

# INDIANA UNIVERSITY

## TRANSPORTATION RESEARCH CENTER

School of Public and Environmental Affairs

501 S. Madison Street-Suite 105

Bloomington, Indiana 47403-2452

(812) 855-3908 Fax: (812) 855-3537

## ON-SITE NOT IN TRAFFIC SURVEILLANCE BACK OVER INVESTIGATION

CASE NUMBER - IN09021

LOCATION - MINNESOTA

VEHICLE - 2000 CHRYSLER TOWN & COUNTRY LIMITED

CRASH DATE - July 2009

Submitted:

December 28, 2009



Contract Number: DTNH22-07-C-00044

Prepared for:

U.S. Department of Transportation  
National Highway Traffic Safety Administration  
National Center for Statistics and Analysis  
Washington, D.C. 20590-0003

## **DISCLAIMERS**

This document is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no responsibility for the contents or use thereof.

The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the National Highway Traffic Safety Administration.

The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points be coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

**Technical Report Documentation Page**

1. <i>Report No.</i> IN09021		2. <i>Government Accession No.</i>		3. <i>Recipient's Catalog No.</i>	
4. <i>Title and Subtitle</i> On-Site Not In Traffic Surveillance Back Over Investigation Vehicle - 2000 Chrysler Town & Country Limited Location - Minnesota			5. <i>Report Date:</i> December 28, 2009		
			6. <i>Performing Organization Code</i>		
7. <i>Author(s)</i> Special Crash Investigations Team #2			8. <i>Performing Organization Report No.</i>		
9. <i>Performing Organization Name and Address</i> Transportation Research Center Indiana University 501 South Madison, Suite 105 Bloomington, Indiana 47403-2452			10. <i>Work Unit No. (TRAIS)</i>		
			11. <i>Contract or Grant No.</i> DTNH22-07-C-00044		
12. <i>Sponsoring Agency Name and Address</i> U.S. Department of Transportation (NVS-411) National Highway Traffic Safety Administration National Center for Statistics and Analysis Washington, D.C. 20590-0003			13. <i>Type of Report and Period Covered</i> Technical Report Incident Date: July 2009		
			14. <i>Sponsoring Agency Code</i>		
15. <i>Supplementary Notes</i> On-site not in traffic surveillance back over investigation involving a 2000 Chrysler Town & Country Limited and three nonmotorists.					
16. <i>Abstract</i> This on-site investigation focused on the circumstances of a back over incident involving a 2000 Chrysler Town & Country Limited minivan and three nonmotorists. The incident occurred in the campground of a county park. There had been a holiday celebration of 12 family and friends during the night and early morning hours prior to the incident. Alcohol and marijuana were consumed during the celebration and the 31-year-old female driver of the Chrysler told police that she had consumed both substances. Approximately one hour after the incident, the driver's blood alcohol concentration was 0.17 mg/dl. The incident occurred as the driver was backing the vehicle to park it near a tent. The driver told police that she was talking to the 7-year-old female front passenger and stepped on the accelerator pedal instead of the brake pedal. The vehicle accelerated rapidly and backed over a 21-year-old female and her 3-month-old male child who were located inside a tent. The vehicle also impacted a 27-year-old male (father of the child) who was entering the tent. The child sustained a fatal head injury, while the mother and father were treated in a hospital emergency room for minor injuries and released.					
17. <i>Key Words</i> Back Over Child Fatality			Motor Vehicle Traffic Incident Injury Severity		18. <i>Distribution Statement</i> General Public
19. <i>Security Classif. (of this report)</i> Unclassified	20. <i>Security Classif. (of this page)</i> Unclassified		21. <i>No. of Pages</i> 22	22. <i>Price</i>	

**TABLE OF CONTENTS**

IN09021

Page No.

BACKGROUND . . . . . 1

CRASH CIRCUMSTANCES . . . . . 1

CASE VEHICLE: 2000 CHRYSLER TOWN & COUNTRY LIMITED . . . . . 3

    CASE VEHICLE DAMAGE . . . . . 3

    CASE VEHICLE DRIVER . . . . . 4

    CASE VEHICLE FRONT PASSENGER . . . . . 4

CASE VEHICLE VISIBILITY STUDY . . . . . 4

FIRST NONMOTORIST . . . . . 5

FIRST NONMOTORIST INJURIES . . . . . 5

SECOND NONMOTORIST . . . . . 6

SECOND NONMOTORIST INJURIES . . . . . 6

THIRD NONMOTORIST . . . . . 7

INCIDENT SCENE DIAGRAM . . . . . 8

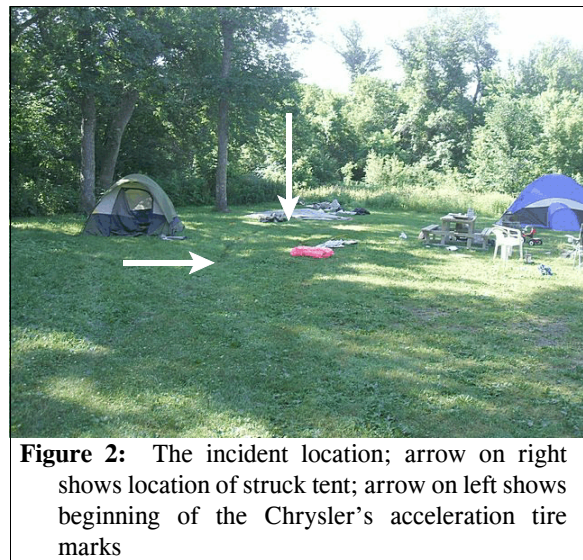
NOMINAL VISIBILITY DIAGRAM . . . . . 9

ATTACHMENTS: NOT IN TRAFFIC SURVEILLANCE BACK OVER DATA FORMS . . . . .

This on-site investigation focused on the circumstances of a back over incident involving a 2000 Chrysler Town & Country Limited minivan (**Figure 1**) and three nonmotorists. The vehicle was being driven in reverse and backed over a 21-year-old female and her 3-month-old male child who were located inside a tent. The vehicle also impacted a 27-year-old male (father of the child) who was entering the tent. This incident was brought to our attention by the National Highway Traffic Safety Administration (NHTSA) on July 7, 2009 through an on-line news story. This investigation was assigned on July 7, 2009. The incident occurred in July, 2009, at 0830 hours, in Minnesota and was investigated by the county sheriff's department. A Minnesota Officer's Standard Crash Report was completed and a copy was submitted to the state. The incident scene and the Chrysler were inspected on July 9, 2009. An interview with the Chrysler's driver was attempted but refused by her attorney. An interview with the adult nonmotorists was conducted on July 24 and December 18, 2009. This report is based on inspections of the incident scene and vehicle, police crash report, discussions with the investigating deputy, interview information, on-scene photographs, and evaluation of the evidence.



