

**CRASH DATA RESEARCH CENTER**

Calspan Corporation  
Buffalo, NY 14225

**CALSPAN ON-SITE SIDE IMPACT  
INFLATABLE OCCUPANT PROTECTION SYSTEM CRASH INVESTIGATION**

**SCI CASE NUMBER: CA08049**

**VEHICLE: 2007 TOYOTA 4RUNNER**

**LOCATION: TEXAS**

**CRASH DATE: AUGUST 2008**

Contract No. DTNH22-07-C-00043

Prepared for:

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

## **DISCLAIMER**

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 are coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

**TECHNICAL REPORT STANDARD TITLE PAGE**

1. Report No. CA08049		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Calspan On-Site Side Impact Inflatable Occupant Protection System Crash Investigation Vehicle: 2007 Toyota 4Runner Location: Texas				5. Report Date: October 2010	
				6. Performing Organization Code	
7. Author(s) Crash Data Research Center				8. Performing Organization Report No.	
9. Performing Organization Name and Address Crash Data Research Center Calspan Corporation P.O. Box 400 Buffalo, New York 14225				10. Work Unit No.	
				11. Contract or Grant No. DTNH22-07-C-00043	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Washington, D.C. 20590				13. Type of Report and Period Covered Technical Report Crash Date: August 2008	
				14. Sponsoring Agency Code	
15. Supplementary Note This on-site investigation focused on the deployment of the side impact air bag system in a 2007 Toyota 4Runner Limited sport utility vehicle					
16. Abstract This on-site investigation focused on the deployment of the side impact air bag system in a 2007 Toyota 4Runner Limited sport utility vehicle. The Toyota was equipped with a Certified Advanced 208-Compliant (CAC) frontal air bag system, seatback-mounted side impact air bags, and dual-purpose side impact/rollover sensing Inflatable Curtain (IC) air bags. The Toyota was involved in an intersection crash with a 1998 Chevrolet Silverado 1500 series pickup truck. As a result of the crash, the IC air bag system and the right seatback-mounted side impact air bag deployed. The Toyota was occupied by five occupants, including a 38-year-old male driver, a 35-year-old female front-right passenger, a 13-year-old male rear left passenger, a 9-year-old female rear center passenger, and a 13-year-old male rear right passenger. The driver and rear-right passenger were not injured, however, the front right passenger sustained police reported non-incapacitating injuries and the rear left and rear center passengers sustained police reported possible injuries. These three passengers were transported by private vehicle to a local hospital for treatment. The hospital did not possess records of treatment for these passengers.					
17. Key Words Certified Advanced 208-Compliant frontal air bag system (CAC) Frontal Crash Inflatable Curtain (IC) air bags 2007 Toyota 4Runner				18. Distribution Statement General Public	
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 11	22. Price

**TABLE OF CONTENTS**

<b>BACKGROUND .....</b>	<b>1</b>
<b>SUMMARY .....</b>	<b>2</b>
CRASH SITE .....	2
VEHICLE DATA .....	2
2007 TOYOTA 4RUNNER LIMITED .....	2
1998 CHEVROLET SILVERADO .....	3
CRASH SEQUENCE .....	3
PRE-CRASH .....	3
CRASH .....	4
POST-CRASH .....	4
VEHICLE DAMAGE - 2007 TOYOTA 4RUNNER LIMITED .....	4
EXTERIOR .....	4
INTERIOR .....	5
MANUAL SAFETY BELT SYSTEMS .....	5
AIR BAG SYSTEMS .....	5
FRONTAL .....	6
SIDE IMPACT/ROLLOVER SENSING .....	6
1998 CHEVROLET SILVERADO .....	7
OCCUPANT DATA .....	7
DRIVER DEMOGRAPHICS .....	7
DRIVER KINEMATICS .....	7
FRONT RIGHT PASSENGER DEMOGRAPHICS .....	8
FRONT RIGHT PASSENGER KINEMATICS .....	8
REAR LEFT PASSENGER DEMOGRAPHICS .....	8
REAR LEFT PASSENGER KINEMATICS .....	9
REAR CENTER PASSENGER DEMOGRAPHICS .....	9
REAR CENTER PASSENGER KINEMATICS .....	9
REAR RIGHT PASSENGER DEMOGRAPHICS .....	9
REAR RIGHT PASSENGER KINEMATICS .....	10

