AGENCY LETTERHEAD

September 21, 2017

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

COG/MPO:	
Agency:	Regionwide
Project Name:	Negative Offset Median Improvements at 10 intersections
Project Location:	Regionwide: Yuma Rd/Litchfield Rd, Wigwam Blvd/Litchfield Rd, Gantzel Rd/Combs Rd, Pecos Rd/Higley Rd, Val Vista Dr/Lakeside Dr, Higley Rd/Germann Rd, Rittenhouse Rd/Ocotillo Rd, Peoria Ave/63rd Ave, Grand Ave/57th Dr, Cave Creek Rd/Carefree Hwy

Dear Ms. Aglan-Swick:

The ADOT Central District is submitting herewith a project application for state Highway Safety Improvement Program (HSIP) funding. This road safety improvement project was identified through the MAG regional network crash data screening process and meets all requirements of Title 23. The proposed request is for regionwide intersection improvements for raised median modifications to improve the negative offsets at left-turn lanes at the 10 intersections listed above and does not include any non-infrastructure funding request. Pulling back raised medians and restriping the left-turn lanes with a carrot to encourage left-turning vehicles to move to the left helps improve sight distance past oncoming left-turning vehicles, which in turn reduces the risk of left-turn crashes. Consultants and contractors will conduct the design and construction of this project. There will be ground disturbing activities, although utility relocations are not anticipated.

These 10 intersections experienced 9 fatal and 13 serious injury left-turn crashes during the most recent 5-year period (2011-2015). With a Crash Reduction Factor (CRF) of 38% obtained from the CMF Clearinghouse for left-turn crashes when improving negative offsets at left-turn lanes, the region could see a 5-year reduction of 3.42 fatal and 5.0 serious injury crashes.

ADOT, the Cities of Goodyear and Glendale, the Towns of Gilbert, Queen Creek, and Cave Creek, and Pinal County have determined that, in accordance with 23 USC 148(a)(4))(A), this project is consistent with MAG's STSP and the State's 2014 SHSP. It supports MAG's "Eliminate Death and Serious Injury Related to Intersections" action area and the State's "Reduce severity and frequency of intersection crashes through geometric improvements" emphasis area strategy.
B/C Ratio = 29.1
SHSP Score = 756.6

ADOT, the Cities of Goodyear and Glendale, the Towns of Gilbert, Queen Creek, and Cave Creek, and Pinal County have estimated the total project cost of this project to be $1,421,040. Of that amount, we request ADOT determine if $1,421,040 is HSIP eligible, with $80,999 being local match. In accordance with Title 23, the Federal share for safety improvement items are eligible to be funded at 94.3% Federal share per 23 U.S.C. 120(c) as described in Code of Federal Register 23 CFR Part 924. Therefore, these local agencies propose committing the 5.7% local match in the amount of $80,999. Furthermore, these agencies are not requesting reimbursement for staff time for installation. Table x summarizes the anticipated cost estimate projected for this project.

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COG/MPO:
Agency: Regionwide

These agencies are 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 provided or secured by these local agencies as appropriate to cover the additional costs or the project will have to be withdrawn and resbumitted in the next call-for-projects.

These agencies agree 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.

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

If you have any questions, please contact me at 480-294-0548 or email tabbo@azdot.gov .

Sincerely,

Tony Abbo, PE, PTOE
Regional Traffic Engineer, Central District
2140 West Hilton Avenue
Phoenix, AZ 85009

Attachments: Application (excel format) to include cost estimate, vicinity map and/or list of locations
Study/RSA Reports
B/C Ratio and Crash Data

ADOT HIGHWAY SAFETY IMPROVEMENT PROGRAM APPLICATION

Agency:	**Regionwide**	**Title of Project:**	**Negative Offset Median Improvements at 10 intersections**
County:	**Maricopa**	**COG/MPO:**	**MAG**
District:	**Central**	**HSIP Funds:**	☑ STATE ☐ LOCAL
Contact:		**Phone:**	**E-Mail:**
Tony Abbo		(480) 294-0548	tabbo@azdot.gov
Type of Safety Improvement:		**Spot:** ☑ YES ☐ NO	**Systemic:** ☐ YES ☐ NO
Mark all that apply to your project:		☑ Design ☑ Const. ☐ Procurement ☐ Non-Infrastructure	
Anticipated Total Cost Estimate:			**$1,421,040.00**
Anticipated dollar amount of HSIP Funding:			**$1,340,041.00**
Anticipated Dollar amount of Local Match (5.7%) (5.66%):			**$80,999.00**
Anticipated Dollar amount of Other:			**$0.00**
Funding Source:	☐ 100% HSIP ☑ 94.3% HSIP ☐ 94.34% HSIP		**Cost Estimate Tab:** 8. 94.3% Spot Improvement
Administration of Project:		**Agency:** ☐ YES ☑ NO	**ADOT:** ☑ YES ☐ NO
Name and Title of COG/MPO Representative:			Margaret Boone