**Figure 1:** The 2000 Chrysler Town & Country Limited



**Figure 2:** The incident location; arrow on right shows location of struck tent; arrow on left shows beginning of the Chrysler's acceleration tire marks

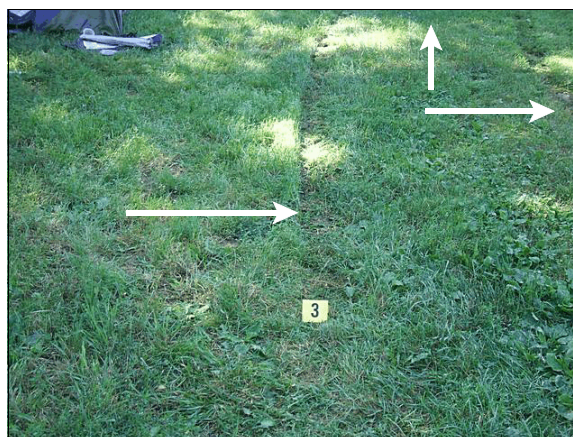
## CRASH CIRCUMSTANCES

**Crash Environment:** The area in which this incident occurred was a campground within a county park. The campground was located on the south side of a circular gravel driveway, which connected to the main gravel roadway that traversed through the park. The campsite where the incident occurred (**Figure 2**) was occupied by four tents. The Chrysler was initially parked heading north between the tent that was backed over and the driveway. Nine lawn chairs, a picnic table, a fire pit, and two tents were located immediately west of the Chrysler's parked location. The fourth tent was located immediately east of the Chrysler. There had been a holiday celebration of 12 family and friends during the night and early morning hours prior to the incident. The driver of the Chrysler told police that alcohol and marijuana were consumed during the celebration and that she had consumed both substances during the evening hours prior to the incident. Approximately one hour after the incident, the police administered four field sobriety tests and a breath test to the driver. She failed the field sobriety tests and her blood alcohol concentration was reported as 0.17 mg/dl. At the time of the incident, the light condition was

daylight. The atmospheric condition was cloudy and the temperature was 17 degrees C (63 degrees F). The campground and adjacent driveway were level. There were no vision obstructions between the Chrysler and the tent that was backed over. The driver was aware of the location of the tent and its proximity to the back of the vehicle. The Scene Diagram is on page 8 of this report.

**Pre-Incident:** The driver of the Chrysler and her 7-year-old daughter had spent the night in the Chrysler. The 7-year-old awoke at approximately 0745 hours and needed to use the restroom. The driver and the passenger drove to the campground restroom, which was located approximately 300 m (984 ft) away. Meanwhile the three nonmotorists were asleep within the tent, which was located immediately behind the Chrysler. The sound of the vehicle departing awoke the father who exited the tent following the departure of the Chrysler. Upon return, the Chrysler's driver turned the vehicle around and backed toward the tent and the location where the vehicle had previously been parked. The area where the driver turned the vehicle around is not known. At this time the mother and child were awake within the tent. They were lying down and the child was nursing from a baby bottle. The father was near the tent entrance located on the west side of the tent and was preparing to enter the tent.

**Incident:** The driver of the Chrysler told police that as she was backing the vehicle she was talking to her daughter and stepped on the accelerator pedal instead of the brake pedal. The vehicle accelerated rapidly backward in a southerly direction. The police on-scene photographs and the SCI incident scene inspection revealed two curved acceleration marks on the grass (**Figure 3**) leading to the tent. The Chrysler accelerated backward 2.2 m (7.2 ft) along a counterclockwise path from the beginning of the acceleration marks to impact with the tent (event 1), the mother and child within (events 2 and 3), and the father who was entering the tent (event 4). The vehicle continued backward over the tent and dragged the mother and child inside. The vehicle traveled backward 13.2 m (43.3 ft) from the initial impact with the tent and the back plane impacted a 14 cm (5.5 in) square wooden post (event 5, **Figure 4**). The force of the impact broke the post off at the concrete base and the vehicle came to rest over the base. The mother was under the vehicle while the child was located on the ground directly in



**Figure 3:** Police on-scene photo; arrows in foreground show the Chrysler's front wheel acceleration marks in the grass; arrow in background show direction of travel toward tent



**Figure 4:** Path to impact with wooden post and area of final rest; arrow shows location of wooden post and area of the Chrysler's final rest

front of the vehicle. The father was displaced clear of the vehicle by the impact and fell to the ground.

**Post-Incident:** The driver of the Chrysler immediately exited the vehicle. The father moved the child away from the front of the vehicle and drove it forward off the mother. The father then placed both victims in his pickup truck and drove them to a hospital. The child was pronounced deceased at the hospital. The father and mother were treated in the emergency room and released.

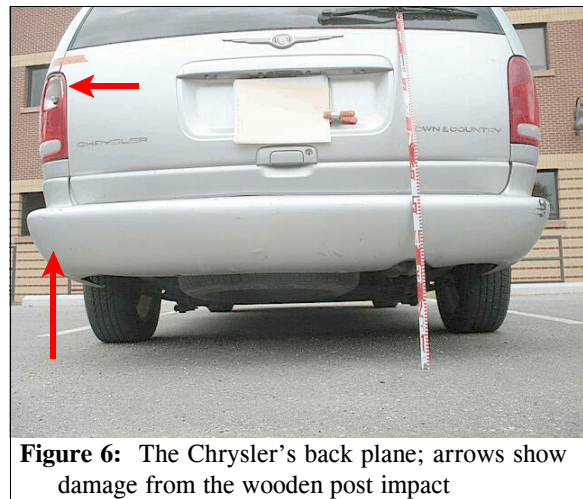
### CASE VEHICLE

The 2000 Chrysler Town & Country Limited was a front-wheel drive, 4-door, minivan (1C4GP64L2YB-----) equipped with a 3.8L, 6 cylinder engine, and automatic transmission. The front row was equipped with bucket seats, adjustable head restraints, driver and front right passenger frontal air bags, and lap-and-shoulder safety belts. The second and third row seats had been removed and an air mattress, pillows, and bedding were placed in the area (**Figure 5**). These items did not extend above the beltline and did not present a rear vision obstruction for the driver. The second and third row windows and the backlight were equipped with AS-3 tinted glazing. The remaining window glazing was not tinted.



**Figure 5:** Chrysler's second and third row seats removed and an air mattress, pillows, and bedding were present in the area

The vehicle's specified wheelbase was 303 cm (119.3 in). The specified rear overhang was 111 cm (43.7 in) and the overall length was 507 cm (199.6 in). The distance from the ground to the bottom of the back bumper, rear axle, spare tire, and tail pipe were 30 cm (11.8 in), 16 cm (6.3 in), 18 cm (7.1 in), and 26 cm (10.2 in), respectively. The distance from the ground to the beltline was 101 cm (39.8 in). The vehicle was not equipped with any back up/parking aids.



