

# **Road Safety Audit for IA 150/US 52 from I-380 to the Minnesota Border**

**Final Report  
December 2009**

---



---

**IOWA STATE UNIVERSITY**  
**Institute for Transportation**

**Sponsored by**  
the Iowa Department of Transportation

## **About the Institute for Transportation**

The mission of the Institute for Transportation (InTrans) at Iowa State University is to develop and implement innovative methods, materials, and technologies for improving transportation efficiency, safety, reliability, and sustainability while improving the learning environment of students, faculty, and staff in transportation-related fields.

## **Iowa State University Disclaimer Notice**

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the information presented herein. The opinions, findings and conclusions expressed in this publication are those of the authors and not necessarily those of the sponsors.

The sponsors assume no liability for the contents or use of the information contained in this document. This report does not constitute a standard, specification, or regulation.

The sponsors do not endorse products or manufacturers. Trademarks or manufacturers' names appear in this report only because they are considered essential to the objective of the document.

## **Iowa State University Non-discrimination Statement**

Iowa State University does not discriminate on the basis of race, color, age, religion, national origin, sexual orientation, gender identity, sex, marital status, disability, or status as a U.S. veteran. Inquiries can be directed to the Director of Equal Opportunity and Diversity, (515) 294-7612.

## **Iowa Department of Transportation Statements**

Federal and state laws prohibit employment and/or public accommodation discrimination on the basis of age, color, creed, disability, gender identity, national origin, pregnancy, race, religion, sex, sexual orientation or veteran's status. If you believe you have been discriminated against, please contact the Iowa Civil Rights Commission at 800-457-4416 or Iowa Department of Transportation's affirmative action officer. If you need accommodations because of a disability to access the Iowa Department of Transportation's services, contact the agency's affirmative action officer at 800-262-0003.

The preparation of this (report, document, etc.) was financed in part through funds provided by the Iowa Department of Transportation through its "Agreement for the Management of Research Conducted by Iowa State University for the Iowa Department of Transportation," and its amendments.

The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the Iowa Department of Transportation.

### Technical Report Documentation Page

<b>1. Report No.</b>	<b>2. Government Accession No.</b>	<b>3. Recipient's Catalog No.</b>	
<b>4. Title and Subtitle</b> Road Safety Audit for IA 150/US 52 from I-380 to the Minnesota Border		<b>5. Report Date</b> December 2009	
		<b>6. Performing Organization Code</b>	
<b>7. Author(s)</b> Thomas J. McDonald		<b>8. Performing Organization Report No.</b>	
<b>9. Performing Organization Name and Address</b> Institute for Transportation Iowa State University 2711 South Loop Drive, Suite 4700 Ames, IA 50010-8664		<b>10. Work Unit No. (TRAIS)</b>	
		<b>11. Contract or Grant No.</b>	
<b>12. Sponsoring Organization Name and Address</b> Iowa Department of Transportation 800 Lincoln Way Ames, IA 50010		<b>13. Type of Report and Period Covered</b> Final Report	
		<b>14. Sponsoring Agency Code</b>	
<b>15. Supplementary Notes</b> Visit <a href="http://www.ctre.iastate.edu">www.ctre.iastate.edu</a> for color PDF files of this and other research reports.			
<b>16. Abstract</b> On June 9, 2009, the Northeast Iowa Highway 150/52 Coalition met with the Iowa Department of Transportation (Iowa DOT) in Cedar Falls, Iowa to discuss concerns regarding roadway conditions and safety which has become a concern because of the potential economic development in the area. In response to the issues raised by the coalition, the Iowa DOT requested that a road safety audit be conducted on the corridor to identify where low-cost improvements could be beneficially applied to address safety concerns.			
<b>17. Key Words</b> low-cost improvements—road safety audit		<b>18. Distribution Statement</b> No restrictions.	
<b>19. Security Classification (of this report)</b> Unclassified.	<b>20. Security Classification (of this page)</b> Unclassified.	<b>21. No. of Pages</b> 111	<b>22. Price</b> NA

# **ROAD SAFETY AUDIT FOR IA 150/US 52 FROM I-380 TO THE MINNESOTA BORDER**

**Final Report  
December 2009**

**Principal Investigator**  
Thomas J. McDonald  
Safety Circuit Rider  
Institute for Transportation, Iowa State University

**Author**  
Thomas J. McDonald

Preparation of this report was financed in part  
through funds provided by the Iowa Department of Transportation  
through its research management agreement with the  
Institute for Transportation.

A report from  
**Institute for Transportation**  
**Iowa State University**  
2711 South Loop Drive, Suite 4700  
Ames, IA 50010-8664  
Phone: 515-294-8103  
Fax: 515-294-0467  
[www.intrans.iastate.edu](http://www.intrans.iastate.edu)

## TABLE OF CONTENTS

ACKNOWLEDGMENTS .....	XI
INTRODUCTION .....	1
Roadway Segments .....	1
Traffic Volume Data .....	2
INITIAL MEETING .....	5
Additional Input .....	6
DAYTIME FIELD REVIEW .....	7
NIGHTTIME REVIEW .....	10
WRAP-UP MEETING.....	10
CRASH DATA .....	12
AUDIT TEAM CONCLUSIONS AND SUGGESTIONS .....	18
APPENDIX A. IA 150/US 52 ROAD SAFETY AUDIT CRASH SUMMARIES .....	A-1
APPENDIX B. COLLISION DIAGRAMS.....	B-1
APPENDIX C. CRASH MAPS .....	C-1
APPENDIX D. IMAGES FROM FIELD REVIEWS .....	D-1
APPENDIX E. NORTHEAST IOWA HIGHWAY 150/52 COALITION SURVEY QUESTIONS AND RESPONSES.....	E-1
APPENDIX F. LAW ENFORCEMENT CONCERNS FOR HIGHWAY 150/52 CORRIDOR SAFETY AUDIT .....	F-1

## LIST OF FIGURES

Figure B.1. IA 150 and D47.....	B-1
Figure B.2. IA 150 and US 20 east ramp.....	B-2
Figure B.3. IA 150 and 2nd Street SE in Independence.....	B-3
Figure B.4. IA 150, D22, and 3rd Avenue SE in Independence.....	B-4
Figure B.5. IA 150, D22, and 5th Avenue NE in Independence.....	B-5
Figure B.6. IA 150 and 2nd Street NE in Independence.....	B-6
Figure B.7. IA 150 and 3rd Street NE in Independence.....	B-7
Figure B.8. IA 150 and 140th Street.....	B-8
Figure B.9. IA 150 and 110th Street.....	B-9
Figure B.10. IA 150 and IA 128 in Oelwein.....	B-10
Figure B.11. IA 150 and 20th Street SE in Oelwein.....	B-11
Figure B.12. IA150 and 7th Street SE in Oelwein.....	B-12
Figure B.13. IA150 and 2nd Street SE in Oelwein.....	B-13
Figure B.14. IA 150 and 1st Street in Oelwein.....	B-14
Figure B.15. IA 150, IA 3, and C50 in Oelwein.....	B-15
Figure B.16. IA 150 and IA 93 in Fayette.....	B-16
Figure B.17. IA 150 and US 18 in West Union.....	B-17
Figure B.18. US 52 and Town Line Road in Decorah.....	B-18
Figure B.19. US 52 and IA 9.....	B-19
Figure B.20. US 52 and Madison Road in Decorah.....	B-20
Figure B.21. US 52 and Pole Line Road in Decorah.....	B-21
Figure B.22. County Road A18 and US 52.....	B-22
Figure C.1. Crash density on rural two-lane primary highways in Iowa, 2001–2008.....	C-1
Figure C.2. Crash rate on rural two-lane primary highways in Iowa, 2001–2008.....	C-2
Figure C.3. Crash rate ratio for IA 150, 2001–2008.....	C-3
Figure C.4. Crashes by severity, Benton/Buchanan Counties.....	C-4
Figure C.5. Crashes by severity, Fayette County.....	C-5
Figure C.6. Crashes by severity, Winneshiek County.....	C-6
Figure C.7. Crashes by severity, Independence.....	C-7
Figure C.8. Crashes by severity, Oelwein.....	C-8
Figure C.9. Crashes by severity, West Union.....	C-9
Figure D.1. IA 150—Benton County traveling north.....	D-1
Figure D.2. IA 150—Benton County narrow structure with w-beam guardrail.....	D-1
Figure D.3. IA 150—Buchanan County road W-13 intersection in Hazelton.....	D-2
Figure D.4. IA 150—Buchanan County road D-47 intersection with right-turn lane.....	D-2
Figure D.5. IA 150—Buchanan County narrow structure with w-beam guardrail.....	D-3
Figure D.6. IA 150—Buchanan County newly completed structure with w-beam guardrail ....	D-3
Figure D.7. IA 150 in Independence.....	D-4
Figure D.8. IA 150—Buchanan County paved shoulder with rumble strips.....	D-4
Figure D.9. IA 150 Buchanan County curves north of Independence.....	D-5
Figure D.10. IA 150 in Hazelton.....	D-5
Figure D.11. US 52—Winneshiek County entrances to Northeast Iowa Community College facility south of Calmar.....	D-6
Figure D.12. IA 150—Fayette County approaching Oelwein.....	D-6
Figure D.13. IA 150—Fayette County approaching IA 3 intersection north of Oelwein.....	D-7

Figure D.14. IA 150—Fayette County structure with older w-beam guardrail.....	D-7
Figure D.15. IA 150—Fayette County intersection with IA 187 .....	D-8
Figure D.16. IA 150 Fayette County entering City of Fayette .....	D-8
Figure D.17. IA 150 intersection with IA 93 in City of Fayette.....	D-9
Figure D.18. IA 150—Fayette County approaching county road intersection.....	D-9
Figure D.19. IA 150—Fayette County “Eldorado Hill” .....	D-10
Figure D.20. IA 150—Fayette County “Eldorado Hill” southbound .....	D-10
Figure D.21. IA 150—Fayette County scenic overlook turnout on “Eldorado Hill” .....	D-11
Figure D.22. IA 150—Fayette County Turkey River Bridge north of Eldorado.....	D-11
Figure D.23. IA 150—Winneshiek County curvilinear alignment south of Calmar .....	D-12
Figure D.24. IA 150—Winneshiek County entering Calmar .....	D-12
Figure D.25. IA 150/US 52 intersection in Calmar .....	D-13
Figure D.26. US 52—Winneshiek County Road B-16 intersection north of Calmar .....	D-13
Figure D.27. US 52—Winneshiek County cable rail south of Decorah.....	D-14
Figure D.28. US 52 intersection with IA 9 in Decorah .....	D-14
Figure D.29. US 52—Winneshiek County rock cut north of Decorah.....	D-15
Figure D.30. US 52—Winneshiek County climbing lane north of Decorah .....	D-15
Figure D.31. US 52—Winneshiek County partial paved shoulder.....	D-16
Figure D.32. US 52—Winneshiek County paved county road intersection with lighting .....	D-16
Figure D.33. US 52—Winneshiek County paved road intersection at Burr Oak .....	D-17
Figure D.33. US 52—Winneshiek County nighttime view of pavement markings .....	D-17

## LIST OF TABLES

Table 1. Daily traffic volumes on IA 150/ US 52.....	3
Table 2. Teen driver and older driver crash rates .....	18
Table A.1. Benton/Buchanan County crashes by major cause .....	A-1
Table A.2. Benton/Buchanan County crashes by hour of day and day of week .....	A-2
Table A.3. Benton/Buchanan County crashes by day of week and month.....	A-2
Table A.4. Benton/Buchanan County crashes by severity and hour of day .....	A-2
Table A.5. Benton/Buchanan County crashes by severity and day of week .....	A-3
Table A.6. Benton/Buchanan County crashes by light condition.....	A-3
Table A.7. Benton/Buchanan County crashes by weather conditions.....	A-4
Table A.8. Benton/Buchanan County crashes by road surface condition .....	A-4
Table A.9. Benton/Buchanan County crashes by driver age .....	A-5
Table A.10. Benton/Buchanan County crashes by manner of collision .....	A-5
Table A.11. Benton/Buchanan County crashes by driver contributing circumstances .....	A-6
Table A.12. Fayette County crashes by major cause.....	A-7
Table A.13. Fayette County crashes by manner of collision .....	A-8
Table A.14. Fayette County total crashes by hour of day.....	A-8
Table A.15. Fayette County total crashes by day of week and month .....	A-9
Table A.16. Fayette County crashes by severity and day of week .....	A-9
Table A.17. Fayette County crashes by severity and hour of day .....	A-9
Table A.18. Fayette County crashes by light conditions .....	A-10
Table A.19. Fayette County crashes by weather conditions.....	A-10
Table A.20. Fayette County crashes by road surface conditions.....	A-11
Table A.21. Fayette County crashes by driver condition .....	A-11
Table A.22. Fayette County crashes by driver contributing circumstances .....	A-12
Table A.23. Winneshiek County crashes by major cause.....	A-13
Table A.24. Winneshiek County crashes by hour of day .....	A-14
Table A.25. Winneshiek County crashes by day of week and month .....	A-14
Table A.26. Winneshiek County crash severity hour of day .....	A-14
Table A.27. Winneshiek County crash severity day of week.....	A-15
Table A.28. Winneshiek County crashes by light conditions.....	A-15
Table A.29. Winneshiek County crashes by weather conditions .....	A-16
Table A.30. Winneshiek County crashes by road surface condition .....	A-16
Table A.31. Winneshiek County crashes by driver age.....	A-17
Table A.32. Winneshiek County crashes by manner of collision.....	A-17
Table A.33. Winneshiek County crashes by driver contributing circumstances .....	A-18
Table A.34. Crash severity by driver age and county.....	A-19

## ACKNOWLEDGMENTS

The author would like to thank the members of the Northeast Iowa Highway 150/52 Coalition for their interest in and contribution to this review. Coalition members who participated are listed under Initial Meeting on page 5. The author would also like to thank the Iowa Department of Transportation (Iowa DOT) for requesting and participating in this road safety audit and for sponsoring the effort.

The participation and contributions of the members of the road safety audit team were invaluable in the successful completion of this activity. The audit team included the following people:

- Jerry Roche, Federal Highway Administration
- Kevin Korth, Federal Highway Administration
- Jack Latterell, Safety Consultant
- Randy Hunefeld, Governor's Traffic Safety Bureau
- Bryan Bradley, Office of Traffic and Safety, Iowa DOT
- Tom McDonald, Institute for Transportation

The team was supplemented by the following Iowa DOT staff:

- Victoria Dumdei, District 2 Engineer—Mason City
- Bob Clark, District 2 Traffic Control Technician—Mason City
- Art Gourley, District 6 Area Engineer—Dyersville
- Steve Wilson, District 6 Traffic Control Technician—Cedar Rapids
- Kim Sheehy, Iowa DOT Maintenance Supervisor—Independence

## INTRODUCTION

On June 9, 2009, the Northeast Iowa Highway 150/52 Coalition met with the Iowa Department of Transportation (Iowa DOT) in Cedar Falls, Iowa, to discuss concerns regarding roadway conditions and safety on IA 150/US 52. This roadway corridor has become a particular concern because of the potential economic development in the area. In response to the issues raised by the coalition, the Iowa DOT requested that a road safety audit be conducted on the corridor to identify where low-cost improvements could be applied to address safety concerns.

A road safety audit was subsequently conducted by a multi-disciplinary team on October 7–8, 2009. The audit team consisted of the following people:

- Jerry Roche, Federal Highway Administration
- Kevin Korth, Federal Highway Administration
- Jack Latterell, Safety Consultant
- Randy Hunefeld, Governor's Traffic Safety Bureau
- Bryan Bradley, Office of Traffic and Safety, Iowa DOT
- Tom McDonald, Institute for Transportation

The team was supplemented by the following Iowa DOT staff:

- Victoria Dumdei, District 2 Engineer—Mason City
- Bob Clark, District 2 Traffic Control Technician—Mason City
- Art Gourley, District 6 Area Engineer—Dyersville
- Steve Wilson, District 6 Traffic Control Technician—Cedar Rapids
- Kim Sheehy, Iowa DOT Maintenance Supervisor—Independence

## Roadway Segments

The roadway in the IA 150/US 52 corridor is approximately 100 miles in length and is located in two different Iowa DOT districts and four individual counties. In each of the four counties, different roadway segments were initially constructed and subsequently resurfaced in various years, as follows:

- **Benton County from I-380 to the Buchanan County Line.** This segment was initially constructed in 1949 and last resurfaced in 1996 with 3 in. of hot mix asphalt.
- **Buchanan County from the Benton County Line to Independence.** This segment was initially constructed in 1930 with 7 in. of portland cement concrete (PCC) and last resurfaced in 1996 with 3 in. of hot mix asphalt.
- **Buchanan County from Independence to the Fayette County Line.** This segment was initially constructed in 1929 with 7 in. of PCC and resurfaced in 1987 with 1 in. of hot mix asphalt. Exceptions include a section from milepost 49.20 to milepost 51.35, which

was constructed in 1991 with 10 in. of PCC, and a section from milepost 52.10 to milepost 53.68, which was overlaid with 3 in. of hot mix asphalt in 1986. The section from Independence to IA 281 was resurfaced again in 2005, except for a PCC segment south of Hazelton.

- **Fayette County from the Buchanan County Line to Oelwein.** This segment was initially constructed in 1986 with 9 in. of PCC.
- **From Oelwein to the IA 187 Intersection.** This segment was initially constructed in 1971 with 8 in. of PCC.
- **From the IA 187 Intersection to Fayette.** This segment was initially constructed in 1970 with 8 in. of PCC and last overlaid in 2000 with 4 in. of hot mix asphalt.
- **From Fayette to West Union.** This segment was initially constructed in 1965 with 9 in. of PCC (except for a short section built in 1962 with 10 in. of PCC) and last overlaid in 2000 with 4 in. of hot mix asphalt.
- **From West Union to the Winneshiek County Line.** This segment was initially constructed in 1958 with 8 in. of PCC and last overlaid in 1999 with 3 in. of hot mix asphalt. An exception is a short section built in 1931 with 7 in. of PCC and overlaid in 1965 with 3 in. of hot mix asphalt.
- **Winneshiek County from the Fayette County Line to Calmar (End IA 150).** This segment was initially constructed in 1958 with 8 in. of PCC.
- **US 52 from Calmar to the IA 9 Intersection in Decorah.** This segment was initially constructed in 1961 with 10 in. of PCC.
- **From IA 9 in Decorah North Approximately Four Miles.** This segment was initially constructed in 1964 with 10 in. of PCC.
- **From Four Miles North of Decorah to the Minnesota State Line.** This segment was initially constructed in 1975 with 8 in. of PCC and last overlaid in 2002 with 3 in. of hot mix asphalt.

Because these corridor sections were constructed in various years, the alignment and right-of-way width of each section reflects the design standards at the time of construction, and the pavement condition, for the most part, varies significantly based on the year of the last major rehabilitation work. These varying conditions are noted in the remarks from the field reviews in subsequent sections of this report.

## **Traffic Volume Data**

The most recent traffic volume counts for the IA 150/US 52 corridor are shown in Table 1. The Iowa DOT performs periodic counts of traffic volume on state-owned roadways, and the most recent complete set of data available is for the year 2005. In 2009, the Iowa DOT performed a count of current traffic volumes in northeast Iowa, including the IA 150/US 52 corridor; however, those data will not be available until mid-2010. When available, these new data should be compared to the 2005 traffic volume data to ascertain any substantial changes, especially in commercial traffic.

**Table 1. Daily traffic volumes on IA 150/ US 52**

<b>Location</b>	<b>Totals South of Intersection</b>	<b>Totals North of Intersection</b>	<b>Trucks Single Unit</b>	<b>Trucks Combinations</b>
<b>Benton County</b>				
IA 150 at I-380	2732 vehicles	4395 vehicles	194	574
<b>Buchanan County</b>				
IA 150 and 290th St.	3526 vehicles	3940 vehicles	136	525
IA 150 and IA 281/100th St.	6289 vehicles	6003 vehicles	245	350
<b>Fayette County</b>				
IA 150 and IA 3	2846 vehicles	1660 vehicles	79	203
IA 150 and IA 187/100th St.	1550 vehicles	3050 vehicles	119	254
<b>Winneshiek County</b>				
IA 150 and Co. Rd. B-32	2287 vehicles	2571 vehicles	130	145
US 52 and Co. Rd. B-16	4353 vehicles	4590 vehicles	212	307
US 52 and College Road	2436 vehicles	3166 vehicles	120	239
US 52 and 355th St.	2395 vehicles	2058 vehicles	82	216
US 52 and Co. Rd. A-18	2060 vehicles	2008 vehicles	57	229
US 52 and Minnesota state line	N/A	N/A	99	293

It should be noted that a significant drop in traffic volume, both in total vehicles and commercial vehicles, at or near Oelwein indicates substantial traffic generation in that area. A complete listing of traffic data, including selected intersection estimates, is on file at the Institute for Transportation (InTrans) office and at the Iowa DOT's Office of Transportation Data.

## Recent and Planned Improvements in the Corridor

In recognition of roadway and traffic conditions, the Iowa DOT has made numerous improvements over the past several years in this corridor, as listed below. Note that the following list may not include minor improvements or those accomplished by Iowa DOT maintenance staff.

- IA 150, Buchanan County from Independence to IA 281—Shoulder widening and resurfacing in 2005
- IA 150, Fayette County in Maynard—Reinforced box culvert replaced in 2007
- IA 150, Fayette County in Fayette—Bridge deck overlay in 2009
- US 52, Winneshiek County from north of Decorah to the Minnesota state line—Shoulder widening and resurfacing in 2002

A planned improvement is scheduled for 2011–2012 on IA 150 in Buchanan County to reconstruct and realign the S-curves north of Independence. This location was the site of several serious crashes during the eight-year review period.

Safety funding has been requested for the following low-cost improvements for the IA 150/US 52 corridor in Fayette and Winneshiek Counties:

- At the horizontal and vertical curves located 3,000 ft to 4,400 ft south of Maple Road in Fayette County, which is also located on the Eldorado hill near Goeken Park north of West Union:
  - Replace the two existing “Reverse Curve Right Arrow” warning signs with high-intensity prismatic warning signs.
  - Install back-to-back “Chevron” signs along the east side of the curve.
  - Install 4 ft wide paved shoulders with rumble strips along both sides of the curve.
  - Install centerline rumble strips the full length of the curve.
- At a horizontal curve on US 52 located approximately two miles north of Calmar, from 500 ft south to 2,000 ft north of Conover Road in Winneshiek County:
  - Install 4 ft wide paved shoulders with rumble strips along both sides of the curve.
  - Install centerline rumble strips the full length of the curve.
- At a horizontal curve on US 52 located south of College Drive in Winneshiek County, approximately one mile north of the north Decorah corporate city limits:
  - Install 4 ft wide paved shoulders with rumble strips along both sides of the curve.
  - Install centerline rumble strips the full length of the curve.

## INITIAL MEETING

The initial meeting for this road safety audit was conducted in the Iowa State Patrol District Office in Oelwein on October 7, 2009. In addition to the audit team and staff from Iowa DOT Districts 2 and 6 (listed above), the following members of the Northeast Iowa Highway 150/52 Coalition and Iowa State Patrol also participated:

- Honorable Mary Jo Wilhelm, Iowa State Senate, District 8
- Honorable Andrew Wenthe, Iowa State Representative, House District 18
- Honorable Larry Murphy, Mayor of Oelwein
- Sally Falb, Oelwein Chamber of Commerce
- Ellen Gaffney, Buchanan County Supervisor
- Lt. David Eick, Iowa State Patrol
- Sgt. Dan Anderson, Iowa State Patrol
- Myron Parizek, Benton County Engineer
- Brian Keierleber, Buchanan County Engineer
- J.D. King, Fayette County Engineer
- Lee Bjerke, Winneshiek County Engineer
- Wendy Mihm-Herold, Upper Explorerland Regional Planning Commission
- Larry Leliefeld, Upper Explorerland Regional Planning Commission
- Bob Bouska, East Penn Manufacturing

Following introductions, Wendy Mihm-Herold opened the meeting with a welcome to the Iowa DOT and audit team and briefly explained the focus of the coalition represented at the meeting. Jerry Roche then explained the purpose and scope of road safety audits, which are primarily focused on examination of crash history, observation of roadway conditions, and development of low-cost mitigation for identified concern areas. That mitigation could involve enhanced efforts by law enforcement when warranted; engineering improvements; and even involvement by educational institutions, emergency responders, and news media. Audit teams are multi-disciplinary in composition and approach, and safety mitigation suggestions are supported by available data as much as possible.

Tom McDonald then distributed crash data to meeting participants. The data included crash location maps and crash summaries for selected potential factors that could contribute to crashes. Data for the period from 2001 through 2008 were included and presented separately for each county and major city along the corridor. In addition, intersection crash diagrams were prepared for all intersections where a significant crash history had been recorded. These data were then briefly described for meeting participants. An in-depth explanation of the pertinent crash data is presented later in this report.

Larry Leliefeld from the Upper Explorerland Regional Planning Commission (UERPC) then spoke on behalf of the coalition, distributing and describing the results of a survey the group had conducted of area businesses, officials, and other citizens regarding concerns about and perceptions of conditions on the IA 150/US 52 corridor. Copies of the survey and responses are included in Appendix E.

Representative Wenthe, speaking on behalf of Upper Iowa University in Fayette, provided information about that institution and its approximately 900 students and 200 staff members, many of whom commute to school using the IA 150/US 52 corridor. Some students and staff have been involved in serious crashes on this route. Concern was also expressed for the inconsistent width of the roadway through the community and the problems that result.

Mayor Larry Murphy of Oelwein informed the group of a newly opened educational facility in that community with numerous commuting students. Mayor Murphy also described the traffic-generating sources in Oelwein, especially the increasing truck traffic to and from the town.

Sally Falb spoke about safety concerns that impact economic development in the region, which experiences an increase in truck traffic as new businesses are initiated. Safety for area residents is a major concern.

Bob Bouska, representing the battery distribution company East Penn Manufacturing, described the increasing number of trucks and drivers generated by the company. Approximately two million batteries are shipped from the Oelwein facility annually in 29 trucks. These figures would convert to approximately 5,900 loads per year, or 11,800 trips when the empty returning trucks are included. Mr. Bouska was particularly concerned for the restricted turning radii at intersections in the town of Independence. He suggested that more turning and passing lanes are needed, along with flatter curves and wider paved shoulders with rumble strips. Apparently, many drivers avoid this corridor when possible and use parallel local paved county roads as alternate routes.

Lt. David Eick from the Iowa State Patrol presented a list of law enforcement concerns, including locations of frequent snow drifting, problem intersections for drivers, and lack of adequate shoulder width in many locations. This information is included in Appendix F of this report. Lt. Eick also noted that some areas in this corridor present little opportunity for officers to make safe traffic stops due to narrow widths and steeply sloped shoulders.

During the meeting, concerns were also expressed for slow moving farm equipment that travels along the corridor during harvest and planting seasons.

### **Additional Input**

In addition to the concerns expressed by coalition members at the initial meeting, several other responses were received through an information gathering process undertaken in advance of this safety audit. Input was received from county engineers, sheriffs, cities, Iowa DOT field staff, and some private citizens. Concerns were expressed about traffic and roadway conditions, and locations were suggested for needed improvements. These concerns were considered as this final audit report was formulated. Copies of the input and responses received are on file at the InTrans office.

## **DAYTIME FIELD REVIEW**

A daylight review of field conditions was undertaken on October 7, 2009, commencing at the I-380 interchange in Benton County and proceeding northerly. In addition to the audit team, the field review personnel included Buchanan County Engineer Brian Keierleber and Iowa DOT staff members Art Gourley, Steve Wilson, and Kim Sheehy. As the review proceeded, locations of serious crashes were observed and noted. Images taken during the field reviews can be found in Appendix D.

The roadway in the initial review area features rolling terrain and narrow right-of-way width in some areas. The composite pavement appeared to be in good condition, with satisfactory pavement markings in daylight conditions. Some 3 to 4 ft wide granular shoulders were present in this area to the Buchanan County line. Several guy wire braces for utility poles were observed within the right-of-way.

From the Benton County line to Independence, the asphalt-surfaced pavement appeared to be in good condition. Shoulders were mostly 5 to 6 ft wide and granular-surfaced. Some areas of narrow right-of-way were observed. Raised concrete islands for STOP signs existed at all paved road intersections.

In Independence, pavement conditions appeared satisfactory. Two 90° turns are required when traveling through Independence, which could be problematic for large commercial vehicles. Several signalized intersections are located along the route. The visibility and number of signal heads appeared to be satisfactory. The intersection of IA 150 and 5th Avenue had experienced numerous crashes involving westbound traffic approaching the intersection. A review of signal visibility by the audit team did not reveal any visibility concerns.

From Independence to Hazelton, a newer asphalt surfaced roadway was found to be in excellent condition. Paved shoulders approximately 4 ft in width had been placed with the overlay and rumble strips installed in the rural area. Granular shoulders 2 to 3 ft wide were present beyond the paved shoulders. However, some areas of narrow right-of-way were observed, and some large utility poles were located near the roadway. North of Independence, two horizontal curves were located, and several serious crashes have occurred, some resulting in fatalities. Large chevrons have been installed through these curves, and the condition of these devices is excellent. Art Gourley informed the group that the Iowa DOT plans to reconstruct these curves in 2011 to improve alignment and side road connections.

At the 140th Street intersection, the PCC pavement was in good condition, with newly installed 2 to 3 ft wide paved shoulders with rumble strips.

From Hazelton to the Fayette County line, the roadway surface was an asphalt overlay in excellent condition.

A few short culverts and narrow bridges with an approach guardrail were noted in the Benton/Buchanan Counties section of IA 150.

