



# Model Minimum Uniform Crash Criteria Best Practices

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# List of Acronyms

DOJ	Department of Justice
DOT	Department of Transportation
GHSA	Governors Highway Safety Association
HSIP	Highway Safety Improvement Program
KTF	Knowledge Transfer Form
LEA	Law Enforcement Agency
MMUCC	Model Minimum Uniform Crash Criteria
NHTSA	National Highway Traffic Safety Administration
PCR	Police Crash Report
QA/QC	Quality Assurance/Quality Control
SHSO	State Highway Safety Office
TRCC	Traffic Records Coordinating Committee

# Executive Summary

State Highway Safety Offices (SHSOs) play a critical role in enhancing state traffic records systems. SHSOs typically fund all or part of the hardware or software and train personnel involved in their states' records systems. They may even house the state's crash and fatality data. SHSOs participate in the state's Traffic Records Coordinating Committees (TRCCs), some in leadership and/or administrative roles, and are often involved in revising police crash report forms.

The Model Minimum Uniform Crash Criteria (MMUCC) is a voluntary guideline that represents a minimum, standardized set of data variables to describe motor vehicle traffic crashes. The Governors Highway Safety Association (GHSA) identifies and shares best practices with the SHSOs, as well as provides resources, such as best practice reports, webinars and workshops to encourage states to move toward adoption of the MMUCC.

GHSA, under contract with the National Highway Traffic Safety Administration (NHTSA), produced this guidance document to characterize more accurately, both quantitatively and qualitatively, the states' progress in adopting the MMUCC elements. It also highlights promising practices and provides concrete examples that SHSOs can use to support their own efforts to improve crash data collection and integration with other critical data sets.

Chapter 1 introduces the concept of the MMUCC, explains why it is so important, outlines the key challenges and limitations of MMUCC alignment and discusses how this report can help states make improvements.

Chapter 2 explains the methodology used to collect the information and resources provided in this report. Researchers first examined NHTSA-provided MMUCC alignment scores to identify states with higher and lower levels of MMUCC adoption across various data types and candidate states to interview. As a next step, all states were invited to complete a knowledge transfer form to provide direct input on their current crash report systems. Finally, interviews were conducted with traffic records personnel in eight states.

Chapter 3 reviews the key findings from GHSA's analysis of the state-level MMUCC mapping file, which illustrates to what extent all states, the District of Columbia and Puerto Rico conform to various components of MMUCC ideals. It provides several

high-level correlations and call outs, which helped inform subsequent information collection efforts.

The document goes on to outline the outcomes of these information collection efforts. Using both an online knowledge transfer form and one-on-one interviews with stakeholders, researchers were able to identify MMUCC adoption issues and strategies common to several states. The findings are presented in Chapter 4.

Chapter 5, the heart of this resource, compiles all findings into a user-friendly checklist that states can employ to identify actions to improve their fulfillment of the MMUCC. The following checklist recommendations are not exhaustive, but rather include key strategies identified through GHSA's exploration of state experiences:

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- ✓ 1. *Identify Strong TRCC Champions*
  - ✓ 2. *Build a Robust TRCC Support Team*
  - ✓ 3. *Regularly Update Crash Report Forms Using the Most Recent MMUCC Standards*
  - ✓ 4. *Focus on the Details and the Data Quality*
  - ✓ 5. *Integrate Data to the Extent Feasible*
  - ✓ 6. *Ensure Quality Rural Data*
  - ✓ 7. *Make Improvements Between Crash Report Form Updates*
  - ✓ 8. *Use NHTSA GO Teams*
  - ✓ 9. *Track and Report Progress*
- 

States are at various stages of adopting the MMUCC standards. Some states have made great progress, while others are lagging. MMUCC adoption can seem subjective. Small gains can be hard won in states that struggle to make progress. Meanwhile, other states that already have systems in place that support the intent of the MMUCC are reporting more success in complying with the criteria.

Taken together, this document is a compendium of state best practices for adoption of the MMUCC that includes examples SHSOs can emulate in their own efforts to work toward MMUCC alignment.

# Chapter 1: Introduction

## *What is the MMUCC?*

The MMUCC is a national guideline that presents a standard minimum set of motor vehicle traffic crash data variables for state and local law enforcement agencies (LEAs) to collect in their police crash reports (PCRs). Because the data collected on PCRs ultimately end up in state-level crash data systems, the MMUCC also strongly influences how crash and traffic safety data are organized in these systems.

NHTSA, a division of the U.S. Department of Transportation, publishes and maintains the MMUCC, in collaboration with a group of industry experts, including GHSA. First published in 1998, the MMUCC has been updated a number of times, with [the sixth Edition released in January 2024](#). This latest edition of the MMUCC includes implementation suggestions, new chapters on traffic records integration and how to design user-centered crash reporting systems, and new definitions within the data elements, among many other notable improvements. (See Section 1.8, pages 6-7 of the MMUCC for the full list.) This new edition is expected to prompt many states to reexamine their PCRs and crash data systems, providing a perfect opportunity for states to also improve their MMUCC alignment.

## *Why is the MMUCC important?*

Put simply, adoption of the MMUCC leads to greater uniformity and consistency in traffic crash records. The more uniform and consistent crash records are across any given region, state or country, the better equipped traffic safety professionals are to make informed decisions that will lead to safety improvements. On a more granular level, conforming with MMUCC guidelines benefits data collectors, data managers and end users alike (Brown et al., 2021). Data collectors benefit from increased accuracy and efficiency, such as streamlined collection of elements that apply only to certain crash types, relational functionality between certain crash data elements and other sections of the crash report, and predefined definitions and descriptions. Data managers achieve improved crash data quality, greater possibilities for data integration and the increased ability to share data with other partners. Finally, data end users are assured better quality data to evaluate projects, identify trends and determine the most appropriate countermeasures, resulting in improved safety outcomes.

The MMUCC is evolving as technology improves and driving culture changes. For example, before the advent of autonomous driving, police reports did not have fields to collect information about whether any autonomous driving features were engaged at the time of the crash. However, the MMUCC now has specific recommendations related to collecting data in crashes involving autonomous or semi-autonomous vehicles.

*Why is adoption of the MMUCC so challenging?*

Change is hard. Revising PCRs and enhancing data systems can be especially difficult. Many separate agencies and organizations may manage various components of existing traffic records data systems, requiring buy-in and agreement from a variety of constituencies, all with their own, and sometimes competing, priorities. Upgrading PCRs to better align with the MMUCC standards is both time-intensive and costly, presenting challenges for all LEAs, but most especially for smaller, rural agencies.

States can tap various funding sources to update PCRs, improve their traffic records and integrate various systems. However, none of these sources come without challenges.

States can apply for federal funding through NHTSA's Section 402 or 405(c) state highway traffic safety grant programs. The State and Community Highway Safety Grant Program, commonly referred to as Section 402, is the original federal traffic safety grant program and can be used for a variety of traffic safety projects, including traffic records. Funds are apportioned via formula, but states must submit vigorous justification for their planned spending that is subject to NHTSA approval. For the use of these funds, traffic record projects also compete with many other preventative traffic safety initiatives.

Section 405(c), the State Traffic Safety Information System Improvements Grant Program, is dedicated to supporting traffic records projects. However, states must meet various requirements, including showing how a given project will lead to quantifiable progress in improving their traffic records systems according to specific measures. States are permitted to use these grant funds to improve MMUCC alignment in core traffic safety databases.

In addition to Sections 402 and 405(c), states can tap other funding sources to move toward MMUCC alignment. This includes Highway Safety Improvement Program

(HSIP) funds, which are available through state Departments of Transportation (DOTs). The Federal Motor Carrier Safety Administration or the Department of Justice (DOJ) may offer other funding sources. For example, LEAs could consider using DOJ funding to help improve PCR forms.

Using alternative funding sources can create opportunities for inter-agency collaboration and ensure that all stakeholders have sufficient resources to make meaningful progress in their efforts toward meeting MMUCC guidelines. However, this often takes time, energy and political will.

### *How will this report help?*

This report provides several resources that SHSOs and their partners can use to support adoption of the MMUCC. Drawing from other research reports, data collected from states and interviews with stakeholders, GHSA identified best practices and promising approaches that SHSOs could conceivably replicate in their own states.

Included within this report is a [checklist of nine recommendations](#) against which states can compare their own practices. Each checklist item is supported by discussion and specific examples.

Every SHSO is on its own journey toward alignment with the latest MMUCC standards. States should understand that this effort is a marathon, not a sprint. Traffic records changes can take years of iterative steps that are often shaped by the availability of limited resources, state government structures and other external factors. As the traffic records discipline is always evolving and this study identifies specific gaps that are widespread even today. No matter where a state stands in its MMUCC adoption, it can always work toward additional improvement. This report can help states develop a vision for improving their crash reports and traffic records systems and procedures, as well as gauge where they are now and have the potential to get to.



## Chapter 2: Developing This Document

GHSA undertook a rigorous process to collect and compile data, conduct in-depth interviews and build out the best practices and recommendations provided in this report. Several resources were consulted to inform and support the analyses and findings.

### Traffic Records Assessment Findings

As a first step, GHSA requested from NHTSA data extracted from all states' most recent Traffic Records Assessments. This enabled GHSA to assess how state PCR forms currently perform with regards to various MMUCC 5th Edition data elements. The data included a score for how closely each state's PCR form conformed to the MMUCC 5th Edition guidelines in eight major data categories. Researchers calculated a generalized state score by averaging all eight sections from the MMUCC 5th Edition (giving equal weight to each section), and additional factors were added for comparative purposes. These additional factors included U.S. Census population data, Bureau of Transportation police employment data, population density and police per resident statistics. These data helped to identify common themes among states, including how rural and urban states differed, potential regional challenges, which MMUCC sections states generally aligned with, and other high-level relationships between MMUCC mapping and state profiles. This process supported the identification of candidate states for interviews that helped the researchers gain a deeper understanding of a state's strengths and needs.

### Knowledge Transfer Form

GHSA then developed a knowledge transfer form (KTF) for states to complete. This form was designed to determine how states are currently managing crash reporting, when they last updated their PCR forms, the current level of state data systems integration, data quality concerns and factors preventing states from fully adopting the MMUCC guidance. Twenty-five states completed this form.

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<sup>1</sup> For the purposes of this document, the District of Columbia, Puerto Rico and the U.S. Virgin Islands are classified as "states."

## State Interviews

In addition to the KTF, GHSA conducted one-on-one interviews with traffic records personnel in eight states in the fall of 2023. States selected for interviews represented a variety of population densities, demographic and economic conditions. They also included states already fulfilling many of the MMUCC guidelines as well as states with weaker MMUCC 5th Edition-mapping scores. These interviews were critical for teasing out common themes that correlate to various levels of MMUCC 5th Edition alignment. Interviews addressed data collection and reporting methods, system designs and level of data integration, among other topics.

## Resources Consulted

Building on the MMUCC 5th Edition mapping review, KTF form responses and state interviews, GHSA referenced the following resources to ensure the integration of findings from previous studies and verify the recommendations in this best practice document:

- [\*Guide to Updating State Crash Data Systems\*](#): This NHTSA publication provides tools to help crash data collectors, managers and users of state crash data systems update their systems. States can use it to perform exercises that address engaging stakeholders, examining gaps in the crash data base and creating action plans for deploying a new system.
- [\*MMUCC Guideline 6th Edition\*](#): This latest edition of the MMUCC was released in January 2024. GHSA consulted it to ensure this report aligns with the most recent guidance.
- [\*NHTSA Traffic Records Programs\*](#): NHTSA programs and technical assistance include State Traffic Records Assessments, state-level MMUCC mapping (comparing the data elements and attributes from the state's PCR and crash database to the data elements and attributes defined in the MMUCC), Crash Data Improvement Program, Strategic Planning Workshops and GO Teams, (subject matter experts who provide customizable technical assistance on all aspects of traffic record improvement).
- [\*Crash Report Sampling System \(CRSS\)\*](#): This NHTSA system is a sample of police-reported crashes involving all types of motor vehicles, pedestrians and cyclists, ranging from property-damage-only crashes to those that result in

fatalities. CRSS obtains its data from a nationally representative probability sample selected from the estimated five to six million police-reported crashes that occur annually.

- [Crash Investigation Sampling System \(CISS\)](#): A complement to CRSS, CISS collects detailed crash data on a representative sample of minor, serious and fatal crashes involving at least one passenger vehicle – cars, light trucks, sport utility vehicles and vans – towed from the scene.

## Chapter 3: State Traffic Records Assessment Findings

This chapter summarizes the key findings from the first step in the research: analysis of the MMUCC 5th Edition mapping scores. This was the starting point for additional outreach and information collection efforts.

