

WRONG-WAY CRASH STUDY INTERSTATES AND FREEWAYS CALENDAR YEAR 2014



September 2016

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Wrong-Way Crash Study Calendar Year 2014

Act 641 of the 87th Arkansas General Assembly requires the Arkansas State Highway and Transportation Department (AHTD) to analyze all wrong-way crashes on the Interstates and other freeways with full control of access and to prepare an annual report. Furthermore, the Act requires that based on the findings in the report, the AHTD is to implement appropriate countermeasures when warranted to reduce the possibility of wrong-way crashes. Accordingly, Minute Order 2009-035 was adopted by the Arkansas State Highway Commission on February 25, 2009. This Minute Order authorized an annual analysis of wrong-way crashes on these routes to determine if additional traffic control devices are warranted. Copies of Act 641 and Minute Order 2009-035 are shown in Appendices A and B respectively.

An annual analysis of wrong-way crashes identifies the locations to be investigated. The investigation consists of reviewing the signing and striping for compliance with the minimum requirements of the Manual on Uniform Traffic Control Devices (MUTCD) as well as compliance with current AHTD signing practices. The minimum requirements as specified in Section 2B.41 of the MUTCD 2009 Edition include the following:

1. At least one “ONE WAY” sign for each direction of travel on the crossroad shall be placed where the exit ramp intersects the crossroad.
2. At least one “DO NOT ENTER” sign shall be conspicuously placed near the downstream end of the exit ramp in positions appropriate for full view of a road user starting to enter wrongly from the crossroad.
3. At least one “WRONG WAY” sign shall be placed on the exit ramp facing a road user traveling in the wrong direction.

Current AHTD practice is to install the minimum required signs and markings from the MUTCD plus additional optional signs and markings (see Figure 1). Current AHTD practice also includes the installation of oversized signs as shown in Table 2B-1 in the MUTCD. This practice enhances the conspicuity of the signage and provides added protection to ensure that the minimum required signage is in place should one of the sign assemblies be damaged or destroyed.

The analysis of 2014 crash data showed that eight wrong-way crashes occurred on the Interstates and other freeways with full control of access in 2014 (see Figure 2). The crash analysis was conducted on only those crashes that involved a vehicle entering or traveling in the wrong direction on the controlled access facility. Crossover crashes were not included. These crashes are summarized in Table 1 whereas Table 2 shows a comparison of the 2014 wrong-way crashes with 2012 and 2013.

Following the crash analysis, an investigation of the locations where the wrong-way crashes occurred was completed in August 2016.

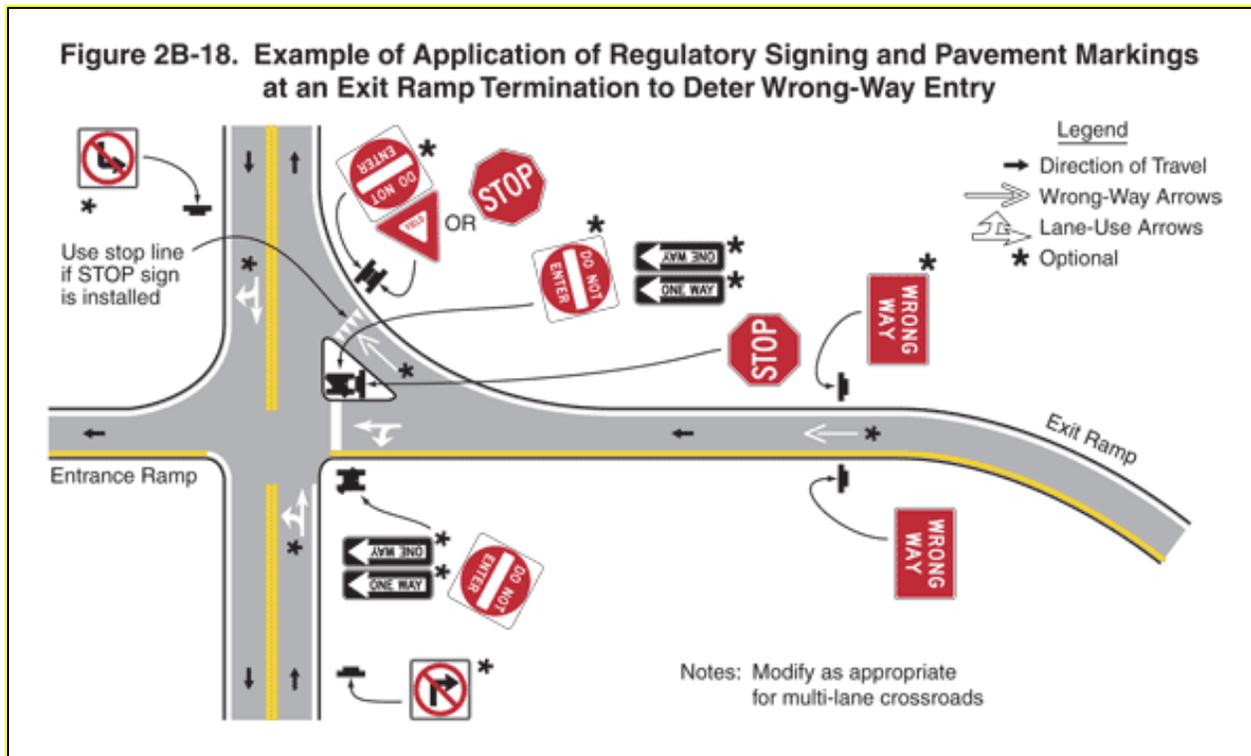


Figure 1. Minimum required signs and markings from the MUTCD (Source: *Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD) 2009 Edition)

TABLE 1. Summary of Wrong-Way Crash Analysis in Calendar Year 2014

Crash Severity	0 Fatal Crashes (0 fatalities)				
	8 Nonfatal Injury Crashes that include:			2 Incapacitating Injury Crashes	
				0 Non-Incapacitating Injury Crash	
				6 Possible Injury Crashes	
0 Property Damage Only Crashes (PDO)					
Crash Type	Head On	3	Road Surface Condition	Dry	7
	Sideswipe	5		Wet	1
Light Conditions	Dark	7	Contributing Factors	Alcohol	4
	Daylight	1		Drugs	1
	Dark but Lighted	0		*None	0
				**Unknown	2
				Illness or Fatigue	1
* Driver was not impaired					
**Not determined if driver was impaired					

Figure 2.
Wrong-Way Crash Locations in Calendar Year 2014

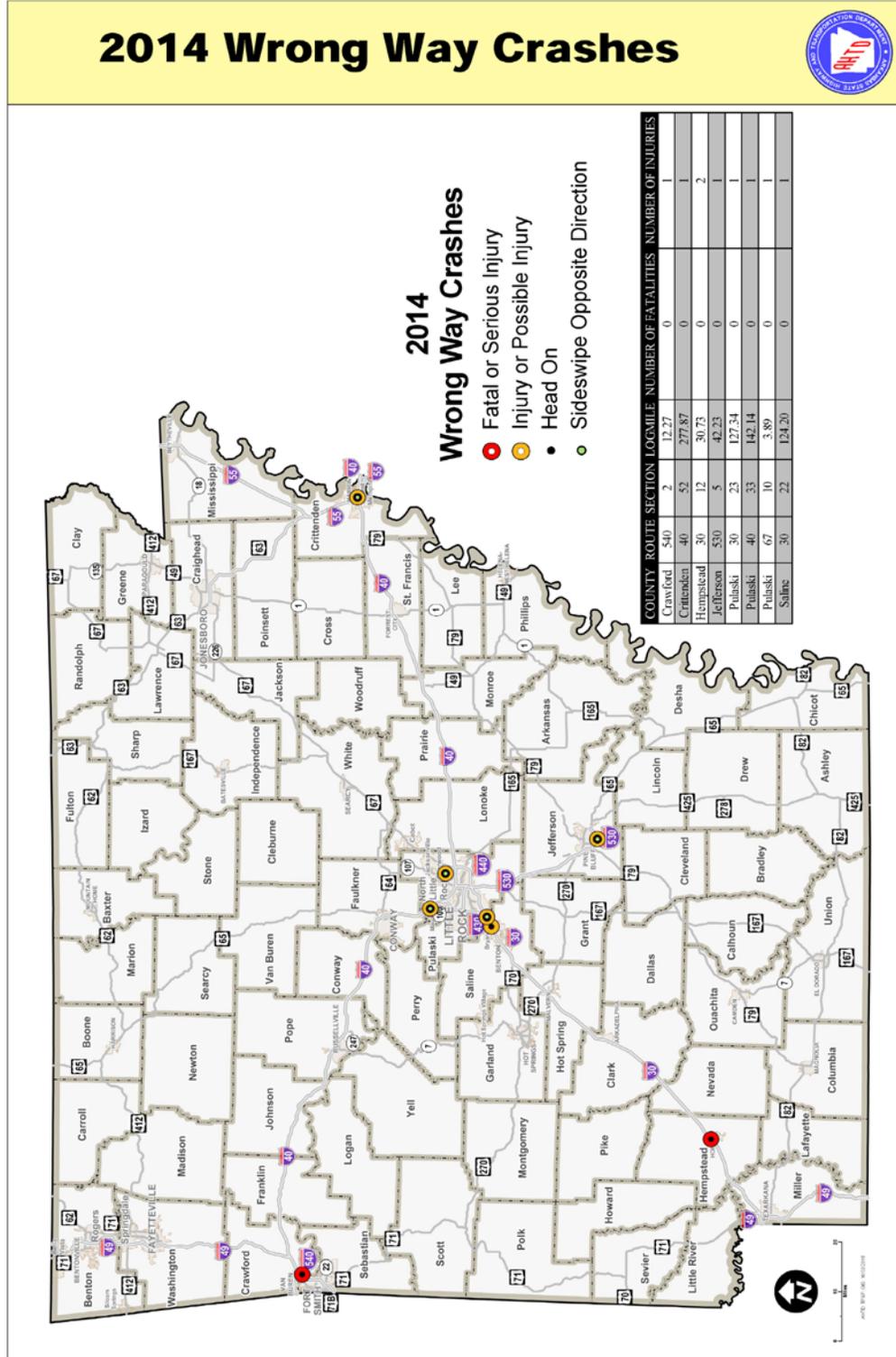


TABLE 2: Wrong-Way Crashes 2012-2014

Year	Total Wrong Way Crashes	Fatal Crashes	Fatalities	Serious Injury Crashes	Number of Dark Crashes	Driver Impaired Drugs or Alcohol	Fatal Crashes Driver Impaired on Drugs or Alcohol
2012	10	1	2	5	9	8	0
2013	12	2	2	3	8	4	0
2014	8	0	0	2	7	5	0

Consequently, a total of 10 interchange off-ramps were reviewed that resulted in the following findings:

1. Four off-ramps were in compliance with the MUTCD minimum requirements as well as AHTD standards. Six of the ramps (Exit142, on I-40; Exit 30, on I-30; Exits 39, 41 and 42 on I-530; and Exit 3 on I-540) had the correct type of signs to be in compliance with the MUTCD, but some of the signs were the incorrect size per AHTD standards. One interchange was missing some additional signs needed to be in compliance with current AHTD signing practices.
2. All of the sign corrections are scheduled to be implemented by statewide signing crews as soon as possible.

Findings of this investigation are also summarized in Table 3. Crash location maps, along with diagrams of the interchanges, investigation reports and crash reports are included in Appendix C.

TABLE 3. List of Wrong-Way Crashes on Interstates and Other Freeways in Calendar Year 2014

Crash #	County	Rte	Sec	LM	¹ Crash Sev.	# Fat.	# Inj.	Type	Date	Time	Urban/Rural	Light Condition	Surf. Cond.	Impaired	System	Exit Number Reviewed	² MUTCD	³ AHTD
201473592	Crawford	540	2	12.27	2	0	1	Head On	11/11/2014	9:46 PM	Urban	Dark	Dry	Alcohol	Interstate	3	Y	N
201468687	Crittenden	40	52	277.87	4	0	1	Sideswipe Opp. Direction	7/19/2014	4:27 AM	Urban	Dark	Wet	Drugs	Interstate	278	Y	Y
201474314	Hempstead	30	12	30.00	2	0	2	Head On	11/25/2014	6:30 PM	Urban	Dark	Dry	Unknown	Interstate	30	Y	N
201470430	Jefferson	530	5	42.23	4	0	1	Sideswipe Opp. Direction	8/21/2014	4:20 PM	Urban	Daylight	Dry	Unknown	Interstate	39,41,42	Y	N
201467074	Pulaski	30	23	127.34	4	0	1	Sideswipe Opp. Direction	6/11/2014	1:15 AM	Urban	Dark	Dry	Alcohol	Interstate	126	Y	Y
201470178	Pulaski	40	33	142.14	4	0	1	Sideswipe Opp. Direction	8/20/2014	9:58 PM	Urban	Dark	Dry	Alcohol	Interstate	142	Y	N
201461694	Pulaski	67	10	3.89	4	0	1	Sideswipe Opp. Direction	2/8/2014	7:45 PM	Urban	Dark	Dry	Unknown	U.S. Highway	3	Y	Y
201462245	Saline	30	22	124.20	4	0	1	Head On	2/22/2014	2:35 AM	Urban	Dark	Dry	Alcohol	Interstate	123	Y	Y

¹Crash Severity = 1-fatal crash; 2-incapacitating injury crash; 3-non-incapacitating injury crash; 4-possible injury crash; and 5-property damage only.

²Meets MUTCD Standard, Y=Yes or N=No or U=Unknown

³Meets AHTD Standard, Y=Yes or N=No

APPENDIX A

Act 641

Stricken language would be deleted from and underlined language would be added to the law as it existed prior to this session of the General Assembly.

Act 641 of the Regular Session

1 State of Arkansas
2 87th General Assembly
3 Regular Session, 2009

A Bill

HOUSE BILL 1961

4
5 By: Representative Pyle
6
7

For An Act To Be Entitled

8
9 AN ACT TO REQUIRE THE ARKANSAS STATE HIGHWAY AND
10 TRANSPORTATION DEPARTMENT TO ANALYZE WRONG-WAY
11 CRASHES ON INTERSTATES AND OTHER FREEWAYS THAT
12 ARE A PART OF THE STATE HIGHWAY SYSTEM; TO
13 IMPLEMENT WARRANTED AND FEASIBLE COUNTERMEASURES
14 THAT MAY REDUCE THE POSSIBILITY OF WRONG-WAY
15 CRASHES; AND FOR OTHER PURPOSES.
16

Subtitle

17
18 TO REQUIRE THE ARKANSAS STATE HIGHWAY
19 AND TRANSPORTATION DEPARTMENT TO ANALYZE
20 WRONG-WAY CRASHES ON INTERSTATES AND
21 OTHER FREEWAYS THAT ARE A PART OF THE
22 STATE HIGHWAY SYSTEM.
23
24

25 BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:
26

27 SECTION 1. Arkansas Code Title 27, Chapter 65, Subchapter 1 is amended
28 to add an additional section to read as follows:

29 27-65-144. Additional annual reporting.

30 (a) The Arkansas State Highway and Transportation Department shall
31 analyze all reported wrong-way crashes on interstate highways and other
32 freeways that are a part of the state highway system to determine whether the
33 installation of additional traffic control devices is warranted and feasible
34 in order to reduce the possibility of future wrong-way crashes.

35 (b) Any additional traffic control devices installed under subsection



03-05-2009 11:39 JSE199

1 (a) of this section shall conform to the Manual on Uniform Traffic Control
2 Devices for Streets and Highways, approved by the Federal Highway
3 Administration as the national standard in accordance with 23 U.S.C. 109(d),
4 23 U.S.C. 114(a), 23 U.S.C. 217, 23 U.S.C. 315, and 23 U.S.C. 402(a), 23
5 C.F.R. 655, and 49 C.F.R. 1.48(b)(8), 1.48(b)(33) and 1.48(c)(2), and is the
6 manual adopted by the State Highway Commission under § 27-52-104.

7 (c) A person may not file a legal action as a result of the
8 implementation of any recommendations made from studies conducted under this
9 section.

10
11 SECTION 2. DO NOT CODIFY. This act shall begin with a reporting
12 period in 2009 and annually thereafter.

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14 **APPROVED: 3/27/2009**
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APPENDIX B

Minute Order 2009-035

MINUTE ORDER

District: Statewide
County: Statewide
Category: Commission Policy

WHEREAS, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users of 2005 (SAFETEA-LU) requires each state to develop and implement a Strategic Highway Safety Plan (SHSP) that involves a comprehensive and collaborative approach to highway safety; and

WHEREAS, Minute Order 2007-091 adopted Arkansas' SHSP as a planning guide for improving highway safety in the State; and

WHEREAS, one emphasis area identified in Arkansas' SHSP is to reduce the number of head-on crashes; and

WHEREAS, head-on crashes occur from time to time on Interstates and other freeways as a result of wrong-way travel on these fully access controlled routes.

NOW THEREFORE, the Director is authorized to conduct an annual analysis, beginning with the 2009 reporting period, of all reported wrong-way crashes on Interstate highways and other freeways that are a part of the state highway system to determine whether the installation of additional traffic control devices is warranted and feasible to reduce the possibility of future wrong-way crashes.

FURTHERMORE, any additional traffic control devices installed as a result of the annual analysis will conform to the Manual on Uniform Traffic Control Devices for Street and Highways, which is approved by the Federal Highway Administrator as the National Standard in accordance with Title 23 U.S. Code, Sections 109(d), 114(a), 217, 315, and 402(s), 23 CFR 655, and 49 CFR 1.48(b)(8), 1.48(b)(33), and 1.48(c)(2), and is the manual adopted by the Arkansas Highway Commission pursuant to Arkansas Code Annotated Section 27-52-104.

Approved: [Signature] Chairman
[Signature] Vice-Chairman
[Signature] Member
[Signature] Member
[Signature] Member

ACE-P
Form 19-456
Rev. 08/01/2007

Submitted By: [Signature] Assistant Chief Engineer - Planning
Approved: [Signature] Director
Minute Order No. 2009 035 R
Date Passed FEB 25 2009

APPENDIX C

Crash Location Maps,
Photos of Interchanges, and Crash Reports

Interstate 540, Exit 3 in Crawford County Crash Number 201473592



Maintenance Review

The driver accessed Northbound I-540 the wrong way from Springhill Rd. at Exit 3. The driver proceeded southbound until the Arkansas River Bridge and was involved in a head on serious injury collision.

Maintenance Review Results

The northbound interchange at Exit 3 (Springhill Rd.) was reviewed which consists of a slip ramp over to a two-way frontage road. Pavement markings and signs were in place and in conformance with MUTCD standards. The 24X30 Wrong Way signs will be replaced with 30X42 and additional One-Way signs will be added with other modifications to be in compliance with AHTD standards. These modifications will be implemented by statewide crews as soon as possible.

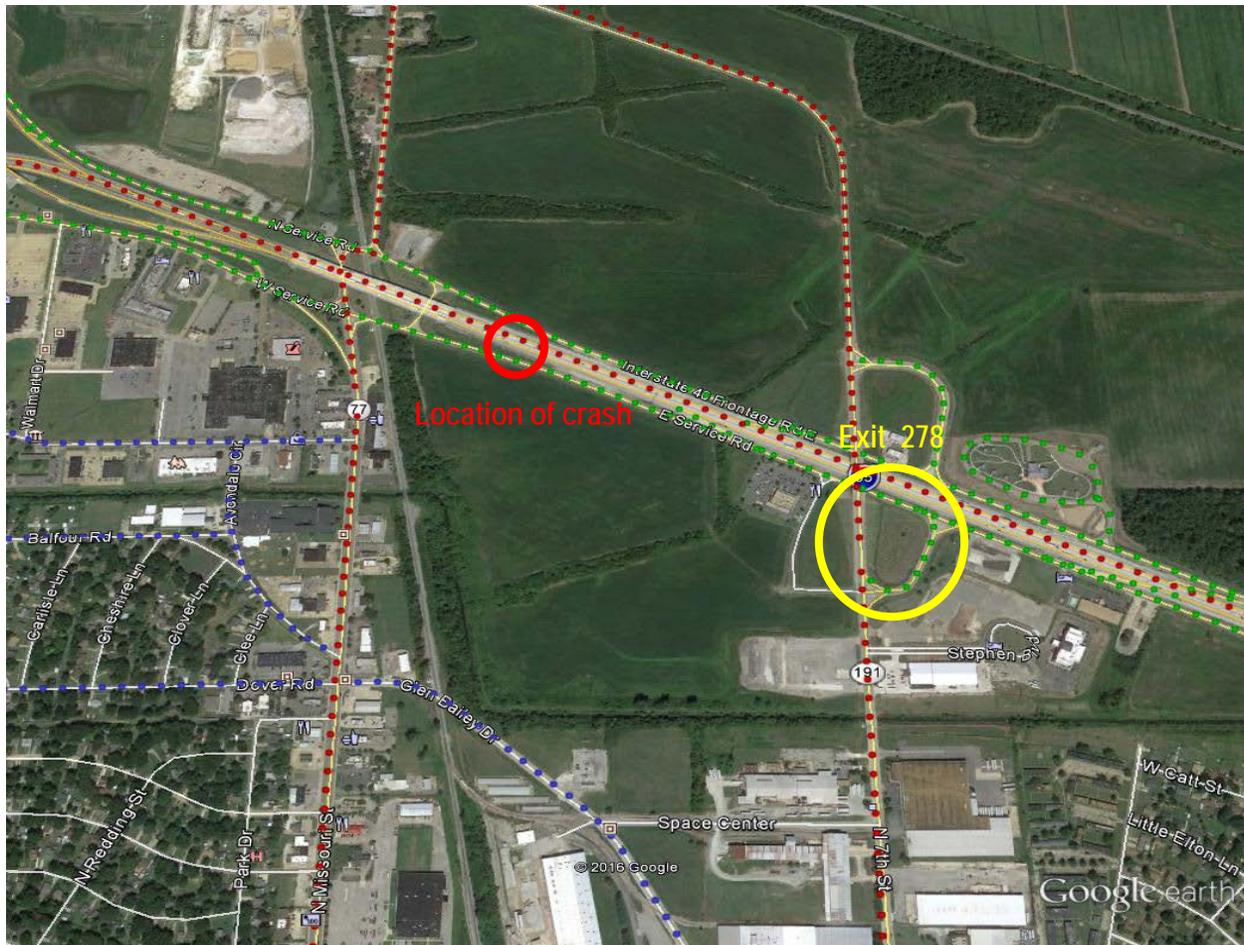








Interstate 40, Exit 278 in Crittenden County Crash Number 201468687



Maintenance Review

The driver accessed the I-40 westbound lanes at Exit 278 along the one-way frontage road. The driver proceeded eastbound in the westbound lanes and was involved in a sideswipe opposite direction crash with a westbound vehicle at the 277.87 mile marker.

Maintenance Review Results

The westbound interchange at Exit 278 was reviewed. The pavement markings and signs were in place and in compliance with MUTCD as well as AHTD standards. However, additional One-Way signs and Do Not Enter signs will be added. These modifications will be implemented by statewide forces as soon as possible.

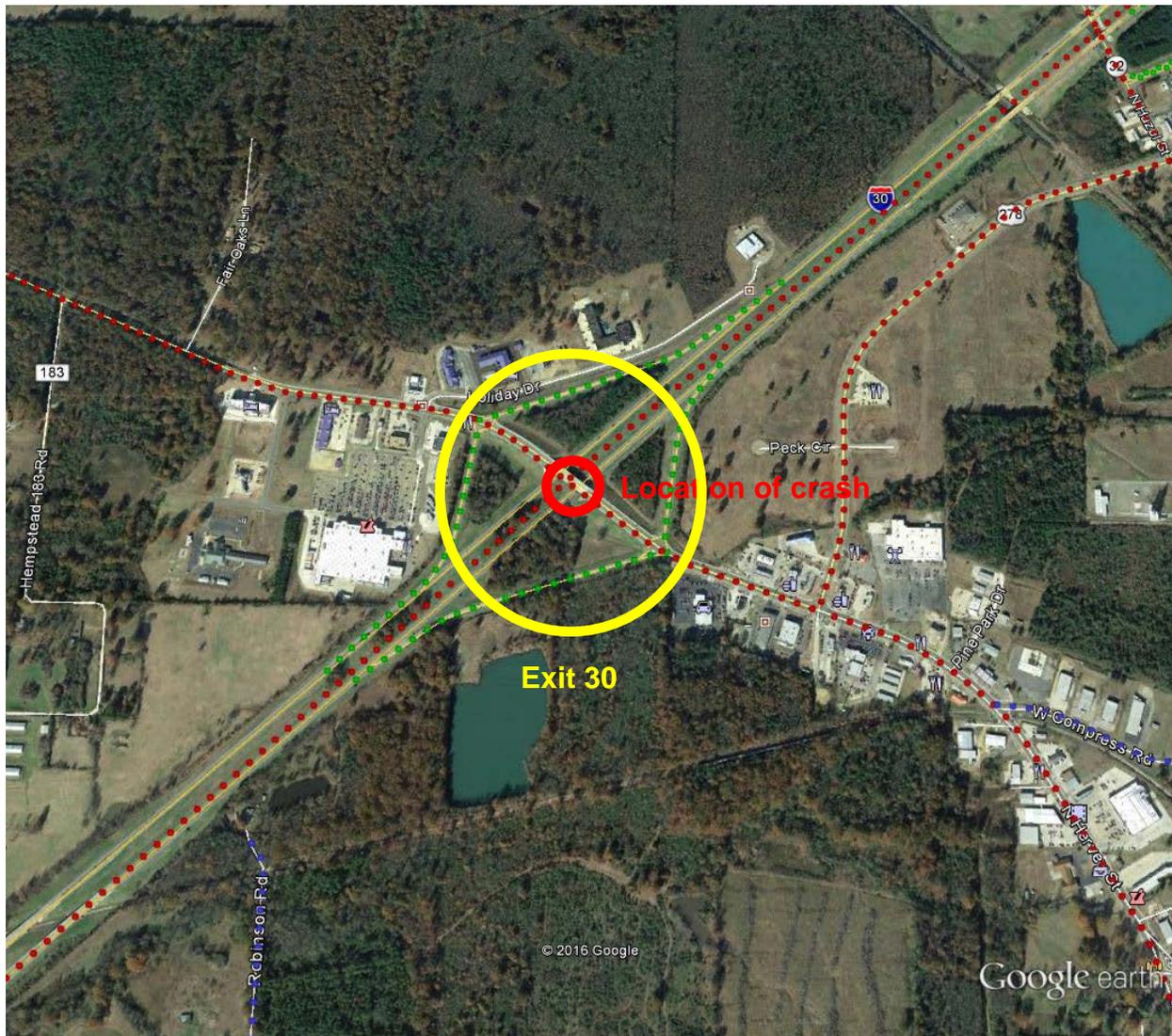








Interstate 30, Exit 30 in Hempstead County Crash Number 201474314



Maintenance Review

The driver accessed I-30 westbound and travelled east at Exit 30. The driver was involved in a serious injury head on crash in Hempstead County at Log Mile 30.

Maintenance Review Results

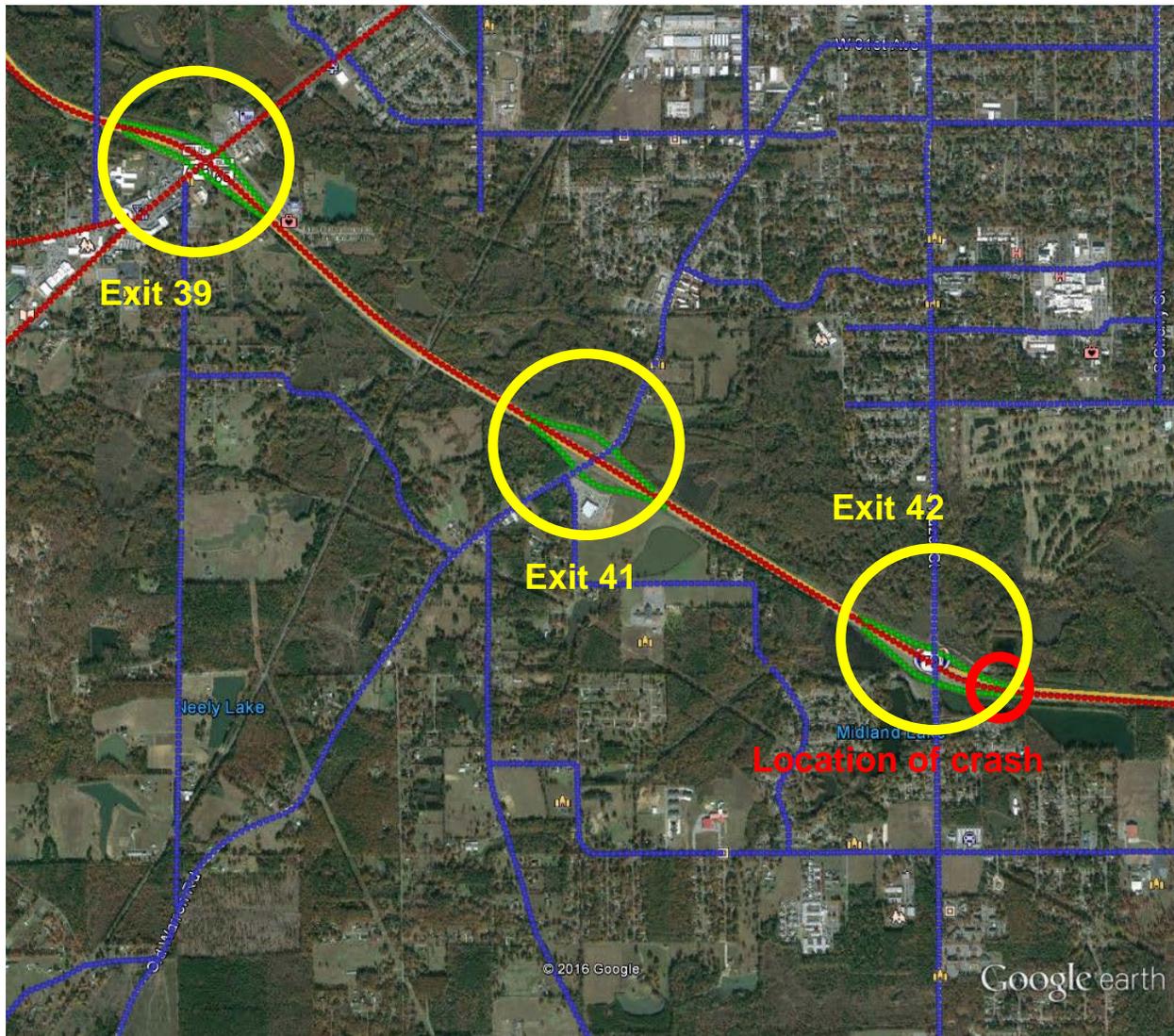
All interchanges at Exit 30 were reviewed. All signs and pavement markings were in compliance with MUTCD standards. The Yield and One Way signs will be replaced with larger signs to be in compliance with AHTD standards. All above modifications will be completed by statewide forces as soon as possible.







Interstate 530, Exits 39, 41, and 42 in Jefferson County Crash Number 201470430



Maintenance Review

The driver accessed I-530 northbound possibly at Exit 39, or Exit 41, or Exit 42, and traveled south in the northbound lanes. The driver was involved in a sideswipe opposite direction crash at the 42.23 log mile.

Maintenance Review Results

The interchanges at Exits 39, 41, and 42 were reviewed. All pavement markings and signs were in place and in conformance with MUTCD and AHTD standards. However, Wrong Way signs will be replaced with larger signs and additional signs will be added to these interchanges. These modifications will be performed by statewide crews as soon as possible.







Interstate 30, Exit 126 in Pulaski County Crash Number 201467074



Maintenance Review

The driver accessed I-30 westbound at Exit 126 and traveled east on I-30 in the westbound lanes. The driver was involved in a sideswipe opposite direction collision at log mile 127.34.

Maintenance Review Results

The interchange at Exit 126 was reviewed and pavement markings and signs were in conformance with MUTCD and AHTD standards. However, some signs will be replaced due to age and condition and new signs will be installed due to construction of new driveways on the frontage roads. These modifications will be implemented by statewide forces as soon as possible.





Interstate 40, Exit 142 in Pulaski County Crash Number 201470178



Maintenance Review

The driver accessed I-40 westbound at Exit 142 at the signal and traveled east on I-40 in the westbound lanes. The driver was involved in a sideswipe opposite direction collision at log mile 142.14.

Maintenance Review Results

The interchange at Exit 142 was reviewed and pavement markings and signs were in conformance with MUTCD standards. A few signage modifications and additions will be implemented on the eastbound exit ramp. These modifications will be implemented by statewide forces as soon as possible to be in compliance with AHTD standards.





Highway 67, Exit 3 in Pulaski County Crash Number 201461694



Maintenance Review

The driver accessed Highway 67 southbound at Exit 3 and traveled north on Highway 67 in the southbound lanes. The driver was involved in a sideswipe opposite direction collision at log mile 3.89. After the collision the driver continued northbound without stopping.

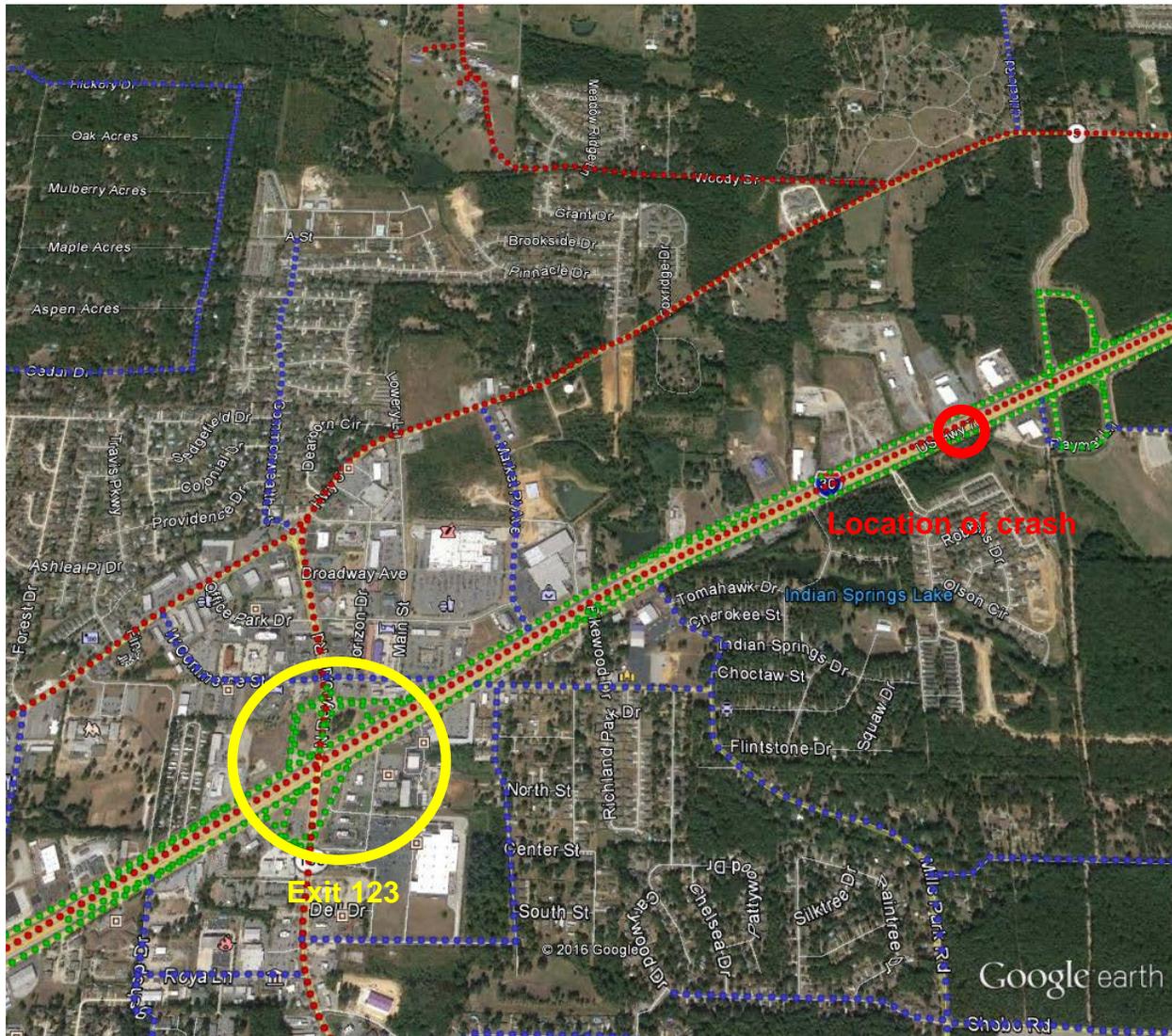
Maintenance Review Results

The interchange at Exit 3 was reviewed and pavement markings and signs were in conformance with MUTCD and AHTD standards. However, some signs will be replaced due to age and condition and some additional signs will be added due to new access driveways that have been added. These modifications will be implemented by statewide forces as soon as possible.





Interstate 30, Exit 123 in Saline County Crash Number 201462245



Maintenance Review

The driver accessed I-30 westbound at Exit 123 and traveled east on I-30 in the westbound lanes. The driver was involved in a head on collision at log mile 124.20.

Maintenance Review Results

The interchange at Exit 123 was reviewed and pavement markings and signs were in conformance with MUTCD and AHTD standards. Some signs will be replaced due to age and condition and some new signs will be installed due to construction of some new

access driveways. These modifications will be implemented by statewide forces as soon as possible.



