Palm Beach MPO Complete Streets Working Group

NACTO Design Guides & Boston Complete Streets Design Guidelines

June 21, 2016

www.PalmBeachMPO.org

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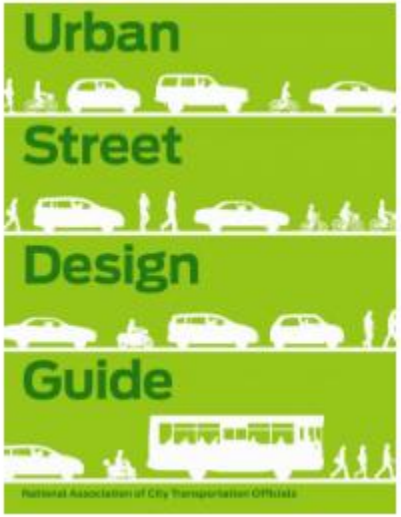
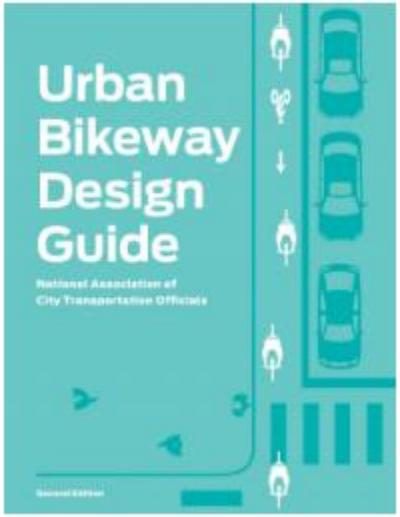
National Association of City Transportation Officials (NACTO)

- NACTO is a 501(c)(3) non-profit association that represents large cities on transportation issues of local, regional, and national significance
- NACTO facilitates the exchange of transportation ideas, insights, and best practices, while fostering a cooperative approach to key issues facing cities and metropolitan areas
- www.nacto.org

NACTO Publications





NACTO Urban Street Design Guide

Urban Street Design Guide

PURCHASE GUIDE

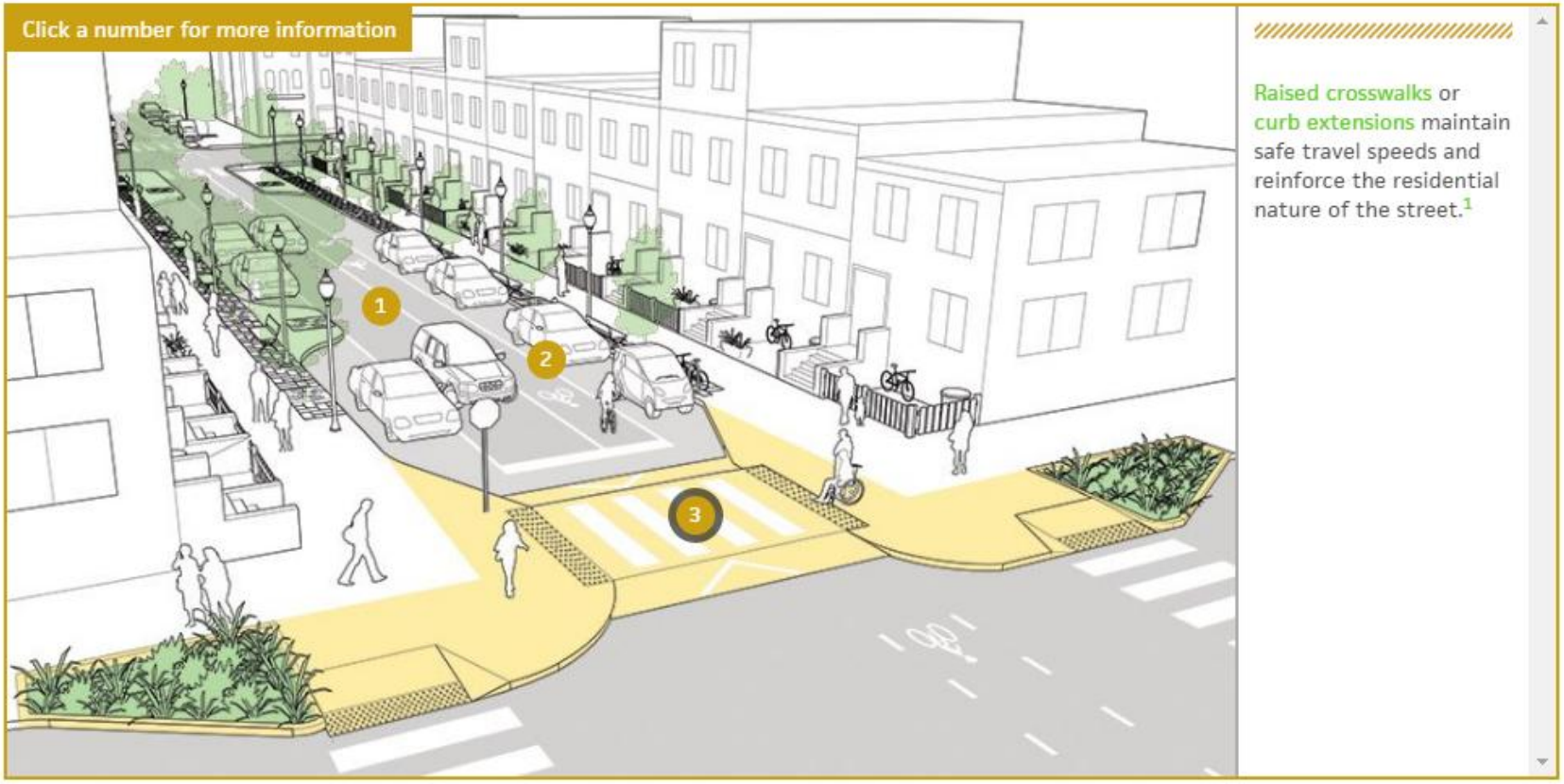
GUIDE NAVIGATION

NACTO Urban Street Design Guide

- Levels of Guidance
  - **Critical Guidance** are elements for which there is a strong consensus of absolute necessity
  - **Recommended Features** are elements for which there is a strong consensus of added value
  - **Optional Features** are elements that may vary across cities and may add value, depending on the situation

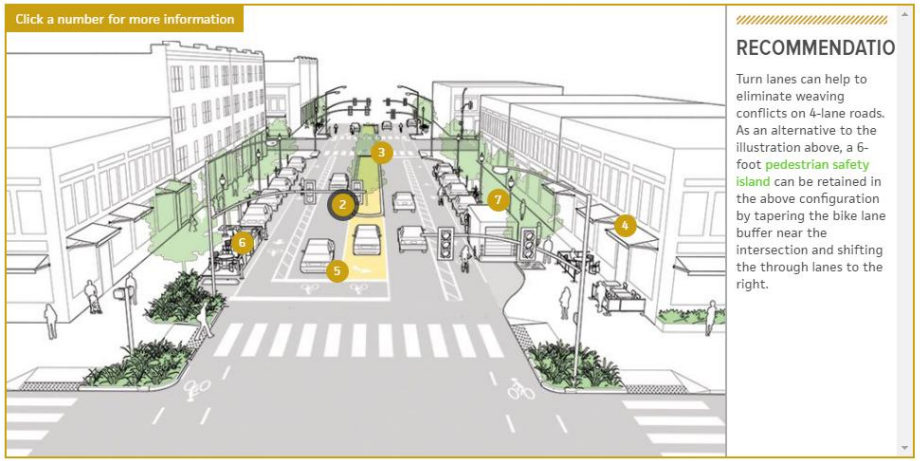
NACTO Urban Street Design Guide

- Yellow Highlights indicate the focus of each figure



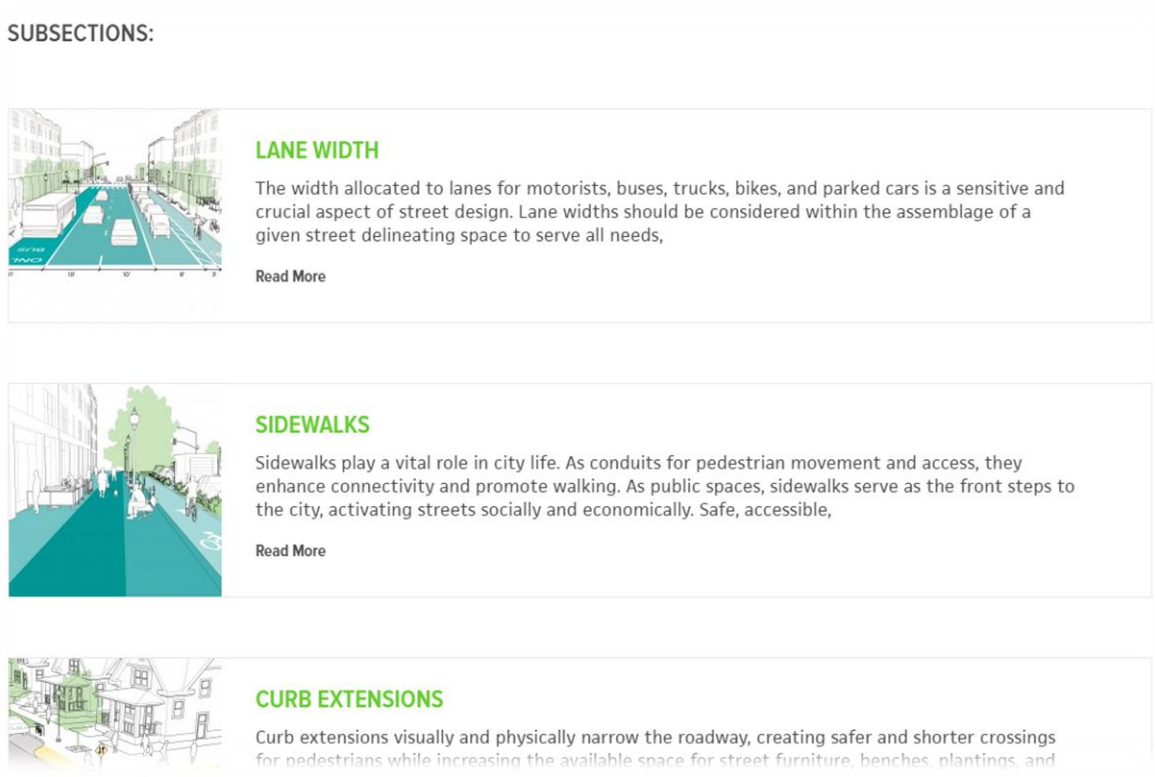
NACTO Urban Street Design Guide

- Street Types
  - Downtown 1-Way Street
  - Downtown 2-Way Street
  - Downtown Thoroughfare
  - Neighborhood Main Street
  - Neighborhood Local Street
  - Yield Street
  - Boulevard
  - Residential Boulevard
  - Transit Corridor
  - Residential Shared Space
  - Commercial Shared Space



NACTO Urban Street Design Guide

- Street Design Elements
  - Lane Width
  - Sidewalks
  - Curb Extensions
  - Vertical Speed Control Elements
  - Transit Streets
  - Stormwater Management



