INDIANA UNIVERSITY
TRANSPORTATION RESEARCH CENTER
School of Public and Environmental Affairs
222 West Second Street
Bloomington, Indiana 47403-1501
(812) 855-3908 Fax: (812) 855-3537

ON-SITE NOT IN TRAFFIC SURVEILLANCE BACK OVER INVESTIGATION

CASE NUMBER - IN-07-018
LOCATION - MISSOURI
VEHICLE - 2006 HONDA CR-V SE
INCIDENT DATE - April 2007

Submitted:

November 29, 2007
Revised February 5, 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.* IN-07-018	2. *Government Accession No.*	3. *Recipient's Catalog No.*	
4. *Title and Subtitle* On-Site Not In Traffic Surveillance Back Over Investigation Vehicle - 2006 Honda CR-V SE Location - Missouri		5. *Report Date:* November 29, 2007 6. *Performing Organization Code*	
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15. *Supplementary Notes* On-site not in traffic surveillance back over investigation involving a 2006 Honda CR-V SE and a pedestrian.			
16. *Abstract* This report covers an on-site not in traffic surveillance back over investigation involving a 2006 Honda CR-V SE and a pedestrian. This incident is of special interest because the Honda's driver backed over a pedestrian [her15-month-old son], who sustained critical injuries, resulting in his death. The Honda CR-V was parked in a narrow, one car garage attached to the driver's residence. The driver, her husband, their 3-year-old son and the pedestrian were all gathered in the middle part of the driveway preparing to leave. The Honda's driver returned to the inside of the house then into the garage to back the Honda out into the driveway to pick up the rest of the family. She thought both of her children were going with her husband to his vehicle while he moved it out of the way. The husband and their 3-year-old son went to the husband's vehicle; however, the pedestrian stayed behind in the driveway. It could not be determined how he became separated from his parents. While the husband was backing his vehicle down the driveway, the Honda's driver began to back out of the garage. Meanwhile the husband noticed the pedestrian in the driveway behind the backing Honda, and he began to honk his horn and yell at the Honda's driver. The left portion of the Honda's back bumper then impacted the pedestrian and knocked him down. The pedestrian got back to his feet as the Honda's driver paused momentarily as she backed out of the narrow garage. The pedestrian was struck by the back bumper again and knocked down a second time. The Honda's driver continued backing up and the left rear tire ran over the pedestrian. The driver, who stated she heard yelling, then stopped the Honda and hurriedly got out. She immediately tried to come to the aid of the pedestrian, who was now between the Honda's left front and left rear wheels. However, upon exiting, she did not shift the Honda's transmission into "Park." The Honda continued to roll backward and the left front tire rolled over the pedestrian. The Honda rolled down the driveway, missed the husband's vehicle, and came to rest in a clump of bushes in a yard across the street. The pedestrian was transported by ambulance to a hospital and was pronounced dead. The driver stated in her interview that before backing the Honda out of the garage, she looked through the rearview mirror and continued to view through this mirror while backing. The visibility study showed that the pedestrian, who was standing approximately 3.9 meters (~13 feet) behind the Honda, was within the Honda's rearview mirror blind zone and not visible to the driver. The Honda was not equipped with a backup/parking aid.			
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This incident was brought to NHTSA's attention on or before April 27, 2007 by an on-line article from a Missouri newspaper. This incident involved a 2006 Honda CR-V SE and a pedestrian. The incident occurred in April, 2007 at 8:26 a.m., in Missouri and was investigated by the applicable city police department. The police completed a "Missouri Uniform Accident Report" and submitted a copy of the report to the state. This incident is of special interest because the Honda's driver backed over a pedestrian [15-month-old male], who sustained critical injuries, resulting in his death. This contractor inspected the scene and an exemplar 2006 Honda CR-V on June 21, 2007. This contractor also interviewed the Honda's driver and a witness (i.e., driver's husband) to the incident on June 21, 2007. Additional questions arose during the writing of the Preliminary Case Summary and this report; however, attempts to contact the witness and obtain additional information were unsuccessful. This report is based on the police crash report, interviews with the Honda's driver and witness, scene and exemplar vehicle inspections, and this contractor's evaluation of the evidence.

