LTAP
KANSAS LOCAL TECHNICAL ASSISTANCE PROGRAM

SUMMER 2024

KANSAS LTAP NEWSLETTER

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

INSIDE THE ISSUE

A MESSAGE FROM THE DIRECTOR

By Lindsay Francis, KS LTAP

Dear KS LTAP Community,

Our team was delighted to see many of you in person at this spring's conferences, meetings, and trainings. I want to thank our partners at KDOT, KCHA, and APWA for always including LTAP at their annual meetings and conferences and for their unwavering support in helping LTAP achieve our goal of improving skills and knowledge at local governments.

I also want to send a big thank you to everyone who attended or supported someone attending our trainings and webinars and for investing in yourselves, your workforce, and your communities. Your dedication to your roles in your respective communities is truly inspiring. Additionally, thank you for being flexible with the changes we've implemented in 2024.

The feedback we receive from you throughout the year is invaluable, and we appreciate your willingness to work with us to continuously improve our programs. To further support our improvement efforts, our team recently participated in the North Central Regional LTAP meeting to learn from and share with other state LTAP centers within our region. We are also excited for the National LTAP Association (NLTAPA) conference this summer.

We are eagerly looking forward to seeing you again soon at our upcoming trainings, local meetings, and events. Please do not hesitate to let us know of any events you would like us to attend - we will do our best to be there. Remember, you can always leave feedback or drop us a quick note on our website.

Thank you for the incredible work you are doing in your various roles within your Kansas communities. Enjoy the rest of the newsletter, and I hope you find the content useful!

Let's Connect

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OVERVIEW OF MUTCD UPDATES

By Nelda Buckley, KS LTAP

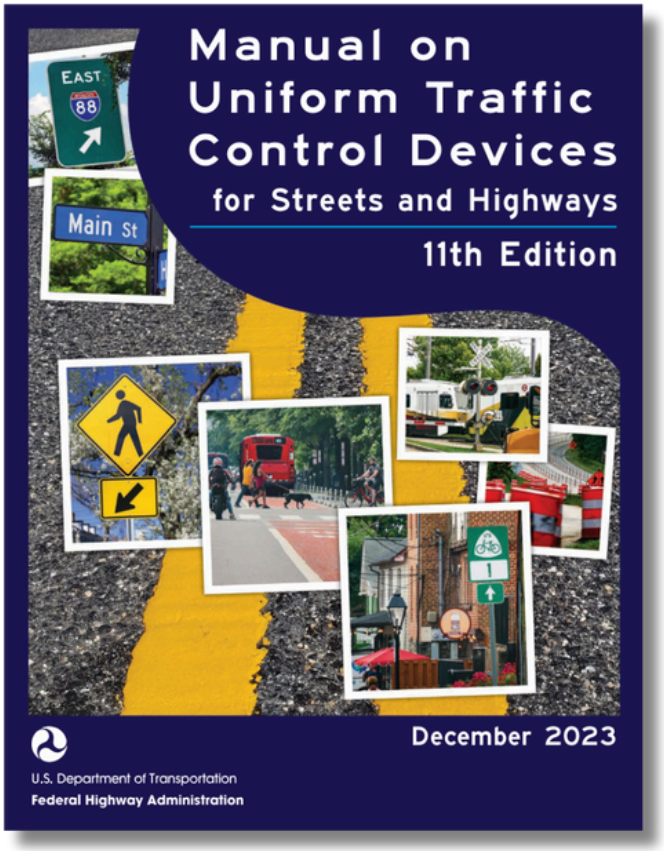
The 11th Edition of the Manual on Uniform Traffic Control Devices (MUTCD), dated December 2023, became effective on January 18, 2024. States have two years to adopt the changes; the Kansas Department of Transportation (KDOT) is currently reviewing the changes and is expected to meet the January 2026 deadline. Once KDOT adopts the changes, the MUTCD will apply to all roads open to public travel in Kansas; until then, the 2009 MUTCD still governs. After KDOT adoption, new or reconstructed devices installed shall comply with the new edition.

There are a few compliance dates that agencies should be aware of:

- Weight Limit Signs; there is now a requirement for additional Weight Limit sign(s) with the advisory distance or directional legend in advance of the applicable section of highway or structure; January 18, 2029
- Low Clearance Signs; there is now a requirement for the posting of Low Clearance Advance (W12-2) sign(s) in advance of the structure; January 18, 2029
- Low Clearance Signs; posting of Low Clearance Overhead (W12-2a or W12-2b) sign(s) is *recommended* on an arch or other structure under which the clearance varies greatly; **January 18, 2029**
- Maintaining Minimum Retroreflectivity; the requirement continues for implementation and continued use of a method that is designed to maintain retroreflectivity of longitudinal pavement markings; **September 6, 2026**
- High-Profile Grade Crossings; installation of Low Ground Clearance and/or Vehicle Exclusion signs and detour signs are *recommended* for vehicles with low ground clearances that might hand up on high-profile grade crossings at locations with a known history; **January 18, 2029**
- Highway Traffic Signals at or Near Grade Crossings; a requirement for assessment and determination of appropriate treatment to achieve compliance (preemption, movement prohibition, pre-signals, queue cutter signals); **January 18, 2034**

A reminder: the MUTCD separates text into Standard, Guidance, Option, and Support headings.

- A Standard (underlined in this article but bolded in the MUTCD) is required or mandatory; in limited cases, an engineering study might indicate a deviation to be appropriate; the verb “shall” is used.
- Guidance (italic type) statements are recommended practice in typical situations, with deviations allowed if engineering judgment or engineering study indicates the deviation to be appropriate; the verb “should“ is used.
- Option statements are permissive and carry no requirements or recommendations; the verb “may” is typically used.
- Support statements are informational only; very few support statements are included in this article.



GENERAL CHANGES

The provisions of the MUTCD are intended to be interpreted and applied by professional engineers or those under the supervision of a professional engineer.

New Part for Traffic Control Device considerations for Automated Vehicles – Part 5.

Provisions for low-volume rural roads (previous Part 5) are incorporated into the appropriate sections throughout the MUTCD.

[This article does not include the changes to Part 8

Traffic Control for Railroad and Light Rail Transit Grade Crossings, but there were many changes.]

