HUMAN FACTORS
SAFETY LABORATORY

CRASH DATA STATE LAW CHANGE IMPACTS

I-35 Solutions Alliance Board Meeting
February 13, 2025

Nichole L. Morris, Ph.D.

Human Factors Safety Lab

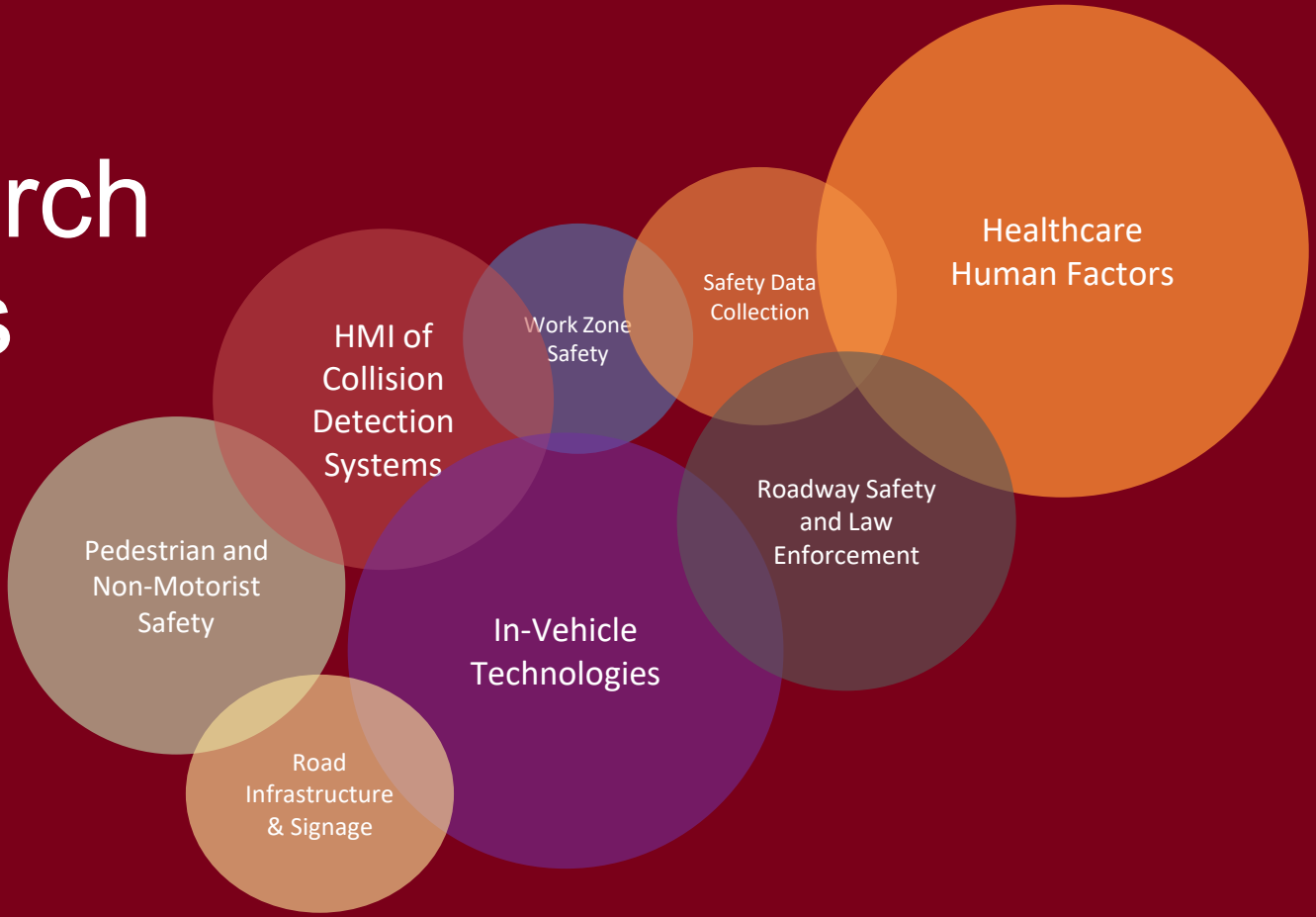
Mission: Reduce the occurrences of roadway and occupational injuries and fatalities by improving the understanding of human behavior and by supporting the design and evaluation of user-centered systems.

