Vehicular Emergency Data Set (VEDS)

Recommendation

(March 2004)

Version 2.0

Prepared by the ComCARE Alliance ACN Data Set Working Group

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Overview

Abstract

The Vehicular Emergncy Data Set (VEDS) is a XML based data standard that detremines useful and critical elements needed to prove an efficient emergency response to vehicular emergency incidents. The Protocol identifies crash and medical data elements.

Status

The current document is the revised Recommended Vehicular Emergency Data Set. The current vesion (2.0) reflects the changes resulting from the ACN data committee meeting in March 2004.

Introduction

Problem Statement

Currently, when Telematics Service Providers (TSPs), such as OnStar and ATX Technologies, receive location and/or automatic crash notification (ACN) data from a vehicle into their call centers, they must verbally relay the information to a single emergency response agency (i.e. 9-1-1, or police or EMS dispatch). The process today would typically involve a single phone call to a Public Safety Answering Point (PSAP), without any associated data. Emergency response agencies beyond the PSAP are generally not notified by voice or data of the incident by the TSP. However, a wealth of data exists at the TSP that can be very valuable if in the hands of the right public safety agencies. The challenge is to be able to transmit the data from the TSP to public safety.

Current generation ACN is a very valuable service for public safety, often meaning the difference between life and death for vehicle occupants; advanced ACN (predictive crash data) will be even more so. However, there is currently no system in use daily by TSPs today for electronically forwarding that location and crash data from a TSP's internal data system to the multiple agencies for which it would have value. Several things need to be in place for this to happen. TSPs need to have the capability to transmit data out to public safety. Public safety agencies need to have the capability to receive the data into their internal communications systems. These are critical issues that are being addressed, but most important, is the need for a standard format for the data that flows between TSPs and public safety agencies. Without a standard data set, best thought of as a common computer language, there can be no seamless data flow to and among multiple sources about an incident.

The nature of Mayday and ACN is that a wide variety of parties, from 9-1-1 to EMS to the hospital, should be (and could be) involved in creating, sharing and using crash and related data. Thus, multiple public safety entities, including, but not limited to the PSAPs, have indicated that they would like to receive a data notification about incidents in their jurisdiction in real-time whenever possible. Therefore, there is a critical need to develop a standardized data set for ACN and other vehicular emergencies. This was first recommended during the National Mayday Readiness Initiative (NMRI) which stated that "efforts needed to be made to develop the capability to send crash data from TSPs to multiple public safety agencies" and that a key to this is the need for a uniform ACN data exchange recommendation between TSPs and public safety agencies.

Purpose

The ACN Data Set Working Group was formed specifically to address this need and has completed the final draft recommendation for this data set in XML format. It is recommended data exchange format. It is not a data transmission protocol/standard. How TSPs decide to send data, and how agencies collect data, transmit data, link it to voice, handle it within their various agencies, etc. are all critical issues, but not ones that were addressed in this effort. However, this common data set will enable multiple methods of data transfer and handling.

Goals of the Working Group:

The goals of the ACN Data Set Working Group were to:
- Develop recommended XML-based data set for ACN/Mayday data
- Ensure input from all key affected stakeholders, public and private
- Widely publicize new data set to Medical/EMS and public safety communities, and to industry
- Discuss interface with and delivery of data to multiple destinations and utilize defined ACN data set in multiple simulations and field tests

Example Uses

When the process started, the data set was narrowly focused on ACN data from Telematics Service Providers (TSPs). As the work of the ACN Data Set Working Group progressed, the data set was revised to also include data from other data providers, including Commercial Vehicle Operators (CVOs), Roadside Assistance Providers, Public Safety Answering Points (PSAPs), and other public safety agencies. Thus the data set is now referred to as the recommended Vehicular Emergency Incident Data Exchange Format. Despite the semantic change, the initial goals for an ACN data set have been met. In drafting the data set in this manner, the functionality of the data set has been expanded in several ways beyond enabling a simple one-time data feed from a TSP to a public safety agency.

The data set is now designed for use by TSPs (e.g. OnStar, ATX Technologies), but it can also be used by other entities that have vehicular emergency incidents, including hazmat carriers. Also, the data set is designed to allow other entities beyond the original data provider to publish data into the "system" using the same message set. The data set allows for a data provider, such as a TSP, to submit data to one or more agencies about an emergency incident. That could be the end of the data flow, or it could be the first message of many, depending on how local agencies decide to use the data set. For example, a TSP could submit the original message into the system and a responding EMS agency could add data gathered at the scene to the same message and then add further data to the message en route to the hospital. Also, an additional private sector company could potentially add data to the message, such as a personal medical data provider that has medical data on one or more of the vehicle occupants.

As mentioned above, the efforts of the ComCARE ACN Data Set Working Group did not focus on specific data transmission protocols or the optimal way to route the

actual data to public safety agencies. The goal of the group was to determine all of the fields that could be useful within the data set, define each of the elements and their unique formats, and present the information as a recommendation.

Use Case Scenarios

For simplicity, all examples below pertain to a TSP that has received an ACN notification:

Example 1: *9-1-1 ALI database is used as the delivery mechanism over the existing ALI database to PSAP trunking*

In this example, once the TSP advisor determines that emergency assistance is required, the TSP advisor identifies the appropriate 9-1-1 PSAP to notify and provides the 9-1-1 PSAP operator with the incident number/key. The TSP advisor establishes a connection with the appropriate 9-1-1 ALI DBMS Service Provider and transmits the appropriately formatted data set to the ALI/DBMS system. (This could be done using the services of a third party) The ALI/DBMS system stores the data set and awaits the request for data from the 9-1-1 PSAP utilizing the incident number/key associated with the ACN incident. The 9-1-1 PSAP operator inputs an automatic/manual request to the ALI system for the ACN data associated with the incident number/key provided by the TSP and the ALI/DBMS system delivers the TSP stored ACN incident number/key data to the requesting 9-1-1 PSAP into the PSAPs existing communications system (this could include a Computer Aided Dispatch (CAD) system). Due to limitations in current ALI database capabilities, **all** fields in the data set cannot be received into an ALI database. However, any elements within the data set that are currently in use within the 9-1-1 system for enhanced 9-1-1 (e.g. lat/lon, date, time, etc.) could be delivered to an ALI database. Additional elements within this data set could also be stored in any unused fields within an ALI database.

Example 2: *TSP pushes ACN data to a web enabled, GIS-based emergency incident web site*

In this example, once the TSP advisor determines that emergency assistance is required, in addition to contacting the appropriate local agency via teleconference, the TSP advisor pushes the data to an emergency incident web site. (This could be a direct push or routed through a third party) The emergency incident web site could be national, or it could simply display current incident information for a city, larger region, or state. The website would be hosted on a server(s) constantly checking to see if new messages have been posted, and then displaying the text of the message and the location on a web-based map.

Authorized users would be able to see incidents in their jurisdiction and be able to view other incidents in the region on a common map. As the incident progresses, users would be able to publish up-to-date information and see the latest status information from other authorized users in real-time. This web site is intended as an interim and supplementary measure to provide a relatively immediate solution to new sources of data coming from outside public agencies (e.g. Telematics, hazardous materials and other trucking incident information). Agencies would still use their existing and planned communications and information technology infrastructure for themselves and to cooperate and share information with other agencies. The website is intended to support a graphic exchange of data, not supplant existing systems. However, for agencies that currently do not have any internal system capable of receiving messages from outside sources, this option allows them to view emergency incidents in real-time as long as they have a browser and an Internet connection.

Example 3: *Direct feed to internal agency communications systems (use of an intelligent message broker)*

In this example, once the TSP advisor determines that emergency assistance is required, in addition to contacting the appropriate local agency via teleconference, the

TSP advisor pushes the data to an intelligent message broker (IMB) using the vehicular emergency incident data set, which forwards the data directly to the appropriate local agencies who have previously configured their communications systems to receive such data feeds. For example, a PSAP could receive, parse and display the XML message directly into their CAD system via a TCP/IP link if it received the message from an IMB. A hospital or EMS or any other agency could do the same. The IMB is a message switch that receives data from multiple external sources (e.g. telematics service providers, hazmat carriers, etc.) and routes information to and among end users (e.g. emergency response and management agencies) and applications. The IMB could also be used to route data to an ALI database (example 1) or an emergency incident web site (example 2).

Example 4: *TSP pushes data to central "server" which stores data*

In this example, once the TSP advisor determines that emergency assistance is required, in addition to contacting the appropriate local agency via teleconference, the TSP advisor pushes the data into a database(s) within a central server (this could be at a national, regional, or state level) that stores the data. Once the data resides at the server, public safety agencies with proper authorization can access the information and download it into their existing communications systems. For this approach to be effective, all public safety agencies that are within the jurisdiction of the incident and have the authority to access the server need to be notified that the data is available.

Note:

The above examples are listed simply to provide a better picture of how the data set can be used from a very high level. There are surely additional ways to transmit the data as well. The Vehicular Emergency Incident Data Set is designed to allow multiple transmission methods to be used. In fact, it is quite possible that a combination of two or more of the above methods will be used simultaneously to route data to multiple public safety agencies in a given region. The ACN Data Set Working Group acknowledges that

there are multiple ways to use the Vehicular Emergency Incident Data Set, and in no way advocates one method over another.

Process

The draft standard is being developed in accordance with the recommendations of the National Mayday Readiness Initiative (NMRI) which stated that, "The nature of Mayday and ACN is that a wide variety of parties are involved in developing, sharing and using crash and related data. A technical standards coordination effort should be initiated so that all the appropriate stakeholders are involved in relevant standards which affect their responsibility."

The ACN Data Set Working Group met via teleconference on an as needed basis and was open to individuals and companies with experience or knowledge in ACN or the standards setting process. Typically the full working group met monthly during the initial phase of the effort. Once subcommittees were formed and the workload increased, each subcommittee met an average of two times per month. Input was requested from all participants to define a data set with optimal data fields and to best interface with multiple users. All efforts were made to reach out to groups who have already defined standards that may apply to the work being done by this group. Wherever possible, existing data formats were taken into consideration and incorporated into this effort. The first phase of the process focused on developing a comprehensive list of data elements for the data set. The group formally published the initial list of data elements for comment and incorporated such comments into an XML dtd (document type definition) file. The XML dtd was a list of all elements within the data set, but it did not indicate specific formats and units of measurement that are required for each element. The next phase of the working group was to define specific data formats and relationships among the elements and move the document from a dtd file to an XML schema. To that end, the ACN Data Set Working Group formed three subcommittees to address particular sections of the data set. The subcommittees were as follows:

Incident Data Subcommittee

This group addressed general incident information, such as latitude and longitude, source information, and public safety agency information. Barb Thornburg, NENA Data Committee Chair, chaired this subcommittee.