From the Fayette County line through Oelwein, IA 150 pavement is PCC in good condition, with 8 to 10 ft wide granular shoulders in the rural area with a curb and gutter in urban locations. The intersection crash diagrams (Appendix B) indicate crashes at the signalized intersections, but not in high numbers.

Northerly from Oelwein, District 2 staff consisting of District Engineer Vicky Dumdei and traffic technician Bob Clark accompanied the audit team. Fayette County Engineer J. D. King participated in the field review to the intersection of Great River Road in northern Fayette County.

IA 150 intersects with IA 3 in Oelwein and extends northerly in a concurrent route approximately two miles to a T intersection where the two highways diverge. Composite pavement and roadway conditions between Oelwein and this intersection appeared satisfactory, although rough ride conditions due to joint deterioration were noticeable. Few crashes were recorded in this area. At times, the intersection may pose problems for drivers due to raised STOP sign and median islands. Some property damage only crashes have been noted in this area.

From the intersection with IA 3 to Maynard, the IA 150 pavement is PCC and in good condition. Granular shoulders in this area were quite wide, appearing in excess of 10 ft. One bridge was observed with an out-of-date guardrail. The roadway through Maynard appeared satisfactory, although little access control exists.

From Maynard to the intersection of IA 187, the pavement is older PCC but is still in satisfactory condition. However, the ride is rough, especially for commercial vehicles.

Between the intersection of IA 187 to Fayette, IA 150 has been resurfaced in 2000 and appeared in satisfactory condition, with adequately wide granular shoulders and sufficient right-of-way width. Few crashes have been recorded along this section.

Through Fayette, pavement conditions appeared satisfactory, but a bridge over the Turkey River is less than shoulder width. The intersection with IA 93 had several recorded crashes during the review period, some resulting in injuries.

Between Fayette and West Union, pavement conditions are satisfactory because of an asphalt resurfacing in 2000. Some narrow right-of-way was observed in this section, with trees possibly obstructing sight distance in one location. No paved shoulders were present along this section of roadway. County Engineer King suggested that a deceleration and right-turn lane be considered at the 190th Street intersection, given the skewed alignment of the paved side road at this location.

Pavement conditions through West Union are mostly satisfactory and no particular safety concerns were noted, although some injury crashes have been recorded in the community on IA 150. Significant distortion of the pavement surface has occurred in the US 18 intersection. This distortion contributes to water ponding during rains and snow or ice build-up during winter

months, which can cause safety concerns for drivers and rough surface conditions for turning movements.

From West Union to the Winneshiek County line, pavement conditions on the asphalt surface are mostly satisfactory. However, this section has experienced several serious crashes, including four fatalities over the eight-year review period. The fatalities occurred in and near the Eldorado community, where a long hill with a narrow right-of-way and a close-proximity vertical rock face are present on one side of the roadway. This area is termed locally the “Eldorado Hill”.

From the Fayette County line to Calmar, the IA 150 pavement is PCC in good condition, although the ride is rough, especially for commercial vehicles. The terrain here is rolling, and several vertical and horizontal curves are located along the alignment. The granular shoulder width is adequate. Numerous crashes, including several injury crashes, have been recorded. An educational facility is located just south of Calmar, and some crashes have been recorded at or near the entrance. The visibility of this entrance appeared adequate, although the roadway alignment is curvilinear in this location.

IA 150 through Calmar is curvilinear, with a church and school located quite near the roadway. A parking lot adjacent to the US 52 intersection features an entrance quite near the intersection. A similar parking lot entrance exists on the northerly side of the intersection.

IA 150 terminates in Calmar at the US 52 intersection, and US 52 extends northerly toward the Minnesota state border.

From Calmar to IA 9 in Decorah, US 52 consists of PCC pavement in satisfactory condition but with a rough surface, especially for commercial vehicles. The granular shoulders are of adequate width. The alignment of this roadway section is quite curvilinear, with numerous vertical and horizontal curves. Numerous crashes have been recorded in this section, including several serious crashes. Paved side road intersections feature raised concrete STOP sign islands, and some intersections also have raised concrete median islands. Most paved road intersections feature roadway lighting.

The Winneshiek County Road B-16 intersection has been the site of several crashes over the eight-year review period. As stated above, this paved road intersection features a raised concrete STOP sign island and a large raised median island. In addition, the side road approach is slightly skewed and may present difficulties for drivers trying to view oncoming southbound traffic on US 52.

The IA 9 intersection in Decorah also features raised concrete islands. These have apparently hampered turning movements, as evidence of tire scrubbing was observed. Roadway lights are in place at this intersection.

Running northerly from IA 9 for approximately four miles, US 52 is PCC pavement in satisfactory condition, but the roadway also exhibits a rough surface for commercial traffic.

Shoulders are granular and of adequate width. Several intersections in Decorah have experienced numerous crashes, and all include raised concrete STOP sign and median islands.

From approximately four miles north of IA 9 to the Minnesota state line, the US 52 pavement is recently resurfaced asphalt in excellent condition. Some narrow shoulders were paved with the overlay, but rumble strips were not installed. The shoulders beyond the paved portion are granular, of adequate width, and in excellent condition. No evidence of edge rutting was observed.

The audit team found the general roadside maintenance along the corridor to be quite good, and recovery areas were well maintained for the most part.

## **NIGHTTIME REVIEW**

A nighttime field review of sections of IA 150/US 52 was conducted on the evening of October 7, 2009. Images taken during the field reviews can be found in Appendix D.

The review began in West Union and proceeded northerly to the Minnesota state line. Pavement markings did not exhibit good retro-reflectivity, and in many areas the painted edge line was not visible, either due to wear or because the line was obscured by a maintenance seal coat. North from West Union, many warning signs have recently been replaced with new fluorescent sheeting devices that had excellent visibility. Further north, however, older warning signs are still in place and conspicuity appeared poorer. Roadway lighting at paved road intersections provided good visibility of the roadway surface, but the raised concrete islands were not always clearly visible.

IA 150 from West Union to Maynard exhibited somewhat better pavement marking visibility, but retro-reflectivity can be improved. Very few warning signs are in place in this section, but the signs observed appeared to have adequate visibility.

## **WRAP-UP MEETING**

A wrap-up meeting for this road safety audit was conducted on the morning of October 8, again at the Iowa State Patrol District Office in Oelwein. In addition to the audit team and Iowa DOT District staff members (listed above), the following individuals participated:

- Lt. David Eick—Iowa State Patrol
- Myron Parizek—Benton County Engineer
- Wendy Mihm-Herold—Upper Explorerland Regional Planning Commission
- Larry Leliefeld—Upper Explorerland Regional Planning Commission
- Lee Bjerke—Winnebago County Engineer
- J.D. King—Fayette County Engineer
- John Rothlisberger—North Fayette School District

Wendy Mihm-Herold opened the meeting by introducing Superintendent Rothlisberger from the North Fayette School District, who explained issues regarding travel and roadway conditions on IA 150 in that area. Superintendent Rothlisberger expressed concern for both school bus and passenger safety, but he was especially focused on the safety of student drivers, some as young as 14 years old, who drive to and from school activities. He was also aware that many drivers try to avoid travel on this highway as much as possible and instead use the local road system. He suggested adding paved shoulders with rumble strips along the road where needed, as well as turning lanes at higher-traffic intersections. Adding passing lanes on some hills would also be helpful.

Superintendent Rothlisberger has adopted a practice of meeting with student drivers and their parents to discuss safety concerns and the need to adopt and follow good driving habits. This initiative as described by Superintendent Rothlisberger impressed the audit team and will be promoted as a recommended practice in other areas. In addition, he indicated that driver education in his district could more strongly emphasize driving on unpaved roads, which can be problematic for new drivers and drivers unfamiliar with those conditions. Because of his position as school district superintendent as well as his membership in the State Association of School Superintendents, Mr. Rothlisberger could have a significant influence on driver education statewide.

Jack Latterell recommended that local news media be urged to publish seasonal reminders for some common concerns, such as school bus regulations for drivers and the higher potential for animal crashes in autumn.

Jerry Roche observed that older and younger drivers may be overrepresented in the crash data for serious crashes and this issue will be studied further.

Based on discussions with the Iowa State Patrol and Iowa DOT maintenance supervisors, the audit team observed that a good relationship has developed between the two groups, which is crucial to cooperative efforts for addressing roadway and safety concerns.

Tom McDonald presented a summary of audit team observations from the daylight and nighttime reviews and mentioned some recommendations that would be included in the final audit report (discussed below). Recommendations include upgrading signing and pavement markings, adding partial paved shoulders with rumble strips or stripes, reviewing existing curves for beneficial addition of chevrons or other delineation, widening intersection radii where needed, and eventually removing raised concrete islands at paved side road intersections. McDonald added that the final report would also stress the potential benefit of education and news media coverage of safety concerns. The Iowa DOT and/or the Institute for Transportation (InTrans) would provide current crash data and other assistance if requested.

Additional crash data were researched as this final audit report was developed, for example, the location of animal crashes along the route, a crash report review at the County Road B-16 intersection, and a crash rate comparison with state averages in rural areas and at selected intersections. Results from these reviews are discussed later.

## CRASH DATA

The Iowa Traffic Safety Data Service staff at InTrans developed the data used for this safety audit. The most recent eight years of data, 2001 through 2008, were presented at the audit meetings in the form of crash location maps by county and major city as well as crash summaries for selected attributes, again listed by county. Intersection crash diagrams were prepared for all intersections where a significant number of crashes had been recorded. These crash data can be found in appendices A through C.

### *Benton/Buchanan Counties*

Because the reviewed section of IA 150 in Benton County is quite short, data for this section were combined with data for the adjacent Buchanan County section for presentation.

The crash summary for the Benton/Buchanan Counties section listed a total of 585 crashes for the eight-year period, of which 121 were animal-related. A total of 10 fatal, 23 major injury, 69 minor injury, 95 possible or unknown injury, and 388 property damage only crashes occurred. Other major crash causes included “failed to yield from a STOP sign,” “following too close,” and “driving too fast for conditions.” The number of crashes per year was fairly consistent over the eight-year period, with 2001 listing a high of 94 crashes, followed by 2004 with 90. Non-collision was found to be the most frequent manner of collision type, at 212 crashes, which indicates a high number of single-vehicle incidents. However, because urban crashes were also included in the totals, rear-end and broadside crashes were also high, usually occurring most frequently at intersections.

The crash rate was highest for drivers aged 21 through 60 years. Crashes were most frequent during the hours of approximately 3:00 p.m. through 5:00 p.m., and crash numbers at night were mostly quite low. Friday was the day of the week with the most crashes, with 110, followed by Saturday, with 99. Winter months had somewhat higher numbers of recorded crashes, although February did not follow that trend. Most serious crashes, fatalities, and major injuries occurred during the day between the hours of 11:00 a.m. and 7:00 p.m. Only one serious crash was recorded on Sunday for the eight-year review period. Of the 585 total crashes, 342 were recorded during daylight hours, but 107 occurred at night. Likewise, 358 of the crashes occurred during clear, partly cloudy, or cloudy conditions, while 80 occurred during snow conditions. However, roadway surface conditions were dry for 325 crashes and ice- or snow-covered for 90 incidents. A total of 950 drivers were involved in the 585 recorded crashes, and 761 of these were judged to be apparently normal at the time of the crashes; only 16 were found to be under the influence of alcohol or drugs. The most frequent driver contributing circumstances were “driving too fast for conditions,” “lost control,” and “followed too close,” but the numbers were not significantly high, especially when urban crashes are included in the totals. Several incidences of “ran traffic signal,” “ran STOP sign,” and “failed to yield from STOP sign” were also noted.

When considering only serious crashes, those resulting in fatalities or major injuries, the Benton County segment was found to have a low to medium crash rate and density of serious crashes when compared to similar roadways in Iowa. The Buchanan County segment south of Independence was rated as medium in this comparison, but the section north of Independence

was found to be medium to high in serious crash rate and density. The section just north of Hazelton was ranked high compared to similar roadways in Iowa.

Because animal crashes were the most common crash type, these were noted on crash maps to identify any areas where these incidents were more common. Although this crash cause was quite scattered along most of the Benton/Buchanan Counties segment, some concentrations appeared to occur from the north corporate limits (NCL) of Independence through the Otterville Boulevard intersection. Another concentration was noted from the south corporate limits (SCL) of Hazelton southerly through the 150th Street intersection. One additional concentration was found just north of Hazelton near the 110th Street intersection.

A crash location map (Appendix C) indicated several intersections in Independence where numerous crashes had occurred, although most were property damage only incidents. Seven major injury crashes were recorded in the eight-year review period, however. Intersection crash diagrams indicated the following crash history for selected intersections in that community:

- IA 150 and 2nd Street SE: 18 crashes
- IA 150 and 3rd Avenue SE: 22 crashes
- IA 150 and 5th Avenue NE: 34 crashes
- IA 150 and 3rd Street NE: 15 crashes

All of these intersections are signalized, and no apparent deficiencies in the signals were noted by the audit team. Only one of these locations, IA 150 and 5th Avenue NE, indicated a high concentration of crashes in any particular location. At this intersection, numerous rear-end collisions have been noted for westbound vehicles approaching the traffic signals; however, a review of the location by the audit team did not reveal any problem with signal visibility.

### *Fayette County*

The major crash cause in Fayette County during the eight-year review period was animal collisions, which accounted for 160 of 551 total crashes. Other major causes, although much lower in number, were “ran-off-road,” “ran traffic signal,” and “failed to yield from a STOP sign.” Crashes per year were fairly consistent, with 2001 having the high of 81 and 2004 having the low of 54. Non-collision crashes were the most frequent type of collision, with 215, again indicating a high number of single-vehicle crashes. Intersection crash types were notable because urban locations are included. Rear end, broadside, and angle crashes were among the most common listed types. Crashes occurred most frequently among drivers between the ages of 21 and 60, although both younger and older drivers were also involved in crashes: 11 drivers 85 years and older and 119 teenage drivers were noted.

Crashes were most frequent between the hours of 12:00 p.m. and 5:00 p.m. Friday was the most frequently noted day for crashes, with 93 recorded; Saturday and Sunday were the least frequently noted, with 63 crashes each. The months with the highest crash numbers were November and December. Most severe crashes were recorded between 10:00 a.m. and 6:00 p.m., but severe crashes were well distributed among days of the week. A high majority of crashes,

312 of 551, were recorded in daylight; 120 occurred in dark conditions. Weather was noted as clear, partly cloudy, or cloudy for 376 crashes; snow was noted for 34 incidents. A dry pavement surface was noted for 330 crashes, while snow, slush, or ice on the road surface was noted at the time of 67 crashes. Driver condition was judged to be apparently normal for 696 of 868 drivers; 12 drivers appeared to be under the influence of drugs or alcohol. The major driver contributing circumstances for the 868 drivers involved in the Fayette County crashes included “lost control,” “driving too fast for conditions,” “ran traffic signal,” and “failure to yield.” However, “no improper action” was noted for 327 drivers, and driver circumstances were “not reported” for another 118. These two driver circumstance categories are common for multi-vehicle crashes and animal impacts, respectively.

In reviewing the crash location maps for Fayette County, it appeared that crashes were well distributed along the section between Oelwein and Maynard; however, two fatal crashes had occurred, one in a horizontal curve. Two major injury crashes were also recorded in this section. If serious crashes alone are considered, this section was rated high for crash rate, medium for crash density, and medium to high compared to other similar roadway sections in Iowa. No clustering of animal crashes was noted in this section.

From Maynard to the intersection of IA 187, few crashes were recorded and all were property damage only. From that location to Fayette, several crashes were located, with one fatal incident noted. The remaining crashes were all low-severity or property damage only. These sections were rated low for serious crash incidence. A notable clustering of animal crashes was noted just south of Fayette, from south of the Klock Road intersection northerly into Fayette.

Between Fayette and West Union, crashes were well-distributed, with mostly property damage only crashes noted, although one fatal incident occurred near a horizontal curve. Numerous animal crashes were recorded between Ivy Road and 190th Street. Several animal crashes also occurred in the 190th Street intersection area. This section was rated as low to low-medium for serious crashes.

From West Union to the Winneshiek County line, numerous crashes were distributed evenly, but several serious crashes, including four fatal incidents, were noted along a series of horizontal curves on a hill locally designated “Eldorado Hill” and through that adjacent community. This section rated high to medium high for serious crash rate, serious crash density, and in comparison to other similar road sections in Iowa. A moderate clustering of animal crashes was located just south of “Eldorado Hill.”

Urban crashes in Fayette County were examined for the cities of Oelwein, Fayette, and West Union. Crash data revealed several intersections in Oelwein where multiple crashes had occurred; many of these intersections are controlled by traffic signals. Crash severity in Oelwein indicated mostly property damage only crashes, although 6 major injuries and 17 minor injuries were recorded over the eight-year analysis period. Intersection crash diagrams for the following intersections are included in the crash data (Appendix B):

- IA 150 and IA 281: 7 crashes

- IA 150 and 20th Street SE: 14 crashes
- IA 150 and 7th Street SE: 21 crashes
- IA 150 and 2nd Street SE: 21 crashes
- IA 150 and 1st Street: 25 crashes
- IA 150 and IA 3/C-50: 19 crashes

Traffic signals at these intersections appeared to be visible, and no apparent deficiencies were noted by the audit team. In addition, no substantial concentration of crashes was noted for a specific quadrant or movement at these locations.

In the city of Fayette, two major injury crashes were recorded, along with numerous property damage only crashes. An intersection crash diagram (Appendix B) indicated the following data at IA 150 and IA 93/150th Street: seven crashes, with one major injury and one minor injury included.

In the city of West Union, two major injury crashes and five minor injury events were noted, along with numerous property damage only crashes. An intersection crash diagram (Appendix B) was prepared for one intersection (IA 150 and US 18) in West Union and indicated six crashes.

At the intersection of IA 150 and Jefferson Street, five crashes for the eight-year analysis period were recorded, including two minor injury incidents.

### *Winneshiek County*

A total of 530 crashes were recorded in this county on IA 150 and US 52 during the period from 2001 through 2008. Crash severity totals revealed 6 fatal crashes, 21 major injury crashes, 44 minor injury crashes, 64 possible/unknown injury crashes, and 395 property damage only crashes. In addition to 205 animal crashes, other major causes for crashes included “swerving/evasive action” (which might also be related to animal encounters), “driving too fast for conditions,” and “ran-off-road.” Noted intersection crash causes included “failed to yield right-of-way from STOP sign,” with 26 crashes, and “ran STOP sign,” with six incidents.

The most common manner of collision recorded for crashes was non-collision, with 302 crashes, which indicated numerous single-vehicle incidents. Urban and intersection type crash data included 52 rear end and 45 broadside incidents. Of the 713 drivers involved in these crashes, those between the ages of 21 and 24 had the most crashes, with 87. Teen drivers were involved in a total of 95 crashes, but a consistently higher number of crashes were shown for the ages of 21 through 59.

The most crashes, 95, were recorded in the year 2001. The most common time of day for crashes was between 5:00–6:00 p.m., with 63; fewer crashes were noted on an hourly basis after midnight. The days of the week with the most crashes were Friday, with 91, followed by Saturday, with 89. Tuesday and Wednesday experienced the fewest crashes, with 64 each. Most crashes were recorded on a monthly basis during the winter period from October through February, with January having the highest number of crashes, with 72. Most serious crashes

(fatality and major injury) were recorded during the hours of 8:00 a.m. to 6:00 p.m. Major injury crashes were fairly well distributed by day of week, but three of six fatal crashes were recorded on Sunday.

Of the 530 crashes recorded in Winneshiek County, 220 occurred in daylight conditions, while 169 were listed as nighttime crashes. For weather conditions, 279 crashes happened during clear, partly cloudy, or cloudy conditions. However, 83 crashes occurred in the snow, and an additional 11 incidents involved blowing snow or other materials. Road surface conditions were recorded as dry for 254 of 530 crashes, but snow or ice was indicated for 101 crashes, 19% of the total.

Driver conditions were judged to be apparently normal for 538 of 713 drivers involved in the 530 crashes in Winneshiek County. A total of 18 drivers were found to be under the influence of alcohol or drugs. For driver contributing circumstances, commonly listed issues were “driving too fast for conditions,” “lost control,” and “failed to yield from STOP sign.” No improper action by drivers was listed for 268 of the 713 total drivers.

The crash location map for IA 150/US 52 in Winneshiek County indicates that crashes were well distributed along the section of IA 150 from the Fayette County line to Calmar. Most were property damage only, but one fatal crash and three major injury incidents were noted. Approximately one mile south of Calmar is a dairy facility of the Northeast Iowa Community College. Several crashes were recorded at or near the entrance to this complex, which features IA 150 roadway curvature; most crashes were property damage only, but one major injury crash and several minor injury events were recorded at or near this location. This section of roadway has been rated as low to medium for crash density and rate compared to similar roadways in Iowa.

IA 150 terminates in Calmar, and US 52 designates this corridor northerly. From Calmar to the IA 9 intersection in Decorah, a US 52 crash map shows scattered crashes. Most were property damage only, but four fatal crashes and six major injury crashes were recorded in this section. This section of US 52 was rated as medium to high in crash density and medium for crash rate in comparison to similar Iowa roadways. Animal crashes from Calmar to Decorah were well distributed, and no concentration was evident.

One intersection north of Calmar, Winneshiek County Road B-16, was the site of numerous crashes. A total of 12 crashes were recorded at or near this intersection during the eight-year analysis period, including one fatal and four minor injury crashes. A review of crash reports for this location indicated the following major causes:

- Animal: 2 crashes
- Loss of control due to weather and/or pavement conditions: 3 crashes
- Failed to yield right-of-way while making left turn: 3 crashes
- Failed to yield from STOP sign (including one fatal crash): 3 crashes
- Loss of control: 1 crash

This intersection features raised concrete islands for a STOP sign and in the median. These islands will be addressed in the audit team suggestions later in this report.

From Decorah to the Minnesota state line, crashes are well distributed and mostly involve property damage only incidents. However, a curve location approximately eight miles northerly from Decorah experienced one fatal crash and three major injury crashes. Five additional major injury crashes occurred between that location and the Minnesota border. A total of five crashes were recorded at the Winneshiek County Road A-18 intersection, two of which were major injury events. Animal crashes were scattered along this section, but a concentration is evident from the Pole Line Road intersection in Decorah northerly through the College Drive intersection. This section of US 52 was rated medium in crash density but medium to high in both crash rate and in comparison to other similar roadways in Iowa.

Two urban areas are included in the crash data presentations. Crashes on IA 150 and US 52 through Calmar were scattered throughout the community; most were property damage only, although one major injury crash was recorded. The skewed intersection of US 52 and 175th Street at the NCL of Calmar experienced a total of seven crashes, most of which were property damage only, although two injury crashes were also noted there. Several intersections along the westerly side of Decorah, including and north of IA 9, had experienced several crashes, as noted below, based on the intersection crash diagrams (Appendix B):

- US 52 and IA 9: 15 total crashes, almost all property damage only at this four-way stop-controlled location
- US 52 and Madison Road: 16 total crashes, including one major injury and several minor or possible injury crashes
- US 52 and Pole Line Road: 12 total crashes, mostly minor or possible injury crashes
- US 52 and Town Line Road: 9 total crashes, all property damage only

A cursory review of selected crash reports seems to indicate a possible overrepresentation of older and younger drivers in serious crashes. To investigate this observation more closely, data for these drivers were summarized in Table 2.

**Table 2. Teen driver and older driver crash rates**

<b>Benton/Buchanan</b>		
	<b>Teen Drivers(14-19)</b>	<b>Older Drivers (65+)</b>
Fatal	0 of 19: 0%	1 of 19: 5.3%
Major Injury	3 of 34: 8.8%	5 of 34: 14.7%
All Serious	3 of 53: <b>5.7%</b>	6 of 53: <b>11.3 %</b>
Total Crashes	144 of 530: <b>15.2%</b>	104 of 530: <b>10.9%</b>
<b>Fayette</b>		
Fatal	1 of 11: 9.1%	2 of 11: 18.2%
Major Injury	7 of 31: 22.6%	3 of 31: 9.7%
All Serious	8 of 42: <b>18.2 %</b>	5 of 42: <b>11.4%</b>
Total Crashes	129 of 868: <b>14.9%</b>	126 of 868: <b>14.5%</b>
<b>Winneshiek</b>		
Fatal	3 of 12: 25%	2 of 12: 16.7%
Major Injury	2 of 34: 5.9%	7 of 34: 20.6%
All Serious	5 of 48: <b>10.4%</b>	9 of 48: <b>18.8%</b>
Total Crashes	95 of 713: <b>13.3%</b>	89 of 713: <b>12.5%</b>
<b>Complete Corridor</b>		
Fatal	4 of 42: 9.6%	5 of 42: 11.9%
Major Injury	12 of 99: 12.1%	15 of 99: 15.2%
All Serious	16 of 143: <b>11.2%</b>	20 of 143: <b>14.0%</b>
Total Crashes	368 of 2531: <b>14.5%</b>	319 of 2531: <b>12.6%</b>

Within individual counties, there appears to be both over- and underrepresentation of these driver groups, but sample sizes are small. When comparing data for the entire corridor, both younger and older driver groups' involvement in serious crashes compares quite favorably to total crashes involving these drivers, and no overrepresentation is indicated.

Copies of all crash maps, summaries, and intersection crash diagrams are included in appendices A through C.

## **AUDIT TEAM CONCLUSIONS AND SUGGESTIONS**

Based on the observations made during the field reviews; an examination of crash data; and input from Northeast Iowa Highway 150/52 Coalition members, local agencies, law enforcement representatives, and others, the audit team has drawn the following conclusions and made the suggestions listed below for addressing safety concerns on the IA 150/US 52 corridor. The following list is not presented in a priority order:

- Concentrations of animal crashes should be reviewed for possible mitigating improvements, ranging from deer crossing warning signs to deer fencing if a bridge or large structure is available for an alternate crossing path by the animals. Clearing of vegetation in the right-of-way can also be effective in reducing deer collisions.
- Newly installed micropismatic, fluorescent yellow warning signs and chevrons are very visible along the route, especially in low-light conditions. Consideration should be given to systematically replacing all warning signs and chevrons with this higher grade sheeting. Larger size chevrons (30 in. x 36 in.) should be considered for curves with significant run-off-road crash history.
- All paved intersections in the IA 150/US 52 corridor, except for two in Fayette County, appeared to feature raised concrete islands for STOP signs and, in some locations, medians. The height of these islands can present a potential problem for errant vehicles in addition to making winter maintenance activities more difficult. Removal of these islands should be considered with any future resurfacing and restoration projects.
- Several intersections also included right-turn lanes. Where a significant number of “failed to yield from STOP sign” crash causes are noted at a given location, the Iowa DOT district office should review these turn lanes for possible “shadowing” of approaching vehicles from the vision of drivers stopped at the intersection.
- A review of other paved road intersections for right-turn lane needs should be completed as part of future improvements in the corridor.
- A recent paved shoulder widening and resurfacing project was completed on US 52 north of Decorah. A follow-up project to mill rumble strips into the widened shoulder should be considered, possibly converting the rumble strips to rumble stripes to enhance the longevity and wet weather visibility of the painted edge lines.
- Considering the crash history in the area, the audit team suggests the Goeken Park–Eldorado Hill section be a priority area for improvements, including paved shoulders and enhanced delineation.
- Areas where large trees located in the right-of-way may hamper drivers’ passing sight distance should be reviewed, and the trees should be removed if needed.
- Areas where frequent run-off-road crashes and/or edge rutting have occurred should be reviewed for the beneficial installation of partially paved shoulders with rumble strips/stripes.
- Intersection radii in urban areas that present an insufficient turning path for commercial vehicles should be reviewed for the feasibility of widening.
- Continue to monitor crash history at signalized intersections and review findings and suggested improvements with city authorities.
- Review the curves throughout the IA 150/US 52 corridor for guidance enhancement needs, considering crash history and degree of curvature. Possible treatments might include chevrons for all curves with a 6° or sharper radius and delineators along curves with radii of 3°–6°, regardless of current crash history.
- For future resurfacing and restoration projects, consider installing milled-in pavement markings to enhance the longevity of those features. For current markings, consider a shortened replacement cycle for both the centerline and edge lines.

- Build on and assist the current educational efforts of school districts in the area by providing data, offering presentations, and encouraging programs such as described for the North Fayette School District.
- Work with the UERPC and other planning agencies to involve local media in efforts to advise the public of traffic safety concerns and seasonal interest issues, such as more frequent deer movements and school buses' use of roadways. Providing crash statistics and advice for safe driving could be beneficial.
- Cities and counties should be encouraged to replace existing street name signs with signs that use larger text and high-intensity sheeting. Use of advance signing for street names at selected intersections might also be beneficial.
- It may be advantageous to form a multi-disciplinary traffic safety team in this area to build on the good working relationships already in existence and to follow up on audit suggestions. An advantageous early activity for such a group might be to develop the cooperative involvement of enforcement and transportation agencies in sign and pavement marking management, especially for law enforcement officers' reporting of traffic control devices with reduced nighttime visibility.
- It may be valuable to organize cooperative activities among the Iowa State Patrol, Governor's Traffic Safety Bureau, Iowa DOT, and UERPC to develop and promote public information campaigns for such topics as deer crashes, cell phone use and texting while driving, winter driving, and school bus travel. Potential involvement by Superintendent Rothlisberger with younger drivers would add to the benefit.
- In selected areas, focused enforcement of violations for passing stopped school buses, seat belt usage, and impaired driving should be considered.

