CRASH DATA RESEARCH CENTER
Calspan Corporation
Buffalo, NY 14225

NOT-IN-TRAFFIC SURVEILLANCE
CALSPAN ON-SITE BACK OVER FATALITY INVESTIGATION

SCI CASE NO: CA07-002

VEHICLE: 2006 GMC SIERRA PICKUP TRUCK
LOCATION: FLORIDA
INCIDENT DATE: DECEMBER, 2006

Contract No. DTNH22-07-C-00043

Prepared for:

U.S. Department of Transportation
National Highway Traffic Safety Administration
Washington, D.C. 20590

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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 are 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 STANDARD TITLE PAGE

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15. Supplementary Note An investigation of the 2006 GMC Sierra pickup truck involved in a back over fatality with an 18-month old male.			
16. Abstract This on-site investigation focused on the visibility issues and the causal factors that contributed to the death of an 18-month old male who was backed over by a vehicle driven by his grandmother in a residential driveway. The 49-year old female driver was backing out of a fenced yard as the child exited the house and crossed the backing trajectory of a 2006 GMC Sierra extended cab 2-wheel drive pickup truck. This pickup truck was not equipped with a backing or parking assist system. The driver felt a thump as she began to back and heard the family dog bark. She stopped the vehicle and exited to find the child lying on the driveway forward of the right rear tire in an unconscious state. He was transported by ambulance to a regional trauma center where he expired the following day of a closed head injury.			
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TABLE OF CONTENTS

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BACKGROUND

This on-site investigation focused on the visibility issues and the causal factors that contributed to the death of an 18-month old male who was backed over by a vehicle driven by his grandmother in a residential driveway. The 49-year old female driver was backing out of a fenced yard as the child exited the house and crossed the backing trajectory of a 2006 GMC Sierra extended cab 2-wheel drive pickup truck **(Figure 1)**. This pickup truck was not equipped with a backing or parking assist system. The driver felt a thump as she began to back and heard the family dog bark. She stopped the vehicle and exited to find the child lying on the driveway forward of the right rear tire in an unconscious state. He was transported by ambulance to a regional trauma center where he expired the following day of a closed head injury.

Figure 1. Overall view of the scene and the trajectory of the child pedestrian.

This back over incident was identified through an Internet news search in December 2006 and assigned to the Calspan SCI team for an on-site investigation. The incident was document by the police investigator on the standard Florida Traffic Crash Report form and was reported to the state. The Calspan SCI team obtained a copy of the Police Accident Report (PAR) and contacted the driver who requested follow-up after the year-end holidays. She was re-contacted in early January and an on-site investigation was conducted on Thursday, January 11, 2007. The investigation involved the inspection of the vehicle and scene, a detailed interview with the driver, and the documentation of the driver's site distances from within the GMC.

SUMMARY

Incident Site

The incident occurred in the front yard/driveway area of a private residence in Florida during the month of December 2006. The residence consisted of a stucco ranch-style house with a center front entrance that was recessed 2.4 m (7.9') from the front of the house. The front of the house faced in a northerly direction. The front door typically remains open for ventilation when the family is home. The area directly in front of the house was surfaced with concrete and was 7.1 m (23.3') in width and 6.7 m (22') in length along the front of the residence. An area that measured 3x2 m (10x6.6') was surfaced with stone pavers and extended to the east of the concrete. An aluminum fence bordered the front of the residence and was located 7.1m (23.3') north of the house at the

edge of the paved surface. The fence was 152 cm (60”) in height with a hinged gate that provided access to the front walkway. A sliding cantilever gate was positioned over the mouth of the driveway. The concrete driveway was 3.5 m (11.5’) in width and extended to the west side of the residence. A contiguous carport was located at the west side of the property and extended over the driveway that continued the full depth of the house [8.5 m (28’)]. The driveway was level and was 11 cm (4.5”) above the level surface of the concrete pad in the front of the house. A 38 cm (15”) wide concrete ramp was poured to provide a transition between these surfaces. **Figures 2 and 3** are views of the residence and the parked position of the GMC pickup truck.

