ADDT 2023 Arizona Tribal Transportation Safety & Injury Prevention Summit

Arizona Highway Safety Improvement Program (HSIP) Funding Opportunities

Mona Aglan-Swick, P.E. ADOT Traffic Safety Section August 9, 2023



Agenda

- Safety Planning and Programming
- Arizona HSIP Program Overview
- HSIP Selection Process in the Past, Present and Future



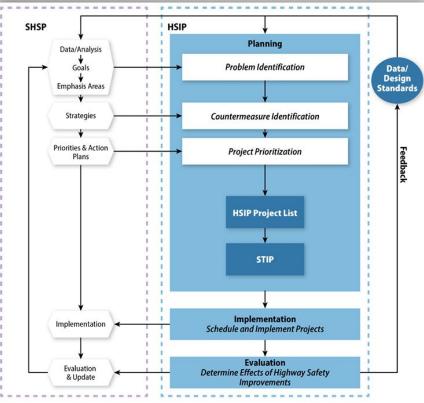
Highway Safety Improvement Program (HSIP)

Federal-aid program with the purpose to achieve a significant reduction in **traffic fatalities and serious injuries** on all public roads, including non-State-owned roads and roads on tribal land.

 <u>The HSIP requires a data-driven, strategic approach</u> to improving highway safety on all public roads that focuses on performance.



Arizona HSIP Key Features



- Data Driven Safety Program
- Spot Improvement or Systemic
- Countermeasures must address fatal and serious injury crashes
- ALL public roads
- When an eligible project uses funds from a program apportioned under 23 U.S.C. 104 and that project is located within the boundaries of an Indian reservation, national park, or national monument, the Federal share may be 100%.

Safety Planning and Programming

Arizona Strategic Highway Safety Plan (SHSP)

- Sets the priorities for the state
- Includes five emphasis areas:
 - Pedestrian
 - Lane Departure
 - Intersection
 - Crash Data
 - Behavior Related





HIGHWAY SAFETY (BEHAVIOR-RELATED)

This emphasis area relates to crashes involving speeding/ reckless driving, impaired driving, distracted driving, pedestrians, lack of restraint use, and/or motorcycles. In Arizona, for the 2016-2018 period, nearly 33% of all traffic fatalities involved an impaired driver. Safety devices (helmets, seatbelts) were not used in nearly 32% of all traffic fatalities.

0

(~

INTERSECTIONS

In the United States, one-quarter of traffic fatalities and roughly half of all traffic injuries involved intersections. In Arizona, nearly 28% of all traffic fatalities, and 44% of serious injuries occurred at intersections.

LANE DEPARTURE

A lane-departure crash is defined as a crash that occurs after a vehicle crosses an edge line or a center line, or otherwise leaves the traveled way. In Arizona, 65% of all traffic fatalities involved lane departure.

PEDESTRIANS

Nationally, each year, pedestrian fatalities are 16% of all traffic fatalities with approximately 5,000 pedestrian deaths. In Arizona, pedestrian fatalities are 22% of all traffic fatalities. For 2016-2018, an average of 221 pedestrians per year were killed when struck by a motor vehicle.

SAFETY-RELATED DATA

This emphasis area relates to improved safety data availability, timeliness, accuracy, and analytical processes. A primary focus is on improving processes for local agencies to submit crash data to ADOT.

Road Safety Assessment (RSA)

- RSAs performed on crash hotspots throughout the system
- RSA teams:
 - Investigate problem
 - Develop solutions
 - Recommend countermeasures
 - Develop preliminary cost estimates for countermeasures



ARIZONA DEPARTMENT OF TRANS

ADOT

Crash Records

ARIZONA DEPARTMENT OF TRANSPORTATION

ARIZONA MOTOR VEHICLE CRASH FACTS 2021





- Crash Reports
- Crash Facts
- Fatality Analysis Reporting System (FARS)

Fatality Analysis Reporting System (FARS)

Share: f 🎽 in 🔤

Detailing the Factors Behind Traffic Fatalities on our Roads

FARS is a nationwide census providing NHTSA, Congress and the American public yearly data regarding fatal injuries suffered in motor vehicle traffic crashes.

How to Access FARS Data

Create your own fatality data run online by using the FARS Query System. Or download all FARS data from 1975 to present from the FTP Site.

