

NMVCCS Observations

National Motor Vehicle Crash Causation Survey

Carl Ragland
Team Manager, NMVCCS

Data Collection Forms

- **Each Vehicle has form for:**
 - **PAF**
 - **Driver Interview**
 - **General Vehicle**
 - **Occupants**
- **Each crash has form for:**
 - **Crash**
 - **Non-motorist**
 - **Witness**

- **Critical pre-event related factors (1-12)**
 - **Pre-event movement**
 - **Critical pre-crash event**
 - **Critical reason for critical pre-crash event**
 - **Associated pre-crash event factors (4-12)**
- **Critical reason for critical pre-crash event factors:**
 - **Driver**
 - **Vehicle**
 - **Environment**

Examples of Critical Reason for Critical Event Factors

- **Tire failure/condition**
- **Driver distraction**
 - ◆ Looking at mirror
 - ◆ Talking
 - ◆ Looking outside vehicle
 - ◆ Other
- **Fatigue**
- **Driver inexperience**
- **Overcompensation**
- **Too fast**
- **Icy roads Highway design/conditions**

Driver Interview (91 Questions)

- **Driver and vehicle history and familiarity**
- **Trip related**
- **Physical and mental status**
- **Driver focus prior to crash**
- **Driver recognition and actions**

General Vehicle

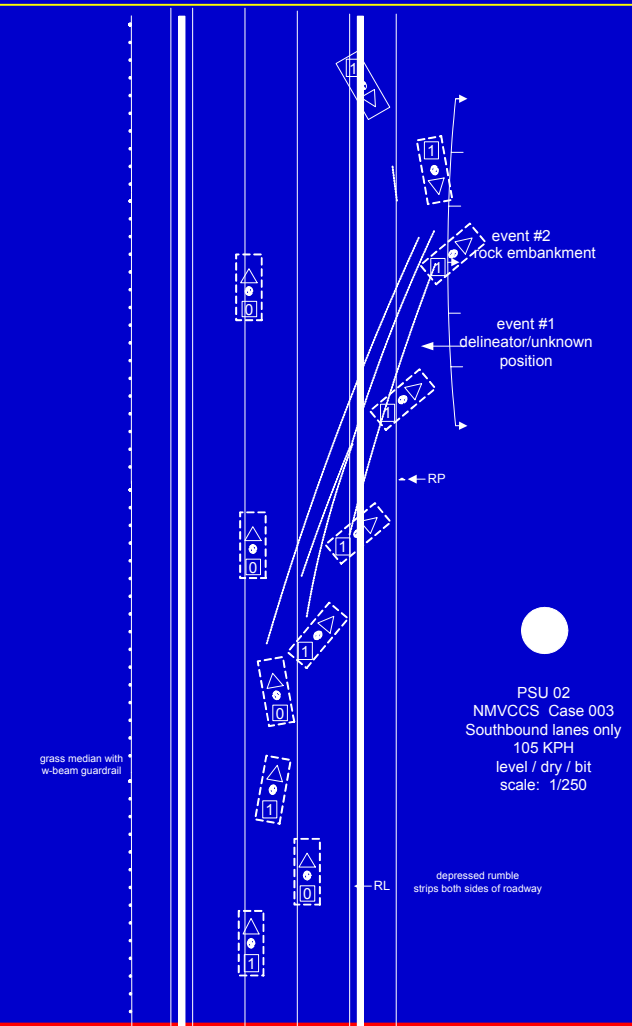
- **General Vehicle information, i.e. year/make/model**
- **Tire information and condition**
- **Specific vehicle info on advanced equipment**
 - **ABS**
 - **ESC**
 - **Lane Departure**
 - **Adaptive cruise control**
 - **Brake assist**

- **On scene response log to EMS dispatch**
- **Percentage of qualified on-scene cases vary**
 - ◆ Multiple frequencies
 - ◆ Distance to site
 - ◆ Local scanner laws

Types of Data Analysis

- **Rollover rates versus ESC**
- **Loss of control versus ESC**
- **Human, environmental and vehicle factor analysis**
- **Potential benefit analysis for countermeasures**