Figure 2. Overall view of the driveway and the parked position of the GMC.

Figure 3. View of the front yard and the parked position of the GMC Sierra.

This residence was located on a corner lot within the subdivision. The two-lane road curved 90 degrees to the south at the west side of the residence. A 1.6 m (5.2’) wide concrete sidewalk was located outboard (north) of the aluminum fence at the front of the house. An area of sandy soil that was 4.3 m (14.1’) in width separated the sidewalk from the local street that measured 5.6 m (18.4’) in width. A welded wire fence that was 1 m (3’) in height was located 1.6 m (5.2’) outboard of the driveway and bordered the west property line. All surfaces were level and dry at the time of this back over incident. The light conditions were reported as clear with temperatures in the mid 20 degrees C (mid 70s F). At the time of the incident, the sun was positioned to the east over the left side of the house when viewed from the road. The Scene Schematic is included as **Figure 13** of this narrative report.

Vehicle Data

The involved vehicle in this back over incident was a 2006 GMC extended cab four-door pickup truck built on a 364 cm (143.5”) wheelbase. The rear doors were hinged at the C-pillars and opened by a concealed latch at the forward edge of the door. The vehicle was manufactured in July 2006 and was identified by the following Vehicle Identification Number (VIN) 2GTEC19T161 (production number deleted). The GMC was leased by the driver three-months prior to this back over incident. The vehicle was a 1500 series with two-wheel (rear) drive and a Gross Vehicle Weight Rating of 2,948 (6,500 lb). The GMC was powered by a 4.6 liter V-8 engine linked to a four-speed automatic transmission. The service brakes were power-assisted front disc/rear drum with anti-lock

(ABS). The tires were OEM General Ameritrac, size P245/70R17 mounted on chrome steel wheels.

The vehicle's glazing consisted of a bonded AS1 laminated windshield, AS2 solid tempered front door glass, AS3 tempered deep tint forward hinged rear door windows, and a fixed AS3 tinted fixed backlight. All of the vehicle's glazing was closed, clean and free of stickers and other visual obstructions at the time of the back over incident.

The interior was equipped with front bucket seats with adjustable head restraints and a fixed center front seat position that folded into a center armrest. Both front head restraints were in the full down position at the time of the event. These head restraints were 25 cm (10") in width and 20 cm (8") in height.

The second row seat was a bench seat with a forward folding seat back. The rear outboard positions were equipped with adjustable head restraints that were adjusted to the full down positions. The rear head restraints were 30 cm (11.75") in width and 13 cm (5") in height.

This vehicle was not equipped with an ultrasonic or camera-based backing/parking assist system. The rear bumper was chromed steel with a heavy vinyl pad mounted to the top step surface of the bumper. The GMC Sierra was equipped with an OEM Class III receiver hitch that was mounted to the rear frame of the vehicle. The receiver was a 5 cm (2") sleeve. Numerous external dimensions were documented from the vehicle while parked on a level concrete surface. The back and undercarriage components are depicted in **Figures 4 and 5**. These vertical dimensions are displaced in the following table:

Component	Vertical Clearance Height
Beltline at mid front door	118 cm (46.5")
Top of tailgate	129 cm (50.75")
Top of rear bumper	71 cm (28")
Bottom of rear bumper	50 cm (19.75")
Bottom of trailer hitch	36 cm (14") to safety chain bracket, 37 cm (14.5") to bottom of receiver
Undercarriage	
Bottom of axle tube	31 cm (12.4")
Bottom of differential	21 cm (8.25")
Bottom of rear shock mount	22 cm (8.6")
Bottom of tailpipe (lowest point)	31 cm (12.4")
Spare tire mounted horizontally to undercarriage aft of rear axle	36 cm (14") forward aspect of sidewall, 35 cm (13.75") rear edge of sidewall

Figure 4. Bumper and tailgate height of the GMC Sierra.