Basic Project Information

Anticipated Design Year (Construction year cannot be the same):		☐ FY18 (Local) ☑ FY19
If additional ROW is needed, what FY is purchase anticipated?:		☐ FY19 ☐ FY20
Anticipated Construction Year:		☐ FY19* ☑ FY20
1.	**Have lower cost countermeasures been considered or implemented?**	☐ YES ☑ NO
1a.	**If "Yes", describe:** **If "No", explain why not:**	**Funding Issues**
2.	**Which 23 USC 148 highway safety improvement project category does this project come under?**	
2a.	**1. Intersection safety improvement**	
3.	**Describe your safety improvement project in detail: (50 words or less)**	
3a.	Improving sight distance for left-turning motorists by making raised median modifications to eliminate the negative offset in the left-turn lanes.	
4.	**Describe the location of this safety project:**	

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4a.	Regionwide: Yuma Rd/Litchfield Rd, Wigwam Blvd/Litchfield Rd, Gantzel Rd/Combs Rd, Pecos Rd/Higley Rd, Val Vista Dr/Lakeside Dr, Higley Rd/Germann Rd, Rittenhouse Rd/Ocotillo Rd, Peoria Ave/63rd Ave, Grand Ave/57th Dr, Cave Creek Rd/Carefree Hwy	
5.	**What crash data screening method was used to identify this project?**	
5a.	Analyzed left-turn crashes (2011-2015) in MAG region at signalized intersections	
6.	**What is the safety justification for the proposed project?**	
6a.	The CMF Clearinghouse assigns a crash reduction factor of 38% for left-turn crashes for improving left-turn lane offsets to a positive offset, which this median modification project will provide.	
7.	**Will there be ground disturbing activities?**	☑ YES ☐ NO
8.	**Is project within applicants permanent ROW?**	☑ YES ☐ NO
8a.	**If NO please explain:**	
9.	**Will any temporaty right-of-way acquisitions be required?**	☐ YES ☑ NO
10.	**Will there be any utility relocation needed?**	☐ YES ☑ NO
10a.	**If YES please explain:**	
11.	**Does Section 4(f) apply to any portion of this project?**	☐ YES ☑ NO
11a.	**If YES please explain:**	

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12.	**Are there any other issues that may impact or delay development or construction of this project?**	☐ YES ☑ NO
12a.	**If YES please explain:**	
13.	**Is this project in compliance with revised ADA Standards?**	☑ YES ☐ NO
13a.	**If NO please explain:**	
14.	**Does the project support Arizona's Strategic Highway Safety Plan?**	☑ YES ☐ NO
15.	**Are there any Studies, RSA's or Other evaluations that support this project?**	☑ YES ☐ NO
16.	**HSIP Roadway Functional Classification:**	Urban Principal Arterial - Other
17.	**Average Daily Traffic Volume and Year Collected:**	**ADT:** **Year:**
18.	**What is the source of ADT?:**	
19.	**What is the posted speed limit?**	
20.	**Detailed engineer's cost estimate attached:**	☑ YES ☐ NO

"Systemic" Safety Project

21.	**Completed B/C Ratio Tabulation Sheet Attached (Required):**	☐ YES ☐ NO
22.	**Most current 5 Years Crash Data from ADOT ALISS database sorted by year & severity (required):**	☐ YES ☐ NO
23.	**What are the inclusive dates of the crash data?**	
24.	**Have all crashes that will not be influenced by this countermeasure been deleted from the crash list? (pedestrian, pedalcycle, etc. as applicable)**	☐ YES ☐ NO
25.	**If purchasing equipment or materials, who will install?**	☐ Town/City ☐ County ☐ Contractor ☐ Tribe
26.	**Does the project require proprietary Items (23CFR 635.411)?:**	☐ YES ☐ NO
27.	**Is a list of locations for systemic projects provided on the attached form?**	☐ YES ☐ NO
28.	**How are (will) the proposed locations be prioritized for replacement? (explain below)**	

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28a.		
29.	**Are the supporting structures in good condition, meet local standards and have an anticipated service life longer than the countermeasure being installed?**	☐ YES ☐ NO

"Spot" Improvement Projects Only

30.	**Completed B/C Ratio Tabulation Sheet Attached (required):**	☑ YES	☐ NO
31.	**Is the most current 5 Years Crash Data from ADOT ALISS database sorted by year & severity attached and in correct format? (required):**	☑ YES	☐ NO
32.	**What are the inclusive dates of the crash data?**	**2011-2015**	
	Have all crashes that will not be influenced by this countermeasure been deleted from the crash list? (pedestrian, pedalcycle etc. as applicable)	☑ YES	☐ NO
33.	**Have any infrastructure changes occurred within the work limits of this project during the years the crash data covers?**	☐ YES	☑ NO
34.	**If YES please explain:**		
35.	**Project vicinity map is provided:**	☑ YES	☐ NO
36.	**Project work limits map is provided:**	☐ YES	☐ NO

SHSP - All Projects

37.	**Which SHSP Emphasis Area (EA) does this project support?:**	Roadway_Infrastructure_and_Operations	
37a.	**Which EA Strategy does it support?:**	(Intersections) Reduce frequency and severity of intersection crashes through geometric improvements.	
37b.	**Does this project support a second SHSP EA? If so, which EA.:**		
37c.	**Which EA Strategy supports the second EA?**		