Since the Public Rights of Way Accessibility Guidelines (PROWAG) have not been adopted by the Federal Highway Administration (FHWA) yet, those changes were not incorporated into the updated MUTCD. PROWAG is still considered a best practice.

SIGNS

Low-volume rural roads (defined as having an AADT of less than 400 vehicles and lying outside of built-up or urbanized areas of cities, towns, and communities) typically include access to rural residences, agricultural, recreational, resource management and development (such as mining, logging, and grazing), and local roads in rural areas. On low-volume rural roads, the use of traffic control devices is limited to essential information regarding regulation, warning, and guidance. On low-volume rural roads, it is important to consider the needs of unfamiliar road users for occasional, recreational, and commercial transportation purposes.

Shapes that are exclusive to a particular sign (such as an octagon for STOP, a pennant for NO PASSING ZONE, or a circle for Railroad Advance) should not be obscured by another sign mounted on the back of the same assembly protruding or extending beyond the edge of the sign with the exclusive shape.

Modifications to sign shapes, such as cutting off the left and right points of a diamond, shall not be allowed.
Where the term units/day or units/hour is indicated, it should be the total of motor vehicle, bicycle, and pedestrian volume.

YIELD or STOP signs shall not be used for speed control (was should).

Crash warrant for all-way stop control expanded.
Where a regulatory sign is used within the central island of a neighborhood traffic circle to direct traffic counter-clockwise around the central island, the Keep Right with diagonal arrow (R4-7b) sign should be used. No longer using Roundabout Directional Arrow signs (black and white chevrons).

An additional weight limit sign, with an advisory distance or directional legend, shall be located in advance of the applicable section of highway or structure so that prohibited vehicles can detour or turn around prior to the limit zone.

Placement of Warning Signs – Values for warning of a potential stop condition were increased based on AASHTO policy.
Requirements for horizontal curve signing (Advance Warning, Advisory Speed, Chevrons/Large Arrows)

- Curve Warning – any arterial or collector with AADT>1000; based on speed differential
- Also related to pavement markings
- Shall use Table 2C-4 to determine type(s) of devices to be used

A - Determination of the Need for Devices for Changes in Horizontal Alignment[1]

Roadway Type	AADT			
	Less than 1,000	1,000-2,999	3,000-3,999	Greater than 3,999
Freeways and Expressways	Required	Required	Required	Required
Arterial or Collector without Pavement Markings	Optional	Recommended	Required	Required
Arterial or Collector with Pavement Markings[2]	Optional	Recommended	Recommended	Required
All other roadways	Optional	Optional	Optional	Optional

[1] If devices are determined to be needed, the selection of the device(s) is based on Chart B below.
[2] An arterial or collector is considered to have pavement markings when either a center line, edge lines, or both are present.

B - Selection of Devices for Changes in Horizontal Alignment

Speed Differential[3]	Devices for Change in Horizontal Alignment[3]
5 mph	Pavement markings or advance horizontal alignment warning sign on paved roadways. Advance horizontal alignment warning sign on unpaved roadways.[4]
10 mph	Advance horizontal alignment warning sign
15 mph	Delineators[5] and advance horizontal alignment warning sign
20 mph or more	Chevrons[5] and advance horizontal alignment warning sign

[3] The provisions for the use of Horizontal Alignment warning signs and devices are contained in Section 2C.06. The need for devices is determined by Chart A above.
[4] A roadway is considered to have pavement markings when either a center line, edge lines, or both are present.
[5] Section 2C.06 contains information about the use of a One Direction Large Arrow (W1-6) sign in place of or to supplement delineators and chevrons.

- Advisory Speed Plaque
  - 5 mph speed differential – optional
  - 10 mph speed differential – recommended
  - 15 mph or more speed differential – required

Table 2C-6. Use of Advisory Speed Plaque for Horizontal Alignment Changes

Speed Differential	Use of Advisory Speed Plaque (W13-1P)[1]
5 mph	Optional
10 mph	Recommended
15 mph or more	Required

[1] See Section 2C.59

New section on Vehicle Speed Feedback Sign and Plaque (W13-20 and W13-20aP)

New NARROW (or ONE LANE) UNDERPASS sign should be used instead of NARROW (or ONE LANE) BRIDGE sign where appropriate.

No longer lists W9-2 (LANE ENDS MERGE LEFT (RIGHT)) sign as an option. New signs for a geometric condition where both approach lanes merge into a single lane (not where one lane merges into the other) – LANES MERGE (W9-4) AND Single-Lane Transition (W4-8).

Conventional Roads section applies to low-volume roads (no longer a separate part).

County Route signs shall be a minimum size of 24 x 24 inches.

Some changes to Expressway- and Freeway-type signing are omitted here.

SPEED LIMITS

Speed Limit Sign: Speed zones shall only be established based on an engineering study performed in accordance with traffic engineering practices. The engineering study shall consider the roadway context.

Among the factors that should be considered when conducting an engineering study for establishing or reevaluating speed limits within speed zones are the following:

- Roadway environment (such as roadside development, number and frequency of driveways and access points, and land use), functional classification, public transit volume and location or frequency of stops, parking practices, and pedestrian and bicycle facilities and activity;
- Roadway characteristics (such as lane widths, shoulder condition, grade, alignment, median type, and sight distance);
- Geographic context (such as an urban district, rural town center, non-urbanized rural area, or suburban area), and multi-modal trip generation;
- Reported crash experience for at least a 12-month period;
- Speed distribution of free-flowing vehicles including the pace, median (50th-percentile), and 85th-percentile speeds; and
- A review of past speed studies to identify any trends in operating speeds.

When the 85th-percentile speed is appreciably greater than the posted speed limit, and the roadway context does not support setting a higher speed limit, the engineering study should consider whether changes to geometric features, enforcement, and/or other speed-reduction countermeasures might improve compliance with the posted speed limit. A similar approach should be used if the results of past speed studies indicate that the 85th-percentile speed has consistently increased.

On urban and suburban arterials, and on rural arterials that serve as main streets through developed areas of communities, the 85th-percentile speed should not be used to set speed limits without consideration of all factors described above.

MARKINGS

Did NOT change the width of a normal line, still can be 4 inches, though there are benefits to using a 6-inch line.

Must use a method designed to maintain minimum pavement marking retroreflectivity if 35 mph or greater (and 6000 AADT or greater).

