

Not in Traffic Surveillance Back Over Investigation / Vehicle to Non Motorist
Dynamic Science, Inc. / Case Number: DS07037
1997 Land Rover Discovery
Colorado
August 2007

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.

1. Report No. DS07037	2. Government Accession No.	3. Recipient Catalog No.	
4. Title and Subtitle Not in Traffic Surveillance Back Over Investigation		5. Report Date January 3, 2008	
		6. Performing Organization Report No.	
7. Author(s) Dynamic Science, Inc.		8. Performing Organization Report No.	
9. Performing Organization name and Address Dynamic Science, Inc. 299 West Cerritos Avenue Anaheim, California 92805		10. Work Unit No. (TRAIS)	
		11. Contract or Grant no. DTNH22-01-C-27002	
12. Sponsoring Agency Name and Address U.S. Dept. of Transportation (NRD-32) National Highway Traffic Safety Administration 400 7th Street, SW Washington, DC 20590		13. Type of report and period Covered [Report Month, Year]	
		14. Sponsoring Agency Code	
15. Supplemental Notes			
16. Abstract This single vehicle incident occurred in August 2007 at 1630 hours. The case vehicle is a 1997 Land Rover Discovery sport utility vehicle (VIN: SALJY1246VAXxxxxx). The incident took place on a sidewalk, just beyond a private driveway. The weather was clear and calm at the time of the incident. The case vehicle was being driven by a 62-year-old male. The 4-year-old child was on a Huffy bicycle with training wheels. The driver of the Land Rover and child are neighbors. The case vehicle was initially parked in a private driveway, facing west. The driveway intersects a north/south city street. The driver indicated that he had entered the vehicle by walking directly from his house. His path took him along the right side of the vehicle, around the back of the vehicle, and then along the left side to the driver's door. He never saw the involved child. The child was traveling northbound on the sidewalk. As the driver began backing to the east, the rear of the Land Rover struck the child on the bicycle. The driver was not aware of the child until he heard yelling from other people in the neighborhood. The child was trapped beneath the vehicle, but was able to be extricated by his relatives. He sustained multiple superficial abrasions. He was transported by his relatives to a local children's hospital. He was examined and then released.			
17. Key Words Not In Traffic Surveillance (NITS), non-motorist injury, back over, bicycle		18. Distribution Statement	
19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No of pages	22. Price

Dynamic Science, Inc.
Crash Investigation
Case Number: DS07037
TABLE OF CONTENTS

Background	1
Summary	1
Incident Site	1
Pre-crash	2
Crash	3
Post-crash	3
Vehicle Data - 1997 Land Rover Discovery	3
Vehicle Dimensions	4
Parking Aids/sensors	4
Vehicle Sight Distances	5
Vehicle Damage	7
Occupant Demographics	8
Non Motorist Demographics	8
Injuries	9
Attachment 1. Scene Diagram	10
Attachment 2. Time and Distance	11
Attachment 3. Data Forms	12

BACKGROUND

This single vehicle incident occurred in August 2007 at 1630 hours. The case vehicle is a 1997 Land Rover Discovery sport utility vehicle (see Figure 1). The incident took place on a sidewalk, just beyond a private driveway. The weather was clear and calm at the time of the incident. The Land Rover was being driven by a 62-year-old male. The 4-year-old child was on a Huffy bicycle with training wheels. The driver of the Land Rover and child are neighbors. The Land Rover was initially parked in a private driveway, facing west. The driveway intersects a north/south city street. The driver indicated that he had entered the vehicle by walking directly from his house. His path took him along the right side of the vehicle, around the back of the vehicle, and then along the left side to the driver's door. He never saw the involved child. The child was traveling northbound on the sidewalk. As the driver began backing to the east, the rear of the Land Rover struck the child on the bicycle. The driver was not aware of the child until he heard yelling from other people in the neighborhood. The child was trapped beneath the vehicle, but was able to be extricated by his relatives. He sustained multiple superficial abrasions. He was transported by his relatives to a local children's hospital. He was examined and then released.



