

Association of Metropolitan Planning Organizations

Savannah, GA
October 19, 2017



every day counts 
An Innovation Partnership with States



U.S. Department of Transportation
Federal Highway Administration

How many grew up as Free Range Children?



Are your kids Free Range?



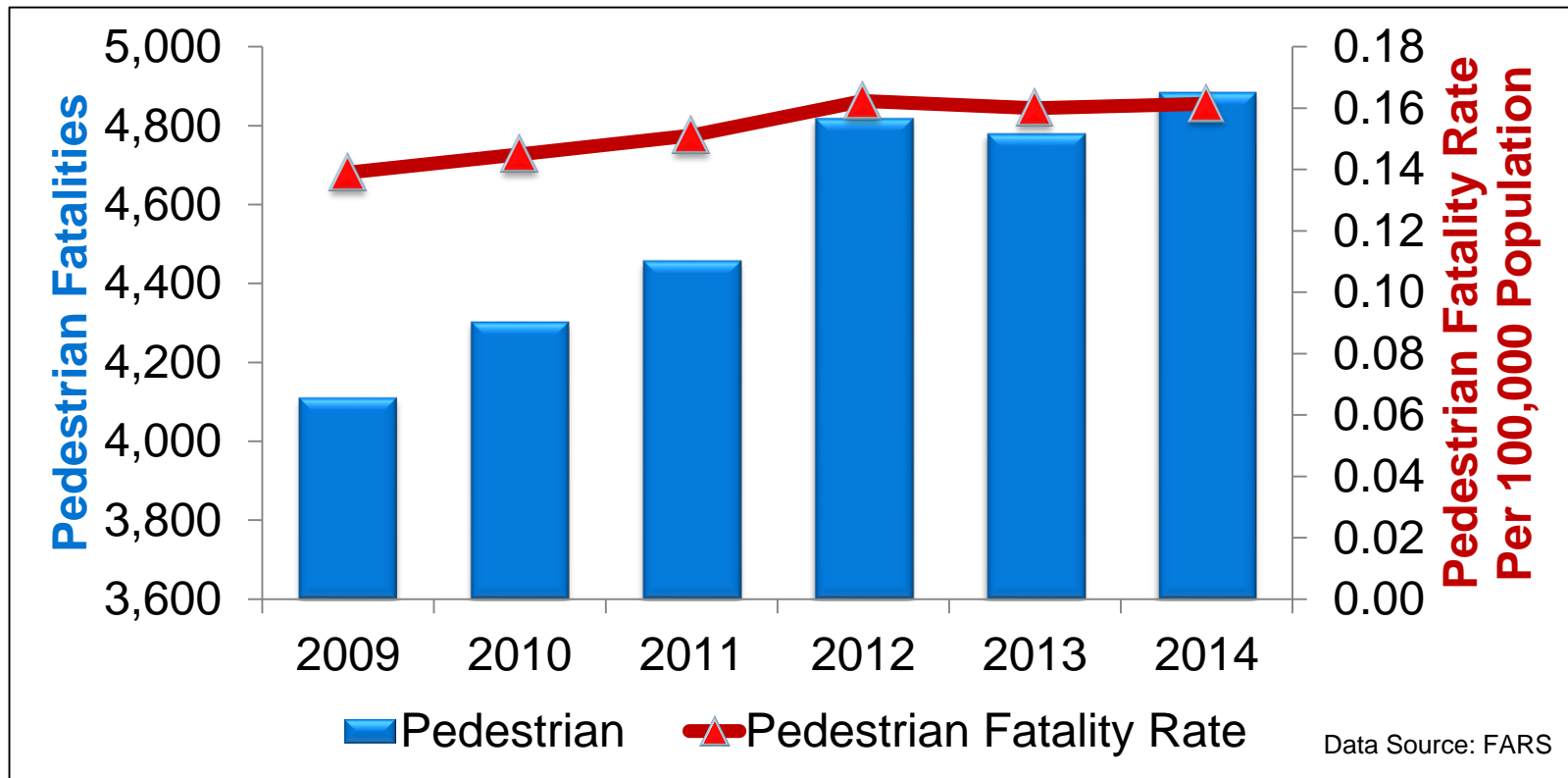
MiniCooped





A more important Question

How many Pedestrians did not make it safely across the roadway in the United States?



Safety Performance Measures

Metropolitan Planning Organization Safety Performance Measures Fact Sheet

Safety Performance Measures

The Safety Performance Management Measures regulation supports the Highway Safety Improvement Program (HSIP) and requires State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) to set HSIP targets for 5 safety performance measures. This document highlights the requirements specific to MPOs and provides a comparison of MPO and State DOT responsibilities.

How do MPOs establish HSIP targets?

Coordination is the key for all stakeholders in setting HSIP targets. Stakeholders should work together to share data, review strategies and understand outcomes. MPOs must work with the State DOT. MPOs should also coordinate with the State Highway Safety Office, transit operators, local governments, the FHWA Division Office, National Highway Transportation Safety Administration (NHTSA) Regional Office, law enforcement and emergency medical services agencies, and others. By working together, considering and integrating the plans and programs of various safety stakeholders, MPOs will be better able to understand impacts to safety performance to establish appropriate HSIP targets. Coordination should start with the Strategic Highway Safety Plan (SHSP). More information on the SHSP is available at <http://safety.fhwa.dot.gov/hsip/shsp/>.

HSIP Safety Targets Established by MPOs	
1	Number of fatalities
2	Rate of fatalities
3	Number of serious injuries
4	Rate of serious injuries
5	Number of non-motorized fatalities and non-motorized serious injuries

MPOs establish HSIP targets by either:

1. agreeing to plan and program projects so that they contribute toward the accomplishment of the State DOT HSIP target or
2. committing to a quantifiable HSIP target for the metropolitan planning area.