**Figure 6:** The Chrysler's back plane; arrows show damage from the wooden post impact

### CASE VEHICLE DAMAGE

The inspection of the Chrysler revealed scratches and on the back left bumper corner, a broken left tail light, and displacement of the left rear bumper fascia (**Figure 6**). While the scratches did not appear related to the wooden post impact, the broken tail light and displaced bumper fascia were probably caused by this impact. There was no residual crush to the back bumper. A few scratches and small dents were also present on the vehicle's back plane, but they

appeared to be previous damage. There was no discernable evidence of damage or contact on the back plane or undercarriage from the impacts with the tent and the nonmotorists. The Collision Deformation Classification (CDC) for the impact with the tent (event 1) was estimated as **06-BDEU-1 (180 degrees)**. The CDCs for the impacts with the two nonmotorists within the tent (events 2 and 3) were both estimated as **06-B9LU-1 (180 degrees)**. The CDC for impact with the nonmotorist who was entering the tent (event 4) was estimated as **06-BLLU-1 (180 degrees)**. The CDC for the wooden post impact (event 5) was **06-BLES-1 (180 degrees)**.

#### **CASE VEHICLE DRIVER**

The Chrysler's driver was a 31-year-old, female, 157 cm (62 in) tall and weighed 50 kg (110 lbs). She was not the owner of the vehicle. It is not known if the driver was restrained by the lap-and-shoulder safety belt. She was not injured and not transported. She drove the vehicle to the hospital following the incident to check on the condition of the nonmotorists. The police performed an alcohol breath test and the results were reported as 0.17 mg/dl.

#### **CASE VEHICLE FRONT PASSENGER**

The Chrysler's front passenger was the driver's 7-year-old daughter (unknown height and weight). It is not known if she was restrained by the lap-and-shoulder safety belt. She was not injured and not transported to a hospital.

#### **CASE VEHICLE VISIBILITY STUDY**

A visibility study was conducted in order to determine the nominal blind zone behind the Chrysler as well as the blind zones of the rearview mirror and both side view mirrors. The details of how the driver backed the vehicle and where she was looking as she backed is not known. The standard 71 cm (28 in) high target was used for the observations. The target consisted of a 8 cm (3.1 in) diameter red reflector mounted on a three-legged stand. The Chrysler was impounded and the visibility study was conducted on the level parking lot at the Sheriff's department. A Sheriff's deputy acted as a surrogate driver since the driver of the vehicle was incarcerated. The deputy was 185 cm (73 in) in height. The driver of the vehicle was 157 cm (62 in) in height. The deputy's eye height above the ground while seated in the driver's seat was 133 cm (52.4 in). The driver's seat track was found adjusted to the full-rear position and was left in that position. This placed the surrogate's head 270 cm (106.2 in) forward of the back bumper.

The initial set of observations was made with the surrogate looking over his right shoulder out of the backlight. The target was moved rearward from the back bumper along the Chrysler's centerline 4.2 m (13.8 ft) where it came into the surrogate's view (**Figure 7**), just to the left of the Center High Mounted Stop Lamp (CHMSL). When the target was moved 0.4 m, (1.3 ft) to the right of the centerline, it became obstructed by the CHMSL. The target became visible again when the target was moved another 1.6 m (5.2 ft) to the right, just to the right of the CHMSL. The target was then moved further to the right 1 m (3.3 ft) where it became obstructed by the right C-pillar. When it was moved another 1.4 m (4.6 ft), it became visible on the right side of the right C-pillar. The target was then placed back at the centerline. When moved to the left 1 m



(3.3 ft), it reached the limit of normal viewing posture of the surrogate.

The surrogate was asked to view behind the vehicle through the rearview mirror. The target was moved rearward from the back bumper 5.1 m (16.7 ft) before the surrogate could see it, just over the CHMSL (Figure 8). The target was moved to the right 3.7 m (12.1 ft) where it went out of the mirror's field of view. The target was placed back at the centerline and was moved to the left 1.6 m (5.2 ft) where it became obstructed by the left D-pillar. When moved 2.3 m (7.5 ft) further left, the target became visible on the left side of the D-pillar. The target remained visible until it was moved 2.5 m (8.2 ft) further to the left where it went out of mirror's field of view.

A similar procedure was conducted to assess the blind zones of the left and right side view mirrors. For each side view mirror, the target was moved rearward along the side of the vehicle until it first became visible at the bottom of the mirror (Figures 9 and 10). For the left side view mirror, the target came into the view at 0.3 m (1.0 ft) forward of the back bumper. It was repositioned at the back left bumper corner and moved to the left 0.6 m (1.0 ft) where it went out of the mirror's field of view. For the right side view mirror, the target was moved 0.5 m (1.6 ft) rear of the back bumper before it became visible. It was moved to the right 0.5 m (1.6 ft) where it went out of the mirror's field of view. Please see the Nominal Visibility Diagram on page 9 of this report for a depiction of the Chrysler's blind zones.

**FIRST NONMOTORIST**

The first nonmotorist was a 3-month-old male [56 cm (22 in) and 6 kg (14 lbs)]. The available information from the interviewees and witness statements contained within the police incident report indicated that he sustained a critical head injury. It was reported that he was bleeding from the ears. The nature of the injury



Figure 7: Arrow shows location where target could first be seen by surrogate as he looked over his right shoulder out of the backlight; distance from back bumper to target was 4.2 m (13.8 ft)



Figure 8: View through rearview mirror from driver's seat; arrow shows target



Figure 9: View through left side view mirror from driver's seat; arrow shows target where it first came in surrogate driver's view

indicated that at least one of the Chrysler’s tires probably passed over his head.



**Figure 10:** View through right side view mirror from driver’s seat; arrow shows target where it first came into surrogate’s driver’s view

**FIRST NONMOTORIST INJURIES**

The first nonmotorist was transported by his father in a personal vehicle to a hospital. He sustained a head injury and was pronounced deceased 40 minutes following the incident. The extent of his head injury is not known. The table below presents the nonmotorist’s injury and injury source.

Injury Number	Injury Description (including Aspect)	NASS Injury Code & AIS 90	Injury Source	Source Confidence	Source of Injury Data
1	Blunt head trauma, no specific injury knowledge	unknown 115099.7,0	Exterior of other motor vehicle: unknown tire	Probable	Interviewee (relative)

**SECOND NONMOTORIST**

The second nonmotorist was a 21-year-old female [168 cm (66 in) and 73 kg (160 lbs)]. She sustained abrasions on the lower right back and contusions on the left leg that extended from the hip onto the lower leg. She also sustained contusions on the left arm. These injuries were probably from contact with the undercarriage of the Chrysler.

**SECOND NONMOTORIST INJURIES**

The second nonmotorist was transported to a hospital in the pickup truck and was treated in the emergency room for minor injuries and released. The table below presents the nonmotorist’s injuries and injury sources.