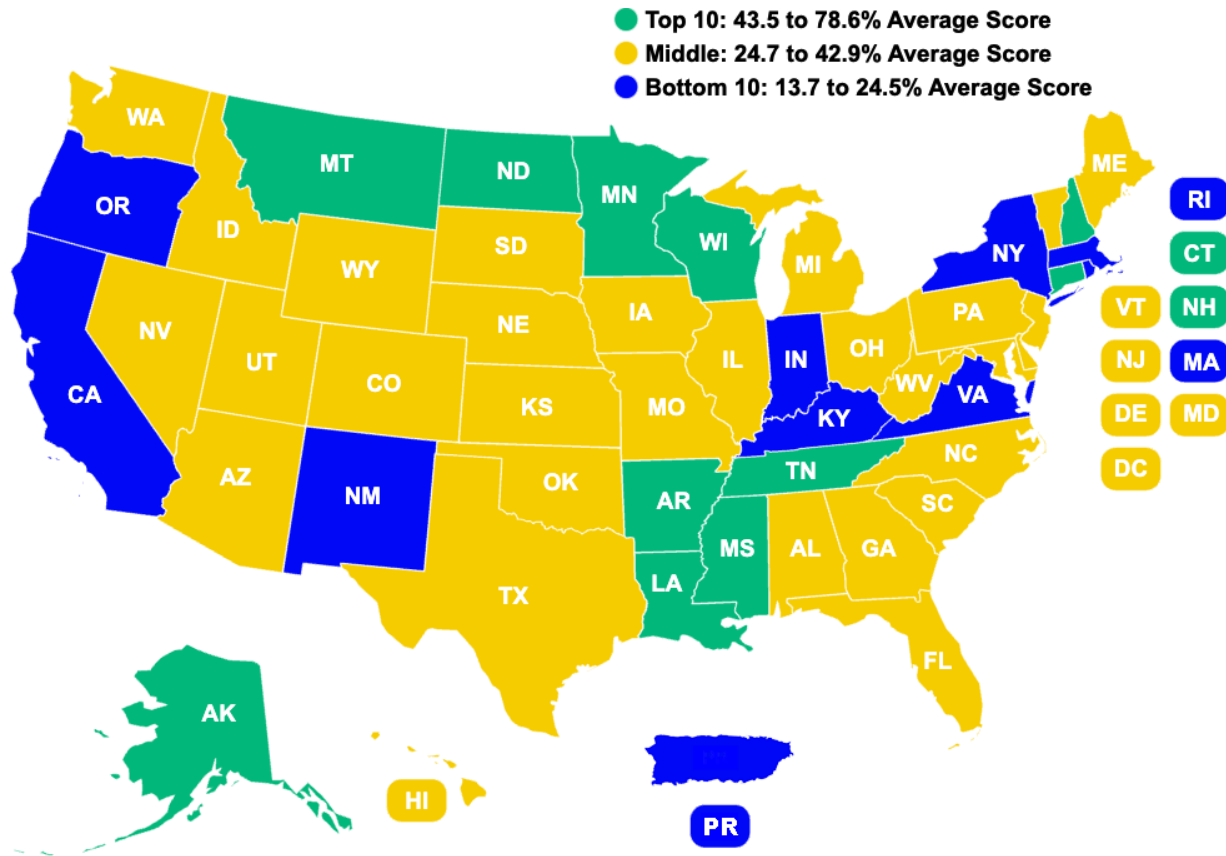
At a state's request, NHTSA may conduct a State Traffic Record Assessment. These assessments include the scores from the state's most recent MMUCC alignment report, which examines the extent to which a state's crash report aligns with the MMUCC by comparing the data elements and attributes from the state's PCR and crash database to the data elements and attributes defined in the MMUCC. The scores for mapping to the MMUCC 5th Edition were organized into eight categories: crash, vehicle, person, roadway, fatal, large vehicles and hazardous materials, non-motorist and dynamic data.

NHTSA provided GHSA with a data file containing all states' MMUCC 5th Edition alignment numerical scores (on a percentage scale from 1 to 100). These scores are based on objectively comparing the states' PCR form and data reports against the MMUCC 5th Edition standards. A generalized state score was calculated by averaging all eight sections of the MMUCC 5th Edition, giving each section equal weight. State population, police employment, land area, population density and police per person ratio data were also added to provide further comparison points among the states.

These comparisons highlighted certain correlations that were investigated further during GHSA's outreach to the states. For example, more populous states with large urban centers tended to have lower overall MMUCC 5th Edition mapping scores. During the later interview process (described in Chapter 4), it was discovered that states with large urban areas need to balance the desire for immediate post-crash data collection against the need to quickly re-open roadways after a collision. In the haste to clear a crash, some important data could be missed or compromised.

Looking at the MMUCC 5th Edition mapping data alone, GHSA was able to determine which states most closely meet the overall MMUCC 5th Edition guidance – both overall as well as in the eight MMUCC 5th Edition categories. Figure 1 illustrates whether states rank in the top, middle or bottom in terms of their average overall MMUCC 5th Edition mapping scores. Table 1 lists all states that scored among the top 10 for the eight categories and calculates the number of times those states appeared in the top 10.

Figure 1: Average MMUCC 5th Edition Mapping Scores by State



Map created at [www.fla-shop.com](http://www.fla-shop.com)

Source: MMUCC 5th Edition Mapping Spreadsheet

Table 1: States that Ranked Among the Top 10 in Specific MMUCC 5th Edition Mapping Categories

State	Crash	Vehicle	Person	Roadway	Fatal	Lg. Vehicles & Haz. Mat.	Non-Motorist	Dynamic Data*	Frequency of Top 10 Ranking in All Categories
Alaska	X	X	X		X		X		5
Arizona					X			X	2
Arkansas	X	X	X				X		4
Colorado						X		X	2
Connecticut		X			X		X		3
D.C.	X								1
Florida						X			1
Georgia					X				1
Illinois				X				X	2
Maine								X	1
Maryland						X			1
Michigan					X			X	2
Minnesota		X	X				X		3
Mississippi	X	X	X		X	X	X	X	7
Missouri				X					1
Montana	X		X	X		X	X		5
Nevada						X	X		2
Nebraska				X					1
New Hampshire	X	X	X			X	X		5
North Carolina				X					1
North Dakota	X	X			X		X		4
Ohio								X	1
Pennsylvania	X		X	X	X			X	5
Tennessee		X	X		X				3
Texas				X		X			2
Washington				X					1
West Virginia		X				X			2
Wisconsin	X	X	X	X	X	X	X	X	8
Wyoming	X		X	X					3

Source: MMUCC 5th Edition Mapping Spreadsheet

\*Only nine states scored above 0% for the dynamic data element.

## *Key Findings and Correlations*

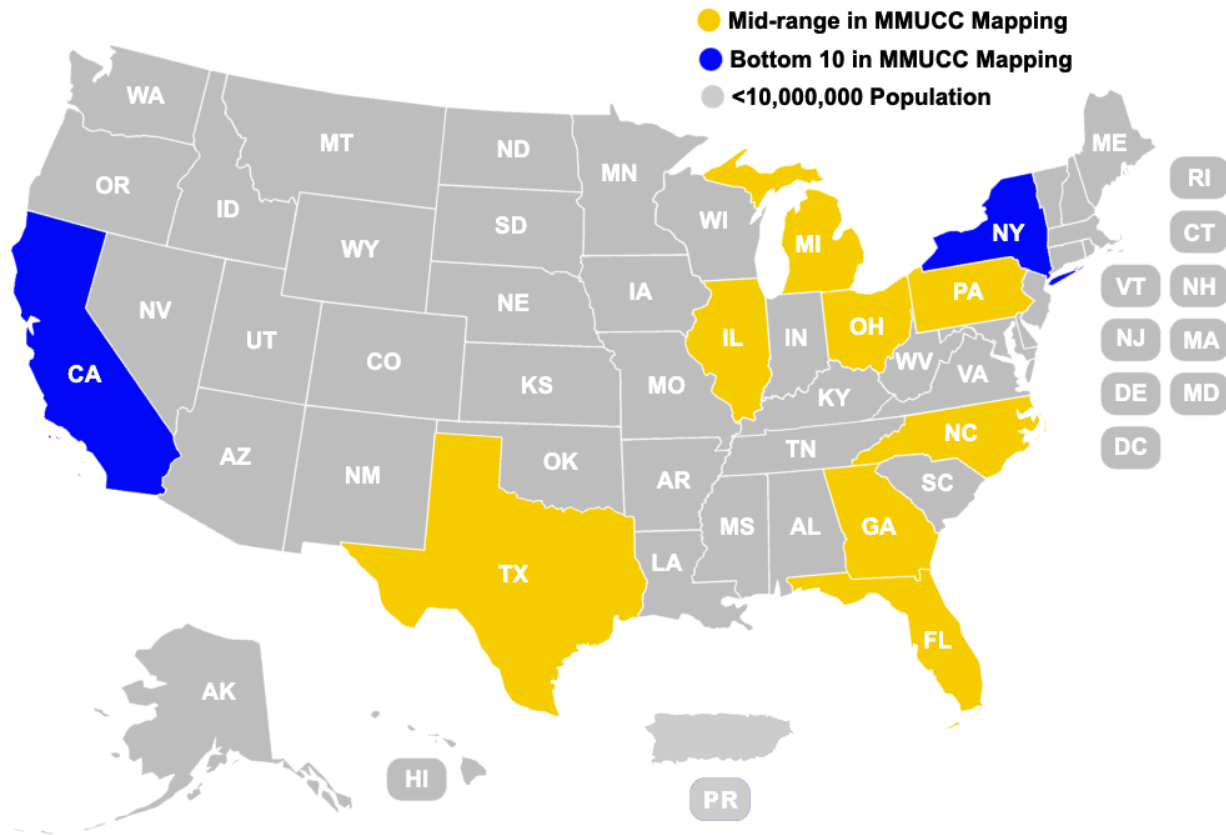
Some key correlations among the MMUCC 5th Edition mapping scores and other data are discussed in this section.

First, as mentioned above, states with higher populations tended to have lower MMUCC 5th Edition mapping scores. Figure 2 illustrates none of the ten states with populations greater than 10 million are among the top 10 MMUCC 5th Edition-aligned states. Conversely, states with smaller populations tended to score higher in their overall MMUCC 5th Edition mapping, as seen in Figure 3.

In both the KTF form responses and interviews, states noted challenges getting large cities and metro areas to adopt new data collection, processing and submission methods. Simply having larger populations increases the likelihood of having large cities, so this correlation is backed by on the ground anecdotes. Large, established local governments may also have existing, well-formed practices and may experience greater administrative friction when trying to achieve reforms.

First responders in urban areas also need to balance the need to collect and report accurate and complete data against pressures to clear the roadway quickly after crashes to minimize traffic backups.

Figure 2: States with >10,000,000 Population, by MMUCC 5th Edition Mapping Score



Map created at [www.fla-shop.com](http://www.fla-shop.com)

Source: MMUCC 5th Edition Mapping Spreadsheet and U.S. Census Bureau

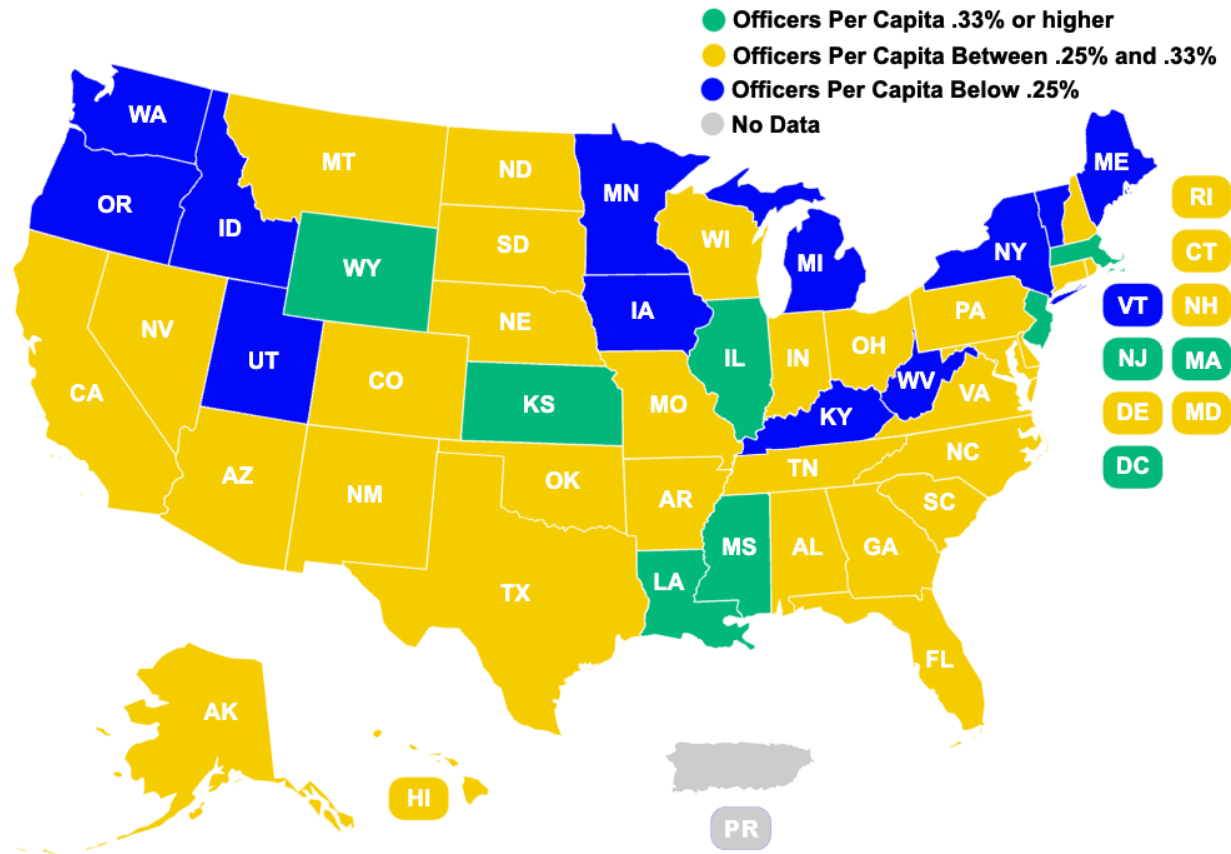




categories are highly divergent. While some states rank relatively higher, many other states rank very low. This suggests that many states are either not investing in these categories or not making progress. Such states could benefit from additional training or education on why these categories are important and how states can improve their MMUCC alignment. These states may wish to consider the most achievable “low hanging fruit” to pursue to improve MMUCC consistency for these crash types. This finding also reinforces the theme that most states continue to have potential areas of improvement.