NACTO Urban Bikeway Design Guide

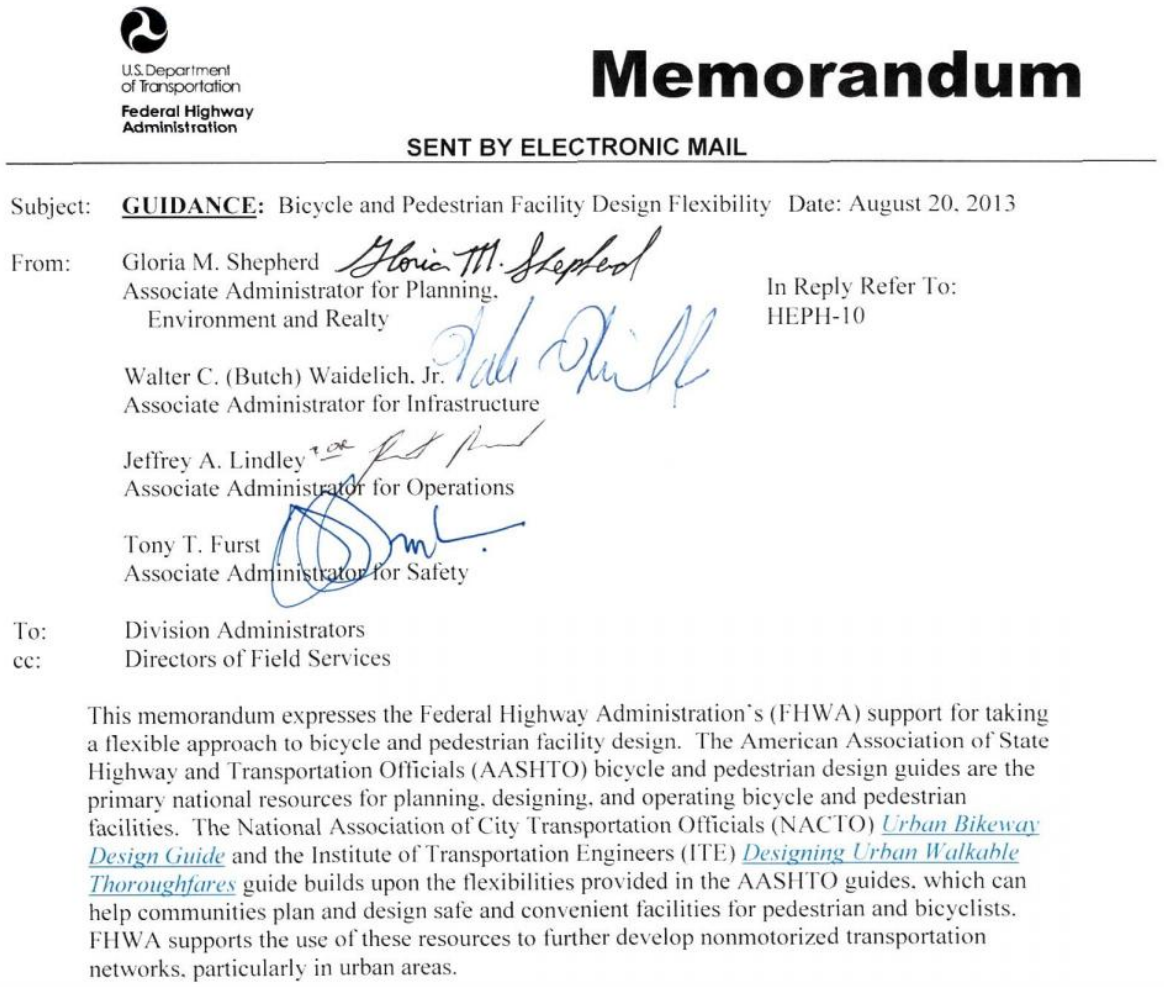
Urban Bikeway Design Guide

PURCHASE GUIDE

GUIDE NAVIGATION

NACTO Urban Bikeway Design Guide

- FHWA supports design flexibility for bicycle and pedestrian facilities, including the NACTO *Urban Bikeway Design Guide*



U.S. Department of Transportation
Federal Highway Administration

Memorandum

SENT BY ELECTRONIC MAIL

Subject: **GUIDANCE:** Bicycle and Pedestrian Facility Design Flexibility Date: August 20, 2013

From: Gloria M. Shepherd
Associate Administrator for Planning, Environment and Realty

In Reply Refer To:
HEPH-10

Walter C. (Butch) Waidelich, Jr.
Associate Administrator for Infrastructure

Jeffrey A. Lindley
Associate Administrator for Operations

Tony T. Furst
Associate Administrator for Safety

To: Division Administrators
cc: Directors of Field Services

This memorandum expresses the Federal Highway Administration's (FHWA) support for taking a flexible approach to bicycle and pedestrian facility design. The American Association of State Highway and Transportation Officials (AASHTO) bicycle and pedestrian design guides are the primary national resources for planning, designing, and operating bicycle and pedestrian facilities. The National Association of City Transportation Officials (NACTO) *Urban Bikeway Design Guide* and the Institute of Transportation Engineers (ITE) *Designing Urban Walkable Thoroughfares* guide builds upon the flexibilities provided in the AASHTO guides, which can help communities plan and design safe and convenient facilities for pedestrian and bicyclists. FHWA supports the use of these resources to further develop nonmotorized transportation networks, particularly in urban areas.

NACTO Urban Bikeway Design Guide

- Key Features Included for Each Bikeway Type
  - Pictures
  - Renderings
  - Descriptions
  - Benefits
  - Illustrated Design Guidance
  - Required/ Recommended/ Optional
  - List of Example Cities

NACTO Urban Bikeway Design Guide

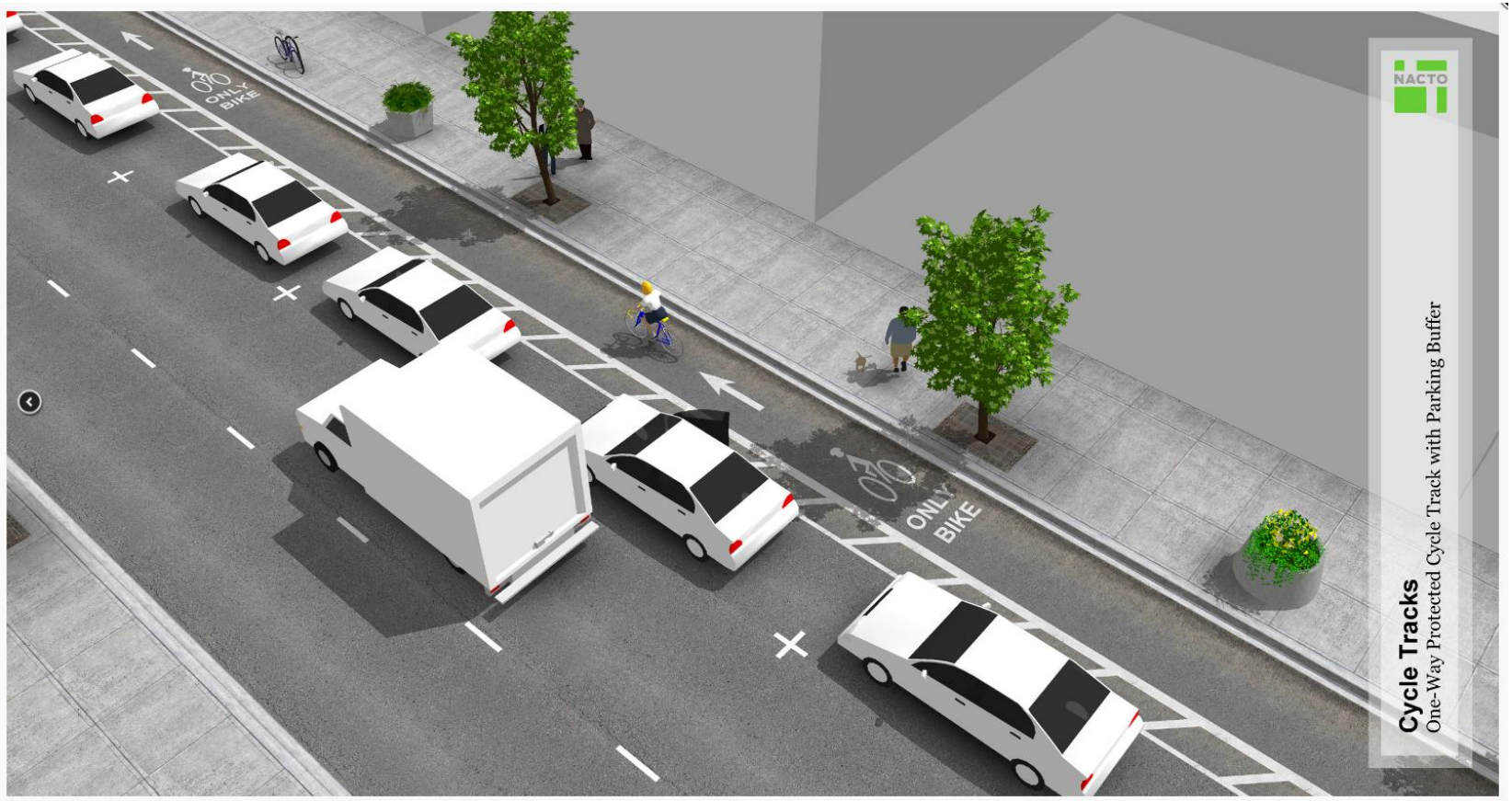
- Example Pictures of Bicycle Facilities

One-Way Protected Cycle Tracks

One Way Protected Cycle Track - New York City, NY

NACTO Urban Bikeway Design Guide

- Renderings



NACTO Urban Bikeway Design Guide

- Descriptions and Benefits

Description

One-way protected cycle tracks are bikeways that are at street level and use a variety of methods for physical protection from passing traffic. A one-way protected cycle track may be combined with a parking lane or other barrier between the cycle track and the motor vehicle travel lane. When a cycle track is elevated above street level it is called a raised cycle track and different design considerations may apply.

Click on the images below to view 3D concepts of a protected cycle track. The configurations shown are based on a Portland, OR, cycle track.

Treatment details can be accessed below under design guidance.

One-Way Protected Cycle Track Benefits

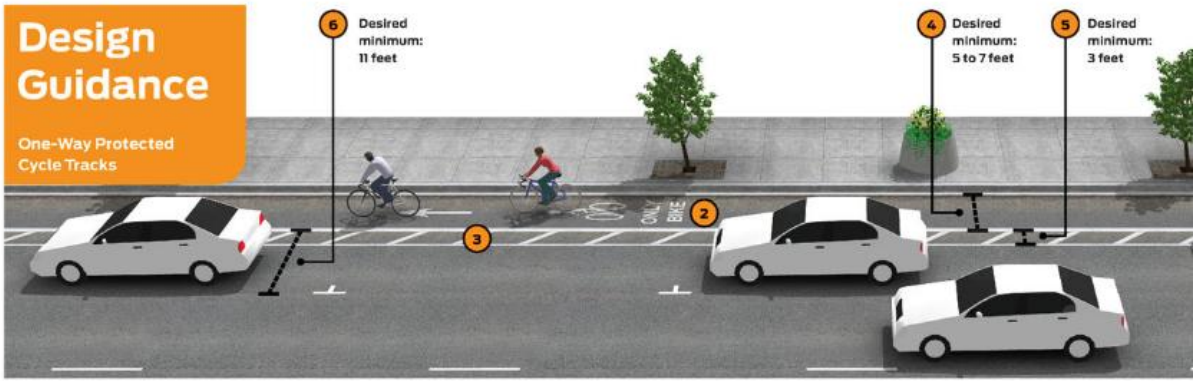
- Dedicates and protects space for bicyclists in order to improve perceived comfort and safety. Read More+
- Eliminates risk and fear of collisions with over-taking vehicles.
- Reduces risk of 'dooring' compared to a bike lane and eliminates the risk of a doored bicyclist being run over by a motor vehicle. Read More+
- Prevents double-parking, unlike a bike lane.
- Low implementation cost by making use of existing pavement and drainage and by using parking lane as a barrier.
- More attractive for bicyclists of all levels and ages. Read More+

NACTO Urban Bikeway Design Guide

- Design Guidance

Design Guidance

One-Way Protected Cycle Tracks



Required Features

1. A cycle track, like a bike lane, is a type of preferential lane as defined by the MUTCD.[19]

2. Bicycle lane word, symbol, and/or arrow markings (MUTCD Figure 9C-3) shall be placed at the beginning of a cycle track and at periodic intervals along the facility based on engineering judgment.

