

Cambridge Transportation Safety Studies

August 3, 2016

Transit Committee Meeting

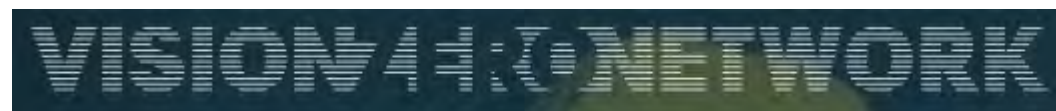
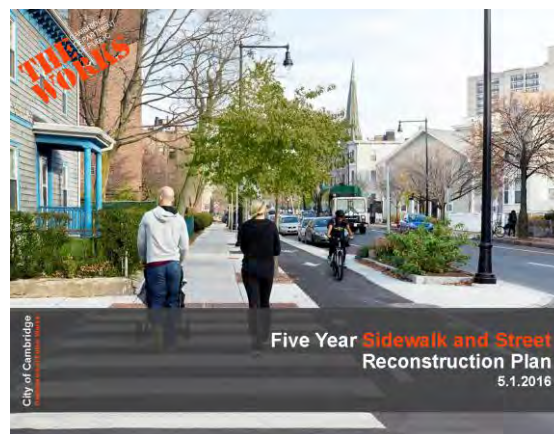
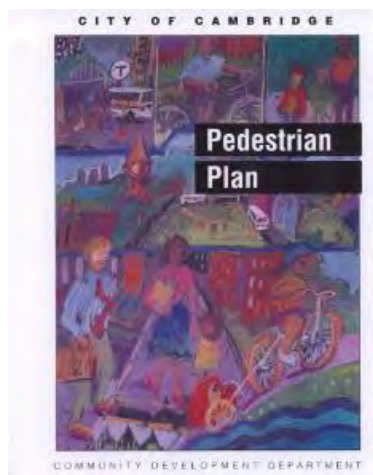


Safe and Sustainable Transportation

- ▶ Safety for all modes is paramount
- ▶ Low environmental impacts
 - ▣ Vehicle congestion, climate change, and air quality improvements
 - ▣ Street system that aids stormwater goals
- ▶ Strong economy
- ▶ Healthy living



Policies and Strategies

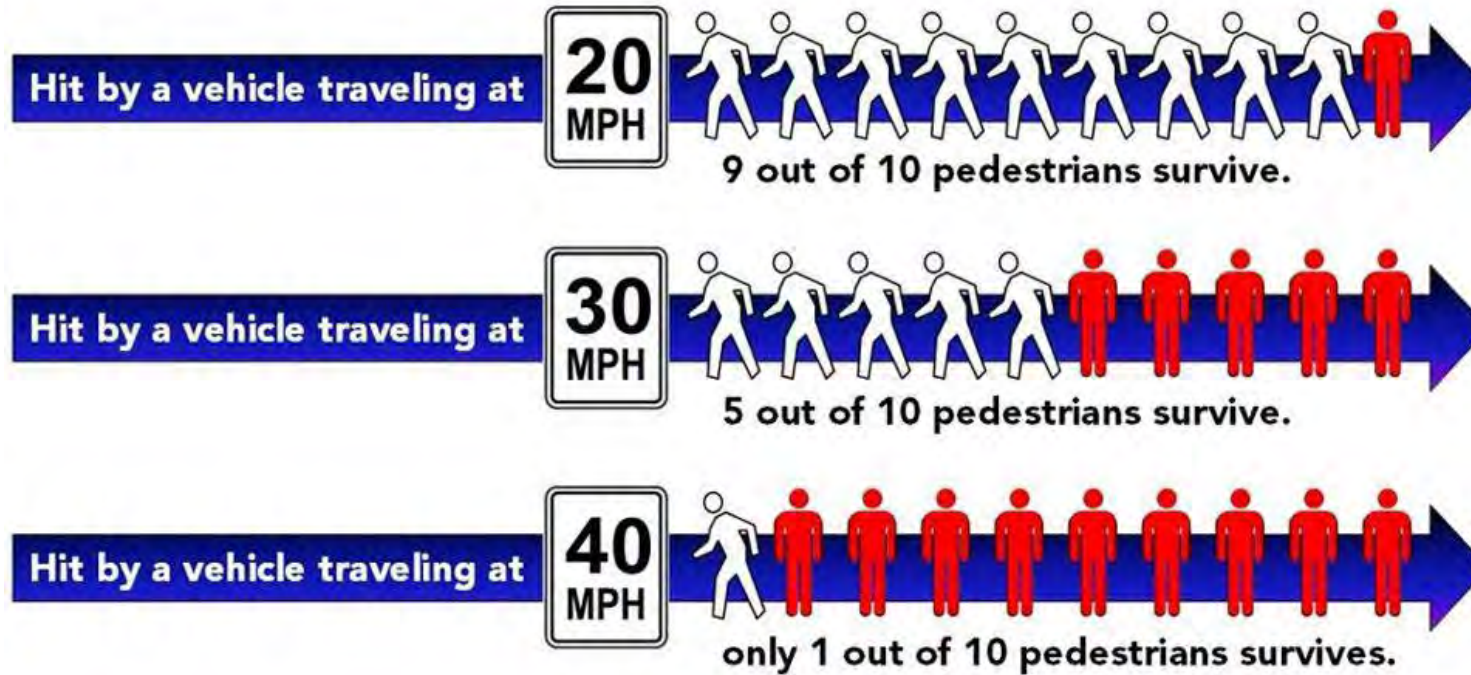


Safety Initiatives Underway Street Redesign and Traffic Calming



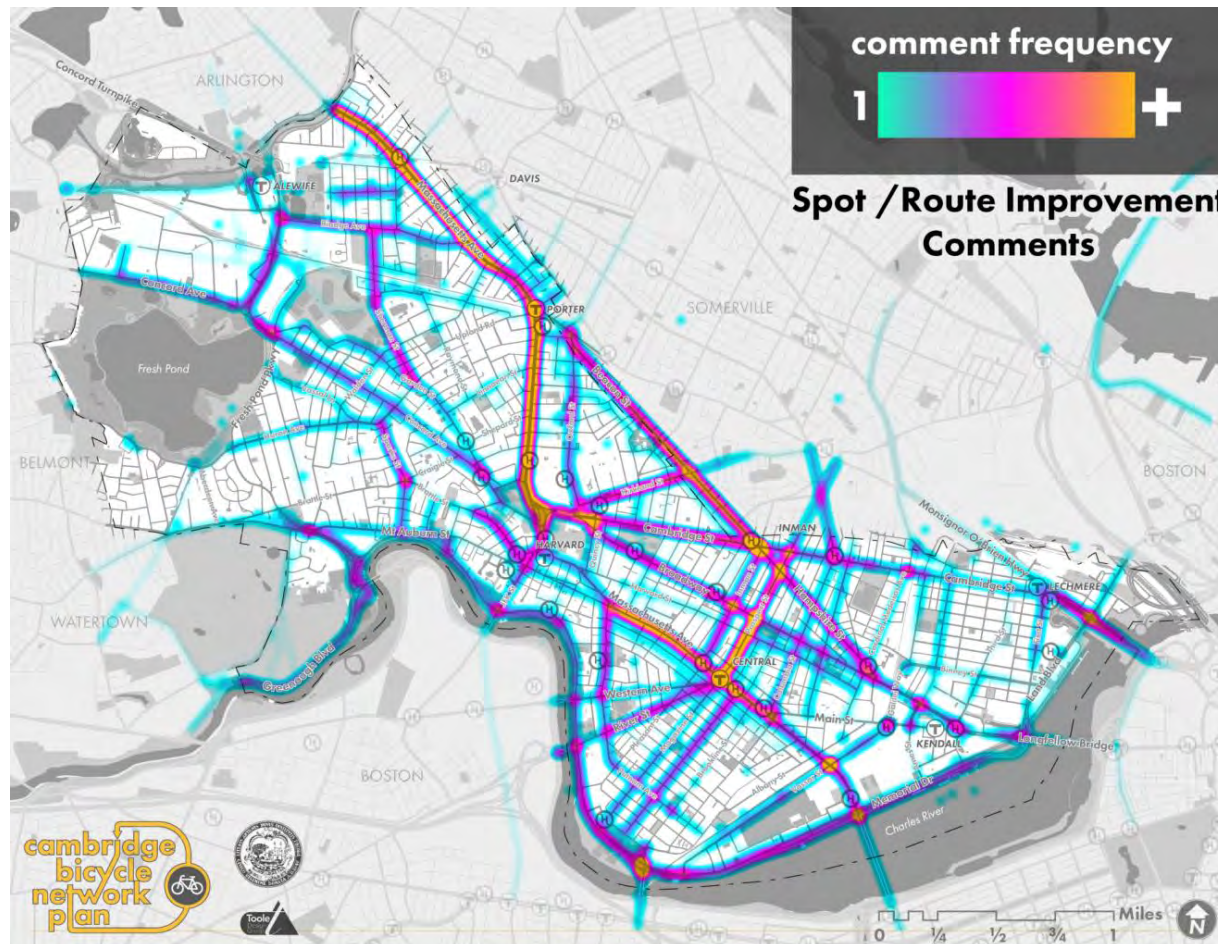
Future Safety Initiatives

Reduced Speed Limit



Future Safety Initiatives

Identification of Bicycle Improvements



Inman Square Traffic Study Project Background

- ▶ Study started in Summer 2015
 - ▣ Vanasse Hangen Brustlin, Inc. (VHB)
- ▶ Complaints of high delay for all modes of transportation
 - ▣ Long wait for pedestrians
 - ▣ High volumes of bicyclists
- ▶ Existing operational deficiencies
 - ▣ Crosswalk issues
 - ▣ Large intersection for bicyclists and vehicles
- ▶ Scope of work
 - ▣ Signal timing changes
 - ▣ Minor street geometry changes

Inman Square Traffic Study

Study Goals

- ▶ Improve safety for all users
- ▶ Improve/simplify operations for all modes
- ▶ Continue to support the local residential and business communities
- ▶ Develop improvements that can be implemented in the short- to medium-term