The ratios of employed law enforcement officers per capita (Figure 4) did not seem to correlate with overall MMUCC 5th Edition averages. The top ten MMUCC 5th Edition-aligned states (Figure 1) had officer per capita ratios ranging from 24% to 35%. The state with the highest officer per capita ratio (had a middle-of-the-road MMUCC 5th Edition alignment average. Meanwhile, the ten states with the lowest average MMUCC 5th Edition alignment scores, had a wide range of officer per capita ratios, ranging from 18% to 45%. It is worth noting this only captured overall law enforcement employment. The number and ratio of officers specifically working in traffic safety could vary depending on the state.

Figure 4: Law Enforcement Officers Per Capita by State



Map created at [www.fla-shop.com](http://www.fla-shop.com)

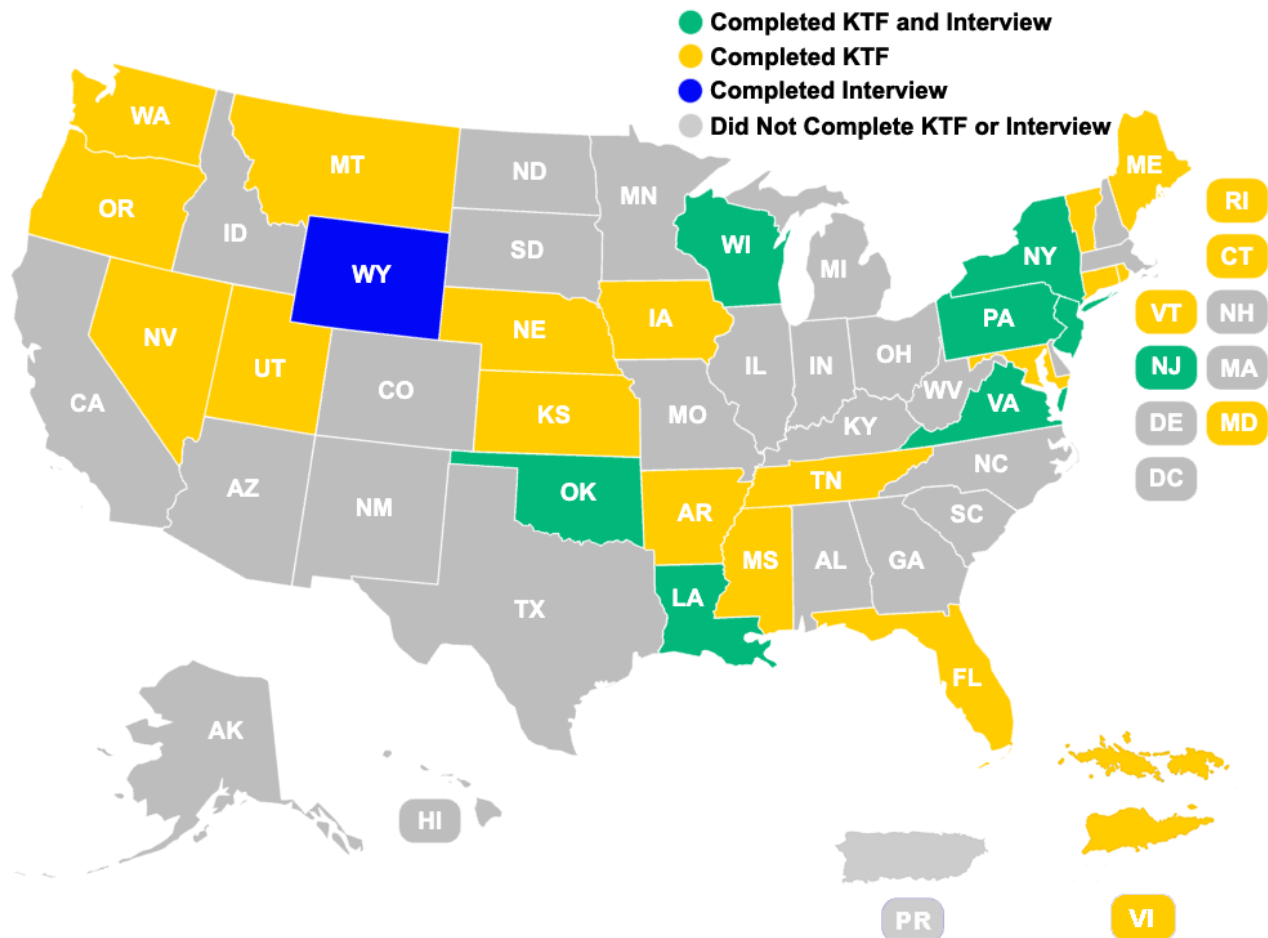
Source: MMUCC 5th Edition Mapping Spreadsheet, U.S. Census Bureau and Bureau of Economic Analysis/U.S. Department of Commerce

SHSOs should examine their MMUCC 5th Edition mapping ranking across all categories relative to other states to identify areas for improvement. States can then probe why specific mapping elements are not met, beyond criticisms that MMUCC alignment is “too difficult” or “too time-consuming.” States can use the answers to determine which strategies to employ for collecting that data, focusing on iterative and attainable improvements.

## Chapter 4: Knowledge Transfer Form and Interviews Findings

GHSA used the information gleaned from the MMUCC 5th Edition mapping scores to determine what information they needed from the states to better understand their traffic records management process. All states were invited to share information by completing a KTF. Twenty-five states responded. In-depth interviews were then conducted with eight states to further clarify those states' experiences. Figure 5 illustrates which states provided information via the KTF and which states participated in interviews.

Figure 5: States that Completed KTFs and/or Interviews



Map created at [www.fla-shop.com](http://www.fla-shop.com)

The chapter first provides higher-level findings from the KTF and then identifies the state-specific issues and strategies.

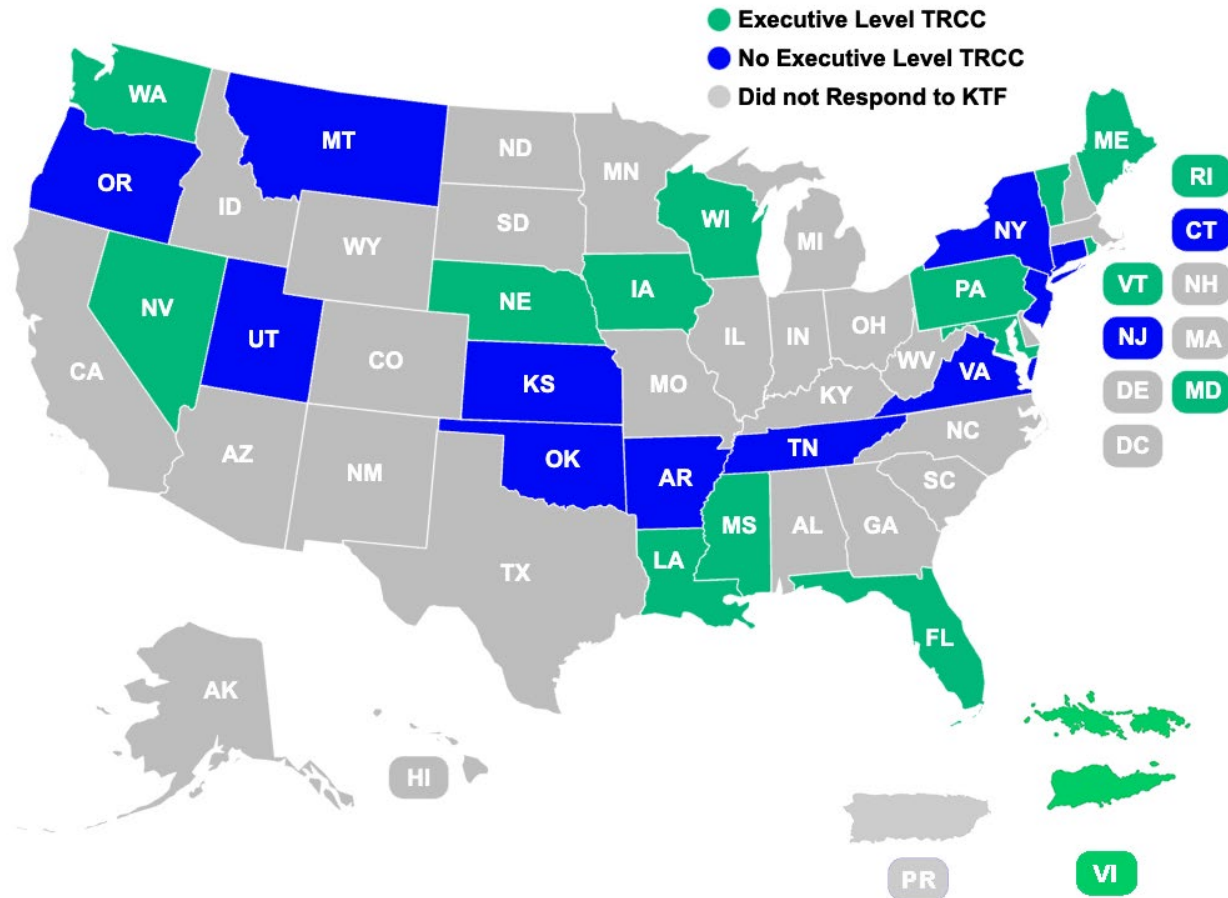
## *Knowledge Transfer Form*

This discussion and accompanying maps are limited to the 25 states that responded to the KTF.

**Executive Level TRCC:** A Traffic Records Coordinating Committee (TRCC) is an interdisciplinary, state-level group of traffic records stakeholders who work together to improve the collection, management and analysis of traffic safety data. Every state is required to have a TRCC as a condition of receiving NHTSA Section 405(c) grants. This group often provides recommendations regarding how to allocate resources for traffic records projects. An executive level TRCC is a subcommittee that steers the larger TRCC's work. The executive TRCC is typically composed of representatives from the key custodial agencies responsible for the state traffic records databases. Its members have the authority to establish policy, direct resources and make high-level administrative decisions.

States with stronger MMUCC 5th Edition mapping alignment scores tended to have executive level TRCCs, although they are not necessarily active. States with poorer MMUCC 5th Edition alignment tended not to have an executive level TRCC. But there are also states without an executive level TRCC that still had strong MMUCC 5th Edition mapping scores. So, while not critical, having an executive level TRCC does seem to provide a platform from which decisions to make improvements can be made, as well as a forum for better interagency collaboration. As discussed in Chapter 5 (see Check 1), when a state official with clout serves as a champion, it is easier for states to move closer to MMUCC alignment.

