

FHWA REG. NO.	STATE	KDOT PROJECT NUMBER	YEAR	SHEET NO.	TOTAL SHEETS
7	KS	087 U-2358-01	2020	1	14

REVIEWED

By graham at 7:33 am, Aug 28, 2019

STATE OF KANSAS
DEPARTMENT OF TRANSPORTATION



CCLIP 1R RESURFACING FOR Y2020

PLAN OF PROPOSED PROJECT NO. 087 U-2358-01
K-15, KTA BRIDGE TO I-135, NB & SB

CITY OF WICHITA, SEDGWICK COUNTY, KANSAS
PROJECT NO. 472-2019-085520 OCA XXXXXX

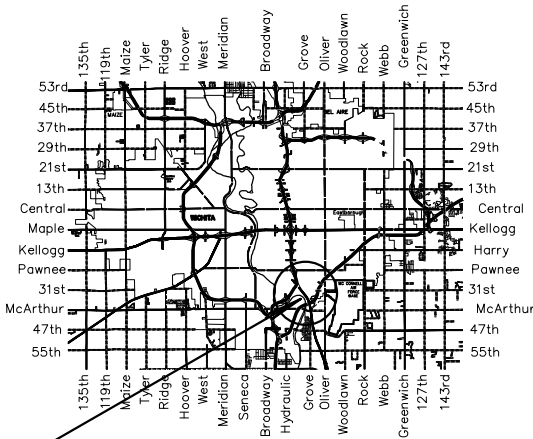
POPULATION = 389,902

Project Scope: Ultra-Thin Bonded Asphalt Surface
Sec 10, TWP 28S, R1E

INDEX OF SHEETS

- 1 TITLE SHEET
- 2 SCOPE OF WORK & BID ITEM DESCRIPTION
- 3 PLAN & LOCATION
- 4 TYPICAL SECTION & GENERAL NOTES
- 5 PAVEMENT MARKING PLAN
- 6-8 PAVEMENT MARKINGS & SIGNING DETAILS
- 9-14 TRAFFIC CONTROL DETAILS

NOTE: TRAFFIC SHALL BE CARRIED THROUGH
CONSTRUCTION.
ACCESS TO ADJACENT PROPERTY SHALL BE
MAINTAINED DURING CONSTRUCTION.



Project Site:
K-15, KTA BRIDGE
TO I-135

LOCATION MAP

CONVENTIONAL SIGNS

COUNTY LINE	-----	CENTER LINE OF PROJECT	4+000 +100
CITY LIMITS	=====	TERRACE	-----
STATE OR NATIONAL LINE	-----	CULVERTS	-----
TOWNSHIP, SECTION or GRANT LINE	-----	DROP INLET & STORM SEWER	-----
PROPERTY LINE	-----	ACCESS CONTROL	-----
HIGHWAY FENCE	-----	POWER POLE	-----
EXISTING FENCE	-----	TELEPHONE POLE	-----
GUARD FENCE	-----	MARSH	-----
CONSTRUCTION LIMITS	-----	HEDGE	-----
RIGHT OF WAY LINE	-----	TREES	-----
TRAVELED WAY	-----	PROFILE ELEVATION	-----
RAILROADS	-----	STREAM or CREEK	-----

DESIGN DESIGNATION

ADT (2018) = 29,986
% TRUCKS = 4.8%
Posted Speed Limit = 50 MPH

GROSS LENGTH OF PROJECT 5,755 LF
EXCEPTIONS 0.00
ADDITIONS 0.00

 CITY OF WICHITA PUBLIC WORKS & UTILITIES ENGINEERING DIVISION	K-15 FROM KTA BRIDGE TO I-135 (NB & SB)		
	CITY ENGINEER GARY JANZEN, P.E.		
	PROJECT NUMBER 472-2019-085520	OCA NUMBER XXXXXX	DATE 07/15/2019
	CITY ENGINEER'S OFFICE CITY HALL, 7TH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		TITLE SHEET SHEET 1 OF 14

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SCOPE OF WORK

Work on Project: Ultrathin Bonded Overlay, concrete base repair and pavement markings.

Temperature Restrictions: Work on this project shall not begin until the air temperature as measured in the shade reaches a minimum of 50°F for a minimum of three (3) consecutive days or the Engineer has given prior permission to begin work. Working days will not be charged until the outside air temperature allows work on the project by meeting the 50°F temperature requirements as stated previously.

Work on the Ultrathin Bonded Asphalt Surface shall follow KDOT Specifications in Section 613 of the Standard Specifications.

Concrete Base Repairs includes the removal and replacement of base pavement, as directed by the Engineer. The quantity bid for base repair is on estimate based upon current conditions. The Inspector will mark repairs after milling. It will consist of complete removal and replacement of the concrete base to a level flush with any milled surface. Concrete base shall be tied in all sides to existing base using No. 4 bars 2'-0" in length, spaced 2' on centers. Dowels must be set with epoxy and shall not be hammered into a smaller diameter hole. Joint spacing shall be no greater than 12 feet, nor less than 6 feet. Base repair shall conform to Section 500 of the City's Standard Specifications. All base repairs, regardless of location, require full-depth saw cuts. All saw cutting will be considered subsidiary to the other bid items.

Thermo-Plastic pavement markings are to be placed as part of this project. All thermo-plastic pavement markings shall be placed within 5 working days of placement of asphalt surface course. The Contractor shall be liable to the City of Wichita liquidated damages of \$250 per day for each working day pavement markings remain incomplete.

To prevent delays in construction and more quickly resolve traffic issues, work shall commence within two (2) working days of traffic control being set up, unless operations are delayed due to weather or any other unforeseen circumstances and must be approved by the Engineer. Overlay operations are to commence the day after the base repair concrete cures, unless operations are delayed due to weather or any other unforeseen circumstances and must be approved by the Engineer. The Contractor will reimburse to the City liquidated damages of \$250 per day for each calendar day that work has not started beyond the 2 working day grace period.

To protect underlying pavement layers and limit disruption of traffic, it is imperative that all milled asphalt surfaces be overlaid with asphalt as soon as possible. Therefore, unless the overlaying operations are delayed due to cure time of concrete base patches, or otherwise approved by the Engineer, all milled surfaces shall be covered with new asphalt within three (3) working days of the initiation of milling operations on a particular location. The Contractor will reimburse to the City liquidated damages of \$250 per day for each calendar day that milled surfaces remain unfinished beyond the three (3) working day grace period.

All attempts shall be made to keep traffic off of milled surfaces prior to being overlaid with new asphalt. Transition tapers will be provided at the start and finish of each milled area if traffic is allowed on the milled surface. All manholes, water valves, gas valves, and any other utility manholes or ducts shall also have tapers provided. Tapers shall be maintained while traffic is allowed on any milled surface and shall be cleaned up prior to being overlaid. All tapers shall be incidental to the various bid items of work.

Traffic Control shall be set up and maintained according to latest MUTCD Standards. All traffic devices not adhering to this shall be removed and replaced within 4 hours of notification. The Contractor will reimburse to the City liquidated damages of \$250 per day for each calendar day that traffic devices are not replaced within 4 hours of notification. A traffic control contact person must be available on a 24-hour a day basis. On residential streets each home in the neighborhood needs to be notified of the approximate dates of construction and scope of the project and there should be traffic signs warning drivers of construction and slow down signs while construction takes place. All traffic control items are incidental to the bid item "Traffic Control".

ELECTRONIC MESSAGE BOARDS will be used with this project. Message boards will be placed one week (7 days) in advance of placing traffic control to notify of lane closures. Message boards will remain up during construction notifying which lane is closed ahead.

BID ITEM DESCRIPTION

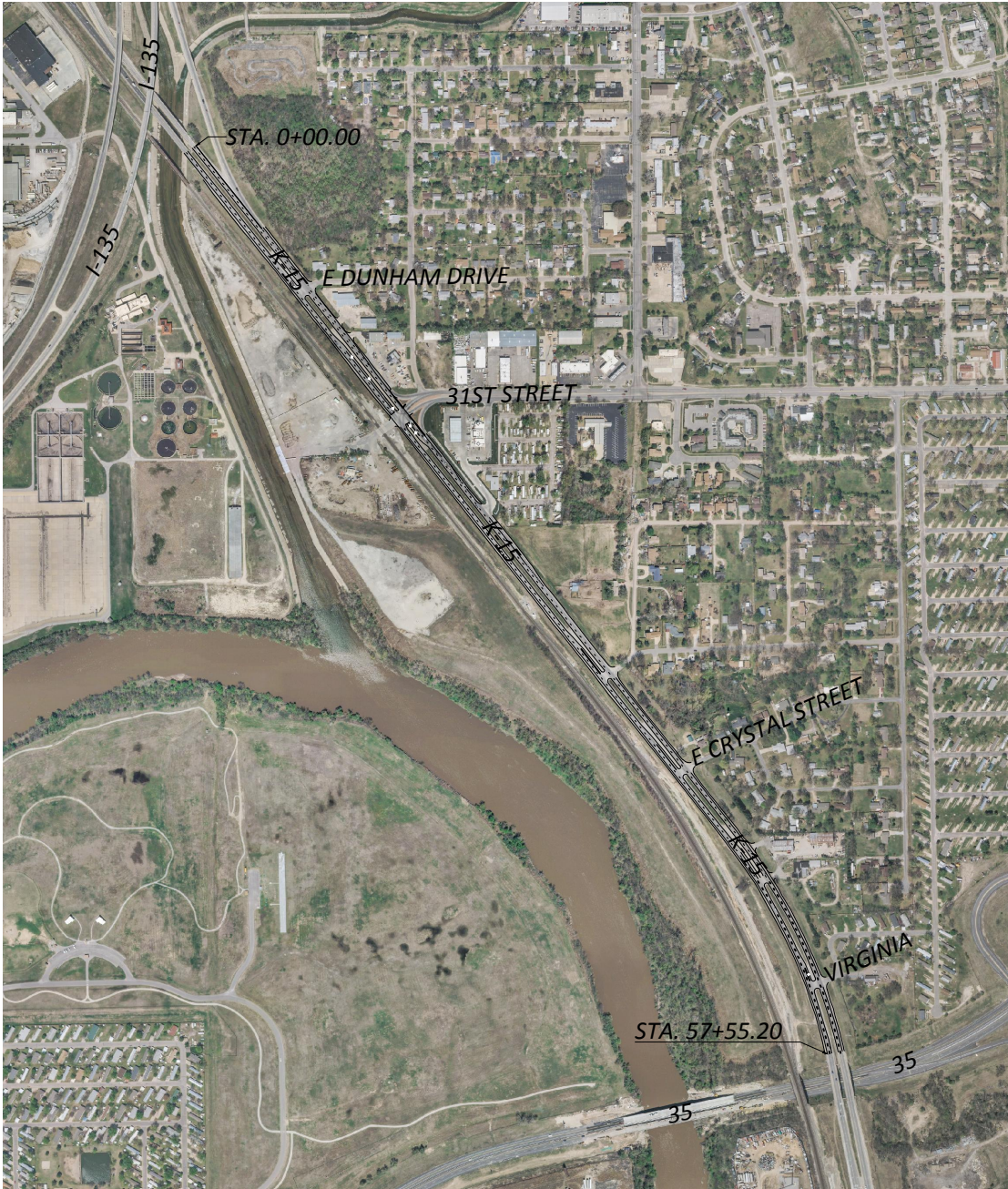
Line	KDOT	Bid Item Description	Quantity	UM
No.	Code	MEASURED QUANTITY BID ITEMS (xxxxxx) (Participating)		
1	30	HMA Surface (Ultrathin Bonded) (Type A) (PG 70-28)	2,179	tn
2	4	Cold Milling Asphalt Surface	930	sy
3	36	Reinf Conc. Base Repair (10")	250	sy
		MEASURED QUANTITY ITEMS (xxxxxx) - Traffic (Participating)		
4	80	Traffic Control	1	ls
5	54	6" White or Yellow Pavement Markings (Thermoplastic)	26,550	lf
6	54	24" White Pavement Markings (Thermoplastic)	66	lf
7	54	Pavement Markings,Turn Arrow (Thermoplastic)	6	ea
8	80	Signing, Electronic Portable Message (eac per day)	40	day
		LUMP SUM BID ITEMS (xxxxxx) (Non-Participating)		
9	1	2-Year Warranty (non-participating)	1	LS

 CITY OF WICHITA PUBLIC WORKS & UTILITIES ENGINEERING DIVISION	K-15 FROM KTA BRIDGE TO I-135 (NB & SB)		
	CITY ENGINEER GARY JANZEN, P.E.		
	PROJECT NUMBER 472-2019-085520	OCA NUMBER XXXXXX	DATE 07/15/2019
	CITY ENGINEER'S OFFICE CITY HALL, 7TH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		SCOPE OF WORK & BID ITEM DESCRIPTION SHEET 2 OF 14

