Active Transportation Planning & Design Considerations

New Mexico Safety Summit

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Presentation Overview

- The Issue
- Getting Started
- Safe & Accessible Design
- Active Transportation Resources

THE ISSUE

Why the focus on Active Transportation?

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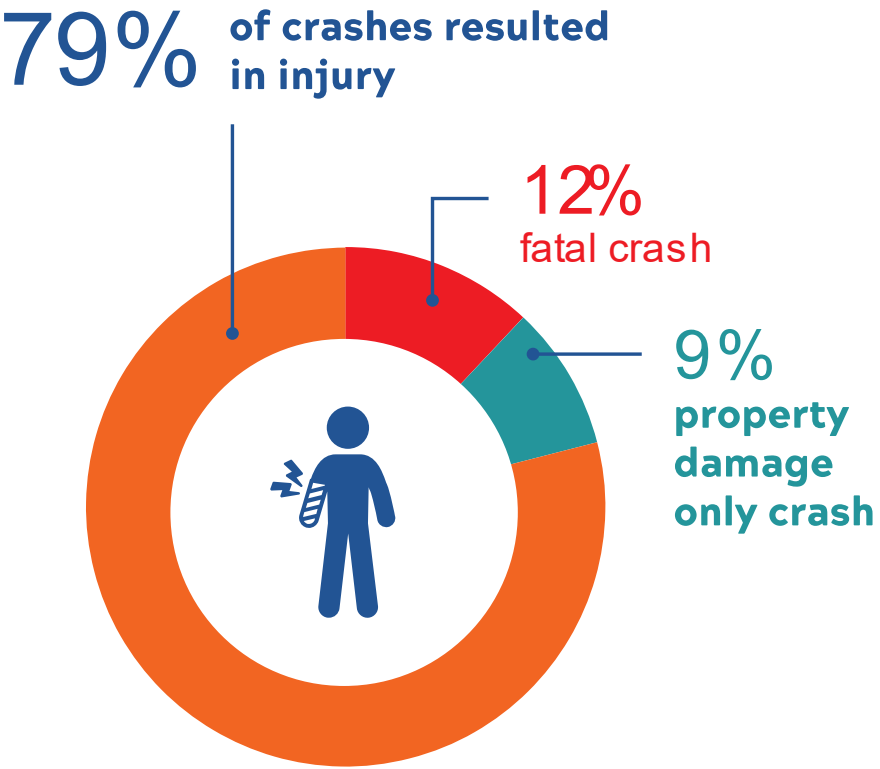
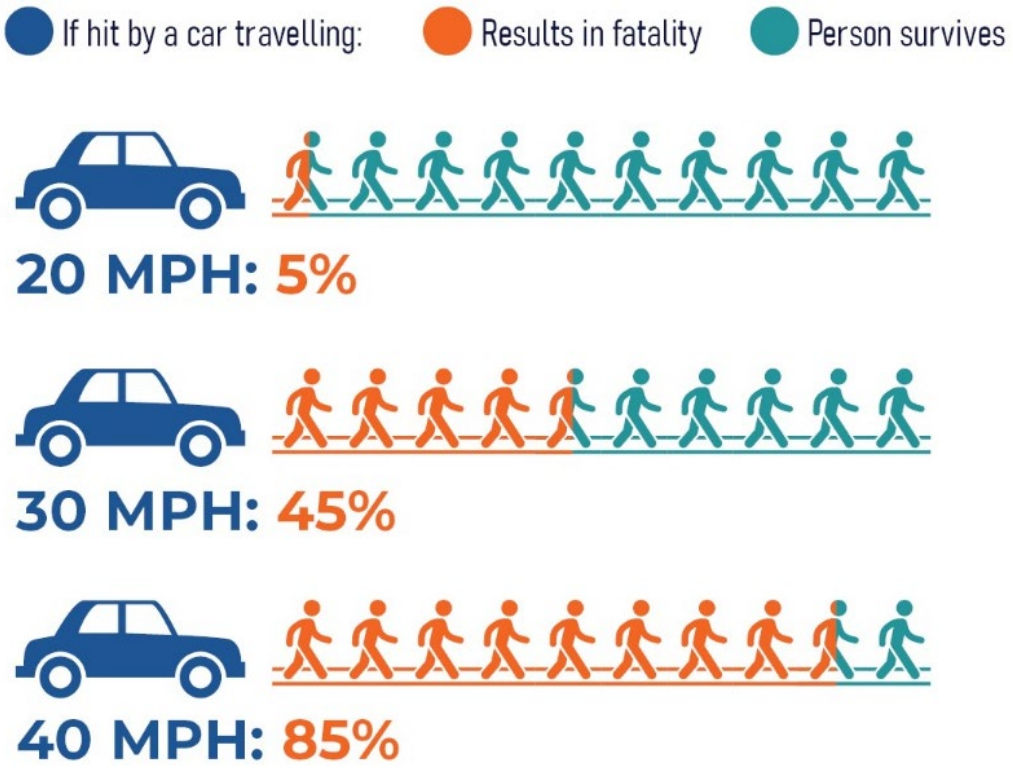
New Mexico's Pedestrian Fatality Rates

Year	Nationwide Ranking
2012	2nd – 2.92 pedestrian fatality rate per 100,000 population
2013	4th – 2.34 pedestrian fatality rate per 100,000 population
2014	1st – 3.59 pedestrian fatality rate per 100,000 population
2015	3rd – 2.58 pedestrian fatality rate per 100,000 population
2016	1st – 3.54 pedestrian fatality rate per 100,000 population
2017	1st – 3.58 pedestrian fatality rate per 100,000 population
2018	1st – 3.96 pedestrian fatality rate per 100,000 population
2019	1st- 3.96 pedestrian fatality rate per 100,000 population
2020	**1st – 3.83 pedestrian fatality rate per 100,000 population**
2021	**1st – 4.77 pedestrian fatality rate per 100,000 population**
2022	**1st – 4.40 pedestrian fatality rate per 100,000**

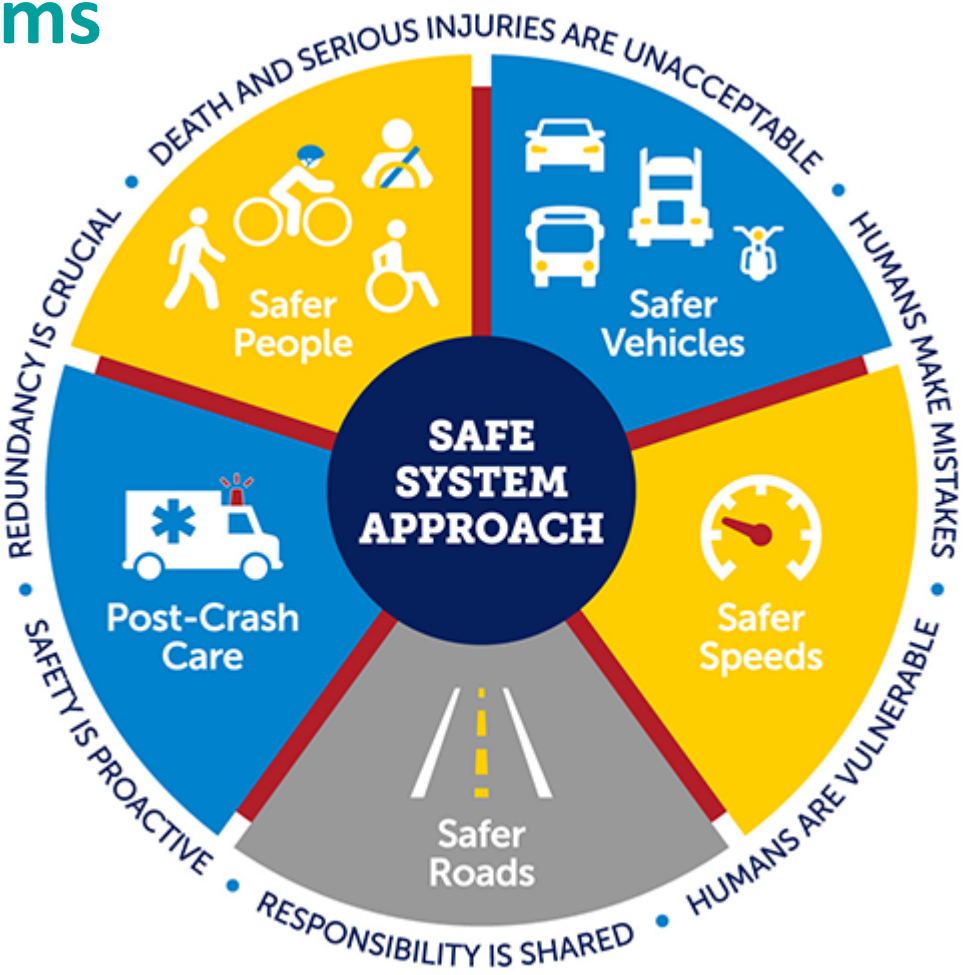
New Mexico's Pedestrian Fatalities



Speed Kills


If hit by a car travelling:
Results in fatality
Person survives
20 MPH: 5%
30 MPH: 45%
40 MPH: 85%