SUMMARY

The Honda CR-V was parked in a narrow, one car garage attached to the driver's residence. The garage door was open. The driver's husband's vehicle was parked in the driveway. The driver, her husband, their 3-year-old son and the pedestrian (their 15-month-old son), were all gathered in the middle part of the driveway preparing to leave. The husband was going to move his vehicle out of the driveway so they all could leave in the Honda. The Honda's driver returned to the inside of the house and then into the garage to back the Honda out into the driveway to pick up the rest of the family. She thought both of her children were going with her husband to his vehicle while he moved it out of the way. The husband and their 3-year-old son went to the husband's vehicle; however, the pedestrian stayed behind in the driveway. It could not be determined how he became separated from his parents. While the husband was backing his vehicle down the driveway, the Honda's driver began to back out of the garage. Meanwhile the husband noticed the pedestrian in the driveway behind the backing Honda, and he began to honk his horn and yell at the Honda's driver. The left portion of the Honda's back bumper then impacted the pedestrian and knocked him down. The pedestrian got back to his feet as the Honda's driver paused momentarily as she backed out of the narrow garage. The pedestrian was struck by the back bumper again and knocked down a second time. The Honda's driver continued backing up and the left rear tire ran over the pedestrian. The driver, who stated she heard yelling, then stopped the Honda and hurriedly got out. She immediately tried to come to the aid of the pedestrian, who was now between the Honda's left front and left rear wheels. However, upon exiting, she did not shift the Honda's transmission into "Park." The Honda continued to roll backward and the left front tire rolled over the pedestrian. The Honda continued rolling down the driveway veering off the north side of the driveway, narrowly missing the husband's vehicle, and into the street coming to rest in a clump of bushes in a yard across the street. The pedestrian was transported by ambulance to a hospital and was pronounced dead. The driver stated in her interview that before backing the Honda out of the garage, she looked through the rearview mirror and continued to view through this mirror while backing. The visibility study showed that the pedestrian, who was standing approximately 3.9 meters (~ 13 feet) behind the Honda, was within the Honda's rearview mirror blind zone and not visible to the driver.

Crash Environment: The Honda CR-V was initially parked in a narrow, one car garage that was attached to the driver's residence. The garage was located at the top of a one lane driveway that traversed in an east-west direction (**Figures 1** and **2**). The driveway was 3 meters (9.8 feet) in width. The grade of the driveway was 5.8% negative in the direction the Honda was backing. The incident occurred in the driveway near the garage as the driver backed up. At the time of the incident, the light condition was daylight, the atmospheric condition was clear, the driveway pavement was dry bituminous, and the site of the incident was residential. See the Scene Diagram at end of this report

Figure 1: Overview of scene; arrow shows location of witness vehicle at time of impact

Figure 2: Overview of garage; arrow shows area of impact and final rest of pedestrian

Pre-Crash: The driver and her family (i.e., husband, 3-year-old son and the pedestrian) were about to depart their residence, and they all had gathered at the middle part of the driveway. The husband's vehicle was parked in the driveway approximately midway between the garage and the street. The Honda was parked in the garage with the garage door open. The husband was going to move his vehicle out of the driveway so they all could leave in the Honda. The Honda's driver returned to the inside of the house and then into the garage to back the Honda out into the driveway to pick up the rest of the family. She thought both of her children were going with her husband to his vehicle. The husband and their 3-year-old son went to the husband's vehicle; however, the pedestrian stayed behind in the driveway. The pedestrian's movements and how he got separated from both parents could not be determined, but he was standing in the driveway behind the Honda when first observed by his father as the father was backing his vehicle. Meanwhile, the Honda's driver entered the garage from inside the house, approached the Honda from the left, entered the vehicle and started the engine. According to the Honda's driver, she was unsure if she checked her side view mirrors; however, she is sure she looked in the rearview mirror as she backed up. She estimated that the time between entering the vehicle and the beginning of the backing maneuver was less than 10 seconds. Meanwhile, the driver's husband and their 3-year-old son were in his car, which he had just backed from the middle area of the driveway to near the bottom of the driveway (**Figure 1**), approximately 18 meters (~59 feet) to the east. He was facing the garage, had just noticed the pedestrian standing in the driveway

approximately 3.9 meters (~13 feet) behind the Honda, and had a clear view of the unfolding events.

