

Crosscutting

These strategies can be applied to improve multiple traffic safety-related issues or focus areas.

Lighting

The number of fatal crashes occurring in daylight is about the same as those that occur in darkness. However, the nighttime fatality rate is three times the daytime rate because only 25% of vehicle miles traveled occur at night.



→ SAFETY BENEFITS: LIGHTING

42%
28%

REDUCTION IN NIGHTTIME
PEDESTRIAN INJURY CRASHES
AT INTERSECTIONS
REDUCTION IN NIGHTTIME
INJURY CRASHES ON RURAL
AND URBAN HIGHWAYS

33-38%
REDUCTION IN NIGHTTIME
CRASHES AT URBAN
INTERSECTIONS

Pavement Friction Management

Friction is a critical characteristic of a pavement that affects how vehicles interact with the roadway, including the frequency of crashes. Measuring, monitoring, and maintaining pavement friction - especially at locations where vehicles are frequently turning, slowing, and stopping - can prevent many roadway departure, intersection, and pedestrian-related crashes.

→ SAFETY BENEFITS:

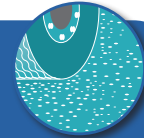
HIGH
FRICTION
SURFACE
TREATMENTS
(HFST)

63%
48%

REDUCTION IN INJURY
CRASHES AT RAMPS
REDUCTION IN INJURY CRASHES
AT HORIZONTAL CURVES

20%

REDUCTION IN TOTAL CRASHES
AT INTERSECTIONS



Local Road Safety Plans

LRSPs provide a framework for identifying, analyzing, and prioritizing roadway safety improvements on local roads. The LRSP development process and content are tailored to local issues and needs. The process results in a prioritized list of issues, risks, actions, and improvements that can be used to reduce fatalities and serious injuries on local roads.

→ SAFETY BENEFITS:

AGENCIES HAVE EXPERIENCED THE FOLLOWING
BENEFITS AFTER LRSP IMPLEMENTATION

17%

REDUCTION IN FATAL AND SERIOUS
INJURY CRASHES ON COUNTY-OWNED
ROADS IN WASHINGTON STATE

25%
35%

REDUCTION IN COUNTY ROAD
FATALITIES IN MINNESOTA
REDUCTION IN SEVERE
CURVE CRASHES IN
THURSTON COUNTY, WA

Road Safety Audits

RSAs consider all road users, account for human factors and

road user capabilities, are documented in a formal report, and require a formal response from the road owner.

→ SAFETY BENEFITS:

10-60%

REDUCTION IN TOTAL CRASHES

Polk Vision Zero Action Plan



POTENTIAL COUNTERMEASURES BASED ON HIGH INJURY NETWORK

Safety Countermeasures are effective strategies to reduce roadway fatalities and serious injuries.

The countermeasures identified in this brochure are specifically relevant to improving the corridors included on the High Injury Network (HIN) that has been identified through the course of this Action Plan.

- Using this brochure, the HIN presented at this table, and the assistance of local officials and professionals at tonight's meeting, please rank the countermeasures on the posted chart.
- Please take a comment card or follow the link below to provide any additional information related to safety issues you have encountered in Polk County and how these countermeasures could increase safety:

polkvisionzero.mysocialpinpoint.com/vision-zero-survey-1

This Community Workshop is being conducted for the "Safe Streets and Roads for All ("SS4A") Action Plan for the Polk County FL Vision: Safer Roads FL" project.



Intersections

These countermeasures are

Dedicated Left- and Right-Turn Lanes at Intersections



➔ SAFETY BENEFITS:

LEFT-TURN LANES

28-48% REDUCTION IN TOTAL CRASHES

POSITIVE OFFSET LEFT-TURN LANES

36% REDUCTION IN FATAL AND INJURY CRASHES

RIGHT-TURN LANES

14-26% REDUCTION IN TOTAL CRASHES

Driveway Density



➔ SAFETY BENEFITS:

REDUCING DRIVEWAY DENSITY

5-23%

REDUCTION IN TOTAL CRASHES ALONG TWO-LANE RURAL ROADS

23-31%

REDUCTION IN FATAL AND INJURY CRASHES ON URBAN/SUBURBAN ARTERIALS

Crosswalk Visibility Enhancements

➔ SAFETY BENEFITS:

HIGH VISIBILITY CROSSWALKS

40% REDUCTION IN PED. INJURY CRASHES

INTERSECTION LIGHTING

42% REDUCTION IN PED. CRASHES

ADVANCE YIELD OR STOP MARKINGS AND SIGNS

25% REDUCTION IN PED. CRASHES

SPEED LIMIT
55

Speed MANAGEMENT

Speed is a contributing factor in approximately 29% of all fatal crashes and is the primary cause in 30% of crashes.

BENEFIT-COST RATIO RANGE:
9:1 to 40:1

Variable Speed Limit (VSL) Systems

➔ SAFETY BENEFITS:

VSLs ON FREEWAYS

34%

REDUCTION IN TOTAL CRASHES

51%

REDUCTION IN FATAL AND INJURY CRASHES

65%

REDUCTION IN REAR-END CRASHES

Speed Safety Cameras

Fixed units can reduce crashes on urban principal arterials up to 54% for all crashes and 47% for injury crashes.