Safe Systems



Getting Started

Active Transportation Planning

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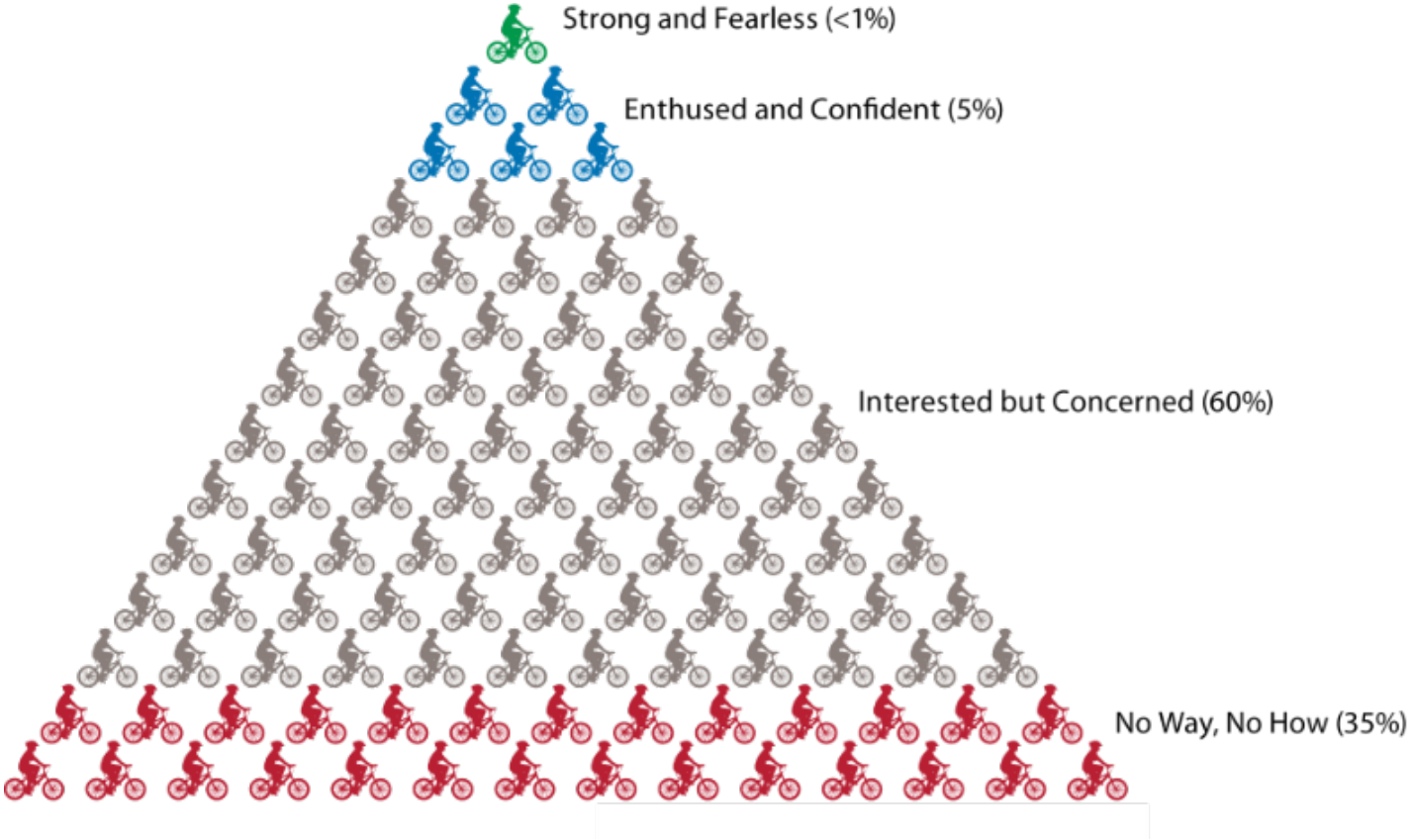
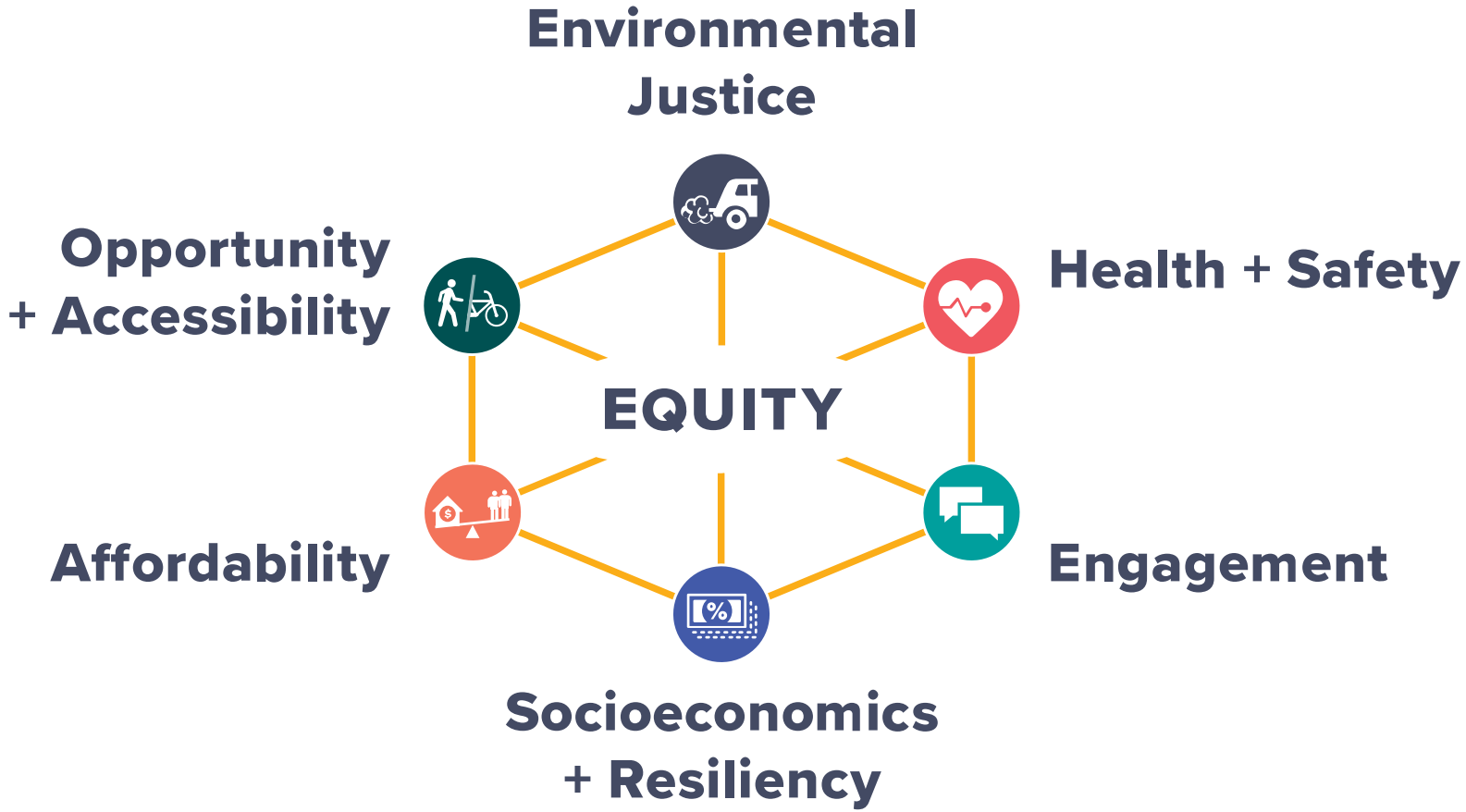
Potential Bicyclist Breakdown