**CALSPAN ON-SITE SIDE IMPACT  
INFLATABLE OCCUPANT PROTECTION SYSTEM CRASH INVESTIGATION  
SCI CASE NUMBER: CA08049  
VEHICLE: 2007 TOYOTA 4RUNNER  
LOCATION: TEXAS  
CRASH DATE: AUGUST 2008**

**BACKGROUND**

This on-site investigation focused on the deployment of the side impact air bag system in a 2007 Toyota 4Runner Limited sport utility vehicle (**Figure 1**). The Toyota was equipped with a Certified Advanced 208-Compliant (CAC) frontal air bag system, seatback-mounted side impact air bags, and dual-purpose side impact/rollover sensing Inflatable Curtain (IC) air bags. The Toyota was involved in an intersection crash with a 1998 Chevrolet



**Figure 1:** Right front oblique view of the Toyota.

Silverado 1500 series pickup truck. As a result of the crash, the IC air bag system and the right seatback-mounted side impact air bag deployed. The Toyota was occupied by five occupants, including a 38-year-old male driver, a 35-year-old female front-right passenger, a 13-year-old male rear left passenger, a 9-year-old female rear center passenger, and a 13-year-old male rear right passenger. The driver and rear-right passenger were not injured, however, the front right passenger sustained police reported non-incapacitating injuries and the rear left and rear center passengers sustained police reported possible injuries. These three passengers were transported by private vehicle to a local hospital for treatment. The hospital did not possess records of treatment for these passengers.

The Police Crash Report (PAR) was identified through the National Automotive Sampling System (NASS) and forwarded to the National Highway Traffic Safety Administration (NHTSA) for review. The PAR was subsequently provided to the Calspan Special Crash Investigations (SCI) team for follow-up on September 29, 2008. The Toyota was deemed a total loss by its insurance carrier and was transferred to a regional salvage facility, where it was sold at auction and transferred to the buyer's location for resale. Cooperation was established with the insurance company and buyer to allow an on-site inspection of the vehicle. The on-site investigation took place during the week of October 6, 2008 and involved the inspection of the Toyota and the examination of the crash site. The out-of-state occupants of the Toyota could not be located for an interview. Also, the Chevrolet could not be located for inspection.

## SUMMARY

### *Crash Site*

This crash occurred during daylight hours in August 2008 at a four-leg intersection of two multi-lane roadways. Weather conditions at the time of the crash were partly cloudy skies with an easterly wind of 19 km/h (12 mph), and a temperature of 33 Celsius (91 Fahrenheit) degrees (Source: *Weather Underground* [www.wunderground.com](http://www.wunderground.com)). Accordingly, all roadway surfaces were dry.



**Figure 2:** Eastbound trajectory view of the Toyota.

The Toyota was eastbound in the straight and level outboard travel lane of a seven-lane concrete roadway, physically divided by a curbed concrete median. In the Toyota's direction of travel were three travel lanes posted with a speed limit of 72 km/h (45 mph), supported by an inboard left turn only lane. These lanes were delineated by dashed white lines, while a solid fog line separated the outboard travel lane from an outboard curb. The intersection was controlled by overhead traffic signals for all travel directions. **Figure 2** depicts the eastbound trajectory view of the Toyota on approach to the intersection.

The Chevrolet was northbound in the right travel lane of a five-lane roadway. The inboard and outboard lanes were designated turn lanes. The concrete roadway was straight and level, with a posted speed limit of 64 km/h (40 mph). Travel lanes were delineated by dashed white lines, while the inboard and outboard turn lanes were separated by solid white lane lines. Curbs bordered the roadway on either side. A schematic of the crash is included as **Figure 10** of this report.

### *Vehicle Data*

#### *2007 Toyota 4Runner Limited*

The 2007 Toyota 4Runner Limited was manufactured in January 2007 and identified by the Vehicle Identification Number (VIN): JTEZU17R478 (production sequence deleted). The electronic odometer reading at the time of the inspection was 84,729 km (52,648 mi). The Toyota, depicted in **Figure 3**, was powered by a 4.0-liter, V-6 gasoline engine linked to a 5-speed automatic transmission with on-demand four-wheel drive.



**Figure 3:** Left front oblique view of the Toyota.

The Toyota's service brakes consisted of four-wheel, power-assisted discs with anti-lock (ABS). It was also equipped with power steering, power windows, and power door locks. The vehicle had a 279 cm (109.9 in) wheelbase with a Gross Vehicle Weight Rating (GVWR) of 2,420 kg (5,330 lb). The manufacturer recommended tire size was P265/60R18 with a cold tire pressure of 221 kPa (32 psi) for all four positions. All four tires were Bridgestone Dueler H/T 840 of the recommended size, mounted on OEM 6-spoke alloy wheels equipped with a direct Tire Pressure Monitoring System (TPMS). Specific tire data at the time of SCI inspection was as follows:

Position	Tire Identification Number (TIN)	Measured Tire Pressure	Measured Tread Depth	Damage
LF	ELXT JAJ 0207	255 kPa (37 PSI)	6 mm (7/32 in)	None
LR	ELXT JAJ 0207	262 kPa (39 PSI)	5 mm (6/32 in)	None
RF	ELXT JAJ 0107	221 kPa (32 PSI)	5 mm (6/32 in)	Alloy wheel abraded
RR	ELXT JAJ 0207	193 kPa (28 PSI)	6 mm (8/32 in)	None

The interior of the Toyota was configured for the seating of five occupants. The two front seating positions featured leather-surfaced bucket seats with adjustable track, seatback angle, and head restraints. Both front seats were adjusted to their rearmost track positions with the seatbacks slightly reclined and the head restraints adjusted full-down at the time of SCI inspection. The second row consisted of a three-passenger bench seat with folding seatbacks, split 60/40 from right to left. Each of the seat positions were equipped with adjustable head restraints, which were adjusted full-down at the time of SCI inspection. All seating positions within the Toyota were equipped with 3-point lap and shoulder safety belts.

### *1998 Chevrolet Silverado*

The 1998 Chevrolet Silverado was identified by the VIN: 2GCEC19W411 (production sequence deleted). This full-size pickup truck had two-wheel drive capabilities and was powered by a 3.7-liter, V-6 gasoline engine. The Chevrolet had a 359 cm (141 in) wheelbase and was 555 cm (219 in) in overall length, similar to the exemplar depicted in **Figure 4**. It was equipped with redesigned front air bags and 3-point lap and shoulder safety belts.



**Figure 4:** Exemplar Chevrolet pickup truck.

## *Crash Sequence*

### *Pre-Crash*

The Toyota was traveling eastbound in the outboard travel lane on approach to a four-leg controlled intersection. The 38-year-old restrained male driver of the Toyota intended to continue his eastbound travel by crossing straight through the intersection. The Chevrolet was traveling northbound approaching the same intersection in the right through lane. The phase of the traffic signal was unknown. The corresponding trajectory of the Chevrolet encroached into

the travel lane of the Toyota. There was no physical evidence at the crash site to support evasive actions by either driver.

### ***Crash***

The frontal plane of the Chevrolet impacted the right side of the Toyota. The resultant directions of force were 2 o'clock for the Toyota and within the 11 o'clock sector for the Chevrolet. The missing vehicle algorithm of the WinSMASH model was used to calculate the severity of the crash (delta-V) due to the unavailability of the Chevrolet for this investigation. The total delta-V of the Toyota was 11 km/h (6.8 mph). The longitudinal and lateral components were -5.5 km/h (-3.4 mph) and -9.5 km/h (-5.9 mph), respectively. The total calculated delta-V of the Chevrolet was 13 km/h (8 mph), with a longitudinal component of -11.3 km/h (-7 mph) and lateral component of 6.5 km/h (4 mph). This algorithm serves as a borderline reconstruction for the impact event between the two vehicles. The side impact resulted in the deployment of the front right seatback-mounted air bag and the IC air bags in the Toyota. The PAR listed the frontal air bag system as deployed in the Chevrolet. The Toyota initiated a left lateral translation due to the force of the impact on its right side. Subsequently, both vehicles rotated clockwise (CW) and slid to final rest within the intersection.