Figure 3: Back bumper and undercarriage of exemplar 2006 Honda CR-V; scale in tenths of meter

Figure 4: Honda backed straight out of garage to area of impact indicated by white arrow. Long arrow shows direction Honda rolled away after driver exited vehicle.

Crash: According to the husband, as the Honda began to back out of the garage, he began honking his horn and yelling at the Honda's driver, who did not see the pedestrian. The Honda's driver continued to back up and the left portion of the back bumper (**Figure 3**) struck and knocked down the pedestrian (**Figure 4**), whose back was toward the Honda. The driver paused momentarily as she backed out of the narrow garage, then continued to back up. According to the husband, the pedestrian got back up on his feet, but was immediately struck again by the back bumper and rolled over by the back left tire. At this point, the Honda's driver, who stated she heard yelling, hurriedly got out of the Honda. She immediately tried to come to the aid of the pedestrian, who was now between the left front and left rear wheels. However, upon exiting, she did not shift the Honda's transmission into "Park." The Honda continued to roll backward and the left front tire rolled over the pedestrian. It seemed unlikely that the pedestrian could be struck by the Honda's back bumper and get to his feet before being struck again. However, during the interview, the driver said she had to back out of the garage slowly because it was narrow, and she had to be careful in order to avoid breaking off either of the side view mirrors. Based on her description, the driver was most likely on and off the brake, inching out of the garage very deliberately. This may explain how the pedestrian was able to regain his footing after being struck by the back bumper the first time. The driver stated she felt a "bump" as she was backing and thought the time between the start of the backing maneuver and impact was in a range of approximately 2-5 seconds. However, based on the driver's description of how she backed and the distance to impact, this estimate appeared to be too fast. Based on the driver's description of how she backed out of the garage, this contractor estimated the speed of the Honda at the initial impact at approximately 2 km.p.h. (~1 mph).

Post-Crash: The Honda continued rolling down the driveway and veered off the north side of the driveway (**Figure 4**), narrowly missing the husband's vehicle. The Honda continued into the street and came to rest in a clump of bushes in a yard across the street. The Honda traveled approximately 38 meters (~125 feet) from impact to its final rest position. At final rest, the

pedestrian was laying face down near the point of impact (**Figure 4** above). The pedestrian was transported by ambulance to a hospital and was pronounced dead.

CASE VEHICLE

The 2006 Honda CR-V SE (exemplar vehicle depicted in **Figures 5** and **6**) was an all wheel drive, four-door, sport utility vehicle (VIN JHLRD78976C------) The Honda was not equipped with any after-market equipment and was not equipped with a backup/parking aid. Based on interview data, all the side windows were closed at the time of the incident. The Honda's specified wheelbase was 262 centimeters (103 inches). The specified rear overhang was 94 centimeters (37 inches) and the specified overall length was 460 centimeters (181 inches). The subject Honda CR-V had been sold by the owners. An exemplar 2006 Honda CR-V was obtained by the police detective who was assisting this contractor. The distance from the ground to bottom of the back bumper on the exemplar Honda was measured as 41 centimeters (16.1 inches). The distance from the ground to the bottom of the backlight was measured as 123 centimeters (48.4 inches). The distance from the ground to the beltline was measured as 113 centimeters (44.5 inches).

Figure 5: Overview of exemplar 2006 Honda CR-V

Figure 6: Overview of back of exemplar Honda; scale in tenths of meter

CASE VEHICLE DAMAGE

According to police, there was no evidence of damage or contact to the Honda's back bumper. Based on the available information, the left portion of Honda's back bumper impacted the pedestrian twice, and the left rear and left front tire passed completely over the pedestrian. The Honda was not towed from the scene.

CASE VEHICLE DRIVER

The Honda's driver was a 38-year-old, White (non-Hispanic) female. She was 163 centimeters (64 inches) tall and weighed 50 kilograms (110 pounds). The driver was wearing contact lenses at the time of the incident. She was not wearing sunglasses. The police crash report indicated that the driver was not under the influence of alcohol or drugs. The driver indicated she drove the Honda daily.

