

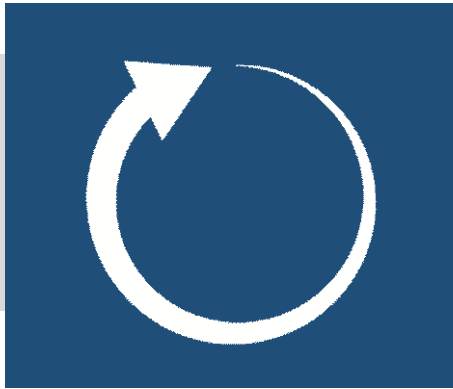
# INMAN SQUARE INTERSECTION IMPROVEMENTS PROJECT



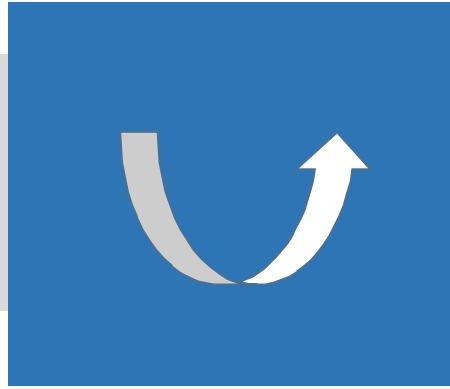
Community Meeting #2 | May 2, 2017



INMAN SQ PROJECT  
**Agenda**



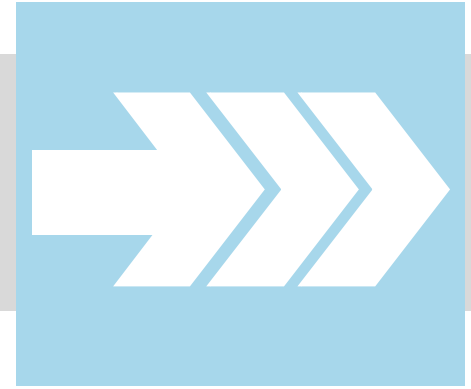
Project  
Background



Alternatives  
Evaluation



Preferred  
Concept

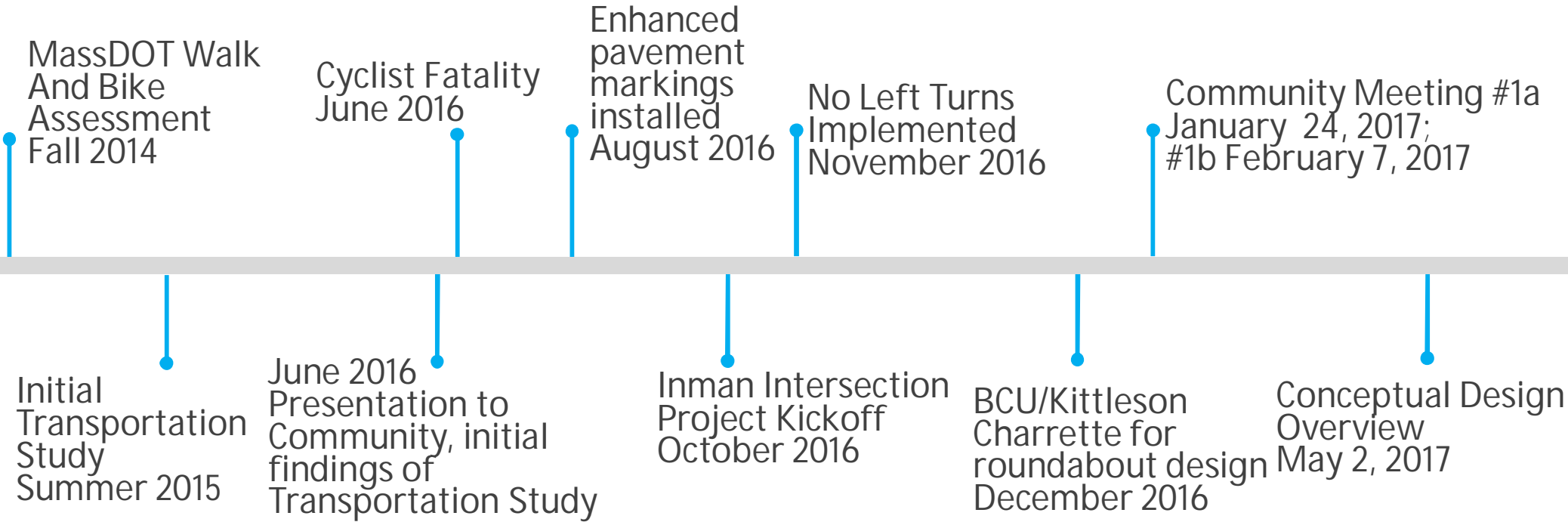


Next Steps



Project Background

# Project Timeline

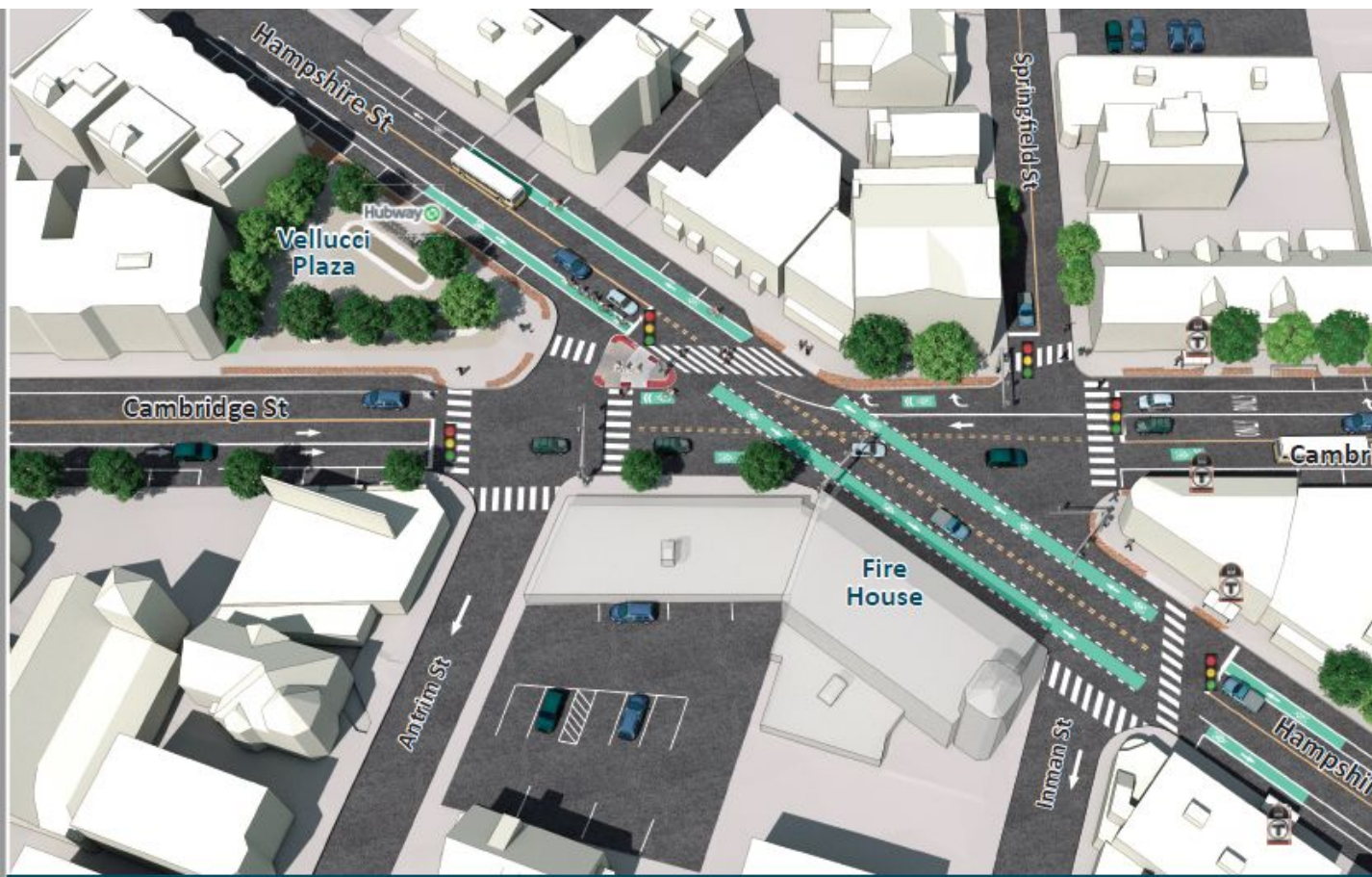


# Initial Transportation Study

- Complaints of high delay for all modes of transportation
  - Long signal cycle lengths
  - High volumes of bicyclists
- Existing operational deficiencies
  - Layout of crosswalks irregular
  - Large intersection for bicyclists and vehicles to traverse
- Review of Crash Data 2008-2012
  - 69 total crashes in 5 years (exceeds MassDOT avg Statewide crash rate)
  - Most frequent type of crash type – angle crash
  - 15 bicycle involved crashes, 5 pedestrian involved crashes



