## Pedestrian Safety and the Highway Safety Improvement Program



Karen Scurry, FHWA Office of Safety
Kohinoor Kar, Arizona Department of Transportation
David Cohen, FHWA California Division

March 13, 2014





## Today's Presentation

- □ Introduction and housekeeping
- ⇒ Audio issues?

  Dial into the phone line instead of using "mic & speakers"
- ⇒ PBIC Trainings and Webinars www.pedbikeinfo.org/training
- □ Registration and Archives at pedbikeinfo.org/webinars
- ⇒ PBIC News and updates on Facebook www.facebook.com/pedbike
- Questions at the end





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The <u>Pedestrian Safety Guide and</u>
<u>Countermeasure Selection System</u>
has the latest on improving
pedestrian safety and mobilty.



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London is testing out new pedestrian crossing sensors to make it easier for people to cross the street:

Smart pedestrian crossings for London in pioneering new

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Additional Webinars

#### **Programs & Campaigns**

#### University Courses

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CEU & PDH Information

Course Costs

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### **FHWA Pedestrian Focus Webinars**

The Federal Highway Administration (FHWA) Office of Safety and the Pedestrian and Bicycle Information Center (PBIC) will offer webinars intended to help communities address pedestrian safety issues and initiate the steps to drafting a tailored pedestrian safety action plan. Modeled after the FHWA's/PBIC's in-person training courses, the webinars will focus on topics ranging from engineering treatments to data collection and funding.

## 3/13/2014— "Pedestrian Safety and the Highway Safety Improvement Program"

Presented by Karen Scurry, FHWA Office of Safety; Kohinoor Kar, Arizona DOT; David Cohen, FHWA California Division

#### 12/6/2013— "Pedestrian Facility Maintenance Webinar"

Presented by Thomas Huber, Toole Design Group; Dan Bauer, City of Minneapolis; and Aaron Lavine, City of Ithaca.

## 9/4/2013— "Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE) Webinar"

Presented by Charlie Zegeer, UNC Highway Safety Research Center; Dan Nabors, Vanasse Hangen Brustlin, Inc.; and Peter Lagerwey, Toole Design Group.

#### 5/28/2013— "Systemic Safety Project Selection Tool"

Presented by Karen Scurry, FHWA Office of Safety; and Howard Preston, CH2M HILL.

#### 3/14/2013— "Technical Assessment of State Pedestrian Safety Programs"

Presented by Leah Walton, National Highway Traffic Safety Administration; and Trenda McPherson, Florida Department of Transportation.

#### 11/20/2012— "Road Diets and Pedestrian Safety"

Procented by Libby Thomas, LINC Highway Safety Research Contert Gina Coffman

## **Poll Question**

⇒ Please vote in the poll to let us know how many people are joining the webinar from your location.

## Thank You!

- → Archive at www.pedbikeinfo.org/webinars
  - Downloadable/streaming recording and presentation slides
- Questions?
  - **Karen Scurry** karen.scurry@dot.gov
  - **Kohinoor Kar** kkar@azdot.gov
  - **David Cohen** david.cohen@dot.gov
  - **General Questions** webinars@hsrc.unc.edu



# Pedestrian Safety and the Highway Safety Improvement Program

March 13, 2014

Karen Y. Scurry, P.E. FHWA Office of Safety





## **Highway Safety Improvement Program**

### Purpose:

Reduce fatalities and serious injuries on ALL public roads

- Strategic safety planning
- Data-driven roadway safety management process
- Highway safety improvement projects
- Federally-funded, state administered

