Road Safety Audit for US 52 in Dubuque County from IA 136 to the NCL of Dubuque

Final Report
June 2008

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16. Abstract A section of US 52 between Dubuque and Luxemburg, Iowa, was listed in the top 5% of Iowa highways for severe crashes involving impaired drivers and single vehicle run-off-road crashes during 2001–2005, and several crashes have occurred on this roadway near the towns of Luxemburg, Holy Cross, and Rickardsville, Iowa, many on curves. Staff and officials from the Iowa Department of Transportation (Iowa DOT), Iowa State Patrol, Governor's Traffic Safety Bureau, Federal Highway Administration, Center for Transportation Research and Education Dubuque County, and a retired fire chief met to review crash data and discuss potential safety improvements to U.S. Highway 52. This report outlines the findings and recommendations of the road safety audit team to address the safety concerns on this US 52 corridor and explains several mitigation strategies that the Iowa DOT District 6 Office has selected.			
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The authors would like to thank the Iowa Department of Transportation (Iowa DOT) for sponsoring this road safety audit and all members of the audit team. Special thanks are due to Ken Runde, Dubuque County Sheriff, Ken Dausener, Iowa State Patrol, and Willy Wagner, retired Fire Chief from the town of Holy Cross, all of whom provided unique and invaluable insight into the safety challenges presented by this section of Iowa highway. District 6 staff of the Iowa DOT are to be commended for their prompt and diligent action in applying low-cost safety mitigation to identified needs.

INTRODUCTION AND INITIAL MEETING

An introductory meeting for a road safety audit of U.S. Highway 52 near Dubuque, Iowa, was conducted at the Iowa Department of Transportation (Iowa DOT) Dyersville Maintenance Garage, beginning at 10:30 a.m. on November 28, 2007. Participating in the meeting were the invited members of the road safety audit team:

Ken Runde	Dubuque County Sheriff
Ken Dausener	Trooper, Iowa State Patrol
Willy Wagner,	Retired Fire Chief of Holy Cross, Iowa (frequent commuter to John Deere in Dubuque)
Art Gourley	Iowa DOT
Steve Wilson	Iowa DOT
Dave Shanahan	Iowa DOT
Randy Hunefeld	Governor's Traffic Safety Bureau (GTSB)
Jim Meyerdirk	GTSB
Tom Welch	Iowa DOT
Jerry Roche	Federal Highway Administration (FHWA)
Jack Latterell	Consultant
Tom McDonald	Center for Transportation Research and Education (CTRE)

US 52 was originally constructed in 1927 and was last rehabilitated in 2001 with 2.5 inches of hot mix asphalt. Traffic volumes vary from 2,200–2,300 vehicles per day (vpd), including 240 trucks for the two-lane section between Sageville and Luxemburg, to 5,300 vpd with 390 trucks for the four-lane section between Dubuque and Sageville.

Tom Welch opened the meeting, describing the format and purpose of a road safety audit and how this activity would relate to a safety corridor designation if approved by the Iowa DOT and Department of Public Safety (DPS). It was noted that the section of US 52 between Dubuque and Luxemburg had been found to be listed in the top 5% of Iowa highways for severe crashes involving impaired drivers and single vehicle run-off -road crashes during the years of 2001–2005. Local citizens' concerns and news media articles are documented in Appendix E.

Tom McDonald and others reviewed the 2002–2006 crash data that had been furnished to all team members, including crash maps and various crash data tables (included in Appendices A and B). Single vehicle run-off-road and impaired driver crashes were of most interest. The data contained a high percentage of unknowns for light conditions, which will be checked for verification.

Jack Latterell explained the road safety check list that had also been furnished to the team.

It was determined that Iowa DOT district staff use both CMAT and SAVER software for crash analysis; however, IMAT software may not be fully utilized by law enforcement at this time.

FIELD REVIEWS

Following lunch, team members participated in a daytime field review of the route with Sheriff Runde, Trooper Dausener, and Willy Wagner, commenting on observed safety concerns and past crash sites. The crash data maps were used to locate and examine sites with multiple crash occurrences. Notes and images were made of observances (see Appendices C and D).

Following dinner, some team members participated in a nighttime field review of the route. Those members included Art Gourley, Randy Hunefeld, Jim Meyerdirk, Tom Welch, Jerry Roche, Jack Latterell, and Tom McDonald. Notes and photo images were again taken to document observances. All images are on file in the CTRE office.

SUMMARY MEETING AND SUGGESTIONS BY THE TEAM

On November 29, 2007, beginning at 8:00 a.m., a wrap-up meeting was conducted in the Dyersville Maintenance Garage. All team members except Willy Wagner participated in this meeting to brainstorm ideas for addressing observed concerns noted from the crash data and observed during the day and night reviews. (A brief article about California Highway 49 is included in Appendix G for comparison of mitigation strategies.) The following issues were suggested for the route beginning from the east corporate limits of Luxemburg and proceeding easterly toward Dubuque:

Engineering Opportunities

It was observed that new fluorescent-yellow chevrons had been installed at the ends of selected curves throughout the route. Visibility variances with the older chevrons were noted during the day, but not at night, especially under high-beam headlights. Adjustment of the height of these devices was suggested in several locations. In addition, care should be taken to locate one chevron in the middle of the approach lane view from each direction. The district will order and install fluorescent-yellow chevrons as recommended.

It should be noted that fluorescent yellow signs provide much improved daytime visibility compared to standard yellow backgrounds, especially under cloudy conditions. It may be advisable to consider replacing all warning signs with a fluorescent-yellow background on this roadway, especially curve warning signs. The district will order and install these recommended signs in the near future.

The US 52 right-of-way is narrow, approximately 66 ft. in width, with narrow shoulders and a minimal clear zone. Many run-off-road crashes result in impacts with the ditches and adjacent slopes. There may be opportunities to flatten cross slopes at side roads and entrances to improve the roadside environment.

Numerous short sections of narrow shoulder paving were noted throughout the section, especially in curves.

The intersection of County Road Y-13 has been the site of numerous crashes throughout the study period. The crash diagram for this intersection indicated that most crashes occurred in the southeast quadrant, which was confirmed by Willy Wagner and law enforcement officers. Alignment of the south approach and that of US 52 to the east make visibility from the stop sign problematic for entering vehicles from the south. Suggestions for this location include removal or redesign of the stop sign island to permit shifting of the south approach centerline to the east. Removal of vegetation and possibly some minor re-shaping of a berm from the southeast quadrant, both on and off the right-of-way, should also be considered to improve visibilty. The district will realign the south approach by relocating the existing pavement markings. Additionally, an advance intersection warning sign will be installed on eastbound US 52 approaching this intersection.

Additional chevrons should be considered for the curvilinear alignment easterly from the Y-13 intersection where several injury crashes have occurred. Solar-powered warning lights on selected curve signs should also be considered. The district will review and consider this suggestion.

Loose rock was noted on the road surface at the Bankston Park Road intersection. Consideration should be given to paving more of the south approach here and at other selected intersections. Numerous crashes have occurred in the area east of this intersection. Improved curve delineation may be effective in this area, and consideration should be given to moving the existing 50 mph regulatory speed limit from east of Rickardsville to the Bankston Park Road intersection, subject to a speed study.

Speed reduction warning signs should be erected in advance of the regulatory speed signs, possibly with flags to draw attention to the speed limit.

In addition to chevrons in selected curves, other curves have delineators with either a single white retro-reflector or, in some locations, triple white retro-reflectors. These devices should be examined for effectiveness and replaced where visibility is poor. Also, spacing of these devices should be modified to meet or exceed Manual on Uniform Traffic Control Devices (MUTCD) guidelines.

Utility poles and down guys were observed in potentially problematic locations in some areas (outside of horizontal curves). It was recommended that the utility owners be contacted to ascertain whether these poles and guys could be relocated to the inside of those curves. If that adjustment is not possible, consideration should be given to delineating these poles with retro-reflective material.

At one location in Rickardsville, it was noted that w-beam guardrails should be considered at a site where a run-off-road crash had impacted a building off the right-of-way.

Beam guardrails should also be placed at other selected locations where warranted and feasible.

Another location of concern in Rickardsville was the St. Joseph Street intersection where the existing stop sign and stop bar are located several feet from the US 52 pavement edge at a severely skewed side street approach. It was suggested that consideration be given to moving the stop bar to nearer the pavement edge and installing a painted centerline on the approach to better guide traffic in this very wide paved area.

It was suggested that the existing curve signs near the south Y-21 intersection be replaced with fluorescent signs, possibly with flags to draw attention to this curve where several crashes have occurred. Consideration should be given to reconstructing this approach to provide a flatter landing area.

From just west of the Boy Scout Road intersection through Sageville, numerous animal crashes have occurred throughout the study period. It was suggested that oversized deer warning signs be erected in consultation with the Iowa Department of Natural Resources (DNR). High animal fencing in this area would not be feasible.

The Boy Scout Road intersection area has been the site of numerous crashes, but a more detailed examination of the crash history at that intersection revealed only two crashes during the study period, and neither was of serious consequence. A copy of the intersection crash diagram is included in Appendix A.

From east of Durango to Sageville, older design, single-strand cable rail exists on one side of the roadway along a high, steep slope. Due to the narrow shoulder in these locations, replacement of this cable rail would be difficult, since insufficient embankment is available to provide stability to the posts. During discussion regarding this area, minimal repair of this cable rail was suggested, perhaps readjusting individual posts as needed. Rather than replacement with an approved roadside barrier, discussion focused more on improving visibility of the roadside through this area with delineators, spaced according to or exceeding MUTCD guidelines.

It was noted by the law enforcement officers that a fatal crash that was not included in the crash data had occurred at the Raylyn Road intersection. CTRE staff investigated this crash location and found that Raylyn Road is a private entrance to a small housing development, which made locating the crash problematic for the state database. This crash will be included in the tabulations for this report.

Paved shoulders with rumble strips or stripes should be considered at high-degree and high-crash location curves at a minimum and throughout the route if funding can be identified. The narrow existing shoulders would allow only an approximate two-foot paved width, but even this would have high potential benefit. Rumble stripes for these areas would also improve nighttime visibility, especially in wet weather, and reduce lane departures

It was further suggested that centerline rumble strips be considered on both ends of Gillespie Hill and in other selected locations to improve lane keeping by drivers and act as a traffic calming measure, especially if coupled with edge line rumble strips.

The nighttime review indicated good visibility of the existing chevrons and six-inch-wide pavement edge markings. Delineator visibility could be improved in many areas, however, possibly using larger retro-reflectors (buttons).

Visibility of the existing traffic signals when approaching the Northwest Arterial (IA 32) intersection from the north is hampered by a high bluff. It was suggested that "Be Prepared to Stop When Flashing" warning signs be installed with signal-activated flashing lights to improve awareness of the signals. In addition, signal phasing should be reviewed. A crash diagram will be studied to identify other possible suggestions for mitigating crashes at this intersection. Discussion also included possibly prohibiting right turns on red at the northeast quadrant of this intersection. The district will work with the City of Dubuque to install a "Be Prepared to Stop When Flashing" warning sign with a flashing beacon as part of an upcoming city improvement in the area.

Some edge rutting was noted in a few locations, mostly at side road approaches.

It was also noted that when curve-warning signs are upgraded, consideration should be given to upgrading and possibly upsizing the accompanying speed advisory plaques, using the same background as the sign. The District 6 Office may want to reanalyze the advisory speeds, unless this has been recently accomplished. Since many of the curves on this route cannot be negotiated safely at the posted speed limit, these advisory speeds are very important, and attention should be drawn to that guidance as much as possible. The district will order and install larger advisory plaques.

It may be advantageous to develop criteria for delineating horizontal curves on this route based on degree of curvature, advisory speed, crash history, etc. Types of treatment could include the following:

- No special treatment
- Single white button or modified design delineators
- Triple white button delineators
- Large fluorescent yellow chevrons
- Double and/or oversized fluorescent yellow curve warning signs and oversized speed advisory plaques

Law Enforcement Opportunities

General comments included a suggestion that a speed indication trailer be deployed to assess effectiveness at reducing speeds.

Law enforcement officers indicated that the terrain and narrow roadway makes traffic enforcement problematic, since it is difficult to pull over offenders for citations. Suggestions included the possible use of aircraft and/or deployment of stationary radar with an officer located downstream at a convenient pull-off site. Other special procedures might also be effective. Any extra law enforcement efforts should be coordinated with the GTSB special enforcement programs. To assist Dubuque County with enforcement activities, the Office of Traffic and Safety later provided funding for the acquisition of speed detection radar units.

For the future, legislative action to establish double fines for moving violations on safety emphasis routes, such as US 52, should be sought. Consultation with county attorneys, magistrates, and judges regarding the need to fully prosecute and penalize offenders may be beneficial. Assistant Attorney General Pete Grady should be included in this effort.

Public Information and Education Opportunities

The value of presenting the safety concerns for this section of US 52 to the public should also be recognized. Crash history, suggested engineering improvements, and specific law enforcement efforts could be discussed at a public forum to raise awareness and involve news media coverage.

GENERAL OBSERVATIONS OF THE ROUTE

During both the day and night field reviews by the audit team, numerous digital images were taken of existing conditions. Images are on file at the CTRE office in Ames, Iowa, and four are included in Appendix D.

Following the field review by the road safety audit team, District 6 staff and representatives from the Iowa DOT Office of Traffic and Safety examined the route independently and determined the following needs and improvements:

- The Y-13 intersection is not satisfactorily visible when approached from the east on US 52. The district will install an advance intersection warning sign for westbound US 52 traffic.
- A tree in the right-of-way obstructs visibility of an eastbound curve warning sign west of Poor Man’s Curve. The district will remove the tree.
- Painted pavement markings for turn lanes at the Sherrill Road (County Road CY9) intersection in Sageville have been placed.

In May 2008, vehicle speed sampling was undertaken at four locations on US 52. In general, good compliance with posted speed limits was found in both the 55 mph and 50 mph posted areas. Complete results of the speed sampling are included in Appendix C.

A review of pavement surface friction and rutting was requested by members of the audit team. Historic results were obtained from the Iowa DOT Office of Materials and are listed in Table 1. Although these data are now several years old, neither friction nor rutting appears to be of major concern on this section of US 52.

Table 1. US 52 Dubuque County (MP 50.38, NCL of Dubuque, MP 72.91, ECL of Luxemburg) Friction and Rut Depth Measurements

Location (milepoint)	Friction (Year)	Rutting (Year)
50.38 - 51.92	48 (2004)	-
51.92 - 52.81	46 (2002)	2.4mm (2005)
52.81 - 57.16	49 (2002)	1.5mm (2005)
57.16 - 57.89	51 (2002)	1.8mm (2005)
57.89 - 58.40	48 (2002)	1.8mm (2005)
58.40 - 72.91	52 (2002)	2.2mm (2005)

In recognition of the high number of animal crashes on this section (42%), FWHA Safety Engineer Jerry Roche contacted Willie Suchy of the Iowa DNR for advice. Although no countermeasures other than warning signs have been identified, local agencies and officials were advised to continue working with the DNR to address this issue.

CRASH DATA

As mentioned in the introductory remarks for the road safety audit field review, this section of US 52 in Dubuque County was listed in the top 5% of Iowa roads for serious crashes in two categories: impaired drivers and single-vehicle run-off-road. As part of the audit review process, detailed crash data were provided to the team members for consideration and use by transportation and law enforcement agencies in selecting and applying appropriate mitigation techniques. Copies of these data for the years 2002 through 2006 are included in Appendix B of this report, and the results are briefly summarized here.

Appendix A contains intersection crash diagrams for several of the intersections in this corridor. Of particular interest is the display for US 52 and Dubuque County Road Y-13 near Holy Cross. This data set, which shows most crashes as occurring on one quadrant of the intersection, was used in developing the mitigation described in Appendix F.

It should be noted that the data may be presented in these summaries in differing manners. One summary method can be termed “crash level” and these data represent the crash event as a singular occurrence. The other forms of presentation could be termed “driver/vehicle level” and/or “injury level”. Under these methods, the information describes the numbers of actual vehicles and drivers/occupants involved in these crashes. The numbers shown for the

“driver/vehicle” and “injury” levels will always be at least equal to and generally higher than the “crash level” data.

During this period, 245 crashes were recorded on this section of US 52, with 6 total fatalities. Many of the serious crashes were related to speed, impaired driver, and single-vehicle run-off-road incidents. The number of crashes occurring each year was fairly consistent. Locations of these crashes are shown on the maps included in Appendix B. A review of winter-related crashes did not reveal a significant number, and none were classified as a serious crash. Sixteen percent of crashes were run-off-road, and ditches or embankments were by far the objects most frequently impacted. A high percentage of this type of crash occurred in or near curves, and low-cost engineering improvements selected to mitigate these crashes are described in Appendix F.

The most common crash causes in the corridor during the analysis period were animal collisions, most likely deer. Some recommendations to address this issue were discussed earlier in this report.

Two serious crashes involving multi-vehicle crossed centerline incidents were noted, with one fatality. Approximately 67% of vehicle occupants in fatal and injury crashes were noted as wearing shoulder and lap belts.

Crash occurrence was quite consistent in terms of the day of the week, with the fewest crashes occurring on Sunday. Crashes per hour were higher during commute times, especially in the evening. Most crashes were noted during daylight hours.

Crashes involving trucks were approximately comparable to the percentage of commercial traffic volume on this section. Five crashes of motorcycles were noted, one resulting in a major injury.

The percentage of drivers involved in crashes on US 52 was significantly higher for the 15–24 year old group, who made up 26% of all crashes recorded. Because of the higher incidence of younger driver crashes, data for this age group were reviewed in depth. Crashes for this group were consistent for day of the week, except for Saturday, which recorded almost twice the crashes for any other day. Sixteen-year-old drivers were involved in the highest number of crashes for the entire group. As with the total driving population, crashes involving younger drivers are higher during the afternoon commute times, 3:00 p.m. to 4:00 p.m. Nighttime crashes are not significantly high. Alcohol- and drug-related crash severity data did not show a significant variance across age. However, all but one of these crashes involved underage drivers. Good compliance with shoulder and lap belt use was noted from the crash data for younger drivers. However, similar to the general driving population, speed-related crashes were significant and were fairly evenly distributed across the age group. Study of these data by law enforcement and driver educators may provide a good background for mitigation action and information presentation.

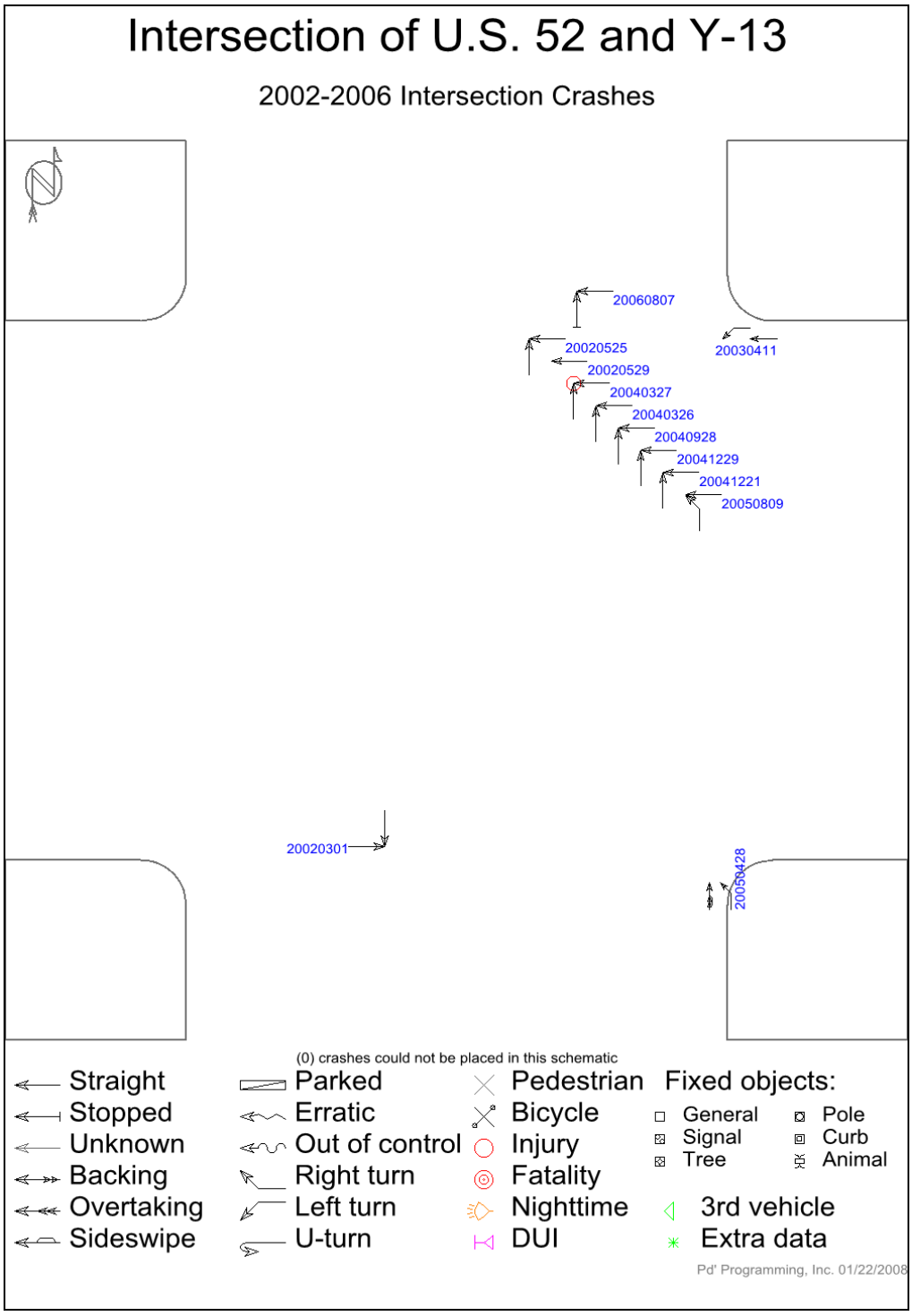
As part of the crash review, audit team members also obtained and reviewed officer crash reports for several of the more serious crashes. In addition, data were obtained from numerous insurance carriers of damage claims experienced over the five-year analysis period. These data are on file in the CTRE office.

PROPOSED IMPROVEMENTS

Using the crash data for this section of US 52 and the advice of the road safety audit team, Iowa DOT District 6 staff took the initiative to apply approximately one million dollars in funding from the Highway Safety Improvement Program (from the FHWA) and Transportation Safety Improvement Program (from the Iowa DOT) to apply low-cost improvements in the areas of most need. Much of this mitigation will be accomplished in 2008. The proposed work includes signing upgrades, improvements at the County Road Y-13 intersection by Dubuque County, pavement widening, asphalt overlay, rumble strips and stripes, and extended paved fillets for side roads in selected locations. Details can be found in Appendix F. The district is also working with the City of Dubuque to improve advance warning signs for the signalized intersection with the Northwest Arterial (IA 32).

As additional funding becomes available, possibly by 2011, the district plans to continue with focused safety improvements on the US 52 corridor, primarily concentrating on widening, resurfacing, and side road approach fillets in selected areas. Both the district staff and the Dubuque County Engineer's Office are to be commended for this rapid response to identified safety concerns.