# Existing Conditions



 Inman Square Existing Intersection

City of Cambridge  
January 20

1. Crosswalks outside of desire lines and some not signal controlled
2. Existing geometry results in long distance for pedestrians and bikes to travel
3. No signal control for Hampshire Street Southbound turn to Antrim Street
4. Issues with clearance time for all users
5. Unclear lane control on Cambridge Street

# Desired Outcomes



- Reduce exposure through more compact intersection design
- Minimize conflicts with turning vehicles
- Provide separation



- Reduce length of crosswalks and signal wait times
- Provide more direct crosswalk routing
- Provide improved pedestrian environment through landscaping and enhanced amenities



- Reduce unnecessary vehicular delay
- Provide clear guidance and lane controls
- Increase efficiency through more compact intersection design



- Reduce bus/transit delay
- Improve location of and access to MBTA bus stops

# Desired Outcomes (continued)



- Provide pedestrian plaza adjacent to businesses



- Maintain truck access through intersection



- Maintain protected firehouse egress/access

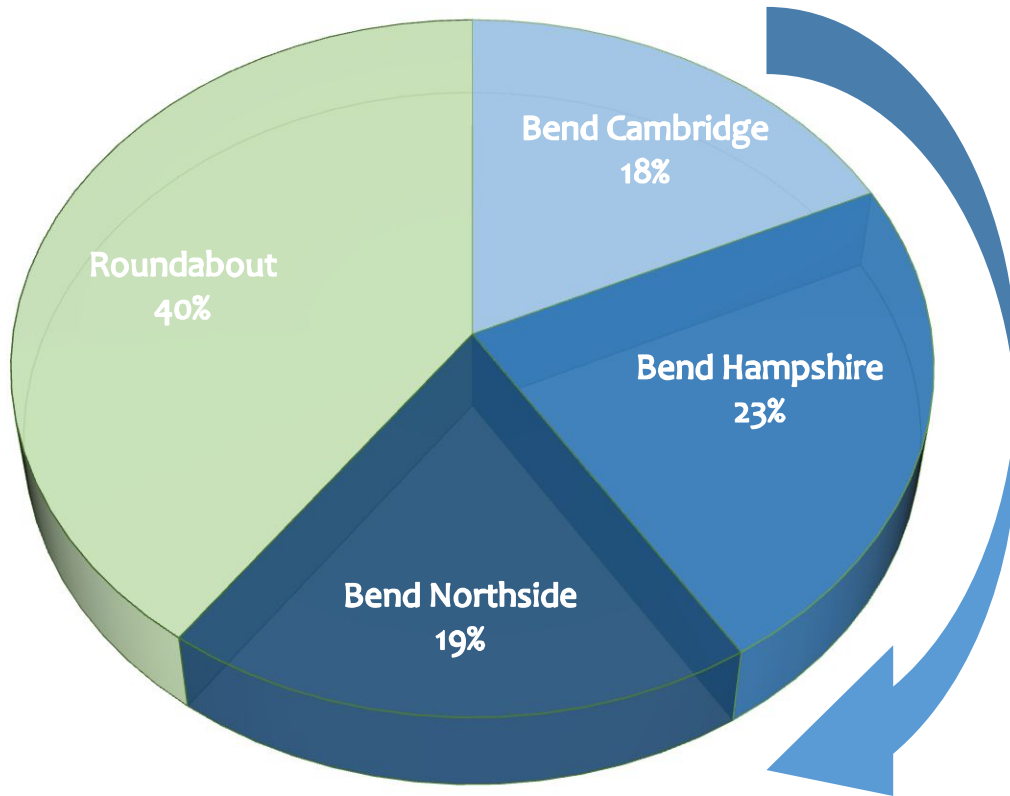
# Preliminary Concepts





# Community Feedback

## FEEDBACK RESULTS



60% signalized concept

## FEEDBACK HIGHLIGHTS

- Maintain Springfield St as 2-way
- Consider traffic impacts to Fayette St and Antrim St
- Desire for crosswalk at heart of intersection
- Desire for new pedestrian open space
- Consideration for fire station and truck access
- Support for separated bike lane facilities but also concerns for parking
- Positive feedback on floating bus stops

# Other Stakeholder Feedback



## Inman Square Neighborhood Association

- Preferred Bend Northside
- Desired open space adjacent to retail



## Cambridge Fire Department

- Requested signalized intersection



## City of Somerville

- No preferred concept
- Maintain 2-way Springfield St



## Joint Bike/Ped/Transit Committee

- Preferred Bend Northside
- Support for plaza space adjacent to businesses
- Concerned with lack of signalized crossings in Roundabout option



## MBTA

- No preferred concept
- In favor of transit priority
- MBTA willing to consider Bus Route 91 relocation to Prospect Street



## Boston Cyclists Union/Cambridge Bicycle Safety

- Preferred Roundabout



# Roundabout



# Signalized Concept

Alternatives Evaluation

# Design Option Perspectives

Existing conditions



# Design Option Perspectives



Signalized



Roundabout

# Design Option Perspectives



Signalized



Roundabout

# Evaluation Considerations

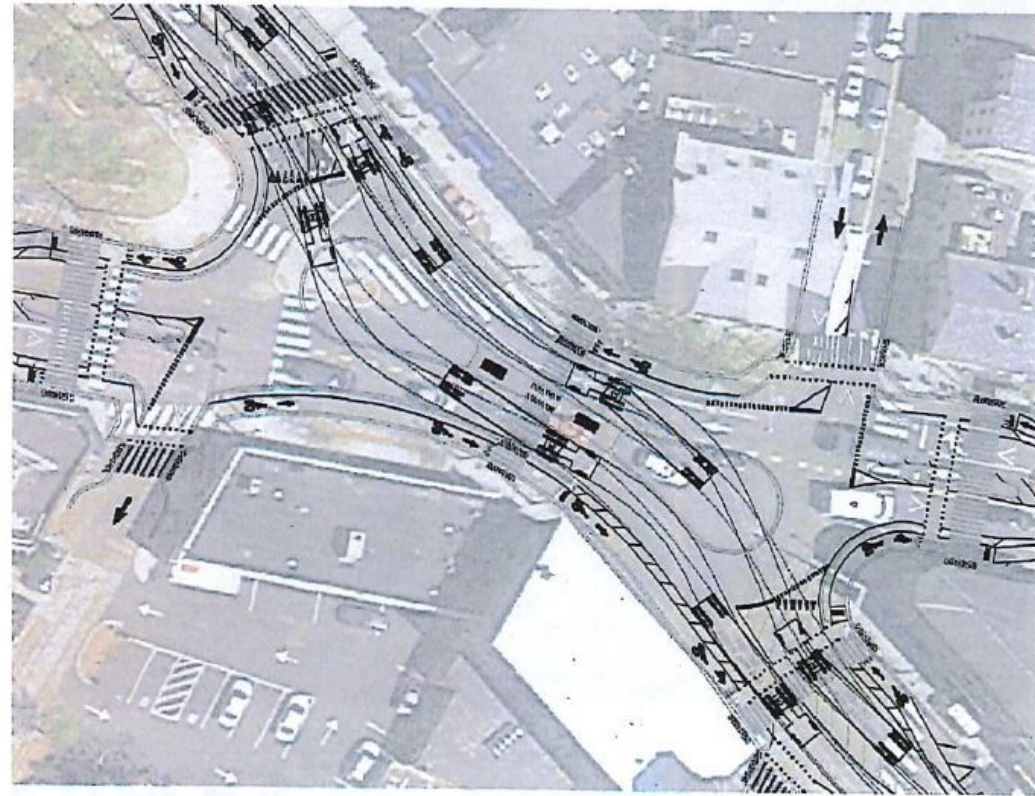
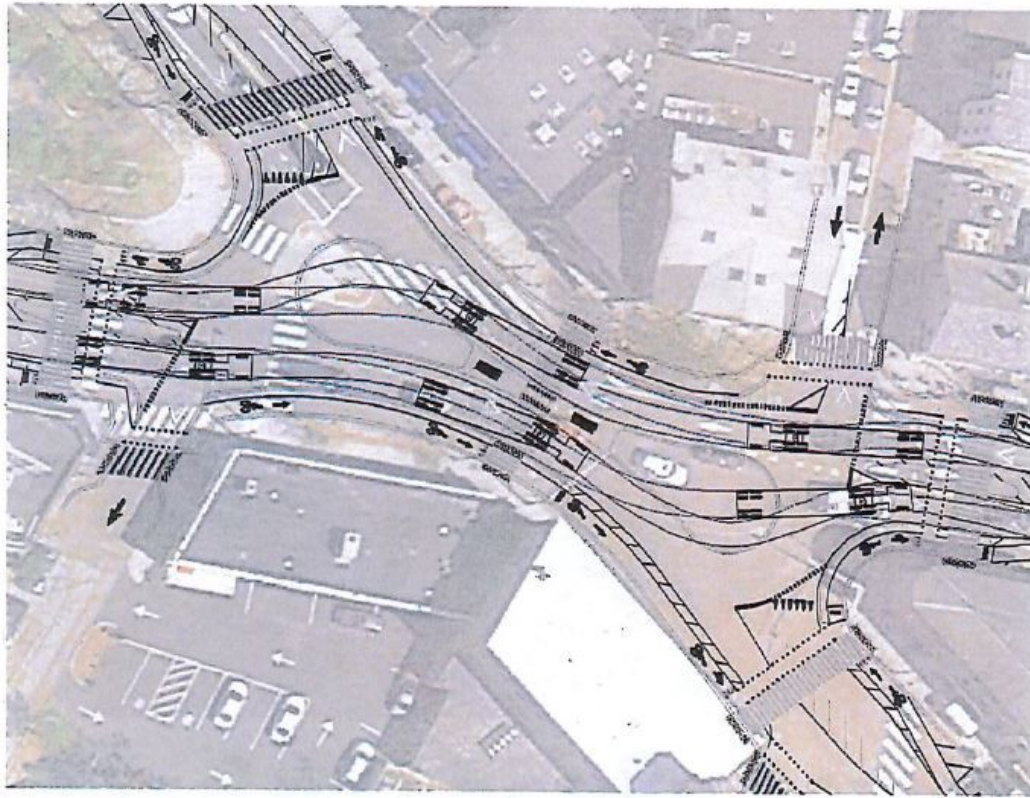
- Improve operations, safety, and comfort for all modes of transportation
- Accommodate fire station access with adequate signal clearance
- Assign clear right-of-way for pedestrians, bicyclists, and motorists at crossings
- Address pedestrian and bicycle desire lines
- Accommodate all necessary truck movements
- Create usable open space and placemaking opportunities
- Minimize changes to side street directions