To provide MPOs with flexibility, MPOs may support all the State HSIP targets, establish their own specific numeric HSIP targets for all of the performance measures, or any combination. MPOs may support the State HSIP target for one or more individual performance measures and establish specific numeric targets for the other performance measures.

https://safety.fhwa.dot.gov/hsip/spm/docs/mpo_factsheet.pdf

STEP



Safe Transportation for Every Pedestrian

National Data

- Over 66% of pedestrian fatalities occur at non-intersection locations
- Roughly 16% of pedestrian fatalities occur at uncontrolled intersections

STEP

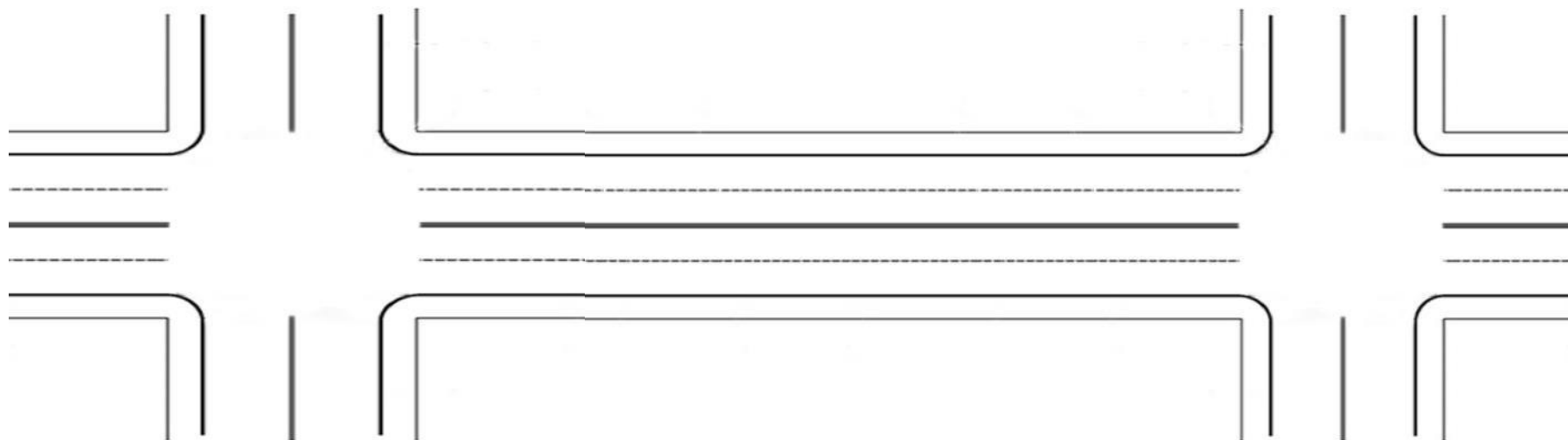
Safe Transportation for Every Pedestrian



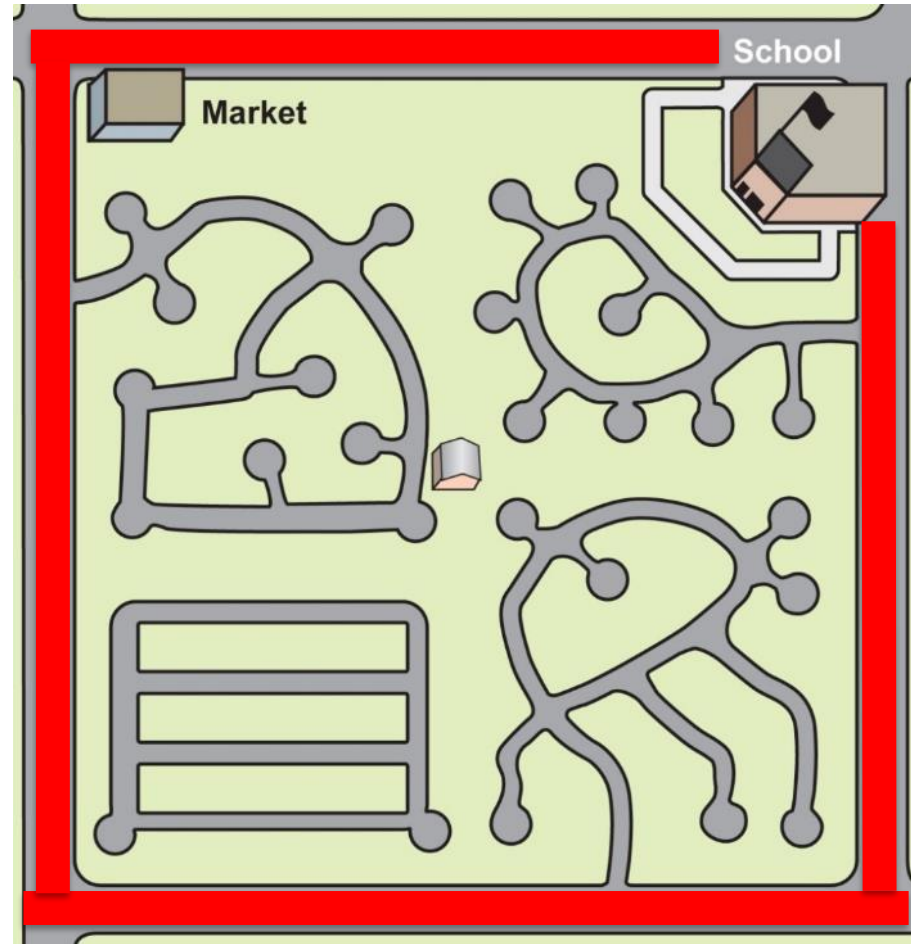
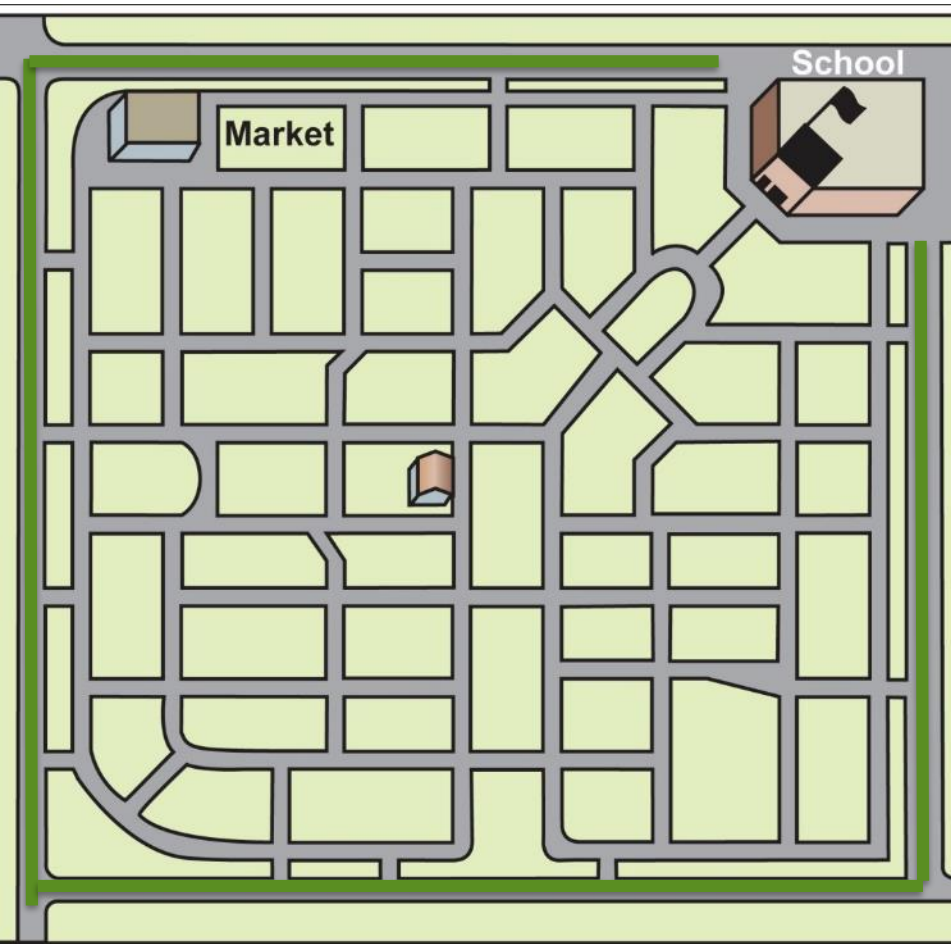
every day counts 



