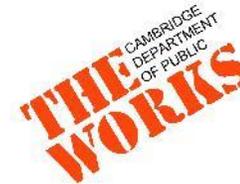
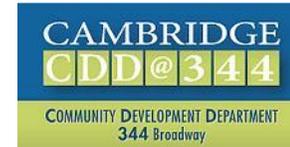


Bicycle Safety Work Plan

November 3, 2016

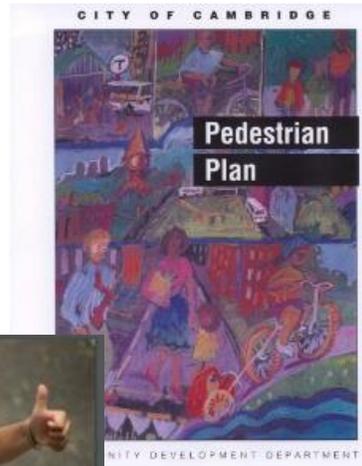
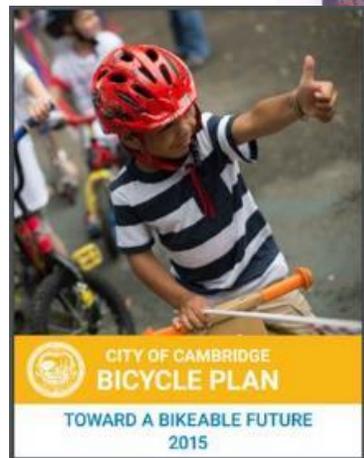
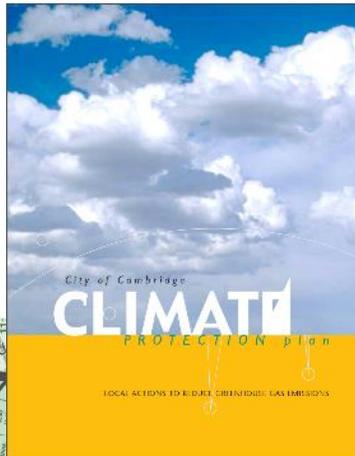
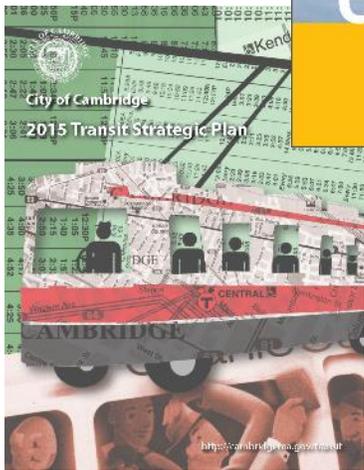
Neighborhood and Long Term Planning,
Public Facilities, Arts, and Celebrations
Committee



Agenda

- ▶ Policy Context
- ▶ Ongoing Initiatives
 - ▣ Porter Square
 - ▣ Inman Square
 - ▣ Bicycle Plan Implementation
- ▶ Upcoming Work Plan Development
 - ▣ Separated Bike Lane Pilot
 - ▣ Vision Zero and Outreach
 - ▣ Current Capital Projects
 - ▣ Future of Massachusetts Avenue
 - ▣ Truck Programs

Policy Context Foundational Documents



Chapter 10.17 - VEHICLE TRIP REDUCTION ORDINANCE

Sections:

10.17.010 - Time period of chapter.

Sections 10.17.060 through 10.17.180 of this chapter shall take effect sixty days after final approval by the U.S. Environmental Protection Agency ("U.S. EPA") of a SIP Commonwealth such as an employer-based vehicle trip reduction program and (j) (Ord. 1139 (part), 1992)

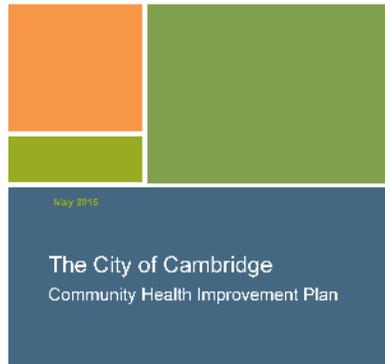
10.17.020 - Findings.

The City of Cambridge finds and determines that:

- A. High levels of vehicle traffic and congestion add to air pollution, noise, and
- B. An increasing number of automobile registrations and jobs in the City has re
- C. While the City has pursued programs to mitigate these conditions, new mea more efficient use of mass transit, bicycling, walking, and other alternatives
- D. The Clean Air Act amendments of 1990 call for the attainment of compliance
- E. Attainment of the Ozone Standard will require increased control of vehicle-r
- F. Throughtrips and other traffic over which Cambridge has no control contrib regional solutions.
- G. A large portion of vehicle traffic on Cambridge streets is attributable to trips that DEP amend the SIP to include transportation control measures applica trips and vehicle miles travelled throughout the region.

Policy Context

Key Documents/Initiatives



ANNUAL BUDGET 2016-2017
KEEP UP WITH THE CITY COUNCIL, CAMBRIDGE, MASSACHUSETTS



City of Cambridge, Massachusetts
Urban Forest Management Plan

Scientific Analysis of Current Trends in Growth and Survival of Cambridge's Street Trees and Management Recommendations

Created by Dr. Vanessa Boukitt¹

¹PhD student, ornamental, arborist, and landscape architect, University of Massachusetts Lowell, Lowell, MA

²Earthwatch Institute, Boston, MA

³Department of Public Works, City of Cambridge, Cambridge, MA

August 18th, 2016



**SAFE ROUTES
TO SCHOOL**
• CITY OF CAMBRIDGE •



VISION 4:0 NETWORK

Ongoing Initiatives

Inman Square Operational Improvements



- ▶ Green bike lanes through intersection (Hampshire Street)
- ▶ Green-backed sharrows (Cambridge Street)
- ▶ Additional signage
- ▶ **Left turn bans**
 - ❑ Hampshire Street to Cambridge Street (both directions)
 - ❑ Cambridge Street (EB) to Antrim Street

Ongoing Initiatives

Inman Square Capital Improvements

- ▶ Design team selected
 - ▣ Kleinfelder/Toole Design/McMahon/Klopper-Martin
 - ▣ Staff kickoff meeting next week
 - ▣ Initial public outreach in early January
- ▶ Construction
 - ▣ Estimated total cost (including design): \$3.5 million
 - ▣ Groundbreaking by September 2017

Ongoing Initiatives

Inman Square Capital Improvements

Engagement

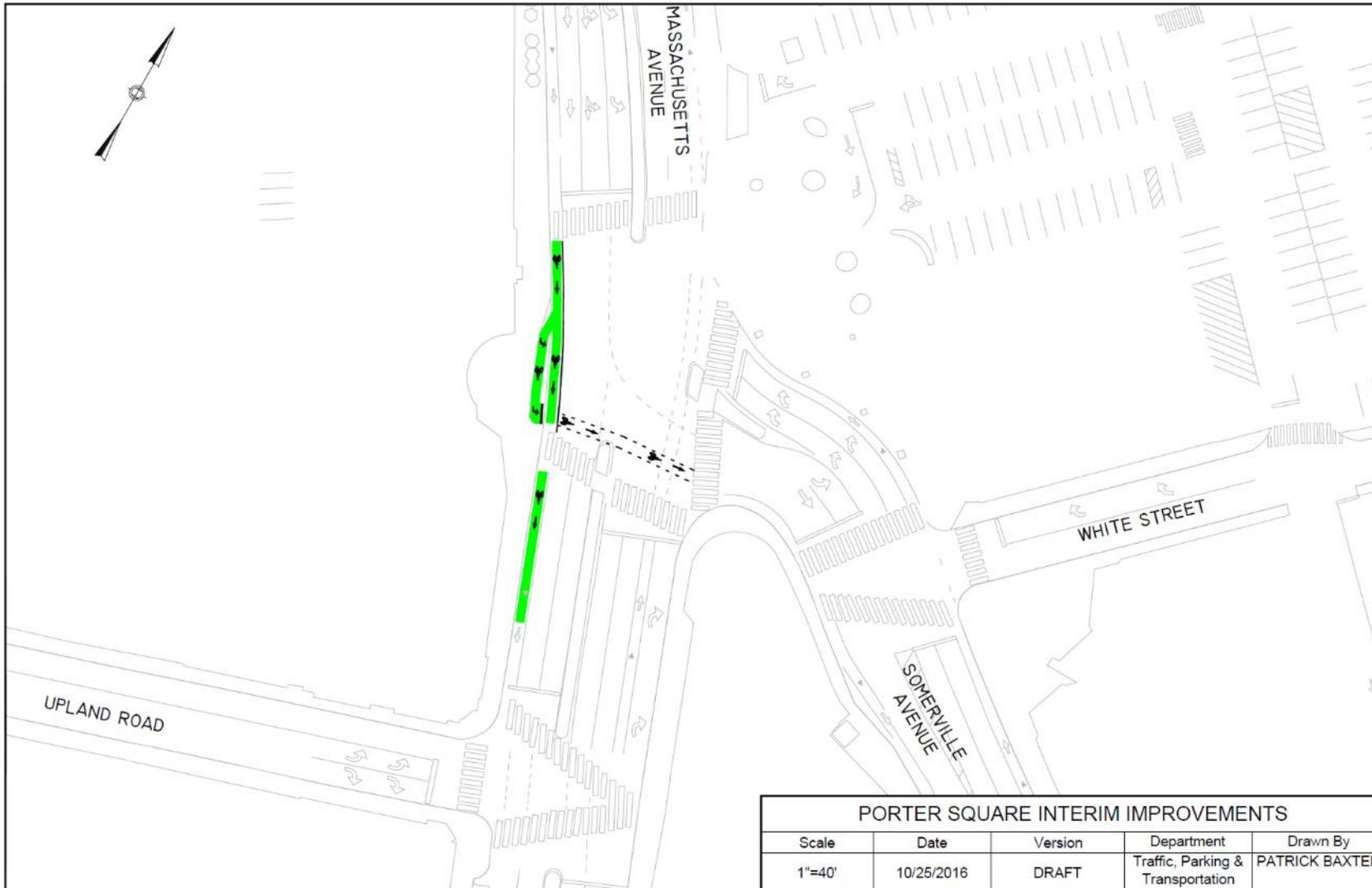
- ▶ Additional discussions
 - ▣ Local community
 - ▣ Businesses
 - ▣ Bicycle, pedestrian, and transit committees
- ▶ Ongoing coordination
 - ▣ City of Somerville
 - ▣ Fire Department
 - ▣ MBTA

Options to be Considered

- ▶ Original “bending” options
 - ▣ Bend Cambridge Street
 - ▣ Bend Hampshire Street
- ▶ Double roundabout proposed by Boston Cyclists’ Union/Kittelton Associates
- ▶ Other options to be developed by consultant team