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37d.	**Does this project support a third SHSP EA? If so, which EA.:**		
37e.	**Which EA Strategy supports the third EA?**		
38.	**Does this project support one of the nine FHWA proven countermeasures?:**	☐ YES	☑ NO
38a.	**If so, which countermeasure?:**		
39.	**Does this project support one of the three Arizona Focus Areas?:**	☑ YES	☐ NO
39a.	**If so, which focus area?:**	**Intersection**	
40.	**Which HSIP Improvement Category does this project support?:**	**Intersection_Geometry**	
40a.	**Which HSIP Improvement Sub-Category does this project support?:**	Auxiliary lanes – modify left-turn lane offset	
41.	**Does your COG/MPO have a Strategic Transportation Safety Plan (STSP)?:**	☑ YES	☐ NO
41a.	**If "YES", does this project support an Emphasis Area in the COG/MPO STSP?:**	☑ YES	☐ NO
41b.	**List the EA:**	Eliminate death and serious injury related to intersections	
41c.	**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.**		
41d.	**Rational**		
42.	**Are any temporaty safety countermeasures needed prior to this permanent solution being installed?**	☐ YES	☑ NO
42a.	**If yes, please explain:**		

B/C Ratio and SHSP Score

43.	**The calculated B/C Ratio is:**	**29.10**	**The SHSP Score is:**	**756.60**

HIGHWAY SAFETY IMPROVEMENT PROGRAM
APPLICATION - COST ESTIMATE

Agency:	Regionwide		Name of Project:	Regionwide Median Improvements	Spot Improvement with Non-HSIP construction included				
HSIP Project Cost Estimate Worksheet									
Project Cost Estimate:	**Description:**	**Unit**	**Quantity:**	**Unit Cost:**	**Total Cost:**	**HSIP:**	**Local Match:**	**Other Amt:**	**TOTAL COST**
						94.30%	**5.70%**		
Design:			1	$198,000.00	$ 198,000.00	$ 186,714.00	$ 11,286.00	$ -	$ 198,000.00
ROW Acquisition:			1		$ -	$ -	$ -	$ -	$ -
Environmental Clearance			1	$ 150,000.00	$ 150,000.00	$ 141,450.00	$ 8,550.00	$ -	$ 150,000.00
ADOT Admin Costs:			1	$ 450,000.00	$ 450,000.00	$ 424,350.00	$ 25,650.00	$ -	$ 450,000.00
Design Sub-Total					**$ 798,000.00**	**$ 752,514.94**	**$ 45,486.00**	**$ -**	**$ 798,000.00**
Construction:	Median modifications	EA	20	$ 20,000.00	$ 400,000.00	$ 377,200.00	$ 22,800.00	$ -	$ 400,000.00
Construction:	Remove median street light and install new light	EA	5	$ 5,000.00	$ 25,000.00	$ 23,575.00	$ 1,425.00	$ -	$ 25,000.00
HSIP Eligible Sub-Total			0		$ 425,000.00	$ 400,775.00	$ 24,225.00	$ -	$ 425,000.00
Construction:					$ -			$ -	$ -
Non-HSIP Eligible Sub-Total					$ -			$ -	$ -
Construction Sub-Total					$ 425,000.00	$ 400,775.00	$ 24,225.00	$ -	$ 425,000.00
Traffic Control:			**10.00%**		$ 42,500.00	$ 40,077.50	$ 2,422.50	$ -	$ 42,500.00
Mobilization:			**10.00%**		$ 42,500.00	$ 40,077.50	$ 2,422.50	$ -	$ 42,500.00
Construction Sub-Total					$ 510,000.00	$ 480,930.00	$ 29,070.00	$ -	$ 510,000.00
Construction Admin :			**15.00%**		$ 76,500.00	$ 72,139.50	$ 4,360.50	$ -	$ 76,500.00
Contingencies :			**5.00%**		$ 25,500.00	$ 24,046.50	$ 1,453.50	$ -	$ 25,500.00
Post Design:			**1.00%**		$ 5,100.00	$ 4,809.30	$ 290.70	$ -	$ 5,100.00
Communications:			**5.00%**		$ 25,500.00	$ 24,046.50	$ 1,453.50	$ -	$ 25,500.00
					$ -	$ -	$ -	$ -	$ -
Post Sub-Total					$ 132,600.00	$ 125,041.80	$ 7,558.20	$ -	$ 132,600.00
Post Const Sub-Total					**$ 642,600.00**	**$ 605,971.80**	**$ 36,628.20**	**$ -**	**$ 642,600.00**
TOTAL REQUEST					**$ 1,440,600.00**	**$ 1,358,486.74**	**$ 82,114.20**	**$ -**	**$ 1,440,600.00**

Comments:

Required for all HSIP Applications

Agency:	Regionwide	Title of Project:	Negative Offset Median Improvements at 10 intersections

Benefit / Cost Ratio Tabulation

Annual Benefit Tabulation

Severity	Annual Average	Estimated **CRF*** Reduction	Total Reduction	Unit Cost	Annual Benefit
Fatal	**1.80**	**38%**	0.68	$5,800,000	$3,967,200
Incapacitating Injury	**2.60**	**38%**	0.99	$400,000	$395,200
				Total Annual Benefits	$4,362,400

Costs

Total Project Cost	$1,440,600
Project Life (years)	20
Interest Rate (%)	8%
Capital Recovery Factor	0.1019
Annual Construction Cost	$146,728
Annual Maintenance Cost	$3,000.00
Total Annual Costs	$149,728

Benefit / Cost

Annual Benefit	Annual cost	Benefit / Cost Ratio
$4,362,400	$149,728	29.1

***REQUIRED: Use 4 and 5 star CMFs from ADOT Lists <u>Only</u> at Tabs 14 - 15 preferred. The CMF's CRF is used in the above calculation**