3. If pavement markings are used to separate motor vehicle parking lanes from the preferential bicycle lane, solid white lane line markings shall be used. Diagonal crosshatch markings may be placed in the neutral area for special emphasis. See MUTCD Section 3B.24. Raised medians or other barriers can also provide physical separation to the cycle track.

Recommended Features

4. The minimum desired width for a cycle track should be 5 feet. In areas with high bicyclist volumes or uphill sections, the minimum desired width should be 7 feet to allow for bicyclists passing each other.[20]

5. Three feet is the desired width for a parking buffer to allow for passenger loading and to prevent door collisions.[21]

6. When using a parking protected pavement marking buffer, desired parking lane and buffer combined width is 11 feet to discourage motor vehicle encroachment into the cycle track.

7. In the absence of a raised median or curb, the minimum desired with of the painted buffer is 3 ft. The buffer space should be used to locate bollards, planters, signs or other forms of physical protection.[22]

8. Driveways and minor street crossings are a unique challenge to cycle track design. A review of existing facilities and design practice has shown that the following guidance may improve safety at crossings of driveways and minor intersections:

- If the cycle track is parking protected, parking should be prohibited near the intersection to improve visibility. The desirable no-parking area is 30 feet from each side of the crossing.[23]
- For motor vehicles attempting to cross the cycle track from the side street or driveway, street and sidewalk furnishings and/or other features should accommodate a sight triangle of 20 feet to the cycle track from minor street crossings, and 10 feet from driveway crossing.
- Color, yield lines, and "Yield to Bikes" signage should be used to identify the conflict area and make it clear that the cycle track has priority over entering and exiting traffic.[24]
- Motor vehicle traffic crossing the cycle track should be constrained or channelized to make turns at sharp angles to reduce travel speed prior to the crossing.

9. Gutter seams, drainage inlets, and utility covers should be configured so as not to impede bicycle travel and to facilitate run-off.

10. Sidewalk curbs and furnishings should be used to prevent pedestrian use of the cycle zone.

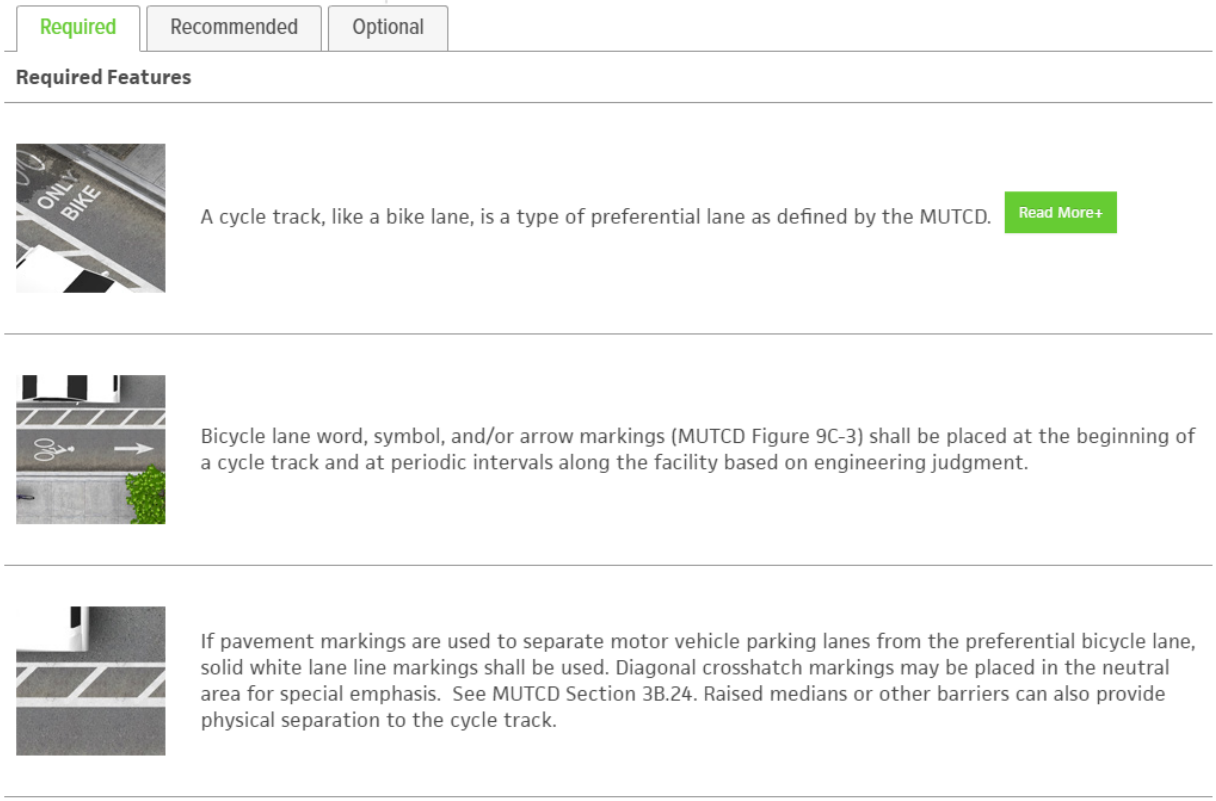
11. Cycle track width should be larger in locations where the gutter seam extends more than 12 inches from the curb.[25]

Optional Features

12. Tubular markers may be used to protect the cycle track from the adjacent travel lane. The color of the tubular markers shall be the same color as the pavement marking they supplement.[26]

NACTO Urban Bikeway Design Guide

- Required, Recommended, and Optional design elements *(one-way protected cycle track shown)*



NACTO Urban Bikeway Design Guide

- List of Implementation Examples *(one-way protected cycle track shown)*

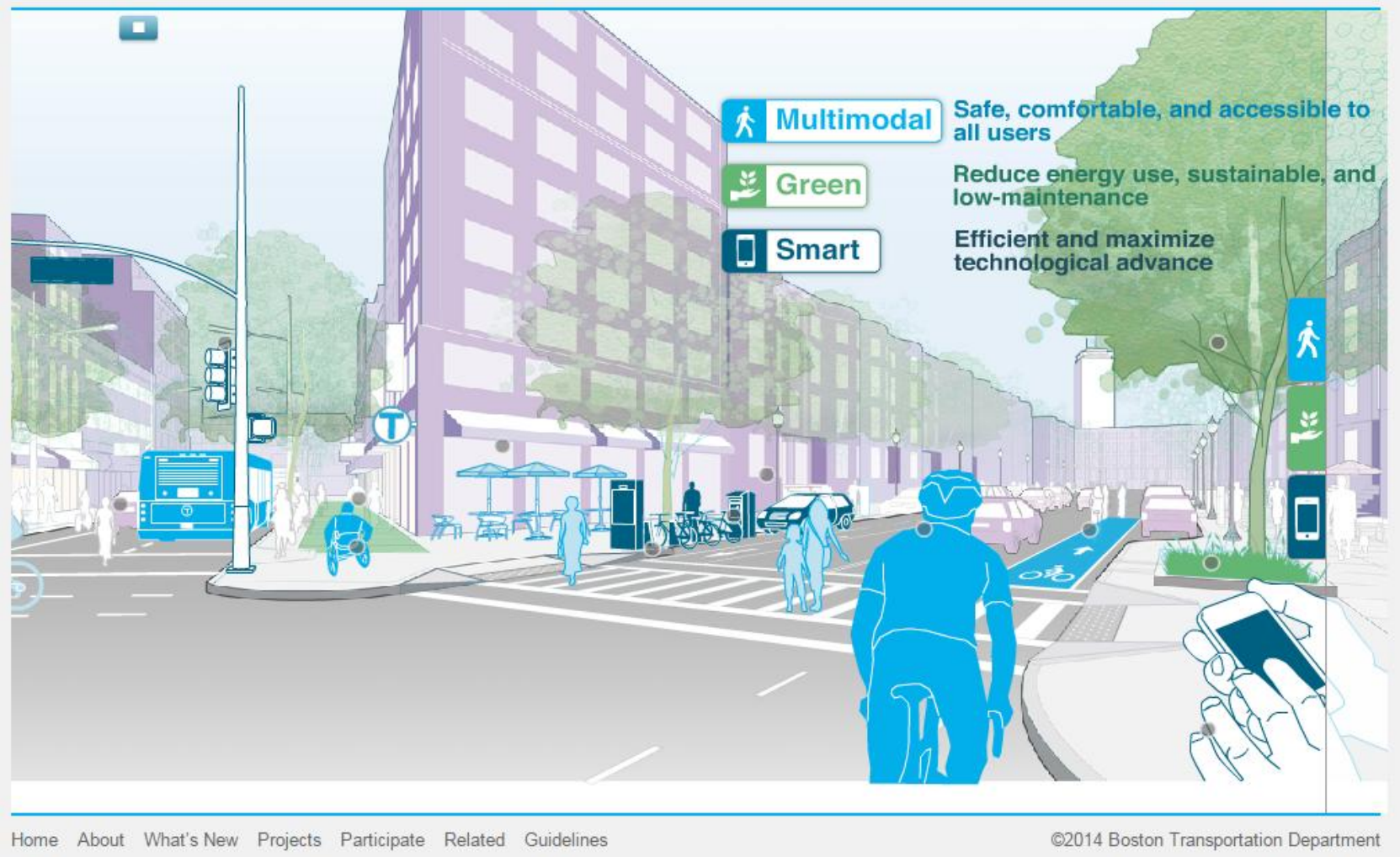
Treatment Adoption and Professional Consensus

- Commonly used in dozens of European bicycle friendly cities.
- Currently used in the following US cities:
  - Boulder, CO
  - Cambridge, MA
  - Chicago, IL
  - Long Beach, CA
  - Minneapolis, MN
  - Missoula, MT
  - New York, NY
  - Portland, OR
  - San Francisco, CA
  - St. Petersburg, FL
  - Washington, DC

NACTO Urban Bikeway Design Guide

- Summary
  - Helps cities create bicycling infrastructure that is safe and enjoyable
  - Provides state-of-the-practice examples
  - Includes innovative renderings
  - Provides dimensions for key elements
  - Provides three levels of guidance
    - Required
    - Recommended
    - Optional