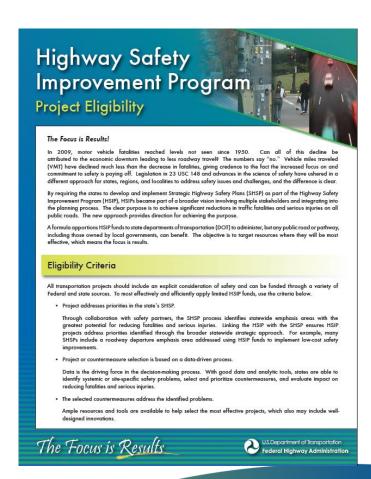
## **HSIP Project Eligibility**

Addresses an SHSP Priority

Identified through a data-driven process

Targets identified safety issue

Reduces fatalities and serious injuries



## Strategic Highway Safety Plans (SHSPs)

### Data-driven statewide plan

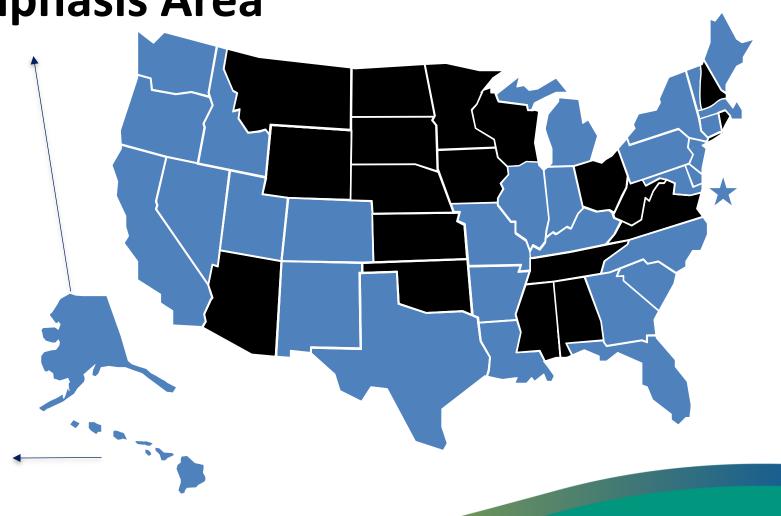
Vision

- •Establishes a common vision, mission and goals to save lives on all public roads
- •Identifies a State's key transportation safety needs and guides investment decisions

Innovation

- •Prioritizes strategies with the greatest potential to reduce fatalities and serious injuries
- •Developed in collaboration with a broad range of stakeholders
- Multidisciplinary addressing 4 Es of Safety

State SHSPs with Pedestrian-related Emphasis Area



Source: 2013 FHWA SHSP Scan

## **Pedestrian Safety Action Plans**

Georgia Bicycle and Pedestrian Safety Action Plan









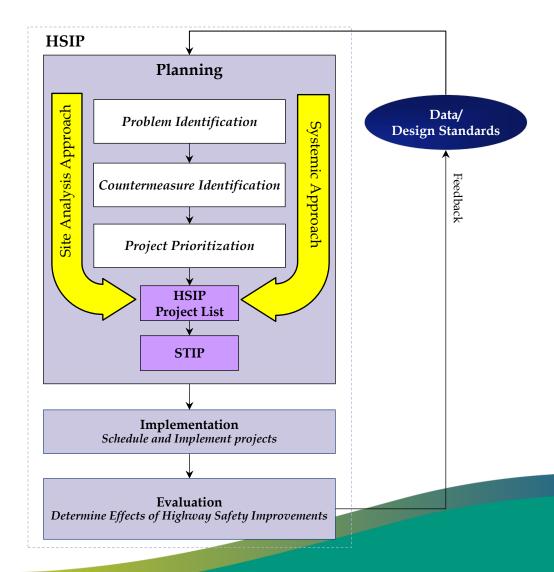






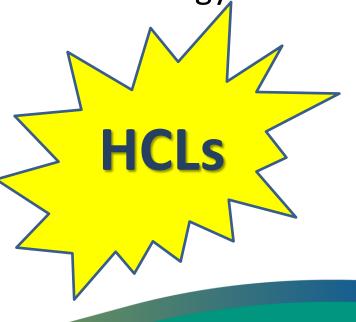
- Goals & Objectives
- **Existing Conditions**
- Policy and Nonengineering recommendations
- System-wide engineering recommendations
- Site specific recommendations for high crash areas

