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ON-SITE NOT IN TRAFFIC SURVEILLANCE BACK OVER INVESTIGATION

CASE NUMBER - IN08023
LOCATION - TEXAS
VEHICLE - 1994 GMC SUBURBAN
CRASH DATE - May 2008

Submitted:

July 22, 2008
Revised: August 22, 2008

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

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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. *Report No.* IN08023	2. *Government Accession No.*	3. *Recipient's Catalog No.*	
4. *Title and Subtitle* On-Site Not In Traffic Surveillance Back Over Investigation Vehicle - 1994 GMC Suburban Location - Texas		5. *Report Date:* July 22, 2008 6. *Performing Organization Code*	
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15. *Supplementary Notes* On-site not in traffic surveillance back over investigation involving a 1994 GMC Suburban and a nonmotorist.			
16. *Abstract* This report covers an on-site not in traffic surveillance back over investigation involving a 1994 GMC Suburban and a nonmotorist. This incident is of special interest because the GMC was being driven in reverse and backed over a nonmotorist (2-year-old, male). The GMC's driver (42-year-old, female) drove into a residential driveway, parked and waited in the vehicle for her daughter and four grandchildren. The daughter was inside the residence and the struck nonmotorist and the other three grandchildren were playing on the front porch, which was located to the right front of the vehicle. The driver had parked with the right side of the vehicle very close to a tree, and the foliage blocked the right side entrance to the vehicle as well as the driver's view. The four children began to move from the front porch toward the vehicle. The nonmotorist went (unknown if walked or ran) around the tree and was behind the back right corner of the vehicle when the driver began to back up to allow the children to enter the right side doors. The nonmotorist was impacted by the back bumper, knocked down, and the vehicle's right rear tire rolled onto his head. The nonmotorist died from an unspecified head injury approximately 5 hours following the incident. The nonmotorist was within the blind zone behind the vehicle when the driver began to back up and she could not see him. Her view of the nonmotorist's approach to the vehicle was also partially obstructed by the tree.			
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BACKGROUND

IN08023

This incident was brought to the National Highway Traffic Safety Administration's attention on or before May 20, 2007 by an on-line article from a Texas television station. This incident involved a 1994 GMC Suburban and a nonmotorist (driver's 2-year-old grandson). The incident occurred in May, 2008, at 17:27 hours in Texas and was investigated by the applicable city police department. This incident is of special interest because the GMC was being driven in reverse and backed over a nonmotorist. The nonmotorist sustained an unspecified head injury resulting in his death. A Texas Peace Officer's Crash Report was completed by the police department but was not sent to any state agency. This contractor inspected the scene and the GMC, interviewed the GMC's driver on June 23, 2008, and interviewed the driver's daughter on July 9, 2008. This report is based on the police incident report, scene and vehicle inspections, and an interview with the GMC's driver and the nonmotorist's mother.

SUMMARY

This incident occurred on a level residential driveway during daylight hours under clear and dry weather conditions. The GMC's driver (42-year-old, female) drove into a residential driveway, parked and waited in the vehicle for her daughter and four grandchildren. The daughter was inside the residence and the struck nonmotorist and the other three grandchildren were playing on the front porch, which was located to the right front of the vehicle. The driver had parked with the right side of the vehicle very close to a tree, and the foliage blocked the right side entrance to the vehicle as well as the driver's view. The four children began to move from the front porch toward the vehicle. The nonmotorist went (unknown if walked or ran) around the tree and was behind the back right corner of the vehicle when the driver began to back up to allow the children to enter the right side doors. The nonmotorist was impacted by the back bumper, knocked down, and the vehicle's right rear tire rolled onto his head. The nonmotorist died from an unspecified head injury approximately 5 hours following the incident. The nonmotorist was within the blind zone behind the vehicle when the driver began to back up and she could not see him. Her view of the nonmotorist's approach to the vehicle was also partially obstructed by the tree.

