

# Emergency Response to Crashes



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# Presentation Overview

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- This presentation examines a variety of disciplines involved in emergency response to crashes. The presentation covers a crash from roadway to investigation. The ideas presented are meant to provide facts, good and bad, that may impact emergency response.

# Presentation Overview

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- Presentation will discuss the affect of emergency response to traffic safety and traffic flow
- The affect of emergency responders in handling crashes and long term traffic safety
- Modify driving behavior, provide emergency medical care and ultimately share crash data analyses with engineers

# Presentation Overview

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- Multi-Disciplinary Approach to Traffic Safety
  - Enforcement
  - Engineering
  - Education
  - Emergency Medical

# Presentation Overview

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- Dan Ryan Construction Project Critical Incident Response Plan
  - Integration of Police, Fire and IDOT Resources
- Police Response
- Fire/EMS Response
- IDOT Emergency Traffic Patrol (Chicago/Metro East)
- Serious Injury and Fatal Crash Investigations
- Roadway Engineering and EMS



# I-90/94 (Dan Ryan Expressway) Construction Project Overview





# I-90/94 (Dan Ryan Expressway) Construction Project Overview



- \$975 million project
- Approximately 9 miles
- Increase various segments from 14 to 16 lanes
- 320,000 ADT pre-construction
- During project reduced segments of expressway from 14 to 6 lanes
- Reroute traffic off of expressway
- 160,000 ADT during construction

# IDOT Project Goals

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- Reduce congestion
- Improve pavement and traffic safety
- Reduce flooding



# I-90/94 (Dan Ryan Expressway) Crisis Communication and Critical Incident Response Plan

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- *A crisis is any event or emergency resulting directly or indirectly from the reconstruction process that drastically impedes the flow of traffic, results in serious injury or fatality, or requires immediate response to media inquiries. . .*

# Types of Incidents

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- Construction/work zone accidents
- Multi-vehicle accidents
- Severe traffic jams
- Equipment accidents (construction)
- Structural Damage
- Environmental hazards
- Work stoppages
- Natural disasters

# I-90/94 (Dan Ryan Expressway) Critical Incident Response Plan

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- Developed in response to expressway lane/ramp reconfiguration during construction
- Segments of expressway reduced to six lanes without shoulders
- Possibility of increased congestion and slower response
- Critical Incident Response Plan was rehearsed prior to start of project

# I-90/94 (Dan Ryan Expressway) Critical Incident Response Plan

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- Organized into 21 response zones
  - 1A Inbound Dan Ryan from Cermak to Roosevelt-Mainline
    - Primary -1st Choice – E18 – T2 – BC4 – A28
    - Primary - 2<sup>nd</sup> Choice – E5 – AT1 – BC2 – A41
    - Entrance Ramp to be blocked: 18<sup>th</sup> Street

# I-90/94 (Dan Ryan Expressway) Critical Incident Response Plan

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## ■ ISP Plan

- IDOT funding increased staffing to allow five additional troopers and one supervisor
- Officers expected to be within construction zone for quick response
  - Enforcement
  - Injury crashes
- Supervisor coordinated personnel and critical incident response with IDOT, CFD, CPD and IDOT Communication Center (Schaumburg)

# I-90/94 (Dan Ryan Expressway) Critical Incident Response Plan

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- IDOT Plan
  - Increase Emergency Traffic Patrol coverage for quicker response (Emergency Patrol Vehicles)
  - Emergency Traffic Patrol Supervisor coordinated personnel and critical incident response with ISP, CFD and CPD through IDOT Communication Center (Schaumburg)

# I-90/94 (Dan Ryan Expressway) Critical Incident Response Plan

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- 2006-8 Zone Responses
- 2007-2 Zone Responses

# Critical Incident Response Results

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# Crash response to Officers responding to Shots Fired

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- May 7, 2006 at 11:29 pm
- I-90/94 n/b exit to 39<sup>th</sup> Street
- Three CPD Tactical Officers responding to shots fired call involved in roll-over crashed
- Officers were trapped in burning squad car
- Fire extinguished and officers rescued by ISP, IDOT personnel

