



CAMBRIDGE
REDEVELOPMENT
AUTHORITY

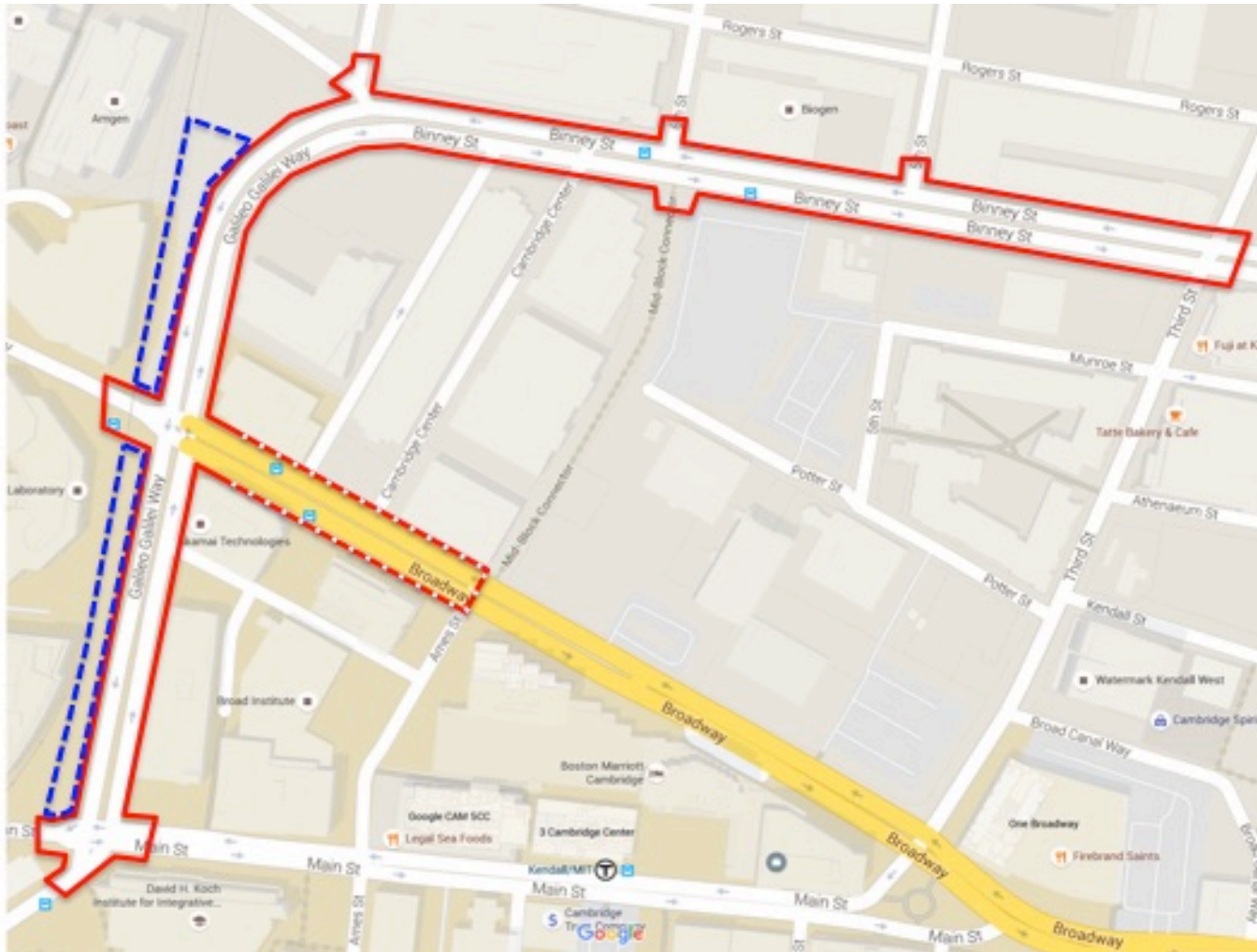
Kendall Square Streetscape Redesign





Agenda


- Review of Work To Date
- Current Efforts
 - Transportation Analysis
 - Protected Intersections
 - Corridor Options
 - Transit Options
- Next Steps
 - Alignment Alternatives
 - Traffic Analysis Alternatives

Project Scope



 Project Scope Area

 Add / Alt #1

 CRA and City property for possible integration of bicycle and pedestrian facilities (Grand Junction Path, sidewalk, Binney/Galileo cycle track)

Project Priorities

- **Cambridge Vision Zero Pledge**
- **Enhance connectivity of existing bike facilities**
- **Facilitate bus travel**
- **Improve pedestrian and bicycle facilities at intersections**
- **Integrated streetscapes and proposed pedestrian/bike facilities**
- **Preserve street trees at curb edges**
- **Accommodate new development**
- **Manage traffic access and cut-through traffic**
- **Integrate designs with railroad crossing at Broadway**
- **Reflect environmental sustainability goals**
- **Accommodate universal design principles**

Work Completed To Date

- Prepared traffic analysis for “existing” conditions, baseline analysis
- Developed evaluation criteria
- Prepared two alternate alignments for evaluation:
 - Median Concept
 - Island Concept
- Developed designs for protected intersections
- Prepared preliminary assessment of utility conflicts
- Held meetings with:
 - City of Cambridge – DPW, CDD, TPT, Fire Dept.
 - Binney Street Park designers (Stoss)
 - EZ Ride management
 - Boston Properties
 - Cambridge Bicycle Committee
 - BioMed Realty

Transportation Analysis

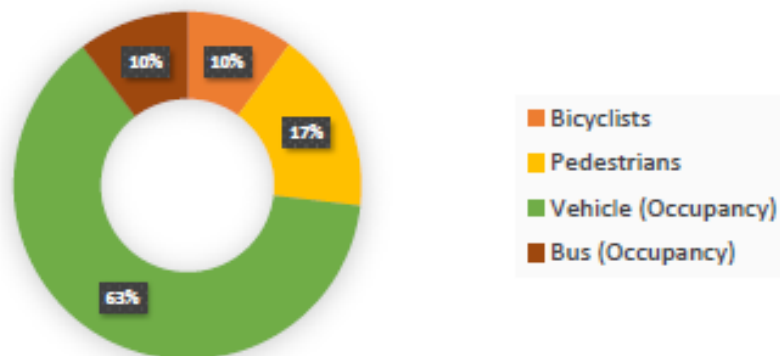


Transportation Analysis Completed

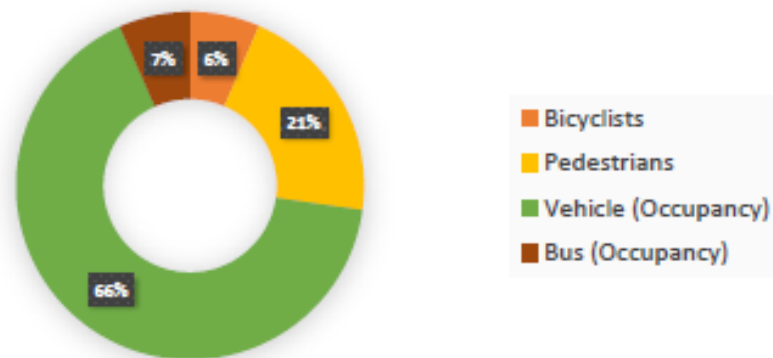
- Synchro capacity analysis
 - 2016 Theoretical “Existing” Volumes (Longfellow open)
 - 2026 No Build
 - Planned projects
 - 0% annual background growth
- Pedestrian and Bicycle Delay
- Summary of corridor/intersections by mode
- Analysis of bus frequency and passenger loads

Volumes Charts

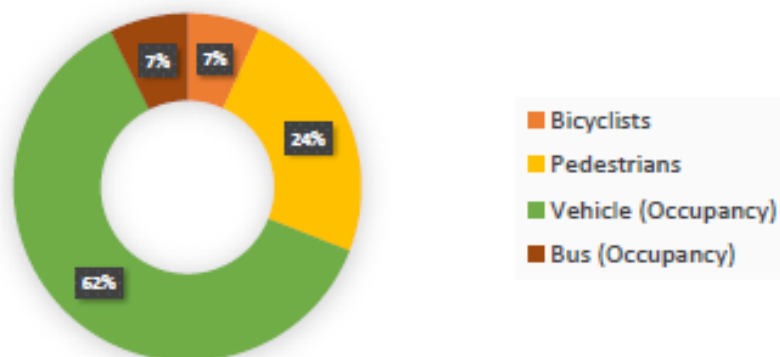
Galileo Galilei Way at Broadway - Weekday AM



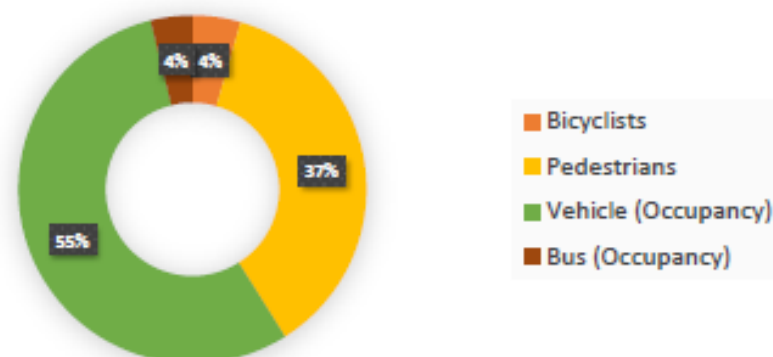
Galileo Galilei Way at Broadway - Weekday PM



Galileo Galilei Way at Main - Weekday AM



Galileo Galilei Way at Main - Weekday PM

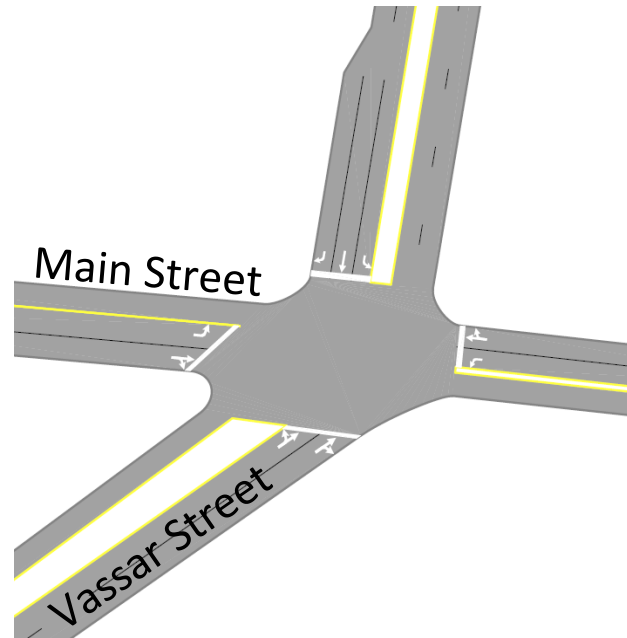


Preliminary Intersection Options

Assumptions:

- 2016 Theoretical Existing Volumes
 - Longfellow Bridge open
- Stay within existing right-of-way for vehicle lanes
- Maintain existing vehicle-pedestrian time separation at Broadway
- Determine preferred intersection

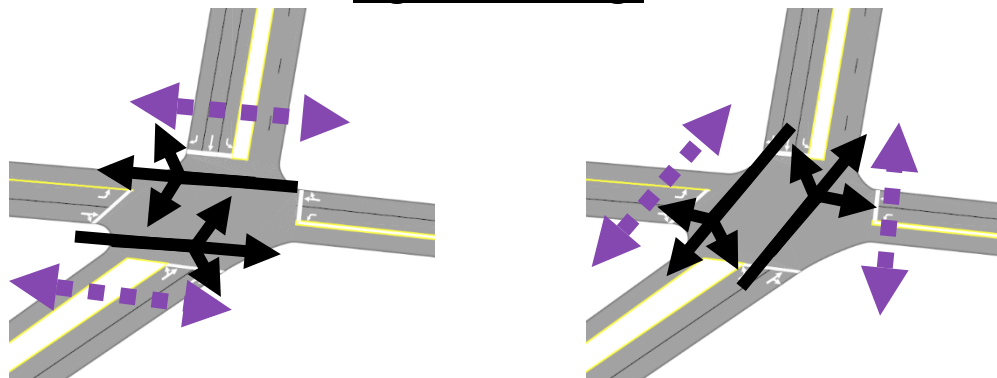
GG Way at Main Street - Existing



Tested Options:




- Exclusive northbound left lane
- Restrict northbound lefts
- Exclusive northbound right lane

Signal Phasing:

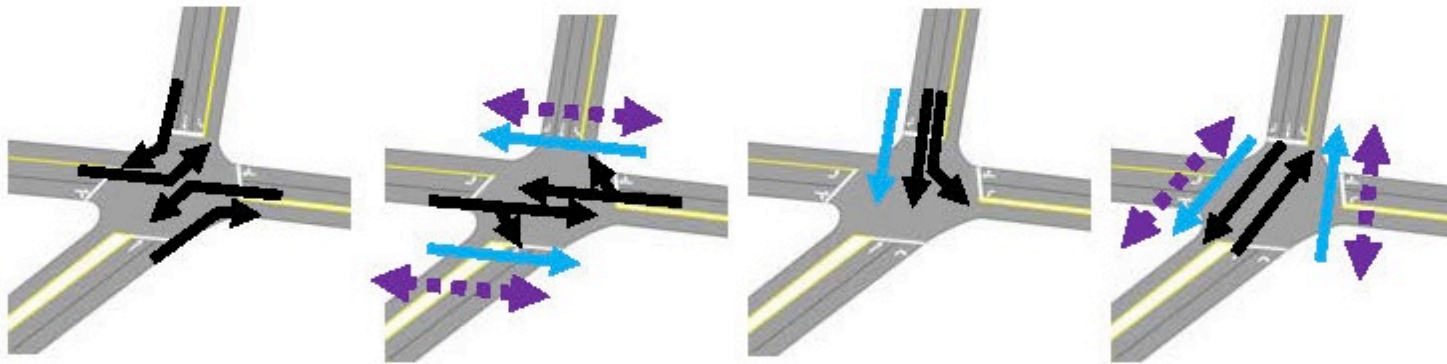


GG Way at Main Street - Proposed

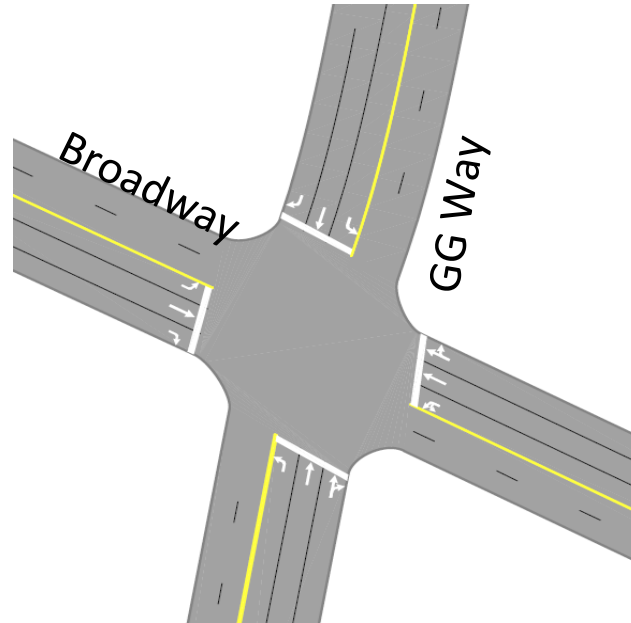
Alternative 2-GG Way at Main Street

-  Vehicles
-  Pedestrians
-  Bicycles

Signal Phasing:



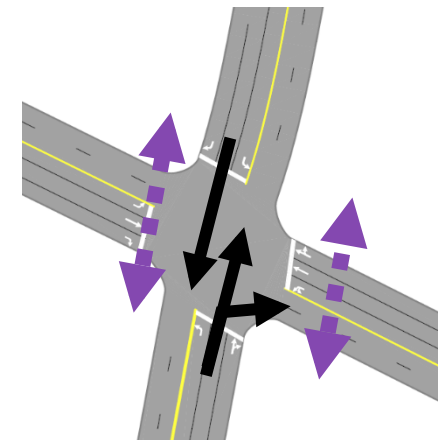
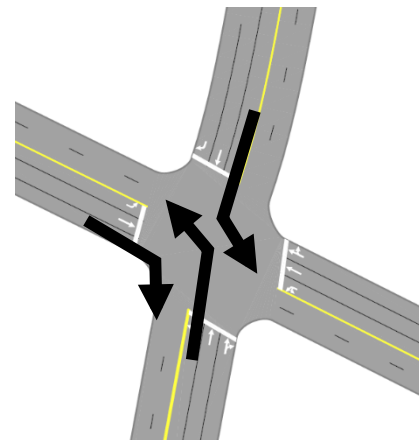
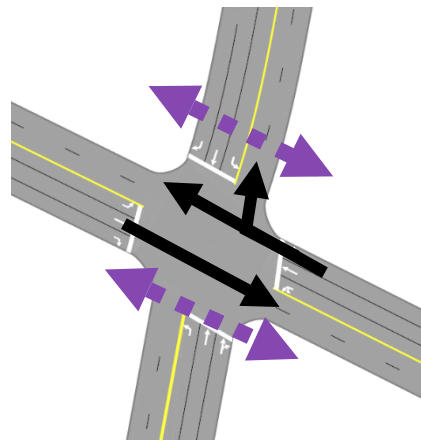
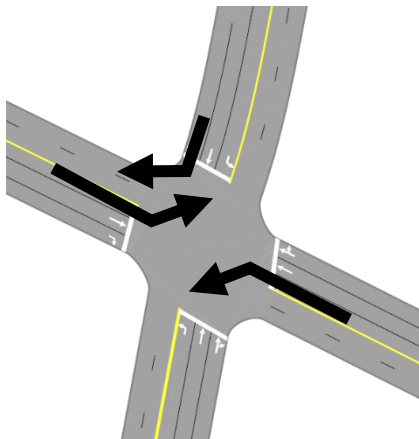
GG Way at Broadway - Existing



Tested Options:

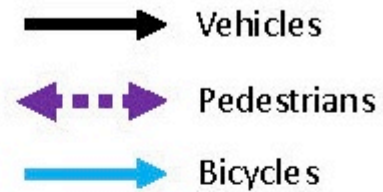
- Dedicated northbound Left, Thru, and Right lanes
- Northbound left and thru/right lane

Signal Phasing:

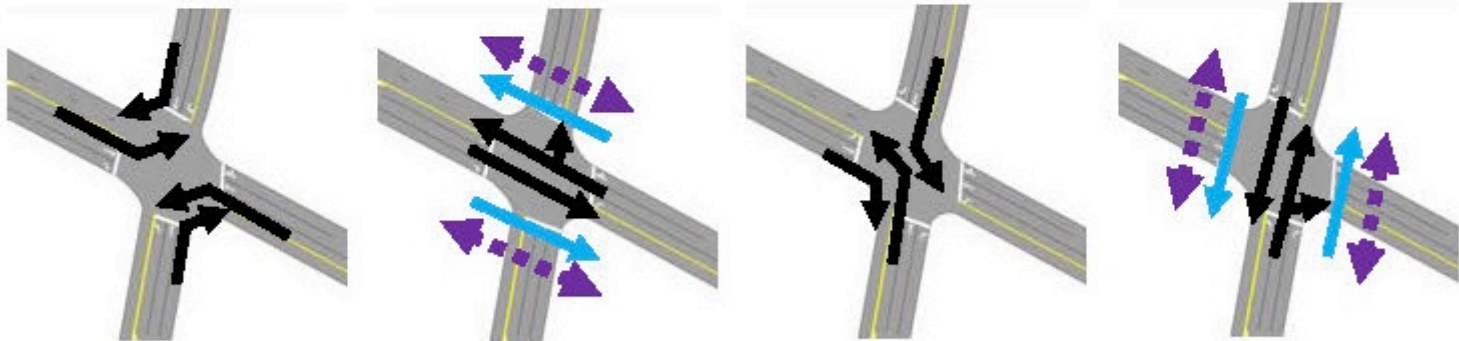


GG Way at Broadway - Proposed

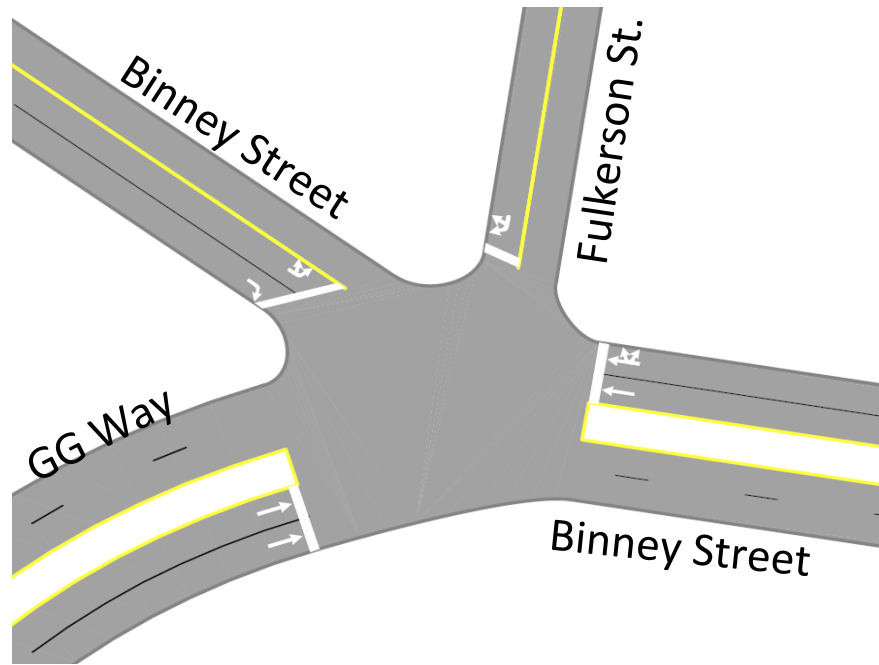
Alternative 2-GG Way at Broadway



Signal Phasing:



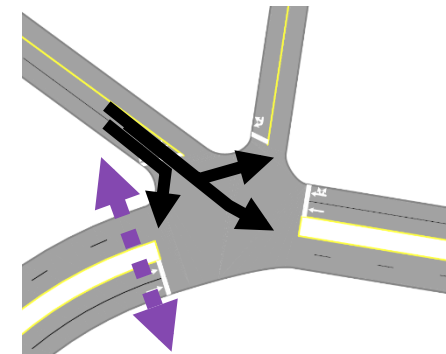
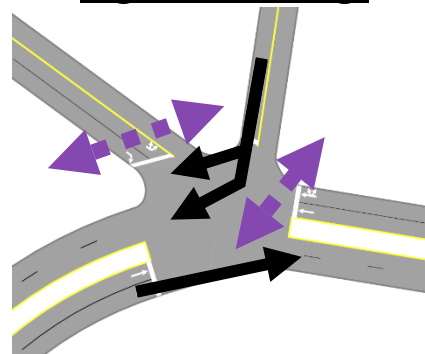
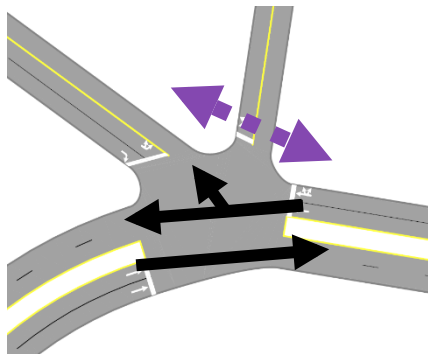
GG Way at Fulkerson - Existing



Tested Options

- Single Thru Lane in both directions on GG Way/Binney
- Single Thru Lane eastbound on GG Way/Binney
- Single Thru Lanes on GG Way/Binney with westbound pocket right

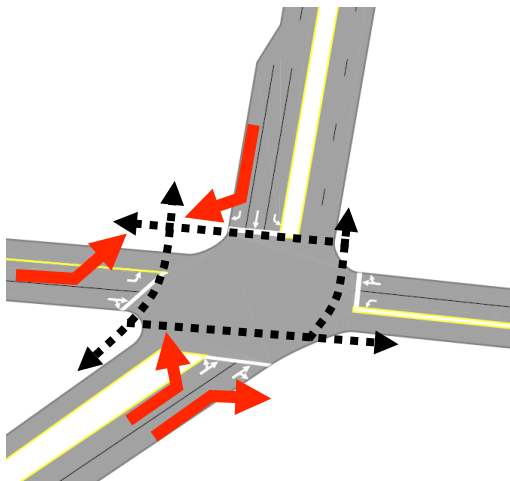
Signal Phasing:



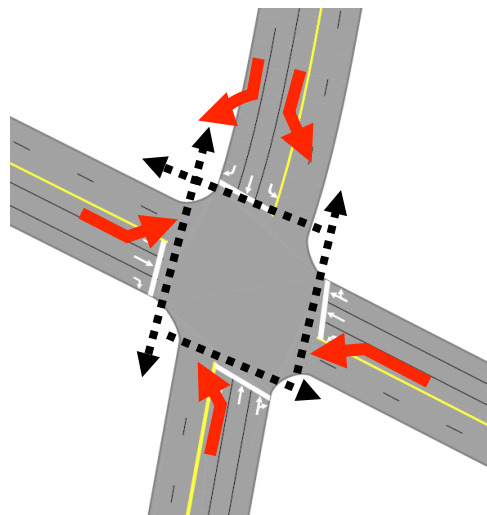
MassDOT Recommended Time-Separated Bicycle Movements

2016 Theoretical Volumes

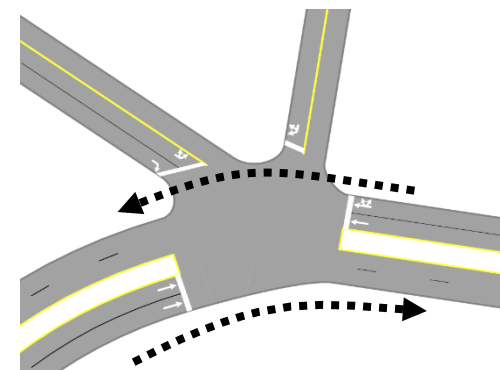
GG Way at Main/Vassar





GG Way at Broadway



GG Way at Fulkerson



LEGEND

-  Time Separated Movement
-  Bicycle Facility

Separated Bike Lane Operation	Motor Vehicles per Hour Turning across SBL		
	Right Turn	Left Turn across One Lane	Left Turn across Two Lanes
One-way	150	100	50
Two-way	100	50	0

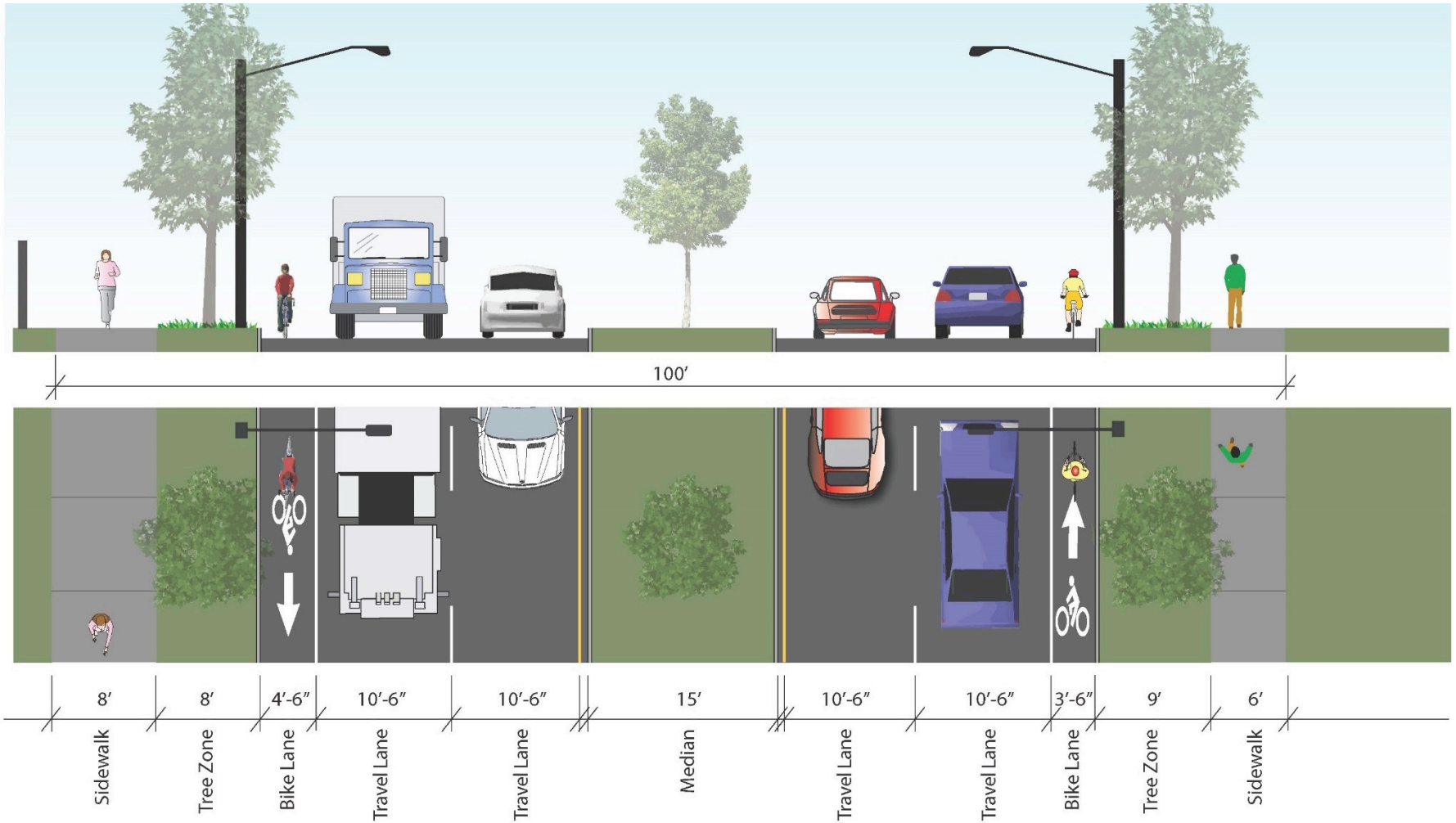
EXHIBIT 6A: Considerations for Time-separated Bicycle Movements

