



May 15, 2019

Ms. Mona Aglan-Swick, P.E.
Transportation Systems Management & Operations, Traffic Safety
Arizona Department of Transportation
1615 W. Jackson ST., MD 065R
Phoenix, AZ 85007-3217

RE: Highway Safety Improvement Program (HSIP) Project Determination and Application

Agency: Pima County DOT
Project Name: Sign Panel Replacement Phase 2
Project Location: Various Roadways Owned by Pima County

Dear Ms. Aglan-Swick:

Pima County DOT is submitting herewith a project application for local Highway Safety Improvement Program (HSIP) funding. This road safety improvement project was identified through the local network crash data screening process and meets all requirements of Title 23. The proposed request is to replace existing signs with new signs in order to meet the retroreflectivity requirements of the 2009 MUTCD. This is Phase 2 of an already approved HSIP project, which is nearing completion. The signs panels to be replaced have been obtained from HSIP project TRACS No. T0146 to inventory and measure the retroreflectivity of all signs in Pima County (Phase 1). Attached spreadsheets identify the 3,391 signs identified for replacement in Phase 1 and the 4,195 additional signs that failed inspection in Phase 1 which are included in this application for replacement in Phase 2. The official closeout of T0146 will occur after this HSIP application submittal, but the inventory of signs is complete. Replacing the signs will improve retroreflectivity which will make the signs more visible to drivers and thereby improve safety. The installation of the sign panels will be done by Pima County Traffic Engineering Division staff in the year following federal authorization and procurement of the sign panels. There will be no ground disturbing activities involved with replacing the sign panels and no utility relocations are anticipated.

During the most recent five-year period ending December 31, 2017, Pima County DOT experienced 448 incapacitating crashes on its roadways. Using a countermeasure to install signs to conform to the MUTCD, the Crash Reduction Factor (CRF) was applied to all incapacitating crashes (not fatal) within the most recent five year period. With a 3-star Crash Reduction Factor (CRF) of 15% obtained from the Crash Modification Factors Clearinghouse for installing signs to conform to the MUTCD (CMFID 62), Pima County DOT could see a 5-year reduction of 67.2 incapacitating crashes.

Pima County DOT has determined that, in accordance with 23 USC 148(a)(4)(A), this project is consistent with the State's 2014 SHSP. It supports the Roadway Infrastructure and Operations emphasis area and the supporting strategy is to reduce the frequency and severity of intersection crashes through traffic control and operational improvements. It also supports the Arizona Focus Area of reducing roadway lane departures by replacing roadside signs with new sign panels conforming to the 2009 MUTCD retroreflectivity requirements.

B/C Ratio = 51.4 (Element 52 in Application, Tab 2)

Pima County DOT has estimated the total project cost of this project to be \$664,423.20. In accordance with Title 23, the Federal share for safety improvement items are eligible to be funded at 100% Federal share per 23 U.S.C. 120(c) as described in Code of Federal Register 23 CFR Part 924. Therefore, Pima County DOT does not propose to contribute any local match for the above mentioned project. Furthermore, Pima County DOT is not requesting reimbursement for staff time for installation. The anticipated cost estimate projected for this project is shown on the 100% LPA Install Estimate shown on Tab 4 of the Application.

Ana M. Olivares, P.E., Director

201 N. Stone Avenue, 4th Floor, Tucson, Arizona 85701-1207 • Phone: 520-724-6410 • Fax: 520-724-6439

RE: Highway Safety Improvement Program (HSIP) Project Determination and Application

Agency: Pima County DOT

Project Name: Sign Panel Replacement Phase 2

Pima County DOT is aware that, if funded, additional HSIP funds above the attached estimated cost are not available to pay for excess costs and that other funds whether STP, local or other will have to be provided or secured by Pima County DOT to cover the additional costs or the project will have to be withdrawn and resubmitted in the next call-for-projects.

Pima County DOT agrees to conduct and provide to ADOT TSS on a yearly basis a written before-and-after study utilizing the same crash data included in the countermeasure influence area in order to determine the effectiveness of the countermeasure on fatal and serious injury crashes.