Vehicle Data Subcommittee

This group addressed vehicle data of all types, including commercial vehicles, such as vehicle type, license number, airbag data, seatbelt data, etc. Jasmin Jijina, General Motors/OnStar Senior Engineering Associate, chaired this subcommittee.

Medical and Crash Data Subcommittee

This group addressed the medical and crash data elements of the data set, such as occupant breathing, occupant age, delta velocity, crash pulse, personal medical data, etc. Dr. Greg Mears, EMS Medical Director for the State of North Carolina and board member of the State EMS Directors chaired this subcommittee. Each of the subcommittees met numerous times to revise data elements within the section of the data set the subcommittee was addressing and to define the specific data formats for each element. Once each subcommittee was done with their section, the three sections were combined into a complete data formats/data dictionary document and presented to the full working group for approval. An XML schema was then created using the data formats document. The detailed data formats and XML schema are provided in this document.

Next Steps

As the initial work on a draft vehicular emergency incident data set has been completed, the ACN Data Set Working Group is now in the process of presenting the work to numerous other public safety and medical organizations, government, and companies that are interested in the topic and/or the standards setting process. The Working Group plans to work with these groups to get their input and endorsement of the data set and begin discussing implementation. While the efforts to date have focused

solely on developing a draft data set recommendation, there are numerous other activities that need to occur as well that are related to, and hopefully enhanced by this data set. For example, while there is a broad list of elements in the data set, which are the critical elements that public safety agencies want to receive today? This of course may differ based on the type of agency that answers the question as the data needs of police, fire, EMS and a hospital may vary within the same city, let alone across the country. Also, while the data set enables the transmission of data in a standard format, the Working Group did not discuss the infrastructure and technological needs within the public safety community to receive and share the data from private sector companies and amongst themselves. This certainly is being addressed now and will continue to be by many different groups. The ComCARE Alliance plans to continue facilitating discussions among the many different groups that are interested in the subject.

As companies and public safety agencies begin implementing the data set in various tests, simulations and field trials, the ComCARE ACN Data Set Working Group will play an organizational role in bringing together the different groups that have structural, implementation or any other issues with the data set. In the near future, the Working Group will facilitate discussions to update/revise the data set on an as needed basis. However, in the future, the goal is to find a permanent home within a formal standards setting body.

About the Extensible Markup Language (XML)

The Vehicular Emergency Incident Data Set has been developed in XML format. XML is the most widely accepted format for exchanging structured data between different computer systems in the world today. It is an open, non-proprietary standard shared by all major software providers. Recommendations for XML are developed and refined by a consortium of users and maintained by the World Wide Web Consortium (W3C). (http://www.w3c.org/xml/)

Vehicular Emergency Data Set Structure

Document Object Model
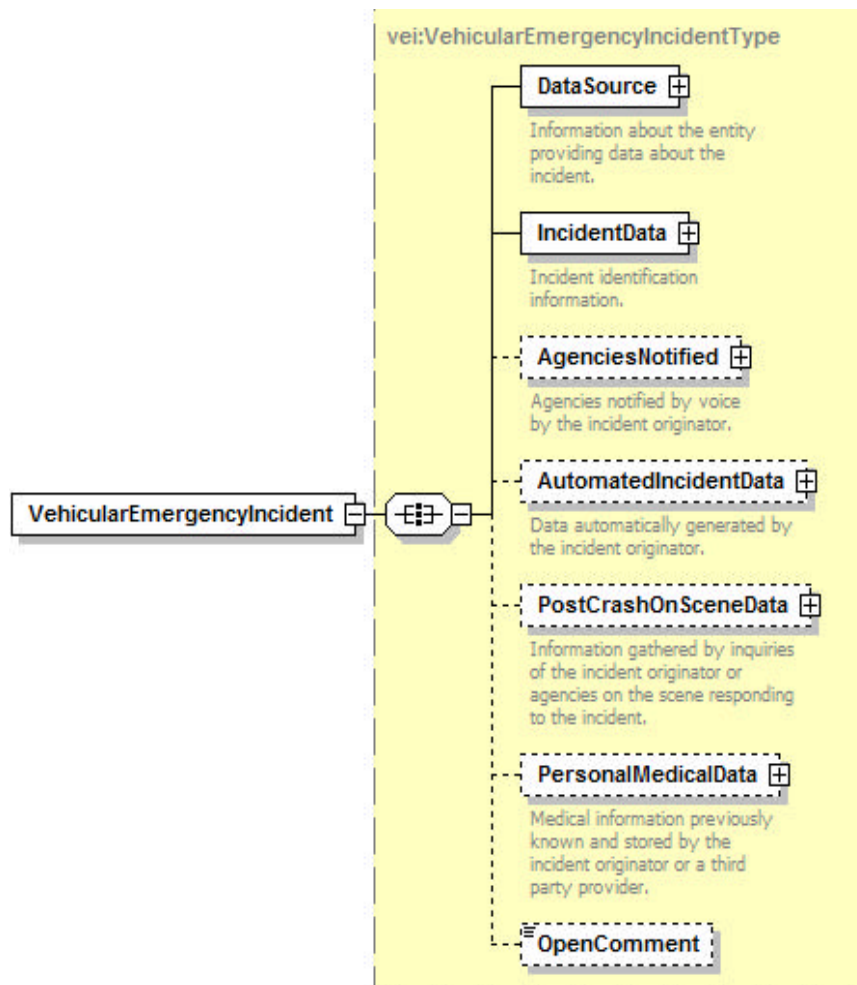
Vehicular Emergency Data Set Structure

Data Definition

<table>
<tr>
<td colspan="3">
<p align="center">1.1 Data Source</p>
<p align="center"><i>Information about the entity providing data about the incident.</i></p>
</td>
</tr>
<tr>
<th>NAME</th>
<th>LABEL</th>
<th>DESCRIPTION</th>
</tr>
<tr>
<td>Type</td>
<td><Type>[1]</td>
<td>Indicates the type of data source.
Values:
    Telematics Service Provider (TSP)
    Roadside Assistance Provider
    Commercial Vehicle Operator (CVO)
    Public Safety Answering Point(PSAP)
    Public Safety Agency</td>
</tr>
<tr>
<td>Incident Originator</td>
<td><IncidentOriginator></td>
<td>Indicates if source providing data is the originator of the incident.
Answer should be given as true or false.</td>
</tr>
<tr>
<td>Provider Name</td>
<td><ProviderName></td>
<td>Name of company or agency providing data.
Open Text.</td>
</tr>
<tr>
<td>Incident ID Number</td>
<td><IncidentID></td>
<td>Indicates the internal case number of the incident used by the incident originator.</td>
</tr>
<tr>
<td>Call Back Number</td>
<td><CallBackNbr></td>
<td>Incident originator 7x24 call back number.
Format: NPANXXLINE (US only, prefix of 1 optional)</td>
</tr>
</table>

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[1] Bold font indicates required elements.

	1.2 Incident Data	
	Incident identification information	
NAME	**LABEL**	**DESCRIPTION**
Event Verified	<EventVerified>	Indicates if there was a verbal confirmation of the event by the incident originator and a PSAP or other public safety agency. Answer should be given as true or false.
Incident Date and Time	**<IncidentDateTime>**	GMT/UMT that Lat/Long is received by the incident originator. xs: dateTime
Received Date/Time of Incident	**<ReceivedDateTime>**	GMT/UMT that Lat/Long is received by the incident originator. xs: dateTime
Event Time	<IncidentTime>	Time of the event which triggered the emergency call (if substantially earlier than time received by incident originator)[2] Format: HHMMSS.S
Location	**<Location>**	Describes the location of the incident through the child elements – Latitude, Longitude or LocationDescription
Latitude	<Latitude>	Latitudinal coordinate of the incident site in degrees (-90° to +90°) Child element of Location. Format: +00.###### Indicate 0 if latitude is unknown
Longitude	<Longitude>	Longitudinal coordinate of the incident site in degrees (0 to 360°) Child element of Location. Format: 000.###### Indicate 0 if longitude is unknown
Location Description	<LocationDescription>	Closest street address/intersection, nearby point of interest or business reference to the incident site. Child element of Location. Open Text.
Datum	<Datum>	Map projection and coordinate system recommended for the display of the Longitude and Latitude coordinates. NAD83 specifies North American Datum for 1983. WGS84 specifies the World Geodetic System for 1984. Values: NAD83 WGS84
LDT Confidence	<ConfidenceMeters>	Indicates the level of uncertainty inherent in the associated latitude/longitude information expressed in meters, ranging from one meter to 1800 km, expressed in meters.
LDT Confidence Percentage	<ConfidencePercentage>	Indicates the confidence by which it is known that the calling party lies within the associated shape description. It is expressed as a percentage ranging from 1-100.
Location	<LocationTime>	GMT/UMT of position determination by the incident originator.

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[2] * This data is intended to be provided only in situations where the actual time of the event is much earlier than when the data was received by the incident originator. For example, this would apply in the rare case that an accident occurred and there is a delay in sending the voice/data to the TSP for reasons of technical difficulty.

Time		Format: HHMMSS.S
Device Event Type	**<DeviceEventType>**	Type of device that caused event notification to occur. Values:
		ACN Airbag
		ACN Seatbelt Tensioner
		ACN Vehicle Accelerometers
		SOS Emergency Button
		Geofence Violation
		Good Samaritan call
		ACN Urgency
		Crash Detection
		ACN Other

1.3 Agency Notified by Voice		
Agencies notified by voice by the incident originator		
NAME	**LABEL**	**DESCRIPTION**
Name	<Name>	Name of agency notified by voice by incident originator.
Reference Number	<ReferenceNum>	Reference number or name of individual at agency who received TSP call.
Agency Telephone Number	<TN>	7 X 24 telephone number called to contact agency. Format: NPANXXLINE
Agency Contact Address	<Address>	Address of agency that took the call of the incident originator.
Agency Contact Time	<ContactTime>	GMT/UTC the notified agency was first contacted by incident originator. Format: HHMMSS.S

1.4 Automated Incident Data

Data automatically generated by the incident originator.