Source: MassDOT Separated Bike Lane Planning & Design Guide

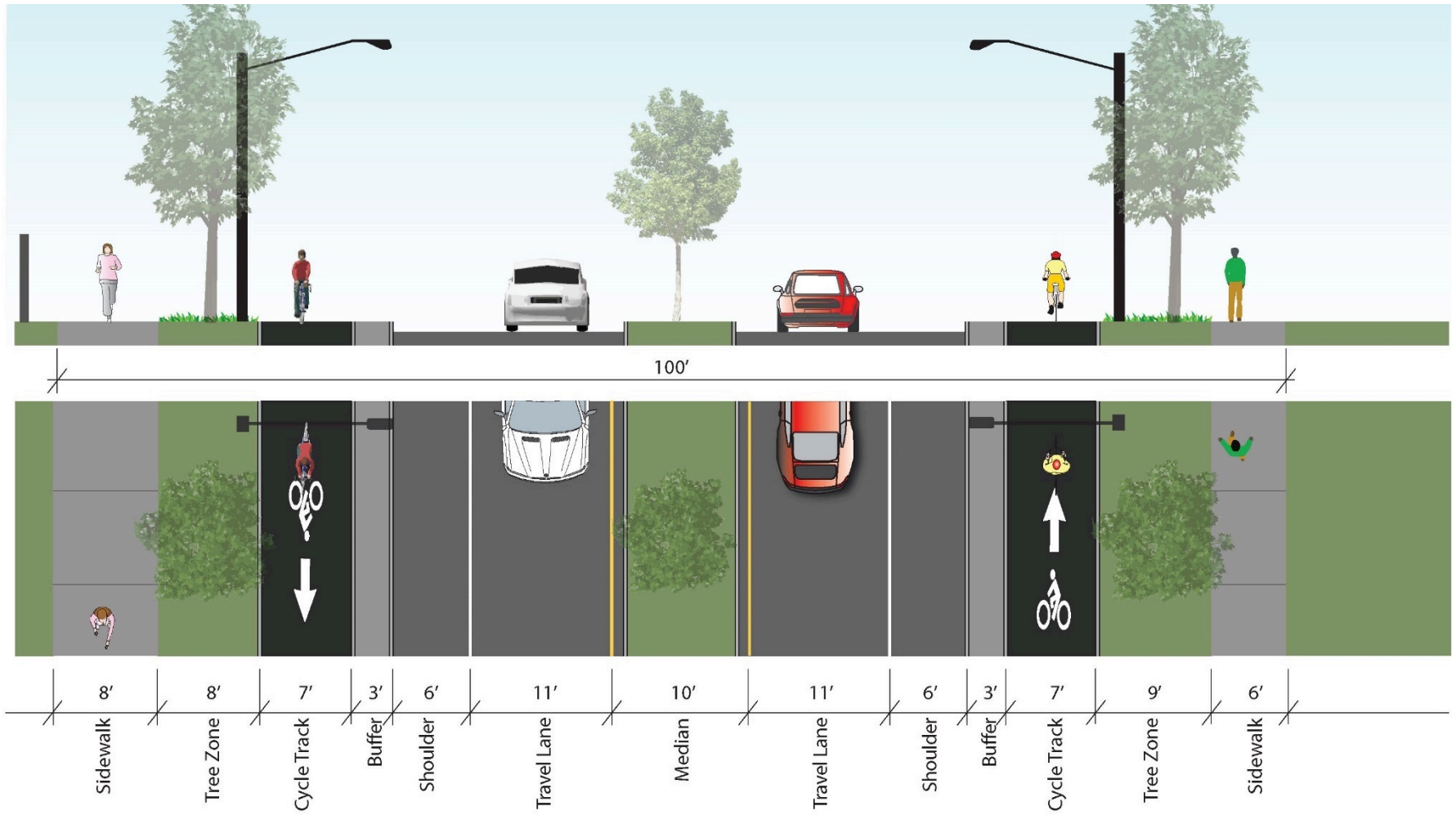
Alignment Options - Sections



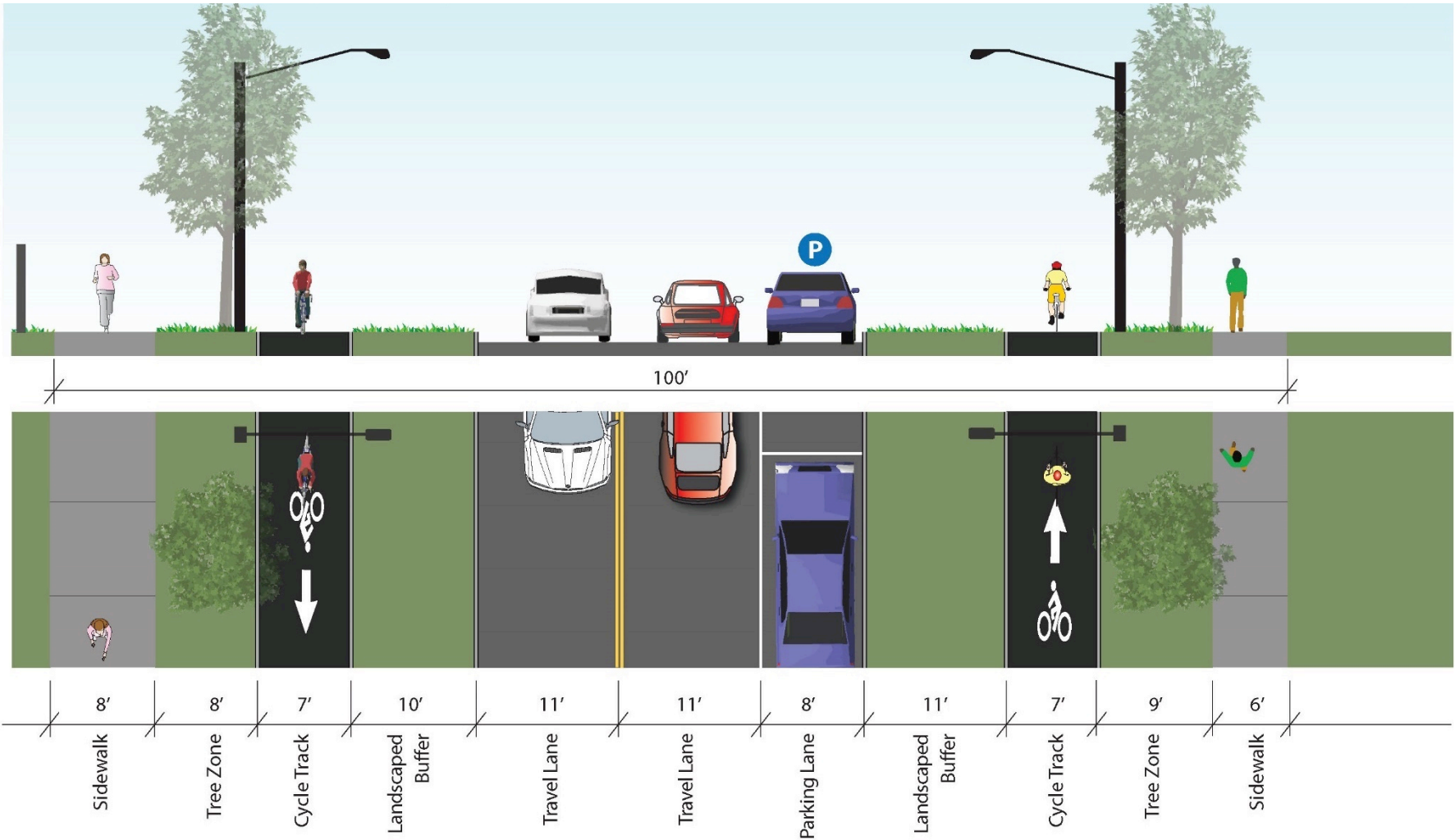
Galileo Galilei Way - Existing Section



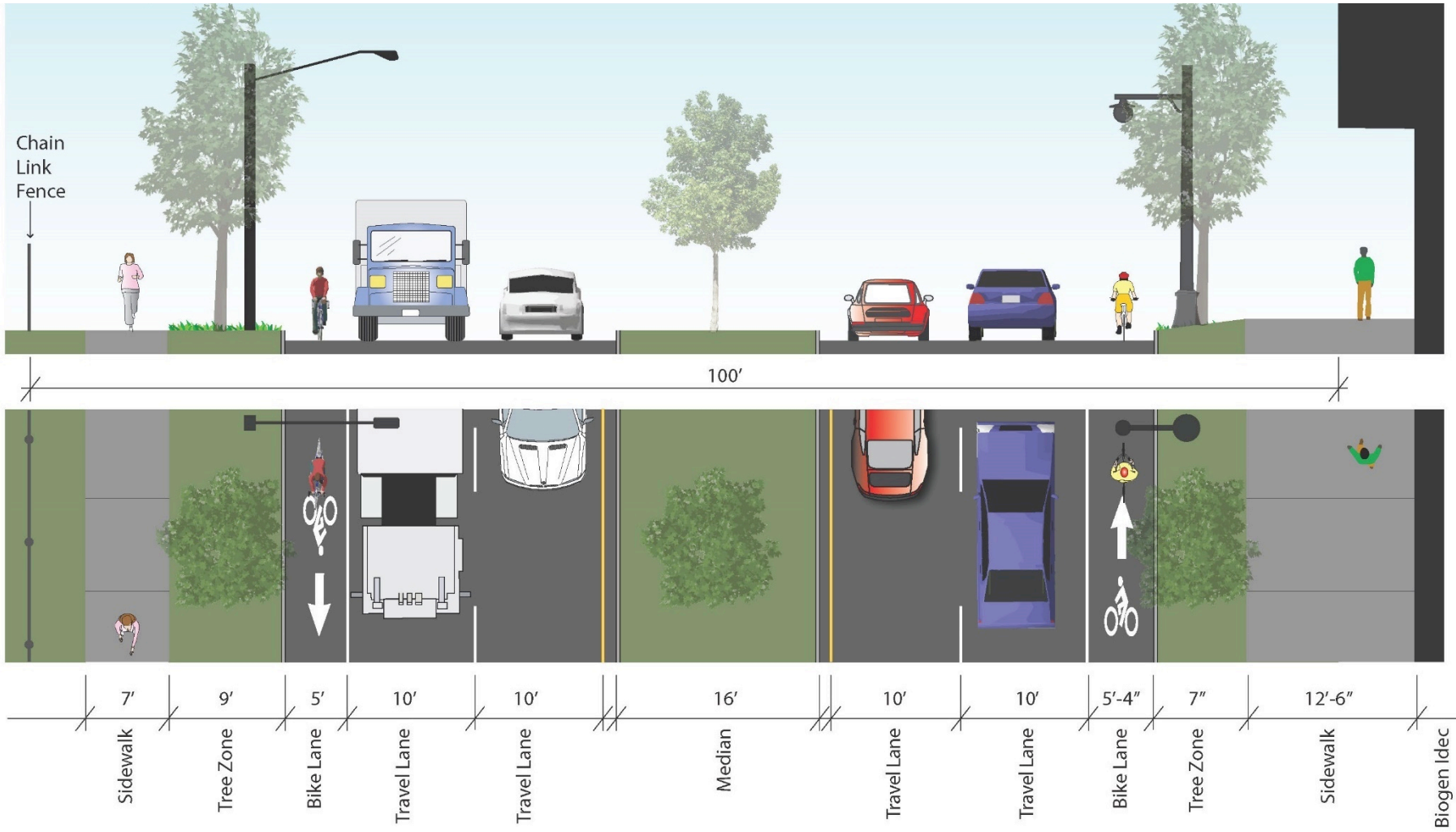
Galileo Galilei Way - Median Scheme