Figure 5. Undercarriage components of the GMC.

Child Non-Motorist

The child pedestrian was an 18-month old male and the grandson of the driver. He was reportedly small for his age with a driver estimated height of 71 cm (28”). Prior to this back over incident, the child awoke from his night sleep. His mother changed his diaper and clothing and was playing with the child in a back room of the house when last seen by the driver. The child was dressed in shorts and a T-shirt. He was barefoot. The child sustained a closed head injury and was transported by ambulance to a local hospital where he expired the following day.

Injury	***Injury Severity (AIS 90/Update 98)***	***Injury Source***
Closed head injury w/ resulting brain death (NFS)	Unknown (115099.7,0)	Right rear tire

Incident Sequence

The 49-year old female driver of the GMC Sierra pickup truck parked her vehicle on a concrete pad in front of the house, positioned perpendicular to the driveway with the right side of the truck exposed to the front of the house **(Figure 6)**. A fence bordered the property with a sliding gate at the mouth of the driveway. The driver exited her residence and walked around the front of the vehicle to the left side of the truck and talked to a family member who was positioned forward of the vehicle. She continued to walk along the left side of the vehicle and opened the sliding driveway gate. The driver walked back to the vehicle along the left side and entered the driver’s door. Her intention was to back the vehicle onto the driveway and out onto the street to proceed to her destination.

As she started the vehicle and unknown to her, the driver’s 18-month old grandson exited the front door of the house and proceeded into the front yard behind the GMC pickup truck **(Figure 7)**. It was unknown if he walked or ran as his presence was undetected by an adult. The driver checked her rear view mirrors and backed approximately 3.5 m (11.5’) as she steered the vehicle in a counterclockwise direction to redirect the vehicle

onto the driveway. During this backing maneuver, the driver felt a thump from the rear of the vehicle and heard the family dog began to bark in an unusual tone. Her immediate thought was that she struck the dog. The driver stopped the vehicle and exited the left front door and proceeded around the left rear corner to the back of the truck. She and other family members who had exited the house observed the child lying on the pavement immediately forward of the right rear tire. The child was unconscious.

Figure 6. Backing trajectory of the GMC pickup truck.

Figure 7. Trajectory of the child non-motorist.

A family member picked up the child and carried him into the house and placed him on a bed. The driver placed a call to the 911 operator and requested medical assistance. Police and Emergency Medical personnel arrived on-scene. The child was transported to a local hospital where he was admitted for treatment. He was diagnosed with brain death and expired on the following day.

Driver Site Distances

During this on-site investigation, the driver was repositioned in the vehicle to measure her seated eye height, document her rear visibility, and observe her backing procedures. The rear visibility tests were extremely limited due to space within the front yard of her residence.

The driver was seated in the front bucket seat of the vehicle with the seat track adjusted 10 cm (4”) aft of the full forward position. Her head restraint was adjusted to the full down position. In this position, the driver’s eye height measured 138 cm (54.25”) above ground level. The driver was 163 cm (64”) in height with a police reported weight of 113 kg (250 lb).

The driver backed exclusively by using the interior and the two exterior rear view mirrors. This was discussed during the interview process and observed by the SCI investigator as the driver backed the vehicle during the on-site investigation. The driver, being a large statured woman, had difficulty turning in either direction to directly look behind her.

The left outside mirror was adjusted to provide the driver with a line of sight outboard of the bodyline of the vehicle **(Figure 8)**. A child immediately adjacent to the left side of

the GMC would not have been visible in this mirror. The right outside mirror did not capture the rear bumper area of the vehicle, or the ground adjacent to the vehicle **(Figures 9 and 10)**. The child positioned adjacent to the right rear bumper corner would have been difficult to detect though the use of the mirror.

