Road Safety Audit for the US 61/ Harrison Street and West Locust Street Intersection in Davenport-Scott County, Iowa

Final Report
October 2008

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16. Abstract

On the October 7 and 8, 2008, a road safety audit was conducted for the intersection of US 61/Harrison Street and West Locust Street in Davenport, Iowa. US 61/Harrison Street is a one-way street and a principal arterial route through Davenport, with three southbound lanes. Locust Street is a four-lane, two-way minor arterial running across the city from west to east. The last major improvement at this intersection was implemented approximately 20 years ago.

The Iowa Department of Transportation requested a safety audit of this intersection in response to a high incidence of crashes at the location over the past several years, in view of the fact that no major improvements are anticipated for this intersection in the immediate future.

The road safety audit team discussed current conditions at the intersection and reviewed the last seven years of crash data. The team also made daytime and nighttime field visits to the intersection to examine field conditions and observe traffic flow and crossing guard operations with younger pedestrians.

After discussing key issues, the road safety audit team drew conclusions and suggested possible enforcement, engineering, public information, and educational strategies for mitigation.

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ROAD SAFETY AUDIT FOR THE US 61/HARRISON STREET AND WEST LOCUST STREET INTERSECTION IN DAVENPORT-SCOTT COUNTY, IOWA

Final Report
October 2008

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ACKNOWLEDGMENTS

The authors would like to thank the Iowa Department of Transportation (Iowa DOT) for sponsoring this audit.

In addition, the members of the audit team should be recognized for contributing to the success of this effort. Iowa DOT District 6 staff are to be commended for their diligence in providing needed data and assistance during and after the actual audit.

Special acknowledgment and thanks are due to the City of Davenport's Public Works Department and Police Department, especially the dedicated staff of their very successful crossing guard program.

INTRODUCTION

On the October 7 and 8, 2008, a road safety audit was conducted for the intersection of US 61/Harrison Street and West Locust Street in Davenport, Iowa. This location is currently ranked 7 of 10 on the Iowa Department of Transportation's (Iowa DOT's) top 5% intersections in terms of serious crashes. The intersection is the highest on that list with no major improvements programmed.

US 61/Harrison Street is part of a one-way pair with parallel Brady Street and is a principal arterial route through Davenport with four southbound lanes. Locust Street is a four-lane, two-way minor arterial running across the city from west to east. Left-turn lanes are in place for westbound traffic on Locust Street. Traffic volumes are 15,200 vehicles per day (vpd) west of the intersection and 17,700 vpd to the east. Trucks and buses constitute 430 of the total traffic volume to the east. Traffic volume on Harrison Street is 11,200 vpd north of the intersection, including a total of 460 trucks and buses, and 10,600 vpd to the south. All traffic volumes were recorded by the Iowa DOT in 2006 and 2007. The posted speed limit is 35 mph for much of Harrison Street, but it changes to 30 mph approximately one block north of Locust and then to a 25 mph school zone speed limit just north of the intersection. Westbound Locust Street has a posted speed limit of 25 mph approximately five and one-half blocks east of Harrison Street. For eastbound traffic on Locust Street, the posted speed limit is 35 mph until just west of the intersection with Harrison Street, where the regulatory limit is posted at 25 mph. The last major improvement at this intersection was implemented approximately 12 years ago when the signal system was replaced.

INITIAL MEETING

The road safety audit activities commenced with an initial meeting in the Davenport Public Works Department with the following persons in attendance:

- Gary Statz, Traffic Engineer, City of Davenport
- Lt. Mike Venema, Davenport Police Department
- Sgt. Ron Waline, Davenport Police Department
- Shirley Hicks, Davenport Police Department
- Robin Nelson, Davenport Police Department
- Trooper Jose Valera, Iowa State Patrol
- Randy Hunefeld, Governor's Traffic Safety Bureau
- Jerry Roche, Federal Highway Administration (FHWA)
- Jack Latterell, Safety Consultant
- Doug Rick, Iowa DOT
- Steve Wilson, Iowa DOT
- Tom McDonald, Center for Transportation Research and Education

Following introductions, Tom McDonald opened the meeting by explaining the reason and intent for this safety audit. Jerry Roche and Jack Latterell also offered comments, emphasizing the need and benefit of a multidisciplinary approach to identifying potential safety problems and possible mitigative responses. Responses ideally could include low-cost engineering improvements, enforcement enhancements, and an educational/public information aspect.

Lt. Venema provided information about Davenport's successful automated enforcement program at several high-crash intersections in the city. The program had been suspended pending a ruling on constitutionality by the Iowa Supreme Court, but at the time of the meeting the program was planning to recommence about January 1, 2009.

The Davenport Police Department has established a crossing guard training program for school pedestrian crossings. One of these crossings is located at the audit intersection. Shirley Hicks and Robin Nelson, who work in that department, described the details of the program. Crossing guards are trained and compensated by the police department and are made up mostly of retired persons. According to Hicks and Nelson, these guards are very conscientious and do a good job protecting the children. They are furnished with highly visible apparel for various weather conditions and are compensated for their work. A crossing guard committee has been formed that meets about five times annually to discuss the problems and concerns of the guards. Some of the recent comments include concerns for sidewalk conditions approaching this intersection and the need for right turn on red restrictions during school children commute times at one corner of the intersection. A need to repaint the crossing's pavement markings was also noted. These issues will be examined in this report during the field reviews later.

Gary Statz advised that traffic signals had been coordinated for efficient traffic movement on Harrison Street in January of 2007 and on the section of Locust Street through the study area

about one year later. The existing signals have 12 inch. LED lamps with backer plates. Signal timing includes four-second yellow times and a one-second all-red phase, which is common practice in Davenport for major intersections. For higher speeds, yellow time is increased.

Following a discussion of current conditions at the intersection, a summarized listing of the latest seven years of crash data was furnished to participants and explained. Like many signalized higher volumes intersections, a high number of rear-end collisions were noted, especially for the eastbound Locust Street movement. Approximately one-half of all rear end collisions occurred at that location. It was suggested that relatively small amount of green time for eastbound traffic as well as possible confusion from viewing closely spaced and often conflicting down-street signals at Main Street and Brady Street may contribute to the apparent uneven balance of this type of crash. This issue will also be examined in this report during the discussion of the field examinations. Several red light running crashes were listed, and other possible signal violation crashes such as broadside impacts and left-turn incidents may also have resulted from signal violations. However, the Davenport police have no current plans to add this intersection to the automated enforcement intersections. A total of four pedestrian-related crashes were noted. This is a particularly high concern because all were serious crashes, with one fatality, and because school children pass through this intersection daily. A more detailed discussion of the crash data will be presented later in this report.