USE THIS TABLE TO CALCULATE "SHSP SCORE" BY COMBINING B/C RATIO AND IDENTIFIED SHSP EMPHASIS AREAS INCLUDED IN PROJECT

SYSTEMIC AND SITE SPECIFIC

FHWA FOCUS AREAS

SHSP Top Focus Emphasis Areas						Road Departure	Intersection				Pedestrian				
Speed	**Impairment**	**Un-restrained**	**MC**	**Distracted**		Lane Departure	Intersection	YOUNG Driver	OLD Driver	BIKES	PED	WEATHER	Work Zone	TRUCKS	ANIMAL
Speed Limits			HF	Rumble Strips		Rumble Strips	Signal Timing		Delineation	Bike Facilities	Mid-Block Crossings	Storm Detection	Include Bikes and Peds in WZTC	Rumble Strips	HF
Traffic Calming			Barrier Design			Delineation	Left Turn Phasing		Signing, Lighting	Traffic Calming	MUTCD Ped Timing	DMS Notices	4e TM Plans		Speed Enforcement
Variable Speed Limits			Shoulders			Signing	Clearance Times			Bike Friendly Rumble Strips	Countdown Signals	Signal Timing Plans	Temporary Rumble Strips		Crossings
Safety Corridors			Roundabouts			Shoulders	Dilemna Zone Detection			Bike Boulevards	Bus Stop Locations	HF			Active Warning Systems
			Left Turn Phasing			Speed Limits	Roundabouts			Signing Striping	ADA	Shoulders			Signage
						Flatten Side Slopes	R/R Preemption			Bike Ways	PHB (Hawk)	Pull Outs			Fencing
						Clear Zone	R/R Siging, Marking, Lighting			Crossing Treatments	Lighting	ITS detection			Cattle Guards
						Barrier					Speed Limits				
											Traffic Calming				
INDICATE SHSP EMPHASIS AREA with "x" (Max 3) →							**X**								
	0	0	0	0	0	0	26	0	0	0	0	0	0	0	0
K+A % from SHSP	24	24	20	13	2	30	26	22	13	3	9	2	1	9	1
K+A: 26	24.0	24.0	20.0	13.0	2.0	30.0	26.0	22.0	13.0	3.0	9.0	2.0	1.0	9.0	1.0
B/C Ratio:	**29.10**														
SHSP Score:	**756.6**														

Id	Date	Date	Time	Onroad	CrossingFeature	Offset	InjurySeverity	FirstHarmful	CollisionManner Desc	LightCondition	Weather
2743514	7/3/2013 16:34	7/3/2013	4:34:00 PM	CAVE CREEK RD	CAREFREE HWY	0.00000	INCAPACITATING_ INJURY	MOTOR_VEHICLE_IN_ TRANSPORT	ANGLE (front to side)(other than left turn)	DAYLIGHT	CLEAR
2518243	3/8/2011 9:52	3/8/2011	9:52:00 AM	CAREFREE HWY	CAVE CREEK RD	0.00000	INCAPACITATING_ INJURY	MOTOR_VEHICLE_IN_ TRANSPORT	LEFT_TURN	DAYLIGHT	CLEAR
2849580	5/21/2014 6:54	5/21/2014	6:54:00 AM	CAREFREE HWY	CAVE CREEK RD	0.00000	FATAL	MOTOR_VEHICLE_IN_ TRANSPORT	LEFT_TURN	DAYLIGHT	CLEAR
2702488	12/22/2012 14:16	12/22/2012	2:16:00 PM	COMBS RD	GANTZEL RD	0.00000	FATAL	MOTOR_VEHICLE_IN_ TRANSPORT	LEFT_TURN	DAYLIGHT	CLEAR
2739187	4/5/2013 12:11	4/5/2013	12:11:00 PM	GRAND AVE	57TH DR	0.00000	FATAL	MOTOR_VEHICLE_IN_ TRANSPORT	LEFT_TURN	DAYLIGHT	CLEAR
2860799	8/5/2014 6:47	8/5/2014	6:47:00 AM	HIGLEY RD	GERMANN RD	0.00000	INCAPACITATING_ INJURY	MOTOR_VEHICLE_IN_ TRANSPORT	LEFT_TURN	DAYLIGHT	CLEAR
2868307	8/22/2014 19:00	8/22/2014	7:00:00 PM	HIGLEY RD	GERMANN RD	0.00227	INCAPACITATING_ INJURY	MOTOR_VEHICLE_IN_ TRANSPORT	LEFT_TURN	DUSK	CLEAR
2628426	7/12/2012 16:39	7/12/2012	4:39:00 PM	GERMANN RD	HIGLEY RD	0.00000	INCAPACITATING_ INJURY	MOTOR_VEHICLE_IN_ TRANSPORT	LEFT_TURN	DAYLIGHT	CLEAR
2758687	9/12/2013 17:11	9/12/2013	5:11:00 PM	GERMANN RD	HIGLEY RD	0.00000	INCAPACITATING_ INJURY	MOTOR_VEHICLE_IN_ TRANSPORT	LEFT_TURN	DAYLIGHT	CLEAR
2737099	7/5/2013 16:44	7/5/2013	4:44:00 PM	PECOS RD	HIGLEY RD	0.00000	INCAPACITATING_ INJURY	MOTOR_VEHICLE_IN_ TRANSPORT	LEFT_TURN	DAYLIGHT	CLEAR
2954562	5/2/2015 19:31	5/2/2015	7:31:00 PM	HIGLEY RD	PECOS RD	0.00000	INCAPACITATING_ INJURY	MOTOR_VEHICLE_IN_ TRANSPORT	LEFT_TURN	DAYLIGHT	CLEAR
2851120	4/10/2014 7:39	4/10/2014	7:39:00 AM	PEORIA AVE	63RD AVE	0.00000	INCAPACITATING_ INJURY	MOTOR_VEHICLE_IN_ TRANSPORT	LEFT_TURN	DAYLIGHT	CLEAR

