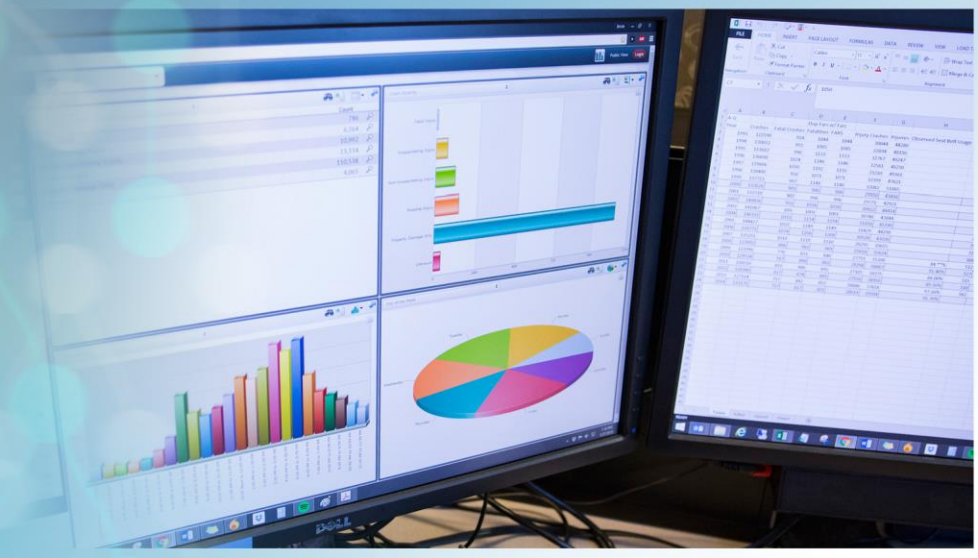
The Alabama Transportation Planner's Guide to Safety Data Access and Documentation

Policies and Practices Guidebook



June 2016

DRIVE SAFE ALABAMA

Policy and Practices Guidebook

prepared for

Alabama Department of Transportation

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We thank the states of Arizona, California, Delaware, Florida, Illinois, Louisiana, Missouri, Nevada, Tennessee, Utah, Virginia, and Washington for providing insight into their data access and documentation practices. Appreciation also is extended to the Alabama Law Enforcement Agency (ALEA) for collecting the majority of rural safety reports and serving as custodian for safety reports.[1]

[1] ALEA led Alabama to use the eCrash system in 2009, making most safety records available within the same day. The State is now over 98 percent eCrash compliant.

Introduction

This guidebook is designed to provide guidance for Metropolitan Planning Organizations (MPO), Rural Planning Organizations (RPO), cities, and counties on methods for displaying and sharing safety data pursuant to Title 23 of the United States Code and explain procedures for ensuring public agencies are protected from the risk of liability. These data are not to be shared with the public pursuant to Alabama Law and 23 U.S.C. §§148(h)(4) and 409.

The guidebook is organized into three main sections:

- A policy section with an overview of the legal and policy implications of the reporting of safety data.
- A data access section providing information on how to access safety data via the Critical Analysis Reporting Environment (CARE) database.
- A display section with approved examples on how safety data can be displayed, when necessary, on web sites, in planning documents, and in other venues.

Data Policies

This section explains the requirements, as well as the legal and policy implications that guide the use of safety data.

BACKGROUND

The sole purpose for which Federal safety funds can be used is to reduce the severity of crashes, e.g., fatal and serious injury crashes. Successfully achieving the purpose requires analysts, planners, engineers, law enforcement, etc., to use data to identify the locations that could benefit from safety improvements by examining crash and other types of safety data. Typically, analysts first examine frequency, e.g., where are crash concentrations occurring? The next step is to analyze severity, e.g., what proportion of the crashes resulted in at least one person being severely injured? Finally, contributing crash factors are analyzed, e.g., are the vehicles running off the road, crossing the center line, etc., and are the drivers speeding, driving impaired, distracted, etc.? These analyses allow practitioners to implement the most cost effective solutions.

Planners typically are able to satisfy planning requirements using crash frequency and severity, the who, what, when, and generally where. Further study is required to determine solutions. FHWA requires that planning documents include program and project justification for the use of Federal safety funds. Planners can comply with the requirements by demonstrating the need for a safety improvement through data analysis.

