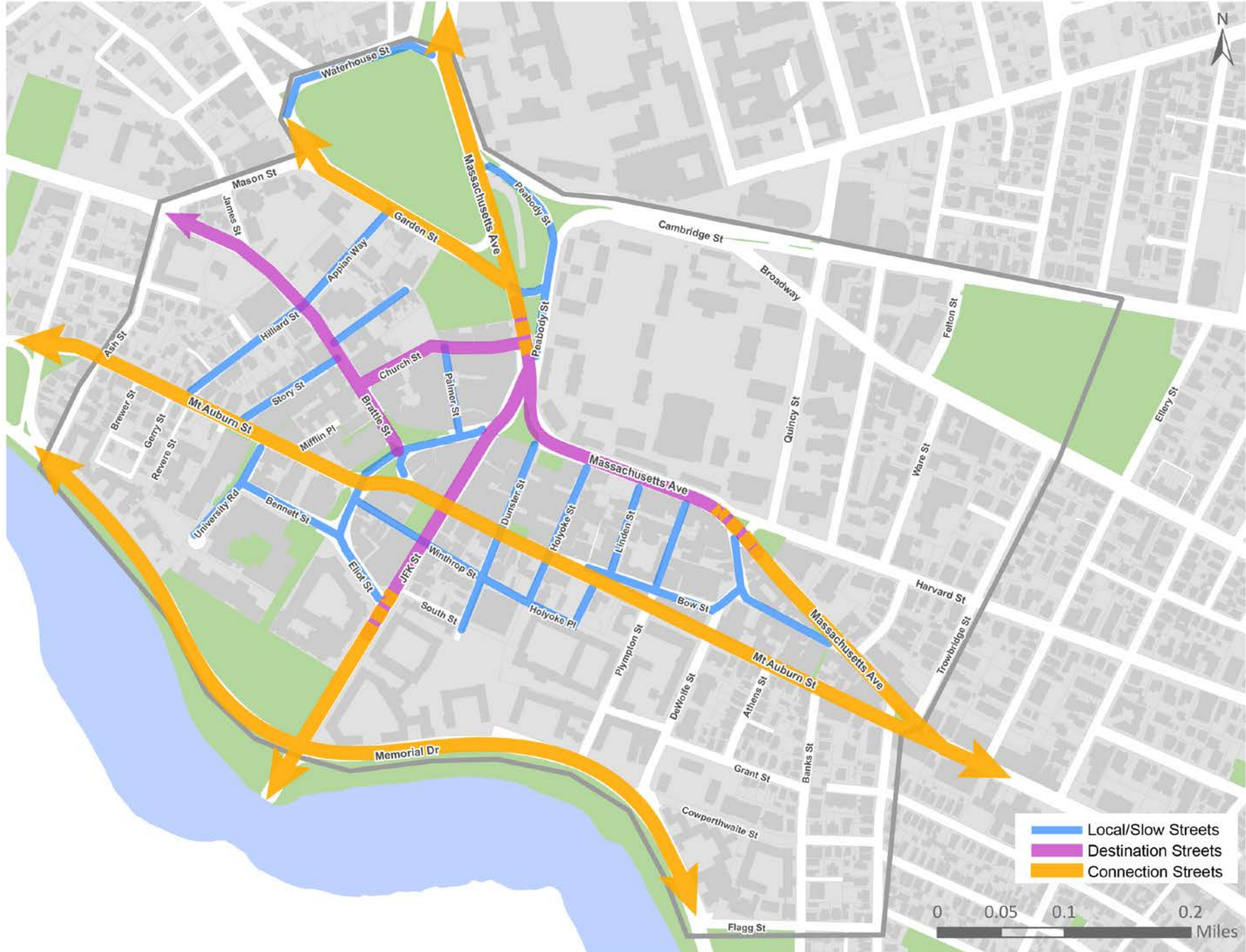
Separated Spaces



Planters reinforce bicyclist comfort on multilane road

Vancouver, Canada
Credit: Google





Circulation



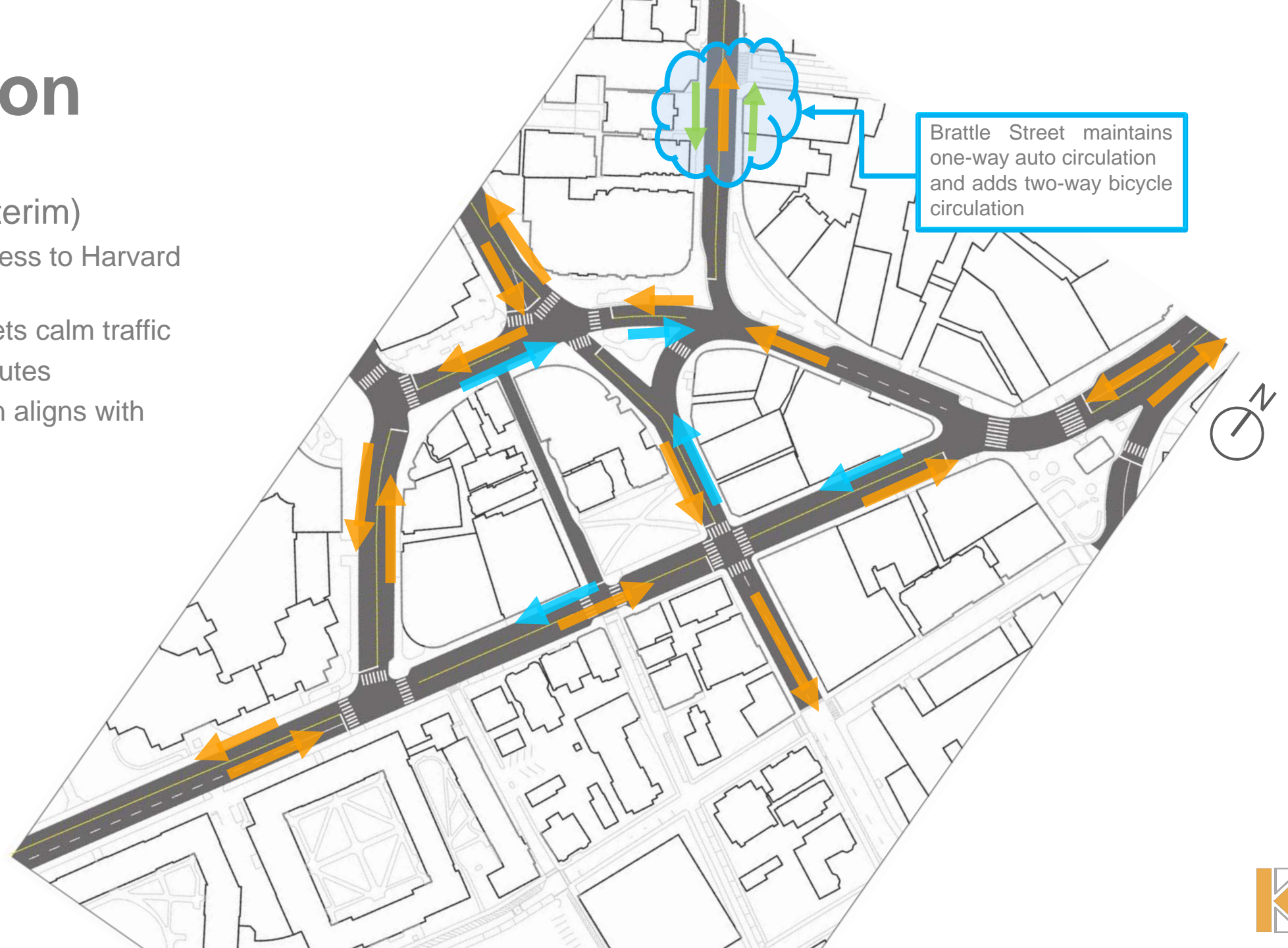
Circulation

- Existing



Circulation

- Envisioned (Interim)
 - Increases access to Harvard Square
 - Two-way streets calm traffic
 - More direct routes
 - Street function aligns with typology



Circulation

- Envisioned (Final)
 - Two-way traffic on Brattle Street
 - Expands Eliot Triangle into Brattle Square slip lane to create public plaza (final design to round out tip of triangle on the southwest side)