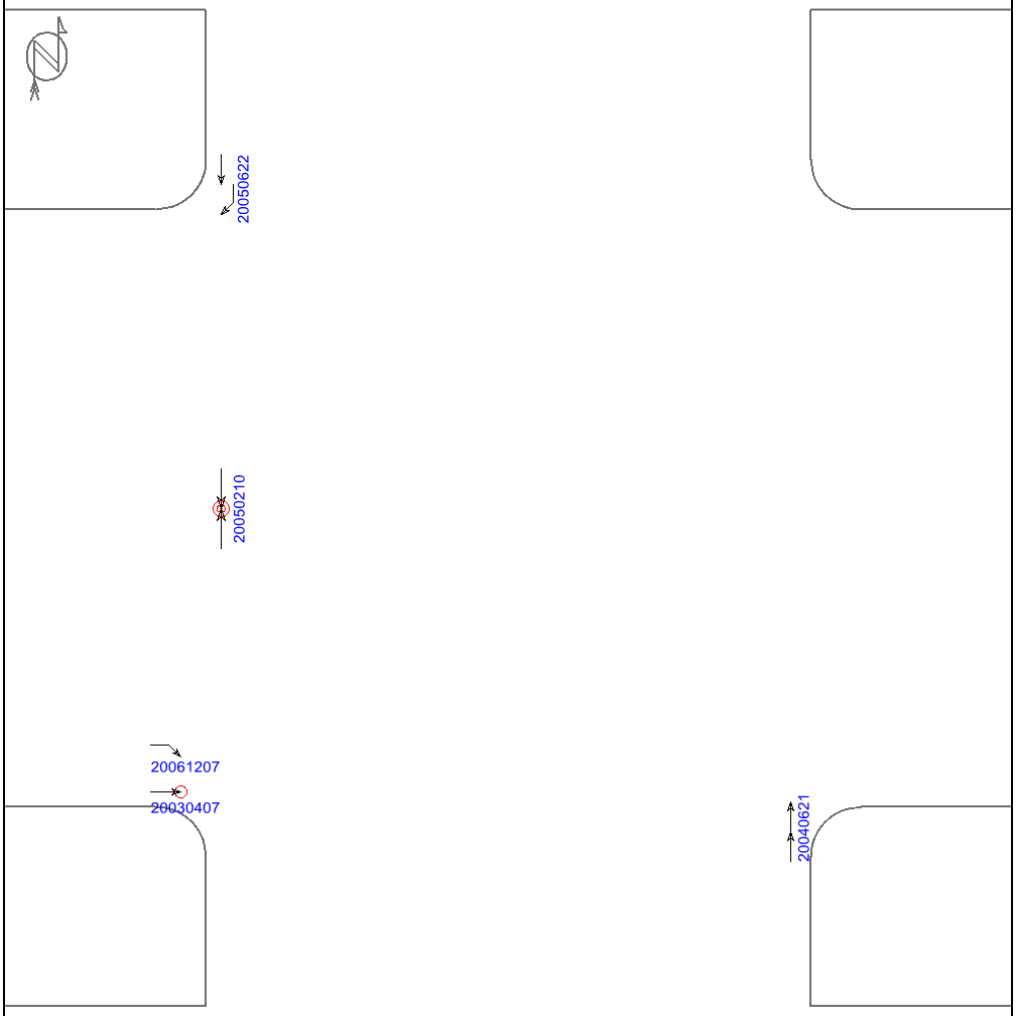
APPENDIX A. US 52 INTERSECTION DIAGRAMS



Produced By: Josh Hinds Date Produced: January 22, 2008

Intersection of U.S 52 & Paradise Valley Rd

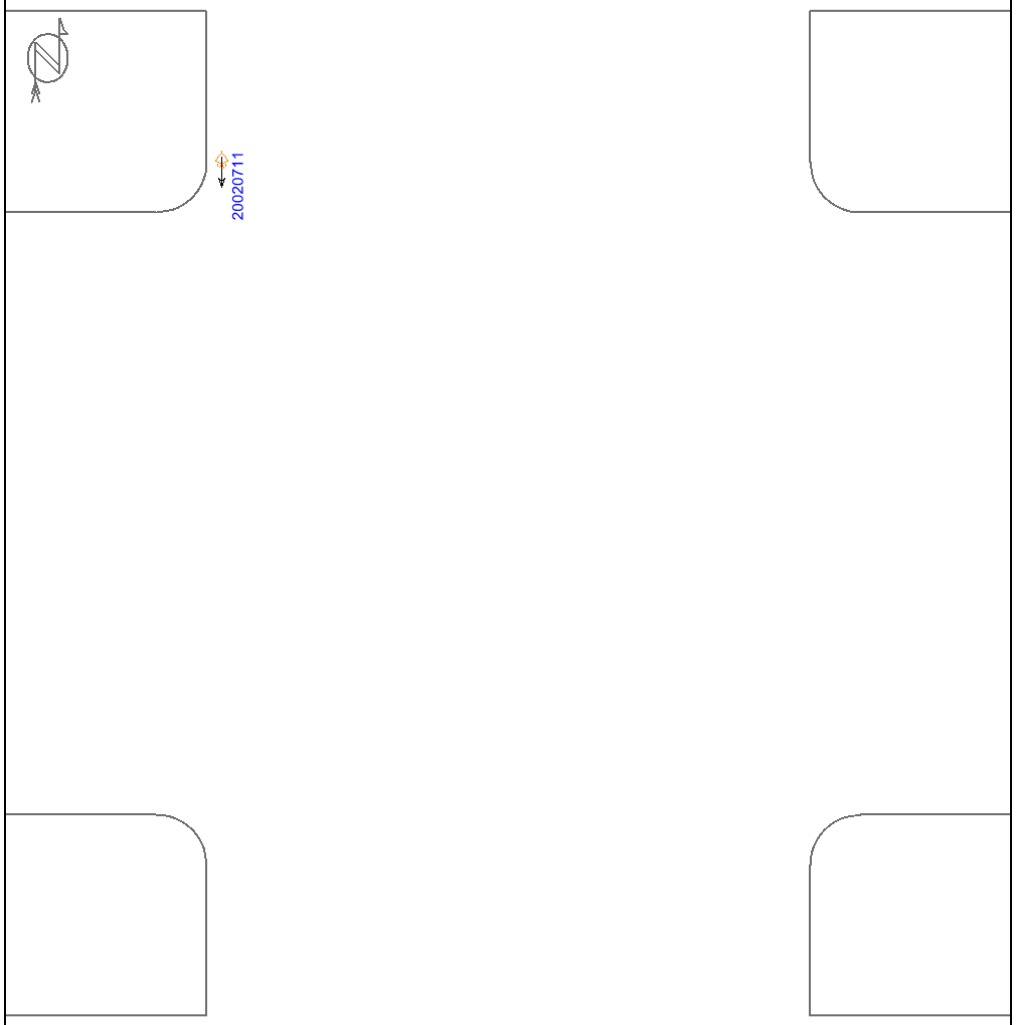
2002-2006 Intersection Crashes



Produced By: Josh Hinds Date Produced: January 22, 2008

Intersection of U.S. 52 and St. Joseph St.

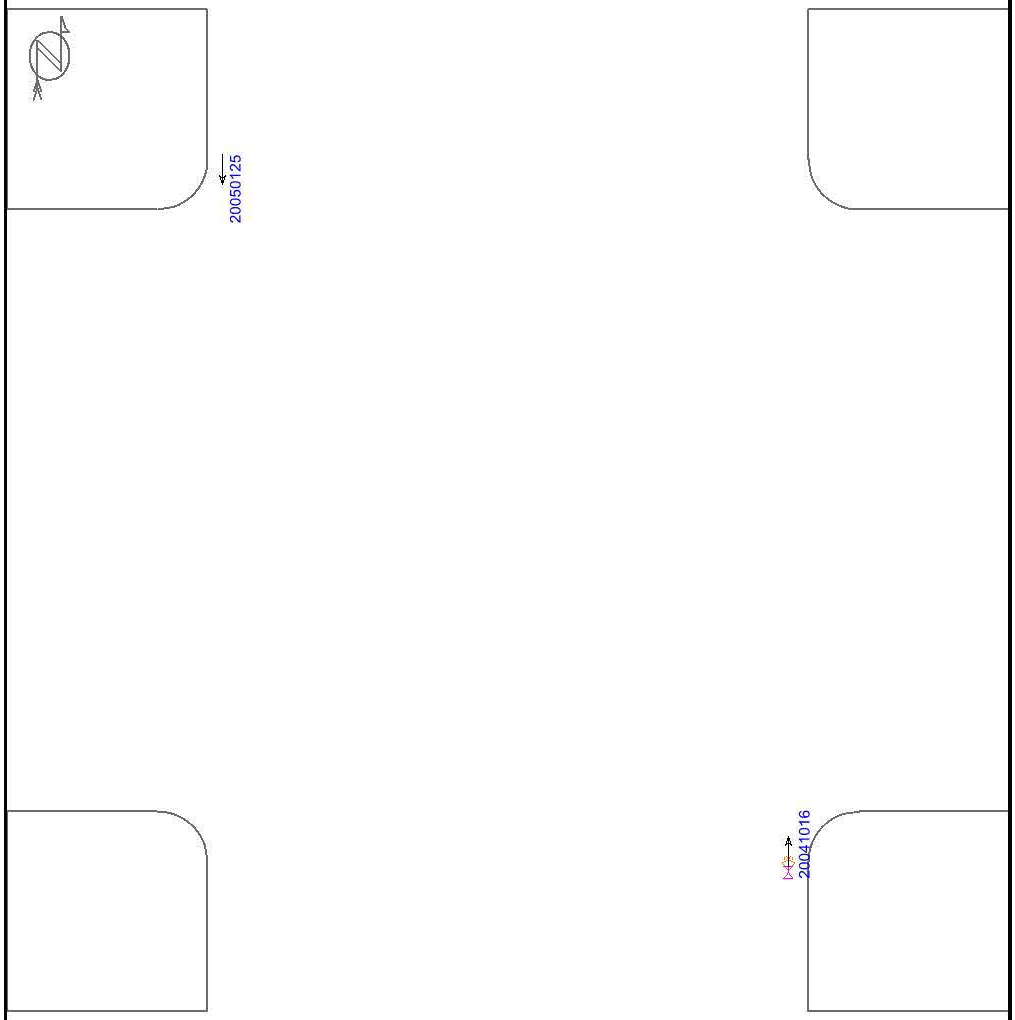
2002 to 2006 Intersection Crashes



Produced By: Josh Hinds Date Produced: January 22, 2008

Intersection of U.S. 52 & Boy Scout Rd.

2002-2006 Crashes



(0) crashes could not be placed in this schematic

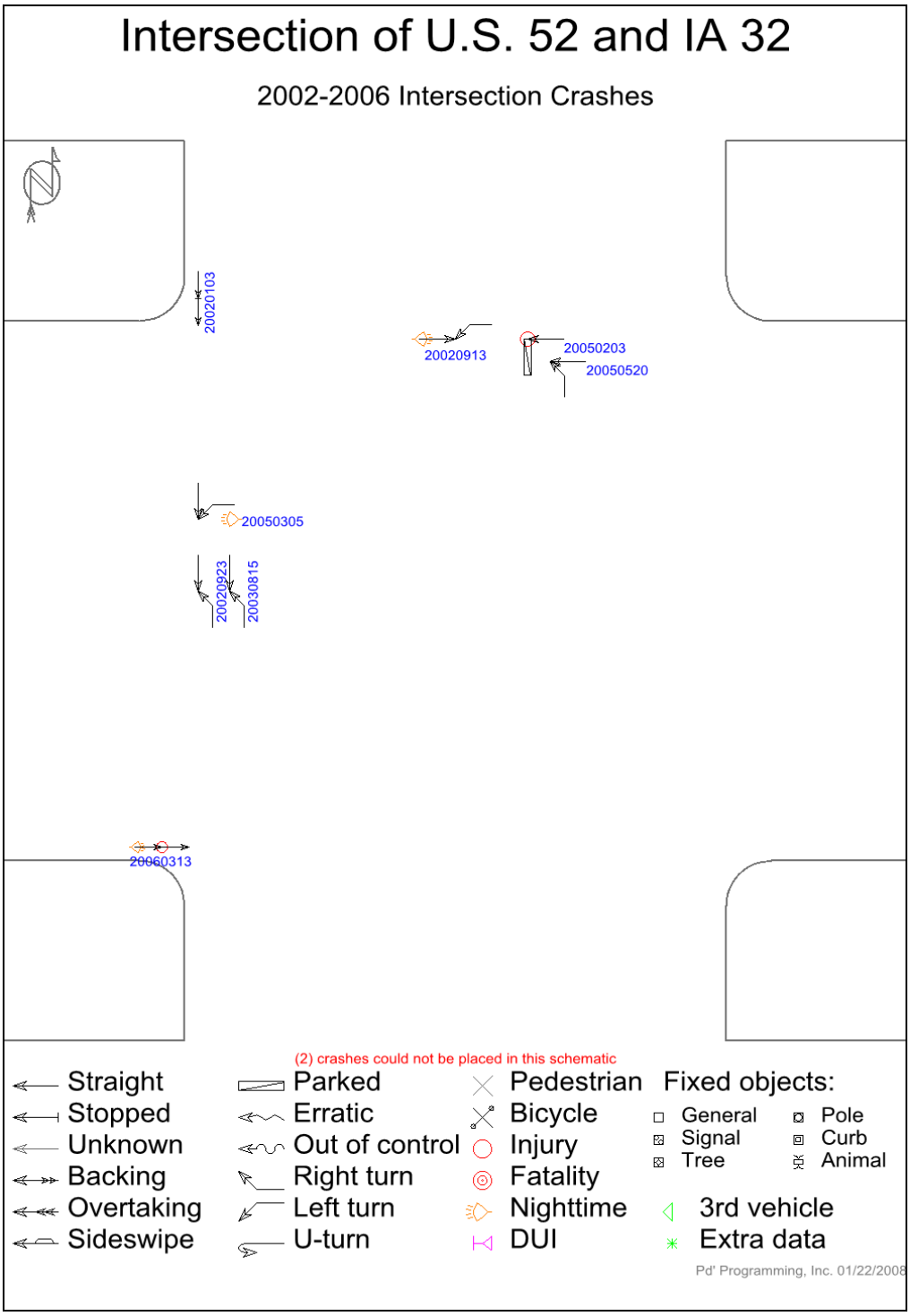
- Straight
- Stopped
- Unknown
- Backing
- Overtaking
- Sideswipe
- Parked
- Erratic
- Out of control
- Right turn
- Left turn
- U-turn
- Pedestrian
- Bicycle
- Injury
- Fatality
- Nighttime
- DUI

Fixed objects:

- General
- Signal
- Tree
- Pole
- Curb
- Animal

- 3rd vehicle
- Extra data

Pd' Programming, Inc. 06/16/2008



Produced By: Josh Hinds Date Produced: January 22, 2008

APPENDIX B. U.S. HIGHWAY 52 IOWA DOT CRASH DATA (2002–2006)

Table B.1. Crash and injury severities (2002–2006)

Year	Crash Severity*					Total # of Crashes	Total # of Fatalities
	Fatal	Major Injuries	Minor Injuries	Possible/ Unknown	PDO		
2006	1	2	6	2	37	48	1
2005	2	1	7	4	44	58	2
2004	0	0	9	8	32	49	0
2003	1	2	8	5	31	47	1
2002	2	2	3	10	26	43	2
Grand Total	**6**	**7**	**33**	**29**	**170**	**245**	**6**

Injury Severity**				Total # of Injuries	Total Property Damage ($)	Total # of Vehicles	Total # of Occupants
Major	Minor	Possible	Unknown				
2	9	3	0	14	252,450	57	43
1	10	7	0	18	579,491	74	97
0	12	18	0	30	425,175	66	88
5	11	9	0	25	369,831	62	83
2	3	12	1	18	243,519	61	75
10	**45**	**49**	**1**	**105**	**1,870,466**	**320**	**386**

*# of Crashes for each Severity
**# of Injuries for each Severity

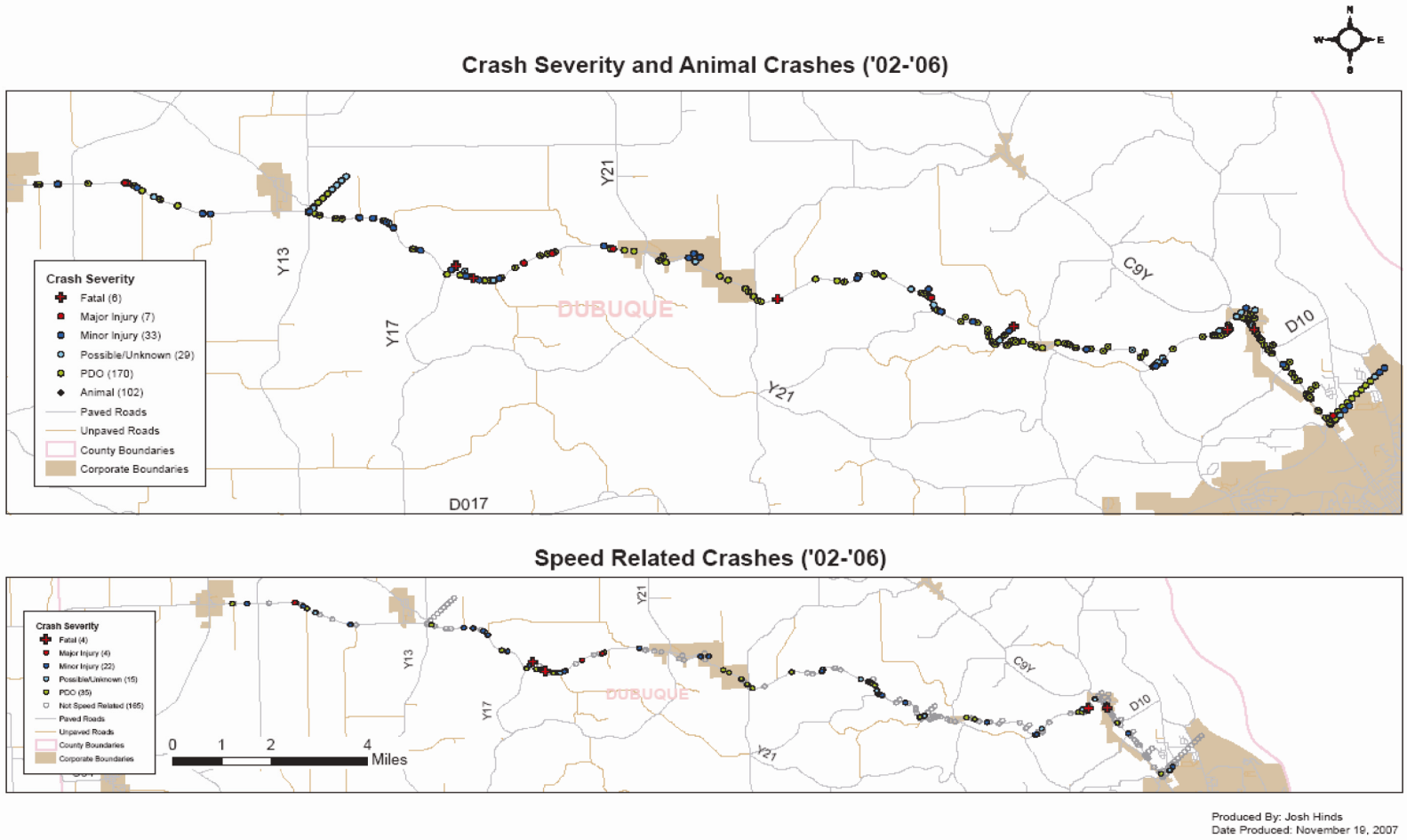


Figure B.1. U.S. Highway 52: Crash severity, animal crashes, and speed-related crashes (2002–2006)

Table B.2. Speed-related crashes (2002–2006)

Year	Crash Severity					Grand Total	Percentage of Corridor Total (%)
	Fatal	Major Injury	Minor Injury	Possible/Unknown	PDO		
2006	1	1	5	1	6	**14**	**6**
2005	1		3	1	14	**19**	**8**
2004			5	6	5	**16**	**7**
2003		1	6	3	6	**16**	**7**
2002	2	2	3	4	4	**15**	**6**
Grand Total	**4**	**4**	**22**	**15**	**35**	**80**	**33**
Corridor Crash Total	***6***	***7***	***33***	***29***	***170***	***245***	

Table B.3. Winter weather-related crashes (2002–2006)

YEAR	Crash Severity			Grand Total	Percentage of Corridor Total (%)
	Minor Injury	Possible/Unknown	PDO		
2006	2		1	3	**1**
2005			6	6	**2**
2004	1		1	2	**1**
2003	1	3	5	9	**4**
2002	1	1	4	6	**2**
Grand Total	**5**	**4**	**17**	**26**	**11**
Corridor Crash Total	***33***	***29***	***170***	***245***	

Table B.4. Fixed object crashes by severity (2002–2006)

Fixed Object	Crash Severity					Grand Total	Percentage of Corridor Total (%)
	Fatal	Major Injury	Minor Injury	Possible/Unknown	PDO		
Culvert					1	1	**0**
Ditch/Embankment	1	4	11	2	12	30	**12**
Guardrail			1	1	6	8	**3**
Tree			1		1	2	**1**
Poles (utility, light, etc)					3	3	**1**
Sign Post	1			2	2	5	**2**
Mailbox					1	1	**0**
Grand Total	**2**	**4**	**13**	**5**	**26**	**50**	**20**
Corridor Crash Total	***6***	***7***	***33***	***29***	***170***	***245***	