An 8 cm (3") diameter red reflector was placed in a stand and set to a height of 71 cm (28") to the bottom of the reflector. This was placed behind the truck and the driver was instructed to indicate when she could fully detect the reflector. The driver noted full visibility of the reflector through the interior mounted rear view mirror when set to a distance of 7.4 m (24.3') rearward of the vehicle's bumper. It should be noted that the extension of the driver's sight line to the ground was intersected by the 8 cm (3') welded wire fence that bordered the west property line. It was estimated that the driver could first view the ground approximately 18.2 m (60') rearward of the rear bumper. **Figure 11** is a rear view directly through the backlight of the vehicle. An exemplar vehicle was utilized to verify this estimate. Post-inspection measurements of an exemplar GMC Sierra determined the centerline rear visibility was 19.6 m (64.3'). **Figure 12** is a diagram depicting the centerline rear visibility of the subject vehicle.

Figure 8. Driver's view from the left outside mirror.

Figure 9. Driver's view through the right outside mirror and of the front door area.

Figure 10. Close-up view of the driver's line of site from the right outside mirror.

Figure 11. Rear view through the backlight of the GMC Sierra.

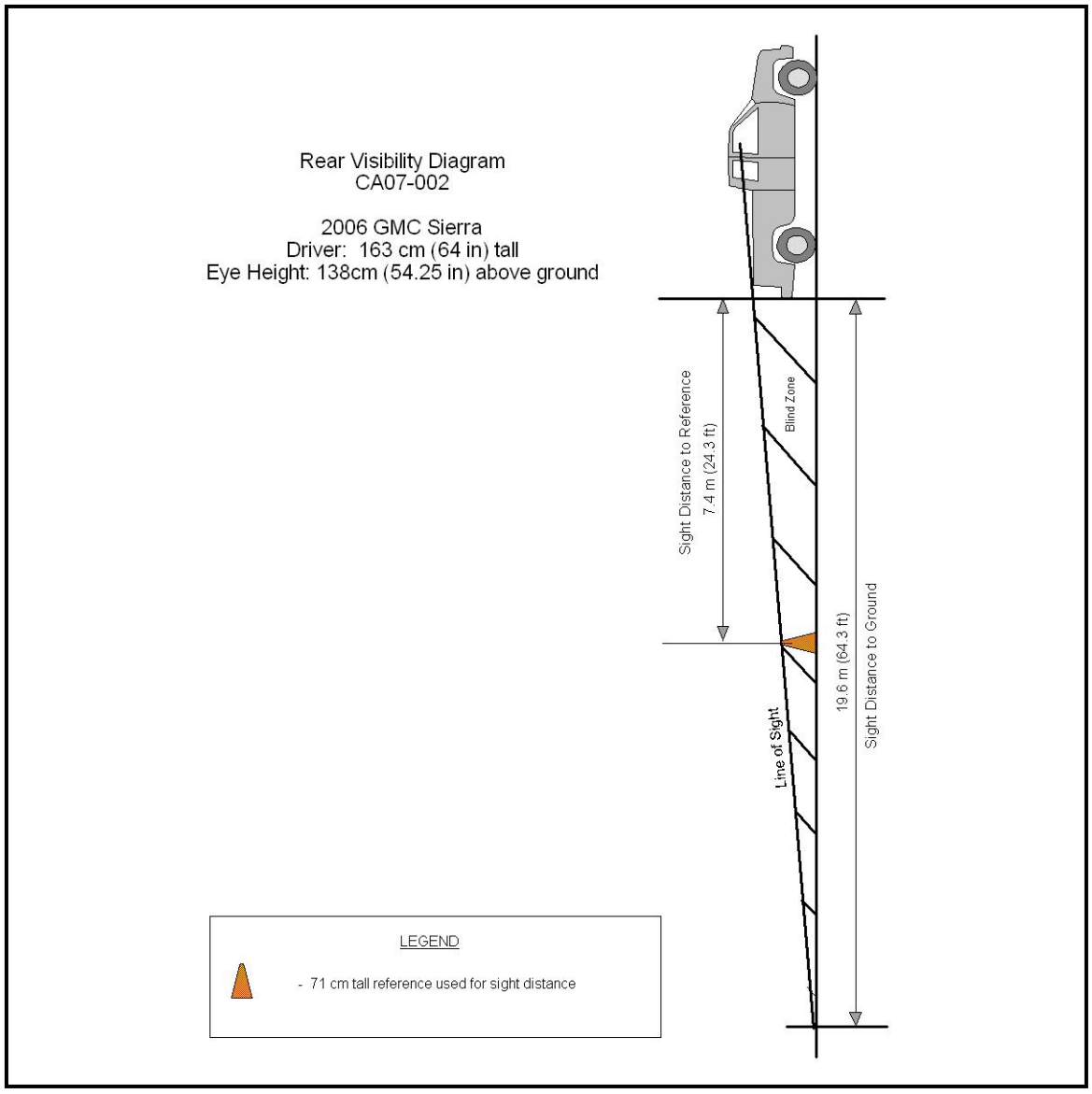

Figure 12: Visibility Diagram