Analyzing and displaying crash data can be problematic for public agencies due to concerns about liability risk; however, these data are protected as set forth below.

OVERVIEW OF SAFETY DATA LIABILITY ISSUES AND REQUIREMENTS

As far back as 1983, the United States Department of Transportation (U.S. DOT) recognized states may be reluctant to collect the data required by the Highway Safety Improvement Program (HSIP) for fear of it being used against them in a tort lawsuit. Safety data and analyses, engineering studies, and location-specific priority lists may provide plaintiffs with the information they need to build a tort lawsuit against an agency.

In response to this reluctance, Congress enacted 23 U.S.C. §409 in 1987. Several amendments followed. It provides as follows:

> Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-

> highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

In October 2012, as part of the Moving Ahead for Progress in the 21st Century Act (MAP-21), Congress amended 23 U.S.C. §148, which sets forth the broad provisions of the Highway Safety Improvement Program. Included within that section is 23 U.S.C. §148(h)(4), which affords similar protection to that provided by 23 U.S.C. §409 and extends the protection to all safety data collected for any purpose related to the HSIP. 23 U.S.C. §148(h)(4) provides:

> Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for any purpose relating to this section, shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location identified or addressed in the reports, surveys, schedules, lists, or other data.

Thus, states can be assured that if they treat this information as confidential, it cannot be used against them in a lawsuit. In some states, like Alabama, the information is excluded from disclosure under its open records law.

States must be careful, however, not to waive the protection afforded by §409 and §148(h)(4) by sharing the information with those not otherwise entitled to it. This can be avoided by ensuring that the recipient is aware that the information is protected by §409 and §148(h)(4) (e.g., by way of a notice and admonition citing the statutes) and agrees to the constraints on its use through the use of a confidentiality agreement.

FEDERAL REQUIREMENTS REGARDING USE OF SAFETY DATA

MAP-21 established requirements for highway safety utilizing safety data and reporting progress. In MAP-21 the goal for safety is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads regardless of ownership or functional classification.

MAP-21 requires the development of new regulations to establish performance measures for the purposes of development, implementation, and evaluation of the HSIP. The legislation requires the U.S. DOT Secretary to establish performance measures for the number and rate of fatalities and serious injuries, the States and MPOs to set targets against those measures, and the Federal Highway Administration (FHWA) to evaluate whether a state has achieved or made significant progress toward achieving targets.

The targets must be identical for the National Highway Traffic Safety Administration (NHTSA) programs and the HSIP. MPOs must set targets for the same measures for all public roads in the MPO boundary. These MPO targets must be set in coordination with the state. The

MPO can either adopt the state DOT targets or set numerical targets specific to the MPO planning area.

MAP-21 also requires target assessment. FHWA is required to assess target achievement on each performance measure according to whether a state has achieved or made significant progress toward achieving targets. Not meeting overall significant progress would result in funding limitations on the state.

Overall, MAP-21 emphasizes the need to utilize and provide accessibility to the safety data to properly manage safety performance.

ALABAMA REQUIREMENTS REGARDING ACCESS TO SAFETY DATA

Prior to the 1995 amendment to 23 U.S.C. §409, ALDOT released crash data to members of the public upon request with payment of a $100 fee. One purpose of the 1995 amendment was to protect raw data from discovery and admission into evidence. Thereafter, ALDOT ceased releasing crash data to the public. In *Ex parte Alabama Dept. of Transp.,* 757 So. 2d 371 (Ala. 1999), the Alabama Supreme Court ruled that ALDOT's refusal to release crash data was proper and supported by 23 U.S.C. §409 and the crash data were also exempt from production in an "open records" request.

As a result, ALDOT does not provide access to the safety data, nor does it disclose information in response to either litigation requests or open records requests. However, the Department does have agreements with MPOs that allow them to use §409-protected safety data, but they must ensure the data are not disclosed. Among other provisions in the agreements, the MPOs must agree to the following:

> Notwithstanding any provision of this Agreement to the contrary, the Parties agree that any safety data or information protected by 23 U.S.C. §§ 148(h)(4), 409 and State law shall be confidential. The Parties agree that all crash and traffic data used by the parties for or in transportation improvement plans, highway safety improvement programs and strategic highway safety plans will not be disclosed to third parties without the express written permission of ALDOT. The Parties agree that the data shall not be referenced, disclosed, discussed, or otherwise made public. The provision of the above data by ALDOT shall not be considered a waiver of 23 U.S.C. §§ 148(h)(4), 409 or State precedent. Upon execution of this Agreement, the Parties and their agents, servants, officers, officials and employees in both their official and individual capacities, agree that the data provided pursuant to the above referenced request shall not be discussed, disclosed, used, published, or released without prior written consent of ALDOT. If the data in any form should be disclosed, released, or published in any manner without the consent of ALDOT or should an attempt be made to use the data in an action for damages against the Parties, their officials or employees, then access to the data shall terminate immediately. ALDOT expressly reserves its right under 23 U.S.C. §§ 148(h)(4), 409 and State precedent to object to the use of the data and any opinions

drawn from the data and to recover damages caused by the improper and unauthorized release of the data.

The legal and policy implications of the use of safety data provides a framework on how such data are accessed and displayed, which is described in the subsequent sections of this guidebook.

Data Access and CARE

This section provides an overview about data access methods and requirements in Alabama.

OVERVIEW OF SAFETY DATA

Safety data for the Alabama DOT exists as a data warehouse in the data analysis software package called Critical Analysis Reporting Environment (CARE). The original crash report data resides with the Alabama Law Enforcement Agency (ALEA). The crash report data undergo an extraction process from the ALEA database, and are translated and loaded into CARE. In addition, other data are imported into CARE for analysis purposes. Developed by the staff of the Center for Advanced Public Safety (CAPS), CARE uses advanced analytical and statistical techniques to generate information directly from the data.

CARE provides descriptive statistics, information mining, geographical information system (GIS) access, roadway engineering support, and dashboard support, which includes access to real-time statistics on key law enforcement systems, including crash reports.

The dashboards have been deployed for police agencies, traffic engineers, and traffic safety stakeholders[2].

DATA ACCESS REQUIREMENTS

The CARE software exists in both a desktop Windows version and a web version. The desktop version is designed to operate on computers running recent versions of Windows. CARE can be downloaded to a desktop from the software web site or installed from a CD. Some highway safety CARE capabilities also are available on-line at the CARE On-line Analysis site. The on-line version of CARE allows general analysis on-line only, with public datasets.

CAPS staff have created a number of base datasets for Alabama that provide a general overview of crashes in the state.

To gain access to private datasets, send a request to care@cs.ua.edu with information, including name, title, agency, and reasons for using the crash datasets.

Users are required to sign a confidentiality agreement prior to accessing the data stating the purpose of the request and asserting the data will not be misused.

[2] For more information on CARE, please visit the website: http://www.caps.ua.edu/software/care/.

TRAINING

Training on the use of CARE is held periodically by the CAPS team. The CARE web site, http://www.caps.ua.edu/software/care/ also provides on-demand documentation and training videos on CARE procedures.

Data Display

Generally, safety data sharing approaches are sharing all data publicly and sharing data selectively based on a set of criteria. Both approaches are found throughout the United States. Regardless of accessibility level, states share safety data with their safety partners to encourage and enhance development of safety goals and implementation of safety countermeasures.

It is important to note the following fully incorporates the information presented in the Data Polices section of this guidebook, specifically referencing 23 U.S.C. §148(h)(4) and 23 U.S.C. §409, and assumes data are gathered from the CARE database specified in the Data Access and CARE section of this guidebook.

TYPES OF SAFETY ANALYSES

The types of data displays are typically influenced by the type of safety analysis completed using safety data. The level of analysis can range from simple descriptive approaches to GIS-based applications to high-level quantitative safety analysis. An example progression of safety analysis with increasing complexity may be viewed as follows:

- Identify trends based on descriptive assessment. Review multiple-year crash history, including frequency, severity, type, location, and trends to determine contributing factors.
- Multiple-year rolling average frequency or crash rate (fatalities and serious injuries) at a particular location compared to statewide average frequency or crash rate (fatalities and serious injuries) for comparable site types.
- Estimate safety benefits using Crash Modification Factors (CMF).
- Use GIS to map crashes in the study area. GIS allows for the examination of crashes in a mapping view when overlaid onto aerial photographs.
- Apply the Highway Safety Manual (HSM) Predictive Method using calibrated Safety Performance Functions (SPF) to estimate change in expected average crash frequency. If calibration factors are not available, the user can conduct a relative analysis of predicted average crash frequency.

