Hyattsville Multimodal Toolkit

November 2023

CITY OF HYATTSVILLE

TOOLE DESIGN

Contents

Information contained in this document is for planning purposes and should not be used for final design of any project. All results, recommendations, concept drawings, cost opinions, and commentary contained herein are based on limited data and information and on existing conditions that are subject to change. Further analysis and engineering design are necessary prior to implementing any of the recommendations contained herein.

Purpose and Objectives

This toolkit is a collection of street treatments, or tools, designed to calm motor vehicle traffic and reduce crashes in the City of Hyattsville, particularly crashes between motor vehicles, pedestrians, and bicyclists. This document is intended to help inform interested residents and other stakeholders about the options available in Hyattsville for calming traffic and increasing the safety and comfort of city streets for all users, but particularly those most vulnerable—pedestrians and bicyclists.

Each tool is presented on its own page, which describes the treatment and its purpose, locations where it is typically used, how it addresses roadway safety, considerations in design and placement, expected reduction in crashes (where available), and estimated cost and time to install.

Hyattsville Transportation Study (2018)

This toolkit builds off of the 2018 Hyattsville Transportation Study (Figure 1), which included a comprehensive analysis of Hyattsville's transportation network and presented a series of goals and recommendations for road network improvements. The Transportation Study goals include:

- Improve safety along major roads
- Enhance and increase safe connectivity for pedestrians
- Improve traffic flow within neighborhoods
- Strengthen connectivity for cyclists
- Support development around the Metro stations and Gateway Arts District
- Support environmentally friendly, sustainable growth

The Study identifies the following strategies to guide the City as it invests in the local transportaiton system:

- Strategy 1: Complete the City's street grid with new street connections
- Strategy 2: Design streets for lower speeds
- Strategy 3: Prioritize people on foot in street design
- Strategy 4: Where appropriate, change traffic circulation
- Strategy 5: Prioritize the comfort of people on bikes in street design
- Strategy 6: Design intersections to improve safety for all users
- Strategy 7: Prioritize connections to and from the Metro stations and Arts Districts
- Strategy 8: Integrate trails into the local transportation network
- Strategy 9: Review parking policy and adopt new regulations

The Transportation Study guides capital and operating investment in Hyattsville's transportation system.

This Hyattsville Multimodal Toolkit will support the goals defined in the Transportation Study and the strategies for achieving them by defining on-street traffic calming and connectivity tools that can be deployed by the City of Hyattsville.

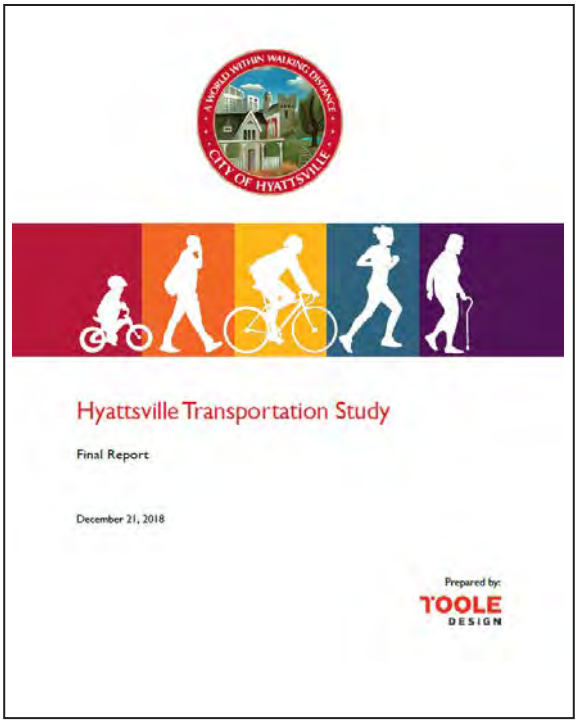


Figure 1. 2018 Hyattsville Transportation Study

Streets in Hyattsville

Hyattsville's street network is primarily narrow, low-speed local roadways with some larger regional arterials bisecting the city. Most roadways in Hyattsville are owned and maintained by the City of Hyattsville apart from four major arterials which are owned and maintained by the Maryland State Highway Administration (SHA): Baltimore Avenue/Rhode Island Avenue, US1-A (Baltimore Avenue); East-West Highway (MD 410); Queens Chapel Road (MD 500); and parts of Hamilton Street (MD 208). Ager Road and Adelphi Road are main roadways owned and maintained by Prince George's County Department of Public Works and Transportation (DPWT).

The appropriateness of different toolkit treatments depends on several characteristics of a specific street including the number of lanes, daily motor vehicle volume, motor vehicle speeds, pedestrian and bicyclist volumes, and overall street width. Additionally, some treatments are appropriately applied along a segment of roadway while others are appropriate only at intersections.