2869987	4/11/2014 17:35	4/11/2014	5:35:00 PM	PEORIA AVE	63RD AVE	0.00000	FATAL	MOTOR_VEHICLE_IN_TRANSPORT	LEFT_TURN	DAYLIGHT	CLEAR
2964165	3/7/2015 9:08	3/7/2015	9:08:00 AM	OCOTILLO RD	RITTENHOUSE RD	0.00000	INCAPACITATING_INJURY	MOTOR_VEHICLE_IN_TRANSPORT	LEFT_TURN	DAYLIGHT	CLEAR
2611809	1/20/2012 15:55	1/20/2012	3:55:00 PM	OCOTILLO RD	RITTENHOUSE RD	0.00000	FATAL	MOTOR_VEHICLE_IN_TRANSPORT	LEFT_TURN	DAYLIGHT	CLEAR
2749047	8/12/2013 5:35	8/12/2013	5:35:00 AM	VAL VISTA DR	LAKESIDE DR	0.00000	INCAPACITATING_INJURY	MOTOR_VEHICLE_IN_TRANSPORT	LEFT_TURN	DAWN	CLEAR
2873506	9/9/2014 17:13	9/9/2014	5:13:00 PM	VAL VISTA DR	LAKESIDE DR	0.00000	FATAL	MOTOR_VEHICLE_IN_TRANSPORT	LEFT_TURN	DAYLIGHT	CLOUDY
2763070	9/28/2013 18:57	9/28/2013	6:57:00 PM	LAKESIDE DR	VAL VISTA DR	0.00000	INCAPACITATING_INJURY	MOTOR_VEHICLE_IN_TRANSPORT	LEFT_TURN	DARK_LIGHTED	CLEAR
3019890	10/31/2015 9:24	10/31/2015	9:24:00 AM	LITCHFIELD RD	WIGWAM BLVD	0.00000	FATAL	MOTOR_VEHICLE_IN_TRANSPORT	LEFT_TURN	DAYLIGHT	CLEAR
2605399	3/16/2012 18:47	3/16/2012	6:47:00 PM	LITCHFIELD RD	WIGWAM BLVD	0.00000	FATAL	OVERTURN_ROLLOVER	OTHER	DARK_LIGHTED	CLEAR
2969857	6/29/2015 10:14	6/29/2015	10:14:00 AM	LITCHFIELD RD	YUMA RD	0.00000	FATAL	MOTOR_VEHICLE_IN_TRANSPORT	LEFT_TURN	DAYLIGHT	CLEAR