# APPENDIX A. IA 150/US 52 ROAD SAFETY AUDIT CRASH SUMMARIES (2001–2008)

**Table A.1. Benton/Buchanan County crashes by major cause**

Year	Major Cause																	
	Animal	Ran Traffic Signal	Ran Stop Sign	Crossed Centerline	FTYROW: At uncontrolled intersection	FTYROW: From Stop Sign	FTYROW: Making left turn	FTYROW: From driveway	FTYROW: From parked position	FTYROW: To pedestrian	FTYROW: Other	Traveling wrong way or on wrong side of road	Driving too Fast for Conditions	Exceeded authorized speed	Made Improper Turn	Followed too close	Disregarded RR Signal	Operating vehicle in an erratic manner
2001	15	1	2	2	1	6	3			1	2	1	6		2	6		
2002	14	4	1	4	2	5		1			2		6		1	5		4
2003	17	1	2	1	1	3	2	2	2	1	4		4		2	10		1
2004	20	2	2	6		3	5		3		3		5			9	1	2
2005	16	3		3		6	2	3					4			6		2
2006	14	1	1	1		5		1	1		1		7	2	3	5		4
2007	11	1		1		5	1		1		2		4	1	1	9		4
2008	14	2	2	5		1	1			1	1	1	6	1	1	7		3
Total	121	15	10	23	4	34	14	7	7	3	15	2	42	4	10	57	1	20

Year	Major Cause (Cont.)															Total
	Swerving/ Evasive Action	Over correcting/ over steering	Equipment Failure	Ran off Road - right	Ran off Road - left	Lost Control	Inattentive/distracted by: Passenger	Inattentive/ distracted by: Fallen object	Inattentive/distracted by: Fatigued/asleep	Vision Obscured	Cargo/equipment loss or shift	Other Improper Action	Unknown	No improper action	Not Reported	
2001	9	3	1	2		4					1	3	18	1	4	94
2002	6	1		2		2	1		1	1		6	5	1	2	77
2003	6		1			1	1					5	1			68
2004	5	3		4	2	3		1				9	2			90
2005	6		1	2	2		1					4	2	2	1	66
2006	8		1	2				1				7				65
2007	5	1		5	1	3				2		3	2	1		64
2008	5			3	1		1					2	2	1		61
<b>Total</b>	<b>50</b>	<b>8</b>	<b>4</b>	<b>20</b>	<b>6</b>	<b>13</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>39</b>	<b>32</b>	<b>6</b>	<b>7</b>	<b>585</b>

**Table A.2. Benton/Buchanan County crashes by hour of day and day of week**

	Hour of Day																							Total		
																							Unknown			
Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Unknown	Total
2001	8	1			3	2	1	4	7		1	5	2	4	4	7	8	12	5	4	5	7	2	1	1	94
2002				1	1	4	4	1	3	2	10	4	1	3	6	8	6	8	1	1	6	4	2	1		77
2003	1	1				4	2	2	1	2	5	3	6	5	6	9	3	5	3	2	2	1	2	1	2	68
2004	1	1	1		1	2	1	3	5	2	6	5	10	3	10	12	9	6	2		4	3	3			90
2005			1		3	2	2	1	3	2	1	3	4	6	6	6	2	7	8	3	4	1	1			66
2006				3	3	1	3		2	1	5	1	7	5	3	5	5	4	3	3	3	1	2	5		65
2007		1				1		2	4	6	1	6	2	6	4	5	6	4	3	4	3	2	2	2		64
2008	4	2	2	2	1	3	2	4	2	1	2	3	2	2	2	5	6	2	4	1	2	4	3			61
Total	14	6	4	6	12	19	15	17	27	16	31	30	34	34	41	57	45	48	29	18	29	23	17	10	3	585

**Table A.3. Benton/Buchanan County crashes by day of week and month**

Year	Day of Week							Month												Total
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	January	February	March	April	May	June	July	August	September	October	November	December	
2001	14	2	10	16	12	27	13	12	8	10	6	6	11	4	3	6	5	17	6	94
2002	5	11	10	10	13	17	11	7	4	5	8	8	4	5	5	4	9	9	9	77
2003	4	13	14	8	11	9	9	2	4	9	3	10	2	8	7	6	6	4	7	68
2004	12	17	11	10	10	13	17	13	10	4	8	4	5	5	11	6	8	9	7	90
2005	8	9	7	5	10	14	13	4	2	7	6	4	4	4	5	4	6	8	12	66
2006	7	10	6	16	4	11	11	5	4	7	6		3	6	6	9	7	6	6	65
2007	4	10	3	12	11	11	13	8	4	4	2	1	3	12	8	3	9	4	6	64
2008	12	6	8	7	8	8	12	3	8	11	4	8	3	5	4	3	4	3	5	61
Total	66	78	69	84	79	110	99	54	44	57	43	41	35	49	49	41	54	60	58	585

**Table A.4. Benton/Buchanan County crashes by severity and hour of day**

Crash Severity	Hour of Day																							Total		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		23	Unknown
Fatal	1						1	1	1			1					1	1			1		2			10
Major Inj					1		3			1		3	2	1	3	2	1	1	1			1	1	2		23
Minor Inj			2	2	2	1		1	3	1	2	3	5	4	4	9	7	7	3	3	4	2	2	2		69
Poss/Unk		1	1	2	3	1	1	4	4	3	5	5	6	5	6	11	8	8	3	4	4	7	3			95
PDO	13	5	1	2	6	17	10	11	19	11	24	18	21	24	28	35	28	31	22	11	20	13	9	6	3	388
Total	14	6	4	6	12	19	15	17	27	16	31	30	34	34	41	57	45	48	29	18	29	23	17	10	3	585

**Table A.5. Benton/Buchanan County crashes by severity and day of week**

Crash Severity	Day of Week							Total
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
Fatal		2	2		2	1	3	10
Major Inj	1	2	3	4	5	4	4	23
Minor Inj	6	8	7	8	11	12	17	69
Poss/Unk	11	15	11	9	13	20	16	95
PDO	48	51	46	63	48	73	59	388
Total	66	78	69	84	79	110	99	585

**Table A.6. Benton/Buchanan County crashes by light condition**

Year	Light Conditions								Total
	Daylight	Dusk	Dawn	Dark - Roadway lighted	Dark - Roadway not Lighted	Dark - unknown roadway lighting	Unknown	Not Reported	
2001	45	3	1	4	22		15	4	94
2002	46	5	2	3	8	1	8	4	77
2003	45	3			7		11	2	68
2004	60	1	1	4	5		19		90
2005	38	1	1	3	10		13		66
2006	33	1	2	6	12		11		65
2007	45			2	4	1	1	11	64
2008	30	1	3	5	12		1	9	61
Total	342	15	10	27	80	2	79	30	585

**Table A.7. Benton/Buchanan County crashes by weather conditions**

Year	Weather Conditions													Total
	Clear	Partly Cloudy	Cloudy	Fog/Smoke	Mist	Rain	Sleet/ hail/ freezing rain	Snow	Severe Winds	Blowing sand/ soil/ dirt/ snow	Not Reported	Other	Unknown	
2001	33	11	9	1	2	6		11	1	3	5		12	94
2002	30	10	8	1	2	1	1	10	2		5		7	77
2003	34	6	8			1		5		1	2		11	68
2004	39	9	6		1	4	1	8		3			19	90
2005	25	13	6			2		7					13	66
2006	21	12	7		2	7		4	1				11	65
2007	23	6	8		2	1	1	7		5	10		1	64
2008	18	9	7		3	1		11		2	9	1		61
Total	223	76	59	2	12	23	3	63	4	14	31	1	74	585

**Table A.8. Benton/Buchanan County crashes by road surface condition**

Year	Road Surface Conditions											Total
	Dry	Wet	Ice	Snow	Slush	Sand/ mud/ dirt/ oil/ gravel	Water	Other	Unkonwn	Not Reported		
2001	48	8	10	6					14	8		94
2002	45	3	6	4	2			1	7	9		77
2003	43	2	4	4		1			11	3		68
2004	50	6	7	7					19	1		90
2005	37	5	3	7				1	13			66
2006	39	9	1	2	1		1	1	11			65
2007	32	4	8	5	2			2	1	10		64
2008	31	5	6	10						9		61
<b>Total</b>	<b>325</b>	<b>42</b>	<b>45</b>	<b>45</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>5</b>	<b>76</b>	<b>40</b>		<b>585</b>

**Table A.9. Benton/Buchanan County crashes by driver age**

Driver Age																								
Year	Less than 14	14	15	16	17	18	19	20	21-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	Unknown	Total
2001			3	4	6	2	7	1	16	10	17	12	6	15	12	7	6	5	2	3	1		6	141
2002			2	1	10	3	3	7	9	8	12	10	11	13	8	9	3	2	2	5	3	1	4	126
2003			1	4	3	5	6	3	11	11	11	6	13	5	8	7	4	6	7	3		2	1	117
2004		1	1	7	4	6	7	6	12	12	9	16	13	13	8	12	2	4	3	4		1	5	146
2005	1		2	1	1	4	4	4	16	7	4	6	5	15	6	12	7	3	1	3	3	1	5	111
2006				7	3	6	3	2	8	9	4	7	11	11	8	5	4	10	1	4	2	1		106
2007			1	6	2	5	2	4	12	8	10	8	5	12	9	8	7	4	3		1	1		108
2008				4	4		2		3	11	14	7	10	6	9	5	5	3	3	4	1	1	3	95
Total	1	1	10	34	33	31	34	27	87	76	81	72	74	90	68	65	38	37	22	26	11	8	24	950

**Table A.10. Benton/Buchanan County crashes by manner of collision**

Year	Manner of Collision									Total
	Non-collision	Head-On	Rear-end	Angle, Oncoming Left Turn	Broadside	Sideswipe, Same Direction	Sideswipe, Opposite Direction	Unknown	Not Reported	
2001	48	6	15	8	9	3	1	2	2	94
2002	31	2	21	4	11	4	2	1	1	77
2003	24	1	23		10	8	2			68
2004	36		28	6	8	7	3	2		90
2005	18	2	22	2	12		1	9		66
2006	16	2	21	2	8	7	1	8		65
2007	16	3	25	2	5	3			10	64
2008	23	3	12	3	6	2	5		7	61
<b>Total</b>	<b>212</b>	<b>19</b>	<b>167</b>	<b>27</b>	<b>69</b>	<b>34</b>	<b>15</b>	<b>22</b>	<b>20</b>	<b>585</b>

**Table A.11. Benton/Buchanan County crashes by driver contributing circumstances**

Year	Driver Contributing Circumstances																		
	Ran Traffic Signal	Ran Stop Sign	Exceeded authorized speed	Driving too fast for conditions	Made improper turn	Traveling wrong way or on wrong side of road	Crossed Centerline	Lost Control	Followed too close	Swerved to avoid	Over correcting/ over steering	Operating vehicle in an erratic manner	FTYROW: From stop sign	FTYROW: Making left turn	FTYROW: From Driveway	FTYROW: From parked position	FTYROW: To pedestrian	FTYROW: At uncontrolled intersection	FTYROW: Other
2001	1	2		6	3		2	11	6	6	4		6	3			1	1	2
2002	4	1		7	1		3	8	5	1		3	5		1			2	1
2003	1	2		5	2		1	5	10	1		2	3	2	2	2	1	1	4
2004	2	2		5			5	11	10	3	1	2	3	5		3			4
2005	3			5			3	4	7			2	6	2	3				
2006	1	1	2	7	3		1	9	4	1		4	5		1	1			1
2007	1		1	4	1		1	8	9	1	1	4	5	1		1			2
2008	2	2	1	6	1	1	5	9	6	2		3	1	1			1		2
Total	15	10	4	45	11	1	21	65	57	15	6	20	34	14	7	7	3	4	16

Year	Driver Contributing Circumstances (Cont.)																Total
	Inattentive/ distracted by: Passenger	Inattentive/ distracted by: Use of phone or other device	Inattentive/ distracted by: Fallen object	Inattentive/ distracted by: Fatigued/ asleep	Vision Obscured	Other improper action	No improper action	Not Reported	Unknown	Apparently Normal	Physical impairment	Asleep/ fainted/ fatigued/ etc.	Under the influence of alcohol/ drugs/ medications	Other	Unknown	Not Reported	
2001				1	1	4	48	11	22	109	1	1	2		21	7	141
2002	1			1	1	7	48	15	11	103		1	2	1	13	6	126
2003	1	1			2	8	45	16		93			2	3	12	7	117
2004			1			13	49	21	6	111	1	1	5	5	22	1	146
2005	1	1		1		11	40	16	6	88		3	1	1	17	1	111
2006		1	1			10	42	11		88	1	1	2	2	12		106
2007					10	5	36	2	15	91	1	1	2	1	2	10	108
2008	1					4	37		10	78	1	1		5	1	9	95
<b>Total</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>14</b>	<b>62</b>	<b>345</b>	<b>92</b>	<b>70</b>	<b>761</b>	<b>5</b>	<b>9</b>	<b>16</b>	<b>18</b>	<b>100</b>	<b>41</b>	<b>950</b>

**Table A.12. Fayette County crashes by major cause**

Year	Major Cause																		
	Animal	Ran Traffic Signal	Ran Stop Sign	Crossed Centerline	FTYROW: At uncontrolled intersection	FTYROW: From Stop Sign	FTYROW: Making left turn	FTYROW: From driveway	FTYROW: From parked position	FTYROW: To pedestrian	FTYROW: Other	Traveling wrong way or on wrong side of road	Driving too Fast for Conditions	Exceeded authorized speed	Made Improper Turn	Followed too close	Swerving/ Evasive Action	Over correcting/over steering	Equipment Failure
2001	26	4		2		4	4	1	1	1	2		4		3	4	3		
2002	19	4	2	2	1	8	2	1	4		2	1	2	1	2	5	2		1
2003	20	2	3	1	1	4	5		1		5		2	4	1	1	5	3	
2004	19	5		1		3	3	2			3		5		2	3	2		
2005	21	2		2		7	5				2				2	8	1	2	
2006	23	2				3	5				1		3		4	4	3		
2007	16	1	1		1	2	9				1		3		5	1	4	1	
2008	16	3	2	2		5	4				1		8	1	2	6	6		
Total	160	23	8	10	3	36	37	4	6	1	17	1	27	6	21	32	26	6	1

Year	Major Cause (Cont.)											Total
	Ran off Road - right	Ran off Road - left	Lost Control	Inattentive/distracted by: Passenger	Inattentive/ distracted by: Use of phone or other device	Inattentive/distracted by: Fatigued/asleep	Vision Obscured	Other Improper Action	Unknown	No improper action	Not Reported	
2001	3	1			1	1	3	4	6	1	2	81
2002	4	2	2						4	1		72
2003	2	1	4	1				3	1	3	5	78
2004	2		1		1				1	1		54
2005	2	2	2				1	2	1			62
2006	4	1	2					3		3		61
2007	5	4	2				1	7	4	2		70
2008	3	3	3					4	1	3		73
<b>Total</b>	<b>25</b>	<b>14</b>	<b>16</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>5</b>	<b>23</b>	<b>18</b>	<b>14</b>	<b>7</b>	<b>551</b>

**Table A.13. Fayette County crashes by manner of collision**

Year	Manner of Collision								Total	
	Non-collision	Head-On	Rear-end	Angle, Oncoming Left Turn	Broadside	Sideswipe, Same Direction	Sideswipe, Opposite Direction	Unknown		Not Reported
2001	34	3	13	7	9	6	2	1	6	81
2002	26		9	6	17	8		1	5	72
2003	36	1	12	6	14	7		2		78
2004	23		8	3	12	4	3	1		54
2005	24	2	9	3	9	9	2	4		62
2006	27	1	10	6	8	4	1	4		61
2007	19	8	6	9	8	12	1	2	5	70
2008	26	3	15	4	7	4	2	3	9	73
Total	215	18	82	44	84	54	11	18	25	551

**Table A.14. Fayette County total crashes by hour of day**

Year	Hour of Day																							Total		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		23	Unknown
2001	3	1	1	1		3	6	3	3	2	3	2	6	4	4	6	1	9	5	6	1	5	2	3	1	81
2002	1		2	1	2	3	2	1	3	2	3	3	5	5	4	4	9	5	6	4	3	1	3			72
2003		2	2		2	1	3	3	5		7	4	5	2	2	6	8	8	4	4	2	2	4	1	1	78
2004	1	1				1	1		1	2		3	5	1	3	8	8	6	3		5	2	1	2		54
2005			2	1	2	3	3	2	1	2	2	4	3	6	2	5	3	5	3	3	4	3	1	2		62
2006	3					2	2	1	2	3	2	3	5	4	3	7	4	3	2	7	2	3		3		61
2007			3			5	3	4	4	3	3	4	4	5	5	4	4	9	5	3	1			1		70
2008	3	1		1	3	1	2	6	1	4	8	4	7	3	6	5	4	5	5			2	1	1		73
Total	#	5	#	4	9	19	22	#	#	18	28	27	40	30	29	45	41	50	33	27	18	18	12	13	2	551

**Table A.15. Fayette County total crashes by day of week and month**

Year	Day of Week							Month												Total
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	January	February	March	April	May	June	July	August	September	October	November	December	
2001	6	9	13	81	15	17	9	6	1	3	9	13	4	4	3	7	7	11	13	81
2002	10	17	10	72	12	12	6	8	4	6	9	5	6	7	2	5	2	5	13	72
2003	8	12	17	78	8	17	8	6	6	7	10	5	3	5	5	4	7	12	8	78
2004	7	9	10	54	7	3	6	3	4	5	3	1	5	8	4	3	2	9	7	54
2005	10	6	15	62	8	9	6	4	2	7	5	7	5		5	5	10	6	6	62
2006	8	9	5	61	9	15	9	3	6	2	3	5	11	3	3	4	5	8	8	61
2007	8	11	8	70	10	7	13	6	6	5	2	6	7	3	5	6	4	11	9	70
2008	6	11	4	73	16	13	6	4	17	2	3	5	7	5	1	3	8	11	7	73
Total	63	84	82	551	85	93	63	40	46	37	44	47	48	35	28	37	45	73	71	551

**Table A.16. Fayette County crashes by severity and day of week**

Crash Severity	Day of Week							Total
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
Fatal		1	1	2	2	1	1	8
Major Inj	2	3	1	2	4	3	1	16
Minor Inj	8	7	7	7	4	9	3	45
Poss/Unk	7	11	14	12	12	9	9	74
PDO	46	62	59	58	63	71	49	408
Total	63	84	82	81	85	93	63	551

**Table A.17. Fayette County crashes by severity and hour of day**

Crash Severity	Hour of Day																							Total		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		23	Unknown
Fatal		8								1				1	1		2			1		1	1			8
Major Inj	1	16		1				1	1		1	1	5	1			1	1	1					1		16
Minor Inj	1	45			1	1	1	1	2	1	4	5	1	2	3	2	3	6	1	1	2	2	2	1	1	45
Poss/Unk	1	74	2		2	2	3	3	2	3	4	4	4	6	7	11	5	4	4	2	2	1	1			74
PDO	8	408	8	3	6	16	18	#	#	13	19	17	30	20	18	32	30	39	27	23	14	14	8	11	1	408
Total	#	551	#	4	9	19	22	#	#	18	28	27	40	30	29	45	41	50	33	27	18	18	12	13	2	551

**Table A.18. Fayette County crashes by light conditions**

Year	Light Conditions							Total
	Daylight	Dusk	Dawn	Dark - Roadway lighted	Dark - Roadway not Lighted	Unknown	Not Reported	
2001	43	2	4	5	18	2	7	81
2002	42	2	2	5	11	2	8	72
2003	42	1	1	8	10	5	11	78
2004	27	2	1	4	4	3	13	54
2005	34	1		3	11	4	9	62
2006	31	1		3	12	6	8	61
2007	45	1	4	3	9		8	70
2008	48		2	3	11		9	73
<b>Total</b>	<b>312</b>	<b>10</b>	<b>14</b>	<b>34</b>	<b>86</b>	<b>22</b>	<b>73</b>	<b>551</b>

**Table A.19. Fayette County crashes by weather conditions**

Year	Weather Conditions												Total
	Clear	Partly Cloudy	Cloudy	Fog/Smoke	Mist	Rain	Sleet/ hail/ freezing rain	Snow	Severe Winds	Blowing sand/ soil/ dirt/ snow	Not Reported	Unknown	
2001	41	9	8	1	2	6	1	1		3	6	3	81
2002	37	7	9	1	1	1		5			9	2	72
2003	38	9	5	1		2		5	1	2	11	4	78
2004	20	5	5		2	2		4			13	3	54
2005	28	9	5				2	4			10	4	62
2006	27	7	6		1	2		4			8	6	61
2007	30	11	9	1	1			7	1	2	8		70
2008	28	12	11		2	1	2	4	1	3	9		73
Total	249	69	58	4	9	14	5	34	3	10	74	22	551

**Table A.20. Fayette County crashes by road surface conditions**

Year	Road Surface Conditions									Total
	Dry	Wet	Ice	Snow	Slush	Sand/ mud/ dirt/ oil/ gravel	Other	Unkonwn	Not Reported	
2001	52	12		2	1	1		3	10	81
2002	47	5	1	4	1	1		2	11	72
2003	46	6	3	4	2		1	5	11	78
2004	28	6		2	2			3	13	54
2005	38		2	8				4	10	62
2006	37	5	1	4				6	8	61
2007	47	4	2	7	2				8	70
2008	35	9	10	7	2				10	73
<b>Total</b>	<b>330</b>	<b>47</b>	<b>19</b>	<b>38</b>	<b>10</b>	<b>2</b>	<b>1</b>	<b>23</b>	<b>81</b>	<b>551</b>

**Table A.21. Fayette County crashes by driver condition**

Year	Driver Condition							Total
	Apparently Normal	Illness	Asleep/ fainted/ fatigued/ etc.	Under the influence of alcohol/ drugs/ medications	Other	Unknown	Not Reported	
2001	102		2	1	2	5	15	127
2002	95		3	1	4	4	9	116
2003	89		2	3	2	8	18	122
2004	69			1	1	4	11	86
2005	78		1			7	12	98
2006	75		2		2	6	9	94
2007	92		2	2	2	5	9	112
2008	96	1	1	4		2	9	113
<b>Total</b>	<b>696</b>	<b>1</b>	<b>13</b>	<b>12</b>	<b>13</b>	<b>41</b>	<b>92</b>	<b>868</b>

**Table A.22. Fayette County crashes by driver contributing circumstances**

Year	Driver Contributing Circumstances																	
	Ran Traffic Signal	Ran Stop Sign	Exceeded authorized speed	Driving too fast for conditions	Made improper turn	Traveling wrong way or on wrong side of road	Crossed Centerline	Lost Control	Followed too close	Swerved to avoid	Over correcting/ over steering	FTYROW: From stop sign	FTYROW: Making left turn	FTYROW: From Driveway	FTYROW: From parked position	FTYROW: To pedestrian	FTYROW: At uncontrolled intersection	FTYROW: Other
2001	4			5	3		2	5	4	3		3	4	1	1	1		2
2002	4	2	1	3	4	1	1	5	6	3		8	2	1	4		1	2
2003	2	3	4	2	2		1	10	4	2	2	4	5		1		1	6
2004	5			5	2		1	3	3	2		3	3	2				3
2005	2			1	2			9	6	3	1	7	6					2
2006	2		1	3	4			7	4	1		4	5					2
2007	1	1		3	6			9	1	1		2	9				1	
2008	4	2	1	8	3		2	12	5	2		5	3					1
Total	24	8	7	30	26	1	7	60	33	17	3	36	37	4	6	1	3	18

Year	Driver Contributing Circumstances (Cont.)									Total
	Inattentive/ distracted by: Passenger	Inattentive/ distracted by: Use of phone or other device	Inattentive/ distracted by: Fallen object	Inattentive/ distracted by: Fatigued/ asleep	Vision Obscured	Other improper action	No improper action	Not Reported	Unknown	
2001		1	1	1	4	4	48	24	6	127
2002			1	2		1	41	16	7	116
2003	1			1		3	39	26	3	122
2004		1				3	34	14	2	86
2005					1	6	34	18		98
2006						5	40	15	1	94
2007					2	7	46	5	18	112
2008	1					7	45		12	113
<b>Total</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>7</b>	<b>36</b>	<b>327</b>	<b>118</b>	<b>49</b>	<b>868</b>

**Table A.23. Winneshiek County crashes by major cause**

Year	Major Cause																
	Animal	Ran Traffic Signal	Ran Stop Sign	Crossed Centerline	FTYROW: At uncontrolled intersection	FTYROW: From Stop Sign	FTYROW: Making left turn	FTYROW: From parked position	FTYROW: To pedestrian	FTYROW: Other	Traveling wrong way or on wrong side of road	Driving too Fast for Conditions	Exceeded authorized speed	Made Improper Turn	Followed too close	Operating vehicle in an erratic manner	Swerving/ Evasive Action
2001	20	7	2	3		1	1			2	2	9			4	1	9
2002	27				2	1		1		2	1	5			1		
2003	30		1	4		3	2	1				2	2				6
2004	22		2			6	2			1		3	1	3	2	1	7
2005	23			4		6			1	1					3	1	7
2006	29			3		3						4			1		5
2007	30		1	1		3	3			1		7			3		6
2008	24			2		3	1			1	1	10			2	1	7
Total	205	7	6	17	2	26	9	2	1	8	4	40	3	3	16	4	47

Year	Major Cause (Cont.)								Total
	Over correcting/ over steering	Ran off Road - right	Ran off Road - left	Lost Control	Vision Obscured	Other Improper Action	Unknown	No improper action	
2001	1	9	2	2	1	1	12	6	95
2002		1	4	1			4		50
2003		3	1	3			4	1	63
2004		2	3				1	2	58
2005		2	4	2		2	3		59
2006		8						1	54
2007	1	4	2	2		2	4	1	72
2008		7	5	7		3	3	2	79
<b>Total</b>	<b>2</b>	<b>36</b>	<b>21</b>	<b>17</b>	<b>1</b>	<b>8</b>	<b>31</b>	<b>12</b>	<b>530</b>

**Table A.24. Winneshiek County crashes by hour of day**

Year	Hour of Day																							Total		
	0		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		23	Unknown
2001	3	95	1	4	2	1	4	6	4	2	2	4	5	2	2	8	3	7	11	8	3	3	4	3	1	95
2002		50	1		2	1	2	5		5	2		1	2	2			8	5	4	4	2	2	1		50
2003	3	63	1	1		5	1	2	1	2	2	1	1	1	3	2	5	6	6	2	8	2	5	3		63
2004	2	58		1	1	1		3	1	1		4	3	4	1	4	5	8	7	3	3	3	2		1	58
2005	3	59			1	3	2	4	3		2	1	3	1	1	6	6	5	2	6	3	4	1	2		59
2006		54	1	1			4	2		5	2		4		2	2	8	7	4	3	2	5	1	1		54
2007	1	72	1	2	1	2		2	4	2	2	4	1	3	2	5	7	6	1	6	8	4	2	2	2	72
2008		79	2	3	1	3	4	3	5	3	2	4	2	3	4	5	4	16	4	3	1	3	2	2		79
Total	12	530	7	12	8	16	17	27	18	20	14	18	20	16	17	32	38	63	40	35	32	26	19	14	4	530

**Table A.25. Winneshiek County crashes by day of week and month**

Year	Day of Week							Month												Total
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	January	February	March	April	May	June	July	August	September	October	November	December	
2001	13	16	7	8	14	20	17	12	14	6	6	4	6	4	4	5	6	15	13	95
2002	3	3	7	3	9	9	16	6	4	3	3	5	3	2	1	1	11	5	6	50
2003	8	10	6	14	6	11	8	9	3	4	3	5	5	6	8	3	5	9	3	63
2004	10	12	6	6	5	12	7	7	6	2	5	2	8	5	2	2	8	5	6	58
2005	9	3	8	10	7	16	6	6	2	5	4	9	1	5	7	4	2	7	7	59
2006	5	12	5	2	13	7	10	4	4	8	2	4	5	2	1	3	5	9	7	54
2007	14	13	16	9	4	7	9	10	11	2	3	4	3	6	2	4	10	9	8	72
2008	9	8	9	12	16	9	16	18	15	6	1	2	1	3	2	2	9	10	10	79
Total	71	77	64	64	74	91	89	72	59	36	27	35	32	33	27	24	56	69	60	530

**Table A.26. Winneshiek County crash severity hour of day**

Crash Severity	Hour of Day																							Total			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		23	Unknown	
Fatal	1								1				1	1			1				1						6
Major Inj	1			2				1	1	1			1	3	1	4	2	1		1	1			1			21
Minor Inj	1		1	1		1		3	2	3	4	3	2	1	4	2	3	2	4	3	1		1	2			44
Poss/Unk	2		1	2	2			5	5	3	2	2	1	2	1	8	6	4	5	5	2	4	1	1			64
PDO	7	5	5	7	6	15	17	18	9	13	8	13	15	9	11	18	26	56	31	26	27	22	17	10	4		395
Total	12	5	7	12	8	16	17	27	18	20	14	18	20	16	17	32	38	63	40	35	32	26	19	14	4		530

**Table A.27. Winneshiek County crash severity day of week**

Crash Severity	Day of Week							Total
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
Fatal	3		1	1		1		6
Major Inj	3	3	4	2	2	3	4	21
Minor Inj	8	3	4	9	7	4	9	44
Poss/Unk	6	8	6	11	9	14	10	64
PDO	51	63	49	41	56	69	66	395
<b>Total</b>	<b>71</b>	<b>77</b>	<b>64</b>	<b>64</b>	<b>74</b>	<b>91</b>	<b>89</b>	<b>530</b>

