

CITY OF PORTSMOUTH

COMPLETE STREETS DESIGN GUIDELINES



WHAT ARE COMPLETE STREETS?

“Streets and roadways in the City of Portsmouth will be convenient, safe and accessible for all transportation users, including pedestrians, bicyclists, transit vehicles and riders, children, the elderly, and people with disabilities.”

- City of Portsmouth Complete Streets Policy (2013)

Introduction

“Complete Streets” means streets that are designed and operated to enable safe access for all users, so that pedestrians, bicyclists, motorists, and public transportation users of all ages and abilities are able to safely move along and across all public streets.

These guidelines are intended for use by the City of Portsmouth, private developers and residents as a reference for how to accommodate all users on existing and future city streets. Each street in the city is categorized along a spectrum of complete street classes, each with its own user priorities, specifications, and design options.

The application of complete streets won't happen on all streets immediately. Complete streets principles will be applied on all new City projects and privately funded developments, and incrementally on existing streets through a series of small improvements and activities over time.

POLICY BACKGROUND

A **City of Portsmouth 2005 Master Plan** objective is to “ensure that all transportation projects in Portsmouth provide for full consideration of all modes (automobile, truck, bicycle, pedestrian, transit) in their design, as appropriate.”

In 2013, the City of Portsmouth advanced this objective, by adopting a **Complete Streets Policy** (Resolution 2013-01), with the bold vision: “Streets and roadways in the City of Portsmouth will be convenient, safe and accessible for all transportation users, including pedestrians, bicyclists, transit vehicles and riders, children, the elderly, and people with disabilities.”

The **2014 Portsmouth Bicycle and Pedestrian Plan** built upon this vision, mapping pedestrian and bicycle priority network connections, and included a toolkit of design solutions to provide accommodations for all users.

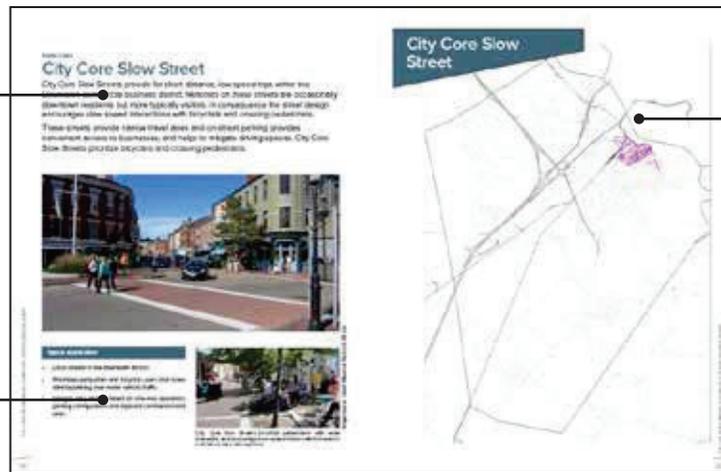
These **2017 Complete Streets Guidelines** take the vision further, formalizing a classification scheme, identification of design options, and articulation of user needs for every street in the City of Portsmouth.

How to Use This Guide

The City of Portsmouth Complete Street Guidelines present the fundamental design elements and dimensions for creating a complete street. Each street classification is presented in a standard layout, for easy access to critical information. Refer to the annotated pages below to understand what details are provided.

Street Classification and Description

A photo and description of how the street fits into the City of Portsmouth transportation and land use context.



Street Classification Map

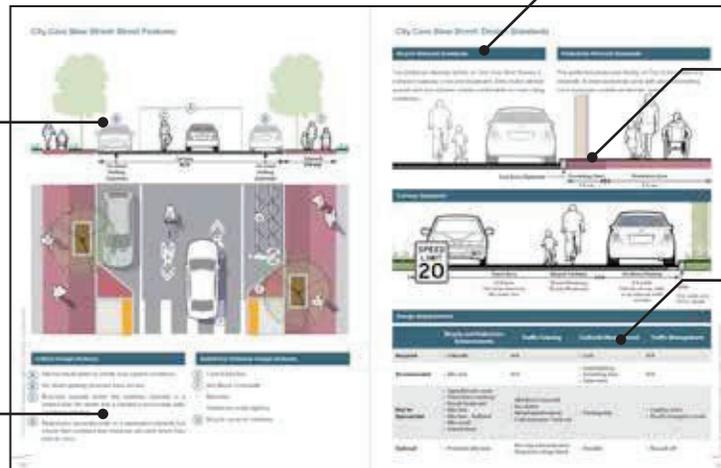
A mapped identification of which streets in the city fit the classification.

Typical Application

Key attributes of where the street classification is most appropriate

Typical Cross Section

A graphic representation of a potential version of the street type. Even within classifications, street layouts may vary.



Pedestrian/Bicycle Network

Standards related to meeting bicycle and pedestrian travel needs.

Cartway Standards

Standards related to the paved cartway, including recommended operating speed.

Street Features

Specific street features which may be required for a certain street type, a high priority, appropriate in limited circumstances, not required, or not at all appropriate for each street classification/typology.

Design Features

A list of design features applied on this street class, some of which are identified on the illustration above.

Terminology and Street Elements

The City of Portsmouth Complete Street Guidelines are built on local and national guidelines, and apply standard traffic engineering tools and designs. Key street features recommended in these guidelines are described below. For more specific details about the tools, facilities and design elements referred within, refer to the **2014 Portsmouth Bicycle and Pedestrian Plan**, the **2012 AASHTO Guide for the Development of Bicycle Facilities**, the **2004 AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities**, and the **2012 NACTO Urban Bikeway Design Guide**.

Design Element	Description
Bicycle Boulevard	A low-speed, low volume roadway intended for use by bicyclists. These streets may include traffic calming and access restrictions to maintain a bicycle compatible environment.
Bicycle Corral	An array of bicycle racks, located within an on-street parking space.
Bicycle Rack	A durable, secured fixture, used to lock bicycles to for short-term parking
Bike Lane	A painted travel lane for the exclusive use of bicyclists.
Buffered Bike Lane	A bike lane with an adjacent painted buffer, providing additional space between bicyclists and motor vehicles.
Bus pull-off	A bus stop located to allow transit vehicles to fully exit moving travel lanes when loading and unloading passengers.
Cartway	The paved roadway surface, from roadway edge or curb to the opposite roadway edge or curb.
Chicanes	A series of curb extensions which creates horizontal deflection of motor vehicles to encourage motorists to maintain a desired slow speed.
Curb extension / bulb out	An extension of the sidewalk into an on-street parking lane, intended to expand pedestrian space, reduce crossing distances, and improve visibility of pedestrians.
Mid-Block Crosswalk	A marked crosswalk located away from an intersection.
Pedestrian Refuge Island	A median island in the center of the roadway to offer pedestrians a place to stop. These reduce crossing distances for pedestrians by allowing them to cross each travel direction independently.
Raised speed reducer	A device that creates vertical deflection of motor vehicles to encourage motorists to maintain a desired slow speed.
Separated Bike Lane	A wide bike lane, physically separated from motor vehicles with a vertical element such as a curb.
Shared Lane Markings	A roadway marking used on roads without bike lanes to indicate the presence and desired use by bicyclists.
Shared Street	A low-speed, low volume street where bicyclists, pedestrians and motorists all operate within the cartway, with no separate bike lanes or sidewalks.
Sidepath	A shared use path traveling adjacent to a roadway for use by bicyclists and pedestrians.
Sidewalk Furnishing Zone	The space between the cartway and where pedestrians walk. Signs, utilities and mailboxes are placed in the furnishing zone. The furnishing zone may be landscaped with plantings or paved in areas with increased pedestrian activity.
Yield Street	A low-speed, low-volume street where the cartway is too narrow for approaching motor vehicles to pass each other without slowing or yielding.



CITY OF PORTSMOUTH

COMPLETE STREET TYPES

The City of Portsmouth streets are grouped into seven distinct street classifications. Each street class prioritizes different street users to different degrees, reflecting the surrounding land use context.

Image Source: Harvey Barrison via Flickr (CC BY 2.0)

Portsmouth's Seven Complete Streets Classifications:

Neighborhood Slow Street

City Core Slow Street

Neighborhood Connector

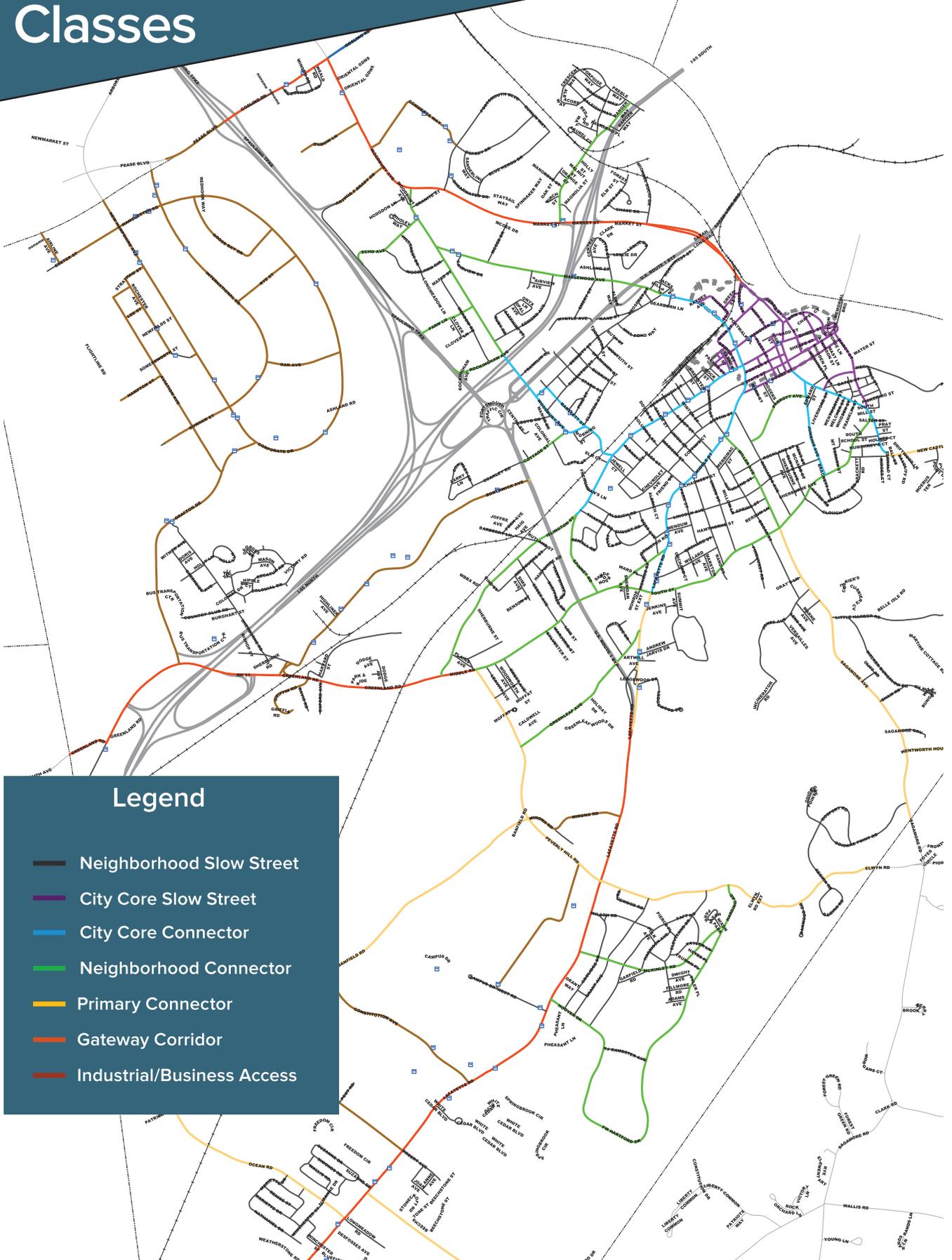
City Core Connector

Primary Connector

Gateway Corridor

Industrial/Business Access

Complete Street Classes



Legend

- Neighborhood Slow Street
- City Core Slow Street
- City Core Connector
- Neighborhood Connector
- Primary Connector
- Gateway Corridor
- Industrial/Business Access

Street Class:

Neighborhood Slow Street

Neighborhood Slow Streets provide access to residential houses. They are used for short distance, low speed trips in and out of neighborhoods. Motorists on these streets tend to be residents or visitors, and the street design encourages slow speed interactions with bicyclists and crossing pedestrians. On-street parking provides convenient access, and further slows driving speeds.

These streets provide one or two travel lanes, depending on width. Streets with one travel lane can facilitate either one-way traffic or be designated as a two-way “yield street” where opposite direction vehicles share the same lane and negotiate space while crossing opposing vehicle paths. Neighborhood slow streets are not intended for through-traffic, and may make use of traffic calming measures to discourage through motor vehicle traffic and reduce speeds to create a comfortable environment for walking and bicycling.



Typical Application

- Local streets in residential neighborhoods.
- Prioritizes pedestrian and bicyclist users.
- Sensitive to historic, or unique local characteristics.