# Evaluation Considerations

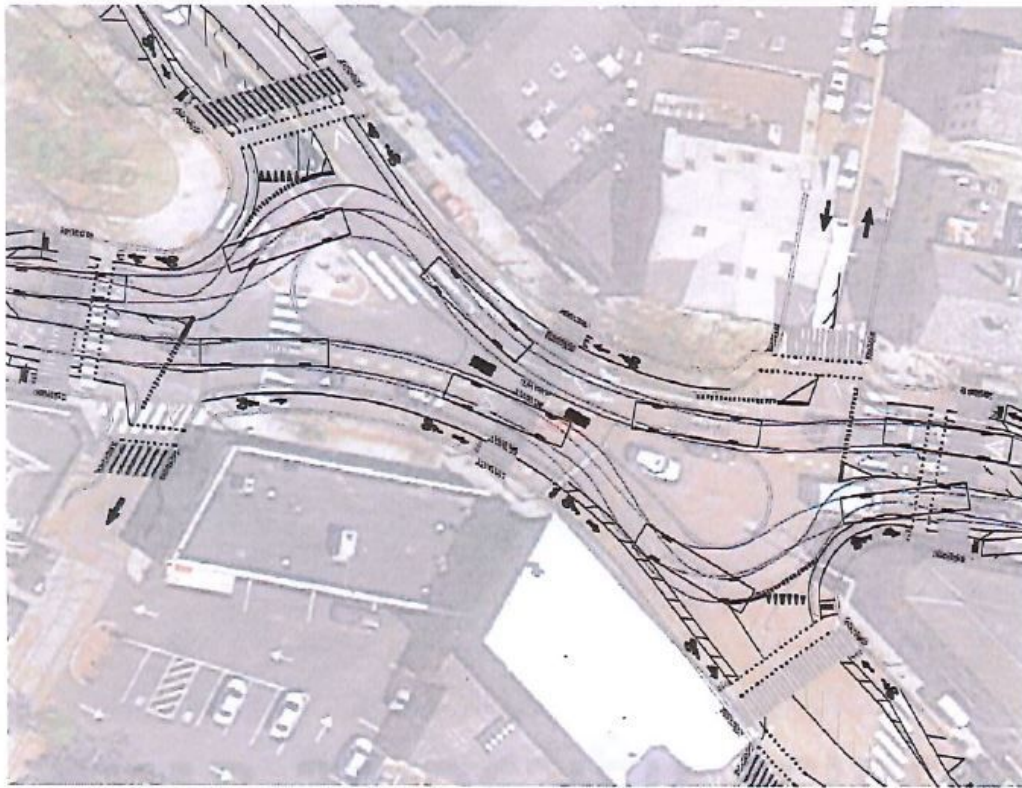
## Truck turning



WB-50 vehicle (large truck) turning paths

# Evaluation Considerations

## Bus turning



MBTA Bus turning paths

# Evaluation Considerations

## Pedestrian-oriented open space analysis



Signalized Concept: 7,100 SF

Roundabout: 5,000 SF

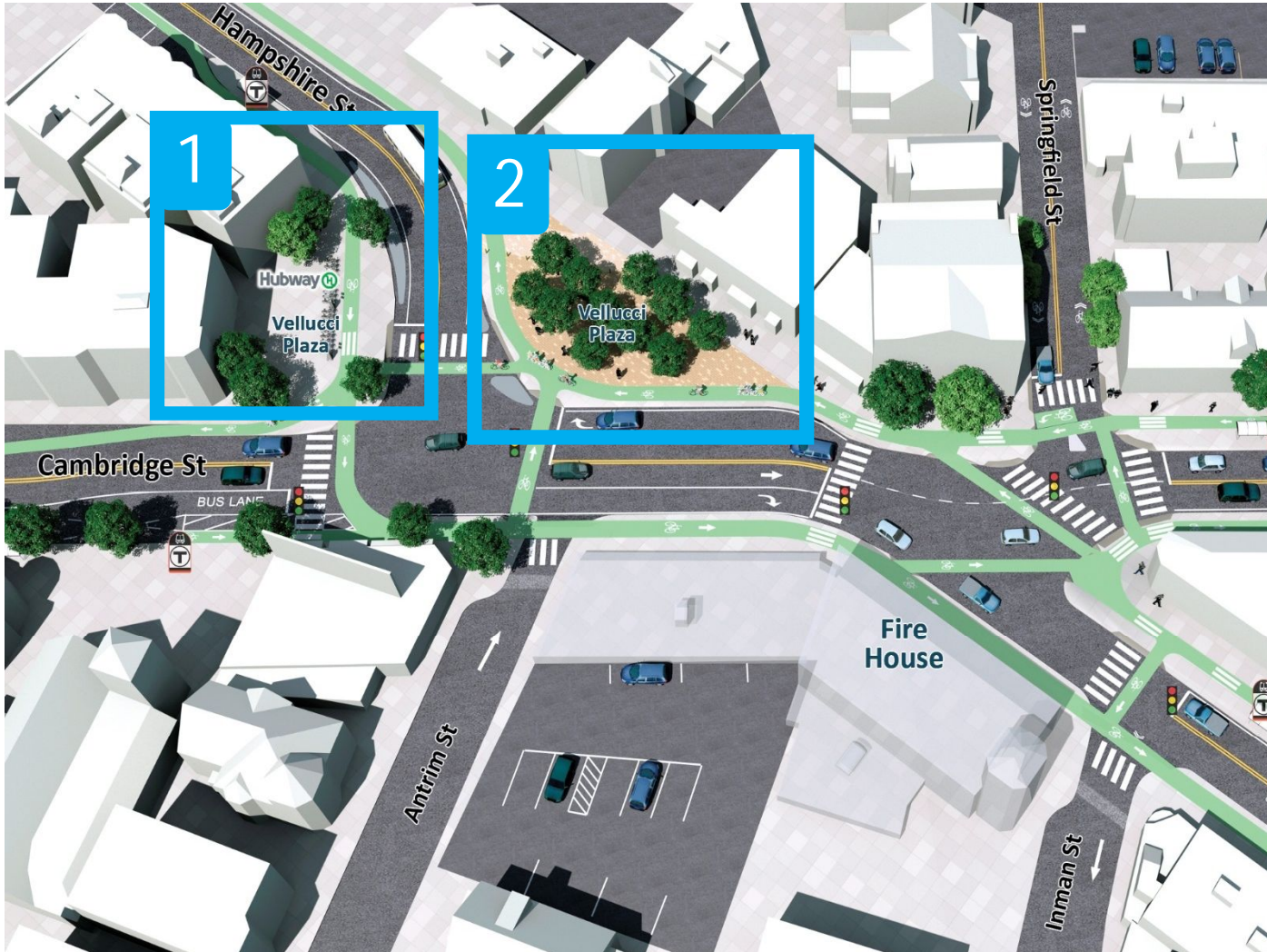


 Inman Square - Signalized Concept



PREFERRED CONCEPT

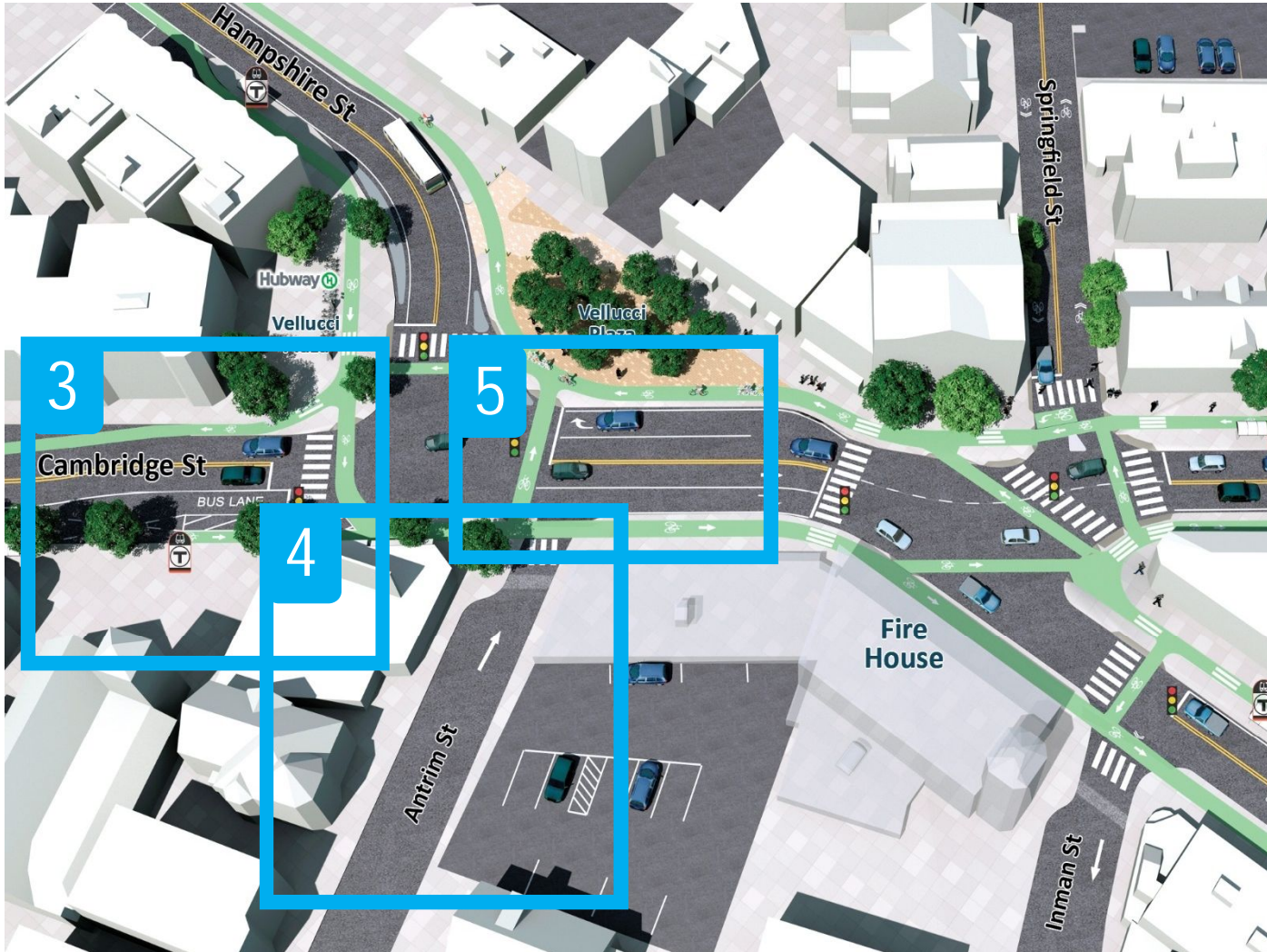