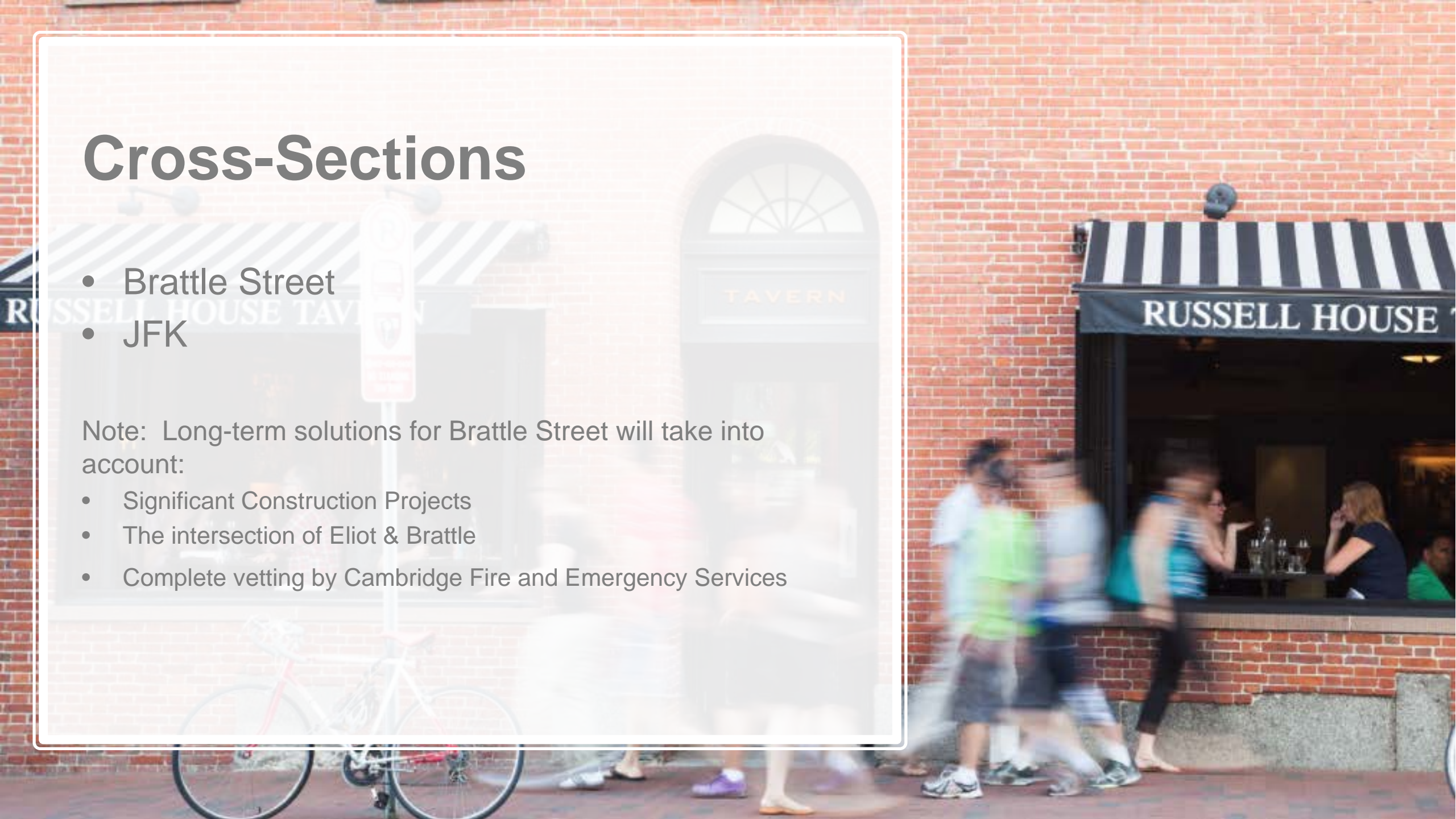


Cross-Sections

- Brattle Street
- JFK

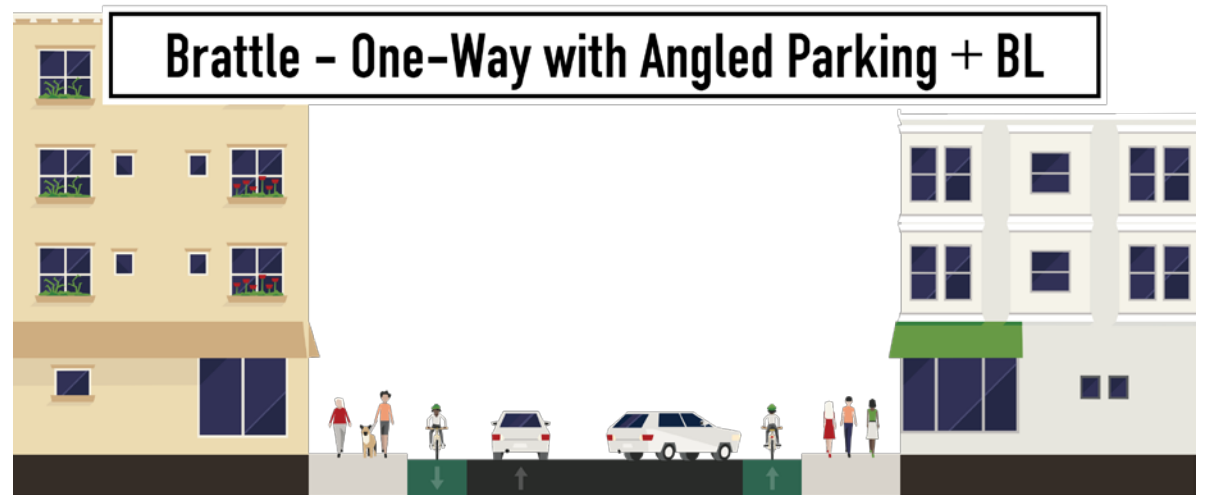
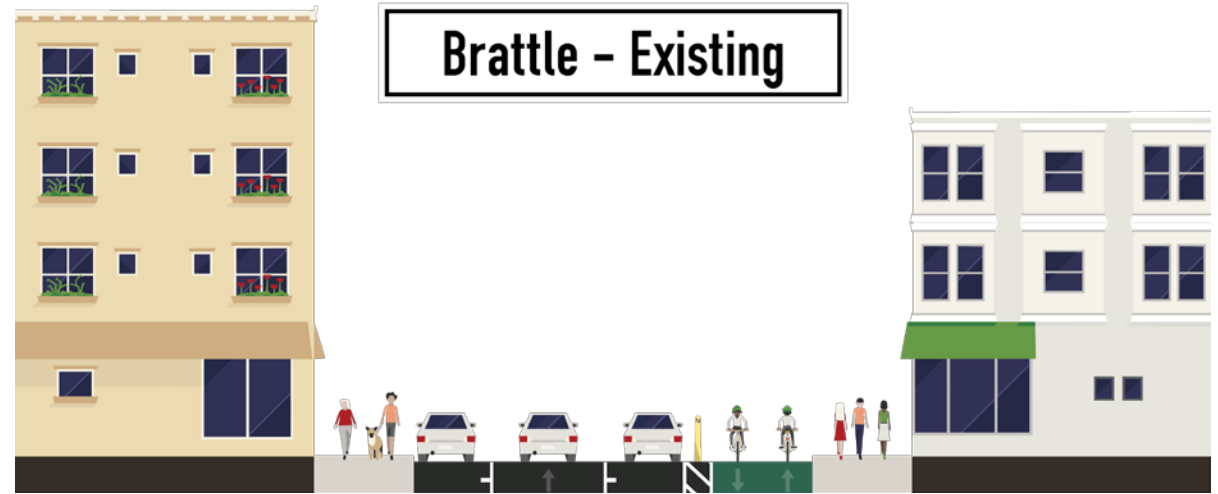
Note: Long-term solutions for Brattle Street will take into account:

- Significant Construction Projects
- The intersection of Eliot & Brattle
- Complete vetting by Cambridge Fire and Emergency Services



