

Agency:	Apache Junction		Title of Project:	Tomahawk Rd/Junction St Intersection Improvements		
Date:	November 7, 2019					
Contact Name and Title:		Phone:		E-Mail:		
Shane Kiesow		(480) 474-8516		skiesow@ajcity.net		
Roadway Safety Program (RSP) Project Scope						
1.	Describe your safety improvement project in detail: (50 words or less)					
1a.	The proposed project improvements include adding a channelizing right turn island to the eastbound approach leg. In addition, advanced 'stop ahead' signage and pavement markings will be added to the eastbound and westbound approaches and the existing stop signs in both directions will be replaced with solar powered flash beacon stop signs.					
2.	Describe the project location, include pertinent demographic and land development information:					
2a.	The channelizing island will be installed on the eastbound leg (Junction Street) as it approaches the intersection. It will be designed in order to best protect drivers as they make the right turn onto Tomahawk Road, thus the exact dimensions are yet unknown, but it is assumed the median will extend approximately 50 feet from the intersection. The advanced warning signage and pavement markings for 'stop ahead' will be placed 100ft away from the stop sign on both the east and west legs per the MUTCD standard for advanced warning signs. The flashing beacon stop signs will be placed in the same location as existing signage on the side of the roadway.					
3	For projects on State System:	BMP: (Begin Milepost)		EMP: (End Milepost)		
4.	What network screening method was used to identify this project?			<input type="checkbox"/> MAG	<input checked="" type="checkbox"/> ADOT	<input type="checkbox"/> Other (Below)
4a	An in-house screening of ALISS data determined that the crash severity was high compared to the number of crashes at this intersection.					
5.	Was this project identified as a recommendation in a study? If so, what kind? (check all that apply)					
5a	<input type="checkbox"/> RSA <input type="checkbox"/> PA <input type="checkbox"/> SRTS Study <input type="checkbox"/> LASS Study <input checked="" type="checkbox"/> Other					
6.	Was the project identified using an agency adopted predictive safety analysis?			<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
7.	What is the safety justification for the proposed project?					
7a	While this intersection has very few crashes due to the low volume of vehicles, of the 6 crashes at this intersection, 2 were serious injury or fatal and 5 of the 6 were caused by east-west traffic. Both of these serious crashes were a result of eastbound or westbound traffic as they approached the stop sign. The advanced pavement markings in both directions will increase safety of the approach from both directions. The island will also protect drivers, as the stop sign on the west leg has a history of being struck by drivers and the large radius at the intersection promotes drivers to take the turn at dangerous speeds, resulting in rollover incidents at the intersection as shown by the crash data.					
8.	Is Public outreach required for your project? If "yes" Provide what was done, the date(s) and outcomes. (Attach documentation if applicable)					
8a	No business or residential access is impacted, therefore public outreach is not necessary for this project.					
9.	What safety related public education will your agency be providing before placing the safety improvement in service, if applicable?					
9a	As the improvements proposed are quite common at many intesections, it is felt no public education will be necessary.					
10.	Equity: Input the largest percent for each element for the one-mile radius or offset (Click on the hyperlinks in the text to open maps. See directions on side on maps):					
	65 yrs and Older	Minority Groups	No Vehicle Households	Disabled	Living in Poverty	
10a	62%	37%	11%	17.0%	30%	
11.	Avg Daily Traffic (ADT) Volume:	2,250	Year Collected:	2018		
12.	Total Crash Frequency:	6	Crash Rate (MVM or MEV):	1.5		
13.	What is the posted speed limit?	35 MPH	Benefit/Cost:	131		

PROJECT COST ESTIMATE WORKSHEET

(Cost Estimates Are Required Regardless of Programming)