# Design Highlights



1. Separated bike lane through existing Vellucci Plaza  
Maintain large caliper trees  
Maintain and/or expand Hubway station
2. Create new Vellucci Plaza adjacent to retail  
Maintain driveway access to businesses

PREFERRED CONCEPT

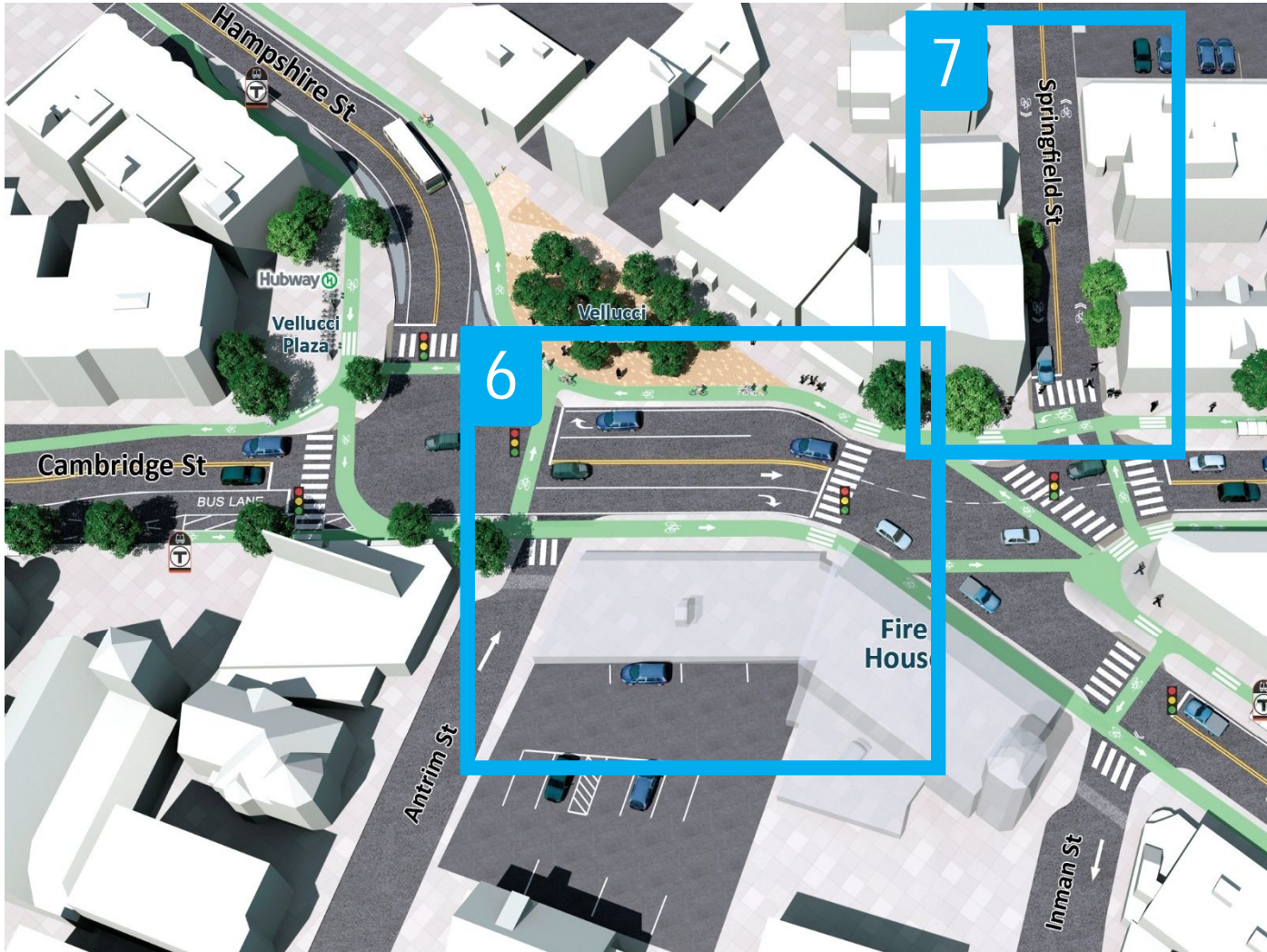
# Design Highlights



- 3. Balance between parking and transit  
  
Transit priority opportunity
- 4. Reverse direction of Antrim Street
- 5. Vehicle turn lanes to allow for protected pedestrian crossings  
  
