

Transportation Systems Management and Operations (TSM&O)

Arizona Highway Safety Improvement Program

Summary of Results- New call

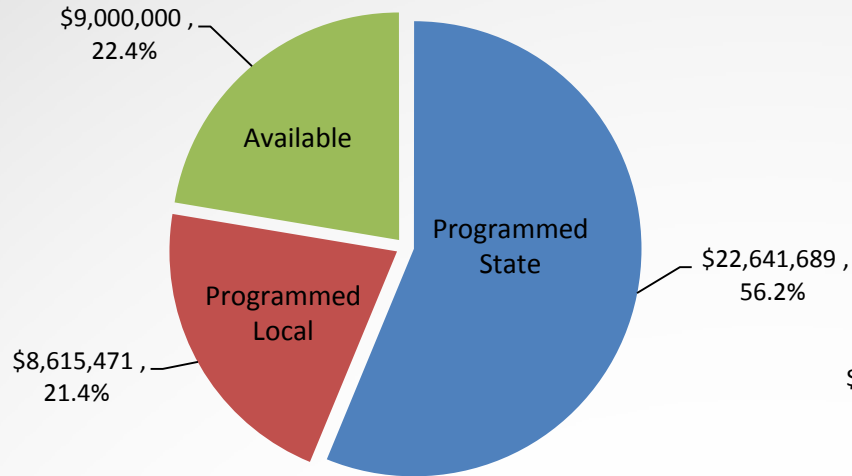
February 15, 2018

FY 2019 and 2020 Highway Safety Improvement Program (HSIP) Update

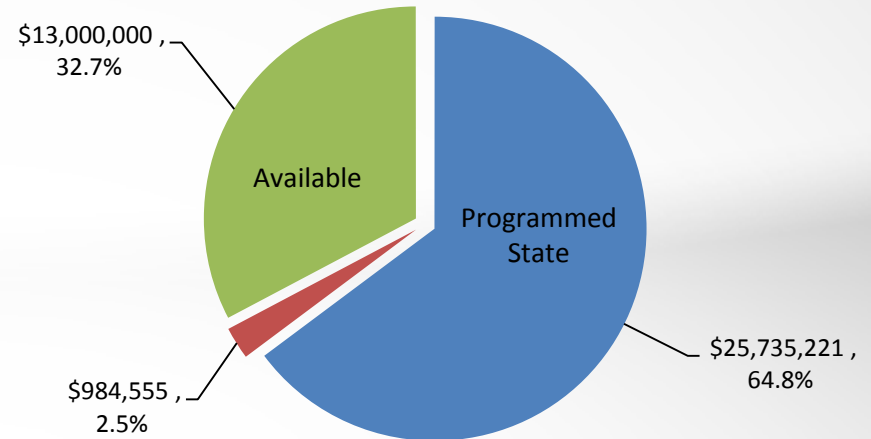
- ▶ 25 projects: 8 on the state system, 5 MAG, 4 WACOG, 4 SCMPO, 2 PAG, 1 LHMPO, and 1 SEAGO
- ▶ FY 2019 : \$6.4M, FY 2020: \$15M
- ▶ Cost-Benefit ratio's ranged from 3.4:1 to 67.4:1