- Run a Query Using the FARS Web-Based Encyclopedia
- 2010 FARS/NASS GES Standardization -- Posted 12/8/2011
- FARS and GES Auxiliary Datasets 0.& A Posted 9/9/2010 These files will complement the standard FARS and GES files by providing new variables that have been derived from all the commonly used NCSA analytical data classifications (e.g. speeding related, race and ethnicity, etc).
- FARS Manuals and Documentation
- Download Raw Data From FTP Site
- Trucks in Fatal Accidents (TIFA) and Buses in Fatal Accidents (BIFA) The TIFA
 database contain records for all the medium and heavy trucks that were involved in
 fatal traffic crashes in the 50 states and District of Columbia. The BIFA database was
 similarly created for buses in fatal crashes.



Safety Analysis



ARIZONA DEPARTMENT OF TRANSPORTATION TRANSPORTATION SYSTEMS MANAGEMENT AND OPERATIONS (TSMO) DIVISION OPERATIONAL AND SAFETY GROUP TRAFFIC SAFETY

2021 NETWORK SCREENING OPERATIONAL STUDY REPOR

September 2022

Annual Network Screening

Frequency analysis (hot spot) of high fatal & serious injury crash locations (SHS and Local)
Most recent five years of data

	DOT			Arizo		fety Section								
Trans	portation Systems Management an	d Operations			Network	Screening	3							
				Pede	strian Crash Typ	e - SHS Inte	rsections							
	Crash Type 5:	Pedestrian												
	Network:	<u>SHS</u>		Period:	2016-2020					Quer	y Date:	11/16/2021		
Inte	rsections													
									Severity	- Pedestrian (Crashes	Only		
#	On Road / Milepost	Intersecting Street / MP	Traffic Control	ADOT District	DPS District	FHWA Region	ADOT Traffic Region	K+A Total	Fatal (K)	Serious (A)	Minor/ Poss (B/C)	PDO (O)	Total Crashes	Commen
1	SR-260 (MP 208.78)	Western Dr	Signalized	Northcentral	District 12	A-1	Northern	2	2	0	0	0	2	
2	SR-260 (MP 252.12)	Goodnow Rd	1-way stop	Northcentral	District 11	A-1	Northern	2	1	1	0	0	2	
3	SR-89A (MP 372.45)	Mountain Shadows Dr / Northview Rd	Signalized	Northcentral	District 12	A-1	Northern	2	0	2	0	0	2	
4	I-17 NB Frontage Rd (MP 202.41)	Osborn Rd	1-way stop	Central	Metro Central	A-4	Central	2	0	2	0	0	2	
5	I-17 NB Frontage Rd (MP 202.91)	Indian School Rd	Signalized	Central	Metro Central	A-4	Central	2	0	2	0	0	2	
6	I-10 EB on Ramp / Frontage Rd (MP 139.64)	51st Ave	Signalized	Central	Metro Central	A-4	Central	2	0	2	0	0	2	
Notes														

Access limited to state, regional and local agencies and consultants



IFI CRASH MODIFICATION FACTORS CLEARINGHOUSE

ABOUT THE CLEARINGHOUSE USING CMFs DEVELOPING CMFs ADDITIONAL RESOURCES

The Crash Modification Factors Clearinghouse provides a searchable database of CMFs along with guidance and resources on using CMFs in road safety practice.

ENTER SEARCH TERMS... Counterneasure Name SEARCH FREQUENT SEARCHES: ROUNDABOUT | SIGNAL | PEDESTRIAN | COMPLETE STREETS | TSMO | BROWSE ALL



WHAT ARE CMFs?

A crash modification factor (CMF) is used to compute the expected number of crashes after implementing a countermeasure on a road or intersection.

LEARN MORE

2



NEWSLETTER

READ NOW



UPDATED RATINGS

The CMF Clearinghouse transitioned to the CMF rating criteria developed as part of the NCHRP 17-72 project for the 2nd edition of the Highway Safety Manual on February 15, 2021.

LEARN MORE

RECEIVE THE QUARTERLY EMAIL NEWSLETTER EMAIL ADDRESS FIRST NAME LAST NAME ORGANIZATION SIGN UP

Hot off the press! The CMF Clearinghouse

Update: Winter 2021 enewsletter is now

Clearinghouse's additions and activities.

available. Read for the latest on the

CMFs were last added to the clearinghouse on November 9, 2021.

Crash Modification Factor (CMF) Clearinghouse

Up to date listing of traffic safety research by countermeasure

- Includes CMF and links to studies
- Study ratings <u>https://www.cmfclearinghouse.org/</u>

This site is funded by the U.S. Department of Tearopertation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center

For more information, contact Karen Scurry at karen.scurry@dol.gov



FHWA's Proven Safety Countermeasures





- 28 countermeasures and strategies effective in reducing roadway fatalities and serious injuries
- Designed for all road users and all kinds of roads

<u>https://highways.dot.gov/safety/proven-safety-counterm</u> <u>easures</u>



ARIZONA DEPARTMENT OF TRANSPORTATION

Regional Transportation Safety Plan

Local Agency	Started	Completed	Cost estimate
CAG	2014	2016	\$340,000.00
PAG	2013	2016	\$475,750.00
City of Avondale	2015	2016	\$150,000.00
SCMPO	2014	2016	\$324,000.00
LHMPO	2014	2017	\$318,150.00
NACOG/ CYMPO/FMPO	2017	2018	\$668,760.00
WACOG	2015	2018	\$432,800.00
SEAGO/ SVMPO	2015	2018	\$350,000.00
Pinal County	2017	2019	\$222,659.00
ΥΜΡΟ	2014	2016	\$318,134.00
NACOG/ CYMPO/FMPO	2023	On Going	\$400,000.00
WACOG	2023	On Going	\$359,967.00
Pinal County/SCMPO	2023	On Going	\$325,499.00
SEAGO/ SVMPO	2023	On Going	\$424,178.00
Total			\$5,109,897.00





HSIP Funding in the Past







Past Issues with 80/20 Split

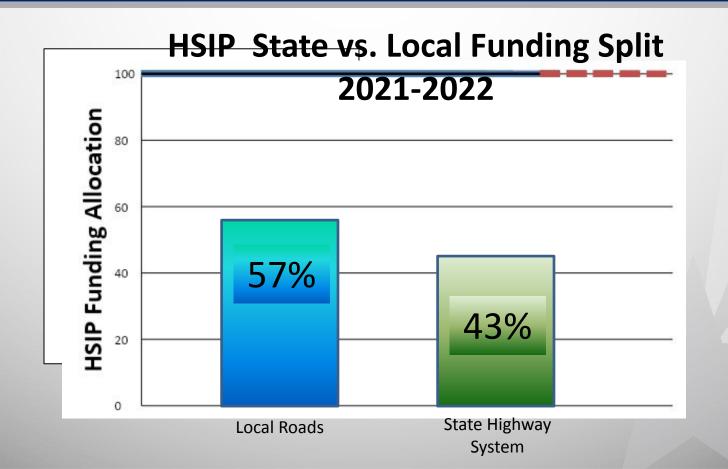
- Placed the burden to identify potential HSIP projects and to assemble the HSIP applications on MPOs and COGs
- Limited the size and scope of projects because of the small amount of yearly allocation
- Encouraged MPOs and COGs to find creative measures to "loan" their appropriation to other MPOs and COGs in order to not lose those funds and accumulate larger appropriations in out years
- Lack of personnel resources at the local level to evaluate crash data and prepare HSIP applications



Current Practices

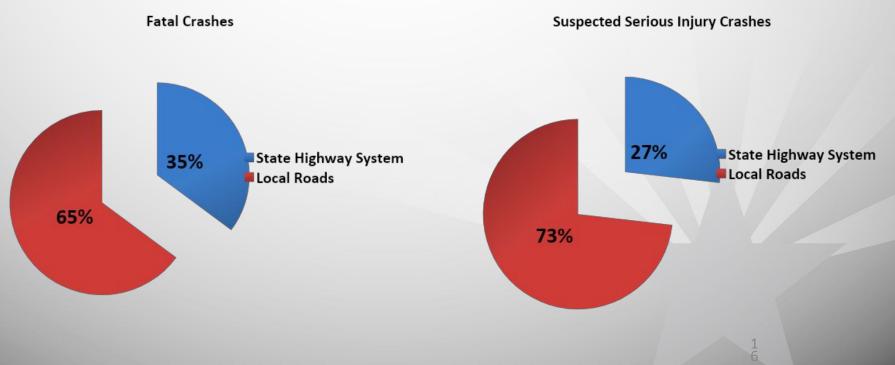
- In 2017, the 80/20 split was eliminated and all agencies, both local and State, applied for the available FY 19 and FY 20 HSIP funding.
- Utilizing HSIP funds, most MPOs and COGs contracted with a consultant who prepared a local Strategic Transportation Safety Plan (STSP) based on their crash data.
- Based on the STSP, the consultant then identified potential HSIP projects and prepared the HSIP applications for the local agencies to submit.
- Eligible projects are ranked by Benefit to Cost (B/C) ratio for funding availability.







Fatal/Serious Injury Crashes State vs. Local (2018-2022)





Infrastructure Investment and Jobs Act (IIJA) Impact on HSIP Apportionment FY 24 – FY26

Under IIJA Highway Safety Improvement Program (HSIP) funding increased and expanded

- Increased from **\$44 million to \$57 million** per year
 - ADOT further increased funding to \$62 million/year
- Expanded to allow funding for education and enforcement programs



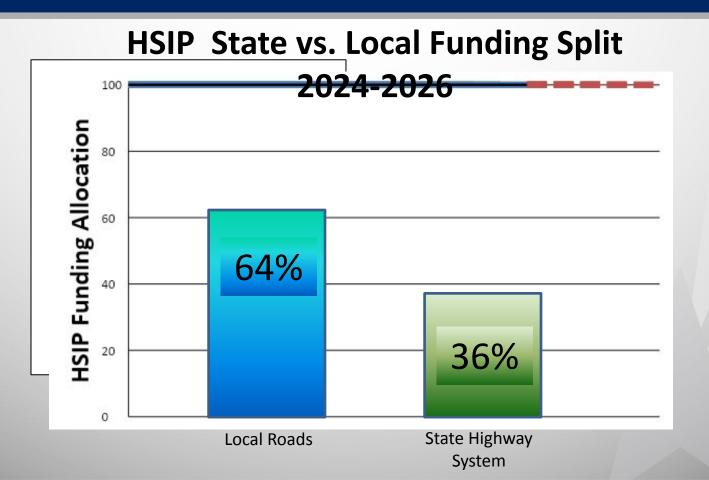
Statutory Special Funding Requirements

Vulnerable Road Users (VRU): Per 23 U.S.C. 148(g)(3), States must <u>dedicate 15%</u> of HSIP funding to safety projects that address VRUs if a State's number of VRU traffic fatalities is equal to or greater than 15% of the total State fatalities in a single year.

High Risk Rural Roads (HRRR): Per23 U.S.C. USC 148(a)(1) HRRRs are defined as "any roadway functionally classified as a rural major or minor collector or a rural local road with significant safety risks, as defined by a State in accordance with an updated State strategic highway safety plan" and applies if "the fatality rate on rural roads in a State increases over the most recent 2-year period for which data are available."

Arizona Must Address Both Requirements







FY24 – FY26 Design/Construction Total





Agency:		Title of Project	:	
County:		COG/MPO:		
District:		Date:	il.	
Contact:		Phone:	E-Mail:	
		Spot: _ 155 _ 160 or	Systemic] ***	11771
Anticipated T		\$0.00		
Anticipated d	ollar amount	\$0.00		
Anticipated D	ollar amount	\$0.00		
Anticipated D	ollar amount	\$0.00		
Funding Sou	рейина Пан	Cost Estimate	Tab:	
Administration	n of Project:	Agency 🗠 🕬	ADOT:] 10
Name and Titl	e of COG/MP	O Representative:		

Anticipated If additional Anticipated 1. Have low IF Yes, 2. Which Z: project of 2a. 3. Desoribe 3a.

ARIZONA HIGHWAY SAFETY IMPROVEMENT PROGRAM MANUAL

> Arizona Department of Transportation Transportation Systems Management & Operations Group Traffic Safety Section May 2015 (Revised February 2017)

> > ADOT

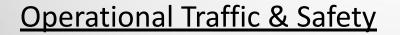
FY27-28 Draft HSIP Call for Projects

- Schedule is under review
- Call for projects January 2024
- Training Webinars
- Updated HSIP standard Work
- HSIP Safety Committee Meeting
- SuPRB, PRB, PPAC and Board approval
- STIP
- All eligibility letters issued
- TIP
 - Approximately \$100 million available



Available Resources

Link for HSIP Manual & Application







Operational Traffic & Safety



Arizona Highway Safety Improvement Program

The Highway Safety Improvement Program (HSIP) works to achieve a significant reduction in traffic fatalities and serious injuries on public roads through the implementation and guidance of the SHSP.

- Arizona Highway Safety Improvement Program (HSIP) Manual
- Arizona HSIP Application
- <u>Appendix A</u>
- <u>Appendix B</u>
- <u>Appendix C</u>

HSIP Checklist

- Appendix D (Under Development)
- HSIP Construction Pricing Examples

ADOT

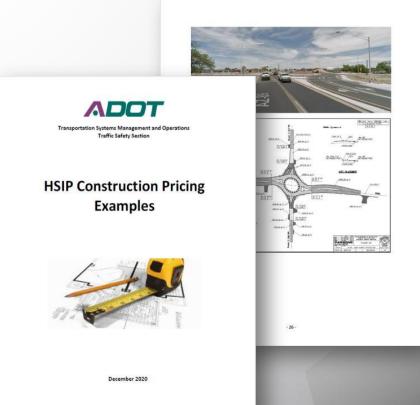
Available Resources

ARIZONA DEPARTMENT OF TRANSPORTATION

Project Pricing Example

Publication includes sample federal aid projects that have been completed in the last ten years

- Includes cost ranges for comparison of safety projects
- New data added annually





Available Resources

HSIP Eligibility Determination Checklist

Helps organize application and the required documents

	2					
Operational Traffic and Safety Group, TSMO	Is the CMF appropriate for the countermeasure identified? e.g Crash Type, Crash Severity, Area, etc.					
ADOT Traffic Safety Section	If a CCRF is used, are the calculations shown either in the cover letter or B/C analysis Tab?					
HSIP Eligibility Determination Checklist						
Agency: Date:						
Project Title:						
Eligibility Determination Requirements:						
General Requirements:	B/C Ratio Analysis Requirements:					
YES NO	YES NO					
	Is the B/C ratio equal to or greater than 2.5?					
Does the description of the project adequately describe the countermeasure(s) and the safety problem that it proposes to address?	For multiple countermeasures, is there a B/C ratio analysis for each countermeasure with each having a B/C equal to or greater than 2.5 and an overall combined B/C ratio analysis?					
Final submittal, is the cover/transmittal letter signed by appropriate individual?	For multiple locations, is there a B/C ratio analysis for each countermeasure with each having a B/C equal to					
For Traffic or Pedestrian Signals, is the Signal Warrant or PHB Evaluation included in the submittal?	or greater than 2.5 and an overall combined B/C ratio analysis?					
Is there a State Location Map?	Does the 5 year crash average match the number of K & A crashes identified?					
Is there a Work Limits Map?	If multiple countermeasures or crash locations, are the number of crashes used in the 5-year average only the types of crashes impacted by the countermeasure or crashes that occurred at that location?					
Is the work aligned with one or more of Arizona's SHSP Emphasis Areas	Does the CRF(s) or CCRF(s) percentage match the percentage identified in the cover letter and CRF ID?					
Are the supporting structures in good condition, meet local or state standards and have an anticipated service life longer than the countermeasure being installed?	□ □ Is the CMF properly used in the B/C ratio analysis? i.e. Crash Severity both K & A or only K or A?					
	Are the "Unit Costs" the correct costs for the year of the application?					
	Is the "Project Life" correct? (Appendix D)					
	Is there a yearly "Maintenance Cost" included?					
Crash Requirements:						
YES NO						
Is a list of K and/or A crashes provided?						
Any the ender of most to the second construction of the second construction to the second construction of the	Cost Estimate Requirements:					
the types of crashes? e.g. type of crash – left turn, countermeasure – left turn lane	YES NO					
Did the crashes occur within the most recent 5-year history available to the agency?	Is the countermeasure correctly identified at 100%, 94.3% or 94.34% (Interstate) HSIP funded?					
For a roadway segment countermeasure, did the crashes occur within the limits of the segment?	Is the cost estimate on the correct cost estimate TAB? Local vs State					
	Does the cost estimate include funding for ADOT time? i.e. Environmental, ROW, etc.					
	Does the cost estimate include funding for a consultant's design fee?					
	Does the construction cost estimate have a high level breakout and is not a lump sum submittal?					
	Has PMG or LPA reviewed this cost estimate?					
CMF/CRF Requirements:						
YES NO						
Does the proposed project countermeasure have a CMF in the FHWA CMA Clearinghouse?						
Is the CMF identified by CMF ID Number?						







Questions?





Thank you!

Mona Aglan-Swick, P.E. Arizona Safety Programs Manager <u>Maglan-swick@azdot.gov</u>

602-712-7374

Daniel J. Oldham, Ph.D. SHSP/RSA Specialist Doldham@azdot.gov 602-712-4246 Erik Cesek, MS SHSP/RSA Program Manager <u>Ecesek@azdot.gov</u> 602-712-2332 Larry Talley HSIP Program Manager <u>Italley@azdot.gov</u> 602-712-7709