Ongoing Initiatives

Porter Square Immediate Improvements



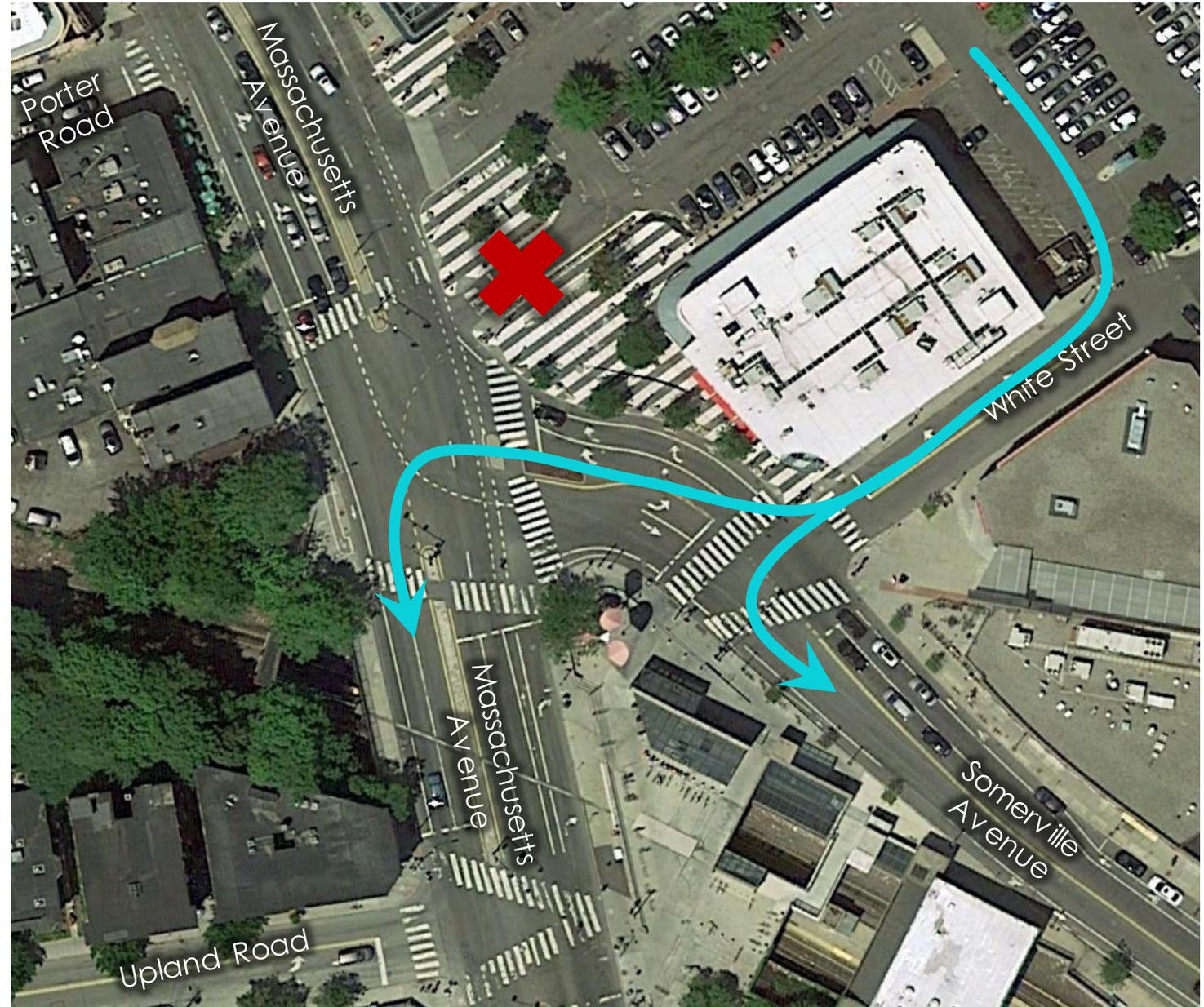
- ▶ Bike signal changes
- ▶ Sidewalk repairs
- ▶ Green bike lane through intersection and bus stop
- ▶ Green markings in bike jughandle
- ▶ Marked "crossbike" to connect jughandle to Somerville Avenue bike lane
- ▶ Additional guidance signage
- ▶ Minor signal timing improvements

Ongoing Initiatives

Porter Square Signal Improvements

Proposed Changes

- Allow Left Turns
 - Somerville Ave to Mass Ave
 - White Street to Somerville Ave (optional)
- Revise Shopping Plaza Access
 - Close south Mass Ave driveway or convert to entrance
 - Left turns to Mass Ave & Somerville Ave via White Street
- Simplify Mass Ave Left Turns
- Simplify Signal Operations
 - Reduce Cycle Length
 - Reduce Number of Phases
 - Improved Coordination with Upland Road

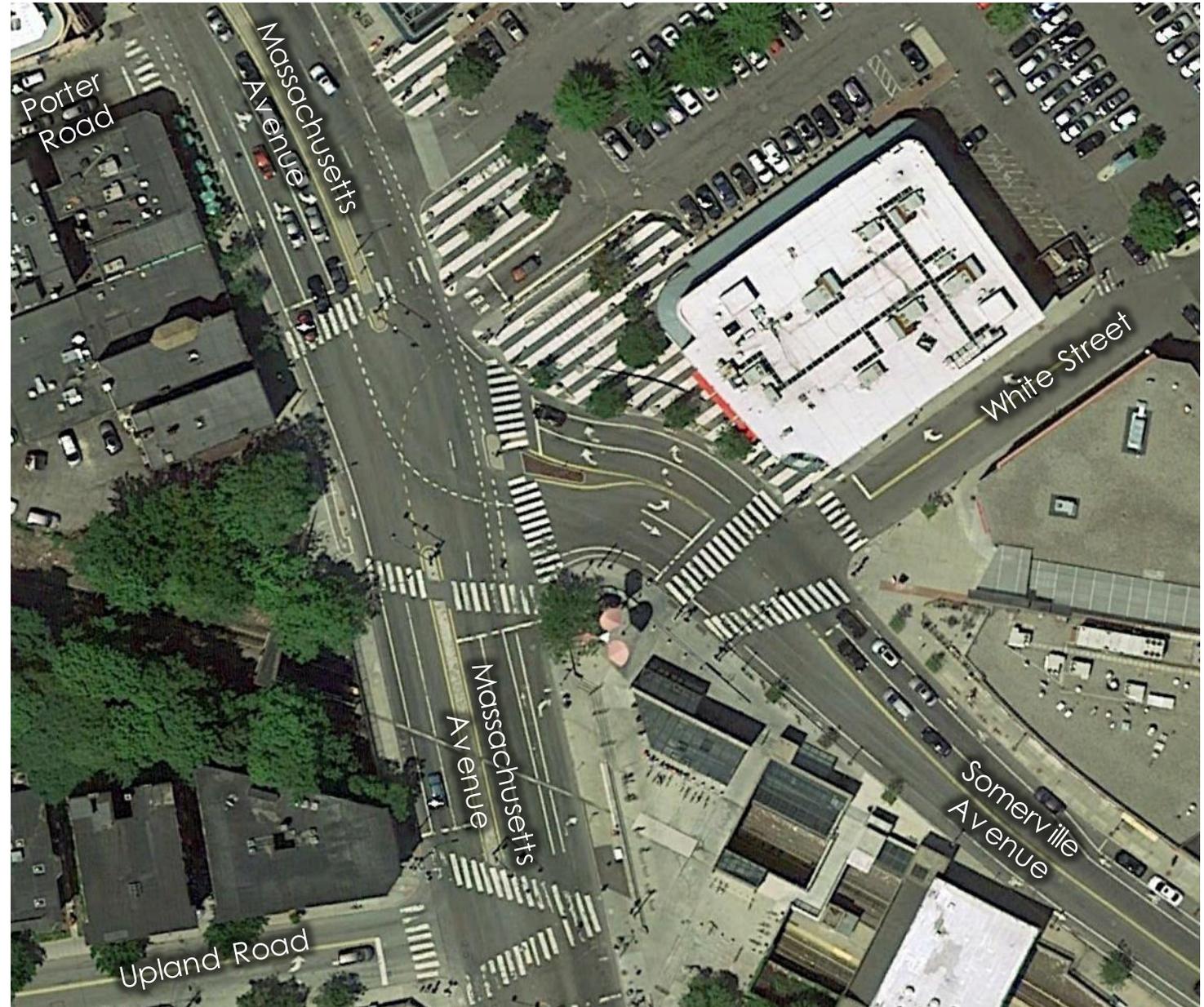


Ongoing Initiatives

Porter Square Signal Improvements

Proposed Signal Phasing

- Phase 1
 - Mass Ave Left Turn
 - Somerville Ave Right Turn
 - Mass Ave South Crosswalk
 - Bike Left Turn
 - Somerville Ave Through
- Phase 2
 - Mass Ave Through
 - Somerville Ave Crosswalk
 - All White Street Crosswalks
- Phase 3
 - Somerville Ave Left Turn
 - Mass Ave Right Turn
 - Mass Ave North Crosswalk
 - White Street Right Turn
 - White Street Left Turn (optional)