Vehicle Data – Data from the Vehicle

Begin Child Elements of Vehicle Data

NAME	LABEL	DESCRIPTION
Body Type	<BodyType>	Vehicle Body Type. Values: 　　Passenger car 　　　*Includes all two-axle, four-tire single unit vehicles.* 　　Buses 　　　*All vehicles manufactured as traditional passenger- carrying buses with two axles and six tires or three or more axles.* 　　Two-Axle Truck 　　　*All vehicles on a single frame including trucks, camping and recreational vehicles, motor homes, etc., with two axles and dual rear wheels.* 　　Three Or More Axle Truck 　　　*All other trucks larger than two-axle, six-tire, single-unit trucks.*
USDOT Number	<USDOT>	USDOT assigned vehicle number (if commercial)
Manufacturer	<Manufacturer>	Indicates Vehicle manufacturer, e.g. General Motors, Ford, Mercedes.
Make	<Make>	Indicates vehicle make, e.g. Cadillac, Ford
Model	<Model>	Indicates vehicle model, e.g. Escalade, Taurus
Year	<Year>	Indicates vehicle model year, e.g. 2002
Weight	<Weight>	Indicates curbside weight of vehicle measured in kilograms.
Color	<Color>	Indicates Color(s) of Vehicle. Open text
Power Source	<PowerSource>	Indicates the nature of the power source. Values: 　　Main battery 　　Backup battery.
License Plate	<LicensePlateNumber>	Indicates license plate number of vehicle. Open Text
VIN	<VIN>	VIN number of vehicle.

Owner - Information on the registered owner of the vehicle.

Begin Child Elements of Owner

| Owner's | <Name> | Name of the person. |

Name		
Owner's Age	<Age>	Age of the person.
Owner's Gender	<Gender>	Indicates the gender of the person. Values: M - *Male* F - *Female* U - *Unknown*
Owner's Language	<Language>	Primary language Values: English Spanish French German Russian Japanese Chinese Arabic Italian
Hearing Impaired	<HearingImpaired>	Indicates whether the person is hearing impaired Values: Y - *Yes* N - *No* U - *Unknown*
Mobility Impaired	<MobilityImpaired>	Indicates whether the person is mobility impaired. Values: Y – *Yes* N – *No* U - *Unknown*
Speech Impaired	<SpeechImpaired>	Indicates whether the person is speech impaired. Values: Y – *Yes* N – *No* U - *Unknown*
Other Condition	<OtherCondition>	Other condition information that may be of use to responders.

End Child Element of Owner

Primary Driver – Information about the primary driver of the vehicle

Begin Child Elements of Primary Driver

Primary Driver's Name	**<Name>**	**Name of the person.**
Primary Driver's Age	<Age>	Age of the person.
Primary Driver's Gender	<Gender>	Indicates the gender of the person. Values: M - *Male* F - *Female* U - *Unknown*

Primary Driver's Language	<Language>	Primary language
		Values:
		      English
		      Spanish
		      French
		      German
		      Russian
		      Japanese
		      Chinese
		      Arabic
		      Italian

Hearing Impaired	<HearingImpaired>	Indicates whether the person is hearing impaired
		Values:
		    Y - *Yes*
		    N - *No*
		    U - *Unknown*

Mobility Impaired	<MobilityImpaired>	Indicates whether the person is mobility impaired.
		Values:
		    Y – *Yes*
		    N – *No*
		    U - *Unknown*

Speech Impaired	<SpeechImpaired>	Indicates whether the person is speech impaired.
		Values:
		    Y – *Yes*
		    N – *No*
		    U - *Unknown*

Other Condition	<OtherCondition>	Other condition information that may be of use to responders.

End Child Elements of Primary Driver

Owners State and Province	<OwnersStateProvince>	State/Province where the vehicle is registered
Garaged State and Province	<GaragedStateProvince>	State/Province where the vehicle is garaged (may differ from state where the vehicle is registered.

Hazardous Materials	<HazardousMaterials>	Specifies whether vehicle contents are hazardous.
		Values:
		    Y – *Yes*
		    N – *No*
		    U - *Unknown*

Contents – Information on the contents of the vehicle

Begin Child Elements of Contents

Contents Description	**<Description>**	**Description of contents**
Contents Quantity	<Quantity>	Quantity of the vehicle contents. This element has an attribute "Measure" which indicates how the quantity is calculated (liters; kilograms; count)

End Child Elements of Contents

End Child Elements of Vehicle Data

Crash Data

Begin Child Elements of Crash Data

Ignition State	<IgnitionState>	Indicates whether vehicle was running when incident was triggered. Values: On / Off
Heading	<Heading>	Direction vehicle was heading directly before crash (measured in degrees (0-359))
Orientation	<Orientation>	Orientation of vehicle at final rest. Values: Normal / Driver / Passenger / Roof / Unknown
Fire	<Fire>	Indicates if any part of the vehicle is on fire. Answered as true or false
Multiple Impacts	<MultipleImpacts>	Indicates if the vehicle was subjected to multiple impacts. true or false

Impacts

Data for each impact sustained by the vehicle. The attribute ordinal indicates whether the data is for the first impact, second impact, etc.

Begin Child Elements of Impacts

Delta Velocity	<DeltaVelocity>	Force of impact based on the change in velocity over the duration of the crash pulse (measured in units of 0-999 kph)

Crash Pulse

Begin Child Elements of Crash Pulse

Duration	<Duration>	Duration of the crash pulse measured in seconds.
Location	<Location>	Address (url, ftp, etc). where crash pulse data is available

End Child Elements of Crash Pulse

Principal Direction of Force	<PDOF>	Principal direction of the force of the impact to nearest O'Clock Reading (valid numbers are integers 1 through 12, where 12 O'Clock corresponds to a frontal collision, 3 O'Clock corresponds to a passenger side (right side) collision, etc.
Rollover	<Rollover>	Indicates if the vehicle rolled over. Answered as true or false.

Digital Image Location	<DigitalImageLocation>	Electronic address (url, ftp, etc.) where digital image is available.
End Child Element of Impacts		
1.4.2 Seat Data		
Seat	<Seat>	Indicates seatbelt and seat sensor data for individual seat positions in the vehicle. Required attribute Position; values 0-8. 0=Driver front; 1=Front row middle; 2=Passenger front; 3=second row left; 4=second row middle; 5=second row right; 6=third row left; 7=third row middle; 8=third row right
Begin Child Elements of Seat with attributes 1- 8		
Airbag Deployed		
Begin Child Elements of Airbag Deployed		
Deployed	<Deployed>	Indicates if airbag is deployed. Answered as true or false.
Location	<Location>	Describes the deployed airbag, including information on the deployment stage. Answer should be given as front, side, curtain, or roof. Optional attributes are NumPossibleStages and StageDeployed; valid values are 1, 2, or 3.
End Child Element of Airbag Deployed		
Belt Monitored	<BeltMonitored>	Indicates if seatbelt is being monitored. Answered as true or false.
Belt Fastened	<BeltFastened>	Indicates if a seatbelt is fastened. Answered as true or false.
Tensioner Triggered	<TensionerTriggered>	true/false if the seat tensioner triggered the ACN notification.
Occupied	<Occupied>	Indicates if seat sensor determines seat is occupied.
End Child Elements of Seat with attributes 1- 8		

<table>
<tr><td colspan="3">

1.5 PostCrashOnScene Data

Information gathered by inquiries of the incident originator or agencies on the scene responding to the incident.

</td></tr>
<tr><td>Number of Occupants</td><td><NumOccupants></td><td>Number of Occupants</td></tr>
<tr><td colspan="3" align="center">**Occupant – Information about each occupant. 0 – infinity.**</td></tr>
<tr><td colspan="3">Begin Child Elements of Occupant</td></tr>
<tr><td>Occupant's Name</td><td><Name></td><td>Name of the vehicle occupant.</td></tr>
<tr><td>Occupant's Age</td><td><Age></td><td>Age of the vehicle occupant</td></tr>
<tr><td>Occupant's Gender</td><td><Gender></td><td>Gender of the vehicle occupant.
Indicates the gender of the person.
Values:
M - *Male*
F - *Female*
U - *Unknown*</td></tr>
<tr><td>Conscious</td><td><Conscious></td><td>Indicates if occupant is conscious.
Values:
Y – *Yes*
N – *No*
U - *Unknown*</td></tr>
<tr><td>Breathing</td><td><Breathing></td><td>Indicates if occupant is conscious.
Values:
Y – *Yes*
N – *No*
U - *Unknown*</td></tr>
<tr><td>Speaking</td><td><Speaking></td><td>Indicates if occupant is conscious.
Values:
Y – *Yes*
N – *No*
U - *Unknown*</td></tr>
<tr><td colspan="3" align="center">**Moving - Data about what limbs the occupant can move**</td></tr>
<tr><td colspan="3">Begin Child Elements of Moving</td></tr>
<tr><td>Arm</td><td><Arm></td><td>Indicates if occupant can move his arm.
Values:
Y – *Yes*
N – *No*
U - *Unknown*</td></tr>
<tr><td>Leg</td><td><Leg></td><td>Indicates if occupant can move his leg.
Values:
Y – *Yes*
N – *No*</td></tr>
</table>

		U - *Unknown*
End Child Elements of Moving		
External Bleeding	<ExternalBleeding>	Indicates if occupant has external or visible bleeding. Values: Y – *Yes* N – *No* U - *Unknown*
Entrapped	<Entrapped>	Indicates if occupant is entrapped in the vehicle. Values: Y – *Yes* N – *No* U - *Unknown*
Ejected	<Ejected>	Indicates if occupant was ejected from the vehicle. Values: Y – *Yes* N – *No* U - *Unknown*
Seat Position	<SeatPosition>	Indicates the seat that the occupant was occupying in the vehicle. Values: Driver front Front row middle Passenger front second row left second row middle second row right third row left third row middle third row right
Child Seat - Data about the child seat used by this occupant.		
Begin Child Elements of Child Seat		
Restraint Type	<RestraintType>	Description of the restraint type
Child Weight	<ChildWeight>	Weight of the child occupying the child seat.
Injury Patterns	<InjuryPatterns>	Injury patterns the child sustained
Seat Type	<SeatType>	Indicates the type of seat Values: Built in Installed
Latch Used	<LatchUsed>	Description of the latch used on the child seat.
End Child Elements of Child Seat		
End Child Elements of Occupant		

1.6 Personal Medical Data

Medical information previously known and stored by the incident originator or a third party provider.

Subscriber

Information for each individual listed under personal medical data subscription with required attribute: id.

Begin Child Elements of Subscriber

Provider - Company providing personal medical data.