Potential to improve morning peak hour service on MBTA Bus Route 91

PREFERRED CONCEPT

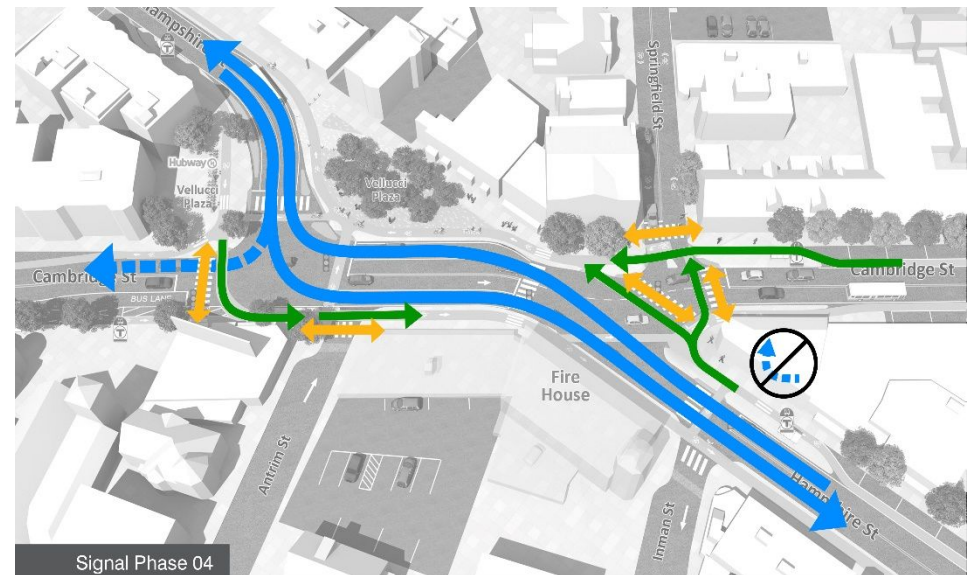
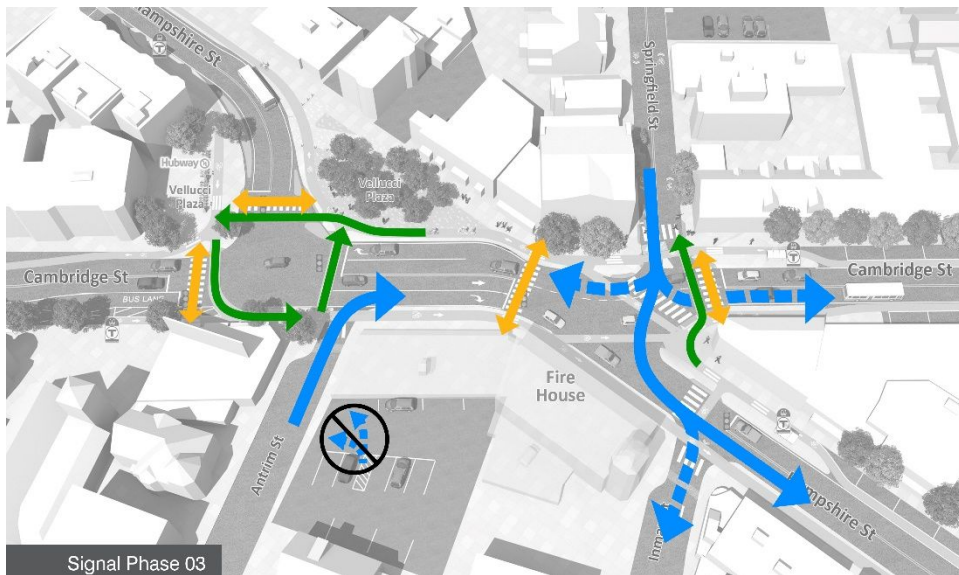
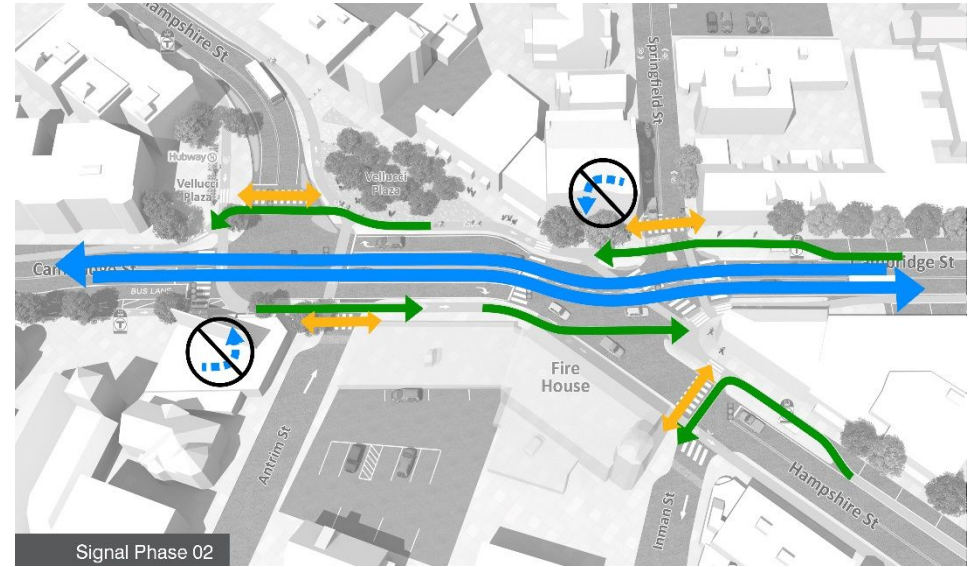
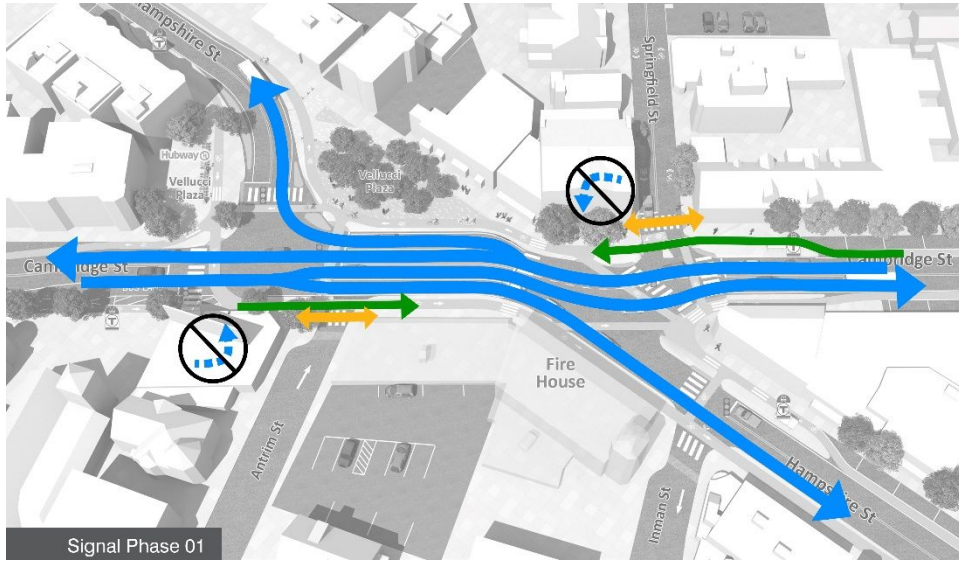
# Design Highlights



- 6. Pedestrian crossing at heart of intersection  
Signalized access to fire house maintained
- 7. Maintain two-way direction on Springfield Street  
Relocate MBTA Bus Route 91 to Prospect Street

