

SR 347 MP 189.5-175.5 (I-10 to North End of Maricopa)



FINAL

Prepared by:

Arizona Road Safety Assessment Program
Arizona Department of Transportation
Traffic Safety Section
1615 West Jackson Street, Mail Drop 065R
Phoenix, Arizona 85007-3217
602-712-2332

Site Visited Week of January 24, 2023

Completed March 31, 2023

Internal ADOT Road Safety Assessment

SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)

This report is subject to provisions of 23 USC § 407. Any intentional or inadvertent release of this material, or any data derived from its use does not constitute a waiver of privilege pursuant to 23 USC § 407.

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Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

**SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)**

RSA Team

The independent, multi-disciplinary RSA team was led by Amirul Rajib, PE, the ADOT RSA Program Manager. Field review primarily performed on January 24, 2023.

The RSA team included:

- Amirul Rajib, PE – RSA Program Manager, ADOT
 - Multiple RSA Team experience
- George Williams, PE, PTOE,PTP, – Asst. State Engineer, ADOT
 - Multiple RSA Team experience; Traffic Safety, Operations, Ped, Bike, and Human Factors
- Kerry Wilcoxon, PE – State Traffic Safety Engineer, ADOT
 - Multiple RSA Team experience; Traffic Safety, Operations, Ped, Bike, and Human Factors
- Anissa Gerard - PhD, PE – Central Regional Traffic Engineer, ADOT
 - Traffic operations, safety, ped, bike, human factors, ADA and Freight experience
- Glen Robison – Law Enforcement Specialist, ADOT MVD
 - Expert Law Enforcement Perspective
- Susan Trask - Senior Division Administrator, ADOT MVD
- Bailey Smith - Engineer In Training, ADOT
- Daniel Oldham - Transportation Engineering Specialist, ADOT

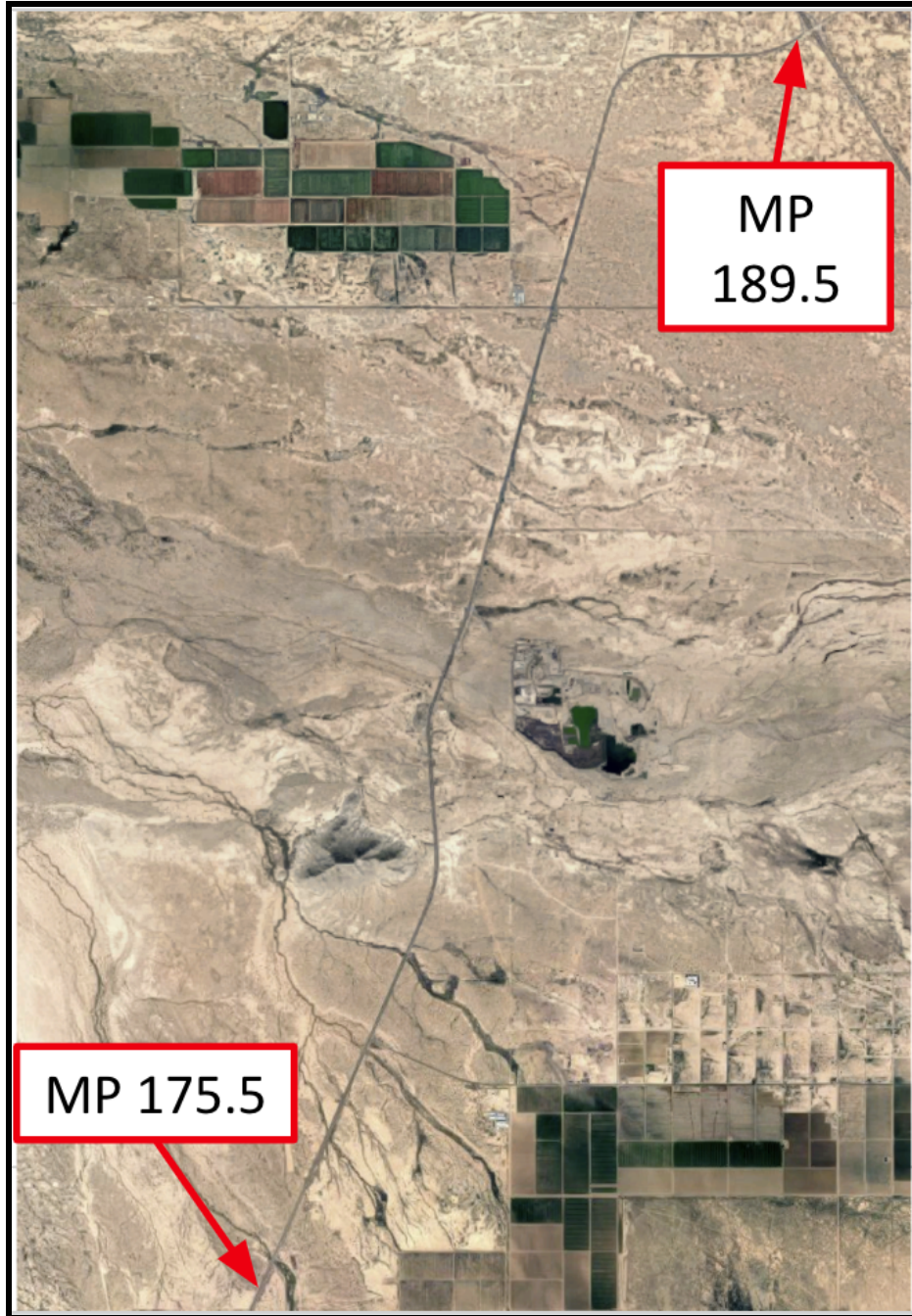
Owners

- TSMO: Anissa Gerard, Central Regional Traffic Engineering
- IDO/DE: Raul Amavisca, Central District

SR 347 MP 189.5-175.5
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Background and Data

SR 347 Segment Aerial Map



SR 347 MP 189.5-175.5 (I-10 to North End of Maricopa)

SR 347 Segment Crash Data (July 1, 2017 to June 30, 2022)

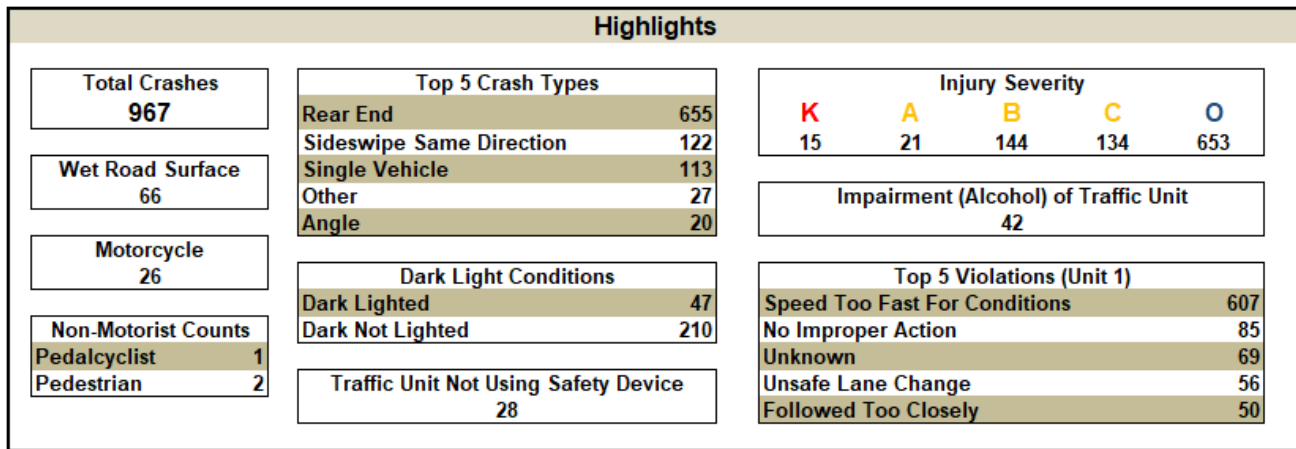
Statewide rank based on number of crashes:

The 2022 statewide review of high crash segments and intersections ranked SR 347 between MP 185-186 as #3 among segments.

Trends

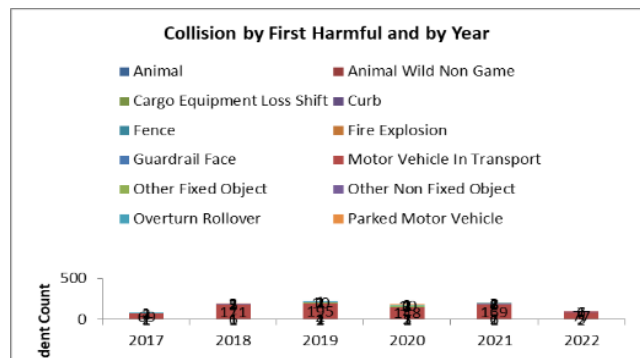
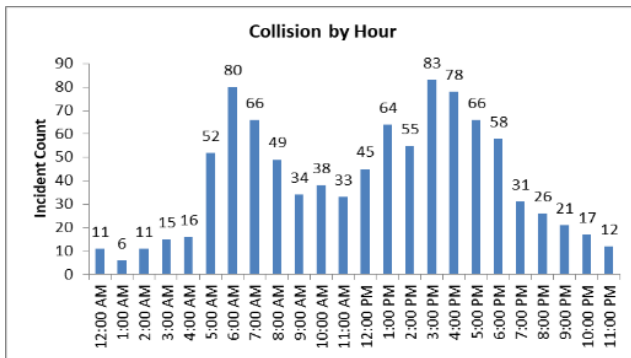
Primary Crash Types: Rear End (655 of 967)

Primary Crash Causes: Speed to Fast For Conditions (607 of 967)