Begin Child Elements of Provider

Name	<Name>	Name of the Provider
Retrieval Method	<RetrievalMethod>	Indicates method necessary to retrieve additional detailed medical records (e.g. EKG, MRI, etc). Values: Phone Fax Internet Email Other
Telephone Number	<TN>	
Fax	<Fax>	
URL	<URL>	

End Child Elements of Provider

Record Update Date	<RecordUpdateDate>	Last known update of personal medical data

Subscriber Information – Information about the Subsciber

Begin Child Elements of SubscriberInfo

Name	<Name>	Name of the Subscriber
Age	<Age>	Age of the Subscriber
Gender	<Gender>	Gender of the Subscriber
Language	<Language>	Language of the Subscriber
Hearing Impaired	<HearingImpaired>	Indicates whether the person is hearing impaired. Values: Y – *Yes* N – *No* U - *Unknown*

Mobility Impaired	<MobilityImpaired>	Indicates whether the person is mobility impaired
		Values:
		    Y – *Yes*
		    N – *No*
		    U - *Unknown*

Speech Impaired	<SpeechImpaired>	Indicates whether the person is speech impaired.
		Values:
		    Y – *Yes*
		    N – *No*
		    U - *Unknown*

Other Condition	<OtherCondition>	Other condition information that may be of use to responders
Begin Child Elements of SubscriberInfo		
Primary Care Physician - Subscriber's primary care physician information		
Begin Child Elements of PrimaryCarePhy		
Name	<Name>	
Telephone Number	<TN>	
End Child Elements of PrimaryCarePhy		
Emergency Contact - Subscriber's emergency contact information.		
Begin Child Elements of EmergncyContact		
Name	<Name>	Name of Emergency Contact
Telephone Number	<TN>	Telephone Number of Emergency Contact.
Alternate TN	<AltTN>	Alternate Telephone Number of Emergency Contact.
End Child Elements of EmergncyContact		
Medical History	<MedicalHistory>	Current medical conditions pertinent to acute medical treatment of subscriber.
Allergies	<Allergies>	Subscriber's medication allergies.
Medications	<Meds>	Medications currently being taken by subscriber.
Blood Type	< BloodType>	Subscriber's blood type.

Pregnant	< Pregnant>	Indicates whether the subscriber is pregnant.
		Values:
		    Y – *Yes*
		    N – *No*
		    U - *Unknown*

Organ Donor	<OrganDonor>	Indicates if subscriber is an organ donor. Answered as true or false.
Preferred Hospital	<PreferredHospital>	Subscriber's preferred hospital for treatment
Living Will	<LivingWill>	Indicates if the subscriber has a living will or formal end of life

		document, such as "do not resuscitate" (DNR).
Driver's License - Subscriber's drivers license information		
Begin Child Elements of DriversLicense		
Number	<Number>	Driver License Number.
StateProvince	<StateProvince>	State and Province of the Driver.
End Child Elements of DriversLicense		
Social Security Number	<SSN>	Social Security Number of the Driver.
Insurance Provider - Subscriber's primary insurance provider information.		
Begin Child Elements of Insurance Provider		
Name	<Name>	Name of the Insurance Provider
Policy ID	<PolicyID>	Policy of the Insurance Provider
Telephone Number	<TN>	Telephone Number of the Insurance Provider
End Child Elements of Insurance Provider		
End Child Elements of Subscriber		
Primary Driver - Information about the primary driver of the vehicle		
Begin Child Elements of Primary Driver		
Name	<Name>	Name of the Primary Driver
Age	<Age>	Age of the Primary Driver
Gender	<Gender>	Gender of the Primary Driver
Language	<Language>	Language of the Primary Driver
Hearing Impaired	<HearingImpaired>	Indicates whether the person is hearing impaired. Values: Y – *Yes* N – *No* U - *Unknown*
Mobility Impaired	<MobilityImpaired>	Indicates whether the person is mobility impaired Values: Y – *Yes* N – *No* U - *Unknown*
Speech Impaired	<SpeechImpaired>	Indicates whether the person is speech impaired. Values: Y – *Yes* N – *No*

		U - *Unknown*
Other Condition	<OtherCondition>	Other condition information that may be of use to responders

End Child Elements of Primary Driver

FrequentDriverOccupant - Information about frequent drivers and frequent occupants of the vehicle

Begin Child Elements of Frequent Driver Occupant

Name	<Name>	Name of the Primary Driver
Age	<Age>	Age of the Primary Driver
Gender	<Gender>	Gender of the Primary Driver
Language	<Language>	Language of the Primary Driver
Hearing Impaired	<HearingImpaired>	Indicates whether the person is hearing impaired. Values: Y – *Yes* N – *No* U - *Unknown*
Mobility Impaired	<MobilityImpaired>	Indicates whether the person is mobility impaired Values: Y – *Yes* N – *No* U - *Unknown*
Speech Impaired	<SpeechImpaired>	Indicates whether the person is speech impaired. Values: Y – *Yes* N – *No* U - *Unknown*
Other Condition	<OtherCondition>	Other condition information that may be of use to responders