### ***Post-Crash***

The emergency response system was notified of the crash. Local police, fire department, and ambulance personnel were dispatched to the scene. All five occupants of the Toyota refused emergency medical assistance or transport from the scene. The front right, rear left, and rear center passengers were police reported as transported by private vehicle to a local hospital. There was no record of treatment at the hospital for these passengers. The Toyota sustained disabling damage from the collision and was towed from the scene to a local tow yard, where it was subsequently deemed a total loss by its insurance carrier. The Chevrolet was also towed from the scene to a local tow yard.

### ***Vehicle Damage - 2007 Toyota 4Runner Limited***

#### ***Exterior***

The exterior of the Toyota sustained damage to its right plane as a result of the side impact crash. This included the lateral crush and inward buckling of both passenger doors and the rear aspect of the front fender above and aft of the right front axle. The Toyota's right front door was jammed closed at the time of SCI inspection. However, the right rear door remained operational. This damage pattern is depicted in **Figure 5**.



**Figure 5:** Right side damage pattern on the Toyota.

The direct contact damage began 25 cm (10 in) forward of the right front axle and extended 262 cm (103 in)



rearward to the lower right C-pillar area. The combined direct and induced damage (Field L) began 33 cm (13 in) forward of the right front axle and extended 293 cm (115.5 in) rearward.

The residual crush measured along the right side at mid-door level was as follows: C1 = 0 cm, C2 = 4 cm (1.5 in), C3 = 8 cm (3 in), C4 = 3 cm (1.25 in), C5 = 4 cm (1.5 in), and C6 = 0 cm. Maximum crush was located at C3, 51 cm (20 in) forward of the right B-pillar. The door-sill differential measurement was zero. The Collision Deformation Classification (CDC) associated with the right side damage pattern was 02RYEW2.

### ***Interior***

The interior damage to the Toyota consisted of the deployment of the vehicle's side air bag and pretensioner systems and lateral intrusions of the right side interior components. There was no occupant contact evidence within the interior of the Toyota. The following table provides a log of the Toyota's intrusions as documented during the SCI inspection:

<b>Seat Position</b>	<b>Component</b>	<b>Intrusion</b>	<b>Direction</b>
Row 1, Right	Door panel at A-pillar	2 cm (1 in)	Lateral
Row 1, Right	Door armrest	3 cm (1.25 in)	Lateral
Row 2, Right	B-pillar	3 cm (1.25 in)	Lateral
Row 2, Right	Door panel	1 cm (0.5 in)	Lateral

### ***Manual Safety Belt Systems***

The front row of the Toyota was equipped with manual 3-point, continuous loop lap and shoulder safety belt systems. The driver's safety belt system was equipped with a sliding latch plate, an Emergency Locking Retractor (ELR), and a retractor pretensioner. The front right belt system was equipped with a sliding latch plate, an ELR/Automatic Locking Retractor (ALR), and a retractor pretensioner. Both belts were adjustable at the sliding, B-pillar-mounted D-ring anchor point, and were full-down at the time of SCI inspection. The front retractor pretensioners were actuated at the time of SCI inspection. Loading evidence to the front left safety belt system consisted of a subtle abrasion located on the latch plate. No loading evidence was found on either the belt webbing or latch plate of the front right safety belt system.

The three remaining seating positions within the second row were equipped with 3-point, continuous loop lap and shoulder safety belt systems, all incorporating sliding latch plates and switchable ELR/ALR retractors. The D-rings for the two outboard seating positions were fixed to their respective C-pillars. The shoulder belt and retractor of the second row center position was integrated into the seatback. There was no loading evidence on the rear seat belt systems; however, subtle routine wear marks were found on all three corresponding latch plates.

### ***Air Bag Systems***

The Toyota was equipped with the CAC frontal, seatback-mounted side impact, and side impact/rollover sensing IC air bag systems.

### *Frontal*

The CAC frontal air bag system consisted of dual-stage air bags mounted in the steering wheel hub and the top right instrument panel. It also incorporated seat track positioning sensors, safety belt buckle switches and a front right occupant weight sensor. The manufacturer of this vehicle has certified that the Toyota is compliant to the advanced air bag portion of Federal Motor Vehicle Safety Standard No. 208. The frontal air bags did not deploy in this crash.

### *Side Impact/Rollover Sensing*

The side impact air bag system consisted of front seatback-mounted air bags and the roof rail-mounted IC air bags. The IC air bags were commanded to deploy through side impact crash sensing and rollover sensing. This right side impact resulted in the deployment of the right seatback-mounted air bag and both IC air bags.

The right seatback-mounted air bag was constructed of Automotive Safety Components International (ASCI) recognized PA 6.6 nylon material and had deployed through the 51 cm (20 in) outboard seam stitching and underlying foam padding of the seatback. In its deflated state, the air bag measured 36 cm (14 in) vertically by 28 cm (11 in) horizontally. The air bag, depicted in **Figure 6**, was not tethered. There was no evidence of occupant contact on the air bag at the time of SCI inspection.



**Figure 6:** Deployed right seatback-mounted air bag.

The side impact/rollover IC air bags were mounted to the roof side rails between the A- and D-pillars. A single curtain provided coverage for both the front and rear occupant positions, over the full-height of the side glazing. This coverage began immediately aft of the A-pillar and extended rearward to the C-pillar, wrapping around the C-pillar at occupant head level and ending above the rear axle position, as seen in **Figure 7**. Accordingly, the two IC air bags were trapezoidal in shape and measured 213 cm (84 in) and 198 cm (78 in) in length at their upper and lower aspects, respectively. Vertical coverage of the IC air bags measured 46 cm (18 in) for the front occupant position and 42 cm (16.5 in) for the rear. Both air bags were tethered to the A-pillar and roof side rail at their respective forward and aft aspects.



**Figure 7:** Rear right coverage of the IC air bag.

The deployed bags were stamped with the alphanumeric sequence 6033388 S103/M11B VMQ,PA66. The latter portion of this designation

represents verification that the bags were constructed of Automotive Safety Components International (ASCI) recognized PA 6.6 nylon material, with a vinyl methyl silicone-based, high-consistency rubber coating.



**Figure 8: Remaining left IC air bag.**



**Figure 9: Forward aspect of right IC bag.**

Prior to SCI inspection, and as reported to the SCI team by the buyer of the vehicle, the forward aspect of the left IC bag was cut from the vehicle for photographic purposes to aid in the resale of the vehicle. The left IC bag was cut vertically at the B-pillar, full-height, and at the A-pillar tether. **Figures 8** and **9** depict the IC air bags at the time of SCI inspection.

### ***1998 Chevrolet Silverado***

#### ***Exterior Damage***

The Chevrolet sustained frontal damage as a result of the impact with the Toyota. The vehicle was repaired and returned to service prior to the assignment of this case.

#### ***Occupant Data***

##### ***Driver Demographics***

Age / Sex:	38-year-old / Male
Height:	Unknown
Weight:	Unknown
Seat Track:	Rear track position
Safety Belt Usage:	3-point lap and shoulder safety belt
Usage Source:	SCI vehicle inspection
Egress from Vehicle:	Exited vehicle without assistance
Type of Medical Treatment:	Not injured, refused medical treatment/transport

##### ***Driver Kinematics***

The 38-year-old male driver of the Toyota was seated in the rear track position with the seatback slightly reclined. He was restrained by the manual 3-point lap and shoulder safety belt system. At the impact with the Chevrolet, the driver of the Toyota initiated a right lateral trajectory in response to the 2 o'clock direction of force as the right seatback-mounted side impact air bag and both IC air bags deployed. He loaded the safety belt webbing as the inertia retractor engaged and

the retractor pretensioner actuated. The driver's reported method of egress from the vehicle was without assistance. He was not injured and refused emergency medical assistance and transport.

***Front Right Passenger Demographics***

Age / Sex:	35-year-old / Female
Height:	Unknown
Weight:	Unknown
Seat Track:	Rear track position
Safety Belt Usage:	3-point lap and shoulder safety belt
Usage Source:	SCI vehicle inspection
Egress from Vehicle:	Exited vehicle without assistance
Type of Medical Treatment:	Transported by private vehicle for treatment of Police reported non-incapacitating injuries.