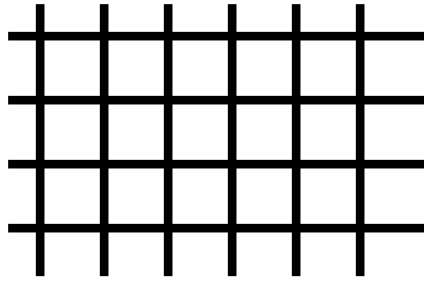
Enhanced Crossings @ Uncontrolled Locations



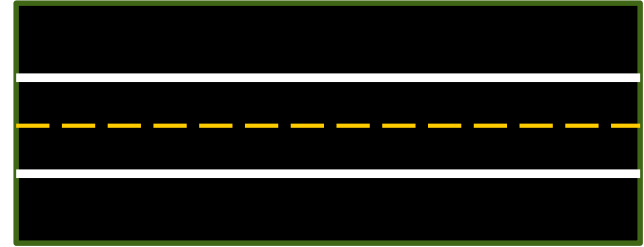
Connected vs. Lollipop Pattern Streets



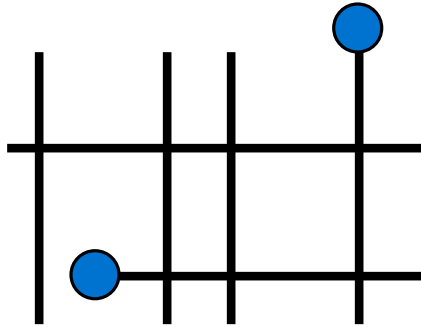
High Connectivity



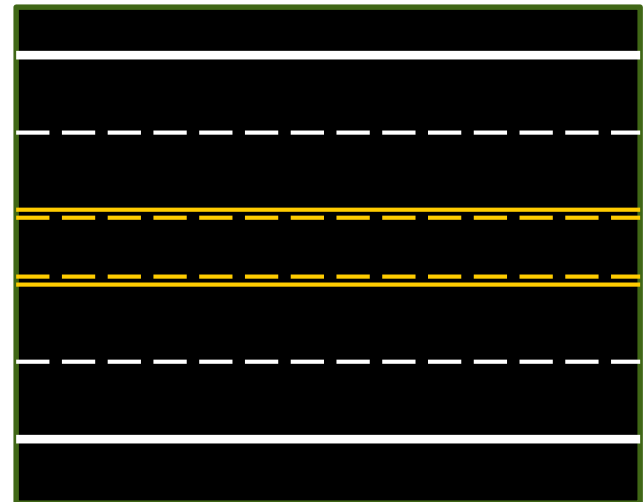
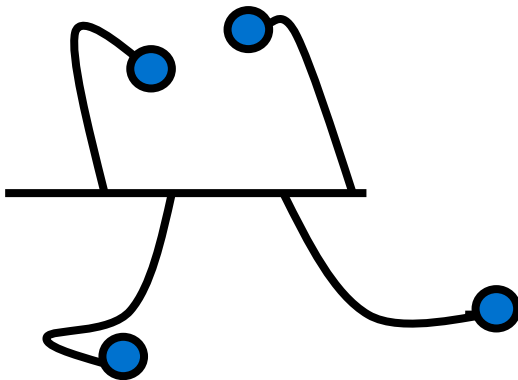
Travel Lanes Required



Moderate Connectivity



Low Connectivity



Question / Discussion:

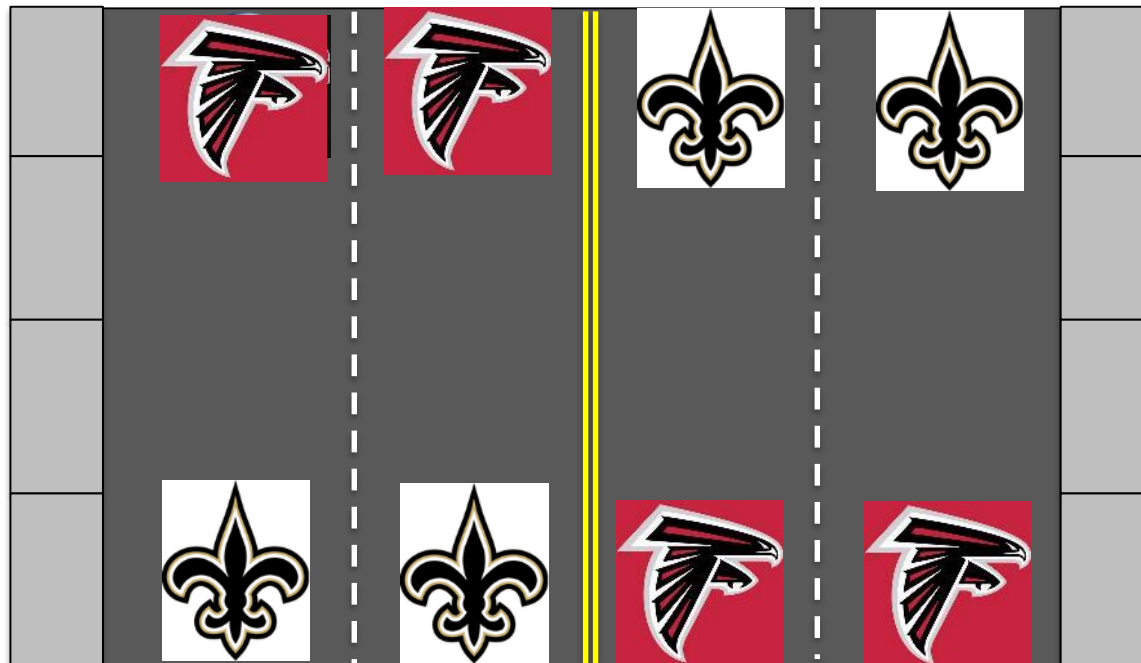
How far are you willing to go out of your way for an “improved” crossing?

Would you walk: 25' 50' 75' 100' 125'



Challenges of Crossing Demo

- Need some volunteers
 - 8 Football fans that can catch and throw a football
 - One Football fan that can move fast





Goal: Empowering People to Improve Their Lives

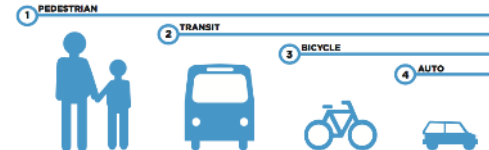
STEP 3: Decide which enhancement(s) should be selected?

STEP 2: Understand the types of Roadway people are trying to cross?

STEP 1: Strong Pedestrian Safety Policies

STEP 1: Strong Pedestrian Safety Policies

complete Streets Design Manuals Livable Communities Pedestrian Safety Action Plan Strategic Highway Safety Plan Vision Zero



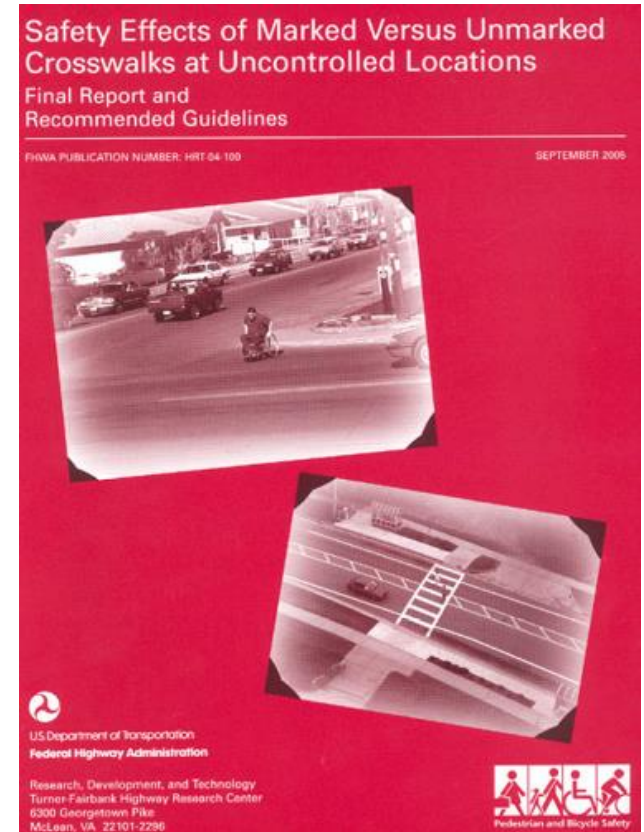
COMPLETE STREETS CHICAGO

STEP 2: Understand the types of Roadway people are trying to cross?

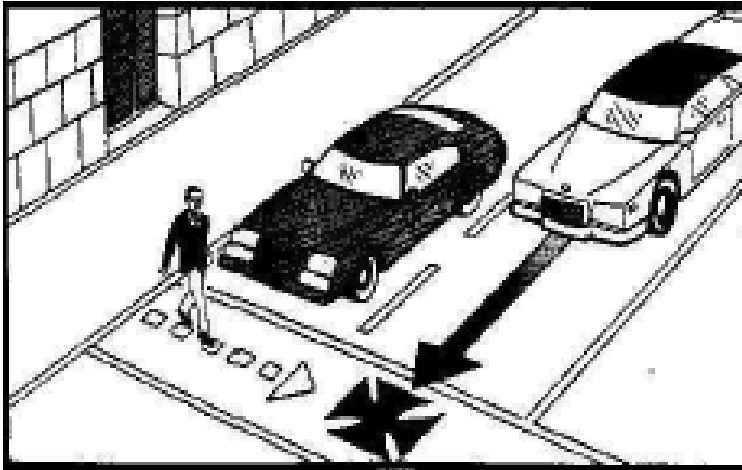
Marked vs. Unmarked Analysis

Speeds < or = to 40 mph

- Two-lane roads: No significant difference in crash rate
- Multilane roads (3 or more lanes)
 - Under 12,000 ADT: no significant difference in crash rate
 - Over 12,000 ADT w/ no median: crashes marked > crashes unmarked
 - Over 15,000 ADT & w/ median: crashes marked > crashes unmarked