Pima County DOT further understands that Federal funds can only be used once to install or upgrade either a spot or systemic countermeasure and that once installed, the Pima County DOT will maintain the countermeasure at or above the standard to which it was installed.

If you have any questions, please contact me at (520) 724-6880 or email kathryn.skinner@pima.gov.

Sincerely,

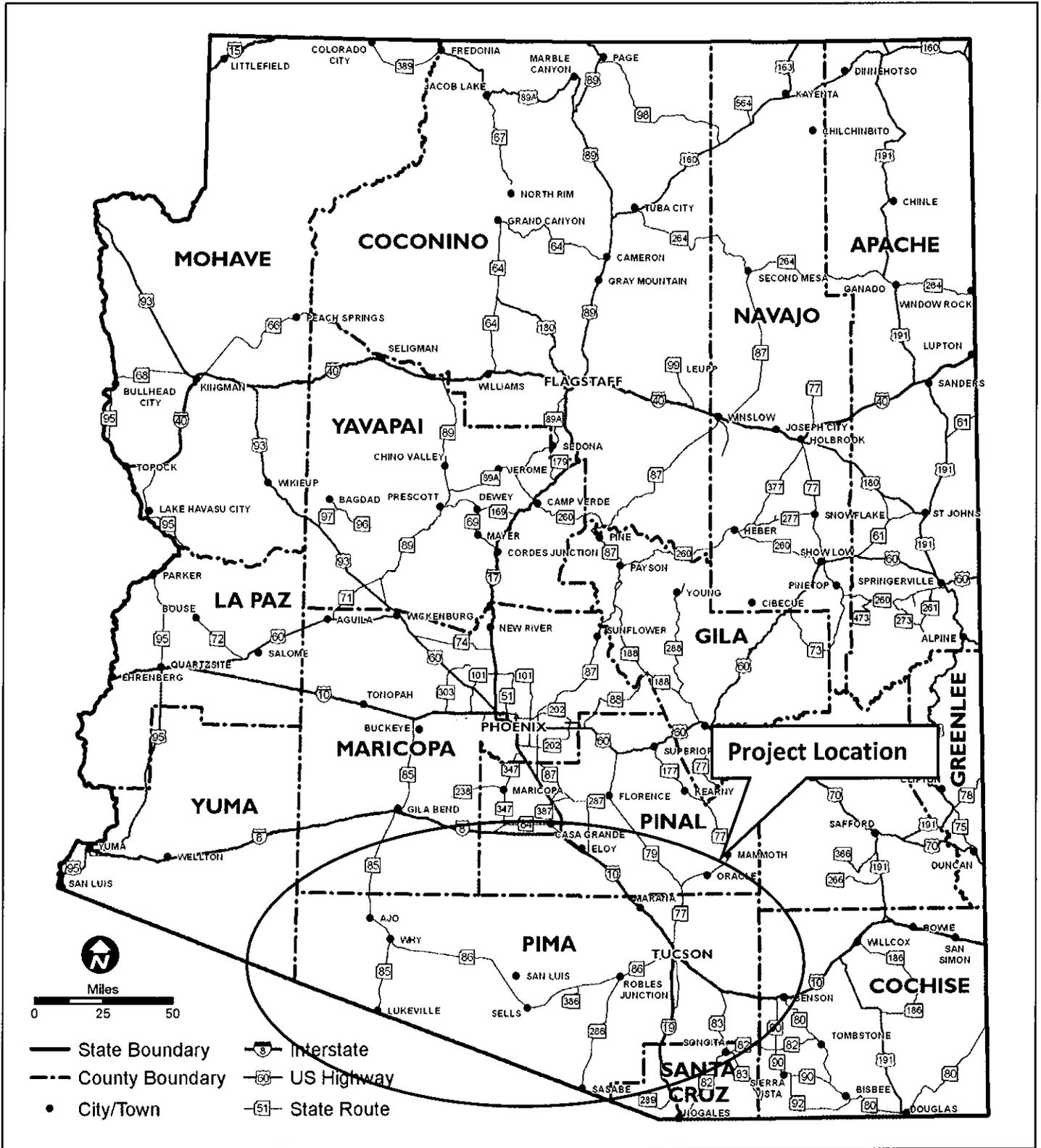


Kathryn Skinner, PE
Pima County DOT
201 N. Stone Avenue
Tucson, AZ 85701

Attachments: Application (excel format) to include cost estimate, vicinity map and/or list of locations
B/C Ratio and Crash Data
Spreadsheets with Phase 1 and Phase 2 Signs to be Replaced