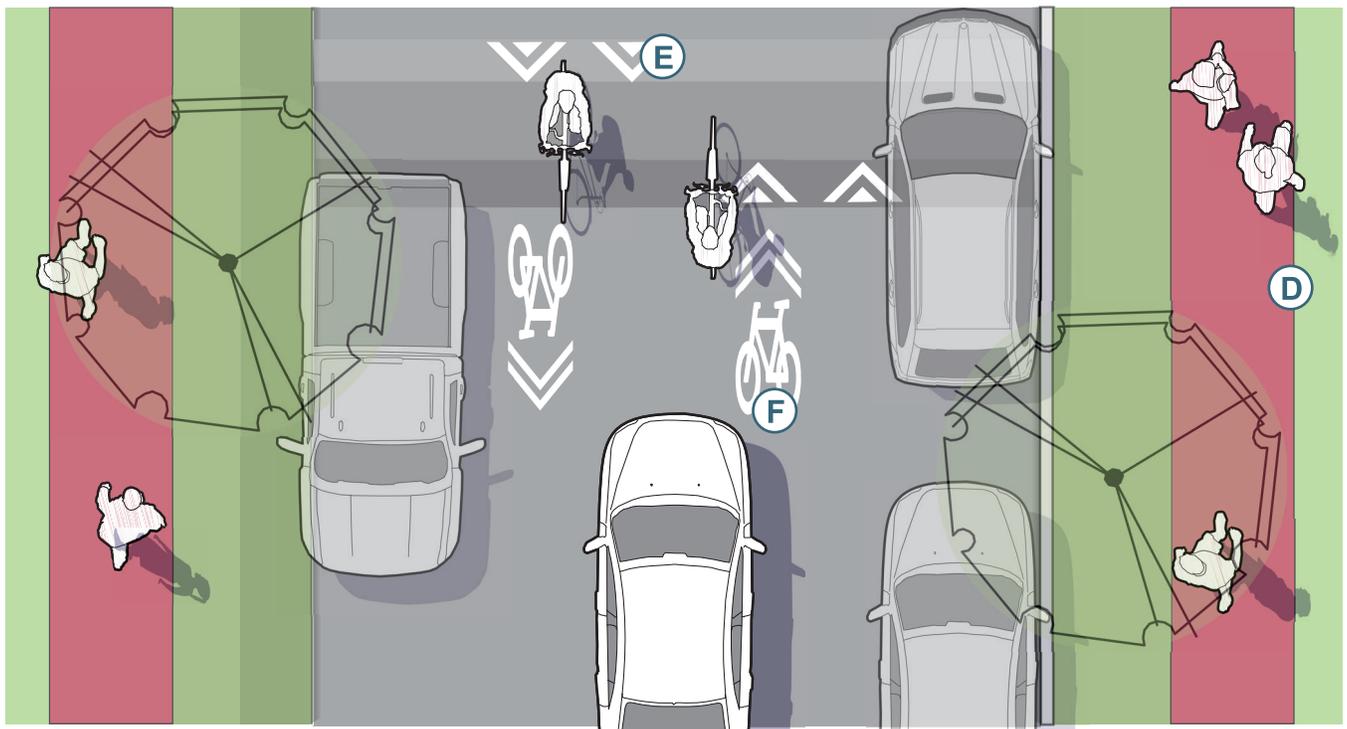
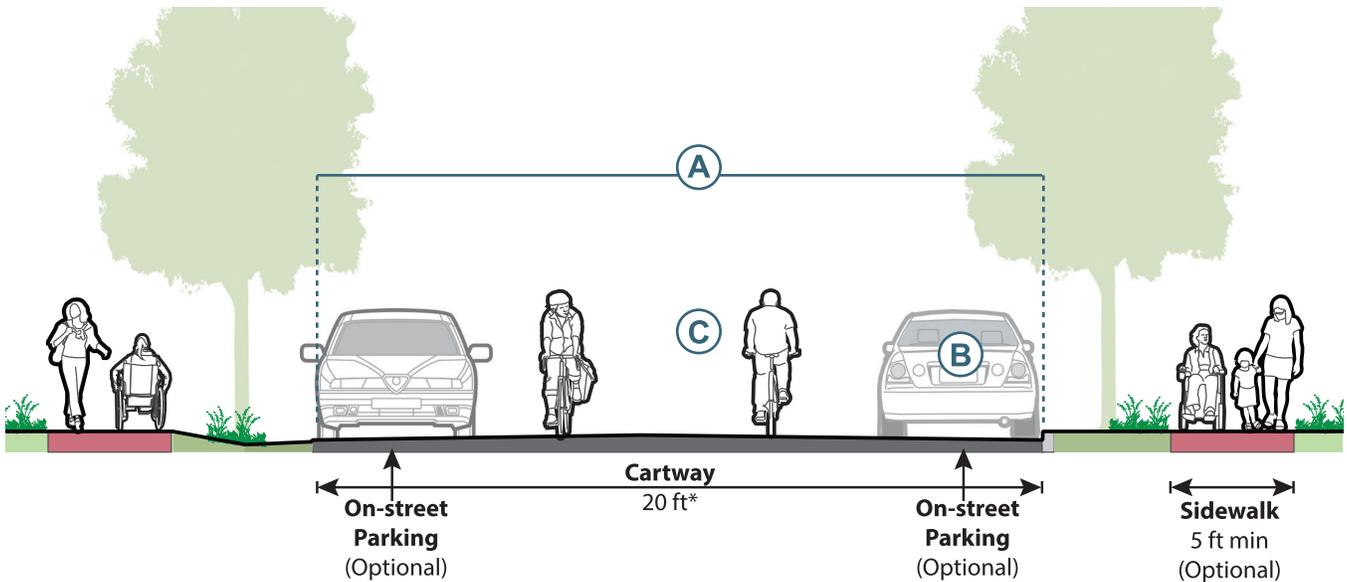


When neighborhood slow streets are a part of a connected walking or bicycling network, street crossings must be enhanced for comfort and safety.

Neighborhood Slow Street



Neighborhood Slow Street: Typical Street Features



Critical Design Features

- A** Intentionally constrained travel area width, potentially narrower than two lanes, to create slow-speed conditions.
- B** On-street parking provides easy access.
- C** Bicyclists operate within the roadway. No center line is marked to encourage safe, courteous passing.

Additional Potential Design Features

- D** Pedestrians generally walk on a separated sidewalk, but should feel confident that motorists will yield when they wish to cross.
- E** Raised speed reducer if needed to manage speeds.
- F** Shared lane markings can provide additional guidance for users.

* Some Neighborhood Slow Streets may have an additional 2 ft of flexible space in their cross-section R.O.W's.

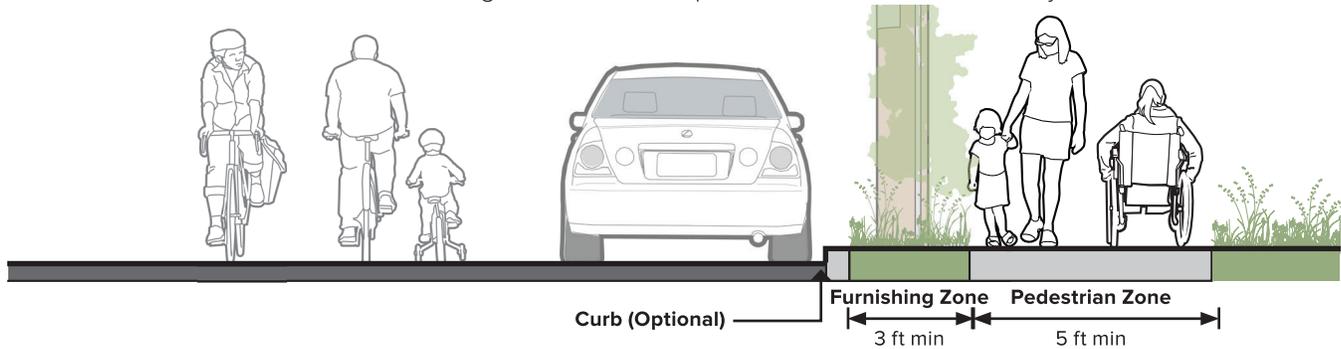
Neighborhood Slow Street: Design Guidelines

Bicycle Network

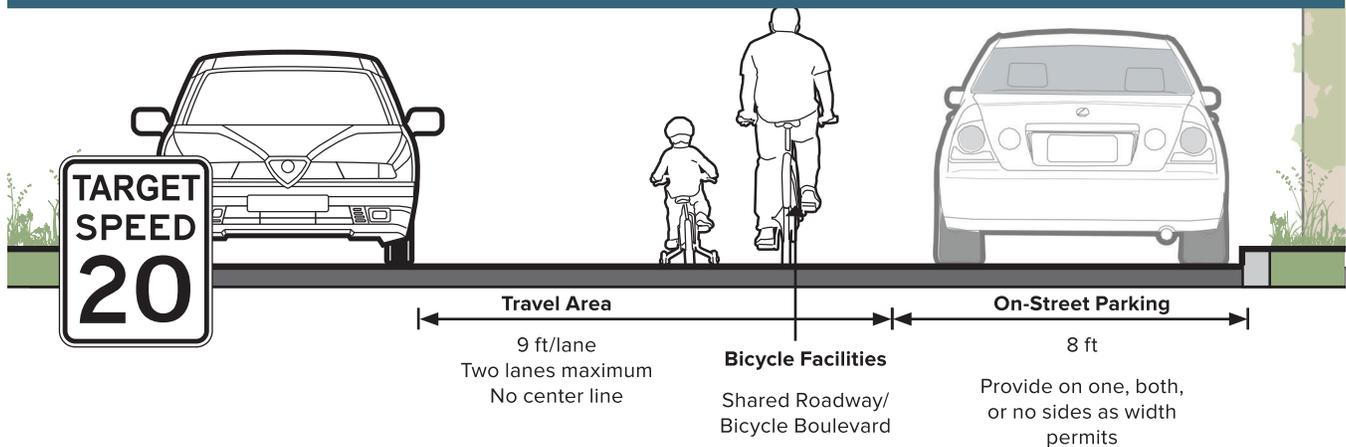
The recommended bikeway on Neighborhood Slow Streets is a **bicycle boulevard, shared street, or signed bike route**. Slow motor vehicle speeds and low volumes create comfortable on-road riding conditions.

Pedestrian Network

The preferred pedestrian facility on Neighborhood Slow Streets is a **sidewalk**. In some cases, streets may lack sidewalks, creating a **shared street** where pedestrians walk in the cartway.



Cartway



Neighborhood Slow Street: Street Features Overview

	Bicycle and Pedestrian Enhancements	Traffic Calming	Curbside Management	Traffic Management
Required	N/A	N/A	N/A	N/A
High Priority	N/A	<ul style="list-style-type: none"> Yield street 	<ul style="list-style-type: none"> On-street parking Street lighting Street trees 	N/A
Appropriate in Limited Circumstances	<ul style="list-style-type: none"> Signed bicycle route Shared lane markings Bicycle boulevard Shared street Sidewalks 	<ul style="list-style-type: none"> Curb extension / bulb out Raised speed reducer Chicanes 	<ul style="list-style-type: none"> Curb Planting strip Furnishing zone 	N/A
Not Required	<ul style="list-style-type: none"> Sidepath Buffered bike lane Separated bike lane Bike racks Bike corral 	<ul style="list-style-type: none"> Mid-block crosswalk Bus pull-off Bus shelter Pedestrian refuge island 	<ul style="list-style-type: none"> Shoulder 	<ul style="list-style-type: none"> Loading zones
Not Appropriate	N/A	N/A	<ul style="list-style-type: none"> Median Planting Strip 	<ul style="list-style-type: none"> Priority Emergency Route Truck Route Center line striping (double yellow)

Street Class:

City Core Slow Street

City Core Slow Streets provide for short distance, low speed trips within the Downtown commercial business district. Motorists on these streets are occasionally downtown residents but more typically visitors. In consequence the street design encourages slow speed interactions with bicyclists and crossing pedestrians.

These streets provide on-street parking to allow for convenient access to businesses, and to help mitigate driving speeds. City Core Slow Streets prioritize bicyclists and crossing pedestrians.



Image Source: David Wilson via Flickr (CC BY 2.0)

Typical Application

- Local streets in the downtown district.
- Prioritizes pedestrian and bicyclist users and motor vehicle parking over motor vehicle traffic.
- Designs vary widely, based on one-way operation, parking configuration, and adjacent commercial land uses.