## **State Highway Safety Improvement Program**



## Site Analysis Approach

- Network Screening Process
  - Establish reference population
  - Apply problem identification methodology
  - Apply screening method
  - Evaluate and screen results



## **Example**

Table 12: High Pedestrian Crash Corridors, 2004-2006

County	Name	From	То	Total Crashes	Fatal Crashes
Fulton	ROSWELL RD	LAKELAND DR	DALRYMPLE RD	55	1
			SHALLOWFORD		
Dekalb	BUFORD HWY		RD	42	2
Fulton	PONCE DE LEON AVE	DURANT PL		41	2
Fulton	PEACHTREE ST			39	1
Fulton	BANKHEAD HWY	MAYNARD CT	PIERCE AVE	38	0
Dekalb	GLENWOOD AVE	BROWNWOOD AVE	CLARKE LN	37	3
Doladh	COVINGTON H		GREENBRIAR		

Oekalb COVINGTON H Table 13: High Pedestrian Crash Intersections, 2004-2006

Table 13. High I edestrian Crash Intersections, 2004-2000									
Dekalb	CANDLER RD	County	Route	Description	Total	Fatal	Injury	Severity	AADT
Fulton	PEACHTREE R	Fulton	Fulton SR 3	Stewart Ave @ Cleveland Ave	10	0	9	30	15628
Clayton	RIVERDALE RI	Clayton	Clayton SR 139	Riverdale Rd at Garden Walk Blvd	7	1	5	37.14	35680
		Dekalb	Dekalb SR 260	Glenwood Rd at Columbia Drive	6	0	6	33.33	22210
Dekalb	MORELAND A	Fulton	Fulton CS 904-03	Martin Luther King Dr at Fulton CS 2003-03	6	0	6	26.67	21846
Fulton	STEWART AVE	Fulton	Fulton CS 661-03	Peachtree St at Fulton CS 1828-03	6	0	6	23.33	18156
Fulton	BOULEVARD	Fulton	Fulton CS 2001-03	International Blvd at Fulton CS 3695-03	6	0	4	20	10398
Fulton	NORTH AVE	Fulton	Fulton SR 8	North Ave at W. Peachtree St	6	0	4	16.67	29345
runon	NORTHAVE	Dekalb	Dekalb CS 693-05	Chamblee Dunwoody Rd at Cumberland Dr	5	1	4	60	11728
		Dekalb	Dekalb SR 260	Glenwood Rd at E. Lake Blvd	5	0	5	36	18442
		Fulton	Fulton SR 42-SP	McDonough Blvd at Henry Thomas Dr	5	0	5	36	13236
		Fulton	Fulton CS 904-03	Martin Luther King Dr at Fulton CS 1868-03	5	0	5	28	21616
		Dekalb	Dekalb SR 13	Buford Hwy at N. Cliff Valley Way	5	0	5	28	25234
		Fulton	Fulton SR 883	Fulton SR 883 at Fulton CS 2051-03	5	0	4	32	11600
		Fulton	Fulton SR 8	Ponce de Leon Ave at Kennesaw Ave	5	0	4	28	33390
		Fulton	Fulton SR 8	Ponce de Leon Ave at Seminole Ave	5	0	4	28	36180
		Fulton	Fulton SR 8	North Ave at Peachtree St	5	0	4	24	30590
		Clarke	Clarke SR 10	Broad St at College Ave	5	0	4	24	30224
		Dekalb Fulton Fulton Fulton Fulton	Dekalb SR 13 Fulton SR 883 Fulton SR 8 Fulton SR 8 Fulton SR 8	Buford Hwy at N. Cliff Valley Way Fulton SR 883 at Fulton CS 2051-03 Ponce de Leon Ave at Kennesaw Ave Ponce de Leon Ave at Seminole Ave North Ave at Peachtree St	5 5 5 5 5	0 0 0 0	4	28 32 28 28 24	25 11 33 30 30

