**KDOT Permanent Pavement Marking Plan Review Items - July 2024**

*The following contains the most common items that KDOT Permanent Pavement Marking comments on when external plans are submitted for our review, in no particular order of importance or occurrence.*

1. Permanent signing and pavement markings plans should be separated since contractors that perform this work are different and in no way should be included together.
    a. If plans are combined, the PMC should immediately reject the plan set until the consultant can separate the plans.
2. Pavement marking plan sheets should come before standard drawings and quantities.
3. Pavement markings should start/stop at the furthest extents of the temporary traffic control (TTC) operations as shown in the provided examples that are attached in this email.
4. Text for the pavement marking title blocks should read as follows:
    a. PAVEMENT MARKING
    b. MAINLINE xx or SIDEROAD xx
    c. STA: xx+xx – STA: xx+xx
    d. This should match the stationing per plan sheet as this will reflect the same stationing that is called out on TE311 for each plan sheet.
5. Two-Lane Roadways:
    a. Passing sight distance should be ran to determine all pass/no pass zones per KDOT HSM with the current posted speed limit.
    b. Markings should stop/start for all sideroads.
    c. Markings should be carried through all other entrances.
    d. Verify all callouts are correct for the pavement markings necessary in the plan set.
6. Multi-Lane Roadways:
    a. TWLTLs… Determine major and minor sideroads per KDOT HSM to determine where left turn lanes are needed or keep with the original designed TWLTL from the consultant.
        i. If a TWLTL is designed in the plans and is different from the original existing layout, what is the striping plan? Parallel parking, bike lanes, additional through lane widths, etc., for the additional pavement that this present?
    b. Lane drops:
        i. Most lane drop lanes/striping can be designed according to the plans provided. If there is a lane drop at or near an intersection, coordination should happen with permanent signing and pavement markings to ensure the correct signing and pavement markings are present and shown in the plans. Please refer to the permanent signing layouts and/or District request in these locations.
7. Ideally, the start and stop locations for pavement marking locations should match the furthest extents of the project, TTC operations or further so that all KDOT District personnel have an identifiable start/stop location for any future construction project with striping or District restripe. This allows District to have two matching locations (start/stop) for both directions to better plan for any future, upcoming striping projects moving forward.
8. TE311 Quantities:
    a. Do the station location callouts match the pavement marking plan sheets? If not, change accordingly.
    b. Has the correct calculation factor been applied for the different line types of pavement markings?
    c. In most cases, the preferred pavement marking material should be multi-component unless otherwise noted by District and/or Traffic Engineering.

d. Removal quantities are necessary for most pavement marking scenarios. This quantity should be different than the initial removal quantity of removal on TE795 and should never be combined with the TTC removal quantities.
    i. Removal quantities will be needed in the following:
        1. Signal projects, shoo-fly's, lane drops (single or multiple), cross-overs, etc.

*Additional pavement marking needs may be added/included as future KDOT projects are reviewed by Traffic Engineering. Please note that this will be a live document and can be altered/updated according to the needs of pavement markings.*

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | XX-XX XX-XXXX-XX | XXXX | XXX | XXX |

# SUMMARY OF PAVEMENT MARKINGS

| LOCATION | 4" Solid WHITE Edge Line | 6" Solid WHITE Edge Line | 6" Broken WHITE Lane Line | 6" Broken WHITE Lane Line (PCP) | 6" Dotted WHITE Extension Line | 6" Broken WHITE Lane Drop Line | 6" Solid WHITE Lane Line | 8" Broken WHITE Lane Drop Line | 8" Solid WHITE Gore Line | 8" Dotted WHITE Extension Line | 12" Solid WHITE Diagonal Line | 12" Solid WHITE Chevron Line | 12" Solid WHITE Type I Crosswalk Line | 24" Solid WHITE Type II Crosswalk Line | 24" Solid WHITE Stop Line | 4" Solid YELLOW Edge Line | 4" Solid YELLOW Double Line | 4" Solid YELLOW Line | 4" Broken YELLOW Line | 6" Solid YELLOW Edge Line | 12" Solid YELLOW Diagonal Line |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAINLINE I-70: | | | | | | | | | | | | | | | | | | | | | |
| STA: 0+00 - STA: 100+00 | | 200 | 100 | | 100 | | | | | | | | | | | | 100 | | | | |
| STA: 100+00 - STA: 200+00 | | 200 | 100 | | | | | | | | | | | | | | | | 100 | | |
| TOTALS | | 400 | 50 | | 33.3 | | | | | | | | | | | | 200 | | 25 | | |

Add all 6" white pavement markings together. Round up to the nearest whole number under the recapitulation of quantities.

