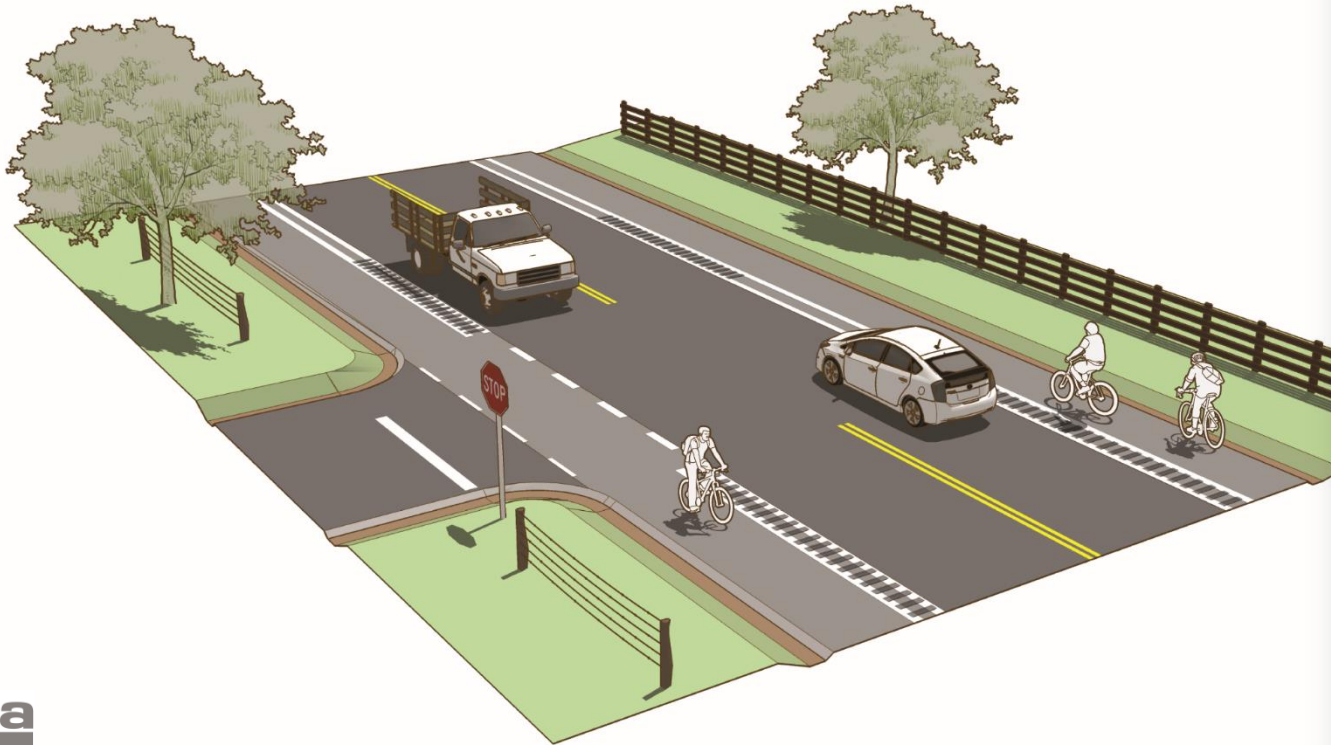


Small Town *and* Rural Multimodal Networks



DECEMBER 2016

Small Town *and* Rural Multimodal Networks



U.S. Department of Transportation
Federal Highway Administration



Funding Partners



Project Team



MONTANA
STATE UNIVERSITY

**Western
Transportation
Institute**



Alta Planning + Design

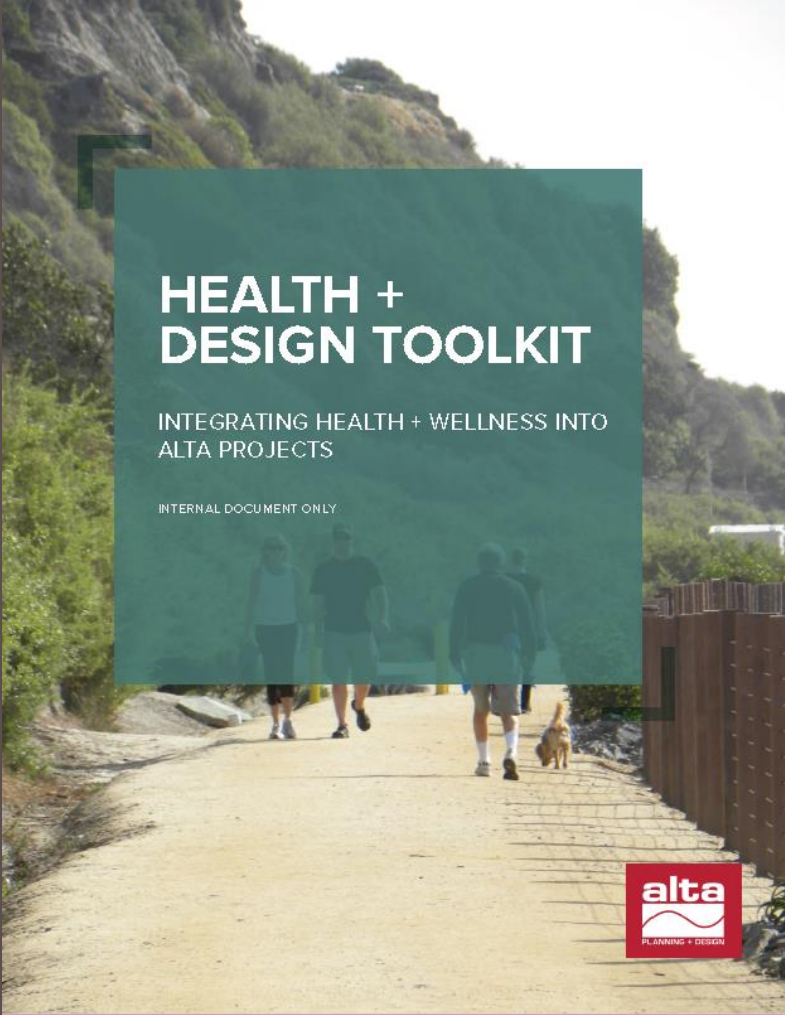
Founded in 1996, we are full-service active transportation planning, design, and engineering firm



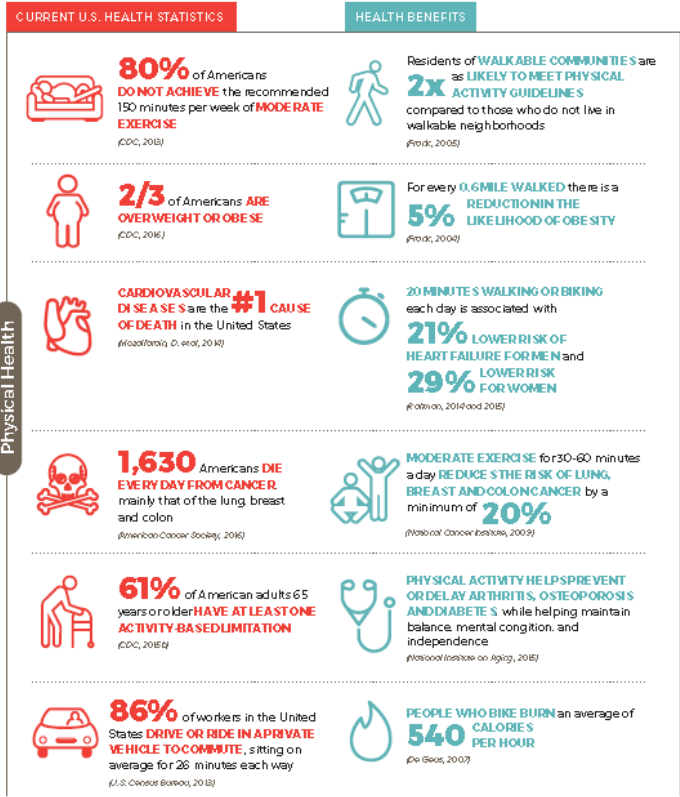
Implementation of over 14,000 km of bikeways, walkways and trails