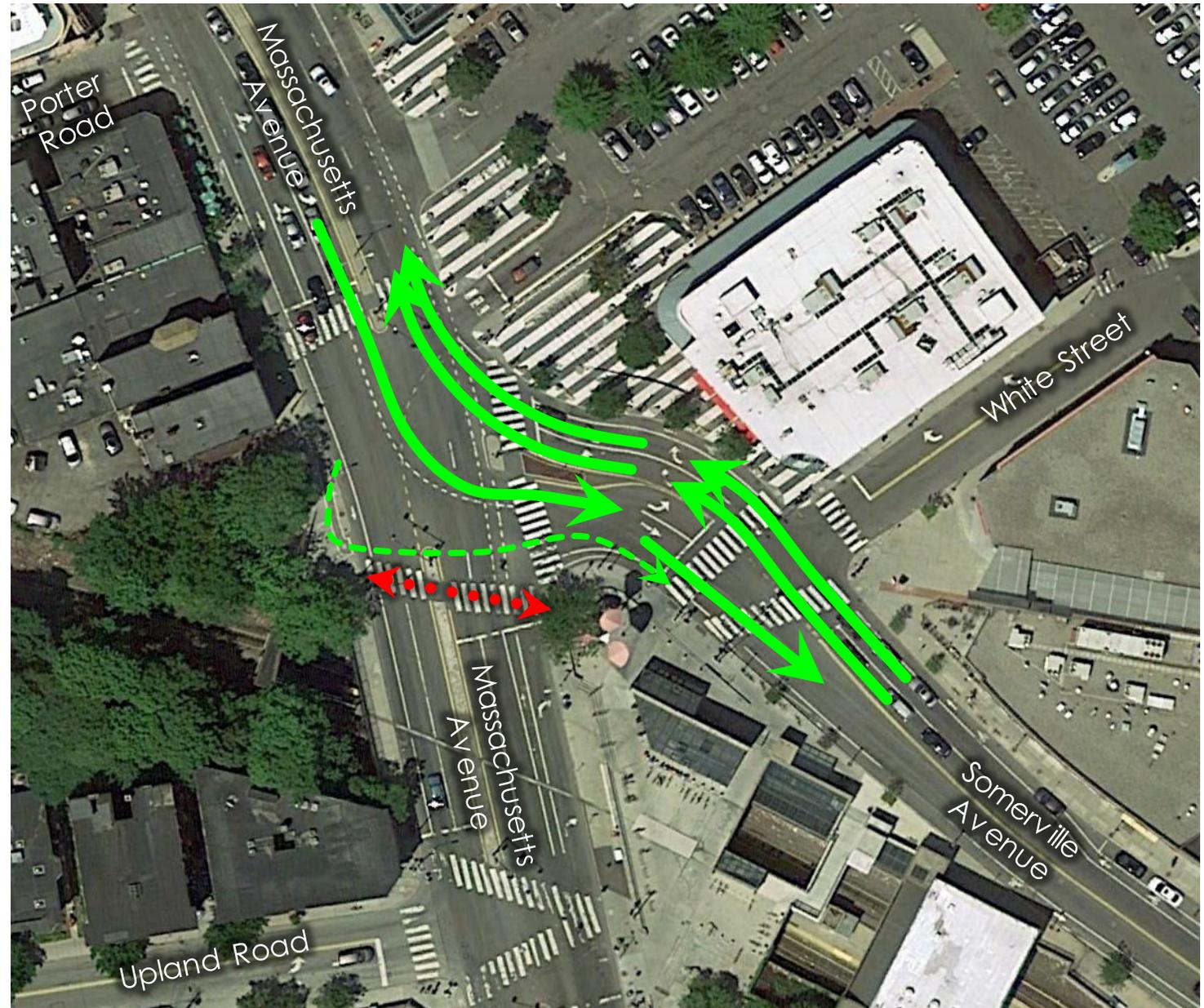


Ongoing Initiatives

Porter Square Signal Improvements

Proposed Signal Phasing

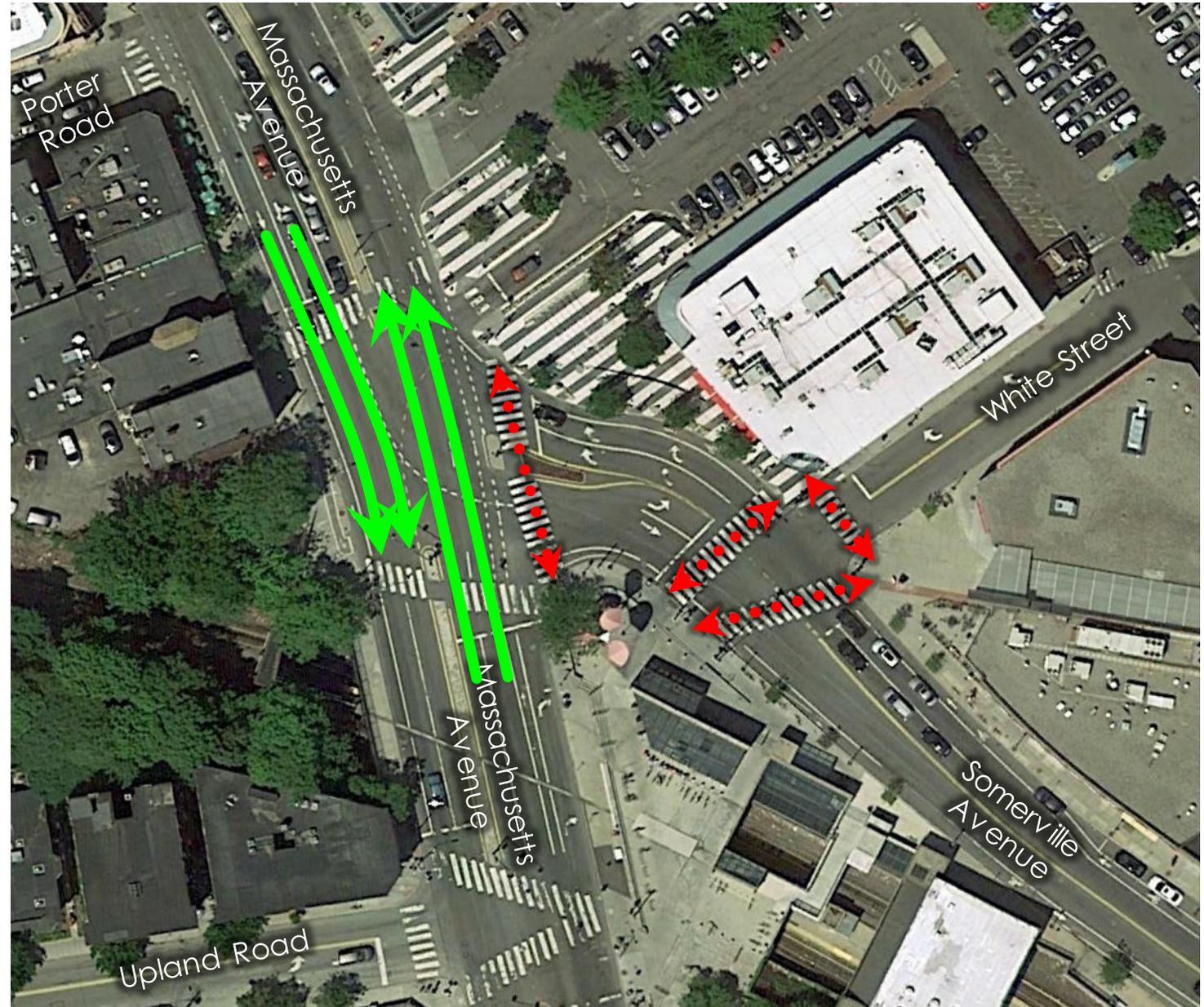
- Phase 1
 - Mass Ave Left Turn
 - Somerville Ave Right Turn
 - Mass Ave South Crosswalk
 - Bike Left Turn
 - Somerville Ave Through
- Phase 2
 - Mass Ave Through
 - Somerville Ave Crosswalk
 - All White Street Crosswalks
- Phase 3
 - Somerville Ave Left Turn
 - Mass Ave Right Turn
 - Mass Ave North Crosswalk
 - White Street Right Turn
 - White Street Left Turn (optional)



Ongoing Initiatives Porter Square Signal Improvements

Proposed Signal Phasing

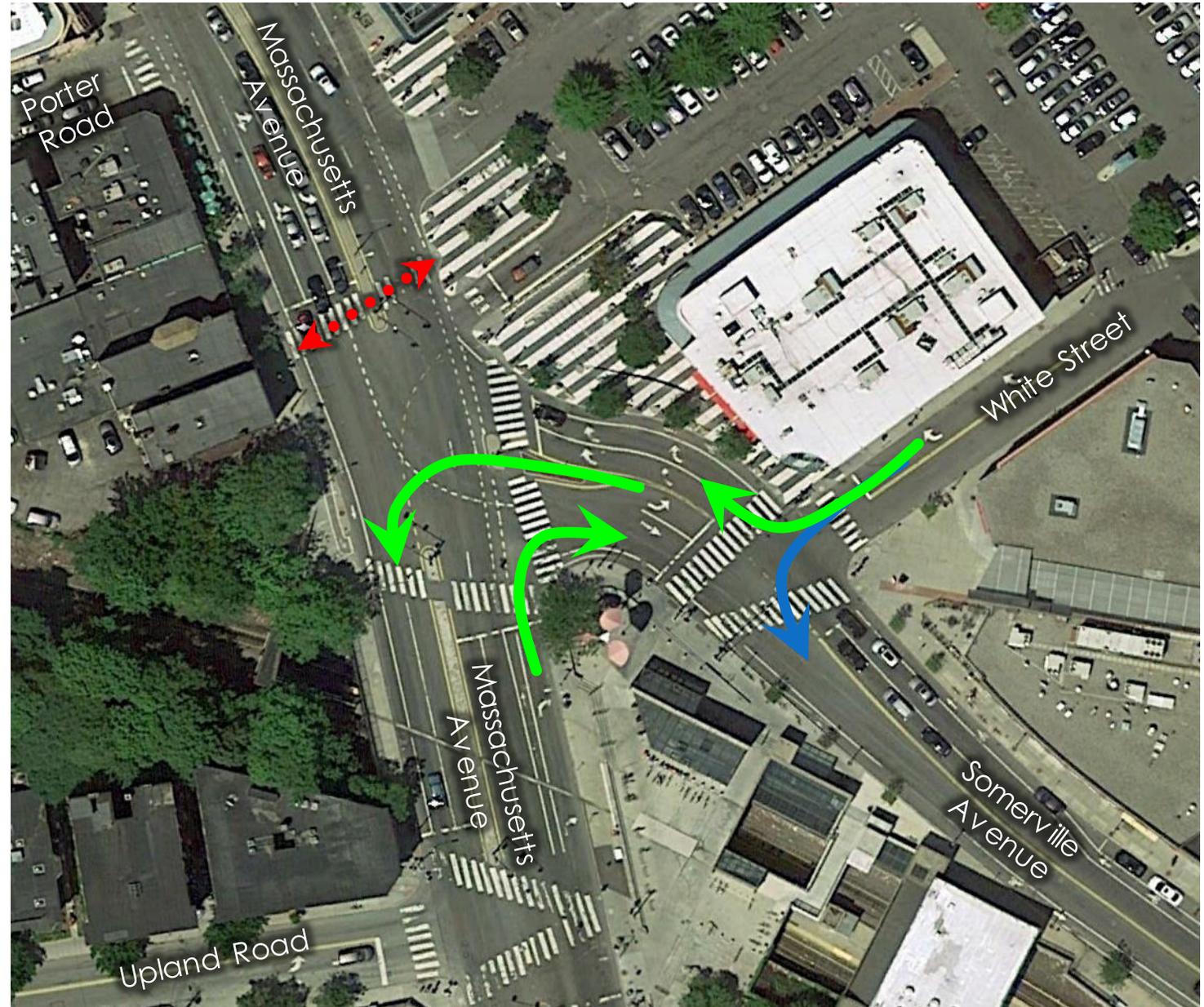
- Phase 1
 - Mass Ave Left Turn
 - Somerville Ave Right Turn
 - Mass Ave South Crosswalk
 - Bike Left Turn
 - Somerville Ave Through
- Phase 2
 - Mass Ave Through
 - Somerville Ave Crosswalk
 - All White Street Crosswalks
- Phase 3
 - Somerville Ave Left Turn
 - Mass Ave Right Turn
 - Mass Ave North Crosswalk
 - White Street Right Turn
 - White Street Left Turn (optional)



Ongoing Initiatives Porter Square Signal Improvements

Proposed Signal Phasing

- Phase 1
 - Mass Ave Left Turn
 - Somerville Ave Right Turn
 - Mass Ave South Crosswalk
 - Bike Left Turn
 - Somerville Ave Through
- Phase 2
 - Mass Ave Through
 - Somerville Ave Crosswalk
 - All White Street Crosswalks
- Phase 3
 - Somerville Ave Left Turn
 - Mass Ave Right Turn
 - Mass Ave North Crosswalk
 - White Street Right Turn
 - White Street Left Turn (optional)



Ongoing Initiatives

Porter Square Signal Improvements

▶ Next Steps

- ❑ Existing consultant to develop design plans and cost estimates
- ❑ Allocate funding for island relocation/removal and signal relocation
- ❑ Determine need for street paving and pedestrian ramp improvements
- ❑ Construction in Summer 2017

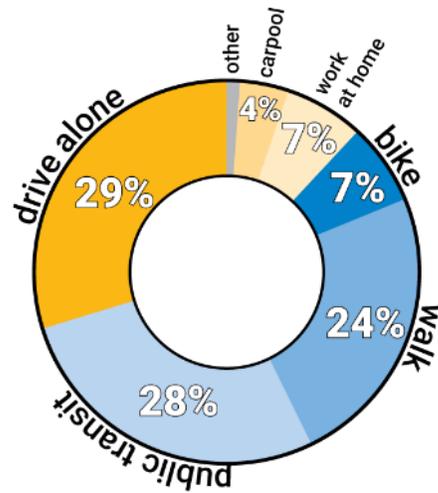
▶ Coordination

- ❑ Porter Square Shopping Center
- ❑ Upcoming paving projects south of Porter Square
- ❑ City of Somerville
- ❑ Porter Square Neighbors Association