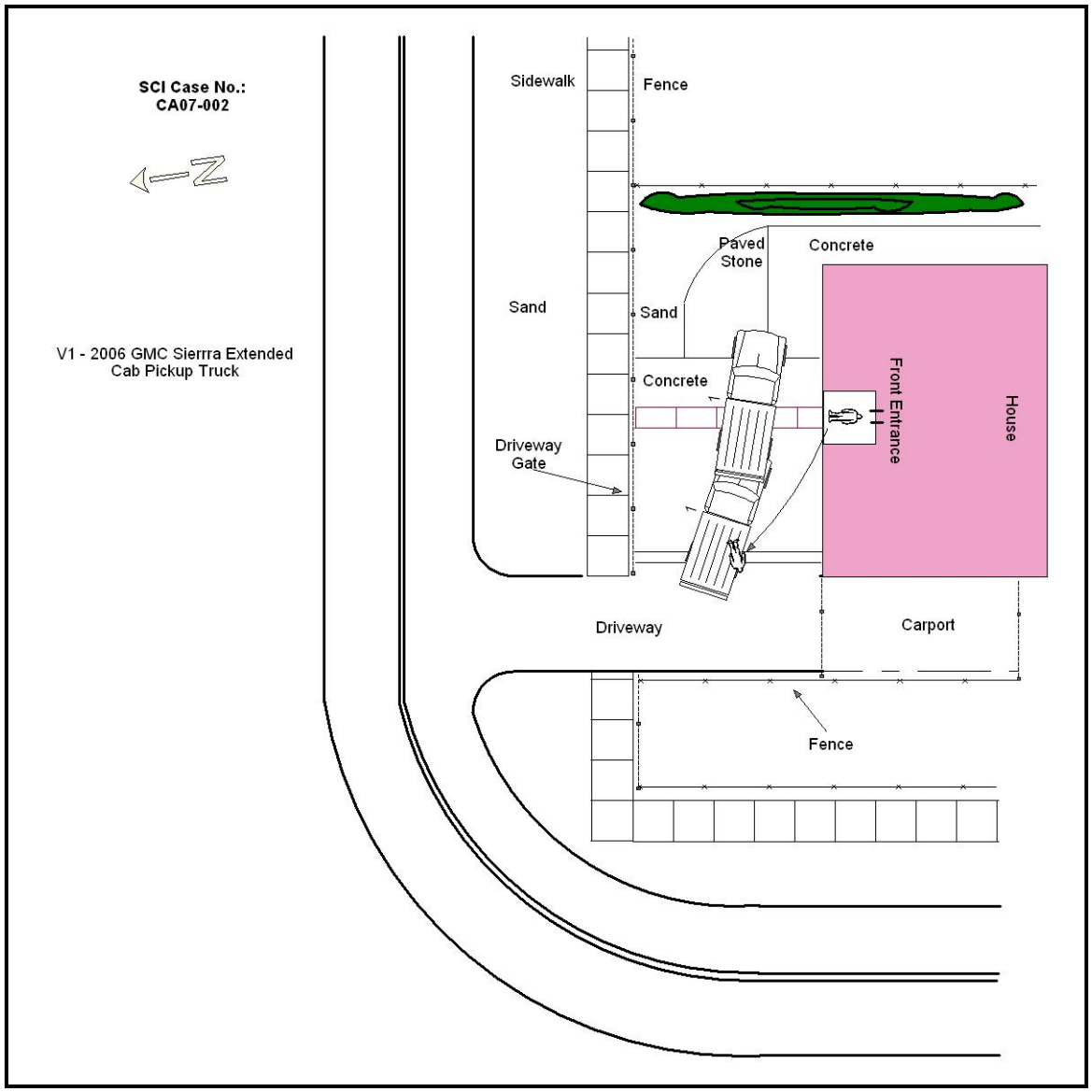

Figure 13: Scene Schematic

ATTACHMENT A

Not-In-Traffic Surveillance Forms

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

C A 0 7 0 0 2

IDENTIFICATION

2. Date of Crash 1 2 / X X / 0 6

3. Time of Crash 0 8 5 9

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 3 . 5 m

13. Estimated speed at impact 0 0 2 kmph

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

15. Estimated distance from impact to vehicle final rest

0 0 0 . 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 C A 0 7 0 0 2

VEHICLE IDENTIFICATION

2. VIN 2 G T E C 1 9 T 1 6 1 X X X X X X

3. Model Year 2 0 0 6

4. Vehicle Make (specify): GMC

5. Vehicle Model (specify): SIERRA

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 P245/70R17

7. LF Tire Size P245/70R17

8. LR Tire Size P245/70R17

9. RF Tire Size P245/70R17

10. RR Tire Size P245/70R17

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	5	☑	☑ Full Down / ☐ Mid / ☐ Full Up	
2nd Middle	5	☐	☐ Full Down / ☐ Mid / ☐ Full Up	
2nd Right	5	☑	☑ Full Down / ☐ Mid / ☐ Full Up	
3rd Left	0	☐	☐ Full Down / ☐ Mid / ☐ Full Up	
3rd Middle	0	☐	☐ Full Down / ☐ Mid / ☐ Full Up	
3rd Right	0	☐	☐ 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		118	
Top of trunk/tailgate		129	
Bottom of bumper		50	
Trailer hitch (if applicable)		36	
Undercarriage			
	Sway bar	N/A	
	Axle	31	
	Differential	21	
	Other (specify): SPARE	36	