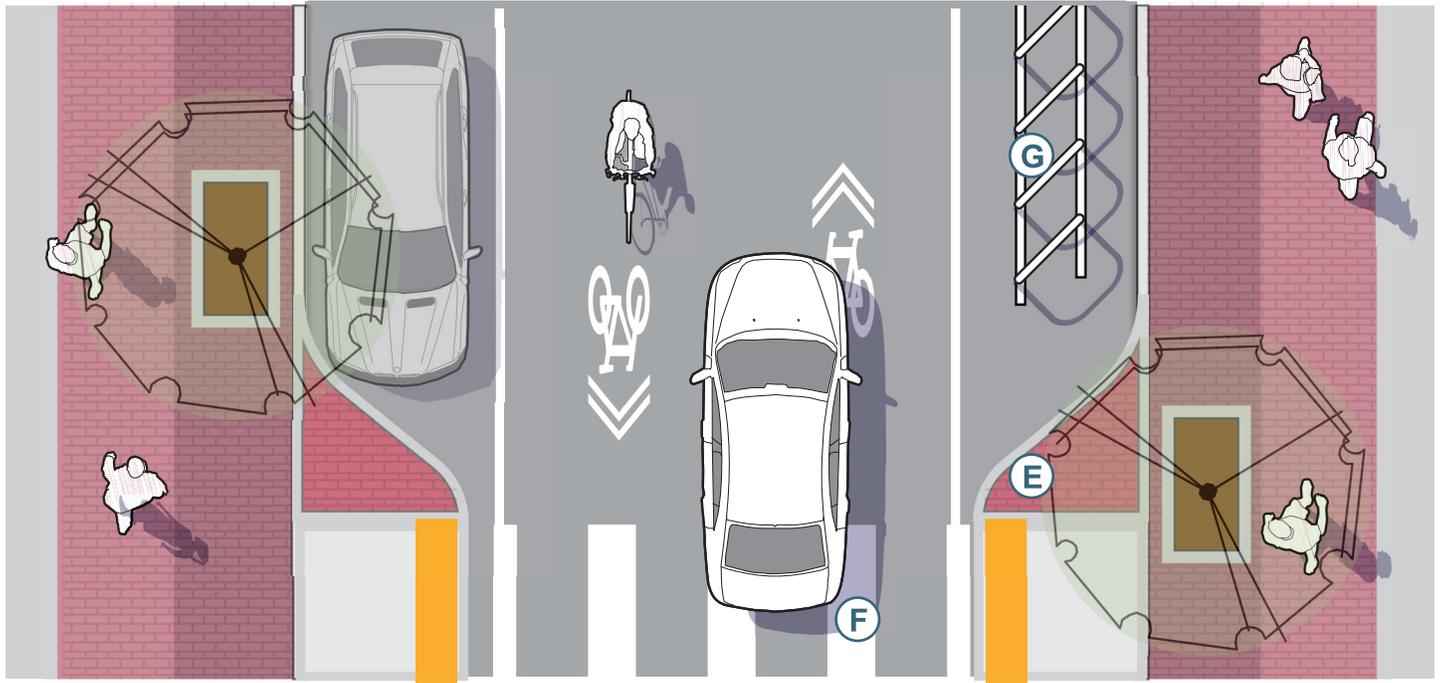
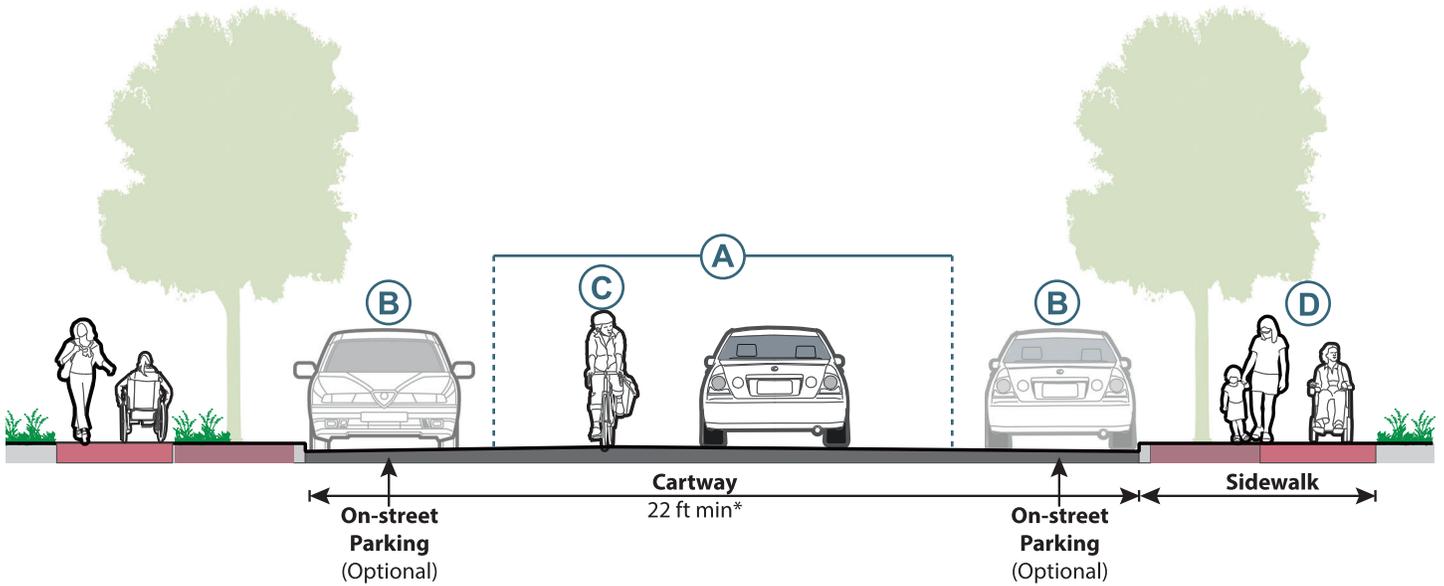


A bike corral provides a large number of bicycle parking spaces without impacting usable sidewalk space.

City Core Slow Street



City Core Slow Street: Common Street Features



Critical Design Features

- A** Narrow travel lanes to create slow-speed conditions.
- B** On-street parking provides easy access.
- C** Bicyclists operate within the roadway, typically in a shared lane. No center line is marked to encourage safe, courteous passing.
- D** Pedestrians generally walk on a separated sidewalk, but should feel confident that motorists will yield when they wish to cross.

Additional Potential Design Features

- E** Curb Extension
- F** Mid-Block Crosswalk
 - Benches
 - Pedestrian scale lighting
- G** Bike corral on roadway

* Some City Core Slow Streets may have an additional 2 ft of flexible space in their cross-section R.O.W's.

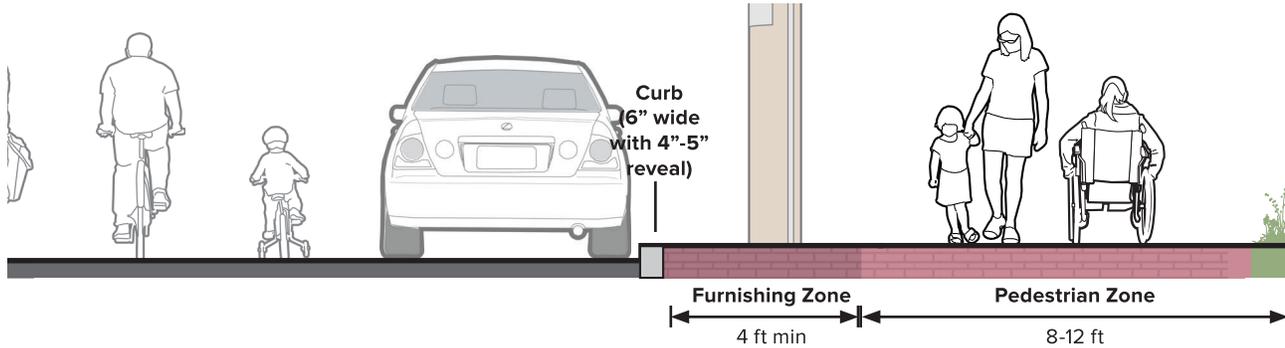
City Core Slow Street: Design Guidelines

Bicycle Network

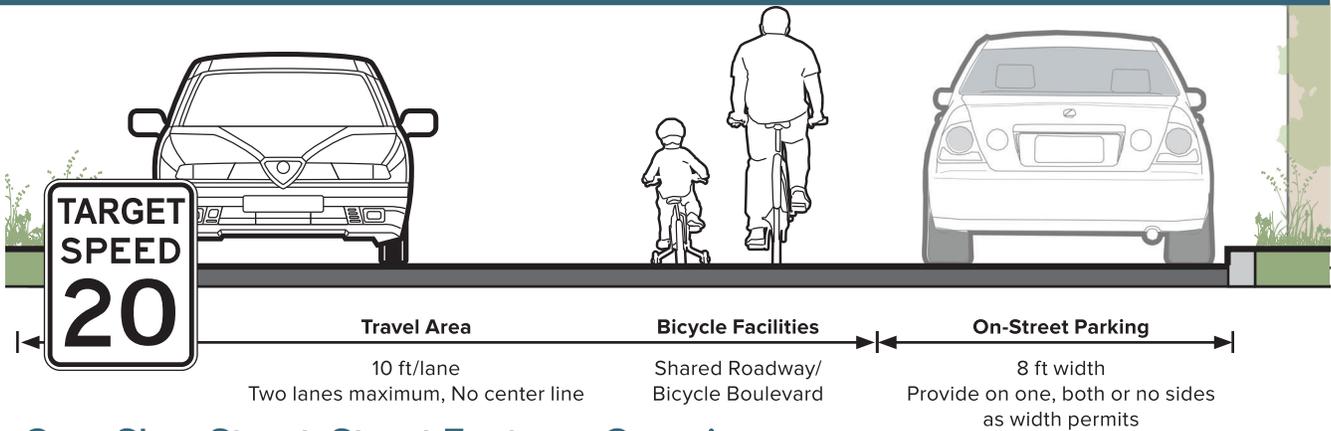
The recommended bikeway on City Core Slow Streets include **shared lane markings** or a **bicycle boulevard**. Slow motor vehicle speeds and low volumes create comfortable on-road riding conditions. In rare contexts, **buffered** or regular **bike lanes** may be appropriate.

Pedestrian Network

Sidewalks are required on City Core Slow Streets. A wide pedestrian zone with paved furnishing zone maximizes usable pedestrian space. In some cases, where streets may lack sidewalks, create a **shared street** where pedestrians walk in the cartway.



Cartway



City Core Slow Street: Street Features Overview

	Bicycle and Pedestrian Enhancements	Traffic Calming	Curbside Management	Traffic Management
Required	<ul style="list-style-type: none"> Sidewalks 	N/A	<ul style="list-style-type: none"> Curb Street Lighting 	N/A
High Priority	<ul style="list-style-type: none"> Bike racks 	N/A	<ul style="list-style-type: none"> On-street parking Furnishing zone Street trees 	N/A
Appropriate in Limited Circumstances	<ul style="list-style-type: none"> Signed bicycle route Shared lane markings Bicycle boulevard Bike lane Buffered bike lane Bike corral Shared street 	<ul style="list-style-type: none"> Mid-Block Crosswalk Bus shelter Raised speed reducer Curb extension / bulb out 	<ul style="list-style-type: none"> Planting strip 	<ul style="list-style-type: none"> Loading zones Priority emergency route
Not Required	<ul style="list-style-type: none"> Sidewalk Separated bike lane 	<ul style="list-style-type: none"> Bus pull-off Pedestrian refuge island 	<ul style="list-style-type: none"> Shoulder 	N/A
Not Appropriate	N/A	<ul style="list-style-type: none"> Chicanes Yield street 	N/A	<ul style="list-style-type: none"> Truck Route Center line striping (double yellow)

Street Class:

City Core Connector

City Core Connector streets provide a transition from higher speed streets into the slower downtown and neighborhood context. Two travel lanes and on-street parking send subtle cues to road users of a change in character, and naturally result in slower speed operation. Traffic speeds and volumes create the need for striped bicycle lanes to accommodate cyclists. Where space is limited, shared lane markings may be necessary.



Typical Application

- Collector streets, leading people in and out of the downtown.
- Emphasizes connections from neighborhoods to downtown, and prioritizes user movement over user access.
- Should balance motor vehicle use with bicycle and pedestrian access.