**Table A.28. Winneshiek County crashes by light conditions**

Year	Light Conditions							Total
	Daylight	Dusk	Dawn	Dark - Roadway lighted	Dark - Roadway not Lighted	Unknown	Not Reported	
2001	37	3	1	6	22	3	23	95
2002	19		1		13	2	15	50
2003	16	4	2	5	14	1	21	63
2004	25	1	1	2	13	2	14	58
2005	29	2	1	4	10	2	11	59
2006	22	1	2	4	19	1	5	54
2007	32	4		1	26	1	8	72
2008	40	8	1	5	25			79
<b>Total</b>	<b>220</b>	<b>23</b>	<b>9</b>	<b>27</b>	<b>142</b>	<b>12</b>	<b>97</b>	<b>530</b>

**Table A.29. Winneshiek County crashes by weather conditions**

Year	Weather Conditions													Total
	Clear	Partly Cloudy	Cloudy	Fog/Smoke	Mist	Rain	Sleet/ hail/ freezing rain	Snow	Severe Winds	Blowing sand/ soil/ dirt/ snow	Not Reported	Other	Unknown	
2001	21	10	4	5	3	2	2	17	1	4	24		2	95
2002	17	3	5		1	2		5		1	15		1	50
2003	18	8	5	2	1	3		3		1	21		1	63
2004	11	10	6		4	2		8			15		2	58
2005	19	9	6			1		10		1	11		2	59
2006	22	9	4		4	3		5			4	1	2	54
2007	29	8	10		2	3		11		1	8			72
2008	20	14	11	1		4	2	24		3				79
<b>Total</b>	<b>157</b>	<b>71</b>	<b>51</b>	<b>8</b>	<b>15</b>	<b>20</b>	<b>4</b>	<b>83</b>	<b>1</b>	<b>11</b>	<b>98</b>	<b>1</b>	<b>10</b>	<b>530</b>

**Table A.30. Winneshiek County crashes by road surface condition**

Year	Road Surface Conditions									Total
	Dry	Wet	Ice	Snow	Slush	Sand/ mud/ dirt/ oil/ gravel	Other	Unkonwn	Not Reported	
2001	36	6	12	9	2		2	3	25	95
2002	22	2	2	3	2			1	18	50
2003	29	5	2	2		2	1	1	21	63
2004	25	6		8	1			2	16	58
2005	31	2	1	10		1		2	12	59
2006	33	7	1	4	1		1	2	5	54
2007	39	9	4	9	2		1		8	72
2008	39	6	14	20						79
<b>Total</b>	<b>254</b>	<b>43</b>	<b>36</b>	<b>65</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>11</b>	<b>105</b>	<b>530</b>

**Table A.31. Winneshiek County crashes by driver age**

Year	Driver Age																					Total
	15	16	17	18	19	20	21-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	Unknown	
2001	1	4	5	6	7	9	16	6	10	11	14	12	8	7	4	4	2	1	2	1		130
2002			1		3	2	8	5	6	3	7	8	4	5		4	1	2	2	1	2	64
2003	1	5	4	7	3	4	9	5	8	4	4	7	8	6	1		1	3	3		2	85
2004		5	1	5	2	4	9	9	2	4	9	9	5	4	4	2	2	4	3		1	84
2005		2	2	2	3	1	15	7	6	3	9	3	3	4	6	5	3	4			1	79
2006		1	1	2	2	4	8	4	4	4	3	4	9	12	3	1	2	2	1			67
2007	2	2	1	3	2	1	9	10	10	3	9	10	9	5	4	5	4	2	2	1	1	95
2008	2	2		2	4	3	13	12	7	5	5	6	14	11	8	2	3	2	2		6	109
Total	6	21	15	27	26	28	87	58	53	37	60	59	60	54	30	23	18	20	15	3	13	713

**Table A.32. Winneshiek County crashes by manner of collision**

Year	Manner of Collision									Total
	Non-collision	Head-On	Rear-end	Angle, Oncoming Left Turn	Broadside	Sideswipe, Same Direction	Sideswipe, Opposite Direction	Unknown	Not Reported	
2001	37	2	13	1	5	6	4	2	25	95
2002	20	2	4	2	3	2		3	14	50
2003	44	2	6	3	5	1	1	1		63
2004	33	3	5	1	9	3	3	1		58
2005	37	1	5		6	4	4	2		59
2006	42	2	4	1	4	1				54
2007	41	4	6	3	6	4	3	2	3	72
2008	48	5	9	1	7	4	3	2		79
Total	302	21	52	12	45	25	18	13	42	530

**Table A.33. Winneshiek County crashes by driver contributing circumstances**

Year	Driver Contributing Circumstances																	
	Ran Traffic Signal	Ran Stop Sign	Exceeded authorized speed	Driving too fast for conditions	Made improper turn	Traveling wrong way or on wrong side of road	Crossed Centerline	Lost Control	Followed too close	Swerved to avoid	Over correcting/ over steering	Operating vehicle in an erratic manner	FTYROW: From stop sign	FTYROW: Making left turn	FTYROW: From parked position	FTYROW: To pedestrian	FTYROW: At uncontrolled intersection	FTYROW: Other
2001	8	2		10		2	3	15	4	2		1	1	1				5
2002				5		1		6		2		1	1		1		2	1
2003		1	2	2			4	8		3			3	2	1			
2004		2	1	3	3			10	2			1	6	2				2
2005	1						4	11	3	1		1	6			1		1
2006				5	1		1	9	1	3			2					
2007		1		8			1	14	3	4			3	3				
2008				10		1	2	19	2	2	1	1	3	1				1
Total	9	6	3	43	4	4	15	92	15	17	1	5	25	9	2	1	2	10

Year	Driver Contributing Circumstances (Cont.)															Total
	Inattentive/ distracted by: Use of phone or other device	Inattentive/ distracted by: Fatigued/ asleep	Vision Obscured	Other improper action	No improper action	Not Reported	Unknown	Apparently Normal	Emotional	Illness	Asleep/ fainted/ fatigued/ etc.	Under the influence of alcohol/ drugs/ medications	Other	Unknown	Not Reported	
2001		1	3	5	31	30	6	92			1	2	1	6	28	130
2002				1	15	22	6	39			2	3		2	18	64
2003		1			27	28	3	48			2	4		2	29	85
2004	1				29	19	3	64						3	17	84
2005				4	28	15	3	57				2	2	5	13	79
2006					36	8	1	60		1	1	1		3	1	67
2007				2	47	2	7	85				2		1	7	95
2008		1		3	55		7	93	1		2	4	1	4	4	109
<b>Total</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>15</b>	<b>268</b>	<b>124</b>	<b>36</b>	<b>538</b>	<b>1</b>	<b>1</b>	<b>8</b>	<b>18</b>	<b>4</b>	<b>26</b>	<b>117</b>	<b>713</b>

**Table A.34. Crash severity by driver age and county**

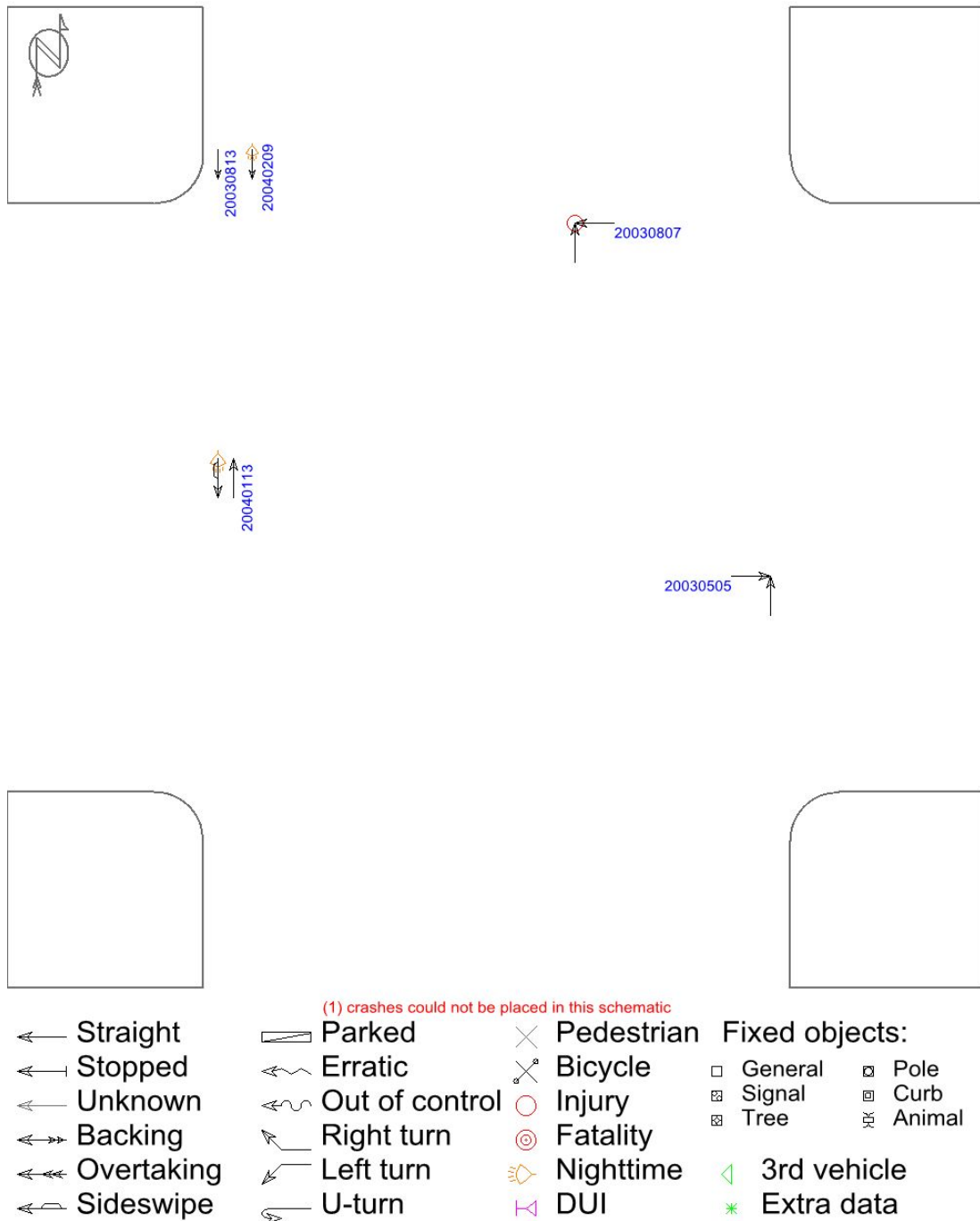
	Crash Severity	Driver Age																							Total	
		Less than 14	14	15	16	17	18	19	20	21-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94		Unknown
Benton/Buchanan	Fatal									2	1	4	2	2	4		3			1						19
	Maj Inj				1	1		1	2	4		4	2	2	4	4	2	2	2	1	1	1				34
	Min Inj	1		3	5	3	2	2	5	18	7	12	5	8	13	8	5	5	1	5	6	1	2		2	119
	Poss/Unk			3	8	5	3	4	4	8	11	12	16	15	15	11	12	8	8	1	6				1	151
	PDO		1	4	20	24	26	27	16	55	57	49	47	47	54	45	43	23	26	14	13	9	6		21	627
	Total	1	1	10	34	33	31	34	27	87	76	81	72	74	90	68	65	38	37	22	26	11	8	0	24	950
Fayette	Fatal							1		1		1	2	2	1	1			2							11
	Maj Inj				2	2		3	1	2	6	1	1	3	3	1	2	1	1	1		1				31
	Min Inj				7	3	3	2	1	6	8	3	7	8	8	4	4	1	1	1	3	3			3	76
	Poss/Unk		1		3	4	3	4	1	9	13	13	10	11	11	11	10	6	4	4	2	2	3		3	128
	PDO	1	2	4	25	18	25	16	14	47	38	48	43	65	59	47	37	24	24	24	21	21	7	1	11	622
	Total	1	3	4	37	27	31	26	17	65	65	66	63	89	82	64	53	32	32	30	26	27	10	1	17	868
Winneshiek	Fatal						2	1	1				1	1	1	2		1		1	1					12
	Maj Inj			1			1		3	4	2	4	2	3		3	2	2	1		3	2	1			34
	Min Inj				3	2	4	1	2	10	5	5	4	7	1	4	3	4	3	1	2	4				65
	Poss/Unk			1	4	4	7	3	3	11	6	6	8	5	8	11	7	2		4	5	1			4	100
	PDO			4	14	9	13	21	19	62	45	38	22	44	49	40	42	21	19	12	9	8	2		9	502
	Total	0	0	6	21	15	27	26	28	87	58	53	37	60	59	60	54	30	23	18	20	15	3	0	13	713

Note: This table shows the crash severity in which a driver was involved, but not the actual injury severity to that driver.

## APPENDIX B. COLLISION DIAGRAMS

### IA150 & D47

2001 - 2008



Pd\* Programming, Inc. 09/15/2009

**Figure B.1. IA 150 and D47**

# IA150 & US20 E Ramp

2001 - 2008

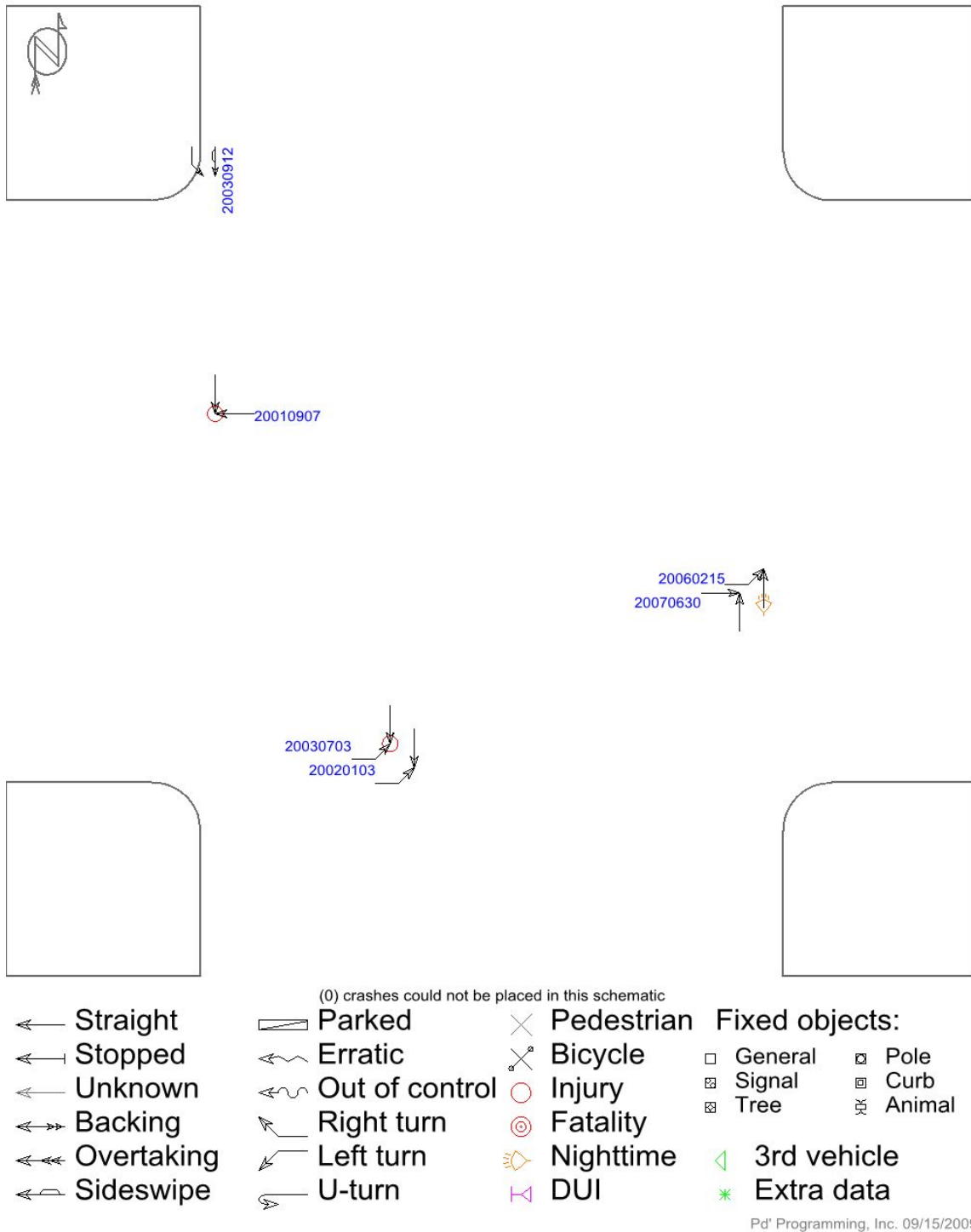
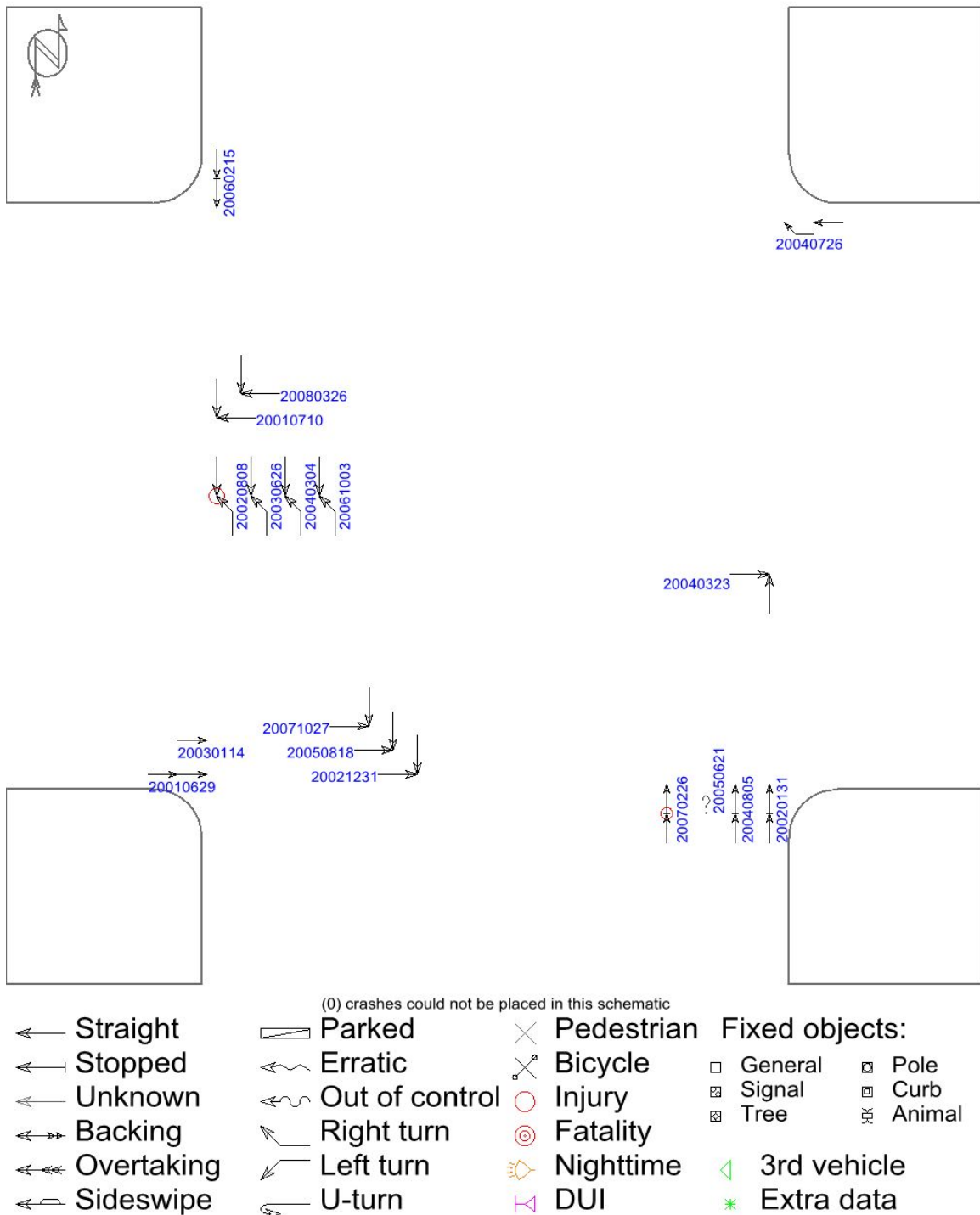


Figure B.2. IA 150 and US 20 east ramp

# IA150 & 2nd St SE Independence

2001 - 2008



Pd' Programming, Inc. 09/15/2009

Figure B.3. IA 150 and 2nd Street SE in Independence

# IA150, D22 & 3rd Ave SE Independence

2001 - 2008

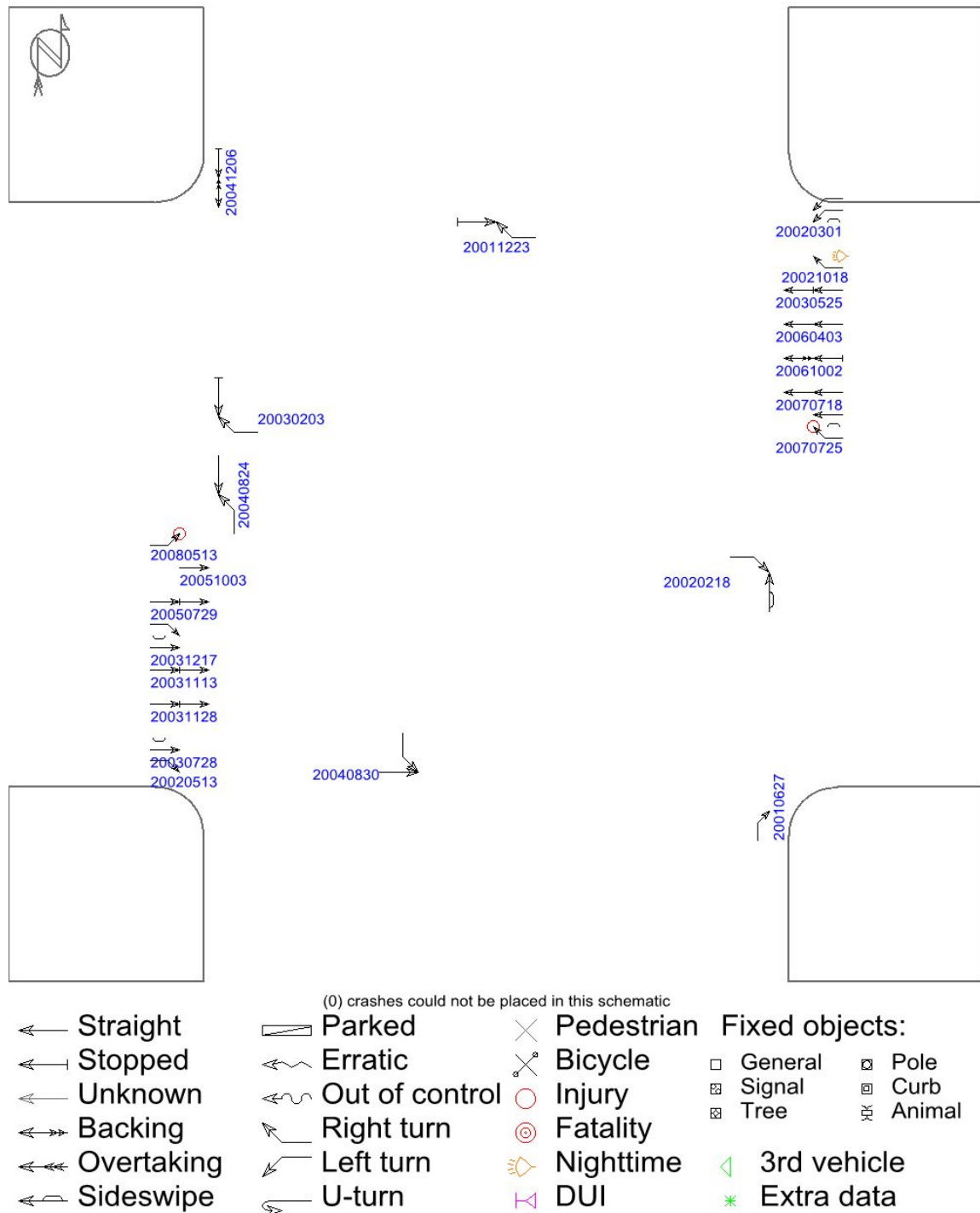


Figure B.4. IA 150, D22, and 3rd Avenue SE in Independence

# IA150, D22 & 5th Ave NE Independence

2001 - 2008

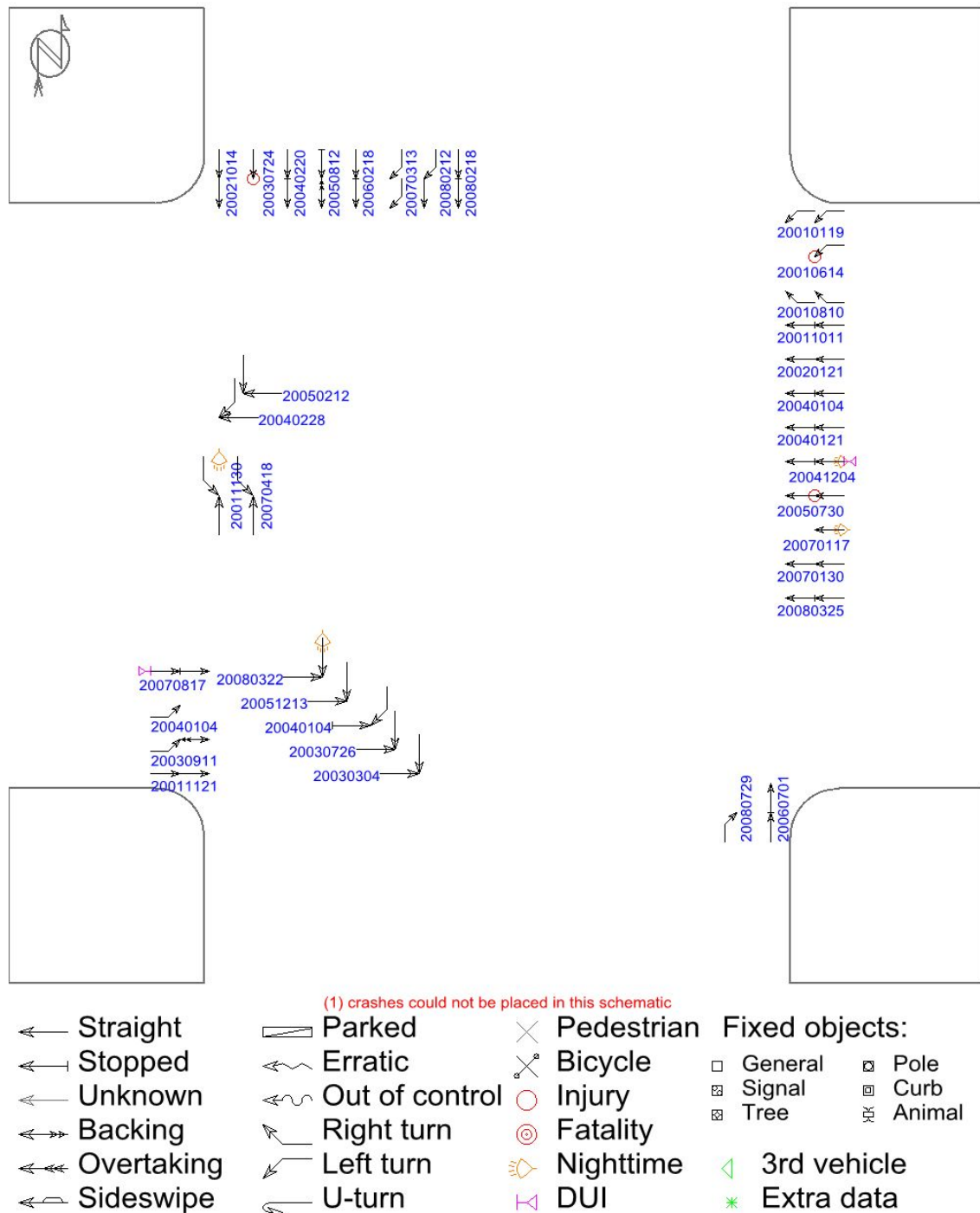
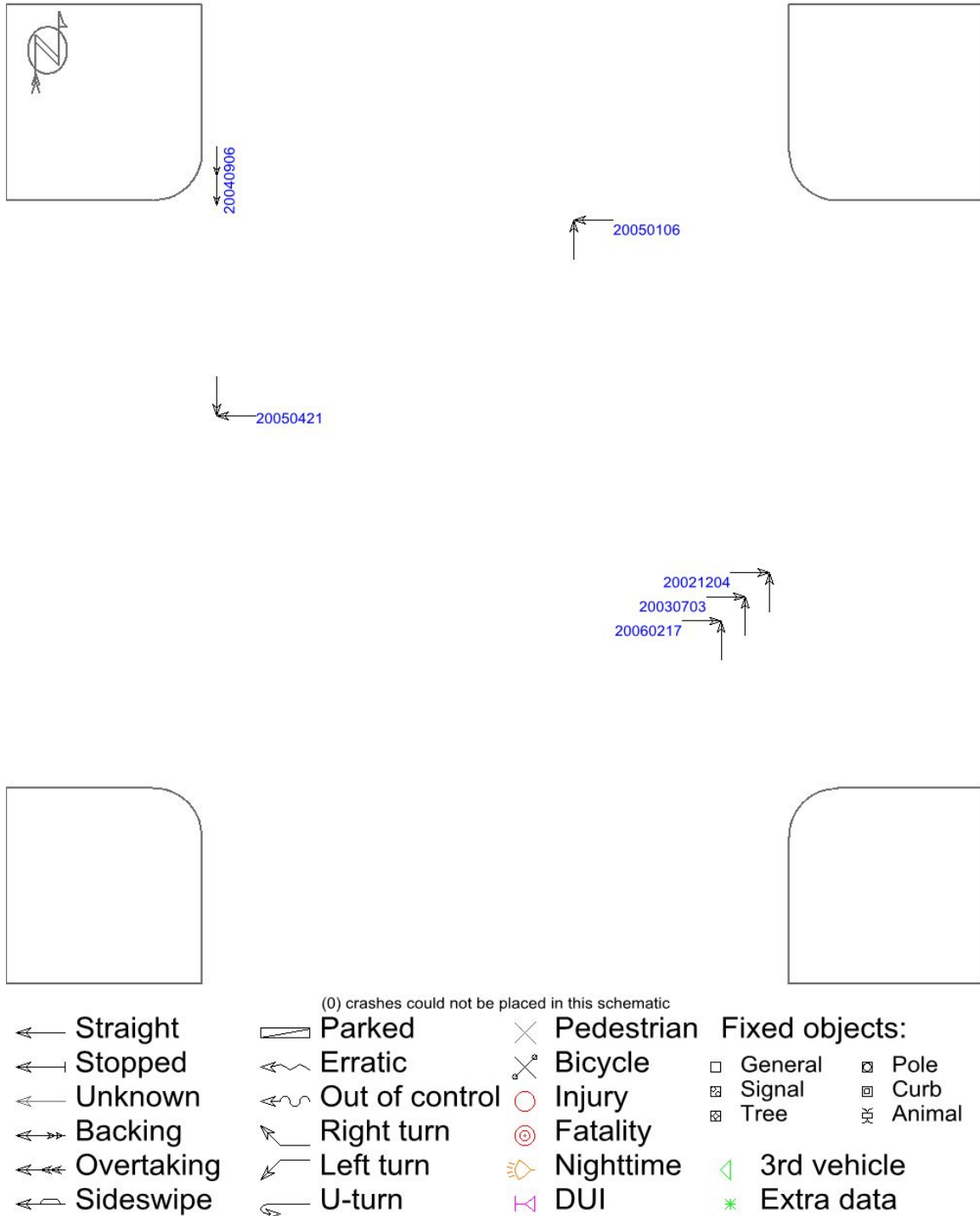


