



Draft Design Toolbox (a living document)



Introduction



- This River Street Design Toolbox was created as a reference for the River Street Reconstruction project. More information about the project can be found on the River Street Reconstruction web page, <http://cambridgema.gov/riverstreet>.
- This toolbox is a reference for the types of design treatments that could be considered to address transportation and streetscape opportunities and challenges on River Street. It is not intended to propose specific design solutions.
- This toolbox is separated into two sections – one focused on streetscape design tools, and one on mobility design tools. The separation is to help make the document more digestible, but there is overlap between design tools in the two disciplines and they should not be thought of as mutually exclusive.
- This is intended to be a work in progress, or a living document, that can be refined throughout the River Street Reconstruction design process.



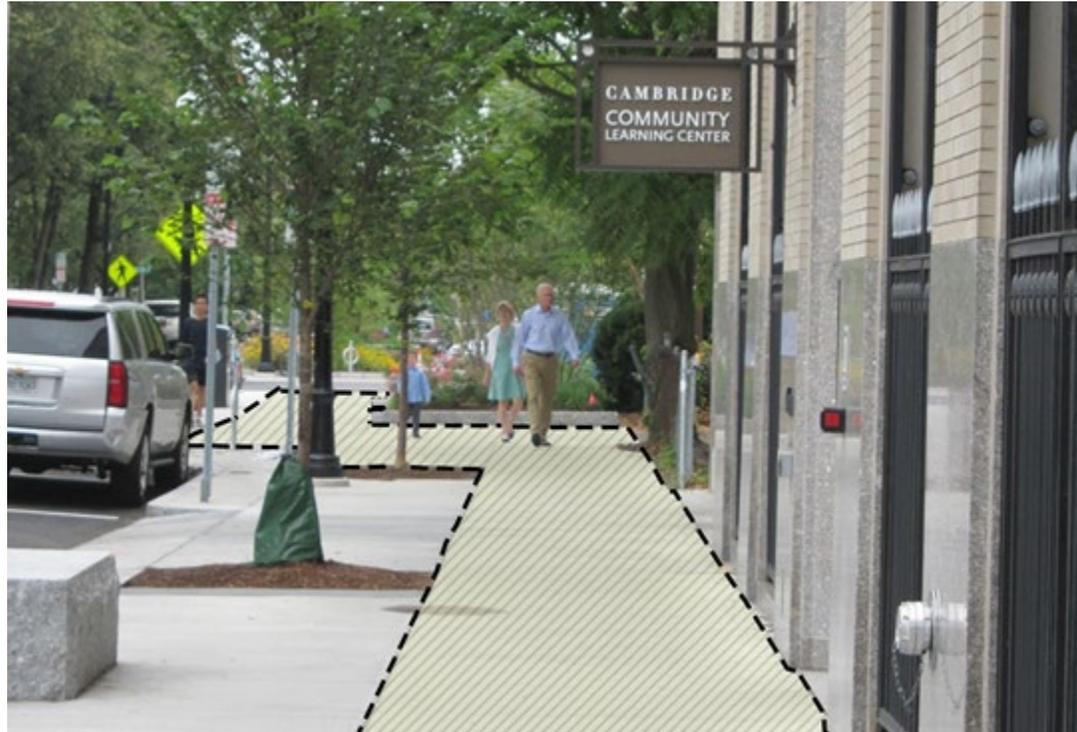
Streetscape Design Toolbox



Sidewalk



Pedestrian Walking Zone



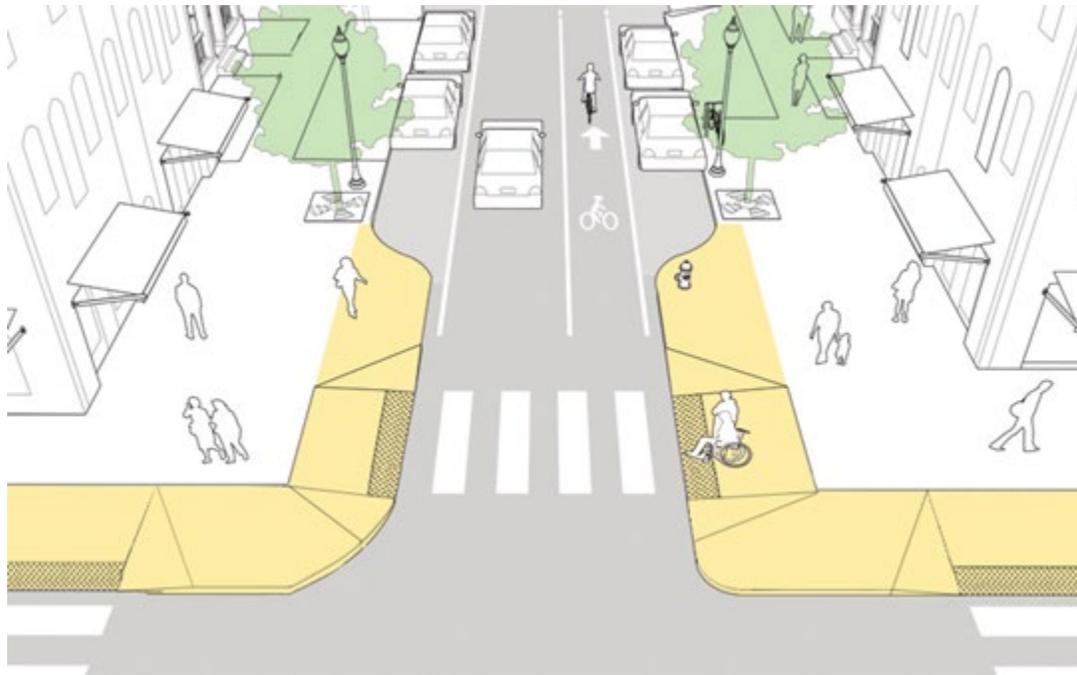
Furnishing Zone



Bump Out / Curb Extension