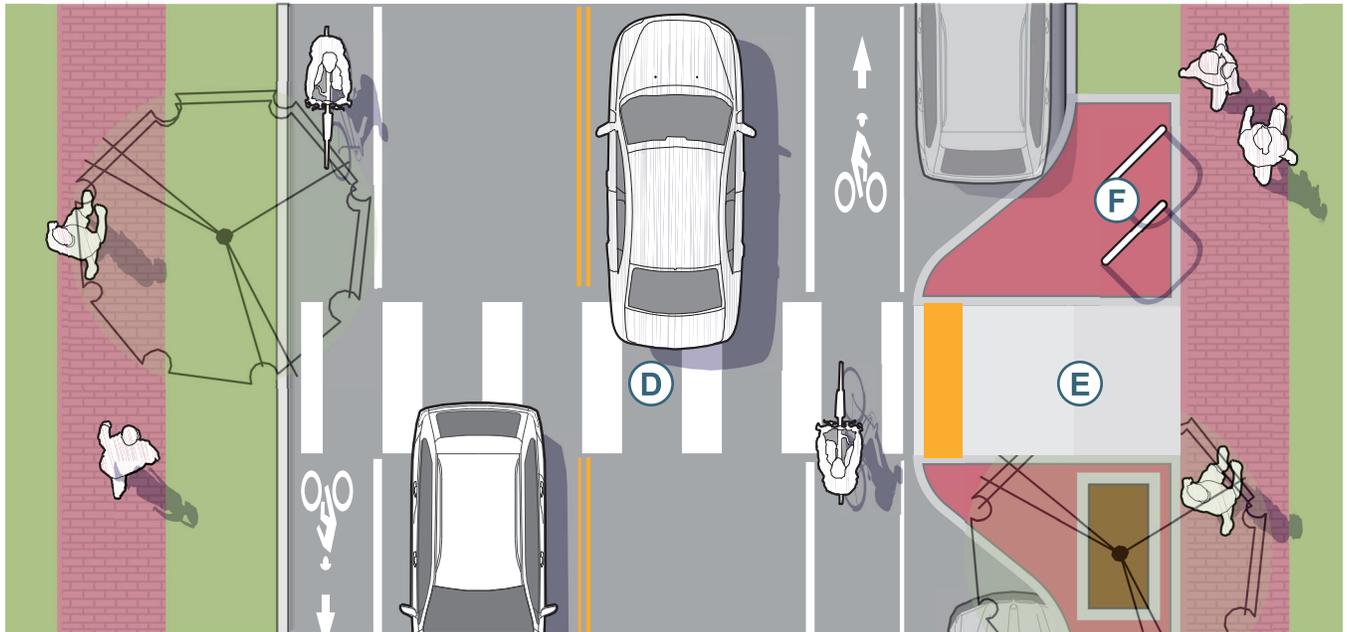
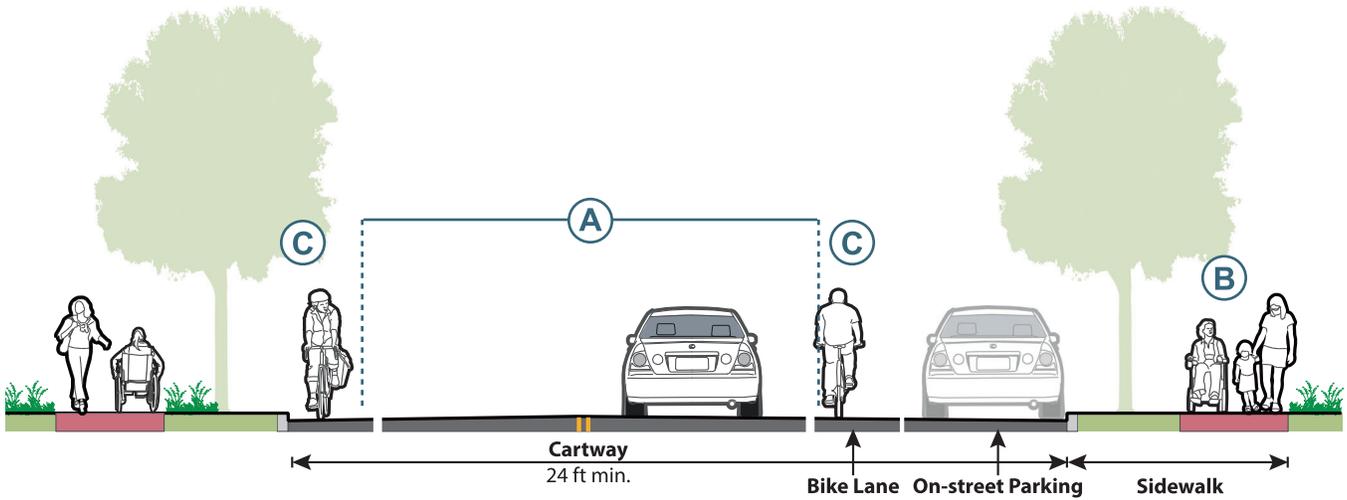


Complete Streets improvements will be coming to Middle Street in the near future.

City Core Connector



City Core Connector: Typical Street Features



Critical Design Features

- A** A maximum of two travel lanes.
- B** Pedestrians walk on a separated sidewalk.
- C** Striped bicycle lanes are a high priority.
 - On-street parking is a high priority.

Additional Potential Design Features

- D** Mid-block crosswalks allow pedestrians to reach destinations on both sides of the street.
- E** Curb extensions may enhance pedestrian crossings.
- F** Bike racks are beneficial in front of businesses.

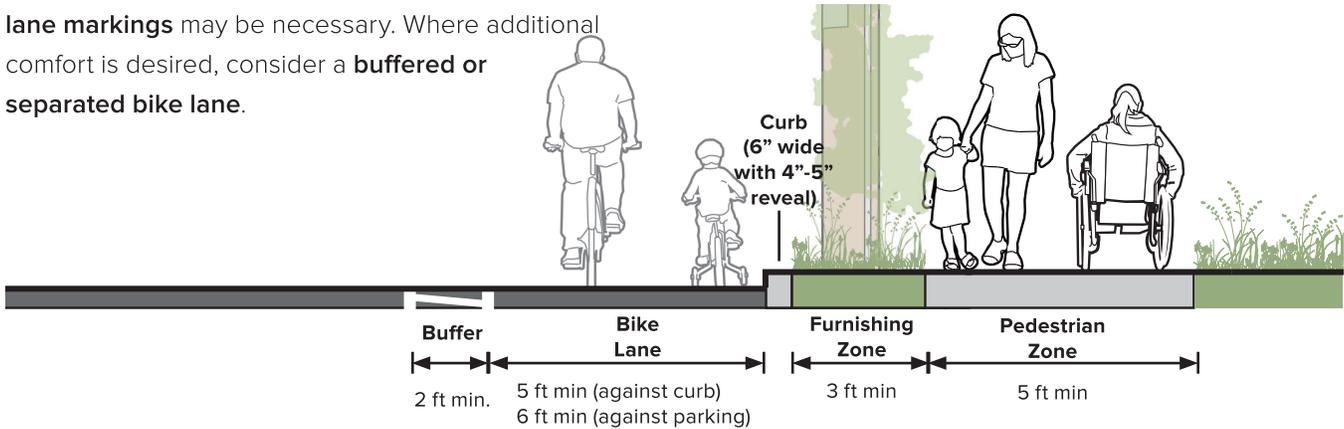
City Core Connector: Design Guidelines

Bicycle Network

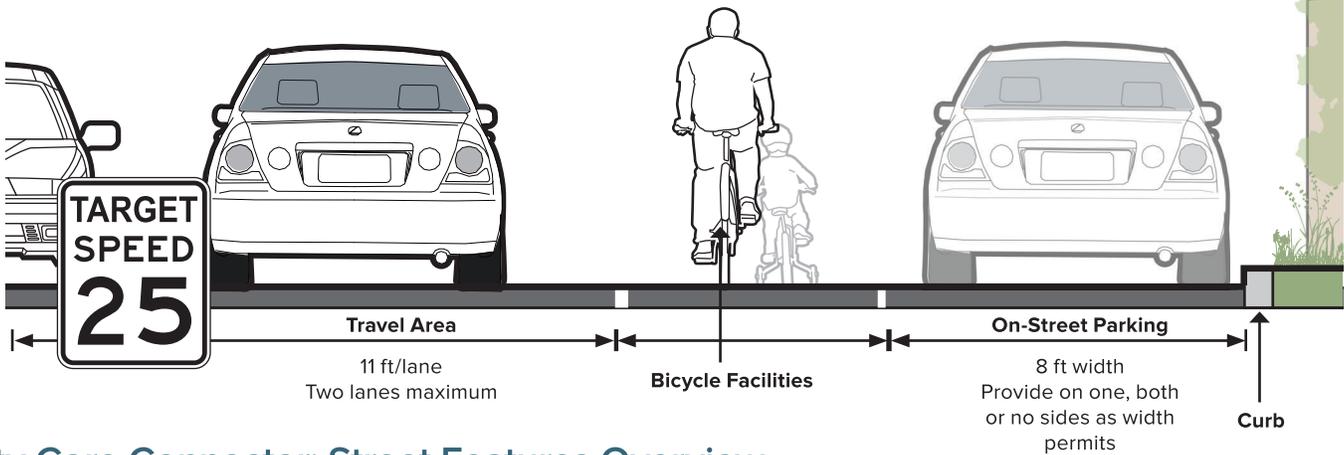
The recommended bikeway on City Core Connector streets is a **bike lane**. In constrained segments, **shared lane markings** may be necessary. Where additional comfort is desired, consider a **buffered or separated bike lane**.

Pedestrian Network

Sidewalks are required on City Core Connector streets.



Cartway



City Core Connector: Street Features Overview

	Bicycle and Pedestrian Enhancements	Traffic Calming	Curbside Management	Traffic Management
Required	<ul style="list-style-type: none"> Sidewalks 	N/A	<ul style="list-style-type: none"> Curb 	<ul style="list-style-type: none"> Center line striping (double yellow)
High Priority	<ul style="list-style-type: none"> Bike lanes 	N/A	<ul style="list-style-type: none"> On-street parking Planting strip Street lighting Street trees 	N/A
Appropriate in Limited Circumstances	<ul style="list-style-type: none"> Shared lane markings Bicycle boulevard Buffered bike lane Separated bike lane Bike racks 	<ul style="list-style-type: none"> Mid-block crosswalk Bus shelter Pedestrian refuge Island Curb extension / bulb out 	<ul style="list-style-type: none"> Shoulder Furnishing zone 	<ul style="list-style-type: none"> Loading zones Priority emergency route Truck route
Not Required	<ul style="list-style-type: none"> Sidepath 	<ul style="list-style-type: none"> Bus pull-off 	N/A	N/A
Not Appropriate	<ul style="list-style-type: none"> Signed bicycle route Bike corral Shared street 	<ul style="list-style-type: none"> Raised speed reducer Chicanes Yield street 	<ul style="list-style-type: none"> Median planting strip 	N/A

Street Class:

Neighborhood Connector

Neighborhood Connectors bring residents to and from their Neighborhood Slow Street to other parts of the city or region. They provide an opportunity for road users to transition between the higher-speed Primary Connector and Gateway Corridors to the low-speed character of the neighborhood.

The street design emphasizes smooth traffic flow and dedicated space for bicyclists.



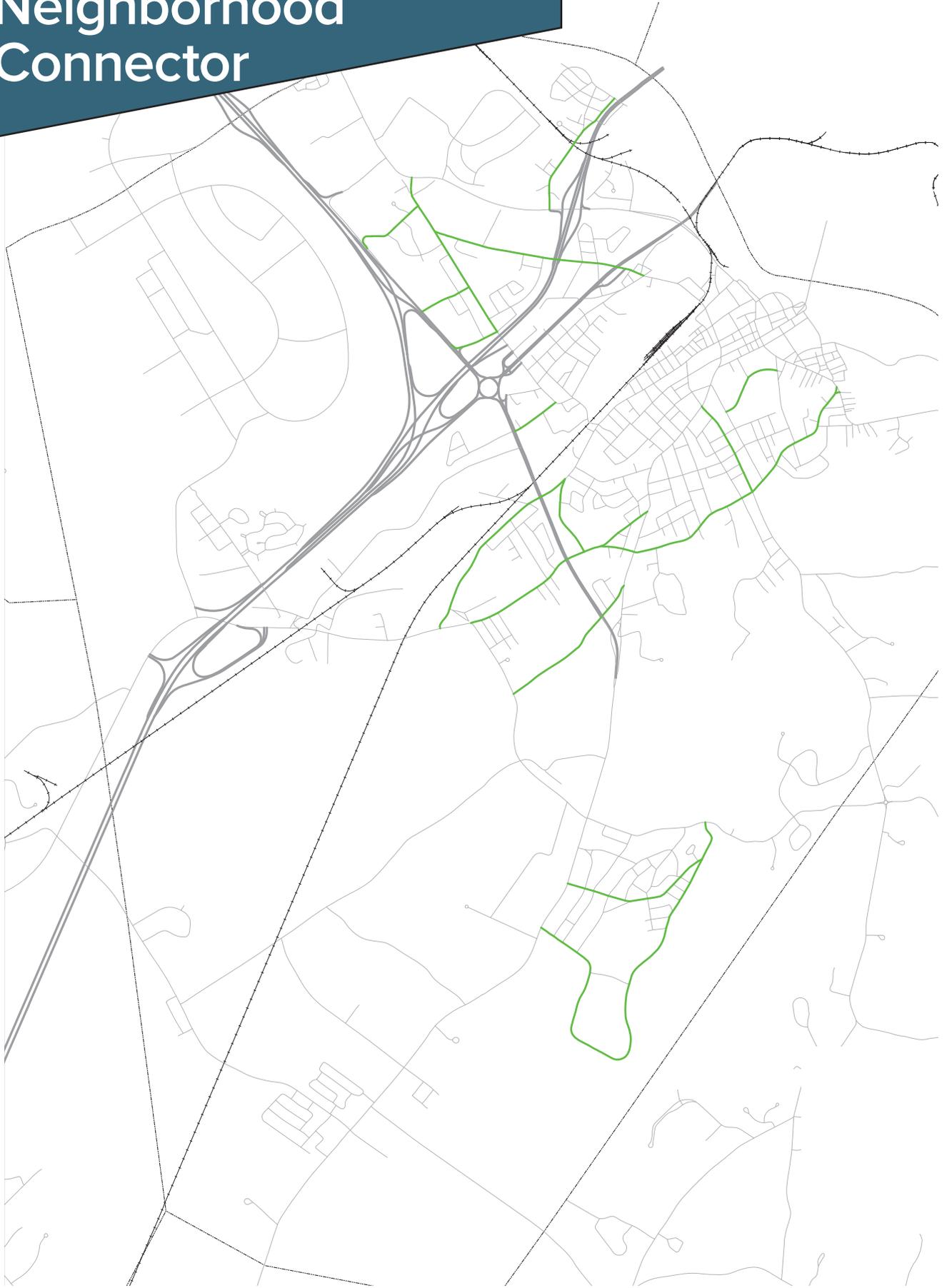
Typical Application

- Collector streets which link neighborhoods to each other and to arterial streets.
- Emphasizes motor vehicle movement, but may serve important bicycle and pedestrian connections where demand exists.