The 2018 Hyattsville Transportation Study classified each street in Hyattsville as either Local, Collector, or Arterial. A map showing the classification of each street in Hyattsville is provided in the Appendix to this toolkit. For each tool in this toolkit, location guidance is provided identifying the appropriate roadway type for a given treatment.

Arterial Streets in Hyattsville

Each of the arterial streets in Hyattsville is owned and maintained by the State of Maryland or Prince George's County. For more information and recommendations on how to report issues or request changes on county and state-owned roadways, please see the Appendix at the end of this toolkit.

Choosing Effective Tools

The tools in this toolkit are designed to achieve the following safety objectives:

- Reduce motor vehicle speeds
- Reduce pedestrian crossing distances
- Increase opportunities for and safety of pedestrian and bicycle crossings
- Increase visibility of pedestrians and people riding bicycles
- Reduce frequency of "cut-through" motor vehicle traffic in residential areas

The goal of many tools in this toolkit is to reduce motor vehicle speed, thereby reducing the number of motor vehicle crashes and decreasing the severity of collisions when they occur as reflected in Figure 2. Where research is available on a given tool's crash reduction estimate, it is included under Expected Crash Reduction. Not all tools have research available on their crash reduction benefits, and the absence of information is noted when that is the case.

Using Tools Together

Many tools have complementary benefits and are commonly used together. Such combinations are mentioned throughout this toolkit.

Systemic vs. Spot Treatments

A systemic approach to roadway safety evaluates the entire street network using a specific set of criteria to identify locations where roadway design may be updated to reduce crashes and increase comfort and safety for roadway users. Tools in this toolkit are identified as either potentially appropriate for system-wide implementation or limited to traditional spot-based installation. Systemic tools can generally be used at many locations across a road network, while spot treatments use a traditional site-based analysis at a specific location. Some treatments are appropriate for both uses.

Time and Cost

For each tool estimated cost and time ranges are given. The symbols used are defined as follows:

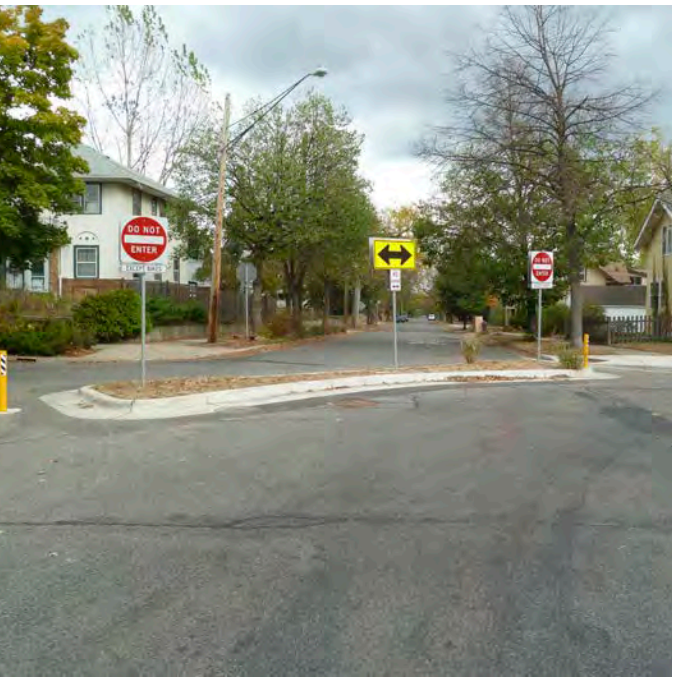
Cost	Range	Time	Range
$	Under $5,000		Short - Under 1 year
$$	$5,000 - $50,000		Medium - 1-3 years
$$$	$50,001 - $100,000		Long - 3+ years
$$$$	Over $100,000		

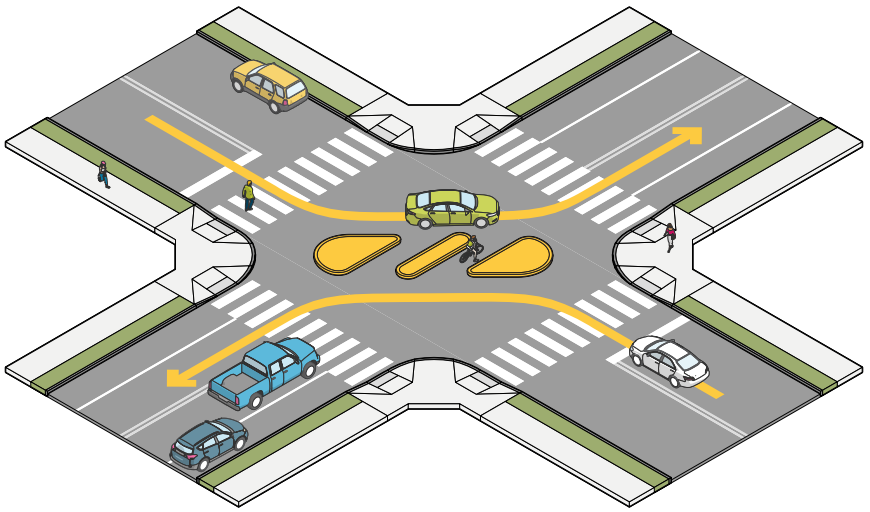
Figure 2. As crash speed increases, the likelihood of severe injury or death to pedestrians rises.
Data Citation: Tefft, B.C. (2011). Impact Speed and a Pedestrian's Risk of Severe Injury or Death (Technical Report). Washington, D.C.: AAA Foundation for Traffic Safety.