Figure 1. 1997 Land Rover Discovery

This on-site Not In Traffic Surveillance (NITS) back over investigation was initiated in response to a police report describing a 4-year-old male child involved in a back over incident. The police report had been submitted by the local NASS team. The investigating police agency stated that they do not report incidents occurring on private property. They classified this particular incident as having occurred on a city street and it was reported to the state. DSI was notified of the incident on August 14, 2007. DSI contacted the involved driver and obtained permission to inspect the vehicle on September 24, 2007. Field work was completed on September 26, 2007.

SUMMARY

Incident Site

This single vehicle incident occurred at 1630 hours in August 2007. The incident took place within the confines of an intersection of a private driveway/parking area and a north/south residential roadway (see Figure 2). The straight and level asphalt roadway was 9.1 m (30 ft) wide. It is bordered to the east and west by shallow, 11.0 cm (4.3 in) high concrete curbs. The east edge of the roadway is bordered by a 1.2 m (4.0 ft) wide concrete curb. The driveway/parking area is



Figure 2. Overview of incident site (west)

comprised of a 3.0 m (10.1 ft) wide concrete pad that is bordered to the south by a 2.7 m (9.0 ft) wide gravel covered parking area. The concrete pad leads into the garage. The gravel parking area had a negative 2% down grade. The Land Rover was parked in the gravel parking area facing west. The vehicle was parked 1.6 m (5.1 ft) west of the sidewalk edge. A second vehicle (BMW) was parked on the concrete pad facing west. There is a large bush to the south of the driveway. The view of the sidewalk from inside the vehicle disappears at this point. The weather was clear and the driveway/roadway was dry. The temperature at the nearest reporting station was 31 degrees C (88 degrees F).

Pre-Crash

The case vehicle is a 1997 Land Rover Discovery four-door sport utility vehicle. The Land Rover was being driven by a 62-year-old male. The driver indicated that he had entered the vehicle by walking directly from his house. His path took him along the right side of the vehicle, around the back of the vehicle, and then along the left side to the driver's door. He never saw the involved child. After entering and starting the vehicle, the driver spent 1-2 minutes going through some kind of paperwork. The driver did not put on his seat belt. He indicated that it was his normal practice to not put on the belt until backing out of the driveway. He indicated that it made it easier for him to turn and look over his right shoulder. His purpose for this trip was go to a local stable to feed his horses. Prior to backing up, the driver indicated that he checked all three mirrors and then turned and looked over this right shoulder. He never saw the child coming from his left. The 4-year-old male child (91 cm/36 in, 16 kg/35 lbs) was riding a Huffy bicycle with training wheels. The child was wearing a T-shirt, blue jean shorts, and tennis shoes. The child lives north of the incident site. The child was initially riding the bicycle north (see Figure 4) on the sidewalk at an estimated speed of 8 km/h (5 mph). The child was visible to his grandmother who was watching him from her house.



Figure 3. Backing path of Land Rover (East)



Figure 4. Path of bicycle to point of impact (North)

Crash

The driver began backing at approximately 3 km/h (2 mph). It appears that the child and bicycle got behind the case vehicle just as the vehicle crossed the sidewalk. The bike was knocked down and the child and the bike went under the vehicle on the right side. The vehicle continued slowly backing. The bike and the child were entrapped beneath the vehicle. The driver stopped the vehicle after hearing the child's grandmother yelling.

Post-Crash

The child was trapped beneath the vehicle, but was able to be extricated by his relatives. His shorts were tangled up with the bicycle handle bars and needed to be cut off of him during the extrication. He sustained multiple superficial abrasions, the worst of which was to his groin area. This latter injury came from the bicycle. He was transported by his relatives to a local children's hospital where he was examined and released. The bicycle was trapped beneath the vehicle facing south. The driver was able to extricate it by using a jack to raise the rear of the vehicle.