Supplemental crash data from a Crash Mapping Analysis Tool (CMAT) review by Steve Wilson was also discussed.

Following discussion of the crash data, an FHWA guidance document, Pedestrian Road Safety Audit Guidelines and Prompt Lists, was displayed, and participants were furnished copies of the prompt lists from this document during the field examination of the site.

DAYTIME AND NIGHTTIME FIELD REVIEWS

Daytime Review

The audit team then traveled to the study intersection to examine field conditions and observe traffic flow and crossing guard operations with younger pedestrians. Images from this visit are provided in Appendix A. The intersection of Harrison Street and Locust Street is located in a mixed-use neighborhood. The four corners of the intersection feature two service stations on opposite corners, an eye clinic, and a junior high school. An elementary school is located two blocks east of the intersection and is the destination of the younger student pedestrians. Mostly residential areas exist to the north and west, and the central business district is to the south. In addition, St. Ambrose University is located one block west on Locust Street. Entrances to the service stations are located quite near the intersection, and left turning movements were raised as a concern by team members. Left turning vehicles observed by the team caused some rapid lane changing and backup of traffic, although the backup did not extend into the intersection. Some concern was also raised about sight restrictions for right-side signs and signals for westbound Locust Street traffic caused by trees and other vegetation, even though the vegetation was off the right-of-way.

It was suggested that the US 61 designation from Harrison and Brady Streets be relocated to Interstate 80/280 around the city. It was pointed out that this action may have minimal impact on total traffic volumes, but unfamiliar drivers would be directed to safer and less congested facilities. Most commercial vehicles already use these routes if they have no destination in Davenport.

Moderate rainfall occurred throughout this field review, but traffic flow was mostly smooth, although fairly heavy as rush hour neared. Some backup occurred on eastbound Locust Street. The crossing guard operation was very impressive, despite the adverse weather. Highly visible rain gear had been issued to the guards and was very effective. Elementary students crossed the streets without problems. Pedestrian-activated signals are available for use, as are disabled ramps at all four corners.

Street name signs featured approximate 8–9 in. all-capital lettering and were mounted on the signal mast arms.

The southbound traffic signal assembly features a “tattle-tail signal” facing south to advise law enforcement officers if a signal violation has occurred. This can be effective, but it is less efficient than automated enforcement because it requires the presence of an officer to observe violations and issue citations.

Nighttime Review

A nighttime review of the intersection was conducted later in the evening after the rain had ended. Participating in this review were Gary Statz, Sgt. Waline, Jack Latterell, Randy Hunefeld,

Jerry Roche, Doug Rick, Steve Wilson, and Tom McDonald. Lower traffic volumes resulted in an even smoother traffic flow than observed earlier. Several pedestrians of various ages, pre–high school to college, were observed. The younger pedestrians did not utilize the traffic signals for crossing, preferring to use risky behavior and cross away from the intersection between gaps in traffic. The audit team walked all four crossings and observed the disabled ramps. These facilities were mostly satisfactory but were dated in design with some uneven surfaces.

Traffic signal visibility was very good after dark. Street lighting appeared adequate. However, sign visibility was not good, especially for signs mounted on the signal poles and mast arms, because glare from the bright traffic signals hampered legibility of the sign messages. Providing newer sheeting for the street name signs and relocating one-way arrows to the signal pole may improve visibility of these signs. It was also observed that no signal head was mounted on the right-side pole for eastbound Locust Street traffic. This might hamper signal visibility for left-lane vehicles approaching the intersection.

Prior to the wrap-up meeting on October 8, several members of the audit team again visited the intersection to observe traffic and crossing guard operations in better weather conditions. Vehicular traffic was again flowing well, and very few large trucks or transit vehicles were observed. Only one crossing guard was on duty and performed satisfactorily. The guard stated a concern for right turn on red traffic from southbound Harrison Street to westbound Locust Street, and the team observed some potential conflict with student pedestrians. Restrictive signing at this location may be advisable.

Some visibility restrictions from parked vehicles, vegetation, and a business sign were noted in the northwest corner of the intersection, but all sight restrictions were off the public right-of-way. In addition, it was noted that the visibility of the right-hand signs and signals was hampered by trees and other vegetation along westbound Locust Street approaching the intersection.

WRAP-UP MEETING

The wrap-up meeting for this road safety audit was conducted on October 8 in the Davenport Public Works Office. Participating in this meeting were Gary Statz, Randy Hunefeld, Jack Latterell, Steve Wilson, Doug Rick, and Tom McDonald. Dean Schnaden, who is responsible for the sign program in Davenport, joined the meeting to discuss that program.

The street name and other signs at the study intersection are quite old, possibly installed when the last major work was performed approximately 12 years ago. Schnaden thought the sheeting was probably super engineering grade, Type 2. The City of Davenport is considering the establishment of an automated sign inventory system, using a consultant to gather sign data. It has been estimated that the city may have as many as 50,000 signs, so developing an inventory will be a major task. Davenport is planning to utilize a newly developed and highly visible micro-prismatic sheeting, diamond grade cubed, Type 11, for many signs in the future, especially for most regulatory signs and some guide signs. Most warning signs would also feature micro-prismatic sheeting, but probably not Type 11. The city is to be commended for these steps to improve the management and quality of their signing program.

The audit team discussed several site observations with Statz, including the following:

- Better markings for the pedestrian crossings should be considered. These might be milled-in for better long-term performance.
- Countdown pedestrian signals might be beneficial.
- The wide service station entrance along the north side of westbound Locust Street may pose a problem for younger pedestrians.
- Left turns into the northeast quadrant service station could be a safety and congestion concern for eastbound Locust Street traffic. However, installing a restrictive raised median would further restrict the relatively narrow traffic lanes and should be pursued only if a crash problem can be identified.
- An education program for the younger pedestrians, including junior high school students, regarding safe use of crossings might be beneficial.
- A pole-mounted signal head on the northeast signal pole should improve signal visibility for eastbound Locust Street traffic, especially in the inside lane.
- Selective enforcement, especially during nighttime hours, might be effective in monitoring compliance with speed limits, seat belt use, traffic signals, and impaired driving violations. Even the occasional use of a stationary patrol in this area could have beneficial impacts on driver performance.