Alta Planning + Design

Conduct cutting edge international, national and local research

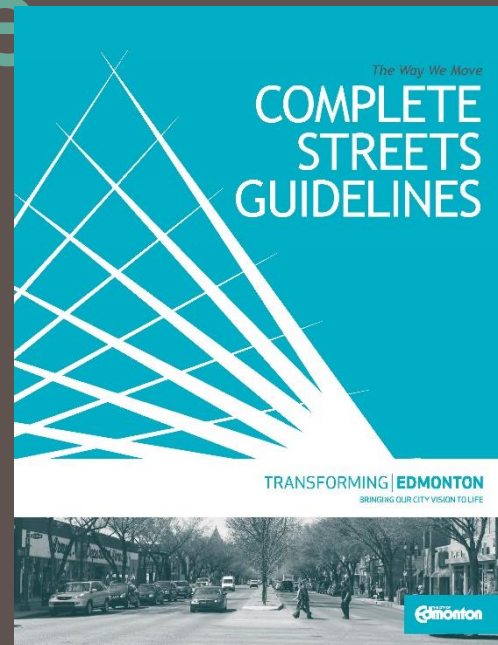


Health Benefits of Walking & Biking



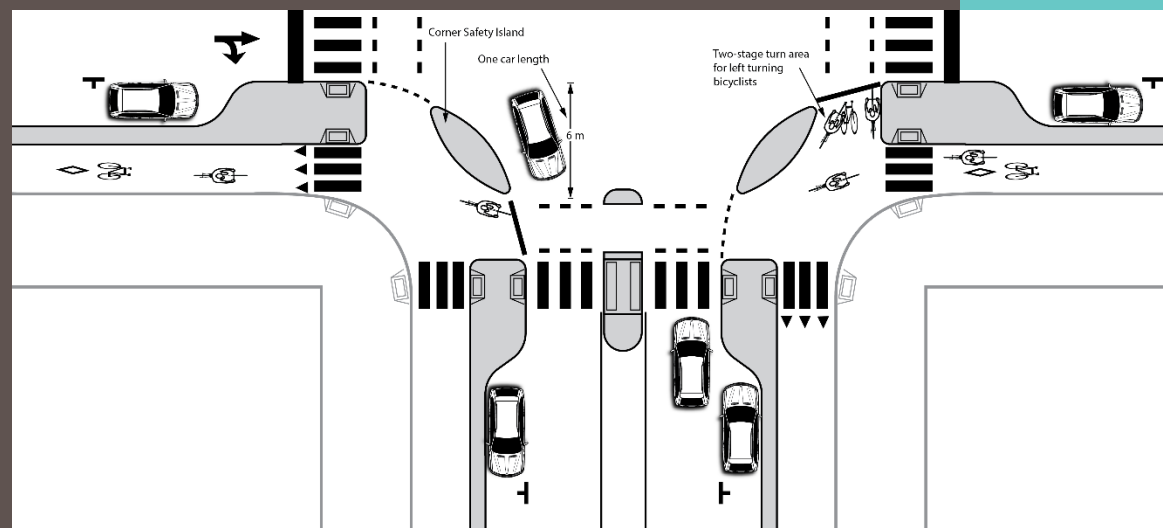
Physical Health

Design Guidance



Urban Bikeway Design Guide

National Association of
City Transportation Officials

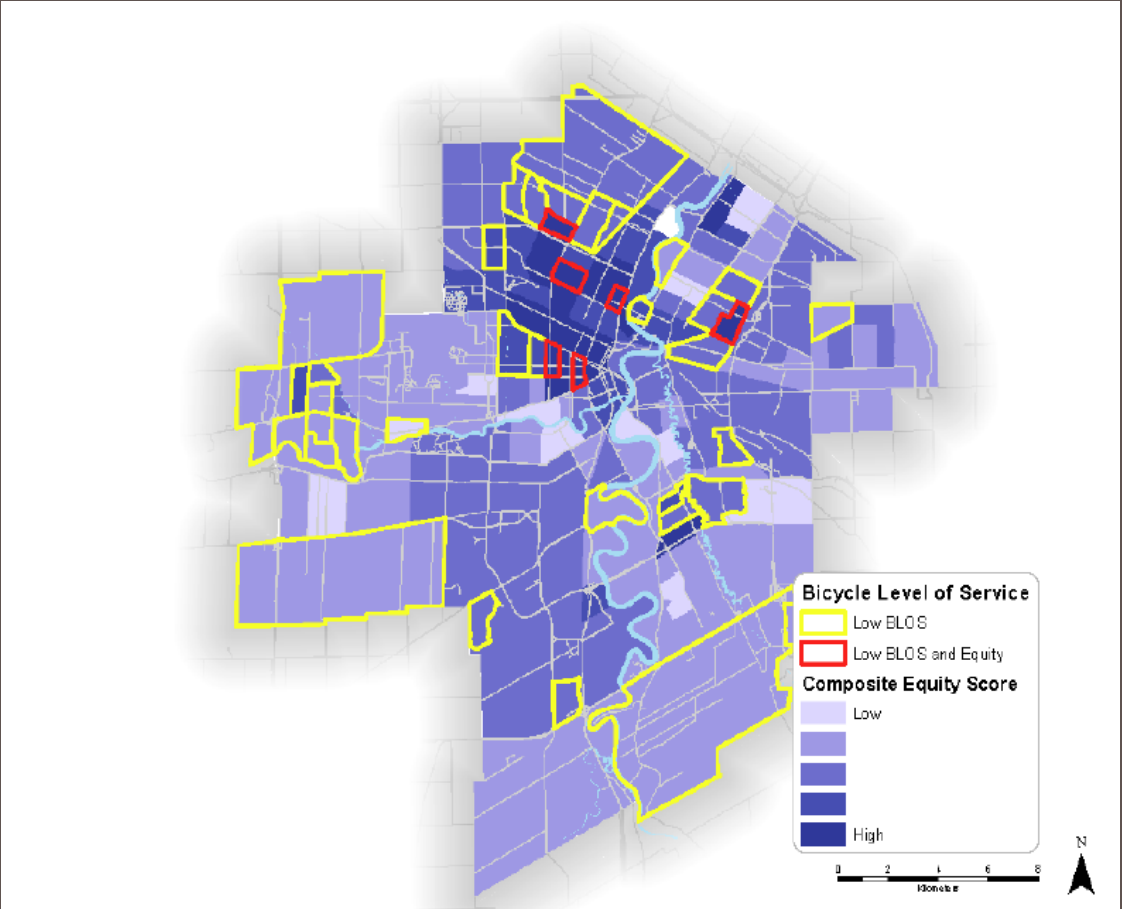


All pavement markings shown are indicative only. Refer to the MUTCDC or TAC Bikeway Traffic Control Guidelines for Canada for approved guidance on pavement markings.