EXAMPLES FOR DISPLAYING SAFETY DATA IN PLANNING AND OTHER DOCUMENTS

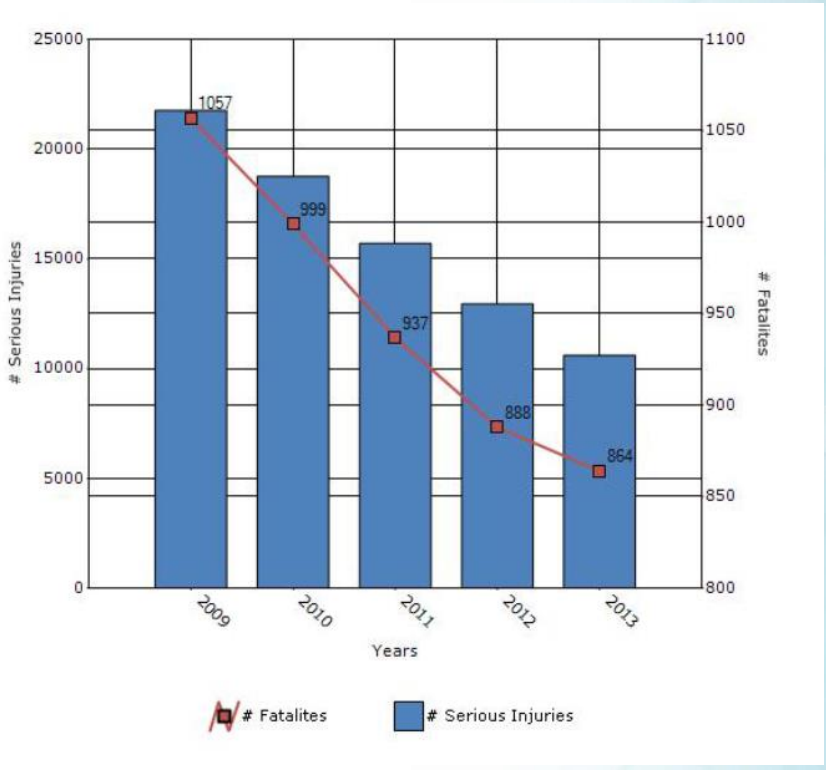
As described earlier, the types of data displays are typically influenced by the type of safety analysis completed using safety data. This section discusses how to display the output of safety analyses to best communicate key findings. While a myriad of display data techniques are used, each of the following example safety data displays conveys a message regarding safety performance.

Descriptive Assessment

The following examples provide a high-level view of safety performance. The intent is to easily, quickly, and concisely convey the message of safety performance.

Figure 1 is an example of a bar and line graph showing the annual number of fatalities and serious injuries for a five-year period. This is useful in showing overall annual performance.

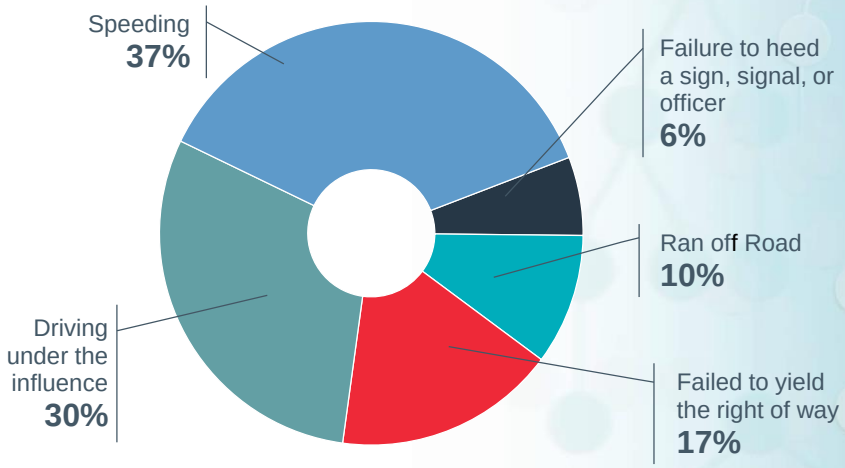
FIGURE 1: NUMBER OF FATALITIES AND SERIOUS INJURIES FOR A FIVE-YEAR PERIOD



Source: Alabama DOT 2014 HSIP Report.

Figure 2 is an example of a pie chart showing the percentage of fatal crashes by the contributing factor. This type of chart is helpful in showing which contributing factor or behavior is over represented in crashes. Similar separate charts can be developed to show representation by other factors, such as demographics and geography, among others.