Single Vehicle Example Crash



- **Southbound lanes of three-lane divided interstate.**
- **1997 Honda Civic**
- **Non contact vehicle**
- **Vehicle swerved right, skid clockwise, contacted delineator post, then rock**
- **Belted 34-year old female who was transported, treated and hospitalized for a complaint of pain**
- **No interview – statement obtained from medical report**

Single Vehicle Example Crash



Single Vehicle Example Crash



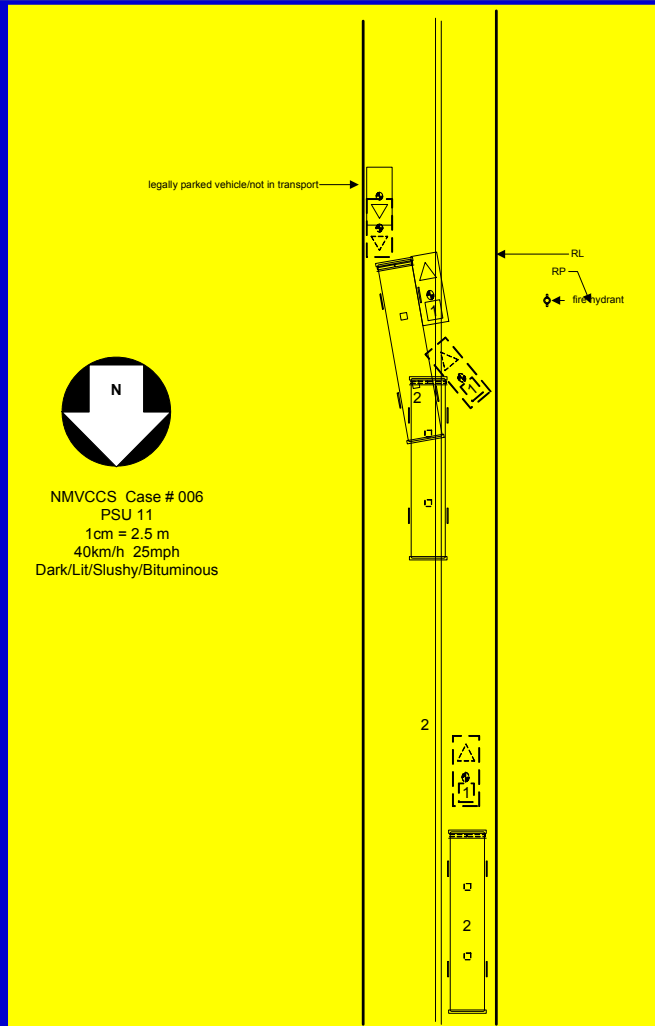
Single Vehicle Example Crash



Single Vehicle Example Crash

- Movement of the vehicle just prior to recognition (pre-event movement)
 - Going straight
- The Critical Precrash Event
 - This vehicle control loss due to traveling too fast for conditions
- The Critical Reason for the Critical Event
 - Performance error
 - Overcompensation
 - This was chosen because the driver overreacted to the situation by steering too abruptly to the right.

A Transit Bus and a Car Crash U Turn



- **V1, A 2004 Toyota Lexus**
- **V2, a 2003 Gillig Low Floor bus**
- **Late, dark, slush-covered roadway was illuminated by street lamps**
- **The driver of V1 making U-turn**
- **Driver of V1 pulled to the right side of the roadway while decelerating**
- **The driver of the bus saw V1 pull to the right and assumed that the driver of V1 would wait**
- **V2 struck V1 on left**
- **V2 braked and steered and hit legally parked vehicle**
- **V1 rotated back southbound and the left side of V1 came to rest against the right side of V2.**

U Turn



U Turn

- **Pre-event movement**
 - ◆ Decelerating in traffic lane
 - Pulled to the right
 - Decelerated
- **Critical precrash event**
 - ◆ This vehicle traveling
 - Over the lane line on left side of travel lane
- **Critical reason for the critical event**
 - ◆ Decision Error
 - Illegal maneuver

Questions