All Ages & Abilities

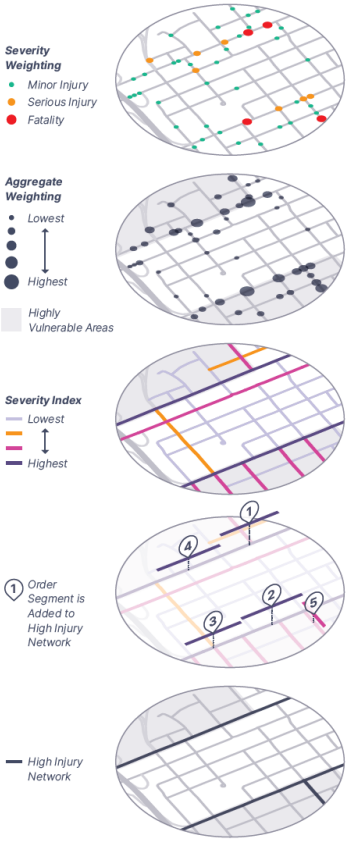
To achieve growth in bicycling, bikeway design needs to meet the needs of a broader set of potential bicyclists.

Dimensions of Equity



High Injury Networks

Alta Civic Analytics Explainer



Determining the High Injury Network

Severity Weighting

One goal of a High Injury Network (HIN) is to identify an improvable subset of a community's streets that address the majority of collisions where a victim is Killed or Severely Injured (KSI). To achieve this, KSI collisions are assigned higher scores so they have more "weight" relative to collisions with less tragic outcomes.

Other Considerations

These scores can also be modified to include other considerations such as whether collisions involve vulnerable road users (bicyclists and pedestrians) or occur in socially vulnerable communities. These factors can be directly incorporated into the weights associated with each collision.

Severity Index

After weights are developed, they are associated to the network, aggregated, and normalized so that we can understand the relative intensities of collisions of concern.*

Accumulated Collisions by Severity Index

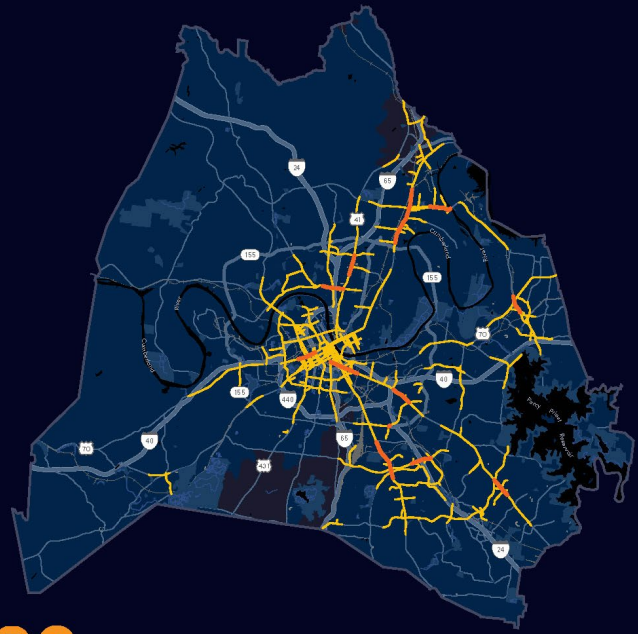
Once an index is created, we progressively add segments to the HIN in the order indicated by the Severity index. As more segments are added to the network, we look at KSI (or other collisions of interest) directly on the network, and track the percentage of collisions on the network relative to the percentage of its length.

High Injury Network

At some point, a final High Injury Network determination is found based on stakeholder feedback and a qualitative review of when each additional mile added to the HIN starts to see a decreasing rate of severe collisions being added.

*There are many methods available develop a final index including kernel density estimation (euclidean or network based), rolling window analysis, or aggregations to a segment normalized by network miles.

6% OF STREETS account for **59%** of all FATAL AND SERIOUS INURIES for all modes



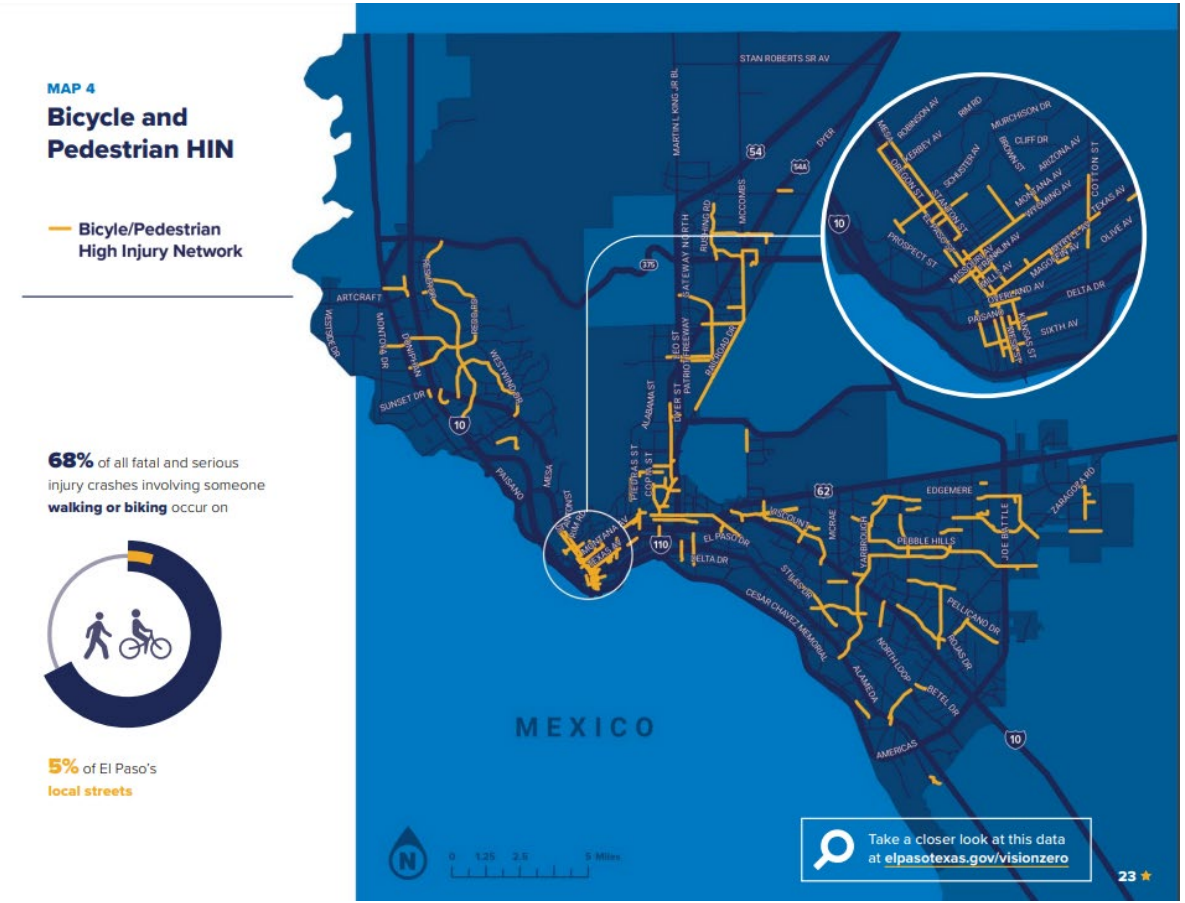
HIGH INJURY NETWORK - ALL MODES

- PRIORITY HIGH INJURY STREETS
- HIGH INJURY STREETS

STREETS IN THE HIGH INJURY NETWORK INCLUDE:

- West Trinity Lane
- Gallatin Pike
- Murfreesboro Pike
- Nolensville Pike
- Harding Place
- Lafayette Street
- Charlotte Ave
- Old Hickory Blvd
- Dickerson Pike