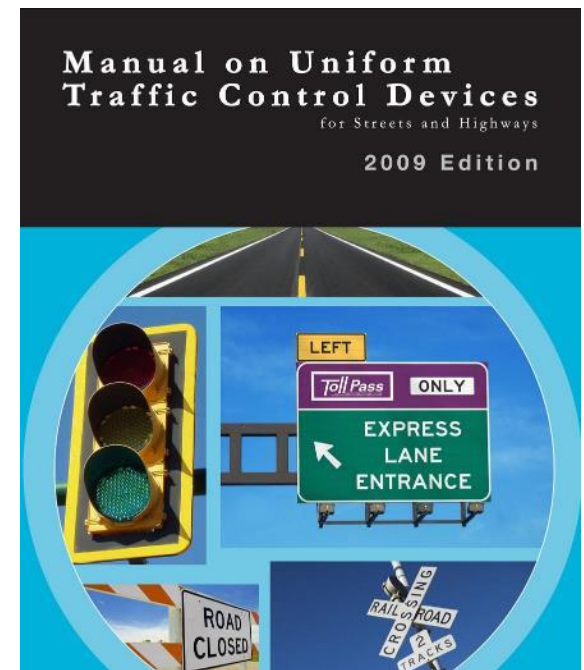
Pedestrian Multiple Threat



MUTCD States

New marked crosswalks **alone, without other measures** designed to reduce traffic speeds, shorten crossing distances, enhance driver awareness of the crossing, and/or provide active warning of pedestrian presence, should not be installed across uncontrolled roadways where the speed limit exceeds 40 mph and/or either:

- Has 4 or more lanes without a raised median or island and ADT of 12,000 or more, or
- 4 or more lanes with raised median island and ADT of 15,000 or more
- (2009 MUTCD Section 3B.18)



STEP 3: Decide which enhancement(s) should be selected?

“reduce traffic speeds, shorten crossing distances, enhance driver awareness of the crossing, and/or provide active warning of pedestrian presence”



Crosswalk Visibility
Enhancements



Raised
Crosswalks



Pedestrian
Refuge Islands



Pedestrian Hybrid
Beacon (PHB)