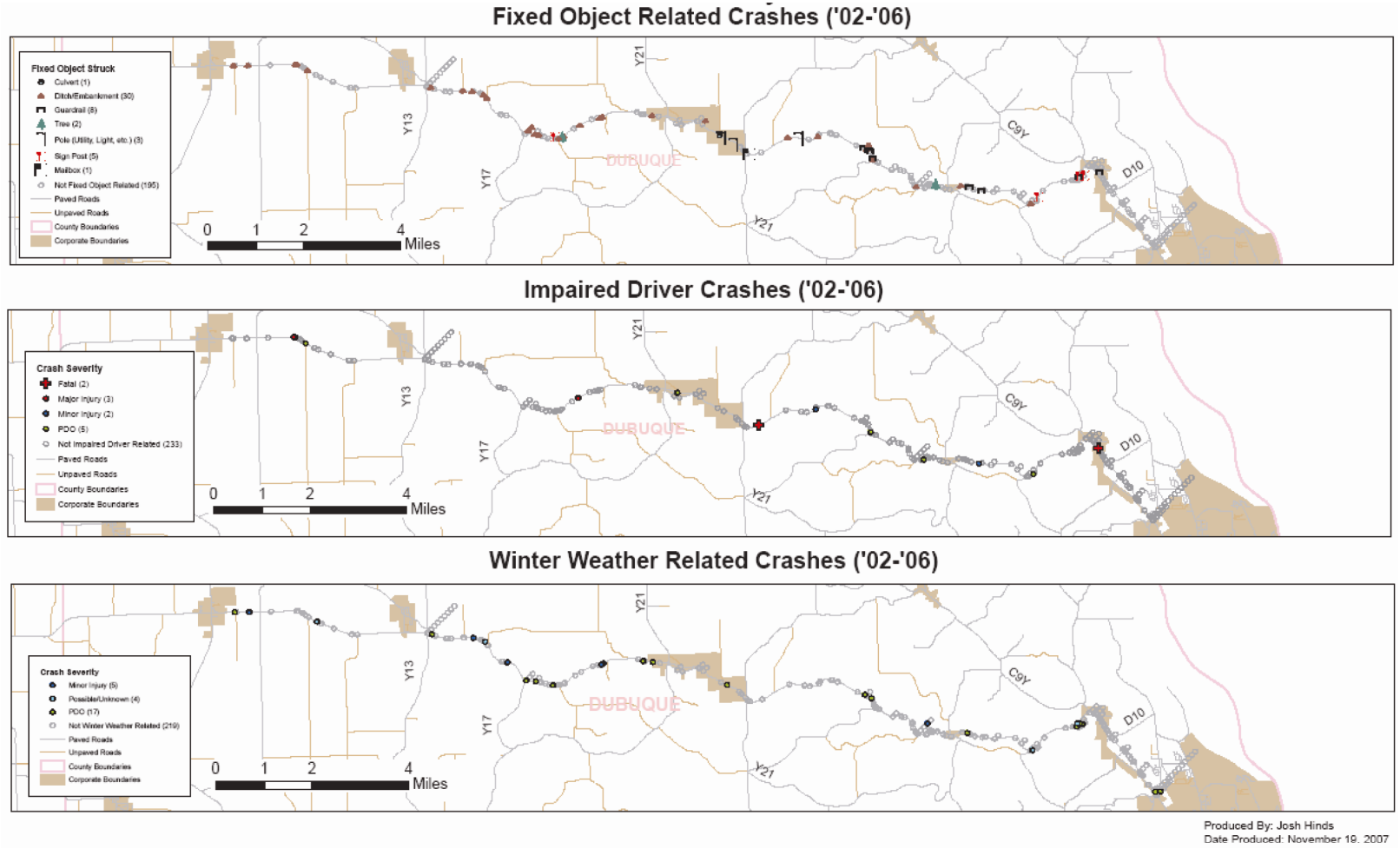


Figure B.2. U.S. Highway 52: Fixed object-related crashes, impaired driver crashes, and winter weather-related crashes (2002–2006)

Table B.5. Crash major cause by year (2002–2006)

Major Cause	Year					Grand Total	Percentage of Corridor Total (%)
	2002	2003	2004	2005	2006		
Animal	12	18	18	27	27	**102**	**42**
Ran Traffic Signal			1	1		**2**	**1**
Ran Stop Sign	1				1	**2**	**1**
Crossed Centerline	1	3	1	3	2	**10**	**4**
FTYROW: From Stop Sign	2	3	7	2		**14**	**6**
FTYROW: Making Left Turn	5	3	3			**11**	**4**
Driving Too Fast for Conditions	3	2	2	3	2	**12**	**5**
Exceeded Authorized Speed	1	1	2		1	**5**	**2**
Made Improper Turn		4	3		1	**8**	**3**
Followed Too Close	1		2	2	2	**7**	**3**
Swerving/Evasive Action	2	5	6	4	4	**21**	**9**
Over Correction/Over Steering		1		2		**3**	**1**
Ran Off Road	12	6	4	10	7	**39**	**16**
Other Improper Action	1			2	1	**4**	**2**
Unknown	2	1		2		**5**	**2**
Grand Total	***43***	***47***	***49***	***58***	***48***	***245***	***100***

Table B.6. Single vehicle ran-off-road crashes by severity (2002–2006)

YEAR	CRASH SEVERITY					Grand Total	Percentage of Corridor Total (%)
	Fatal	Major Injury	Minor Injury	Possible/Unknown	PDO		
2006	1	1	4		4	**10**	**4**
2005	1		2	1	9	**13**	**5**
2004			5	4	5	**14**	**6**
2003		1	6	2	7	**16**	**7**
2002	2	2	2	1	4	**11**	**4**
Grand Total	**4**	**4**	**19**	**8**	**29**	**64**	**26**
Corridor Crash Total	***6***	***7***	***33***	***29***	***170***	***245***	

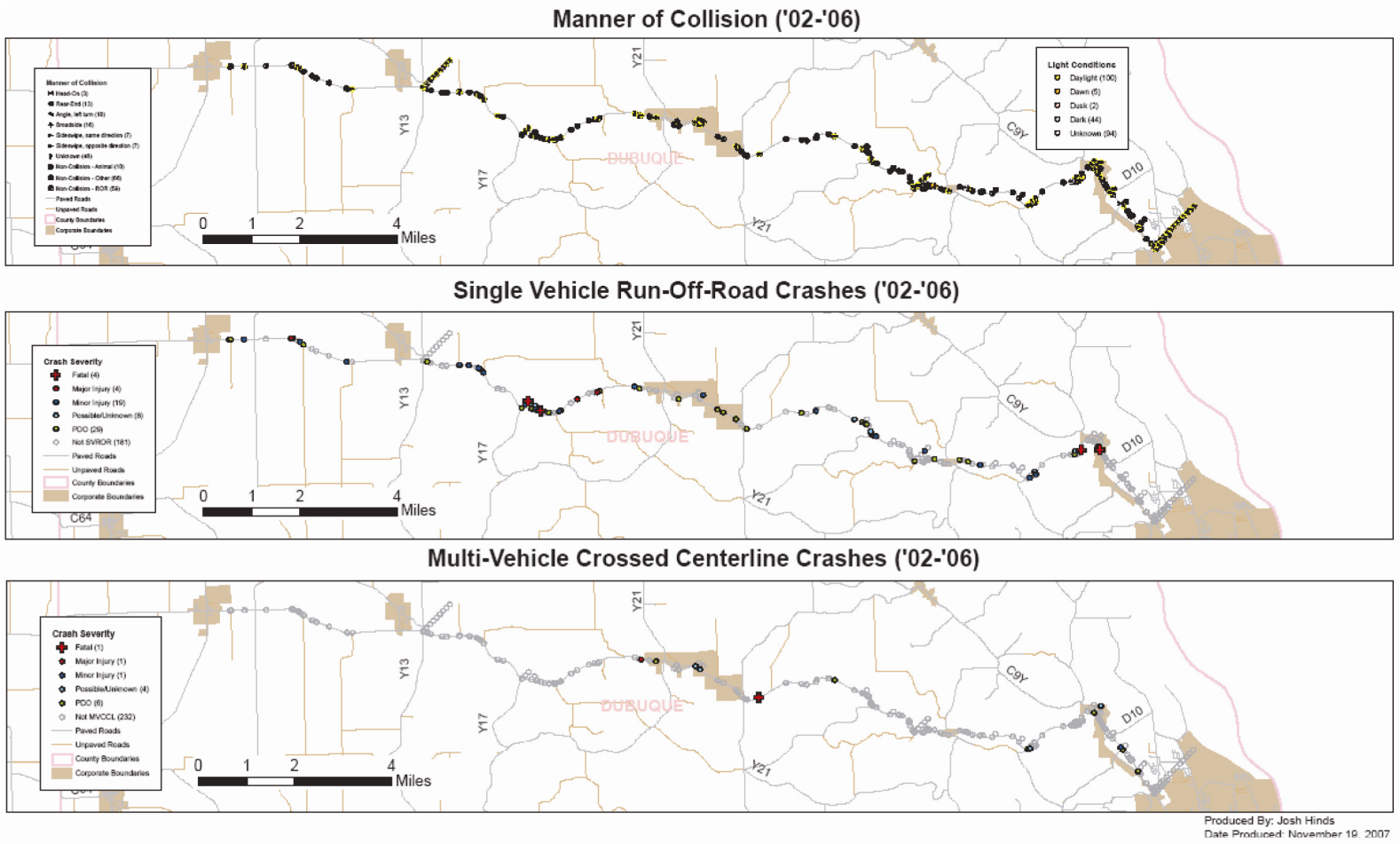


Figure B.3. U.S. Highway 52 : Manner of collision, single vehicle run-off-road, and multi-vehicle crossed centerline crashes (2002–2006)

Table B.7. Multi-vehicle crossed centerline crashes by severity (2002–2006)

YEAR	CRASH SEVERITY					Grand Total	Percentage of Corridor Total (%)
	Fatal	Major Injury	Minor Injury	Possible/Unknown	PDO		
2006				1	3	4	2
2005		1	1		1	3	1
2004					1	1	0
2003	1			1		2	1
2002				2	1	3	1
Grand Total	1	1	1	4	6	13	5
Corridor Crash Total	*6*	*7*	*33*	*29*	*170*	*245*	

Table B.8. Impaired drivers by crash severity (2002–2006)

YEAR	Crash Severity				Grand Total
	Fatal	Major Injury	Minor Injury	PDO	
2006				1	1
2005	1			1	2
2004				1	1
2003	2	1	1	2	6
2002		2	1		3
Grand Total	3	3	2	5	13

Table B.9. All-occupant protection in fatal and injury crashes (2002–2006)

Occupant Protection	Crash Severity				Grand Total	Percentage of Corridor Total (%)
	Fatal	Major Injury	Minor Injury	Possible/Unknown		
None Used	1	2	6	1	10	**10**
Shoulder and Lap Belt Used	6	8	29	27	70	**67**
Shoulder Belt Only Used			2		2	**2**
Child Safety Seat Used		1	2		3	**3**
Unknown/Not Reported	1	1	9	8	19	**18**
Grand Total	**8**	**12**	**48**	**36**	**104**	**100**

Table B.10. Crashes by day of the week (2002–2006)

Day of Week	Year					Grand Total	Percentage of Corridor Total (%)
	2002	2003	2004	2005	2006		
Sunday	6	6	3	9	5	**29**	**12**
Monday	5	6	9	9	6	**35**	**14**
Tuesday	11	6	9	6	5	**37**	**15**
Wednesday	1	8	8	10	8	**35**	**14**
Thursday	6	3	9	9	10	**37**	**15**
Friday	7	13	6	7	5	**38**	**16**
Saturday	7	5	5	8	9	**34**	**14**
Grand Total	***43***	***47***	***49***	***58***	***48***	***245***	**100**

Table B.11. Crashes by time of day (hour) (2002–2006)

Time (hour)	Year					Grand Total	Percentage of Corridor Total (%)
	2002	2003	2004	2005	2006		
0		1	1	2		**4**	**2**
1		1	1			**2**	**1**
2		3			2	**5**	**2**
3			1		1	**2**	**1**
4	1	1	1	1	1	**5**	**2**
5	4	3	3	1	7	**18**	**7**
6	2	1	4	2	1	**10**	**4**
7	2		2	2	2	**8**	**3**
8	2	4	3	3	2	**14**	**6**
9	1	1			1	**3**	**1**
10	4	1	2	3	1	**11**	**4**
11	1				2	**3**	**1**
12	1	2	1	1	1	**6**	**2**
13	1	3	2	4	1	**11**	**4**
14	2	1	7	4	1	**15**	**6**
15	2	2	4	4	2	**14**	**6**
16	4	5	3	3	3	**18**	**7**
17	3	3	4	6	8	**24**	**10**
18	3	4	2	5	4	**18**	**7**
19	1	3	3	5	1	**13**	**5**
20	4	3	1	3	4	**15**	**6**
21	3	3	1	3	1	**11**	**4**
22	1	1	2	2	1	**7**	**3**
23	1	1	1	4	1	**8**	**3**
Grand Total	***43***	***47***	***49***	***58***	***48***	***245***	**100**

Table B.12. Truck crashes by crash severity and year (2002–2006)

	Crash Severity					Grand
Year	**Fatal**	**Major Injury**	**Minor Injury**	**Possible/Unknown**	**PDO**	**Total**
2006				1	2	**3**
2005	1		2	1	4	**8**
2004			2	1		**3**
2003	1		2		3	**6**
2002					2	**2**
Grand Total	**2**	**0**	**6**	**3**	**11**	**22**

Produced by: Josh Hinds
Date Produced: January 10, 2007

Disclaimer: The information contained in this report was derived from crash data from the Iowa Department of Transportation (Iowa DOT) from December 5, 2007. All of the 2006 crash data are considered preliminary. Additionally, since the database from which these data were derived is actively being updated, edited, and reviewed, some of the fatality totals may differ from other Iowa DOT provided data. 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, 800 Lincoln Way, Ames, Iowa 50010 (email Michael.Pawlovich@got.iowa.gov, phone: (515) 239-1428.

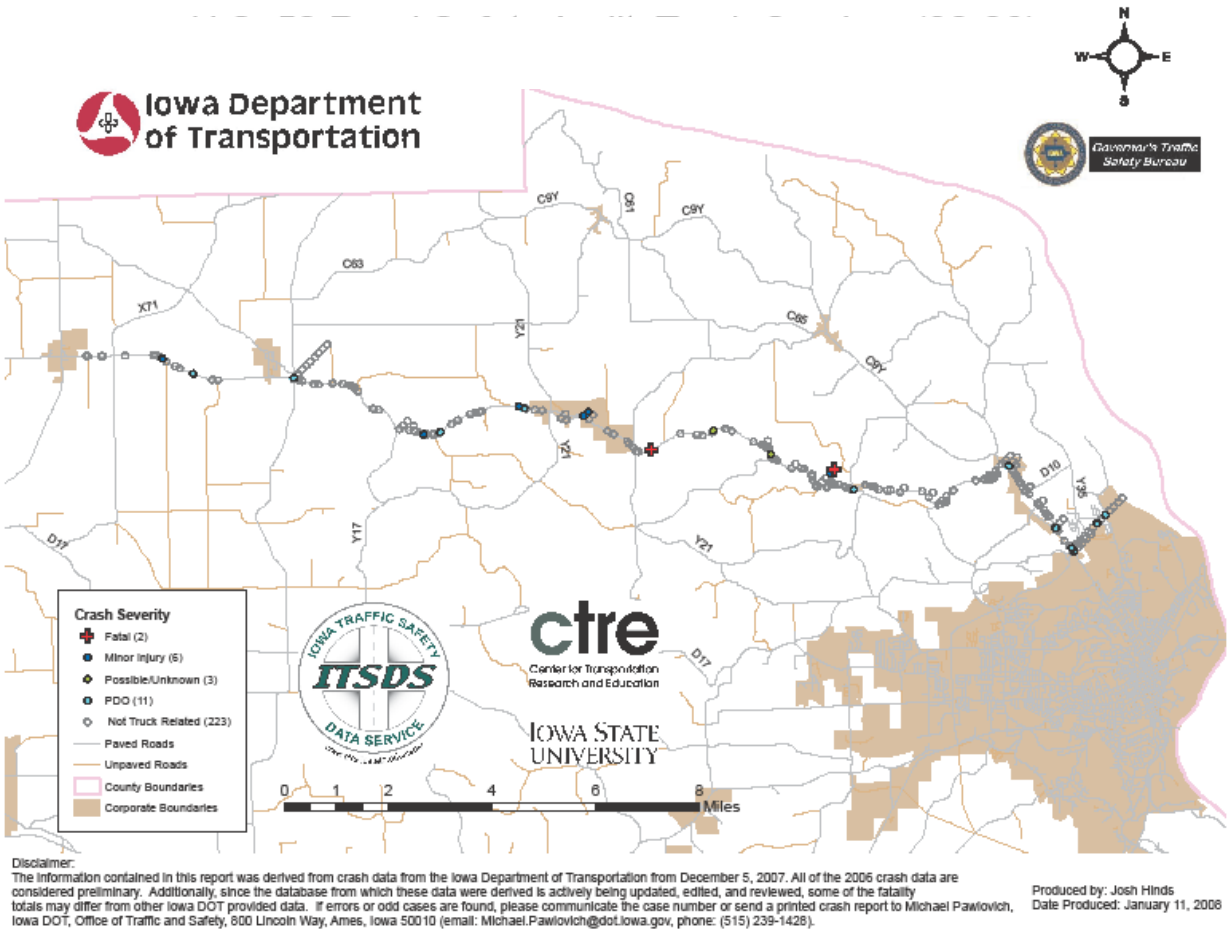


Figure B.4. U.S. Highway 52 Road Safety Audit: Map of truck crashes (2002–2006)

Table B.13. Motorcycle crashes by crash severity and year (2003–2006)

	Crash Severity					Grand
Year	**Fatal**	**Major Injury**	**Minor Injury**	**Possible/Unknown**	**PDO**	**Total**
2006		1	1			**2**
2005			1			**1**
2004			1			**1**
2003						**0**
2002				1		**1**
Grand Total	**0**	**1**	**3**	**1**	**0**	**5**

Produced by: Josh Hinds
Date Produced: January 10, 2007

Disclaimer: The information contained in this report was derived from crash data from the Iowa Department of Transportation (Iowa DOT) from December 5, 2007. All of the 2006 crash data are considered preliminary. Additionally, since the database from which these data were derived is actively being updated, edited, and reviewed, some of the fatality totals may differ from other Iowa DOT provided data. 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, 800 Lincoln Way, Ames, Iowa 50010 (email Michael.Pawlovich@got.iowa.gov, phone: (515) 239-1428.

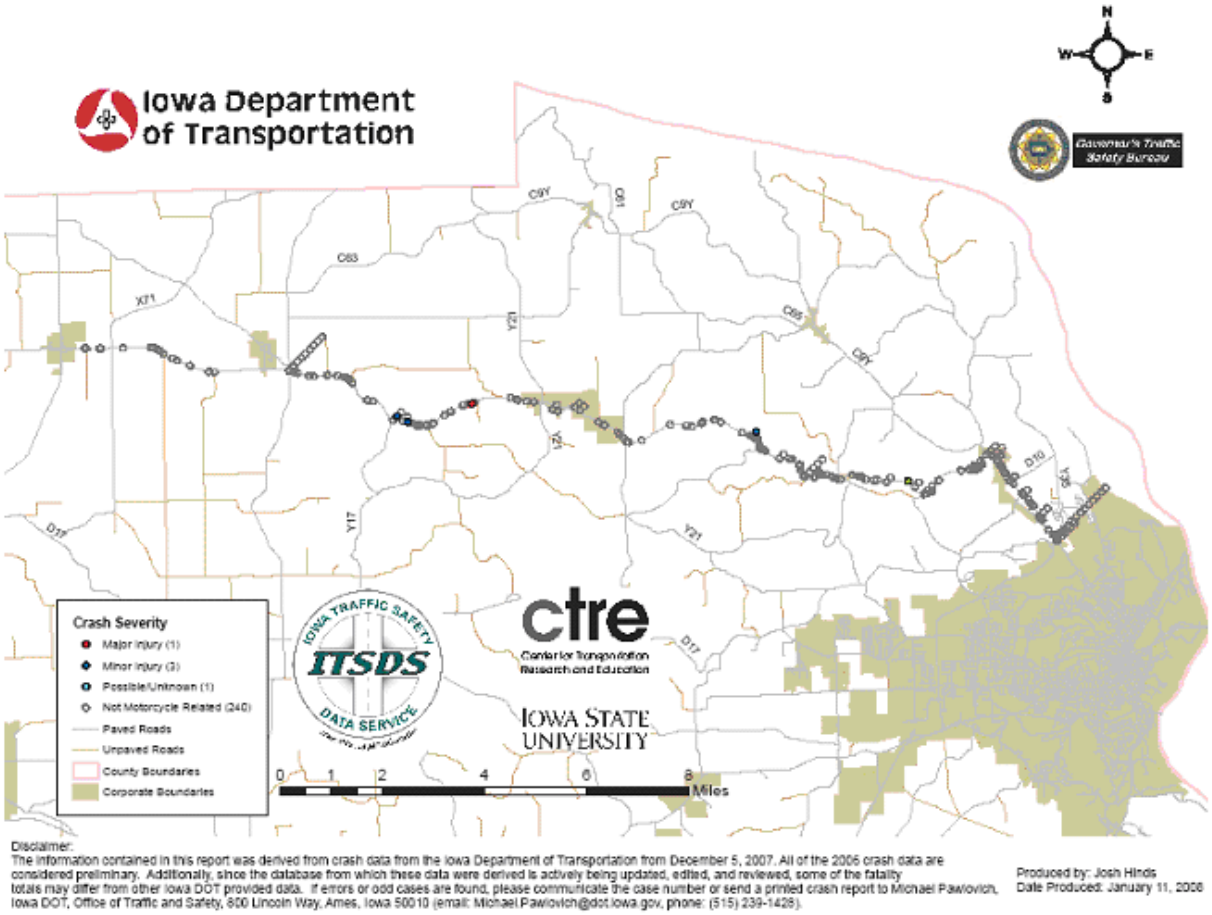


Figure B.5. U.S. Highway 52 : Motorcycle crashes (2002–2006)

Table B.14. Drivers' age by year (2002–2006)

Age	Year					Grand Total	Percentage of Total (%)
	2002	2003	2004	2005	2006		
14 & Under				1		**1**	**0**
15			1			1	0
16	6	3	4	3		16	5
17		2	4		1	7	2
18	1	4	3		1	9	3
19	1	2	1	6		10	3
20	2	3		4	2	11	3
21	1	2	3	1	1	8	3
22		2	3	4		9	3
23			1	1	2	4	1
24		2	3		2	7	2
15-24	11	20	23	19	9	**82**	**26**
25-34	14	9	7	11	9	**50**	**16**
35-44	12	6	10	22	7	**57**	**18**
45-54	11	12	12	8	15	**58**	**18**
55-64	7	8	6	7	13	**41**	**13**
65-74	2	6	7	4	3	**22**	**7**
75-84	1	1	1	2	1	**6**	**2**
85-94						**0**	**0**
95+						**0**	**0**
Unknown	3					**3**	**1**
Grand Total	***61***	***62***	***66***	***74***	***57***	***320***	***100***

Table B.15. 14- to 24-year-old drivers involved in speed-related crashes by crash severity and driver age

	Crash Severity					Grand
Driver Age	**Fatal**	**Major Injury**	**Minor Injury**	**Possible/Unknown**	**PDO**	**Total**
14					1	**1**
15						**0**
16			2	1	1	**4**
17					2	**2**
18		1	4		2	**7**
19	1		1	2	3	**7**
20					1	**1**
21				1	1	**2**
22			1		2	**3**
23					1	**1**
24			2	3	1	**6**
Grand Total	**1**	**1**	**10**	**7**	**15**	**34**

Table B.16. Crashes involving 14–24 year old drivers by crash severity and manner of collision

Manner of Collision	Crash Severity					Grand Total
	Fatal	Major Injury	Minor Injury	Possible/Unknown	PDO	
Non-Collision	1	1	10	5	20	**37**
Head-on			1			**1**
Rear-End				2	5	**7**
Angle, oncoming left turn		1	1	2	6	**10**
Broadside			1	3	4	**8**
Sideswipe, same direction		1	1	1	2	**5**
Sideswipe, opposite direction				1		**1**
Unknown					10	**10**
Total	**1**	**3**	**14**	**14**	**47**	**79**

Table B.17. Crashes involving 14–24 year old drivers by crash severity and day of the week

Day of the Week	Crash Severity					Grand Total
	Fatal	Major Injury	Minor Injury	Possible/Unknown	PDO	
Sunday	1	1	1	2	5	**10**
Monday		2	2	1	5	**10**
Tuesday			1	3	8	**12**
Wednesday			2	2	5	**9**
Thursday			1		9	**10**
Friday			3	3	6	**12**
Saturday		1	5	3	11	**20**
Total	**1**	**4**	**15**	**14**	**49**	**83**