Inman Square Traffic Study Average Daily Traffic Volumes

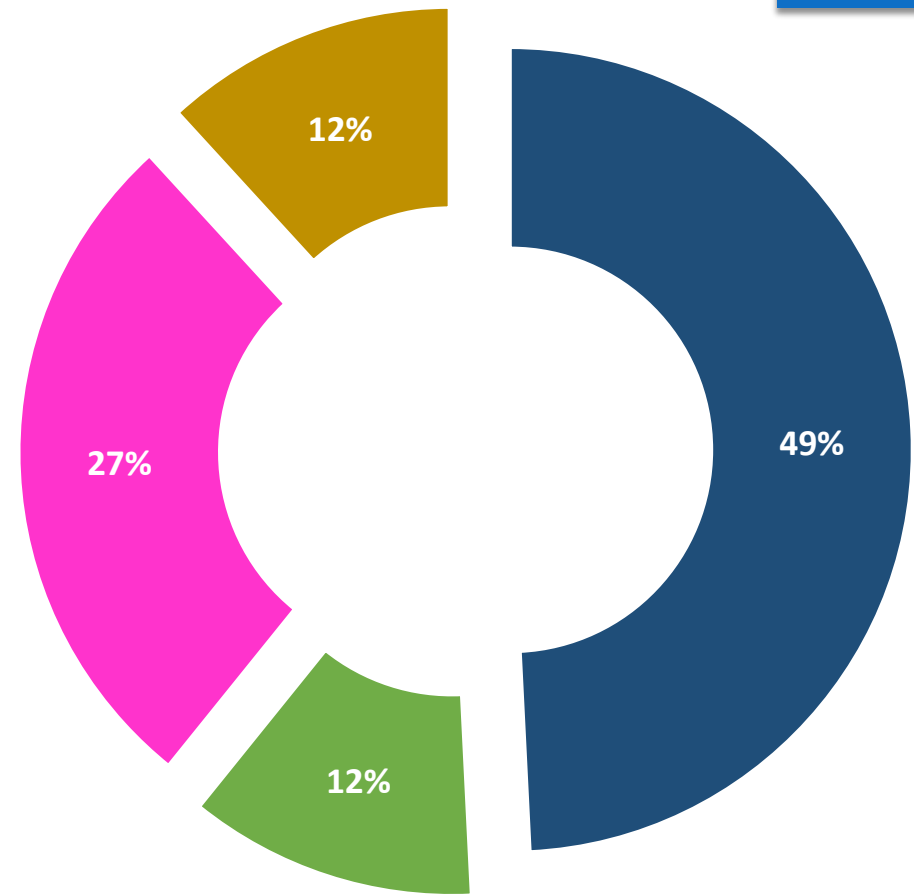
- Vehicles per Day (both directions)
- Traffic Volumes from Counts conducted May 2015



Inman Square Traffic Study Crash Data

- ▶ Collected data from 2008-2012
- ▶ 69 total crashes in five years
- ▶ Intersection exceeds MassDOT Statewide Average Crash Rate
- ▶ 15 bicycle involved crashes, 5 pedestrian involved crashes
- ▶ Most frequent crash type – angle crash
- ▶ Crash severity
 - ▶ 0 Fatal crashes (data collection period does not include 6/23 fatality)
 - ▶ 21 Injury crashes

Distribution by Mode



■ Vehicle ■ Bicycle ■ Pedestrian ■ Transit

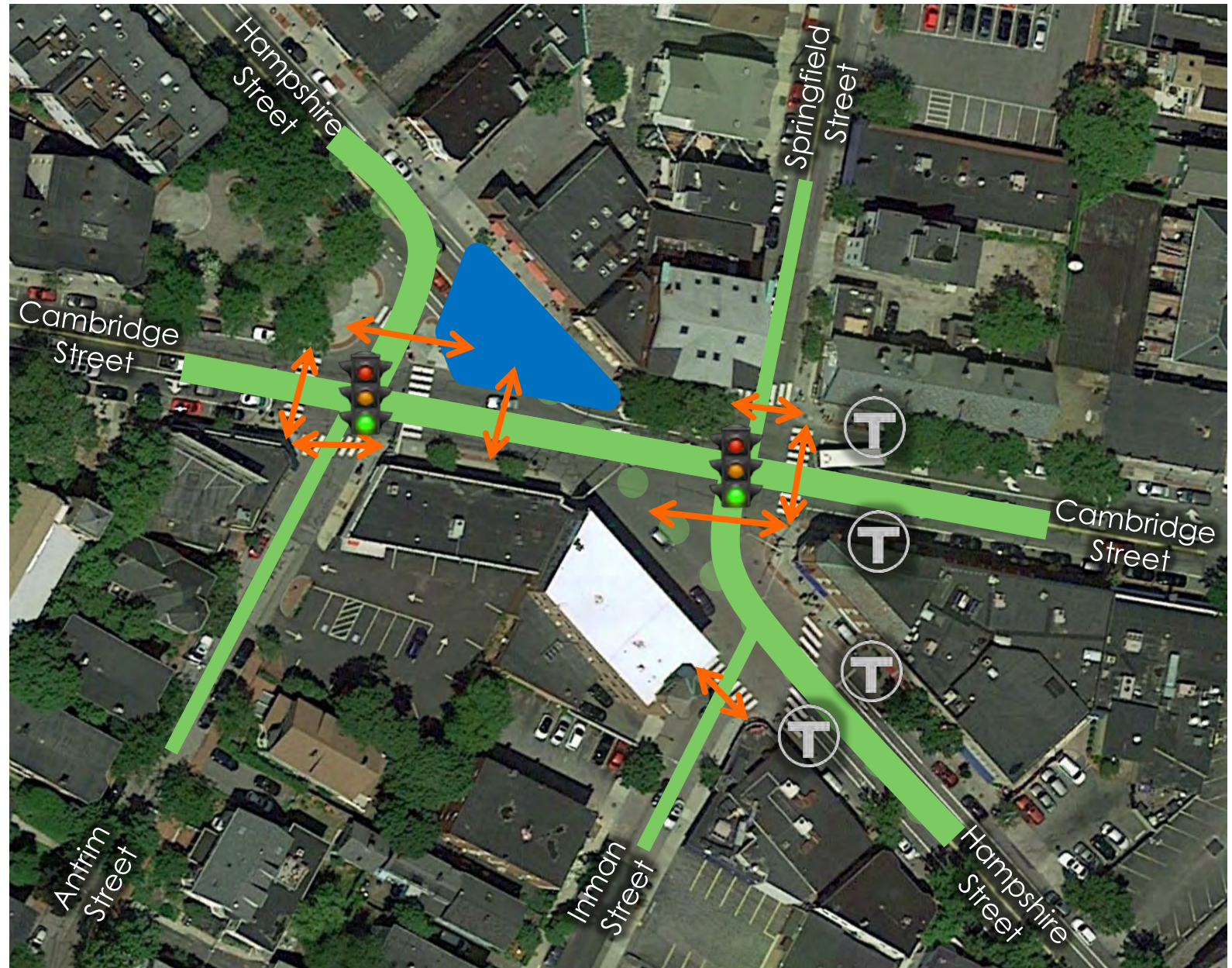
Inman Square Traffic Study Idea – Bend Streets

- Create two separate and simplified intersections



Inman Square Traffic Study Idea – Bend Hampshire Street

- Compact intersections reduce exposure time for bikes
- Expanded open space
- Construct two new traffic signals
- More crossing opportunities, crosswalks reduced in length



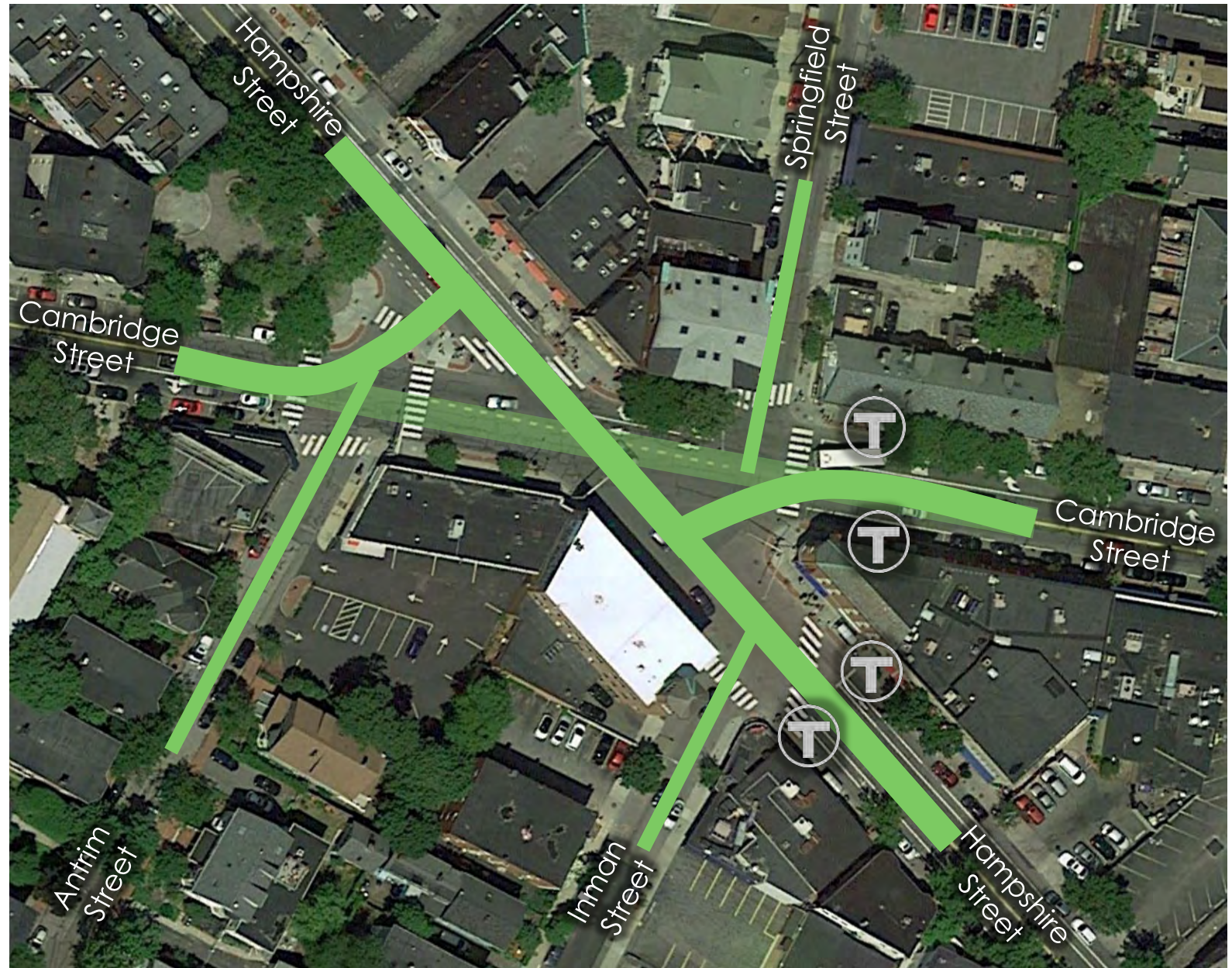
Inman Square Traffic Study Idea – Bend Hampshire Street

- Compact intersections reduce exposure time for bikes
- Expanded open space
- Construct two new traffic signals
- More crossing opportunities, crosswalks reduced in length
- Signal control will provide continuous movement on Hampshire Street
- Left turn movements for bikes need additional consideration



Inman Square Traffic Study Idea – Bend Cambridge Street

- Compact intersections reduce exposure time for bikes



Inman Square Traffic Study Idea – Bend Cambridge Street

- Compact intersections reduce exposure time for bikes
- Expanded open space
- Construct two new traffic signals
- More crossing opportunities, crosswalks reduced in length