PREFERRED CONCEPT

# Signalized Concept – Signal Phasing





PREFERRED CONCEPT

# Transit Benefits

## Floating bus stops

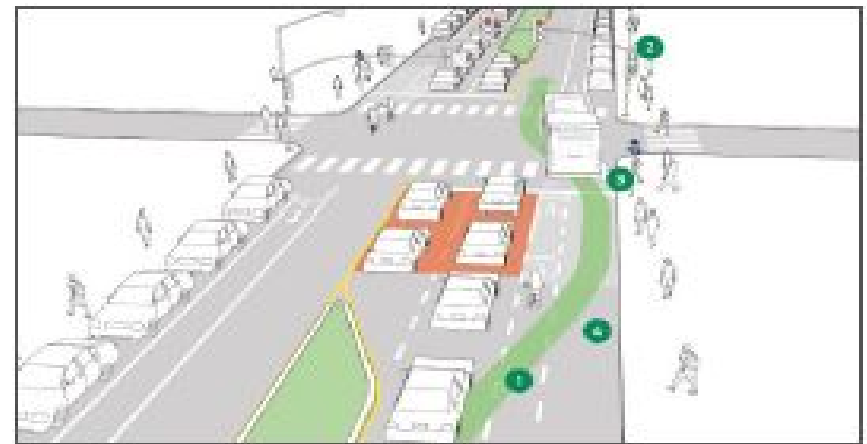
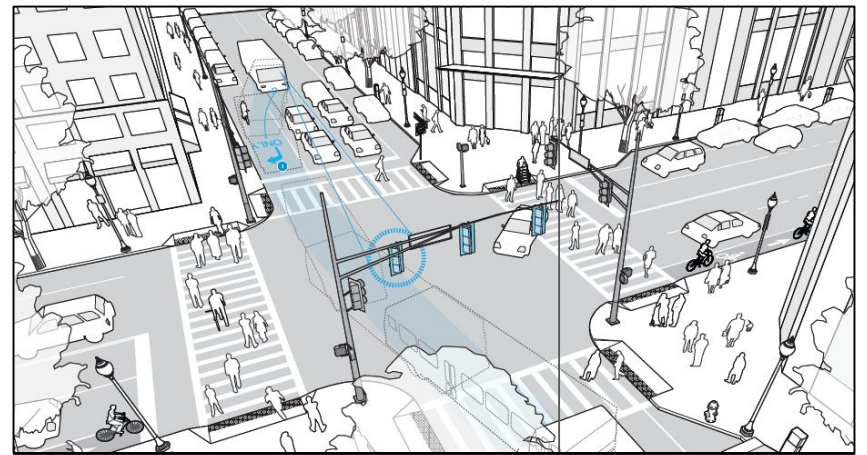


- Buses stop in travel lane, minimizing bus delay and improving accessibility
- Additional space for amenities such as bus shelters
- Bikes separated from bus conflicts

PREFERRED CONCEPT

# Transit Benefits

## Transit priority on Cambridge Street (eastbound)



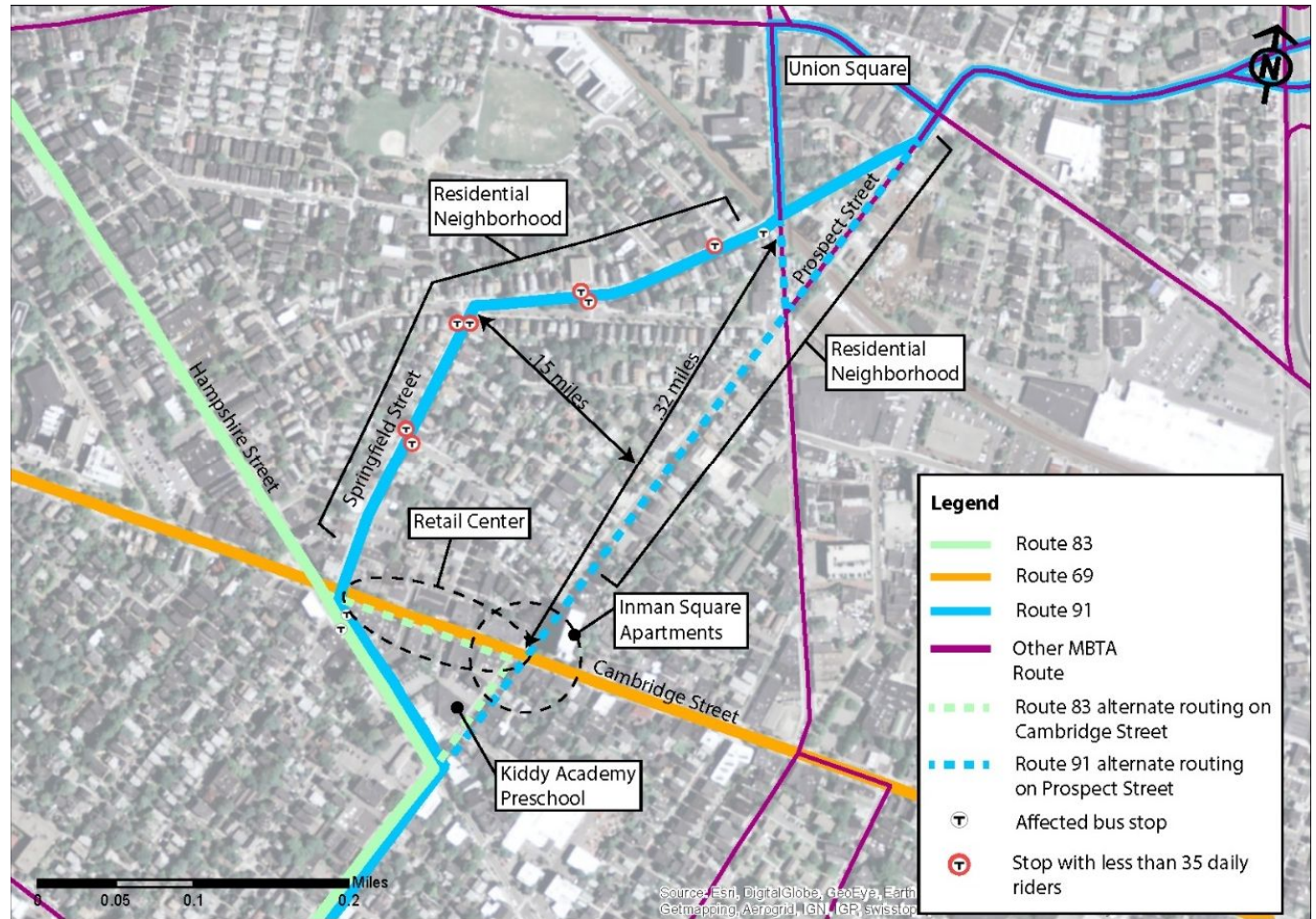
- Lane for buses to pull out ahead of traffic
- Most effective in morning peak