Table B.18. Crashes involving 14–24 year old drivers by driver age and day of the week

Driver Age	Day of the Week							Grand Total
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
14							1	**1**
15				1				**1**
16	1	3	2	2	1	1	6	**16**
17		1	3		1	1	1	**7**
18	1	2	2	1	1		2	**9**
19	3		1	1	1	1	3	**10**
20		2	2	2	2	2	1	**11**
21		1			2	1	4	**8**
22	4				2	1	2	**9**
23			1	1		2		**4**
24	1	1	1	1		3		**7**
Grand Total	**10**	**10**	**12**	**9**	**10**	**12**	**20**	**83**

Table B.19. Crashes involving 14–24 year old drivers by crash time of day and crash severity

Time	Crash Severity					Total
	Fatal	Major Injury	Minor Injury	Possible/Unknown	PDO	
0:00				1	1	**2**
1:00			1			**1**
2:00					2	**2**
3:00					1	**1**
4:00	1		1		1	**3**
5:00					2	**2**
6:00					2	**2**
7:00				1	3	**4**
8:00				3	1	**4**
9:00					1	**1**
10:00		1	1	1	3	**6**
11:00						**0**
12:00			1	3		**4**
13:00			2	1	1	**4**
14:00		1	1	1	4	**7**
15:00			4		6	**10**
16:00		2	2	2	3	**9**
17:00				1	3	**4**
18:00					4	**4**
19:00					1	**1**
20:00					3	**3**
21:00			1		4	**5**
22:00			1		1	**2**
23:00					2	**2**
Total	**1**	**4**	**15**	**14**	**49**	**83**

Table B.20. Alcohol- or drug-related* crashes involving 14–24 year old drivers by crash severity and driver age

Driver Age	Crash Severity					Grand Total
	Fatal	Major Injury	Minor Injury	Possible/Unknown	PDO	
14						**0**
15						**0**
16			1		1	**2**
17					1	**1**
18		1			1	**2**
19						**0**
20						**0**
21					1	**1**
22						**0**
23						**0**
24						**0**
Grand Total	**0**	**1**	**1**	**0**	**4**	**6**

* Alcohol or Drug Related = Refused Drug or Alcohol Test, Alcohol Results > 0.00, or Positive Drug Test

Table B.21. Crashes involving 14–24 year old drivers and passengers by injury status and occupant protection

Occupant Protection	Injury Status				Grand Total
	Fatal	Incapacitating	Non-Incapacitating	Possible	
None Used		1	2	2	**5**
Shoulder and Lap Belt Used	1	4	12	17	**34**
Shoulder Belt Only Used			1	1	**2**
Child Safety Seat Used				3	**3**
Unknown			5	5	**10**
Grand Total	**1**	**5**	**20**	**28**	**54**

Table B.22. Speed-related crashes involving 14–24 year old drivers by crash severity and driver age

Driver Age	Crash Severity					Grand Total
	Fatal	Major Injury	Minor Injury	Possible/Unknown	PDO	
14					1	**1**
15						**0**
16			2	1	1	**4**
17					2	**2**
18		1	4		2	**7**
19	1		1	2	3	**7**
20					1	**1**
21				1	1	**2**
22			1		2	**3**
23					1	**1**
24			2	3	1	**6**
Grand Total	**1**	**1**	**10**	**7**	**15**	**34**

Center for Transportation Research and Education

Governor's Traffic Safety Bureau

IOWA STATE UNIVERSITY

Iowa Department of Transportation

IOWA TRAFFIC SAFETY ITSDS DATA SERVICE www.ctre.iastate.edu/itsds/

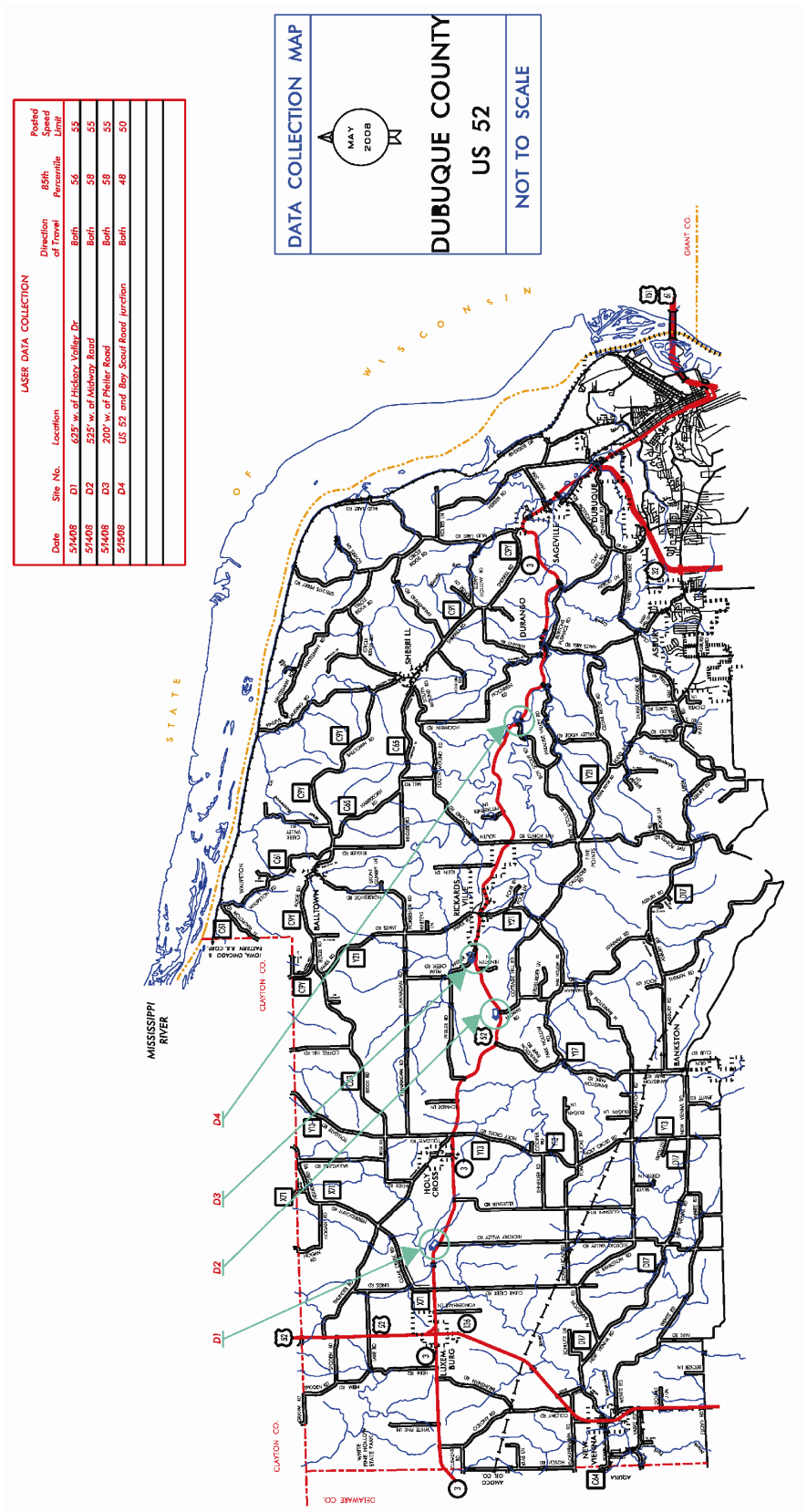
******2006 Crash Data Are Considered Preliminary******

Produced By: Josh Hinds
Date Produced: November 24, 2007

Disclaimer:

The information contained in this report was derived from crash data from the Iowa Department of Transportation from April 2, 2007. All of the 2006 crash data are considered preliminary. Additionally, since the database from which these data were derived is actively being updated, edited, and reviewed, some of the fatality totals may differ form other Iowa DOT-provided data. 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, 800 Lincoln Way, Ames, Iowa 50010 (email: Michael.Pawlovich@dot.iowa.gov; phone: (515) 239-1428).

APPENDIX C. U.S. HIGHWAY 52 SPEED DATA



SpeedStat Version 2.3 11/96

Project ID : D1
Street : US 52
Capture Zone : 625 FT. W. OF HICKORY VALLEY DR.

Direction(s) : Facing West. Collected eastbound traffic only.
Posted Speed Limit: 55
Types of Vehicles : ALL
Weather Conditions: CLOUDY 40S

****

Filter Settings

Date Range : 05/14/08 Through 05/14/08
Time Range : 08:07:00A Through 10:07:00A
Direction(s) : Approaching
Types of Vehicles : All Vehicles

****

Lowest Recorded Speed : 42
Highest Recorded Speed : 63
Average Speed : 51.8
Vehicles Observed : 90

15th Percentile : 47
50th Percentile : 52
85th Percentile : 56
95th Percentile : 58

10 MPH Pace Speed : 47 Through 56
Percent In Pace Speed : 75.6
Percent Under Pace Speed : 10.0
Percent Over Pace Speed : 14.4

****

SPEED	COUNT	PERCENT	CUM.%	SPEED	COUNT	PERCENT	CUM.%
30	0	0.0	0.0	56	10	11.1	85.6
31	0	0.0	0.0	57	7	7.8	93.3
32	0	0.0	0.0	58	3	3.3	96.7
33	0	0.0	0.0	59	2	2.2	98.9
34	0	0.0	0.0	60	0	0.0	98.9
35	0	0.0	0.0	61	0	0.0	98.9
36	0	0.0	0.0	62	0	0.0	98.9
37	0	0.0	0.0	63	1	1.1	100.0
38	0	0.0	0.0	64	0	0.0	100.0
39	0	0.0	0.0	65	0	0.0	100.0
40	0	0.0	0.0	66	0	0.0	100.0
41	0	0.0	0.0	67	0	0.0	100.0
42	2	2.2	2.2	68	0	0.0	100.0
43	0	0.0	2.2	69	0	0.0	100.0
44	3	3.3	5.6	70	0	0.0	100.0
45	1	1.1	6.7	71	0	0.0	100.0
46	3	3.3	10.0	72	0	0.0	100.0
47	7	7.8	17.8	73	0	0.0	100.0
48	6	6.7	24.4	74	0	0.0	100.0
49	7	7.8	32.2	75	0	0.0	100.0
50	5	5.6	37.8	76	0	0.0	100.0
51	8	8.9	46.7	77	0	0.0	100.0
52	8	8.9	55.6	78	0	0.0	100.0
53	7	7.8	63.3	79	0	0.0	100.0
54	6	6.7	70.0	80	0	0.0	100.0
55	4	4.4	74.4				

SpeedStat Version 2.3 11/96

Project ID : D2
Street : US 52
Capture Zone : 525 FT. W. OF MIDWAY RD.

Direction(s) : Facing West. Collected eastbound traffic only.
Posted Speed Limit: 55
Types of Vehicles : ALL
Weather Conditions: SUNNY 50S

****

Filter Settings

Date Range : 05/14/08 Through 05/14/08
Time Range : 10:52:00A Through 12:52:00P
Direction(s) : Approaching
Types of Vehicles : All Vehicles

****

Lowest Recorded Speed : 33
Highest Recorded Speed : 64
Average Speed : 50.8
Vehicles Observed : 85

15th Percentile : 45
50th Percentile : 52
85th Percentile : 58
95th Percentile : 61

10 MPH Pace Speed : 46 Through 55
Percent In Pace Speed : 67.1
Percent Under Pace Speed : 15.3
Percent Over Pace Speed : 17.6

****

SPEED	COUNT	PERCENT	CUM.%	SPEED	COUNT	PERCENT	CUM.%
30	0	0.0	0.0	56	1	1.2	83.5
31	0	0.0	0.0	57	0	0.0	83.5
32	0	0.0	0.0	58	4	4.7	88.2
33	2	2.4	2.4	59	0	0.0	88.2
34	0	0.0	2.4	60	2	2.4	90.6
35	0	0.0	2.4	61	4	4.7	95.3
36	0	0.0	2.4	62	2	2.4	97.6
37	3	3.5	5.9	63	1	1.2	98.8
38	1	1.2	7.1	64	1	1.2	100.0
39	2	2.4	9.4	65	0	0.0	100.0
40	1	1.2	10.6	66	0	0.0	100.0
41	0	0.0	10.6	67	0	0.0	100.0
42	2	2.4	12.9	68	0	0.0	100.0
43	0	0.0	12.9	69	0	0.0	100.0
44	1	1.2	14.1	70	0	0.0	100.0
45	1	1.2	15.3	71	0	0.0	100.0
46	4	4.7	20.0	72	0	0.0	100.0
47	2	2.4	22.4	73	0	0.0	100.0
48	6	7.1	29.4	74	0	0.0	100.0
49	6	7.1	36.5	75	0	0.0	100.0
50	6	7.1	43.5	76	0	0.0	100.0
51	5	5.9	49.4	77	0	0.0	100.0
52	7	8.2	57.6	78	0	0.0	100.0
53	9	10.6	68.2	79	0	0.0	100.0
54	4	4.7	72.9	80	0	0.0	100.0
55	8	9.4	82.4				

SpeedStat Version 2.3 11/96

Project ID : D3
Street : US 52
Capture Zone : 200 FT. W. OF PFEILER RD.

Direction(s) : Facing West. Collected eastbound traffic only.
Posted Speed Limit: 55
Types of Vehicles : ALL
Weather Conditions: SUNNY 60S

****

Filter Settings

Date Range : 05/14/08 Through 05/14/08
Time Range : 01:38:00P Through 03:38:00P
Direction(s) : Approaching
Types of Vehicles : All Vehicles

****

Lowest Recorded Speed : 42
Highest Recorded Speed : 65
Average Speed : 52.9
Vehicles Observed : 67

15th Percentile : 48
50th Percentile : 52
85th Percentile : 58
95th Percentile : 61

10 MPH Pace Speed : 49 Through 58
Percent In Pace Speed : 70.1
Percent Under Pace Speed : 16.4
Percent Over Pace Speed : 13.4

****

SPEED	COUNT	PERCENT	CUM.%	SPEED	COUNT	PERCENT	CUM.%
30	0	0.0	0.0	56	2	3.0	70.1
31	0	0.0	0.0	57	5	7.5	77.6
32	0	0.0	0.0	58	6	9.0	86.6
33	0	0.0	0.0	59	4	6.0	92.5
34	0	0.0	0.0	60	1	1.5	94.0
35	0	0.0	0.0	61	2	3.0	97.0
36	0	0.0	0.0	62	0	0.0	97.0
37	0	0.0	0.0	63	1	1.5	98.5
38	0	0.0	0.0	64	0	0.0	98.5
39	0	0.0	0.0	65	1	1.5	100.0
40	0	0.0	0.0	66	0	0.0	100.0
41	0	0.0	0.0	67	0	0.0	100.0
42	1	1.5	1.5	68	0	0.0	100.0
43	0	0.0	1.5	69	0	0.0	100.0
44	3	4.5	6.0	70	0	0.0	100.0
45	1	1.5	7.5	71	0	0.0	100.0
46	2	3.0	10.4	72	0	0.0	100.0
47	2	3.0	13.4	73	0	0.0	100.0
48	2	3.0	16.4	74	0	0.0	100.0
49	7	10.4	26.9	75	0	0.0	100.0
50	5	7.5	34.3	76	0	0.0	100.0
51	3	4.5	38.8	77	0	0.0	100.0
52	9	13.4	52.2	78	0	0.0	100.0
53	3	4.5	56.7	79	0	0.0	100.0
54	4	6.0	62.7	80	0	0.0	100.0
55	3	4.5	67.2				

SpeedStat Version 2.3 11/96

Project ID : D4
Street : US 52
Capture Zone : JCT. US 52-BOY SCOUT RD.

Direction(s) : Facing west. Collected eastbound traffic only.
Posted Speed Limit: 50
Types of Vehicles : ALL
Weather Conditions: SUNNY 50S

****

Filter Settings

Date Range : 05/15/08 Through 05/15/08
Time Range : 07:52:00A Through 09:52:00A
Direction(s) : Approaching
Types of Vehicles : All Vehicles

****

Lowest Recorded Speed : 33
Highest Recorded Speed : 55
Average Speed : 44.5
Vehicles Observed : 107

15th Percentile : 40
50th Percentile : 45
85th Percentile : 48
95th Percentile : 51

10 MPH Pace Speed : 39 Through 48
Percent In Pace Speed : 80.4
Percent Under Pace Speed : 7.5
Percent Over Pace Speed : 12.1

****

SPEED	COUNT	PERCENT	CUM.%	SPEED	COUNT	PERCENT	CUM.%
30	0	0.0	0.0	56	0	0.0	100.0
31	0	0.0	0.0	57	0	0.0	100.0
32	0	0.0	0.0	58	0	0.0	100.0
33	1	0.9	0.9	59	0	0.0	100.0
34	1	0.9	1.9	60	0	0.0	100.0
35	0	0.0	1.9	61	0	0.0	100.0
36	1	0.9	2.8	62	0	0.0	100.0
37	2	1.9	4.7	63	0	0.0	100.0
38	3	2.8	7.5	64	0	0.0	100.0
39	6	5.6	13.1	65	0	0.0	100.0
40	3	2.8	15.9	66	0	0.0	100.0
41	5	4.7	20.6	67	0	0.0	100.0
42	8	7.5	28.0	68	0	0.0	100.0
43	11	10.3	38.3	69	0	0.0	100.0
44	9	8.4	46.7	70	0	0.0	100.0
45	13	12.1	58.9	71	0	0.0	100.0
46	9	8.4	67.3	72	0	0.0	100.0
47	13	12.1	79.4	73	0	0.0	100.0
48	9	8.4	87.9	74	0	0.0	100.0
49	3	2.8	90.7	75	0	0.0	100.0
50	3	2.8	93.5	76	0	0.0	100.0
51	2	1.9	95.3	77	0	0.0	100.0
52	2	1.9	97.2	78	0	0.0	100.0
53	2	1.9	99.1	79	0	0.0	100.0
54	0	0.0	99.1	80	0	0.0	100.0
55	1	0.9	100.0				

APPENDIX D. OBSERVATIONS OF U.S. HIGHWAY 52

Figure D.1. Strunk's curve east of Luxemburg, Iowa

Figure D.2. County road Y-13 intersection

Figure D.3. Curves east of Bankston Park Road

Figure D.4. Cable rail east of Durango

APPENDIX E. NEWS MEDIA

Correspondence between Brian Maiers, Mayor of Holy Cross, Iowa, and Tom Welch from the Iowa DOT, regarding safety improvements on U.S. Highway 52

From: Brian Maiers [mailto:brianm@johnsongroup.com]
Sent: Tuesday, January 08, 2008 10:33 AM
To: Welch, Tom [DOT]

Subject: Highway 52

Good morning Tom,

My name is Brian Maiers and I am Mayor of Holy Cross, Iowa. I recently read the article in the Telegraph Herald about the dangers of Highway 52 and your request for input on ways to reduce accidents.

I grew up in Holy Cross and have been traveling Highway 52 from Holy Cross to Dubuque for 25 years to work. The headline drew my attention immediately. After reading the article though, I, along with many people in the area, are resolved to the fact the DOT again is not ready to fix the problems, but rather, put "feel good" bandages on the wounds by increasing signage and police patrols.

I personally presented to the DOT directors at a meeting in Waverly a number of years ago about the condition of Highway 52. At that time, the board toured the highway in a bus and agreed it was very dangerous. Money was then added to the budget to apply a new layer of blacktop which is basic maintenance, however, the road shouldn't have been allowed to deteriorate to such a poor level where the mayor of a small town has to ask for basic maintenance. It also didn't fix any of the problem corners. One of the DOT board members from Dubuque stated in that meeting they wouldn't even drive Hwy 52 because of all the curves which should have carried some weight with the board.

In addition, I wrote a letter to the head of the transportation board last year stressing the dangers of highway 52 I did get a response back stating there wasn't much they could do due to budgetary constraints. Trust me, I understand budgetary constraints being mayor of a small town. But I also see the value of long term planning on a project like this to save lives.

There are 5 corners and 1 intersection from the top of the Gillespie Hill (but not including Gillespie Hill) to Luxemburg which if fixed, would reduce the number of accidents tremendously

1) Strunk's corner (2 miles south of Luxemburg)
2) Neuman's corner (intersection of Y13 & Hwy 52)
3) Bankston Park Road (2 miles south of Holy Cross)
4) Cottage Hill Cemetary (2 miles north of Rickardsville)
5) Bottom of Rickardsville Hill (in city of Rickardsville)
6) Shufflebutts Corner (2 miles south of Rickardsville)

Gillespie Hill is a whole different story by itself and would require a huge undertaking.

Then from Gillespie Hill to Sageville, the S-curve by Eichman's Gas Station is very dangerous.

If the DOT would take a long range approach to these problems and correct one corner every 2nd or 3rd year (most dangerous first), lives could be saved and injuries could be avoided. It also wouldn't create such a crunch on the budget. Over a period of 10-15 years, 3-5 of the problem corners are eliminated.

The article in the TH mentioned spending $2 million dollars to add signs. The only sign that make a difference are signs that hit the emotion of the person driving such as "5 people DIED on this corner, please don't make it 6, slow down," or "10 accidents at this corner since 2000, don't make it 11, slow down." Please DON'T waste our tax money by placing signs unless they truly hit the emotion of the drivers, otherwise, our money is poorly spent. Those of us who pay taxes would much prefer to actually fix the problem.

Needless to say, those of us who travel Highway 52 frequently have pretty much given up on the fact the DOT will ever fix the problems. Unfortunately, it is a reality we live with, and hopefully, for many more years.

Sincerely,

Brian Maiers
Mayor, Holy Cross Iowa

nighttime-rumble-strip.jpg

From: Welch, Tom [DOT]
Sent: Wednesday, January 09, 2008 12:36 PM
To: 'Brian Maiers'

Subject: RE: Highway 52

Mayor Maiers:

Having driven US- 52 north of Dubuque several times and recently completing a multi disciplinary safety review of the corridor, as a Safety Engineer I greatly appreciate the local desire for major safety improvements to this corridor. As you pointed out, the DOT is not in a position financially to make major improvements to this corridor as we have to focus on pavement and bridge improvements with our limited funds. However, the DOT has two safety programs which can be used to make low cost safety improvements to intersections or other locations along highway corridors US-52 is a candidate project for these safety funds.

Mayor Maiers, I want to ensure you that the safety improvements we are considering go well beyond "spending $2 million dollars to add signs." We are only looking at a small number of

additional signs and signing improvements at selected curves. There are a number of other safety improvements we are considering along this entire corridor.

While the curvilinear alignment and narrow shoulders along US-52 are a contributing factor to many of the crashes, driver behavior along the corridor is a major contributing factor in most of the crashes. In the 5 year period from 2002 through 2006 there were 143 crashes between Luxemburg and the intersection with the NW Arterial near Dubuque. This does not include the 103 animal related crashes.

Speeding or driving too fast for conditions was a factor in 80 of those 143 crashes - over one half of all crashes. Six of the thirteen fatal and major injury crashes involved an impaired driver. In fact, this section of US-52 has one of the highest number of impaired driver fatal and major injury crashes per mile of roadway in the State of Iowa. Both of these type of crashes generally involve a single vehicle running off the road. As you can see there is also a need for driver behavior "improvements' along this corridor. Additional targeted enforcement will help address driver behavior.