***Front Right Passenger Kinematics***

The 35-year-old female front right passenger of the Toyota was seated in a rear track position with the seatback slightly reclined, restrained by the manual 3-point lap and shoulder safety belt system. She initiated a right lateral trajectory in response to the associated direction of force of the right side impact to Toyota. The front right occupant loaded the safety belt webbing as the inertia retractor engaged and the retractor pretensioner actuated, and contacted the deployed seatback-mounted side impact and IC air bags. She rebounded against the seat as the Toyota came to rest. There was no discernable contact evidence within the vehicle or to the deployed air bags of the Toyota attributable to the front right passenger's kinematics.

Although the right front door was jammed closed, the front right passenger's reported method of egress from the vehicle was without assistance. She refused emergency medical assistance or transport at the scene. She was police reported as transported by private vehicle to a local hospital for treatment of non-incapacitating injuries. There was no record of treatment at the hospital for this passenger.

***Rear Left Passenger Demographics***

Age / Sex:	13-year-old / Male
Height:	Unknown
Weight:	Unknown
Seat Track:	Not adjustable
Safety Belt Usage:	3-point lap and shoulder safety belt
Usage Source:	SCI vehicle inspection
Egress from Vehicle:	Exited vehicle without assistance
Type of Medical Treatment:	Transported by private vehicle for treatment of police reported possible injury.

### ***Rear Left Passenger Kinematics***

The 13-year-old male rear left passenger of the Toyota was seated on the non-adjustable bench seat, restrained by the manual 3-point lap and shoulder safety belt system. In response to the 2 o'clock direction of force impact with the Chevrolet, the rear left passenger initiated a right lateral trajectory. He loaded the safety belt webbing. There was no discernable contact evidence within the vehicle or to the deployed IC air bag of the Toyota attributable to the rear left occupant's kinematics.

The rear left passenger's reported method of egress from the vehicle was without assistance. He refused emergency medical assistance or transport at the scene, but was transported by private vehicle for evaluation of reported possible injuries. There was no record of treatment for this passenger at the treating hospital.

### ***Rear Center Passenger Demographics***

Age / Sex:	9-year-old / Female
Height:	Unknown
Weight:	Unknown
Seat Track:	Not adjustable
Safety Belt Usage:	3-point lap and shoulder safety belt
Usage Source:	SCI vehicle inspection
Egress from Vehicle:	Exited vehicle without assistance
Type of Medical Treatment:	Transported by private vehicle for treatment of Police reported possible injury.

### ***Rear Center Passenger Kinematics***

The 9-year-old female rear center passenger was seated on the non-adjustable bench seat and restrained by the manual 3-point lap and shoulder safety belt system. At impact with the Chevrolet, the rear center passenger initiated a right lateral trajectory in response to the 2 o'clock direction of force. She loaded the safety belt webbing as the inertia retractor engaged and probably contacted the rear right passenger. She sustained a policed reported possible injury level and was transported by private vehicle to a local hospital. There was no record of treatment for this passenger at the treating hospital.

### ***Rear Right Passenger Demographics***

Age / Sex:	13-year-old / Male
Height:	Unknown
Weight:	Unknown
Seat Track:	Not adjustable
Safety Belt Usage:	3-point lap and shoulder safety belt
Usage Source:	SCI vehicle inspection
Egress from Vehicle:	Exited vehicle without assistance
Type of Medical Treatment:	Not injured, refused medical treatment/transport

### ***Rear Right Passenger Kinematics***

The 13-year-old male rear right passenger of the Toyota was seated on the non-adjustable bench seat. He was restrained by the manual 3-point lap and shoulder safety belt system. Upon the impact with the Chevrolet, the rear right passenger of the Toyota initiated a right lateral trajectory in response to the associated direction of force as the IC air bag deployed. He loaded the safety belt webbing as the inertia retractor engaged, and contacted the deployed IC air bag.