FHWA REG. NO.	STATE	KDOT PROJECT NUMBER	YEAR	SHEET NO.	TOTAL SHEETS
7	KS	087 U-2358-01	2020	3	14

K-15 FROM KTA BRIDGE TO I-135, NB & SB

STA. 00+00.00 TO STA. 57+55.20





CITY OF WICHITA

PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

K-15
FROM KTA BRIDGE
TO I-135(NB & SB)

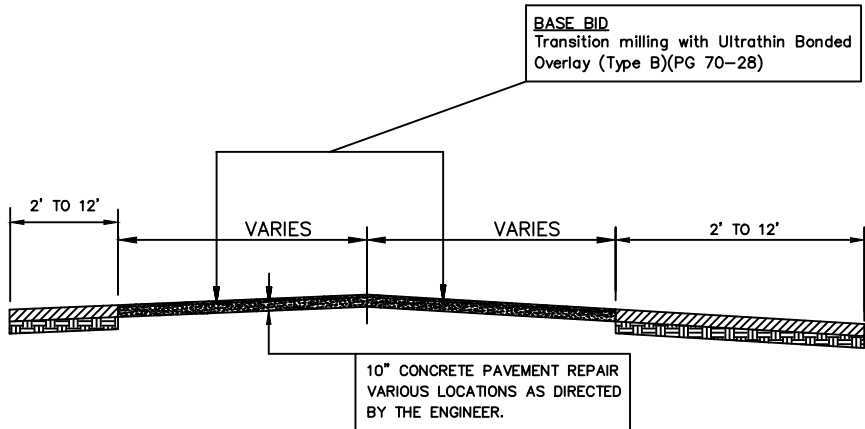
CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER 472-2019-065920	OCA NUMBER XXXXXX	DATE 07/15/2019
CITY ENGINEER'S OFFICE CITY HALL, 7TH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		PLAN & LOCATION SHEET 3 OF 14

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TYPICAL SECTION & GENERAL NOTES

IN AREAS OF UNSUITABLE SUB-GRADE, THE ENGINEER MAY DIRECT THE CONTRACTOR TO EXCAVATE A PORTION OF SUCH UNSUITABLE SUB-GRADE AND REPLACE IT WITH CRUSHED CONCRETE. WHEN SO REQUIRED THE COSTS OF ALL EXCAVATION, HAULING, PLACING, AND COMPACTION SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER BID ITEMS.



K-15 FROM KTA BRIDGE TO I-135 (NB & SB)

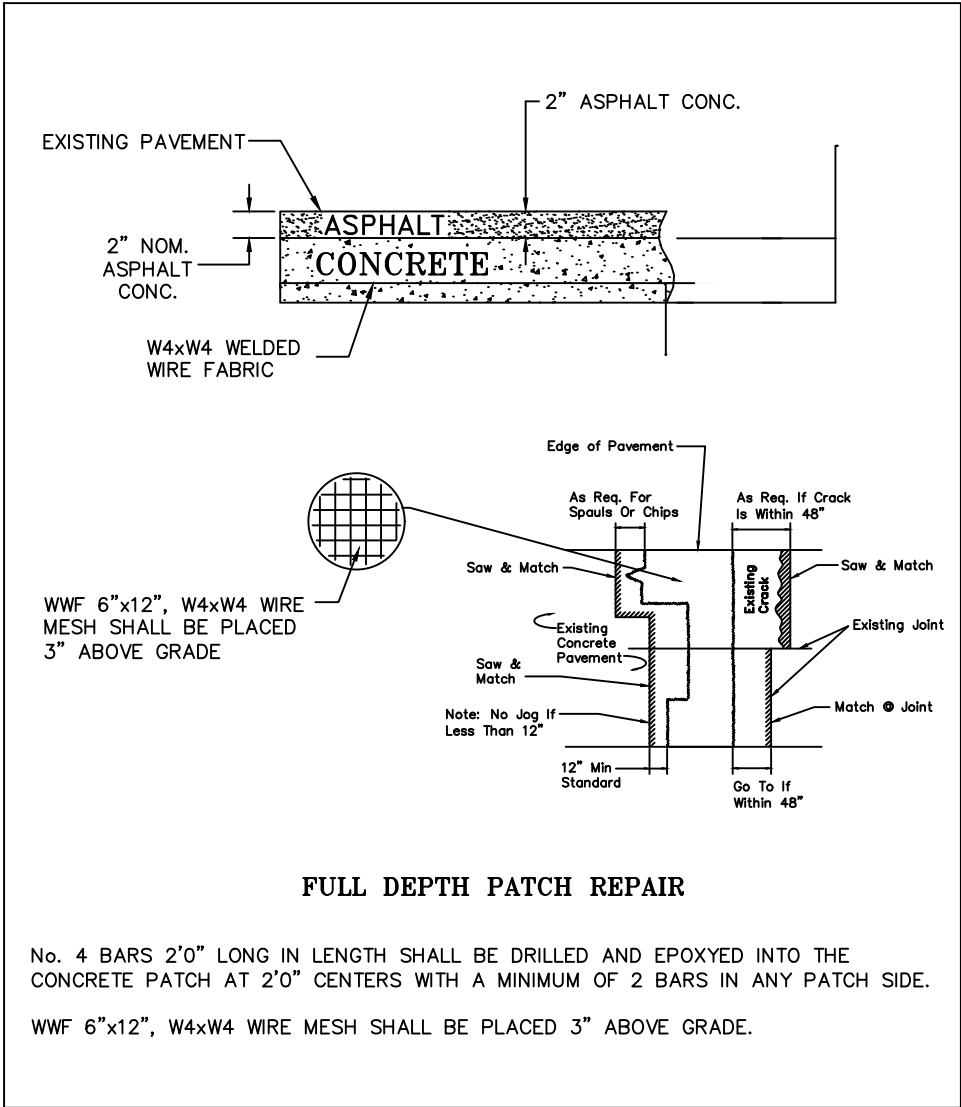
STA 0+00 TO STA 57+55.20

GENERAL NOTES:

*ALL CONCRETE PAVEMENT REPAIR SHALL BE DONE IN ACCORDANCE WITH SECTION 500 OF THE CITY OF WICHITA STANDARD SPECIFICATIONS.

DUE TO HIGH TRAFFIC VOLUMES THE CONTRACTOR WILL BE REQUIRED TO PERFORM WORK AS FOLLOWS: ONE LANE OF TRAFFIC MAY BE CLOSED FOR BASE REPAIR. ONCE TRAFFIC CONTROL IS PLACED, WORK MUST PROCEED CONTINUOUSLY WITH THE EXCEPTION OF WEATHER OR CURE DAYS. ANY CHARGEABLE WORK DAY WITH NO ACTIVITY, THE CONTRACTOR WILL BE CHARGED LIQUIDATED DAMAGES OF \$250 PER DAY.

MINIMUM SIZE OF CONCRETE PATCHES ARE 6' x 12'. CONCRETE USED FOR PATCHES MUST MEET OR EXCEED 3,500 PSI COMPRESSIVE STRENGTH BEFORE OPENING. A MIX DESIGN MUST BE SUBMITTED AND APPROVED PRIOR TO START OF CONSTRUCTION BY THE ENGINEER.



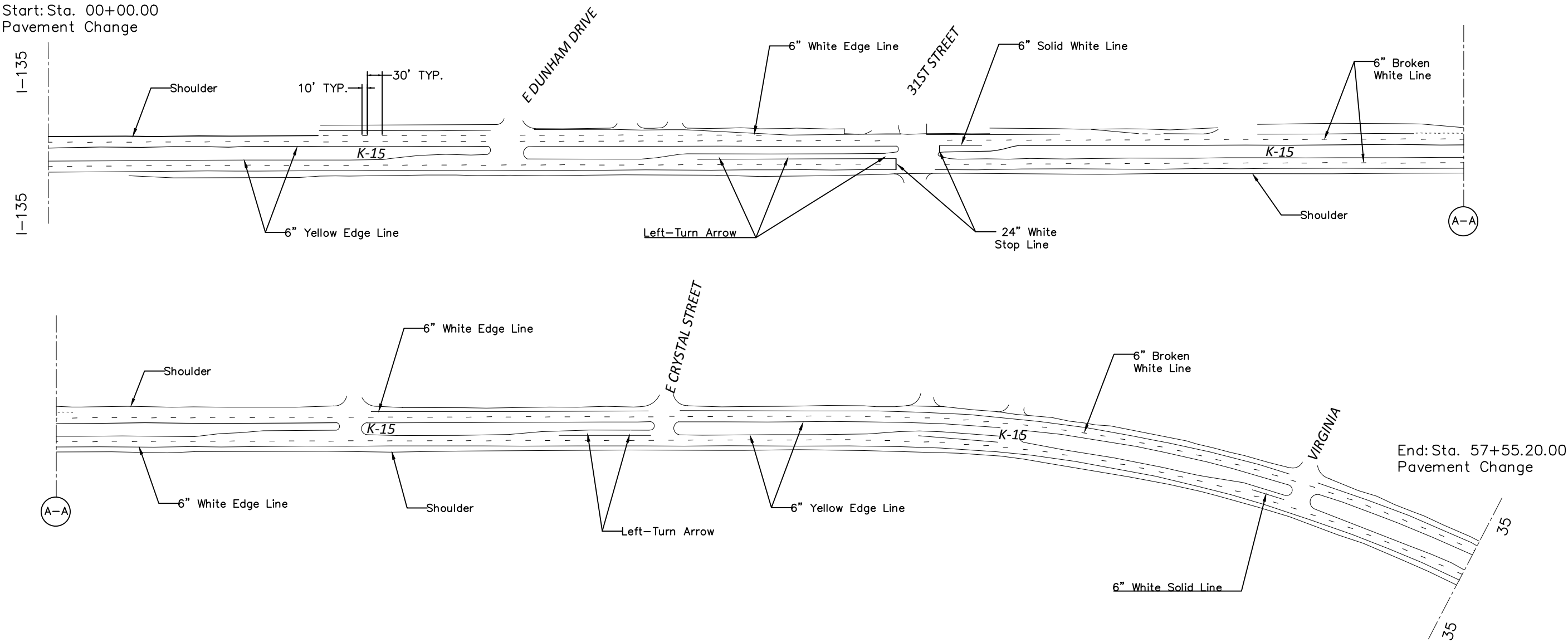
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PAVEMENT MARKING

K-15, FROM KTA BRIDGE TO I-135 (NB & SB)

STA. 00+00.00 TO STA. 57+55.20





CITY OF WICHITA

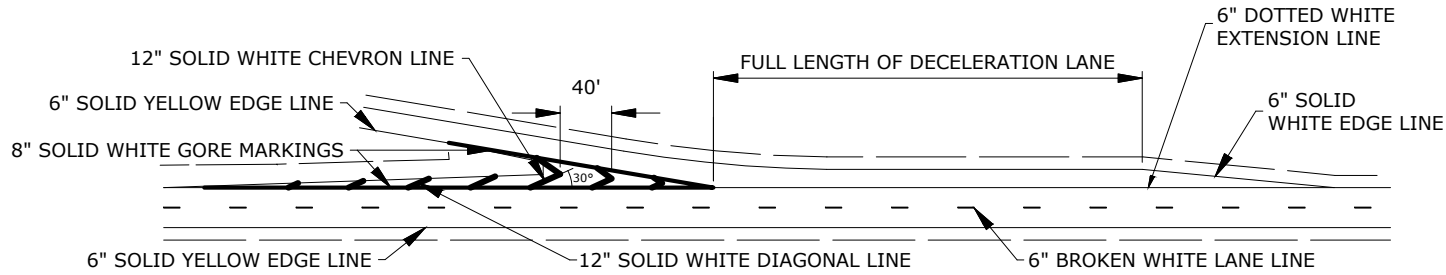
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

K-15
FROM KTA BRIDGE
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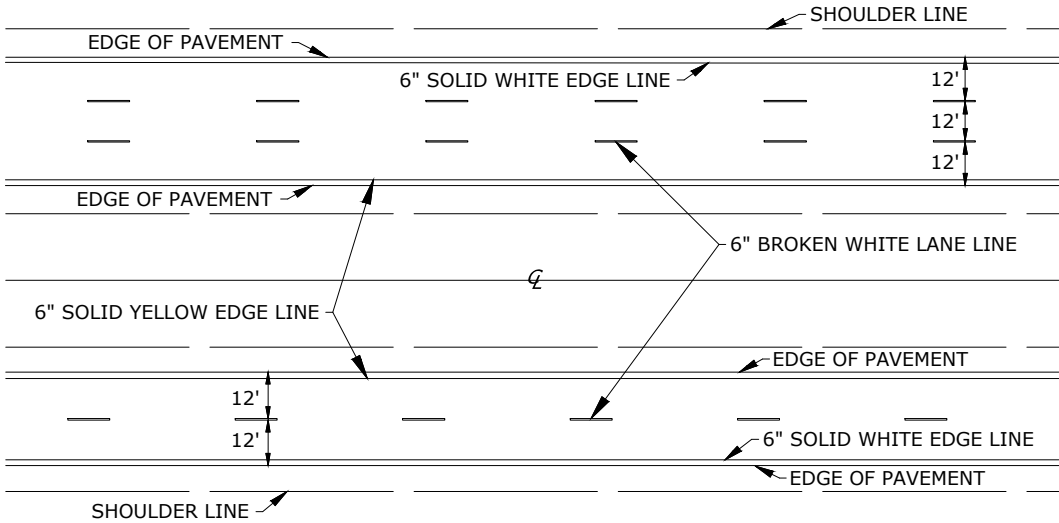
CITY ENGINEER
GARY JANZEN, P.E.