STATE LOCATION MAP

Pima County DOT
Sign Panel Replacement

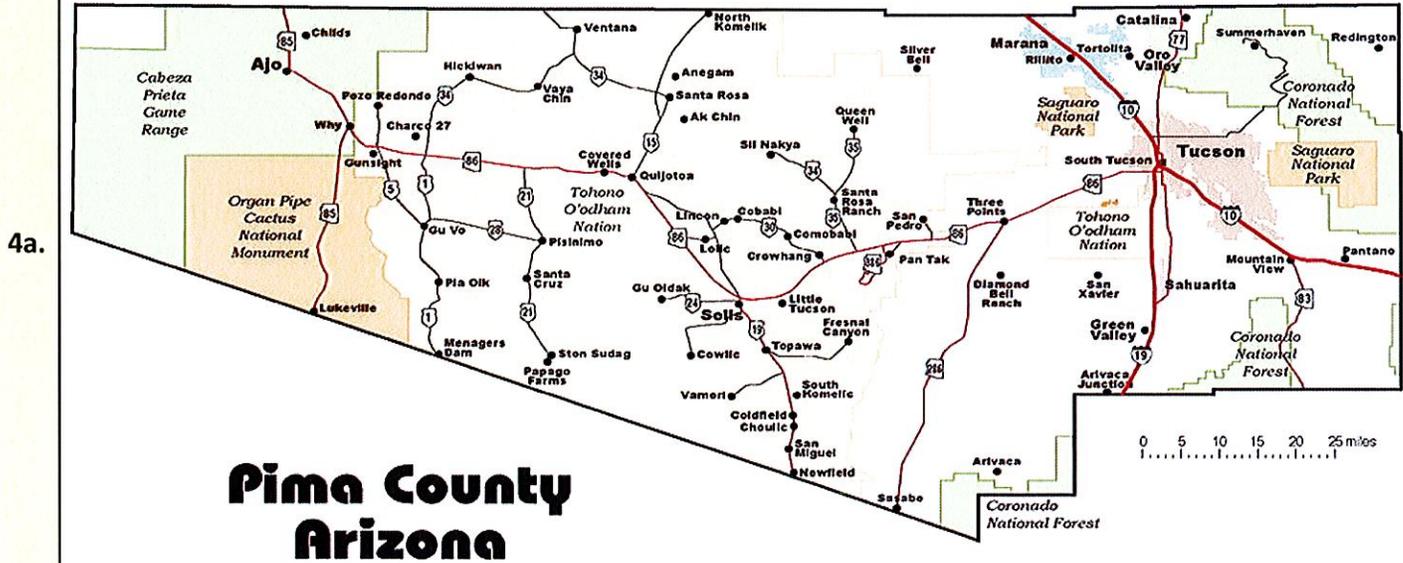


FY 23 and FY24 HSIP Application

Agency:	Pima County DOT	Title of Project:	Sign Panel Replacement Phase 2
County:	Pima	COG/MPO:	PAG
District:	Southcentral	Date:	5/10/2019
Contact:		Phone:	E-Mail:
	Steve Wilson	(520) 724-5912	stephen.wilson@pima.gov
Type of Safety Improvement:	Spot: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Systemic: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
Mark all that apply to your project:	<input checked="" type="checkbox"/> Design	<input type="checkbox"/> Construction	<input checked="" type="checkbox"/> Procurement <input type="checkbox"/> Non-Infrastructure
Anticipated Total Cost Estimate:		\$664,423.20	
Anticipated dollar amount of HSIP Funding:		\$664,423.20	
Anticipated Dollar amount of Local Match (5.7%) (5.66%):		\$0.00	
Anticipated Dollar amount of Other:		\$0.00	
Funding Source: <input checked="" type="checkbox"/> 100% HSIP <input type="checkbox"/> 94.3% <input type="checkbox"/> 94.34% HSIP		Cost Estimate Tab:	4. 100% LPA Install
Administration of Project:	Agency: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	ADOT: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
Name and Title of COG/MPO Representative:	Gabe Thum, Transportation Safety Program Coordinator		
Basic Project Information			
Anticipated Design Year (Construction year cannot be the same):	<input checked="" type="checkbox"/> FY23		
If additional ROW is needed, what FY is purchase anticipated?:	<input type="checkbox"/> FY23 <input type="checkbox"/> FY24		
Anticipated Construction Year:	<input checked="" type="checkbox"/> FY24		
1. Have lower cost countermeasures been considered or implemented?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
1a. If "Yes", describe: If "No", explain why not:	No lower cost countermeasures are available.		
2. Which 23 USC 148 highway safety improvement project category does this project come under?			
2a.	10. Installation, replacement and improvement of highway signage and pavement markings (retroreflectivity)		
3. Describe your safety improvement project in detail: (50 words or less)			
3a.	Project involves replacing signs on roadways owned by Pima County that do not meet the retroreflectivity requirements of the 2009 MUTCD. The signs panels to be replaced have been obtained from a local HSIP project (TRACS No. T0146) to inventory and measure the retroreflectivity of all signs in Pima County. Attached spreadsheets identify the 3,391 signs identified for replacement in Phase 1 (T0146) and the 4,195 additional signs that failed inspection in Phase 1 which are included in this application for replacement in Phase 2. The official closeout of T0146 will occur after this HSIP application submittal, but the inventory of signs is complete.		
4. Describe the location of this safety project:			

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District:	Southcentral	Date:	5/10/2019