Figure B.5. IA 150, D22, and 5th Avenue NE in Independence

# IA150 & 2nd St NE Independence

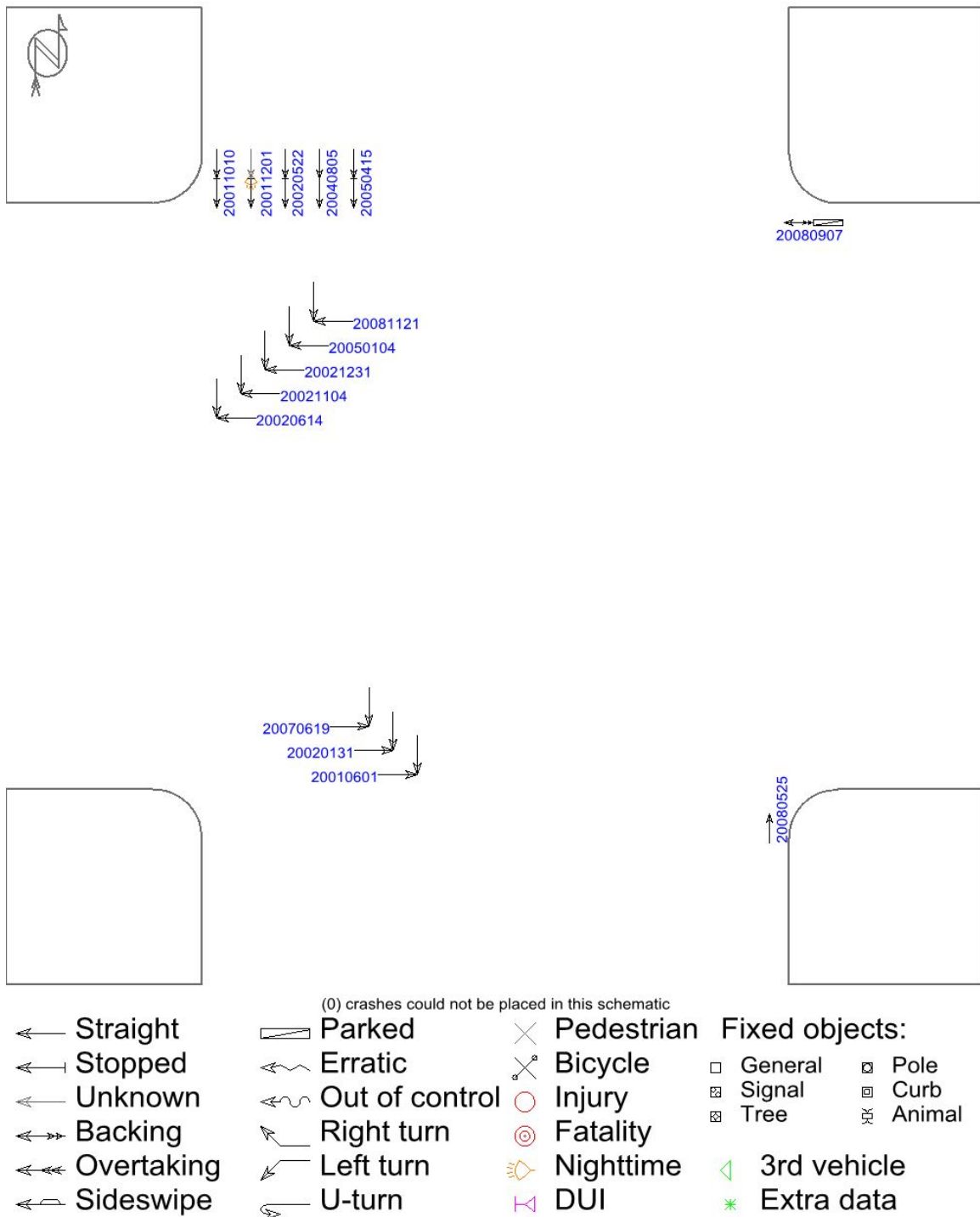
2001 - 2008



**Figure B.6. IA 150 and 2nd Street NE in Independence**

# IA150 & 3rd St NE Independence

2001 - 2008



Pd' Programming, Inc. 09/15/2009

Figure B.7. IA 150 and 3rd Street NE in Independence

# IA150 & 140thSt

2001 - 2008

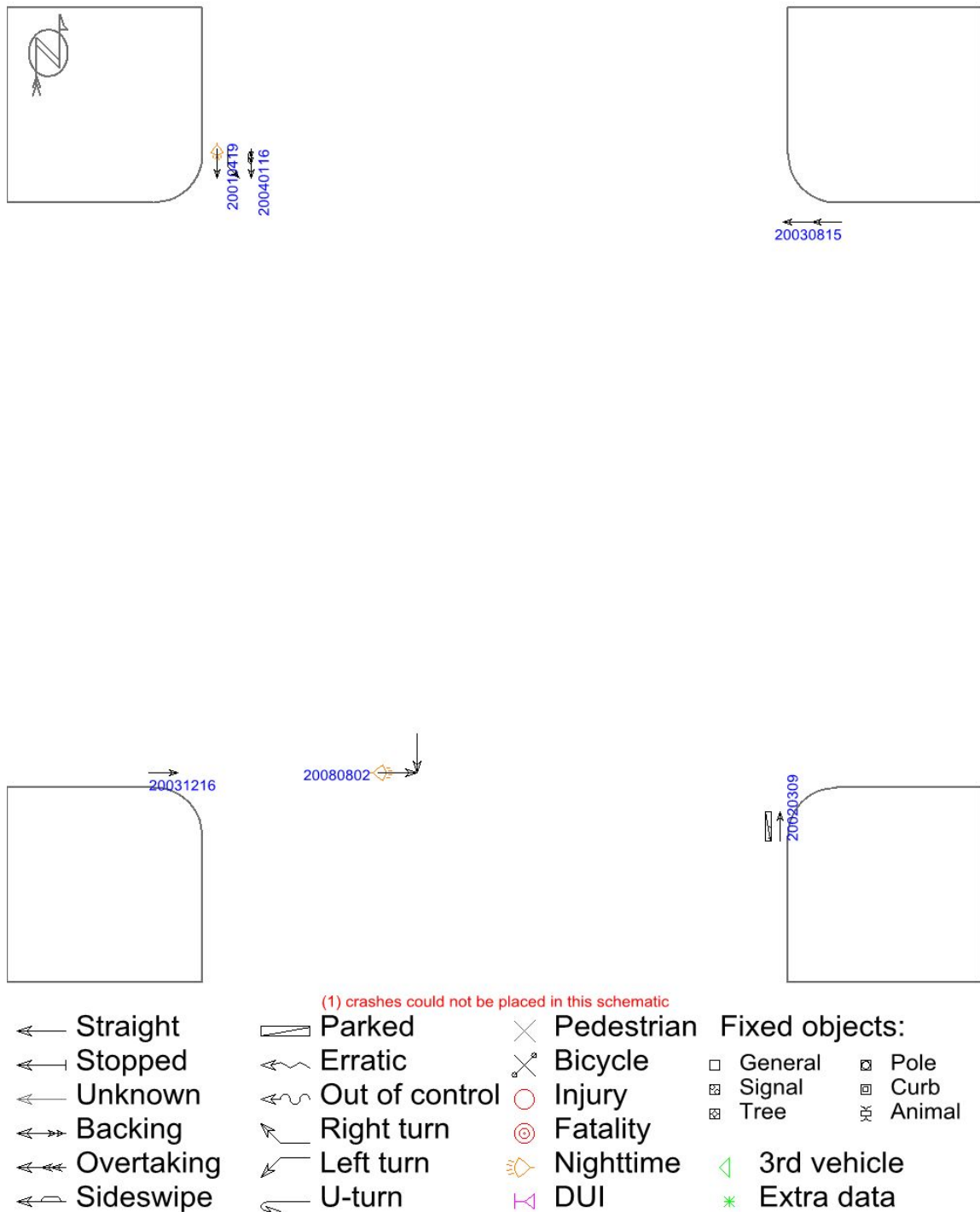


Figure B.8. IA 150 and 140th Street

# IA150 & 110thSt

2001 - 2008

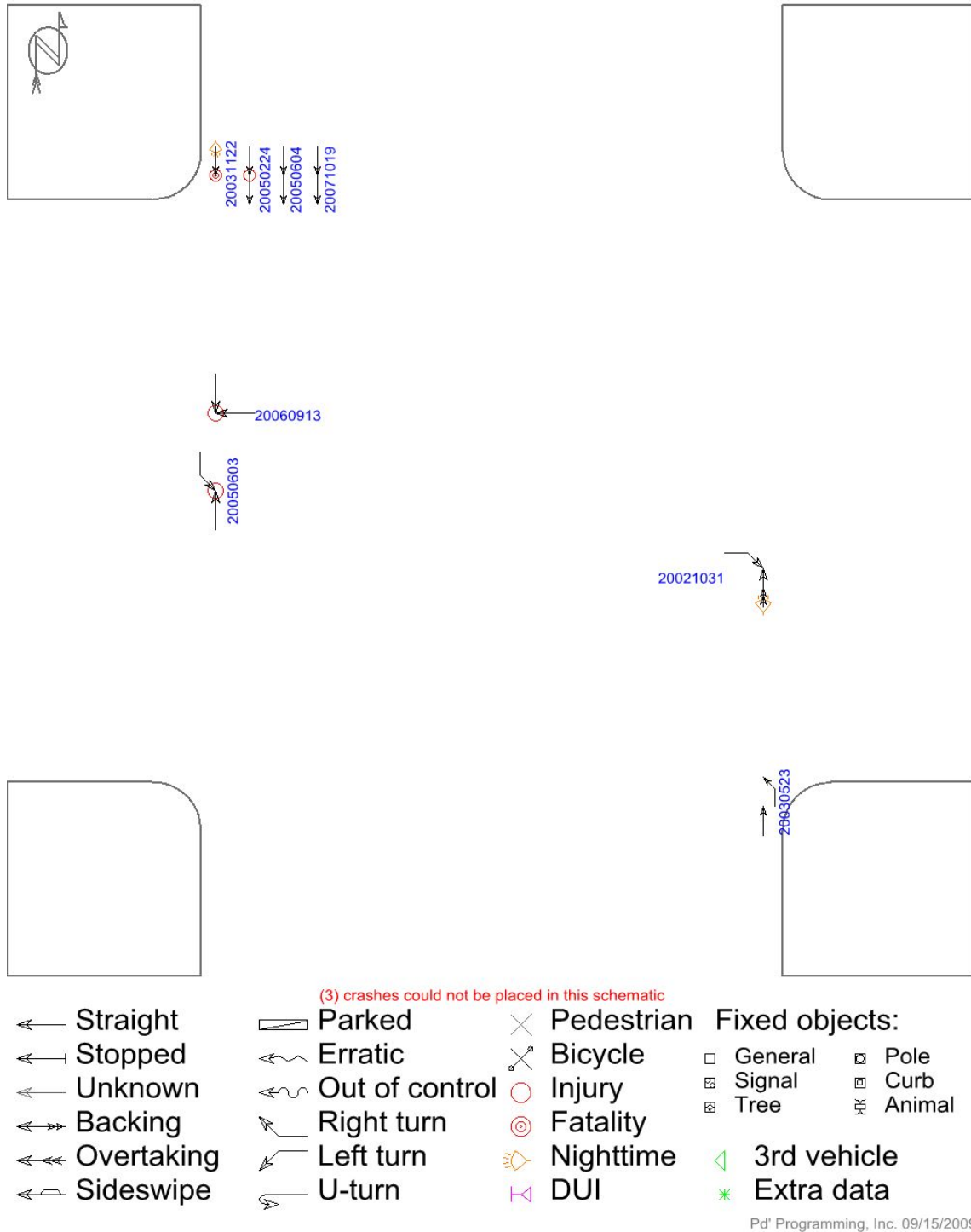


Figure B.9. IA 150 and 110th Street

# IA150 & IA281 Oelwein

2001 - 2008

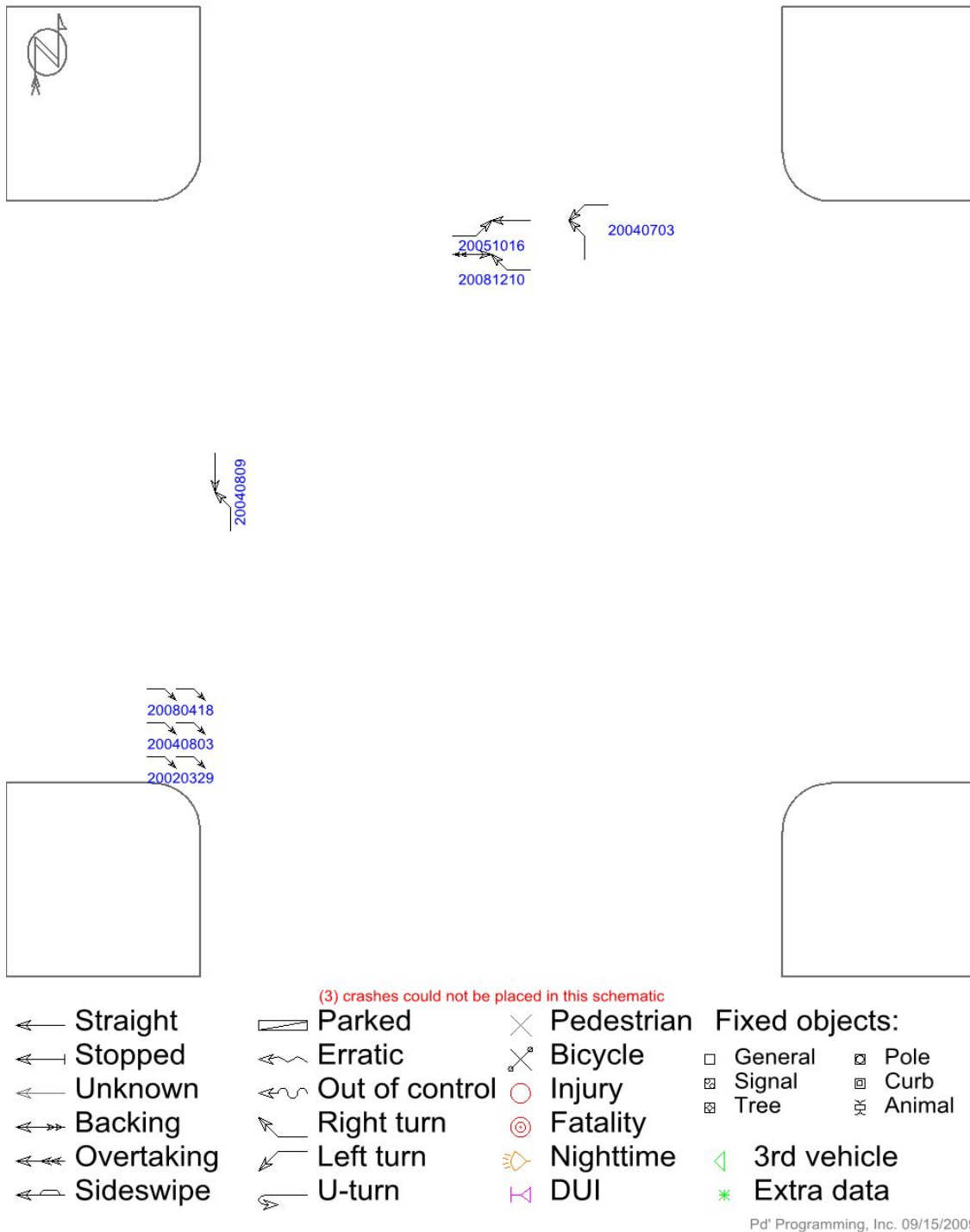
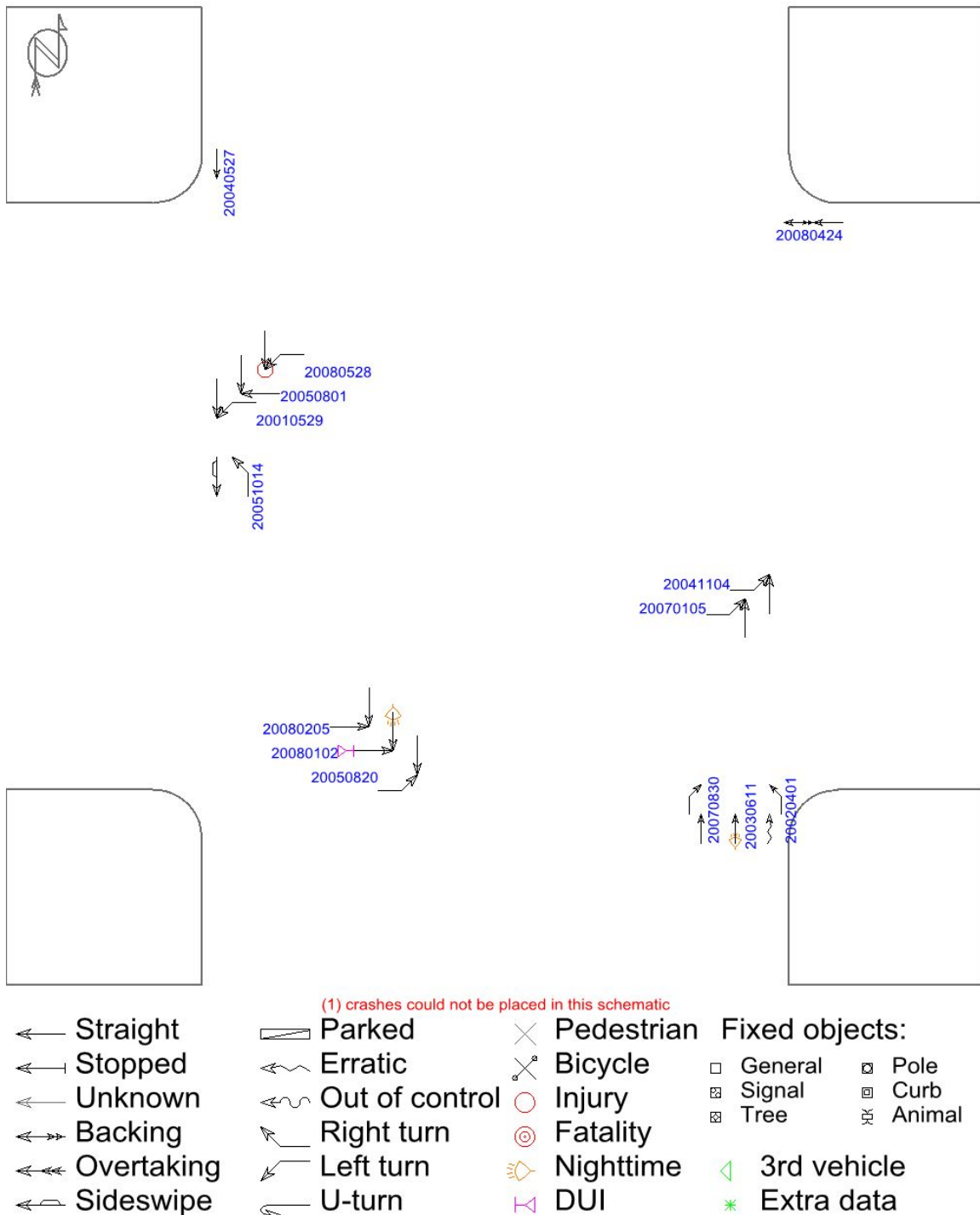


Figure B.10. IA 150 and IA 128 in Oelwein

# IA150 & 20th St SE Oelwein

2001 - 2008

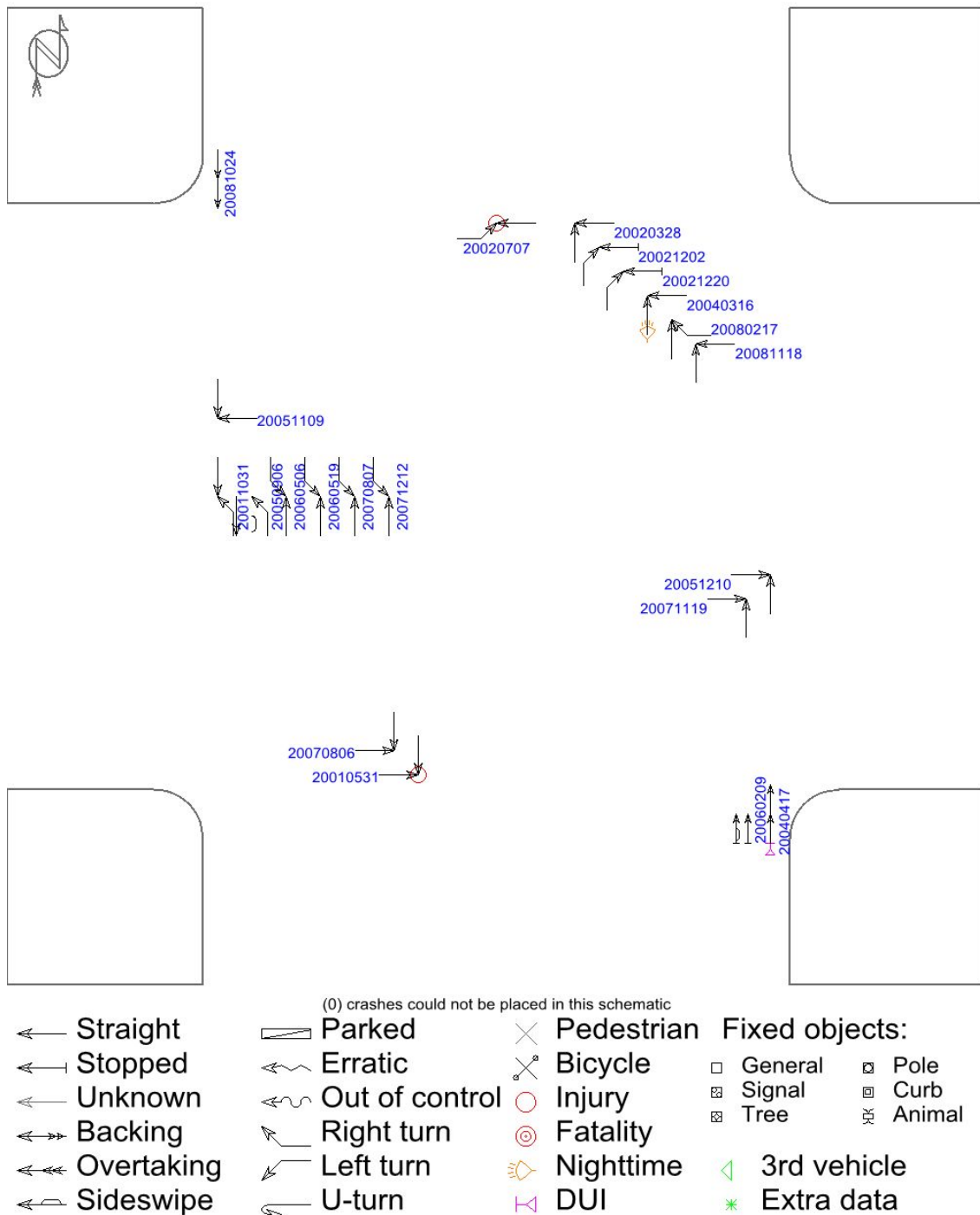


Pd' Programming, Inc. 09/15/2009

Figure B.11. IA 150 and 20th Street SE in Oelwein

# IA150 & 7th St SE Oelwein

2001 - 2008



Pd<sup>®</sup> Programming, Inc. 09/15/2009

Figure B.12. IA150 and 7th Street SE in Oelwein

# IA150 & 2nd St SE Oelwein

2001 - 2008

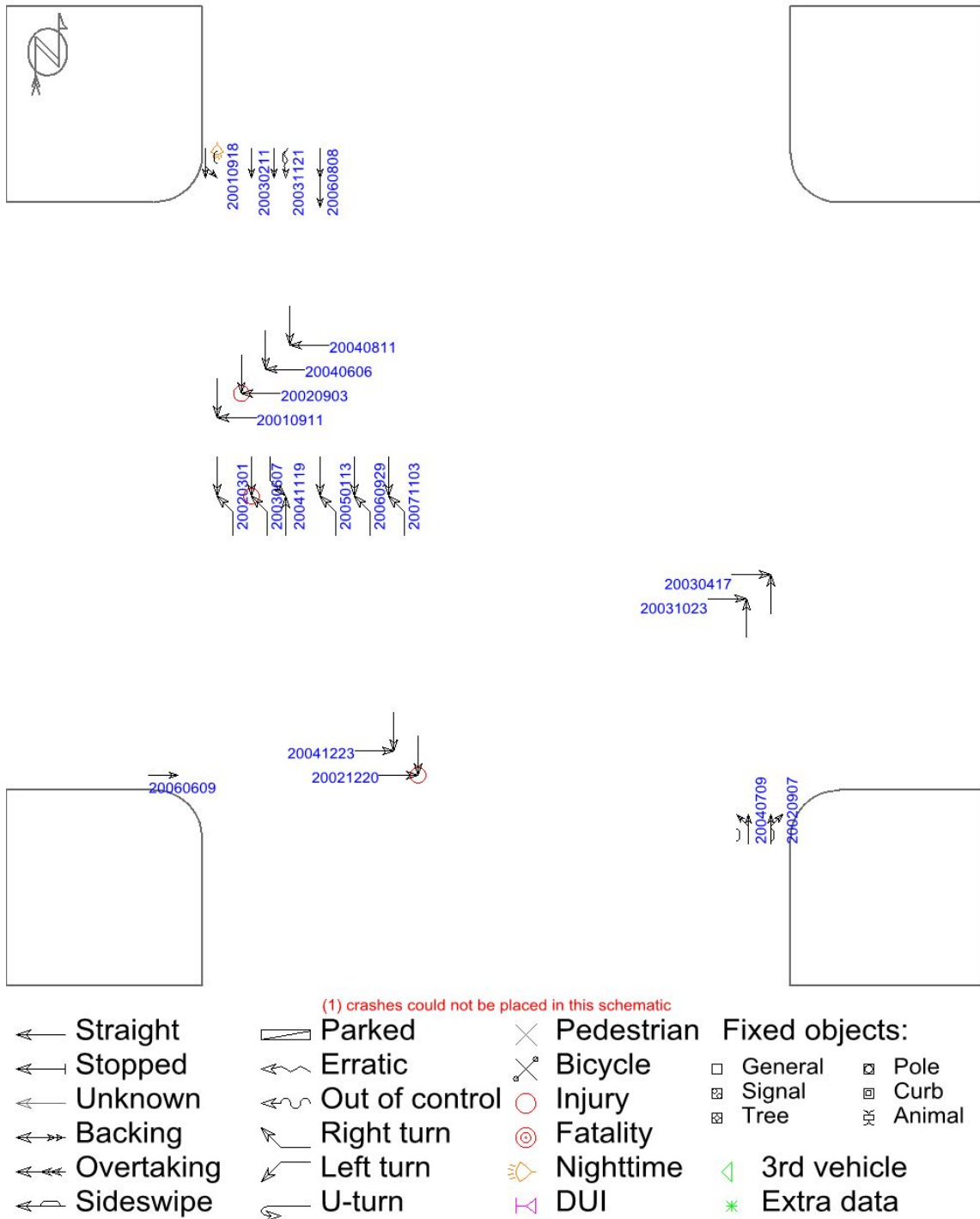
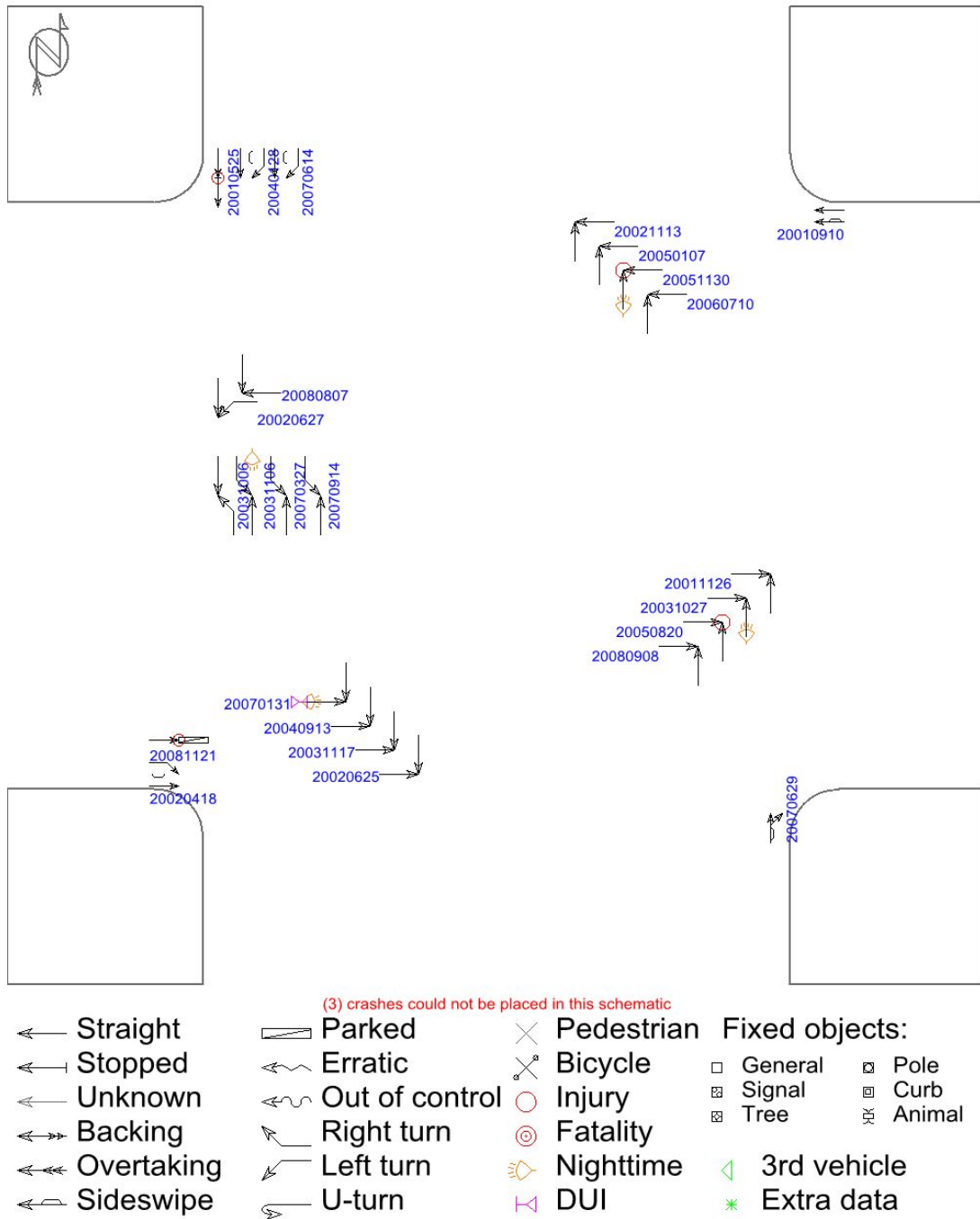