## Systemic Approach to Safety

- Systemic Safety Improvement
  - An improvement that is widely implemented based on high-risk roadway features that are correlated with particular severe crash types.
- Systemic Problem Identification
  - System-wide crash analysis
  - Crash characteristics at the system level



## **Pedestrian Risk Factors**

Pedestrian Crossing Crashes	Pedestrian Dart/Dash Crashes	Pedestrian Walking Along Road Crashes
Number of lanes	Sight distance	Presence of shoulders/sidewalks
Traffic volume	Traffic volume	Speed
Presence/proximity of pedestrian generators	Presence of on-street parking	Lighting
Proximity of established crossings	Age/sex of drivers and pedestrians	Time of day
Responsiveness of pedestrian signal	Lighting	Walking direction (facing traffic or not)
Other: Speed, lighting, crossing time, presence of center refuge	Other: Mid-block crossings, alcohol, presence of pedestrian generators	Other: Visibility of pedestrian, alcohol, driver distraction

## **Highway Safety Improvement Projects**

- Strategies, activities, and projects on a public road that are consistent with a State strategic highway safety plan and
  - correct or improve a hazardous road location or feature; or
  - address a highway safety problem.
- Example list

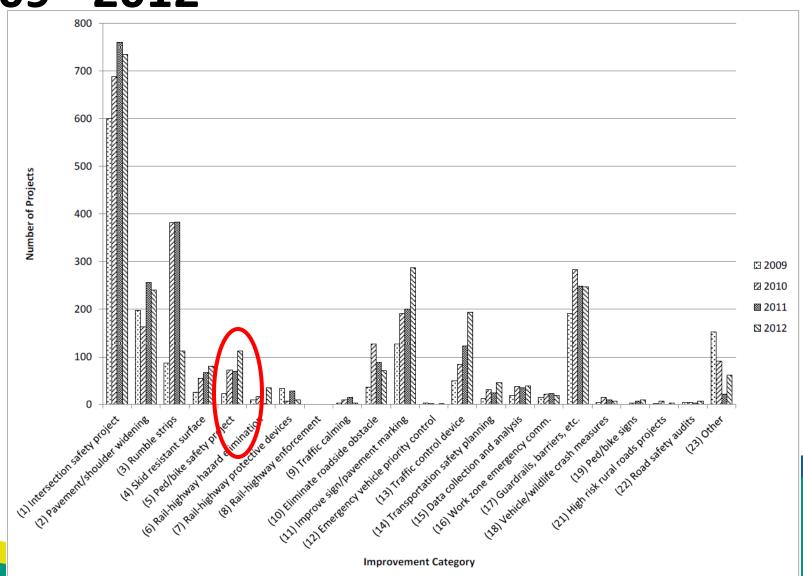


## **Special Eligibility Considerations**

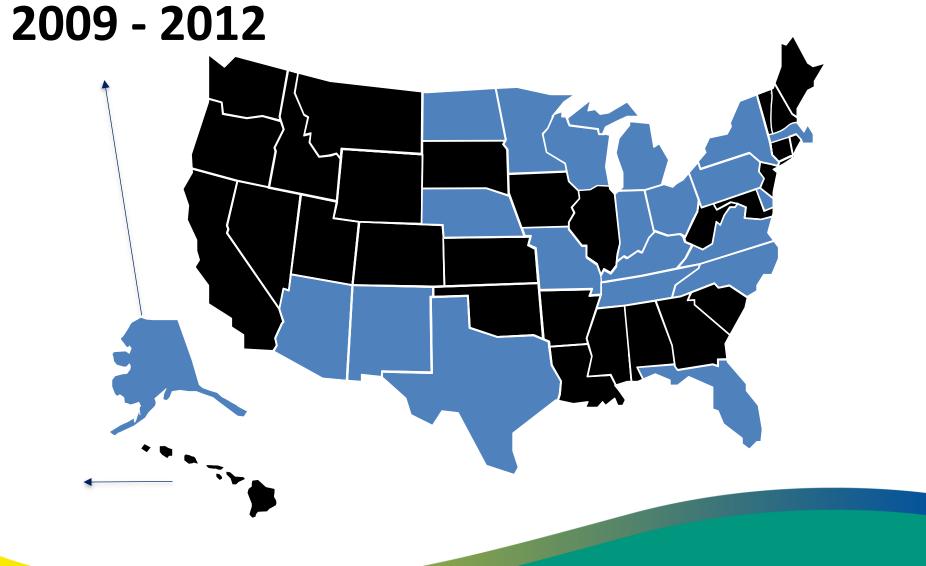


- Automated enforcement
- Non-infrastructure projects
- Projects to maintain minimum levels of retroreflectivity

# HSIP National Summary Baseline Report: 2009 - 2012



# Highway Safety Improvement Projects



## **Benefits**

- Target areas of greatest need
- Systematic and repeatable process
- Prioritized investments
- Defensible decisions
- Lives saved!!!

## Resources



- HSIP Manual
- HSIP Training (NHI)
  - HSIP Overview
  - SHSP Development
  - SHSP Implementation
  - HSIP Project ID
  - HSIP Project Evaluation
- Systemic Safety Project Selection Tool
- Safety Peer-to-Peer Program

# Notice of Proposed Rulemaking Safety Performance Measures

- Proposes measures for safety
- Proposes method for States and MPOs to report targets and progress