CRASH CIRCUMSTANCES

Crash Environment: The GMC was initially parked in a driveway that traversed north/south and was located on the southwest side of the driver's daughter's residence. A tree with foliage that extended to the ground was located immediately adjacent to the right side of vehicle (**Figure 1**). The width of the foliage at the height of the vehicle's right side windows was 3 meters (9.8 feet) and blocked the view out of the right side view mirror and second row right window, and partially blocked the view out of the right front window. A vehicle unrelated to the incident was parked on the southeast side of the yard. At

Figure 1: The GMC parked in the same location as at the time of the incident

the time of the incident, the light condition was daylight, the atmospheric condition was clear, and the driveway was dry, level, dirt and grass. The site of the incident was within a residential area. See the Scene Diagram at the end of this report.

Pre-Crash: The GMC's driver and three passengers traveled to her daughter's house and parked the vehicle in the driveway (**Figure 1**). The passengers were seated within the front row right (27-year-old, female), second row left (27-year-old, female) and second row right (47-year-old female) positions. The driver intended to pick up her daughter and four grandchildren and take them to a relative's residence. The driver's daughter was inside the residence and the grandchildren were playing on the front porch, which was located 4 meters (13.1 feet) northeast of the vehicle (**Figure 2**). The driver stated during the interview that she waited with the motor running for 5-10 minutes, then the children began moving from the porch to the vehicle. Three of them stopped in front of the tree while the nonmotorist, unseen by the driver, went (unknown if walked or ran) around the tree and behind the vehicle. The vehicle was parked so close to the tree that it was impossible to enter the vehicle through the right rear door, so the driver began to back up to move past the tree. Prior to backing, the driver looked in the rearview mirror as well as the right and left side view mirrors, but she did not turn her head to look out of the backlight. The driver backed the vehicle while looking through the rearview mirror. The driver backed slowly but wasn't sure if she allowed the vehicle to idle backward or accelerated slowly backward.

Figure 2: View of front porch and GMC

Figure 3: Back right view of the GMC

Figure 4: GMC's back bumper; arrow shows area of bumper that impacted nonmotorist; scale in tenths of meter

Crash: The driver stated that immediately after initiating the backing maneuver, the children began yelling at her to stop. The right portion of the back bumper (**Figures 3** and **4**) impacted the nonmotorist, knocked him to the ground, and the vehicle's right rear tire rolled onto his head. The driver said she felt something, but did not realize there had been an impact. She thought the back wheels had rolled over a depression in the driveway. When she stopped the vehicle, the right rear tire was on the nonmotorist's head. She estimated that she had backed up approximately 1 second before she heard the children yelling for her to stop. Based on the driver's description

of the incident, the parked and final rest locations of the vehicle, and the police incident report, this contractor estimated that the distance the vehicle traversed to impact and final rest was 0.3 meter (1 foot) and 1.3 meters (4.3 feet), respectively, and the approximate impact speed was 2 km/h (1 mph).

Post-Crash: The driver's daughter ran out of the residence when she heard the children yelling. She saw the vehicle's right rear tire on the nonmotorist's head and yelled at the driver to back up. The driver backed off the nonmotorist's head and the daughter picked him up, put him in the GMC, and they began traveling to a hospital. The police were notified of the incident and stopped the vehicle en route. The nonmotorist was transported by ambulance to a hospital where he died from unspecified head injuries approximately five hours following the incident.

CASE VEHICLE

Figure 5: Front left view of the GMC Surburban

The 1994 GMC Suburban (**Figure 5)** was a rear wheel drive, four-door, large utility wagon (VIN: 1GDEC16K8RJ------) equipped with a 5.7L, V-8 engine and automatic transmission. The GMC was not equipped with a back up/ parking aid, and captains's chairs were installed in the second row. The windows in the second row, third row, and left and right backlights were equipped with AS-3 tinted glazing. The GMC's specified wheelbase was 334 centimeters (131.5 inches), the specified rear overhang was 134 centimeters (52.7 inches), and the specified overall length was 558 centimeters (219.5 inches). The vertical distance from the ground to the bottom of the back bumper was 44 centimeters (17.3 inches). The vertical distance from the ground to the beltline was 116 centimeters (45.6 inches).