Add all 4" yellow pavement markings together

# SUMMARY OF WORD & SYMBOL MARKINGS

| LOCATION | | | | | | | STOP | ONLY | X-ING | SCHOOL | 70 | 435 | 24 | 400 | 18 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAINLINE I-70 | | | | 4 | | | | | | | | | | | | | | | | | |
| STA: 0+00 - STA: 100+00 | | | | 4 | | | | | | | | | | | | | | | | | |
| STA: 100+00 - STA: 200+00 | | | | | | | | | | | | | | | | | | | | | |
| TOTALS | | | | 8 | | | | | | | | | | | | | | | | | |

NOTE: FOR SPECIFIC PAVEMENT MARKING DETAILS AND DIMENSIONS SEE PLAN SHEETS

NOTE: ALL TOTALS REFLECT ACTUAL QUANTITY OF PAVEMENT MARKING MATERIALS REQUIRED.

Edge Lines = Add actual lengths
Broken Lines = Total length / 4
Dotted Extension Lines = Total length / 3
Double Yellow Lines = Total length x 2

See examples above

# RECAPITULATION OF QUANTITIES

| ITEMS | TOTAL | UNITS |
|---|---|---|
| PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(4") | | FT |
| PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(6") | 484 | FT |
| PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(8") | | FT |
| PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(12") | | FT |
| PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(4") | 225 | FT |
| PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(6") | | FT |
| PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(12") | | FT |
| | | |
| PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(4") | | FT |
| PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(6") | | FT |
| PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(8") | | FT |
| PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(12") | | FT |
| PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(4") | | FT |
| PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(6") | | FT |
| PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(12") | | FT |
| | | |
| PAVEMENT MARKING (EPOXY)(WHITE)(4") | | FT |
| PAVEMENT MARKING (EPOXY)(WHITE)(6") | | FT |
| PAVEMENT MARKING (EPOXY)(WHITE)(8") | | FT |
| PAVEMENT MARKING (EPOXY)(WHITE)(12") | | FT |
| PAVEMENT MARKING (EPOXY)(YELLOW)(4") | | FT |
| PAVEMENT MARKING (EPOXY)(YELLOW)(6") | | FT |
| PAVEMENT MARKING (EPOXY)(YELLOW)(12") | | FT |
| | | |
| PAVEMENT MARKING (INTERSECTION GRADE)(WHITE)(12") | | FT |
| PAVEMENT MARKING (INTERSECTION GRADE)(WHITE)(24") | | FT |
| PAVEMENT MARKING (INTERSECTION GRADE)(YELLOW)(12") | | FT |
| PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)(LEFT TURN ARROW) | 8 | EACH |
| PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( ) | | EACH |
| PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( ) | | EACH |
| PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( ) | | EACH |
| PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( ) | | EACH |
| PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(US-SHIELD)( ) | | EACH |
| PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(K-SHIELD)( ) | | EACH |
| PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(I-SHIELD)( ) | | EACH |
| | | |
| PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(6") | | FT |
| PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(8") | | FT |
| PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(12") | | FT |
| | | |
| PAVEMENT MARKING REMOVAL | | FT |

Any additional pavement markings that need to be removed that were not altered, covered or removed during the temporary traffic control phasing.

NOTE:
WORDS & SYMBOLS SHALL CONFORM TO THE LATEST EDITION OF "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" PRINTED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

PRIOR TO COMMENCEMENT OF PAVEMENT MARKING WORK THE ENGINEER WILL ESTABLISH THE LIMITS FOR "NO PASSING" ZONES. THESE LIMITS SHALL BE USED FOR THE LOCATION OF "NO PASSING" LINES AND FOR THE COMPUTATION OF ACTUAL MARKING QUANTITIES FOR THIS LINE TYPE.

The stationing shown on TE311 should match the stationing on each pavement marking plan sheet.

This simplifies the process for the inspector and contractor. They are able to flip between plan sheets and quantity sheets for the layout, measurement and verification of final pay quantities for all pavement markings used for the project.

Mainline stationing and quantities should be separated from any other side road locations on TE311.