- Proposes FHWA method to evaluate State target achievement
- Proposes requirements if targets are not achieved

## **Submit comments to:**

www.regulations.gov

Safety PM Docket Number:

FHWA-2013-0020

## Questions???

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FHWA Office of Safety Programs
609-637-4207

karen.scurry@dot.gov



# HSIP Funding and Pedestrian Safety Arizona Experience

**FHWA Webinar Series** 

Kohinoor Kar, Ph.D., P.E., PTOE

Arizona Department of Transportation

March 13, 2014

Disclaimer: Contents in this presentation are for informational purpose only and may not necessarily reflect current ADOT policies or guidelines.



# Strategic Highway Safety Plan Pedestrian Safety

- ▶ Pedestrian fatalities constitute 18% of all fatalities in Arizona (2010-2012)
- ▶ Current SAFETEA-LU compliant Arizona SHSP (August 2007)
  - Pedestrian Safety under Intersection Emphasis Area (EA)
- ▶ Updated MAP-21 compliant Arizona SHSP (expected Spring 2014)
  - Pedestrian Safety under Non-Motorized Users EA
- ▶ Arizona HSIP Manual will be updated following publication of 2014 SHSP.

### **New Vision:**

Toward Zero Deaths by Reducing Crashes for a Safer Arizona



# Pedestrian Plans/Committees State and Local

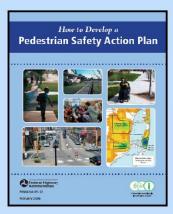
- ▶ Phoenix and Tucson are 'focus cities', Arizona is one of the 'focus states'
- ▶ ADOT developed Pedestrian Safety Action Plan (PSAP) for the state highway system
  - Detailed plan with locations identified through data analysis
- City of Phoenix has a draft PSAP
- Cities of Tucson and Flagstaff have pedestrian advisory committees
- ▶ Maricopa Association of Governments (MAG) has Bicycle and Pedestrian as well as Transportation Safety Committees
- ▶ Pima Association of Governments (PAG) is updating their regional pedestrian plan
- ▶ Several other regional and local agencies have plans/committees addressing pedestrian issues



# AZ Supplement to How To Guide Statewide for All Agencies

### A Guide to Developing a Pedestrian Safety Action Plan

An Arizona Supplement to the National "How to Develop a Pedestrian Safety Action Plan"