CASE VEHICLE DAMAGE

There was no damage and no evidence of nonmotorist contact to the GMC's back bumper. Based on the driver's description of the incident and the Collision Deformation Classification (CDC) guidelines for pedestrian impacts, the CDC was estimated to be **06-BRLN-1** (**180** degrees).

CASE VEHICLE DRIVER

The GMC's driver was a 42-year-old, female, 168 centimeters (66 inches) tall and weighed 86 kilograms (190 pounds). The driver had owned and driven the vehicle for two months. She drove it to the incident location and parked in the driveway daily. She was not wearing eyeglasses or contacts at the time of the incident.

A visibility study was conducted during the inspection of the GMC in order to determine the nominal blind zone behind the vehicle as well as the nominal blind zones of both side view mirrors and the rearview mirror. The standard 71 centimeter (28 inch) high target was used for the observations. The GMC's driver assisted the SCI investigator in making the visibility observations. Due to a conflict between the driver and her daughter, the observations could not be conducted at the scene of the incident and were conducted in a parking lot. The driver's eye height above the ground was measured as 141 centimeters (55.5 inches) as she sat in the driver's seat. The driver's seat track was adjusted between the middle and full forward track positions, which was her normal seat track position. Please refer to the Nominal Visibility Diagram at the end of this report when reading the following description

Figure 6: Arrow shows position of target where driver could first see it while looking over her right shoulder out of the backlight

Figure 7: View out of backlight from driver's seat; arrows show target and second row captain's chairs

The initial set of observations was made with the driver looking over her right shoulder out of the backlight. Two surrogate passengers were seated in the second row left and right seats to determine if their presence constituted a vision obstruction to the driver. The passenger's heads did not extend above the head restraints of the captain's chairs and did not block the driver's view. The target was moved rearward from the back bumper along the vehicle's centerline until it came into the driver's view. The target had to be moved rearward from the back bumper 8.8 meters (28.9 feet) before the top of target became visible to the driver (**Figures 6** and **7**). The target was then moved to the right 1.1 meters (3.6 feet) where it became obstructed by the pillar that divided the center backlights. The target became visible on the right side of the center backlight pillar when moved 0.7 meter (2.3 feet) further to the right. When the target was moved 1.8 meters (5.9 feet) further to the right, it became obstructed by the right D-pillar. The target became visible again on the right side of the D-pillar when it was moved 1.9 meters (6.2 feet) further to the right. The target was moved another 0.8 meter (2.6 feet) to the right and it became obstructed by the second row right head restraint. The target was no longer visible when moved further to the right. The target was placed back at the centerline, and when moved 0.6 meter (2.0 feet) to the left, it became obstructed by the second row left head restraint. The target was no longer visible to the driver beyond this point because it was not natural for her to turn her head further to the right.

The target was moved rearward from the back bumper as the driver viewed through the rearview mirror (**Figure 8**). The driver could not see the target until it was moved rearward 6.0

meters (19.7 feet). The target became obstructed by the center pillar between the backlights when moved to the right 0.6 meter (2.0 feet), and it became visible again when moved 0.4 meter (1.3 feet) further to the right. When moved an additional 0.6 meter (1.8 feet) to the right, the target went out of the rearview mirror's field of view. The target was returned to the initial location at the centerline and when moved left 1.1 meters (3.6 feet), was obstructed by the second row left head restraint and was not visible again when moved further to the left.

The target was placed at the back left bumper corner as the driver viewed through the left side view mirror and moved left 1.1 meters (3.6 feet) where the driver could no longer see it. The target was repositioned at the bumper corner and moved forward, toward the mirror 1.1 meters (3.6 feet) where it went out of the driver's view at the bottom of the mirror (**Figure 9**).

The right side view mirror was loose and did not retain its adjustment. The driver said it was necessary to adjust it each time she drove the vehicle. She adjusted it to her preference prior to the observations. The target was positioned at the back right bumper corner and was moved to the right 1.6 meters (5.3 feet) where the driver could not longer see it (**Figure 10**). When moved forward 1.7 meters (5.6 feet), the target went out of the driver's view at the bottom of the mirror.