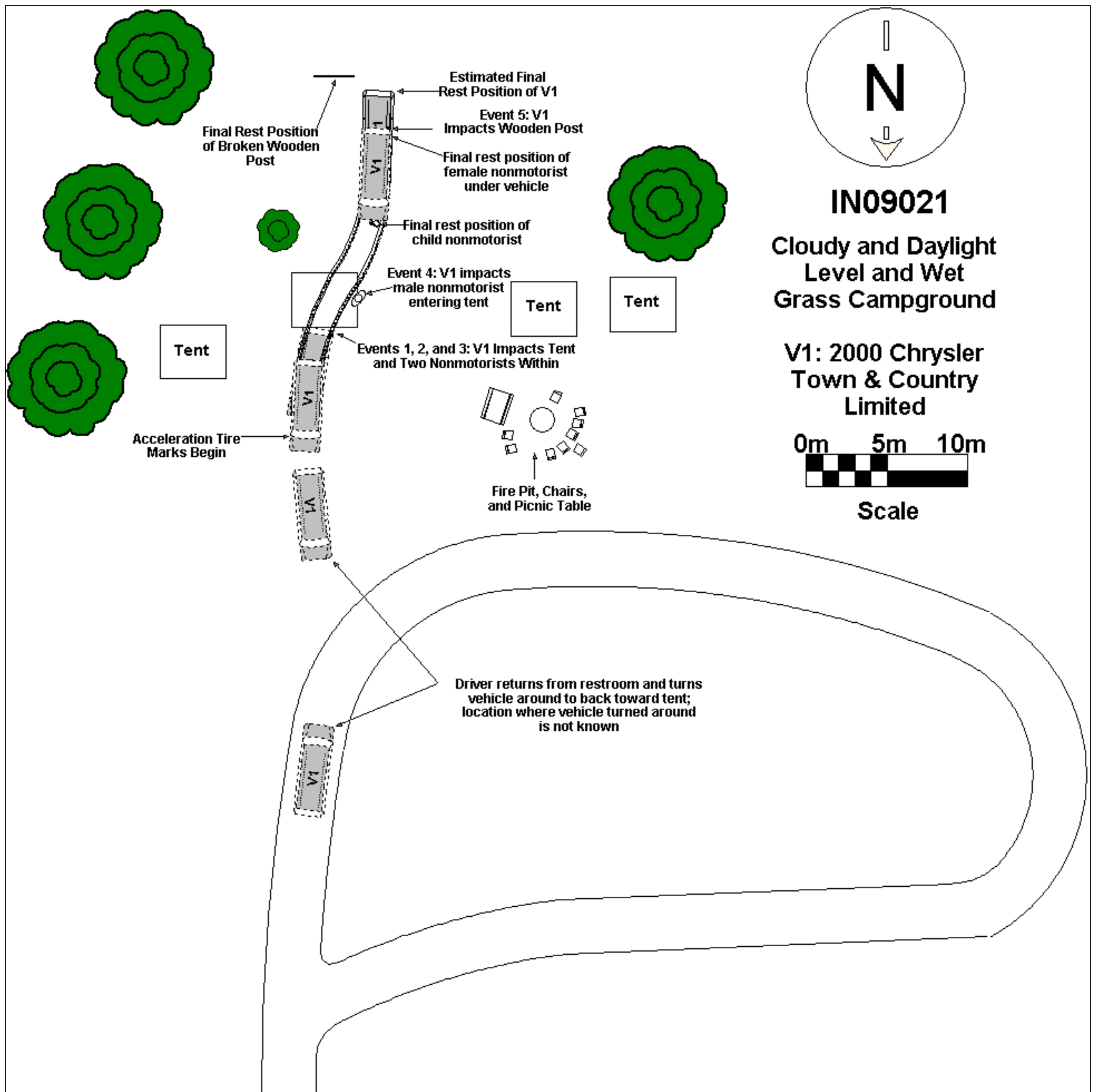
Injury Number	Injury Description (including Aspect)	NASS Injury Code & AIS 90	Injury Source	Source Confidence	Source of Injury Data
1	Abrasions on lower right back, not further specified	minor 690202.1,8	Exterior of other motor vehicle: undercarriage	Probable	Interviewee (same person)
2	Contusion on left arm, not further specified	minor 790402.1,2	Exterior of other motor vehicle: undercarriage	Probable	Interviewee (same person)

Injury Number	Injury Description (including Aspect)	NASS Injury Code & AIS 90	Injury Source	Source Confidence	Source of Injury Data
3	Contusion on left leg extending from hip to lower leg, not further specified	minor 890402.1,2	Exterior of other motor vehicle: undercarriage	Probable	Interviewee (same person)

**THIRD NONMOTORIST**

The third nonmotorist was a 27-year-old male [183 cm (72 in) and 154 kg (340 lbs)]. He drove the first and second nonmotorists to the hospital in his personal vehicle. He was treated in the emergency room and released. He sustained no specific injuries but reported pain in the right hip from impact by the back left corner of the Chrysler, which occurred as he was backing into tent.

The Not In Traffic Surveillance Back Over Data Forms are attached at the end of this report.



**IN09021**  
Cloudy and Daylight  
Level and Wet  
Grass Campground



**V1: 2000 Chrysler  
Town & Country  
Limited**

0m 5m 10m  
Scale

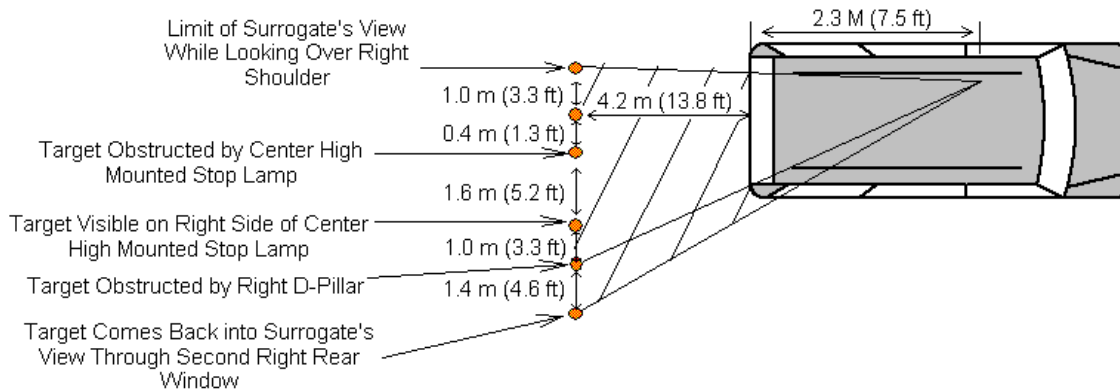
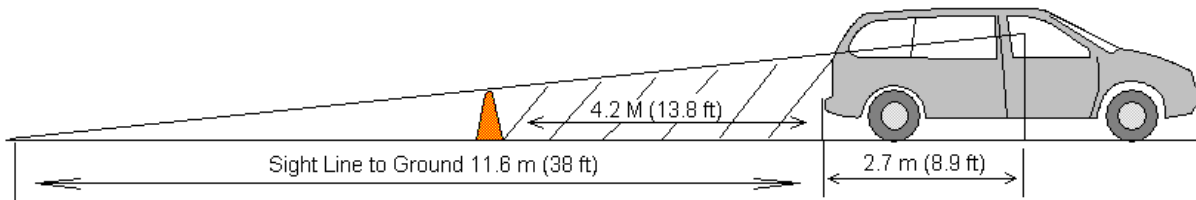
IN09021