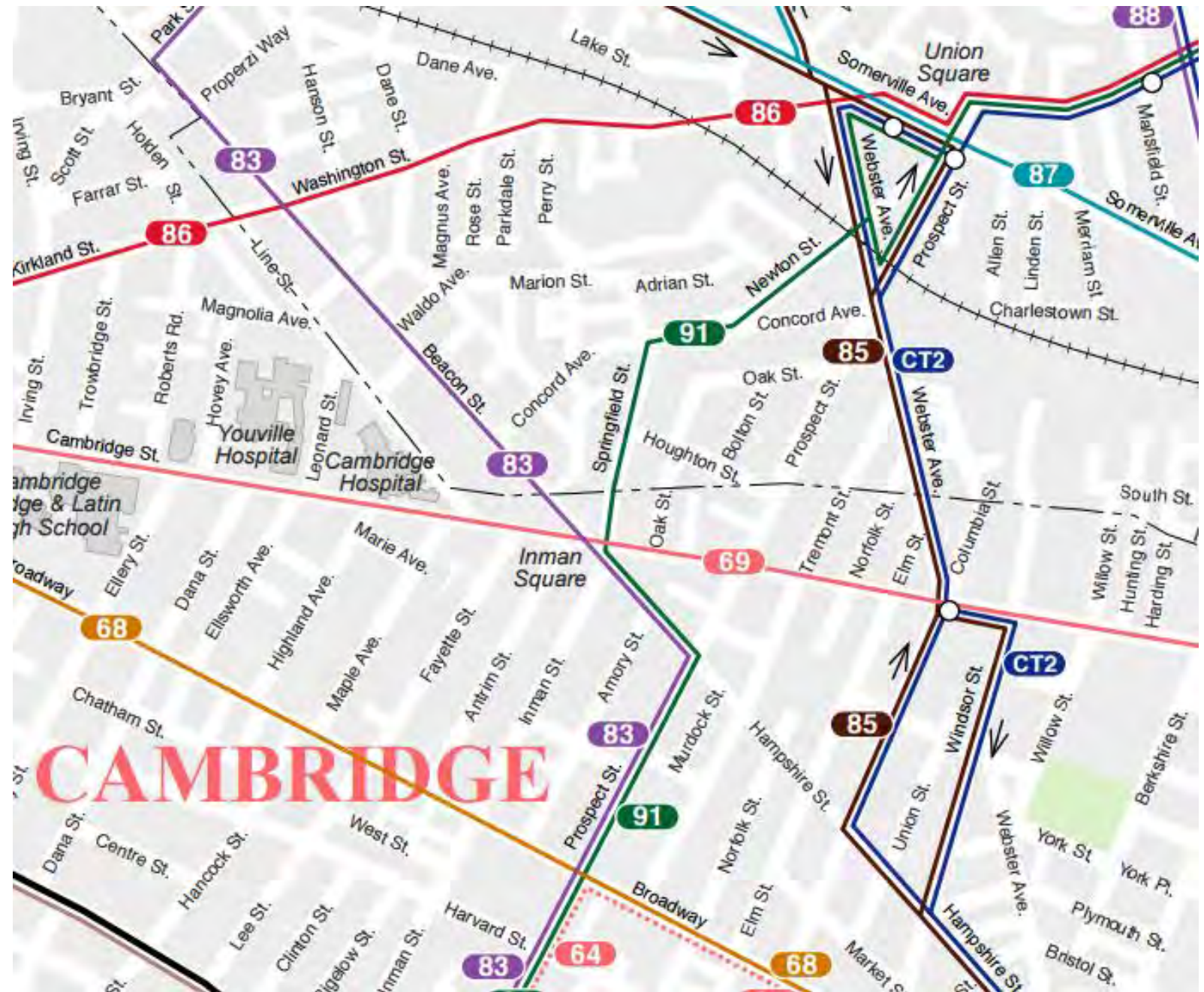
Inman Square Traffic Study Idea – Bend Cambridge Street

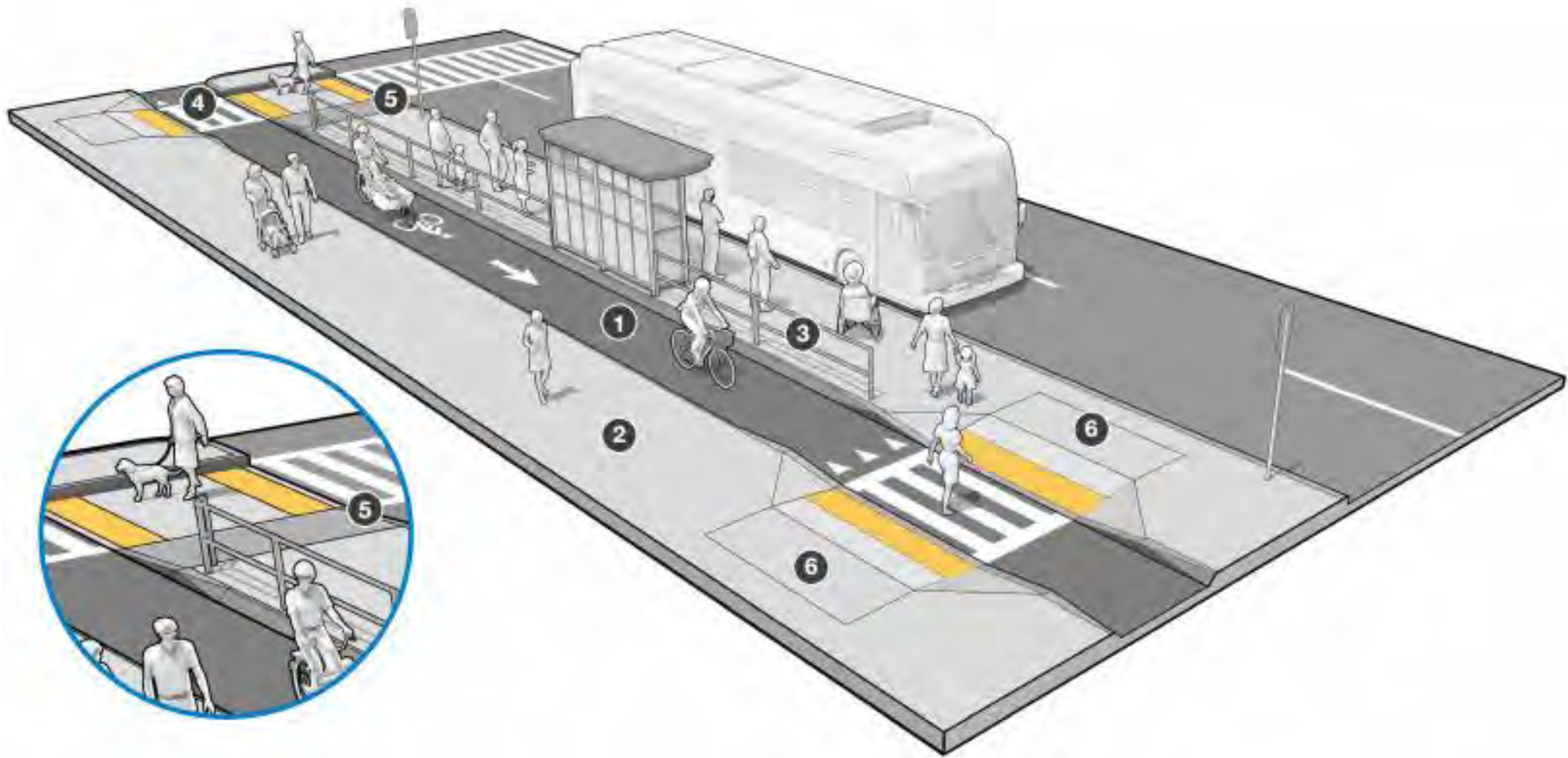
- Compact intersections reduce exposure time
- Expanded open space
- Construct two new traffic signals
- More crossing opportunities, crosswalks reduced in length
- Signal control will provide continuous movement on Cambridge Street
- Through bikes on Hampshire Street do not need to turn
- May require operational changes on Springfield Street



Transit Routes

- Route 83 – Hampshire Street
- Route 69 – Cambridge Street
- Route 91 – Springfield Street





Short-Term Improvement Plan



Porter Square - Project Background

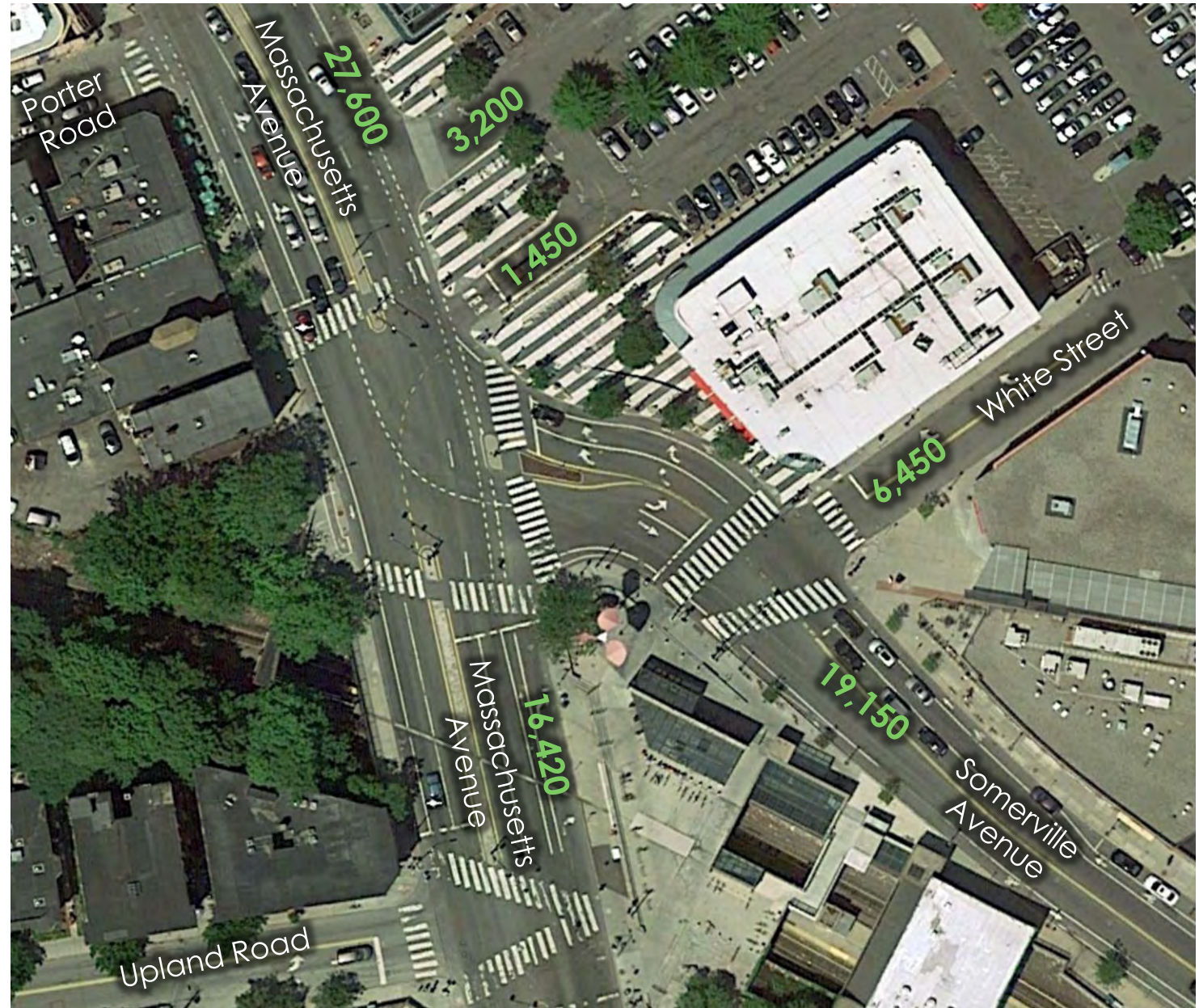
- ▶ Study started in Summer 2015
 - ▶ Vanasse Hangen Brustlin, Inc. (VHB)
- ▶ Complaints of high delay for all modes of transportation
 - ▶ Long wait for pedestrians
 - ▶ Concerns about bicycle movements
 - ▶ Coordination with adjacent signals
- ▶ Existing operational deficiencies
 - ▶ Complex signal phasing
 - ▶ Shared center lane on Mass Ave southbound
 - ▶ Turn restrictions from White Street and Somerville Avenue