One-Lane Street



Complex Intersection



Raised Side Street Crossing



Raised Side Street Crossing



Raised Side Street Crossing



Trees and Landscape



Streetscape Tree Canopy



Accent Planting



Trees and Landscape



Tree Pit



Tree Pit



Trees and Landscape



Raised Planter



Raised Planter



Green Infrastructure



Bioswales



Stormwater Infiltration



Expanded Root Zone



Trees and Landscape



Landscape Buffer



Landscape Space



Site Furnishings



City Bench Standard



Conversational Seating



Special Seating



Site Furnishings



Informal Seating



Informal Seating



Site Furnishings



Bike Racks



Bike Share Stations



Site Furnishings



Waste / Recycling Receptacle



Hanging Baskets



Planter Pots



Site Furnishings



Information Kiosk / Bulletin Board



Utility Cabinets



Lighting



Vehicular Scale Pole Light



Pedestrian Scale Pole Light



Lighting



Special Lighting



Special Lighting



Artful Play Elements



Small Play Features



Informal Play



Artful Play Elements



Experiential



Fun



Signage



City Park & Sq. Signage



Wayfinding Element



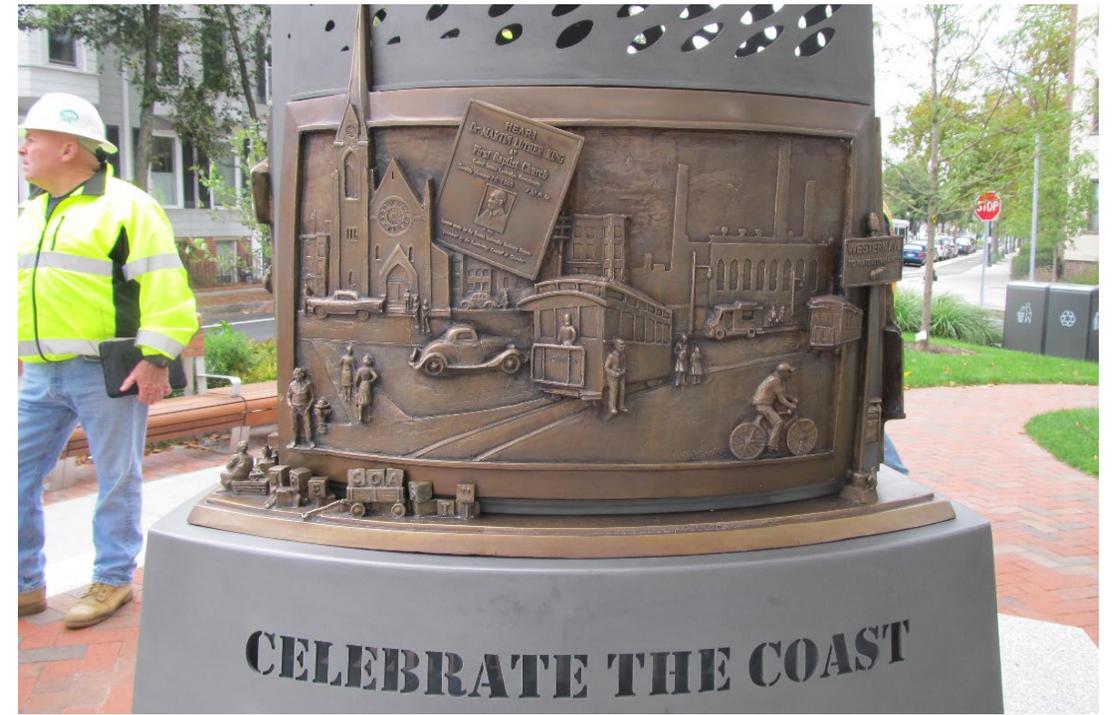
Interpretive Features