Boston Complete Streets Design Guidelines



Boston Complete Streets Design Guidelines

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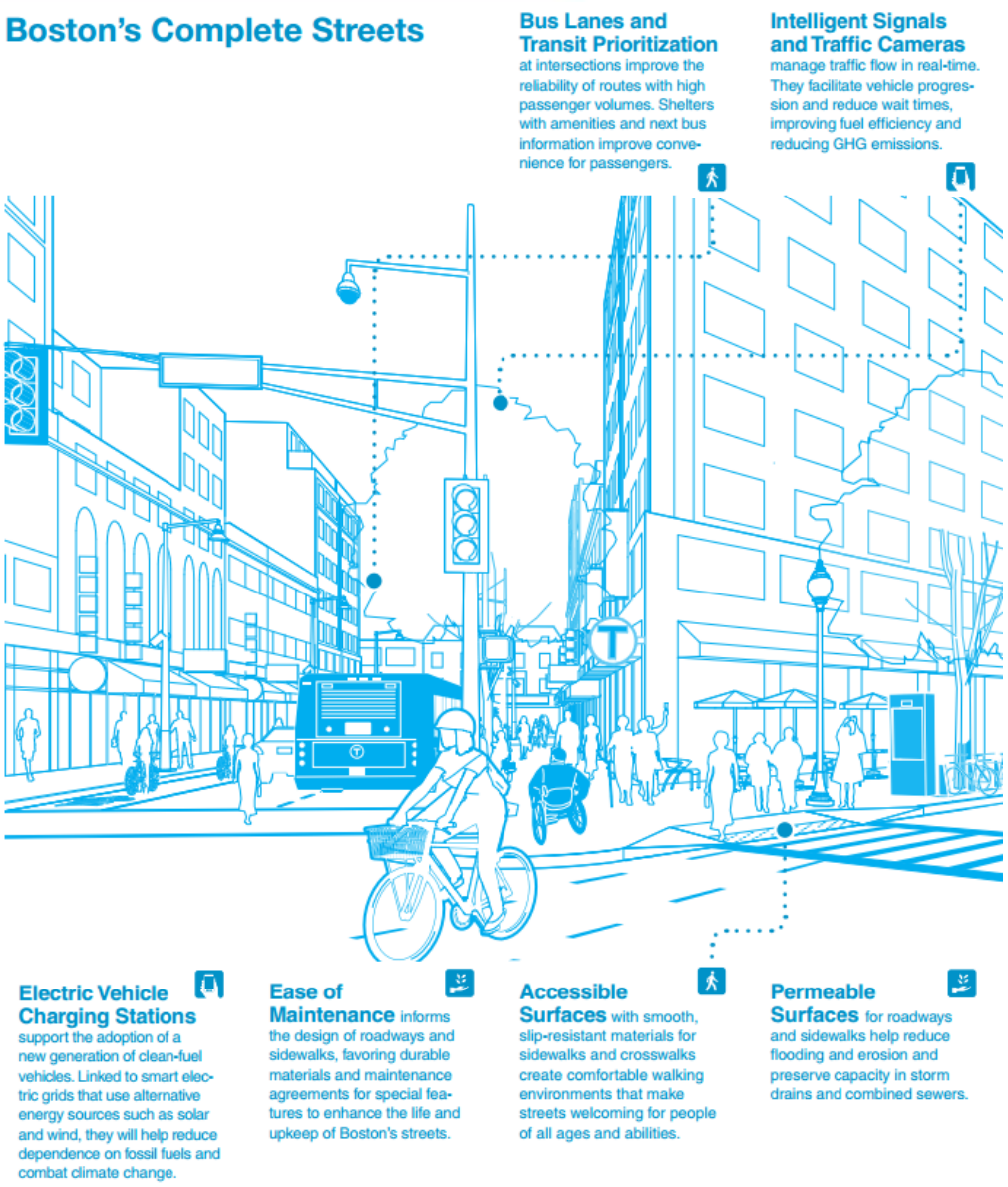
Vision



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Vision

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1

Street Types

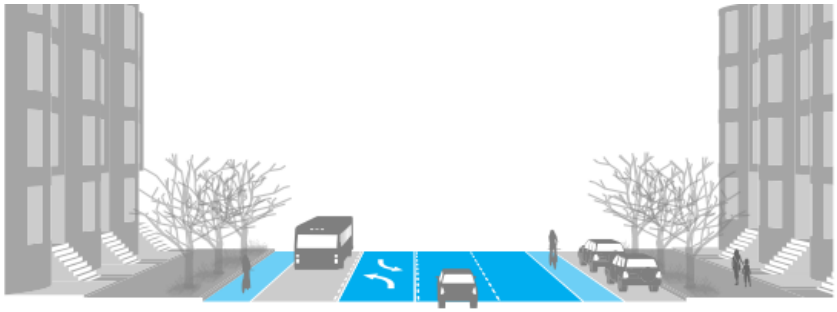
Boston's streets have developed their character over centuries of growth and evolution. Short, meandering streets in historic areas such as the North End and Highland Park cede to more generously scaled, 20th century tree-lined boulevards. Residential streets with narrow setbacks intersect linear connector roads, curvilinear parkways, and lively small-business districts. As the city continues to evolve, understanding how different streets interact with adjacent land uses and contexts is central to creating Complete Streets. This chapter defines new character and context-based Street Types to supplement the traditional functional classification system.

Street Types

Functional classification systems predominantly emphasize the operational characteristics for the mobility and capacity of motor vehicles.

Functional Classification System

- Arterials
- Collectors
- Locals



Complete Street Types help supplement functional classification by balancing operational capacity and mobility with the context and character of the street and surrounding neighborhood.

Boston's Street Types

- Downtown Commercial
- Downtown Mixed-Use
- Neighborhood Main
- Neighborhood Connector
- Neighborhood Residential
- Industrial
- Shared Street
- Parkway
- Boulevard

Street Types

- Example – Neighborhood Connector

Neighborhood Connector

Downtown Commercial
Downtown Mixed-use
Neighborhood Main Street
Neighborhood Connector
Neighborhood Residential
Industrial
Shared Streets
Parkways
Boulevards

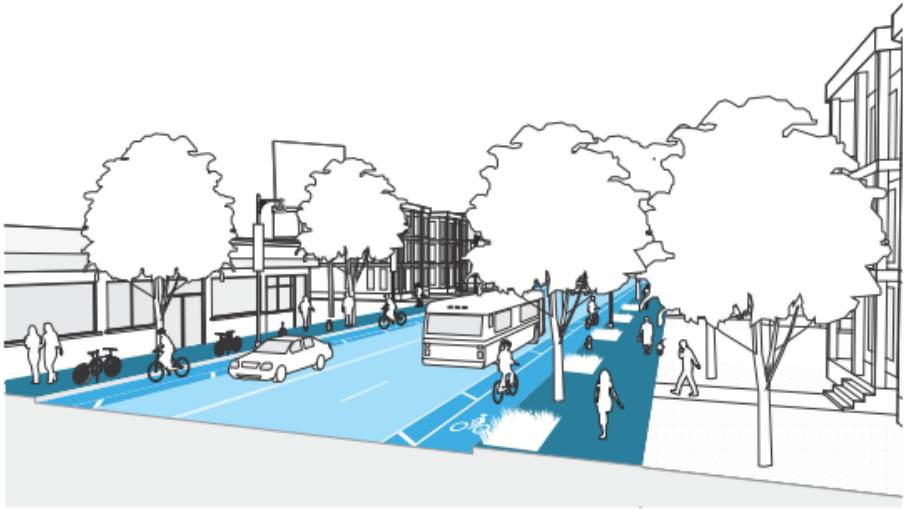
Overview

Neighborhood Connector Streets are through streets that traverse several neighborhoods and form the backbone of Boston's multimodal street network. They provide continuous walking and bicycling routes and accommodate major bus routes. While they are essential to the flow of people between neighborhoods, the needs of people passing through must be balanced with the needs of those who live and work along the street.

Neighborhood Connector Streets may be single or multi-lane streets. Land uses, speeds, and right-of-way widths can vary, and the street typology may change throughout the duration of the street. Design considerations include encouraging efficient movements of vehicle and transit traffic, continuous and comfortable bicycle facilities, wide sidewalks with sufficient buffers to motor vehicle traffic, and safe pedestrian crossings at intersections. Street lighting, tree plantings, street furniture, and other urban design elements should create a unifying identity for the entire street.

Example Streets

- Cummins Highway (Roslindale/Mattapan)
- Washington Street (South End/Roxbury/Jamaica Plain)
- Cambridge Street (Allston/Brighton)
- Centre Street (West Roxbury/Roslindale/Jamaica Plain)



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Sidewalks

Boston is known as a great walking city. Like many older cities, it was designed with the pedestrian in mind, with sidewalks and street trees along most of its streets; neighborhoods within walking distance of corner stores and commercial centers; and varied street fronts that provide interesting routes and inviting destinations. Sidewalk character is a key contributor to the identity of Boston's neighborhoods. As transit is within walking distance of virtually every place in the city, Boston is well suited for healthy, active transportation built around walking.

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Sidewalk Zones

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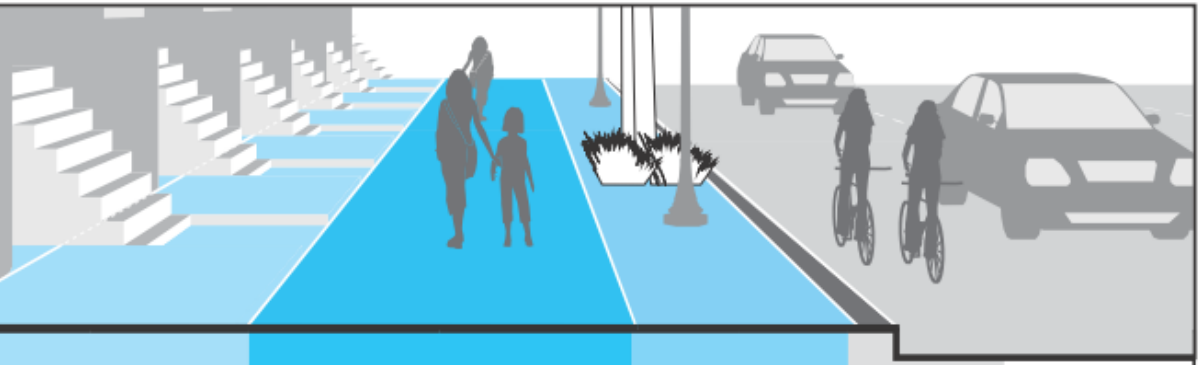
Preferred and Minimum Widths for Sidewalk Zones

The width and design of sidewalks will vary depending on street typology, functional classification, and demand. Below are the City of Boston's preferred and minimum widths for each Sidewalk Zone by Street Type.



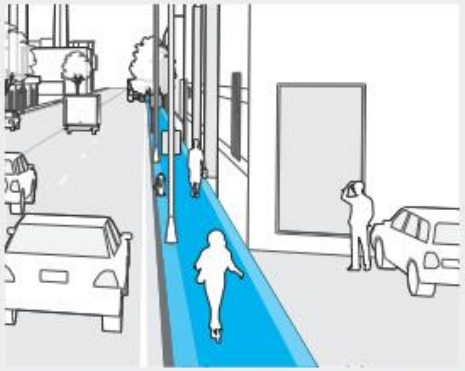
Street Type	Frontage Zone		Pedestrian Zone*		Greenscape/ Furnishing Zone		Curb Zone	Total Width	
	Preferred	Minimum	Preferred	Minimum	Preferred	Minimum		Preferred	Minimum
Downtown Commercial	2'	0'	12'	8'	6'	1'-6"	6"	20'-6"	10'
Downtown Mixed-Use	2'	0'	10'	8'	6'	1'-6"	6"	18'-6"	10'
Neighborhood Main	2'	0'	8'	5'	6'	1'-6"	6"	16'-6"	7'
Neighborhood Connector	2'	0'	8'	5' (4')*	5'	1'-6"	6"	15'-6"	7'
Neighborhood Residential	2'	0'	5'	5' (4')*	4'	1'-6"	6"	11'-6"	7'
Industrial Street	2'	0'	5'	5' (4')*	4'	1'-6"	6"	11'-6"	7'
Shared Street	2'	0'	Varies	5' (4')*	N/A	N/A	N/A	Varies	Varies
Parkway	N/A	N/A	6'	5'	10'	5'	6"	16'-6"	10'-6"
Boulevard	2'	0'	6'	5'	10'	5'	6"	18'-6"	11'-6"

Sidewalk Zones

- Sidewalk Examples by Boston's Street Types

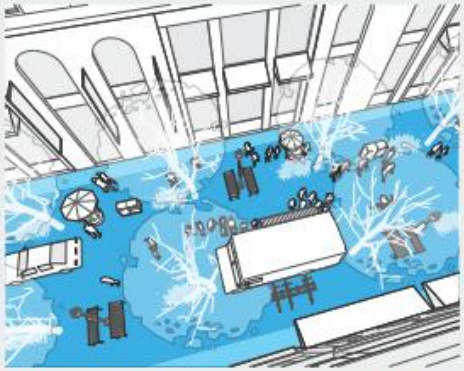
Industrial

The sidewalks in industrial districts should be utilitarian and uncluttered. Street furniture is mainly limited to street lighting and other essential elements. There may be significant opportunities to incorporate stormwater management strategies along the sidewalks. Street trees and plantings can help mitigate pollutants in the air and water via phytoremediation, as well as provide a buffer to traffic. Bollards are useful for protecting pedestrians where turning vehicles can pose a hazard. Loading docks and driveways that cross the sidewalk should be clearly delineated for pedestrian safety.