Ongoing Initiatives

Bicycle Plan Implementation

Data



Bike Share



Safe Routes to School

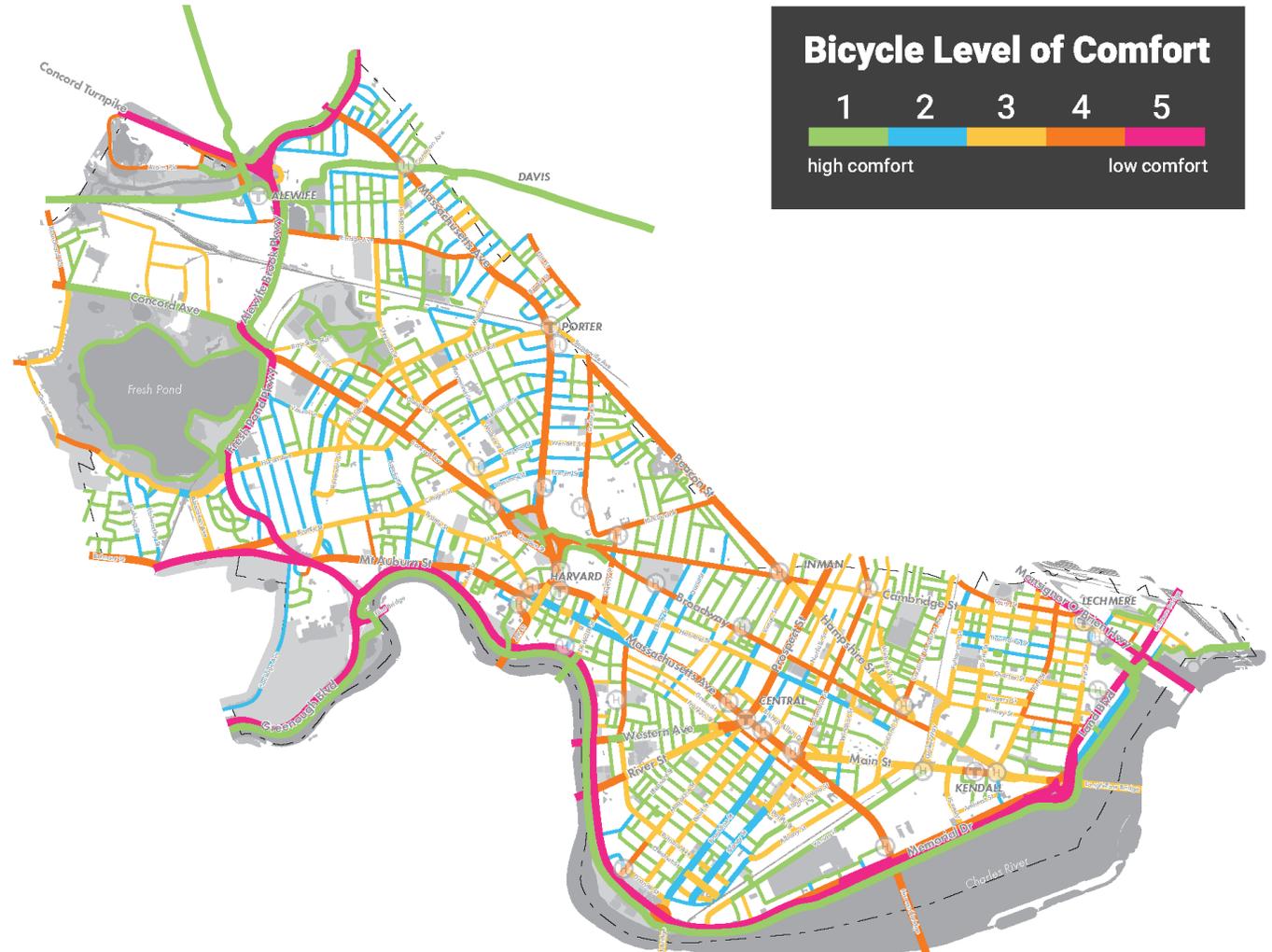


Ongoing Initiatives

Bicycle Plan Implementation

The Cambridge Bicycle Plan:

- ▶ Provides a vision for a bicycle network that is safe, comfortable, connected, and convenient for people of all ages and abilities.
- ▶ Creates an aspirational concept for a complete system, intended to be used as a guide and reference for infrastructure projects undertaken in the City.



Ongoing Initiatives

Bicycle Plan Implementation

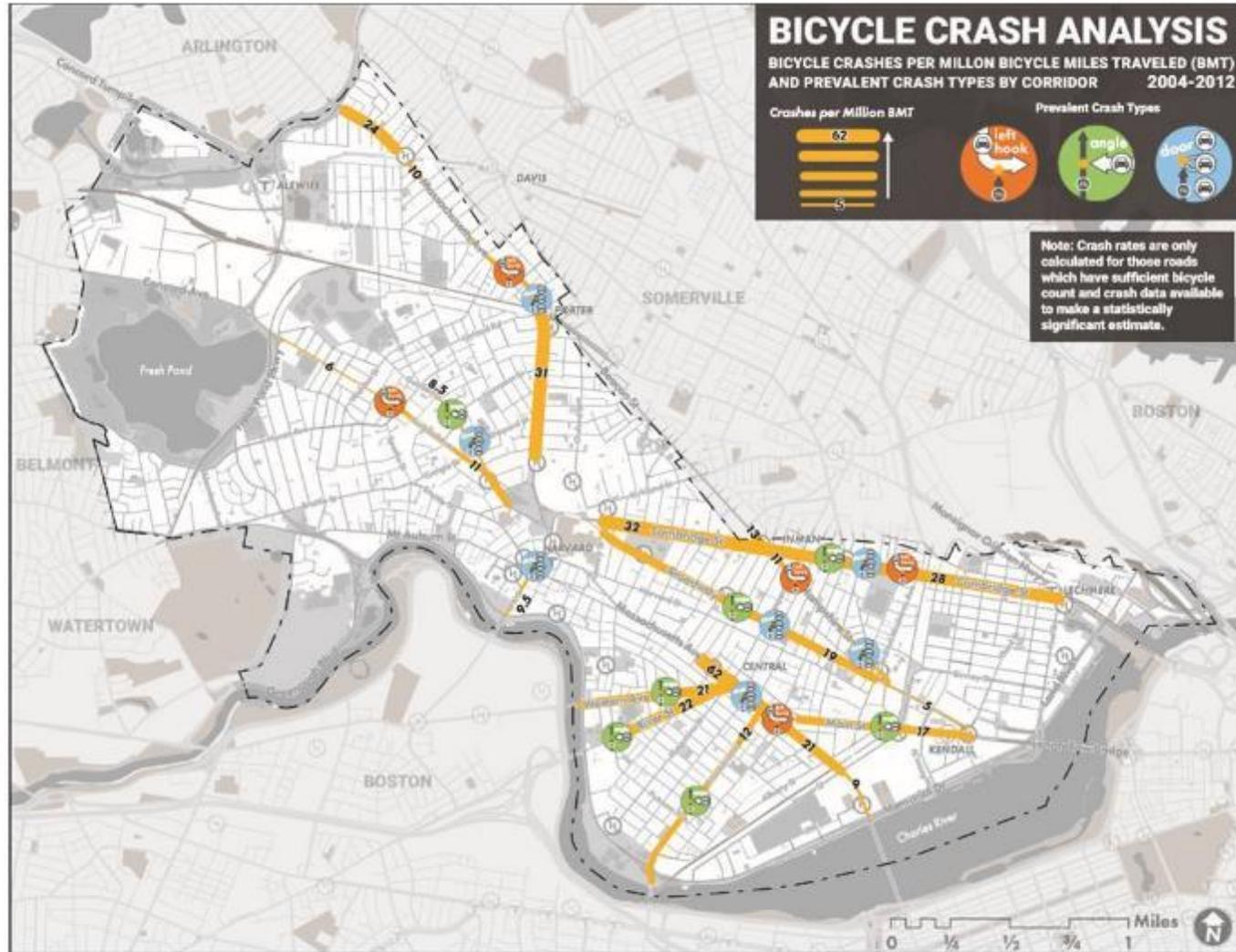


Figure 3.18: Bicycle Miles Traveled & Prevalent Bicycle Crash Types by Corridor

Ongoing Initiatives

Bicycle Plan Implementation



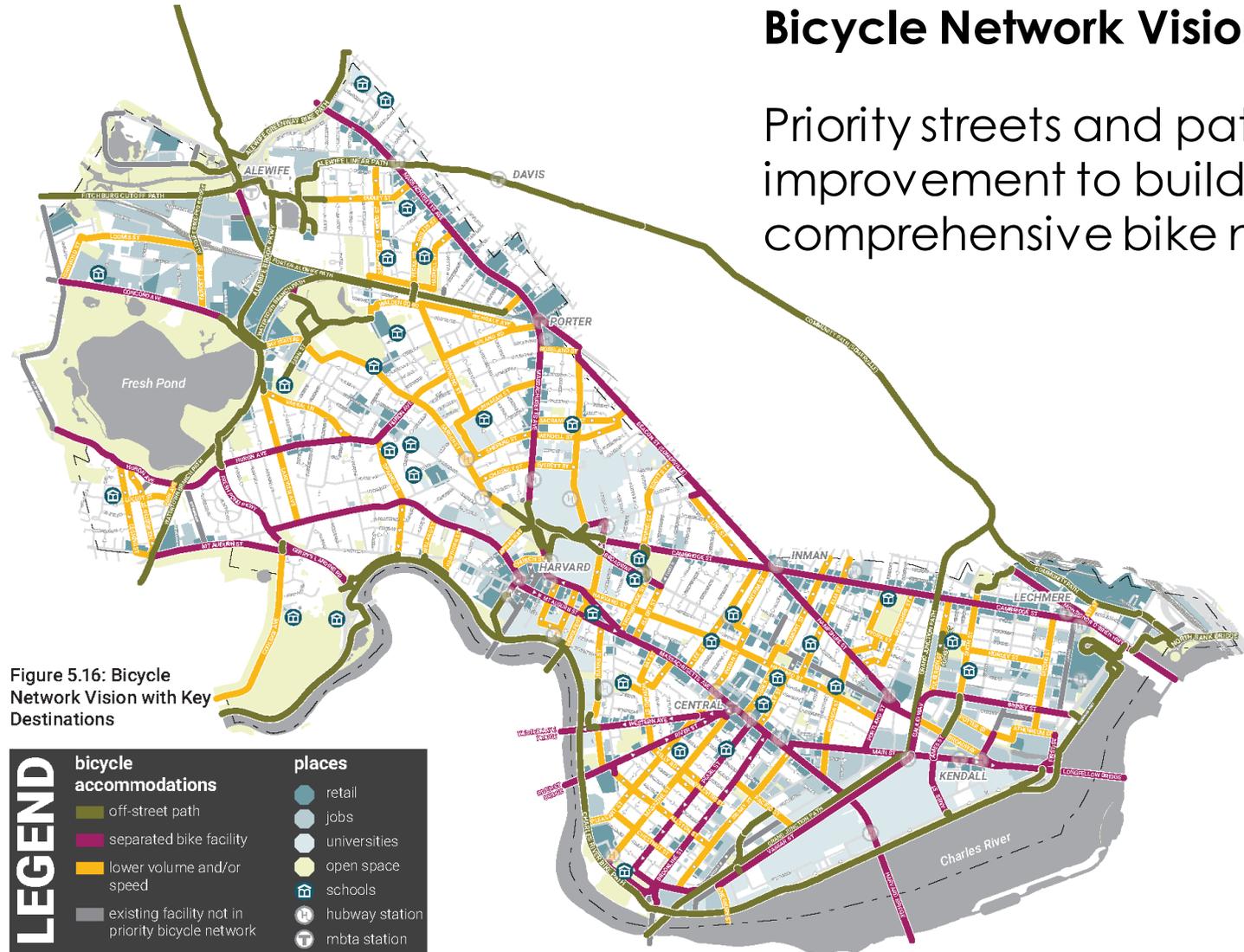
Priority off-street paths

Priority streets for increasing separation between cyclists and motor vehicles in order to make streets more comfortable

Priority streets for reducing motor vehicle speed and/or volume in order to make streets more comfortable