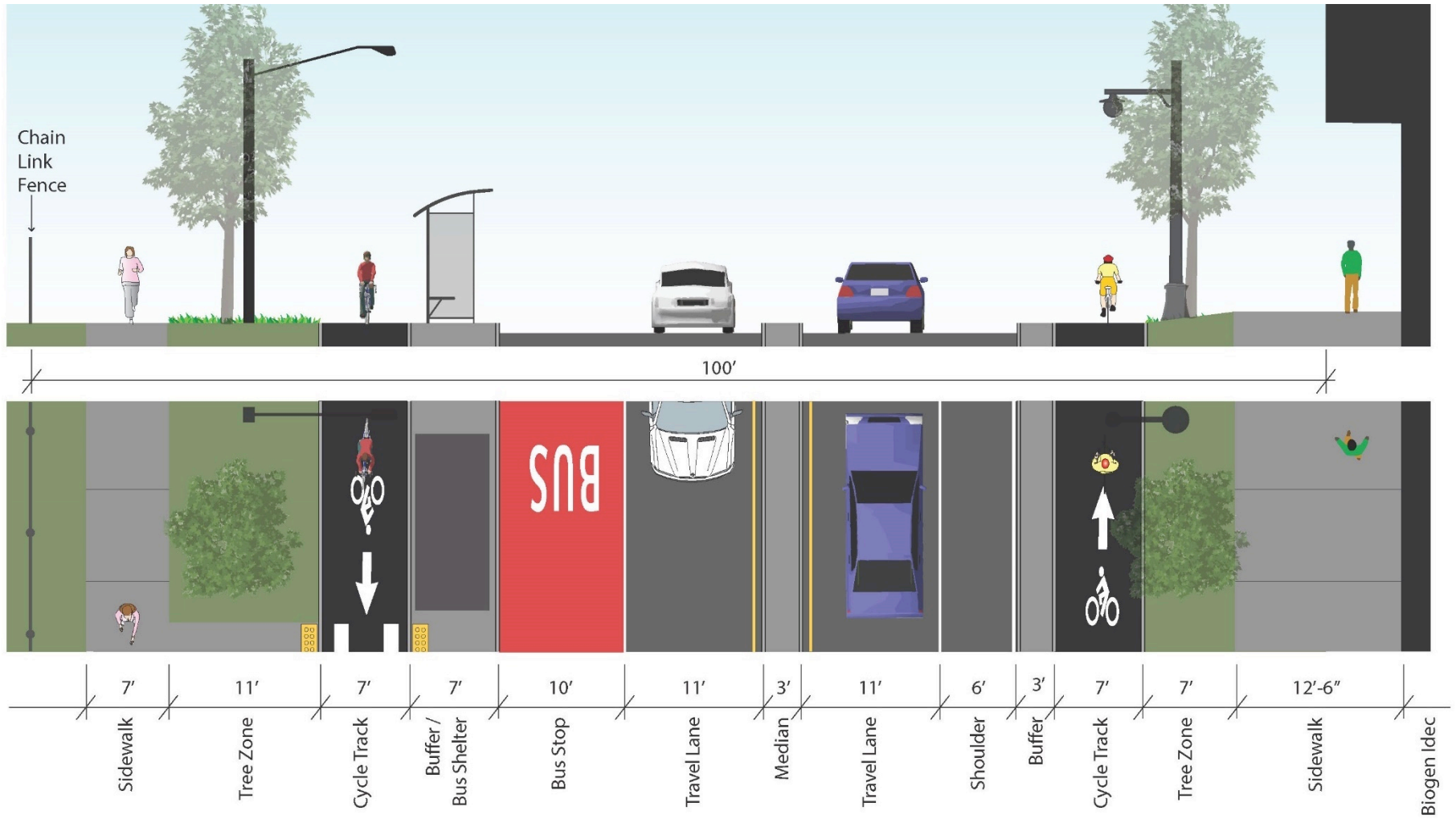
Galileo Galilei Way - Island Scheme



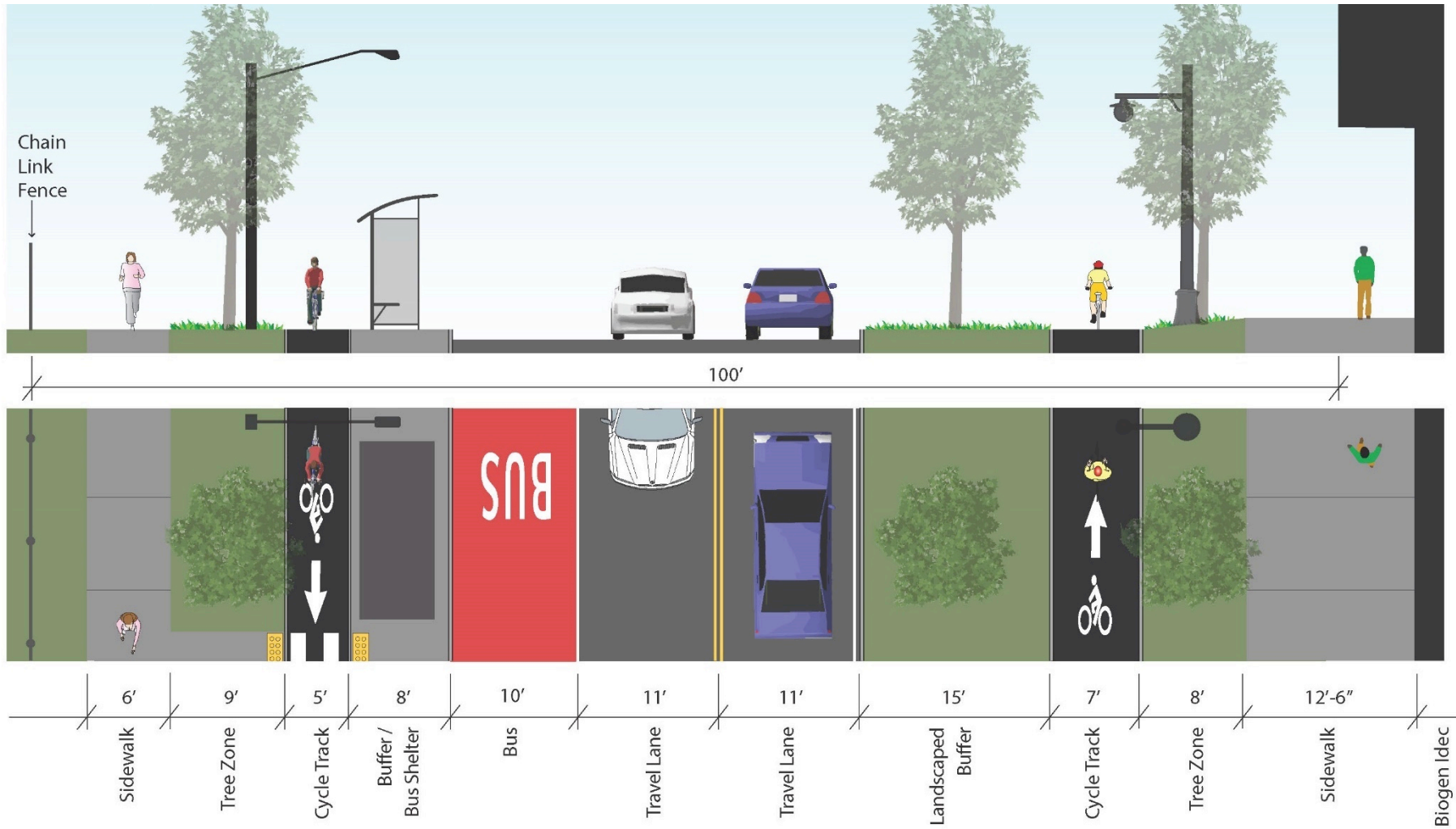
Binney Street - Existing Section



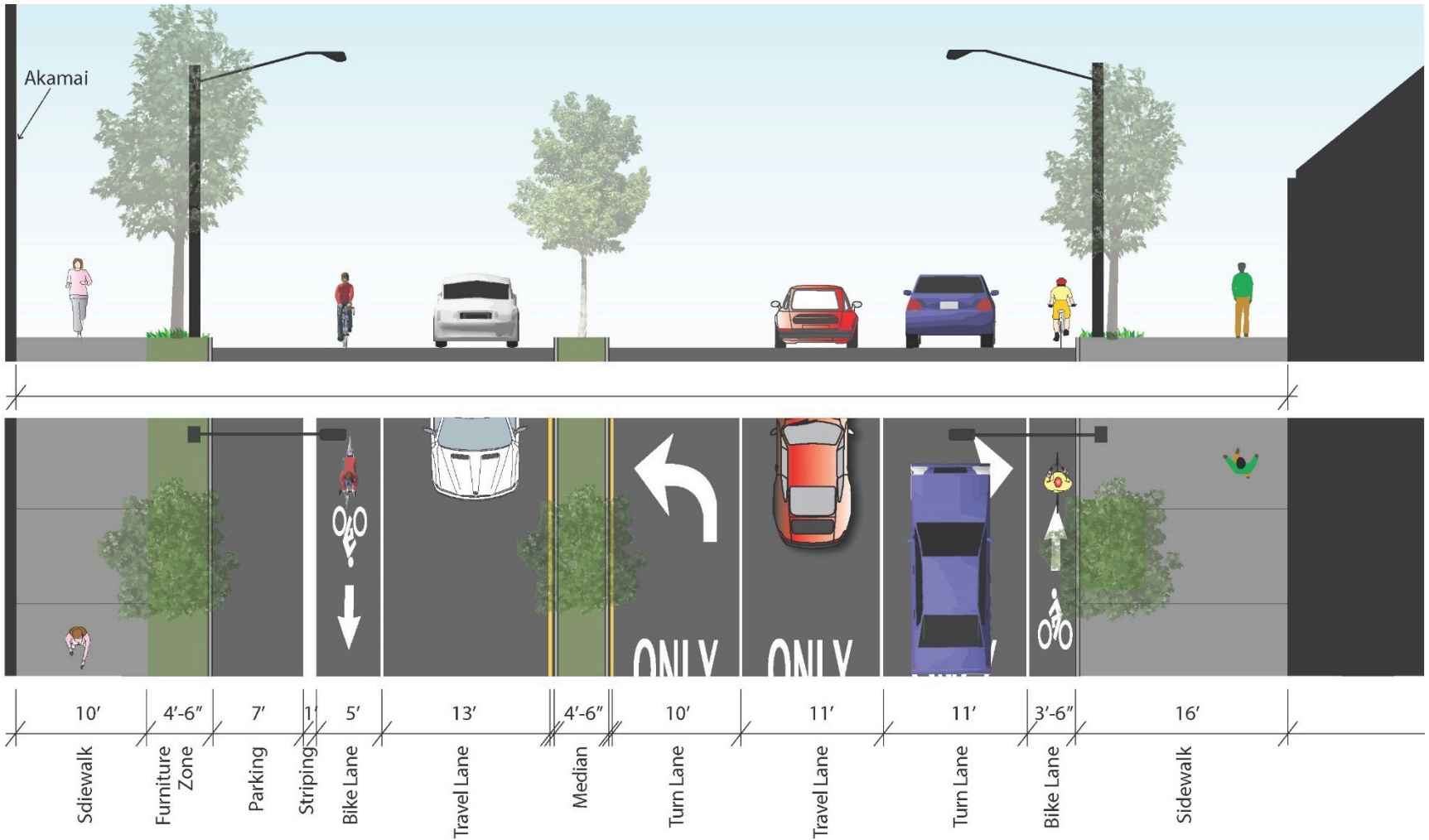
Binney Street - Median Scheme



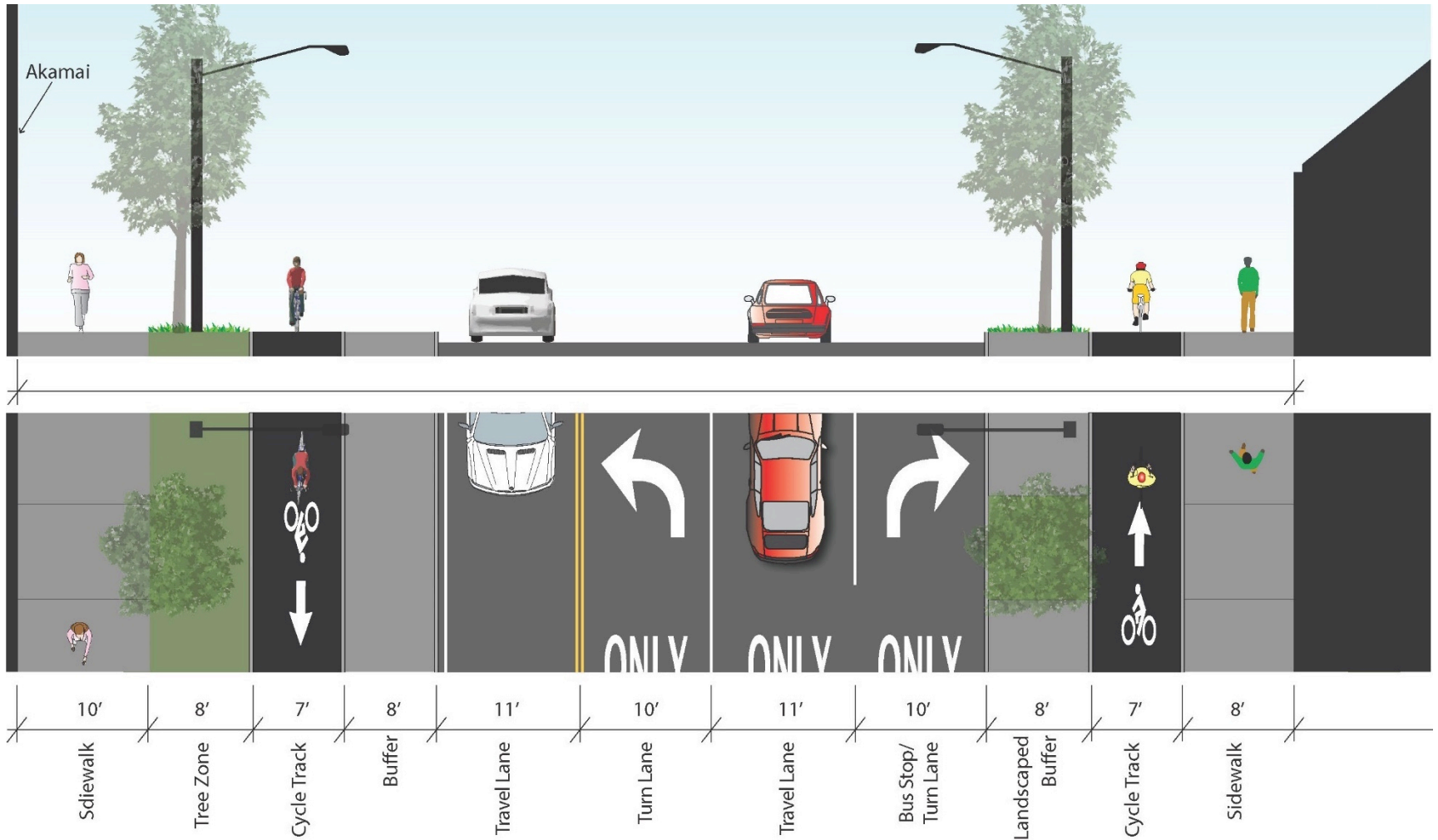