Breakout of Total HSIP Funding

SFY 19

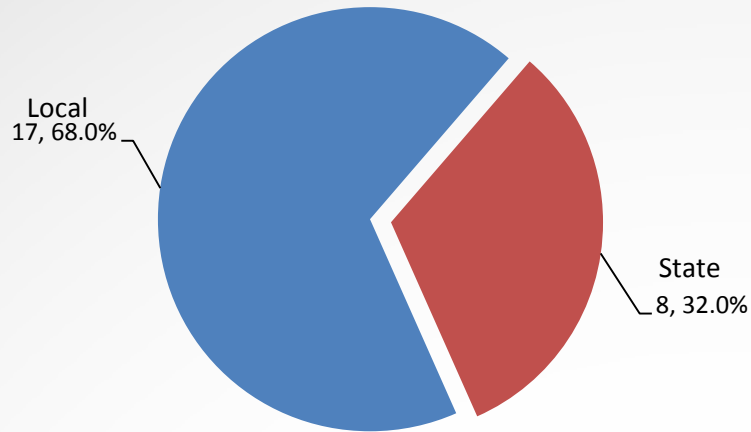


SFY 20

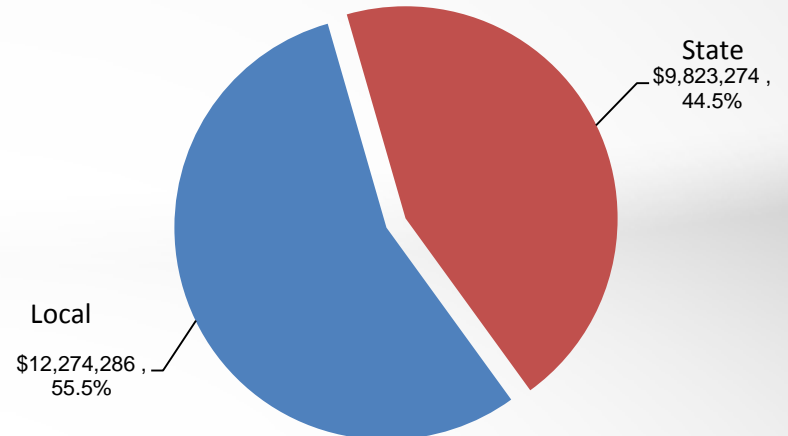


Projects Funded by Number and Dollars

Number of Projects

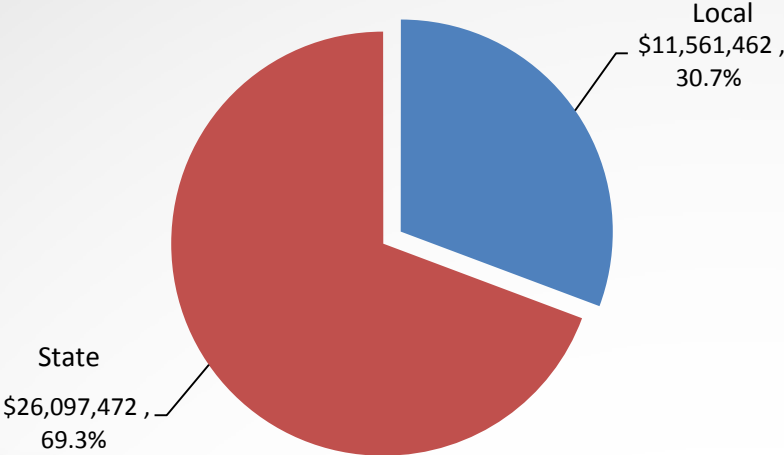


Total Dollar Amount

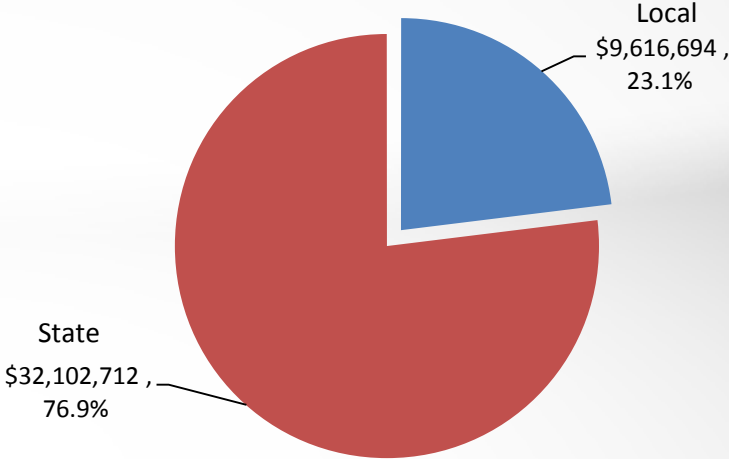


Total Funding Amounts Local vs State by SFY

SFY 19

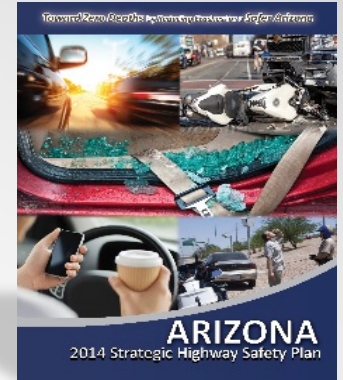


SFY 20



2018 Arizona Highway Safety Improvement Program (HSIP) Call for Projects

- ▶ Call for Projects: January 19, 2018
- ▶ Applications Due: May 4, 2018
- ▶ Applications for SFY21 thru SFY22
- ▶ Available Funds: \$55,000,000 (approx. total)
 - SFY21 \$23,000,000
 - SFY22 \$32,000,000
- ▶ All LPA HSIP applications must be submitted through your COG/MPO
- ▶ COG/MPOs submit applications to ADOT
- ▶ Minimum B/C 1.5 : 1



2018 Arizona Highway Safety Improvement Program (HSIP) Call for Projects

- ▶ Fatal and Serious Injury only
- ▶ Maximum project cost \$5 million; unless granted prior approval
- ▶ Minimum project cost \$250,000
- ▶ Regional Traffic Engineers will review all ADOT applications
- ▶ Total systemic projects no more than 20%
- ▶ Alcohol/drug crashes can be used in B/C ratio.

Changes to the HSIP Program

- ▶ ADOT will be holding back 10% of HSIP funds available in FY21 and FY22 for statewide emergencies
- ▶ 17-member Safety Review Committee will review and approve rankings (ADOT, FHWA, ITCA and all Other COG/MPOs)
- ▶ Projects will be prioritize based on the benefit to cost (B/C) ratio only

HSIP Key Dates

- ▶ **January 19, 2018** Formal Call
- ▶ **May 4, 2018** Applications due no later than
- ▶ **July 2, 2018** Eligibility determination no later than

ARIZONA HIGHWAY SAFETY IMPROVEMENT PROGRAM MANUAL

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



<http://www.azdot.gov/business/engineering-and-construction/traffic/traffic-safety/arizona-highway-safety-improvement-program>

Appendix A

HSIP Project Application Process and Worksheets

UPDATED JANUARY 2018

Appendix B

Crash Modification Factors

Appendix C

Project Service Life

UPDATED MARCH 2015

<http://www.azdot.gov/business/engineering-and-construction/traffic/traffic-safety/arizona-highway-safety-improvement-program>