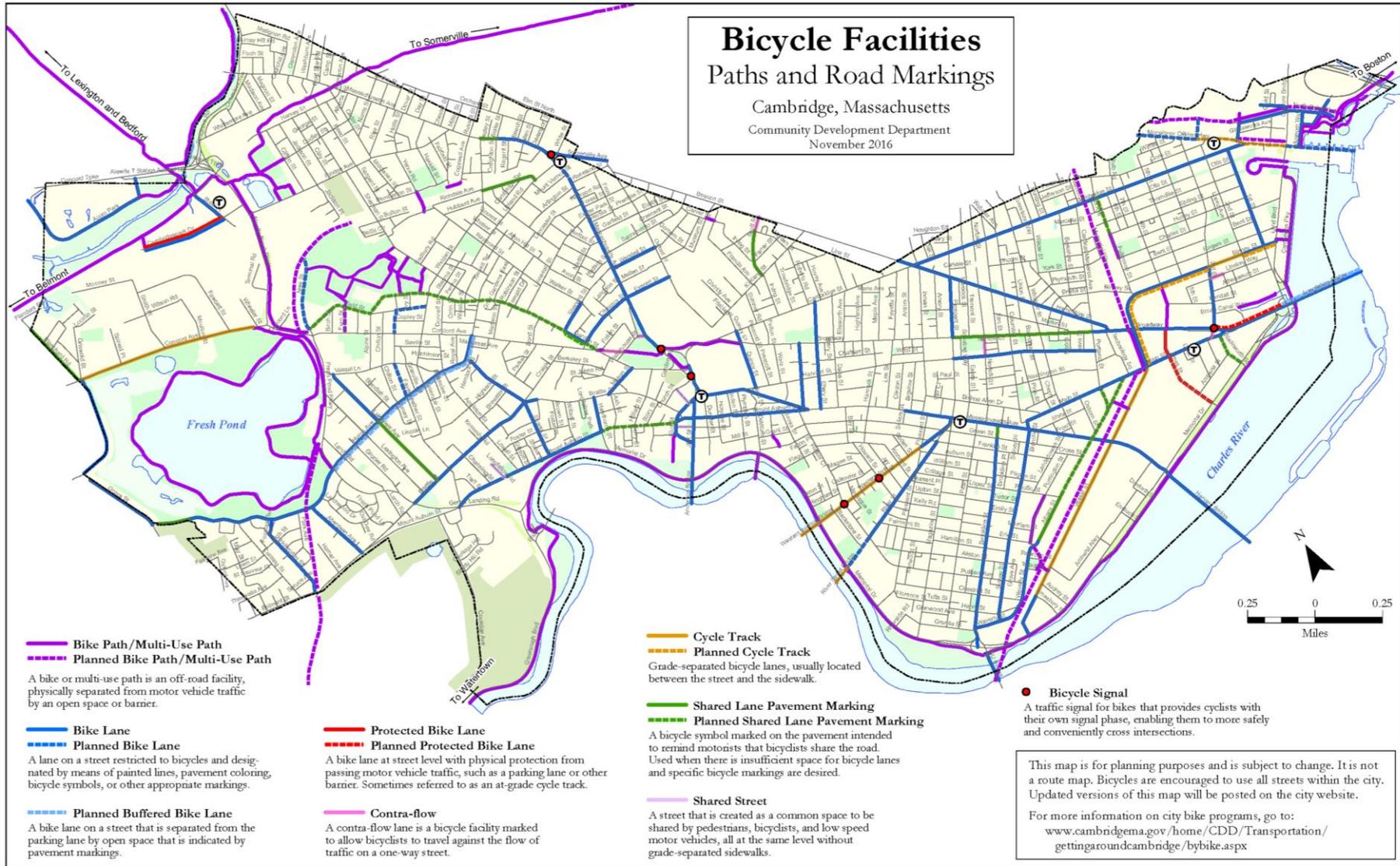
Bicycle Network Vision

Priority streets and paths for improvement to build a comprehensive bike network



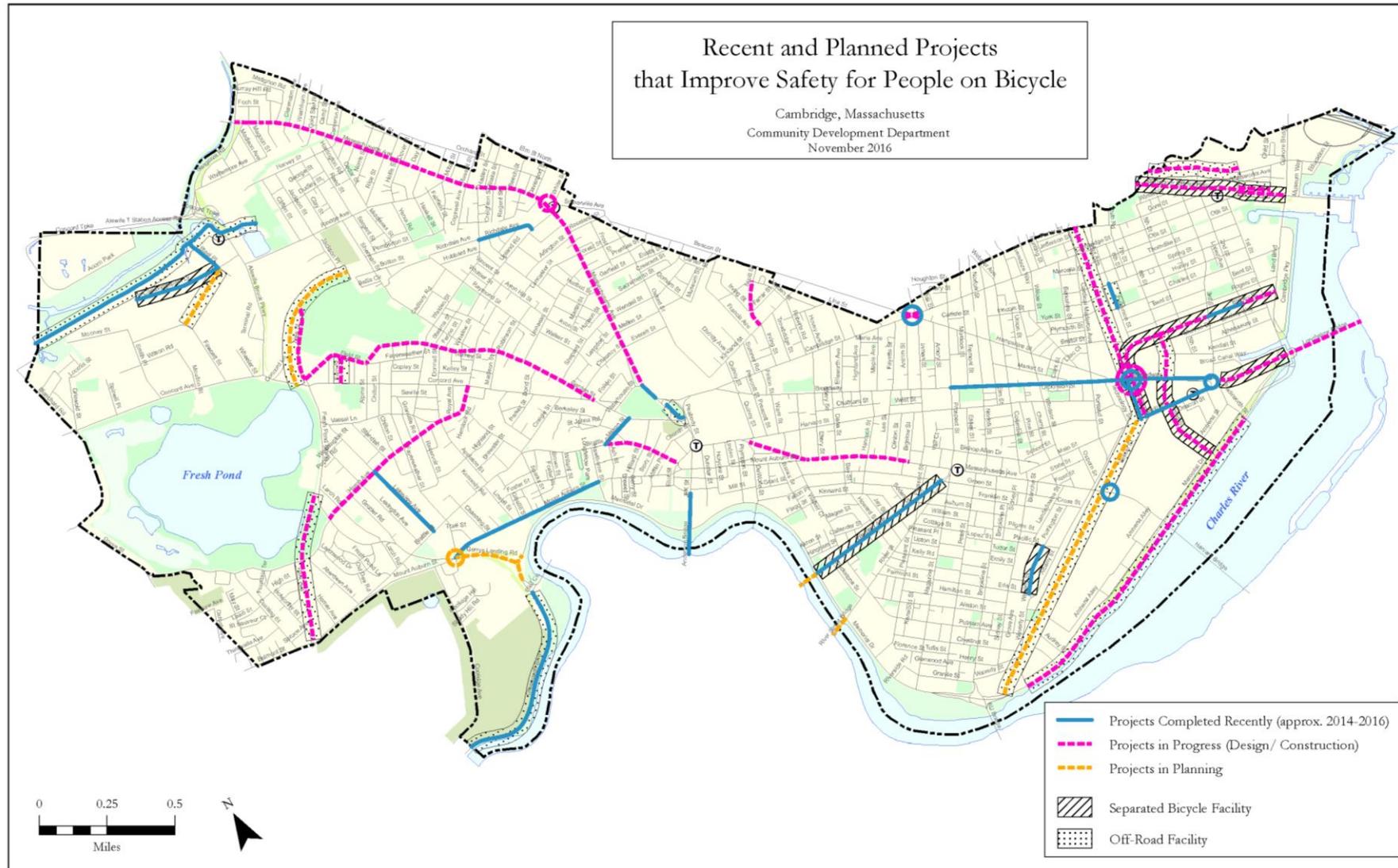
Ongoing Initiatives

Bicycle Plan Implementation



Ongoing Initiatives

Bicycle Plan Implementation



Ongoing Initiatives

Bicycle Plan Implementation

Selected **Completed** Projects



Cambridgepark Drive



Western Avenue



Fulkerson Street

Bike Lanes: Massachusetts Avenue (Waterhouse Street to Linnaean Street)

Advisory Bike Lanes: Lakeview Avenue

Shared Lane Markings: Richdale Avenue

Ongoing Initiatives

Bicycle Plan Implementation

Selected **Ongoing** Projects



Fern Street



Ames Street



Binney Street

Bike Lanes: Massachusetts Avenue (Linnaean Street to Porter Square)

Advisory Bike Lanes: Scott Street/Irving Street

Shared Lane Markings: Garden Street (also includes segments of bike lane)

Work Plan Development

Separated Bike Lanes Pilot

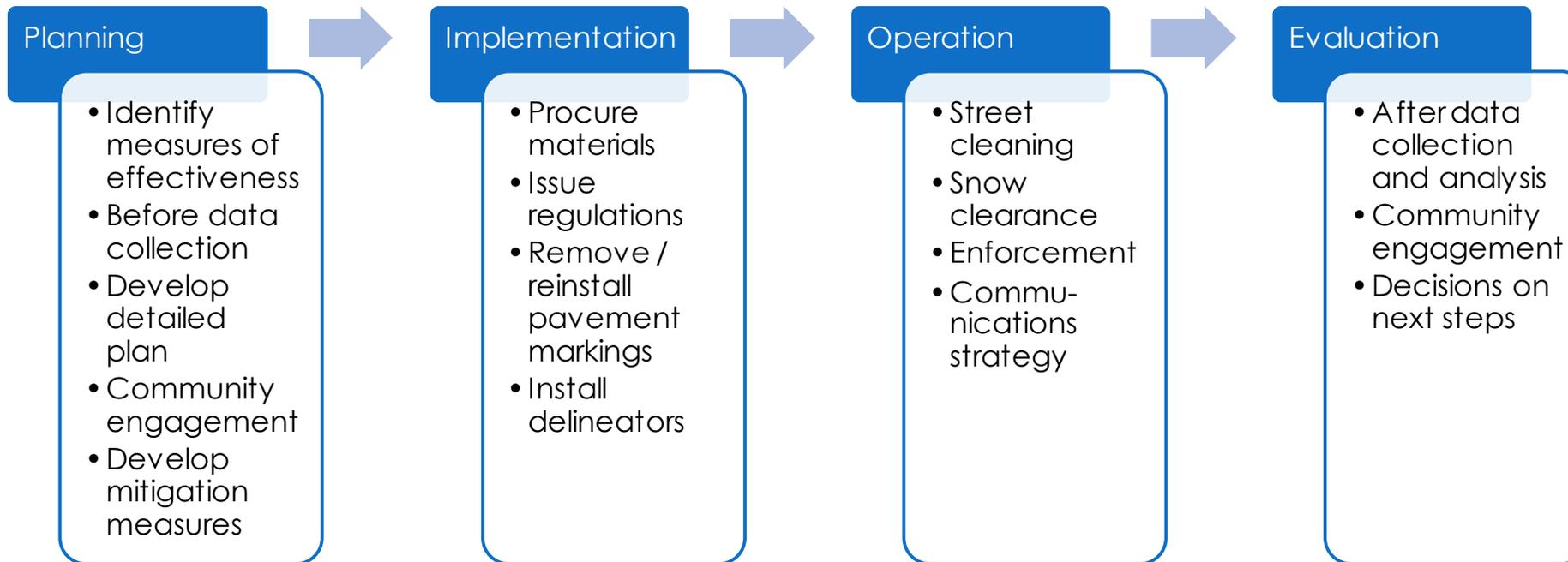
Issues to Consider

- ▶ Cyclist safety and comfort
- ▶ Pedestrian crossings
- ▶ Loading/deliveries
- ▶ Bus stops
- ▶ Parking
- ▶ School pick up/drop off
- ▶ Street maintenance
- ▶ Replicability

Design Elements

- ▶ Vertical delineators
- ▶ Parking protection
- ▶ Lane width standards
 - Bike lane
 - Travel lane
 - Parking lane