Historic References



Cultural Connections



Small Public Spaces



Pocket Park



Pocket Park



Welcoming Connections to Adjacent Parks



Linear Path Connection



Protected Plaza



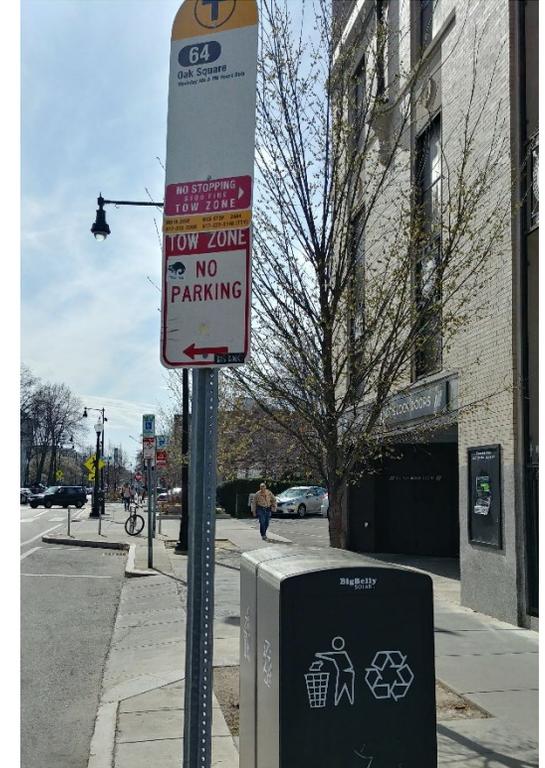
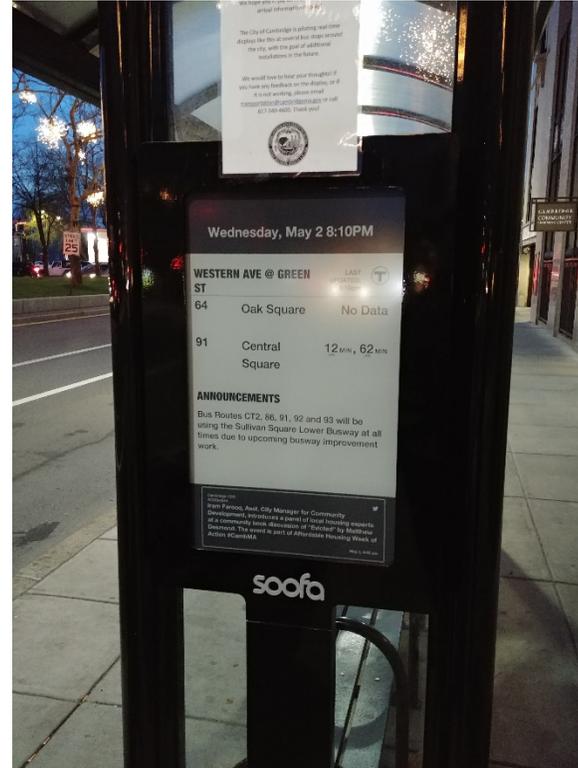
Bus Stop Areas



Bus Shelter



Bus Signage



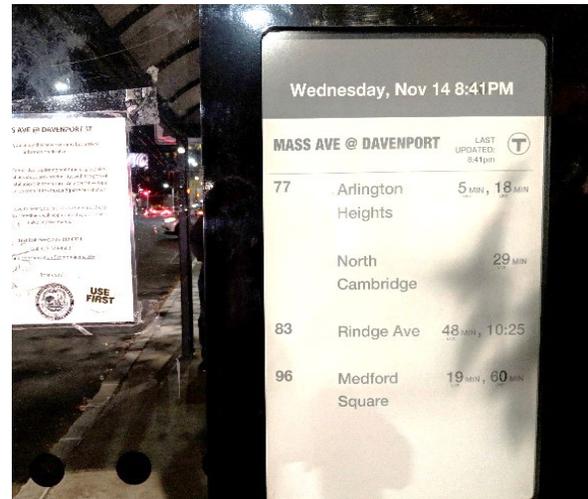
Bus Stop Amenities



Bus Stop Curb Extension



Benches



Real-Time Information



Pavement Markings

Public Facilities



Public Restroom



Drinking Fountain





Mobility Design Toolbox



"Mobility" Includes People Using All Modes:

People walking, biking, taking public transit, driving, etc.



Pedestrian Facilities (1/2)



Sidewalks



Crosswalks



Refuge Islands



Pedestrian Facilities (2/2)



Curb Extensions



Raised Side Street Crossing



Pedestrian Crossings



Pedestrian Hybrid Beacon/HAWK



Signalized

Curb Ramps and Detectable Warning Strips



Uncontrolled



Rapid Flashing Beacon

Crosswalk Illumination



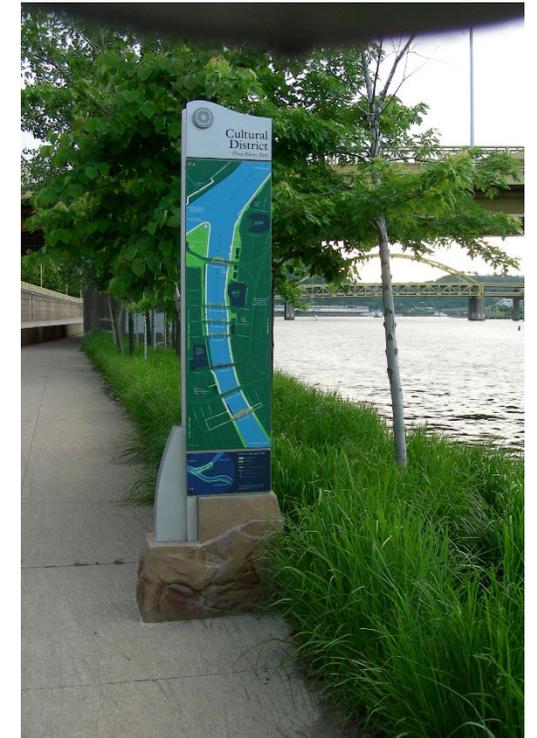
Pedestrian Operations and Flow



Audible Pushbuttons and Signals



Wayfinding Signage



Bicycle Facilities: Separated Bicycle Lane (Street Level)