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CITY ENGINEER'S OFFICE CITY HALL, 7TH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		PAVEMENT MARKING PLAN SHEET 5 OF 14

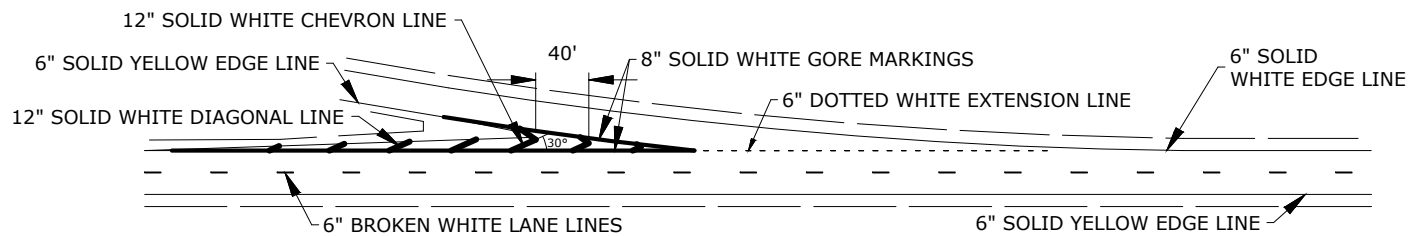
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
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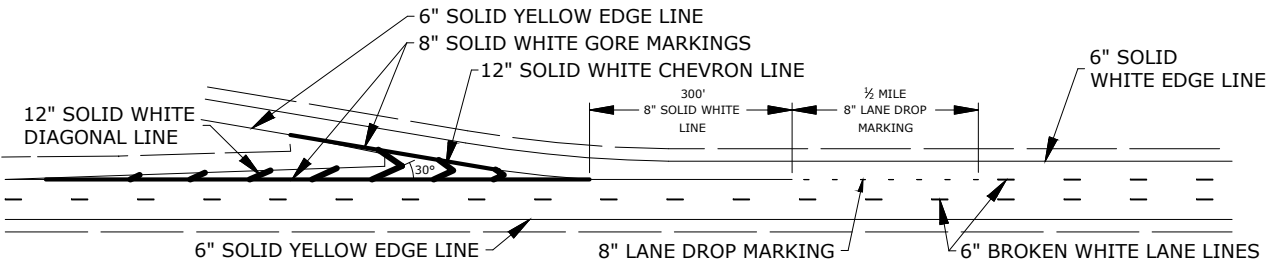
TYPICAL DECELERATION EXIT RAMP



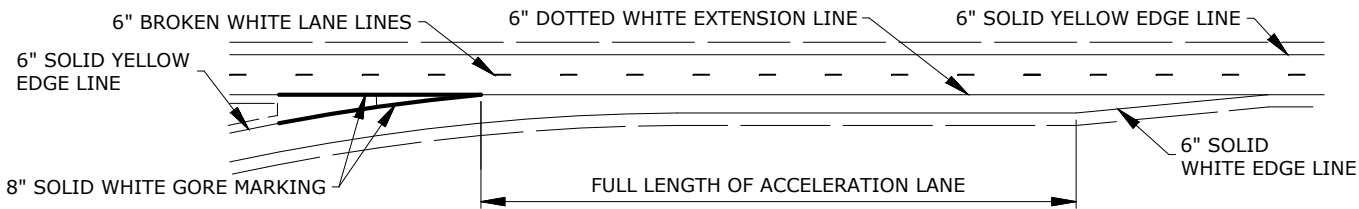
TYPICAL LANE LINE AND EDGE LINE MARKINGS
FOR FOUR LANE AND SIX LANE DIVIDED HIGHWAYS



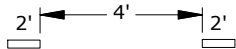
TYPICAL TAPERED EXIT RAMP



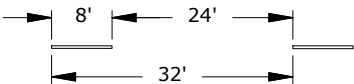
TYPICAL LANE DROP



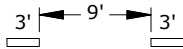
TYPICAL ACCELERATION RAMP



TYPICAL SPACING
FOR DOTTED EXTENSION
LINES, UNLESS OTHERWISE
NOTED ON PLANS.



TYPICAL SPACING
FOR BROKEN LINES
UNLESS OTHERWISE
NOTED ON PLANS.



TYPICAL SPACING
FOR LANE DROP.
UNLESS OTHERWISE
NOTED ON PLANS.

NOTE:
LONGITUDINAL PAVEMENT MARKING LINES SHALL BE OFFSET A MINIMUM OF 2" FROM LONGITUDINAL PAVEMENT JOINTS.

NOTE:
AT RAMP TERMINALS WITH CROSS-ROADS, WRAP 6" EDGE LINES AROUND RADII.

NOTE:
ON NON I, US, AND K ROUTES, 4" EDGE LINES MAY BE INSTALLED.
6" EDGE LINES ARE NOT REQUIRED ON NON I, US, AND K ROUTES.

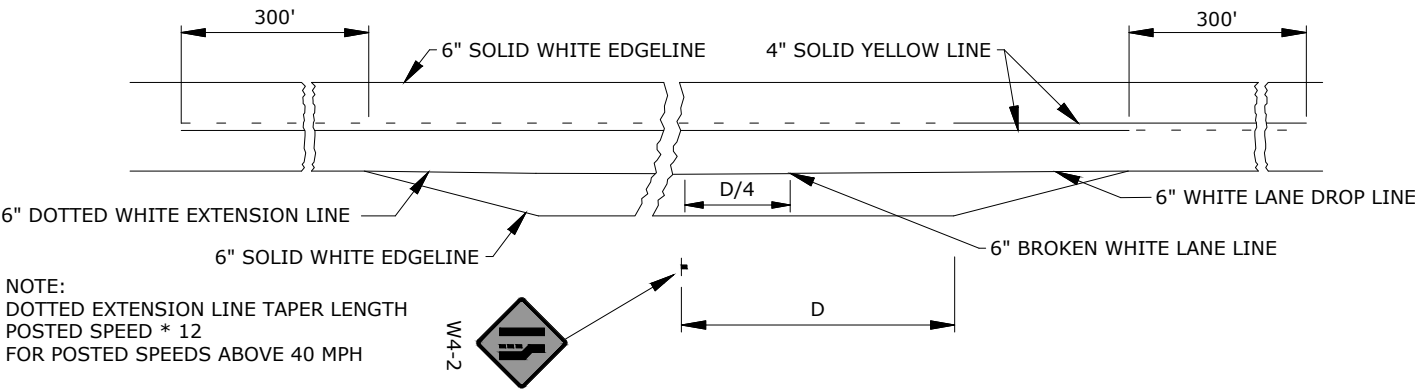
NO.	DATE	REVISIONS	BY	APP'D
2	5/25/12	Dotted Extension Lines and Lane Drop Lines	B.A.H.	B.D.G.
1	7/26/05	New FHWA Approval Date	J.F.F.	B.D.G.

KANSAS DEPARTMENT OF TRANSPORTATION				
TYPICAL PAVEMENT MARKING DETAILS FOR MULTI-LANE DIVIDED ROADWAYS				
TE307				
FHWA APPROVAL		5/25/2012		
DESIGNED	J.F.F.	DETAILED	J.F.F.	QUANTITIES
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN. CK.
APPROVAL		Brian D. Gower		
APPROVED		B.D.G.		

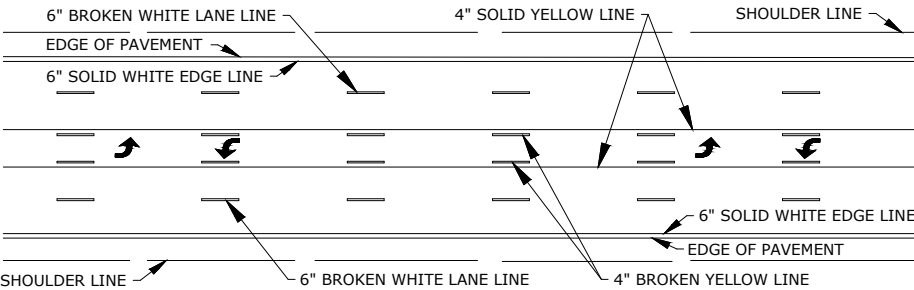
KDOT Graphics Certified 07-17-2018

Sh. No.6

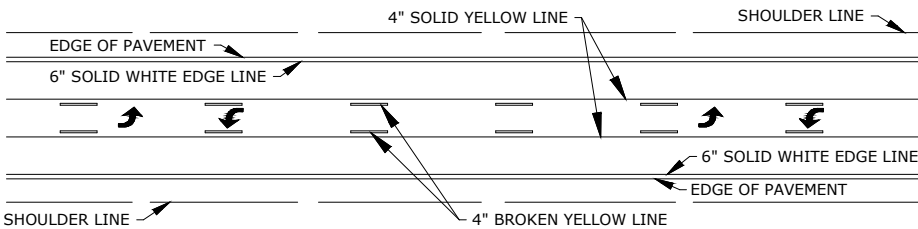
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
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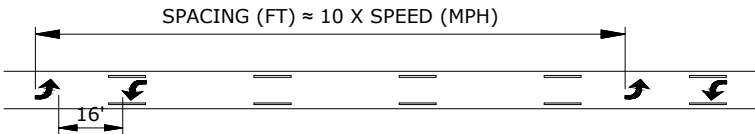
TYPICAL MARKING FOR AUXILIARY PASSING LANE



TWO-WAY LEFT TURN DETAIL FOR FIVE LANE ROADWAY

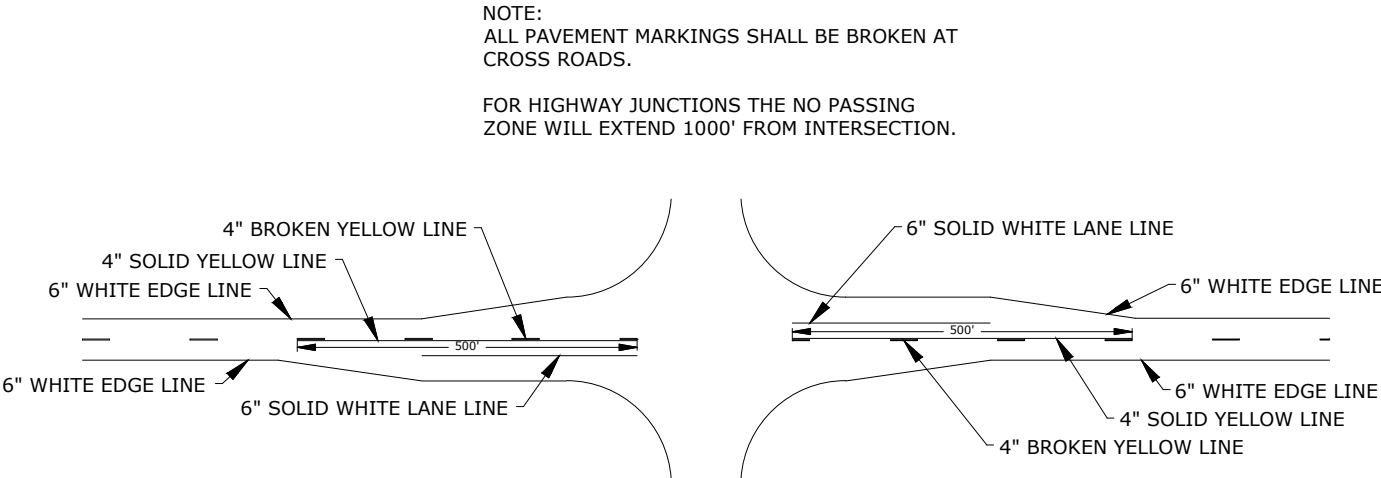


TWO-WAY LEFT TURN DETAIL FOR THREE LANE ROADWAY

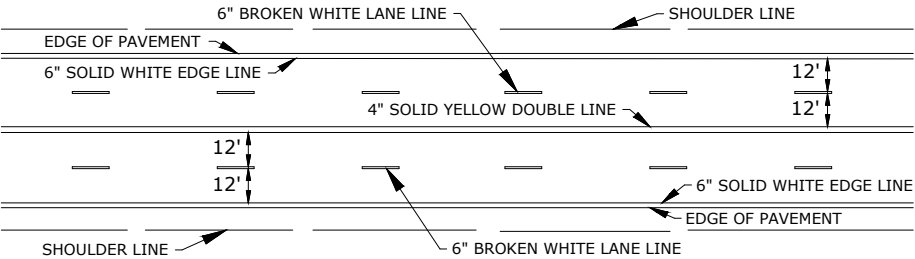


TWO-WAY LEFT TURN ARROW SPACING DETAIL

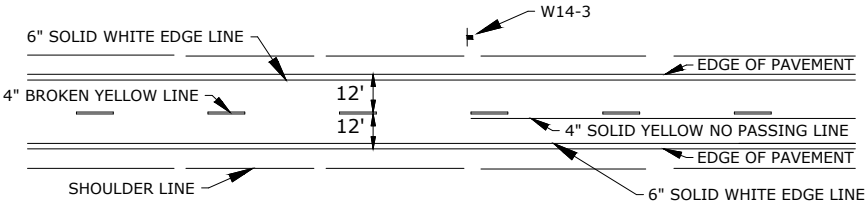
NOTE:
IF ARROWS ARE USED SPACE THE ARROWS AS SHOWN IN
THE SPACING DETAIL.