Study Goals

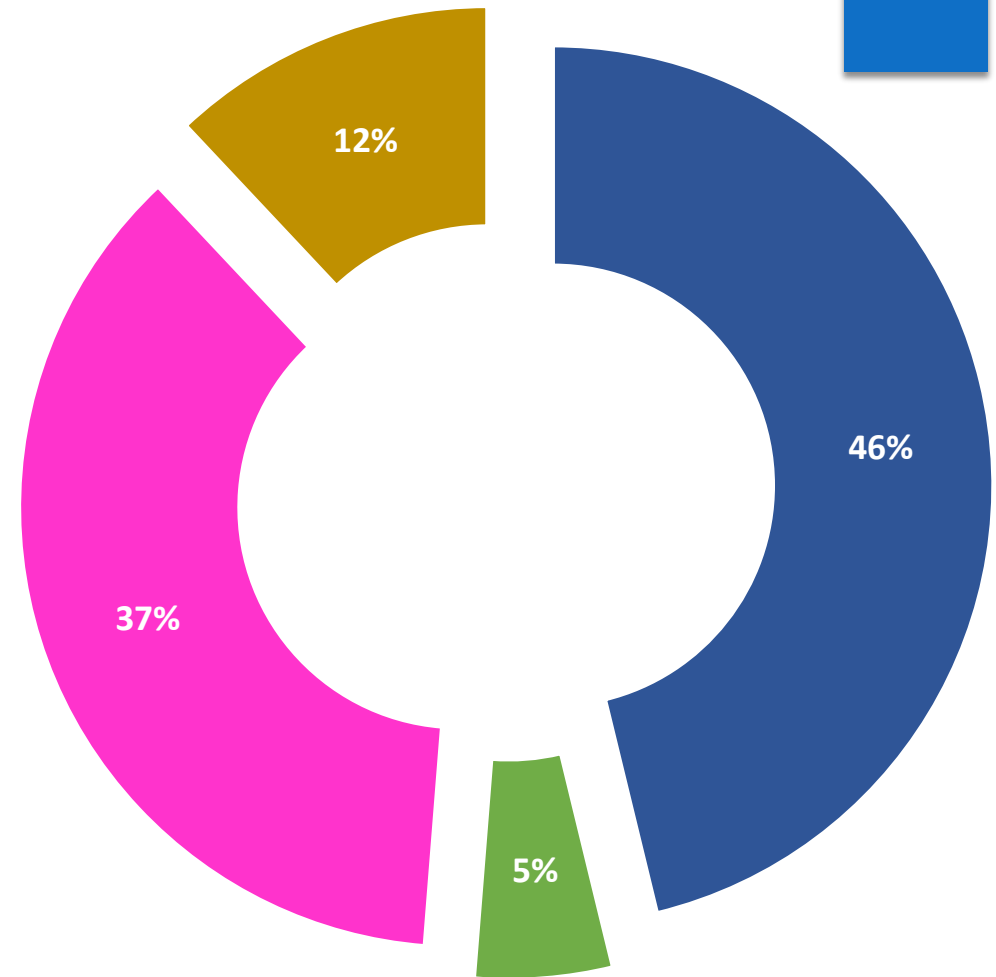
- ▶ Improve safety for all users
- ▶ Improve/simplify operations for all modes
- ▶ Continue to support the local residential and business communities
- ▶ Develop relatively low-cost improvements that can be implemented in the short- to medium-term

Average Daily Traffic Volumes

- Vehicles per Day
- Traffic Volumes from Counts conducted May, 2015



Distribution by Mode



■ Vehicle ■ Bicycle ■ Pedestrian ■ Transit

Crash Data

- ▶ Collected data from 2008-2012
- ▶ 62 total crashes in five years between three intersection
 - ▶ All three intersections below MassDOT statewide average crash rate
 - ▶ Mass Ave @ Somerville Ave – 29 crashes
 - ▶ Mass Ave @ Upland Road – 27 crashes
 - ▶ Somerville Ave @ White Street – 6 crashes*
 - ▶ 7 bicycle involved crashes, 1 pedestrian involved crash
- ▶ Most frequent crash type – angle crash
- ▶ Crash severity
 - ▶ 0 Fatal crashes*
 - ▶ 21 Injury crashes

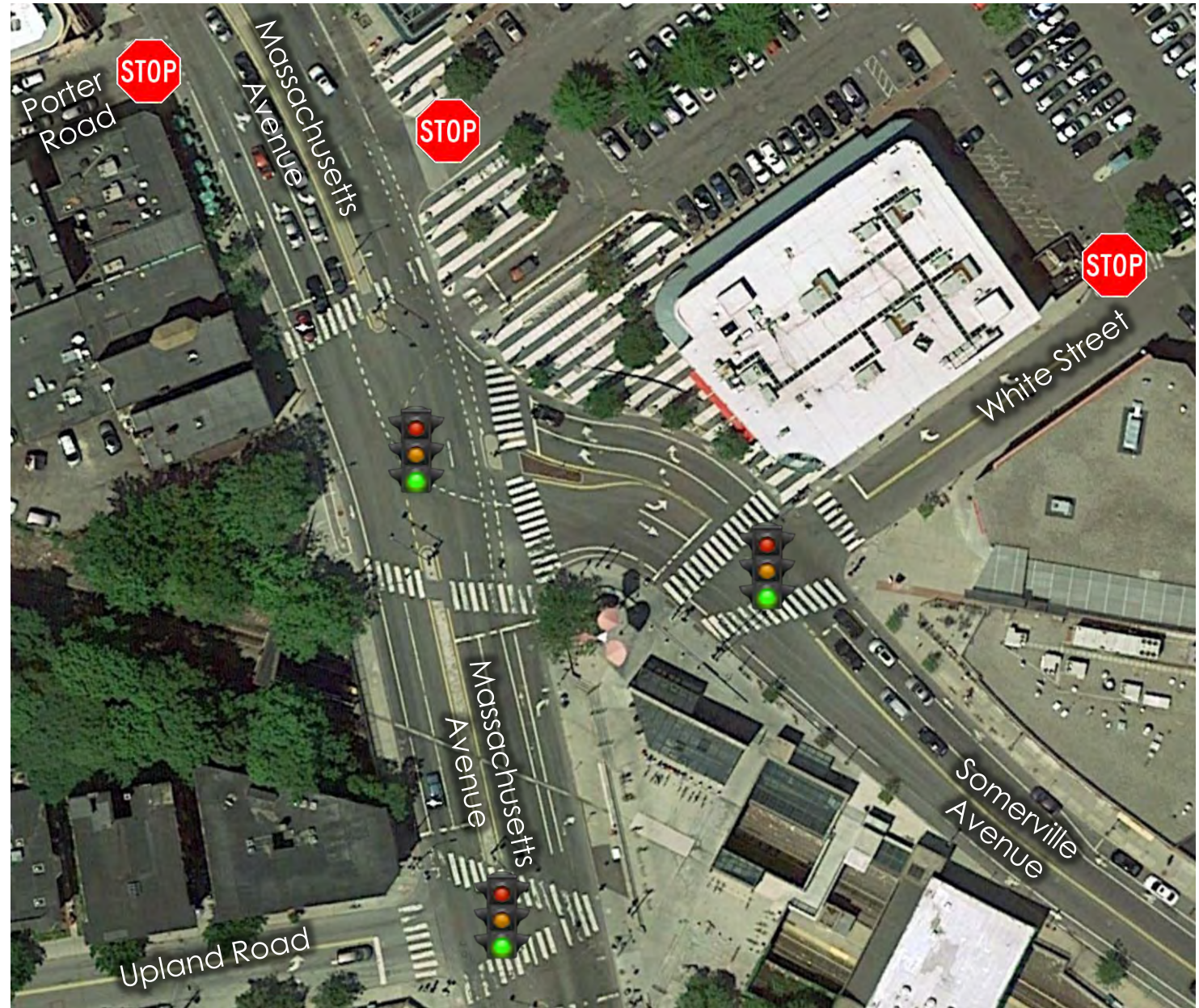
*Does not include recent pedestrian crash at White Street

Transit Routes



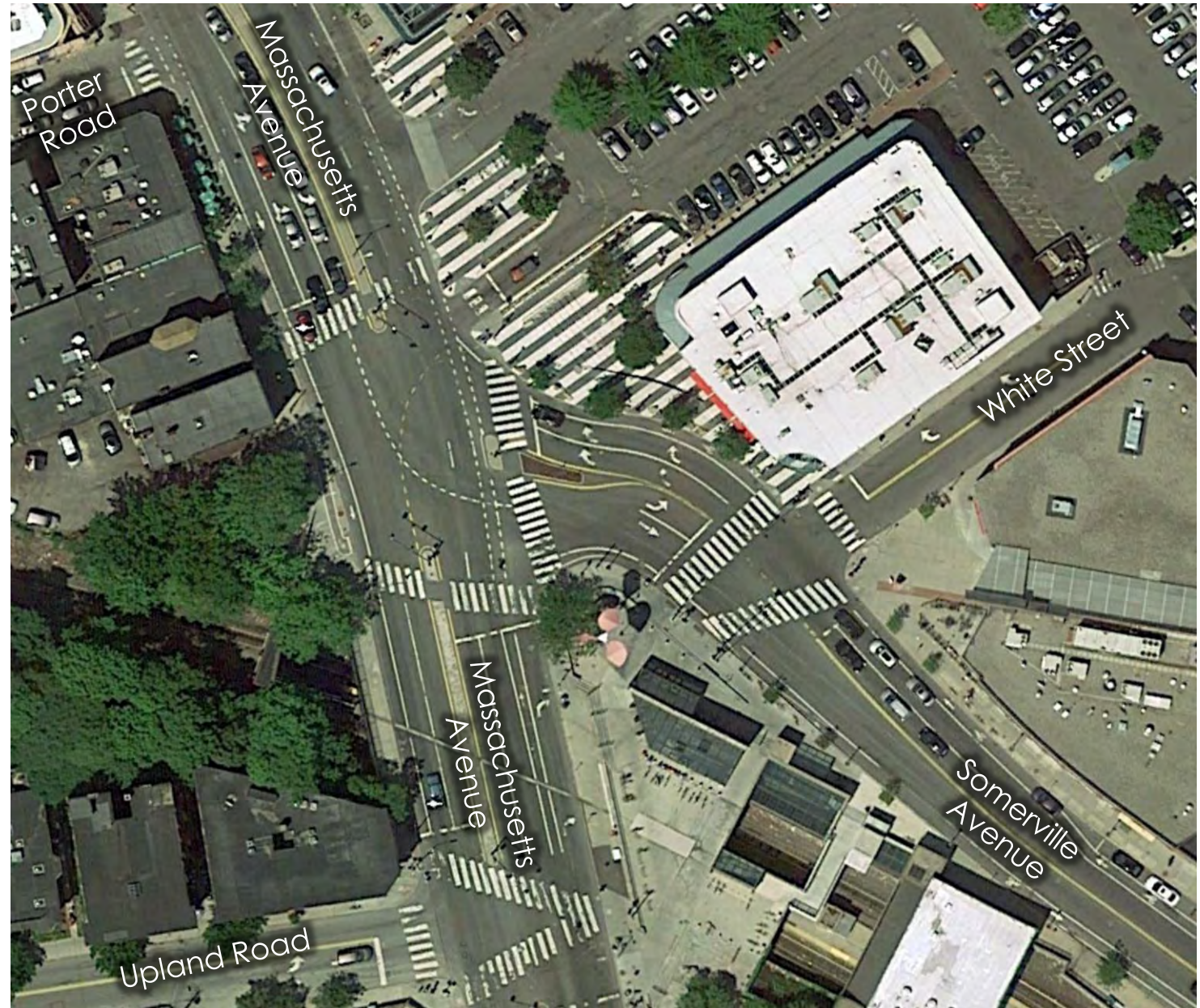
Existing Traffic Control

- Three Traffic Signals
- Stop Control on Minor Approaches
 - Porter Road
 - Shopping Center Right Out
 - Shopping Center White Street Driveway