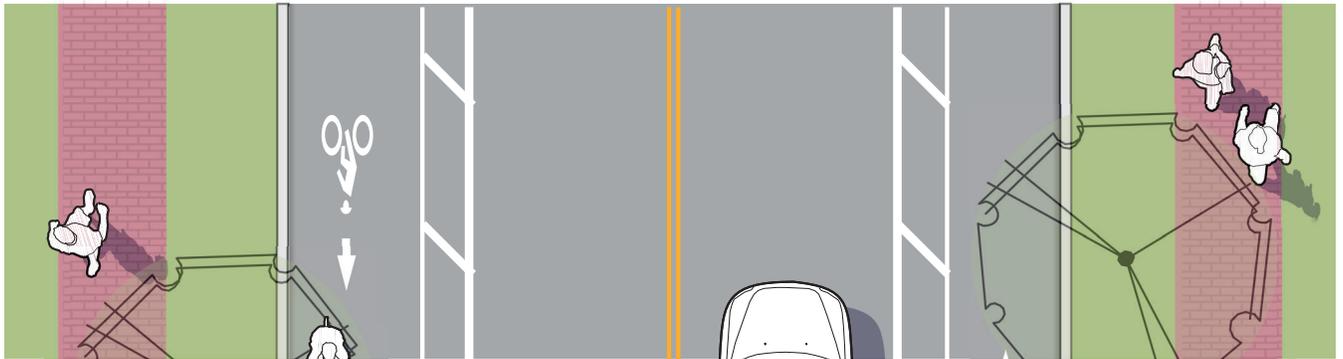
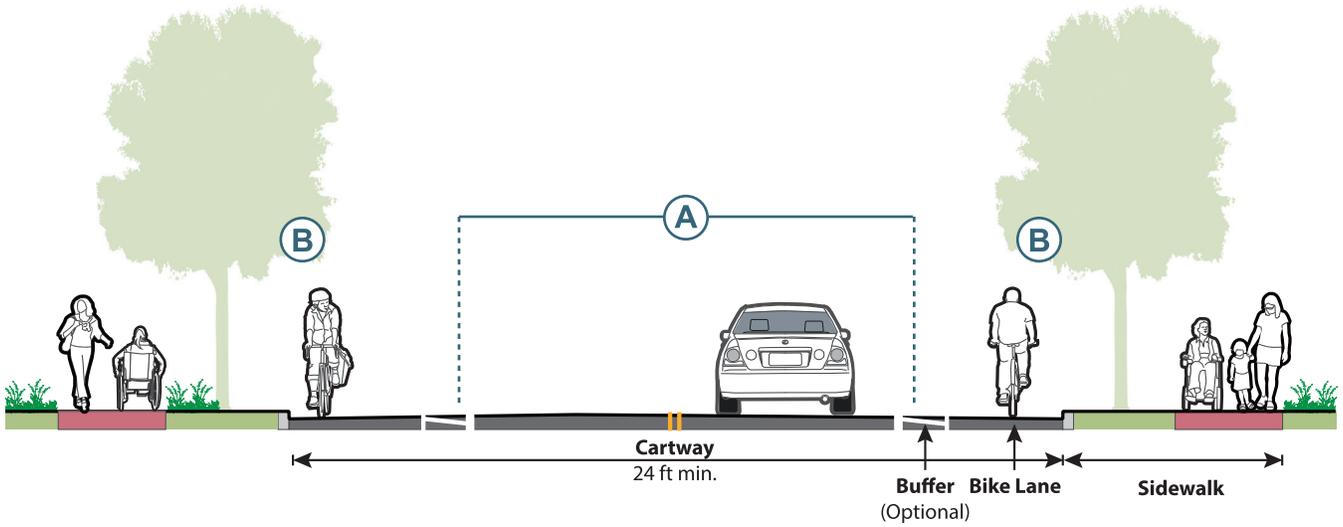


On street parking may be appropriate in areas with adjacent land uses.

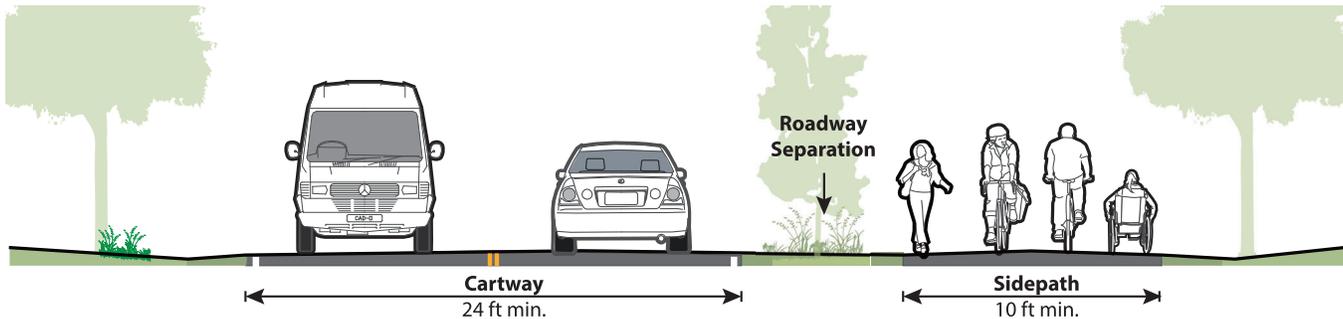
Neighborhood Connector



Neighborhood Connector: Typical Street Features



Neighborhood Connector: Sidepath Alternative



Critical Design Features

- (A)** Two travel lanes, marked with a center line marking.
- (B)** Bicycle facilities are preferred.
 - Pedestrians walk on a separated sidewalk.

Additional Potential Design Features

- A sidepath may replace on-street facilities and sidewalks.
- A planting strip to support street trees and landscaping in the furnishing zone is a high priority.

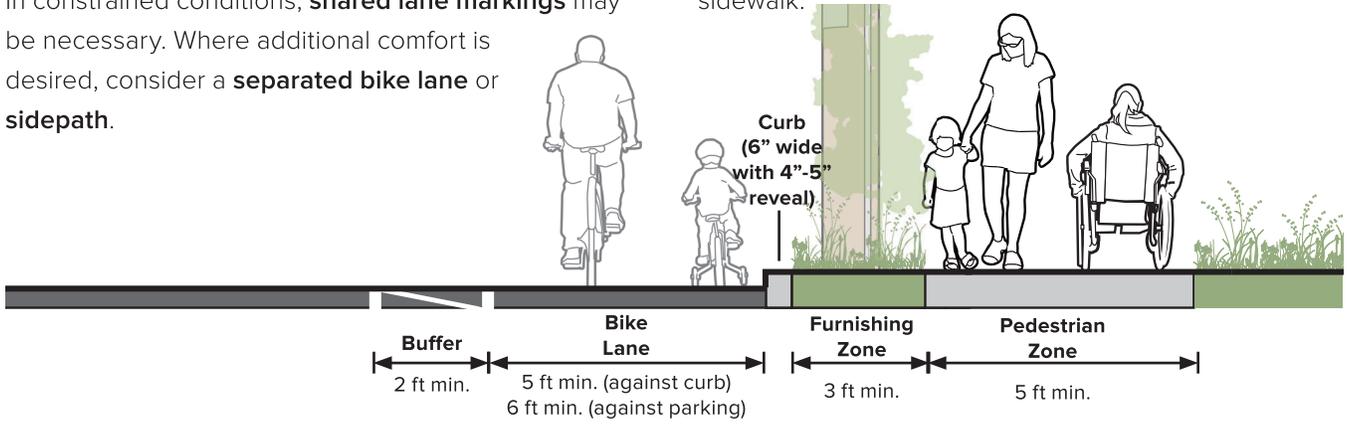
Neighborhood Connector: Design Guidelines

Bicycle Network

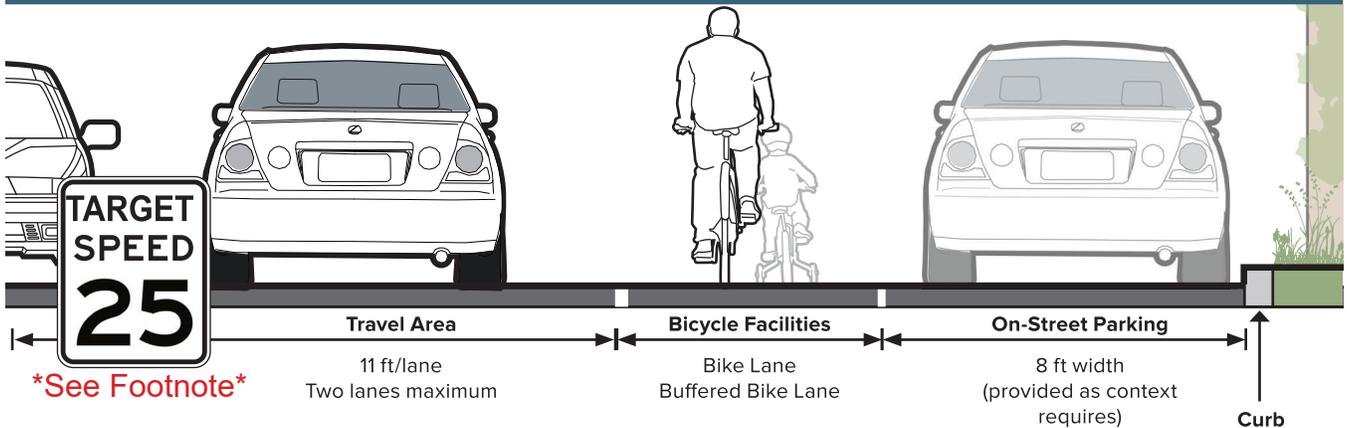
The recommended bikeway on a Neighborhood Connector street is a **bike lane** or **buffered bike lane**. In constrained conditions, **shared lane markings** may be necessary. Where additional comfort is desired, consider a **separated bike lane** or **sidepath**.

Pedestrian Network

Sidewalks are required on Neighborhood Connector streets. A **sidepath** may be provided in place of a sidewalk.



Cartway



Neighborhood Connector: Street Features Overview

	Bicycle and Pedestrian Enhancements	Traffic Calming	Curbside Management	Traffic Management
Required	<ul style="list-style-type: none"> Sidewalks 	N/A	<ul style="list-style-type: none"> Curb 	<ul style="list-style-type: none"> Center Line Striping (double yellow)
High Priority	<ul style="list-style-type: none"> Bike lane Buffered bike lane 	N/A	<ul style="list-style-type: none"> Planting strip Street lighting Street trees 	N/A
Appropriate in Limited Circumstances	<ul style="list-style-type: none"> Sidepath Shared lane markings Separated bike lane 	<ul style="list-style-type: none"> Mid-block crosswalk Bus shelter Raised speed reducer Pedestrian Refuge Island Curb extension / bulb out 	<ul style="list-style-type: none"> On-street parking Shoulder Furnishing zone 	<ul style="list-style-type: none"> Priority Emergency Route
Not Required	<ul style="list-style-type: none"> Bike racks Bike corral 	<ul style="list-style-type: none"> Bus pull-off 	N/A	N/A
Not Appropriate	<ul style="list-style-type: none"> Signed bicycle route Bicycle boulevard Shared street 	<ul style="list-style-type: none"> Chicanes Yield street 	<ul style="list-style-type: none"> Median planting strip 	<ul style="list-style-type: none"> Loading zones Truck route

*Target speed amended from 30 MPH to 25 MPH by PTS, May 2022

Street Class:

Primary Connector

Primary Connectors emphasize efficient travel between other connector and corridor streets. Turn lanes may be provided at intersections to keep traffic flowing smoothly. Dedicated bicycle facilities are considered a high priority.