TYPICAL ROAD JUNCTION MARKINGS WITH BYPASS LANES



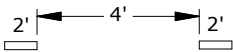
TYPICAL MARKINGS FOR FOUR LANE ROADWAY



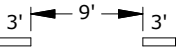
TYPICAL TWO LANE MARKINGS

NOTE:
LONGITUDINAL PAVEMENT MARKING LINES SHALL BE OFFSET
A MINIMUM OF 2" FROM LONGITUDINAL PAVEMENT JOINTS.

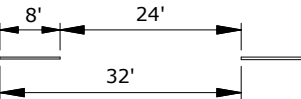
NOTE:
ON NON I, US, AND K ROUTES, 4" EDGE LINES MAY BE INSTALLED.
6" EDGE LINES ARE NOT REQUIRED ON NON I, US, AND K ROUTES.



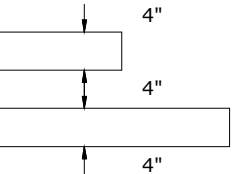
TYPICAL SPACING
FOR DOTTED EXTENSION
LINES, UNLESS OTHERWISE
NOTED ON PLANS.



TYPICAL SPACING
FOR LANE DROP.
UNLESS OTHERWISE
NOTED ON PLANS.



TYPICAL SPACING
FOR BROKEN LINES
UNLESS OTHERWISE
NOTED ON PLANS



TYPICAL SPACING FOR
NO PASSING LINES
UNLESS OTHERWISE
NOTED ON PLANS

3	5/25/12	Added Dotted Extension and Lane Drop Lines	B.A.H.	B.D.G.
2	9/20/05	Removed Aux. Passing Lane Dotted Ext. Line	J.F.F.	B.D.G.
1	7/26/05	New FHWA Approval Date	J.F.F.	B.D.G.
NO.	DATE	REVISIONS	BY	APPD

KANSAS DEPARTMENT OF TRANSPORTATION				
TYPICAL PAVEMENT MARKING DETAILS FOR UNDIVIDED ROADWAYS				
TE308				
FHWA APPROVAL				
DESIGNED	J.F.F.	DETAILED	J.F.F.	QUANTITIES
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN. CK.
Brian D. Gower				
TRACED				
TRACE CK.				

KDOT Graphics Certified 07-17-2018

Sh. No. 7

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TYPICAL SIGNING AND MARKING
FOR RIGHT LANE MUST TURN RIGHT

4" BROKEN
YELLOW LINE

SIDE ROAD

** FOR 55 MPH
AND ABOVE
USING THE
SAME SPACING

8" SOLID
WHITE LINE

4" SOLID
YELLOW LINE

8" BROKEN
WHITE LANE DROP LINE



R3-7

*** THE LANE DROP MARKINGS LENGTH IS A MINIMUM OF 100'
AND A MAXIMUM OF 250' PRIOR TO THE 8"SOLID WHITE LINE

RAILROAD CROSSING MARKING

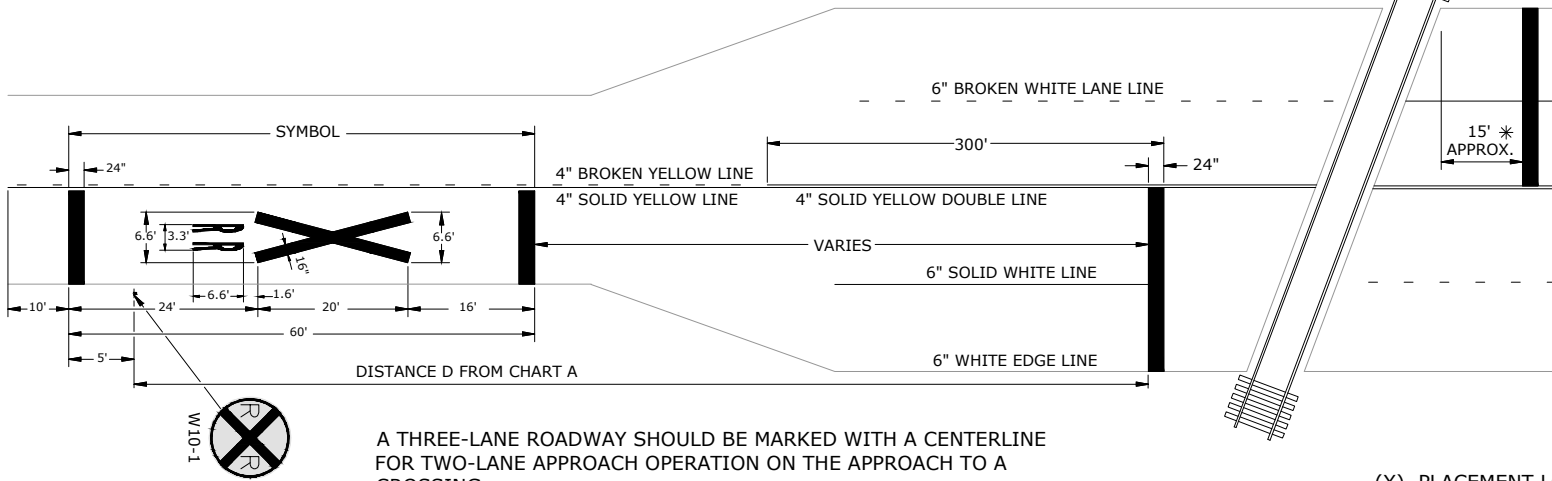


CHART "A"

SPEED MPH	DISTANCE D (feet)
75	850
70	750
65	650
60	550
55	450
50	375
45	300
40	225
35	150
30	(X)
25	(X)
20	(X)

ALL DISTANCES
ARE MINIMUM.

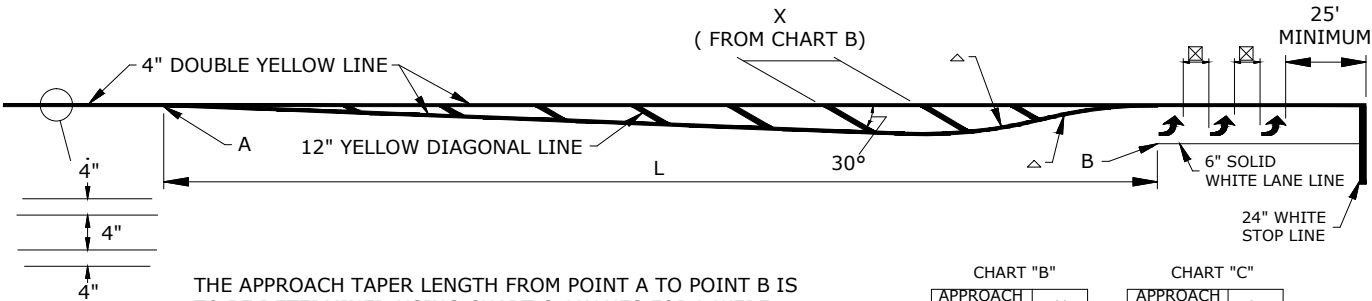
(X) PLACEMENT LOCATION IS DEPENDENT ON SITE
CONDITIONS AND OTHER SIGNING TO PROVIDE
ADEQUATE ADVANCE WARNING TO THE DRIVER

A THREE-LANE ROADWAY SHOULD BE MARKED WITH A CENTERLINE
FOR TWO-LANE APPROACH OPERATION ON THE APPROACH TO A
CROSSING.
ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND
ACROSS ALL APPROACH LANES, AND INDIVIDUAL R X R
SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.
REFER TO STANDARD ALPHABET FOR HIGHWAY SIGNS AND MARKINGS
FOR R X R SYMBOLS DETAILS.

*STOP LINE 8' FROM NEAR EDGE OF GATE OR CANTILEVER, IF PRESENT.

NOTE:
ON NON I, US, AND K ROUTES, 4" EDGE LINES MAY BE INSTALLED.
6" EDGE LINES ARE NOT REQUIRED ON NON I, US, AND K ROUTES.

TYPICAL
APPROACH TAPER DETAIL



THE APPROACH TAPER LENGTH FROM POINT A TO POINT B IS
TO BE DETERMINED USING CHART C. VALUES FOR L WERE
CALCULATED USING THE EQUATIONS BELOW AND INCREASED
TO THE NEXT HIGHER 5 MPH INCREMENT.

- SPEEDS < 45 MPH $L = W \cdot S^2$ 60
- SPEEDS = 45 MPH $L = W \cdot S$

IF ARROWS ARE USED AND UNLESS OTHERWISE SPECIFIED THE SPACE
BETWEEN LINES SHOULD BE AT LEAST FOUR TIMES THE HEIGHT OF
THE CHARACTERS FOR LOW SPEED ROADS BUT NOT MORE THAN TEN
TIMES THE HEIGHT OF THE CHARACTERS, UNDER ANY CONDITIONS.

FOR SPEEDS LESS THAN OR EQUAL TO 40 MPH, R=150'.
FOR SPEEDS GREATER THAN OR EQUAL TO 45 MPH, R=300'.

TYPICAL CROSSWALKS

TYPE I: CROSSWALK LINES SHALL BE 12" SOLID WHITE LINES.
THEY SHALL BE SPACED A MINIMUM OF 6' APART FROM
INSIDE EDGE TO INSIDE EDGE.

TYPE II: THESE LINES SHOULD BE SOLID WHITE 24" WIDE
PLACED PARALLEL TO THE DIRECTION OF TRAFFIC FLOW. THE
LINE PLACEMENT IS DETERMINED BY LANE LINE,CENTER LINE, AND
WHEEL PATH IN SUCH A MANNER AS TO MINIMIZE TRAFFIC WEAR.
THE CROSSWALK WIDTH SHOULD BE NOT LESS THAN 8'. THE
TRANSVERSE CROSSWALK LINES MAY BE ADDED.

WHEN REQUIRED, STOP LINES SHALL BE INSTALLED A MINIMUM OF
5' FROM CROSSWALKS.