The rear right passenger's reported method of egress from the vehicle was without assistance. He denied injury at the scene and refused emergency medical assistance and transport. There was no discernable contact evidence within the vehicle or to the Toyota's deployed IC air bag that were attributable to the rear right occupant's kinematics.

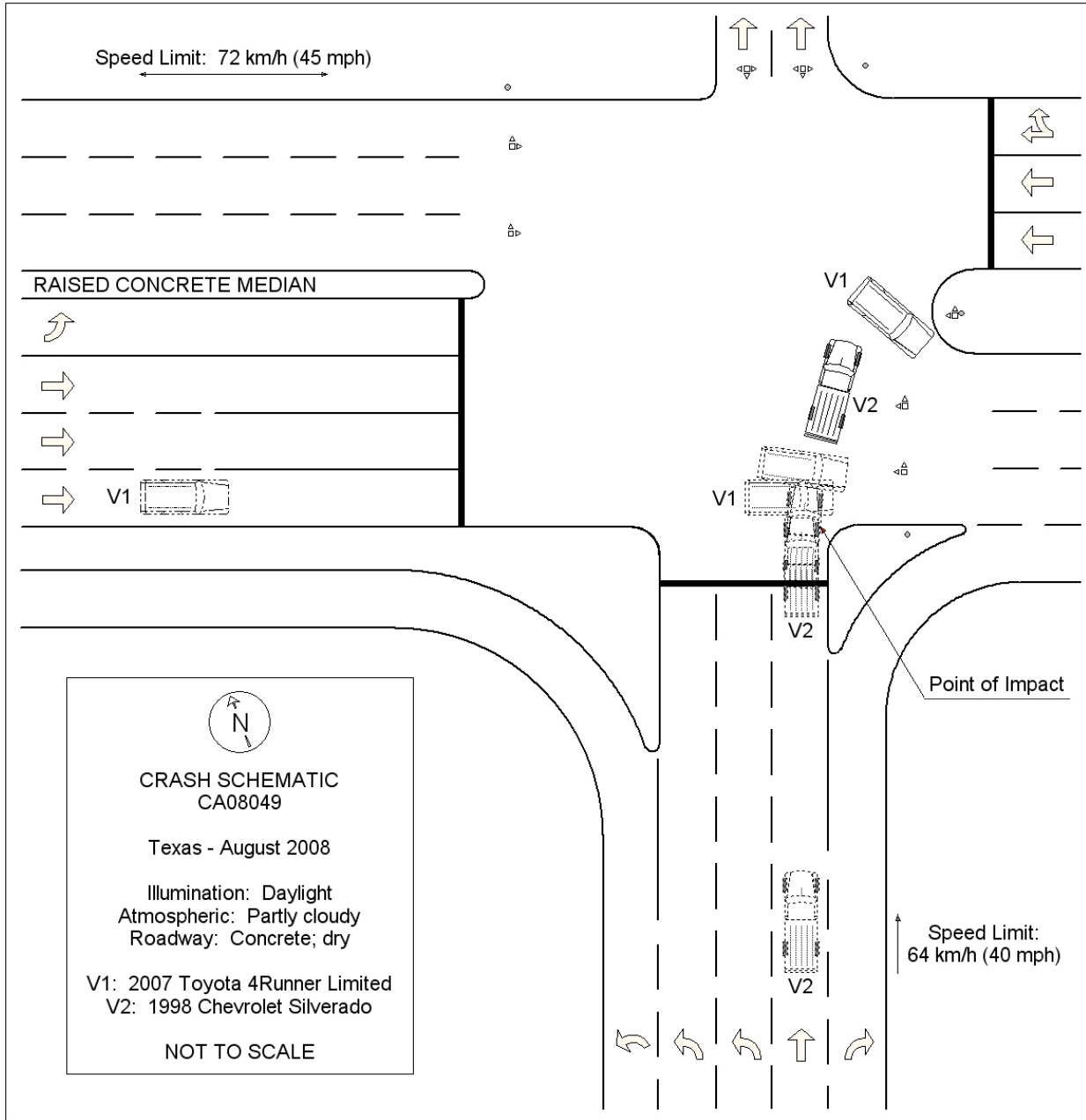


Figure 10: Crash Schematic.