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 2 | 5/25/12 | Added Line Types, Symbols, and Shields | B.A.H. | B.D.G. |
| 1 | 7/26/05 | New FHWA Approval Date | J.F.F. | B.D.G. |

Any manipulation of this standard sheet beyond adding quantities, the TE311 text will need to be crossed out. Examples when this is needed:

Adding additional columns and/or rows

Adding project specific notes

**KANSAS DEPARTMENT OF TRANSPORTATION**
SUMMARY AND RECAPITULATION OF PAVEMENT MARKING QUANTITIES

~~TE311~~

| | | | | | |
|---|---|---|---|---|---|
| ENGINEER APPROVAL | | 5/25/2012 | APP'D | Brian D. Gower | |
| DESIGNED | J.F.F. | DETAILED | J.F.F. | QUANTITIES | TRACED |
| DESIGN CK. | B.D.G. | DETAIL CK. | B.D.G. | QUAN. CK. | TRACE CK. |

KDOT Graphics Certified 07-17-2018

Sh. No. XXX

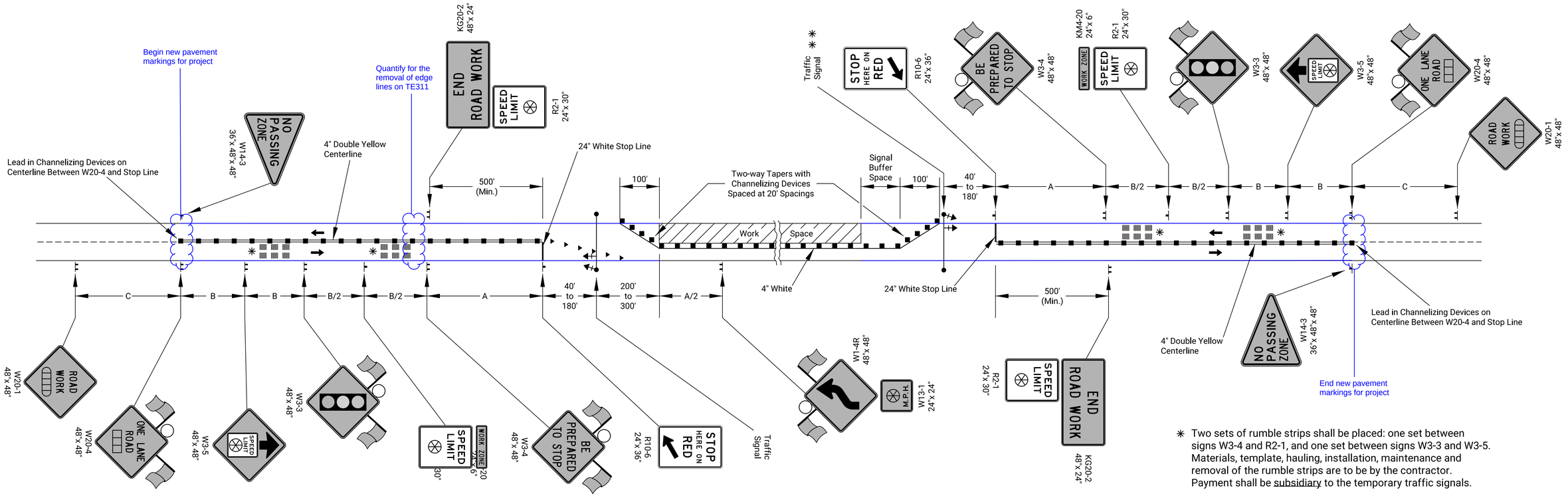
KDOT Graphics Certified

Plotted : 17-JUL-2018 11:35
Traffic

Drawn By : mushock
File : te311.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | XX-XX XX-XXXX-XX | XXXX | XXX | XXX |

NOTE: Refer to TE733 and TE734 for additional temporary traffic signal details.



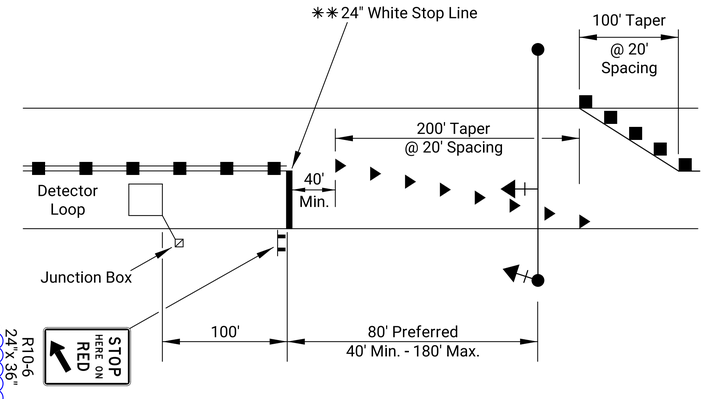

✳ Two sets of rumble strips shall be placed: one set between signs W3-4 and R2-1, and one set between signs W3-3 and W3-5. Materials, template, hauling, installation, maintenance and removal of the rumble strips are to be by the contractor. Payment shall be subsidiary to the temporary traffic signals.

SIGNAL BUFFER SPACE

| SPEED (MPH) ⚠ | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LENGTH (FT) | 35 | 50 | 65 | 85 | 100 | 115 | 130 | 150 | 165 | 165 | 165 |

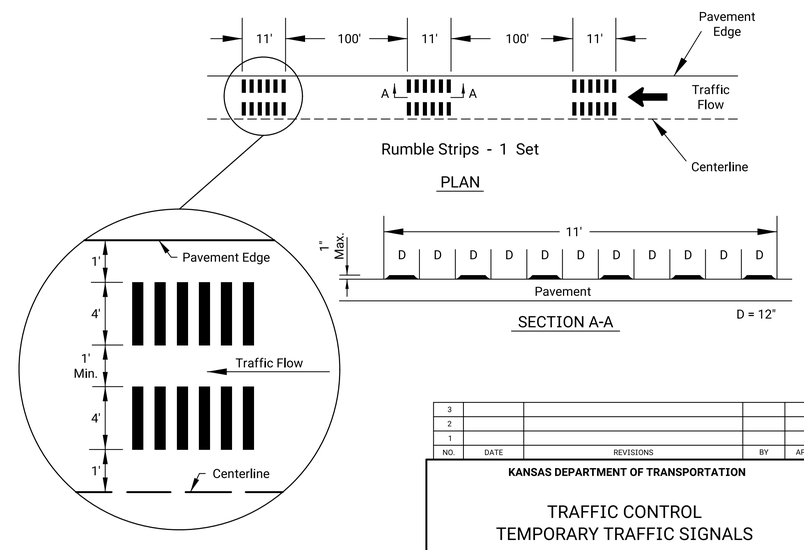
Neither work activity nor storage of equipment, vehicles, or material should occur in the buffer space. When a protection vehicle is placed in advance of the work space, only the space upstream of the vehicle constitutes the buffer space.

⚠ Posted speed prior to work starting




✳✳ Stop Line Created Using (6) 4" Strips of Temporary Tape

TYPICAL ASPHALT RUMBLE STRIP DETAILS




- ▸ Uni-Directional Yellow Temporary Raised Pavement Marker (Type 1) (Facing Right)
- ■ Channelizing Device
- Ahead, 1500 ft, or 1 Mile
- Ahead, 1000 ft, 1500 ft, or ½ Mile
- Speed to be determined by the Engineer
- Signal Head with Back Plate
- ● Temporary Signal Pole or Trailer
- ○ Type "A" Low Intensity Warning Light

Due to the potential damage caused by temporary pavement markings being placed over the existing striping, I will typically recommend that all pavement markings be replaced from the furtherest extents of the temporary traffic control operations/phasing.

This ensures that once the project is complete that the pavement markings are above the retro-reflectivity threshold needed. Also, this helps to create one start/stop location for any future striping projects.

I also compare the most recent retro-reflectivity data we have of this section of roadway to determine if markings should be replaced or not and will make that recommendation in the plans.

Edge line markings shown in blue in this detail will need to be quantified for additional removal for this type of project and shown on TE311 since they were not altered or affected by the temporary traffic control operations/phasing nor shown on TE795.

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 3 | | | | |
| 2 | | | | |
| 1 | | | | |

KANSAS DEPARTMENT OF TRANSPORTATION

# TRAFFIC CONTROL TEMPORARY TRAFFIC SIGNALS

TE732

| | | | | | |
|---|---|---|---|---|---|
| FHWA APPROVAL | | 06/01/15 | APP'D. Kristina Ericksen | | |
| DESIGNED | B.A.H. | DETAILED | R.W.B. | QUANTITIES | TRACED |
| DESIGN CK. | | DETAIL CK. | | QUAN. CK. | TRACE CK. |

KDOT Graphics Certified 03-29-2018

Sh. No. XXX

Plotted : 29-MAR-2018 12:40
Traffic
Drawn By : mushock
File : te732.dgn

KDOT Graphics Certified

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | XX-XX XX-XXXX-XX | XXXX | XXX | XXX |

Based on the current condition and proposed life cycle of the existing pavement markings, consideration should be taken to replace all pavement marking lines in this location.