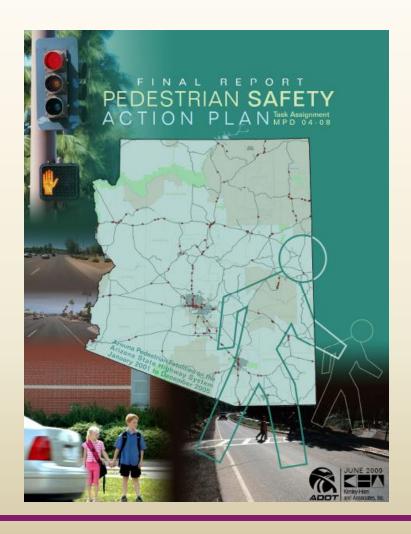




Arizona Department of Transportation Highway Enhancements for Safety (HES) April 9, 2007



# Pedestrian Safety Action Plan ADOT for State Highway System





# HSIP Funding Allocations All Safety Issues

- ▶ 80% for statewide all public roads (state highway system, local and tribal roadways)
- ▶ 20% for local roadways through COGs and MPOs
- ▶ Average 8.9% of Statewide HSIP funding (FFY 2010-2012) involved one or more pedestrian safety improvement(s)
  - ▶ Countdown pedestrian signals
  - ▶ Pedestrian beacons
  - **▶** Sidewalks
  - ▶ Street lighting



# Pedestrian Safety Review Identification of Issues

- ▶ Pedestrians are considered in all safety evaluations
- ▶ Pedestrian safety issues are often identified through Road Safety Assessment (RSA)
  - ▶ State, local and tribal roadways
- ▶ Pedestrian-specific RSAs are also conducted
- ▶ ADOT PSAP is typically used as a reference



## Pedestrian Safety Improvements Examples

- Systemic improvements
  - ▶ Countdown pedestrian signals
- Spot improvements
  - ▶ Pedestrian Hybrid Beacon (PHB aka HAWK)
  - ▶ Two-stage crosswalk
  - ▶ High visibility crosswalk
  - ▶ Rectangular Rapid Flash Beacon
  - ▶ Street lighting
  - **▶** Sidewalks
  - ▶ Signing
- ▶ HSIP funding may be used for any of the above countermeasures if found eligible using data-driven process



## Pedestrian Hybrid Beacons Tucson and Phoenix







## Pedestrian Hybrid Beacon ADOT





#### **ADOT's PHB Brochure...Side 1**

#### What is a pedestrian hybrid beacon?

A pedestrian hybrid beacon (PHB) is a device that assists pedestrians in crossing a street or highway at a marked but unsignaled crosswalk by warning and controlling vehicular traffic.

A PHB can be used at a midblock crosswalk or at an intersection crosswalk. If used at an intersection, the device only controls the main-street vehicular and pedestrian traffic. It does not control side-street traffic, which should continue to STOP and proceed when it is safe to do so.







Additional information on the effectiveness of the pedestrian hybrid beacon can be found online at azdot.gov/phb.

For questions and comments, please call 1.855.712.8530.

ADDT REVOIGS



### **ADOT's PHB Brochure...Side 2**

#### Why is ADOT installing pedestrian hybrid beacons?

The Arizona Department of Transportation is installing a new traffic control device to help make crossing busy streets easier for pedestrians. This new device is called a pedestrian hybrid beacon (PHB).

Arizona faces many challenges in providing service for pedestrians wanting to cross busy, wide streets safely and efficiently. Some locations do not meet adequate spacing requirements for a standard traffic signal, and the amount of pedestrian or side-street traffic is usually not high enough to justify a signal. Before a PHB can be installed, it needs to be justified by a traffic-engineering study.

PHBs have been used by various agencies throughout the country to improve service for pedestrians. Several of these devices have been installed in the Tucson and Phoenix metro areas.

The PHB was first installed in Tucson to assist pedestrians crossing very busy streets. It is similar to traditional traffic-control devices, but it uses a different configuration.



#### Pedestrian Hybrid Beacon Operation

	DRIVERS		PEDESTRIANS		
	Will See	Will Do	Will See	Will Do	ı
1	00	Proceed with caution.	<b> </b>	Push the button to activate the system.	
2	FLASHING	Slow down.  A pedestrian has activated the system.	<b> </b>	Wait.	
3		Prepare to stop.		Continue to wait.	
4		STOP.  A pedestrian is in the crosswalk.	K	Start crossing when all vehicles are stopped.	
5	FLASHING	STOP.  Proceed with caution if the crosswalk is clear.	単鎖	Continue crossing; the signal will count down.	
6		Proceed if the cross- walk is clear.		Push the button to activate the system.	