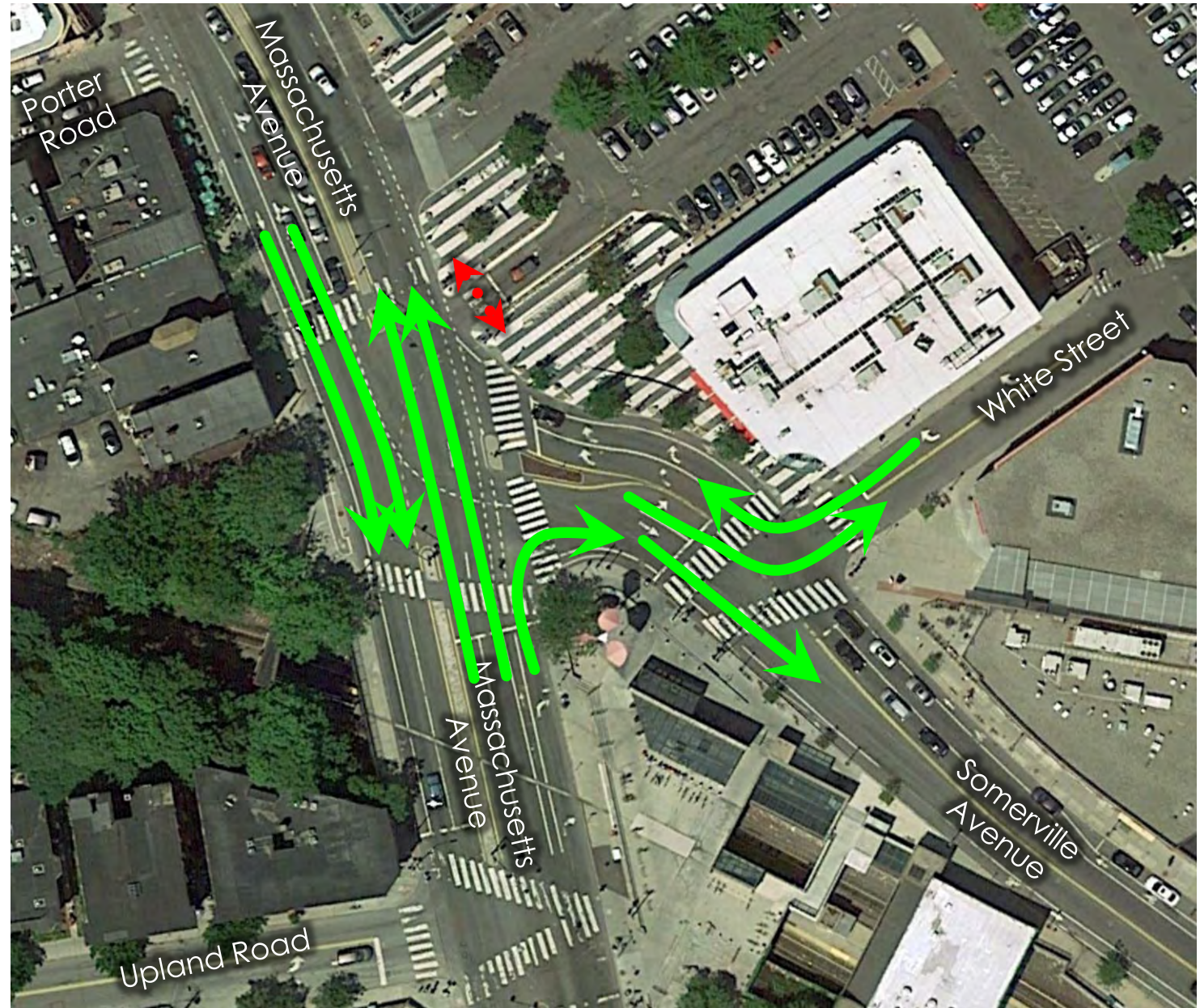
Mass Ave @ Somerville Ave Existing Signal Phasing

- Phase 1
 - Mass Ave Through
- Phase 2
 - Mass Ave Left Turn
 - Somerville Ave Right Turn
- Phase 3
 - Somerville Ave Right Turn
 - Bike Left Turn
 - Mass Ave Pedestrian Crossing
- Phase 4
 - Exclusive Pedestrian Phase
- Phase 5
 - Shopping Plaza Driveway