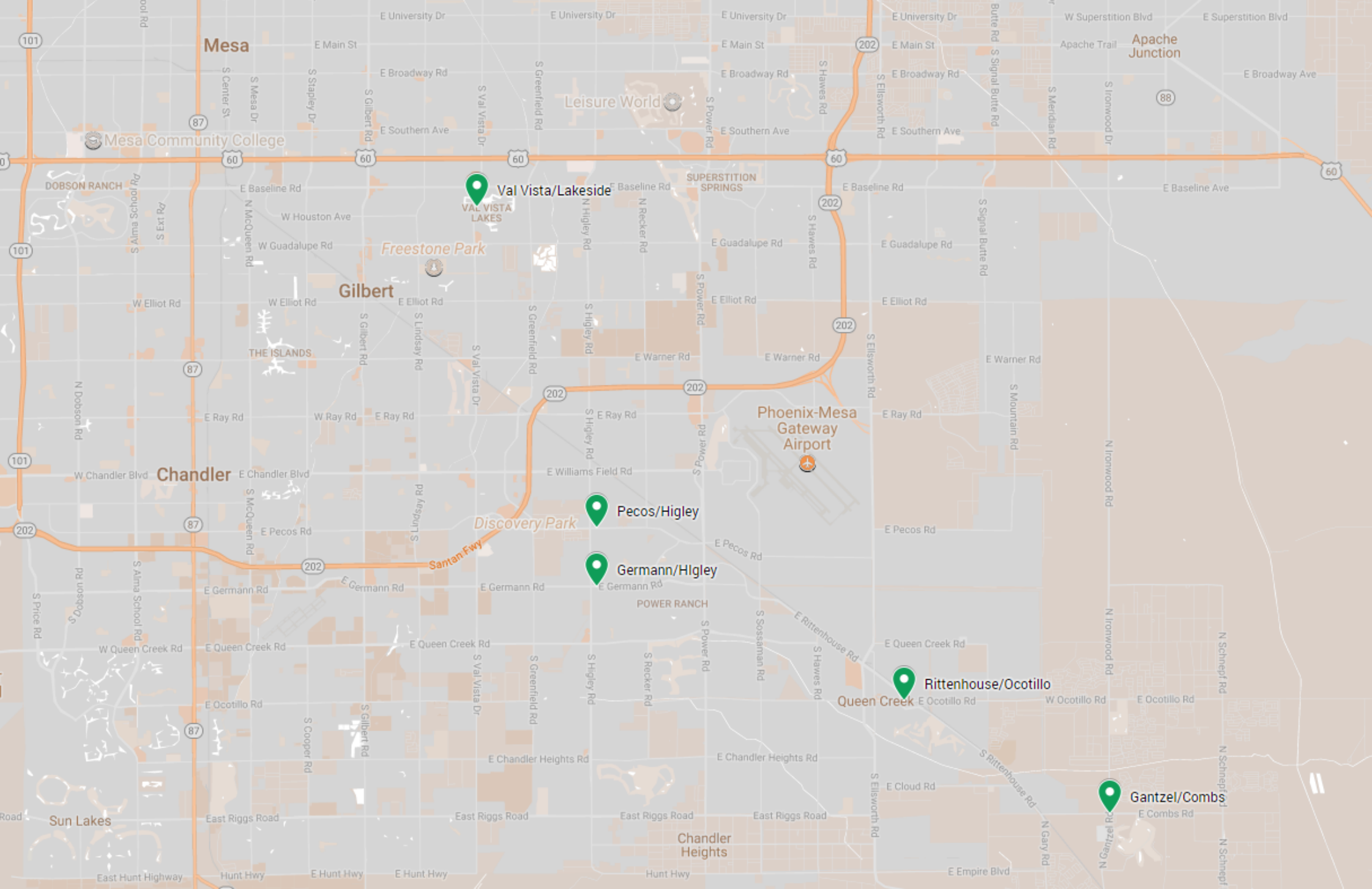
a. Most recent 5 years of data from the ADOT crash database.
b. Only crashes that the proposed countermeasure will correct
c. Only crashes in the countermeasure's influence area
d. Severity of each crash, Fatal and Serious Injury only
e. Manner of collision
f. Driver behavior of U1. (Alcohol related or other driver behavior influenced crashes can be included in infrastructure countermeasure calculations).
g. Other relevant attributes
h. Do not include crashes unreported by law enforcement unless supporting documentation, i.e. crash reports, is provided and attested to.