Figure 5. Looking back view along sidewalk (South)

VEHICLE DATA - 1997 Land Rover Discovery

The 1997 Land Rover Discovery was identified by the Vehicle Identification Number (VIN): SALJY1246VAxxxxxx. The Land Rover was a four-door sport utility vehicle that was equipped with a 4.0 liter, eight cylinder engine, four-wheel drive, and a 4-speed automatic transmission. The Land Rover was configured with Continental Contitrac LT225/75R16 tires. There were no tire restrictions or tire damage. All the windows for Land Rover were clear and untinted. The Land Rover was equipped with a spare tire that was mounted to the rear hatch. The spare tire obscured the driver's vision rearward to the right.

Vehicle Dimensions

Dimensions obtained from Canadian vehicle specifications and the inspected case vehicle. Seated eye height and position was measured with the driver positioned in the vehicle.

Ground to belt line:	126.0 cm (49.6 in)
Ground to top of trunk/tailgate:	126.0 cm (49.6 in)
Ground to top of spare tire:	154.0 cm (60.6 in)
Ground to top of rear bumper:	72.0 cm (28.3 in)
Ground to bottom of rear bumper:	61.0 cm (24.0 in)
Ground to sway bar:	23.0 cm (9.0 in)
Ground to axle:	30.0 cm (11.8 in)
Driver's seated eye height:	153.0 cm (60.2 in)
Eye position (seated forward facing):	15.0 cm (5.8 in) forward of B pillar
Overall vehicle height:	197.0 cm (77.5 in)
Overall vehicle width:	179.0 cm (70.5 in)
Overall vehicle length:	454.0 cm (178.7 in)
Rear overhang:	115.0 cm (45.3 in)
Track width:	149.0 cm (58.7 in)
Longitudinal distance between rear most projection and front door latch pillar:	197.0 cm (77.6 in)

Parking Aids/Sensors

The 1997 Land Rover Discovery was not equipped with any parking aids or backing up sensor/video technology.

Vehicle Sight Distances

A visibility study was conducted during the inspection of the Land Rover in order to determine the nominal blind zone behind the Land Rover as well as the nominal blind zone of both side view mirrors. The standard 71 cm (28 in) high target was used for the observations. The Land Rover driver assisted the SCI investigator in making the visibility observations. The observations were conducted with the vehicle positioned in the pre-incident location. See Figure 6 for the nominal visibility diagram.

The driver's seated eye height was 153.0 cm (60.2 in). The initial set of measurements were made as if the driver were looking over his right shoulder through the backlight. The target was moved rearward from the back bumper along the Land Rover's centerline until it came into view. The target had to be moved rearward from the back bumper 4.5 m (15.0 ft) before the top of the target came into view. The Land Rover was equipped with a hatch mounted spare tire that was off-set to the right side of the backlight. The area directly behind the spare tire was completely obscured and not visible to the driver.

The left and right side mirrors had not been moved since the incident. With the driver seated in the vehicle, the side views were examined. The target was moved from the side of the vehicle laterally to the right until the target became visible through the right side view mirror. This occurred as the target moved outboard of the side of the vehicle. The target was then moved laterally to the right until the target was no longer visible. This process was repeated on the left side of the vehicle.

The child would not have been visible at the time of impact due to the blind spot behind the Land Rover.