Alta Planning + Design

Experts in innovative solutions



Alta Planning + Design



200+ planners, designers, landscape architects,
engineers
in 30 offices

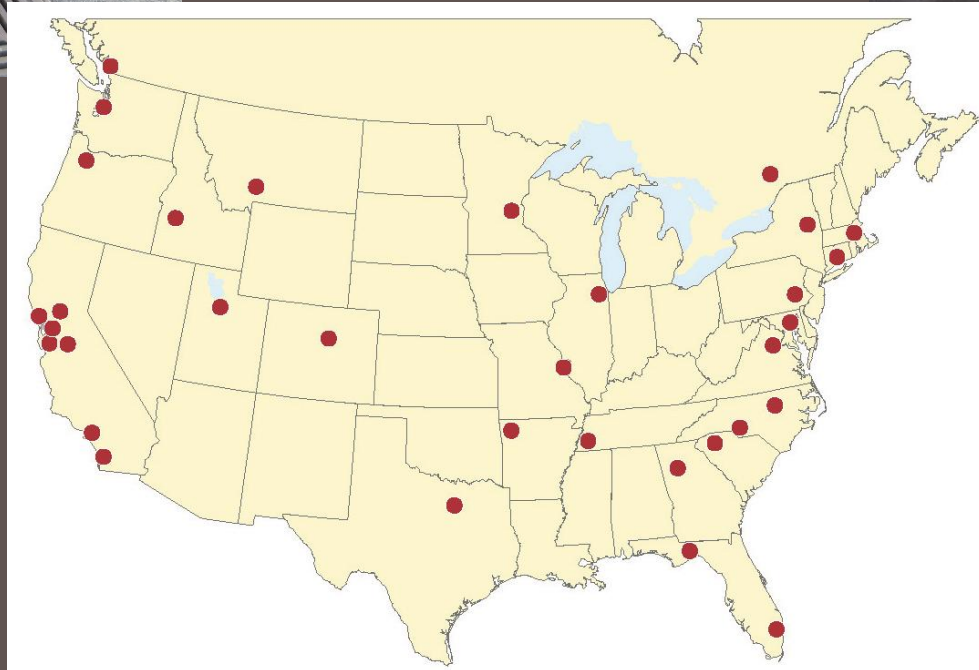
Alta Planning + Design



Gavin Davidson, MCIP, RPP
Principal, Senior Planner
Vancouver



Kate Whitfield, P.Eng., MCIP, RPP
Senior Associate Engineer/Planner
Ottawa



History and Context

Rural Practice and Multimodal
Design Guidelines



DECEMBER 2016

Small Town *and* Rural Multimodal Networks



U.S. Department of Transportation
Federal Highway Administration

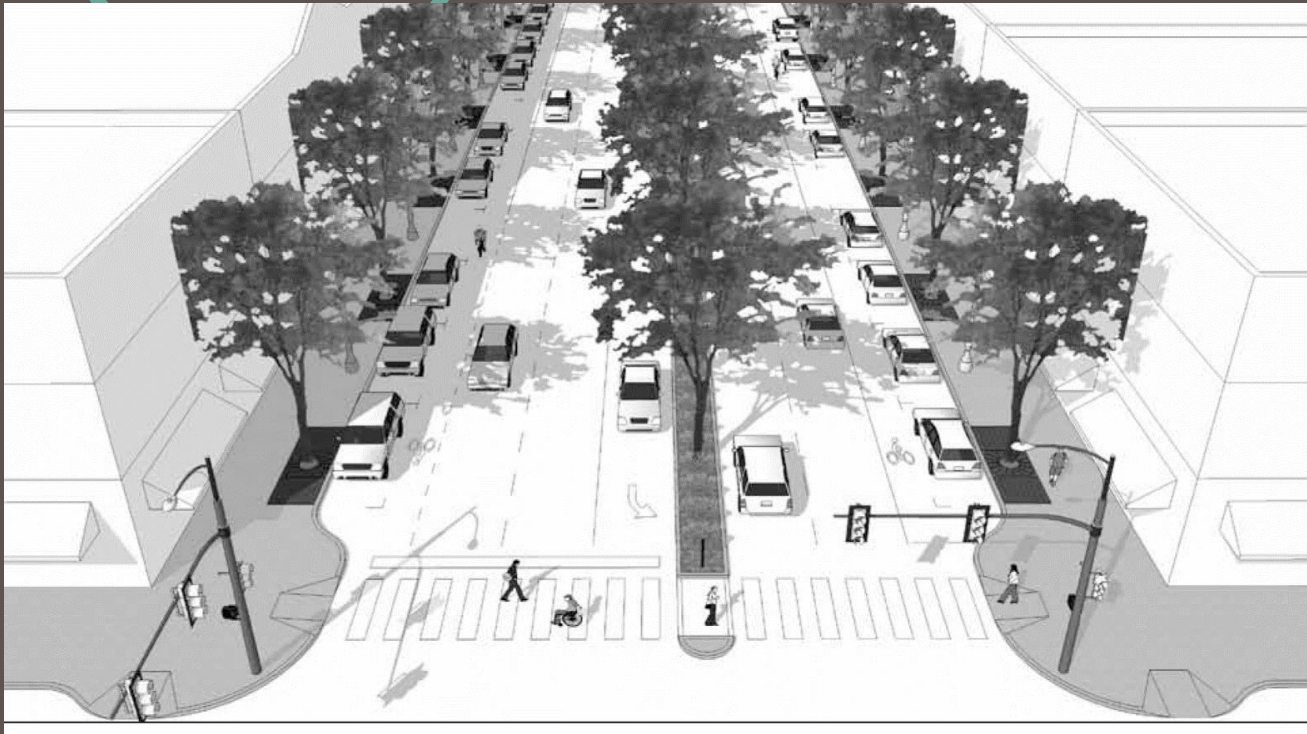
Where did the guide come from - Sources

- AASHTO Flexibility Guide 2004
- AASHTO Bike Guide 2012
- AASHTO Pedestrian Guide 2004, 2017
- AASHTO Green Book 2011
- AASHTO Low Volume Roads 2001, 2017
- FHWA Achieving Multimodal Networks 2016
- FHWA Resurfacing Guide 2016
- FHWA MUTCD 2009
- FHWA Separated Bike Lane Guide 2015
- PROWAG 2011, 2013, 2014
- BIKESAFE 2014

FHWA Policy Statement (2010)

“... DOT encourages transportation agencies to *go beyond the minimum requirements*, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of *all ages and abilities*...”

ITE Walkable Thoroughfares (2010)



ITE. *Designing Walkable Urban Thoroughfares: A context Sensitive Approach*. 2010. p. 62



An ITE Recommended Practice

Designing Walkable Urban Thoroughfares:
A Context Sensitive Approach



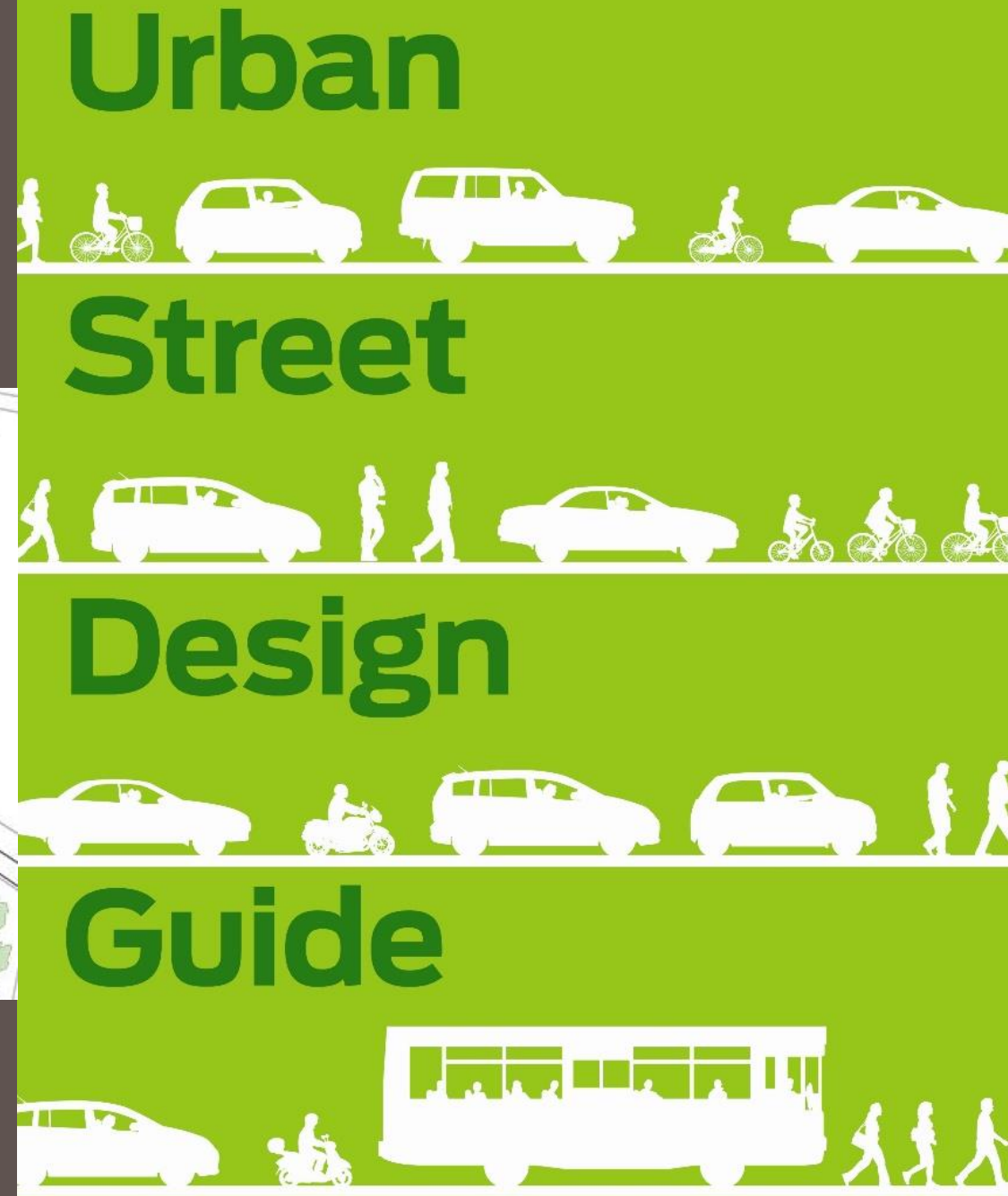
Institute of Transportation Engineers

CONGRESS
FOR THE
NEW
URBANISM

NACTO Urban Street Design Guide (2013)



NACTO. *Urban Street Design Guide*. 2013.



National Association of City Transportation Officials



FHWA Design Flexibility Memo (2013)

In strong support of these resources, FHWA released another memorandum, this time in support of **design flexibility**.

In this, they specifically call out the ITE and NACTO resources as good sources of guidance.



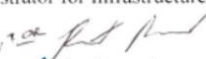
Memorandum

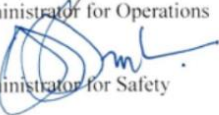
SENT BY ELECTRONIC MAIL

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

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

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

In Reply Refer To:
HEPH-10

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.

Why Create a Small Town Guide?

ONE SIZE DOES NOT FIT ALL.



LONGER NON-LOCAL TRIP
DISTANCES



HEALTH DISPARITIES



HIGHER CRASH RATES



INCOME DISPARITIES

Guide Structure

1. Introduction
2. Mixed Transportation Facilities
3. Visually Separated Facilities
4. Physically Separated Facilities
5. Key Network Linkages
6. Planning and Project Development

Metric and Imperial
– Thank you FHWA!

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- 1-9 *How to Use this Guide*
- 1-11 *Creating Networks*
- 1-13 *Common Challenges in Small Town and Rural Areas*
- 1-15 *Reference Guide*
- 1-16 *Accessibility Standards*

Chapter 2–Mixed Traffic Facilities

- 2-3 *Yield Roadway*
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- 5-15 *Multimodal Main Streets*
- 5-21 *Bridges*
- 5-27 *Access to Public Lands*