No-passing zone markings shall be used on:

- Two-way roadways at lane-reduction transitions
- Approaches to obstructions that must be passed on the right
- Approaches to grade crossings, and
- Approaches to crosswalks.

Two-way left-turn lane markings should not extend to intersections.

Two-way left-turn lanes may be transitioned to mandatory left-turn lanes or painted median islands where they approach an intersection.

Driveways that do not meet the definition of an intersection should have edge line markings maintained across the intersecting approach of the driveway.

Lane-reduction transitions shall include the following elements:

- A no-passing zone to prohibit passing in the direction of the convergence and through the transition area except where not applicable such as one-way streets, expressways, and freeways; and
- An edge line in the direction of the convergence and through the transition area, except if less than 25 mph with curbs.

Lane-reduction transitions *should* include the following elements:

- Delineators installed adjacent to the lane or lanes reduced for the full length of the transition and should be so placed and spaced to show the reduction (except on low-speed urban roadways with curbs)
- Lane-reduction arrow markings on the roadway with a speed limit of 45 mph or more, and
- A termination of the broken white lane line at a point that is ¼ of the advance placement distance between the Lane Ends sign and the point where the transition taper begins.

A dotted white line may be used between the point where the broken white lane line is terminated to the point where the transition taper begins.

If used, a yield line pavement marking shall not be installed without a Yield sign, a Yield Here to Pedestrians sign, a Yield here to School Crossings sign, a Yield Here to Trail Crossings sign, or some other traffic control device that requires vehicles to yield.

Added requirements for diverging diamond interchanges.

At locations controlled by traffic control signals, crosswalk markings should be installed.

The installation of other traffic control devices and other measures designed to reduce traffic speeds, shorten crossing distances, enhance driver awareness of the crossing, and/or provide active warning of pedestrian presence, should be considered in addition to a new marked crosswalk and signs across an uncontrolled roadway where any of the following conditions exist:

- The roadway has four or more lanes of travel without a raised median or pedestrian refuge island and an ADT of 12,000 vehicles per day or greater; or
- The roadway has four or more lanes of travel with a raised median or pedestrian refuge island and an ADT of 15,000 vehicles per day or greater, or
- The posted speed limit is 40 mph or greater, or
- A crash study reveals that multiple-threat crashes are the predominant crash type on a multi-lane approach, or
- When adequate visibility cannot be provided by parking prohibitions.

Except as provided in Paragraph 6 of this Section, the minimum width of a marked crosswalk shall be 6 feet.

At a non-intersection crosswalk where the posted speed limit is 40 mph or greater, the minimum width of the crosswalk shall be 8 feet.

Where curb ramps are provided, crosswalk markings shall be located so that the curb ramps are within the extension of the crosswalk markings.

If paving materials are used to function as the white transverse lines to establish a marked crosswalk, white additives shall be part of the mixture to produce a white surface. The white paving materials shall be retroreflective.

Now refers to a roundabout as a “circular intersection.” Other circular intersection types include rotaries and traffic circles.

Guidance and requirements added for sidewalk extensions (aka bulb-outs, curb extensions) including:

- Sidewalk extensions designated by pavement markings shall be established using double solid lines connecting to the outside physical curb or, in the absence of a curb, to the edge of the roadway.
- Channelizing devices such as tubular markers (see Chapter 3I) should be used to provide conspicuity for, and to prevent vehicles from traversing, the area of the sidewalk extension designated by pavement markings. They should be located adjacent to the double solid line outside the traveled way.
- Crosswalk markings shall not be extended through sidewalk extensions designated by pavement markings.

TRAFFIC SIGNALS AND PEDESTRIAN HYBRID BEACONS

Regarding traffic signals:

> The purpose of the engineering study is to evaluate all of the factors that are relevant to a specific location. The satisfaction of a warrant (or warrants) is one of the relevant factors in the engineering study, but it is not intended to be the only factor or even the overriding consideration. Agencies can install a traffic control signal at a location where no warrants are met, but only after conducting an engineering study that documents the rationale for deciding that the installation of a traffic control signal is the best solution for improving the overall safety and/or operation at the location.
>
> Many parts of requirements changed from shall to *should*.

If the School Crossing warrant is met and a traffic control signal is justified by an engineering study, the

the traffic control signal shall be equipped with pedestrian signal heads.

Crash Experience warrant now varies with characteristics of the intersection. Highway Safety Manual analysis may be used for the Crash Warrant.

Pedestrian signal heads should be installed for each marked crosswalk at a location controlled by a traffic control signal.

New section for Bicycle Signals.

Additional specifications for location of pedestrian push buttons (also for pedestrian hybrid beacons).

At locations where a leading pedestrian interval is used, the minimum time for the WALKING PERSON (symbolizing WALK) indication should be the time provided for the leading pedestrian interval plus 7 seconds.

For pedestrian hybrid beacons:

The criteria for the pedestrian volume crossing the major street may be reduced as much as 50 percent if the 15th-percentile crossing speed of pedestrians is less than 3.5 feet per second.

Where there is a divided street having a median of sufficient width for pedestrians to wait, the criteria for the major-street traffic volume may be applied separately to each direction of vehicular traffic.

If the pedestrian hybrid beacon is installed at or immediately adjacent to an intersection with a minor street, a STOP sign shall be installed for each minor-street approach.

Signs are now optional.

New sign (STOP ON RED – YIELD ON FLASHING RED AFTER STOP) for pedestrian hybrid beacons.

Where two accessible pedestrian signals on one corner, or in a median, that are associated with different phases are placed less than 10 feet apart, the audible walk indication shall be a speech walk message. In all other cases, including at midblock crossings, on corners where only one accessible pedestrian signal is present, in a median, and on corners where two accessible pedestrian signals are separated by a distance of at least 10 feet, the audible walk indication shall be a percussive tone. Audible tone walk indications shall repeat at eight to ten ticks per second.

New section on Rectangular Rapid Flashing Beacons.

New section for Hybrid beacons for Emergency-Vehicle Access (now separate from Traffic Control Signals for Emergency-Vehicle Access).