FIGURE 2: PERCENTAGE OF FATAL CRASHES BY CONTRIBUTING FACTOR



Source: http://www.drivesafealabama.org.

Table 1 is an example of a comparative table of annual fatalities by type of jurisdiction. Such a table is useful in showing if safety numbers for a particular jurisdiction are trending in the same direction as the statewide and national trends.

TABLE 1: ANNUAL NUMBER OF MOTOR VEHICLE FATALITIES BY JURISDICTION

	Number of Motor Vehicle Fatalities					
	2005	2006	2007	2008	2009	2010
U.S.	43,510	42,708	41,259	37,423	33,883	32,999
Alabama	1,148	1,207	1,110	969	848	862
Birmingham Region	167	194	215	190	159	175

Source: Regional Planning Commission of Greater Birmingham.

[a] NHTSA NCSA Data Resource Web Site, Fatality Analysis Reporting System (FARS) Encyclopedia retrieved May 9, 2013 from http://www-fars.nhtsa.dot.gov/Main/index.aspx.

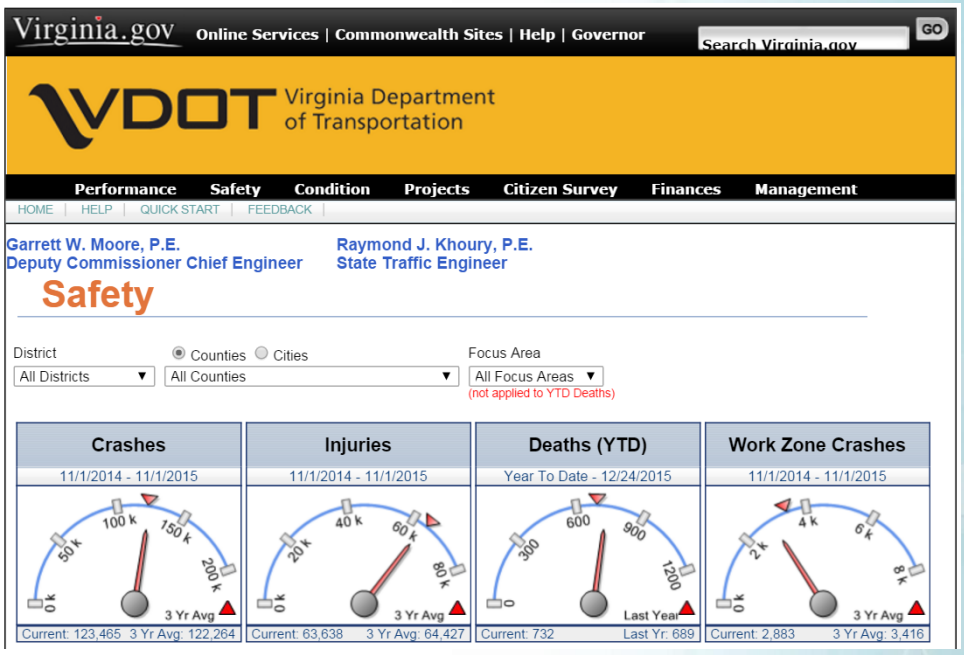
[b] CARE database: Jefferson, Shelby, Blount, St. Clair, Walker, and Chilton Counties total.

Comparative Assessment

The following examples provide a higher level of safety data assessment. The web site example demonstrates a high level of transparency considering it is intended for public access.

Figure 3 is an example of a summary dashboard used by Virginia to display summary fatality and injury statistics.