	REQUESTED PROGRAMMING (Complete if Item will be programmed in the MAG TIP)	Location Description	Tomahawk Road and Junction Street				
		Work Description	Channelizing Right Turn Island				
		Funding Source	Local				
		Preferred Year to Program Work	2019				
COST ESTIMATE FOR DESIGN			UNITS	QUANTITY	UNIT COST	TOTAL	
DESIGN	PRELIMINARY ENGINEERING (15% plans) (Required for Budget)	Topographic Survey	LS			\$ -	
		Design Concept Report (DCR)	LS			\$ -	
		Federal Project Environmental Determination	LS			\$ -	
		HAZMAT Assessment	LS			\$ -	
		SUBTOTAL – PRELIMINARY ENGINEERING COSTS					\$ -
	FINAL DESIGN (30, 60, 95, 100% plans) (Required for Budget)	Plans, Specifications, Cost Estimates, Bidding	LS	1	10,000.00	\$ 10,000.00	
		Geotechnical Report	LS			\$ -	
		Drainage Report	LS			\$ -	
		SWPPP	LS			\$ -	
		SUBTOTAL – FINAL DESIGN COSTS					\$ 10,000.00
	TOTAL PRELIMINARY ENGINEERING AND DESIGN COST AVAILABLE FOR PROGRAMMING						\$ 10,000.00
	CONSTRUCTION	REQUESTED PROGRAMMING (Complete only if Construction will be programmed in the MAG TIP)	Location Description	Tomahawk Road and Junction Street			
			Work Description	Channelizing Right Turn Island			
			Funding Source	RSP			
			Preferred Year to Program Work	2020			
COST ESTIMATE FOR CONSTRUCTION			UNITS	QUANTITY	UNIT COST	TOTAL	
CONSTRUCTION (Required for Budget)		Sawcut Asphalt Pavement	LF	202	3.00	\$ 604.50	
		Remove Pavement	SY	139	6.00	\$ 832.50	
		12" Class 2 A.B.	TON	98	28.00	\$ 2,730.00	
		Redo Sidewalk Ramp	LS	1	6,000.00	\$ 6,000.00	
		Concrete Single Curb	LF	202	14.50	\$ 2,921.75	
		Signage	EA	3	200.00	\$ 600.00	
		Remove Singage	EA	3	100.00	\$ 300.00	
		Solar Powered LED Stop Sign	EA	2	2,000.00	\$ 4,000.00	
		White Thermoplastic Pavement Markings	LF	200	2.00	\$ 400.00	
		White Thermoplastic Pavement Symbols	EA	4	250.00	\$ 1,000.00	
	Paint Median Island Edges	LS	1	750.00	\$ 750.00		
	Subgrade Preparation	SY	144	9.00	\$ 1,298.70		
	Median Paving	SY	144	65.00	\$ 9,379.50		
SUBTOTAL - CONSTRUCTION COST					\$ 30,816.95		
MOBILIZATION AND ADMINISTRATION COSTS	CONTRACTOR MOBILIZATION (Typically 8% of construction cost)				LS \$ 6,000.00		
	TRAFFIC CONTROL (0-8% of construction cost)				LS \$ 4,000.00		
	CONSTRUCTION CONTINGENCIES (Typically 5% of construction cost)				LS \$ 4,000.00		
	CONSTRUCTION ADMINISTRATION (Averaging 18% of construction cost)				18% \$ 5,547.05		
SUBTOTAL – MOBILIZATION & ADMINISTRATION COSTS					\$ 19,547.05		
TOTAL UTILITIES, CONSTRUCTION AND MOBILIZATION FOR PROGRAMMING						\$ 50,364.00	
TOTAL COST ESTIMATE						\$ 60,364	

Budget and Signature Page

Please describe the agency programming of this project in the agency's CIP	This project is in the City's current CIP.				
Phase	Location Description	Work Description	Year to be Programmed	Funding Source	Amount
Design	Tomahawk Road and Junction Street	Channelizing Right Turn Island	2019	Local	\$ 10,000
Construction	Tomahawk Road and Junction Street	Channelizing Right Turn Island	2020	RSP	\$ 50,364
Total Cost					\$ 60,364

Signature: To be signed with printed hard copy that is sent to MAG

As the jurisdiction's manager/administrator or designated representative, I certify that the information contained in this application is accurate and complete and that the local funds for this project will be included in the Lead Agency's local current CIP/TIP or budget document if the project is selected for MAG Roadway Safety Program funding. I also certify the Lead Agency's commitment to maintain or operate the facility.