Human Factors

Marriage of psychology and engineering

- Intersection between people and systems
- Improve design to reduce error rates and training time, improve safety, and enhance user experience
- Account for the capabilities and limitations of people

HFSL Research Tracks



Crash Data is Important

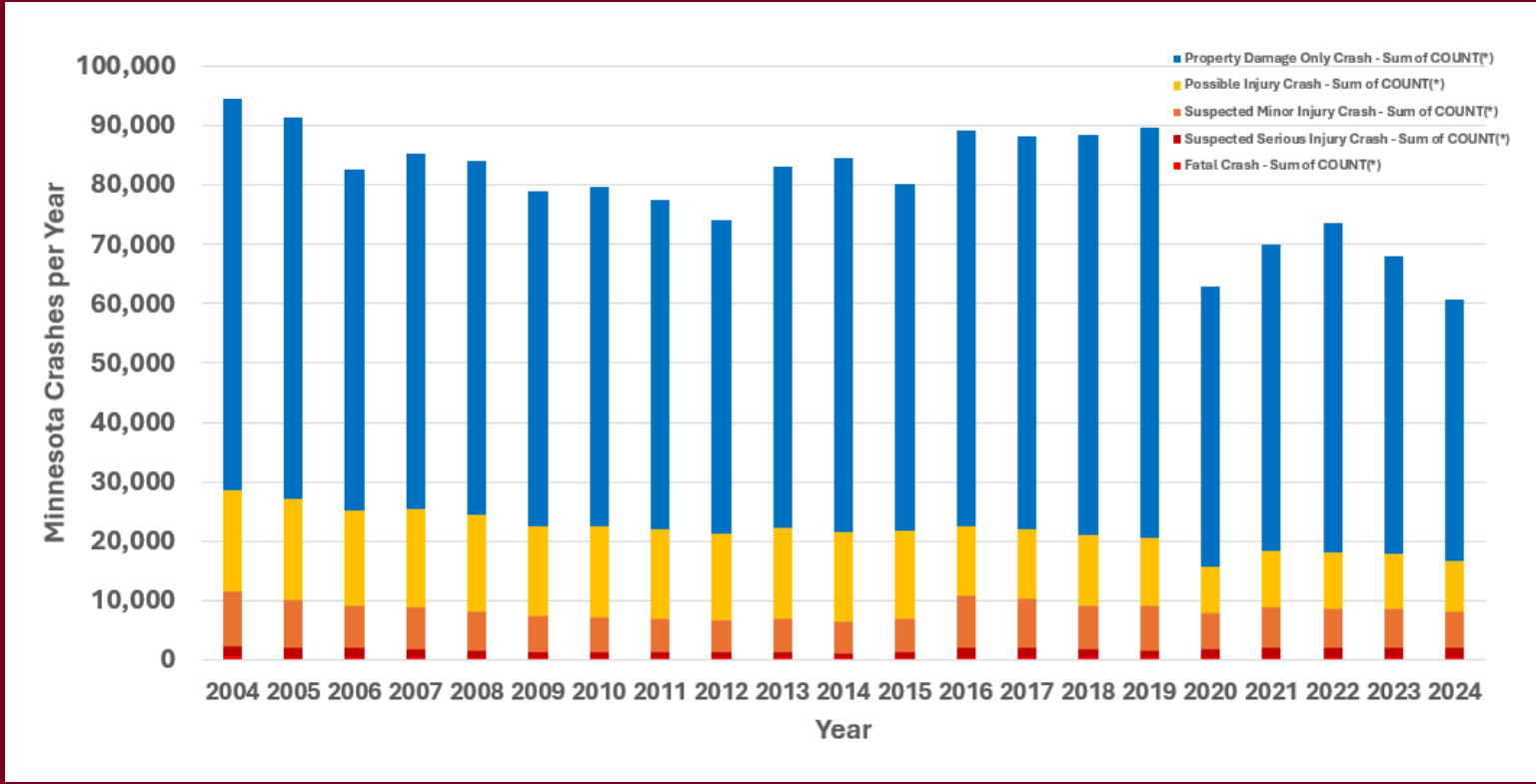
Crash reporting is one of the greatest tools we have to address serious and fatal crashes