The nonmotorist approached the GMC from the front right and was directly behind the back right corner of the vehicle when the driver began to back up. The visibility study confirmed that this location was within the vehicle's rear blind zone. The tree foliage adjacent to the vehicle's right side also constituted a vision obstruction of the nonmotorist's approach from the front right to the back of the vehicle.

Figure 8: Close-up view of the rearview mirror from the driver's seat

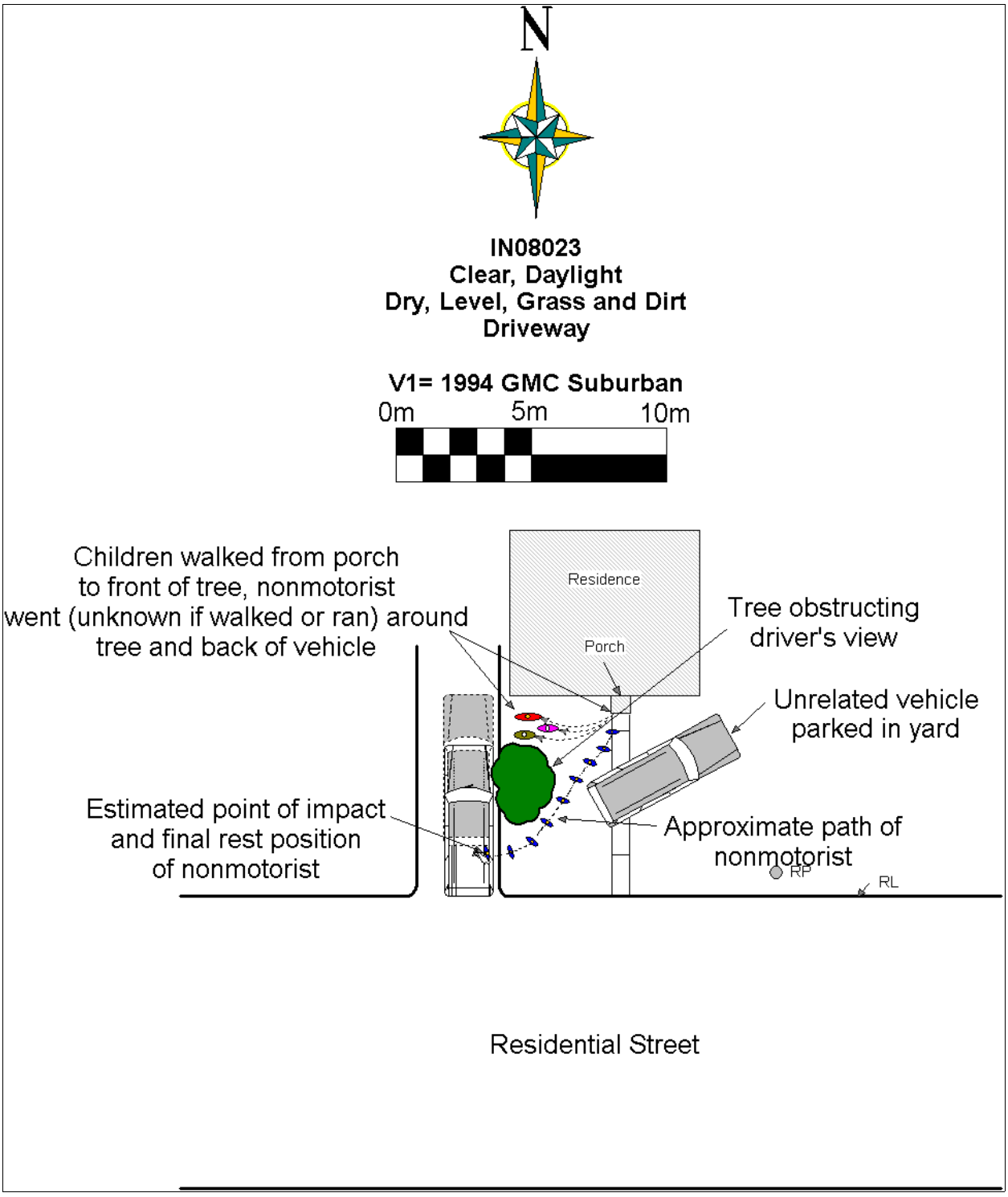
Figure 9: View through left side view mirror from driver's seat; arrow shows target where it begins to go out of the mirror's bottom field of view