P2P units can reduce crashes on urban expressways, freeways, and principal arterials up to 37% for fatal and injury crashes.

Mobile units can reduce crashes on urban principal arterials up to 20% for fatal and injury crashes.

In New York City, fixed units reduced speeding in school zones up to 63% during school hours.

➔ SAFETY BENEFITS:

FIXED UNITS CAN REDUCE CRASHES ON URBAN PRINCIPAL ARTERIALS

54% REDUCTION IN TOTAL CRASHES

47% REDUCTION IN INJURY CRASHES



Backplates with Retroreflective Borders

are highly visible during the night

➔ SAFETY BENEFITS:

SIGNAL BACKPLATE FRAMED WITH A RETROREFLECTIVE BORDER

15% REDUCTION IN TOTAL CRASHES

Yellow Change Intervals

➔ SAFETY BENEFITS:

Appropriately timed yellow change intervals can reduce red-light running and improve overall intersection safety.

8-14% REDUCTION IN TOTAL CRASHES

12% REDUCTION IN INJURY CRASHES

36-50% REDUCTION IN RED LIGHT RUNNING

Leading Pedestrian Interval

➔ SAFETY BENEFITS:

LPIs REDUCE POTENTIAL CONFLICTS BETWEEN PEDESTRIANS AND TURNING VEHICLES

13%

REDUCTION IN PEDESTRIAN-VEHICLE CRASHES AT INTERSECTION



Appropriate Speed Limits for All Road Users

Traffic fatalities in the City of Seattle decreased 26% after the city implemented comprehensive, city-wide speed management strategies and countermeasures inspired by Vision Zero. This included setting speed limits on all non-arterial streets at 20 mph and 200 miles of arterial streets at 25 mph.



Pedestrians/Bicyclists

specifically designed for safety issues encountered at intersections.

These countermeasures are specifically designed for traffic safety issues related to pedestrians or bicyclists.

Road Diets

(Roadway Reconfiguration)

BEFORE

AFTER

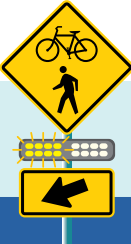
➔ SAFETY BENEFITS:

4-LANE TO 3-LANE, ROAD DIET CONVERSIONS

19-47%

REDUCTION IN TOTAL CRASHES

Rectangular Rapid Flashing Beacons (RRFBs)



➔ SAFETY BENEFITS:

RRFBs CAN REDUCE CRASHES UP TO **47%** PEDESTRIAN CRASHES

RRFBs CAN INCREASE MOTORIST YIELDING RATES UP TO **98%**

Pedestrian Hybrid Beacons



➔ SAFETY BENEFITS:

55% REDUCTION IN PED. CRASHES

29% REDUCTION IN TOTAL CRASHES

15% REDUCTION IN SERIOUS INJURY AND FATAL CRASHES

Walkways

➔ SAFETY BENEFITS:



SIDEWALKS

65-89%

REDUCTION IN CRASHES INVOLVING PEDESTRIANS WALKING ALONG ROADWAYS

PAVED SHOULDERS

71%

REDUCTION IN CRASHES INVOLVING PEDESTRIANS WALKING ALONG ROADWAYS

Bike Lanes

➔ SAFETY BENEFITS:



BIKE LANE ADDITIONS CAN REDUCE CRASHES UP TO

REDUCTION IN TOTAL CRASHES ON URBAN UNDIVIDED COLLECTORS AND LOCAL ROADS

URBAN 4-LANE **49%**

URBAN 2-LANE **30%**

Medians and Pedestrian Refuge Islands in Urban and Suburban Areas

➔ SAFETY BENEFITS:



MEDIAN WITH MARKED CROSSWALK

46% REDUCTION IN PED. CRASHES

PEDESTRIAN REFUGE ISLAND

56% REDUCTION IN PED. CRASHES

Reduced Left-Turn Conflict Intersections

➔ SAFETY BENEFITS:

RESTRICTED CROSSING U-TURN

TWO-WAY STOP-CONTROLLED TO RCUT **54%** REDUCTION IN FATAL AND INJURY CRASHES

SIGNALIZED INTERSECTION TO SIGNALIZED RCUT **22%** REDUCTION IN FATAL AND INJURY CRASHES

UNSIGNALIZED INTERSECTION TO UNSIGNALIZED RCUT **63%** REDUCTION IN FATAL AND INJURY CRASHES

MEDIAN U-TURN **30%** REDUCTION IN INTERSECTION-RELATED INJURY CRASH RATE

Low-Cost Signing and Pavement Marking improvements

➔ SAFETY BENEFITS:

ENHANCED SIGNING AND PAVEMENT MARKINGS, AT STOP-CONTROLLED INTERSECTIONS

10% REDUCTION IN FATAL AND INJURY CRASHES

15% REDUCTION IN NIGHTTIME CRASHES

27% REDUCTION IN FATAL AND INJURY CRASHES AT RURAL INTERSECTIONS

19% REDUCTION IN FATAL AND INJURY CRASHES AT TWO-LANE BY TWO-LANE INTERSECTIONS

AVERAGE BENEFIT-COST RATIO: **12:1**

Roundabouts

➔ SAFETY BENEFITS:

RECONFIGURATION:

TWO-WAY STOP CONTROLLED INTERSECTION TO A ROUNDABOUT **82%** REDUCTION IN FATAL AND INJURY CRASHES

SIGNALIZED INTERSECTION TO A ROUNDABOUT **78%** REDUCTION IN FATAL AND INJURY CRASHES



Roadway Departures

account for over half of all traffic fatalities in the United States.

Longitudinal Rumble Strips and Stripes on Two-Lane Roads



➔ SAFETY BENEFITS:

CENTER LINE RUMBLE STRIPS

44-65% REDUCTION IN HEAD-ON FATAL AND INJURY CRASHES ON TWO-LANE RURAL ROADS

SHOULDER RUMBLE STRIPS

13-51% REDUCTION IN SINGLE VEHICLE, RUN-OFF-ROAD FATAL AND INJURY CRASHES ON TWO-LANE RURAL ROADS

SafetyEdge

The **SafetyEdge** technology shapes the edge of the pavement at approximately 30 degrees from the pavement cross slope during the paving process. This safety practice eliminates the potential for vertical drop-off at the pavement edge, has minimal effect on project cost, and can improve pavement durability by reducing edge raveling of asphalt.

BENEFIT-COST RATIO RANGE:
700:1 to 1,500:1

➔ SAFETY BENEFITS:

11% REDUCTION IN FATAL AND INJURY CRASHES

21% REDUCTION IN RUN-OFF-ROAD CRASHES

19% REDUCTION IN HEAD-ON CRASHES

Median Barriers



Median barriers are longitudinal barriers that separate opposing traffic on a divided highway and are designed to redirect vehicles striking either side of the barrier. Median barriers significantly reduce the number of cross-median crashes, which are attributed to the relatively high speeds that are typical on divided highways.

8%
of all fatalities on divided highways are due to head-on crashes

➔ SAFETY BENEFITS:

MEDIAN BARRIERS INSTALLED ON RURAL FOUR-LANE FREEWAYS

97% REDUCTION IN CROSS-MEDIAN CRASHES

Roadside Design Improvements at Curves

Horizontal curves account for 27% of all fatal crashes and 80% of all fatal crashes at curves are roadway departure crashes.

Roadside design improvements at curves is a strategy encompassing several treatments that target the high-risk roadside environment along the outside of horizontal curves.

These treatments can reduce roadway departure fatalities and serious injuries by giving vehicles the opportunity to recover safely and by reducing crash severity.

➔ SAFETY BENEFITS:

FLATTEN SIDESLOPE FROM 1V:3H TO 1V:4H

8% REDUCTION IN SINGLE VEHICLE CRASHES

FLATTEN SIDESLOPE FROM 1V:3H TO 1V:6H

12% REDUCTION IN SINGLE VEHICLE CRASHES

INCREASE THE DISTANCE TO ROADSIDE FEATURES FROM 3.3ft TO 16.7ft

22% REDUCTION IN ALL CRASHES

INCREASE THE DISTANCE TO ROADSIDE FEATURES FROM 16.7ft TO 30ft

44% REDUCTION IN ALL CRASHES

Wider Edge Lines

Wider edge lines enhance the visibility of travel lane boundaries compared to traditional edge lines, allowing drivers to better identify the edge of the travel lanes. Edge lines are considered "wider" when the marking width is increased from the minimum normal line width of 4 inches to the maximum normal line width of 6 inches.

➔ SAFETY BENEFITS:

37% REDUCTION IN NON-INTERSECTION, FATAL AND INJURY CRASHES ON TWO-LANE RURAL ROADS

22% REDUCTION IN FATAL AND INJURY CRASHES ON RURAL FREEWAYS

BENEFIT-COST RATIO RANGE:
25:1
for fatal and serious injury crashes on two-lane rural roads

Enhanced Delineation for Horizontal Curves

➔ SAFETY BENEFITS:



CHEVRON SIGNS

25% REDUCTION IN NIGHT-TIME CRASHES

OVERSIZED CHEVRON SIGNS

15% REDUCTION IN FATAL AND INJURY CRASHES

SEQUENTIAL DYNAMIC CHEVRONS

60% REDUCTION IN FATAL AND INJURY CRASHES

IN-LANE CURVE WARNING PAVEMENT MARKINGS

35-38% REDUCTION IN ALL CRASHES

NEW FLUORESCENT CURVE SIGNS OR UPGRADE EXISTING CURVE SIGNS TO FLUORESCENT SHEETING **18%** REDUCTION IN NON-INTERSECTION, HEAD-ON, RUN-OFF-ROAD, AND SIDESWIPE CRASHES IN RURAL AREAS