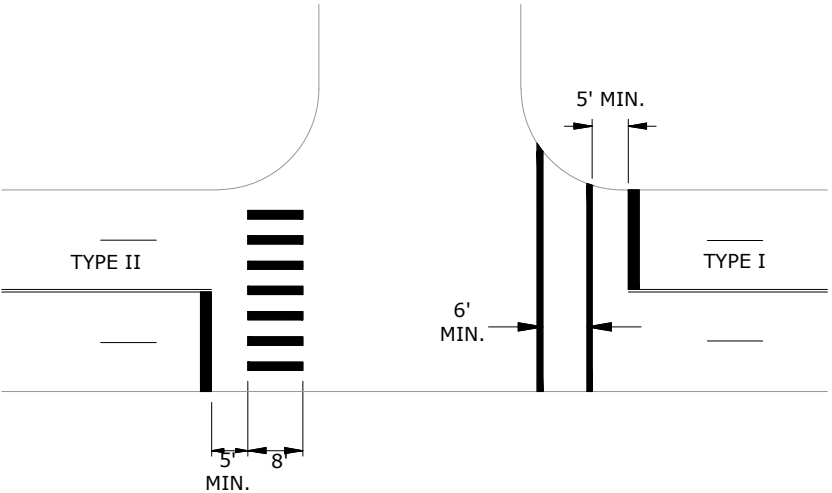


CHART "B"

APPROACH SPEED	X
20 MPH	20'
25 MPH	25'
30 MPH	30'
35 MPH	35'
40 MPH	40'
45 MPH	45'
50 MPH	50'
55 MPH	55'
60 MPH	60'
65 MPH	65'
70 MPH	70'

CHART "C"

APPROACH SPEED	L
20 MPH	80'
25 MPH	125'
30 MPH	180'
35 MPH	245'
40 MPH	320'
45 MPH	540'
50 MPH	600'
55 MPH	660'
60 MPH	720'
65 MPH	780'
70 MPH	840'

3	5/25/12	Updated Chart B and Lane Drop Lines	B.A.H.	B.D.G.
2		RR Xing Symbol Changed from 18" to 16"	T.L.H.	B.D.G.
1	9/20/05	Added 4" Solid Yellow Double Line to RR Xing	J.F.F.	B.D.G.
NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL
MISCELLANEOUS
PAVEMENT MARKING
DETAIL SHEET

TE309

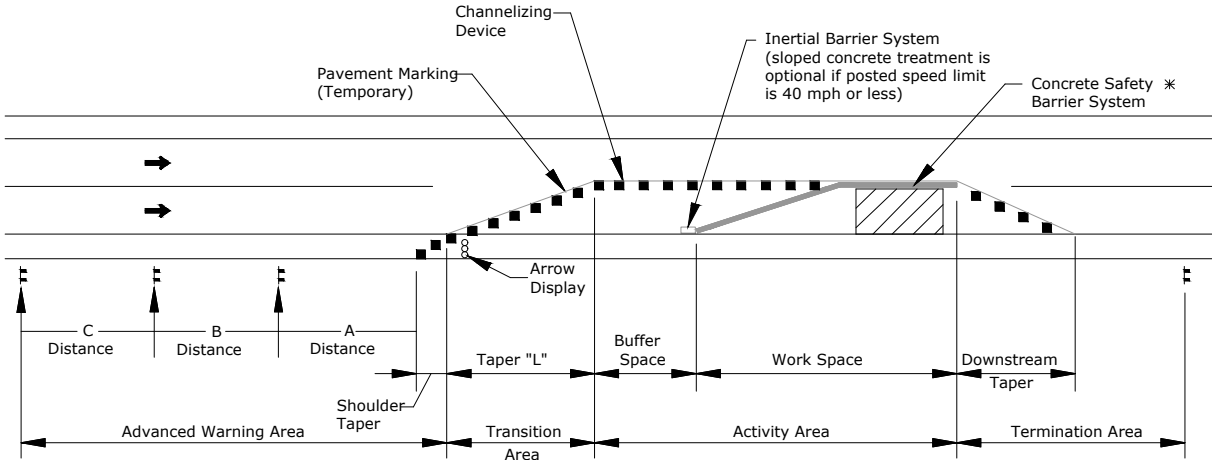
FHWA APPROVAL	7/28/2005	APPD	Brian D. Gower
DESIGNED	J.F.F.	DETAILED	J.F.F.
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.
		QUAN. CK.	
		TRACE CK.	

KDOT Graphics Certified 07-17-2018

Sn. No. sheet_num

Drawn_B\$\$USERNAME\$\$PlotTime\$\$
File_\$\$DGNSPEC\$\$ \$KDOTGRP\$\$

- 1) Design Speed: Those items delegated to temporary traffic control should be designed and installed using the posted/legal speed of the roadway prior to work starting.
- 2) Minimum Lane Width: Lane widths shall be a minimum of 11' (measured between centerlines of pavement markings) or as shown on the plans, or as directed by the engineer. A lane width less than 11' may require restricted roadway width signing.
- 3) Consideration should be made to separate pedestrian and, if needed, bicycle movements from both work site activity and vehicular traffic. Unless a reasonable safe route that does not involve crossing the roadway can be provided, pedestrians should be appropriately directed with advance signing that encourages them to cross to the opposite side of the roadway. In urban and suburban areas with high vehicular traffic volumes, these signs should be placed at intersections (rather than midblock locations) so that pedestrians are not confronted with midblock work sites that will induce them to attempt skirting the work site or making a midblock crossing.
- 4) When existing pedestrian facilities are disrupted, closed, or relocated, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
- 5) When the driving surface open to traffic is milled or is a temporary surface made of loose material, or when directed by the engineer a W8-15 (Grooved Pavement) or W8-7 (Loose Gravel) sign shall be used on mainline approaches. This sign should be placed a "C" distance after the W20-1 (Road Work Ahead) sign. A W8-15p motorcycle plaque shall be used to supplement the W8-15 or W8-7 signs. All signs shall be displayed as long as the condition is present.
- 6) Alternative temporary rumble strip options may be available. Please contact the Temporary Traffic Control Unit for more information at 785-296-1179 or 785-296-1183.



TYPICAL WORK ZONE COMPONENTS

* When concrete barrier system is used, portable channelizing devices are not needed along the tangent barrier section.

Minimum advance warning sign spacing (in feet):

SPEED (MPH) *	A	B	C
URBAN (40 MPH OR LOWER)	100	100	100
URBAN (45 MPH OR HIGHER)	350	350	350
RURAL (55 MPH OR LOWER)	500	500	500
RURAL (60 MPH OR HIGHER)	750	750	750
EXPRESSWAY/FREEWAY	1000	1500	2640

* Posted speed prior to work starting

The minimum spacing between signs shall be no less than 100', unless directed by the engineer.

The spacing between any signs may be increased beyond the minimum values in the table above as approved by the engineer in order to maximize visibility.

Taper Formulas:

L = WS for speeds of 45 MPH or more

$L = WS^2/60$ for speeds of 40 MPH or less

Where: L = Minimum length of taper in feet
S = Numerical value of posted speed prior to work starting in MPH
W = Width in offset feet

Shifting Taper=1/2 L
Shoulder Taper=1/3 L

Channelizer Placement:

- (1) The spacing between devices in transition area (taper) should not exceed a distance in feet equal to 1/2 the posted speed limit in mph prior to work starting.
- (2) The spacing between devices in the advanced warning area and the activity area should not exceed a distance in feet equal to two times the posted speed limit in mph prior to work starting.
- (3) Channelizing devices shall be placed for optimum visibility, normally at right angles to the traffic flow.
- (4) Place directional indicator barricades in series to direct traffic onto the new path. The arrow sign should not be visible to opposing traffic.
- (5) Alternating diagonal orange and white striping must slope downward in the direction traffic is expected to pass.

Buffer Space

SPEED (MPH) *	20	25	30	35	40	45	50	55	60	65	70	75
LENGTH (ft)	115	155	200	250	305	360	425	495	570	645	730	820

* Posted speed prior to work starting

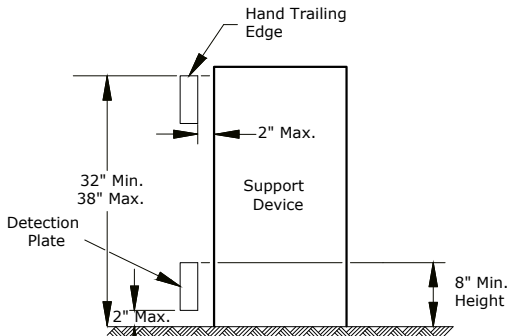
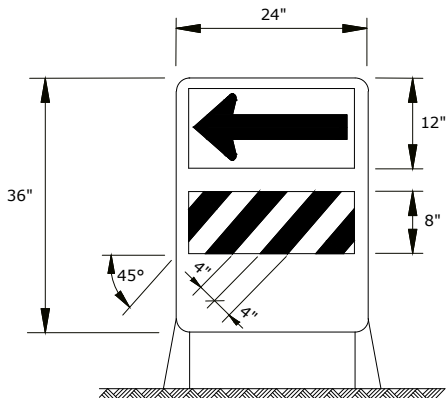
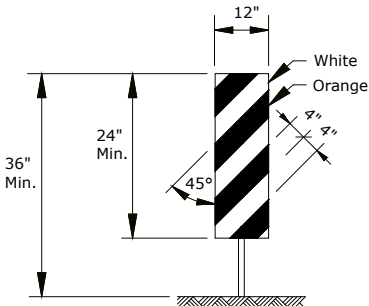
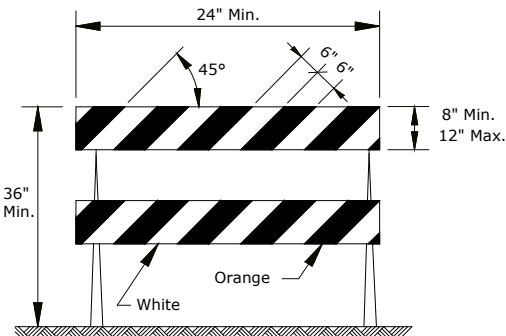
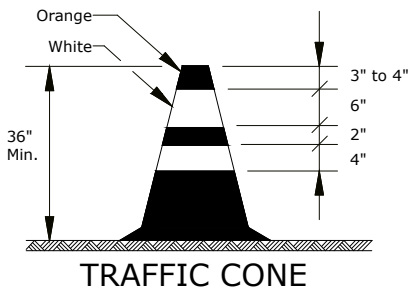
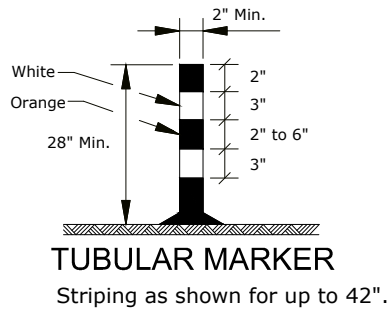
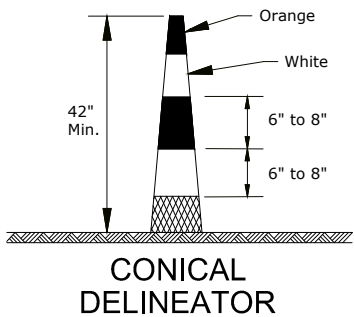
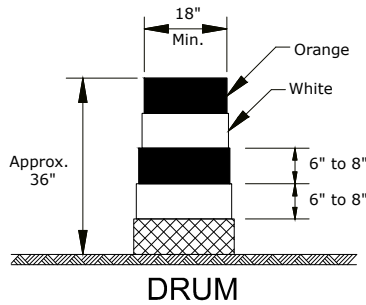
Neither work activity nor storage of equipment, vehicles, or material should occur in the buffer space. When a protection vehicle is placed in advance of the work space, only the space upstream of the vehicle constitutes the buffer space.

If temporary concrete safety barrier system is used to separate approaching traffic from the work space, the barrier system shall be considered part of the activity area. A full lane width should be available throughout the length of the buffer space. See typical work zone components above.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	087 U-2358-01	2020	9	14

3				
2	03/13/18	W8-15p usage changed to Shall	R.W.B.	E.G.K.
1	08/18/15	Channelizer spacing info	R.W.B.	K.E.
NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
TRAFFIC CONTROL				
GENERAL NOTES				
TE700				
FHWA APPROVAL 03/13/18 APP'D Eric Kocher				
DESIGNED	B.A.H.	DETAILED	R.W.B.	QUANTITIES
DESIGN CK.		DETAIL CK.	QUAN. CK.	TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	087 U-2358-01	2020	10	14



TYPE 2 BARRICADE

For rails less than 36" long, 4" wide stripes may be used. All stripes shall slope downward to the traffic side for channelization.

VERTICAL PANEL

The stripes shall slope downward to the traffic side for channelization.

DIRECTION INDICATOR BARRICADE

The stripes shall slope downward in the direction traffic is to pass. The direction indicator barricade shall be used in series to direct the motorist into the intended lane of travel.

PEDESTRIAN CHANNELIZER

- Support device shall not project beyond the detection plate into the pathway.
- Hand trailing edges and detection plates are optional for continuous walls.
- Interconnect pedestrian channelizers to prevent displacement and to provide continuous guidance through or around work.
- Alternate pathways shall be firm, stable, and slip resistant.
- Treat height differentials > 1/2" in the surfaces of alternate paths with a firm, stable, and slip resistant temporary ramp having a slope of 12:1 or flatter and having a width equal to the alternate path.
- Use alternating orange/white on interconnected devices.