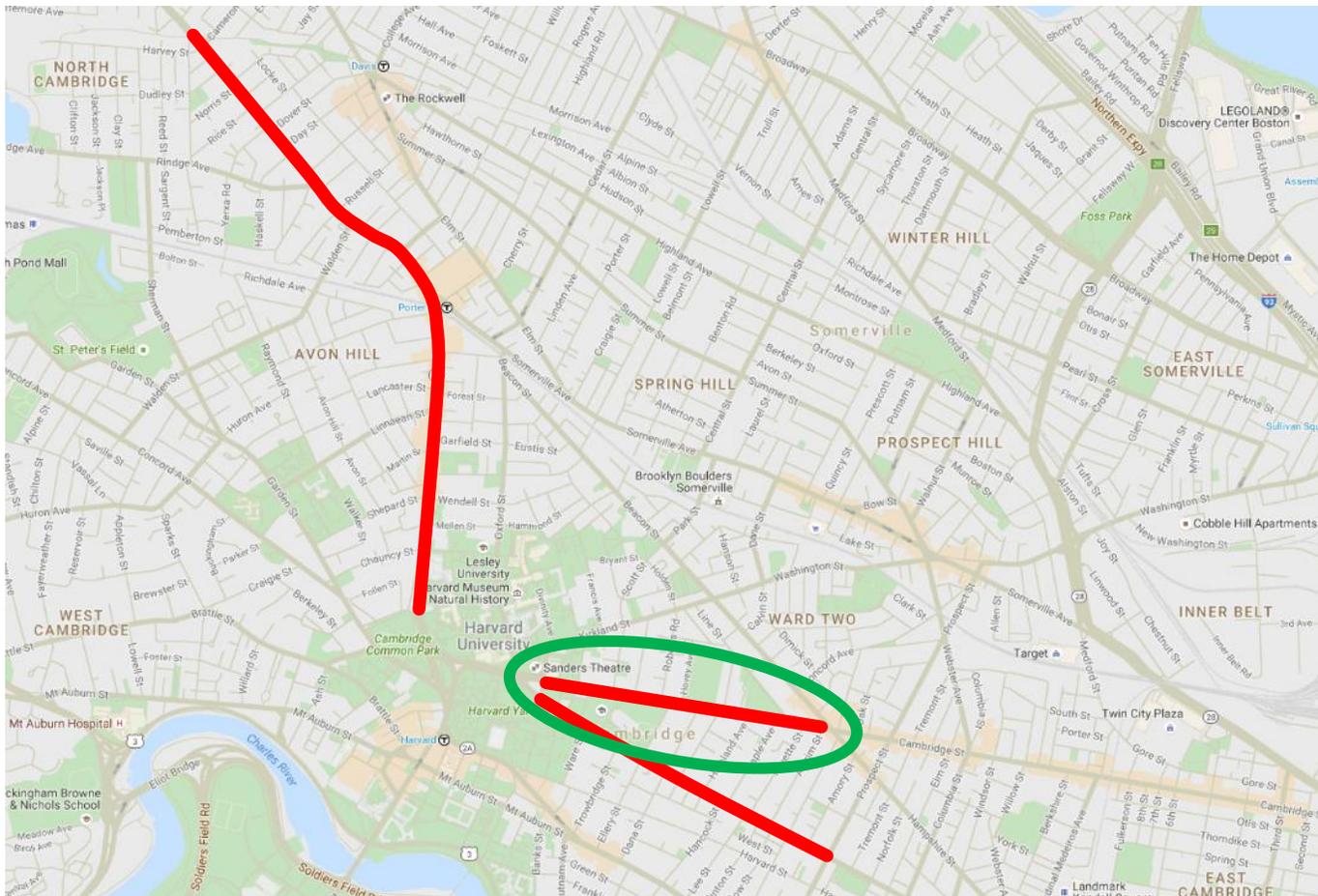
Work Plan Development Separated Bike Lanes Pilot



Work Plan Development Separated Bike Lanes Pilot

	Fall 2016	Winter 2016/2017	Spring 2016
Planning			
Measures of Effectiveness			
Community Engagement			
Finalize Design			
Procure Materials			
Implement			
Evaluation			Ongoing

Work Plan Development Separated Bike Lanes Pilot



Potential Separated Bike Lane Pilot Corridors

- ▶ Massachusetts Avenue: Cedar Street to Harvard Square
- ▶ Cambridge Street: Quincy Street to Hampshire Street
- ▶ Broadway: Quincy Street to Prospect Street

Work Plan Development Separated Bike Lanes Pilot

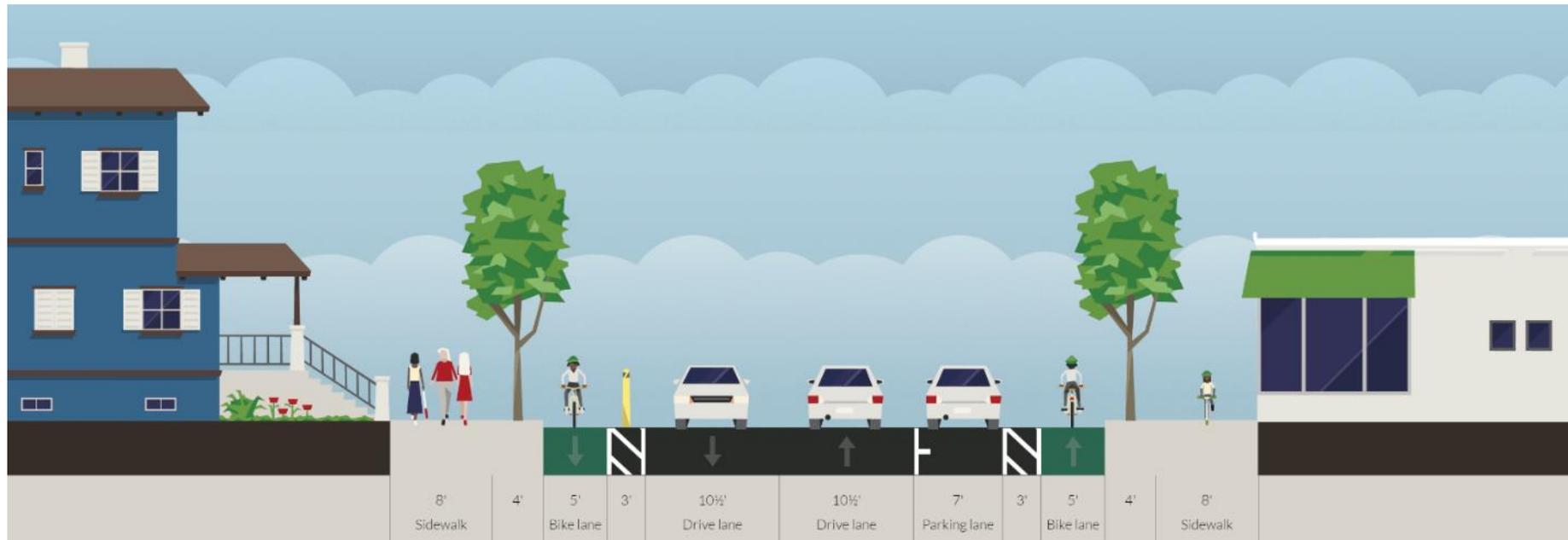
Existing Cambridge Street Cross-Section (Quincy Street to Inman Square)



- ▶ 44' wide
- ▶ No existing bike facility
- ▶ Parking on both sides
- ▶ Mix of meters and RPP
- ▶ Bus stops and bus pullouts
- ▶ Curb extensions at multiple locations

Work Plan Development Separated Bike Lanes Pilot

Possible Cambridge Street Cross-Section (Quincy Street to Inman Square)



- ▶ 44' wide
- ▶ Separated bike lanes on both sides
- ▶ Parking on one side (could alternate)
- ▶ Bus stops remain
- ▶ Curb extensions remain

Work Plan Development

Vision Zero

- ▶ Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all.
- ▶ First implemented in Sweden in the 1990s, Vision Zero has proved successful across Europe — and is now gaining momentum in major American cities.
- ▶ Vision Zero focuses on identifying the steps necessary to meet the goal of zero fatalities and severe injuries and creating the collaborative framework needed to meet the goal.

Work Plan Development

Vision Zero

- ▶ Kick-off meeting with citywide leadership in June.
- ▶ Internal working group meets monthly:
 - City Manager's Office
 - Commission for Persons with Disabilities
 - Community Development
 - Human Services
 - Personnel
 - Police Department
 - Purchasing
 - Public Works
 - Traffic and Parking
- ▶ Draft Action Plan ready for public comment in early January.

Work Plan Development

Vision Zero

- ▶ Establishing New Vision Zero Advisory Committee
 - ❑ Membership from advocacy groups; business organizations; institutional partners; bicycle, pedestrian and transit committees; and residents
 - ❑ Advertising for interested members later this month, with first meeting early next year
- ▶ Creating New Vision Zero Website
 - ❑ New website will follow the successful model for the “Snow Center”
 - ❑ Central repository for information on safety projects for all modes
 - ❑ Educational resources for all modes
 - ❑ Website will also collect public feedback on safety concerns

Work Plan Development Outreach – Education

Classes



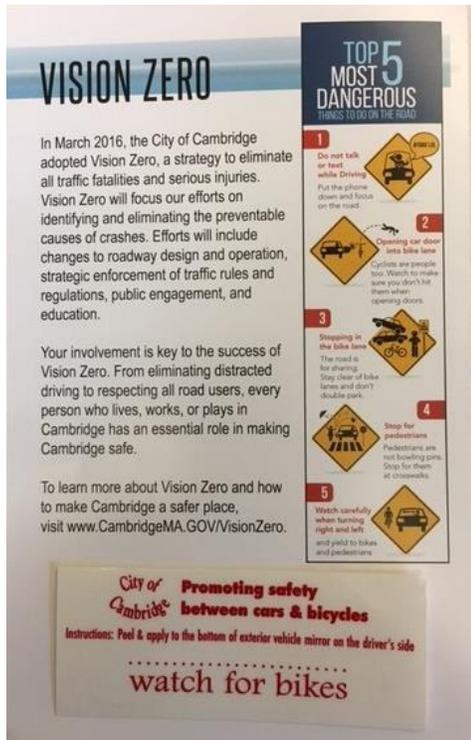
Public Engagement



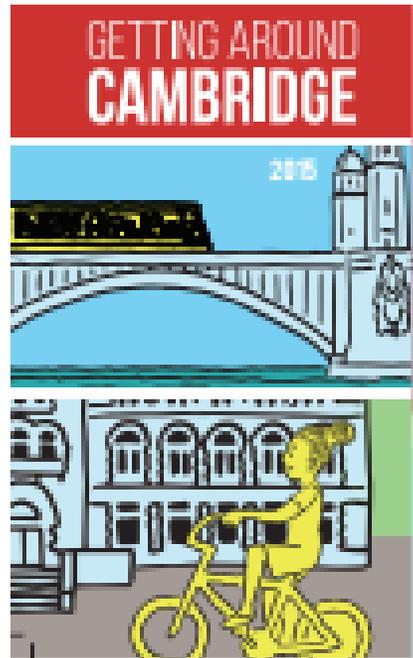
Public Engagement



Work Plan Development Outreach - Publications



Resident Information pamphlet with "Watch for Bikes" sticker



Getting Around Cambridge Map



Outreach – Safety Messaging

DRIVERS:
Always **LOOK** before
opening your car door!
PLEASE WATCH FOR BIKES.



**DRIVERS: This is NOT a
parking space!**
PLEASE
Don't Block the Bike Lane.



DRIVERS: Taking a Turn?
DO IT SAFELY!
PLEASE WATCH FOR BIKES.