# I-90/94 (Dan Ryan Expressway) Critical Incident Response Plan

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- Traffic Safety Results
  - 2005-28 Fatalities
  - 2006-17 Fatalities
  - 2007-12 Fatalities

# I-90/94 (Dan Ryan Expressway) Critical Incident Response Plan

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- Successes
  - Communication
  - Planning
  - Coordination

# Law Enforcement Response to Crashes

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- Police Officers are required to be certified in First Responder/First Aid/CPR
  - ISP Cadets receive 40 hours of First Responder Training
  - Includes training/certification in CPR and Automated External Defibrillator
- Annual Recertification Required

# Law Enforcement Response to Crashes

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## **Victim has no health insurance and wants driver to come forward**

By Deanese Williams-Harris | Chicago Tribune reporter October 16, 2008

A Chicago man whose left leg was amputated after he was struck by a hit-and-run driver this month says he is unsure about his future with mounting medical bills and a mortgage to pay. Michael] Bielinski was on his way home with his girlfriend from a friend's birthday party about 3:30 a.m. on Oct. 5 when his SUV started shaking. He pulled over to the shoulder of the Ontario Street feeder ramp of the Kennedy Expressway to check the tires, Bielinski said. His girlfriend also exited the vehicle, he said. Moments after he stepped out, he was hit by a car and thrown into the road, Bielinski said. Within minutes, two Illinois state troopers, Dennis Kranz and Zachary Petters, arrived and applied a tourniquet to Bielinski's injured leg, saving his life, state police said. He suffered damage to a major artery in his left leg, requiring its amputation, Bielinski said. In addition, he sustained a lacerated spleen, a bruised kidney, a fractured vertebrae and multiple injuries to his left arm, he said.

# Law Enforcement Response to Crashes

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- Scene Safety
  - Proper Positioning of Emergency Vehicle Protocol
  - Ensure responding EMS vehicles have an open corridor/route to scene
  - Clear scene
    - Relocate vehicles
    - Completion of crash investigation