Figure 6: Executive vs. Non-Executive Level TRCCs by State

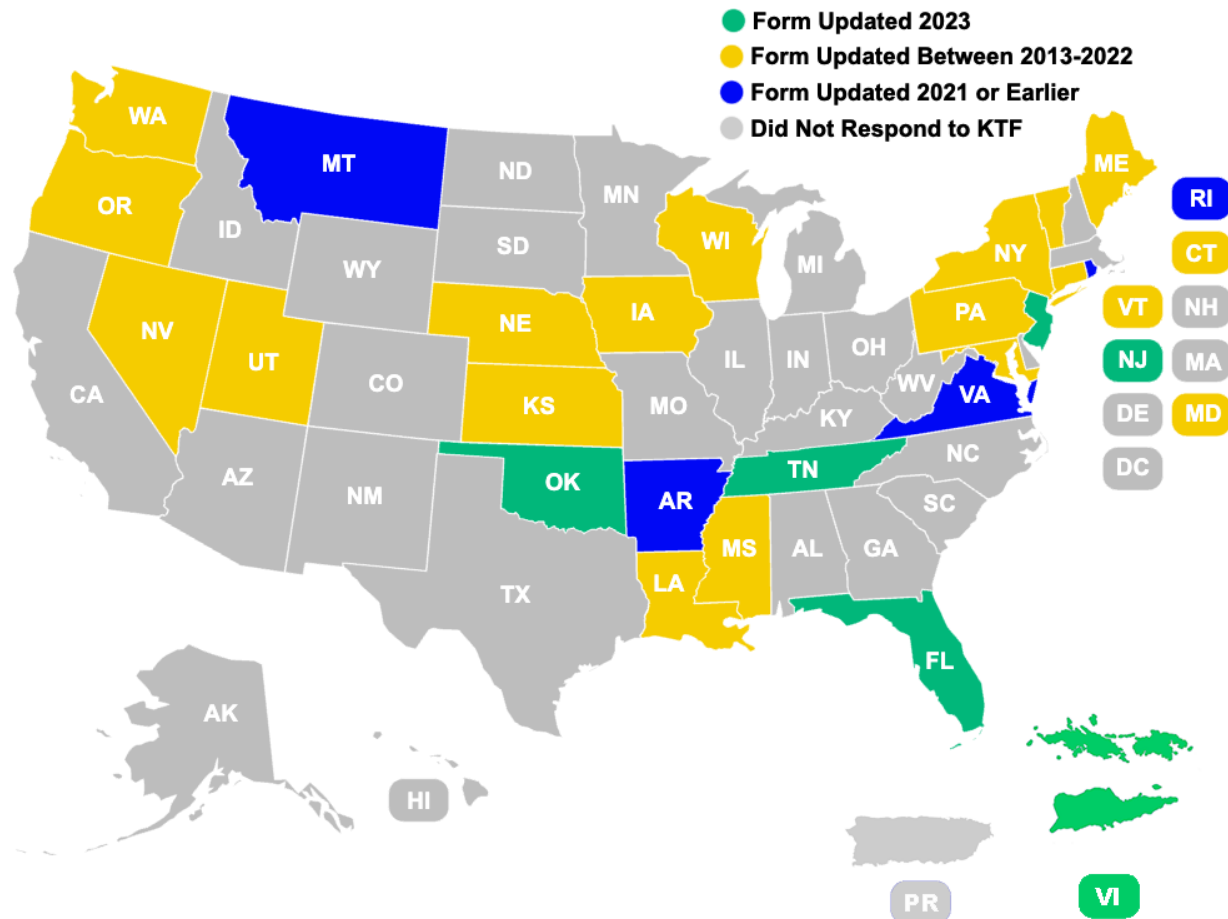


Map created at [www.fla-shop.com](http://www.fla-shop.com)

Source: State Responses to Knowledge Transfer Form

**Crash Report Form Updates:** No correlation was found between the level of MMUCC 5th Edition mapping alignment and how long ago a state's crash report form was last updated (Figure 7). Four states had not updated their crash report forms in more than a decade (2012 or earlier), but their average MMUCC alignment rankings varied significantly, with two among the top 10 and two among the lowest ranked. Conversely, four states reported updating their crash report forms in 2023, but their overall score rankings ranged from 8 to 37.

Figure 7: Year of Most Recent Crash Report Form Update by State



Map created at [www.fla-shop.com](http://www.fla-shop.com)

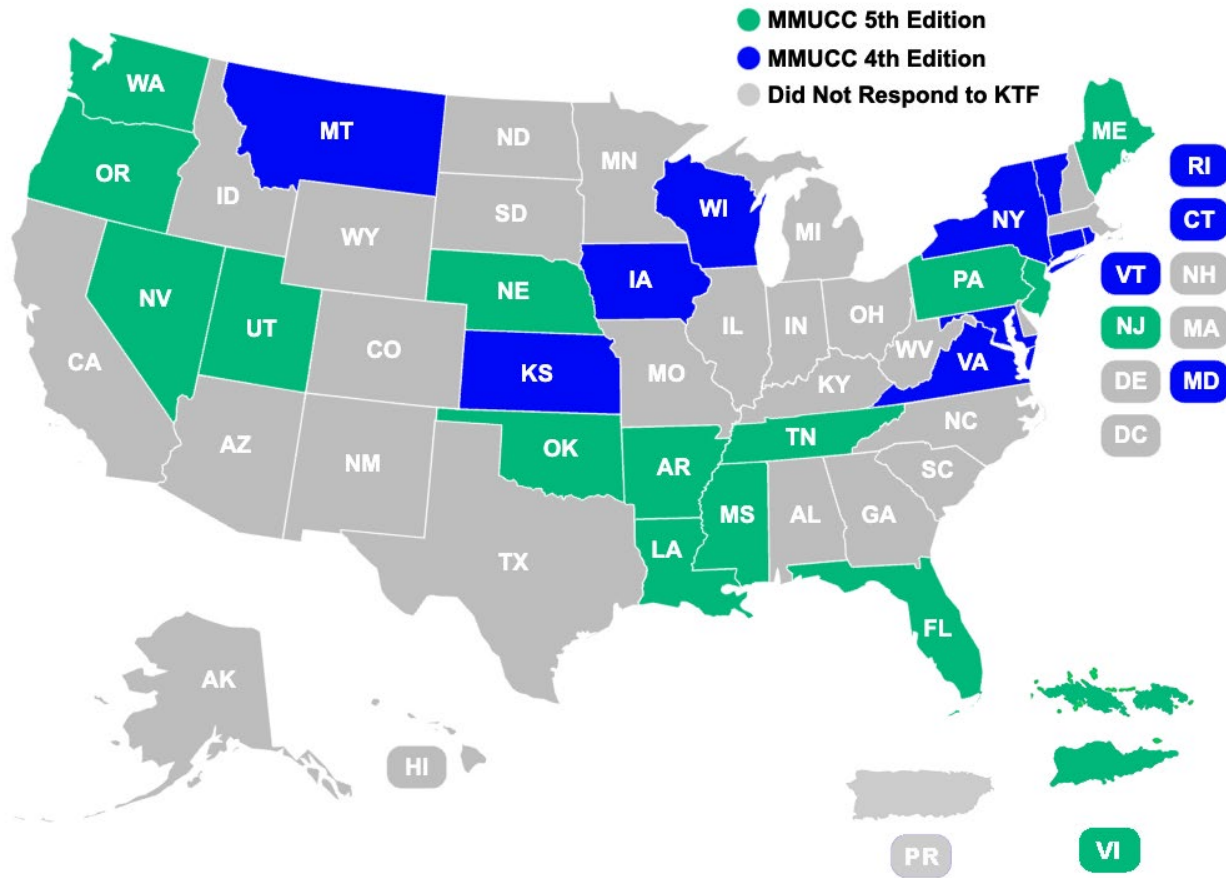
Source: State Responses to Knowledge Transfer Form

There was some correlation between MMUCC 5th Edition mapping levels and which edition of the MMUCC states were using to update their crash report forms (Figure 8). States with higher MMUCC 5th Edition mapping scores tended to have used that edition (released in 2017) when they carried out their most recent crash form update. States with lower scores are more likely to have used the 4<sup>th</sup> Edition of MMUCC released in 2012. (States have not yet had time to align with the most recent 6<sup>th</sup> Edition of the MMUCC released in January 2024.)

Most of the states described their crash report form update process as highly engaging and involved, incorporating many different stakeholders. Notably, one of the best-performing states has been updating its form on a recurring biannual basis since 2016. (See Chapter 5, Check 3.)

Revisiting and updating a state's PCR regularly are obvious best practice but to achieve better MMUCC alignment, states need to ensure they are conforming their PCR to the latest edition of the national standard.

Figure 8: MMUCC Edition Used for Most Recent Crash Report Form Update by State



Map created at [www.fla-shop.com](http://www.fla-shop.com)

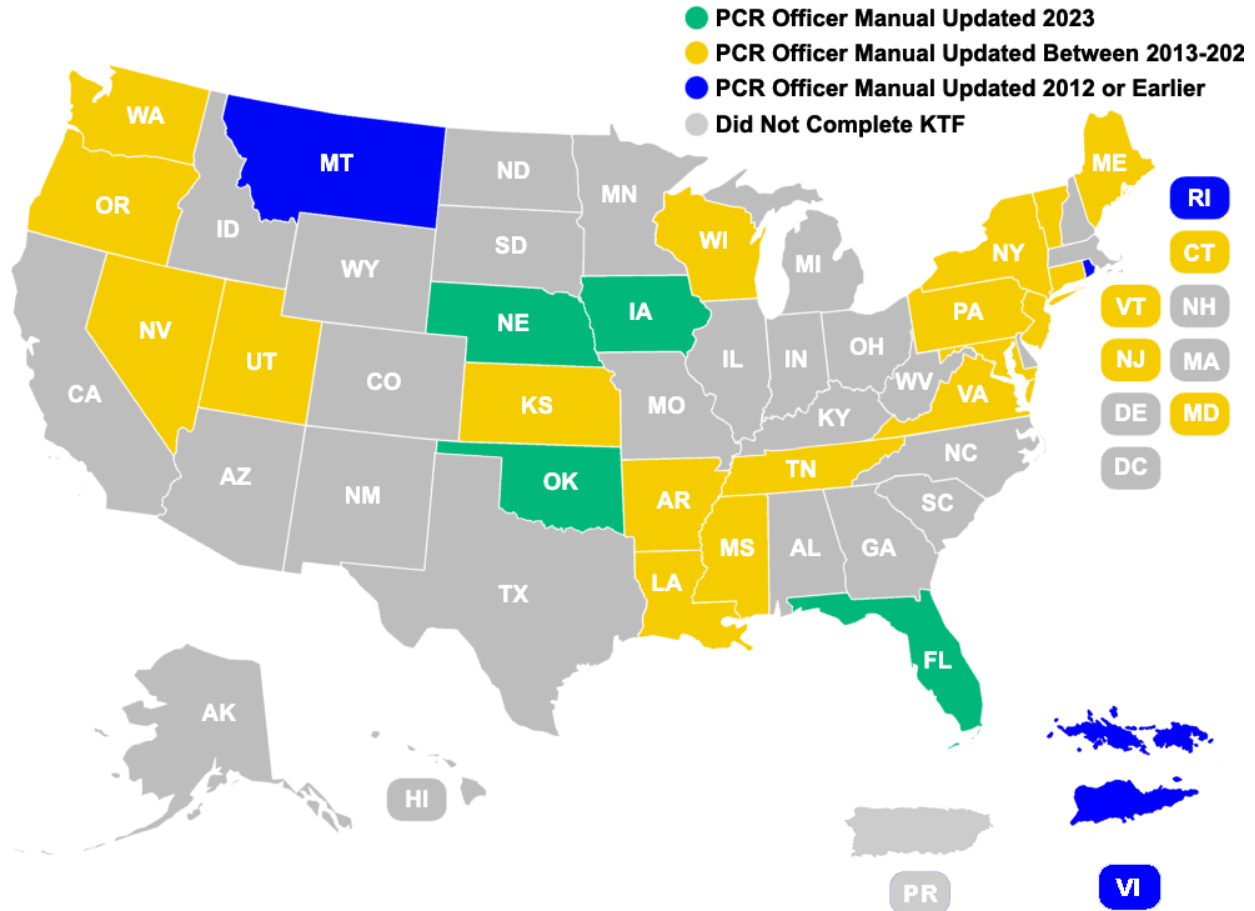
Source: State Responses to Knowledge Transfer Form

**Police Crash Report (PCR) Officer Manual Update:** States typically have a PCR officer manual that is periodically updated. These manuals provide instructions for law enforcement officers who complete crash report forms. States responding to the KTF indicated that their PCR officer manuals had most recently been updated between 2012 (or earlier) and 2023 (Figure 9). Except for one state, states with MMUCC 5th Edition alignment scores in the top 10 had last updated their PCR officer manuals



before 2018, while most of the remaining states had updated theirs within the last three years. This indicates that having an updated PCR officer manual doesn't necessarily impact a state's ability to achieve high MMUCC mapping levels. In other words, a PCR manual need not be 100% current, so long as it leads to MMUCC-consistent reporting.