The project is located at various locations on roadways owned and maintained by Pima County DOT. This project is a continuation of a ongoing effort to provide minimum retroreflectivity for signs on Pima County roadways.



5.	What crash data screening method was used to identify this project?
5a.	The number of incapacitating injury crashes for the past five years was obtained for roadways in Pima County from which the annual average crash rate of 90 was determined. Based on this data, a b/c ratio of 51.6 was calculated for the project.
6.	What is the safety justification for the proposed project?
6a.	Signs located on Pima county roadways need replacement in order to continue to meet minimum retroreflectivity requirements shown in the 2009 MUTCD.
7.	Will there be ground disturbing activities? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
8.	Is project within applicants permanent ROW? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
8a.	If NO please explain:
9.	Will any temporary right-of-way acquisitions be required? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

FY 23 and FY24 HSIP Application

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District:	Southcentral	Date:	5/10/2019
10.	Will there be any utility relocation needed? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
10a.	If YES please explain:		
11.	Does Section 4(f) apply to any portion of this project? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
11a.	If YES please explain:		
12.	Are there any other issues that may impact or delay development or construction of this project? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
12a.	If YES please explain:		
13.	Is this project in compliance with revised ADA Standards? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
13a.	If NO please explain:		
14.	Does the project support Arizona's Strategic Highway Safety Plan? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
15.	Are there any Studies, RSA's or Other evaluations that support this project? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
16.	If the project is a traffic control device requiring a warrant, is a copy attached?	<input type="checkbox"/> YES <input type="checkbox"/> NO	
17.	HSIP Roadway Functional Classification:	Rural Minor Arterial	
18.	For projects on State System:	BMP:	EMP:
19.	Average Daily Traffic Volume and Year Collected:	ADT: <10,000	Year: 2018
20.	What is the source of ADT?:	PAG	
21.	What is the posted speed limit?	50 mph	
22.	Detailed engineer's cost estimate attached: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
"Systemic" Safety Project			
23.	Completed B/C Ratio Tabulation Sheet Attached (Required): <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
24.	Most current 5 Years Crash Data from ADOT ALISS database sorted by year & severity (required):		
25.	What are the inclusive dates of the crash data?	1/1/2013-12/31/2017	