A visibility study was conducted using an exemplar 2006 Honda CR-V in order to determine the nominal blind zone behind the Honda as well as the right "D"pillar blind zone. In addition, the blind zones of the rearview mirror and both side view mirrors were assessed. An exemplar 2006 Honda CR-V identical to the subject vehicle was obtained for this study by the assisting police detective. The police detective also served as the surrogate driver for this study. The Honda's driver did not participate. A surrogate of similar height to the Honda's driver was not available. However, she allowed the SCI investigator to make a measurement from her hip to her eye level as she was in a seated position. The distance from her mid-hip to her eye level was 65 centimeters (25.6 inches). The surrogate driver's hip to eye level measurement was 70 centimeters (27.6 inches). The distance from the ground to the surrogate driver's eye level as he sat in the driver's seat of the exemplar Honda was 143 centimeters (56.3 inches). Based on these measurements, the Honda driver's eye height above the ground for the exemplar Honda was estimated to be approximately 138 centimeters (~54 inches). The visibility study was conducted in a level parking lot. Lastly, the standard 71 centimeters (28 inches) high target was used for the study. Please refer to the Nominal Visibility Diagram at the end of this report when reading the following discussion.

For the assessment of the blind zone behind the Honda, the target was positioned behind the Honda and moved rearward until it came into the surrogate driver's view as he looked over his right shoulder out of the backlight. It was necessary to move the target rearward from the back of the Honda 4.6 meters (15.1 feet) before the surrogate driver could see it (**Figure 7**). At this point, if the target was moved 0.5 meters (1.6 feet) to the right of the approximate centerline, it became obstructed by a raised contour at the bottom of the backlight (**Figure 8** below). Therefore, the target was moved rearward an additional 90 centimeters (35 inches) where it could be seen over the raised contour. When the target was moved right 1.2 meters (3.9 feet) from the centerline, it became obstructed by the spare tire (**Figure 8** below), which was mounted to the tailgate exterior. It would have been necessary to move the target a additional short distance rearward to be seen over the top of the spare tire; however, this measurement was not taken. The target became visible on the right side of the spare tire when it was moved 2.1 meters (6.9 feet) to the right of the centerline. When moved 2.9 meters (9.5 feet) to the right of the centerline, the target became obstructed by the right "D"-pillar. The target became visible again through the right rear-most window when it was moved right an additional 1.4 meters (4.6 feet). When the target was moved 90 centimeters (35 inches) to the left from the Honda's centerline, it became obstructed by the left "D"-pillar. The surrogate driver could not turn his head far enough to the right to see past the left "D"-pillar.

Figure 7: Arrow shows location target first came into surrogate driver's view as he looked over his right shoulder out of the backlight

The surrogate driver was then asked to view behind the Honda through the rearview mirror (**Figure 9**). The target was not visible to the surrogate driver until it was moved rearward 6.7 meters (22 feet) from the back of the Honda (**Figure 10**). The target was moved to the right 1 meter (3.3 feet) from the centerline and was obstructed by the very top of the spare tire. As the target was moved further to the right, it became visible again at 1.7 meters (5.6 feet) from the centerline. At 2.5 meters (8.2 feet) to the right of the centerline, the target was obstructed by the right "D"-pillar. The target became visible again when moved right an additional 0.9 meter (3 feet), but was near the edge of the mirror. When moved left from the centerline 1.3 meters (4.3 feet), the target was obstructed by the left "D"-pillar as well as the driver's face in the rearview mirror and could not be seen if moved further left.

The target was then placed at the left rear corner of the Honda and had to be moved rearward 0.7 meter (2.3 feet) before the surrogate driver could see it in the left side view mirror. The target was then moved to the left 0.8 meters (2.6 feet) where it went out of the left side view mirror's field of view. The target was then placed at the right rear corner of the Honda and had to be moved rearward 0.9 meter (3 feet) before the surrogate driver could see it in the right side view mirror. The target was then moved to the right 0.9 meters (3 feet) where it went out of the right side view mirror's field of view.

The driver stated in her interview that before backing the Honda out of the garage, she looked through the rearview mirror and continued to view through this mirror while backing. The visibility study showed that the pedestrian, who was standing approximately 3.9 meters (~ 13 feet) behind the Honda, was within the Honda's rearview mirror blind zone and not visible to the driver.