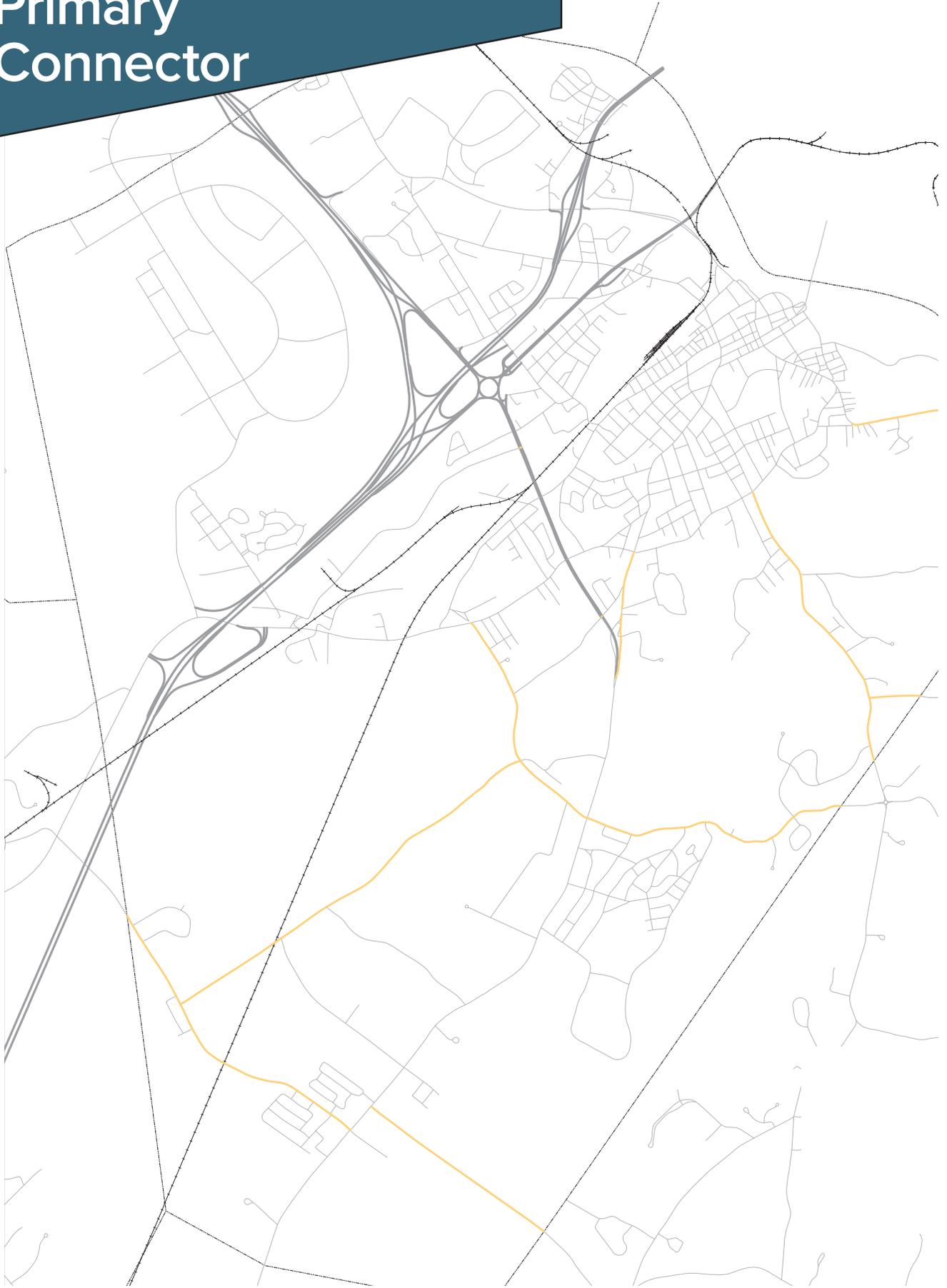
Typical Application

- Motor vehicle movement is prioritized, but bicycle facilities may be useful for providing multimodal access to job centers and other commercial destinations.

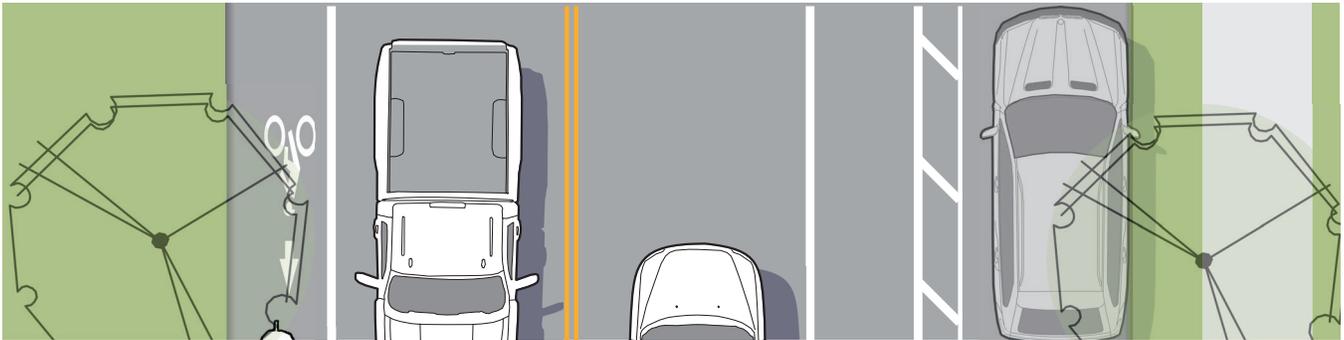
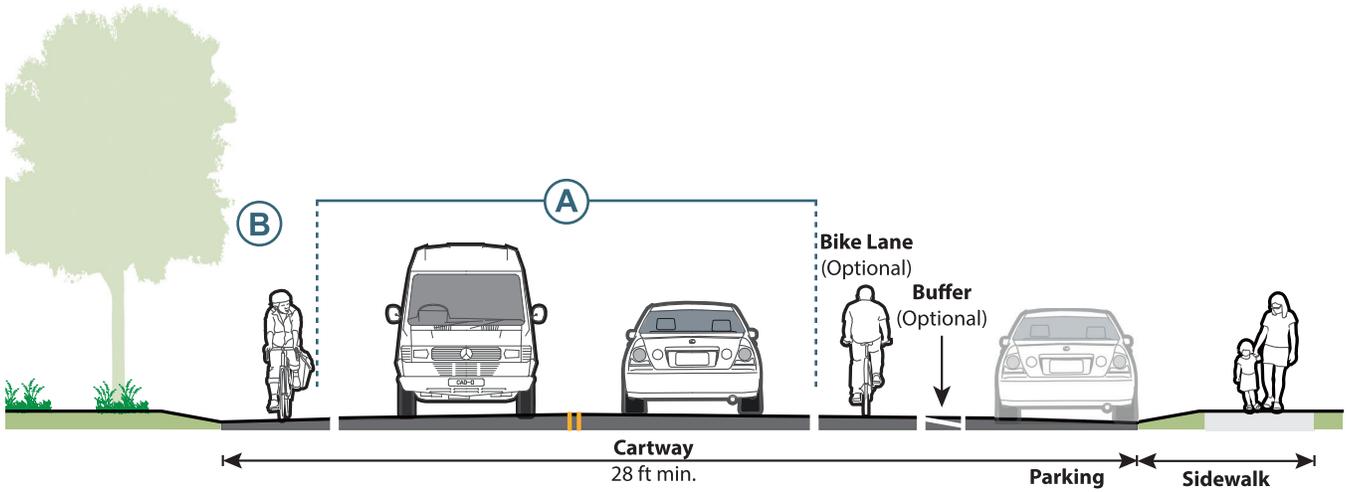


Despite higher speed and volumes, streets such as Elwyn Road can still accommodate a wide range of non-motorized users.

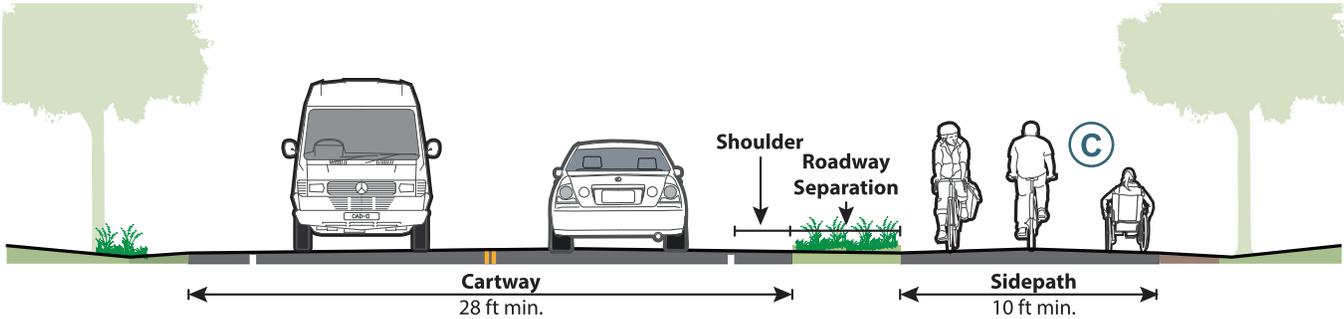
Primary Connector



Primary Connector: Typical Street Features



Primary Connector: Sidepath Alternative



Critical Design Features

- A** Two travel lanes.
- B** Bicycle facilities are preferred.

Additional Potential Design Features

- C** A sidepath may replace on-street facilities and sidewalks.
 - Turn lanes at intersections promote traffic flow.

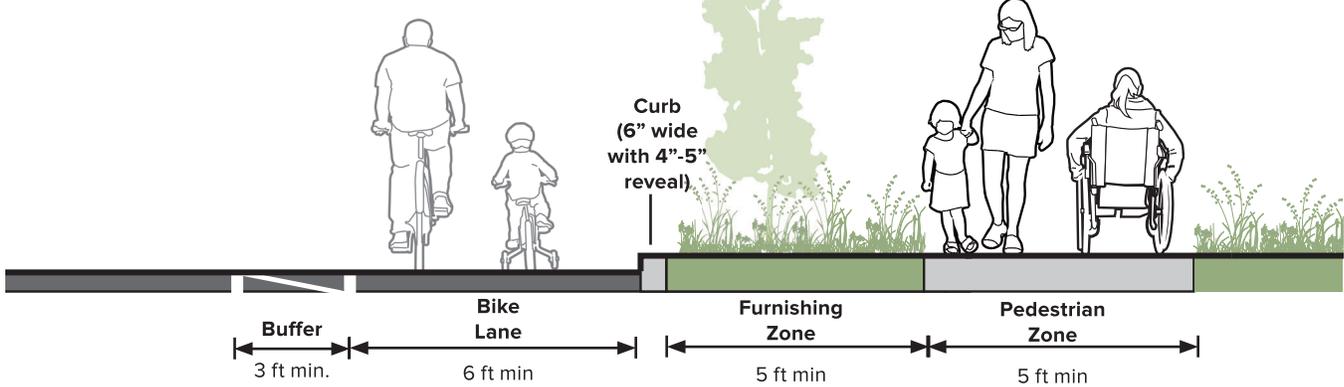
Primary Connector: Design Guidelines

Bicycle Network

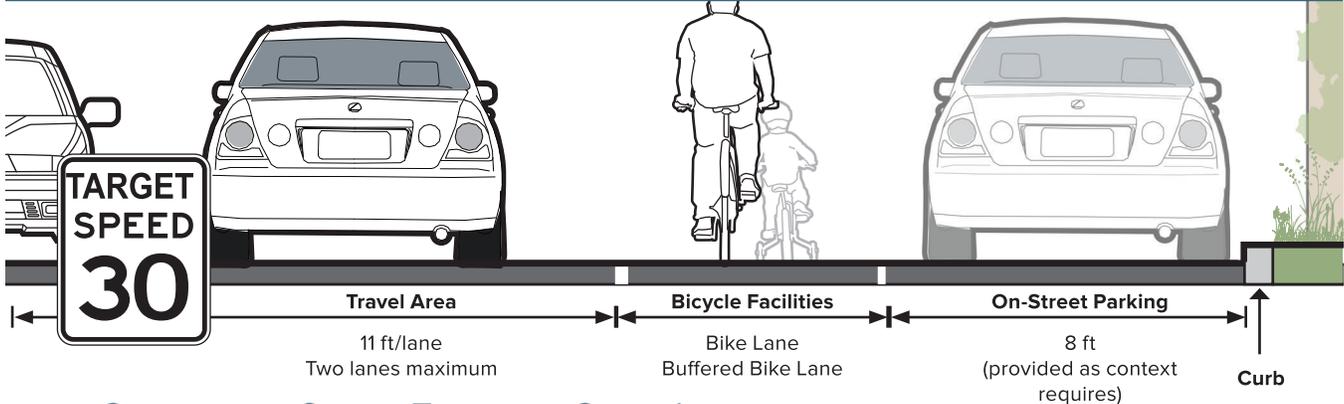
The recommended bikeway on a Primary Connector street is a **bike lane** or **buffered bike lane**. Where additional comfort is desired, consider a **separated bike lane** or **sidepath**.

Pedestrian Network

On Primary Connector streets, pedestrians will walk on **shoulders** in the absence of sidewalks. Provide **sidewalks** or a **sidepath** where pedestrian facilities are desired and/or appropriate.



Cartway



Primary Connector: Street Features Overview

	Bicycle and Pedestrian Enhancements	Traffic Calming	Curbside Management	Traffic Management
Required	N/A	N/A	• Shoulder	• Center Line Striping (double yellow)
High Priority	• Bike lane • Buffered bike lane	N/A	N/A	N/A
Appropriate in Limited Circumstances	• Sidepath • Separated bike lane • Sidewalks	• Mid-block crosswalk • Raised speed reducer • Pedestrian refuge island • Curb extension / bulb out	• On-street parking • Curb • Planting strip • Street lighting • Furnishing zone • Street trees	• Priority emergency route • Truck route
Not Required	• Bike racks	• Bus pull-off • Bus shelter	N/A	N/A
Not Appropriate	• Signed bicycle route • Shared lane markings • Bicycle boulevard • Bike corral • Shared street	• Chicanes • Yield street	• Median planting strip	• Loading zones

Street Class:

Gateway Corridor

Gateway Corridors are the higher-speed entrance/exit roadways to and from the City of Portsmouth. The street is configured with 2-4 lanes for traffic flow, as their primary function is the efficient movement of motor vehicles. Sufficient accommodations should be made for pedestrians, bicyclists and transit users along these routes where they are expected.



Typical Application

- To provide high speed and high volume connections to freeways.
- Serve as transitions between auto-only freeways, and multimodal connector streets.