Figure 10: View through right side view mirror from the driver's seat, arrow shows target were it begins to go out of the mirror's lateral field of view

The nonmotorist was a 2-year-old, male, 86 centimeters (34 inches) tall and weighed 18 kilograms (40 pounds). He was wearing blue shorts, a blue tee shirt, and blue flip flops. The nonmotorist was initially transported from the scene in the GMC. The police stopped the vehicle en route and an ambulance transported the nonmotorist to the hospital where he died from unspecified head injuries approximately five hours following the incident. The table below shows the nonmotorist's interviewee reported 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 {unspecified} head trauma, not further specified	unknown 115099.7,0[1]	Tire, right rear	Certain	Interviewee (relative)

[1] According to the Police Crash Report, the nonmotorist was transported to a medical facility where he was evaluated, treated, and subsequently pronounced dead 5 hours and 7 minutes post-incident.


N
IN08023
Clear, Daylight
Dry, Level, Grass and Dirt
Driveway
V1= 1994 GMC Suburban
0m
5m
10m
Children walked from porch to front of tree, nonmotorist went (unknown if walked or ran) around tree and back of vehicle
Residence
Porch
Tree obstructing driver's view
Unrelated vehicle parked in yard
Estimated point of impact and final rest position of nonmotorist
Approximate path of nonmotorist
RP
RL
Residential Street

IN08023

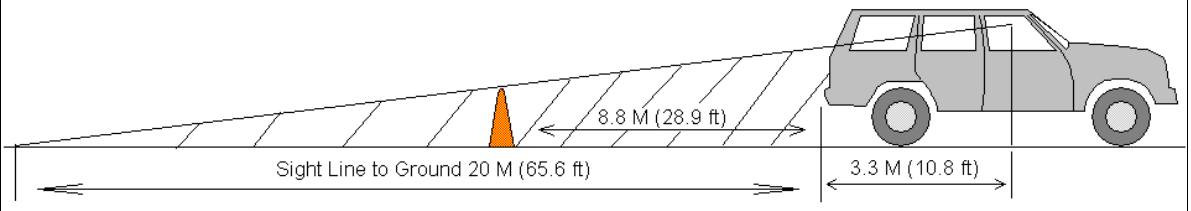
Nominal Visibility Diagram
1994 GMC Suburban

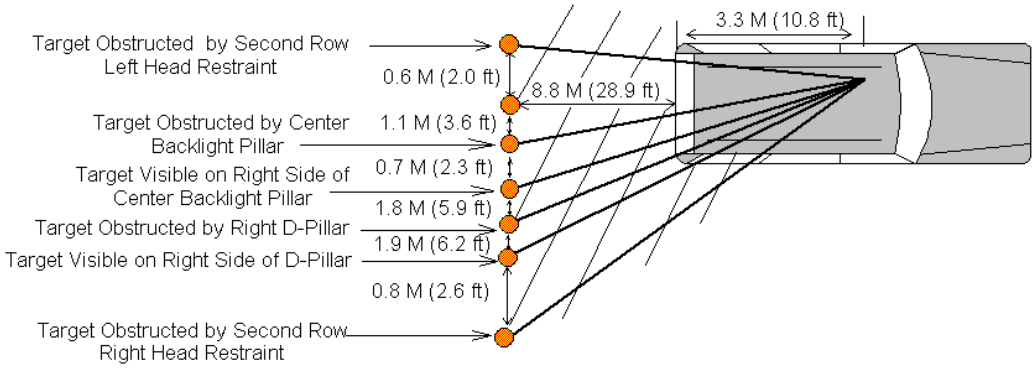
Driver's Eye Height From Ground = 141 cm (55.5 in)