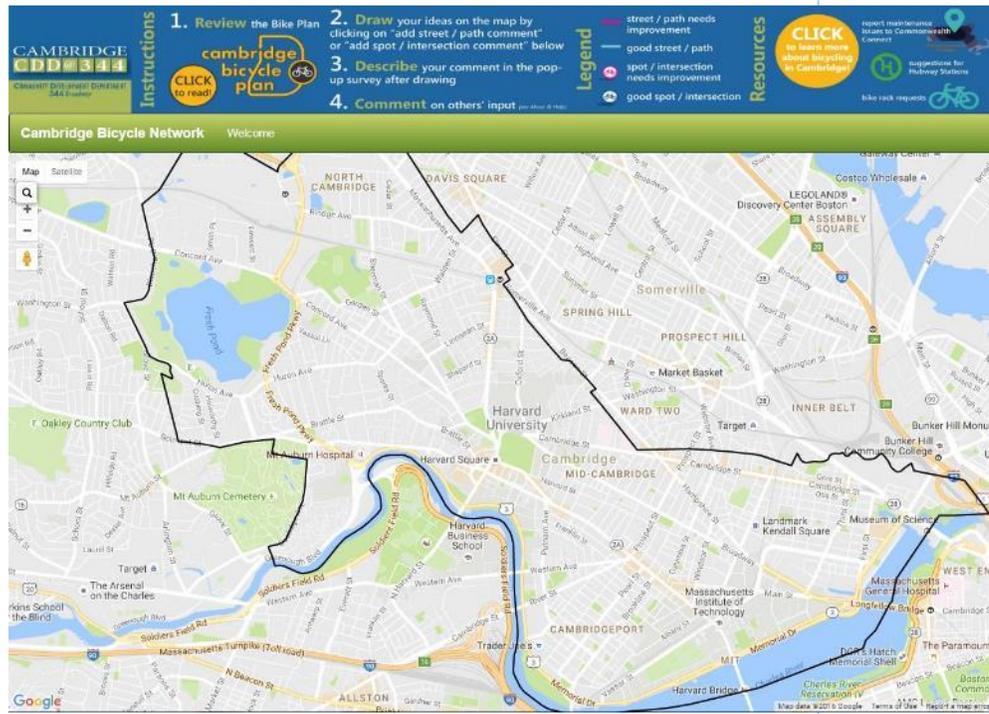


Do NOT turn in front of the cyclist.

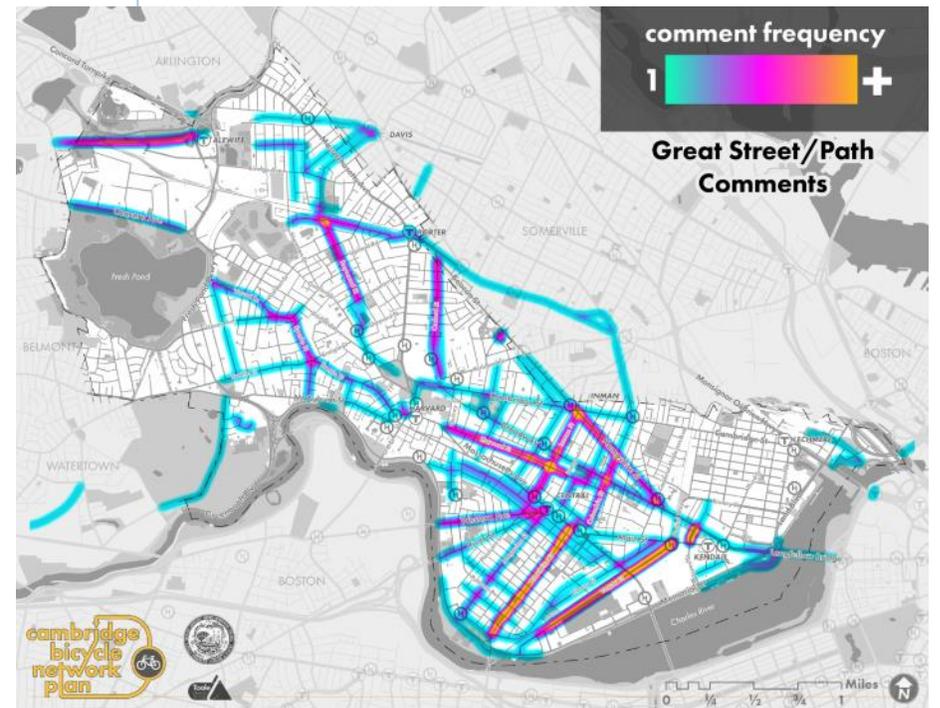


**WAIT. Make your turn AFTER the
cyclist has passed.**

Work Plan Development Outreach – Public Input



WikiMap – NEW!



WikiMap – Example from Bicycle Plan

Work Plan Discussion Huron Avenue

- ▶ Design
- ▶ Construction
- ▶ Design Process
- ▶ Impacts of Design Changes

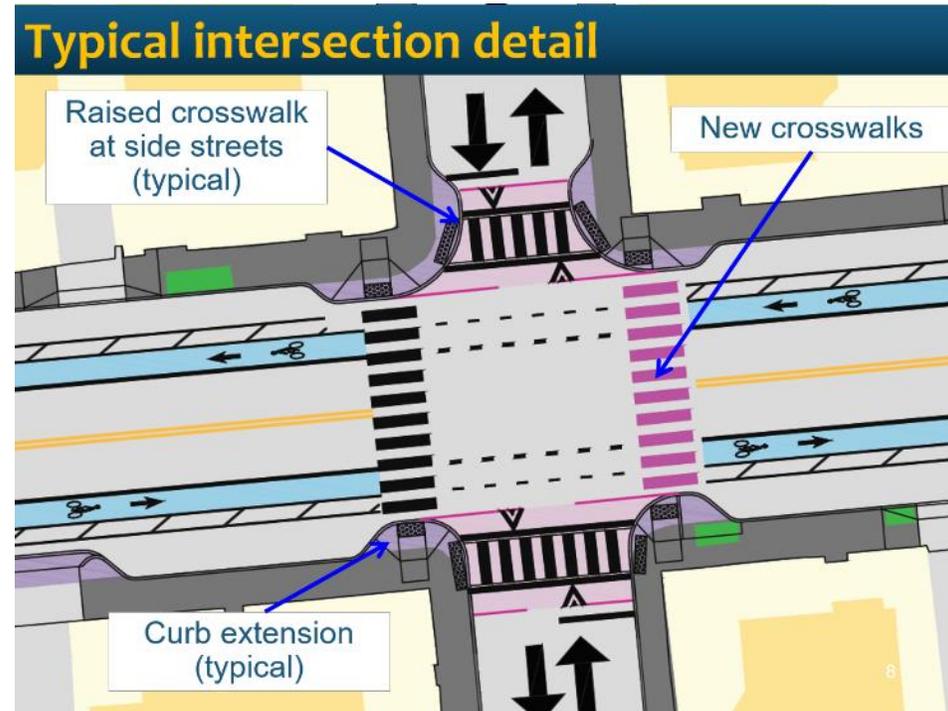


Work Plan Discussion

Huron Avenue – Design

Walking

- ▶ **8 additional crosswalks**
- ▶ **Crossing island at Fayerweather St** to slow vehicle speeds and improve pedestrian crossing
- ▶ **Special intersection treatment at Chilton St and at Appleton St** to visually reinforce the business district
- ▶ **Curb extensions** to shorten crossing distance and make pedestrians more visible
- ▶ **Raised side street crosswalks** to prioritize pedestrians



Work Plan Discussion Huron Avenue – Design

Bus Stops

- ▶ **Bus stop curb extensions** at most bus stops to improve bus operations
- ▶ **Consolidation of bus stops** that are too close together to help speed the bus trip

Miscellaneous

- ▶ **New street trees**
- ▶ **Vassal Lane Plaza** is being enlarged and will include landscaping, seating and a new Hubway station



Work Plan Discussion Huron Avenue – Design

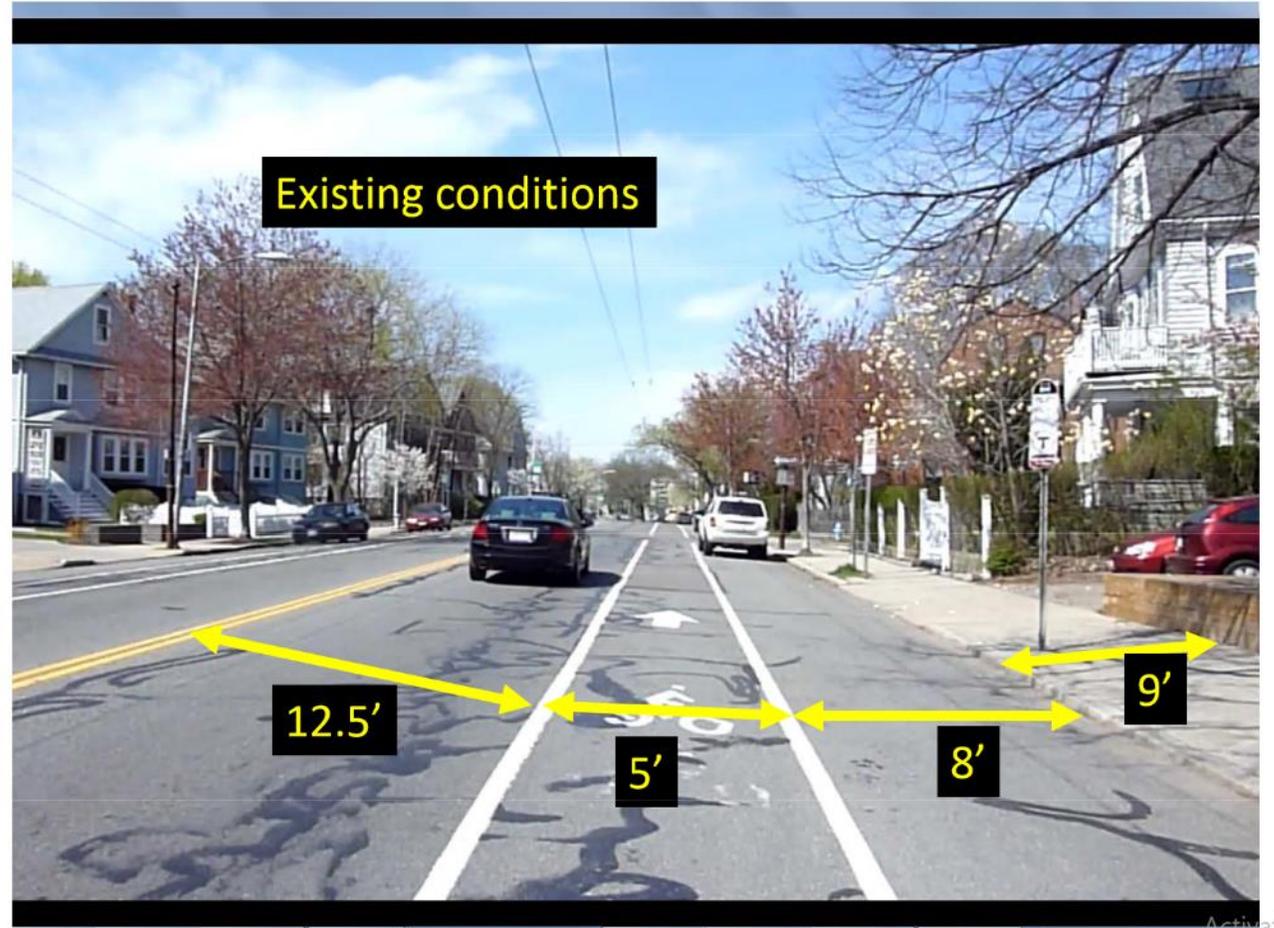
Biking

- ▶ A 3' striped buffer between the bike lane and parked cars to move the bike lane away from the door zone and improve bicyclist safety.
- ▶ Green pavement markings are being used for the bike lanes at all intersection conflict zones to improve driver and bicyclist awareness.
- ▶ A Hubway bicycle sharing station is being incorporated into the new enlarged plaza at the end of Vassal Lane.