Chapter 6–Planning and Project Development

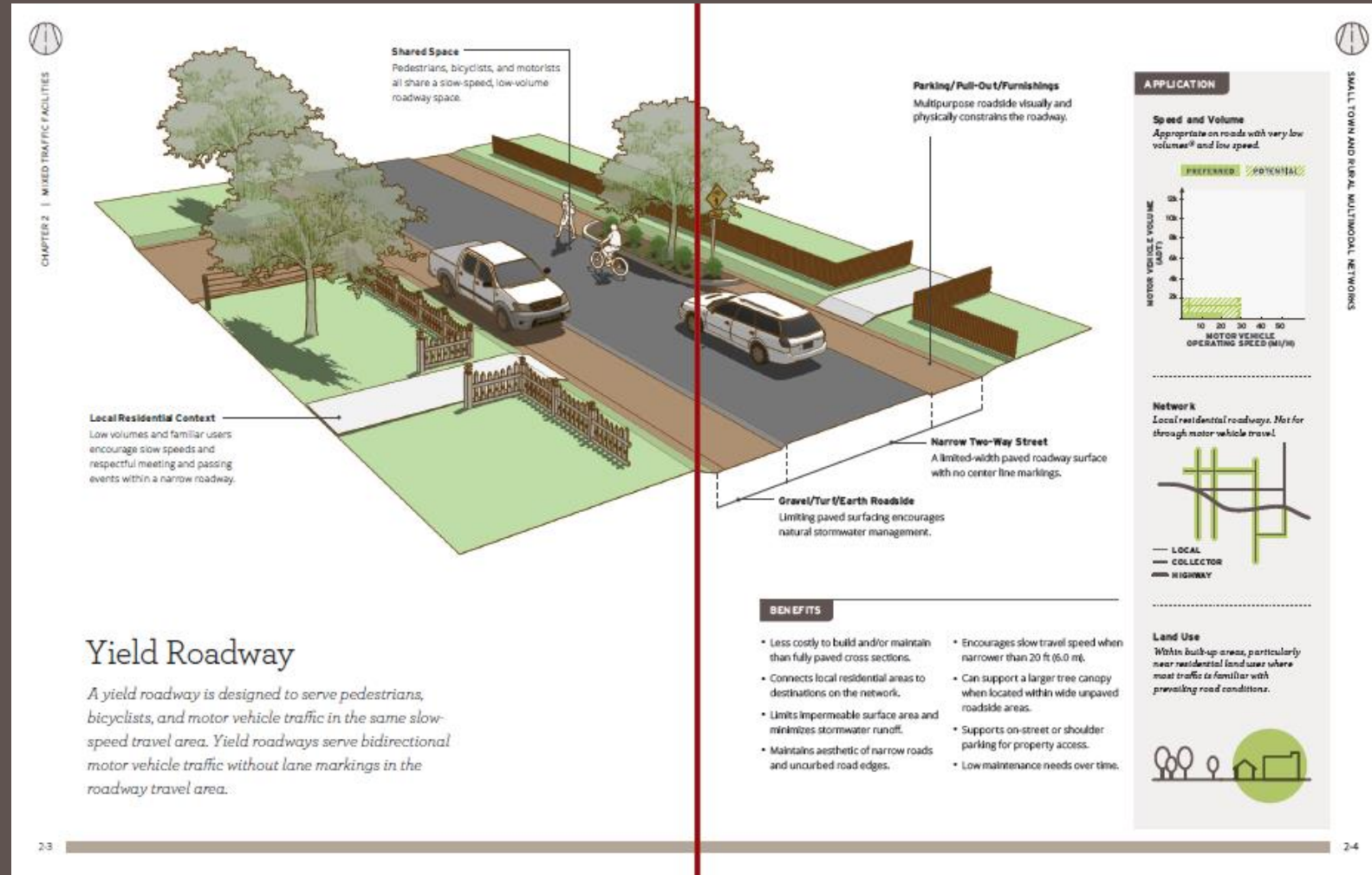
- 6-3 *The Transportation Planning Process*
- 6-4 *Steps in the Transportation Planning Process*
- 6-5 *Key Products in the Transportation Planning Process*
- 6-6 *What are the Key Products of the Transportation Planning Process?*

Content Areas

- Application
- Benefits
- Guidance
 - Geometric Design
 - Markings
 - Signs
 - Intersection treatment
 - Implementation
 - Accessibility

Yield Roadway

A yield roadway is designed to serve pedestrians, bicyclists, and motor vehicle traffic in the same slow-speed travel area. Yield roadways serve bidirectional motor vehicle traffic without lane markings in the roadway travel area.



Content Areas - Case Study

- Community Context
- Key Elements
- Role in the Network
- How Funded

CHAPTER 2 | MIXED TRAFFIC FACILITIES

CASE STUDY | YIELD ROADWAY
Manzanita, Oregon

PROJECT DESCRIPTION

DETAILS

COMMUNITY CONTEXT
Manzanita, Oregon, is a small town located on the Pacific coast. The town is surrounded by the Pacific Mountain forests. The town has a population of approximately 2,500 to 3,000 people.

KEY DESIGN ELEMENTS
The standard is 20 ft wide with a concrete curb on the right side.

ROLE IN THE NETWORK
Manzanita residents downtown local walking or of the community.

FUNDING
The key is that it requires a minimum of 20 ft wide local streets. The City of Manzanita has been able to meet City standards are maintained adjacent property owners some roads within the County roads maintain County.

For more information of Manzanita website: <http://www.manzanita.or.us>

2-7

CHAPTER 3 | VISUALLY SEPARATED FACILITIES

CASE STUDY | BIKE LANE
Lyndonville, Vermont

PROJECT DESCRIPTION

DETAILS

COMMUNITY CONTEXT
Lyndonville, population 1,207, is a village within the town of Lyndon, VT. Located in Vermont's rural Northeast Kingdom, Lyndonville is home to Lyndon State College with approximately 1,400 students. Nearby Burke Mountain offers lift access downhill mountain biking, and Kingdom Trails anchors a growing network of mountain bike trails in the region.

KEY DESIGN ELEMENTS
Painted buffered bike lane with additional pavement markings.

ROLE IN THE NETWORK

CHAPTER 2 | MIXED TRAFFIC FACILITIES

CASE STUDY | ADVISORY SHOULDERS
Hanover, New Hampshire

PROJECT DESCRIPTION

DETAILS

COMMUNITY CONTEXT
Hanover, NH, is a town of approximately 11,000 with 8,000 living in the town center. Hanover is home to Dartmouth College with a student population of 6,300. Hanover is located on the Connecticut River and has a dense built-up area surrounded by small suburban neighborhoods that transition quickly to a very rural setting.

KEY DESIGN ELEMENTS
The advisory shoulders project was built on a low-volume, low-speed, residential road. Implementation included pavement markings and signs.

ROLE IN THE NETWORK
Valley Road is a local bicycle connection between neighborhoods with schools, the downtown, and the Dartmouth College campus. Sidewalks were removed due to root damage and were not replaced because the neighborhood preferred the rural look of streets without sidewalks. Advisory shoulders use existing pavement to provide space prioritized for bicycles and pedestrians at very low cost.

FUNDING
The Hanover Bicycle and Pedestrian Plan and the advisory shoulders project

2-8

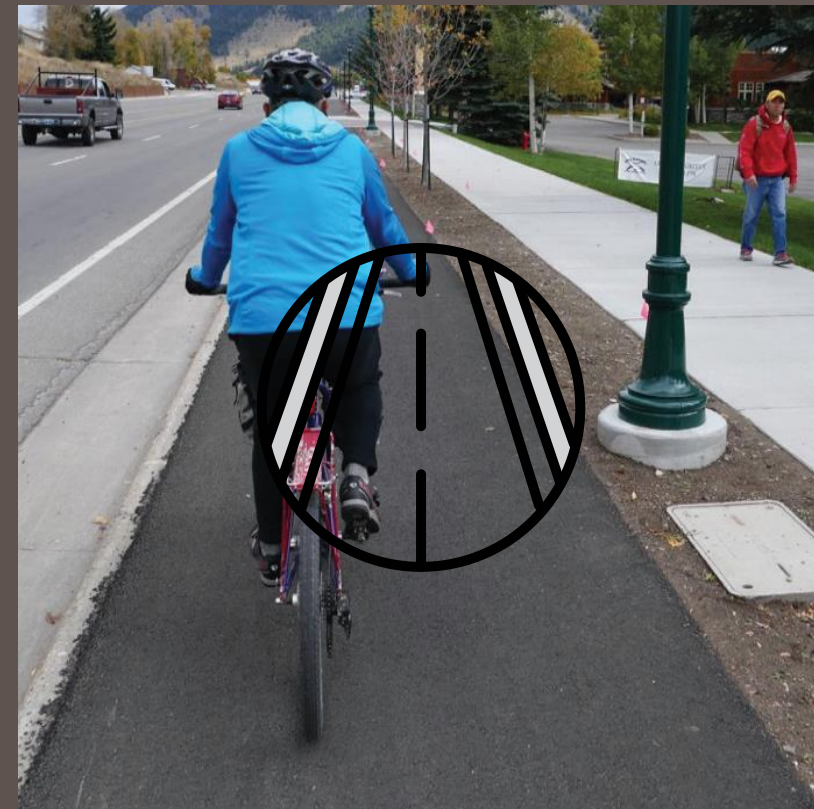
Applications



Mixed Traffic



Visually Separated



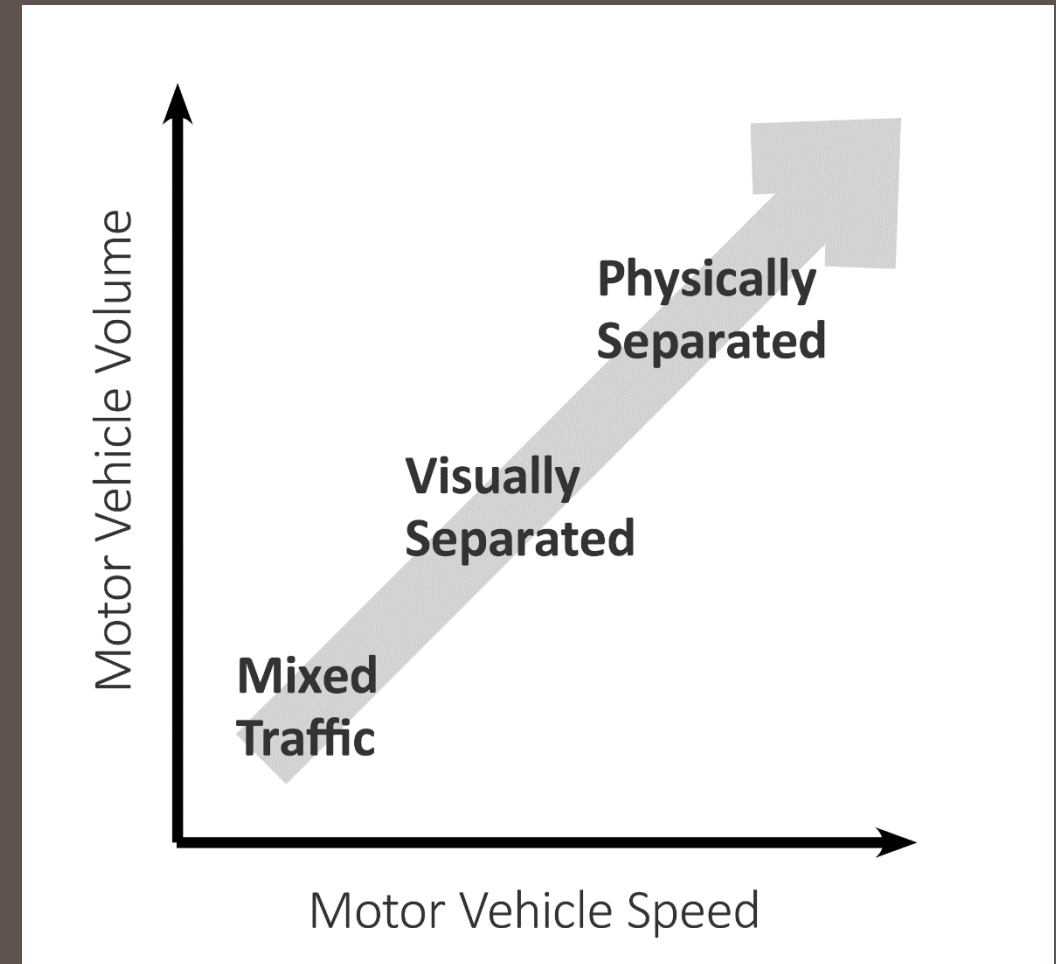
Physically Separated

Focus on Complete Networks of Facilities

Networks are interconnected pedestrian and/or bicycle transportation facilities that allow people of all ages and abilities to safely and conveniently get where they want to go.

Facility Categories:

- Mixed Traffic
- Visually Separated
- Physically Separated



Varying Context and User Needs



Unimproved



Agricultural



Recreational

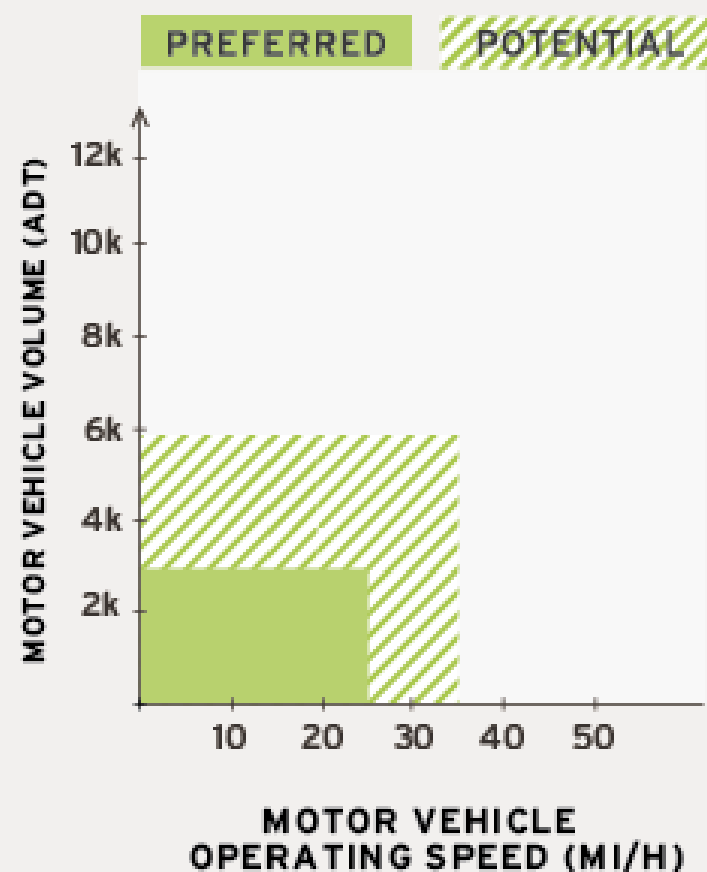


Downtown

EXAMPLE APPLICATION

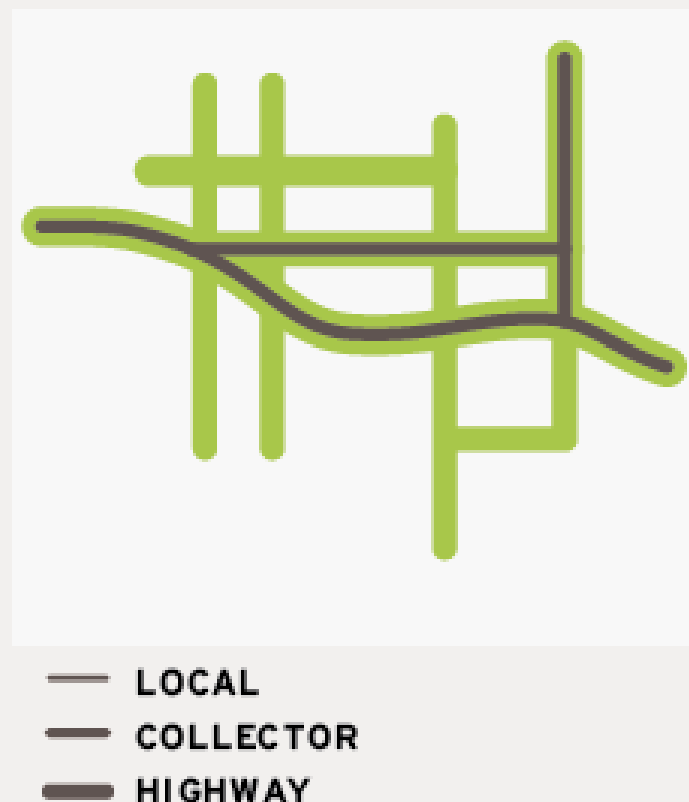
Speed and Volume

Most appropriate on streets with low to moderate volumes and moderate speed motor vehicles.



Network

Applies to constrained connections between built-up areas.



Land Use

For use outside, between and within built-up areas with bicycle and pedestrian demand and limited available paved roadway surface.



Facilities



Mixed Traffic

- Yield Roadway
- Bicycle Boulevard
- Advisory Shoulder



Visually Separated

- Paved Shoulder
- Bike Lane



Physically Separated

- Shared Use Path
- Sidepath
- Sidewalk
- Separated Bike Lane

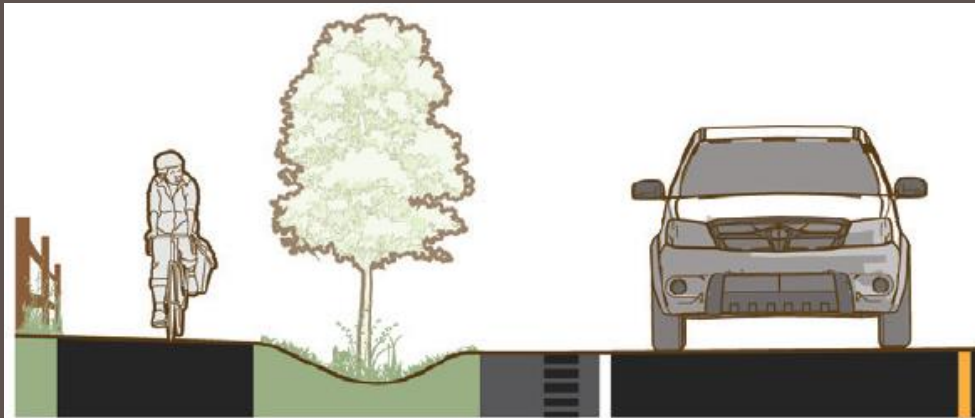


Figure 4-18. Separated bike lanes may be separated by an unpaved roadway separation, and a vertical element. When configured as directional facilities, separated bike lanes should be provided on both sides of the roadway.



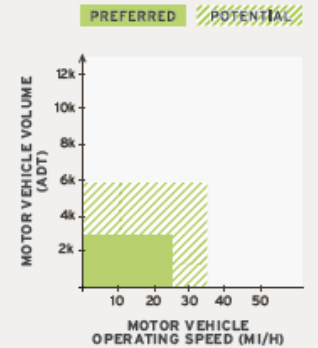
Figure 4-19. Separated bike lanes may be configured on an existing roadway surface by using a physical barrier such as a curb or median to separate the bikeway from the roadway.



APPLICATION

Speed and Volume

Most appropriate on streets with low to moderate volumes and moderate speed motor vehicles. ⁽⁴⁾



Network

Applies to constrained connections between built-up areas.



Land Use

For use outside, between, and within built-up areas with bicycle and pedestrian demand and limited available paved roadway surface.