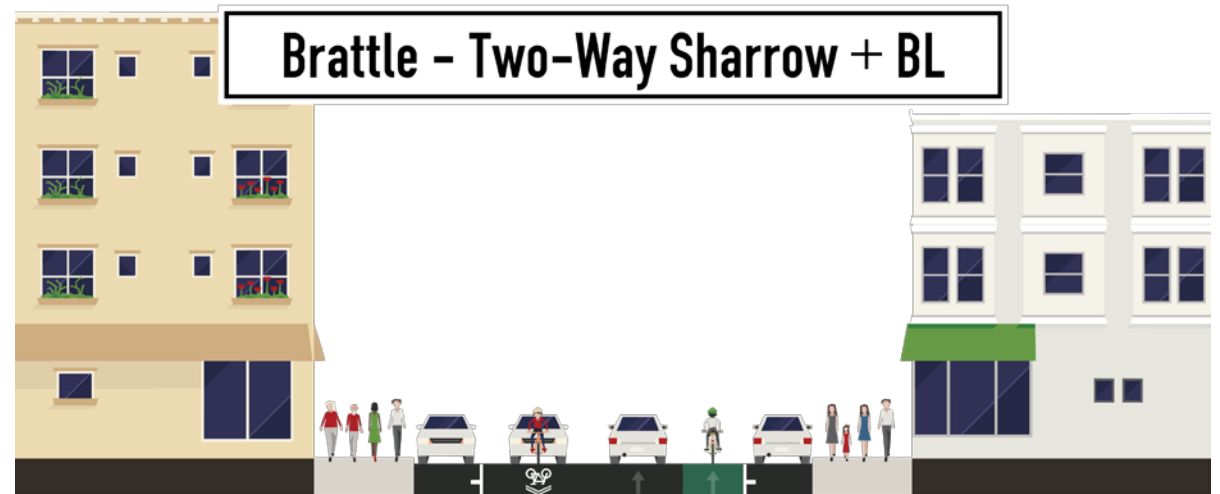
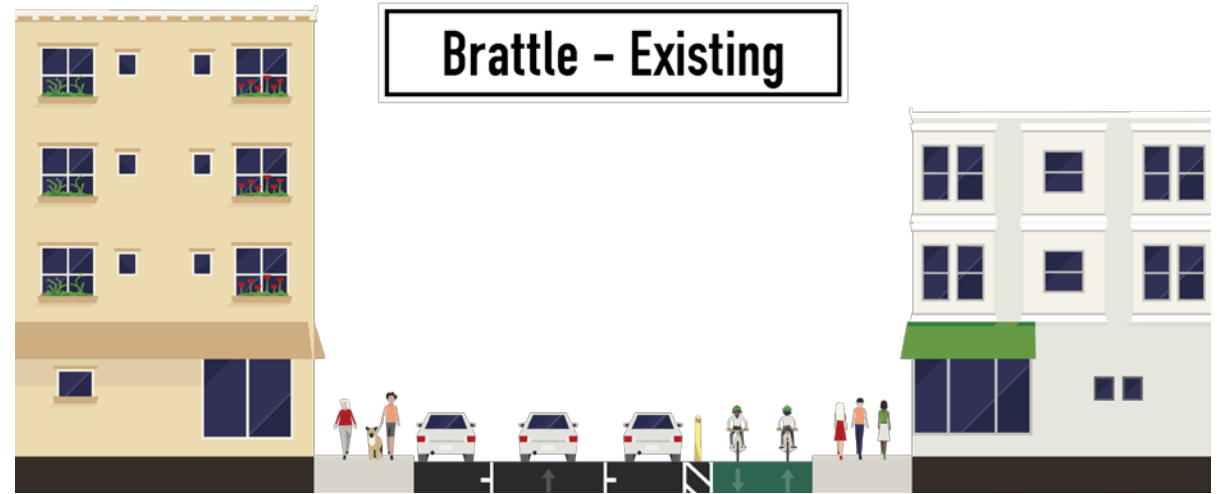
Cross-Sections

- Brattle Street (Interim)
 - Destination Street
 - Proposed concept reduces parking supply between Brattle Street and Mason Street from **63** parallel spaces to **27** angled spaces



Cross-Sections

- Brattle Street (Final)
 - Destination Street
 - Final concept restores parking supply between Brattle Street and Mason Street to **63** parallel spaces