Item		Location									
		Cross-overs	Shoofly Diversions	Tangents	Tapers	Ramps	Head to Head	Object Identifier	Lead-In Devices	Gores	
Portable	Drums	Yes	Yes	Yes	Yes	Yes	(1)	Yes	Yes	Yes	
	Conical Delineators	Yes	Yes	Yes	Yes	Yes	(1)	Yes	Yes	Yes	
	Vertical Panels	(2)	(2)	(2)	(2)	(2)	(1,2)	Yes	(2)	(2)	
	Direction Indicator Barricade	No	No	No	Yes	No	No	No	No	No	
	Type 2 Barricade	(2)	(2)	(2)	(2)	No	No	Yes	No	No	
	Traffic Cones	No	No	(4)	(4)	(4)	No	(4)	(4)	(4)	
Fixed	Tubular Markers	(3)	(3)	(3)	No	(3)	Yes	No	Yes	Yes	
	Vertical Panels	(3)	(3)	(3)	(3)	(3)	(3)	Yes	(2,3)	(2)	

- (1) Not allowed on centerline delineation along freeways or expressways.
- (2) The stripes shall slope downward to the traffic side for channelization.
- (3) May be used upon the approval of the engineer.
- (4) Daytime operations only.

3					
2					
1					
NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
TRAFFIC CONTROL CHANNELIZING DEVICES					
TE702					
DESIGNED	L.E.R.	06/01/15	APP'D	Kristina Erickson	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	QUAN. CK.	TRACE CK.	

KDOT Graphics Certified 03-29-2018

Sh. No.10

Note: Signs shown for one approach to work zone.

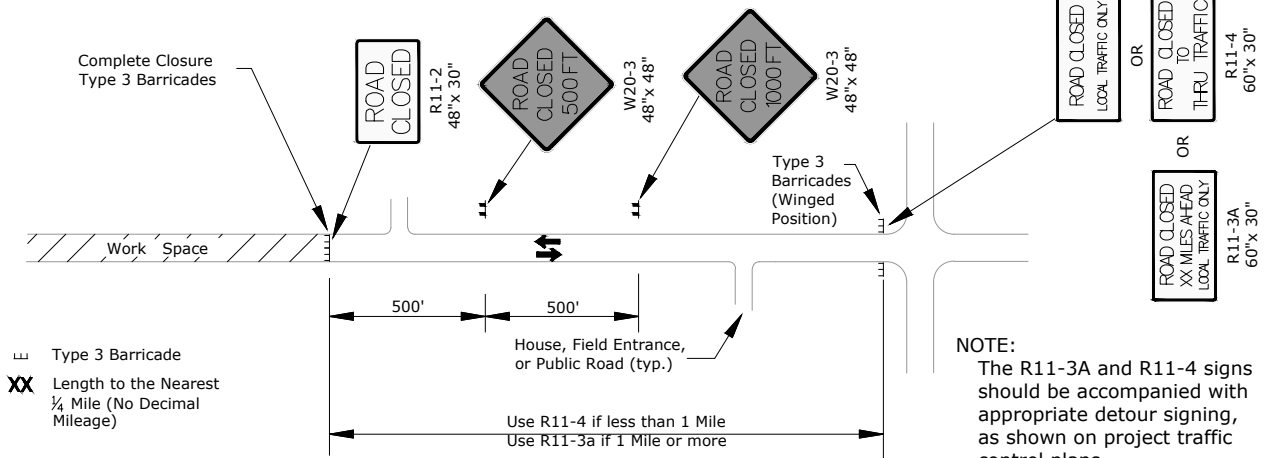


FIGURE 1: TYPICAL SIGNING FOR ROAD CLOSURE (MAINLINE OR SIDE ROAD)

Note: Sign shown for one approach to intersection (work zone).

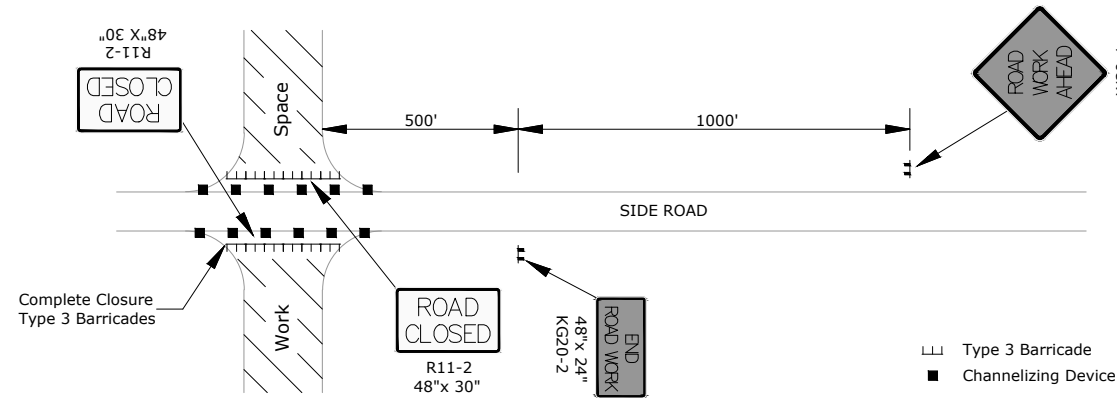


FIGURE 2: TYPICAL SIGNING FOR SIDE ROAD OPEN

Note: Signs shown for one approach to work zone.

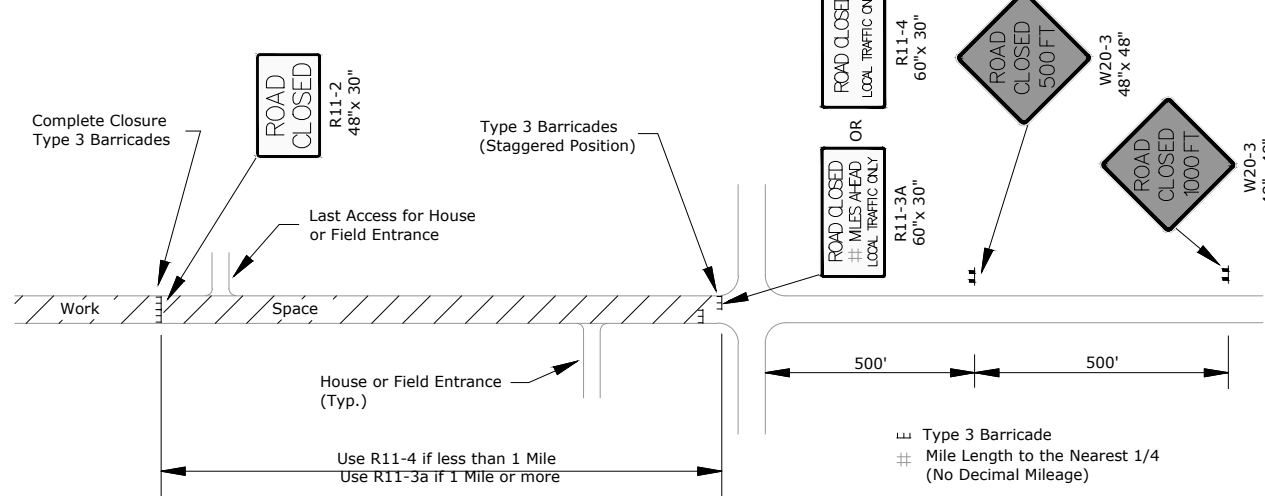


FIGURE 3: TYPICAL SIGNING FOR ROAD CLOSURE - LOCAL TRAFFIC ACCESS

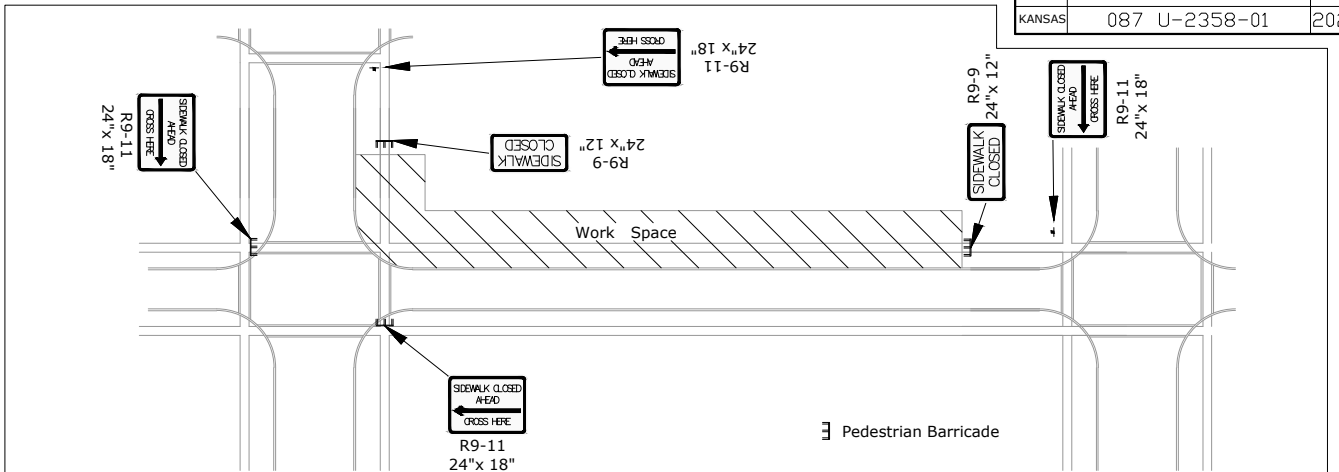
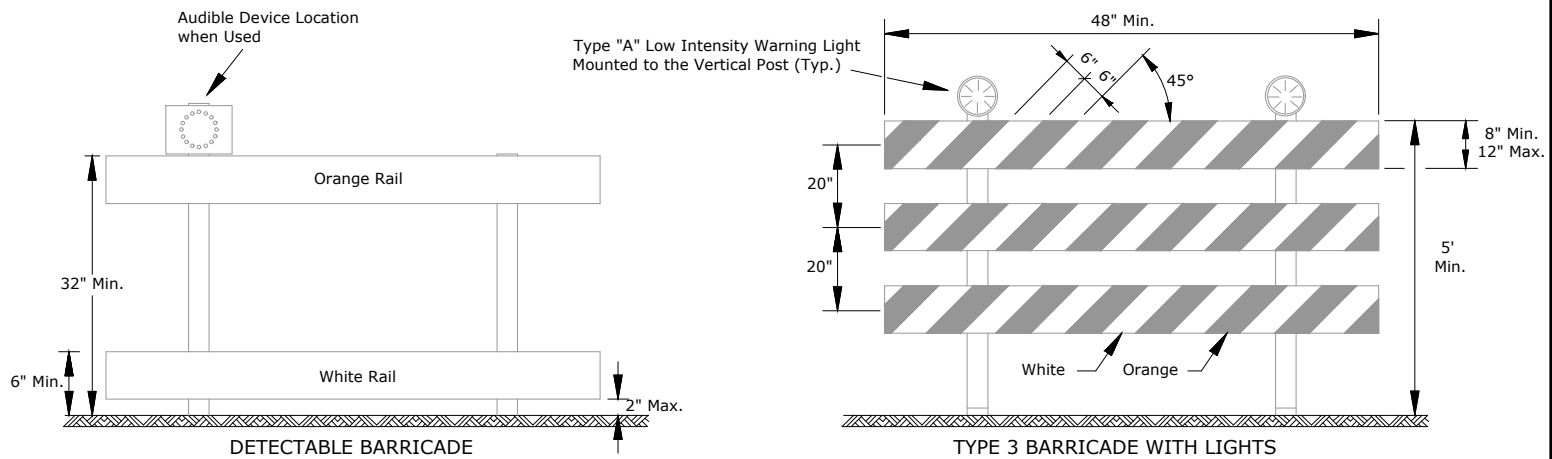


FIGURE 4: TYPICAL SIGNING FOR SIDEWALK CLOSED WITH OPPOSITE SIDEWALK AVAILABLE



1. Support device shall not project beyond the detection plate into the pathway.
2. Barricades shall be used to close the entire width of the pathway.
3. Do not use warning lights on pedestrian barricades.
4. Do not use warning lights on audible devices.

Approved signs mounted on Type 3 barricades should not cover more than 50% of the top two rails or 33% of the total area of the three rails.

When barricades are placed end-to-end or staggered, a Type "A" low intensity warning light shall be mounted to the vertical post near each outside corner of the end barricades.

ROAD CLOSED GENERAL NOTES

As shown in Figure 1, at the point where thru traffic must detour and local traffic can proceed to the location where the roadway is completely closed, the R11-3a (ROAD CLOSED # MILES AHEAD LOCAL TRAFFIC ONLY) or R11-4 (ROAD CLOSED LOCAL TRAFFIC ONLY or ROAD CLOSED TO THRU TRAFFIC) sign shall be used with Type 3 barricades (winged position), placed on the shoulders of roadway.

As shown in Figure 3, when local traffic must be allowed access into the work zone, Type 3 barricades shall be longitudinally staggered to maintain the appearance of a closed roadway. A second line of end-to-end Type 3 barricades shall be placed just beyond the last access point in the work zone, to completely close the roadway.