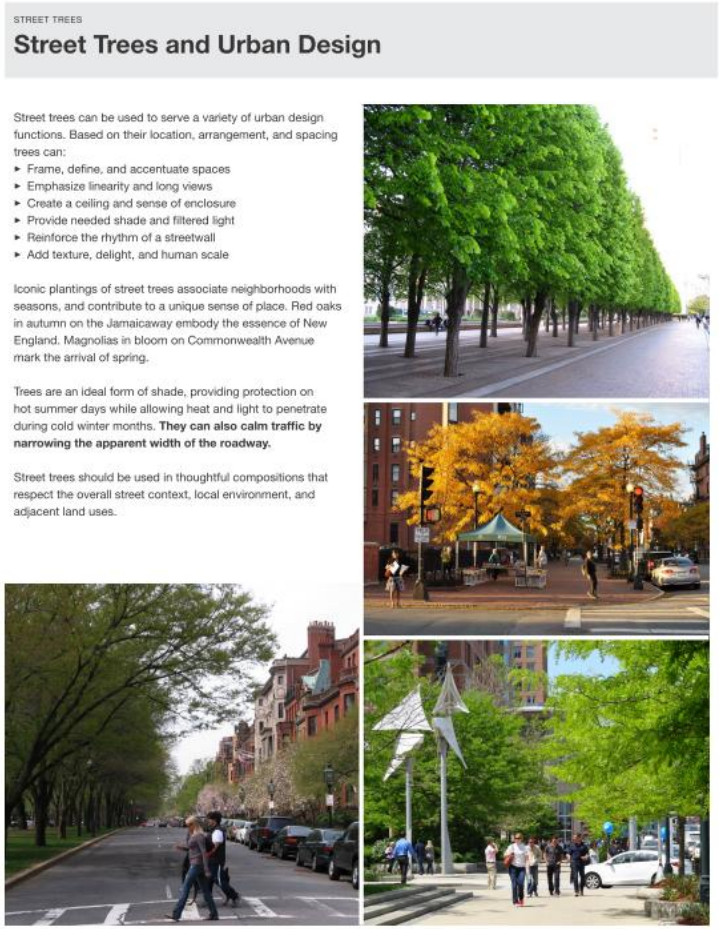
Shared Streets

Shared Streets are curbless, and the distinction between the zones of the sidewalk, as well as the sidewalk and roadway itself, are blurred. Cross Street in the North End is a recently constructed example. Frontage Zone uses such as cafés can extend from the building face towards the middle of the street and be framed by planters and railings. The creative design of street furniture, greenscape, and lighting can help channelize, direct, and slow vehicles by creating chicanes, parking, and loading zones. While the width of the Pedestrian Zone can vary along a Shared Street, there must be a continuous accessible path along the entire length of the roadway. Bollards are often used to protect the accessible pedestrian path, and subtle changes in materials can be used to differentiate zones.



Other Elements in Sidewalk Chapter

- Features to Activate Sidewalks
  - Vibrant Street Wall
  - Green Walls
  - Plazas
  - Sidewalk Cafes
  - Building Entrances
- Sidewalk Materials
  - Materials by Sidewalk Zones
  - Permeable Paving Materials
- Greenscape
  - Street Trees
  - Vegetated Stormwater Management
  - Soils Selection and Management



3

Roadways

Boston's network of roads has been built over centuries, with streets first designed for walking, horses, and carriages. Over time, as existing streets were re-purposed and new street grids were built to accommodate the city's growth, they became dominated by automobiles. This chapter covers roadway design in the space between curbs. It presents techniques to rebalance the travel-lane needs of different types of users—bicycles, automobiles, delivery trucks, and transit vehicles—within Boston's narrow rights-of-ways.

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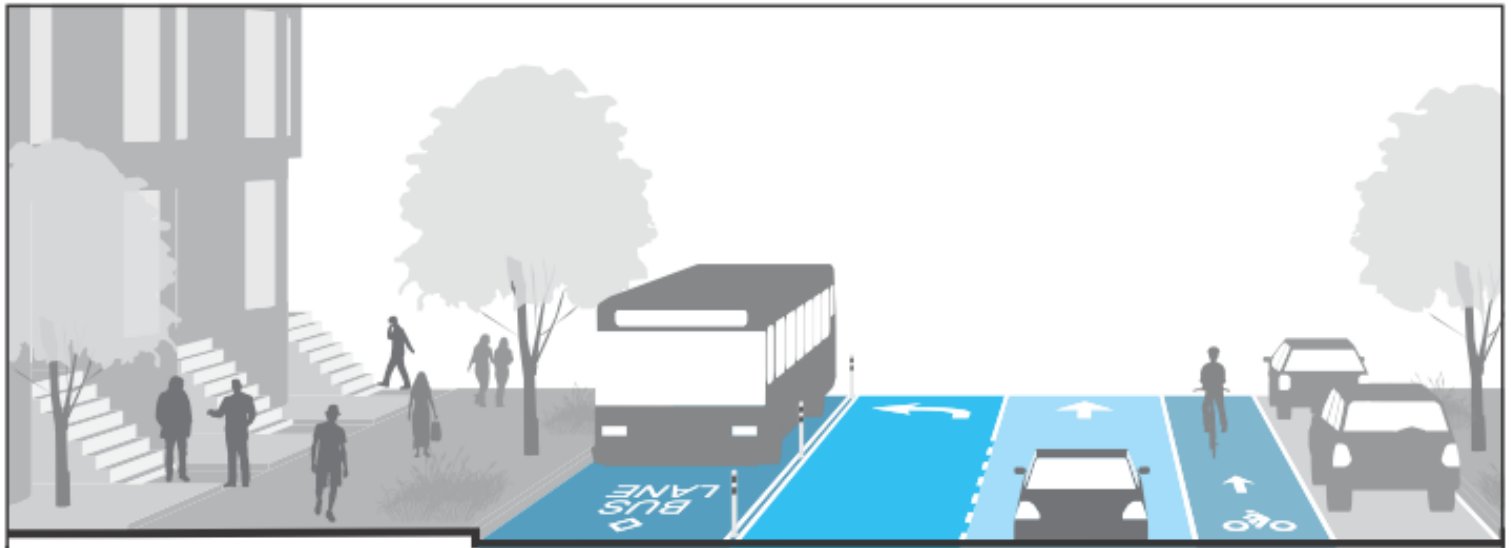
Minimum Widths for Roadway Lanes



Street Type	FHWA Classification	Bus Lane	Turn Lane	Travel Lane	Bicycle Lane	Parking Lane
Downtown Commercial Downtown Mixed-Use Neighborhood Main Neighborhood Connector	Arterial	11'	10'	10'	5'	7'
Neighborhood Residential Industrial Street	Collector	N/A	10'	10'	5'	7'
Shared Street Parkway Boulevard	Local	Local roadways are typically one to two travel lanes, with or without parking, and do not have pavement markings.				

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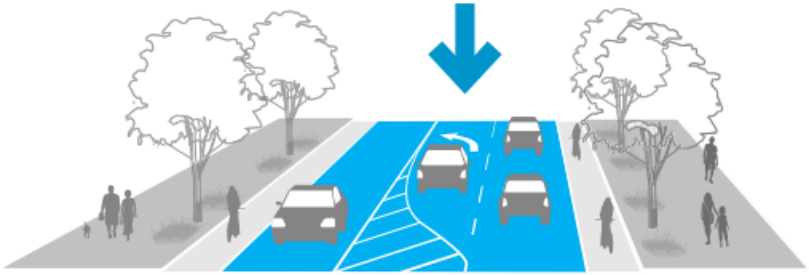
Determine if the street is a candidate for a:

1 Road Diet

A road diet is a reduction in overall roadway width.

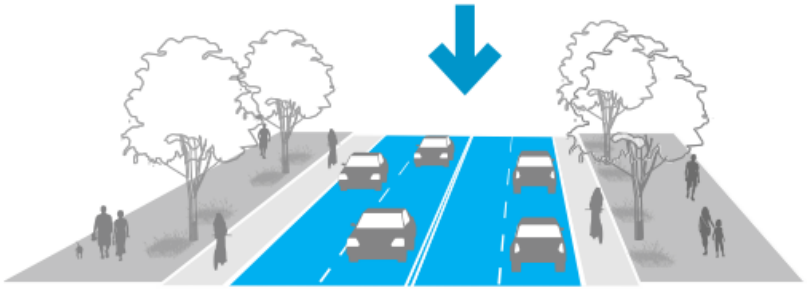
Remove Lanes



2 Lane Diet

A lane diet is a reduction in travel lane width.

Reduce Lane Widths



Design Features that Reduce Operating Speeds

DESIGN FEATURES THAT REDUCE OPERATING SPEEDS

Center Islands

Overview

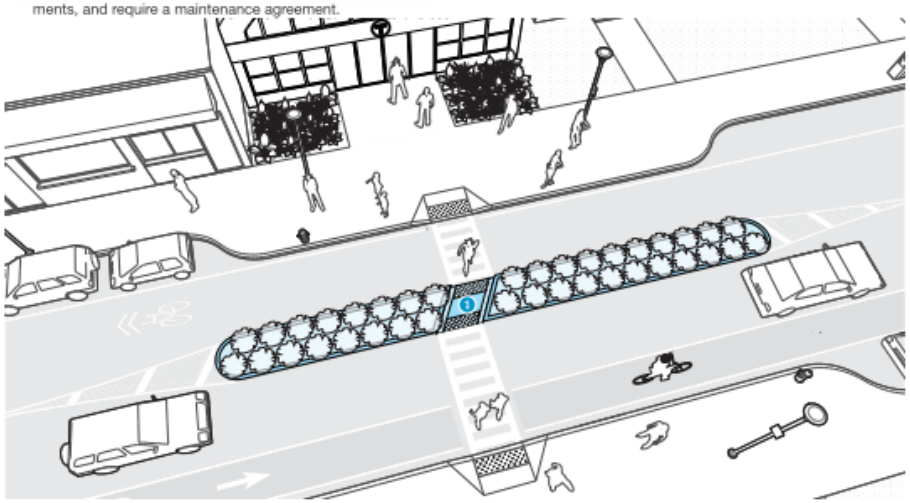
A center island can be used to narrow the roadway, reduce motor vehicle speeds, and improve pedestrian crossings. Center islands also provide opportunities to introduce green elements in the right-of-way, and can be used to absorb stormwater and reduce the heat island effect.