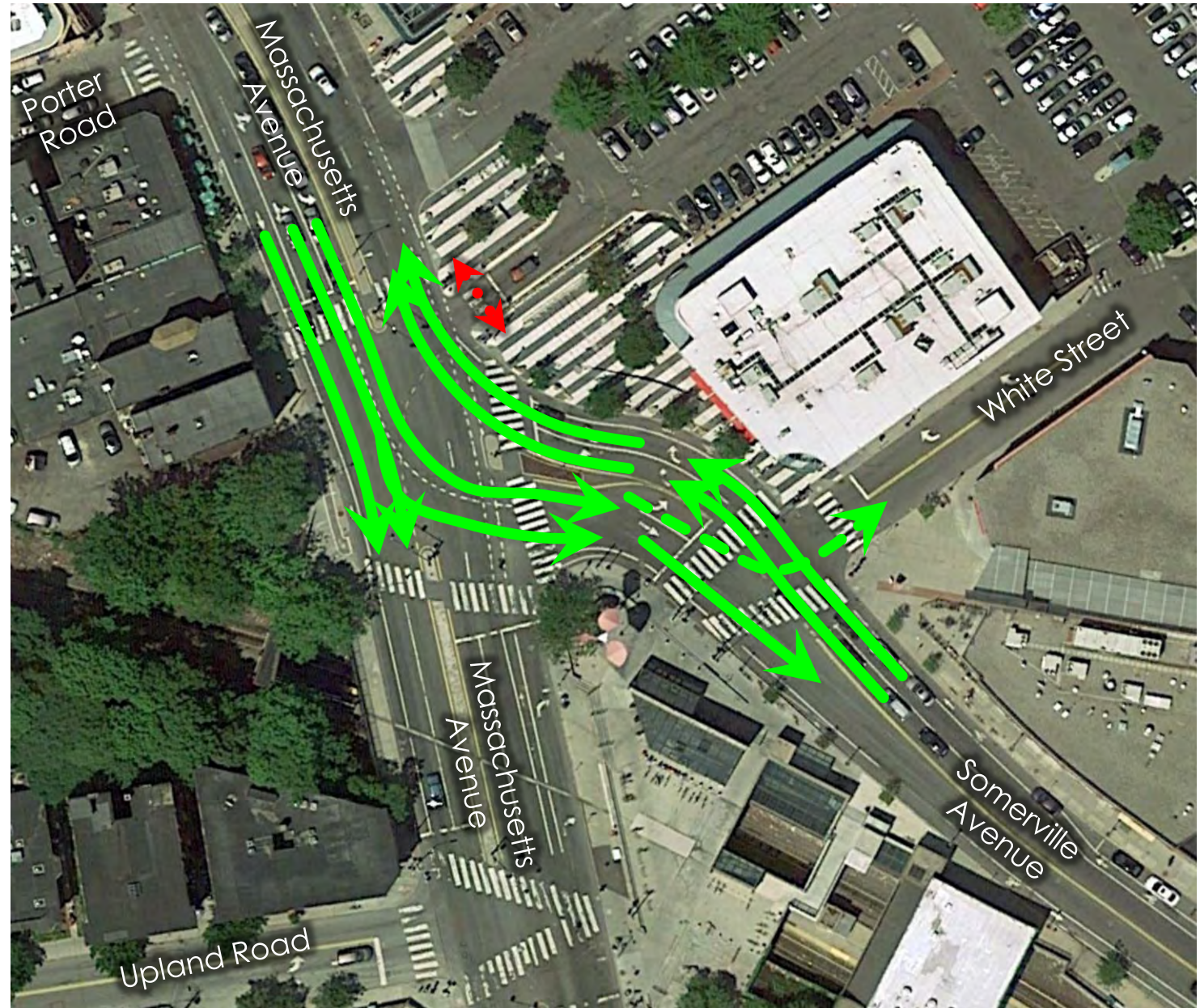
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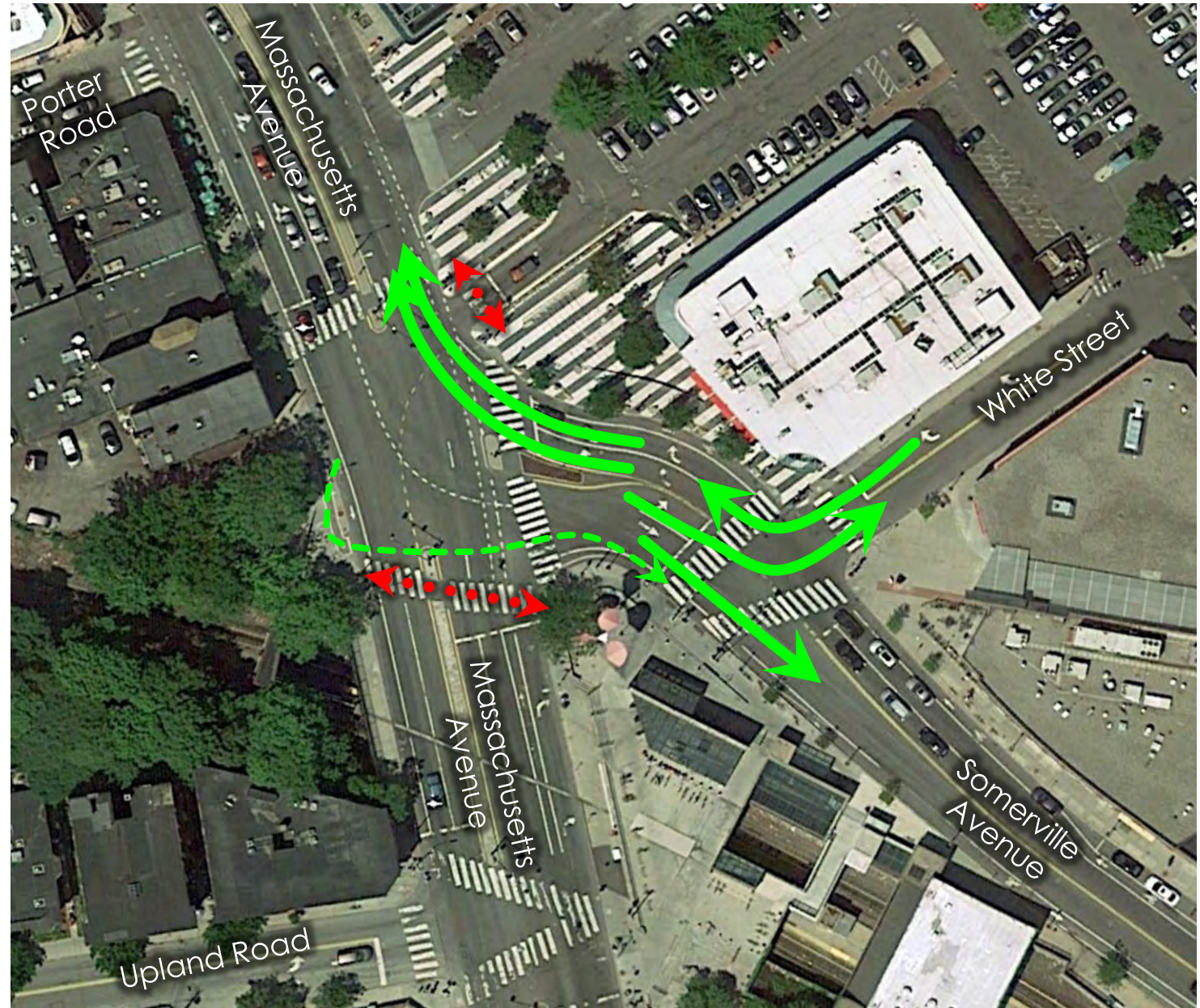
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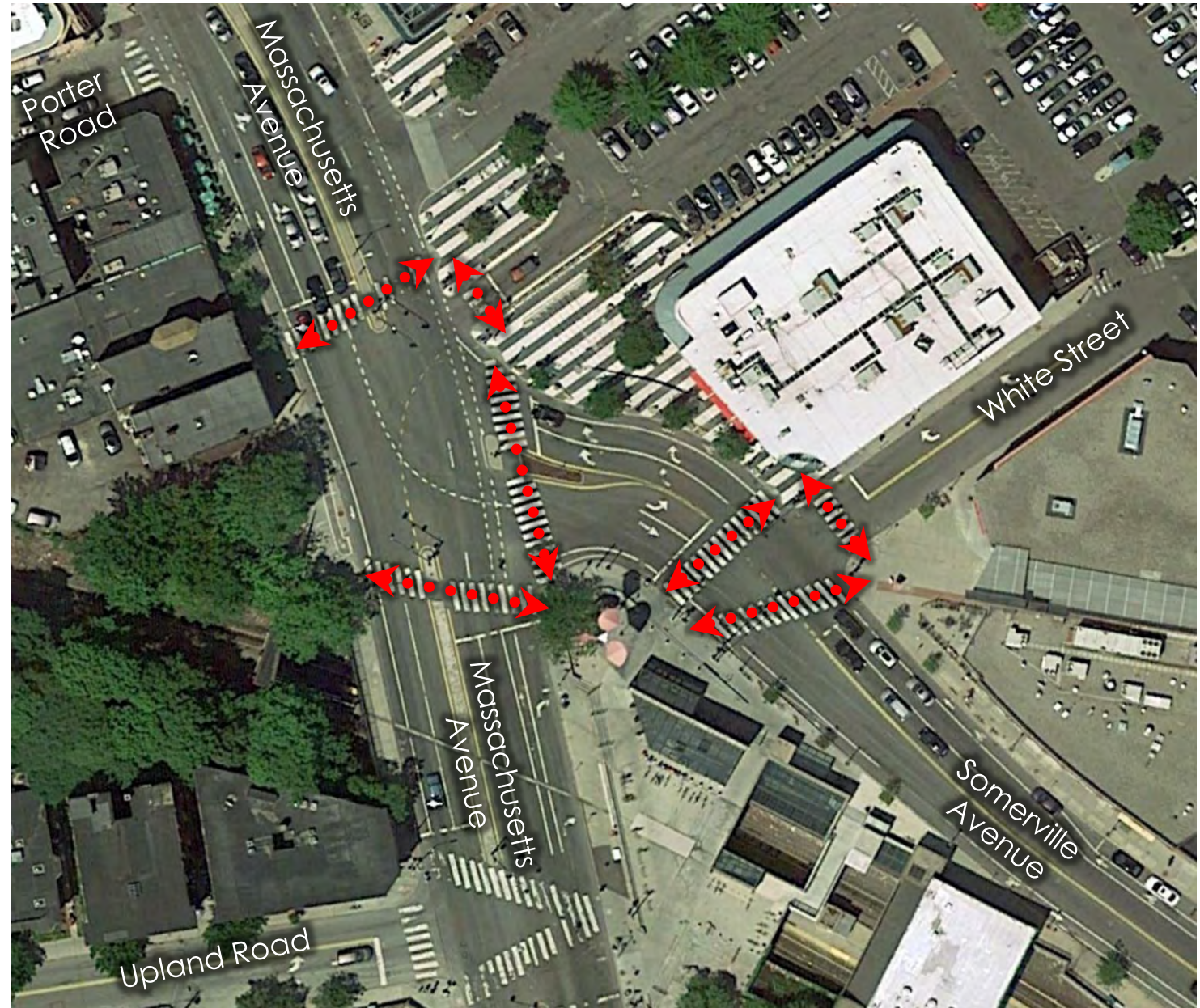
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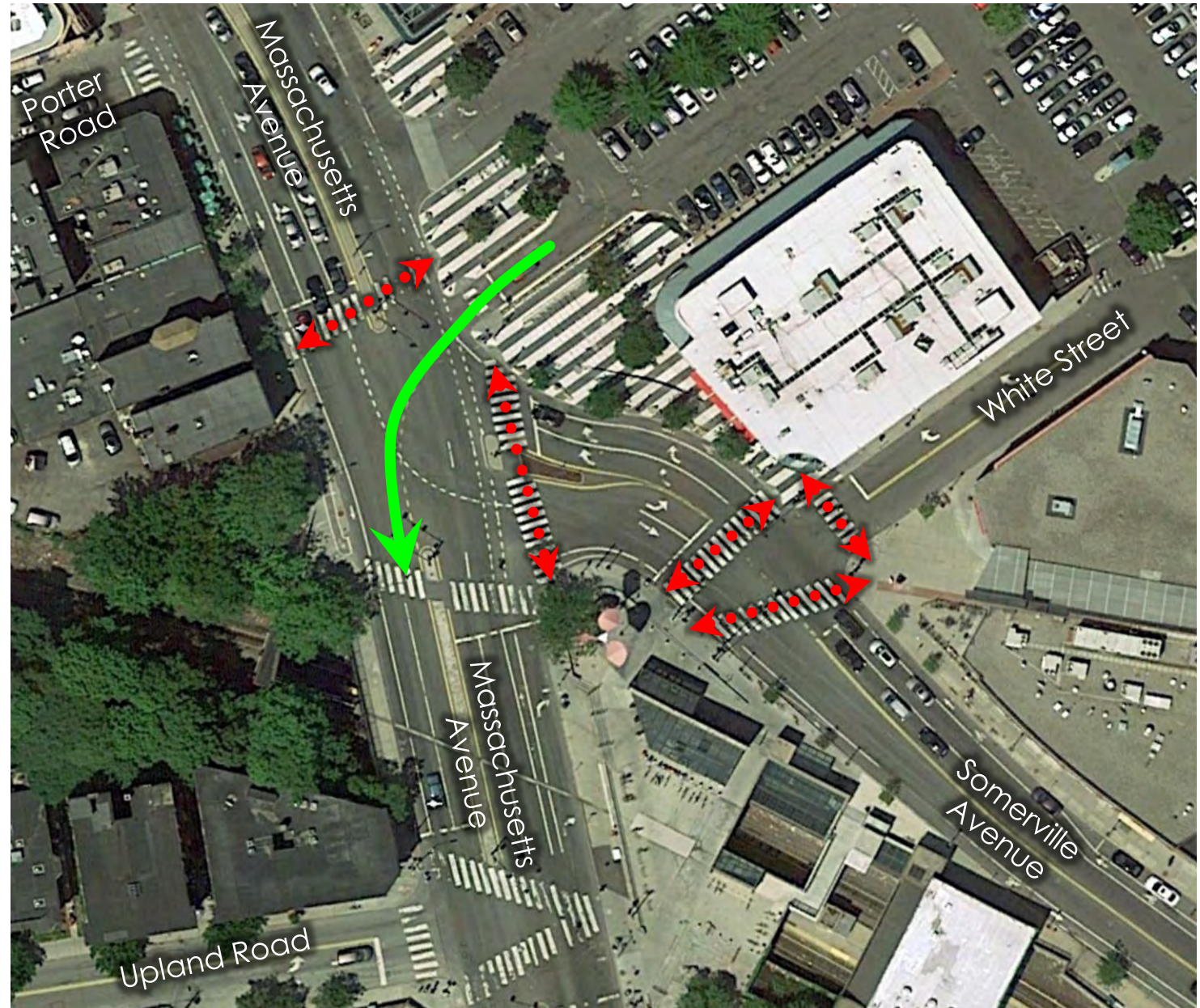
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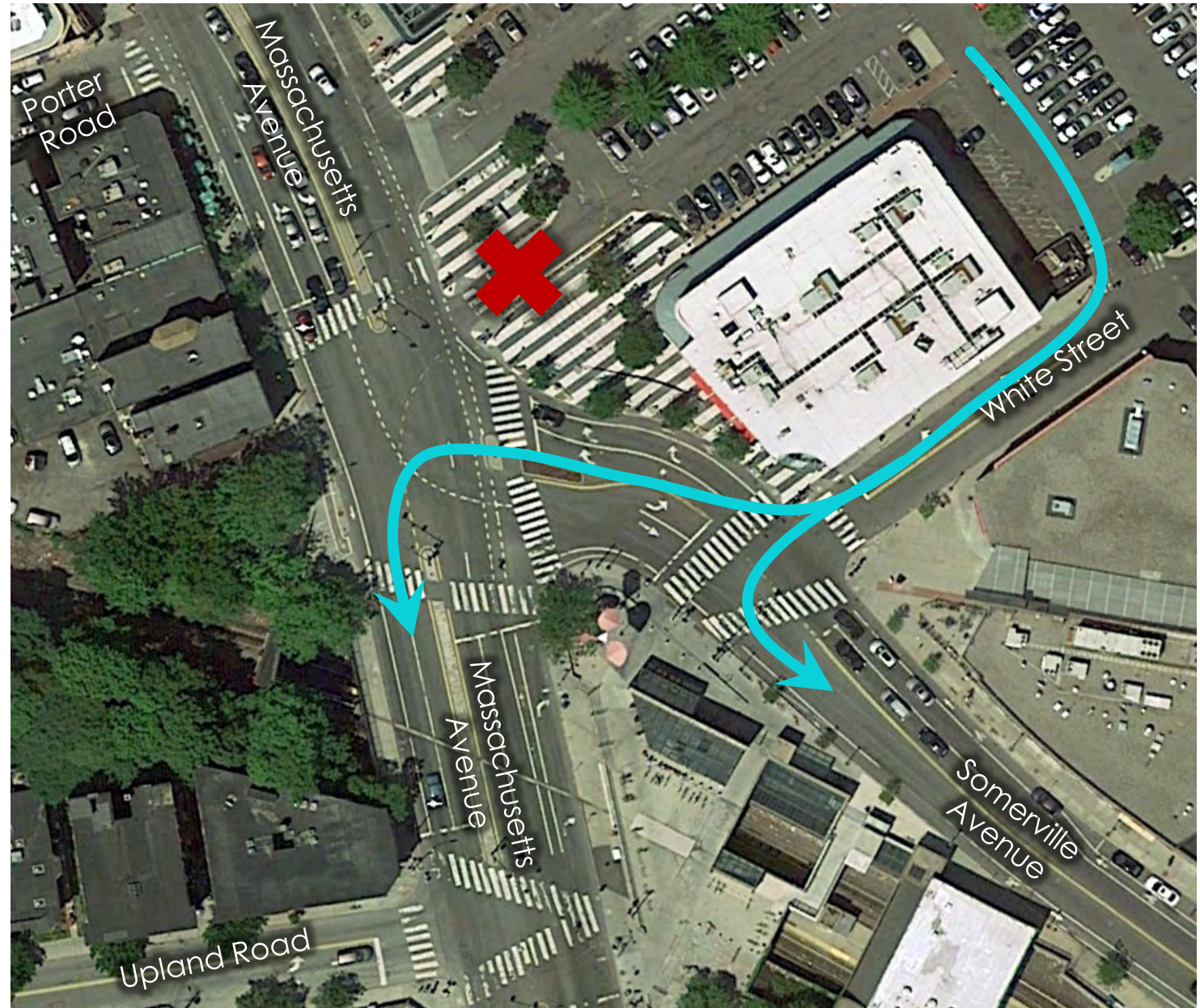
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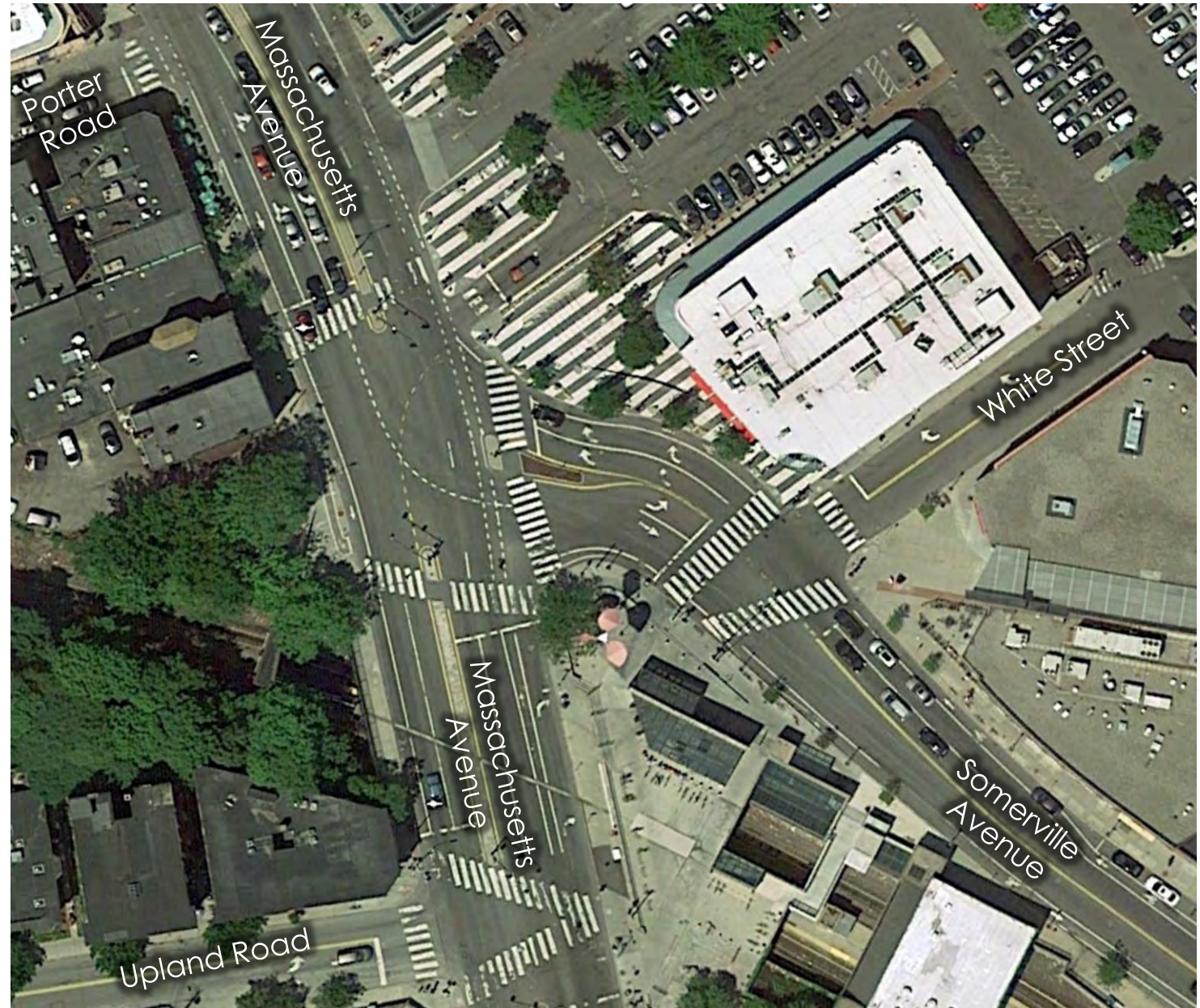
Proposed Changes