# Accident Investigation Sites

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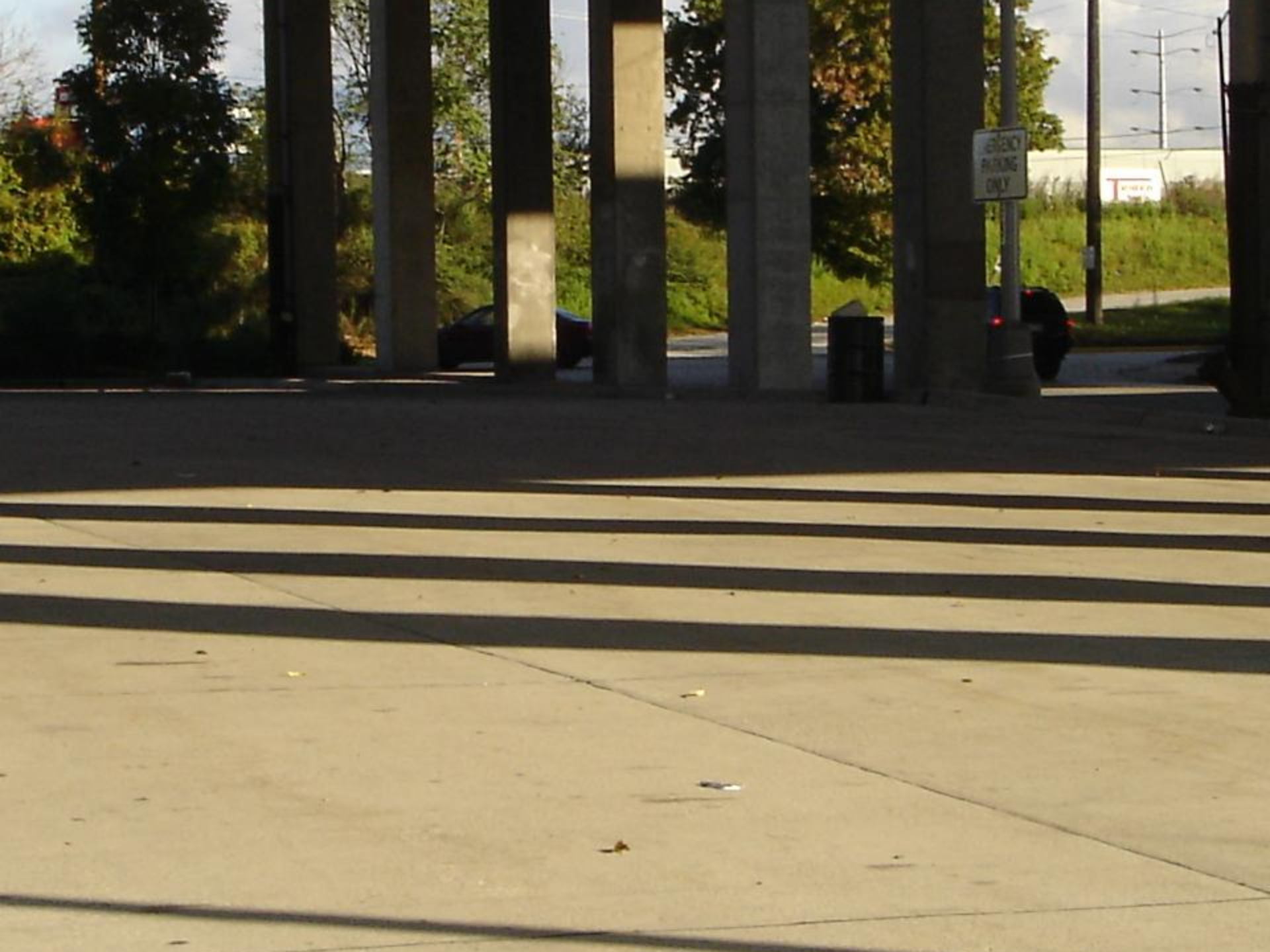
ASHLAND  
AVENUE  
STRAIGHT  
AHEAD



WOOD ST  
ACCIDENT  
INVESTIGATION  
SITE







EMERGENCY  
PARKING  
ONLY

WORLD

# Fire EMS Response to Crashes

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# Chicago Fire Department EMS Plan

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- The EMS Plan Procedure was Developed to:
  - Manage a mass casualty incident that has occurred or appears imminent.
  - Outlines a standardized procedure for response, notification, and the orderly removal of victims, at the scene of an incident.
  - Provides a predetermined quantity of equipment and personnel to a mass casualty incident.

# EMS Plan Procedure

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- “EMS Plan I”, “EMS Plan II” and “EMS Plan III” are the terms utilized when requesting for adequate support.
- A request for implementation of EMS Plan is the responsibility of the Fire/EMS first arriving officer or Incident Commander.

# Escalation of an EMS Plan

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- Escalation of a Plan is determined by:
  - number of victims
  - the severity of their injuries/illness
  - weather conditions
  - the potential for imminent danger
  - or any other circumstances that can reasonably be expected to further endanger the victims

# First Advanced Life Support Ambulance

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- Triage Team
- Size-up the incident and request necessary resources to manage the incident.
- Announce EMS Tactical Channel
- Set triage/treatment area
- Set a staging area.
- Triage Officer - 1st arriving EMS officer, acts as EMS command until relieved by superior EMS officer.
- Advise EMS command when “triage is complete”

# Second Arriving Ambulance

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- Will report to EMS command for assignment
- May be required to transport or establish further triage/treatment area.
- Additional units will report to the EMS staging area unless otherwise directed

# Communications with the Command Hospital

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- Communications with the designated hospital will initially be made by the Triage Officer and transitioned to the Communications Officer.
- The Communications Officer will provide the designated command hospital with:
  - Transport Ambulance
  - Triage Color
  - Adult or Pediatric
  - ETA
  - Type of injury/Illness