TEMPORARY TRAFFIC CONTROL (TTC)

The TTC needs on low-volume and special purpose roads will sometimes be minimal, especially for shorter term durations and for lower-speed roads. The use of maintenance vehicle warning flashers, a limited number of signs, or a single flagger could be adequate for these situations. [May be from old Part 5]

Traffic control devices should provide information in usable formats for pedestrians with vision disabilities.

Early coordination should occur with school officials to discuss potential impacts on picking up and dropping off schoolchildren, on school bus routing, and on safe routes to school patterns.

All TTC devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, TTC devices that are no longer appropriate shall be removed or covered.

Prior to closing a sidewalk or other pedestrian facility, the maintaining agency should advise users of the future closure.

If an existing pedestrian route is impacted by a short-duration or a short-term stationary work zone that is attended with project personnel, establishing an alternate pedestrian route may not be necessary if the work can be stopped and pedestrians can navigate the work zone. Pedestrians may be delayed for a short period of time for project personnel to move equipment and material to facilitate passage. Work zone personnel may also provide assistance to pedestrians as necessary.

The TURN OFF 2-WAY RADIO AND CELL PHONE (R22-2) sign shall be used to require road users to turn off mobile radio transmitters and cellular telephones where blasting operations occur.

Mounting or space considerations may justify a change from the standard diamond shape to a rectangular shape. [Was just “a change,” now to a rectangular shape specifically.]

The MERGE HERE TAKE TURNS (W9-2a) sign should be used to identify the merge point at which vehicles from alternate lanes take turns merging during Late Merge applications. [Also, a new section for Late Merge – 6N.19]

Pedestrian channelizing devices should be provided when work activities impact sidewalks or other pedestrian facilities or when the design of the temporary pedestrian facility does not otherwise include accessibility features consistent with the features in the existing pedestrian facility.

When used as a sidewalk closure, the pedestrian channelizing device shall cover the entire width of the sidewalk.

Pedestrian channelizing devices shall have continuous detection plates and hand-trailing edges. The bottom of the detection plate shall be no higher than 2 inches above the walkway. The top edge of the detection plate shall be at least 8 inches above the walkway. The top of the hand-trailing edge shall be no lower than 32 inches and no higher than 38 inches above the walkway. The top surface of the hand-trailing edge shall be smooth to optimize hand trailing. Both the detection plate and the hand-trailing edge shall share a common vertical plane.

When pedestrian channelizing devices are combined in a series, the gap between devices *should not* exceed 1 inch.

There *should* be at least a 2-inch gap between the hand-trailing edge and its support.

When visible to vehicular traffic the detection plate and the hand-trailing edge of the pedestrian channelizing device shall have retroreflective sheeting.

When not visible to vehicular traffic, the pedestrian channelizing device *should* have a contrasting pattern in alternating light and dark colors to provide visual contrast on the upper surface consisting of a minimum of 6 inches of sheeting or other contrasting materials.

A continuous wall may be used as a pedestrian channelizing device.

When used, a continuous wall *should* have a lower edge no more than 2 inches above the walkway, *should* extend a minimum of 32 inches above the walkway, *should* have a common vertical face, and *should* have alternating, contrasting sheeting positioned 32 inches above the walkway.

The continuous wall may extend to any height above the 32-inch minimum.

The continuity of a bikeway *should* be maintained through the TTC zone if practical.

If a bikeway detour is unavoidable, it *should* be as short and direct as practical.

On-road bicyclists *should not* be directed onto a path or sidewalk intended for pedestrian use except where such a path or sidewalk is a shared-use path, or where no practical alternative is available (such as might be the case on a bridge during a rehabilitation project).

If a portion of a bikeway is to be closed due to construction activities and the detoured bikeway follows a complex path not in the original bikeway corridor, then a full detour plan *should* be developed and implemented. The TTC for the detour of the bikeway *should* include all necessary advance warning (W21 series) signs, detour (W4-9 series) signs, and any other TTC devices necessary to guide bicyclists along the detour route.

Regarding Traffic Incident Management:

> Planning and training should include incorporation of estimated time durations to clear the event as part of their initial incident estimate. When events are deemed as probable Major Traffic Incidents that could generate prolonged lane or road closures, notification of all affected agencies should be initiated as part of the initial incident report that is provided to the emergency communications center who would then be responsible for making notifications to appropriate state, regional, and local agencies and resources for the purpose of ramping up and responding as quickly as possible thus facilitating a more rapid transition from emergency TTC to an MUTCD-compliant TTC zone when warranted.

Delineators or channelizing devices should be used along the shoo-fly detour diversion.

Regarding a Sidewalk Detour or Diversion:

> When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. A pedestrian channelizing device detectable by a person with a vision disability traveling with a long cane shall be placed across the full width of the closed sidewalk.
>
> When used, temporary ramps shall provide a 12:1 (8.33%) or flatter slope, with a slip-resistant surface.

The ramp landing area shall provide a 48-inch x 48-inch minimum area with a 2% or flatter cross-slope.

When used, Longitudinal Channelizing Devices used for temporary pedestrian routes shall comply with the Pedestrian Channelizing Devices Section.

Temporary traffic barriers, if used, shall comply with the provisions of the Positive Protection and Temporary Traffic Barriers Section.

SIDEWALK CLOSED CROSS HERE signs shall include audible information devices to provide adequate communication to pedestrians with vision disabilities.

Audible information devices shall be provided where midblock sidewalk closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians with vision disabilities.

The surface of an alternate pathway *should* meet the requirements of the U.S. Department of Justice 2010 ADA Standards for Accessible Design, September 15, 2010, 28 CFR 35 and 36, Americans with Disabilities Act of 1990.

The protective requirements of a TTC situation have priority in determining the need for temporary traffic barriers and their use in this situation should be based on engineering judgment.

The width of the alternate pedestrian route may be 48 inches with a passing area of 60 inches every 200 feet.

Regarding Crosswalk Closures and Pedestrian Detours:

SIDEWALK CLOSED CROSS HERE signs shall include audible information devices to provide adequate communication to pedestrians with vision disabilities.

Audible information devices shall be provided where midblock sidewalk closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians with vision disabilities.