#### Pedestrian Hybrid Beacon: Steps for Activation

When there is no pedestrian waiting to cross, drivers will see that all indication lights are dark; the pedestrian will see a "DON'T WALK" symbol. A pedestrian who wants to cross the street will need to push the button to activate the system.

When a pedestrian pushes the button, approaching drivers will see a FLASHING YELLOW light for a few seconds, indicating that they should reduce speed and be prepared to stop for a pedestrian in the crosswalk. Pedestrians will continue to see a "DON"T WALK" symbol and should wait.

Drivers will see a STEADY YELLOW light, warning drivers the indication will soon turn to a STEADY RED light. Pedestrians will continue to see the "DON'T WALK" symbol and should continue to wait.

Drivers will see a STEADY RED light, which requires them to STOP at the stop line. At this point, the pedestrian receives a "WALK" symbol to cross.

As the pedestrian crosses the street, drivers will see ALTERNATING FLASHING RED lights, indicating that they need to stop. During this period, motorists are required to STOP or remain stopped until pedestrians have finished crossing the street. They may proceed with caution if the crosswalk is clear. Pedestrians will see a flashing countdown that indicates how much time they have to cross the street.

At the end of the flashing countdown, drivers will see that all indication lights are dark; the pedestrian will see a "DON'T WALK" symbol. Drivers may continue to proceed through the crosswalk if it is clear; pedestrians waiting to cross will have to push the button to activate the system.



## Two-Stage Crosswalk Phoenix





### Rectangular Rapid Flash Beacon Phoenix





## HSIP Funding Eligibility Steps Used

- ▶ Data-driven evaluation of safety issues and proposed improvements
  - ▶ Review crash data summary (e.g. pedestrian-involved crashes)
  - ▶ Identify potential issues involving pedestrians
  - ▶ Propose pedestrian safety improvements (e.g. engineering countermeasures) with documented effectiveness (e.g. CMF)
  - ▶ Benefit-Cost analysis



### Summary Lessons Learned

- ► Updated SHSP Draft includes pedestrian safety under Non-Motorized Users EA
- ▶ State and local agencies have pedestrian related plans/committees
- ▶ Several pedestrian safety improvements have been implemented statewide
- ▶ HSIP funding is being used in pedestrian safety improvements



# Thank You! Questions? Comments?

For additional information, please contact:

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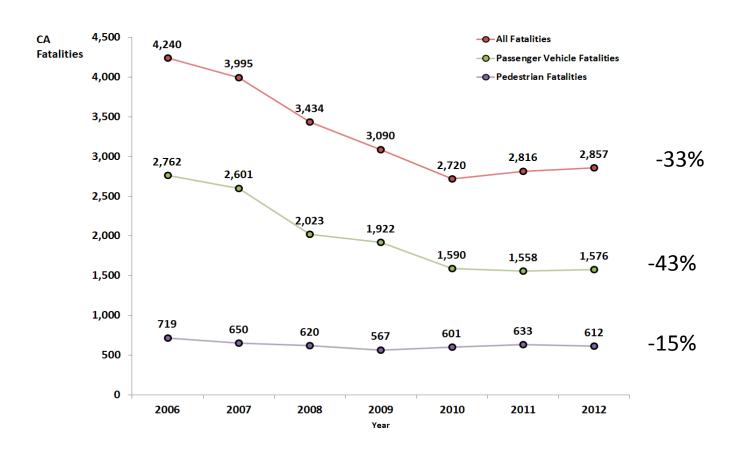