PREFERRED CONCEPT

# Transit Benefits

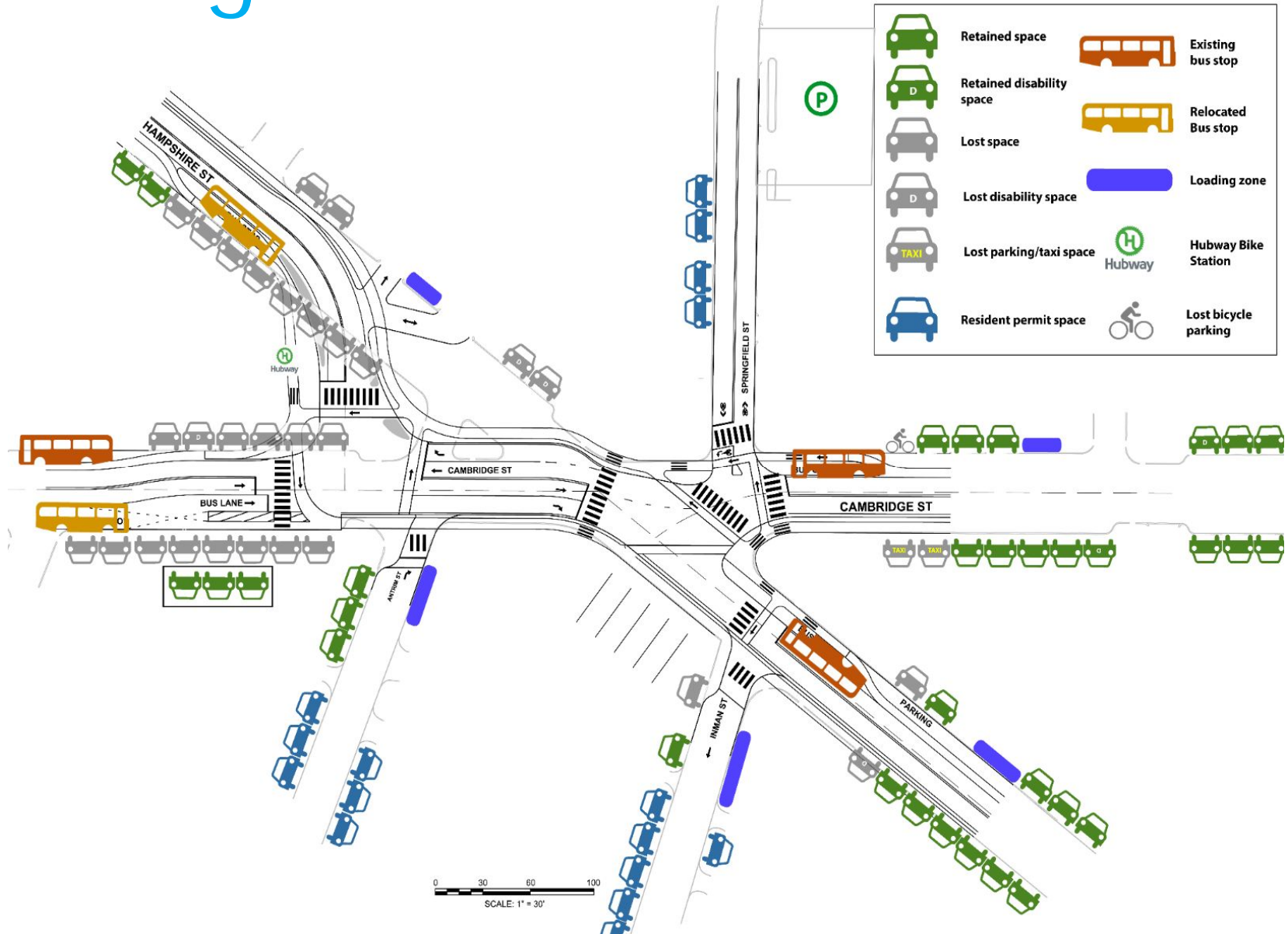
## MBTA bus routes

- Improved stops for Routes 69 and 83
- Route 91 to Prospect Street
  - .15 mile relocation
  - Low ridership on Springfield Street
  - More direct routing and faster run times, particularly with Union Square changes



PREFERRED CONCEPT

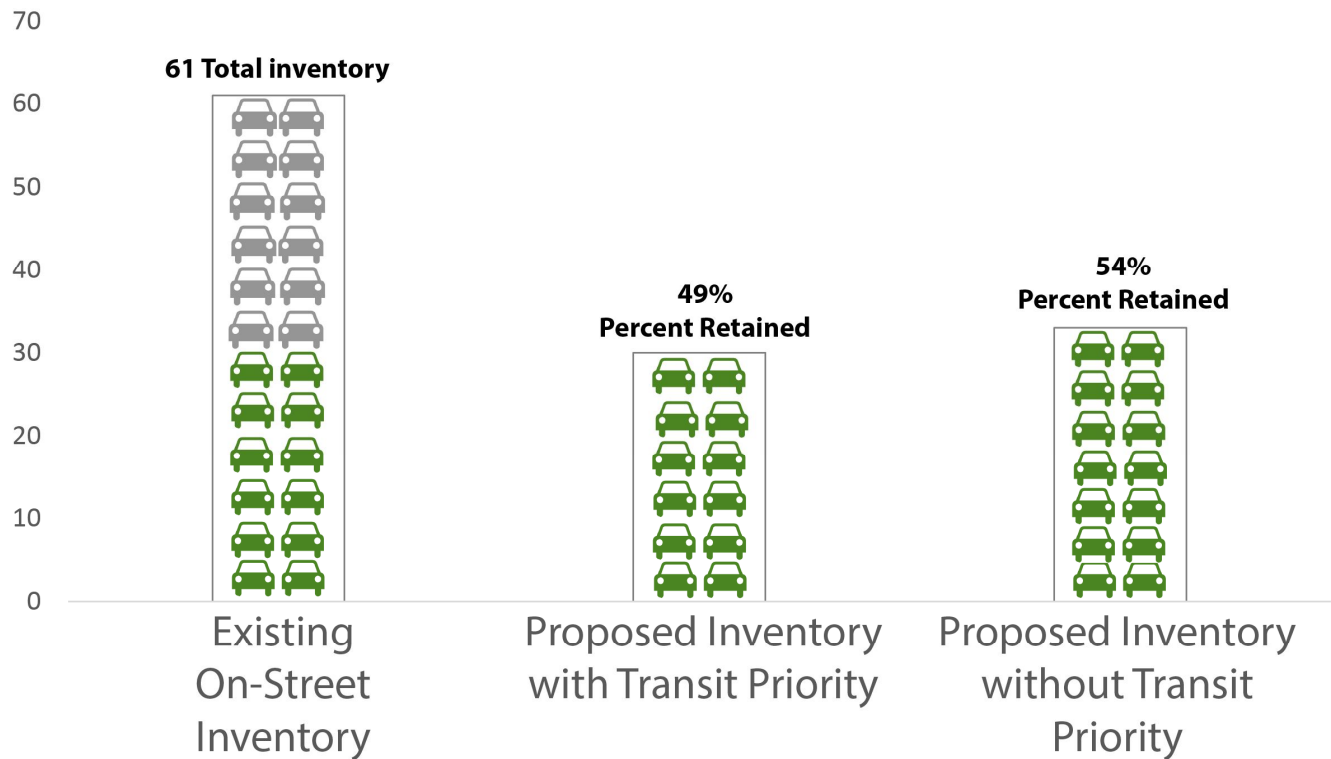
# Parking Considerations



# Parking Considerations

## Parking retention

- 61 on-street spaces total
- About 50% of on-street spaces retained
  - 49% parking retained with transit priority (during AM peak period)
  - 54% parking retained without transit priority/non-peak period



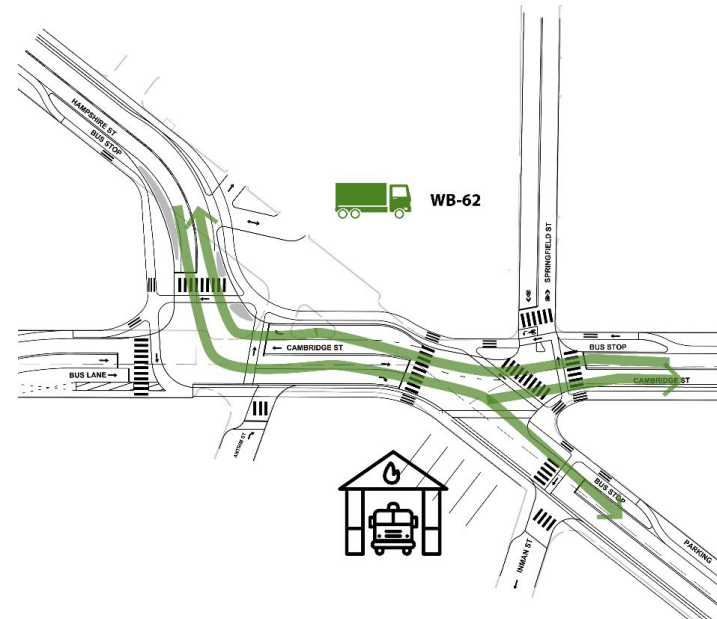
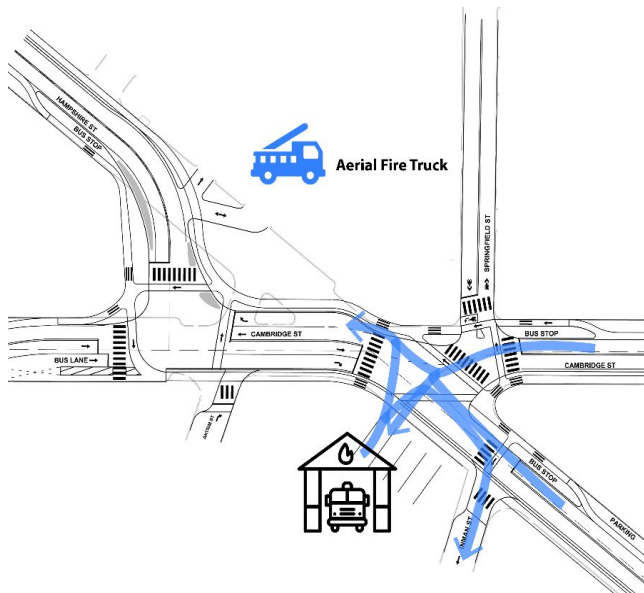
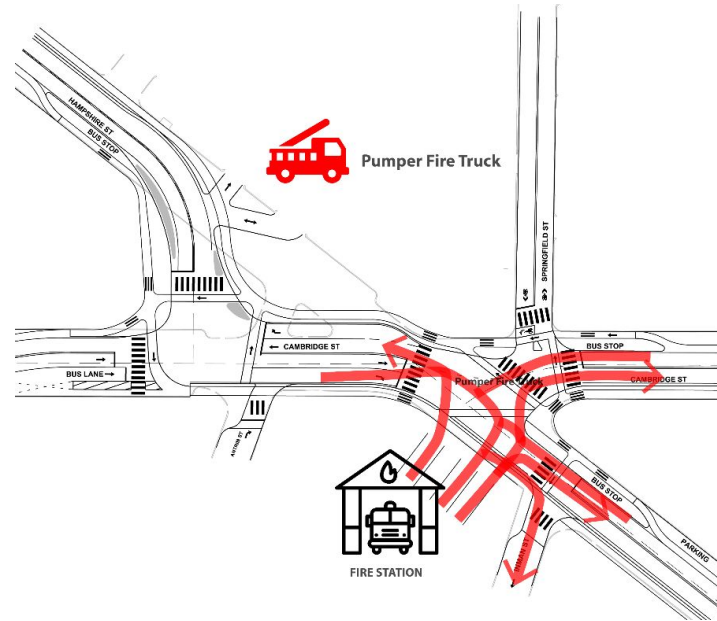
Note: The number of spaces in Lot 14 off Springfield Street, and resident permit on-street parking, are not included in the parking inventory analysis/percent retained calculations.