The R11-4 (ROAD CLOSED TO THRU TRAFFIC or ROAD CLOSED LOCAL TRAFFIC ONLY) sign shall be used when the distance to the point of complete closure of the roadway is less than 1 mile.

The R11-3a (ROAD CLOSED # MILES AHEAD LOCAL TRAFFIC ONLY) sign shall be used when the distance to the point of complete closure of the roadway is 1 mile or greater.

The words "BRIDGE OUT" (or BRIDGE CLOSED) may be substituted for the words "ROAD CLOSED" on the R11-3a or R11-4 sign where applicable.

3					
2					
1					
NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
TRAFFIC CONTROL CLOSURES					
TE704					
FHWA APPROVAL	06/01/15	APP'D	Kristina Erickson		
DESIGNED	B.A.H.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.	QUAN. CK.		TRACE CK.

Drawn By:KANSASDOTGRPS
File:KANSASDOTGRPS

SIGN LAYOUT INFORMATION



Std. Size
Expwy/Freeway
6" C
48"x 24"



Std. Size
Expwy/Freeway
6" C
48"x 24"



KM4-20

Std. Size
Expwy/Freeway
3" C
24"x 6" 6" C
48"x 12"



W7-3a

Mileage to be Determined by
the Engineer.



W8-17

Std. Size
Expwy/Freeway
48"x 48"



W8-15

Std. Size
Expwy/Freeway
8" D
48"x 48"



W8-7

Std. Size
Expwy/Freeway
8" D
48"x 48"



W8-15p

Std. Size
Expwy/Freeway
30"x 24"



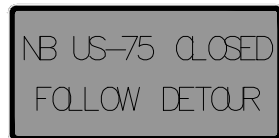
W8-11

Std. Size
Expwy/Freeway
8" D
48"x 48"



W8-17P
(Optional)

Std. Size
Expwy/Freeway
30"x 24"



SP-01
(Special Sign)

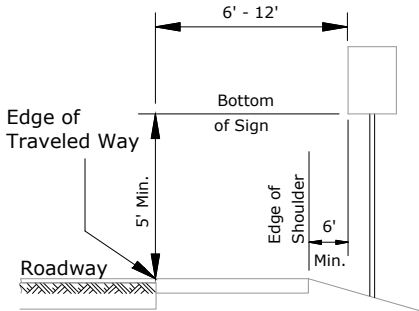
Std. Size
Expwy/Freeway
6" C 10" D



SP-02
(Special Sign)

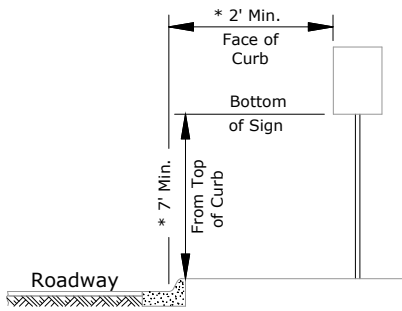
Std. Size
Expwy/Freeway
Uppercase: 6" C 10" D
Lowercase: 4.5" C 8" D

All city names and street names on special signs and destination signs
must have upper and lower case letters.



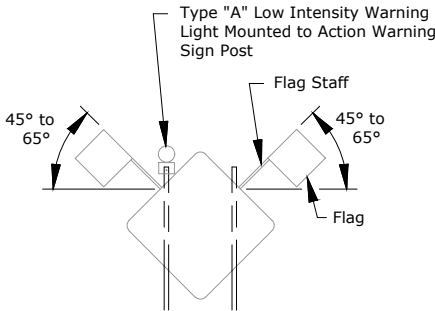
RURAL

- 1) Ground-mounted signs shall be mounted at a minimum height of 5' measured from the bottom of sign to the near edge of the pavement.
- 2) Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.
- 3) The height of the secondary sign mounted below another sign may be 4' measured from the bottom of the sign to the near edge of the pavement. Signs shall not overlap each other.



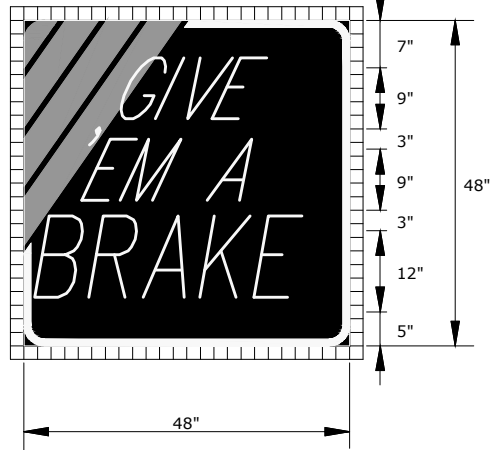
URBAN

- 1) Signs shall be mounted at a minimum height of 7' measured from the bottom of sign to the near edge of the pavement.
- 2) Neither portable nor permanent sign supports should be located on sidewalks or areas designated for pedestrian or bicycle traffic.
- 3) Signs mounted lower than 7' should not project more than 4" into pedestrian facilities.
- 4) The height from of the secondary sign mounted below another sign may be 6' measured from the bottom of sign to the near edge of the pavement. Signs shall not overlap each other.
- 5) Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.
- * 6) Pedestrian detour signing shall be a minimum of 2' measured from the top of the pedestrian pathway to the bottom of the sign and shall not protrude into the walkway nor shall it project beyond the back of curb.

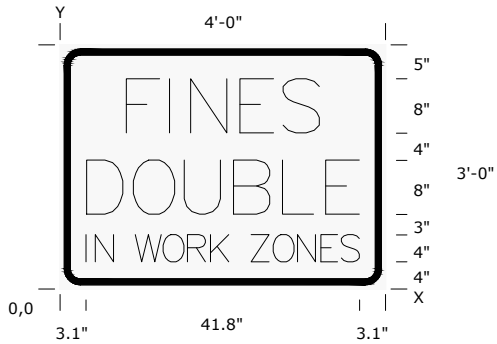


When the sign width is equal to or greater than 9', three or more wood posts may be used with a minimum of 4' between the centerline of each post. All signs less than 9' in width shall use a maximum of two wood posts.

- In the case of hitting rock when driving posts
1. Shift the sign location. Do not violate minimum sign spacing.
 2. With the engineer's approval, use acceptable alternative sign stands.



KI-104a



KI-105a

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	087 U-2358-01	2020	12	14

Sign Number	GIVE EM A BRAKE
Width x Height	4'-0" x 4'-0"
Border Width	1.0"
Corner Radius	4.0"
Stripe Width	3.0"
Mounting	Ground
Background	Type: Non-Reflective Color: Black
Legend/Border	Type: Reflective Color: White
Legend Font	Dutch 801 Roman SWC 25 Degree Slant
Stripes	Type: Reflective Color: Orange

Sign Number	FINES DOUBLE
Width x Height	4'-0" x 3'-0"
Border Width	0.9"
Corner Radius	3.0"
Mounting	Ground
Background	Type: Reflective Color: White
Legend/Border	Type: Non-Reflective Color: Black

Dimensions in inches

Spacings are to start of next letter

Y FONT	LETTER SPACINGS															HT LEN
23.0 D	9.7	6.4	3.2	7.3	6.4	5.4	9.7									8.0
11.0 D	3.9	6.9	7.5	7.3	7.3	6.4	4.9	3.9								40.3
4.0 D	3.1	1.6	2.7	3.2	4.3	3.8	3.6	2.8	3.2	3.4	3.8	3.6	3.2	2.7	3.1	41.8

Notes:

Typically, there are two sets of informational signs installed per project: one for each direction of traffic.

Install signs a minimum of 500' in advance of the road work ahead sign. The engineer may designate a more appropriate location if conditions dictate.

The informational signs are not to interfere with the traffic control signs for the project.

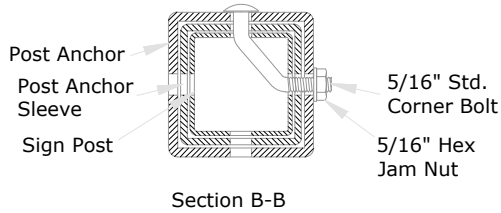
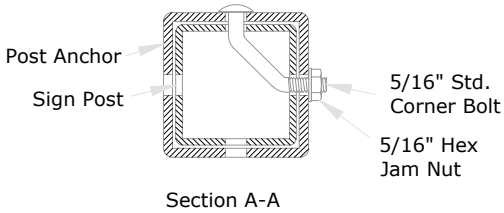
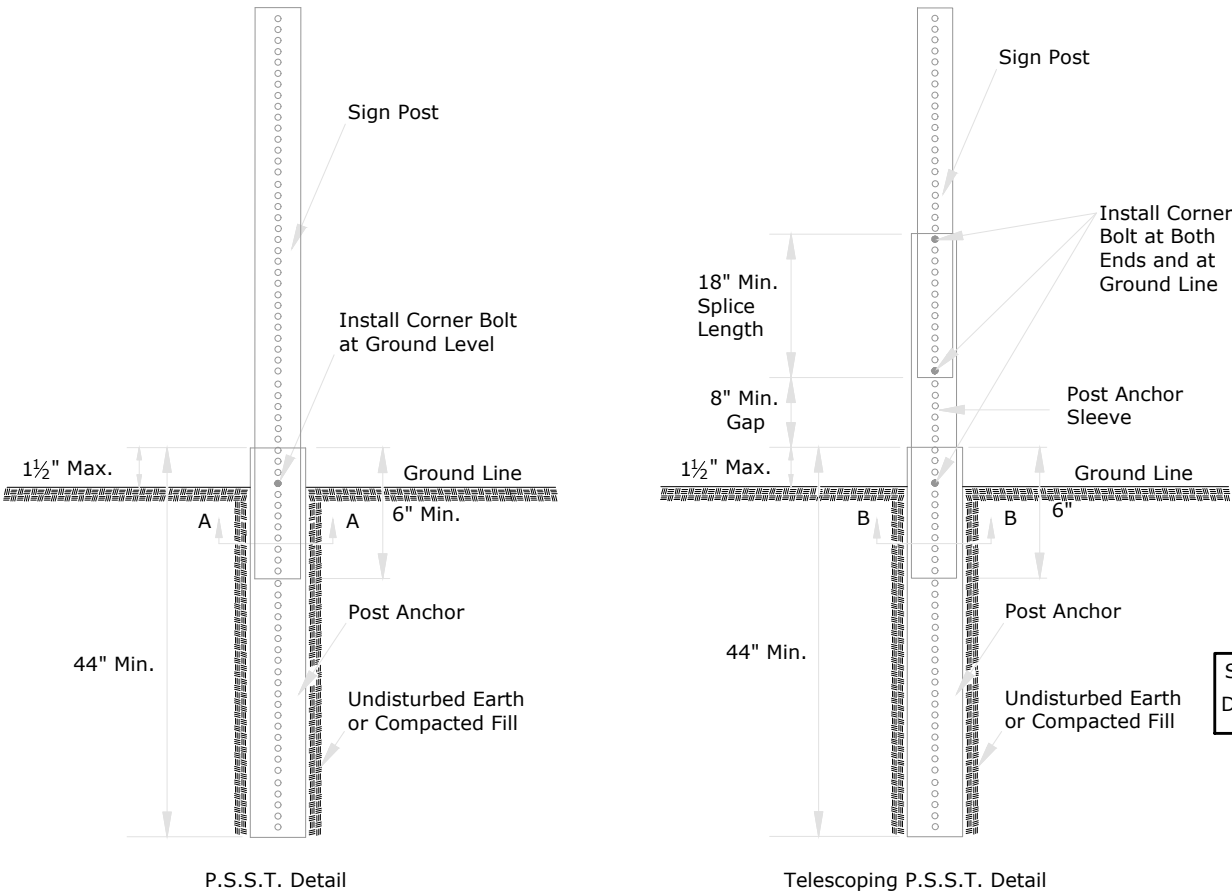
3					
2					
1					
NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
TRAFFIC CONTROL SIGN INFORMATION					
TE710					
FHWA APPROVAL		06/01/15	APP'D	Kristina Pyle	
DESIGNED	R.W.B.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.		

KDOT Graphics Certified 03-29-2018

Sh. No.12

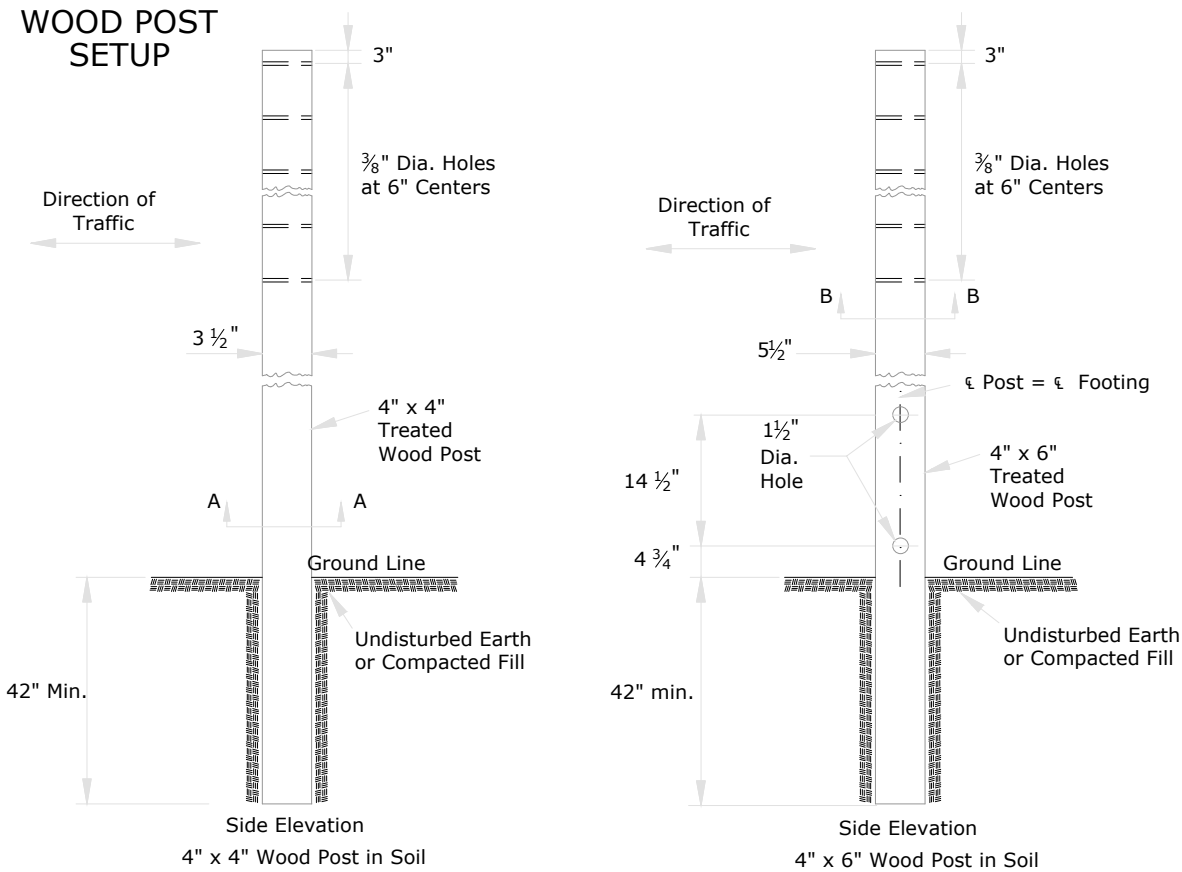
KDOT Graphics Certified

PERFORATED SQUARE STEEL TUBE (P.S.S.T.) POST SETUP

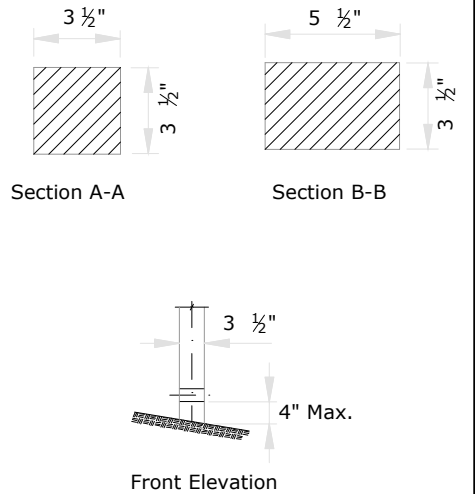


Details for 2", 2 1/4", or 2 1/2" sign posts
Place bolts in the same corner along each sign post.

WOOD POST SETUP

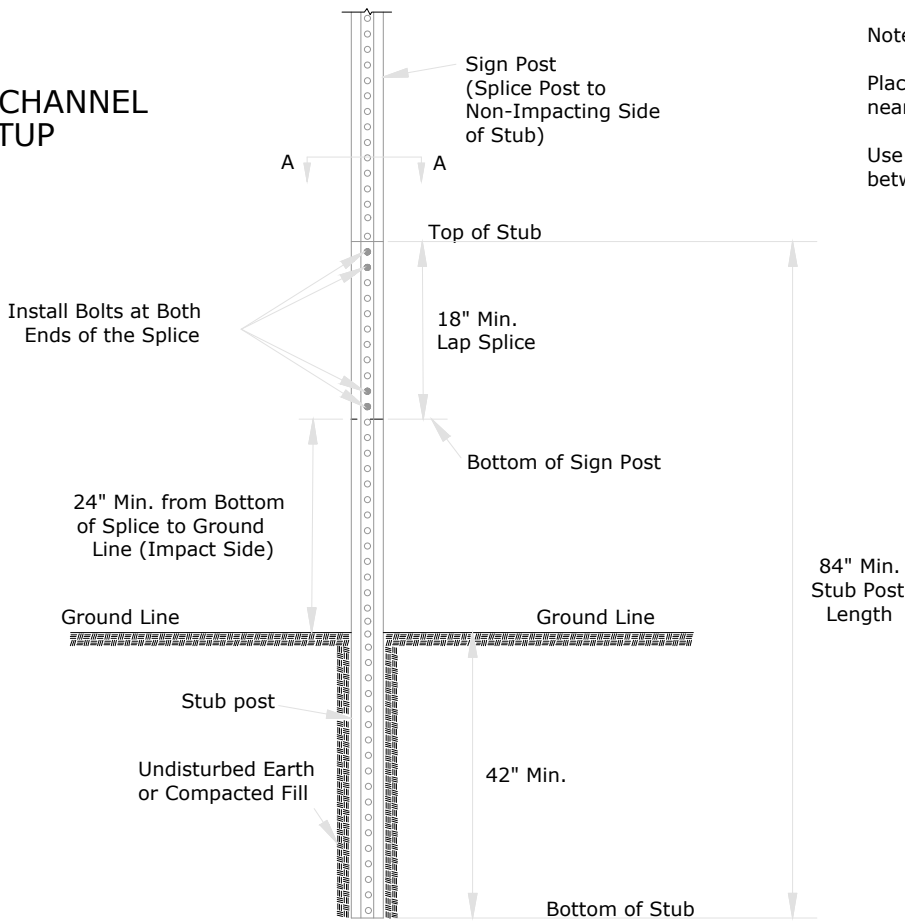


STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	087 U-2358-01	2020	13	14

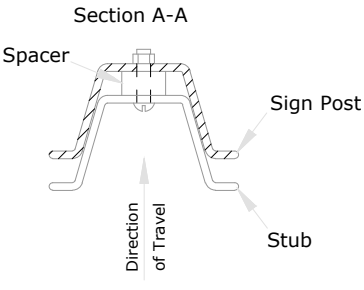


See TE710 for Additional
Details and Requirements

3 LB/F U-CHANNEL
SETUP



Notes:
Place two bolts at both ends of the splice through the holes nearest the ends of the splice.
Use manufacturer recommended spacers over the bolts between the spliced pieces of U-Channel.

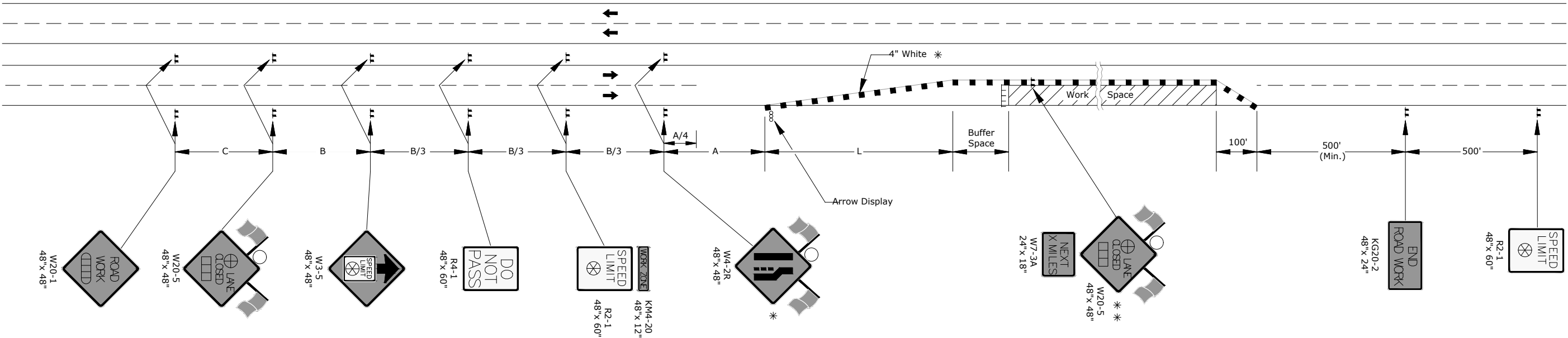
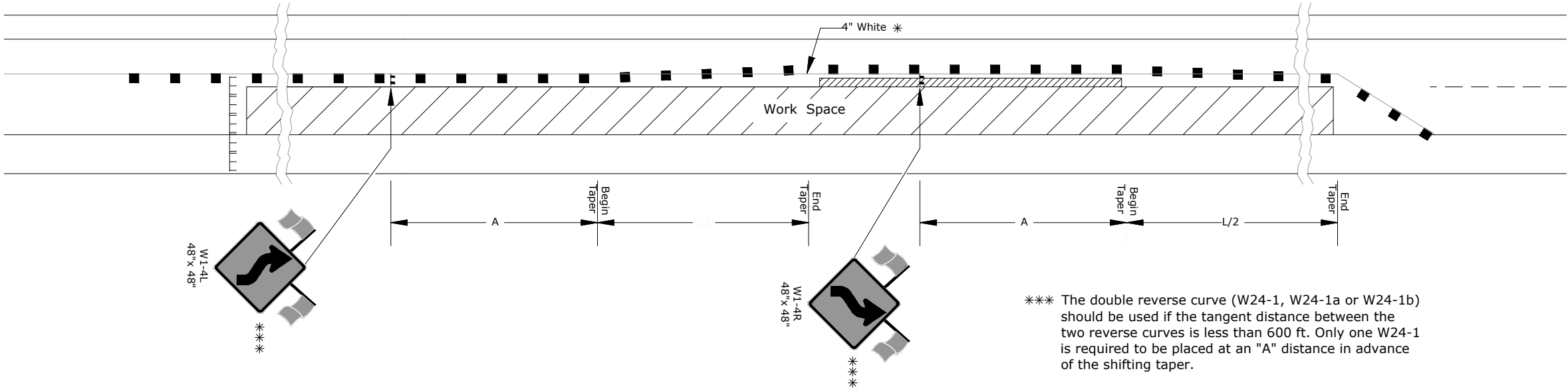


NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				
KANSAS DEPARTMENT OF TRANSPORTATION				
TRAFFIC CONTROL SIGN POSTS				
TE712				
DESIGNED	B.A.H.	06/01/15	APP'D	Kristina Pyle
DESIGN CK.			QUANTITIES	TRACED
			QUAN. CK.	TRACE CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	087 U-2358-01	2020	14	14

SHIFTING TAPER DETAIL

Add signs and devices as shown for work inside a closed lane that extends near to (or into) the open traffic lane.



Drawn By: \$USER\$ Plotted \$SYTIME\$ File: \$DGN\$ SPEC: \$DOTGRP\$

- Type 3 Barricades
- X Length to the Nearest Whole Mile
- Channelizing Device
- Ahead, 1500 ft, or 1 mile
- Ahead, 1000 ft, 1500 ft, or 1/2 mile
- Right or Left
- Speed to be determined by the Engineer
- Type "A" Low Intensity Warning Light

- * For left lane closures use W4-2L and yellow edge line along channelizing devices.
- * * The W20-5 (Lane Closed) and W7-3A (Next X Miles) signs should be placed at 2 mile increments on a project of 4 miles or longer.

Left-side signs shall be omitted for a four-lane undivided highway.

One flagger should be stationed within each multi-lane roadway activity area where work is in a closed lane adjacent to traffic and not separated by a concrete safety barrier system.

3					
2					
1	03/13/18	W24-1 usage changed to Should	R.W.B.	E.G.K.	
NO.	DATE	REVISIONS	BY	APP'D	
KANSAS DEPARTMENT OF TRANSPORTATION					
TRAFFIC CONTROL					
LANE CLOSURE ON MULTI LANE HWY					
TE744					
DESIGNED	B.A.H.	QUANTITIES	R.W.B.	TRACED	
DESIGN CK.		DETAIL CK.		TRACE CK.	