Use

- Center islands with crosswalks and pedestrian refuges improve pedestrian safety and access by reducing crossing distances and enabling pedestrians to cross roadways in two stages. Islands with crossings should be designed with a stagger, or a "z" pattern ❶, forcing pedestrians to face oncoming traffic before progressing through the second phase of the crossing. Center islands with crosswalks should meet all accessibility requirements.
- Center islands can reduce the risk of head-on collisions and limit left turn opportunities to desirable locations (e.g., signalized intersections).
- Center islands should be carefully designed to ensure proper drainage and maximize the potential for on-site stormwater retention and infiltration.
- Landscaped center islands are considered enhanced treatments, and require a maintenance agreement.

Considerations

- Sidewalks should not be reduced in width and bicycle lanes should not be eliminated in order to provide space or additional width for islands.
- Center islands can be combined with mid-block pedestrian crossings to reduce crossing distances. For more information see the Intersections Chapter, Crosswalk Markings at Uncontrolled Locations.
- Permeable surfaces, street trees, and low-growing (**less than 3'** at mature height including the height of the curb and earthwork), drought-resistant plant materials should be used wherever safe and feasible.
- Plants should be located as far from the curb as possible to prevent exposure to salt and sand.
- Center islands should be at least **6' wide** when used for low plantings, **10' wide** for columnar trees and **18' wide** for larger shade trees.
- Designs should consider snow removal operations. Center islands offer space to store snow in winter; however, visual cues should alert snow plow operators of the change in the roadway.



4

Intersections

Boston's neighborhoods are defined by its squares—Dudley, Hyde, Roslindale, Mattapan, Kenmore, and Maverick—where streets, sidewalks, and public spaces come together, and all modes of travel converge. Intersections at the heart of these squares take many forms, depending on street geometry, the character of buildings, and the presence of greenscape and art. Intersections can serve as neighborhood gateways and plazas. Ranging in scale and complexity, they can be simple or challenging to navigate. This chapter presents ways to balance the needs of all users while preserving a unique sense of place at Boston's intersections.

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Intersection Design Principles

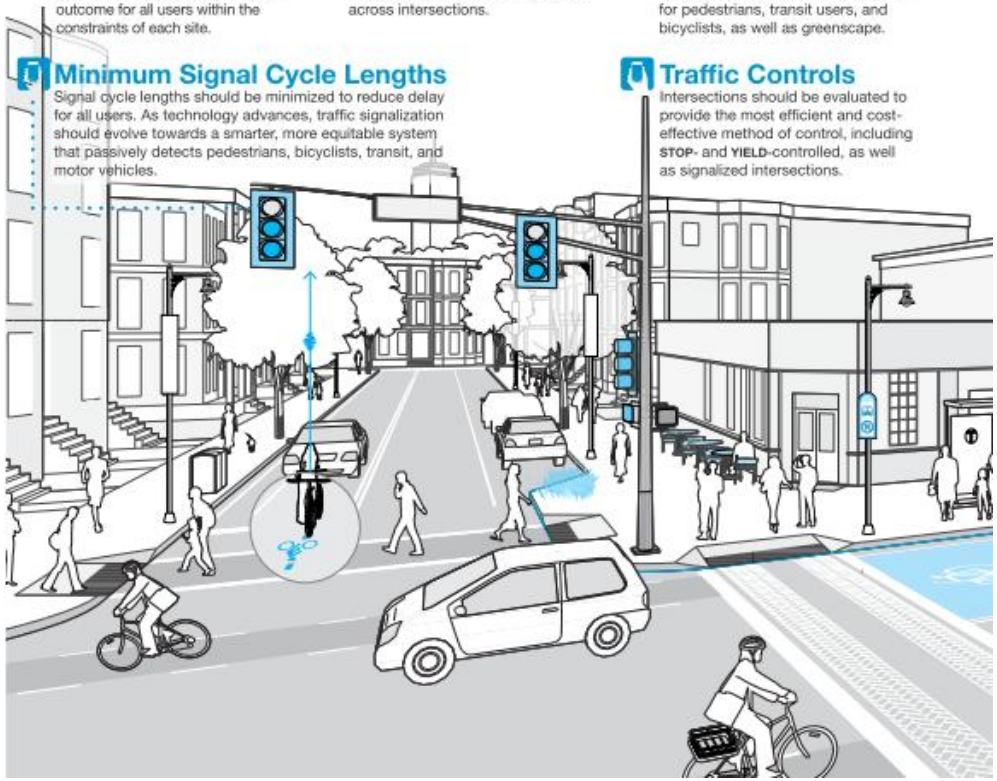
Accessible for All
Universal accessibility design principles should inform all aspects of intersection design, ranging from geometry to signal timing with a commitment to achieving the best outcome for all users within the constraints of each site.

Ease of Maintenance
Intersection materials should be long-lasting and sustainable, requiring a low amount of maintenance. Pavers are not allowed in crosswalks, and a clear accessible path should be provided across intersections.

Reclaiming Space
Intersections that contain wide, undefined areas of pavement not necessary for the efficient movement of motor vehicles provide opportunities to reclaim street space for pedestrians, transit users, and bicyclists, as well as greenscape.

Minimum Signal Cycle Lengths
Signal cycle lengths should be minimized to reduce delay for all users. As technology advances, traffic signalization should evolve towards a smarter, more equitable system that passively detects pedestrians, bicyclists, transit, and motor vehicles.

Traffic Controls
Intersections should be evaluated to provide the most efficient and cost-effective method of control, including **STOP**- and **YIELD**-controlled, as well as signalized intersections.



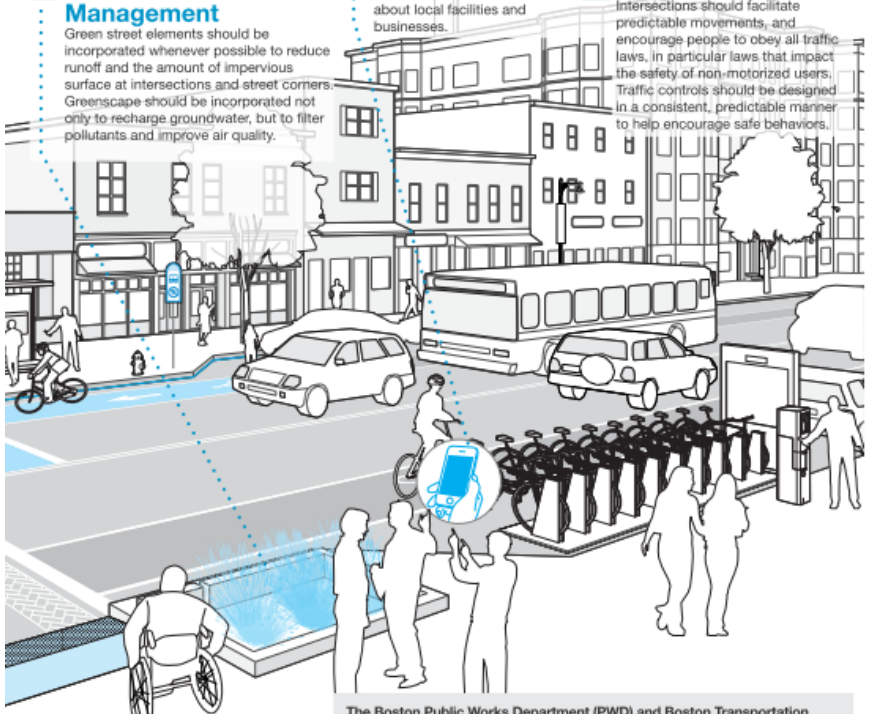
Emissions Reductions
Coordinated signal timing can reduce energy consumption and emissions and should be considered in every project, but should not cause excessive delay to environmentally-friendly modes of travel such as walking and bicycling.

Stormwater Management
Green street elements should be incorporated whenever possible to reduce runoff and the amount of impervious surface at intersections and street corners. Greenscape should be incorporated not only to recharge groundwater, but to filter pollutants and improve air quality.

Smart Tags
"Tags" are an evolving technology that provide information to people via mobile devices with internet access, which are particularly useful for people walking or using transit. Designs should consider including tags to provide way-finding information, as well as details about local facilities and businesses.

All-Weather Access
Intersections should function during all weather conditions including rain and snow. Designs should prevent ponding of precipitation at ramps, and provide storage space for snow during winter.

Obeying the Law
Intersections should facilitate predictable movements, and encourage people to obey all traffic laws, in particular laws that impact the safety of non-motorized users. Traffic controls should be designed in a consistent, predictable manner to help encourage safe behaviors.



Sensors
Opportunities should be explored to install sensors to monitor and study operations, traffic conditions, modal counts, and air-quality to improve efficiency.

The Boston Public Works Department (PWD) and Boston Transportation Department (BTD) are responsible for approving all intersection designs. The Public Improvement Commission (PIC) must approve all changes made to city-owned right-of-ways. Intersection designs may also require coordination with the Boston Fire Department, Emergency Medical Services (EMS), and the Mayor's Commission for Persons with Disabilities.

User Experiences

MULTIMODAL INTERSECTIONS

Transit User Experience

The primary needs of transit users at intersections include:

Safety

Good pedestrian and bicycle accommodations (see previous sections)

Less exposure to conflicts:

- Bus bulbs (Curb extensions at bus stops)
- Transit-only lanes
- Far-side bus stops

Accessible transit stops:

- ADA compliant landing zones at all doors
- Appropriate sidewalk widths for pedestrian volumes
- Well-lit transit stops

Convenience

Connections to other modes:

- Good pedestrian and bicycle accommodations
- Bicycle share stations
- Wayfinding signage

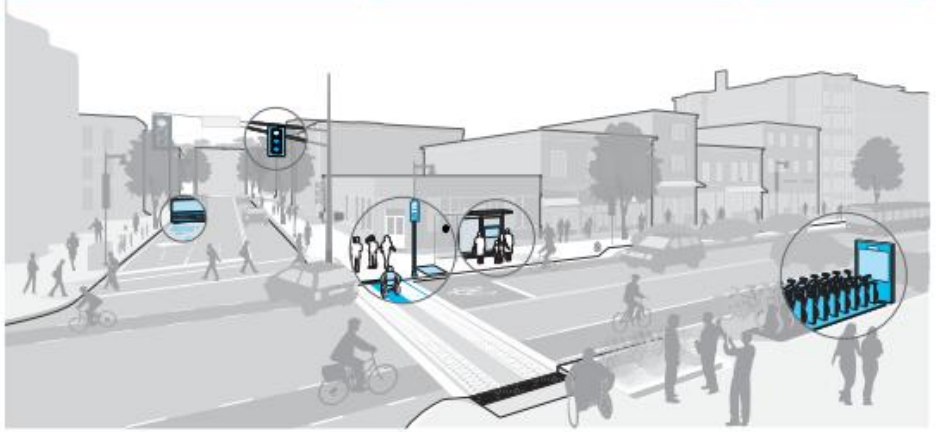
Comfortable transit stop locations:

- Transit shelters
- Recycling and trash receptacles
- Route information
- Storage space for snow during winter