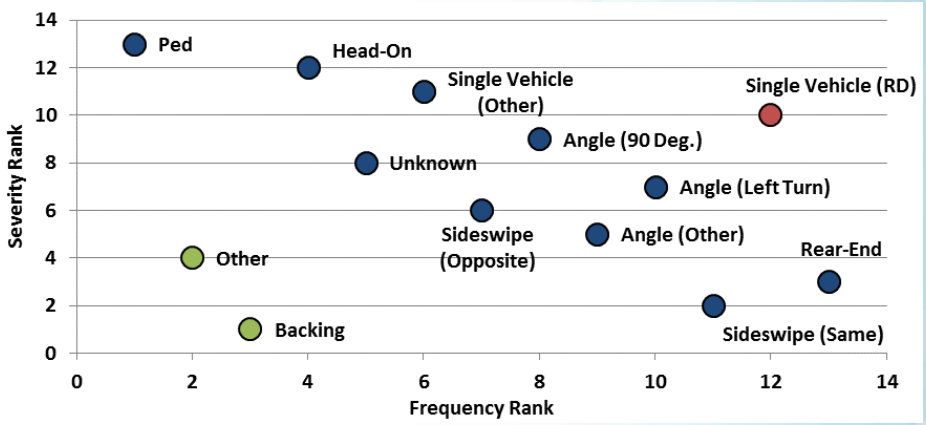
FIGURE 3: SAFETY DASHBOARD



Source: Virginia DOT, http://dashboard.virginiadot.org.

Figure 4 shows the results of a detailed safety analysis and directs attention to critical safety considerations. The graph specifically shows the relationship between the frequency rank and severity rank for individual crash factors. The x-axis represents the crash type frequency rank, while the y-axis indicates the crash type severity rank (percentage of crashes that result in a severe injury). The single-vehicle crash type (red dot) stands out as being highly ranked in both frequency and severity. At the other extreme, backing and other crashes (green dots) are ranked in the bottom in both frequency and severity and therefore, are relatively less important. The blue dots indicate crash types with high or moderate rankings in either frequency or severity, or both items.

FIGURE 4: FREQUENCY RANK VERSUS SEVERITY RANK BY CRASH FACTOR



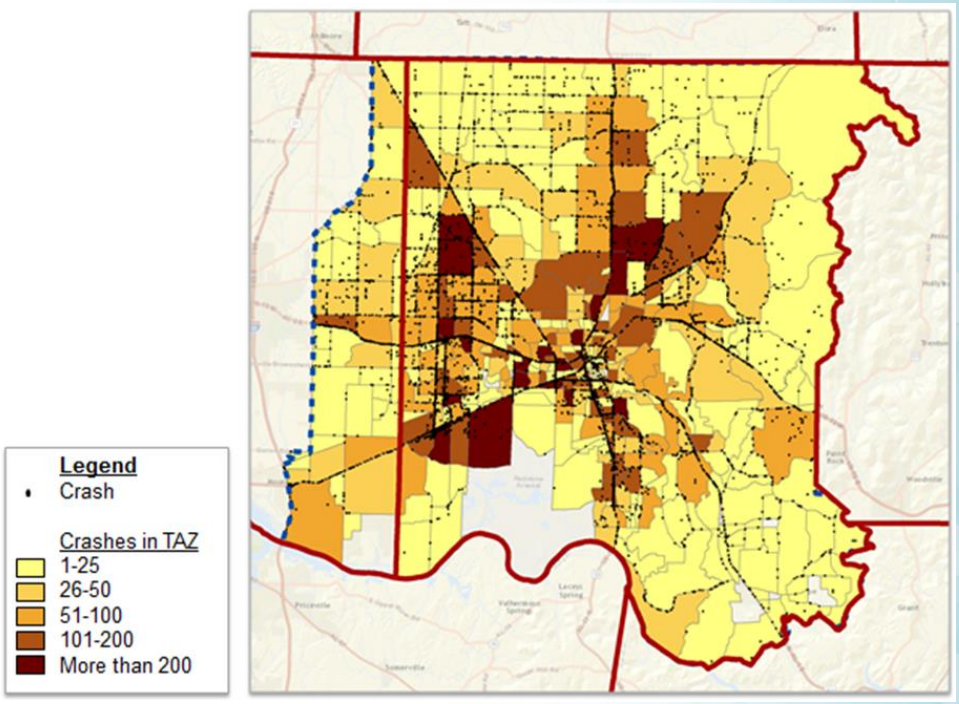
Source: Cambridge Systematics, Inc., ALSAFE Phase 1 Final Report, Huntsville MPO.

Geographic Information System Enhanced Safety Analysis

The following example demonstrates a visual approach to safety data and analysis results. The visual perspective can provide an enhanced assessment of the safety data.

Figure 5 shows crash frequency by transportation analysis zone (TAZ) and color coded by quintiles. The objective of the long-range safety planning process is to provide MPOs with a set of equations that enables them to evaluate and understand the impacts of long-term demographic changes, land use changes, and transportation safety planning decisions. The equations may be used as an evaluation tool in the long-range transportation planning process. The goal of the predictive equations is to provide planners with estimates of the possible changes in crash frequency or severity of different future conditions. This will allow them to proactively identify and prepare for such trends and to modify planning activities.

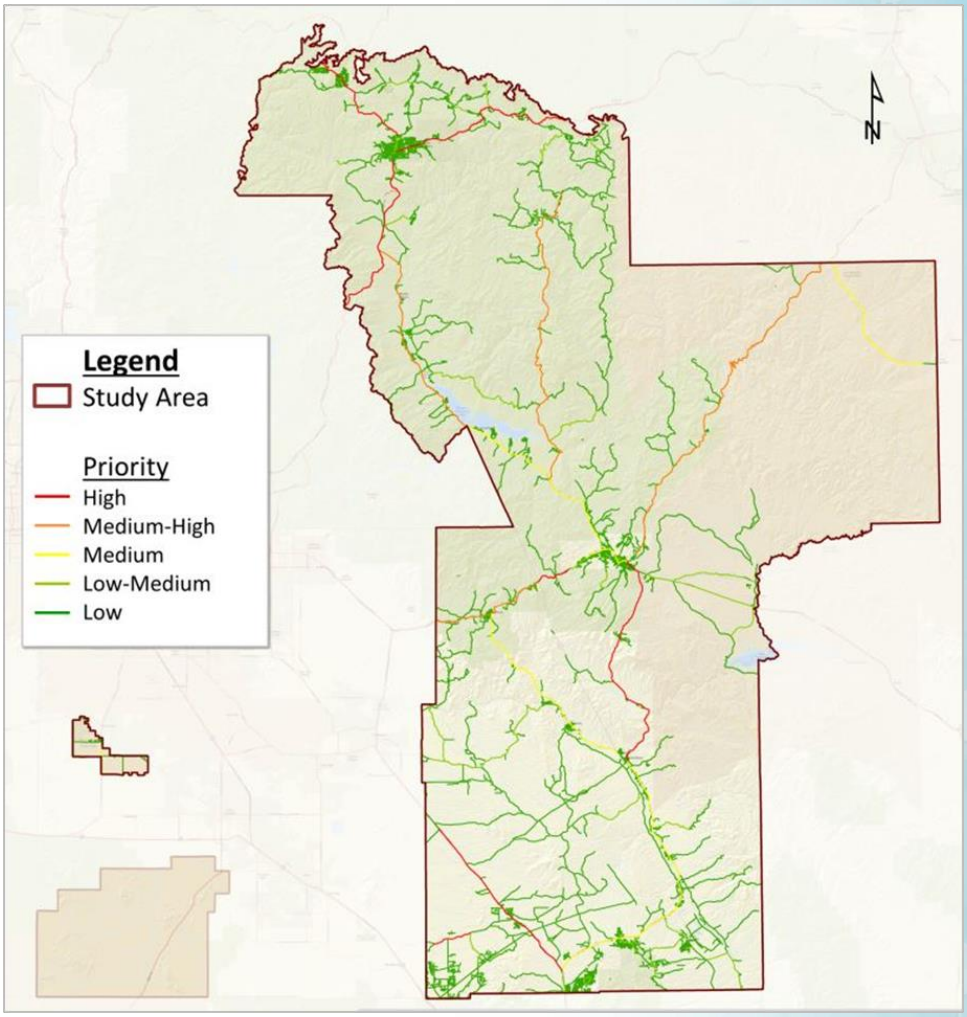
FIGURE 5: CRASH FREQUENCY BY TRANSPORTATION ANALYSIS ZONE



Source: Cambridge Systematics, Inc., ALSAFE Phase 1 Final Report.

Figure 6 is an example of a quantitative safety analysis and provides the practitioner with easily identifiable road segments allowing for more detailed analysis.

FIGURE 6: RECOMMENDED SEGMENTS FOR POTENTIAL SAFETY IMPROVEMENTS



Source: Cambridge Systematics, Inc., for Central Arizona Governments.

HSM Predictive Safety Analysis

Table 2 is an example of a project-level safety analysis. This display provides information for use in making project-level decisions regarding design considerations and budget. In this example, crash frequency is calculated with and without implementation of a project, in this case, a shoulder widening with rumble strips. Crash frequency also is reported for the current conditions and for future conditions.