New Typical Applications:

- Bicycle Lane Closure without a Detour
- Bicycle Lane Closure with an On-Road Detour
- Shared-Use Path Closure with a Diversion
- On-Road Detour for Shared-Use Path
- Paved Shoulder Closure with a Bicycle Diversion onto a Temporary Path
- Short-Term or Short-Duration Work in a Circular Intersection
- Flagging Operation on a Single-Lane Circular Intersection
- Inside Lane Closure on a Multi-Lane Circular Intersection

VULNERABLE ROAD USERS (PEDESTRIANS AND BICYCLISTS)

The maximum starting point of a reduced school speed limit zone should not be more than 500 feet before the school grounds or a school crossing.

An END HIGHER FINES ZONE (R2-11) sign or an END SCHOOL ZONE (S5-2) sign shall be installed at the downstream end of the zone to notify road users of the termination of the increased fines zone.

If exceeding the speed limit is the only traffic violation that is subject to higher fines, a FINES HIGHER (R2-6P), FINES DOUBLE (R2-6aP), or $XX FINE (R2-6bP) plaque shall be posted with the School Speed Limit (S51-) sign and shall not be posted beneath the School Zone (S11-) sign.

If the portion of the roadway subject to higher fines does not begin at the School Zone (S1-1) sign, a BEGIN HIGHER FINES ZONE (R2-10) sign shall be placed where the higher fines begin.

If a BEGIN HIGHER FINES ZONE (R2-10) sign is used downstream of the School Zone (S11-) sign, a FINES HIGHER (R2-6P), FINES DOUBLE (R2-6aP), or $XX FINE (R2-6bP) plaque may also be placed beneath the School Zone (S1-1) sign.

If other traffic violations in addition to exceeding the speed limit are subject to higher fines, then the duplicate FINES HIGHER (R2-6P), FINES DOUBLE (R2-6aP), or $XX FINE (R2-6bP) plaque *should* be omitted from the School Speed Limit When Flashing (S5-1) sign.

If a higher fines zone ends at the same point as a reduced school speed limit zone, an END SCHOOL ZONE (S5-2) sign may be used instead of a combination of an END HIGHER FINES ZONE (R2-11) sign and an END SCHOOL SPEED LIMIT (S5-3) sign.

Where the higher fines zone is established by statute, the BEGIN HIGHER FINES ZONE (R2-10) sign, FINES HIGHER (R2-6P), FINES DOUBLE (R2-6aP), and $XX FINE (R2-6bP) plaques may be omitted.

Jurisdictions *should* have policies and procedures for the qualifications, selection, and training of adult crossing guards [removed specifics].

The school crossing STOP paddle shall comply with the provisions for a STOP/SLOW except both sides shall be a STOP face.

[Did not include changes to Part 8 – Traffic Control for

Railroad and Light Rail Transit Grade Crossings, but there were many changes.]

Any diamond-shaped warning sign that is placed such that it is applicable only to bicyclists or pedestrians on shared-use paths or separated bicycle lanes may be 18" x 18".

Pavement markings on bicycle facilities that must be visible at night or in low-light conditions shall be retroreflective unless the markings are adequately visible under provided lighting.

Raised pavement markers *should* not be used on bicycle lanes or shared-use paths.

If used around bicycle facilities, raised pavement markers *should not* be placed immediately adjacent to the travel path of bicyclists in a bicycle lane or on a shared-use path.

Where an engineering study or engineering judgment demonstrates that it is appropriate to exempt bicyclists from the provisions of a regulatory sign, the EXCEPT BICYCLES (R3-7bP) regulatory plaque *should* be used.

The EXCEPT BICYCLES regulatory plaque shall not be used to exempt bicyclists from the legal requirement of a STOP or YIELD sign, Yield Here to Pedestrians Signs, Stop Here for Pedestrians Signs, or a traffic signal indication.

Where a regulatory sign, such as the No Left Turn (R3-2) sign, is installed on the same post or mounting as a STOP sign or YIELD sign, the EXCEPT BICYCLES regulatory plaque shall not be installed in conjunction with the regulatory sign on that post or mounting that includes the STOP sign or YIELD sign.

The EXCEPT BICYCLES regulatory plaque shall be placed below the regulatory sign that it supplements.

Advance Intersection Lane Control signs that display the bicycle lane shall use a contrasting white legend on a black background for the bicycle lane. The portion of the display for the bicycle lane shall not use the color green on the sign face in an attempt to be consistent with the green-colored pavement that might be present on the intersection approach.

New sections for:

- Back-In Parking Sign
- Bicycle Passing Clearance Sign
- Bicycles Use Shoulder Only Sign
- Signing for Bicycles on Freeways and Expressways
- Two-Stage Bicycle Turn Box Regulatory Signing
- Bicycle Jughandle Signs
- Bicycle Actuation Signs
- Left Turn Yield to Bicycles Sign
- Bicycle Signal Signs

If used in advance of a trail crossing, a W11-15 or W11-15a sign should be supplemented with an AHEAD (W16-9P) or XX FEET (W16-2P or W16-2aP) plaque to inform road users that they are approaching a point where crossing activity might occur.

New sections for:

- EXCEPT BICYCLES Warning Plaque
- Bicycle Cross Traffic Warning Plaques
- Bicycle Lane Ends Warning Sign and Bicycles Merging Sign
- Bike Route Guide Signs
- BIKE ROUTE Plaque
- Non-Numbered Bicycle Route Sign
- U.S. Bicycle Route Sign
- Destination Guide Signs for Shared-Use Paths
- Two-Stage Bicycle Turn Box Guide Signs
- General Service Signing for Bikeways
- Bicycle Lanes [Markings] at Intersection Approaches
- Extensions of Bicycle Lanes [Markings] through Intersections
- Bicycle Lanes [Markings] at Circular Intersections
- Buffer-Separated Bicycle Lanes [Markings]
- Separated Bicycle Lanes [Markings]
- Counter-Flow Bicycle Lanes [Markings]
- Shared-Lane Markings for Circular Intersections
- Two-Stage Bicycle Turn Boxes [Markings]
- Bicycle Box [Markings]
- Bicycle Route Pavement Markings
- Raised [Bicycle Marking] Devices
- Bicycle Signal Faces

**The June Roundabout Webinar focused on MUTCD Updates and can be viewed at: https://youtu.be/lFJFvC7mtuk*

RESOURCES

MUTCD 11th Edition - FHWA MUTCD. (n.d.). https://mutcd.fhwa.dot.gov/kno_11th_Edition.htm

CONCRETE TRIAL BATCHES

By Mark Shelton, MO/KS Chapter ACPA

One of the rules to a successful anything is “no surprises.” This especially rings true on a construction project or operation. Last minute plan changes, unforeseen weather, worker shortages, or materials not meeting specifications can cause delays, cost money, and at times, tempers to flare. None of these are positives for the project. The topic of our article is concrete. Specifically, how to avoid surprises when the concrete is delivered. The last thing anyone wants is to have the team in place ready to place the concrete then to be standing around because the mix is out of specification.