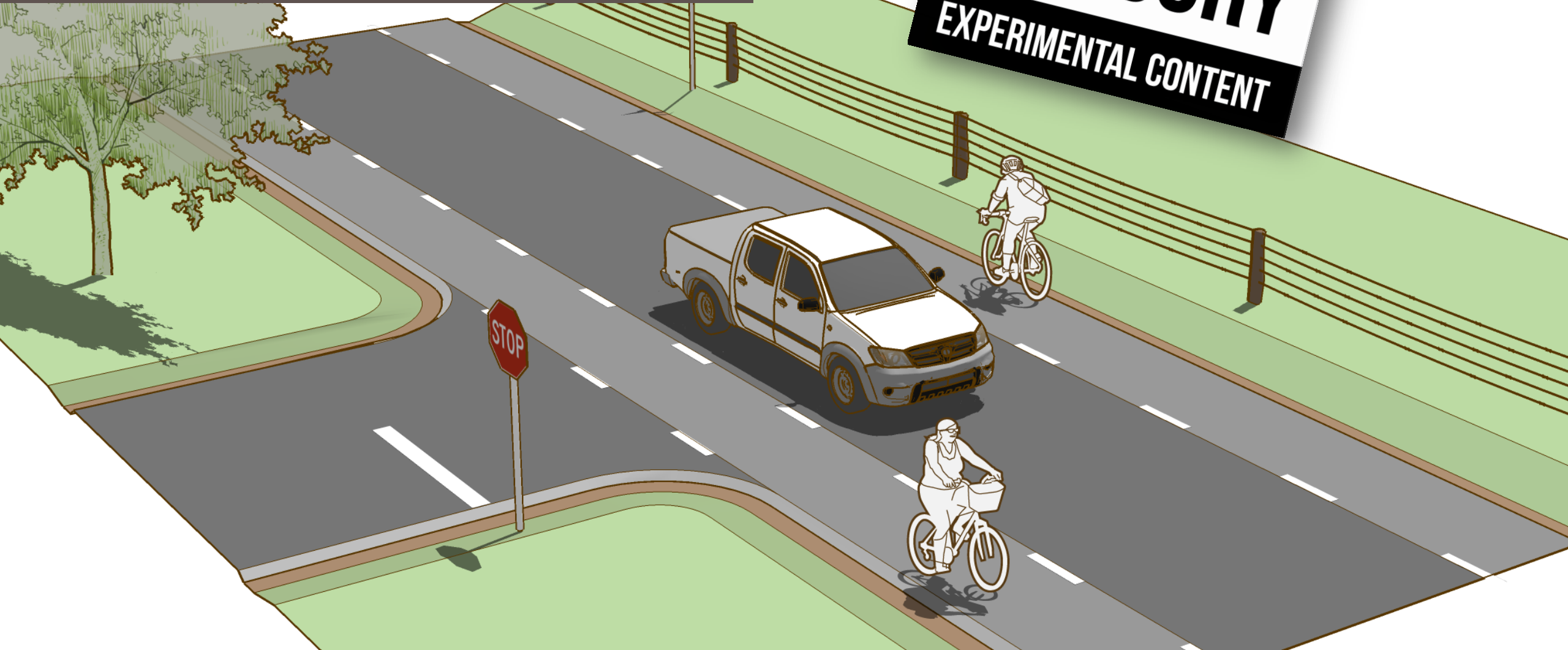
Bicycle Boulevard

- *Low-stress shared roadway bicycle facility, designed to offer priority movement for bicyclists*
- *Combine pavement markings, traffic calming measures, and crossing improvements to enhance bicyclist comfort*



Advisory Shoulder

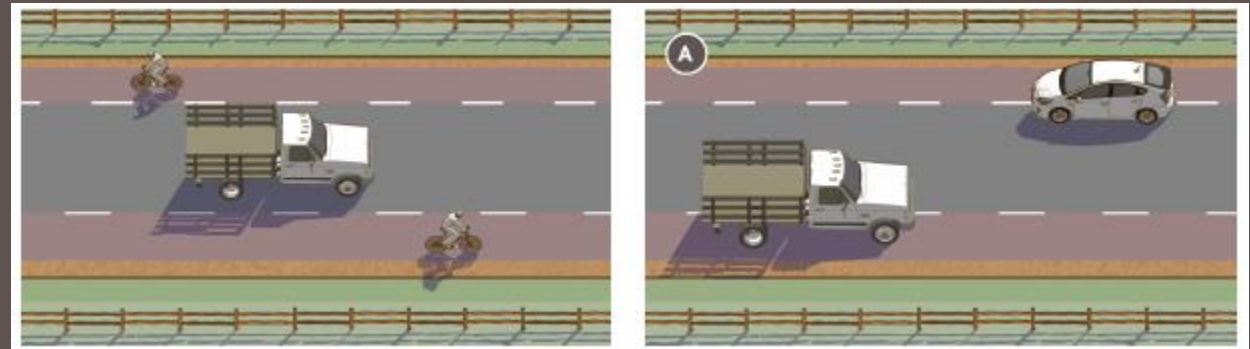
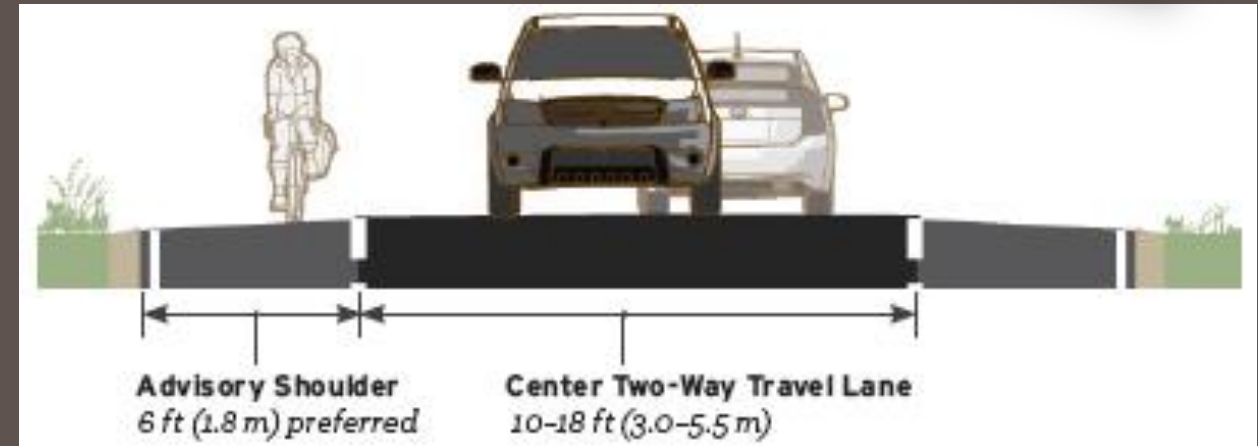
ENGINEERING
ADVISORY
EXPERIMENTAL CONTENT



Advisory Shoulder



- Establishes a shoulder on an otherwise too narrow road
- Delineated by pavement markings
- Colored pavement optional
- Must exit shoulder to overtake bicyclists
- Must enter shoulder when yielding to oncoming traffic