REVIEW OF DATA

Sidewalk Conditions and Approach Information for Eastbound Traffic on Locust Street

Following the wrap-up meeting, Jack Latterell, Randy Hunefeld, Steve Wilson, and Tom McDonald made a final visit to the Harrison Street–Locust Street intersection to gather data on sidewalk conditions and approach information for eastbound traffic on Locust Street.

Sidewalk Conditions

Measurements taken for sidewalks approaching the intersection indicated the following:

Southeast quadrant for eastbound Locust Street

- Sidewalk is 5 ft, 8 in. wide, grassy area between sidewalk and curb is 11 ft wide

Northeast quadrant for westbound Locust Street

- Sidewalk is 5 ft, 6 in. wide abutting the curb
- It should be noted that some areas of narrow sidewalk exist along Locust Street between the study intersection and the elementary school on Brady Street.

Northeast quadrant for southbound Harrison Street

- Sidewalk is 6 ft wide abutting the curb

Northwest quadrant for southbound Harrison Street

- Sidewalk is 5 ft wide abutting the curb

Northwest quadrant for westbound Locust Street

- Sidewalk is 6 ft wide abutting the curb

Southwest quadrant for eastbound Locust Street

- Sidewalk is 5 ft, 8 in. wide abutting the curb at the intersection
- It should be noted that just west of the intersection the sidewalk is 4 ft wide, with a 2 ft wide grassy area between the sidewalk and curb.

Southwest quadrant for southbound Harrison Street

- Sidewalk is 5 ft, 5 in. wide abutting the curb

Southeast quadrant for southbound Harrison Street

- Sidewalk is 7 ft, 6 in. wide abutting the curb

Approach Information for Eastbound Traffic on Locust Street

A review of Locust Street westerly from the study intersection revealed a multi-block area to the next traffic signal at Gaines Street, followed by another multi-block section to the next

signalized intersection at Marquette Street. This entire area is residential, along with St. Ambrose University, which is set back well from the street. The posted speed is 35 mph from Marquette Street until just west of Harrison Street, where the speed limit is posted at 25 mph on a utility pole. Since the signals in this area are coordinated, traffic can approach the intersection unimpeded for an extended distance at a higher speed until reaching Harrison Street. This configuration may be contributing to the high number of rear-end collisions on this side of the intersection. It is ten blocks from Marquette Street to Harrison Street. It will be suggested that the city consider moving the 25 mph speed limit posting further, possibly with a 30 mph transition, and determining whether the regulatory signing is easily visible to approaching traffic.

Crash Data

Crash data for this road safety audit was developed by Khyle Clute in the Iowa DOT's Office of Traffic and Safety. A complete set of the crash data is presented in Appendix B in this report.

Copies were provided to all members of the audit team prior to the review activities. The most recent seven years of data (2001–2007) was presented. A 75 ft radius of the intersection was used to locate proximity-related crashes.

The seven-year summary of crash history indicated 85 total crashes with 63 injuries, including 1 fatality, 6 major injuries, 21 minor injuries, 35 possible or unknown, and 42 property damage only (PDO). The number of crashes was fairly consistent from year to year, except for 2006 when only seven total crashes were recorded.

Crash narratives were included for the seven serious (fatal and major injury) crashes that occurred during the analysis period to provide more in-depth information for the review team. These major crashes involved pedestrians, broadside collisions, or rear-end collisions.

The most common crash type was rear-end collisions (49 of 85), followed by broadside collisions (15), which mostly indicates driver performance related to the traffic signals.

Major crash causes included following too close (28) and ran traffic signal (17).

For the 176 vehicles involved in these crashes, 94 were moving essentially straight at the time of the crash, 26 were stopped or slowing down, and 19 were making a turn. The majority of vehicles were passenger cars (117) followed by light trucks (24). Only one commercial vehicle was involved in a crash during this period.

Contributing actions by drivers included following too close and ran traffic signal. No improper action was recorded for 89 drivers, who were assumed to be "innocent parties" involved in multi-vehicle crashes. Most drivers were judged to be apparently normal at the time of the crash (154), and 8 were found to be impaired in some manner. Most drivers involved in these crashes were in their 20s (58), followed by drivers in their 30s (35), and drivers in their teens (28).

Most crashes occurred in daylight conditions (59%), but over 36% happened in nighttime hours, even though the roadway is lighted. Weather conditions were clear for 62 of the 85 crashes, and adverse weather such as rain, snow, or sleet were present for only 7 crashes. Pavement surface conditions were dry for 81% of the recorded crashes.

Day of week crash data did not reveal significant variation in number of recorded crashes, although weekend numbers were slightly lower than weekday counts, indicating higher traffic volumes on commuting days. Similar conclusions can be drawn from time of day data. Somewhat higher crash numbers occur during commutation hours, but not a significant variation was noted.

An intersection crash diagram is included with the crash data in Appendix B and reveals some interesting information. Almost all of the recorded crashes for the eastbound approach on Locust Street were rear-end collisions, which were approximately half of that crash type for the entire intersection. In addition, 14 crashes that included vehicles traveling from this direction were involved in turning and broadside crashes. Only 19 crashes were recorded for westbound Locust Street traffic. Since the traffic volumes are approximately equal for each direction of travel, some characteristic of the eastbound approach may be contributing to this differential in crash history. For southbound Harrison Street, 9 crashes were rear-end collisions and 24 involved some type of turning movement incident.

CONCLUSIONS

After reviewing the crash data, examining the site in detail, and discussing key issues, the road safety audit team has concluded the following and offers suggestions for possible mitigation. The City of Davenport has established and maintains an excellent crossing guard program for younger school children, and this could be considered a model program for other cities. Additionally, the Davenport sign management program is very good, especially in terms of plans for a future sign inventory system and the use of highly visible micro-prismatic sheeting for most signs. The audit team commends the city for these innovative and responsive safety programs.

The following suggestions for enforcement opportunities, engineering opportunities, and public information and education opportunities may further mitigate the observed concerns at the audited intersection.