Road
Diets

Crosswalk Visibility Enhancements

High Visibility Crosswalk



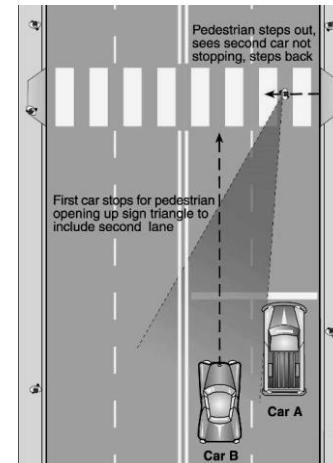
What Pedestrians See



Photo Source all 4: Michael Ronkin

What Drivers See

Crosswalk Visibility Enhancements Signs & Lighting



R1-5b



R1-5c

Crosswalk Visibility Enhancements

Crosswalk Lighting



Photo source: Youtube screen capture SWARCO

- CRF 42% to 59%
- V/P Lighting at intersections

Crosswalk Visibility Enhancements

Lighting Over Crosswalks

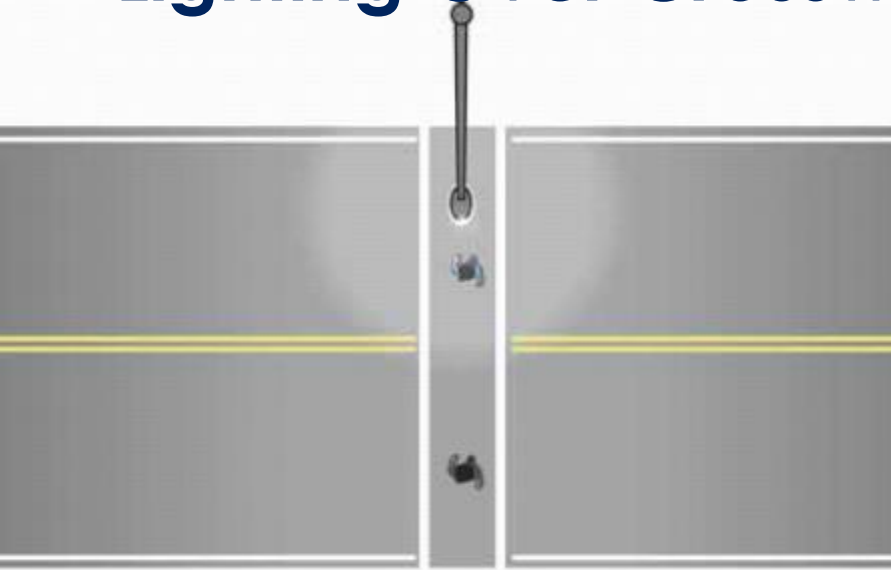


Fig 11. Traditional midblock crosswalk lighting layout

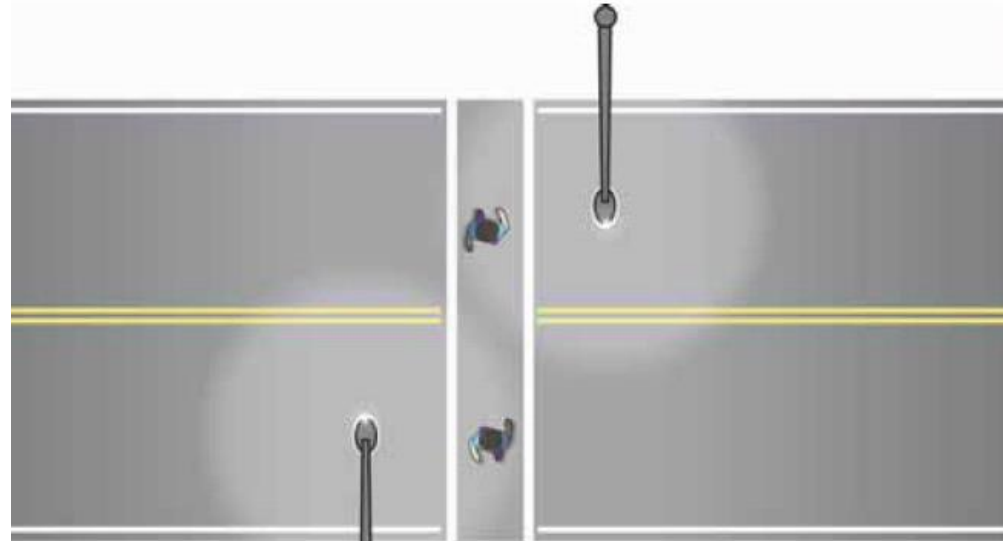


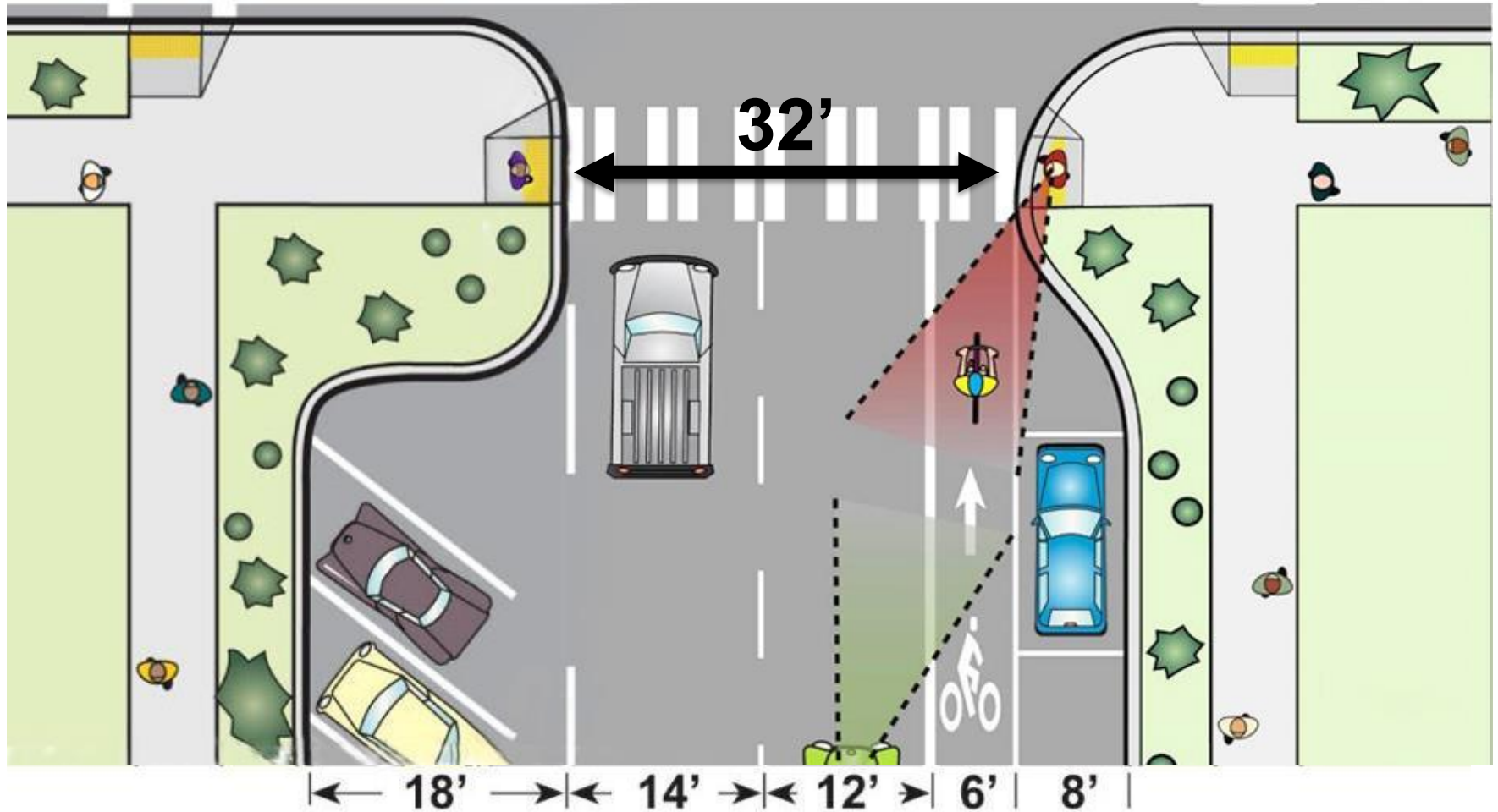
Fig 12. New design for midblock crosswalk lighting layout