Arizona Highway Safety Improvement Program

**Application - Common Errors
Lessons Learned**

Missing Required Documentation

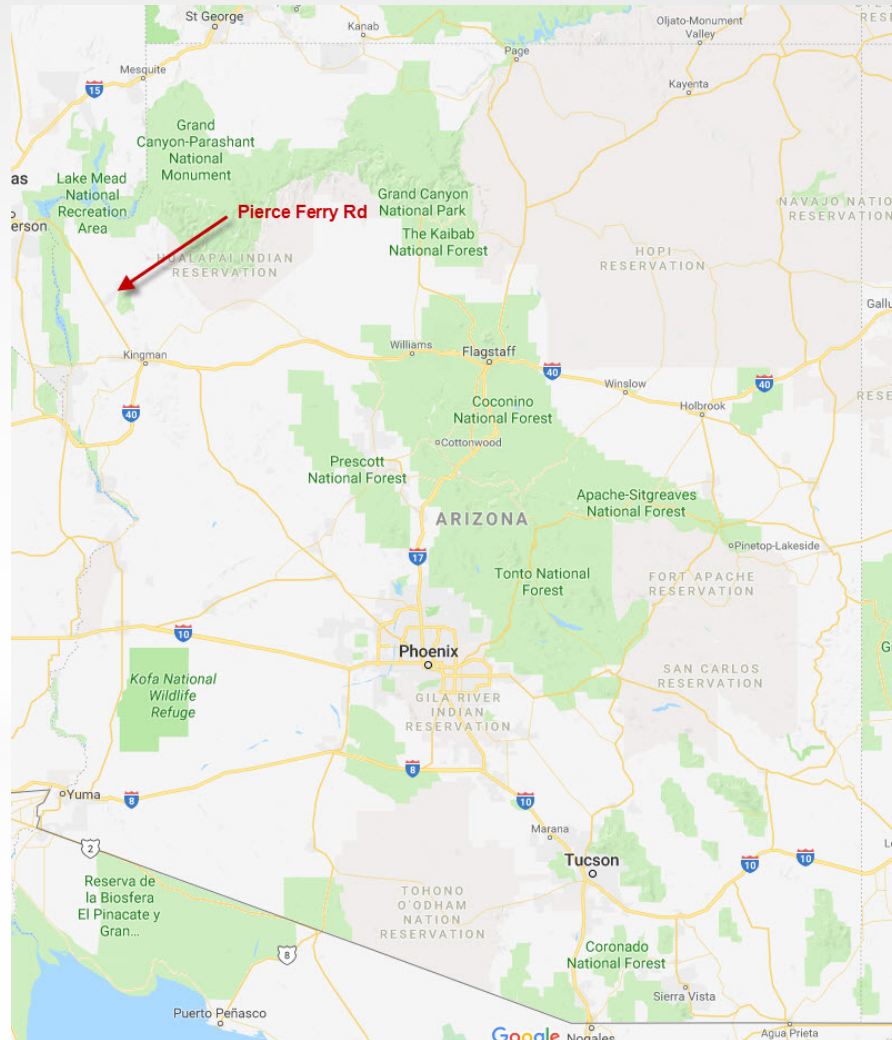
1. Cover/Transmittal Letter
2. XLSX Application
3. Cost Estimate
4. Crash Data
5. B/C Ratio Calculation
6. Vicinity/Location Map
7. Work Limits Map
8. Warrant Study (if required)

Missing Required Documentation

1. Cover/Transmittal Letter (Tab 2)
2. XLSX Application
3. Cost Estimate (Tabs 4 – 9)
4. Crash Data
5. B/C Ratio Calculation (Tab 10)
6. Vicinity/Location Map
7. Work Limits Map
8. Warrant Study (if required)