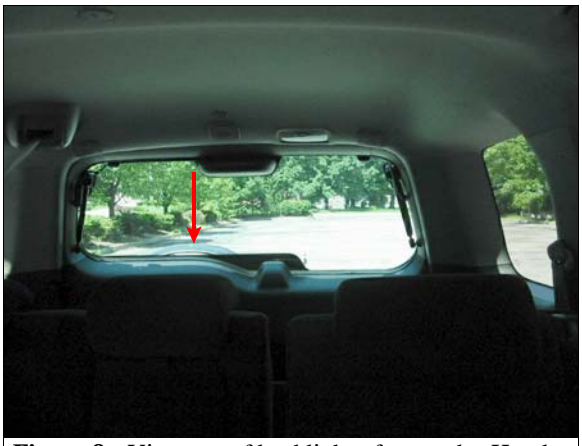


Figure 8: View out of backlight of exemplar Honda from driver's seat; arrow shows raised contour at base of backlight and top of spare tire.

Figure 9: View through rear view mirror of exemplar Honda.

Figure 10: Arrow shows location target first came into view as surrogate driver looked through rear view mirror of exemplar Honda

The pedestrian [15-month-old, White (non-Hispanic) male; 84 centimeters and 10 kilograms (33 inches, 22 pounds)] was reportedly wearing striped denim overall shorts and white sneakers. The color of the shirt he was wearing is not known. He was transported from the scene by ambulance to a hospital and pronounced dead a short time thereafter. There was no information on the police crash report regarding the cause of death or injuries sustained by the pedestrian. Due to the emotional state of the driver and her husband, this information was not sought during the interview.

IN-07-018

Nominal Visibilty Diagram
Exemplar Vehicle = 2006 Honda CR-V

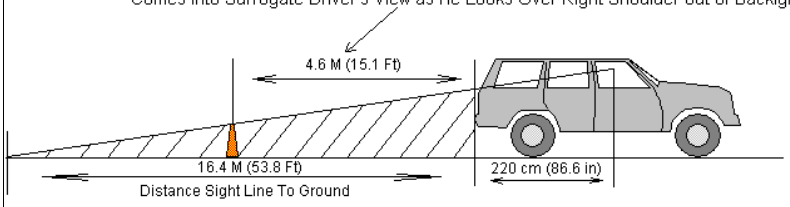
Surrogate Driver's Eye Height From Ground = 143 cm (56.3 in)

= Blind Zone Behind Case Vehicle and Side View Mirrors Blind Zone

= "D"-Pillar Blind Zone

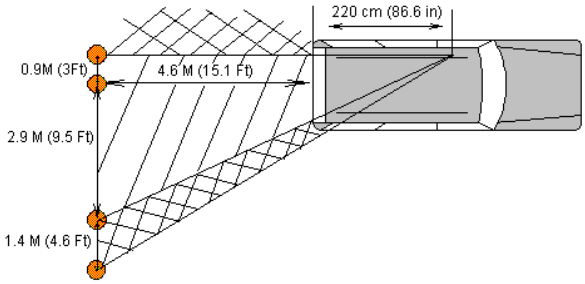
= 71 cm (28 in) High Reference Target

1. Distance Back of Exemplar Honda
To Point a 71 cm (28 in) High Reference Target
Comes Into Surrogate Driver's View as He Looks Over Right Shoulder out of Backlght



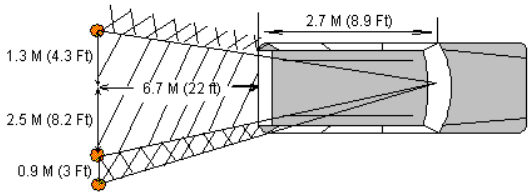
Note: Target had to be moved rearward an additional 90 cm (35 in) to be seen over the raised contour at the bottom right of the backlght. It also would have been necessary to move the target an additional short distance rearward to be seen over the top of the spare tire; however, this measurement was not taken.