One way to avoid surprises with a new concrete mix design or even the same design starting off a new year is with a trial batch. The purpose of a trial batch is to verify that the mixture designed in the office, and possibly batched in the laboratory, behaves the same way and has the same properties in the field.

Why would there be differences? The simple answer is something has changed. The first thing we will consider is cement. Within the last couple of years Type 1L cement has replaced Type 1 cement. Type 1L cement allows a maximum replacement of the clinker with 15% limestone. In practice, the Type 1L cement has about 10-12 percent limestone. Type 1L cement is an engineered product of high quality, however, cement from different sources may not be the same in how they affect a mix design. The addition of more limestone creates a finer cement, as the limestone is softer and grinds finer. Water demand, finishing, and chemical admixture dosage can all be affected. Supplemental cementitious materials, SCM’s, are another consideration. Agencies are allowing higher amounts of SCM’s in their mixtures. Trinary and even quaternary mixtures are allowed. The amounts and consistency of these materials can slow the rate of strength gain and affect how the chemical admixtures react.

Finally, we will consider the aggregates. It can be possible that a small amount of aggregate was produced for a new mix design and possibly months before the mix will be needed in the field. Aggregate production rates, maintenance on the crusher or screening units or just simply being in a different portion of the quarry can affect aggregate gradation and aggregate characteristics, thus affecting how the mix behaves.

Please note none of the things discussed are considered intentional misrepresentations. In fact, the Type 1L cement and increased SCM use are in response to desires to reduce the carbon footprint. Also, finer cement, additional SCM’s and tighter aggregate packing can result in a more durable concrete mixture. The aggregate produced for the project is the most representative. The point of our article is to recommend taking the time, and doing the planning, to coordinate with the concrete producer to do a trial mix and verify all the onsite materials result in a concrete mix with the quality, consistency, and mix characteristics you want in your project. Again, the goal is “no surprises.”

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KDOT LAUNCHES NEW TOOLS FOR LOCAL PUBLIC WORKS

By Lindsey Francis, KS LTAP

KDOT recently unveiled two innovative tools aimed at reinforcing support for local public works agencies. The first, KDOT's new electronic bridge inspection tool and database, offers a more streamlined approach to bridge management, and replaces the existing Bridge Inspection Portal. The second tool, the Kansas Vulnerable Road User Safety Assessment Tool, equips agencies with critical data to enhance safety measures for pedestrians and cyclists statewide. Together, these advancements mark a significant step forward in KDOT's commitment to improving infrastructure management and road user safety across Kansas.

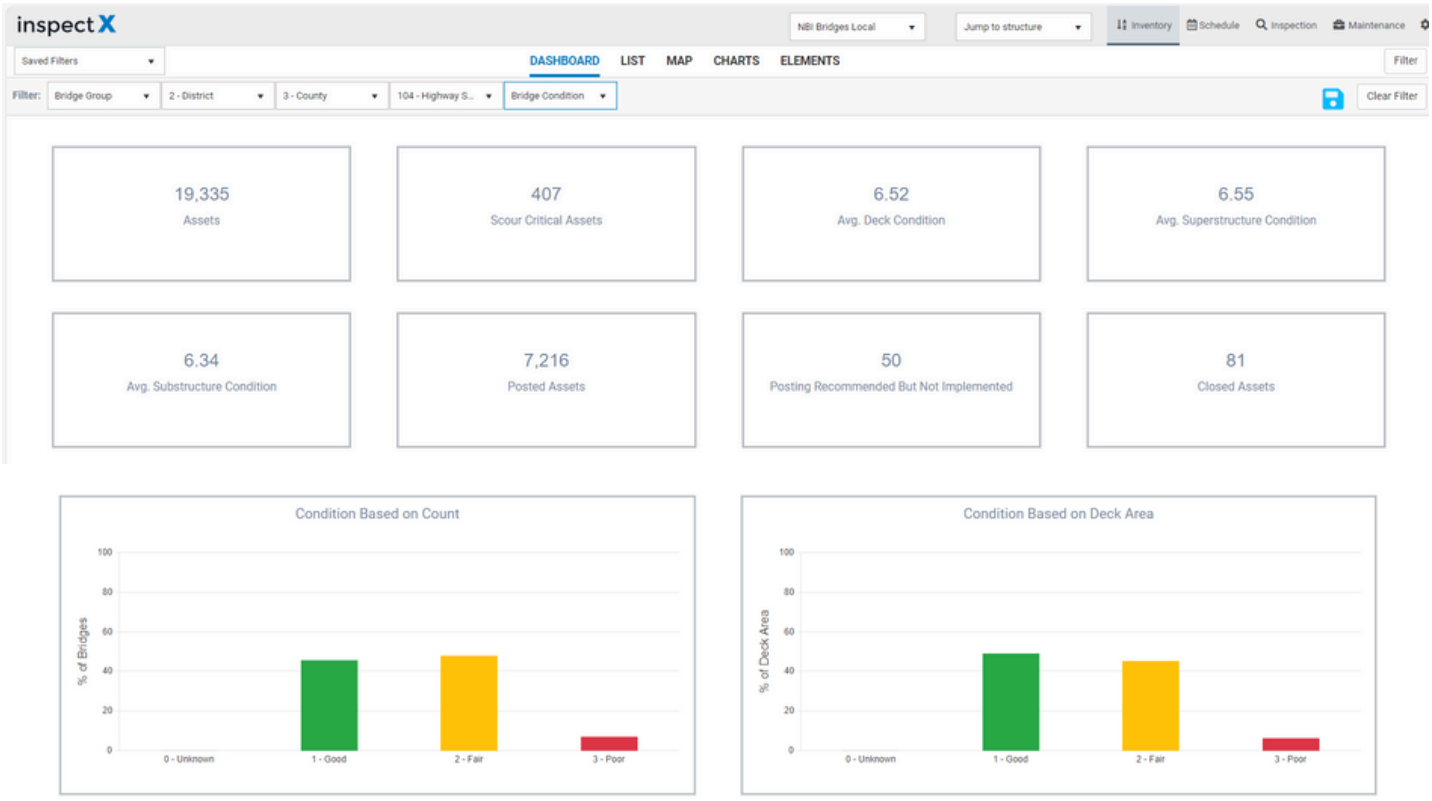
KDOT's Electronic Bridge Inspection Tool