Enforcement Opportunities

Consider implementing selective enforcement at this intersection, particularly during nighttime hours. Areas of emphasis might include enforcement of speeding, seat belt usage, impaired driving, and signal violation. The use of stationary enforcement on occasion may also be beneficial in improving driver performance.

When the city's automated enforcement program is recommenced, consider relocating cameras to this intersection to address red light running. Meanwhile, continue using the "tattle-tail" signal on southbound Harrison Street to mitigate signal violations for that movement.

If a sufficient area can be found, consider placing a radar speed trailer on eastbound Locust Street to alert drivers and monitor the speeds of approaching traffic west of the intersection.

Engineering Opportunities

To slow eastbound Locust Street traffic approaching the intersection from the west, relocate the 25 mph speed limit approximately one or two blocks west of the intersection and utilize a 30 mph speed limit for a short distance westerly beyond that. Be sure regulatory signs are easily visible to drivers.

Replace street name and one-way signs at the intersection with micro-prismatic sheeting signs. Upper and lower case lettering should be used to comply with recommendations in the *Manual on Uniform Traffic Control Devices* (MUTCD). Also, relocate the mast arm–mounted one-way sign for eastbound Locust Street to the signal pole to avoid nighttime visibility conflicts with the traffic signals.

Install a signal head assembly on the signal pole in the northeast quadrant of the intersection for use by eastbound Locust Street traffic.

Replace existing pedestrian crossing markings, using milled-in installation to prolong service life. Additionally, install a “No Right Turn When Pedestrians Are Present” sign or similar restrictive signing for southbound Harrison Street to westbound Locust Street traffic. Consider installing count-down signals for pedestrian use.

Study the possibility of replacing the older sidewalk along westbound Locust Street between the intersection and the elementary school on Brady Street to provide a safer and more convenient path for school children. Perhaps pursue Safe Routes to School funding for this improvement.

Review Section 7E.05, Operating Procedures for Adult Crossing Guards, in the MUTCD, with special attention to STOP paddle requirements, to ascertain compliance with those standards.

Consider rerouting US 61 from Harrison and Brady Streets to I-80 and I-280 to relieve some traffic congestion.

Review the condition of disabled pedestrian ramps and repair or replace as needed.

Monitor the safety and/or congestion concerns due to vehicles turning left into the service station entrances, and address these concerns as needed.

Public Information and Educational Opportunities

Consider visiting with service station owners and other advocates about the sight restrictions caused by trees and vegetation along westbound Locust Street approaching the intersection. If possible, negotiate removal and/or trimming to improve sign and signal visibility.

Present a program on pedestrian safety at the nearby junior high school and promote safe crossing of these busy streets at the marked crosswalks.

Consider visiting with local news media regarding this road safety audit and the possible mitigation efforts to be undertaken by the City of Davenport.

Review sight restrictions caused by parked vehicles, vegetation, and business signs in the northwest corner of the intersection, and visit with owners about the possible modifications that may be required if problems are identified.

At the next scheduled crossing guard meeting, consider discussing MUTCD Part 7 guidance and recommendations, especially regarding STOP paddle requirements and apparel, and consider discussing the crossing habits of junior high students.

APPENDIX A. IMAGES FROM FIELD REVIEWS

Figure A.1. Crossing guard with school children

Figure A.2. Pedestrian crossing pavement markings

Figure A.3. Pedestrian ramp

Figure A.4. Eastbound Locust Street

Figure A.5. Left turning traffic on eastbound Locust Street

Figure A.6. Southbound Harrison Street

Figure A.7. Tattle-tail signal for southbound Harrison Street traffic

Figure A.8. Westbound Locust Street

Figure A.9. Nighttime view of traffic signals

APPENDIX B. CRASH DATA FOR THE INTERSECTION

Table B.1. Summary of crash history, 2001–2007, for US 61/Harrison Street and Locust Street intersection

		Fatal	Major injury	Minor injury	Possible/ unknown	PDO	Total
2001	Crashes	0	2	0	4	4	10
	Injuries	0	2	0	4/0		6
2002	Crashes	0	1	5	4	6	16
	Injuries	0	1	6	8/0		15
2003	Crashes	1	1	4	2	3	11
	Injuries	1	1	5	2/0		9
2004	Crashes	0	0	1	3	7	11
	Injuries	0	0	2	5/1		8
2005	Crashes	0	2	2	2	9	15
	Injuries	0	2	5	3/1		11
2006	Crashes	0	0	1	1	5	7
	Injuries	0	0	1	1/1		3
2007	Crashes	0	0	1	6	8	15
	Injuries	0	0	2	9/0		11
Seven-year summary, 2001–2007							
	Crashes	1	6	14	22	42	85
	Injuries	1	6	21	35		63