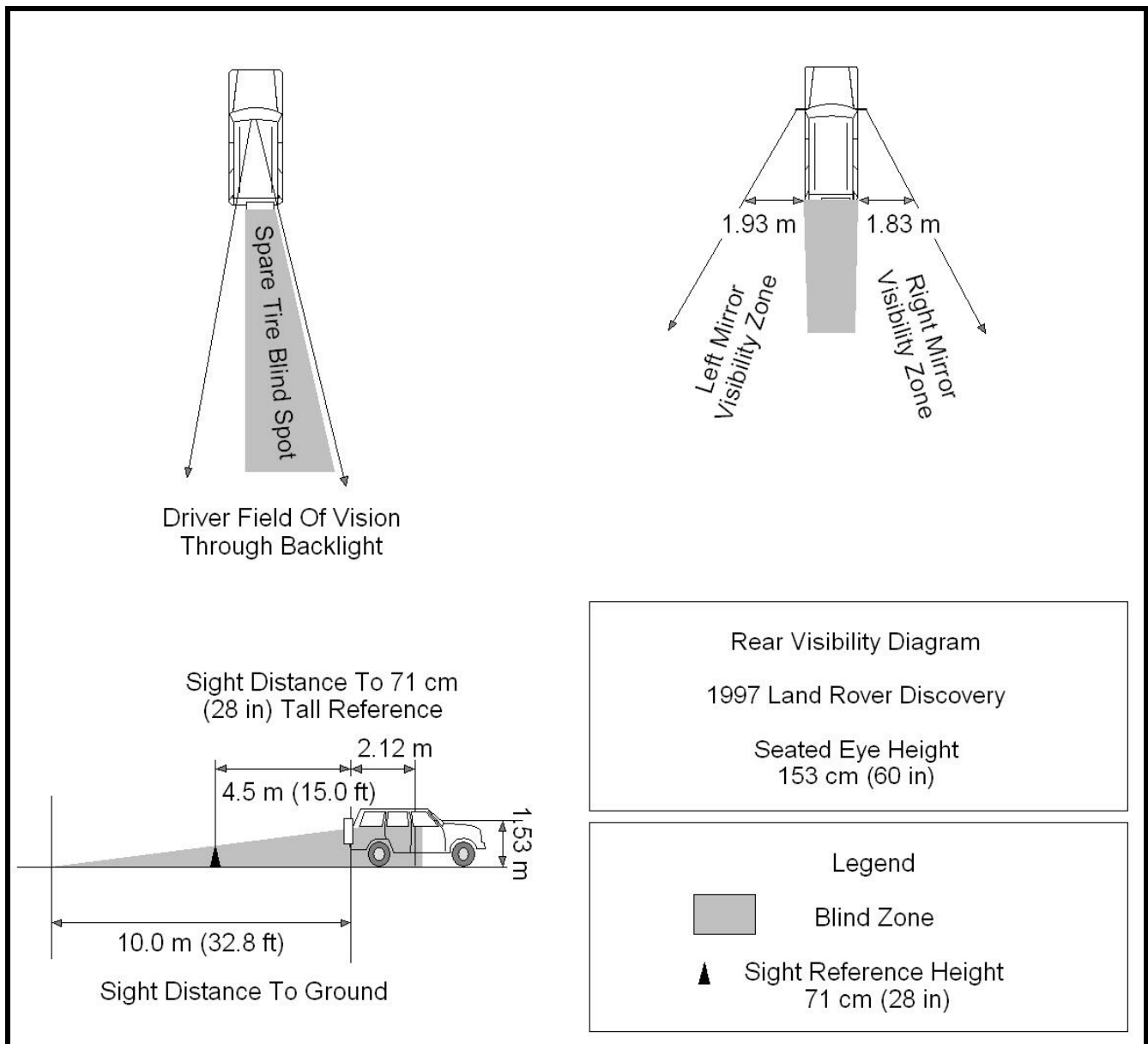


Figure 6. Nominal sight diagram

Vehicle Damage

Exterior Damage -1997 Land Rover Discovery Sport Utility Vehicle

There was no exterior damage to the vehicle. There was some scuffing located on the fuel tank that might have been related to this incident. More than a month had passed between the time of the incident and the vehicle inspection, therefore it is unknown if the scuffing was related to this incident.