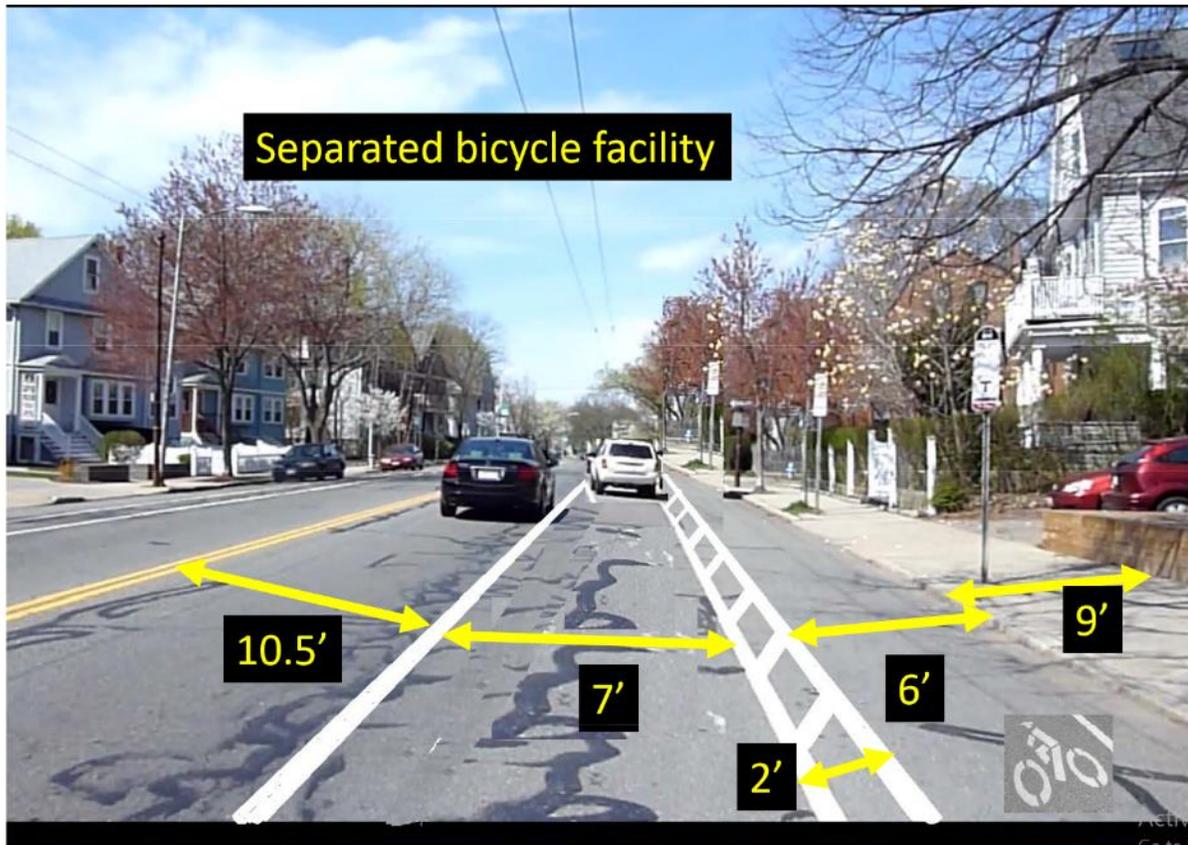


Work Plan Discussion Huron Avenue – Design

How did we get
to the buffered
bike lane?



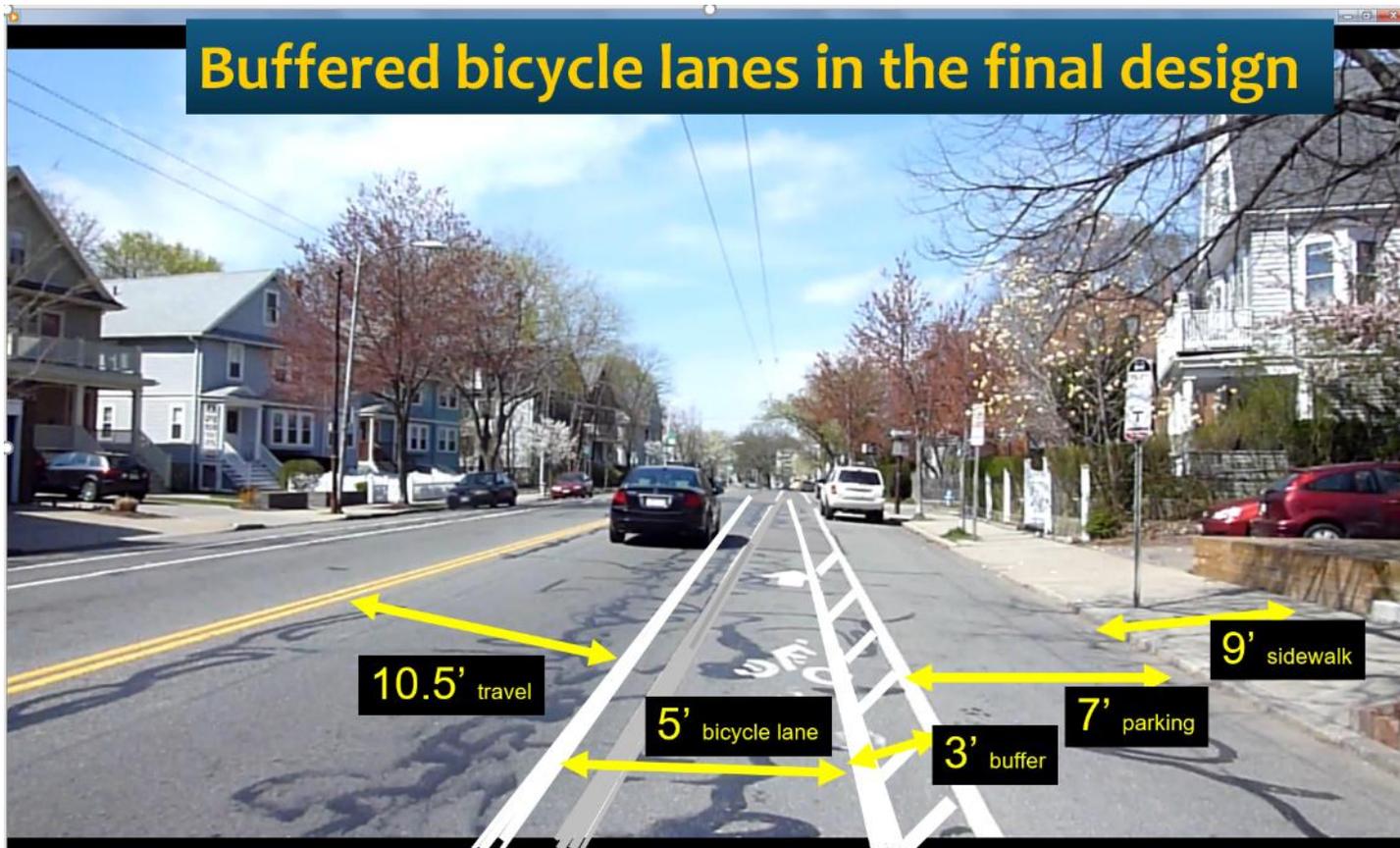
Work Plan Discussion Huron Avenue – Design



- ▶ **Narrow roadway cross-section** very tight for buses, particularly during snow, when the effective width would be further reduced
- ▶ **Trolley-bus** operations with overhead wires limit ability of buses to maneuver
- ▶ **Eliminate parking** (40 +/- out of 209)
- ▶ **Snow clearance** of narrow roadway and cycle track

Work Plan Discussion Huron Avenue – Design

Buffered bicycle lanes in the final design



- ▶ 3' buffer moves bike lane away from parked cars.
- ▶ Adding green at intersection conflict points to improve visibility and awareness.



Work Plan Discussion Huron Avenue – Design Process

- ▶ Comprehensive community process
 - ❑ 5 Huron Ave design meetings
 - ❑ 3 drop-in sessions at Sarah's Market
 - ❑ Neighborhood tree walk
 - ❑ During construction – numerous open houses, neighborhood bar-b-ques, business events and coffee talks

COMMUNITY EVENTS

Come to Coffee Talk

We are here to listen!
Please drop in to join
our project team
at Sarah's Market
(200 Concord) every
1st Thursday, 7-11am:

• September 1 • October 6 • November 3



Support Observatory Hill

Join the project team at
Appleton Street
(Concord to Saville)

**Thursday, September 15th,
5pm-8pm**

Help support your local businesses for a
night of music, shopping, and chatting
with your neighbors. See you there!

Neighborhood BBQ!

We invite you to come
enjoy some food and
refreshments on



**Wednesday, October 5th*, 5:30pm-
7:30pm on Granville Road.**

Project staff will be cooking up burgers
and answering any questions you have.

*(Rain date: October 6th)

Work Plan Discussion

Huron Avenue – Construction

- ▶ Construction Began September 2012 / Completion end of 2017
- ▶ Completed to Date
 - ❑ Huron Ave utilities and utility crossings of Huron Ave
 - ❑ Replacement of 42" watermain between FPP and Gurney
 - ❑ Removal of existing trolley tracks
 - ❑ Full depth roadway reconstruction between Reservoir and Concord
- ▶ Remaining
 - ❑ Full depth roadway reconstruction b/w FPP & Reservoir – on-going
 - ❑ Granite curb – scheduled November 2016
 - ❑ Sidewalks – scheduled April 2017
 - ❑ Final paving, trees and Vassal Lane Plaza – scheduled fall 2017



Work Plan Discussion Pearl Street

- ▶ Project is in construction with expected completion at the end of 2017
- ▶ Design will not preclude future uses
- ▶ Data: parking data collected during construction
- ▶ Evaluation: data and use will be evaluated upon completion of construction



Work Plan Discussion

Future of Massachusetts Avenue

Near-Term (2017)

- ▶ Participatory Budgeting striping and signage improvements
- ▶ NACTO Transportation Program Accelerator
 - ▣ Technical assistance program (joint with MBTA) to develop a vision for Mass Ave that improves transit while safely accommodating other modes
 - ▣ Includes defining potential pilot projects for 2017

Longer-Term (2017 and beyond)

- ▶ Envision Cambridge Mass Ave focus
 - ▣ Envision scenarios will be applied to Mass Ave in more detail with a focus on the street, intersection, and sidewalk level to develop corridor scale concepts.
 - ▣ Timeline for initiating analysis is late spring 2017

Work Plan Development

Truck Restrictions

- ▶ Existing Truck Restrictions
 - ❑ Available online under Traffic Department regulations
 - ❑ Restrictions are on through trucks, but local access is still always allowed
- ▶ Prior Truck Ban
 - ❑ City of Cambridge attempted to ban overnight “through trucks” in 1999 through zoning ordinance
 - ❑ Following significant discussions and litigation, this ban was eventually overturned and also led to the removal of prior overnight truck restrictions on River Street and Western Avenue
- ▶ Issues to Consider
 - ❑ Impact on businesses and others who benefit from trucks
 - ❑ Legality/constitutionality
 - ❑ Spillover impacts on neighboring streets and communities

Work Plan Development Truck Programs

- ▶ Vision Zero Action Plan to include truck related initiatives
 - ▶ Truck side guard and mirrors – City fleets and City contractors
 - ▶ Education and outreach
- ▶ Delivery solutions study
- ▶ Current truck enforcement efforts
 - ▶ Enforcement consists of two categories: trucks operating on “truck restricted” streets and trucks committing violations of traffic laws (speeding, marked lane violations, red light, turning violations, etc.)
 - ▶ Ban on truck restricted streets difficult to enforce because we need to determine if the truck is delivering on the street or if that street is the “shortest route” to get to their delivery destination (permitted by Massachusetts General Law)