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26.	Have all crashes that will not be influenced by this countermeasure been deleted from the crash list? (pedestrian, pedalcycle, etc. as applicable)		Yes
27.	If purchasing equipment or materials, who will install?	<input type="checkbox"/> Town/City <input checked="" type="checkbox"/> County <input type="checkbox"/> Tribe <input type="checkbox"/> Contractor	
28.	Does the project require proprietary Items (23CFR 635.411)?:		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
29.	Is a list of locations for systemic projects provided on the attached form?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
30.	How are (will) the proposed locations be prioritized for replacement? (explain below)		
30a.	Warning signs associated with lane departure will receive the highest priority followed by other warning and regulatory signs.		
31.	Are the supporting structures in good condition, meet local standards and have an anticipated service life longer than the countermeasure being installed?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
"Spot" Improvement Projects Only			
32.	Completed B/C Ratio Tabulation Sheet Attached (required):		<input type="checkbox"/> YES <input type="checkbox"/> NO
33.	Is the most current 5 Years Crash Data from ADOT ALISS database sorted by year & severity attached and in correct format? (required):		<input type="checkbox"/> YES <input type="checkbox"/> NO
34.	What are the inclusive dates of the crash data?		
35.	Have all crashes that will not be influenced by this countermeasure been deleted from the crash list? (pedestrian, pedalcycle etc. as applicable)		
36.	Have any infrastructure changes occurred within the work limits of this project during the years the crash data covers?		<input type="checkbox"/> YES <input type="checkbox"/> NO
37.	If YES please explain:		
38.	Project vicinity map is provided:		<input type="checkbox"/> YES <input type="checkbox"/> NO
39.	Project work limits map is provided:		<input type="checkbox"/> YES <input type="checkbox"/> NO
SHSP - All Projects			
40.	Which SHSP Emphasis Area (EA) does this project support?:	Roadway_Infrastructure_and_Operations	

FY 23 and FY24 HSIP Application

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40a. Which EA Strategy does it support?:	(Lane/Roadway Departure) Reduce the frequency and severity of land- and roadway-departure crashes through roadway infrastructure improvements.		
40b. Does this project support a second SHSP EA? If so, which EA.:	Roadway_Infrastructure_and_Operations		
40c. Which EA Strategy supports the second EA?	(Intersections) Reduce frequency and severity of intersection crashes through traffic-control and operational improvements.		
40d. Does this project support a third SHSP EA? If so, which EA.:	Speeding_and_Aggressive_Driving		
40e. Which EA Strategy supports the third EA?	Use engineering design to reduce speeds.		
41. Does this project support one of the nine FHWA proven countermeasures?:			<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
41a. If so, which countermeasure?:			
42. Does this project support one of the three Arizona Focus Areas?:			<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
42a. If so, which focus area?:	Roadway Lane Departure		
43. Which HSIP Improvement Category does this project support?:	Roadway_Signs_and_Traffic_Control		
43a. Which HSIP Improvement Sub-Category does this project support?:	Sign sheeting – upgrade or replacement		
44. Does your COG/MPO have a Strategic Transportation Safety Plan (STSP)?:			<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
44a. If "YES", does this project support an Emphasis Area in the COG/MPO STSP?:			<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
44b. List the EA:	Two emphasis areas: Nighttime and Road/Lane Departures		
44c. If your COG/MPO has a STSP and it was Federally Funded and you answered NO in 41a, explain why this project is being submitted over a STSP identified project. (For Local Agencies Only)			
44d. Rational:	This project is a PAG STSP identified project.		
45. Are any temporary safety countermeasures needed prior to this permanent solution being installed?			
45a. If yes, please explain:			

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46.	For State Agencies, has the Regional Traffic Engineer been made aware of this potential project and does he/she concur with it?		<input type="checkbox"/> YES <input type="checkbox"/> NO
Stratigic Transportation Safety Plans Funds (COG/MPO)			
47.	What is the date of your last STSP or update completed?		
48.	How many projects that were identified In your last STSP or update were submitted for HSIP funding?		
49.	What was the total dollar amount of the projects in question 45?		
50.	How many projects that were submitted for HSIP funding were eligible and funded by ADOT?		
51.	What was the total dollar amount of the projects in question 47?		
B/C Ratio			
52.	The calculated B/C Ratio is:	51.40	CMF ID Number: 62
			2nd CMF ID No.:
			3rd CMF ID NO.:

Required for all HSIP Applications

Agency:	Pima County DOT	Title of Project:	Sign Panel Replacement Phase 2		
Benefit / Cost Ratio Tabulation					
Annual Benefit Tabulation					
Severity	Annual Average	Estimated CRF* Reduction	Total Reduction	Unit Cost	Annual Benefit
Fatal	0.00	15%	0.00	\$9,515,371	\$0
Incapacitating Injury	89.60	15%	13.44	\$550,499	\$7,398,707
Total Annual Benefits					\$7,398,707
Costs					
Total Project Cost					\$664,423
Project Life (years)					6
Interest Rate (%)					8%
Capital Recovery Factor					0.2163
Annual Construction Cost					\$143,725
Annual Maintenance Cost					\$100.00
Total Annual Costs					\$143,825
Benefit / Cost					
Annual Benefit	Annual cost		Benefit / Cost Ratio		
\$7,398,707	\$143,825		51.4		
<p align="center">*REQUIRED: Use 4 and 5 star CMFs from ADOT Lists <u>Only</u> at Tabs 11 - 12 preferred. The CMF's CRF is used in the above calculation</p>					
<p>CMF 62 Install Signs to Conform to MUTCD:15% CRF All; Severity A,B,C</p>					

**HIGHWAY SAFETY IMPROVEMENT PROGRAM
APPLICATION - COST ESTIMATE**

Agency:	Pima County DOT	Name of Project:	Sign Panel Replacement Phase 2					
HSIP Project Cost Estimate Worksheet								
Project Cost Estimate:	Description:	Quantity:	Cost (Unit):	Total Cost	HSIP:	Local Match:	Other Amt:	TOTAL COST
Planning or Study:		0	\$ -	\$ -	100.00%	0.00%	0.00%	\$ -
Preliminary Engineering:		1	\$ 165,000.00	\$ 165,000.00	\$ 165,000.00	-	-	\$ 165,000.00
ADOT Admin Costs:		1	\$ 45,000.00	\$ 45,000.00	\$ 45,000.00	-	-	\$ 45,000.00
Sub-Total			\$ 210,000.00	\$ 210,000.00	\$ 210,000.00	-	-	\$ 210,000.00
Materials:	RWM Signs (SF)	11920	\$ 25.00	\$ 298,000.00	\$ 298,000.00	-	-	\$ 298,000.00
Materials:	OM Signs (EA)	771	\$ 60.00	\$ 46,260.00	\$ 46,260.00	-	-	\$ 46,260.00
Materials:		0	\$ -	\$ -	\$ -	-	-	\$ -
Materials:		0	\$ -	\$ -	\$ -	-	-	\$ -
Materials:		0	\$ -	\$ -	\$ -	-	-	\$ -
Materials:		0	\$ -	\$ -	\$ -	-	-	\$ -
Materials Sub-Total:				\$ 344,260.00	\$ 344,260.00	-	-	\$ 344,260.00
Sales Tax		10.00%		\$ 34,426.00	\$ 34,426.00	-	-	\$ 34,426.00
Sub-Total			\$ -	\$ 378,686.00	\$ 378,686.00	-	-	\$ 378,686.00
Construction Admin :		14.00%		\$ 53,016.04	\$ 53,016.04	-	-	\$ 53,016.04
Contingencies :		5.00%		\$ 18,934.30	\$ 18,934.30	-	-	\$ 18,934.30
Post Design:		1.00%		\$ 3,786.86	\$ 3,786.86	-	-	\$ 3,786.86
		0	\$ -	\$ -	\$ -	-	-	\$ -
		0	\$ -	\$ -	\$ -	-	-	\$ -
		0	\$ -	\$ -	\$ -	-	-	\$ -
		0	\$ -	\$ -	\$ -	-	-	\$ -
		0	\$ -	\$ -	\$ -	-	-	\$ -
Sub-Total				\$ 75,737.20	\$ 75,737.20	-	-	\$ 75,737.20
TOTAL REQUEST				\$ 664,423.20	\$ 664,423.20	-	-	\$ 664,423.20

Comments: