



Kansas LTAP Fact Sheet

A Service of The University of Kansas Transportation Center for Road & Bridge Agencies

Local Crash Data: The How-To Guide

By Caryn Woods, KDOT

Why you need the data and how to get it.

Several types of data are crucial to effective roadway safety analysis. Data can also be used to develop and support strategic solutions to safety that will have the greatest impact. The three most common types of roadway safety data are: 1) crash data, 2) roadway characteristic or geometric data, and 3) exposure (traffic counts) data. This article will focus on the first type—how local transportation professionals can obtain, analyze, and utilize crash data. This information is useful to anyone seeking to improve the safety of Kansas public roads, including city and county engineers, road supervisors, public works directors, consultants, local law enforcement, and elected officials.

Why is crash data important to local practitioners?

Reviewing local crash data can give local governments a picture of what is happening on their roads and help to identify safety issues as well as possible solutions. Crash data can also be used to determine eligibility in most safety-assistance programs including programs that offer funding and improvements for local roads such as KDOT's Traffic Engineering Intersection Program and KDOT's High Risk Rural Road Program.



Format and availability

Crash data are collected by law enforcement agencies for all known crashes on public roads, and the data are then used to populate various databases. Crash data are available from several resources: official crash reports, the state's crash database, the federal FARS (Fatality Analysis Reporting System) database, and hospital data. Crash data are typically available in one of three different formats—1) the official crash report filled out by a law enforcement officer, 2) location or spot data created from selected information in the crash report, and 3) aggregate data. These are described in greater detail below.

Safety data type #1: Aggregate data

Aggregate (or summary) data combines data from many crash reports to see a bigger picture than one crash

alone. For instance, aggregate data might describe the number of crashes, fatalities, or injuries by state, county, city, or a data subtype like roadway, person or vehicle type, as opposed to focusing on an individual crash at a specific location.

Because aggregate data do not focus on individual crashes at specific locations, they are incredibly useful in determining safety problems that can be system-wide. This might include

behavioral issues that contribute to crash-circumstances such as speeding, impaired driving, inattention, etc. For example, a county or municipality may find a disproportionately high number of crashes involving impaired drivers and decide to increase nighttime enforcement.

However, aggregate data are useful for more than behavioral issues. The frequency and severity of crashes can be broken down by location type, roadway type, and collision type. This type of information is very useful in determining engineering countermeasures.

Aggregate data can assist local practitioners if they are considering system-level engineering improvements such as a systematic edge treatment for roadway shoulders (like the Safety Edge) or the application of rumble strips. For example, if a



county or municipality notices a disproportionately high number of “roadway departure” crashes on paved roadways—a type of crash that occurs after a vehicle crosses an edge line or center line, or otherwise leaves the traveled way—government officials might consider implementing a strategy that is specifically designed to prevent roadway departure crashes such as rumble strips.

Aggregate data are the most widely available type of crash data and they can be obtained from a few different sources such as KDOT’s Accident Facts Book, the state’s Strategic Highway Safety Plan, and the national FARS database. See sidebar at right for more information on these sources.

Safety data type #2: Locational or spot data

Locational or spot data are crash data focused on individual crashes at a specific location. For instance a practitioner might be concerned with the crashes that have occurred at a specific intersection or segment of road.

Sources of locational or spot data:

1) SafeRoadMaps: This is a publicly accessible website that visually communicates public health issues related to rural and urban road transportation safety, including fatal crash data. Enter the location of the crash in SafeRoadMaps to get:

- A GoogleMaps satellite photo of the site;
- An actual street level photo of the crash site;
- An interesting zoom from global to street view;
- A ranking of “hot spot” sites around the nation;
- A five-plus year history of past fatalities at the site;
- Circumstances of past crashes at the site;
- Was the driver(s) impaired, speeding, belted;
- What traffic laws were in effect at the site.

These data is updated annually as FARS data is released. To see a map the

“Crash” or “accident?”

Many accidents are not accidental, and it’s becoming more common in safety circles to see the word “crash” used instead. However, at KDOT it doesn’t really matter which term is used. There is a push to always use the word “crash” as opposed to “accident,” but the words are synonymous. Crash is the preferred term, but our Geometric and Accident Data Unit at KDOT still uses “accident.”
—Caryn Woods, KDOT

More on These Sources of Crash Data

Accident Facts Book: Each year, KDOT’s Geometric and Accident Data Unit releases the annual Kansas Traffic Accident Facts Book with the latest motor vehicle accident statistics. It is typically released the summer following the year of the data examined. For example, the 2008 Facts Book was released in the summer of 2009. The Facts Book provides crash statistics by various categories collected on the crash report including driver-related data (contributing circumstances, alcohol and speed involvement, age summaries), accident types (deer collisions, overturn, pedestrian, pedal cyclists), vehicles in accidents (large truck, motorcycle, train, school bus involvement, etc.), roadway information (rural, urban, roadway surface conditions), and environment (light and weather conditions). The Facts Book also provides statistics regarding safety restraint usage, time trends, crashes during holidays, as well as city and county statistics. For each city and county in Kansas, statistics are provided for the number and severity of the year’s crashes, the number of deaths and injuries, the percent safety restraint usage, pedestrian involvement, and the number of crashes involving deer, speed and alcohol. The Kansas Traffic Accident Facts Book can be found at: <http://www.ksdot.org/burTransPlan/prodinfo/accista.asp>.