2. "D"-Pillar Blind Zone, Surrogate Driver Looking Over Right Shoulder Out Backlight
(Note: As regards left "D"-Pillar, surrogate driver could not turn head far enough to right to see beyond left "D"-Pillar)

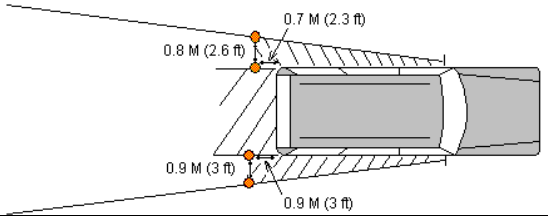


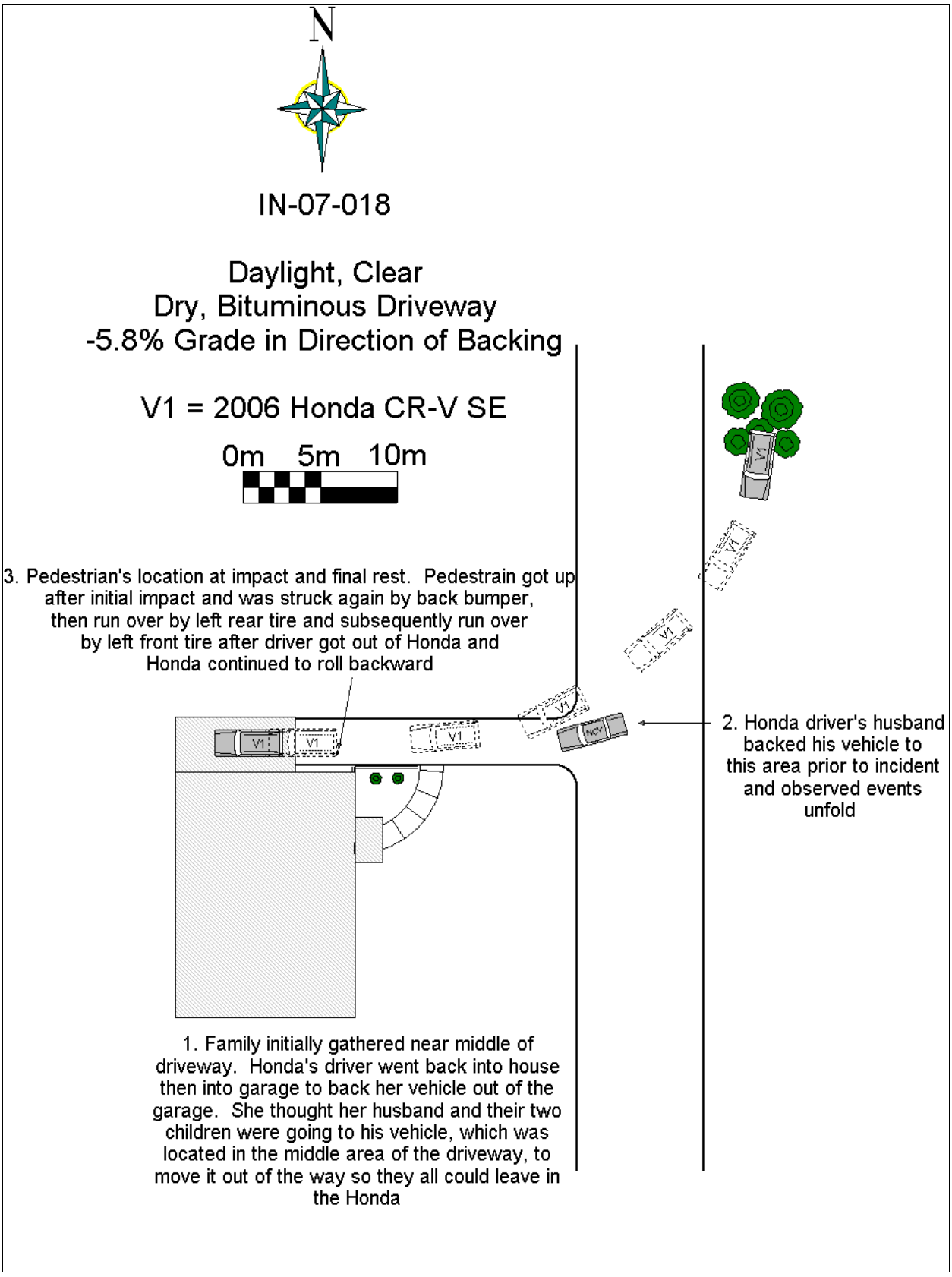
3. Rear View Mirror Blind Zone

(Note: Target became obstructed by very top of spare tire when moved 1 meter (3.3 ft) right of centerline and was visible again when moved 1.7 meters (5.6 ft) right of the centerline)