Marked Buffer



Parking Buffer



Planters



Plastic Flexposts



Bicycle Facilities: Separated Cycle Tracks - Raised



Raised-No Parking



Raised-Buffered w/Parking



Concrete Buffer



Raised Mountable Curb



Bicycle Facilities - Intersection Treatments



Protected Intersections



Signal Control



Bicycle Operations and Flow



Bike Signals



Wayfinding Signage



Pavement Markings



Bicycle Detection



Bicycle Amenities



Bike Rack



Secure Bike Parking



On-Street Bike Corral



Bike Share Stations



Bus Priority



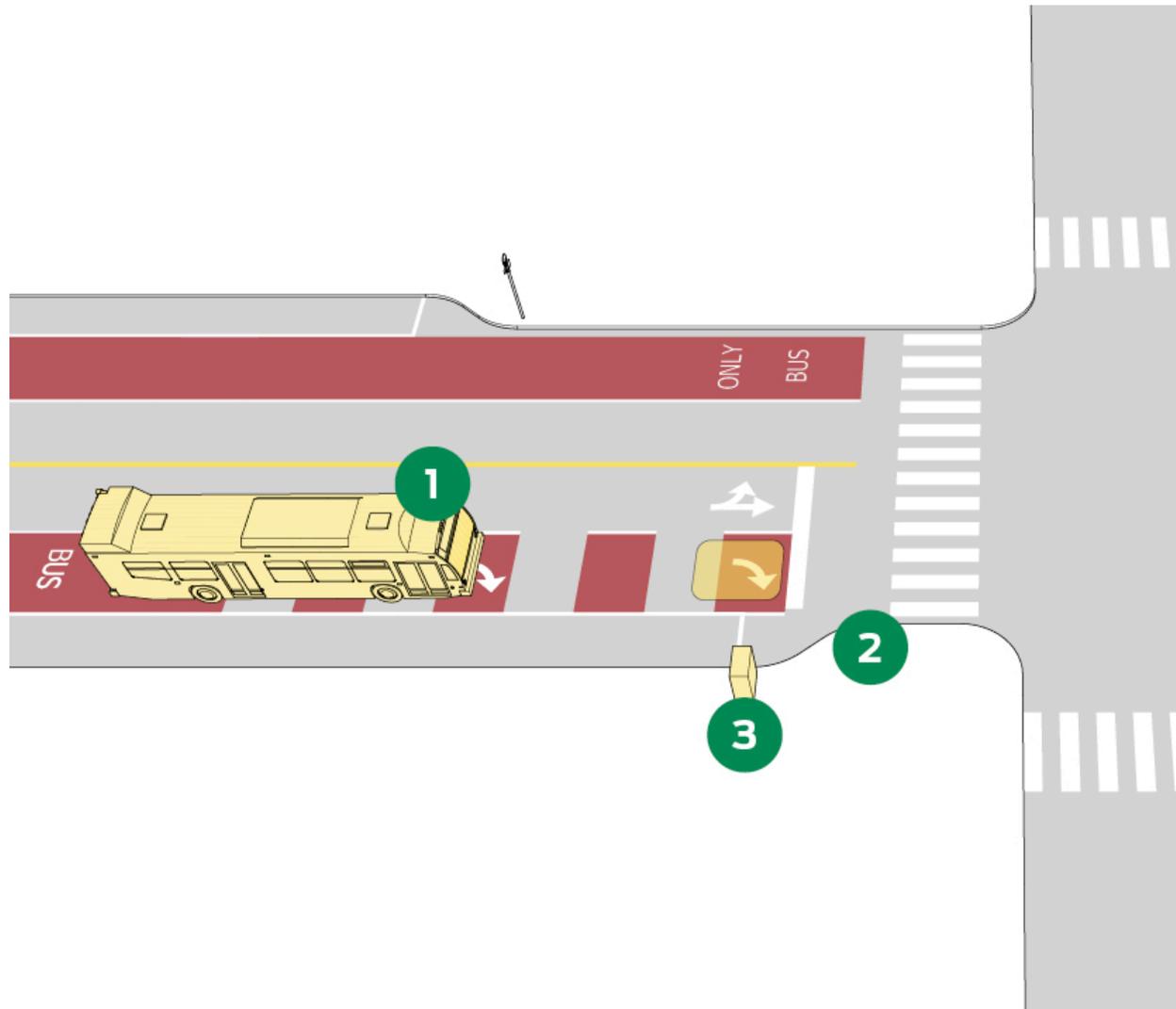
Bus Only Lane



Transit Signals/Bus Queue Jump



Transit Signal Priority



Involves extending the green time at an intersection or calling the green time early for the approach that a bus is traveling on. This may or may not involve a dedicated lane or queue jump.