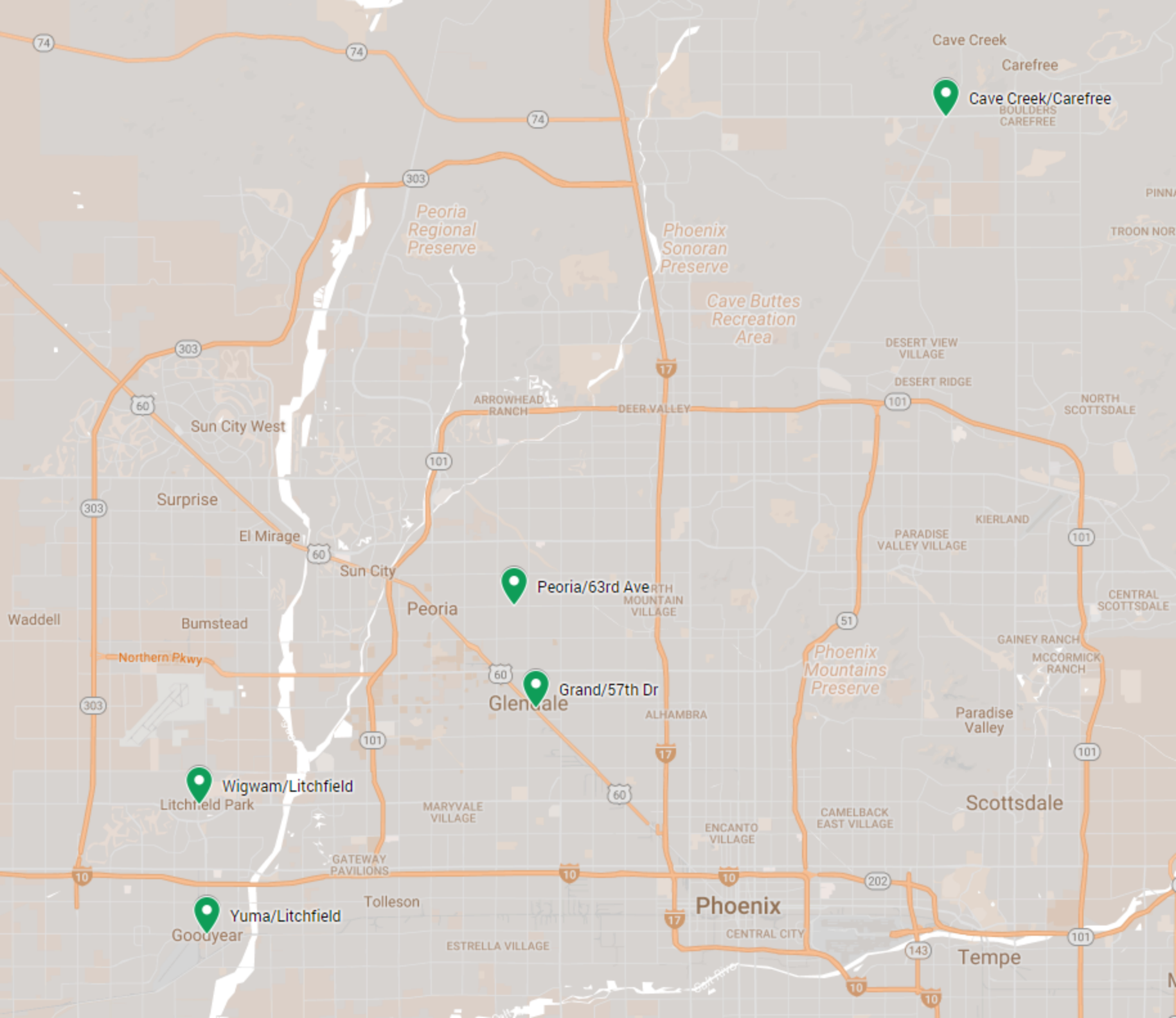
IntersectionTypeDesc	JunctionRelationDesc	TrafficWayType	UnitTravelDirectionDesc	UnitActionDesc	UnitRoadConditionDesc1	SurfaceCondition	EnvCondition	UnitDefect	UnitNumber	UnitEvent Sequence
FOUR_WAY_INTERSECTION	INTERSECTION_NON_INTERCHANGE	TWO_WAY_DIVIDED_POSITIVE_MEDIAN_BARRIER	NORTHEAST	MAKING_LEFT_TURN	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_INTERCHANGE	TWO_WAY_DIVIDED_POSITIVE_MEDIAN_BARRIER	EAST	MAKING_LEFT_TURN	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_NON_INTERCHANGE	TWO_WAY_NOT_DIVIDED	EAST	GOING_STRAIGHT_AHEAD	NR	DRY	STOPPED_PARKED_VEHICLE	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_NON_INTERCHANGE	TWO_WAY_NOT_DIVIDED_WITH_CONTINUOUS_LEFT_TURN_LANE	EAST	MAKING_LEFT_TURN	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
T_INTERSECTION	INTERSECTION_NON_INTERCHANGE	TWO_WAY_DIVIDED_POSITIVE_MEDIAN_BARRIER	SOUTHEAST	MAKING_LEFT_TURN	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_NON_INTERCHANGE	TWO_WAY_DIVIDED_UNPROTECTED_PAINTED_4_FEET_MEDIAN	NORTH	MAKING_LEFT_TURN	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_RELATED_NON_INTERCHANGE	TWO_WAY_NOT_DIVIDED_WITH_CONTINUOUS_LEFT_TURN_LANE	NORTHEAST	MAKING_LEFT_TURN	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_RELATED_NON_INTERCHANGE	TWO_WAY_DIVIDED_POSITIVE_MEDIAN_BARRIER	NORTHWEST	MAKING_LEFT_TURN	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_NON_INTERCHANGE	TWO_WAY_DIVIDED_POSITIVE_MEDIAN_BARRIER	EAST	MAKING_LEFT_TURN	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_INTERCHANGE	TWO_WAY_DIVIDED_POSITIVE_MEDIAN_BARRIER	SOUTH	MAKING_LEFT_TURN	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_NON_INTERCHANGE	TWO_WAY_DIVIDED_POSITIVE_MEDIAN_BARRIER	EAST	MAKING_LEFT_TURN	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_NON_INTERCHANGE	UNKNOWN	WEST	MAKING_LEFT_TURN	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT

FOUR_WAY_INTERSECTION	INTERSECTION_NON_INTERCHANGE	TWO_WAY_DIVIDED_POSITIVE_MEDIAN_BARRIER	EAST	MAKING_LEFT_TURN	NR	DRY	UNKNOWN	UNKNOWN	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_NON_INTERCHANGE	TWO_WAY_NOT_DIVIDED_WITH_CONTINUOUS_LEFT_TURN_LANE	EAST	GOING_STRAIGHT_AHEAD	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_NON_INTERCHANGE	TWO_WAY_NOT_DIVIDED	WEST	CHANGING_LANES	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_INTERCHANGE	TWO_WAY_DIVIDED_POSITIVE_MEDIAN_BARRIER	SOUTHEAST	MAKING_LEFT_TURN	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_NON_INTERCHANGE	TWO_WAY_DIVIDED_POSITIVE_MEDIAN_BARRIER	SOUTH	MAKING_LEFT_TURN	NR	DRY	UNKNOWN	UNKNOWN	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_INTERCHANGE	TWO_WAY_DIVIDED_POSITIVE_MEDIAN_BARRIER	NORTH	GOING_STRAIGHT_AHEAD	NR	DRY	UNKNOWN	UNKNOWN	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_NON_INTERCHANGE	UNKNOWN	SOUTH	MAKING_LEFT_TURN	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_NON_INTERCHANGE	TWO_WAY_DIVIDED_POSITIVE_MEDIAN_BARRIER	SOUTH	MAKING_LEFT_TURN	NR	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT
FOUR_WAY_INTERSECTION	INTERSECTION_NON_INTERCHANGE	UNKNOWN	SOUTH	MAKING_LEFT_TURN	NO_CONTRIBUTING_CIRCUMSTANCES	DRY	NO_CONTRIBUTING_CIRCUMSTANCES	NO_CONTRIBUTING_CIRCUMSTANCES	1	MOTOR_VEHICLE_IN_TRANSPORT