Figure B.13. IA150 and 2nd Street SE in Oelwein

# IA150 & 1st S Oelwein

2001 - 2008

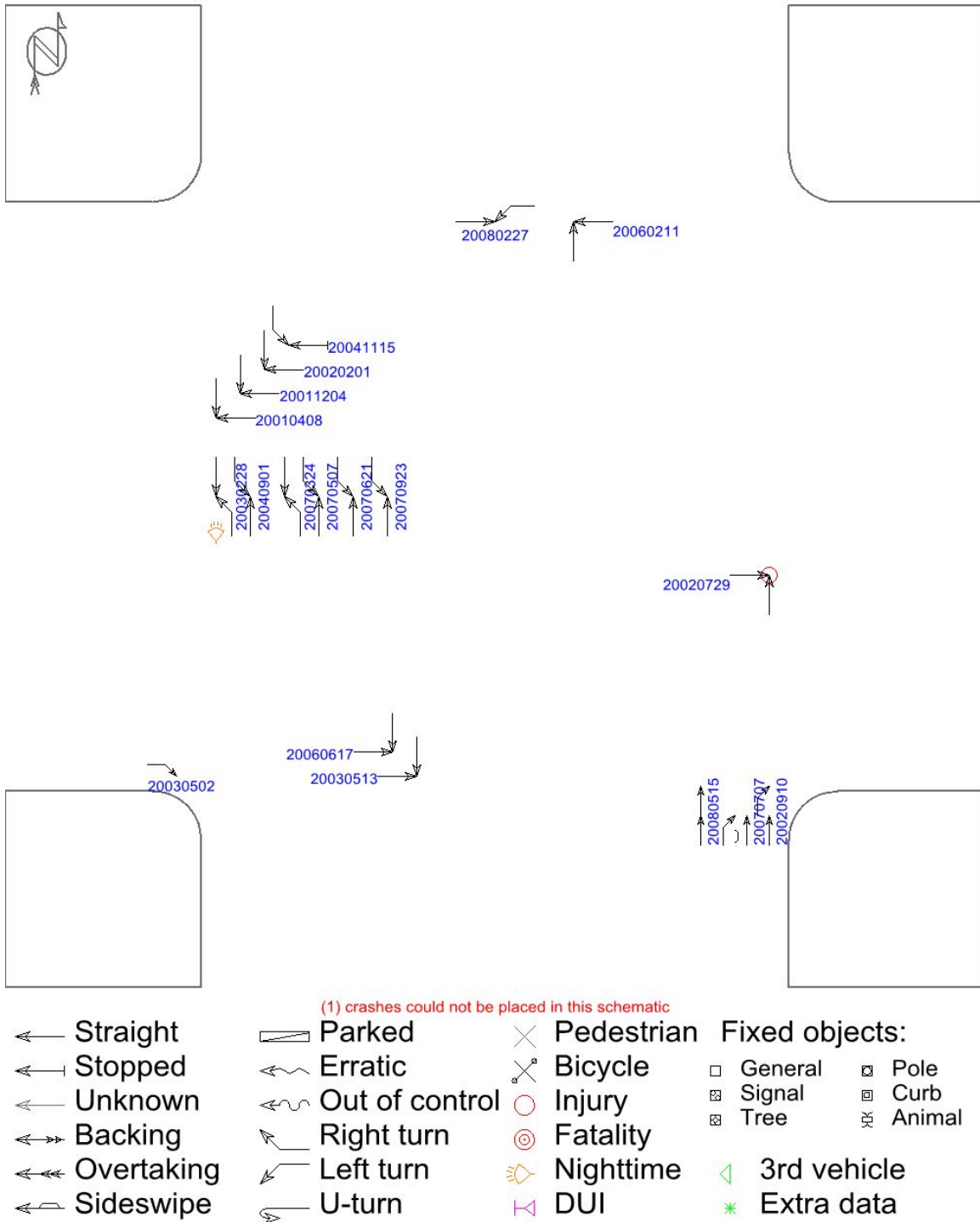


Pd' Programming, Inc. 09/15/2009

Figure B.14. IA 150 and 1st Street in Oelwein

# IA150, IA3 & C50 Oelwein

2001 - 2008

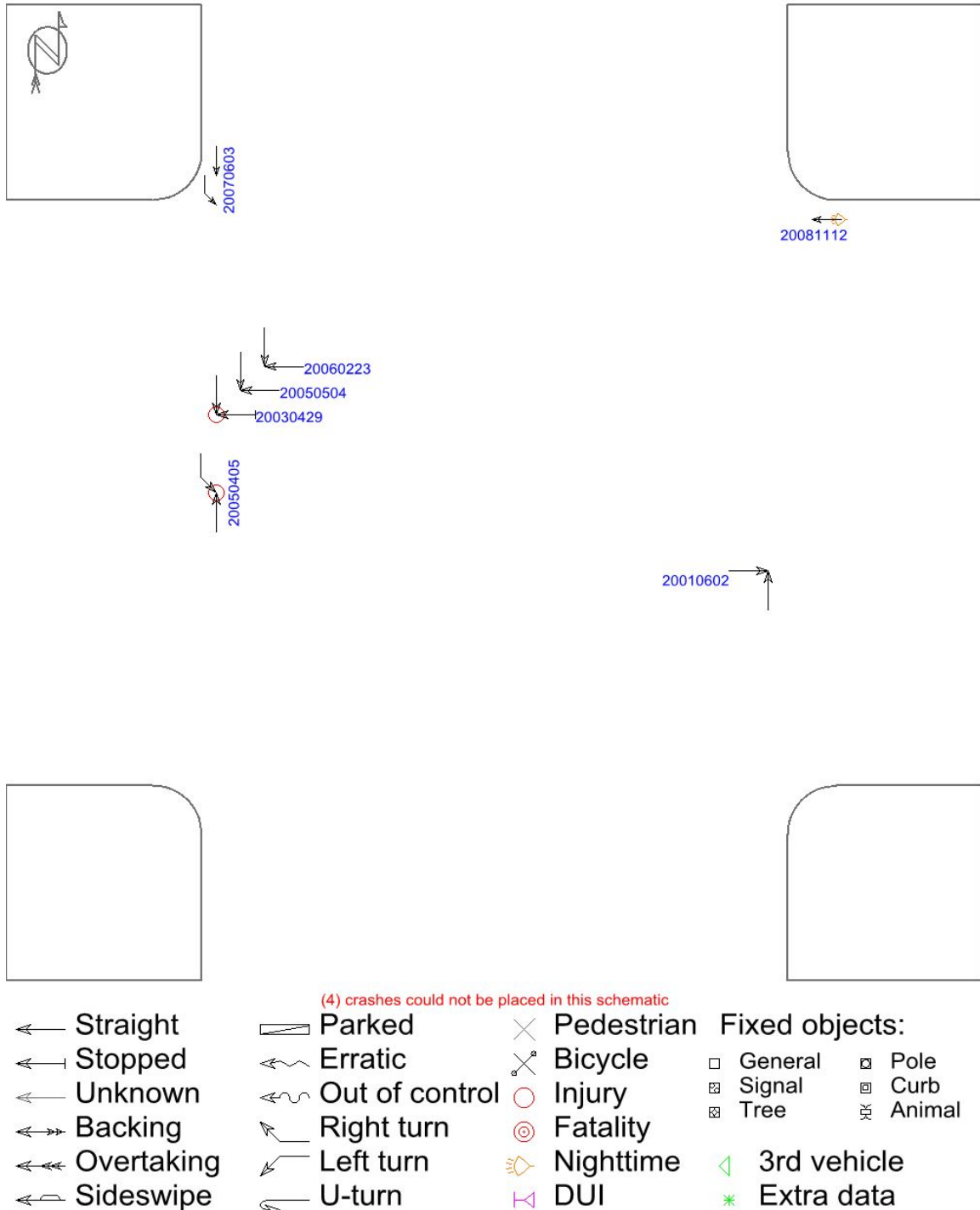


Pd' Programming, Inc. 09/15/2009

**Figure B.15. IA 150, IA 3, and C50 in Oelwein**

# IA150 & IA93 Fayette

2001 - 2008

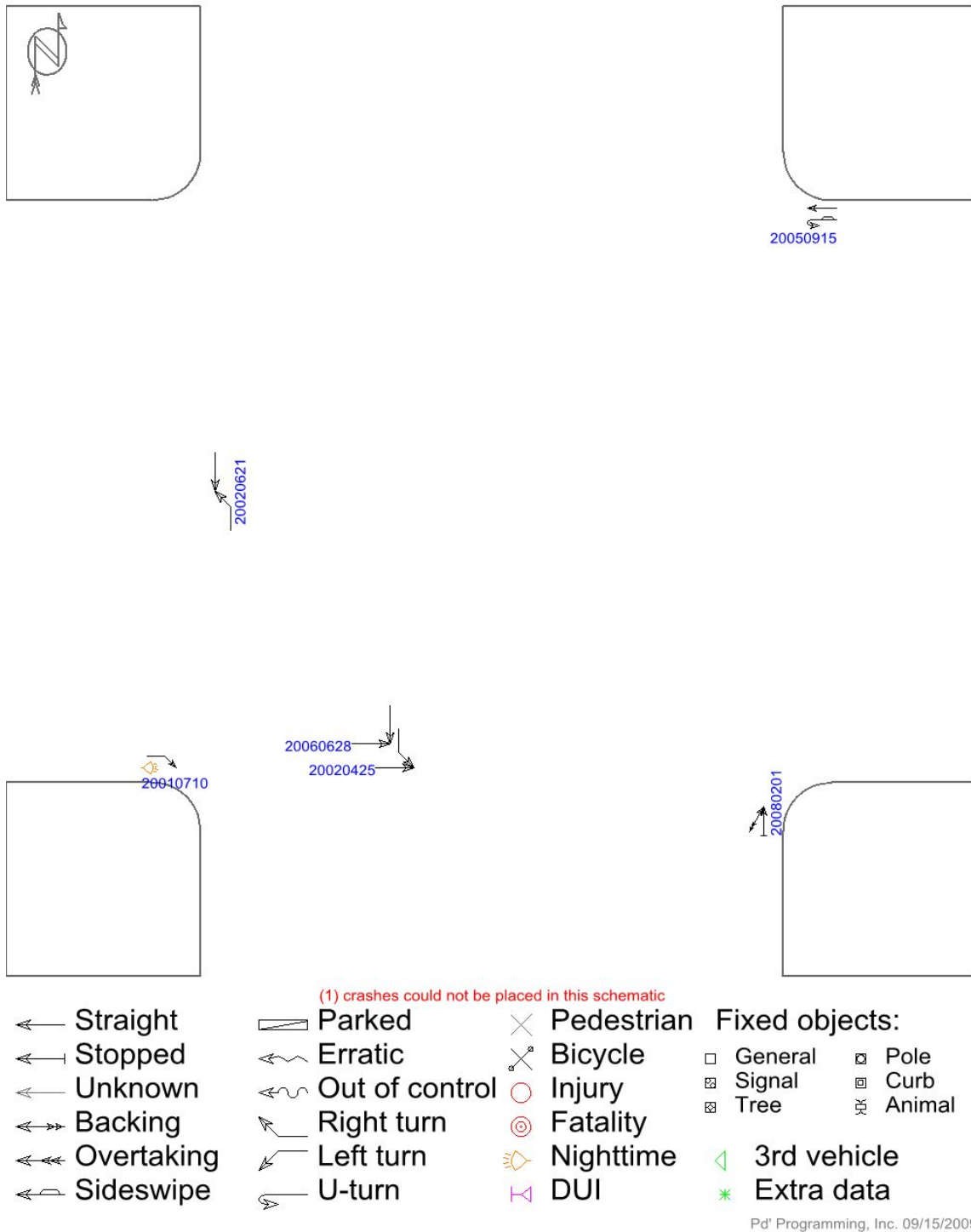


Pd' Programming, Inc. 09/15/2009

Figure B.16. IA 150 and IA 93 in Fayette

# IA150 & US18 West Union

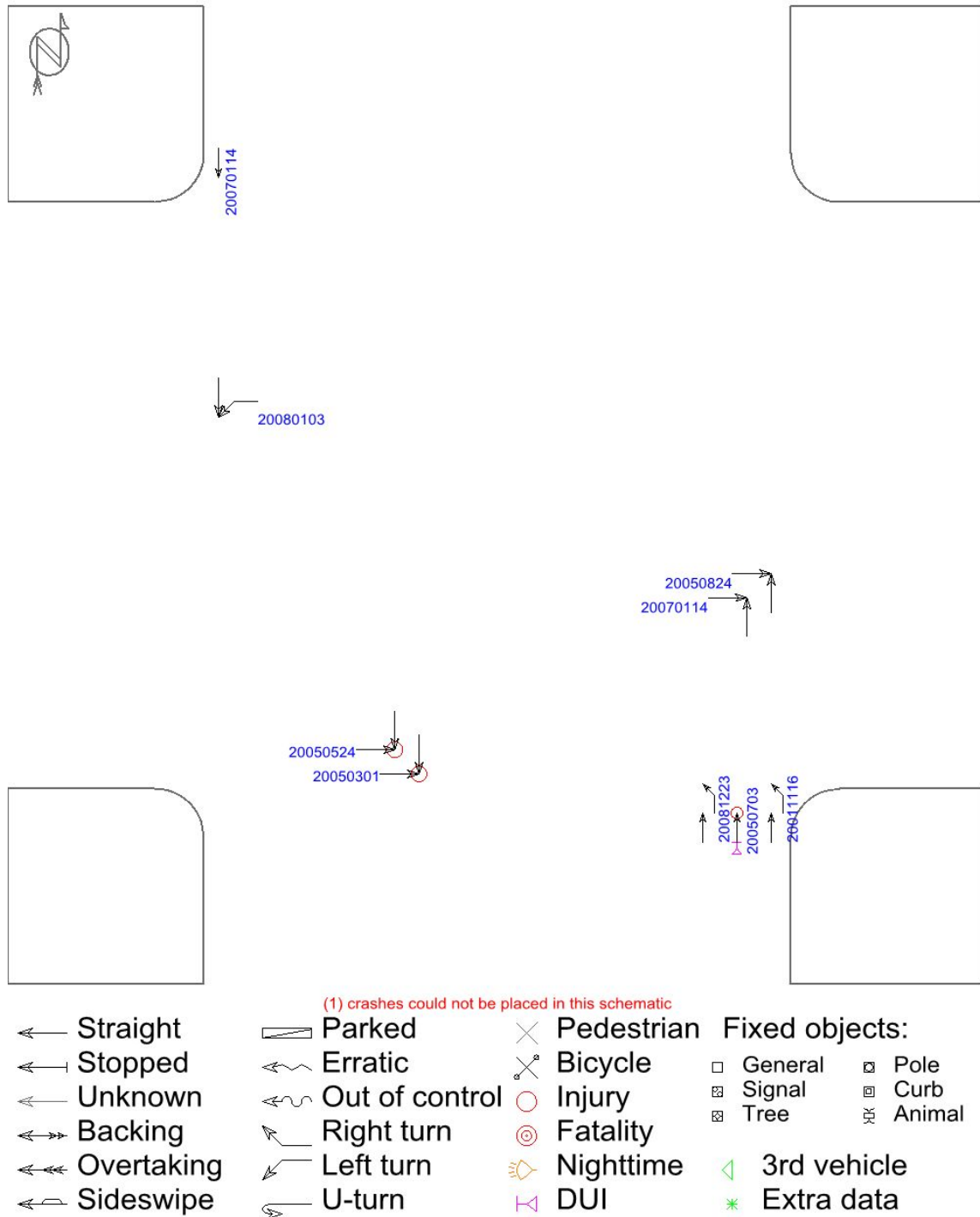
2001 - 2008



**Figure B.17. IA 150 and US 18 in West Union**

# US52 & Town Line Rd Decorah

2001 - 2008

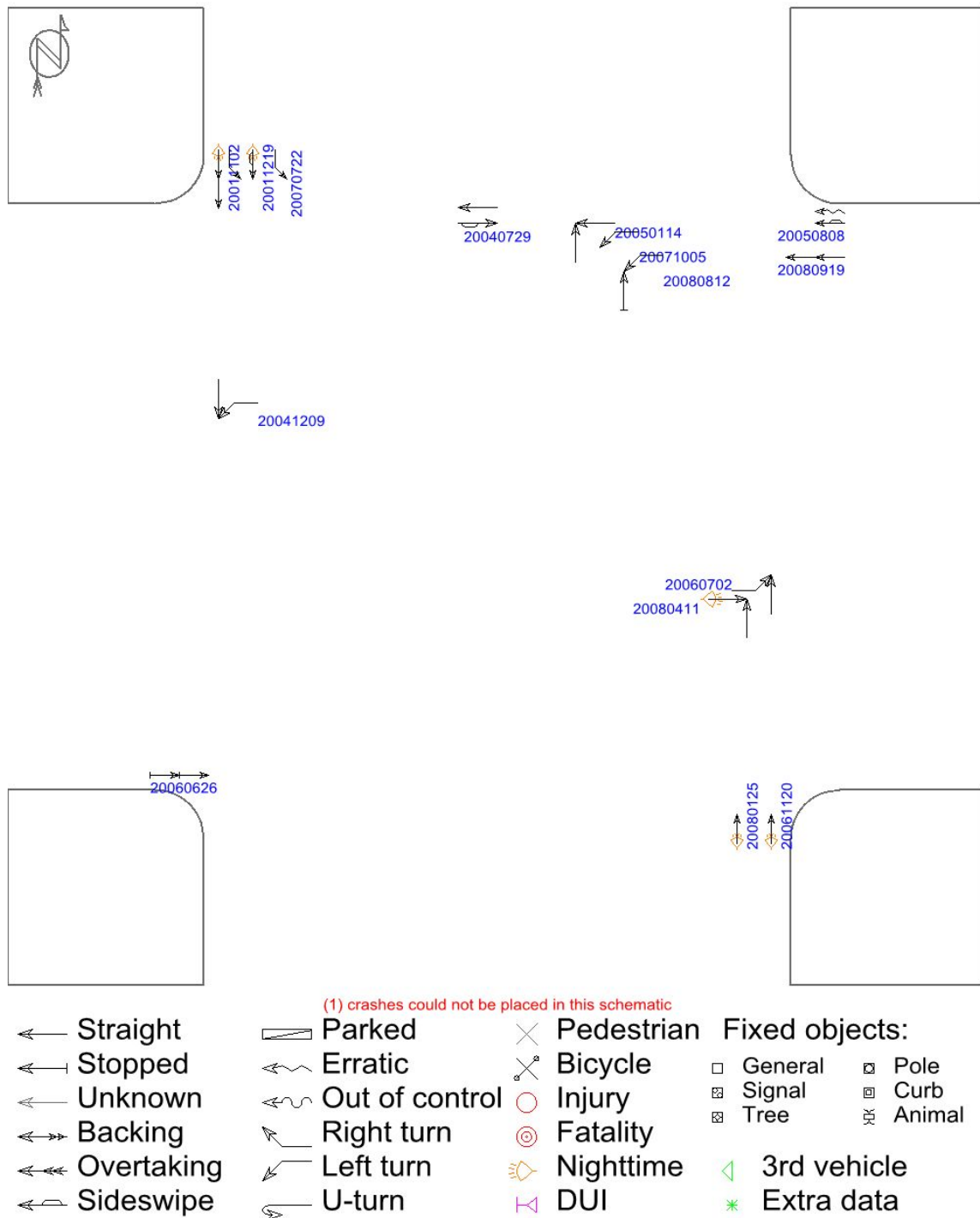


Pd' Programming, Inc. 09/15/2009

Figure B.18. US 52 and Town Line Road in Decorah

# US52 & IA9

2001 - 2008

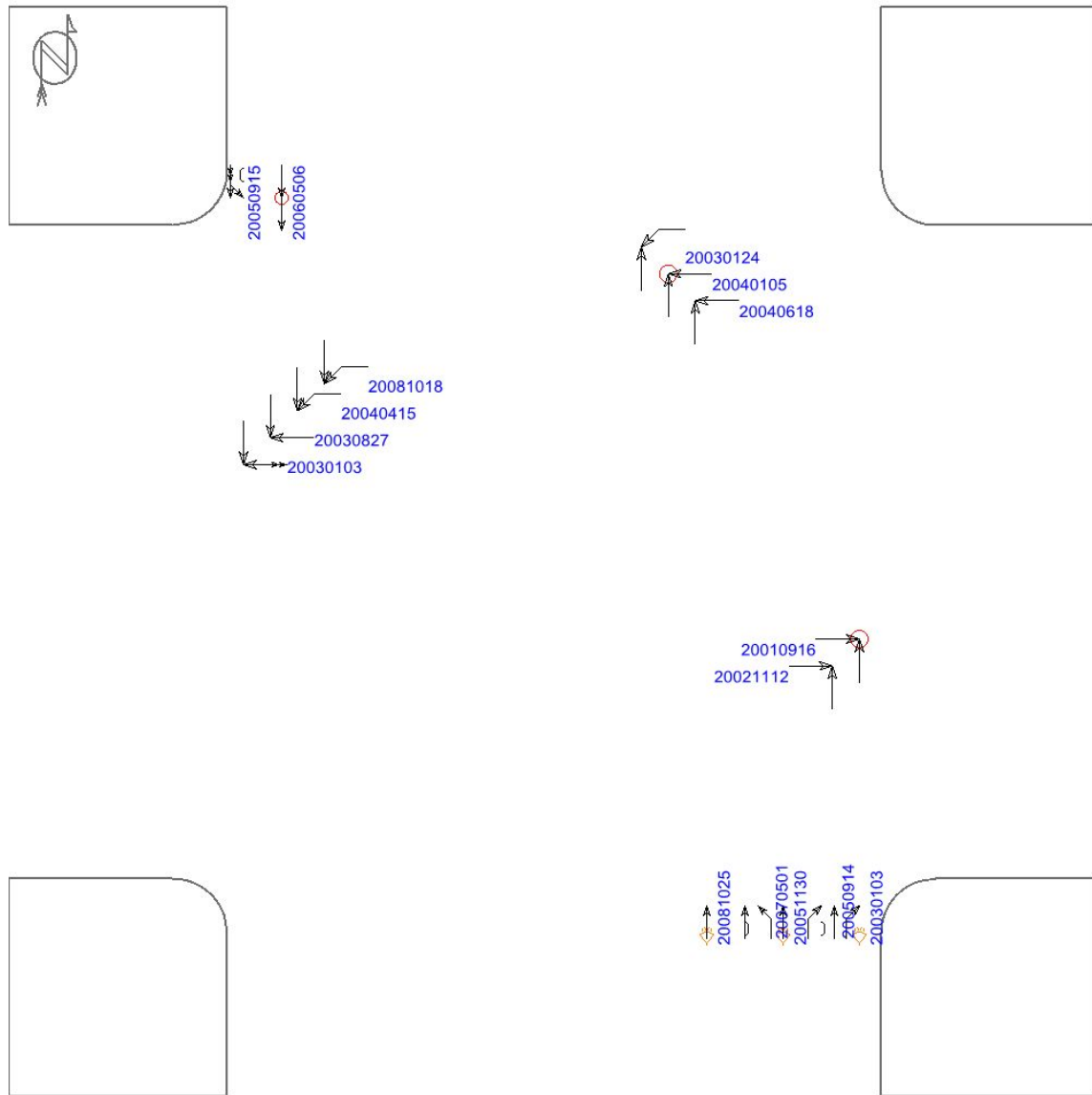


Pd' Programming, Inc. 09/15/2009

Figure B.19. US 52 and IA 9

# US52 & Madison Rd Decorah

2001 - 2008



(1) crashes could not be placed in this schematic

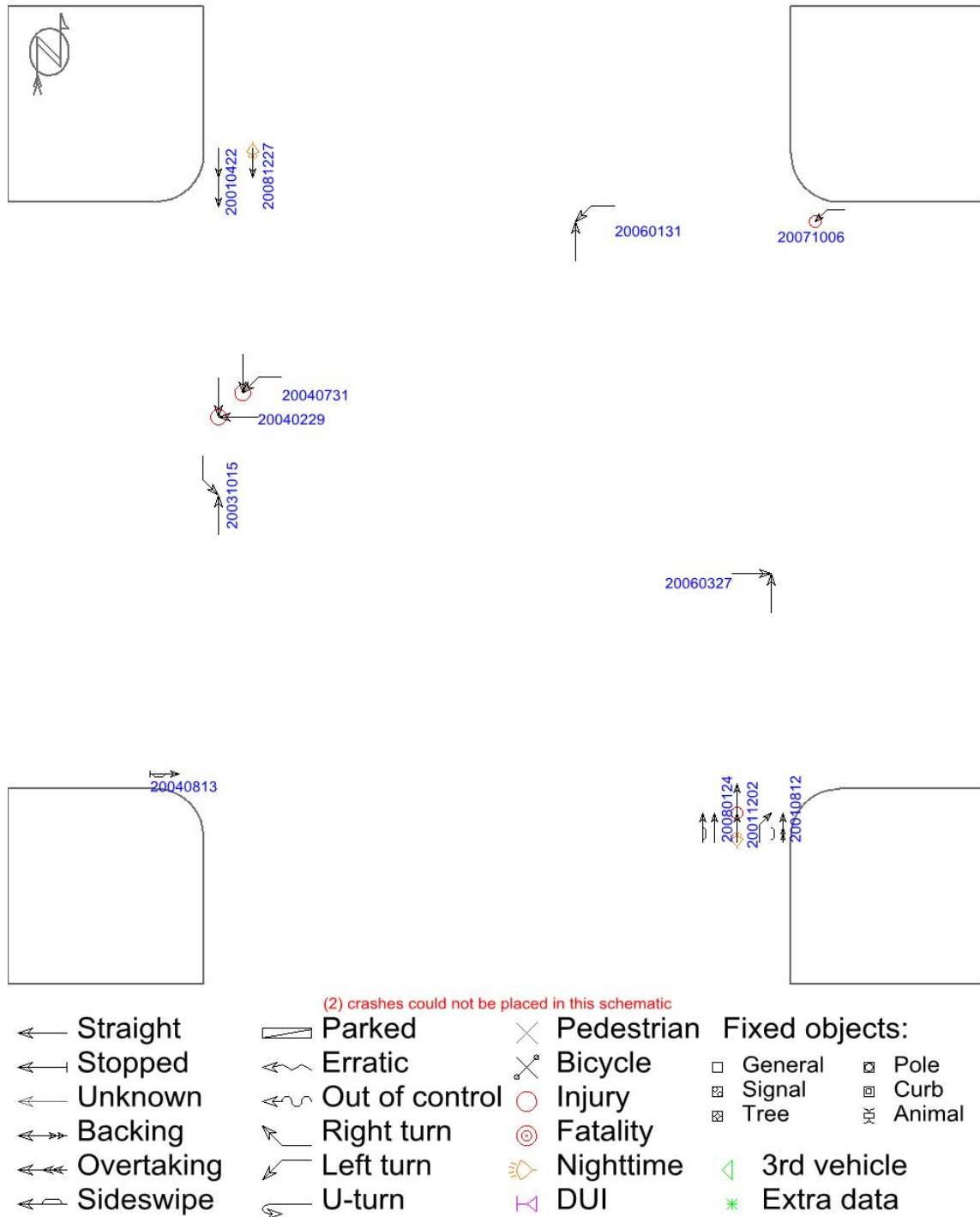
← Straight	⊞ Parked	⊗ Pedestrian	Fixed objects:	
⊞ Stopped	⊞ Erratic	⊗ Bicycle	□ General	⊞ Pole
⊞ Unknown	⊞ Out of control	○ Injury	⊞ Signal	⊞ Curb
⊞ Backing	⊞ Right turn	⊙ Fatality	⊞ Tree	⊞ Animal
⊞ Overtaking	⊞ Left turn	⊞ Nighttime	⊞ 3rd vehicle	
⊞ Sideswipe	⊞ U-turn	⊞ DUI	⊞ Extra data	