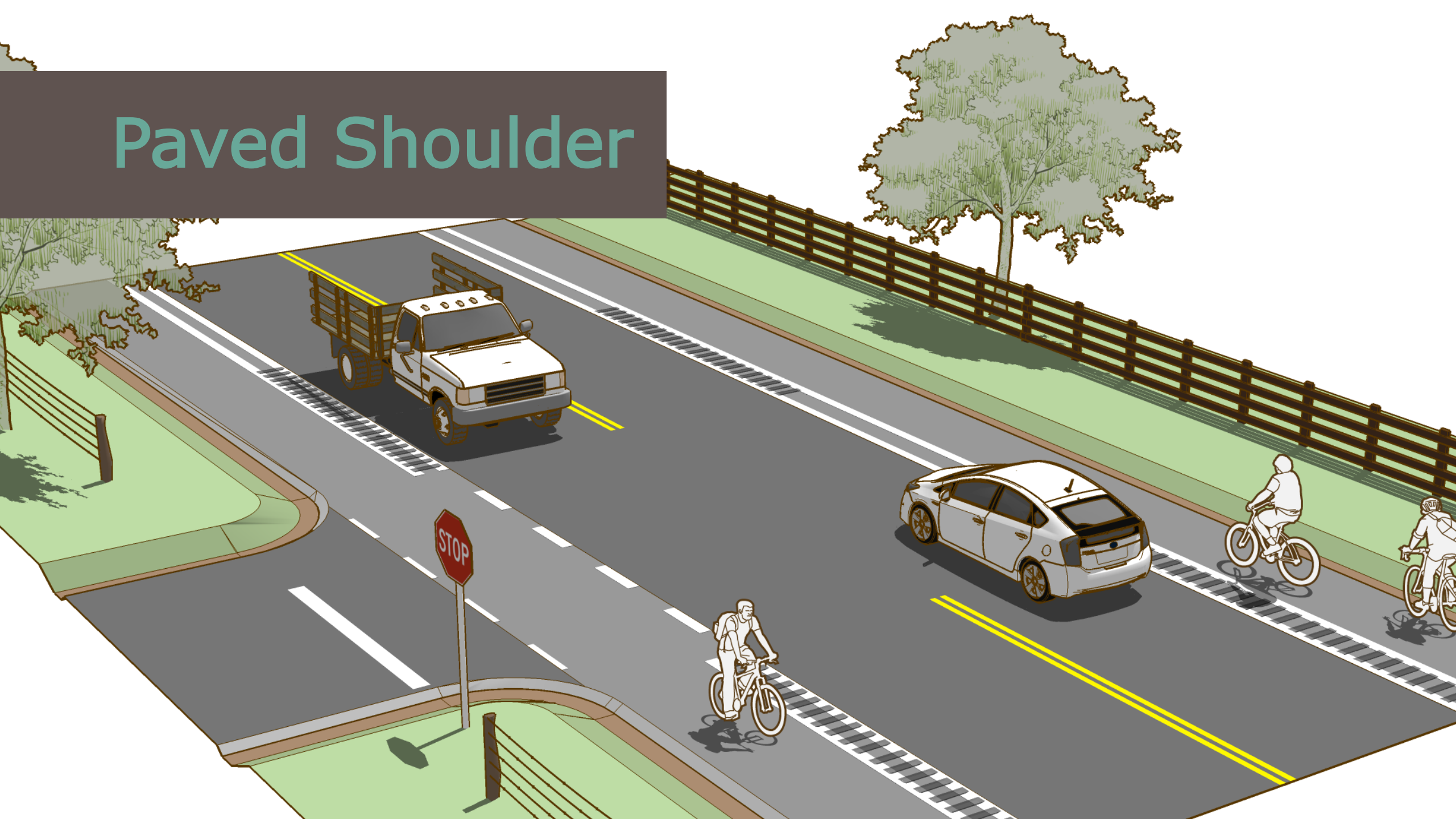


Edina, MN
Population: 49,300



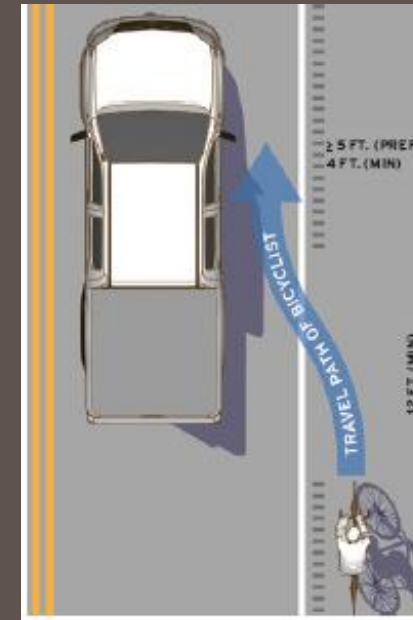
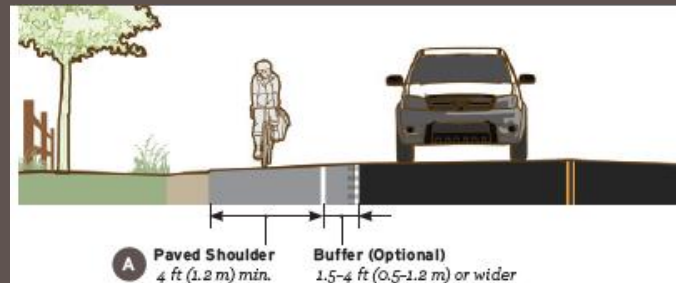
Note a small town
but...
Ottawa has Advisory
Bike Lanes on
Somerset West

Paved Shoulder



Paved Shoulder

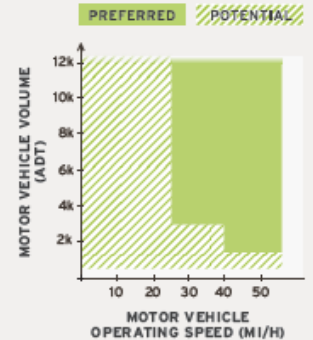
Paved shoulders on the edge of roadways can be enhanced to serve as a functional space for bicyclists and pedestrians to travel in the absence of other facilities with more separation.



APPLICATION

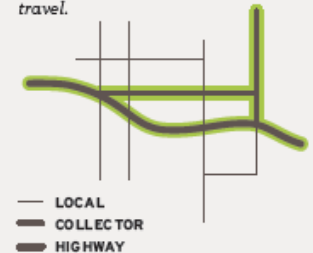
Speed and Volume

Appropriate on roads with moderate to high volumes and speeds and on roadways with a large amount of truck traffic. May function on multilane roads with heavy traffic but fails to provide a low-stress experience in this condition.



Network

Serves long-distance and regional travel.



Land Use

Appropriate outside and within built-up areas, near school zones and transit locations, and where there is expected pedestrian and bicycle activity. Walkable shoulders should be provided along both sides of county roads and highways routinely used by pedestrians.





Lake St. Louis, MO Pop. 14,831



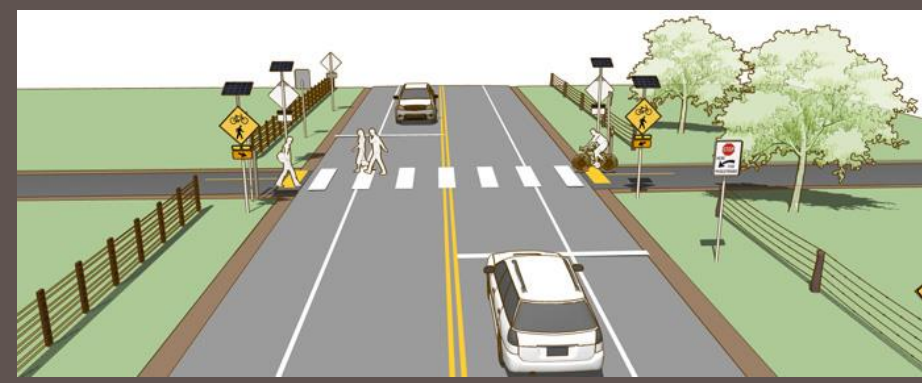
Rte. 100 - Wildwood, MO - Pop. 35,000

Shared Use Path

A shared use path provides a travel area separate from motorized traffic for bicyclists, pedestrians, skaters, wheelchair users, joggers, and other users. Shared use paths can provide a low-stress experience for a variety of users using the network for transportation or recreation.



Shared Use Path Guidance



Street Crossing Guidance

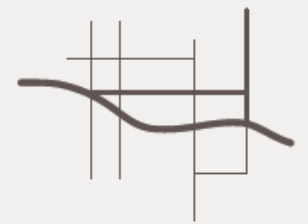
APPLICATION

Speed and Volume

Paths operating in independent corridors are fully separated from traffic. Facility provision is based on opportunity and connectivity rather than roadway context. In some cases, an independent corridor may offer similar connectivity and access to destinations as a nearby roadway.

Network

Serves connections independently of the street network. May function as a network alternative road and highway connections.



Land Use

Generally appropriate outside of built-up areas, and also as a corridor connection within built-up areas.



Appleton Trails Master Plan

Appleton, WI

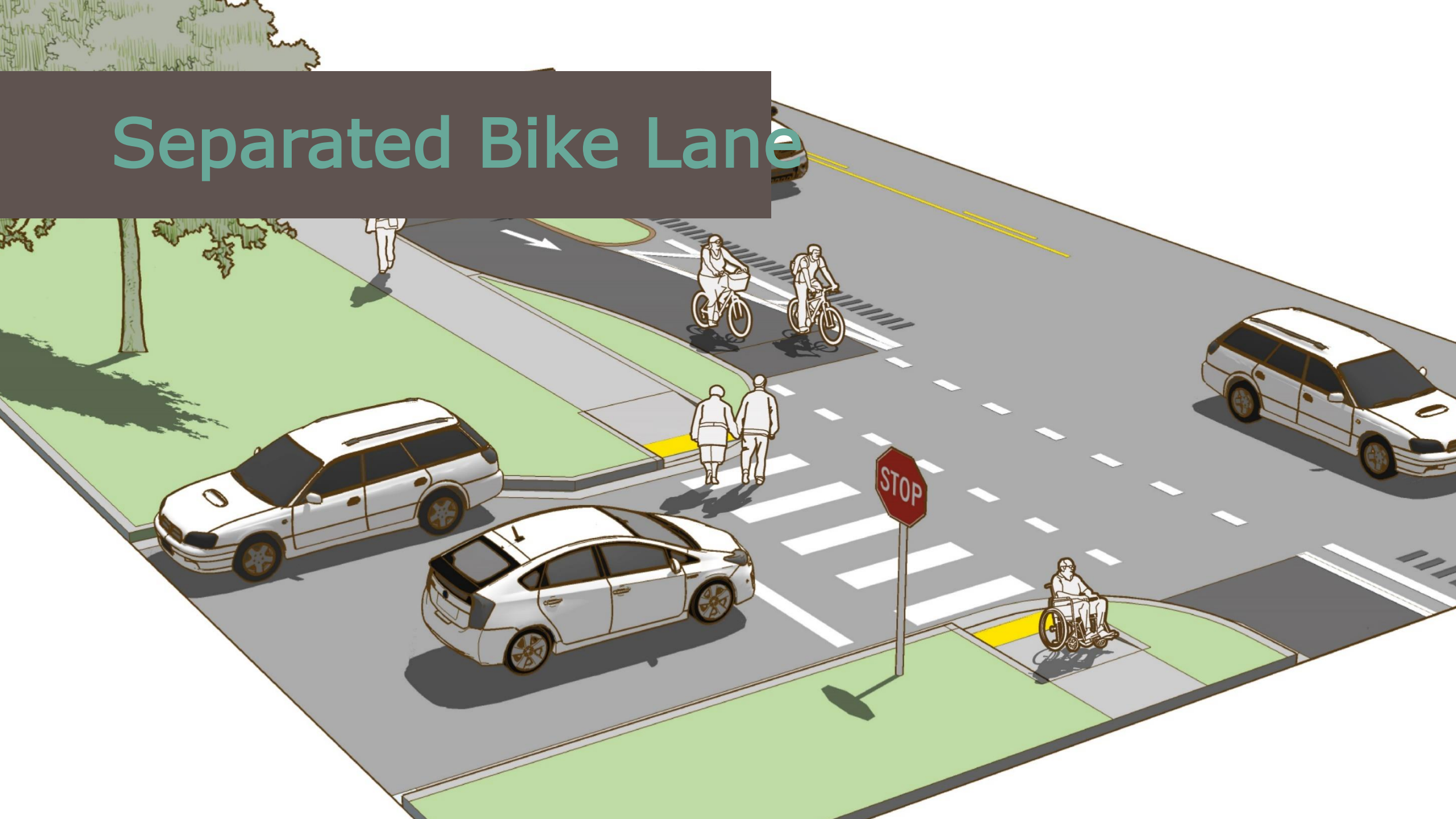


Shared Use Path

Marion, IA
Population: 36,000



Separated Bike Lane



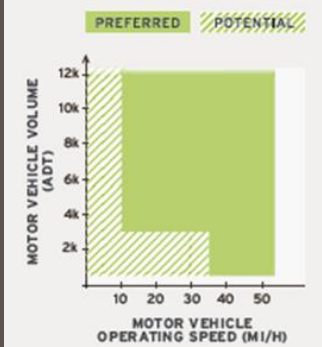
Separated Bike Lane

A separated bike lane is a facility for exclusive use by bicyclists that is located within or directly adjacent to the roadway and is physically separated from motor vehicle traffic with a vertical element.