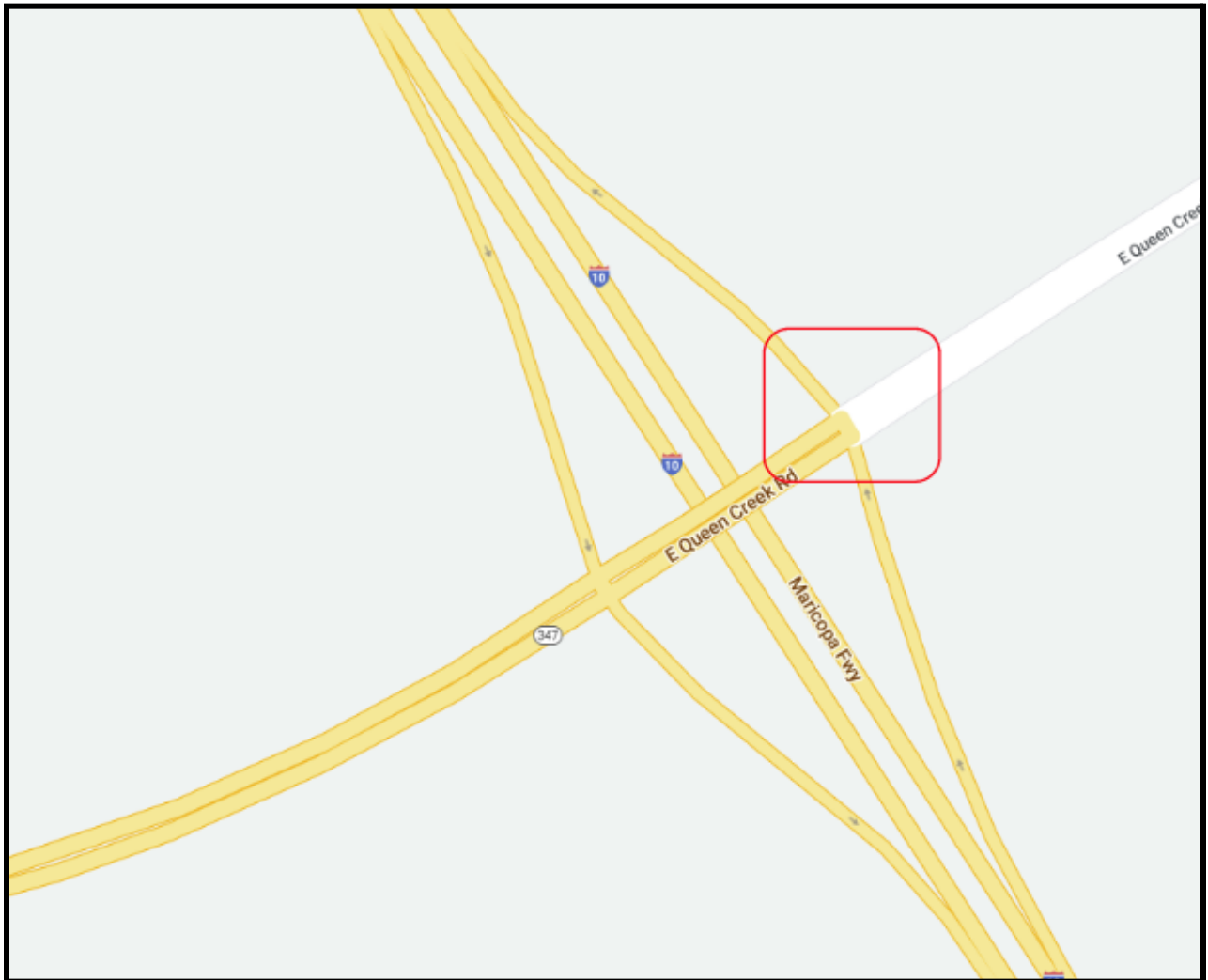
Injury Severity Description

K = Fatal, A = Suspected Serious Injury, B = Suspected Minor Injury, C = Possible Injury, O = No Injury



**SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)**

SR 347 and I-10 off/on Ramp East Side



SR 347 MP 189.5-175.5 (I-10 to North End of Maricopa)

SR 347 and I-10 off/on Ramp East Side Crash Data (July 1, 2017 to June 30, 2022)

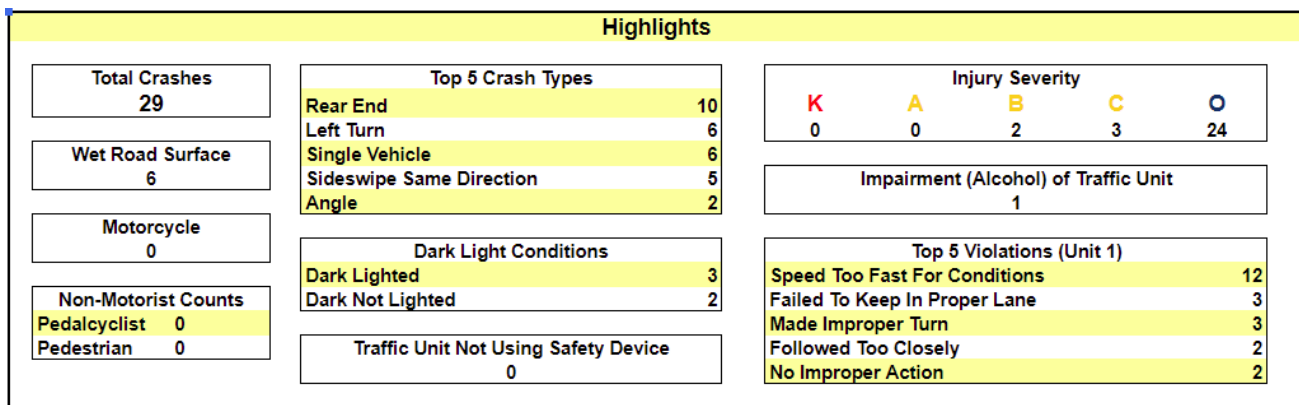
Statewide rank based on number of crashes:

This intersection is not ranked in the 2022 statewide review of high crash segments and intersections.

Trends

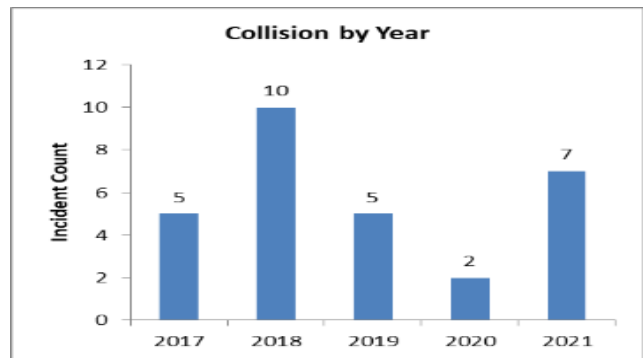
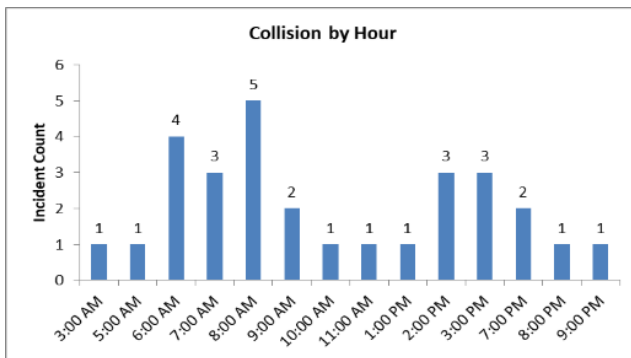
Primary Crash Types: Rear End (10 of 29)

Primary Crash Causes: Speed to Fast For Conditions (12 of 29)



Injury Severity Description

K = Fatal, A = Suspected Serious Injury, B = Suspected Minor Injury, C = Possible Injury, O = No Injury



**SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)**

SR 347 and I-10 off/on Ramp West Side



SR 347 MP 189.5-175.5 (I-10 to North End of Maricopa)

SR 347 and I-10 off/on Ramp West Side Crash Data (July 1, 2017 to June 30, 2022)

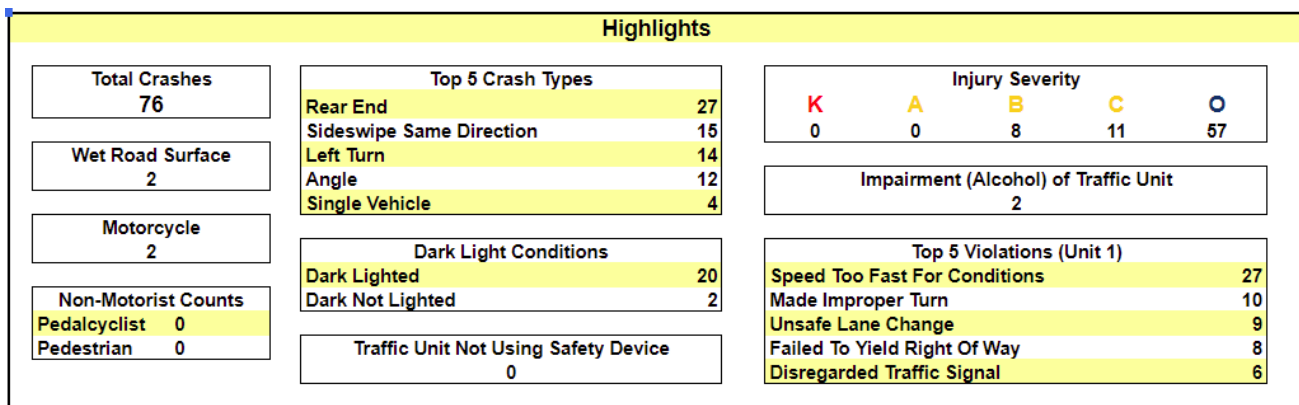
Statewide rank based on number of crashes:

This intersection is not ranked in the 2022 statewide review of high crash segments and intersections.