Kansas’s Strategic Highway Safety Plan was created to drive strategic investments that reduce fatal and serious injury crashes. The plan contains fatal and serious injury crash data analyzed by system (state highway or locally owned), location type (rural/urban), roadway type (functional classification), crash type, and behavioral areas. The plan identifies key emphasis areas, as well as objectives and strategies for reducing fatal and serious injuries on all public roads. Local data and analysis as well as its improvement are also an integral piece of the state’s Strategic Highway Safety Plan. The Kansas Strategic Highway Safety Plan can be found at: <http://www.ksdot.org/burTrafficSaf/reports/kshs.asp>.

The emphasis areas for the Kansas SHSP were chosen based on the comparative frequency of fatal and severe injury crashes and are as follows: Roadway Departure, Intersections, Occupant Protection, Impaired Driving, Teen Drivers, Older Drivers, and Large Commercial Vehicles.

FARS (Fatality Analysis Reporting System) Database: The national FARS database stores and analyzes data for every fatality in the nation. The FARS file contains descriptions of each fatal crash reported, and is updated annually. Each case has more than 100 coded data elements that characterize the crash, the vehicles and the people involved. To view fatality data, go to: <http://www-fars.nhtsa.dot.gov/Main/index.aspx>.



fatal crashes in your area, go to: <http://www.saferoadmaps.org/home/>.

2) Five Percent Report: KDOT produces a list of high crash locations for improvement for the annual Five Percent Report. This report is in response to the Federal requirement that each state document at least five percent of its locations currently exhibiting the most severe highway safety needs. Kansas has developed a method for identifying stretches of road off the state highway system with high crash rates. The method has allowed KDOT to rank counties in terms of the number of crashes from 2005 to 2009 on three of the functional classifications of road outside the state highway system: rural local roads, rural major collectors, and rural minor collectors. This list is then examined to find those roads that have at least three serious injury/fatal crashes within a five-year period, and are in counties that have a county-wide average at least one standard deviation greater than the state-wide average for that functional classification.

These locations are then submitted to the High Risk Rural Road Program for further review. View the report at: <http://safety.fhwa.dot.gov/hsip/fivepercent/2010/index.cfm?state=ks>. Each location is offered a Road Safety Audit or RSA.

Both aggregate and locational crash data are used to identify locations in need of RSAs. Aggregate data assists traffic safety professionals in identifying problem locations, while detailed locational data helps identify safety solutions.

The final way to collect locational or spot crash data is to obtain copies of the third type of safety data—actual crash (or “accident”) reports—at the location of interest.

Safety data type #3: Official accident reports

Almost all crash data start with an accident report—a 14 page document titled the Kansas Motor Vehicle Accident Report. It is recorded by the officer who works the crash, and is perhaps

One major roadway safety strategy identified in the Strategic Highway Safety Plan is the geocoding of all crashes. Geocoding is the process of determining the geographic coordinates (latitude and longitude) of a location for mapping and geospatial analysis.

Because some local roads lack a linear referencing system (such as county mileposts) and many local roads have accumulated multiple road names, it is extremely difficult to map crashes on local roads. Assigning a latitude and longitude to each crash will allow the state and its local governmental partners to map crashes on local roadways. Currently the geocoding of crashes is done by KDOT and relies on information provided on the Accident Report. Because longitude and latitude are not initially captured in the report, geocoding must be done manually. Naming conventions vary from place to place and it is sometimes difficult for KDOT staff to pinpoint exactly where the crash occurred.

A local public works agency recently asked if there would be the capability to map local crashes once they are geocoded. While the ultimate goal of geocoding crashes is to map local crashes, I do not believe there is any public mapping interface in the works. Once all crashes are geocoded, a public mapping interface similar to SafeRoadMaps may become an option. We are likely at least a year away from complete geocoding so this may be something to look at in the years to come.

—Caryn Woods, KDOT

the most important element of traffic safety analysis. It is often said analysis is only as good as the data on which it is based. The information recorded on each accident report populates various crash databases including the FARS and state crash databases.

Information recorded on each accident report includes, but is not limited to, crash location details, roadway information, surface conditions, light and weather conditions, time and date of each crash, driver and occupant information, contributing circumstances, injury details, information regarding vehicle maneuvers, pre-crash movements, collision details, traffic controls, and vehicular information.