Typically, I will request that removal and placement of new pavement markings occur in this section. Removal quantities for edge lines will need to be present and shown on TE311 under the recapitulation of quantities under "Removal".

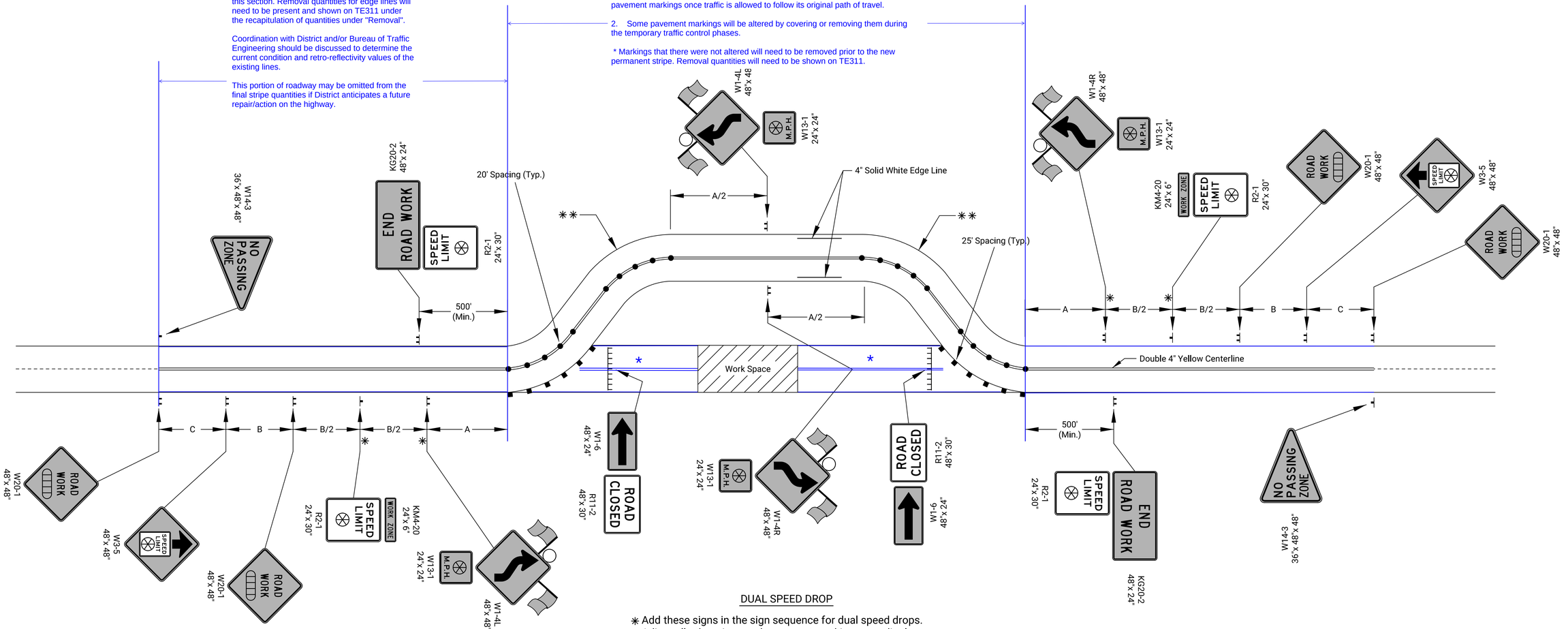
Coordination with District and/or Bureau of Traffic Engineering should be discussed to determine the current condition and retro-reflectivity values of the existing lines.

This portion of roadway may be omitted from the final stripe quantities if District anticipates a future repair/action on the highway.

1. All pavement markings beginning at the crossovers shall be replaced with newer pavement markings once traffic is allowed to follow its original path of travel.

2. Some pavement markings will be altered by covering or removing them during the temporary traffic control phases.

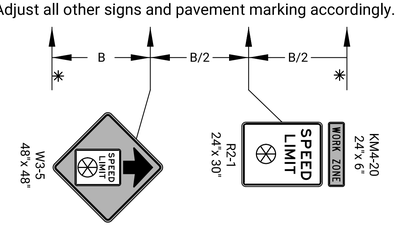
* Markings that there were not altered will need to be removed prior to the new permanent stripe. Removal quantities will need to be shown on TE311.




- ■ Channelizing Device
- ⊔⊔ Type 3 Barricades
- ● Bi-Directional Temp. Raised Pavement Marker (Type I)
- ⊂⊃ Ahead, 1500 ft, or 1 mile
- ⊗ Speed to be determined by the Engineer
- ○ Type "A" Low Intensity Warning Light

DUAL SPEED DROP

✳ Add these signs in the sign sequence for dual speed drops. Adjust all other signs and pavement marking accordingly.




| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 3 | | | | |
| 2 | | | | |
| 1 | 03/13/18 | W24-1 usage changed to Should | R.W.B. | E.G.K. |

KANSAS DEPARTMENT OF TRANSPORTATION

# TRAFFIC CONTROL SHOOFLY DIVERSION

TE736

| FHWA APPROVAL | | 03/13/18 | APP'D Eric Kocher | |
|---|---|---|---|---|
| DESIGNED | B.A.H. | DETAILED R.W.B. | QUANTITIES | TRACED |
| DESIGN CK. | | DETAIL CK. | QUAN. CK. | TRACE CK. |

KDOT Graphics Certified 03-29-2018

Sh. No. XXX

KDOT Graphics Certified

Plotted :29-MAR-2018 12:40
Traffic

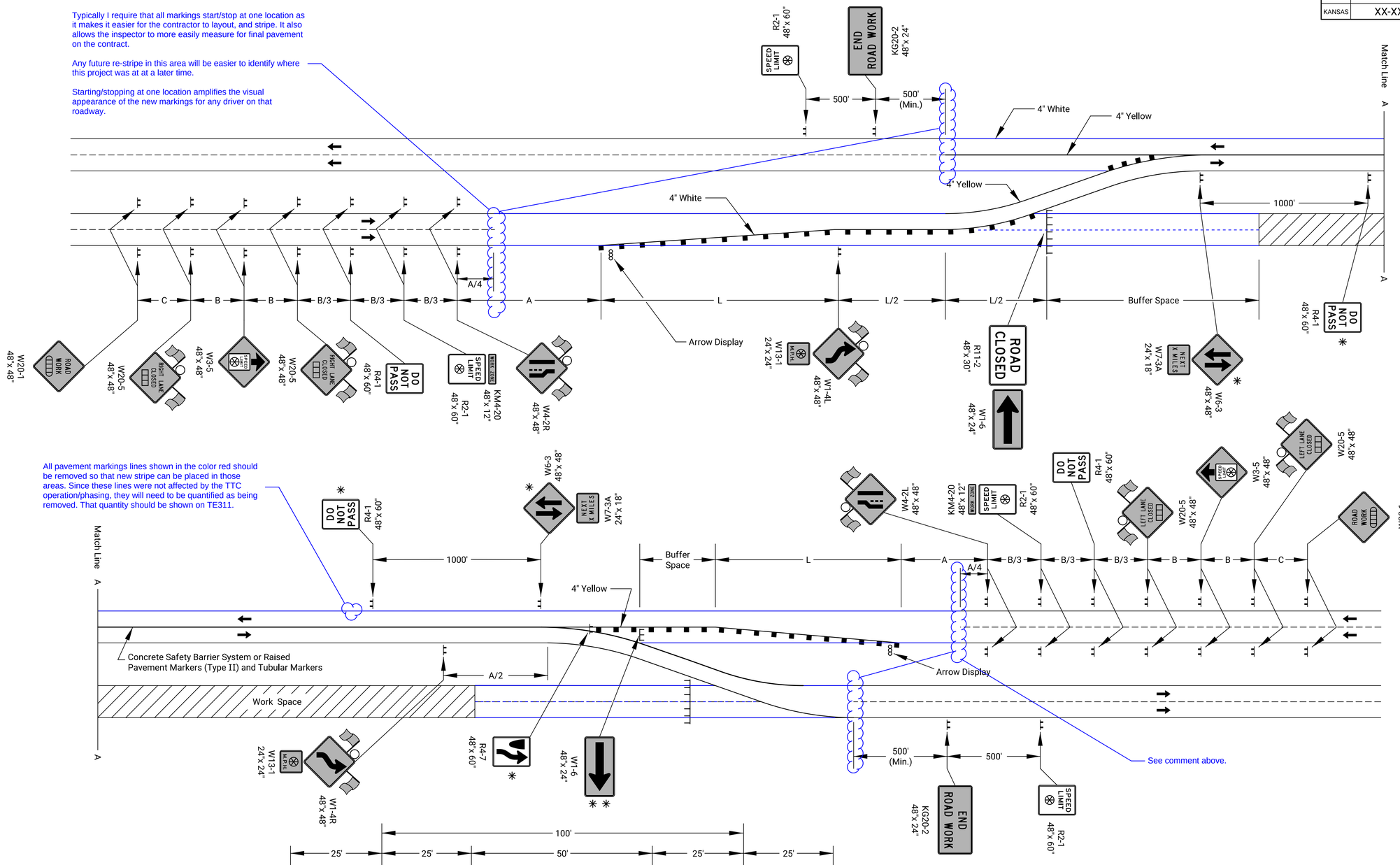
Drawn By : mushock
File : te736.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | XX-XX XX-XXXX-XX | XXXX | XXX | XXX |