KDOT's Bureau of Local Projects (BLP) is excited to announce the launch of the inspectX electronic bridge inspection tool, which went live on June 3rd and will be replacing the Bridge Inspection Portal. This tool has been in development for several years, with the goal of streamlining the inspection process and fostering a more efficient, accurate, and sustainable approach to bridge management and safety oversight for local agencies.

The inspectX tool offers both a mobile application and a desktop version. The mobile app enables inspectors to enter inspection notes electronically while in the field, enhancing convenience and accuracy. For desktop access, bridge owners can request a login from BLP. Each bridge owner will be granted one user account, tied to a generic email address rather than an individual's name, ensuring continuity despite personnel changes. This email address will be used for notifications related to bridge inspections, inspectX updates, and more, so it is important that someone actively monitors this account.

Bridge owners should have already received communication from BLP about this transition. If you have any questions regarding the inspectX tool, please contact Donna Schmit, Bridge Team Lead, at Donna.Schmit@ks.gov.

We look forward to seeing the benefits of this new tool in improving bridge inspection processes across Kansas.



The Kansas Vulnerable Road User Safety Assessment Tool

KDOT's Bureaus of Transportation Safety and Multimodal Transportation are excited to announce the launch of the Kansas Vulnerable Road User Safety Assessment Tool, now available for public use. This tool summarizes the findings of the Kansas Vulnerable Road User Safety Assessment, which identifies high-injury locations and common risk factors for pedestrians and cyclists and provides local agencies with crucial insights into potential safety risks.

The tool includes a StoryMap to help users interpret the data and an interactive mapping and data dashboard. These features assist agencies in understanding safety concerns and making informed decisions about infrastructure, education, enforcement, and emergency services.

Local agencies are encouraged to use this tool to identify and implement strategies that enhance safety for vulnerable road users. The data supports the development of funding applications for state and federal resources, detailed in Section 5 of the safety assessment.

For access to the tool, visit the Bureau of Transportation Safety's website at https://www.ksdot.gov/transportationsafety.asp. For questions about the tool, contact Max Wilcox at max.wilcox@ks.gov; or for questions about funding, contact the Bureau of Multimodal Transportation at kate@ks.gov. We urge all local agencies to integrate this tool into their safety planning to ensure safer travel for people who walk, bike, and roll across Kansas.

INOVATION INSIGHT - BUILD A BETTER MOUSETRAP

By Nelda Buckley, KS LTAP

It was a tight competition this year, but we have a Build a Better Mousetrap (BABM) winner!

Congratulations to Curt Hoffman and Brendan Mackay with Ellis County. Their submission for a Safety Hitch narrowly triumphed over Saline County's Bed Up Indicator. Both entries will be submitted to the national competition, but the Safety Hitch is the Kansas winner.

What is the problem that the Safety Hitch can help solve?

Connecting attachments such as large roller, sheepsfoot, and grid rollers to the clevis hitch of a road grader can be challenging as an employee is aligning the tongue of the roller while simultaneously directing the blade operator into position. Safety hazards such as pinch points while performing this maneuver could be avoided with an improved connection.

How does the solution work?

Ellis County's talented welder and fabricator built a safety device similar to a barrel bolt lock. It holds the tongue of a roller in a fixed position. This allows the employee to stay out to the red zone while directing the grader operator into position for hook-up. Once the roller is connected, the lock is released, which allows the hitch to swivel up and down.

What labor and materials are used?

Two feet of three-fourth inch cold rolled steel and two short pieces of bushing material. Labor amounted to approximately one and one-half hours of the welder/fabricator's time.

How will this benefit the community?

The safety hitch will help avoid personal injury and a Worker's Compensation claim. It also keeps the employee on the job instead of being away from work with an injury.

What happens next?

The Safety Hitch innovation details have been submitted to the Federal Highway Administration's Center for Local Aid Support's Build a Better Mousetrap competition under the Pioneer category.

Photo: Safety hitch in the down position.
Photo Credit: Curt Hoffman

Photo: Safety hitch extended for attachment.
Photo Credit: Curt Hoffman

All projects will be considered based on the following criteria: recognized importance/impact, originality, applicability to others, cost effectiveness, time savings, agency or community benefit, and the overall quality of the application.
Good luck in the nationals, Ellis County!

CHANGES MADE TO THE WATERS OF THE UNITED STATES (WOTUS) DEFINITION

By Megan Tester, KS LTAP

The U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers issued a final rule amending "Revised Definition of 'Waters of the United States.'" This was done to ensure that Waters of the United States (WOTUS) conforms to the Supreme Court's decision in Sackett v. Environmental Protection Agency. These rules have also been issued in an attempt to clarify the regulations and waters that fall under WOTUS ("Amendments").

According to the U.S. Environmental Protection Agency (EPA) here are the changes that were made with the final rule:

1. Interstate wetlands were removed from the section regarding interstate waters. Can be found in paragraph A1 of the regulatory text.
2. The "significant nexus" standard was removed from the sections regarding tributaries and adjacent wetlands. These can be found in paragraphs A3 and A4, respectively.
3. In the additional waters section of the text, the "significant nexus" standard was removed, and wetlands and streams were removed from the text of the provision. This can be found in paragraph A5 of the regulatory text.
4. The definition of "adjacent" was changed to mean "having a continuous surface connection" ("Fact Sheet"). This can be found in paragraph C2.
5. Finally, the definition for "significantly affect" was deleted. This change can be found in paragraph C6.

No changes were made to the exclusions from the Waters of the United States.

These changes became effective on September 8, 2023. The Environmental Protection Agency has provided a link to an online seminar that explains the updates to the definition of "waters of the United States." That link is https://www.youtube.com/watch?v=3ULRXa5C1Ns .