The benefit of obtaining an official accident report is the level of detail recorded for each crash. Certain details are not stored in any crash database, such as the officer’s narrative and scene observations, as well as scene drawings and illustrations. Crash reports are particularly important when preparing collision diagrams. Collision diagrams allow engineers and other local

practitioners to visualize particular crash types at intersections or other high crash locations. A practitioner might want to view an accident report not only to assist in the creation of a collision diagram, but also to examine source data regarding the crash. Reviewing local accident reports is the most effective method of crash analysis when specific in-depth analysis is needed.

How to obtain an accident report

Each accident report is retained by the law enforcement agency of the officer who records the crash (county sheriff’s office, city police department or state highway patrol) and a copy is also sent to and retained by KDOT.

An accident report is an open record that can be obtained through the law enforcement agency or through the state with an Freedom of Information (FOI) open records request. Local governments are not charged a fee to obtain an accident report. Reports are not always immediately available, however; some crashes may need further investigation or may be awaiting toxicology results.



Some road agencies have good working relationships with their local law enforcement agencies and have worked out an arrangement whereby they are automatically given a copy of each crash report. Because accident reports can be very helpful in assisting local practitioners with crash analysis, it is extremely important to maintain a good relationship with your local law enforcement agency. Law enforcement personnel not only enforce traffic safety laws; they have the most intimate knowledge of crash histories and traffic safety problems because they were at the scenes of the crashes.

Transportation safety issues are multi-faceted and often involve a partnership between engineering, enforcement, education and emergency response. One department cannot work without the others, so engineers and other local practitioners must work closely with law enforcement to solve traffic safety problems.

In the end, each department has the same goal: to prevent crashes, enhance traffic safety and save lives. According to the state's Strategic Highway Safety Plan when it comes to traffic safety, "dialogue and partnering are mandatory, not elective."

The Kansas Highway Patrol (KHP) also posts injury and fatality crash log summaries for crashes worked by the KHP and can be seen online for 30 days from the date of the crash. Official accident reports can be ordered from KHP in person or by written request through the KHP Records Section.

For more information

If you have questions about crash data available to local agencies in Kansas, contact Caryn Woods at carynw@ksdot.org, (785) 296-7480.

For advice and information about how to address a specific local road safety program, contact:

Norm Bowers
Kansas Association of Counties
785-272-2585 Ext. 314
bowers@kansascountries.org

Kansas Local Technical Assistance Program (LTAP)
Lisa Harris or Mehrdad Givechi, P.E.
(785) 864-2560
LHarris@ku.edu or givechi@ku.edu

High Risk Rural Roads Program
Lynn Berges, P.E.
KDOT Bureau of Local Projects
(785) 296-0410
Lynn.Berges@ksdot.org

Strategic Highway Safety Plan
Steven Buckley, P.E.
KDOT Bureau of Transportation Safety and Technology
(785) 296-1148
buckley@ksdot.org

Open Records Custodian
Russ Ash
KDOT Office of Chief Counsel
(785) 296-2408
openrecords@ksdot.org

Accident Data
Rex McCommon
Kansas Dept of Transportation
(785) 296-5169
accidentdata@ksdot.org

There is no comprehensive list of law enforcement agencies in Kansas. The best such information is at a national site called [usacops](http://www.usacops.com). Here is a link to the site and its Kansas page: <http://www.usacops.com/ks/>

The Kansas Association of Chiefs of Police website (<http://www.kacp.cc/>) also has links to municipal police departments in Kansas.

Caryn Woods is the State Highway Safety Analyst in the Bureau of Transportation Safety and Technology and is responsible for the crash data analysis in support of the Strategic Highway Safety Plan and for preparing and distributing crash summaries at the local, county, district, and statewide level.

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Helpful Roadway Safety Websites

- Kansas Strategic Highway Safety Plan: <http://www.ksdot.org/burTrafficSaf/reports/kshts.asp>
- Kansas Five Percent Report: <http://safety.fhwa.dot.gov/hsp/fivepercent/2010/index.cfm?state=ks>
- Kansas Accident Statistics: <http://www.ksdot.org/burTransPlan/prodinfo/accista.asp>
- Fatality Analysis Reporting System: <http://www-fars.nhtsa.dot.gov/Main/index.aspx>
- Kansas Highway Patrol Online Crash Logs: <https://www.accesskansas.org/ssrv-khp-crashlogs/index.do>
- Kansas Turnpike Authority Online Accident Logs: http://www.ksturnpike.com/news_and_events/accident_report
- FHWA Road Safety Information Analysis--A Manual for Local Rural Road Owners: http://safety.fhwa.dot.gov/local_rural/training/fhwasaxx1210/s1.cfm