Trends

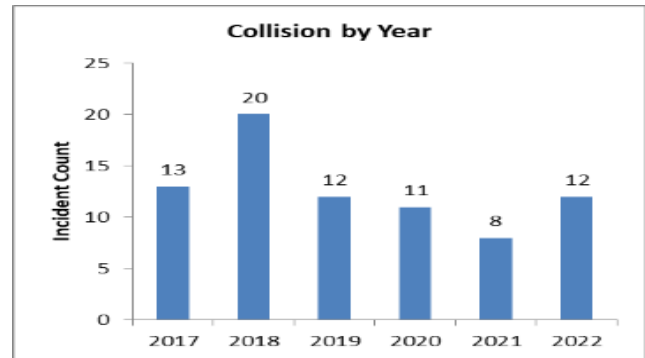
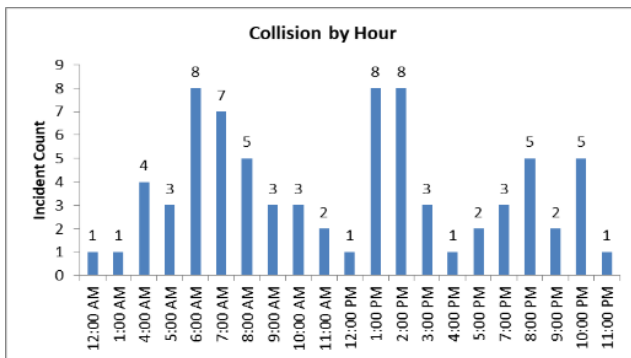
Primary Crash Types: Rear End (27 of 76)

Primary Crash Causes: Speed to Fast For Conditions (27 of 76)



Injury Severity Description

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**SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)**

SR 347 and Maricopa Rd. Aerial Map



SR 347 MP 189.5-175.5 (I-10 to North End of Maricopa)

SR 347 and Maricopa rd. Crash Data (July 1, 2017 to June 30, 2022)

Statewide rank based on number of crashes:

The 2022 statewide review of high crash segments and intersections ranked Old Maricopa intersection as #9 among non-signalized intersections prior to it becoming signalized.

Trends

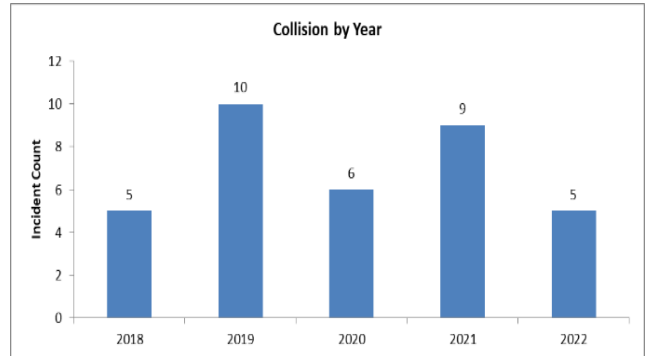
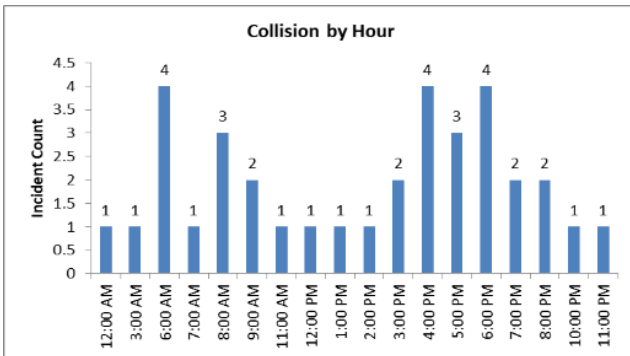
Primary Crash Types: Rear End (13 of 35)

Primary Crash Causes: Speed to Fast For Conditions (12 of 35)

Highlights																																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">Total Crashes</td></tr> <tr><td style="text-align: center;">35</td></tr> </table>	Total Crashes	35	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2" style="text-align: center;">Top 5 Crash Types</th></tr> <tr><td>Rear End</td><td style="text-align: right;">13</td></tr> <tr><td>Left Turn</td><td style="text-align: right;">9</td></tr> <tr><td>Angle</td><td style="text-align: right;">4</td></tr> <tr><td>Sideswipe Same Direction</td><td style="text-align: right;">4</td></tr> <tr><td>Single Vehicle</td><td style="text-align: right;">4</td></tr> </table>		Top 5 Crash Types		Rear End	13	Left Turn	9	Angle	4	Sideswipe Same Direction	4	Single Vehicle	4	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="5" style="text-align: center;">Injury Severity</th></tr> <tr><td style="text-align: center; color: red;">K</td><td style="text-align: center; color: orange;">A</td><td style="text-align: center; color: yellow;">B</td><td style="text-align: center; color: green;">C</td><td style="text-align: center; color: blue;">O</td></tr> <tr><td style="text-align: center;">1</td><td style="text-align: center;">2</td><td style="text-align: center;">5</td><td style="text-align: center;">6</td><td style="text-align: center;">21</td></tr> </table>		Injury Severity					K	A	B	C	O	1	2	5	6	21
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Injury Severity Description

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**SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)**

SR 347 and Riggs Rd. Aerial Map



SR 347 MP 189.5-175.5 (I-10 to North End of Maricopa)

SR 347 and Riggs Rd. Crash Data (July 1, 2017 to June 30, 2022)

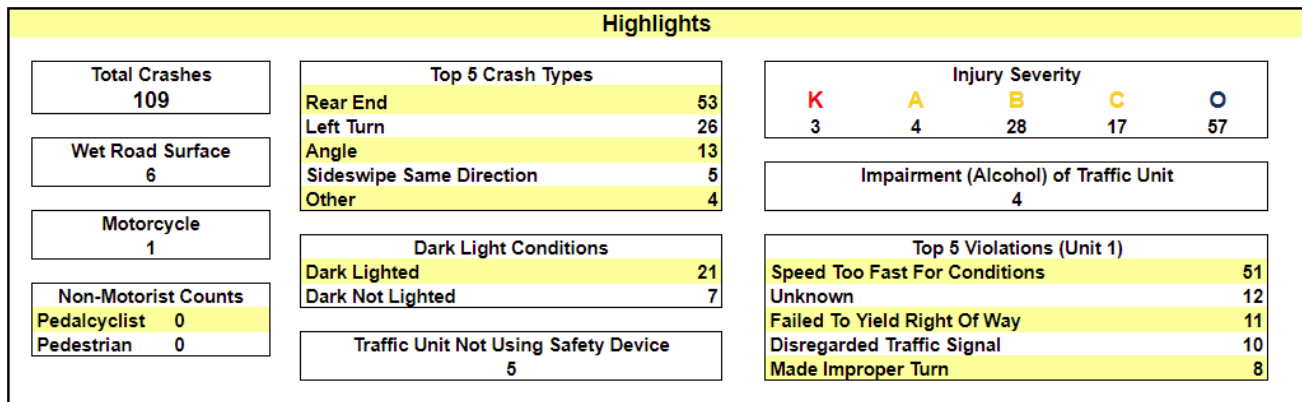
Statewide rank based on number of crashes:

The 2022 statewide review of high crash segments and intersections ranked Riggs Rd. as #4 among signalized intersections.

Trends

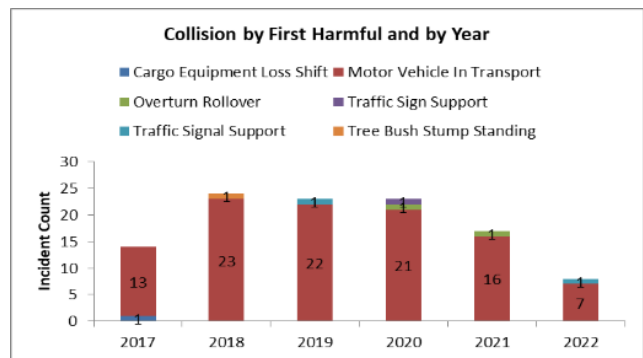
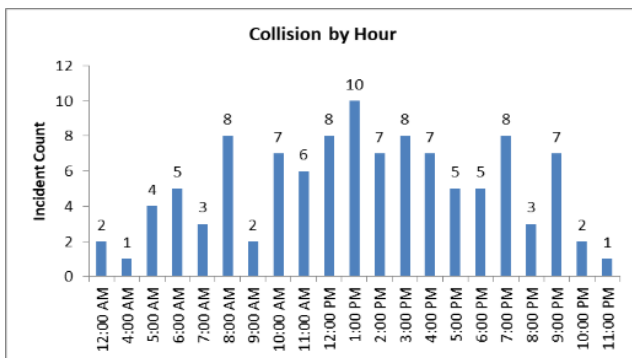
Primary Crash Types: Rear End (53 of 109)

Primary Crash Causes: Speed to Fast For Conditions (51 of 109)