UnitEvent Sequence	UnitEvent Sequence	UnitEvent Sequence	PersonSafety Device	PersonViolation	PersonPhysical	PersonPhysical
NA	NA	NA	Shoulder And Lap Belt	FAILED_TO_YIELD_RIGHT_OF_WAY	NO_APPARENT_INFLUENCE	NA
CROSS_MEDIAN	RAN_OFF_ROAD_RIGHT	NA	Lap Belt	FAILED_TO_YIELD_RIGHT_OF_WAY	NO_APPARENT_INFLUENCE	NA
OVERTURN_ROLLOVER	NA	NA	Helmet Used	DISREGARDED_TRAFFIC_SIGNAL	UNKNOWN	NA
NA	NA	NA	Shoulder And Lap Belt	FAILED_TO_YIELD_RIGHT_OF_WAY	NO_APPARENT_INFLUENCE	NA
MOTOR_VEHICLE_IN_TRANSPORT	NA	NA	Shoulder And Lap Belt	FAILED_TO_YIELD_RIGHT_OF_WAY	UNKNOWN	NA
NA	NA	NA	Shoulder And Lap Belt	FAILED_TO_YIELD_RIGHT_OF_WAY	NO_APPARENT_INFLUENCE	NA
NA	NA	NA	Shoulder And Lap Belt	FAILED_TO_YIELD_RIGHT_OF_WAY	NO_APPARENT_INFLUENCE	NA
NA	NA	NA	Shoulder And Lap Belt	MADE_IMPROPER_TURN	NO_APPARENT_INFLUENCE	NA
NA	NA	NA	Shoulder And Lap Belt	INATTENTION_DISTRACTION/OTHER	NO_APPARENT_INFLUENCE	NA
NA	NA	NA	Air Bag Deployed/Shoulder-Lap Belt	MADE_IMPROPER_TURN	NO_APPARENT_INFLUENCE	NA
NA	NA	NA	Shoulder And Lap Belt	FAILED_TO_YIELD_RIGHT_OF_WAY	NO_APPARENT_INFLUENCE	NA
NA	NA	NA	Air Bag Deployed/Shoulder-Lap Belt	FAILED_TO_YIELD_RIGHT_OF_WAY	NO_APPARENT_INFLUENCE	NA

NA	NA	NA	Air Bag Deployed	FAILED_TO_YIELD_RIGHT_OF_WAY	UNKNOWN	NA
RAN_OFF_ROAD_RIGHT	43	NA	Shoulder And Lap Belt	SPEED_TOO_FAST_FOR_CONDITIONS/DISREGARDED_TRAFFIC_SIGNAL	NO_APPARENT_INFLUENCE	NA
NA	NA	NA	None Used	UNSAFE_LANE_CHANGE	ALCOHOL	NA
NA	NA	NA	Air Bag Deployed/Shoulder-Lap Belt	MADE_IMPROPER_TURN	NO_APPARENT_INFLUENCE	NA
TRAFFIC_SIGNAL_SUPPORT	NA	NA	Air Bag Deployed	FAILED_TO_YIELD_RIGHT_OF_WAY	UNKNOWN	NA
NA	NA	NA	Shoulder And Lap Belt	EXCEEDED_LAWFUL_SPEED	NO_APPARENT_INFLUENCE	NA
CURB	TREE_BUSH_STUMP_STANDING	NA	Shoulder And Lap Belt	EXCEEDED_LAWFUL_SPEED	UNKNOWN	NA
NA	NA	NA	Shoulder And Lap Belt	FAILED_TO_YIELD_RIGHT_OF_WAY	NO_APPARENT_INFLUENCE	NA
NA	NA	NA	Shoulder And Lap Belt	FAILED_TO_YIELD_RIGHT_OF_WAY	NO_APPARENT_INFLUENCE	NA


Mesa
Mesa Community College
Leisure World
Apache Junction
DOBSON RANCH
Val Vista/Lakeside
VAL VISTA LAKES
SUPERSTITION SPRINGS
Freestone Park
Gilbert
THE ISLANDS
Phoenix-Mesa Gateway Airport
Chandler
Pecos/Higley
Discovery Park
Santan Fwy
Germann/Higley
POWER RANCH
Rittenhouse/Ocotillo
Queen Creek
Gantzel/Combs
Sun Lakes
Chandler Heights


Cave Creek
Carefree
Cave Creek/Carefree
BOULDERS CAREFREE
Peoria Regional Preserve
Phoenix Sonoran Preserve
Cave Buttes Recreation Area
DESERT VIEW VILLAGE
DESERT RIDGE
NORTH SCOTTSDALE
ARROWHEAD RANCH
DEER VALLEY
Sun City West
Surprise
El Mirage
Sun City
Peoria/63rd Ave
Peoria
KIERLAND
PARADISE VALLEY VILLAGE
CENTRAL SCOTTSDALE
Waddell
Bumstead
Northern Pkwy
GAINEY RANCH
MCCORMICK RANCH
Phoenix Mountains Preserve
Grand/57th Dr
Glendale
ALHAMBRA
Paradise Valley
Wigwam/Litchfield
Litchfield Park
MARYVALE VILLAGE
ENCANTO VILLAGE
CAMELBACK EAST VILLAGE
Scottsdale
GATEWAY PAVILIONS
Tolleson
Yuma/Litchfield
Goodyear
Phoenix
CENTRAL CITY
ESTRELLA VILLAGE
Tempe