A Safety Review team, including staff from the Departments of Transportation and Public Safety, the State Patrol, the Dubuque County Sheriffs office, Iowa State University Center for Transportation Research and Education and Willy Wagner, the former Fire Chief from Holy Cross, conducted a very thorough review of the crash data and day/night field review of the entire corridor in late November. We did look at all of the locations you mention in your letter.

We are currently preparing a report on our safety review Alternatives being considered include paving the shoulders, adding shoulder rumble strips and painting the edge line through the shoulder rumble strips (see attached). This countermeasure has the potential of reducing single vehicle run off the road crashes by about 20 %, more so at curves. They also provide improved edge line visibility at night and in the fog. Vehicles crossing the centerline are another area of concern to locals and is reflected in the crash data. Centerline rumble strips have been proven to substantially reduce cross centerline crashes. When both of these type of rumble strips are installed on a curvilinear roadway they have a traffic calming effect on motorists. We are also looking at low cost minor intersection improvements along the corridor as well as other improvements. Willy Wagner was particularly helpful is pointing out the safety concerns at these intersections.

At this time we have conducted the study to identify potential improvements. There are no approved improvements or funding for the improvements. As safety funding becomes available the DOT will consider including low cost safety improvements to US-52 in our 5 Year Safety Program. Further, these improvements will likely be made over a number of years, as a series of smaller projects at specific locations, just as you suggested Mayor Maiers.

I recognize this is not the level of improvement you and others are seeking along US-52. But, it really is the best we can do at this time, given the limited funding we have and all the highway improvement needs we face in Iowa.

Please feel free to contact me if you have additional recommendations for improvements along this corridor.

Tom Welch, PE
State Transportation Safety Engineer
Iowa Dept of Transportation
515-239-1267
"While the mission is roads...the GOAL is safety"

From: Brian Maiers [mailto:brianm@johnsongroup.com]
Sent: Thursday, January 10, 2008 1:45 PM
To: Welch, Tom [DOT]

Subject: RE: Highway 52

Hi Tom,

I want to thank you for responding so thoroughly to my email. This is a very emotional subject for people who travel the road and the article just seemed to bring it to a head, especially for me since I've been involved with this subject for a while now.

You're the first person from the DOT who actually appears to have spent some time and truly understands the problems as opposed to some of the DOT directors, who have made decisions in the past without even traveling the road. I think some of your suggestions are good in the short term, however, the long range fix is still my goal. I know some of the landowners on the mentioned corners and based on conversations with them, they'd be very receptive to either selling or swapping ground (if it fit into their property) to improve safety on that highway.

Thanks for your time Tom. Information is a wonderful thing and please keep us (people in the area) informed of any upcoming improvements. Information is always a good buffer from resistance to change.

I'm going to keep your name on file for future reference if that is okay.

Brian

Correspondence from a concerned citizen to Tom Welch of the Iowa DOT, regarding safety improvements on U.S. Highway 52 at Paradise Valley Road

From: BuffWerner@aol.com [mailto:BuffWerner@aol.com]
Sent: Sunday, December 30, 2007 5:54 PM
To: Welch, Tom [DOT]

Subject: Safety Corridor - Highway 52 Durango, IA - Paradise Valley Road

Dear Mr. Welch:

I am writing to request that you take a very serious look at putting a turning lane and widening the road, possibly changing the curve of the road where Highway 52 connects to Paradise Valley Road just north of Durango, IA.

My family, neighbors and friends drive this stretch and we often are telling each other of how "lucky" we were not to be rear-ended while waiting to turn off highway 52. In addition, I cannot tell you the number of accidents there - reported and perhaps not. We are always fishing out people that miss the curve traveling south there and take out the stop sign. I cannot tell you how many times I have seen just a hint of a car peeking out of the ditch and had to investigate to se if anyone remained in the car. Last year there were at least seven accidents there.

Coming home from work daily, I frequently have opportunity to observe. I don't know that speed always the problem on this road. I followed a young driver that repeatedly crossed the center line and was completely on the wrong side of the road at 4:30 PM. In addition this year alone between deer on the road, people in my lane across the center line or from rear ending, I myself have had around 10 dangerous "incidents" where I felt that my vehicle or life were in jeopardy. My husband has hit two deer, and feels he has had a total of 6 "incidents." This road is narrow and curvy. Semi's are frequently across the center line as are people that are sight seeing or traveling it rarely. PLEASE blast some of the hillsides away and put in some safe turning areas from Sageville to Holy Cross. We really beg you to work on the Paradise Valley turn.

Sincerely,

Connie and Greg Werner

Thank you for your input on US-52, we greatly appreciate the local input we are receiving Because of our severe budget limitations we will not likely be able to accomplish any major widening or new turn lane lanes. But we will take a closer look at the Paradise Valley intersection.

The shoulder and centerline rumble strips we propose should address many of the other safety issues you mentioned.

Tom Welch, PE
State Transportation Safety Engineer
Iowa Dept of Transportation
515-239-1267
"While the mission is roads...the GOAL is safety"

Correspondence between a concerned citizen and Tom Welch of the Iowa DOT, regarding safety on U.S. Highway 52

From: Luke Godirt [mailto:godirtracin@yahoo.com]
Sent: Tuesday, January 08, 2008 1:39 PM
To: Welch, Tom [DOT]

Subject:

I am writing regarding the front page article in the TH last week. The topic was about putting a band aid on highway 52 North 2 million dollars on signs and police patrol. Don't peoples lives matter to you? How about putting that money towards fixing the dangerous curves where people have lost their lives. There is enough crosses and memorial signs along that highway to tell you where these dangerous curves are.

Also in most areas there is no shoulder to pull over on in an emergency.

This highway has been neglected long enough, I would like our tax money spent wisely for a change on this highway.

Help save some lives, do the right thing.

Sincerely,

Karen Goedert

From: Welch, Tom [DOT]
Sent: Tuesday, January 08, 2008 4:13 PM
To: 'Luke Godirt'

Subject: RE:

I appreciate your desire for a major reconstruction of this highway MsGoedert. Currently the DOT does not have funding for an extensive reconstruction of US-52 or even the improvements we are looking at. We will make what improvements we can with any funding which becomes available in the future That is the best we can do with our current budget which has to focus on repairing and maintaining roadway pavements and bridges.

Tom Welch, PE

State Transportation Safety Engineer
Iowa Dept of Transportation
515-239-1267
"While the mission is roads...the GOAL is safety"

Correspondence from a concerned citizen to Tom Welch of the Iowa DOT, regarding safety concerns on U.S. Highway 52.

From: bdvorwald@yousq.net [mailto:bdvorwald@yousq.net]
Sent: Thursday, December 27, 2007 10:07 PM
To: Welch, Tom [DOT]

Subject: input on hwy 52 North

Dear Tom

My names is Debbie Vorwald and I live in Rickardsville Iowa right on highway 52. Actually I have been born and raised in Rickardsville, and have been driving 52 since I've been 16 years old, which is approximately 30 years.

I feel the two biggest issues with the highway are semi's and people unfamiliar with the road and driving to fast.

As a local to the highway you know where the bad corners are and all the bad areas in the winter that my need extra caution. Second are the semi's as far as I'm concerned they don't belong on 52. They drive way too fast to handle the corners. Living in Rickardsville the speed limit in front of our house is 45mph. I can confidently say they fly by 60 plus miles per hour! I realize Paisley trucking is on highway 52 and should be grandfathered in. They are not the problem they are very considerate, obey the laws and know the road.

As far as doubling the fines why should we be penalize. Were not the ones getting in the accidents.

Thank you for your time;

Debbie Vorwald

Correspondence from a concerned citizen to Tom Welch of the Iowa DOT, regarding safety issues on U.S. Highway 52

From: Cowelldavidj@aol.com [mailto:Cowelldavidj@aol.com]
Sent: Wednesday, January 02, 2008 2:08 PM
To: Welch, Tom [DOT]

Subject: Hwy 52

I am writing in regards to safety issues on highway 52 north of Dubuque that was discussed in the Dubuque Telegraph Herald. I live off Paradise Valley Road, which intersects with 52 approximately 3/4 miles north of Durango. I have been traveling 52 almost daily for more than 26 years and have witnessed many accidents, especially at our intersection. The intersection of Paradise Valley Road and 52 are on a curve with hills and trees directly on the north side of 52. If you are traveling north and have to stop for oncoming traffic to make the turn, cars following you have a hard time stopping by the time they see you. I make sure I turn my signal on well in advance. however if there are several oncoming vehicles coming you have been sitting there to long. You constantly watch your rear view mirror and there have been occasions I have had to take off to avoid getting rear ended. There should be a turn lane or at least a paved shoulder to pass the stopped vehicle.

Also, the section from Sageville to Galespie Hill has many areas were there is no place to pull off the road. The trees and brush are growing right to the edge of the road in many spots. Several years ago I hit a deer between Durango and Clay Hill Road. My truck was heavenly damaged and I was only able to get out of the flow of traffic by crossing the road and driving into a small ditch. This section of road needs to be widened somehow so a person can pull off the road.

I would like to thank you for the opportunity for citizens to air their opinions.

David Cowell
18383 Paradise Hts
Durango, IA

No, we thank YOU for your input Mr. Cowell. We do not drive this road on a regular basis as you and others do. We only have the crash data for previous crashes. The information on the near misses is very important information. We have a very limited budget for this project. As such, turn lanes and roadway widening may not occur initially. However, there may be other safety funding opportunities for turn lanes at a specific location is the crash history supports the improvements.

Tom Welch, PE
State Transportation Safety Engineer
Iowa Dept of Transportation
515-239-1267
"While the mission is roads...the GOAL is safety"

Correspondence from a citizen to Tom Welch of the Iowa DOT, regarding improvements on U.S. Highway 52

From: spookcave@aol.com [mailto:spookcave@aol.com]
Sent: Sunday, December 30, 2007 3:01 PM
To: Welch, Tom [DOT]

Subject: US 52

Hi Tom,

Glad to see that the highway I travel every day will finally get some upgrades.

I would suggest that the yellow and white lines be painted. In many areas they are very hard to see - especially in the fog.

Also I noticed that trees and brush have been cut down along the hillsides but never picked up. Some on this trash obstructs your vision around the many hilly corners of the highway. Adding more gravel to the shoulders would be great.

If you ever have to pull over, there is no safe place to stop.

Yes, Hwy 52 is very curvy but it is also a very beautiful stretch of highway in the spring and fall.

Thanks.

Therese Maiers
Holy Cross, Iowa

Thank you for your input on US-52. Paving the narrow shoulders and placing in shoulder rumble strips will allow us to paint the edge lines into the rumble strips. This will greatly enhance the visibility of the edge lines at night, in the rain and in the fog. This will also eliminate the edge ruts in the shoulder. It is very difficult to maintain the shoulders on a roadway like US-52

Tom Welch, PE
State Transportation Safety Engineer
Iowa Dept of Transportation
515-239-1267
"While the mission is roads...the GOAL is safety"

Correspondence between a concerned citizen and Tom Welch of the Iowa DOT, regarding needed improvements at the intersection of U.S. Highway 52 and Paradise Valley Road

From: Jennifer Tolbert [mailto:jennifer.j.tolbert@gmail.com]
Sent: Saturday, February 16, 2008 5:02 PM
To: Welch, Tom [DOT]

Subject: US 52 Safety Improvements

Hello Mr. Welch,

I'm Jennifer Tolbert, a prior resident of the Durango area for over 20 years. I caught word of your safety improvements on US 52. Please consider the area where Paradise Valley meets US 52. I made this turn many times in the years I lived in Iowa and it is extremely dangerous. A mixture of not being able to see around the bend and cars moving faster than speed limits make it difficult to get across the road. I have had many personal, frightening experiences here and have always wished that someone would do something about it. I worry about my friends and family who live nearby and must take this turn every day.

Thank you for your consideration. Please feel free to contact me for any further information at the number below.

Sincerely,

Jennifer Tolbert
Safety Engineer
801-671-2159

On Feb 18, 2008 7:45 AM, Welch, Tom [DOT] <Tom.Welch@dot.iowa.gov> wrote:

Yet another contributing factor is vehicles which may not be exceeding the speed limit but are exceeding the advisory speeds for the curves. The State Patrol and Sheriff say it is very difficult to manage speeds along US-52 as there are very few safe locations to pull motorists off the road. As such the State Patrol will start doing some aerial speed enforcement and pull vehicles off the road at the top or bottom of the roadway.

Because of difficult budget conditions the best we can do is $500,000 to $1,000,000 of improvements a year over the next 3 to 4 years. We will start this year with replacing all curve warning and curve chevrons (and adding more chevrons at more curves) with larger florescent yellow signs. These bigger brighter curve chevron signs help motorist "read" the sharpness of the curve.

We will also pave the shoulders through a number of curves and add both shoulder and centerline rumble stripEs (lane lines will painted through the rumble strips). We feel this will have a traffic calming effect on motorists as they will need to "work" to stay off the rumble strips.

Improvements will also be made to the CoRD Y13 intersection this year, if funding allows.

Speed enforcement will be increased and we will engage the local media to report on the number of speeding citations being issued on US-52.

If you have any specific suggested improvements for us to consider please let me know.

Tom Welch, PE
State Transportation Safety Engineer
Iowa Dept of Transportation
515-239-1267
"While the mission is roads...the GOAL is safety"

Tom,

Thank you for your response. I believe that your plan for improvements along US52 is good, especially for the amount of money you have in your budget. Paving the shoulder around the Paradise Valley intersection (as well as others) would help visibility in order to see oncoming traffic better. Out of all the suggestions, this particular "fix" would be the best for this area - along with better speed patrol. I look forward to seeing the proposed changes when I come back to visit.

Sincerely,

Jennifer Tolbert

Correspondence between Tom Welch of the Iowa DOT and Tom McDonald, Safety Circuit Rider at CTRE, regarding additional safety improvements to U.S. Highway 52

At 07:48 AM 12/31/2007, Welch, Tom [DOT] wrote:

A local trucker called me and suggested the following low cost improvements be considered;

1. South of Durango is a passing lane, but the site distance into the passing lane is restricted by overhanging trees.

2. The first curve east of Durango "Strunks curve (corner)" he says has been the source of numerous fatal/major injuries. He would like the curve flattened, but I told him that was beyond the scope of our "low cost improvements at best we can pave the shoulders and enhance the curve signing.

He really wanted us to blast the bluff back and add passing lanes.

Tom Welch, PE
State Transportation Safety Engineer
Iowa Dept of Transportation
515-239-1267
"While the mission is roads...the GOAL is safety"

-----Original Message-----
From: Thomas J Mcdonald [mailto:tmcdonal@iastate.edu]
Sent: Monday, December 31, 2007 8:32 AM
To: Welch, Tom [DOT]; Jack Latterell; Gourley, Arthur [DOT]; Wilson, Steve [DOT]

Subject: Re: US-52 Safety review

I can add these suggestions to the final rsa report, but it might be better if we could locate that curve more accurately. I don't see a curve east of Durango with a serious crash history, at least over the past five years. The "lost" fatal that Sheriff Runde brought up was at a private road intersection. Could Art locate this curve more accurately? Thanks - Tom

---

TELEGRAPH TH HERALD

December 27, 2007
THURSDAY
171st year, No. 361, 4 sections, 32 pages

TRI-STATE: Author offers perspective on presidents/3A ►
SPORTS: Padres sign former Cub Mark Prior/1B
NATIONAL: Romney camp scrambling in 2 states/5D

DUBUQUE, IOWA THONLINE.COM 75 CENTS

U.S. 52 named safety corridor

The move makes the dangerous stretch a state priority and aims to bring solutions

By MATTHEW RYNO
TH staff writer

The stretch of U.S. 52 north from the Northwest Arterial to the limits of Dubuque County is considered unsafe by Iowa transportation officials and locals familiar with its flaws.

The area has a "very high occurrence of single run-off-the-road accidents — among the worst in Iowa. It also has the highest crash density related to impaired drivers, according to Tom Welch, an Iowa Department of Transportation safety specialist.

This statistic puts Dubuque in IDOT's headlights, and the stretch of road is now one of just two pilot areas in Iowa selected as a safety corridor. Safety corridors are a new designation used in only a dozen other states, said Welch.

Welch said now that the area is designated, locals and various government agencies are beginning to work together to identify the worst safety problems and devise solutions. Many of these solutions will focus on making drivers aware that caution must be exercised every day.

"This is a brand new approach to safety for Iowa. In the past, we all kind of worked our own areas and it was hard to get together and collaborate. It was eye opening to hear from some of the locals," said Welch.

Due to the high number of accidents, an attempt to make motorists aware of safety was welcomed by Dubuque County Sheriff Ken Runde, who said his deputies commonly respond to speed-related accidents in the area.

Between 2002 and 2006, statistics show there were 272 accidents on the stretch of U.S. 52 from the Northwest Arterial to the county line, according to Runde, who said speed was a factor in

Safety/See Page 2A

NEWS
You can use

Safety improvements on U.S. 52 are in the early stages of consideration, and Iowa Department of Transportation safety engineer Tom Welch encourages local citizens driving the road to contact him with concerns they have. He can be contacted by e-mail at tom.welch@dot.iowa.gov or by phone at 515-239-1267.

Telegraph Herald news article about Iowa DOT improvements to U.S. Highway 52

Safety: Several steps suggested

Continued from Page 1A

most accidents.

"The speed is only 50 on a good portion of that stretch. We don't want the limit to be lower. If people just drove 50 and paid attention to marks and signage, the area would be fine," said Runde. "In the area by Bankston Park Road, most people (who) are losing control — they're driving too fast for the conditions."

In addition to a driver's choice to speed, alcohol also might be a problem. IDOT statistics show that between 2001 and 2005 there were five fatal and major injury accidents involving impaired drivers on the stretch of road.

Just how a safety corridor will address these issues is part of the reason why Runde, an Iowa State trooper and retired Holy Cross Fire Chief Willis Wagner piled into a van with IDOT officials and drove the highway to view the safety hazards.

Wagner said he wanted to see some changes on the stretch of U.S. 52 that intersects with Holy Cross Road.

As a result, changes were suggested for the way the lines in the intersection are marked. Paving the shoulders and cutting down trees and brush also was suggested.

Some other improvements suggested included paving the shoulders, adding signs to urge motorists to slow down, adding rumble strips on the sides and middle of the road, making signs and markings brighter, adding more signs or flashing signs and increasing traffic enforcement by making it easier for authorities to safely pull over cars.

These improvements would cost about $2 million at most, according to Welch. He said this amount was low compared to most highway improvements.

According to Welch, IDOT management might consider the recommendations as soon as spring. After that, he said recommendations will be brought to local citizens for input.

The focus on U.S. 52 is part of IDOT's attempt to identify the 5,000 miles of roadway with the greatest crash history in the state in response to a new federal push.

"A lot of the states did not always spend their safety money in the worst places first. Congress is trying to force us to spend money where there are problems, and I think Congress is correct in doing this," said Welch.

Welch added that a decision by Iowa lawmakers to double traffic fines in the corridor also could make the road safer.

Email interview notes for a news story regarding the U.S. Highway 52 Dubuque County Safety Corridor study

From: tom.welch@dot.iowa.gov [mailto:tom.welch@dot.iowa.gov]
Sent: Thursday, December 27, 2007 2:14 PM
To: Richardson, Nancy [DOT]; Wilkinson, Lee [DOT]; Gray-Fisher, Dena [DOT]; Baird, Elizabeth [DOT]

Cc: Welch, Tom [DOT]; Gent, Steve [DOT]; Dillavou, Mitchell [DOT]; Mahoney, Kevin [DOT]; Jerman, Troy [DOT]; Schnoebelen, Jim [DOT]; Yanna, Kenneth [DOT]
Subject: US-52 Dubuque County Safety Corridor study

Type of Contact: Media
Date Of Contact: 12/27/2007
Time of Contact: 1:00 PM

Contacted By: Katie Wiedemann
Business/Office: KCRG TV
City: Cedar Rapids
State: Iowa
Phone Number: 563-543-6279
Fax Number: ___-___-____
E-Mail: katie.wiedemann@KCRG.com

Submitted By: Tom welch
Office: Safety
Phone Number: 515-239-1267

Subject of Contact:
US-52 Dubuque to Holy Cross safety corridor study

Discussion/Response:

Q: Why did we selected this highway for the safety corridor study?

A: The narrow curvilinear road presents driving challenges to motorists. It has a high incident of impaired driver, speed related, young driver and single vehicle run off the road crashes (crash data associated with these were provided to her).

Q: What are we recommending?

A: We are looking at multidisciplinary safety countermeasures. Those on the safety review included engineers, State and County enforcement officers, a local former emergency response person and older drivers.

Alternatives being considered include paved shoulders, shoulder rumble strips, centerline rumble strips, minor intersection improvements, improved signing, increased enforcement (including aerial enforcement), and using the local media to reinforce the need to drive carefully in this corridor as well as report on the number of citations being issued and crashes along the corridor on a regular basis.

Q: When will these be implemented?

A: At this point we are just working on the development of the alternatives and study report. Once that is completed we will submit our recommendations to the DOT and DPS management staff for review direction.

Additional follow-up is required.

Description of follow up:
none

Correspondence regarding approval of radar for safety corridor purchase

Radar for Safety Corridor purchase approved

The request from Sergeant Pothoff to Randy Hunefeld was forwarded to me and I am approving the radar purchase portion of the request.

(I would have contacted him, but I don't have a phone number or email address.)

Laser Unit $2500
MPH Radar $4500, $7000

I believe the budget is also fine for the overtime, but we haven't confirmed that process yet. We will work with GTSB and determine that process a bit later.

Please send me a quote/bid from the company and I will authorize your office to have the units shipped to you. (Email or FAX is fine.)

You can pay the bill and send documentation for reimbursing your office or have the items billed to DOT to my attention. Please advise which you prefer when you send the quote.

If you would like the invoice paid direct to the vendor, we will need a W9 from them to expedite the payment.

<<fw9[1].pdf>>

Feel free to call or have Sergeant Potthoff call with any questions.

<<scan0002.jpg>> <<scan0001.jpg>>

Thank you!

Mary Stahlhut

"One Death is One Too Many"
CHSP Project Manager
Office of Traffic and Safety
Iowa Department of Transportation
800 Lincoln Way
Ames, Iowa 50010
Ph: 515.239.1169
FAX: 515.239.1891

fw9[1].pdf fw9[1].pdf
scan00021.jpg
scan00011.jpg

Correspondence among Iowa DOT officials regarding the use of centerline rumble strips

-----Original Message-----
From: Thomas J Mcdonald [mailto:tmcdonal@iastate.edu]
Sent: Saturday, February 02, 2008 12:23 PM
To: Gourley, Arthur [DOT]
Cc: Welch, Tom [DOT]; shallmar@iastate.edu; jerry.roche@fhwa.dot.gov; Jacklatt@aol.com

Subject: US 52 improvements

Art: I think you have some good proposals for incremental improvements on US 52 and I would be happy to offer any suggestions you desire. From my review of the crash data, I would suggest the following for your consideration:

Improve the curves with the poorest crash history first, which to me looks like the section from Bankston Park Road easterly possible a mile or so, but my map doesn't have a scale, you can estimate that from the crash maps we provided at the RSA review. Second priority would by Struck's curve, which is a much shorter section. At $5k/station you should be able to do them both for the funds you are anticipating. If not, Struck's curve might be a good location for Shauna's dynamic curve sign. Of course, you would also want to make the needed improvements we discussed at the Y-13 intersection, mostly relocating the centerline on the south approach and consider removing or at least reducing the size of the STOP sign island. Another intersection to consider for improvement would be Paradise Valley, which has a poor crash history.