APPLICATION

Speed and Volume
For use on roads with high motor vehicle volumes, and moderate to high-speed motor vehicle traffic.



Network
Serves primary connections on major roads through and across communities.



Land Use
For use inside built-up areas where a moderate to high volume of bicyclists and pedestrians is expected.





Jackson Hole, WY
Population: 9,600

Network Opportunities

- Speed Management
- Pedestrian Lane
- School Connections
- Multimodal Main Street
- Bridges
- Access to Public Lands



School Connections

Schools are key destinations in communities of all sizes.



Opportunity
for activity



Design for
children



Centers of
community

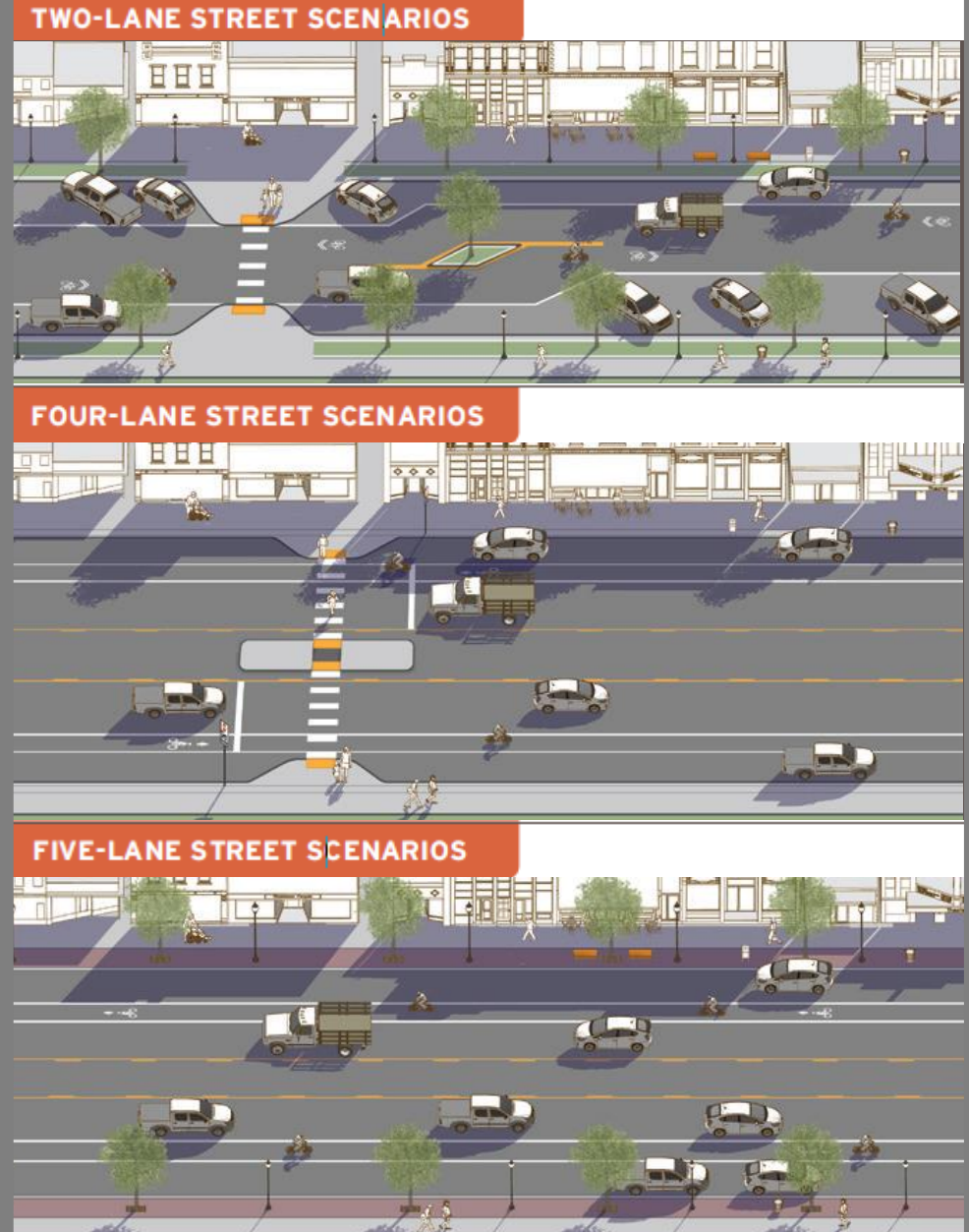


Multimodal
network



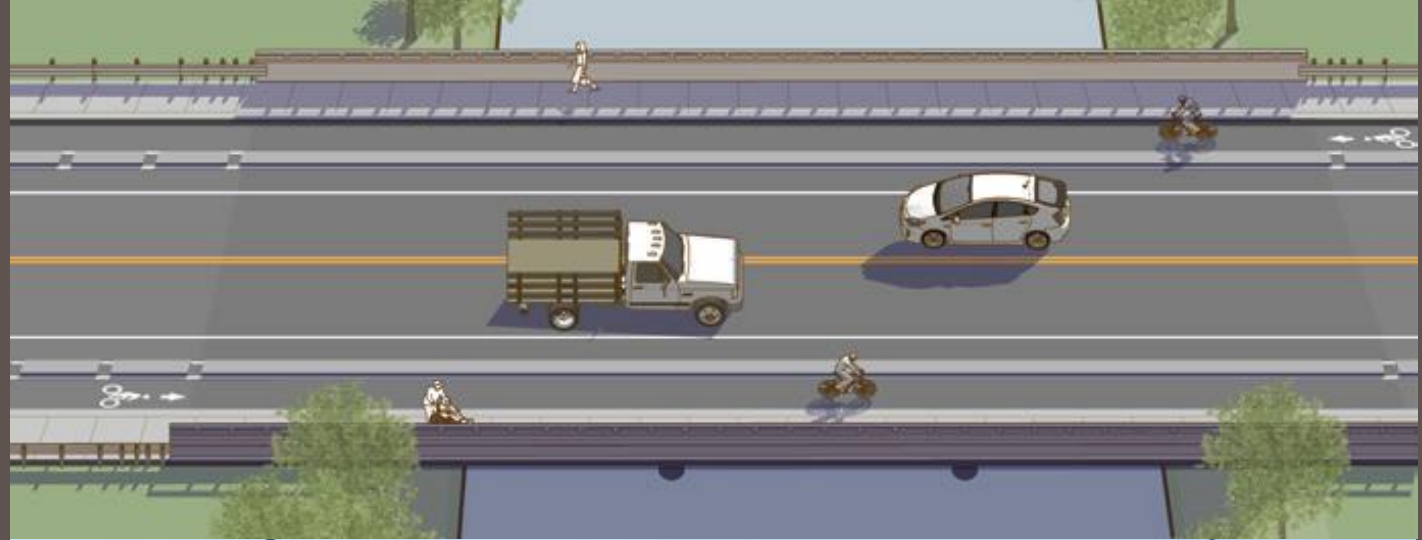
School
location

Multimodal Main Streets



Bridges

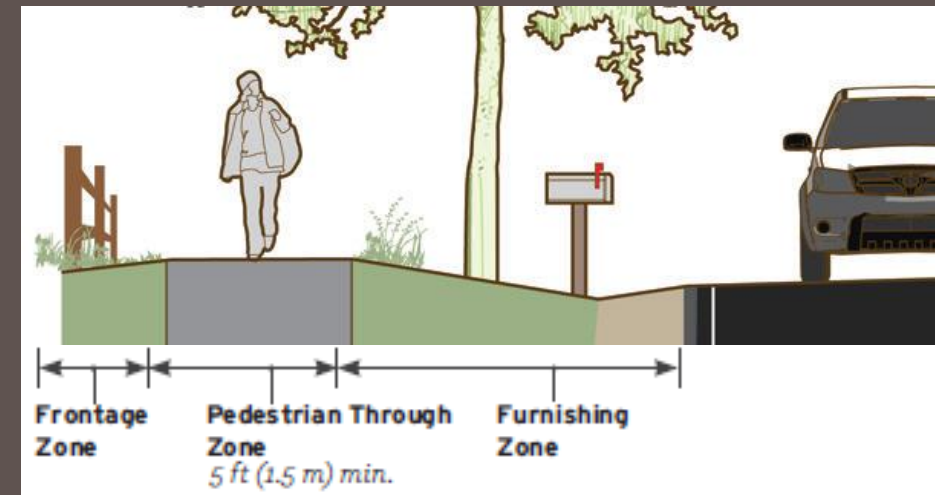
- Separation
- Prioritize
- Awareness
- Continuity
- Future Proof
- Flexibility



Decorah, IA
Population: 8,127

Opportunities

- Use the images in the guide for your own projects
- Organize a demonstration project
- Integrate active transportation planning goals and objectives into your comprehensive plan
- And opportunities for this guide: Ontario examples???



How to Get the Guide



- PDF copy on FHWA publications page
- Hard copies available soon



- Interactive online guide at ruraldesignguide.com



- Contact Alta Planning + Design for more information

katewhitfield@altaplanning.com