Sensor Height (if equipped)		N/A	
Camera Height (if equipped)		N/A	

Not Applicable ✔

Reset Values

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National Highway Traffic Safety Administration

Back Up / Parking Aid Form

Special Crash Investigations
Not In Traffic Surveillance

1. Case Number

C A 0 7 0 0 2

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

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

C A 0 7 0 0 2

DRIVER PROFILE

2. Driver's Age 4 9
   99 = Unknown

3. Driver's Sex
   - ○ Male
   - ◉ Female
   - ○ Unknown

4. Driver's Height 1 6 3 cm
   999 = Unknown

5. Driver's Weight 1 1 3 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:

    Leaving residence for unknown reason

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): _____
- ○ 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
C A 0 7 0 0 2

NON-MOTORIST PROFILE

2. Non-motorist's Age
99 = Unknown
1 8 ◉ Months ○ Years

3. Non-motorist's Sex
◉ Male
○ Female
○ Unknown

4. Non-motorist's Height
999 = Unknown
0 7 1 cm

5. Non-motorist's Weight
999 = Unknown
9 9 9 kg

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	None			
	Helmet				
	Hood				
	Other (specify): _____				
UPPER BODY	Short Sleeve	Unknown color	Natural	Soft	Light
	Long Sleeve				
	Light Jacket				
	Heavy Jacket				
	Other (Specify): _____				
LOWER BODY	Shorts	Unknown color	Natural	Soft	Light
	Pants				
	Shoes	None			
	Other (specify): _____				