Signature: *Emile Schmid*

Name: Emile Schmid

Title: City Engineer

Date: November 4, 2019

RSP Application Benefit-Cost Tabulation Sheet

Agency:	Apache Junction	Title of Project:	Tomahawk Rd/Junction St Intersection Improvements
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Annual Benefit Tabulation

Severity	Annual Average	Estimated CRF* Reduction	Total Reduction	Unit Cost	Annual Benefit
Fatal	0.20	62%	0.12	\$9,515,371	\$1,179,906
Incapacitating Injury	0.20	35%	0.07	\$550,499	\$38,535
Non-Incapacitating	0.00	0%	0.00	\$149,132	\$0
Possible Injury	0.00	0%	0.00	\$103,145	\$0
Total Annual Benefits					\$1,218,441

Costs

Total Project Cost	\$60,364
Project Life (years)	10
Interest Rate (%)	8%
Capital Recovery Factor	0.1490
Annual Construction Cost	\$8,996
Annual Maintenance Cost	\$300.00
Total Annual Costs	
	\$9,296

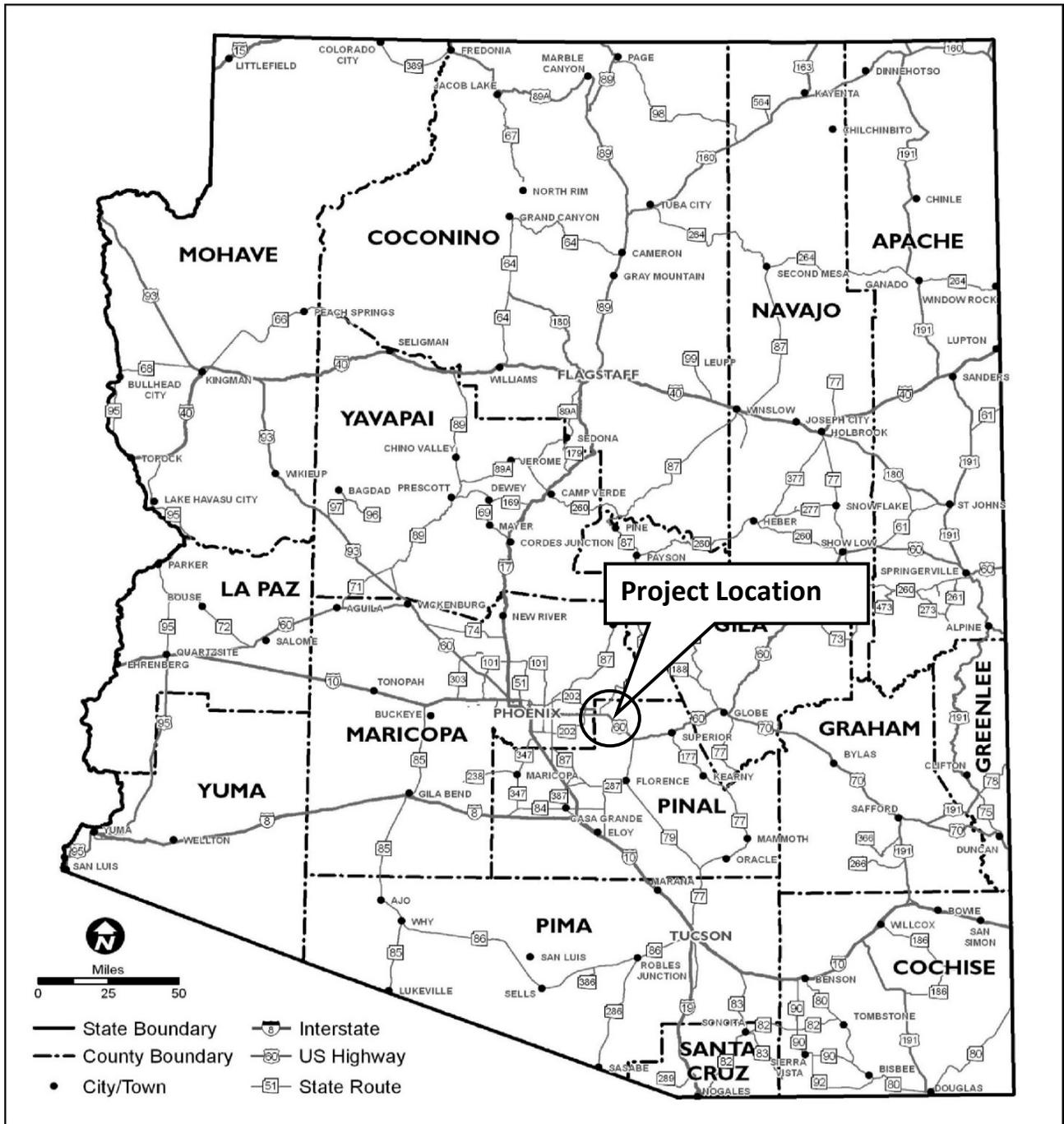
Benefit / Cost

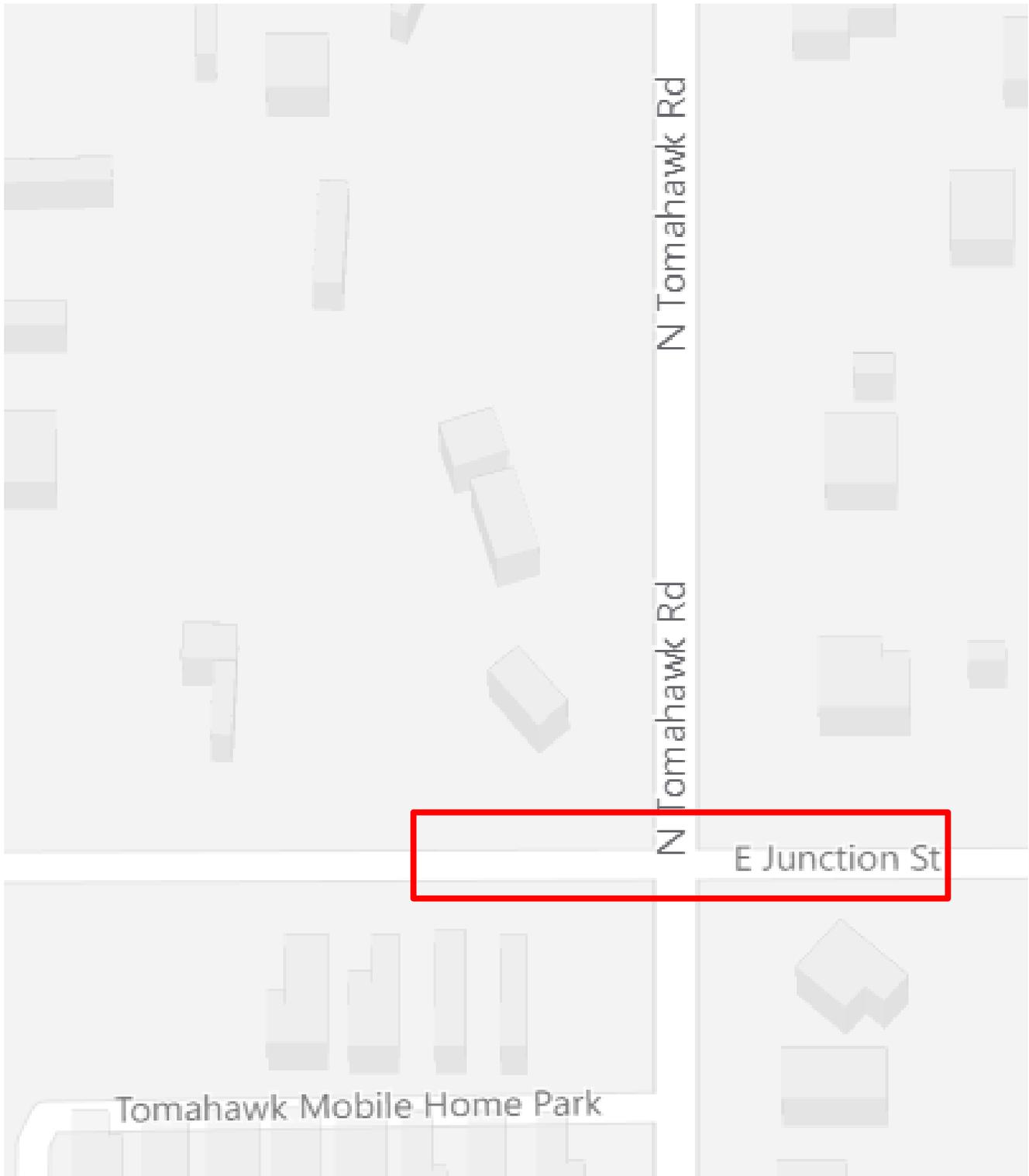
Annual Benefit	Annual cost	Benefit / Cost Ratio
\$1,218,441	\$9,296	131.0