= Ford Blind Zones

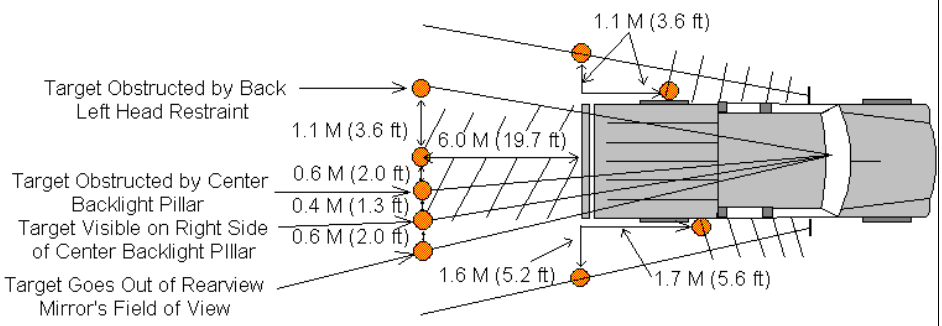
= 71 cm (28 in) High Target

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





2. Rearview Mirror and Side View Mirrors Blind Zones



Not Applicable ☐

Reset Values | Print Forms

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

SCENE FORM

Special Crash Investigations
Not In Traffic Surveillance

1. Case Number

I N 0 8 0 2 3

IDENTIFICATION

2. Date of Crash 0 5 / x x / 0 8

3. Time of Crash 1 7 2 7

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
- [ ] Shrubbery
- [ ] 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
- [ ] Shrubbery
- [ ] Utility poles
- [ ] Signs
- [ ] Glare
- [ ] Other (specify) _____
- [ ] Unknown

11. Grade at parked position + / - 0 0 0 %

12. Estimated distance from parked position to impact

0 0 0 . 3 m

13. Estimated speed at impact 0 0 1 kmph

14. Grade at impact +/ - 0 0 0 %

15. Estimated distance from impact to vehicle final rest

0 0 1 . 3 m

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

Not Applicable ☐

Reset Values

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

VEHICLE FORM

Special Crash Investigations
Not In Traffic Surveillance

1. Case Number I N 0 8 0 2 3

VEHICLE IDENTIFICATION

2. VIN 1 G D E C 1 6 K 8 R J X X X X X X

3. Model Year 1 9 9 4

4. Vehicle Make (specify): GMC

5. Vehicle Model (specify): Suburban

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 / ☐ Unknown	☑ Clear / ☐ Hazy / ☐ Very Dirty / ☐ Unknown	☐	
RF	☑	☐ Fixed / ☐ Closed / ☑ Open / ☐ Partially Open / ☐ Unknown	☑ Clear / ☐ Hazy / ☐ Very Dirty / ☐ Unknown	☐	
2nd Left	☑	☐ Fixed / ☐ Closed / ☐ Open / ☑ Partially Open / ☐ Unknown	☑ Clear / ☐ Hazy / ☐ Very Dirty / ☐ Unknown	☑	
2nd Right	☑	☐ Fixed / ☐ Closed / ☐ Open / ☑ Partially Open / ☐ Unknown	☑ Clear / ☐ Hazy / ☐ Very Dirty / ☐ Unknown	☑	
3rd Left	☑	☑ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☑ Clear / ☐ Hazy / ☐ Very Dirty / ☐ Unknown	☑	
3rd Right	☑	☑ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☑ Clear / ☐ Hazy / ☐ Very Dirty / ☐ Unknown	☑	
Backlight	☐	☐ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☐ Unknown	☐	
Left Backlight	☑	☑ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☑ Clear / ☐ Hazy / ☐ Very Dirty / ☐ Unknown	☑	
Right Backlight	☑	☑ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☑ Clear / ☐ Hazy / ☐ Very Dirty / ☐ Unknown	☑	
Roof	☐	☐ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☐ Unknown	☐	
Other (specify)	☐	☐ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☐ Unknown	☐	