Pd' Programming, Inc. 09/15/2009

Figure B.20. US 52 and Madison Road in Decorah

# US52 & Pole Line Rd Decorah

2001 - 2008

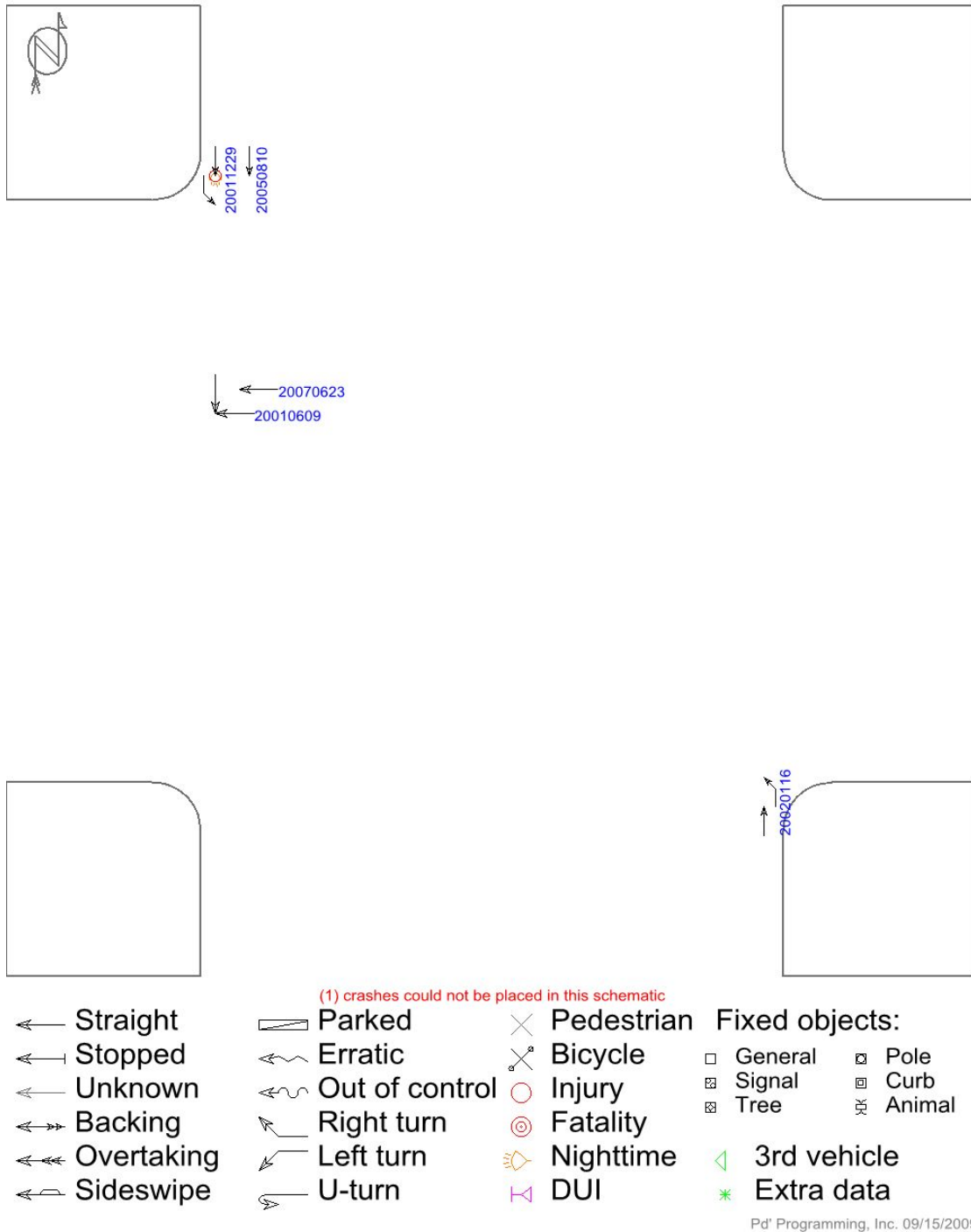


Pd' Programming, Inc. 09/15/2009

Figure B.21. US 52 and Pole Line Road in Decorah

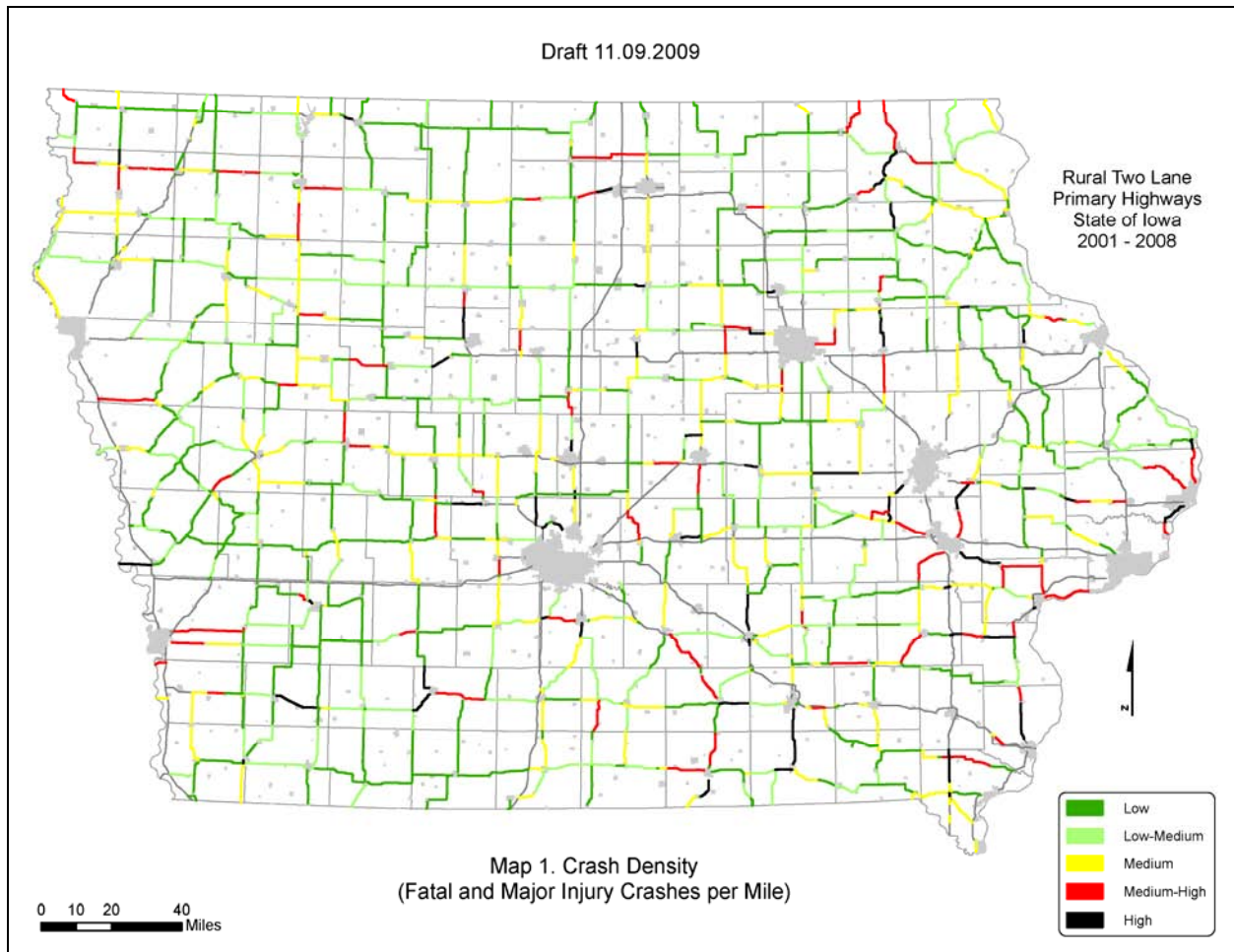
# Co Rd A18 & US 52

2001 - 2008

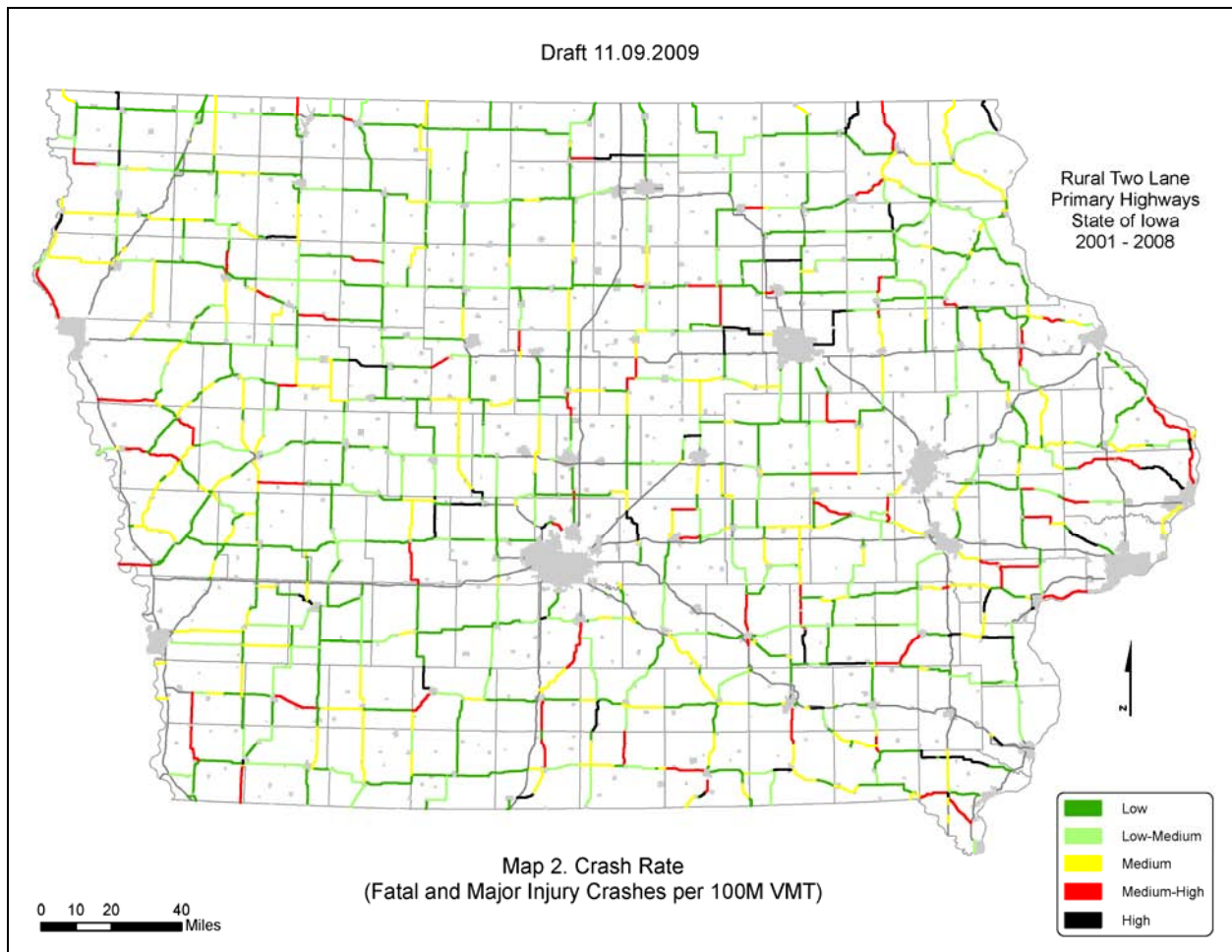


**Figure B.22. County Road A18 and US 52**

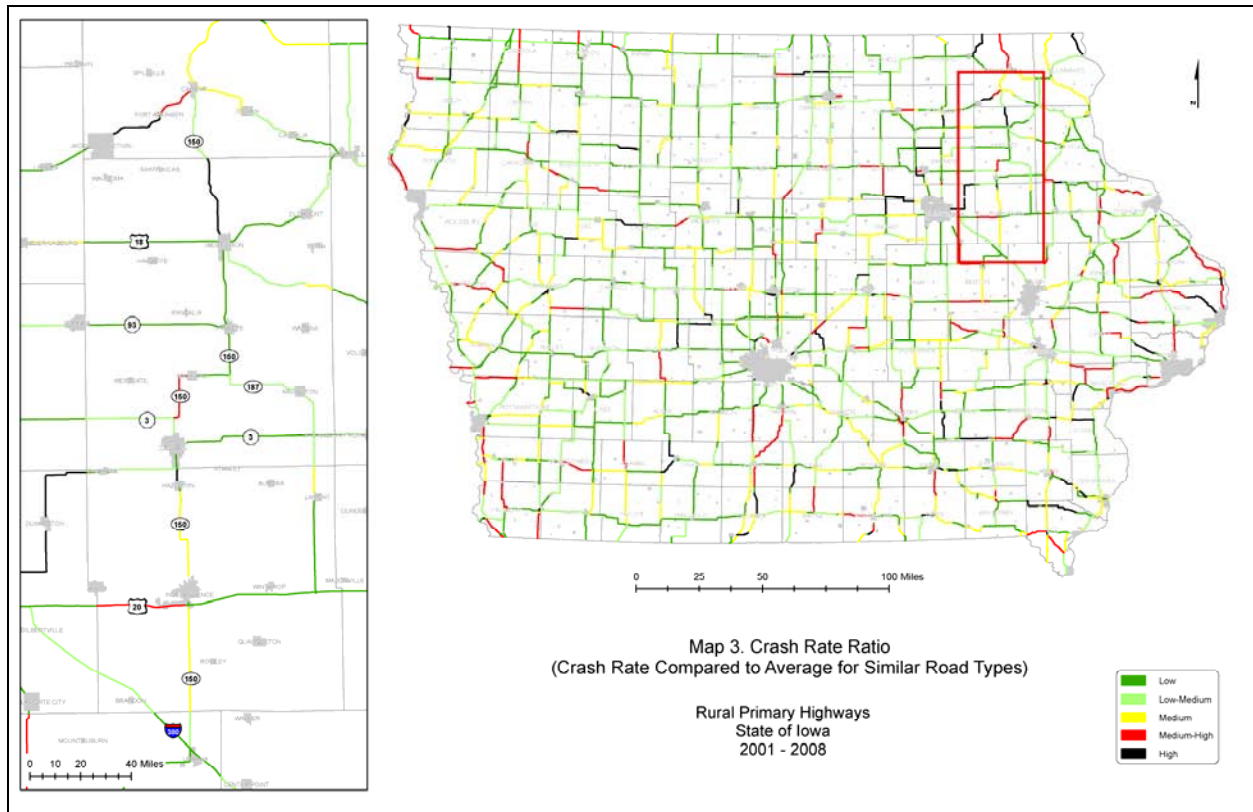
## APPENDIX C. CRASH MAPS



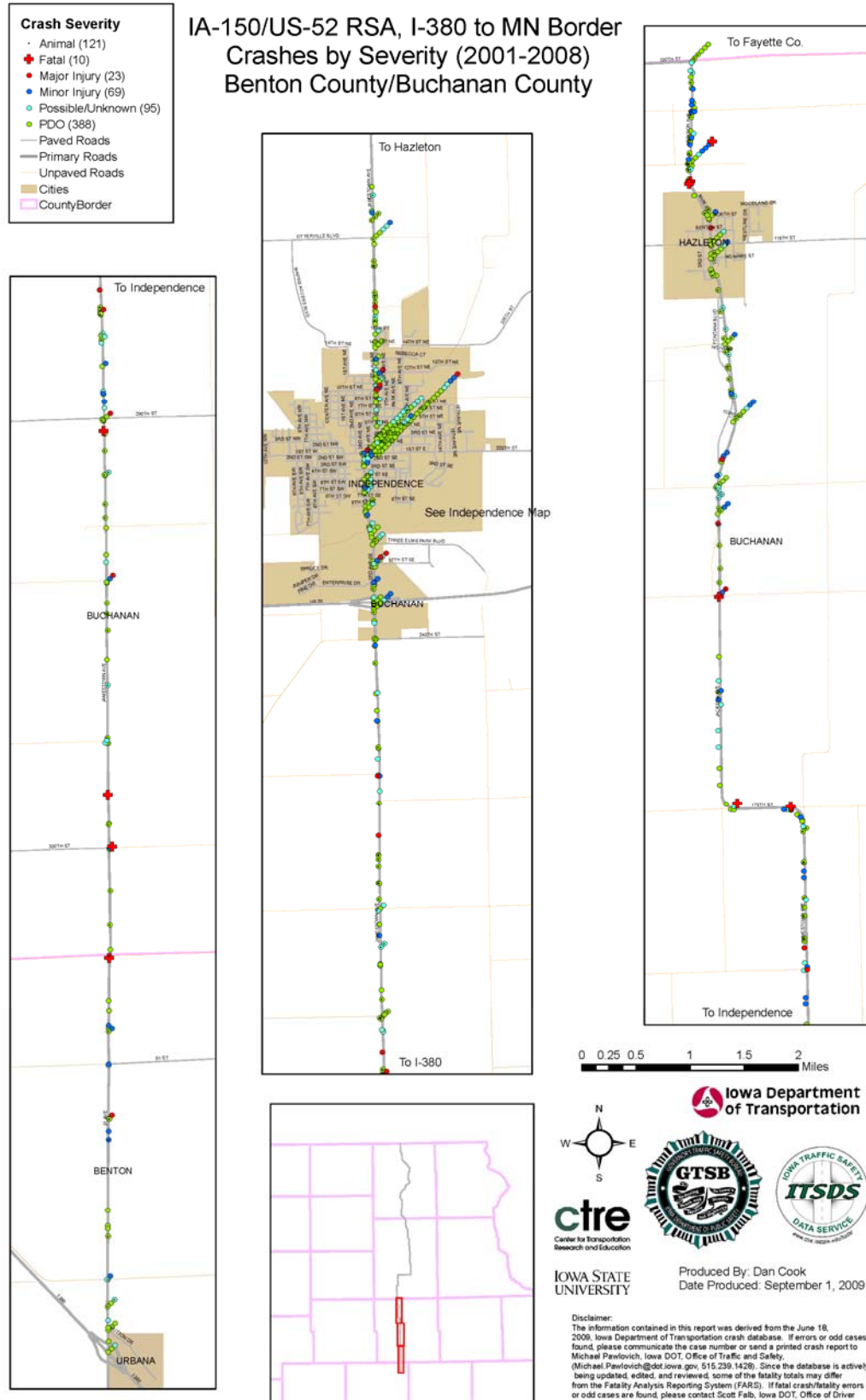
**Figure C.1. Crash density on rural two-lane primary highways in Iowa, 2001–2008**



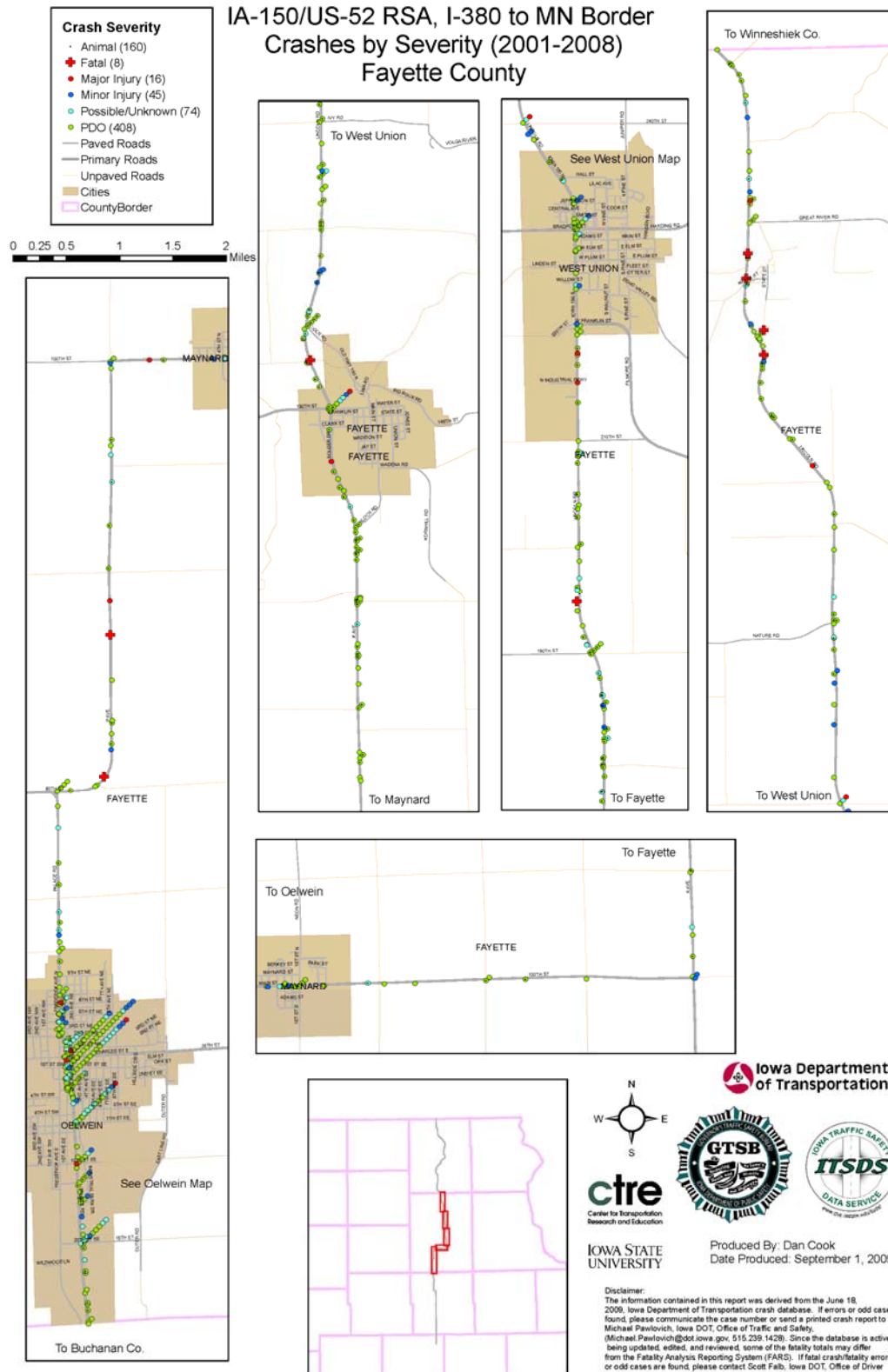
**Figure C.2. Crash rate on rural two-lane primary highways in Iowa, 2001–2008**



**Figure C.3. Crash rate ratio for IA 150, 2001–2008**



**Figure C.4. Crashes by severity, Benton/Buchanan Counties**



**Figure C.5. Crashes by severity, Fayette County**

# IA-150/US-52 RSA, I-380 to MN Border Crashes by Severity (2001-2008), Winneshiek County

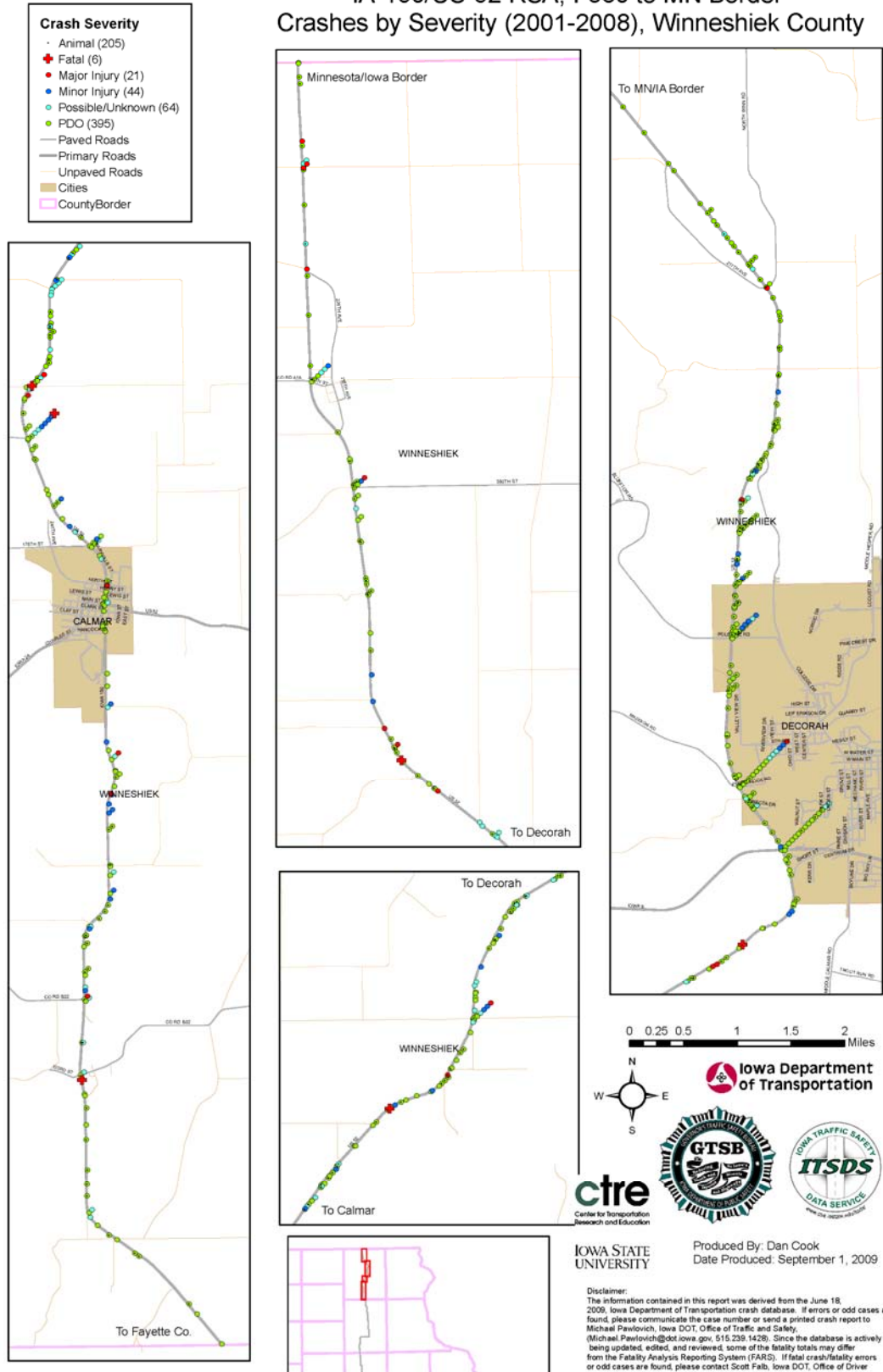
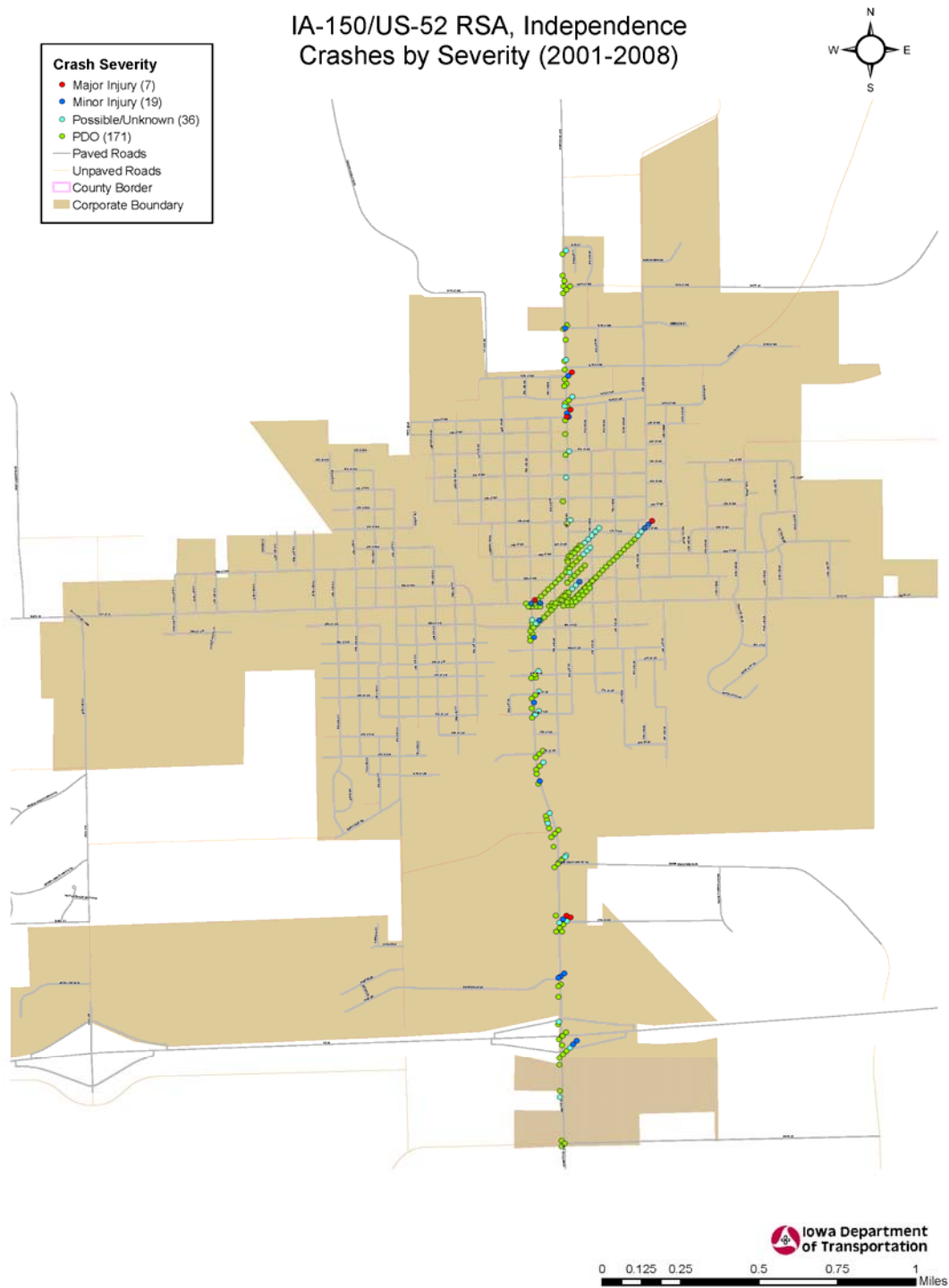