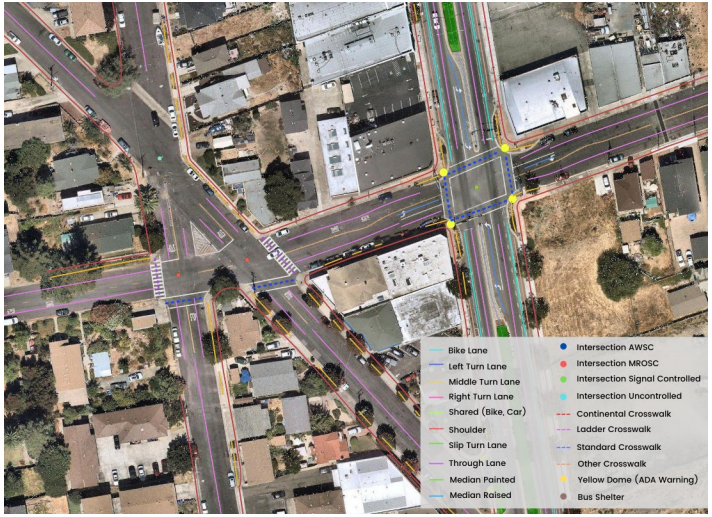
Bicycle and Pedestrian HIN

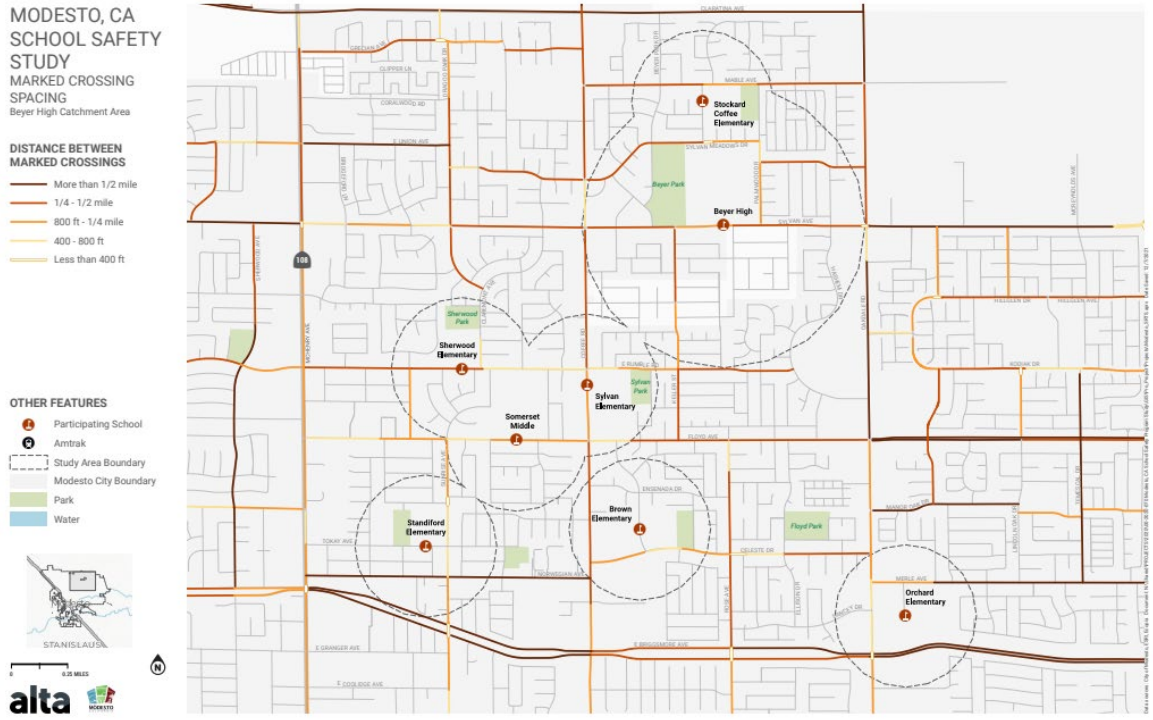


Assessment & Countermeasures

Collisions + Context + Exposure

- Do midblock crossing distances have any relationship with midblock collision frequencies?
- What is the intersection of bicycle and pedestrian exposure and crossing distances between crosswalks?

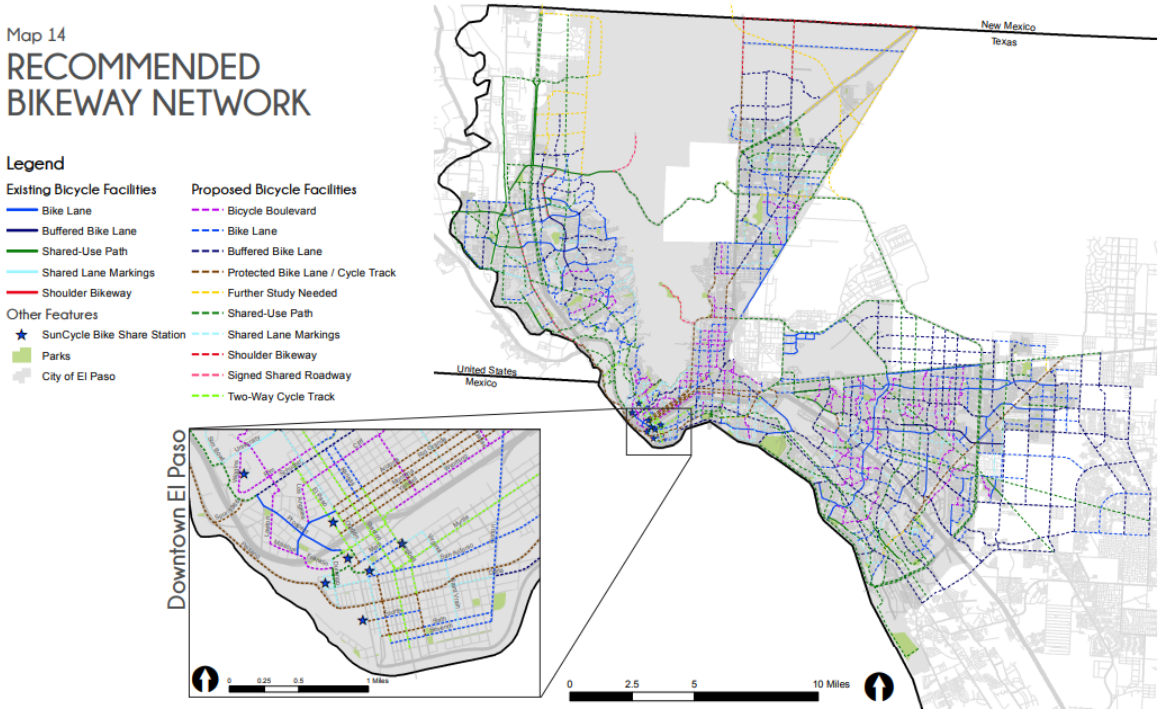




[Blog Post]

Active Transportation Plan

- Community Visioning & Engagement
- Goal Setting
- Existing Conditions Analysis
- Bicycle & Pedestrian Network Development
- Prioritization
- Implementation & Funding
- Design Guidance