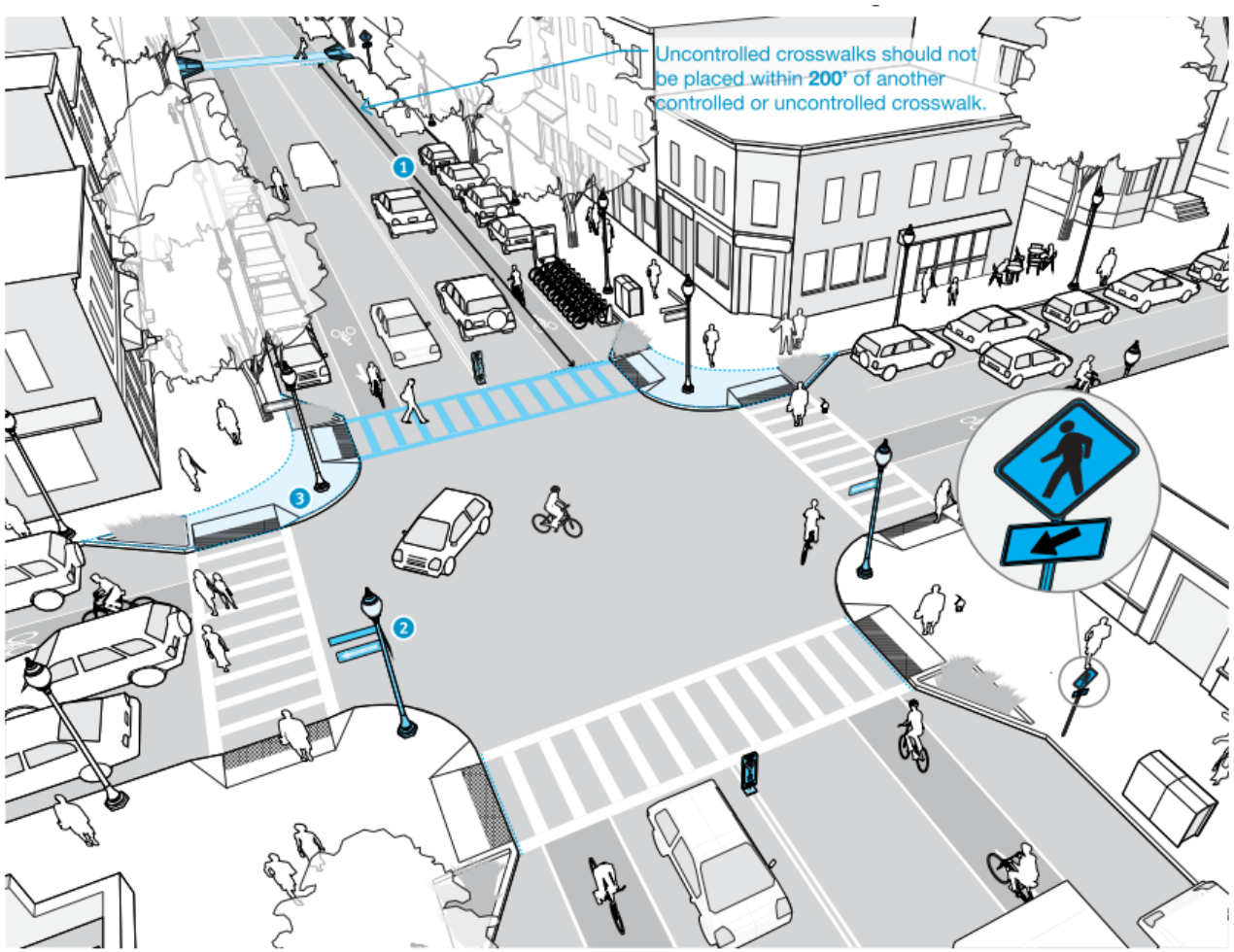
Minimal Delay

Minimal delay in service:

- Frequent headways
- Signal priority
- Queue jump lanes
- Off-bus fare collection



Uncontrolled Location Crosswalks

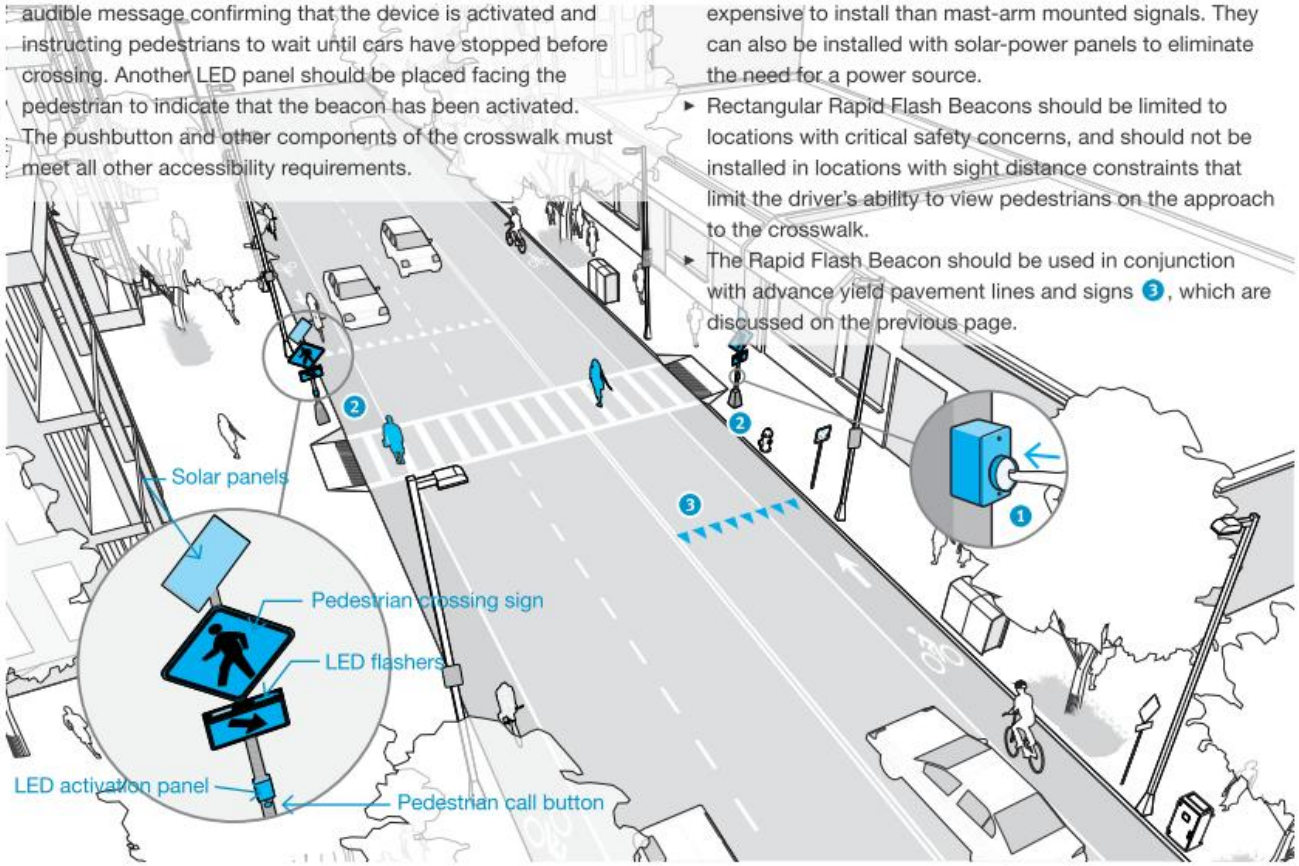


Rapid Flash Beacons

the presence of a pedestrian crossing sign. The light-emitting diode (LED) flash is a "wig-wag" flickering pattern at a rate of 190 flashes per minute. The beacons are activated by a pedestrian call button 1. The installation should include an audible message confirming that the device is activated and instructing pedestrians to wait until cars have stopped before crossing. Another LED panel should be placed facing the pedestrian to indicate that the beacon has been activated. The pushbutton and other components of the crosswalk must meet all other accessibility requirements.

Considerations

- Rectangular Rapid Flash Beacons are considerably less expensive to install than mast-arm mounted signals. They can also be installed with solar-power panels to eliminate the need for a power source.
- Rectangular Rapid Flash Beacons should be limited to locations with critical safety concerns, and should not be installed in locations with sight distance constraints that limit the driver's ability to view pedestrians on the approach to the crosswalk.
- The Rapid Flash Beacon should be used in conjunction with advance yield pavement lines and signs 3, which are discussed on the previous page.



5

Smart Curbsides

Curbside space on Boston's streets is a limited and valuable commodity. Passenger cars, delivery vehicles, and buses compete for limited curb space to access shops, restaurants, housing, offices, and community facilities. And, more competition is on the way. As the City of Boston pursues its ambitious goal of reducing greenhouse gas emissions, it is encouraging the use of environmentally friendly electric vehicles, bicycle and car-share systems, and is accommodating the parking needs of these vehicles on its streets. Smart and efficient management of curbs and the use of web-based, on-the-go information technology can help Boston address this diversity of demand on its curbside space equitably.

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Smart Curbside Principles

Curb Space for All
The use of curbside space should be distributed equitably to support the needs of all users, and should encourage alternative modes of transportation such as bicycling, scooters, and electric vehicles.

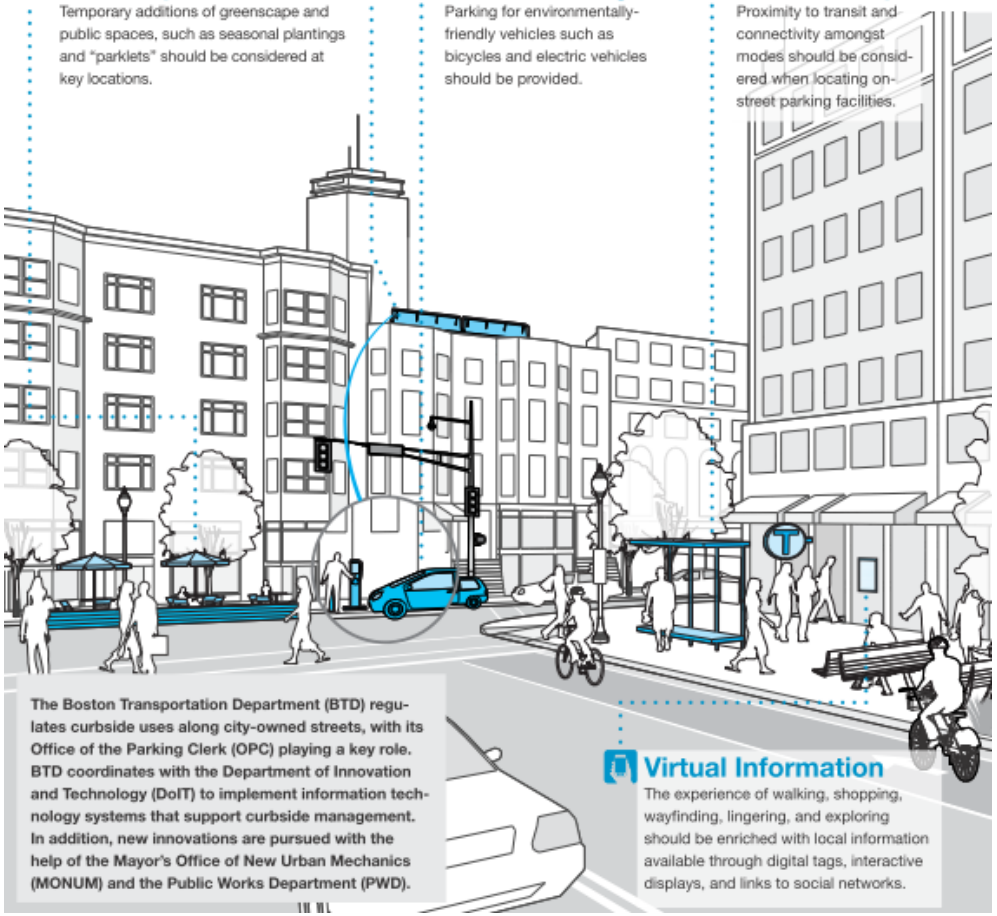
Clean Energy
Electric grids that power curbsides and vehicle charging should be linked with clean, renewable energy sources, particularly solar and wind.