Figure 9: Year of Most Recent PCR Office Manual Update by State



Map created at [www.fla-shop.com](http://www.fla-shop.com)

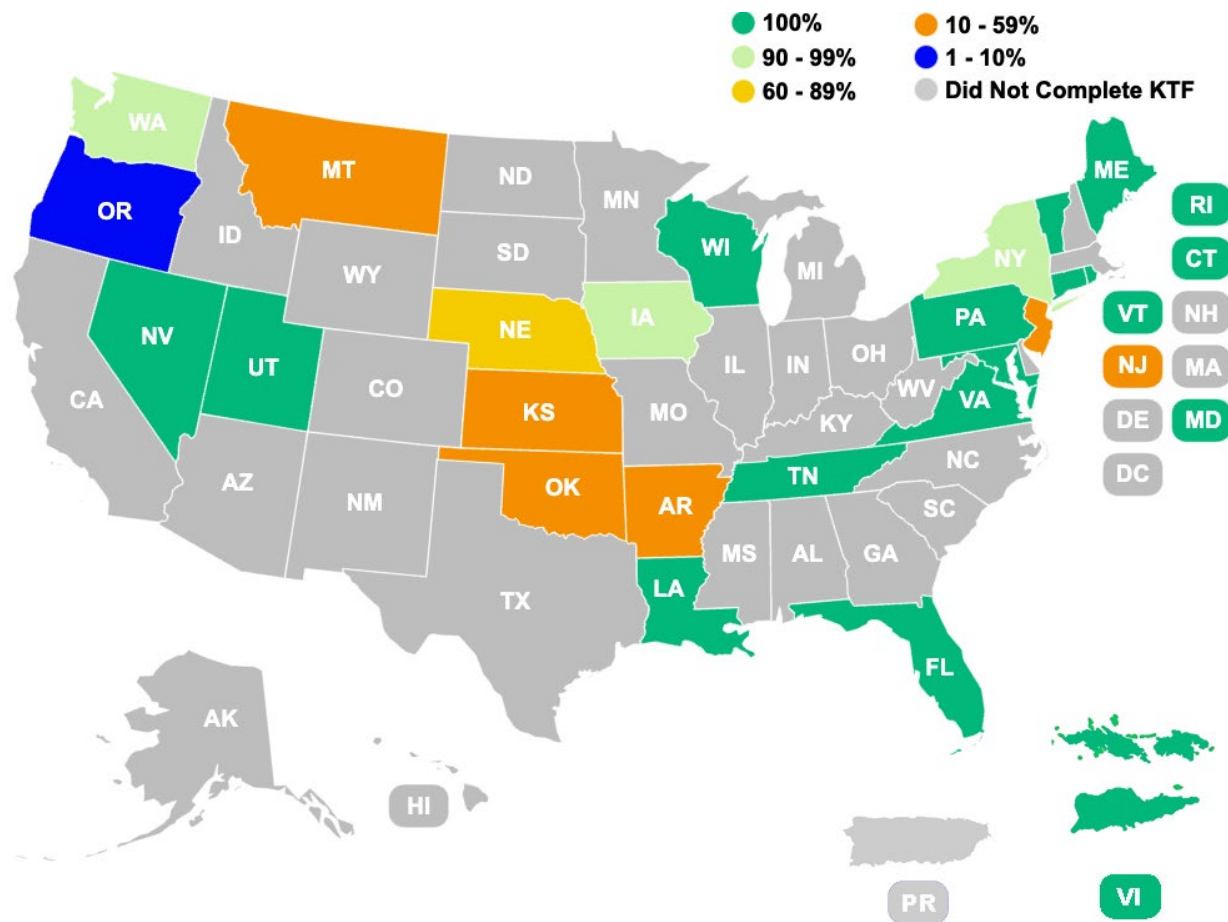
Source: State Responses to Knowledge Transfer Form

**Electronic Crash Report Submission:** More than half the states (13 out of 25) reported that 100% of their crash data are submitted electronically. The other states ranged across the board. One state did not provide a ratio but said “most” are reported electronically. (See Figure 10 for more information.) The majority of

responding states indicated that some type of quality assurance/quality control (QA/QC) is in place.

There is a correlation between MMUCC 5th Edition mapping scores and proportion of electronic crash report submission. For example, three of the top 10 states in MMUCC 5th Edition mapping scores each reported 100% electronic crash report submission. On the other hand, one of the top ten states reported only 1% of crash reports are submitted electronically and is rated last in average MMUCC 5th Edition mapping scores.

Figure 10: Percent of Crash Reports Submitted Electronically by State



Map created at [www.fla-shop.com](http://www.fla-shop.com)

Source: State Responses to Knowledge Transfer Form

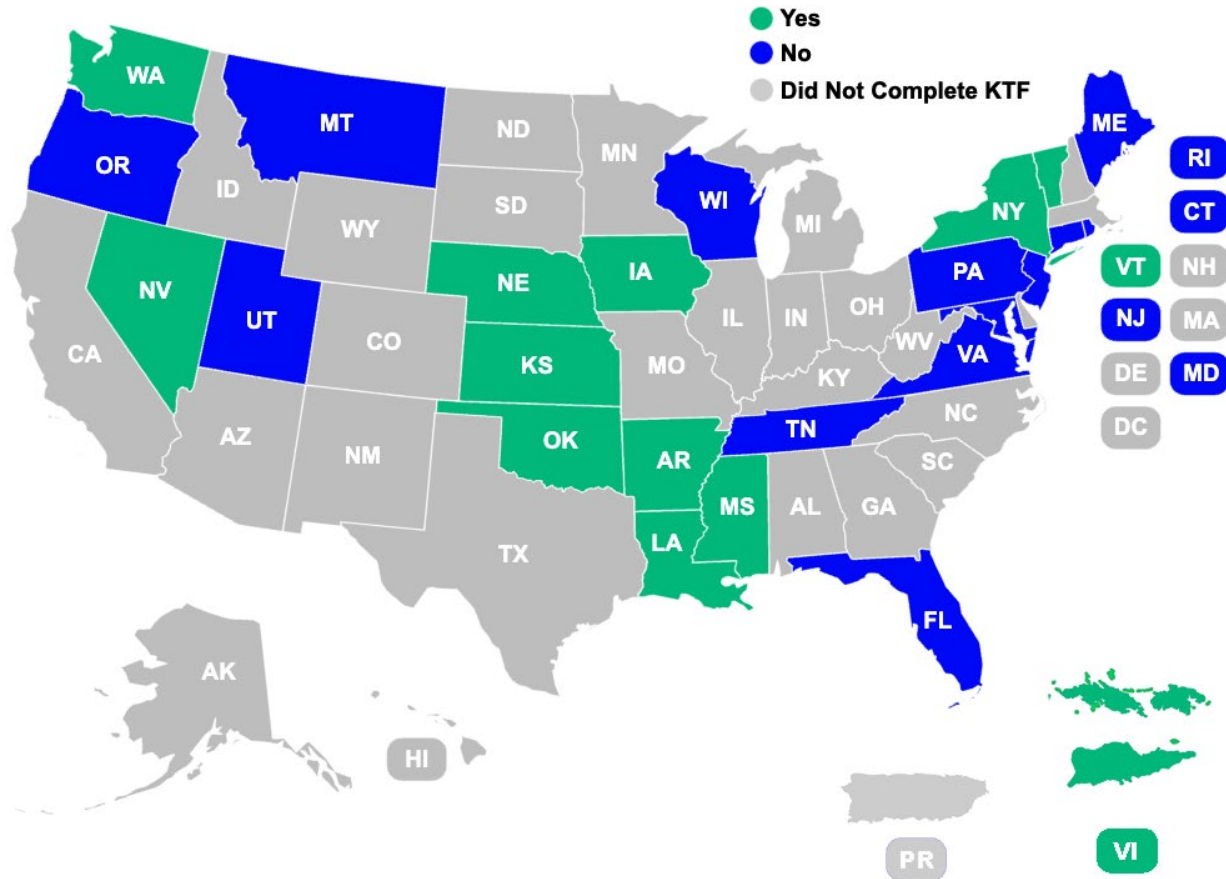
**Rural Crash Report Concerns:** About half of the responding states reported concerns with crash reporting by LEAs serving rural areas (Figure 11).

States with concerns cited lack of modern information technology capability by local agencies, lack of equipment in the hands of officers, and unreliable Internet connectivity, particularly in the field. A few states noted that when officers in smaller agencies only respond to a few crashes per year, they may not recall the protocols for submitting a crash report as well as officers who respond to many crashes. Smaller, lower-budget LEAs may also not be able to afford or justify significant investments to improve their technology and Internet access.

When it comes to transportation safety, rural areas are often underserved and disadvantaged. The traffic safety community is having an ongoing conversation about how to fulfill the safety needs of rural communities – one of many ways to achieve more equitable outcomes in transportation.

Concerns about crash reporting service by rural LEAs are more prevalent among states with lower MMUCC 5th Edition alignment scores. This is not surprising because resources spent on quality control – whether sending them back to the LEAs or having analysts do the work – detracts from a state's ability to invest in furthering adoption of the MMUCC standards.

Figure 11: Concern about Crash Reporting from Law Enforcement Agencies Serving Rural Areas by State

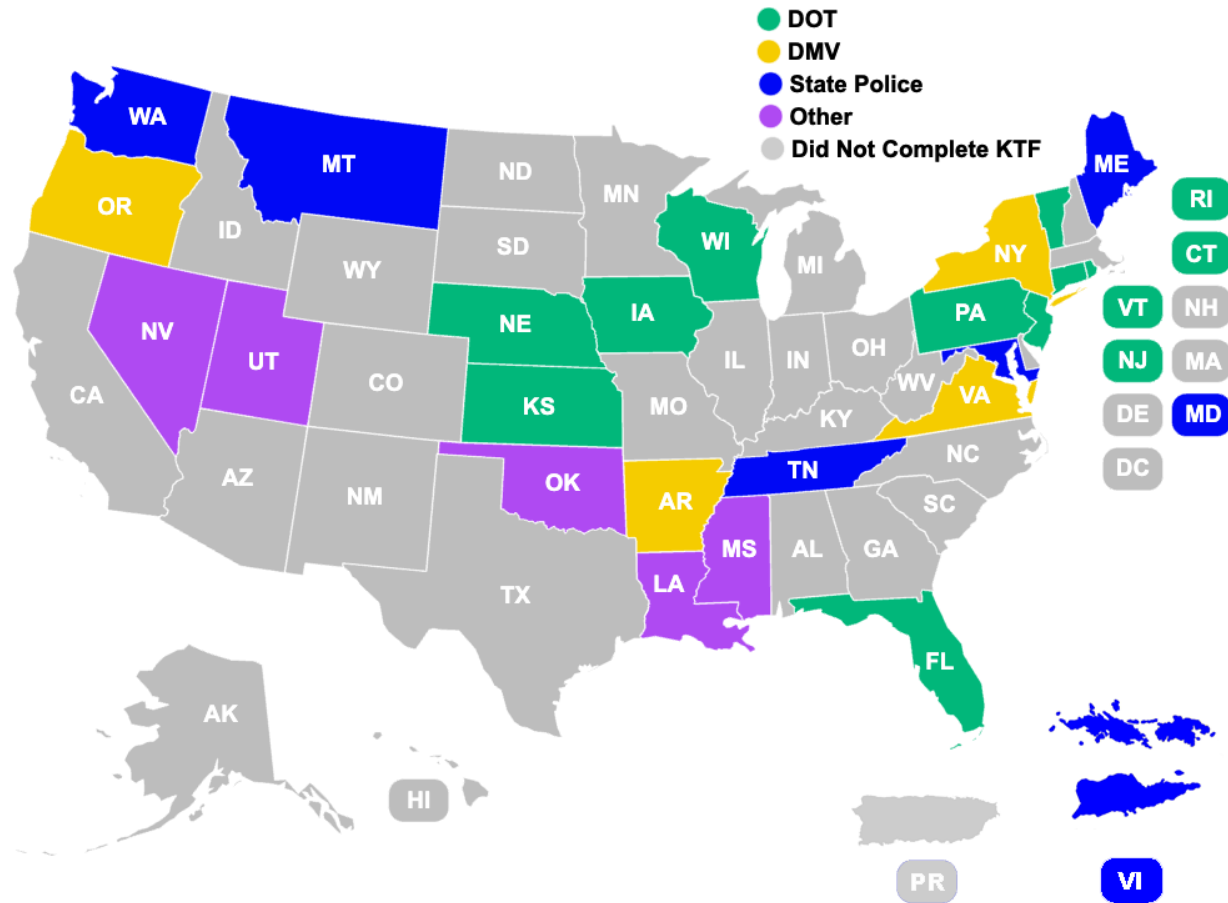


Map created at [www.fla-shop.com](http://www.fla-shop.com)

Source: State Responses to Knowledge Transfer Form

**Where LEAs Submit Crash Reports:** In most of the reporting states, crash records are submitted to the state DOT or Department of Motor Vehicles (DMVs), with some submitted to state police or other agencies (Figure 12).

Figure 12: Agency Where Crash Reports Are Submitted by State



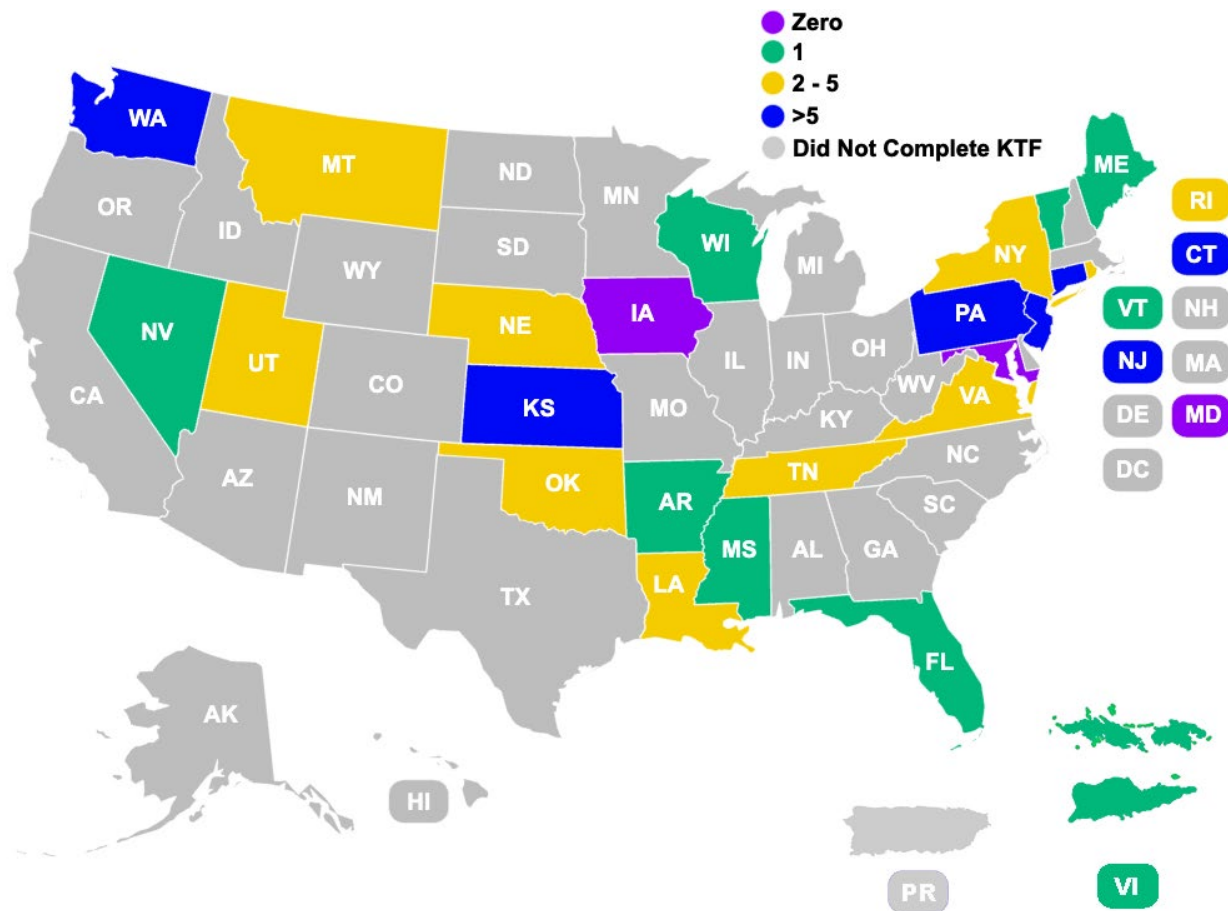
Map created at [www.fla-shop.com](http://www.fla-shop.com)

Source: State Responses to Knowledge Transfer Form

States with higher MMUCC 5th Edition alignment scores submit their crash reports to the state DOT, while states with the lowest scores of the responding states submit them to the DMV. Researchers are unable to explain why this is, but there may be some underlying component linking the DOT and DMV cultures with higher or lower scoring MMUCC 5th Edition alignment. One possible, untested explanation may be that DOTs tend to have more extensive projects focused specifically on safety improvements, so they are more willing (or able) to provide the resources necessary to move toward meeting the MMUCC guidelines. DMVs, meanwhile, have their own data management practices related to driver and vehicle records, and the prospect of making changes to improve MMUCC alignment may impose more administrative concerns and/or burdens.

**Record Management System (RMS) Vendors:** An RMS is a system that manages traffic records data, often created or provided by a commercial vendor. Different state data systems, or even a single data system managed by the same agency, may involve multiple RMS vendors and products. States were asked to indicate the number of RMS vendors LEAs use to submit crash reports. Researchers identified states with up to eleven such vendors (Figure 13).

Figure 13: Number of RMS Vendors by State



Map created at [www.fla-shop.com](http://www.fla-shop.com)

Source: State Responses to Knowledge Transfer Form

In general, states with higher MMUCC 5th Edition alignment scores tended to have fewer RMS vendors, with two states indicating they have just one each. Single systems provide higher levels of efficiency and are likely more flexible. However, two states reported having eight and seven RMS vendors, respectively. These are

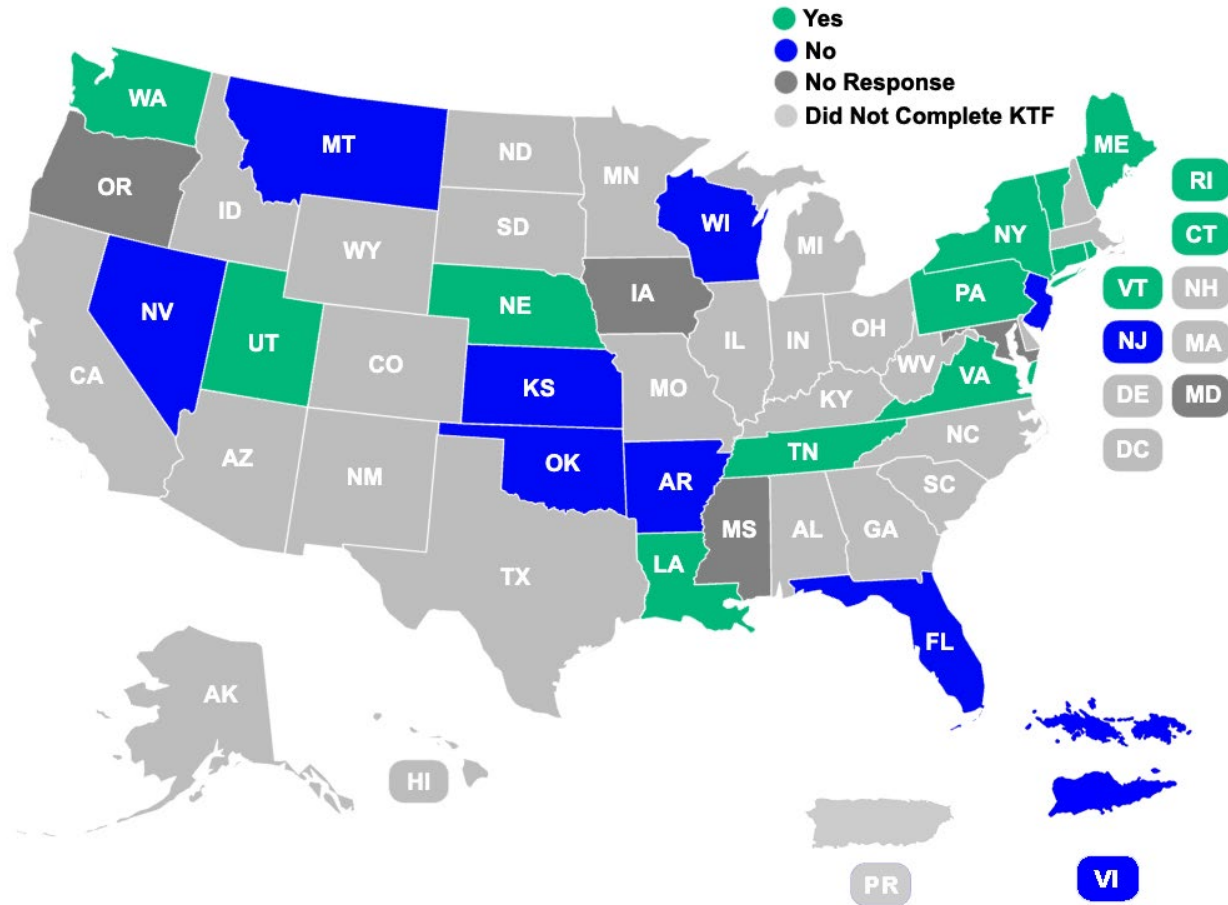
among the most of any state that responded, and both have relatively high MMUCC 5th Edition alignment scores. So, while fewer RMS vendors largely appears to improve efficiency, states can have many RMS vendors and still achieve a good level of MMUCC adoption. For example, one state has a well-organized traffic records system; updates its crash report form every other year and maps out its processes. These practices outweigh any downsides to having many RMS vendors.

**RMS Vendor Data Vetting:** States indicated via the KTF whether RMS vendor data are vetted to ensure they meet minimum standards before LEAs can use them to submit crash reports. Twelve states reported yes; eight said no; and four did not respond (Figure 14). There is no clear correlation between whether states vet RMS vendor data and levels of MMUCC 5th Edition alignment. This shows that if vetting is viewed as a barrier to more complete MMUCC mapping (an assumption that vendors may be less willing to include additional fields and data if it needs to be formatted and coded a specific way), it should not be, and states can generally pursue vetting measures without consequence to MMUCC mapping. The importance of accurate data cannot be understated in the context of the purpose of MMUCC, so requiring that data can be easily migrated to state databases as a threshold for using vendors can and should be implemented.

Most vetting practices that were deployed involved requiring crash reports to meet specific XML schema requirements, which are technical methods to validate the data entered.

The XML schema requirements define the parameters by which data can be submitted by a vendor to the state crash reporting system. This can take several forms, but some simple requirements include organizing data in a specific order, using numbers versus letters, and bounding data to a specific range (i.e. 0-100 for a specific field). More detailed XML schema requirements might include validating across multiple inputs simultaneously to logically interpret whether information is reasonable and determine if data is reasonably accurate or should require additional review. Automation of these requirements means records can get kicked back to the reporting officer or law enforcement agency before being submitted into a state's database, thereby lowering the burden on analysts to manually check data quality.

Figure 14: Vendor Data Vetting or Use of Minimum Vendor Requirements by State



Map created at [www.fla-shop.com](http://www.fla-shop.com)

Source: State Responses to Knowledge Transfer Form

**Data Integration:** Data integration refers to linkages between the six main traffic records systems (crash, vehicle, driver, roadway, citation and adjudication, and injury surveillance), as defined by NHTSA. According to NHTSA, “Integrated data systems allow users to conduct analyses not possible using any single traffic records system and improve efficiency by eliminating redundancies caused from collecting the information separately for each system” (NHTSA, 2023). Integration can also facilitate the auto-population of PCR fields, making form completion more efficient.

Levels of integration among the six systems, as reported by KTF respondents, range from crash only to all. See Table 2.



Table 2: Data Systems Integrated by KTF States

State	Crash	Vehicle	Driver	Roadway	Citation/ Adjudication	Injury Surveillance	Total # Integrated
Arkansas	X	X	X	X			4
Connecticut	X			X	X		3
Florida	X	X	X				3
Iowa	X	X	X	X			4
Kansas	X	X	X	X		X	5
Louisiana	X	X	X	X			4
Maine	X			X			2
Maryland	X						1
Mississippi	X				X		2
Montana	X	X	X	X			4
Nebraska	X						1
Nevada	X			X		X	3
New Jersey	X	X	X	X			4
New York	X	X	X	X		X	5
Oklahoma	X	X	X				3
Oregon		X	X				2
Pennsylvania	X	X	X	X			4
Rhode Island	X	X	X	X	X	X	6
Tennessee	X	X	X	X			4
Utah	X			X	X		3
Vermont		X	X	X			3
Virginia	X	X	X	X			4
Washington	X	X	X	X	X	X	6
Wisconsin	X					X	2

Source: State Responses to Knowledge Transfer Form

Interestingly, there are not many instances of highly integrated data among states with higher-than-average MMUCC 5th Edition alignment scores. However, a few

less-aligned states did report very high levels of data integration. Crash, vehicle, driver and roadway data systems are most likely to be integrated with one another.

Some states provided interesting explanations regarding how their data integration works. For example, in one state, the crash system pushes data into the roadway system nightly, and the roadway data assigned to a crash are auto populated back into the crash system. In another, the roadway system provides the crash system a state map, which officers use to locate a crash on the PCR. Once a crash location is selected, roadway data are populated into the crash report system. One state has more than 80 million records integrated into a Safety and Health Data Warehouse with the assistance of the Children's Hospital of Philadelphia (CHOP). This database integrates crash with safety and health data to enable more holistic analysis.

Some states mentioned challenges to data integration. For example, one state is pursuing the integration of citation and adjudication system data. However, because judges are elected in that state, there is political resistance to sharing this information. Other states agreed that obtaining data sharing agreements with other agencies is difficult. Injury surveillance was often mentioned as the most difficult system with which to integrate due to legal concerns, including compliance with patient privacy protections under the federal Health Insurance Portability and Accountability Act (HIPAA). Chapter 5 (Check 5) offers recommendations to improve data integration. Notably, the state with the Safety and Health Data Warehouse mentioned above appears to be an exception to the norm and has demonstrated success in data integration, including overcoming HIPPA privacy concerns through its data sharing agreement with CHOP.

**Challenges Limiting MMUCC Alignment:** States were asked whether limitations to MMUCC alignment were based on environmental issues over which they had little control (i.e., institutional policies, political issues, competing interests) or actionable issues. For the latter, these are issues states can identify and resolve. However, they have not been able to address the issue yet or have limited resources to do so.

Half of the responding states cited environmental factors as the key limitations to MMUCC alignment, while the other half identified actionable issues. During one-on-one interviews, states often cited both environmental and actionable issues as challenges limiting their adoption of MMUCC. The checklist in Chapter 5 makes recommendations on how to overcome both types of limitations.

States that selected "actionable" were asked to further identify which specific factors were limiting their MMUCC alignment efforts: lack of time, funding, will or other

(with an option to specify their own factor). Lack of time ranked highest by 15 of the 25 responding states. Eleven states said limited funding is a challenge, and eight states pointed to will (or lack thereof) as a component.

States noted that time demands can hinder MMUCC alignment. Traffic records leaders need to find time to devote to MMUCC improvement. Officers have limited time to complete lengthy and detailed crash report forms. Data custodians need to devote time to train data analysts and QA/QC officers to do their jobs correctly. Greater employee turnover requires additional training time.