Safe & Accessible Design

Thoughtful Design Saves Lives

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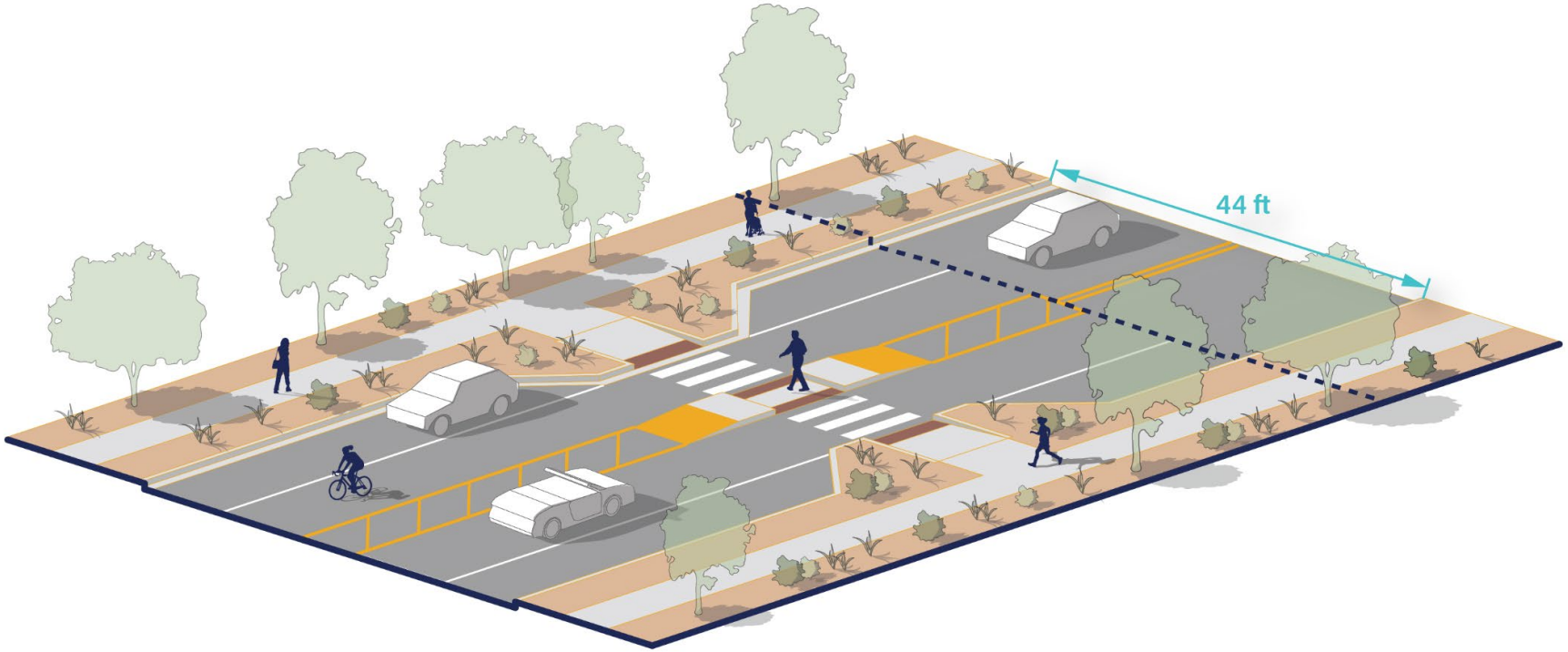
Pedestrian Safety Improvements

Countermeasure	Reduction in Pedestrian Crashes
Raised Crosswalks/Crosswalk Visibility Enhancements	45%
Pedestrian Refuge Islands	56%
Rectangular Rapid Flashing Beacon	47%
Pedestrian Hybrid Beacon	69%
Leading Pedestrian Interval	60%
Road Diet	19 to 47%

Leading Pedestrian Interval (LPI)

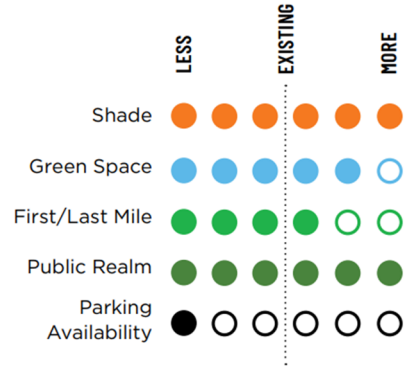
Pedestrian Hybrid Beacon (PHB)