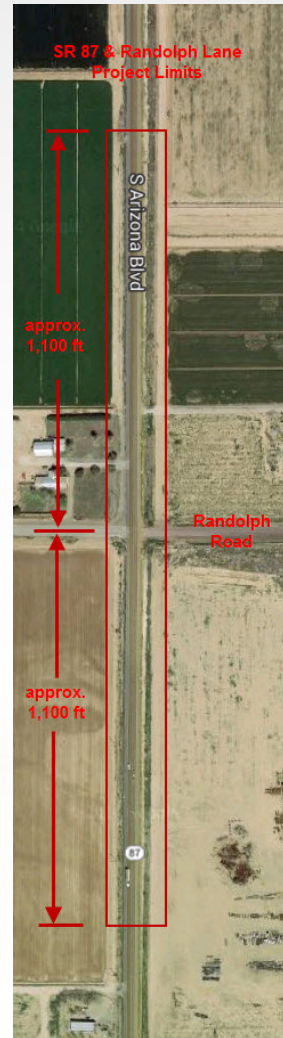
Missing Required Documentation

Location Map



Missing Required Documentation

Work Limits Map



B-C Ratio Analysis

Required for all HSIP Applications					
Agency:			Title of Project:		
Benefit / Cost Ratio Tabulation					
Annual Benefit Tabulation					
Severity	Annual Average	Estimated CRF* Reduction	Total Reduction	Unit Cost	Annual Benefit
Fatal	0.00	0%	0.00	\$5,800,000	\$0
Incapacitating Injury	0.00	0%	0.00	\$400,000	\$0
Total Annual Benefits					\$0
Costs					
Total Project Cost					\$0
Project Life (years)					10
Interest Rate (%)					8%
Capital Recovery Factor					0.1490
Annual Construction Cost					\$0
Annual Maintenance Cost					\$0.00
Total Annual Costs					\$0
Benefit / Cost					
Annual Benefit		Annual cost		Benefit / Cost Ratio	
\$0		\$0		#DIV/0!	
*REQUIRED: Use 4 and 5 star CMF s from ADOT Lists <u>Only</u> at Tabs 11 - 12 preferred. The CMF's CRF is used in the above calculation					

Crash
Reduction
Factor

Crash Modification Factor

CMF ID	Study Title	Countermeasure Category	Countermeasure Subcategory	Countermeasure	CRF	CMF	Crash Type	Crash Severity	Roadway Type	Area Type
4364	Safety Evaluation of the Safety Edge Treatment	Shoulder treatments		Installation of safety edge treatment	-2.622	1.026	Run off road	Fatal, Serious injury, Minor injury	Principal Arterial Other	Rural
441	Handbook of Road Safety Measures	Highway lighting		Provide intersection illumination	59	0.4	Vehicle/pedestrian	Serious injury, Minor injury	Not specified	Not specified

Use the CRF in B/C Ratio Analysis

Negative Number = Increase in Crashes

Crash Type has to match Manner of Collision

Crash Severity has to include Fatal & Serious Injury

Roadway Type & Area Type have to match Location

Crash Modification Factor

FHWA Crash Modification Factors Clearinghouse

<input type="checkbox"/>	CMF	CRF (%)	Quality	Crash Type	Crash Severity	Area Type	Reference	Comments
<input type="checkbox"/>	0.72 [B]	28	★★★★☆	Nighttime	A,B,C	All	Elvik, R. and Vaa, T., 2004	

<http://www.cmfclearinghouse.org/>

B-C Ratio Analysis

Total Counter-
measure Cost

Appendix C,
HSIP Manual

Fixed

Automatically
Calculated

Estimated

Required for all HSIP Applications					
Agency:			Title of Project:		
Benefit / Cost Ratio Tabulation					
Annual Benefit Tabulation					
Severity	Annual Average	Estimated CRF* Reduction	Total Reduction	Unit Cost	Annual Benefit
Fatal	0.00	0%	0.00	\$5,800,000	\$0
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Total Project Cost					\$0
Project Life (years)					10
Interest Rate (%)					8%
Capital Recovery Factor					0.1490
Annual Construction Cost					\$0
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Total Annual Costs					\$0
Benefit / Cost					
Annual Benefit		Annual cost		Benefit / Cost Ratio	
\$0		\$0		#DIV/0!	
*REQUIRED: Use 4 and 5 star CMF's from ADOT Lists Only at Tabs 11 - 12 preferred. The CMF's CRF is used in the above calculation					

Crash Data Inaccuracies

1. Using fatalities instead of fatal crashes in B/C ratio analysis.
2. Using fatal or SI crashes that the countermeasure will not correct or reduce.
3. Submitting a list of all crashes instead of just those crashes associated with the countermeasure.

Other Issues

1. HSIP funded ROW costs are limited to 10% of the HSIP countermeasure cost.
2. HSIP funded utility relocations are limited to 10% of the HSIP countermeasure cost.
3. If multiple countermeasures or locations in one application, each countermeasure or location must have a B/C ratio of ≥ 1.5 .

Questions?

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