Figure 7. Rear, 1997 Land Rover Discovery



Figure 8. Right side undercarriage, case vehicle



Figure 9. Right side undercarriage and axle, case vehicle

Interior Damage -1997 Land Rover Discovery Sport Utility Vehicle

There was no interior damage.

OCCUPANT DEMOGRAPHICS - 1997 Land Rover Discovery

	Driver
Age/Sex:	62/Male
Seated Position:	Front left
Seat Type:	Bucket
Height:	184 cm (71 in)
Weight:	75 kg (165 lbs)
Occupation:	None
Pre-existing Medical Condition:	Multiple sclerosis
Alcohol/Drug Involvement:	None
Driving Experience:	>20 years
Body Posture:	Normal, upright, looking over right shoulder
Hand Position:	Left hand on steering wheel, right not known
Foot Position:	Right foot on accelerator, left on floorboard
Restraint Usage:	Lap and shoulder belt available, not used

NON MOTORIST DEMOGRAPHICS

Age/Sex:	4/Male
Height:	91 cm (36 in)
Weight:	16 kg (35 lbs)
Pre-existing Medical Condition:	None noted
Alcohol/Drug Involvement:	None
Body Posture:	Riding bicycle

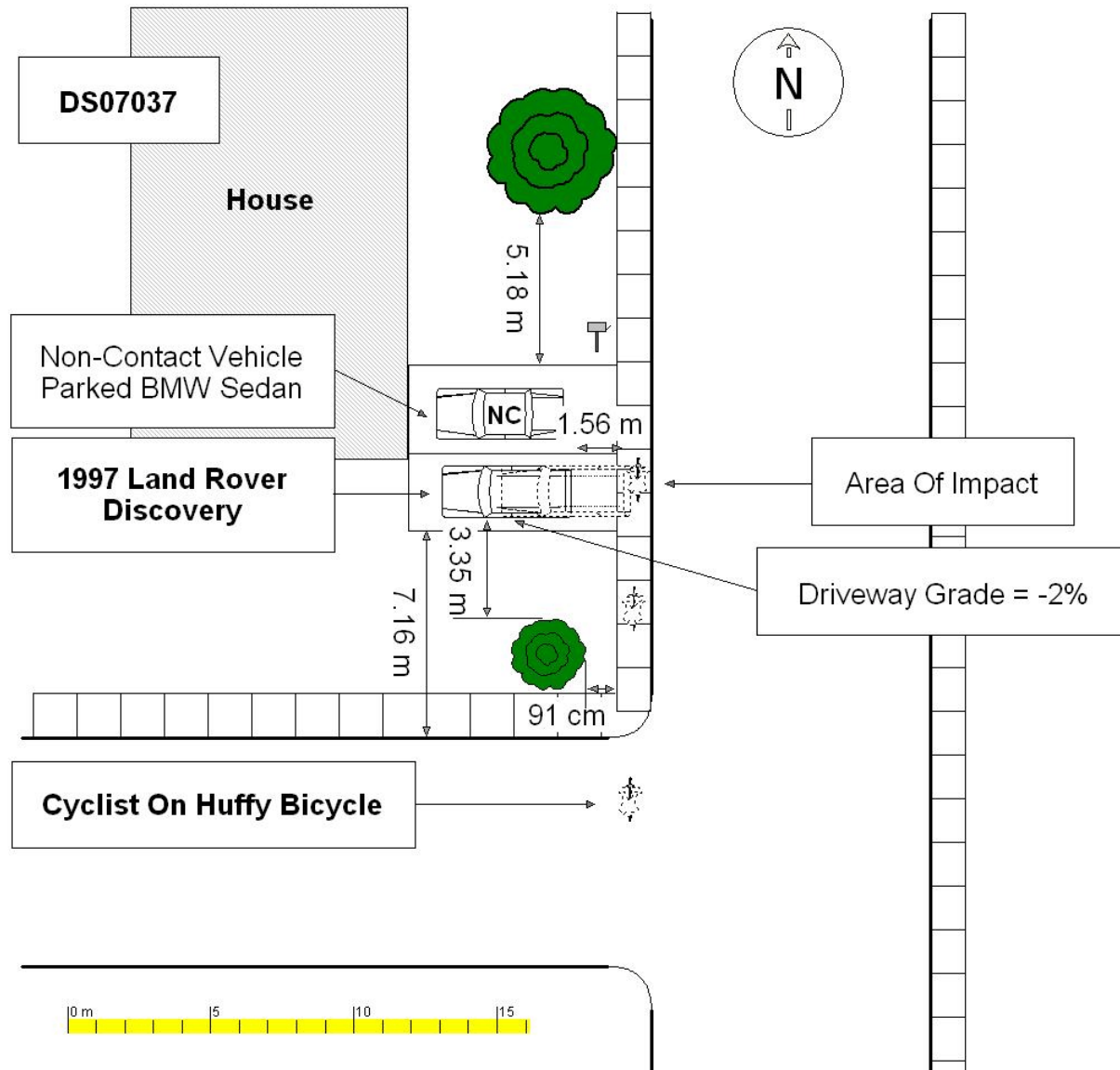
INJURIES

Driver: 1996 Land Rover: Not injured

Non Motorist: Injuries obtained from interview.

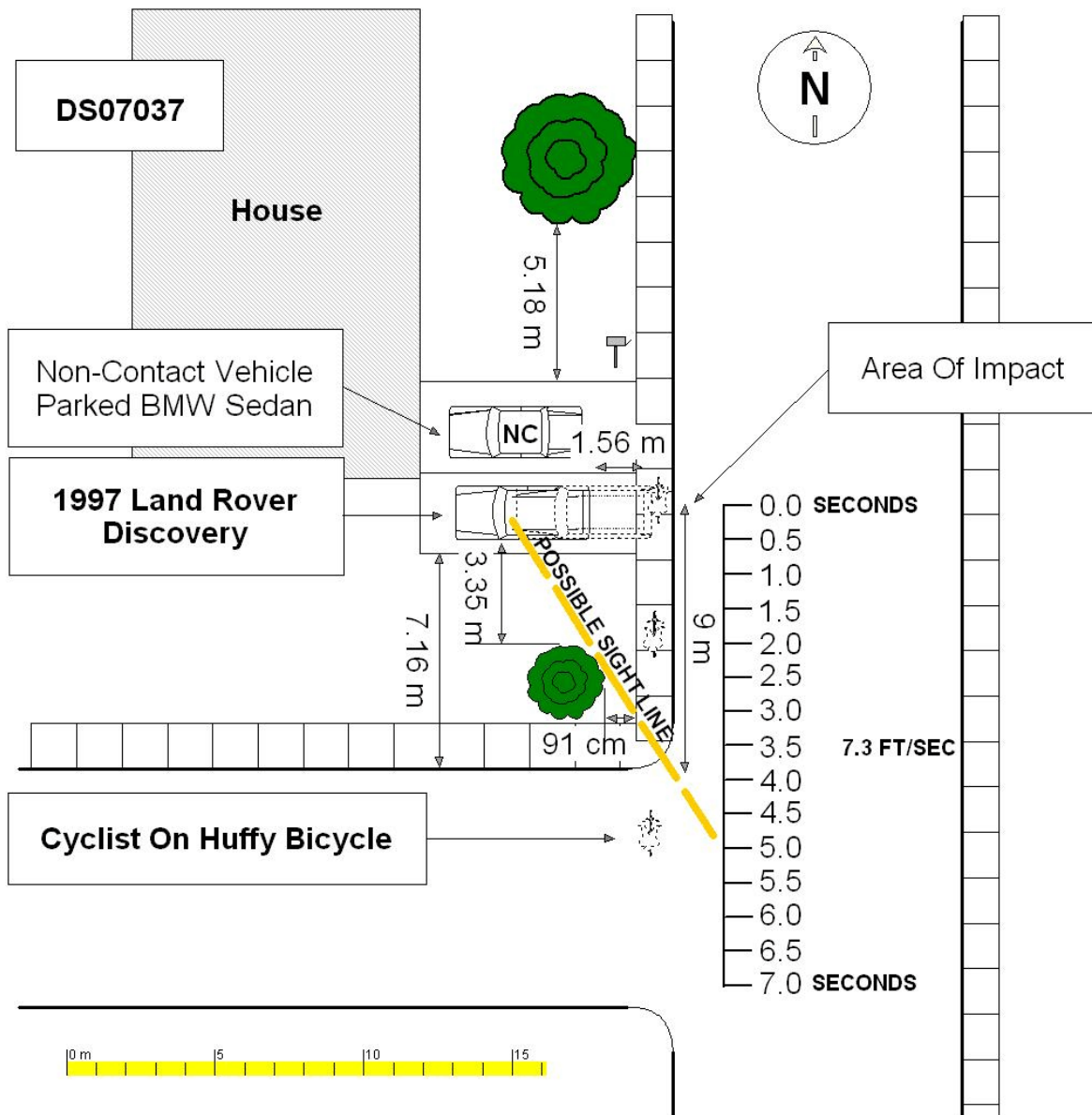
<u>Injury</u>	<u>OIC Code</u>	<u>Injury Mechanism</u>	<u>Confidence Level</u>
Multiple abrasions, whole body	990200.1,0	Ground	Probable
Abrasions, groin area	590202.1,8	Bicycle	Probable

