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
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

<table>
<thead>
<tr>
<th>Waste / Recycling Receptacle</th>
<th>Hanging Baskets</th>
<th>Planter Pots</th>
</tr>
</thead>
</table>

![Recycling Receptacle](image1.png)
![Hanging Baskets](image2.png)
![Planter Pots](image3.png)
Site Furnishings

Information Kiosk / Bulletin Board

Utility Cabinets
Lighting

Vehicular Scale Pole Light

Pedestrian Scale Pole Light
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

- Benches
- Real-Time Information
- Pavement Markings
- Bus Stop Curb Extension
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
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

Level & Clear Boarding Area

Kneeling Buses/Ramps
Transit Stop Signage

Bus Stop Sign

Wayfinding/Route Signage
Transit Amenities

Real Time Information

Bike Racks/Bike Parking
## Bus Stop Length Requirements

<table>
<thead>
<tr>
<th>Placement</th>
<th>Minimum – Standard Bus Stop Length*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearside</td>
<td>90 – 100’</td>
</tr>
<tr>
<td>Farside (after left turn)</td>
<td>60 – 80’ (100 – 120’)</td>
</tr>
<tr>
<td>Midblock</td>
<td>100 – 120’</td>
</tr>
</tbody>
</table>

*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

(Clear zone needed to deploy ramp)

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
- Street Trees
- Constrained Sight Lines
- On-Street Parking

Signal Progression
(Signals timed to match the target speed)
Complex Intersections

Skewed intersections create safety hazards for pedestrians

Creating T intersections can calm traffic
Complex Intersections

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

Connected & Autonomous Vehicles

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