**Nominal Visibility Diagram**  
**Case Vehicle = 2000 Chrysler Town & Country Limited Minivan**

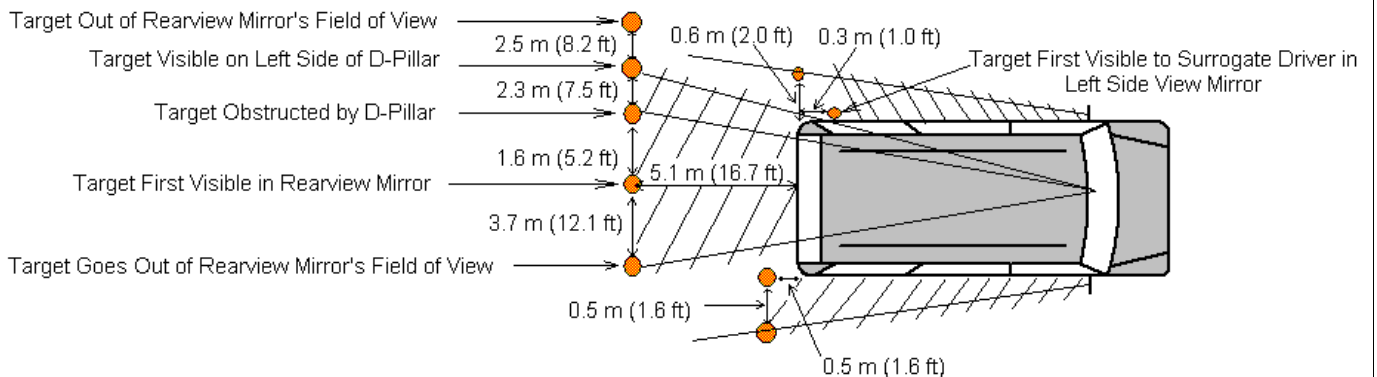
Surrogate Driver's Eye Height From Ground = 133 cm (52.4 in)

-  = Chrysler's Blind Zones
-  = 71 cm (28 in) High Target

**1. Distance Back of Ford**  
**To Point a 71 cm (28 in) High Reference Target**  
**Comes Into View as Surrogate Driver Looks Over Right Shoulder Out of Backlight**



**2. Rearview Mirror and Side View Mirror Blind Zones**





1. Case Number

\_\_\_\_\_

## IDENTIFICATION

2. Date of Crash \_\_\_\_ / \_\_\_\_ / \_\_\_\_

3. Time of Crash \_\_\_\_\_

Code reported military time of crash.

NOTE: Midnight = 2400  
Unknown = 9999

## AMBIENT CONDITIONS

4. Light Conditions

- Daylight
- Dark
- Dark but lighted
- Dawn
- Dusk
- Unknown

5. Atmospheric Conditions  
(Select all that apply)

- Clear-No adverse conditions
- Cloudy
- Rain
- Snow
- Fog, Smog, Smoke
- Sleet, Hail (freezing rain or drizzle)
- Blowing Snow
- Severe Crosswinds
- Blowing Sand, Soil, Dirt
- Other (specify):
- Unknown

6. Temperature

- Below 0 degrees Celsius (Below 32 F)
- 1-10 degrees Celsius (33-50 F)
- >10-24 degrees Celsius (51-75 F)
- Over 24 degrees Celsius (Over 75 F)
- Unknown

## SCENE INFORMATION

7. Type of area in which crash occurred  
(Select all that apply)

- Single family residential
- Row houses/townhouses
- Multi family housing
- Commercial
- Industrial
- Rural
- Unknown

8. Driver exterior sightline obstructions  
(Select all that apply)

- None
- Other vehicles
- Building
- Trees
- Shrubby
- Other (specify) \_\_\_\_\_
- Utility poles
- Signs
- Glare
- Unknown
- No driver present

9. Crash location

- Driveway
- Parking Lot
- Sidewalk
- Alley
- Intersection of driveway and sidewalk
- Road / street
- Roadside / shoulder
- Other (specify) \_\_\_\_\_
- Unknown

10. Non motorist sightline obstructions  
(Select all that apply)

- None
- Other vehicles
- Building
- Trees
- Shrubby
- Utility poles
- Signs
- Glare
- Other (specify) \_\_\_\_\_
- Unknown

11. Grade at parked position \_\_\_\_\_ +/- %

12. Estimated distance from parked position to impact

\_\_\_\_\_ m

13. Estimated speed at impact \_\_\_\_\_ +/- kmph

14. Grade at impact \_\_\_\_\_ +/- %

15. Estimated distance from impact to vehicle final rest

\_\_\_\_\_ m

Unknown = 999 Reference Items 11,12, 13, 14, 15



# VEHICLE FORM

1. Case Number \_\_\_\_\_

## VEHICLE IDENTIFICATION

2. VIN \_\_\_\_\_

3. Model Year \_\_\_\_\_

4. Vehicle Make (specify): \_\_\_\_\_

5. Vehicle Model (specify): \_\_\_\_\_

## GLAZING

Location	Presence (check)	Status (select)	Clarity (select)	Tint (check)	Glazing Obstructions (specify if present)
Windshield		Fixed / Closed / Open / Partially Open / Unknown	Clear / Hazy / Very Dirty / Unknown		
LF		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
RF		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
2 <sup>nd</sup> Left		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
2 <sup>nd</sup> Right		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
3 <sup>rd</sup> Left		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
3 <sup>rd</sup> Right		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
Backlight		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
Left Backlight		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
Right Backlight		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
Roof		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
Other (specify)		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		

## TIRE DATA

6. Vehicle Manufacturer Recommended Tire Size \_\_\_\_\_

7. LF Tire Size \_\_\_\_\_

9. RF Tire Size \_\_\_\_\_

8. LR Tire Size \_\_\_\_\_

10. RR Tire Size \_\_\_\_\_

**Seats / Head Restraint Data**

Seat Position	Seat Type (Select from below )	Head Restraint (Check if available)	Head Restraint Adjustment (select)	NOTES:
Front Left			Full Down / Mid / Full Up	
Front Middle			Full Down / Mid / Full Up	
Front Right			Full Down / Mid / Full Up	
2 <sup>nd</sup> Left			Full Down / Mid / Full Up	
2 <sup>nd</sup> Middle			Full Down / Mid / Full Up	
2 <sup>nd</sup> Right			Full Down / Mid / Full Up	
3 <sup>rd</sup> Left			Full Down / Mid / Full Up	
3 <sup>rd</sup> Middle			Full Down / Mid / Full Up	
3 <sup>rd</sup> Right			Full Down / Mid / Full Up	