Binney Street - Island Scheme



Broadway - Existing Section



Broadway – Median and Island Schemes



Protected Intersections



Protected Intersections

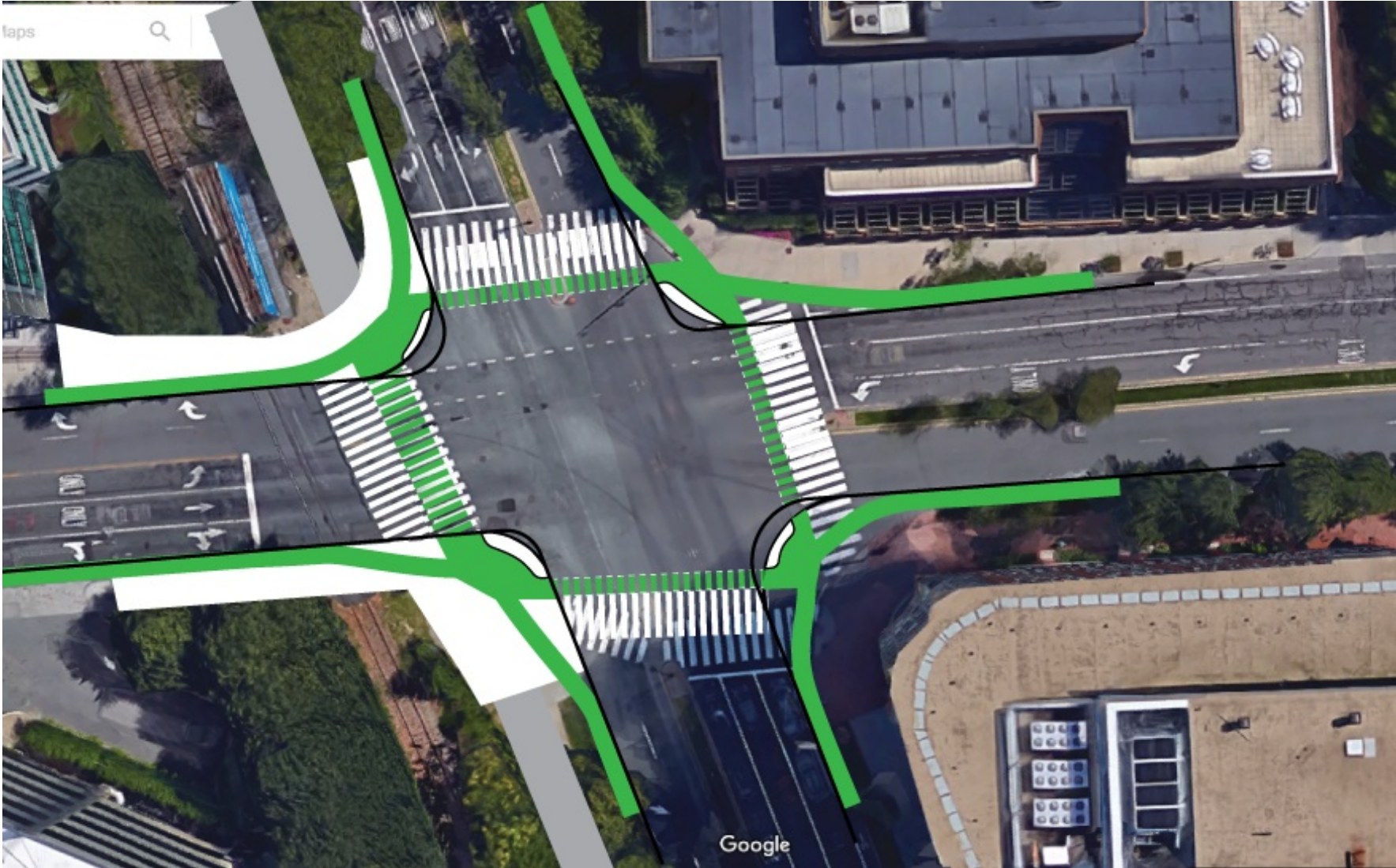


Protected Intersections

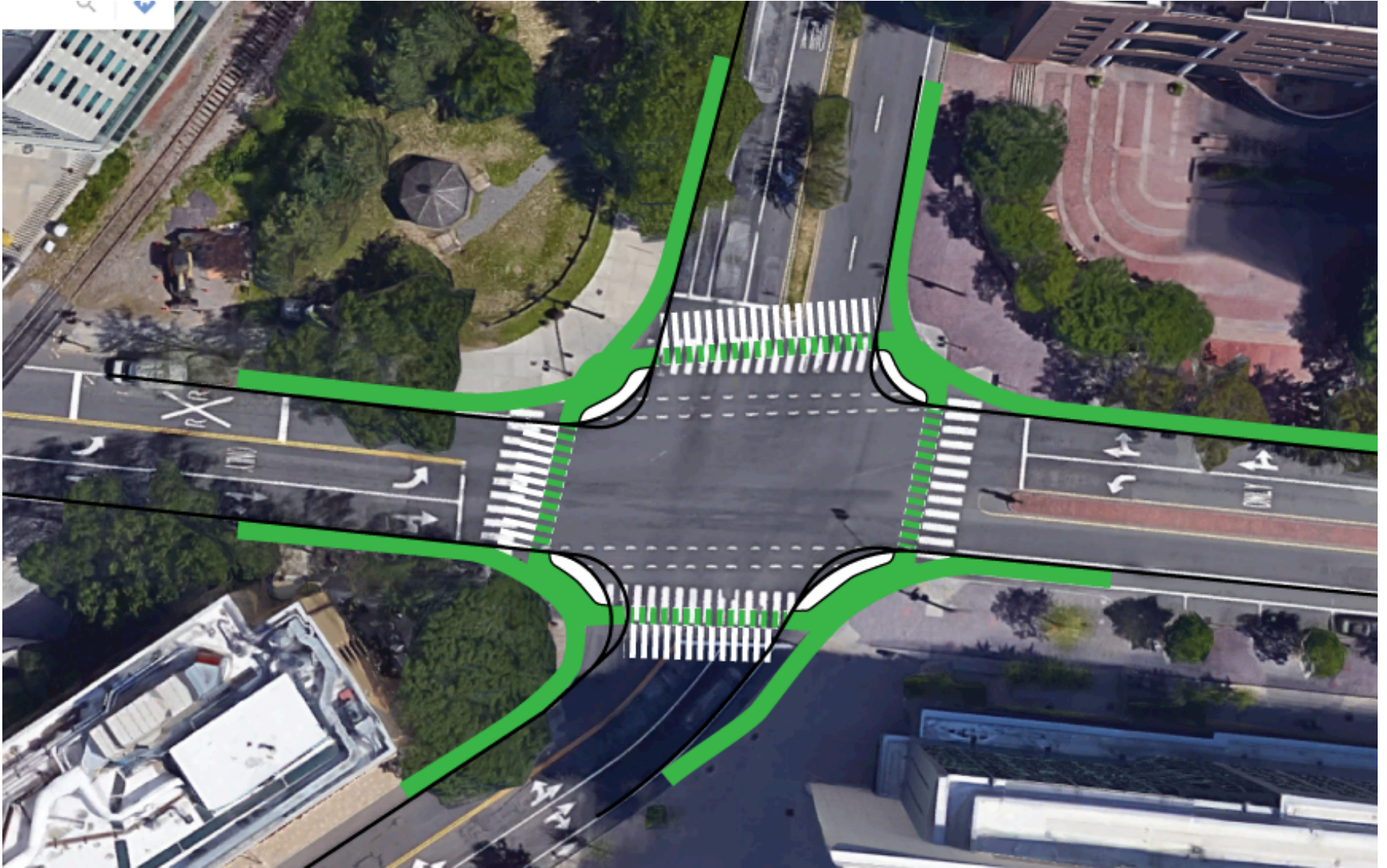
See Video:

<https://vimeo.com/86721046>

Protected Intersection Concept – Broadway and Galileo Galilei Way



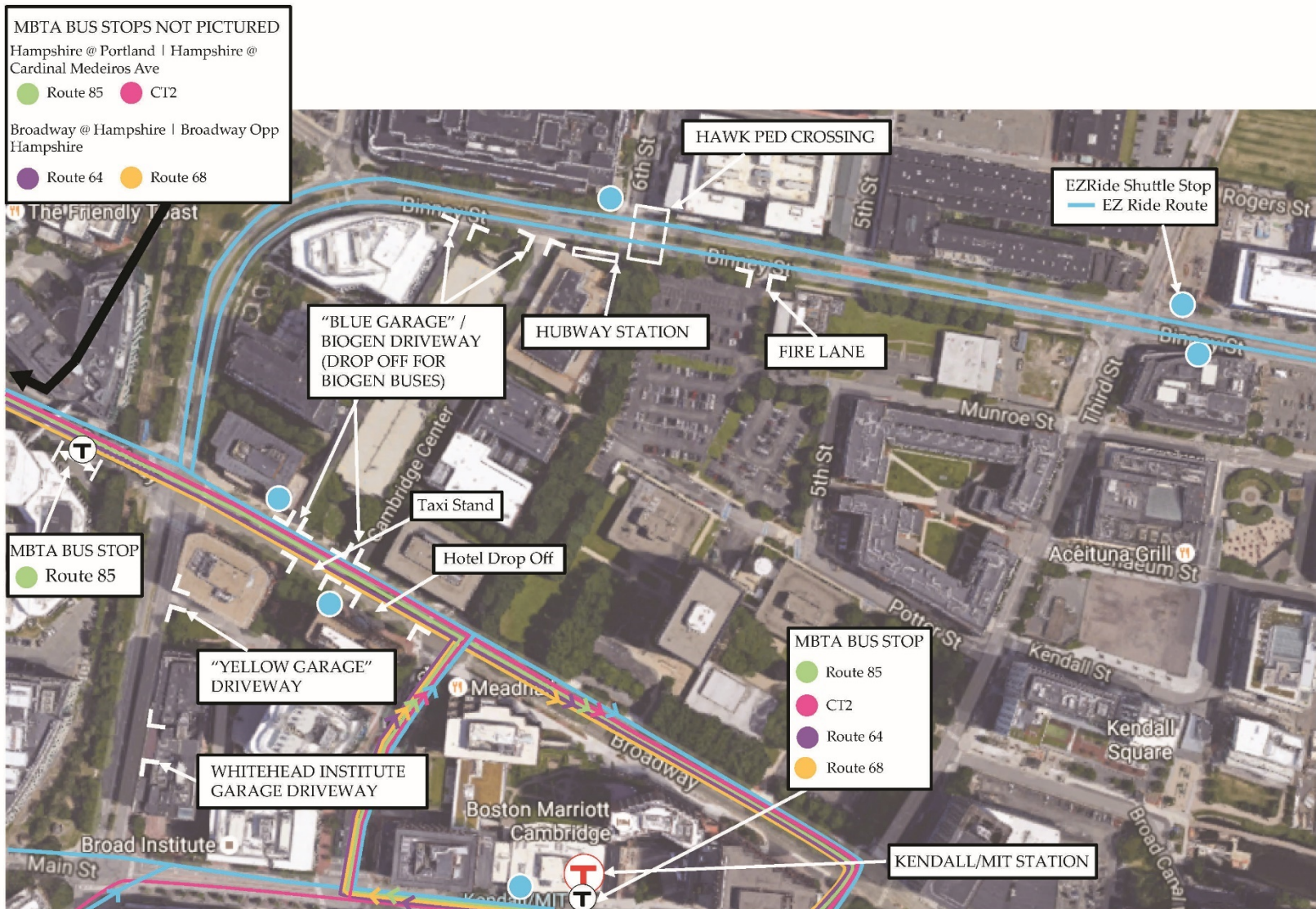
Protected Intersection Concept – Main Street and Galileo Galilei Way



Transit



Existing Transit and Curb Uses



Bus Passengers and Frequencies

Location: Galileo Galilei @ Broadway	AM Peak [8:15 - 9:15 AM]			PM Peak [5:00 - 6:00 PM]		
	Eastbound on Broadway*	Westbound on Broadway	Total	Eastbound on Broadway*	Westbound on Broadway	Total
Number of passengers*	361	81	441	67	267	334
Number of buses	19	20	39	15	14	29
Frequency by Route						
85	2	2	4	1	2	3
CT2	3	4	7	3	2	5
64	3	3	6	2	1	3
68	2	2	4	2	1	3
EZRide	9	9	18	7	8	15

- Morning Peak: More buses carrying more passengers travel through both intersections
- Intersection bus volumes: The Broadway at Galileo Galilei intersection has more bus activity than the Main Street at Vassar Street intersection.

Location: Main St @ Vassar	AM Peak [8:15 - 9:15 AM]			PM Peak [5:00 - 6:00 PM]		
	Westbound on Main	Northbound on Vassar	Total	Westbound on Main	Northbound on Vassar*	Total
Number of passengers	137	153	291	57	88	144
Number of buses	11	13	24	3	10	13
Frequency by Route						
CT2	3	4	7	3	2	5
EZRide	8	9	17	0	8	8

Data Source: MBTA Composite Data (Fall 2015); Charles River TMA EZRide Shuttle Ridership Data (Fall 2014)

Existing Stops



Bus Stop Design with Bicycle Lanes

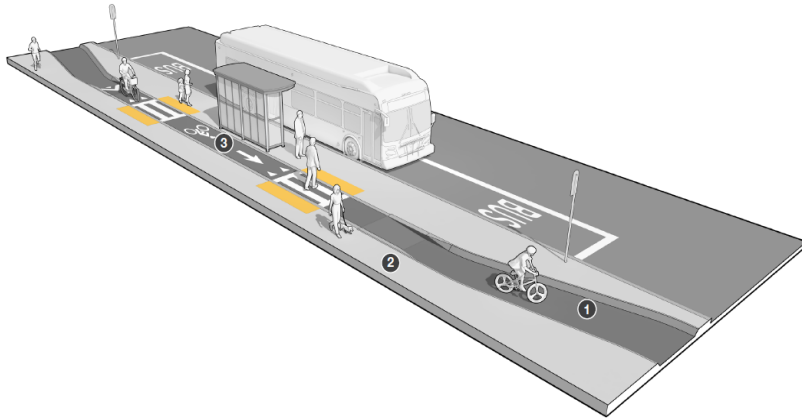


Figure 1: Unconstrained Bus Stop with adjacent Separated Bike Lane (MassDOT)

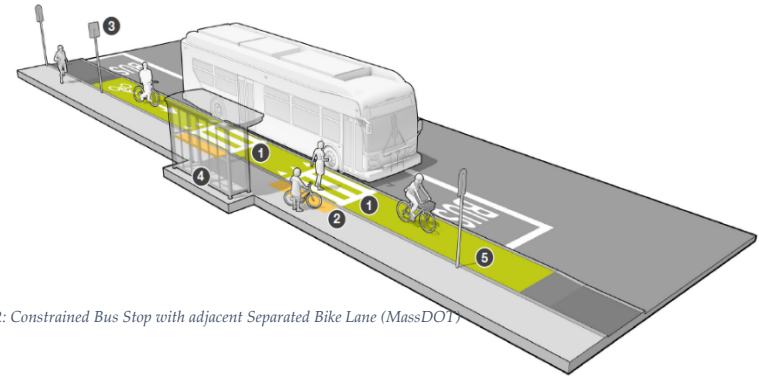


Figure 2: Constrained Bus Stop with adjacent Separated Bike Lane (MassDOT)