1. On-board technology requests signal priority.
2. In addition, in ground technology like loop detectors can detect when buses approach a signal.
3. The request is received and processed by traffic equipment or through a centrally controlled system

Examples of Enhanced Bus Service



New Britain-Hartford Busway (CT)



MBTA Silver Line



Transit Stops (1/2)



Designated Stop Locations



Accommodations for Waiting Passengers



Transit Stops (2/2)



Floating Bus Stop



Curbside Pull-Out Bus Stop



Transit Accessibility



Detectable Warning Panels



Kneeling Buses/Ramps



Level & Clear Boarding Area



Transit Stop Signage



Bus Stop Sign



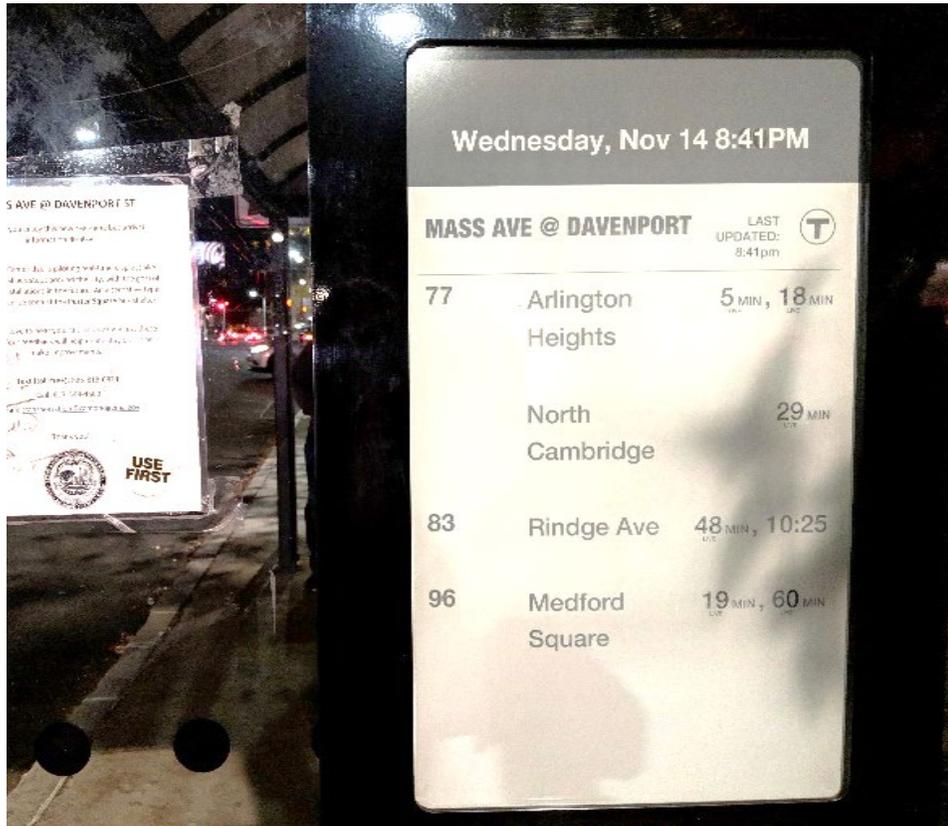
Wayfinding/Route Signage



Transit Amenities



Real Time Information



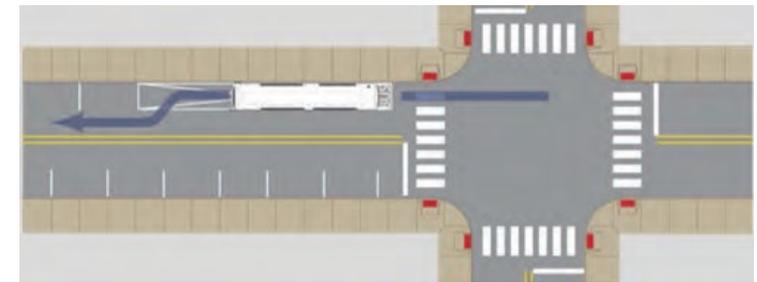
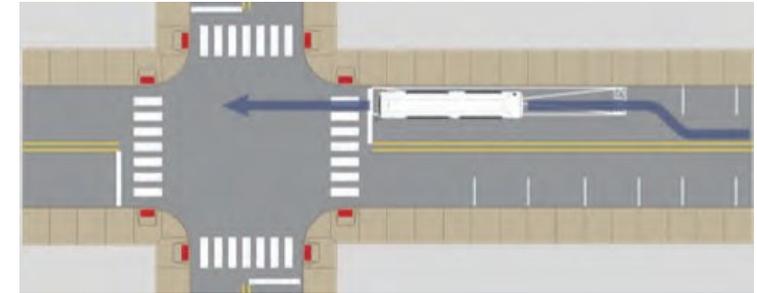
Bike Racks/Bike Parking



Bus Stop Length Requirements



Placement	Minimum – Standard Bus Stop Length*
Nearside	90 – 100'
Farside (after left turn)	60 – 80' (100 – 120')
Midblock	100 – 120'