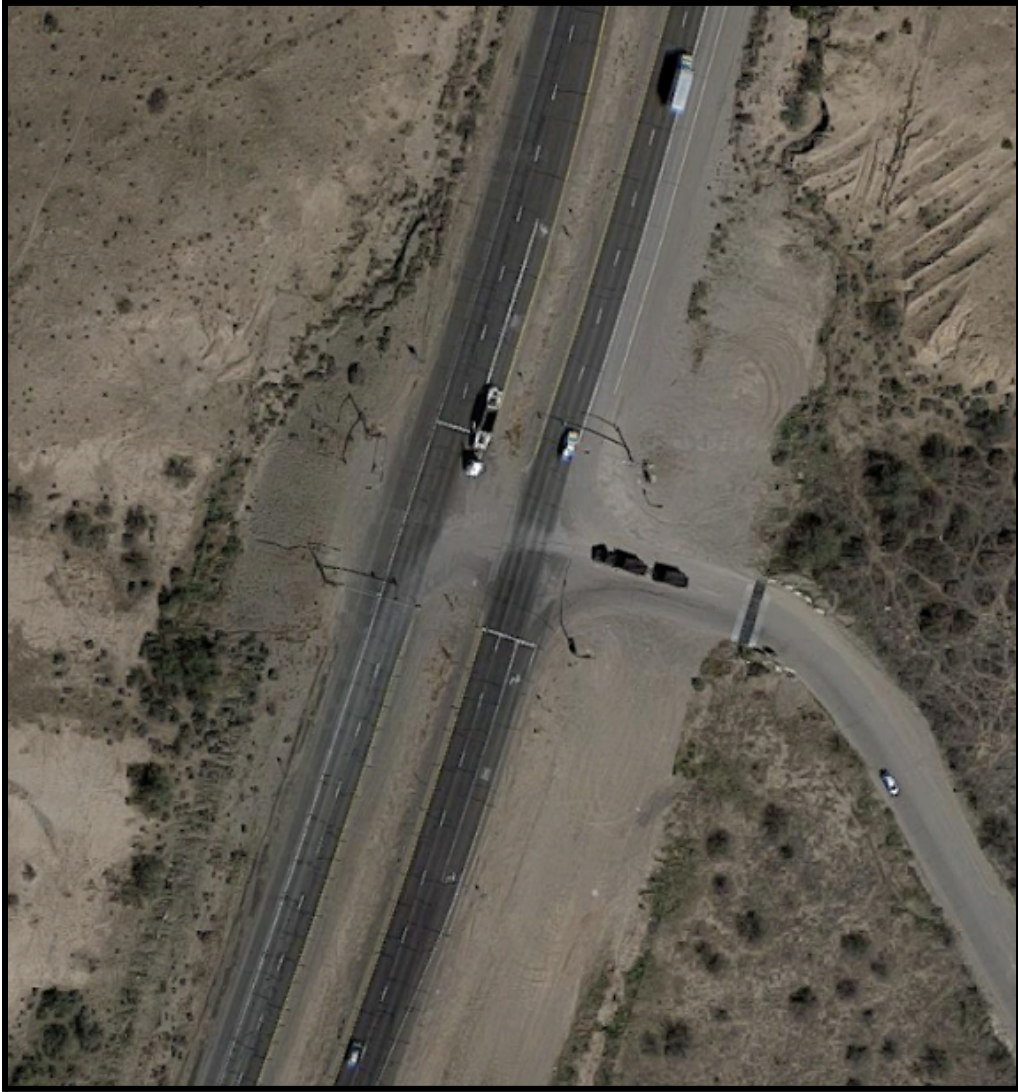
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**SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)**

SR 347 and Road to Concrete Plant Aerial Map



SR 347 MP 189.5-175.5 (I-10 to North End of Maricopa)

SR 347 and Road to Concrete Plant Crash Data (July 1, 2017 to June 30, 2022)

Statewide rank based on number of crashes:

This intersection is not ranked in the 2022 statewide review of high crash segments and intersections.

Trends

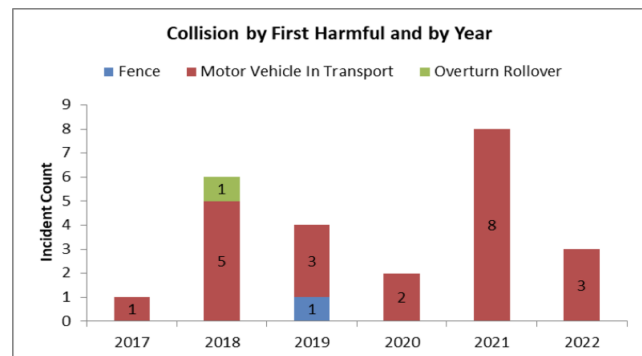
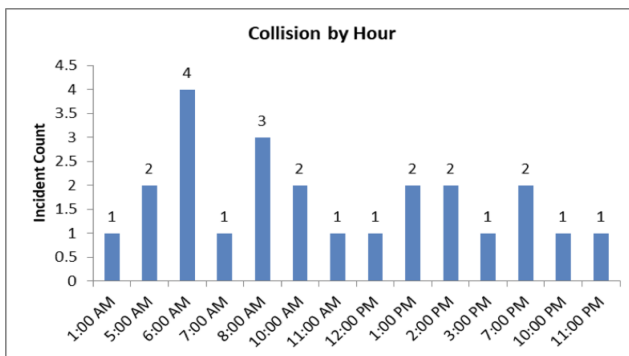
Primary Crash Types: Rear End (20 of 24)

Primary Crash Causes: Speed to Fast For Conditions (21 of 24)

Highlights																													
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">Total Crashes</td></tr> <tr><td style="text-align: center;">24</td></tr> </table>	Total Crashes	24	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2" style="text-align: center;">Top 5 Crash Types</th></tr> <tr><td>Rear End</td><td style="text-align: right;">20</td></tr> <tr><td>Single Vehicle</td><td style="text-align: right;">2</td></tr> <tr><td>Angle</td><td style="text-align: right;">1</td></tr> <tr><td>Sideswipe Same Direction</td><td style="text-align: right;">1</td></tr> </table>	Top 5 Crash Types		Rear End	20	Single Vehicle	2	Angle	1	Sideswipe Same Direction	1	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="5" style="text-align: center;">Injury Severity</th></tr> <tr><td style="text-align: center;">K</td><td style="text-align: center;">A</td><td style="text-align: center;">B</td><td style="text-align: center;">C</td><td style="text-align: center;">O</td></tr> <tr><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">2</td><td style="text-align: center;">4</td><td style="text-align: center;">18</td></tr> </table>	Injury Severity					K	A	B	C	O	0	0	2	4	18
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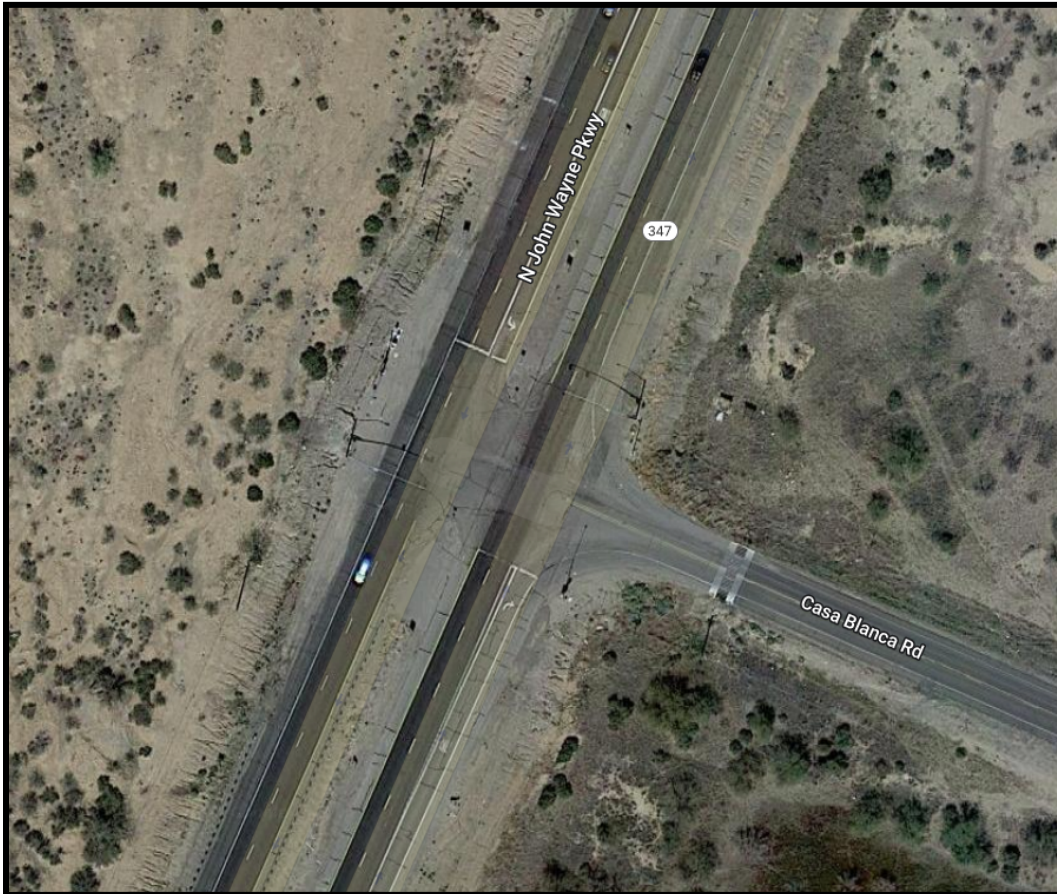
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SR 347 and Casa Blanca Rd. Aerial Map



SR 347 MP 189.5-175.5 (I-10 to North End of Maricopa)

SR 347 and Casa Blanca Rd. Crash Data (July 1, 2017 to June 30, 2022)

Statewide rank based on number of crashes:

This intersection is not ranked in the 2022 statewide review of high crash segments and intersections.

Trends

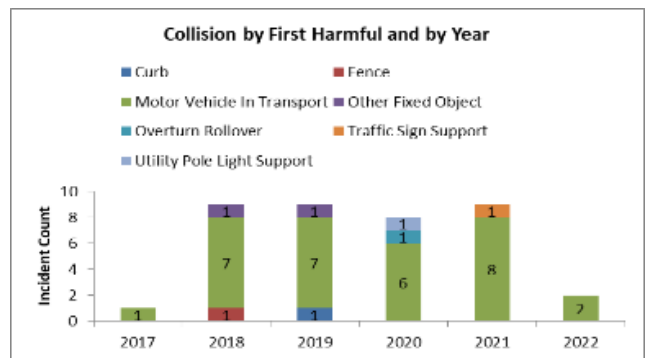
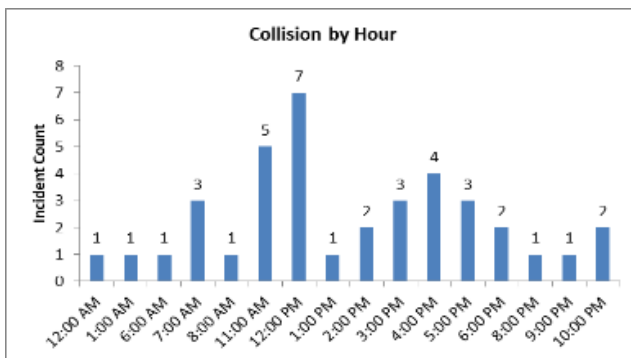
Primary Crash Types: Rear End (27 of 38)

Primary Crash Causes: Speed to Fast For Conditions (23 of 38)

Highlights																															
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<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">Motorcycle</td></tr> <tr><td style="text-align: center;">2</td></tr> </table>	Motorcycle	2	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2" style="text-align: center;">Traffic Unit Not Using Safety Device</th></tr> <tr><td></td><td style="text-align: right;">1</td></tr> </table>	Traffic Unit Not Using Safety Device			1	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2" style="text-align: center;">Top 5 Violations (Unit 1)</th></tr> <tr><td>Speed Too Fast For Conditions</td><td style="text-align: right;">23</td></tr> <tr><td>Followed Too Closely</td><td style="text-align: right;">5</td></tr> <tr><td>No Improper Action</td><td style="text-align: right;">5</td></tr> <tr><td>Unknown</td><td style="text-align: right;">3</td></tr> <tr><td>Drove Left Of Center Line</td><td style="text-align: right;">1</td></tr> </table>	Top 5 Violations (Unit 1)		Speed Too Fast For Conditions	23	Followed Too Closely	5	No Improper Action	5	Unknown	3	Drove Left Of Center Line	1											
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Pedestrian	0																														

Injury Severity Description

K = Fatal, A = Suspected Serious Injury, B = Suspected Minor Injury, C = Possible Injury, O = No Injury



SR 347 MP 189.5-175.5 (I-10 to North End of Maricopa)

Field Observations and RSA Team Discussion

The potential countermeasures, observations and brainstorm ideas are also shown in the aerial image on the following pages.

General Ideas, Discussion, Brainstorms, and Preliminary maps, not recommendations

- Speeding/requests to slow speeds along the corridor
- Limited capacity, few alternatives and long traffic delays when crashes occur
- Discussion regarding additional enforcement
- Discussion regarding advance signal warning signs with flashers
- Discussion regarding speed feedback signs
- Discussion regarding cattle guard removal
- Discussion regarding reflective signal head back plates

SR 347 MP 189.5-175.5 Segment

- Need for more lanes at intersections
- Existing Speed Limit changes may not be helpful
- Signal timing could be adjusted to better handle AM/PM peaks

SR 347 MP and I-10 off/on Ramp East Side

- Stop bar location does not provide adequate sight distance
- Paint striping faded in some areas
- Traffic is flowing well
- Vegetation could cause sight distance issues
- Need to discourage lane changing on intersection approach

SR 347 MP and I-10 off/on Ramp West Side

- Stop bar location does not provide adequate sight distance
- Paint striping faded in some areas
- Vegetation could cause sight distance issues
- Need to discourage lane changing on intersection approach

SR 347 MP and Maricopa Rd

- Intersection is a “Florida T” model
- Additional signage/striping needed to inform drivers of traffic patterns
- Need to discourage lane changing on intersection approach

SR 347 MP 189.5-175.5 (I-10 to North End of Maricopa)

SR 347 MP and Riggs Rd

- Stop bar location does not provide adequate sight distance
- PED crossing equipment already on site but not operational
- Riggs Rd is an exercise bicycle route connecting Queen Creek to south Phoenix, bicycle detection not present
- Paint striping faded in some areas
- Traffic movement/timing could be improved to increase capacity
- Need to discourage lane changing on intersection approach

SR 347 MP and Road to Concrete Plant

- Significant amount of heavy truck traffic
- Scuff marks on signal poles denoting clearance issues
- Paint striping faded in some areas
- Acceleration does not appear to be adequate for heavy truck merger to SR-347
- Traffic movement/timing could be improved to increase capacity
- Need to discourage lane changing on intersection approach

SR 347 MP and Casa Blanca Rd

- Stop bar location does not provide adequate sight distance
- Paint striping faded in some areas
- Traffic movement/timing could be improved to increase capacity
- Placement of Do Not Enter signs needs adjustment
- Plate for electrical access missing on SEC signal pole
- Need to discourage lane changing on intersection approach

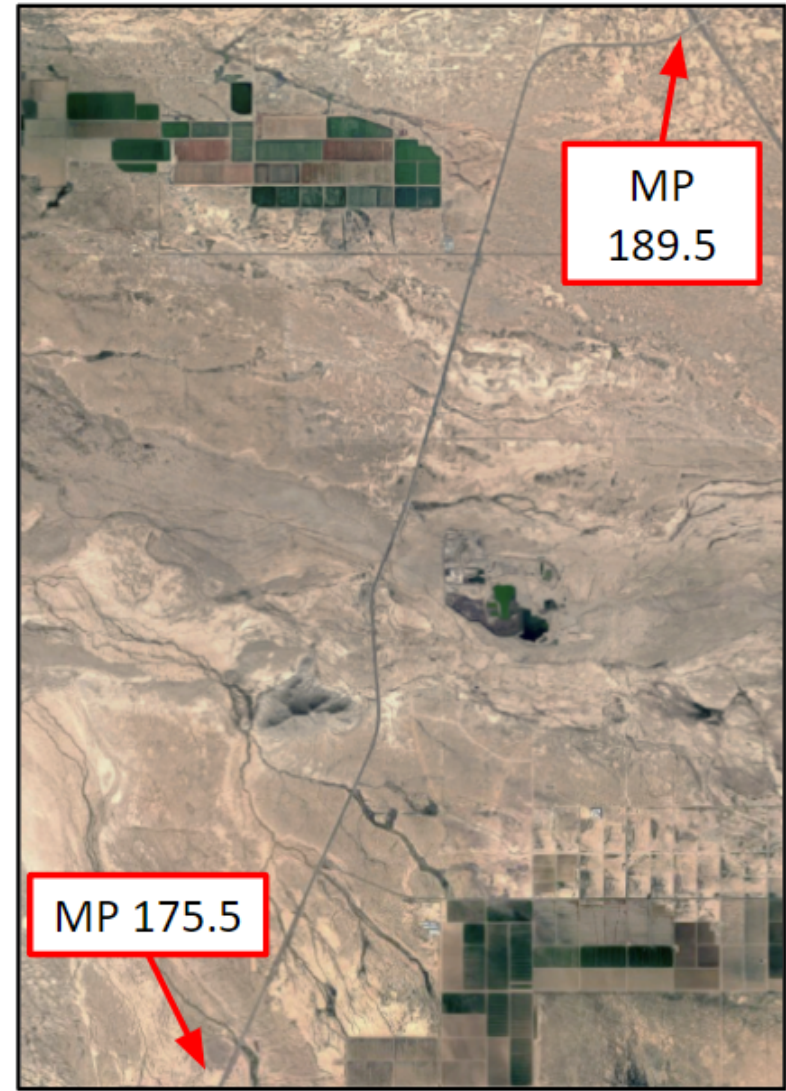
SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)

Countermeasure Diagram

SR 347 MP 175.5-189.5 Segment

SR 347 MP 175.5-189.5

1. Evaluate intersection restriping to add lanes
2. Evaluate Speed Limit change at Intersections (perform Speed Study)
3. Evaluate corridor signal timing to improve arrival on green especially during AM/PM peak
4. Evaluate Dynamic signal warning lights prior to the intersections
5. Reflective backplates at intersections
6. Crossovers for incident management
7. Increased enforcement to reduce speeding



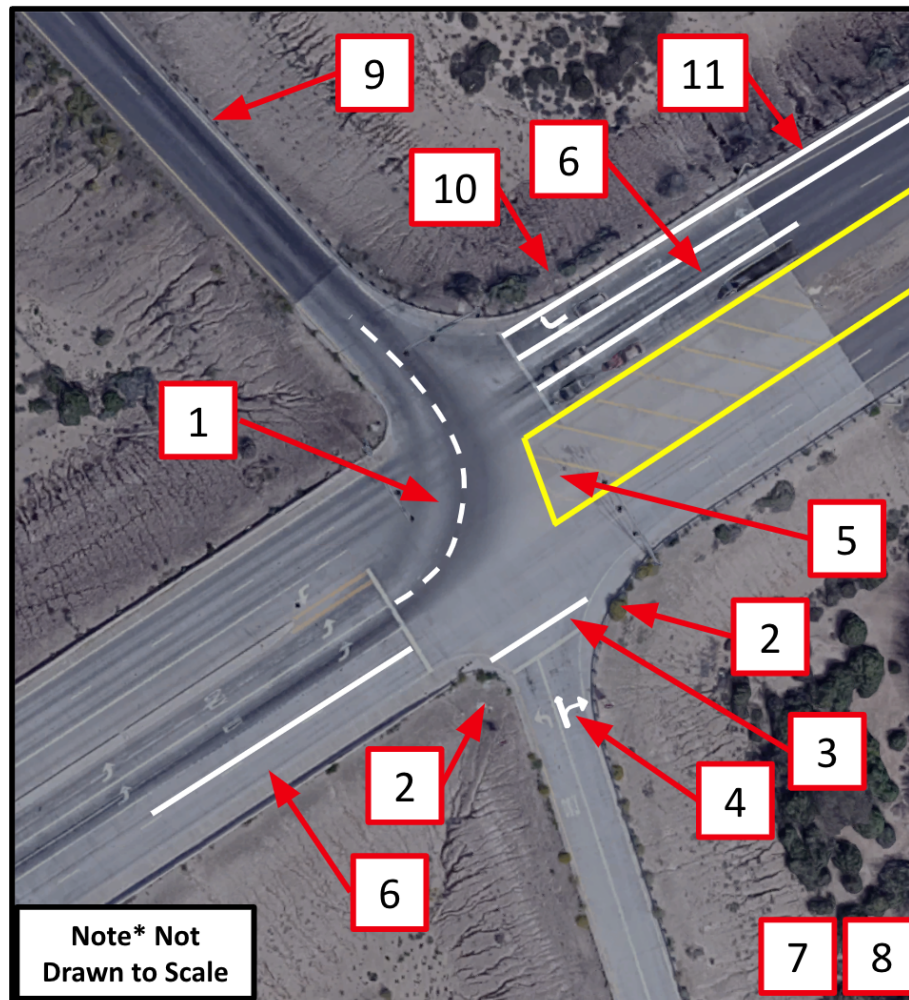
SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)

Countermeasure Diagram

SR 347 and I-10 off/on Ramp (East Side)

SR 347 and I-10 off/on Ramp
(East Side)

1. Restripe cat tracks for LT onto WB I-10
2. Clear vegetation around intersection for sight distance
3. Move up stop bar
4. Add through and RT stencil consider second through or second RT
5. Adjust median to prevent wrong way turns (but must be cautious to through traffic)
6. Solid Lane Line on Approach
7. Evaluate exit ramps advisory speeds
8. Consider installation of WWD activated driver warning signs
9. Move up the merge sign
10. Consider Overhead Lane Assignment for Queen Creek rd. WB
11. Extend WB(SB) Queen Creek rd. right turn lane onto I-10 WB



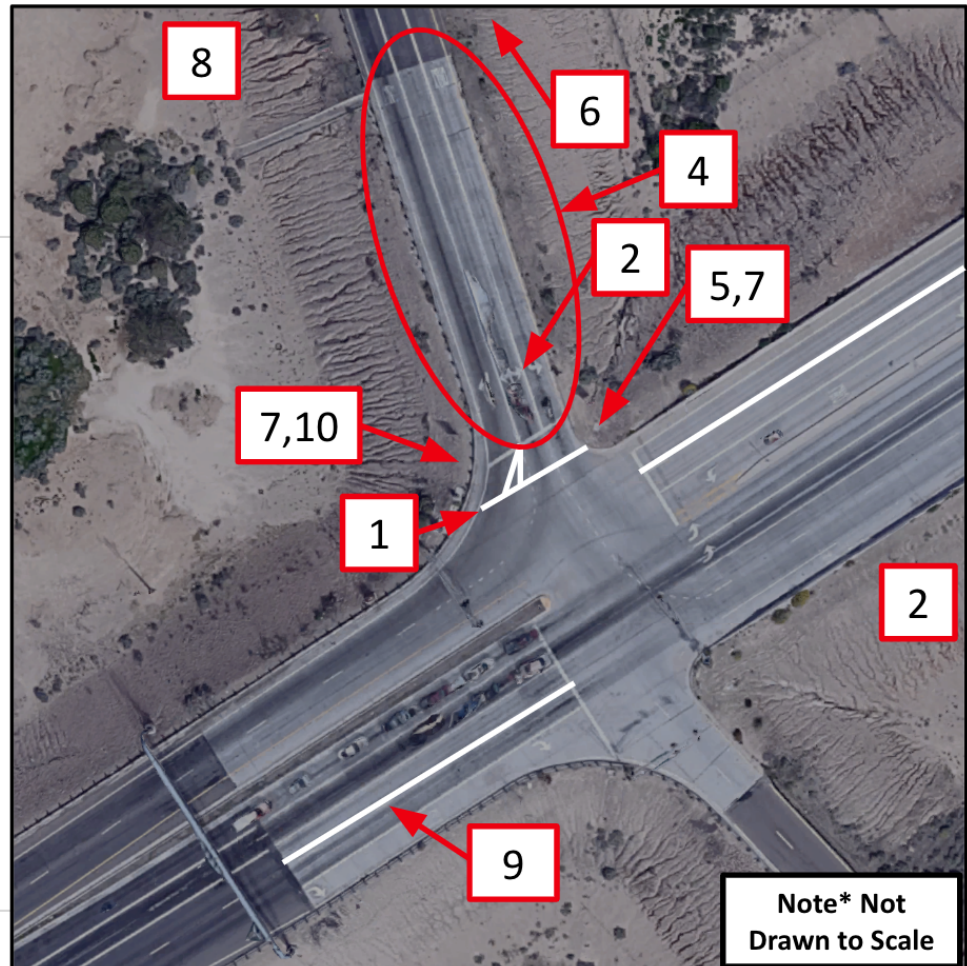
SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)

Countermeasure Diagram

SR 347 and I-10 off/on Ramp (West Side)

SR 347 and I-10 off/on Ramp
(West Side)

1. Pull up stop bar and insert carrot for RT from off-ramp
2. Refresh striping
3. Evaluate lane configuration based on volumes (single LT only?)
4. Long term-widen off ramp to four full length lane approach to intersection from off-ramp
5. Vegetation needs clearing
6. Evaluate extending 3 lanes further back
7. Evaluate exit advisory speeds
8. Consider installation of WWD activated driver warning signs
9. Solid Lane Lines on approach
10. Angle the Wrong Way Sign to be 1st thing headlights for SR 347 drivers



SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)

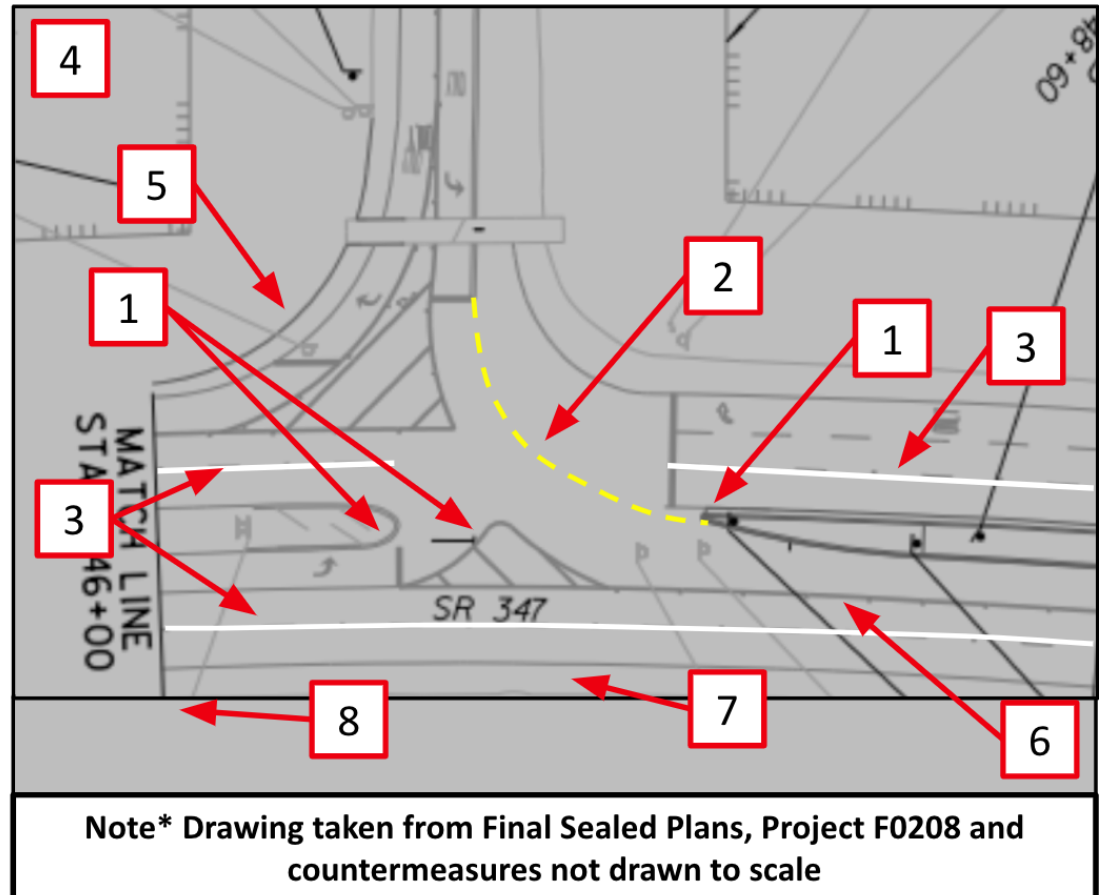
Countermeasure Diagram
SR 347 and Maricopa Rd.

SR 347 and Maricopa Rd.

1. Fix striped out medians to make more clear, proper chevron striping or solid (short term)
2. Add cat tracks to LT from Maricopa to SR 347 NB
3. Solid lane lines on approach
4. Consider converting to standard signalized intersection from current Florida T intersection
5. Consider making RT slip RT lane (convert to free flow RT)

If current configuration continues:

6. Consider adding vertical/rolled curb island to provide improved guidance (longer term)
7. Add signs indicating eastbound traffic does not stop for left turns
8. Add signs for eastbound traffic indicating left turning traffic

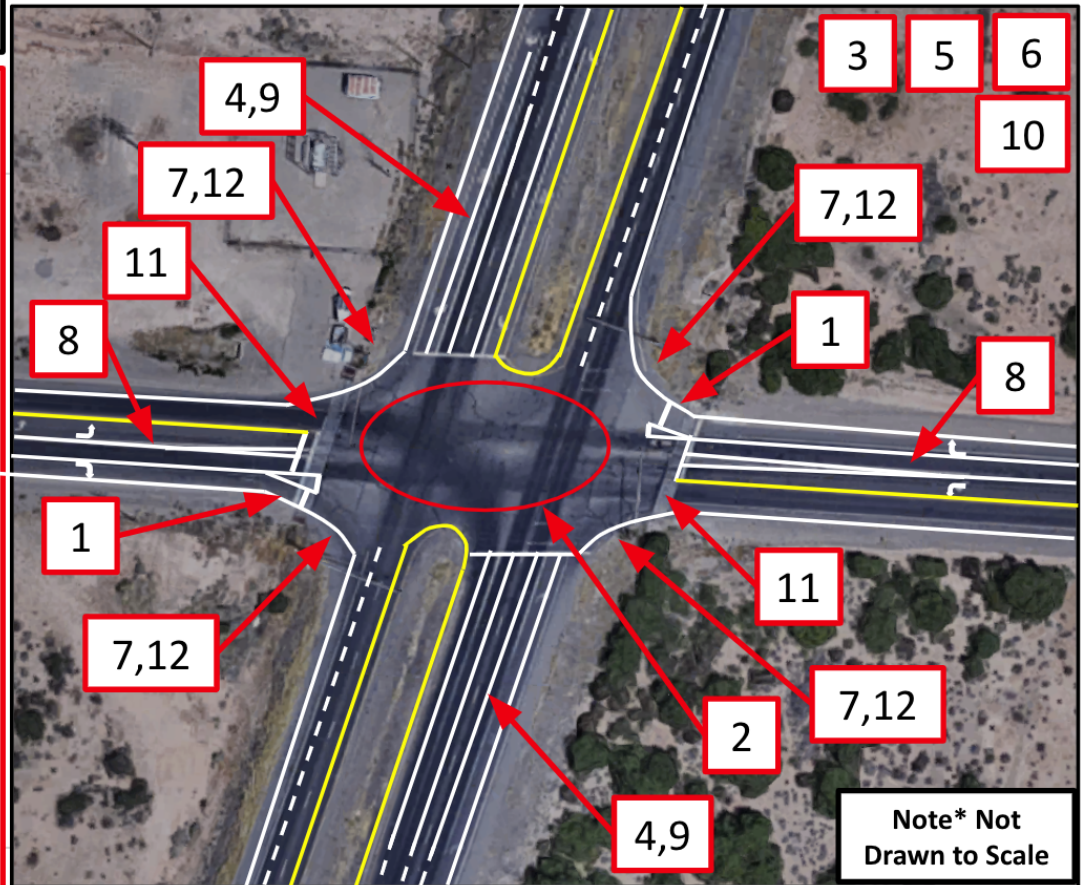


SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)

Countermeasure Diagram
SR 347 and Riggs Rd.

SR 347 and Riggs Rd.

1. Move stop bar up and insert carrot for RT
2. Add cat tracks through the intersection
3. Refresh striping
4. Solid lane lines on approach
5. Consider changing LT movement to protected only from Riggs
6. Consider eliminating speed limit drops prior to intersection
7. Install Bike Detection on Riggs
8. Add E/W RT bay to improve capacity more green time to 347
9. Evaluate three through lanes N/S w restripe only. (short term)
10. Grade separation per MAG plan (Long term)
11. Evaluate the continued need for the cattle guard
12. Consider activating PED devices and bike detection at intersection



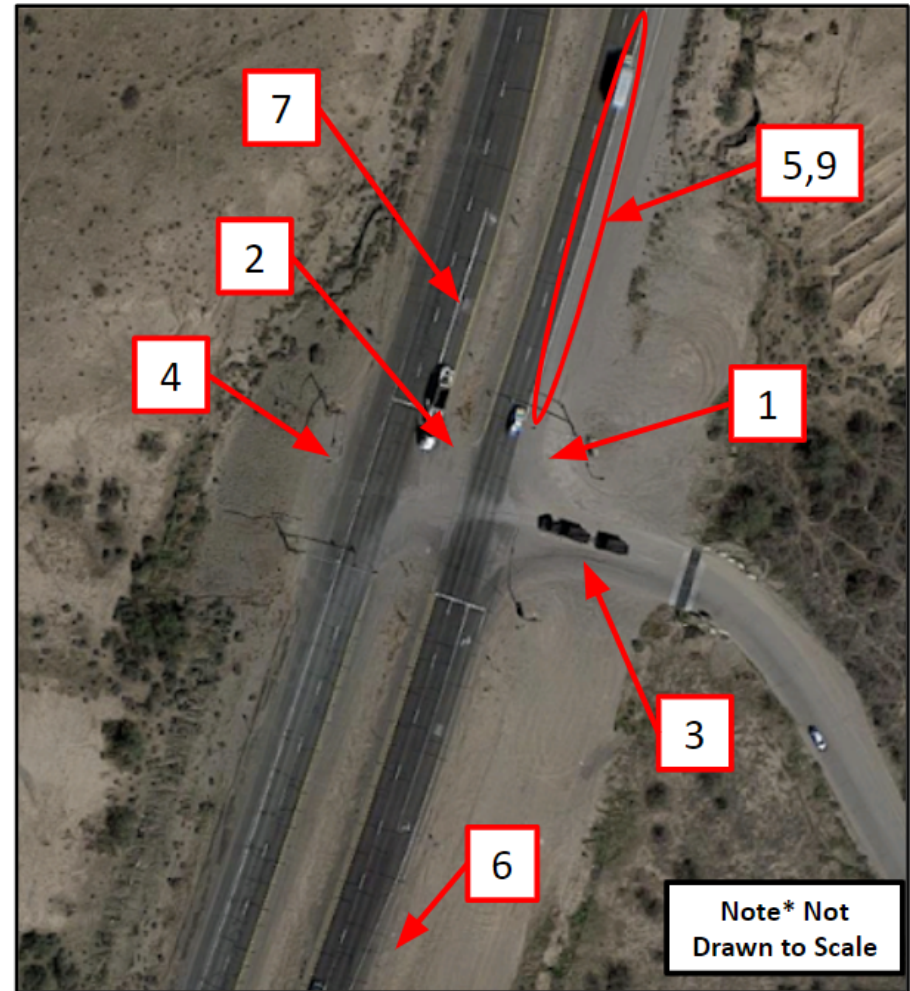
SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)

Countermeasure Diagram

SR 347 and Road to Concrete Plant

SR 347 and Road to Concrete Plant

1. Repave curve radius to improve clearance with signal equipment
2. Paint median nose
3. Clean and restripe side street approach to add lanes to increase green time for 347
4. Change one way sign to double yellow
5. Acceleration lane needs to be extended
6. Add "Trucks Entering Highway" sign
7. Evaluate signal timing and LT storage to plant
8. Evaluate LT options (Positive LT offset, Protected only, Other options)
9. Add merge sign for acceleration lane

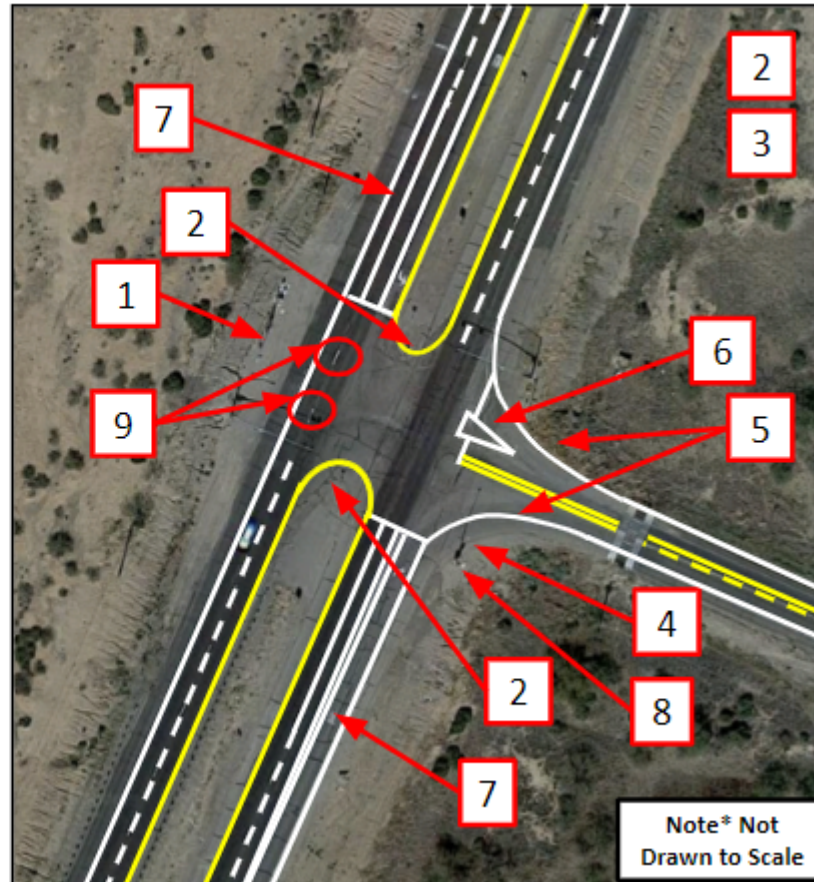


SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)

Countermeasure Diagram
SR 347 and Casa Blanca Rd.

SR 347 and Casa Blanca Rd.

1. Remove OW sign and Add W4-7 double arrow sign
2. Refresh striping and Replace RPMs (intersection)
3. Repave section (intersection)
4. Move back DNE sign from sign post or angle so only visible from LT Casa Blanca
5. Restripe edge lines on Casa Blanca
6. Paint out a carrot for RT from Casa Blanca and adjust stop bar location
7. Solid lane lines on approach
8. Missing access plate on SEC signal pole
9. Remove skips from intersection
10. Evaluate 3 through lanes on 347 at intersection through restripe
11. Evaluate LT options (Positive LT offset, Protected only, Other options)



**SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)**

Recommended Countermeasures and Response Table

Based on the above crash information and the field observations made at the site, the RSA team recommends the countermeasures shown in the following tables.