Pedestrian Refuge Islands / Shortened Crossing



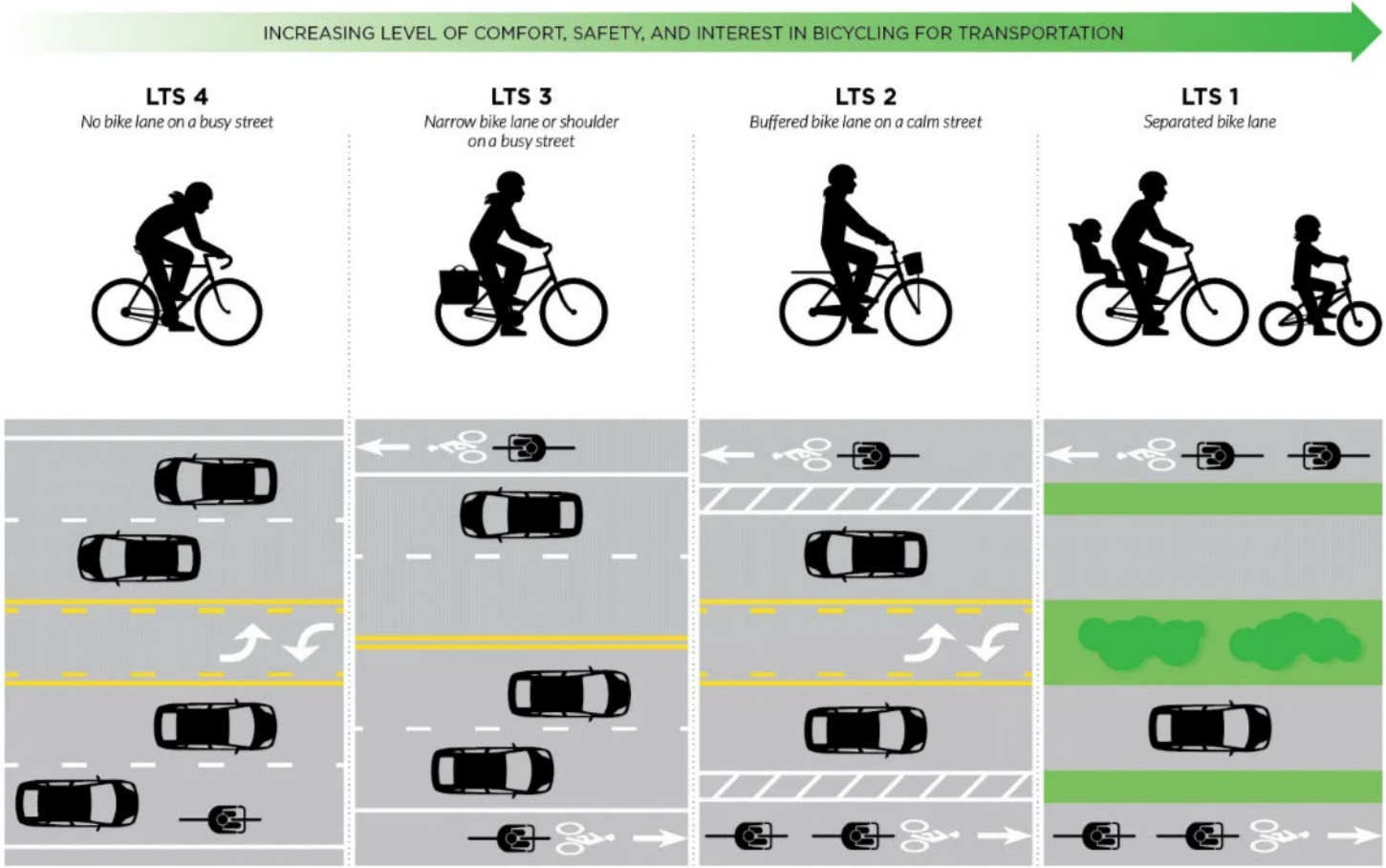
Pedestrian Refuge Island

Thermal Comfort & Adaptation

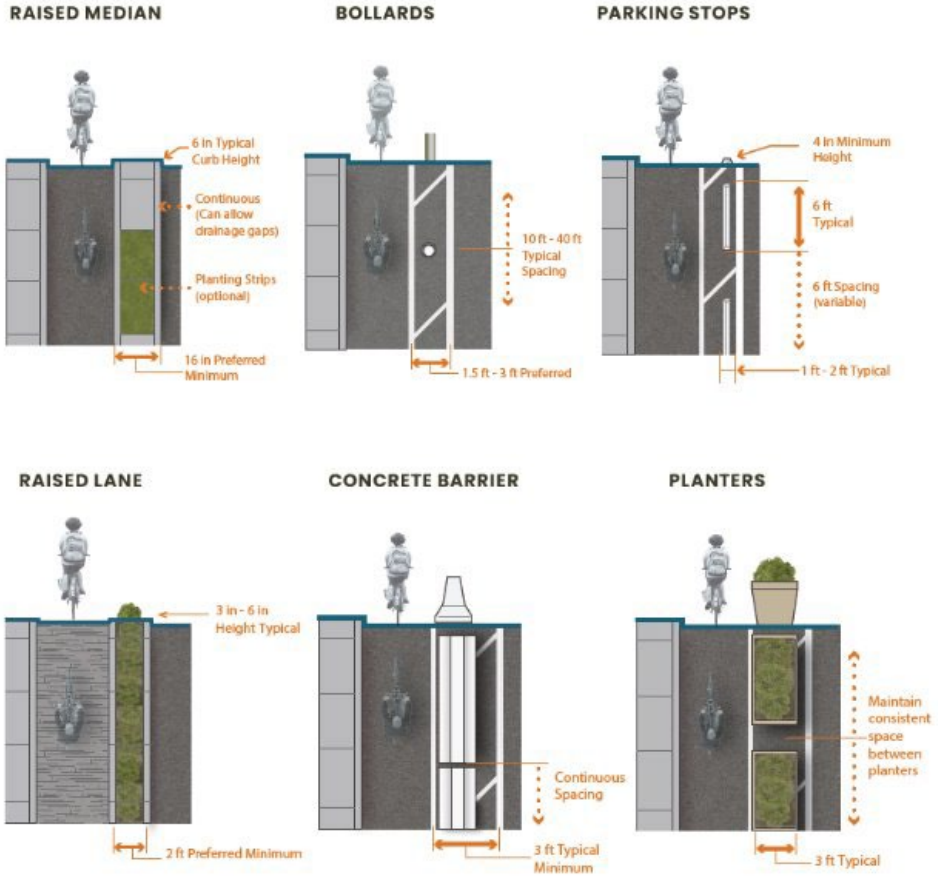


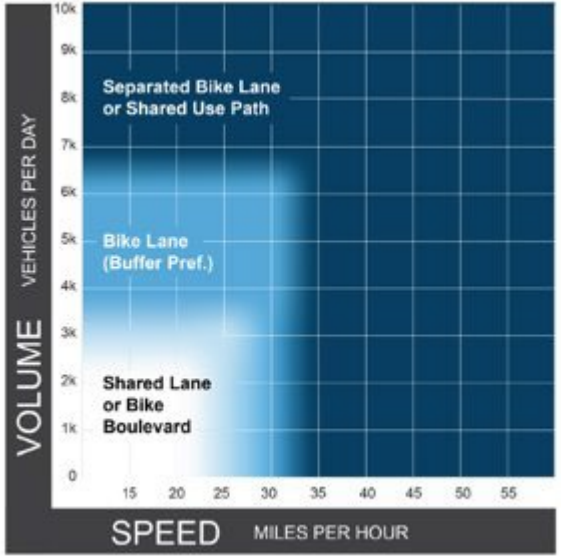
The analysis we provide informs prioritization, recommendations, and evaluation of strategies.

Bicycle Facility Design



Bicycle Facility Design: Protected Bike Lane





FHWA Bikeway Selection Guide

Bicycle Facility Design: Protected Bike Lane

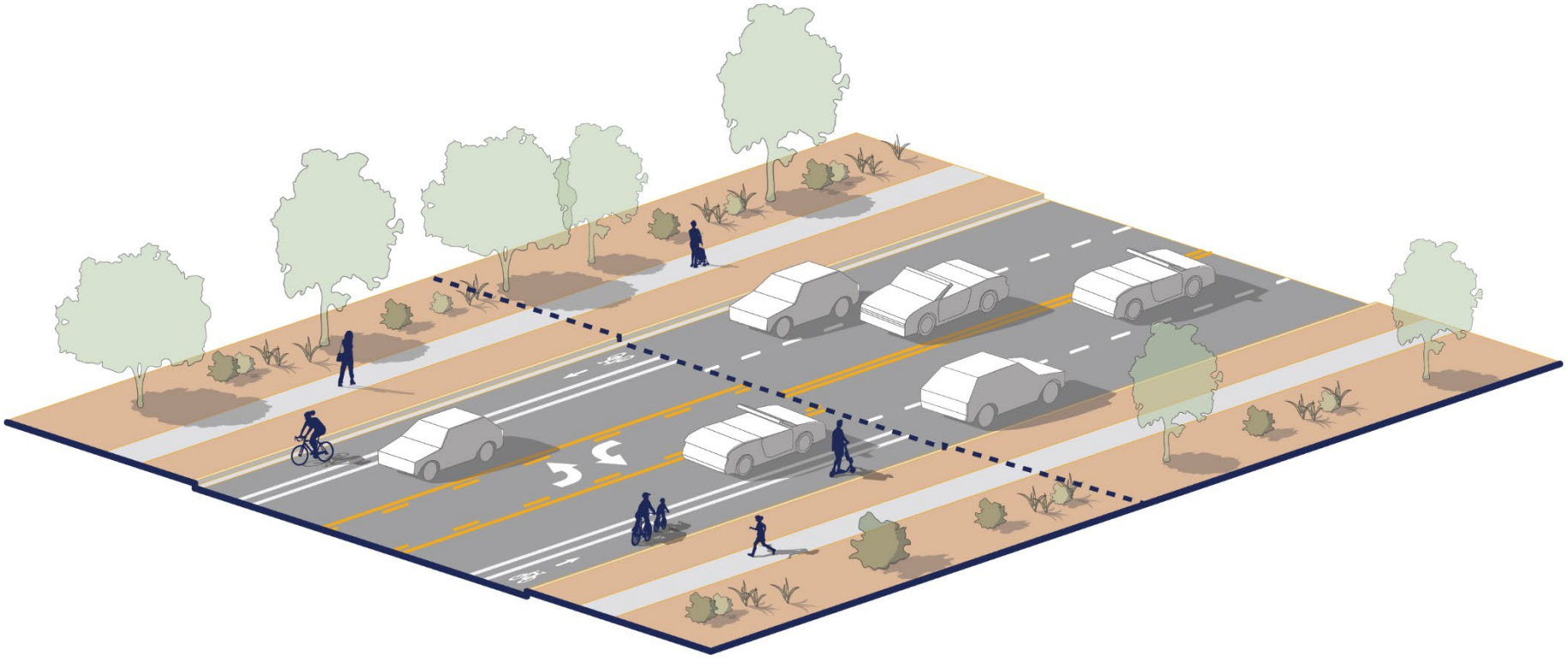
Bicycle Facility Design: Protected Bike Lane

