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ON-SITE NOT IN TRAFFIC SURVEILLANCE BACK OVER INVESTIGATION

CASE NUMBER - IN07034
LOCATION - ILLINOIS
VEHICLE - 1999 TOYOTA COROLLA CE
INCIDENT DATE - September 2007

Submitted:

December 20, 2007
Revised: February 19, 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

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15. *Supplementary Notes* On-site not in traffic surveillance back over investigation involving a 1999 Toyota Corolla and a pedestrian.			
16. *Abstract* This report covers an on-site not in traffic surveillance back over investigation involving a 1999 Toyota Corolla and a pedestrian. This incident is of special interest because the Toyota's driver backed into a pedestrian (30-year-old, male) who sustained police reported "B" (non-incapacitating-evident) injuries. The Toyota was traveling on a three-lane city street in a popular sports/entertainment area of a large city. The driver was looking for a place to parallel park. The driver located a parking space, stopped his vehicle and quickly checked his left side view and rearview mirrors, looked over his right shoulder and began to back up toward the parking space. The driver stated he was in a hurry to park the Toyota because a cab was stopped in the street behind him. Meanwhile the pedestrian crossed the street approaching the Toyota from the back left. The Toyota's back left corner impacted the pedestrian and projected him over the trunk and into the backlight glazing, which disintegrated due to the impact. An ambulance was called to the scene and the pedestrian was transported to a hospital where he was treated and released. The driver indicated that he did not see the pedestrian at any time prior to backing up or while backing up. It could not be determined if rear visibility was a factor in this incident because the location of the pedestrian relative to the Toyota at the time the driver stopped and prepared to back up could not be determined.			
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ATTACHMENTS: NOT IN TRAFFIC SURVEILLANCE BACK OVER DATA FORMS . . . . . .

BACKGROUND IN07034

This incident was brought to NHTSA's attention on or before September 19, 2007 by NASS CDS/GES sampling activities. This incident involved a 1999 Toyota Corolla CE and a pedestrian. The incident occurred in September, 2007, at 3:28 a.m., in Illinois and was investigated by the applicable city police department. This incident is of special interest because the Toyota's driver backed into a pedestrian (30-year-old, male) who sustained police reported "B" (non-incapacitating-evident) injuries. The police completed a standard "Illinois Traffic Crash Report" and submitted a copy of the report to the state. This contractor was able to contact the Toyota's driver (non-owner) on October 8, 2007. Contact with the Toyota's owner (mother of the front right passenger) was made on October 17, 2007 and final cooperation was established with both the owner and driver on October 22, 2007. This contractor inspected the scene and Toyota, and interviewed the Toyota's driver and back left passenger on October 23, 2007. This report is based on the police crash report, scene, and Toyota inspections and an interview with the Toyota's driver and back left passenger.

SUMMARY

The Toyota Corolla was eastbound on a three-lane city street in a popular sports/entertainment area of a large city. The driver was looking for a place to parallel park. The driver located a parking space along the south curb, stopped his vehicle and quickly checked his left side view and rearview mirrors, looked over his right shoulder and began to back up toward the parking space. The driver stated he was in a hurry to park the Toyota because a cab was stopped in the street behind him. Meanwhile the pedestrian crossed the street from the north to the southeast and approached the Toyota from the back left. The Toyota's back left corner impacted the pedestrian and projected him over the trunk and into the backlight glazing, which disintegrated due to the impact. The driver stopped the vehicle, got out, and found the pedestrian behind the Toyota on his hands and knees facing north. An ambulance was called to the scene and the pedestrian was transported to a hospital where he was treated and released. The driver indicated that he did not see the pedestrian at any time prior to backing up or while backing up. It could not be determined if rear visibility was a factor in this incident because the location of the pedestrian relative to the Toyota at the time the driver stopped and prepared to back up could not be determined.

CRASH CIRCUMSTANCES

Crash Environment: The trafficway on which the Toyota Corolla was backing was a three-lane, undivided, city street. The street traversed in an east-west direction. The trafficway had two westbound through lanes and one eastbound through lane. Each through lane was 3.5 meters in width. Roadway pavement markings consisted of a broken yellow centerline. Each side of the roadway was bordered by a barrier curb and sidewalk, and there was metered parking along the curb on the south side of the roadway. The site of the incident was located in a large urban residential/commercial area with a sports arena and several popular entertainment establishments located nearby. There was moderate pedestrian traffic at the time of the incident. In addition to the driver, there were two other passengers in the Toyota, one in the front right seat and another in the back left seat. The Toyota's driver accompanied the SCI investigator to the scene of the

incident and pointed out the area of the incident and the final rest positions of the Toyota and pedestrian. The driver was unable to provide a specific location of where he stopped prior to attempting to park the Toyota. At the time of the incident, the light condition was dark but lit, the atmospheric condition was clear, the roadway was dry bituminous with a negative 1.2% grade in the direction of backing, and there was moderate traffic. See the Scene Diagram at the end of this report.

Figure 1: Overview of incident area; driver stopped in area indicated by arrow, then backed to parallel park to the right.

Figure 2: Path of pedestrian from north to southeast

Pre-Crash: There were vehicles parallel parked along the south side of the street and the Toyota was traveling east (**Figure 1**). The Toyota driver (21-year-old, male) was looking for a place to park and found an open space on the south side of the street. He stopped the Toyota an unknown distance east of the parking space and prepared to parallel park (**Figure 1**). The driver stated he looked at his left side view mirror and rearview mirror, then turned and looked over his right shoulder out of the backlight prior to starting the backing maneuver. The driver estimated the elapsed time between stopping the Toyota and beginning the backing maneuver was approximately 2 seconds. There was insufficient information to establish the likely location of the pedestrian relative to the Toyota at the time the driver stopped and prepared to back up. According to the back left passenger, the pedestrian was crossing the street from the north to the southeast, walking slowly, toward the back left of the Toyota (**Figure 2**). However, the police crash report indicated that the pedestrian ran across the street. The pedestrian was reportedly going to his vehicle, which was east of the scene. The driver indicated his intention was to back the Toyota toward and into the open parking space. The driver stated he was in a hurry to park the Toyota because a cab was stopped in the street behind him. The incident occurred in the roadway as the Toyota's driver backed up toward the parking space.

Crash: The Toyota's driver indicated he began backing up while looking over his right shoulder out of the backlight. The focus of his attention was the parking space to the back right of the Toyota. The driver stated he did not see the pedestrian prior to the impact. However, it could not be determined if rear visibility was a factor in why the driver did not see the pedestrian because the location of the pedestrian relative to the Toyota at the time the driver stopped and prepared to back up could not be determined.

Figure 3: Overview of back of Toyota Corolla; scale in tenths of meter

According to the Toyota's back left passenger, as the driver backed up, the back left corner of the Toyota (**Figure 3**) impacted the pedestrian and projected him over the trunk and into the backlight glazing. The driver and back left passenger indicated the pedestrian's impact to the backlight disintegrated the glazing. The police crash report also indicated that the backlight glazing disintegrated as a result of the pedestrian impact. The back left passenger further stated that he remembered the pedestrian's back impacting the backlight glazing. The driver estimated that he had backed up between to 2 and 5 seconds before the impact. Based on the driver's statement that he was in a hurry to park because a cab was stopped in the street behind him, the bottom of the driver's time range estimate of 2 seconds appeared to be a reasonable estimate of the time to impact. The driver also estimated he was traveling 8-16 km.p.h. (5 to 10 m.p.h.) when the impact occurred. Based on the outcome of the pedestrian striking and disintegrating the backlight glazing, the top of the driver's speed range estimate of 16 km.p.h (10 m.p.h.) appeared to be a reasonable estimate of the impact speed. It was not possible to determine the distance traveled from the Toyota's stopped position to impact or the distance traveled from impact to final rest due to the lack of scene evidence and the lack of specific information provided by the driver and back left passenger regarding where the driver had stopped prior to backing up. Therefore, an independent time, speed and distance analysis could not be conducted.

Figure 4: Area of final rest of Toyota and pedestrian

Post-Crash: The Toyota's driver stopped the vehicle, got out, and found the pedestrian on his hands and knees facing north, approximately 1 meter (~3 feet) behind the Toyota (**Figure 4** above). An ambulance was called to the scene and the pedestrian was transported to a hospital where he was treated and released.

CASE VEHICLE

The 1999 Toyota Corolla CE (**Figure 5** and **Figure 6** below) was a front wheel drive, four-door sedan (VIN: 2T1BR12E0X------) equipped with a 1.8L, I-4 engine and automatic transmission. The Toyota's back bumper was covered with a plastic bumper fascia with energy absorbing material between the bumper fascia and bumper bar. The Toyota was not equipped with any after market equipment and was not equipped with a back up/ parking aid. The Toyota's specified wheelbase was 246 centimeters (97 inches), the specified rear overhang was 107 centimeters (42 inches), and the specified overall length was 442 centimeters (174 inches). The measured distance from the ground to the bottom of the back bumper was 32 centimeters (12.6

inches). The measured distance from the ground to the top of the trunk was 94 centimeters (37 inches). The height of the beltline was measured as 85 centimeters (33.5 inches).

Figure 5: Front right overview of Toyota Corolla

Figure 6: Back left overview of Toyota Corolla

CASE VEHICLE DAMAGE

There was no contact evidence to the back of the Toyota Corolla or on the trunk lid, and the damaged backlight had been repaired before inspection by this contractor. Based on the vehicle inspection, the description of the contact by the back left passenger, and Collision Deformation Classification (CDC) guidelines for coding pedestrian impacts, the CDC was estimated to be: **06-BLHN-6** (**180** degrees). The Toyota was driven from the scene.

CASE VEHICLE DRIVER

The Toyota Corolla's driver was a 21-year-old, White (non-Hispanic) male. He was 178 centimeters (70 inches) tall and weighed 82 kilograms (180 pounds). He was not the owner of the Toyota and indicated that this was his first time driving the vehicle and the first time parking in the area. He had no visual deficiencies and was not wearing any corrective lenses at the time of the incident. The police crash report indicated that no test for drugs or alcohol was offered. The police crash report gave no indication of the presence of alcohol or drugs in the narrative of the report.

CASE VEHICLE FRONT RIGHT PASSENGER

The Toyota's front right passenger was a 22-year-old, White (non-Hispanic) female. She was 173 centimeters (68 inches) tall and approximately 68 kilograms (150 pounds). She was sleeping in the front right seat at the time of the incident and was not injured.

CASE VEHICLE BACK LEFT PASSENGER

The Toyota's back left passenger was a 22-year-old, White (non-Hispanic) male. He was 183 centimeters (72 inches) tall and approximately 91 kilograms (200 pounds). He was not injured.

A visibility study was conducted during the inspection of the Toyota Corolla in order to determine the nominal blind zone behind the Toyota as well as the nominal blind zone of both side view mirrors and the rearview mirror. The standard 71 centimeters (28 inches) high target was used for the observations. The Toyota's front right passenger (i.e., the owner of the Toyota) was used as the surrogate driver in making the visibility observations because the driver was not available for the vehicle inspection. The Toyota was placed on a level surface for the visibility study because the study was conducted at the owner's residence and a surface with a grade similar to the scene of the incident was not available. The actual driver's height was 178 centimeters (70 inches). The surrogate driver's height was measured as 172 centimeters (68 inches). The surrogate driver's eye height above the ground was measured as 109 centimeters (42.9 inches) as she sat in the driver seat, which was adjusted to the full rear track position, the same as the driver's at the time of the incident. Please refer to the Nominal Visibility Diagram at the end of this report when reading the following description.

The initial set of observations was made with the surrogate driver looking over her right shoulder out of the backlight as the driver did at the time of the incident. The target was moved rearward from the back bumper along the Toyota's approximate centerline until it came into the driver's view. The target had to be moved rearward from the back bumper 4.1 meters (13.4 feet) before the top of target came into the driver's view, just to the left of the Center High Mounted Stop Lamp [CHSML (**Figures 7** and **8**)]. If the target was moved 0.5 meter (1.6 feet) to the right of the approximate centerline, it became obstructed by the CHMSL. The target became visible again to the right of the CHMSL when the target was moved an additional 1.3 meters (4.3 feet). When moved another 1.4 meters (4.6 feet), the target became obstructed by the right "C"-pillar. Finally, the target was moved 2.8 meters (9.2 feet) further to the right, where it became visible to the driver through the right rear window. The target was then placed back at the centerline. When moved 0.3 meter (1 foot) to the left of the approximate centerline, it became obstructed by the back left head restraint. It could not be seen when moved further to the left because it was beyond the limits of normal neck movement for the surrogate driver. A person was not available at the time of the inspection to act as a surrogate back left passenger. However, subsequent to the field investigation, a person of the same height as the back left passenger [i.e.,

Figure 7: Arrow shows target at location where surrogate driver could first see it as she looked over her right shoulder out of backlight

Figure 8: Driver perspective of target (arrow) viewed over right shoulder

183 centimeters (72 inches)] was placed in the back seat of a similar vehicle and his head was observed to extend above the top of the head restraint. Based on this observation, the back left passenger's head would have further obstructed the driver's view out of the left portion of the backlight at the time of the incident.

The surrogate driver was then asked to view behind the vehicle through the rearview mirror. The target was placed at the back bumper and moved rearward 3.6 meters (11.8 feet) before the surrogate driver could see it through the rearview mirror (**Figure 9**). The target was then moved to the right 1.0 meter (3.3 feet) from the Toyota's approximate centerline where it became obstructed by the back right head restraint. The target was not visible when moved further to the right because it went out of the rearview mirror's field of view. When the target was moved left from the centerline 0.9 meters (3.0 feet), it became obstructed by the back left head restraint. The target was not visible when moved further to the left because it again went out of the rearview mirror's field of view. The area behind the CHMSL represented a small additional blind zone for the view through the rearview mirror. The blind zone in this area extended rearward an additional 0.4 meter (1.3 feet) and was 0.5 meter (1.6 feet) wide.

Figure 9: Close view of target (arrow) on left side of CHMSL as seen through rearview mirror viewed from driver's seat

Figure 10: Close view of target (arrow) at location it first became visible to the surrogate driver as she looked through the left side view mirror

Figure 11: Close view of target (arrow) at location it first became visible to surrogate driver as she looked through the right side view mirror

The target was then placed at the back left bumper corner as the surrogate driver viewed through the left side view mirror. The surrogate driver indicated that her side view mirrors were positioned for her and not as the driver had them positioned at the time of the incident. The target was then moved from the driver's door rearward. The surrogate driver indicated she could not see the target through the left side view mirror until it was positioned 0.4 meter (1.3 feet) forward of the back left corner (**Figure 10**). The target was then moved left 0.5 meter (1.6 feet) from the back left bumper corner where it went out of the mirror's field of view and the driver could no longer see it. The target was then positioned at the back right bumper corner and the same process was

repeated for the right side view mirror. It was necessary to move the target rearward from the back bumper 0.4 meter (1.3 feet) before the driver could see it in the right side view mirror (**Figure 11** above). The target was then moved to the right 0.7 meter (2.3 feet) where it went out of the right side view mirror's field of view and the driver could no longer see it.

The Toyota's driver stated in his interview that before backing, he checked the left side view mirror and his rearview mirror before looking over his right shoulder out of the backlight to back up. He indicated that he did not see the pedestrian at any time prior to backing up or while backing up. However, it could not be determined from the visibility study or the investigation if rear visibility was a factor in why the driver did not see the pedestrian because the location of the pedestrian relative to the Toyota at the time the driver stopped and prepared to back up could not be determined.

PEDESTRIAN

The pedestrian was a 30-year-old (unknown race and ethnic origin) male. Based on estimates from the Toyota's driver and back left passenger, the pedestrain was 183 centimeters (72 inches) tall and weighed 82 kilograms (180 pounds). According to the driver, the pedestrian was wearing blue jeans and a blue, short sleeve shirt. The driver did not know the type of footwear the pedestrian was wearing.

PEDESTRIAN INJURIES

The pedestrian was transported by ambulance to a hospital and was treated and released. The Toyota's driver stated that the pedestrian sustained a laceration to the back of his head and was bleeding. The pedestrian's head most likely impacted the backlight causing the reported laceration. The table below shows the pedestrian's injury and injury mechanism.

Injury Number	Injury Description (including Aspect)	NASS Injury Code & AIS 90	Injury Source (Mechanism)	Source Confidence	Source of Injury Data
1	Laceration back of head, not further specified	minor 190600.1,6	Exterior of other motor vehicle: backlight	Probable	Interviewee

IN07034

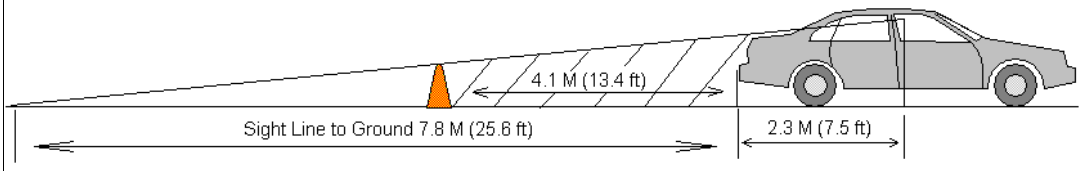
Nominal Visibility Diagram
Case Vehicle = 1999 Toyota Corolla 4-Door Sedan

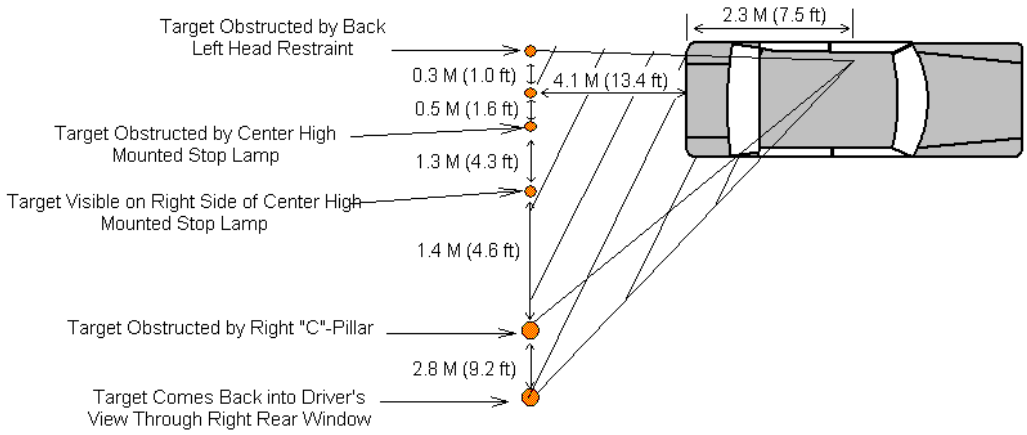
Surrogate Driver's Eye Height From Ground = 109 cm (42.9 in)

= Toyota's Blind Zones

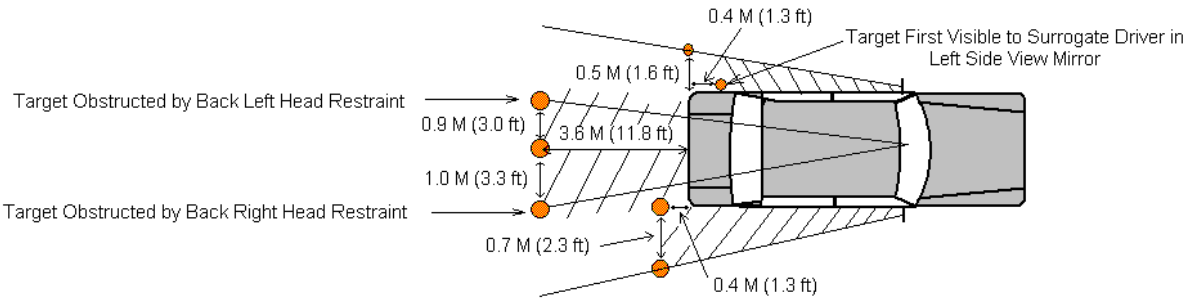
= 71 cm (28 in) High Target

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

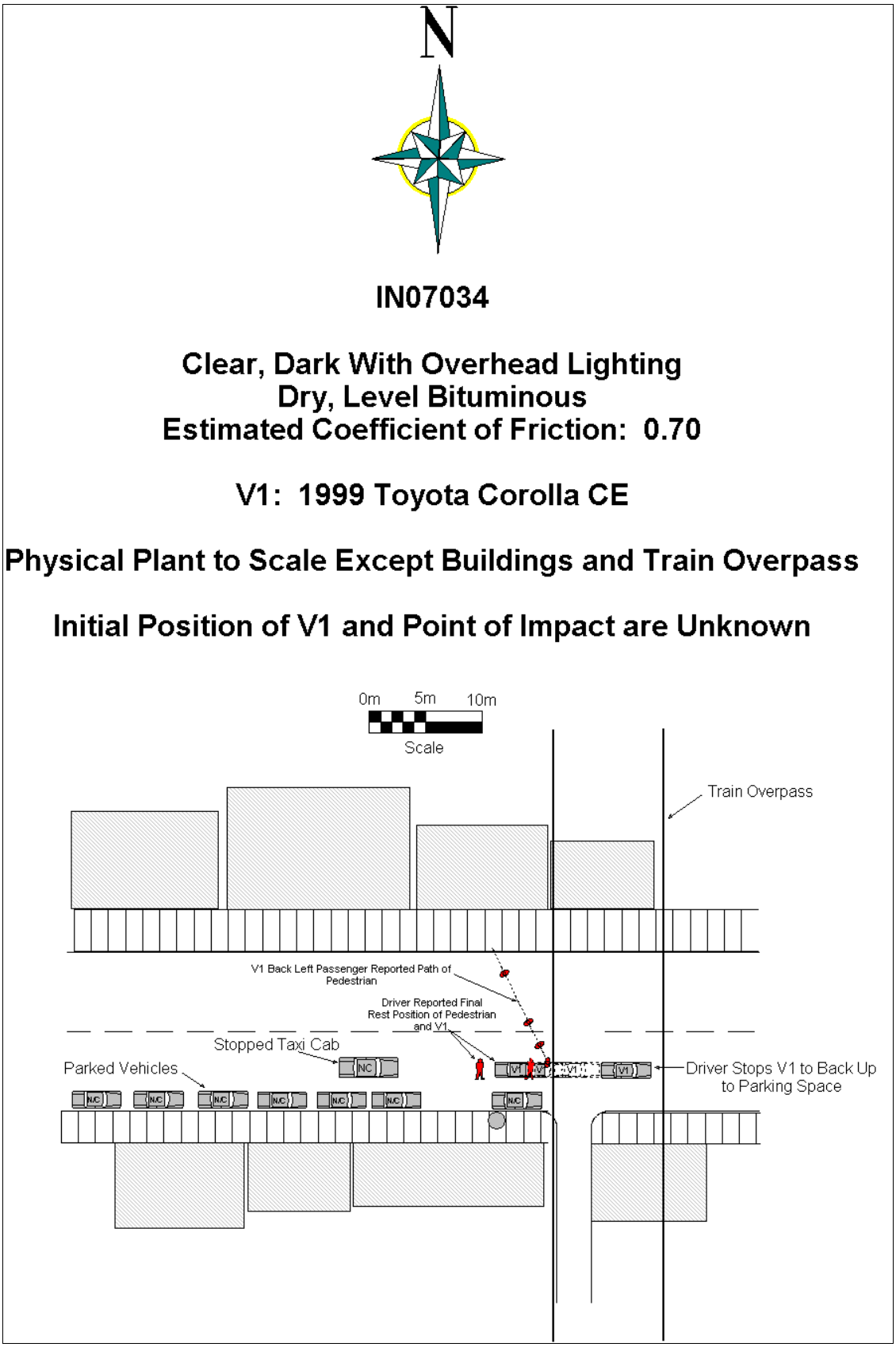




2. Rearview Mirror and Side View Mirror Blind Zones



Note: The area behind the Center High Mounted Stop Lamp represented a small additional blind zone for the view through the rearview mirror. The blind zone in this area was extended 0.4 meter (1.3 ft) and was 0.5 meter (1.6 ft) wide


N
IN07034
Clear, Dark With Overhead Lighting
Dry, Level Bituminous
Estimated Coefficient of Friction: 0.70
V1: 1999 Toyota Corolla CE
Physical Plant to Scale Except Buildings and Train Overpass
Initial Position of V1 and Point of Impact are Unknown
0m 5m 10m
Scale
Train Overpass
V1 Back Left Passenger Reported Path of Pedestrian
Driver Reported Final Rest Position of Pedestrian and V1
Stopped Taxi Cab
Parked Vehicles
Driver Stops V1 to Back Up to Parking Space

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 3 4

IDENTIFICATION

2. Date of Crash 0 9 / x x / 0 7

3. Time of Crash 0 3 2 8

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 1 %

12. Estimated distance from parked position to impact

9 9 9 . 9 m

13. Estimated speed at impact 0 1 6 kmph

14. Grade at impact +/ - - 0 1 %

15. Estimated distance from impact to vehicle final rest

9 9 9 . 9 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 3 4

VEHICLE IDENTIFICATION

2. VIN 2 T 1 B R 1 2 E 0 X C X X X X X X

3. Model Year 1 9 9 9

4. Vehicle Make (specify): Toyota

5. Vehicle Model (specify): Corolla CE

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 P175/65R14

7. LF Tire Size P175/65R14

8. LR Tire Size P175/65R14

9. RF Tire Size P175/65R14

10. RR Tire Size P175/65R14

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		☐	☐ 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		85	Tailpipe: 22, Spare Tire Well: 22
Top of trunk/tailgate		94	
Bottom of bumper		32	
Trailer hitch (if applicable)		N/A	
Undercarriage			
	Sway bar	N/A	
	Axle	20	
	Differential	N/A	
	Other (specify): Muffler	16	
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 3 4

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 3 4

DRIVER PROFILE

2. Driver's Age: 21
   99 = Unknown
3. Driver's Sex
   - (•) Male
   - ( ) Female
   - ( ) Unknown
4. Driver's Height: 178 cm
   999 = Unknown
5. Driver's Weight: 082 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): Parallel parking on street
    - ( ) N/A
    - ( ) Unknown

12. Where was driver going
    Description:

    To friend's residence

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): Park space

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 3 4

NON-MOTORIST PROFILE

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

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

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

5. Non-motorist's Weight — 0 8 2 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: backlight glass
○ 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) Other 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	Dark blue	Unknown	Unknown	Light
	Long Sleeve				
	Light Jacket				
	Heavy Jacket				
	Other (Specify): _____				
LOWER BODY	Shorts				
	Pants	Dark blue	Natural	Soft	Medium
	Shoes	Unknown	Unknown	Unknown	Unknown
	Other (specify): _____				