The crash frequency is calculated utilizing Highway Safety Manual (HSM) procedures. The HSM represents a science-based approach for safety analysis and includes methods for conducting quantitative safety analyses and evaluation, in addition to other transportation performance measures. In this example, the HSM provides the methodology to produce the predictive safety performance results that lead to an enhanced decision-making process. The table shows the combined number of fatal and injury crashes (FI), property damage only crashes (PDO), and the total number of crashes. Also, these crash categories are shown as observed crashes of the project design year, the expected number of crashes using the HSM predictive method of the existing roadway configuration for both the year of project completion and 20 years in the future, compared to the expected number of crashes with a project that includes widening the roadway shoulders to 6 feet with rumble strips. Lastly, the table shows a 20-year total crash reduction of 67 indicating a predicted positive change in safety performance.

TABLE 2: CRASH FREQUENCY WITH OR WITHOUT PROJECT IMPLEMENTATION

	Crash Frequency (Crashes per Year)			20-Year Total Crash	20-Year Total Crash Reduction
	FI	PDO	Total		
Observed (Reported)	5.8	12.2	18.0		
Existing Roadway					
Expected (2011)	4.2	8.9	13.1	285	
Expected (2030)	5.0	10.4	15.4		
Widen Shoulders 6 Feet with Rumble Strips					
Expected (2011)	3.3	6.9	10.2	218	67
Expected (2030)	3.8	7.8	11.6		

Source: Cambridge Systematics, Inc.

SUGGESTED AND EXAMPLE LANGUAGE FOR PLANNING AND OTHER DOCUMENTS

Enhanced accessibility to safety data requires a greater need to provide information regarding §148(h)(4) and §409 protections. The main purpose of an admonition is the same regardless of whether the safety data are provided in a report, list, or web site. The following examples can, in most cases, be used interchangeably.

Alabama DOT Documents Admonition

This example has been previously recommended by ALDOT and typically would be placed at the beginning or on the cover of a document containing safety data and/or analysis results. It also includes reference to 23 U.S.C. §148(h)(4) consistent with FHWA web sites.

> This document is confidential and protected under Alabama Law and Title 23 of the United States Code:
>
> 23 U.S.C. §148(h)(4) states "Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for any purpose relating to this section [HSIP], shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location identified or addressed in the reports, surveys, schedules, lists, or other data."
>
> 23 U.S.C. §409 states "Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data."

Admonition for Every Page Footer

This example can be used if any page of a document is reproduced or extracted to ensure the admonition is also reproduced.

> This report is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads; and is therefore exempt from open records, discovery or admission under Alabama law and 23 U.S.C. §§ 148(h)(4), and 409.

Admonition for Entire Document

This example typically would be placed at the beginning or on the cover of a document containing safety data and/or analysis results.

> This document is exempt from open records, discovery or admission under Alabama Law and 23 U.S.C. §§ 148(h)(4) and 409). The collection of safety data is encouraged to actively address safety issues on regional, local, and site-specific levels. Congress has laws, 23 U.S.C. §148(h)(4) and 23 U.S.C. § 409 which prohibit the production under open records and the discovery or admission of crash and safety data from being admitted into evidence in a Federal or state court proceeding. This document contains text, charts, tables, graphs, lists, and diagrams for the purpose of identifying and evaluating safety enhancements in this region. These materials are protected under 23 U.S.C. §409 and 23 U.S.C. §148(h)(4). In addition, the Alabama Supreme Court in *Ex parte Alabama Dept. of Transp*., 757 So. 2d 371 (Ala. 1999) found that these are sensitive materials exempt from the Alabama Open Records Act.

Safety Data Display in Sensitive Documents for Every Page

This example would be used when safety data and/or analysis results are for internal examination and possibly considered for release to outside parties. This statement ensures an additional layer of approval is required for the distribution of the information.

Confidential Information

This information is exempt from open records, discovery, or admission under Alabama Law and 23 U.S.C. §§ 148(h)(4) and 409

Contact the ALDOT Traffic and Safety Operations Section at (334) 353-6460 before releasing any information.

Summary

The three main sections of this guidebook provide a concise overview of the issues pertaining to the ALDOT policy for safety data access and display and are designed to assist practitioners with day-to-day activities related to safety analysis and reporting. In addition, subsequent training for this guidebook will be offered periodically.

Please contact the Alabama Department of Transportation Traffic and Safety Operations Section at (334) 353-6460 for questions on this guidebook and future training.