# Helicopter Air Ambulance Response

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- The CFD Incident Commander on scene makes the decision to transport by helicopter based on:
  - Type of injury/illness
  - Weather conditions/distance from hospital
  - Recommendation from the highest ranking medical officer on the scene

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Medical Management is  
determined by the Chicago EMS  
system Standing Medical Orders  
(SMOs)

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The EMS Command Chief has the responsibility for ascertaining that the incident is medically secured

# Scott's Law

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- Move Over Law

NOTICE

MOVE OVER — SLOW DOWN  
FOR STOPPED  
EMERGENCY OR  
MAINTENANCE VEHICLES  
IT'S THE LAW

EXIT 287  
Pulaski Rd  
1/2 MILE

ADDITIONAL  
INFORMATION  
PLEASE SEE SIGN 112

# Scott's Law

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- Lieutenant Scott Gillen
- Struck and killed by a drunk driver  
December 23, 2000
- 37 years of age
- Promoted to Lieutenant two weeks prior to death
- Married/Five children

# CFD Lieutenant Scott Gillen

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Chicago Fire Lieutenant Struck, Killed by Car at Accident Scene

Firehouse.Com News

The driver of a car that fatally struck a Chicago fire lieutenant on Saturday has been charged with reckless homicide. Seeing the driver held accountable, however, can provide little satisfaction for the fire department, said spokesman Mike Cosgrove. "It will not bring Lt. Gillen back," he said. "The fire department is in the midst of preparing a funeral to honor the firefighter and at this time wishes that the law enforcement authorities perform their job and charge the driver with whatever is appropriate," the spokesman said. Newly appointed lieutenant Scott Gillen, 37, the father of five daughters, was killed as he was working at the scene of a traffic accident shortly after 2 a.m. Saturday morning. Police said the driver of the car, Carlando Hurt, failed to merge around the parked emergency vehicles. Gillen was trapped between the car and his own ladder truck, which he had been standing behind. After he was extricated, he was taken to an area hospital where he died a short time later. There were no other serious injuries in the crash. Other charges Hunt faces include failing to yield to an emergency vehicle, driving under the influence and driving with a revoked license. At a bond hearing, prosecutors also told the judge that Hurt was legally drunk at the time of the crash, the Chicago Tribune reported. Hunt's bond was set at \$400,000. "It is clear that there are members of the public that are not respecting the importance of emergency vehicles responding to alarms," Cosgrove said. "The fire commissioner is very upset that this situation takes such a heavy toll."

# IDOT Emergency Traffic Patrol

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# Emergency Traffic Patrol

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- Started in 1960 as pilot program for Congress/I-290 Eisenhower Expressway during construction
- Made permanent in 1961



# IDOT Emergency Traffic Patrol

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- The ETP program dispatches teams of emergency patrol vehicles and drivers to traffic disruptions and potential safety problems caused by accidents, disabled vehicles, or hazardous debris on high-traffic volume segments of the Illinois interstate system.

# IDOT Emergency Traffic Patrol

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The ETP program's success was (and remains) the subject of very favorable press and media coverage. One of the earliest and most ardent fans of the program was the late Erv Hayden, a Chicago Police Sergeant who provided traffic reports from a helicopter and which were broadcast over Chicago radio station WGN. Hayden, who also appeared on his own traffic safety show on WGN's television station on Saturday mornings, featured the ETP program on at least two of his TV broadcasts.

# IDOT Emergency Traffic Patrol

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It was Hayden who was responsible for naming the patrol, “The Minutemen.” He had noted that, from his helicopter, that whenever there were accidents or other problems on the expressways, it always seemed that an ETP vehicle was on the scene “within a minute.”