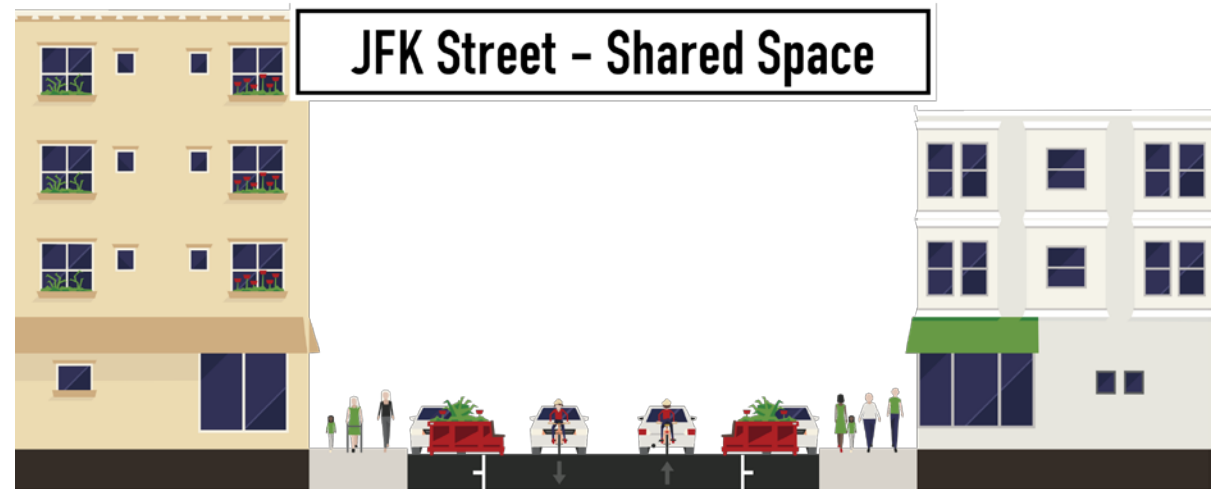
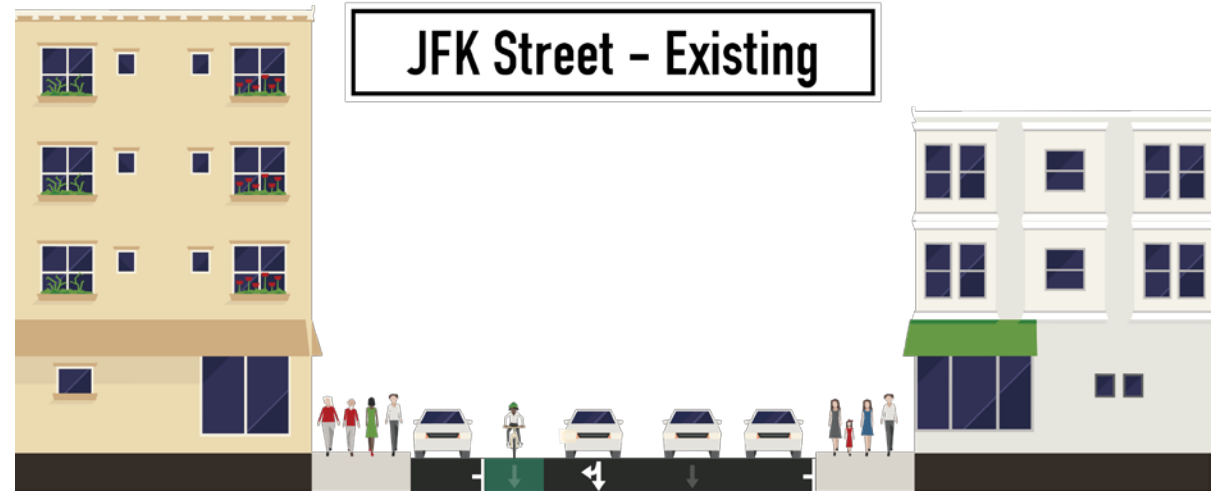
INTERIM





Cross-Sections

- JFK Street
 - Connection street that transitions to a destination street
 - Curb extensions indicate change in street context







Community Engagement and Path Forward

- Share findings/recommendations with community
- Document our process
- Next Steps
 - Update Curbside Study
 - Update Circulation Recommendations
 - Public Meeting