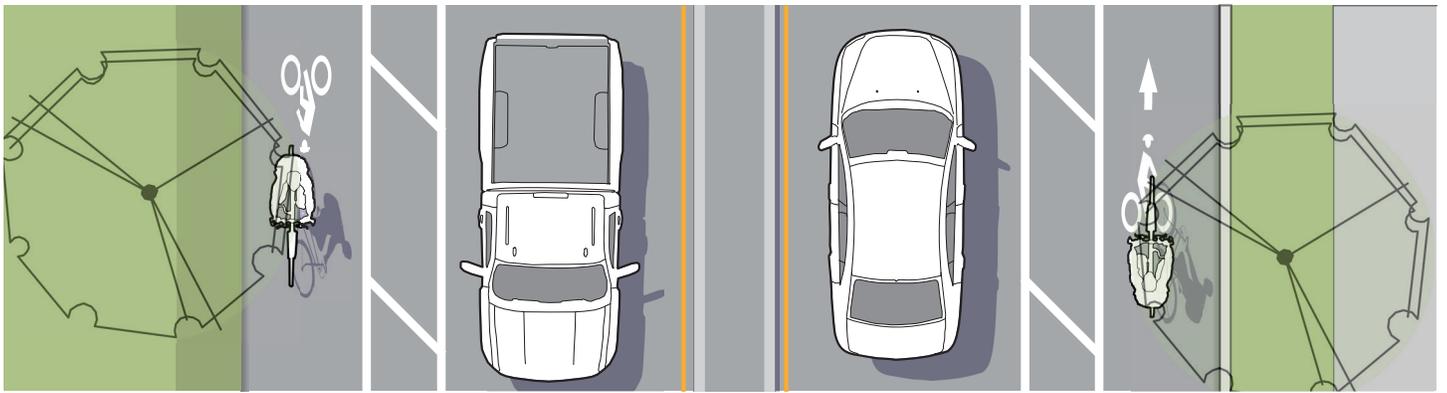
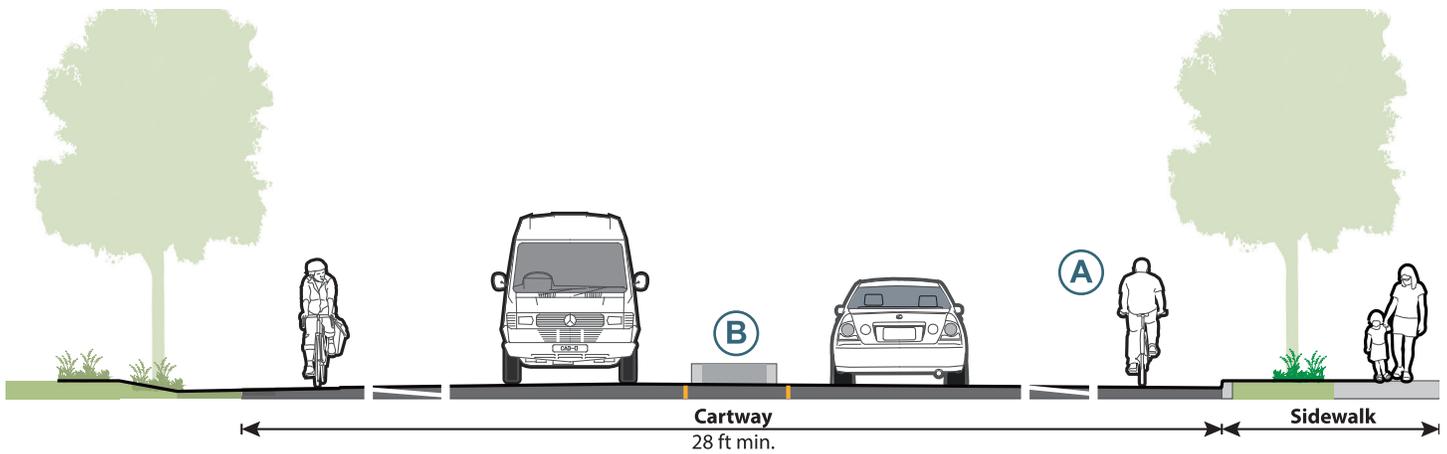


Medians can allow for enhanced pedestrian crossings.

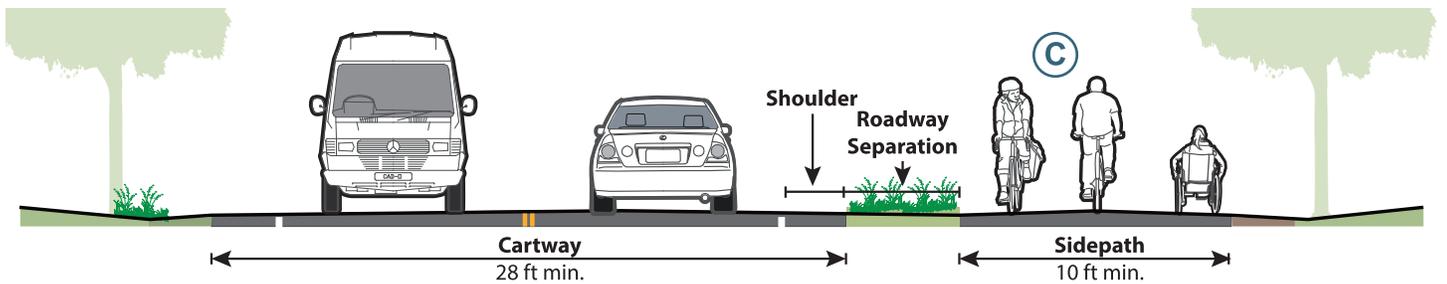
Gateway Corridor



Gateway Corridor: Typical Street Features



Gateway Corridor: Sidepath Alternative



Critical Design Features

- A** A separated bike facility, such as buffered bike lanes or a sidepath, is preferred.
- B** Medians (with a median planting strip where space is available).
 - No on-street parking.
 - Bus pull-outs and shelters.

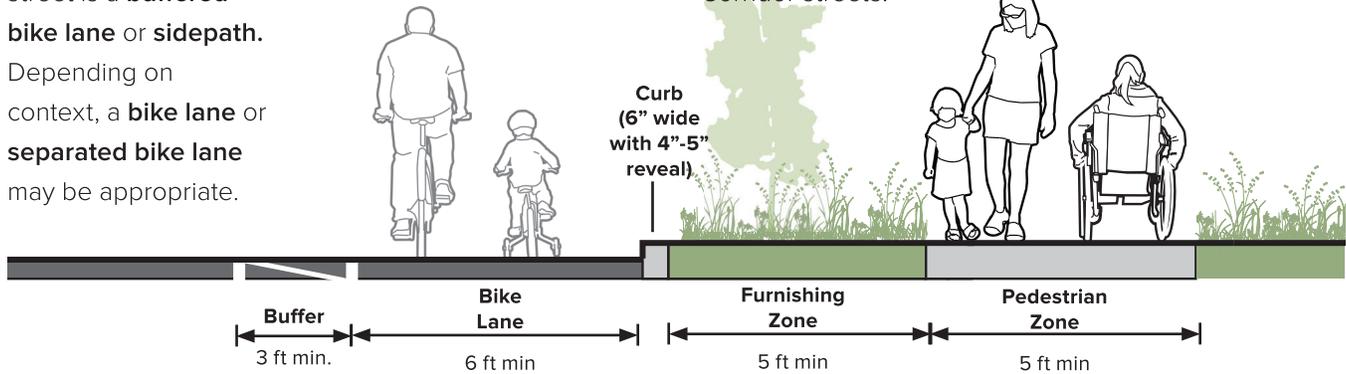
Additional Potential Design Features

- C** A sidepath may replace on-street facilities and sidewalks.
 - A median can enhance safety and aesthetics.
 - Turn lanes at intersections promote traffic flow.

Gateway Corridor: Design Guidelines

Bicycle Network

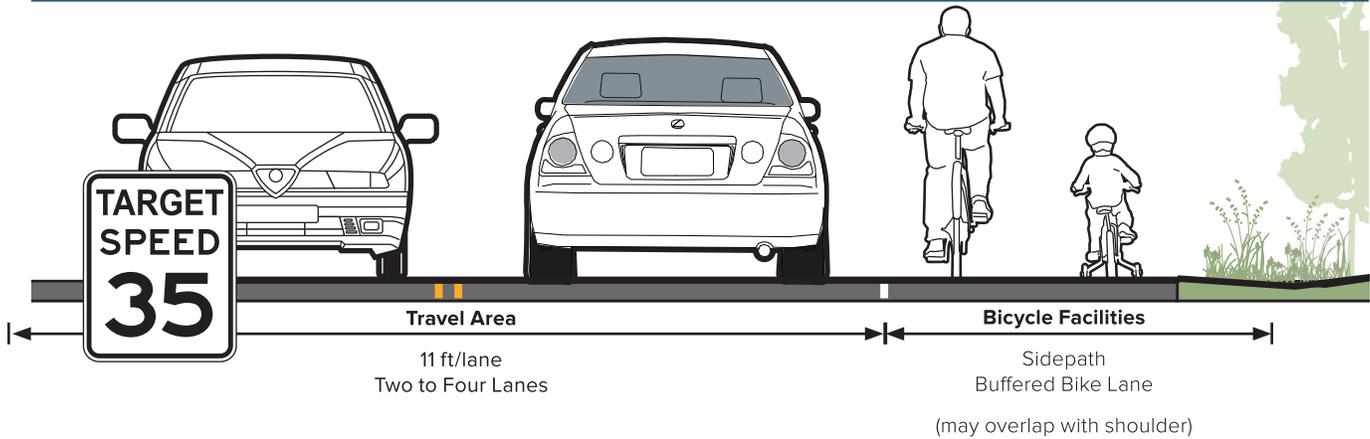
The recommended bikeway on a Gateway Corridor street is a **buffered bike lane** or **sidepath**. Depending on context, a **bike lane** or **separated bike lane** may be appropriate.



Pedestrian Network

Sidewalks or **Sidepaths** are recommended on Gateway Corridor streets.

Cartway



Gateway Corridor: Street Features Overview

	Bicycle and Pedestrian Enhancements	Traffic Calming	Curbside Management	Traffic Management
Required	N/A	N/A	• Shoulder	• Center Line Striping (double yellow)
High Priority	<ul style="list-style-type: none"> • Sidepath • Buffered bike lane • Sidewalks 	<ul style="list-style-type: none"> • Bus pull-off • Bus shelter • Pedestrian refuge island 	<ul style="list-style-type: none"> • Planting strip • Street lighting • Street trees • Median Planting Strip 	<ul style="list-style-type: none"> • Priority emergency route • Truck route
Appropriate in Limited Circumstances	<ul style="list-style-type: none"> • Bike lane • Separated bike lane 	N/A	<ul style="list-style-type: none"> • Curb • Furnishing zone 	N/A
Not Required	<ul style="list-style-type: none"> • Bike racks 	<ul style="list-style-type: none"> • Curb extension / bulb out 	N/A	N/A
Not Appropriate	<ul style="list-style-type: none"> • Signed bicycle route • Shared lane markings • Bicycle boulevard • Bike corral • Shared street 	<ul style="list-style-type: none"> • Mid-block crosswalk • Raised speed reducer • Chicanes • Yield street 	<ul style="list-style-type: none"> • On-street parking 	<ul style="list-style-type: none"> • Loading zones

Street Class:

Industry/Business Park Access

Industry/Business Park Corridors provide access to major employment centers. These streets have a significant transportation connectivity function and serve as a destination for commercial activity. Roadway priorities should be balanced among motor vehicles, transit, bicyclists and pedestrians. The accommodation of large trucks should be a design consideration in primarily industrial areas.

These streets tend to be auto-oriented, and separated bicycle and pedestrian facilities are necessary to create a comfortable walking and bicycling environment.