Recommended lighting level: 20 lux at 5' above pavement

Crosswalk Visibility Enhancements

Curb Extensions / Bulb Outs



Crosswalk Visibility Enhancements

Curb Extensions & Visual Friction



Raised Crosswalks



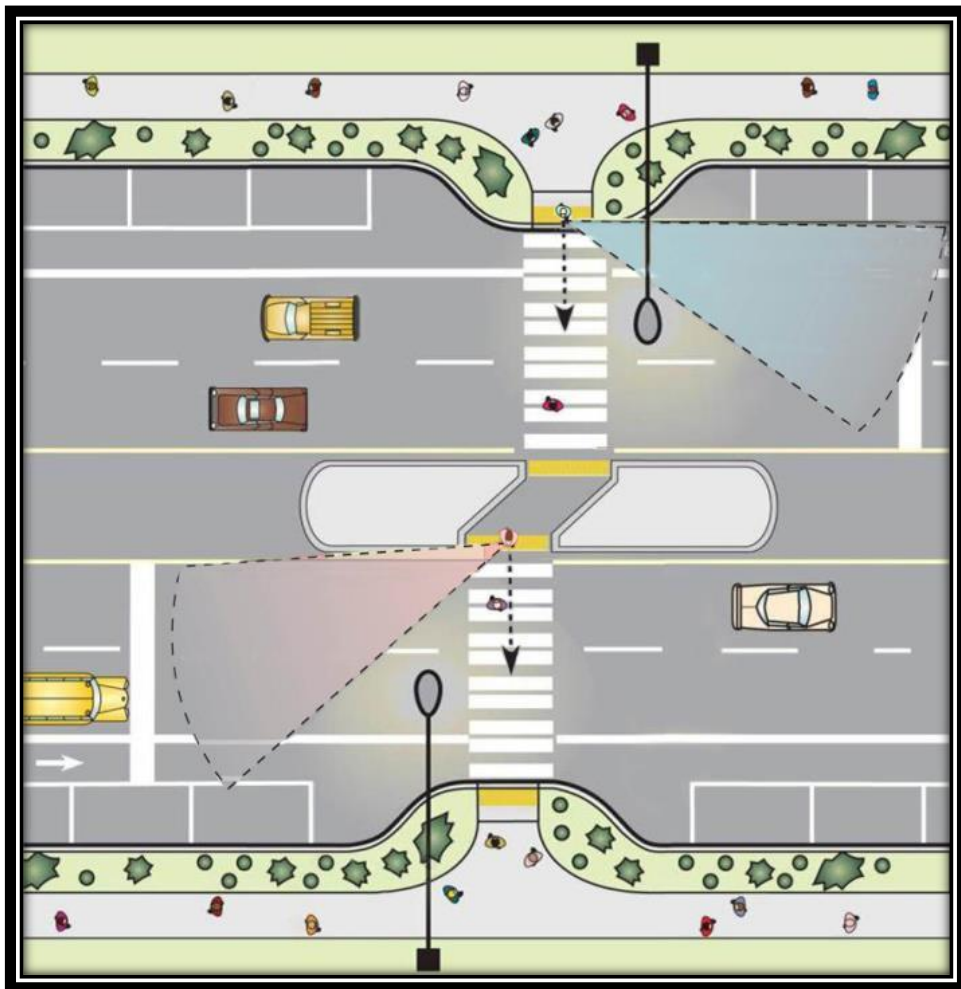
Photo Source: SRTS Guide

45% CRF V/P



Photo Source: Seattle.gov Crosswalks

Pedestrian Refuge Island: Breaks up complex crossing into 2 simpler ones



46% CRF V/P

Pedestrian Hybrid Beacons (PHB)



Photo Credit Peter Eun

69% CRF V/P



1
Blank for
drivers



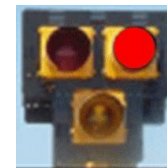
2
Flashing
yellow



3
Steady yellow



4
Steady red



5
Wig-Wag



Return
to 1



PHB Florida Success Story

FDOT D7 installed three PHBs along Hillsborough Ave in the Fall of 2015.



Hillsborough Ave Preliminary Crash Data

Hillsborough Ave Bicycle and Pedestrian Crashes	
Year	Crashes
2010	17
2011	20
2012	27
2013	24
2014	14
2015	19
2016	7

PHB Installed Fall of 2015

Six year average 20 crashes per year

Corridor: **65% reduction** of all pedestrian and bicycle crashes 1st year of installation.

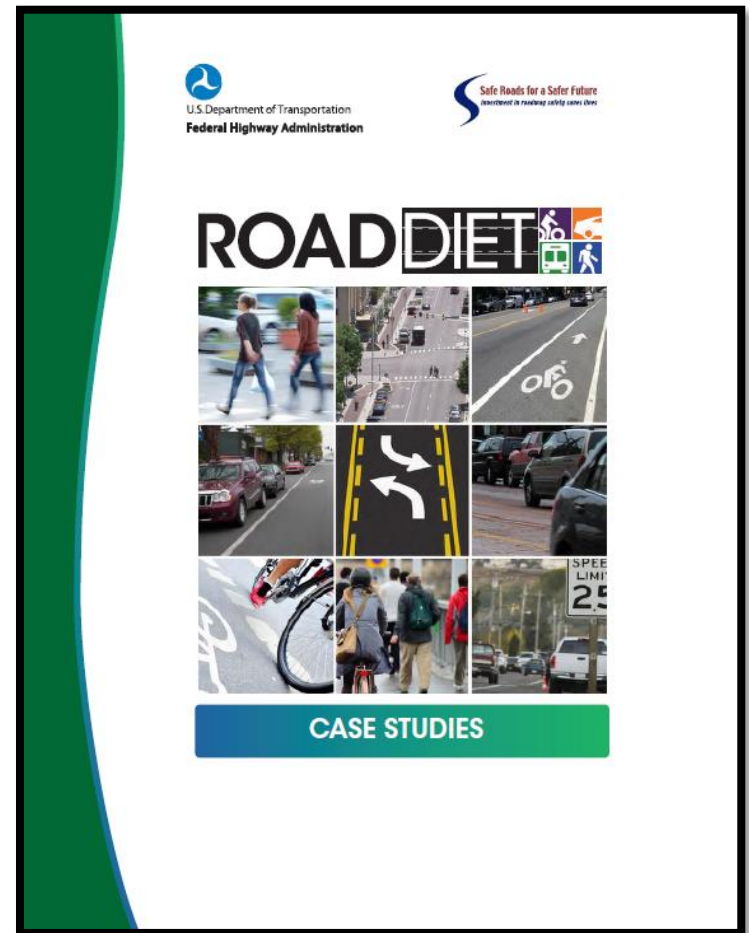
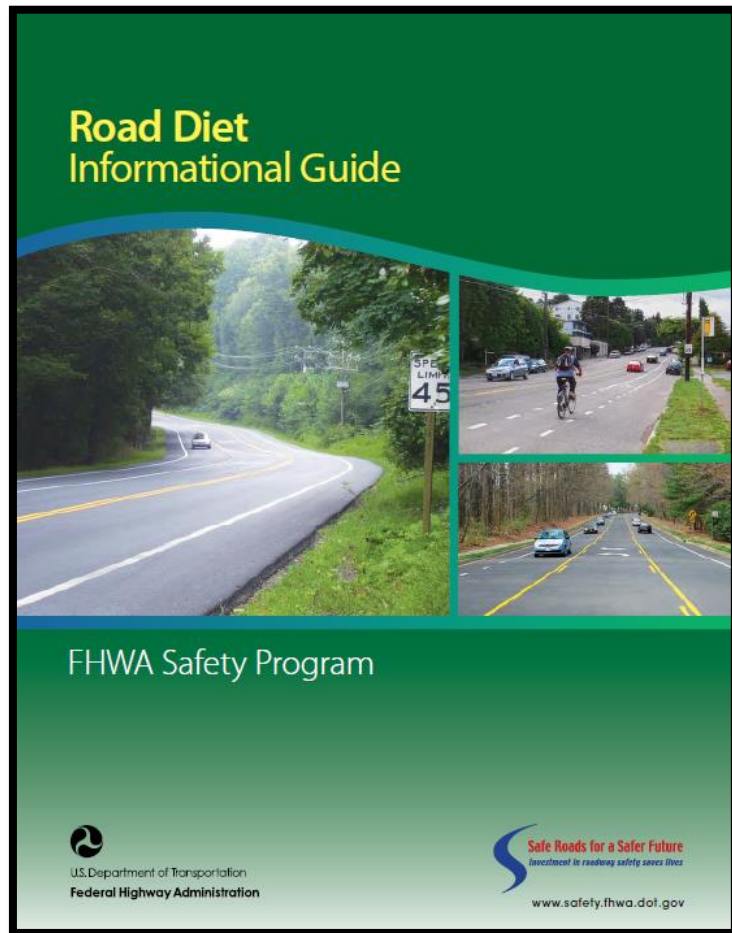
Road Diet / Roadway Reconfiguration