Variable Pricing
Demand responsive on- and off-street parking pricing should be considered.

Green Space
Temporary additions of greenscape and public spaces, such as seasonal plantings and "parklets" should be considered at key locations.

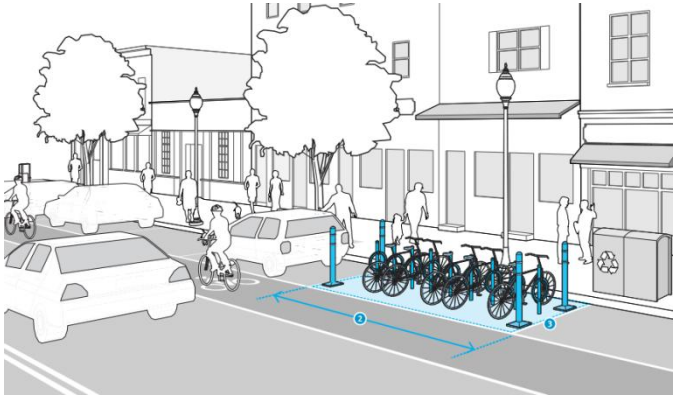
Green Parking
Parking for environmentally-friendly vehicles such as bicycles and electric vehicles should be provided.

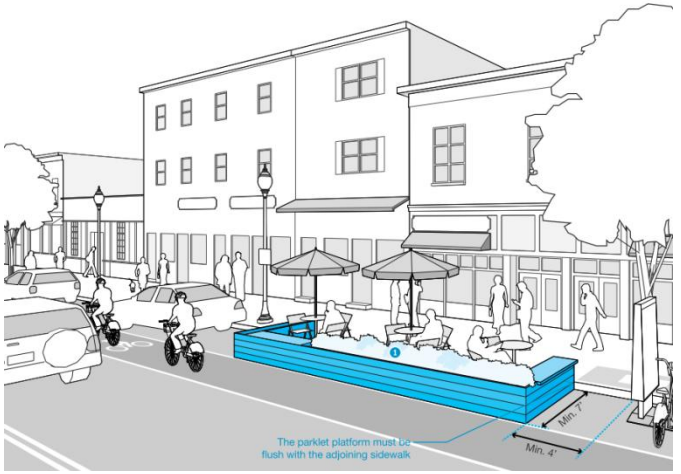
Connectivity
Proximity to transit and connectivity amongst modes should be considered when locating on-street parking facilities.



The Boston Transportation Department (BTD) regulates curbside uses along city-owned streets, with its Office of the Parking Clerk (OPC) playing a key role. BTD coordinates with the Department of Innovation and Technology (DoIT) to implement information technology systems that support curbside management. In addition, new innovations are pursued with the help of the Mayor's Office of New Urban Mechanics (MONUM) and the Public Works Department (PWD).

Virtual Information
The experience of walking, shopping, wayfinding, lingering, and exploring should be enriched with local information available through digital tags, interactive displays, and links to social networks.





6

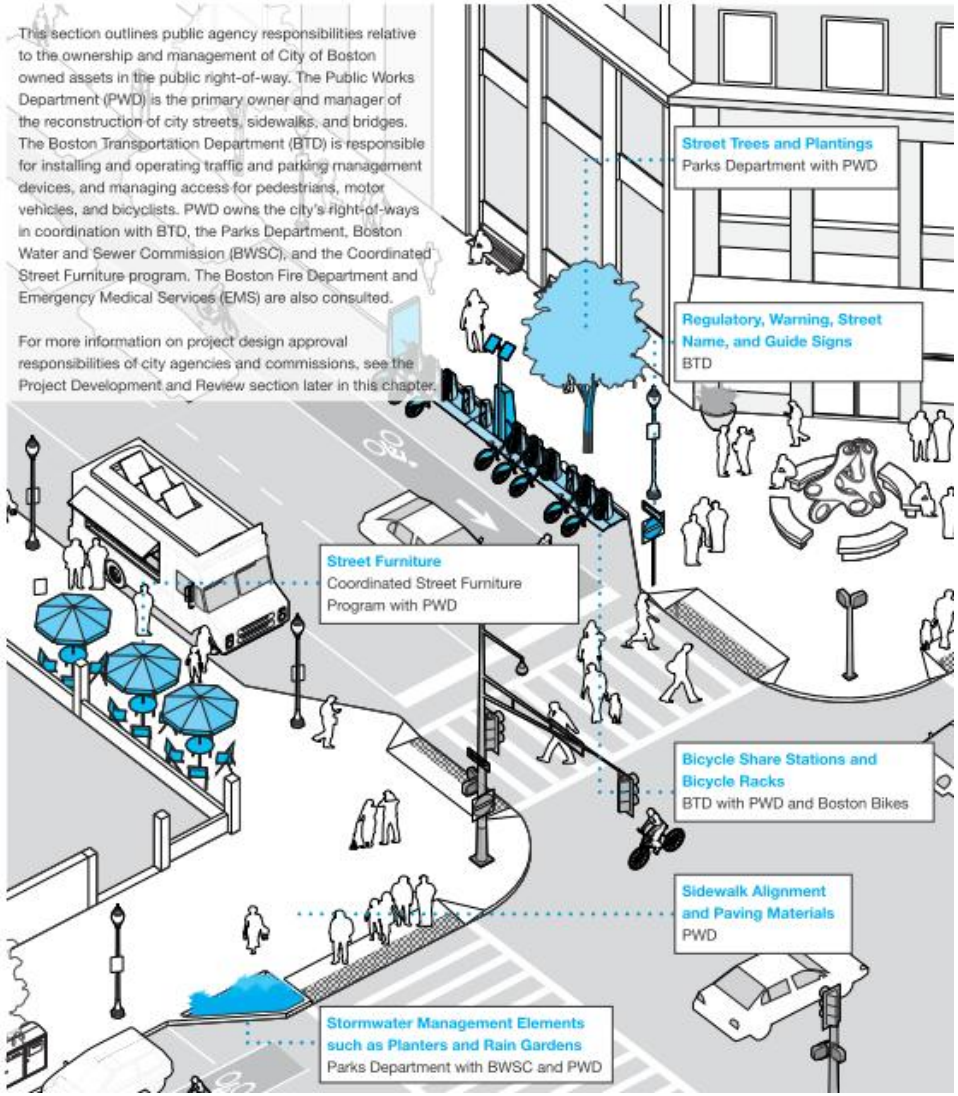
Implementation

Roadway and sidewalk design projects in Boston are informed by the constraints and opportunities of working in a city with a mix of historic and modern construction, multiple and overlapping jurisdictions, and a commitment to meaningful community engagement. In recent years, the City has focused on sustainability and maintenanability in all new construction. Efforts to efficiently maintain Boston's vast network of streets, foster community-initiated projects, and create effective partnerships with all stakeholders have been critical to the success of recent street redesign projects in Boston. This chapter identifies the fiduciary responsibilities of City departments, followed by a step-by-step description of the project development process.

Public Agency Fiduciary Responsibilities

This section outlines public agency responsibilities relative to the ownership and management of City of Boston owned assets in the public right-of-way. The Public Works Department (PWD) is the primary owner and manager of the reconstruction of city streets, sidewalks, and bridges. The Boston Transportation Department (BTD) is responsible for installing and operating traffic and parking management devices, and managing access for pedestrians, motor vehicles, and bicyclists. PWD owns the city's right-of-ways in coordination with BTD, the Parks Department, Boston Water and Sewer Commission (BWSC), and the Coordinated Street Furniture program. The Boston Fire Department and Emergency Medical Services (EMS) are also consulted.

For more information on project design approval responsibilities of city agencies and commissions, see the Project Development and Review section later in this chapter.



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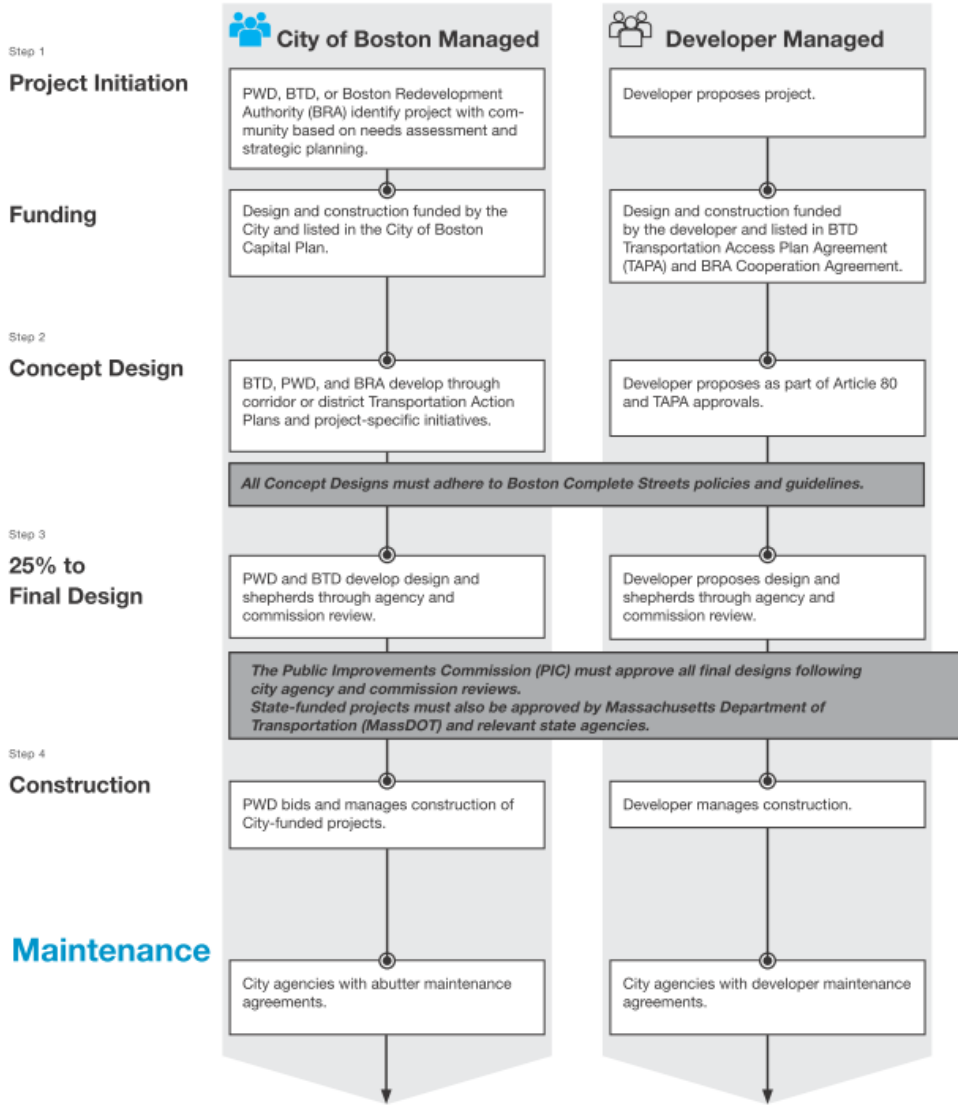
Project Development and Review Process



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Design Guidelines Presented to Date

- Broward Complete Streets Guidelines
- FDOT Plans Preparation Manual (PPM)
- FDOT Greenbook
- Chicago Complete Streets Guidelines
- NACTO Urban Street Design Guide
- NACTO Urban Bikeway Design Guide
- Boston Complete Streets Design Guidelines

Next Steps