Crash reports have led to past roadway safety improvements including

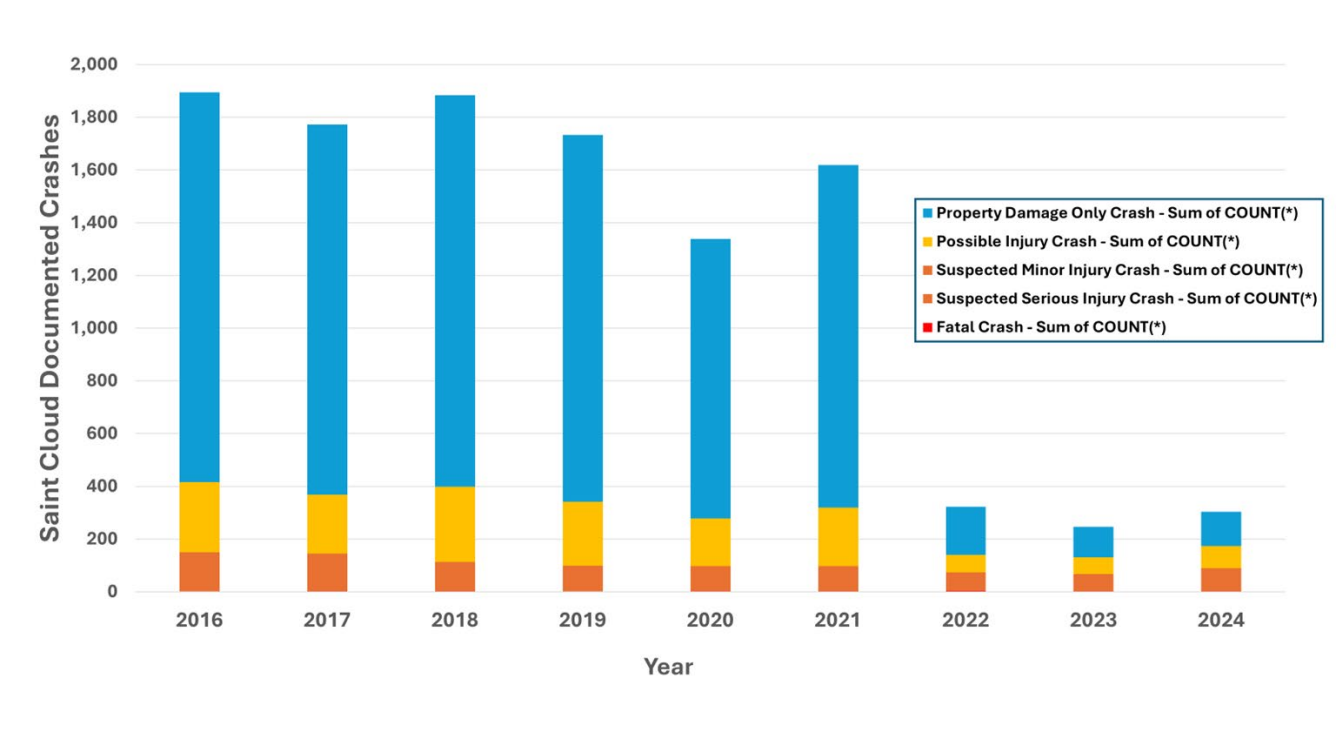
- Safer vehicles
- Safer roads
- Human behavior changes

Crash reporting can feel like unnecessary paperwork for law enforcement or seem like it only serves insurance companies

Minnesota has been losing insight in the crashes through a reduction in crash reporting since COVID



Some local law enforcement agencies have dramatically reduced their crash reporting



Revisions to MN Statute **169.09 (HF3436)** Loosened Requirements for Crash Reporting