# IDOT Emergency Traffic Patrol

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- Emergency Patrol Personnel receive 12 weeks of training, including:
  - First Aid/CPR
  - Heavy Wrecker training
- Cover Cook County (expanding) 24 hours a day, seven days a week
- Communicate with ISP via STARCOM and IDOT Communication Center in Schaumburg

# Serious Injury and Fatality Crash Investigation

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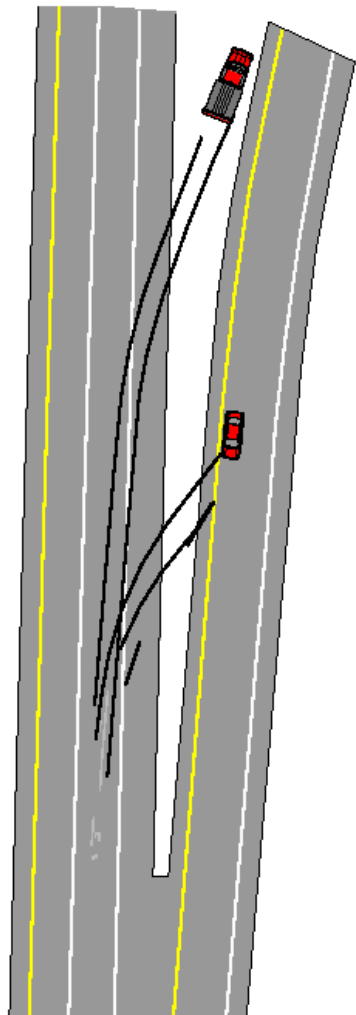
# Total Station

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FOR REPRESENTATION PURPOSES ONLY

STATE POLICE SERVICES DIVISION	ALABAMA STATE POLICE
ALICE #	INCIDENT NUMBER/ALICE #
TRAFFIC CONTROL INFORMATION OFFICER	OFFICER NUMBER
DATE	TIME
LOCATION	LOCATION
REPORT MADE BY	REPORT MADE BY
REPORT MADE BY	REPORT MADE BY

# Crash Data Retrieval System for Event Data Recorders (“Black Box”)

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# CDR CRASH DATA RETRIEVAL SYSTEM



# Product Line Portfolio System History

1984

2000

2003

2004

**Vetronix/GM Relationship  
Began in 1984  
Tech 1**

**CDR System Released  
GM Only Coverage**

**Continued Development for GM**

**First Ford Update  
Version 2.3 March 2003**

**Vetronix Purchased by  
Bosch GmbH Aug 2003**

**Second Ford Release  
Added 50+ New Systems  
Version 2.7 Dec 2004**

**August 26, 2003, Santa Barbara, California - Vetronix Corporation is pleased to announce that, effective July 9, 2003, it has been acquired by [Robert Bosch GmbH](#). Managed by [ETAS GmbH](#)**