Typically I require that all markings start/stop at one location as it makes it easier for the contractor to layout, and stripe. It also allows the inspector to more easily measure for final pavement on the contract.

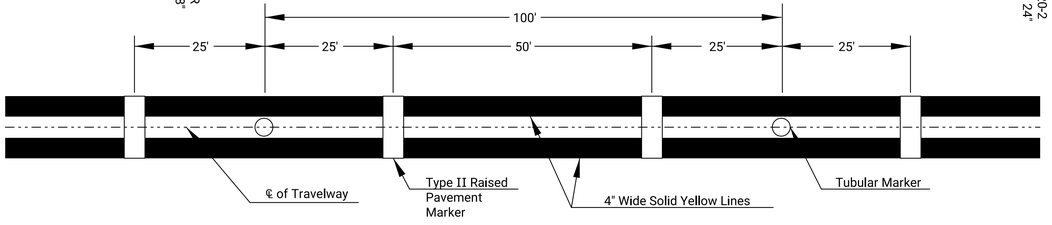
Any future re-stripe in this area will be easier to identify where this project was at at a later time.

Starting/stopping at one location amplifies the visual appearance of the new markings for any driver on that roadway.




All pavement markings lines shown in the color red should be removed so that new stripe can be placed in those areas. Since these lines were not affected by the TTC operation/phasing, they will need to be quantified as being removed. That quantity should be shown on TE311.




Centerline treatment for two-lane, two-way traffic on normally divided roadways.
Tubular markers and temporary raised pavement markers (Type II).

- Type 3 Barricades
- X Length to the Nearest Whole Mile
- ■ Channelizing Device
- Ahead, 1500 ft, or 1 mile
- Ahead, 1000 ft, 1500 ft, or ½ mile
- Speed to be determined by the Engineer
- ○ Type "A" Low Intensity Warning Light

The W6-3 & R4-1 sign combination may be required at additional locations along the project. The spacing between these locations shall be a maximum of 1 mile. The W7-3A sign should be mounted with the W6-3 sign at 2 mile increments on a project of 4 miles or longer.

✳ Sign to be eliminated if concrete safety barrier system is used.

✳✳ Barricade to be eliminated and sign W1-6 to be mounted on skids if concrete safety barrier system is used.

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 3 | | | | |
| 2 | | | | |
| 1 | | | | |

**KANSAS DEPARTMENT OF TRANSPORTATION**

# TRAFFIC CONTROL DIVIDED HIGHWAY CROSSOVER FROM LEFT LANE

TE740

| | | | | | |
|---|---|---|---|---|---|
| FHWA APPROVAL | | 06/01/15 | APP'D. Kristina Ericksen | | |
| DESIGNED | B.A.H. | DETAILED | R.W.B. | QUANTITIES | TRACED |
| DESIGN CK. | | DETAIL CK. | | QUAN. CK. | TRACE CK. |

KDOT Graphics Certified 03-29-2018

Sh. No. XXX

KDOT Graphics Certified

Plotted : 29-MAR-2018 12:40
Traffic

Drawn By : mushock
File : te740.dgn