*Based on 40' Bus in a Parking Lane

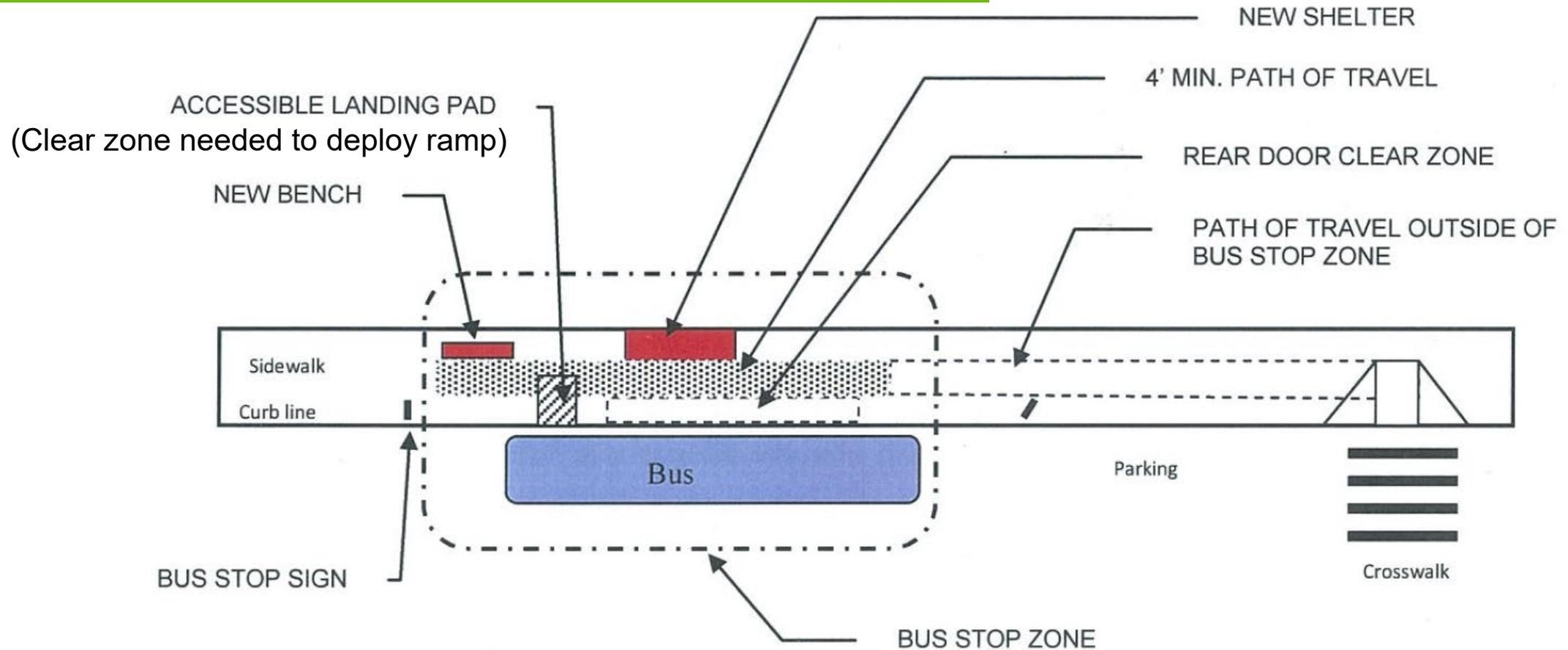
Source: MBTA Bus Stop Design Guidelines

Source: SEPTA Bus Stop Design Guidelines

Bus Stop Accessibility



Landing Area Clear Zone

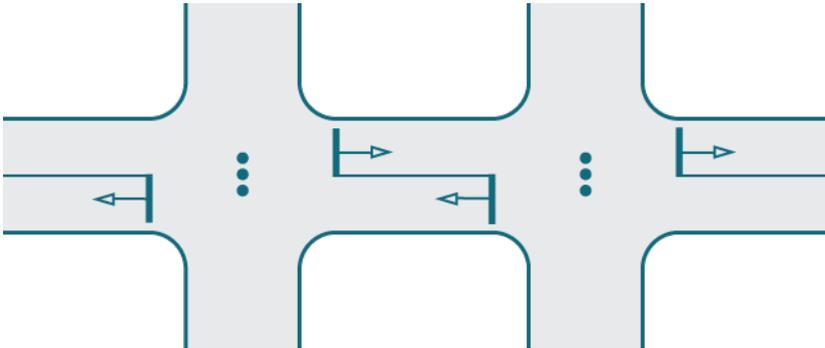


Source: MBTA Bus Stop Planning and Design Guidelines

Traffic Flow/Operations



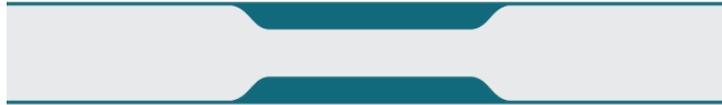
Optimized/Coordinated Signal Timings



Lane Use Markings and Signage