End Child Elements of Frequent Driver Occupant

End Child Elements if Personal Medical Data

1.7 Open Comment		
Open Coment	<OpenComment>	Field for Comment.

Appendix A

Vehicular Emergency Data Set 2.0 - Schema

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSPY v2004 rel. 2 U (http://www.xmlspy.com) -->
<!--
    Vehicular Emergency Data Set schema
    Copyright 2003 ComCARE
        http://www.comcare.org
-->
<xs:schema targetNamespace="http://www.comcare.org/schemas/vei"
xmlns:vei="http://www.comcare.org/schemas/vei" xmlns:xs="http://www.w3.org/2001/XMLSchema" version="2.0"
id="VEIRecord">
    <xs:element name="VehicularEmergencyIncident" type="vei:VehicularEmergencyIncidentType"/>
    <xs:complexType name="VehicularEmergencyIncidentType">
        <xs:all>
            <xs:element name="DataSource" type="vei:DataSourceType">
                <xs:annotation>
                    <xs:documentation>Information about the entity providing data about the
incident.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="IncidentData" type="vei:IncidentDataType">
                <xs:annotation>
                    <xs:documentation>Incident identification information.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="AgenciesNotified" type="vei:AgenciesNotifiedType" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>Agencies notified by voice by the incident originator.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="AutomatedIncidentData" type="vei:AutomatedIncidentDataType" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>Data automatically generated by the incident
originator.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="PostCrashOnSceneData" type="vei:PostCrashOnSceneDataType"
minOccurs="0">
                <xs:annotation>
                    <xs:documentation>Information gathered by inquiries of the incident originator or agencies on
the scene responding to the incident.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="PersonalMedicalData" type="vei:PersonalMedicalDataType" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>Medical information previously known and stored by the incident originator
or a third party provider.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="OpenComment" type="vei:OpenCommentType" minOccurs="0"/>
        </xs:all>
    </xs:complexType>
    <xs:complexType name="AgenciesNotifiedType">
        <xs:all>
            <xs:element name="Name" type="vei:NameType" minOccurs="0">
```

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```
                <xs:annotation>
                    <xs:documentation>Name of agency notified by voice by incident originator.
</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="ReferenceNum" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>Reference number or name of individual at agency who received call from
incident originator. </xs:documentation>
                </xs:annotation>
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:maxLength value="20"/>
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="TN" type="vei:TNType" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>24 x 7 number called to contact agency.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="Address" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>Address of agency that took the call of the incident
originator.</xs:documentation>
                </xs:annotation>
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:maxLength value="60"/>
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="ContactTime" type="xs:time" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>GMT/UTC the notified agency was first contacted by incident
originator.</xs:documentation>
                </xs:annotation>
            </xs:element>
        </xs:all>
    </xs:complexType>
    <xs:complexType name="AutomatedIncidentDataType">
        <xs:all>
            <xs:element name="VehicleData" type="vei:VehicleDataType" minOccurs="0"/>
            <xs:element name="CrashData" type="vei:CrashDataType" minOccurs="0"/>
            <xs:element name="SeatData" type="vei:SeatDataType" minOccurs="0"/>
        </xs:all>
    </xs:complexType>
    <xs:complexType name="DataSourceType">
        <xs:all>
            <xs:element name="Type">
                <xs:annotation>
                    <xs:documentation>Indicates the type of data source.  Telematics Service Provider (TSP);
Roadside Assistance Provider; Commercial Vehicle Operator (CVO); Public Safety Answering Point(PSAP); Public
Safety Agency</xs:documentation>
                </xs:annotation>
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:enumeration value="Telematics Service Pr ovider"/>
                        <xs:enumeration value="Roadside Assistance"/>
                        <xs:enumeration value="Commerical Vehicle Operator"/>
                        <xs:enumeration value="Public Safety Answering Point"/>
                        <xs:enumeration value="Public Safety Agency"/>
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="IncidentOriginator" type="xs:boolean">
```

```xml
                    <xs:annotation>
                        <xs:documentation>true/false if source providing data is the originator of the
incident.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="ProviderName" type="vei:NameType">
                    <xs:annotation>
                        <xs:documentation>Name of the company or agency providing data.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="IncidentID">
                    <xs:annotation>
                        <xs:documentation>Internal case number of the incident used by the incident
originator.</xs:documentation>
                    </xs:annotation>
                    <xs:simpleType>
                        <xs:restriction base="xs:string">
                            <xs:maxLength value="10"/>
                        </xs:restriction>
                    </xs:simpleType>
                </xs:element>
                <xs:element name="CallBackNum" type="vei:TNType">
                    <xs:annotation>
                        <xs:documentation>24 x 7 call back number of incident originator.</xs:documentation>
                    </xs:annotation>
                </xs:element>
            </xs:all>
        </xs:complexType>
        <xs:complexType name="IncidentDataType">
            <xs:all>
                <xs:element name="EventVerified" type="xs:boolean" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>true/flase whether there was a verbal confirmation of the event by the
incident originator and a PSAP or other public safety agency.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="IncidentDate" type="xs:date">
                    <xs:annotation>
                        <xs:documentation>GMT/UMT the indicent occurred.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="ReceivedTime" type="xs:time">
                    <xs:annotation>
                        <xs:documentation>GMT/UMT that Lat/Long is received by the incident
originator.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="IncidentTime" type="xs:time" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>GMT/UMT of the event which triggered the emergency call (if substantially
earlier than time received by incident originator)</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="Location" type="vei:LocationType"/>
                <xs:element name="Datum" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Map projection and coordinate system recommended for the display of the
Longitude and Latitude coordinates.  NAD83 specifies North American Datum for 1983.  WGS84 specifies the
World Geodetic System for 1984. </xs:documentation>
                    </xs:annotation>
                    <xs:simpleType>
                        <xs:restriction base="xs:string">
                            <xs:enumeration value="NAD83"/>
                            <xs:enumeration value="WGS84"/>
                        </xs:restriction>
                    </xs:simpleType>
```

```xml
        </xs:element>
        <xs:element name="ConfidenceMeters" minOccurs="0">
            <xs:annotation>
                <xs:documentation>Level of uncertainty inherent in the associated latitude/longitude
information expressed in meters, ranging from one meter to 1800 km.</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                <xs:restriction base="xs:integer">
                    <xs:maxInclusive value="1800000"/>
                    <xs:minExclusive value="1"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:element>
        <xs:element name="ConfidencePercentage" minOccurs="0">
            <xs:annotation>
                <xs:documentation>Confidence percentage that the calling party lies within the associated
shape description.</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                <xs:restriction base="xs:integer">
                    <xs:maxInclusive value="100"/>
                    <xs:minExclusive value="0"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:element>
        <xs:element name="LocationTime" type="xs:time" minOccurs="0">
            <xs:annotation>
                <xs:documentation>GMT/UMT of position determination by the incident
originator.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="DeviceEventType">
            <xs:annotation>
                <xs:documentation>Type of device that caused event notification to occur. ACN Airbag; ACN
Seatbelt Tensioner; ACN Vehicle Accelerometers; SOS Emergency Button; Geofence Violation; Good Samaritan
call; ACN Urgency; Crash Detection; ACN Other</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:enumeration value="ACN Airbag"/>
                    <xs:enumeration value="ACN Seatbelt Tensioner"/>
                    <xs:enumeration value="ACN Vehicle Accelerometer"/>
                    <xs:enumeration value="SOS Emergency Button"/>
                    <xs:enumeration value="Geofence Violation"/>
                    <xs:enumeration value="Good Samaritan Call"/>
                    <xs:enumeration value="ACN Urgency"/>
                    <xs:enumeration value="Crash Detection"/>
                    <xs:enumeration value="ACN Other"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:element>
    </xs:all>
</xs:complexType>
<xs:complexType name="PersonalMedicalDataType">
    <xs:sequence>
        <xs:element name="Subscriber" type="vei:SubscriberType" minOccurs="0" maxOccurs="unbounded">
            <xs:annotation>
                <xs:documentation>Information for each individual listed under personal medical data
subscription.  Required attribute:  id.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="PrimaryDriver" type="vei:PersonType" minOccurs="0">
            <xs:annotation>
                <xs:documentation>Information about the primary driver of the vehicle</xs:documentation>
            </xs:annotation>
        </xs:element>
```

```xml
            <xs:element name="FrequentDriverOccupant" type="vei:PersonType" minOccurs="0"
maxOccurs="unbounded">
                <xs:annotation>
                    <xs:documentation>Information about frequent drivers and frequent occupants of the
vehicle</xs:documentation>
                </xs:annotation>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="PostCrashOnSceneDataType">
        <xs:sequence>
            <xs:element name="NumOccupants" type="vei:NumOccupantsType" minOccurs="0"/>
            <xs:element name="Occupant" type="vei:OccupantType" minOccurs="0" maxOccurs="unbounded">
                <xs:annotation>
                    <xs:documentation>Data about a vehicle occupants.  Required attribute id--a 2 digit number
identifying the occupant.</xs:documentation>
                </xs:annotation>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
    <xs:simpleType name="AgeType">
        <xs:annotation>
            <xs:documentation>Age; valid values are 0-150.</xs:documentation>
        </xs:annotation>
        <xs:restriction base="xs:integer">
            <xs:minInclusive value="0"/>
            <xs:maxInclusive value="150"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="AirbagDeployedType">
        <xs:annotation>
            <xs:documentation>Information about deployed airbags.  May contain up to 4 location elements which
specify which airbag has deployed and deployment stage.</xs:documentation>
        </xs:annotation>
        <xs:sequence>
            <xs:element name="Deployed" type="xs:boolean">
                <xs:annotation>
                    <xs:documentation>true/false whether airbag deployed</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="Location" type="vei:AirbagLocationType" minOccurs="0" maxOccurs="4">
                <xs:annotation>
                    <xs:documentation>Describes the deployed airbag, including information on the deployment
stage.  Answer should be given as front, side, curtain, or roof.  Optional attributes are NumPossibleStages and
StageDeployed; valid values are 1, 2, or 3.</xs:documentation>
                </xs:annotation>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="AirbagLocationType">
        <xs:annotation>
            <xs:documentation>Info about the unique airbag(s) deployed, including information on the airbag
deployment stage.  Answer should be given as front, side, curtain, or roof.  Optional Attributes are
NumPossibleStages and StageDeployed; valid values are 1, 2, or 3.</xs:documentation>
        </xs:annotation>
        <xs:simpleContent>
            <xs:extension base="vei:AirbagType">
                <xs:attribute name="NumPossibleStages" type="vei:StageType" use="optional"/>
                <xs:attribute name="StageDeployed" type="vei:StageType" use="optional"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
    <xs:simpleType name="AirbagType">
        <xs:annotation>
            <xs:documentation>Type of airbag:  front, side, curtain, or roof.</xs:documentation>
        </xs:annotation>
```

```xml
        <xs:restriction base="xs:string">
            <xs:enumeration value="front"/>
            <xs:enumeration value="side"/>
            <xs:enumeration value="curtain"/>
            <xs:enumeration value="roof"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="ContentsType">
        <xs:annotation>
            <xs:documentation>Contents of vehicle, e.g. propane, radioactive waste, livestock, etc.
</xs:documentation>
        </xs:annotation>
        <xs:sequence>
            <xs:element name="Description">
                <xs:annotation>
                    <xs:documentation>Description of contents</xs:documentation>
                </xs:annotation>
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:maxLength value="40"/>
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="Quantity" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>Quantity of the vehicle contents.  This element has an attribute "Measure"
which indicates how the quantity is calculated (liters; kilograms; count)</xs:documentation>
                </xs:annotation>
                <xs:complexType>
                    <xs:simpleContent>
                        <xs:restriction base="vei:QtyType">
                            <xs:attribute name="Measure">
                                <xs:simpleType>
                                    <xs:restriction base="xs:string">
                                        <xs:enumeration value="liters"/>
                                        <xs:enumeration value="kilograms"/>
                                        <xs:enumeration value="count"/>
                                    </xs:restriction>
                                </xs:simpleType>
                            </xs:attribute>
                        </xs:restriction>
                    </xs:simpleContent>
                </xs:complexType>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="CrashDataType">
        <xs:annotation>
            <xs:documentation>Crash data from the vehicle involved in the incident.</xs:documentation>
        </xs:annotation>
        <xs:sequence>
            <xs:element name="IgnitionState" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>on or off whether vehicle was running when incident was
triggered.</xs:documentation>
                </xs:annotation>
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:enumeration value="on"/>
                        <xs:enumeration value="off"/>
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="Heading" minOccurs="0">
                <xs:annotation>
```

```
                    <xs:documentation>Direction vehicle was heading directly before crash (measured in degrees
(0-359))</xs:documentation>
                </xs:annotation>
                <xs:simpleType>
                    <xs:restriction base="xs:short">
                        <xs:minInclusive value="0"/>
                        <xs:maxInclusive value="359"/>
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="Orientation" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>Orientation of vehicle at final rest.  Normal; Driver; Passenger; Roof;
Unknown</xs:documentation>
                </xs:annotation>
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:enumeration value="Normal"/>
                        <xs:enumeration value="Driver"/>
                        <xs:enumeration value="Passenger"/>
                        <xs:enumeration value="Roof"/>
                        <xs:enumeration value="Unknown"/>
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="Fire" type="xs:boolean" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>true or false whether any part of the vehicle is on fire.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="MultipleImpacts" type="xs:boolean" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>true or false whether multiple impacts occurred</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="Impact" minOccurs="0" maxOccurs="unbounded">