Tool Safety Objectives

Treatment	Reduces Speed	Improves Crossing Safety	Increases Visibility	Reduces Conflicts	Improves Multimodal Support	Reduces Cut-through Traffic
Access Diverter, p.7	●	●		●	●	●
Asphalt Art, p.9	●	●	●			
Bicycle Boulevard, p.11			●	●	●	
Buffered Bike Lane, p.13		●	●	●	●	
Chicane, p.15	●					●
Contraflow Bike Lane, p.17			●	●	●	
Conventional Bike Lane, p.19			●	●	●	
Crossing Island, p.21	●	●	●	●	●	
Curb Extension, p.23	●	●	●	●		●
Floating Transit Island, p.25	●	●	●	●	●	
High-Visibility Crosswalk, p.27		●	●			
Lighting, p.29		●	●		●	
Protected Intersection, p.31	●	●	●	●	●	
Rapid Rectangular Flashing Beacon (RRFB), p.33		●	●	●	●	
Road Diets/Lane Width Reduction, p.35	●	●	●	●	●	●
Roundabout/Traffic Circle, p.37	●	●		●		
Separated Bike Lane, p.39		●	●	●	●	
Shared Street, p.41	●	●	●		●	●
Sidepath/Multi-Use Path p.43		●		●	●	
Speed Cushion/Raised Crossing, p.45	●	●	●			●
Yield Street, p.47	●	●		●		●

Access Diverter





Purpose

Reduces motor vehicle traffic volumes on residential streets where bicyclists and pedestrians are prioritized and in other places where lower volumes of motor vehicle traffic are desired.

Description

At an intersection, some or all motor vehicle traffic is diverted away from pedestrian and bicycle priority streets using a physical diverter island that prevents turns or certain through movements, reducing motor vehicle volumes and increasing comfort and safety of other street users. Access to the street for pedestrians and non-motorized vehicles is maintained allowing for through-use by these modes.

Primary Modes

Estimated Cost

$ $$ $$$ $$$$

Timeline

Safety Benefits

- Reduces motor vehicle volumes on the diverted roadway.
- May have moderate impact on motor vehicle speed on approach to diverter.
- Prioritizes pedestrian and bicyclists at diverted intersection.

Applicable Street Types

- Local

Other Location Guidance

- Useful on local streets with substantial cut-through traffic.
- Useful in areas with strong community interest in reducing motor vehicle volumes.

Design Guidance and Considerations

- Design should allow easy access for bicyclists and pedestrians.
- Use in conjunction with other traffic calming tools if speeding is a concern.
- Consider impacts to emergency vehicles, sanitation routes, and other critical services.
- Cut-throughs should be 5 to 7 feet wide to allow access for bicyclists while preventing motor vehicle passage.
- Consider whether less restrictive measures are available.

Expected Crash Reduction

96% decrease in risk of bicyclist injury on local streets with traffic diversion. (Mead, et al., 2014).

Systemic Safety Potential

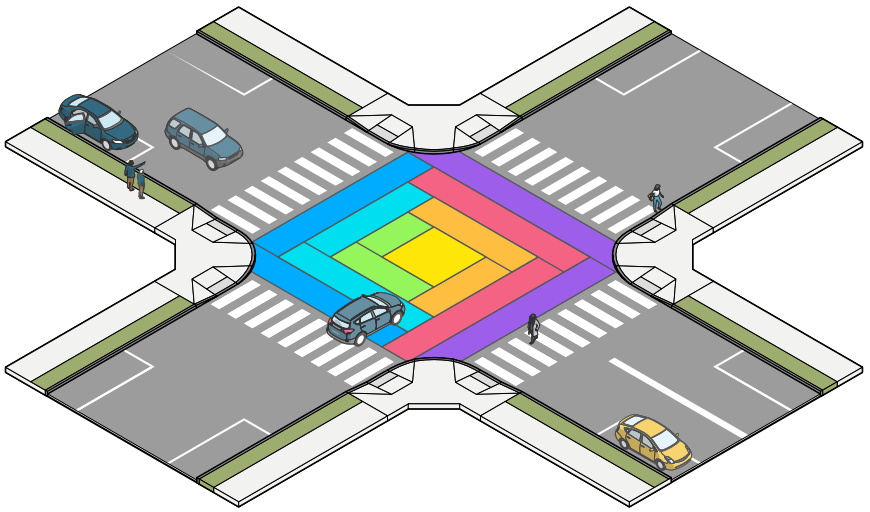
Traffic diverters are a spot treatment.

