Kansas
LTAP Fact Sheet
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Steps for Adding or Removing Traffic Control Devices

By Nate Vander Broek

What federal and state manuals say, and advice from practitioners.

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If you're in charge of a road and bridge or public works department in Kansas, you may have been asked to add or remove a traffic control device. What steps do you take? Who do you contact? Are there regulations that you must follow? Can you make this decision if you are not an engineer? These are the sorts of questions this article will address.

The evolution of traffic control devices in the United States

First, some history. Approximately 100 years ago, it was common for motorists to get lost while driving because of the poor condition of (or even lack of) signs. In an attempt to provide guidance for automobile drivers and also to direct them to specific sites, automobile clubs formed and helped to create and maintain their own traffic signs on local highways. Automobile clubs originated with automobile enthusiasts who were looking to improve the condition of roads and the safety of its drivers. Due to the high number of automobile clubs and competition among automobile clubs, "it was common to encounter as many as eleven different signs for one single trail or route" (Manual on Uniform Traffic Control Devices—The Evolution of MUTCD, 2009).

At the same time the automobile clubs were adding their signs, cities were creating their own traffic control devices, such as the first electric traffic signal in Cleveland in 1914 and the first stop sign in Detroit in 1915.

In an effort to create uniform signs and markings, representatives from Wisconsin, Minnesota and Indiana toured several states and eventually reported its findings to the Mississippi Valley Association of Highway Departments in 1932. Their plan organized street signs by the shape of the sign; round signs designated the most danger (railroad crossing), octagon shapes were a little less dangerous (stop sign), triangle signs even less danger (yield sign) and finally rectangular signs provided regulatory information.

Meanwhile, in 1924 the First National Conference on Street and Highway Safety (NCSHS) proposed standardized colors for traffic control devices. Also in 1924, the American Association of State Highway Officials, or AASHO (precursor to AASHTO) attempted to standardize sign shapes and colors. Having two different sets of standards would be problematic, so in 1932, AASHO and NCSHS formed the first Joint Committee (JC) on Uniform Traffic Control Devices and created the Manual on Uniform Traffic Control Devices (MUTCD) in 1935. About 40 years later(!), the MUTCD was approved as the national standard for all highways open to public travel.

The regulations

The MUTCD. The MUTCD sets a national uniform standard for traffic control devices, which increases safety, efficiency and reduces congestion. The most recent version of the MUTCD is the 2009 edition, which was adopted federally on January 15, 2010. States that do not have a state supplement to the MUTCD, such as Kansas, have a two year period to adopt the plan. Kansas must adopt the national MUTCD by January 15, 2012 or it will be at risk of losing federal funding. Along with losing federal funding for noncompliance, there is also a risk of liability. If a municipality doesn't adopt the MUTCD and there is a crash, the municipality in charge of the traffic control may be held liable. It is expected that Kansas will adopt the 2009 MUTCD by the deadline.

The MUTCD is available to view at http://mutcd.fhwa.dot.gov/kno_2009.htm. The 2009 edition of the MUTCD has

several changes from the earlier 2003 edition. For instance, metric conversions have been removed in the 2009 edition and new chapters have been added for toll plazas, managed lanes and preferential lanes.

State of Kansas guidance. The Kansas DOT published two books that provide supplementary material for the 2003 MUTCD:

- *Handbook of Traffic Control Practices for Low Volume Rural Roads* and
- *Handbook of Traffic Engineering Practices for Small Cities.*

According to Tom Mulinazzi, project director of the rural handbook and professor of engineering at the University of Kansas, the *Handbook of Traffic Control Practices for Low Volume Rural Roads* seeks to "take the MUTCD and apply common sense for low volume roads." He explained that these roads carry fewer than 400 vehicles per day and are driven mainly by familiar drivers. The handbook's target audience is road supervisors and counties without engineers on staff and who may not have the funding to implement all the recommendations found in the MUTCD. Some of the topics of the handbook include narrow bridges, culvert and roadside obstacles, and temporary traffic controls.

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The second book, the *Handbook of Traffic Engineering Practices for Small Cities*, serves the purpose of assisting local officials in the application of traffic engineering practices within their community. The book is organized in a question and answer format to provide day-to-day guidance to small cities without professional traffic engineering on staff. Some of the questions answered in this book include: What types of traffic control signs, signals, and devices require an ordinance? Do all signs have to meet certain specifications in size, shape and coloring? When should a stop sign be used at an intersection?

Primary considerations for adding traffic control

Emotional responses to crashes can prompt a request for adding a control device. For instance, if someone had a crash at a particular intersection, a request may be made to the city or county commissioner to add a stop sign or some other type of traffic control device to that intersection to increase safety and help prevent a similar crash from occurring in the future.

It is important to understand that public pressure is not reason enough to add traffic control devices. Before adding or removing a device, steps should be taken to make sure there is a legitimate need to install (or uninstall) the device.

According to Mehrdad Givechi, research engineer at the Kansas University Transportation Center, traffic volumes, crash history, traffic speed and capacity reports (among others) should first be taken to ensure the traffic control device is warranted and will not cause unnecessary traffic inefficiencies or additional safety concerns. All final designs or decisions must be approved by a professional engineer.

If your jurisdiction does not have an engineer on staff, you may seek financial assistance for hiring an engineering consultant through KDOT's Traffic Engineering Assistance Program, or TEAP. If you have questions about the process or whether funding will be available in your project, call Lynn Berges at (785) 296-0410. Berges will determine if adding or removing a traffic control device in your case sounds prudent, and if so, he will ask that you complete an application form. Once approved, Berges will assign a traffic engineer to you. You may also read about the program's opportunities online at http://www.ksdot.org:9080/PDF_Files/OpsFieldGuide.pdf.