PREFERRED CONCEPT

# Truck Access

Accommodate truck movements

- Fire truck access into and out of fire house for all approaches
- WB-62 turn at Hampshire St. and Cambridge St. intersection



PREFERRED CONCEPT

# Pedestrian/Bike Considerations



Protected intersections



Separated bike lanes



Raised crosswalks



Signalized bike crossings



Two stage queue boxes



Colored pavement markings

PREFERRED CONCEPT

# Open Space Considerations





PREFERRED CONCEPT

# Open Space Considerations

## Examples



1

Usable Open Space with Tree Canopy

Yorkville Park, Toronto, ON



2

Flexible Open Space Next to Storefronts

Square Dancing in Lafayette Sq., Cambridge

PREFERRED CONCEPT

# Open Space Considerations

## Examples



Memorable Site Elements  
MassArt Residence Hall, Boston

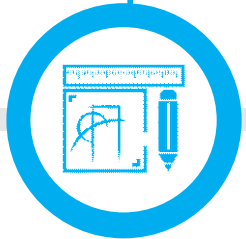


Expanded Plaza Space / Distinctive Ground  
New Road, Brighton, UK

NEXT STEPS

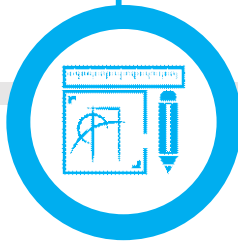
# Next Steps

Complete 25%  
Conceptual Design  
Spring 2017



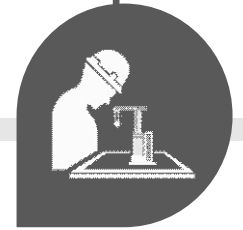
Community  
Meeting #3  
Summer 2017

Complete  
Final Design  
Summer 2017



Community  
Meeting #4  
Fall 2017

Construction Start  
Fall 2017

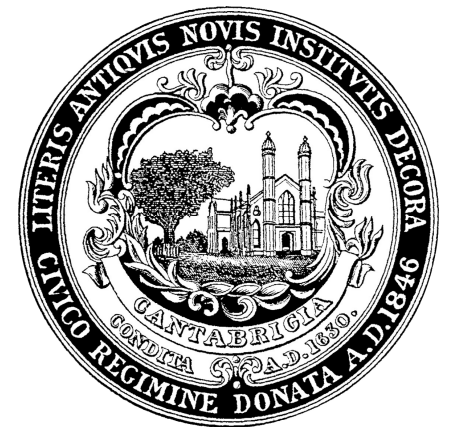


# COMMENTS & QUESTIONS

## CONTACT INFORMATION:

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[kdunn@cambridgema.gov](mailto:kdunn@cambridgema.gov)

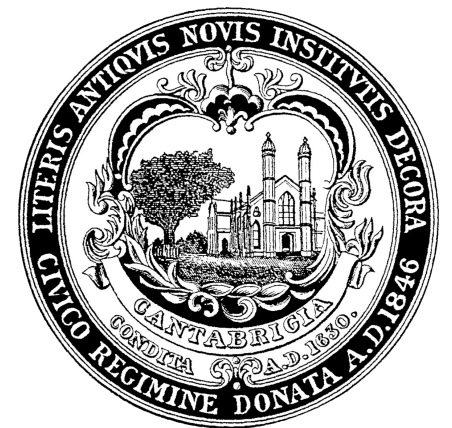
[www.cambridgema.gov/theworks/inmansquare](http://www.cambridgema.gov/theworks/inmansquare)



# Preliminary Concepts



# Q&A Material

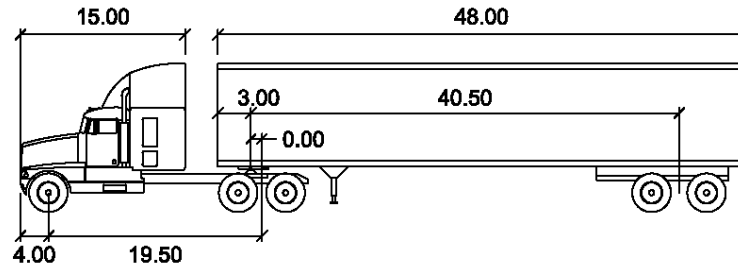


DESIGN OPTIONS

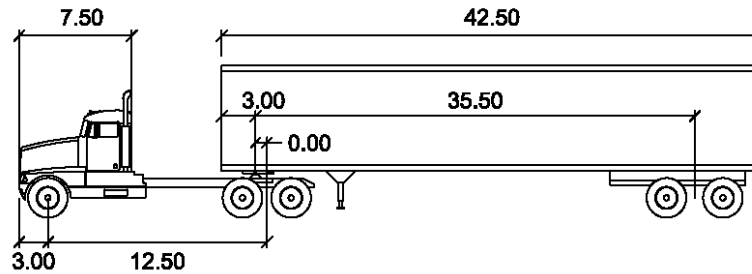
# Toolbox Design Elements

## Vehicle Types

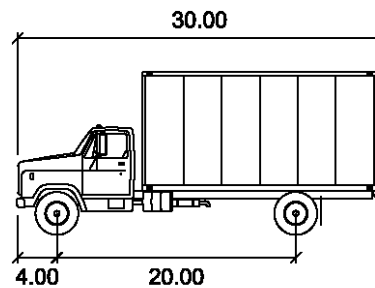
WB-62



WB-50



SU-30



DESIGN OPTIONS

# Toolbox Design Elements

## Bike Lanes



Protected intersections



Separated bicycle lanes



Contraflow bicycle lanes



Signalized bicycle crossings



Bicycle route wayfinding



Colored pavement markings



DESIGN OPTIONS

# Toolbox Design Elements

## Open Space/Pedestrian



Street trees



Raised crosswalks

Streetscapes

DESIGN OPTIONS

# Toolbox Design Elements

## Bus Stops



Floating bus stop with separated bike lane



Bus stop inside bike lane



Curbside pull out stop in parking lane



Bus queue jump lane

DESIGN OPTIONS

# Toolbox Design Elements

## Ramp Designs

Prepared by McMahon Associates

Bicycle lane transitions down, sidewalk stays up  
Bicycle transition down towards roadway level. A cross slope on the bike lane allows a short curb reveal which creates a small pedestrian ramp. Pedestrians wait on sidewalk behind the bike lane.



Raised Crossing  
Roadway comes up to bike lane and sidewalk level. No need for bicycle or pedestrian ramps.



Protected Corner Islands  
Bicycle lane is at roadway level. Pedestrian ramp is on sidewalk.  
Pedestrians cross bike lane and wait within protected corner island.



DESIGN OPTIONS

# Toolbox Design Elements

## Ramp Designs

Prepared by McMahon Associates

**Bicycle Ramp: Roadway Level to Sidewalk Level**  
The bike lane transitions to sidewalk level without a horizontal transition.



**Bicycle Ramp: Sidewalk Level to Roadway Level**  
The bike lane transitions from sidewalk level to roadway level before a horizontal transition.



**Shared Bike/Ped Crossing at Protected Intersection**  
Bicycle and pedestrian areas are combined and lowered to create one short ramp. The ped/bike areas are delineated with colors.



**Bicycle Ramp: Sidewalk Level to Roadway Level**  
Transitions both vertically and horizontally from sidewalk level to roadway level. Uses a "Bend-Out" intersection treatment.





# Roundabout