Traffic Calming



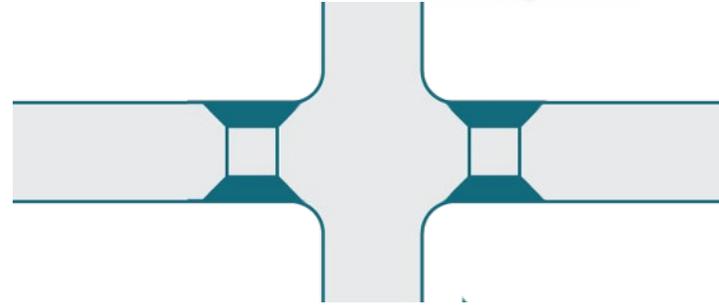
Pinch Point



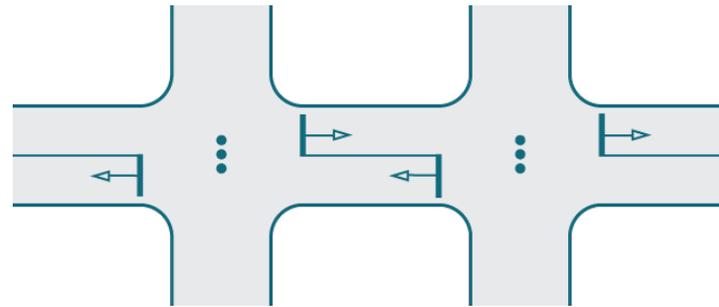
Chicane



Pedestrian Crossing
Island



Raised Side-Street
Crossing



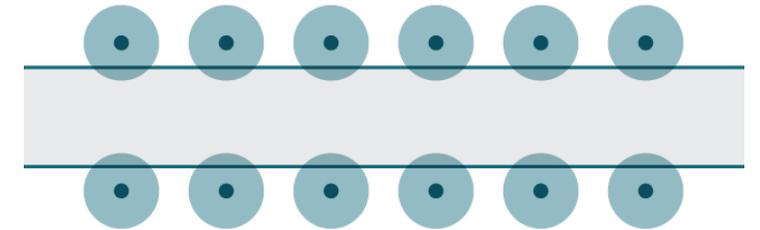
Signal Progression
(Signals timed to match the
target speed)



Constrained Sight Lines



On-Street Parking



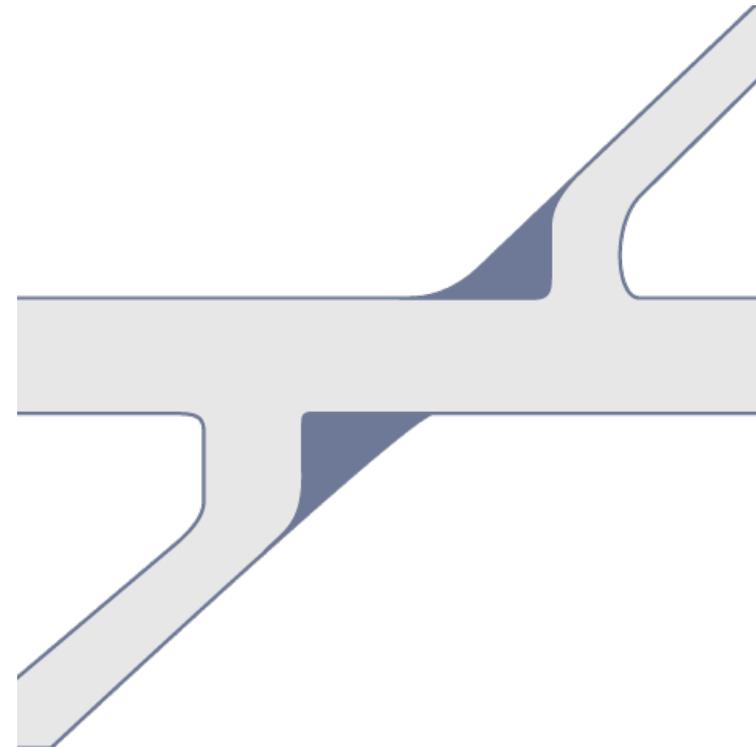
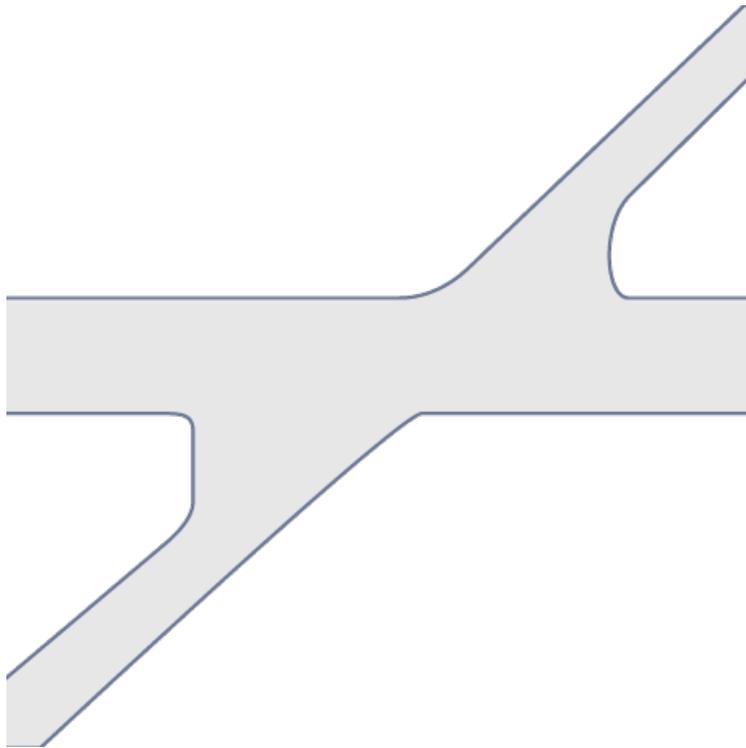
Street Trees