## Promoting Pedestrian Safety in HSIP Delivery in California

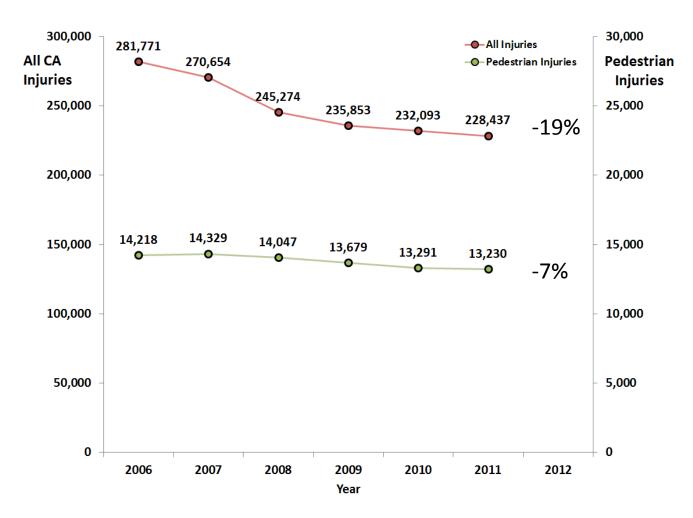
David Cohen FHWA California Division

### Pedestrian Safety Story in California-Fatalities



From: Traffic Safety Facts, California-NHTSA, Offer Grembek, UC Berkeley

### Pedestrian Safety Story in California-Injuries



From: Traffic Safety Facts, California-NHTSA, Offer Grembek, UC Berkeley

### Strategic Response

1. The California Strategic Highway Safety Plan

Dedicated SHSP Challenge Areas for Pedestrian and Bicycle Safety

- 2. Focus State / Focus Cities Initiative in California Cities of Los Angeles, San Francisco, San Diego and Stockton
- 3. The Highway Safety Improvement Program
- 4. The Active Transportation Program (includes the Transportation Alternatives Program in California)

### **HSIP** for Pedestrian Safety

- State ("capital") Program
- 50% (on the SHS)
- HSIP funds are rolled into Caltrans' SHOPP, governed by a 10-year strategic plan
- Continuous project initiation process based on TASAS database outputs
- "010" and "015" Programs

- Local Assistance Program
- 50% (off the SHS)
- Project applications are governed by HSIP Cycles
- Benefit / cost analysis based on UC Berkeley's TIMS database (geocoded SWITRS data)
- Programming is not subject to SB 45

### **Typical Projects**

- Signage and signal improvements
- Sidewalk and pedestrian refuge areas
- Crosswalk improvements
- Speed management projects
- Road diets, traffic calming
- NHTSA/OTS: Non-infrastructure projects (PSAP development, data collection and analysis, risk communication / norm change workshops)



### **Typical Partners**

- Local, Regional and Tribal Governments
- California Office of Traffic Safety
- California Department of Public Health
- UC Berkeley: ITS Berkeley and SafeTREC
- California Highway Patrol
- California Department of Motor Vehicles
- Advocacy Groups

### **Typical Barriers**

- Insufficient crash data
- Inability to account for crash potential
- Complexity of Federal-aid highway program requirements
- Purpose & Need not tailored to safety
- Inability to demonstrate a long-term vision

### **Emerging Trends Under MAP-21**

- Systemic Safety Projects
- Strengthening connections between SHSP implementation and HSIP delivery
- Strengthening connections between SHSP and HSP
- HSM enhancements for pedestrian safety
- Active Transportation Program in California

## Active Transportation Program September 26, 2013

- Increase the proportion of trips accomplished by biking and walking,
- Increase safety and mobility for non-motorized users,
- Advance the active transportation efforts of regional agencies to achieve greenhouse gas reduction goals,
- Enhance public health,
- Ensure that disadvantaged communities fully share in the benefits of the program, and
- Provide a broad spectrum of projects to benefit many types of active transportation users.
- http://www.dot.ca.gov/hq/LocalPrograms/atp/

- David Cohen
- Safety Specialist
- FHWA California Division
- <u>David.Cohen@dot.gov</u>
- 916-498-5868