**Seat Type codes:**

- |   |                                      |
|---|--------------------------------------|
| 0 = No seat or seat folded down           | 8 = Pedestal (i.e. column supported) |
| 1 = Bucket                                | 9 = Box mounted (i.e. van type)      |
| 2 = Bucket w/ folding back                | 10= Other seat type (specify)        |
| 3 = Bench                                 | 99= Unknown seat type                |
| 4 = Bench with folding back cushions      |                                      |
| 5 = Bench w/ folding back                 |                                      |
| 6 = Split bench w/ separate back cushions |                                      |
| 7 = Split bench w/ separate folding back  |                                      |

**VEHICLE MEASUREMENTS**

Clearance Heights	Measurements (all from ground, and in centimeters)	NOTES
Beltline		
Top of trunk/tailgate		
Bottom of bumper		
Trailer hitch (if applicable)		
Undercarriage		
Sway bar		
Axle		
Differential		
Other (specify):		
Sensor Height (if equipped)		
Camera Height (if equipped)		





1. Case Number

\_\_\_\_\_

### PARKING AID PRESENCE

2. Type of backing/parking aid present

- OEM camera
- OEM ultrasonic/radar sensor
- OEM combination camera-ultrasonic/radar sensor
- OEM Fresnel lens
- OEM interior mirrors
- Aftermarket camera
- Aftermarket ultrasonic/radar sensor
- Aftermarket combination camera-ultrasonic radar sensor
- Aftermarket Fresnel lens
- Aftermarket interior mirrors
- Other (specify): \_\_\_\_\_

### CAMERA INFORMATION

*Specify field of view measurements on diagram*

3. System make/model

\_\_\_\_\_

4. Video monitor type

- None present
- LCD (color)
- CRT (black & white)
- Unknown

5. Video display size \_\_\_\_\_ cm  
(Diagonal)

6. Camera location

- None present
- Bumper
- License plate
- Tailgate/Hatch/Trunk
- Other (specify): \_\_\_\_\_

7. Video image quality under scene lighting conditions

- None present
- Good
- Average
- Poor (specify): \_\_\_\_\_
- Unknown

8. Was the camera functioning properly

- None present
- Yes
- No, poor image quality due to glare
- No, poor image quality due to atmospheric conditions
- No, camera turned off
- No, camera inoperable
- Unknown

### ULTRASONIC/RADAR SENSOR

*Specify object detection range on diagram*

9. System make/model

\_\_\_\_\_

10. Auditory warning illumination

- No sensor present
- Yes
- No
- Unknown

11. Number of sensors \_\_\_\_\_

12. Sensor locations  
(Select all that apply)

- No sensor present
- Left bumper
- Center bumper
- Right bumper
- License plate area
- Tailgate/Hatch/Trunk

13. Was warning system functioning properly

- No sensor present
- Yes, system alerted driver
- No, system did not alert driver
- No, system turned off
- No, system inoperable
- Unknown

14. Did driver react to warning

- No sensor present
- Yes
- No
- Unknown

15. Did driver report common false warnings

- No sensor present
- Yes
- No
- Unknown



# DRIVER FORM

1. Case Number  
\_\_\_\_\_

## DRIVER PROFILE

2. Driver's Age \_\_\_\_\_  
99 = Unknown

3. Driver's Sex  Male  
 Female  
 Unknown

4. Driver's Height \_\_\_\_\_ cm  
999 = Unknown

5. Driver's Weight \_\_\_\_\_ kg  
999 = Unknown

6. Driver eyewear worn  
(Select all that apply)  
 None  
 Eyeglasses  
 Sunglasses  
 Contacts  
 Unknown

7. Driver vision deficiency condition  
(Select all that apply)  
 None  
 Near sighted  
 Far sighted  
 Astigmatism  
 Other (specify): \_\_\_\_\_  
 Unknown

8. Non motorist's relationship to driver  
 No relationship  
 Child  
 Grandchild  
 Sibling  
 Neighbor  
 Friend  
 Other (specify): \_\_\_\_\_  
 Unknown

## DRIVER ACTIONS

9. Driver approach to vehicle for entry  
From left front  
 From left  
 From left rear  
 From right rear  
 From right front  
 Circled vehicle  
 Return trip (backing into driveway/lot)  
 Other (specify): \_\_\_\_\_  
 N/A  
 Unknown

10. Driver entry interruption  
(Select all that apply)  
 Direct trip from building to vehicle  
 Loaded items into vehicle  
 Spoke with family  
 Spoke with neighbors  
 Spoke with contacted nonmotorist  
 Return trip (backing into driveway/lot)  
 Other (specify): \_\_\_\_\_  
 N/A  
Unknown

11. Purpose of backing  
 Leaving parking space in parking lot  
 Backing onto roadway from driveway  
 Entering parking space in parking lot  
 Backing into driveway from roadway  
 Other (specify): \_\_\_\_\_  
 N/A  
Unknown

12. Where was driver going  
Description:  
\_\_\_\_\_  
\_\_\_\_\_

13. Driver in a hurry  
 Yes N/A  
 No Unknown  
 Unknown

14. How did driver check behind (rear area of vehicle)  
after vehicle entry  
(Select all that apply)  
 Did not look  
 Checked mirrors  
 Turned right and looked back  
 Turned left and looked back  
 Viewed Camera  
 Listened for auditory/visual warning from system  
 Other (specify): \_\_\_\_\_  
N/A Unknown

15. Estimated time between vehicle entry and start  
of backing  
 0-10 Seconds  Over 60 Seconds  
 11-30 Seconds  N/A  
 31-60 Seconds  Unknown

16. What direction was the driver looking during backing maneuver  
(Select all that apply)
- Straight ahead
  - Right
  - Left
  - Rearward
  - At object inside the car
  - At mirrors
  - Other (specify): \_\_\_\_\_
  - N/A
  - Unknown
17. Was the driver distracted during back up maneuver  
(Select all that apply)
- No non-driving activities
  - External**
  - Looking at other vehicles
  - Looking at other non motorist
  - Looking at intended turn destination
  - External focus, not specified
  - Other external focus (specify): \_\_\_\_\_
  - Internal**
  - Looking at other occupant
  - Talking to passenger
  - Dialing phone
  - Talking on phone
  - Listening to radio/cd/portable playback device
  - Adjusting radio/cd player
  - Adjusting climate controls
  - Using a device/controls integral to vehicle (specify): \_\_\_\_\_
  - Reading/adjusting navigation system
  - Eating or drinking
  - Smoking related
  - Retrieving fallen object (specify): \_\_\_\_\_
  - Internal focus, not specified
  - Focused on other internal object (specify): \_\_\_\_\_
  - N/A
  - Unknown
18. Driver avoidance actions prior to impact  
(Select all that apply)
- None
  - Braking
  - Steering left
  - Steering right
  - Accelerating
  - Other (specify): \_\_\_\_\_
  - N/A
  - Unknown
19. Did driver see struck non motorist prior to impact  
(Select all that apply)
- No, never saw non motorist
  - Saw non motorist prior to entering vehicle
  - Saw non motorist after entering vehicle
  - Other (specify): \_\_\_\_\_
  - N/A
  - Unknown
20. Est time between start of backing and impact
- <2 or = 1 second
  - 2-5 seconds
  - 6-10 seconds
  - > 10 seconds
  - N/A
  - Unknown
21. Driver interior sightline obstructions  
(Select all that apply)
- Pillar
  - Headrest
  - Cargo
  - Other occupant
  - Other (specify) \_\_\_\_\_
  - Unknown
  - None
22. Recent experience driving this vehicle
- More than 10 times the last three months
  - 6-10 times the last three months
  - 2-5 times the last three months
  - Less than 2 times the last three months
  - First time driving this vehicle
  - N/A
  - Unknown
23. Frequency of driving in this parking lot/driveway
- Daily
  - Weekly
  - Several times a month
  - Monthly
  - Rarely
  - First time in lot/driveway
  - N/A
  - Unknown
24. Driver Impairment  
(Select all that apply)
- No drugs or alcohol present
  - Alcohol present (specify BAC): \_\_\_\_\_
  - Drugs present (specify): \_\_\_\_\_
  - Unknown
25. Source of alcohol/drug results
- Police reported
  - Medical record
  - Other (specify) \_\_\_\_\_
  - Not Tested
  - Unknown if tested



Not Applicable

U.S. Department of Transportation  
National Highway Traffic Safety Administration

# Non Motorist Form

**Reset Values**

Special Crash Investigations  
Not In Traffic Surveillance

1. Case Number  
  1     N     0     9     0     2     1  

## NON-MOTORIST PROFILE

2. Non-motorist's Age   0     3    Months  
 Years  
99 = Unknown

3. Non-motorist's Sex  Male  
 Female  
 Unknown

4. Non-motorist's Height   0     5     6   cm  
999 = Unknown

5. Non-motorist's Weight   0     0     6   kg  
999 = Unknown

6. Medical outcome

- Not injured
- ER only
- Hospitalized 1-4 days
- Hospitalized 5 days or more
- Treatment later
- Fatal
- Unknown

7. Source of most severe injury

- Bumper
- Tire
- Undercarriage
- Other Specify: \_\_\_\_\_
- Ground
- N/A
- Unknown

8. Non-motorist impairment

(Select all that apply)

- No drugs or alcohol present
- Positive for alcohol (specify BAC): \_\_\_\_\_
- Positive for drugs (specify): \_\_\_\_\_
- Unknown

9. Source of alcohol/drug results

- Police reported
- Medical Report
- Other (specify) \_\_\_\_\_
- Not Tested
- Unknown if tested

## NON-MOTORIST ACTIONS

10. Non-motorist attitude

- Standing
- Bending at waist
- Sitting
- Crouching
- Kneeling
- On skates/skateboard
- On bike/scooter
- Other (specify) In tent
- Unknown

11. Non-motorist motion

- Not moving
- Walking slowly
- Walking rapidly
- Running or jogging
- Skipping/Hopping/Jumping
- Falling/Stumbling/Rising
- On skates/skateboard
- On bike/scooter
- Other (specify): Laying down in tent
- Unknown

12. Non-motorist approach relative to rear of vehicle

- Stationary
- From left
- From right
- From behind
- Other (specify): \_\_\_\_\_
- Unknown

13. Non-motorist first avoidance action

- No avoidance actions
- Stopped
- Accelerated pace
- Ran away (along vehicle path)
- Jumped
- Turned away from vehicle
- Turned toward vehicle and braced
- Dove or fell away from vehicle
- Other (specify): \_\_\_\_\_
- Unknown

14. Non-motorist primary focus of attention

- Striking vehicle
- Play object
- Person
- Surrounding traffic
- Animal
- Handheld electronic (phone, MP3 player, etc.)
- Other Object (specify) Baby bottle
- Unknown

15. Were any other Non-motorists present?  
(Select all that apply)

- Alone
- One adult present
- One other child present
- Multiple adults present
- Multiple children present
- Unknown

**NON MOTORIST CLOTHING**

**NOTES:**

- Specify Color, Fabric and Texture/Weight for outermost layer only
- Indicate "NONE" if applicable
- Available codes:

	<u>Colors</u>		<u>Fabrics</u>		<u>Textures</u>		<u>Weights</u>
Black		Charcoal gray	Natural		Soft		Heavy
Lt gray/silver		Brown	Synthetic		Slick		Medium
Gold/tan		Purple	Blend		Coarse		Light
Dark blue		Light blue					
Dark green		Light green					
Maroon		Red					
Orange		Yellow					
White		Other (specify)					
Pink							

	Clothing	Color	Fabric	Texture	Weight
<b>H E A D W E A R</b>	Hat				
	Helmet				
	Hood				
	Other (specify): _____				
	Unknown	Unknown	Unknown	Unknown	Unknown
<b>U P P E R  B O D Y</b>	Short Sleeve				
	Long Sleeve				
	Light Jacket				
	Heavy Jacket				
	Other (Specify): _____				
	Unknown	Unknown	Unknown	Unknown	Unknown
<b>L O W E R  B O D Y</b>	Shorts				
	Pants				
	Shoes				
	Other (specify): _____				
	Unknown	Unknown	Unknown	Unknown	Unknown



Not Applicable

U.S. Department of Transportation  
National Highway Traffic Safety Administration

# Non Motorist Form

**Reset Values**

Special Crash Investigations  
Not In Traffic Surveillance

1. Case Number  
  1     N     0     9     0     2     1  

## NON-MOTORIST PROFILE

2. Non-motorist's Age   2     1    Months  
99 = Unknown  Years

3. Non-motorist's Sex  Male  
 Female  
 Unknown

4. Non-motorist's Height   1     6     8   cm  
999 = Unknown

5. Non-motorist's Weight   0     7     3   kg  
999 = Unknown

6. Medical outcome

- Not injured
- ER only
- Hospitalized 1-4 days
- Hospitalized 5 days or more
- Treatment later
- Fatal
- Unknown

7. Source of most severe injury

- Bumper
- Tire
- Undercarriage
- Other Specify: \_\_\_\_\_
- Ground
- N/A
- Unknown

8. Non-motorist impairment

(Select all that apply)

- No drugs or alcohol present
- Positive for alcohol (specify BAC): \_\_\_\_\_
- Positive for drugs (specify): \_\_\_\_\_
- Unknown