States explained additional limiting factors such as legal complications, lack of qualified personnel and the fact that local agencies effectively face no consequences for not complying with reporting requirements. One state pointed out that “Everyone is doing more with less. It's not always about funding. Sometimes funding is abundant, but the mechanisms for spending are onerous. Or one grant could not cover the cost, but mixing and matching multiple grants and state money is not feasible.”

## State Interviews

Researchers conducted in-depth interviews with eight states representing high, middle and low MMUCC 5th Edition adoption levels. The states interviewed were Louisiana, New Jersey, New York, Oklahoma, Pennsylvania, Virginia, Wisconsin and Wyoming.

During the interviews, states provided more details on their TRCC composition and leadership, crash report forms, data integration and rural data. This section of the report summarizes the state feedback and notes some common themes. During the process of interviewing states, GHSA identified several instances of inconsistent reporting by states on the integration of different data systems. This may reflect that data integration is sometimes difficult to characterize, often incomplete, and the custodians of one data system may not be familiar with the practices of another.

# Louisiana

In Louisiana, the TRCC oversees the funding and budget process for traffic records projects. The TRCC has two standing subcommittees – data quality and data definitions – that meet periodically to resolve specific issues.

Louisiana moved to electronic crash reporting in 2005 but recently updated the PCR to conform more closely with the 5th Edition of MMUCC. This was a large and time-consuming project, but the state now boasts a new crash reporting system and new officer manual.

Louisiana originally used a home-grown system for crash reporting but moved to a system developed by the University of Alabama's Center for Advanced Public Safety (CAPS). Located with the University's computer science department, [CAPS](#) originally developed software for state and local law enforcement in Alabama, including traffic safety functions. CAPS eventually expanded its footprint to include Louisiana and Mississippi. Because the software was originally developed with federal funds, costs were limited to modifications only (the core software was no-cost). Currently, 95% of Louisiana LEAs are using the CAPS system for crash reporting. The remainder still have their own record management system.

A retired State Police officer championed the move to the CAPS system and served as the project manager. Law enforcement, Louisiana DOT and FHWA were all involved in the process, which required some updates to state statutory language that referred to paper-based formatting or other obsolete processes. Police officers tested the data validation process to ensure it would not be too onerous.

In terms of data integration, LEAs use a few smaller platforms to submit to the state database. There is a uniform base map database, with all roadway data, that integrates directly to provide officers with roadway information. Because traffic reports do not include EMS runtime data, the state obtains data dumps from EMS. Data analysts then integrate the data depending on the instance. The same process is used for alcohol- and drug-related crashes, as well. The state is working through some data governance issues to update data dictionaries and be more proactive on data integration.

Regarding rural data issues, Louisiana said its rural agencies produce so few reports that they are not concerned about data quality. If there is a large crash, the State Police would be called in to manage it and ultimately complete the crash report.

NHTSA offers a GO Team program to help states improve their traffic records data collection, management and analysis capabilities. Louisiana utilized NHTSA GO Teams to help with its data dictionary and to assess the state's completed PCR compliance with the MMUCC 5th Edition.

Louisiana is planning to implement the MMUCC 6th Edition.

## New Jersey

New Jersey has an active TRCC that meets quarterly. The state has engaged a consulting firm to chair and help manage the committee. There is no executive level TRCC.

The transition to electronic reporting for law enforcement has been a slow process due to converting from a legacy statewide crash database to a cloud-based system. Of the more than 500 law enforcement agencies in the state, 127 submit electronic crash reports with another 69 agencies in the process of reporting electronically.

The current crash reporting form was updated in 2023 based on the MMUCC 5<sup>th</sup> Edition. The New Jersey TRCC has a crash reporting sub-committee that meets quarterly to consider updates to the crash reporting form. The state anticipates the sub-committee will review the MMUCC 6<sup>th</sup> Edition and consider future changes.

In partnership with the Children's Hospital of Philadelphia (CHOP), the New Jersey SHSO has a contract with CHOP to integrate de-identified data into the state's [Safety and Health Outcomes Data Warehouse](#). This warehouse contains data starting from 2004 and includes more than 80 million records. Data are standardized across all sources, linked independently, validated and organized as relational tables. The warehouse geocodes the addresses for all licensed drivers, crash-involved drivers and hospitalized individuals. It contains race/ethnicity data for all licensed and crash-involved drivers, as well as Vehicle Identification Numbers (VIN) and crash injury severity mapped from ICD 9/10 diagnostic codes. Researchers have used this database for numerous informative studies.

## New York

New York's TRCC, which does not have an executive level, meets three times a year. Meeting in person has been much more fruitful than meeting virtually.

Several agencies, including the New York City DOT, Department of Motor Vehicles and Department of Health, along with metropolitan planning organizations and law enforcement agencies, were involved in the most recent crash report form update in 2018. A master spreadsheet based on the MMUCC 5th Edition was developed to compile the agencies' preferences for updates. The state used this spreadsheet to determine what to incorporate into the PCR form.

Crash and roadway systems are integrated. Vehicle, driver, EMS and citation and adjudication systems are partially integrated. Integration with other systems has been challenging due to technical issues within the DMV and systems housed in other agencies. This was a general theme across interviews and written state feedback: the success of system integration largely depends on which agencies are the managers of these systems and their relationship with the TRCC.

New York cited communication as the key to traffic records improvements. States must communicate why traffic records are important beyond simply qualifying for NHTSA grant funds. Data managers must keep all constituents informed on any process changes. New York has experienced challenges with staff turnover and loss of institutional knowledge. To counter this, the state created a high-level guide to help onboard new TRCC members.

New York utilizes LexisNexis for its crash records software system, which provides flexibility in adding queries and making other changes. Usually, a commercially developed software system can be changed more quickly than one developed by a state.

## Oklahoma

Like New York, Oklahoma does not have an executive level TRCC. Instead, the TRCC is housed in the Department of Public Safety, which provides a direct connection to the Commissioner. The head of the SHSO is also the TRCC Coordinator, which lends a level of authority to the TRCC that can help advance change.

The state updated its electronic crash report form to conform more closely with the MMUCC 5<sup>th</sup> Edition standards in 2021. However, LEAs that still submit paper-based forms are using forms based on the 2<sup>nd</sup> Edition of MMUCC. This creates not only data alignment challenges, but also timeliness issues, since paper-based crash reports have a nearly two-year review and entry backlog. Electronic crash reports, on the other hand, include hundreds of validation rules that prevent them from being submitted if incomplete or inaccurate and are available for analysis much sooner.

Oklahoma reported that small LEAs suffer from high staff turnover that requires frequent crash report training which can lead to delays in the timeliness of crash report submissions.

None of Oklahoma's traffic records systems are fully integrated, largely because most systems are still paper based.

Oklahoma cited lack of funding as a key issue stifling both MMUCC alignment and data integration. The state does not provide any funding for these initiatives.

## Pennsylvania

Pennsylvania has a TRCC Executive Committee. However, this committee does not meet; rather, the members are briefed on the activities of the TRCC Technical Committee. The TRCC Coordinator has a great deal of institutional knowledge, which could contribute to the strong level of leadership buy in and support the TRCC currently enjoys.

Pennsylvania updates the state crash reporting form every two years to better fulfill the latest MMUCC data standards. The entire form was rewritten in 2021. The state also prioritized creating a usable schema for law enforcement to make it as easy as possible to add new data standards. During the first year of each two-year cycle, the state develops the new standards. Then in the second year, the various RMS vendors make updates.

The Pennsylvania TRCC noted it only has jurisdiction to integrate crash and citation data. Other agencies manage the other systems and may not share or provide easy access to their data. The TRCC focuses its energy on systems it can influence.

# Virginia

Virginia does not have an executive level TRCC. An attempt was made to create one, but the work was delegated to more junior-level staff, which defeated the purpose of having executive level involvement. In Virginia, the TRCC Chair is also the coordinator and oversees the FARS unit.

The state has 100% electronic crash reporting. However, Virginia's crash report form has not been updated since 2012.

Virginia integrates its crash, vehicle, driver, roadway and conviction data. EMS data are partially linked. A state legislative change is necessary to allow for citation data integration. Virginia does have a data dictionary for all its data systems.

The state indicated there are no issues with rural reporting since all LEAs use the same crash reporting form. In the past, Virginia was more concerned with getting larger LEAs to report electronically, than their rural counterparts.

Virginia cited lack of time as the main barrier to improving MMUCC alignment and data integration, noting the many steps involved in the process, including testing, training and implementation.

# Wisconsin

Wisconsin has an executive level TRCC, but it does not meet. The TRCC has two co-chairs that help to administer and facilitate the committee.

The state last updated its crash report form in 2017, concurrent with a required database platform upgrade. Funding sources included both FHWA's Highway Safety Improvement Program (HSIP) and NHTSA's traffic safety grant programs, which ensure a high-level of engagement from and collaboration among key constituencies. The DMV led the crash form development, while the SHSO led the database system changes. To develop the new crash form, the team walked through the MMUCC 4<sup>th</sup> Edition with a variety of law enforcement agencies and other partners. This resulted in some reporting options being removed to improve data quality while maintaining compliance with the MMUCC. Data are validated on the front end before law enforcement can submit the crash report.

In Wisconsin, the crash and driver systems are integrated. Vehicle, citation and adjudication, and EMS data are partially linked. Some roadway system integration



can be done in the background, and the state is considering more fully integrating roadway data in the future. The crash, vehicle, driver, roadway and citation and adjudication systems are all housed under the Secretary of Transportation, which may streamline the process for data integration.

## Wyoming

Wyoming utilizes an outside contractor to facilitate and administer its TRCC. This has helped keep the TRCC on track to improve MMUCC and data integration across systems. There is no executive level TRCC. The TRCC is largely driven by the SHSO, with very little participation from the courts or the Department of Health.

The SHSO funds one single state crash reporting system for use by all LEAs. This provides an incentive for the vendor to offer support and training when recruiting agencies to use the state-supplied system.

To improve MMUCC alignment, while balancing law enforcement concerns over having to complete lengthy and time-consuming forms, the electronic crash reporting system was designed to be user-friendly and display only pertinent fields. For example, if there is a two-vehicle crash, only fields relevant to a two-vehicle crash would appear for an officer to complete. Likewise, if there is no injury, the officer would not need to complete those fields. There are validation and business rules to address these, which help reduce officer fatigue. The electronic crash form can also require officers to include more information if they select “other” as an attribute in a particular data field.

Wyoming's TRCC contractor regularly reviews the completeness of the critical MMUCC elements in submitted crash reports and sends LEAs quarterly reports on how well they are completing them in comparison to their colleagues. This helps incentivize lower performing LEAs to do better by creating a healthy form of competition.

During the development of the latest crash report form, Wyoming involved a variety of stakeholders and law enforcement officials representing both rural and urban police departments. To help determine which MMUCC elements and attributes would be added to the crash report form, these discussions focused on which elements and attributes were critical for analysis and decision-making purposes, with the goal of improving safety on the state's roadways.

## Chapter 5: Best Practices Checklist

Taken together, the MMUCC 5th Edition mapping rankings, KTF responses and interview findings coalesced around several best practices. States are encouraged to consider adopting the best practices listed below to help improve their alignment with the latest MMUCC guidance:

- 
- ✓ 1. *Identify Strong TRCC Champions*
  - ✓ 2. *Build a Robust TRCC Support Team*
  - ✓ 3. *Regularly Update Crash Report Forms Using the Most Recent MMUCC Standards*
  - ✓ 4. *Focus on the Details and the Data Quality*
  - ✓ 5. *Integrate Data to the Extent Feasible*
  - ✓ 6. *Ensure Quality Rural Data*
  - ✓ 7. *Make Improvements Between Crash Report Form Updates*
  - ✓ 8. *Use NHTSA GO Teams*
  - ✓ 9. *Prioritize Transparency*
- 

The following pages provide further detail. Each best practice explains why it was identified and provides real-world examples based on the research GHSA conducted with the states.

Several of the recommendations listed here not only will support better MMUCC alignment, but also may help mitigate underlying issues such as the lack of a voice in state leadership or doing more with less. While not all may be easy to implement, pursuing these practices may provide unexpected positive returns on the time and money invested.

Many states are currently making changes to the way they collect, process, house and integrate traffic safety data. During this process, it is critical that states consider the most current edition of the MMUCC and how it is designed to provide a comprehensive snapshot of traffic safety in a universal language for all states. As states move closer toward alignment with the latest MMUCC guidelines, a clearer national traffic safety picture will emerge, providing better information that states and all traffic safety professionals can use to identify how to prevent crashes, mitigate injuries and save lives on America's roadways.

## Best Practice 1: Identify Strong TRCC Champions

*Maintain strong leadership.* States should consider appointing the SHSO Director or another executive level manager as Chair of the TRCC. Having a senior level staff person at the helm will provide better visibility and lend clout to the efforts of the TRCC. This has worked well for Oklahoma.

*Have at least one full-time, dedicated staff member.* Improvements to traffic records takes persistence and dedication over a long period of time. A full-time staff member singularly focused on coordinating TRCC priorities and activities is essential. If a SHSO is unable to devote a full-time staff member to the work of the TRCC, it should consider bringing in an outside consultant to assume this role. Of the top six states responding to the KTF form, half had a TRCC Chair that was also the SHSO Director. Of the bottom six states, none had a TRCC Chair that was also the SHSO Director.