TIRE DATA

6. Vehicle Manufacturer Recommended Tire Size P235/75R15

7. LF Tire Size P235/75R15

9. RF Tire Size P235/75R15

8. LR Tire Size P235/75R15

10. RR Tire Size P235/75R15

Seats / Head Restraint Data

Seat Position	Seat Type (Select from below)	Head Restraint (Check if available)	Head Restraint Adjustment (select)	NOTES:
Front Left	1	☑	☑ Full Down / ☐ Mid / ☐ Full Up	
Front Middle	0	☐	☐ Full Down / ☐ Mid / ☐ Full Up	
Front Right	1	☑	☑ Full Down / ☐ Mid / ☐ Full Up	
2nd Left	8	☑	☑ Full Down / ☐ Mid / ☐ Full Up	
2nd Middle	0	☐	☐ Full Down / ☐ Mid / ☐ Full Up	
2nd Right	8	☑	☑ Full Down / ☐ Mid / ☐ Full Up	
3rd Left	5	☐	☐ Full Down / ☐ Mid / ☐ Full Up	
3rd Middle	5	☐	☐ Full Down / ☐ Mid / ☐ Full Up	
3rd Right	5	☐	☐ Full Down / ☐ Mid / ☐ Full Up	

Seat Type codes:

0 = No seat or seat folded down
1 = Bucket
2 = Bucket w/ folding back
3 = Bench
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
8 = Pedestal (i.e. column supported)
9 = Box mounted (i.e. van type)
10= Other seat type (specify)
99= Unknown seat type

VEHICLE MEASUREMENTS

Clearance Heights		Measurements (all from ground, and in centimeters	NOTES
Beltline		116	
Top of trunk/tailgate		N/A	
Bottom of bumper		44	
Trailer hitch (if applicable)		54	
Undercarriage			
	Sway bar	23	
	Axle	28	
	Differential	18	
	Other (specify): Gas tank	28	
Sensor Height (if equipped)		N/A	
Camera Height (if equipped)		N/A	

Not Applicable ☑

Undo Not Applicable

Reset Values

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

Back Up / Parking Aid Form

Special Crash Investigations
Not In Traffic Surveillance

1. Case Number

I N 0 8 0 2 3

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

Not Applicable

No Driver Present ☐

Reset Values

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

DRIVER FORM

Special Crash Investigations
Not In Traffic Surveillance

1. Case Number

I N 0 8 0 2 3

DRIVER PROFILE

2. Driver's Age 4 2
99 = Unknown

3. Driver's Sex
- ☐ Male
- ☉ Female
- ☐ Unknown

4. Driver's Height 1 6 6 cm
999 = Unknown

5. Driver's Weight 0 8 6 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): Not entered @ scene
- ☐ 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): To allow right side entry
- ☐ N/A
- ☐ Unknown

12. Where was driver going
Description:

Transporting daughter and grandchildren to other relatives home

13. Driver in a hurry
- ☐ Yes
- ☉ No
- ☐ N/A
- ☐ 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
- ☐ 11-30 Seconds
- ☐ 31-60 Seconds
- ☐ Over 60 Seconds
- ☉ N/A
- ☐ 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): Saw NM on porch
- ☐ 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
I N 0 8 0 2 3

NON-MOTORIST PROFILE

2. Non-motorist's Age — 0 2 ☐ Months ☉ Years
99 = Unknown

3. Non-motorist's Sex
☉ Male
☐ Female
☐ Unknown

4. Non-motorist's Height — 0 8 6 cm
999 = Unknown

5. Non-motorist's Weight — 0 1 8 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): _____
☉ 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:

Colors		***Fabrics***	***Textures***	***Weights***
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
HEADWEAR	Hat				
	Helmet				
	Hood				
	Other (specify): _____				
	Unknown				
UPPER BODY	Short Sleeve	Dark blue	Unknown	Unknown	Light
	Long Sleeve				
	Light Jacket				
	Heavy Jacket				
	Other (Specify): _____				
	Unknown				
LOWER BODY	Shorts	Dark blue	Unknown	Unknown	Light
	Pants				
	Shoes	Dark blue	Synthetic	Unknown	Light
	Other (specify): _____				
	Unknown				