                <xs:annotation>
                    <xs:documentation>Data for each impact sustained by the vehicle.  The attribute ordinal
indicates whether the data is for the first impact, second impact, etc.</xs:documentation>
                </xs:annotation>
                <xs:complexType>
                    <xs:complexContent>
                        <xs:extension base="vei:ImpactType">
                            <xs:attribute name="ImpactSequence" type="xs:short" use="required">
                                <xs:annotation>
                                    <xs:documentation>Ordinal indicates if this impact data is for the first impact,
second impact, etc.</xs:documentation>
                                </xs:annotation>
                            </xs:attribute>
                        </xs:extension>
                    </xs:complexContent>
                </xs:complexType>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
    <xs:simpleType name="DescriptionType">
        <xs:annotation>
            <xs:documentation>Description</xs:documentation>
        </xs:annotation>
        <xs:restriction base="xs:string">
            <xs:maxLength value="40"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="DriversLicenseType">
        <xs:annotation>
            <xs:documentation>Drivers license information.</xs:documentation>
```

```
                    </xs:annotation>
                    <xs:sequence>
                        <xs:element name="Number">
                            <xs:simpleType>
                                <xs:restriction base="xs:string">
                                    <xs:maxLength value="15"/>
                                </xs:restriction>
                            </xs:simpleType>
                        </xs:element>
                        <xs:element name="StateProvince" type="vei:StateProvinceType"/>
                    </xs:sequence>
                </xs:complexType>
                <xs:complexType name="EmergencyContactType">
                    <xs:annotation>
                        <xs:documentation>Emergency contact information.  Consists of Emergency contact Name, TN and
Alternate TN.</xs:documentation>
                    </xs:annotation>
                    <xs:sequence>
                        <xs:element name="Name" type="vei:NameType"/>
                        <xs:element name="TN" type="vei:TNType" minOccurs="0"/>
                        <xs:element name="AltTN" type="vei:TNType" minOccurs="0"/>
                    </xs:sequence>
                </xs:complexType>
                <xs:simpleType name="GenderType">
                    <xs:annotation>
                        <xs:documentation>Gender;  M= Male; F= Female; U=  Unknown</xs:documentation>
                    </xs:annotation>
                    <xs:restriction base="xs:string">
                        <xs:enumeration value="M"/>
                        <xs:enumeration value="F"/>
                        <xs:enumeration value="U"/>
                    </xs:restriction>
                </xs:simpleType>
                <xs:complexType name="ImpactType">
                    <xs:annotation>
                        <xs:documentation>Information about an impact</xs:documentation>
                    </xs:annotation>
                    <xs:sequence>
                        <xs:element name="DeltaVelocity" minOccurs="0">
                            <xs:annotation>
                                <xs:documentation>Force of impact based on the change in velocity over the duration of the
crash pulse (measured in units of 0-999 kph)</xs:documentation>
                            </xs:annotation>
                            <xs:simpleType>
                                <xs:restriction base="xs:short">
                                    <xs:minInclusive value="0"/>
                                    <xs:maxInclusive value="999"/>
                                </xs:restriction>
                            </xs:simpleType>
                        </xs:element>
                        <xs:element name="CrashPulse" type="vei:PulseType" minOccurs="0">
                            <xs:annotation>
                                <xs:documentation>The G forces involved in the crash in three dimensions over time using
crash sensors. </xs:documentation>
                            </xs:annotation>
                        </xs:element>
                        <xs:element name="PDOF" minOccurs="0">
                            <xs:annotation>
                                <xs:documentation>Principal direction of the force of the impact  to nearest O'Clock Reading
(valid numbers are integers 1 through 12, w here 12 O'Clock corresponds to a frontal collision, 3 O'Clock
corresponds to a passenger side (right side) collision, etc.</xs:documentation>
                            </xs:annotation>
                            <xs:simpleType>
                                <xs:restriction base="xs:short">
                                    <xs:minInclusive value="1"/>
                                    <xs:maxInclusive value="12"/>
```

```xml
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="Rollover" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>true or false whether the vehicle rolled over</xs:documentation>
                </xs:annotation>
                <xs:complexType>
                    <xs:simpleContent>
                        <xs:extension base="xs:boolean">
                            <xs:attribute name="Convertible" type="vei:YesNoUnknownType" use="optional"/>
                            <xs:attribute name="RollbarDeployed" type="vei:YesNoUnknownType"
use="optional"/>
                        </xs:extension>
                    </xs:simpleContent>
                </xs:complexType>
            </xs:element>
            <xs:element name="DigitalImageLocation" type="xs:anyURI" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>Electronic address (url, ftp, etc.) where digital image is
available.</xs:documentation>
                </xs:annotation>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="LocationType">
        <xs:annotation>
            <xs:documentation>Information about a location</xs:documentation>
        </xs:annotation>
        <xs:sequence>
            <xs:element name="Latitude" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>Latitude/Y coordinate.  +lat: north of equator; -lat: south of
equator.</xs:documentation>
                </xs:annotation>
                <xs:simpleType>
                    <xs:restriction base="xs:decimal">
                        <xs:totalDigits value="10"/>
                        <xs:fractionDigits value="6"/>
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="Longitude" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>Longitude/X coordinate.  +long: east of Greenwich; -long: west of
Greenwich.</xs:documentation>
                </xs:annotation>
                <xs:simpleType>
                    <xs:restriction base="xs:decimal">
                        <xs:totalDigits value="11"/>
                        <xs:fractionDigits value="6"/>
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="LocationDescription" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>Closest street address/intersection, nearby point of interest or business
reference to the incident site.</xs:documentation>
                </xs:annotation>
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:maxLength value="60"/>
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
        </xs:sequence>
```

```xml
        </xs:complexType>
        <xs:simpleType name="NameType">
            <xs:annotation>
                <xs:documentation>Name.</xs:documentation>
            </xs:annotation>
            <xs:restriction base="xs:string">
                <xs:maxLength value="30"/>
            </xs:restriction>
        </xs:simpleType>
        <xs:simpleType name="NumOccupantsType">
            <xs:annotation>
                <xs:documentation>Number of occupants in the vehicle if known.</xs:documentation>
            </xs:annotation>
            <xs:restriction base="xs:integer">
                <xs:minInclusive value="0"/>
                <xs:maxInclusive value="100"/>
            </xs:restriction>
        </xs:simpleType>
        <xs:complexType name="OccupantType">
            <xs:annotation>
                <xs:documentation>Data about a vehicle occupants.</xs:documentation>
            </xs:annotation>
            <xs:all>
                <xs:element name="Name" type="vei:NameType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Name of the vehicle occupant.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="Age" type="vei:AgeType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Age of the vehicle occupant.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="Gender" type="vei:GenderType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Gender of the vehicle occupant. M = Male; F = Female; U =
Unknown</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="Conscious" type="vei:YesNoUnknownType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Yes/No/Unknown whether occupant is conscious.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="Breathing" type="vei:YesNoUnknownType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Yes/No/Unknown whether occupant is breathing.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="Speaking" type="vei:YesNoUnknownType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Yes/No/Unknown whether occupant is speaking.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="Moving" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Data about what limbs the occupant can move.</xs:documentation>
                    </xs:annotation>
                    <xs:complexType>
                        <xs:sequence>
                            <xs:element name="Arm" type="vei:YesNoUnknownType" minOccurs="0">
                                <xs:annotation>
                                    <xs:documentation>Yes/No/Unknown whether the occupant can move his
arm.</xs:documentation>
                                </xs:annotation>
                            </xs:element>
```

```xml
<xs:element name="Leg" type="vei:YesNoUnknownType" minOccurs="0">
    <xs:annotation>
        <xs:documentation>Yes/No/Unknown whether the occupant can move his leg.</xs:documentation>
    </xs:annotation>
</xs:element>
        </xs:sequence>
    </xs:complexType>
</xs:element>
<xs:element name="ExternalBleeding" type="vei:YesNoUnknownType" minOccurs="0">
    <xs:annotation>
        <xs:documentation>Yes/No/Unknown whether occupant has external or visible bleeding.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="Entrapped" type="vei:YesNoUnknownType" minOccurs="0">
    <xs:annotation>
        <xs:documentation>Yes/No/Unknown whether occupant is entrapped in the vehicle.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="Ejected" type="vei:YesNoUnknownType" minOccurs="0">
    <xs:annotation>
        <xs:documentation>Yes/No/Unknown whether occupant was ejected from the vehicle.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="SeatPosition" type="vei:PositionType" minOccurs="0">
    <xs:annotation>
        <xs:documentation>Indicates the seat that the occupant was occupying in the vehicle.  Driver front; Front row middle; Passenger front; second row left; second row middle; second row right; third row left; third row middle; third row right</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ChildSeat" minOccurs="0">
    <xs:annotation>
        <xs:documentation>Data about the child seat used by this occupant.</xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:sequence>
            <xs:element name="RestraintType" type="xs:string" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>Description of the restraint type</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="ChildWeight" type="xs:short" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>Weight of the child occupying the child seat.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="InjuryPatterns" type="xs:string" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>Injury patterns the child sustained</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="SeatType" minOccurs="0">
                <xs:annotation>
                    <xs:documentation>built-in; installed</xs:documentation>
                </xs:annotation>
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:enumeration value="built in"/>
                        <xs:enumeration value="installed"/>
                    </xs:restriction>
                </xs:simpleType>
```

```xml
                    </xs:element>
                    <xs:element name="LatchUsed" type="xs:string" minOccurs="0">
                        <xs:annotation>
                            <xs:documentation>Description of the latch used on the child
seat</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                </xs:sequence>
            </xs:complexType>
        </xs:element>
    </xs:all>
    <xs:attribute name="id" use="required">
        <xs:simpleType>
            <xs:restriction base="xs:short">
                <xs:totalDigits value="2"/>
                <xs:fractionDigits value="0"/>
            </xs:restriction>
        </xs:simpleType>
    </xs:attribute>
</xs:complexType>
<xs:simpleType name="OpenCommentType">
    <xs:annotation>
        <xs:documentation>Open text field for general comments.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string">
        <xs:maxLength value="400"/>
    </xs:restriction>
</xs:simpleType>
<xs:complexType name="PersonType">
    <xs:annotation>
        <xs:documentation>Information about a person</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="Name" type="vei:NameType">
            <xs:annotation>
                <xs:documentation>Name of the person.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="Age" type="vei:AgeType" minOccurs="0">
            <xs:annotation>
                <xs:documentation>Age of the person.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="Gender" type="vei:GenderType" minOccurs="0">
            <xs:annotation>
                <xs:documentation>Indicates the gender of the person. M=Male; F=Female;
U=Unknown</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="Language" minOccurs="0">
            <xs:annotation>
                <xs:documentation>Primary language; valid values are English, Spanish, French, German,
Russian, Japanese, Chinese, Arabic, Italian</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:enumeration value="English"/>
                    <xs:enumeration value="Spanish"/>
                    <xs:enumeration value="French"/>
                    <xs:enumeration value="German"/>
                    <xs:enumeration value="Russian"/>
                    <xs:enumeration value="Japanese"/>
                    <xs:enumeration value="Chinese"/>
                    <xs:enumeration value="Arabic"/>
                    <xs:enumeration value="Italian"/>
                    <xs:enumeration value="Other"/>
```

```xml
                        </xs:restriction>
                    </xs:simpleType>
                </xs:element>
                <xs:element name="HearingImpaired" type="vei:YesNoUnknownType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Indicates whether the person is hearing impaired.  Y=Yes; N=No;
U=Unknown.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="MobilityImpaired" type="vei:YesNoUnknownType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Indicates whether the person is mobility impaired.  Y=Yes; N=No;
U=Unknown.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="SpeechImpaired" type="vei:YesNoUnknownType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Indicates whether the person is speech impaired.  Y=Yes; N=No;
U=Unknown.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="OtherCondition" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Other condition information that may be of use to
responders</xs:documentation>
                    </xs:annotation>
                    <xs:simpleType>
                        <xs:restriction base="xs:string">
                            <xs:maxLength value="100"/>
                        </xs:restriction>
                    </xs:simpleType>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
        <xs:simpleType name="PositionType">
            <xs:annotation>
                <xs:documentation>Seat positions in the vehicle. Driver front; Front row middle; Passenger front;
Second row left; Second row middle; Second row right; Third row left; Third row middle; Third row
right</xs:documentation>
            </xs:annotation>
            <xs:restriction base="xs:string">
                <xs:enumeration value="Driver front"/>
                <xs:enumeration value="Front row middle"/>
                <xs:enumeration value="Passenger front"/>
                <xs:enumeration value="Second row left"/>
                <xs:enumeration value="Second row middle"/>
                <xs:enumeration value="Second row right"/>
                <xs:enumeration value="Third row left"/>
                <xs:enumeration value="Third row middle"/>
                <xs:enumeration value="Third row right"/>
            </xs:restriction>
        </xs:simpleType>
        <xs:complexType name="PrimaryCarePhyType">
            <xs:annotation>