State	SHSO Director?	State	SHSO Director?
Arkansas	YES	New Jersey	NO
Connecticut	YES	New York	NO
Florida	NO	Oklahoma	NO
Iowa	NO	Oregon	NO
Kansas	NO	Pennsylvania	NO
Louisiana	NO	Rhode Island	NO
Maine	YES	Tennessee	NO
Maryland	NO	Vermont	NO
Montana	YES	Virginia	NO
Nebraska	YES	Washington	NO
Nevada	NO	Wisconsin	NO

## Best Practice 2: Build a Robust TRCC Support Team

*Keep the TRCC Executive Committee updated.* If a state has an executive level TRCC, it need not meet often, but it should be briefed on the progress and status of TRCC efforts at least annually. Executive Committee members hold positions within their agencies that enable them to establish policy and direct resources, especially if their agency houses a key data system. These members can help break administrative and bureaucratic roadblocks that the TRCC managers and technical advisors may be unable to address. This is why it is critical that every TRCC has at least one member that represents each of the six data systems (crash, driver, vehicle, roadway, citation/adjudication and injury surveillance).

*Establish TRCC guides and onboarding.* Turnover among the TRCC membership is to be expected. Limit turnover concerns and loss of institutional knowledge by creating and disseminating a high-level guide outlining the role of the state TRCC, the expectations for TRCC members and the committee's strategic planning objectives and goals. New York State created an onboarding guide for its TRCC members.

*Conduct in-person meetings.* As New York also noted during its interview, meeting in person, at least some of the time, is essential for building accountability to the mission and camaraderie among members.

*Consider ad hoc subcommittees to address specific issues.* Louisiana has two subcommittees on data quality and data definitions. States could set up similar subcommittees as needed.

## **Best Practice 3: Regularly Update Crash Report Forms Using the Most Recent MMUCC Standards**

*Formalize the frequency of updating crash reporting form.* States can set regular intervals – every two to four years, for example – for reviewing and revising their crash report forms. This helps with not only keeping up with changing MMUCC standards, but also with conducting software updates to improve data collection. Pennsylvania has established a biennial update process.

*Communicate frequently and clearly.* Key players must understand that improving crash records and working to meet MMUCC standards is a continual, iterative process. Explain why moving toward MMUCC alignment is important, beyond just helping the state qualify for federal funding. Keep all stakeholders in the loop on the overall process – both successes and roadblocks – so all involved understand their role in improving the traffic data systems.

*Find an experienced champion to lead the crash report update efforts.* Someone with intimate knowledge of the process will have better success leading the project. Louisiana tapped a retired law enforcement officer to serve as the project manager for its most recent update.

*Make crash report forms user-friendly.* Be respectful of law enforcement officers' time and make crash report forms as user-friendly as possible. Build in business logic that will only display relevant fields to the officer completing the form. For example, if an officer indicates a crash was “single vehicle, property damage only,” then no fields related to injuries would appear. As Wyoming articulated during its interview, only displaying relevant fields can help mitigate officer fatigue and foster buy-in from LEAs. The 6<sup>th</sup> Edition of the MMUCC provides a framework for how to do this, along with numerous examples.

Available resources may not be sufficient to update a crash report to full MMUCC compliance at once. Improving a state's PCR is an iterative process. States should work with law enforcement and their TRCC to prioritize which elements and attributes are critical for analysis and decision-making purposes with the ultimate goal of making roadways safer.

*Consider your RMS Vendors.* When making major updates, consider whether the RMS systems still meet state needs. Ask if they could be improved or if another product would be more appropriate. Many services are available to states. Some states have built their own data systems while others have purchased commercial products. Both internally developed and “off-the-shelf” products have pros and cons. States should ask their SHSO peers about their experiences collaborating with different vendors.

## Best Practice 4: Focus on the Details and the Data Quality

*Maintain detailed documentation.* Having detailed manuals, policies, guides and related materials facilitates regular crash report form updates.

*Establish front-end data edit checks.* Ensure that standards are in place for QA/QC edit checks on the front end when officers are filling out crash reports, particularly for critical MMUCC data elements. While state crash report forms may contain MMUCC elements and attributes, unless QA/QC processes are in place, the data quality may suffer. As a result, states may not be getting the information they need to make informed decisions about future traffic safety countermeasures. The MMUCC 6<sup>th</sup> Edition includes many implementation suggestions, edit checks and validation rules to help states improve their data quality.

*Transition to 100% electronic reporting.* States that receive nearly all their crash reports electronically have better MMUCC 5th Edition alignment and integration across various traffic record systems than those who are still largely paper-based. For example, the top MMUCC compliant states have a high percentage of electronic reporting (at or near 100%), while states with lower compliance are more likely to have a lower rate of electronic reporting. The evidence is clear: electronic crash reporting improves the timeliness, accuracy, completeness, uniformity, integration and accessibility of crash record systems over paper reporting.

*Ensure MMUCC evaluations are carried out fully.* When NHTSA evaluates MMUCC compliance, which is provided at no-cost, states should maintain open communication and articulate clear expectations on what evidence or documentation is needed. States should ask to review draft reports. If an assessor has missed key elements, a state might receive a lower score.

## **Best Practice 5: Integrate the Data to the Extent Feasible**

*Integrate local systems first.* States that have successfully integrated various systems have traditionally started with systems managed by one state agency. For example, if the crash, driver and vehicle databases are all housed within one state agency, work with agency leaders to integrate those systems first, as there are generally fewer technological and administrative hurdles to overcome. Overall, data integration can often be an iterative, long-term process.

*Establish data-sharing agreements.* When integrating data across state agencies, privacy issues or other jurisdictional challenges can arise. Some of these barriers can be addressed through formal data-sharing agreements that can be signed by the respective agency leadership. New Jersey is a leader in this area.

*Consider Public/Private Partnerships.* Public/Private Partnerships (or P3s) can be used for data integration and MMUCC improvements using Section 405(c) grant funding. Efficient use of funds provides an opportunity to go above and beyond rather than just meeting MMUCC recommendations. (After all, MMUCC does stand for Model *Minimum* Uniform Crash Criteria.) P3s could be a good potential option for partnerships with hospitals or other entities that control injury data. Again, New Jersey is leading the way in the use of a P3 to advance data integration.

See the MMUCC 6<sup>th</sup> Edition, Chapter 10 for several best practice recommendations for data linkage.



## Best Practice 6: Ensure Quality Rural Data

*Involve rural law enforcement in crash form development.* Be sure diverse law enforcement agencies (urban and rural, small and large) are included in the development of the crash reporting form. This will help identify and address potential issues and challenges prior to implementation. Wyoming involved many rural agencies as it went through its most recent crash report form update.

*Invest in training.* It's critical to get training resources to rural areas to ensure officers understand the importance of reporting comprehensive and quality data. Very small rural agencies that may only respond to a single crash in a year could consider calling in the county sheriff, who may have more experience with completing crash reports. They could also use county equipment to complete the crash report. Wisconsin uses this approach.

*Create a competitive environment.* Take a cue from Wyoming and share LEA's level of completeness of critical MMUCC elements in comparison to other departments. This can create healthy competition among agencies. It also may identify which LEAs could benefit from additional training.

SHSOs may find the chart below helpful.

<b>Concern</b>	<b>How to Address</b>
<b>Lack of Internet access/poor connectivity</b>	Create reliable and timely procedures to process paper reports
<b>Lack of funding for computer hardware</b>	Consider direct investments for traffic records equipment; create reliable and timely procedures to process paper reports
<b>Lack of access to computers</b>	Consider direct investments for traffic records equipment; create reliable and timely procedures to process paper reports; consider interagency resource sharing for crash response
<b>Lack of staff</b>	Consider interagency resource sharing for crash response
<b>Fewer crashes = lack of ingrained knowledge</b>	Consider interagency resource sharing for crash response
<b>Accuracy and quality</b>	Make it competitive/share leaderboard data
<b>Late reporting</b>	Make it competitive/share leaderboard data
<b>Forgetting to report during turn over</b>	Increased/improved training
<b>Poor training</b>	Increased/improved training
<b>Lack of vetting RMS vendors</b>	Ask peer SHSOs for vendor reviews

Source: State Responses to Knowledge Transfer Form and State Interviews

## Best Practice 7: Make Improvements Between Crash Report Form Updates

There is no need to wait for the next crash report form update to make improvements that will bolster MMUCC alignment.

*Update definitions in the PCR manual.* Look at your states PCR manual and consider how data definitions can be updated to better adhere to the MMUCC standards. Use NHTSA's [Guide to Updating State Crash Data Systems](#) as a resource.

*Explain to officers why quality data collection is important.* Some officers may be tempted to simply select the first dropdown box option to complete the crash report form quickly. Offer training that explains why selecting the correct attributes is important and yields better overall data, ultimately allowing decision-makers to create lifesaving countermeasures.

*Identify opportunities to leverage partial integration to make iterative MMUCC improvements.* There are often opportunities to backfill certain MMUCC elements from databases maintained by other agencies that can improve MMUCC alignment, even by small increments. These small pieces can add up in the long term. An example might include adding citations issued from the crash to the driver(s) involved from their driver history maintained by the state licensing agency or from the courts system. A state might also add emergency medical information from an EMS response agency, a medical facility receiving the patient, or an EMS Universally Unique Identifier (UUID). See the MMUCC 6th edition Chapter 10: Traffic Records Data Integration for additional ideas.

*Identify low hanging fruit in the [MMUCC 6<sup>th</sup> Edition](#).* Review Section 1.8 for the latest changes to the MMUCC guidance to determine if any new strategies can be implemented before the next crash report form update. For example, a state could make note of the new data definitions to create or update its data dictionary.

*Leverage scheduled system upgrades.* Meet with data system managers to determine when the next system upgrades are scheduled. Use this information to enhance MMUCC alignment by ensuring data dictionaries are created or revised at the same time. Planned system upgrades also provide an opportunity to automate or integrate with other databases. Finally, planned system upgrades can create an

opening to leverage funding from NHTSA, FHWA or other state or federal agencies to make further system enhancements. Don't be caught off guard by system upgrades. Instead, be prepared.

*Plan for the next MMUCC update.* The 6<sup>th</sup> edition of the MMUCC was released in January 2024 and it's likely that the 7<sup>th</sup> edition will be completed within the next five or six years. Some states continue to have concerns about specific MMUCC elements, but they will likely have an opportunity to shape the next edition. For instance, to create the 6<sup>th</sup> edition, NHTSA organized a large advisory committee of state and local traffic records stakeholders. States should be thinking now about potential MMUCC changes and contact NHTSA about their interest in getting involved in the 7<sup>th</sup> edition's advisory committee.

## Best Practice 8: Use NHTSA GO Teams

NHTSA provides free GO Teams comprised of one to three subject matter experts to help states resolve a variety of issues, as well as serve as a training resource. As many SHSOs and TRCCs grapple with capacity issues, including time limitations, a GO Team can help states develop strategies to improve MMUCC alignment and data integration.

States Assisted by GO Teams
Arkansas
California
Colorado
Connecticut
Florida
Georgia
Illinois
Louisiana
Maryland
Michigan
Mississippi
Missouri
Nevada
North Carolina
South Carolina

Region VII States (NE, IA, KS, MO, AR.)

Region V States (MN, WI, MI, IL, IN, OH)

Colville Confederated Tribes (Northwestern  
Washington State)

Region X States (AK, ID, MT, OR, WA)

## Best Practice 9: Track and Report Progress

Being transparent about the traffic records processes and the resulting data – both to the public and within state agencies – can provide a sense of responsibility and ownership, especially over long periods of time. MMUCC ranking scores can either humble an institution or be a point of pride, depending on how they compare to other states. Knowing that data will be publicly available incentivizes stakeholders to make sure they are accurate. This could take the form of publicizing MMUCC alignment, posting datasets and tools or sharing LEA statistics. If leadership notices that MMUCC alignment is lacking and understands the underlying reasons, they have the power to make changes for the better.

A good example of this is Oregon, which publicizes its data through a [transportation safety dashboard](#). Launched in September 2023, this website aggregates data from a variety of sources and reports on injuries to not only motor-vehicle occupants, but also pedestrians, bicyclists, motorcyclists and other vulnerable road users.

## Chapter 6: Conclusion

The quality of traffic records systems is a key component of the Safe System approach. Data will continue to underpin all that the SHSOs and their partners do to prevent crashes, deaths and injuries on our nation's roadways. The MMUCC is a valuable tool, and MMUCC alignment is an important goal to ensure that traffic records data are accurate and consistent. Even states that are already highly aligned should not be complacent. The traffic records discipline is changing all the time and states must revisit their systems on a regular basis to avoid being left behind.

The process of MMUCC alignment is also complex, multi-faceted and iterative. States are moving at different speeds and each state's traffic records journey is framed by a spectrum of internal and external factors. Sometimes achieving improvement in traffic records can seem insurmountable. Luckily, GHSA has drawn upon the collective learning of states to highlight proven practices and success stories. All states are encouraged to carefully review the checklist of best practices included in this document and develop and implement a plan for moving toward adoption of the 6<sup>th</sup> Edition of the MMUCC.



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