Attachment 1. Scene Diagram



Attachment 2. Time and Distance

Based on the view from the driver's seat and the location of the bush to the south of the incident site, it was estimated that there was approximately 3.3 m (11 ft) between the location where the bicyclist would have been visible and the area of impact. The bicyclist was traveling at approximately 8 km/h (5 mph). This converts to a velocity of 2.2 m/s (7.3 ft/sec). Given this velocity, it would have taken the bicyclist approximately 3 seconds to cover the distance.



Attachment 3. Data Forms



SCENE FORM

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 / Unknown	Clear / Hazy / Very Dirty / Unknown		
RF		Fixed / Closed / Open / Partially Open / Unknown	Clear / Hazy / Very Dirty / Unknown		
2 nd Left		Fixed / Closed / Open / Partially Open / Unknown	Clear / Hazy / Very Dirty / Unknown		
2 nd Right		Fixed / Closed / Open / Partially Open / Unknown	Clear / Hazy / Very Dirty / Unknown		
3 rd Left		Fixed / Closed / Open / Partially Open / Unknown	Clear / Hazy / Very Dirty / Unknown		
3 rd 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 _____

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 nd Left			Full Down / Mid / Full Up	
2 nd Middle			Full Down / Mid / Full Up	
2 nd Right			Full Down / Mid / Full Up	
3 rd Left			Full Down / Mid / Full Up	
3 rd Middle			Full Down / Mid / Full Up	
3 rd 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)		



Back Up / Parking Aid Form

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

999 = Unknown

_____ cm

5. Driver's Weight

999 = Unknown

_____ kg

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

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



Non Motorist Form

1. Case Number _____

NON-MOTORIST PROFILE

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

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

4. Non-motorist's Height _____ cm
999 = Unknown

5. Non-motorist's Weight _____ 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 ☐ On skates/skateboard
☐ Bending at waist ☐ On bike/scooter
☐ Sitting ☐ Other (specify) _____
☐ Crouching ☐ Unknown
☐ Kneeling

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

Black	Charcoal gray
Lt gray/silver	Brown
Gold/tan	Purple
Dark blue	Light blue
Dark green	Light green
Maroon	Red
Orange	Yellow
White	Other (specify)

Fabrics

Natural
Synthetic
Blend

Textures

Soft
Slick
Coarse

Weights

Heavy
Medium
Light

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