- 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



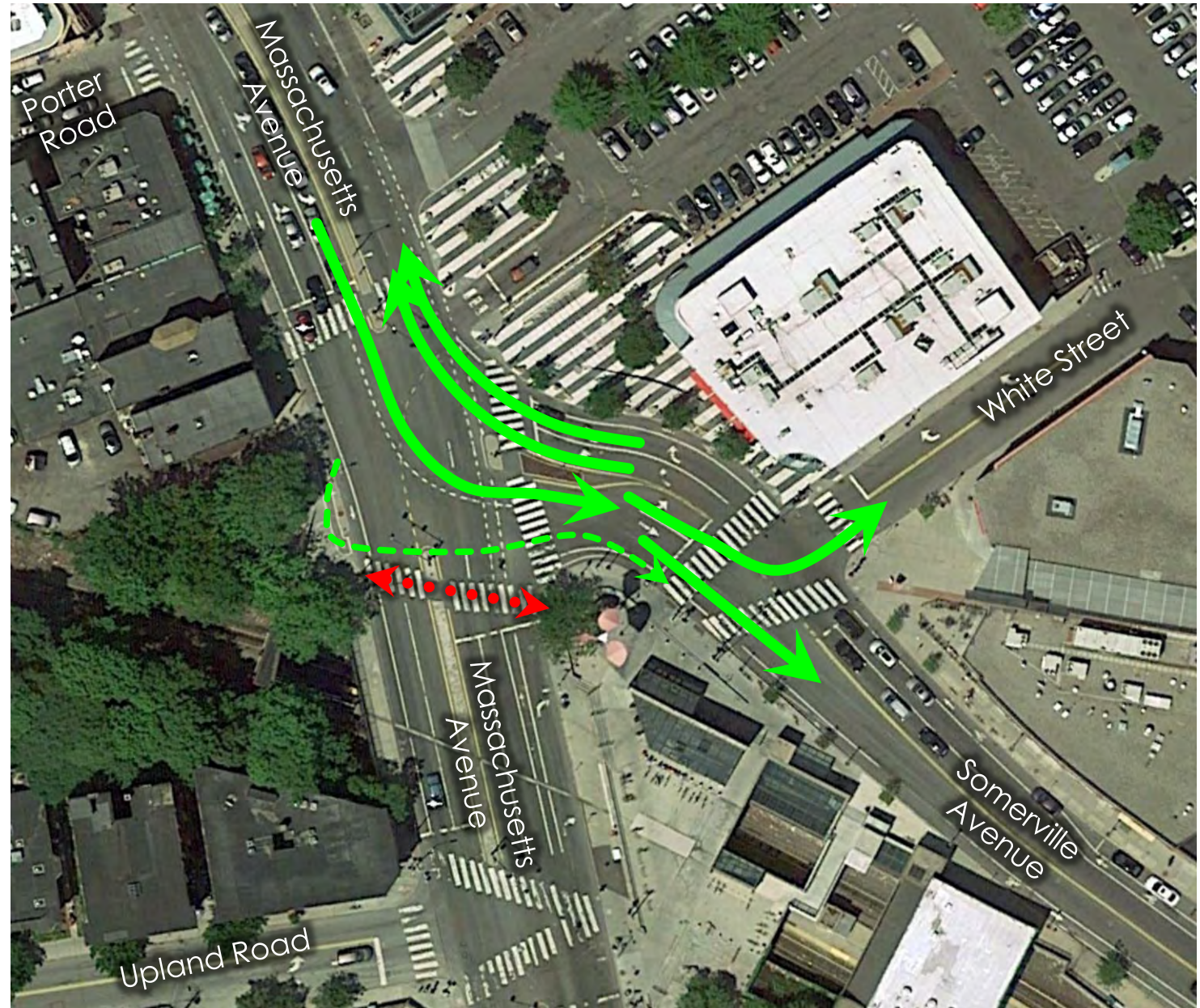
Mass Ave @ Somerville Ave Proposed Signal Phasing

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 - Mass Ave South Crosswalk
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 - Mass Ave Through
 - Somerville Ave Crosswalk
- Phase 3
 - Somerville Ave Left Turn
 - Mass Ave Right Turn
 - Mass Ave North Crosswalk