Complex Intersections



Before

After



Skewed intersections create safety hazards for pedestrians

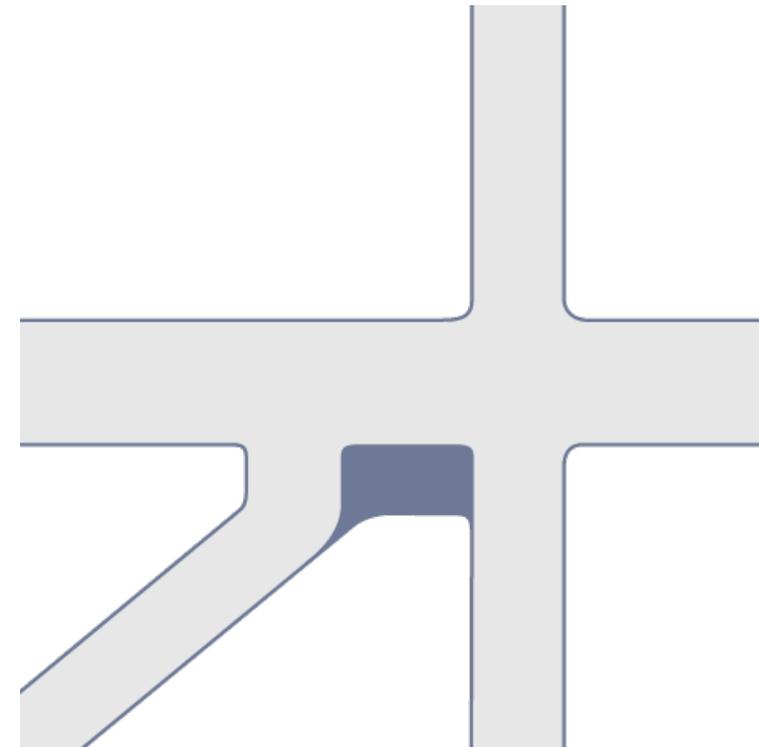
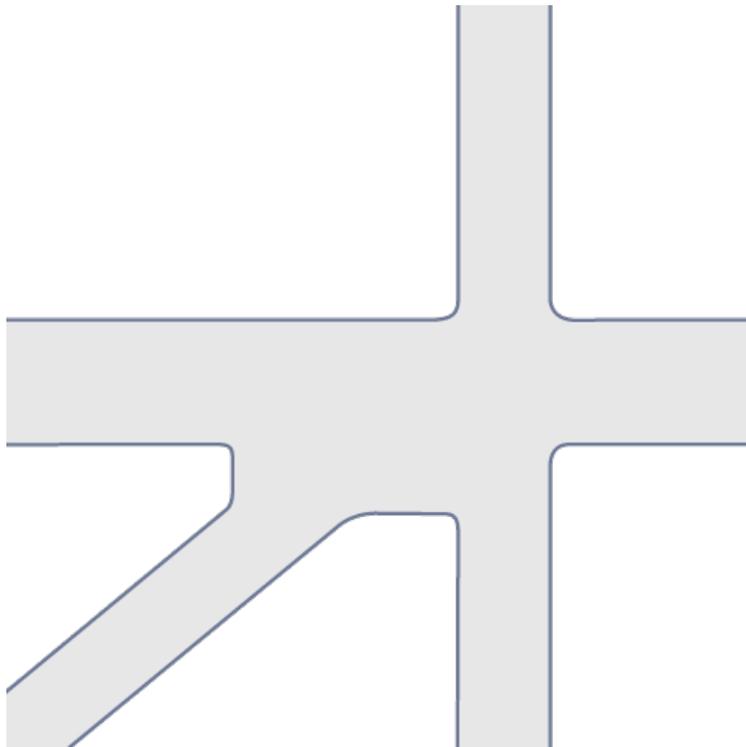
Creating T intersections can calm traffic

Complex Intersections



Before

After



Five-way intersections also lengthen crossings and confuse drivers

Separating the legs can create a safer condition

Access Management



Curb Cut Locations, Width



Barriers



Private Vehicle Curbside Amenities



Parking Accommodations/ Vehicle Storage



EV Charging Stations



Emerging Mobility Options and Technologies Need to be Considered

Ride Hailing



Micromobility



Note: electric scooters are not legal until state legislation is passed

Connected & Autonomous Vehicles





THANK YOU!

riverstreet@cambridgema.gov