List CMF(s) Used in the field below and its associated countermeasure(s)

CMF Used: Install advanced yield or stop markings and signs (ID: 9018) = 0.89
 CMF Used: Replace standard stop sign with flashing LED stop sign (ID: 6602) = 0.59
 CMF Used: Physical Channelization of both major and minor roads (ID: 292) = 0.73
 CCRF = 62% (Fatal), 35% (Serious Injury)

Apache Junction				Tomahawk Rd/Junction St Intersection Improvements				RSP App V1_2019																		
Incident ID	Incident Date & Time	Incident On Road	Incident Crossing Feature	Incident Offset	Incident Injury Severity Description	Incident First Harmful Description	Incident Collision Manner Desc	Incident Light Condition Desc	Incident Weather Desc	Incident Intersection Type Desc	Incident Junction Relation Desc	Incident Traffic Way Type Desc	Unit Travel Direction Desc	Unit Action Desc	Unit Road Condition Desc1	Unit Surface Condition Desc1	Unit Env Condition Desc1	Unit Defect Desc1	Unit Number	Unit Event Sequence Desc1	Unit Event Sequence Desc2	Person Type Desc	Person Safety Device Desc	Person Violation Desc1	Person Physical Desc0	Person Physical Desc99
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	25	26	27	28	36
2943794	3/29/2015 6:01:00 PM	11 TOMAHAWK RD	Junction St	0	Fatal	Motor Vehicle In Transport	Angle (Front To Side)(Other Than Left Turn)	Daylight	Clear	Four Way Intersection	Intersection Non Interchange	Two Way Not Divided	4 - West	Going Straight Ahead		Dry	Glare Sunlight			1	Overtum Rollover	Motor Vehicle In Transport	Driver	None Used	Ran Stop Sign	
3086977	5/2/2016 12:04:00 PM	11 TOMAHAWK RD	Junction St	-50	No Injury	Motor Vehicle In Transport	Angle (Front To Side)(Other Than Left Turn)	Daylight	Clear	Not At An Intersection	Not Junction Related	Two Way Not Divided	2 - South	Making U Turn	No Contributing Circumstances	Dry	No Contributing Circumstances	No Contributing Circumstances		1	Motor Vehicle In Transport		Driver	Shoulder And Lap Belt	Failed To Yield Right Of Way	0 - No Apparent Influence
3172025	12/8/2016 9:33:00 PM	11 TOMAHAWK RD	Junction St	0	No Injury	Motor Vehicle In Transport	Sideswipe Same Direction	Dark Not Lighted	Clear	Four Way Intersection	Intersection Related Non Interchange	Unknown	4 - West	Going Straight Ahead	Obstruction In Roadway	Dry				1	Motor Vehicle In Transport		Driver	Shoulder And Lap Belt	Unknown	99 - Unknown
3255931	7/31/2017 10:31:00 PM	11 TOMAHAWK RD	Junction St	-70	Suspected Serious Injury	Overtum Rollover	Single Vehicle	Dark Lighted	Clear	Four Way Intersection	Intersection Related Non Interchange	Two Way Not Divided	3 - East	Making Right Turn	No Contributing Circumstances	Sand	No Contributing Circumstances	No Contributing Circumstances		1	Overtum Rollover	Overtum Rollover	Driver	Shoulder And Lap Belt	Exceeded Lawful Speed	99 - Unknown
3338074	2/22/2018 2:36:00 PM	11 JUNCTION ST	Tomahawk Rd	-5	No Injury	Traffic Sign Support	Single Vehicle	Daylight	Clear	Four Way Intersection	Intersection Related Non Interchange	Two Way Divided Unprotected Painted 4 Feet Median	4 - West	Making Left Turn	Unknown	Dry	Unknown	Unknown		1	Traffic Sign Support		Driver	Unknown	Speed To Fast For Conditions	99 - Unknown
3398140	7/20/2018 3:14:00 PM	11 TOMAHAWK RD	Junction St	0	No Injury	Motor Vehicle In Transport	Angle (Front To Side)(Other Than Left Turn)	Daylight	Clear	Not Reported	Intersection 4 Way	Two Way Not Divided	3 - East	Standing	Unknown	Dry	Unknown	Unknown		1	Motor Vehicle In Transport		Driver	Unknown	Failed To Yield Right Of Way	51 - Unknown Condition





 - Project Area