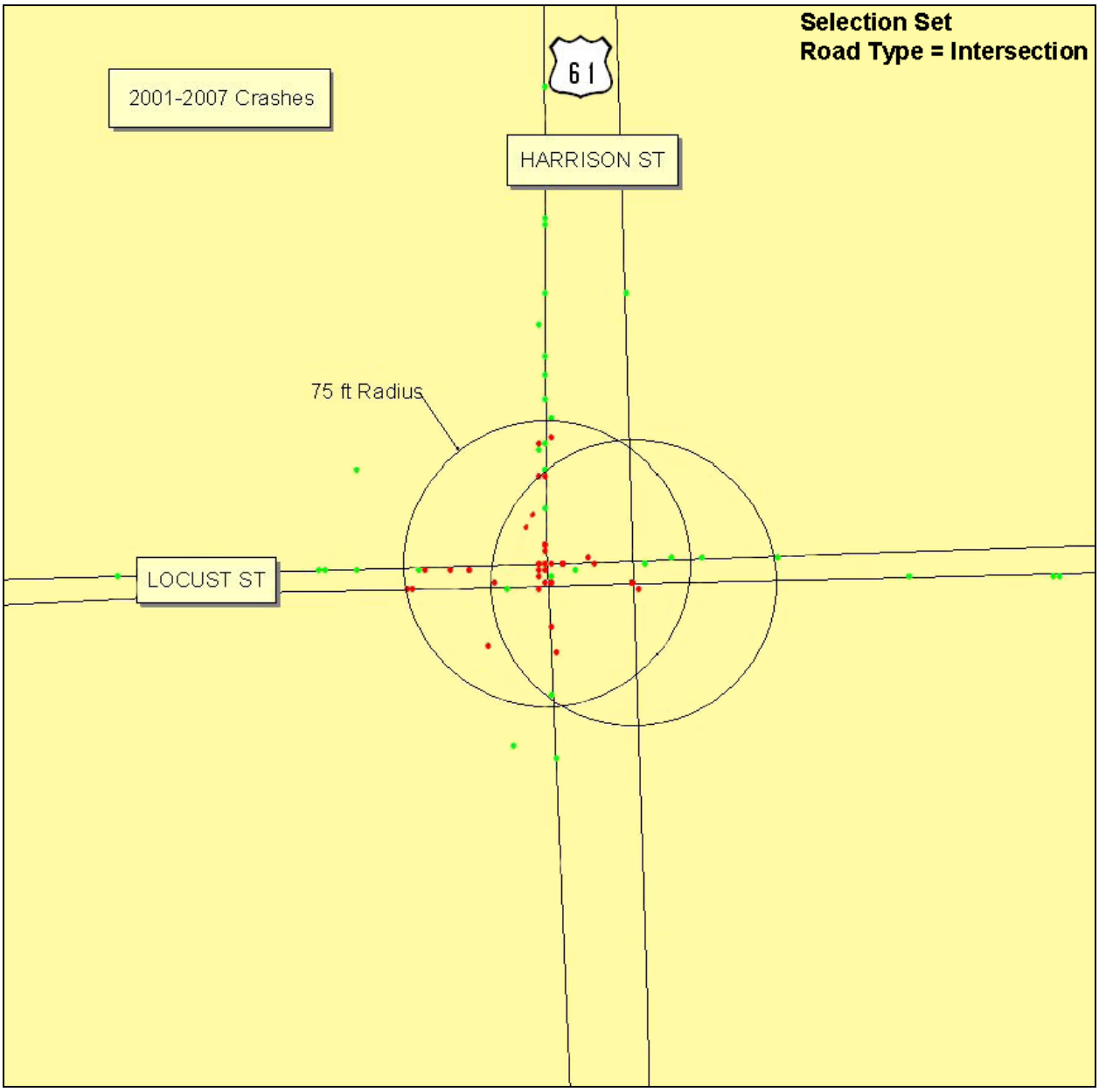


Figure B.1. Crash locations for the intersection, 2001–2007

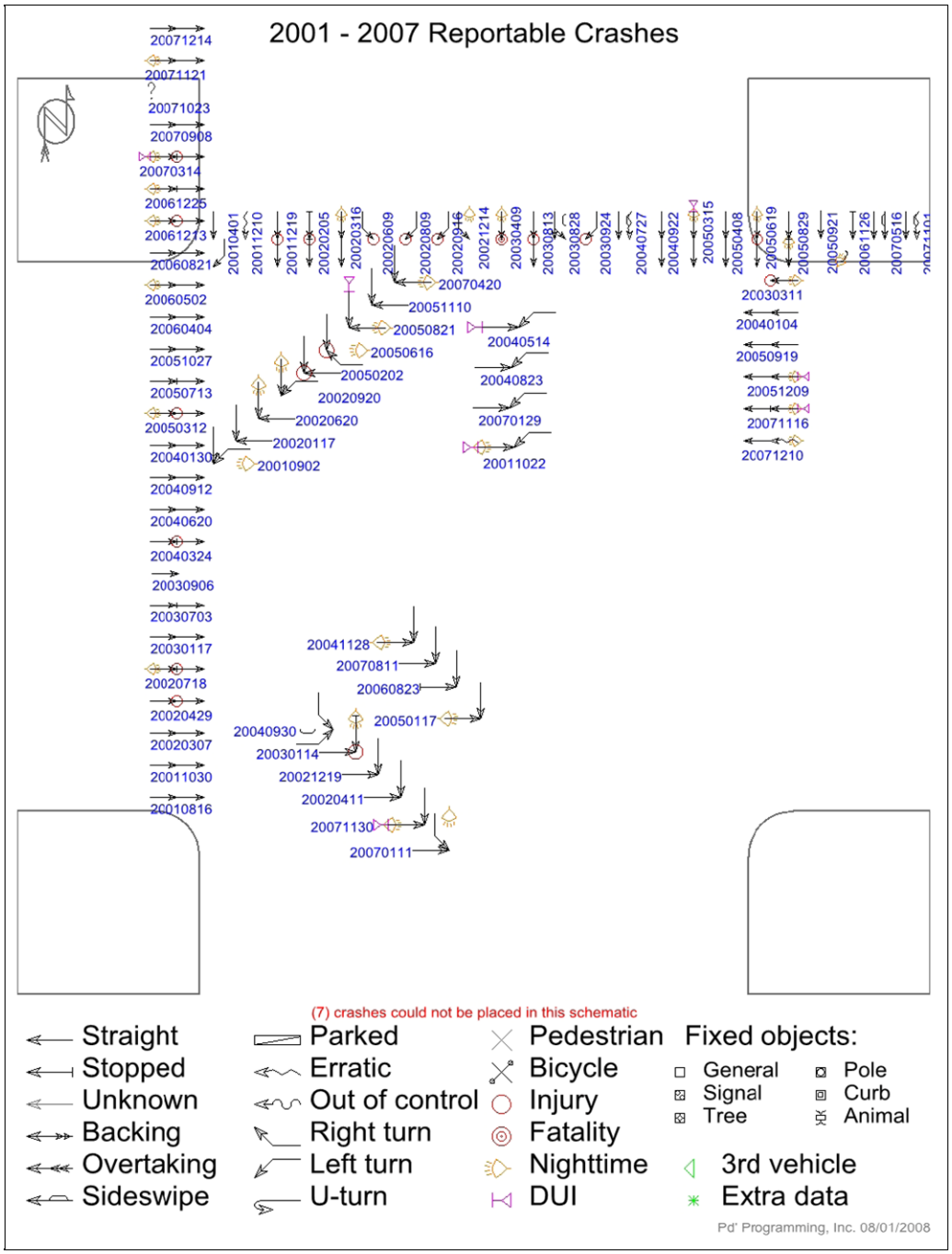
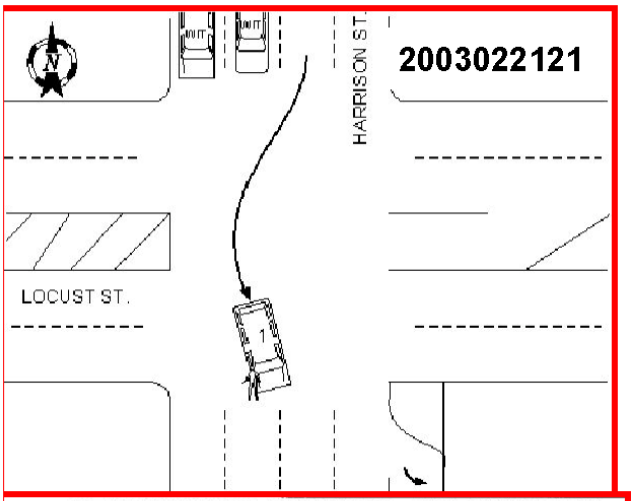
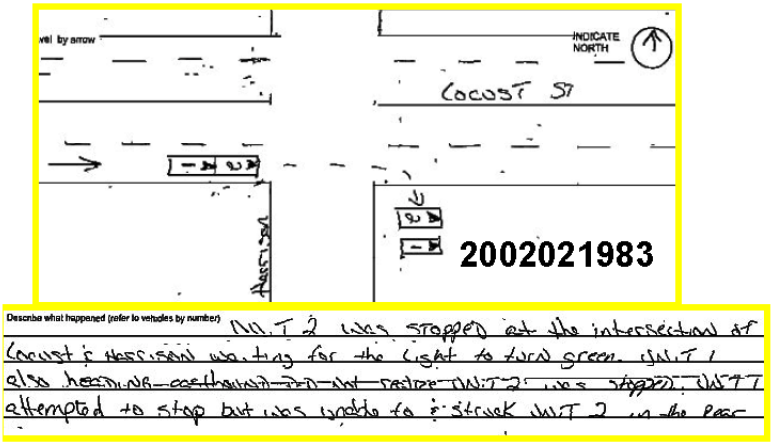


Figure B.2. Diagram of crashes for the intersection, 2001–2007





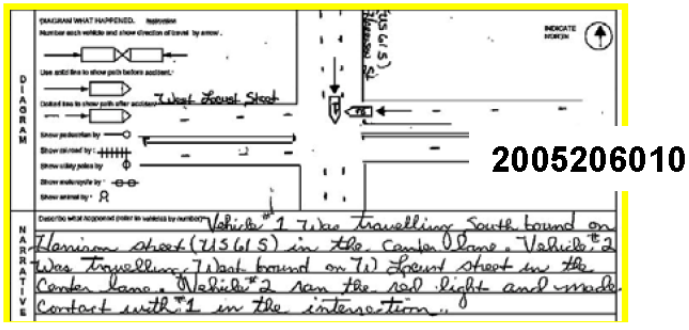
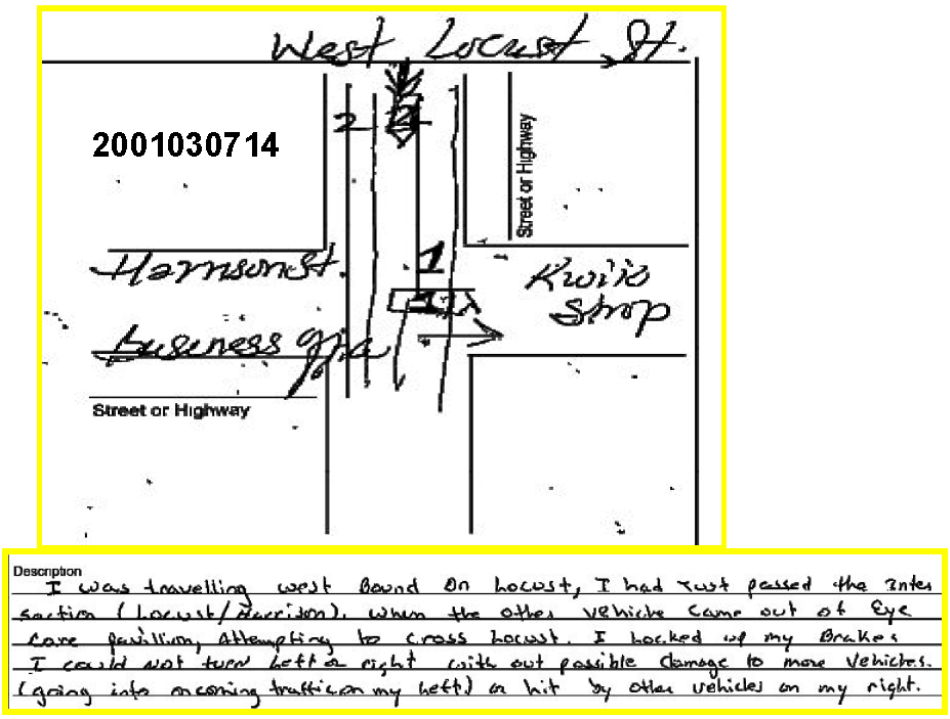


Figure B.3. Crash reports for the intersection



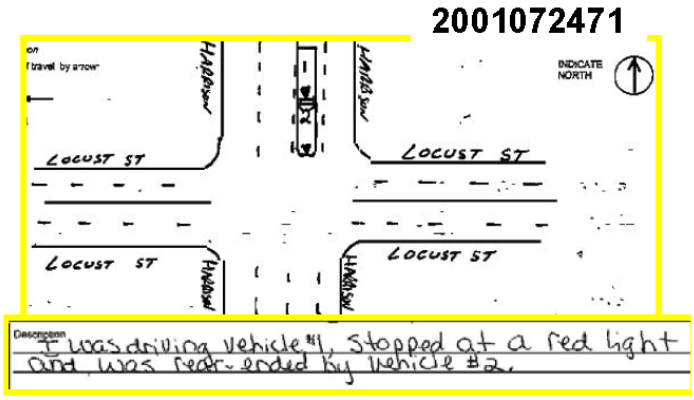
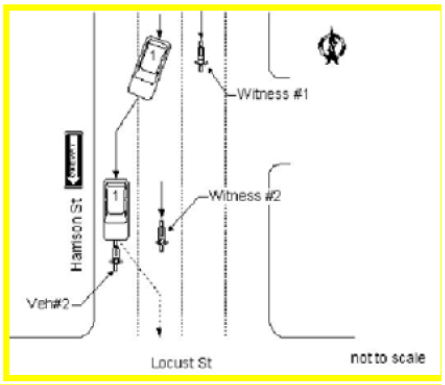


Figure B.3. Crash reports for the intersection (continued)



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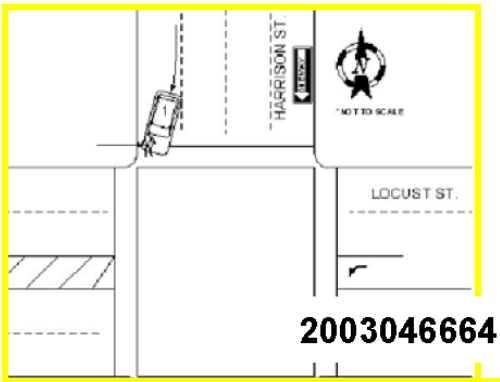
VEH #1, VEH #2, WIT #1 AND WIT #2 WERE SOUTHBOUND ON HARRISON ST APPROACHING LOCUST ST. VEH #1 APPARENTLY ACCELERATED RAPIDLY, LOST CONTROL, THEN STRUCK THE REAR OF VEH #2.

VEH #2 WAS A MOTORCYCLE OCCUPIED BY ONE SUBJECT WHO WAS THROWN FROM THE MOTORCYCLE, CAUSING NON-LIFE THREATENING INJURIES.

VEH #1 THEN FLED FROM THE SCENE.

THE OWNER OF VEH #1 WAS LATER CONTACTED AND ALLEGED HER CAR WAS STOLEN AT THE TIME OF THE INCIDENT.



2003046664

UNIT 1 WAS SOUTHBOUND ON HARRISON ST. DRIVER OF UNIT 1 HAD STOPPED FOR RED LIGHT AND WAS WAITING TO MAKE A RIGHT/WEST TURN ON TO LOCUST ST.

PEDESTRIAN (CROSSING GUARD) HAD BEEN NORTHBOUND IN THE WEST CROSSWALK OF LOCUST ST. CROSSING GUARD BEGAN TO CROSS CHILDREN EASTBOUND IN NORTH CROSSWALK OF HARRISON ST. WHEN DRIVER OF UNIT 1 INITIATED A RIGHT/WEST TURN.

UNIT 1 STRUCK THE PEDESTRIAN KNOCKING HIM TO THE GROUND. THE PEDESTRIAN SUSTAINED SEVERAL NON-LIFE THREATENING INJURIES AND WAS TRANSPORTED TO GENESIS EAST MEDICAL CENTER FOR TREATMENT.

THE DRIVER OF UNIT 1 WAS UNINJURED, AND UNIT 1 DID NOT RECEIVE ANY VISIBLE DAMAGE. DRIVER OF UNIT 1 WAS CITED FOR FTYROW PEDESTRIAN IN

Figure B.3. Crash reports for the intersection (continued)

Table B.2. Weather conditions for crashes

Weather Conditions	Total
Clear	62
Cloudy	6
Fog/smoke	1
Mist	1
Not Reported	1
Partly cloudy	7
Rain	5
Sleet/hail/freezing rain	1
Snow	1
Total	85

Table B.3. Light conditions for crashes

Light Conditions	Percent
Dark - roadway lighted	36.5%
Dawn	1.2%
Daylight	58.8%
Dusk	2.4%
Not Reported	1.2%

Table B.4. Major cause of crashes by severity

Crash Severity	MAJOR CAUSE	Total
Fatal	Exceeded authorized speed	1
Fatal Total		1
Major Injury	Followed too close	2
	FTYROW: To pedestrian	1
	Other (explain in narrative): No improper action	1
	Ran Traffic Signal	1
	Swerving/Evasive Action	1
Major Injury Total		6
Minor Injury	Followed too close	5
	FTYROW: To pedestrian	2
	Lost Control	1
	Other (explain in narrative): No improper action	4
	Other (explain in narrative): Other improper action	1
	Ran Traffic Signal	1
Minor Injury Total		14

Table B.4. Major cause of crashes by severity (continued)

Crash Severity	MAJOR CAUSE	Total
Possible/ Unknown	Followed too close	6
	Lost Control	2
	None indicated	1
	Operating vehicle in an erratic/reckless/careless/negligent/aggressive manner	1
	Other (explain in narrative): No improper action	2
	Other (explain in narrative): Other improper action	1
	Ran Traffic Signal	8
	Unknown	1
Possible/Unknown Total		22
Property Damage Only	Crossed centerline	1
	Exceeded authorized speed	1
	Followed too close	15
	FTYROW: Making left turn	4
	Inattentive/distracted by: Fallen object	1
	Inattentive/distracted by: Use of phone or other device	1
	Lost Control	2
	Made improper turn	1
	None indicated	1
	Operating vehicle in an erratic/reckless/careless/negligent/aggressive manner	1
	Other (explain in narrative): No improper action	2
	Other (explain in narrative): Other improper action	4
	Ran Traffic Signal	7
	Swerving/Evasive Action	1
Property Damage Only Total		42

Table B.5. Crash type by severity

Crash Severity	Manner of Crash	Total
Fatal	Non-collision	1
Fatal Total		1
Major Injury	Broadside	1
	Head-on	1
	Non-collision	1
	Rear-end	3
Major Injury Total		6
Minor Injury	Broadside	1
	Non-collision	4
	Rear-end	9
Minor Injury Total		14
Possible/Unknown	Angle - oncoming left turn	2
	Broadside	7
	Non-collision	1
	Not Reported	1
	Rear-end	11
Possible/Unknown Total		22
Property Damage Only	Angle - oncoming left turn	2
	Broadside	6
	Head-on	1
	Non-collision	1
	Rear-end	26
	Sideswipe - same direction	6
Property Damage Only Total		42

Table B.6. Vehicle action leading to crashes

Vehicle Action	Total
Changing lanes	4
Movement essentially straight	94
Not Reported	5
Slowing/stopping	26
Stopped for stop sign/signal	23
Turning left	14
Turning right	5
Unknown	1
Total	172

Table B.7. Vehicle configurations involved in crashes

Vehicle Configuration	Total
Four-tire light truck (pick-up/panel)	24
Motorcycle	1
Other small bus (seats 9-15)	1
Passenger car	117
Single-unit truck (2-axle/6-tire)	1
Sport utility vehicle	19
Unknown	2
Van or mini-van	11
Total	176

Table B.8. Driver condition during crashes

Driver Condition	Total
Apparently normal	154
Asleep/fainted/fatigued/etc.	2
Emotional (e.g. depressed/angry/disturbed)	1
Not Reported	6
Under the influence of alcohol/drugs/medications	8
Unknown	5
Total	176

Table B.9. Driver contributing circumstances for crashes

Driver Contributing Circumstances	Total
Exceeded authorized speed	2
Followed too close	28
FTYROW: Making left turn	4
FTYROW: Other (explain in narrative)	1
FTYROW: To pedestrian	3
Inattentive/distracted by: Fallen object	1
Inattentive/distracted by: Use of phone or other device	1
Lost Control	9
Made improper turn	1
Not Reported	10
Operating vehicle in an erratic/reckless/careless/negligent/aggressive manner	2
Other (explain in narrative): No improper action	89
Other (explain in narrative): Other improper action	6
Ran traffic signal	17
Unknown	2
Total	176

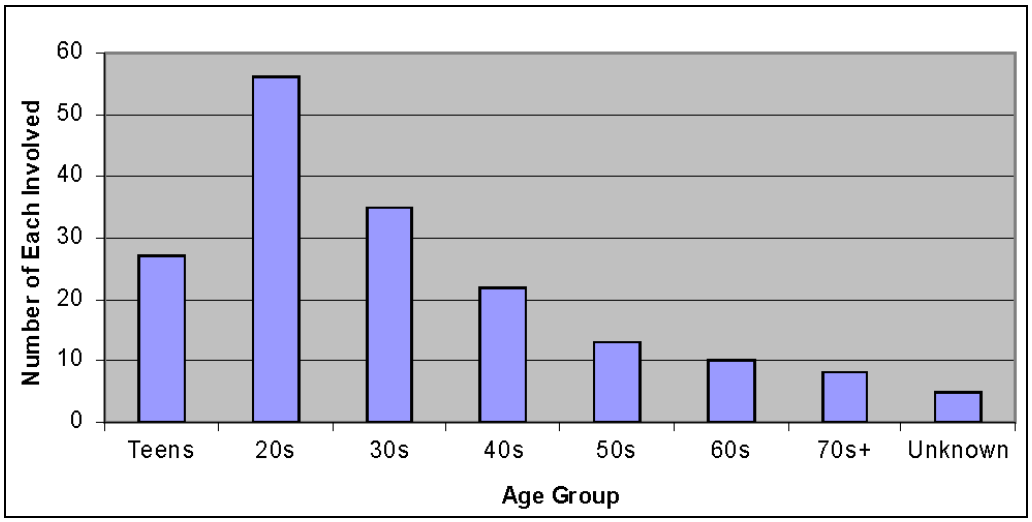


Figure B.4. Crashes by driver age

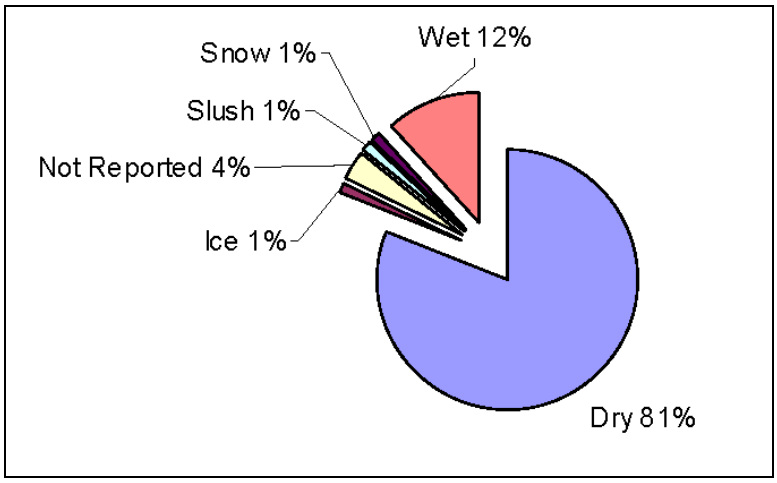


Figure B.5. Surface conditions for crashes

Table B.10 Time of day for crashes

Time of Day	Minor Injury	Major Injury	Fatal	PDO	Possible/ Unknown	Total
0:00-0:59	1			2		3
1:00-1:59		1	1			2
2:00-2:59				1	2	3
3:00-3:59	1				1	2
4:00-4:59					1	1
5:00-5:59						0
6:00-6:59		1				1
7:00-7:59		1			1	2
8:00-8:59	2			3		5
9:00-9:59					1	1
10:00-10:59				1		1
11:00-11:59	1			3	2	6
12:00-12:59	1			3	1	5
13:00-13:59	1	1		1	2	5
14:00-14:59	2	1		6		9
15:00-15:59				2	5	7
16:00-16:59				2	2	4
17:00-17:59		1		5	2	8
18:00-18:59				3	1	4
19:00-19:59				1		1
20:00-20:59	2			3		5
21:00-21:59	2			2	1	4
22:00-22:59				1		1
23:00-23:59	1			4		5
					Grand Total	**85**

Table B.11 Day of week for crashes

Day	Crash Severity	Total
Sunday	Major Injury	2
	Minor Injury	1
	Possible/Unknown	3
	Property Damage Only	5
	Sunday Total	11
Monday	Major Injury	1
	Minor Injury	1
	Possible/Unknown	3
	Property Damage Only	8
	Monday Total	13
Tuesday	Minor Injury	3
	Possible/Unknown	2
	Property Damage Only	4
	Tuesday Total	9
Wednesday	Fatal	1
	Major Injury	3
	Minor Injury	4
	Possible/Unknown	1
	Property Damage Only	5
	Wednesday Total	14
Thursday	Minor Injury	2
	Possible/Unknown	6
	Property Damage Only	9
	Thursday Total	17
Friday	Minor Injury	2
	Possible/Unknown	5
	Property Damage Only	7
	Friday Total	14
Saturday	Minor Injury	1
	Possible/Unknown	2
	Property Damage Only	4
	Saturday Total	7
	Grand Total	**85**