# 2004-2009 Kermelova System History

2005

2006

2007

Added 2005/2006 GM and CAN  
Protocol Support  
Version 2.8 Dec 2005

2007 GM Update  
2004-2006 Ford Update

Update for Existing Manufacturers  
Chrysler Added

# Crash Data Retrieval Overview

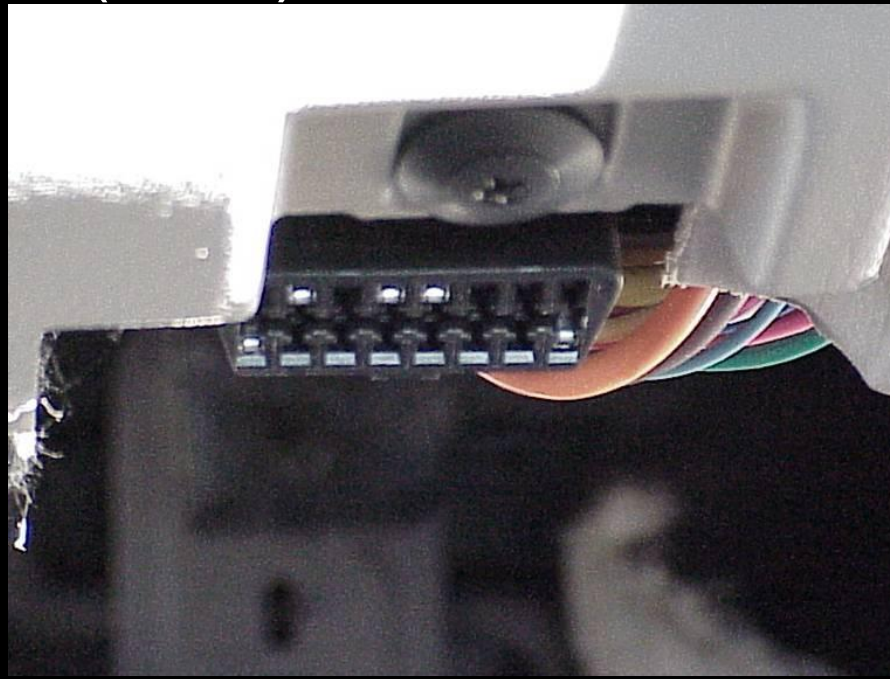
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- In the event of a Crash the vehicle Air Bag Module Records Crash Data
- CDR System Downloads and formats Data into Graph & Table displays  
(Windows Based Program)
- Manufacturer Vehicles Supported
  - Select 1994 - 2006 GM Vehicles
  - Select 2001 - 2005 Ford Vehicles
  - Addition of one new OEM planned for Early 2007 (Chrysler)

# Two Methods to Download Data

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- Through the vehicles Diagnostic Link Detector (DLC)





# Two Methods to Download Data

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- Direct to the airbag module