Bicycle Facility Design: Protected Intersection

Bicycle Facility Design: Bike Boulevard

Bicycle Facility Design: Bike Boulevard

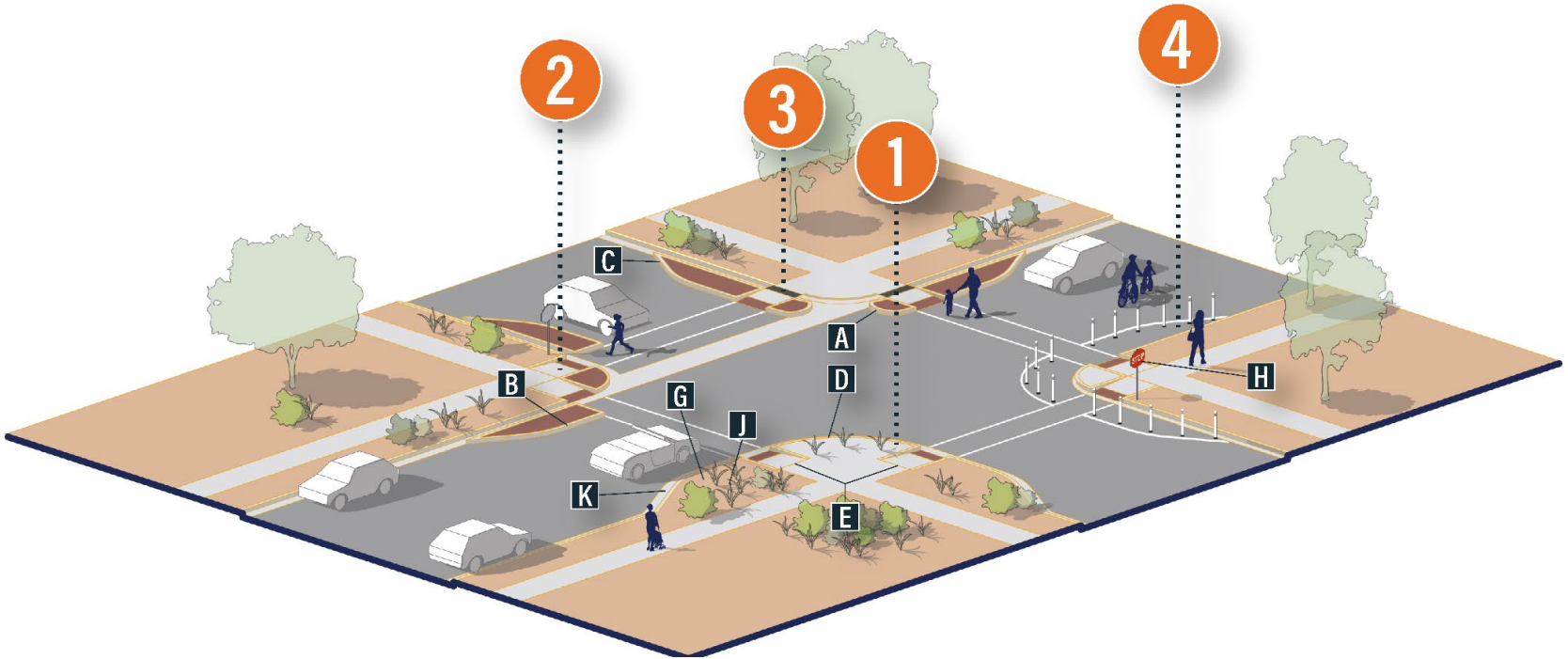
Quick Build: Reconfiguration



Quick Build: Traffic Circles

Quick Build: Traffic Circles

Quick Build: Curb Extensions (#4)



Active Transportation Resources

Helpful Resources

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Alignment with Active Travel Needs

U.S. Department of Transportation
Federal Highway Administration

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FHWA Releases New Traffic Control Device Manual with Updates to Improve Safety for Pedestrians, Bicyclists, and All Road Users

Tuesday, December 19, 2023

Updated MUTCD also encourages new innovations to improve travel and looks toward transportation infrastructure of the future

FHWA 44-23
Contact: FHWA.PressOffice@dot.gov
Tel.: (202) 366-0660

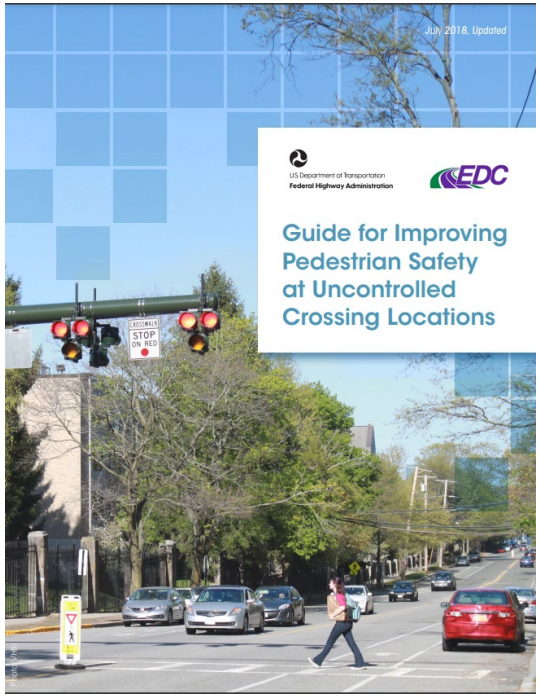
WASHINGTON – The Federal Highway Administration (FHWA) today announced the 11th edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," known as the MUTCD. The manual, last updated edition in 2009, is the national standard for traffic signs, signals, and pavement markings to ensure a uniform and predictable environment for people who walk, bike, and drive. It is an important guide used every day by transportation professionals for roadway safety, and the 11th edition incorporates extensive input from members of the public.

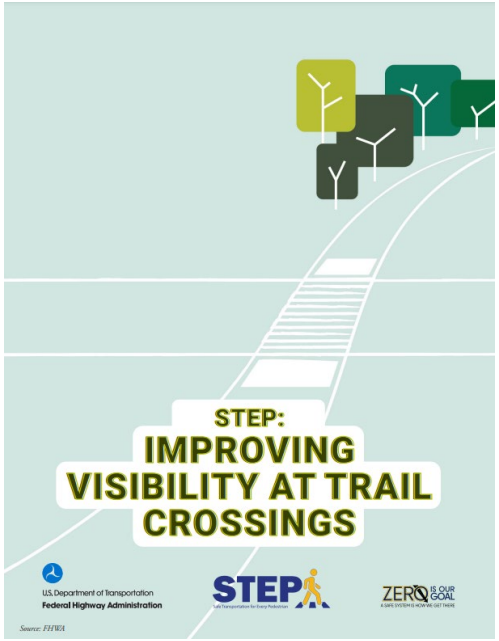
"The Manual on Uniform Traffic Control Devices is a vitally important guidebook that affects safety on countless roads around the country," said **U.S. Transportation Secretary Pete Buttigieg**. "With this long-awaited update to the MUTCD, we are helping our state and local partners make it safer to walk, bike, and drive, and embracing new technologies with the potential to make our transportation system safer and more efficient."

PROWAG

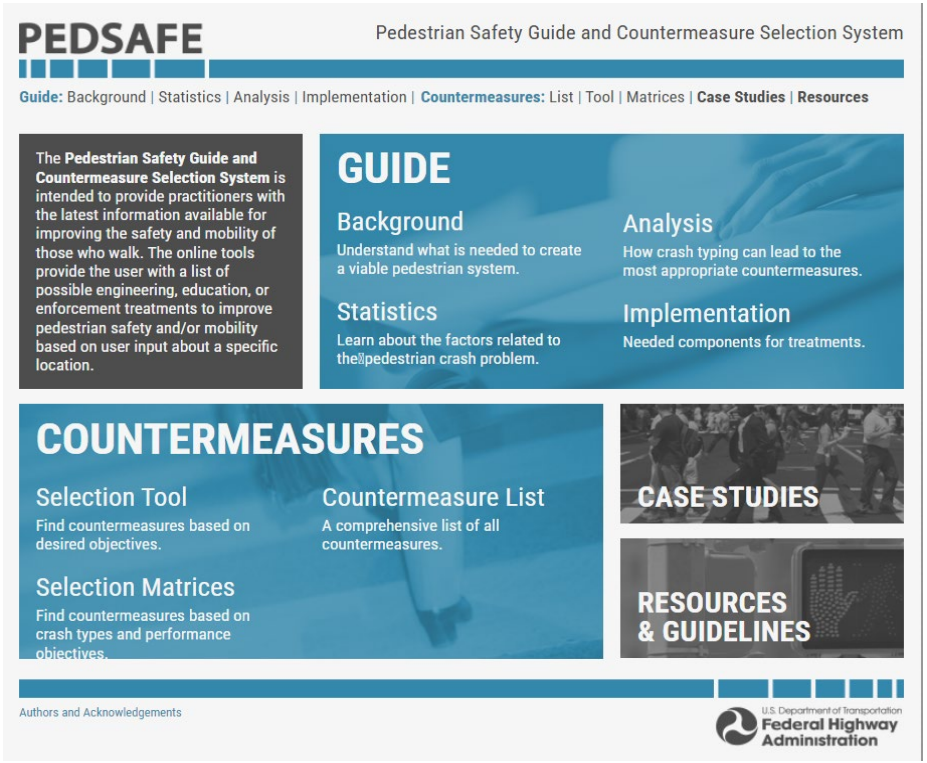

Public Right-of-Way
Accessibility Guidelines
UNITED STATES ACCESS BOARD
www.access-board.gov/prowag/

Safe Transportation for Every Pedestrian (STEP)