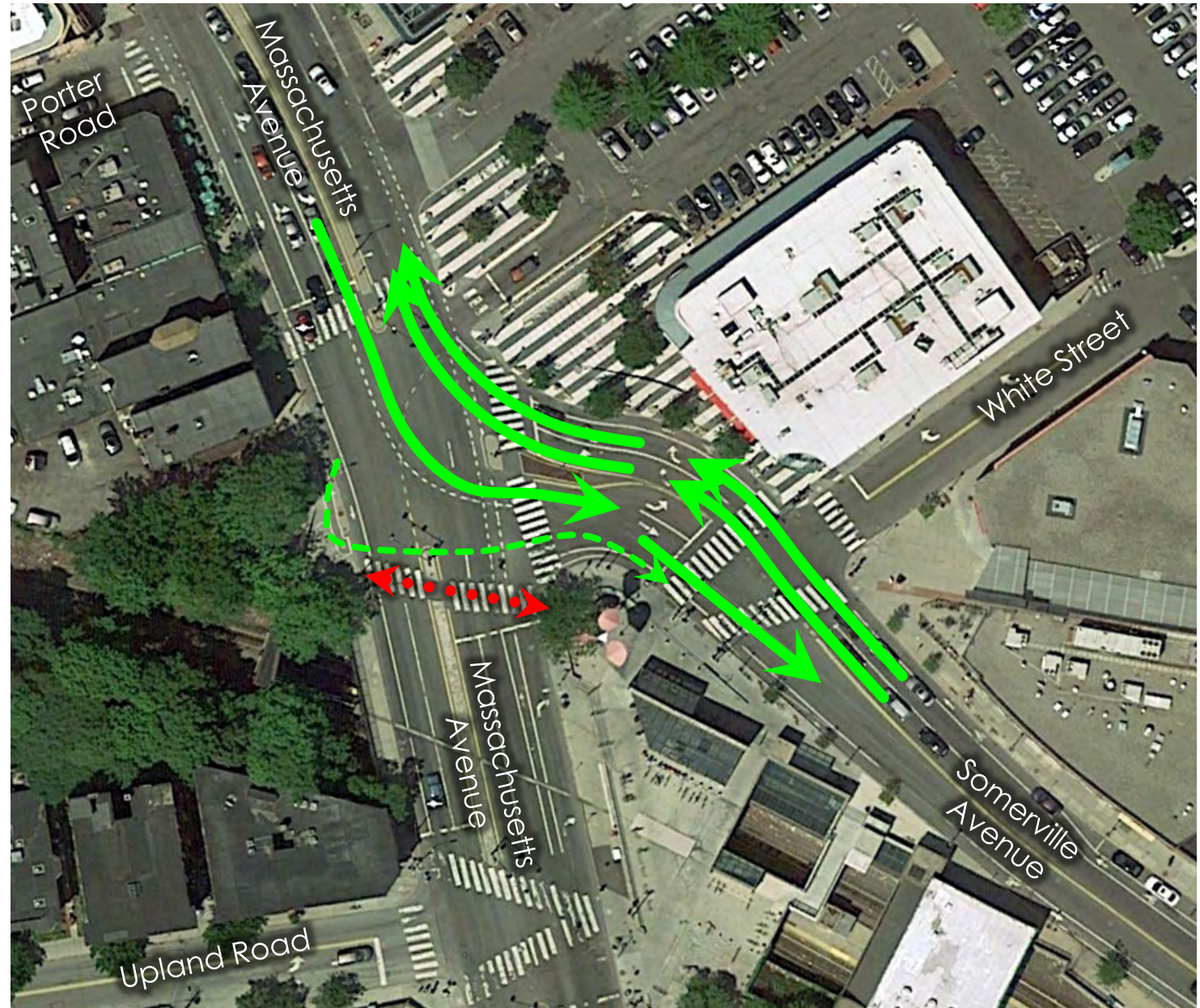
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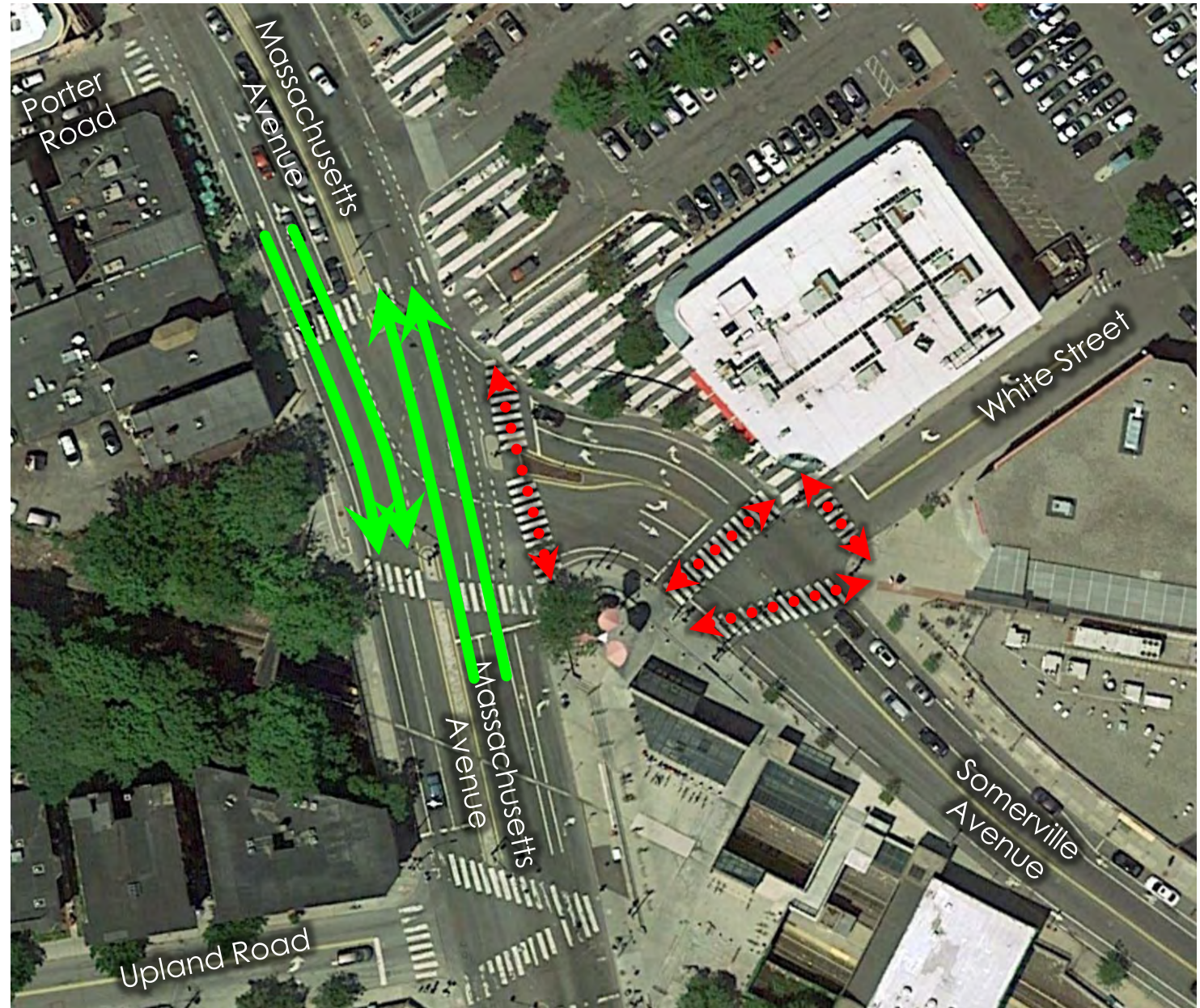
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 - Mass Ave Through
 - Somerville Ave Crosswalk
 - All White Street Crosswalks
- Phase 3
 - Somerville Ave Left Turn
 - Mass Ave Right Turn
 - Mass Ave North Crosswalk
 - White Street Right Turn
 - White Street Left Turn (optional)



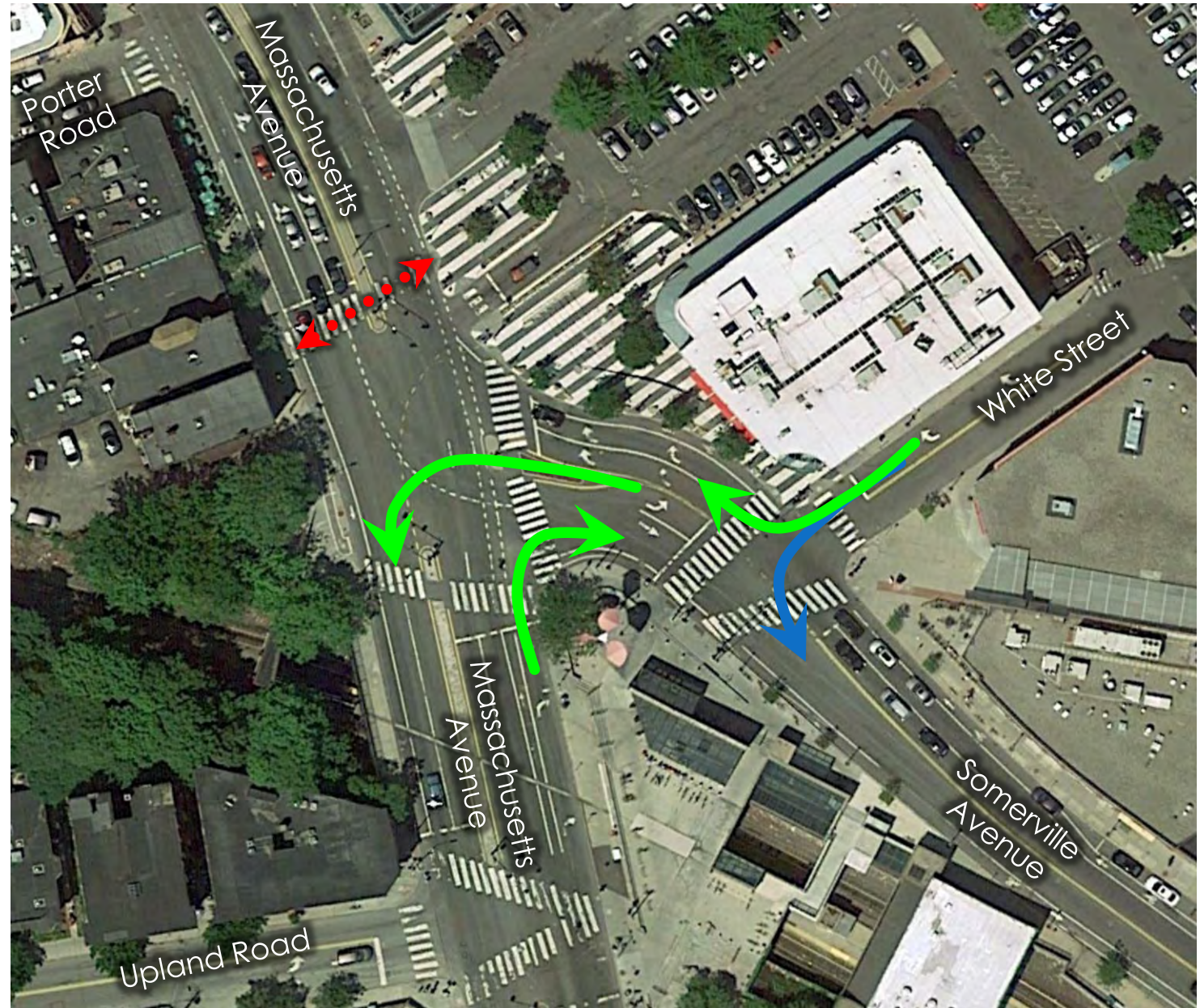
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 - White Street Left Turn (optional)



Next Steps

- ▶ Discussion with Community
- ▶ Ongoing Coordination
 - ▶ City of Somerville
 - ▶ Gravestar/Porter Square Shopping Center
 - ▶ Public Safety Agencies
- ▶ Begin design efforts Fall 2016 pending community input

Questions?