St. Joseph Street in Rickardsville would be another. Proposed improvements at these two locations would need to be determined from examining the crash data and field exam. The IA 32 intersection and the project termini also needs attention, if some low cost solutions can be identified, signal visibility from the north being one.

For signing improvements, again curves should merit priority, but I would recommend you decide a criteria for application, based on crash history but also something like degree of curve. There are many options available for consideration such as fluorescent sheeting, 48 inch curve signs, large and fluorescent chevrons, increased size and fluorescent for the advisory speed plaques (an often overlooked improvement that is particularly important here), double signing, flags, etc. Where is use each of these options could be decided based on crash history and degree of curve. You wouldn't want to treat a curve that had a poor history while leaving a similar curve untreated. Also, if you haven't done so recently you might want to re-check the advisory speeds.

I would suggest rumble stripes for all edge lines through the improved areas, but centerline rumbles should be used only where a cross centerline crash history indicates a benefit and I don't think we have that here (my opinion only).

As I said I would be happy to provide comments where ever you think you would like them and could participate in your field reviews if I have an open date when scheduled. I will be in Buchanan County on Tuesday, weather permitting, if you would like to discuss any of these thoughts, let me know, afternoon would be best as I have a workshop until noon at the county

office. In any regard, I will see you and Steve here at CTRE on Wednesday, so that would work also.

Thanks Art, Tom

I support the use of the centerline rumble strips for two reasons,

1. Traffic calming-perceived narrower roadway, you have to work to keep your vehicle between the rumble strips.

2. reports I have revived for the locals concerning near misses from motorists crossing the centerline.

Should be an interesting meeting Wednesday.

Tom Welch, PE
State Transportation Safety Engineer
Iowa Dept of Transportation
515-239-1267
"While the mission is roads...the GOAL is safety"

Correspondence among DOT officials regarding the cost of chevron signs for sign upgrades

-----Original Message-----

From: Wilson, Steve [DOT]
Sent: Wednesday, February 06, 2008 9:20 AM
To: 'Thomas J Mcdonald'; Welch, Tom [DOT]; Gourley, Arthur [DOT]
Cc: Schnoebelen, Jim [DOT]; Yanna, Kenneth [DOT]; Gresslin, Gretchen [DOT]; Shanahan, David [DOT]

Subject: Safety Corridor 3/52 Luxemburg to Dubuque Sign Upgrades

Attached is a spreadsheet with estimated quantities and costs, not including labor, to replace all warning signs, chevrons, etc. on 3/52 from Luxemburg to Iowa 32 at Dubuque with the bright yellow sheeting and larger sizes.

This estimate does not allow for the occasional existing sign that may remain: these would be minimal compared to those which are not over-size nor the bright yellow.

-----Original Message-----

From: Welch, Tom [DOT]
Sent: Wednesday, February 06, 2008 12:36 PM
To: Crouch, Tim [DOT]; Younkin, Kurtis [DOT]; Matulac, David [DOT]
Cc: 'Thomas J Mcdonald'; Wilson, Steve [DOT]; Jerry.roche@fhwa.dot.gov

Subject: FW: Safety Corridor 3/52 Luxemburg to Dubuque Sign Upgrades

Any concerns about this demonstration SAFETY corridor signing improvement - note use of 36 x 48 chevrons. I think we were using 30 x 36 at other high crash curves funded with safety funds.

Tom Welch, PE
State Transportation Safety Engineer
Iowa Dept of Transportation
515-239-1267
"While the mission is roads...the GOAL is safety"

30" x 36" is the size of chevron that has been used in the past at high crash curve locations.

Will new brackets or posts be needed for the larger chevrons?

Kurtis Younkin
Iowa DOT
Traffic and Safety
515-239-1184
kurtis.younkin@dot.iowa.gov

From: Crouch, Tim [DOT]
Sent: Wednesday, February 06, 2008 5:32 PM
To: Welch, Tom [DOT]; Younkin, Kurtis [DOT]; Matulac, David [DOT]
Cc: 'Thomas J Mcdonald'; Wilson, Steve [DOT]; Jerry.roche@fhwa.dot.gov

Subject: RE: Safety Corridor 3/52 Luxemburg to Dubuque Sign Upgrades

I would question the need for the oversized signs in some of these locations. If we don't have chevrons currently, why do we need to go to the largest size right away, 36 X 48 is huge and will look very big on the road. We have many other curves around the state that may have higher numbers, but don't have this size of chevron.

Why go to 48" stop signs on the side streets if there is no problem with the drivers seeing the current stop signs. If there is a history of ran stop sign type of crashes, then maybe they are needed.

No real problem with the larger warning signs.

My main concern is the justification, why this location and not others around the state. Are we setting a new standard that will require us to go to larger signs across the state?

The spread sheet lists 24" plaques, are these the right size plaques for the new larger signs? Need to check the MUTCD, I don't know what plaques they are or what warning signs they are installed with.

Tim

From: Welch, Tom [DOT] [mailto:Tom.Welch@dot.iowa.gov]
Sent: Thursday, February 07, 2008 7:39 AM
To: Crouch, Tim [DOT]; Younkin, Kurtis [DOT]; Matulac, David [DOT]
Cc: Thomas J Mcdonald; Wilson, Steve [DOT]; Roche, Jerry; Gent, Steve [DOT]

Subject: RE: Safety Corridor 3/52 Luxemburg to Dubuque Sign Upgrades

Part of the rationalization for doing something above and beyond standards would be that this would a pilot study in a newly established safety corridor.

We are down sizing the chevrons, going too fast through the curvilinear alignment has been a big problem - it is not that they are exceeding the speed limit. Your call on sign size Tim.

Tom Welch, PE
State Transportation Safety Engineer
Iowa Dept of Transportation
515-239-1267
"While the mission is roads...the GOAL is safety"

From: Roche, Jerry [mailto:Jerry.Roche@fhwa.dot.gov]
Sent: Thu 2/7/2008 7:43 AM
To: Welch, Tom [DOT]; Crouch, Tim [DOT]; Younkin, Kurtis [DOT]; Matulac, David [DOT]
Cc: Thomas J Mcdonald; Wilson, Steve [DOT]; Gent, Steve [DOT]

Subject: RE: Safety Corridor 3/52 Luxemburg to Dubuque Sign Upgrades

Just some supporting information - the curves did have chevrons, but they were the standard size, not florescent, and had been out there for quite some time.

Jerry

I would suggest going to the 30 X 36 fluorescent chevrons. This makes two changes on these curves - larger size and fluorescent. We have been doing this on other curves around the state, but have done no follow-up, that I am aware of, on the effectiveness.

Unless there is a problem with ran stop sign crashes, I would prefer to not increase the size of the side street stop signs.

Tom, you mention that this is a pilot study in a newly established safety corridor. With everything that is proposed to be done in this corridor, how will we know which "change" improved the safety in the corridor? I assume CTRE or someone has been hired to evaluate the effectiveness of the program.

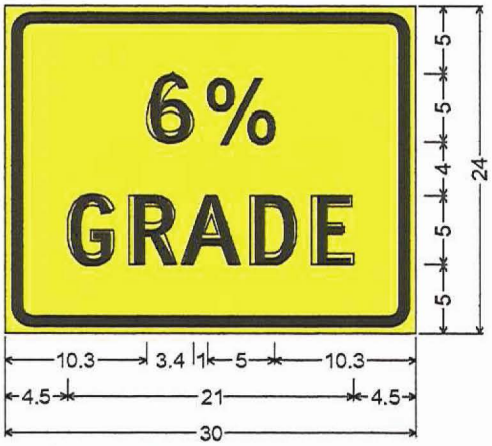
Part of my questions are out of ignorance. I have not been involved in this program and am not fully aware of what is being done.

Tim

Table F.1. U.S. Highway 52/Iowa 3 warning sign replacement estimated costs

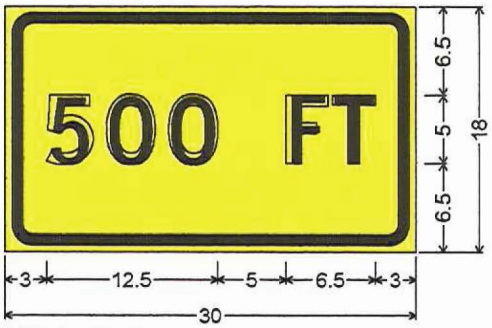
SIGN	STOCK NUMBER	SIZE	EST. QTY.	COST PER UNIT ($)	TOTAL EST. COST	COMMENTS
Signal Ahead Symbol	812-700432	48	2	195	$ 390.00	
RIGHT LANE ENDS	812-701130	48	1	195	$ 195.00	
Object Marker Left	812-514365	12 X 36	9	31	$ 279.00	
Object Marker Right	812-514355	12 X 36	9	31	$ 279.00	
Right Lane Ends Symbol	812-700560	48	2	195	$ 390.00	
Two way traffic symbol	812-700770	48	1	130	$ 130.00	
Left Reverse Curve Symbol	(0.125") * 813-056750	48	3	167	$ 501.00	
Advisory speed plate 40 MPH	(0.080") * 813-056750	30 X 30	7	66	$ 462.00	
Chevron	812-700676	30 X 36	254	81	$ 20,574.00	
Falling Rock	812-702320	36	6	78	$ 468.00	
Left Curve	(0.080") * 813-056750	36	15	94	$ 1,410.00	
Right Curve	(0.080") * 813-056750	36	16	94	$ 1,504.00	
Sideroad	(0.125") * 813-056750	48	5	167	$ 835.00	
Sideroad	(0.080") * 813-056750	36	1	94	$ 94.00	
No Passing Penant	812-702020	48X60X60	36	110	$ 3,960.00	
Driveway supplemental	* 813-056750 (for 36" sign)	36 X 18	1	47	$ 47.00	1-Line "DRIVEWAY" (i.e. SHS page 2-123)
500 FT panel	* 813-056750 (for 48" sign)	30 X 18	1	39	$ 39.00	1-Line (SHS page 2-123)
Reverse Curve Right Symbol	(0.125") * 813-056750	48	4	167	$ 668.00	
Hill Symbol	(0.125") * 813-056750	48	3	167	$ 501.00	
6% GRADE panel	* 813-056750 (for 48" sign)	30 X 24	3	52	$ 156.00	2-Line (i.e. SHS pages 2-52 and 2-122)
Left Reverse Curve Symbol	(0.080") * 813-056750	36	1	94	$ 94.00	
Deer Symbol	812-701397	48	2	167	$ 334.00	
NEXT 8 MILES panel	* 813-056750 (for 48" sign)	30 X 24	2	52	$ 104.00	2-Line (i.e. SHS pages 2-52 and 2-122)
Double arrow	812-700330	48 X 24	16	97	$ 1,552.00	
Left Reverse Turn Symbol	(0.125") * 813-056750	48	2	167	$ 334.00	
Advisory speed plate 30 MPH	(0.080") * 813-056750	30 X 30	1	66	$ 66.00	
Advisory speed plate 35 MPH	(0.080") * 813-056750	30 X 30	4	66	$ 264.00	
Winding road Left Symbol	(0.080") * 813-056750	36	6	94	$ 564.00	
Winding road Right Symbol	(0.125") * 813-056750	48	4	167	$ 668.00	
Crossroad	(0.080") * 813-056750	36	1	94	$ 94.00	
Reflect. Strip for guardrail posts	018-132750	34.5" X 6"	150	11	$ 1,650.00	around one post every 100 feet of guardrail
					$ -	
TOTAL EST. COST			418		**$ 38,606.00**	

* 813-056750 signs cost $10.43 per sq. ft.

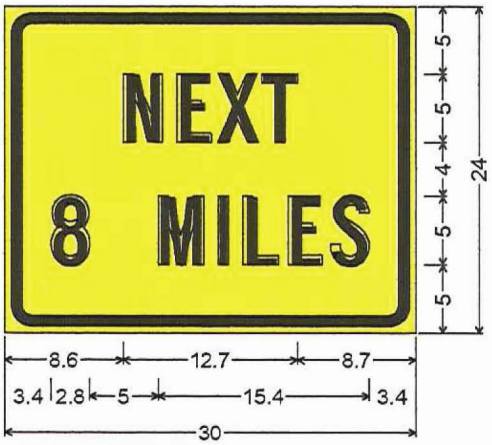


2.0" Radius, 0.8" Border, 0.5" Indent, Black on Yellow;
"6" D 2K; "%" Arial; "GRADE" D 2K;

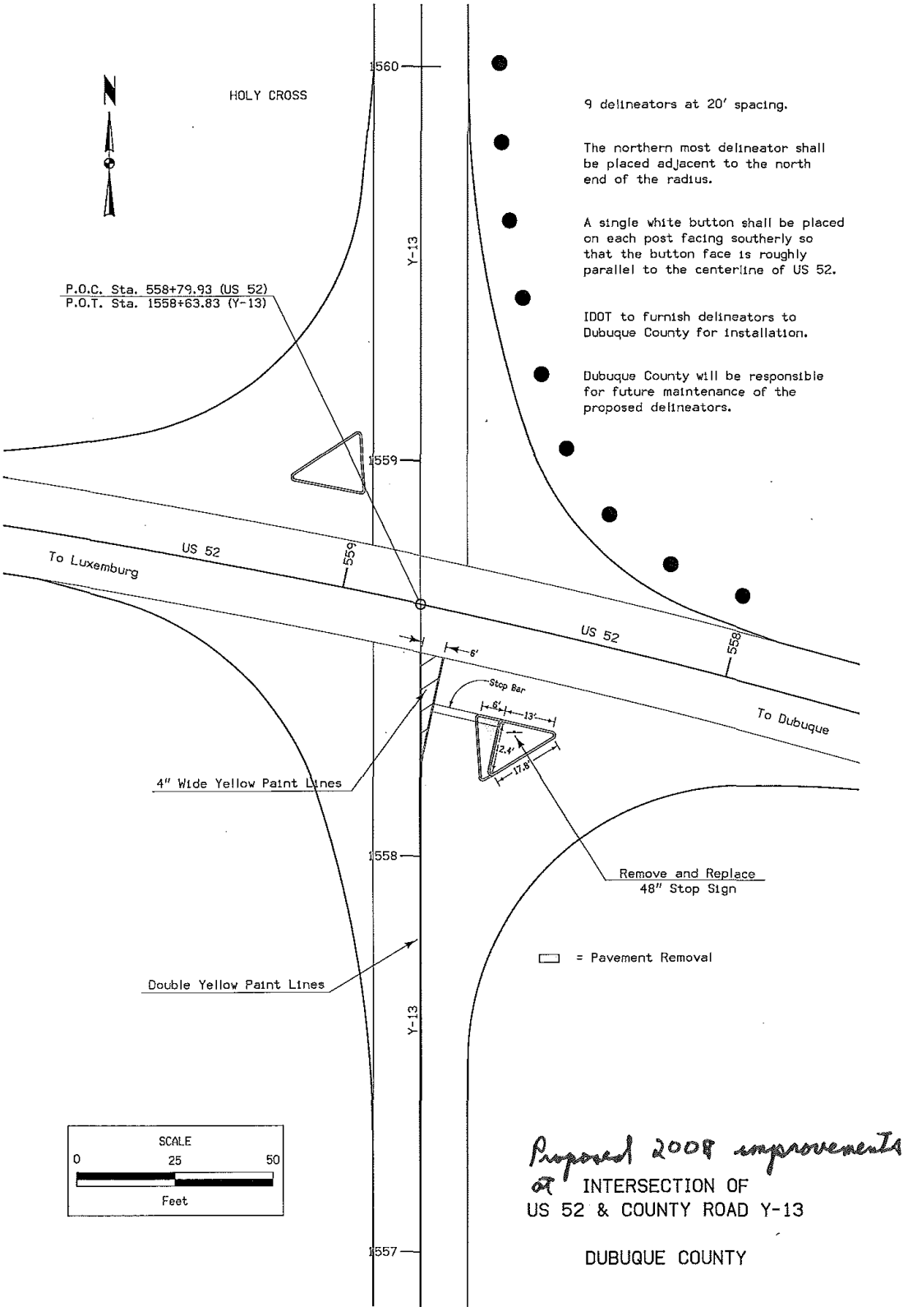
2.0" Radius, 0.8" Border, 0.5" Indent, Black on Yellow;
"DRIVEWAY" C 2K;



W16-2a_30x18;
0.8" Border, 0.5" Indent, Black on Yellow;
"500 FT" D 2K;



2.0" Radius, 0.8" Border, 0.5" Indent, Black on Yellow;
"NEXT" C 2K; "8 MILES" C 2K;


HOLY CROSS
1560
1559
1558
1557
Y-13
Y-13
9 delineators at 20' spacing.
The northern most delineator shall be placed adjacent to the north end of the radius.
A single white button shall be placed on each post facing southerly so that the button face is roughly parallel to the centerline of US 52.
IDOT to furnish delineators to Dubuque County for installation.
Dubuque County will be responsible for future maintenance of the proposed delineators.
P.O.C. Sta. 558+79.93 (US 52)
P.O.T. Sta. 1558+63.83 (Y-13)
US 52
To Luxemburg
559
US 52
558
To Dubuque
6'
Stop Bar
6'
13'
2.4'
17.8
4" Wide Yellow Paint Lines
Remove and Replace
48" Stop Sign
= Pavement Removal
Double Yellow Paint Lines
SCALE
0
25
50
Feet
Proposed 2008 improvements
at INTERSECTION OF
US 52 & COUNTY ROAD Y-13
DUBUQUE COUNTY

DUBUQUE COUNTY HMA PAV'T WIDENING W/HMA RESURFACING HSIPX-52-2(98)--3L-31

LETTING DATE 07-15-08

Iowa Department of Transportation

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

DUBUQUE COUNTY

HMA PAV'T WIDENING WITH HMA RESURFACING

At various locations from Iowa 32 in Dubuque northwesterly to Iowa 136 in Luxemburg

SCALES: As Noted

The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, series 2001, plus General Supplemental Specifications; and applicable Supplemental Specifications, Developmental Specifications, and Special Provisions, shall apply to construction on this project.

Value Engineering Saves. Refer to Article 1105.15 of the Specifications.

IOWA ONE CALL 811
1-800-292-8989
www.iowaonecall.com

REVISIONS

TOTAL 12
PROJECT IDENTIFICATION NUMBER
08-31-052-010
PROJECT NUMBER
HSIPX-52-2(98)--3L-31
R.O.W. PROJECT NUMBER

INDEX OF SHEETS 105-3 10-18-05

MILEAGE SUMMARY 105-1 09-27-94

Div.	Location	Lin. Ft.	Miles
	Sta. 150+23 to Sta. 278+48.5	12,825.50	
	Equation: Sta. 278+48.5 (Bk) = Sta. 1022+32.8 (Ah)		
	Sta. 1022+32.8 to Sta. 1285+02.10	26,269.30	
	Equation: Sta. 1285+02.1 (Bk) = Sta. 0+00.0 (Ah)		
	Sta. 0+00 to Sta. 801+61.2	80,161.20	
	Omit Bridge Sta. 720+12 (North Fork Maquoketa River)	103.00	
	NET LENGTH ROADWAY	119,153.00	22.567
	TOTAL LENGTH PROJECT	119,256.00	22.586

For Project Location Map
Refer to Sheet No. A.02

04-30-02 101-4

DESIGN DATA RURAL

2006	AADT	2,220	V.P.D.
20	AADT	--	V.P.D.
20	DHV	--	V.P.H.
TRUCKS		11	%
Total Design ESALs		900,000	

LICENSED PROFESSIONAL ENGINEER Arthur F. Gourley 11231 IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature Arthur F. Gourley Date 4/30/08

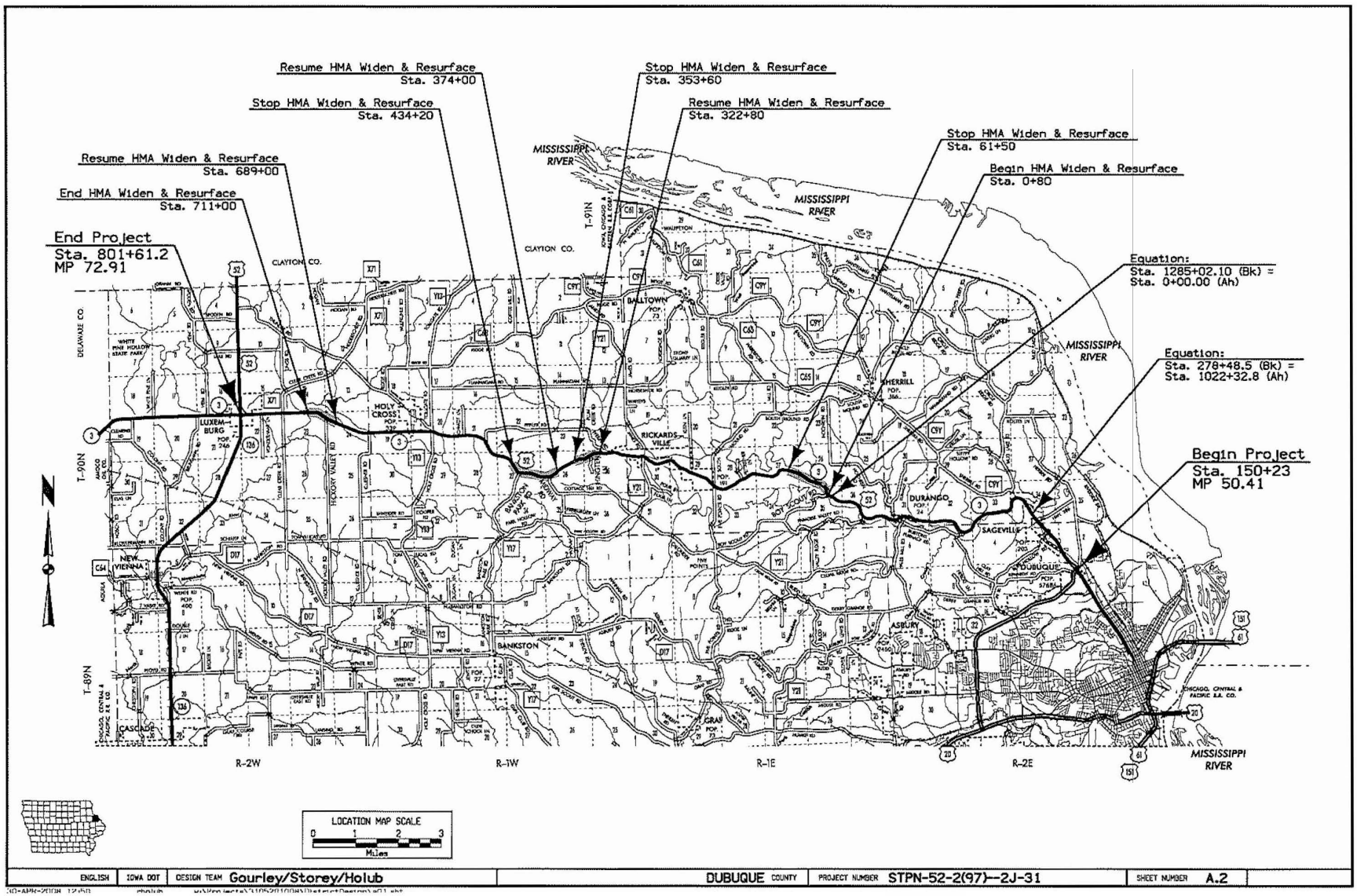
Printed or Typed Name Arthur F. Gourley

My license renewal date is December 31, 2009

Pages or sheets covered by this seal: All

ENGLISH	IOWA DOT	DESIGN TEAM Gourley/Storey/Holub	DUBUQUE COUNTY	PROJECT NUMBER HSIPX-52-2(98)--3L-31	SHEET NUMBER A.1

30-APR-2008 12:42 rholub w:\Projects\31052010DBV\DistrictDesign\e01.sht

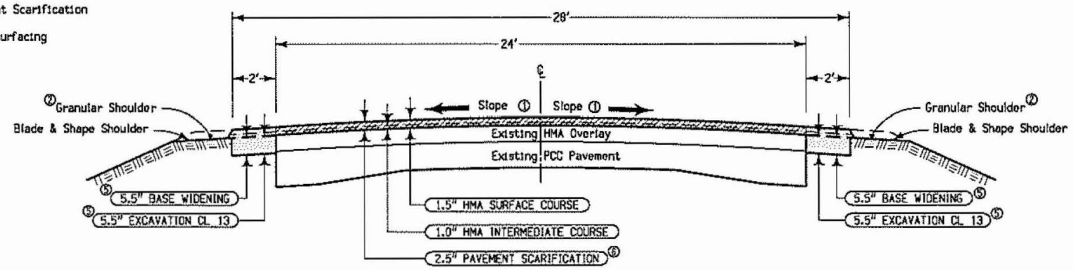


ENGLISH	IOWA DOT	DESIGN TEAM Gourley/Storey/Holub	DUBUQUE COUNTY	PROJECT NUMBER STPN-52-2(97)--2J-31	SHEET NUMBER A.2

2602
MODIFIED

= Pavement Scarification

= HMA Resurfacing



TYPICAL CROSS SECTION

Notes:

① Finished slope shall match existing pavement. Section may be modified as directed by the Engineer through areas of special shaping.