RESOURCES

"Amendments to the 2023 Rule." EPA, Environmental Protection Agency, 4 Dec. 2023, www.epa.gov/wotus/amendments-2023-rule. Accessed May 01, 2024.

"Fact Sheet for the Final Rule: Amendments to the Revised ..." Environmental Protection Agency, Aug. 2023, www.epa.gov/system/files/documents/2023-08/FINAL_WOTUS PublicFactSheet08292023.pdf. Accessed May 01, 2024.

KDOT UPDATES

By Lindsay Francis, KS LTAP

CHANGES IN KDOT LEADERSHIP:

KDOT is pleased to announce the promotion of Vanessa Lamoreaux to the position of Deputy Secretary. Vanessa previously served as the Interim Senior Director and played a significant role in establishing the Kansas Infrastructure Hub in 2022 and leading the 2023 Local Consult meetings. With Vanessa's promotion, Matt Volz has been named the new executive director of the Kansas Infrastructure Hub. For more information about Vanessa Lamoreaux's new role, read the full release here: https://www.ksdot.gov/Assets/wwwksdotorg/Headquarters/PDF_Files/pressrelease2024/LamoreauxNewsRelease.pdf. Visit the Kansas Infrastructure Hub's website here: https://kshub.org.

HIGH RISK RURAL ROADS (HRRR) PROGRAM UPDATES:

10 rural projects were selected to receive HRRR funding to address both site specific and systemic concerns with safety and efficiency. Read more about all 10 projects that received funding here: https://www.ksdot.gov/Assets/wwwksdotorg/Headquarters/PDF_Files/pressrelease2024/GOVHRRRrelease.pdf

SAFE ROUTES FOR ALL (SS4A) GRANT RECIPIENTS:

Six Kansas communities will receive Bipartisan Infrastructure Law (BIL) funding from the second round of the USDOT's SS4A Program. Read more about the six Kansas projects receiving SS4A funding here: https://governor.kansas.gov/governor-kelly-announces-more-than-6m-investment-for-safer-streets-and-roads-in-kansas-communities/

KDOT'S SAFE ROUTES TO SCHOOL:

The application period for the program closed in May. These applications are currently under review and selections are expected to be announced by the fall.

INNOVATIVE TECHNOLOGY PROGRAM:

Six Kansas cities and two Kansas counties received funding through KDOT's Innovative Technology Program to implement new transportation technology to enhance safety and improve traffic management and maintenance. Read more about all 13 projects that received funding here: https://www.ksdot.gov/Assets/wwwksdotorg/Headquarters/PDF_Files/pressrelease2024/GovInnTechGrantRelease.pdf

CITY CONNECTING LINK IMPROVEMENT PROGRAM (CCLIP):

Site visits have been completed for the applications received during this cycle. The selection process is underway, and selections are expected to be announced by the fall.

COST-SHARE PROGRAM:

The application period for the Cost-Share program closed on March 21. These applications are currently under review and selections are expected to be announced by the fall.

OFF SYSTEM BRIDGE (OSB) PROGRAM

KDOT has received 78 applications for the OSB program. These applications are currently under review and selections are expected to be announced by the fall.

KANSAS LOCAL BRIDGE IMPROVEMENT PROGRAM (KLBIP)

KDOT has received 91 applications for KLBIP. These applications are currently under review and selections are expected to be announced by the fall.

LTAP TRAINING UPDATES

By Megan Hazelwood, KS LTAP

Kansas LTAP is excited to announce our soft skill courses being offered this Fall. Below is the schedule for our soft skill courses along with their dates and locations.

- Tuesday, October 29th | Supervisor's Role in Enhancing Cooperative Work Relationships | Lawrence, KS
- Wednesday, November 6th | Conflict Resolution | Wichita, KS
- Tuesday, November 12th | Fundamentals of Supervision | Salina, KS
- Wednesday, November 13th | Foundations in Customer Service | Salina, KS
- Thursday, November 14th | Conflict Resolution | Salina, KS

Most all of these soft skill courses will fulfill our Road Scholar Level II requirements. These classes compliment our already busy Fall 2024 schedule. Those already scheduled classes are below:

10/7	Snow and Ice Control	Montezuma	Level 1
10/8		Salina	
10/9		Emporia	
10/10		Parsons	
10/18		Leawood	
10/15 & 10/16	Public Works I and II	Hays	Level 2
10/17	Risk & Liability	Hays	Level 1
10/22	Culverts & Drainage	Montezuma	Level 1
10/24		Leawood	
10/23	Signing Low Volume Roads	Hays	

Be sure you register for our Fall 2024 courses here. If you do not see a training or location you'd like us to offer and visit, please reach out to Megan Hazelwood at mhazelwood@ku.edu.

2024 REMINDER: Kansas LTAP will no longer be offering lunches during our trainings. Instead, we will be providing a morning kickstart for our attendees that may consist of coffee, juice, pastries, granola bars, etc. This will decrease the registration fee from $80 to $65. We hope that this change will allow more people to attend our trainings who may have been deterred due to the registration price previously.

It's never too early to plan for the future! If you would like to host a training in 2025, please email mhazelwood@ku.edu. Remember, all of our hosts receive one free attendee per hosted training as a "thank you!" Kansas LTAP looks forward to serving you all!

SHARE!

If you know individuals who would like to receive our newsletter, please have them go to: www.kutc.ku.edu/ltap and sign up for the Kansas LTAP email list. There is a box to check to request electronic notification of each new issue of the LTAP Newsletter. Back issues are available at our website in the newsletter archives section.

KANSAS LTAP NEWSLETTER

The Kansas Local Technical Assistance Program (LTAP) is an educational, technology transfer and service program of the Kansas University Transportation Center (KUTC). Its purpose is to provide information to local government highway departments and their personnel and contractors by translating into understandable terms the latest technologies in the areas of roads, highways and bridges.

The Kansas LTAP Newsletter is published quarterly and is free to counties, cities, townships, tribal governments, road districts and others with transportation responsibilities. Editorial decisions are made by Kansas LTAP. Engineering practices and procedures set forth in this newsletter shall be implemented by or under the supervision of a licensed professional engineer in accordance with Kansas state statutes dealing with the technical professions.