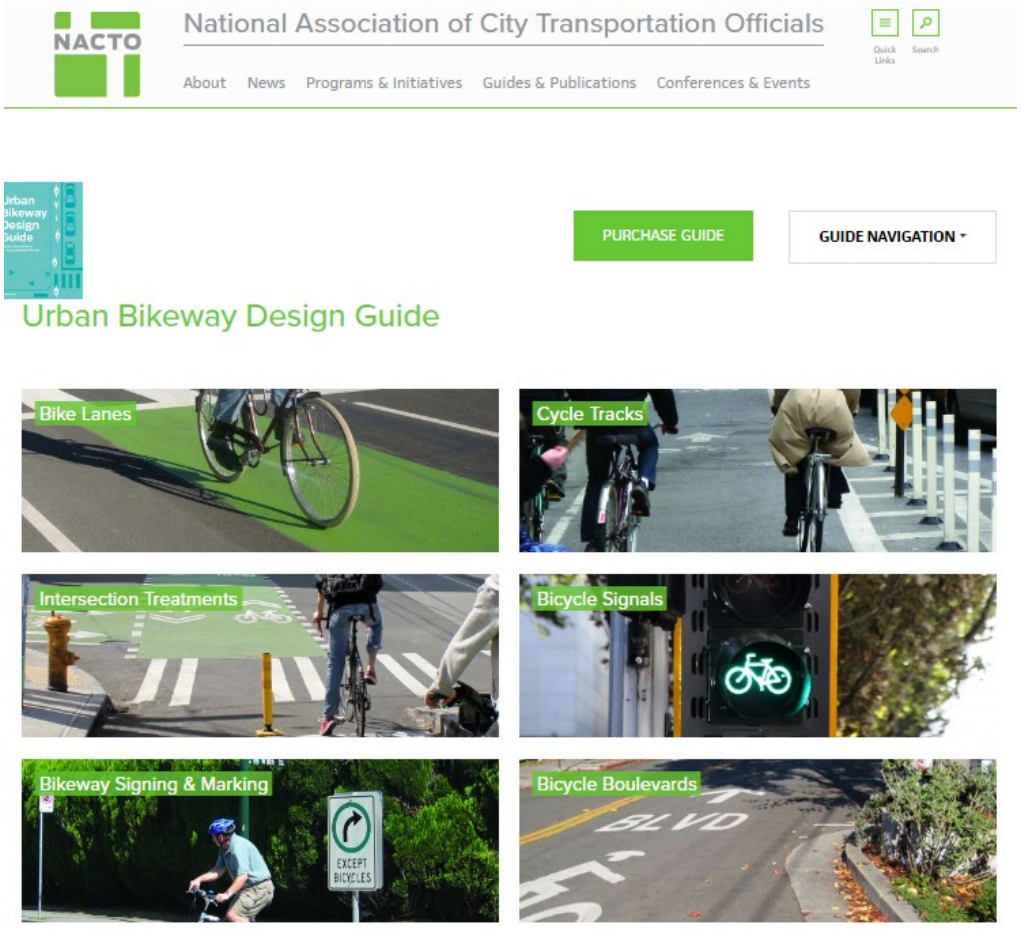




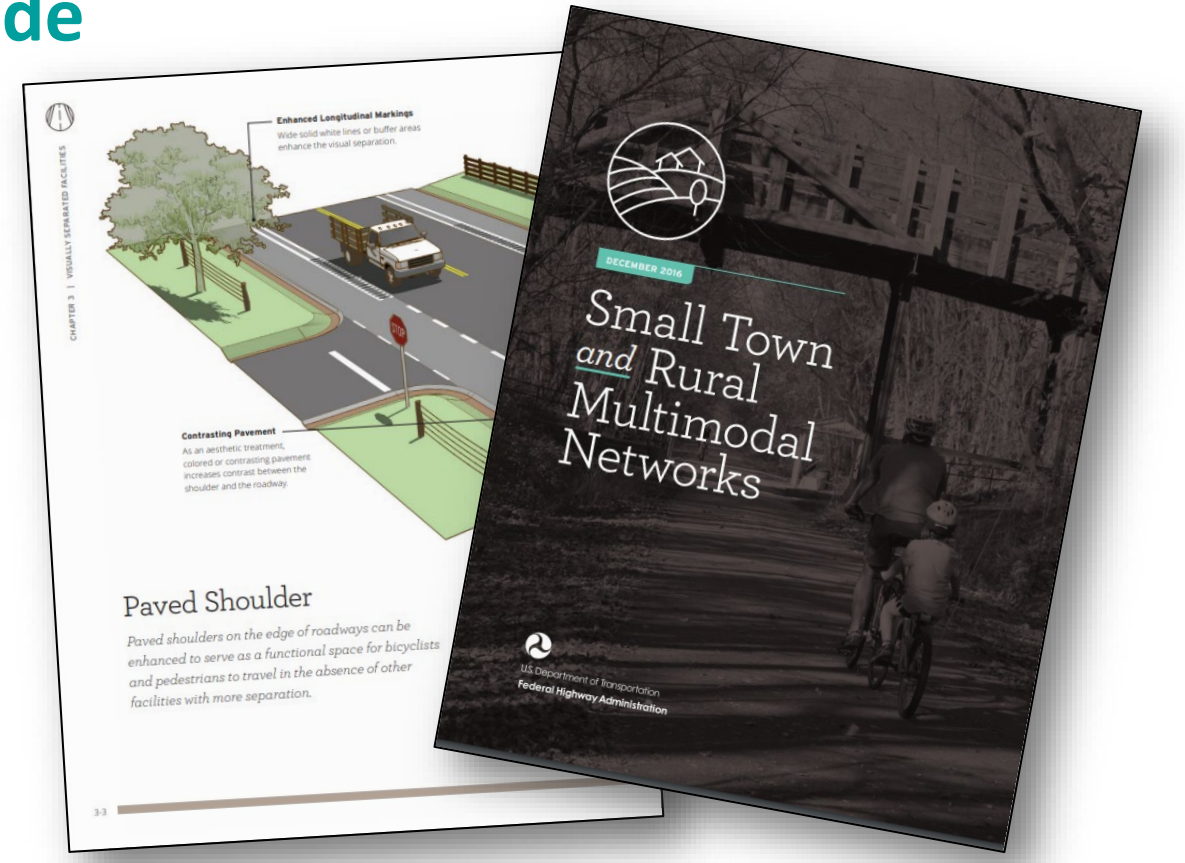
Pedestrian & Bicycle Countermeasures



NACTO Urban Bikeway Design Guide

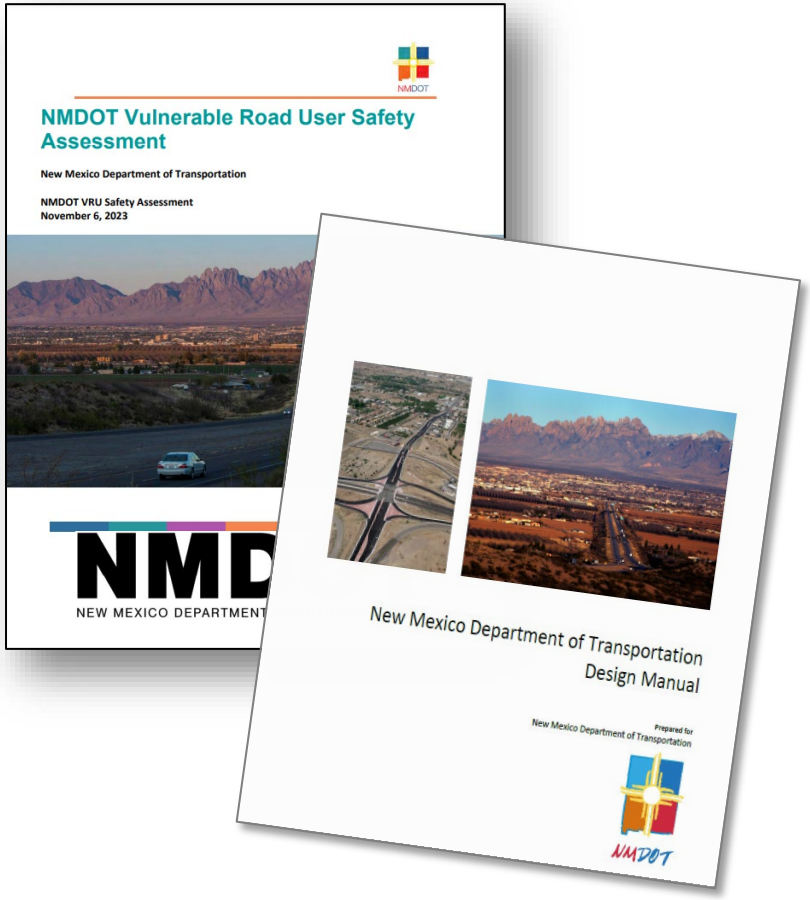


FHWA Small Town & Rural Multimodal Networks Guide



NMDOT Resources

- NMDOT Vulnerable Road User Assessment
- NMDOT Pedestrian Safety Action Plan
- NMDOT Bicycle Master Plan
- NMDOT Design Guide:
  - 1150: Pedestrian and Bicycle Safety Guide and Countermeasure Selection System
  - 1200: Pedestrian Facilities
  - 1250: Road Diet Guide



Questions?

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