19%-47%
CRF All

- Reduce crossing distance
- Eliminate /reduce “multiple threat” crash types
- Install crossing island to cross in 2 simple steps
- Reduce top end travel speeds
- Buffer sidewalk from travel lanes (parking or bike lane)
- Reclaim street space for “higher and better use” than moving peak hour traffic

Road Diet Informational Guide & Road Diet Case Studies





Goal: Empowering People to Improve Their Lives

STEP 3: Decide which enhancement(s) should be selected?

STEP 2: Understand the types of Roadway people are trying to cross?

STEP 1: Strong Pedestrian Safety Policies

Technical Assistance



STEP Workshops



Road Safety Audits



Guidance with Data Analysis



Developing Plans



Other Technical Assistance
Requests

DRAFT

U.S. Department of Transportation
Federal Highway Administration

STEP
Safe Transportation for Everyone

Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations

PHOTO: C. L. FAY

Pedestrian Hybrid Beacons (PHBs)

STEP
COUNTERMEASURE TECH TEAM

High speeds and multiple lanes of traffic create challenges for pedestrians crossing at unsignalized locations.

PHBs can warn and control traffic at unsignalized locations and assist pedestrians in crossing a street or highway at a marked crosswalk.

PHBs can reduce crashes by 55%

FEATURES:

- Beacons stop all lanes of traffic, which can reduce pedestrian crashes.

OFTEN USED WITH:

- High-visibility crosswalk markings
- Revised islands
- Advance STOP or YIELD signs and markings

A PHB signal head consists of two red lenses above a single yellow lens. Unlike a traffic signal, the PHB remains dark until a pedestrian activates it via a button, motion or other form of detection. When activated, the beacon displays a sequence of flashing and steady red lights to indicate when pedestrians should cross and when it is safe for drivers to proceed (see the video below).


The PHB is ideal for installation at locations where pedestrians need to cross and vehicle speeds or volumes are high, but traffic signal warrants are not met. These devices have been successfully used at school crossings, parks, senior centers, and other pedestrian crossings on multilane streets. PHBs are typically installed at the side of the road or on an island over midblock pedestrian crossings.

[illegible]

EDC4 Other Initiatives of Interest

FHWA Home / OIPD / Accelerating Innovation / Every Day Counts / EDC-4: Community Connections

CAI Home Every Day Counts STIC Network AID Demonstration Resources



Community Connections

Performance management approaches for planning, designing and building transportation projects that promote connectivity, revitalize communities and improve public health and safety.

Many cities now have elevated, sunken or at-grade highways that have reached or exceeded their useful lives. The time is right to consider removal and retrofit options for connecting and revitalizing urban cores and adjacent communities. Performance-based management approaches are available that can help transportation practitioners develop highway retrofitting, rehabilitation or removal options that turn aging infrastructure into opportunities for reestablishing community connections and cohesion.

The fourth round of Every Day Counts (EDC-4) offers tools and strategies for developing

Contacts

Robert Mooney
FHWA Office of Infrastructure
(202) 366-2221
Robert.Mooney@dot.gov

Kenneth Petty
FHWA Office of Planning, Environment and Realty
(202) 366-6654
Kenneth.Petty@dot.gov

https://www.fhwa.dot.gov/innovation/everydaycounts/edc_4/connections.cfm

FHWA Home / OIPD / Accelerating Innovation / Every Day Counts / EDC-4: Data-Driven Safety Analysis

CAI Home Every Day Counts STIC Network AID Demonstration Resources



Data-Driven Safety Analysis (DDSA)

Using tools to analyze crash and roadway data to predict the safety impacts of highway projects allows agencies to target investments with more confidence and reduce severe crashes on the roadways.

Traditional crash and roadway analysis methods mostly rely on subjective or limited quantitative measures of safety performance. This makes it difficult to calculate safety impacts alongside other criteria when planning projects. Data-driven safety analysis (DDSA) employs newer, evidence-based models that provide state and local agencies with the means to quantify safety impacts similar to the way they do other impacts such as environmental effects, traffic operations and pavement life.

Contacts

Jerry Roche
FHWA Office of Safety
(515) 233-7323
Jerry.Roche@dot.gov

John McFadden
FHWA Resource Center
(410) 962-0982
John.McFadden@dot.gov

https://www.fhwa.dot.gov/innovation/everydaycounts/edc_4/ddsa.cfm

STEP CO-Lead

Peter Eun

- FHWA Resource Center Safety & Design TST
- Located: Olympia WA
- Transportation Safety Engineer
- peter.eun@dot.gov
- 360-328-3044
- EDC4
- https://www.fhwa.dot.gov/innovation/everydaycounts/edc_4/