② Refer to Typ. 7135.

③ Tack Coat estimated for 2 applications.

④ Quantity is for 2 sides.

⑤ Omit areas of existing HMA base widening. Existing base widening to be UAC'd. Refer to Tab. 106-SP and 106-SE on sheet C.4.

⑥ Includes areas of existing HMA base widening.

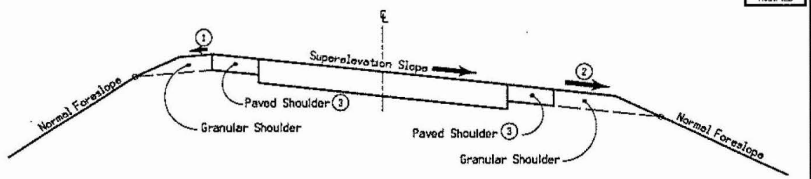
DESIGN RATES	
ITEM	RATE
Surface Course	155 lbs./cu. ft.
Intermediate Course	150 lbs./cu. ft.
Base Widening	150 lbs./cu. ft.
Tack Coat	0.05 gal./sq. yd.

TABLE OF DESIGN QUANTITIES Per Station

LOCATION				TACK COAT Gallons ③	ASPHALT BINDER Tons	HOT MIX ASPHALT (Tons)			EXCAVATION Cl. 13 WIDEN Cu. Yds. ④
DIV	ROAD ID	STATION TO STATION				SURFACE	INTERMEDIATE	BASE ④	
1	US 52	0+80	61+50	31.11	2.68	27.13	17.50	13.75	6.79
1	US 52	322+80	353+60	31.11	2.68	27.13	17.50	13.75	6.79
1	US 52	374+00	434+20	31.11	2.68	27.13	17.50	13.75	6.79
1	US 52	689+00	711+00	31.11	2.68	27.13	17.50	13.75	6.79

TYPICAL CROSS SECTION
HMA RESURFACING
WITH MILLING

2018-A
MODIFIED



Notes:

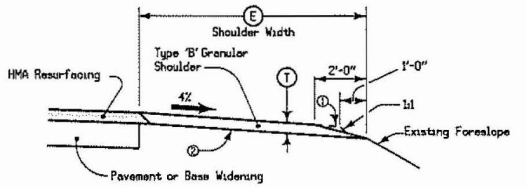
① High Side: The granular shoulder slope shall be maintained at the normal rate of 4.0% unless this slope produces a grade break with adjacent pavement of more than 8.0%. The granular shoulder slope shall then be determined by a 8.0% break with adjacent pavement.

② Low Side: The granular shoulder slope shall be maintained at normal rate of 4.0% unless the adjacent pavement slope is steeper, in which case the granular shoulder will slope at the same slope as adjacent pavement.

③ Paved shoulder slope shall match the pavement slope.

TYPICAL CROSS SECTION
SUPERELEVATION WITH 2 FT. OR 4 FT.
PAVED SHOULDER

7135
MODIFIED



Notes:

Quantities have been determined on the basis of a design weight of 140 lbs. per cubic foot.

① Place and compact material to the dashed lines; then blade and shape to foreslope that portion above the solid line in the outer 2' and roll with loaded truck tire.

② Existing shoulder surface to be shaped to a uniform cross slope prior to placing granular shoulder material. Shape to ensure the thickness of the granular shoulder material is not less than the thickness of the resurfacing. Shaping shall be paid for in accordance with Section 2121 of the Standard Specifications.

③ Tons per side per station.

LOCATION					TONS ③	T Inches	E Feet
DIV	ROAD ID	STATION TO STATION		SIDE			
1	US 52	0+80	61+50	Lt	3.0	2.5	3.0
1	US 52	0+80	61+50	Rt	3.0	2.5	3.0
1	US 52	322+80	353+60	Lt	3.0	2.5	3.0
1	US 52	322+80	353+60	Rt	3.0	2.5	3.0
1	US 52	374+00	434+20	Lt	3.0	2.5	3.0
1	US 52	374+00	434+20	Rt	3.0	2.5	3.0
1	US 52	689+00	711+00	Lt	3.0	2.5	3.0
1	US 52	689+00	711+00	Rt	3.0	2.5	3.0

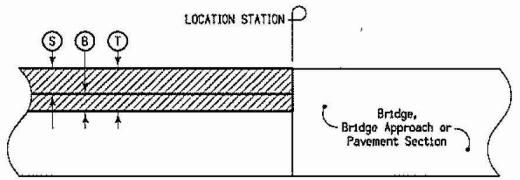
TYPICAL SECTION
FOR TYPE 'B'
GRANULAR SHOULDER
ADJACENT TO HOT MIX ASPHALT
RESURFACING

ENGLISH	IOWA DOT	DESIGN TEAM Gourley/Storey/Holub	DUBUQUE COUNTY	PROJECT NUMBER HSIPX-52-2(98)--3L-31	SHEET NUMBER B.1

29-APR-2008 13:40 Holub

F-6

7306
10-02-01



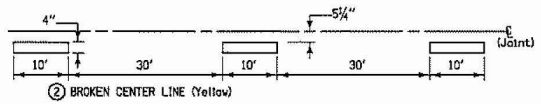
Ⓢ Surface Course
Ⓑ Intermediate Course
Ⓣ Milling (Avg. Depth)

LOCATION STATION	Ⓢ Inches	Ⓑ Inches	Ⓣ Inches
0+80	1.5	1.0	2.5
61+50	1.5	1.0	2.5
322+80	1.5	1.0	2.5
353+60	1.5	1.0	2.5

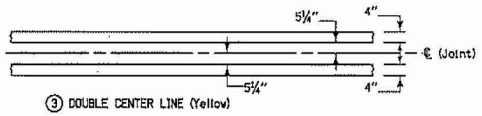
LOCATION STATION	Ⓢ Inches	Ⓑ Inches	Ⓣ Inches
374+00	1.5	1.0	2.5
434+20	1.5	1.0	2.5
689+00	1.5	1.0	2.5
711+00	1.5	1.0	2.5

NOTCH FOR DOUBLE COURSE RESURFACING OF MILLED AREAS

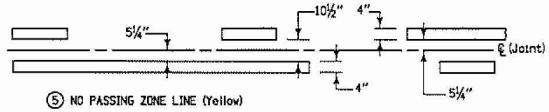
9001
MODIFIED



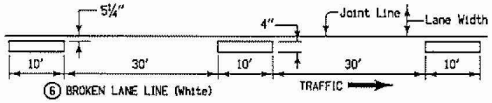
② BROKEN CENTER LINE (Yellow)



③ DOUBLE CENTER LINE (Yellow)



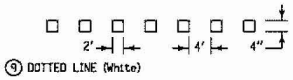
⑤ NO PASSING ZONE LINE (Yellow)



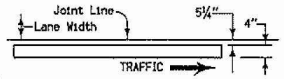
⑥ BROKEN LANE LINE (White)

⑦ EDGE LINE RIGHT (White)
⑧ EDGE LINE LEFT (Yellow)

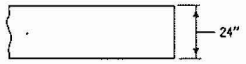
Refer to Sheet U.1 for Edge Line Details.



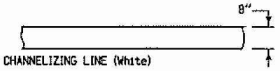
⑨ DOTTED LINE (White)



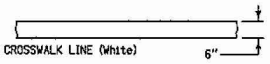
⑩ SOLID LANE LINE (White)



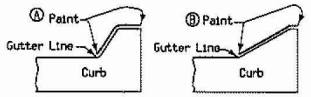
⑬ STOP LINE (White)



⑪ CHANNELIZING LINE (White)
⑫ CHANNELIZING LINE (Yellow)

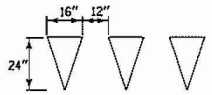


⑭ CROSSWALK LINE (White)

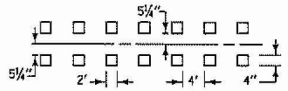


Ⓐ Paint 12" width for 6" Standard Curb,
Ⓑ Paint 14" width for 6" Sloped Curb.

⑮ YELLOW CURB ⑯ WHITE CURB



⑰ YIELD LINE (White)



⑱ DOUBLE DOTTED LINE (Yellow)

STANDARD TYPES OF PAVEMENT MARKINGS

ENGLISH	IOWA DOT	DESIGN TEAM Gourley/Storey/Holub	DUBUQUE COUNTY	PROJECT NUMBER HSIPX-52-2(98)--3L-31	SHEET NUMBER B.2

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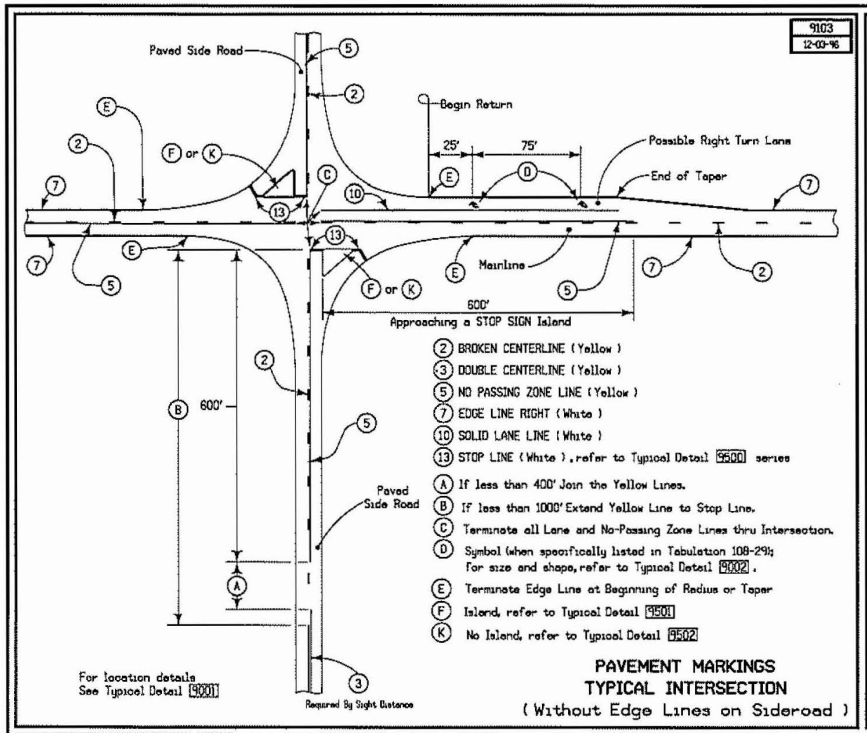

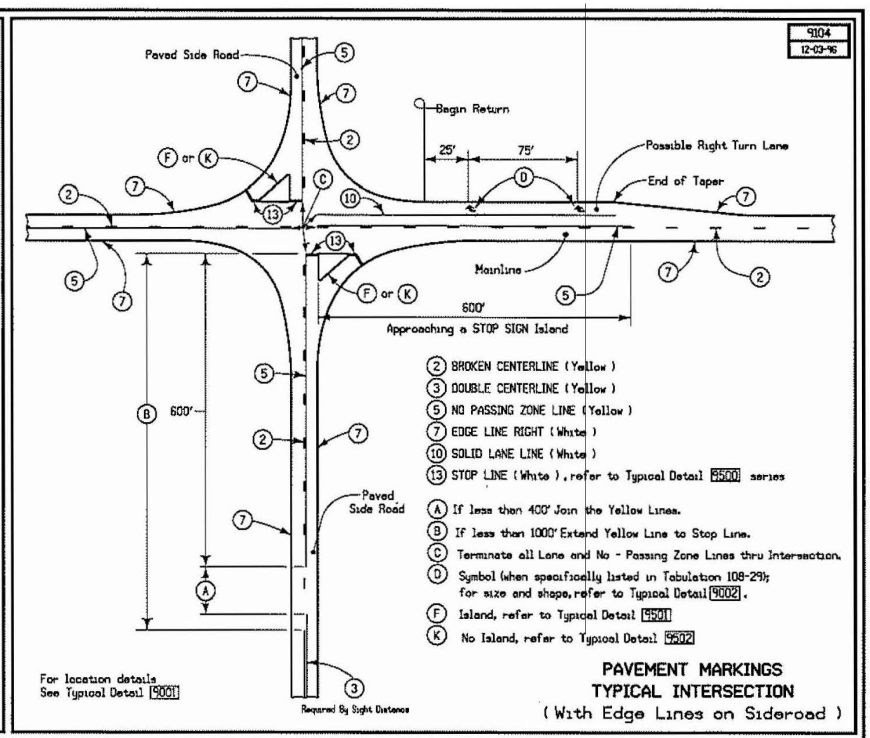

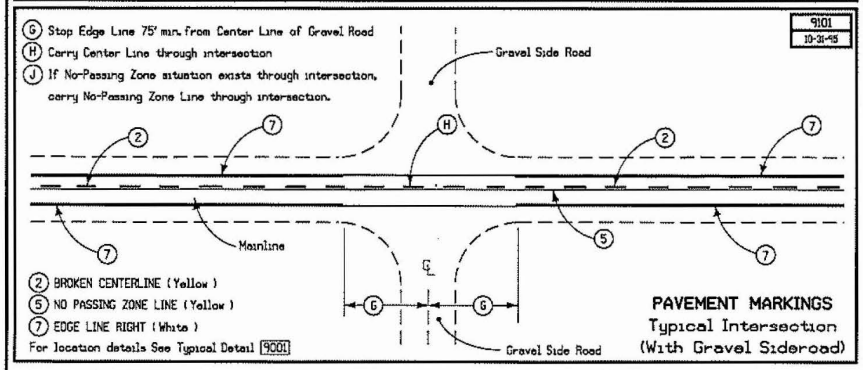

ENGLISH	IOWA DOT	DESIGN TEAM Gourley/Storey/Holub	DUBUQUE COUNTY	PROJECT NUMBER HSIPX-52-2(98)--3L-31	SHEET NUMBER B.3

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ESTIMATED PROJECT QUANTITIES

100-1B
10-29-02

Item No.	Item Code	Item	Unit	Quantities				
				Estimated			As Built	
				Division 1	Division 2	Total	Division 1	Division 2
1	2121-7425020	GRANULAR SHLD, TYPE B	TON	1042		1042		
2	2212-0475095	CLEAN+PREPARATION OF BASE	MILE	3.3		3.3		
3	2212-5070310	PATCH, FULL-DEPTH REPAIR	SY	263		263		
4	2212-5070330	PATCH BY COUNT (REPAIR)	EACH	27		27		
5	2212-5075900	SURF PATCH	TON	10		10		
6	2213-2713300	EXCAVATION, CL 13, WIDEN	CY	798	110	908		
7	2213-8200000	BASE WIDENING, HMA	TON	1735		1735		
8	2214-5145160	PAV'T, SCARIFICATION	TON	6887		6887		
9	2214-7450050	BLADING+SHAPING SHLD MAT'L	STA	348		348		
10	2303-0032500	HMA (1M ESAL) INTERMEDIATE, 1/2"	TON	3192	525	3717		
11	2303-0033504	HMA (1M ESAL) SURF, 1/2", FRIC L-4	TON	4948	232	5180		
12	2303-0245828	ASPH BINDER, PG 58-28	TON	593	45	638		
13	2303-6911000	HMA PAV'T SAMPLE	LS	1		1		
14	2303-9091021	MILLED SHLD RUMBLE STRIP, HMA SURF	STA	348		348		
15	2315-8275055	SURF, DRIVEWAY	TON		235	235		
16	2527-9263109	PAINTED PAV'T MARK, WATERBORNE/SOLVENT	STA	3365		3365		
17	2528-8445110	TRAFFIC CONTROL	LS	1		1		
18	2528-8445112	FLAGGER	DAY		11			
19	2528-8445114	PILOT CAR	DAY					
20	2529-2242320	CT JNT	EACH	5		5		
21	2533-4980005	MOBILIZATION	LS	1		1		
22	2599-9999017	MILLED CENTER LINE RUMBLE STRIPS, HMA SURFACE	STA	174		174		

PROJECT DESCRIPTION

100-10
10-18-05

The proposed improvements are at 4 locations on US 52. The total length of improvements = 3.29 miles.
The improvements consist of: mill 2 1/2" from existing pavement surface, 2' HMA base widening on each side of pavement to provide 28' wide paved surface width, HMA resurface 2 1/2" thick x 28' wide, add center line and edge line rumble strips, and apply pavement markings. Construct extended paved fillets at 5 county road intersections.

Division 1 = 100% Iowa DOT
Division 2 = 100% Dubuque County

F-9

ESTIMATE REFERENCE INFORMATION

100-4A
10-29-02

Item No.	Item Code	Description
1	2121-7425020	Granular Shoulder, Type B Refer to typical 7135 on sheet B.1.
2	2212-0475095	Clean+Preparation of Base Item is for areas of HMA resurfacing shown in typical 2602 on sheet B.1.
3 4	2212-5070310 2212-5070330	Patches, Full-Depth Repair Patches, By Count (Repair) Refer to tab. 102-6C on sheet C.4. Quantities include an additional 15% for discretionary patches.
5	2212-5075000	Surface Patch Quantity estimated at 3 tons per mile.
6	2213-2713300	Excavation, Class 13, Widen Refer to typical 2602 on sheet B.1 and extended paved fillet detail on sheet U.2. Excavation shall become the property of the contractor and shall be removed from the project. No additional payment will be made for hauling or overhaul.
7	2213-8200000	Base Widening, HMA Refer to typical 2602 on sheet B.01. HMA shall be a 1M ESAL 1/2" mix.
8	2214-5145160	Pavement Scarification Refer to typical 2602 on sheet B.1 and typical 7306 on sheet B.2. Millings shall become the property of the contractor and shall be removed from the project. No additional payment will be made for hauling or overhaul.
9	2214-7450050	Blading+Shaping Shoulder Material Quantity includes both sides of roadway in areas of HMA resurfacing.
10 11	2303-0032500 2303-0033504	HMA (1M ESAL) Intermediate, 1/2" HMA (1M ESAL) Surface, 1/2", Friction L-4 Refer to typical 2602 on sheet B.1 and extended paved fillet detail on sheet U.2. Class II compaction shall be required on the 1" intermediate lift. Quantities include an additional 5% for irregularities.
12	2303-0245828	Asphalt Binder Estimated at a rate of 6% of HMA items.
14	2303-9091021	Milled Shoulder Rumble Strip, HMA Surface Refer to rumble strip detail on sheet U.1 and tab. 112-10A on sheet C.4. The current Developmental Specification for milled shoulder rumble strips shall be used except that no asphalt emulsion fog seal will be required.
15	2315-8275055	Surface, Driveway Refer to extended paved fillet detail on sheet U.2.
16	2527-9263109	Painted Pavement Markings, Waterborne/Solvent Refer to tab. 108-22 on sheet C.5 and rumble strip detail on sheet U.1. Note 6" edgeline width. Centerline and edgelines shall be placed each working day before opening the lane to traffic. The final application of centerline and edgeline markings shall be placed after milling of rumble strips.

ESTIMATE REFERENCE INFORMATION

100-4A
10-29-02

Item No.	Item Code	Description
20	2529-2242320	CT Joint Refer to tab. 102-6C on sheet C.4.
22	2599-9999017	Milled Center Line Rumble Strip, HMA Surface Refer to rumble strip detail on sheet U.1 and tab. 112-10B on sheet C.4. The current Developmental Specification for milled shoulder rumble strips shall apply to milled centerline rumble strips except that no asphalt emulsion fog seal will be required. Method of measurement: The quantity of milled centerline rumble strips shall be in stations as measured down centerline of roadway. The quantity will be adjusted for test sections that are deemed unsatisfactory. Basis of payment: The contractor will be paid the contract unit price for milled centerline rumble strips per station.

STANDARD ROAD PLANS

105-4
10-16-07

The following Standard Road Plans shall be considered applicable to construction work on this project.

Number	Date	Sheets	Title
TC-1	10-17-06	1	Work not Affecting Traffic
TC-202	10-16-07	1	Shoulder Closure
TC-213	10-16-07	1	Lane Closure with Flaggers
TC-214	10-16-07	1	Lane Closure with Flaggers and Pilot Car
TC-232	10-17-06	1	Shoulder Rumble Strip Operations
TC-233	10-17-06	1	Pavement marking operations

04-03-01 203-2

During construction of this project, the contractor will be required to coordinate his operations with those of other contractors working within the same area. Other work in progress during the same period of the time will include construction of the following projects:

Project	Type of Work
None	

04-15-08 213-1

It shall be the contractor's responsibility to provide waste areas or disposal sites for excess material (excavated material or broken concrete) which is not desirable to be incorporated into the work involved on this project.

It shall be the contractor's responsibility to ensure that areas (including haul roads) selected for waste or disposal not impact 1) culturally sensitive sites or graves or 2) wetlands or "Waters of the U.S.", including streams or stream banks below the "ordinary high water mark", without an approved U.S. Army Corps of Engineers Section 404 Permit.

No payment for overhaul will be allowed for material hauled to these sites. No material shall be placed within the right-of-way, unless specifically stated in the plans.

04-30-02 213-7

Unless otherwise directed or authorized, all hot mix asphalt and other bituminous materials which are not specifically addressed or described in the contract documents shall become the property of the contractor.

The contractor, in accordance with current rules and regulations of the Iowa Department of Natural Resources, may:

1. With the approval of the Engineer, blend or otherwise process the material for use with shoulder or special backfill aggregate, for use on the project.
2. With the approval of the Engineer, place with material in areas designated by the Engineer as Soil Aggregate Subbase without extra charge.
3. Remove the material from the project and stockpile for the contractor's future use.