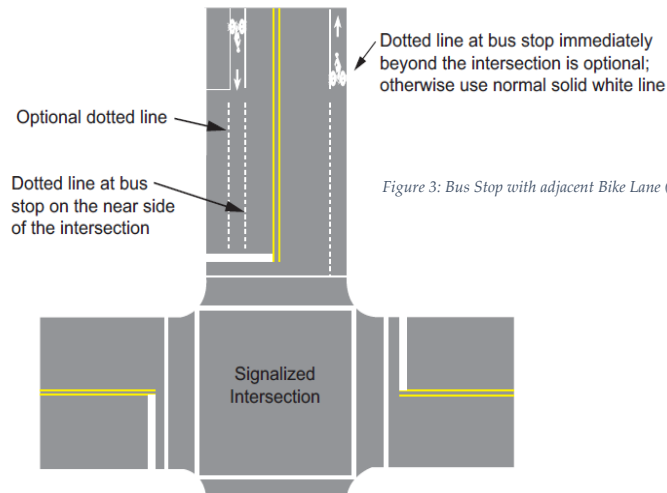
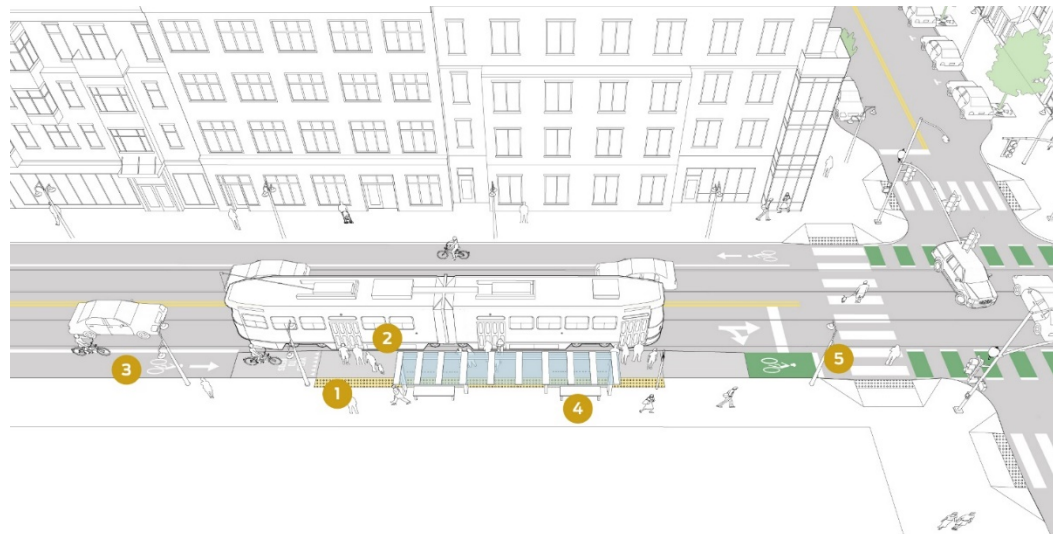
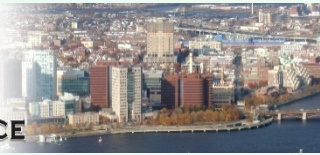


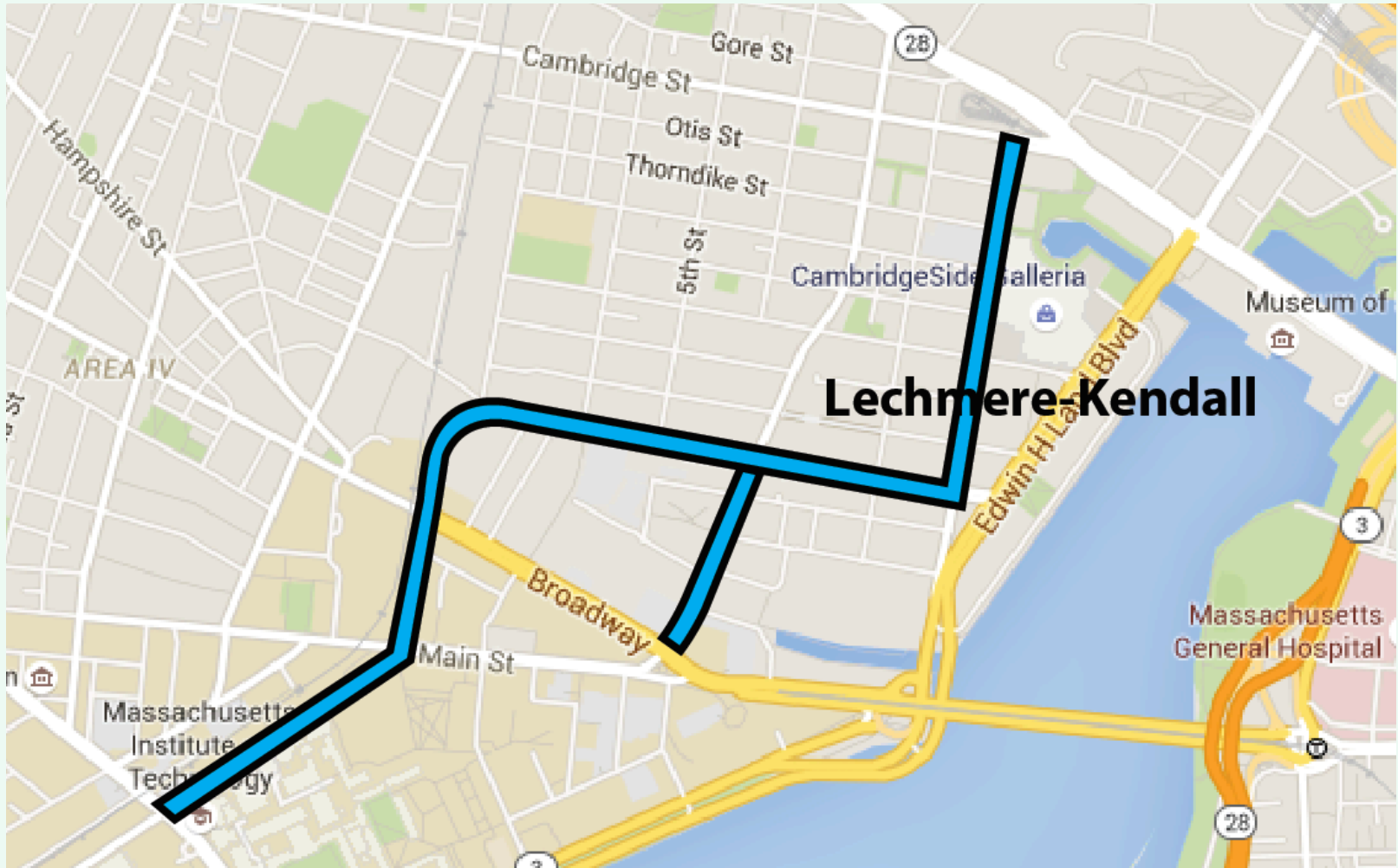
Figure 3: Bus Stop with adjacent Bike Lane (AASHTO)

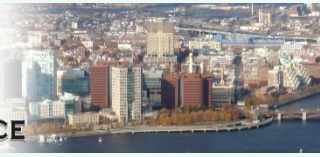
Transit – Floating Bus Stops





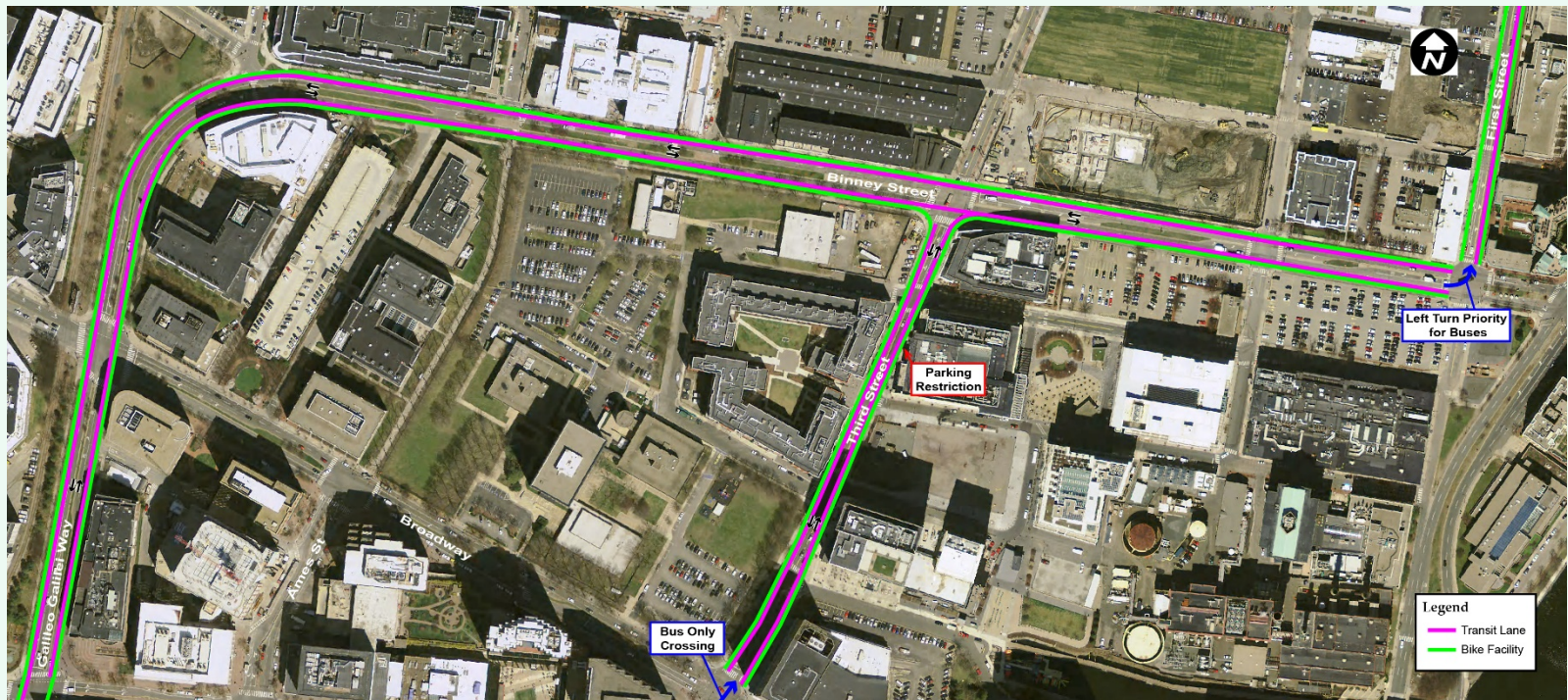
Priority Corridor to be Evaluated





Binney between First & Broadway

- Convert travel lane to bus lane with cycle tracks plus mixed travel lanes/turn lanes in both directions.



Input Needed from City

- Traffic Performance Criteria
- Alternatives for Alignment:
 - Binney Street
 - Galileo Galilei Way
 - Broadway
- Alternatives for Traffic Analysis
 - 2 Alternatives to be Analyzed
- Other Questions:
 - Use of floating bus stops
 - “Little Binney” connection to Grand Junction
 - HAWK signal status

Alignment Options



Retain Median Scheme

- Benefits
 - Retain existing median trees & traditional boulevard feel
 - May serve to slow traffic (conflicting opinions on this)
 - Eliminates illegal turns and provides refuge island for pedestrians at crossings
- Tradeoffs
 - Not enough space for additional uses other than a cycle track (curb side parking/drop off/loading, floating bus stops, etc.)
 - Fire Department requires 16' curb to curb when a median is present, forcing the use of a large unnecessary paved shoulder that serves no purpose and may end up being used as illegal parking
 - Median landscaping has challenges, and will continue to deteriorate. Curb side landscaping is better maintained.

Island Scheme

- Benefits
 - Still enforces illegal turns
 - Allows more than enough room for replacement of vegetation/trees on outside
 - Allows space for additional uses other than cycle track in key locations
 - Reduces roadway width enough to eliminate need for crosswalk refuge island in most places
 - Complies with Fire Department requirements without the use of a large paved shoulder
- Tradeoffs
 - Remove existing trees from median