Additional Information

BIKESAFE Bicycle Safety Guide and Countermeasure Selection System

NACTO Urban Bikeway Design Guide

Asphalt Art



Purpose
Increases pedestrian and bicyclist safety while enhancing the beauty and livability of a streetscape.

Description
Asphalt art is a collaborative safety tool involving community stakeholders, artists, and the City. Typically installed at (but not limited to) intersections, painted designs are used to enhance the sense of place on a street and can strengthen a feeling of empowerment for area residents. Creating a more colorful streetscape improves driver attentiveness and can reduce vehicle speeds, leading to fewer and less severe crashes.

Primary Modes

Estimated Cost
$ $$ $$$ $$$$

Timeline

Safety Benefits
- Increases driver yielding at pedestrian crossings.
- Increases driver attentiveness and may reduce speeds.
- Reduces pedestrian and bicyclist involved crashes.

Applicable Street Types

- Local

Other Location Guidance

- Typically installed at mid-block pedestrian crossings or intersections.
- Often used to enhance visual appeal of quick-build curb extensions.

Design Guidance and Considerations

- Neighborhood character should be considered when selecting or designing asphalt art.
- Asphalt art is often a beneficial finishing touch to other capital projects.

Expected Crash Reduction

A study done at 17 asphalt art sites across the U.S. found a 50% reduction in crashes involving pedestrians and bicyclists and a 37% drop in injury crashes within two years of installation. (Bloomberg, 2022).

Systemic Safety Potential

This is a spot treatment.

Additional Information

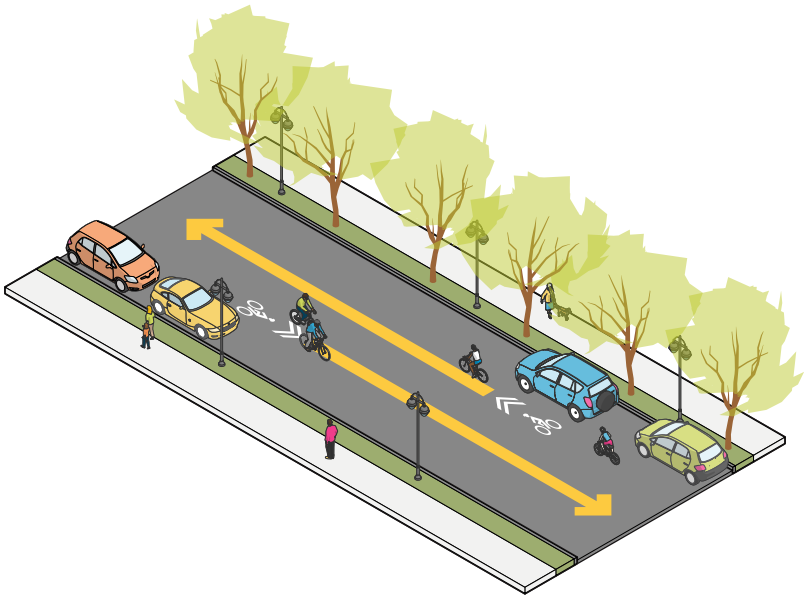
Bloomberg Philanthropies Asphalt Art Initiative

Bloomberg Asphalt Art Safety Study

Asphalt Art Guide

DDOT Arts in the Right-of-Way

Bicycle Boulevard



Purpose
Prioritizes bicyclist travel and provides safe crossings of busy arterial streets.

Description
Bicycle boulevards are a low-stress, shared roadway bicycle facility appropriate for roadways with low motor vehicle volume. Bicycle boulevards use a combination of signs, pavement markings, and traffic management measures to discourage through travel by motor vehicles, creating a safe and convenient route for bicyclists. Bicycle boulevards are a key component of a low-stress bike network. There are many local streets with existing low speeds and volumes that offer many features of a safe bicycling environment, but formally implementing the design treatments of a bicycle boulevard can enhance the safety and comfort of the facility.

Primary Modes

Estimated Cost
$ $$ $$$ $$$$

Timeline

Safety Benefits
- Increases level of comfort for bicyclists of all ages and abilities.
- Improves conditions for pedestrians when implemented with enhanced pedestrian crossings.
- Provides neighborhood residents with lower motor vehicle speeds and volumes.

Applicable Street Types

- Local

Other Location Guidance

- Should not be implemented on roadways with an 85th percentile speed above 25 mph.
- Not recommended on roads outside residential areas.

Design Guidance and Considerations

- Signage and pavement markings are the basic elements of a bicycle boulevard, indicating that a roadway is intended to be a shared, bicycle priority street.
- Signage and pavement markings alone do not create a safe bicycling environment, but rather reinforce the other traffic calming elements of the roadway.
- Supplemental signage is necessary at major intersection crossings.
- Addition of wayfinding signage guiding users to nearby destinations may also create a branding opportunity for the city.
- Due to the role that bicycle boulevards play in a low-stress bike network, route planning is a critical element of implementing a bicycle boulevard. Bicycle boulevards provide strategic connections between other bicycle facilities and key destinations.
- Center lines should not be used unless at the approach to an intersection.
- Other tools, such as speed humps, chicanes, and curb extensions, should be used in conjunction with a bicycle boulevard to provide speed management elements for motor vehicle traffic.

Expected Crash Reduction

Studies done in Berkeley, CA, found that crash rates on bicycle boulevards are 50% to 88% lower than the parallel adjacent arterial routes. In Vancouver and Toronto, Canada, there was found to be a 96% reduction in injury risk in comparison to streets with no on-road bike facilities (Fehr & Peers, 2018).

Systemic Safety Potential

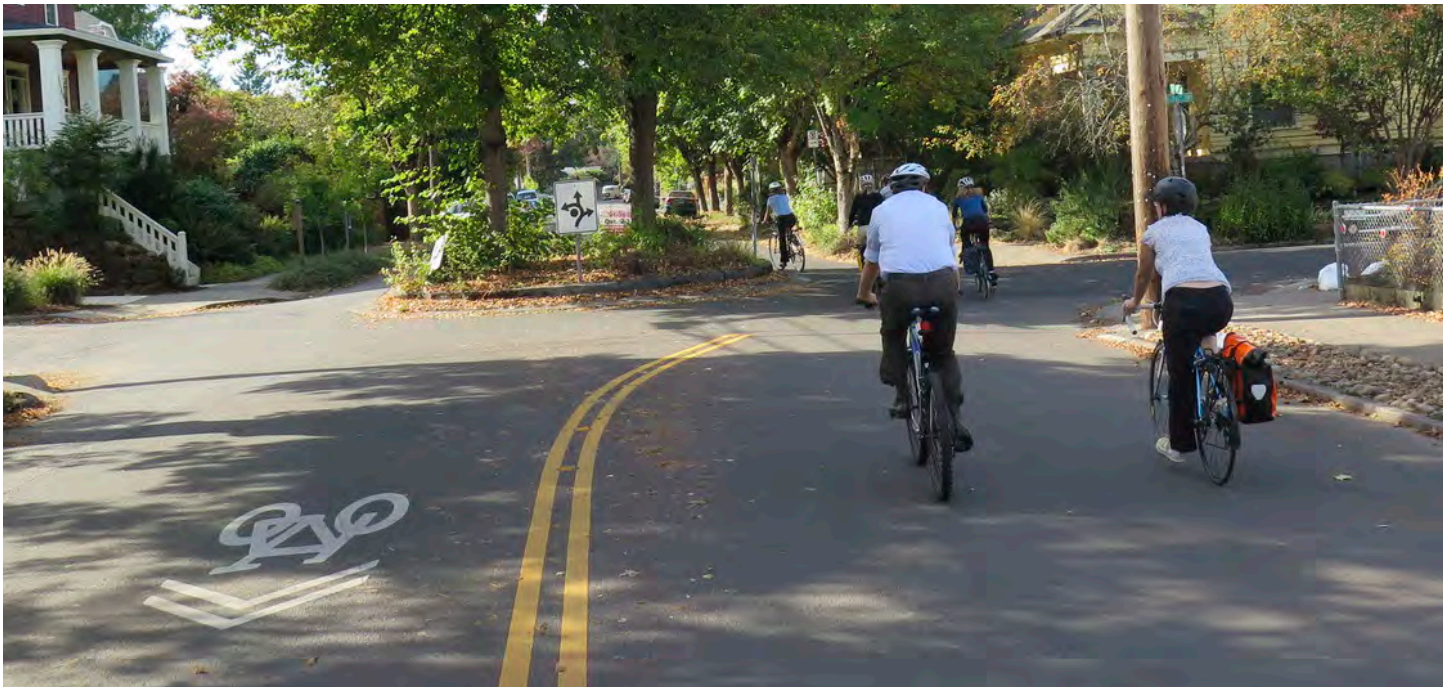
This is a systemic corridor recommendation that improves road conditions for all roadway users.

Additional Information

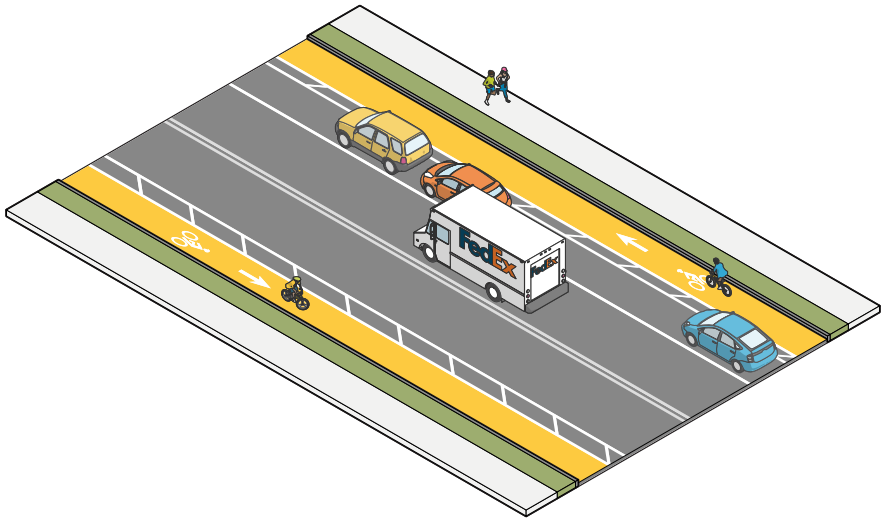
NACTO Urban Bikeway Design Guide

Small Town and Rural Design Guide

Safety Efficacy Confidence Levels for Pedestrian & Bicycle Treatments



Buffered Bike Lane



Purpose
Increases comfort of bicyclists by adding additional separation between the bicycle lane and motor vehicle traffic.

Description
A buffered bicycle lane is a conventional bicycle lane that is paired with a designated buffer space to create additional separation from the adjacent motor vehicle travel lane or parking lane.

Primary Modes

Estimated Cost
$ $$ $$$ $$$$

Timeline

Safety Benefits
- Increases separation between motor vehicles and bicyclists.
- Encourages bicyclists to ride outside of the door zone when placing a buffer between parked cars and bike lane.

Applicable Street Types

- Arterial
- Collector
- Local

Other Location Guidance

- Not recommended on roadways with wide motor vehicle travel lanes.

Design Guidance and Considerations

- At intersections and driveways, ensure that there is appropriate signage and marking to improve awareness of the facility throughout the conflict zones.
- For buffered bike lanes, the buffer should be marked with 2 solid white lines.
- If wider than 3 feet, the buffer area should include interior diagonal crosshatching.
- Can be used on one or two-way streets.
- Buffered bike lanes are preferable to conventional bike lanes when roadway width allows.

Expected Crash Reduction

Although there is no documented crash reduction rate for a buffered bicycle lane, 58% of cyclists have indicated that they feel driver behavior is safer and calmer with a buffered bicycle lane.

A study in Montreal, Canada concluded that separated bike lanes were associated with a 28% decrease in the risk of injury (Lusk, et al., 2011).

Systemic Safety Potential

This is a systemic corridor recommendation that improves road conditions for all roadway users.

Additional Information

BIKESAFE Bicycle Safety Guide and Countermeasure Selection System

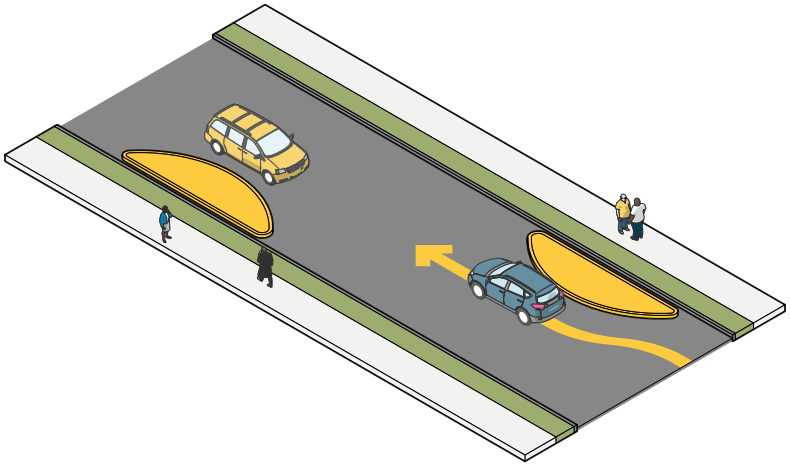
FHWA Bikeway Selection Guide

NACTO Urban Bikeway Design Guide

Safety Efficacy Confidence Levels for Pedestrian & Bicycle Treatments

FHWA Achieving Multimodal Networks

Chicane



Purpose
Calms motor vehicle traffic by creating horizontal diversions in the roadway.

Description
Chicanes slow motor vehicle traffic by introducing a series of lateral shifts in the roadway. Typically chicanes are created using either landscaped islands or on-street vehicle parking to create a taper, or S-shaped curve, in the roadway that forces drivers to slow down to maneuver between them. Chicanes may also include lane width restrictions, narrowing the street at certain points, and curb extensions.

Primary Modes

Estimated Cost
$ $$ $$$ $$$$

Timeline

Safety Benefits
- Reduces motor vehicle speeds.
- Can increase space for pedestrians through reallocation of space.

Applicable Street Types

- Collector
- Local

Other Location Guidance

- Chicanes should only be implemented on residential streets with low traffic volumes.

Design Guidance and Considerations

- Chicanes can be created by shifting parking or by building landscaped islands.
- The length of the taper on the chicane should reflect the desired speed of motor vehicles on the roadway.
- Chicanes may require additional signage and striping to provide drivers with a warning of change in roadway configuration.
- Potential conflict zones between motorists and bicyclists need to be avoided.
- Ensure visibility is not impacted by landscaping only with low shrubs or trees with high canopies.

Expected Crash Reduction

Although an estimate for expected crash reduction has not yet been determined, initial research indicates that the installation of chicanes increases motorist yielding. (Johnson, 2005).

Systemic Safety Potential

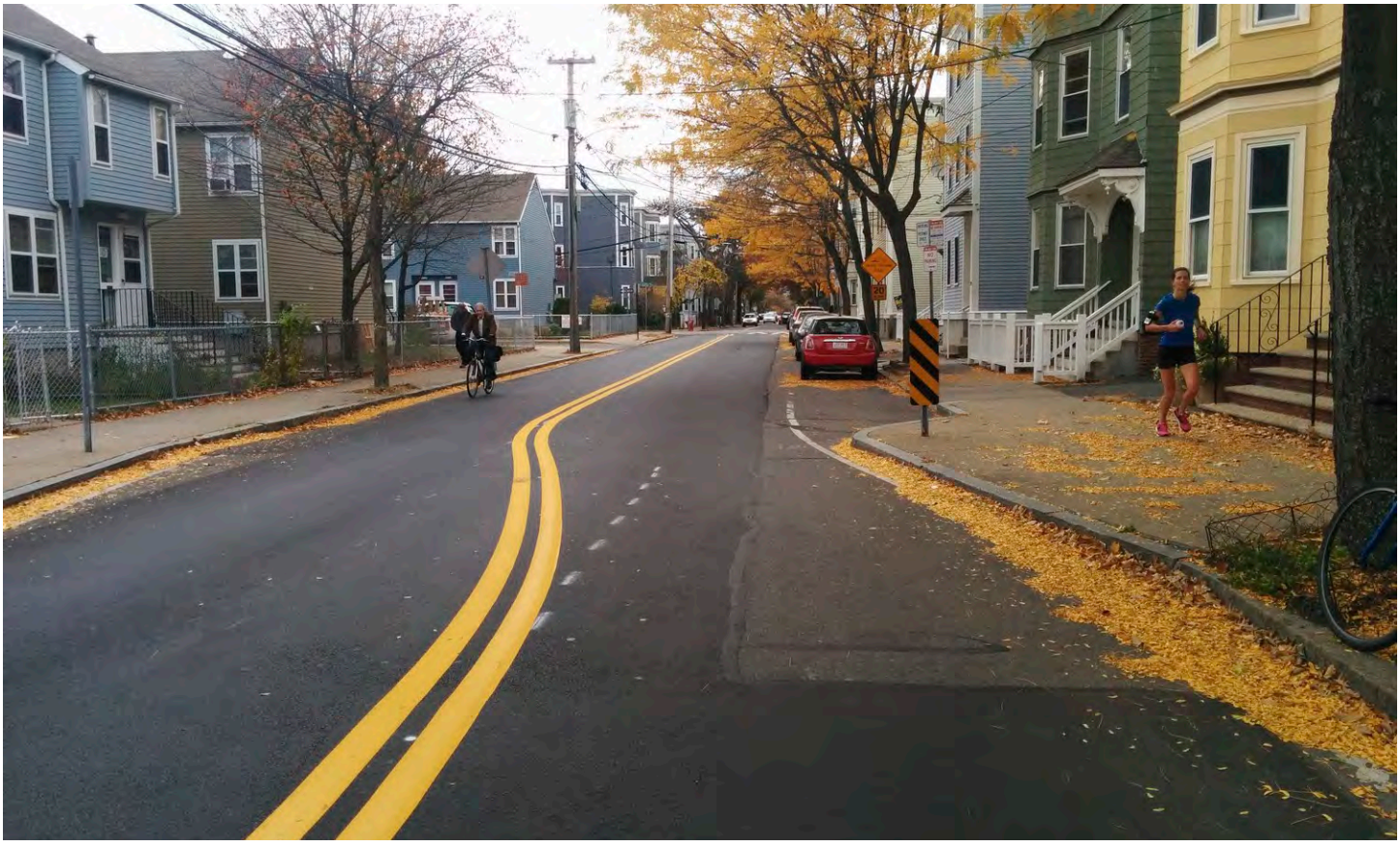
This systemic safety countermeasure addresses roadway safety issues with traffic calming tactics. This countermeasure can also be applied as a spot treatment at locations along corridors where speeding is a concern.