01-20-84 223-1

Construction of fillets at non-paved entrances is not required on this project. However, the engineer may require the construction of fillets at individual locations where deemed necessary.

04-15-08 232-3A

EROSION CONTROL: (Rural Seeding)

Following completion of work in a disturbed area, the area shall be seeded, fertilized, and mulched as follows:

SEEDING:

3 lbs. of Fescue or Fawn per 1000 sq. ft.

FERTILIZER:

17 lbs. of 13-13-13 (or equivalent) commercial fertilizer per 1000 sq. ft.

MULCH:

70 lbs. of dry cereal straw per 1000 sq. ft. All mulch shall be consolidated into the soil with a mulch stabilizer.

The preparation of the seedbed and the furnishing and application of seed, fertilizer, and mulch shall be considered incidental to mobilization and no extra compensation will be allowed.

01-20-84 232-5

The contractor shall not disturb desirable grass areas and desirable trees outside the construction limits. The contractor will not be permitted to park or service vehicles and equipment or use these areas for storage of materials. Storage, parking and service area(s) will be subject to the approval of the resident engineer.

01-19-88 251-1

The contractor shall be responsible to maintain access to individual properties during construction.

Relocated access shall be completed to individual properties prior to removal of existing access.

If the permanent access cannot be completed prior to removal of the existing access, the contractor shall provide and maintain an alternate access. Temporary Granular Surfacing will be paid for as a contract item or by extra work.

10-31-95 251-4

The centerline pavement marking shall always be placed on one side of the roadway except where a "No Passing Zone" line is used, at which point it is placed on the opposite side of the roadway. The centerline shall be placed on the same side of the roadway as to match existing markings near the project.

04-03-01 251-5

On all new or reconstructed pavements, the location of "NO PASSING" zone lines shall be located in the field. The locations of the proposed "NO PASSING" lines shown on the pavement marking tabulation is for estimating quantities only.

10-18-05 262-6

This project is NOT a POINT 25 project and is not subject to the provisions of IAC 761-115.25.

TABULATION OF EXISTING PAVEMENT

102-5
10-29-02

No.	Location	Existing Pavement (Type)	Coarse Aggregate TYPE Gravel	Coarse Aggregate TYPE Crushed Stone	Coarse Aggregate Source	Coarse Aggregate Durability Class	Pavement Thickness (Inches)	Reinforcement (Type)	Detail Typical
US 52	MP 50.38 to MP 51.92	1976 PCC		C. LST.	ROSE SPUR	I	8.0		
US 52	MP 51.92 to MP 52.81	2001 HMA					2.5		
		1976 PCC		C. LST.	ROSE SPUR	I	8.0		
US 52	MP 52.81 to MP 57.16	2001 HMA					2.5		
		1996 BSC		C. LST.	BROWN QRY.				
		1984 HMA					3.0		
		1967 HMA					2.0		
		1927 PCC		C. LST.	ROSE SPUR	I	7.0		
US 52	MP 57.16 to MP 58.40	2001 HMA					2.5		
		1997 HMA		C. LST.	BROWN QRY.		1.5		
		1984 HMA					1.5		
		1967 HMA					2.0		
		1927 PCC		C. LST.	ROSE SPUR	I	7.0		
US 52	MP 58.40 to MP 72.91	2001 HMA					2.5		
		1996 BSC		C. LST.	BROWN QRY.				
		1984 HMA					3.0		
		1967 HMA					2.0		
		1927 PCC		C. LST.	ROSE SPUR	I	7.0		

TABULATION OF UTILITIES

102-13
02-23-93

Qwest
Mary Chris Lotspeich
1600 JFK Road
Dubuque, Iowa 52001
Phone 563-588-6831
mlotspe@qwest.com

Aquilla
Vicki Woodyard
1015 Cedar Cross Road
Dubuque, Iowa 52003
Phone 563-583-0415 Ext 26
vicki.woodyard@aquilla.com

Alliant
Rod Sade
8000 Chavenelle Road
Dubuque, Iowa 52002
Phone 563-599-0370

City of Holy Cross
Donna Sweeney, City Clerk
PO Box 326
938 Church Street
Holy Cross, Iowa 52053-0326
Phone 563-870-2475

Media Com
Rob Gassman
3033 Asbury Road
Dubuque, Iowa 52001
Cell 563-213-1088

City of Luxemburg
Theyis Althoff, City Clerk
PO Box 19
202 South Andres Street
Luxemburg, Iowa 52056-0019
Phone 563-853-4615

Iowa Telecom
Dan Hogan
PO Box 130
107 East Fayette
Manchester, Iowa 52057
DanHogan@iowatelecom.com

TRAFFIC CONTROL PLAN

108-23
04-04-09

1. Through traffic shall be maintained on the project at all times.

F-11

ENGLISH	IOWA DOT	DESIGN TEAM Gourley/Storey/Holub	DUBUQUE COUNTY	PROJECT NUMBER HSIPX-52-2(98)--3L-31	SHEET NUMBER C.3

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TABULATION OF FULL-DEPTH PATCHES

102-6C
10-19-04

* Not a Bid Item

Location			Dimension			PCC Patches						3" P.E. Subdrain Outlet Pipe *				
Count	Station or Milepost	Lane (L, R or B)	Length (Feet)	Width (Feet)	Patch Thickness (Inches)	With Dowels (Sq. Yds.)	Without Dowels (Sq. Yds.)	C R C (Sq. Yds.)	HMA Patches (Sq. Yds.)	Composite HMA (Tons)	Subbase (Patches) (Sq. Yds.)	(Lin. Ft.)	'CD' Joints (No.)	'CT' Joints (No.)	'EF' Joints (No.)	Anchor Lugs Removal (No.)	Remarks
1	40+20	L	6	12	12		8.00										
2	42+85	L	6	12	12		8.00										
3	337+33	L	6	12	12		8.00										
4	337+33	R	6	12	12		8.00										
5	394+70	L	10	12	12		13.33										
6	395+68	L	8	12	12		10.67										
7	395+88	R	10	12	12		13.33							1			
8	396+95	R	8	12	12		10.67										
9	405+85	R	6	12	12		8.00										
10	406+05	R	12	12	12		16.00										
11	407+07	L	6	12	12		8.00										
12	407+07	R	6	12	12		8.00										
13	407+47	L	8	12	12		10.67										
14	418+55	R	6	6	12		4.00										
15	420+65	L	6	12	12		8.00										
16	420+65	R	6	12	12		8.00										
17	421+00	L	10	12	12		13.33							1			
18	422+37	L	6	12	12		8.00										
19	423+63	L	10	12	12		13.33							1			
20	700+58	R	6	12	12		8.00										
21	698+12	R	12	12	12		16.00							1			
22	696+42	R	8	12	12		10.67										
23	696+42	L	6	12	12		8.00										
23	Subtotal						228							4			
4	+15% Discretionary						35							1			
27	TOTAL						263							5			

TABULATION OF AREAS OF PROPOSED BASE WIDENING

106-5P
MODIFIED

LOCATION		(W)		Remarks
Station to Station		Lt.	Rt.	
0+80	1+60	2'		resurface area 0+80 - 61+50
2+80	5+50	2'		resurface area 0+80 - 61+50
38+50	59+40	2'		resurface area 0+80 - 61+50
0+80	1+60		2'	resurface area 0+80 - 61+50
8+25	10+25		4'	①
24+50	32+50		2'	resurface area 0+80 - 61+50
38+50	48+10		2'	resurface area 0+80 - 61+50
53+10	61+50		2'	resurface area 0+80 - 61+50
322+80	324+10	2'		resurface area 322+80 - 353+60
330+65	343+90	2'		resurface area 322+80 - 353+60
351+75	353+60	2'		resurface area 322+80 - 353+60
322+80	339+40		2'	resurface area 322+80 - 353+60
342+85	353+60		2'	resurface area 322+80 - 353+60
374+00	375+90	2'		resurface area 374+00 - 434+20
379+00	413+50	2'		resurface area 374+00 - 434+20
419+20	434+20	2'		resurface area 374+00 - 434+20
374+00	380+00		2'	resurface area 374+00 - 434+20
383+65	399+00		2'	resurface area 374+00 - 434+20
404+00	427+60		2'	resurface area 374+00 - 434+20
432+70	434+20		2'	resurface area 374+00 - 434+20
689+00	703+45	2'		resurface area 689+00 - 711+00
708+15	711+00	2'		resurface area 689+00 - 711+00
689+00	689+90		2'	resurface area 689+00 - 711+00
694+05	711+00		2'	resurface area 689+00 - 711+00

① Remove and replace existing 4' HMA base widening.
HMA estimated to be 8" thick.
Requires 208 lineal feet of saw cut.

TABULATION OF AREAS OF EXISTING BASE WIDENING

106-5E
MODIFIED

LOCATION		(W)		Remarks
Station to Station		Lt.	Rt.	
1+60	2+80	2'		resurface area 0+80 - 61+50
5+50	32+50	4'		resurface area 0+80 - 61+50
32+50	38+50	2'		resurface area 0+80 - 61+50
59+40	61+50	2'		resurface area 0+80 - 61+50
1+60	2+80		2'	resurface area 0+80 - 61+50
2+80	24+50		4'	resurface area 0+80 - 61+50
32+50	38+50		2'	resurface area 0+80 - 61+50
48+10	53+10		2'	resurface area 0+80 - 61+50
324+10	330+65	2'		resurface area 322+80 - 353+60
343+90	351+75	2'		resurface area 322+80 - 353+60
339+40	342+85		2'	resurface area 322+80 - 353+60
375+90	379+00	2'		resurface area 374+00 - 434+20
413+50	419+20	2'		resurface area 374+00 - 434+20
380+00	383+65		2'	resurface area 374+00 - 434+20
399+00	404+00		2'	resurface area 374+00 - 434+20
427+60	432+70		2'	resurface area 374+00 - 434+20
703+45	708+15	2'		resurface area 689+00 - 711+00
689+90	694+05		2'	resurface area 689+00 - 711+00

PAVEMENT SMOOTHNESS

100-27
04-18-06

Road Identification	Station to Station	Proposed Posted Speed 45 or less	Proposed Posted Speed Over 45	Remarks
US 52	0+80 to 61+50		X	
US 52	322+80 to 353+60		X	
US 52	374+00 to 434+20		X	
US 52	689+00 to 711+00		X	

MILLED SHOULDER RUMBLE STRIPS

112-10A
MODIFIED

Location				Fog Seal	Existing Shoulder Width	
Road Ident.	Station to Station	L (Sta.)	Side	(Gals.)	HMA (Ft.)	Granular\ Earth (Ft.)
US 52	0+80 to 61+50	60.7	Lt	---	2.0	3.0
US 52	0+80 to 61+50	60.7	Rt	---	2.0	3.0
US 52	322+80 to 353+60	30.8	Lt	---	2.0	3.0
US 52	322+80 to 353+60	30.8	Rt	---	2.0	3.0
US 52	374+00 to 434+20	60.2	Lt	---	2.0	3.0
US 52	374+00 to 434+20	60.2	Rt	---	2.0	3.0
US 52	689+00 to 711+00	22.0	Lt	---	2.0	3.0
US 52	689+00 to 711+00	22.0	Rt	---	2.0	3.0

MILLED CENTERLINE RUMBLE STRIPS

112-10B
MODIFIED

Location				
Road Ident.	Station to Station	L (Sta.)	Fog Seal (Gals.)	Remarks
US 52	0+80 to 61+50	60.7	---	
US 52	322+80 to 353+60	30.8	---	
US 52	374+00 to 434+20	60.2	---	
US 52	689+00 to 711+00	22.0	---	

TABULATION OF PAVEMENT MARKINGS

108-22
10-19-04

(2) Broken Center Line (Yellow) (5) No-Passing Zone Line (Yellow) (7) Edge Line Right (White) (9) Dotted Line (White) (11) Channelizing Line (White) (13) Stop Line (White) (15) Yellow Curb (17) Yield Line (White)
(3) Double Center Line (Yellow) (6) Broken Lane Line (White) (8) Edge Line Left (Yellow) (10) Solid Lane Line (White) (12) Channelizing Line (Yellow) (14) Crosswalk Line (White) (16) White Curb (18) Double Dotted Line (Yellow)

Location		Side		Length (In Stations)																		
Road Identification	Station to Station	L	R	(2)	(3)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15A)	(15B)	(16A)	(16B)	(17)	(18)	Remarks
US 52	0+80 to 61+50	X	X	10.41	50.29	10.41		119.70														Temporary
		X	X	10.41	50.29	10.41		119.70														Temporary
		X	X	10.41	50.29	10.41		119.70														Temporary
		X	X	10.41	50.29	10.41		119.70		1.70				0.15								Final
US 52	322+80 to 353+60	X	X	5.10	25.70	5.10		61.60														Temporary
		X	X	5.10	25.70	5.10		61.60														Temporary
		X	X	5.10	25.70	5.10		61.60														Temporary
		X	X	5.10	25.70	5.10		61.60														Final
US 52	374+00 to 434+20	X	X	6.22	53.98	6.22		119.33														Temporary
		X	X	6.22	53.98	6.22		119.33														Temporary
		X	X	6.22	53.98	6.22		119.33														Temporary
		X	X	6.22	53.98	6.22		119.33		1.07				0.15								Final
US 52	689+00 to 711+00	X	X	8.00	14.00	8.00		42.92														Temporary
		X	X	8.00	14.00	8.00		42.92														Temporary
		X	X	8.00	14.00	8.00		42.92														Temporary
		X	X	8.00	14.00	8.00		42.92		1.07												Final
	Length Subtotals			118.92	575.88	118.92		1374.20		3.84				0.30								
	Quantity Factors			.25	2	1	.25	1.5	1	.33	1	2	2	6	1.5	3	3.5	3	3.5	1.71	.66	
	Totals			29.73	1151.76	118.92		2061.30		1.27				1.80								Grand Total = 3,365

ENGLISH | IOWA DOT | DESIGN TEAM Gourley/Storey/Holub | DUBUQUE COUNTY | PROJECT NUMBER HSIPX-52-2(98)--3L-31 | SHEET NUMBER C.5

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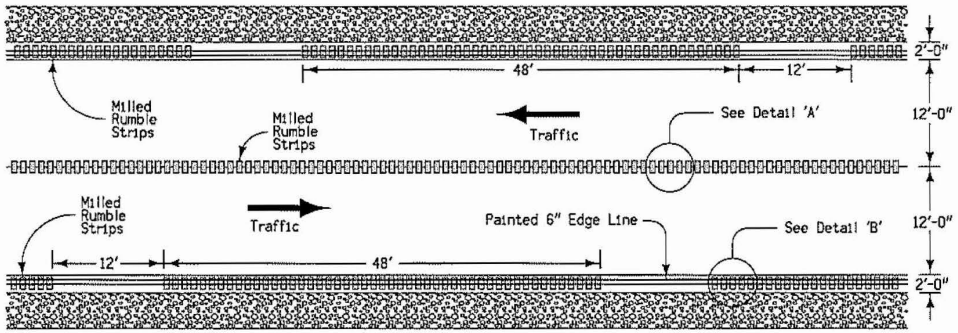
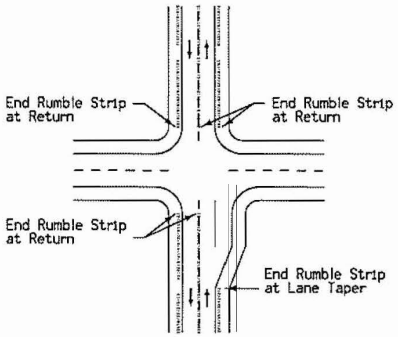


TYPICAL PLAN
(HMA Lanes With HMA Shoulders)

GENERAL NOTES:

Contract Items:

Milled Shoulder Rumble Strips, HMA Surface
Milled Center Line Rumble Strips, HMA Surface



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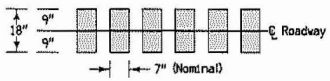
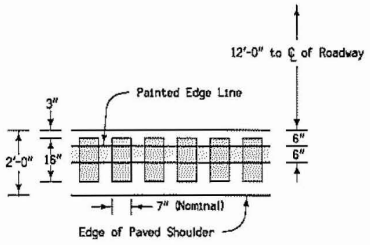
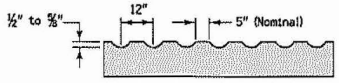


DETAIL A
Plan View



DETAIL B
Plan View



DETAIL A & B
Profile View

SHOULDER AND CENTER LINE RUMBLE STRIPS (Two-Lane Roadways)

ENGLISH	IOWA DOT	DESIGN TEAM Gourley/Storey/Holub	DUBUQUE COUNTY	PROJECT NUMBER HSIPX-52-2(98)--3L-31	SHEET NUMBER U.1

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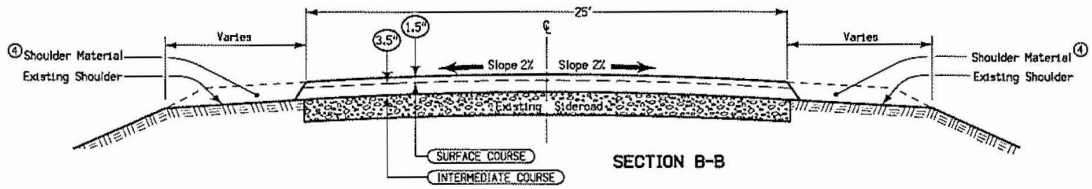
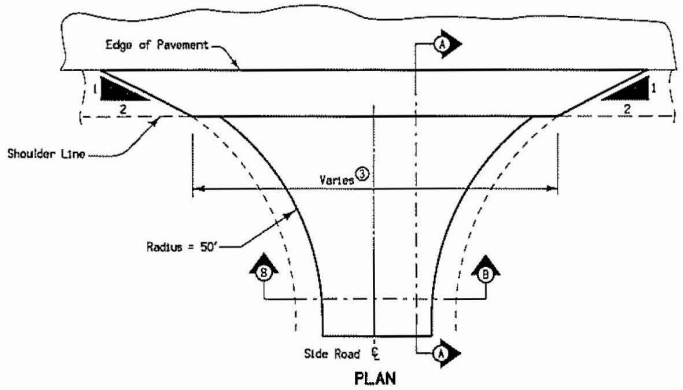


SECTION B-B



PLAN

NO.	APPROX. MP	LOCATION	SIDE	PROPOSED FILLET LENGTH (L)	EXISTING SURFACE TYPE	COMMENTS
1	70.96	Hickory Valley Road	Left	200'	Rock	
2	65.92	Barkston Park Road	Left	100'	Seal Coat	Stop Bar
3	65.20	Midway Road	Left	200'	Rock	
4	64.09	Hingtgin Lane	Left	150'	Rock	
5	57.92	Boy Scout Road	Left	50'	Seal Coat	Stop Bar

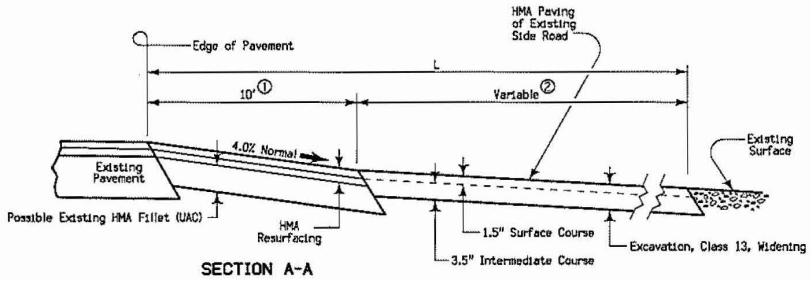
NOTES:

① Quantities in Division 1.

② Quantities in Division 2.

③ Actual sizes of individual fillets to be determined by the engineer.

④ Quantity included in bid item for Driveway Surfacing.



SECTION A-A

DETAIL SHEET

EXTENDED PAVED FILLETS FOR SIDEROADS

ENGLISH	IOWA DOT	DESIGN TEAM Gourley/Storey/Holub	DUBUQUE COUNTY	PROJECT NUMBER HSIPX-52-2(98)--3L-31	SHEET NUMBER U.2

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APPENDIX G. CALIFORNIA HIGHWAY EXPERIENCE HIGHWAY 49

CALIFORNIA EXPERIENCE HIGHWAY 49

Safety features curbing crashes
Fatal collisions drastically reduced on Hwy. 49, but more to be done, some say
By: Penne Usher, Journal Staff Writer
Monday, December 24, 2007
Since Caltrans added safety features to a deadly stretch of Highway 49 near Auburn, fatal collisions have drastically decreased, but some safety advocates believe conditions could still be better.

In 2007 there was one fatal collision on the stretch of Highway 49 from Dry Creek Road north to Grass Valley.

Molly A. Meluqin, 28, was killed Dec. 10 on Highway 49 near Pingree Road. She was a passenger in a 2002 Honda Accord driven by her mother, Peggy Coalson, when they were struck by a 2007 Nissan Murano driven by Linda Roe, 64, of Grass Valley.

Officer Jeff Pingree of the Grass Valley office of the California Highway Patrol said Tuesday that Meluqin's death is the first the area has seen since Caltrans improved segments of the highway.

"Actually, that's the only one for the entire year for that stretch of roadway," Pingree said. "There's a couple of reasons. The Caltrans improvements help, and I think increased traffic enforcement has helped tremendously."

Deborah Jones and Bruce Jones live near Lake of the Pines and have not only witnessed several crashes on Highway 49, but were involved in one. Jones and her husband Bruce were driving a white pickup on Highway 49 Dec. 19, 2003, when a teenage driver fell asleep at the wheel and crossed the double-yellow line hitting their truck. No one died that day. The couple has formed Citizens for Highway 49 Safety with a mission to save lives. Deborah Jones said Tuesday that although she believes rumble strips installed by Caltrans earlier this year have made a difference, some were removed and that is a concern.

"We don't like the fact that they made holes in the rumble strip so that people could turn into their driveway," Jones said. "It was to be a divided highway not for people to enter and exit into cross traffic." The area of Highway 49 near Pingree where Meluqin was killed does not have the rumble strips. "That area is a black-out area," Jones said. "We are right back into a situation where it's dangerous."

Overall, Jones said she believes that the rumble strips along with increased law enforcement have helped reduce injury and fatal crashes. "We talk to people all the time and they are thankful that the rumble strip are in place," she said. "We also feel better driving that stretch of road with the rumble strip in."

The Newcastle CHP office is responsible for patrolling the Placer County section of Highway 49 and reports that there were no fatalities on Highway 49 so far this year.

"Everything we can do helps out," said Kelly Baraga, spokeswoman for the Newcastle CHP office. She said doing something as simple turning on headlights, motorists can decrease their chances of being involved in a crash. "People underestimate how effective headlight usage can be," Baraga said. "In the rain those with headlights are much more visible. If you can see an out-of-control-vehicle coming at you, you can take evasive action."

Additionally, increased patrols from the ground and air of decreased the number of collisions, she said. "We've had quite a few enforcement actions on Highway 49 and most drivers who see an officer will drive safer," Baraga said. "Also, when you have people that live in the area where there are major injury collisions, they are going to change their driving behavior. The Journal's Penne Usher can be reached at penneu@goldcountrymedia.com or post a comment on auburnjournal.com.