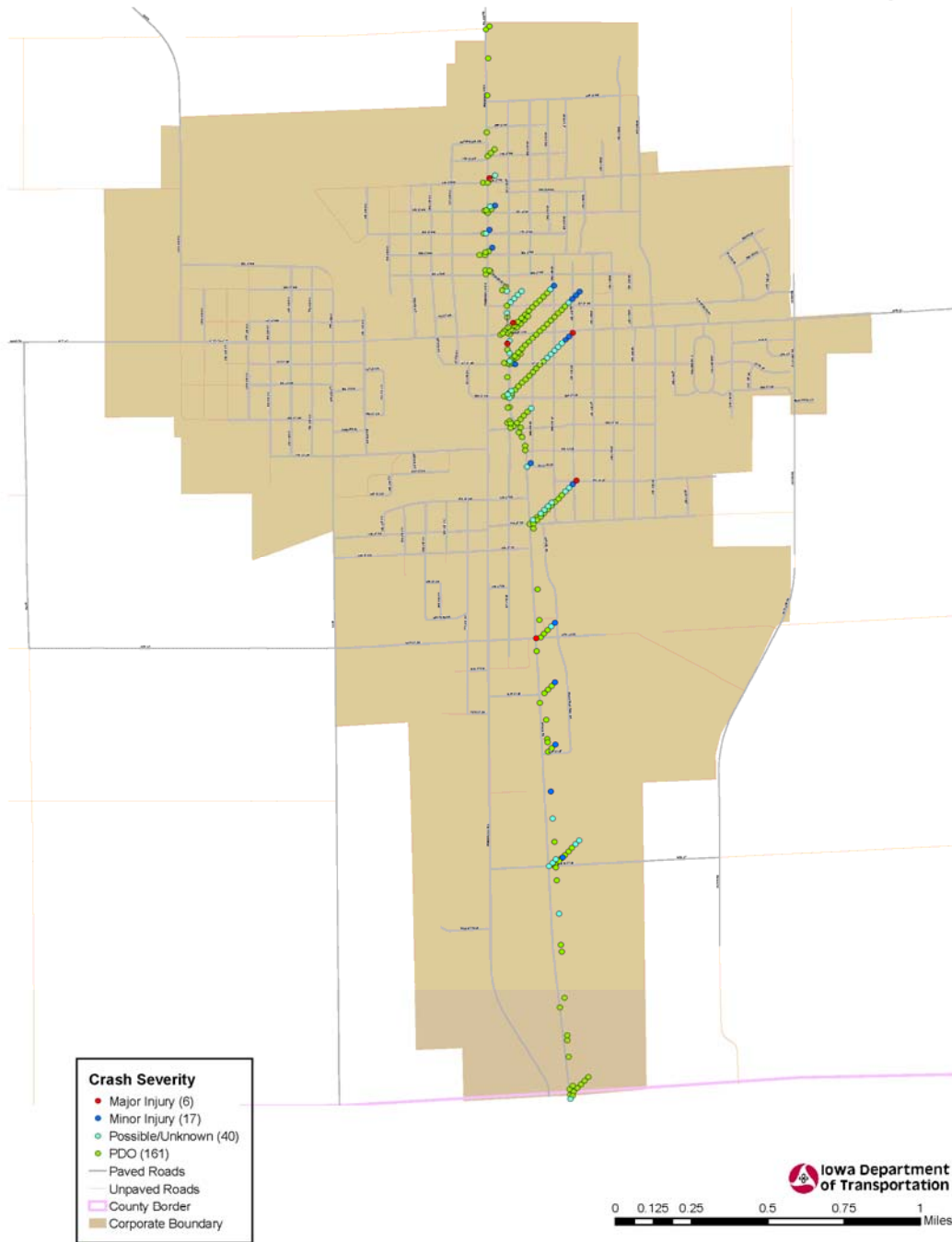
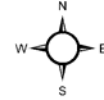
Figure C.6. Crashes by severity, Winneshiek County



**Disclaimer:**  
 The information contained in this report was derived from the June 18, 2009, Iowa Department of Transportation crash database. If errors or odd cases are found, please communicate the case number or send a printed crash report to Michael Pawlovich, Iowa DOT, Office of Traffic and Safety, (Michael.Pawlovich@dot.iowa.gov, 515.239.1428). Since the database is actively being updated, edited, and reviewed, some of the fatality totals may differ from the Fatality Analysis Reporting System (FARS). If fatal crash/fatality errors or odd cases are found, please contact Scott Falb, Iowa DOT, Office of Driver Services, (Scott.Falb@dot.iowa.gov, 515.237.3154).

**Figure C.7. Crashes by severity, Independence**

# IA-150/US-52 RSA, Oelwein Crashes by Severity (2001-2008)

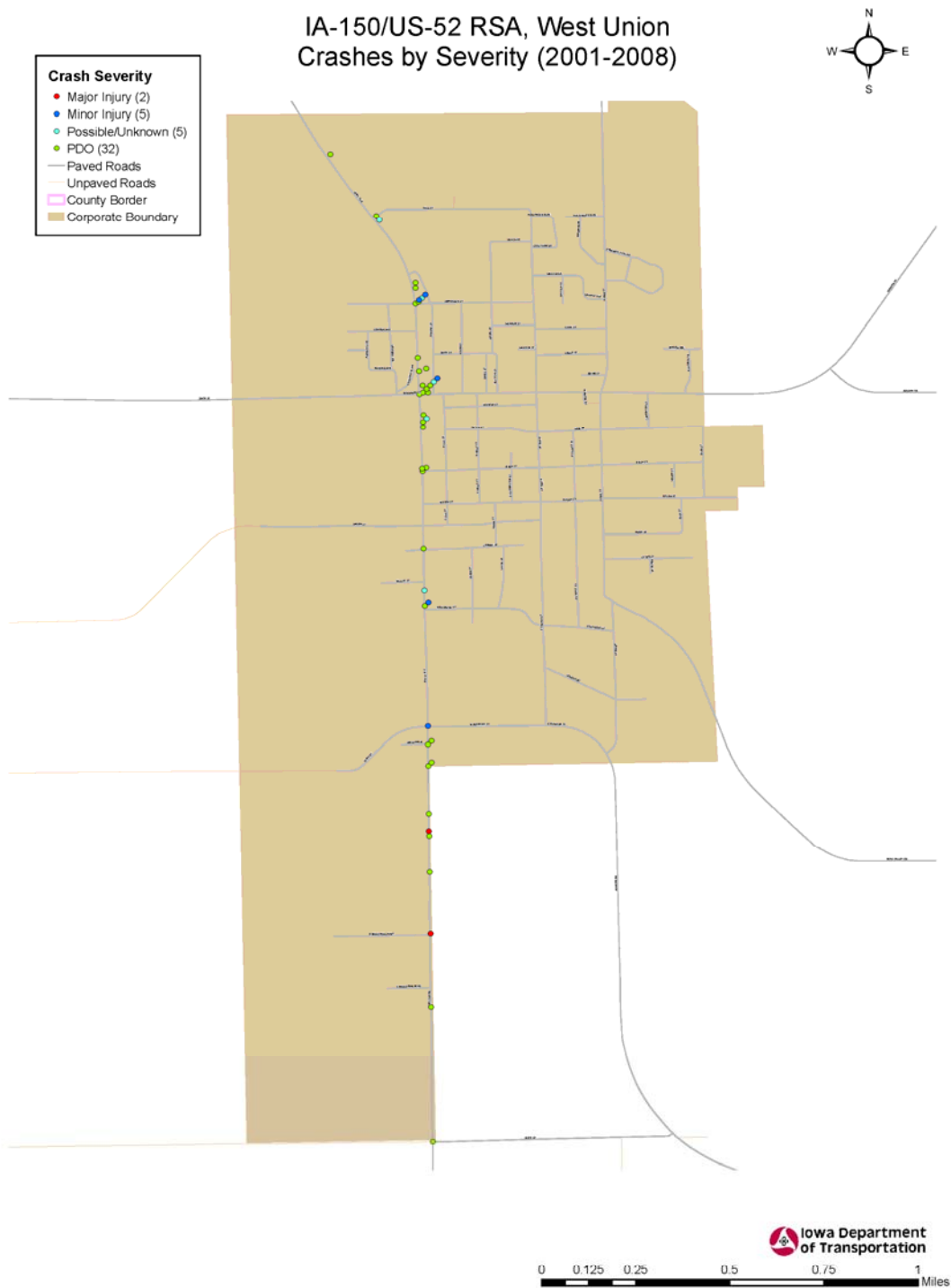


Produced By: Dan Cook  
Date Produced: September 1, 2009

**Disclaimer:**  
The information contained in this report was derived from the June 18, 2009, Iowa Department of Transportation crash database. If errors or odd cases are found, please communicate the case number or send a printed crash report to Michael Pawlovich, Iowa DOT, Office of Traffic and Safety, (Michael.Pawlovich@dot.iowa.gov, 515.239.1428). Since the database is actively being updated, edited, and reviewed, some of the fatality totals may differ from the Fatality Analysis Reporting System (FARS). If fatal crash/fatality errors or odd cases are found, please contact Scott Falb, Iowa DOT, Office of Driver Services, (Scott.Falb@dot.iowa.gov, 515.237.3154).



**Figure C.8. Crashes by severity, Oelwein**



Produced By: Dan Cook  
Date Produced: September 1, 2009

Disclaimer:  
The information contained in this report was derived from the June 18, 2009, Iowa Department of Transportation crash database. If errors or odd cases are found, please communicate the case number or send a printed crash report to Michael Pawlovich, Iowa DOT, Office of Traffic and Safety. (Michael.Pawlovich@dot.iowa.gov, 515.239.1428). Since the database is actively being updated, edited, and reviewed, some of the fatality totals may differ from the Fatality Analysis Reporting System (FARS). If fatal crash/fatality errors or odd cases are found, please contact Scott Falb, Iowa DOT, Office of Driver Services, (Scott.Falb@dot.iowa.gov, 515.237.3154).

**Figure C.9. Crashes by severity, West Union**

## **APPENDIX D. IMAGES FROM FIELD REVIEWS**



**Figure D.1. IA 150—Benton County traveling north**



**Figure D.2. IA 150—Benton County narrow structure with w-beam guardrail**



**Figure D.3. IA 150—Buchanan County road W-13 intersection in Hazelton**



**Figure D.4. IA 150—Buchanan County road D-47 intersection with right-turn lane**



**Figure D.5. IA 150—Buchanan County narrow structure with w-beam guardrail**



**Figure D.6. IA 150—Buchanan County newly completed structure with w-beam guardrail**



**Figure D.7. IA 150 in Independence**



**Figure D.8. IA 150—Buchanan County paved shoulder with rumble strips**



**Figure D.9. IA 150 Buchanan County curves north of Independence**



**Figure D.10. IA 150 in Hazelton**



**Figure D.11. US 52—Winneshiek County entrances to Northeast Iowa Community College facility south of Calmar**



**Figure D.12. IA 150—Fayette County approaching Oelwein**



**Figure D.13. IA 150—Fayette County approaching IA 3 intersection north of Oelwein**



**Figure D.14. IA 150—Fayette County structure with older w-beam guardrail**



**Figure D.15. IA 150—Fayette County intersection with IA 187**



**Figure D.16. IA 150 Fayette County entering City of Fayette**



**Figure D.17. IA 150 intersection with IA 93 in City of Fayette**



**Figure D.18. IA 150—Fayette County approaching county road intersection**



**Figure D.19. IA 150—Fayette County “Eldorado Hill”**



**Figure D.20. IA 150—Fayette County “Eldorado Hill” southbound**



**Figure D.21. IA 150—Fayette County scenic overlook turnout on “Eldorado Hill”**



**Figure D.22. IA 150—Fayette County Turkey River Bridge north of Eldorado**



**Figure D.23. IA 150—Winneshiek County curvilinear alignment south of Calmar**



**Figure D.24. IA 150—Winneshiek County entering Calmar**



**Figure D.25. IA 150/US 52 intersection in Calmar**



**Figure D.26. US 52—Winneshiek County Road B-16 intersection north of Calmar**



**Figure D.27. US 52—Winneshiek County cable rail south of Decorah**



**Figure D.28. US 52 intersection with IA 9 in Decorah**



**Figure D.29. US 52—Winneshiek County rock cut north of Decorah**



**Figure D.30. US 52—Winneshiek County climbing lane north of Decorah**



**Figure D.31. US 52—Winneshiek County partial paved shoulder**



**Figure D.32. US 52—Winneshiek County paved county road intersection with lighting**



**Figure D.33. US 52—Winneshiek County paved road intersection at Burr Oak**



**Figure D.33. US 52—Winneshiek County nighttime view of pavement markings**

## **APPENDIX E. NORTHEAST IOWA HIGHWAY 150/52 COALITION SURVEY QUESTIONS AND RESPONSES**

### **HIGHWAY 150/52 TRANSPORTATION SURVEY QUESTIONS**

**We invited businesses, city and county officials, law enforcement, school and colleges and engineers of county and city status to participate in the following survey. We received 58 surveys, with the following responses:**

1. How many deliveries (truckloads received and sent) does your business experience per week using the Hwy 150/52 Corridor?  
    **\_9\_ less than 5           (15.8%)**  
    **\_9\_ 5 to 10           (15.8%)**  
    **\_5\_ 11 to 20           (8.8%)**  
    **\_34\_ more than 20   (59.6%)**
  
2. Eye witnesses have reported at intersections through towns that traffic has had to move over or back up so tractor-trailers could make turns where Hwy 150 goes through communities? What reasons have you heard regarding delivery drivers/trucks choosing alternate routes to Hwy 150/52 when this State route is available?  
    **\_27\_ avoid town traffic (48.2%)**  
    **\_21\_ in-town intersection lay-out (37.5%)**  
    **\_24\_ avoid delays (42.9%)**  
    **\_21\_ potential damage to city signs/sidewalk treatments (37.5%)**  
    **\_5\_ other (8.9%) comments:**  
        Business owner at intersection of Hwys 150 & 93 sees tight turn areas causing safety hazards with semis and steady increase in car traffic.  
        Trucks with permit loads can't alter routes (2)  
        Most truck traffic would not know the dangers ahead of time to pick an alternate route  
        Poor condition of Hwy 52 Calmar and east
  
3. What safety concerns have you heard from delivery drivers, employee or customers concerning travels on Hwy 150/52?  
    **\_35\_ unsafe passing (61.4%)**  
    **\_21\_ blind spots/sharp curves (36.8%)**  
    **\_33\_ road/shoulder deterioration (57.9%)**  
    **\_27\_ deer hits (47.4%)**  
    **\_31\_ narrow shoulders/steep ditches (54.4%)**  
    **\_6\_ other (describe) 7 comments provided:**  
        Cupping, holding water on lane, hydroplaning

Hwy 52 road top, Ossian to Calmar is as bad as any hwy in the state (2)  
 Dangerous pedestrian crossings in Fayette and West Union  
 You can barely keep your vehicle on the road with the deterioration. The vehicle seems like it bounces all over the place.  
 Slow moving agricultural equipment.  
 Road surface between Ossian and Postville is very bad. DOT seems to overlook this area. Our company hauls several thousand loads in this area each year, and would rank it the worst in the state. We break as many parts on our trucks and need to reduce speed so as not to bounce off the road. Many complaints have been made to DOT but Ames thinks road is in pretty good shape. Come up and drive this area in a semi or ¾ ton pickup and see what you think.  
 Inability to pass slow moving vehicles.

4. What issues have you heard about or near miss incidents have you observed regarding travel on Hwy 150/52?

\_28\_ vision obscured/blocked by large equipment (50%)

\_28\_ deer/wildlife on roadway (50%)

\_46\_ traffic backed up due to slow moving equip. (82.1%)

\_17\_ vehicles passing on right/unsafely (30.4%)

\_14\_ damage by flying rock at road intersections (25%)

**\_29\_ vehicles passing uphill (no slow lane) (51.8%)**

\_3\_ other responses:

The road is just bad and rough

Vehicles turning left causing a backup of traffic in their lane

Hydroplaning between Ossian and Postville in wet conditions. Unsafe for young drivers. I don't let my kids drive on it if it's raining.

5. Do you agree that turning lanes, passing lanes and paved shoulders would improve traffic flow and safety for users of Hwy 150/52?

**\_55\_ yes (96.5%)**

\_0\_ no (0.0%)

\_3\_ not sure (3.5%) included "explain"

Fix the surface and half the problems would go away

Full 4 lane would be better

6. How many staff and students commute to campus/school each day and what percentage (closest estimate) travel Hwy 150/52 regularly?

\_10,352\_ total students (15 responses)

\_2,329\_ total staff (22 responses)

\_ (68.6%) \_ total estimated % of students commuting on 150/52 (14 responses)

\_ (63.7%) \_ total estimated % of staff commuting on 150/52 (24 responses)

7. What concerns have you heard from staff, students and bus drivers about Hwy 150/52?

**\_35\_ unsafe passing (76.1%)**

\_14\_ blind spots/sharp curves (30.4%)

\_30\_ road/shoulder deterioration (65.2%)

\_20\_ deer hits (43.5%)

\_26\_ narrow shoulders/steep ditches (56.5%)

\_3\_ other (describe) 3 responses:

Traffic stopped in their lane waiting or turning vehicles

Dangerous pedestrian crossings in Fayette and West Union

Fix the surface. I would rather hit a deer than be bounced around.

8. What areas of Hwy 150/52 tend to have the most near misses and incidents?

**\_35\_ rural areas (62.5%)**

\_34\_ highway intersections (60.7%)

\_27\_ blind spots/curves (48.2%)

\_32\_ hills (57.1%)

\_4\_ other (describe) 4 responses:

The intersection of Hwys 150 & 93 in Fayette

Water on road

It's not the near misses, it's the surface.

Beginning and end of No Passing Zones

9. Considering your response to #8, how does the Hwy 150/52 compare to other routes in the area?

**\_40\_ higher than others (76.9%)**

\_12\_ about the same (23.1%)

\_0\_ less than other routes

10. What 3 improvements do you suggest to improve traffic use and reduce risks on Hwy 150/52?

*121 responses were received for the 3 suggested improvements, of which many responses duplicated. Listed below are the responses, grouped by frequency and topic:*

**1. Better shoulders/Wider shoulders/paved shoulders for farm/equip – (25)**

- Wider road or finished shoulders with rumble strips (1)

**2. Build a safe and reliable road system – (17)**

- New pavement (5)
- Make 4 lane (3)
- Smoother surface (3)
- Redo the road (2)
- Total re-grade and new concrete paving
- Re-grade and repave entire stretches with shoulders
- Better roads – not so poor

3. **Add turn lanes – (14)**
  - Add turn lanes within cities (1)
4. **Slow climb lanes/Eldorado hill climb lane – (11)**
5. **Passing lanes/passing lanes from Decorah to Calmar –(11)**
6. **Bypass major towns – (9)**
  - Avoid the town of Independence – (5)
  - Reroute out of Oelwein (2)
  - Reroute 150 to Hwy 3 rather than through Maynard (1)
7. **Softer curves/Take out curves –(9)**
  - Minimize the vertical and horizontal curves (1)
8. **Improve the intersections/wider intersections – (8)**
  - Calmar 150 & 52 intersection (2)
  - Improve intersection 150 & 18
  - Larger radius for trucks
  - Easier access to Hwy 20 & 380
  - Better designed intersections especially Hwy 52 & 9
  - 150 through Independence, specifically turning
9. **Ditches/Safer foreslopes and backslopes –(4)**
  - Ditches can be wider at hills and valleys (1)
  - Widen the R.O.W. through Guttenberg (1)
10. **Visibility/visibility at B32/150 in Festina – (3)**
11. **Repair Hwy bad spots – (3)**
  - Fix hwy 52 Ossian to Calmar – (2)
12. Better and more **deer** crossing signs/Lessen the deer population **(2)**
13. More “no passing” zones
14. Reduced speed through towns
15. Better/wider Bridges
16. Designated pedestrian facilities within communities, esp. Fayette and West Union
17. Faster response to winter snow and ice

## **Highway 150/52 Corridor Road Safety Audit Information**

Areas of concern and issues regarding the Hwy 150/152 corridor, listed from north to south: data collected from local business contacts, educational facilities, County Engineers, Boards of Supervisors, City Clerks, City Mayors and Street Superintendents, Law Enforcement, emergency responders and other local sources were used to identify the areas of concern and related issues as follows.

### **Minnesota border – heading south to Decorah**

- Hwy 52 turn lanes east to Winn. Co-op north of Decorah-agricultural and customer traffic

### **Decorah – heading south**

- Hwy 52/Hwy 9 intersection for left turning oversized/long trailer traffic
- Hwy 52 south to Calmar – increased maintenance work, quicker than expected deterioration
- 190<sup>th</sup> street Connover turn – heavy traffic
- Hwy 52 intersection with county road B16 west to Spillville – raised median hazard?
- Overhead lighting was installed due to hazards and crash history at B16 intersection

### **Calmar – heading south**

- Hwy 52/150/24 intersection tight for negotiation of large truck traffic
- NICC Dairy Center entrance sees high volume of turning traffic for both directions
- Reduced visibility corners just south of NICC Dairy Center entrance (chevrons installed)
- Inconsistent shoulder conditions and edge rutting due to heavy equipment use
- Increased maintenance work required, from crack sealing to full depth patching; deteriorating at a quicker rate over the last 5 years.

### **Festina – heading south**

- Turn lane installation to Ft. Atkinson (west) and in Festina – B32 (east)
- Lights installed at in town intersection of Hwy 150 & B32 due to concerns of residents
- Eldorado hill – no slow lane (SBL), steep ditch – no paved shoulder or guard rail (NBL)
- No right/center turn lanes or passing lanes at intersections of adjoining County roads

### **West Union – heading south**

- 240<sup>th</sup> street reconstruction – with turning lane at County expense – for safety
- Feedback received on Hwy 18 also: very rough, cracks, vibration for Elderly transports

### **Fayette – heading south**

- Trees trimmed at intersection with 190<sup>th</sup> street and at “Old Hwy 150” for sight distance
- Fayette bridge widening to allow for shoulder/turning lane space
- Intersection of Water Street/Hwy 93 & Hwy 150 would benefit from turning lanes
- Intersection of Clark Street & Hwy 150 east turning lanes would be helpful
  - Misuse of paved shoulder with traffic thinking it is turning lane and is not
- Heavy traffic on 130<sup>th</sup> street (Landfill Road); turning lane at County’s expense for safety
- Truck traffic continuing south from Hwy 150 onto W13 to Hwy 3, and proceeding west toward Oelwein and turning south on W19 to bypass rather than following state routes.

### **Maynard – Hwy 150 east/west stretch of corridor**

- Truck traffic and parking on shoulder at Co-op and Casey’s store in Maynard a hazard

### **Oelwein – heading south**

- Hwy 150/Hwy 3 intersection configuration north of Oelwein performs poorly; could be site for future roundabout?
- Hwy 150 through Oelwein experiences tight curves north/south of Hwy 3 intersection

### **Hazleton – heading south**

- Intersection of C57 creates daily hazard for turning traffic, especially “after work” traffic
- Roadway section and geometry digress as you travel south

- Shoulders narrow, ditches steepen, vertical curves lose sight distance, and horizontal curves drop in design speed.

### **Independence – Heading south**

- Independence 90 degree corners in middle of town very difficult for truck traffic to negotiate
- Sharp “S” curves south of Independence - already in planning stages.
- Vertical profile is rolling, with accompanying marked passing zones that appear short.
- Benton Co. section appears to have 3’ to 5’ shoulders, and several narrow drainage structures shielded by guardrail.

### **CONTACTS AND INPUT SOURCES:**

#### **Road Safety Audit initiative representatives:**

- Wendy Mihm- Herold UERPC Executive Director
- Larry Leliefeld UERPC staff
- Larry Murphy Oelwein City Mayor
- Sally Falb Economic Development
- Lee Bjerke Winneshiek County Engineer (provided response)
- JD King Fayette County Engineer (provided response)
- Brian Keierleber Buchanan County Engineer
- Myron Parizek Benton County Engineer
- Bob Bouska East Penn Business-Heavy Truck Traffic safety issues (prepared info)
- John Rothlisberger Superintendent, Turkey Valley/North Fayette Schools

#### **Other parties contacted:**

- Jerry Hildebrand Fayette Public Works Director (provided response)
- Roger Carson Hazleton Mayor (provided response)
- Mark Zieman Iowa Motor Truck Association contact
- Steve Schmidt Hawkeye Foods Fleet Manager
- Chris Reilly Reilly Construction, Owner, Ossian, IA
- Gary Bemiss Bemiss Distributing, Owner, West Union, IA
- Craig Spilde U.S.P.S. Postmaster, Decorah IA
- Steve Sorenson J.B. Holland Construction
- Mark Olson Olson Explosives
- Don Baumler Baumler Equipment
- Joan Martin South Winneshiek Schools
- Erich Gamm West Union Trenching
- Spencer Cook Schwan’s Foods

Legislative Wrap-up meeting May 29,2009 where Hwy 150/52 corridor initiative was discussed.

- Representative Roger Thomas (Dist. 24)
- Representative Andrew Wenthe (Dist. 18)
- Representative John Beard (Dist. 16)
- Senator Bill Schoenjahn (Dist. 12)
- Senator Bill Heckroth (Dist. 9)
- Senator Grassley's office representative Mary May
- Senator Harkin's office representative Linda Lucy

Other meetings and committees receiving the Hwy 150/52 corridor information:

- 5 County Board of Supervisors Meeting
- Long Range Transportation Planning committee
- Transportation Policy Board and Technical committee
- UERPC newsletter mailed and posted on website
- Region 1 City Clerks meeting

## **APPENDIX F. LAW ENFORCEMENT CONCERNS FOR HIGHWAY 150/52 CORRIDOR SAFETY AUDIT**

Law enforcement officers noted the following concerns regarding the IA 150/US 52 corridor:

- No shoulders on Hwy # 150 south of Independence, makes it hard to work, safely stop people.
- Benton/Buchanan County Line couple hills and curve in roadway, snow blows in there, no shoulders and deep/steep ditches.
- Hwy # 150 through Independence – tight turns, traffic lights lead to congestion
- North of Independence there are areas of little or no shoulders as well, turning around and stopping motorists is often a worse hazard than the original violation.
- “S” curve north of Independence; improvements have helped but can cause issues with weather and impatient traffic.
- The hills north of the “S” curves – this area drifts snow very badly, between the fields and the open fields on the Westside and the raised bank near the private property this will drift the southbound lane.
- Hwy # 150 north of edge Hazelton – school bus stop near curve, this has been moved farther south, but with southbound traffic starting to slow it can be short visibility, new speed zones signs have improved this though.
- Hwy # 150 and 3 junction north of Oelwein – confusing, who has to stop, which lane turns? Slow speed so most crashes are minor, but people have gone the wrong way, made U-turns to come back through...
- East of the #3 and 150 junction, curve with intersection, seems to be good design but we have covered several (more than 3 in the last year) collisions in this curve, majority northbound and drive off.
- State highway stops for county road – C33 west of Maynard and then for W33/#187 east of Maynard.
- Eldorado Hill – lack of shoulders, wind and blowing snow in winter, long hill which leads to slower traffic, intersection at bottom, scenic overlook/park at top of hill.
- Calmar – junction of # 150, 52, and 24, 4-way stop with municipal parking lots, where does a person stop, allow access to lots at stop signs??? School crossing in “S” curves in city – Catholic Church and school on eastside and public school is a couple blocks to the west.
- Spillville turn off at B16, island causes difficult turns, fills with water and snow (intersection).