9. Source of alcohol/drug results

- Police reported
- Medical Report
- Other (specify) \_\_\_\_\_
- Not Tested
- Unknown if tested

## NON-MOTORIST ACTIONS

10. Non-motorist attitude

- Standing
- Bending at waist
- Sitting
- Crouching
- Kneeling
- On skates/skateboard
- On bike/scooter
- Other (specify) In tent
- Unknown

11. Non-motorist motion

- Not moving
- Walking slowly
- Walking rapidly
- Running or jogging
- Skipping/Hopping/Jumping
- Falling/Stumbling/Rising
- On skates/skateboard
- On bike/scooter
- Other (specify): Laying down in tent
- Unknown

12. Non-motorist approach relative to rear of vehicle

- Stationary
- From left
- From right
- From behind
- Other (specify): \_\_\_\_\_
- Unknown

13. Non-motorist first avoidance action

- No avoidance actions
- Stopped
- Accelerated pace
- Ran away (along vehicle path)
- Jumped
- Turned away from vehicle
- Turned toward vehicle and braced
- Dove or fell away from vehicle
- Other (specify): \_\_\_\_\_
- Unknown

14. Non-motorist primary focus of attention

- Striking vehicle
- Play object
- Person
- Surrounding traffic
- Animal
- Handheld electronic (phone, MP3 player, etc.)
- Other Object (specify) \_\_\_\_\_
- Unknown

15. Were any other Non-motorists present?  
(Select all that apply)

- Alone
- One adult present
- One other child present
- Multiple adults present
- Multiple children present
- Unknown

**NON MOTORIST CLOTHING**

**NOTES:**

- Specify Color, Fabric and Texture/Weight for outermost layer only
- Indicate "NONE" if applicable
- Available codes:

	<u>Colors</u>		<u>Fabrics</u>		<u>Textures</u>		<u>Weights</u>
Black	Charcoal gray		Natural		Soft		Heavy
Lt gray/silver	Brown		Synthetic		Slick		Medium
Gold/tan	Purple		Blend		Coarse		Light
Dark blue	Light blue						
Dark green	Light green						
Maroon	Red						
Orange	Yellow						
White	Other (specify)						
Pink							

	Clothing	Color	Fabric	Texture	Weight
<b>H E A D W E A R</b>	Hat				
	Helmet				
	Hood				
	Other (specify): _____				
	Unknown	Unknown	Unknown	Unknown	Unknown
<b>U P P E R  B O D Y</b>	Short Sleeve				
	Long Sleeve				
	Light Jacket				
	Heavy Jacket				
	Other (Specify): _____				
	Unknown	Unknown	Unknown	Unknown	Unknown
<b>L O W E R  B O D Y</b>	Shorts				
	Pants				
	Shoes				
	Other (specify): _____				
	Unknown	Unknown	Unknown	Unknown	Unknown





Not Applicable

U.S. Department of Transportation  
National Highway Traffic Safety Administration

# Non Motorist Form

**Reset Values**

Special Crash Investigations  
Not In Traffic Surveillance

1. Case Number  
  I     N     0     9     0     2     1  

## NON-MOTORIST PROFILE

2. Non-motorist's Age   2     7    Months  
 Years  
99 = Unknown

3. Non-motorist's Sex  
 Male  
 Female  
 Unknown

4. Non-motorist's Height   1     8     3   cm  
999 = Unknown

5. Non-motorist's Weight   1     5     4   kg  
999 = Unknown

6. Medical outcome  
 Not injured  
 ER only  
 Hospitalized 1-4 days  
 Hospitalized 5 days or more  
 Treatment later  
 Fatal  
 Unknown

7. Source of most severe injury  
 Bumper  
 Tire  
 Undercarriage  
 Other Specify: \_\_\_\_\_  
 Ground  
 N/A  
 Unknown

8. Non-motorist impairment  
(Select all that apply)  
 No drugs or alcohol present  
 Positive for alcohol (specify BAC): \_\_\_\_\_  
 Positive for drugs (specify): \_\_\_\_\_  
 Unknown

9. Source of alcohol/drug results  
 Police reported  
 Medical Report  
 Other (specify) \_\_\_\_\_  
 Not Tested  
 Unknown if tested

## NON-MOTORIST ACTIONS

10. Non-motorist attitude  
 Standing  
 Bending at waist  
 Sitting  
 Crouching  
 Kneeling  
 On skates/skateboard  
 On bike/scooter  
 Other (specify) \_\_\_\_\_  
 Unknown

11. Non-motorist motion  
 Not moving  
 Walking slowly  
 Walking rapidly  
 Running or jogging  
 Skipping/Hopping/Jumping  
 Falling/Stumbling/Rising  
 On skates/skateboard  
 On bike/scooter  
 Other (specify):   Entering tent    
 Unknown

12. Non-motorist approach relative to rear of vehicle  
 Stationary  
 From left  
 From right  
 From behind  
 Other (specify): \_\_\_\_\_  
 Unknown

13. Non-motorist first avoidance action  
 No avoidance actions  
 Stopped  
 Accelerated pace  
 Ran away (along vehicle path)  
 Jumped  
 Turned away from vehicle  
 Turned toward vehicle and braced  
 Dove or fell away from vehicle  
 Other (specify): \_\_\_\_\_  
 Unknown

14. Non-motorist primary focus of attention  
 Striking vehicle  
 Play object  
 Person  
 Surrounding traffic  
 Animal  
 Handheld electronic (phone, MP3 player, etc.)  
 Other Object (specify)   Tent    
 Unknown

15. Were any other Non-motorists present?  
(Select all that apply)  
 Alone  
 One adult present  
 One other child present  
 Multiple adults present  
 Multiple children present  
 Unknown

**NON MOTORIST CLOTHING**

**NOTES:**

- Specify Color, Fabric and Texture/Weight for outermost layer only
- Indicate "NONE" if applicable
- Available codes:

	<u>Colors</u>		<u>Fabrics</u>		<u>Textures</u>		<u>Weights</u>
Black	Charcoal gray		Natural		Soft		Heavy
Lt gray/silver	Brown		Synthetic		Slick		Medium
Gold/tan	Purple		Blend		Coarse		Light
Dark blue	Light blue						
Dark green	Light green						
Maroon	Red						
Orange	Yellow						
White	Other (specify)						
Pink							

	Clothing	Color	Fabric	Texture	Weight
<b>H E A D W E A R</b>	Hat				
	Helmet				
	Hood				
	Other (specify): _____				
	Unknown				
<b>U P P E R  B O D Y</b>	Short Sleeve	White	Natural	Soft	Light
	Long Sleeve				
	Light Jacket				
	Heavy Jacket				
	Other (Specify): _____				
	Unknown				
<b>L O W E R  B O D Y</b>	Shorts				
	Pants	Light blue	Natural	Soft	Medium
	Shoes	Unknown	Unknown	Unknown	Unknown
	Other (specify): _____				
	Unknown				