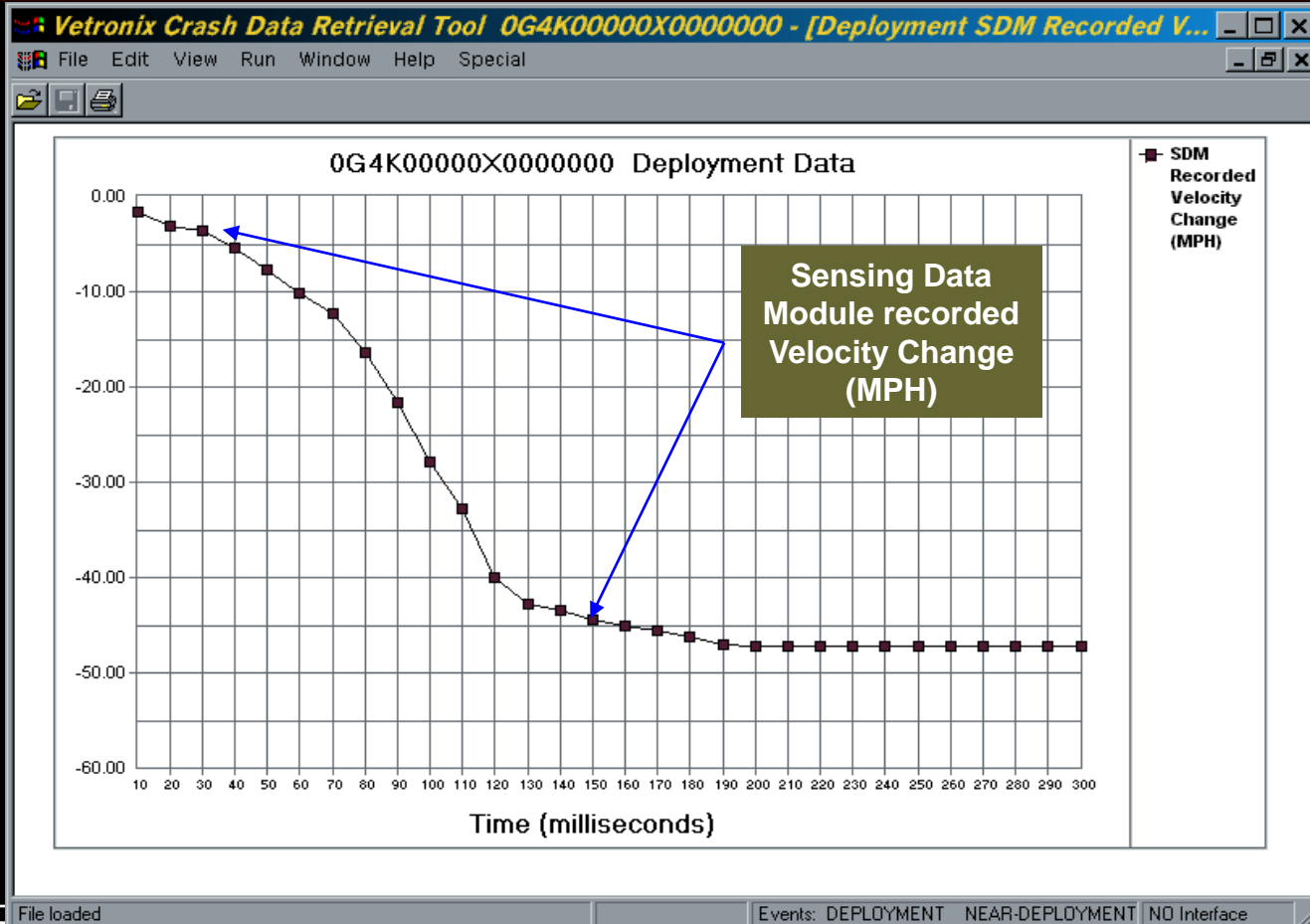


# Data Collected

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- Speed prior to impact (5 seconds prior)
- Speed change in velocity
- Seat belt use
- Brake switch function (8 seconds prior)

# Types of Crash Data Recorded



# Types of Crash Data Recorded

**Vetronix Crash Data Retrieval Tool 0G4K00000X0000000 - [Deployment Data Summary]**

File Edit View Run Window Help Special

**0G4K00000X0000000 System Status At Deployment**

SIR Warning Lamp Status	OFF
Driver's Belt Switch Circuit Status	UNBUCKLED
Passenger Front Air Bag Suppression Switch Circuit Status	ON
Ignition Cycles At Deployment	187
Ignition Cycles At Investigation	213

**PRE-CRASH DATA** Electronic Data Validity Check Status = VALID

Seconds Before AE	Vehicle Speed (MPH)	Engine Speed (RPM)	Percent Throttle	Brake Switch Circuit Status
-5	57	4032	100	OFF
-4	65	4160	70	OFF
-3	62	2304	2	ON
-2	55	1088	2	ON
-1	47	896	2	ON

Time (Milliseconds)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Recorded Velocity Change (MPH)	-1.54	-3.07	-3.51	-5.27	-7.68	-10.09	-12.29	-16.24	-21.50	-27.86	-32.69	-39.93	-42.78	-43.44	-44.32

Time (Milliseconds)	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
Recorded Velocity Change (MPH)	-44.98	-45.42	-46.07	-46.95	-47.17	-47.17	-47.17	-47.17	-47.17	-47.17	-47.17	-47.17	-47.17	-47.17	-47.17

Time From Algorithm Enable To Deployment Command (msec)	18.75
Time from Near Deployment to Deployment (sec)	N/A

File loaded: \_\_\_\_\_ Events: DEPLOYMENT NEAR-DEPLOYMENT NO Interface

# Serious Injury and Fatality Crash Investigation

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## Mandatory Blood Draws-DUI-Fatal or A injury Crash

- Law Enforcement believes subject may be under the influence
- At hospital, Police officer reads warning to motorist and motorist refuses
- Non-Consensual Blood Draw-Police officer directs hospital emergency room staff to draw blood
- Though Hospitals are protected from liability, including the Health Insurance Portability and Accountability Act (HIPAA), some hospitals will not forcibly take a blood sample and ultimately hinders the investigation and prosecution
- Instead of possible long term loss of DL, and in cases of reckless homicide, maintains their maintains ability to drive and freedom

# Effects of Roadway Engineering on EMS

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- Narrow shoulders/No Shoulders
- Crossovers
- High Tension Cable Rail

# High-Tension Cable Rail

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EXIT 245A  
EAST  
Indiana







# Questions

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Captain Peter J. Negro  
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