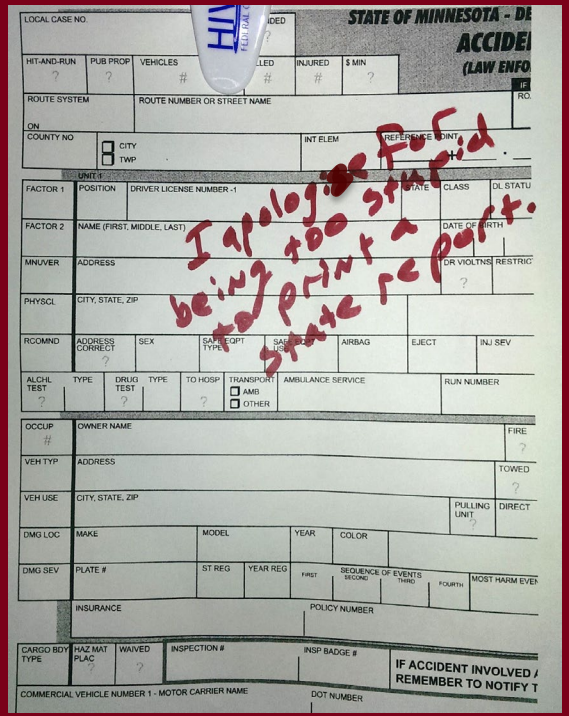
- Subd. 8.**Officer to report accident to commissioner.**
- Excerpt of statute:
  a) Accidents on streets, highways, roadways, sidewalks, shoulders, shared use paths, or any other portion of a public right-of-way must be reported under the requirements of this section if the accident results in:
     1. a fatality;
     2. bodily injury to a person who, because of the injury, immediately receives medical treatment away from or at the scene of the accident;
     3. one or more of the motor vehicles incurring disabling damage that requires a vehicle to be transported away from the scene of the accident by tow truck or other vehicle; or
     4. damage to fixtures, infrastructure, or any other property alongside or on a highway.
- **Risk a loss of 50% of PDO crash reports and possible injury or suspected minor injury crash reports**

Broader Factors Influence Crash Reporting

- **Declines in PDO reporting precede changes in MN Statute**
- **Potential contributing factors**
  - **Staffing changes**
  - **Increases in other crimes**
  - **Leadership decisions**
  - **COVID impacts**
  - **Poor communication about crash reporting value**
  - **Myths about the time requirements**

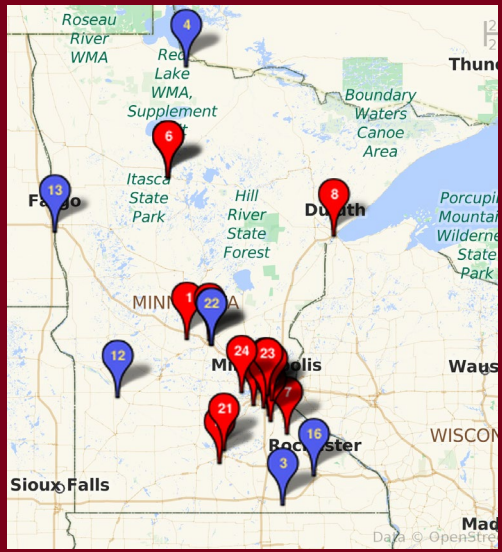
Minnesota Crash Reporting Was Previously Difficult

- **Previous crash report in Minnesota was outdated and too rigid for easy and accurate data entry**
  - **Many officers found it cumbersome and confusing**
- **In 2014, the state reporting system began an updating process**
  - Initiative to rebuild the entire crash records database
  - Opportunity to completely rebuild the crash report interface with the user in mind



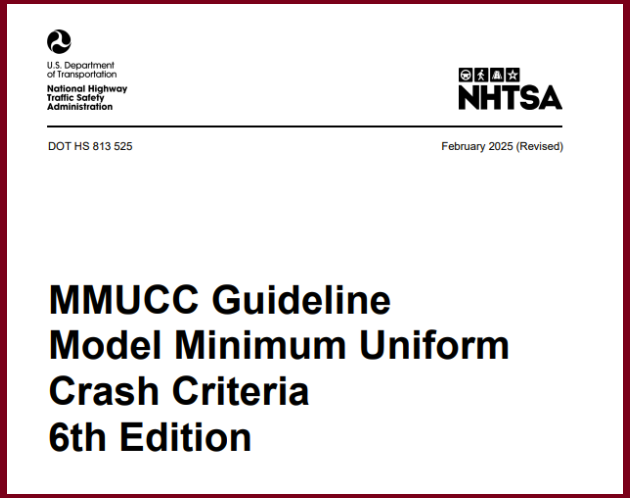
Minnesota Crash Reporting was Improved in 2016

- **Goal:** Design and create a crash report interface that improves accuracy, speed, reliability, and meaningfulness of crash report data
  - Utilize Human Factors analyses and principles
  - Capitalize on the experience and expertise of law enforcement
  - Ensure it accommodates rural officers who very infrequently document crashes, but collectively represent the majority of serious and fata crash data
- Conducted testing with 23 law enforcement agencies across the state