Additional Information

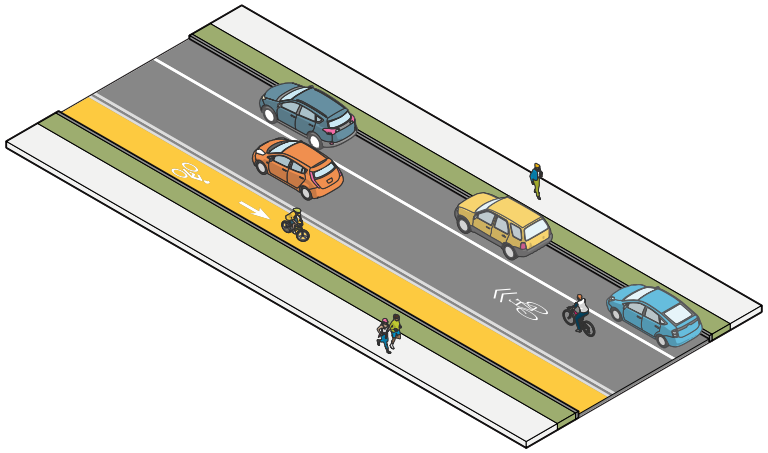
BIKESAFE Bicycle Safety Guide and Countermeasure Selection System

PEDSAFE Pedestrian Safety Guide and Countermeasure Selection System

NACTO Urban Street Design Guide



Contraflow Bike Lane



Purpose
Provides a dedicated on-street space for bicyclists to travel against the direction of vehicular traffic on a one-way street in specialized situations.

Description
Improves connectivity in a bicycle network by allowing bicyclists to safely travel in both directions on a street which allows only one-way travel for motor vehicles. Contraflow bike lanes are typically separated from the motor vehicle travel lane by a double yellow line, indicating an opposing direction of travel. Additional signage and pavement markings are used to identify the lane as a dedicated space for bicyclists.

Primary Modes

Estimated Cost
$ $$ $$$ $$$$

Timeline

Safety Benefits
- Formalizing two-way bicycle traffic decreases wrong-way travel and sidewalk riding.
- Increases visibility and predictability of bicyclists by creating a dedicated lane.
- In conjunction with narrowed or reduced motor vehicle travel lanes can result in decreased motor vehicle speeds.

Applicable Street Types

- Collector
- Local

Other Location Guidance

- Contraflow bike lanes are appropriate on one-way streets which experience consistent wrong-way or sidewalk riding.
- Can be used to facilitate connections along one-way corridors with high-use destinations.
- Can provide an alternative route with lower vehicle traffic and/or speeds parallel to a major corridor.

Design Guidance and Considerations

- Contraflow bike lanes should be installed on the right-hand side of the street so opposing traffic passes as it would on a two-way street.
- If parking is present on one side of the street, the lane should be installed on the other side to prevent conflicts with parking maneuvers and the door zone.
- On low traffic/speed streets, contraflow lanes can be paired with sharrows in the vehicle travel lane to facilitate two-way bicycle travel on a one-way street.
- On higher traffic/speed streets, vertical separation should be considered to provide increased protection and reduce traffic stress for bicyclists.

Expected Crash Reduction

While a crash reduction rate has not been calculated yet for contraflow bike lanes in U.S. cities, international studies have found that contraflow bike lanes reduce crashes involving bicyclists on one-way streets (Fehr & Peers, 2018).

Systemic Safety Potential

Contraflow bike lanes are ideally suited to close gaps in bicycle networks where one-way streets obstruct bicycle access or to provide an alternative route parallel to a major vehicular corridor. This facility can also be paired with a horizontal buffer or vertical separation to increase protection for bicyclists on streets with higher motor vehicle speeds and/or volumes.

Additional Information

BIKESAFE Bicycle Safety Guide and Countermeasure Selection System

NACTO Urban Bikeway Design Guide