4. Side View Mirrors Blind Zones




N
IN-07-018
Daylight, Clear
Dry, Bituminous Driveway
-5.8% Grade in Direction of Backing
V1 = 2006 Honda CR-V SE
0m 5m 10m
3. Pedestrian's location at impact and final rest. Pedestrain got up after initial impact and was struck again by back bumper, then run over by left rear tire and subsequently run over by left front tire after driver got out of Honda and Honda continued to roll backward
2. Honda driver's husband backed his vehicle to this area prior to incident and observed events unfold
1. Family initially gathered near middle of driveway. Honda's driver went back into house then into garage to back her vehicle out of the garage. She thought her husband and their two children were going to his vehicle, which was located in the middle area of the driveway, to move it out of the way so they all could leave in the Honda

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 7 0 1 8

IDENTIFICATION

2. Date of Crash 0 4 / x x / 0 7

3. Time of Crash 0 8 2 6

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 . 9 m

13. Estimated speed at impact 0 0 2 kmph

14. Grade at impact +/- - 0 6 %

15. Estimated distance from impact to vehicle final rest

0 3 8 . 0 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 7 0 1 8

VEHICLE IDENTIFICATION

2. VIN J H L R D 7 8 9 7 6 C X X X X X X

3. Model Year 2 0 0 6

4. Vehicle Make (specify): Honda

5. Vehicle Model (specify): CR-V SE

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	☐	Unknown if tinted
RF	☑	☐ Fixed / ☑ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☑ Unknown	☐	Unknown if tinted
2nd Left	☑	☐ Fixed / ☑ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☑ Unknown	☐	Unknown if tinted
2nd Right	☑	☐ Fixed / ☑ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☑ Unknown	☐	Unknown if tinted
3rd Left	☑	☑ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☑ Unknown	☐	Unknown if tinted
3rd Right	☑	☑ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☑ Unknown	☐	Unknown if tinted
Backlight	☑	☑ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☑ Unknown	☐	Unknown if tinted
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 215/65R16

7. LF Tire Size Unknown

8. LR Tire Size Unknown

9. RF Tire Size Unknown

10. RR Tire Size Unknown

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	Head restraint adjustment unknown
Front Middle	0	☐	Full Down / Mid / Full Up	
Front Right	1	☑	Full Down / Mid / Full Up	Head restraint adjustment unknown
2nd Left	5	☐	Full Down / Mid / Full Up	Head restraint adjustment unknown
2nd Middle	5	☐	Full Down / Mid / Full Up	Head restraint adjustment unknown
2nd Right	5	☐	Full Down / Mid / Full Up	Head restraint adjustment unknown
3rd Left		☐	Full Down / Mid / Full Up	
3rd Middle		☐	Full Down / Mid / Full Up	
3rd Right		☐	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		113	
Top of trunk/tailgate		58	
Bottom of bumper		41	
Trailer hitch (if applicable)		N/A	
Undercarriage			
	Sway bar	N/A	
	Axle	18	22 at center of axle
	Differential	N/A	
	Other (specify): _____	123	Bottom of backlight
Sensor Height (if equipped)		N/A	
Camera Height (if equipped)		N/A	

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 7 0 1 8

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

I N 0 7 0 1 8

DRIVER PROFILE

2. Driver's Age 3 8
   99 = Unknown

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

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

5. Driver's Weight 0 5 0 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): Into house to gar
    - ○ 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): Back out of garage
    - ○ N/A
    - ○ Unknown

12. Where was driver going
    Description:

    Backed out of garage to allow husband and 2 children into vehicle, then to day care program

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
I N 0 7 0 1 8

NON-MOTORIST PROFILE

2. Non-motorist's Age
99 = Unknown
1 5 ◉ Months ○ Years

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

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

5. Non-motorist's Weight
999 = Unknown
0 1 0 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) Father's veh
○ 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)			

	Clothing	Color	Fabric	Texture	Weight
HEADWEAR	Hat				
	Helmet				
	Hood				
	Other (specify): _____				
UPPER BODY	Short Sleeve				
	Long Sleeve				
	Light Jacket				
	Heavy Jacket				
	Other (Specify): _____	Unknown	Unknown	Unknown	Unknown
LOWER BODY	Shorts				
	Pants	Light blue	Natural	Soft	Medium
	Shoes	White	Blend	Soft	Light
	Other (specify): _____				