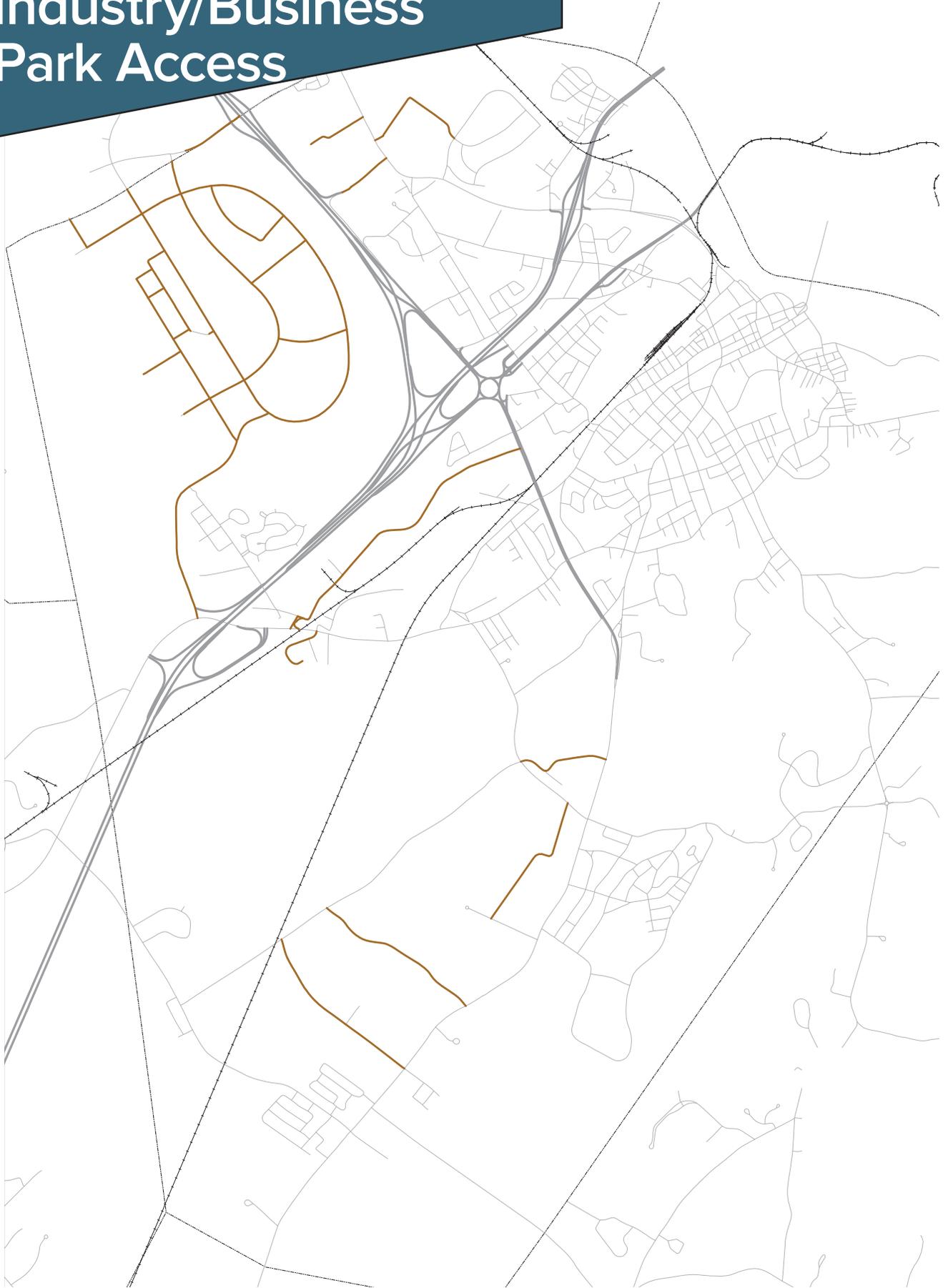
Typical Application

- Serves freight and commercial vehicle activity areas.
- May serve pedestrian and bicycle activity where businesses are in close proximity and adequate facilities are provided.

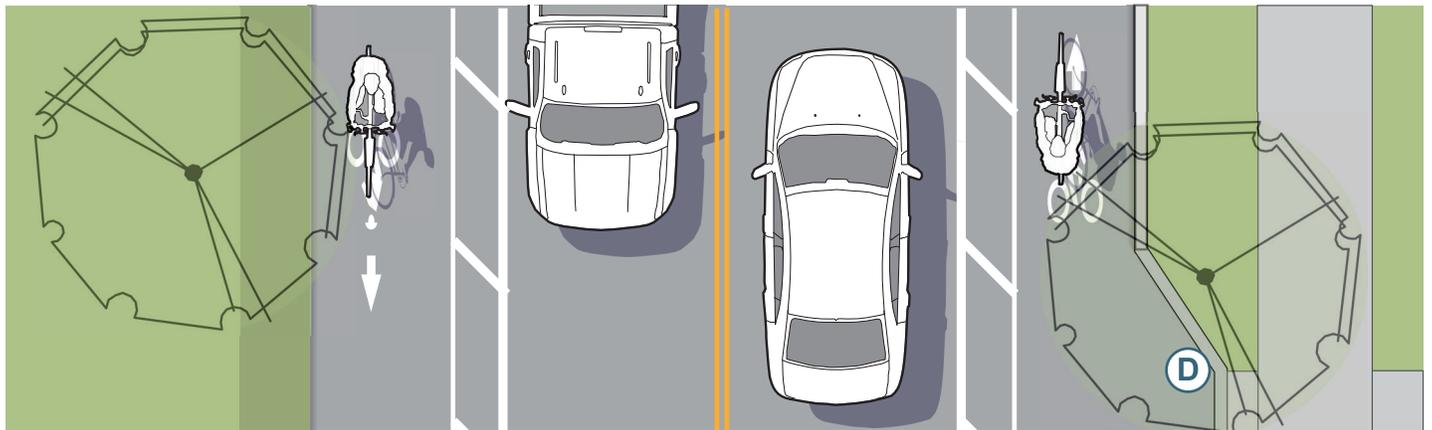
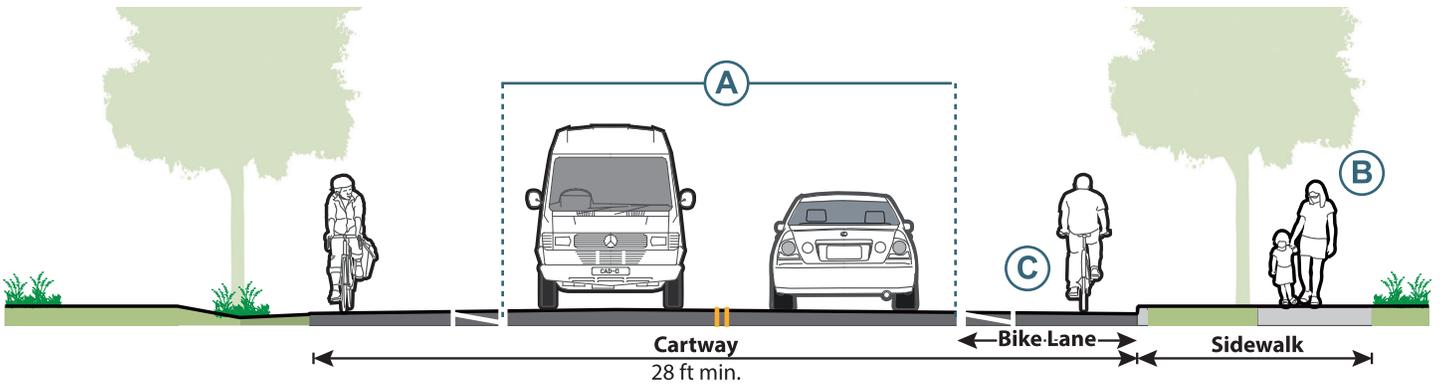


Heritage Ave is a typical example of this roadway typology in Portsmouth.

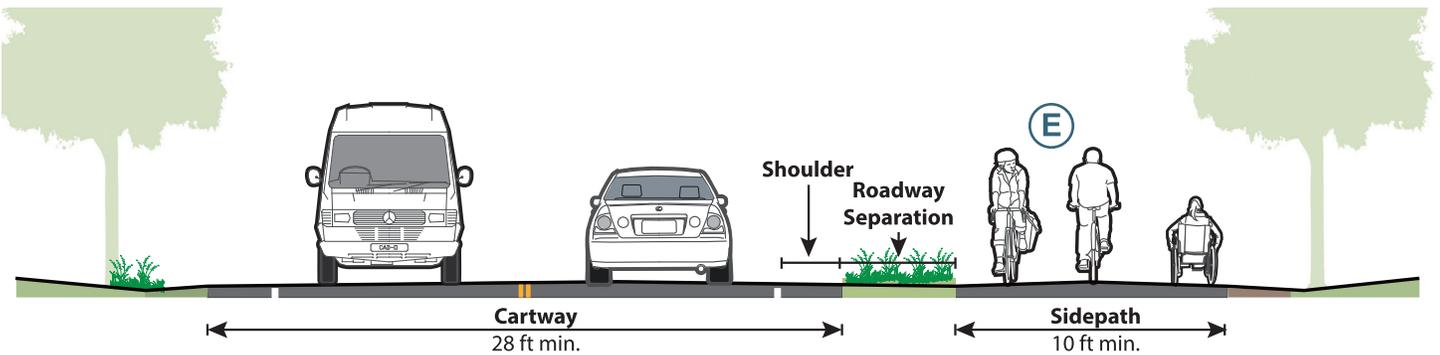
Industry/Business Park Access



Industry/Business Park: Typical Street Features



Industry/Business Park: Sidepath Alternative



Critical Design Features

- (A)** Appropriate roadway design for designated truck routes.
- (B)** Sidewalk should be provided in the vicinity of business park clusters to connect to transit and other businesses.
- (C)** Buffered or separated bike lanes are preferred.
- (D)** Bus pull-outs and shelter.

Additional Potential Design Features

- (E)** A sidepath may replace on-street facilities and sidewalks.
 - A median can enhance safety and aesthetics.
 - Turn lanes at intersections promote traffic flow.

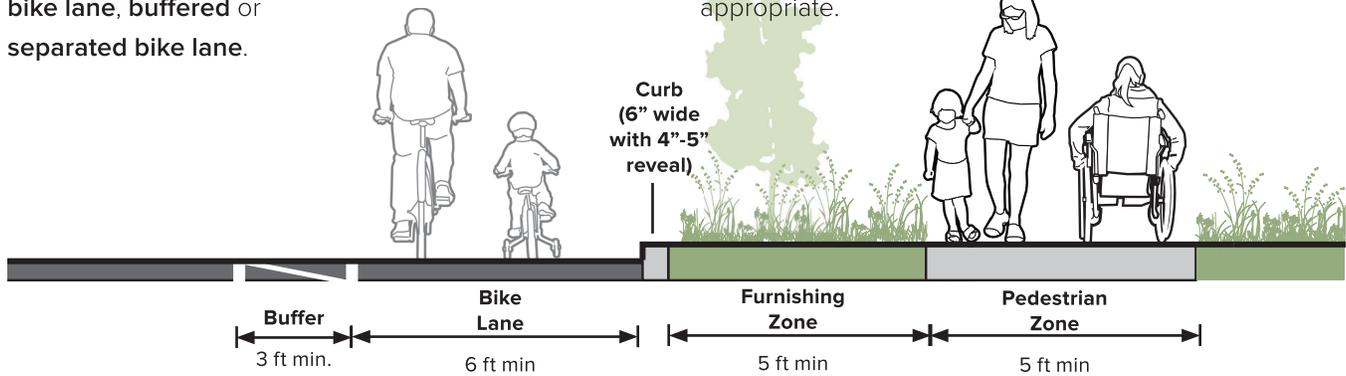
Industry/Business Park: Design Guidelines

Bicycle Network

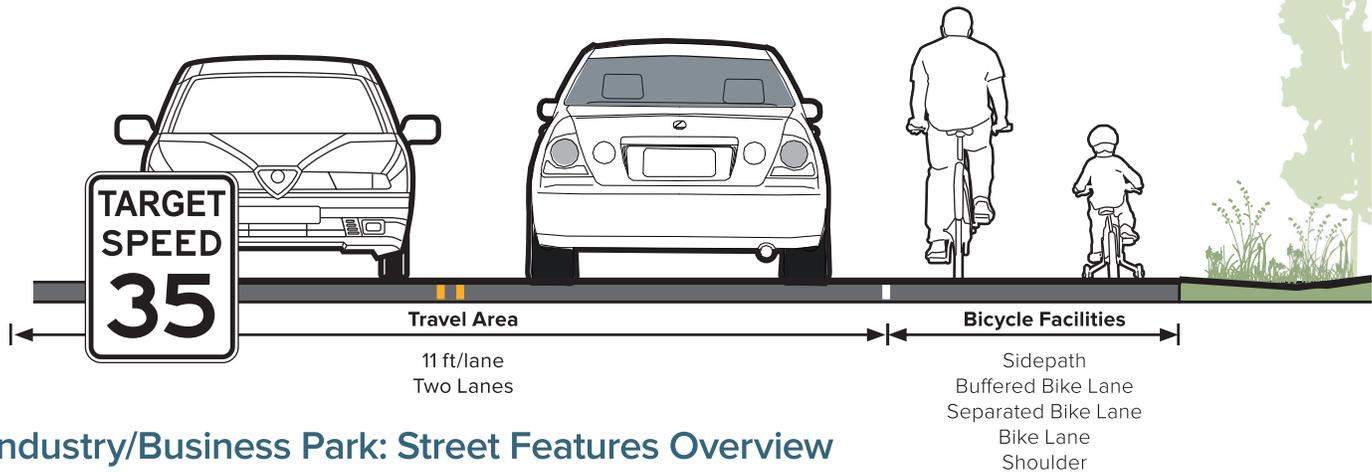
No bikeway is required on Industry/Business Park Access streets. Where appropriate, consider **sidepath**, **bike lane**, **buffered** or **separated bike lane**.

Pedestrian Network

Sidewalks are recommended on Gateway Corridor streets. A **sidepath** may also serve pedestrians where appropriate.



Cartway



Industry/Business Park: Street Features Overview

	Bicycle and Pedestrian Enhancements	Traffic Calming	Curbside Management	Traffic Management
Required	N/A	N/A	• Shoulder	• Center Line Striping (double yellow)
High Priority	• Sidewalks	• Bus pull-off • Bus shelter	N/A	• Priority emergency route • Truck route
Appropriate in Limited Circumstances	• Sidepath • Bike lane • Buffered bike lane • Separated bike lane	• Mid-block crosswalk • Pedestrian refuge island	• Curb • Planting strip • Street lighting • Furnishing zone • Street trees • Median planting strip	N/A
Not Required	• Bike racks	• Curb extension / bulb out	N/A	N/A
Not Appropriate	• Signed bicycle route • Shared lane markings • Bicycle boulevard • Bike corral • Shared street	• Raised speed reducer • Chicanes • Yield street	• On-street parking	• Loading zones