Outcome: MN Became a National Leader

- **MNCrash was launched on Jan 1, 2016**
  - **Limited training was provided to officers**
  - **Few issues encountered**
  - **High user satisfaction**
  - **Many fields are capable of auto-filling for officer, reducing time burden**
- **Gained attention of NHTSA Administrator and MMUCC revision team**
- **Featured in MMUCC 6th Edition, Chapter 11**



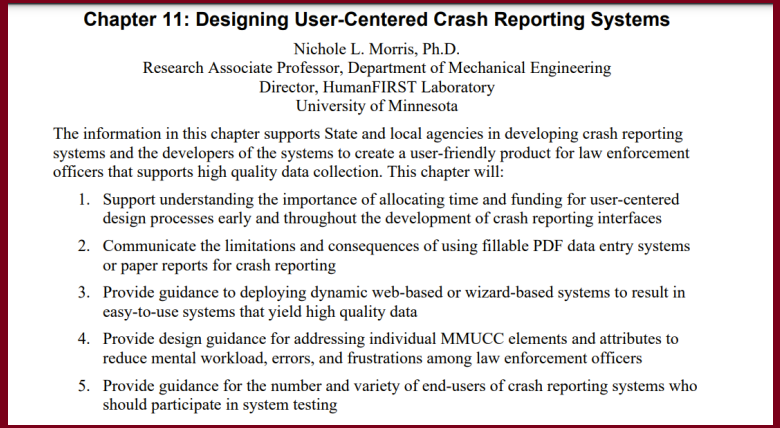
U.S. Department of Transportation
National Highway Traffic Safety Administration

NHTSA

DOT HS 813 525

February 2025 (Revised)

MMUCC Guideline
Model Minimum Uniform Crash Criteria
6th Edition



Chapter 11: Designing User-Centered Crash Reporting Systems

Nichole L. Morris, Ph.D.
Research Associate Professor, Department of Mechanical Engineering
Director, HumanFIRST Laboratory
University of Minnesota

The information in this chapter supports State and local agencies in developing crash reporting systems and the developers of the systems to create a user-friendly product for law enforcement officers that supports high quality data collection. This chapter will:

1. Support understanding the importance of allocating time and funding for user-centered design processes early and throughout the development of crash reporting interfaces
2. Communicate the limitations and consequences of using fillable PDF data entry systems or paper reports for crash reporting
3. Provide guidance to deploying dynamic web-based or wizard-based systems to result in easy-to-use systems that yield high quality data
4. Provide design guidance for addressing individual MMUCC elements and attributes to reduce mental workload, errors, and frustrations among law enforcement officers
5. Provide guidance for the number and variety of end-users of crash reporting systems who should participate in system testing

Reducing Crash Reporting Form Would Have Limited Impact on Time Demands

Time-series Analysis of PDO Crash Reporting with SPPD

- Crash reporting took as few as 14 minutes to complete
  - Crash narrative and diagram took as much as 50% of this time
- Crash responding totaled to as much as 85 minutes
  - Travel time to crash scene
  - Clearing scene
  - Information exchange
  - Waiting for other emergency responders
  - Collecting criminal evidence (in cases of hit and runs)
  - Other administrative reporting
  - Etc.

Boosting PDO Crash Reporting in Minnesota May Require Changing the Crash Reporting Process

Options to Explore

- Creating a PDO short form for police
  - This may not reduce the larger time burdens of responding to PDO crashes
- Expanding crash reporting permissions to non-sworn officers
  - Possible but there are legal barriers
- Reprising the Minnesota “Citizen Crash Report”
  - Minnesota Statutes Section 169.09, Subdivision 7 required drivers to submit a report to DVS after being involved in a crash
  - Requirement was repealed in 2021 because it was time-consuming and redundant
- Bolstering local demand for PDO crash data

What Does this Mean for Local Agencies

- **Declines in PDO crash reporting could also lead to declines in minor injury crash reporting**
  - Limited insight into high crash risk areas
  - Difficulty linking crash and hospital records
  - Spurious increase in crash mortality rates for some communities
- **Call to action**
  - Communicate with local law enforcement agencies about the value of crash reporting
  - Ensure agencies have proper resources and support to report PDOs
  - Consider ways to reduce other time demands of crash responding or shift workload to other non-sworn officers

HUMAN FACTORS
SAFETY LABORATORY

Thank you

nlmorris@umn.edu