                <xs:documentation>Primary care physician information; includes provider name and TN.
</xs:documentation>
            </xs:annotation>
            <xs:sequence>
                <xs:element name="Name" type="vei:NameType"/>
                <xs:element name="TN" type="vei:TNType" minOccurs="0"/>
            </xs:sequence>
        </xs:complexType>
        <xs:complexType name="PrimaryInsType">
            <xs:annotation>
                <xs:documentation>Information about a subscriber's primary insurance.</xs:documentation>
            </xs:annotation>
```

```xml
<xs:all>
    <xs:element name="Name" type="vei:NameType"/>
    <xs:element name="PolicyID">
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="20"/>
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="TN" type="vei:TNType" minOccurs="0"/>
</xs:all>
</xs:complexType>
<xs:complexType name="ProviderType">
    <xs:annotation>
        <xs:documentation>Information about the company providing personal medical data; includes
company name, retrieval method, TN, Fax Number, and a URL.</xs:documentation>
    </xs:annotation>
    <xs:all>
        <xs:element name="Name" type="vei:NameType"/>
        <xs:element name="RetrievalMethod" minOccurs="0">
            <xs:annotation>
                <xs:documentation>Indicates method necessary to retrieve additional detailed medical records
(e.g. EKG, MRI, etc).  Phone; Fax; Internet; Email; Other</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:enumeration value="Phone"/>
                    <xs:enumeration value="Fax"/>
                    <xs:enumeration value="Internet"/>
                    <xs:enumeration value="Email"/>
                    <xs:enumeration value="Other"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:element>
        <xs:element name="TN" type="vei:TNType" minOccurs="0"/>
        <xs:element name="Fax" type="vei:TNType" minOccurs="0"/>
        <xs:element name="URL" type="xs:anyURI" minOccurs="0"/>
    </xs:all>
</xs:complexType>
<xs:complexType name="PulseType">
    <xs:annotation>
        <xs:documentation>Crash pulse data. Crash pulse indicates the G forces involved in the crash in three
dimensions over time using crash sensors.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="Duration">
            <xs:annotation>
                <xs:documentation>Duration of the crash pulse measured in seconds. </xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                <xs:restriction base="xs:short">
                    <xs:totalDigits value="4"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:element>
        <xs:element name="Location" type="xs:anyURI" minOccurs="0">
            <xs:annotation>
                <xs:documentation>Address (url, ftp, etc). where crash pulse data is available
</xs:documentation>
            </xs:annotation>
        </xs:element>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="QtyType">
    <xs:annotation>
        <xs:documentation>Indicates the quantity of the vehicle contents.</xs:documentation>
```

```xml
            </xs:annotation>
            <xs:simpleContent>
                <xs:extension base="xs:byte">
                    <xs:attribute name="Measure" use="required">
                        <xs:annotation>
                            <xs:documentation>0 = liters (for volume); 1 = kilograms (for weight); 2 = count (for
number of items)</xs:documentation>
                        </xs:annotation>
                        <xs:simpleType>
                            <xs:restriction base="xs:integer">
                                <xs:minInclusive value="0"/>
                                <xs:maxInclusive value="2"/>
                            </xs:restriction>
                        </xs:simpleType>
                    </xs:attribute>
                </xs:extension>
            </xs:simpleContent>
        </xs:complexType>
        <xs:complexType name="SeatDataType">
            <xs:annotation>
                <xs:documentation>Specific variables (e.g. airbag, seatbelt, etc.) associated with unique seat positions
in the vehicle.</xs:documentation>
            </xs:annotation>
            <xs:sequence>
                <xs:element name="Seat" type="vei:SeatType" maxOccurs="8">
                    <xs:annotation>
                        <xs:documentation>Indicates seatbelt and seat sensor data for individual seat positions in the
vehicle.  Required attribute Position; values 0-8.  0=Driver front; 1=Front row middle; 2=Passenger front; 3=second
row left; 4=second row middle; 5=second row right; 6=third row left; 7=third row middle; 8=third row
right</xs:documentation>
                    </xs:annotation>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
        <xs:complexType name="SeatType">
            <xs:all>
                <xs:element name="AirbagDeployed" type="vei:AirbagDeployedType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Airbag deployment info.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="BeltMonitored" type="xs:boolean" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>true/false if seatbelt being monitored.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="BeltFastened" type="xs:boolean" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>true/false if a seatbelt is fastened.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="TensionerTriggered" type="xs:boolean" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>true/false if the seat tensioner triggered the ACN
notification.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="Occupied" type="xs:boolean" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>true/false if seat sensor determines seat is occupied</xs:documentation>
                    </xs:annotation>
                </xs:element>
            </xs:all>
            <xs:attribute name="Position" type="vei:PositionType" use="required"/>
        </xs:complexType>
        <xs:simpleType name="StageType">
```

```xml
            <xs:annotation>
                <xs:documentation>Airbag stages; valid values are 1, 2, or 3.</xs:documentation>
            </xs:annotation>
            <xs:restriction base="xs:integer">
                <xs:minInclusive value="1"/>
                <xs:maxInclusive value="3"/>
            </xs:restriction>
        </xs:simpleType>
        <xs:simpleType name="StateProvinceType">
            <xs:annotation>
                <xs:documentation>State or province</xs:documentation>
            </xs:annotation>
            <xs:restriction base="xs:string">
                <xs:length value="2"/>
            </xs:restriction>
        </xs:simpleType>
        <xs:complexType name="SubscriberType">
            <xs:annotation>
                <xs:documentation>Information for each individual listed under personal medical data subscription.
Required attribute:  id.</xs:documentation>
            </xs:annotation>
            <xs:all>
                <xs:element name="Provider" type="vei:ProviderType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Company providing personal medical data.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="RecordUpdateDate" type="xs:date" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Last known update of personal medical data.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="SubscriberInfo" type="vei:PersonType" minOccurs="0"/>
                <xs:element name="PrimaryCarePhy" type="vei:PrimaryCarePhyType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Subscriber's primary care physician information.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="EmergencyContact" type="vei:EmergencyContactType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Subscriber's emergency contact information. </xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="MedicalHistory" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Current medical conditions pertinent to acute medical treatment of
subscriber.</xs:documentation>
                    </xs:annotation>
                    <xs:simpleType>
                        <xs:restriction base="xs:string">
                            <xs:maxLength value="100"/>
                        </xs:restriction>
                    </xs:simpleType>
                </xs:element>
                <xs:element name="Allergies" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Subscriber's medication allergies.</xs:documentation>
                    </xs:annotation>
                    <xs:simpleType>
                        <xs:restriction base="xs:string">
                            <xs:maxLength value="100"/>
                        </xs:restriction>
                    </xs:simpleType>
                </xs:element>
                <xs:element name="Meds" minOccurs="0">
                    <xs:annotation>
```

```xml
            <xs:documentation>Medications currently being taken by subscriber. </xs:documentation>
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="100"/>
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="BloodType" minOccurs="0">
        <xs:annotation>
            <xs:documentation>Subscriber's blood type. </xs:documentation>
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="15"/>
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="Pregnant" type="vei:YesNoUnknownType" minOccurs="0">
        <xs:annotation>
            <xs:documentation>Indicates whether the subscriber is pregnant.  Y=Yes; N=No;
U=Unknown.</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="OrganDonor" type="xs:boolean" minOccurs="0">
        <xs:annotation>
            <xs:documentation>true/false subscriber is an organ donor. </xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="PreferredHospital" type="vei:NameType" minOccurs="0">
        <xs:annotation>
            <xs:documentation>Subscriber's preferred hospital for treatment.</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="LivingWill" type="xs:boolean" minOccurs="0">
        <xs:annotation>
            <xs:documentation>true/fasle if the subscriber has a living will or formal end of life document,
such as "do not resuscitate" (DNR).</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="DriversLicense" type="vei:DriversLicenseType" minOccurs="0">
        <xs:annotation>
            <xs:documentation>Subscriber's drivers license information.</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="SSN" minOccurs="0">
        <xs:annotation>
            <xs:documentation>Subscriber's social security number.</xs:documentation>
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:pattern value="[0123456789]{9,11}"/>
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="InsuranceProvider" type="vei:PrimaryInsType" minOccurs="0">
        <xs:annotation>
            <xs:documentation>Subscriber's primary insurance provider information. </xs:documentation>
        </xs:annotation>
    </xs:element>
</xs:all>
<xs:attribute name="id" use="required">
    <xs:simpleType>
        <xs:restriction base="xs:integer">
            <xs:minInclusive value="1"/>
            <xs:maxInclusive value="2"/>
```

```xml
            </xs:restriction>
        </xs:simpleType>
    </xs:attribute>
</xs:complexType>
<xs:simpleType name="TNType">
    <xs:annotation>
        <xs:documentation>Generic TN data type (max length of 15 based on E164) note:  add attribute to
indicate NANP=North American Numbering Plan; INTL=international</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string">
        <xs:pattern value="[0123456789]{10,15}"/>
    </xs:restriction>
</xs:simpleType>
<xs:complexType name="VehicleDataType">
    <xs:annotation>
        <xs:documentation>Information about the vehicle involved in the incident.</xs:documentation>
    </xs:annotation>
    <xs:all>
        <xs:element name="BodyType" minOccurs="0">
            <xs:annotation>
                <xs:documentation>Vehicle Body Type. Passenger car (Includes all two-axle, four-tire  single
unit vehicles); Buses (All vehicles manufactured as traditional passenger-carrying buses with two axles and six
tires or three or more axles); Two-Axle, Six-Tire, Single-Unit Truck (All vehicles on a single frame including trucks,
camping and recreational vehicles, motor homes, etc., with two axles and dual rear wheels); Three Or More Axle-
Single Or Multi Unit Truck  (All other trucks larger than two-axle, six-tire, single-unit trucks)</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:enumeration value="Passenger car"/>
                    <xs:enumeration value="Bus"/>
                    <xs:enumeration value="Two axle truck"/>
                    <xs:enumeration value="Three or more axle truck"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:element>
        <xs:element name="USDOT" minOccurs="0">
            <xs:annotation>
                <xs:documentation>USDOT assigned vehicle number (if commercial) </xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:maxLength value="20"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:element>
        <xs:element name="Manufacturer" type="vei:VehicleInfoType" minOccurs="0">
            <xs:annotation>
                <xs:documentation>Vehicle manufacturer, e.g. General Motors, Ford,
Mercedes</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="Make" type="vei:VehicleInfoType" minOccurs="0">
            <xs:annotation>
                <xs:documentation>Vehicle make, e.g. Cadillac, Ford, C Class</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="Model" minOccurs="0">
            <xs:annotation>
                <xs:documentation>Vehicle model, e.g. Escalade, Taurus, SLK</xs:documentation>
            </xs:annotation>
            <xs:complexType>
                <xs:simpleContent>
                    <xs:extension base="vei:VehicleInfoType">
                        <xs:attribute name="convertible" type="vei:YesNoUnknownType" use="required"/>
                    </xs:extension>
                </xs:simpleContent>
```

```xml
            </xs:complexType>
        </xs:element>
        <xs:element name="Year" minOccurs="0">
            <xs:annotation>
                <xs:documentation>Vehicle model year, e.g. 2002</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:length value="4"/>
                    <xs:pattern value="[0-9]{4}"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:element>
        <xs:element name="Weight" minOccurs="0">
            <xs:annotation>
                <xs:documentation>Curbside weight of vehicle measured in kilograms.</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:maxLength value="5"/>
                    <xs:pattern value="[0-9]{1,5}"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:element>
        <xs:element name="Color" minOccurs="0">
            <xs:annotation>
                <xs:documentation>Color(s) of Vehicle.</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:maxLength value="20"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:element>
        <xs:element name="PowerSource" minOccurs="0">
            <xs:annotation>
                <xs:documentation>main battery; backup battery</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:enumeration value="main battery"/>
                    <xs:enumeration value="backup battery"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:element>
        <xs:element name="LicensePlateNum" minOccurs="0">
            <xs:annotation>
                <xs:documentation>License plate number of vehicle. </xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:maxLength value="10"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:element>
        <xs:element name="VIN" minOccurs="0">
            <xs:annotation>
                <xs:documentation>VIN number of vehicle.</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:maxLength value="17"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:element>
        <xs:element name="Owner" type="vei:PersonType" minOccurs="0">
```

```xml
                    <xs:annotation>
                        <xs:documentation>Registered owner of the vehicle. </xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="PrimaryDriver" type="vei:PersonType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Primary driver of the vehicle. </xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="OwnersStateProvince" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>State/Province where the vehicle is registered</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="GaragedStateProvince" type="vei:StateProvinceType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>State/Province where the vehicle is garaged (may differ from state where
the vehicle is registered.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="HazardousMaterials" type="vei:YesNoUnknownType" minOccurs="0">
                    <xs:annotation>
                        <xs:documentation>Specifies whether vehicle contents are hazardous.  Y=yes; N=no;
U=unknown</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="Contents" type="vei:ContentsType" minOccurs="0"/>
            </xs:all>
        </xs:complexType>
        <xs:simpleType name="VehicleInfoType">
            <xs:restriction base="xs:string">
                <xs:maxLength value="10"/>
            </xs:restriction>
        </xs:simpleType>
        <xs:simpleType name="YesNoUnknownType" final="restriction">
            <xs:annotation>
                <xs:documentation>N = No; Y = Yes; U = Unknown</xs:documentation>
            </xs:annotation>
            <xs:restriction base="xs:string">
                <xs:enumeration value="Y"/>
                <xs:enumeration value="N"/>
                <xs:enumeration value="U"/>
            </xs:restriction>
        </xs:simpleType>
</xs:schema>
```

Appendix B

Document Revision History

Version	Date	Author	Description of Changes
		ComCARE	Prepared draft of the Vehicualr Emergncy Data Set.
2.0	March 2004	ComCARE	- Included version number. - Made the follwing fields optional - Incident Data .EventVerified, Agency Notified By Voice.Name. - Included Enumerated values for the following elements – Incident Data.NAD, Incident Data.DeviceEventType - Specified GMT/UMT for Incident Data.IncidentDate and Incident Data.Time - Added 'Primary Driver' as new data element. - Added new field for garaged address for owner. - Removed the 35 degree criterion for rollover. - Added new field to indicate the occurrence of a multiple impact. - Added enumerated values for Primary Driver's language preference. - Included new elements to provide carash data to multiple impacts. - Added Disability field with enumerated values in Personal medical data. - Added new required 'Location' element with child elements – Latitude, Longitude and Details. - Added name, age and gender fields to Primciple and Frequent Driver elements. - Allowed entry of 0 for age in post crash on-

			scene data. • Added child elements - Arm Moving, Leg Moving to Moving element. • Added new elemtent – Power Source to Vehicle Data. • Replaced the term 'thrown' to 'ejected'.

Appendix C

The ACN Data Set Working Group

Participants in the Working Group

      In order to produce the best recommendation, the ACN Data Set Working Group required the experience and knowledge of national private sector companies and national public safety/medical experts. In order to produce the best data set, the working group turned to public safety and medical experts from across the country that are leaders in ACN or had previous experience in the standards setting process.

Participants in the ACN Data Set Working Group included:

Charles Filson Acuo Technologies

Shannon Werb Acuo Technologies

Kurt Hammond Acuo Technologies

Bob Thompson, *Vice President of Government Affairs* ATX Technologies, Inc.

Gary Wallace, *Vice President of External Affairs* ATX Technologies, Inc.

Fred Hossein, *Executive Vice President of Information Technology* ATX Technologies, Inc.

Bill Harry California Highway Patrol

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Dr. Bill Sowell, *Product Manager* Econolite Control Products

Wayne Sweeney, *Law Enforcement/Federal Sales Manager* ESRI

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Eric Beyeler Gannett Fleming (GeoDecisions)

Alan Beiagi, *Senior Development Manager* Gannett Fleming (GeoDecisions)

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Bob Oenning, *Board of Directors* National Emergency Number Association (NENA) *E9-1-1 Program Administrator* State of Washington

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Clint Soldan, *PSAP Database Manager* OnStar

Ty Beltramo OnStar

Dave Adams OnStar

Jennifer Aronson, *Director of Business Development* Orillion Corporation

Glenn Kuklewski, *Vice President* Orillion Corporation

Konrad Kroszner, *Director of Applications Engineering* Ortivus US

Carol Bedford, *Director of Special Projects* PowerLoc

Charles Worrell Response Services Center (AAA)

Larry Williams, *President and CEO* Roadside Telematics Corporation

Sadler Bridges, *Director of the Intelligent Vehicle Initiative* Society of Automotive Engineers (SAE) Texas A&M University

John Caner, *Vice President of Marketing* Televoke

Dr. Jack Potter, *Director of Emergency Medical Services* Valley Health System

Doug Funke, *Transportation Sector Program Manager* Veridian

Alan Blatt, *Director of Engineering Research* Veridian

Steve Marzolf, *Public Safety Communications Coordinator* Virginia Division of Emergency Communications

David Aylward, *Director* ComCARE Alliance

Patrick Halley, *Manager of Safety Initiatives* ComCARE Alliance

Tom Hughes, *Associate Executive Director* ComCARE Alliance

Sukumar Dwarkanath, *Techncial Director*, CoMCARE Alliance

Todd Miyahira, *Outreach*, ComCARE Allaince.

Appendix D

Sample VEP Message

```
<VehicularEmergencyIncident>
- <DataSource>
  <Type>ACN</Type>
  <IncidentOriginator>Yes</IncidentOriginator>
  <ProviderName />
  <IncidentID>ISA00000000</IncidentID>
  <CallBackNbr />
    </DataSource>
- <IncidentData>
  <IncidentDate>09/18/2003</IncidentDate>
  <IncidentTime>18:49:08</IncidentTime>
  <ReceivedTime />
  <LAT>38.939499</LAT>
  <LON>-78.35339</LON>
  <NAD>83</NAD>
  <Confidence />
  <ConfidencePercentage />
  <LocTime />
  <LocDescr />
  <DeviceEventType />
  <EventVerified>Yes</EventVerified>
    </IncidentData>
- <AgenciesNotified>
  <Name />
  <RefNbr />
  <TN />
  <Address />
  <ContactTime />
    </AgenciesNotified>
- <AutomatedIncidentData>
- <VehicleData>
  <BodyType />
  <USDOT />
  <Manufacturer />
  <Make>Alero</Make>
  <Model>LS Coupe</Model>
  <Year>2000</Year>
```

```xml
      <Weight />
      <Color>silver</Color>
      <License>UNF-095</License>
      <StateProvince>MI</StateProvince>
      <VIN>A1S2D3F4G5H6J7K8</VIN>
      <Owner>Julie Coppens</Owner>
      <Hazmat />
-   <Contents>
      <descr />
      <qty />
        </Contents>
        </VehicleData>
-   <CrashData>
      <IgnitionState />
      <DeltaVelocity>65</DeltaVelocity>
-   <Pulse>
      <Loc />
      <Dur />
        </Pulse>
      <PDofForce>0</PDofForce>
      <Heading />
      <Rollover />
      <Orient />
      <Fire />
      <DigitalLoc />
        </CrashData>
-   <AirBag>
      <Driver Location="Text" Stage="Text" />
      <Passenger Location="Text" Stage="Text" />
        </AirBag>
-   <SeatData>
-   <Seat Position="Text">
      <BeltMonitored />
      <BeltFastened />
      <TensionerTriggered />
      <Occupied />
        </Seat>
        </SeatData>
        </AutomatedIncidentData>
-   <PostCrashOnSceneData>
      <NbrOccupants>1</NbrOccupants>
-   <Occupant id="Text">
      <Name />
      <Age />
      <Gender>F</Gender>
      <Conscious>N</Conscious>
      <Breathing>Y</Breathing>
      <Speaking>N</Speaking>
      <Moving>N</Moving>
```

```xml
<Bleeding />
<Entrapped>Y</Entrapped>
<Thrown>N</Thrown>
   </Occupant>
   </PostCrashOnSceneData>
- <PersonalMedicalData>
<ProviderName />
<RetrievalMethod />
<TN />
<Fax />
<URL />
- <Subscriber id="Text">
<Update />
<Name />
<Age />
<Gender />
- <PrimaryCarePhy>
<Name />
<TN>Blue Cross & Blue Shields</TN>
   </PrimaryCarePhy>
- <EmergencyContact>
<Name />
<TN />
<AltTN />
   </EmergencyContact>
<MedHist />
<Allergies />
<Meds />
<BloodType />
<OrganDonor>N</OrganDonor>
<PreferredHospital />
<LivingWill />
- <DriversLicense>
<Nbr />
<State />
   </DriversLicense>
<SSN />
- <PrimaryIns>
<Name />
<TN />
<ID />
   </PrimaryIns>
   </Subscriber>
   </PersonalMedicalData>
<OpenComment />
   </VehicularEmergencyIncident>
```