Location: SR 347 MP 189.5-175.5		Observers: RSA Team (see page 17 for details)			Date: January 24, 2023
SR 347 MP 189.5 - 175.5 Segment (Page 20)					
Issues/Trends		Potential Countermeasures	Implementation Plan	Ownership	Initials
1.	Capacity	Evaluate intersection restriping to add lanes	Agree, will evaluate	CRTE	AG
2.	Safety/Capacity	Evaluate Speed Limit change at Intersections (perform Speed Study)	Agree, will evaluate	CRTE	AG
3.	Capacity	Continue to monitor corridor signal timing to improve arrival on green especially during AM/PM peak	Agree, will evaluate	CRTE/ SM	AG
4.	Safety	Evaluate flashing signal warning signs with beacons prior to the intersection	These are for limited sight distance locations. Review in context of draft TGP	CRTE	AG
5.	Signal Visibility	Reflective backplates at intersections	Review in context w current ADOT pilot evaluation	CRTE/ SM	AG
6.	Safety/Capacity	Crossovers for incident management	Request possible short term project and/or inclusion into the current corridor project	CRTE	AG
7.	Speeding	Increased enforcement to reduce speeding	Will request increased enforcement through upper management for law enforcement	CRTE	AG

**SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)**

SR 347 MP and I-10 off/on Ramp East Side (Page 21)					
Issues/Trends		Potential Countermeasures	Implementation Plan	Ownership	Initials
1.	Traffic Flow	Restripe cat tracks for LT onto WB I-10	Agree, work order	CRTE	AG
2.	Sight Distance	Clear vegetation around intersection for sight distance	Agree to coordinate w the district	District	AG
3.	Sight Distance	Move up stop bar	Agree, work order	CRTE	AG
4.	Traffic flow	Add through and RT stencil consider second through or second LT	Agree, work order	CRTE	AG
5.	Safety	Adjust median striping to prevent wrong way turns (but must be cautious to through traffic)	Agree, work order	CRTE	AG
6.	Safety	Solid Lane Line on Approach	Agree, work order	CRTE	AG
7.	Safety	Evaluate exit ramps advisory speeds	Agree, will evaluate	CRTE	AG
8.	Safety	Consider installation of WWD activated driver warning signs	Consider as part of overall WWD program and ITS master plan or part of larger project. Will coordinate w SM	SM	AG
9.	Traffic flow	Move up the merge sign	Agree, work order	CRTE	AG
10.	Traffic flow	Consider Overhead Lane Assignment for Queen Creek rd. WB	Consider as part of larger project	CRTE	AG
11.	Capacity	Extend WB(SB) Queen Creek Rd. right turn lane onto I-10 WB	Consider as part of larger project	CRTE/District	AG

**SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)**

SR 347 MP and I-10 off/on Ramp West Side (Page 22)					
Issues/Trends		Potential Countermeasures	Implementation Plan	Ownership	Initials
1.	Sight Distance	Pull up stop bar and insert carrot for RT from off-ramp	Agree, work order	CRTE	AG
2.	Safety	Refresh striping	Agree, work order	CRTE	AG
3.	Capacity	Evaluate lane configuration based on volumes (possible single LT only)	Agree, will evaluate	CRTE	AG
4.	Capacity	Long term-widen off ramp to four full length lane approach to intersection from off-ramp	Consider as part of larger project	CRTE	AG
5.	Sight Distance	Vegetation needs clearing	Will coordinate w the district	District	AG
6.	Capacity	Evaluate extending 3 lanes further back through striping	Agree, will evaluate	CRTE	AG
7.	Safety	Evaluate exit advisory speeds	Agree, will evaluate	CRTE	AG
8.	Safety	Consider installation of WWD activated driver warning signs	Consider as part of overall WWD program and ITS master plan or part of larger project. Will coordinate w SM	SM	AG
9.	Safety	Solid Lane Lines on approach	Agree, work order	CRTE	AG
10.	Safety	Adjust angle of WWD Sign	Agree, work order	CRTE	AG

**SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)**

SR 347 and Maricopa Rd. (Page 23)					
Issues/Trends		Potential Countermeasures	Implementation Plan	Ownership	Initials
1.	Traffic flow	Fix striped out medians to make more clear, proper chevron striping or solid (short term)	Agree, work order	CRTE	AG
2.	Safety	Add cat tracks to LT from Maricopa to SR 347 NB	Agree, work order	CRTE	AG
3.	Safety	Solid lane lines on approach	Agree, work order	CRTE	AG
4.	Misc.	Consider converting to standard signalized intersection from current Florida T intersection	Agree, will evaluate	CRTE	AG
5.	Misc.	Consider making RT slip RT lane (convert to free flow RT) or clarify stop location	Agree, will evaluate	CRTE	AG
If current conflicts continue, possible phase 2 options:					
6.	Safety	Consider adding vertical/rolled curb island to provide improved guidance (longer term)	Agree, will evaluate	CRTE	AG
7.	Safety	Add signs indicating eastbound traffic does not stop for left turns	Agree	CRTE	AG
8.	Safety	Add signs for eastbound traffic indicating left turning traffic	Agree	CRTE	AG

**SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)**

SR 347 and Riggs Rd. (Page 24)					
Issues/Trends		Potential Countermeasures	Implementation Plan	Ownership	Initials
1.	Sight Distance	Move stop bar up and insert carrot for RT	Agree, work order	CRTE	AG
2.	Safety	Add cat tracks through the intersection	Agree, work order	CRTE	AG
3.	Safety	Refresh striping	Agree, work order	CRTE	AG
4.	Safety	Solid lane lines on approach	Agree, work order	CRTE	AG
5.	Capacity	Consider changing LT movement to protected only from Riggs	Agree, will evaluate	CRTE	AG
6.	Safety	Consider eliminating speed limit drops prior to intersection	Agree, will evaluate	CRTE	AG
7.	Safety	Install Bike Detection on Riggs	Disagree, our system should already have this capability evaluate in context of bike lane TGP	CRTE/SM	AG
8.	Capacity	Restripe Riggs to add E/W RT bays on the shoulder to improve capacity & provide more green time to 347	Agree, will evaluate	CRTE	AG
9.	Capacity	Evaluate three through lanes N/S w restripe only. (short term)	Agree, will evaluate	CRTE	AG
10.	Safety/Capacity	Grade separation per MAG plan (Long term)	Agree	CRTE	AG
11.	Misc.	Evaluate the continued need for the cattle guard	Agree, will evaluate w District	CRTE	AG
12.	Misc.	Consider activating PED devices and bike detection at intersection	Agree, this will be done with intersection reconstruction	CRTE	AG

**SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)**

SR 347 and Road to Concrete Plant (Page 25)					
Issues/Trends		Potential Countermeasures	Implementation Plan	Ownership	Initials
1.	Traffic flow	Repave curve radius to improve clearance with signal equipment	Will coordinate w District or P2P	District	AG
2.	Safety	Paint median nose	Agree, work order	CRTE	AG
3.	Capacity	Clean and restripe side street approach to add lanes to increase green time for 347	Agree, work order	CRTE	AG
4.	Safety	Change one way sign to double yellow	Agree, work order	CRTE	AG
5.	Safety	Acceleration lane needs to be extended	Will coordinate w District or P2P	District	AG
6.	Safety	Add "Trucks Entering Highway" sign	Agree, work order	CRTE	AG
7.	Capacity	Evaluate signal timing and LT storage to plant	Agree, will evaluate	CRTE	AG
8.	Capacity	Evaluate LT options (Positive LT offset, Protected only, Other options)	Agree, will evaluate	CRTE	AG
9.	Safety	Add merge sign for acceleration lane	Agree, work order	CRTE	AG

**SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)**

SR 347 and Casa Blanca Rd. (Page 26)					
Issues/Trends		Potential Countermeasures	Implementation Plan	Ownership	Initials
1.	Safety	Remove OW sign and Add W4-7 double arrow sign	Agree, work order	CRTE	AG
2.	Safety	Refresh striping and Replace RPMs	Agree, work order	CRTE	AG
3.	Misc.	Repave section (intersection)	Will coordinate w District or P2P	District	AG
4.	Safety	Move back DNE sign from sign post or angle so only visible from LT Casa Blanca	Agree, work order	CRTE	AG
5.	Traffic flow	Restripe edge lines on Casa Blanca	Agree, work order	CRTE	AG
6.	Sight Distance	Move stop bar forward and add RT carrot	Agree, work order	CRTE	AG
7.	Safety	Solid lane lines on approach	Agree, work order	CRTE	AG
8.	Misc.	Missing access plate on SEC signal pole	Will coordinate w SM	SM	AG
9.	Safety	Remove skips from intersection	Agree, work order	CRTE	AG
10.	Capacity	Evaluate 3 through lanes on 347 at intersection through restripe	Agree, will evaluate	CRTE	AG
11.	Capacity	Evaluate LT options (Positive LT offset, Protected only, Other options)	Agree, will evaluate	CRTE	AG

Summary

- The root cause of the rear end crashes and congestion is related to the capacity constraints of the corridor and in particular the capacity constraints at the six signalized intersections.

SR 347 MP 189.5-175.5
(I-10 to North End of Maricopa)

- Short term: Striping improvements are being evaluated by the regional traffic engineer, the ADOT maintenance district, and the systems maintenance group to try to improve the near-term capacity by adding turn lanes in the shoulder areas. Pavement conditions and geometrics will need to be further analyzed.
- Short term: Signal timing has been adjusted and will continue to be monitored along the corridor. It is important to note that signal timing is more of a fine tuning element compared to adding lanes and intersection striping modifications and design.
- Long term: Rebuild intersections with either grade separation or additional lanes as determined through the MAG corridor study and associated design efforts.
- Request enforcement to address the high-end speeding. Speed studies may also be performed to determine the appropriate legal speed limit along the entire corridor to try to reduce differentials in speeds which can help with driver expectation, frustration, compliance and safety.
- Driver speed feedback signs have not been found to be effective especially long-term with commute corridors and therefore are not recommended at this time.
- Advanced signal warning signs with flashers are typically used for locations where sight distance to the signals is limited. In this case the sight distance to the signals is very good and therefore advanced signs are not recommended. The approaches to each signal should be evaluated in context of the conditions, the ADOT guidelines and the MUTCD.
- Reflective signal head back plates are currently being evaluated through a pilot study and will be considered through that process in the future if a definitive benefit can be shown.
- Provide education through communication as this is a high commuter traffic corridor with many residents within the City of Maricopa area. This effort could be coordinated between ADOT, MAG, the GRIC, the Ak-Chin Indian Community and the City of Maricopa.
- Median crossover emergency diversion lanes will be further evaluated through a project review process by the ADOT, MAG and the GRIC.
- Cattle guards did not appear to have a significant impact on driver behavior or crashes. However, the Regional Traffic Engineer (RTE) will work with the district to determine if project improvements can be made in the short or long term.