Advice from the field

Some agencies review and remove signs on a yearly basis. ***JR McMahon,*** Miami County road supervisor, explains how their county removes rural school bus stop ahead signs at the end of every school year. This is done to prevent an oversaturation of signs that are no longer needed after students have graduated or are no longer taking the bus. They replace these signs in the fall. If there is a need for the sign in the summer, the schools must make the request. McMahon said it's important to review all signs on a regular basis to prevent an overabundance of unnecessary signs.

Norm Bowers, a retired Johnson County engineer, outlined the steps that typically take place when adding traffic control devices. He said the first step is to check out the location of the proposed sign, which is oftentimes the scene of a crash, to investigate the complaint. Next, review the MUTCD to verify that the reason for adding the sign is a valid one. If it's reasonable, have an engineering study performed. While this step isn't enforced, Bowers said it is in your best interest to have a study done to avoid potential liability issues if there is a crash there in the future. Depending on the type of sign, it may require a resolution or ordinance from the governing body. Once the request has been approved, you can purchase the sign from your supplier and have it installed according to proper specifications as stated in the MUTCD.

Mark Borst, traffic engineer for Sedgwick County Public Works, noted that some of the work mentioned by Bowers doesn't need to be performed by an engineer. For instance, data collection can be completed by a traffic technician. But he points out that only traffic engineers can make recommendations. He suggests reading past LTAP articles for helpful information and networking with peers and traffic engineering faculty for advice. Borst also said to be very careful when removing traffic control devices. When someone drives the same roads every day, they're less likely

Another Good Resource for Locals

Minnesota's Local Road Research Board and Minnesota's LTAP have developed an excellent traffic sign handbook that includes insight on removing unnecessary and ineffective signs. This best practices handbook provides assistance to local agencies to better manage and maintain their traffic signs and meet retroreflectivity requirements for traffic signs (Turn to page 12 for information about those requirements).

The Minnesota sign handbook describes sign maintenance, assessment and management methods and helps agencies decide which methods are best for them. There are sections on budgeting for signs, policy development (with examples), how to know when signs are not working or are not needed, and how to implement sign policies. There are many case studies for effective and improved signing provided from cities and counties.

The handbook is available for a free download at the following link. Any local agency can benefit from looking at this excellent resource. Go to: http://www.lrrb.org/PDF/2010RIC10.pdf

to notice changes to the road. Moving or removing signs at an intersection could have devastating consequences.

Borst added that "while there can be more than one answer to why type of control to have in a particular situation, there are typically better solutions than others." He said that, most of the time, one solution is the clear choice.

Borst also said "To choose to not modify traffic control because it might create the opportunity for incidents is not more correct than to maintain traffic control that is unnecessary, as this, too, can create the opportunity for incidents. The bottom line to me is that good judgment combined with appropriate notification of any changes makes for the best situation in the long run. Any change [in] reducing or increasing traffic control requires road users to modify their actions, and either one can increase the opportunity for incidents if not properly presented [along with] additional notification, either temporary or permanent."

Even when following the correct procedures for adding or removing traffic control devices, crashes can occur. Borst states that they "had a high-profile fatality crash at an old 4-way stop controlled intersection due to a motorist choosing not to stop and hitting the vehicle that had the right-of-way. As Vicky Johnson, [former] KDOT legal counsel, used to say, 'We do not insure, ensure or assure the safety of the road.' All we can do is provide reasonable control and guidance so that the reasonable operator can travel from one point to another point with reasonable expectations to not encounter a problem."

David Woosley, traffic engineer for the City of Lawrence, outlined the steps he recently took in establishing an all-way stop at an intersection in Lawrence. He said the request was first made by a citizen at a city commission meeting. Next, traffic counts were obtained during a 24-hour period for each approach to the intersection. The traffic counts were compared to the requirements in the MUTCD and met the minimum requirements for consideration of an all-way stop.

Woosley said this is Lawrence's standard procedure to evaluate any request for traffic control. It is a long process. After receiving the request, traffic data is obtained when time permits; a staff report is prepared for the Traffic Safety Commission that meets once a month; the Traffic Safety Commission makes a recommendation to the City Commission; if approved by the City Commission, an ordinance is prepared and must receive two readings and be published, then the signs can be installed. When asked what changes, if any, he would make to the process he stated "this process has worked well for us for at least the past 18 years."

In summary, if you plan to add or remove traffic control devices in your city or county, be sure to seek the help of a traffic engineer for all major decisions. If you do not have an engineer on staff, KDOT may help you in finding and funding an engineer. Make sure you follow the necessary requirements of the Kansas-adopted version of the MUTCD and consult the Kansas handbooks on traffic control devices for advice tailored for small cities and low volume rural roads. ■

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Sources:

- Handbook of Traffic Control Practices for Low Volume Rural Roads, 3rd Edition. Kansas Department of Transportation. (2005). Kansas State University.
- Handbook of Traffic Engineering Practices for Small Cities, 2nd Edition. Kansas Department of Transportation. (2005). Kansas State University.
- Manual on Uniform Traffic Control Devices—The Evolution of MUTCD. (2009, December 28). Retrieved February 16, 2011, from U.S. Dept of Transportation Federal Highway Administration: http://mutcd.fhwa.dot.gov/kno-history.htm.